



BENTELER FAR EAST – MORE THAN TUBES...



**High quality products
and services worldwide**

THE LEADING SOURCE FOR WORLD-CLASS STEEL PRODUCTS

BFE Group



Benteler Distribution Group - Customized Solutions Worldwide

The Benteler Distribution Group with its annual sales-volume of some 500,000 tons is one of the leading service providers and distributors of steel tubes, pipes, plates and accessories.

Working together with its customers, Benteler Distribution Group offers its technical product expertise and extensive supply network to provide complete customized solutions to companies operating in the following markets:

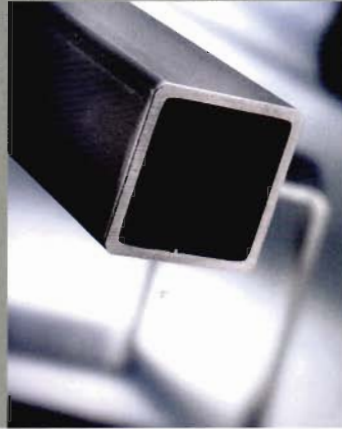
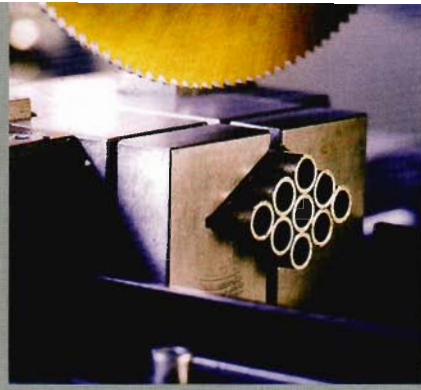
- power generation and petrochemical
- industry and mechanical engineering
- automotive

Over 50 years of international experience and the exemplary commitment of our 1,600 employees make us a competent partner dedicated to the success of our customers.

Benteler Far East – Strategic Partner Near You

The South-East Asian operations of Benteler Distribution Group are bundled under the roof of Benteler Far East. With offices in Singapore*, Bangkok*, Jakarta, Surabaya, Ho Chi Minh City and Sydney, Benteler Far East provides Benteler Distribution Group's full scope of high quality products and comprehensive services to its local customers.

* Including local warehouse



PRODUCT RANGE

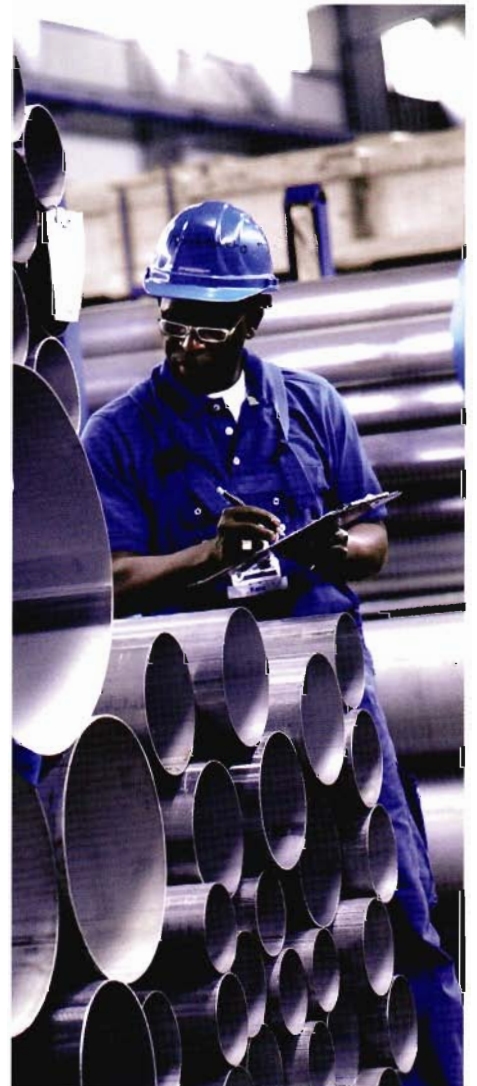
Our product range covers steel tubes and pipes, both seamless and welded, as well as plates and accessories in various steel grades:

- Carbon steel
- Carbon alloy steel
- Stainless steel
- Duplex
- Titanium
- Inconel and Hastelloy
- Copper and Copper-Nickel
- Brass and Aluminium-Brass

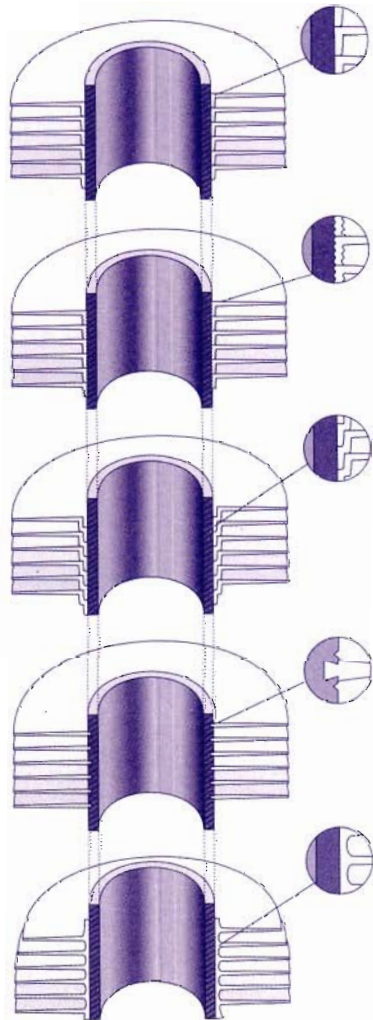
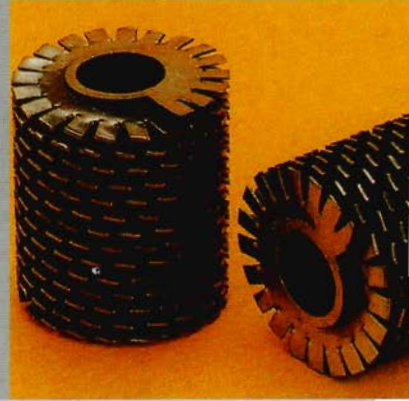
VALUE ADDED SERVICES

We understand our customers' needs. Therefore, we provide the following value added services in order to streamline our customers' production sequence in a cost saving and time efficient manner:

- Cutting, Deburring
- Bending, U-bending
- J/S Shaping, Swaging
- Low and high finning
- And many more



BFE Group



FIN TUBES / STUDED TUBES

L-FIN

L-Fins are tension wound to the base tube.
Temp. 130°C (270°F)

KL-FIN

Knurled tubes enhance the bondage of the L-Fins.
Temp. 250°C (480°F)

LL-FIN

Overlapped tension wound L-Fins are an economical alternative for extruded finned tubes.
Temp. 165°C (330°F)

G-FIN

Fins are mechanically embedded in a groove to the base tube.
Temp. 400°C (750°F)

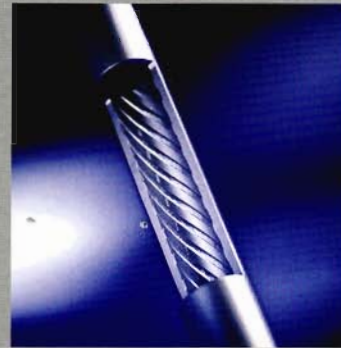
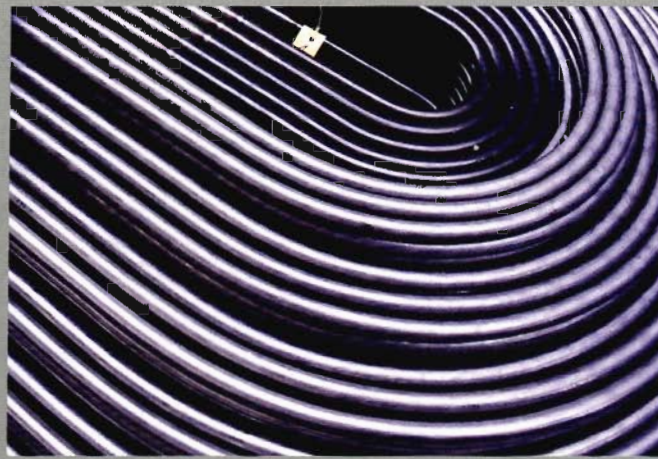
Extr.-FIN

Fins are integrally produced through in thread rolling process.
Temp. 285°C (545°F)



STOCK PROGRAMME

Boiler tubes	Material Dimension O.D. Wall thickness Length	acc. to DIN 17175 Grade 1, St 35.8 acc. to BS 3059 Part 2, Steel 360 acc. to ASTM/ASME A/SA 192 21.3 mm – 114.3 mm 2.9 mm – 8.0 mm up to 12'200 mm
Heat exchanger/ condenser tubes	Material Dimension O.D. Wall thickness Length	acc. to ASTM/ASME A/SA 179 acc. to ASTM/ASME A/SA 192 acc. to JIS G3461 STB340 acc. to DIN 17175 Grade 1, St 35.8 12.7 mm (1/2") – 38.1 mm (1 1/2") 1.65 mm (BWG 16) – 3.4 mm (BWG 10) 4'880 mm – 15'000 mm
Superheater tubes	Material Grade Dimension O.D. Wall thickness Length	acc. to ASTM/ASME A/SA 213 T5 and T11 19.05 mm (3/4") – 25.4 mm (1") 2.11 mm (BWG 14) – 2.77 mm (BWG 12) 4'880 mm – 15'000 mm
Low-temperature tubes	Material Grade Dimension O.D. Wall thickness Length	acc. to ASTM/ASME A/SA 334 Grade 1 and Grade 6 19.05 mm (3/4") – 25.4 mm (1") 2.11 mm (BWG 14) – 2.77 mm (BWG 12) 6'100 mm – 15'000 mm
Stainless steel tubes	Material Dimension O.D. Wall thickness Length	acc. to ASTM/ASME A/SA 213 TP 304/304L – TP 316/316L 19.05 mm (3/4") – 25.4 mm (1") 1.65 mm (BWG 16) – 2.77 mm (BWG 12) 6'100 mm – 15'000 mm
Aluminium-brass tubes	Material Dimension O.D. Wall thickness Length	acc. to ASTM B 111 – C 68700 15.88 mm (5/8") – 25.4 mm (1") 1.65 mm (BWG 16) – 2.11 mm (BWG 14) 4'880 mm – 6'100 mm
Mechanical tubes	Material Dimension O.D. Wall thickness Length	acc. to EN 10210-1/2, S355J2H and EN 10297-1, E355 177.80 mm – 406.4 mm 8.0 mm – 36.0 mm 4'000 mm – 11'800 mm



CARBON STEEL TUBES / ENERGY

Common products that we are supplying include boiler tubes, heat exchanger tubes and line pipes:



High Temperature grade seamless steel tubes & pipes	DIN 17175 CLASS II & III	St 35.8/II & III, 15Mo3, 13CrMo44, 10CrMo910
	EN 10216-2	P235GH, 16Mo3, 13CrMo45, 10CrMo910
	ASTM/ASME TUBES ~ A/SA 179, A/SA 213, A/SA 209, A/SA 210	A1, T1, T1A, T5, T9, T11, T12, T22, T91
	ASTM/ASME PIPES ~ A/SA 335	P5, P9, P11, P12, P22, P91
	BS 3059, BS 3602 Part 1 / 2	Steel 320, Steel 360, Steel 620-460, Steel 622-490
JIS G3461, G3458, G3462	STB340, STB410, STPA/STBA12, 22, 23, 24	
Low Temperature grade seamless steel tubes & pipes	DIN 17173	TTst35N
	ASTM/ASME TUBES ~ A/SA 334	
	ASTM/ASME PIPES ~ A/SA 333	Gr. 1, Gr. 3, Gr. 6
Seamless Line Pipe	API5L / A/SA 53 / A/SA 106 ~ PSL1	A25 Class 1, Gr. A, Gr. B, X42, X46, X52, X60, X65
	API5L / A/SA 53 / A/SA 106 ~ PSL2	Gr. B, X42, X46, X52, X60, X65



CARBON STEEL TUBES / INDUSTRY

Benteler Far East offers a broad range of steel tubes & pipes for industrial applications, such as crane boom, piling /construction, oil rig bracing, mechanical engineering, hydraulic solutions, and many more.

TYPE	NEW		OLD	
	Norm	Material	Norm	Material
Seamless Hot-rolled tubes for construction, mechanical and general engineering purposes	EN 10210-1/2 EN 10297-1	S355J2H E355	EN 17121 EN 17121	St 52.3 St 52.3
Seamless Cold-drawn Precision Steel Tubes	EN 10305-1 EN 10305-1	E235 E355	DIN 2391 DIN 2391	St 35 St 52
Seamless Cold-drawn Hydraulic Steel Tubes	EN 10305-4 EN 10305-4	E235 E355	DIN 2445-2 DIN 2445-2	St 37.4, NBK St 52.4, NBK
Seamless Fine-grain Structural Steel Tubes	EN 10210-1 SEW 090-2	S690QL S770QL S790QL S890QL		
Steel Hollow Bar for machining	EN 10294-1	E470/E355		
Cylinder Tubes – Honed/Skived and roller burnished cylinder tube	EN 10305-1/2 EN 10305-2	E355+SR E355C	DIN 2391/2393 DIN 2393	St 52BK+S St 52-3BK

STRENGTH & ELONGATION FOR FINE GRAIN TUBES

Standard	Grade	Yield Strength Re in (N/mm ²)	Tensile Strength Rm in (N/mm ²)	Elongation A min. (longitudinal)	Charpy V-notch in Joule (longitudinal)		
					-20°C	-40°C	-60°C
EN 10210-1	S355J2H	min. 345	490 - 630	22%	27	-	-
	20MnV6	min. 590	700 - 850	16%	-	27	-
SEW 090-2	S690QL	min. 690	770 - 960	16%	50	40	-
SEW 090-2	S770QL	min. 770	820 - 1000	15%	45	40	-
SEW 090-2	S790QL	min. 790	850 - 1030	15%	55	45	40
SEW 090-2	S890QL	min. 890	960 - 1110	14%	55	45	30

* Other dimensions and material grades can be offered upon request.

** Delivery condition can be offered according to your requirement upon request.

COMPARISON OF INTERNATIONAL STANDARDS AND STEEL GRADES

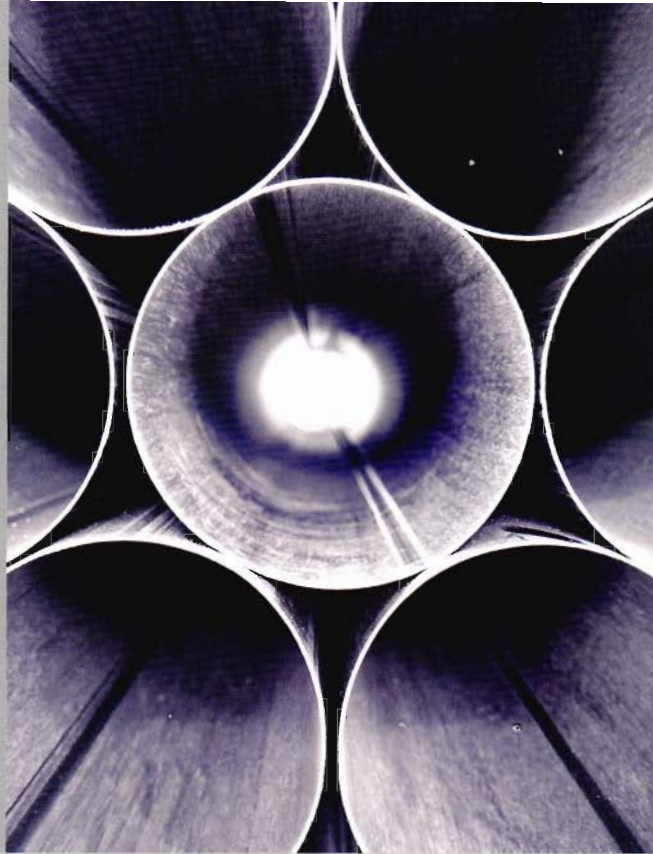
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DIN Steel Grade and Number	EN* Steel Grade	DIN-Standard EN-Standard ISO-Standard	Operation/ Temperature	Application Area		
St 37.0 1.0254	P 235 TR 1	DIN 1629 EN 10216-1 ISO 9329-1	≤ 300°C	Constructions under pressure including pipework for the transportation of fluids under pressure		
St 44.0 1.0256	P 265 TR 1					
St 52.0 1.0421	-					
St 37.4 1.0255	P 235 TR 2	DIN 1630 EN 10216-1	≤ 300°C	Constructions under pressure including pipework for the transportation of fluids under pressure		
St 44.4 1.0257	P 265 TR 2					
St 52.4 1.0581	-					
St 35.8 class I 1.0305	P 235 GH	DIN 17175 EN 10216-2 ISO 9329-2	≤ 450°C	Construction of steam generating equipment and for interconnecting pipework		
St 45.8 class I 1.0405	P 265 GH					
17 Mn 4 1.0481	-					
19 Mn 5 1.0482	-					
St 35.8 class III 1.0305	P 235 GH					
St 45.8 class III 1.0405	P 265 GH					
17 Mn 4 1.0481	-					
19 Mn 5 1.0482	-					
15 Mo 3 1.5415	16 Mo 3					
13 Cr Mo 4 4 1.7335	13 Cr Mo 4-5					
10 Cr Mo 9 10 1.7380	10 Cr Mo 9-10					
14 Mo V 6 3 1.7715	14 Mo V 6-3					
X20 Cr Mo V 12.1 1.4922	X 20 Cr Mo V 11-1					
X10 Cr Mo V Nb 9.1** 1.4903	X 10 Cr Mo V Nb 9-1					
8 Mo B 5-4 16 Mo 5 1.5423	8 Mo B 5-4 -				According to DIN 17175 EN 10216 -2	≤ 530°C
12 Cr 1 Mo V ***	-					≤ 530°C
12 Cr 1 Mo V ***	-		≤ 600°C			
25 Cr Mo 4 1.7218	25 Cr Mo 4	DIN 17176 EN 10216-2 ISO 9329	≤ 550°C	Construction of chemical and petrochemical plants		
13 Cr Mo 4 4 1.7335	13 Cr Mo 4-5		≤ 570°C			
10 Cr Mo 9 10 1.7380	10 Cr Mo 9-10		≤ 600°C			
12 Cr Mo 9 10 1.7375	11 Cr Mo 9-10		≤ 520°C			
12 Cr Mo 12 10 1.7381	-		≤ 520°C			
12 Cr Mo 19 5 1.7362	X 11 Cr Mo 5		≤ 650°C			
12 Cr Mo 9.1 1.7386	X 11 Cr Mo 9-1		≤ 650°C			
TT St 35 N 1.0356	P 215 NL		DIN 17173 EN 10216-4 ISO 9329-3		- 130°C	Construction for low temperature piping systems
10 Ni 14 1.5637	12 Ni 14				- 185°C	

Carbon Grades
 High Temperature Grades
 Low Temperature Grades

ISO Grade	ASTM ASME Standard / Grade		BS Standard / Grade		NF Standard / Grade		JIS Standard / Grade	
S 360	A/SA 53	Gr.A	3059 Pt. 1 3601 6323	Steel 320 320, 360 HFS 3 CFS 3	A 49-112 A 49-210, -310 -310, -321, -330	TU E 220A TU 37b	G 3454 G 3455	STPG 38 STS 38
S 340	A/SA 53	Gr.B	3601 6323	Steel 430 HFS 4 CFS 4	A 49-501 A 49-112	TU E 275-2 TU E 275-3 TU E 235A	G 3454 G 3455	STPG 42 STS 42
S 500			6323	Steel HFS 5 CFS 5	A 49-310, -311, -312, -321, -330	TU 52b		
					A 49-321	TU 52 BT		
H 23	A/SA 106 A/SA 179 A/SA 192 A/SA 556	Gr.A Carbon Steel Gr.A2	3059 Pt. 2 3602 Pt. 1	Steel 360 Cat.2	A 49-215 A 49-219	TU 37 b TU 37 F	G 3461	ST B 340
H 26	A/SA 106 A/SA 210 A/SA 556	Gr.B Gr.A1 Gr.B2	3602 Pt. 1	Steel 430 Cat.2	A 49-215 A 49-219	TU 42 b TU 42 F	G 3461	ST B 410
H 29	A/SA 106 A/SA 210 A/SA 556	Gr.C Gr.C Gr.C2	3059 Pt. 2 3606	Steel 440 Cat.2 Steel 440 Cat.2				
H 23			3659 Pt. 2 3602 Pt. 1	Steel 360 Cat.2	A 49-213	TU 37 C		
H 26			3602 Pt. 1	Steel 430 Cat.2	A 49-213	TU 42 C		
H 29			3059 Pt. 2 3606	Steel 440 Cat.2	A 49-213	TU 48 C		
S Mo 3			3059 Pt. 2 3606	Steel 243	A 49-213 -215 -219	TU 15 D3		
Cr Mo 4-5	A/SA 199 A/SA 200 A/SA 213 A/SA 335	T 12 P 12*	3059 Pt. 2 3604 3606	Steel 620-460	A 49-213 -215 -219	TU 13 CD 4 04	G 3458 G 3462	ST PA 22 ST BA 22
Cr Mo 9-10	A/SA 199 A/SA 200 A/SA 213 A/SA 335	T 22 P 22	3059 Pt. 2 3604 3606	Steel 622-490	A 49-213 -215 -219	TU 10 CD 9 10	G 3458 G 3462	ST PA 24 ST BA 24
			3606	Steel 660				
20 Cr Mo Ni V 11-7-7			3059 Pt. 2	Steel 762				
10 Cr Mo V Nb V 9-7	A/SA 199 A/SA 200 A/SA 213 A/SA 335	T 91 P 91	3604 Pt. 1	Steel 91	A 49-213	Z 10 CD Nb V 09-01		
			3606	Steel 261				
	A/SA 161 A/SA 209 A/SA 335	T 1 P 1	3606	Steel 245			G 3458 G 3462	ST PA 12 ST BA 12
Cr Mo 4-5	A/SA 199 A/SA 200 A/SA 213	T 11, T 12	3059 Pt. 2 3604 3606	Steel 620-640	A 49-213 -215 -217	TU 13 CD 4 04 TU 10 CD 5 05	G 3458 G 3462	ST PA 22 ST BA 22
Cr Mo 9-10	A/SA 199 A/SA 200 A/SA 213 A/SA 335	T 22 P 22	3059 Pt. 2 3604 3606	Steel 622-490	A 49-213 -215 -217	TU 10 CD 9 10	G 3458 G 3462	ST PA 24 ST BA 24
Cr Mo 9-10	A/SA 199 A/SA 200 A/SA 213 A/SA 335	T 21 P 21						
11 Cr Mo 5	A/SA 199 A/SA 200 A/SA 213 A/SA 335	T 5 P 5	3604 3606	Steel 625	A 49-213 -219	TU Z 10 CD 5 05 DZW. TU Z 12 CD 5 05	G 3458 G 3462	ST PA 25 ST BA 25
11 Cr Mo 9-1	A/SA 199 A/SA 200 A/SA 213 A/SA 335	T 9 P 9	3604	Steel 629	A 49-213	Z 10 CD 9		
21	A/SA 333 A/SA 334	Gr. 1					G 3460 G 3464	ST PL 39 ST BL 39
Ni 14	A/SA 333 A/SA 334	Gr. 3	3603	503 LT	A 49-215 A 49-230 A 49-330	TU 10 N 14	G 3460 G 3464	ST PL 46 ST BL 46

* EN is the abbreviation for the European Standard System
** acc. to vdtUV-WB 511-2
*** acc. to GOST TU 14-3-460



STAINLESS STEEL TUBES

Stainless steel is one of the most durable steels which comes not only with an elegant finish but also provides an ideal corrosion resistance. In addition, stainless steel has its natural smooth surface and does not need any painting.

There are two stainless steel types. Martensitic stainless steels are basically alloys of carbon and chromium that are typically less resilient to oxidization. They are also hardened by heat and are ferromagnetic. Austenitic steels are normally non magnetic when in the annealed state. They can only be solidified through the application of cold treatment.

Our principal mills are all certified with the most stringent Quality Assurance System. Our offered size ranges from 6 mm to 250 mm outside diameter.

STAINLESS PRODUCTS WE CAN SUPPLY

	ASTM	UNS
Standard Austenitic Steel	TP 316, 316L, 316H 316Ti	S31600, S31603, S31609, S31635
	TP 304, 304L, 304H	S30400, S30403, S30409
	TP 321, 321H TP 347, 347H	S32100, S32109 S34700, S34709
Duplex Steel Martensitic Steel	A 789, A 790 TP 420	S31803, S32760 S42000
Heat Resistant Steel	A 213, A 312 TP 321, TP 321H B 407	S32100, S32109 N08800, N08810, N08811
	A 213/A 312 TP 310, 310H, 310S, 314	S31000, S31009, S31400
Highly Corrosion Resistant Steel	B 677 A 269, A 312 B 163, B 423	N08904 S31254 N08825
Steel for Urea Industry and Nitric Acid Plants	A 312, A 213 TP 316L A 312, A 213 A 269, A 312	S31603 S31050 S30600

SEGMENT OF APPLICATION

PetroChemical	Heat Exchanger, Boiler
Oil & Gas	Instrumentation, Shell Heat Exchanger
Food Industries	Processes, Water Treatment
Pharmaceutical	Cable Installation
Power Plant	Furnace, Heat Exchanger, Boiler
Shipbuilding	Vessel Lightning and Instrumentation



FLAT PRODUCTS

BFE has established a new line of business – Flat Products – to provide solutions to the Marine, Offshore, Onshore and Oil & Gas industry. Resources have been tied up with some of the world’s most technically advanced steel mills, stockists and suppliers to provide an extensive range of mill sourced and ex-stock materials.

PROJECT REFERENCE

Alloy & Carbon Steel

Project	Grade	Tonnage
Chevron Orinite Tankage Project, Singapore	A 283 Grade C	85 MT
MOC TFU Spherical Tankage Project, Thailand	A 537 Class 2	3'200 MT
AOT Suwanapoom Airport, Thailand	Corten A	150 MT
Shell Refinery, Singapore	A 283 Grade C	1'300 MT
PTT Chem Spherical Tank Project, Thailand	A 537 Class 2	700 MT
PTT Ammonia NH ₃ Project, Thailand	A 516 Grade 70N	2'800 MT
Foster Wheeler, Thailand	Hardox 400	63 MT

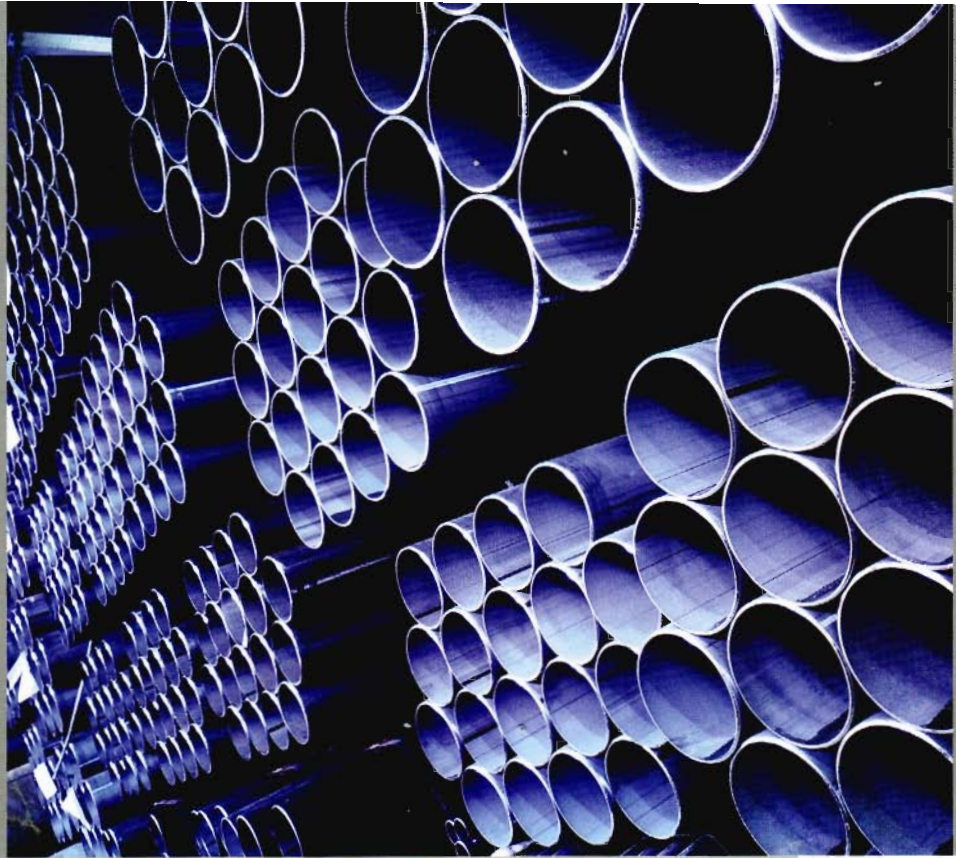
Stainless Steel

Project	Grade	Tonnage
Dubai International Airport, United Arab Emirates	316L	67 MT

PRODUCT RANGE

Offshore & Structural	A/SA 36, 283 Grade C EN 10025 S235, S275, S355, S460 API 2H,2W
Shipbuilding	ABS Grade A, B AH36, DH36, EH36
Boiler & Pressure Vessel	SA 387 Grade 11, 12, 22 A/SA 516 Grade 60, 65, 70 A/SA 537 Class 1, 2 A/SA 553, 9% Nickel 16Mo3 BS 1501 – 223 – 490B Cladded Plates & Heads EN 10028 P235GH/ P265GH/ P295GH/ P355GH
Stainless Steel	SAE Type 304, 304L, 316, 316L SAE Type 2205/UNS S31803 – Duplex SAE Type 2507/UNS S32750 – Super Duplex
Ultra High Strength	A/SA 514, 517 EN 10025 S690QL, S770QL, S890QL, S960QL
Size Range	Plate Thickness 3 mm – 650 mm Plate Width up to 3'850 mm Plate Length up to 15'000 mm

BFE Group



PIPE SCHEDULE (Metric)

Nominal pipe size mm/inch	OD mm	5S	10S	STD	40S	40	XS	80S	80	160	XXS
6 / 1/8	10,3		1,24 0,28	1,73 0,37	1,73 0,36	1,73 0,37	2,41 0,47	2,41 0,48	2,41 0,47		
8 / 1/4	13,7		1,65 0,51	2,24 0,63	2,24 0,64	2,24 0,63	3,02 0,80	3,02 0,82	3,02 0,80		
10 / 3/8	17,1		1,65 0,64	2,31 0,84	2,31 0,86	2,31 0,84	3,20 1,10	3,20 1,12	3,20 1,10		
15 / 1/2	21,3	1,65 0,82	2,11 1,01	2,77 1,27	2,77 1,30	2,77 1,27	3,73 1,62	3,73 1,65	3,73 1,62	4,78 1,95	7,47 2,55
20 / 3/4	26,7	1,65 1,04	2,11 1,31	2,87 1,69	2,87 1,71	2,87 1,69	3,91 2,20	3,91 2,24	3,91 2,20	5,56 2,90	7,82 3,64
25 / 1	33,4	1,65 1,33	2,77 2,13	3,38 2,50	3,38 2,55	3,38 2,50	4,55 3,24	4,55 3,29	4,55 3,24	6,35 4,24	9,09 5,45
32 / 1 1/4	42,2	1,65 1,68	2,77 2,76	3,56 3,39	3,56 3,46	3,56 3,39	4,85 4,47	4,85 4,56	4,85 4,47	6,35 5,61	9,70 7,77
40 / 1 1/2	48,3	1,65 1,95	2,77 3,10	3,68 4,05	3,68 4,13	3,68 4,05	5,08 5,41	5,08 5,51	5,08 5,41	7,14 7,25	10,15 9,56
50 / 2	60,3	1,65 2,44	2,77 4,01	3,91 5,44	3,91 5,54	3,91 5,44	5,54 7,48	5,54 7,63	5,54 7,48	8,74 11,11	11,07 13,44
65 / 2 1/2	73,0	2,11 3,77	3,05 5,36	5,16 8,63	5,16 8,81	5,16 8,63	7,01 11,41	7,01 11,64	7,01 11,41	9,53 14,92	14,02 20,39
80 / 3	88,9	2,11 4,60	3,05 6,59	5,49 11,29	5,49 11,52	5,49 11,29	7,62 15,27	7,62 15,59	7,62 15,27	11,13 21,35	15,24 27,68
90 / 3 1/2	101,6	2,11 5,29	3,05 7,55	5,74 13,57	5,74 13,84	5,74 13,57	8,08 18,63	8,08 19,01	8,08 18,63		
100 / 4	114,3	2,11 5,96	3,05 8,52	6,02 16,07	6,02 16,40	6,02 16,07	8,56 22,32	8,56 22,77	8,56 22,32	13,49 33,54	17,12 41,03
125 / 5	141,3	2,77 9,67	3,40 11,82	6,55 21,77	6,55 22,20	6,55 21,77	9,53 30,97	9,53 31,59	9,53 30,97	15,88 49,11	19,05 57,43
150 / 6	168,3	2,77 11,55	3,40 14,13	7,11 28,26	7,11 28,83	7,11 28,26	10,97 42,56	10,97 43,42	10,97 42,56	18,26 67,56	21,95 79,22
200 / 8	219,1	2,77 15,09	3,76 20,37	8,18 42,55	8,18 43,39	8,18 42,55	12,70 64,64	12,70 65,95	12,70 64,64	23,01 111,27	22,23 107,92
250 / 10	273,1	3,40 23,08	4,19 28,34	9,27 60,31	9,27 61,52	9,27 60,31	12,70 81,55	12,70 83,19	12,70 96,01	28,58 172,33	25,40 155,15
300 / 12	323,9	3,96 31,89	4,57 36,73	9,53 73,88	9,52 75,32	10,31 79,37	12,70 97,46	12,70 99,43	17,48 132,08	33,32 238,76	25,40 186,97
350 / 14	355,6	3,96 35,06	4,78 42,14	9,53 81,33		11,13 94,55	12,70 107,39		19,05 158,10	35,71 281,70	
400 / 16	406,4	4,19 42,41	4,78 48,26	9,53 93,27		12,70 123,30	12,70 123,30		21,44 203,53	40,49 365,35	
450 / 18	457,2	4,19 47,77	4,78 54,36	9,53 105,16		14,27 155,80	12,70 139,15		23,88 254,55	45,24 459,37	
500 / 20	508,0	4,78 60,46	5,54 70,00	9,53 117,15		15,09 183,42	12,70 155,12		26,19 311,17	50,01 564,81	
550 / 22	558,8	4,78 66,57	5,54 77,06	9,53 129,13			12,70 171,09		28,58 373,83	53,98 672,26	
600 / 24	609,6	5,54 84,16	6,35 96,37	9,53 141,12		17,48 255,41	12,70 187,06		30,96 442,08	59,54 808,22	

Wall Thickness = mm

Weight = kg/m (plain end mass)

5S, 10S, 40S, 80S - ANSI B36.19



TABLE OF GAUGES

No.	S.W.G		B.W.G		B.G		B.S		U.S.G		M.S.G	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
0	0.324	8.230	0.340	8.636	0.396	10.058	0.325	8.252	0.3125	7.940	-	-
1	0.300	7.620	0.300	7.620	0.353	8.971	0.289	7.348	0.2813	7.150	-	-
2	0.276	7.010	0.284	7.214	0.315	7.993	0.258	6.543	0.2656	6.750	-	-
3	0.252	6.401	0.259	6.579	0.280	7.122	0.229	5.827	0.2500	6.350	-	-
4	0.232	5.893	0.238	6.045	0.250	6.350	0.204	5.189	0.2344	5.950	-	-
5	0.212	5.385	0.220	5.588	0.222	5.651	0.182	4.620	0.2188	5.560	-	-
6	0.192	4.877	0.203	5.156	0.198	5.032	0.162	4.115	0.2031	5.160	-	-
7	0.176	4.470	0.180	4.572	0.176	4.480	0.144	3.665	0.1875	4.760	-	-
8	0.160	4.064	0.165	4.191	0.157	3.988	0.129	3.264	0.1719	4.370	-	-
9	0.144	3.658	0.148	3.759	0.140	3.551	0.114	2.906	0.1563	3.970	0.1496	3.800
10	0.128	3.251	0.134	3.404	0.125	3.175	0.102	2.588	0.1406	3.570	0.1347	3.420
11	0.116	2.946	0.120	3.048	0.111	2.827	0.091	2.304	0.1250	3.180	0.1197	3.040
12	0.104	2.642	0.109	2.769	0.099	2.517	0.081	2.052	0.1094	2.780	0.1048	2.660
13	0.092	2.337	0.095	2.413	0.088	2.240	0.072	1.829	0.0938	2.380	0.0898	2.280
14	0.080	2.032	0.083	2.108	0.079	1.994	0.064	1.628	0.0781	1.980	0.0748	1.900
15	0.072	1.829	0.072	1.829	0.070	1.775	0.057	1.450	0.0703	1.790	0.0673	1.710
16	0.064	1.626	0.065	1.651	0.062	1.587	0.051	1.290	0.0625	1.590	0.0598	1.520
17	0.056	1.422	0.058	1.473	0.056	1.412	0.045	1.151	0.0563	1.430	0.0540	1.370
18	0.048	1.219	0.049	1.245	0.050	1.257	0.040	1.024	0.0500	1.270	0.0478	1.214
19	0.040	1.016	0.042	1.067	0.044	1.118	0.0359	0.912	0.0438	1.110	0.0418	1.062
20	0.036	0.914	0.035	0.889	0.0392	0.996	0.0320	0.813	0.0375	0.965	0.0359	0.912
21	0.032	0.813	0.032	0.813	0.0349	0.886	0.0285	0.724	0.0344	0.873	0.0329	0.836
22	0.028	0.711	0.028	0.711	0.0313	0.794	0.0253	0.643	0.0313	0.794	0.0299	0.759
23	0.024	0.610	0.025	0.635	0.0279	0.707	0.0226	0.574	0.0281	0.714	0.0269	0.683
24	0.022	0.559	0.022	0.559	0.0248	0.629	0.0201	0.511	0.0250	0.635	0.0239	0.607

S.W.G Standard Wire Gauge

B.S American Brown and Sharp's Gauge

B.W.G Birmingham (or Stubs Iron) Wire Gauge

U.S.G United Standard Gauge

B.G Birmingham Gauge

M.S.G United States Manufacturer's Standard Gauge

Note: All information and data have been checked carefully, however Benteler bears no responsibility if there is any discrepancy.



CERTIFICATES APPROVAL

Certified Quality

Our Production plants and quality management system conform not only to the API standard but also to all other significant international standards for energy tubes as well.

Several national and international authorities have approved our international suppliers.

Following are some of the approvals:

- Certificate by Det Norske Veritas for the Quality Management Systems acc. to DIN EN ISO 9001
- Manufacturer's Approval for boiler tubes by the TÜV acc. to AD-Merkblatt W o/TRD 100
- Bureau Veritas
- Germanischer Lloyd
- Indian Central Boiler Board
- Korean Register of Shipping
- Lloyds Register

REFERENCE LIST

Country	Power Station	Capacity		Country	Power Station	Capacity	
Argentina	Tucuman	2 x 187 MW	*	Italy	EDISON/Altominte	270 MW	*
Australia	Callide	2 x 420 MW		Torre Voldaligu	300 MW	*	
	Millmerran	840 MW		Moncalieri	250 MW	*	
	Bluewater Unit 2	200 MW	□	Strongoli	40 MW	*	
Austria	Simering	245 MW	*	Napoli	700MW	*	
	Timelkam	400 MW	*	Japan	Hekinan IV + V	2 x 1000 MW	
Azerbaijan	Sumgait	500 MW	*	Tomotoh	1 x 700 MW		
Belgium	BASF/Antwerp	900 MW		Dicel / Otake			□
Canada	Poplar River	562 MW		Toso	200 MW		
China	Zouxian	1000 MW		Kuwait	Az Zour	1000 MW	
	Kanshan	900 MW		Mexico	Raio Bravo3	250 MW	*
	Shanwei	600 MW	*	Tula 3+4	1500 MW		□
	Xiangtan	600 MW		Netherlands	Rijnmond	2 x 350 MW	*
	Yanglou	600 MW		Sloe	820 MW	*	
	Wuxiang	600 MW		Norway	Karstoe	420 MW	*
	Yuhuan	1000 MW	*	Oman	Barka	300 MW	*
	Lanxi	600 MW	* □	Poland	Zeran	8 x 200 MW	*
	Xibaipo	600 MW	* □	Polaniec	8 x 200 MW		
	Jiaxing	600 MW	* □	Patnow	1200 MW		
	Waigaogiao	1000 MW	*	Laziska	1600 MW		
	Waigaogiao	900 MW		Kozienice	5 x 120 MW		
	Wu Jin	600 MW		Adamow	120 MW		
	Yuhuan	1000 MW		Romania	ARAD	62 MW	
	Huang Ye	600 MW		Borzesti	360 MW	*	
	Jin Long	600 MW		Progresul	200 MW		
	Feng Cheng	600 MW		Saudi Arabia	Jebel Ali	420 MW	*
	Xiang Fan	600 MW	*	Jebel Ali extension	420 MW	*	
	Ning Hai	600 MW	□	Shuaibah	2 x 800 MW	*	□
	He Qu	600 MW	□	Shuquaig	850 MW		□
	Tuo Ke Tuo	600 MW	□	Ar Razi V			
	Huang Dao	600 MW	□	Singapore	Keppel	470 MW	*
	Jin Jie 1	600 MW	□	Slovakia	Vojany	2 x 110 MW	
	Long Shan 1	600 MW		Spain	Besos I + II	800 MW	*
	Huangjin Pu 1	600 MW		San Roque I + II	500 MW	*	
	Jing Long 1	600 MW		Castellon	2 x 212 MW	*	
	Yuan Baoshan 4	600 MW		Tarragona	3 x 212 MW	*	
	Gui Gang 1	600 MW		Arcos de la Frontera	100 MW	*	
	Jin Jie 2	600 MW		Granadilla	100 MW	*	
	Jiri Men 2	600 MW		Castresorer	82 MW	*	
	Feng Cheng 5	600 MW		Barranco II	82 MW	*	
	Xiang Fan 2	600 MW		Taiwan	Mai Liao	2 x 150 MW	*
	Tuo Ketuo 8	600 MW		Turkey	Gebze	4 x 390 MW	*
	Xiang Tan 2	600 MW		Adapazari	2 x 385 MW	*	
	Ning Hai 4	600 MW		Izmir	4 x 385 MW	*	
	Yu Huan 2	1000 MW		Ankara	780 MW	*	
	Jing Long 2	600 MW		UAE	Al Taweelah	160 MW	*
	Feng Cheng 6	600 MW		Kestrel	2 x 125MW		
	Guizhou Da Long 2	300 MW		Tutong	110 MW		
	Yu Yang 4	300 MW		USA	Rio Nogalis	550 MW	*
	Qin Huang Dao 6	300 MW		Dow Chemical	4 x 172 MW	*	
	Huang Dao 2	600 MW		Santee Cooper	600 MW	*	
	Hui Lai 1	600 MW		Unit 2			
	Huang Ye 2	600 MW		Decatur Energy	700 MW	*	
	Yue Yang	300 MW		Center			
	Xiao Long Tan 1	300 MW		Delta Energy	880 MW	*	
	Ning Hai 4	600 MW		Center			
Xin Dian 2	300 MW		Hin	2 x 186 MW	*		
Xiang Fan 1	600 MW		Kincade	1100 MW	*		
Shang Du	600 MW		Westin	500 MW		□	
Bao Shan	600 MW		Mankato	365 MW			
Bao Tou 2	600 MW		Hines	495 MW			
Egypt	Suez Guif	1 x 340 MW		Hudson	380 MW	*	
Port Said	1 x 340 MW		Newmont Mining	200 MW	*		
Cairo North II	2 x 750 MW	*	Avon Lake	680 MW			
Talkha	2 x 750 MW	*	Hines W	540 MW			
France	Gonfreville	280 MW	Mankato	180 MW			
Pont Sur Sambre	770 MW	*	TVA Ellen Stream	1140 MW			
Germany	Knappsack	2 x 750 MW	Station				
Neurath	2 x 1100 MW	*	ARPA	2040 MW			
Boxberg Block R	675 MW		Clifty Creek	220 MW			
Moorburg	2 x 820 MW	●	Hastings	220 MW			
Greece	Florina	330 MW	TXU	3432 MW	*	□	
Vasilikos	2 x 130 MW	*	AEP	600 MW		□	
Great Britain	Ferry Bridge	2 x 350 MW	Basin Electric	385 MW	*	□	
Blackburn	2 x 120 MW		Whetan Energy	200 MW	*	□	
Kingsnorth	640 MW	*	Center 2				
Lakeside	36.1 MW	*	Longview	600 MW		□	
Hungary	BC Erö mü	2 x 50 MW	Vietnam	Pha Lai	300 MW		□
Kispest	100 MW						
Dunamenti Erö mü	2000 MW						
AES - Tisza II	250 MW						
Pannon Power	190 MW						
Ireland	Bally Linnford	300 MW					
Huntstown	343 MW	*					
Israel	Alon Tabor	250 MW					
Eshhol	250 MW	*					

For Power Stations marked with □ we have supplied or will supply rifled boiler tubes, for Power Stations marked with * we have supplied or will supply material X20/X10, T23 or T91.

● = tube serpentines

Benteler Group

Worldwide activities



EUROPE



AMERICA



ASIA and AUSTRALIA

● Automotive ■ Steel/Tube ▲ Distribution



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