

**TERAL**

Vertical Multistage Centrifugal Pumps

**ASVM** Stainless steel  
AISI304

**ASVMN** Stainless steel  
AISI316

**ASVMG** Cast iron &  
Stainless steel AISI304

**50Hz**



Certified to  
NSF/ANSI 61 & 372  
Drinking Water System Components

TERAL INC.

*Japan since 1918*  
*Advanced technology from Japan*

# Applications

## Typical application of ASVM, ASVMN, ASVMG series pumps

### ■ WATER SUPPLY AND PRESSURE BOOSTING

Pressure boosting in buildings, hotels, residential complexes  
 Pressure booster stations, supply of water networks  
 Pressure boosting for industrial water supply

### ■ LIGHT INDUSTRY

Washing and cleaning systems  
 Car washing facilities  
 Fire fighting systems  
 Process water systems  
 Machine tools (cooling lubricants)

### ■ HEATING, VENTILATION AND AIR-CONDITIONING

Boilers  
 Induction heating  
 Heat exchangers  
 Cooling towers and systems  
 Temperature control systems

### ■ IRRIGATION AND AGRICULTURE

Greenhouses  
 Sprinkler irrigation  
 Field irrigation (flooding)

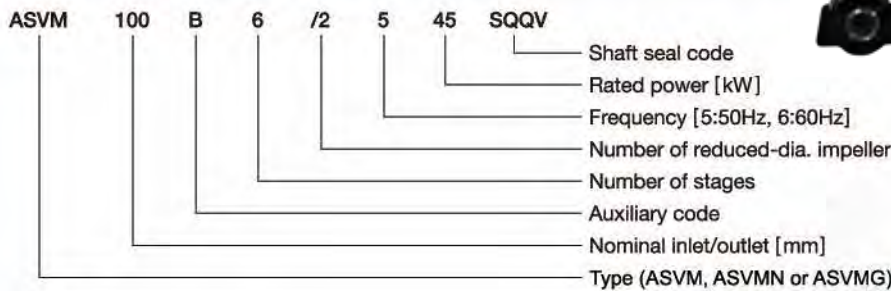
### ■ WATER TREATMENT

Water softeners and de-mineralization  
 Reverse Osmosis systems  
 Distillation systems  
 Filtration  
 Ultra-filtration systems

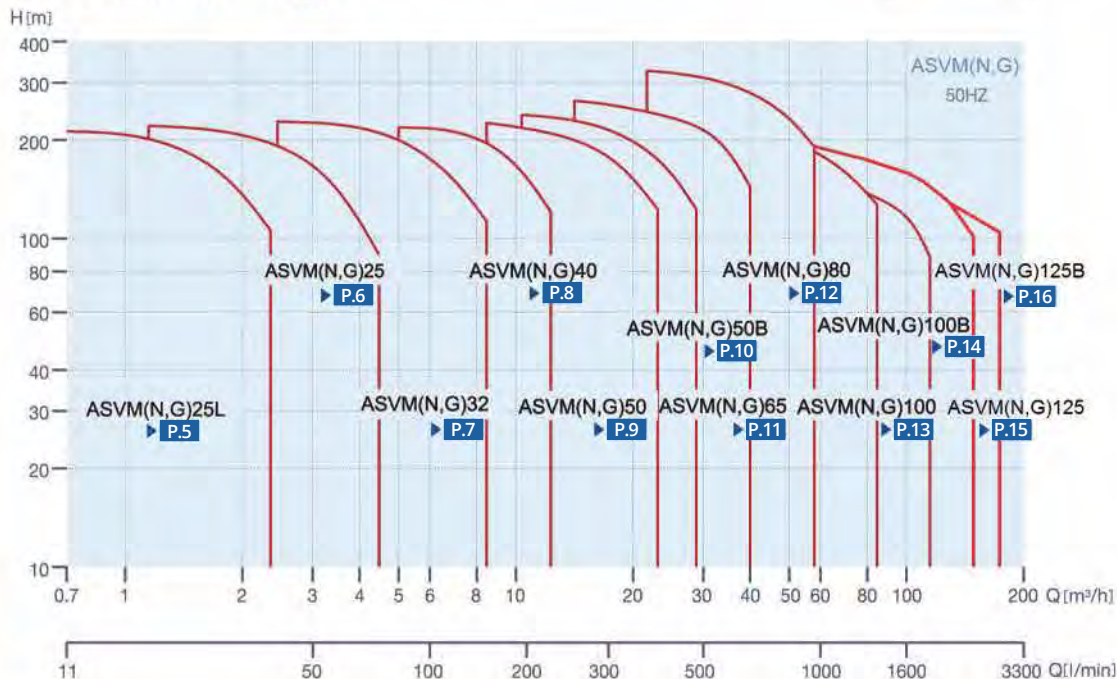


## Identification Code

ASVM100B6/2-545 SQQV



## Performance range



# Mechanical Seal Code

Seal Type (1st letter in Description column)	
S: Cartridge seal	B: Rubber bellows seal
Mechanical Seals	
QQ	Standard
UU	Optional
UB	Optional
V	Standard
E	Optional
H	Optional
List of Material	
Q: Silicon carbide	B: Carbon
U: Tungsten carbide	V: Viton
H: High strength version (machining)	E: EPDM



Teral Part No.	Description	Applicable Model
<b>MS3041</b>	<b>SQQV (Sic / Sic / Viton)</b>	<b>ASVM &amp; ASVMG 25L / 25 / 32</b>
MS3041H	HSQQV (Sic / Sic / Viton)	ASVM & ASVMG 25L / 25 / 32
MS3041E	SQQE (Sic / Sic / EPDM)	ASVM & ASVMG 25L / 25 / 32 with EPDM rubber O-ring
MS3041HE	HSQQE (Sic / Sic / EPDM)	ASVM & ASVMG 25L / 25 / 32 with EPDM rubber O-ring
MS3041UU	SUUUV (Tun / Tun / Viton)	ASVM & ASVMG 25L / 25 / 32
MS3041UB	SUBV (Tun / Car / Viton)	ASVM & ASVMG 25L / 25 / 32
MS3041UUE	SUUE (Tun / Tun / EPDM)	ASVM & ASVMG 25L / 25 / 32 with EPDM rubber O-ring
MS3041HUUE	HSUUE (Tun / Tun / EPDM)	ASVM & ASVMG 25L / 25 / 32 with EPDM rubber O-ring
<b>MS3161</b>	<b>SQQV (Sic / Sic / Viton)</b>	<b>ASVMN 25L / 25 / 32</b>
MS3161H	HSQQV (Sic / Sic / Viton)	ASVMN 25L / 25 / 32
MS3161E	SQQE (Sic / Sic / EPDM)	ASVMN 25L / 25 / 32 with EPDM rubber O-ring
MS3161HE	HSQQE (Sic / Sic / EPDM)	ASVMN 25L / 25 / 32 with EPDM rubber O-ring
MS3161UU	SUUUV (Tun / Tun / Viton)	ASVMN 25L / 25 / 32
MS3161UB	SUBV (Tun / Car / Viton)	ASVMN 25L / 25 / 32
MS3161UUE	SUUE (Tun / Tun / EPDM)	ASVMN 25L / 25 / 32 with EPDM rubber O-ring
MS3161HUUE	HSUUE (Tun / Tun / EPDM)	ASVMN 25L / 25 / 32 with EPDM rubber O-ring
<b>MS3042</b>	<b>SQQV (Sic / Sic / Viton)</b>	<b>ASVM &amp; ASVMG 40 / 50 / 50B</b>
MS3042H	HSQQV (Sic / Sic / Viton)	ASVM & ASVMG 40 / 50 / 50B
MS3042E	SQQE (Sic / Sic / EPDM)	ASVM & ASVMG 40 / 50 / 50B with EPDM rubber O-ring
MS3042HE	HSQQE (Sic / Sic / EPDM)	ASVM & ASVMG 40 / 50 / 50B with EPDM rubber O-ring
MS3042UU	SUUUV (Tun / Tun / Viton)	ASVM & ASVMG 40 / 50 / 50B
MS3042UB	SUBV (Tun / Car / Viton)	ASVM & ASVMG 40 / 50 / 50B
MS3042UUE	SUUE (Tun / Tun / EPDM)	ASVM & ASVMG 40 / 50 / 50B with EPDM rubber O-ring
MS3042HUUE	HSUUE (Tun / Tun / EPDM)	ASVM & ASVMG 40 / 50 / 50B with EPDM rubber O-ring
<b>MS3162</b>	<b>SQQV (Sic / Sic / Viton)</b>	<b>ASVMN 40 / 50 / 50B</b>
MS3162H	HSQQV (Sic / Sic / Viton)	ASVMN 40 / 50 / 50B
MS3162E	SQQE (Sic / Sic / EPDM)	ASVMN 40 / 50 / 50B with EPDM rubber O-ring
MS3162HE	HSQQE (Sic / Sic / EPDM)	ASVMN 40 / 50 / 50B with EPDM rubber O-ring
MS3162UU	SUUUV (Tun / Tun / Viton)	ASVMN 40 / 50 / 50B
MS3162UB	SUBV (Tun / Car / Viton)	ASVMN 40 / 50 / 50B
MS3162UUE	SUUE (Tun / Tun / EPDM)	ASVMN 40 / 50 / 50B with EPDM rubber O-ring
MS3162HUUE	HSUUE (Tun / Tun / EPDM)	ASVMN 40 / 50 / 50B with EPDM rubber O-ring
<b>MS3043</b>	<b>SQQV (Sic / Sic / Viton)</b>	<b>ASVM &amp; ASVMG 65 / 80 / 100 / 100B</b>
MS3043H	HSQQV (Sic / Sic / Viton)	ASVM & ASVMG 65 / 80 / 100 / 100B
MS3043E	SQQE (Sic / Sic / EPDM)	ASVM & ASVMG 65 / 80 / 100 / 100B with EPDM rubber O-ring
MS3043HE	HSQQE (Sic / Sic / EPDM)	ASVM & ASVMG 65 / 80 / 100 / 100B with EPDM rubber O-ring
MS3043UU	SUUUV (Tun / Tun / Viton)	ASVM & ASVMG 65 / 80 / 100 / 100B
MS3043UB	SUBV (Tun / Car / Viton)	ASVM & ASVMG 65 / 80 / 100 / 100B
MS3043UUE	SUUE (Tun / Tun / EPDM)	ASVM & ASVMG 65 / 80 / 100 / 100B with EPDM rubber O-ring
MS3043HUUE	HSUUE (Tun / Tun / EPDM)	ASVM & ASVMG 65 / 80 / 100 / 100B with EPDM rubber O-ring
<b>MS3163</b>	<b>SQQV (Sic / Sic / Viton)</b>	<b>ASVMN 65 / 80 / 100 / 100B</b>
MS3163H	HSQQV (Sic / Sic / Viton)	ASVMN 65 / 80 / 100 / 100B
MS3163E	SQQE (Sic / Sic / EPDM)	ASVMN 65 / 80 / 100 / 100B with EPDM rubber O-ring
MS3163HE	HSQQE (Sic / Sic / EPDM)	ASVMN 65 / 80 / 100 / 100B with EPDM rubber O-ring
MS3163UU	SUUUV (Tun / Tun / Viton)	ASVMN 65 / 80 / 100 / 100B
MS3163UB	SUBV (Tun / Car / Viton)	ASVMN 65 / 80 / 100 / 100B
MS3163UUE	SUUE (Tun / Tun / EPDM)	ASVMN 65 / 80 / 100 / 100B with EPDM rubber O-ring
MS3163HUUE	HSUUE (Tun / Tun / EPDM)	ASVMN 65 / 80 / 100 / 100B with EPDM rubber O-ring
<b>MS3044</b>	<b>SQQV (Sic / Sic / Viton)</b>	<b>ASVM &amp; ASVMG 125 / 125B for 11~45kw</b>
MS3044H	HSQQV (Sic / Sic / Viton)	ASVM & ASVMG 125 / 125B for 11~45kw
MS3044E	SQQE (Sic / Sic / EPDM)	ASVM & ASVMG 125 / 125B with EPDM rubber O-ring-11~45kw
MS3044HE	HSQQE (Sic / Sic / EPDM)	ASVM & ASVMG 125 / 125B with EPDM rubber O-ring-11~45kw
<b>MSB3044</b>	<b>BQQV (Sic / Sic / Viton)</b>	<b>ASVM &amp; ASVMG 125 / 125B for 55~75kw</b>
MSB3044H	HBQQV (Sic / Sic / Viton)	ASVM & ASVMG 125 / 125B for 55~75kw
MSB3044E	BQQE (Sic / Sic / EPDM)	ASVM & ASVMG 125 / 125B with EPDM rubber O-ring-55~75kw
MSB3044HE	HBQQE (Sic / Sic / EPDM)	ASVM & ASVMG 125 / 125B with EPDM rubber O-ring-55~75kw
<b>MS3164</b>	<b>SQQV (Sic / Sic / Viton)</b>	<b>ASVMN 125 / 125B for 11~45kw</b>
MS3164H	HSQQV (Sic / Sic / Viton)	ASVMN 125 / 125B for 11~45kw
MS3164E	SQQE (Sic / Sic / EPDM)	ASVMN 125 / 125B with EPDM rubber O-ring-11~45kw
MS3164HE	HSQQE (Sic / Sic / EPDM)	ASVMN 125 / 125B with EPDM rubber O-ring-11~45kw
<b>MSB3164</b>	<b>BQQV (Sic / Sic / Viton)</b>	<b>ASVMN 125 / 125B for 55~75kw</b>
MSB3164H	HBQQV (Sic / Sic / Viton)	ASVMN 125 / 125B for 55~75kw
MSB3164E	BQQE (Sic / Sic / EPDM)	ASVMN 125 / 125B with EPDM rubber O-ring-55~75kw
MSB3164HE	HBQQE (Sic / Sic / EPDM)	ASVMN 125 / 125B with EPDM rubber O-ring-55~75kw

\* 1 If the liquid temperature is below zero or over 80°C, or special liquid. Please contact TERAL

\* 2 If the liquid temperature exceeds 80 ° C, the rubber material is EPDM (optional).

\* 3 When the liquid is pure water, Tungsten carbide is recommended for the mechanical seal sliding surface material

# Selection & sizing

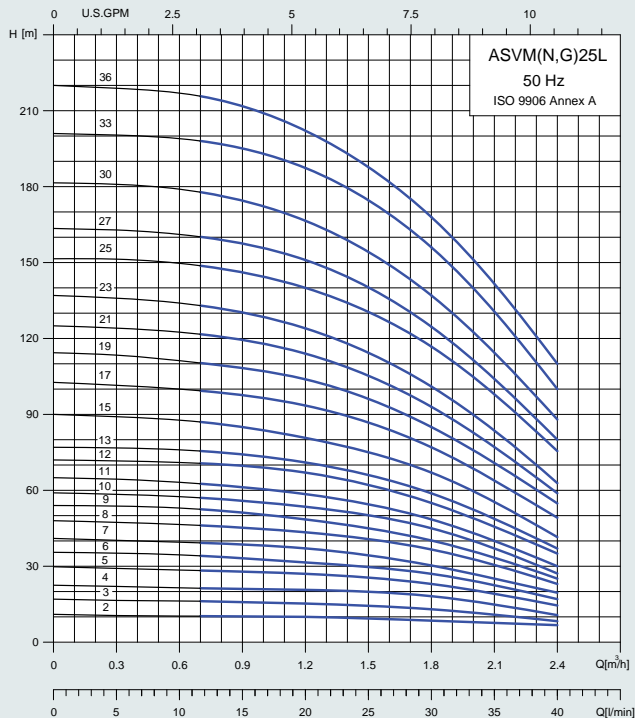
## Selection of pumps

Selection of pumps base on the following factors:

1. The duty point of the pump (refer Page 3)
2. Pressure loss due to height difference, frictional loss in the pipework
3. Pump materials (refer Page 3)
4. Pump connection (refer Page 3)
5. Shaft seal (refer Page 3)

## Duty point requirement

Based on duty point requirement, it is possible to select a pump on the principle of the characteristic curve shown as below  
The maximum duty point requirement should be closed to QH curve as much as possible.



## Characteristic performance curve

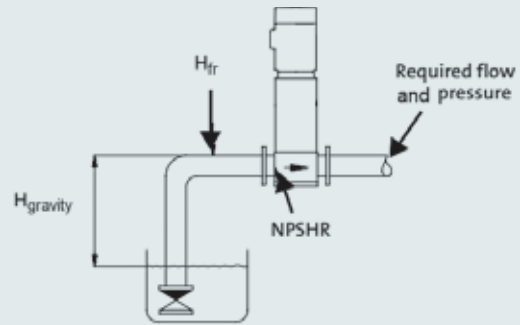
The guidelines apply to the curves displayed on the following curve:

- Tolerances of ISO 9906 standard, Annex A, is shown
- Motors used for measurements are IEC standard Teral motors
- All measurements were made with airless water at temperature of 20°C
- The curves use kinematic viscosity:  $\nu = 1 \text{ mm}^2/\text{s}$  (1cSt)
- Because of hazard of overheating, the pumps should not be operated at a flow lower than minimum flow rate
- The characteristic performance curve apply to a rated motor speed of 2900min-1.

All curves are applied to current motor speed

When choosing a pump, consider the following elements:

- Required flow and pressure at the take out point
  - Pressure loss because of height differences ( $H_{gravity}$ )
  - Friction loss in the pipe ( $H_{fr}$ )
- It explains pressure loss in connection with long pipes, elbows and valves, etc.



To avoid cavitation, never select a pump with a duty point too far to the right on the characteristic curve.

## Pump material

Various of material ASVMG, ASVM, ASVMN can be selected according to the liquid being pumped.

- ASVMG, ASVM uses to pump clean, non-corrosive fluids for example drinkable water and oils
- ASVMN uses to pump industrial fluids and acids (refer Pump fluids Page 24)

## Pump connection

The selection of pump connection relies on the rated pressure and pipework.

ASVMG, ASVM, ASVMN pumps offer a variety of flexible connections

- DIN flange
- Oval flange
- ANSI flange
- JIS flange
- Other optional on request

## Shaft seal

A shaft seal (cartridge type) as standard is fitted with a Teral pump for the most common applications.

Below factors must be taken into consideration when selecting the mechanical seal

- Fluid temperature
- Type of pumped fluid
- Maximum pressure

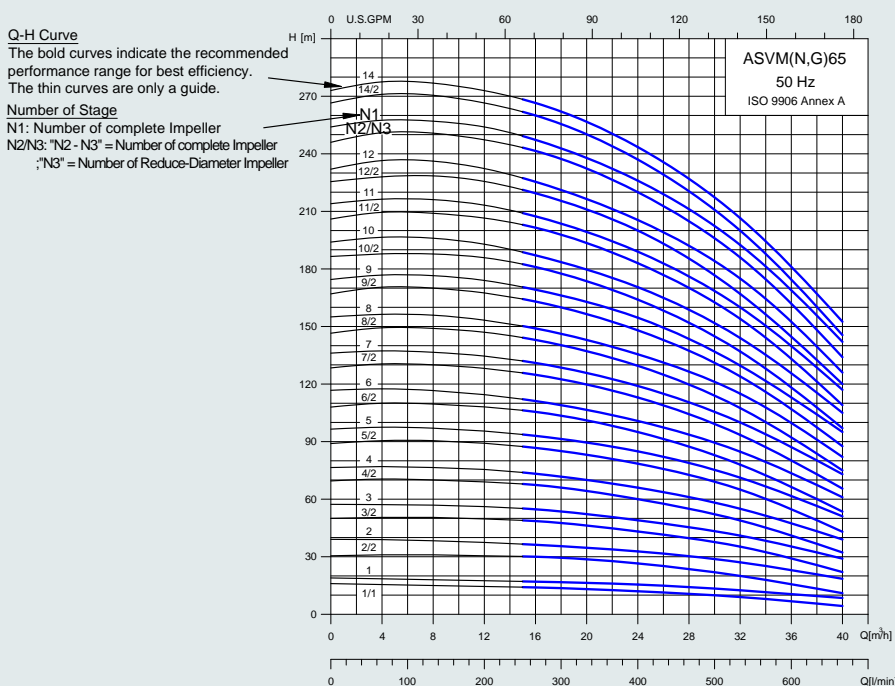
Teral provides a variety of mechanical seal alternative to fulfill different demands.

Refer to Pump fluids Page 24 and Page 02

## Inlet pressure and operating pressure

Do NOT over the maximum values written on page 4 as regards these pressures

- Maximum operating pressure
- Maximum inlet pressure

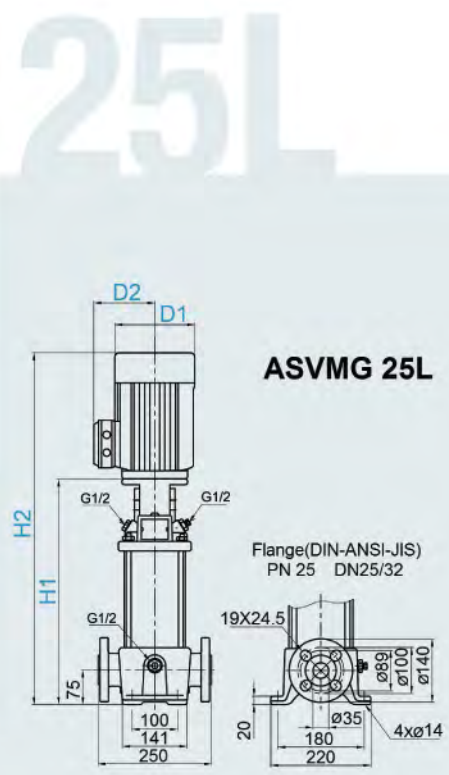
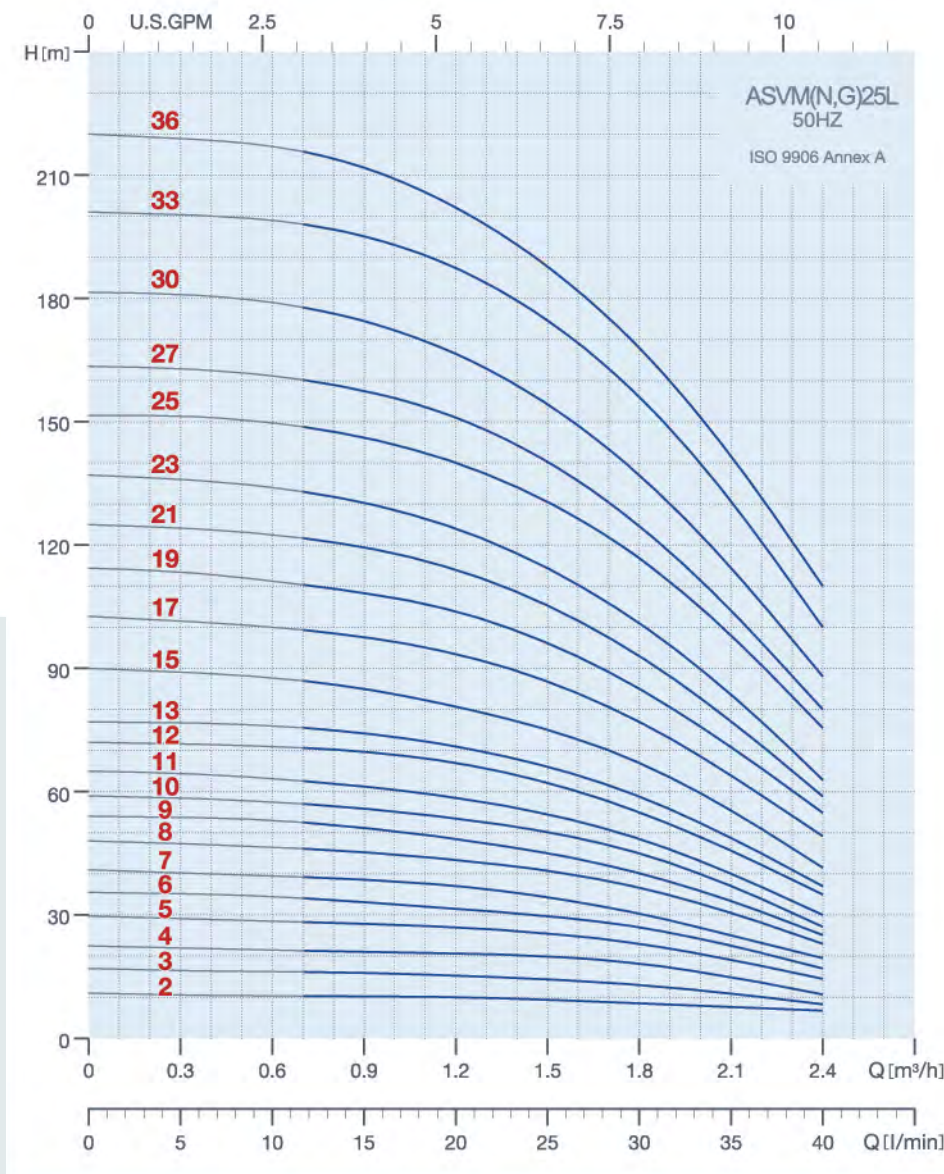


## Standard specification

50Hz	ASVM, ASVMN, ASVMG											
	25L	25	32	40	50	50B	65	80	100	100B	125	125B
Nominal inlet/outlet [mm]	25	25	32	40	50	50	65	80	100	100	125	125
Nominal flow [m <sup>3</sup> /h]	1	3	5	10	15	20	32	45	64	90	120	150
Flow range [m <sup>3</sup> /h]	0.7-2.4	1.2-4.5	2.5-8.5	5-13	8.5-23.5	10.5-29	15-40	22-58	30-85	45-120	60-160	75-180
Max. pressure [bar]	21.5	23	24	21.5	23	24.3	27.5	33	21.8	20	20.4	18.7
Handling fluid	Clear water (PH5.8-8.6, Chloride ion concentration 200mg/L or less) Liquid that does not contain slurry or solids, liquid is inflammable or non-corrosive											
Fluid temperature [°C]	-15°C~120°C (No freezing)											
Motor power [kW]	0.37-2.2	0.37-3	0.37-5.5	0.37-7.5	1.1-15	1.1-18.5	1.5-30	3-45	4-45	5.5-45	11-75	11-75
<b>Material</b>												
ASVM	Stainless steel EN 1.4301/AISI 304/SUS304											
ASVMN	Stainless steel EN 1.4401/AISI 316/SUS316											
ASVMG	Pump body: Stainless steel EN 1.4301/AISI 304/SUS304											
	Pump base: Cast iron EN-GJL-200/ASTM25B/FC200						Pump base: Cast iron EN-GJL-250/ASTM35B/FC250					
<b>Motor</b>												
Mains connection 1-[V/Hz] (Permissible voltage tolerance ± 10%)	220-240V 50Hz											
Mains connection 3-[V/Hz] (Permissible voltage tolerance ± 10%)	0.37-7.5kW 220-240/380-415V 50Hz From 11kW 380-415V 50Hz											
Insulation class	F											
Enclosure class	IP 55 (≤7.5kW) IP54 (≥11kW)											
Ambient temperature	50°C											
<b>Pipe Connection</b>												
Flange	DN 25/32	DN 25/32	DN 25/32	DN 40	DN 50	DN 50	DN 65	DN 80	DN 100	DN 100	DN 125	DN 125
<b>Shaft Seal</b>												
Mechanical Seal	Cartridge type SiC/SiC + Viton (Seal code : SQV)											

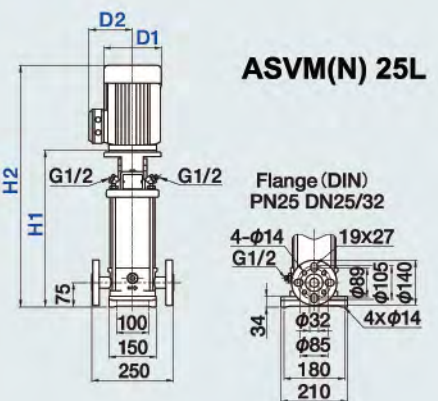
## Maximum operating and inlet pressure

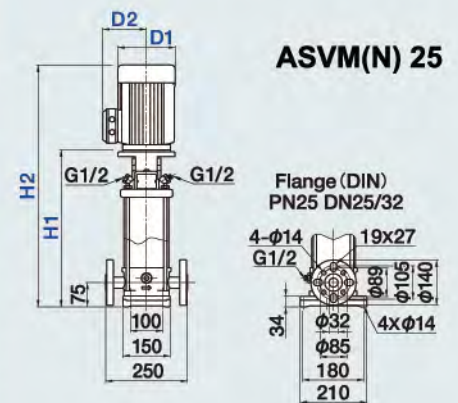
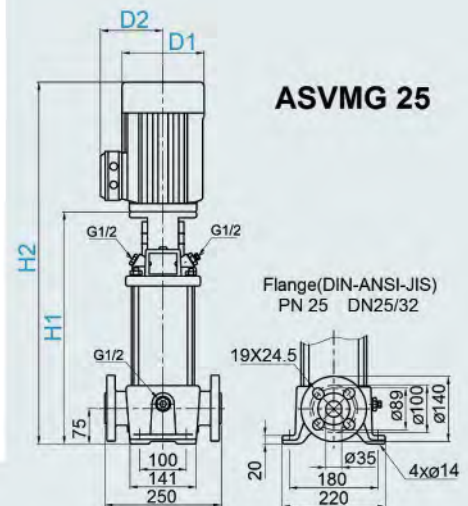
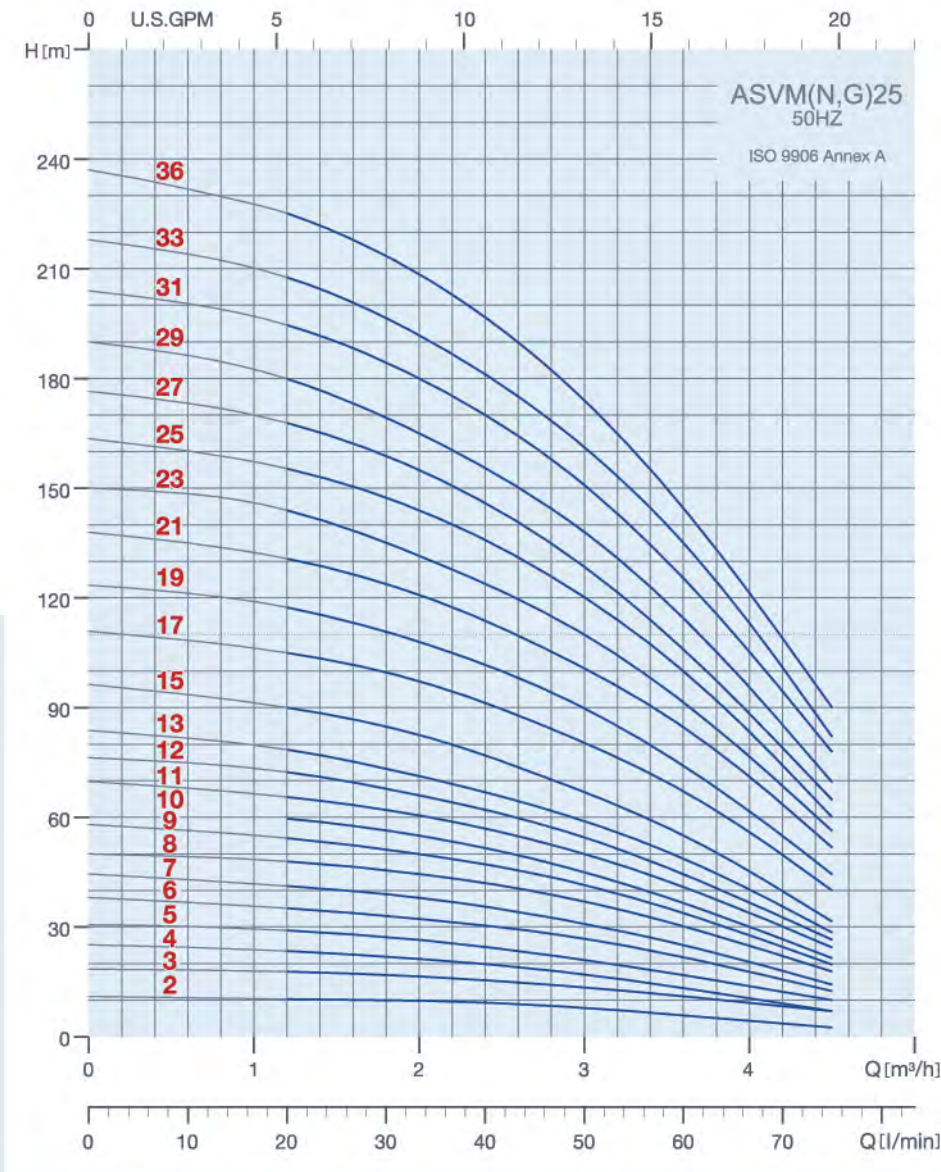
	Stages	Maximum Operating Pressure	Stages	Maximum Inlet Pressures	Flange pressure rating (PN)
ASVM, ASVMN, ASVMG 25L	2 - 36	25 bar	2 - 36	10 bar	PN 25
ASVM, ASVMN, ASVMG 25	2 - 36	25 bar	2 - 29	10 bar	PN 25
			31 - 36	15 bar	
ASVM, ASVMN, ASVMG 32	2 - 36	25 bar	2 - 16	10 bar	PN 25
			18 - 36	15 bar	
ASVM, ASVMN, ASVMG 40	1 - 16	16 bar	1 - 6	8 bar	PN 16
	17 - 22	25 bar	7 - 22	10 bar	PN 25
ASVM, ASVMN, ASVMG 50	1 - 10	16 bar	1 - 3	8 bar	PN 16
	12 - 17	25 bar	4 - 17	10 bar	PN 25
ASVM, ASVMN, ASVMG 50B	1 - 10	16 bar	1 - 3	8 bar	PN 16
	12 - 17	25 bar	4 - 17	10 bar	PN 25
ASVM, ASVMN, ASVMG 65	1/1 - 7	16 bar	1/1 - 4	4 bar	PN 16
	8/2 - 14	30 bar	5/2 - 10	10 bar	PN 25/40
			11/2 - 14	15 bar	
ASVM, ASVMN, ASVMG 80	1/1 - 5	16 bar	1/1 - 2	4 bar	PN 16
	6/2 - 11	30 bar	3/2	10 bar	PN 25/40
	12/2 - 13/2	33 bar	6/2 - 13/2	15 bar	PN 25/40
ASVM, ASVMN, ASVMG 100	1/1 - 5	16 bar	1/1 - 2/2	4 bar	PN 16
	6/2 - 8/1	30 bar	2/1 - 4/2	10 bar	PN 25/40
			4/1 - 8/1	15 bar	
ASVM, ASVMN, ASVMG 100B	1/1 - 4	16 bar	1/1 - 1	4 bar	PN 16
	5/2 - 6	30 bar	2/1 - 3/2	10 bar	PN 25/40
			3 - 6	15 bar	
ASVM, ASVMN, ASVMG 125	1 - 7	30 bar	1 - 2/1	10 bar	PN 25/40
			2 - 5/1	15 bar	
			6/1 - 7	20 bar	
ASVM, ASVMN, ASVMG 125B	1/1 - 6	30 bar	1/1 - 1	10 bar	PN 25/40
			2/1 - 4/2	15 bar	
			5/2 - 6	20 bar	



■ Dimensions and Weights

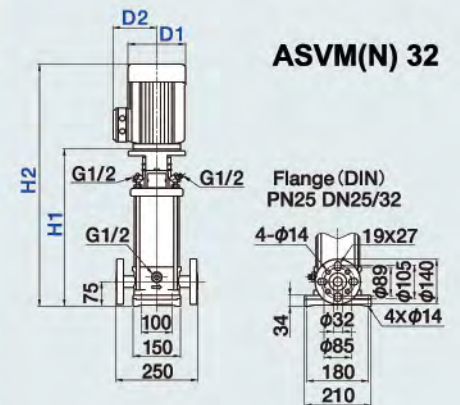
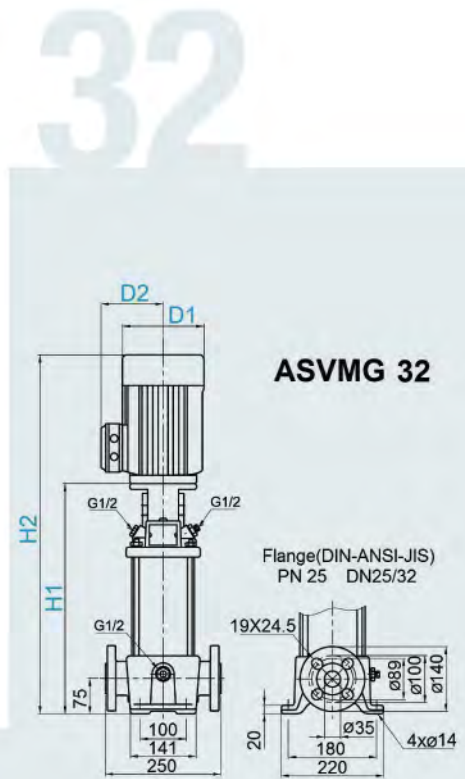
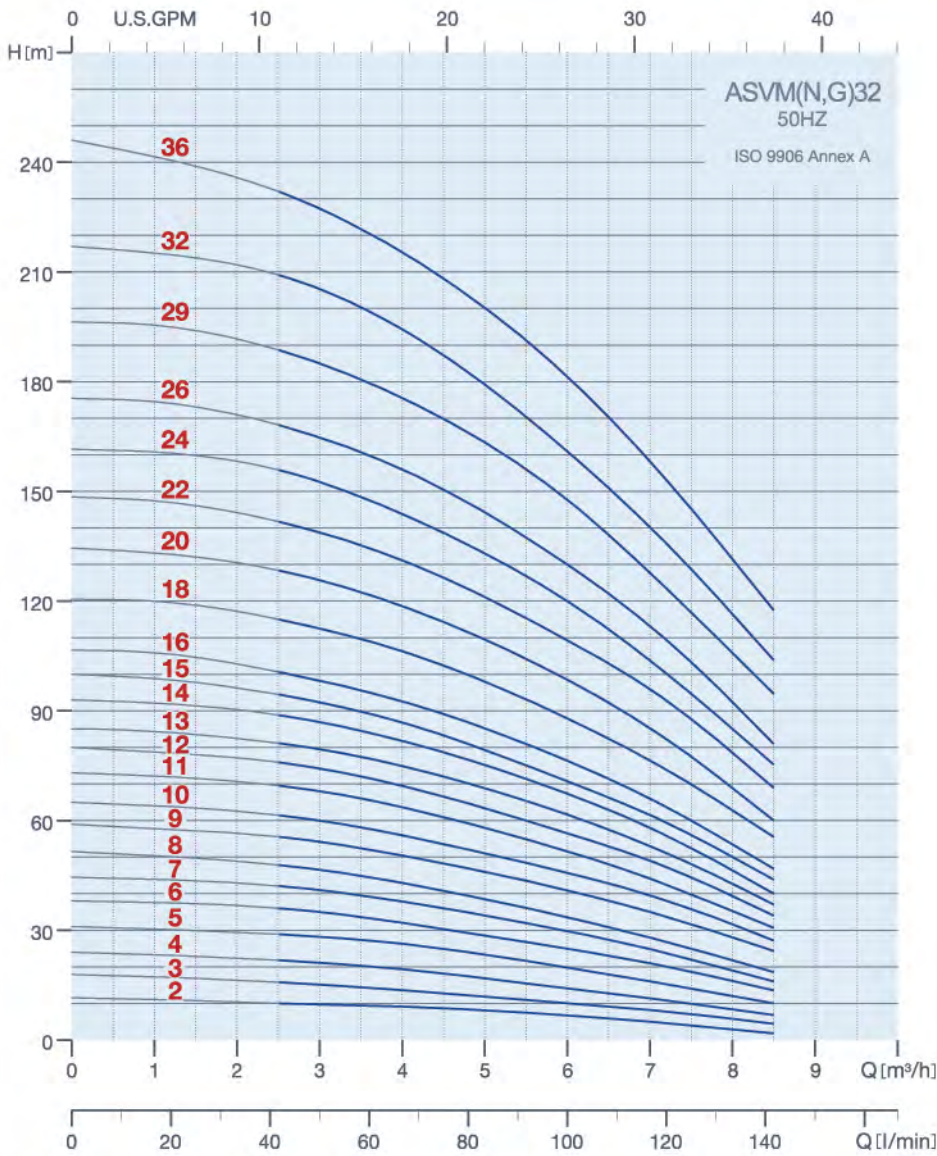
Model	P <sub>2</sub> [kW]	ASVM(N) , ASVMG		ASVM(N)		ASVMG		ASVM(N)	ASVMG
		D1	D2	H1	H2	H1	H2		
		Dimension [mm]						Net Weight [Kg]	
ASVM(N,G) 25L2-5.37	0.37	141	115	282	477	279	474	20	23
ASVM(N,G) 25L3-5.37	0.37	141	115	282	477	279	474	20	23
ASVM(N,G) 25L4-5.37	0.37	141	115	300	495	297	492	21	24
ASVM(N,G) 25L5-5.37	0.37	141	115	318	513	315	510	21	24
ASVM(N,G) 25L6-5.37	0.37	141	115	336	531	333	528	21	25
ASVM(N,G) 25L7-5.37	0.37	141	115	354	549	351	546	22	25
ASVM(N,G) 25L8-5.55	0.55	141	115	372	567	369	564	23	26
ASVM(N,G) 25L9-5.55	0.55	141	115	390	585	387	582	23	26
ASVM(N,G) 25L10-5.55	0.55	141	115	408	603	405	600	23	27
ASVM(N,G) 25L11-5.55	0.55	141	115	426	621	423	618	24	27
ASVM(N,G) 25L12-5.75	0.75	141	115	450	685	447	682	26	29
ASVM(N,G) 25L13-5.75	0.75	141	115	468	703	465	700	27	30
ASVM(N,G) 25L15-5.75	0.75	141	115	504	739	501	736	27	31
ASVM(N,G) 25L17-51.1	1.1	141	115	540	775	537	772	29	32
ASVM(N,G) 25L19-51.1	1.1	141	115	576	811	573	808	30	33
ASVM(N,G) 25L21-51.1	1.1	141	115	612	847	609	844	31	34
ASVM(N,G) 25L23-51.1	1.1	141	115	648	883	645	880	31	35
ASVM(N,G) 25L25-51.5	1.5	177	141	700	991	697	988	41	44
ASVM(N,G) 25L27-51.5	1.5	177	141	736	1027	733	1024	42	45
ASVM(N,G) 25L30-51.5	1.5	177	141	790	1081	787	1078	43	46
ASVM(N,G) 25L33-52.2	2.2	177	141	844	1135	841	1132	47	50
ASVM(N,G) 25L36-52.2	2.2	177	141	898	1189	895	1186	48	51





■ Dimensions and Weights

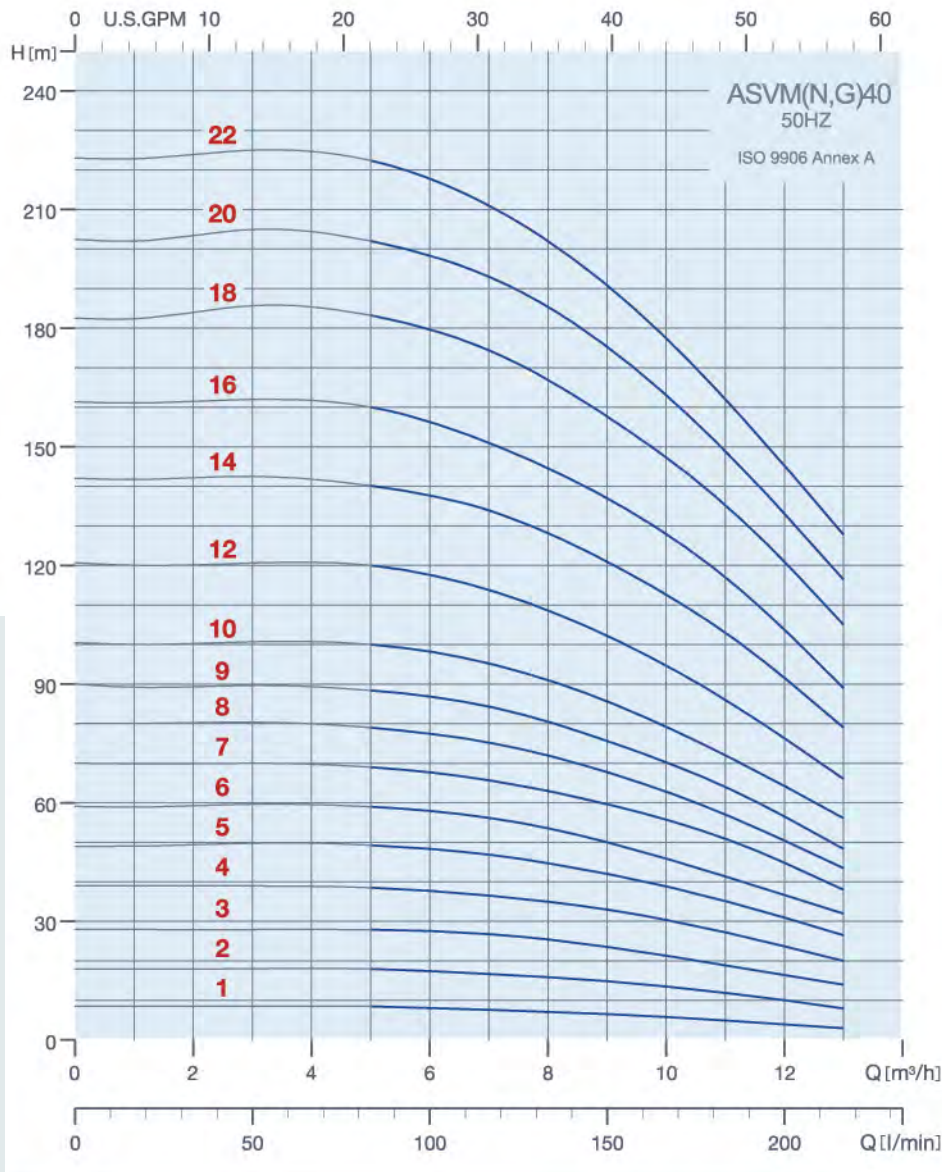
Model	P <sub>2</sub> [kW]	ASVM(N) , ASVMG		ASVM(N)		ASVMG		ASVM(N)	ASVMG
		D1	D2	H1	H2	H1	H2		
ASVM(N,G) 252-5.37	0.37	141	115	282	477	279	474	20	23
ASVM(N,G) 253-5.37	0.37	141	115	282	477	279	474	20	23
ASVM(N,G) 254-5.37	0.37	141	115	300	495	297	492	21	24
ASVM(N,G) 255-5.37	0.37	141	115	318	513	315	510	21	24
ASVM(N,G) 256-5.55	0.55	141	115	336	531	333	528	22	25
ASVM(N,G) 257-5.55	0.55	141	115	354	549	351	528	22	25
ASVM(N,G) 258-5.75	0.75	141	115	378	613	375	610	25	28
ASVM(N,G) 259-5.75	0.75	141	115	396	631	393	628	25	28
ASVM(N,G) 2510-5.75	0.75	141	115	414	649	411	646	25	29
ASVM(N,G) 2511-5.1.1	1.1	141	115	432	667	429	664	27	30
ASVM(N,G) 2512-5.1.1	1.1	141	115	450	685	447	682	27	31
ASVM(N,G) 2513-5.1.1	1.1	141	115	468	703	465	700	28	31
ASVM(N,G) 2515-5.1.1	1.1	141	115	504	739	501	736	28	32
ASVM(N,G) 2517-5.1.5	1.5	177	141	556	847	553	844	38	41
ASVM(N,G) 2519-5.1.5	1.5	177	141	592	883	589	880	39	42
ASVM(N,G) 2521-5.2.2	2.2	177	141	628	919	625	916	42	45
ASVM(N,G) 2523-5.2.2	2.2	177	141	664	955	661	952	43	46
ASVM(N,G) 2525-5.2.2	2.2	177	141	700	991	697	988	44	47
ASVM(N,G) 2527-5.2.2	2.2	177	141	736	1027	733	1024	44	48
ASVM(N,G) 2529-5.2.2	2.2	177	141	772	1063	769	1060	45	48
ASVM(N,G) 2531-5.3.0	3.0	197	147	812	1128	809	1125	53	57
ASVM(N,G) 2533-5.3.0	3.0	197	147	848	1164	845	1161	54	57
ASVM(N,G) 2536-5.3.0	3.0	197	147	902	1218	899	1215	55	59



■ Dimensions and Weights

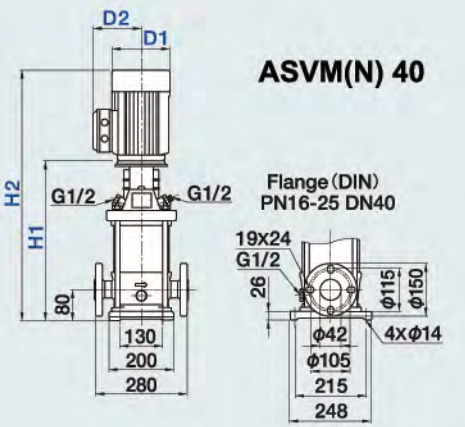
Model	P <sub>2</sub> [kW]	ASVM(N), ASVMG		ASVM(N)		ASVMG		ASVM(N)	ASVMG
		D1	D2	H1	H2	H1	H2		
		Dimension [mm]						Net Weight [Kg]	
ASVM(N,G) 322-5.37	0.37	141	115	282	477	279	474	20	23
ASVM(N,G) 323-5.55	0.55	141	115	309	504	306	501	21	24
ASVM(N,G) 324-5.55	0.55	141	115	336	531	333	528	22	25
ASVM(N,G) 325-5.75	0.75	141	115	369	604	366	601	24	27
ASVM(N,G) 326-5.1.1	1.1	141	115	396	631	393	628	26	29
ASVM(N,G) 327-5.1.1	1.1	141	115	423	658	420	655	27	30
ASVM(N,G) 328-5.1.1	1.1	141	115	450	685	447	682	27	30
ASVM(N,G) 329-5.1.5	1.5	177	141	493	784	490	781	36	39
ASVM(N,G) 3210-5.1.5	1.5	177	141	520	811	517	808	37	40
ASVM(N,G) 3211-5.2.2	2.2	177	141	547	838	544	835	40	43
ASVM(N,G) 3212-5.2.2	2.2	177	141	574	865	571	862	41	44
ASVM(N,G) 3213-5.2.2	2.2	177	141	601	892	598	889	41	44
ASVM(N,G) 3214-5.2.2	2.2	177	141	628	919	625	916	42	45
ASVM(N,G) 3215-5.2.2	2.2	177	141	655	946	652	943	43	45
ASVM(N,G) 3216-5.2.2	2.2	177	141	682	973	679	970	43	46
ASVM(N,G) 3218-5.3.0	3.0	197	147	740	1056	737	1053	51	54
ASVM(N,G) 3220-5.3.0	3.0	197	147	794	1110	791	1107	53	56
ASVM(N,G) 3222-5.4.0	4.0	220	161	848	1174	845	1171	57	60
ASVM(N,G) 3224-5.4.0	4.0	220	161	902	1228	899	1225	58	61
ASVM(N,G) 3226-5.4.0	4.0	220	161	956	1282	953	1279	59	63
ASVM(N,G) 3229-5.4.0	4.0	220	161	1037	1363	1034	1360	61	65
ASVM(N,G) 3232-5.5.5	5.5	235	197	1148	1510	1145	1507	86	90
ASVM(N,G) 3236-5.5.5	5.5	235	197	1256	1618	1253	1615	88	93

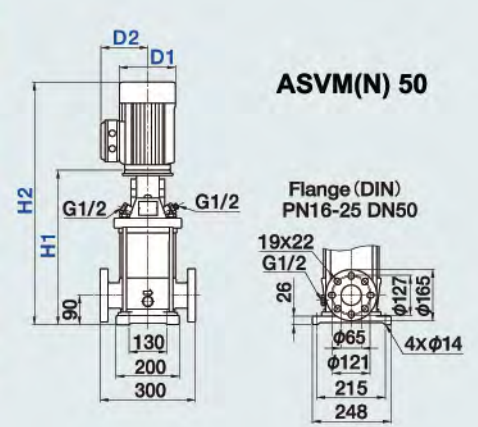
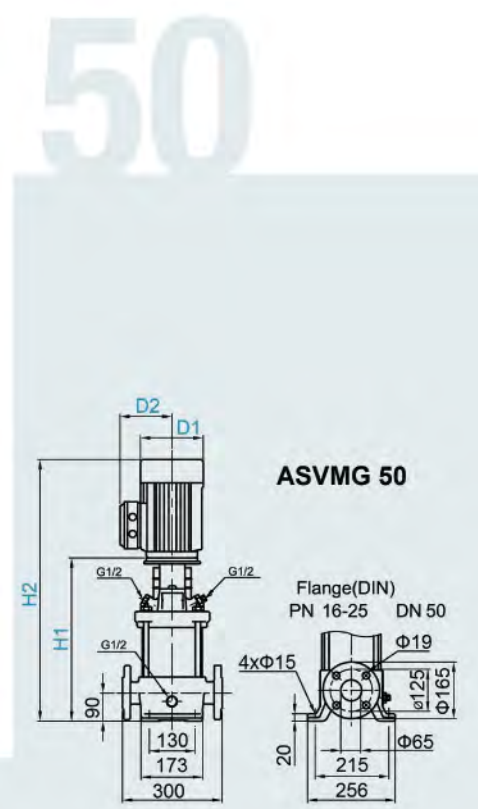
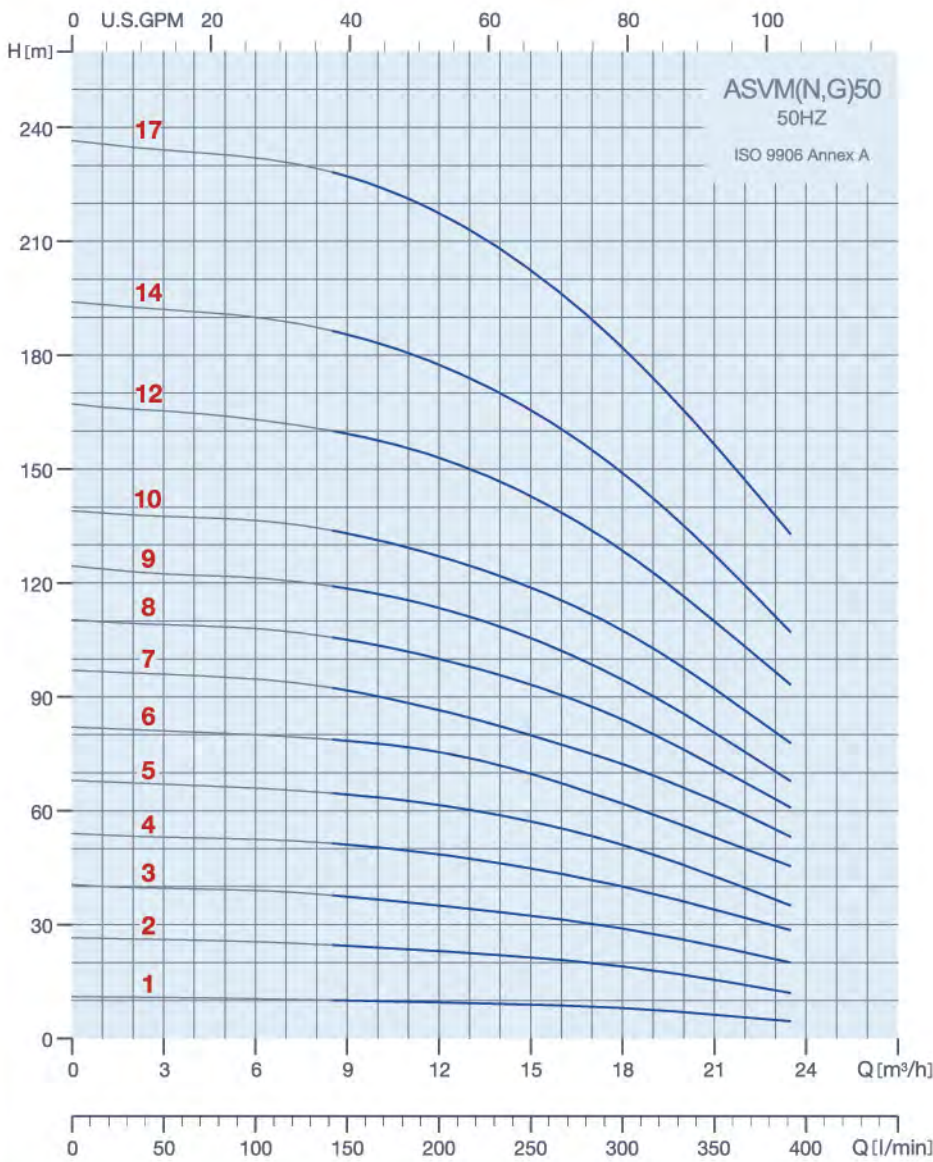




■ Dimensions and Weights

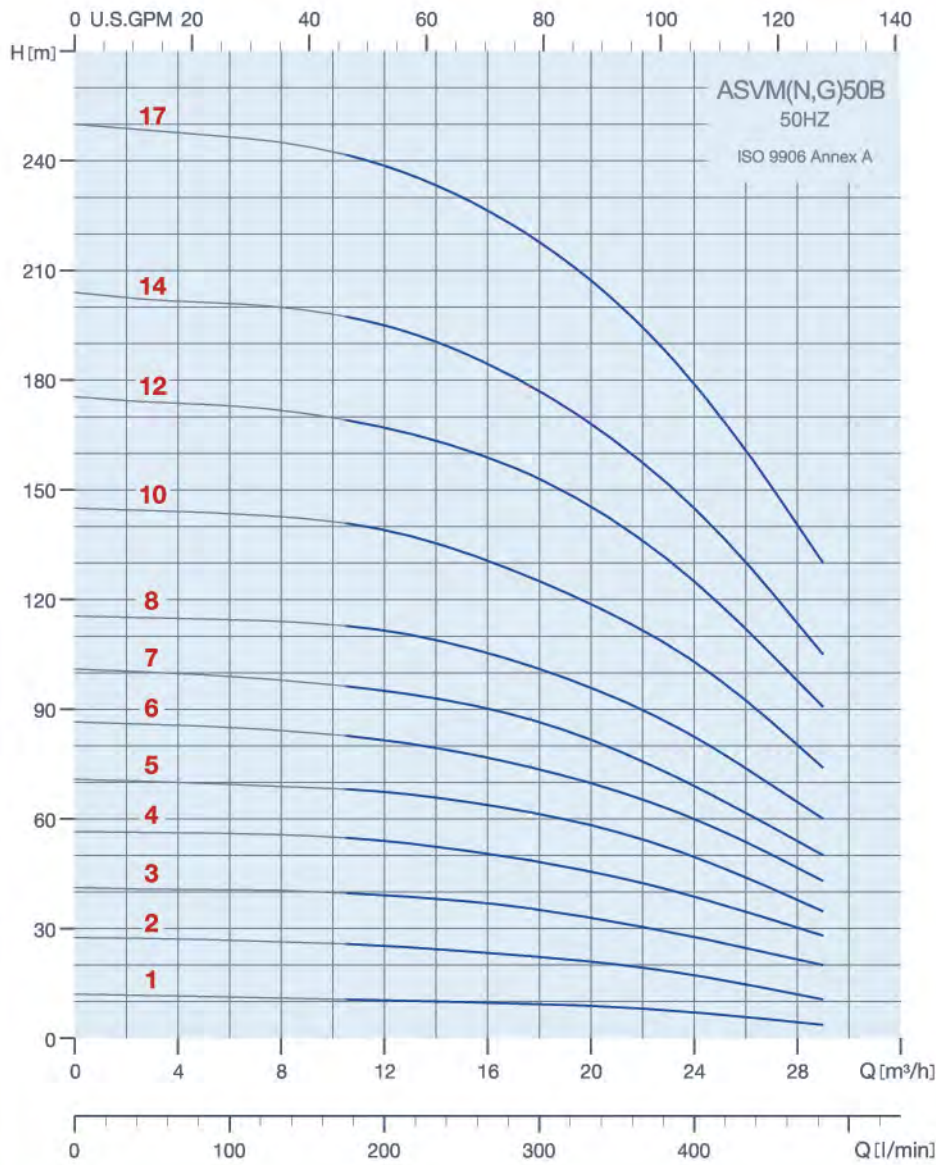
Model	P <sub>2</sub> [kW]	ASVM(N), ASVMG		ASVM(N)		ASVMG		ASVM(N)	ASVMG
		D1	D2	H1	H2	H1	H2		
		Dimension [mm]							
ASVM(N,G) 401-5.37	0.37	141	115	353	548	343	538	31	36
ASVM(N,G) 402-5.75	0.75	141	115	357	592	347	582	34	38
ASVM(N,G) 403-5.1.1	1.1	141	115	387	622	377	612	36	40
ASVM(N,G) 404-5.1.5	1.5	177	141	433	724	423	714	46	50
ASVM(N,G) 405-5.2.2	2.2	177	141	463	754	453	744	50	54
ASVM(N,G) 406-5.2.2	2.2	177	141	493	784	483	774	51	55
ASVM(N,G) 407-5.3.0	3.0	197	147	528	844	518	834	59	64
ASVM(N,G) 408-5.3.0	3.0	197	147	558	874	548	864	60	65
ASVM(N,G) 409-5.3.0	3.0	197	147	588	904	578	894	61	66
ASVM(N,G) 4010-5.4.0	4.0	220	161	618	944	608	934	65	70
ASVM(N,G) 4012-5.4.0	4.0	220	161	678	1004	668	994	68	72
ASVM(N,G) 4014-5.5.5	5.5	235	197	770	1132	760	1122	100	104
ASVM(N,G) 4016-5.5.5	5.5	235	197	830	1192	820	1182	102	106
ASVM(N,G) 4018-5.7.5	7.5	235	197	890	1288	880	1278	111	114
ASVM(N,G) 4020-5.7.5	7.5	235	197	950	1348	940	1338	113	117
ASVM(N,G) 4022-5.7.5	7.5	235	197	1010	1408	1000	1398	115	119



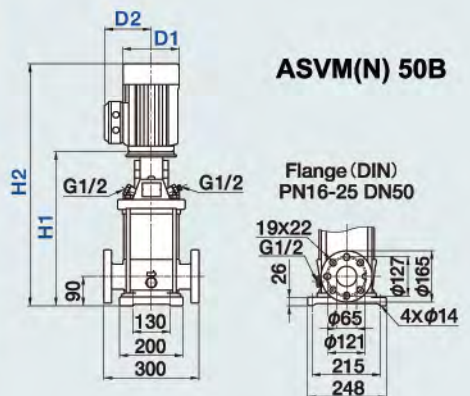
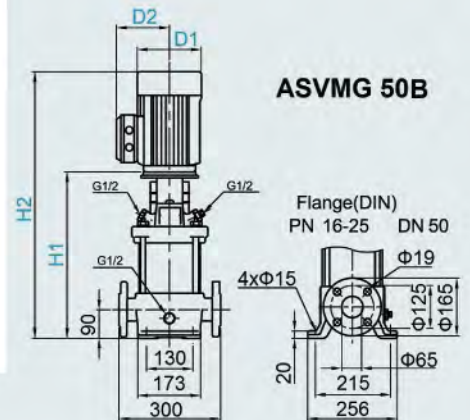


■ Dimensions and Weights

Model	P <sub>2</sub> [kW]	ASVM(N), ASVMG		ASVM(N)		ASVMG		ASVM(N)	ASVMG
		D1	D2	H1	H2	H1	H2		
ASVM(N,G) 501-51.1	1.1	141	115	397	632	400	635	37	44
ASVM(N,G) 502-52.2	2.2	177	141	413	704	415	706	48	56
ASVM(N,G) 503-53.0	3.0	197	147	463	779	465	781	57	65
ASVM(N,G) 504-54.0	4.0	220	161	508	834	510	836	62	70
ASVM(N,G) 505-54.0	4.0	220	161	553	879	555	881	63	71
ASVM(N,G) 506-55.5	5.5	235	197	630	992	632	994	95	102
ASVM(N,G) 507-55.5	5.5	235	197	675	1037	677	1039	97	104
ASVM(N,G) 508-57.5	7.5	235	197	720	1118	722	1120	105	112
ASVM(N,G) 509-57.5	7.5	235	197	765	1163	767	1165	106	113
ASVM(N,G) 5010-511	11.0	318	154	887	1392	889	1394	143	150
ASVM(N,G) 5012-511	11.0	318	154	977	1482	979	1484	146	153
ASVM(N,G) 5014-511	11.0	318	154	1067	1572	1069	1574	149	156
ASVM(N,G) 5017-515	15.0	318	154	1202	1712	1204	1714	164	172

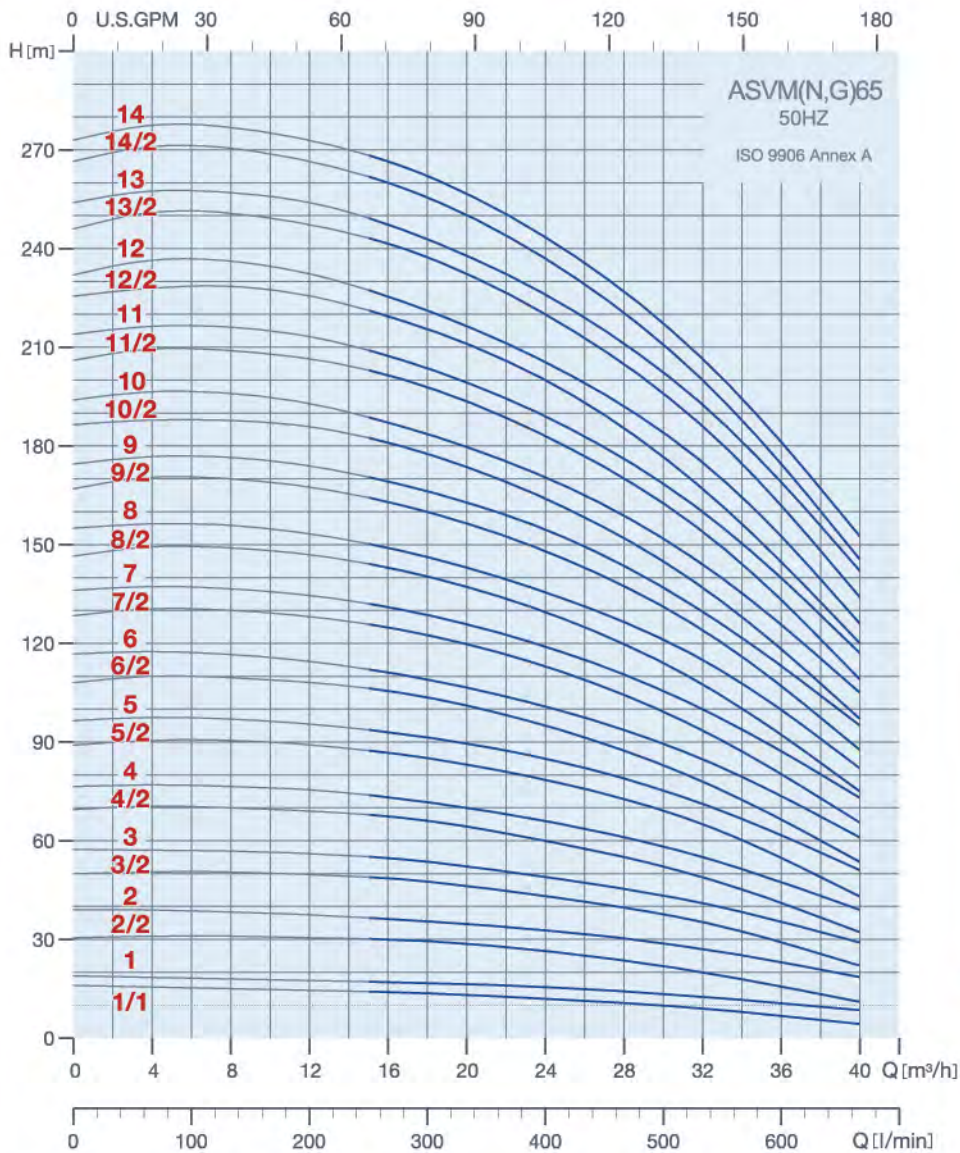


50B

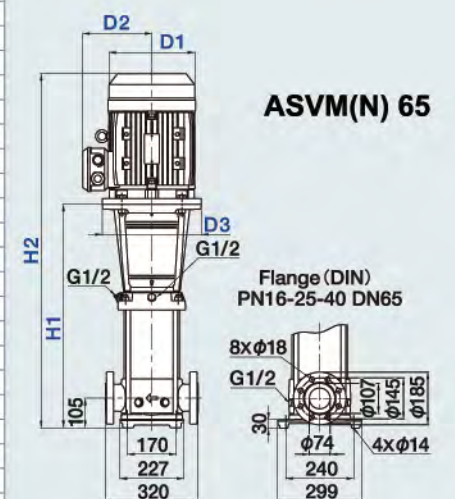
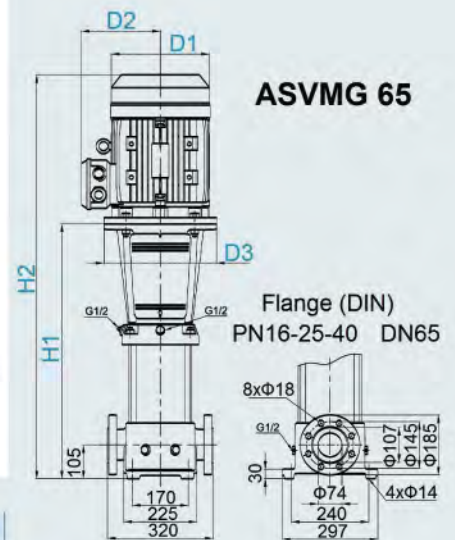


■ Dimensions and Weights

Model	P <sub>2</sub> [kW]	ASVM(N) , ASVMG		ASVM(N)		ASVMG		ASVM(N)	ASVMG
		D1	D2	H1	H2	H1	H2		
ASVM(N,G) 50B1-51.1	1.1	141	115	397	632	400	636	37	44
ASVM(N,G) 50B2-52.2	2.2	177	141	413	704	415	708	48	56
ASVM(N,G) 50B3-54.0	4.0	220	161	463	789	465	795	60	68
ASVM(N,G) 50B4-55.5	5.5	235	197	540	902	542	910	92	99
ASVM(N,G) 50B5-55.5	5.5	235	197	585	947	587	955	94	101
ASVM(N,G) 50B6-57.5	7.5	235	197	630	1028	632	1038	102	109
ASVM(N,G) 50B7-57.5	7.5	235	197	675	1073	677	1083	103	110
ASVM(N,G) 50B8-511	11.0	318	245	797	1302	799	1315	140	147
ASVM(N,G) 50B10-511	11.0	318	245	887	1392	889	1405	143	150
ASVM(N,G) 50B12-515	15.0	318	245	977	1487	979	1504	156	163
ASVM(N,G) 50B14-515	15.0	318	245	1067	1577	1069	1594	159	166
ASVM(N,G) 50B17-518	18.5	318	245	1202	1752	1204	1773	189	195

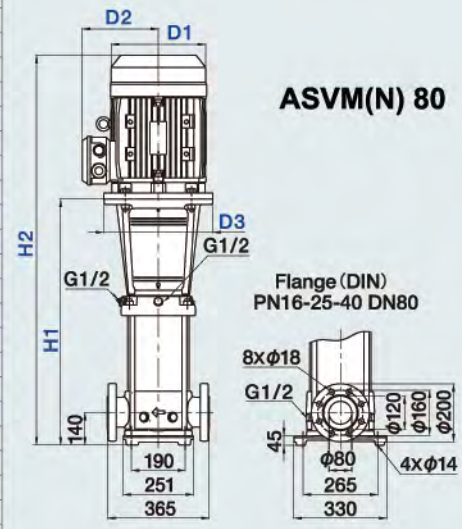
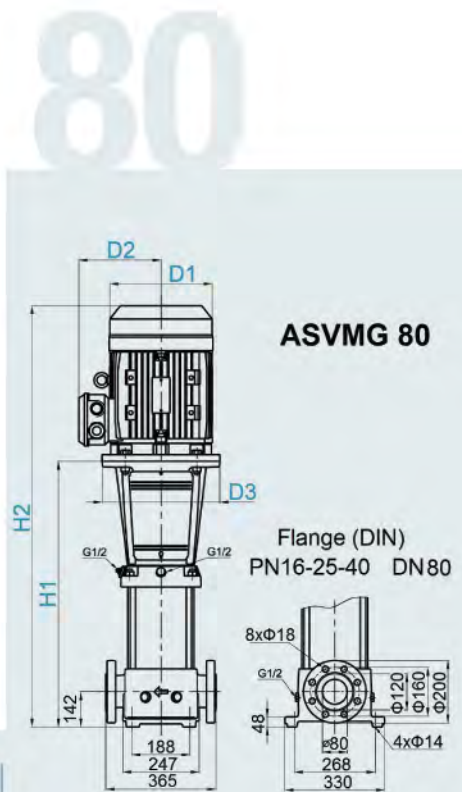
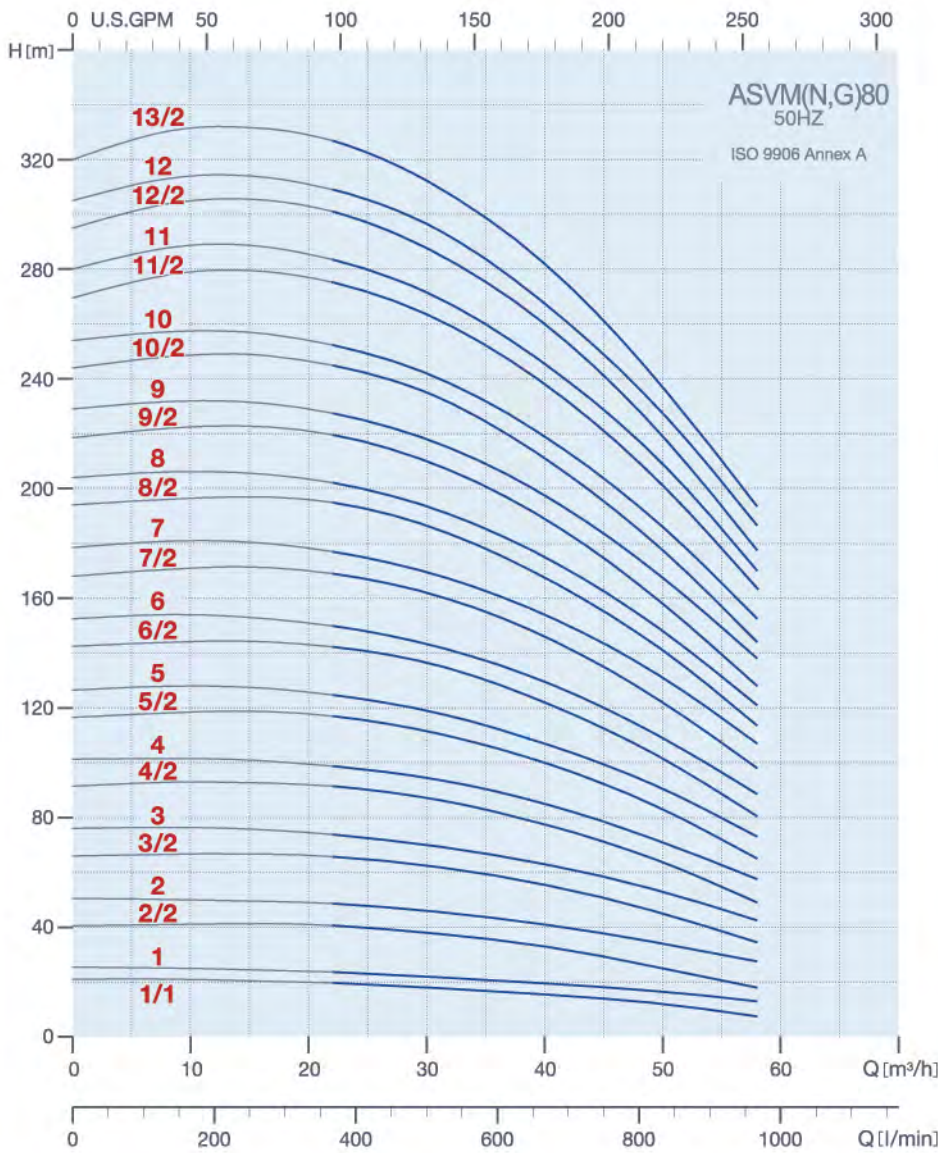


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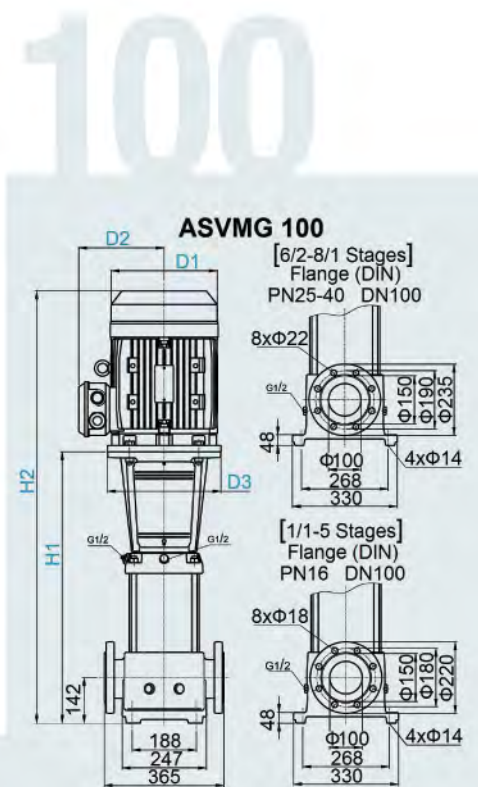
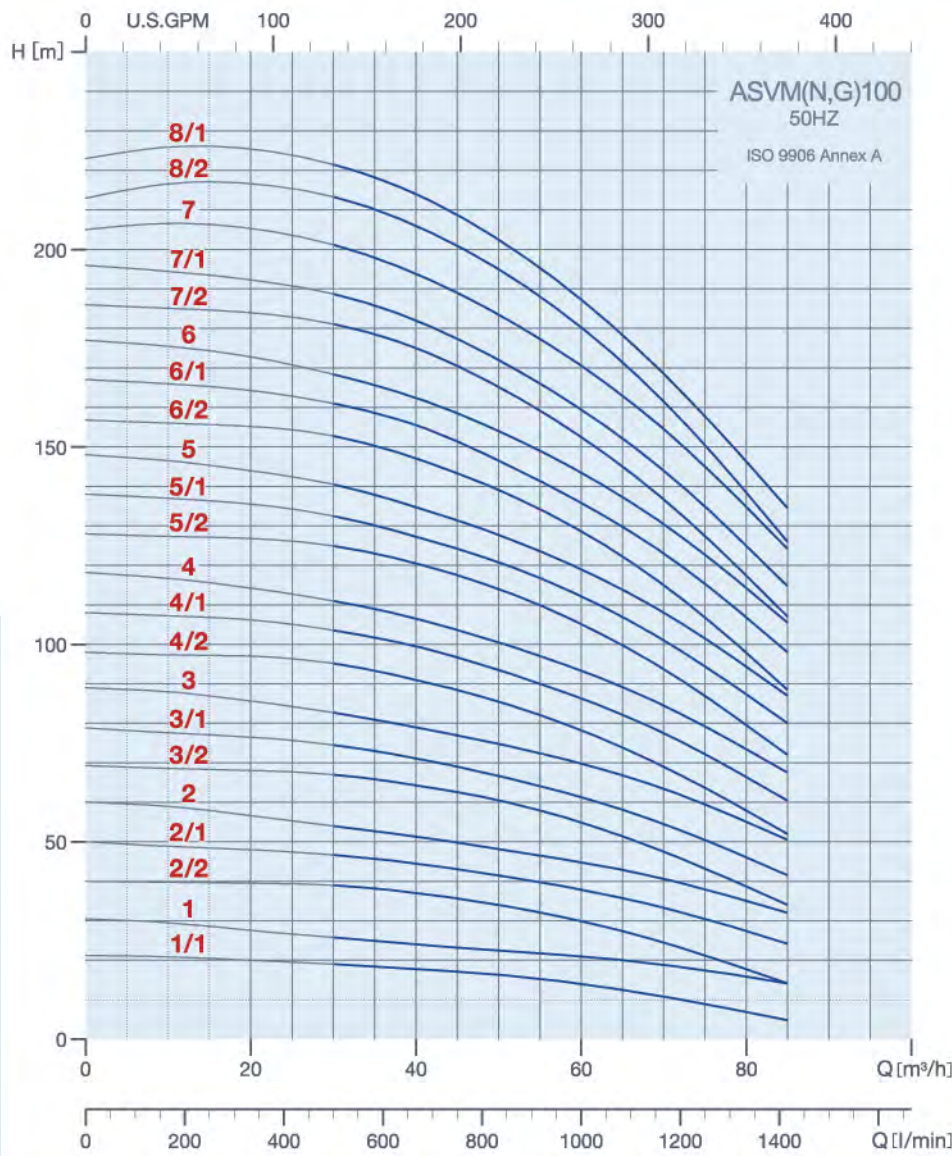
■ Dimensions and Weights

Model	P <sub>2</sub> [kW]	ASVM(N), ASVMG			ASVM(N)		ASVMG		ASVM(N)	ASVMG	Net Weight [Kg]
		D1	D2	D3	H1	H2	H1	H2			
Dimension [mm]											
ASVM(N,G) 651/1-51.5	1.5	177	141	280	504	795	504	795	67	72	
ASVM(N,G) 651-52.2	2.2	177	141	280	504	795	504	795	69	74	
ASVM(N,G) 652/2-53.0	3.0	197	147	280	574	935	574	935	79	84	
ASVM(N,G) 652-54.0	4.0	220	161	280	574	900	574	900	83	88	
ASVM(N,G) 653/2-55.5	5.5	235	197	300	644	1006	644	1006	105	110	
ASVM(N,G) 653-55.5	5.5	235	197	300	644	1006	644	1006	105	110	
ASVM(N,G) 654/2-57.5	7.5	235	197	300	714	1112	714	1112	115	120	
ASVM(N,G) 654-57.5	7.5	235	197	300	714	1112	714	1112	115	120	
ASVM(N,G) 655/2-511	11.0	318	245	350	894	1399	894	1399	158	163	
ASVM(N,G) 655-511	11.0	318	245	350	894	1399	894	1399	158	163	
ASVM(N,G) 656/2-511	11.0	318	245	350	964	1469	964	1469	161	166	
ASVM(N,G) 656-511	11.0	318	245	350	964	1469	964	1469	161	166	
ASVM(N,G) 657/2-515	15.0	318	245	350	1034	1544	1034	1544	175	180	
ASVM(N,G) 657-515	15.0	318	245	350	1034	1544	1034	1544	175	180	
ASVM(N,G) 658/2-515	15.0	318	245	350	1104	1614	1104	1614	178	183	
ASVM(N,G) 658-515	15.0	318	245	350	1104	1614	1104	1614	178	183	
ASVM(N,G) 659/2-518	18.5	318	245	350	1174	1724	1174	1724	206	211	
ASVM(N,G) 659-518	18.5	318	245	350	1174	1724	1174	1724	206	211	
ASVM(N,G) 6510/2-518	18.5	318	245	350	1244	1794	1244	1794	208	213	
ASVM(N,G) 6510-518	18.5	318	245	350	1244	1794	1244	1794	208	214	
ASVM(N,G) 6511/2-522	22.0	358	265	350	1314	1894	1314	1894	254	259	
ASVM(N,G) 6511-522	22.0	358	265	350	1314	1894	1314	1894	254	259	
ASVM(N,G) 6512/2-522	22.0	358	265	350	1384	1964	1384	1964	256	261	
ASVM(N,G) 6512-522	22.0	358	265	350	1384	1964	1384	1964	256	261	
ASVM(N,G) 6513/2-530	30.0	420	295	400	1454	2114	1454	2114	324	328	
ASVM(N,G) 6513-530	30.0	420	295	400	1454	2114	1454	2114	324	328	
ASVM(N,G) 6514/2-530	30.0	420	295	400	1524	2184	1524	2184	326	331	
ASVM(N,G) 6514-530	30.0	420	295	400	1524	2184	1524	2184	326	331	



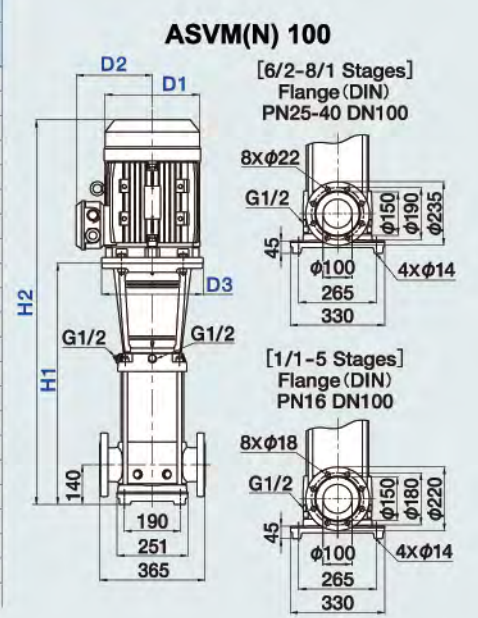
■ Dimensions and Weights

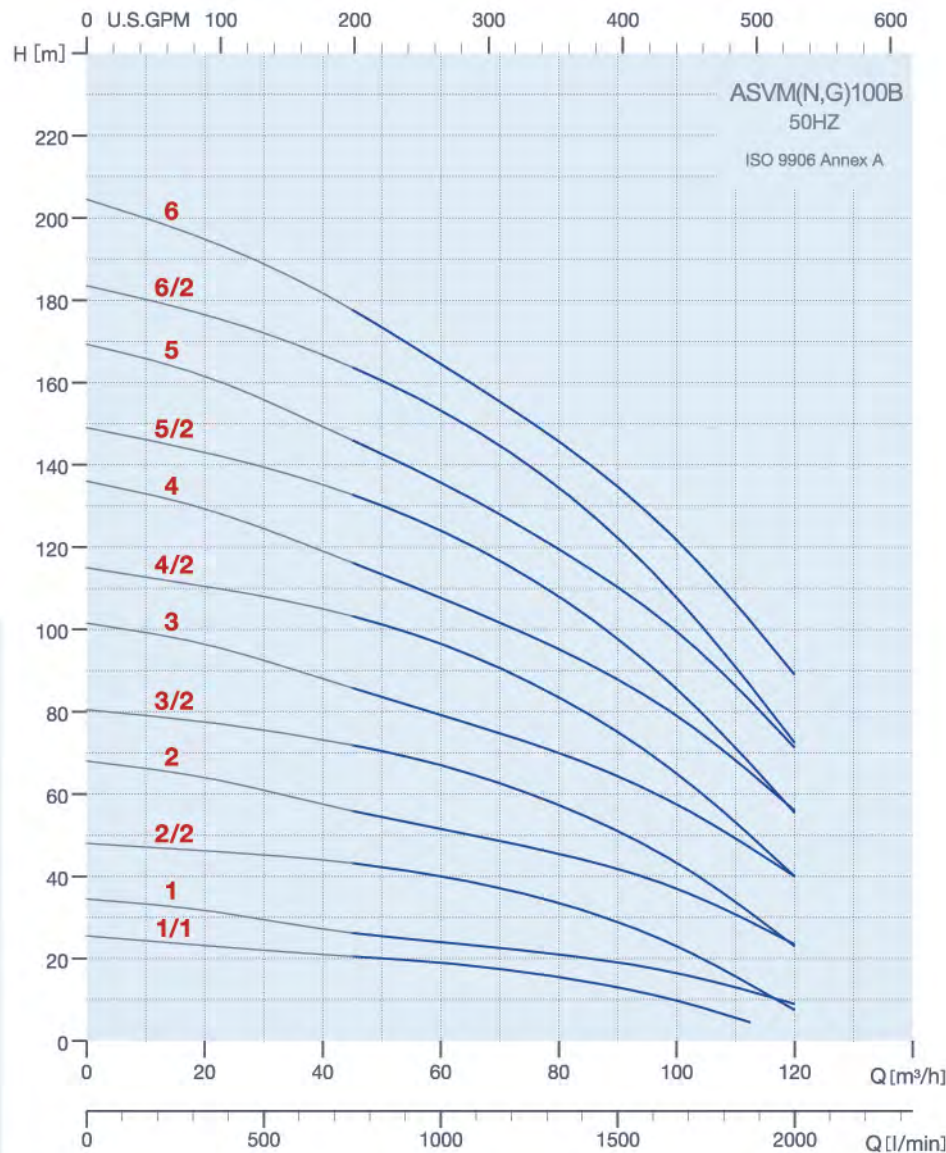
Model	P <sub>2</sub> [kW]	ASVM(N), ASVMG			ASVM(N)		ASVMG		ASVM(N)	ASVMG
		D1	D2	D3	H1	H2	H1	H2	Net Weight [Kg]	
ASVM(N,G) 801/1-53.0	3.0	197	147	280	559	875	561	877	83	92
ASVM(N,G) 801-54.0	4.0	220	161	280	559	885	561	877	86	95
ASVM(N,G) 802/2-55.5	5.5	235	197	300	639	1001	641	1003	110	118
ASVM(N,G) 802-57.5	7.5	235	197	300	639	1037	641	1039	116	125
ASVM(N,G) 803/2-511	11.0	318	245	350	829	1334	831	1336	160	169
ASVM(N,G) 803-511	11.0	318	245	350	829	1334	831	1336	160	169
ASVM(N,G) 804/2-515	15.0	318	245	350	909	1419	911	1421	174	183
ASVM(N,G) 804-515	15.0	318	245	350	909	1419	911	1421	174	183
ASVM(N,G) 805/2-518	18.5	318	245	350	989	1539	911	1541	203	212
ASVM(N,G) 805-518	18.5	318	245	350	989	1539	911	1541	203	212
ASVM(N,G) 806/2-522	22.0	358	265	350	1069	1649	1071	1651	249	258
ASVM(N,G) 806-522	22.0	358	265	350	1069	1649	1071	1651	249	258
ASVM(N,G) 807/2-530	30.0	420	295	400	1149	1809	1151	1811	318	326
ASVM(N,G) 807-530	30.0	420	295	400	1149	1809	1151	1811	318	327
ASVM(N,G) 808/2-530	30.0	420	295	400	1229	1889	1231	1891	321	330
ASVM(N,G) 808-530	30.0	420	295	400	1229	1889	1231	1891	322	331
ASVM(N,G) 809/2-530	30.0	420	295	400	1309	1969	1311	1971	325	334
ASVM(N,G) 809-537	37.0	420	295	400	1309	1969	1311	1971	338	347
ASVM(N,G) 8010/2-537	37.0	420	295	400	1389	2049	1391	2051	342	351
ASVM(N,G) 8010-537	37.0	420	295	400	1389	2049	1391	2051	342	351
ASVM(N,G) 8011/2-545	45.0	470	325	450	1469	2159	1471	2161	404	413
ASVM(N,G) 8011-545	45.0	470	325	450	1469	2159	1471	2161	404	413
ASVM(N,G) 8012/2-545	45.0	470	325	450	1549	2239	1551	2241	407	416
ASVM(N,G) 8012-545	45.0	470	325	450	1549	2239	1551	2241	407	416
ASVM(N,G) 8013/2-545	45.0	470	325	450	1629	2319	1631	2321	411	420



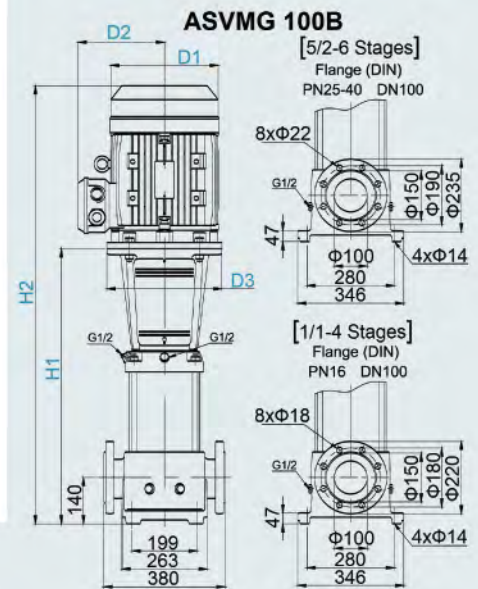
■ Dimensions and Weights

Model	P <sub>2</sub> [kW]	ASVM(N), ASVMG			ASVM(N)		ASVMG		ASVM(N)	ASVMG
		D1	D2	D3	H1	H2	H1	H2	Net Weight [Kg]	Net Weight [Kg]
ASVM(N,G) 1001/1-54.0	4.0	220	161	280	563	889	563	889	82	89
ASVM(N,G) 1001-55.5	5.5	235	197	300	563	613	563	613	101	108
ASVM(N,G) 1002/2-57.5	7.5	235	197	300	646	702	646	702	112	119
ASVM(N,G) 1002/1-511	11.0	318	245	350	756	1261	756	1261	152	159
ASVM(N,G) 1002-511	11.0	318	245	350	756	1261	756	1261	152	159
ASVM(N,G) 1003/2-515	15.0	318	245	350	838	1348	838	1348	167	174
ASVM(N,G) 1003/1-515	15.0	318	245	350	838	1348	838	1348	167	174
ASVM(N,G) 1003-518	18.5	318	245	350	838	1388	838	1388	191	199
ASVM(N,G) 1004/2-518	18.5	318	245	350	921	1471	921	1471	195	203
ASVM(N,G) 1004/1-522	22.0	358	265	350	921	1501	921	1501	238	246
ASVM(N,G) 1004-522	22.0	358	265	350	921	1501	921	1501	238	246
ASVM(N,G) 1005/2-530	30.0	420	295	400	1003	1663	1003	1663	307	314
ASVM(N,G) 1005/1-530	30.0	420	295	400	1003	1663	1003	1663	307	314
ASVM(N,G) 1005-530	30.0	420	295	400	1003	1663	1003	1663	307	314
ASVM(N,G) 1006/2-530	30.0	420	295	400	1086	1746	1086	1746	311	318
ASVM(N,G) 1006/1-537	37.0	420	295	400	1086	1746	1086	1746	324	331
ASVM(N,G) 1006-537	37.0	420	295	400	1086	1746	1086	1746	324	331
ASVM(N,G) 1007/2-537	37.0	420	295	400	1168	1828	1168	1828	328	335
ASVM(N,G) 1007/1-537	37.0	420	295	400	1168	1828	1168	1828	328	335
ASVM(N,G) 1007-545	45.0	470	325	450	1172	1862	1172	1862	386	393
ASVM(N,G) 1008/2-545	45.0	470	325	450	1255	1945	1255	1945	390	398
ASVM(N,G) 1008/1-545	45.0	470	325	450	1255	1945	1255	1945	390	398



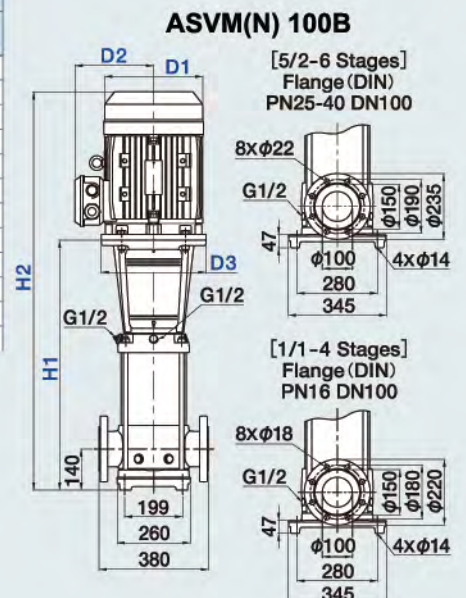


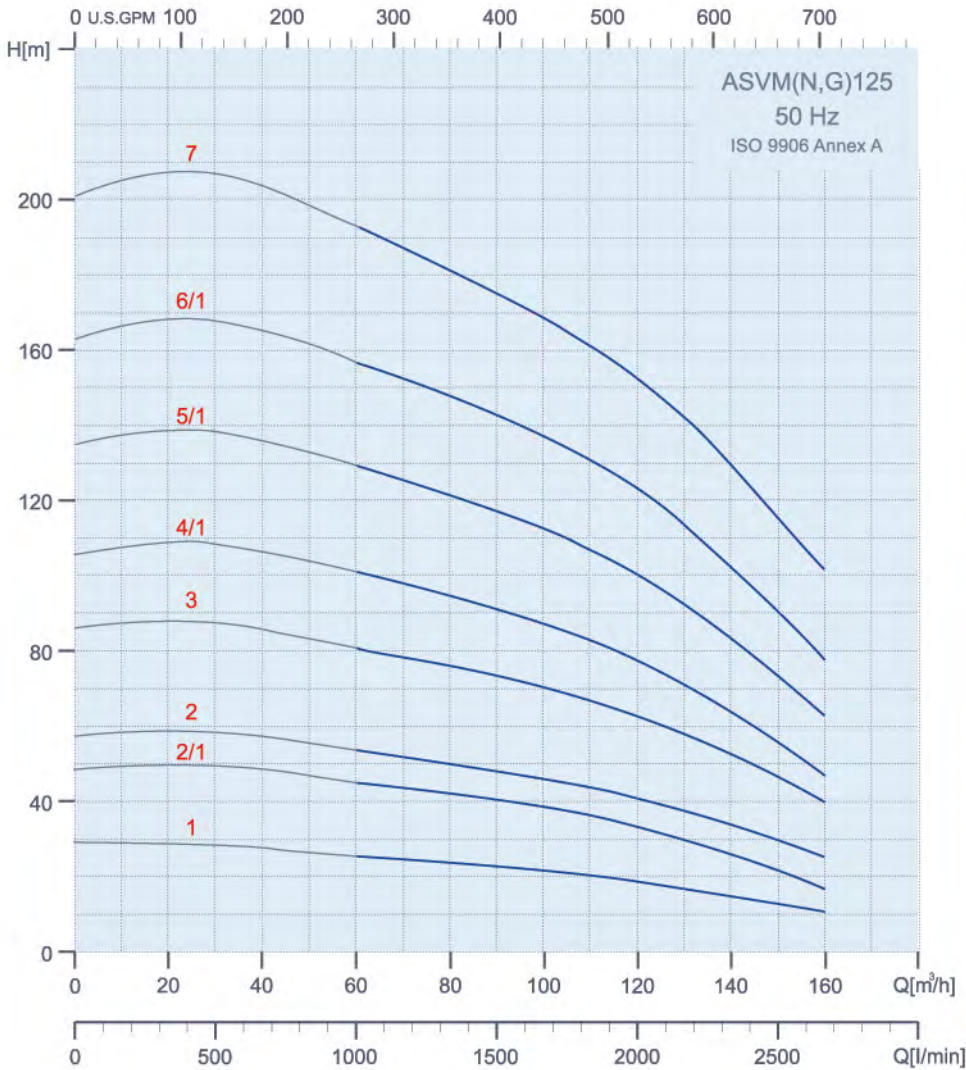
100B



■ Dimensions and Weights

Model	P <sub>2</sub> [kW]	ASVM(N), ASVMG			ASVM(N)		ASVMG		ASVM(N)	ASVMG	Net Weight [Kg]
		D1	D2	D3	H1	H2	H1	H2			
Dimension [mm]											
ASVM(N,G) 100B1/1-55.5	5.5	235	197	300	576	938	572	934	112	122	
ASVM(N,G) 100B1-57.5	7.5	235	197	300	576	974	572	970	118	129	
ASVM(N,G) 100B2/2-511	11.0	318	245	350	778	1283	774	1279	164	174	
ASVM(N,G) 100B2-515	15.0	318	245	350	778	1288	774	1284	174	185	
ASVM(N,G) 100B3/2-518	18.5	318	245	350	870	1420	866	1416	204	215	
ASVM(N,G) 100B3-522	22.0	358	265	350	870	1450	866	1446	247	258	
ASVM(N,G) 100B4/2-530	30.0	420	295	400	962	1622	958	1618	317	327	
ASVM(N,G) 100B4-530	30.0	420	295	400	962	1622	958	1618	317	327	
ASVM(N,G) 100B5/2-537	37.0	420	295	400	1054	1714	1050	1710	337	347	
ASVM(N,G) 100B5-537	37.0	420	295	400	1054	1714	1050	1710	337	347	
ASVM(N,G) 100B6/2-545	45.0	470	325	450	1146	1836	1142	1832	400	410	
ASVM(N,G) 100B6-545	45.0	470	325	450	1146	1836	1142	1832	400	410	

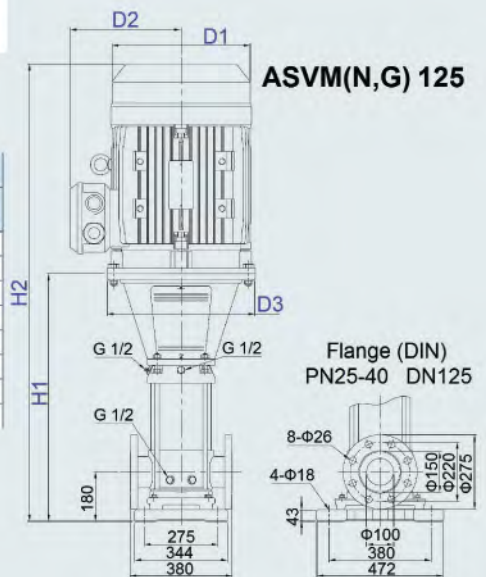




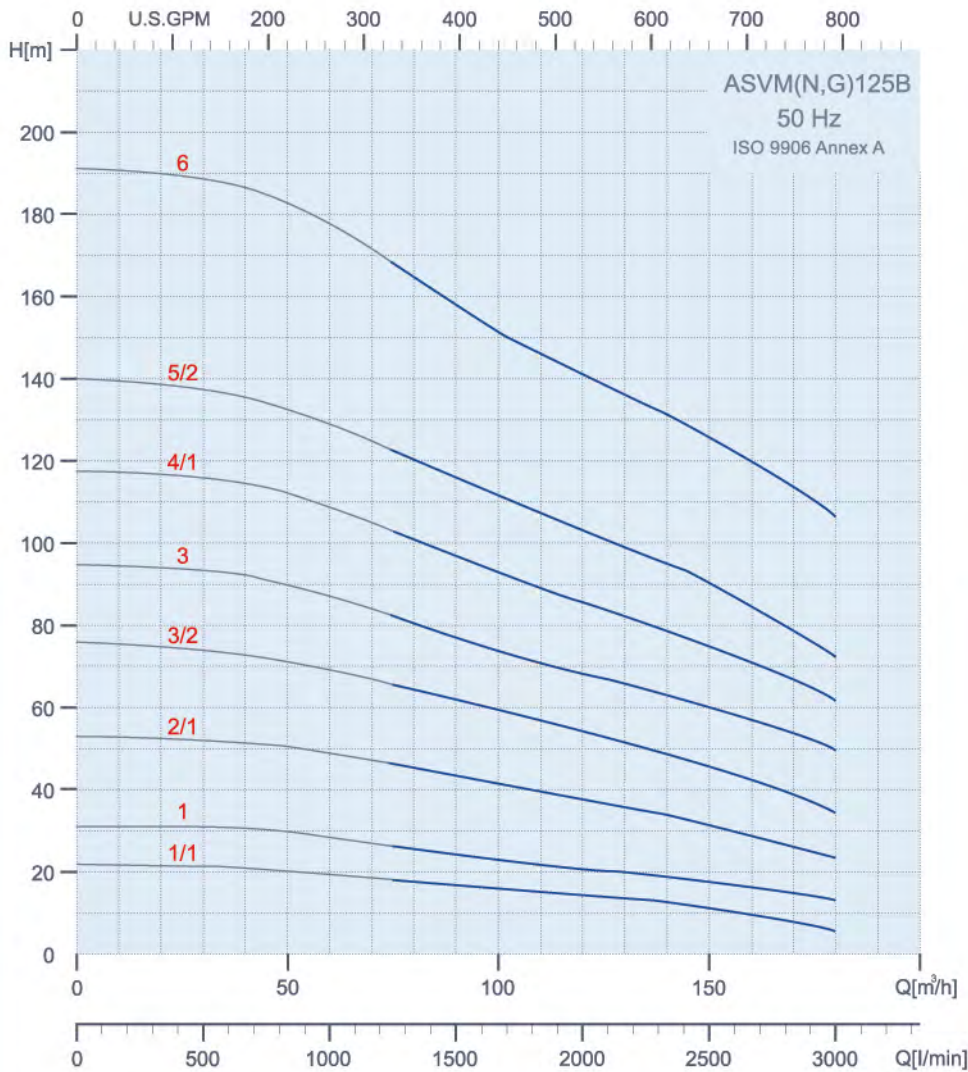
125

Dimensions and Weights

Model	P <sub>2</sub> [kW]	ASVM(N) , ASVMG			ASVM(N)		ASVMG		ASVM(N) ASVMG	
		D1	D2	D3	H1	H2	H1	H2	Net Weight [Kg]	
Dimension [mm]										
ASVM(N,G) 1251-511	11	318	245	350	837	1342	834	1339	184	200
ASVM(N,G) 1252/1-518	18.5	318	245	350	993	1543	990	1540	230	245
ASVM(N,G) 1252-522	22	358	265	350	993	1573	990	1570	276	292
ASVM(N,G) 1253-530	30	420	295	400	1149	1809	1145	1805	347	363
ASVM(N,G) 1254/1-537	37	420	295	400	1304	1964	1301	1961	370	386
ASVM(N,G) 1255/1-545	45	470	325	450	1463	2153	1460	2150	438	454
ASVM(N,G) 1256/1-555	55	510	355	550	1645	2415	1642	2412	564	579
ASVM(N,G) 1257-575	75	580	410	550	1800	2645	1797	2642	737	751



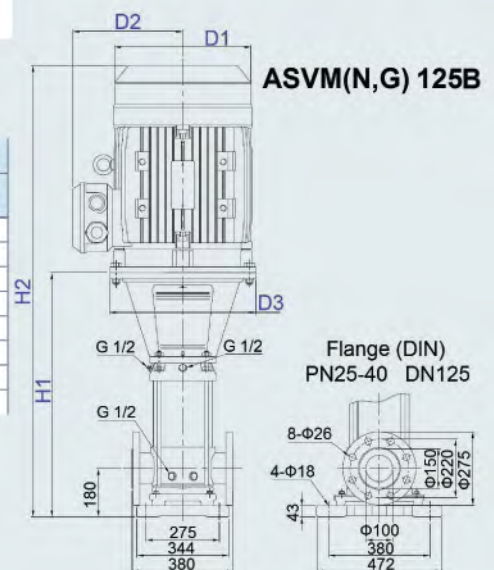




125B

■ Dimensions and Weights

Model	P <sub>2</sub> [kW]	ASVM(N), ASVMG			ASVM(N)		ASVMG		ASVM(N)	ASVMG
		D1	D2	D3	H1	H2	H1	H2	Net Weight [Kg]	
Dimension [mm]										
ASVM(N,G) 125B1/1-511	11	318	245	350	837	1342	834	1339	173	200
ASVM(N,G) 125B1-515	15	318	245	350	837	1347	834	1344	184	210
ASVM(N,G) 125B2/1-522	22	358	265	350	993	1573	990	1570	272	288
ASVM(N,G) 125B3/2-530	30	420	295	400	1148	1808	1145	1805	346	362
ASVM(N,G) 125B3-537	37	420	295	400	1148	1808	1145	1805	359	375
ASVM(N,G) 125B4/1-545	45	470	325	450	1308	1998	1305	1995	427	443
ASVM(N,G) 125B5/2-555	55	510	355	550	1489	2259	1486	2256	553	569
ASVM(N,G) 125B6-575	75	580	410	550	1645	2490	1642	2487	726	741

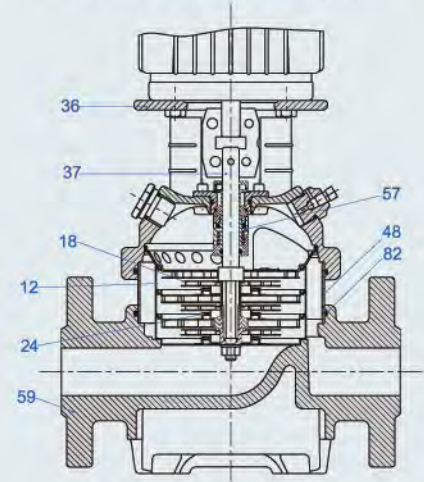
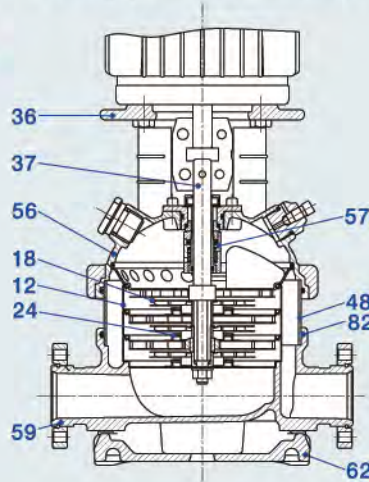


ASVM(N) 25L/25/32/40/50/50B

ASVMG 25L/25/32/40/50/50B

ASVM(N,G) 25L/25/32/40/50/50B

Sectional view and Materials



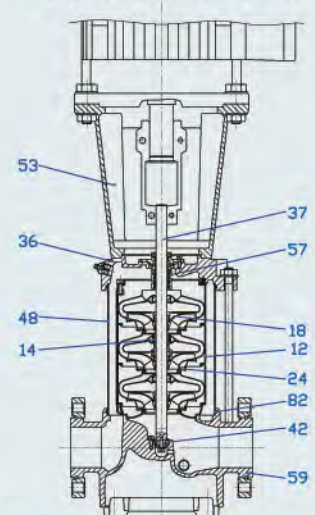
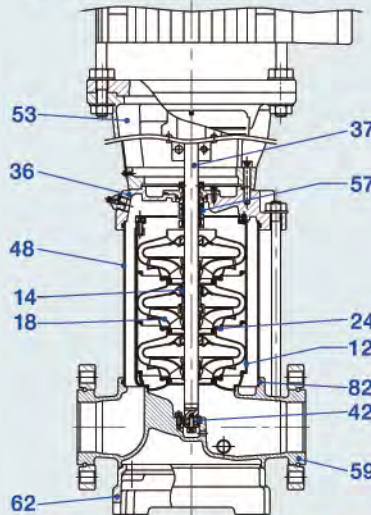
Pos.	Name	Material	ASVM 25L, 25, 32, 40, 50, 50B			ASVMN 25L, 25, 32, 40, 50, 50B			ASVMG 25L, 25, 32, 40, 50, 50B		
			Standard			Standard			Standard		
			Europe	USA	JIS	Europe	USA	JIS	Europe	USA	JIS
36	Pump head	Cast Iron	EN-GJS-450-10	ASTM65-45-12	FCD450	EN-GJS-450-10	ASTM65-45-12	FCD450	EN-GJL-200	ASTM 25B	FC200
56	Pump head cover	Stainless steel	1.4301	AISI 304	SCS13	1.4401	AISI 316	SCS14	NA		
18	Impeller	Stainless steel	1.4301	AISI 304	SUS304	1.4401	AISI 316	SUS316	1.4301	AISI 304	SUS304
37	Shaft	Stainless steel	1.4057	AISI 431	SUS431	1.4401	AISI 316	SUS316	1.4057	AISI 431	SUS431
48	Outer Sleeve	Stainless steel	1.4301	AISI 304	SUS304	1.4401	AISI 316	SUS316	1.4301	AISI 304	SUS304
82	O-ring for outer sleeve		EPDM								
12	Chamber	Stainless steel	1.4301	AISI 304	SUS304	1.4401	AISI 316	SUS316	1.4301	AISI 304	SUS304
24	Neck ring		PTFE								
59	Base	Stainless steel	1.4301	AISI 304	SCS13	1.4401	AISI 316	SCS14	NA		
		Cast Iron	NA						EN-GJL-200	ASTM 25B	FC200
62	Base plate	Cast Iron	EN-GJL-200	ASTM 25B	FC200	EN-GJL-200	ASTM 25B	FC200	NA		
57	Mechanical seal		Cartridge type SiC/SiC + Viton (Seal code : SQQV)								

ASVM(N,G) 65/80/100/100B

Sectional view and Materials

ASVM(N) 65/80/100/100B

ASVMG 65/80/100/100B

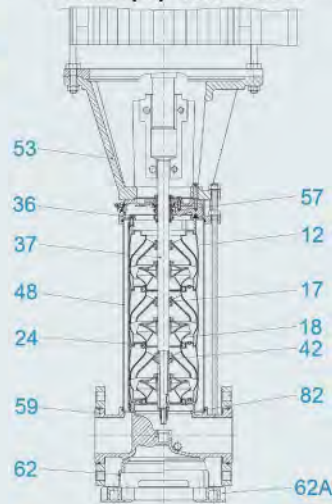


Pos.	Name	Material	ASVM 65, 80, 100, 100B			ASVMN 65, 80, 100, 100B			ASVMG 65, 80, 100, 100B		
			Standard			Standard			Standard		
			Europe	USA	JIS	Europe	USA	JIS	Europe	USA	JIS
36	Pump head	Stainless steel	1.4301	AISI 304	SCS13	1.4401	AISI 316	SCS14	NA		
		Cast Iron	NA								
53	Motor Bracket	Cast Iron	EN-GJL-250	ASTM 35B	FC250	EN-GJL-250	ASTM 35B	FC250	EN-GJL-250	ASTM 35B	FC250
18	Impeller	Stainless steel	1.4301	AISI 304	SUS304	1.4401	AISI 316	SUS316	1.4301	AISI 304	SUS304
37	Shaft	Stainless steel	1.4057	AISI 431	SUS431	1.4401	AISI 316	SUS316	1.4057	AISI 431	SUS431
48	Outer Sleeve	Stainless steel	1.4301	AISI 304	SUS304	1.4401	AISI 316	SUS316	1.4301	AISI 304	SUS304
82	O-ring for outer sleeve		EPDM								
12	Chamber	Stainless steel	1.4301	AISI 304	SUS304	1.4401	AISI 316	SUS316	1.4301	AISI 304	SUS304
24	Neck ring		Carbon Fiber + POB + PTFE								
59	Base	Stainless steel	1.4301	AISI 304	SCS13	1.4401	AISI 316	SCS14	NA		
		Cast Iron	NA						EN-GJL-250	ASTM 35B	FC250
62	Base plate	Cast Iron	EN-GJL-250	ASTM 35B	FC250	EN-GJL-250	ASTM 35B	FC250	NA		
57	Mechanical seal		Cartridge type SiC/SiC + Viton (Seal code : SQQV)								
14	Bearing ring		Bronze			POB+Graphite+PTFE			Bronze		
42	Bottom bearing ring		Tungsten carbide / Tungsten carbide								

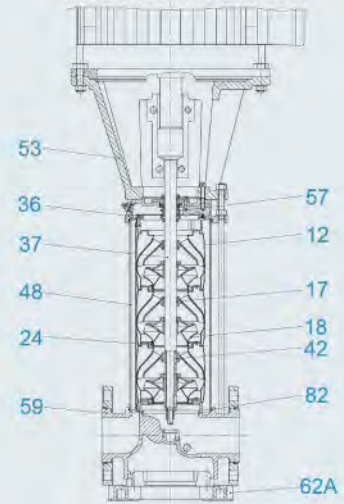
# ASVM(N,G) 125/125B

## Sectional view and Materials

ASVM(N) 125/ 125B



ASVMG 125/ 125B



Pos.	Name	Material	ASVM 125, 125B			ASVMN 125, 125B			ASVMG 125, 125B		
			Standard			Standard			Standard		
			Europe	USA	JIS	Europe	USA	JIS	Europe	USA	JIS
36	Pump head	Stainless steel	1.4301	AISI 304	SCS13	1.4401	AISI 316	SCS14	NA		
		Cast Iron	NA						EN-GJL-250	ASTM 35B	FC250
53	Motor Bracket(11kW ~ 45kW) Motor Bracket(55kW ~ 75kW)	Cast Iron	EN-GJL-250	ASTM 35B	FC250	EN-GJL-250	ASTM 35B	FC250	EN-GJL-250	ASTM 35B	FC250
		Cast Iron	EN-GJS-450-10	ASTM 65-45-12	FCD450	EN-GJS-450-10	ASTM 65-45-12	FCD450	EN-GJS-450-10	ASTM 65-45-12	FCD450
17	Bearing ring		PTFE								
18	Impeller	Stainless steel	1.4301	AISI 304	SUS304	1.4401	AISI 316	SUS316	1.4301	AISI 304	SUS304
37	Shaft	Stainless steel	1.4057	AISI 431	SUS431	1.4401	AISI 316	SUS316	1.4057	AISI 431	SUS431
48	Outer Sleeve	Stainless steel	1.4301	AISI 304	SUS304	1.4401	AISI 316	SUS316	1.4301	AISI 304	SUS304
82	O-ring for outer sleeve		EPDM								
12	Chamber	Stainless steel	1.4301	AISI 304	SUS304	1.4401	AISI 316	SUS316	1.4301	AISI 304	SUS304
24	Neck ring		PTFE								
59	Base	Stainless steel	1.4301	AISI 304	SCS13	1.4401	AISI 316	SCS14	NA		
		Cast Iron	NA						EN-GJL-250	ASTM 35B	FC250
62	Base plate	Cast Iron	EN-GJS-450-10	ASTM 65-45-12	FCD450	EN-GJS-450-10	ASTM 65-45-12	FCD450	NA		
62A	Base plate	Cast Iron	EN-GJS-450-10	ASTM 65-45-12	FCD450	EN-GJS-450-10	ASTM 65-45-12	FCD450	EN-GJS-450-10	ASTM 65-45-12	FCD450
57	Mechanical seal		Cartridge type SiC/SiC + Viton (Seal code : SQQV)								
42	Bottom bearing ring		SiC / SiC								

### Motor

		Motor Type			Nominal current in [A]					
HP	KW	Pole	Flange	Frame	3~220 V	3~240 V	3~380 V	3~415 V		
0.5	0.37	2	B14	71A	1.8	1.9	1.0	1.1		
0.75	0.55			71B	2.6	2.7	1.5	1.6		
1.0	0.75			80A	3.4	3.6	2.0	2.1		
1.5	1.1			80B	5.1	5.2	2.9	3.0		
2.0	1.5			90S	6.5	6.8	3.7	3.9		
3.0	2.2			90L	9.2	9.3	5.3	5.4		
4.0	3.0			100L	12.1	12.5	7.0	7.2		
5.5	4.0			112M	14.9	15.0	8.6	8.7		
7.5	5.5						3~380 V	3~415 V	3~660 V	3~690 V
10	7.5			2	B5	132S	11.9	11.4	6.9	6.6
15	11	132S	16.7			16.8	9.4	9.7		
20	15	160M	22.6			20.7	13.0	12.4		
25	18.5	160M	28.8			26.3	17.8	15.8		
30	22	160L	37.5			34.3	21.6	20.6		
40	30	180M	43.6			39.9	25.1	23.9		
50	37	200L	62.0			56.8	35.7	30.5		
60	45	200L	73.2			67.0	42.2	37.3		
75	55	225M	82.4			75.4	47.4	45.3		
100	75	250M	114.0			92.6	58.2	55.6		
				280S	134.0	123.0	77.2	73.8		

Nominal current is for reference only

Motor Type									Mounting Dimension [mm]							
HP	kW	Pole	Flange	IE	Frame	Bearing		Fig	D	E	M	N	P	S	T	
						Load side	Opposite side									
0.5	0.37	2	B14	IE 1/2/3	71	6204ZZ C3	6201ZZ C3	1	14	+0.008 -0.003	30	85	70	105	4-M6	2.5
0.75	0.55			IE 1/2/3	71	6204ZZ C3	6201ZZ C3	1	14	+0.008 -0.003	30	85	70	105	4-M6	2.5
1.0	0.75			IE 1/2/3	80	6204ZZ C3	6201ZZ C3	1	19	+0.009 -0.004	40	100	80	119	4-M6	3.0
1.5	1.1			IE 1/2	80	6204ZZ C3	6201ZZ C3	1	19	+0.009 -0.004	40	100	80	119	4-M6	3.0
				IE3	80	6204ZZ C3	6304ZZ C3	1	19	+0.009 -0.004	40	100	80	119	4-M6	3.0
2.0	1.5			IE 1/2/3	90S	6205ZZ C3	6304ZZ C3	1	24	+0.009 -0.004	50	115	95	140	4-M8	3.0
3.0	2.2			IE 1/2/3	90L	6205ZZ C3	6304ZZ C3	1	24	+0.009 -0.004	50	115	95	140	4-M8	3.0
4.0	3.0			IE 1/2/3	100L	6307ZZ C3	6305ZZ C3	1	28	+0.009 -0.004	60	130	110	160	4-M8	3.5
5.5	4.0			IE 1/2/3	112M	6307ZZ C3	6305ZZ C3	1	28	+0.009 -0.004	60	130	110	160	4-M8	3.5
7.5	5.5			IE 1/2/3	132S	6309ZZ C3	6306ZZ C3	2	38	+0.018 -0.002	80	265	230	300	4-Φ14.5	4.0
10	7.5		IE 1/2/3	132S	6309ZZ C3	6306ZZ C3	2	38	+0.018 -0.002	80	265	230	300	4-Φ14.5	4.0	
15	11		IE 1/2/3	160M	6310ZZ C3	6308ZZ C3	2	42	+0.018 -0.002	110	300	250	350	8-Φ18.5	5.0	
20	15		IE 1/2/3	160M	6310ZZ C3	6308ZZ C3	2	42	+0.018 -0.002	110	300	250	350	8-Φ18.5	5.0	
25	18.5		IE 1/2/3	160L	6311ZZ C3	6309ZZ C3	2	42	+0.018 -0.002	110	300	250	350	8-Φ18.5	5.0	
30	22		IE 1/2/3	180M	6311ZZ C3	6309ZZ C3	2	48	+0.018 -0.002	110	300	250	350	8-Φ18.5	5.0	
40	30		IE 1/2/3	200L	6313ZZ C3	6312ZZ C3	2	55	+0.030 -0.011	110	350	300	400	8-Φ18.5	5.0	
50	37		IE 1/2/3	200L	6313ZZ C3	6312ZZ C3	2	55	+0.030 -0.011	110	350	300	400	8-Φ18.5	5.0	
60	45		IE 1/2/3	225M	6314ZZ C3	6313ZZ C3	2	55	+0.030 -0.011	110	400	350	450	8-Φ18.5	5.0	
75	55		IE 1/2/3	250M	7314	6314	2	60	+0.030 -0.011	140	500	450	550	8-Φ18.5	5.0	
100	75		IE 1/2/3	280S			2	65	+0.030 -0.011	140	500	450	550	8-Φ18.5	5.0	

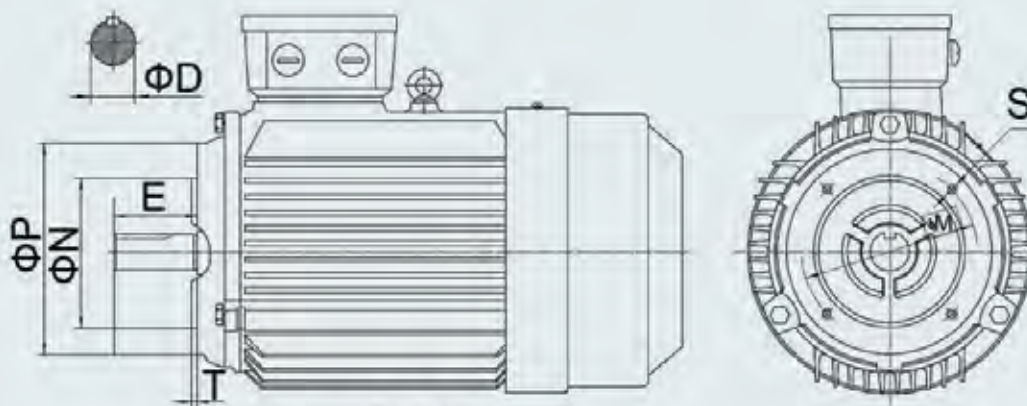


Fig 1

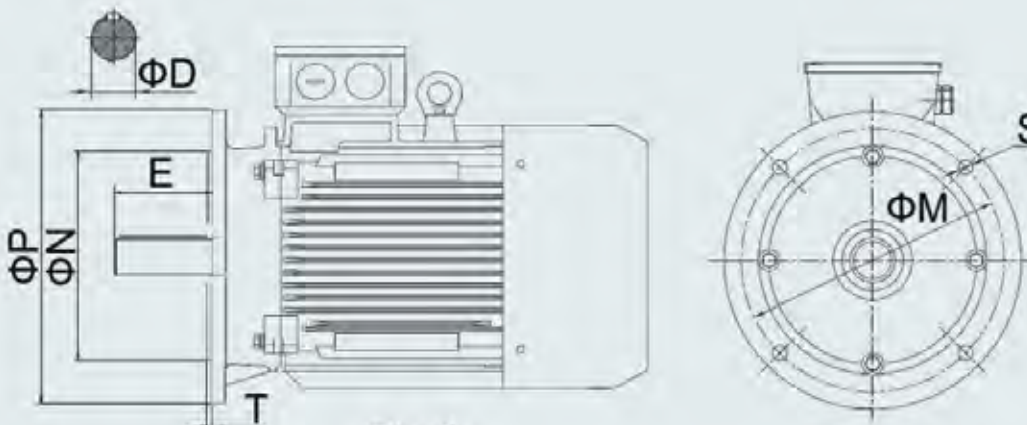




Fig 2

## Precaution & warning

### Precaution

Be sure to observe these precautions since they include important instructions about safety.





 <b>DANGER</b>			
 		After turning on the main power supply, do not touch the current-carrying parts.	
		A high voltage is applied to the current-carrying parts, and there is a significant danger if you receive an electric shock.	
 <b>WARNING</b>			
	Properly transport the product according to lifting instructions.		While the pump is lifted, do not use the equipment or carry out any work to it.
	Otherwise, it may cause the equipment to fall, resulting in injury and/or breakage.		Otherwise, it may cause the equipment to fall, resulting in injury and/or breakage.
	The pump should be operated by only those who are authorized by the site manager.	 	Installation, maintenance and inspection must be carried out only by personnel who have been trained to handle the pump.
	Operation by unskilled personnel may lead to an unforeseen accident.		Operation by unskilled personnel may lead to an unforeseen accident.
 	Only qualified personnel such as licensed electrical engineers are allowed to carry out electric work.	 	Use high-quality wiring equipment and devices, and carry out wiring work safely and securely according to the technical standards for electrical facilities, as well as the indoor wiring regulations.
	Otherwise, it may lead to electric shock, fire, failure, etc.		Otherwise, it may lead to electric shock, fire, etc.
 	Before starting wiring work, make sure to turn off the main power supply and confirm that the pilot lamp is turned off.	 	Be sure to install a ground fault interrupter at the primary power supply.
	Otherwise, it may lead to electric shock.		Otherwise, it may cause electric shock, fire, etc.
	Securely install the ground wire and make sure to carry out grounding work.		Do not connect the ground wire to a gas pipe or water pipe.
	Otherwise, electrical leakage or electric shock may result.		Such connection is illegal and leads to electric shock, explosion and/or fire.
 	Make sure that all electric wires are securely connected.	 	Before carrying out maintenance/inspection work, be sure to stop the pump, and turn off the main power supply.
	Otherwise, it may cause fire and/or electric shock.		Otherwise, electric shock, injury, breakage, water leakage, etc. may result.
	Before starting the equipment or carrying out maintenance/inspection work, ensure that all the relevant operators are informed of the operation and that there are no workers in the dangerous zone.	 	In the case of a power failure, turn off the main power supply.
	Otherwise, it may cause an unforeseen accident.		Otherwise, when the power is restored, the pump suddenly starts, which may cause injury.
 	When checking smooth rotation of the pump shaft, be sure to disconnect the main power supply before rotating it by hand.		Do not perform idling or operation with insufficient priming.
	Otherwise, it may result in injury and/or breakage.		Otherwise, the internal parts may be damaged by a heat shock.
 	Do not put your finger or any foreign objects into openings or rotating part of the motor during operation.		Do not continue shut-off operation more than 1 minute.
	Otherwise, injury and/or breakage may result.		Otherwise, the temperature and pressure in the pump rise, and it may get broken.
 	Do not remove the coupling guard except during maintenance. Do not perform operation when the coupling guard is removed.	 	For work such as replacement of parts, repairs, or inspection that requires disassembly of the equipment, be sure to contact a specialized vendor or the service center designated by TERAL.
	Otherwise, injury and/or breakage may result.		If unskilled personnel carry out work that requires special knowledge, it may lead to an accident and/or failure.
	Do not operate the equipment if it does not run normally or abnormal condition is observed in parts, components, and others.		Do not operate the equipment in an explosive atmosphere.
	Otherwise, it may lead to injury, failure and/or various accidents.		Otherwise, it may lead to injury, failure and/or various accidents.

## ⚠ CAUTION



	Use the equipment within its specified product specifications.		Do not use the product alone in a place directly related to important equipment or maintenance of life.
	Otherwise, it may cause electric shock, fire, water leakage, failure, etc.		Water supply may be stopped in the case of a failure. Be sure to keep a standby machine.
	Do not modify the product.		Do not give a shock to the pump when transporting or carrying in it.
	The warranty does not cover an accident or a failure caused by a modification of the product.		Otherwise, breakage may result.
	Check the upside and the downside, and carefully unpack the product with particular attention to the nails.		Install the equipment in the environment in strict compliance with the installation instructions.
	Otherwise, injury and/or breakage may result.		Otherwise, a premature failure may result.
	Check that the floor surface at the installation location is treated with waterproof materials and equipped with a drainage system.		Before operation, thoroughly clean (flush) the inside of the piping.
	Otherwise, serious damage may result when water leakage occurs.		Otherwise, foreign objects may enter from the piping system, and an accident or failure of the pump may be caused by the supplied mixed liquid.
	Do not leave any tools and other objects on the top of the pump during operation.		Do not step on the pump or the piping.
	Otherwise, injury and/or breakage may result.		Otherwise, injury and/or breakage may result.
	Do not touch any part of the pump during operation unless absolutely necessary.		Do not touch the pump if handled liquid is hot.
			You may burn your hands because it is hot.
	Operate the controls carefully.		Do not start and stop the pump too frequently. (Up to 5 times per 1 h)
	Otherwise, it may result in injury and/or breakage.		Otherwise, a premature failure of the pump may result.
	Do not cover the motor with cloth, etc.		Do not water the motor.
	Otherwise, overheat or fire may result.		Otherwise, electric shock, electric leakage, failure, etc. may result.
 	Do not touch the motor while it is running or immediately after it has stopped.		Be sure to carry out inspection according to the maintenance checklist.
	Otherwise, you may suffer burn due to its hot surface.		Otherwise, failures cannot be prevented, which raises the risk of accidents.
	Before disassembly, close both the suction and discharge sluice valves, and then discharge pressured water from the pump and the piping.		If there is any alarm or any abnormality that cannot be resolved, immediately contact us or your service company.
	Otherwise, water may spurt out, leading to an accident.		Otherwise, it may lead to an accident.
	Replace the packing and O-rings during an overhaul.		If the product is not used for a long time, turn off the power, discharge internal water, and then store the product.
	Otherwise, it may cause water leakage.		Otherwise, cracking, etc. may be caused by freezing.

# Installation & operation

## Precautions for connecting the ducts

 <b>CAUTION</b> 	Before piping work, remove the dust caps from the suction side and the discharge side of the casing of the pump. If the pump is operated with them attached, the pump, pipes, etc. may be damaged.
 <b>CAUTION</b> 	Do not screw the pipe when the companion flange is attached to the pump. The pump may be damaged.

1. Remove the dust caps from the suction side and the discharge side of the casing of the pump
2. Be sure to install pipe supports so that the weight of pipes, etc. is not applied on the main body of the pump

 <b>CAUTION</b> 	If the weight of pipes, etc. is applied on the pump, the casing may be damaged.
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3. The connection flanges of the suction/discharge parts of the pump are loose flanges. Connect the pipe after checking the table below while carefully avoiding uneven tension that the flange fits in the retaining ring of the casing part as shown in the figure below. Tighten the bolts at the recommended torque shown in the table below while carefully avoiding uneven tension.

**Table: Recommended tightening torque for flanges**

Pump type	Recommended tightening torque
ASVM/ASVMN/ASVMG 25,32,40,50,65	70 N • m
ASVM/ASVMN/ASVMG 80,100,100B, 125, 125B	90 N • m

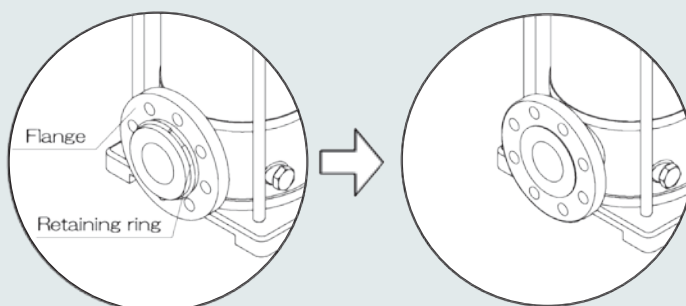




Figure: Suction/discharge flanges

4. In order to reduce the transmission of vibration and noise, attach vibration-isolating joint(s) to the discharge side or both the suction side and the discharge side of the pump.
5. Do not install any elbow near the suction port or the discharge port of the pump.
6. The suction pipe must be made as short and straight as possible.
7. Carefully attach joints, etc. to the suction pipe so as not to allow the entry of air.
8. Ensure that the diameter of the suction pipe is equal to or larger than that of the pump.

 <b>CAUTION</b> 	Ensure that the diameter of the suction pipe is equal to or larger than that of the pump. If the suction pipe is small, cavitation may occur.
--	---

9. For inflow operation  
(9-1) For inflow operation, attach a sluice valve to the suction pipe as shown in the figure. The maintenance of the pump can be performed without the need to discharge water from the tank and the pipe.

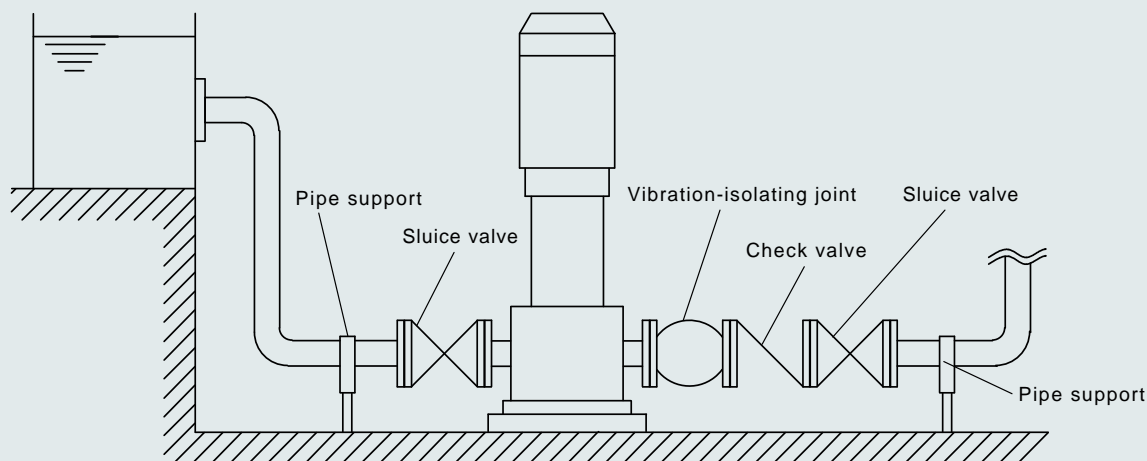




Figure: Example of construction for inflow operation

# Installation & operation

## Precautions for connecting the ducts

- 10. For suction operation
- (10-1) The suction pipe must be made as short and straight as possible, and no sluice valve must be attached. Do not use any inverted-U-shaped loop (that includes ascending and descending lines) for the piping system.
- (10-2) Provide the suction pipe with a rising gradient of 1:100 or more toward the pump to prevent air from being trapped.
- (10-3) If the diameter of the suction pipe is larger than that of the suction port of the pump, use an eccentric reducer to prevent air from being trapped.  
The diameter of the suction pipe can be up to 2 sizes larger than that of the pump.
- (10-4) Attach a foot valve with a strainer to the end of the suction pipe so as not to suck any foreign objects, etc.  
Immerse the foot valve in water and set it at a depth of at least twice the diameter of the pipe from the surface of water to prevent the suction of air. In addition, ensure that it is set above 500 mm or more from the bottom of water.

 <b>CAUTION</b>		Properly install the foot valve vertically. If it is installed obliquely, the valve does not open or close properly, which may impair the function of the foot valve.
--	---	---

- (10-5) If the suction operation is performed using two or more pumps, do not connect each suction pipe to another pipe.
  - (10-6) Attach a sluice valve and a check valve to the discharge pipe. If water hammer occurs, attach a buffer type check valve.
  - (10-7) If there is a convex part in the discharge pipe, ensure that air can be released. Do not attach an air vent valve to a place where there is a negative pressure, such as the suction pipe.
11. After construction work, be sure to clean the inside of the water receiving tank so that foreign objects will not be sucked into the pump.

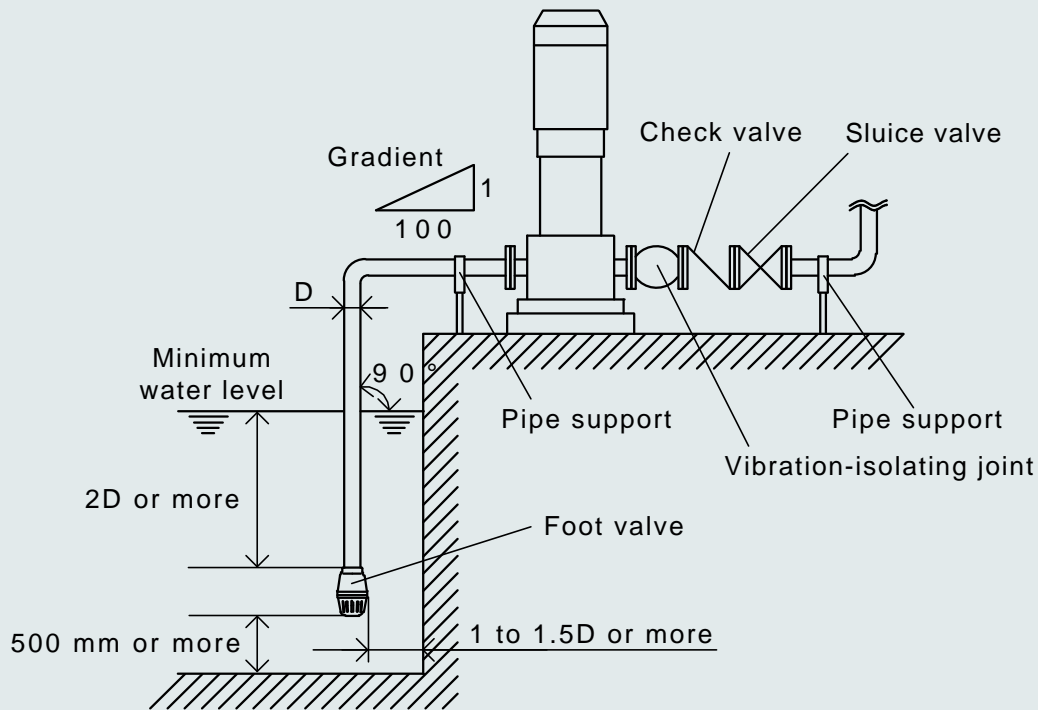


Figure: Example of construction for suction operation



# Pumped fluids

• Recommended					
Pumped fluid	Fluid Concentration, temperature	ASVM / ASVMG		ASVMN	
		EPDM	Viton	EPDM	Viton
Acetic acid anhydride	25°C			•	
Alkaline cleaner		•			
Aluminium sulphate	10%, 25°C				•
Ammonia water (A. hydroxide)	20%, 40°C	•			
Ammonia hydrogen carbonate	10%, 40°C	•		•	
Benzoic acid	10%, 90°C				•
Boric acid	Unsaturated solution, 60°C				•
Butanol	60°C	•			
Calcium acetate	30%, 50°C	•			
Calcium hydroxide	Saturated solution, 50°C	•			
Chromic acid	1%, 20°C				•
Condensate	90°C	•			
Copper sulphate	Unsaturated solution, 60°C				•
Deionic (fully desalinated water)	50°C			•	
Ethanol	100%, 20°C	•			
Ethylene glycol/Diethylene glycol	40%, 70°C	•	•	•	•
Fixer	25°C				•
Formic acid	5%, 20°C			•	
Fruit juice	50°C				•
Glycerine	50%, 50°C	•			
Heating oil (Light)		•			•
Hydraulic oil	100%, 100°C		•		
Isopropanol		•			
Lactic acid	10%, 20°C				•
Linoleic acid	100%, 20°C	•			
Linseed oil	60°C		•		
Liqueur	60°C				•
Maize oil	80°C		•		
Maleic acid	50%, 50°C				•
Methanol	100%, 20°C	•			
Motor oil	100%, 80°C	•			
Oil-water-mixture	100°C		•		
Oxalic acid	1%, 20°C			•	
Peanut oil	100%, 80°C		•		
Phosphoric acid	20%, 20°C			•	
Polyglycols	90°C		•		•
Polyethylene glycols	40%, 70°C	•			
Potassium carbonate	10%, 60°C	•			
Potassium hydrogen carbonate	10%, 60°C	•			
Potassium permanganate	5%, 20°C			•	
Potassium sulphate	Unsaturated solution, 80°C			•	
Rapeseed oil	100%, 80°C		•		
Silicone oil	100%		•		
Sodium carbonate	10%, 60°C			•	
Sodium hydroxide	25%, 50°C			•	
Sodium nitrate	Unsaturated solution, 80°C			•	
Sodium phosphate	5%, 100°C			•	
Sodium sulphate	10%, 60°C			•	
Sulphuric acid	5%, 25°C				•
<b>Water</b>					
Swimming pool water	35°C	• ASVM	• ASVM	•	•
Deionic	50°C	•	•	•	•
Distilled water	50°C	•		•	
Decarbonated water		•	•	•	•
Soft water		•	•	•	•
Heating water		•	• (up to 80°C)	•	• (up to 80°C)
Pure water		•	•	•	•
Rinsing water		• ASVM	• ASVM	•	•

ASVMG, ASVM, ASVMN pumps can handle a wide variety of liquids, each with its own characteristic.  
 \* The fluids covered in the list are not complete. Data on the application limits of different pump materials when handling any of the listed fluids are considered to be the best choices. However, the table is intended as a general guide only, and cannot replace actual testing of the pumped fluids and pump materials under specific working conditions.

\* When choosing the pump version, sufficient attention should be given to the flow medium, such as density, solidification point, viscosity as well as ex-protection requirement. When pumping fluids have a higher density than that of water, use oversized motors if needed.

\* The limits of applicability of the pumps, based on pressure and temperature must also be considered.



## Variable Speed Systems

- **High energy-saving performance**
  - ✓ Estimated terminal pressure constant control
  - ✓ “Individual Inverter” (Variable Speed Drive) is equipped for each pump.
- **User-friendly and easy to maintain**
  - ✓ Simple design for panel display setting and adjustment of pressure can be easily operated by control panel.
  - ✓ Compact and lighter. The whole system can be installed at small place.

## Direct booster units



Large bore 75 mm Cabinet  
**MC5-W3 Type**



New cabinet  
**MC5 Type**



Installation type  
**NX-DFC Type**

## Surface water supply units



Estimated terminal pressure constant control water supply unit (inverter control)  
**NX-VFC Type**



Constant-pressure water supply unit  
**NX-LAT Type**



Self-priming auto reel  
**LAT III Type**

## High head high flow water supply units



**ASVM-VFC Type** New Product

## Submersible water supply units



Estimated terminal pressure constant control  
**SSTM-VFC Type**

## Pumping units



**NX-LFT Type**

# TERAL

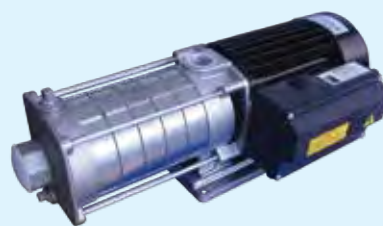
## Pumps and Fans



End-suction Pumps



In-Line Pumps



Horizontal Multistage Pumps



Horizontal Split Case Pumps



Freshwater & Sewage Submersible Pumps



Variable Speed Systems



Vertical Multistage Pumps



Coolant Pumps



Ring Blowers



Centrifugal Fans

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