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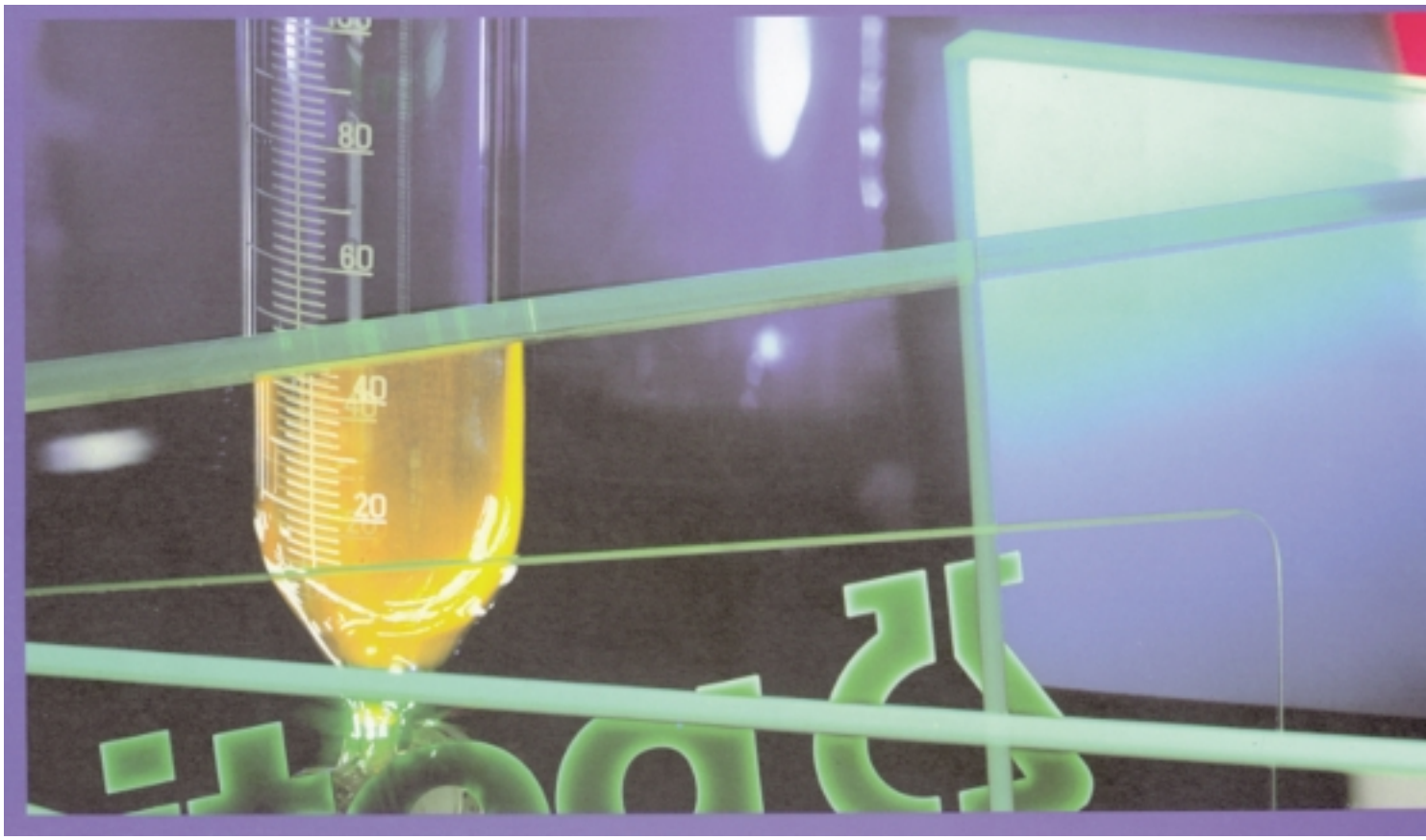
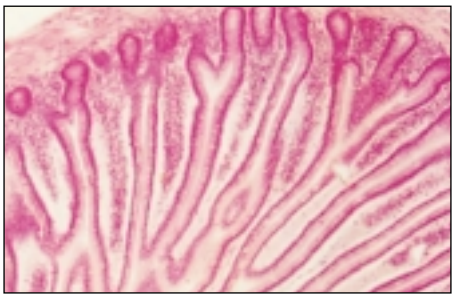
WITEG IN DER BIOTECHNOLOGIE
ODER: WIE WIR IDEEN WACHSEN LASSEN

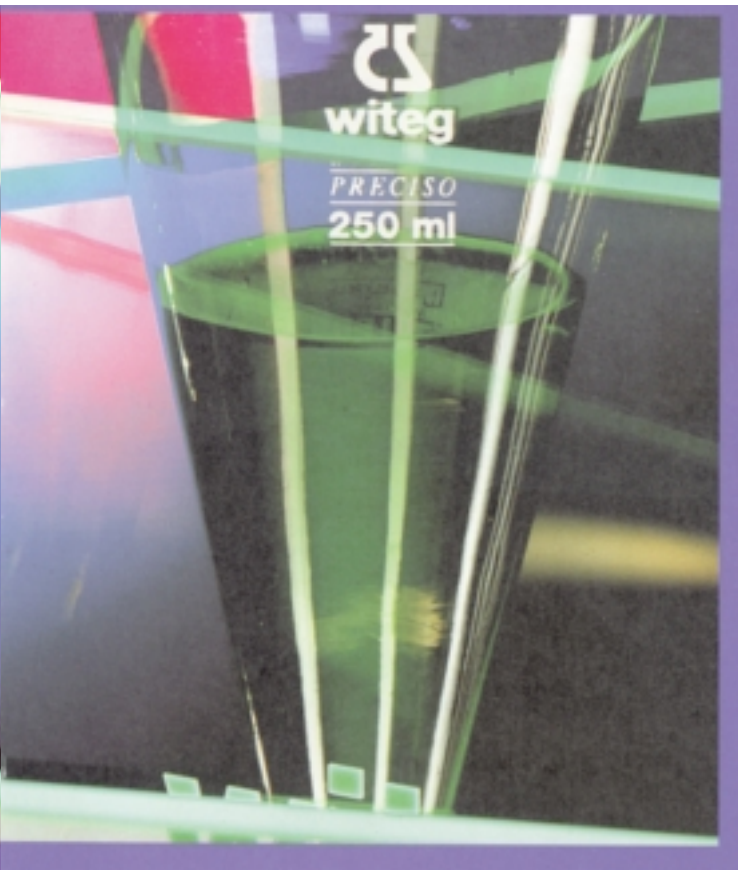
WITEG IN THE BIOTECHNOLOGY
OR: HOW WE ARE REALIZING IDEAS



Die Biotechnologie ist eine angewandte Wissenschaft, die für die Zukunft der Menschen von größter Bedeutung sein wird. Entsprechend stark wächst auch die Anzahl von Labors, in denen Versuche mit biotechnisch gezüchteten Mikroorganismen durchgeführt werden.
Und es sind oft witeg Geräte, in denen die neuen Ideen und Möglichkeiten heranwachsen, Bio- und gentechnische Versuche stellen ganz neue Anforderungen auch an das Laborgerät.
witeg hat sich auf diese Entwicklung frühzeitig eingestellt.…

Biotechnology is a science important for our future world.
Therfore more and more laboratories all over the world run experiments with biotechnological bred microorganism.
Such experiments come to be realized ever more often with instruments of the new witeg product range BIOGEN.
witeg saw the necessity of such equipment soon enough and is able now to offer a well selected range of such products. …





…und liefert heute ein umfassendes Sortiment Laborgeräte auch für die Biotechnologie. Dabei legen wir gerade für das Experimentierfeld mit gentechnisch verändertem Material besonders hohe Qualitätsmaßstäbe an. Die Sicherheit des Versuchs steht dabei genauso im Vordergrund wie die Sicherheit derer, die die Versuche durchführen.
Die Chancen der Biotechnologie sind groß, doch sie bringen auch eine große Verantwortung mit sich. witeg möchte auf seinem Gebiet dazu beitragen, die sich eröffnenden Chancen verantwortungsvoll zu nutzen.

Especially experiments with gentechnical altered materials apply for a very high quality standard of laboratory instruments. The security of the laboraratory personal is as important as the security of the experiments.
The biotechnology offers a lot of possibilities of humankind but a lot of responsibility is required in the same time.
New doors are opened by this new technology and witeg would like to use the offered opportunities in a responible way.

Die Eigenschaften des von uns verarbeiteten Borosilikatglases:

DURAN repräsentiert den international fixierten Typ des Borosilikatglases 3.3 (DIN-ISO 3585) und entspricht den wichtigsten internationalen Normen, z. B. der englischen, amerikanischen und französischen. Höchstmögliche chemische Resistenz, minimale Wärmedehnung sowie die hierdurch bedingte hohe Temperaturwechselbeständigkeit gehören zu den kennzeichnenden Eigenschaften. Dieses optimale physikalische und chemische Verhalten prädestiniert DURAN für den Einsatz im Laborbereich sowie für großtechnische Anlagen im chemischen Apparatebau. Darüber hinaus gilt es als technisches Universalglas in allen weiteren Anwendungsbereichen, in denen extreme Hitzebeständigkeit, Temperaturwechselbeständigkeit, mechanische Festigkeit sowie außergewöhnliche chemische Resistenz gefordert werden.
Unterhalb 510 °C ($10^{14.5}$ dPas, untere Kühltemperatur) läßt sich DURAN schnell abkühlen, ohne daß bedeutende permanente Spannungen neu einfrieren.
Zur Beseitigung permanenter Spannungen wird DURAN auf maximal 550 °C erwärmt und bei dieser Temperatur über 30 min gehalten. Für die anschließende Kühlung werden Abkühlgeschwindigkeiten gemäß folgender Tabelle empfohlen:

The properties of the borosilicate glass we work with:

DURAN represents the internationaly estabilished type of borosilicate glas 3.3 (DIN-ISO 3585) and the major international standards as the English, American and French. Highest possible chemical restance, minimum thermal expansion as well as the thereby conditioned high thermal shock resistance are its essential characteristics. This optimum physical and chemical behaviour predisposes DURAN to the application in laboratories and for large industrial installations in chemical plant systems. It is considered moreover to be an all-round industrial glass in all other fields of application where maximum thermal resistance, thermal shock resistance, mechanical resistiance as well as unusal chemical resistance are required.

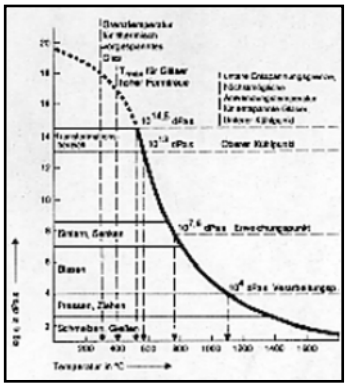
Below 510 °C ($10^{14.5}$ dPas, lower annealing temperature), DURAN can be annealed quickly, without major permanent stresses re-freezing.
To eliminate permanent stresses, DURAN is heated up to a maximum of 550 °C and maintained at said temperature during 30 minutes- For subsequent annealing the rates in the table below are recommended:

Glasart **Type of Glases**	**Linearer Ausdehnungskoeffizient Linarer coff. of expansion**	**Klassen der chemischen Haltbarkeit** **Chemical reistant classes**				
	α 20/300 °C 10^{-6} K^{-1}	**Transformationstemperatur transforming temperature DIN 53 324 °C**	**Erweichungspunkt** **softening temperature (poise) $10^{7.6}$ °C**	**Wasserbeständigkeit** **Resist. against Water**	**Säurebeständigkeit** **Resist. against Acids**	**Laugenbeständigkeit Resist. against Alcalic DIN 52 322**
AR-Glas Natron-Kalk-Silikatglas	9.0	520	708	3	1	2
Borosilikatglas	4,9	570	790	2	1	2
DURAN® *	3,25	530	815	1	1	2
FIOLAX® *	45,9	560	783	1	1	2
SUPREMAX® *	4,1	730	950	1	4	3
SBW-Glas® *	6,5	565	770	1	1	1
Schott-Normalglas (für Thermometer)	8,67	540	720	3	1	2
Thermometer-Spezialglas	6,2	590	790	1	3	2

Physikalische Eigenschaften und Kennwerte für die glasbläserische Verarbeitung von DURAN

Höchstzul. Gebrauchstemperatur: 500 °C
Transformationstemperatur DIN/ISO 3585: 525 °C

Beim Abkühlen von der Schmelztemperatur (10^1 bis 10^3 Poise) durchlaufen die Gläser einen weiten Zähigkeitsbereich, der über ein relativ zähflüssiges Gebiet (etwa bei 10^4 bis 10^8 Poise) zum plastischen Bereich (10^8 bis 10^{12} Poise) in den bekannten elastisch-spröden Zustand (>10^{13} Poise) einmündet. Glas zeigt also beim Abkühlen eine stetige Zähigkeitszunahme und besitzt keinen Erstarrungspunkt, wie ihn kristalline Stoffe aufweisen.
Für die Verarbeitung des Glases sind gewisse Abschnitte des Viskositätsbereiches von besonderer Bedeutung. Im Transformationsbereich geht bei steigender Temperatur das elastisch-spröde Verhalten des Glases in ein merklich viskoses über, wodurch in Abhängigkeit der Temperatur alle physikalischen und chemischen Eigenschaften deutlich verändert werden. Das Temperturgebiet des Transformationsbereiches ist somit maßgebend für die Entspannung beim Aufheizen und das Einsetzen der Spannungen beim Abkühlen des Glases. Die Lage des Transformationsbereichs wird durch die Transformationstemperatur "tg" DIN 52324 gekennzeichnet.

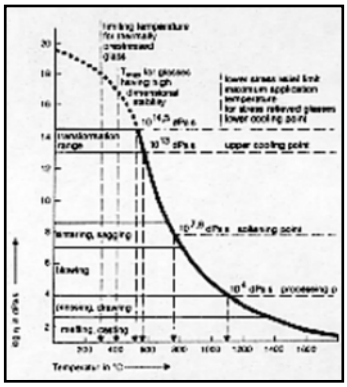


Prinzipeller Verlauf der Temperaturabhängigkeit der Zähigkeit am Beispiel von DURAN; Zähigkeitsbereiche wichtiger Verarbeitungstechniken, Lage von Zähigkeitsfixpunkten und verschiedene Grenztemperaturen.

Physical properties and characteristics for the processing of DURAN by glassblowers

Maximum use temperature: 500 °C
Transformation temperature DIN/ISO 3585: 525 °C

Upon cooling from the melting temperature (10^1 bis 10^3 poise), the glasses go through a wide range of viscosity, which ranges from a relatively viscous region (at about 10^4 bis 10^8 poise) to the plastic range (10^8 bis 10^{12} poise) and up into the know elastic-brittle state (>10^{13} poise). Thus, glass shows a constant increase in viscosity upon cooling and has no soldification point as is the case for crystalline substances. For the processing of glass, certain sections of the viscosity range are of particular importance. In the transformation range, the elastic-britle behaviour of the glass changes to a noticeably viscous behaviour with increasing temperature, which significantly changes all physical and chemical properties as a function of temperature. Thus, the temperature region of the transformation range determines the elimination of stress during heating and the onset of stresses during cooling of the glass. The position of the transformation range is indicated by the transformation temperature T_g DIN 52324.



Normal temperature dependence /viscosity curve of, for example, DURAN; viscosity ranges of important processing techniques, position of fixed points of viscosity and various limiting temperatures.

Chemisch Eigenschaften von DURAN®

DURAN ist gegen Wasser, neutrale und saure Lösungen, starke Säuren und deren Mischungen sowie gegen Chlor, Brom, Jod und organische Substanzen sehr beständig. Auch bei längeren Einwirkungszeiten und Temperaturen über 100 °C übertrifft es in seiner chemischen Widerstansfähigkeit die meisten Metalle und andere Werkstoffe.
Durch Einwirkung von Wasser und Säuren werden nur geringe Mengen, vorwiegend einwertige Ionen, aus dem Glas gelöst. Dabei bildet sich auf der Glasoberfläche eine sehr dünne, porenarme Kieselgelschicht, die den weiteren Angriff hemmt.
Lediglich Flußsäure, hocherhitzte Phosphorsäure und alkalische Lösungen greifen mit steigender Konzentration und Temperatur zunehmend die Glasoberfläche an.
Die chemische Resistenz verschiedender Glastypen und ihre Einteilung in Resistenzklassen wird in Deutschland nach den Standardmethoden DIN 12111, 12116 und 52322 ermittelt. Auf Grund dieser Prüfmethoden erfüllt DURAN alle Bedingungen der

hydrolytischen Klasse	**1**
Säureklasse	**1**
Laugenklasse	**2**

Säurebeständigkeit nach DIN 12116 / DIN ISO 1776

Abgabe $Na_2O < 100\ \mu g/dm^2$
Die Angriffskurven in Abb. 3 zeigen ein Maximum in Säurebereichen zwischen 4-7 n (HCl z. B. beim Azeotrop mit 20,2 Gew.-%). Bei höheren Konzentrationen nimmt die Reaktionsgeschwindigkeit merklich ab, so dass die angegriffenen Schichtdicken nach Jahren lediglich im Bereich einiger tausendstel Millimeter liegen. Damit spielen die Säureangriffsmechanismen bei den in der Praxis eingesetzten Wanddicken keine Rolle. Man spricht somit zu Recht von "säurefestem Borosilikatglas".

Laugenbeständigkeit nach DIN 52322

Laugenbeständigkeitsklasse DIN 52322-A2 (entspricht Laugenbeständigkeitklasse ISO 695-A2).
Die Abtragskurve in Abb. 4 läßt erkennen, daß erst etwa oberhalb von 60 °C ein spürbarer Angriff auf die Glasoberfläche eintritt. Bei niedrigeren Temperaturen (Einbau von Kühlern im NaOH-Kreislauf) sind die Reaktionsgeschwindigkeiten so gering, daß über Jahr hinweg kaum eine Wanddickenverschwächung auftritt. Langzeitversuche ergaben bei Einsatz einer NaOH, mit einer Konzentration von 1 mol/l (entspricht 4 Gew.-%iger Natronlauge, pH-Wert 14) bei 50 °C Betriebstemperatur einen Glasabtrag von 1 mm nach 25 Jahren in einer ständig durchströmten Glas-Rohrleitung.

Testauszug "Glaseigenschaften" mit freundlicher Gehnehmigung der Fa. Schott, Mainz.

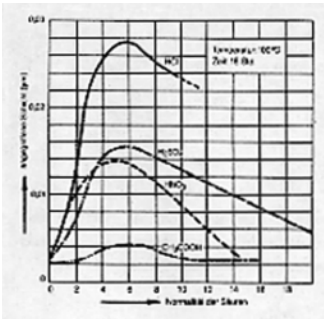


Abb. 3:
Säureangriff an Borosilikatglas in Anhängigkeit von der Konzentration.

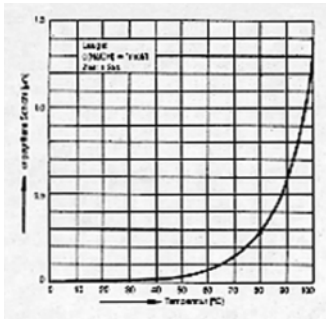


Abb. 4:
Laugenangriff an DURAN in Abhängigkeit von der Temperatur.

Wasserbeständigkeit nach DIN ISO 719 (98 °C)

Grieß-Wasserbeständigkeit Klasse ISO 719-HGB 1 (entspricht bisheriger DIN 12111, Hydrolytischer Klasse 1).

Wasserbeständigkeit nach DIN ISO 720 (121 °C)

Grieß-Wasserbeständigkeit Klasse ISO 720-HGA 1.

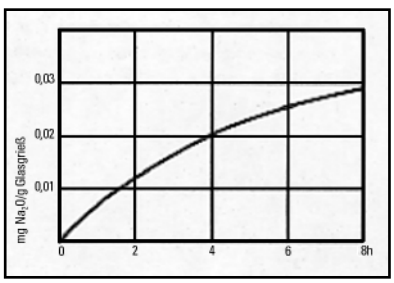


Abb. 2:
Wasserangriff an DURAN in Abhängigkeit von der Zeit (100 °C) etwa DIN ISO 719.

Chemical properties of DURAN®

DURAN is highly resistant to water, neutral and acid solutions, concentrated acids and their mixtures, as well as to chlorine, bromine, iodine and organic matters. Even during extended periods of reaction and at temperatures above 100 °C, its chemical resistance exceeds that of most metals and other materials.
By the action of water and acids only small amounts of mainly monovalent ions are eliminated from the glass. On the glass surface, a very thin, almost non-porous silica gel layer then forms inhibiting any further attack.
Only hydrofloric acid, very hot phosphoric acid and alkaline solutions increasingly attack the glass surface with rising concentration and temperature.
The chemical resistance of different glass types and their classification in stability classes are determined in Germany according to the standard methods DIN 12111, 12116 and 52322. On the basis of these methods, DURAN meets all requirements of

hydrolytic class	**1**
acid class	**1**
alkaline solution class	**2**

Acid resistance according to DIN 12116 / DIN ISO 1776

Removal of $Na_2O < 100\ \mu g/dm^2$
The attack curves in Figure 3 show a maximum in acid ranges between 4-7 N (HCl,for example in the azeotrope containing 20.2 % by weight). At higher concentrations, the reaction rate decreases significantly, so that the layer thicknesses which are attacked are only in the range of a few thousandths of a millimetre after years. Thus, the mechanisms of acid attack are not relevant given the wall thicknesses used in practice. Therefore, it is rightly called "acid-resistant borosilicate glass".

Alkali resistance according to DIN 52322

Alkali resistance class DIN 52322-A2 (corresponds to alkali resistance class ISO 695-A2). The surface removal curve in Figure 4 shows that visible attack on the glass surface does not take place until above about 60 °C. At lower temperatures (incorporation of coolers in the NaOH cycle), the reaction rates are so low that hardly any reduction of the wall thickness takes place over a period of year. Longterm tests have shown that the use of NaOH having a concentration of 1 mol/l (corresponds to 4 % strength by weight sodium hydroxide solution, pH 14) at an operating temperature of 50 °C gives a glass surface removal of 1 mm after 25 years in a continuous flow through a glass pipeline.

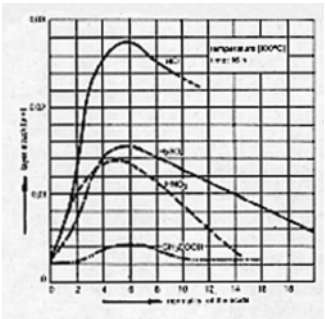


Fig. 3:
Acid attack on borosilicate glass as a function of acid concentration.

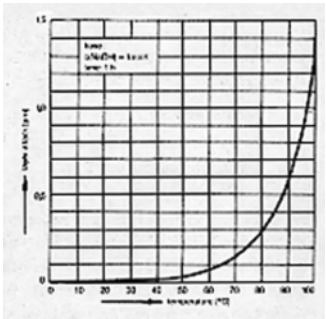


Fig. 4:
Alkali attack on DURAN as a function of temperature.

Hydrolytic resistance according to ISO 719 (98 °C)

Hydrolytic resistance by the glass grain method class ISO 719-HGB 1 (corresponds to the previous DIN 12111, hydrolytic class 1).

Hydrolytic resistance according to ISO 720 (121 °C)

Hydrolytic resistance by the glass grain method class ISO 720-HGA 1.

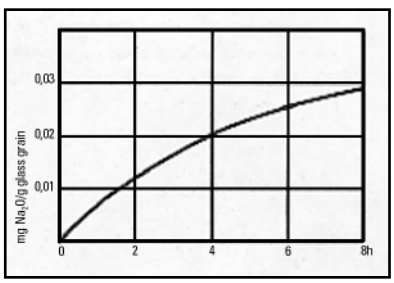


Fig. 2:
Hydrolytic attack on DURAN as a function of time (100 °C) approx. to ISO 719.

Kunststoffe

PHYSIKALISCHE UND CHEMISCHE EIGENSCHAFTEN

Aufgrund der vielen Vorteile, die Kunststoffe bieten - Bruchfestigkeit, geringes Gewicht, gute physikalische und chemische Eigenschaften - haben heute Geräte aus Kunststoffen ihren festen Platz im Labor eingenommen.
Welche Kunststoffe für den jeweiligen Einsatz im Labor geeignet sind, ist von verschiedenen Faktoren abhängig, die der sachkundigen Beurteilung durch den Anwender unterliegen.
Die tieferstehend aufgeführten Empfehlungen und Informationen der Kunststoffhersteller sind lediglich eine Entscheidungshilfe. Die Eignungsprüfung selbst kann nur vom Verwender erfolgen.

Allgemein verwendete Abkürzungen für Kunststoffe nach DIN 7723/7728
Diese Auswahl an Kunststoffen gibt einen Überblick über die am häufigsten im Laborbereich verwendeten Artikel aus Kunststoff.

DIN Abk.	Bezeichnung
ABS	Acryl-Butadien-Styrol-Copolymer
HDPE	Polyethylen hoher Dichte
LDPE	Polyethylen niedriger Dichte
MF	Melamin
PA	Polyamid (PA6)
PC	Polycarbonat
PE	Polyethylen (siehe HDPE/LDPE)
PMP (TPX)	Polymethylpenten
PMMA	Polymethylmethacrylat
POM	Polyoxymethylen
PP	Polypropylen
PS	Polystyrol
SAN	Styrol-Acrylnitril
SI	Silikon-Kautschuk
PVDF	Polyvinylidenfluorid
PTFE	Polytetrafluorethylen
E-CTFE	Ethylen-Chlortrifluorethylen
ETFE	Ethylen-Tetrafluorethylen
PFA	Perfluoralkoxy
FEP	Tetrafluorethylen-Perfluorpropylen
PVC	Polyvinylchlorid

TEMPERATURBESTÄNDIGKEIT
THERMICAL RESISTANCE

DIN Abk. DIN Abb.	Dauerbelastung Perm. temp. stress	Anwendungsbereiche °C (kurzfristig) Range of application °C (short period)
ABS		+ 90 / + 105
C	+ 100	
HDPE	- 40	+ 110
LDPE	- 40	+ 95 / + 100
M	- 40	+ 120 / + 140
PA		+ 140 (feucht)
PC	- 190	+ 135 / + 160
PE	siehe HDPE / LDPE	
PF		+ 100
PETP	- 40	+ 200 / + 250
PFEP	- 100 / - 170	+ 205 / + 260
PMMA	- 60	+ 70 / + 95

Sterilisation von Laborartikeln aus Kunststoff
Sterilisation of Plastic-Labware

DIN Abk. DIN Abb.	Autoklav	Gas (Ethylenoxid)	trocken/dry 160 °	chemisch/chem. (Formalin)	Y-Strahlen/rays
ABS	nein/no	ja/yes	nein/no	ja/yes	ja/yes
HDPE	nein/no	ja/yes	nein/no	ja/yes	ja/yes
LDPE	nein/no	ja yes	nein/no	ja/yes	ja/yes
PC	ja*/yes*	ja/yes	nein/no	ja/yes	ja/yes
PFA/FEP	ja/yes	ja/yes	ja/yes	ja/yes	nein/no
PMP (TPX)	ja/yes	ja/yes	nein/no	ja/yes	nein/no
PP	ja/yes	ja/yes	nein/no	ja/yes	nein/no
PS	nein/no	ja/yes	nein/no	ja/yes	ja/yes
PTFE	ja/yes	ja/yes	ja/yes	ja/yes	nein/no
ETFE/ECTFE	ja/yes	ja/yes	ja/yes	ja/yes	nein/no
PVC	nein/no	ja/yes	nein/no	ja/yes	nein/no
SI	ja/yes	ja/yes	ja/yes	ja/yes	nein/no

* Autoklavierbar bei 121 °C für eine Dauer von 20 Minuten.
* autoclavable at 121 °C/20 min.

Textauszug mit freundlicher Genehmigung der Fa. Vitlab.

Plastics

PHYSICAL AND CHEMICAL PROPERTIES

Due to so many advantages as breakage resistance, low weight, very good chemical resistance and their good physical properties laboratory instruments made from plastics have nowadays their proper place in laboratories. Which plastics can be used in the laboratories is dependend of well-informed evaluation of the user.
The below mentioned recommendations of the raw-material manufacturers are intended only as a hint to find a decision and can not replace a suitability test by the user.

Internationally used abbreviations and standard norms of plastic resins (according to DIN 7723/7728)
Since we can give only a selsection of the most commonly used plastic resins for the production of labor items and their physical and chemical properties, you will find below an index of nearly all abbreviations used in the plastic industry.
This list will help you to a better orientation when using technical/scientific literature.

DIN abb.	Specifications
ABS	Acrylonitrile-butadiene-styrene copolymer
HDPE	High density polyethylene (PE)
LDPE	Low density polyethylene (PE)
MF	Melamine
PA	Polyamide
PC	Polycarbonate
PE	Polyethylene
PMP	Poly-4-methylpentene
PMMA	Polymethyl-methacrylate
POM	Polyoxymethylene, polyacetal
PP	Polypropylene
PS	Polystyrene
SAN	Styrene-acrylonitrile copolymer
SI	Silicones
PVDF	Polyvinylfluoride
PTFE	Polytetrafluorethylene
E-CTFE	Ethylene-chlortrifluorethylene
ETFE	Ethylene-tetrafluorethylene
PFA	Perfluoralkoxy (Hostaflon*)
FEP	Polytetrafluorethylene-Perfluorpropylene
PVC	Polyvinylchlorid
EPM	Ethylene-propylene copolymers
PO	Polyolefines

TEMPERATURBESTÄNDIGKEIT
THERMICAL RESISTANCE

DIN Abk. DIN Abb.	Dauerbelastung Perm. temp. stress	Anwendungsbereiche °C (kurzfristig) Range of application °C (short period)
POM	- 40	+ 90 / + 145
PP	- 10 / - 25	+ 140
PPO		+ 130 / + 140
PS	- 40	+ 70 / + 90
PTFE	- 200 / - 270	+ 260 / + 300
PUR		+ 74 / + 175
PVC		+ 40 / + 80
SAN	- 49	+ 95 / + 110
SIR	- 50 / - 100	+ 180 / + 300
TPX	- 180	+ 180 / + 200
UF		+ 100

Chemikalienbeständigkeit von Kunststoffen/Plastic resins and their properties

Chemikalien bei 20 bzw. 50 °C		C/MF	ETFE E-CTFE 50	PA 20	PC 20	PE 50	PMMA 50	POM 50	PP 50	PS 50	FEP, PFA PTFE 50	PVC 20	SAN 50	PMP (TPX) 50
Chemicals at 20 or 50 °C, resp.		**C/MF**	**ETFE E-CTFE 50**	**PAG 20**	**PC 20**	**PE 50**	**PMMA 50**	**POM 50**	**PP 50**	**PS 50**	**FEP, PFA PTFE 50**	**PVC 20**	**SAN 50**	**PMP (TPX) 50**
Acetaldehyd/Acetaldehyde	CH_3CHO		++	+	-	0	--		0	--	++	--	--	
Aceton/Aceton	CH_3COCH_3	++	++	+ / 1	--	++		+	0	--	++	--	--	0
Acetophenon/Acetophenone	$C_6H_5COCH_3$	++	++						0	--	++		--	0
Ethylacetat/Ethyl acetate	$C_2H_5COOCH_3$	++	+	+ / 1	0	0	--		0	--	++	--	--	0
Ethylalkohol 96 %/Ethyl alcohol 96 %	C_2H_5OH	++	++	+ / 9	++	++	-		++	++	++	++	-	++
Ethylenchlorid/Ethylene chloride	$H_3C\text{-}CHCl_2$		++	+ / 2	--	-	--		-	--	++		--	-
Ethylenglykol/Ethylene glycol	$HOH_2C\text{-}CH_2OH$	++	++	++		++	++		++	++	++	++	++	++
Allylalkohol/Allyl alcohol	$H_2C{=}CH\text{-}CH_2OH$		++	0	++	0			++	-	++		--	
Aluminiumchlorid/Aluminium chloride	$AlCl_3$	++	+	++	++	+	++		++	++	++		++	++
Ameisensäure 85 %/Formic acid 85 %	$HCO\text{-}OH$	++	++	--	--	++	--	--	+	-	++	++	-	+
Ammoniak 25 % w/Ammonia 25 % aq. soln.			++	--	--	++	-	++	++	+	++		+	++
Ammoniak/Ammonia	NH_3		++			++			++		++			
Ammoniumchlorid w/Ammonium chloride aq. soln	NH_4Cl		++		++	++	++		++	++	++		++	++
Amylacetat/Amyl acetate (Pentylacetat)/(Pentyl acetate)	$CH_3\text{-}COOC_5\text{-}H_{11}$		++	+ / 2		++			++	--	++		--	
Amylalkohol/Amyl alcohol	$C_5H_{11}OH$	++	++	++		++			++	0	++	++	-	++
Anilin/Aniline	$C_6H_5NH_2$		++	0 / 1		+	--		+	--	++	--	--	++
Arsensäure/Arsenic acid	H_3AsO_4		++		++	+			++	++	++			
Benzaldehyd/Benzaldehyde	$C_6H_5\text{-}CHO$		++	0 / 2		+	-		+	--	++		--	++
Benzin/Benzene		++	++	++	++	-		++	-	--	++	--	--	0
Benzol/Benzole	C_6H_6	++	++	+	--	--	--	0	--	--	++	--	--	
Blei(II)-acetat/Lead acetate	$(CH_3\text{-}COO)_2Pb\cdot 3H_2o$		++		++				--					
Bleiacetat w/Lead acetate aq. soln.			++	0	++				--	++	++		++	
Borsäure 10 % w/Boric acid 10 % aq. soln.	H_3BO_3		++	++ / 8		++			++	+	++		++	++
Bromwasserstoffsäure 69 %/Hydrobromic acid 69 %	$HBr\cdot 2H_2O$		++	-		+			+	--	++			
Butylacetat/Butyl acetate	$CH_3COOC_4H_9$		++	+ / 1		0	--	0	0	--	++		--	0
Calciumchlorid w/Calcium chloride aq.soln.	$CaCl_2$		++	++ / 9		++	++	++	++	++	++		++	++
Calciumhypochlorid w/Calcium hypochloride aq. soln.	$Ca(OCl)_2$			++	++	++	0		++	+	++		++	++
Chlor/Chloride	Cl		++			--			--	--	++	--	--	--
Chlorbenzol/Chlorobenzene	C_6H_5Cl		++	++ / 2	--	-				--	++		--	
Chloroform/Chloroform	$CHCl_3$	++	++	0 / 5	--	--	--		--	--	++		--	-
Chlorwasser/Chloururetted (chlorine-) water	(HCl)-(HOC)		++	--		-	++		-	-	++	0	0	-
Chromsäure 20 %/Chromic acid 20 %	CrO_3		++		++	--			-	+	++	++	0	
Chromschwefelsäure konz./Chromatosulphuric acid conc.	$H_2SO_4\text{-}K_2Cr_2O_7$		++			--			--	-	++	0	-	--
Decahydronaphthalin (Decalin)/Decahydronaphthalene (Decalini) (Perhydronaphthalin)/(Perhydronaphthalene)	$C_{10}H_{18}$		++	++ / 1	++	--	0		--	--	++		--	-
Diethylether/Diethyl ether	$H_5C_2\text{-}O\text{-}C_2H_5$		++			+	-		+	--	++		--	0
Dibutylphthalat/Dibutyl phthalate	$C_6H_4(COOC_4H_9)_2$		++	++		0	0	++	+	--	++		--	+
1.4 Dioxan/1.4 Dioxane	$C_4H_8O_2$		++	++	--	++			++		++			++
Eisessig (Essigsäure)/Chrystalline (glacial) acetic acid	CH_3COOH	0	++	--	--	++		+	+	0	++	++	-	0
Fluor/Fluorine	F(Fl)		-	++		--			--		++			
Fluorkohlenwasserstoffe/Fluorinated hydrocarbons			++			--			-	--	++		-	
Flußsäure 35 %/Hydrofluoric acid 35 %	$(HF)_2$	--	++	--	--	++	-		++	+	++		0	++
Formaldehyd/Formaldehyde	$HCHO$		++	++ / 10	++	++	++	++	++	+	++	++	-	++
Glycerin/Glycerine	$CH_2OH\text{-}CHOH\text{-}CH_2OH$	++	++	++ / 1	++	++	++	++	++	++	++		++	++
Harnstoff (Carbamid u. a.)/Urea (carbamide and others)	$H_2N\text{-}CO\text{-}NH_2$	++	++	++		++			++	+	++		++	++
Hexan/Hexane	$CH_3\text{-}(CH_2)_4\text{-}CH_3$		++	++		0	++	++	0	-	++		++	+
Jod (J)-Tinktur/Iodine (tincture of ..)			++	--	++	+	--		+	0	++		0	++
Kaliumchlorid w/Potassium chloride aq. soln.	KCl		++		++						++			
Kaliumhydroxyd/Potassium hydroxide	KOH	+	++	++		++	++		++	0	++	++	+	++
Kaliumpermanganat w/Potassium permanganate aq. soln.	$KMnO_4$		++	--	++	++	++	++	++	0	++		+	++
Königswasser/Aqua regia	(HNO_3) (HCl) HNO_3+ 3 HCl NOCl + Cl_2 + $2H_2O$	--	++	--		-			-	-	++	-		0
Kupfersulfat (II) w/Cupric sulphate aq. soln.	$CuSO_4$		++	++	++	++	++		++	++	++		++	
Magnesiumchlorid w/Magnesium chloride aq. soln.	$MgCl_2$		++	+ / 7	++		++		++	++	++		++	
Methylalkohol (u. a. Methanol)/Methyl alcohol (methanol)	CH_3OH		++	++ / 9	--	++	--		++	+	++		-	++
Methylenchlorid/Methylene chloride	CH_2Cl_2		++	0 / 10	--	--				--	++		--	
Natriumcarbonat/Sodium carbonate	Na_2CO_3		++	++ 7		++	++	++	++	+	++	++	+	++
Natriumdichromat/Sodium dichromate	$Na_2Cr_2O_7$		++	++	++	++	++	+	++	++	++	++		++
Natriumhydroxyd/Sodium hydroxide	NaOH	0		++	--	++	+		++	+	++	++	0	++
Oxalsäure 10 % w/Oxalic acid, 10% aq. soln.	$HOOC\text{-}COOH$		++	0 / 8	++	++	++		++	++	++	++	++	++
Ozon < 0,5 ppm/Ozone < 0.5 ppm (active oxygen)	O_3													
Perchlorethylen/Perchloroethylene	$Cl_2C{=}CCl_2$		++	--	++	-	++		0	+	++		++	-
Phenol 100%/Phenol 100% (crystals)	CH_6H_5OH		++	--	--	++	--	--	++	-	++	-	--	++
Phosphorsäure/Phosphoric acid	H_3PO_4	--	++	--	++	+	--	0	+	+	++	++	+	+
Phosphortrichlorid/Phosphorus trichloride	PCl_3				--	++								
Pyridin/Pyridine	C_5H_5N		++	++	--	+	--		+	--	++		--	+
Quecksilber/Mercury	Hg		++	++	++	++	++		++	++	++	++	++	++
Quecksilberchloride/Mercurous+mercuric chlorid	$Hg_2Cl_2 + HgCl_2$		++		++	++	++		++	0	++		++	++
Salpetersäure 50 % konz./Nitric acid 50 % conc.	HNO_3	-	++	--	--	0	-	--	-	0	++	++	0	++
Salzsäure/Hydrochloric acid (u. a. Chlorwasserstoffsäure)/(hydrogen chloride)	HCl		++	--	++	++	++	--	++	0	++		0	++
Schwefelsäure 95 %/Sulphuric acid 95 %	H_2SO_4		++	--	--	+	--	--	+	-	++		--	++
Silbernitrat/Silver nitrate	$AgNO_3$		++		++	++	++		++	+	-		+	
Tetrachlorkohlenstoff/Carbon tetrachloride	CCl_4	++	++	++ / 1	--	-	--	+	0	--	++	--	--	0
Tetrahydrofuran/Tetrahydrofuran	THF	++	++	++ / 2	--	-			-	--	++		--	--
Toluol/Toluene	$C_6H_5CH_3$		++	++ / 1	--	-	--	++	-	--	++	-		0
Trichloroethylen/Trichloroethylene	$C_2H_3Cl_3$	++	++	0 / 2	++	--	--	0	-	--	++	--	--	0
Trinatriumphosphat/Tri-sodium phosphate	Na_3PO_4		++	++		++			++		++			
Wasserstoffperoxyd 30 %/Hydrogen peroxide 30%	H_2O_2	0	++	0	++	++	0	-	++		++	++		
Xylol/Xylene	$C_6H_4(CH_3)_2$		++		--	--	--	++	-	0	++	--	--	0
Zinkchlorid 10 % w/Zinc chloride 10% aq. soln.	$ZnCl_2$		++	0 / 7	++	++	++		++	0	++		++	++
Zinksulfat 10 % w/Zinc sulphate 10% aq. soln.	$SnSO_4$		++		++	++			++	++	++		++	

++	beständig
+	praktisch beständig
0	bedingt beständig
-	wenig beständig
--	nicht beständig
w	wäßrige Lösung %

Die Zahlen hinter dem Schrägstrich geben die Gewichtszunahme in % an.

++	resistant
+	virtually resistant
0	reistant with exceptions
-	slightly resistant
--	non resistant

The numbers written behind the / give the percentage increase in weight.
The figures shown below the material (20 or 50, resp.) refer to the temperature of the test substance in °C.

The physical chart as well as the chemical resistance chart is carefully checked to our experience, and based on the information given by the producers of existing literature.

For the above reason we cannot give any guaranty, and cannot be made responsible for the given information, nor accept claims for damage. We cannot undertake to pay any compensation.

Of course ist will be our service to give you further information if requested.

DIN ISO 9001

Wenn Sie nach EN ISO 9000 ff arbeiten, haben Sie mit witeg die Prozesse im Griff. Qualität ist erstes Unternehmensziel zum Nutzen unserer Partnerschaft.

Whenever you work according to EN ISO 9000 et seq., with the products of witeg you process it easily. Quality is our target to the benefit of our partnership.

Mit witeg in die Zukunft

Wir wollen weiter unsere Firmenphilosophie in die Tat umsetzen, die in allererster Linie Qualität zum Nutzen unserer Kunden vorsieht. Hierzu leisten wir kontinuierlich ein Investment in qualifizierter und engagierter Mitarbeit, ohne die eine optimale Qualität nicht zu realisieren ist.

Weiterhin setzen wir auf den Einsatz modernster, computergestützter Anlagen und Techniken ohne die sich eine hervorragende Qualität nicht verwirklichen läßt.

Together with witeg into the future

It is our aim to keep on translating our company's philosophy into reality, preliminarily quality to the benefit of our customers. We permanently perform investment of qualified and engaged collaboration in order to reach the optimum level of quality.

Furthermore, we stress to make use of the latest computer-aided equipment and technique which is necessary to obtain best performance and utmost quality.

witeg-Qualität schon frühzeitig nach DIN 9001 zertifiziert

Schon im Mai 1994 haben wir das Zertifikat "ISO 9001" erworben und damit sichergestellt, daß witeg die höchsten, international anerkannten Anforderungen an Qualität erfüllt.

Für unsere Geschäftspartner bedeutet das Sicherheit und Vertrauen für ein gemeinsames sicheres Handling unserer Produkte in der Zukunft. Um qualitativ hochwertige Artikel anbieten zu können sind im harten internationalen Wettbewerb rationelle qualitätsgesicherte und damit wirtschaftliche Abläufe äusserst wichtig. Wir wollen schliesslich auch im Preis schlagkräftig sein.

witeg-quality certified according to DIN 9001 at a very early stage

Already in May 1994 we obtained the Certification "ISO 9001"ensuring officially that witeg complies with the highest international standards of requirement.

To our business partners this means confidence and reliability for a common safety handling of our products in the future. In order to offer high value instruments, in a period of tough international competition, it is important to rely on rational quality-ensuring economical processes. Eventually, we wish to remain powerful pricewise.

Qualitätssicherung beim Anwender, eine kostenlose Zusatzleistung …von witeg

Quality-assurance at the users, an additional achievement at no cost ... from witeg

Qualitätssicherung bei Liquid Handling Produkten

RICHTIGKEIT • STANDARDABWEICHUNG • PRÄZISION

Richtigkeit
bedeutet Differenz des Mittelwerrtse vom Sollwert bezogen auf den Sollwert in %.

Präzision
(Variationskoeffizient)
ist die Standardabweichung in % bezogen auf den Mittelwert.

Standardabweichung
z.B. des Labmax-Dispensers - bei 16 Dosierungen. Die nebenstehende Grafik (dargestellt als Zielscheibe) zeigt: alle Messwerte liegen dicht beieinander d.h.

Präzision gut
Alle Messergebnisse liegen dicht am Sollwert d.h.

Richtigkeit gut.

Garantiezeichen

Die Fertigung der Volumenmessgeräte (Liquid Handling Produkte) wird durch die Qualitätssicherung nach ISO 9001 garantiert.

Mit diesem Zeiccchen bescheinigt witeg die Konformität mit der Zulassung und der Anlage 12 der Eichordnung.

Das Ergebnis:

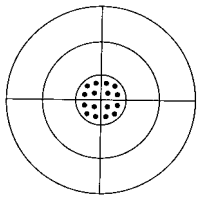
Geringe Abweichung, enge Streuung und damit keine Ausschöpfung der zulässigen Toleranzen.

Quality Assurance with Liquid Handling Products

ACCURACY • REPRODUCIBILITY • STANDARD DEVIATION

Accuracy
Is the deviation of mean value from the nominal value related to the nominal value in %.

Reproducibility
(Coefficient of variation)
is the standard deviation in % related to the mean value.



Standard deviation
after 16 pump-strokes with the Labmax-Dispenser - the target helps to illustrate the results: all hits are close together - that means:

Good reproducibility
All hits are closely around the nominal value - that means:

Good accuracy.

Warranty

witeg volumetric instruments (liquid handling products) are strictly manufactured in accordance to the quality assurance system defined by ISO 9001
The symbol H certifies the conformity of its production with the official specifications, i.e. the German Rules for Official certification (Eichordung, Annex 12)

The result:

minute systematic errors, narrow scatters - permissible limits are not exceeded.

Der Kunde ist König
Wir wollen unseren Kunden ein starker, zuverlässiger Partner sein, der Kunde soll mit uns zufieden sein. Deshalb haben wir immer ein offenes Ohr, wenn es um Fragen geht oder auch mal Probleme gibt. Uns liegt sehr viel an unseren Kunden.

Auf was Sie sich verlassen können
- optimale Qualität
- ein fairer, absolut wettbewerbsfähiger Preis
- kompetente, freundliche Mitarbeiter
- schnelle, fehlerfreie Sachbearbeitung
- ein offenes Ohr, auch bei Sonderanfertigungen und Kleinstserien
- eine hohe Verfügbarkeit unserer Produkte

Mit witeg ein Stück voraus
witeg entwickelt, produziert und liefert eines der breitgefächertsten Programme an Laborgeräten aus Glas und Kunststoff und Liquid Handling Produkte von höchster Präzision, damit die Arbeit unserer Kunden stetig rationeller und sicherer ablaufen kann. Zum Beispiel mit witeg Volumenmessgeräten: Zur Probenvorbereitung lassen sich Analysen nur mit genauen Messinstrumenten verwirklichen.

TOP PRIORITY for our customers
We wish to be a strong and reliable partner to our customers. We want our customers to be satisfied with us. For that reason we always have an open ear for questions or problems that may occur. That is what counts!

And that you can expect from us:
- high quality level
- fair and competitive prices
- friendly and competent staff
- speedy and professional order processing
- an open ear - even in case of special and small-lot productions
- large stocks of our products

With witeg always a step ahead
witeg develops, manufactures and supplies a wide range of laboratory instruments, made from glass and plastics, as well as Liquid Handling products of highest precision to make the job of our customer easier, faster and safer f.e. with Witeg volumetric measuring instruments - dependable results will only be possible, if the volumetric instruments employed for the sample preparation are equally accurate and reliable.

Konformitätsbescheinigung

• Woran ist die Konformitätsbescheinigung zu erkennen?
Die Geräte tragen ein stilisertes H, das Konformitätszeichen und das Kennzeichen dessen, der die Konformitätsbescheinigung ausstellt. Bei Einmal-Produkten steht das H auf der Verpackung und/oder auf den Begeitpapieren.

• Was heisst Konformität?
Konformität heisst: die Übereinstimmung eine Gerätes mit der Zulassung und damit der deutschen Eichordnung Anlage 12. Das genaue Verfahren der Konformitätsbescheinigung kann in der DIN 12600 nachgelesen werden. Die Eichpflicht-Ausnahmeverordnung für Ringversuche und Qualitätskontrollen ist ungültig.

• Welche Geräte benötigen eine Konformitätsbescheinigung?
Die Konformitätsbescheinigung ist Pflicht bei den im ersten Punkt genannten Geräten und ihrem messtechnisch relevanten Zubehör. Gleichzeitig muß die eindeutige Zuordnung von Gerät und Zubehör durch den Hersteller angegeben sein. Entscheidend ist der 1.1.1989. Vor diesem Datum bereitgehaltene und verwendete Geräte sollten im Interesse einheitlicher Messqualität zügig gegen Geräte mit Konformitätsbescheinigung ausgetauscht werden.

• Eichordnung und Konformitätsbescheinigung
Für Volumenmessgeräte, die für Messungen im geschäftlichen Verkehr sowie im pharmazeutischen Bereich (Herstellung und Prüfung von Arzneimitteln bereitgehalten und verwendet werden, fordert die deutsche Eichordnung vom 12.8.1988: Konformitätsbescheinigung statt Eichung. Das gilt auch für das messtechnisch relevante Zubehör.

• Wer erstellt Konformitätsbescheinigung?
Im allgemeinen erstellt der Hersteller die Konformitätsbescheinigung für seine Geräte, auf Wunsch auch die Eichbehörde.

• Wer ist für die Einhaltung der Bestimmungen verantwortlich?
Der Hersteller verantwortet die Konformität seiner Geräte, der Besteller verantwortet die Beschaffung und Bereithaltung von Geräten mit Konformitätsbescheinigung, der Laborleiter deren Einsatz.

• Konformitätsbescheinigung von witeg
Seit Inkrafttreten der Bestimmungen ist ein neues Zeichen auf den witeg Geräten oder Begleitdokumenten zu finden. Dabei steht H für Konformitätsbescheinigung und W für witeg Wertheim. Das Zeichen H auf dem Gerät kann durch das Symbol ⚠ ergänzt sein, das auf die Gebrauchsanleitung hinweist. Die Hinweise sind unbedingt zu beachten. witeg bescheinigt die Konformität bei Volumenmessgeräten aus Glas direkt auf den Geräten, bei Einmal-Produkten auf der kleinsten Verpackungseinheit, bei Liquid Handling Geräten auf dem Gerät und/oder einer beiliegenden Schrift zusammen mit Hinweisen zum messtechnischen Zuabehör. Die Konformitätsbescheinigung soll einheitliche und gleichbleibend hohe Qualität gewährleisten, eine Qualität im Sinne genauer Messergebnisse. Verschiedene Begriffe zur Definition der Messergebnisse sind zugelassen: Fehlergrenzen (FG vgl. Eichordnung Anlage 12), Richtigkeit (R%) und Variationskoeffizient (V%). Die Richtigkeit gibt an wie gut die Lage des Messwertes zum Sollwert ist, je kleiner R%, desto besser. Der Variationskoeffizient gibt an wie gut das Ergebnis reproduzierbar ist, je kleiner V%, desto besser. Vereinbarungsgemäß kann der Hersteller FG, oder R% und V% angeben, dabei wurde folgende Beziehung vereinbart: (V_N = Nennvolumen)

$$FG\ [EL] \geq \frac{(R\%\ [A\%] + 2\ V\%\ [CV\%])}{100\ \%}\ V_N$$

Diese Angeben basieren auf der DIN 1319 T3 in der die Grundbegriffe der Messtechnik definiert werden. Die angegebenen Werte sind Maximalwerte.

• Genauigkeit der DIFFICO Messgeräte
Alle DIFFICO Messgeräte werden durch neue Eigenentwicklungen nach modernsten Gesichtspunkten justiert, d.h.: DIFFICO Mess- und Vollpipetten, Messzylinder und Messflaschen werden durch elektronische Vollautomaten justiert und sortiert. Die Fehlerquellen der bisher üblichen manuellen Justierung sind dadurch ausgeschaltet. DIFFICO Büretten werden durch eine elektronische Justieranlage justiert.

Dank dieser Justier- und Sortier-Vollautomaten, sowie der halbautomatischen Sortieranlage können wir Ihnen DIFFICO Messgeräte liefern, die in ihrer Genauigkeit höchsten Ansprüchen genügen.

Conformity certification

• How to recognize the conformity certification?
The instruments carry the symbol of conformity - a stylized "H" as well as the code of the issuer of the conformity certificate. For Disposables the "H" appears on the packaging and/or the accompanying documents.

• What does conformity stand for?
Conformity means compliance of an instrument with the German Rules for Official Certification (Eichordnung, Annex 12). The conformity certification procedure is described by DIN 12 600. The "Exemption from Certification Act" has become obsolete.

• Which instruments must be conformity certified?
The conformity certification is obligatory for the instruments mentioned under "conformity certification according to the Rules for Official Certification" and their volumetrically relevant accessories. Moreover, instruments and accessories belonging together must be clearly identified by the manufacturer. The crucial date is the 1st of January 1989. In the interest of a consistent quality of measurements, older instruments should be replaced by conformity certified instruments as soon as possible.

• Official Certification and Conformity certification
Germany's Rules for Official Certification - valid as of August 12, 1988 - call for a certification of conformity rather than for an official test certificate for volumetric instruments which are kept and used for commercial and pharmaceutical purposes. The same applies for volumetrically relevant accessories.

• Who certifies conformity?
In general, the manufacturer certifies the conformity of his production and - on request - the "Authority of Weights and Measures" as well.

• Who is responsible for enforcing these regulations?
The instrument manufacturer is responsible for the conformity of the instruments, the purchaser for the procuring and availability of conformity certified instruments and the head of the laboratory fot their use.

• Conformity certification by witeg
Since the above regulations have come into effect a new symbol is to be found on witeg instruments or their accompanying documents: H
The H stands for conformity certification and W for Witeg, Wertheim. The symbol H on the instruments may be supplemented by the symbol ⚠ which refers to the operating manual. These references must be strictly observed.
Witeg certifies the conformity for volumetric instruments of glass directly on the instrument, for disposable products on the smallest packing unit, and for Liquid Handling products on the instrument and/or an accompanying documents along with references to volumetrically relevant accessories.

The purpose of conformity certification is, to ensure a uniform and constant high level of quality in the sense of accurate measuring results.
Various terms are used to define measuring accuracy. "Error limit" or "absolute error" (/EL; compare Eichordung, Annex 12)! Accuracy (A%) and reproducibility (coefficient of variation, CV% or V%). "Accuracy" describes the deviation of the measured value from the nominal value - the smaller A% is - the better. "Reproducibility" describes the repeatability of the result - the smaller CV% is - the better. By agreement - the manufacturer my elther state EL, or A% and CV%.
The relation if defined by the following formula: (V_N = Nominal volume)

$$FG\ [EL] \geq \frac{(R\%\ [A\%] + 2\ V\%\ [CV\%])}{100\ \%}\ V_N$$

This information is based on DIN 1319 T3 where the basic terms of measuring technology are defined. These values are maximum values.

• Reproducibility and accuracy of Witeg volumetric instruments
The calibration of volumetric instruments is made by modern electronical adjusting automatons.
DIFFICO Graduated Measuring - and Volumetric Pipettes as well as Measuring Cylinders, Volumetric Flasks and Burettes are calibrated fully automatic and permanent checks during the manufacturing processes guarantees the production of volumetric instruments with the smallest possible deviation.
The results are minute systematic errors, narrow scatter without exhausting permissible limits.

witeg volumetric instruments are manufactured to the quality assurance system defined by ISO 9001.

Contents

Products made of Platinum and other precious metals are available on request

DIN ISO 9001zertifiziert

Wenn Sie nach DIN ISO 9001/GLP/GMP Richtlinien arbeiten sind die innovativen witeg Produkte die beste Wahl. Intelligente Technologie und modernste Fertigung erfüllen die höchsten Ansprüche an Qualität und Sicherheit nach ISO 9001.

DIN ISO 9001 certified

If you work according to DIN ISO 9001/GLP/GMP requirements you´ll make best choice with innovative products from witeg. Intelligent technology together with an up-to-date production fulfil highest requirements on quality and safety acc. to nach ISO 9001.

Komponenten für Glasbläser
Components for glasblowers

Glas-Spezialanfertigungen
Individual glass products

Laborapparate
Apparatuses for all labs

Wasserdestillationsgeräte
p.ex. water distilling apparatuses

Volumenmessgeräte
Volumetric glassware

Digitalbüretten, die neuste Version mit WITOLINK Schnittstelle
Digital burettes, newest version using WITOLINK interface

Digitalpipetten
Digital pipettes

Flaschenaufsatzdispenser LABMAX, keine Spritzer, kein Reagenzverlust
Bottle top dispensers LABMAX, no more spills, no reagent loss

Sicherheitsbeschichtungen
Protective coatings

Biotechnologie / Life Science
Biotechnology / Life science

Schulkits für die Chemie
School kits for chemistry

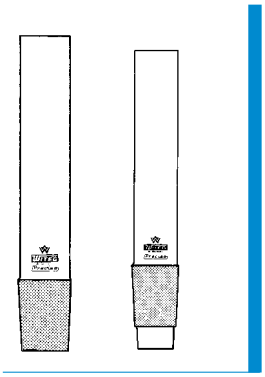
Kunststoffprodukte und Instrumente
Plastic labware and instrumentation

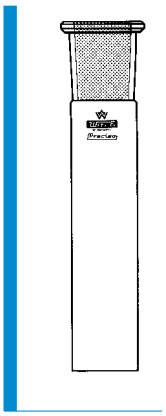
Einzelprüfung
Individual controlling

ISO 9001 zertifiziert seit 1994
ISO 9001 certified since 1994

ST-cones, acc. to DIN 12249. PRECISO.

ST	O. D. mm	Length mm	Wall thick. mm	Standard form B	Skirted form G
5/13	4	120	0.8	0.100.005	–
7/16	6	120	1.5	0.100.007	0.115.007
10/19	8	120	1.5	0.100.010	0.115.010
12/21	11	120	1.5	0.100.012	0.115.012
14/23	13	120	1.5	0.100.014	0.115.014
19/26	17	150	1.8	0.100.019	0.115.019
24/29	22	150	1.8	0.100.024	0.115.024
29/32	26	150	2.0	0.100.029	0.115.029
34/35	30	150	2.0	0.100.034	0.115.034
40/38	36	150	2.0	0.100.040	0.115.040
45/40	40	150	2.3	0.100.045	0.115.045
50/42	46	180	2.3	0.100.050	0.115.050
55/44	50	180	2.5	0.100.055	0.115.055
60/46	56	180	2.5	0.100.060	0.115.060
71/51	65	200	3.2	0.100.071	0.115.071
85/55	80	200	3.5	0.100.085	–
100/60	90	200	3.5	0.100.100	–



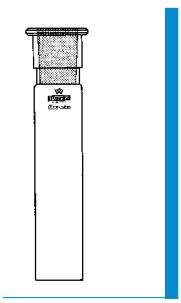


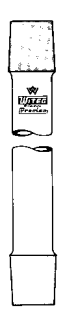
ST-sockets, acc. to DIN 12249. Form E. PRECISO.

ST	O. D. mm	Length mm	Wall thick. mm	
5/13	8	120	0.8	0.102.005
7/16	10	120	1.5	0.102.007
10/19	13	120	1.5	0.102.010
12/21	15	120	1.8	0.102.012
14/23	17	120	1.8	0.102.014
19/26	22	125	1.8	0.102.019
24/29	28	135	2.0	0.102.024
29/32	33	135	2.0	0.102.029
34/35	40	150	2.3	0.102.034
40/38	46	150	2.3	0.102.040
45/40	50	150	2.5	0.102.045
50/42	56	180	2.5	0.102.050
55/44	60	180	3.2	0.102.055
60/46	65	180	3,2	0.102.060
71/51	75	200	3.2	0.102.071
85/55	90	200	3.5	0.102.085
100/60	110	200	5.0	0.102.100

ST-sockets, cylindrical shape, acc. to DIN 12249. PRECISO.

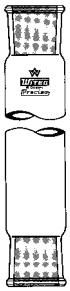
ST	O. D. mm	Length mm	Wall thick. mm	
14/23	17	120	1.8	0.112.014
19/26	22	125	1.8	0.112.019
24/29	28	135	2.0	0.112.024
29/32	33	135	2.0	0.112.029
34/35	38	135	2.3	0.112.034
45/40	50	135	2.5	0.112.045





ST-cones, double, acc. to DIN 12249. Form D. PRECISO.

ST	O. D. mm	Length mm	Wall thick. mm	
14/23	13	135	1.5	0.117.014
19/26	17	140	1.8	0.117.019
24/29	22	170	1.8	0.117.024
29/32	26	170	2.0	0.117.029

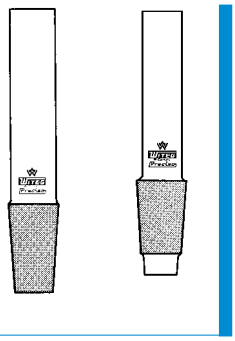


ST-sockets, double, acc. to DIN 12249. Form C. PRECISO.

ST	O. D. mm	Length mm	Wall thick. mm	
14/23	17	135	1.8	0.118.014
19/26	22	140	1.8	0.118.019
24/29	28	170	2.0	0.118.024
29/32	33	170	2.0	0.118.029

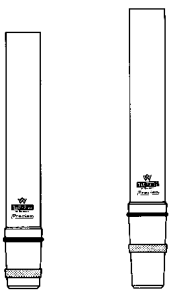
ST-cones, full length. PRECISO.

ST	O. D. mm	Length mm	Wall thick. mm	Standard	Skirted
5/20	4	120	0.8	0.101.005	–
7/25	6	120	1.5	0.101.007	–
10/30	8	120	1.5	0.101.010	–
12/32	11	120	1.5	0.101.012	–
14/35	13	120	1.5	0.101.014	0.107.014
19/38	17	150	1.8	0.101.019	0.107.019
24/40	22	150	1.8	0.101.024	0.107.024
29/42	26	150	2.0	0.101.029	0.107.029
34/45	30	150	2.0	0.101.034	0.107.034
45/50	40	150	2.3	0.101.045	0.107.045



ST-sockets, full length. PRECISO.

ST	O. D. mm	Length mm	Wall thick. mm	
5/20	8	120	0.8	0.103.005
7/25	10	120	1.5	0.103.007
10/30	13	120	1.5	0.103.010
12/32	15	120	1.8	0.103.012
14/35	17	120	1.8	0.103.014
19/38	22	125	1.8	0.103.019
24/40	28	135	2.0	0.103.024
29/42	33	135	2.0	0.103.029
34/45	40	150	2.3	0.103.034
45/50	50	150	2.5	0.103.045



Cones, FCH-V (for high vacuum). PRECISO.

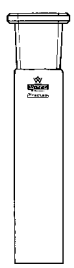
ST	O. D. mm	Length mm	Wall thick. mm	Standard	Skirted	Spare seals Viton	Spare seals PTFE
14/23	12	120	1.5	0.120.014	0.121.014	0.123.014	0.124.014
19/26	17	140	1.8	0.120.019	0.121.019	0.123.019	0.124.019
24/29	22	140	1.8	0.120.024	0.121.024	0.123.024	0.124.024
29/32	26	140	2.0	0.120.029	0.121.029	0.123.029	0.124.029
34/35	30	140	2.0	0.120.034	0.121.034	0.123.034	0.124.034
45/40	38	140	2.3	0.120.045	0.121.045	0.123.045	0.124.045

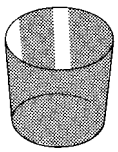
Sockets, FCH-V (for high vacuum). PRECISO.

ST	O. D. mm	Length mm	Wall thick. mm	
14/23	17	120	1.5	0.122.014
19/26	22	140	1.8	0.122.019
24/29	28	140	1.8	0.122.024
29/32	33	140	2.0	0.122.029
34/35	38	140	2.3	0.122.034
45/40	50	140	2.5	0.122.045

Cones and sockets with other diameters on request.
Spherical joints see page 21.

HV-flat flange-system see flat flange components.





Sleeves for joints, PTFE. For sticking into the ST-cone. Ensures a gas- and liquid-tight connection without grease.

For ST	With rim 0.4 mm thick.	Wall thick. 0,05 mm
7/16	–	0.106.007
10/19	7.202.001	0.106.010
12/21	–	0.106.012
14/23	7.202.002	0.106.014
19/26	7.202.003	0.106.019
24/29	7.202.004	0.106.024
29/32	7.202.005	0.106.029
34/35	7.202.006	0.106.034
45/40	–	0.106.045

Clips for joints.

1."Safety-Clip" (POM). Excellent resistance against chemicals, with-standing temperatures up to approx. +150 °C. Simple connecting and disconnecting, no damage of glass surface, due to the adjustable elements, even different rim size can be connected.

2. Made of stainless steel, "Schlifffeder"

3. Made of stainless steel, (DBGM), extra strong model.

4. Made of PP, "Keck-Klemme"

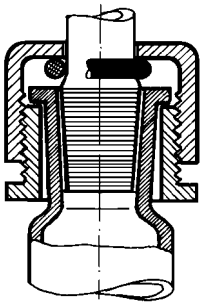
For ST	1.	2.	3.	4.
7/16-7/25	–	0.131.007	–	–
10/19-10/30	0.131.110	0.131.010	–	0.131.310
12/21-12/32	0.131.112	0.131.012	–	0.131.312
14/23-14/35	0.131.114	0.131.014	0.130.014	0.131.314
19/26-19/38	0.131.119	0.131.019	0.130.019	0.131.319
24/29-24/40	0.131.124	0.131.024	0.130.024	0.131.324
29/32-29/42	0.131.129	0.131.029	0.130.029	0.131.329
34/35-34/45	0.131.134	0.131.034	0.130.034	0.131.334
40/38	0.131.140	–	–	0.131.340
45/40-45/50	0.131.145	0.131.045	0.130.045	0.131.345
29/32 for automatic burettes			0.130.129	

1

4

2

3



Superfix-safety devices, solid security.
Complete with cap, inner part of thread cone and clamping O-ring, suitable for cylindrical and conventional connections of conical joints, packed in cellophane bags.

For ST	Colour	Pack pieces	
14/23-14/35	red	10	0.140.014
19/26-19/38	green	10	0.140.019
24/29-24/40	grey	10	0.140.024
29/32-29/42	blue	10	0.140.029
34/35-34/45	white	5	0.140.034
45/40-45/50	beige	5	0.140.045

Adapters.
Acc. to DIN 12257. PRECISO.

Reduction adapters, form A1

ST	ST	
14/23	10/19	*0.500.000
14/23	12/21	0.500.018
19/26	14/23	0.500.001
24/29	14/23	*0.500.002
29/32	14/23	0.500.003
24/29	19/26	*0.500.004
29/32	19/26	0.500.005
29/32	24/29	*0.500.006
40/38	19/26	0.500.019
45/40	24/29	*0.500.007
45/40	29/32	0.500.008
45/40	34/35	0.500.020
60/46	45/40	*0.500.009
71/51	45/40	*0.500.010
71/51	60/46	*0.500.011
60/46	29/32	*0.500.012
34/35	19/26	*0.500.013
34/35	24/29	*0.500.014
34/35	29/32	*0.500.015
50/42	29/32	*0.500.016
55/44	29/32	*0.500.017

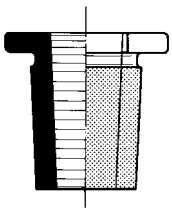
Expansion adapters, form A2

10/19	14/23	*0.510.000
12/21	14/23	0.510.018
14/23	19/26	0.510.001
14/23	24/29	*0.510.002
14/23	29/32	0.510.003
19/26	24/29	*0.510.004
19/26	29/32	0.510.005
24/29	29/32	*0.510.006
24/29	45/40	*0.510.007
29/32	45/40	0.510.008
34/35	45/40	0.510.019
45/40	60/46	0.510.009
45/40	71/51	*0.510.010
14/23	34/35	0.510.014
19/26	34/35	*0.510.011
24/29	34/35	*0.510.012
29/32	34/35	0.510.013
14/23	14/23	0.510.020
19/26	19/26	0.510.021
24/29	24/29	0.510.022
29/32	29/32	0.510.023

Short adapters, socket in cone, form D

19/26	14/23	0.540.001
24/29	14/23	*0.540.002
29/32	14/23	0.540.003
24/29	19/26	*0.540.004
29/32	19/26	0.540.005
29/32	24/29	*0.540.006
34/35	29/32	*0.540.007
45/40	29/32	*0.540.008
34/35	24/29	*0.540.009
40/38	24/29	*0.540.010

* not acc. to DIN



Bellows, PTFE.

ST	
14/23	0.119.014
19/26	0.119.019
24/29	0.119.024
29/32	0.119.029
34/35	0.119.034
45/40	0.119.045

Screw threads, with cone.
Acc. to DIN 12257, form E, PRECISO

GL	ST	
14	14/23	0.550.001
14	19/26	0.550.002
14	24/29	*0.550.003
14	29/32	*0.550.004
14	34/35	*0.550.005
18	14/23	0.550.010
18	19/26	0.550.011
18	24/29	*0.550.012
18	29/32	0.550.013
18	34/35	0.500.014
25	14/23	*0.550.019
25	19/26	*0.550.020
25	24/29	*0.550.021
25	29/32	0.550.022
25	34/35	*0.550.023
25	45/40	0.550.024
32	14/23	*0.550.028
32	19/26	*0.550.029
32	24/29	*0.550.030
32	29/32	0.550.031
32	45/40	0.550.032
45	24/29	0.550.039
45	29/32	0.550.040
45	45/40	0.550.041

* not acc. to DIN. Cap and seal see article 0.170.***-0.185.***.

Short adapters, (PTFE), socket in cone.

Socket ST	Cone ST	
14/23	19/26	7.204.001
14/23	24/29	7.204.002
19/26	29/32	7.204.003

Technical data, flasks, round bottom

Capacity ml	Max. flask O. D. mm	Height mm
10	33	64
25	41	75
50	51	90
100	64	110
250	85	140
500	105	170
1000	131	210
2000	166	260
3000	185	280
4000	207	310
5000	223	335
6000	236	350
10000	279	420
20000	345	515

Flasks, round bottom, center neck, acc. to DIN 12348. PRECISO.

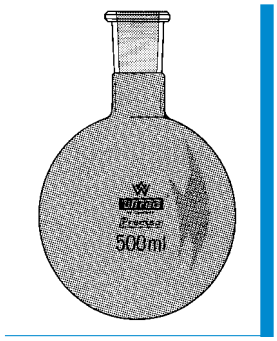
Capacity ml	ST 14/23	ST 19/26	ST 24/29	ST 29/32	ST 45/40
5	*0.600.005	–	–	–	–
10	*0.600.010	–	–	–	–
25	*0.600.025	*0.601.025	–	0.603.025	–
50	0.600.050	0.601.050	*0.602.050	*0.603.050	–
100	0.600.100	0.601.100	*0.602.100	0.603.100	–
250	*0.600.250	*0.601.250	*0.602.250	0.603.250	0.604.250
500	–	*0.601.500	*0.602.500	0.603.500	0.604.500
1000	–	–	*0.602.001	0.603.001	0.604.001
2000	–	–	*0.602.002	0.603.002	0.604.002
3000	–	–	–	*0.603.003	–
4000	–	–	–	*0.603.004	0.604.004
5000	–	–	–	*0.603.005	–
6000	–	–	–	*0.603.006	0.604.006
10000	–	–	–	*0.603.010	0.604.010
20000	–	–	–	–	*0.604.020

* not acc. to DIN

Flasks, round bottom, center neck, amber stained, acc. to. DIN 12348. PRECISO.

Capacity ml	ST 14/23	ST 19/26	ST 24/29	ST 29/32
25	*0.615.025	*0.616.025	–	–
50	0.615.050	0.616.050	*0.617.050	*0.618.050
100	0.615.100	0.616.100	*0.617.100	0.618.100
250	–	*0.616.250	*0.617.250	0.618.250
500	–	–	*0.617.500	0.618.500
1000	–	–	*0.617.001	0.618.001
2000	–	–	*0.617.002	0.618.002

* not acc. to DIN



Flasks, with side neck at an angle of 20°, (7° or 15° on request), acc. to DIN 12394 (Distillation flasks). PRECISO.

Capacity ml	Center neck; Side neck ST 14/23-14/23	Center neck; Side neck ST 24/29-14/23	Center neck; Side neck ST 24/29-19/26	Center neck; Side neck ST 29/32-14/23	Center neck; Side neck ST 29/32-19/26
25	0.699.025	–	–	–	–
50	0.699.050	–	–	*0.703.050	–
100	0.699.100	*0.700.100	–	*0.703.100	–
250	0.699.250	*0.700.250	*0.701.250	0.703.250	0.705.250
500	–	*0.700.500	*0.701.500	0.703.500	0.705.500
1000	–	*0.700.001	*0.701.001	0.703.001	0.705.001
2000	–	*0.700.002	*0.701.002	0.703.002	0.705.002

* not acc. to DIN

Flasks, with side neck, parallel, acc. to DIN 12392 (Destillation flasks). PRECISO.

Capacity ml	Center neck; Side neck ST 24/29-14/23	Center neck; Side neck ST 24/29-19/26	Center neck; Side neck ST 29/32-14/23	Center neck Side neck ST 29/32-19/26	Center neck Side neck ST 29/32-29/32
100	*0.750.100	–	*0.752.100	–	–
250	*0.750.250	*0.751.250	*0.752.250	*0.753.250	*0.754.250
500	*0.750.500	*0.751.500	*0.752.500	*0.753.500	*0.754.500
1000	*0.750.001	*0.751.001	*0.752.001	*0.753.001	0.754.001
2000	*0.750.002	*0.751.002	*0.752.002	*0.753.002	0.754.002
4000	–	–	–	–	*0.754.004

* not acc. to DIN

Flasks, with 2 side necks at an angle of 20°, (7° or 15° on request), acc. to DIN 12394 (Distillation flasks). PRECISO.

Capacity ml	Center neck; Side neck ST 14/23-14/23	Center neck; Side neck ST 24/29-14/23	Center neck; Side neck ST 24/29-19/26	Center neck; Side neck ST 29/32-14/23
25	0.725.025	–	–	–
50	0.725.050	–	–	–
100	0.725.100	*0.730.100	*0.732.100	*0.736.100
250	–	*0.730.250	*0.732.250	0.736.250
500	–	*0.730.500	*0.732.500	0.736.500
1000	–	*0.730.001	*0.732.001	0.736.001
2000	–	*0.730.002	*0.732.002	0.736.002
4000	–	–	*0.732.004	*0.736.004
6000	–	–	–	0.736.006
10000	–	–	–	–

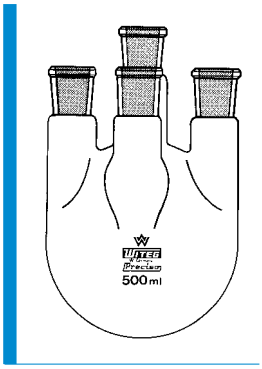
Capacity ml	Center neck; Side neck ST 29/32-19/26	Center neck; Side neck ST 29/32-29/32	Center neck; Side neck ST 45/40-19/26	Center neck; Side neck ST 45/40-29/32
100	*0.738.100	*0.740.100	–	–
250	0.738.250	*0.740.250	–	–
500	0.738.500	*0.740.500	–	–
1000	0.738.001	*0.740.001	–	–
2000	0.738.002	*0.740.002	0.742.002	0.745.002
4000	*0.738.004	*0.740.004	0.742.004	0.745.004
6000	–	*0.740.006	–	0.745.006
10000	–	*0.740.010	–	0.745.010

* not acc. to DIN

Flasks, with 2 side necks, parallel, acc. to DIN 12392 (Distillation flasks). PRECISO.

Capacity ml	Center neck; Side neck ST 29/32-14/23	Center neck; Side neck ST 29/32-19/26	Center neck; Side neck ST 29/32-29/32	Center neck; Side neck ST 45/50-29/32
100	*0.768.100	–	*0.772.100	–
250	*0.768.250	*0.770.250	*0.772.250	–
500	*0.768.500	*0.770.500	*0.772.500	–
1000	*0.768.001	*0.770.001	0.772.001	0.775.001
2000	*0.768.002	*0.770.002	0.772.002	0.775.002
4000	*0.768.004	*0.770.004	*0.772.004	0.775.004
6000	–	–	*0.772.006	0.775.006
10000	–	–	*0.772.010	*0.775.010
20000	–	–	–	*0.775.020

* not acc. to DIN



Flasks, 4 necks, necks parallel (Reaction flasks), acc. to DIN 12392. PRECISO.

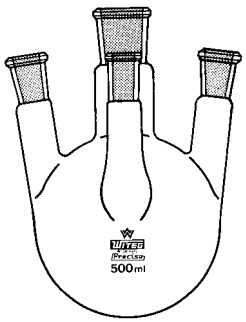
Capacity ml	Center neck; Side neck ST 29/32-29/32	Center neck; Side neck ST 45/40-29/32
500	*0.812.500	–
1000	*0.812.001	–
2000	0.812.002	0.814.002
4000	–	0.814.004
6000	–	0.814.006

* not acc. to DIN

Flasks, 4 necks, necks angled (Reaction flasks), acc. to DIN 12394. PRECISO.

Capacity ml	Center neck; Side neck ST 29/32-19/26	Center neck; Side neck ST 29/32-29/32	Center neck; Side neck ST 45/40-29/32
250	0.822.250	–	–
500	0.822.500	–	–
1000	0.822.001	0.824.001	–
2000	–	*0.824.002	0.826.002
4000	–	–	*0.826.004
6000	–	–	*0.826.006

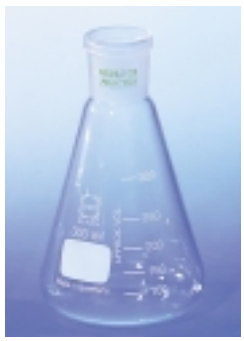
* not acc. to DIN



Flasks, flat bottom, center neck, acc. to DIN 12348. PRECISO.

Capacity ml	ST 14/23	ST 19/26	ST 24/29	ST 29/32	ST 45/40
25	0.611.025	–	–	–	–
50	0.611.050	0.612.050	*0.613.050	*0.614.050	–
100	0.611.100	0.612.100	*0.613.100	0.614.100	–
250	–	*0.612.250	*0.613.250	0.614.250	0.615.250
500	–	*0.612.500	*0.613.500	0.614.500	0.615.500
1000		–	*0.613.001	0.614.001	0.615.001
2000		–	*0.613.002	0.614.002	0.615.002
4000	–	–	–	–	0.615.004
10000	–	–	–	–	0.615.010

* not acc. to DIN



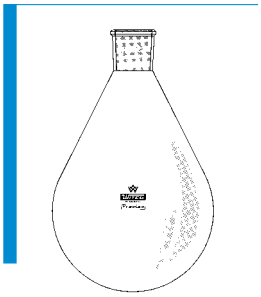
Erlenmeyer-flasks, acc. to DIN 12387. PRECISO.

Capacity ml	Max- flask O. D. mm	Height mm	ST 14/32	ST 19/26	ST 24/29	ST 29/32	ST 45/40
10	33	60	*0.619.010	–	–	–	–
25	42	70	0.619.025	0.620.025	–	–	–
50	51	80	0.619.050	0.620.050	*0.621.050	0.622.050	–
100	64	100	0.619.100	0.620.100	*0.621.100	0.622.100	–
200	79	130	–	*0.620.200	*0.621.200	*0.622.200	*0.624.200
250	85	140	–	*0.620.250	*0.621.250	0.622.250	0.624.250
300	87	150	–	–	*0.621.300	*0.622.300	*0.624.300
500	105	170	–	–	*0.621.500	0.622.500	0.624.500
1000	131	220	–	–	*0.621.001	0.622.001	0.624.001
2000	166	280	–	–	–	*0.622.002	*0.624.002
3000	187	310	–	–	–	–	0.624.003
5000	220	365	–	–	–	–	0.624.005

* not acc. to DIN
Erlenmeyer amber glass flasks *.***.*** BR

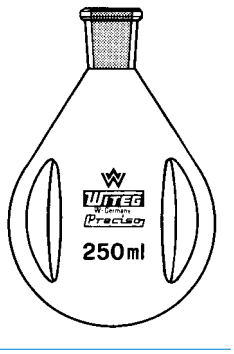
Flasks, pear shaped, centered. ST 29/32. PRECISO.

Capacity ml	Max. flask O. D. mm	Height mm	Un-coated	Plastic-coated
50	51	90	0.655.050	0.655.050K
100	60	110	0.655.100	0.655.100K
250	81	140	0.655.250	0.655.250K
500	101	170	0.655.500	0.655.500K
1000	126	210	0.655.001	0.655.001K
2000	160	235	0.655.002	0.655.002K



Flasks, pear shaped, centered, PRECISO.
1. Flasks, round bottom, ST 14/23
2. Flasks, flat bottom, ST 14/23
3. Flasks, flat bottom, ST 19/26

Capacity ml	1.	2.	3.
12	0.658.012	0.658.112	0.658.212
25	0.658.025	0.658.125	0.658.225
50	0.658.050	0.658.150	0.658.250
100	0.658.100	0.658.200	0.658.300

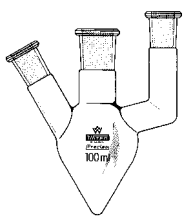


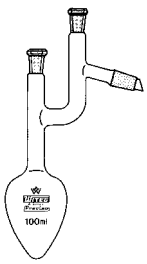
Powder flasks, with indentations on the flask wall. ST 29/32. PRECISO.

Capacity ml	Max. flask O. D. mm	Height mm	
250	81	140	0.680.250
500	101	170	0.680.500
1000	126	210	0.680.001
2000	160	235	0.680.002

Flasks, pear shaped, acc. to DIN 12383. PRECISO.

Capacity ml	Max. flask O. D. mm	Height mm	ST	
10	33	70	14/23	0.660.010
25	43	90	14/23	0.660.025
50	51	100	14/23	0.660.050
100	64	120	14/23	0.660.100
10	33	75	19/26	0.662.010
25	43	95	19/26	0.662.025
50	51	105	19/26	0.662.050
100	64	120	19/26	0.662.100
250	85	145	19/26	0.662.250
50	59	110	29/32	0.664.050
100	64	125	29/32	0.664.100
250	85	150	29/32	0.664.250



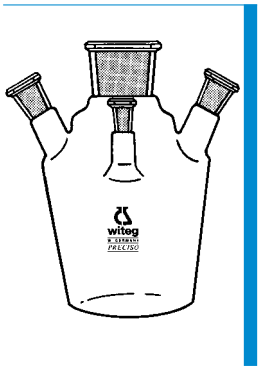


Flasks, pear shaped. PRECISO.
1. Flasks, 2 necks, pear shaped, side neck angled, acc. to DIN 12383. Center neck ST 14/23. Side neck ST 14/23.
2. Flasks, 2 necks, pear shaped, side neck angled, acc. to DIN 12383. Center neck ST 19/26. Side neck ST14/23.
3. Flasks, 3 necks, pear shaped, side necks angled. Center neck ST 19/26. Side necks ST 14/23.
4. Flasks, pear shaped, Claisen. Necks ST 14/23.
5. Flasks, pear shaped, Claisen-Vigreux. Necks ST 14/23.

Capacity ml	1.	2.	3.	4.	5.
25	0.663.025	0.780.025	0.782.025	0.783.025	0.786.025
50	0.663.050	0.780.050	0.782.050	0.783.050	0.786.050
100	0.663.100	0.780.100	0.782.100	0.783.100	0.786.100
250	–	0.782.250	0.783.250	0.786.250	0.786.250

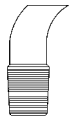
Sulfonation flasks, with 4 side necks, with 2 wall-parallel necks and 2 necks angled to the flasks' bottom center. PERCISO.

Capacity ml	Center neck; Side necks ST	with 4 Side necks	with 3 Side necks
100	29/32-14/23	0.850.101	0.851.101
200	29/32-14/23	0.850.020	0.851.020
350	29/32-14/23	0.850.024	0.851.024
100	29/32-19/26	0.850.031	–
200	29/32-19/26	0.850.032	–
350	29/32-19/26	0.850.033	–
350	45/40-29/32	0.850.035	0.851.035
500	45/40-29/32	0.850.050	0.851.050
750	45/40-29/32	0.850.074	0.851.074
1500	45/40-29/32	0.850.150	0.851.150
1500	71/51-29/32	0.850.151	0.851.151
2500	45/40-29/32	0.850.250	0.851.250
2500	71/51-29/32	0.850.251	0.851.251
4500	71/51-29/32	0.850.400	0.851.400
6000	71/51-29/32	0.850.600	0.851.600
10000	71/51-29/32	0.850.900	0.851.900



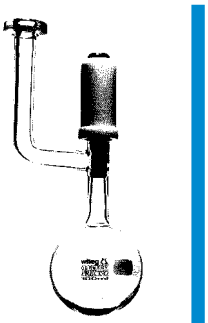
Pourers. PRECISO.

ST	
14/23	0.777.114
19/26	0.777.119
29/32	0.777.129



HV-collecting flasks, 100 ml, with high vacuum-valve stopcock 8 mm, acc. to DR. Storch. PRECISO.

Type	
with socket ST 14/32 (with hooks)	0.779.100
with HV-flat flange NW 15 mm	0.779.115

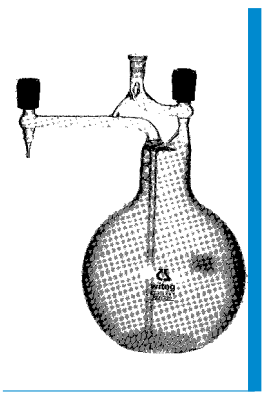


Collecting flasks, acc. to Schlenk, round bottom flasks with lateral stopcock, with hollow plug, bore 2.5 mm, ST 14.5, with hose nozzle 8 mm (angle 45°). PRECISO.

Capacity ml	
10	0.777.001
25	0.777.002
50	0.777.003
100	0.777.004

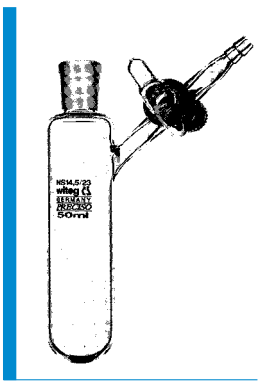
Solvent-collecting flasks, acc. to Dr. Storch, with 2 high vacuum valve stopcocks, with Levasint-plastic coating, with hooks, 2000 ml capacity, flat bottom. PRECISO.

Type	
with socket ST 14/32	0.779.002
with HV-flat flange NW 15 mm	0.779.012

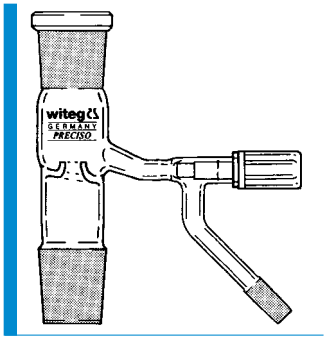


Collecting flasks, acc. to Schlenck, cylindrical with round bottom, with lateral stopcock with hollow plug, bore 2.5 mm, ST 14.5, with hose nozzle 8 mm. PRECISO.

Special models:
- with valve stopcock, with PTFE-needle valve as lateral connection (Please add *V* behind the article no.).
- with stopcock, three way, hollow plug, ST 18.8, bore 4 mm (Please add *S* behind the article no.).
- with hooks (Please add *H* behind the article no.).



Capacity ml	Max. flask O. D. mm	Overall length mm	ST	Socket	Cone
10	16	120	14/23	0.778.001	0.778.201
25	32	120	14/23	0.778.002	0.778.202
50	32	145	14/23	0.778.003	0.778.203
100	40	165	14/23	0.778.004	0.778.204
200	40	210	14/23	0.778.005	0.778.205
300	50	230	14/23	0.778.006	0.778.206
500	70	250	14/23	0.778.007	0.778.207
1000	80	300	14/23	0.778.008	0.778.208
100	40	160	29/32	0.778.101	0.778.301
500	70	250	29/32	0.778.102	0.778.302
1000	80	300	29/32	0.778.103	0.778.303
2000	100	300	29/32	0.778.104	0.778.304

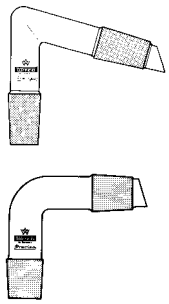


Distilling links, acc. to Dr. Horworka, for quick change from reflux distillation to down stream distillation and opposite, stopcock 6 mm. PRECISO.

Socket ST	Cone ST	With PTFE-needle valve stopcock	With PTFE-stopcock
14/23	14/23	1.910.001	1.910.101
29/32	29/32	1.910.002	1.910.102

Bends. PRECISO.

Flask-cone ST	Condenser-cone ST	75 °	90 °	105 °
14/23	14/23	1.000.001	1.004.001	1.008.001
19/26	14/23	1.000.002	–	–
19/26	19/26	1.000.003	–	–
24/29	19/26	1.000.004	–	–
24/29	24/29	1.000.005	1.004.005	–
29/32	19/26	1.000.006	–	–
29/32	29/32	1.000.007	1.004.007	1.008.007



Distilling heads. Flask- and condenser-cone, ST 29/32. PRECISO.

75°	90°	105°
1.009.075	1.009.090	1.009.105

Recovery heads, sloping. PRECISO.
- With thermometer socket, ST 14/23, acc. to DIN 12594.
- Acc. to Claisen, with 2 sockets ST 14/23.

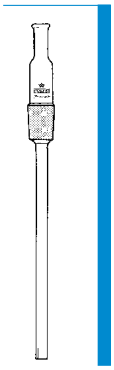
Flask-cone ST	Condenser-cone ST	1 x ST 14/23	2 x ST 14/23
14/23	14/23	1.010.001	1.020.001
19/26	14/23	1.010.002	1.020.002
19/26	19/26	1.010.003	1.020.003
24/29	19/26	1.010.004	1.020.004
24/29	24/29	1.010.005	1.020.005
29/32	19/26	1.010.006	1.020.006
29/32	29/32	1.010.007	1.020.007

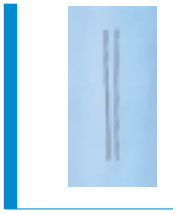
Air leak tubes, built-in length 200 mm. PRECISO.

Cone ST	
14/23	1.250.014
19/26	1.250.019
24/29	1.250.024
29/32	1.250.029

With **capillary tube**

14/23	1.250.114





Micro air leak bell. PRECISO.

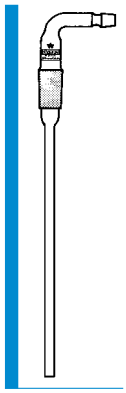
180 x 4 mm.	1.252.180

Boiling rods of wood, bundle of 100 pieces.

	1.252.181

Boiling stones, in jars á 250 g.

	1.252.182

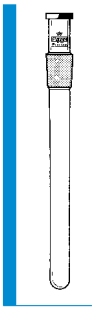


Inlet tubes at 90°, with serrated hose connector, built-in length 250 mm.
PRECISO.

Cone ST	
14/23	1.251.014
19/26	1.251.019
24/29	1.251.024
29/32	1.251.029

With valve stopcock

14/23	1.251.114
19/26	1.251.119
24/29	1.251.124
29/32	1.251.129



Thermometer pockets. PRECISO.

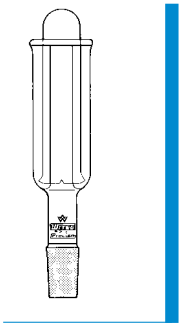
Cone ST	Built-in-length mm	For flasks ml	
14/23	110	250-500	1.260.110
14/23	160	1000-2000	1.260.160
19/26	160	1000-2000	1.261.160
29/32	235	4000-6000	1.263.235

Thistle funnel. With bend and 2 bulbs.

Height mm	I. D. mm	
400	6	2.118.000

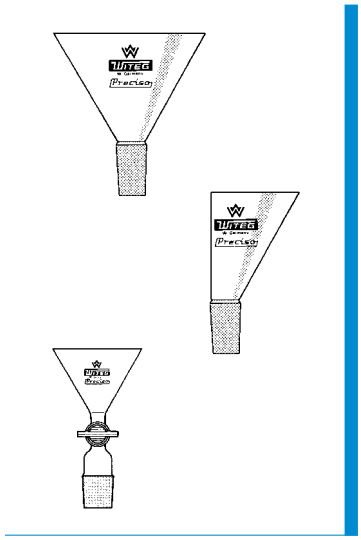
Thistle funnels. Safety tube. PRECISO.

Cone ST	
14/23	1.655.014
19/26	1.655.019
24/29	1.655.024
29/32	1.655.029



Funnels, ST-cone. Angle 60°. PRECISO.

ST	O. D. mm	Bore of plug mm	
Without stopcock			
14/23	70	–	1.650.014
19/26	80	–	1.650.019
24/29	80	–	1.650.024
29/32	80	–	1.650.029
29/32	100	–	1.650.129
29/32	120	–	1.650.130
29/32	150	–	1.650.150
Without stopcock, one side flat			
19/26	80	–	1.651.019
29/32	100	–	1.651.029
With ST-stopcock, with screw-thread retaining nut			
14/23	40	2.5	1.652.014
19/26	50	4	1.652.019
24/29	70	4	1.652.024
29/32	90	6.3	1.652.029



1.

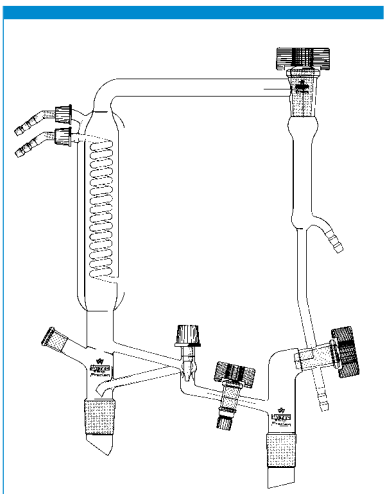
3.

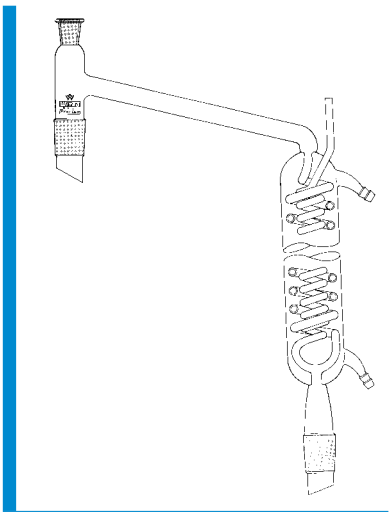
Distilling links, with Liebig-condenser (West). PRECISO.
1. With thermometer socket, ST 14/23.
2. With thermometer socket, ST 14/23. With cone and vacuum connection at the vertical outlet tube.
3. Acc. to Claisen, with 2 sockets ST 14/23, with cone and vakuum connection at the outlet tube.

Flask/adapter cone ST	Jacket length mm	1.	2.	3.
14/23	160	1.100.160	1.110.160	1.120.160
19/26	250	1.102.250	1.112.250	1.122.250
24/29	250	–	1.114.250	1.124.250
24/29	400	1.104.400	1.114.400	1.124.400
29/32	250	1.106.250	1.116.250	1.126.250
29/32	400	1.106.400	1.116.400	1.126.400

Distilling links. PRECISO.

Cones ST	Length mm	Standard	With vertical splash head	With sockets ST 14/23
14/23	150	1.200.150	1.205.150	1.210.150
19/26	200	1.200.200	1.205.260	1.210.200
24/29	300	1.200.300	1.205.300	1.210.300
29/32	300	1.200.301	1.205.301	1.210.301
29/32	350	1.200.350	–	–



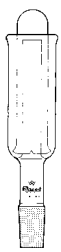


Distilling links, for inflammable solvents. With thermometer socket, ST 14/23. PRECISO.

Cone ST	Jacket length mm	
24/29	250	1.230.024
29/32	250	1.230.029

Drying tubes, acc. to Dr. Wünsch.

Cone ST	
14/23	1.655.114
19/26	1.655.119
24/29	1.655.124
29/32	1.655.129
45/40	1.655.145



Columns heads, acc. to Antlinger. PRECISO.

Cone to fit column ST	For halfmicro	For macro with PTFE-fine-dosing valve
14/23	1.600.014	–
19/26	1.600.019	–
24/29	–	1.610.024
29/32	–	1.610.029

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Instead of the conventional hose connection mode of glass we offer the components with thread RD 14. Surcharge see price list. (Please add *.***.***Rd behind the article no.).

Drying tubes. PRECISO.

Cone ST	
14/23	1.660.014
19/26	1.660.019
24/29	1.660.024
29/32	1.660.029

Delivery adapters. PRECISO.

Socket ST	Tube length mm	
Straight		
14/23	80	1.900.014
19/26	80	1.900.019
24/29	100	1.900.024
29/32	100	1.900.029
Bent		
14/23	80	1.902.014
19/26	80	1.902.019
24/29	100	1.902.024
29/32	100	1.902.029
B**ent, with long tube**		
14/23	190	1.903.014
19/26	200	1.903.019
24/29	200	1.903.024
29/32	200	1.903.029

Receiving adapters. With vacuum connection. PRECISO.

Socket ST	Cone ST	1 straight	2 bent	3 straight with drip tip	4 bent with drip tip
14/23	14/23	1.904.014	1.905.014	1.908.014	1.906.014
19/26	19/26	1.904.019	1.905.019	1.908.019	1.906.019
19/26	24/29	1.904.020	1.905.020	–	1.906.020
24/29	24/29	1.904.024	1.905.024	1.908.024	1.906.024
19/26	29/32	1.904.025	1.905.025	–	1.906.025
29/32	29/32	1.904.029	1.905.029	1.908.029	1.906.029

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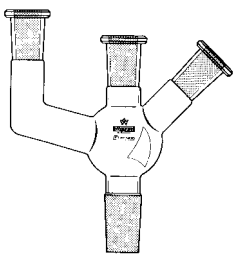
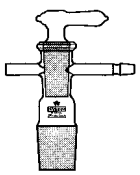


Adapters. PRECISO.

Cone ST	Sockets ST	2 necks parallel sockets	2 necks oblique sockets	3 necks
14/23	14/23	1.400.001	1.405.001	–
19/26	14/23	1.400.002	1.405.002	1.410.001
19/26	19/26	1.400.003	1.405.003	1.410.002
24/29	19/26	1.400.004	1.405.004	1.410.003
24/29	24/29	1.400.005	1.405.005	1.410.004
29/32	14/23	1.400.006	1.405.006	1.410.005
29/32	19/26	1.400.007	1.405.007	1.410.006
29/32	29/32	1.400.008	1.405.008	1.410.007

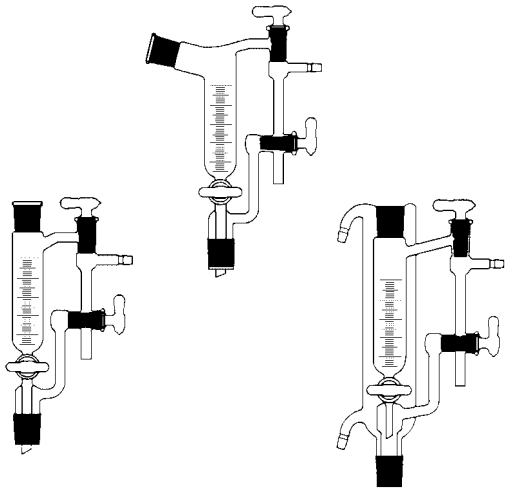
Vacuum control stopcock.
PRECISO.

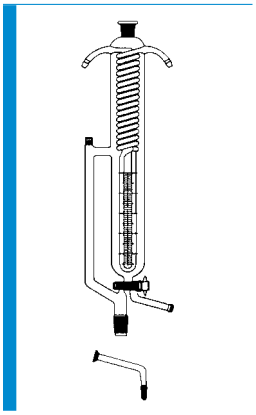
ST	
14/23	1.688.014
19/26	1.688.019
24/29	1.688.024
29/32	1.688.029



Intermediate receivers, acc. to Anschütz-Thiele. PRECISO. Graduated.

Capacity ml	Socket ST	Cone ST	Standard stopcock	PTFE-stopcock
with straight adapter				
25	14/23	14/23	1.950.014	1.952.014
50	29/32	29/32	1.950.025	1.952.025
100	29/32	29/32	1.950.029	1.952.029
with oblique adapter				
25	14/23	14/23	1.960.014	1.962.014
50	24/29	24/29	1.960.024	1.962.024
50	29/32	29/32	1.960.025	1.962.025
100	29/32	29/32	1.960.029	1.962.029
with straight adapter, with cooling jacket				
50	29/32	29/32	1.962.119	1.962.219
100	29/32	29/32	1.962.129	1.962.229
250	29/32	29/32	1.962.139	1.962.239





Distilling head with condenser and supply vessel. For recycling of solvents. Screw thread GL 14, graduated.

Capacity ml	ST	
500	29/32	1.963.000

Equipment: oblique adapter, cone ST 14/23, socket KS 19.

	1.963.001

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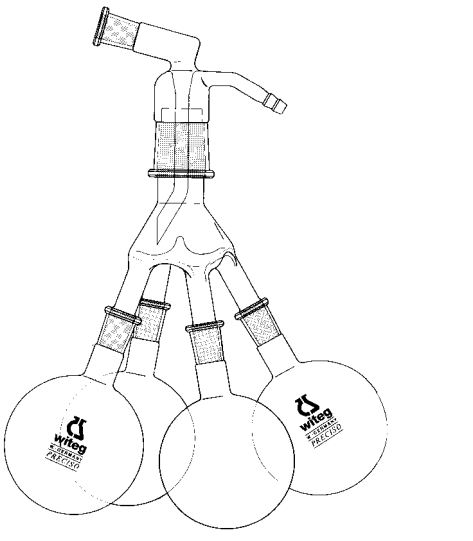
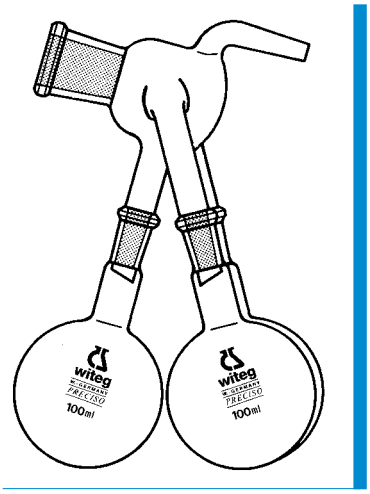


Distilling receivers, acc. to Bredt, complete with adapter, distributor ST 29/32 + ST 14/23 and 4 flasks-round bottom ST 14/23. PRECISO.

Flasks capacity ml	Condenser socket ST	Complete	Only adapter	Only flasks round bottom	Only distributor
25	14/23	1.920.000	1.920.001	1.920.003	1.920.002
50	19/26	1.922.000	1.922.001	1.922.003	1.920.002
100	24/29	1.924.000	1.924.001	1.924.003	1.920.002
100	29/32	1.926.000	1.926.001	1.924.003	1.920.002



Distilling receivers, acc. to Bernhauer, with vacuum connection, complete with 3 flasks ST 14/23. PRECISO.

Flasks capacity ml	Socket ST	Complete	Only distributor	Only flasks round bottom
50	14/23	1.930.000	1.930.001	1.930.002
100	19/26	1.932.000	1.932.001	1.932.002
100	24/29	1.934.000	1.934.001	1.932.002
100	29/32	1.936.000	1.936.001	1.932.002

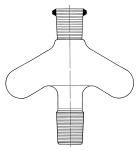
Splash heads. PRECISO.

Vertical cone ST	Side cone ST	Vertical socket ST	
Straight			
14/23	–	14/23	1.420.000
19/26	–	19/26	1.420.001
24/29	–	19/26	1.420.002
24/29	–	24/29	1.420.003
29/32	–	29/32	1.420.004
Bent			
14/23	14/23	–	1.425.001
19/26	14/23	–	1.425.002
19/26	19/26	–	1.425.003
24/29	19/26	–	1.425.004
24/29	24/29	–	1.425.005
29/32	19/26	–	1.425.006
29/32	29/32	–	1.425.007

Distilling adapter.

150 ml, DURAN, PRECISO. With cone and socket ST 29/32, to be placed onto rotary evaporators.

1.430.150



Rotary evaporator safety trap, anti-foaming trap. DURAN, PRECISO. With cone and socket ST 29/32, to be placed between evaporating flask and condenser for use with rotary evaporators. Use where foaming is likely to occur. Relieves superheating and bumping problems. Interchangeable ST 29/32 ground joint.

1.430.200

Suction tubes. PRECISO.

Socket ST	Straight	Bent	With ST-stopcock straight
14/23	1.662.014	1.664.014	1.666.014
19/26	1.662.019	1.664.019	1.666.019
24/29	1.662.024	1.664.024	1.666.024
29/32	1.662.029	1.664.029	1.666.029

Suction tubes. PRECISO.

ST	Straight	Bent
Without stopcock		
14/23	1.680.014	1.681.014
19/26	1.680.019	1.681.019
24/29	1.680.024	1.681.024
29/32	1.680.029	1.681.029
With stopcock		
14/23	1.683.014	1.682.014
19/26	1.683.019	1.682.019
24/29	1.683.024	1.682.024
29/32	1.683.029	1.682.029
With needle valve stopcock		
14/23	–	1.684.014
19/26	–	1.684.019
24/29	–	1.684.024
29/32	–	1.684.029

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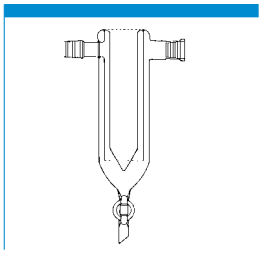
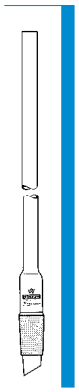
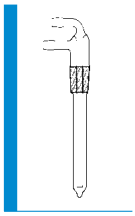
Air condensers. PRECISO.

Cone ST	Tube length 500 mm	Tube length 1000 mm
14/23	1.780.050	–
19/26	1.782.050	1.782.100
24/29	1.784.050	1.784.100
29/32	1.786.050	1.786.100





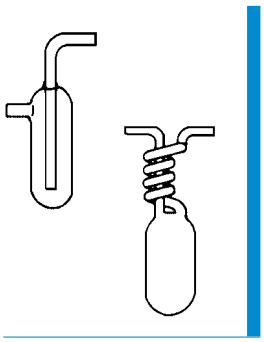


Cold traps. Dewar condensers. PRECISO. For inner cooling.

ST	I. D. mm	O. D. mm	Height mm	With cock 6 ST	Without cock
29/32	50	75	220	1.788.101	1.788.201
29/32	60	90	200	1.788.102	1.788.202
29/32	80	120	150	1.788.103	1.788.203
29/32	80	120	200	1.788.104	1.788.204

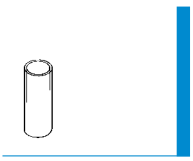
Cold traps. Dewar condensers. PRECISO.

Dia. mm	Total height mm	Body height mm	
Without coil			
30	170	120	1.788.301
40	210	170	1.788.302
50	250	210	1.788.303
65	300	250	1.788.304
With coil			
50	200	100	1.788.401
60	250	140	1.788.402



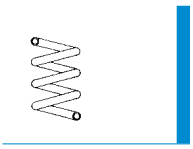
Glass rings, Raschig.

Size mm	
3 x 3	1.550.003
4 x 4	1.550.004
5 x 5	1.550.005
6 x 6	1.550.006
8 x 8	1.550.008
10 x 10	1.550.010



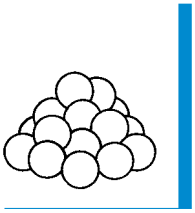
Wilson helices.

Size mm	
3	1.552.003
4	1.552.004
7	1.552.007



Glass beads, solid.

Dia. mm	
1.5-2	1.540.002
3	1.540.003
4	1.540.004
5	1.540.005
6	1.540.006
8	1.540.008
10	1.540.010



Glass wool cleaned. Pack á 100 g.

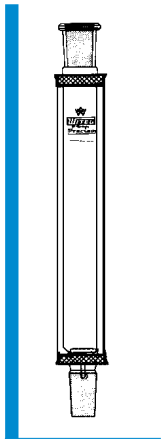
	1.541.000

Immersion coolers (Dephlegmators). PRECISO.

Cone ST	Eff. length mm	Total length mm	
14/23	100	180	1.786.214
19/26	100	185	1.786.219
24/29	140	230	1.786.224
29/32	140	235	1.786.229

Fractionating columns, acc. to Hempel. PRECISO.

Cone ST	Eff. length mm	With glass jacket	Without glass jacket
14/23	150	1.500.150	–
14/23	200	1.500.200	1.500.201
14/23	300	1.500.300	1.500.302
19/26	150	1.501.150	–
19/26	200	1.501.200	–
19/26	300	1.501.300	–
24/29	200	1.502.200	–
24/29	300	1.502.300	–
24/29	500	1.502.500	–
29/32	200	1.503.200	1.503.203
29/32	300	1.503.300	1.503.303
29/32	500	1.503.500	1.503.501



Fractionating columns, acc. to Vigreux. PRECISO.

Cone ST	Eff. length mm	Number of identations	With glass jacket	Without glass jacket
14/23	200	11	1.520.200	1.520.201
19/26	200	11	1.521.200	1.521.201
19/26	300	16	1.521.300	1.521.301
24/29	200	11	1.522.200	1.522.201
24/29	300	16	1.522.300	1.522.301
24/29	400	22	1.522.400	1.522.401
24/29	500	27	1.522.500	1.522.501
24/29	600	31	1.522.600	1.522.601
29/32	100	4	1.523.100	1.523.101
29/32	200	11	1.523.200	1.523.201
29/32	300	16	1.523.300	1.523.301
29/32	400	22	1.523.400	1.523.401
29/32	500	27	1.523.500	1.523.501
29/32	600	31	1.523.600	1.523.601

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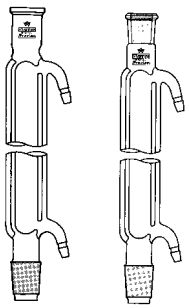
Graham-condensers, acc. to DIN 12592. PRECISO.

Cone ST	Socket ST	Jacket length 160 mm	Jacket length 250 mm	Jacket length 400 mm
–	–	1.730.160	1.730.250	1.730.400
19/26	–	1.732.160	1.732.250	–
24/29	–	–	1.733.250	1.733.400
29/32	–	–	1.734.250	1.733.400
14/23	14/23	1.735.160	1.735.250	–
19/26	19/26	1.736.160	1.736.250	–
24/29	24/29	–	1.737.250	1.737.400
29/32	29/32	–	1.738.250	1.738.400

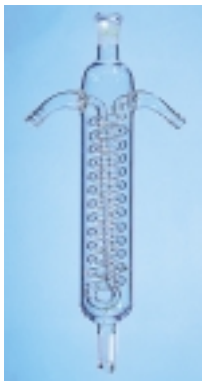


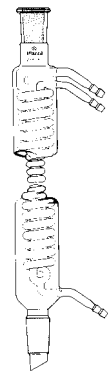
Davies-condensers. PRECISO.

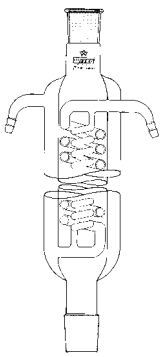
Cone ST	Socket ST	Jacket length 160 mm	Jacket length 250 mm	Jacket length 400 mm
19/26	–	1.739.160	1.739.250	–
24/29	–	–	1.739.251	1.739.401
29/32	–	–	1.739.252	1.739.402
19/26	19/26	1.739.163	1.739.253	–
24/29	24/29	–	1.739.254	1.739.404
29/32	29/32	–	1.739.255	1.739.405

Dimroth-condensers. PRECISO.

Cone ST	Socket ST	Jacket length 160 mm	Jacket length 250 mm	Jacket length 400 mm
Acc. to DIN 12591				
14/23	14/23	1.740.160	1.740.250	–
19/26	19/26	1.742.160	1.742.250	–
24/29	24/29	–	1.743.250	1.743.400
29/32	29/32	1.744.160	1.744.250	1.744.400
With 2 cooling coils				
24/29	24/29	–	1.750.250	1.750.400
29/32	29/32	–	1.752.250	1.752.400





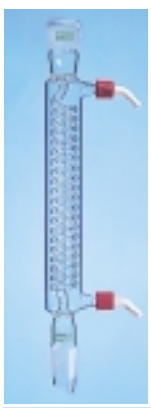


Jacketed coil condensers. PRECISO.

Cone ST	Socket St	Jacket length 160 mm	Jacket length 250 mm	Jacket length 400 mm	Jacket length 600 mm
Acc. to DIN 12593					
24/29	24/29	–	1.755.250	1.755.400	–
29/32	29/32	1.756.160	1.756.250	1.756.400	–
With double coil condensers					
24/29	24/29	–	1.760.250	1.760.400	–
29/32	29/32	1.762.160	1.762.250	1.762.400	1.762.600

Spiral condensers.

Cone ST	Socket ST	Jacket length 160 mm	Jacket length 250 mm	Jacket length 400 mm
14/23	14/23	1.770.164	1.770.254	–
24/29	24/29	1.770.160	1.770.250	1.770.400
29/32	29/32	1.772.160	1.772.250	1.772.400



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Allihn-condensers, acc. to DIN 12581. PRECISO.

Cone ST	Socket ST	Jacket length 160 mm	Jacket length 250 mm	Jacket length 400 mm
–	–	1.720.160	1.720.250	1.720.400
19/26	–	1.722.160	1.722.250	–
24/29	–	–	1.723.250	1.723.400
29/32	–	–	1.724.250	1.724.400
14/23	14/23	1.725.160	1.725.250	–
19/26	19/26	1.726.160	1.726.250	–
24/29	24/29	–	1.727.250	1.727.400
29/32	29/32	–	1.728.250	1.728.400

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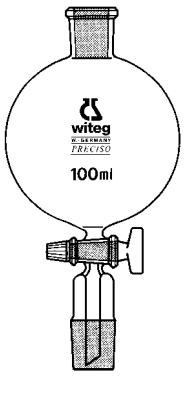
Liebig-condensers (West), acc. to DIN 12576. PRECISO.

Cone ST	Socket ST	Jacket length 160 mm	Jacket length 250 mm	Jacket length 400 mm
–	–	1.700.160	1.700.250	1.700.400
19/26	–	1.702.160	1.702.250	–
24/29	–	_	1.703.250	1.703.400
29/32	–	–	1.704.250	1.704.400
14/23	14/23	1.706.160	1.706.250	–
19/26	19/26	1.708.160	1.708.250	–
24/29	24/29	–	1.709.250	1.709.400
29/32	29/32	–	1.710.250	1.710.400



Dropping funnels, round bottom. Ungraduated. ST-stopcock with screw-thread retaining nut. PRECISO.

Capacity ml	ST	Bore of plug mm	
25	14/23	2.5	1.886.025
50	14/23	2.5	1.886.050
100	14/23	2.5	1.886.100
250	14/23	4	1.886.250
50	19/26	2.5	1.888.050
100	19/26	2.5	1.888.100
250	19/26	4	1.888.250
500	19/26	4	1.888.500
50	24/29	2.5	1.890.050
100	24/29	2.5	1.890.100
250	24/29	4	1.890.250
500	24/29	4	1.890.500
1000	24/29	6.3	1.890.001
2000	24/29	6.3	1.890.002
50	29/32	2.5	1.892.050
100	29/32	2.5	1.892.100
250	29/32	4	1.892.250
500	29/32	4	1.892.500
1000	29/32	6.3	1.892.001
1000	29/32	6.3	1.892.002

Funnels, constant addition, cylindrical graduated, with PTFE dosing closing valve, inserted Mariotte tube, all parts are interchangeable.
1. Basic version.
2. With heating and cooling jacket.
3. With pressure equalizing tube.
4. With pressure equalizing tube and heating and cooling jacket.

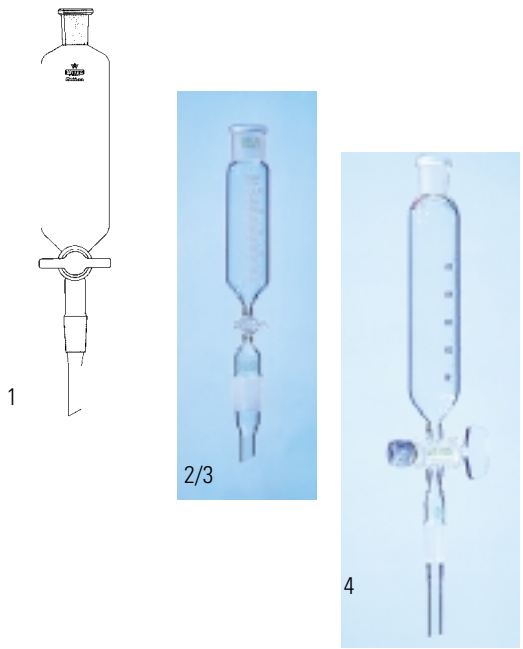
Capacity ml	ST	1.	2.	3.	4.
50:1	14/23	2.685.005	2.686.005	2.687.005	2.688.005
100:2	14/23	2.685.010	2.686.010	2.687.010	2.688.010
250:5	14/23	2.685.025	2.686.025	2.687.025	2.688.025
50:1	29/32	2.685.050	2.686.050	2.687.050	2.688.050
100:2	29/32	2.685.100	2.686.100	2.687.100	2.688.100
250:5	29/32	2.685.250	2.686.250	2.687.250	2.688.250
500:10	29/32	2.685.500	2.686.500	2.687.500	2.688.500
1000:20	29/32	2.685.001	2.686.001	2.687.001	2.688.001
2000:50	29/32	2.685.002	2.686.002	2.687.002	2.688.002

Funnels for solids
see pages
19, 20 and 151.

Technical data, dropping funnels, cylindrical.

Capacity ml	Division* ml	Bore of plug mm
25	0.5	2.5
50	1	2.5
100	2	2.5
250	5	4
500	10	4
1000	20	6.3
2000	50	6.3

* by graduated dropping funnels



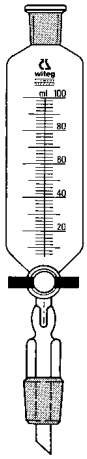
Dropping funnels, cylindrical, stopcock with screw-thread retaling nut.
With ST-cone and socket. PRECISO.
1. Ungraduated. ST-stopcock.
2. Graduated. ST-stopcock, acc. to DIN 12567.
3. Graduated. PTFE-stopcock.
4. Graduated. Needle valve stopcock with PTFE-needle valve.

Capacity ml	ST	1.	2.	3.	4.
Without pressure equalizing					
25	14/23	1.790.025	*1.800.025	1.810.025	1.828.025
50	14/23	1.790.050	1.800.050	1.810.050	1.828.050
100	14/23	1.790.100	1.800.100	1.810.100	–
250	14/23	1.790.250	*1.800.250	1.810.250	–
50	19/26	1.792.050	1.802.050	1.812.050	1.827.105
100	19/26	1.792.100	1.802.100	1.812.100	1.827.110
250	19/26	1.792.250	1.802.250	1.812.250	1.827.125
500	19/26	1.792.500	*1.802.500	1.812.500	1.827.150
50	24/29	1.794.050	*1.804.050	1.814.050	1.827.205
100	24/29	1.794.100	*1.804.100	1.814.100	1.827.210
250	24/29	1.794.250	*1.804.250	1.814.250	1.827.225
500	24/29	1.794.500	*1.804.500	1.814.500	1.827.250
1000	24/29	1.794.001	*1.804.001	1.814.001	1.827.260
2000	24/29	1.794.002	*1.804.002	1.814.002	1.827.272
50	29/32	1.796.050	*1.806.050	1.816.050	1.828.051
100	29/32	1.796.100	1.806.100	1.816.100	1.828.100
250	29/32	1.796.250	1.806.250	1.816.250	1.828.250
500	29/32	1.796.500	1.806.500	1.816.500	1.828.500
1000	29/32	1.796.001	1.806.001	1.816.001	1.828.001
2000	29/32	1.796.002	*1.806.002	1.816.002	1.828.002
With pressure equalizing					
25	14/23	1.840.025	1.850.025	1.860.025	1.869.025
50	14/23	1.840.050	1.850.050	1.860.050	1.869.050
100	14/23	1.840.100	1.850.100	1.860.100	–
250	14/23	1.840.250	1.850.250	1.860.250	–
50	19/26	1.842.050	1.852.050	1.862.050	1.868.105
100	19/26	1.842.100	1.852.100	1.862.100	1.868.110
250	19/26	1.842.250	1.852.250	1.862.250	1.868.125
500	19/26	1.842.500	1.852.500	1.862.500	1.868.150
50	24/29	1.844.050	1.854.050	1.864.050	1.868.205
100	24/29	1.844.100	1.854.100	1.864.100	1.868.210
250	24/29	1.844.250	1.854.250	1.864.250	1.868.225
500	24/29	1.844.500	1.854.500	1.864.500	1.868.250
1000	24/29	1.844.001	1.854.001	1.864.001	1.868.261
2000	24/29	1.844.002	1.854.002	1.864.002	1.868.272
50	29/32	1.846.050	1.856.050	1.866.050	1.869.051
100	29/32	1.846.100	1.856.100	1.866.100	1.869.100
250	29/32	1.846.250	1.856.250	1.866.250	1.869.250
500	29/32	1.846.500	1.856.500	1.866.500	1.869.500
1000	29/32	1.846.001	1.856.001	1.866.001	1.869.001
2000	29/32	1.846.002	1.856.002	1.866.002	1.869.002

* not acc. to DIN

Dropping funnels, with drip-nozzle.
Graduated. Technical data like dropping funnels cylindrical. PRECISO.
1. ST-stopcock. Without pressure equalizing.
2. PTFE-stopcock. Without pressure equalizing.
3. ST-stopcock. With pressure equalizing.
4. PTFE-stopcock. With pressure equalizing.

Capacity ml	ST	1.	2.	3.	4.
10	14/23	1.893.001	1.893.101	1.895.001	1.895.101
25	14/23	1.893.002	1.893.102	1.895.002	1.895.102
50	14/23	1.893.003	1.893.103	1.895.003	1.895.103
100	14/23	1.893.013	1.893.113	1.895.013	1.895.113
10	19/26	–	–	1.895.021	1.895.121
25	19/26	–	–	1.895.022	1.895.122
50	19/26	–	–	1.895.023	1.895.123
100	19/26	–	–	1.895.024	1.895.124
50	29/32	1.893.004	1.893.104	1.895.004	1.895.104
100	29/32	1.893.005	1.893.105	1.895.005	1.895.105
250	29/32	1.893.006	1.893.106	1.895.006	1.895.106
500	29/32	1.893.007	1.893.107	1.895.007	1.895.107
1000	29/32	1.893.008	1.893.108	1.895.008	1.895.108
2000	29/32	1.893.009	1.893.109	1.895.009	1.895.109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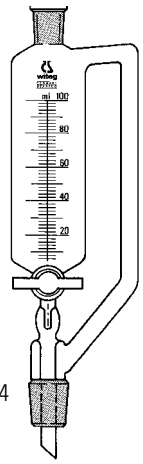
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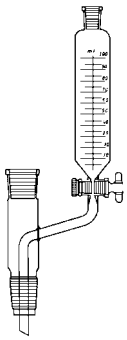
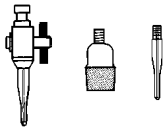
Dropping funnels at connecting piece. Graduated, stopcock ST 3.

Capacity ml	Connecting piece ST	Dropping funnels ST	
50	14/23	14/23	1.896.050
100	14/23	14/23	1.896.100
50	29/32	14/23	1.896.051
100	29/32	14/23	1.896.101



Funnels for solids. For powdery substances. Vertical version with cooled lower part to avoid sticking problems of the spiral conveyor. Cone and socket 29/32.

Capacity ml	Spiral vertical	Spiral horizontal
50	1.897.776	1.897.805
100	1.897.776	1.897.810
250	-	1.897.825
500	-	1.897.850
1000	-	1.897.890



Dropping funnels
see
page 18.

Further
funnels for solids
see pages
19 and 151.

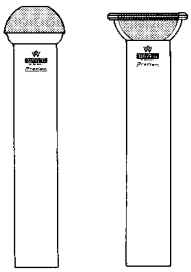
Dropping funnels, special. Cylindrical, graduated, Borosilicate glass 3.3, with detachable PTFE-stopcock and ST-joint part, 100 mm long. With ST-polyethylen-stopper. Division like dropping funnel cylindrical. Bore of plug 2.5 mm. PRECISO.

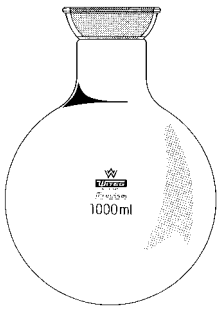
Capacity ml	ST	
25	14/23	2.628.025
50	14/23	2.628.050
100	14/23	2.628.100
250	14/23	2.628.250
50	19/26	2.630.050
100	19/26	2.630.100
250	19/26	2.630.250
500	19/26	2.630.500
50	24/29	2.632.050
100	24/29	2.632.100
250	24/29	2.632.250
500	24/29	2.632.500
1000	24/29	2.632.001
50	29/32	2.634.050
100	29/32	2.634.100
250	29/32	2.634.250
500	29/32	2.634.500
1000	29/32	2.634.001
Individual parts		
PTFE-stopcock		2.635.001
Cone	14/23	2.635.002
	19/26	2.635.003
	24/29	2.635.004
	29/32	2.635.005
Stem, 200 mm		2.635.006
Stem, 100 mm		2.635.007

Spherical joints.
Inch range, acc. to DIN 12264/12244. PRECISO.

S	O. D. mm	Length mm	Wall thick. mm	Balls form B (D)	Sockets form A (C)
13/2	8	100	2.7	0.125.002	0.126.002
13/5	8	100	1.5	0.125.005	0.126.005
19/9	13	100	1.5	0.125.009	0.126.009
29/15	19	120	1.8	0.125.015	0.126.015
35/20	24	120	1.8	0.125.020	0.126.020
40/25	30	150	2.0	0.125.025	0.126.025
41/25	32	150	2.0	0.125.026	0.126.026
51/30	36	150	2.8	0.125.030	0.126.030
64/40	48	150	3.2	0.125.040	0.126.040

*mm range on request



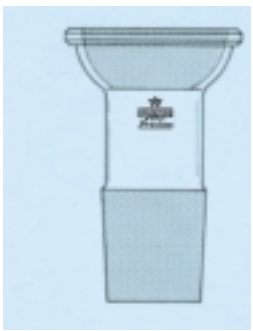


Flasks, round bottom, center neck.
With spherical joint.

Capacity ml	S	Flasks O. D. mm	Height mm		Plastic-coated
100	35/20	64	110	0.644.100	0.645.100
250	35/20	81	140	0.644.250	0.645.250
500	35/20	105	170	0.644.500	0.645.500
1000	35/20	126	210	0.644.001	0.645.001
2000	35/20	166	260	0.644.002	0.645.002
4000	35/20	207	310	0.644.004	0.645.004

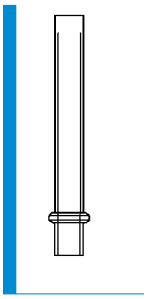
Clips for spherical joints, with screw.

S	
13/2-13/5	0.133.013
19/9	0.133.019
29/15	0.133.029
35/20	0.133.035
40/25-41/25	0.133.040
51/30	0.133.051
64/40	0.133.064



Adapters with standard/spherical joints. PRECISO.

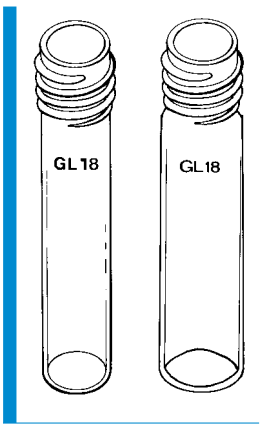
ST	S	
NSH 19/32	KSK 35/20	0.530.035
NSK 29/32	KSP 35/20	0.520.029



Screw threads, with cone.
Acc. to DIN 12257, form E, PRECISO.

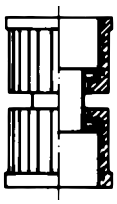
ST	GL	Length mm	
14/23	14	12	0.550.001
19/26	14	60	0.550.002
24/29	14	65	*0.550.003
29/32	14	70	*0.550.004
14/23	18	60	*0.550.010
19/26	18	60	0.550.011
24/29	18	75	*0.550.012
29/32	18	75	0.550.013
19/26	25	22	*0.550.020
24/29	25	70	*0.550.021
29/32	25	75	0.550.022
24/29	32	80	*0.550.030
29/32	32	85	0.550.031
45/40	25	100	0.550.024
45/40	32	100	0.550.032
24/29	45	85	0.550.039
29/32	45	85	0.550.040
45/40	45	95	0.550.041

* not acc. to DIN. Cap and seal see next two pages



Screw-thread adapter couplings, for flexible coupling of 2 glass screw-threads with integral silicone-PTFE-liners.

Screw threads GL	
14	0.184.014
18	0.184.018
25	0.184.025
32	0.184.032
45	0.184.045



Function-stops for screw-threads, SVS (DBGM).

FA	Tubes O. D. mm	FA O. D. mm	Length mm	Wall thick. mm	
6	6	10	120	1.5	0.198.006
8	8	12	120	1.5	0.198.008
10	10	14	120	1.5	0.198.010
12	12	16	125	1.5	0.198.012
14	14	20	125	1.5	0.198.014
16	16	22	130	1.8	0.198.016
18	18	24	130	1.8	0.198.018

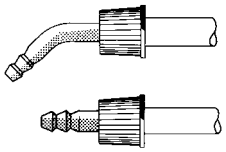
Tubing, threaded at one end, acc. to DIN 12216, with ISO screw-thread.

Screw threads	Tubes O. D. mm	Length mm	Wall thick. mm	
Straight				
GL 14	12	110	1.5	0.182.014
GL 18	16	110	1.8	1.182.018
GL 25	22	110	1.8	0.182.025
GL 32	28	150	1.8	0.182.032
GL 45	40	150	2.3	0.182.045
GL 45	40	300	2.3	0.182.046
GL 45	40	150	3.2	0.182.047
GL 45	40	300	3.2	0.182.048
GL 50	46	130	2.3	*0.182.050
GL 50	46	130	3.2	*0.182.051
GL 60	56	130	2.5	*0.182.060
GL 60	56	130	3.5	*0.182.061
GL 70	65	130	3.2	*0.182.070
GL 80	75	130	3.2	*0.182.080
GL 90	85	130	3.5	*0.182.090
GL 100	95	130	3.5	*0.182.100
Rd 10	8	110	1.5	0.182.210
Rd 14	12	110	1.5	0.182.214
SVL 15	16	110	1.8	0.182.315
SVL 22	22	110	1.8	0.182.322
SVL 30	32	150	2.0	0.182.330
SVL 42	40	150	2.3	0.182.342
With restriction, form W				
GL 14	14	110	1.5	0.183.014
GL 18	18	110	1.8	0.183.018
GL 25	26	110	2.0	0.183.025
GL 32	32	150	2.0	0.183.032
GL 45	46	150	2.3	0.183.045
GL 50	60	130	2.2	*0.183.050
GL 60	75	130	2.2	*0.183.060
GL 80	90	130	3.5	*0.183.080
GL 90	100	130	3.5	*0.183.090

* not acc. to DIN

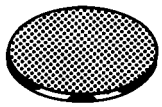
SVS-tubing connections.
Consisting of screw cap, hose connection with silicone seal and threaded tubes.

GL	O. D. mm	Hose connection made of	Complete	Hose connection with seal	Seal
Hose connection, bent					
14	8	PP	0.185.001	0.185.004	0.185.009
18	11	PP	0.185.016	0.185.014	0.185.010
Hose connection, straight					
14	8	PP	0.185.002	0.185.005	0.185.009
14	8	PTFE	0.185.003	0.185.006	0.185.009
18	11	PP	0.185 011	0.185.007	0.185.010
18	11	PTFE	0.185.012	0.185.008	0.185.010



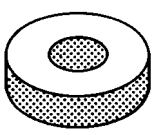
Silicone rubber liners, for piercing (Septa).

For GL	O. D. mm	Thickness mm	Silicone	Silicone PTFE-coated
14	12	2.0	0.181.014	0.181.214
18	16	2.0	0.181.018	0.181.218
25	22	2.0	0.181.025	0.181.225
32	29	2.0	0.181.032	0.181.232
45	42	3.0	0.181.045	0.181.245
50	48	3.0	0.181.050	–
60	58	3.0	0.181.060	–
70	68	3.0	0.181.070	–
80	78	3.0	0.181.080	–
90	89	3.0	0.181.090	–
100	98	3.0	0.181.100	–



Gaskets, with vulcanized-on PTFE-liners.

For GL	Seal O. A.- O. I. mm	For tubes O. D. from - to mm		Without PTFE-socket
14	12 x 6	5.5 - 6.5	0.177.006	0.177.106
18	16 x 6	5.5 - 6.5	0.178.006	0.178.106
18	16 x 8	7.5 - 9.0	0.178.008	0.178.108
18	16 x 10	9.0 - 11.0	0.178.010	0.178.110
25	22 x 8	7.5 - 9.0	0.179.008	0.179.108
25	22 x 10	9.0 - 11.0	0.179.010	0.179.110
25	22 x 12	11.0 - 13.0	0.179.012	0.179.112
32	29 x 10	9.0 - 11.0	0.180.010	0.180.110
32	29 x 12	11.0 - 13.0	0.180.012	0.180.112
32	29 x 14	13.0 - 15.0	0.180.014	0.180.114
32	29 x 16	15.0 - 17.0	0.180.016	0.180.116
32	29 x 18	17.0 - 19.0	0.180.018	0.180.118
45	42 x 26	25.0 - 27.0	0.180.026	0.180.126
45	42 x 32	31.0 - 33.0	0.180.032	0.180.132
50	48 x 34	33.0 - 35.0	0.180.034	–
50	48 x 36	35.0 - 37.0	0.180.036	–
60	58 x 38	37.0 - 39.0	0.180.038	–
60	58 x 44	43.0 - 45.0	0.180.044	–
70	68 x 46	45.0 - 47.0	0.180.046	–
80	78 x 50	49.0 - 51.0	0.180.050	–
90	89 x 60	59.0 - 61.0	0.180.060	–
90	89 x 70	69.0 - 71.0	0.180.070	–
100	98 x 80	78.0 - 81.0	0.180.080	–



Screw caps, top with hole, red, made of PBTP. (From GL 50 made of PP, nature).

GL	Bore dia. mm	
14	9.5	0.176.014
18	11.0	0.176.018
25	15.0	0.176.025
32	20.0	0.176.032
45	34.0	0.176.045
50	38.0	0.176.050
60	48.0	0.176.060
70	58.0	0.176.070
80	68.0	0.176.080
90	75.0	0.176.090
100	85.0	0.176.100

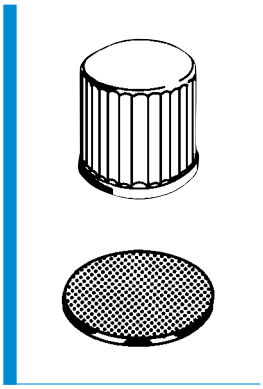
BEST BUY

Screw caps, top closed, blue, PP.
Pouring ring, blue, PP.
Pouring ring, red, ETFE, resistant up to 200 °C.

GL	
Screw caps, top closed, blue	
25	0.175.125
32	0.175.132
45	0.175.145
Pouring rings, blue, PP	
32	0.175.201
45	0.175.202
Pouring rings, red, ETFE	
32	0.175.301
45	0.175.302

Screw caps, top closed, in colour-code. PP.
GL 45 autoclaveable (140 °C).
Pouring rings, in colour-code. PP.

Colour-code	
Screw caps, closed	
red	5.526.088
yellow	5.526.066
green	5.526.077
nature	5.526.099
blue	0.175.145
Pouring rings, PP	
red	5.526.188
yellow	5.526.166
green	5.526.177
nature	5.526.199
blue	0.175.202



Screw caps, top closed, red, up to GL 45 made of PBTP, with PTFE-liners, GL 50 and larger made of PP, nature. (Ideal for spinner flasks „Biogen“, heat resistant up to approx 180 °C).

GL	Cap with seal	Spare seal
14	0.175.014	0.175.111
18	0.175.018	0.175.112
25	0.175.025	0.175.113
32	0.175.032	0.175.114
45	0.175.045	0.175.115
50	0.175.050	0.175.116
60	0.175.060	0.175.117
70	0.175.070	0.175.118
80	0.175.080	0.175.119
90	0.175.090	0.175.120
100	0.175.100	0.175.121

Technical data for stopcocks straight, acc. to DIN 12541.

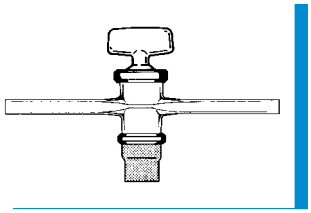
Bore of plug mm	ST	Side arms O. D. mm	Side arms length mm
1.6	12.5	8	100
2.5	14.5	9	100
4 *	14.5	9	100
4	18.8	10	110
6.3 *	18.8	10	110
6.3	21.5	13	120
8	24	15	120
10	29.2	18	120

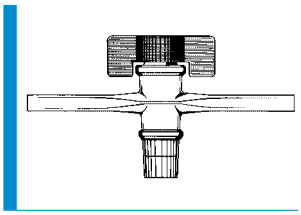
* not acc. to DIN

Stopcocks straight and separate plugs, acc. to DIN 12541.
With solid ST-plug. PRECISO.

Bore of plug mm	Capillary side arms	Bent tube side arms	Separate plugs
*1.6	0.200.001	0.202.001	0.203.001
*2.5	0.200.002	0.202.002	0.203.002
*4	–	0.202.104	0.203.104
*4	–	0.202.004	0.203.004
*6.3	–	0.202.106	0.203.106
**6.3	–	0.202.006	0.203.006
**8	–	0.202.008	0.203.008
**10	–	0.202.010	0.203.010

*with special screw-thread retaining nut (DBGM).
**with rubber retaining nuts "SIE" (DBGM).



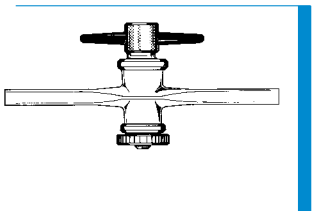


Stopcocks straight and separate plugs, acc. to DIN 12541, hollow ST-plug, with special screw-thread retaining nut (DBGM). COMPACT.

Bore of plug mm	Capillary side arms	Bent tube side arms	Separate plugs
1.6	0.210.001	0.211.001	0.212.001
2.5	0.210.002	0.211.002	0.212.002
4	–	0.211.004	0.212.004
6.3	–	0.211.006	0.212.006

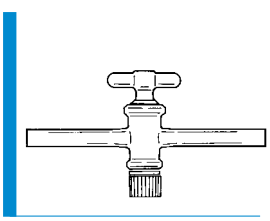
Stopcocks straight and separate plugs, acc. to DIN 12541, with ST-PTFE-plug, with special screw-thread retaining nut (DBGM).

Bore of plug mm	Capillary side arms	Bent tube side arms	Separate plugs
1.6	0.204.001	0.205.001	0.206.001
2.5	0.204.002	0.205.002	0.206.002
4	–	0.205.004	0.206.004
4 *	–	0.205.104	0.206.104
6.3 *	–	0.205.106	0.206.106
6.3	–	0.205.006	0.206.006
8	–	0.205.008	0.206.008
10	–	0.205.010	0.206.010



Stopcocks straight and separate plugs, acc. to DIN 12541, „Typ N", with hollow ST-plug and glass grip, screw-thread retaining nut (double tested).

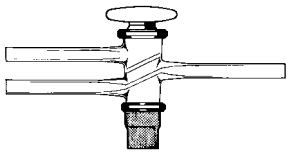
Bore of plug mm	Complete	Separate plugs	Screw-thread retaining nut
1.6	0.214.001	0.215.001	0.216.001
2.5	0.214.002	0.215.002	0.216.002
4	0.214.004	0.215.004	0.216.004
6	0.214.006	0.215.006	0.216.006
8	0.214.008	0.215.008	0.216.008
10	0.214.010	0.215.010	0.216.010

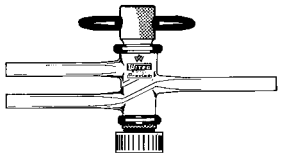


Technical data for two- and three way stopcocks, acc. to DIN 12553/12554

Bore of plug mm	ST	Side arms O. D. mm	Side arms length mm
1.6	14.5	8	100
2.5	18.8	9	100
*4	21.5	10	110
4	24	10	110
*6.3	24	10	110
6.3	29.2	13	120
*8.0	29.2 *	13	120

* not acc. to DIN

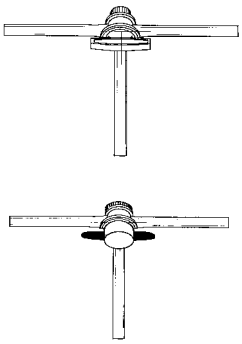




Stopcocks, double bore, acc. to DIN 12553, with screw-thread retaining nut (DBGM).

Bore of plug mm	With solid plug and capillary side arms	With solid plug and bent tube side arms	With ST-PTFE-plug and Capillary side arms	With ST-PTFE-plug and bent tube side arms	With hollow plug and bent tube side arms
1.6	0.250.001	0.251.001	0.252.001	0.253.001	0.254.001
2.5	0.250.002	0.251.002	0.252.002	0.253.002	0.254.002
*4	–	0.251.004	–	0.253.004	0.254.004
*6.3	–	0.251.006	–	0.253.006	0.254.006

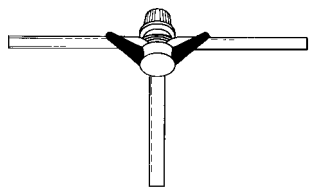
* not acc. to DIN

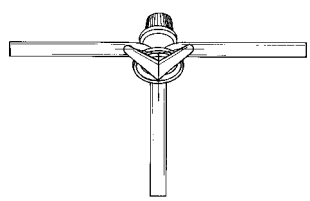


Stopcocks, three way, acc. to DIN 12554, with T-bore, with screw-thread retaining nut (DBGM).

Bore of plug mm	With solid plug and capillary side arms	With solid plug and bent tube side arms	With ST-PTFE-plug and capillary side arms	With ST-PTFE-plug and bent tube side arms	With hollow plug and bent tube side arms
1.6	0.262.001	0.263.001	0.264.001	0.265.001	0.266.001
2.5	0.262.002	0.263.002	0.264.002	0.265.002	0.266.002
*4	–	0.263.004	–	0.265.004	0.266.004
*6.3	–	0.263.006	–	0.265.006	0.266.006
*8	–	0.263.008	–	0.265.008	0.266.008

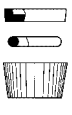
* not acc. to DIN





Stopcocks, three way, acc. to Czako, acc. to DIN 12563.

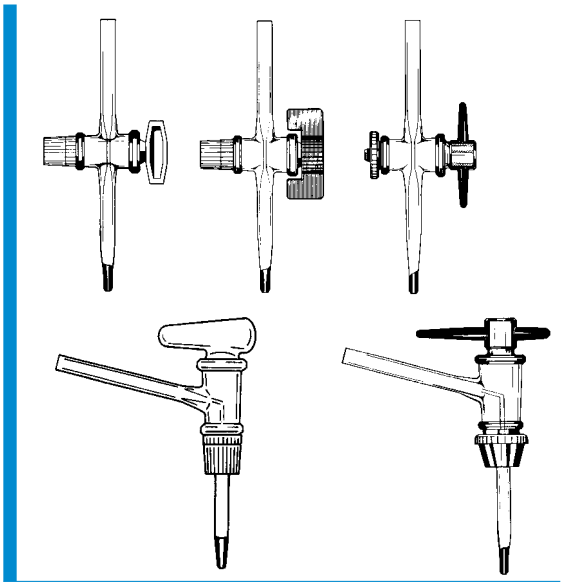
Bore of plug mm	With solid plug and capillary side arms	With solid plug and bent tube side arms	With ST-PTFE-plug and capillary side arms	With ST-PTFE-plug and bent tube side arms	With hollow plug and bent tube side arms
1.6	0.268.001	0.268.101	0.269.001	0.269.101	0.269.201
2.5	0.268.002	0.268.102	0.269.002	0.269.102	0.269.202
4	–	0.268.104	–	0.269.104	0.269.204



Screw-thread retaining nuts and rubber-O-ring.

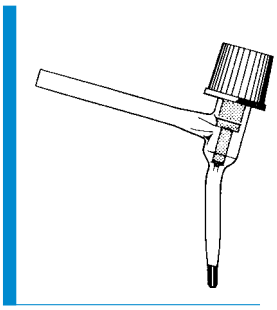
ST	Screw-thread GL	For solid plugs	For hollow plugs
12.5	8	0.245.008	0.245.108
14.5	9	0.245.009	0.245.109
18.8	12	0.245.012	0.245.112
21.5	14	0.245.014	0.245.114

Attention:
The tip opening of each burette stopcock is precisely adjusted to the total capacity of the burettes. We kindly ask you to specify the burette capacity when ordering.
For burette 10 ml *.***.*1*
For burette 25 ml *.***.*2*
For burette 50 ml *.***.*5*



Stopcocks for burettes, acc. to DIN 12541, bore 1.6 mm. ST 12.5.

ST-plug	Soda glass	Borosilicate
Straight		
solid	0.232.0*1	0.232.1*1
hollow ("COMPACT")	0.233.0*1	0.233.1*1
PTFE	0.234.0*1	0.234.1*1
Lateral		
solid	0.238.0*1	0.238.1*1
separate plugs	0.239.0*1	–
PTFE	0.240.0*1	0.240.1*1
PTFE-separate plugs	0.241.0*1	–

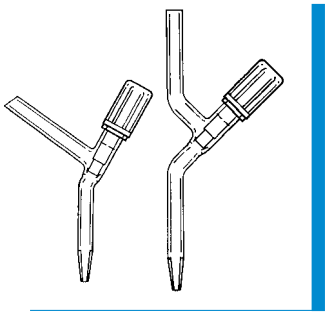


Valves for burettes, lateral, with PTFE-valve plug.

Type	Bore of plug mm	
Soda glass	0-2.5	0.244.001
Borosilicate	0-2.5	0.244.101
Amber glass	0-2.5	0.244.201
Spare needle valve	0-2.5	0.244.300

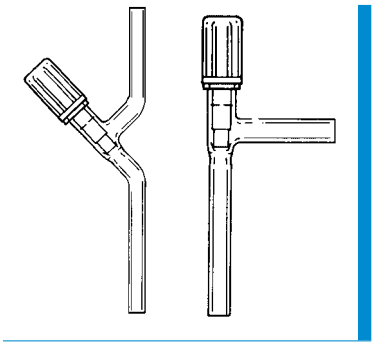
Needle valve stopcocks "Economy", with PTFE-needle valve, with sealing system, with overtwist safety device. DURAN.

Type	Bore of plug mm	
Lateral	0-3	0.243.300
Straight	0-3	0.243.400
Spare needle valve	0-3	0.243.500



Needle valve stopcocks "Economy", with PTFE-needle valve, with sealing system, with overtwist safety device. DURAN.

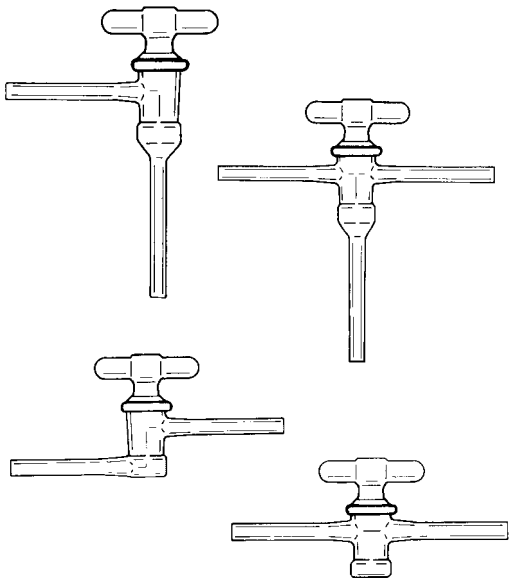
Bore of plug mm	Needle valve stopcock straight	Needle valve stopcock angled	Spare needle valve
0-3	0.243.100	0.243.200	0.243.500
0-6	0.243.150	0.243.250	0.243.550
0-10	0.243.160	0.243.260	0.243.560



Technical data for high vacuum stopcocks, acc. to Schiff, acc. to DIN 12545.

Bore of plug mm	ST	Side arms O. D. mm	Side arms length mm
2.5	14.5	9	100
4	18.8	10	110
6.3	21.5	13	120
10	29.2	18	120
*12	34.5	20	120
*15	45	22	120

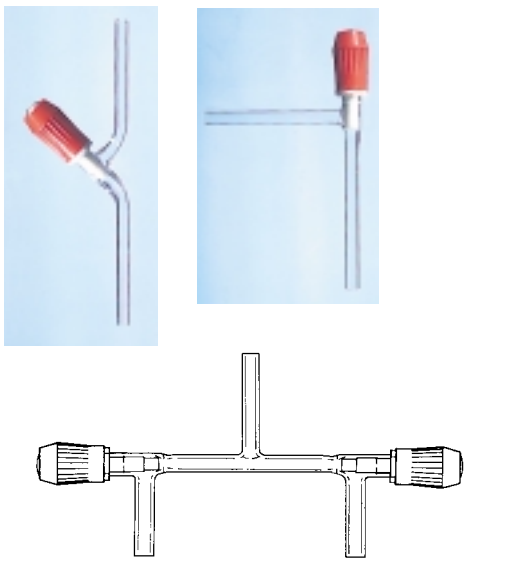
*not acc. to DIN



High vacuum stopcocks, acc. to Schiff, acc. to DIN 12545, with hollow ST-plug.

Bore of plug mm	Stopcock angled	Stopcock double bore	Stopcock straight	Stopcock bag
2.5	0.270.002	0.272.002	0.274.002	0.276.002
4	0.270.004	0.272.004	0.274.004	0.276.004
6.3	0.270.006	0.272.006	0.274.006	0.276.006
10	0.270.010	0.272.010	0.274.010	0.276.010
*12	0.270.012	0.272.012	0.274.012	0.276.012

* not acc. to DIN



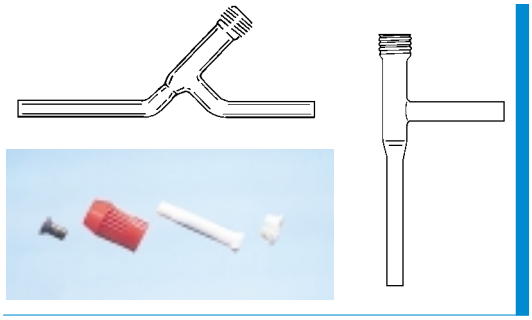
High vacuum stopcocks "Witaflo-red", borosilicate glass, with adjustable PTFE-seal, leak rate $<10^{-6}$, usable between -20 and +200 °C, with overtwist safety device.

Bore of plug mm	Length mm	Side arms O. D. mm	Stopcock straight	Stopcock angled	Stopcock three way
2	210	8	*0.290.102	0.290.202	–
3	210	8	0.290.103	0.290.203	**0.290.303
6	210	10	0.290.106	0.290.206	***0.290.306
10	225	13	0.290.110	0.290.210	–
12	225	15	0.290.112	0.290.212	–
14	225	18	0.290.114	0.290.214	–

*7/8 mm O. D., capillary
**215 mm long
***220 mm long

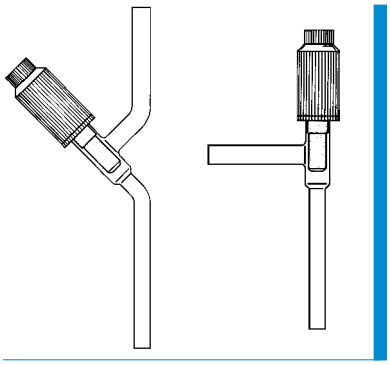
High vacuum stopcocks, spare parts for "Witaflo-red".

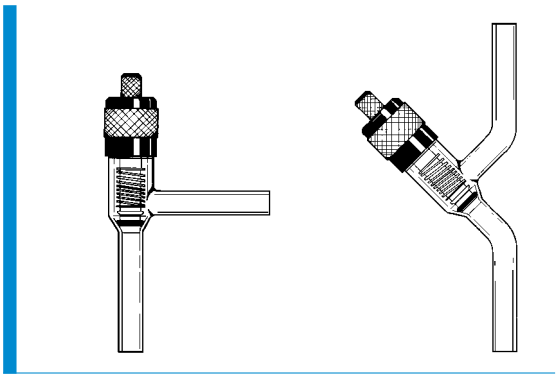
For bore of plug mm	PTFE needle valve	Glass-housings straight	Glass-housings angled	Overtwist safety device
2	0.290.402	0.290.502	0.290.602	0.290.702
3	0.290.403	0.290.503	0.290.603	0.290.703
6	0.290.406	0.290.506	0.290.606	0.290.706
10	0.290.410	0.290.510	0.290.610	0.290.710
12	0.290.412	0.290.512	0.290.612	0.290.712
14	0.290.414	0.290.514	0.290.614	0.290.714



High vacuum stopcock with PTFE needle valve,"Witaflo", adjustable, leakage rate < 10^{-8}, with interchangeable valve plug tip.

Bore mm	Side arms O. D. mm	Side arms length mm	Screw thread mm	Needle valve stopcock straight	Needle valve stopcock angled
3	8	75	14	0.291.003	0.293.003
6	10	75	18	0.291.006	0.293.006
10	18	85	24	0.291.010	0.293.010
15	20	85	24	0.291.015	0.293.015
Type-N					
3	8	75	–	0.291.103	0.293.103
6	10	75	–	0.291.106	0.293.106



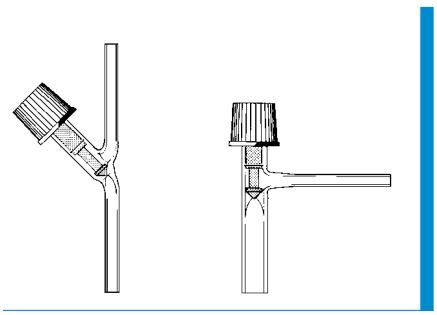


Straight, ultra-high vacuum valves, "SVT", with valve-bellow, made of V4A steel, with Viton-O-ring-seal, leak rate <10^{-9}. PTFE sealing: please write TEF behind the order. no.

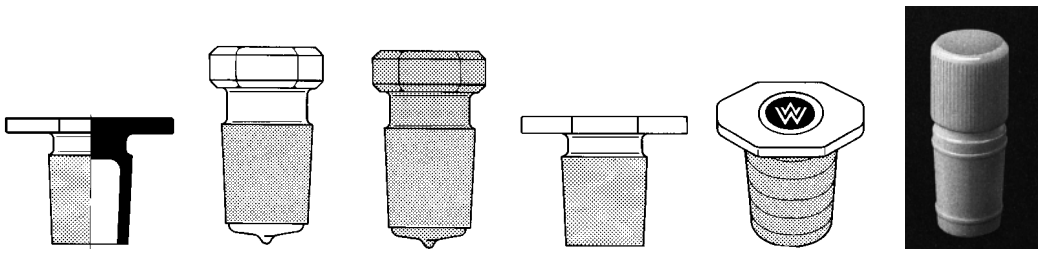
Bore mm	Side arms O. D. mm	Needle valve stopcock straight	Needle valve stopcock angled
4	7	0.297.004	0.298.004
9	12	0.297.010	0.298.010
15	19	0.297.015	0.298.015
20	26	0.297.020	0.298.020

Straight vacuum valves, With PTFE valve-bellow and PTFE sealing, leak rate <10^{-9}.

Bore mm	Side arms O. D. mm	Side arms length mm	Needle valve stopcock straight	Needle valve stopcock angled
0-4	10	110	0.290.804	0.290.904
0-6	-	-	0.290.806	0.290.906



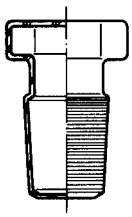
ST-stoppers.
1. Borosilicate glass, solid, octogonal plate, DIN 12252.
2. Borosilicate glass, hollow, hexag. plate, DIN 12252, with drip tip.
3. Amber glass, hollow, hexagonal plate, DIN 12252, with drip tip.
4. Borosilicate glass, hollow, with safety nut.
5. PE, octogonal plate, DIN 12254.
6. PTFE (Teflon), solid.



ST	1.	2.	3.	4..	5.	6.
7/16	0.300.007	0.302.007	0.303.007	–	0.306.007	–
10/19	0.300.010	0.302.010	0.303.010	0.304.010	0.306.010	7.203.001
12/21	0.300.012	0.302.012	0.303.012	0.304.012	0.306.012	–
14/23	0.300.014	0.302.014	0.303.014	0.304.014	0.306.014	7.203.002
19/26	0.300.019	0.302.019	0.302.019	0.304.019	0.306.019	7.203.003
24/29	0.300.024	0.302.024	0.303.024	0.304.024	0.306.024	7.203.004
29/32	0.300.029	0.302.029	0.303.029	0.304.029	0.306.029	7,203.005
34/35	0.300.034	0.302.034	0.303.034	0.304.034	0.306.034	7.203.006
45/40	0.300.045	0.302.045	0.303.045	0.304.045	0.306.045	–
60/46	–	–	–	–	0.306.060	–
85/55	–	–	–	–	0.306.085	–

ST-stoppers, short joint, hollow, hexagonal plate, flat.

ST	
10/13	0.305.010
12/14	0.305.012
14/15	0.305.014
19/17	0.305.019
24/20	0.305.024
29/22	0.305.029



Cork stoppers, for laboratory purposes, extra fine quality SI, packed in plastic bags (see minimum quantity). Smaller quantities are only available at surcharge of 40%.

Dia. top/bottom mm	Length mm	Type	Standard pack pcs.	
10/7	19	0	200	9.300.000
12/9	17	1	200	9.300.001
15/12	22	2	200	9.300.002
17/14	22	3	200	9.300.003
20/17	22	4	100	9.300.004
26/22	27	5	100	9.300.005
30/26	27	6	100	9.300.006
36/32	27	7	50	9.300.007
40/36	27	8	50	9.300.008
45/40	30	9	25	9.300.009
50/45	30	10	25	9.300.010
55/50	30	11	25	9.300.011
60/55	30	12	10	9.300.012
65/60	30	13	10	9.300.013
70/65	30	14	10	9.300.014
75/70	30	15	10	9.300.015
80/75	30	16	10	9.300.016
85/80	30	17	10	9.300.017
90/85	30	18	10	9.300.018
95/90	30	19	5	9.300.019
100/95	30	20	5	9.300.020

Rubber stoppers, grey natural rubber, solid, shore-hardness 35 - 5°, specific weight 0,99, non-toxic, low sulphur content, especially for laboratory purposes. Rubber stoppers are available with 1 or 2 holes, 3 - 8 mm Ø.

Dia. top/bottom mm	Length mm	Type	Standard-pack pcs.	
8/4	20	0	200	9.303.000
10/6	20	1	200	9.303.001
13/9	20	2	200	9.303.002
15/11	20	3	200	9.303.003
19/14	20	4	100	9.303.004
21/16	25	5	100	9.303.005
24/19	25	6	100	9.303.006
27/22	25	7	50	9.303.007
31/25	30	8	50	9.303.008
34/28	30	9	25	9.303.009
38/31	35	10	25	9.303.010
41/34	35	11	25	9.303.011
45/38	35	12	10	9.303.012
49/42	35	13	10	9.303.013
54/46	40	14	10	9.303.014
60/50	50	15	10	9.303.015
73/63	50	16	10	9.303.016
90/70	50	17	10	9.303.017
92/78	50	18	10	9.303.018
95/85	50	19	5	9.303.019
105/95	50	20	5	9.303.020
Surcharge for 1 hole				9.305.001
Surcharge for 2 holes				9.305.002

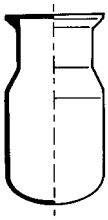
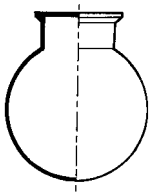
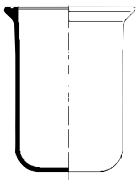
Stoppers, silicone, transparent, flexible, extremly resistant against high temperature, cold and chemical attacks (-60 to +180 °C).

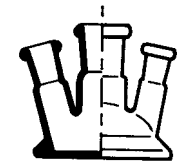
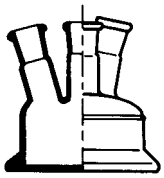
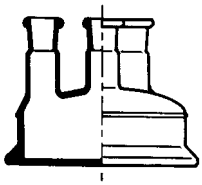
Dia. top/bottom mm	Length mm	
6.5/3.5	15	9.201.001
9/5	20	9.201.002
12/8	20	9.201.003
14.5/10	20	9.201.004
16.5/12.5	20	9.201.005
18/14	20	9.201.006
22/17	25	9.201.007
24/18	30	9.201.008
27/21	30	9.201.009
29/23	30	9.201.010
32/26	30	9.201.011
35/29	30	9.201.012
38/31	35	9.201.013
44/36	40	9.201.014
45/41	40	9.201.015
55/47	40	9.201.016
59.5/50.5	45	9.201.017
65/56	45	9.201.018
70/60	50	9.201.019
75.5/64.5	55	9.201.020
83/71	60	9.201.021
92/79	65	9.201.022
100/87	65	9.201.023
107/94	65	9.201.024

Stoppers and caps for tissue culture see section Life science

Vessels, flat flange. Flange with groove.
1. standard
2. with bottom outlet, sphere S 40/25.

Capacity ml	DN	Flange O. D. mm	Vessel O. D. mm	Height mm	Max. operat. pressure at 250 °C bar	1.	2.
Reaction vessels							
100	60	100	70	85	2.5	0.900.100	–
250	60	100	70	125	2.5	0.900.250	–
500	100	138	106	120	1.5	0.915.500	–
1000	100	138	106	205	1.5	0.915.001	0.916.001
2000	100	138	140	270	1.5	0.915.002	0.916.002
4000	150	184	200	290	1.0	0.915.004	0.916.004
6000	150	184	215	320	1.0	0.920.006	0.921.006
10000	150	184	240	410	0.5	0.920.010	0.921.010
5000	200	215	180	–	0.5	0.922.005	0.923.005
6000	200	215	210	–	0.5	0.922.006	0.923.006
10000	200	215	340	–	0.5	0.922.010	0.923.010
15000	200	215	495	–	0.5	0.922.015	0.923.015
20000	200	215	650	–	0.5	0.922.020	0.923.020
Flasks, round bottom							
2000	100	138	165	215	1.0	0.925.002	0.926.002
4000	100	138	206	265	1.0	0.925.004	0.926.004
6000	100	138	236	295	1.0	0.925.006	0.926.006
10000	100	138	280	340	0.5	0.925.010	0.926.010
20000	100	138	350	410	0.5	0.925.020	0.926.020
Beakers							
1000	120	158	130	125	0.5	0.930.001	–
2000	120	158	130	200	0.5	0.930.002	–
3000	120	158	130	290	0.5	0.930.003	–
1000	150	184	154	120	0.5	0.935.001	0.936.001
2000	150	184	154	200	0.5	0.935.002	0.936.002
3000	150	184	154	265	0.5	0.935.003	0.936.003

Lids, flat flange.

DN	Flange O. D. mm	Center neck ST	Side neck parallel	Side neck angled	
60	100	29/32	–	–	0.940.001
60	100	29/32	–	2 x 19/26	0.940.002
			–	1 x 14/23	
100	138	29/32	–	–	0.950.001
100	138	29/32	–	3 x 29/32	0.950.002
100	138	29/32	14/23	2 x 29/32	0.950.003
100	138	45/40	29/32	3 x 29/32	0.950.004
120	158	29/32	–	–	0.955.001
120	158	29/32	14/23	2 x 29/32	0.955.002
150	184	29/32	–	–	0.960.001
150	184	29/32	–	3 x 29/32	0.960.002
150	184	29/32	3 x 29/32	–	0.960.003
150	184	29/32	14/23	2 x 29/32	0.960.004
150	184	45/40	–	3 x 29/32	0.960.005
200	242	45/40	14/23	3 x 29/32	0.962.001
200	242	45/40	29/32	3 x 29/32	0.962.002
200	242	29/32	29/32	3 x 29/32	0.962.003

Stopcocks for bottom outlet for reaction vessel with bottom outlet. S 40/25-tray.

DN	Stopcock size ST	
100	18.8/6	0.939.010
150	29/10	0.939.015
200	29/10	0.939.020

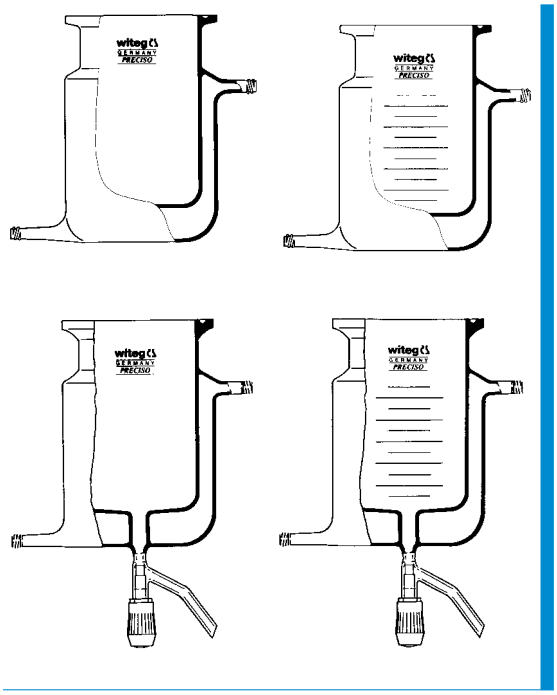
Stirrer shafts and stirrer guide see sample prepartion.

Sealing rings, flat flange

DN	Silicone	Silicone, PTFE coated
60	0.965.001	0.967.001
100	0.965.002	0.967.002
120	0.965.003	0.967.003
150	0.965.004	0.967.004
200	0.965.005	0.967.005

Thermostatic reaction vessels, ungraduated.
Reaction vessels, graduated: Please add G behind the article no.
With 2 screw-threads for our changeable hose connection no. 0.185.011***.
Flat flanges with groove for seal rings.

Capacity ml	Flange O. D. mm	Vessel I. D. mm	Height mm	Standard	With withdrawal valve*
NW 60					
100	100	60	100	0.991.100	0.994.100
250	100	60	150	0.991.250	0.994.250
500	100	60	240	0.991.500	0.994.500
NW 100					
500	138	100	220	0.992.500	0.995.500
1000	138	100	250	0.992.001	0.995.001
2000	138	100	380	0.992.002	0.995.002
3000	138	150	300	0.992.003	0.995.003
4000	138	150	350	0.992.004	0.995.004
NW 150					
1000	184	150	185	0.993.001	0.996.001
2000	184	150	235	0.993.002	0.996.002
3000	184	150	300	0.993.003	0.996.003
4000	184	150	350	0.993.004	0.996.004
5000	184	150	410	0.993.005	0.996.005
6000	184	150	460	0.993.006	0.996.006
10000	184	205	430	0.993.010	0.996.010
20000	184	240	570	0.993.020	0.996.020



* Additional height 100 mm.
*** Heat-/cooling jacket adapter available with:

S-ball 29/15	*.***.*** KS
Flat flange NW 15	*.***.*** NW
Thread Rd	*.***.*** Rd
Thread SVL	*.***.*** SVL

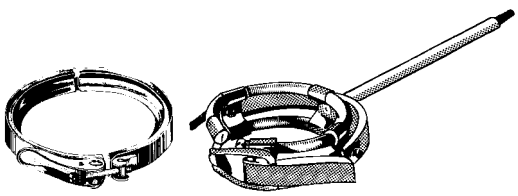
Please mark the article no. corresponding.

Stirrers see sample preparation.

Stirrer guide and stirrer shaft at side 134 and 135.

Flat flange, quick release clamps.

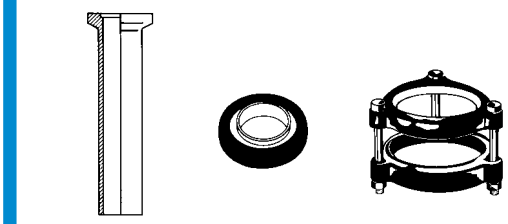
For DN	Stainless steel	Stainless steel + plastic
60	0.135.060	0.138.060
100	0.135.100	0.138.100
120	0.135.120	–
150	0.135.150	–
200	0.135.200	–



S-adapters for thermostatic reaction vessels with cooling jacket *.***.*** KS.

S-tray	With hose connection mm	
29/15	12	0.998.129

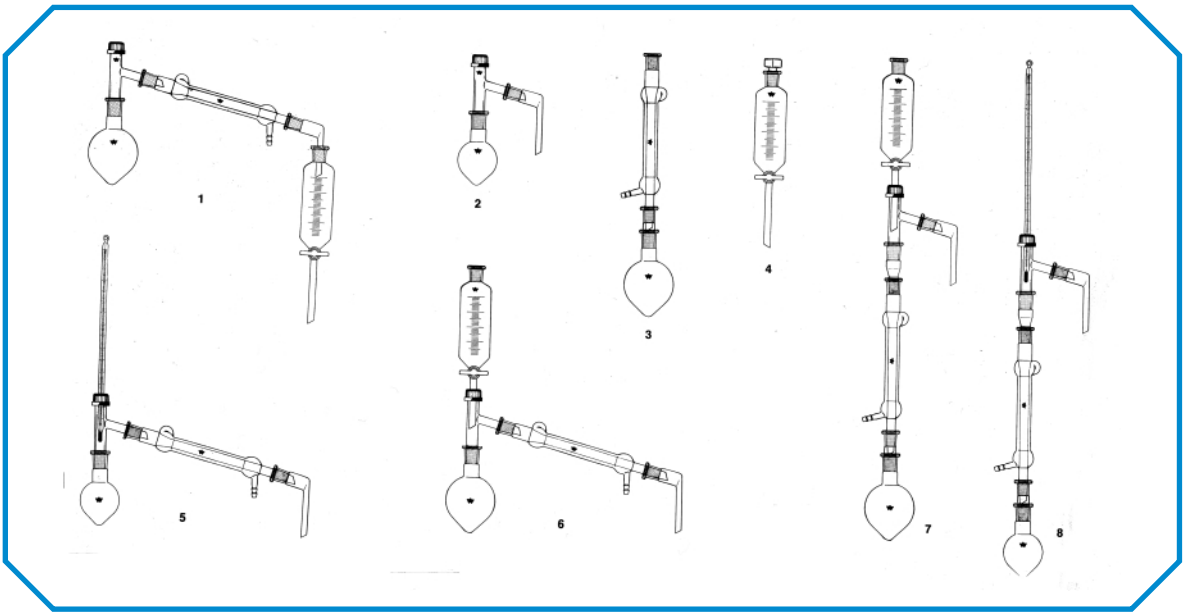
Supports and rackets, firmly and mobile, on request.
Stirrer, stirrer shafts, stirrer shaft seals see sample preparation.

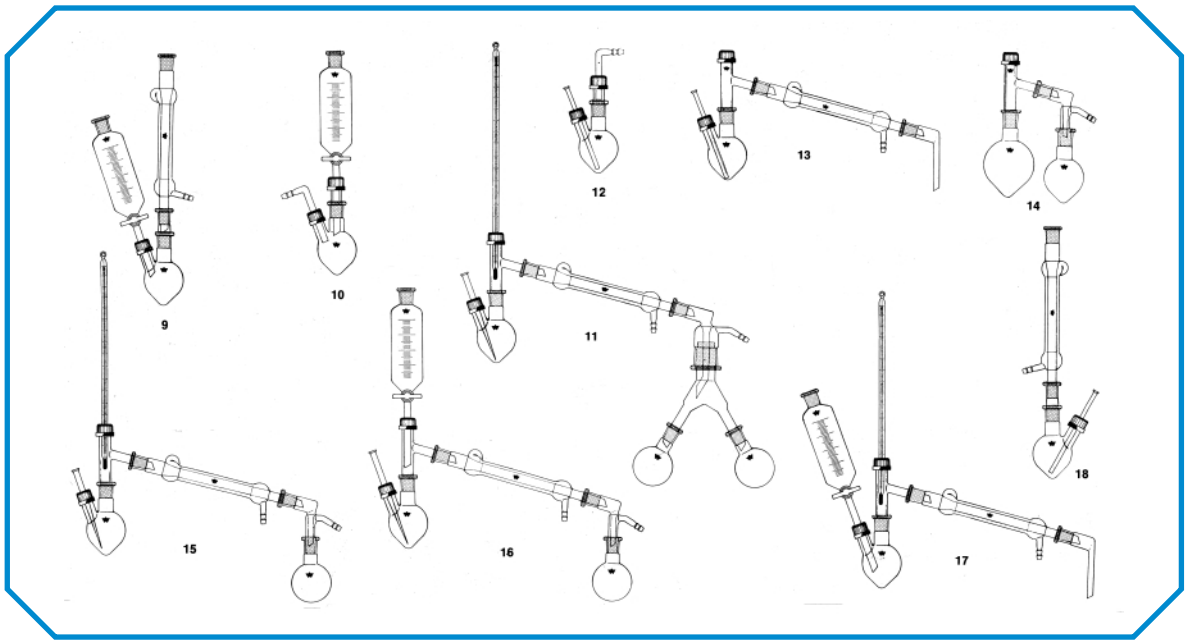


HV-flat flange systems.
- HV-flat flange, fire polished, with groove for seals.
- Internal center rings, O-rings of Perbunan/stainless steel.
- Supports for flat flanges.

Norm width mm	Flat flange	Internal center rings	Supports
10	0.128.210	0.128.310	0.128.410
15	0.128.215	0.128.315	0.128.415
25	0.128.225	0.128.325	0.128.425
40	0.128.240	0.128.340	0.128.440
50	0.128.250	0.128.350	0.128.450
65	0.128.265	0.128.365	0.128.465
90	0.128.290	0.128.390	0.128.490

For illustrating the possibilities of use you can find some examples of combinations on the following pages which can give you only a small insight into the variety of combinations. The conception of the ST-combi-boxes is based on the fact that they complement one another. If you are in possession of the complete range of combi-boxes you can execute all experimental constructions possible.
Our SVS-support-system and its complete support sets will be of great use to you and will facilitate you to assemble your experimental equipment. No.: 8.000.000 and no. 8.002.000 you find after the ST-combi-boxes.



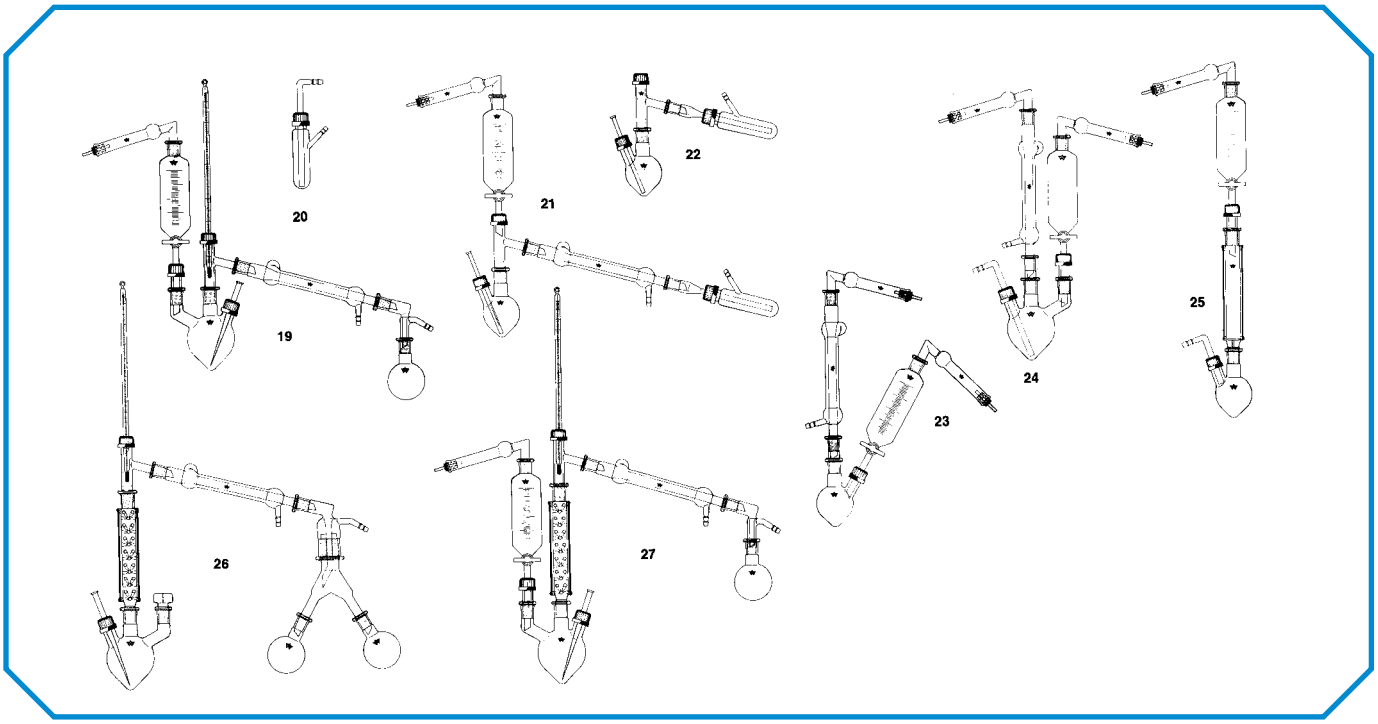


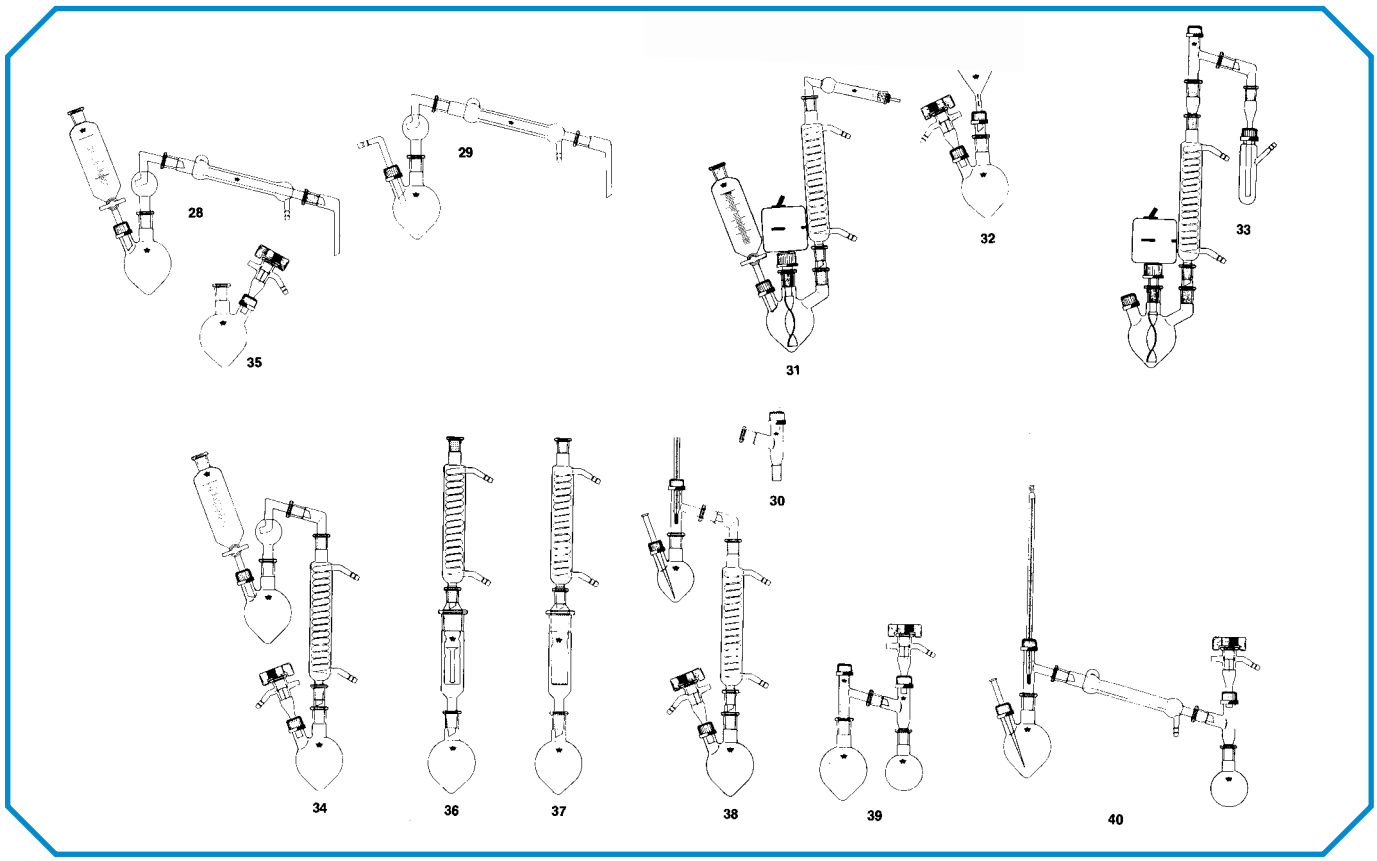
ST-Combi-Box no. 11.000.

1 Distillation
2 Reaction with gas production
3 Heating on the reflux
4 Separating funnel
5 Distillation
6 Recovery of solvents
7 Heating on the reflux and addition of material
8 Fractionated distillation

ST-Combi-Box no. 11.000 and no. 12.000.

9 Heating on the reflux under addition of material
10 Gas production
11 Fractionated vacuum distillation
12 Gas washing
13 Water-vapour distillation
14 Freezing-drier
15 Vacuum distillation
16 Distillation in vacuum after addition of material
17 Distillation under addition of material
18 Reaction with gas introduction



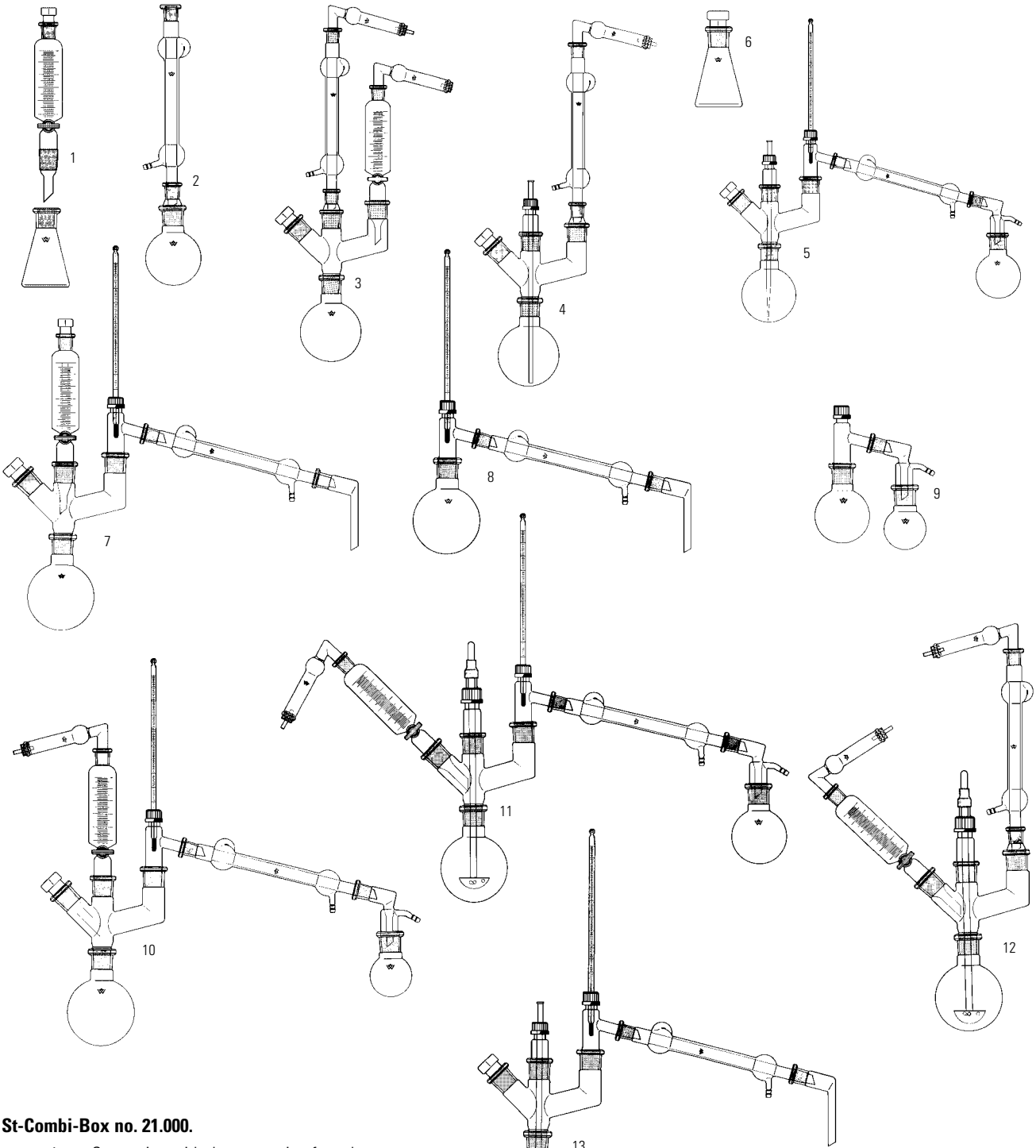


ST-Combi-Boxes no. 11.000, 12.000, 13.000.

19 Distillation in vacuum after addition of material
20 Gas washing
21 Nitrogen determination acc. to Kjeldahl
22 Gas flow reaction
23 Heating on the reflux under addition of material
24 Heating on the reflux under inert gas atmosphere and addition of material
25 Chromatography columns
26 Fractionated rectification
27 Rectification in vacuum

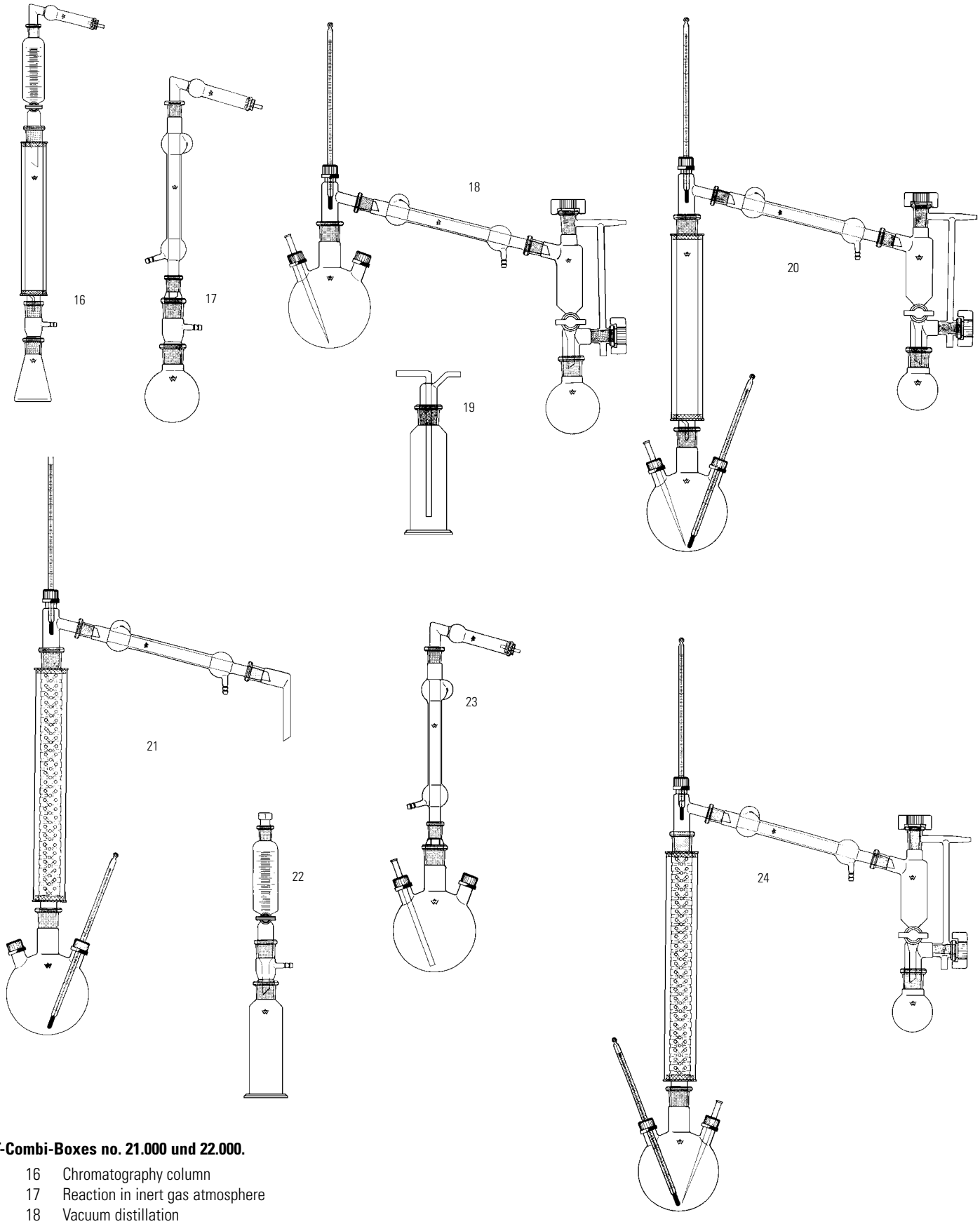
ST-Combi-Boxes no. 11., 12., 13., 14., 15.000.

28 Nitrogen determination acc. to Kjeldahl
29 Water-vapour distillation
30 Receiver adapter, with vacuum connection
31 Heating on the reflux under stirring and addition of material
32 Filtration
33 Stirring on the reflux with gas absorption
34 Vacuum distillation
35 Intermediate receiver adapter with vacuum connection
36 Extraction of liquids
37 Extraction of solid material
38 Vacuum distillation
39 Freezing-drier
40 Vacuum distillation



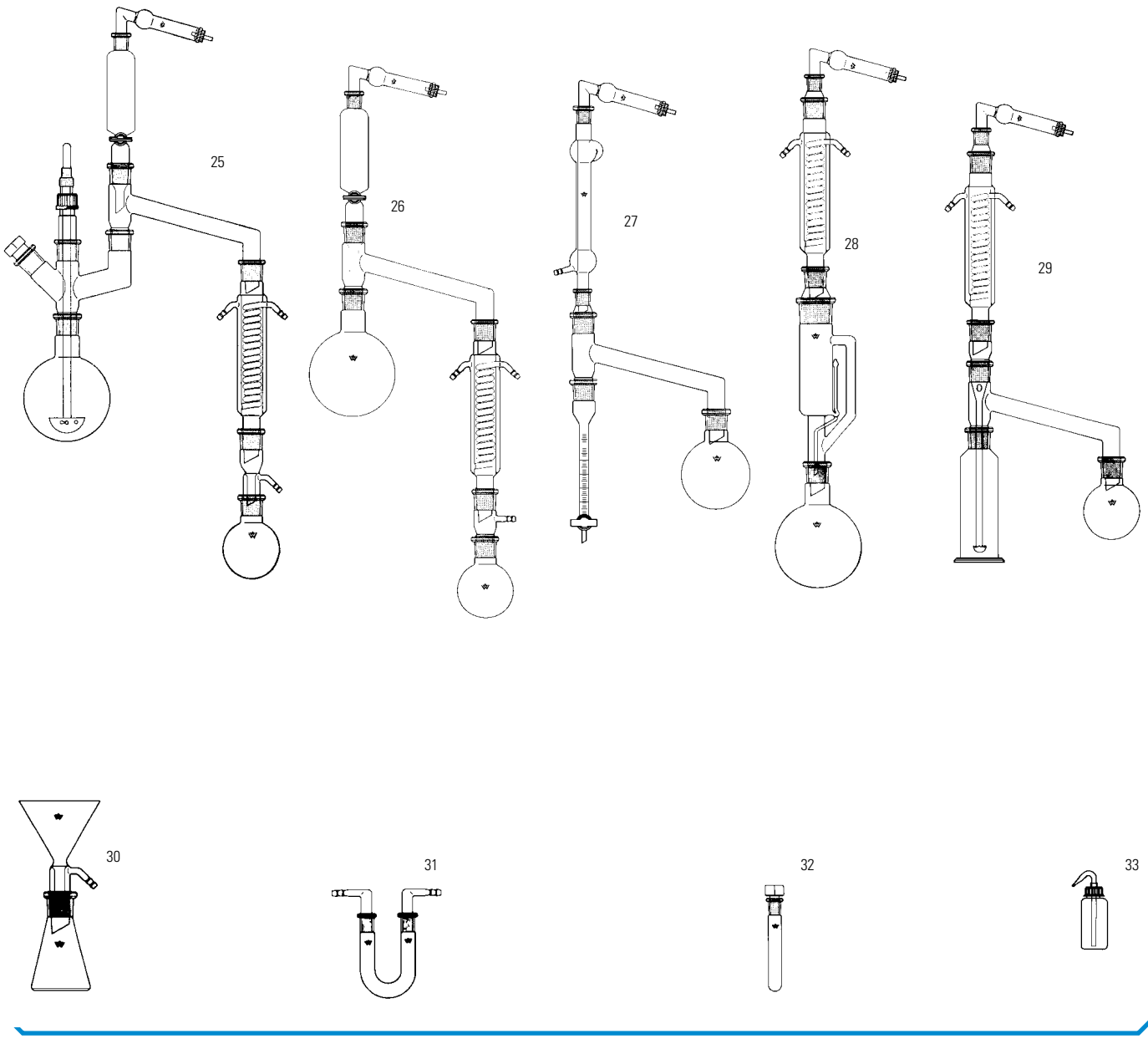
St-Combi-Box no. 21.000.

1 Separation with the separating funnel
2 Heating on the reflux
3 Heating on the reflux under addition of material
4 Reaction with gas introduction
5 Vacuum distillation
6 Iodine determination flask
7 Distillation under addition of material
8 Distillation
9 Freezing-drier
10 Vacuum distillation after addition of material
11 Vacuum distillation under stirring and addition of material
12 Heating on the reflux under stirring and addition of material
13 Water-vapour distillation
14 Heating on the reflux with gas introduction
15 Water-vapour distillation



ST-Combi-Boxes no. 21.000 und 22.000.

16 Chromatography column
17 Reaction in inert gas atmosphere
18 Vacuum distillation
19 Gas washing bottle
20 Fractionated vacuum distillation
21 Fractionated distillation
22 Gas generator
23 Reaction with gas introduction
24 Fractionated vacuum distillation

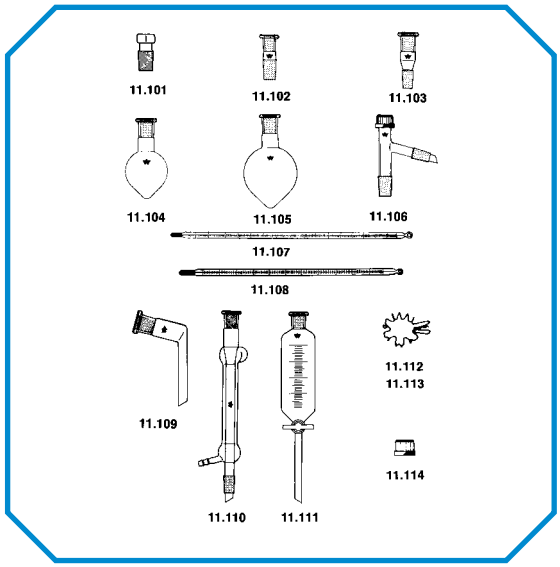


ST-Combi-Boxes no. 21., 22., 23., 24.000.

25 Vacuum distillation under stirring after addition of material
26 Vacuum distillation after addition of material
27 Water determination
28 Extraction according to Soxhlet
29 Extraction of liquids
30 Filtration
31 Absorption tube
32 Test tube
33 Wash bottles

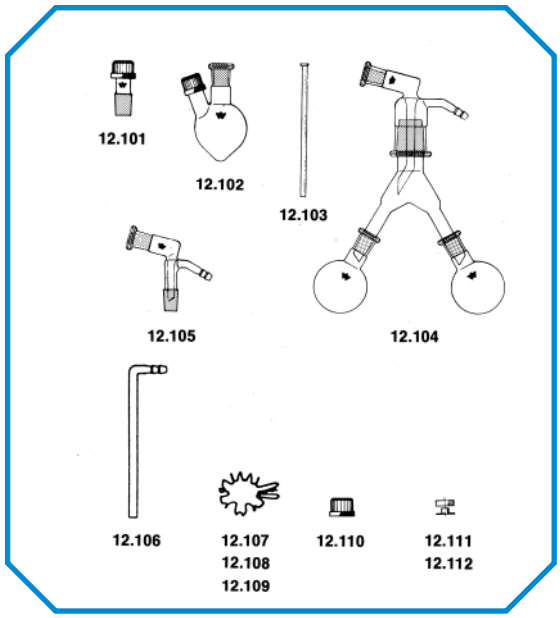
ST-Combi-Box "Semi-Mikro" 11, packed in foam stuff bed and cardboard-box.

Type	
Complete	11.000
Spare parts:	
1 Hollow-stopper ST 14/23	11.101
1 Reduction adapter ST 19/26-ST 14/23	11.102
1 Expansions adapter ST 14/23-ST 19/26	11.103
1 Flask, pear shaped, 25 ml, ST 19/26	11.104
1 Flask, pear shaped, 50 ml, ST 19/26	11.105
1 Recovery head, ST 19/26-GL 18/6-ST 14/23	11.106
1 Thermometer, solid stem, -10 +250 °C: 1 °C	11.107
1 Thermometer, solid stem, -10 +360 °C: 1 °C	11.108
1 Delivery adapter, ST 14/23	11.109
1 Condenser, Liebig, 160 mm, with 2 ST 14/23	11.110
1 Dropping funnel, cylindrical, graduated 50 ml, ST 14/23	11.111
5 Clips for joints, ST 14/23	11.112
3 Clips for joints, ST 19/26	11.113
1 Screw cap GL 18, top closed	11.114



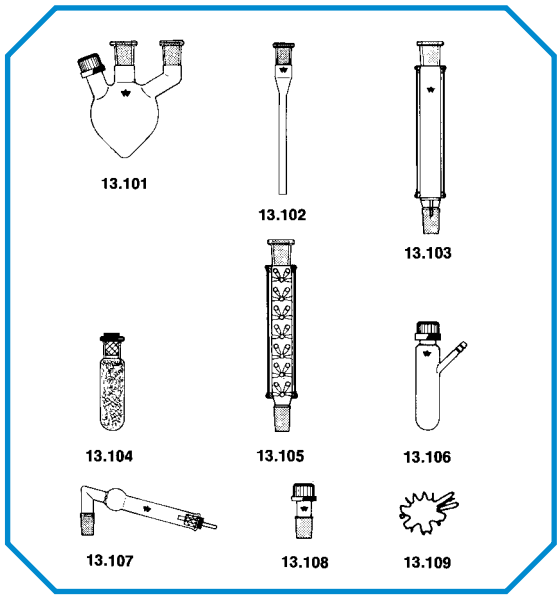
ST-Combi-Box "Semi-Mikro" 12, packed in foam stuff bed and cardboard-box.

Type	
Complete	12.000
Spare parts:	
1 Screw-thread, with cone ST 19/26-GL 18/8	12.101
1 Flask, pear shaped, 50 ml, center neck ST 19/26, side neck angled with screw-thread GL 18/8	12.102
2 Air leak tubes, O. D. 8 mm	12.103
1 Distilling receiver, Bredt, complete with adapter ST 14/23-ST 29/32, distributor ST 29/32-4 ST 14/23, 4 flasks, round bottom 25 ml-ST 14/23	12.104
1 Receiver adapter, bent, with vacuum connection and drip tip, 2 ST 14/23	12.105
2 Inlet tubes at 90 °, with serrated hose connector, O. D. 8 mm	12.106
4 Clips for joints, ST 14/23	12.107
2 Clips for joints, ST 19/26	12.108
2 Clips for joints, ST 29/32	12.109
1 Screw cap GL 18, top closed	12.110
10 Gaskets, Silicone rubber, with PTFE washers 16 x 6 for GL 18	12.111
10 Gaskets, Silicone rubber, with PTFE washers 16 x 8 for GL 18	12.112



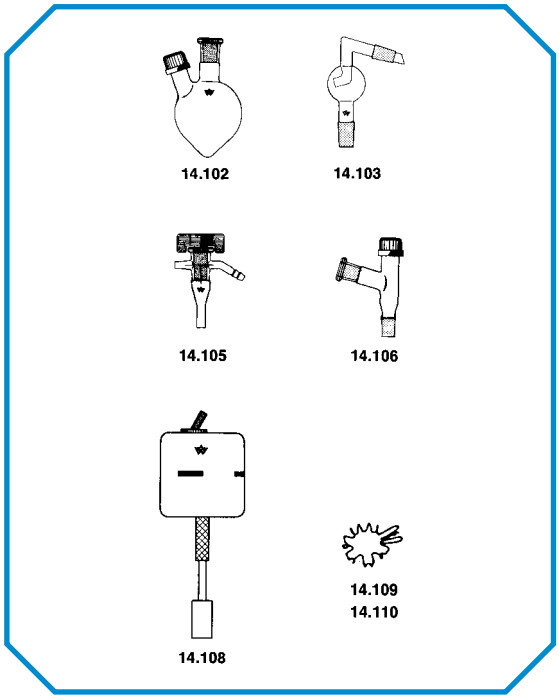
ST-Combi-Box "Semi-Mikro" 13, packed in foam stuff bed and cardboard-box.

Type	
Complete	13.000
Spare parts:	
1 Flask, pear shaped, 100 ml, center neck ST 19/26, side neck angled with screw-thread GL 18/8, side neck parallel ST 14/23	13.101
1 Inlet tube ST 14/23, O. D. 8 mm	13.102
1 Fractionating columns, Hempel, 200 mm, 2 ST 19/26 (usable also as chromatographic columns)	13.103
1 Test tube, with glass rings, Raschig 4 x 4 mm	13.104
1 Fractionating columns, Vigreux, 300 mm, 2 ST 19/26	13.105
1 Receiver tubes with serrated hose connector and screw-thread GL 18/8	13.106
2 Drying tube ST 14/23	13.107
1 Screw-threads, with cone ST 19/26-GL 18/8	13.108
5 Clips for joints, ST 14/23	13.109
3 Clips for joints, ST 19/26	13.110



ST-Combi-Box "Semi-Mikro" 14, packed in foam stuff bed and cardboard-box.

Type	
Complete	14.000
Spare parts:	
1 Flask, pear shaped 100 ml, ST 19/26	14.101
1 Flask, pear shaped 100 ml, center neck ST 19/26, side neck angled with screw-thread GL 18/8	14.102
1 Splash head, bent, with ST 19/26-ST 14/23	14.103
1 Bend 105°, 2 ST 14/23	14.104
1 Vacuum-stopcock, bore of plug 4 mm, tube O. D. 8 mm	14.105
1 Delivery adapter, 2 ST 14/23-GL 18/8	
1 Condenser, Graham, 160 mm, 2 ST 14/23	14.107
1 Stirrer motor with cable and plug, 220 V, complete with rod and stirrer paddle	14.108
4 Clips for joints, ST 14/23	14.109
4 Clips for joints, ST 19/26	14.110



ST-Combi-Box "Semi-Mikro" 15, packed in foam stuff bed and cardboard-box.

Type	
Complete	15.000
Spare parts:	
1 U-tube, 2 ST 14/23	15.101
1 Funnel O. D. 50 mm, made of polyethylene	15.102
2 Suction tube, bent ST 14/23	15.103
2 Test tubes 17 x 130 mm, with hollow stoppers ST 14/23	15.104
1 Extractor acc. to Antlinger, ST 19/26-ST 29/32	15.105
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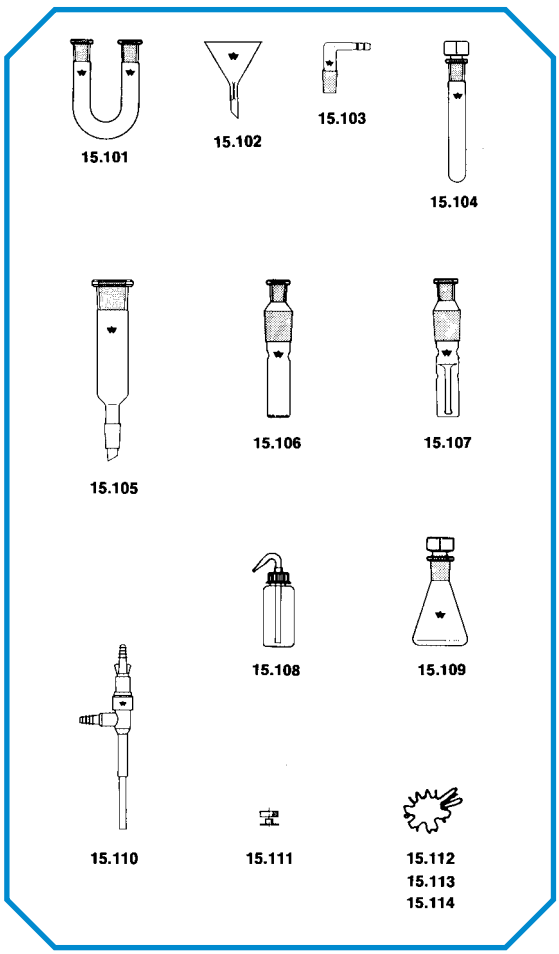
1 Extractor, using lighter solvents, ST 29/32-ST 14/23	15.107
1 Wash bottle 100 ml, made of polyethylene	15.108
1 Erlenmeyer, flask 100 ml, with hollow stopper ST 19/26	15.109
1 Filter pump with built-in safety valve made of polypropylene	15.110
2 Gaskets, Silicone rubber, with PTFE washers 16/6 für GL 18	15.111
4 Clips for joints, ST 14/23	15.112
4 Clips for joints, ST 19/26	15.113
2 Clips for joints, ST 29/32	15.114



ST-Combi-Box "Makro" 21, packed in 2 foam stuff beds with cardboard-box.

Type	
Complete	21.000
Spare parts:	
1 Flask, round bottom, 100 ml, ST 29/32	21.101
1 Flask, round bottom, 250 ml, ST 29/32	21.102
1 Flask, round bottom, 500 ml, ST 29/32	21.103
1 Erlenmeyer flask, 200 ml, ST 29/32	21.104
2 Air leak tube, O. D. 8 mm	21.105
1 Condenser, Liebig, 200 mm, with 2 ST 19/26	21.106
1 Drying tube ST 19/26	21.107
1 Dropping funnel, cylindrical, graduated, 100 ml, ST 29/32-ST 19/26	21.108
6 Clips for joints, ST 19/26	21.109
10 Clips for joints, ST 29/32	21.110
1 Screw cap GL 18, top closed	21.111
10 Gaskets, Silicone rubber, with PTFE washers 16/6 für GL 18	21.112
10 Gaskets, Silicone rubber, with PTFE washers 16/8 für GL 25	21.113
10 Gaskets, Silicone rubber, with PTFE washers 22/8 für GL 25	21.114
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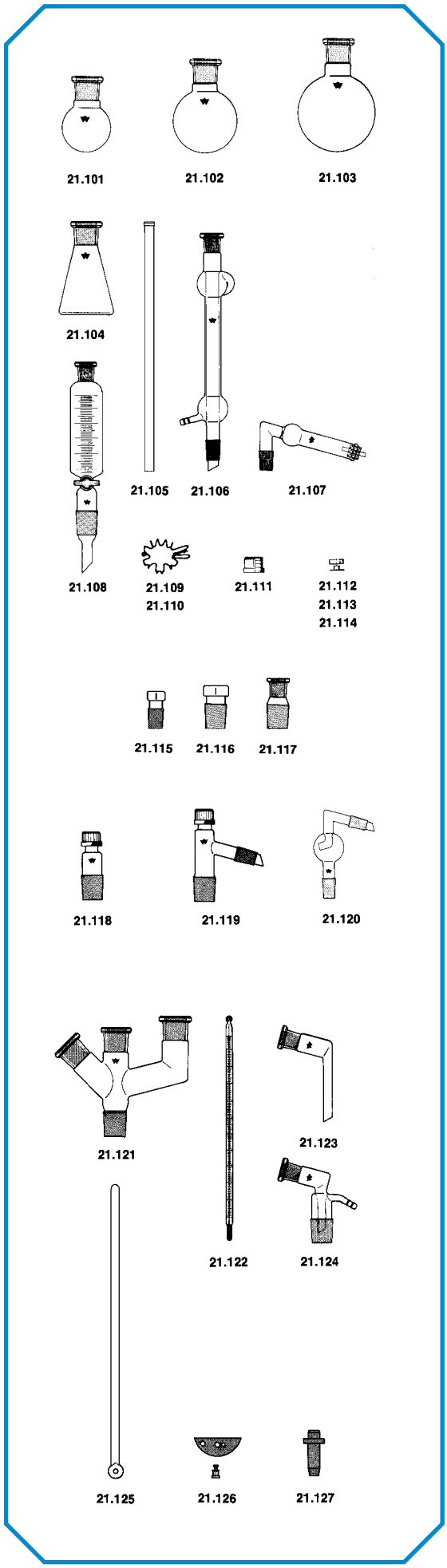
1 Splash head, bent, ST 29/32-ST 19/26	21.120
1 Multiple adapter, 3 necks, 4 ST 29/32	21.121
1 Thermometer, solid stem, -10 +250°C: 1°C	21.122
1 Delivery adapter, bent, ST 19/26	21.123
1 Receiver adapter, bent with vacuum connection and drip tip, ST 19/26-ST 29/32	21.124
1 Stirrer shaft, 7-8 mm O. D., suitable for use PTFE-stirring blade, with PTFE-toggle	21.125
1 PTFE-stirrer blade, 50 x 24 mm	21.126
1 Insert, made of polypropylene 8 mm i. D., for stirrer shaft, with rubber tubing and gasket, silicone rubber, with PTFE washers 22/12 - GL 25	21.127



ST-Combi-Box "Makro" 22, packed in 2 foam stuff beds with cardboard-box.

Type	
Complete	22.000
Spare parts:	
1 Flask, round bottom, 1000 ml, ST 29/32	22.101
1 Flask, with 2 side necks, 1000 ml, center neck ST 29/32, 2 side necks angled with screw-thread GL 18/6-GL 18/8	22.102
2 Air leak tubes, O. D. 8 mm	22.103
1 Thermometer, solid stem, -10 +250 °C: 1 °C	22.104
1 Intermediate receivers, Anschütz-Thiele, oblique adapter, ungraduated ST 19/26-ST 29/32	22.105
2 Clips for joints, ST 19/32	22.108
2 Clips for joints, ST 29/32	22.109
1 Fractionating columns, Hempel, 300 mm. 2 ST 29/32	22.110
1 Fractionating columns, Vigreux 400 mm, 2 ST 29/32	22.111
1 Delivery adapter, straight with suction tube, 2 ST 29/32	22.112
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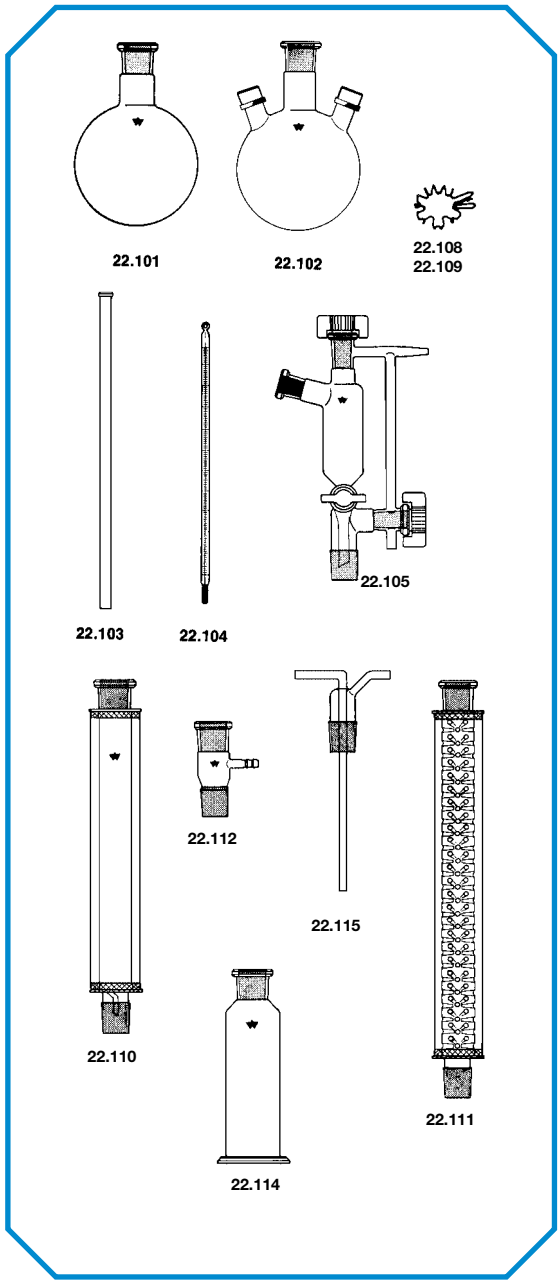
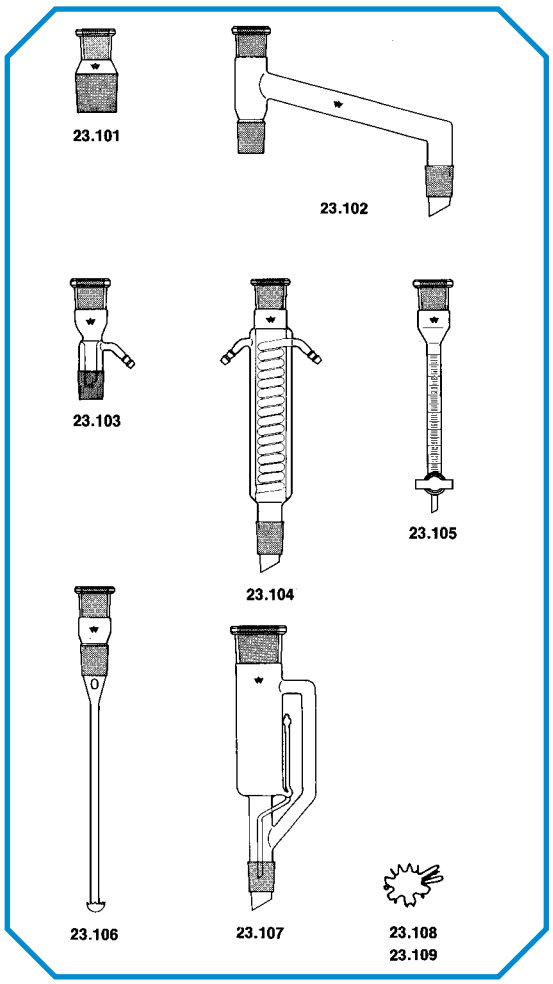


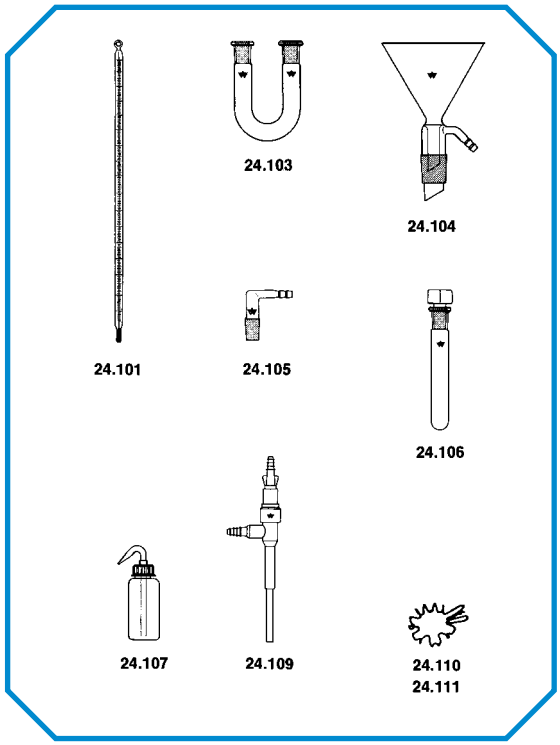


ST-Combi-Box "Makro" 23, packed in 2 foam stuff beds with cardboard-box.

Type	
Complete	23.000
Spare parts:	
1 Reduction adapter, ST 45/40-ST 29/32	23.101
1 Distilling links, 2 ST 29/32	23.102
1 Receiver adapter, straight, with vacuum connection and drip-tip, 2 ST 29/32	23.103
1 Jacketed coil condenser, 250 mm, 2 ST 29/32	23.104
1 Measuring tube with ST-stopcock, graduated, 10 ml: 0,1, ST 29/32	23.105
1 Distributing tube, 2 ST 29/32	23.106
1 Extractor acc. to Soxhlet, ST 29/32-ST 45/40 (for extraction thimbles 94 x 33 mm)	23.107
4 Clips for joints, ST 29/32	23.108
1 Clips for joints, ST 45/40	23.109

ST-Combi-Box "Makro" 24, packed in foam stuff bed with cardboard-box.

Type	
Complete	24.000
Spare parts:	
1 Thermometer, solid stem, -10 +360 °C: 1 °C	24.101
1 U-tube, 2 ST 14/23	24.103
1 Funnel witht ST 29/32, 60 mm O. D., with vacuum connection and drip tip	24.104
2 Suction tube, bent, ST 14/23	24.105
2 Test tubes 17 x 130 mm, with hollow stopper ST 14/23	24.106
1 Wash bottle 100 ml, made of polyethylene	24.107
1 Filter pump with built-in valve, made of polyethylene	24.109
3 Clips for joints, ST 14/23	24.110
2 Clips for joints, ST 29/32	24.111



SVS-Boxes

SVS-Combi-Box.

The increasing importance of chemistry for the everyday-life has resulted in a considerable expansion of the chemistry lessons in all types of schools (secondary levels I+II) during the last 20 years. Thus the subject-matter has increased, so that it can only be mastered by means of well co-ordinated systems of instruction.
We believe that, with our SVS-combi-box, we have found an optimal solution for the instruction in chemistry and, according to the sales experience of the last years and the positiv echo of the teachers, we feel confirmed in our opinion. For the display of the apparatuses a handbook in form of a ring-book is available for the experimental instruction in chemistry.
Experimental book contains on the one hand the didactic treatment of an experiment, as well as indications for the methodical execution and of the industrial safety directions, and on the other hand it gives information about the theoretical basis of the reaction.
The didactic instructions in the experiment card index for the teachers are completed by sound aims of learning and are replaced by corresponding questions on the work sheet of the pupil.
The teacher is offered a card index of experiments which is combined with corresponding work sheets for the pupils and which, without exception, meets the demands of the Ministries of Education for more practice of the pupils.

The present omnibus volume which contains approximately 120 experiments was created by practical men for the practice. The following points are characteristic to this volume:
- Didactically selected and exhaustively described experiments for the teachers.
- With didactic remarks.
- With formulated aims of learning.
- Indication of the results of the tasks in the text for the teachers only.
- Closely coupled with own experiments for the pupil.
- With observation and transfer tasks for the pupil.

Textbook for the experimental chemistry instruction – complete card index of experiments, as well as corresponding work sheet for pupils per experiment.

Experiment with the SVS-combi-box, by Prof. Dr. E. Höfling, Prof. Dr. H. Menrad, Stud.-Dir. W. Obermeyer.

Type	8.100.000

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B. Organic chemistry.

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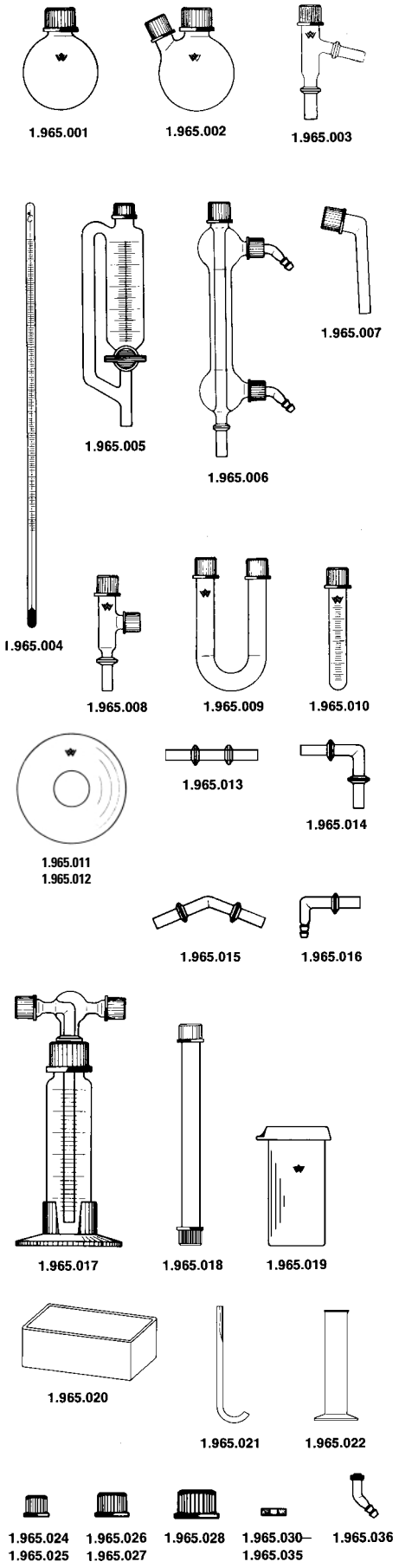
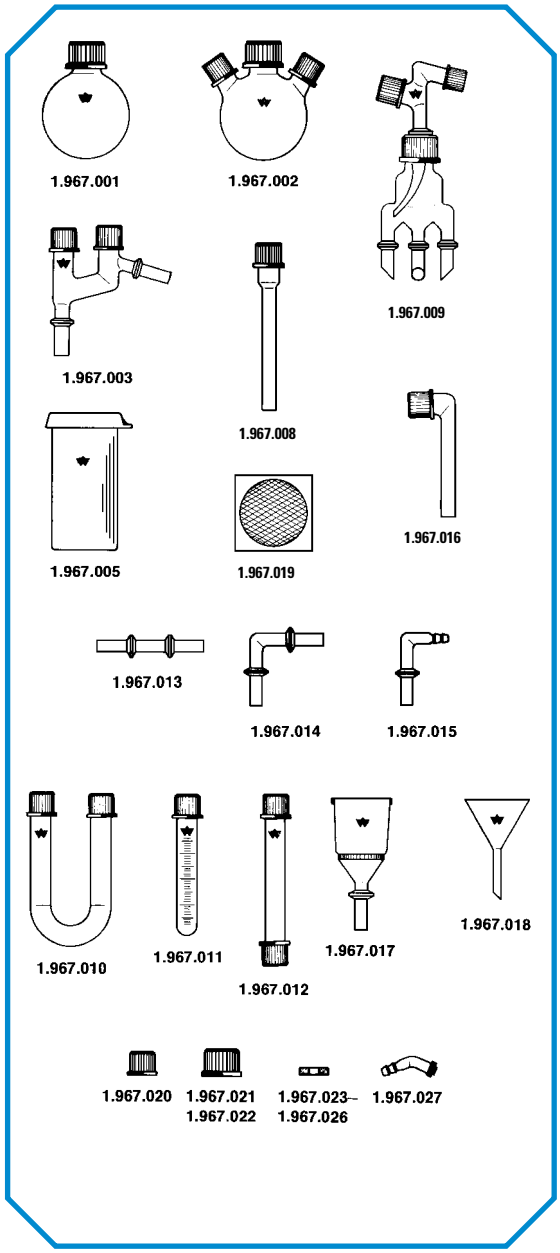
SVS-Combi-Box, Set 1, packed in 3 foam stuff beds and cardboard-box.

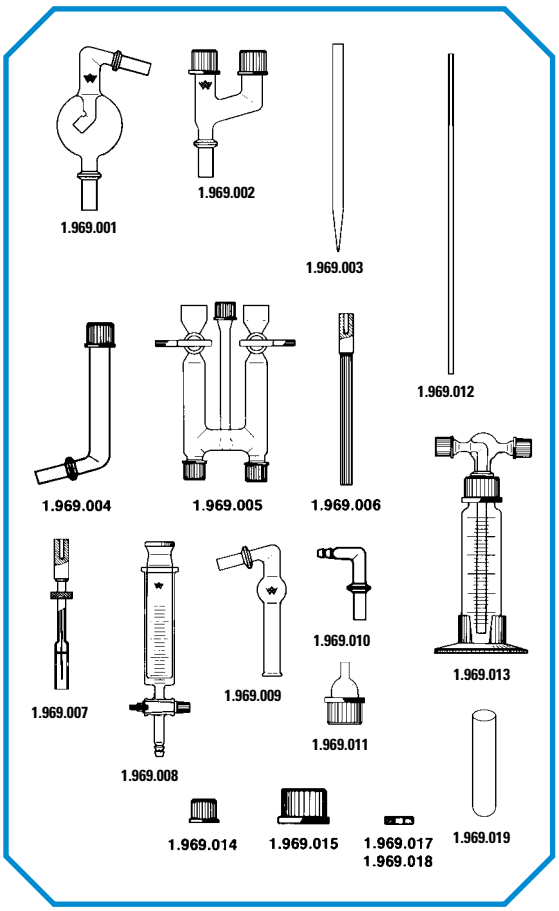
Type	
Complete	1.965.000
Spare parts:	
1 Flask, round bottom, 100 ml, mit GL 25/12	1.965.001
2 Flasks, 100 ml, center neck GL 25/12, side neck angled GL 18/10	1.965.002
1 Recovery head, 1 FA 12, 1 FA 10, 1 GL 18/6	1.965.003
1 Thermometer, solid stem -10 +250 °C: 1 °C	1.965.004
1 Dropping funnel with pressure equalizing, cylindrical, graduated ST-stopcock, 50 ml, 1 GL 18	1.965.005
1 Condenser, Liebig, 160 mm, 1 GL 18/10, 1 FA 10, 2 GL 14/6 with 2 hose connection made of polypropylene	1.965.006
1 Delivery adapter-Inlet tube, bent, 1 GL 18/10	1.965.007
1 Adapter, straight, with side tube, 1 GL 18/10, 1 FA 10, 1 GL 14/6	1.965.008
1 U-tube, 2 GL 18/10	1.965.009
2 Test tubes, graduated, 10 ml, 1 GL 18/10	1.965.010
2 Isoplan-safety discs, 19 mm bore (resistant up to 750 °C)	1.965.011
2 Isoplan-safety discs, 25 mm bore (resistant up to 750 °C)	1.965.012
2 Connection tubes, straight, 2 FA 10	1.965.013
1 Connection tubes, 90° bent, 2 FA 10	1.965.014
1 Connection tubes, 120° bent, 2 FA 10	1.965.015
1 Connection tubes, 90° bent, with hose connection, 1 FA 10	1.965.016
2 Wash bottles, graduated, 100 ml, with plastic-base, 1 GL 32/18, with head 2 GL 18/10	1.965.017
1 Reaction tube, 2 GL 25/10	1.965.018
1 Container filled with 40 boiling balls	1.965.019
1 Pneumatic tanks made of SAN, 2500 ml, 310 x 132 x 67 mm, with cover	1.965.020
1 Gas outlet tube, bent	1.965.021
1 Jars with ground cover 200 x 40 mm.	1.965.022
2 Screw caps, top with hole, GL 14	1.965.024
6 Screw caps, top with hole, GL 18	1.965.025
3 Screw caps, top with hole, GL 25	1.965.026
2 Screw caps, top with hole, GL 32	1.965.027
1 Screw caps, top closed, GL 18, with PTFE washer	1.965.028
1 Gasket, Silicone rubber, with PTFE washer 12 x 6 für GL 14, FA 6	1.965.030
1 Gasket, Silicone rubber, with PTFE washer 16 x 6 für GL 18, FA 6	1.965.031
6 Gaskets, Silicone rubber, with PTFE washer 16 x 10 für GL 18, FA 10	1.965.032
2 Gaskets, Silicone rubber, with PTFE washer 22 x 10 für GL 25, FA 10	1.965.033
2 Gaskets, Silicone rubber, with PTFE washer 22 x 12 für GL 25, FA 12	1.965.034
2 Gaskets, Silicone rubber, with PTFE washer 29 x 18 für GL 32, FA 18	1.965.035
2 Hose connection, bent, GL 14, made of polypropylene	1.965.036



SVS-Combi Box, Set 2, packed in 2 foam stuff beds and cardboard-box.

Type	
Complete	1.967.000
Spare parts:	
1 Flask, round bottom, 100 ml, GL 25/12	1.967.001
1 Flaks, 100 ml, center neck GL 25/12, two side necks angled GL 18/6-GL 18/10	1.967.002
1 Claisen head, 1 FA 12, 1 FA 10, 1 GL 18/10, 1 GL 18/6	1.967.003
1 Fractionating columns, Hempel, 200 mm, 1 FA 12, 1 GL 25/12	1.967.004
1 Container filed with raschig rings 3 x 3 mm	1.967.005
1 Dropping funnel, cylindrical, graduated, ST-stopcock, 50 ml, 1 GL 18/10	1.967.006
1 Jacketed coil condenser, 200 mm, 1 GL 18/10, 1 FA 10, 2 GL 14/6 with 2 hose connection made of polypropylene	1.967.007
1 Delivery adapter-inlet tube, straight, 1 GL 18/10	1.967.008
1 Distilling receivers, Bredt, 1 GL 18/10, 1 GL 25/12, 1 GL 14/6 with 4 FA 10	1.967.009
1 U-tube, 2 GL 18/10	1.967.010
4 Test tubes, graduated, 10 ml, 1 GL 18/10	1.967.011
1 Reaction tube, small, 2 GL 18/10	1.967.012
1 Connection tube, straight 2 FA 10	1.967.013
1 Connection tube, 90° bent, 2 FA 10	1.967.014
1 Connection tube, 90° bent, with hose connection, 1 FA 10	1.967.015
1 Gas inlet tube, 1 GL 18/6	1.967.016
1 Filter funnel, 50 ml, porosity P 2, 1 FA 10	1.967.017
1 Funnel glass, 70 mm O. D.	1.967.018
1 Ceramic-plate 135 x 135 mm	1.967.019
2 Screw caps, top with hole, GL 14	1.967.020
8 Screw caps, top with hole, GL 18	1.967.021
2 Screw caps, top with hole, GL 25	1.967.022
1 Gasket, Silicone rubber, with PTFE washer 12 x 6 für GL 14, FA 6	1.967.023
1 Gasket, Silicone rubber, with PTFE washer 16 x 6 für GL 18, FA 6	1.967.024
8 Gaskets, Silicone rubber, with PTFE washer 16 x 10 für GL 18, FA 10	1.967.025
2 Gaskets, Silicone rubber, with PTFE washer 22 x 12 für GL 25, FA 12	1.967.026
2 Hose connection, bent GL 14, made of polypropylene	1.967.027



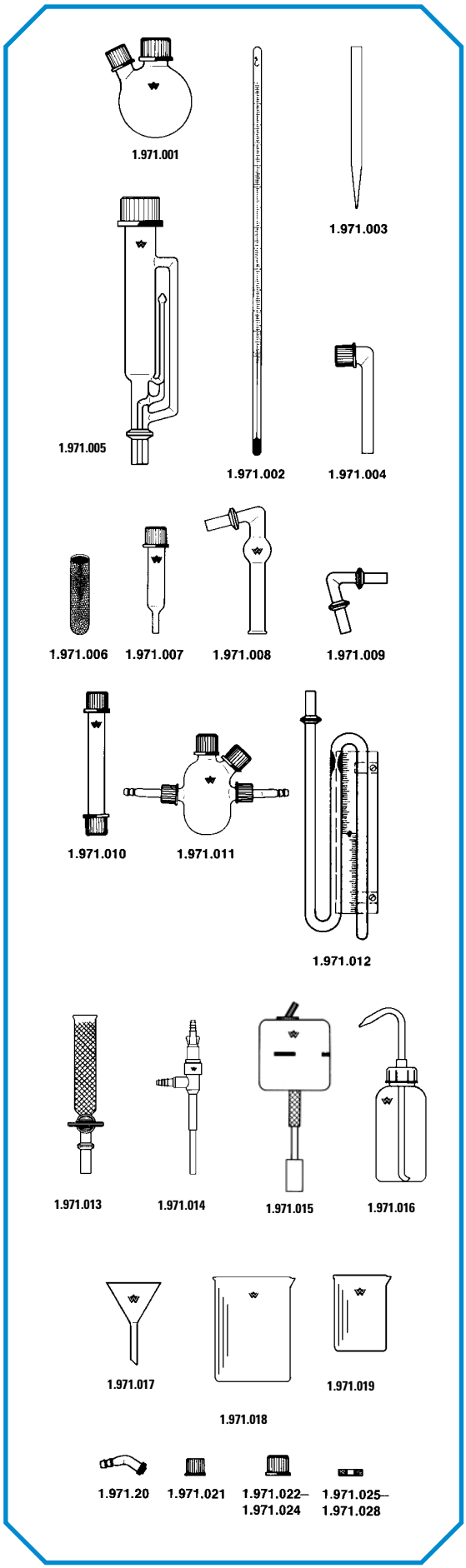


SVS-Combi-Box, Set 3, packed in 2 foam stuff beds and cardboard-box.

Type	
Complete	1.969.000
Spare parts:	
1 Spalsh head, bent 1 FA 12, 1 FA 10	1.969.001
1 Distilling head, 1 FA 12, 2 GL 18/10	1.969.002
1 Air leak tube, O. D. 10 mm	1.969.003
1 Adapter, bent 105°, 1 GL 18/10, 1 FA 10	1.969.004
1 Elektrolysis-apparatus, 2 GL 18/10	1.969.005
2 Coal-electrodes, O. D. 10 mm	1.969.006
2 Nickel-electrodes, O. D. 10 mm (On request we deliver platin-electrodes-against surcharge)	1.969.007
2 Gas syrinque with ST-stopcock, 100 ml	1.969.008
1 Drying tube, bent, 1 FA 10	1.969.009
1 Connection tube 90° bent, with hose connection, 1 FA 10	1.969.010
1 Screw-thread with glass part of osmosis apparatus, 1 GL 32/18	1.969.011
1 Capillary tube, I.D. 1 mm, length 500 mm	1.969.012
1 Wash bottle, graduated, 100 ml, with plastic base, 1 GL 32/18 with head 2 GL 18/10	1.969.013
4 Screw-caps, top with hole, GL 18	1.969.014
1 Screw-cap, top with hole, GL 32	1.969.015
4 Gaskets, Silicone rubber, with PTFE washer 16 x 10 für GL 18, FA 10	1.969.017
1 Gasket, Silicone rubber, with PTFE washer 29 x 18 für GL 32, FA 18	1.969.018
1 Test tube, Fiolax-glass, 30 x 200 mm	1.969.019

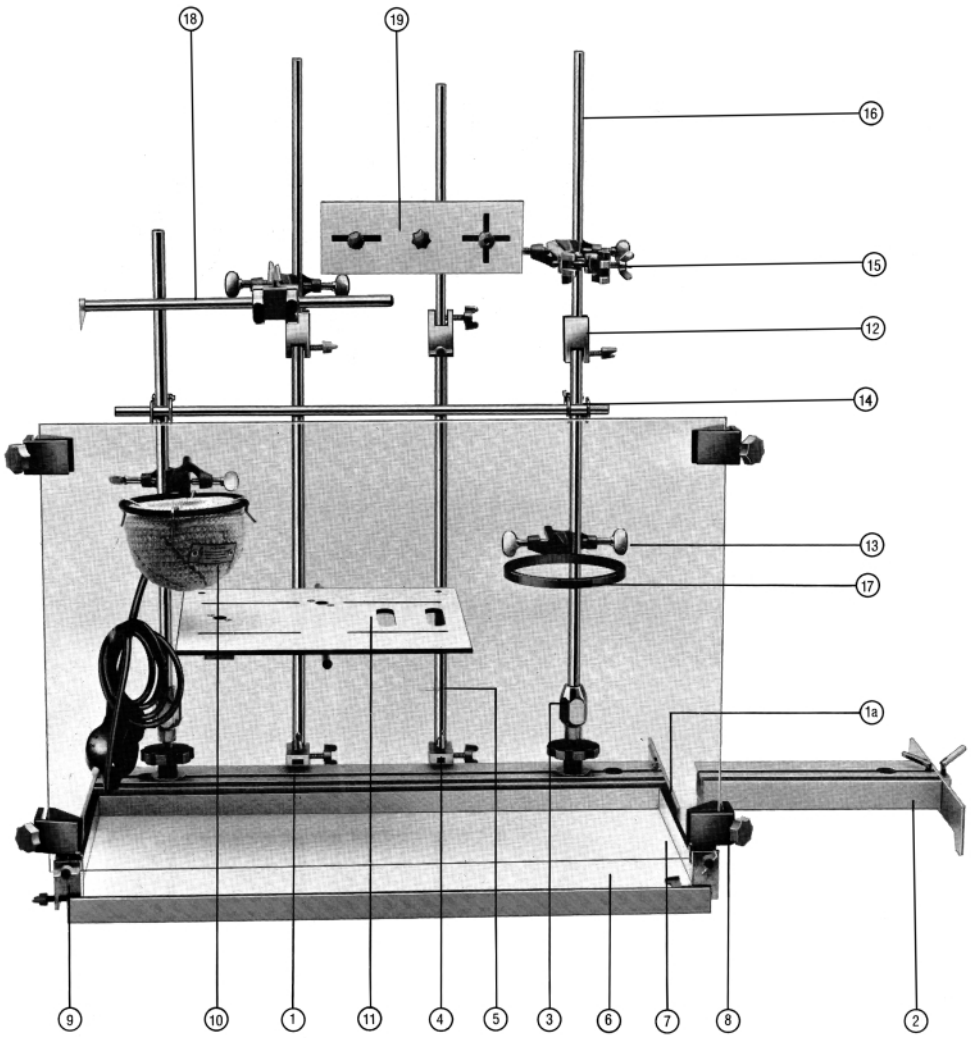
SVS-Combi-Box, Set 4, packed in 2 foam stuff beds and cardboard-box.

Type	
Complete	1.971.000
Spare parts:	
1 Flask, 100 ml, center neck GL 25/12, side neck angled, GL 18/10	1.971.001
1 Thermometer, solid stem, -10 +360 °C: 1 °C	1.971.002
1 Air leak tube, O. D. 10 mm	1.971.003
1 Gas inlet tube 1 GL 14/6	1.971.004
1 Soxhlet extractor, 30 ml capacity for extraction thimbles, 80 x 22 mm, 1 GL 32/10, 1 FA 12	1.971.005
3 Extraction thumbles for 30 ml extractor, 80 x 22 mm	1.971.006
1 Drying tube, straight, 1 GL 18/10, 1 FA 6	1.971.007
1 Drying tube, bent, 1 FA 10	1.971.008
1 Connection tube, bent 75°, 2 FA 10	1.971.009
1 Reaction tube, small 2 GL 18/10	1.971.010
1 Vacuum receivers, 2 GL 18/10, 2 GL 14/6 with 2 hose connections made of polypropylene	1.971.011
1 Manometer, mercury, with movable mirror glass scale, 1 FA 10	1.971.012
1 Tube with stopcock, filed with foam stuff, 1 FA 10	1.971.013
1 Filter pump made of polyprophylene with built-in valve and 2 hose connections	1.971.014
1 Stirrer motor, 220 V, with holding rod and stirring blade	1.971.015
1 Wash bottle 100 ml, made of polyethylene	1.971.016
1 Funnel, 70 mm O. D. made of polyethylene	1.971.017
1 Beaker, low form, 600 ml, graduated	1.971.018
1 Beaker, tall form, 100 ml, graduated	1.971.019
2 Hose connection, bent, GL 14, made of polypropylene	1.971.020
2 Screw caps, top with hole, GL 14	1.971.021
4 Screw caps, top with hole, GL 18	1.971.022
1 Screw cap, top with hole, GL 25	1.971.023
1 Screw cap, top with hole, GL 32	1.971.024
2 Gaskets, Silicone rubber, with PTFE washer 12 x 6 für GL 14, FA 6	1.971.025
4 Gaskets, Silicone rubber, with PTFE washer 16 x 10 für GL 18, FA 10	1.971.026
1 Gasket, Silicone rubber, with PTFE washer 22 x 12 für GL 25, FA 12	1.971.027
1 Gasket, Silicone rubber, with PTFE washer 29 x 10 für GL 32, FA 10	1.971.028



Support system-WSS.

Created for the documentation of experiments in the instruction at schools. A particular advantage is the fact that you can already prepare an experiment and that you can put in with the apparatus to the place of communication. A special sleeve enables telescoping, the movable bases can be coupled and guarantee a solide lattice wall. The multiple use system offers many advantages for almost any application. The use of two kinds of material only guarantees that you have no trouble with thigtly sticking adjusting screws.



Support system-trade-mark "WSS". Picture see page 49.

Picture No.	Suport-parts	
1	Base, triple profile, 1000 mm	8.000.001
	Base, triple profile, 600 mm	8.000.002
	Base, triple profile, 250 mm	8.000.003
1a	Pair of foot-side walls, cross-piece type	8.000.004
2	Extension side piece for the base	8.000.005
3	Quick-chucking sleeve 10/13 mm, incl. support rod 50 x 13 mm	8.000.007
4	Double-rod-universal sleeve 13/10 mm	8.000.008
5	Support rod 500 x 13 mm, 18/8	8.000.010
	Support rod 300 x 13 mm, 18/8	8.000.011
	Support rod 100 x 13 mm, 18/8	8.000.012
6	Protective plate 1250 x 600 x 5 mm	8.000.013
8	Corner stabilizer, set of 4 pieces for the protective plate with side protection and	
9	Clamping block for protectiv plate, 2 pieces 400 x 615 x 5 mm	
7	Experimenting tray 590 x 300 x 30 mm	8.000.015
10	Heating mantles for flasks of 100 ml cap.	8.000.019
11	Universal-clamping table, with slotted holes, support rod included	8.000.020
13	Double sleeve	8.000.023
14	Hook-sleeve, 18/8, for mounting the lattice	8.000.024
15	Universal clamp, stainless-steel, 0-80 mm	8.000.025
16	Support rod 500 x 10 mm, 18/8	8.000.021
	Support rod 300 x 10 mm, 18/8	8.000.026
	Support rod 100 x 10 mm, 18/8	8.000.027
17	Metal ring, O. D. 120 mm	8.000.028
18	Syringe clamp of 50/100 ml	8.000.029
19	Clamp plate, complete with spring clamps and double sockets, black and red	8.000.030

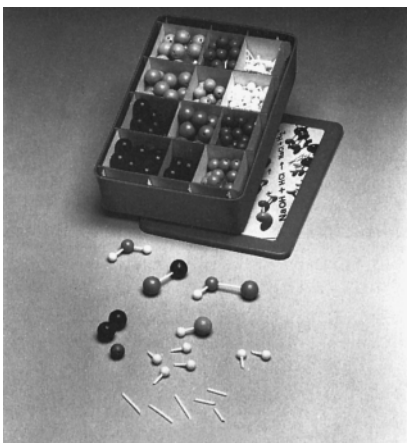
Support set, with base, 1a.

As complete support sets we recommend the following combinations for our support combi-boxes. Thus you can arrange and assemble all support variants necessary.

Picture No.		
	Complete	8.001.000
	Individual parts:	
1	Base, triple profile 600 mm	8.000.002
1	Pair of foot-side walls, cross-piece type	8.000.004
3	Double-sleeves	8.000.023
3	Quick-chucking support rods, quick-chucking sleeve included	8.000.007
3	Support rods 500 x 10 mm, 18/8	8.000.021
1	Metal ring O. D. 120 mm	8.000.028
3	Double-rod-universal sleeves 13/10 mm	8.000.008
2	Syringe-clamps	8.000.029

Support set, with base, standard type.

Picture No.		
	Complete	8.002.000
	Individual parts:	
1	Base, triple profile 600 mm	8.000.002
1	Pair of foot-side walls, cross-piece type	8.000.004
6	Double-rod-universal sleeves 13/10 mm	8.000.008
3	Double-sleeves	8.000.023
3	Support rods 500 x 13 mm, 18/8	8.000.010
3	Support rods 500 x 10 mm, 18/8	8.000.021
1	Metal ring O. D. 120 mm	8.000.028
2	Syringe-clamps	8.000.029



Atom-model construction kit, for intuitive instruction purposes, in storage container with 12 partitions.

Equipment	
Complete, 520 components	7.201.001
Spheres dia. 25 mm	
30 pcs. black,	saturated carbon (C)
20 pcs. black,	ethylene (C2H4)
10 pcs. black,	acethylene (C2H2)
25 pcs. green,	halogene
20 pcs. yellow,	sulphur (S) etc.
20 pcs. orange,	sodium (Na), potassium (Ca) etc.
Spheres dia. 20 mm	
30 pcs. red,	oxygen (O
30 pcs. blue,	nitrogen (N), phosphorus (P) etc.
30 pcs. yellow,	aluminum (Al), chromium (Cr) etc.
30 pcs. orange,	calcium (Ca), magnesium (Mg) etc.
Spheres dia. 13 mm with pin	
125 pcs. white	hydrogen (H)
150 pcs. white connection pins	

Supports, with lacquered iron base, with polished steel rod.

Base Length mm	Width mm	Rod Length mm	O. D. mm	
180	100	450	10	8.411.001
210	130	750	12/13	8.411.002
300	150	1000	12/13	8.411.003

Tripod stands, lacquered, with polished steel rod.

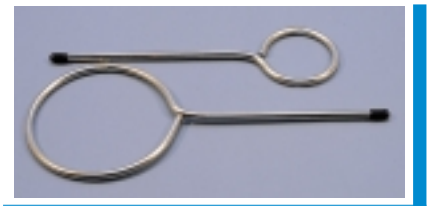
Length of shanks mm	Length of rod mm	O. D. mm	
80	450	10	8.415.001
115	600	10	8.415.002
150	750	12/13	8.415.003
185	1000	12/13	8.415.004

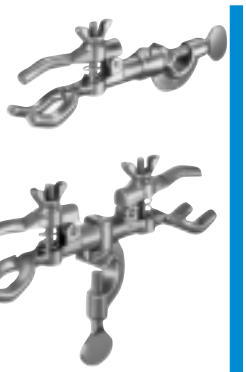
Support rods, with thread, matching support bases and tripods.

Base Length mm	O. D. mm	Steel 18/8	Aluminum
500	10	-	8.417.100
500	12	8.417.010	-
600	12	8.417.020	8.417.200
1000	12	8.417.030	8.417.300
1250	12	-	8.417.400
1500	12	8.417.040	8.417.500

Rings with bosshead, made of black iron wire.

O. D. mm	With bosshead	Without bosshead
70	8.421.001	8.422.001
100	8.421.002	8.422.002
130	8.421.003	8.422.003
160	8.421.004	8.422.004





Burette clamps, made of drop forged brass, nickel-plated, with bosshead, with rod.

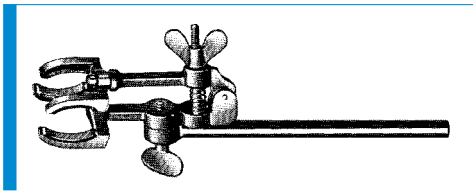
Suitable for	
1 Burette	8.424.001
2 Burettes	8.424.002

Burette clamps, with rolls.

Suitable for	
1 Burette	8.425.001
2 Burettes	8.425.002

Retort clamps, made of pressalloy iron, lacquered, with screws made of brass, nickelplated, jaws lined with cork.

Largest opening mm	Cast iron with angular jaws	Cast iron with round jaws	
25	8.427.001	8.440.001	
40	8.427.002	8.440.002	
50	-	8.440.003	
60	8.427.003	8.440.004	
80	-	8.440.005	



Retort clamps, for condensers and retorts, revolving, made of pressalloy iron, lacquered, screws made of brass, nickel-plated, jaws lined with cork.

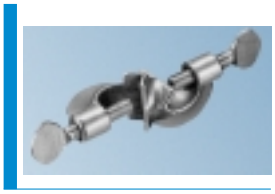
Largest opening mm	
65	8.428.001
80	8.428.002

Universal clamps, (3-prong-clamps), made of aluminum, lacquered, with screws made of brass, nickel-plated, with jaws, with cork or rubber.

Largest opening mm	Rubber	Cork
25	8.438.001	–
40	8.438.002	–
80	8.438.003	–
0-120	–	8.430.000

Clamp, Kaufmann type, (Chain clamp), with brass chain and plastic sleeve. Rapid adjustment possible. Without boss head (0-150 mm).

Largest opening mm	
150	8.432.002

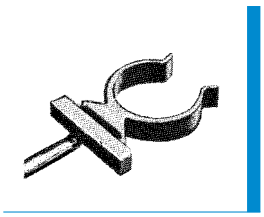


Bossheads lacquered, with screws made of brass, nickel-plated.

For rods of diameter mm	Material	
16	Cast iron	8.433.002
20	Aluminum	8.435.001
30	Aluminum	8.435.003
For horizontal and vertical position		
13	Cast iron	8.436.000
Rotatable		
16	Cast iron	8.436.100

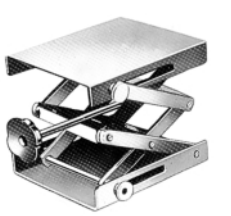
Laboratory clips, made of plastic, Delrin, clear blue, establish order and survey, save space. In bags à 100 pcs. Use as drawer organizers.

Clips dia. mm	
8.8	7.239.001
11.3	7.239.002
15	7.239.003
20	7.239.004
25	7.239.005
30	7.239.006
37	7.239.007
45	7.239.008
60	7.239.009



Laboratory transport cars, made of 18/8, stainless steel with 4 turn wheels (2 wheels fixable), board-measures 800 x 500 mm. Measures outside 845 x 545 mm. Max. loading per board 60 kg. Max. loading 120 kg.

Boards	
2	8.455.002
3	8.455.003
4	8.455.004



Laboratory supports. Linkages of aloy, base and platform of stainless steel.

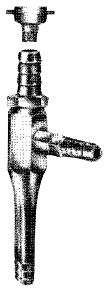
Plate mm	Height from-to mm	
110 x 100	60-200	8.454.001
150 x 150	60-250	8.454.002
300 x 330	130-470	8.454.003
400 x 400	150-670	8.454.004

Water jet pump, PP. For drawing of liquids and vapoors. If necessary a cold trap should be inserted in the line. Extremly low water consumption, only 170 l/h at a water pressure of 3.5 bar (absolute), ultimate pressure of 16 mbar. High pumping capacity – achieved against atmospheric pressure is 400 l/h at a water supply pressure of 3.5 bar and a water temp. of 12 °C.

Type		
Complete		7.187.001
Accessories:		
Tube connector	(5 pcs.)	7.187.005

Vacuum meter PIZA 100. For measuring the absolute pressure. With soft keypad and large 3 1/2 digits LCD. Chemically inert ceramic Piezo-sensor for 1500 to 1 mbar, up to 2 bar pressure. Accuracy 5 %, reproducibility 0.5 %, resolution 1 mbar. Splash proofed. Connection via G 1/4, DN 10/16 KF. Battery 9 V. Charger for rechargeable batteries on request.

Type	6.050.001

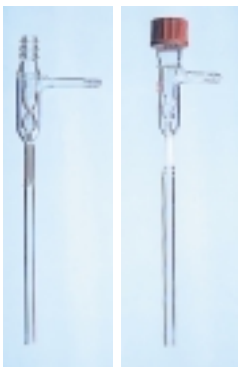


Filter pumps, made of brass, nickel-plated.

Type	
Simple construction	8.443.000
With safety valve, with hose connections	8.444.000
With safety valve and screw-thread 3/8"	8.445.001
With safety valve and screw-thread 1/2"	8.445.002
With safety valve and screw-thread 3/4"	8.445.003

Vacuum meter PIZA 110. For measuring the absolute pressure. With soft keypad and large 4 digits LCD. Chemically inert ceramic Piezo-sensor combined with a Pirani-Sensor for 1500 to 1 mbar and 1mbar to 0.001 mbar, up to 2 bar pressure. Accuracy 5/20 %, reproducibility 0,5 %, resolution 1 mbar or less. Splash proofed. Connection via G 1/4, DN 10/16 KF. Battery 9 V. Charger for rechargeable batteries on request.

Type	6.050.002

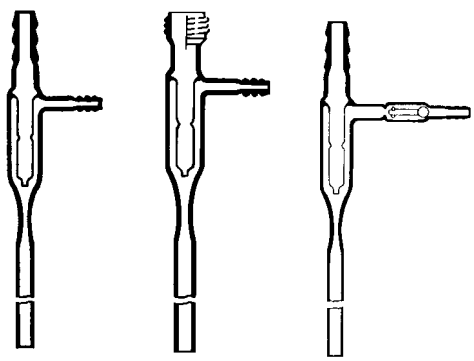


Filter pumps, Friedrichs-Antlinger (DBGM), for high performance, with spiral ejector, exhaust speed 400 ml/sec., water flow rate 10 l/min. 4 bar water pressure.

Type	
Hose connection	2.904.000
With screw-thread GL 25 and O-Ring	2.905.000
Gasket, for connecting directly on water tap.	

Filter pumps, simple model.

Type	
For a small water flow rate 1l/min, 3.5 bar water pressure	
Without non-return valve	2.906.000
With non-return valve	2.906.001
With GL 25	2.906.002
For high performance, water flow rate 5l/min 3.5 bar water pressure	
Without non-return valve	2.907.000
With non-return valve	2.907.001

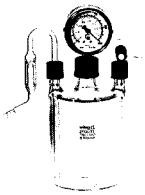


Hand-vacuum pumps, polystyrol (PS). Light, hand-operated vacuum pump with a high sucking performance. With a few pumping movements you can reach 625 mm Hg. The pumping performance is 15 ml per stroke. With air-suction valve. Two-way pump for conducting liquids, in both directions. The nozzle fits standard tubings of 1/4 " inside diameter.

Type	
Without pressure gauge	7.222.001
With pressure gauge	7.222.002

Liquid samplers, polystyrol (PS). This apparatus consists of a vacuum pump, art.-no. 7.222.001, of a sample vessel with lid and two plastic tubes, transparent, for the connection 1/4" inside diameter (length approx. 40 and 300 mm).

Type	
Apparatus for taking samples of liquids	7.223.001
Reservoir jar with lid	7.223.100

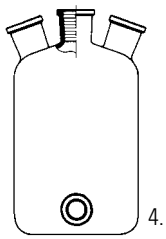


Vacuum-Safety-Bottles, Levasint-coated, as splinter- and implosion protection. 500 ml, with 3 necks, center neck GL 25, side necks GL 18, with suction tube with safety valve and analog-pressure gauge. With air-suction tube with PTFE needle valve stopcock.

Type	
Complete	5.663.000
Spare parts:	
pressure gauge 1000... 0 mbar, 760... 0 mm/Hg	5.661.003
Suction tube with safety valve	5.663.002
Air suction tube, with PTFE-needle valve stopcock	5.663.003
Safety vacuum bottle, without screw caps and seals	5.663.001

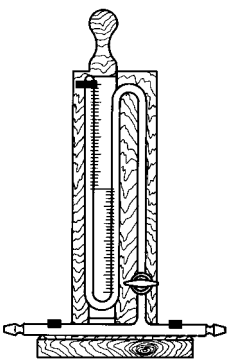
Woulff bottles, with ST-necks, borosilicate glass.
1. With three ST-necks.
2. With two ST- side-necks GL18, center neck GL25 and screw caps.
3. As 2. but with bottom tubus
4. With three ST-necks and tubus.

Capacity ml	Height mm	O. D. mm	1.	2.	3.	4.
500	155	85	5.810.500	5.801.500	5.802.500	5.811.500
1000	185	110	5.810.001	5.801.001	5.802.001	5.811.001
2000	225	130	5.810.002	5.801.002	5.802.002	5.811.002
5000	290	185	5.810.005	–	–	5.811.005
10000	345	225	5.810.010	–	–	5.811.010



Pressure gauges, Bennert, with adjustable mirror-glass scale, mounted on hard wood base, without mercury.

Type	
Complete, without Hg	2.504.000
Hg-fill	2.504.200



Crossflow-Microfiltration (suitable for PRS).

In crossflow microfiltration a high fluid velocity sweeps particles and emulsions tangentially across the membrane surface. The high velocity minimizes the solids layer buildup and maintains high permeate fluxes compared to static filtration. Particularly favourable and easily controllable flow conditions are found in tubular membranes. Under these conditions only thin filter cakes will be formed.

Variety of applications:

- Pharmaceutical industry:
  Sterile filtration of nutritive solutions. Concentration of cell suspensions.
  Production of vaccines, amino acids, antibiotics, etc. Sterile plasma filtration.

- Food-processing industry:
  Degreasing and sterile filtration of protein solutions. Seed oil filtration before distillation.
  Clarifying filtration of glucose solutions. Sterile filtration of process water. Vinegar filtration.
  Recovery of valuable suspended or emulsified substances.

- Beverage industry:
  Single-stage sterile filtration of wine, beer and juices before bottling.

- Chemical industry:
  Purification of acid and alkaline solutions and chemicals. Recovery of catalysts from organic liquids.

- Laboratory dialising:
  Deviding of gases, De-ioising, De-alcoholising.

Advantages:

- Efficiency:
  Complete solid-liquid seperation in one operation, low energy consumption, continuous process, capacity easy to adjust, high specific filtration rate through compact modules suited for PBW.
- Safety:
  Closed system - therefore no emissions, complete seperation of particles larger than 0.1 µm, no aerosol formation, non particle release membrane, dissolved components pass umhampered.

BIOGEN-Crossflow-Microfiltration-Modules for laboratories and pilot plants. Acids- and alcaline solutions, as well as variety of organic solvents can be filtered. Potting-material: Polyurethane. Length of Modul 350 mm, pump volume: (1m/s: 1.5 l/min.). Other types of modules or housings made of PPN with PPN potting material as well as stainless steel housings (with interchangeable filter cartridges) are available upon request.

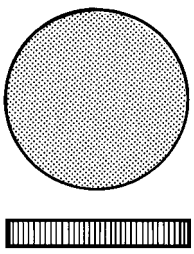
Type	Membrane cm²	Membrane	No. of resp. capillaries	Capillaries I. D./O. D. mm	
Housings, made of PC, limited autoclavable					
WDO602	2000	Cuprophan	1280	0.2/0.22	2.340.003
Housings, made of DURAN, with interchangeable housing-fittings, autoclavable					
WG2PO6	400	PP hydrophobe	85	0.6/1.0	2.340.101
WG062	2000	Cuprophane	1280	0.2/0.22	2.340.103
Spare parts:					
Flange adapter with water connection					2.340.004
Viton-O-Ring					2.340.005
Screw cap with hole GL 32					2.340.006

Glass filters, DURAN.

Porosity:
Glass filters are divided into porosity grades from 00 to 5. The table shows the porosity ranges and their main fields of application. The pore sizes indicated always refer to the largest pore in the disc. This also indicates the diameter of the particles which are only retained during filtration. Many „passage" pores as possible mark out our glass filters. An essential condition for successfully working with glass filters is the selection of the correct porosity. The nominal maximum pore size should be slightly less than the size of the smallest particles to be separated. It also permits highest possible flow rates without making cleaning unnecessary diffcult. Glass filter apparatus of porosities 3 or 4 are used almost exclusively in quantitative analysis.

Porosity	New identification marks	Pore size µm	Applications
00	P 500	250-500	- Liquid and gas distribution, Substrates for solids in fluid systems
0	P 250	160-250	- Gas distribution, gas distribution in liquids at low pressure, filtration of coarsest precipitates
1	P 160	100-160	- Coarse filtration, filtration of coarse precipitates, gas distribution in liquids, liquid distribution, coarse gas filtration, extraction apparatus for coarse-grain materials, loose filter layer substrates for gelatinous percipitates
2	P 100	40-100	- Preparative fine filtration, preparative work with crystalline precipitates, mercury filtration
3	P 40	16-40	- Analytical filtration, analytical work with medium-fine precipitates, preparative work with fine precipitates, filtration in cellulose chemistry, fine gas filtration, extraction apparatus for fine-grained materials
4	P 16	10-16	- Analytical fine filtration, analytical work with very fine precipitates (e. g. $BaSO_4$ CU_2O), preparative work with precipitates of appropriate fineness, non-return and stop valve for mercury
5	P 1.6	1.0-1.6	- Bacteria filtration, sterile filtration

Cleaning new Sintered Glassware:
Before using sintered glass filter apparatus for the first time, hot hydrochloric acid followed by several rinses of distilled water should be sucked through the filter disc under a good vacuum. This removes dust particles and powdered glass. It is important that each succesive water rinse be started only after the preceding one has been completely flushed through. This method must only be used for cleaning filters. It should never be adopted for preparative or analytical filtration. The sintered glassware should remain in the oven or sterilizer at a temperature of 110 °C - 150 °C.



Sintered discs, DURAN. Edge not fused, centred, surfaces untreated.
Sintered disc up 125 mm O. D. to 400 mm O. D.

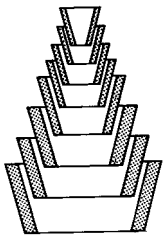
Dia. mm	P00	P0	P1	P2	P3	P4	P5
5	2.350.049	2.350.050	2.350.051	2.350.052	2.350.053	2.350.054	2.350.055
10	2.350.099	2.350.100	2.350.101	2.350.102	2.350.103	2.350.104	2.350.105
20	2.350.199	2.350.200	2.350.201	2.350.202	2.350.203	2.350.204	2.350.205
25	2.350.249	2.350.250	2.350.251	2.350.252	2.350.253	2.350.254	2.350.255
30	2.350.299	2.350.300	2.350.301	2.350.302	2.350.303	2.350.304	2.350.305
40	2.350.399	2.350.400	2.350.401	2.350.402	2.350.403	2.350.404	2.350.405
50	2.350.499	2.350.500	2.350.501	2.350.502	2.350.503	2.350.504	2.350.505
60	2.350.599	2.350.600	2.350.601	2.350.602	2.350.603	2.350.604	2.350.605
70	2.350.699	2.350.700	2.350.701	2.350.702	2.350.703	2.350.704	2.350.705
80	2.350.799	2.350.800	2.350.801	2.350.802	2.350.803	2.350.804	2.350.805
90	2.350.899	2.350.900	2.350.901	2.350.902	2.350.903	2.350.904	2.350.905
120	2.350.919	2.350.920	2.350.921	2.350.922	2.350.923	2.350.924	2.350.925

1. Gukos, rubber gaskets, conical, for filter funnels.

2. Rubber rings, new, with rim for improved placement.

O. D. Size top mm	O. D. Bottom mm	I. D. Bottom mm	Height mm	1.	2.
21	11	7	21	2.356.022	–
27	16	11	22	2.356.028	2.364.011
37	22	16	25	2.356.035	2.364.012
46	29	22	29	2.356.050	2.364.013
58	38	30	35	2.356.063	2.364.014
69	60	36	40	2.356.076	2.364.015
86	75	46	45	2.356.089	–
Guko-Set					
7 Gukos, sizes 21 to 86				2.355.000	–

BEST BUY



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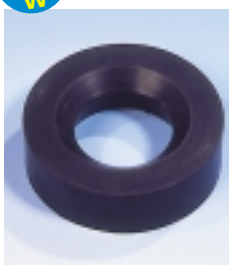
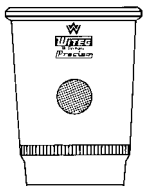


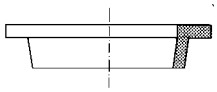


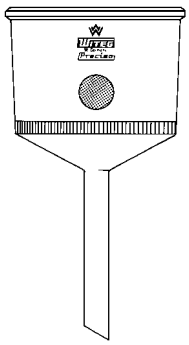
Crucibles with sintered disc, Gooch.

Capacity ml	P0	P1	P2	P3	P4	P5
8	2.360.080	2.360.081	2.360.082	2.360.083	2.360.084	2.360.005
15	2.360.150	2.360.152	2.360.152	2.360.153	2.360.154	2.360.155
30	2.360.300	2.360.301	2.360.302	2.360.303	2.360.304	2.360.305
50	2.360.500	2.360.501	2.360.502	2.360.503	2.360.504	2.360.505

Rubber sleeves for crucibles.

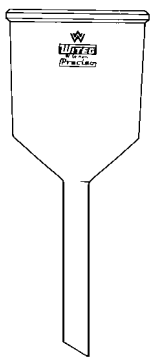
O. D. mm	For crucibles ml	For filter adapter I. D. mm	
26	8	26	2.364.026
33	15	33	2.364.033
41	30	41	2.364.041
48	50	48	2.364.048





Buechner filters, filter funnels.

Capacity ml	Disc dia. mm	Stem O. D. mm	P0	P1	P2	P3	P4	P5
50	35	10	2.367.050	2.367.051	2.367.052	2.367.053	2.367.054	2.367.055
75	45	10	2.367.070	2.367.071	2.367.072	2.367.073	2.367.074	2.367.075
125	60	10	2.367.120	2.367.121	2.367.122	2.367.123	2.367124	2.367.125
500	90	22	2.367.500	2.367.501	2.367.502	2.367.503	2.567.504	2.367.505
1000	120	22	2.367.900	2.367.901	2.367.902	2.367.903	2.367.904	2.367.905
4000	175	30	–	2.367.991	2.367.992	2.367.993	2.367.994	–
8000	200	30	–	2.368.001	2.368.002	2.368.003	2.368.004	–

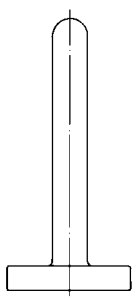


Crucible adapters, stem O. D. 10 mm.

I. D. mm	For crucibles ml	For rubber sleeve O. D. mm	
26	8	26	2.365.026
33	15	33	2.365.033
41	30	41	2.365.041
48	50	48	2.365.050

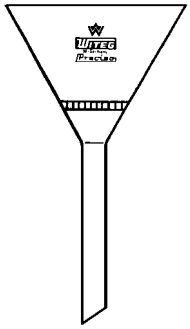
Funnel insert.

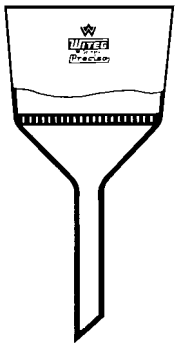
Disc O. D. mm	Overall length mm	Disc height mm	
35	118	8	2.368.013
50	135	10	2.368.015
70	154	14	2.368.017



Filter funnels, Hirsch funnels. Dia. 55 mm.

Capacity ml	Disc dia. mm	Stem dia. mm	P3	P4
25	25	8	2.368.053	2.368.054



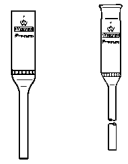


Buechner funnels, with slit sieves.

Capacity ml	Disc dia. mm	Stem dia. mm	
70	48	10	2.369.070
125	60	10	2.369.125
220	73	18	2.369.220
500	95	22	2.369.500
1000	120	22	2.369.900

Micro filter funnels.

Capacity ml	Disc dia. mm	Stem dia. mm	P0	P1	P2	P3	P4
0.8	10	6	2.370.080	2.370.081	2.370.082	2.370.083	2.370.084
2.0	10	6	2.370.090	2.370.091	2.370.092	2.370.093	2.370.094
Acc. to Pregl							
4.0	10	6	–	2.372.041	–	–	–

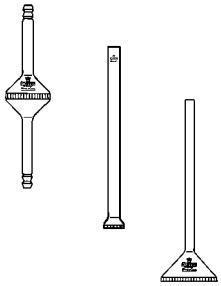


Filter tube, Allihn. Height above disc 100 mm.

Capacity ml	Disc dia. mm	Stem dia. mm	P0	P1	P2	P3	P4
30	20	10	2.374.030	2.374.031	2.374.032	2.374.033	2.374.034

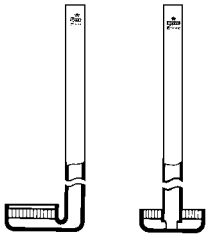
Filters.

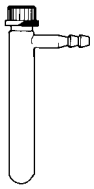
Disc dia. mm	Tube dia. mm	Length mm	P0	P1	P2	P3	P4
Pipeline filters							
30	14	–	2.375.030	2.375.031	2.375.032	2.375.033	2.375.034
60	15	–	2.375.060	2.375.061	2.375.062	2.375.063	2.375.064
90	20	–	2.375.090	2.375.091	2.375.092	2.375.093	2.375.094
Immersion filters, for reverse filtration							
35	10	210	2.376.030	2.376.031	2.376.032	2.376.033	2.376.034
Micro immersion filters, for reverse filtration							
10	6	100	2.380.061	2.380.062	2.380.063	2.380.063	2.380.064



Gas distribution tubes.

Disc dia. mm	Tube dia. mm	Length mm	P0	P1	P2
22	6	250	2.378.060	2.378.061	2.378.062
25	9	250	2.378.090	2.378.091	2.378.092
34	11	250	–	2.378.101	–





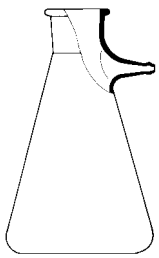
Suction tubes, with side hose connection, complete with screw cap, top with hole and gasket, silicon rubber with PTFE-washer.

Length mm	Screw thread GL	Gasket mm	
100	14	12 x 6	2.385.014
160	18	16 x 8	2.385.018
180	25	22 x 10	2.385.025
200	32	29 x 10	2.385.032

Filter flasks, with screw-thread GL 32/10 and SVS-tubing connection GL 14, for vacuum use.

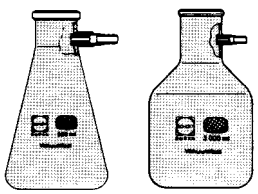
Capacity ml	Complete	Flask
100	2.386.100	2.386.101
250	2.386.250	2.386.251
500	2.386.500	2.386.501
1000	2.386.001	2.386.901
Screw cap, top with hole, GL 32		2.386.102
Gasket, silicon rubber, with PTFE-washer 29 x 10 mm		2.386.103
Screw cap, top with hole, GL 14		2.386.104
Hose connection, PP, bent, with gasket		2.386.105

Filter flasks, Erlenmeyer shape, with side tube, borosilicate glass. (If desired, up to 2000 ml capacity vacuum tested with 2 bar).
1. DURAN, non-coating.
2. Clear glass, non-coating.
3. Safety PROTEFAN coating as implosion and splinter protection.



Capacity ml	Height mm	Dia. mm	1.	2.	3.
250	155	85	5.080.250	5.680.250 B	5.090.250
500	185	105	5.080.500	5.680.500 B	5.090.500
1000	230	135	5.080.001	5.680.001 B	5.090.001
2000	265	170	5.080.002	5.680.002 B	5.090.002
3000	305	200	5.080.003	5.680.003 B	–
5000	375	235	5.080.005	5.680.005 B	–
10000	465	315	5.080.010	5.680.010 B	–

Filtration flasks, with plastic hose connection and tubulature.
1. Clear glass, non-coating.
2. With safety LEVASINT coating. DURAN



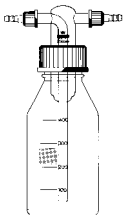
Capacity ml	1.	2.
Erlenmeyer shape		
100	5.070.110	5.071.010
250	5.070.125	5.071.025
500	5.070.150	5.071.050
1000	5.070.210	5.071.100
2000	5.070.220	5.071.200
Bottle shape		
3000	5.070.310	5.071.300
5000	5.070.350	5.071.500
10000	5.070.390	5.071.900
15000	5.070.395	5.071.915
20000	5.070.397	5.071.920

Gas washing bottles, acc. to Drechsel. ST 29/32.

Capacity ml	Without sintered disc	Disc P0	Disc P1	Disc P2	Spare bottle ST 29/32
With standrad head					
100	2.400.100	2.402.100	2.402.101	2.402.102	2.401.100
250	2.400.250	2.402.250	2.402.251	2.402.252	2.401.200
500	2.400.500	2.402.500	2.402.501	2.402.502	2.401.500
1000	2.400.001	2.402.001	2.402.011	2.402.512	2.401.001
Head with sintered disc.	–	2.402.600	2.402.601	2.402.602	–
Without sintered disc.	2.400.101	–	–	–	–
With security sintered disc. DIN 12596					
100	2.403.100	2.404.100	2.404.101	2.404.102	–
250	2.403.250	2.404.250	2.404.250	2.404.252	–
500	2.403.500	2.404.500	2.404.501	2.404.502	–
1000	2.403.001	2.404.001	2.404.011	2.404.012	–
Head with sintered disc.	–	2.404.601	2.404.602	2.404.603	–
Without sintered disc.	2.403.101	–	–	–	–

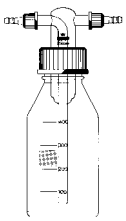
Gas washing bottles, with sintered disc, with GL 45, srcew thread cap and removeable tube, porosity 1, disc dia. 60 mm, with plastic base to avoid breakage 350 ml.

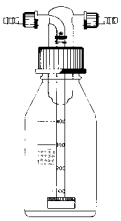
Type	
Complete	2.418.010
Spare parts:	
Bottle 350 ml, P1	2.418.011
Tube with stop	2.418.012

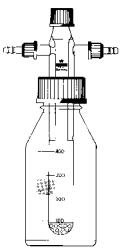


Security washing bottles, with screw-thread, porosity 0, with 2 SVS-screw thread connecting GL 14, center neck GL 32, with septum.

Capacity ml	Washing intensity l/h	
200	80	2.418.200
300	100	2.418.230
500	130	2.418.250





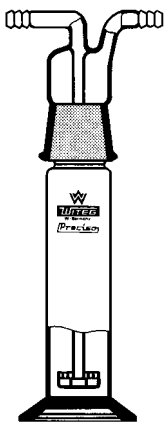


Gas washing bottles, 500 ml, acc. to Drechsel, with sintered disc, GL 45 and screw-thread GL 14, complete.

Type	
Without sintered disc	2.410.500
With sintered disc	
P0	2.414.500
P1	2.414.501
P2	2.414.502
Spare parts:	
Flask	2.410.001
Screw cap, with hole, GL 45	2.410.002
Gasket Silicone rubber, with PTFE-washer	2.410.003
Head with 2 screw-threads GL 14	2.410.004
Head, sintered disc P0	2.414.001
Head, sintered disc P1	2.414.002
Head, sintered disc P2	2.414.003
Screw cap, with hole, GL 14	2.410.005
Hose connection, PP, straight, Ø 8 mm	2.410.006
Screw cap, top closed, GL 18, with PTFE-washer	2.414.004

Security washing bottles 500 ml, with screw-thread GL 45 and tubing connection GL 14, complete.

Type	
Security washing bottle	2.412.500
Head, 2 x GL 14, 1 x GL 18	2.412.001



Gas washing bottles, with sintered disc, complete.

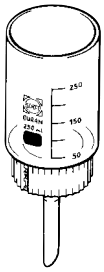
Capacity ml	NS	Bowl dia. mm		P0	P1	P2
Complete						
100	34/35	25	–	2.416.100	2.416.101	2.416.102
250	45/40	34	–	2.416.250	2.416.251	2.416.252
Bottle						
100	–	–	2.416.001	–	–	–
250	–	–	2.416.002	–	–	–
Top part						
100	–	–	–	2.416.003	2.416.004	2.416.005
250	–	–	–	2.416.006	2.416.007	2.416.008

Screw filters with interchangeable filterplates. Simple and safe to handle. 3 filter heads and 4 filterplates of 4 varying porosities. Screw filters offer extraordinary advantages when compared with conventional filteration units:

- Interchangeable filterplates.
- Simple and safe removal of the filtration sediment.
- Longer lifetime of the filter plates as the sediment can be removed without scraping them off.
- Easy cleansing of the filterplates from both sides.
- Filter plates can be used as holder for menbrane filters.
- Space-saving.
- Cost-saving-as filter plates and other parts can be ordered separately acc. to user's requirements.

Funnel. PP, up to 140 °C autoclavable.

Capacity ml	For plate dia. mm	Screw thread mm	Complete without plate	Head	Funnel	Viton O-ring
30	24	28	2.387.001	2.387.101	2.387.601	2.387.201
250	50	54	2.387.002	2.387.102	2.387.602	2.387.202
1000	90	95	2.387.003	2.387.103	2.387.603	2.387.203



Filter discs, with glass rim. Place the filterplates between 2 Viton seals.

Disc dia. mm	P1	P2	P3	P4
24	2.387.301	2.387.302	2.387.303	2.387.304
50	2.387.401	2.387.402	2.387.403	2.387.404
90	2.387.501	2.387.502	2.387.503	2.387.504

Disposable vacuum filters, PS, clarification and sterile filtration of nutrient solution, for cultures etc. gammasterile, packed 10 pcs. in bag.

Capacity ml	Pore µm	Applications	Filter dia. mm	
125	0.20	Sterilisation	50	5.484.501
125	0.45	Clarification	50	5.484.502
500	0.25	Sterilisation	47	5.484.503
500	0.45	Clarification	47	5.484.504

Buechner funnels, porcelain, DIN 12905, glazed for filter paper circles.

Filter dia. mm	Top dia. mm	Height mm	Capacity ml	
27	37	64	45	8.527.002
45	56	95	50	8.527.004
55	69	110	75	8.527.005
70	85	140	135	8.527.006
90	105	165	290	8.527.007
110	125	195	580	8.527.008
125	145	215	795	8.527.009
150	170	235	1250	8.527.010
185	220	280	1900	8.527.011
240	280	330	4300	8.527.012
320	380	350	10600	8.527.014

Buechner funnels, PP.

Filter dia. mm	Height mm	Holes dia. mm	
45	95	1.0	7.048.001
55	113	1.0	7.048.002
70	145	1.5	7.048.003
80	165	1.5	7.048.004
90	180	1.5	7.048.005
110	210	2.0	7.048.006
160	280	3.0	7.048.007
240	350	3.0	7.048.008

Filter paper circles.

Please specify the filter size by your requirement as follows:
0. Extra rapid, thin. 1. Rapid, 2. Medium soft, medium speed, 3. Medium speed, medium soft, fat free, 4. Medium dense, medium rapid, 5. Dense, slow, 6. Extra dense, very slow.
1. Filter paper circles, for quantitative analysis, ash approx. 0.01 %. (Sorte 1-5)
2. Filter paper circles, for quantitative analysis, ash 0.1-0.2 %. (Sorte 1-6)
3. Filter paper circles, for quantitative analysis, ash 0.1-0.2 %. (Sorte 0-6)
Standard pack 100 pcs.

Dia. mm	1.	2.	3.
55	8.200.*05	8.201.*05	8.202.*05
70	8.200.*07	8.201.*07	8.202.*07
90	8.200.*09	8.201.*09	8.202.*09
110	8.200.*11	8.201.*11	8.202.*11
125	8.200.*12	8.201.*12	8.202.*12
150	8.200.*15	8.201.*15	8.202.*15
185	8.200.*18	8.201.*18	8.202.*18
240	–	8.201.*24	8.202.*24
270	–	8.201.*27	8.202.*27
320	–	8.201.*32	8.202.*32
385	–	8.201.*38	8.202.*38

Universal and special indicator paper. Only one strip is necessary for determining the pH value in the 0 to 14 range. Plastic box 200 strips.

pH strips	8.208.001

Litmus papers. General testing for acid or alkalic reaction, pH range 5.0 to 8.0. Booklets of 100 strips.

Blue to red (alkaline to acidic)	8.209.001
Red to blue (acidic to alkaline)	8.209.001

Filter paper sheets, for general laboratory work and for laying-out laboratory tables, medium fast. Standard pack 100 pcs.

Dimensions mm	Weight g/m²	Size	
580 x 580	65	grained	8.206.105
580 x 580	75	grained	8.206.205
580 x 580	61	smooth	8.206.305
580 x 580	74	smooth	8.206.405

Drying blocks, lens paper, 100 blocks per carton, 50 sheets per blocks.

37 x 100	8.205.137

Cellulose paper for chromatography.

580 x 600	120	7.050.444

Filter papers, rolls and sheets, PE-coated. For isotopes and bacteriological laboratories for absorbing spilled liquids. For laying-out animal research cages.

Dimensions mm x m	Weight g/m²	Water absorption ml/m²	Standard-pack pcs	
400 x 25	120	90	1	8.207.101
400 x 50	120	90	1	8.207.102
400 x100	120	90	1	8.207.103
600 x 25	120	90	1	8.207.104
600 x 50	120	90	1	8.207.105
600 x100	120	90	1	8.207.106
480 x 6	120	90	50	8.207.107
400 x 50	165	190	1	8.207.202
600 x 50	165	190	1	8.207.205
480 x 6	165	190	50	8.207.207

Membrane filters, regenerated cellulose, suitable for pharmaceutical applications, with an outstanding chemical resistance to organic solvents.

Pore µm	Dia. 25 mm	Dia. 47 mm	Dia. 50 mm
1.0	8.211.101	8.211.102	8.211.103
0.6	8.211.201	8.211.202	8.211.203
0.45	8.211.301	8.211.302	8.211.303
0.2	8.211.401	8.211.402	8.211.403

Disposable filter holders. Housing material PP.

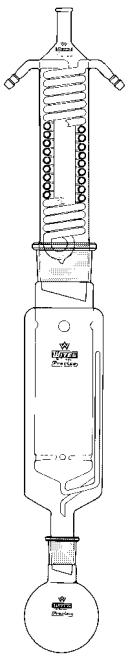
Pore µm	Filter Dia. mm	Standard pack pcs.	
Especially for the preparation of HPLC samples, suitable for aqueous and organic solutions			
Membrane material: regenerated cellulose			
0.2	13	100/500	8.212.001
0.2	30	100/500	8.212.002
0.45	13	100/500	8.212.003
0.45	30	50/100/500	8.212.004
For the preparation of HPLC samples, especially suitable for the filtration of gas and non-aqueous solutions. Membrane material: PTFE.			
0.2	30	50/100/500	8.213.001
0.45	30	50/100/500	8.213.002
1.0	30	50/100/500	8.213.003
For general laboratory work, aqueous solutions, individually sterile prepacked			
0.45	30	50	8.214.001
0.2	30	50	8.214.002

Vacuum filtration equipment made of borosilicate glass. With glass frit, without clamps.

Funnel content ml	Flask content ml	Filter-Ø mm	Complete	Bottle	Stopper with drilled hole	Clamps
60	ohne	24/25	8.215.001	–	–	8.217.060
60	250	24/25	8.215.002	8.215.006	8.216.001	8.217.060
250	ohne	47/50	8.215.003	–	–	8.217.250
250	1000	47/50	8.215.004	8.215.005	8.216.002	8.217.250

Vacuum filtration equipment acc. to Swiegot, made of borosilicate glass, with glass frit, porosity 0, complete with screw thread cap PP, complete with filtration flask 1000 ml with GL14 and plastic host connection, suitable for all standard filters, complete with seal elements PTFE/VITON.

Funnel content ml	Filter Dia. mm	Complete	Funnel	Lower part	Bottle	PTFE seal	Cap PP
60	24/25	8.390.101	8.390.201	8.390.301	8.390.400	8.390.501	8.390.601
300	47/50	8.390.102	8.390.202	8.390.302	8.390.400	8.390.502	8.390.602
1000	90	8.390.103	8.390.203	8.390.303	8.390.400	8.390.503	8.390.603



Extraction.

In general the extraction method with solvents is either used for the isolation of dissolved materials out of solutions or for the extraction of soluble components out of solid materials and for the removal of soil out of solid materials. There must not be any chemical reaction between the material and the solvent. The simplest forms of extraction are lixiviating and shaking out. Both methods can only be used in case of good solubility of the substance which must be extracted.

In the practice, however, there are mainly substances, the extraction of which is more difficult. For these substances continuosly operating apparatuses are used. According to the state of aggregation of the substance which must be extracted, we distinguish between solid-liquid and liquid-liquid extraction. As far as the solid-liquid extraction is concerned, the solid material is washed out by pure solvent condensates or solvent vapours. The material can directly be put into the extractor or into a filter element. In case extraction is effected near the boiling point of the solvent, it is called a hot extraction. You can save 50 % of the time you have spent on this work up to now.

The liquid-liquid extraction is strictly speaking a separation process. In this process two liquid phases which cannot be mixed and which are only slightly soluble, are confronted with each other. The result is that one or more components of the one phase are solved in the other phase. The chemical properties of the solved materials and of the solvents have an influence on the affinities which represent the bases for the extraction processes. In general you either work with specifically light or heavy solvents. The light extraction agent rises from the distributor to the top and then it flows back into the flask with the extract, while the heavy extraction agent takes the reverse way and sinks through the liquid which must be extracted.

The „Allihn“ condenser has only a low capacity. Owing to its comparatively high capacity of condensation the „Dimroth“ condenser can be universally used, even for the extraction.

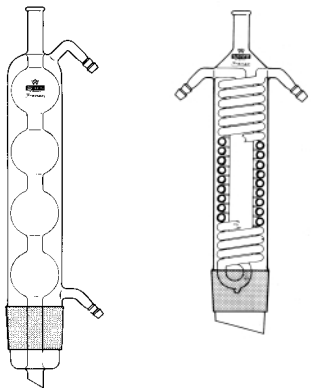
Technical data for Extractor apparatus, Soxhlet. Flasks ST 29/32.

Capacity of extractor ml	*30	70	*100	150	200	*250	300	*500	*1000	2000
Capacity of flask ml	100	100	250	250	250	500	500	1000	2000	2000
Suitable extraction thimbles:										
Socket lenght mm	80	100	94	130	123	205	145	230	315	330
Socket I. D. mm	22	25	33	33	43	33	48	48	57	75
Cone of condenser ST	29/32	34/35	45/40	45/40	45/40	45/40	60/46	60/46	71/51	45/40
Flat flanges NW	–	–	–	–	–	–	–	–	–	100

* acc. to DIN 12602

Extraction apparatuses, solid, **Soxhlet**, complete, with stopcock.

Capacity of extractor ml	Complete	Top
30	2.230.030	2.212.030
70	2.330.070	2.212.070
100	2.230.100	2.212.100
150	2.230.150	2.212.150
200	2.230.200	2.212.200
250	2.230.250	2.212.250
300	2.230.300	2.212.300
500	2.230.500	2.212.500
1000	2.230.001	2.212.001
2000	2.230.002	2.212.002



Condensers. For Extraction apparatuses.

For capacity of extractor ml	Length mm	Cone ST	Allihn-Condenser	Dimroth-Condenser
30	250	29/32	2.200.029	2.202.029
70	250	34/35	2.200.034	2.202.034
100-250	250	45/40	2.200.045	2.202.045
300-500	250	60/46	2.200.060	2.202.060
1000	250	71/51	–	2.202.071
2000	300	45/40	–	2.202.145

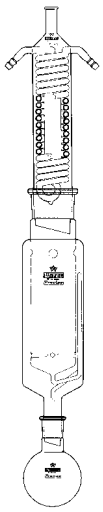
*.***.***S. Instead of the conentional hose connection made of glass we offer our SVS-hose connection Cat. No. 0.185.001 (Please add „S" behind the article no., surcharge see price list).

Extraction thimbles, made of fat-free filter paper. Suitable for extraction apparatus acc. to Soxhlet and similiar systems. Other sizes on request.

For Extractor capacity ml	O. D. mm	Height mm	
30	22	80	8.205.001
70	25	100	8.205.002
100	33	94	8.205.004
150	33	150	8.205.006
200	43	123	8.205.007
250	33	205	8.205.008
300	48	145	8.205.009
500	48	230	8.205.010
1000	57	315	8.205.011
2000	75	330	8.205.012

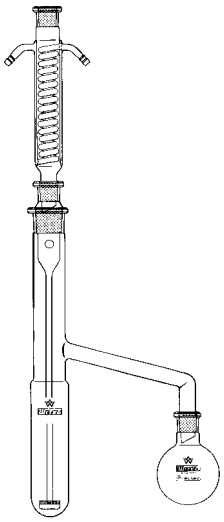
Flasks, round bottom, medium neck ST 29/32.

For capacity of extractor ml	Capacity ml	
30-70	100	2.220.100
100-200	250	2.220.250
250-300	500	2.220.500
500	1000	2.220.001
1000-2000	2000	2.220.002



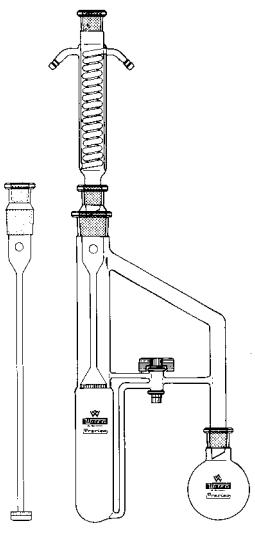
Extraction apparatuses, Böhm, hot extraction, complete.
Flask ST 29/32. Condenser St 45/40 acc. to DIN 12604.

Capacity of extractor ml	Condensers ST	Complete	Top
100	45/40	2.235.100	2.218.100
250	45/40	2.235.250	2.218.250
500	60/46	2.235.500	2.218.500



Extraction apparatuses-semi-micro, Antlinger, 15 ml capacity of extractor.

Type	
Complete	2.240.000
Spare parts:	
Flask, pear shaped 100 ml, ST 19/26	2.240.001
Center piece, cone ST 19/26, socket ST 29/32	2.240.002
Inset, cone ST 29/32, socket ST 19/26	2.240.003
Condenser, Graham, jacket length 160 mm, cone and socket ST 19/26	2.240.004



Liquid-liquid extraction apparatuses.
1. For lighter solvents (DBGM), complete.
2. For lighter and heavier solvents, with ST-COMPACT-stopcock, with hollow plug (DBGM), complete.
Flask ST 29/32, condenser ST 29/32.

Extractor capacity ml	Flask capacity ml	Jacket length mm	1. Complete	Extractor for 1.	2. Complete	Extractor for 2.
100	250	250	2.250.100	2.250.102	2.252.100	2.252.102
250	500	250	2.250.250	2.250.252	2.252.250	2.252.252
500	1000	250	2.250.500	2.250.502	2.252.500	2.252.502
1000	2000	400	2.250.001	2.250.012	2.252.001	2.252.012
Flask, round bottom, 250 ml	–	–	2.250.101	–	2.252.101	
Flask, round bottom, 500 ml	–	–	2.250.251	–	2.252.251	
Flask, round bottom, 1000 ml	–	–	2.250.501	–	2.252.501	
Flask, round bottom, 2000 ml	–	–	2.250.011	–	2.252.011	
Inset for lighter solvents, with sintered disc (P0), Cone ST 45/40, socket ST 29/32		–	2.250.103	–	2.252.103	
Inset for heavier solvents, with sintered disc (P0), Cone ST 45/40, socket ST 29/32		–	–	–	2.252.204	
Jacketed coil condenser, jacket length 250 mm, 2 ST 29/32		–	2.250.104	–	2.252.104	
Jacketed coil condenser, jacket length 400 mm, 2 ST 29/32		–	2.252.014	–	2.252.014	

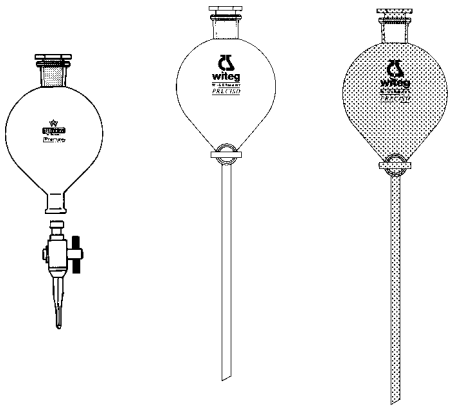
Multi-level removal funnels (Seperators), Squibb, pear-shaped. Borosilicate glass 3.3, with PTFE-outlet valve. Permits rapid and selective withdrawal of single or multiple solvent layers, also take-off interface layer possible.

Capacity ml	ST	Screw thread GL	Complete	Without valve	Valve	Screw cap
100	19/26	32	2.636.100	2.636.110	2.636.200	2.636.400
250	29/32	32	2.636.250	2.636.125	2.636.200	2.636.400
500	29/32	32	2.636.500	2.636.150	2.636.200	2.636.400
1000	29/32	45	2.636.001	2.636.101	2.636.200	2.636.450
2000	29/32	45	2.636.002	2.636.102	2.636.300	2.636.450
4000	45/40	45	2.636.004	2.636.104	2.636.300	2.636.450
6000	45/40	45	2.636.006	2.636.106	2.636.300	2.636.450
10000	45/40	45	2.636.010	2.636.111	2.636.300	2.636.450

Separatory funnels, Squibb, pear-shaped. Borosilicate glass 3.3 with ST-PE-stopper.
1. With detachable PTFE-stopcock. Stem length 100 mm. Ungraduated.
2. With solid ST-stopcock plugs. Ungraduated.
3. With solid ST-stopcock plugs. Graduated.
4. With ST-PTFE-stopcock plugs. Ungraduated.
5. With ST-PTFE-stopcock plugs. Graduated.

Capacity ml	ST	Bore of plug mm	1.	2.	3.	4.	5.
50	19/26	2.5	2.626.050	2.647.050	2.648.050	2.658.050	2.659.050
100	19/26	2.5	2.626.100	2.647.100	2.648.100	2.658.100	2.659.100
250	29/32	2.5	2.626.250	2.647.250	2.648.250	2.658.250	2.659.250
500	29/32	2.5	2.626.500	2.647.500	2.648.500	2.658.500	2.659.500
1000	29/32	2.5	2.626.001	–	–	–	–
1000	29/32	4	–	2.647.001	2.648.001	2.658.001	2.659.001
2000	29/32	6.3	–	2.647.002	2.648.002	2.658.002	2.659.002

Separatory funnel amber glass *.***.*** BR



Separatory funnels, globe (ball) -shaped. Borosilicate glass 3.3, with ST-PE-stopper. Ungraduated.
1. With detachable PTFE-stopcock. Stem length 100 mm. Bore of plug 2.5 mm.
2. With solid ST-stopcock plugs.
3. With ST-PTFE-stopcock plugs.

Capacity ml	ST	Bore of plug mm	1.	2.	3.
50	19/26	2.5	2.620.050	2.640.050	2.650.050
100	19/26	2.5	2.620.100	2.640.100	2.650.100
250	29/32	2.5	2.620.250	2.640.250	2.650.250
500	29/32	2.5	2.620.500	2.640.500	2.650.500
1000	29/32	2.5	2.620.001	–	–
1000	29/32	4	–	2.640.001	2.650.001
2000	29/32	6.3	–	2.640.002	2.650.002

Separatory funnel amber glass *.***.*** BR

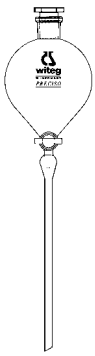
Separatory funnels, Gilson. Borosilicate glass 3.3, with ST-PE-stopper. Ungraduated.
1. With solid ST-stopcock plugs.
2. With ST-PTFE-stopcock plugs.

Capacity ml	ST	Bore of plug mm	1.	2.
50	19/26	2.5	2.642.050	2.652.050
100	19/26	2.5	2.642.100	2.652.100
250	29/32	2.5	2.642.250	2.652.250
500	29/32	2.5	2.642.500	2.652.500
1000	29/32	4	2.642.001	2.652.001
2000	29/32	6.3	2.642.002	2.652.002

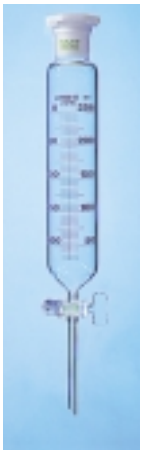
Separatory funnels acc. to Walter. Borosilicate glass 3.3, with ST-PE-stopper. Ungraduated.
1. With solid ST-stopcock plugs.
2. With ST-PTFE-stopcock plugs.

Capacity ml	ST	Bore of plug mm	1.	2.
50	19/26	2.5	2.646.050	2.656.050
100	19/26	2.5	2.646.100	2.656.100
250	29/32	2.5	2.646.250	2.656.250
500	29/32	2.5	2.646.500	2.656.500
1000	29/32	4	2.646.001	2.656.001
2000	29/32	6.3	2.646.002	2.656.002

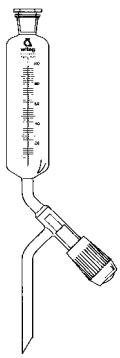
Separatory (dropping) funnels with/without pressure equalizing see page 19



Separatory funnels, cylindrical, Borosilicate glass 3.3, with ST-PE-stopper.
1. With detachable PTFE-stopcock. DIN 12566. Bore of plug 2.5 mm, stem length 100 mm.
2. With solid ST-stopcock plugs.
3. With ST-PTFE-stopcock plugs.



Capacity ml	ST	Bore of plug mm	1.	2.	3.
Graduated					
50:1	19/26	2.5	2.624.050	2.645.050	2.655.050
100:2	19/26	2.5	2.624.100	2.645.100	2.655.100
250:5	29/32	2.5	2.624.250	2.645.250	2.655.250
500:10	29/32	2.5	2.624.500	2.645.500	2.655.500
1000:20	29/32	2.5	2.624.001	–	–
1000:20	29/32	4	–	2.645.001	2.655.001
2000:50	29/32	6.3	–	2.645.002	2.655.002
Ungraduated					
50	19/26	2.5	2.622.050	2.644.050	2.654.050
100	19/26	2.5	2.622.100	2.644.100	2.654.100
250	29/32	2.5	2.622.250	2.644.250	2.654.250
500	29/32	2.5	2.622.500	2.644.500	2.654.500
1000	29/32	2.5	2.622.001	–	–
1000	29/32	4	–	2.644.001	2.654.001
2000	29/32	6.3	–	2.644.002	2.654.002



Separatory funnels, cylindrical, graduated, with needle valve stopcock, with PTFE-needle valve, blue. Borosilicate glass 3.3.
1. Cylindrical
2. Squibb type

Capacity ml	ST	Bore of plug mm	1.	2.
50	19/26	3	2.643.050	2.649.105
100	19/26	3	2.643.100	2.649.110
250	29/32	3	2.643.250	2.649.125
500	29/32	6	2.643.500	2.649.150
1000	29/32	6	2.643.001	2.649.200
2000	29/32	6	2.643.002	2.649.300

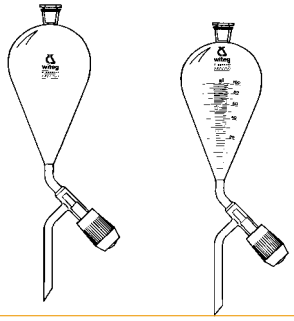
Separatory funnels, amber glass (DURAN/Borosilicate glass coloured). Please add behind the refering article-No. *,***.***BR.

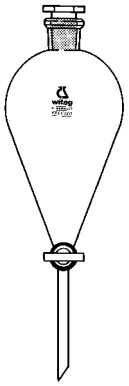
Extraction funnels for Shakers, with PTFE-needle valve, with filler pipe GL 45, center neck GL 45, DURAN

Capacity ml	
1000	2.680.101
2000	2.680.102

Separatory funnels, conical . DURAN with needle valve and ST-PE-stoppers.

Capacity ml	ST	Bore of plug mm	Ungraduated	Graduated
50	19/26	3	2.675.050	2.676.050
100	19/26	3	2.675.100	2.676.100
250	29/32	3	2.675.250	2.676.250
500	29/32	3	2.675.500	2.676.500
1000	29/32	6	2.675.001	2.676.001
2000	29/32	6	2.675.002	2.676.002





Separatory funnels, DIN 12451 conical. DURAN. With ST-PE-stopper.
1. With solid ST-stopcock plugs, ungraduated.
2. With ST-PTFE-stopcock plugs, ungraduated.
3. With solid ST-stopcock plugs, graduated.
4. With ST-PTFE-stopcock plugs, graduated.

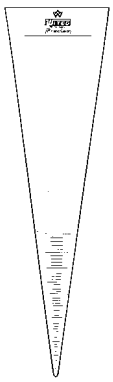
Capacity ml	ST	Bore of plug mm	1.	2.	3	4.
50	19/26	2.5	2.671.050	2.673.050	2.672.050	2.674.050
100	19/26	2.5	2.671.100	2.673.100	2.672.100	2.674.100
250	29/32	4	2.671.250	2.673.250	2.672.250	2.674.250
500	29/32	4	2.671.500	2.673.500	2.672.500	2.674.500
1000	29/32	6.3	2.671.001	2.673.001	2.672.001	2.674.001
2000	29/32	6.3	2.671.002	2.673.002	2.672.002	2.674.002

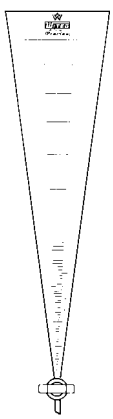
Separatory funnels, crystal clear, graduated. PMP.

Capacity ml	
500:5	7.050.003

Separatory funnel holder. PP. For separatory funnel 125-500 ml. With retort clamps, 8-14 mm.

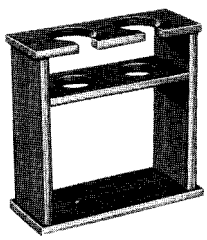
	7.052.001

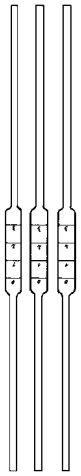




Sedimentation cones Imhoff, DIN 12672, 1000 ml capacity, graduated.
0-2 ml: 0,1 ml, 2-10 ml: 0,5 ml, 10-40 ml: 1 ml, 40-100 ml: 2 ml. "New version with needle valve."

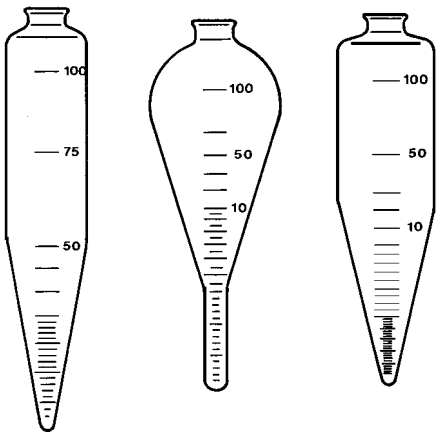
	Without stopcock	With ST-stopcock	With needle valve
With mark at 1000 ml	2.930.000	2.932.000	–
100-1000 ml: 50 ml	2.934.000	2.936.000	2.936.100
Made of SAN, with closure stopper, 100-1000 ml: 50 ml	2.938.000	–	
Wooden stand for sedimentation cone, Imhoff			
2 places	2.939.000		
4 places	2.939.001		
Stand, made of SAN 150 x 300 x 294 mm	7.052.056		





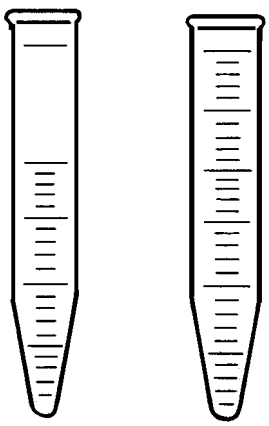
Set of 3 pipettes, Winkler, 3 different colours (white, blue, red), 5 ml capacity, with mark at 0, 1, 2 and 3 ml.

2.912.000



ASTM-centrifuge tubes, DURAN, 100 ml.

Graduation ml	
Ccylindrical with conical bottom,	
acc. to ASTM D 91 and ASTM D 96, 8 in.	4.955.010
0-0.5:0.05	
0.5-2:0.10	
2-3:0.20	
3-5:0.5	
5-10:1	
10-25:5	
25-100:25	
Pear-shape, with cylindrical bottom,	
acc. to ASTM D 96	4.956.010
0-1.5:0.1	
1.5-3:0.5	
3.0-5.0:0.5	
5.0-10.0:1	
10-25:5	
25-100:25	
Cylindrical with conical bottom,	
acc. to ASTM D 96. 6 in.	4.957.010
0-0.5:0.05	
0.5-2:0.10	
2-3:0.20	
3-5:0.5	
5-10:1.0	
10-25:5	
With marks at 50 und 100 ml	



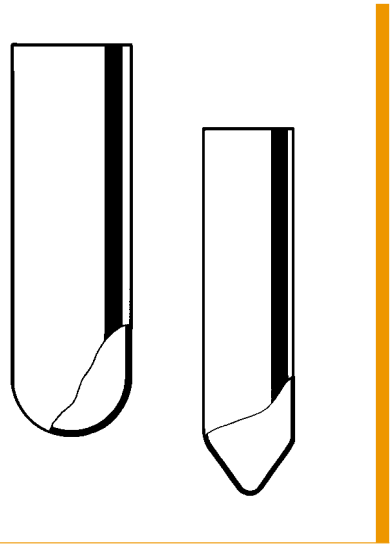
Centrifuge tubes, conical. Standard pack 100 pcs. Wall thickness 0.8-1 mm. Graduation white.

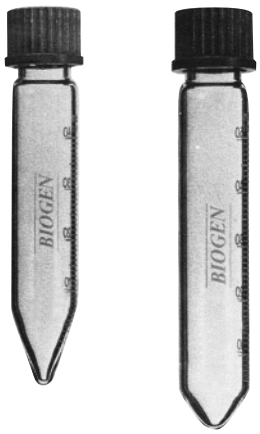
Rim	Dia. x H mm	Glass	
Graduated 10:0.1 ml, with mark at 15 ml			
without rim	17 x 112	AR	4.870.001
without rim	17 x 112	DURAN	4.870.002
with rim	17 x 112	AR	4.870.004
with rim	17 x 112	DURAN	4.870.005
Graduated 15:0.1 ml			
without rim	17 x 112	AR	4.875.001
without rim	17 x 112	DURAN	4.875.002
with rim	17 x 112	AR	4.875.004
with rim	17 x 112	DURAN	4.875.005
Ungraduated			
without rim	17 x 112	AR	4.860.001
without rim	17 x 112	DURAN	4.860.002
with rim	17 x 112	AR	4.860.004
with rim	17 x 112	DURAN	4.860.005
Ungraduated			
without rim	17 x 98	AR	4.865.001
with rim	17 x 98	AR	4.865.002

Centrifuge tubes, DURAN. Heavy wall, without rim.

Nominal capacity ml	Length mm	O. D. mm	Ungraduated	Graduated
Round bottom, acc. to DIN 58970 (Part 2)				
6	12	100	4.940.001	–
12	16	100	4.940.002	4.940.102
25	24	100	4.940.003	4.940.103
50	34	100	4.940.004	4.940.104
80	44	100	4.940.005	4.940.105
80	40	115	4.940.006	–
250	56	147	4.940.007	4.940.107
Conical bottom, 60°				
12	16	100	*4.945.001	–
25	24	100	4.945.002	–
50	34	100	4.945.003	–
80	44	100	4.945.004	–
80	40	115	4.945.005	–

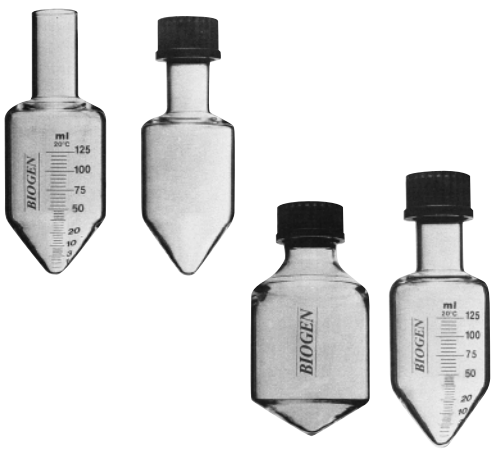
*) Angle 30°.





Centrifuge tubes with screw cap. Borosilicate glass.

Capacity ml	O. D. x L mm	Graduation ml	Screw cap GL	
Conical bottom				
12	17 x 137	1	18	4.946.001
15	17 x 140	1	18	4.946.002
40	28 x 145	0-10:0.5 10-40:1	25	4.946.003
Shallow cone bottom				
50	28 x 140	0-10:0.5 10-50:1	25	4.946.101
Round bottom				
10	20 x 97	–	18	4.947.001
35	28 x 104	–	25	4.947.002
50	28 x 140	–	25	4.947.003

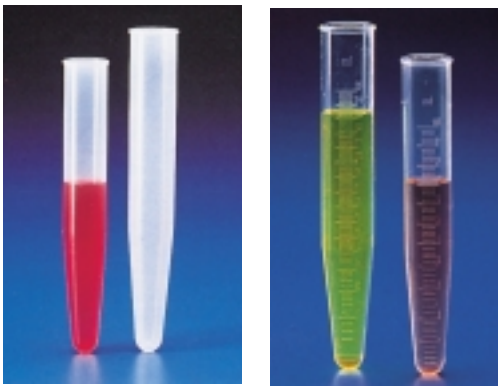


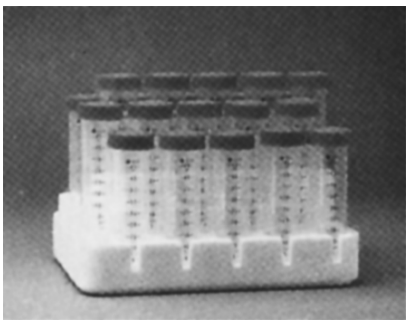
Centrifuge tubes, large volume.
Graduation:
0-3ml:0.5; 3-10 ml:1; 10-20 ml:2;20-50 ml:3; 50-125 ml:5.

Capacity ml	O. D. x L mm	Screw cap GL	
Conical bottom, graduated, plain top 24 mm for metal clip			
140	60 x 152	–	4.947.101
Conical bottom, ungraduated, with screw cap			
140	60 x 152	32	4.947.201
590	95 x 175	32	4.947.202
Conical bottom, graduated, with screw cap			
140	60 x 150	32	4.947.401
200	60 x 175	32	4.947.402
Shallow cone bottom, ungraduated, with screw cap			
760	95 x 175	45	4.947.301

Centrifuge tubes, conical bottom.
- made of PP, up to 120 °C autoclavable.
- made of PMP, up to 170 °C autoclavable.

Capacity ml	Dia. mm	Length mm	PP	PMP
Ungraduated				
10	16	108	7.272.001	7.272.101
13	18	120	7.272.002	7.272.102
Graduated				
10	16	110	7.273.001	7.273.101
15	18	118	7.273.002	7.273.102





Centrifuge tubes with screw cap, 50 ml. Made of highly transparent PP, sterilized by radiation. No wettable surface. Can be used in liquid nitrogen (-196 °C). Graduation each 5 ml (from 5 to 45 ml), leak-proof.

Type	
25 pieces per rack	5.487.201
15 pieces per bag	5.487.202
25 pieces in rack, self standing	5.487.203

Water stills "BIOSTILL".
The immersion heating element is covered by quartz glass, so that heavy metal ions in the distillate are excluded. The quality of the water corresponds to the provision of the DAB 8 and all important pharmacopoes, ASTM-D-1193 and ASTM-C-225. A conductivity of the distilled water up to ≤1 µS/cm (25 °C), pyrogenfree, can be reached.

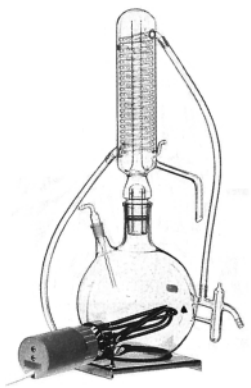
Type	Output l/h	V/A	W	
BIO 2	2.5	220/10	1500	2.190.102
BIO 4	4	220/10	1500	2.190.104
Spare parts:				
BIOSTILL-glass-part/vessel alone 2.5 liters				2.190.111
BIOSTILL-control unit				2.190.112
3 meters rubber/silicone tubing for BIOSTILL				2.190.114
BIOSTILL-quartz-silica heater (for 2.5 liter unit)				2.190.115
dito. for 4 liter unit				2.190.117
WITEG WATER-STILL-CLEANER, concentrate, packed to a 1 liter container				2.190.116
PE-stopper, ST 29				2.190.129
BIOSTILL-glasspart alone, 4 liters				2.190.136
BIOSTILL-control unit, for 4 liters still				2.190.137

Water stills "WITO-DEST".
The quality of the water corresponds to the provision of the DAB 8 and to all important pharmacopoes, ASTM-D-1193 and ASTM-C-225. A conductivity of the distilled water up to ≤1 µS S/cm (25 °C) can be reached. The immersion heating element is covered by quartz glass, so that heavy metal ions in the distillate are excluded. At 60 °C, the distillate is free of CO_2. The automatic level regulation and the mounted-in safety device against water lack quarantee an extrem safety during operation. The apparatus are delivered ready for use. Temperature of distillate approx. 50 °C.

Type	Output l/h	V/A	W	Heater	
WD2	2.5	220/10	2200	quartz	2.190.001
WD5	5	220/14	3100	quartz	2.190.002
WD3	3	220/10	2200	metall	2.190.003
WD7	7	220/23	5100	metall	2.190.007
WD8	7	380/8	3100	metall	2.190.008
WD9	7	220/10	3600	quartz	2.190.009

Water still "Economy".
Top water quality to responsable price. Consisting of the 5 liters boiling flask, interchangeable heating element with thermostatic cut-out of power in case of water input fail, re-starts automatically when water supply is restored. With syphon tube and constant water level device, double spiral condenser with special „PRECISO" FCH-V interchangeable joint (easy to remove from the boiling flask). Excess water is drained through an overflow tube attached to the constant level. Temperature of distillate 70-80 °C.

Type	Output l/h	V/A	W	Heater	
"Economy"	3-4	220/10	3000	metall	2.190.100
Spare parts to water still:					
Bottle, 5000 ml, PE-stopper ST 45/40					2.190.005
Aspirator bottle, 10000 ml, with draincock, PE					2.190.006
WITONEX-cleansing concentrate, 1kg					2.190.009
Heating element for WITO-DEST-WD 2					2.190.010
Heating element for WITO-DEST-WD 5					2.190.011
Heating element for WITO-DEST-WD 3					2.190.012
Heating element for WITO-DEST-WD 7					2.190.014
Heating element forr WITO-DEST-WD 8					2.190.015
Heating element for modell "Economy"					2.190.016
Double spiral distilling condenser for modell "Economy" with FCH-V 45/40					2.190.017
Flask 5000 ml with overflow-tube for modell "Economy"					2.190.018
Wall rack for model "Economy"					2.190.019
Air leak tube for model "Economy"					2.190.021
Condenser for Distiller WD 2-3					2.190.022
Condenser for Distiller WD 5-8					2.190.023
Heating element for WITO-DEST-WD 9					2.190.024
Heating reactor for WD 9					2.190.025
Condenser for WD 9					2.190.026

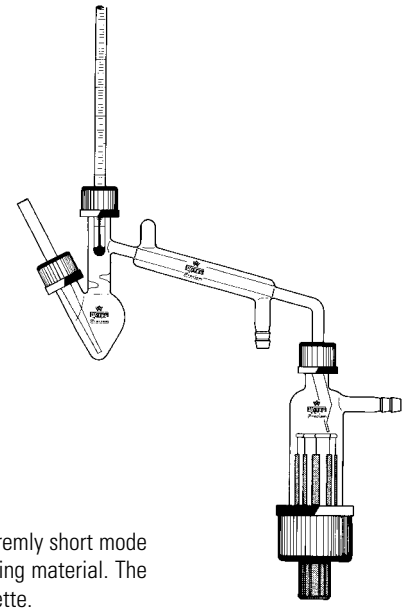


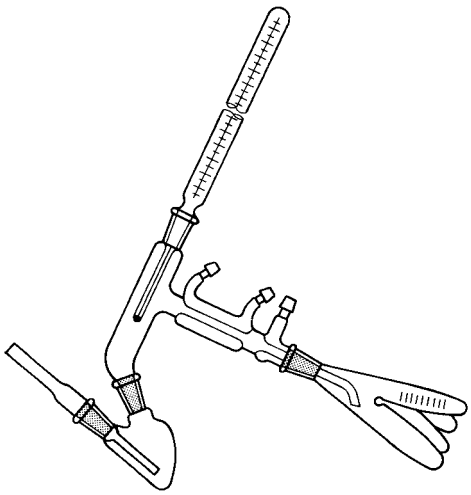
Micro distilling apparatus, Widmark for determining alcohol in blood.

Type	
Complete	2.154.000
Spare parts:	
Erlenmeyer flask, 50 ml, ST 19/26	2.154.001
Adapter with ST 19/26	2.154.002

Micro-distilling apparatus for 5 ml.

Type	
Complete	2.156.000
Spare parts:	
Flask with fused-on condenser, 70 mm, 2 GL 14	2.156.001
Screw cap, top with hole GL 14	2.156.002
Gasket, Silicone rubber, with PTFE washer 12 x 6 für GL 14	2.156.003
Receiver adapter with 1 GL 14 and 1 GL 32	2.156.004
Screw cap, top with hole GL 32	2.156.005
Receiving tubes with support and washer	2.156.006
Thermometer, solid stem -10 +250 °C: 1 °C	2.156.007
Air leak tube	2.156.008





Short path distilling apparatus, micro. Extremly short mode of construction. Gentle treatment of the distilling material. The receiver flasks can be easily emptied by a pipette.

Type	
Complete	2.996.000
Spare parts:	
Flasks, pear shaped, 2 x ST 14/23, 10 ml	2.996.001
Short path distilling link with condensor, 3 ST 14/23	2.996.002
Thermometer -10 +250 °C:1 °C, ST 14/23	2.996.003
Air leak tube ST 14/23	2.996.004
Receivers with 4 test tubes 3 ml:0.5 ml	2.996.005
Clip for joint St 14/23	2.996.006
Accessories:	
Fractionating column acc. to Vigreux, 200 mm length, 2 ST 14/23	2.996.007

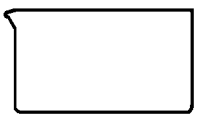
Vacuum sublimentation apparatus.

PRECISO. New model. An effective cleansing of many drugs and chemicals which, while being heated, directly pass from the solid state, into the vaporous state without liquifying before and which solidify again when they are cooled correspondingly. The purified sublimate can be easily and completely regained from the conical condenser after the termination of the sublimation process. Vacuum-tight without grease.

Type	Capacity ml	
Micro-apparatus GL 45	25	2.994.001
Semi-micro-apparatus GL 45	100	2.994.002
Macro-apparatus GL 100	1000	2.994.003

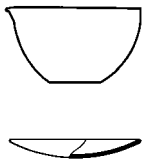
Crystallizing dishes. With spout and notation badge, acc. to DIN 12338.

Dia. mm	Height mm	Capacity ml	DURAN	Borosilicate glass	Quartz glass
40	25	20	5.534.020	5.534.020B	8.653.021
50	30	40	5.534.040	5.534.040B	8.653.022
60	35	60	5.534.060	5.534.060B	8.653.023
70	40	100	5.534.100	5.534.100B	8.653.024
80	45	150	5.534.150	5.534.150B	8.653.025
95	55	300	5.534.300	5,534.300B	8.653.026
115	65	500	5.534.500	5.534.500B	–
140	75	900	5.534.900	5.534.900B	–
190	90	2000	5.534.002	5.534.002B	–
230	100	3500	5.534.003	5.534.003B	–



Evaporating dishes.

Dia. mm	Height mm	Capacity ml	DURAN	Borosilicate glass	Quartz glass	PTFE
With spout and notation DIN 12336.						
40	18	10	5.530.010	5.530.010.B	8.651.001	
50	25	15	5.530.015	5.530.015.B	8.651.002	
60	30	45	5.530.045	5.530.045.B	8.651.003	
70	35	60	5.530.060	5.530.060.B	8.651.004	
80	45	90	5.530.090	5.530.090.B	8.651.005	
95	55	170	5.530.170	5.530.170.B	8.651.007	
115	65	320	5.530.320	5.530.320.B	–	
140	80	600	5.530.600	5.530.600.B	–	
190	100	1500	5.530.001	5.530.001.B	–	
230	130	2500	5.530.002	5.530.002.B	–	
Low form						
25	–	–	–		–	7.207.001
100	–	–	–		–	7.207.002
Tall form						
5	–	–	–		–	7.208.001
25	–	–	–		–	7.208.002
75	–	–	–		–	7.208.003

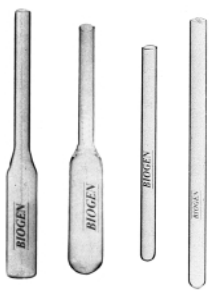


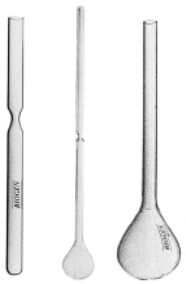
Evaporating dishes.

Dia. ml	DURAN	Soda glass	Quartz glass	PTFE	PP
Watch glass shape, thin glass, fire-polished rim					
40	5.601.040	5.600.040	8.629.002	7.209.001	–
50	5.601.050	5.600.050	8.629.003	7.209.002	–
60	5.601.060	5.600.060	8.629.004	–	7.103.001
70	–	5.600.070	8.629.005	–	–
75	–	–	–	7.209.003	–
80	5.601.080	5.600.080	8.629.006	–	7.103.002
100	5.601.100	5.600.100	8.629.007	7.209.004	7.103.003
125	5.601.125	5.600.125	–	7.209.005	7.103.004
150	5.601.150	5.600.150	–	–	–
200	5.601.200	5.600.200	–	–	–
250	5.601.250	5.600.250	–	–	–

Evaporating dishes, porcelain, with spout.

Dia. mm	Height mm	Capacity ml	
Low bottom			
40	8	8	8.525.001
50	10	10	8.525.002
63	13	20	8.525.003
80	16	45	8.525.005
100	20	100	8.525.007
125	25	260	8.525.009
Round bottom			
63	25	35	8.526.004
85	35	95	8.526.007
100	40	115	8.526.008
125	50	285	8.526.011
150	55	420	8.526.013
160	64	580	8.526.014
180	65	700	8.526.015



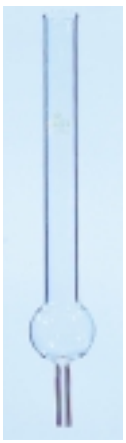


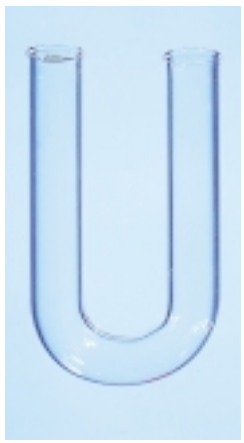
Freeze drying ampoules, borosilicate glass.

Capacity ml	Neck O.D. mm	Overall length mm	
Round bottom, cylindrical sided			
1	7	80	5.553.001
2	8	140	5.553.002
3	8	163	5.553.003
5	8	167	5.553.004
10	8	180	5.553.005
15	8	180	5.553.006
20	8	195	5.553.007
25	8	200	5.553.008
50	8	230	5.553.009
100	15	240	5.553.010
Flat bottom, cylindrical sided			
1	7	80	5.553.101
2	8	140	5.553.102
3	8	163	5.553.103
5	8	167	5.553.104
10	8	180	5.553.105
25	8	200	5.553.106
Round bottom, cylindrical			
1	7	127	5.553.201
2	8	145	5.553.202
3	10	145	5.553.203
4	10	170	5.553.204
With seal-off constriction			
0,5	6	105	5.553.301
1	8	145	5.553.302
2	9	145	5.553.303
For large culture collections			
0.5	5	90	5.553.401
Bulb-type, with seal-off constriction			
1	8	130	5.553.501
2	8	130	5.553.502
5	8	130	5.553.503
10	8	140	5.553.504
20	8	147	5.553.505
With marking area. For 1 ml pipettes			
1	10	155	5.553.601

Calcium Chloride towers, borosilicate glass. With thread cap GL 45, needle valve stopcock, stable foot made of plastic.

Height mm	O. D. mm	
240	40	5.624.101
315	45	5.624.102
420	55	5.624.103
500	75	5.624.104





Desiccators, with stopcock. Lower part and plate made of PP, lid PC. The desiccator is vacuum adjusted. The inset for chloride of lime serves as holding device for perforated porcelain plates.

O. D. mm	Heigth mm	Complete	O-ring Neopren	Piece PP
150	190	7.082.001	7.084.001	7.085.001
200	230	7.082.002	7.084.002	7.085.002
250	300	7.082.003	7.084.003	7.085.003
Stopcock		7.083.001		

Drying tubes. With 1 bulb.

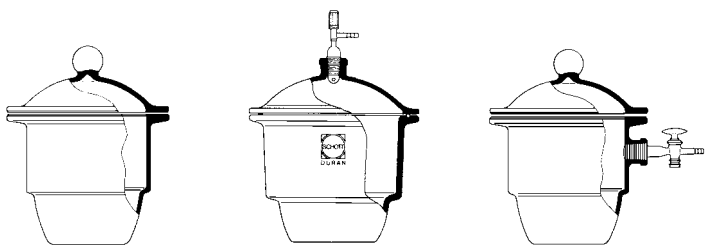
Shape	Length mm	I. D. mm	
Straight	100	13	2.110.100
Straight	125	13	2.110.125
Straight	150	13	2.110.150
Straight	200	18	2.110.200
Bent	100	13	2.112.100
Bent	125	13	2.112.125
Bent	150	13	2.112.150
Bent	200	18	2.112.200

Drying tubes. U-shaped.

ST	Length mm	I. D. mm	
With ST-stoppers			
10/19	80	9	2.114.080
12/21	100	13	2.114.100
14/23	125	16	2.114.125
19/26	150	18	2.114.150
19/26	250	18	2.114.250
With side connections			
-	80	9	2.115.080
-	100	13	2.115.100
-	125	16	2.115.125
-	150	18	2.115.150
-	250	18	2.115.250
U-tubes			
-	80	9	2.116.080
-	100	13	2.116.100
-	125	16	2.116.125
-	150	18	2.116.150
-	250	18	2.116.250

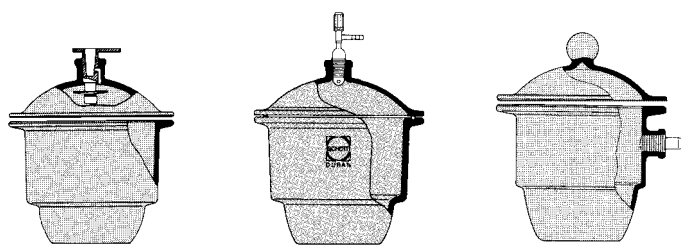
Desiccators "NOVUS", borosilicate glass.
1. With knobbed lid.
2. With tubulated lid, with needle valve stopcock and cone ST 24/29.
3. With ST-stopcock and cone ST 24/29 in side tubus and knobbed lid.

I. D. mm	1.	2.	3.
100	5.650.100	5.660.100	5.670.100
150	5.650.150	5.660.150	5.670.150
200	5.650.200	5.660.200	5.670.200
250	5.650.250	5.660.250	5.670.250
300	5.650.300	5.660.300	5.670.300



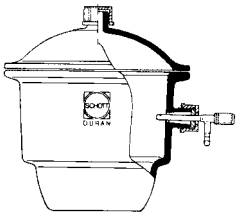
Desiccators "NOVUS", borosilicate glass. With safety PROTEFAN coating as implosion and splinter protection.
1. With needle valve stopcock.
2. With needle valve stopcock in side tubulature and knobbed lid.
3. With improved Wertex sealing device.

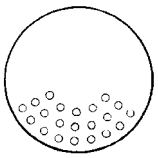
I. D. mm	1.	2.	3.
200	5.065.200	5.070.200	5.075.200
250	5.065.250	5.070.250	5.075.250
300	5.065.300	5.070.300	5.075.300



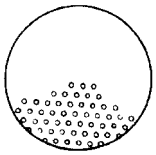
Desiccators "MOBILEX", borosilicate glass. With safety PROTEFAN coating as implosion and splinter protection.
1. With lid with screw thread and screw-closure cap.
2. With lid with screw thread, screw-connection cap with aperture, silicone sealing ring, ST-stopcock, screw-closure cap.
3. With screw thread at side of base, screw-connection cap with aperture, silicone sealing ring, ST-stopcock, screw-closure cap.

Capacity ml	1.	2.	3.
200	5.050.200	5.055.200	5.060.200
250	5.050.250	5.055.250	5.060.250
300	5.050.300	5.055.300	5.060.300





Porzellan/Porcelain



Metall/Metal

Desiccator, vacuum, Splinter and implosion safety PROTEFAN coated. Complete with adapters and 1 manometer. 250 mm dia., borosilicate glass, lid and side tube ST 24, with ring nut, with PTFE-needle valve stopcock. The vacuumeter can be used in lid or side tubulature.

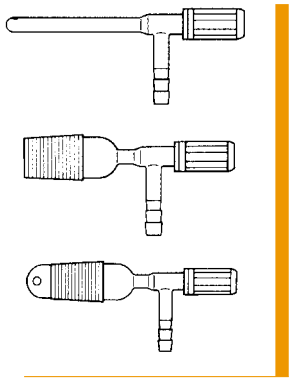
Type	
Complete	5.661.250
Spare parts:	
Adapters, 2 x GL 25, with caps and silicone seals, PTFE-covered	5.661.001
PTFE-needle valve stopcock	5.661.002
Vacuumeter, analog 1000...0 mbar, 760...0 mm/Hg	5.661.003

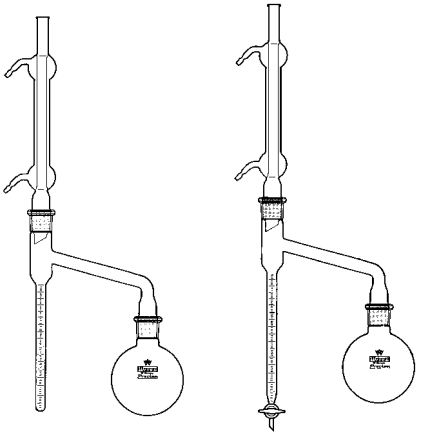
Desiccator plates, without feet, 20 mm dia., centre hole and many small holes 5 mm dia.

Dia. mm	Porcelain	Metal
90	8.535.001	8.662.801
140	8.535.003	8.662.803
190	8.535.005	8.662.805
235	8.535.006	8.662.806
280	8.535.007	8.662.807

Accessories for desiccators.

Type	
Stopcock, Type MOBILEX, with PTFE needle valve stopcock, for thread-connection with overtwist, device for stopcock	5.662.002
Stopcock, for lateral tubulature, ST 24/29, Type NOVUS, with PTFE needle valve stopcock, with overtwist device,	5.662.003
with FCH-V 24/29, flat-free, high vacuum joint	5.662.004
Stopcock for lids, ST 24/29,	5.662.005
with PTFE-needle valve stopcock, with overtwist device	
with FCH-V 24/29, flat-free, high vacuum joint	5.662.006
Flat flange rings for enlarging volume of the dessicators 250 mm dia.	5.662.000



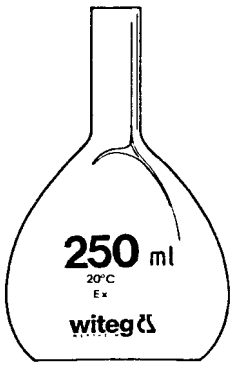


Water estimators, Dean Stark. With flask, round bottom 500 ml, ST 29/32. Measuring tube with cone/socket ST 29/32.

With	
Complete with measuring tube 2 ml: 0.05 ml	2.890.001
Complete with measuring tube 7.5 ml: 0.1 ml	2.890.002
Complete with measuring tube 10 ml: 0.1 ml	2.890.003
Complete with measuring tube 25 ml: 0.2 ml	2.890.004
Spare parts:	
Flasks, round bottom, 500 ml, ST 29/32	2.890.005
Measuring tube 2 ml: 0.05 ml, without stopcock	2.890.006
Measuring tube 7.5 ml: 0.1ml, without stopcock	2.890.007
Measuring tube 10 ml: 0.1 ml, without stopcock	2.890.008
Measuring tube 25 ml: 0.2 ml, without stopcock	2.890.009
Condenser acc.to West, 250 mm jacket length, with cone ST 29/32	2.890.010
Sampler tube, length 700 mm	2.890.011
Complete with measuring tube 10 ml: 0.1 ml, with ST-stopcock	2.892.000
Spare parts:	
Flasks, round bottom, 500 ml, ST 29/32	2.892.001
Measuring tube 10 ml: 0.1 ml, with ST-stopcock	2.892.002
Measuring tube 10 ml: 0.1 ml, 0-point at the top	2.892.102
Measuring tube 20 ml: 0.3 ml, with ST-stopcock	2.892.202
Measuring tube 25 ml: 0.1 ml, with ST-stopcock	2.892.252
Measuring tube 25 ml: 0.1 ml, 0-point at the top	2.892.152
Condenser acc.to West, 400 mm jacket length, with cone ST 29/32	2.892.003
Sampler tube, length 800 mm	2.892.004

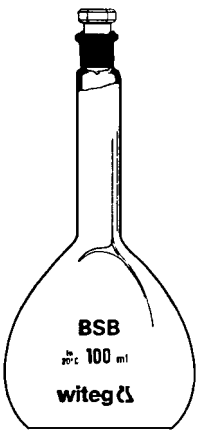
Over-flow-flasks, for water treatment, couted and grounded exactly at the volume-mark, without stopper, DIN B.

Capacity ml	Suitable for instruments of HACH	H&C	WTW	
21.7	x	-	-	3.685.021
22.7	-	-	x	3.685.022
43.5	-	-	x	3.685.044
56.0	x	x	-	3.685.056
94.0	x	x	-	3.685.094
97.0	-	-	x	3.685.097
100.0	x	x	x	3.685.100
110.0	x	x	x	3.685.110
150.0	x	x	x	3.685.150
157.0	x	x	-	3.685.157
164.0	-	-	x	3.685.164
200.0	x	x	x	3.685.200
244.0	x	x	-	3.685.244
250.0	-	-	x	3.685.250
275.0	x	x	x	3.685.275
285.0	x	x	x	3.685.285
300.0	x	x	x	3.685.300
360.0	x	x	-	3.685.360
365.0	-	-	x	3.685.365
428.0	x	-	x	3.685.428
432.0	-	-	x	3.685.432
450.0	x	x	x	3.685.450
650.0	x	x	x	3.685.650
700.0	x	x	x	3.685.700
740.0	x	x	x	3.685.740



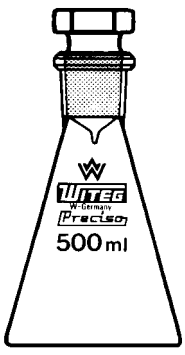
BOD-bottles, Karlsruher bottles, DURAN, with funnel, without stopper.

Capacity ml	ST	
50	14/23	2.436.050
100	14/23	2.436.100
300	19/26	2.436.300
ST-hollow stopper, ST 19/26, with extra long stem		
	14.5/23	2.436.000
	19/26	2.436.001



BOD-bottles, for water treatment, complete with interchangeable ST-hollow glass-stopper, 100 ml, no need to select bottle-stopper after cleaning.

Capacity ml	ST	
100	14/23	3.675.001
100	29/32	3.675.002

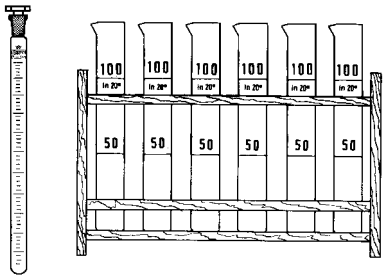


Iodine determination flasks, Sendtner, with ST-hollow stopper, hexagonal plate. ST 29/32.

Capacity ml	
100	2.435.100
200	2.435.200
250	2.435.250
300	2.435.300
500	2.435.500
1000	2.435.001
2000	2.435.002

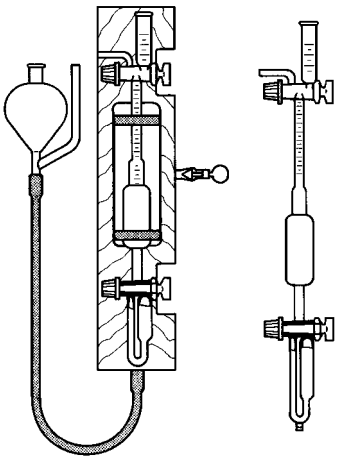
Iodine-flasks, DURAN. With funnel, with hollow ST-glass stopper with extra long stem.

Capacity ml	ST	
100	29/32	2.438.100
250	29/32	2.438.250
300	29/32	2.438.300
500	29/32	2.438.500
100	24/29	2.438.100
250	24/29	2.439.250
300	24/29	2.439.300
500	24/29	2.439.500
Spare stopper	29/32	2.438.501
Spare stopper	24/29	2.439.501



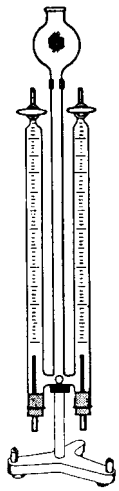
Color comparison tubes and -cylinders.
- acc. to Eggertz, with ST-stopper.
- acc. to Nessler, with optically plane bottom.

Capacity ml	ST	Marks at ml	Height mm	O. D. mm	
Acc. to Eggertz					
10:0.1	12/21	–	–	–	2.149.010
20:0.1	12/21	–	–	–	2.149.020
25:0.1	12/21	–	–	–	2.149.025
30:0.1	12/21	–	–	–	2.149.030
50:0.1	12/21	–	–	–	2.149.050
100:0.2	19/26	–	–	–	2.149.100
Acc. to Nessler, tall form					
50	–	50	180	24	2.150.050
100	–	100	220	32	2.150.100
100	–	50+100	220	32	2.150.150
Acc. to Nessler, short form					
50	–	50	150	26	2.151.050
100	–	100	180	34	2.151.100
100	–	50+100	180	34	2.151.150
Supports made of wood for color comparing tubes Nessler					
for 6 cylinders tall form					2.152.001
for 12 cylinders tall form					2.152.002
for 6 cylinders short form					2.152.003
for 12 cylinders short form					2.152.004



Van Slyke apparatuses. With clamp, levelling bulb and rubber tubing. Capacity of burette 50 ml. Funnel graduated from 0.6 ml in 1.0 ml. Graduation of burette tube below the stopcock at the top: 1.0 ml in 0.01 ml, from 1.0-2.5 ml in 0.5 ml. Mounted on a wooden board.

Type	
Without water jacked	4.958.010
With water jacked	4.958.020
Spare parts:	
Burette	4.958.021
Levelling bulb	4.958.022
Burette with water jacket	4.958.023



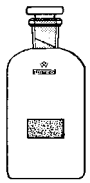
Water decomposition apparatuses acc. to Hoffmann. Consists of glass part with two parallel tubes, graduated 0-80/1/5 ml. 0-point stopcock with rubber stopper, two platinum electrodes, and a metal support.

Type	
With platinum electrodes	2.980.000
With coal electrodes	2.980.001
Glass part	2.980.002
Platinum electrodes	2.980.003
Coal electrodes	2.980.004

Bottles, Winkler, accurately adjusted capacity, with flat stopper and label.

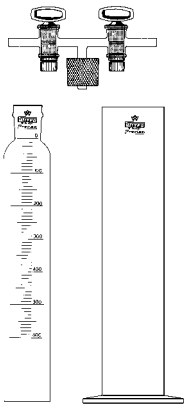
Capacity ml	O. D. mm	Height mm	Glass stopper	Plastic stopper
100-150	53	103	2.911.100	2.912.100
250-300	70	130	2.911.250	2.912.250
500-600	87	170	2.911.500	2.912.500

With bar code on request.



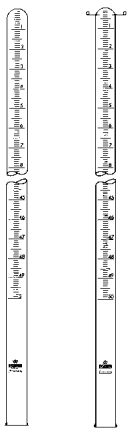
Sampling bottles, 125 ml, with ground cap, for Merck-water analysis.

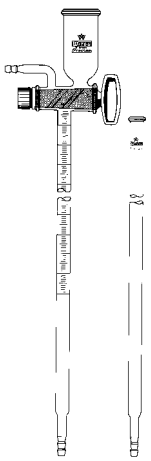
2.910.100



Gas bells, graduated with resistant DIFFICO-graduation, short line graduation, complete with jar and stopcock connector with rubber stopper.

Type	
600 ml: 5 ml, complete	2.975.000
Spare parts:	
Gas bell, graduated 600 ml: 5 ml	2.975.001
Jars with round base, 370 x 80 mm	2.975.002
Stopcock connector with 2 taps, with rubber stopper	2.975.003
1000 ml: 10 ml, complete	2.976.000
Spare parts:	
Gas bell, graduated 1000 ml: 10 ml	2.976.001
Jars with round base, 400 x 100 mm	2.976.002
Stopcock connector with 2 taps, with rubber stopper	2.976.003





Gas measuring tubes (Eudiometers), without stopcock, with resistant DIFFICO graduation, main point ring graduation, graduated 50 ml: 0.1 ml.

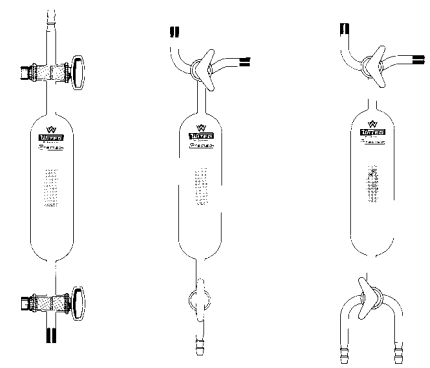
Type	
Without electrodes	2.978.000
With PT-electrodes	2.979.000

Fermentation tubes, graduated, complete with test tube, for Merck-water analysis.

2.910.200

Nitrometer, Lunge, with resistant DIFFICO-graduation. Main point ring-graduation, graduated 50 ml : 0.1 ml, with ST-stopcock, double bore, with screw-thread retaining nut, complete with levelling tube.

2.982.000



Gas collecting tubes, with screw-thread retaining nuts, with marking lable.
1. With 2 straight ST-stopcocks.
2. Acc. to DIN 12473, with ST-stopcock, straight and ST-stopcock, Czako.
3. With 2 ST-stopcocks, Czako.

Capacity ml	Solid O. D. mm	Solid length mm	Overall length mm	1.	2.	3.
150	42	155	250	2.984.150	2.986.150	2.988.150
350	54	200	300	2.984.350	2.986.350	2.988.350
500	65	220	330	2.984.500	2.986.500	2.988.500
1000	85	260	400	2.984.001	2.986.001	2.988.001

Gas collecting tubes with thread connection with Septum *.***.*** SEP

Gas sampling tubes "Safety", DURAN. Capacity 500 ml, with 2 PTFE-needle valve stopcocks with overtwist device and adjustable sealing ring, with 2 SVS-hose connenctions GL 14, one side with silicone rubber seal (septa), for piercing, complete with screw caps and seals.

Type	
1 piece	2.989.000
6 pieces in transport case	2.989.006
1 piece, with LEVASINT-safety coating, sterilizable	2.989.100
6 pieces in transport case, with LEVASINT-safety coatig, sterilizable	2.989.106

Gas collecting bubbles, made of rubber.

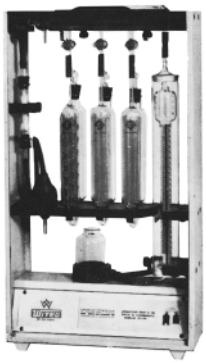
Capacity l	
2	2.973.102
3	2.973.103
5	2.973.105
10	2.973.110

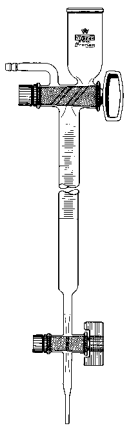
Gas generators, acc. to Kipp. New Model. DURAN. With 2 screw threads GL 25, 1 screw thread GL 45 and GL 18, with needle valve stopcock with overtwist device, with tubulature at bottom, jointless, total grease free, apparatus, complete with safety funnel, with caps and seals, with hole disc, made of sterilizable silicone, 500 ml capacity of middle bulb.

Capacity ml	
500	2.989.500
1000	2.989.900

Gas analysis apparatus, Orsat-Fischer. With 1 absorption pipette, filled with glass tubes and copper spirals, with 2 absorption pipettes, filled with glass tubes, for the determination of CO_2, O_2 and CO, in a transport case, complete with sliding doors.

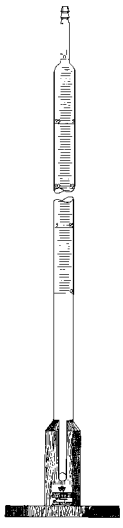
Type	
Complete	2.990.000
Spare parts:	
Absorption pipette, filled with glass tubes	2.990.001
Absorption pipette, filled with glass tubes and copper spirals	2.990.002
Gas burette, 100 ml capacity, graduated 0-50 ml: 0.2 ml and 50-100 ml: 1 ml, with Schellbach stripe, with water jacket	2.990.003
Stopcock manifolds, with 4 ST-stopcocks	2.990.004
Levelling bottle, capacity 250 ml	2.990.005
Accessories:	
Orsat rubber bulb	2.990.015





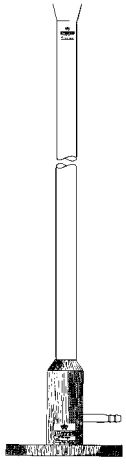
Gas-burette, Bunte, 100 ml: 0.2 ml, with resistant DIFFICO graduation, accuracy class A, main point ring graduation, with rising and descending numerical series, capacity 10 ml, with ST-stopcock, double bore, and ST-stopcock, with special screw-thread retaining nuts.

2.970.000



Gas-burette, Hempel, 100 ml: 0.2 ml, with resistant DIFFICO graduation, accuracy class A, main point ring-graduation, of iron base.

2.972.000

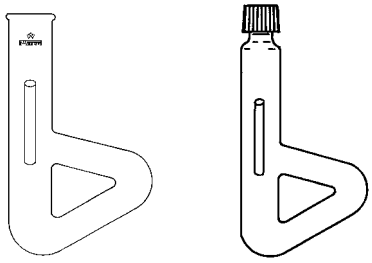


Levelling tube of iron base.

2.973.000

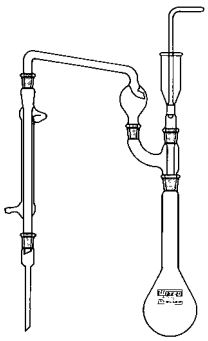
Melting point apparatuses, Thiele.

Type	
With side arms	2.690.000
With screw cap GL 18 and seal 18 x 6 mm with side arms	2.691.000



Melting point tubes, length 60-80 mm, 1-2.5 mm O.D., packed 100 pcs.

Type	
Both ends open	2.700.000
One end sealed	2.702.000

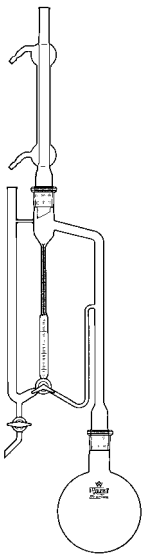


Apparatus for makro-Kjeldahl-distillation.

Type	
Complete	2.530.000
Spare parts:	
Condenser, Liebig, 250 mm jacket length, with 2 ST 19/26	2.530.001
Funnel stopper ST 10/19	2.530.002
Dropping funnel, open top, socket ST 10/19, cone ST 19/26, 50 ml	2.530.003
Flask, Kjedahl, 500 ml, ST 29/32	2.530.004
Multiple adapter, cone ST 29/32, 2 sockets ST 19/26	2.530.005
Distilling links, with vertical splash head	
2 ST 19/26, 250 mm length	2.530.006
Distilling adapter ST 19/26, tube length 80 mm	2.530.007

Apparatus for the determination of aromatic oils, Unger.

Type	
Complete	2.000.000
Spare parts:	
Flask, round bottom, 1000 ml, with ST 29/32	2.000.001
Measuring tube, graduated, 9 ml: 0.05 ml	2.000.002
and 1 ml: 0.01 ml, cone und socket ST 29/32	
Condenser, Liebig (West-), 250 mm jacket length	2.000.003
with cone ST 29/32	

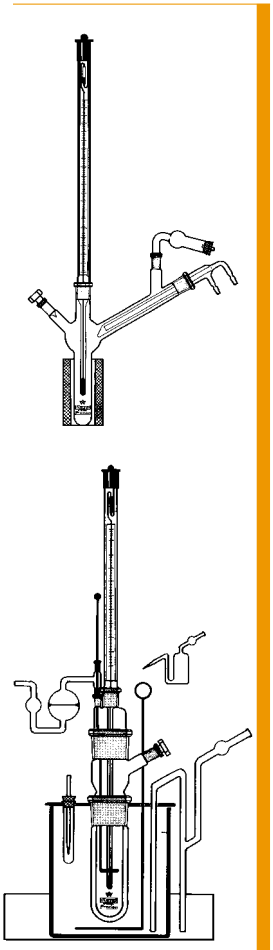


Apparatuses for determintion the amount of dilution in crankcase oils of engine, when gasoline has been used as fuel, acc. to DIN 51565 and ASTM-D322-63.

With	
Complete with measuring tube 3 ml: 0.1 ml	2.894.001
Complete with measuring tube 5 ml: 0.1 ml	2.894.101
Complete with measuring tube 12.5 ml: 0.1 ml	2.894.002
Spare parts:	
Flask, round bottom, medium neck, 1000 ml capacity, with ST 29/32	2.894.003
Measuring tube 3 ml:0.1 ml, with cone and socket ST 29/32	2.894.004
Measuring tube 5 ml:0.1 ml, with cone and socket ST 29/32	2.894.104
Measuring tube 12,5 ml:0.1 ml, with cone and socket ST 29/32	2.894.005
Condenser, West, 400 mm jacket length, with ST 29/32	2.894.006
Sampler tube, length 800 mm	2.894.007

Apparatuses for determination of molecular weights, Beckmann.

Type	
For boiling method	
Complete	2.510.000
Spare parts:	
Air jacket	2.510.001
Boiling tube with 2 ST 19/26, 2 ST 14/23 and 1 ST 10/19	2.510.002
Condenser with ST 19/26	2.510.003
Drying tube with ST 10/19	2.510.004
Hollow stopper ST 14/23	2.510.005
Thermometer, Beckmann, 5-6 °C: 0.01 °C, with ST 19/26	2.510.006
For freezing point methode	
Complete	2.512.000
Spare parts:	
Vessel for freezing mixture with cover	2.512.001
Through	2.512.002
Freezing tube with 2 ST 45/40, and 1 ST 14/23	2.512.003
Air jacket with ST 45/40	2.512.004
Connection tube with ST 45/40, ST 19/26 and ST 7/16	2.512.005
Drying tube with ST 7/16	2.512.006
Thermometer, Beckmann, 5-6 °C: 0,01 °C, with ST 19/26	2.512.007
Filling tube	2.512.008
Tube and pin	2.512.009
Stirrer metal	2.512.010
Syphon	2.512.011
Thermometer -35 °C to +50 °C	2.512.012
StirRer made of glass	2.512.013
Hollow stopper ST 14/23	2.512.014



Cuvet washers acc. to Swiegot, wash and dry cuvets, cells, test tubes or small scale volumetric instruments with outer dimensions not larger than approx. 20 mm. Activate flushing by lightly pressing inverted cell onto silicone gashet, complete with laboratory bottle GL 45, 500 ml, complete autoclavable.

Type	
Single for 100 ml washing solution	2.990.111
Double for 2 x 50 ml washing solution	2.990.211

Disposable cuvets, PS, optically clear.

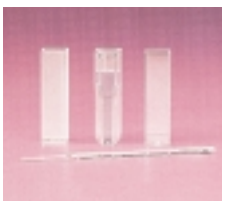
Dimensions: 12.5 x 12.5 x 45 mm
Light path: 10 mm ±0.05 mm
Transmittance: ~90 % between 400-800 mm
Absorbance: ±1 %
Field of work: between 320-800 nm,
fits any standard spectrophotometric cuvet holder.

Type	Capacity ml	Standard pack	Standard carton	
Square Micro	2.0	100	2000	5.422.000
Square Macro	4.0	100	2000	5.424.000
Stopper plugs for square micro cuvets, PE, white		4000	20000	5.423.000
Tray for cuvets, PP, grey, rubber feet prevent creeping, identification of the individual samples, for 16 cuvets.		1	1	5.425.000
Round cuvets, disposable, PS, optically clear, fit LKB-Enzymatic, dustfree packed in styropore dispenser box.	4.0	100	2000	5.426.000

Semi-micro tall form	1.5	100	500	5.422.101
Standard tall form	4.5	100	500	5.424.101
Semi-micro low form	2.5	100	500	5.422.102
4 optical windows	4.5	100	500	5.424.102

Disposable cuvets, PMMA, optically clear.

Dimensions: 12.5 x 12.5 x 45 mm
Light path: 10 mm ±0.05 mm
Transmittance: ~90 % between 400-800 mm
Absorbance: ±1 %
Field of work: between 280-800 nm,
fits any standard spectrophotometric cuvet holder.



Type	Capacity ml	Standard pack	Standard carton	
Semi-micro tall form	1.5	100	500	5.422.001
Standard	4.5	100	500	5.424.001
Semi-micro low form	2.5	100	500	5.422.202
4 optical windows	4.5	100	500	5.424.202

NMR sample tube washers acc. to Swiegot complete with 2 PTFE-Adapters to fir 5 cuvets or NMR tubes of 5 and 10 mm diameter in different lengths. Vacuum operated washers allowing the individual washing of 1 - 5 tube, complete with caps and FEP-cappilaries (box 1 pce.).

Type	
With ST 29/32 to fit bottles with socket ST 29/32	2.900.029
With FA 26 to fit laboratory bottles GL 45	2.900.032

wicaSOFT 9000

Control of inspection, measuring and test equipment acc. to EN ISO 9000 ff, GLP/GMP

The dosing of µl-fluid volume, so called as „µl-liquid-handling", is an essential part of all lab records in the laboratories working according to the GLP guide lines. The accuracy of the used liquid-handling-products, such as pipettes, dispensers, electronical dosing and titrating apparatuses, glass-measurement devices class A/AS is the key to quality assurance and precise analytical results. Decisive assumption here off is the regular testing, cleansing and maintenance of the dosing apparatuses.

GLP-general standards

The EN ISO 9000 ff, GLP/GMP standards require to work only according to fixed instructions in writing stating how the testing- and measuring inspection shall be effected. Limit values for the accuracy and the coefficient of variation must be specified.
All instruments have to be tested under consideration of the SOP (standard operating procedure). The results shall be evaluated and documented and the corrective procedure shall be estabilished for those instruments which do not match the requirements.
The WICASOFT 9000 will give you the necessary testing instructions for all of our liquid handling items step by step. The testing of the glass volumetrical measuring instruments must be made gravimetrically according to ISO 4787. The necessary calcuations herefore base on difficult mathematical formulas.
The WICASOFT 9000 contains all the necessary testing instructions and leads exactly to the volume of the testing procedure step by step. All computation formuals are integrated and documents automatically all of the actual measuring results. The records show a precise documentation of the actual measuring results. The results remain stored and can be used in relation to previous values for a long time period.
The volume is directly calculated, based on the measured weight, with regard to the temperature and atmospheric pressure. The total calculation is done by the software including the documentation of the results. A complete document with all relevant data may be printed. The wicasoft data base keeps you informed on any data of the past and therefore serves perfectly on your quality management.
Why to control volumtric glass instruments ?
The volumetric calibration of glass instruments may change when aggressive media are used. The glass abrating depends on the media and the time. The actual volume differs compared to the original calibration. Therefore the accuracy and precision of volumetric glass instruments must be tested and documented periodically (1 to 3 years).

SOP (standard operating procedure)

The comprehensive SOP contains the justage, cleansing and maintenance. The law gauging rules forces us to observe strongly the limited values which are determined in the DIN 12650 for the different volumetric measuring devices. The clinical laboratories are only allowed to work with liquid-handling products according to the gauging instructions. WITEG confirms and certifies this with the conformity sign „H" on each part on the instrument. WITEG is responsible to maintain the quality standard. Test certificates for all the volumetric instruments are attached to each apparatus or can be sent upon request for the indivudal product as specified in our general catalogue.
Import factors for the SOP are:

1. keep the temperature constantly at 20 - 25 °C ± 0.5 °C
2. identical measuring temperature of device and testing fluid
3. testing fluid = non gas, bi-distilled water
4. evaporation protection during measuring at volumes below <10 µl
5. sufficient accuracy on the balance e. g. for volumes < 1µl or 0.00001 g
6. avoid concussion and non-draught area when setting up the balance
7. possibility of autoclaving the measuring devices

wicasoft 9000 simplifies the testing according to SOP by a step by step procedure leading to a complete testing method. The individual conditions are automatically implemented to calculate the actual volume.

Free of charge batch certificate with all volumetric instruments DIFFICO DIN A/AS

The original inspection is done at witeg company. Therefore the user does not need to inspect the new instrument. Each packing unit contains the respective batch certificate.

Witeg includes the batch number on any volumetric instrument DIN A/AS.

Burets

Pipets

Volumetric flasks

Volumetric cylinders

wicaSOFT 9000

Control of inspection, measuring and test equipment acc. to EN ISO 9000 ff, GLP/GMP

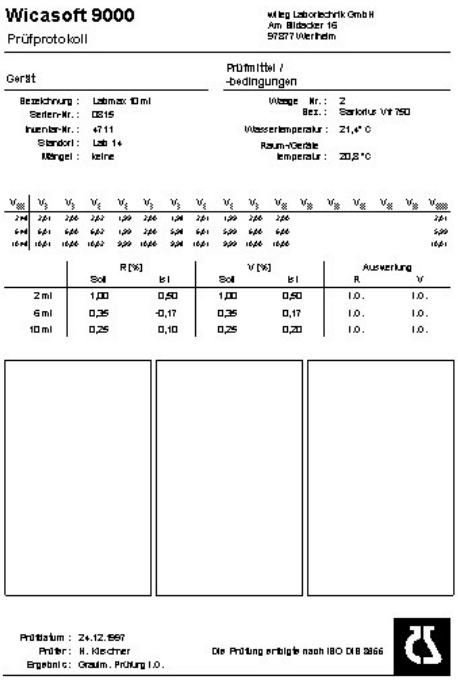
The controlling of measurement device according to GLP and ISO 9000 will reach the main point of the daily lab work. WICASOFT 9000 is a professional testing programme form WITEG and makes your work more easier.
The specified SOPs (standard operating procedure) inform you during testing procedure step by step. Reading results are given automatically.


Qualitätszertifikat / Certificate of Performance
Certificat de qualité / Certificado de calidad
witeg
ISO 9001 CERTIFIED

INPUT:
Connect the PC with a balance and start WICASOFT 9000!
The measuring record shows all the important details of measuring device control.
That´s all you need: an analytical balance, a PC with windows (2). 3.x or windows (2) 95, a printer (optional), an interface cord and of course the WICASOFT 9000 software.

1. First check the measuring device according to SOP (standard operating procedures).

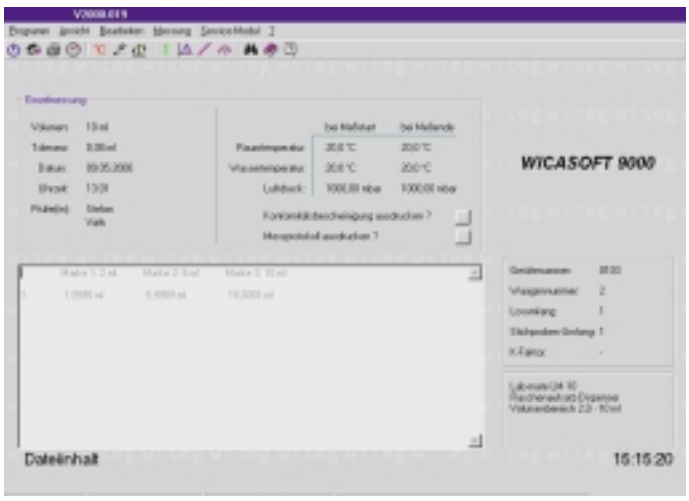
2.
Weight results can be inserted into the software automatically or manually.


Wicasoft 9000
Prüfprotokoll
witeg Laborlechnik GmbH
Am Bildacker 16
97877 Wertheim
Gerät
Prüfmittel / -bedingungen
Bezeichnung : Labmax 10 ml
Serien-Nr. : 0815
Inventar-Nr. : 4711
Standort : Lab 14
Mängel : keine
Wiege Nr. : 2
Bez. : Sartorius Vrf 750
Wassertemperatur : 21,4° C
Raum-/Gerätetemperatur : 20,8 °C

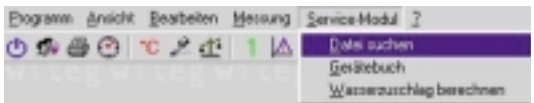
	R [%]		V [%]		Auswertung	
	Soll	Ist	Soll	Ist	R	V
2 ml	1,00	0,50	1,00	0,50	I.O.	I.O.
6 ml	0,35	-0,17	0,35	0,17	I.O.	I.O.
10 ml	0,25	0,10	0,25	0,20	I.O.	I.O.

Prüfdatum : 24.12.1997
Prüfer : H. Klechner
Ergebnis : Gesam. Prüfung I.O.
Die Prüfung entspricht nach ISO DIN 8666

3.
Limit values must be fixed.



4.
WICASOFT 9000 documents the reading results.



5.
The reading results are available upon request.

„Calibration inside“

EN ISO 9000 ff, GLP/GMP

We have meanwhile developed a new generation of the WITEG-measuring instruments (e. g. TITREX 2000). All electronical measuring devices can justify the accuracy without any tools. Just call up the installed „CAL“ programme and the justification can be made without any problems. This device shows you continuously the new value being actualized.
It´s very easy and simple to work with.

All dosing and titration processes up to 500 data can be stored non-stop and evaluated at your PC or be printed with almost any printer. Statistical data evaluation can be set up when the Excel programme is used in addition. Al you need is the witolink interface. For further information see section liquid- handling page 208.
Lieferumfang: Titrex-Interface, Ladegerät, Verbindungskabel, Software auf Diskette 3,5“. **Order no. 5.497.100**

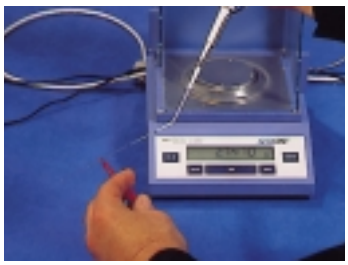
Technical data wicaSOFT 9000

Scope of delivery: wicasoft software, CD-ROM, 3,5“ discs, test manual, test set for small volume piston pipets.
German version **Order no. 3.000.001**
English version **Order no. 3.000.002**

Pipets < 50 µl
In general the calibration is a complicated process. There is a need for moisture traps and expensive analytical balances. The test set offers a very convenient way to calibrate the instrument with capillaries and a simple holding device.

1. Pick up the capillary

2. Weigh the capillary together with the holding device



3. Fill the capillary with sample liquid off the pipet tip

4. weigh the filled capillary with holding device and register the value. Thats it.

Interface cable on request or ask your balance supplier.

Volumetric glassware: General information

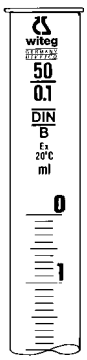
The conformity certification:

For volumetric measuring instruments and its accessories which are to be used in medical and pharmaceutical laboratories the „Eichordnung" - German federal weights and measures regulation - valid as of 1.1.1988 - calls for a „conformity certification" instead of a test by the PTB. „Conformity certification" is the compliance of an instrument with the specifications of the „Eichordnung" - annex 23 - acc. to DIN 12600. Exceptions for the certification become obsolete. The manufacturer - whose quality control procedures have been approved by the Germany federal weight and measures authority certifies the comformity of its instruments - on demand even PTB will confirm. The manufacturer is responsible for the conformity of the instruments, the purchaser and the user are responsible for procuring, keeping available and using conformity certified instruments. The instruments carry the symbol of conformity - a „H" with an additional code (f.e. WW) designating the claimant of the conformity certification. Blood diluting pipettes and counting chambers still must be officially tested and stamped by the PTB, when being used in Germany. witeg certifies the conformity of its instruments with an „H" and „WW" for witeg Wertheim". With that certification witeg even ensures an uniform and constant level of quality in the sense of accurate measurement results.

Precision of DIFFICO-measuring instruments!

All DIFFICO-measuring instruments are adjusted by our new constructions according to the modernst aspects, i.e.: DIFFICO-graduated and volumetric pipettes, as well as graduated cylinders and volumetric flasks are adjusted and assorted by electronic full automations. The result is that the sources of error which have occurred so far, using the usual manual adjustment, have been removed. DIFFICO-burettes are adjusted by an electronical adjusting plant. Owing to these fully automatic adjusting and assorting machines, as well as th the semi-automatic adjusting plant, we can deliver you DIFFICO-measuring instruments, the precision of which comes up to the highest demands.

DIFFICO-measuring instruments are delivered in 2 different classes (3. class official tested and stamped on special request)

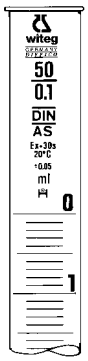


Class DIN-AS-conformity certified.

Main point ring-graduation. The tolerances of these instruments correspond to the provisions of the PTB. A special feature is for pipettes and burettes the swift delivery time which comes up to the requirements in practice. The waiting time indicated must be observed.

Class DIN-B.

Measuring instruments within the 1.5-fold accuracy limits. Short line graduation. The tolerances are more precise than those of the normal class-B. These measuring instruments are designed for the general laboratory requirements.

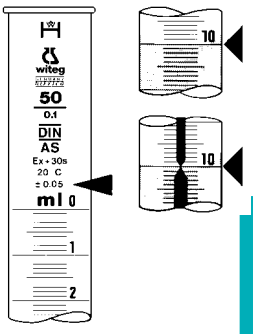


What does the indication of the tolerance mean?

The accuray limits (e. g. to. ±0.05. sec illustration) indicated on every measuring instrument of the class DIN-AS show the largest deviations allowed between the actual volume and the nominal value. In general they apply to the total volume, as well as to any part volume and represent the maximum deviation allowed. In using our modern manufacturing and controlling methods, we can achieve that our branded DIFFICO-measuring instruments remain considerably below this tolerance level. - As our whole production is controlled by statistic quality control, we are sure that 68% of our measuring instruments utilize only 1/3 of the tolerance range allowed and that 95% of our instruments are surely within half the tolerance range. To enable good reproducibility of the results of analyses in using several measuring instruments of a similar type (routine analyses), the standard deviation, even within individual lots, is kept extremely low. According to our final control the standard deviation within a lot is always lower than 1/3 of the deviation allowed.

To order products with an individual certificate please add an „IC" at the end of the resüective cat.no., e.g. *.***.***IC).
For details see page 90.

ISO 9000. It is a must for the documentation of any control of inspection, measuring and test equipment. witeg Labortechnik GmbH prints on all class A/AS volumetric instruments a date-coded batch number for perfect product identification.
Another plus for your quality laboratory acc. to EN ISO 9000. For details see page 89/90.



Correct reading of the meniscus.

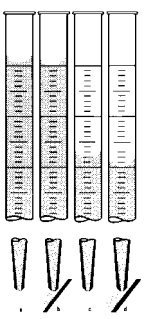
With regard to measuring instruments, made of clear glass or amber glass, the volume which has to be read is determinated by putting the meniscuc at eye-level. (Avoidance of parallaxe-error). The volume is read at the lowest point of the meniscus (see illustration). As far as measuring instruments with „Schellbach" blue line are concerned, you can read the meniscus in a similar way. Here the meniscus must also be put at eye-level, but you must read exactly at the points of contact of the arrow-heads which are caused on a Schellbach blue line (see illustration).

With regard to burettes you must oberserve the following: As far as burettes are concerned, the measuring volume is limited to below by the liquid meniscus which is adjusted to the lowest mark of the scale.

Correct handling of burettes.

Basic condition: the burette must be vertically clamped in.

1. On filling a burette you must observe that it is filled, approximately 5 mm above the zero point (see illustration a).
2. Then set the meniscus to the zero point. The drop which adheres to the delivery tip must be removed (see illustration b).
3. Allow the liquid to flow out and set the meniscus about 5 mm above the point desired. Thus the delivery is interrupted (see illustration c).
4. After having waited for some time, allow the liquid to flow out up to the point desired and wipe off the drop which adheres to the delivery tip on the titration vessel (see illustration d).
5. On every new titration the burettes must be always set to the zero point, as described above. As far as a 50 ml burette is concerned you must not continue to titrate, after the first titration from 0 ml to 10 ml, from 10 ml to 20 ml and then from 20 ml to 30 ml, but you must allow the liquid to flow out always from the zero point to the mark required.

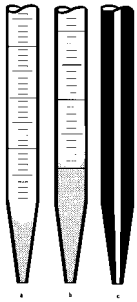


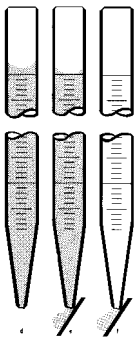
What must be observed concerning graduated and volumetric pipettes?
There are graduated and volumetric pipettes for complete and partial delivery.
1. Graduated pipettes for complete delivery and volumetric pipettes with one mark are adjusted the like that the measuring volume in the delivery tip limits itself by automatic adjustment of the liquid (see illustration a).
2. With regard to graduated pipettes for partial delivery or volumetric pipettes with two marks, the measuring volume to below is limited by the liquid meniscus which is set to the lowest mark (see illustration b).
3. The measuring volume of graduated pipettes, calibrated to contain, is limited by the lower-end of the delivery tip (see ilustration c).

Handling to 1:
The pipette is filled about 10 mm above the mark which limits the volume which has to be measured (see illustration d). Then the liquid is allowed to flow out up to this mark. A drop which adheres to the delivery tip is wiped off (see illustration e). Let the contents of the pipette flow into a vessel, by putting the tip of the vertically held pipette to the wall of the vessel. After termination of the delivery, the waiting time indicated must be observed and then the pipette tip must be observed and then the pipette tip must be wiped off at the vessel (see illustration f).

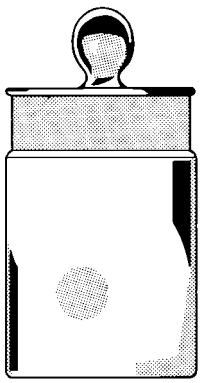
Handling to 2:
The pipette is filled about 10 mm above the zero point. Then allow the liquid to flow out up to the zero point. A drop which adheres to the delivery tip is wiped off. Then allow the liquid to flow into a vessel up to 10 mm above the mark which limits the volume which has to be measured by putting the delivery tip of the vertically held pipette to the wall of the vessel. After the waiting time prescribed, the liquid is drained off up to the mark desired and the pipette tip is wiped off at the vessel.

Handling to 3:
Graduated pipettes which are calibrated to contain need no delivery- and waiting times. The liquid is absorbed up to the mark and then it flows out completely. Then the residue is quantitatively removed from the pipette by rinsing it.





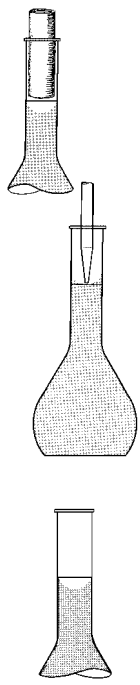
What you must abserve on weighing.
1. The weighing bottle must be absolutely clean.
2. Cleaning with water and subsequent rinsing with distelled water is insufficient.
3. The weighing bottle must be cleaned with a cleansing concentrate, such as our „WITONEX" (see directions for use of WITONEX). In case you do not clean your weighing bottle, the tolerance of your measuring instrument is increased by almost the double of the calibration tolerance. Many series of tests in our research laboratory have confirmed this fact. Only when the wall of the vessel is absolutely clear, the correct volume can be drawn out of the measuring instrument (burette, pipette) owing to the capillary effect which develops between the tip and the wall of the weighing bottle.



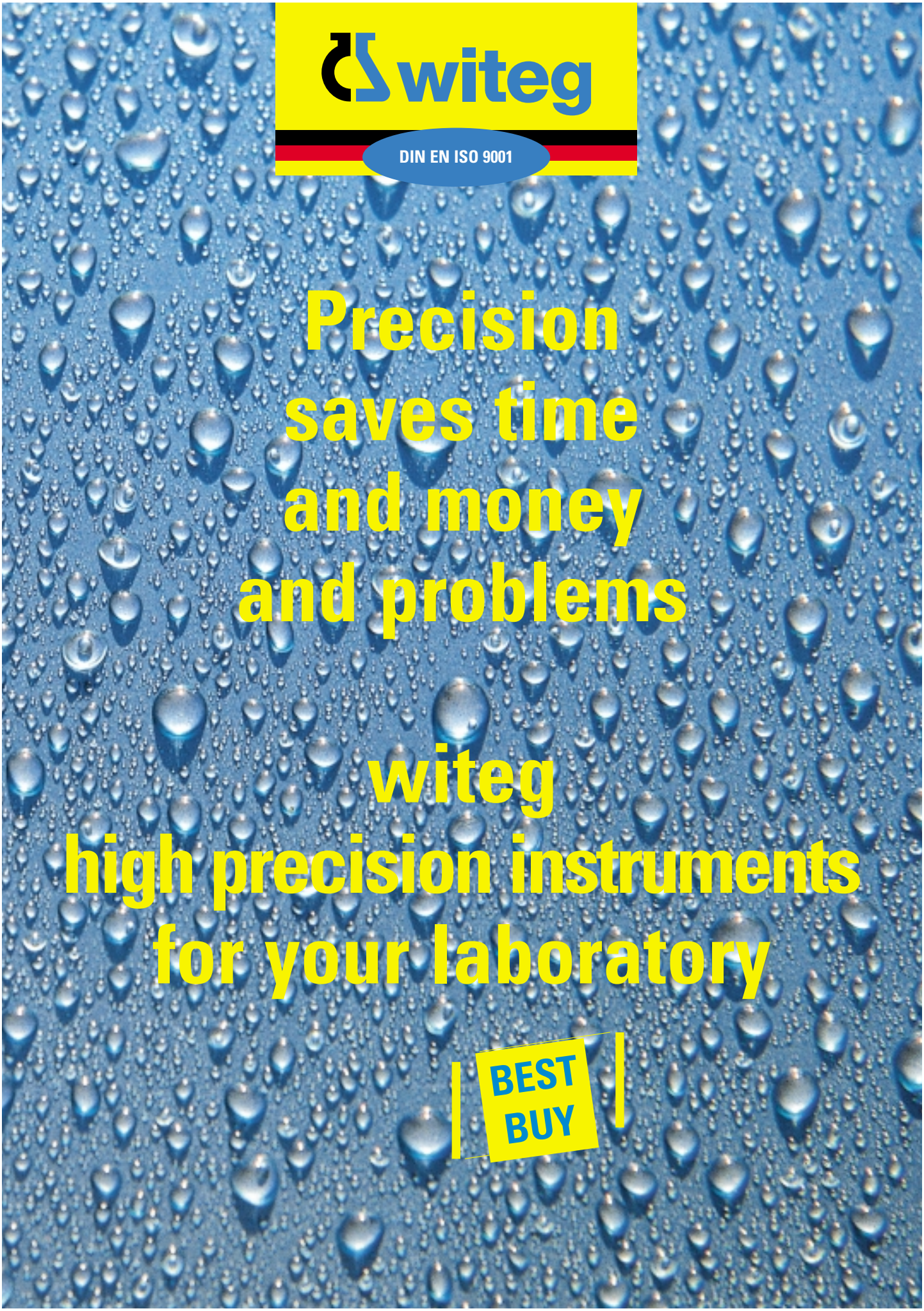
How to work correctly with a volumetric flask?
All volumetric flasks are apparatuses to contain.
1. The dry and cleaned volumetric flask is filled up without sprinkling the neck of the volumetric flask above the volume mark (see illustration a).
2. In case the neck of the volumetric flask was wetted nevertheless, the neck must be carefully dried inside. For this purpose we suggest you to use rolled-up filter paper (see illustration b).
3. The volumetric flask is carefully filled up to the volume mark with a pipette, without wetting the neck of the volumetric flask once more (see illustration c).

What is a specific gravity bottle?
A specific gravity bottle is a special form of the volumetric flask, strictly speaking a volumetric flask which was cutted of at the capacity mark.
1. The nominal volume which is indicated on the bottom of the corresponding specific gravity bottle.
2. The actual volume which is weighed out up to the second decimal place and which is written onto the body of the specific gravity bottle.

Handling:
1. The specific gravity bottle is filled up to the ground.
2. Then put the stopper into the apparatus, so that there are no air bubbles left and heat the apparatus up to 20 °C exactly.
3. Then remove all liquid with a filter paper from the surface of the specific gravity bottle, without absorbing and liquid from the bore-hole in the stopper.



The essential advantage of the diffusion paint „DIFFICO".
For affixing coloured graduations on volume measuring instruments, diffusion paints are more and more used besides the enamel paints. Enamel paint-graduations are in close contact with the glass surface after the annealing process. As the graduation is raised towards the glass surface, it can be damaged by mechanical stress, e.g. in rinsing machines. The same applies also to coloured, melted glass. Enamel-paint graduations are also only limitedly resistant to aggressive chemical reagents, as, in course of time, the pigments are dissolved out of the graduation, and thus the close unit between the colour pigments and the glass is destroyed. On affixing graduations by means of a diffusion paint, a paste or a corrosive is applied onto the glass which must be stained. This paste or corrosive contains the staining ions, e.g. silver-ions. By tempering within the range of the transformation temperature of the respective glass, an exchange of cations between the corrosive and the glass surface arises. During the process silver-ions diffuse from the corrosive into the glass interior, while predominantly monovalent cations (e.g. sodium-ions) pass from the glass surface into the corrosive. Thus a colouration of the glass can be achieved under the glass surface by such an exchange of cations. As the staining ions diffuse into the glass during this application method of graduations, and therefore are under the glass surface, the graduation is extremely resistant to mechanical and chemical influences. Thus the graduation is an integrated component of the glass surface, and, in comparison with the enamel-paints and the stained glass, it can hardly be destroyed, unless the glass surface itself has been abraded.


witeg
DIN EN ISO 9001
Precision
saves time
and money
and problems
witeg
high precision instruments
for your laboratory
BEST
BUY

IVD-regulation
…and its meaning for witeg products

The IVD-regulation of the EU
On December 7th 1997 the IVD regulation for in-vitro diagnostics was published and enforced. Within one year it had to be adopted to the national laws.

What are in-vitro diagnostics
In-vitro diagnostics are medical products which are used in in-vitro tests with samples of human origin including blood and tissue samples.
In-vitro diagnostics are such as reagents, calibration substances or instruments, apparatuses, analytical systems or sample vessels if they are specifically recommended for medical samples.

In-vitro diagnostics are used to receive information about
- physiological or pathological conditions
- congenital abnormalities
- therapeutical measures.

What are medical products?
Medical products are all instruments, apparatuses, media or equipment including software which is specifically recommended for application at the human beeing by the manufacturer.
- For cognition, precaution, test and treatment, alleviation or compensation of sicknesses, injuries or handicaps
- For examinations, substitutions or changes of the anatomic structure or physiological process
- For conception regulation

Not included are pharmacological or immunological media which are regulated in the law governing the manufacture and prescription of drugs.

Certification
The CE symbol on a product confirms that the product is in accordance with the demands of the EU-regulations for this product type and, if necessary, was tested according to the regulations. The manufacturer imprints the symbol at the product and in addition makes out the conformity certificate which confirms the agreement of the product with the corresponding regulations and standards.
witeg supplies only medical products of the in-vitro group IVD, such as Diffico volumetric instruments class A/AS, micro pipets, blood pipets, counting chambers, reaction vessels and liquid handling products like Witopet, Witopet digital, Witopet elect, Witopette and Witopette-Tips, Witoped, Labmax Dispenser and Titrex Digital Buret and pipet tips.

Time scale for the IVD-regulation

- On December 7th 1998 the regulation was inforced
- On June 7th 2000 the regulations will be applied in national laws
- On December 7th 2003 the period of transition for the IVD ends any IVD-products must be indicated with the CE-mark
- Until December 7th 2005, i.e. two years later, all products which were produ ced before December 7th 2003 but are still in stock at dealers or end-users must be sold out.

Certificates
witeg-Diffico® volumetric instruments

H and batch number

All witeg Diffico volumetric instruments are conformity certified and indicate a digital easy-to-read batch number. They can be supplied with the following certificates:

Quality certificate (Werksprüfzeugnis)
Available as batch or individual certificate. The record is taken in accordance with DIN EN ISO 9001, DIN ISO 10012-1 and ISO 4787.
The initial test is made at witeg for any Diffico certified volumetric instrument. The user can just copy the certified data and needs not to establish an initial test.

Batch certificate
All instruments and certificates from the same production batch carry the same batch number. The certificate records the mean value, the standard deviation and the date of issue:

01.08.01 (Batch number)

This certificate is included with any standard pack of witeg Diffico volumetric instruments class A/AS free of charge.

Individual certificate
Instruments and certificates carry in addition to the batch number an individual serial number. The individual volume, the tolerances and the date of issue are recorded:

01.08.0110 (Batch- and individual Serial number)

Please add an „IC“ at the end of the order number to order this certificate.

Conformity certificate
With this mark witeg certifies the conformity of the instrument with the „deutsche Eichordnung“. The mark is printed onto the products in accordance with DIN 12600. All witeg-Diffico volumetric instruments are conformity certified.

Official conformity certificate

With this mark the „deutsche Eichamt“ confirms the confirmity with the „deutsche Eichordnung“. The mark is printed onto the products in accordance with DIN 12600.
For witeg-Diffico volumetric instruments with official conformity certificate please add an „OC“ at the end of the order number.

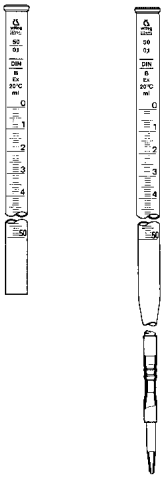
Official calibration protocol
The protocol is set up by the „Eichamt“ and aknowledged by many countries. Both, instrument and protocol carry an individual serial number for identification including date of issue.
On request witeg-Diffico volumetric instruments are supplied with the official protocol, please add an „OCC“ at the end of the order number.

witeg started immediately to realize the regulations when they were enforced and began already to supply CE-marked equipment.
And witeg fulfills already all basic demands for CE-marking of IVD-products. The marking of these products may only start as soon as the legislation is defined finally.
All the other medical products except of IVD-products must already be marked with the CE-mark today.

Technical data burettes class B

Capacity ml	Division ml	Tolerance ±ml
5	0.02	0.02
10	0.02	0.03
25	0.05	0.04
50	0.10	0.08
100	0.20	0.15

Burettes class DIN-B, short line graduation, acc. to DIN 12700 (ISO/R385). DURAN.
Amber stain graduations and inscriptions „DIFFICO“, resistant to alkalis and acids and abrasion with beaded rims which have considerable mechanical strength. All plugs with screw thread retaining nuts. Calibrated to deliver.
Delivery time 30 - 60 sec., without waiting time.



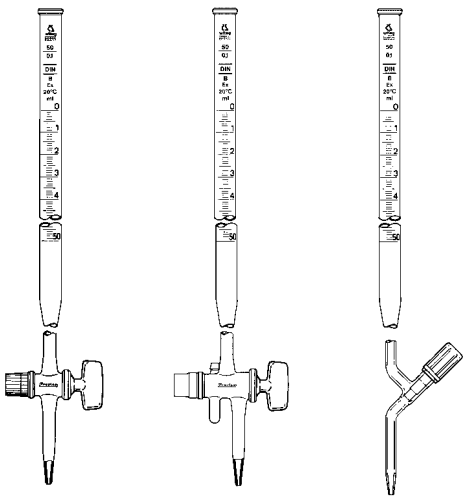
Burettes class B.
Without stopcock.

Capacity ml	Clear glass	Schellbach-blue line	Amber glass
Burette-tubes			
5	3.000.050	3.002.050	3.004.050
10	3.000.100	3.002.100	3.004.100
25	3.000.250	3.002.250	3.004.250
50	3.000.500	3.002.500	3.004.500
100	3.000.900	3.002.900	3.004.900
Burettes, with tip, rubber and tubing			
5	–	3.002.051	–
10	–	3.002.101	–
25	–	3.002.251	–
50	–	3.002.501	–
100	–	3.002.901	–

Burettes class B.
With short line graduation.

Capacity ml	Clear glass	Schellbach-blue line	Amber glass
With ST-glass plug			
5	3.000.052	3.002.052	3.004.052
10	3.000.102	3.002.102	3.004.102
25	3.000.252	3.002.252	3.004.252
50	3.000.502	3.002.502	3.004.502
100	3.000.902	3.002.902	3.004.902
With ST-PTFE-plug			
5	3.000.053	3.002.053	3.004.053
10	3.000.103	3.002.103	3.004.103
25	3.000.253	3.002.253	3.004.253
50	3.000.503	3.002.503	3.004.503
100	3.000.903	3.002.903	3.004.903
With two-way stopcock and ST-glass-plug			
5	3.000.056	3.002.056	3.004.056
10	3.000.106	3.002.106	3.004.106
25	3.000.256	3.002.256	3.004.256
50	3.000.506	3.002.506	3.004.506
100	3.000.906	3.002.906	3.004.906
With straight valve stopcock			
5	3.000.057	3.002.057	3.004.057
10	3.000.107	3.002.107	3.004.107
25	3.000.257	3.002.257	3.004.257
50	3.000.507	3.002.507	3.004.507
100	3.000.907	3.002.907	3.004.907

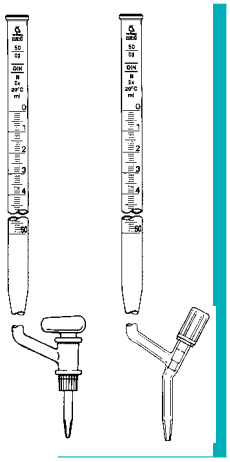
BEST BUY

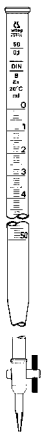


Burettes class B.
With lateral stopcock.

Capacity ml	Clear glass	Schellbach-blue line	Amber glass
With solid ST-glass-plug			
5	3.000.054	3.002.054	3.004.054
10	3.000.104	3.002.104	3.004.104
25	3.000.254	3.002.254	3.004.254
50	3.000.504	3.002.504	3.004.504
100	3.000.904	3.002.904	3.004.904
With needle valve stopcock, with PTFE-needle valve			
5	3.000.055	3.002.055	3.004.055
10	3.000.105	3.002.105	3.004.105
25	3.000.255	3.002.255	3.004.255
50	3.000.505	3.000.505	3.004.505
100	3.000.905	3.002.905	3.004.905

BEST BUY

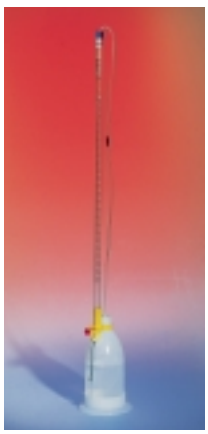




Burettes class B.
With detachable PTFE-stopcock

House and plug made of PTFE. Bore 2.5 mm, with O-ring gasket and interchageable glass tip.

Capacity ml	Clear glass	Schellbach-blue line	Amber glass
25	3.000.258	3.002.258	3.004.258
50	3.000.508	3.002.508	3.004.508
100	3.000.908	3.002.908	3.004.908
Spare parts:			
Spare PTFE-stopcock without glass-tip			3.004.910
Spare glass-tip			3.004.911



Automatic burettes class B. AR-glass. Short line graduation, with Schellbach blue line.
With push button for drop-by-drop delivery, PE-reservoir. With stable base PE-LD with Pellet type (no soiling).

Capacity ml	Division ml	Tolerance ±ml	Complete	Spare parts	Spare bottle	Spare armature	Spare base
5	0.05	0.02	3.312.005	3.313.005	3.314.015	3.315.015	3.316.015
10	0.02	0.03	3.312.010	3.313.010	3.314.015	3.315.015	3.316.015
15	0.1	0.04	3.312.015	3.313.015	3.314.015	3.315.015	3.316.015
25	0.1	0.04	3.312.025	3.313.025	3.314.050	3.315.050	3.316.050
50	0.1	0.08	3.312.050	3.313.050	3.314.050	3.315.050	3.316.050
Complete plastic version							
25	0.1	0.04	7.010.125	7.010.425	3.314.050	3.315.050	3.316.050
50	0.1	0.08	7.010.150	7.010.450	3.314.050	3.315.050	3.316.050

Burettes class B. Clear PMMA-burette tubing.
1. PTFE-connector, silicone tubing and PE-tip, with Mohr clip.
2. With straight PTFE-stopcock.

Capacity ml	Division ml	Tolerance ±ml	1.	2.
25	0.1	0.04	7.010.225	7.010.325
50	0.1	0.08	7.010.250	7.010.350

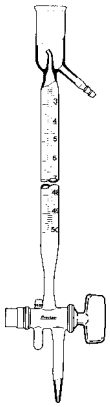
Technical data burettes class AS

Capacity ml	Division ml	Tolerance ±ml
5	0.02	0.01
10	0.02	0.02
25	0.05	0.03
50	0.10	0.05
100	0.20	0.08

Burettes class DIN-AS. Conformity certified. Main point ring graduation, acc. to DIN 12700 (ISO R385).
With amber stain DIFFICO graduations and inscriptions.
Tempered delivery tips offering a wear resistance which is up to seven times better. Plugs with screw thread retaining nuts.
Delivery time 35-40 s.
Waiting time 30 s.
DURAN-borosilicate glass, Difficoblue (Amber glass, Difficowhite)

Burettes, Daffert class B. With automatic zero point, with blue chemical resistant DIFFICO-graduation.
With two-way stopcock.

Capacity ml	Clear glass	Schellbach-blue line
With solid ST-glass plug		
25	3.300.256	3.302.256
50	3.300.506	3.302.506
With ST-PTFE-plug		
25	3.300.257	3.302.257
50	3.300.507	3.302.507



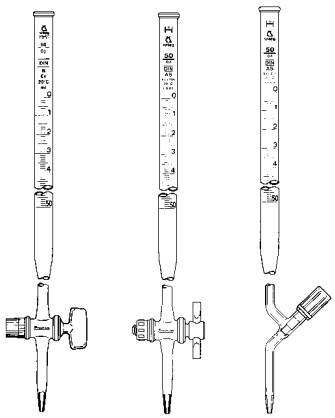
Burettes class AS. Conformity certified, with tip and rubber tubing. With Schellbach-blue line.

Capacity ml	
5	3.012.051
10	3.012.101
25	3.012.251
50	3.012.501
100	3.012.901

Burettes class AS. Conformity certified, with straight stopcock.

Capacity ml	Clear glass	Schellbach-blue line	Amber glass
With ST-glass plug			
5	–	3.012.052	–
10	3.010.102	3.012.102	3.014.102
25	3.010.252	3.012.252	3.014.252
50	3.010.502	3.012.502	3.014.502
100	–	3.012.902	–
With ST-PTFE-plug			
5	–	3.012.053	–
10	3.010.103	3.012.103	3.014.103
25	3.010.253	3.012.253	3.014.253
50	3.010.503	3.012.503	3.014.503
100	–	3.012.903	–
Valve stopcock, with PTFE-needle valve			
5	–	3.022.057	–
10	3.020.017	3.022.107	3.024.107
25	3.020.257	3.022.257	3.024.257
50	3.020.507	3.022.507	3.024.507
100	–	3.022.907	–

BEST BUY



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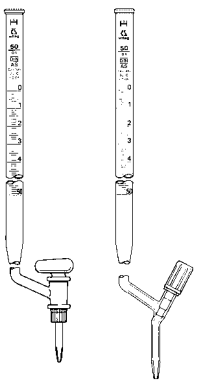
A batch certificate is included with any standard pack

ISO 9000. It is a must for the documentation of any control of inspection, measuring and test equipment. witeg Labortechnik GmbH prints on all class A/AS volumetric instruments a date-coded batch number for perfect product identification.
Another advantage for your quality laboratory acc. to EN ISO 9000.

Burettes class AS. Conformity certified, with lateral stopcock.

Capacity ml	Clear glass	Schellbach-blue line	Amber glass
With solid ST-glass plug			
5	–	3.012.054	–
10	3.010.104	3.012.104	3.014.104
25	3.010.254	3.012.254	3.014.254
50	3.010.504	3.012.504	3.014.504
100	–	3.012.904	–
With valve stopcock, with PTFE-needle valve			
5	–	3.012.055	–
10	3.010.105	3.012.105	3.014.105
25	3.010.255	3.012.255	3.014.255
50	3.010.505	3.012.505	3.014.505
100	–	3.012.905	–

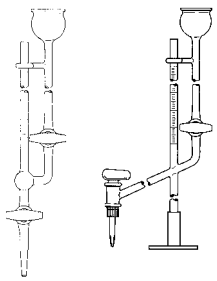
BEST BUY



Technical data micro burettes

Capacity ml	Division ml	Tolerance ±ml class B	class A
1	0.01	0.02	–
2	0.01	0.02	0.01
5	0.02	0.02	0.01
10	0.02	0.03	0.02

Micro burettes, acc. to DIN 12700, with amber stain DIFFICO-graduation. With Schellbach blue line. All plugs with screw-thread retaining nuts. DURAN-borosilicate glass.



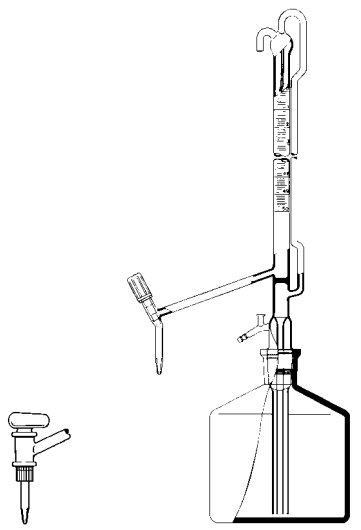
Micro burettes, Bang, DIN 12700
Class B short line graduation, delivery time 30-60 s, without waiting time.
Class AS with main point ring-graduation. Delivery time 35-45 s, waiting time 30 s.

Capacity ml	ST-glass-plugs	ST-PTFE-plugs	PTFE-needle valve
Class B with stopcocks			
1	3.352.012	–	–
2	3.352.022	3.352.023	–
5	3.352.052	3.352.053	–
10	3.352.102	3.352.103	–
Class B with lateral stopcock			
1	3.363.012	–	–
2	3.363.022	3.363.023	–
5	3.363.052	3.363.053	–
10	3.363.102	3.363.103	–
Class AS with stopcocks			
2	3.372.022	3.372.023	–
5	3.372.052	3.372.053	–
10	3.372.102	3.372.103	–
Class AS with lateral stopcock			
2	3.383.022	3.383.023	3.383.025
5	3.383.052	3.383.053	3.383.055
10	3.383.102	3.383.103	3.383.105

Technical data automatic burettes

Capacity ml	Division ml	Tolerance ±ml class B	class AS
10	0.02	0.03	0.02
25	0.05	0.04	0.03
50	0.10	0.08	0.05
100	0.20	0.15	–

Automatic burettes Pellet, DURAN. With 2 l reservoir bottle, without aspirator bulb.
Class B with short line graduation.
Class AS with main point ring-graduation, conformity certified, Difficoblue (amber glass, Difficowhite).



Automatic burettes, Pellet.

Capacity ml	Class B Schellbach	Class B amber glass	Class AS Schellbach	Class AS amber glass
Without stopcock, with lateral stopcock, with solid ST-glass plug				
10	3.102.104	3.104.104	3.122.104	3.124.104
25	3.102.254	3.104.254	3.122.254	3.124.254
50	3.102.504	3.104.504	3.122.504	3.124.504
100	3.102.904	3.104.904	–	–
Without stopcock, with lateral needle valve, with PTFE-needle valve, with overtwist device				
BEST BUY 10	3.102.105	3.104.105	3.122.105	3.124.105
25	3.102.255	3.104.255	3.122.255	3.124.255
50	3.102.505	3.104.505	3.122.505	3.124.505
100	3.102.905	3.104.905	–	–
With stopcock, with hollow ST-glass-plug, with lateral needle valve, with solid ST-glass plug				
10	3.112.106	3.114.106	3.122.106	3.124.106
25	3.112.256	3.114.256	3.122.256	3.124.256
50	3.112.506	3.114.506	3.122.506	3.124.506
100	3.112.906	3.114.906	–	-
With stopcock, with solid ST-glass plug, with lateral needle valve stopcock, with PTFE-needle valve, with overtwist device				
BEST BUY 10	3.112.107	3.114.107	3.122.107	3.124.107
25	3.112.257	3.114.257	3.122.257	3.124.257
50	3.112.507	3.114.507	3.122.507	3.124.507
100	3.112.907	3.114.907	–	–
With stopcock, with NS-PTFE-plug, with lateral needle valve stopcock, with PTFE-needle valve, with overtwist device				
10	3.112.108	3.114.108	3.122.108	3.124.108
25	3.112.258	3.114.258	3.122.258	3.124.258
50	3.112.508	3.114.508	3.122.508	3.124.508
100	3.112.908	3.114.908	–	–

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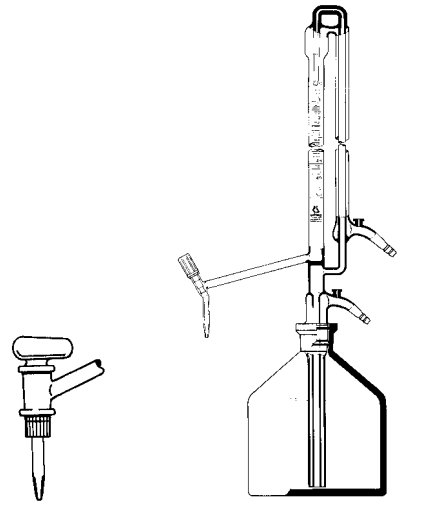
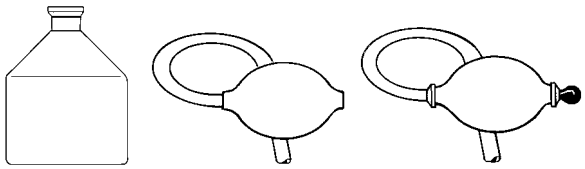


Universal automatic burettes (DGBM), class DIN AS. Conformity certified, main point ring-graduation, acc. to DIN 12700. DURAN. With this universal automatic burettes you can work with pressure or vacuum and fill in these ways the fluids into the measuring tube. The titration under vacuum has the advantage that no bubbles exist. We deliver as a separate part an aspirator bulb which is usable for vacuum and for pressure. The construction of the automatic burette shows considerable mechanical strength against the conventional burettes. With amber stain graduations and inscriptions DIFFICO, resistant to alkalis and acids and abrasion. With 2 l reservoir bottle ST 29/32. All plugs with screw-thread retainig nuts. Delivery time 35-45 s, waiting time 30 s. Division and tolerance as above.

Capacity ml	Schellbach-blue line	Amber glass
With lateral stopcock, with solid ST-glass plug		
10	3.152.104	3.154.104
25	3.152.254	3.154.254
50	3.152.504	3.154.504
With lateral stopcock, with PTFE-needle valve		
10	3.152.105	3.154.105
25	3.152.255	3.154.255
50	3.152.505	3.154.505

Accessories for automatic burettes.

Type	
Reservoir bottle 1 l, ST 29/32, clear glass	3.155.100
Reservoir bottle 2 l, ST 29/32, clear glass	3.155.200
Reservoir bottle 1 l, ST 29/32, amber glass	3.156.100
Reservoir bottle 2 l, ST 29/32, amber glass	3.156.200
Aspirator bulb for pressure	3.157.000
Aspirator bulb for vacuum	3.158.000
Aspirator bulb with net	3.159.000



Technical data volumetric pipettes.

Capacity ml	Color-code	Tolerance ±ml class B	Tolerance ±ml class AS	Deliv. time s class B	Deliv. time s class AS
0.5	2xblack	0.009	0.005	4-12	4-8
1	blue	0.010	0.007	5-13	5-9
2	orange	0.015	0.010	5-13	5-9
3	black	0.020	0.015	7-15	7-11
4	2xred	–	0.015	–	7-11
5	white	0.020	0.015	7-15	7-11
6	2xorange	–	0.015	–	7-11
7	2xgreen	–	0.015	–	8-12
8	blue	–	0.020	–	8-12
9	black	0.020	0.020	–	8-12
10	red	0.030	0.020	8-16	8-12
15	green	0.050	0.030	9-17	9-13
20	yellow	0.050	0.030	9-17	9-13
25	blue	0.050	0.030	10-20	10-15
30	black	–	0.030	–	13-18
40	white	–	0.050	–	13-18
50	red	0.080	0.050	13-25	13-18
100	yellow	0.120	0.080	25-35	25-35

Burette holders, PP. Can be fixed to stands of dia. 8-14 mm.

Typ	
Single	7.053.001
Double	7.053.002

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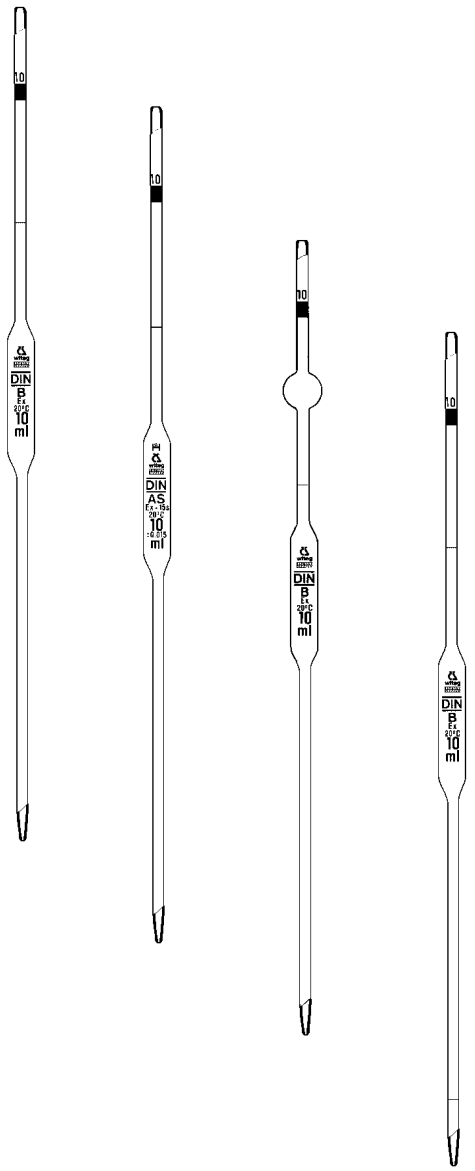


Volumetric pipettes. With ISO-COLOR-Code, acc. to DIN (ISO 648). Calibrated to contain „EX". With amber stain DIFFICO ring marks and inscriptions, with tempered tips.
1. Class B. DIN 12690. With one mark. Without waiting time.
2. Class AS. DIN 12691. Conformity certified. With one mark. Waiting time 15 s. Difficobrown.
3. Class AS. DIN 12691. Conformity certified. With one mark. Waiting time 15 s. Difficoblue.
4. Class B. With two marks. Without Waiting time.
5. Class AS. With two marks. Waiting time 15 s.
6. With security bulb.

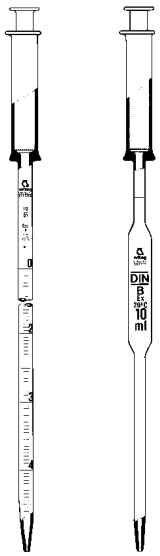
Capacity ml	1.	2.	3.	4.	5.	6.
0.5	3.530.005	3.535.005	3.535.005 BL	3.550.005	3.555.005	*.***.***K
1	3.530.010	3.535.010	3.535.010 BL	3.550.010	3.555.010	*.***.***K
2	3.530.020	3.535.020	3.535.020 BL	3.550.020	3.555.020	*.***.***K
3	3.530.030	3.535.030	3.535.030 BL	3.550.030	3.555.030	*.***.***K
4	-	3.535.040	3.535.040 BL	–	–	–
5	3.530.050	3.535.050	3.535.050 BL	3.550.050	3.555.050	*.***.***K
6	-	3.535.060	3.535.060 BL	–	–	–
7	-	3.535.070	3.535.070 BL	–	–	–
8	-	3.535.080	3.535.080 BL	–	–	–
9	-	3.535.090	3.535.090 BL	–	–	–
10	3.530.100	3.535.100	3.535.100 BL	3.550.100	3.555.100	*.***.***K
15	3.530.150	3.535.150	3.535.150 BL	3.550.150	3.555.150	*.***.***K
20	3.530.200	3.535.200	3.535.200 BL	3.550.200	3.555.200	*.***.***K
25	3.530.250	3.535.250	3.535.250 BL	3.550.250	3.555.250	*.***.***K
30	-	3.535.300	3.535.300 BL	–	–	–
40	-	3.535.400	3.535.400 BL	–	–	–
50	3.530.500	3.535.500	3.535.500 BL	3.550.500	3.555.500	*.***.***K
100	3.530.900	3.535.900	3.535 900 BL	3.550.900	3.555.900	*.***.***K

To order products with individual certificates please add an „IC" at the end of the respective cat. no., e.g. *.***.***IC.
A batch certificate is included with any standard pack

ISO 9000. It is a must for the documentation of any control of inspection, measuring and test equipment. witeg Labortechnik GmbH prints on all class A/AS volumetric instruments a date-coded batch number for perfect product identification.
Another advantage for your quality laboratory acc. to EN ISO 9000.

Pipettes, class DIN-B, with ISO-COLOR-Code, with interchangeable piston, with amber stain DIFFICO graduation and inscriptions, with tempered tips.

Capacity ml	
Graduated pipettes, short line graduation, complete delivery	
0.5	3.575.051
1	3.575.101
2	3.575.202
5	3.575.505
10	3.575.710
25	3.575.910
Volumetric pipettes, with ring mark	
1	3.577.010
2	3.577.020
5	3.577.050
10	3.577.100
20	3.577.200
25	3.577.250
50	3.577.500
100	3.577.900



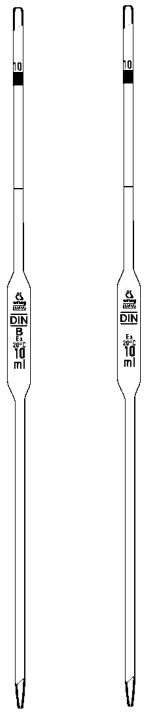
Volumetric pipettes, PP, with ring mark, class B

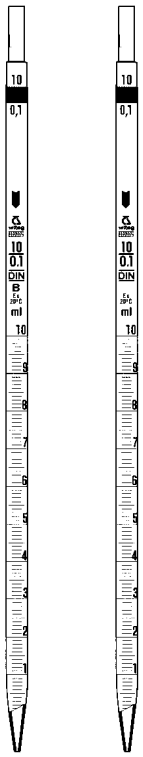
Capacity ml	
1	7.031.011
2	7.031.012
5	7.031.015
10	7.031.100
25	7.031.001
50	7.031.002

Pipettes „blow out". With ISO-COLOR-Code. With amber stain DIFFICO ring marks and inscriptions, with tempered tips offering a wear resistance which is up to seven times better than that of conventional pipette delivery tips. The specified waiting time of 3 s must not be realized. This waiting time is the period for the manipulation which is usually necessary. With „blow out" inscription on each pipette. Calibrated to contain „Ex".

Blow-out volumetric pipettes.
1. Class B. Without waiting time.
2. Class AS. For officially testing. Waiting time 3 s.

Capacity ml	1.	2.
0.5	3.571.005	3.572.005
1	3.571.010	3.572.010
2	3.571.020	3.572.020
3	3.571.030	3.572.030
5	3.571.050	3.572.050
10	3.571.100	3.572.100
15	3.571.150	3.572.150
20	3.571.200	3.572.200
25	3.571.250	3.572.250
50	3.571.500	3.572.500
100	3.571.900	3.572.900





Blow-out graduated pipettes.
1. Class B. Short line graduation. Without waiting time.
2. Class AS. For officially testing. Main point ring-graduation. Waiting time 3 s.

Capacity ml	Division ml	Class B	Division ml	Class AS
0.1	0.001	3.569.011	0.001	3.570.011
0.2	0.001	3.569.021	0.001	3.570.021
0.2	0.002	3.569.022	–	–
0.3	–	–	0.002	3.570.022
0.5	0.010	3.569.051	0.010	3.570.051
1	0.010	3.569.101	0.010	3.570.101
1	0.100	3.569.110	0.100	3.570.110
2	0.010	3.569.201	0.010	3.570.201
2	0.020	3.569.202	0.002	3.570.202
2	0.100	3.569.210	0.100	3.570.210
5	0.050	3.569.505	0.050	3.570.505
5	0.100	3.569.510	0.100	3.570.510
10	0.100	3.569.701	0.100	3.570.710
20	0.100	3.569.810	0.100	3.570.810
25	0.100	3.569.910	0.100	3.570.910

Technical data graduated pipettes.

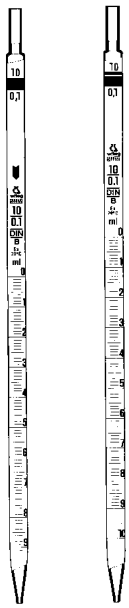
Capacity ml	Color-code	Division	Adjust. to	Tolerane ±ml class B	Tolerane ±ml class A	Delivery time s class B	Delivery time s class AS
0.1	2xgreen	0.001	IN	0.003	0.003	–	–
0.2	2xblue	0.001	IN	0.004	0.003	–	–
0.2	2xwhite	0.002	IN	0.004	0.003	–	–
0.5	2xyellow	0.010	EX	0.008	0.005	2-12	2-8
1	yellow	0.010	EX	0.008	0.006	2-12	2-8
1	red	0.100	EX	0.008	0.006	2-12	2-8
2	2xwhite	0.010	EX	0.015	0.010	2-12	2-8
2	black	0.020	EX	0.015	0.010	2-12	2-8
2	green	0.100	EX	0.015	0.010	2-12	2-8
5	red	0.050	EX	0.040	0.030	5-15	5-11
5	blue	0.100	EX	0.040	0.030	5-15	5-11
10	orange	0.100	EX	0.080	0.050	5-15	5-11
20	2xyellow	0.100	EX	0.150	0.100	9-20	9-15
25	white	0.100	EX	0.150	0.100	9-20	9-15
50	-	0.500	EX	-	0.200	-	-

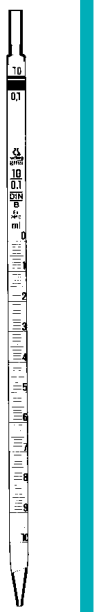
Graduated pipettes. With ISO-COLOR-Code, acc. to DIN (ISO/R385), with amber stain DIFFICO graduations and inscriptions, better than class B accuracy. Tempered delivery tips offering a wear resistance which is up to seven times better thant that of conventional pipette delivery tips. Sizes 5 ml and up with constriction in the suction tube to hold cotton plug.
Class B. With short line graduation, without waiting time.
Class AS. With main point ring-graduation, waiting time 3 s. Conformity certified.

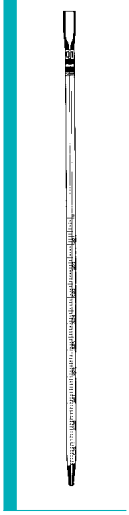
Graduated pipettes.
1. Class DIN-B. Complete swift delivery, 0-point top. DIN 12696.Difficobrown.
2. Class DIN-B. Partial delivery, 0-point top. DIN 12695. Difficobrown.
3. Class DIN-AS. Conformity certified, for complete swift delivery. DIN 12697. Difficobrown.
4. Class DIN-AS. Conformity certified, for complete swift delivery. DIN 12697. Difficoblue.
5. Class DIN-AS. Conformity certified for partial delivery. DIN 12695. Difficobrown.
6. Class DIN-AS. Conformity certified with Schellbach strips, acc. to DIN 12697. Difficobrown.

Capacity ml	Division ml	1.	2.	3.	4.	5.	6.
0.1	0.001	3.500.011	–	**3.510.011	3.510.011 BL	–	3.518.011
0.2	0.001	3.500.021	–	**3.510.021	3.510.021 BL	–	–
0.2	0.002	3.500.022	–	**3.510.022	3.510.022 BL	–	3.518.022
0.5	0.010	3.500.051	3.505.051	3.510.051	3.510.051 BL	3.515.051	3.518.051
1	0.010	3.500.101	3.505.101	3.510.101	3.510.101 BL	3.515.101	3.518.101
1	0.100	3.500.110	3.505.110	*3.510.110	3.510.110 BL	3.515.110	–
2	0.010	3.500.201	3.505.201	**3.510.201	3.510.201 BL	*3.515.201	–
2	0.020	3.500.202	3.505.202	3.510.202	3.510.202 BL	3.515.202	3.518.202
2	0.100	3.500.210	3.505.210	*3.510.210	3.510.210 BL	3.515.210	–
5	0.050	3.500.505	3.505.505	3.510.505	3.510.505 BL	3.515.505	3.518.505
5	0.100	3.500.510	3.505.510	*3.510.510	3.510.510 BL	3.515.510	–
10	0.100	3.500.710	3.505.710	3.510.710	3.510.710 BL	3.515.710	3.518.710
20	0.100	3.500.810	3.505.810	*3.510.810	3.510.810 BL	3.515.810	–
25	0.100	3.500.910	3.505.910	3.510.910	3.510.910 BL	3.515.910	–
25	0.200	3.500.950	–	3.510.950	3.510.950 BL	–	–

* in addition to DIN, ** n addition to DIN, not conformity certified







Safety mouth pieces for cotton plugging.

for Capacity ml	
0.1	*.***.***S
0.2	*.***.***S
0.5	*.***.***S
1	*.***.***S
2	*.***.***S

Pipettes for encymatic analysis, class DIN-AS. Conformity certified. Main point ring-graduation, for partial delivery, acc. to DIN 12699. Calibrated to contain „EX". Technical data and COLOR-Code same as graduated pipettes, however one additional mark.

Capacity ml	Division- ml	Diffico- brown	Diffico- blue
0.1	0.001	3.517.011	3.517.011 BL
0.2	0.001	3.517.021	3.517.021 BL
0.5	0.010	3.517.051	3.517.051 BL
1	0.010	3.517.101	3.517.101 BL
2	0.010	*3.517.201	3.517.201 BL
2	0.020	3.517.202	3.517.202 BL
5	0.050	3.517.505	3.517.505 BL
10	0.100	3.517.710	3.517.710 BL

*) not conformity certified.

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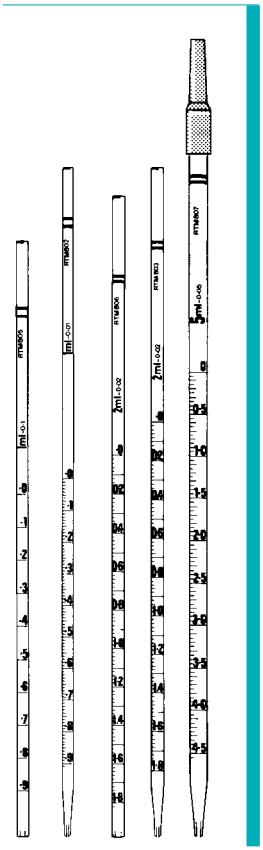
A batch certificate is included with any standard pack

ISO 9000. It is a must for the documentation of any control of inspection, measuring and test equipment. witeg Labortechnik GmbH prints on all class A/AS volumetric instruments a date-coded batch number for perfect product identification.**Another advantage for your quality laboratory acc. to EN ISO 9000.**

Disposable pipettes, glass. Accuracy is within ±2 %, with short jet or drawn tapered jet.

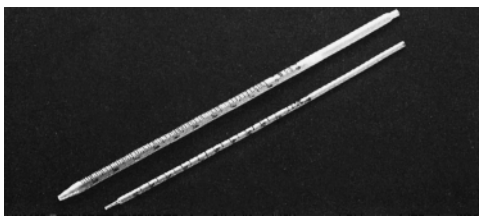
Capacity ml	Division ml	Jet-type	Standard-Pack	Non sterile	Sterile bulk-pack	Sterile *individual
1	0.010	short	500	9.910.001	9.911.010	9.912.100
1	0.100	long	500	9.910.002	9.911.020	9.912.200
1	0.010	long	500	9.910.003	9.911.030	9.912.300
1.1	–	long	500	9.910.004	9.911.040	9.912.400
2	0.020	short	500	9.910.005	9.911.050	9.912.500
2	0.020	long	500	9.910.006	9.911.060	9.912.600
5	0.050	long	500	9.910.007	9.911.070	9.912.700
10	0.100	long	250	9.910.008	9.911.080	9.912.800

* 50 % of standard pack



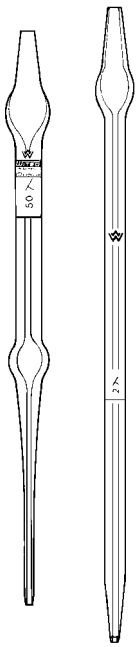
Graduated pipettes, PP.
Transparent, graduated.

Capacity ml	Length mm	
1:0.1	350	7.030.001
2:0.1	350	7.030.002
5:0.1	400	7.030.003
10:0.1	400	7.030.004



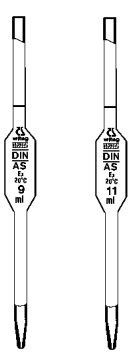
Micro lambda pipettes, transfer type. Suitable for certification, tolerances indicated on each pipette, individually packed in plastic tubes.

Capacity µl	Tolerance ±µl	Color-Code	
1	0.04	blue	4.391.001
2	0.08	2xred	4.391.002
5	0.20	white	4.391.005
10	0.20	orange	4.391.010
20	0.40	black	4.391.020
25	0.50	2xwhite	4.391.025
50	0.50	green	4.391.050
100	1	blue	4.391.100
200	2	red	4.391.200
250	3	2xgreen	4.391.250
300	3	yellow	4.391.300
400	3	-	4.391.400
500	3	2xblack	4.391.500
1000	3	blue	4.391.900



Volumetric pipettes for the determination of milk and cream, acc. to national standards, with amber stain DIFFICO graduations and inscriptions and marks, with tempered delivery tips. E = officially tested and stamped.

Capacity ml	National standard	
10.75	DIN 12837	3.420.075
10.75	DIN 12837 E	3.420.080
10.94	BS 696	3.420.094
11.00	BE	3.420.100
11.00	–	3.420.105
11.00	E	3.420.110
9.00	AST	3.420.090
17.60	AST	3.420.176
18.00	AST	3.420.180



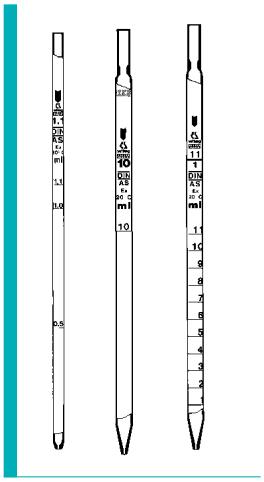
Disposable pipettes, made of non cytotoxical crystal polystyrene. Gamma sterile. With cotton plug. Peel-pack bags for individual sterile pipettes. Graduation for 1, 2, 5 and 10 ml pipettes, with colour code.

Capacity ml	Division ml	Description	Carton pcs.	
1	0.01	individual packed	1000	5.489.101
		Bag of 25 pcs.	1000	5.489.102
		Bulk, non sterile	1000	5.489.103
2	0.01	individual packed	1000	5.489.111
		Bag of 25 pcs	1000	5.489.112
		Bulk, non sterile	1000	5.489.113
5	0.10	individual packed	500	5.489.121
		Bag of 25 pcs	750	5.489.122
		Bulk, non sterile	500	5.489.123
10	0.10	individual packed	500	5.489.131
		Bag of 25 pcs	500	5.489.132
		Bulk, non sterile	500	5.489.133
25	0.10	individual packed	200	5.489.141

Tissue culture pipettes, graduated pipettes, „shortie" class DIN-AS.

Main point ring graduation. Blow-out. Zero at the tip. With amber stain DIFFICO graduations and inscriptions, with tempered tips offering a wear resistance, which is up to seven times better than that of convential pipette delivery tips. Overall length 170 mm, with safety mouth piece for cotton plugging.

Capacity ml	Division ml	Tolerance ±ml	Color-code	
0.1	0.01	0.005	white	3.405.001
0.2	0.01	0.008	black	3.405.002
1	0.02	0.020	yellow	3.405.102
1	0.10	0.020	red	3.405.110
2	0.10	0.020	green	3.405.210
5	0.10	0.040	blue	3.405.510
10	0.20	0.060	orange	3.405.710

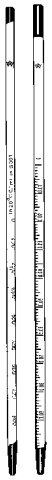


Bacteriological pipettes (milk pipettes), class DIN-AS. Main point ring-graduation, with amber stain DIFFICO graduations and inscriptions. Tempered extremely wide delivery tips offering a wear resistance.

Capacity ml	Marks at ml	Tolerance ±ml	Color-code	
1	1.0	0.025	blue	3.410.100
1.1	1.1-1.0	0.025	2xgreen	3.410.110
1.1	1.1-1.0-0.5	0.025	–	3.410.115
1.2	1.2-1.1-1.0-0.5	0.025	–	3.410.121
2.2	2.2-2.1-2.0-1.0	0.040	–	3.410.221
10	10	0.100	red	3.410.710
11	all	0.100	–	3.410.711

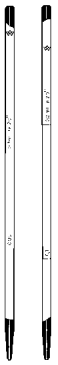
Kahn-pipettes, clear glass. For the antigen dilution. Tolerances indicated on each pipette.

Capacity ml	Division ml	Tolerance ±ml	Coler-code	Type	
0.1	0.001	0.003	2xgreen	base	4.450.010
0.1	0.001	0.001	2xgreen	tip	4.450.012
0.125	0.0125	0.003	–	base	4.450.015
0.25	0.0125	0.003	–	base	4.450.025
0.2	0.001	0.002	2xblue	tip	4.450.030
0.6	0.15	0.005	–	tip	4.450.060



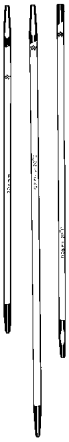
Demeter pipettes (milk pipettes - diluting pipettes), with constriction in the middle piece, with wide tempered delivery tips.

Capacity ml	Marks at ml	
1.1	1.1-1.0-0.5	3.415.115
2.2	2.2-2.1-2.0-1.0	3.415.221



Folin-capillary pipettes calibrated for „In", with 2 marks, acc. to DIN 12688, clear glass, for officially testing (class A).

Total capacity µl	Marks at µl	Tolerance ±µl	Color-code	
100	50	1.0	2xorange	4.350.100
200	100	2.0	orange	4.350.200



Disposable pipettes, with circular mark. Conformity cerified. The suction side end is fire polished. Adjusted to contain. Rectification ≤ 0.25 %, precision 0.5 %. 250 pipettes per cardboard cylinder, 4 cylinders in a standard carton.

Capacity ml	Color-code	
1,2,3,4,5	white	*4.000.005
10	orange	4.000.100
20	black	4.000.020
25	2xwhite	4.000.025
20+40	2xred	4.000.040
40	2xred	4.000.042
44,7	violet + blue	**4.000.044
44.7 hep.	violet+red	**4.000.047
5+50	green	4.000.050
10+50	green	4.000.051
50	green	4.000.052
100	blue	4.000.100
50+100	blue	4.000.150
200	red	4.000.200

* conformity certified for marks 5 µl
** supplementing to ISO

Capillary pipettes,calibrated for „In". With graduation mark. Acc. to DIN 12687. Suitable for officially testing (class A).

Capacity µl	Tolerance ±µl	Color-code	Trade mark acc. to	Clear glass	Amber-glass
20	0.4	black	Sahli	4.300.020	4.320.020
80	1.0	yellow	Geigy	4.300.080	4.320.080
100	1.0	blue	Geigy	4.300.100	4.320.100
200	2.0	red	Geigy	4.300.201	4.320.201

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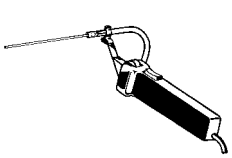
Micro pipetting aid. The pipette is filled by turning the rubber pulley with the thumb in the desired direction.



	4.003.000

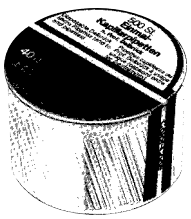
Disposable pipettes. End-to-end. With neatly cut ends. Conformity certified for volumes ≥ 5 µl. Rectification ≤ ±0,25 %. 250 pipettes per cardboard cylinder, 4 cylinders in a standard carton. Each of these cylinders includes one short pipetting aid.

Capacity ml	
0.5	4.005.000
1	4.005.001
2	4.005.002
3	4.005.003
3.33	*4.005.033
4	4.005.004
5	4.005.005
6.66	*4.005.006
10	4.005.010
20	4.005.020
25	4.005.025
44.7	*4.005.044
44.7 hep.	*4.005.047
50	4.005.050
100	4.005.100
Spare parts:	
Pipetting aid, short type	4.007.001
Rubber stopper	4.007.003

*suitable for Coulter Analyzer.

Disposable pipettes acc. to Delbrück. Conformity certified. For capillary blood letting. Volume limitation by both ends. Heparinised. Rectification ≤ ±0.5 %, Precision ≤ ±1 %. Packed in cylinders of 100 pieces.

Capacity ml	
20 hep	4.004.020
40 hep	4.004.040
50 hep	4.004.060
Accessories:	
Pipette holder	4.004.050



Disposable-Prothrombin-pipettes, with circular marks, conformity certified. Upper end fire-polished. An additional white band indicates that the liquid remaining in the tip has to be blown out. We recommmend to fill the pipettes by gravity - or increasing the angle of inclination of the pipette. Precision < ±0.25 %. Packed: 250 pieces in cylinders, 4 cylinders in a standard carton.

Marks at ml	Tolerance ±µl	Color-code	
0.1-0.2	2	orange	4.010.000

Disposable-Haematocrit tubes for blood taking, ungraduated. In compliance with international specifications, with Color-Code and fire polished ends. Length 75 mm ±0.002 mm, wall thickness 0.2 mm ±0.02 mm, internal diameter 1.1-1.2 mm. Capacity 40 ml, ungraduated, outside diameter 1.4 mm ±0.1 mm. Designed for use in haematocrit centrifuges. Packed: 100 pcs. 10 tubes in standard box.

Capacity ml	Color-code	Heparinized	
40	red	hep.	4.015.010
40	blue	–	4.015.020
Accessories:			
Pipette holder			4.015.011

Suction bulbs for pipettes.

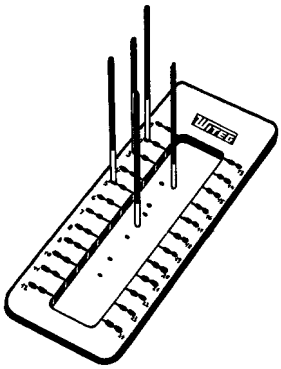
ml	
1	3.968.001
2	3.968.002
5	3.968.005
10	3.968.010
15	3.968.015

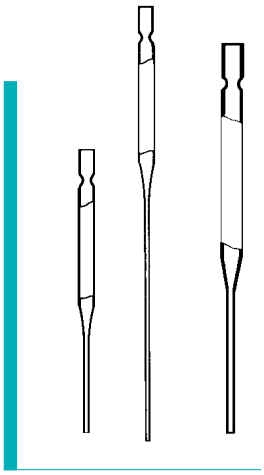
Disposable-Haematocrit tubes for blood taking, with circular mark at 60 mm, in compliance with international specifications. Ends fire-polished. Length 75 mm, with a precise inside diameter of 0.55 mm ±0.05 mm. Outside diameter 1.40-1.75 mm. The tube is filled to the calibration mark by capillary attraction. 100 pieces are packed in a transparent dispenser tube, 10 tubes in a standard box.

Heparinized	
Hep.	4.020.000
Accessories:	
Pipette holder	4.020.001

Haematocrit-sealing wax. Special sealing wax on a plate for rapid, reliable sealing of several hundred-micro-haematocrit tubes. It does not dry out and forms a sharply-defined separating line against the blood sample. On each side 2 tubes (up to a total of 48) can be vertically deposited in the numbered recesses. 6 pcs. in a standard box.

Type
4.025.000





Pasteur pipettes, disposable. Capacity approx. 1.5 and 2 ml, with long tip. Capillary-inside diameter on the tip approx. 1 mm. Suction tube approx. 25 mm length. With mouth piece for cotton plugging, outside diameter of tube approx. 7 mm, body-length 90 mm, packed 250 pcs. in dispenser-box.

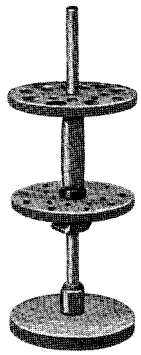
Typ	Overall length/tip mm		With cotton plugging
short	150/50	4.100.150	4.100.151
long	230/120	4.100.230	4.100.231
long, thick walls	250/155	4.105.000	–

Disposable-Pasteur pipettes, graduated. PE. Unbreakable, 155 mm long.

Capacity ml	Standard pack pcs.	Carton pcs.	
0.5	500	3000	5.480.000
1	500	3000	5.480.001
3	500	3000	5.480.003

Disposable one-piece dropping pipettes (transfer pipettes). No hazards from broken glass.

Capacity ml	Standard-pack pcs.	Carton pcs.	
1.5	100	7000	5.484.001
4.0	100	3000	5.484.002



Pipette supports, hard-wood. Height adjustable, for volumetric and graduated pipettes, 2 decks, 185 mm dia., height of deck 50 mm.

For pipettes pcs.	
12	9.070.001
18	9.070.002
24	9.070.003

Dropping pipettes (eye droppers), made of glass.

Type	Dia. x L mm	
Without bulb	7/8x80	9.900.801
With rubber teat	–	9.900.802
With bulb	7/8x80	9.900.803
With rubber teat	–	9.900.804

WITO-pipetting balls, approved for many years, problem-free use, for pipetting absolutely trouble-free. Fits all volumetric and graduated pipettes.
Standard and Universal with 3 valves. High chemical resistance. Easy to clean with standard cleansing agents such as WITO-NEX.
Flip with 2 pressure valves and 1 automatic valve for convenient handling. Inner surfaces can be cleaned easily by removing the automatic valve from the ball.

Type	
short cone, Standard	3.965.000
long cone , Universal	3.966.000
Flip	3.967.000

Pipette pumps „pi-pump“, PP. For pipettes up to 25 ml, with delivery valve-lever.

Capacity ml	Color-code	
0,2	yellow	7.032.001
2	blue	7.032.002
10	green	7.032.003
25	red	7.032.004
Stand for pi-pumps		7.032.111

Witoped-Pipet-Aid see section Liquid-Handling.

Pipette stand, PP. Holds up to 94 pipettes. The elastic material prevents pipette damage. Liquid residues drip form pipette to the slanted base plate.

Type
7.081.001

Pipette sterilizing box, stretchable, aluminum. 280-420 mm length. 60 mm dia.. For pipettes with different lengths.

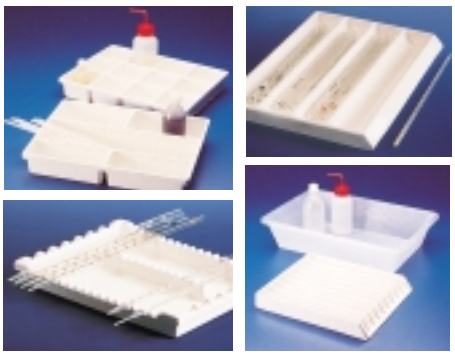
	9.325.001

Pipette sterilizing boxes, 70x70mm, bottom and lid covered with silicone-rubber, made of non-corrosive metal.

Length mm	
170	9.326.001
270	9.326.002
380	9.326.003
450	9.326.004

Sterilizing and storage boxes, aluminum. With overlapping cover for test tubes, centrifuge tubes, pertri dishes, Pasteur pipettes, graduated pipettes, sterile instruments etc.

Height mm	Dia. mm	
270	140	9.328.001
170	170	9.328.002
175	120	9.328.003
120	120	9.328.004
Accessories:		
Petri dish holder with handle for 10-12 petri dishes 80-120 mm dia., suitable for article-No. 9.328.001		9.328.101

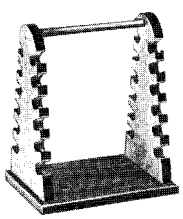


Supports for pipettes, PVC.

Dimensions mm	Height mm	
For pipettes from 120 mm length		
220x300	38	7.097.001
Suitable for drawers, alongside subdivided in 4 shelves		
420x300	40	7.098.001
For drawers, alongside subdivided in 9 shelves, 25mm wide		
355x300	45	7.099.001
Suitable for drawers with 5 places to keep		
410x300	70	7.101.001

Cleansing and storage system for pipettes, PE.

O.D. mm	Height mm	Basket-height mm	
Automatic pipette rinser			
165	650	–	7.034.001
165	1000	–	7.034.002
Pipette jars			
165	650	–	7.035.001
165	500	–	7.035.002
125	250	–	7.035.003
Pipette baskets			
130	650	300	7.036.001
130	495	300	7.036.002
Handle extension for pipette baskets			7.036.003



Pipettes rest (Instrument rest), for 12 instruments (pipettes), made of polished hardwood, with handle, height 300 mm.

Broadness mm	Length mm	
180	230	9.080.000

Pipette container, HDPE, for the dust-free storage of pipettes up to 400 mm length. With lid.

Base x height mm	I.D. mm	
100x420	83	7.635.004

Automatic pipettes with 1 l reservoir bottle. With inscriptions.
1. Cone ST 29/32
2. Thread GL 45

BEST BUY

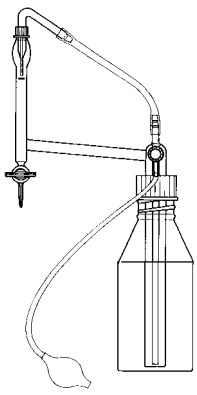
Capacity ml	1. Complete	1. Attachment only	2. Complete	2. Attachment only
1	3.580.001	3.580.301	3.581.001	3.581.301
2	3.580.002	3.580.302	3.581.002	3.581.302
3	3.580.003	3.580.303	3.581.003	3.581.303
4	3.580.004	3.580.304	3.581.004	3.581.304
5	3.580.005	3.580.305	3.581.005	3.581.305
10	3.580.010	3.580.310	3.581.010	3.581.310
15	3.580.015	3.580.315	3.581.015	3.581.315
20	3.580.020	3.580.320	3.581.020	3.581.320
25	3.580.025	3.580.325	3.581.025	3.581.325
30	3.580.030	3.580.330	3.581.030	3.581.330
40	3.580.040	3.580.340	3.581.040	3.581.340
50	3.580.050	3.580.350	3.581.050	3.581.350
100	3.580.100	3.580.360	3.581.100	3.581.360
Spare reservoir bottle 1 l, ST 29/32	3.580.101	–	–	–
Spare bottle GL 45, with cap and seal	3.581.101	–	–	–

Automatic pipettes, Friedrichs. With automatic zero point.

Capacity ml	
5	3.585.005
10	3.585.010
25	3.585.025
50	3.585.050
100	3.585.100

Automatic volumetric pipettes (Dispenser burette). With automatic zero point, amber stain DIFFICO mark and inscriptions, 1 l reservoir bottle GL45, graduated, aspirator bulb, complete ready for use. With stopcock with ST glass plug, threaded detacable hose connection and changeable zero-tube for easier cleansing. (Other sizes on request).

Capacity ml	
3	3.590.003
5	3.590.005
10	3.590.010
15	3.590.015
20	3.590.020
25	3.590.025
30	3.590.030
40	3.590.040
50	3.590.050
100	3.590.100
125	3.590.125



Volumentric flasks, class DIN-B, Diffico brown.
1. Unstoppered neck suitable to take a stopper, but unground.
2. With ST-PE-stoppers.
3. With ST-hollow glass stoppers.

Capacity ml	Tolerance ±ml	ST	1	2.	3.
5	0.060	10/19	3.652.015	3.654.015	3.658.015
10	0.060	10/19	3.652.012	3.654.012	3.658.012
20	0.060	10/19	3.652.002	3.654.002	3.658.002
25	0.060	10/19	3.652.003	3.654.003	3.658.003
50	0.090	12/21	3.652.005	3.654.005	3.658.005
50	0.090	14/23	3.652.006	3.654.006	3.658.006
100	0.150	12/21	3.652.010	3.654.010	3.658.010
100	0.150	14/23	3.652.011	3.654.011	3.658.011
200	0.250	14/23	3.652.020	3.654.020	3.658.020
250	0.250	14/23	3.652.025	3.654.025	3.658.025
500	0.400	19/26	3.652.050	3.654.050	3.658.050
1000	0.600	24/29	3.652.100	3.654.100	3.658.100
1000	0.600	29/32	3.652.101	3.654.101	3.658.101
2000	0.900	29/32	3.652.200	3.654.200	3.658.200
5000	1.800	34/35	3.652.500	3.654.500	3.658.500

Volumetric flasks, class DIN-A. Conformity certified. DIN 12664 (ISO 1042). DURAN. With acid and alkali resistant ring marks and inscriptions, DIFFICO amber stain graduation. Other sizes on request.
1. Unstoppered neck, suitable to take a stopper, Diffico brown
2. With ST-PE-stoppers, Diffico brown
3. With ST-PE-stoppers, Diffico blue
4. With ST-hollow glass stoppers, Diffico brown
5. With ST-hollow glass stoppers, amber glass, Diffico white
6. With GL-screw caps and PTFE-washer, Diffico brown
7. With ST-PE-stoppers. trapezoidal, Diffico blue
8. With spout and PE-stoppers, Diffico blue

To order products with individual certificates please add an „IC“ at the end of the respective cat. no., e.g. *.***.***IC.
A batch certificate is included with any standard pack

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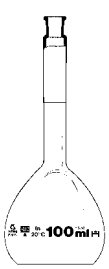
Capacity ml	Tolerance ±ml	ST	1.	2.	3.	4.	5.	6.	7.	8.
1	0.025	7/16	–	–	–	–	–	–	3.669.000	–
2	0.025	7/16	–	–	–	–	–	–	3.669.001	–
3	0.025	7/16	–	–	–	–	–	–	3.669.002	–
5	0.025	7/16	3.662.000	3.664.000	3.664.000BL	3.668.000	3.670.000	3.642.000	3.669.003	–
5W	0.040	10/19	–	3.664.015	3.664.015BL	3.668.015	3.670.015	3.642.015	3.669.015	3.664.015A
10	0.025	7/16	3.662.001	3.664.001	3.664.001BL	3.668.001	3.670.001	3.642.001	3.669.005	–
10W	0.040	10/19	–	3.664.012	3.664.012BL	3.668.012	3.670.012	3.642.012	3.669.010	3.664.012A
20	0.040	10/19	3.662.002	3.664.002	3.664.002BL	3.668.002	3.670.002	3.642.002	3.669.020	3.664.002A
25	0.040	10/19	3.662.003	3.664.003	3.664.003BL	3.668.003	3.670.003	3.642.003	3.669.025	3.664.003A
25W	0.060	12/21	–	3.664.014	3.664.014BL	3.668.014	3.670.014	3.642.014	3.669.014	3.664.014A
50	0.060	12/21	3.662.005	3.664.005	3.664.005BL	3.668.005	3.670.005	3.642.005	3.669.050	3.664.005A
50	0.080	14/23	3.662.006	3.664.006	3.664.006BL	3.668.006	–	–	3.669.100	3.664.006A
100	0.100	12/21	3.662.010	3.664.010	3.664.010BL	3.668.010	3.670.010	3.642.010	3.669.200	3.664.010A
100	0.100	14/23	3.662.011	3.664.011	3.664.011BL	3.668.011	–	–	3.669.500	3.664.011A
200	0.150	14/23	3.662.020	3.664.020	3.664.020BL	3.668.020	3.670.020	3.642.020	–	3.664.020A
250	0.150	14/23	3.662.025	3.664.025	3.664.025BL	3.668.025	3.670.025	3.642.025	–	3.664.025A
500	0.250	19/26	3.662.050	3.664.050	3.664.050BL	3.668.050	3.670.050	3.642.050	–	3.664.050A
1000	0.400	24/29	3.662.100	3.664.100	3.664.100BL	3.668.100	3.670.100	3.642.100	–	3.664.100A
1000	0.400	29/32	3.662.101	3.664.101	3.664.101BL	3.668.101	–	–	–	3.664.101A
2000	0.600	29/32	3.662.200	3.664.200	3.664.200BL	3.668.200	3.670.200	3.642.200	–	3.664.200A
5000	1.200	34/35	3.662.500	3.664.500	3.664.500BL	–	3.668.500	3.642.500	–	3.664.500A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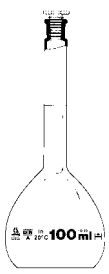
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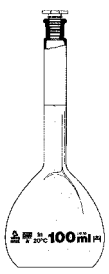
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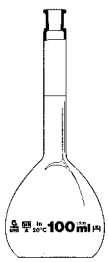
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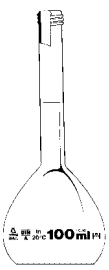
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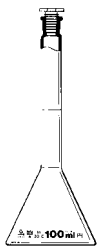
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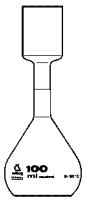
8

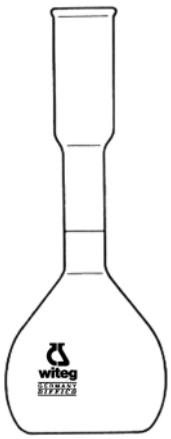
Volumetric flasks made of plastics. Narrow neck, with ringmark and ST-stopper.

Capacity ml	Height mm	ST-stopper	PP	PMP
25	125	12	7.021.001	–
50	150	14	7.021.002	7.022.001
100	180	14	7.021.003	7.022.002
250	235	19	7.021.004	7.022.003
500	270	19	7.021.005	7.022.004
1000	330	19	7.021.006	7.022.005



Volumetric flasks, acc. to Kohlrausch, for sugar analysis. Blue graduation. DURAN.

Capacity ml	
100	3.671.100
200	3.671.200

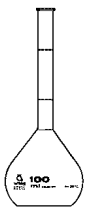


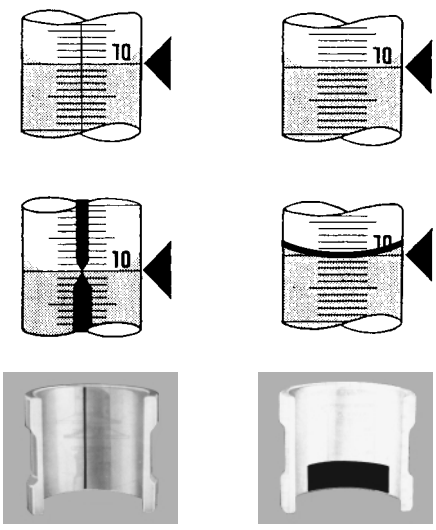
Viscosimeter flask, acc. to Engler. DURAN. 2 ringmarks, Capacity 100+100 ml ±0.1 ml. Diffico blue

Type	
	3.671.201

Volumentric flasks for sugar analysis. With 2 marks. DURAN.

Capacity ml	
50/55	3.672.050
100/110	3.672.100
200/220	3.672.200



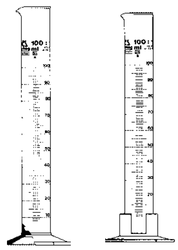


Clip - the reading aid, PP, white. With grip deepening, unbreakable, with permanent clamping effect, resistant to acids and alkalis. For better recognizing and adjusting the liquid level into graduations and ring marks, packed 10 pcs. in plastic bags in a carton. Clip height 36 mm. Schellbach-Clip, white with blue line. For all measuring instruments made of glass. Contrast-Clip, black and white.

Clip-dia mm	For tube-dia. from-to mm	Schellbach-clip	Contrast clip	Assortment
4.0	4.2-5.5	3.690.001	3.691.001	
6.0	6.1-7.5	3.690.002	3.691.002	
9.8	10.0-13.3	3.690.003	3.691.003	
13.5	13.8-17.0	3.690.004	3.691.004	
18.4	18.5-22.0	3.690.005	3.691.005	
24.8	25.0-29.5	3.690.006	3.691.006	
32.5	33.0-42.0	3.690.007	3.691.007	
„Medico Clip“, white				3.692.000
„Schellbach blue line“				3.693.000
„Contrast Clip“, black-white				3.694.000

Graduated cylinders, tall form, class DIN-B. Short line graduation, acc. to DIN 12680, „In". With acid and alkali resistant DIFFICO amber stain graduation and inscriptions. Better than class B accuracy, within the tolerances for officially tested graduated cylinders.
1. With hexagonal base. DURAN.
2. With base and protection collar made of PP. Borosilicate glass.
2a. Spare hexagonal base, made of PP.
2b. Spare protection collar, made of PP.

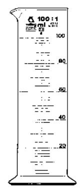
Capacity ml	Division ml	Tolerance ±ml	1.	2.	2a.	2b.
5	0.1	0.08	3.705.000	3.700.000	3.701.000	3.702.000
10	0.2	0.15	3.705.001	3.700.001	3.701.001	3.702.001
25	0.5	0.40	3.705.003	3.700.003	3.701.003	3.702.003
50	1.0	0.80	3.705.005	3.700.005	3.701.005	3.702.005
100	1.0	0.80	3.705.010	3.700.010	3.701.010	3.702.010
250	2.0	1.50	3.705.025	3.700.025	3.701.025	3.702.025
500	5.0	4.00	3.705.050	3.700.050	3.701.050	3.702.050
1000	10.0	8.00	3.705.100	3.700.100	3.701.100	3.702.100
2000	20.0	15.00	3.705.200	–	–	–



Class DIN AS, conformity certified see next side

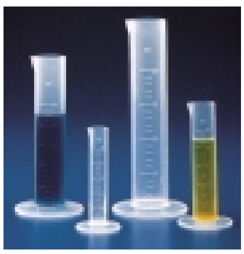
Graduated cylinders (Graduates), low shape, class DIN-B.
Short line graduation, „In". With acid and alkali resistant DIFFICO amber stain graduation and inscriptions. With round base and spout. With hexagonal base. Borosilicate glass.

Capacity ml	Division ml	Tolerance ±ml	
5	1.0	0.10	3.707.000
10	1.0	0.15	3.707.001
25	1.0	0.40	3.707.003
50	2.0	0.80	3.707.005
100	2.0	0.80	3.707.010
250	5.0	1.50	3.707.025
500	10.0	4.00	3.707.050
1000	20.0	8.00	3.707.100
2000	50.0	15.00	3.707.200



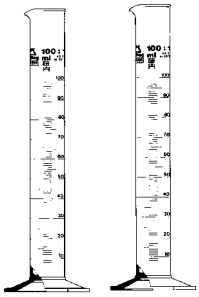
Graduated cylinders, low shape. From plastic.
1. PP. Transparent, prominent graduation.
2. PMP. Crystal clear, prominent graduation

Capacity ml	Height mm	O.D.. mm	1.	2.
10	87	16	7.006.000	7.007.100
25	107	22	7.006.001	7.007.101
50	143	29	7.006.002	7.007.102
100	177	34	7.006.003	7.007.103
250	263	46	7.006.004	7.007.104
500	302	56	7.006.005	7.007.105
1000	331	71	7.006.006	7.007.106
2000	370	92	7.006.007	7.007.107



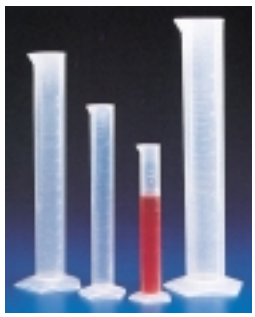
Graduated cylinders, tall form, class DIN-AS. Conformity certified. Main point ring-graduation. With hexagonal base and spout. DIN 12680. „IN". With acid and alkali resistant DIFFICO amber stain graduation and inscriptions.

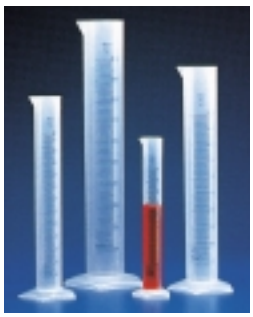
Capacity ml	Division ml	Tolerance ±ml	DURAN Diffico brown	DURAN Diffico blue
5	0.1	0.05	3.715.000	3.715.000 BL
10	0.2	0.10	3.715.001	3.715.001 BL
25	0.5	0.25	3.715.003	3.715.003 BL
50	1.0	0.50	3.715.005	3.715.005 BL
100	1.0	0.50	3.715.010	3.715.010 BL
250	2.0	1.00	3.715.025	3.715.025 BL
500	5.0	2.50	3.715.050	3.715.050 BL
1000	10.0	5.00	3.715.100	3.715.100 BL
2000	20.0	10.00	3.715.200	3.715.200 BL



To order products with individual certificates please add an „IC" at the end of the respective cat. no., e.g. *.***.***IC.
A batch certificate is included with any standard pack

ISO 9000. It is a must for the documentation of any control of inspection, measuring and test equipment. witeg Labortechnik GmbH prints on all class A/AS volumetric instruments a date-coded batch number for perfect product identification.
Another advantage for your quality laboratory acc. to EN ISO 9000.



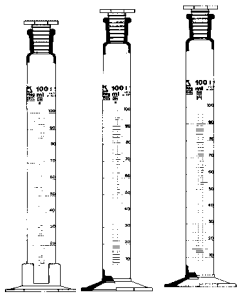


Graduated cylinders, tall shape. From plastic, ISO 6706, BS 5404.
1. PP. Transparent, prominent graduated.
2. PMP. Crystal clear, prominent graduated.
3. PP. Transparent, blue graduated.
4. PMP. Crystal clear, blue graduated.

Capacity ml	Height mm	O.D. mm	1.	2	3	4.
10:0.2	140	13	7.000.001	7.002.001	7.003.001	7.004.001
25:0.5	195	18	7.000.002	7.002.002	7.003.002	7.004.002
50:1	200	25	7.000.003	7.002.003	7.003.003	7.004.003
100:1	250	30	7.000.004	7.002.004	7.003.004	7.004.004
250:2	315	41	7.000.005	7.002.005	7.003.005	7.004.005
500:5	331	55	7.000.006	7.002.006	7.003.006	7.004.006
1000:10	439	66	7.000.007	7.002.007	7.005.007	7.004.007
2000:20	531	84	7.000.008	7.002.008	7.005.008	7.004.008

Graduated cylinders, with ST-PE-stopper. DIN 12685. Borosilicat glass. With acid and alkali resistand DIFFICO amber stain graduation and inscriptions, which form an integral, absolutely indelible part of the glass surface „IN". With hexagonal base.
1. Class DIN-B. Short line graduation. Base from PP. Diffico brown.
2. Class DIN-B. Short line graduation. Diffico brown.
3. Class DIN-AS. Conformity certified, main point ring-graduation. Diffico brown.
4. Class DIN-AS. Conformity certified, main point ring-graduation. Diffico blue.

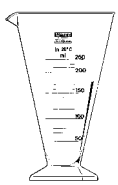
Capacity ml	Division ml	Class B/AS Tolerance ±ml	ST	1.	2.	3.	4.
10	0.2	0.15/0.10	10/19	3.750.001	3.752.001	3.754.001	3.754.001BL
25	0.5	0.40/0.25	14/23	3.750.003	3.752.003	3.754.003	3.754.002BL
50	1.0	0.80/0.50	19/26	3.750.005	3.752.005	3.754.005	3.754.005BL
100	1.0	0.80/0.50	24/29	3.750.010	3.752.010	3.754.010	3.754.010BL
250	2.0	1.50/1.00	29/32	3.750.025	3.752.025	3.754.025	3.754.025BL
500	5.0	4.00/2.50	34/35	3.750.050	3.752.050	3.754.050	3.754.050BL
1000	10.0	8.00/5.00	45/40	3.750.100	3.752.100	3.754.100	3.754.100BL
2000	20.0	15.00/10.00	45/40	3.750.200	3.752.200	3.754.200	3.754.200BL

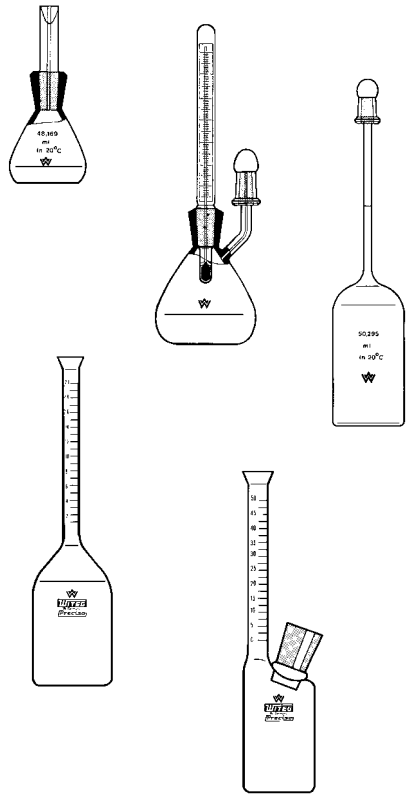


To order products with individual certificates please add an „IC" at the end of the respective cat. no., e.g. *.***.***IC.
A batch certificate is included with any standard pack

Measures. Conical shape, with round base, with spout, without handle, wih acid and alkali resistant DIFFICO amber stain graduation, class DIN B-short line graduation. Borosilicate glass, or plastic with prominet graduation.

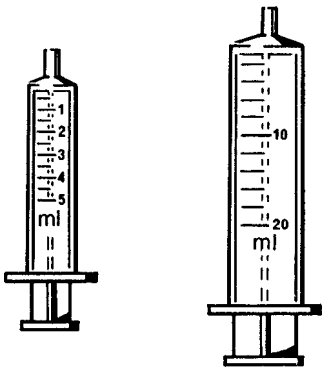
Capacity ml	Division plastic ml	Division glass ml	Borosilicate-glass	PP	PMP
25	–	1	4.800.025	–	–
50	–	2	4.800.050	–	–
100	2	5	4.800.100	7.027.001	7.028.001
250	5	10	4.800.250	7.027.002	7.028.002
500	10	10	4.800.500	7.027.003	7.028.003
1000	20	20	4.800.001	7.027.004	7.028.004





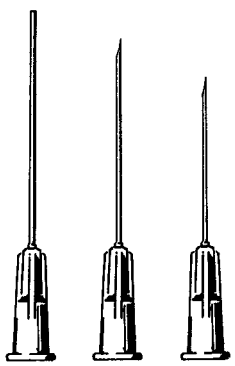
Pyknometers. Unadjusted with capacity mark indication at the bottom weighed out up to the 2. decimal place.

Capacity ml	Tolerance ±ml	Thermo-meter °C	Division °C	Unadjusted	Adjusted
Acc. to Gay-Lussac, with ground-in capillary stopper. DIN 12797*					
1	0.006	–	–	3.900.001	3.902.001
2	0.006	–	–	3.900.002	3.902.002
5	0.006	–	–	3.900.005	3.902.005
*10	0.008	–	–	3.900.010	3.902.010
*25	0.010	–	–	3.900.025	3.902.025
*50	0.016	–	–	3.900.050	3.902.050
100	0.024	–	–	3.900.100	3.902.100
With thermometer ST 10/19 and side tube ST 7/16 cap. DIN 12809*					
5	0.006	0-35	0.2	3.920.005	3.922.005
*10	0.008	0-35	0.2	3.920.010	3.922.010
*25	0.010	0-35	0.2	3.920.025	3.922.025
*50	0.016	0-35	0.2	3.920.050	3.922.050
100	0.024	0-35	0.2	3.920.100	3.922.100
Acc. to Reischauer, with cap ST 5/13, DIN 12801*					
5	0.006	–	–	–	3.930.005
10	0.008	–	–	–	3.930.010
*25	0.010	–	–	–	3.930.025
*50	0.016	–	–	–	3.930.050
100	0.024	–	–	–	3.930.100
For diary products					
20	Cheese, Ice cream	0.2	–	3.935.001	–
50	Cheese	0.5	–	3.935.002	–
20	Ice cream	0.2	–	3.935.003	–
8	Milk	0.1	–	3.935.004	–
10	Milk	0.1	–	3.935.005	–
50	Cream	0.5	–	3.935.006	–



Sterile disposable syringes, single packed, without needle, pyrogenfree. Other sizes on request.

Capacity ml	Bag pcs.	Carton pcs.	
LUER/3-component, insulin/tuberkulin			
1	500	1000	5.484.100
LUER/2-component			
2	200	3000	5.484.202
5	150	1800	5.484.205
10	100	1200	5.484.210
20	80	960	5.484.220

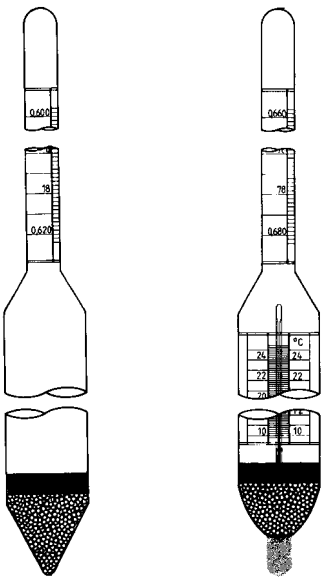


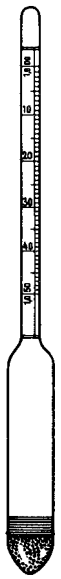
Sterile disposable needles (LUER), Pravaz-sizes.

Color-code	Pravaz-sizes	Bag pcs.	Carton pcs.	
yellow	**Nr. 1**. 20G 1 1/2" 0.9x40 mm	100	1000	5.484.301
green	**Nr. 2**. 21G 1 1/2" 0.8x40 mm	100	1000	5.484.302
black	**Nr. 12**. 22G 1 1/4" 0.7x30 mm	100	1000	5.484.303
blue	**Nr. 14**. 23G 1 1/4" 0.6x30 mm	100	1000	5.484.304
blue	**Nr. 16**. 23G 1" 0.6x25 mm	100	1000	5.484.305
orange	**Nr. 18**. 25G 1" 0.5x25 mm	100	1000	5.384.306
grey	**Nr. 20**. 27G 3/4" 0.4x19 mm	100	1000	5.484.307

Precision density hydrometers.
Range 0.20 g/ml in 0.0002 g/ml. Total length 430 mm.
Please specifiy surface tension. Colour code to DIN 12790 and ISO R649 = yellow / red / blue for low / medium / high surface tension.
1. DIN 12791, Tp. 20 °C, **Series L20,** without thermometer.
2. DIN 12785, **Series L20 Th,** with thermometer +10 +25 °C.

Range g/cm³	Type L	Type L Th
0.600-0.620	8.585.001	8.586.001
0.620-0.640	8.585.002	8.586.002
0.640-0.660	8.585.003	8.586.003
0.660-0.680	8.585.004	8.586.004
0.680-0.700	8.585.005	8.586.005
0.700-0.720	8.585.006	8.586.008
0.720-0.740	8.585.007	8.586.007
0.740-0.760	8,585.008	8.586.008
0.760-0.780	8.585.009	8.586.009
0.780-0.800	8.585.010	8 586.010
0.800-0.820	8.585.011	8.586.011
0.820-0.840	8.585.012	8.586.012
0.840-0.860	8.585.013	8.586.013
0.860-0.880	8.585.014	8 586.014
0.880-0.900	8.585.015	8.586.015
0.900-0.920	8.585.016	8.586.016
0.920-0.940	8.585.017	8.586.017
0.940-0.960	8.585.018	8.586.018
0.960-0.980	8.585.019	8.586.019
0.980-1.000	8.585.020	8.586.020
1.000-1.020	8.585.021	8.586.021
1.020-1.040	8.585.022	8.586.022
1.040-1.060	8.585.023	8.586.023
1.060-1.080	8.585.024	8.586.024
1.080-1.100	8.585.025	8.586.025
1.100-1.120	8.585.026	8.586.026
1.120-1.140	8.585.027	8.586.027
1.140-1.160	8.585.028	8.586.028
1.160-1.180	8.585.029	8.586.029
1.180-1.200	8.585.030	8.586.030
1.200-1.220	8.585.031	8.586.031
1.220-1.240	8.585.032	8.586.032
1.240-1.260	8.585.033	8.586.033
1.260-1.280	8.585.034	8.586.034
1.280-1.300	8.585.035	8.586.035



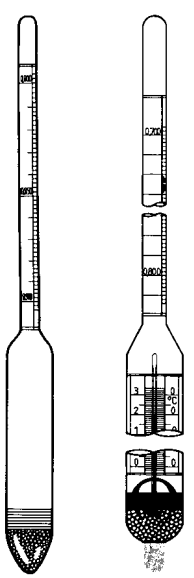


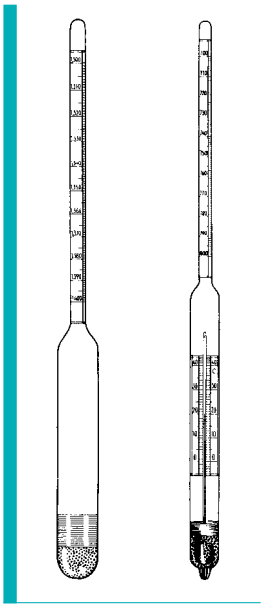
Density hydrometers. DIN 12791. For officially testing. Series M50. Without thermometer. Surface-tension-categories: 0.600-1.000 (15-35 dyn/cm = mN/m) low = L = yellow COLOR-Code, 1.000-2.000 (75 dyn/cm = mN/m) high = H = blue COLOR-Code. TP 20 °C. With lead ballast.

DIN-No.	Range g/cm³	
M50-060	0.600-0.650	8.556.001
M50-065	0.650-0.700	8.556.002
M50-070	0.700-0.750	8.556.003
M50-075	0.750-0.800	8.556.004
M50-080	0.800-0.850	8.556.005
M50-085	0.850-0.900	8.556.006
M50-090	0.900-0.950	8.556.007
M50-095	0.950-1.000	8.556.008
M50-100	1.000-1.050	8.556.009
M50-105	1.050-1.100	8.556.010
M50-110	1.100-1.150	8.556.011
M50-115	1.150-1.200	8.556.012
M50-120	1.200-1.250	8.556.013
M50-125	1.250-1.300	8.556.014
M50-130	1.300-1.350	8.556.015
M50-135	1.350-1.400	8.556.016
M50-140	1.400-1.450	8.556.017
M50-145	1.450-1.500	8.556.018
M50-150	1.500-1.550	8.556.019
M50-155	1.550-1.600	8.556.020
M50-160	1.600-1.650	8.556.021
M50-165	1.650-1.700	8.556.022
M50-170	1.700-1.750	8.556.023
M50-175	1.750-1.800	8.556.024
M50-180	1.800-1.850	8.556.025
M50-185	1.850-1.900	8.556.026
M50-190	1.900-1.950	8.556.027
M50-195	1.950-2.000	8.556.028
Set of 14 hydrometers from 0.600-1.300		8.556.100
Set of 14 hydrometers from 1.300-2.000		8.556.200

Density hydrometers. DIN 12791. For officially testing. Series M100. Surface-tension-categories: 0.600-1.000 (15-35 dyn/cm = mN/m) low = L = yellow COLOR-Code, 1.000-2.000 (75 dyn/cm = mN/m) high = H = blue COLOR-Code. TP 20 °C. With lead ballast.
Division 0.002 g/cm³, division 90 mm, length 240 mm.
Type M100 without thermometer.
Type M100Th with thermometer.

DIN-No.	Range g/cm³	Type M100	Type M100Th
M100-060	0.600-0.700	8.557.001	8.558.001
M100-070	0.700-0.800	8.557.002	8.558.002
M100-080	0.800-0.900	8.557.003	8.558.003
M100-090	0.900-1.000	8.557.004	8.558.004
M100-100	1.000-1.100	8.557.005	8.558.005
M100-110	1.100-1.200	8.557.006	8.558.006
M100-120	1.200-1.300	8.557.007	8.558.007
M100-130	1.300-1.400	8.557.008	8.558.008
M100-140	1.400-1.500	8.557.009	8.558.009
M100-150	1.500-1.600	8.557.010	8.558.010
M100-160	1.600-1.700	8.557.011	8.558.011
M100-170	1.700-1.800	8.557.012	8.558.012
M100-180	1.800-1.900	8.557.013	8.558.013
M100-190	1.900-2.000	8.557.014	8.558.014
Complete set of 14 hydrometers packed in valvet-lined case		8.857.200	8.558.200





Density hydrometers. 100 °C range. For light and heavy liquids, TP. 20 °C, commercial quality, with lead ballast. (Densimeter). DIN 12791. Division 0.001 g/cm³.
1. Without thermometer. Length 250 mm.
2. With thermometer. Length 300 mm.

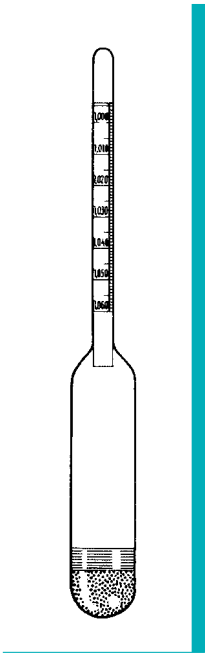
Range g/cm³	Without thermometer	With thermometer
0.600-0.700	8.559.001	8.560.001
0.700-0.800	8.559.002	8.560.002
0.800-0.900	8.559.003	8.560.003
0.900-1.000	8.559.004	8.560.004
1.000-1.100	8.559.005	8.560.005
1.100-1.200	8.559.006	8.560.006
1.200-1.300	8.559.007	8.560.007
1.300-1.400	8.559.008	8.560.008
1.400-1.500	8.559.009	8.560.009
1.500-1.600	8.559.010	8.560.010
1.600-1.700	8.559.011	8.560.011
1.700-1.800	8.559.012	8.560.012
1.800-1.900	8.559.013	8.560.013
1.900-2.000	8.559.014	8.560.014
Complete set of 14 hydrometers	8.559.100	–
Complete set of 14 hydrometers	8.559.200	8.560.200
Suchspindel, 0.700-2.000, 160 mm	8.559.300	–

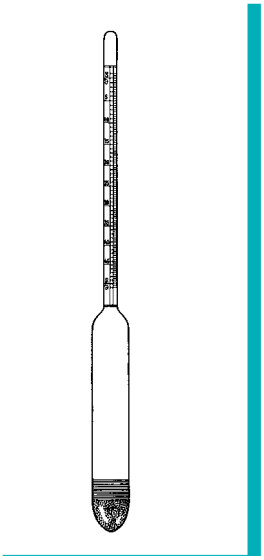
Hydrometer cylinder (PP) 500 ml, with overflow vessel with octagonal base and spout I.D. x Heigh 50x350 mm.

7.005.001

Density hydrometers. 60 °C range. For small quantities of liquids, for light and heavy liquids specific gravity. TP. 20 °C, commercial quality, with lead ballast. Desimeter. Division 0.001 g/cm³, division 50 mm, length 160 mm.

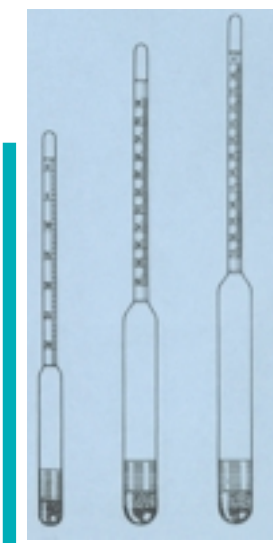
Range g/cm³	
0.600-0.660	8.561.001
0.660-0.710	8.561.002
0.710-0.760	8.561.003
0.760-0.820	8.561.004
0.820-0.880	8.561.005
0.880-0.940	8.561.006
0.940-1.000	8.561.007
1.000-1.060	8.561.008
1.060-1.120	8.561.009
1.120-1.180	8.561.010
1.180-1.240	8.561.011
1.240-1.300	8.561.012
1.300-1.360	8.561.013
1.360-1.420	8.561.014
1.420-1.480	8.561.015
1.480-1.540	8.561.016
1.540-1.600	8.561.017
1.600-1.660	8.561.018
1.660-1.720	8.561.019
1.720-1.780	8.561.020
1.780-1.840	8.561.021
1.840-1.900	8.561.022
1.900-1.960	8.561.023
1.960-2.020	8.561.024
Thermo-range-finder	8.561.100
Complete set of 24 Hydrometer, with thermo-range-finder, packed in valvet-lined case.	8.561.200





Density hydrometers. Various ranges, for light and heavy liquids specific gravity. TP. 20 °C, commercial quality, with lead ballast.

Range g/cm³	Division g/cm³	Nominal range mm	Length mm	
0.700-1.000	0.005	110	270	8.564.001
1.000-1.300	0.005	160	300	8.564.002
1.000-1.500	0.005	140	300	8.564.003
1.500-2.000	0.005	140	300	8.564.004
1.000-2.000	0.010	160	300	8.564.005
0.700-2.000	0.01/0.02	150	400	8.564.006



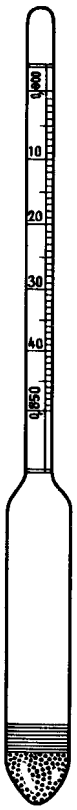
Sugar hydrometers. Saccharimeter acc. to Brix (1 Brix = 1% sugar solution).

1. Without thermometer 200-250 mm long
2. With thermometer 300 mm long.

Range Brix	1.	2.
0-10	8.565.101	8.565.111
0-30	8.565.102	–
10-20	–	8.565.113
20-30	–	8.565.114
30-40	–	8.565.115
30-60	8.565.106	–
40-50	–	8.565.117
50-60	–	8.565.118
60-70	–	8.565.119
60-90	8.565.110	–
70-80	–	8.565.121
80-90	–	8.565.122

Specific gravity hydrometers, acc. to ASTM E 100. For officially testing, for petroleum and other liquids with similar surface-tension, TP. 60/60 °F, with lead ballast.

ASTM No.	Scale sp. gr.	Division sp. gr.	Nominal scale mm	Length mm	
82H	0.650-0.700	0.0005	135	300	8.570.001
83H	0.700-0.750	0.0005	135	300	8.570.002
84H	0.750-0.800	0.0005	135	300	8.570.003
85H	0.800-0.850	0.0005	135	300	8.570.004
86H	0.850-0.900	0.0005	135	300	8.570.005
87H	0.900-0.950	0.0005	135	300	8.570.006
88H	0.950-1.000	0.0005	135	300	8.570.007
89H	1.000-1.050	0.0005	135	300	8.570.008
90H	1.050-1.100	0.0005	135	300	8.570.009
102H	0.650-0.700	0.0010	80	260	8.570.010
103H	0.700-0.750	0.0010	80	260	8.570.011
104H	0.750-0.800	0.0010	80	260	8.570.012
105H	0.800-0.850	0.0010	80	260	8.570.013
106H	0.850-0.900	0.0010	80	260	8.570.014
107H	0.900-0.950	0.0010	80	260	8.570.015
108H	0.950-1.000	0.0010	80	260	8.570.016
111H	1.000-1.050	0.0005	135	300	8.570.017
112H	1.050-1.100	0.0005	135	300	8.570.018
113H	1.100-1.150	0.0005	135	300	8.570.019
114H	1.150-1.200	0.0005	135	300	8.570.020
115H	1.200-1.250	0.0005	135	300	8.570.021
116H	1.250-1.300	0.0005	135	300	8.570.022
117H	1.300-1.350	0.0005	135	300	8.570.023
118H	1.350-1.400	0.0005	135	300	8.570.024
119H	1.400-1.450	0.0005	135	300	8.570.025
120H	1.450-1.500	0.0005	135	300	8.570.026
125H	1.000-1.050	0.0010	80	260	8.570.027
126H	1.050-1.100	0.0010	80	260	8.570.028
127H	1.100-1.150	0.0010	80	260	8.570.029
128H	1.150-1.200	0.0010	80	260	8.570.030
129H	1.200-1.250	0.0010	80	260	8.570.031
130H	1.250-1.300	0.0010	80	260	8.570.032
131H	1.300-1.350	0.0010	80	260	8.570.033
132H	1.350-1.400	0.0010	80	260	8.570.034
133H	1.400-1.450	0.0010	80	260	8.570.035
134H	1.450-1.500	0.0010	80	260	8.570.036
135H	1.500-1.550	0.0010	80	260	8.570.037
136H	1.550-1.600	0.0010	80	260	8.570.038
137H	1.600-1.650	0.0010	80	260	8.570.039
138H	1.650-1.700	0.0010	80	260	8.570.040
139H	1.700-1.750	0.0010	80	260	8.570.041
140H	1.750-1.800	0.0010	80	260	8.570.042
141H	1.800-1.850	0.0010	80	260	8.570.043



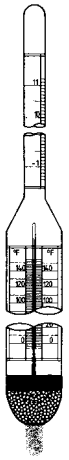
API gravity hydrometers, acc. to ASTM E 100. For officially testing. TP. 60 °F (60 / 60 °F), with lead ballast.

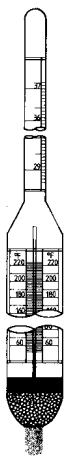
ASTM No.	Scale sp. gr.	Division sp. gr.	Nominal scale mm	Length mm	
1H	-1 to +11	0.1	135	330	8.571.001
2H	9 to 21	0.1	135	330	8.571.002
3H	19 to 31	0.1	135	330	8.571.003
4H	29 to 41	0.1	135	330	8.571.004
5H	39 to 51	0.1	135	330	8.571.005
6H	49 to 61	0.1	135	330	8.571.006
7H	59 to 71	0.1	135	330	8.571.007
8H	69 to 81	0.1	135	330	8.571.008
9H	79 to 91	0.1	135	330	8.571.009
10H	89 to 101	0.1	135	330	8.571.010

Hydrometers. Range 12° A. P. I. in 0.1° 60 °F, with thermometer +30 … +220 °F in 2 °F, total length 380 mm.

Hydrometers. Range 12° A. P. I. in 0.1° 60 °F, with thermometer, total length 380 mm.

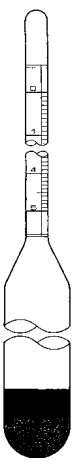
A. P. I-No.	Scale	Thermometer	
with thermometer			
71H-62	-1+11	+30 +220	8.583.001
72H-62	+9 +21	+30 +220	8.583.002
73H-62	+19 +31	+30 +220	8.583.003
74H-62	+29 +41	+30 +220	8.583.004
Case for sets of 4			8.583.005
with thermometer			
51HL-62	-1 +11	0 +150	8.583.101
52HL-62	+9 +21	0 +150	8.583.102
53HL-62	+19 +31	0 +150	8.583.103
54HL-62	+29 +41	0 +150	5.583.104
55HL-62	+39 +51	0 +150	8.583.105
56HL-62	+49 +61	0 +150	8.583.106
57HL-62	+59 +71	0 +150	8.583.107
58HL-62	+69 +81	0 +150	8.583.108
59HL-62	+79 +91	0 +150	8.583.109
60HL-62	+89 +101	0 +150	8.583.110
51HM-62	-1 +11	+30 +180	8.583.111
52HM-62	+9 +21	+30 +180	8.583.112
53HM-62	+19 +31	+30 +180	8.583.113
54HM-62	+29 +41	+30 +180	8.583.114
55HM-62	+39 +51	+30 +180	8.583.115
56HM-62	+49 +61	+30 +180	8.583.116
57HM-62	+59 +71	+30 +180	8.583.117
58HM-62	+69 +81	+30 +180	8.583.118
59HM-62	+79 +91	+30 +180	8.583.119
60HM-62	+89 +101	+30 +180	8.583.120
51HH-62	-1 +11	+60 +220	8.583.121
52HH-62	+9 +21	+60 +220	8.583.122
53HH-62	+19 +31	+60 +220	8.583.123
54HH-62	+29 +41	+60 +220	8.583.124
55HH-62	+39 +51	+60 +220	8.583.125
56HH-62	+49 +61	+60 +220	8.583.126
57HH-62	+59 +71	+60 +220	8.583.127
58HH-62	+69 +81	+60 +220	8.583.128
59HH-62	+79 +91	+60 +220	8.583.129
60HH-62	+89 +101	+60 +220	8.583.130
Case of sets of 10			8.583.131





Hydrometers. Range 12° A. P. I. in 0.1° 60 °F, without thermometer, total length 330 mm.

A. P. I-No.	Scale	
1H-62	-1 +11	8.584.001
2H-62	+9 +21	8.584.002
3H-62	+19 +31	8.584.003
4H-62	+29 +41	8.584.004
5H-62	+39 +51	8.584.005
6H-62	+49 +61	8.584.006
7H-62	+59 +71	8.584.007
8H-62	+69 +81	8.584.008
9H-62	+79 +91	8.584.009
10H-62	+89 +101	8.584.010
Case for sets of 10		8.584.012



Hydrometers acc. to Beaumé. Without thermometer, shot-weighted, 15 °C.

Range	Divisions	Length	
Bé	Bé	mm	
0-1	0.1	260	8.558.201
0-2	0.1	260	8.558.202
0-3	0.1	260	8.558.203
0-5	0.1	260	8.558.205
0-10	1.0	230	8.558.210
0-15	1.0	230	8.558.215
0-20	1.0	230	8.558.220
0-30	1.0	250	8.558.230
0-40	1.0	250	8.558.240
0-50	1.0	280	8.558.250
0-70	1.0	280	8.558.270

Alcoholmeters, acc. to Richter and Tralles. % by weight and by volume. TP. 20 °C, packed in a plastic tube, shot-weighted, without thermometer. Length 260 mm. Divisions 0.1 %.

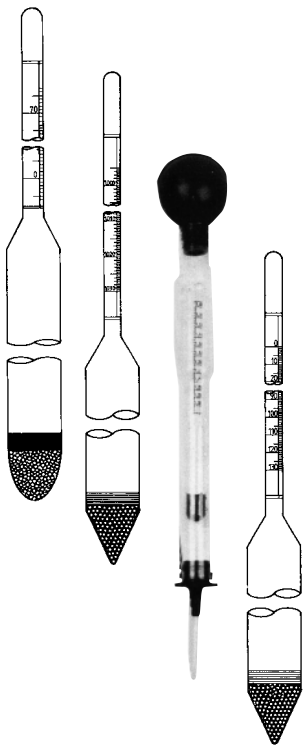
Range % vol.	
0-5	8.558.101
5-10	8.558.102
10-15	8.558.103
15-20	8.558.104
20-25	8.558.105
25-30	8.558.106
30-35	8.558.107
35-40	8.558.108
40-45	8.558.109
45-50	8.558.110
50-55	8.558.111
55-60	8.558.112
60-65	8.558.113
65-70	8.558.114
70-75	8.558.115
75-80	8.558.116
80-85	8.558.117
85-90	8.558.118
90-95	8.558.119
95-100	8.558.120
98-103	8.558.121

Density-thermo-hydrometers for petroleum. For officially testing, with thermometer -10 to +40 °C : 1 °C, TP. 15 °C. Conformity certified. Divisions 0.001 g/cm³. Nominal range 155 mm. Length 425 mm.

Range g/cm³	
0.610-0.700	8.568.001
0.680-0.770	8.568.002
0.750-0.840	8.568.003
0.820-0.910	8.568.004

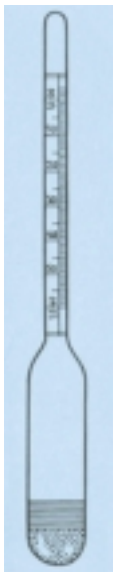
Various hydrometers.

Range	Divisions mm	Nominal scale mm	Length mm	
For boiler feed-water acc. to Dr. Ing. Ammer, TP. 20 °C, with lead ballast				
1-0-1	0.1	45	280	8.572.001
1-0-2	0.1	65	280	8.572.002
0.5-0-0.5	0.1	80	400	8.572.003
Oechsle, TP. 20 °C, with lead ballast, without thermometer				
0-120 % Vol.	1/1	120	270	8.575.000
For $Ca(OH)_2$, without thermometer, 20 °C				
0-340 g/l	–	–	500	8.577.101
For salt acc. to Bischoff, without thermometer				
0-27	–	–	240	8.577.201
% hydrometer, without thermometer				
KOH	–	–	270	8.577.301
0-35 % NH_3	–	–	250	8.577.302
0-27 % NaOH	–	–	250	8.577.303
0-10 % NaOH	–	–	250	8.577.304
0-47 % HNO_3	–	–	250	8.577.305
0-39 % HCL	–	–	250	8.577.306
0-45 % H_2SO_4	–	–	250	8.577.307
0-30 % H_2O_2	–	–	250	8.577.308
For testing accumulators 1.10-1.30, with glass tubing and rubber ball				
1.10-1.30	–	–	–	8.578.100
Spare hydrometer	–	–	–	8.578.200
For soil acc, to Casagrande. DIN 18123. Without thermometer, 20 °C				
0.995-1.030	0.0005	–	350	8.580.100



Hydrometers for determining the s.g. of urine samples acc. to Vogel, 1.000-1.060 g/cm³ , 20 °C
1. Without thermometer
2. With thermometer

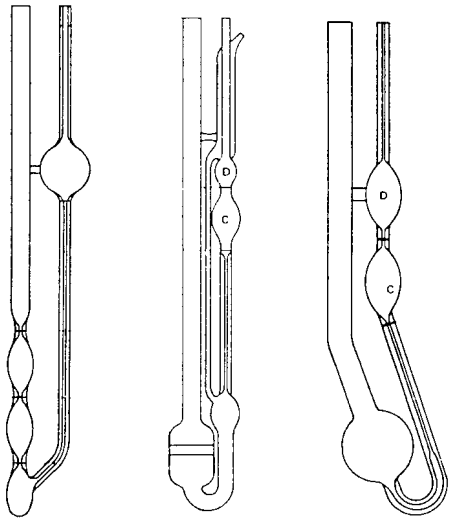
Scale divisions g/cm³	1.	2.
0.001	8.580.900	8.580.910
0.002	8.580.902	8.580.912

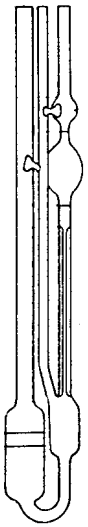


Viscometers. Adjusted at 40 °C. ASTM D445 and 446, ISO 3104 and 3105. Calibrated.
1. Acc. to Cannon Fenske, not for opaque liquids.
2. Acc. to Cannon Fenske, BS 188, IP 71, for opaque liquids.
3. Acc. to Cannon Ubbelohde A and Dil. B.

Capillary Nr.	Ramge cSt mm^2/s (nominal)	Constant K (nominal)	1.	2.	3.
25	0.4-2	0.002	8.587.001 c	8.589.101 c	8.588.001 c
50	0.8-4	0.004	8.587.002 c	8.589.102 c	8.588.002 c
75	1.6-8	0.008	8.587.003 c	8.589.103 c	8.588.003 c
100	3-15	0.015	8.587.004 c	8.589.104 c	8.588.004 c
150	7-35	0.035	8.587.005 c	8.589.105 c	8.588.005 c
200	20-100	0.100	8.587.006 c	8.589.106 c	8.588.006 c
300	50-200	0.250	8.587.007 c	8.589.107 c	8.588.007 c
350	100-500	0.500	8.587.008 c	8.589.108 c	8.588.008 c
400	240-1200	1.200	8.587.009 c	8.589.109 c	8.588.009 c
450	500-2500	2.500	8.587.010 c	8.589.110 c	8.588.010 c
500	1600-8000	8.000	8.587.011 c	8.589.111 c	8.588.011 c
600	4000-20000	20.000	8.587.012 c	8.589.112 c	8.588.012 c
650	9000-45000	45.000	–	–	8.588.013 c
700	20000-100000	100.000	–	–	8.588.014 c

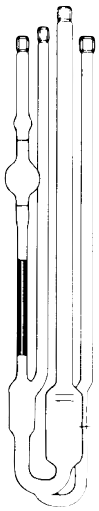
For non-calibrated versions please place the order no. without „c".





Viscometers, ASTM D445 and D446, ISO 3104, 3105. Length approx. 283 mm. For use with transparent liquids.

Capillary No.	Range cSt mm^2/s (nominal)	Constant K (nominal)	non-calibrated	calibrated
0	0.3-1	0.001	8.589.001	8.589.101
0C	0.6-3	0.003	8.589.002	8.589.102
0B	1-5	0.005	8.589.003	8.589.103
1	2-10	0.010	8.589.004	8.589.104
1C	6-30	0.030	8.589.005	8.589.105
1B	10-50	0.050	8.589.006	8.589.106
2	20-100	0.100	8.589.007	8.589.107
2C	60-300	0.300	8.589.008	8.589.108
2B	100-500	0.500	8.589.009	8.589.109
3	200-1000	1.000	8.589.010	8.859.110
3C	600-3000	3.000	8.589.011	8.859.111
3B	1000-5000	5.000	8.589.012	8.589.112
4	2000-10000	10.000	8.589.013	8.589.113
4C	6000-30000	30.000	8.589.014	8.589.114
4B	10000-50000	50.000	8.589.015	8.589.115
5	20000-100000	100.000	8.589.016	8.589.116

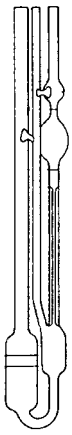


Ubbelohde viscometers, DIN type with imprinted constant acc. to ISO/DIN 3105, DIN 51502, BS 188, KFT 60-100.

Capillary No.	I.D. mm	Constant K	Range mm^2/s	Non-calibrated	Calibrated
0	0.36	0.001	0.2-1	8.589.301	8.589.401
0c	0.47	0.003	0-3	8.589.302	8.589.402
0a	0.53	0.005	0.8-5	8.589.303	8.589.403
I	0.63	0.01	1.2-10	8.589.304	8.589.404
Ic	0.84	0.03	3-30	8.589.305	8.589.405
Ia	0.95	0.05	5-50	8.589.306	8.589.406
II	1.13	0.1	10-100	8.589.307	8.589.407
IIc	1.50	0.3	30-300	8.589.308	8.589.408
IIa	1.69	0.5	50-500	8.589.309	8.589.409
III	2.01	1	100-1000	8.589.310	8.589.410
IIIc	2.65	3	300-3000	8.589.311	8.589.411
IIIa	3.00	5	500-5000	8.589.312	8.589.412
IV	3.60	10	1000-10000	8.589.313	8.589.413
Accessories					
Fixing stand, VA-steel, for all Ubbelohde viscometers				8.589.550	

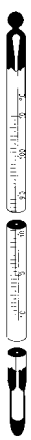
Viscometers, Ostwald pattern. For the determination of the viscosity of liquids. Ring marks and inscriptions in blue color.

Flow time s	Nominal constant	
45	0.022	8.589.201
85	0.011	8.589.202
125	0.008	8.589.203



Further types are available upon request:
Cannon Ubbelohde semi micro-viscometer.
Cross arm-viscometer.
Reverse-flow viscometer.
Semi micro viscometer.
Pinkevitek Viscometer.
Fitzsimons Viscometer (1+2 cap.).
Atlantic-Viscometer.
Zeitfuchs-Viscometer.
S. I. L.-viscometer.
U-Tube and Mini-U-Tube-Viscosimeter.
Special productions againgst your specs.

Stirring thermometers, solid stem, bulb reinforced, by solid glass piece, yellow enamelled, with resistant DIFFICO-graduation. Divisions 1 °C. O.D. 6-7 mm.

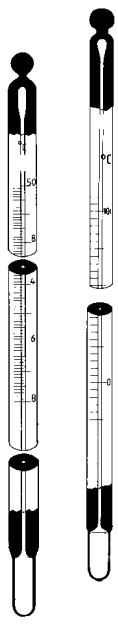


Scale-range °C	Length mm	Hg-filling	Org. liquids
-35 +50	260	1.270.001	1.270.101
-10 +50	200	1.270.002	1.270.102
-10 +110	260	1.270.003	1.270.103
-10 +150	260	1.270.004	1.270.104
-10 +200	300	1.270.005	1.270.105
-10 +250	300	1.270.006	1.270.106
-10 +300	340	1.270.007	–
-10 +360	340	1.270.008	–
-10 +420	340	1.270.009	–

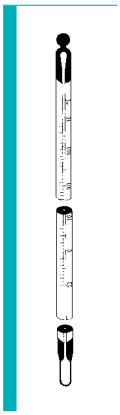
Standard thermometer, enclosed scale, opal glass scale, with resistant DIFFICO-graduation. Divisons 1 °C. O.D. 7-8 mm.

Scale-range °C	Length mm	Mercury filling	Org. liquids	Blue reflecting mercury filling
-35 +50	260	1.271.001	1.271.101	1.272.001
-10 +50	200	1.271.002	1.271.102	1.272.002
-10 +110	260	1.271.003	1.271.103	1.272.003
-10 +150	260	1.271.004	1.271.104	1.272.004
-10 +200	300	1.271.005	1.271.105	1.272.005
-10 +250	300	1.271.006	1.271.106	1.272.006
-10 +300	340	1.271.007	–	1.272.007
-10 +360	340	1.271.008	–	1.272.008
-10 +420	340	1.271.009	–	1.272.009

Precision laboratory thermometer, yellow enamelled, with resistant DIFFICO-graduation, for offically testing. O.D. 6-7 mm.

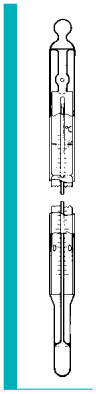


Scale-range °C	Division °C	Length mm	Mercury filling	Org. liquids
For low temperatures				
-100 +30	1	300	–	1.274.102
-50 +50	1	280	–	1.274.104
-38 +50	1	280	1.274.005	1.274.105
-100 +30	0.5	400	–	1.274.107
-38 +50	0.5	300	1.274.010	1.274.110
-50 +30	0.5	300	–	1.274.111
-50 +50	0.1	580	–	–
-58 +30	0.1	550	1.274.019	–
-38 +50	0.1	550	1.274.020	–
DIN 12778				
-100 +30	1	305	–	1.276.101
-50 +50	1	305	–	1.276.102
-10 +100	1	305	1.276.003	1.276.103
-10 +150	1	305	1.276.004	1.276.104
-10 +250	1	350	1.276.005	1.276.105
-10 +360	1	380	1.276.006	–
-10 +624	2	450	1.276.008	–



Universal laboratory thermometers (control thermometer), yellow enamelled, with resistant DIFFICO-graduation. Divisions 1 °C. O.D. 6-7 mm.

Scale-range °C	Length mm	Mercury-filling	Org. liquids
-35 +50	260	1.278.001	1.278.101
-10 +50	200	1.278.002	1.278.102
-10 +110	260	1.278.003	1.278.103
-10 +150	260	1.278.004	1.278.104
-10 +200	300	1.278.005	1.278.105
-10 +250	300	1.278.006	1.278.106
-10 +300	340	1.278.007	–
-10 +420	340	1.278.009	–

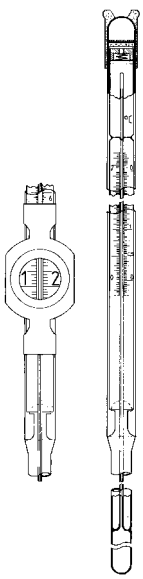


Precision calorimeter thermometers (enclosed scale), blue reflecting, opal glass scale, for officially testing, acc. to DIN 12778. Division 1 °C. O.D. 8-10 mm.

Scale-range °C	Length mm	Mercury filling	Org. liquids
-200 +30	350	1.280.001	–
-100 +30	305	–	1.280.102
-50 +50	305	–	1.280.103
0 +100	305	1.280.004	–
0 +150	305	1.280.005	–
0 +250	350	1.280.006	–
0 +360	380	1.280.007	–

Precision low temperature laboratory thermometers (enclosed scale), blue reflecting, with opal glass scale, for officially testing. O.D. 8-10 mm.

Scale-range °C	Division °C	Length mm	Mercury-filling	Org. liquids
-200 +30	1	300	1.282.001	–
-100 +30	1	300	–	1.282.104
-50 +50	1	280	–	1.282.106
-38 +50	1	280	1.282.007	–
-200 +30	0.5	400	1.282.011	–
-100 +30	0.5	400	–	1.282.112
-50 +50	0.5	300	–	1.282.114
-38 +50	0.5	300	1.282.015	–
-50 +50	0.1	580	–	1.282.123
-58 +30	0.1	550	1.282.024	–
-38 +50	0.1	550	1.282.025	–



Precision calorimeter thermometers, acc. to Berthelot-Mahler (enclosed scale), opal glass scale, for officially testing, mercury filling. Divisions 0.01 °C. O.D. 14-15 mm. Length 780 mm.

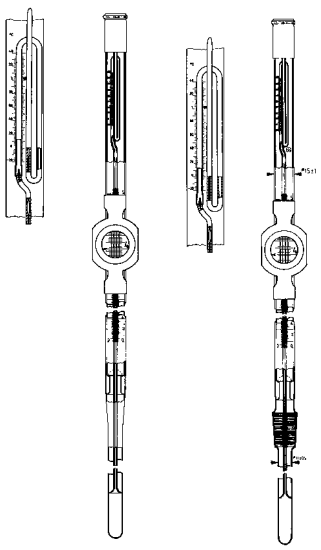
Scale-range °C	
-10 +0	1.290.001
-5 +5	1.290.002
-0 +10	1.290.003
+10 +20	1.290.004
+15 +25	1.290.005
+20 +30	1.290.006
+25 +35	1.290.007
+30 +40	1.290.008
+35 +45	1.290.009
+40 +50	1.290.010
+45 +55	1.290.011
+50 +60	1.290.012
+55 +65	1.290.013
+60 +70	1.290.014
+65 +75	1.290.015
+70 +80	1.290.016
+80 +90	1.290.017
+90 +100	1.290.018
+95 +105	1.290.019
+100 +110	1.290.020

Precision calorimeter thermometers, ISO, yellow enamelled, with resistant DIFFICO-graduation, for officially testing. Divisions 0.01 °C. O.D. 9-10 mm. Length 760 mm.

Scale-range °C	
+9 +15	1.292.001
+12 +18	1.292.002
+15 +21	1.292.003
+18 +24	1.292.004
+21 +27	1.292.005
+24 +30	1.292.006
+27 +33	1.292.007
+30 +36	1.292.008
+33 +39	1.292.009
+36 +42	1.292.010
+39 +45	1.292.011

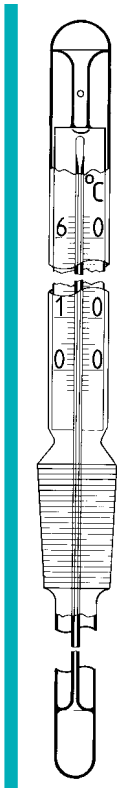
Precision adjusting thermometers acc. to Beckmann, without ST, with dropping traps and auxilliary scale -20 to +160 °C: 1 °C, for officially testing, mercury filling. O.D. 14-16 mm.

Scale-range °C	Division °C	Built-in-length mm	
For boiling-point			
0 +6	0.01	200	1.340.000
0 -6	0.01	170	1.355.000
For ice point methode			
0 -6	0.01	200	1.350.000
0 +6	0.01	170	1.345.000



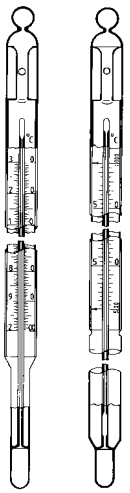
Thermometers for flasks and still heads, with cone ST 14/23, blue reflection, not enamelled, prismatic, acc. to DIN 12784 (enclosed scale), mercury filling. O.D. 11 mm.

Scale-range °C	Built-in length mm	Division 1 °C	Division 0.5 °C
-38 +50	68	1.300.001	–
-38 +50	75	1.300.002	–
-38 +50	95	1.300.003	–
-38 +50	125	1.300.004	–
-38 +50	150	1.300.005	–
-38 +50	68	–	1.302.001
-38 +50	75	–	1.302.002
-38 +50	95	–	1.302.003
-38 +50	125	–	1.302.004
-38 +50	150	–	1.302.005
-10 +100	250	–	1.310.008
-10 +100	300	–	1.310.009
-10 +150	68	1.312.001	–
-10 +150	75	1.312.002	–
-10 +150	95	1.312.003	–
-10 +150	125	1.312.004	–
-10 +150	150	1.312.005	–
-10 +150	175	1.312.006	–
-10 +150	200	1.312.007	–
-10 +150	250	1.312.008	–
-10 +150	300	1.312.009	–
-10 +150	68	–	1.314.001
-10 +150	75	–	1.314.002
-10 +150	95	–	1.314.003
-10 +150	125	–	1.314.004
-10 +150	150	–	1.314.005
-10 +250	68	1.316.001	–
-10 +250	75	1.316.002	–
-10 +250	95	1.316.003	–
-10 +250	125	1.316.004	–
-10 +250	150	1.316.005	–
-10 +250	175	1.316.006	–
-10 +250	200	1.316.007	–
-10 +250	250	1.316.008	–
-10 +250	300	1.316.009	–
-10 +250	68	–	1.318.001
-10 +250	75	–	1.318.002
-10 +250	95	–	1.318.003
-10 +250	125	–	1.318.004
-10 +250	150	–	1.318.005
-10 +360	68	1.320.001	–
-10 +360	75	1.320.002	–
-10 +360	95	1.320.003	–
-10 +360	125	1.320.004	–
-10 +360	150	1.320.005	–
-10 +360	175	1.320.006	–
-10 +360	200	1.320.007	–
-10 +360	250	1.320.008	–



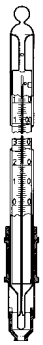
Precision universal set thermomters, (enclosed scale), not enamelled, opal glass scale, for officially testing. O.D. 9 mm. Length 400 mm.

Scale-range °C	Division °C	
-200 +30	0.5	1.370.001
-100 +30	0.5	1.370.002
-58 +10	0.1	1.370.003
0 +51	0.1	1.370.004
+47 +101	0.1	1.370.005
+97 +151	0.1	1.370.006
+147 +201	0.1	1.370.007
+197 +251	0.1	1.370.008
+247 +301	0.1	1.370.009
+297 +360	0.1	1.370.010
+350 +401	0.1	1.370.011
+395 +610	0.5	1.370.012
+300 +700	2	1.370.013
+500 +1000	5	1.370.014
Complete set in a case		
-200 +1000		1.370.015
-200 +401		1.370.016
0 +610		1.370.017
Complete set in a case, officially tested and stamped		
-200 +1000		1.370.020
-200 +401		1.370.021
0 +610		1.370.022



Prescision set thermometers, acc. to DIN 12777 (enclosed scale), not enamelled, opal glass scale, for officially testing. Mercury filling. O.D. 6 mm. Length 175 mm.

Scale-range °C	Division °C	
0 +50	0.2	1.365.001
+50 +100	0.2	1.365.002
+100 +150	0.2	1.365.003
+150 +200	0.2	1.365.004
+200 +250	0.5	1.365.005
+250 +300	0.5	1.365.006
+300 +360	1	1.365.007
Complete set in case		1.365.008
Complete set in case, officially tested and stamped		1.365.010



Dripping-point thermometers, acc. to DIN 12785 (enclosed scale), not enamelled, opal glass scale, mercury filling. Division 1 °C. O.D. 10 mm. Length 235 mm.

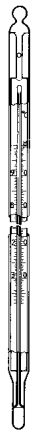
Scale-range °C	For officially testing	Officially tested and stamped
0 +110	1.366.001	–
+50 +160	1.366.002	–
+100 +230	1.366.003	
0 +110	–	1.366.005
+50 +160	–	1.366.006
+100 +230	–	1.366.007

Setting-point thermometers, DIN 12785, (enclosed scale), not enamelled, opal glass scale, adjusted for a emmersion of 180 mm, for officially testing. Division 1 °C. O.D. 10 mm. Length 360 mm.

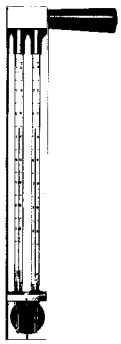
Scale-range °C	Filling	
-70 +50	Toluol, red	1.367.001
-58 +50	Hg	1.367.002
-38 +50	Hg	1.367.003

Congealing-point thermometers, acc. to DIN 12785, solid steam, yellow enamelled, with resistant DIFFICO-graduation, mercury filling. Division 0.5 mm. O.D. 6 mm. Length 300 mm.

Scale-range °C	For officially testing	Officially tested and stamped
0 +100	1.368.001	–
+50 +150	1.368.002	–
0 +100	–	1.368.004
+50 +150	–	1.368.005



Prescision swinging psychrometer, only for meteorological purposes, for officially testing, with handle and 2 thermometers acc. to DIN 58661.



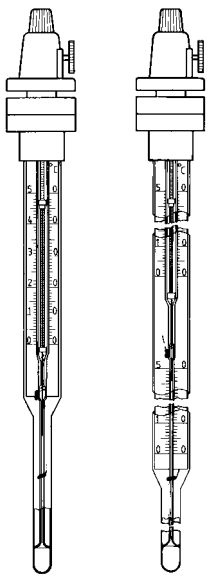
Type	
Complete	1.372.001
Complete, with leather case and evaluation sheet	1.372.002

Melting-point thermomters, for melting-point apparatuses acc. to Thiele or Thomas, for officially testing. O.D. 6-7 mm. Length 250 mm.

Scale-range °C	Division °C	
-38 +100	0.5	1.375.001
+100 +250	0.5	1.375.002
+200 +360	0.5	1.375.003
0 +360	1	1.375.004

Contact thermometers, adjustable, with turning magnet, adjusting and reading scales, yellow enamelled, with plug cap. On request with cable, plugsize and length of cable must be mentioned. O.D. 18 mm.

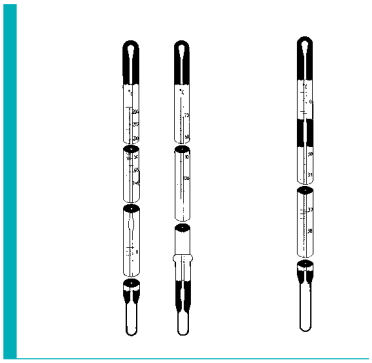
Scale-range °C	Division °C	Built-in length mm	Without ST	With Cone ST 19/26
-30 +50	1	50	1.378.001	1.380.001
-30 +50	1	75	1.378.002	1.380.002
-30 +50	1	100	1.378.003	1.380.003
-30 +50	1	200	1.378.004	1.380.004
-30 +50	1	300	1.378.005	1.380.005
-10 +100	1	50	1.378.013	1.380.011
-10 +100	1	75	1.378.014	1.380.012
-10 +100	1	100	1.378.015	1.380.013
-10 +100	1	200	1.378.016	1.380.014
-10 +100	1	300	1.378.017	1.380.015
-10 +250	2	50	1.378.019	1.380.016
-10 +250	2	75	1.378.020	1.380.017
-10 +250	2	100	1.378.021	1.380.018
-10 +250	2	200	1.378.022	1.380.019
-10 +250	2	300	1.378.023	1.380.020
-10 +360	2	50	1.378.025	1.380.021
-10 +360	2	75	1.378.026	1.380.022
-10 +360	2	100	1.378.027	1.380.023
-10 +360	2	200	1.378.028	1.380.024
-10 +360	2	300	1.378.029	1.380.025



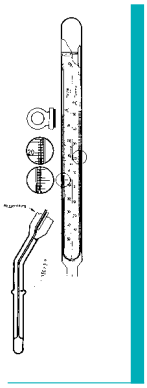
ASTM-thermometer, (solid stem) with Celsius-scale range, yellow enamelled. With resistant DIFFICO graduation.

ASTM No.	ASTM Type	Scale °C	Division °C		ASTM No.	ASTM Type	Scale °C	Division °C	
1C	Partial Immersion	-20 +150	1	1.390.001	64C	Precision	+25 +55	0.1	1.390.049
2CB	Partial Immersion	-5 +300	1	1.390.002	65C	Precision	+50 +80	0.1	1.390.050
3C	Partial Immersion	-5 +400	1	1.390.003	66C	Precision	+75 +105	0.1	1.390.051
5C	Cloud and Pour	-38 +50	1	1.390.004	67C	Precision	+95 +155	0.2	1.390.052
6C	Low Cloud and Pour	-80 +20	1	1.390.005	68C	Precision	+145 +205	0.2	1.390.053
7C	Low Distillation	-2 +300	1	1.390.006	69C	Precision	+195 +305	0.5	1.390.054
8C	High Distillation	-2 +400	1	1.390.007	70C	Precision	+295 +405	0.5	1.390.055
9C	Pensky-Martens Low Range	-5 +110	0.5	1.390.008	71C	Oil in Wax	-37 +21	0.5	1.390.056
10C	Pensky-Martens High Range	+90 +370	2	1.390.009	73C	Kinematic Viscosity	-41,4 +38,6	0.05	1.360.057
11C	Open Flash	-6 +400	2	1.390.010	82C	Fuel Rating, Engine	-15 +105	1	1.360.058
12C	Gravity	-20 +102	0.2	1.390.011	83C	Fuel Rating, Air	+15 +70	1	1.360.059
13C	Loss on Heat	+155 +170	0.5	1.390.012	84C	Fuel Rating, Orifice Tank	+25 +80	1	1.390.060
14C	Paraffin Wax, Melting Point	+38 +82	0.1	1.390.013	85C	Fuel Rating,Surge	+40 +150	1	1.390.061
15C	Low Softening Point	-2 +80	0.2	1.390.014	86C	Fuel Rating, Mix	+95 +175	1	1.390.062
16C	High Softening Point	+30 +200	0.5	1.390.015	87C	Fuel Rating, Coolant	+150 +205	1	1.390.063
17C	Saybolt Viscosity	+19 +27	0.1	1.390.016	88C	Vegetable Oil Flash	+10 +200	1	1.390.064
18C	Saybolt Viscosity	+34 +42	0.1	1.390.017	89C	Solidification Point	-20 +10	0.1	1.390.065
19C	Saybolt Viscosity	+49 +57	0.1	1.390.018	90C	Solidification Point	0 +30	0.1	1.390.066
20C	Saybolt Viscosity	+57 +65	0.1	1.390.019	91C	Solidification Point	+20 +50	0.1	1.390.067
21C	Saybolt Viscosity	+79 +87	0.1	1.390.020	92C	Solidification Point	+40 +70	0.1	1.390.068
22C	Saybolt Viscosity	+95 +103	0.1	1.390.021	93C	Solidification Point	+60 +90	0.1	1.390.069
23C	Engler Viscosity	+18 +28	0.2	1.390.022	94C	Solidification Point	+80 +110	0.1	1.390.079
24C	Engler Viscosity	+35 +54	0.2	1.390.023	95C	Solidification Point	+100 +130	0.1	1.390.071
25C	Engler Viccosity	+95 +105	0.2	1.390.024	96C	Solidification Point	+120 +150	0.1	1.390.072
26C	Stability T. of Soluble Nitroc.	+130 +140	0.1	1.390.025	100C	Solidification Point	+145 +205	0.2	1.390.073
27C	Turpentine Distillation	+147 +182	0.5	1.390.026	101C	Solidification Point	+195 +305	0.5	1.390.074
33C	Aniline Point	-38 +42	0.2	1.390.027	102C	Solvents Distillation	+123 +177	0.2	1.390.075
34C	Aniline Point	+25 +105	0.2	1.390.028	103C	Solvents Distillation	+148 +202	0.2	1.390.076
35C	Aniline Point	+90 +170	0.2	1.390.029	104C	Solvents Distillation	+173 +227	0.2	1.390.077
36C	Titer Test	-2 +68	0.2	1.390.030	105C	Solvents Distillation	+198 +252	0.2	1.390.078
37C	Solvents Distillation	-2 +52	0.2	1.390.031	106C	Solvents Distillation	+223 +277	0.2	1.390.079
38C	Solvents Distillation	+24 +78	0.2	1.390.032	107C	Solvents Distillation	+248 +302	0.2	1.390.080
39C	Solvents Distillation	+48 +102	0.2	1.390.033	110C	Kinematic Viscosity	+133.6 +136.4	0.05	1.390.081
40C	Solvents Distillation	+72 +126	0.2	1.390.034	111C	Tar Acids Distillation	+170 +250	0.2	1.390.092
41C	Solvents Distillation	+98 +152	0.2	1.390.035	112C	Solidification Point of Benzene	+4 +6	0.02	1.390.083
42C	Solvents Distillation	+95 +255	0.2	1.390.036	113C	Bituminous Materials Sof.P.	-1 +175	0.5	1.390.084
44C	Kinematic Viscosity	+18.5 +21.5	0.05	1.390.037	114C	Aviation Fuel, Freezing Point	-80 +20	0.5	1.390.085
45C	Kinematic Viscosity	+23.6 +26.4	0.05	1.390.038	116C	Bomb Calorimeter	+18.9 +25.1	0.01	1.390.086
46C	Kinematic Viscosity	+48.6 +51.4	0.05	1.390.039	117C	Bomb. Calorimeter	+23.9 +30.1	0.01	1.390.087
47C	Kinematic Viscosity	+58.6 +61.4	0.05	1.390.040	118C	Kinematic Viscosity	+28.6 +31.4	0.05	1,390.088
49C	Stormer Viscosity	+20 +70	0.2	1.390.041	119C	Antifreeze Freezing Point	-38.3 -30	0.1	1.390.089
52C	Butadiene Boiling Point R.	-10 + 5	0.1	1.390.042	120C	Kinematic Viscosity	+38.5 +41.5	0.05	1.390.090
54C	Congealing Point	+20 +100	0.2	1.390.043	121C	Kinematic Viscosity	+98.5 +101.5	0.05	1.390.091
56C	Bomb Calorimeter	+19 +35	0.02	1.390.044	122C	Brookfield Viscosity	-45 -35	0.1	1.390.092
57C	Tag Closed Tester Low Range	-20 +50	0.5	1.390.045	123C	Brookfield Viscosity	-35 -25	0.1	1.390.093
61C	Petrolatum Melting Point	+32 +127	0.2	1.390.046	124C	Brookfield Viscosity	-25 -15	0.1	1.390.094
62C	Precision	-38 +2	0.1	1.390.047	125C	Brookfield Viscosity	-15 -5	0.1	1.390.095
63C	Precision	-8 +32	0.1	1.390.048	127C	Kinematic Viscosity	-21.4 -18.6	0.05	1.390.097
					128C	Kinematic Viscosity	-1.4 +1.4	0.05	1.390.098
					129C	Kinematic Viscosity	+91.6 +94.4	0.05	1.390,099
					130C	Tank	-7 +105	0.5	1.390.100

ASTM-thermometer (solid stem) with Fahrenheit scale range on request.



Soil thermometers, maximum and minimum, angle 150 °, with magnet, are used to measure temperatures of soil. There is a steel index marker above the mercury column which indicates the maximum or minimum temperatures. Hg-filling, yellow enamelled. Division 0.5 °C.



Scale-range °C	Stem length mm	
-30 +50	20	1.391.001
-25 +50	50	1.391.002
-25 +50	100	1.391.003
-20 +50	150	1.391.004
-20 + 50	200	1.391.005

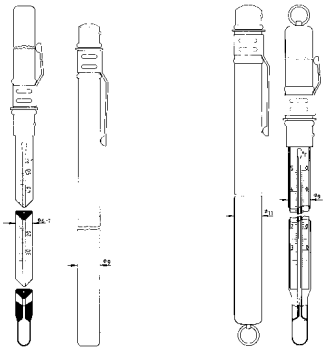
Stem thermometers, DIN 16178, opal glass scale, yellow enamelled, mercury filling, without protective metal case.

Scale-range °C	Division °C	Immersion length mm	
-30 +50	1	105	1.396.001
-30 +50	1	165	1.396.002
-30 +50	1	213	1.396.003
-30 +50	1	303	1.396.004
-30 +50	1	405	1.396.005
0 +110	1	105	1.396.006
0 +110	1	165	1.396.007
0 +110	1	213	1.396.008
0 +110	1	303	1.396.009
0 +110	1	405	1.396.010
0 +160	2	105	1.396.011
0 +160	2	165	1.396.012
0 +160	2	213	1.396.013
0 +160	2	303	1.396.014
0 +160	2	405	1.396.015
0 +200	2	105	1.396.016
0 +200	2	213	1.396.017
0 +300	2	165	1.396.018
0 +300	2	213	1.396.019
0 +300	2	303	1.396.020
0 +300	2	405	1.396.021
0 +400	5	105	1.396.022
0 +400	5	213	1.396.023
0 +400	5	303	1.396.024
0 +400	5	405	1.396.025

Protective metal case upon request

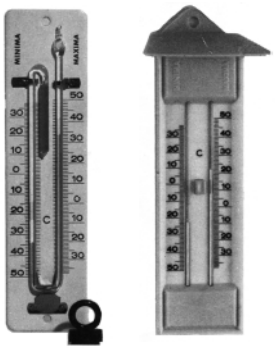
Pocket thermometers, DIFFICO-graduation, resistant to acids and alkali. In a nickel-plated protective metal case with a bajonet joint and clips for mounting. Total length 140 mm. Division 1 °C.
1. Stem form, prismatic, white enamelled, red filling.
2. Enclosed scale, unenamelled, red filling.

Scale-range °C	1.	Scale-range °C	2.
-50 +50	1.393.001	-38 +50	1.394.001
-38 + 50	1.393.002	-10 +50	1.394.002
-10 +50	1.393.003	-10 +100	1.394.003
-10 +100	1.393.005	-10 +250	1.394.004



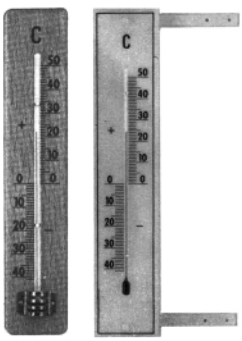
Clinical thermometers, oval form, enclosed white chromalux-scale, yellow capillary, +36 to +42 °C, subdivided in 0.1 °C, with cylindrical bulb 130 mm long.

Type	
Workside tested, suitable for certification	4.970.001
Officially tested and stamped	4.970.002



Maximum-minimum thermometers, weatherproof. Range -30 to +50 °C, subdivided in 1/1 °C.

Type	
With magnet	4.970.010
With push-button	4.970.020

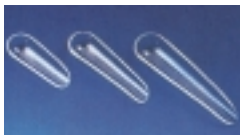


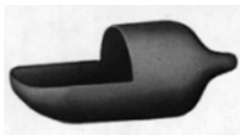
Wall-window thermometers, range -40 to +50 °C, subdivded in 1/1 °C, with inserted spirit filled.

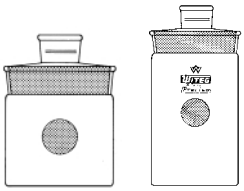
Type	
Wall thermometer	4.970.100
Window thermometer	4.970.200

Weighing funnels and boats.

Capacity ml	Length mm	O. D. mm	
Glass/pointed			
1	35	12	2.880.000
3	65	22	2.880.001
6	70	28	2.880.002
10	80	32	2.880.003
30	110	40	2.880.004
60	135	50	2.880.005
170	200	65	2.880.006
Glass/round			
	82	-	2.880.101
	95	-	2.880.102
	127	-	2.880.103
PE			
2	40	15	7.278.001
12	65	25	7.278.002
38	100	38	7.278.003
Aluminum			
90			2.880.190







Weighing bottles, PP. Knob on lid, transparent.

Capacity ml	Height mm	O. D. mm	
30	30	50	7.064.001
25	40	30	7.064.002
65	40	60	7.064.003
50	50	30	7.064.004
65	60	35	7.064.005
200	60	90	7.064.006
400	70	120	7.064.007

Weighing bottles, PP. Knob on lid, transparent.

Capacity ml	Height mm	O. D. mm	
30	30	50	7.064.001
25	40	30	7.064.002
65	40	60	7.064.003
50	50	30	7.064.004
65	60	35	7.064.005
200	60	90	7.064.006
400	70	120	7.064.007

Plane weighing glass acc. to Heidbrink. For all weighings in which there is an advantage when the sample is divided in thin layers.

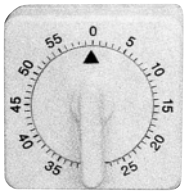
	2.873.902

Disposable weighing dishes, PS. With smooth inside surface and rounded edges. For weighing powder and liquids.

Capacity ml	Dimensions mm	Color	Bag pcs.	Carton pcs.	
7	44x44x7	white	500	7000	5.484.707
100	80x80x20	white	500	5000	5.484.710
250	140x140x25	white	250	2000	5.484.725
Diamond shaped					
5	31x55x5	white	1000	–	5.484.801
5	31x55x5	black	1000	–	5.484.802
30	56x85x15	white	500	–	5.484.803
30	56x85x15	black	500	–	5.484.804
100	96x135x19	white	250	–	5.484.805
100	96x135x19	black	250	–	5.484.806

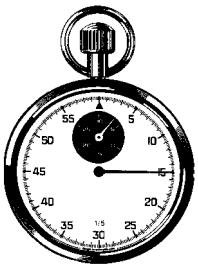
Weighing pipettes, Lunge-Rey. 10 ml.

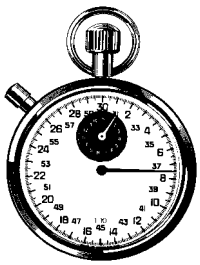
Typ	
complete	2.882.000



Timer, with bell 0-60 min., plastic housing.

Type	
Standing	8.480.112





Stopwatches, Trackstar, dia. 53.5 mm. Pinlever movement, 7 jewels, shock protected, chromed metal case.

Type	
Crown stopper 1/5 s, 0-30 min	8.482.100
Addition stopper 1/10 s, 0-15 min	8.482.200
Crown stopper 1/5 s, 0-60 min	8.482.300

Mechanical table stopwatch, with minutes and sconds-scale, scale dia. 95 mm, height approx. 130 mm, for recording periods from 1 second to 60 minutes, running time about 20 hours, housing made of plastic, black, movement is wound with key on the back, with start/stop and zerofly-back-levers.

Type	8.481.250

Multi-function-quartz-stopwatch, recording period 50 minutes, 59 seconds and 99/100 seconds, 6 digit LCD-display. Functions: start/stop, addition, split, reset, battery operated (1.5 V - life time about 2 years), ABS-housing.

Type	8.484.150

Quartz LCD-counter with alarm, precise second setting up to 99 minutes, alarm up to 60 seconds, complete with clip, stand and magnet, battery operated (1.5 Volt button cell), Size: 63x58x12 mm, Weight: 40 gramms.

Type	8.484.160

Multi-timer, can be used as stopwatch, programmable timer, etc., with signal, the perfect multi-timer for all control applications in laboratories, industries etc., as timer programmable up to 99 minutes, 59 seconds, as stopwatch applicable 59 minutes, 59 seconds, even as addition stop-watch applicable (start/stop/start…reset), accuracy ±0.5 sec./day, battery operated (1.5 V), can be used as table timer, or as wall timer (with magnet or clip), or as stick-on unit (with clip), dimensions 70x70 mm.

Type	8.484.200

WITEG-digital-tally counter, 4 figure hand-operated reset counter, with handy thumb ring for easy operation, chromeplated steel housing, counting range 0-9999.

Type	8.481.050

Mortars, borosilicate glass. With foot and spout. With pestle. Low Form, inside smooth.

O. D. mm	Height mm	
100	65	5.720.001
120	75	5.720.002
145	85	5.720.003

Mortars and pestles, porcelain, inside rough.

Capacity ml	O. D. mm	Mortars	Head dia. mm	Length mm	Pestle
70	63	8.512.003	24	115	8.513.003
140	90	8.512.006	30	135	8.513.006
400	125	8.512.008	36	150	8.513.008
650	150	8.512.009	42	175	8.513.009
1000	180	8.512.010	55	210	8.513.010
2700	250	8.512.012	74	250	8.513.012
6500	330	8.512.014	90	320	8.513.014

Mortars, melamin, white. Without pestle.

Capacity ml	O. D. mm	Height mm	
300	125	75	7.055.001
500	150	90	7.055.002

Pestles, melamin. Solid type.

Length mm	Head-dia. mm	
125	30	7.058.001
145	35	7.058.002
160	40	7.058.003
215	42	7.058.004

Mortas with pestle, agate, standard quality.

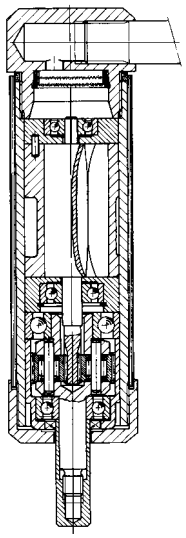
Capacity ml	O. D. mm	I. D. mm	
10	50	40	5.720.101
24	75	60	5.720.102
50	100	80	5.720.103
100	125	105	5.720.104
200	150	125	5.720.105

Stirring vessel, melamin, white. With handle and spout.

Capacity ml	O. D. mm	Height mm	
3000	200	140	7.057.001

Stirrer compressed air.

Perfect function even at low pressures > 0,1 bar. Vibration-free operation. With oiler-head to dispense oil dripwise when pressing the button. The air stream distributes the oil. The compressed air can be seized and can stream a way through a tube to reduce noise. Types RO 2, RO 3, RO 4 can be equipped with a tachometer for perfect reproduction in analytical test series. All stirrers can be regulated from 0 to maximum speed via air flow or pressure. The flowing pressure should be kept constant by a pressure reduction valve and should be as low as possible to reduce speed instabilities by pre-pressure variations. The special oilers in form of a adapter or a mounted version are manually operated and deliver a drop of oil on pressing the button. 1-2 drops per day are sufficient. The attached oiler must be used concerning stirrers with seized air (Rx2, Rx3) and with tachometers (Rx4, Rx5).
For permanent operation we recommend an automatically working oiler, which simultaneouosly cares for the maintenance of the apparatus. All stirrers are made of aluminum and are available in stainless steeel on demand. Tachometers and oilers are made of light metal.



Technical Data

Stirrer shaft at 6 bar P(W):	160
Operating pressure P(bar):	0.1-6
Material of housing:	Alu + V4A
Holding tube:	
Hose connection mm:	9
Housing-dia. mm:	38

Type RO 1
For media with low viscosity and for small quantities (up to 2 l), according to the type of the stirrer blade, high speed range, low torque. Speed range 800 /min., total length 120 mm, without epicyclic (planetary) gear, operating pressure 0.1-6 bar.

Type RO 2
For media with medium viscosity and for quantities up to 20 l, according to the type of the stirrer blade, medium speed range, medium torque, deliverable also with conical shaft which enables the use of a chuck (Nr. 1.445.001). Speed range 1950 min, total length 155 mm, single planetary gear, operating pressure 0.2-6 bar.

Type RO 3
For media with viscocity, high torque, low speed range. Speed range 700 /min, total length 190 mm, double planetary gear, operating pressure 0.3-6 bar.

Type RO 4
For media with highest viscosity, very high torque, drive which can be used universally for many kinds of laboratory work, for example special drives for worm conveyors, autoclaves, rotary film evaporators. Speed range 300/min, total length 225 mm, triple planetary gear, operating pressure 0.3-6 bar.

Stirrer compressed air.

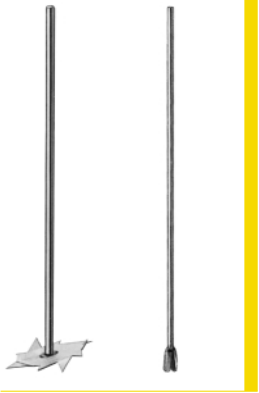
Size	RO 1	RO 2	RO 3	RO 4
Al, standard	1.441.001	1.442.001	1.443.001	1.444.001
V4A, standard	1.441.002	1.442.002	1.443.002	1.444.002
Al, pressure reduction valve	1.441.001	1.442.003	1.443.003	1.444.003
V4A, pressure reduction valve	1.441.004	1.442.004	1.443.004	1.444.004
Al, oiler adapter	1.441.005	1.442.005	1.443.005	1.444.004
Al, oiler adapter, pressure reduction valve	1.441.006	1.442.006	1.443.006	1.444.005
Al, seized air	1.441.007	1.442.007	1.443.007	1.444.006
V4A, seized air	1.441.008	1.442.008	1.443.008	–
Al, seized air, pressure reduction valve	1.441.009	1.442.009	1.443.009	–
V4A, seized air, pressure reduction valve	1.441.010	1.442.010	1.443.010	–
Al, seized air, mount. oiler	1.441.011	1.442.011	1.443.011	–
V4A, seized air, mount. oiler	1.441.012	1.442.012	1.443.012	–
Al, seized air, mount. oiler, pressure reduction valve	1.441.013	1.442.013	1.443.013	–
V4A, seized air, mount. oiler, pressure reduction valve	1.441.014	1.442.014	1.443.014	–
Al, tachometer	–	1.442.015	1.443.015	–
Al, tachometer, pressure reduction valve	–	1.442.016	1.443.016	–
Al, tachometer, mount. oiler	–	1.442.017	1.443.017	–
Al, tachometer, mount. oiler, pressure reduction valve	–	1.442.018	1.443.018	–

Accessories for „ROTEX".

Type	
Flexible coupling for stirrers between motor and stirrer shaft chucking breadth up to 10 mm length 70 mm	1.445.000
Chuck chromed, chucking breadth 0-8 mm	1.445.001
Tubing PVC sheated with tissue layer inside 13/ 9x2mm	1.445.002
Pneumatic quick coupling made of brass, enables easy coupling and coupling off of tube while the inflow of compressed air is stopped at the same time	1.445.003
Socket for quick coupling with thread suitable for the stirrer, with side tube for quick coupling	1.445.004D
Hose clip (tube clamp) for fixing of tube	1.445.005
Connector, angled, for quick couplings	1.445.006

Stirrers for „ROTEX". V2A-18/8 steel.

Type	Stirrer-blade mm	Shaft-dia. mm	Length mm	
Shaft stirrers (dissolving)	80	8	550	1.445.100
Shaft stirrer	60/15	6	150	1.445.300
Shaft stirrer	60/15	6	350	1.445.301
Shaft stirrer	100/24	8	320	1.445.302
Shaft stirrer	100/24	8	550	1.445.303



Blades stirrers, PP.

Type	Dimensions mm	
2 blades	40x15	7.150.001
U-shape	65x78	7.150.002
2 flexible blades	60	7.150.003
2 flexible blades	100	7.150.004

new

Flexible couplings to be placed between drive and stirrer shaft. Made of rubber and metal.

For shaft dia.	
8 mm	1.445.000
10 mm	1.445.010

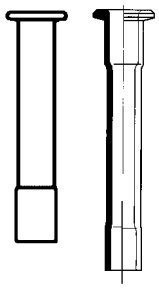
BEST BUY

Flexible couplings for stirres between motor and stirrer shaft, made of PTFE/Polyamid

For shaft dia.	
8 mm	1.445.500
10 mm	1.445.510
14 mm	1.445.514
16 mm	1.445.516

Stirrer guides, bore of tube, interchangeable, bearing surface fire-pollished.

PK-bearing-length mm	Extension	PK 10 mm	PK 14 mm	PK 16 mm
75	1	1.450.000	1.450.014	1.450.016
65 (HA)	1	1.451.000	1.451.014	1.451.016
75	2	1.452.000	1.452.014	1.452.016

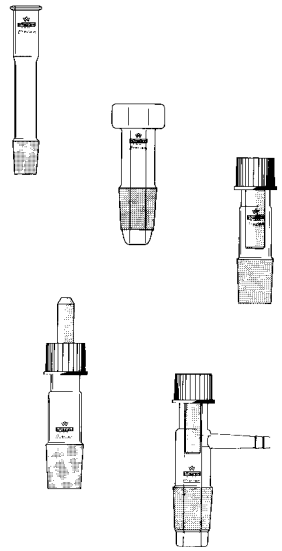


Stirrer guides.

1. With ST-cones 10 mm.
2. With fused-on stirrer bearing. Bore of tube 10 mm.
3. GTS-vacuum-stirrer and PK 10-glass-insert, screw cap GL 25. Bore of tube 10.01 mm.
4. GTS-vacuum-stirrer, with PTFE-insert and interchangeable PTFE-vacuum-seal, screw cap GL 25. Bore of tube 10.1 mm.
5. With PP-insert, 8 mm dia. and scew cap GL 25, made of melamin.
6. With cooling jacket and PTFE-insert, with interchangeable PTFE-vacuum seal and screw cap GL 25, made of melamin. Bore of tube10.1 mm.

Cone ST	1.	2.	3.	4.	5.	6.
19/26	1.455.019	–		–	–	–
24/29	1.455.024	1.460.024	1.467.024	1.468.024	1.470.024	1.475.024
29/32	1.455.029	1.460.029	1.467.029	1.468.029	1.470.029	1.475.029
45/40	–	1.460.045	1.467.045	1.468.045	–	1.475.045
Spare						parts:
Glass part, ST 24/29-GL 25	–	–	1.467.701	1.468.001	1.470.001	1.475.000
Glass part, ST 29/32-GL 25	–	–	1.467.702	1.468.002	1.470.002	1.475.001
Glass part, ST 45/40-GL 25	–	–	1.467.703	1.468.003	–	1.475.002
Stirrer guide	–	–	1.467.704	1.468.004	–	1.475.003
PTFE-vacuum seal	–	–	–	1.468.005	–	1.475.004
Screw cap GL 25	–	–	1.467.706	1.468.006	1.470.005	1.475.005
Stirrer guide, PP	–	–	–	–	1.470.003	–
Viton O-ring seal	–	–	–	–	1.470.004	–

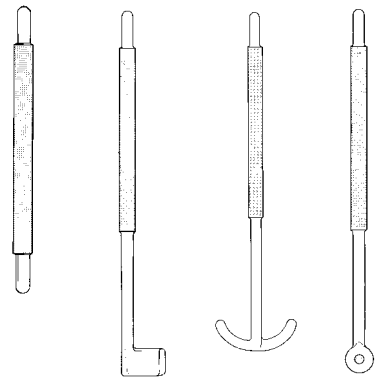
Available for 14 and 16 mm stirrer shafts.



Stirrer adapters Witorex

With PTFE stirrer guide and 2 sealing sets which can be used for pressure and vacuum operation, depending on their arrangement. All parts are exchangeable. The PTFE-cone can be screwed off and exchanged by other cone sizes. The shaft is automatically placed into the central position by the 2 sealing sets. For use with glass or metal shafts. Needs no grease.

Cone ST	Shaft dia. mm	
29/32	8	1.469.001
45/40	8	1.469.002
29/32	10	1.469.011
45/40	10	1.469.012
29/32	16	1.469.021
45/40	16	1.469.022



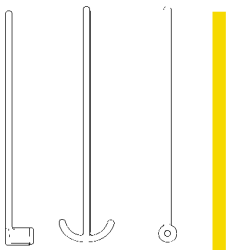
Stirrer shafts, PK 10. 160 mm long.
Stirrer blade curved ends. (Total length for flasks 500/1000)

Stirrer-blade	Fits to	14 mm	PK 16 mm	PK
2 pivots	–	1.480.000	1.480.014	1.480.016
1, 18 mm breadth	ST 19/26, ST 24/29	1.482.000	–	–
1, 24 mm breadth	ST 29/32, ST 45/40	1.484.000	1.484.014	1.484.016
Anchor, 95 mm breadth	NW 100	1.486.000	1.486.014	1.486.016
Suitable toggle, PTFE for PTFE-stirrer blade	ST 29/32 or ST 45/40	1.488.000	1.488.014	1.488.016

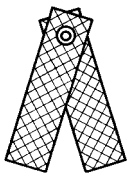
Pleas indicate the size of flasks used.

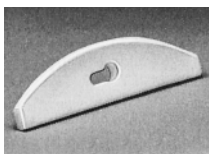
Stirrer shafts, 7-8 mm dia.
Stirrer blade with curved ends.
For stirrer guide 1.470.*** fitting.

Stirrer blade	
24 mm	1.490.000
Anchor 95 mm	1.491.000
PTFE-toggle, suitable for PTFE-stirrer blade	1.492.000
PTFE-spare toggle	1.495.000

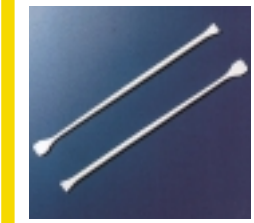


PTFE-stirrer blades and paddles.
Exchangeable for shafts with toggle.
Material thickness 2.5 mm.





Breadth mm	Length mm	
Stirrer blade		
24	50	1.496.050
24	70	1.496.070
24	90	1.496.090
24	110	1.496.110
32	125	1.496.125
Stirrer paddles		
10	30	1.498.030
10	50	1.498.050
10	70	1.498.070
15	90	1.498.090
20	120	1.498.120
20	150	1.498.150
Stirrer discs		
14	52	7.215.001
19	76	7.215.002
28	90	7.215.003



Stirring rod with spatula, PP.

Length mm	O. D. mm	
245	7	7.151.001

Stirring rods, unbreakable, splinter-free, PVC.

Length mm	O. D. mm	
250	7	7.152.001
300	7	7.152.002
350	7	7.152.003

Disposable spatulas, stirring, transparent, PS. 120 mm long. 500 pieces in plastic sleeve, 4 sleeves in standard carton. In each carton we deliver 1 dispenser tube.

Type	
Without mixing table	5.478.000
With mixing table	5.478.100

Stirring rods, made of glass. Ends melted.

L x dia. mm	
100x3	9.900.101
200x3	9.900.103
200x4	9.900.104
200x6	9.900.106
300x6	9.900.107
300x8	9.900.108

Stirring rods made of wood
250x3 mm, Pack á 1000 pcs.
5.479.101

Magnetic stirring bars, PTFE. With permanent magnet.

O. D. mm	Length mm	
Octagonal, with ring		
6	12	7.210.001
8	25	7.210.002
8	35	7.210.003
10	50	7.210.004
12	75	7.210.005
Cylindrical		
3	6	7.211.001
3	8	7.211.002
4	12	7.211.003
4.5	14.5	7.211.004
6	20	7.211.005
6	25	7.211.006
6	31	7.211.007
6	35	7.211.008
7.5	40	7.211.009
7.5	45	7.211.010
7.5	50	7.211.011
9	60	7.211.012
9	70	7.211.013
9	80	7.211.014
Cylindrical, with ring		
3	8	7.212.001
4.5	12	7.212.002
4.5	15	7.212.003
6	20	7.212.004
6	25	7.212.005
6	30	7.212.006
6	35	7.212.007
7	40	7.212.008
8	45	7.212.009
8.5	51	7.212.010
8.5	60	7.212.011
8.5	70	7.212.012

Magnetic stirring bars, Circulus®, dumb-bell-shaped, PTFE, excellent centering.

Length mm	Rod dia. mm	Disc dia. mm	
37	8	20	7.212.137
54	8	20	7.212.154

Stirring bars-assortment. W12.
Consists of 10 cylindrical rods 10-80 mm, and 1 each triangular rod 25+50 mm.

Type	
	7.213.112

Magnetic stirring bars, PTFE. With permanent magnet.

O. D. mm	Length mm	
Triangular		
8	12	7.213.001
8	25	7.213.002
10	35	7.213.003
12	50	7.213.004
Oval for round bottom flasks		
10.5	20	7.214.001
12	25	7.214.002
15	32	7.214.003
15	34	7.214.004
20	40	7.214.005
20	50	7.214.006
20	65	7.214.007
20	71	7.214.008
For spinner flasks		
6x25	25 ml	5.529.501
8x40	50-100 ml	5.529.502
10x80	1000-8000 ml	5.529.503
12x100	15000-36000 ml	5.529.504
Stirring bar retrievers, PTFE, magnet only at one end		
10	240	7.218.002
11	300	7.218.003

Tissue homogenizers, BIOGEN.

Capacity ml	Pestle mm	Reservoir mm	
With pestle			
5	–	–	5.553.701

Conical shape, for heart, muscle and lung samples. The long surface allows both, pre-preparation and micro-grinding down to 0.1 to 0.15 mm on the vertical mortar surfaces. The yield is higher and more constant than with Tenbroeck- or Potter-Elvehjem homogenizers.

1	115 x 6	14 x 80	5.553.711
3	207 x 6	16 x 120	5.553.712
5	220 x 8	18 x 150	5.553.713
15	278 x 10	25 x 172	5.553.714
30	310 x 10	32 x 215	5.553.715
50	345 x 16	38 x 225	5.553.716

Dounce for maximum nuclei and mitochondria yields with smooth samples. With two pestels for pre- and final preparation. Superior reproducibility. Very low heating effects and therefore high yields. Scope of delivers: Set with two pestles, stamp A 0.1 to 0.15 mm, stamp B 0.03 to 0.08 mm.

2	–	11 x 48	5.553.720
7	–	13 x 82	5.553.721
15	–	15 x 94	5.553.722
40	–	21 x 140	5.553.723

Potter Elvehjem with PTFE pestle and metal shaft also for use with motor drive units. Gap size 102 to 152 µm, advantageous with liver, brain and tumor tissues.

0.25	130 x 3	8 x 20	5.553.731
0.5	130 x 3	8 x 30	5.553.732
1	155 x 5	11 x 30	5.553.733
2	230 x 5	11 x 45	5.553.734
5	235 x 5	13 x 66	5.553.735
10	270 x 6	16 x 74	5.553.736
15	270 x 6	19 x 84	5.553.737
30	270 x 6	24 x 118	5.553.738
55	270 x 6	30 x 130	5.553.739

Tenbroeck with T-handle, gap size 102 to 152 µm, for manual operation or low speed drives with rubber stoppers which fit to the special shaped handle. For liver and heart tissues. The hollow pestle may be filled with ice for chilled operation.

2	160 x 50	100 x 30	5.553.741
7	195 x 50	125 x 30	5.553.742
15	210 x 65	155 x 38	5.553.743
40	315 x 90	215 x 55	5.553.744

Gas burners .

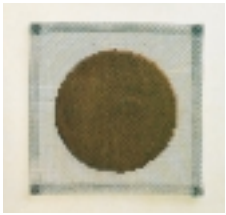
Gases	Type	Head/tube-dia. mm	
With air regulation			
–	Bunsen	11	
Normal	Teclu	13, with set screw	8.325.001
Propane	Teclu	13, with set screw	8.325.002
Natural gas	Teclu	13, with set screw	8.325.003
Normal	Teclu	13, with stopcock and pilot flame	8.326.001
Propane	Teclu	13, with stopcock and pilot flame	8.326.002
Natural gas	Teclu	13, with stopcock and pilot flame	8.326.003
Town-/bottle gas	Mecker-Fisher	30	8.330.000

Burners, complete.

Gases	
Bunsen burner with air regualtion	
Natural gas	8.321.000E
Luminous gas	8.321.000L
Propane gas	8.321.000P
Bunsen burner with air regualtion and needle valve	
Natural gas	8.323.000E
Luminous gas	8.323.000L
Propane gas	8.323.000P
Mecker burner, 20 mm flame, with air regualtion and needle valve	
Allgas	8.327.000A
Natural gas	8.327.000E
Luminous gas	8.327.000L
Propane gas	8.327.000P

Tripods, of sheet iron, painted black.

Dia. mm	Height mm	
100	180	8.303.002
120	210	8.303.003
140	220	8.303.004
160	260	8.303.005
180	280	8.303.006
100	adjustable	8.304.001
140	adjustable	8.304.002

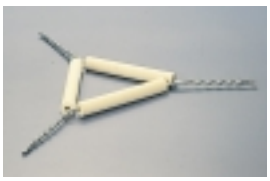


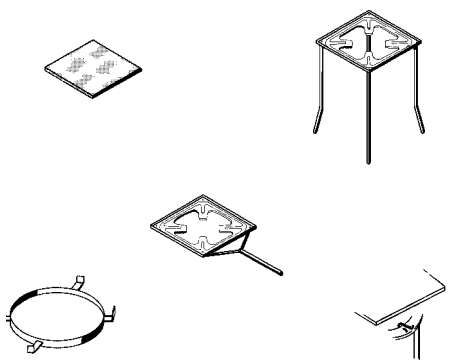
Iron wire gauzes.

Dimensions mm	Iron without border	Nichrome with border	Tinned iron ceramic center
100x100	8.305.001	–	–
120x120	8.305.002	–	8.307.001
160x160	8.305.003	8.306.001	8.307.002
200x200	8.305.004	–	8.307.003

Files. Of tinned iron wire, pipe clay tubes.

Length mm	
40	8.308.001
50	8.308.002
60	8.308.003
70	8.308.004
80	8.308.005





CERAN-plates.

- chemically resitant - this is important in case agressive media are boiling over.
- high resistance to temperature changes from -200 °C to +700 °C.
- easy to clean, manually and mechanically.
- excellent heat conductivity.
- even temperature effect.

Dimensions mm	Plates	Quadrups CrNi-steel 220 mm heigh	Plates-holder CrNi-steel	Ring for tripods DIN 12889
135x135	5.510.001	5.165.001	5.175.001	5.180.001
155x155	5.510.002	5.165.002	5.175.002	5.180.002
175x175	5.510.003	5.165.003	5.175.003	5.180.003
Mounting clamps (4 pieces), for tripods acc. to DIN 12889		-	5.185.000	

Spirit lamps, borosilicate glass, flat conical shape, with ground-on cup.

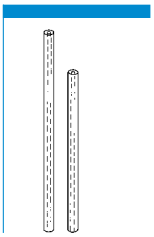
Capacity ml	
100	5.760.100
200	5.760.200
Accessories:	
Wicks	5.760.300
Sockets	5.760.400

Technical data, tubing, DURAN.

O.D. mm	Wall mm	Carton kg net.	Pcs.p. carton
4	0.8	15	555
5	0.8	12	343
6	1.0	13	245
6	1.5	15	211
7	1.0	12	190
7	1.5	15	172
8	1.0	11	149
8	1.5	15	147
9	1.0	10	119
9	1.5	14	119
10	1.0	9	95
10	1.5	12	90
10	2.2	10	56
11	1.0	9	86
11	1.5	11	73
11	2.2	8.5	42
12	1.0	15	130
12	1.5	11	67
12	2.2	9.5	42
13	1.0	15	119
13	1.5	10	55
13	2.2	9	36
14	1.0	15	110
14	1.5	9	46
14	2.2	8.2	30
15	1.2	15	86
15	1.8	14	56
15	2.5	8.2	25
16	1.2	15	81
16	1.8	13.1	49
16	2.5	8,8	25
17	1.2	15	75
17	1.8	14	49
17	2.5	9.5	25
18	1.2	14	66
18	1.8	15	49
18	2.5	8.1	20
19	1.2	14	63
19	1.8	13.7	42
19	2.5	15.6	36
20	1.2	13	55
20	1.8	12.4	36
20	2.5	9.2	20
22	1.2	11	42
22	1.8	11.5	30
22	2.5	15.4	30
24	1.2	11	38
24	1.8	10.5	25
24	2.5	14	25
26	1.4	12	33
26	2.0	12.6	25
26	2.8	8.2	12
28	1.4	9.8	25
28	2.0	11	20
28	2.8	14.8	20
30	1.4	15.2	36
30	2.0	9.4	16
30	2.8	12.8	16
32	1.4	11.3	25
32	2.0	10.1	16
32	2.8	13.8	16
34	1.4	12.1	25
34	2.0	10.8	16
34	2,8	14.8	16
36	1.4	12.6	25
36	2.0	18	25
36	2.8	11.7	12
38	1.4	10.8	20
38	2.0	15	20
38	2.8	9.4	9
40	1.6	10.2	15
40	2.3	14.6	16
40	3.2	11.2	9
42	1.6	10.9	16
42	2.3	15.3	16
42	3.2	11.7	9
44	1.6	11.4	16
44	2.3	16	16
44	3.2	12.4	9
46	1.6	11.9	16
46	2.3	9.5	9
46	3.2	13	9
48	1.6	12.4	16
48	2.3	17.6	16
48	3.2	9	9
50	1.8	8.2	9
50	2.5	11.2	9
50	3.5	15.4	9
52	1.8	8.5	9
52	2.5	11.7	9
52	3.5	16	9
54	1.8	8.9	9
54	2.5	12.2	9
54	3.5	16.7	9
56	1.8	9.2	9
56	2.5	12.6	9
56	3.5	17.5	9
58	1.8	9.6	9
58	2.5	13.1	9
58	3.5	18.0	9
60	2.2	12.0	9
60	4.2	9.8	4

Other sizes on request.

Please add
to the article-no.
generally the O.D.
and the wall thickness
of the tubing
or rods.



Capillary tubes, DURAN. Length approx. 1500 mm.

O.D. mm	
4	5.906.004
5	5.906.005
6	5.906.006
7	5.906.007
8	5.906.008
9	5.906.009
Assortment with 20 sizes 4-9 mm, Total weight 7 kg net,	5.906.100

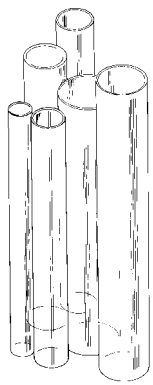
Please indicate the precise I.D. with your order.

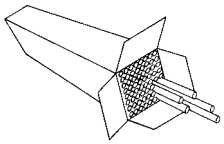
Tubings, DURAN. Tubing length approx. 1500 mm.

O.D. mm	
4 to 9	5.904.00*
10 to 60	5.904.0**
Assortment, tubing containing 31 differnet tubings in the range from 5 to 32 mm. Net weight 15 kg.	5.904.100

Rod, DURAN. Rod length approx. 1500 mm.

O.D. mm	
4 to 6	5.908.00*
7 to 26	5.908.0**
Assortment, rods, 8 sizes from 4 to 12 mm. Total weight 7 kg net.	5.908.100





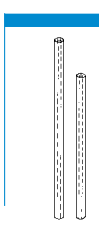
Technical data, tubing, soda lime glass.

O.D. mm	Wall mm	Carton kg net.	Pcs.p. carton
4	0.50	11	523
4	0.70	15	535
4	0.90	18	545
5	0.50	10	370
5	0.70	13	361
5	0.90	14	318
6	0.50	20	605
6	0.70	11	250
6	0.90	15	273
6	1.10	16	250
7	0.50	16	410
7	0.70	10	189
7	0.90	12	185
7	1.10	15	195
8	0.50	15	333
8	0.70	20	328
8	0.90	12	158
8	1.10	12	133
9	0.50	14	275
9	0.70	19	275
9	0.90	20	230
9	1.10	12	115
10	0.60	15	224
10	0.80	19	216
10	1.00	22	204
10	1.20	12	95
11	0.60	12	162
11	0.80	18	186
11	1.00	20	168
11	1.20	23	165
12	0.60	12	148
12	0.80	16	150
12	1.00	20	153
12	1.20	23	148

O.D. mm	Wall mm	Carton kg net.	Pcs.p. carton
13	0.60	12	135
13	0.80	15	129
13	1.00	19	133
13	1.20	21	124
14	0.60	20	208
14	0.80	24	111
14	1.00	15	97
14	1.20	20	109
15	0.60	18	174
15	0.80	12	89
15	1.00	16	96
15	1.20	20	102
16	0.60	18	163
16	0.80	22	151
16	1.00	15	84
16	1.20	18	85
17	0.80	12	78
17	1.00	14	73
17	1.20	16	71
17	1.50	21	75
18	0.80	20	120
18	1.00	14	69
18	1.20	16	67
18	1.50	20	68
19	0.80	19	108
19	1.00	13	61
19	1.20	15	59
19	1.50	18	58
20	0.80	18	99
20	1.00	22	97
20	1.20	15	56
20	1.50	17	51
21	0.80	18	93
21	1.00	22	92

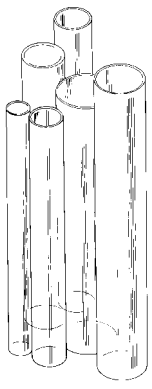
O.D. mm	Wall mm	Carton kg net.	Pcs.p. carton
21	1.20	14	49
21	1.50	15	43
22	0.80	16	80
22	1.00	22	88
22	1.20	24	81
22	1.50	15	41
23	0.80	15	68
23	1.00	19	72
23	1.20	22	64
23	1.50	16	42
24	0.80	15	68
24	1.00	20	72
24	1.20	21	64
24	1.50	15	37
26	1.00	17	56
26	1.20	22	62
26	1.50	14	31
28	1.00	17	53
28	1.20	20	52
28	1.50	12	25
30	1.20	17	42
30	1.50	20	39
32	1.20	15	34
32	1.50	18	33
34	1.20	14	30
34	1.50	17	29
36	1.20	12	24
36	1.50	16	26
38	1.20	13	25
38	1.50	16	25
40	1.20	11	20
40	1.50	13	19

Please add
to the article-no.
generally the outside-dia.
and the wall thickness
of the tubing
or rods.



Tubings for barometers, soda lime glass. Length 1500 mm.

O.D. mm	I.D. mm	
4	>1	5.901.004
5	>1	5.901.005
6	>1	5.901.006
7	>1	5.901.007
8	>1	5.901.008
9	>2	5.901.009
10	>2	5.901.010
11	>2	5.901.011
12	>2	5.901.012

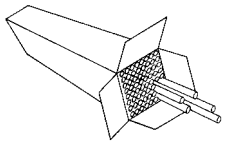


Tubings, soda lime glass. Tubing length approx. 1500 mm.

O.D. mm	
4 to 8	5.900.00*
9 to 40	5.900.0**

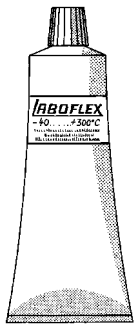
Rods, soda lime glass. Rod length approx. 1500 mm.

O.D. mm	
4 to 5	5.902.00*
6 to 25	5.902.0**



Grease for joints "LABOFLEX". Sealing and gliding material for fixed and rotating connections of glass joints, movable connections, made of plastic and metal. It does not evaporate and does not dry in. Resistant to most acids, alkalis and gases at temperatures from -40 °C to +300 °C. High-vacuum resistant. Can be absolutely removed with our cleansing concentrate "WITONEX". It is absolutely silicone-free.

Tubes capacity g	
60	0.129.003
10	0.129.010
High-vacuum grease middle-visco "Baysilon"	
	0.129.110

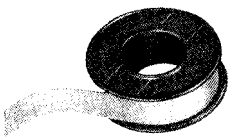


Teflon-spray "Klingerflon". Excellent greasing, gliding and separating agent. The wax-like protective coating.

Capacity ml	
400	7.228.001

Teflon-sealing tape "Klingerflon" (PTFE). For wrapping around parts which should be resistant to all kinds of chemicals at temperatures from -150 °C to +260 °C.

Width mm	Length mm	Thickness mm	
12	12	0.10	7.230.001
12	12	0.08	7.230.002



Parafilm "M". Thermoplastic, moisture resistant film for general use in laboratories. Flexible, water-tight, semitransparent, practically non-odorous and tasteless, resistant to alcohol, acids, alkalines of moderate concentration. Well suited to seal laboratory containers. Rolls in dispenser box.

Width mm	Length m	
50	75	7.148.001
100	75	7.148.002
100	38	7.148.003
Parafilm "M" rolls in mailing tube.		
500	15	7.149.001

Teflon-sealing cords "Klingerflon" (PTFE). Ideal to seal screw threads, complicated flange forms and glands, not sintered, on plastic coils. Type N.

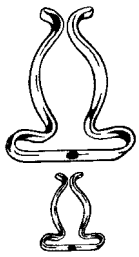
Dia. mm	Length m	
1	20	7.231.001
1.5	10	7.231.002
2	6	7.231.003
2.5	3	7.231.004
3	2	7.231.005
4	10	7.231.006
5	7.5	7.231.007
6	5	7.231.008
7	4	7.231.009
8	2.5	7.231.010
9	2.5	7.231.011
10	3	7.231.012
12	2.5	7.231.013
13	2	7.231.014

Connection tubes, straight, with serrated ends.

O. D. mm	Wall thickness mm	Length mm	DURAN	Soda lime glass
6	1.5	115	2.865.001	2.866.001
8	1.5	115	2.865.002	2.866.002
9	1.5	115	2.865.003	–
10	1.5	115	2.865.004	–
11	1.5	115	2.865.005	2.866.003

Clips, with polyethylene coating. Corrosion-resistant.

For dia. mm	
6	7.233.001
9	7.233.002
13	7.233.003
18	7.233.004
25	7.233.005
32	7.233.006
38	7.233.007



Barometer tubes, one side closed.

Length mm	O. D. mm	
500	8	2.868.000

Bagfasteners, made of plastic (not illustrated).

Length mm	
120	7.266.001
240	7.266.002

Foil-welding apparatus, in plastic housing. Welding breadth: 330 mm, welds PVC and polyethylene foils up 0.5 mm thickness. Liquid-tight. Steplessly adjustable wedding temperature. Electrical: 230 V, 220 W, inclusively 1 m cable and plug. (not illustrated).

7.263.001

Bags, LDPE, transparent, with welding seam at the bottom, not self-sealing, thickness 0.05 mm.

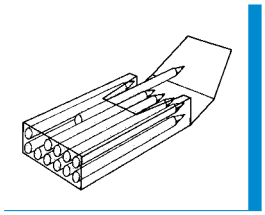
Width mm	Length mm	
100	200	7.265.101
155	240	7.265.102
175	300	7.265.103
200	320	7.265.104
220	360	7.265.105
250	400	7.265.106

Bags, LDPE, transparent, with welding seam at the bottom, with self-sealing and white marking area, thickness 0.05 mm.

Width mm	Length mm	
100	150	7.265.107
120	170	7.265.108
160	250	7.265.109
280	300	7.265.110

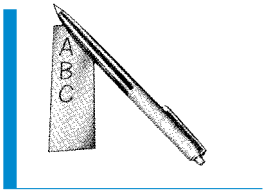
Glass marking pencils, for writing on or marking glass, lead-cased. Temperature resistant up to +250 °C. Packed of 1 dozen.

Colour	
Yellow	9.336.001
Red	9.336.002
Bue	9.336.003
Green	9.336.004
White	9.336.005
Black	9.336.006
Brown	9.336.007



Writing-diamond for writing on glass.

8.356.000



„Scriber" for writing on glass and porcelain. With a hard metal tip.

7.259.001

Glass-cutting knives, with Widia-steel knives, interchangeable, with wooden handle.

Type	
Complete	8.354.000
Spare blads	8.354.001
Glass-cutting knives with cutting-wheel complete	8.354.100

Fibre-pens, writes on plastic, glass, porcelain, metal, rubber, wood, lino, paper etc. Durable marking, waterproof, light resistant, non-toxical, can be refilled at any time.

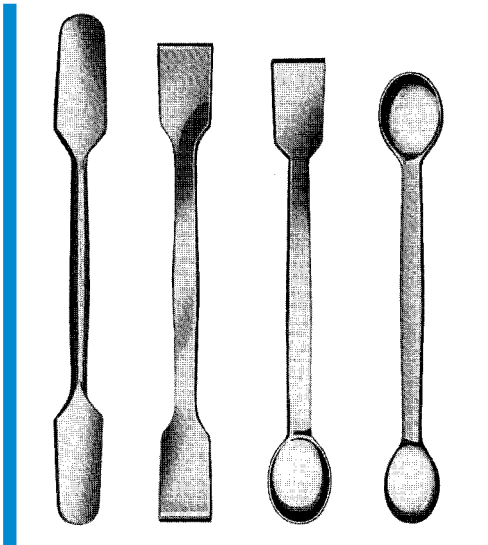
Colour	
Black	7.260.001
Red	7.260.002
Blue	7.260.003
Green	7.260.004

Laboratory spatulas (PA).

Performance	Length mm	
Double	150	7.153.201
Double	180	7.153.202
With spoon	180	7.153.203
With spoon	210	7.153.204

Spatulas, double, made of steel, polished, round.

Length mm	
130	8.388.001
160	8.388.002
180	8.388.003
210	8.388.004
240	8.388.005
260	8.388.006
300	8.388.007
350	8.388.008
400	8.388.009
500	8.388.010



Spatulas/spoons, made of stainless steel, polished.

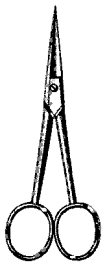
Length mm	
Spatulas,double	
150	8.389.001
180	8.389.002
210	8.389.003
Spatulas/spoon	
150	8.390.001
180	8.390.002
210	8.390.003
Spoons, double	
150	8.391.001
180	8.391.002
Laboratory spatula, with wooden shaft	
100	8.391.100
150	8.391.150
200	8.391.200
300	8.391.300

Spatula, double, Chattaway, made of stainless steel.

Length mm	Spatula	
Straight		
100	7 x 30	8.395.001
125	7 x 40	8.395.002
150	7 x 40	8.395.003
180	8 x 50	8.395.004
200	9 x 60	8.395.005
Bent		
100	7 x 30	8.395.101
125	7 x 40	8.395.102
150	7 x 40	8.395.103
180	8 x 50	8.395.104
200	9 x 60	8.395.105

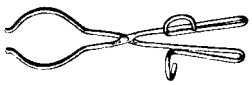
Scissors, for microscopic work, with rounded up shanks.

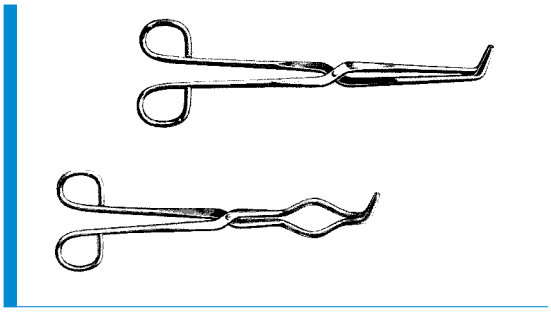
Type	
Straight	8.396.000
Bent	8.397.000



Security tongs, 18/8 stainless steel.

Type	Length	
For beakers with ceramic-lined jaws		
60-150 mm	300 mm	8.361.000
For bottles, coated with plastic		
15-60 mm	200 mm	8.362.000





Crucible tongs.

Size mm	Stainless steel	Iron wire black
Double bent		
200	8.402.002	–
220	8.402.003	–
300	8.402.004	–
400	8.402.005	–
500	8.402.006	–
Bent		
200	–	8.399.001
220	–	8.399.002

Beaker tong, nickel plated, with rubber coat.

Length 250 mm	8.360.000

Test tube holders, made of hardwood, with steel spring.

Length mm	
18	8.363.000
30	8.363.030

Universal scissors, stainless steel, with plastic-coated handle.

Length 170 mm	8.398.005

Laboratory scissors, stainless steel, plastic grip.

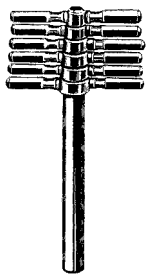
Length mm	
130	8.398.001
150	8.398.002
200	8.398.003
250	8.398.004

Cork borers, made of harddrawn brass tubing, with handles.

Set of...pieces	Dia. from...to mm	
1- 3	5-7.5	8.365.001
1- 6	5-11.25	8.365.002
1- 9	5-15	8.365.003
1-12	5-18.75	8.365.004
1-15	5-22.50	8.365.005
1-18	5-26.25	8.365.006

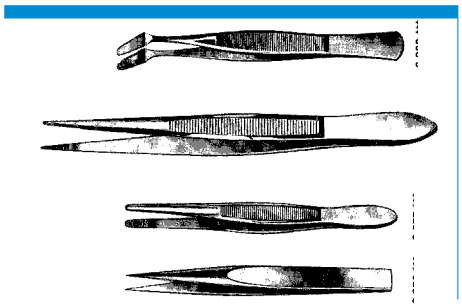
Cork borers sharpener for set 1-18, with wooden handle

1-18	8.369.100



Cork borers for corkboring machines, steel tubing, polished.

Set of...pieces	Dia. from...to mm	
1- 9	5-15	8.366.001
1-12	5-18.75	8.366.002
1-15	5-22.50	8.366.003
1-18	5-26.25	8.366.004



Cork cutting knife, with wooden handle.

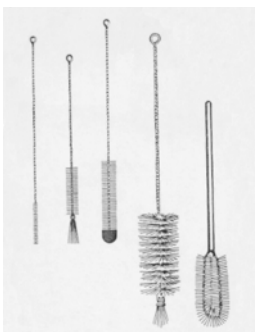
	8.369.000

Forceps, made of steel, nickel plated.

Type	
Polished, hollow, fine points	8.376.000
With blunt points	
100	8.377.001
115	8.377.002
130	8.377.003
150	8.377.004
200	8.377.005
250	8.377.006
300	8.377.007
With fine points	
100	8.378.001
115	8.378.002
130	8.378.003
Acc. to Kühne, with flat, bent ends	
	8.380.000

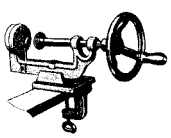
Brushes. For all laboratory purposes. With wooden handle or bristle on twisted wire.

For	Dia. mm	
Pipettes, Pipe cleaners	5	9.335.001
Injection	10	9.335.002
Test tubes, wool tip	15	9.335.003
Test tubes, wool tip	30	9.335.004
Flasks and bottles	45	9.335.005
Flasks and bottles	60	9.335.006
Beakers, wooden handle	60	9.335.007
Beakers, wooden handle	75	9.335.008
Beakers, wooden handle	90	9.335.009
Burettes, 1m long	30	9.335.010
Sieves	65	9.335.011



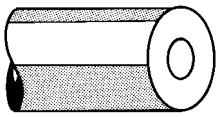
Corkboring machines, to screw on the table, without clamp, for horizontal and vertical use.

Type	
Machine	8.367.000
Machine with 15 steel borers	8.368.000



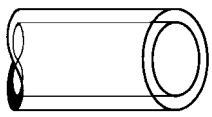
1. Rubber tubing, for laboratory purposes, quality "Para HR 1374 red."
2. Rubber-vacuum-tubing (high pressure), for laboratory purposes, quality "Para HR 1374 red".

I. D. mm	Wall thickness mm	Rubber tubing	Wall thickness mm	Rubber-vacuum-tubing
3	1.5	9.311.001	–	–
4	1.5	9.311.002	3	9.312.001
5	1.5	9.311.003	5	9.312.002
6	1.5	9.311.004	3,5	9.312.003
6	2	9.311.005	–	–
7	1.5	9.311.006	5	9.312.004
7	2	9.311.007	–	–
8	2	9.311.008	6	9.312.005
9	2	9.311.009	–	–
10	2	9.311.010	5	9.312.006
12	2.5	9.311.011	–	–
12	3	9.311.012	–	–
15	3	9.311.013	–	–
20	3.5	9.311.014	–	–



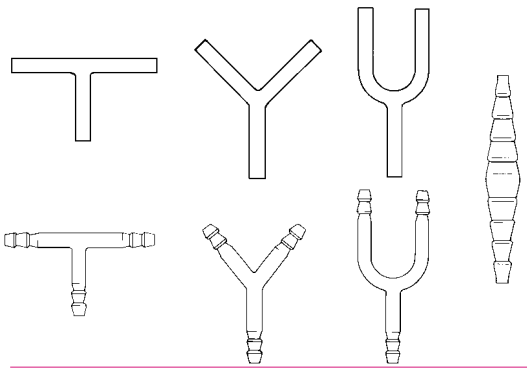
1. PVC-tubing, clear, resistant against acids and oil, approx. 65/70° shore hardness.
2. PVC-high pressure-tubing, transparent, flexible, with armation, resistant to acids, chemical solutions, gases etc.

I. D. mm	Wall thickness mm	PVC-tubing	Wall thickness mm	PVC-high pressure tubing
1	1	9.313.001	–	–
2	1	9.313.002	–	–
3	1	9.313.003	–	–
4	1.5	9.313.004	3	9.314.001
5	1	9.313.005	3	9.314.002
6	1.5	9.313.005	3	9.314.003
6	2	9.313.007	–	–
7	1.5	9.313.008	–	–
8	1.5	9.313.009	3	9.314.004
9	2	9.313.010	3	9.314.005
10	2	9.313.011	3	9.314.006
10	3	9.313.012	3,5	9.314.007
12	2	9.313.013	–	–
13	3	9.313.014	–	–
14	2	9.313.015	–	–
16	2	9.313.016	4	9.314.008
18	2	9.313.017	–	–
19	2.5	9.313.018	4	9.314.009
25	4	9.313.019	4,5	9.314.010
32	4	9.313.020	5	9.314.011
38	-	-	5	9.314.012
40	5	9.313.021	–	–
50	5	9.313.022	8	9.314.013



Tubing connectors, plain ends or serrated ends.

O. D. mm	Side arms mm	T-shape	Y-shape	U-shape	Straight
Plain ends					
6	40	2.862.001	2.862.011	2.862.021	–
8	45	2.862.002	2.862.012	2.862.022	–
10	50	2.862.003	2.862.013	2.862.023	–
Serrated ends					
6	40	2.864.001	2.864.011	2.864.021	–
8	45	2.864.002	2.864.012	2.864.022	–
10	50	2.864.003	2.864.013	2.864.023	–
6-18	120	–	–	–	2.860.000



1. Polyethylene-tubing, transparent, flexible, resistant to acids, alkalis, alcohol, salt solutions up to +40 °C, but not to benzene, kerosene and organic solutions.
2. Silicone-tubing, transparent, flexible, extremly resistant to heat, cold, and chemical attacks, qualify special ST 7450.
3. Teflon-tubing, natural colour, flexible. Temperature resistant from -200 °C to +275 °C, non-inflammable. Water absorbance max. 0.1 %. Resistant to aggressive media, even at high temperature.

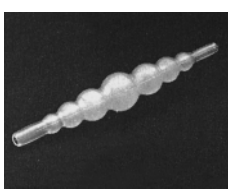
I. D.	Wall thickness	PE-tubing	Wall thickness	Silicone tubing	Wall thickness	Teflon tubing
0.8	–	–	–	–	0.4	9.317.001
1	–	–	1	9.316.001	0.5	9.317.002
1.5	–	–	–	–	0.5	9.317.003
2	–	–	0.3	9.316.002	0.5	9.317.004
2	–	–	1	9.316.003	–	–
3	–	–	0.4	9.316.004	0.5	9.317.005
3	–	–	1	9.316.005	–	–
4	1	9.315.001	1	9.316.006	1	9.317.006
4	–	–	1.5	9.316.007	–	–
5	–	–	1.5	9.316.008	1.5	9.317.007
6	1	9.315.002	1.5	9.316.009	1.5	9.317.008
6	–	–	2	9.316.010	–	–
7	1.5	9.315.003	1.5	9.316.011	–	–
8	–	–	–	–	0.5	9.317.009
8	1	9.315.004	2	9.316.012	1	9.317.010
10	2	9.315.005	2.5	9.316.013	2	9.317.011
12	2	9.315.006	2	9.316.014	–	–
13	–	–	–	–	2	9.317.012
15	–	–	–	–	1.5	9.317.013
20	–	–	–	–	2	9.317.014

Tubing connectors, PP.

Tubing I. D. mm	L-shape	T-shape	Y-shape	X-shape
3	–	7.139.001	7.140.001	7.142.001
3- 4	7.134.001	–	–	–
4- 5	7.134.002	7.139.002	7.140.002	7.142.002
6- 7	7.134.003	7.139.003	7.140.003	7.142.003
8- 9	7.134.004	7.139.004	7.140.004	7-142.004
10-11	7.134.005	7.139.005	7.140.005	7.142.005
12-13	7.134.006	7.139.006	7.140.006	7.142.006
14-15	7.134.007	7.139.007	7.140.007	7.142.007

Tubing connectors, PE.
Tubing connectors, PP.

Tubing I. D. mm	PE straight connectable	PP straight	PP three way
3- 5	7.138.001	7.136.001	7.141.001
5- 7	7.138.002	7.136.002	–
5- 8	–	–	7.141.002
5-15	–	7.135.001	–
6- 9	–	–	7.141.003
7- 9	7.138.003	–	–
7-10	–	7.136.003	–
9-11	–	–	7.141.004
9-12	7.138.004	7.136.004	–
11-13	–	–	7.141.005
11-14	7.138.005	7.136.005	–
13-15	–	–	7.141.006
13-16	7.138.006	7.136.006	–



Tubing connectors (adapters), PP.

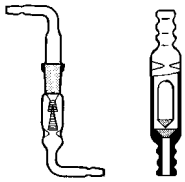
Tubing I. D. mm	
4-8/8-12	7.137.001
4-8/12-16	7.137.002
8-12/12-16	7.137.003
Universal (PP)	
5 - 15	7.135.001

Safety valves, PP. Prevents the return stroke in case of drop in pressure in vacuum tubings.

Tubing I. D. mm	
8-10	7.144.001
10-15	7.144.002

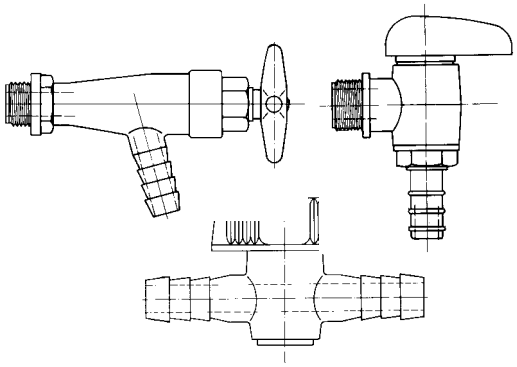
Safety valves, Friedrichs-Antlinger, with interchangeable valve piston of plastic, dismountable.

ST	
14/23	2.689.000
small pattern	2.869.100



Stopcocks, PE. With reinforced grip and solid hose-sockets only for operation without pressure.

Bore	Tubing I. D. mm	
4.3	8	7.143.001
6.3	10	7.143.002
10.4	13	7.143.003
12.2	15	7.143.004



Valve stopcocks, PE. With hose-sockets.
Up to 115°C.

Thread fine mm	Connection O. D.	Pressure max. bar	
Valve, right angle			
1/2"	12.7	9	7.248.001
Stopcock, straight bore			
–	12.7	1	7.249.001
–	9.52	1	7.249.002
Stopcock, right angle			
1/2"	13.5	2,5	7.250.001

Flow-controllers, translucent, styrene-acrylonitrile. Suitable for gases and liquids. The rotation of the red ball indicates the velocity of the respective flow.

Tubing I. D. mm	
6.5-10	7.145.001
With rotor, from 5 ml to 95 ml (liquid), max. 2 bar pressure	
6-11	7.145.002

Clamps, made of brass, nickel-plated

Size mm	Acc. to Hoffmann	Acc. to Mohr
12	8.383.001	–
17	8.383.002	–
20	8.383.003	–
25	8.383.004	–
30	8.383.005	–
40	8.383.006	8.381.001
50	8.384.001	8.381.002
60	8.384.002	8.381.003
70	8.384.003	8.381.004
80	–	8.381.005

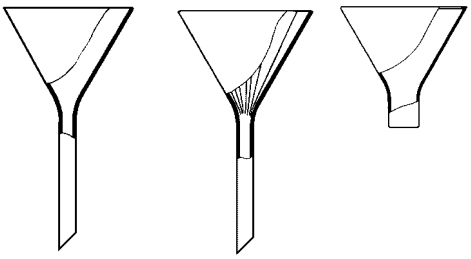
WILO-rubber tubing clamps.

1. Made of steel, resistant against temperatures of +150 °C, completely made of polished tinned steel.
2. Made of best steel, screw thread retaining device and holder made of polyethylene.

Size mm	1.	2.
10	8.385.001	8.386.001
15	8.385.002	8.386.002
20	8.385.003	8.386.003
25	8.385.004	–

Safety clamps, for rubber tubing, made of sheet brass, thumb-screw (rubber tubing clamps).

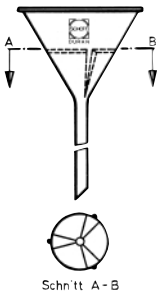
Dia. mm	
8-12	8.387.001
12-19	8.387.002
15-21	8.387.003
17-26	8.387.004
23-32	8.387.005
28-38	8.387.006



Funnels, angle 60°.

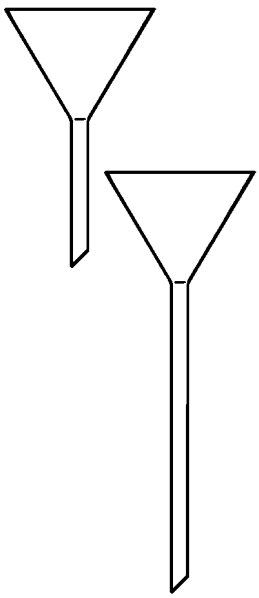
1. Soda lime glass, DIN 12445 plain.
2. Duran, ribbed.
3. Duran, powder funnels with short and wide stem.

O. D. mm	1.	2.	3.
30	5.770.001	–	–
35	5.770.002	–	–
40	5.770.003	–	–
45	5.770.004	–	–
50	5.770.005	–	5.790.001
55	5.770.006	–	–
60	5.770.007	–	5.790.002
70	5.770.008	5.780.001	5.790.003
80	5.770.009	5.780.002	5.790.004
100	5.770.010	5.780.003	5.790.006
120	5.770.011	-	5.790.007
150	5.770.012	5.780.004	–
160	–	–	5.790.009
180	5.770.013	–	–
200	5.770.014	5.780.005	5.790.010



Analytical funnels, for rapid filtration. Stem I. D. 3 mm.

Rim O. D. mm	Stem length mm	Stem O. D. mm	
65	150	8	5.780.005
80	150	9	5.780.080
110	180	9	5.780.110



Funnels. DURAN.
DIN 12445 with short stem.
DIN 12446 with long stem (150 x 6 mm).

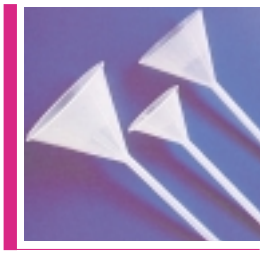
O. D. mm	Stem length mm	Stem O. D. mm	DIN 12445	DIN 12446
35	35	6	5.550.035	
45	45	6	5.550.045	
55	55	8	5.550.055	
55	150	6	–	5.552.055
70	70	8	5.550.070	
70	150	6	–	5.552.070
80	80	10	5.550.080	
80	150	6	–	5.552.080
100	100	10	5.550.100	
150	150	16	5.550.150	
200	175	26	5.550.200	
300	175	30	5.550.300	

Funnels, PP.

O. D. mm	Height mm	Stem dia. mm	
30	47	2	7.041.001
30	47	5	7.041.002
40	65	5	7.041.003
50	85	9	7.041.004
75	110	10	7.041.005
100	155	13	7.041.006
120	180	14	7.041.007
150	220	17	7.041.008

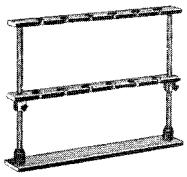
Analytical funnels, PP. Angle 60°.

O. D. mm	Stem dia. mm	
25	4	7.041.101
35	5	7.041.112
45	5	7.041.103
65	10	7.041.104
80	11	7.041.105
100	11	7.041.106
120	11	7.041.107
150	14	7.041.108
180	14	7.041.109



Rapid funnels, PP.

O. D. mm	Stem length mm	Stem dia. mm	
60	150	8	7.046.001
80	150	8	7.046.002
100	150	8	7.046.003



Powder funnels, PP.

O. D. mm	Stem length mm	Stem dia. mm	
65	68	16	7.042.001
80	75	22	7.042.002
100	94	23	7.042.003
120	110	27	7.042.004
150	138	29	7.042.005

Filtration supports (funnel support), made of polished hardwood. Detachable, height adjustable. Heigth 500 mm.

Width mm	Length mm	Number of openings	Rows	
110	190	1	1	9.050.001
110	280	2	1	9.050.002
110	300	2	1	9.050.003
110	450	4	1	9.050.004
100	450	6	2	9.050.005
170	680	12	2	9.050.006
100	630	6	2	9.050.007

Barrel funnels, PE.

O. D. mm	Height mm	Stem dia. mm	
200	200	22	7.043.001
250	260	30	7.043.002
350	440	35	7.043.003
400	365	42	7.043.004
450	420	37	7.043.005
Sieve insert, brass, interchangeable, suitable for above funnel			
50			7.044.001

Universal funnels, with overflow rim, robust, strong performance. HD-PE.

O. D. mm	Stem dia. mm	
80	5	7.044.080
100	10	7.044.100
120	15	7.044.120
140	15	7.044.140
180	20	7.044.180
220	25	7.044.220
260	30	7.044.260
310	30	7.044.310
420	30	7.044.420

Special ST funnels, PP. For multiple neck-flask and apparatus.

Height mm	ST	
80	14.5	7.045.001
100	19	7.045.002
140	29	7.045.003

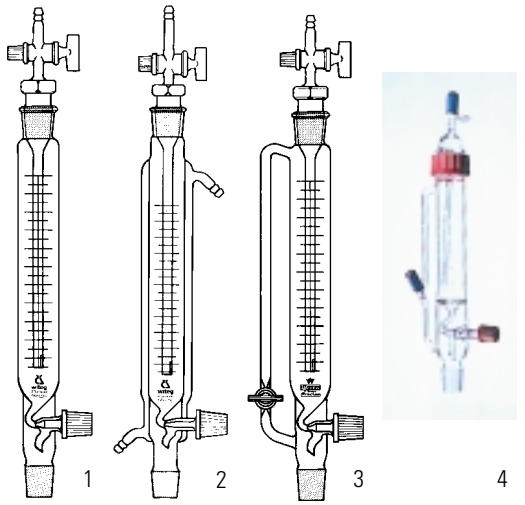
Funnel holders, PP. For funnels of 50-120 mm dia., can be fixed to stands of 8-14 mm dia..

Type	
Single	7.051.001
Double	7.051.002

Funnels, constant addition, cylindrical graduated, with PTFE dosing valve, inserted Mariotte tube, all parts are interchangeable.
1. Basic version.
2. With heating and cooling jacket.
3. With pressure equalizing tube.
4. With pressure equalizing tube and heating and cooling jacket.

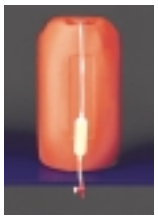
Funnels for solids see pages 19, 20.

Capacity ml	ST	1.	2.	3.	4.
50:1	14/23	2.685.005	2.686.005	2.687.005	2.688.005
100:2	14/23	2.685.010	2.686.010	2.687.010	2.688.010
250:5	14/23	2.685.025	2.686.025	2.687.025	2.688.025
50:1	29/32	2.685.050	2.686.050	2.687.050	2.688.050
100:2	29/32	2.685.100	2.686.100	2.687.100	2.688.100
250:5	29/32	2.685.250	2.686.250	2.687.250	2.688.250
500:10	29/32	2.685.500	2.686.500	2.687.500	2.688.500
1000:20	29/32	2.685.001	2.686.001	2.687.001	2.688.001
2000:50	29/32	2.685.002	2.686.002	2.687.002	2.688.002



Siphon, body made of PE, with PVC-tube. Suitable for filling liquids out of barrels, carboys and canisters.

Length mm	Tubing dia. mm	Output l/min	
1500	10	5	7.251.001



OTAL-filling pumps, all-purpose, resistant to acids, alkalis and solvents. Simple handling. Tube dia. 12 mm.

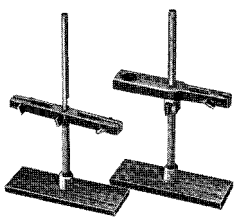
For vessels with top dia. mm	Foot pump 14 l/min	Hand pump 6 l/min
28-70	7.252.001	7.252.005
44-60	7.252.002	7.252.006
36-52	7.252.003	7.252.007
28-44	7.252.004	7.252.008

Scoops, white, PP.

Capacity ml	Length mm	
Scoops, white, PP		
2	60	7.037.001
5	82	7.037.002
10	100	7.037.003
25	135	7.037.004
50	160	7.037.005
100	200	7.037.006
250	260	7.037.007
500	315	7.037.008
1000	385	7.037.009

Scoops, PE

15	115	7.038.001
25	135	7.038.002
62	185	7.038.003
110	210	7.038.004
150	250	7.038.005
350	310	7.038.006
500	350	7.038.007
1000	400	7.038.008



Burette- and funnel support, detachable, height adjustable, made of polished hardwood, height 500 mm.

Width mm	Length mm	Number of bores	
110	300	2	9.060.001
110	200	1	9.060.002
110	350	2	9.060.003

Media (Laboratory) bottles with ISO-thread GL. Graduated. Borosilicate glass 3.3.
1. Bottle with pouring ring and thread screw, PP, up to 140°C sterilisable.
2. Bottle.
3. Bottle with plastic coating
4. Bottle of amber glass
5. New. Square bottle with pouring ring and screw cap
6. New. Square bottle
7. New. Square bottle amber glass

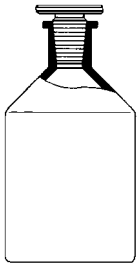
Capacity ml	GL	1.	2.	3.	4.	5.	6.	7.
25	25	5.526.025	5.527.025	–	5.528.025	–	–	–
50	32	5.526.050	5.527.050	–	5.528.050	–	–	–
100	45	5.526.100	5.527.100	5.061.010	5.528.100	5.523.311	5.523.321	5.523.331
250	45	5.526.250	5.527.250	5.061.025	5.528.250	5.523.312	5.523.322	5.523.332
500	45	5.526.500	5.527.500	5.061.050	5.528.500	5.523.313	5.523.323	5.523.333
1000	45	5.526.001	5.527.001	5.061.001	5.528.001	5.523.314	5.523.324	5.523.334
2000	45	5.526.002	5.527.002	5.061.200	5.528.002	–	–	–
5000	45	5.526.005	5.527.005	5.061.005	5.528.005	–	–	–
10000	45	5.526.010	5.527.010	5.061.900	5.528.010	–	–	–
15000	45	5.526.015	5.527.015	–	5.528.015	–	–	–
20000	45	5.526.020	5.527.020	–	5.528.020	–	–	–
Screw cap GL, PP lip sealing								
Blue	25		0.175.025					
Blue	32		0.175.132					
Blue	45		0.175.145					
Red	45		5.526.088					
Yellow	45		5.526.066					
Green	45		5.526.077					
White	45		5.526.099					
Pouring ring for GL								
Blue	45		0.175.201					
Red	45		0.175.203					
Yellow	45		0.175.204					
Green	45		0.175.205					
Blue	32		0.175.202					
Red, to 200°C	45		0.175.301					
Red, to 200°C	32		0.175.302					

Bottles, narrow mouth, with DIN-screw thread and screw cap.

Capacity ml	Clear glass	Amber glass
30	5.888.030	5.889.030
50	5.888.050	5.889.050
100	5.888.100	5.889.100
125	5.888.125	5.889.125
150	5.888.150	5.889.150
200	5.888.200	5.889.200
250	5.888.250	5.889.250
500	5.888.500	5.889.500
1000	5.888.001	5.889.001
2000	5.888.002	5.889.002
2500	–	5.889.025
3000	–	5.889.003
5000	–	5.889.005

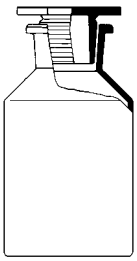
Bottles wide mouth, with DIN-screw thread and screw cap.

Capacity ml	Clear glass	Amber glass
25	5.894.025	5.895.025
30	5.894.030	5.895.030
50	5.894.050	5.895.050
75	5.894.075	5.895.075
100	5.894.100	5.895.100
125	5.894.125	5.895.125
150	5.894.150	5.895.150
200	5.894.200	5.895.200
250	5.894.250	5.895.250
300	5.894.300	5.895.300
500	5.894.500	5.895.500
1000	5.894.001	5.895.001
2000	5.894.002	5.895.002
3000	5.894.003	5.895.003
5000	5.894.005	5.895.005



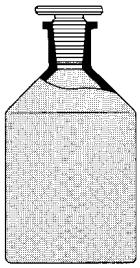
Bottles, conical shoulder, narrow mouth, soda-glass. With ST-stopper, made of clear glass, amber glass or PE.

Capacity ml	ST	Clear glass-stopper	Clear PE-stopper	Amber glass-stopper	Amber PE-stopper
50	14/15	5.868.050	5.870.050	5.869.050	5.871.050
100	14/23	5.868.100	5.870.100	5.869.100	5.871.100
250	19/26	5.868.250	5.870.250	5.869.250	5.871.250
500	24/29	5.868.500	5.870.500	5.869.500	5.871.500
1000	29/32	5.868.001	5.870.001	5.869.001	5.871.001
2000	29/32	5.868.002	5.870.002	5.869.002	5.871.002
5000	45/40	5.868.005	5.870.005	5.869.005	5.871.005
10000	60/46	5.868.010	5.870.010	5.869.010	5.871.010



Bottles, conical shoulder, wide mouth, soda-glass. With ST-stopper, made of clear glass, amber glass or PE.

Capacity ml	ST	Clear glass-stopper	Clear PE-stopper	Amber glass-stopper	Amber PE-stopper
50	24/20	5.873.050	5.875.050	5.874.050	5.876.050
100	29/22	5.873.100	5.875.100	5.874.100	5.876.100
250	34/24	5.873.250	5.875.250	5.874.250	5.876.250
500	45/27	5.873.500	5.875.500	5.874.500	5.876.500
1000	60/46	5.873.001	5.875.001	5.874.001	5.876.001
2000	60/46	5.873.002	5.875.002	5.874.002	5.876.002
5000	85/55	5.873.005	5.875.005	5.874.005	5.876.005

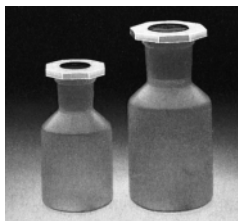


Bottles, conical shoulder, soda-glass. With ST-glass stopper with washing-machine-proof PROTEFAN safety coating with UV stabilizer.

Capacity ml	ST	Narrow mouth PROTEFAN	ST	Wide mouth PROTEFAN
50	14/15	5.080.050	24/20	5.085.050
100	14/23	5.080.100	29/22	5.085.100
250	19/26	5.080.250	34/24	5.085.250
500	24/29	5.080.500	45/27	5.085.500
1000	29/32	5.080.001	60/46	5.085.001
2000	29/32	5.080.002	60/46	5.085.002

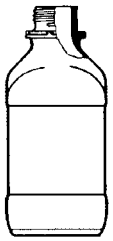
Bottles, conical shoulder, PP. Transparent. With ST-stopper.

Capacity ml	ST	Height mm	O. D. mm	
Narrow mouth				
100	14.5	106	51	7.172.001
250	19	138	70	7.172.002
500	24	172	85	7.172.003
1000	29	213	105	7.172.004
2000	29	255	131	7.172.005
Wide mouth				
100	29	111	55	7.173.001
250	34.5	144	72	7.173.002
500	45	183	85	7.173.003
1000	60	214	106	7.173.004
2000	60	263	128	7.173.005



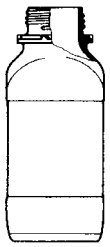
Square bottles, screw cap, narrow mouth. With DIN-thread, pouring ring and dustproof cap PP.

Capacity ml	DIN-thread GL	Clear glass	Amber glass	Synthetic coated	Spare screw cap PP
50	32	5.896.050	5.897.050	5.897.350	5.897.032
100	32	5.896.100	5.897.100	5.897.400	5.897.032
250	32	5.896.250	5.897.250	5.897.450	5.897.032
500	32	5.896.500	5.897.500	5.897.600	5.897.032
1000	45	5.896.001	5.897.001	5.897.701	5.897.045



Square bottles, wide mouth. DIN-thread, with pouring ring and dustproof, blue (PP).

Capacity ml	DIN-thread GL	Clear glass	Amber glass	Synthetic coated	Spare screw cap PP
50	32	5.898.050	5.899.050	5.899.150	5.899.032
100	32	5.898.100	5.899.100	5.899.110	5.899.032
250	45	5.898.250	5.899.250	5.899.260	5.899.045
500	54	5.898.500	5.899.500	5.899.510	5.899.054
1000	60	5.898.001	5.899.001	5.899.011	5.899.060



Bottles, narrow mouth, PE, with screw cap.

Capacity ml	DIN-thread GL	Complete	Bottle	Screw
10	14	7.171.001	7.171.101	7.171.201
20	14	7.171.002	7.171.102	7.171.202
30	14	7.171.003	7.171.103	7.171.203
50	18	7.171.004	7.171.104	7.171.204
100	18	7.171.005	7.171.105	7.171.205
250	25	7.171.007	7.171.107	7.171.207
500	25	7.171.008	7.171.108	7.171.208
1000	28	7.171.009	7.171.109	7.171.209
2000	28	7.171.010	7.171.110	7.171.210
3000	32	7.171.011	7.171.111	7.171.211
5000	40	7.171.012	7.171.112	7.171.212

Specimen bottles, with screw thread, cap PE, for tests and pills etc.

Height x dia.	Capacity ml	DIN-thread GL	Clear glass	Amber glass
41 x 20	5	18	5.892.105	5.892.205
55 x 20	10	18	5.892.110	5.892.210
45 x 27	15	25	5.892.115	5.892.215
50 x 27	20	25	5.892.120	5.892.220
55 x 27	30	25	5.892.130	5.892.230
75 x 80	40	25	5.892.140	5.892.240
90 x 90	50	25	5.892.150	5.892.250

Specimen bottles, amber glass. With screw thread DIN 18 and screw cap.

Capacity ml	
5	5.892.005
10	5.892.010
15	5.892.015
20	5.892.020
30	5.892.030
50	5.892.050
75	5.892.075
100	5.892.100

Bottles, PE, round. With screw cap.

Capacity ml	Thread DIN	Height mm	O. D. mm	Complete	Bottle	Screw cap
Narrow mouth, transparent, high shoulder						
50	18	63	35	7.165.003	7.165.103	7.165.203
100	18	102	41	7.165.004	7.165.104	7.165.204
250	25	135	58	7.165.005	7.165.105	7.165.205
500	25	190	71	7.165.006	7.165.106	7.165.206
1000	38	215	91	7.165.007	7.165.107	7.165.207
Wide mouth, transparent						
50	32	77	39	7.166.001	7.166.101	7.166.201
100	32	94	48	7.166.002	7.166.102	7.166.202
250	40	120	64	7.166.003	7.166.103	7.166.203
500	50	153	77	7.166.004	7.166.104	7.166.204
1000	65	205	95	7.166.005	7.166.105	7.166.205
2000	65	247	120	7.166.006	7.166.106	7.166.206
Square, natural colour						
100	18	111	39x31	7.191.011	7.191.101	7.191.201
250	25	147	51x41	7.191.012	7.191.102	7.191.202
500	25	180	66x53	7.191.013	7.191.103	7.191.203
1000	25	123	81x64	7.191.014	7.191.104	7.191.204

Square bottles. With DIN-thread and screw cap.

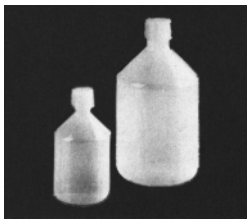
Capacity ml	Thread GL	Height mm	
Narrow mouth, PE			
100	18	83	7.167.001
250	25	112	7.167.003
500	25	133	7.167.004
1000	32	168	7.167.005
Wide mouth, PE			
100	32	90	7.168.001
250	45	119	7.168.002
500	45	145	7.168.003
1000	63	177	7.168.004

Square bottles (hybridising bottle), PE-LD. Graduated. Wide mouth. With screw cap, suitable for overhead-shaker.

Capacity ml	
2000	7.186.002

Bottles, conical shoulder, narrow mouth. With screw cap.
PP. Transparent.
ECTFE. High resistance both to heat and chemical attacks.

Capacity ml	Thread GL	Height mm	O. D. mm	PP	ECTFE
100	18	100	52	7.174.001	7.174.101
250	25	132	70	7.174.002	7.174.102
500	25	165	85	7.174.003	7.174.103
1000	32	202	105	7.174.004	7.174.104
2000	32	245	130	7.174.005	–



Bottles, conical shoulder. PP, transparent.

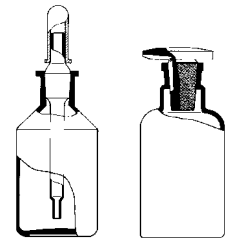
Capacity ml	Neck	Height mm	O. D. mm	Handles	
Narrow mouth, with ST-stopper					
5000	45	325	175	1	7.176.001
10000	60	402	219	2	7.176.002
Wide mouth, with DIN-thread					
100	32	96	54	–	7.175.001
250	45	132	72	–	7.175.002
500	45	172	85	–	7.175.003
1000	63	204	109	–	7.175.004
2000	63	243	127	–	7.175.005
5000	45	315	180	1	7.177.001
10000	60	394	220	2	7.177.002

Bottles, conical shoulder, made of fluorine-plastic with screw cap. High resistance both against heat and chemical attacks.
1. PTFE, heavy wall.
2. FEP, wide mouth.
3. PFA, with special developed closure for most proper tightening.
Transparent.

Capacity ml	PTFE heavy wall	FEP wide neck	PFA transparent
10	7.206.001	–	–
25	7.206.002	–	–
50	7.206.003	7.175.101	7.174.200
100	7.206.004	7.175.102	7.174.201
250	–	7.175.103	7.174.202
500	–	7.175.104	7.174.203
1000	–	7.175.105	7.174.204

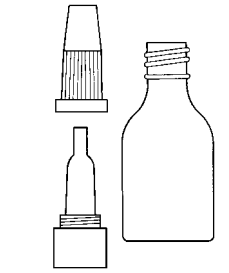
Dropping bottles.

Capacity ml	Clear glass	Amber glass
With interchangeable pipet and rubber teat		
50	5.880.050	5.881.050
100	5.880.100	5.881.100
With grooved flat stopper		
50	5.882.050	5.883.050
100	5.882.100	5.883.100



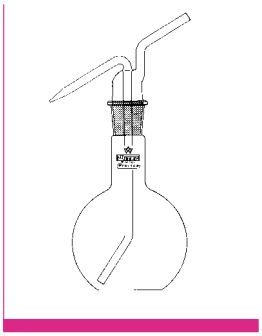
Dropping bottles, amber glass. Screw thread GL 18.

Capacity ml	With dropper and teat	Alpha with montur
5	5.893.005	5.893.205
10	5.893.010	5.893.210
15	5.893.015	5.893.215
20	5.893.020	5.893.220
30	5.893.030	5.893.230
50	5.893.050	5.893.250
75	5.893.075	5.893.275
100	5.893.100	5.893.200



Washing bottles, amber glass. With ST 29/32-still head.

Capacity ml	complete	Spare part flask	Spare part still head
250	2.720.250	2.721.250	2.722.250
500	2.720.500	2.721.500	2.722.500
1000	2.720.001	2.721.000	2.722.001



Washing bottles, PP. Bottle with integrated spraying insert and standard screw GL 32.

Capacity ml	
250	7.088.001
500	7.088.002

Washing bottles, PE. With screw cap and spraying insert.

Capacity ml	Complete	Bottle	Spraying inset
50	7.169.001	7.169.101	7.169.201
100	7.169.002	7.169.102	7.169.202
250	7.169.003	7.169.103	7.169.203
500	7.169.004	7.169.104	7.169.204
1000	7.169.005	7.169.105	7.169.205
2000	7.169.006	7.169.106	7.169.206

Dropping bottles PE, dropper with holding tape and cap.

Capacity ml	
10	7.170.001
20	7.170.011
30	7.170.002
50	7.170.003
100	7.170.004
250	7.170.005
500	7.170.006
1000	7.170.007

Safety washing bottles, PE. With safety delivery jet, printed-on capacity, danger signs and hazard notation acc. to the latest DIN hazard decree, colour of bottle yellow (inactinic).

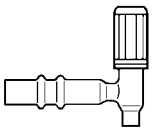
Imprint	250 ml	500 ml	1000 ml
Dist. Water	7.169.101	7.169.109	7.169.117
Aceton	7.169.102	7.169.110	7.169.118
Formaldehyde	7.169.103	7.169.111	7.169.119
Acetic Ether	7.169.105	7.169.113	7.169.121
Dimethylformamid	7.169.106	7.169.114	7.169.122
Iso-Propanol	7.169.107	7.169.115	7.169.123
Ethanol	7.169.108	7.169.116	7.169.124
Aceticacidethylester	7.169.125	7.169.138	7.169.151
Methylenchloride	7.169.126	7.169.139	7.169.152
Heptan	7.169.127	7.169.140	7.169.153
Hexane	7.169.128	7.169.141	7.169.154
Petrolether	7.169.129	7.169.142	7.169.155
Benzine	7.169.130	7.169.143	7.169.156
Toluene	7.169.131	7.169.144	7.169.157
Xylene-(m-) meta	7.169.132	7.169.145	7.169.158
Xylene-(o-) ortho	7.169.133	7.169.146	7.169.159
Xylene-(p-) para	7.169.134	7.169.147	7.169.160
Acetonenitrile	7.169.135	7.169.148	7.169.161
Methylethylketon	7.169.136	7.169.149	7.169.162
Acetic acid	7.169.137	7.169.150	7.169.163

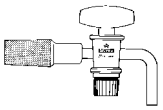
Sprayer, PE. Adjustable from finest spraying (atomizing) to radiate spraying by easy turning. Range approx.: 3 - 4 meters. Particularly suitable for disinfectants, even on places which are hard to reach.

Capacity ml	
500	7.087.002
1000	7.087.004

Aspirator bottles, borosilicate glass. DIN 12037, 1. with ST-stopcock and neck with ST-stopper, 2. with screw-thread and screw-thread tubus.

Capacity ml	Height mm	O. D. mm	Bore of plug mm	Neck	Tubus	1. ST	2. Screw-thread
500	165	89	4	ST 24/29	ST 19/26	5.614.500	-
1000	200	110	4	ST 29/32	ST 19/26	5.614.001	-
1000	225	101	4	GL 45	GL 32	-	5.611.001
2000	245	136	4	ST 29/32	ST 19/26	5.614.002	-
2000	262	136	4	GL 45	GL 32	-	5.611.002
5000	318	186	8	ST 45/40	ST 29/32	5.614.005	-
5000	335	183	8	GL 45	GL 32	-	5.611.005
10000	398	234	8	ST 60/46	ST 29/32	5.614.010	-
10000	410	230	8	GL 45	GL 32	-	5.611.010
20000	492	300	8	ST 60/46	ST 29/32	5.614.020	–





Taps for bottles.

Cone ST	Plug ST	Bore of plug mm	Clear glass	Amber glass
19/26	14.5	2.5	0.248.002	–
19/26	18.8	4	0.248.004	0.248.104
	for 5.611.001 /.002		0.248.206	–
24/29	21.5	6.3	0.248.006	–
24/29	24	8	0.248.008	–
	for 5.611.005 /.010		0.248.210	–
29/32	21.5	6.3	0.248.010	0.248.110
29/32	24	8	0.248.012	–

Carboys, PE. With screw cap.

Capacity l	Neck dia. mm	Height mm	Dimensions mm	Without stopcock	With stopcock
Narrow mouth, round					
5	47	335	Ø 165	7.178.000	7.179.000
10	55	395	Ø 210	7.178.001	7.179.001
25	66	540	Ø 280	7.178.002	7.179.002
50	66	645	Ø 335	7.178.003	7.179.003
Wide mouth, round					
5	90	315	Ø 163	7.179.805	–
10	120	390	Ø 210	7.179.810	–
20	150	425	Ø 280	7.180.001	7.181.001
25	150	510	Ø 280	7.180.002	7.181.002
30	150	595	Ø 280	7.180.003	7.181.003
50	150	615	Ø 355	7.180.004	7.181.004
60	150	685	Ø 355	7.180.005	7.181.005
Wide mouth, tetragonal					
5	80	280	180 x 140	7.182.001	7.183.001
10	80	365	220 x 175	7.182.002	7.183.002
20	150	405	275 x 235	7.182.003	7.183.003
25	150	480	275 x 235	7.182.004	7.183.004
30	150	550	275 x 235	7.182.005	7.183.005
Spare stopcock to 7.179*** 3/4 thread					7.179.101
Spare stopcock to 7.181+7.183***					7.181.101

Canister, PE, with screw cap.

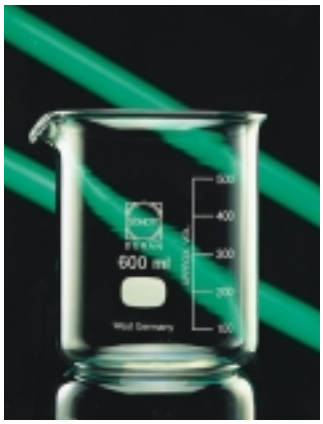
Capacity l	Dimensions mm	Height mm	Neck mm	
Pileable				
5	195 x 145	255	33	7.189.001
10	230 x 190	310	33	7.189.002
20	290 x 250	366	49	7.189.003
30	370 x 250	428	49	7.189.004
Thick-walled, with installed pouring spout				
10	264 x 130	405	–	7.190.001
20	337 x 162	485	–	7.190.002
Storage and transport				
1				7.190.101
2.5				7.190.103
3				7.190.105

Pourer, PE. With sealing caps. Insertation tube conical, so to be used for various container openings. Pourer necks 16 and 10 mm.

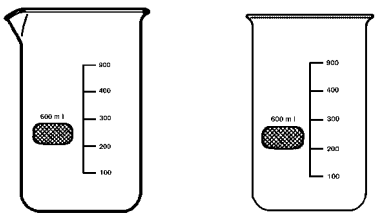
Cone mm	
19-24	7.225.001
25-30	7.225.002
28-34	7.225.003

Beakers, squat, low form. DURAN. DIN 12331, ISO 3819. With graduation and spout.

Capacity ml	O. D. mm	Height mm	
5	22	30	5.500.005
10	26	35	5.500.010
25	32	48	5.500.025
50	39	55	5.500.050
100	51	71	5.500.100
150	55	81	5.500.150
250	69	95	5.500.250
400	82	100	5.500.400
600	92	115	5.500.600
800	98	136	5.500.800
1000	106	145	5.500.001
2000	132	185	5.500.002
3000	153	210	5.500.003
5000	170	270	5.500.051
10000	217	350	5.500.110



Quartz beakers
see
page 163.



Beakers, tall form. DURAN. DIN 12331, ISO 3819. With graduation.

Capacity ml	O. D. mm	Height mm	With spout	Without spout
50	38	66	5.502.050	5.504.050
100	47	80	5.502.100	5.504.100
150	53	96	5.502.150	5.504.150
250	61	117	5.502.250	5.504.250
400	70	130	5.502.400	5.504.400
600	82	143	5.502 600	5.504.600
800	89	171	5.502 800	–
1000	95	185	5.502.001	5.504.001
2000	118	236	5.502.002	–
3000	135	280	5.502.003	–

Griffin beakers. Raised or color graduated. With spout. ISO 7056, BS 5404, autoclavable.

Capacity ml	Height mm	O. D. mm	PP raised	PP transparent	TPX raised	TPX crystal clear	ETFE transparent
10:1	35	25	–	7.009.001	–	7.010.001	–
25:2/1	50	32	–	–	–	–	7.011.025
25:1	47	31	7.008.002	7.009.002	7.010.102	7.010.002	–
50:5	60	40	7.008.003	7.009.003	7.010.103	7.010.003	7.011.001
100:5	70	49	7.008.004	7.009.004	7.010.104	7.010.004	7.011.002
150:5	80	56	–	7.009.005	–	7.010.005	–
250:5	94	68	7.008.006	7.009.006	7.010.106	7.010.006	7.011.003
400:10	109	77	–	7.009.007	–	7.010.007	–
500:10	120	90	7.008.057	7.009.057	7.010.157	–	–
600:10	125	91	–	7.009.008	–	7.010.008	7.011.004
800:50	136	98	–	7.009.009	–	7.010.009	–
1000:50	149	102	7.008.010	7.009.010	7.010.110	7.010.010	–
2000:100	183	133	7.008.011	7.009.011	7.010.111	7.010.011	–
3000:100	203	158	7.008.012	7.009.012	7.010.112	7.010.012	–
5000:250	248	185	7.008.013	7.009.013	7.010.113	7.010.013	–

Beakers, PTFE. Heavy wall, with spout.

Capacity ml	
1	7.205.001
5	7.205.002
10	7.205.003
25	7.205.004
50	7.205.005
100	7.205.006
250	7.205.007
500	7.205.008
1000	7.205.009

Measuring beakers, with handle and spout.
PP: blue or raised graduated, transparent.
SAN: raised graduation, crystal clear.

Capacity ml	Height mm	Cyl.	O. D. mm	Cyl.	Raised cylindrical	PP raised	PP blue	SAN raised
50:2	70	–	40	–	–	7.017.050	7.018.050	–
100:2	80	–	50	–	–	7.017.100	7.018.100	–
250:5	120	–	70	–	–	7.017.001	7.018.001	7.019.001
500:10	133	115	91	90	7.017.202	7.017.002	7.018.002	7.019.002
1000:10	170	130	116	115	7.017.203	7.017.003	7.018.003	7.019.003
2000:20	215	165	150	145	7.017.204	7.017.004	7.018.004	7.019.004
3000:100	242	180	170	165	7.017.205	7.017.005	7.018.005	7.019.005
5000:100	270	225	210	190	7.017.206	7.017.006	7.018.006	–

Measures (conical beakers), graduated.

Capacity ml	Height mm	PP transparent	PMP crystal clear
100:2	120	7.027.001	7.028.001
250:5	160	7.027.002	7.028.002
500:10	180	7.027.003	7.028.003
1000:20	270	7.027.004	7.028.004

Cork laboratory rings, for supporting flasks, dishes etc. height 30 mm.

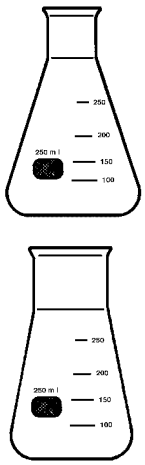
For flask round bottom ml	O. D. mm	I. D. mm	
50-250	80	30	9.302.001
500-1000	110	60	9.302.002
2000-4000	140	90	9.302.003
6000-10000	170	120	9.302.004
20000	210	150	9.302.005
	240	180	9.302.006

Flask support, white. PP.

Dia. mm	Height mm	
160	49	7.040.001

Erlenmeyer flasks. DURAN. With graduation. Narrow mouth, acc. to DIN 12380, ISO 1773, wide neck, acc. to DIN 12385.

Capacity ml	Flask O. D. mm	Height mm	Neck O. D. mm	Narrow mouth	Neck O. D. mm	Wide mouth
25	42	70	22	5.506.025	–	–
25	43	70	–	–	31	5.508.025
50	51	85	22	5.506.050	34	5.508.050
100	64	105	22	5.506.100	34	5.508.100
200	79	131	34	5.506.200	50	5.508.200
250	85	140	34	5.506.250	50	5.508.250
300	87	156	34	5.506.300	50	5.508.300
500	105	175	34	5.506.500	50	5.508.500
1000	131	220	42	5.506.001	50	5.508.001
2000	153	275	–	–	72	5.508.002
2000	166	280	50	5.506.002	–	–
3000	187	310	50	5.506.003	–	–
5000	220	365	48	5.506.005	–	–



Erlenmeyer flasks, with screw-thread. Graduated. For storage of culture media and mixing.

Capacity	Screw-thread	Flask O. D.	Height	With screw cap	Without screw cap
25	18	42	70	5.507.001	–
50	25	51	85	5.507.002	–
100	25	64	105	5.507.003	0.670.100
250	32	85	140	5.507.004	0.670.250
500	32	105	175	5.507.005	0.670.500
1000	32	131	220	5.507.006	0.670.001
2000	45	166	280	5.507.007	–
3000	45	187	310	5.507.008	–
5000	45	220	365	5.507.009	–

Erlenmeyer flasks, PP. Wide mouth, transparent.

Capacity ml	ST	With ST-stopper	With screw cap
50	14/23	7.024.001	7.025.001
100	14/23	7.024.001	7.025.002
250	19/26	7.024.003	7.025.003
500	24/29	7.024.004	7.025.004
1000	29/32	7.024.005	7.025.005
2000	34/35	7.024.006	–

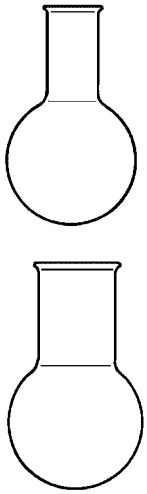
Filtering flasks, PP. For vacuum filtration, narrow mouth, transparent, with ST-stopper, heavy wall, autoclavable.

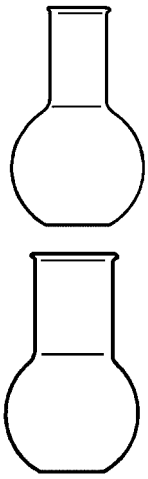
Capacity ml	ST	
250	24	7.026.001
500	29	7.026.002
1000	34.5	7.026.003

Quartz Erlenmeyer flasks
see
page 162.

Flasks, round bottom, medium length. DURAN. With beaded rim, acc. to DIN 12347, ISO 1773.

Capacity ml	Flask O. D. mm	Height mm	Neck O. D. mm	Narrow neck	Neck O. D. mm	Wide neck
50	51	105	22	5.510.050	34	5.512.050
100	64	115	22	5.510.100	34	5.512.100
250	85	145	34	5.510.250	50	5.512.250
500	105	175	34	5.510.500	50	5.512.500
1000	131	210	42	5.510.001	50	5.512.001
1000	131	210	–	–	65	5.512.011
2000	166	260	50	5.510.002	76	5.512.002
2000	166	260	42	5.510.012	–	–
3000	185	295	65	5.510.003	–	–
4000	207	315	50	5.510.004	76	5.512.004
6000	236	355	65	5.510.006	89	5.512.006
10000	279	420	65	5.510.010	89	5.512.010
20000	345	515	76	5.510.020	89	5.512.020



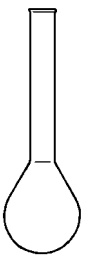


Flasks, flat bottom, medium length. DURAN. With beaded rim, acc. to DIN 12347, ISO 1773.

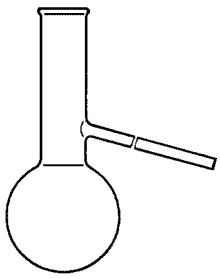
Capacity ml	Flask O. D. mm	Height mm	Neck O. D. mm	Narrow neck	Neck O. D. mm	Wide neck
50	51	100	22	5.514.050	34	5.516.050
100	64	110	22	5.514.100	34	5.516.100
250	85	140	34	5.514.250	50	5.516.250
500	105	170	34	5.514.500	50	5.516.500
1000	131	200	42	5.514.001	50	5.516.001
2000	166	250	50	5.514.002	76	5.516.002
2000	166	250	42	5.514.012	–	–
4000	207	300	50	5.514.004	–	–
6000	236	340	65	5.514.006	–	–
10000	279	400	65	5.514.010	–	–

Flasks, Kjeldahl. DURAN. DIN 12360.

Capacity ml	Flask O. D. mm	Height mm	Neck O. D. mm		With Socket ST 19/26	ST 24/29	ST 29/32
50	51	200	22	5.518.050	5.518.052	5.518.053	5.518.054
100	60	200	22	5.518.100	5.518.102	5.518.103	5.518.104
250	81	270	34	5.518.250	5.518.252	5.518.253	5.518.254
500	101	300	34	5.518.500	5.518.502	5.518.503	5.518.504
750	115	340	34	5.518.750	–	5.518.753	5.518.754
1000	126	350	34	5.518.001	–	5.518.003	5.518.004



Quartz flasks
see
pages 162 and 163.

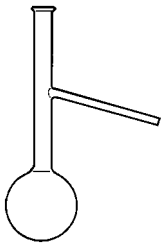


Flasks, distilling. DURAN. With side arm, length. 200/8 mm.

Capacity ml	Flask O. D. mm	Height mm	Neck O. D. mm	
100	63	150	22	5.520.100
250	85	200	34	5.520.250
500	105	250	34	5.520.500
1000	131	300	34	5.520.001

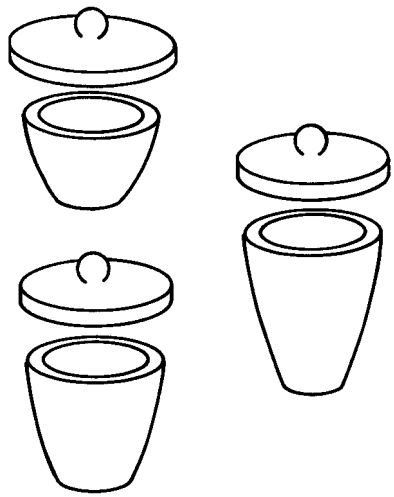
Flasks, distilling, Engler, DURAN. With side arm, length 100/6-7 mm. DIN 51751, ASTM D 86

Capacity ml	Flask O. D. mm	Height mm	Neck O. D. mm		With Socket ST 19/26
100	66	215	16	5.522.100	–
125	68	215	17	5.522.125	5.523.125
150	73	223	16	5.522.150	–

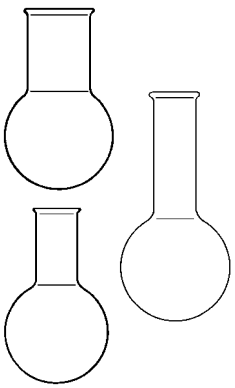


Crucibles, made of Quartz-Silica.

Capacity ml	Dia. mm	Height mm	With cover	Crucibles	Cover
Low form					
6	30	20	8.630.001	8.630.101	8.630.201
15	40	26	8.630.002	8.630.102	8.630.202
29	50	33	8.630.003	8.630.103	8.630.203
50	60	40	8.630.004	8.630.104	8.630.204
150	70	56	8.630.005	8.630.105	8.630.205
Medium form					
15	35	28	8.631.001	8.631.101	8.631.201
20	40	32	8.631.002	8.631.102	8.631.202
33	45	36	8.631.003	8.631.103	8.631.203
40	40	50	8.631.004	8.631.104	8.631.204
75	50	63	8.631.005	8.631.105	8.631.205
Tall form					
30	40	40	8.633.001	8.633.101	8.633.201
40	45	45	8.633.002	8.633.102	8.633.202
50	50	50	8.633.003	8.633.103	8.633.203
90	60	60	8.633.004	8.633.104	8.633.204
100	65	65	8.633.005	8.633.105	8.633.205



QUARTZ-PRODUCTS

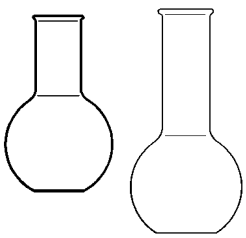


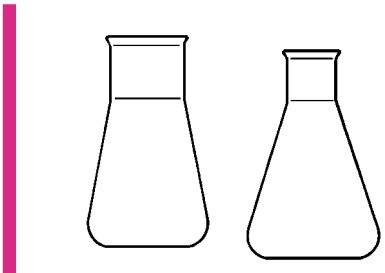
Flasks, round bottom, Quartz-Silica. With beaded rim.

Capacity ml	Dia. mm	Height mm	Short neck wide	Short neck narrow	Long neck Height mm	Long neck narrow
25	42	75	8.608.025	8.609.025	110	8.610.025
50	51	85	8.608.050	8.609.050	120	8.610.050
100	63	100	8.608.100	8.609.100	150	8.610.100
250	85	125	8.608.250	8.609.250	200	8.610.250
500	105	150	8.608.500	8.609.500	250	8.610.500
750	120	170	8.608.750	8.609.750	275	8.610.750
1000	130	200	8.608.001	8.609.001	300	8.610.001
2000	165	235	8.608.002	8.609.002	335	8.610.002

Flasks, flat bottom, Quartz-Silica. With beaded rim.

Capacity ml	Dia. mm	Short neck Height mm	Short neck DIN 12375	Long neck Height mm	Long neck DIN 12370
25	42	70	8.611.025	75	8.612.025
50	51	70	8.611.050	85	8.612.050
100	63	90	8.611.100	100	8.612.100
250	85	125	8.611.250	150	8.612.250
500	105	150	8.611.500	200	8.612.500
750	117	175	8.611.750	215	8.612.750
1000	131	200	8.611.001	230	8.612.001
2000	165	200	8.611.002	250	8.612.002



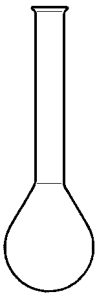


Erlenmeyer flasks, Quartz-Silica. With beaded rim.

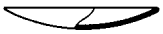
Capacity ml	Dia. mm	Wide neck height mm	Wide neck DIN 12385	Narrow neck height mm	Narrow neck DIN 12380
25	70	35	8.605.025	35	8.606.025
50	80	51	8.605.050	54	8.606.050
100	100	63	8.605.100	65	8.606.100
200	125	79	8.605.200	73	8.606.200
250	140	80	8.605.250	84	8.606.250
300	155	90	8.605 300	88	8.606.300
500	180	95	8.605.500	96	8.606.500
750	200	112	8.605.750	118	8.606.750
1000	200	129	8.605.001	136	8.606.001
2000	280	150	8.605.002	160	8.606.002

Kjeldahl-flasks, Quartz-Silica. With beaded rim. DIN 12360.

Capacity ml	Dia. mm	Height mm	
50	49	200	8.613.050
100	60	200	8.613.100
250	81	270	8.613.250
500	101	300	8.613.500
750	115	340	8.613.750
1000	126	350	8.613.001
2000	150	415	8.613.002

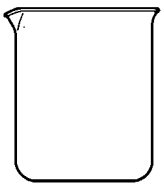


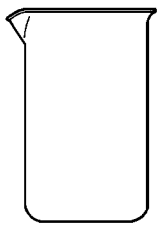
QUARTZ-PRODUCTS



Watch glasses, Quartz-Silica. DIN 12341.

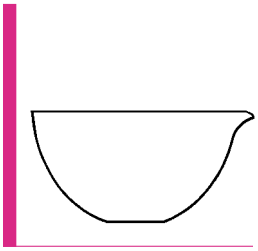
Dia. mm	
20	8.629.001
40	8.629.002
50	8.629.003
60	8.629.004
70	8.629.005
80	8.629.006
100	8.629.007





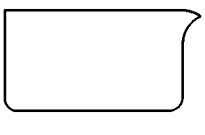
Beakers, Quartz-Silica. With spout.

Capacity ml	Dia. mm	Height mm	
Low form. DIN 12332			
5	22	31	8.600.005
10	26	36	8.600.010
20	31	42	8.600.020
25	32	47	8.600.025
50	40	55	8.600.050
100	50	70	8.600.100
150	55	80	8.600.150
250	69	90	8.600.250
400	85	100	8.600.400
500	85	110	8.600.500
600	90	126	8.600.600
800	98	135	8.600.800
1000	106	148	8.600.001
Tall form. DIN 12331			
5	18	32	8.601.005
10	23	46	8.601.010
20	29	52	8.601.020
25	30	55	8.601.025
50	38	65	8.601.050
100	45	80	8.601.100
150	52	95	8.601.150
250	60	115	8.601.250
400	70	130	8.601.400
500	75	135	8.601.500
600	78	145	8.601.600
800	86	170	8.601.800
1000	95	185	8.601.001



Evaporating dishes, Quartz-Silica DIN 12341.

Capacity ml	Dia. mm	Height mm	
10	40	18	8.651.001
15	50	25	8.651.002
45	60	30	8.651.003
60	70	35	8.651.004
90	80	45	8.651.005
170	95	55	8.651.006
320	115	65	8.651.007

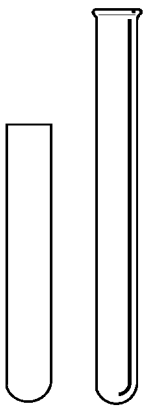


Crystallizing dishes. Quartz-Silica. With spout.

Capacity ml	Dia. mm	Height mm	
20	40	25	8.653.001
40	50	30	8.653.002
60	60	35	8.653.003
100	70	40	8.653.004
150	80	45	8.653.005
300	95	55	8.653.006
400	100	60	8.653.007

Test tubes. With round bottom. Packed 100 pieces in a cardboard-box.

Dia. x H mm	AR-glass 1 mm thick without rim	AR-glass beaded rim	FIOLAX beaded rim
6 x 35	4.904.001	–	–
8 x 40	4.904.002	–	–
8 x 70	–	–	4.902.001
10 x 70	4.904.003	–	–
12 x 75	4.904.004	–	–
15 x 75	4.904.005	–	–
15 x 85	4.904.006	–	–
10 x 100	4.904.007	4.900.001	4.902.002
12 x 100	4.904.008	4.900.002	4.902.003
14 x 100	4.904.009	–	–
16 x 100	4.904.010	4.900.003	4.902.004
18 x 100	4.904.011	–	–
14 x 130	4.904.012	4.900.004	4.902.005
15 x 135	4.904.013	–	–
15 x 150	–	4.900.005	–
16 x 160	4.904.014	4.900.006	4.902.006
18 x 160	–	4.900.007	–
25 x 160	–	4.900.008	–
18 x 180	4.904.015	4.900.009	4.902.007
20 x 180	–	4.900.010	4.902.008
25 x 200	–	–	4.902.009
30 x 200	4.904.016	4.900.011	4.902.010



Caps, Kapsenberg, for test tubes.

For test tubes O. D. mm	
16	4.920.016
18	4.920.018

Labocap caps see section „stoppers, caps“ pages 25 - 31 and 201.

Culture tubes, AR-glass, heavy.

Dia. x H mm	
25 x 100	4.904.017
25 x 150	4.904.018
25 x 200	4.904.019

Gas collection culture fermentation tube. AR-glass. For inverting in larger tubes for collection of gases produced in fermentation cultures.

Dia. x H mm	
8 x 29	4.904.100

Disposable tubes, AR-glass. Round bottom. Ungraduated.

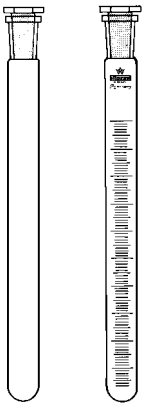
Dia. x H mm	Wall thickness mm	Carton pack pcs.	
Culture tubes, without rim			
10 x 75	0.6	250	4.925.001
12 x 75	0.6	250	4.925.002
12 x 100	0.6	250	4.925.003
16 x 100	0.8	250	4.925.004
16 x 125	0.8	250	4.925.005
16 x 160	0.8	250	4.925.006
18 x 180	0.8	250	4.925.007
Durham-tubes, without rim			
6 x 35	–	100	4.930.001
8 x 40	–	100	4.930.002
10 x 70	–	100	4.930.003
10 x 75	–	100	4.930.004
Kahn-tubes, without rim			
12 x 75	–	100	4.935.001
12 x 100	–	100	4.935.002

Culture tubes, 1. DIN 12395 plain top, 2. with rim. DURAN.

Dia x H mm	Wall thickness mm	1.	2.
8 x 70	0.8-1.0	4.903.000	4.903.100
12 x 75	0.8-1.0	4.903.001	4.903.101
10 x 100	0.8-1.0	4.903.013	4.903.113
12 x 100	0.8-1.0	4.903.002	4.903.102
14 x 130	0.8-1.0	4.903.014	4.903.114
16 x 130	1.0-1.2	4.903.003	4.903.103
16 x 160	1.0-1.2	4.903.004	4.903.104
18 x 180	1.0-1.2	4.903.005	4.903.105
20 x 150	1.0-1.2	4.903.006	4.903.106
20 x 180	1.0-1.2	4.903.020	4.903.120
25 x 100	1.0-1.2	4.903.007	4.903.107
25 x 150	1.0-1.2	4.903.008	4.903.108
25 x 200	1.0-1.2	4.903.009	4.903.109
30 x 200	1.0-1.4	4.903.010	4.903.110
30 x 250	1.0-1.4	4.903.011	4.903.111
30 x 300	1.0-1.4	4.903.012	4.903.112

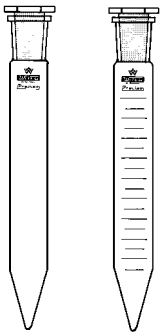
Test tubes, FIOLAX. Graduated, with spout.

Capacity ml	Division ml	Dia. x H mm	
10	0.1	15 x 150	4.906.001
20	0.2	17 x 180	4.906.002
25	0.2	17 x 200	4.906.003
30	0.5	19 x 200	4.906.004



Test tubes, DURAN. With ST-PE-stopper. Round bottom.

Dia. x H mm	ST	Ungraduated	Capacity ml	Graduated
12 x 100	10/13	2.580.510	5:0.1	2.582.510
13 x 100	12/21	2.580.000	5:0.1	2.582.000
15 x 165	12/21	2.580.001	10:0.1	2.582.001
16 x 100	14/23	2.580.116	–	–
16 x 125	14/15	2.580.525	10:0.2	2.582.525
16 x 125	14/23	2.580.125	–	–
16 x 160	14/23	2.580.168	–	–
16 x 180	14/23	2.580.188	–	–
16 x 210	14/23	2.580.210	20:0.2	2.582.210
16 x 235	14/23	2.580.235	25:0.2	2.582.235
17 x 180	14/23	2.580.160	10:0.1	2.582.160
17 x 200	14/23	2.580.002	20:0.2	2.582.002
17 x 220	14/23	2.580.003	25:0.2	2.582.003
17 x 220	14/23	–	25:0.5	2.582.004
19 x 220	14/23	2.580.004	30:0.5	2.582.005
20 x 150	19/17	2.580.550	25:0.5	2.582.550
20 x 150	19/26	2.580.008	–	–
25 x 150	24/29	2.580.009	–	–
25 x 200	24/29	2.580.010	–	–



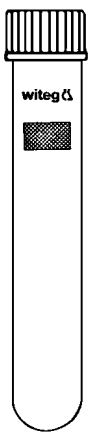
Test tubes, DURAN. With ST-PE-stopper. Conical bottom.

Dia. x H mm	ST	Ungraduated	Capacity ml	Graduated
17 x 120	14/23	2.587.001	10:0.1	2.588.001
17 x 155	14/23	2.587.002	15:0.1	2.588.002

Test tubes, borosilicate glass, heavy wall. 1.2-1.4 mm wall thickness. Culture tubes for bacteriological purpose, with screw thread, complete with cap and seal, all parts sterilizable, with marketing spot.

Dia. x H mm	GL	
Test tubes		
16 x 60	14	2.583.012
20 x 60	18	2.583.013
25 x 60	25	2.583.014
16 x 100	14	2.583.001
16 x 125	14	2.583.011
16 x 160	14	2.583.002
16 x 150	14	2.583.022
20 x 125	18	2.583.055
20 x 150	18	2.583.006
25 x 150	25	2.583.007
25 x 200	25	2.583.088
30 x 200	32	2.583.032
30 x 250	32	2.583.034
38 x 200	32	2.583.009
38 x 250	32	2.583.010
Spare screw caps with seal		
–	14	2.583.113
–	18	2.583.118
–	25	2.583.125
–	32	2.583.132

Special sizes upon request.

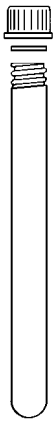


Test tubes, borosilicate glass, with new two position cap, PP, for tissue cultures. Open cap for gas exchange processes, closed cap for internal, sample defined humidity conditions. Autoclavable. Reduced contamination due to an internal drop ring. 10 pieces per pack.

Dia. x H mm	
Test tubes	
100 x 20	4.903.101
150 x 20	4.903.150
100 x 25	4.903.174
150 x 25	4.903.175
Sper caps, two position type	
20	4.903.220
25	4.903.225

Test tubes with screw-thread.
1. AR-glass, 1 mm thick. With PE-seal. Up to 121°C autoclavable.
2. DURAN. With silicone-seal. Cap with drilled holes for piercing.

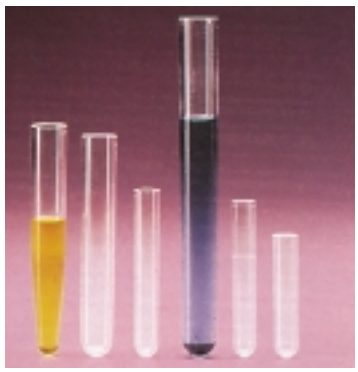
Dia. x H mm	GL	AR-glass	DURAN
12 x 100	14	2.585.001	2.586.001
16 x 100	18	2.585.002	–
16 x 160	18	2.585.003	2.586.002
18 x 180	18	2.585.004	2.586.003

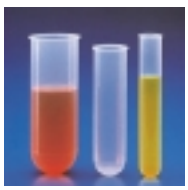


Test tubes. PS, crystal clear or PP, transparent. Stopper plugs into mouth, made of PE.

Type	Material	Dia. x H mm	Capacity ml	Bottom	Rim	Standard pack	Pieces per carton	
Coagulation tubes	PS	11 x 55	4	U	–	1000	5000	5.450.000
Test tubes	PS	11 x 70	4	U	–	1000	5000	5.452.000
*Stopper plugs into mouth		12 x 8	–	–	–	500	10000	5.453.000
Test tubes	PS	12 x 75	5	U	–	1000	4000	5.456.000
Test tubes	PS	13 x 75	5	U	–	1000	2000	5.456.113
**Stopper plugs into mouth		12 x 8	–	–	–	500	10000	5.457.000
Test tubes	PS	16 x 100	10	U	–	2000	2000	5.458.000
Test tubes	PP	16 x 100	10	U	–	2000	2000	5.459.000
Stopper plugs into mouth		16 x 18	-	-	–	500	10000	5.460.000
Sedimentation tubes	PS	16 x 105	10	V	+	2000	2000	5.461.000
Sedimentation tubes	PP	16 x 105	10	V	+	2000	2000	5.462.000
*Stopper plugs into mouth		16 x 6	–	–	-	1000	10000	5.463.000
With screw cap								
Test tubes	PP	16 x 100	10	U	–	2000	2000	5.464.000
Test tubes	PS, unsterile	16 x 100	10	U	–	125	1000	5.464.101
Test tubes	PS, sterile	16 x 100	10	U	–	125	1000	5.464.102
Test tubes	PS, unsterile	16 x 120	16	U	–	125	750	5.464.111
Test tubes	PS, sterile	16 x 120	16	U	–	125	750	5.464.112
Test tubes	PS, unsterile	16 x 150	19	U	–	125	500	5.464.121
Test tubes	PS, sterile	16 x 150	19	U	–	125	500	5.464.122

* available in nature, white, red, green, blue, yellow.
** in white.





Test tubes, roun bottom.
1. PP, transparent. Up to 121°C autoclavable.
2. PMP, glass clear. Up to 170°C autoclavable.

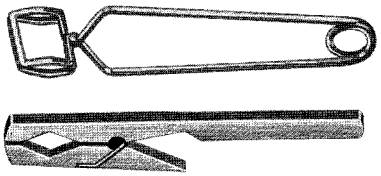
Capacity ml	Dia. x H mm	PP	Caps (PE)	
7	12 x 100	7.271.001	12 (10,5)	7.272.401
16	18 x 100	7.271.002	18 (16)	7.272.404
14	16 x 100	7.271.003	16 (14)	7.272.402
31	24 x 95	7.271.004	24 (22)	7.272.405
48	30 x 100	7.271.005	30 (28)	7.272.406
75	35 x 100	7.271.006	35 (33)	7.272.407
110	40 x 120	7.271.007	40 (38)	7.272.408

Conical centrifuge tubes.
1. PP, transparent. Autoclavable up to 121°C.
2. PMP, crystal clear. Autoclavable up to 170°C.

Capacity ml	Dia.xH mm	PP	PMP	Caps (PE)	
Ungraduated					
10	16 x 108	7.272.001	7.272.101	16 (14.5)	7.272.403
13	18 x 120	7.272.002	7.272.102	18 (16)	7.272.402
Graduated					
10	16 x 107	7.273.001	7.273.101	16 (14.5)	7.272.403
15	18 x 118	7.273.002	7.273.102	18 (16)	7.727.402

Test tube holders.

Type	
Brass, nickel-plated, with sliding collar, wooden handle	8.357.000
"Stoddart",steel wire, polished, nickel plated	8.358.000
Hardwood, up to 18 mm dia.	8.363.000
Hardwood, up to 30 mm dia.	8.363.030

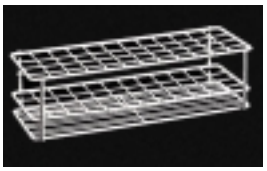


Test tube stands.

Holes	For dia. up to mm	Dimensions mm	Height mm	
PP, detachable				
12	16	180 x 55	120	7.072.001
24	16	325 x 55	120	7.072.002
PE				
10	16	200 x 55	–	7.067.001
9	18	200 x 55	–	7.067.002
13	11	200 x 55	–	7.067.003
PP				
10	19	250 x 50	75	7.068.001
24	21	375 x 65	85	7.069.001
12	21	190 x 60	80	7.069.002
PP, detachable, nummerical marked positions. For -20°C to +90°C, up to 121°C autoclavable. Available in white, yellow, blue and red. (Please add .W/.G/.BL/.R behind the article no.)				
100	micro 1.5 ml	262 x 108	45	7.073.102
90	13	247 x 104	60	7.073.103
60	16	247 x 104	70	7.073.104
40	20	247 x 104	70	7.073.105
40	25	297 x 124	85	7.073.106
24	30	301 x 111	85	7.073.107

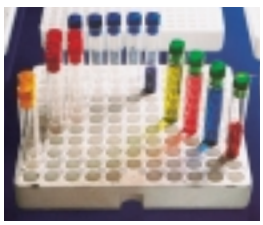
Test tube stands, stainless steel wire. With compartments on top and at 30 mm height, total height 70 mm. Available PE-coated. Please add "P" behind the article no.

Compartments	For dia. up to mm	Dimensions mm	
48	12 x 12	173 x68	7.073.201
24	14 x 14	197 x44	7.073.202
48	14 x 14	197 x76	7.073.203
24	16 x 16	223 x50	7.073.204
48	16 x 16	223 x86	7.073.205
12	18 x 18	130 x50	7.073.206
24	18 x 18	250 x50	7.073.207
48	18 x 18	250 x90	7.073.208
100	18 x 18	210 x210	7.073.209
24	20 x 20	269 x56	7.073.210
48	20 x 20	269 x100	7.073.211
24	22 x 22	295 x60	7.073.212
48	22 x 22	295 x108	7.073.213
12	28 x 28	180 x60	7.073.214
24	28 x 28	360 x60	7.073.215
48	28 x 28	360 x120	7.073.216



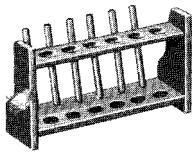
Test tube stands, made of styrofoam.
For a tubes, vials etc.
No. 7.074.403 suitable for Eppendorf test tubes 1.5 mm

Bores of hole mm	Depth of hole mm	Number of holes mm	Dimensions mm	
8.5	15	250	218 x 218 x 33	7.074.401
14.5	18	119	218 x 218 x 33	7.074.402
16.5	22	96	218 x 218 x 33	7.074.403



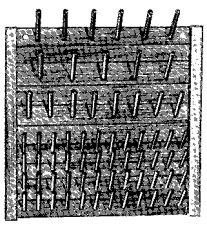
Note:
Hardwood stands see page 168

Test tube supports, polished hardwood.



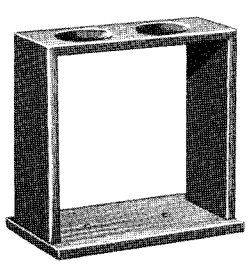
Width mm	Depth mm	Height mm	For Dia. mm	Number of openings	Number of pins	
Low form height of deck 80 mm						
210	70	120	18	1 x 6	–	9.000.001
210	70	120	18	2 x 6	–	9.000.002
290	70	120	18	2 x 9	–	9.000.003
370	70	120	18	2 x 12	–	9.000.004
370	90	120	18	3 x 12	–	9.000.005
370	120	120	18	4 x 12	–	9.000.006
200	65	120	18	1 x 6	6	9.010.001
210	75	120	18	2 x 6	6	9.010.002
Tall form, 2 decks, height of deck 80 mm						
120	70	190	18	2 x 3	–	9.020.001
210	70	190	18	2 x 6	–	9.020.002
290	70	190	18	2 x 9	–	9.020.003
290	90	190	18	3 x 8	–	9.020.004
370	90	190	18	3 x 12	–	9.020.005
370	120	190	18	4 x 12	–	9.020.006
120	90	190	18	2 x 3	3	9.040.001
210	90	190	18	2 x 6	6	9.040.002
290	90	190	18	2 x 9	9	9.040.003
370	90	190	18	2 x 12	12	9.040.004
370	120	190	18	3 x 12	12	9.040.005
370	190	150	18	4 x 12	12	9.040.006
Height of deck 160 mm						
290	65	200	30	1 x 6	–	9.030.001
290	90	200	30	2 x 6	–	9.030.002

Draining racks, made of polished hardwood, with pins for funnels, breakers and test tubes, depth 140 mm, with large and small pins.
1. Wall fastening.
2. Wall fastening, with dripwater collecting tray.
3. Stand model.



Width mm	Height mm	Number of pins	Dia. of pins mm	1.	2.	3.
400	400	12	14	9.090.001	9.100.001	9.110.001
500	500	14	14	9.090.002	9.100.002	9.110.002
600	600	19	14	9.090.003	9.100.003	9.110.003

Supports, made of polished hardwood.



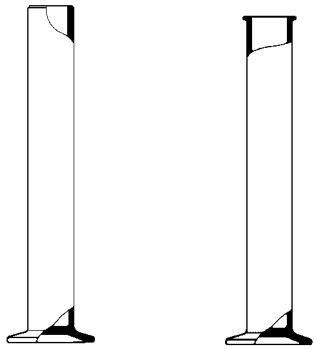
Width mm	Depth mm	Height mm	Number of openings	
For Imhoff-funnels, dia. of bore 80 mm				
300	180	300	1	9.130.001
300	180	300	2	9.130.002
420	180	300	3	9.130.003
550	180	300	4	9.130.004
680	180	300	5	9.130.005
For separatory and dropping funnel				
330	140	330	1	9.140.001
330	140	330	2	9.140.002
460	140	330	3	9.140.003
580	140	330	4	9.140.004
710	140	330	5	9.140.005

Jars with foot, 1. rough ground rim, 2. rim rolled, cut, made of borosilicate-glass.

O. D. mm	Height mm	1.	2.
40	100	–	5.630.000
50	150	5.628.003	–
40	200	5.628.004	5.630.004
60	200	5.628.005	5.630.005
60	250	5.628.007	5.630.007
40	300	5.628.010	–
50	300	5.628.011	–
40	400	5.628.014	5.630.014
80	400	5.628.016	–
65	450	5.628.019	–
50	500	5.628.020	–

suitable cover discs for 5.630.***

40 mm dia.	5.631.040
60 mm dia.	5.631.060

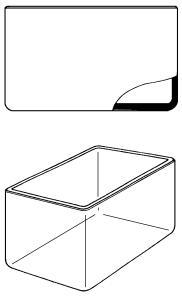


Rolled neck bottles, with snap-on lid, for universal use.

Capacity ml	Height mm	Neck dia. mm	Pack pieces	Glass	PE lid
Clear glass					
3	30 x 19	13	200	5.891.603	5.891.713
5	40 x 19	13	200	5.891.605	5.891.713
10	45 x 22	17	200	5.891.610	5.891.717
15	52 x 24	17	200	5.891.615	5.891.717
20	70 x 25	17	200	5.891.620	5.891.717
20	55 x 27	17	200	5.891.621	5.891.717
30	75 x 28	17	200	5.891.630	5.891.717
25	50 x 30	22	200	5.891.625	5.891.722
35	65 x 30	22	200	5.891.635	5.891.722
40	80 x 30	22	200	5.891.640	5.891.722
50	100 x 30	22	200	5.891.650	5.891.722
100	145 x 34	22	200	5.891.690	5.891.722
Amber glass					
5	40 x 19	13	200	5.891.805	5.891.713
10	45 x 22	17	200	5.891.810	5.891.717
15	52 x 24	17	200	5.891.815	5.891.717
20	70 x 25	17	200	5.891.820	5.891.717
30	75 x 28	17	200	5.891.830	5.891.717
40	80 x 80	22	200	5.891.840	5.891.722
50	100 x 30	22	200	5.891.850	5.891.722

Boxes, PE.

Capacity ml	O. D. mm	Height mm	
White, with screw cap			
250	90	50	7.247.001
500	90	95	7.247.002
1000	110	130	7.247.003
Transparent, with screw cap			
5	21	30	7.065.001
10	21	52	7.065.002
30	35	53	7.065.003
60	35	92	7.065.004
90	55	62	7.065.005
180	55	108	7.065.006
Transparent, with tightly closing lid			
5	20	25	7.063.001
8	20	37	7.063.002
12	22	37	7.063.003
18	22	57	7.063.004
28	30	52	7.063.005
35	30	67	7.063.006
50	30	97	7.063.007
160	50	110	7.063.008
Transparent, with attached lid			
1	8	32	7.063.101
2.5	14	31.5	7.063.102
5	15	49	7.063.103
7	23	33	7.063.104
8	17	58	7.063.105
20	25	74.5	7.063.106
25	31	52.5	7.063.107
35	31	74.5	7.063.108

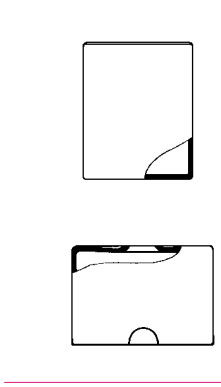


Aquariums, heavy walled, with roughly ground rim.

Length mm	Width mm	Height mm	
100	100	100	5.866.001
150	100	150	5.866.002
150	100	180	5.866.003
180	130	180	5.866.004
200	150	200	5.866.005
250	180	220	5.866.009
300	220	240	5.866.010
360	230	260	5.866.012

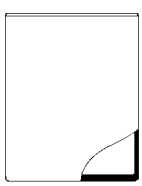
Pneumatic glass tanks, with polished rim, made of borosilicate-glass.

Length mm	Width mm	Height mm	
Rectangular			
200	100	100	5.730.003
250	150	150	5.730.005
300	200	150	5.730.006
300	160	160	5.730.007
Shelves, porcelain			
dia. 70	–	100	5.735.000
Cylindrical			
dia. 150	–	200	5.740.001
dia. 250	–	200	5.740.003
dia. 350	–	250	5.740.005



Battery jars, heavy walled, with rough ground rim, made of borosilicate-glass.

O. D. mm	Height mm	
150	150	5.620.007
120	220	5.620.012
150	220	5.620.013
150	300	5.620.016
100	400	5.620.017



Specimen jars, with ground knobcover, borosilicate-glass.

O. D. mm	Height mm	
60	60	5.864.001
60	100	5.864.002
100	100	5.864.003
80	120	5.864.004
120	120	5.864.005
80	150	5.864.006
105	150	5.864.007
150	150	5.864.008
100	200	5.864.009
150	200	5.864.010
100	250	5.864.011
150	250	5.864.012
120	300	5.864.013
250	300	5.864.014

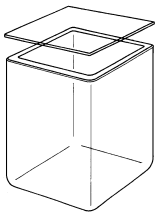
Exhibition glasses, DURAN.

Capacity ml	ST	
100	34.5	5.863.010
300	45	5.863.030
600	50	5.863.060
750	60	5.863.075
1200	60	5.863.120

Museum jars, heavy glass, with ground on cover plate.

Length mm	Width mm	Height mm	
60	50	100	5.862.003
100	50	120	5.862.005
130	50	130	5.862.006
150	50	150	5.862.010
120	60	180	5.862.012
210	100	210	5.862.013
250	140	250	5.862.014

Other sizes on request.



Reaction vessels, disposable, PP. With or without affixed lid (can be perforated). Transparent. Dustfree packed in bag.

Capacity ml	Standard pack	Lid	Carton piece	
For Eppendorf microliter-system				
1.5	1000	+	10000	*5.417.000
1.9	1000	+	10000	*5.417.019
2.2	1000	+	10000	*5.417.022
1.5	1000	-	10000	5.418.000
2.2	1000	-	10000	5.418.022
For Vitatron and Akes-Enzymautomat				
0.7	1000	+	16000	5.419.000
For Beckmann, ultra-micro-system				
0.4	1000	+	10000	5.420.000
0.25	1000	+	10000	5.420.025

* Reaction vessles available in coloured, blue, green, yellow, pink. Please specify colour.

Tray for reaction vessels, PP, grey. With foam-rubber feet prevents creeping. Drilled holes are numbered from 1-20, for 20 reaction vessels 1.5 ml, No. 5.417.000 and No. 5.418.000.

5.416.000

Universal boxes, PE. White, with tightly closing lid.

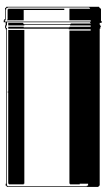
Capacity ml	DImensions mm	Height mm	
Square			
250	110 x 110	47	7.156.001
500	135 x 135	57	7.156.002
1000	175 x 175	63	7.156.003
2000	235 x 235	69	7.156.004
500	110 x 110	86	7.156.005
1000	135 x 135	108	7.156.006
2000	175 x 175	120	7.156.007
Rectangular			
1000	240 x 140	47	7.157.001
1500	240 x 140	76	7.157.002
1500	285 x 175	55	7.157.003
3000	285 x 175	93	7.157.004

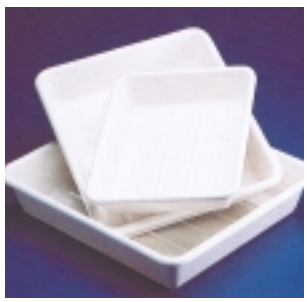
Square wide mouth container, PVC, screw cap (PP) with tightly sealing Alveolith insert Universal boxes, for storrage, pattern dispatch and transport.

Capacity ml	Dimensions mm	Height mm	Neck Dia mm	
Clear glass				
50	38 x 38	60.5	23	7.253.001
100	46 x 46	71	31	7.253.002
200	59.5 x 59.5	88.5	41	7.253.003
300	67.5 x 67.5	95	41	7.253.004
500	80.5 x 80.5	108	54	7.253.005
7500	91.5 x 91.5	120	69	7.253.006
1000	97.5 x 97.5	144	69	7.253.007
2000	122 x 122	187	69	7.253.008
Amber-transparent				
50	38 x 38	60.5	23	7.253.001
100	46 x 46	71	31	7.253.012
200	59.5 x 59.5	88.5	41	7.253.013
500	80.5 x 80.5	108	54	7.253.015

Instrument jars, made of stainless steel, with base.

O. D. mm	Height mm	
30	80	9.330.001
35	100	9.330.002
50	120	9.330.003
60	130	9.330.004
75	175	9.330.005
80	140	9.330.006
100	150	9.330.007
100	200	9.330.008



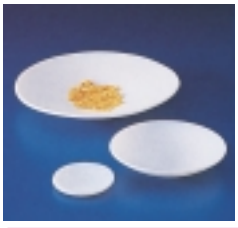


Trays. PVC, white.
Trays, PP. With spout and undulated ground.
Trays, PP, transparent. With round bottom and tapered sides.

Dimensions mm	Height mm	Colour	
PVC, white			
200 x 150	50		7.094.001
250 x 200	60		7.094.002
320 x 260	70		7.094.003
350 x 300	85		7.094.004
430 x 330	95		7.094.005
520 x 420	95		7.094.006
675 x 540	100		7.094.007
550 x 430	190		7.094.008
PP			
200 x 150	53	transparent	7.095.001
260 x 200	73	red/green	7.095.002
320 x 260	83	red/green	7.095.003
430 x 330	93	red/green	7.095.004
PP, transparent			
500 x 350	110		7.096.001
PS, white			
335 x 255	40		7.096.101

Watch glass dishes. Other dishes you will find in section Evaporating.

Dia. mm	
PP, with base, transparent	
60	7.103.001
80	7.103.002
100	7.103.003
125	7.103.004
PTFE	
40	7.209.001
50	7.209.002
75	7.209.003
100	7.209.004
125	7.209.005



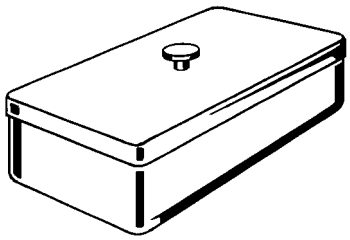
Removal barrels PE, lid made of PP. Rectangular-conical bin for the removal of dust in hospitals, all chemical and indstrial branches, with lid and special sealing ring, with 2 grips.

Security system:
- by soft pressing of the lid a airtight closing is resulting
- by strong pressure the lid is closing hermetical thight not removable
- resistant against chemicals, heat and low temperatures
- strong material withstands mechanical strength, pileable, shock-proof
- suitable for all transport sizes
- complete burnable, without any risk rests
- BAM-No 3122/1H2-3123/1H2 according GGVS, Exception S61

Capacity l	Weight filled-in max. kg	Dimensions mm	Weight kg	
30	15	330x400x305	1.3	6.980.030
60	30	330x400x610	1.8	6.980.060

Instrument trays.

Dimensions mm	Height mm	
Stainless steel, with overlapping knobcover, tarn		
200 x 100	50	9.329.002
220 x 150	50	9.329.003
260 x 150	50	9.329.004
305 x 205	50	9.329.005
MF, white, tall		
190 x 150	35	7.090.001
290 x 160	60	7.090.002
MF, white, heigh		
190 x 150	40	7.091.001
290 x 160	35	7.091.002
350 x 240	40	7.091.003
350 x 250	100	7.091.004
Cover, PS, crystal clear, with handle		
190 x 150	–	7.092.001
290 x 160	–	7.092.002
320 x 250	–	7.092.003



Trays, instrument, MF. Flat design, white (Illustration as above but without lid).

Dimensions mm	Height mm	
190 x 150	17	7.089.001
240 x 180	17	7.089.002
268 x 268	17	7.089.003
355 x 240	17	7.089.004
428 x 288	17	7.089.005

Basins. PE or PP, white.

Dimensions mm	O. D. mm	Height mm	
PE, 14.2 l. Suitable for NIROSTA-sinks			
320 x 340	–	190	7.153.001
PP, round			
–	160	70	7.154.001
–	200	80	7.154.002
–	240	100	7.154.003
–	280	120	7.154.004
–	320	130	7.154.005
–	360	150	7.154.006
–	400	180	7.154.007

Buckets.

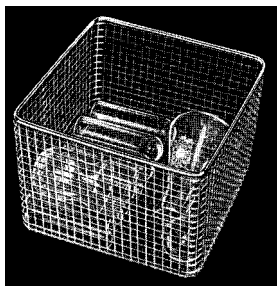
Capacity l	
PE, with lid, white or natural	
0.5	7.195.001
1.0	7.195.002
2.5	7.195.003
3.5	7.195.004
5.5	7.195.005
10.5	7.195.006
PE, white, graduated	
5	7.162.001
10	7.162.002
Lid, PE. For above buckets, tightly closing, transparent	
for 7.162.001	7.163.001
for 7.162.002	7.163.002
PP, with spout, natural colour, graduated	
12	7.164.001
15	7.164.002

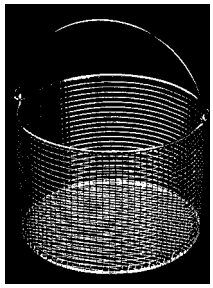
Transport- and storage containers.

Capacity l	Dimensions mm	Height mm	
PE			
11	400 x 280	85	7.193.001
14	360 x 310	160	7.193.002
PP, can be easily piled-up. Resistant up to 100 °C			
20	380 x 280	200	7.159.001
46	560 x 330	250	7.159.002
72	660 x 400	300	7.159.003
PP, with grips and drain-holes, can be piled-up			
16	540 x 350	110	7.158.001

Wire baskets. Gate welded, mesh 8 x 8 mm, wire 1 mm.

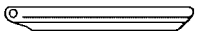
Lenght mm	Width mm	Dia. mm	Height mm	
Cubical, made of steel, coated with white plastic				
100	100	–	100	8.448.000
120	120	–	100	8.448.001
120	120	–	120	8.448.002
150	100	–	100	8.448.003
140	140	–	140	8.448.004
150	150	–	150	8.448.005
160	160	–	160	8.448.006
200	150	–	150	8.448.007
180	180	–	150	8.448.008
180	180	–	180	8.448.009
200	200	–	150	8.448.010
200	200	–	200	8.448.011
250	150	–	150	8.448.012
300	200	–	150	8.448.013
250	200	–	200	8.448.014
300	200	–	200	8.448-015
400	200	–	150	8.448.016
250	250	–	250	8.448.017
300	300	–	300	8.448.018
Cylindrical, with handle, made of stainless steel 18/8				
–	–	100	80	8.449.000
–	–	120	100	8.449.001
–	–	150	120	8.449.002
–	–	180	160	8.449.003
–	–	210	180	8.449.004
–	–	240	180	8.449.005
–	–	270	180	8.449.006
–	–	300	200	8.449.007





Combustion boats, porcelain, glazed.

Length mm	Width mm	Height mm	Standard pack	
19	4	3.5	100	8.503.001
30	5	4	100	8.503.002
45	6	6	100	8.503.003
58	10	8	10	8.503.004
75	8	8	10	8.503.005
85	12	8	10	8.503.008
96	12	10	10	5.803.009
102	19	12	10	5.803.010
125	20	13	10	5.803.011
152	24	17	10	8.503.012



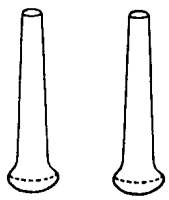
PORCELAIN PRODUCTS

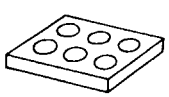
Mortars, porcelain, with spout. Glazed or unglazed.

Capacity ml	Dia. mm	Height mm	Standard pack	Unglazed	Glazed
70	60	35	10	8.512.003	8.512.103
190	100	57	1	8.512.006	8.512.106
400	135	75	1	8.512.008	8.512.108
1000	180	97	1	8.512.010	8.512.110
2700	250	135	1	8.512.012	8.512.112
6500	330	157	1	8.512.014	8.512.114

Pestles, porcelain.

Dia. mm	Length mm	Standard pack	With grinding surface glazed	With grinding surface unglazed
36	115	5	8.513.003	8.514.003
40	140	5	8.513.006	8.514.006
60	180	5	8.513.008	8.514.008
60	215	1	8.513.010	8.514.010
80	255	1	8.513.012	8.514.012
90	320	1	8.513.014	–
90	370	1	–	8.514.014





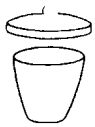
Tiles, rectangular, with 6 deep cavities, glazed.

Length mm	Width mm	Height mm	Dia. of cavities mm	
110	80	10	35	8.516.001
115	80	18	30	8.516.002

Quartz products
see
pages 162-163.

Melting crucibles, porcelain, glazed, DIN 12904.

Capacity ml	Dia. mm	Height mm	Standard pack	Crucibles	Standard pack	Cover
Wide form						
6	30	19	10	8.518.002	10	8.518.102
11	35	22	100	8.518.003	10	8.518.103
15	40	25	100	8.518.004	10	8.518.104
25	45	28	100	8.518.005	10	8.518.105
29	50	32	100	8.518.006	10	8.518.106
85	70	44	100	5.518.007	5	8.518.107
Medium form						
5	25	20	10	8.519.001	10	8.519.101
10	30	25	100	8.519.002	10	8.519.102
15	35	28	100	8.519.003	10	8.519.103
20	40	32	100	8.519.004	10	8.519.104
38	45	36	100	8.519.005	10	8.519.105
49	50	40	100	8.519.006	10	8.519.106
90	60	48	100	8.519.008	10	8.519.108
High form						
15	30	38	100	8.520.004	10	8.520.104
24	35	44	100	8.520.005	10	8.520.105
40	40	50	100	8.520.006	10	8.520.106
50	45	50	50	8.520.007	10	5.820.107
75	50	65	50	8.520.008	10	5.820.108
120	60	75	50	8.520.009	10	5.820.109



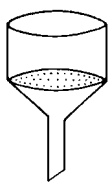
Evaporating dishes, porcelain. Glazed except outside base. With spout and round bottom, DIN 12903.

Capacity ml	Dia. mm	Height mm	Standard pack	
Round bottom				
35	60	25	10	8.526.004
75	82	35	10	8.526.006
115	100	40	10	8.526.008
285	125	45	10	8.526.011
420	150	55	10	8.526.013
580	160	50	1	8.526.014
700	185	70	1	8.526.015
Flat bottom				
20	60	14	10	8.525.114
30	70	15	10	8.525.115
50	80	20	10	8.525.120
100	100	25	10	8.525.125
250	130	30	10	8.525.130
400	160	40	10	8.525.140

Quartz products
see
pages 162-163.

Suction filter funnels, porcelain, glazed, for use with filter paper circles, DIN 12905.

For Filter dia. mm	Dia. mm	Capacity ml	Standard pack	
18	25	15	10	8.527.001
27	37	30	10	8.527.002
45	56	50	10	8.527.004
55	69	75	10	8.527.005
70	85	135	10	8.527.006
90	105	290	10	8.527.007
110	125	580	1	8.527.008
125	145	795	1	8.527.009
150	170	1250	1	8.527.010
185	210	1900	1	8.527.011



Desiccator plates, DIN 12911, porcelain, glazed. Without feet, with 20 mm dia. centre and many small holes 5 mm dia.

Dia. mm	Standard pack	
90	10	8.535.001
140	10	8.535.003
190	10	8.535.005
235	10	8.535.006
280	1	8.535.007

PORCELAIN PRODUCTS

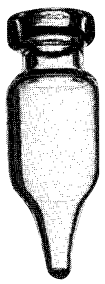
Vials.

Autosampler-vials and accessories for the following apparatuses:	Vial types catalog numbers with beaded rim	with screw cap
ACS, A.M.S, ALTEX, ANTEK,	9.361.***, 9.354.001, 9.369.101	9.360.***
Beckman-501	9.361.***, 9.354.001, 9.369.101	9.360.***
-504	9.367.003, 9.365.002	9.360.***
BRUKER	–	9.350.003
CARLO ERBA-42 VIAL TRAY	9.361.***, 9.354.001, 9.369.101	9.360.***
-60 VIAL TRAY	9.354.000, 9.365.001	–
8000	9.369.101	–
CARNEGIE	9.369.101	9.360.***
CHROMPACK-PACKARD	9.354.001, 9.361.***, 9.369.101	9.360.***
DANI	9.354.001, 9.361.***, 9.369.101	9.360.***
DUPONT	9.365.002, 9.367.003	9.350.001
DYNATECH-42 VIAL TRAY	9.354.001, 9.361.***, 9.369,101	9.360.***
-60 VIAL TRAY	9.354.000, 9.365.001	–
LC 2000	9.365.000, 9.367.004	–
ETP-KORTEC	9.354.001, 9.361.000, 9.369.101	9.369.001
GILSON	9.354.001, 9.361.***, 9.365.002, 9.367,003, 9.369.101	9.350.001, 9.360.*** 9.369.001
GYNKOTEK-GINA 160	9.354.001, 9.361.***, 9.369.101	9.360.***
HP-1090 A, 7673, 1050, weitere	9.354.001, 9.361.***, 9.369.101	9.360.***
HITACHI/MERCK, IBM	9.350.001	9.369.001
INFOCHROMA	9.354.001, 9.361.***, 9.369.101	9.360.***
KONTRON	–	9.350.001, 9.350.003, 9.369.001
LDC-713	9.354.000, 9.365.001	–
MILTON ROY	9.354.001, 9.361.***, 9.369.101	9.350.001, 9.360.***, 9.369.001
LKB/Pharmacia	9.354.001, 9.361.***, 9.369.101	–
MAGNUS	–	9.350.001, 9.369.001

Autosampler-vials, threaded, borosilicate glass. Suitable for photometers. Dustfree in tray-pack.

Capacity ml	H x Dia. mm	Cap size	Clear glass	Amber glass
1.2	32 x 12	N-8	9.350.001	9.350.002
4	45 x 15	N-13	9.350.003	9.350.004
4	65 x 13	N-13	*9.350.101	–

* for DU PONT



Autosampler-vials, with conical bottom, borosilicate glass.

Capacity ml	H x Dia. mm	Cap size	
Threaded			
1.1	32 x 12	N-8	9.369.001
With beaded rim			
1.1	32 x 12	11	9.369.101
Stands for conical autosampler-vials			
Made of Polyethylen			9.369.201
Made of PTFE			9.369.202
Made of PTFE, for HP			9.369.203
Made of PTFE, for VARIAN			9.369.204

Vials.

Autosampler-vials and accessories for the following apparatuses:	Vial types catalog-numbers with beaded rim	with screw cap
PERKIN ELMER-AI-1	9.354.000, 9.354.001, 9.361.***, 9.365.001, 9.369.101	9.360.***
ISS 100	9.354.001, 9.361.***, 9.369.101	9.360.***
42 VIAL TRAY	9.354.001, 9.361.***, 9.369.101	9.360.***
60 VIAL TRAY	9.354.000, 9.365.001	–
100 VIAL TRAY	9.354.000, 9.365.001	–
4900	–	9.350.001, 9.369.001
PHILIPS/PYE-4710, 4700 GC, 4700 LC	9.365.002, 9.367.003	9.350.001, 9.369.001
S4/S8	9.365.002, 9.367.003	–
LC/XP	9.354.001, 9.361.***, 9.369.101	9.350.001, 9.360.***, 9.369.001
PRECISON-42 VIAL	9.354.001, 9.361.***, 9.369.101	9.360.***
60 VIAL	9.354.000, 9.365.001	–
SGE LS-3200	9.365.002, 9.367.003	9.350.001, 9.369.001
SEDERE	9.354.001, 9.361.***, 9.369,101	9.360.***
SHIMADZU-AOC-8B/9, AOC-14, SIL-6A/9A	9.350.001, 9.369.001	–
SIL -2AS	9.350.003	–
SIEMENS	9.357.001, 9.357.002	–
SPARK PROMIS/MARATHON	9.354.001, 9.369.101	–
SpH 125	9.354.001, 9.361.***	9.360.***
SPECTRA-PHYSICS	9.354.001, 9.361.***, 9.369.101	9.350.001, 9.360.**, 9.369.001
TALBOT TOSCA I TRACOR	9.354.001, 9.361.***, 9.369.101	9.360.***
VARIAN	–	9.350.001, 9.369.001
WATERS-48 VIAL TRAY	–	9.350.003
96 VIAL TRAY	9.365.003, 9.367.004	–

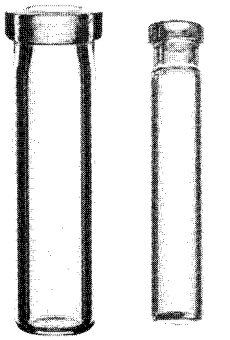
Siemens autosampler-vials, borosilicate glass. With beaded rim. For smaller quantities please use micro vessel and springs mentioned on the next page.

Capacity ml	H x Dia. mm	Cap size	Bottom	
1.5	42 x 11	13	flat	9.357.001
1.0	40 x 11	13	conical	9.357.002

Crimp top vials. Borosilicate glass, with rolled flange.

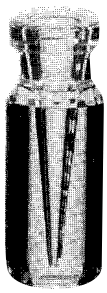
Capacity ml	H x Dia. mm	Cap size	Clear glass	Amber glass
0.8	30 x 8	8	9.354.000	–
1	32 x 12	11	9.354.001	9.354.002
2	35 x 14	13	9.354.003	–
4	45 x 15	13	9.354.004	–
5	38 x 20	20	9.354.005	9.354.006
10	55 x 20	20	9.354.007	9.354.008
10	47 x 23	20	9.354.009	–
20	75 x 23	20	9.354.010	9.354.011
35	65 x 30	20	9.354.012	–
50	101 x 31	20	9.354.013	–
100	95 x 52	20	*9.354.014	–

* AR-glass



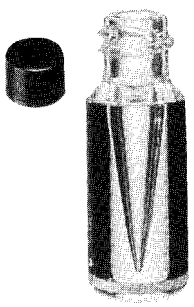
Sample vials, threaded, borosilicate glass.

Capacity ml	H x Dia. mm	Cap size	
For general use			
2	36 x 12	N-8	9.350.301
4	45 x 15	N-13	9.350.302
8	61 x 17	N-15	9.350.303
12	66 x 19	N-15	9.350.304
16	72 x 21	N-18	9.350.305
24	86 x 23	N-20	9.350.306
30	75 x 27	N-24	9.308.307
For water tests to EPA 40 CFR 131 and 141			
40	95 x 7	N-24	9.350.201



Autosampler-micro-reaction vials, inner bottom conical.

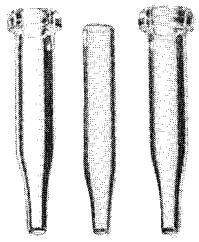
Capacity ml	H x Dia. mm	Cap size	Borosilicate glass	PP
With screw cap				
0.1	32 x 12	N-8	9.360.001	9.360.002
With beaded rim				
0.1	32 x 12	8	9.361.001	9.361.002



Micro-Reaction Vials, with screw cap, inner bottom conical, size 3 + 5 ml graduated, outside bottom grounded.

Capacity ml	H x Dia. mm	Cap size	Clear glass	Amber glass
0.1	34 x 13	N-13	9.358.001	9.358.101
0.3	34 x 13	N-13	9.358.002	9.358.102
1	44 x 13	N-13	9.358.003	9.358.103
2	61 x 17	N-15	9.358.004	9.358.104
3	55 x 21	N-20	9.358.005	9.358.105
5	64 x 21	N-20	9.358.006	9.358.106

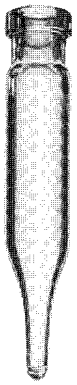
Magnetic stirring bars, triangular, especially for conical vials
For Vials No. 9.358.**2-**3 9.358.201
For Vials No. 9.358.**5-**6 9.358.202



Micro-reaction vessels, borosilicate glass. Compatible for autosampler vials. Springs, for Micro Reaction Vessels, No. 9.362.***.

Capacity ml	H x Dia. mm	For Vials	
Micro-reaction vessels			
0.3	40 x 6	45 x 15	*9.362.001
0.3	40x6 without rim	45 x 15	**9.362.002
0.1	35 x 5	40 x 8	9.362.003
0.1	30 x 5	32 x 12	9.362.004
0.05	27 x 4	32 x 12	***9.362.005
Springs			
–	50 x 7.5	No. 9.362.001, 9365.005, 9.365.004	9.363.001
–	18 x 7.5	No. 9.365.002, 9.366.002	9.363.002
–	40 x 7.5	No. 9.365.002, 9.366.002 (Du Pont)	9.363.003
–	15 x 5	No. 9.362,003, 9362.001 (Siemens)	9.363.004
–	37 x 5	No. 9.362.005	9.363.005
–	70 x 7.5	No. 9.365.005, 9.365.004 (Du Pont)	9.363.006

* For a volume of 15 µl please use spring No. 9.363.001
** For a volume of 15 µl please use spring No. 9.363.001
*** For fastening use spring No. 9.363.005



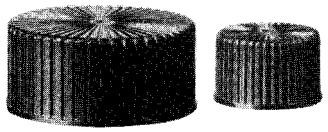
Micro ampoules (vessels), borosilicate glass. With beaded rim.

Capacity ml	H x Dia. mm	Cap size	Clear glass	Amber glass
Conical bottom				
0.6	20 x 7	8	9.365.001	9.366.001
0.7	40 x 7	8	9.365.002	9.366.002
1.0	40 x 8	8	9.365.003	9.366.003
0.3	32 x 6	8	9.365.004	–
0.3	32 x 6 round	8	9.365.005	–
Flat bottom				
0.7	40 x 7	8	9.367.003	9.368.003
1.2	40 x 8	8	9.367.004	9.368.004

Special vials, borosilicate glass.

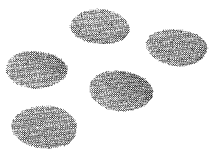
Capacity ml	H x Dia. mm	Cap size	
White graduation, threaded			
2/0.2	36 x 12	5-8	9.353.002
4/0.4	45 x 15	N-13	9.353.004
With marking label			
4	45 x 15	N-13	9.353.100
With ring mark at 3 ml, threaded			
3	45 x 15	N-13	9.353.200
With special crimp top, with rounded bottom angles, wall 1.2 mm			
20	75 x 23	20	9.354.101

Screw caps, made from black phenolic.
1. Without sealing disc.
2. With Styrene/Butadiene seal, white.
3. With Butyl/PTFE-rubber.
4. With centre hole.



Cap size	1.	2.	3.	4.
N-8	9.351.001	9.351.101	9.351.201	9.351.301
N-13	9.351.002	9.351.102	9.351.202	9.351.302
N-15	9.351.003	9.351.103	9.351.203	9.351.303
N-18	9.351.004	9.351.104	9.351.204	9.351.304
N-20	9.351.005	9.351.105	9.351.205	9.351.305
N-24	9.351.006	9.351.106	9.351.206	9.351.306

Sealing discs.
- PTFE, white.
- Butyl/PTFE-rubber, blue/amber.
- Silicone/PTFE-rubber, red/white, self-closing (up to 20 times).



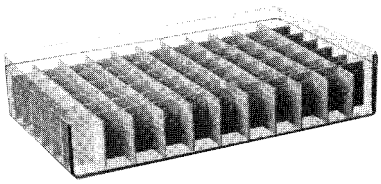
Dia. mm	for Cap size	PTFE	Butyl	Silicone PTFE
8	N-8	9.352.001	9.352.101	9.352.201
11	N-13	9.352.002	9.352.102	9.352.202
13	N-15	9.352.003	9.352.103	9.352.203
16	N-18	9.352.004	9.352.104	9.352.204
18	N-20	9.352.005	9.352.105	9.352.205
22	N-24	9.352.006	9.352.106	9.352.206

Aluminum crimp caps. With PTFE-coated sealing disc.

Cap size	With centre hole	Tear off type	Tear off seal
Rubber sealing disc			
8	9.355.001	–	–
With sealing disc 0.9 mm			
11	9.355.101	–	–
With sealing disc 1.3 mm			
11	9.355.201	–	–
Butyl-rubber disc			
13	9.356.001	9.356.002	9.356.003
20	9.356.004	9.356.005	9.356.006
Without sealing disc			
20	9.356.101	9.356.102	9.356.103
Sealing disc, Butyl-rubber			
20	9.356.201	–	–

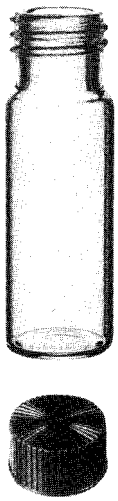
Crimper for aluminum caps.

Cap size	For opening	For closing
8	9.373.001	9.374.001
11	9.373.002	9.374.002
13	9.373.003	9.374.003
20	9.373.004	9.374.004



Vialtainers, boxes for storing autosampler vials, PS.

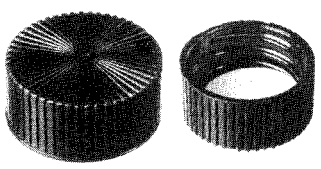
For Vial-size	Openings	
32 x 12, 36 x 12	77	9.369.301
45 x 15	88	9.369.302



Scintillation vials, made of glass (potassium rate Estax), 89 % UV transmission. Screw cap, made of PE, with cork/aluminum seal.

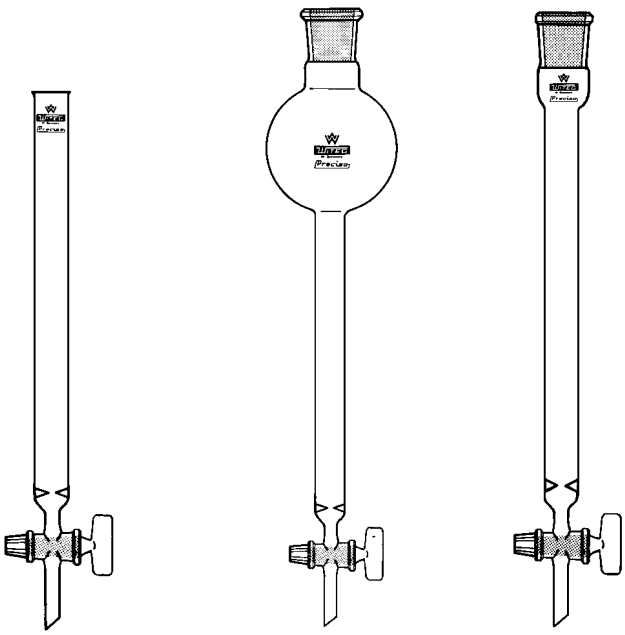
Capacity ml	H x Dia. mm	Cap size	Bottle complete	Spare caps
20	58 x 27	DIN 22	9.371.001	9.371.101
20	58 x 27	DIN 22	*9.371.002	*9.371.102
5.5	57 x 16	N-15	9.372.001	9.372.101

* With Sealing ring.



Micro cultur bottles, "BIO-GRIP"-Vials, borosilicate glass.
Cap 1 with Styrene-Butadiene sealing disc.
Cap 2 with Butyl/PTFE-Seal.

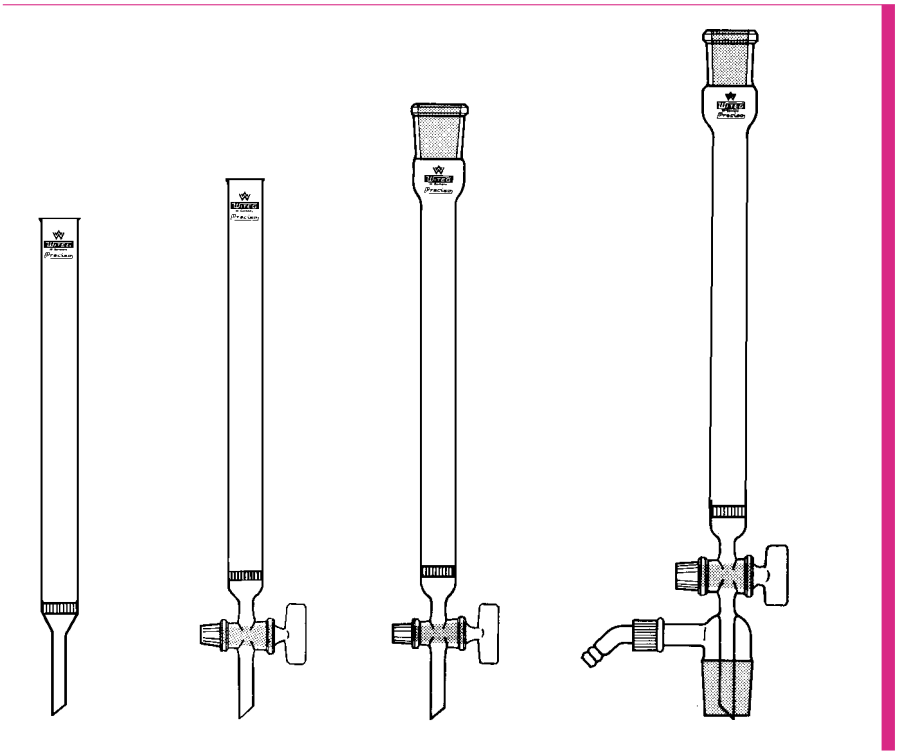
Capacity ml	H x Dia. mm	Cap size	Vial	Cap 1	Cap 2
4	49 x 15	LN-13	9.370.001	9.370.101	9.370.201
8	68 x 17	LN-15	9.370.002	9.370.102	9.370.202
12	70 x 19	LN-15	9.370.003	9.370.103	9.370.203



Chromatography columns. ST-stopcock with solid plug and screw-thread retaining nut, with indentations above the stopcock for a wad of cotton.
1. Simple shape.
2. With reservoir, with socket ST 29/32.
3. With socket ST 29/32 (No. 2.125.001-ST 14/23).

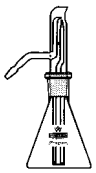
Column I. D. mm	ml	Effective length of column mm	Reservoir ml	Bore of plug mm	1.	2.	3.	
10	15	200	–	2.5	2.119.001	–	2.125.001	
10	15	200	250	2.5	–	2.122.001	–	
15	35	200	–	2.5	2.119.002	–	–	
15	35	200	250	2.5	–	2.122.002	–	
15	70	400	–	2.5	2.119.003	–	–	
20	65	200	250	2.5	–	2.122.003	–	
20	125	400	–	2.5	2.119.004	–	2.125.002	
20	125	400	250	2.5	–	2.122.004	–	
20	190	600	–	2.5	2.119.006	–	–	
20	190	600	250	2.5	–	2.122.006	–	
30	130	600	–	2.5	–	–	2.125.003	
30	280	400	–	2.5	2.119.005	–	–	
30	280	400	500	2.5	–	2.122.005	–	
30	430	600	–	2.5	2.119.007	–	–	
40	750	600	1000	2.5	–	2.122.007	–	
40	1000	800	–	2.5	2.119.008	–	2.125.004	
60	1150	600	2000	6.3	–	2.122.008	–	
60	1550	800	2000	6.3	–	2.122.009	–	
80	4500	1000	4000	6.3	–	2.122.010	–-	

Attention!				
With ST-PTFE-stopcock	2.120.001-8	2.123.001-10	2.126.001-4	
With valve and PTFE-valve plug		2.121.001-8	2.124.001-10	2.127.001-4



Chromatograpy columns. With fused-in sintered glass-disc PO. Bore of plug 2.5 mm.
1. Simple, without stopcock.
2. Simple, ST-stopcock, with solid plug and screw-thread retaining nut.
3. At the top with ST-stopcock, ST-stopcock with solid plug and screw-thread retaining nut.
4. At the top with ST-stopcock, at the bottom with ST-cone, ST-stopcock with solid plug and screw-thread retaining nut, with vacuum connection and drip tip, with fused-in sintered glass-disc.

Column I. D. mm	Effective length of column ml	mm	ST	1.	2.	3.	4.	
10	8	100	14/23	–	–	2.132.001	2.135.001	
10	15	200	–	2.128.001	2.129.001	–	–	
10	15	200	14/23	–	–	2.132.003	2.135.003	
10	23	300	14/23	–	–	2.132.006	2.135.007	
15	18	100	14/23	–	–	2.132.002	2.135.002	
15	35	200	–	2.128.002	2.129.002	–	–	
15	35	200	14/23	–	–	2.132.004	2.135.004	
15	50	300	14/23	–	–	2.132.007	2.135.008	
15	70	400	–	2.128.003	2.129.003	–	–	
15	70	400	14/23	–	–	2.132.009	2.135.010	
20	60	200	29/32	–	–	2.132.005	2.135.005	
20	90	300	29/32	–	–	2.132.008	2.135.009	
20	125	400	–	2.128.004	2.129.004	–	–	
20	125	400	29/32	–	–	2.132.010	2.135.011	
20	190	600	–	2.128.006	2.129.006	–	–	
20	190	600	29/32	–	–	2.132.012	2.135.013	
30	80	200	29/32	–	–	–	2.135.006	
30	280	400	–	2.128.005	2.129.005	–	–	
30	280	400	29/32	–	–	2.132.011	2.135.012	
30	430	600	–	2.128.007	2.129.007			
30	430	600	29/32	–	–	2.132.013	2.135.014	
40	1000	800	–	2.128.008	2.129.008			
40	1000	800	29/32	–	–	2.132.014	2.135.015	
Attention!								
With ST-PTFE-stopcock				–	2.130.001-008	2.133.001-014	2.136.001-015	
Wwith valve and PTFE-valve-plug					–	2.131.001-008	2.134.001-014	2.137.001-015



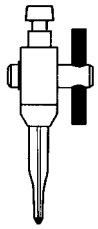
Sprayer for chromatography.
1. With Erlenmeyer flask 100 ml, ST 19/26
2. With Erlenmeyer flask 100 ml, ST 14/23 (ball head)
3. With test tube, 12 ml, ST 19/26, with base, made of plastic.
4. With test tube, 6 ml, ST 19/26, with base, made of plastic.

1.	2.	3.	4.
2.147.000	2.147.100	2.147.112	2.147.106

Spare parts:
Rubber bulb No. 3.157.000

Separate parts for chromatographic-columns.

Type	
PTFE-stopcock, 2.5 mm bore of plug	2.128.601
Stem	2.128.602



Automatic capillary pipettes, Dr. Barrolier, error ±1 %.

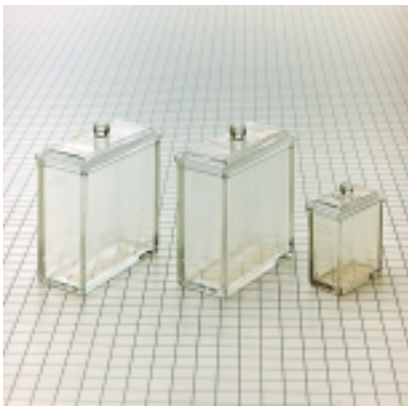
Capacity ml	
1	2.148.001
2	2.148.002
4	2.148.004
10	2.148.010
20	2.148.020

Standard separating chambers. Ground flange rim and ground lid. For TLC plates up to 200 / 200 mm. Plane bottom.

Chamber complete	2.148.100
Chamber without lid	2.148.101
Knobbed lid	2.148.102
Glass cover plate	2.148.103

NANO separating chambers. Ground rim, for TLC plates up to 100 / 100 mm.

NANO chamber with knobbed lid	2.148.200
Knobbed lid	2.418.201
Filter paper, 25 sheets 210 / 110 mm, for chamber saturation	2.418.250

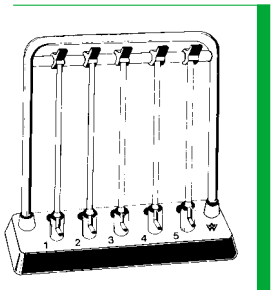


TLC separating chambers. Round with cap.

For plates mm	Dia.	Height	
200 / 50	60	230	2.140.720
200 / 100	130	230	2.140.730

Blood sedimentation apparatus acc. to Westergren. Metal support, made of stainless steel, excellent and stable construction, with special laminated springs, with pipettes and specimen tube with rubber stopper. Complete.

For... examinations	
5	4.200.005
10	4.200.010
Spare parts:	
Filling stopper, made of rubber	4.200.050
Blood mixing glasses, with flat bottom and rubber stopper	4.200.080



Blood sedimentation tubes. With easy to read DIFFICO graduations and inscriptions, resistant against acid and alkali, which form an integral, indelible part of the glass surface. Tempered delivery tips.

Overall length mm	Division mm	Graduated mm	Type	Westergren	Westergren Adler (with roll)
300	0-200	1	clear glass	4.230.001	4.235.001
300	0-200	1	white enamelled	4.230.002	4.235.002

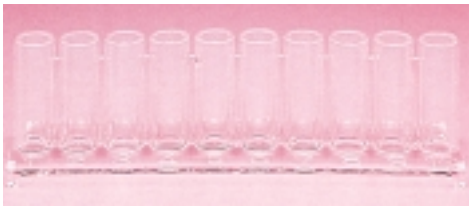
Blood sedimentation system, PS/PD

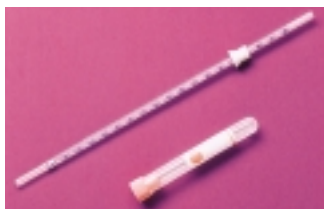
For rapid and safe realisation of ESR tests acc. to Westergren. A test tube 12 x 86 mm with labelling field is filled with sodiumcitrate. The included pipette is graduated from 0 to 180 mm. It may easyly filled with the small piston in the pipette.

Application:

1. The test tube is filled with blood up to the marking on the labelling field (approx. 1 ml).
2. The liquid is mixed by shaking and rotatation.
3. The pipette is fixed and the tube is filled up to the zero point.
4. 60 minutes later the result can be read

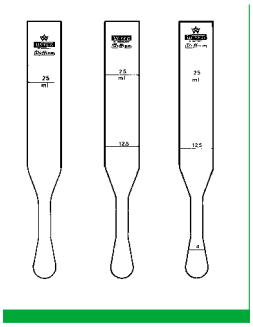
Type	
Test tube complete, PP, 12 x 86 mm	4.119.901
Holder with numerical code 1-10 for 10 tubes	4.119.902
Blood sedimentation pipettes (PS) 0-180 mm, complete	4.119.903

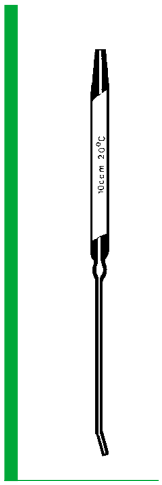




Tubes blood sugar, to Folin-Wu, approx. 220 x 19 mm dia..

With marks at ml	
25	4.500.001
12.5-25	4.500.002
4-12.5-25	4.500.003





Constriction pipettes (Carlsberg-pipettes). With automatic zero point. "Ex" adjusted with blow-out, packed in styrol plastic tubes.

Capacity µl	Tolerance ±µl	Color-Code	
1	0.1	blue	4.120.001
2	0.2	2 x red	4.120.002
5	0.4	white	4.120.005
10	0.4	orange	4.120.010
20	0.8	black	4.120.020
25	1	2 x white	4.120.025
50	1	green	4.120.050
100	2	blue	4.120.100
200	4	red	4.120.200
250	5	2 x green	4.120.250
300	5	yellow	4.120.300
400	5	2 x red	4.120.400
500	5	2 x black	4.120.500
1000	6	blue	4.120.900

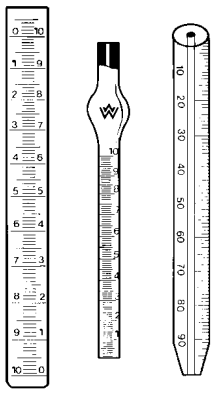
Blood sugar pipettes, white enamelled, suitable for certification. (not illustrated).

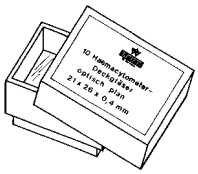
Capacity ml	Division mm	Tolerance ml	Color-Code	
100	1	1.0	2 x green	4.420.100
200	2	2.0	2 x white	4.420.200

Haematocrit tubes.

- Acc. to Wintrobe, clear glass, graduated 0-105 mm:1 mm, double scale, length 110 mm.
- Acc. to van Allen, white enamelled, capacity of the ball approx. 1 ml, grad. 0.01 ml = 100 divisions, length 100 mm.
- Acc. to Dahland, prismatic, white enamelled, grad. 50 mm: 1/2 mm, length 50 mm, with accid and alkali resistant DIFFICO amber stain graduations and inscriptions.

Type	
Acc. to Wintrobe	4.505.000
Acc. to van Allen	4.510.000
Acc. to Dahland	4.515.000
Accessories:	
Rubber caps (Wintrobe)	4.516.001
Filing-pipette for Wintrobe tubes with rubber teats	4.516.002
Spring seal for van Allen tubes	4.516.003



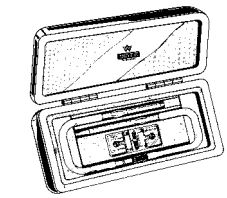


Haemacytometer cover glasses, optical plane ground surface, polished, officially tested and stamped. Twice packed in plastic bags (10 cover glasses) per pastic box.

Size mm	Thickness mm	Officially tested and stamped	Not tested only exportation
22 x 22	0.4	4.160.001	4.165.001
21 x 23	0.4	-	4.165.002
20 x 26	0.4	4.160.002	4.165.003
24 x 24	0.4	4.160.003	4.165.004

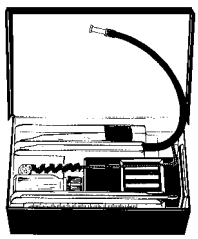
Haemacytometers, complete in case, with 1 Erythrocyte- and leucocyte pipette with rubber tubing and mouth-piece with counting chamber, with 2 optical plane cover glasses (Please specify size of counting chamber).

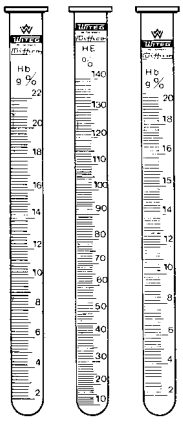
Type	
Without metal clamp	4.168.100
With metal clamp	4.168.200



Haemometer, Sahli´s, complete in case, double colour stick haemometer, with bakelitestand and opal glass plate, 1 comparative tube, 1 haemometer pipette white enamelled, capacity 20 µl, with rubber tube and mouth-piece, 1 water pipette, 1 stirring rod, 1 flask for solvent and 1 brush for cleaning.

4.170.000



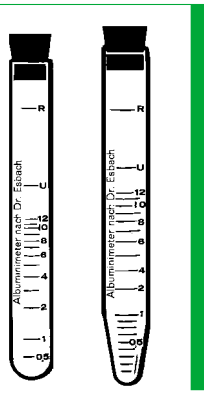


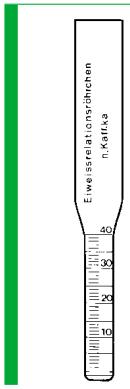
Haemometer comparative tubes, for above mentioned haemometer, 120 mm long, outside diameter 8.1 mm.

Type	
With single scale (g % = gram Haemoglobin in 100 ccm blood)	4.180.100
With double scale (gram-scale = g % and Haemometer units = HE)	4.180.200
With single scale (Haemometer units = HE)	4.180.300

Albuminimeters, Esbach, white graduation, glass, in a plastic box, with rubber stopper.

	Round bottom	Conical bottom
Complete	4.517.000	4.518.000
Spare parts:		
Glass tube	4.517.001	4.518.001
Glass with rubber stopper	4.517.002	4.518.002
Plastic tube	4.517.003	4.518.003



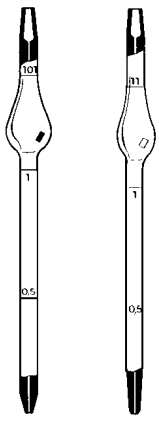


Kafka`s tubes for albumin. With 40 graduation marks, with acid and alkali resistant DIFFICO amber stain graduation.

4.850.000

Ureometers, acc. to Barron, graduation. With suction bulb, ST-stopcock, with acid and alkali resistant DIFFICO amber stain graduation.

Type	Division bellow stopcock	Division above stopcock	Suction bulb ml	
Macro	0-10 ml:0.1	0-10 ml:1	25	4.700.000
Micro	0-1 ml:0.01	0-5 ml:1	10	4.701.000



Blood diluting pipettes, white enamelled. Please order tube and mouth piece separat. Other sizes on request.

Marks at	Tolerance %	Proportions	Remarks	
Acc. to Thoma, erythrocytes				
0.5-1-101	3	1:100	suitable for certification	4.050.000
0.5-1-101	3	1:100	officially tested and stamped	4.050.010
Acc. to Thoma, leucocytes				
0.5-1-11	3	1:10	suitable for certification	4.060.000
0.5-1-11	3	1:10	officially tested and stamped	4.060.010
Blood pipettes, acc. to Ellermann				
10-25-25	1	-	-	4.070.000

Accessories for blood diluting pipettes:	
Tube, 150 mm long, red	4.080.800
Tube, 150 mm long, transparent	4.080.810
Plastic mouth piece, red	4.080.820
Plastic mouth piece, white	4.080.830
Closure, made of soft rubber	4.080.840
Closure caps, made of soft rubber	4.080.850

Fibrocups FTU, reaction cups for fibrometer BBL, PE. 2500 pieces per bag.
Fibrotips FTI, length 83 mm, PE. 500 pieces per bag.

Type	
Fibrocups FTU	5.489.601
Fibrotips FTI	5.489.600

Vacuum concentrator UNIVAPO. For smooth sample evaporation. Short process periods. Compete and compact system. 48 different rotors are available for many applications.

Type	
UNIVAPO 100 ECH	on request
Rotors	on request

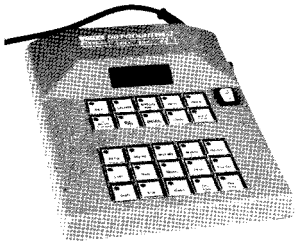
Shakers for blood diluting pipettes. Thorough mixing of blood and reagents through simultaneous shaking and rotating action. Optimum reproduceability of cell counts. The precisely adjusted mixing power guarantees the controlled and uniform mixing effect for all pipettes (2 min). Numbering in pairs facilitates the identification of each pipette. Modern design of the case with elastic rubber-feet prevents creeping on the table surface. For 220 Volts, 50 cycles or 110 Volts, 50 cycles.

Type	
For 2 blood diluting pipettes	4.095.001
For 4 blood diluting pipettes	4.095.002
For 8 blood diluting pipettes with two speed switch	4.095.003

UNITWIST/UNITHERM, combined hybridization waterbath.

- Unique temperature maintenance system for a multitude of applications
- Fast heating, +5 °C over ambient to 100 °C
- Low weight
- Ideal for Northern and Southern hybridizations
- Further applications, possible:
  - restriction digestions
  - denaturations
  - inactivations
  - cooling and maintaining of agar
  - quantitative protein assay, in situ hybridization

on request

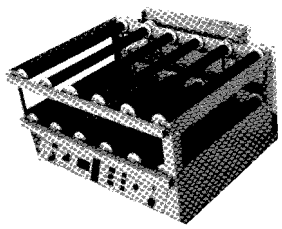


WITEG-DIFFCOUNTER-I. Electronical cell-counter.

Mains connection:	230 V/110 V/4 W
Dimensions B x H x T:	190 x 210 x 190 x 25/35 mm
5 programme-push buttons:	1. Leucocytes (normal and pathological)
	2. Red blood picture (normal und pathological)
	3. Myelogram
	4. Reticulocytes/Erythrocytes
	5. Free selection (for cell counting any size)

10 Funktion push buttons
15 memories
All push buttons fitted with LED display.
Self-control-check after switch-on and stand-by position.
Sum-setting (100, 200, 300 up to 1000). Exception Reticulocytes/Erythrocytes - in that case sum-setting is 1000.
Subtotal sum-display at any time possible (% and real).
LED-control-display of programme, function and last pressed push buttons.
Push-bottoms for corrections (only the value of the last pressed push buttons will be cancelled).
Sound signal when setted sum is reached with simultaneous blocking of memories; blocking can be relased after pressing the key “Go-on and cont”. Ergonomic styling for easy handling.

	5.498.600
Accessories: Universal-microscope-adapter with flexible shaft	5.499.000



BIOGEN Cell Produktion Roller Apparatuses, designed so that the cell production capacity can be increased to totally 70000 cm^2. The modular construction allows a successive addition from base for 5-10 roller bottles of 110-120 mm dia. to totally 9 roller decks. Special roller technic, made of plastic compound mounted on s/s ball bearing shafts also usable with light plastic roller bottles.

Bottle speed:	0.05 up to 2 RPM of bottle dia. 110 mm
Mains connection:	220 V, 50/60 Hz, 20 W
Construction:	Aluminum, chemically treated, baked epoxy finish
Motor:	20 W-motor with full range tachometer and load-independent drive control, accuracy ±1 %
Option:	With alarm system stand-by-drive against blackouts and motor failures

Width mm	Depth mm	Height mm	Performance	
760	610	400	Bench model	5.498.500
760	610	300	Floor model	5.498.510
780	620	180	Deck modular	5.498.520

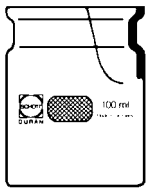
Base apparatus, with alarm system and Stand-By-Drive automatic	
Bench model	5.498.550
Floor model	5.498.551

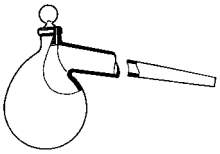
HTS Thermocycler DELTACYCLER. With Peltier technique, temperature range 4 to 110° C. For 60 test tubes 0.5 ml or 96 well plates. Simple ramp programing. For precise cyclings the temperature is measured in the sample. Heated cover. DELTACYCLER II with two independent cycling programmes.

Type	
DELTACYCLER I	on request
DELTACYCLER II	on request

Organ storage glasses, wide mouth, with polished rim, complete lid.

Capacity ml	
75	5.864.101
100	5.864.102
250	5.864.103





Retorts, with tubulature and ground-in stopper, made of borosilicate glass.

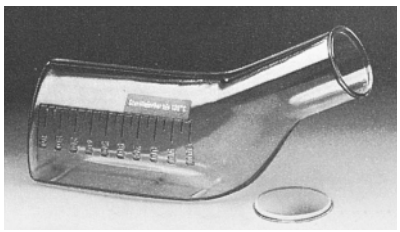
Capacity ml	
100	5.750.100
250	5.750.250
500	5.750.500

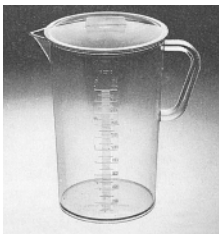
Bottles for urine tests, graduated, PE. With handle and small screw cap for taking tests.

Capacity ml	Bottle dia. mm	I. D. Neck mm	Height mm	
2500	135	80	270	7.113.001

Urinals, for men, graduated. Sterilizeable up to 130 °C.

Capacity ml	Type	
1000:50	PP, transparent	7.114.001
1000:50	PC, clear glass	7.114.002
-	Lid, tightly closing	7.115.001
	-Adapter for women, PP	7.116.001



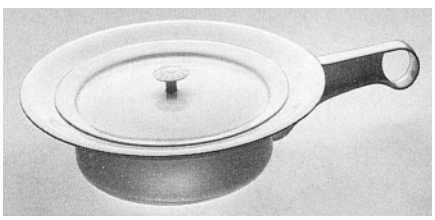


Urine vessel, with lid, crystal clear, graduated. SAN.

Capacity ml	Height mm	O. D. mm	
2000:20	220	150	7.117.001

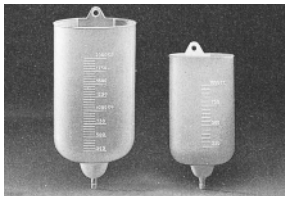
Bed-pan, with lid, yellow, PP. Sterilizeable up to 130 °C.

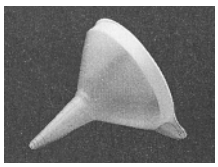
I. D. mm	Height mm	
210	100	7.118.001



Irrigator-vessels, graduated. With flat back, suitable for fixing on the wall.

Capacity ml	
1000:50	7.119.001
2000:50	7.119.002



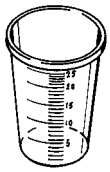


Stomach funnel, with hose socket, transparent, PE.

Dia. mm	For hose I. D. mm	
200	12-20	7.120.001

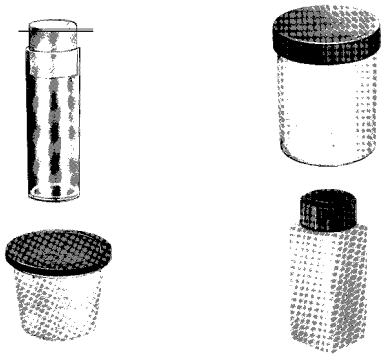
Small beakers for taking medicine, graduated, PE.

Capacity ml	Colour	Bag pcs.	Carton pcs.	
20	nature	50	2500	5.484.400
20	blue	50	2500	5.484.401
20	green	50	2500	5.484.402
20	yellow	50	2500	5.484.403
20	red	50	2500	5.484.404



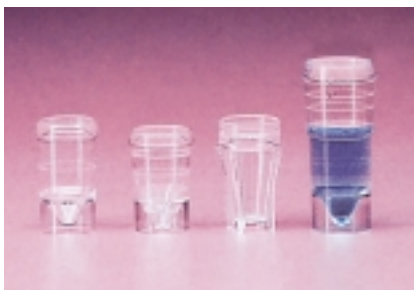
Sample vials.

Capacity ml	Dimensions mm	Bag pcs.	Carton pcs.	
Stool collecting containers PS, with stopper and spoon, PP				
17	22 x 63	1000	1000	5.465.000
Sputum collecting containers PS, with stopper, PP				
16	22 x 63	1000	1000	5.466.000
Specimen (Urine) collecting containers, with red screw cap, quadrangular, PE				
60	30 x 85	500	500	5.467.000
Specimen (Urine) collecting containers, with snap-cap, with perforated hole in lid, PP				
125	50 x 65	1000	1000	5.468.000
Specimen (Urine) collecting containers, with screw cap, ungraduated, PP				
125	50 x 65	1000	1000	5.469.000
Specimen (Urine) collecting containers, with screw cap, ungraduated PS				
200	60 x 80	500	500	5.470.000
Transport container (Multi-purpose container), with screw cap, PE				
–	110 x 24	500	500	5.471.000
–	85 x 30	500	500	5.471.100



Cuvettes (for autoanalysers).

Capacity ml	Dimensions mm	Material	Pack pcs.	Carton pcs.	
Blocks, for LABSYSTEMS (autoanalyser FP9)					
-	51 x 43.5 x 25	PS	9x20	600	5.490.600
ABBOTT-Multicuvette for ABA 50-100-200 & VP autoanalyser					
2	–	Acryl	32	180	5.490.700
TOA-Beakers, truncated cups for TOA and ROYCO cell counters					
–	72 x 32	PE	50	3000	5.490.800
HITACHI-Beakers for HITACHI 705					
2	11.5/17 x 43	PS	1000	6000	5.490.810
For KEM-O-MAT-I CUKP, lightpath 10 mm, wave length 330 and 840 nm					
-	–	PS	120	1200	5.490.820
For KEM-O-MAT-II CUK2P					
2	–	PS	100	1000	5.490.821
For Coulter ZF6-systems					
25.0	–	PS	150	750	5.428.000
Autoanalyser (Technicon)					
2.0	–	PS	1000	12000	5.430.000
1.5	–	PS	1000	12000	5.430.015
3.0	–	PS	1000	6000	5.430.030



Amelung caps CUA, made of cristal-polystyrene, for coagulometer KG 10 (not illustrated).

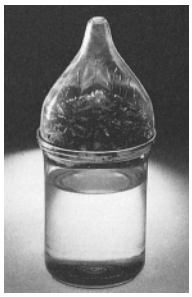
Capacity ml	Height mm	Material	Pack pcs.	Carton pcs.	
Sample caps					
1.8	23	PS	1000	8000	5.489.501
Balls					
–	Ø 3	Metallic	1000	10000	5.489.502

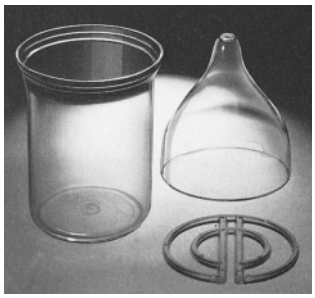
Scintillation vials, PE. With high-density screw-cap. Dustfree packed in plastic bag.

Capacity	Dia. x H	Standard pack	Carton	
ml	mm	pcs.	pcs.	
For all standard scintillation counting equipment (Packard, Beckmann, KONTRON etc.)				
30.0	28 x 60	1000	1000	5.436.000
Insert for scintillation vials to reduce solvents capacity				
6	15 x 57	2000	2000	5.438.000
17	22 x 65	4001600 (Cellcounter)		5.438.017

Disposable flame photometer vials, (Electrolyt-vial) PS, clear glass. For flame photometers. Dustfree packed in plastic bags, with snap-on-lid.

Capacity	Dia. x H	Standard pack	Carton	
ml	mm	pcs.	pcs.	
35.0	48 x 32	3000	3000	5.432.000





Germinators, PS. DBGM 16711453. For checking the germinative faculty of seeds. A round filter is put onto the germinating spiral (dia. 70 mm) and a filter strip (blotting-paper) which must project into the nutrient solution (250 ml container) is damped into the spiral. Dia. 75 mm, height 175 mm.

Type	
Complete	7.197.001
Germinating bell	7.198.001
Germinating spiral	7.199.001
Water container	7.200.001

Aseptic filling bell, with hose-connection for rubber tubing. The filling bell is to be placed on the collecting vessel.

I. D. mm	Height mm	Without frit	With frit
20	80	5.553.611	–
40	100	5.553.612	5.553.622
50	100	5.553.613	–
70	130	5.553.614	–
100	135	5.553.615	5.553.625

Air filter tube, 16 x 125 mm, for 6 mm tubin i.d..

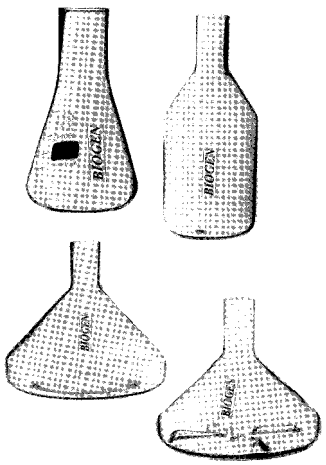
Type	8.486.001

Tissue culture tube, acc. to Leighton. Borosilicate glass.

Tube-Dia. x H mm	Window mm	Cover slip mm	Screw cap GL	
Extra long working area, short overall length, allowing easy entry and removal of cover slides				
16 x 85	11 x 55	10.5 x 22/35/50	–	2.589.001
18 x 95	14 x 55	13 x 27/54. 18 x 37	–	2.589.002
28 x 110	22 x 77	18 x 75	–	2.859.003
38 x 150	27 x 78	25 x 75	–	2.589.004
With screw cap				
16 x 93	11 x 55	9 x 22/35/50	18	2.589.101
16 x 125	11 x 37	10.5 x 22/35	18	2.589.301
16 x 150	11 x 37	10.5 x 22/35	18	2.589.302
18 x 105	14 x 55	10.5 x 22/35/50	18	2.589.102
28 x 120	22 x 77	18 x 37/75	32	2.589.103
35 x 150	27 x 78	25 x 75	32	2.589.104
Plain top				
16 x 125	11 x 37	10.5 x 22/35	–	2.589.201
16 x 150	11 x 37	10.5 x 22/35	–	2.589.202

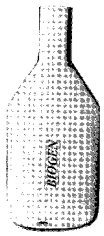
Culture flasks, borosilicate glass. "BIOGEN".

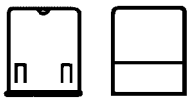
Capacity ml	Flasks dia. mm	Height mm	Neck dia. mm	
Erlenmeyer shape, straight neck for metal caps				
50	51	85	38	5.560.050
100	64	112	38	5.560.100
200	79	136	38	5.560.200
250	85	145	38	5.560.250
300	87	161	38	5.560.300
500	105	183	38	5.560.500
1000	131	232	38	5.560.001
2000	166	305	38	5.560.002
3000	187	310	38	5.560.003
5000	220	365	38	5.560.005
Acc. to Fernbach, conical, straight neck for metal caps				
1800	200	175	38	5.568.050
Triple battled flasks				
1800	200	175	38	5.568.100
Bulgy shape, with beaded rim				
450	117	100	–	5.576.000
Acc. to Kolle, round neck				
125	170 x 65 x 30	–	25	5.578.000
Oval neck				
400	–	–	–	5.590.000
Acc. to Roux, centric				
1200	260 x 122 x 56	–	32	5.580.000
With screw cap GL 45				
800	290 x 122 x 56	–	GL45	5.581.800
With conical neck, excentric				
1200	–	–	–	5.594.001
4350	–	–	–	5.594.002
With cylindrical neck, excentric				
1200	–	–	–	5.598.000



Culture media bottles, borosilicate glass. "BIOGEN", straight neck for metal caps.

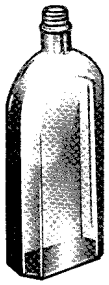
Capacity ml	Dia. mm	Height mm	Neck Dia. mm	
100	50	125	38	5.562.100
300	71	170	38	5.562.300
500	83	208	38	5.562.500
1000	105	240	38	5.562.001





Metal caps, for culture flasks and culture media bottles.

Type	For neck O. D. mm	
Stainlesss Steel	38	5.570.001
Aluminum	38	5.570.002



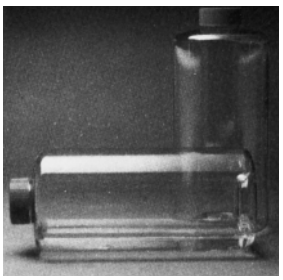
Culture bottles (Meplatbottles). With DIN-screw thread, with screw cap.

Capacity ml	Clear glass	Amber glass
50	5.890.050	5.891.050
100	5.890.100	5.891.100
125	5.890.125	5.891.125
150	5.890.150	5.891.150
200	5.890.200	5.891.200
250	5.890.250	5.891.250
500	5.890.500	5.891.500
1000	–	5.891.001

Roller bottles, borosilicate glass. "BIOGEN". For cell cultures, with screw cap and pouring ring (PP).

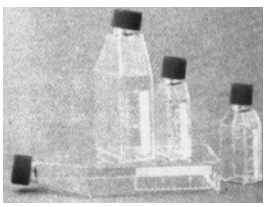
O. D. mm	Height mm	Screw thread GL	Crowth area cm^2	
110	285	45	1300	*5.575.001
110	285	45	670	5.574.001
110	420	45	1170	5.574.002
110	570	45	1585	5.574.003

* Double surface bottles.



Roller bottles, disposable. Sterilized by radiation. Diameter 116 mm, height 250 mm, nominal volume 2400 ml, graduated from 100 to 700 ml, bottom profiled for nesting 2 bottles.

Capacity ml	Standard-pack pcs.	Carton pcs.	
850	2	18	5.487.100

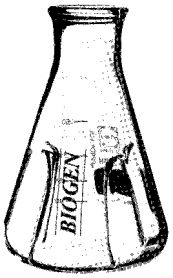


Tissue culture flasks, PS. Gamma sterilized. The canted necks and large inside diameter ensure total access to growth area. Two screw cap positions: areated or hermetic seal. With marking area and graduation marks.

Crowth area cm^2	Bag pcs.	Box pcs.	
25	5	90	5.487.001
75	3	48	5.487.002
150	1	40	5.487.003

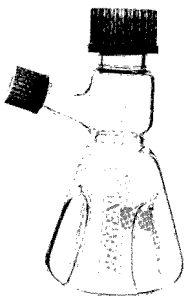
Culture flasks "BIOGEN". Erlenmeyer shape, triple battled shake flask, designed for orbital shakers.

Capacity ml	Flasks O. D. mm	Height mm	Neck O. D. mm	
Neck straight for metal caps				
50	51	90	38	5.507.101
100	64	112	38	5.507.102
200	79	136	38	5.507.103
250	85	145	38	5.507.104
300	87	161	38	5.507.105
500	105	183	38	5.507.106
1000	131	232	38	5.507.107
2000	166	305	38	5.507.108
3000	187	310	38	5.507.109
5000	220	365	38	5.507.110
Neck with rim				
250	85	140	34	5.507.201
300	87	156	34	5.507.202
500	105	175	34	5.507.203
1000	131	220	42	5.507.204
2000	166	280	50	5.507.205



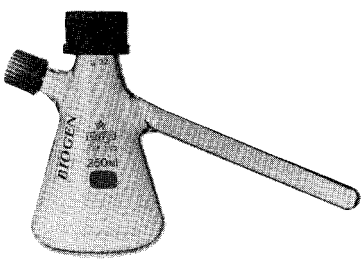
Trypsinizing flasks, graduated, designed for converting tissue fragments and homogenates into cell suspensions by trypsin digestion of connective proteins. Flutes in flask enhance vigorous agitation.

Capacity ml	Flask Dia. mm	Height mm	Neck Dia. mm	
50	51	90	22	5.507.301
100	64	112	22	5.507.302
250	85	145	34	5.507.303
500	105	183	34	5.507.304
1000	131	232	42	5.507.305
2000	166	305	50	5.507.306
3000	187	310	50	5.507.307
5000	220	365	50	5.507.308



Trypsinizing flasks, graduated, with screw cap GL 32 on neck, sidearm with GL 18 thread. The constriction below the sidearm prevents untrypsinized tissue from passing out to flask when cells are decanted by tilting.

Capacity ml	Flask Dia. mm	Height mm	
100	64	140	5.507.401
250	85	170	5.507.402
500	105	210	5.507.403
1000	131	265	5.507.404



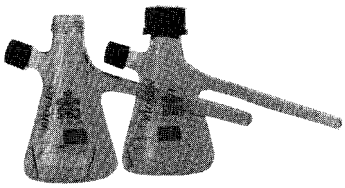
Nephelo culture flask "BIOGEN". With cleanout GL 18 lateral sidearm, length 130 mm. For determining turbidity of any fluid culture tissue with a simple spectrophotometric method.

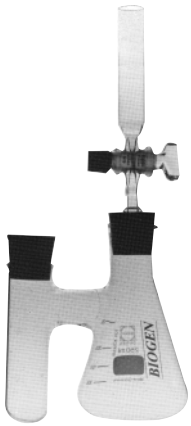
Capacity ml	Culture volume ml	Sidearm dia. 12 mm	Sidearm dia. 14 mm	Sidearm dia. 18 mm
Medium neck with beaded rim				
300	135	5.599.001	5.559.002	5.599.003
Medium neck with GL 32 screw cap				
300	200	5.559.011	5.559.012	5.559.013
500	250	5.599.014	5.559.015	5.559.016
1000	600	5.599.017	5.559.018	5.559.019
Without cleanout				
500	350	5.559.021	5.559.022	5.559.023

Other special sizes on request.

Triple battled Nephelo culture flask "BIOGEN". With lateral sidearm, 130 mm.

Capacity ml	Culture volume mm	Sidearm dia. mm	Medium neck	
With neck for metal caps				
300	50	12	38	5.599.031
300	50	14	38	5.599.032
300	50	18	38	5.599.033
With cleanout GL 18				
300	135	12	–	5.599.041
300	135	14	–	5.599.042
300	135	18	–	5.599.043
300	200	14	GL 32	5.599.044
300	200	18	GL 32	5.599.045
500	250	14	GL 32	5.599.046
500	250	18	GL 32	5.599.047



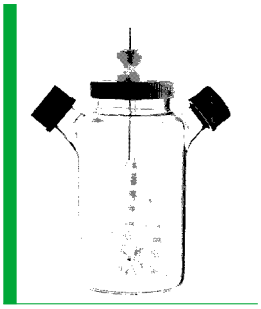


Biometer flasks, for measuring microbial carbon doixide production.

Capacity ml	
250	5.507.825

Mutagenesis flasks, for work involving mutagenesis in mammalian cells, excellent interaction between cell populations and mutagenic chemicals.

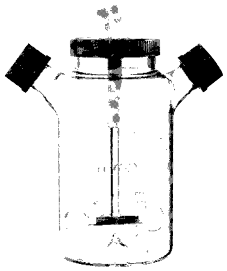
Capacity ml	Neck Dia. mm	Dia. mm	Height mm	
125	25	64	115	5.507.901
250	32	85	140	5.507.902
500	32	105	180	5.507.903



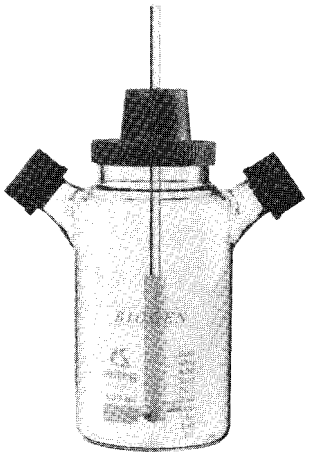
Spinner flasks. "BIOGEN". DBGM (microcarrier spinner flasks). The fluid dynamic impeller assemblies to assure optimal lift of microcarrier beads at very low mixing speeds. The domed vessel bottom prevents microcarrier accumulations. Positive-locking compression seal provides adjustable impeller assembly height. Constructed of non-cytotoxic material. Flasks inside surface siliconized on request. Replacement parts see page 198.

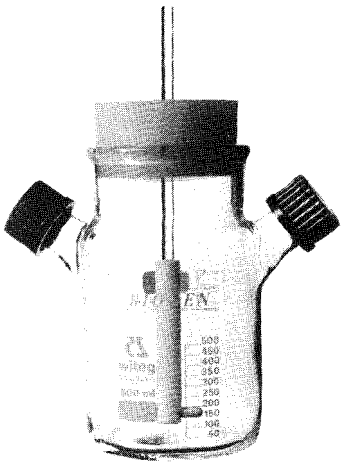
Capacity working volume ml	Center neck screw cap mm	Sidearm screw cap mm	O. D. mm	Height mm	
100	80	18	70	138	5.529.001
250	80	25	90	176	5.529.002
500	80	32	110	200	5.529.003
1000	110	45	138	246	5.529.004
3000	110	45	186	358	5.529.005
6000	110	45	200	420	5.529.006
8000	110	45	224	443	5.529.007
15000	110	45	300	570	5.529.008
36000	110	45	400	600	5.529.009

Microcarrier stirrer flasks "BIOGEN". DBGM (cell culture vessels), with glass stirrer rods reducing the possibility of cells attacking to and growing on the surfaces. With 2 side necks (size 8000 ml with 5 necks). The gentle stirring action keeps carrier beads in suspension at the lowest speed. Inside surface siliconized on request. Replacement parts see page 198.



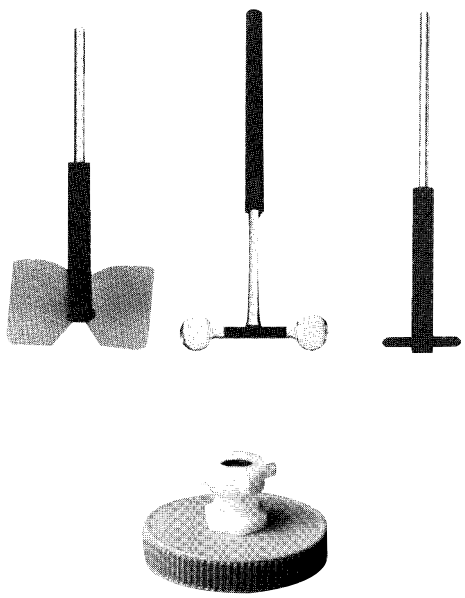
Capacity working volume ml	Center neck screw cap mm	Sidearms screw cap mm	O. D. mm	Height mm	Complete	Bottle	Impeller assemblies
100	80	18	70	138	5.529.011	5.529.201	5.529.051
250	80	25	90	176	5.529.012	5.529.202	5.529.052
500	80	32	110	200	5.529.013	5.529.203	5.529.053
1000	110	45	138	246	5.529.014	5.529.204	5.529.054
3000	110	45	186	358	5.529.015	5.529.205	5.529.055
8000	110	18	234	443	5.529.016	5.528.207	5.529.056
Cap assembly with liner and compression filling							
For No. 5.529.011-013					5.529.411		
For No. 5.529.014-016					5.529.412		





Adjustable hanging bar spinner flasks. PTFE-impeller assembly moves around a glass rod. For floating tissue culture. Adjustable spinner height. With flat vessel bottom. Center neck with screw-cap or silicone rubber stopper. Replacement parts see page 198.

Capacity ml	Center neck screw cap mm	Side arm screw cap mm	O. D. mm	Height mm	With screw cap	With silicone stopper
25	45	18	46	87	5.529.021	–
50	45	18	56	100	5.529.022	5.529.101
100	80	18	70	138	5.529.023	5.529.102
250	80	25	90	176	5.529.024	5.529.103
500	80	32	110	200	5.529.025	5.529.104
1000	110	45	138	246	5.529.026	5.529.105
3000	110	45	186	358	5.529.027	5.529.106
6000	110	45	200	420	5.529.028	5.529.107
8000	110	45	234	443	5.529.029	5.529.108
15000	110	45	300	570	5.529.030	5.529.109
36000	110	45	400	600	5.529.031	5.529.110



Replacement parts for spinner flasks. "BIOGEN".

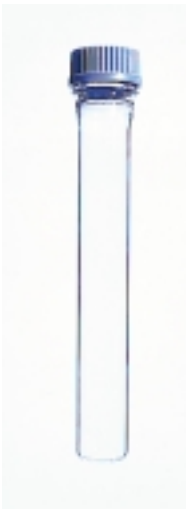
For article no.	Reservoir only	Impeller assembly	Impeller shaft only
5.529.001	5.529.201	5.529.210	5.529.313
5.529.002	5.529.202	5.529.210	5.529.313
5.529.003	5.529.203	5.529.210	5.529.314
5.529.004	5.529.204	5.529.220	5.529.315
5.529.005	5.529.205	5.529.220	5.529.316
5.529.006	5.529.206	5.529.222	5.529.317
5.529.007	5.529.207	5.529.222	5.529.317
5.529.008	5.529.208	5.529.230	5.529.320
5.529.009	5.529.209	5.529.230	5.529.320
5.529.021	5.529.198	5.529.235	5.529.312
5.529.022	5.529.199	5.529.240	5.529.312
5.529.023	5.529.211	5.529.240	5.529.313
5.529.024	5.529.212	5.529.240	5.529.313
5.529.025	5.529.213	5.529.240	5.529.314
5.529.026	5.529.214	5.529.250	5.529.315
5.529.027	5.529.215	5.529.251	5.529.316
5.529.028	5.529.216	5.529.252	5.529.317
5.529.029	5.529.217	5.529.252	5.529.317
5.529.030	5.529.218	5.529.260	5.529.320
5.529.031	5.529.219	5.529.260	5.529.320
5.529.101	5.529.221	5.529.240	5.529.312
5.529.102	5.529.223	5.529.240	5.529.313
5.529.103	5.529.224	5.529.240	5.529.313
5.529.104	5.529.225	5.529.240	5.529.314
5.529.105	5.529.226	5.529.250	5.529.315
5.529.106	5.529.227	5.529.251	5.529.316
5.529.107	5.529.228	5.529.252	5.529.318
5.529.108	5.529.229	5.529.252	5.529.318
5.529.109	6.629.231	5.529.260	5.529.320
5.529.110	5.529.232	5.529.260	5.529.320
Cap assembly with liner and compression closure			
For No. 5.529.001-003			5.529.400
For No. 5.529.004-009			5.529.401
Cap assembly with liner and rubber stopper			
For No. 5.529.021-025			5.529.423
For No. 5.529.026-031			5.529.424

Hybridization bottles. With screw cap GL 45. Borosilicate glass. Fits hybridization ovens type Hybaid, Bellco, Labline, GFL, Heraeus etc.. Complete with silicone sealing.

1. Dia 38 mm

2. Dia. 40 mm

Length mm	1.	2.
75	2.446.107	2.450.107
100	2.446.110	2.450.110
150	2.446.115	2.450.115
273	2.446.127	2.450.127
300	2.446.130	2.450.130



Petri dishes, PS, clear glass.

Dia. mm	Machine sterile	Gamma radiated	Bag pcs.	Carton pcs.	With vents	Without vents	
Standard, for bacteriological applications							
55	x	–	15	1200	–	x	5.488.001
55	x	–	15	1200	x	–	5.488.002
55	–	x	15	1200	–	x	5.488.003
55	–	x	15	1200	x	–	5.488.004
90	x	–	15	600	–	x	5.488.011
90	x	–	15	600	x	–	5.488.012
90	–	x	15	600	–	x	5.488.013
90	–	x	15	600	x	–	5.488.014
100	x	–	15	600	–	x	5.488.021
100	x	–	15	600	x	–	5.488.022
100	–	x	15	600	–	x	5.488.023
100	–	x	15	600	x	–	5.488.024
140	x	–	6	144	–	x	5.488.031
140	–	x	6	144	–	x	5.488.032
120 x 120	x	–	10	300	x	–	5.488.041
120 x 120	–	x	10	300	x	–	5.488.042
Dishes packed upside down to ensure safe and easy handling A forcep is provide to each carton for closing an opened bag							
pileable							
35	–	x	10	500	x	–	5.488.101
60	–	x	10	360	x	–	5.488.102
90	–	x	10	180	x	–	5.488.103
With compartments							
90/2	x	–	15	600	x	–	5.488.201
100/3	x	–	15	560	x	–	5.448.202
100/4	x	–	10	500	x	–	5.488.203

Autoclave bags, disposable, PP, for Petri dishes, culture media, tubes etc. Autoclavable 30 min, 121 °C.

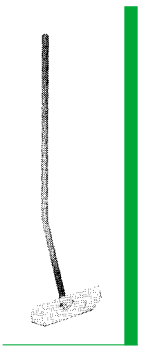
Capacity l	Dimension mm	Bag pcs.	Carton pcs.	
3	250 x 400	200	2000	5.488.301
14	400 x 600	100	1600	5.488.302
32	550 x 780	100	500	5.488.303

Petri dishes. "ANUMBRA". Glass quality of 3rd hydrolytical class, free from bubbles and other imperfections, bottom dish and lid inside and outside absolutely plane.

Height mm	O. D. mm	
12	40	5.830.001
15	60	5.830.002
15	80	5.830.003
15	100	5.830.004
20	100	5.830.005
20	120	5.830.006
25	150	5.830.007
30	180	5.830.008
30	200	5.830.009
50	200	5.830.010

Scraper, for removal cell growth, with PTFE-scraper part, 50 mm length, mobile fixed on a bent glass rod, plastic coated.

8.486.200

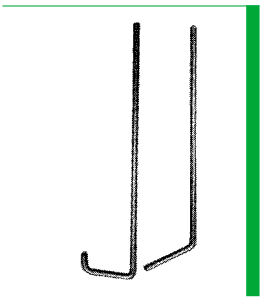


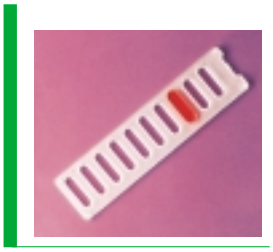
Drigalsky spatulas, glass.

8.486.100

Petri dish glass spreaders, for spreading inoculum agar face. Length of handle 130 mm. Length of spreader 50 mm.

Angle	
90°	8.485.001
120°	8.485.002





Blood group test plate, PS. Special surface for rapid and precise results. 10 places, 160 x 40 x 6 mm.

5.489.333

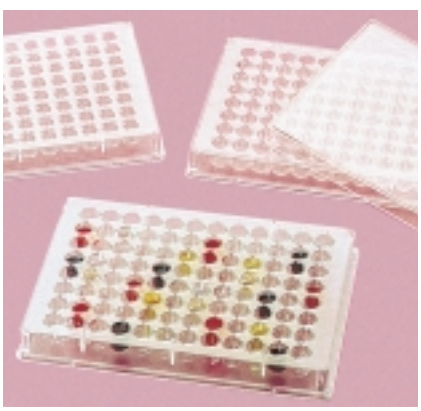
Disposable inoculating loops, PS. For all bacteriological routine works, hybridome control a.s.o. 10 pieces per peel-pack bag.

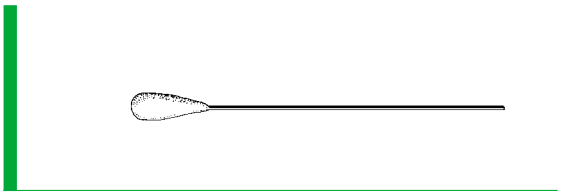
Capacity µl	Carton pcs.	
1	1000	5.489.401
10	1000	5.489.410

Tissue culture plates, PS. With frosted writing area. Cross contamination is preventable. Dimensions 128 x 86 mm.

Deepening	Bottom	Lid	Carton pcs.	
The swan neck between lid and plate avoids evaporation amd contamination in the wells. Alphanumerical identification of the wells.				
For Tissue Culture				
24	-	+	50	5.490.101
Tissue culture, capacity 400 µl				
96	flat	+	44	5.490.102
For serology				
96	U	-	100	5.490.201
96	V	-	100	5.490.202
For ELISA, Luxion - UNIVERSAL -				
Superior optical clarity, with anti reflection top surface, frosted writing area, flat bottom. Article No. 5.490.304 and 5.490.306 are specially treated for adsorption of molecules, sterile, 1 piece per bag (Other sizes 2 pieces per bag).				
96	flat		100	5.490.300
96	U		100	5.490.301
96	V		100	5.490.303
96	flat		100	5.490.304
96	U		100	5.490.305
96	U		100	5.490.306
Lids for microtest plates				
sterile			200	5.490.401
non sterile			100	5.490.402
Adhesive tape for microtest plates to prevent from evaporation				
–			100	5.490.500

Multi channel pipettes see section Liquid Handling.



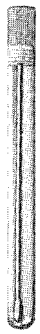


Cotton-tipped applicators (Swabs). 150 mm long, 2.2 mm dia.

Type	Bag pcs.	
Dustfree packed, for general usel	100	5.473.000
Individually packed, sterile	–	5.474.000

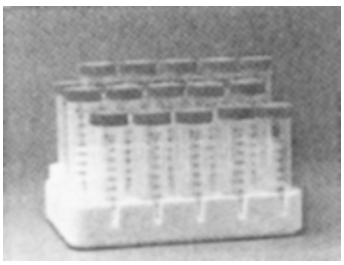
Swab applicators, complete. Swab end attached to cap of tube. Use to collect, store, protect specimen. Tube with identification label,150 mm long, 12 mm dia.

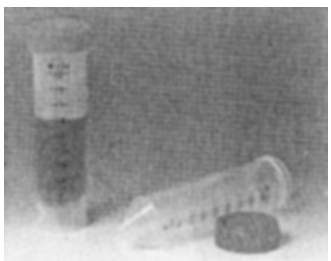
Type	Bag pcs.	
Sterile	100	5.475.000
Individually packed, sterile	–	5.476.000



Centrifuge tubes 50 ml, made of highly transparent PP. Sterilized by radiation. No wettable surface. Can be used in liquid nitrogen (-196 °C). Black graduations each 5 ml (from 5 to 45 ml). Total volume at 50 ml. Screw cap made of PP, leak-proof.

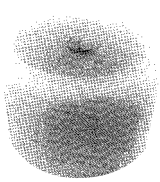
Type	Pieces	
Rack	25	5.487.201
Bag	15	5.487.202
Sself standing in rack	25	5.487.203





Silicone stoppers for spinner flasks "BIOGEN".

Type	
For No. 5.529.101-110	0.175.100
For No. 5.529.105-110	0.175.101



Labocap closures, Aluminum.

For neck Dia. mm	Type	
For culture glasses		
9-10	PK 114	0.175.501
12-13	PK 105	0.175.502
13-14	PK 118	0.175.503
15-16	PK 106	0.175.504
16-17	KV 348	0.175.505
17-18	PK 107	0.175.506
19-20	PK 108	0.175.507
21-23	PK 119	0.175.508
24-26	PK 120	0.175.509
28-30	PK 121	0.175.510
30-32	PK 145	0.175.511
32-34	PK 203	0.175.512
35-37	PK 146	0.175.513
37-39	PK 153	0.175.514
40-42	PK 132	0.175.515
42-44	PK 204	0.175.516
44-47	PK 126	0.175.517
With grip for culture tubes, to Kapsenberg		
12-13	PK 105 G	0.175.601
13-14	PK 118 G	0.175.602
15-16	PK 106 G	0.175.603
17-18	PK 107 G	0.175.604
19-20	PK 108 G	0.175.605
21-23	PK 119 G	0.175.606
24-26	PK 120 G	0.175.607
28-30	PK 121 G	0.175.608

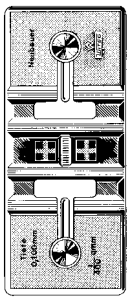
Steristoppers, made of cellulose. "BIOGEN". For steril non-toxic closure of different cultures, sterilizable and autoclavable, air-pervions and cateria filtering.

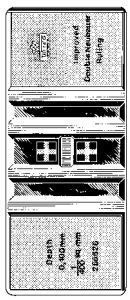
For neck I. D.	
4	9.200.004
5	9.200.005
6	9.200.006
7	9.200.007
8	9.200.008
9	9.200.009
10	9.200.010
11	9.200.011
12	9.200.012
13	9.200.013
14	9.200.014
15	9.200.015
16	9.200.016
17	9.200.017
18	9.200.018
19	9.200.019
20	9.200.020
22	9.200.022
26	9.200.026
27	9.200.027
29	9.200.029
32	9.200.032
34	9.200.034
36	9.200.036
37	9.200.037

Counting chambers. With 2 optical plane cover glasses. Tolerance ±2 % at depth of the counting chambers 0.1 mm. With metal clamp, packed in plastic boxes.
1. Single net graduation.
2. Double net graduation, officially tested and stamped.
3. Single net graduation, not tested (not for Germany).
4. Double net graduation, not tested (not for Germany).

Type	Depth mm	Counting chamber mm^2	1.	2.	3.	4.
Thoma	0.100	1.0	4.140.101	4.140.102	4.130.101	4.130.102
Thoma, new	0.100	1.0	4.140.151	4.140.152	4.130.151	4.130.152
Buerker	0.100	9.3	4.140.201	4.140.202	4.130.201	4.130.202
Neubauer	0.100	9.0	4.140.251	4.140.252	4.130.251	4.130.252
Neubauer improved	0.100	9.0	-	4.140.302	-	4.130.302
Tuerk	0.100	9.0	4.140.351	4.140.352	4.130.351	4.130.352
Buerker-Tuerk	0.100	9.3 resp. 9.0	4.140.401	4.140.402	4.130.401	4.130.402
Schilling (Standardnet)	0.100	9.0	4.140.451	4.140.452	4.130.451	4.130.452
Schilling (Crossnet)	0.100	9.0	4.140.501	4.140.502	4.130.501	4.130.502
Malassez	0.200	5.0	4.140.551	4.140.552	4.130.551	4.130.552
Fuchs-Rosenthal	0.200	16.0	4.140.601	4.140.602	4.130.601	4.130.602
Jessen	0.400	25.0	4.140.651	4.140.652	4.130.651	4.130.652
Nageotte	0.500	100.0	4.140.701	4.140.702	4.130.701	4.130.702

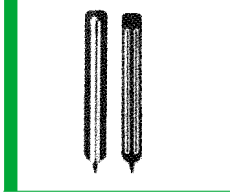
Available in:
single net graduation with metal clamb: Please add „3“ behind the article No.
double net graduation with metal clamb: Please add „4“ behind the article No.
single net graduation without metal clamb: hell-linig: Please add „5“ behind the article No.
double net graduation without metal clamb: hell-linig: Please add „6“ behind the article No.





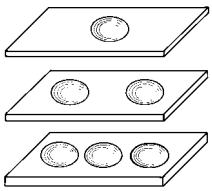
Micro slides. Half-white glass, of best noncorrosive glass. 76 x 26 mm (3“ x 1“), boxes of 50 pieces.

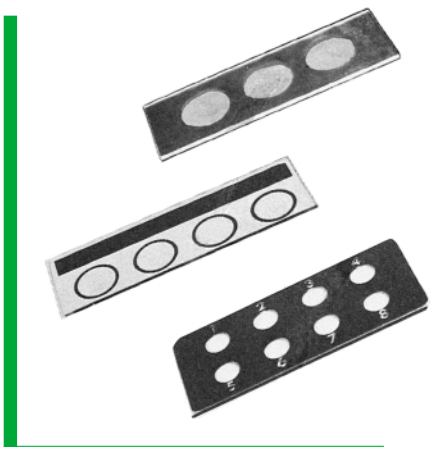
Edges	Thickness mm		
Cut edges	0.8-1	4.520.010	
Cut edges, with frosted ends	0.8-1	4.520.015	
Cut edges, in tropical packing		0.8-1	4.520.016
Fully ground edges	0.8-1	4.520.020	
Fully ground edges, with frosted ends	0.8-1	4.520.022	
Fully ground edges, in tropical packing	0.8-1	4.520.025	
Cut edges	1.2-1.5	4.520.030	
Fully ground edges	1.2-1.5	4.520.040	
With 1 cavity, fully ground edges	1.2-1.5	4.520.100	
With 2 cavities, fully ground edges	1.2-1.5	4.520.200	
With 3 cavities, fully ground edges	1.2-1.5	4.520.300	



Blood lancets, stainless steel. Disposable, single sterile packed. 1000 pcs. in carton.

9.900.000





Special micro slides. Dimensions 75 x 25 x 1 mm.

Type	
For study of antibody formation by single cells with 2 chambers, ground edges	4.521.001
Reich counting slide, 3 circle, dia. 1 cm^2. For calculation of the number of bacteria per sample	4.521.101
For marking direct microscopic counts of somatic cells in cow`s milk	4.521.201
For indirect fluorescent antibody test for toxoplasmosis, 8 rings 6 mm dia.	4.521.301

Cover glasses, square.

Dimensions mm	0.08-0.12 mm thick	0.13-0.17 mm thick	0.19-0.25 mm thick
9 x 9	-	4.600.111	-
12 x 12	4.600.012	4.600.112	-
15 x 15	4.600.015	4.600.115	-
18 x 18	4.600.018	4.600.118	4.600.218
20 x 20	4.600.020	4.600.120	4.600.220
22 x 22	4.600.022	4.600.122	4.600.222
24 x 24	4.600.024	4.600.124	4.600.224

All cover glasses made of excellent special glass of hydrolytical class I, without any flaws or bubbles, precisely cut, exactly adjusted and carefully selected, 100 pieces packed in plastic case.

Cover glasses, rectangular.
0.13-0.17 mm thick.

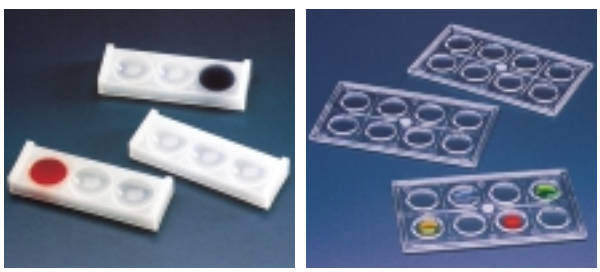
Dimensions mm	
9 x 22	4.610.001
9 x 35	4.610.002
9 x 50	4.610.003
10.5 x 22	4.610.004
10.5 x 35	4.610.005
10.5 x 50	4.610.006
13 x 54	4.610.007
18 x 24	4.610.008
21 x 26	4.610.009
22 x 32	4.610.010
22 x 40	4.610.011
22 x 50	4.610.012
22 x 60	4.610.013
24 x 32	4.610.014
24 x 40	4.610.015
24 x 46	4.610.016
24 x 48	4.610.017
24 x 50	4.610.018
24 x 60	4.610.019
25 x 75	4.610.020

Cover glasses, circular.
0.13-0.17 mm thick.

O. D. mm	
10	4.615.001
12	4.615.002
15	4.615.003
18	4.615.004
20	4.615.005
22	4.615.006
24	4.615.007
30	4.615.008
40	4.615.009

Dispatch- and storage box for slides, PP. When the case is open, the slides project 20 mm above the case and can be easily taken out. Dia. x H: 40 x 90 mm.

7.133.001



Spotting tiles.

PP, with 3 rectangular cavities 27 x 15 mm, 25 x 95 mm

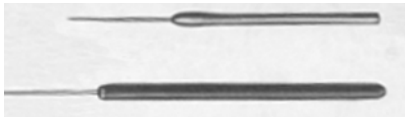
7.133.100

PE, with 3 round cavities dia. 21 mm, 28 x 85 mm

7.133.200

PS, with 8 round cavities dia. 15 mm, 95 x 57 mm

7.133.300



Needles. With wooden handle.

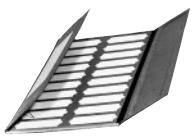
Type	
Dissecting needle, straight, steel	
with yellow wooden handle	8.373.001
with black wooden handle	8.373.002
half spear shaped, wooden handle	8.373.003

Cryovials made of translucent PP, sterilized by radiation, for deep freezing from -20 °C to 196 °C. Screw cap with seal joint. Selfstanding or not. A white marking area allows an easy identification. Advice for freezing storage of serum and cells culture. Packed 100 pieces per bag, 10 bags per carton.

Type	
1.2 ml conical, self standing	5.485.001
2.0 ml round, self standing	5.485.002
4.0 ml round, self standing	5.485.003
5.0 ml round	5.485.004
2.0 ml round	5.485.005
4.0 ml round	5.485.006

Storage- and dispatch boxes for slides, plastic, transparent, for micro slides with lid.

Type	
For 1 micro slides	9.900.701
For 2 micro slides	9.900.702
For 5 micro slides	9.900.705



Folder for micro slides, made of strong cardboard.

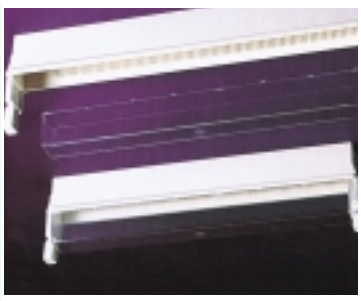
Type	
For 2 micro slides	9.900.602
For 3 micro slides	9.900.603
For 5 micro slides	9.900.605
For 20 micro slides	9.900.620

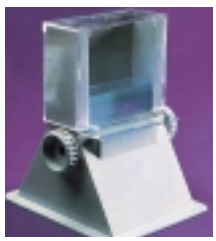
Cryostoppers PP, colour-code, to put in the cap of the vial to allow better identification. 500 pieces per bag, 4 bags per carton.

Color	
Blue	5.485.101
Yellow	5.485.102
Red	5.485.103
Green	5.485.104
White	5.485.105

Slide dispenser, ABS. For 50 micro slides 76 x 26 mm.

Type	4.550.000





Cryoboxes water rejecting cardboard. Convenient handling and preventation to direct frost. Can be placed into vertical and horzontal racks.
With 100 places for 4 or 5 ml test tubes 136 x 136 x 77 mm, brown.
With 100 places for 2 ml test tubes 136 x 136 x 52 mm, beige.

Type	
Cryobox for 4 or 5 ml vials, 96 pieces	5.485.201
Cryobox for 2 ml vials, 144 pieces	5.485.202

Slide dispenser. For 100 micro slides 76 x 26 mm. ABS.

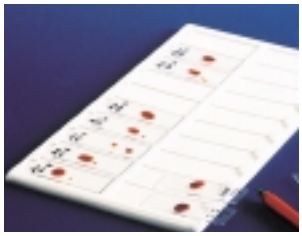
Type	Dimensions mm	Height mm	
Dispenser	360 x 38	100	7.129.001
Lid, PS, crystal clear	345 x 35	40	7.130.001

Storage cabinet, for slides with 5 drawers. ABS. Each drawer has a capacity for 10 micro slide dispensers no. 7.120.001 including lid no 7.130.001. Total capacity 5000 micro slides.

L x B x H mm	
420 x 420 x 725	7.130.200
Set of 4 rolls	7.130.204

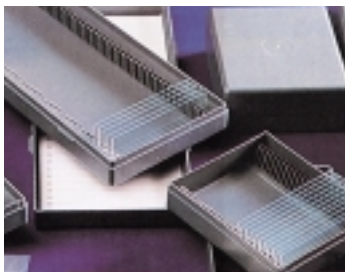
Slides. (PVC). For simple sample identification and troublefree transport.

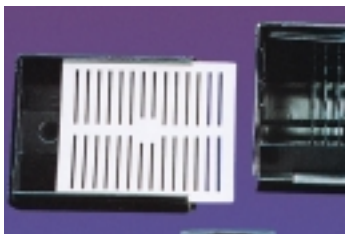
Type	Dimensions mm	
For 20 slides	340 x 190 x 8	7.132.230
For 40 slides	660 x 190 x 8	7.132.240



Storage boxes, with lid, for slides 76 x 26 mm. PS. Handy pileable breakage-free, simple cleansing. With index card for the preparation, classification, numbered.

Type	Dimensions mm	Height mm	
For 25 slides	92 x 83	38	7.131.001
For 50 slides	230 x 97	35	7.131.002
For 100 slides	230 x 180	35	7.131.003





Staining- and storage systems. For slides 76 x 26 mm.

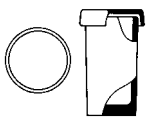
Type	For slides	Dimensions mm	Height mm	
Staining jar with insert, POM	25	100 x 87	51	7.124.001
Staining dish and storage box, POM	25	100 x 87	51	7.125.001
Staining rack, POM	25	91 x 79	38	7.126.001
Storage box with 4 inserts, PS	4 x 25	192 x 169	39	7.127.001
Storage box, without inserts, PS	-	192 x 169	39	7.127.002

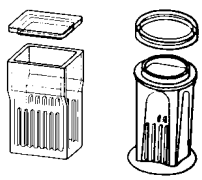
Staining jars, PMP, crystal glass.

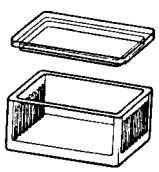
Dimensions mm	Height mm	
Type "Hellendahl", with cover, for 8 or 16 slides		
58 x 53,5	86	7.127.003
With 2 covers		
101 x 81	86	7.127.004
Type "Schiefferdecker", for 20 slides		7.127.105

Staining jar with overlapping cover.

O. D. mm	Height mm	
Round shape		
40	85	4.620.001
Oval shape		
40/25	85	4.620.002





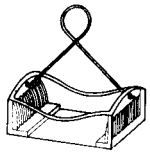
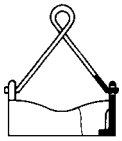
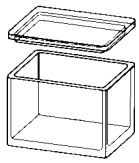


Staining jars.

Type	
Hellendahl, for 16 slides	4.630.000
Coplin, for 10 slides	4.650.000
Scheifferdecker, for 10 slides	4.660.000

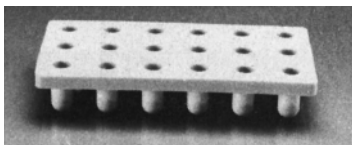
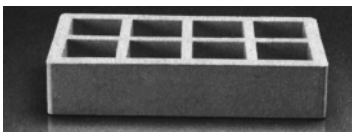
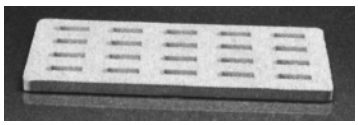
Stainig system for 10 slides 76 x 26 mm up to 52 mm broadness. Consists of a box with cover, frame for slides and wire holder.

Type	
Complete	4.640.000
Staining rack	4.640.001
Wire handle	4.640.002
Staining dish	4.640.003

Staining system, PP/TPX.
Staining insert with handle fits staining jar no. 7.127.004.
20 positions, 85 x 70 mm, 21 mm high.

Type	
Stainig dish	7.127.005
Staining jar	7.127.006

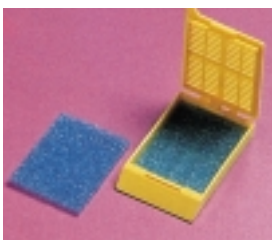
Mould forms. Silicon-rubber. For histology.

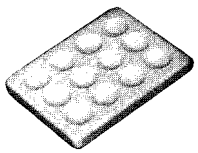
Type	Size mm	
Beem-capsule-mould	107 x 57 x 20	7.127.007
Embedding mould	132 x 70 x 28	7.127.008
Flat box embedding mould	117 x 57 x 5	7.127.009

Embedding frames, (POM, disposable) 500 pcs. per carton, with clip closure, 40 x 28 x 7 mm).

Color Code	
White	7.127.100
Blue	7.127.101
Yellow	7.127.102
Green	7.127.103
Pink	7.127.104

Accessories:
Embedding sponge (500 pcs. per carton) 30 x 25 mm, blue 7.127.105



Spotting tiles, PP. White, with 12 cavities 1 ml each, 115 x 95 mm.

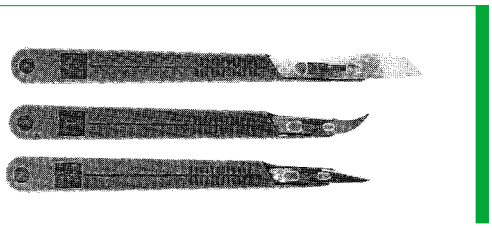
7.236.001

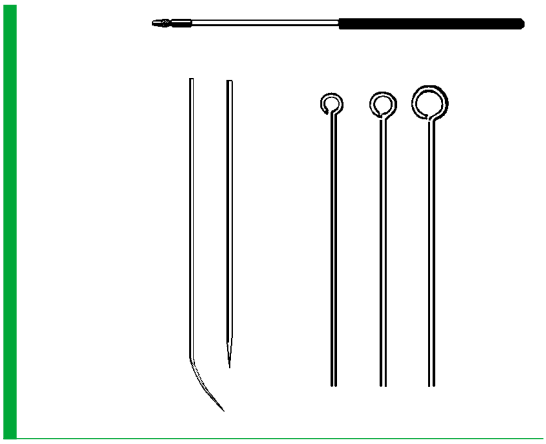
Paraffin metal frame, for precise arrangement of species in paraffin wax. 10 pcs. per plastic bag.

Type	
Standard	7.127.200
Biopsie	7.127.201

Disposable scalpels, single sterile packed (10 pcs. per bag, 100 pcs. per standard box).

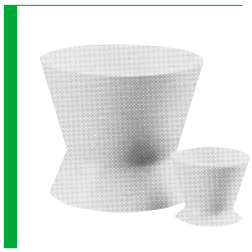
Size mm	
10	9.901.010
11	9.901.011
15	9.901.015
20	9.901.020
21	9.901.021
22	9.901.022
23	9.901.023
24	9.901.024

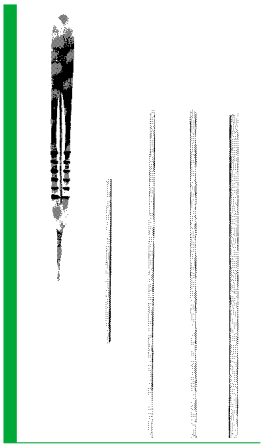




Needle holders. Needles. Inoculating Loops.

Type/ material	Loops dia. mm	Length mm	
Needle holder acc. to Kolle	–	200	9.318.300
Needle, straight	–	50	9.318.601
Needle, bent	–	50	9.318.602
Inoculating Loops "BIOGEN"			
WIRONIT	1.5	50	9.318.401
WIRONIT	2.5	50	9.318.402
WIRONIT	4	50	9.318.403
WIRONIT	1.5	60	9.318.404
WIRONIT	2.5	60	9.318.405
WIRONIT	4	60	9.318.406
1.0 mm dia./Platinum	2	60	9.318.502
1.0 mm dia./Platinum	3	60	9.318.503
1.0 mm dia./Platinum	4	60	9.318.504
1.0 mm dia./Platinum	5	60	9.318.505
1.0 mm dia./Platinum	6	60	9.318.506



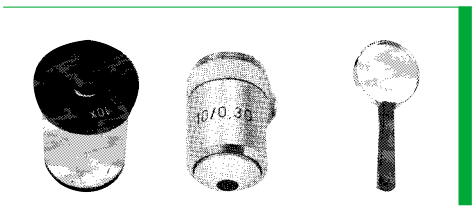


Scalpels.

Type/ size	Standard pack	
Metal handle		
No. 3	2	9.901.103
No. 4	2	9.901.104
Blades, single sterile packed		
10	100	9.901.210
11	100	9.901.211
15	100	9.901.215
20	100	9.901.220
21	100	9.901.221
22	100	9.901.222
23	100	9.901.223
24	100	9.901.224

Mixing beakers, SIK.

Type	
Small	7.127.201
Large	7.127.202

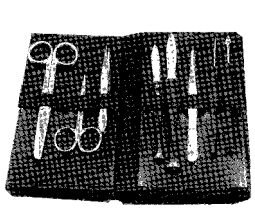


Optical instruments.

Magnification mm	Dia. mm	
Oculare acc. to Huygens		
5 x	–	9.900.205
10 x	–	9.900.210
12 x	–	9.900.212
15 x	–	9.900.215
Objectives, achromatic		
5/0.10	–	9.900.301
10/0.30	–	9.900.302
40/0.65 with micro slides protection	–	9.900.303
60/0.85 with micro slides protection	–	9.900.304
100/1.30 with micro slides protection	–	9.900.305
Magnifier, chrome plated, with black handle		
–	50	9.900.450
–	80	9.900.480

Dissection kit, stainless steel. 10 pieces in case:
- Dressing scissor.
- Scissor sharp.
- Forcep blunt, forcep sharp.
- Scalpel 35 mm blade, scalpel 45 mm blade.
- Dessection needle.
- Lancet.
- Razor flat/hollow.
- Probe.

Type	9.900.500



LABmax

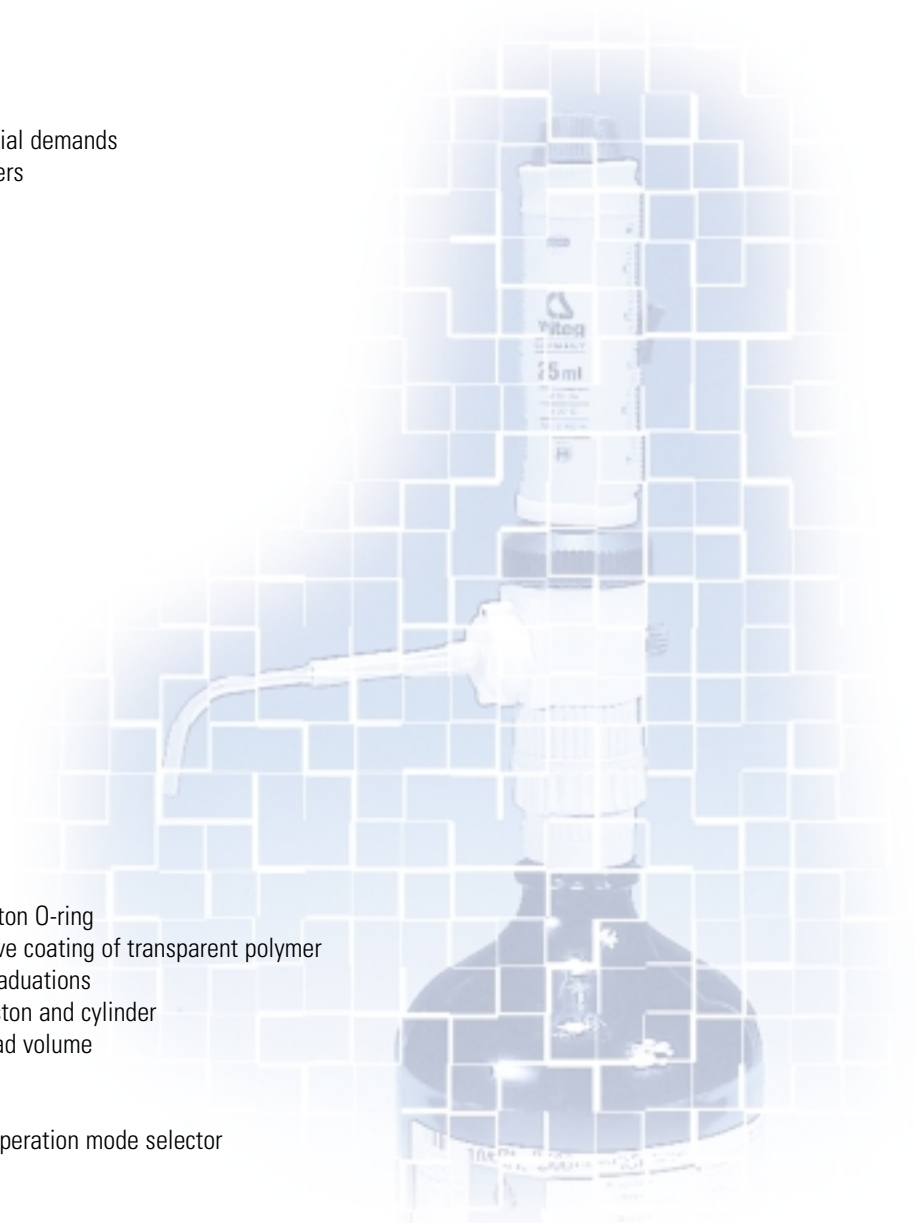
From glass to laboratory high-tech

The traditional large volume glass instruments are replaced step by step with small volume volumetric instruments to safe reagents. This of course reduces the costs and is a better alternative in terms of environmental aspects. **LABmax** is the consquent dispensing system from witeg which offers almost unlimitted application in general laboratory use.

- highest reproducibility
- conformity certification and CE
- safe handling
- no reagent loss during handling
- autoclavable at 121 °C
- dated batch certification
- fulfills all applicable standards an official demands
- flexible by using different bottle adapters

LABmax your reliable dispenser.

witeg ...state of the art



Properties:

- quick volume adjustment
- patented piston with PTFE protected viton O-ring
- dispensing glass cylinder with protective coating of transparent polymer
- grip handle with sprocket guide and graduations
- screw cap for easy cleansing of the piston and cylinder
- vertical valves to achieve minimum dead volume and effective cleaning
- operation mode selector
- discharge tube rotates by turning the operation mode selector
- filter connection for various filters
- Dispenser base 360° degree rotation

The **LABmax** may be completely disassembled, an advantage when cleansing the dispenser. Please follow the instruction manual. Due to easy disassembly all parts of the **LABmax** may be replaced without any problem.

For your safety: The position of the operation mode selector always indicates the respective actual function.

Due to constant technical improvements components of our products can differ from actual supplies shown.

LABmax

The „360°-turn“ is already integrated

No matter how tight you secure the LABmax - with or without the adapter - you can direct the discharge tube with one simple turn: For example above the label of the bottle which should be visible when working with a dispenser. The use of adapters for different bottle threads does not limit this function. The adapters may remain on the bottle, LABmax can be adjusted to any position of your choice.

„Air-purging“ without problems

Turn the operation mode selector 90° to the right. A marker and the discharge tube will indicate the right position. Remove (purge) the air by several pumping actions. No reagent is lost as you are pumping in a closed circuit.

If you do not wish air exchange between reagent and room air the LABmax is equipped with a connector which allows the simple attachment of different filters as well as calcium chloride tubes or a check valve.

Convenient volume setting

Adjusting the volume of the LABmax is done by a quick-adjust knob. The desired volume is set by a sprocket. Just push the knob - move to the desired volume - release - thats all!

Precise reproducibility of the volume in the clinical field, science and research - the word is LABmax. After all - if the LABmax has to be disassembled e.g. for cleansing it does not need to be re-adjusted after assembling. The zero-point is part of the construction and automatically calibrated.

Smooth and fatigue-free dispensing

The patented piston of the LABmax completely displaces the reagent with each stroke. The dispensing glass cylinder is protected by a transparent plastic coating which allows the user to view and control the liquid in the glass cylinder. The protective cover reduces the possibility of injury.
Safety in the laboratory is top priority!
The vertical valves assure a minimum of dead volume and also make effective cleansing possible. See operation manual for details.

No more spills - no reagent loss

Residual reagent to be dispensed is not lost when working with the LABmax.
For environmental and cost reasons reagents can be transfered easily without loss.
Turn the operation mode selector 90° to the right and the residual amount inside the cylinder will be pumped back into the bottle or container. This mechanism will also help you when accidentially the wrong volume is set.

Safe and secure rest position

By turning the operation mode selector by 180° all liquid in the discharge tube flows back into the bottle. It is almost impossible for any leakage to occur when it is in that position.

The LABmax is completely shut down and no accidental discharge will occur by inadvertently moving the piston. This is clearly indicated by the position of the tube and the setting of the operation mode.

LABmax Standard with patented PTFE-piston, complete with accessories (see Scope of Supply)

Volume range ml	Subdivisions Steps ml	Tolerances ml	CV ml	Thread size mm	
0.3 - 2.5	0.05	±0.02	0.002	GL 32 / 33	5.370.001
1.0 - 5.0	0.10	±0.04	0.005	GL 32 / 33	5.370.002
2.0 - 10.0	0.20	±0.08	0.010	GL 32 / 33	5.370.003
5.0 - 25.0	0.50	±0.15	0.025	GL 45	5.370.004
10.0 - 50.0	1.00	±0.40	0.050	GL 45	5.370.005
25.0 - 100.0	2.00	±0.80	0.100	GL 45	5.370.006

LABmax "S" for solvents and PTFE-swelling media, complete with accessories (see Scope of Supply), with piston made form borosilicate-glass.

Volume range ml	Subdivisions Steps ml	Tolerances ml	CV ml	Thread size mm	
2.0 - 10.0	0.20	±0.08	0.010	GL 32	5.370.013
5.0 - 25.0	0.50	±0.15	0.025	GL 45	5.370.014
10.0 - 50.0	1.00	±0.40	0.050	GL 45	5.370.015

LABmax "HF" suitable for hydrofluoric acid, with patented PTFE-piston, liquid comes in contact only with PTFE and platinum iridium, complete with accessories (see Scope of Supply).

Volume range ml	Subdivisions Steps ml	Tolerances ml	CV ml	Thread size mm	
2.0 - 10.0	0.20	±0.08	0.010	GL 32	5.370.023
5.0 - 25.0	0.50	±0.015	0.025	GL 45	5.370.014

Scope of Supply:

1 **LABmax** with operation mode selector for air-puring, complete with filling- and discharge tubes, instruction manual as well as the following thread adapters:

- 2.5/5 and 10 ml adapter A 25, A 28, A 45, S 40
- 25/50 and 100 ml adapter A 28, A 38, A 32 / 45, S 40
- conformity certification, CE
- quality certification, individual serial number
- developed and produced acc. to ISO 9001

Für LABmax und TITREX 2000

Calcium chloride tube, borosilicate glass
with plastic coating. To protect reagents in the bottle from moisture from the outside.

5.377.310

Check valve, borosilicate glass
with plastic coating to be inserted into the ventilation channel of the operation mode selector. For fuming acids and strong smelling liquids like linol or brom etc..

5.377.300

One way filters
(dust filter, bacteria filter). The standard one-way filters fit into the ventilation channel of the operation mode selector. See section Filtration.

8.212.001 - 8.214.002

MINISPENSOR

The bottle top dispenser for dosings in the microliter range with 2 „fix adjustable“ volumes

In medical and diagnostical laboratories a dispenser in the microliter range will be required, with which accurate volumes can be dosed with one hand only. This operation was done in the past by microliter pipettes. The top technology of witeg has fulfilled this requirement with engeneering the **MINISPENSOR**.

Easy to maintain

The **MINISPENSOR** is constructed easy to maintain. For sophisticated cleansing the upper part can be completely dismantled .

The **MINISPENSOR** is
completely sterilizable .

Conformity

With the symbol we certify the conformity with the specifications of Annex 12 of the German Weights and Measures Regulations provided the instrument is used with accessories supplied by us and in accordance to the operating manual.

Safe volume adjustment

The **MINISPENSOR** will be delivered with one volume adapter, which is subdivided in 2-fix-volumes. By turning the push button the volumes can be adjusted easyly and precisely.

Perfect handling

Unlike the conventional dispensers is the fatique-proof handling. Uncramped, relaxed and stressless long series can be managed. With three fingers only the new developed dispenser can be manipulated. The push-botton will be pressed down for dispensing with the thumb as with automatic pipettes. With the help of a spring the selected volume will be drawn back to the cylinder automatically.

When turning the push-button a scond volume stop will click into place which is half of the total lifting.

neu / new

It´s your money going down the drain!

Please, calculate for once your monthly consumption of pipette tips. Maybe you can exchange an expensive pipette by a **MINISPENSOR.**

Safe the environment

Whenever you do not really need to work with a pipette we recommend our tip saving **MINISPENSOR.**

MINISPENSOR

MINISPENSOR-Fix-Volume-Bottle-Top-Dispensers x 2,
for accurate delivery of **microliter quantities.** Just screw it onto the bottle, press the plunger - thats all!

- the bottle-top.micro-dispenser even for hospital laboratories (glucose tests, Gama GT, Chreatinine, Urea, Cholesterol, Amylase, Lipose, Iric acid, Bilirubin a.s.o.)
- for single handed operation
- due to direct displacement no sticking or jamming of the plunger
- suitable for safe storage in a fridge
- substitution for microliter pipettes
- **special volume adapters available on request**
- just select the required volume and press the plunger - thats all!
- **no tips required**

Spare volume adapters, no re-adjustment necessary.

Volume range µl	A ≤ ± %	CV ≤ ± %	
20 + 40	3.0	1.0	5.372.040
25 + 50	2.0	0.5	5.372.052
50 + 100	2.0	0.5	5.372.101
100 + 200	1.0	0.2	5.372.202
200 + 400	1.0	0.2	5.372.402
250 + 500	1.0	0.2	5.372.525
400 + 800	1.0	0.2	5.372.840
500 + 1000	1,0	0.2	5.372.950
750 + 1500	0.7	0.2	5.372.975
1000 + 2000	0.7	0.2	5.372.990

MINISPENSOR 2x - Fixvolume-Dispenser. Complete with accessories (see Scope of Supply).

Volume range µl	A ≤ ± %	CV ≤ ± %	
20 + 40	5.0	2.0	5.371.040
25 + 50	2.0	0.5	5.371.052
50 + 100	2.0	0.5	5.371.101
100 + 200	1.0	0.2	5.371.202
200 + 400	1.0	0.2	5.371.402
250 + 500	1.0	0.2	5.371.525
400 + 800	1.0	0.2	5.371.840
500 + 1000	1.0	0.2	5.371.950
750 + 1500	0.7	0.2	5.371.975
1000 + 2000	0.7	0.2	5.371.990

Scope of Supply:
With tread connector GL 28, 1 volume adapter and 1 bottle, both ST28/32, suction tube and discharge tube.

Accessories and spare parts for LABmax, TITREX, MINISPENSOR

LABmax/TITREX-bottle (2 neck special refill bottle).
Clear glass, with center screw neck and side entry filler neck for refilling the bottle without removing the Labmax or Titrex. 2000 ml.
5.372.300

Bottle stand.
For LABmax up to 10 ml and bottles up to 250 ml, as well as MINISPENSOR.
Adjustable height, rubber feet.
1 piece each pack.
5.377.222

Bottles for LABmax, TITREX, MINISPENSOR.
Made from soda lime brown-glass, Levasint®-coated, screw cap made from PP, space saving square shape.
1 piece each pack.

Capacity ml	Thread size	B x H mm	
(MINISPENSOR) 100	28	50 x 125	5.372.128
100	32	50 x 125	5.372.101
250	32	65 x 160	5.372.025
500	32	80 x 195	5.372.050
1000	45	95 x 230	5.372.100
(round form) 2500	45	140 x 300	5.372.250

ST-adapters.

For LABmax, TITREX, MINISPENSOR. Duran. 1 piece each pack.

Thread mm	For neck size ST	
32	19/26	5.380.019
32	24/29	5.380.024
32	29/32	5.380.029
45	29/32	5.380.129
45	45/40	5.380.145

Filling tubes.

For LABmax, TITREX, MINISPENSOR. FEP. 1 piece each pack.

Suitable for	Length x O. D. mm	
LABmax 2.5 - 10	250 x 6.9	5.375.000
LABmax 25 - 100	335 x 6.9	5.375.001
TITREX 50 ml	390 x 6.9	5.497.200
MINISPENSOR 25 - 100		5.375.004M
MINISPENSOR 100 - 1000		5.375.014
MINISPENSOR 1000 - 2000		5.375.016

Discharge tubes.

For LABmax, TITREX, MINISPENSOR. FEP. Complete with support sleeve. 1 piece each pack.

For	Type	Nominal-volume	Length mm	
LABmax	bent	2.5 - 10 ml	80	5.375.003
LABmax	bent	25 - 100 ml	120	5.375.004
TITREX	bent, with fine tip	25 - 100 ml	120	5.497.300
MINISPENSOR	bent, with fine tip	25 - 100 µl		5.375.003M
MINISPENSOR	bent, with fine tip	100 - 1000 µl		5.375.013
MINISPENSOR	bent	1000 - 2000 µl		5.375.015

Circulation tube.

For LABmax 25 - 100 ml and TITREX 50 ml.

5.375.011

Thread adapters.

For LABmax, TITREX, MINISPENSOR.
PP (PTFE upon request).
1 piece each pack.

Thread mm	
A 22	5.377.022
A 25	5.377.025
A 28	5.377.028
A 30	5.377.030
A 32 / A 28*	5.377.032
A 38	5.377.038
A 40	5.377.040
A 45 / A 32*	5.377.600
A 45	5.377.045

* from A 45 to A 32 inverted
* from A 28 to A 32 (MINISPENSOR)

Flexible discharge tubing.

For LABmax, TITREX. PTFE. Coiled, complete with tubing support, length 80 cm.
1 piece each pack.

For	Nominal volume ml	O. D. mm	I. D. mm	
LABmax	2.5 - 10	3.0	2.0	5.375.002
LABmax	25 - 100	4.3	3.4	5.375.012
TITREX	50			5.497.300

TITREX 2000

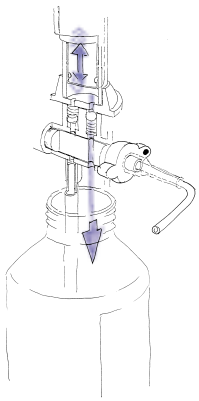
Burettes digital

Using the Titrex 2000, you will „recognize" the changing point faster than with common glass burettes, more sensitive and, for sure less costly than with motor burettes. Hereby the dosing speed is adjusted when turning the handwheels steplessly from fast to drop by drop. The witeg burette has the advantage that the piston only without headweight is moving during the titrating process and few turnings on the wheel are sufficient to take the preselected volume. A total volume of 50 ml should be sufficient because all burette volumes can be simulated since the volume which is being sucked is determined via the display and continuously read out.

„Air-purging" without problems or loss of reagents

Turn the operation mode selector to the right at a 90° angle. A marker and the discharge tube will indicate the right position. Remove (purge) the air by several pumping actions. No reagent is lost as you are pumping in a closed circuit.

If you do not wish air exchange between reagent and room air the **TITREX 2000** is equipped with a connector which allows the simple attachment of different filters as well as calcium chloride tubes or a check valve.



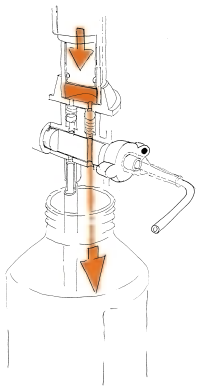
No more spills - no reagent loss

Residual reagent to be dispensed is not lost when working with the **TITREX 2000**.

For enviromental and cost reasons reagents can be tranfered easily without loss.

Turn the operation mode selector 90° to the right and the residual amount inside the cylinder will be pumped back into the bottle or container.

This mechanism also helps if accidentially the wrong volume was set.

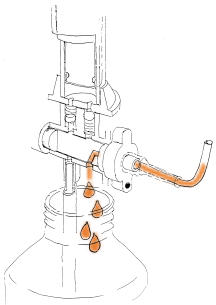


Safe and secure restposition

By turning the operation mode selector by 180° all liquid in the discharge tube flows back into the bottle.

It is almost impossible for any leakage to occur when it is in that position.

The **TITREX 2000** is completely shut down and no accidental discharge will occur by inadvertently moving the piston. This is clearly indicated by the position of the tube and the setting of the operation mode.



The first Witeg burette, developed in conformity with ISO 9001 and of course conformity certified

TITREX 2000

1 instrument for all volumes

Your special advantage!

No do not need several different sizes of the Titrex 2000 - just push the button „DOS“, watch the display and with only a few turns of the handwheel you fill the burette cylinder with volumes between 0 to 50 ml - sufficient for several titrations.

Calibration

The permanent calibration of the Titrex 2000 is adjusted to water at 20 °C.
For liquids of different viscositiesd/densities the Titrex 2000 can be easily recalibrated by pushing the button „O/CAL“ - just follow the detailed instructions of the manual.

Practical and fast pre-selection of volumes needed for titrations

Just push the key „DOS“ and you can pre-select the burette-volume for your titrations. By watching the display you always can control the volume of liquid, that you suck-in to the buerette cylinder. Press the button „zero“ and titration can start immediately. It could not be quicker, handier and more accurate than with a glass burette and more sensitive than with a motor dirven burette. The key „MEM“ (memory) helps to avoid complicated calculations.

…finally

- automatic power-cut-off after 3 minutes
- operating temperature 10-40 °C
- tranpsort and storage temperature max. 60 °C
- a flashing indicator in the display shows, when charging of the battery is required. Running titrations remains unaffected.
- up to 500 data sets may be stored in the memory and are available for data evaluation on PC or printers. Together with the Excel software specific evaluations are possible.

TITREX Burette digital.

Type	Volume range ml	Resolution	A < ± %	CV < ± %	
Standard	0 - 50	0.01	0.2	0.1	5.497.050
Fine adjustment	0 - 50	0.01	0.2	0.1	5.497.150

Accessories

TITREX-discharge tube. PTFE, natural color.
5.497.300

TITREX-charger. 220 V, 50 Hz.
5.497.400

TITREX-suction tube. PTFE, natural color.
5.497.200

TITREX-thread adapter (reduction adapter) GL 45 - GL32.
5.497.600

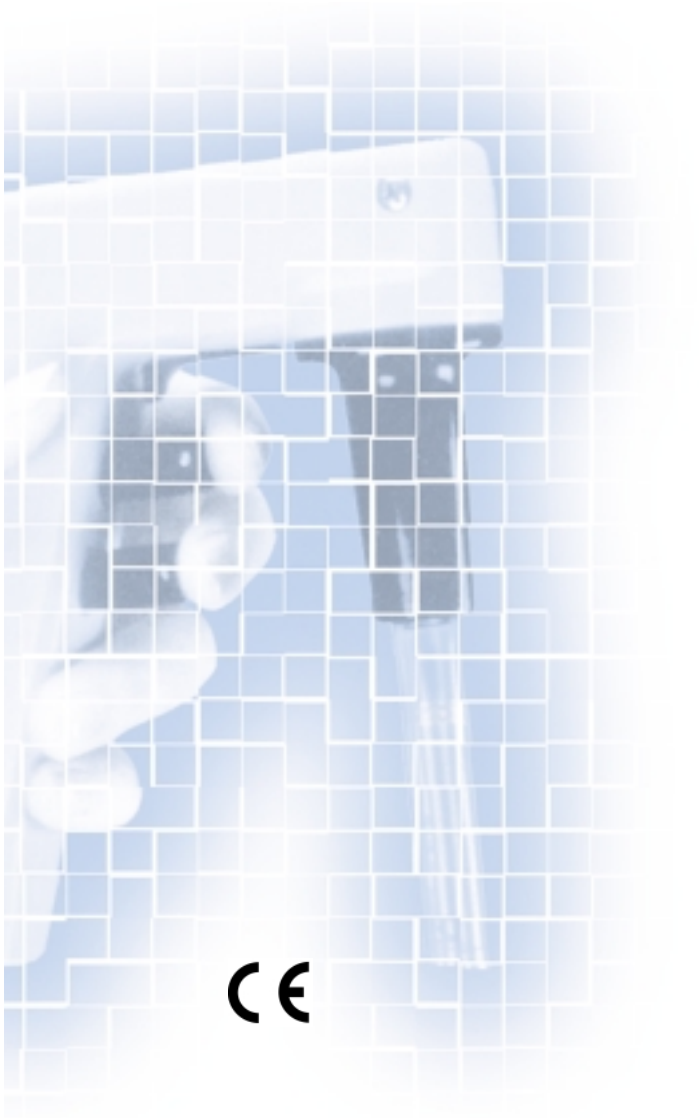
TITREX-discharge tube. PTFE, with tube holder, natural color.
5.497.400

WITOLINK. Software for data evaluation.
5.497.000

WITOPED XP

The latest generation

- 25% less weight and more compact
- 9 different options of controlled speeds for filling and discharge
- applicable for all glass and plastic pipettes from 0.1 to 100 ml



The most recent development to ease your pipetting work by adding more comfort and built-in automatic. The new version allows the selection of 3 fixed speeds for suction and discharge. Quick filling and slow discharge - slow suction and quick blow-out of the liquids plus another 7 different options ensure best speed combinations of main applications at optimum level of use.

Simply select the speed for suction by means of the position of the knob.

F = fast filling
M = medium speed
S = slow working

Additionally, you can influence the speed by applying different pressures to the operation knobs resulting in precise working. The safety valve prevents overfill.

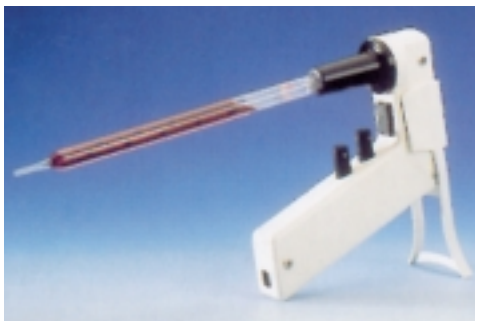
The WITOPED XP is supplied with a filter for your safety and a recharger unit.

WITOPED XP. Rechargeable Pipetting.

For all pipettes from 0.1 to 100 ml, complete with 4 filters and recharger, unit ready for use..

Type	
220 V	5.380.001
110 V	5.380.002

Spare parts	
Rubber adaptor	5.380.004
Adaptor-ring	5.380.005
Spare filter (set of 5)	5.380.006
Recharger, 220 V	5.497.500
Recharger, 110 V	5.497.001
O-ring, small	5.380.007
O-ring, large	5.380.009
Rubber insert	5.380.010



WITOPETTE WITIPS

Simple serial dosing

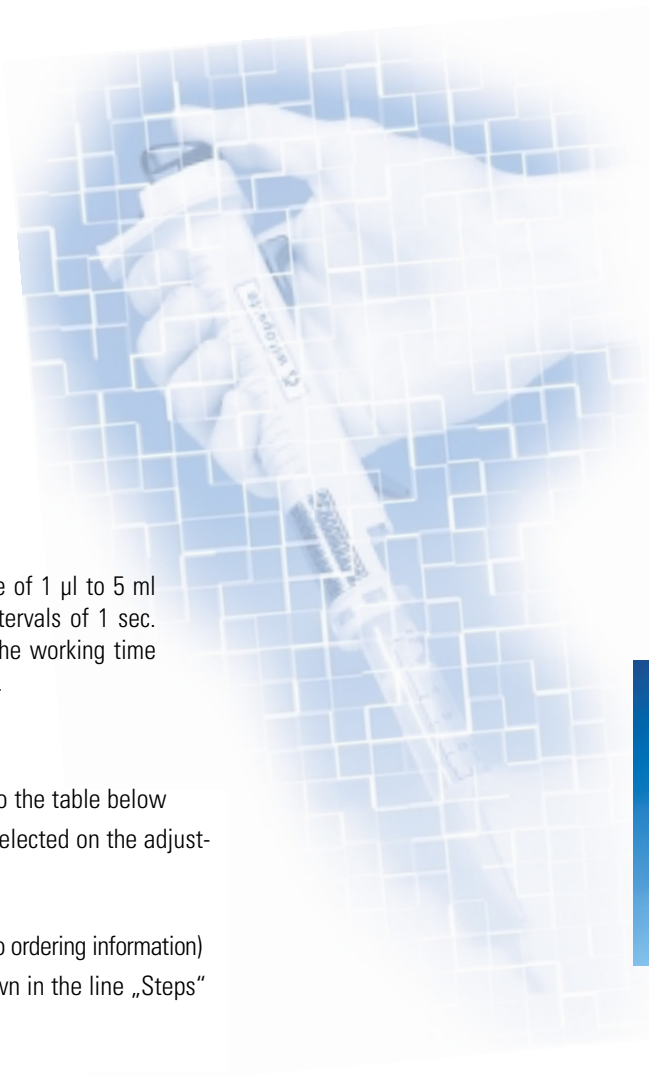
- a new dosing feeling with reliable stepping mechanism according to the principle of "positive displacement"
- free of tiredness long term working
- low weight (approx. 100 g)
- simple serial dosing.

Utmost safety when pipetting dangerous media

All liquids to be pipetted are kept inside the **WITIPS** so that a contact with the **WITOPETTE** and with the user will be impossible. This will reduce the risk of contamination to users and instrument and similarily guarantees the user to work free of doubt at any time. The change of reagents won´t be a problem, too: just change the **WITIP**.

Reproducibility and accuracy

A special mechanism ensures exact pipetting of all volumes until the safety level is reached. This ensures exact final results. Consequently, it is impossible to dispense less volume than set on the adjusting wheel. At the same time the volume left inside the **WITIP** is reduced to a very low quantity.



Absolutely maintenancefree

because no wear and tear parts are used.

Certified precision

We certify with this sign the conformity according to the official Calibration Order of 12.8.1988.

Guarantee

All **WITOPETTEs** are supplied with a serial number which means a warranty of 1 year from the date of purchase provided the instrument is handled according to the instruction manual.

Less working time

The **WITOPETTE** operates within the range of 1 µl to 5 ml and allows up to 48 pipetting steps in intervals of 1 sec. without refill. Thus it is saving 90 % of the working time compared to the usual pipetting technique.

- Make your choice of volume according to the table below
- The first line indicates the figure to be selected on the adjustment wheel
- The left column indicates the size of the **WITIPS** (8 sizes supplied - please refer to ordering information)
- The number of pipetting steps are shown in the line „Steps"

Choice of volumes

No. **WITIPS**	**1**	**2**	**3**	**4**	**5**	Precision %	Accuracy %
0.05 ml	1 µl	2 µl	3 µl	4 µl	5 µl	< 5	< ±2.5
0.5 ml	10 µl	20 µl	30 µl	40 µl	50 µl	< 0.7	< ±0.8
1.25 ml	25 µl	50 µl	75 µl	100 µl	125 µl	< 0.5	< ±0.8
2.5 ml	50 µl	100 µl	150 µl	200 µl	250 µl	< 0.4	< ±0.8
5.0 ml	100 µl	200 µl	300 µl	400 µl	500 µl	< 0.3	< ±0.4
12.5 ml	250 µl	500 µl	750 µl	1000 µl	1250 µl	< 0.3	< ±0.3
25.0 ml	500 µl	1000 µl	1500 µl	2000 µl	1500 µl	< 0.3	< ±0.2
50.0 ml	1000 µl	2000 µl	3000 µl	4000 µl	5000 µl	< 0.2	< ±0.2
Steps	**48**	**23**	**15**	**11**	**8**		

WITIPS

According to DIN 12 650. Their main advantages are the precision, highest dosing accuracy and reliablility.
WITIPS from 0.05 ml to 50 ml are suitable for use with the **WITOPETTE** and Eppendorf Multipette® 4780.

Technical data:

For **WITIPS** in relation with a **WITOPETTE** or Multipette® 4780, for **WITIPS I** and **WITIPS D** in relation with a Varipette® 4720 or **WITOPETTE** with special adapter.
These data for **WITIPS** 0.5, 1.25 and 2.5 ml are based with 100 µl pipette top plugged-in.

Dosing volume

	1	2	3	4	5	Precision	Accuracy
Steps	48	23	15	11	8	%	%
0.05 ml	1 µl	2 µl	3 µl	4 µl	5 µl	< 5	< ±2.5
0.5 ml	10 µl	20 µl	30 µl	40 µl	50 µl	< 0.7	< ±0.8
1.25 ml	25 µl	50 µl	75 µl	100 µl	125 µl	< 0.5	< ±0.8
2.5 ml	50 µl	100 µl	150 µl	200 µl	250 µl	< 0.4	< ±0.8
5.0 ml	100 µl	200 µl	300 µl	400 µl	500 µl	< 0.3	< ±0.4
12.5 ml	250 µl	500 µl	750 µl	1000 µl	1250 µl	< 0.3	< ±0.3
25.0 ml	500 µl	1000 µl	1500 µl	2000 µl	1500 µl	< 0.3	< ±0.2
50.0 ml	1000 µl	2000 µl	3000 µl	4000 µl	5000 µl	< 0.2	< ±0.2
WITIPS I	Dosing volume at Varipette® 4720 variable / **WITOPETTE** adjustable (0 - 10 ml)					< 0.15	< ±0.7
WITIPS D	Dosing volume at Varipette® 4720 variable / **WITOPETTE** adjustable (0 - 10 ml)					< 0.15	< ±0.6

With this sign we certify conformity according to „Weights and Measures Regulation“ of 12.08.1998.

Liquid:	aqua bidestilled
Reference temperature:	20 °C
Measurement:	acc. to DIN 12 650

WITIPS D, **WITIPS I**, **WITIPS-Pipette G** and **WITIPS-Pipette U** are suitable for the use with Eppendorf Varipette® 4720 and **WITOPETTE** with special adapter.

Multipette®, Varipette® und Combitips® are registered for Eppendorf-Netheler-Hinz GmbH.

WITOPETTE

The new witeg hand help dispenser for dosings in series in the range of 1 µl to 5000 µl, 1 WITIP filling permits up to 48 dispensing steps of 29 different volumes in intervals of 1 second without refilling and thus saves about 90 % of working time, which would have to be spent when using the traditional pipetting techniques. 1 adapter for WITIPS 25 ml and 50 ml is included to each WITOPETTE.

Technical data:

Weight: approx. 100 gr.
Reproducibility and accuracy: please refer to table 1
(Bidestilled water at 20-25 ± 0.5 °C constant (acc. to DIN 12 650).

WITOPETTE.
Hand held dispenser for dosings in series from 1 µl - 5000 µl, incl. adapter for WITIPS 25 and 50 ml, for the use with WITIPS, Combitips® and Brandtips.

5.385.200

Accessories

WITIPS.
Suitable for WITOPETTE and Multipette ® 4780.

Volume range ml	Packing unit	
0.05	100	5.385.222
0.5	100	5.385.223
1.25	100	5.385.224
2.5	100	5.385.225
5.0	100	5.385.226
12.5	100	5.385.227
25	50	5.385.228
50	25	5.385.229

WITIPS.
Sterile, single packed, suitable for WITOPETTE and Multipette ® 4780.

Volume range ml	Packing unit	
0.5	100	5.385.252
1.25	100	5.385.253
2.5	100	5.385.254
5.0	100	5.385.255
12.5	100	5.385.256
25	50	5.385.257
50	25	5.385.258

Rack.
For 1 WITOPETTE.

5.385.240

WITIPS-D.
12.5 ml, suitable for Varipette® 4720. Volume range 0 - 10 ml. Packing unit 50.

5.385.231

Spare adapter.
For WITIPS 25 and 50 ml.

5.385.234

WITIPS-Pipette-G.
12.5 ml, suitable for Varipette® 4720. Volume range 0 - 10 ml. Packing unit 5.

5.385.232

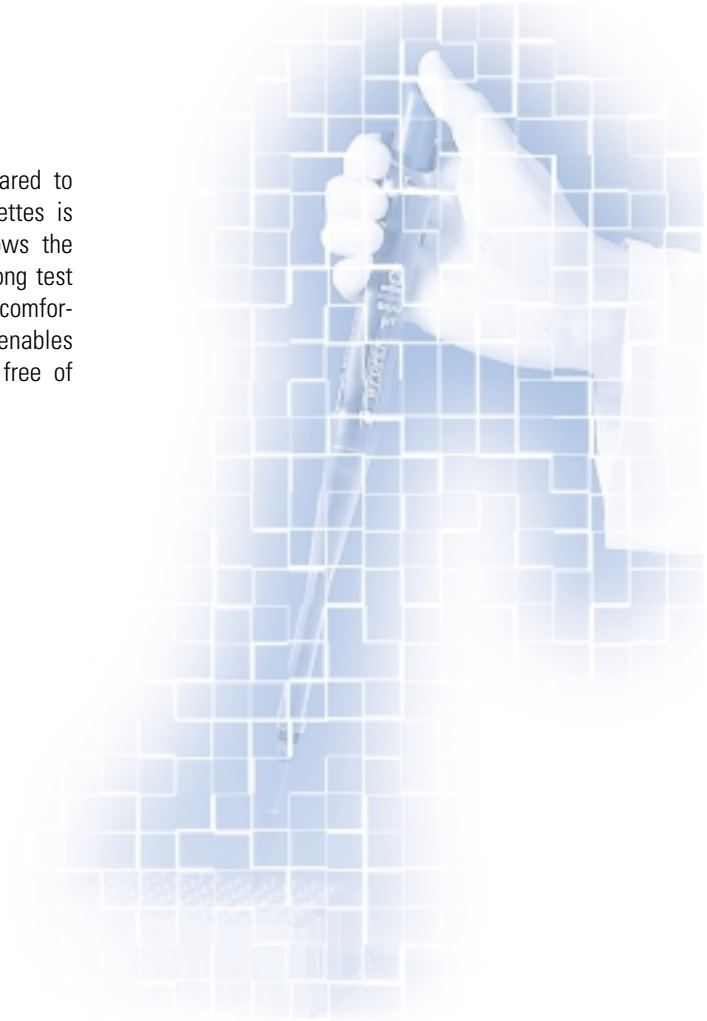
WITIPS-J.
12.5 ml, suitable for WITOPETTE with special adapter and Varipette ® 4720. Volume range 0 - 10 ml. Packing unit 25.

5.385.230

WITIPS-Pipette-U.
12.5 ml, suitable for Varipette® 4720. Volume range 0 - 10 ml. Packing unit 200.

5.385.233

WITOPET



Perfect handling

More advantageous compared to the conventional type pipettes is the long shaft which allows the pipetting out of 160 mm long test tubes. The slim pipette lies comfortably in the hand thus enables long-time serial pipetting free of tiredness.

Easy maintenance

The WITOPET is constructed considering an easy maintenance. For cleansing purposes the shaft of the WITOPET can be removed without using a tool. Autoclavable at 121 °C completely without dismantling the instrument.

Safety operation

The pipetting button is slightly sloping so that the WITOPET can be used with glove-covered fingers.

Simply press the pipetting button until the first stop and then release the button in order to fill the reagent into the pipette.

A further press until the second stop is sufficient to emptying the reagent out of the pipette.

The WITOPET with ejector is constructed deliberably with a seperate releasing device to avoid mis-operation by means of multiple function of a single button. Pressing the ejector releases the tip.

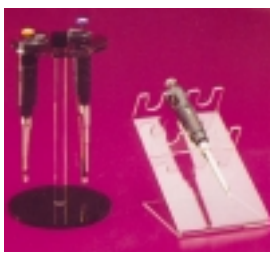
Taking up the new tip, the ejector turns back into the previous hold position.

Microliter-pipettes, "WITOPET" (DBP), suitable for all brands of disposable tips, optimum shaft length of 160 mm, ergonomic design for nonfatquing operation even over longer periods, **conformity certified.**

Volume µl	Color-Code	A ≤ ± %	CV ≤ ± %	Matching pipette tips	
5	yellow	0.8	1.0	5.408.010 / 5.409.005	5.400.005
10	yellow	0.4	0.7	5.408.010 / 5.409.005	5.400.010
15	yellow	0.4	0.7	5.408.200 / 5.409.200	5.400.015
20	yellow	0.4	0.7	5.408.200 / 5.409.200	5.400.020
25	yellow	0.2	0.6	5.408.200 / 5.409.200	5.400.025
45	yellow	0.2	0.6	5.408.200 / 5.409.200	5.400.045
50	yellow	0.2	0.5	5.408.200 / 5.409.200	5.400.050
60	yellow	0.2	0.5	5.408.200 / 5.409.200	5.400.060
70	yellow	0.2	0.5	5.408.200 / 5.409.200	5.400.070
80	yellow	0.2	0.5	5.408.200 / 5.409.200	5.400.080
90	yellow	0.2	0.5	5.408.200 / 5.409.200	5.400.090
100	yellow	0.2	0.5	5.408.200 / 5.409.200	5.400.100
150	blue	0.2	0.5	5.410.000 / 5.409.210	5.400.150
200	blue	0.2	0.5	5.410.000 / 5.409.210	5.400.200
250	blue	0.2	0.5	5.410.000 / 5.409.210	5.400.250
300	blue	0.2	0.5	5.410.000 / 5.409.210	5.400.300
400	blue	0.2	0.5	5.410.000 / 5.409.210	5.400.400
500	blue	0.2	0.5	5.410.000 / 5.409.210	5.400.500
600	blue	0.2	0.5	5.410.000 / 5.409.210	5.400.600
700	blue	0.2	0.5	5.410.000 / 5.409.210	5.400.700
800	blue	0.2	0.5	5.410.000 / 5.409.210	5.400.800
900	blue	0.2	0.5	5.410.000 / 5.409.210	5.400.900
1000	blue	0.2	0.5	5.410.000 / 5.409.210	5.400.910

Microliter-pipettes, "WITOPET" (DBP) with tip ejector, suitable for all brands of disposable tips, optimum shaft length of 160 mm, ergonomic design for nonfatiquing operation even over longer periods, **conformity certified.**

Volume µl	Color-Code	A ≤ ± %	CV ≤ ± %	Matching pipette tips	
5	yellow	0.8	1.0	5.408.200 / 5.409.200	5.401.005
10	yellow	0.4	0.7	5.408.200 / 5.409.200	5.401.010
15	yellow	0.4	0.7	5.408.200 / 5.409.200	5.401.015
20	yellow	0.4	0.7	5.408.200 / 5.409.200	5.401.020
25	yellow	0.2	0.6	5.408.200 / 5.409.200	5.401.025
45	yellow	0.2	0.6	5.408.200 / 5.409.200	5.401.045
50	yellow	0.2	0.5	5.408.200 / 5.409.200	5.401.050
60	yellow	0.2	0.5	5.408.200 / 5.409.200	5.401.060
70	yellow	0.2	0.5	5.408.200 / 5.409.200	5.401.070
80	yellow	0.2	0.5	5.408.200 / 5.409.200	5.401.080
90	yellow	0.2	0.5	5.408.200 / 5.409.200	5.401.090
100	yellow	0.2	0.5	5.408.200 / 5.409.200	5.401.100
150	blue	0.2	0.5	5.410.000 / 5.409.210	5.401.150
200	blue	0.2	0.5	5.410.000 / 5.409.210	5.401.200
250	blue	0.2	0.5	5.410.000 / 5.409.210	5.401.250
300	blue	0.2	0.5	5.410.000 / 5.409.210	5.401.300
400	blue	0.2	0.5	5.410.000 / 5.409.210	5.401.400
500	blue	0.2	0.5	5.410.000 / 5.409.210	5.401.500
600	blue	0.2	0.5	5.410.000 / 5.409.210	5.401.600
700	blue	0.2	0.5	5.410.000 / 5.409.210	5.401.700
800	blue	0.2	0.5	5.410.000 / 5.409.210	5.401.800
900	blue	0.2	0.5	5.410.000 / 5.409.210	5.401.900
1000	blue	0.2	0.5	5.410.000 / 5.409.210	5.401.910



Pipette racks WITOPET. Suitable for all sizes of **WITOPET**.

For…pipettes	
3	5.406.203
5	5.406.000
7	5.406.107

WITOPET

variable

0.5 µl ... 5000 µl

Microliter-pipette, "WITOPET" variable. Suitable for all brands of pipette tips, ergonomical design to fit the hand, comfortable operation to overcome the fatique and strain of repetitive pipetting, **conformity certified.**

Volume µl	Type	Division µl	Capacity µl	A ≤ ± %	CV ≤ ± %	Recommended tips	
0.5 - 10	PL 10	0.1	0.5	4.0	4.0	5.408.010	5.402.010
	PL 10		5	1.0	0.8	5.409.005	
	PL 10		10	0.5	0.4	5.409.005	
2 - 20	PL 20	0.1	2	4.0	3.0	5.408.200 / 5.409.200	5.402.020
	PL 20		10	1.0	0.7	5.408.200 / 5.409.200	
	PL 20		20	0.8	0.4	5.408.200 / 5.409.200	
10 - 100	PL 100	1.0	10	1.6	0.8	5.408.200 / 5.409.200	5.402.100
	PL 100		50	1.0	0.4	5.408.200 / 5.409.200	
	PL 100		100	0.8	0.3	5.408.200 / 5.409.200	
20 - 200	PL 200	1.0	20	2.0	0.6	5.408.200 / 5.409.200	5.402.200
	PL 200		100	1.0	0.3	5.408.200 / 5.409.200	
	PL 200		200	0.6	0.3	5.408.200 / 5.409.200	
200 - 1000	PL 1000	10	200	0.9	0.5	5.410.000 / 5.409.210	5.402.901
	PL 1000		500	0.7	0.5	5.410.000 / 5.409.210	
	PL 1000		1000	0.6	0.5	5.410.000 / 5.409.210	
1000 - 5000	PL 5000	10	1000	0.6	0.3	5.412.100	5.402.950
	PL 5000		2500	0.6	0.3	5.412.100	
	PL 5000		5000	0.5	0.2	5.412.100	

8- & 12-channel

Variable adjustable multichannel pipette designed for comfort over long term repetitive pipetting. 8 or 12 indentical volumes for titration plates. 3 volume ranges - 5 - 50 µl, 20 - 200 µl and 50 - 200 µl -. Highest possible accuracy and precision. Each pipette is individually tested and delivered with a test certificate.

Essential chracterisitics:

- WITOPET-multi pipettes - offer highest accuracy and precision
- Designed for operator´s comfort over long term repetitive pipetting
- Easy readable digital volume display, volume ranges colour coded on the push button
- Volumes steplessly adjustable
- The tip ejector can be blocked to avoid mis-application when using the instrument over large series
- WITOPET-multichannel pipettes are maintenance-free. All inner components are made from corrosion-proof materials
- All parts that come in contact with liquids can be autoclaved - outer parts can be cleaned with antiseptics.

D 8-channel pipettes WITOPET-Multi.

Volume µl	Type	Divisions µl	Capacity µl	A ≤ ± %	CV ≤ ± %	Recommended tips	
5 - 50	ME 50	0.1	5	3.0	1.8	5.409.200	5.403.105
	ME 50		10	1.0	0.5	5.409.200	
20 - 200	ME 200	1.0	20	1.4	0.7	5.409.200	5.403.120
	ME 200		200	0.8	0.5	5.409.200	
50 - 300	ME 300	1.0	50	1.4	0.7	5.409.210	5.403.130
	ME 300		300	0.9	0.5	5.409.210	

D channel pipettes WITOPET-Multi.

Volume µl	Type	Divisions µl	Capacity µl	A ≤ ± %	VC ≤ ± %	Recommended tips	
5 - 50	MT 50	0.1	5	3.0	2.0	5.409.200	5.403.205
	MT 50		10	1.2	0.5	5.409.200	
20 - 200	MT 200	1.0	20	1.4	0.8	5.409.200	5.403.220
	MT 200		200	0.8	0.5	5.409.200	
50 - 300	MT 300	1.0	50	1.4	0.8	5.409.210	5.403.230
	MT 300		300	0.9	0.5	5.409.210	

Quality pipette tips

As manufacturer of automatic pipettes we guarantee precise volumetric results with witeg high quality disposable pipette tips. Pigments used are cadmium-free

Conformity certified

... from witeg

The quality assurance system of witeg meets the strict demands of ISO 9001 and ensures a constant high quality level of witeg pipette tips.

The symbol

cvonfirms the conformity of our tips with the German Federal Weights and Measures Regulations, Annex 12. as long as these tips are used with the recommended automatic pipettes in accordance with the supplied instructions.

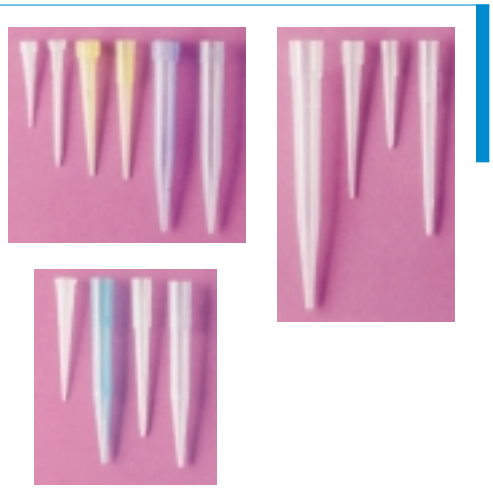
Important

Each pipette tip is an important element for operations with automatic pipettes in the micoliter range to guarantee minimal variation and thus ensuring maximum accuracy of results.

Tip by tip is precisely dimensioned with an exact centred tip opening to fit the pipette shaft perfectly.

Pipette tips, conformity certified (PP). 1000 pieces per plastic bag, these tips fit micoliter-pipettes of Eppendorf®, Gilson®, Brand®, Socorex®, Finnpipette®, Witopet®.

Capacity µl	Colour	Matching pipettes	
0.5 - 10	neutral	Gilson	5.408.005
0.5 - 10	neutral	universal	5.408.010
2 - 200	yellow	universal	5.408.200
2 - 200	yellow	Gilson	5.408.202
100 - 1000	blue	universal	5.410.000
100 - 1000	blue	universal matching rack 5.409.210	5.410.001
1000 - 5000	neutral	universal	5.412.100
1000	neutral	Beckmann, Sherwood, Lancer	5.412.110
2 - 200	neutral	MLA	5.412.120
200 - 1000	neutral	MLA	5.412.200
2 - 200	neutral	Oxford	5.412.220
250 - 1000	green	Oxford	5.412.250
2 - 200	neutral	Oxford slim line	5.412.320
250 - 1000	blue	Oxford slim line	5.412.325



Pipette tips, 96 tips are packed on an autoclavable rack, conformity certified (PP). Complete with cover.

Capacity µl	Colour	Matching pipettes	
0.5 - 10	neutral	universal	5.409.005
2 - 200	yellow	universal	5.409.200
100 - 1000	blue	universal	5.409.210
2 - 200	yellow	Gilson	5.409.220

FILTERTIPS

Volume µl	Colour	For	Pack
1 - 10	Eppendorf cristall neutral	Socorex-Nichiryo-Gilson	25x1000
5 - 200	Eppendorf, yellow	Socorex-Nichiryo-Gilson-Brand-Biohit	25x1000
	5 - 200	Eppendorf, blue-Socorex-Gilson-Nichiryo-Biohit-Brand	25x1000
100 - 1000	Eppendorf, neutral	Socorex-Gilson-Brand-Nichiryp-Biohit-Treff	10x1000
100 - 1000	Eppendorf, neutral	Socorex-Gilson-Brand-Nichiryo-Biohit-Treff	10x1000
10 - 300	Eppendorf, graduated	Eppendorf-Biohit-Gilson	20x1000
1-10	neutral	Eppendorf cristal, Socorex	10x96 tips
5 - 200	yellow	Eppendorf, Socorex, Gilson, Brand Nichiryo, Biohit	10x96 tips
5 - 200	neutral	Eppendorf, Socorex, Gilson, Brand, Nichiryo, Biohit	10x96 tips
100 - 1000	blue	Eppendorf, Socorex, Gilson, Brand, Nichiryo, Biohit	10x96 tips
100 - 1000	neutral	Eppendorf, Socorex, Gilson, Brand, Nichiryo, Biohit	10x96 tips
5 - 200	yellow	Gilson P20, P50, P100, P200	10x96 tips
5 - 200	neutral, graduated	Gilson P20, P50, P100, P200	10x96 tips
10 - 300	neutral, graduated	Eppendorf, Biohit, Gilson	10x96 tips
2 - 300	neutral	Special for Biohit	10x96 tips
100 - 1000	blue	Gilson P500, P1000	10x96 tips
100 - 1000	neutral	Gilson P500, P1000	10x96 tips
1 - 10	neutral	Gilson P2, P10	10x96 tips
	blue cover neutral	Box with neutral cover in PP without tips	10x96 tips
		Box like Box PP but profound	10x96 tips
5 - 20	yellow	Gilson all models	25000
100 - 1000	blue	Gilson P500, P1000	10000
100 - 1000	neutral	Gilson P500, P1000	10000
1 - 200 grad	neutral	Gilson P20, P50, P100, P200	25000
0.5 - 10	neutral	Gilson micro, Pipetman P2, P1	20000
1000 - 5000	lightly blue	Gilson, Socorex, Nichiryo	20000
1000 - 5000	neutral	Biohit, Eppendorf, Oxford, HTL, Kartell	20000
1000 - 5000	neutral	Finn, Brand, Treff	20000
1000 - 5000	neutral	Finn, Labsystem, Socorex, Gilson	10000
1000 - 5000	lighty blue	Gilson, Socorex, Nichiryo	200
1000 - 5000	neutral	Biohit, Eppendorf, Oxford, HTL, Kartell	200
5 - 20	neutral	MLA	25x1000
100 - 1000	neutral	MLA	8x1000
5 - 200	neutral	Oxford Slimline, DiaMed Microtyping-System	12x1000
100 - 1000	blue	Oxford	8x1000
100 - 1000	green	Oxford (old model)	8x1000
- 1000	neutral	Beckmann Sherwood Lancer	10x1000
5 - 300	neutral	special for Biohit compatible to Gilson, Finn, Labsystems	24x1000
5 - 20	neutral	Eppendorf, Biohit, Nichiryo, Gilson, Socorex, Brand	96
5 - 300	neutral	Eppendorf, Biohit, Gilson	96
101 - 1000	neutral	Eppendorf, Biohit, Nichiryo, Gilson, Socorex, Brand	96
100 - 1000	neutral	Eppendorf, Socorex, Gilson	96
1 - 30	neutral	Gilson P20	96
1 - 100	neutral	Gilson P20, P50, P100	96
1 - 150	neutral	Gilson P20, P50, P100, P200	96
1 - 10	neutral	Eppendorf cristal, Socorex	96
1 - 10	neutral	Gilson P2, P10	96
1 - 10	neutral	Orig. Eppendorf cristal, Socorex, Nichiryo, Gilson	5 refiles
1 - 10	neutral	Orig. Gilson P2/P10, Labsystem, Biohit, HTL	5 refiles
	101 - 1000	blue Orig, Eppendorf, Biohit, Nichiryo, Gilson, Socorex	5 refiles
101 - 1000	neutral	Orig. Eppendorf, Biohit, Nichiryo, Gilson, Socorex	5 refiles
5 - 200	yellow	Orig. Eppendorf, Socorex, Nichiryo, Biohit, Brand, Gilson	5 refiles
5 - 200	neutral	Orig. Eppendorf, Socorex, Nichiryo, Biohit, Brand, Gilson	5 refiles
5 - 200	yellow	Orig. Gilson, P20, P50, P100, P200	5 refiles
5 - 200	neutral graduated	Orig. Gilson, P20, P50, P100, P200	5 refiles
5 - 300	neutral	Orig. Biohit, Labsystem	5 refiles
101 - 1000	blue	Orig. Gilson Pipetman	5 refiles
101 - 1000	neutral	Orig. Eppendorf, Gilson, Biohit	5 refiles
10 - 300	neutral graduated		5 refiles
	box PC without tips		1 box
	box like box PC of lesser hight		1 box

UNIBOX-FILTER-SYSTEM

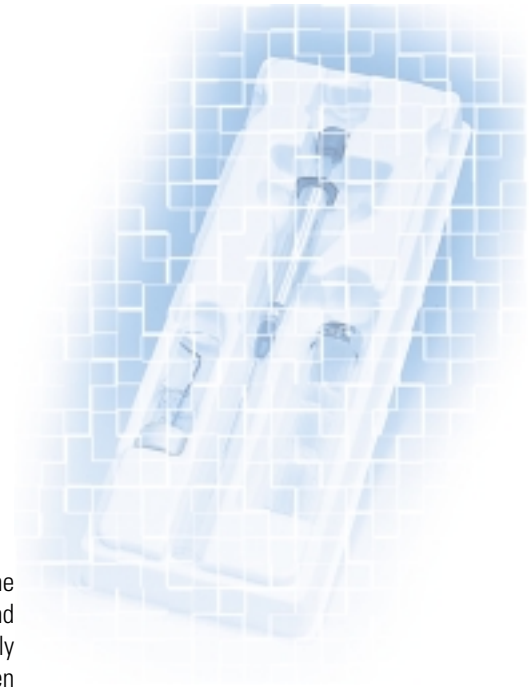
- Filtertips in boxes with sliding cover
- Barrier against aerosols and liquids
- Extraordinary quality
- Optimum fit
- Automatic production, Cd free

WITOPETTOR

The Positive Displacement Microliter Pipette

Where air-displacement microliter pipettes have their limits, the Witopettor has its field of application:

- pipetting of high viscous media, such as oils resins and fats up to a viscosity of 50,000 mm^2/s.
- for pipetting of medias of high density up to 13.6 g/cm^3 such as mercury, sulphuric acid etc.
- for pipetting of medias with a foam-forming tendency
- for pipetting of liquids with high vapour pressure



Operation

Due to the direct displacement of medias the piston is in direct contact with the liquid and draws in and discharges the media directly and without forming an air-interface between the piston and the liquid. The residual wetting - particularly when pipetting viscous medias - is so small that carry-over is negligible for many applications. When medias are changed an intermediate rinsing is recommended.
When no carry-over can be tolerated we recommended to use the air displacement microliter pipette WITOPET.

The technology of the WITOPETTOR

guarantees even at different operation speeds accurate results. Capillaries, tips and plungers can be reused a hundred of times as the residual wetting is negligibly small and does not interfere the result. That helps to reduce the cost of consumables and minimizes the amount of waste.

WITOPETTOR variable. Conformity certified, the positive lock prevents accidental volume changes.

Volume µl	Subdivisions µl	A ± %	Suitable capillary	
2 - 10	0.01	1	5.405.410	5.405.201
5 - 25	0.1	1	5.405.425	5.405.202
10 - 50	0.1	1	5.405.450	5.405.203
20 - 100	0.1	1	5.405.490	5.405.204
100 - 1000	1.0	1	5.405.495	5.405.205

WITOPETTOR fix. Conformity certified.

Volume µl	A ± %	Suitable capillary	
1	1	5.405.401	5.405.301
2	1	5.405.401	5.405.302
3	1	5.405.401	5.405.303
4	1	5.405.401	5.405.304
5	1	5.405.401	5.405.305
10	1	5.405.410	5.405.310
50	1	5.405.450	5.405.350
100	1	5.405.490	5.405.3100
250	1	5.405.494	5.405.3250
1000	1	5.405.495	5.405.3390

Accessories

Calibrated capillaries

- Fire polished
- Guaranteed accuracy of ± 0.5%
- Colour coded with sizes imprinted
- 100 capillaries in a box

Volume µl	Colour-Code	
1 - 5	white	5.405.401
10	orange	5.405.410
20	balck	5.405.420
25	2 x white	5.405.425
50	green	5.405.450
100	blue	5.405.490
200	red	5.405.492
100 / 200	red	5.405.493
250	blue	5.405.494
1000	Plastic tip	5.405.495

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