



Bianco Group

PIPES, FITTINGS & FLANGES



NATIONAL TUBE STOCKHOLDERS LTD (NTS)

Welcome to our NTS Linepipe Products brochure. NTS are one of the UK's leading stockholders of Linepipe products.

Operating for more than 30 years from a 37,000m² single site in North Yorkshire, we have in excess of 8000 tonnes of linepipe products with more than 2500 product lines and, as part of the privately owned and managed Bianco Group, we have direct access to more than 65,000 tonnes of group stock. This Group strength enables us to source from some of the world's leading pipe and tube manufacturers.

Our extensive and evolving stock range is supported by a highly experienced sales team who are dedicated to providing excellence in customer service.

We are also able to offer a large range of in-house processing and a comprehensive project management service.

We operate our own fleet of more than 20 vehicles with our own experienced team of drivers to enable us to meet individual delivery requirements. With our continual commitment to health and safety, quality and the environment, NTS is proud to be certified by LRQA to ISO 9001, OHSAS 18001 and ISO 14001.



PIPES, FITTINGS & FLANGES

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STANDARD SUPPLY & SERVICES

OUR PEOPLE

We employ over 180 people at our sites in England, Scotland and Ireland. The quality of our workforce is something that we are extremely proud of. Whilst we are always searching to increase our customer base our philosophy is to retain our existing customers through our exemplary service. We have a vastly experienced team with many years of industry knowledge and you can be sure that you will be treated both professionally and courteously.

OUR STOCK

Our stockholding facilities in the UK hold over 60,000 tonnes of prime tubes ex-stock and many complimentary product lines, eg: valves, Victaulic piping systems and Core6 GRP products. Our depth of stock also allows us to satisfy the requirements for large projects on an ex-stock basis.

STEEL GRADES

We carry a comprehensive range of linepipe grades for use in various applications. Our standard grades are API 5L Gr B, X52, X65, ASTM A106/B and ASTM A333 Gr 6. P grades are also available from within the group.

MILL CERTIFICATION, TESTING, TRACEABILITY AND MARKING

Most products listed within this brochure can be supplied with full mill certification to EN 10204 3.1 upon request. Some specific Offshore Structural Hollow Section grades carry full mill certification to EN10204 3.2.

In addition, we are happy to undertake supplementary testing, as well as third party inspection for our customers as required.

Full traceability of materials through our supply chain from our supplier to your point of delivery is always maintained.

If you have specific requirements in relation to marking of materials, then we will work with you to ensure your requirements are met.

ADDITIONAL PROCESSING

We can accommodate a large variety of additional processes for you including shotblasting and painting, straight and mitre cutting as well as laser cutting and plasma profiling to name a few.

We also have a grooving service for pipes to fit with Victaulic systems.

LOGISTICS

From our warehouses in North Yorkshire and Aberdeenshire, we operate a considerable fleet of some 20+ vehicles, which are privately owned and employee driven and cover the whole of the UK and Ireland. With the flexibility to utilise these vehicles to suit your own particular delivery requirements and our satellite based tracking system, we will always be able to keep you informed of the progress of your order.

EXPORT

Through Bianco International Ltd we offer all the benefits of the Bianco Group stockholding and procurement services coupled with a full export service to suit your specific requirements.

QUALITY APPROVALS

We operate a Quality Management System approved by Lloyds Register of Quality Assurance to ISO9001. We are also happy to work with you on any specific audit requirements you may have and we welcome customer audits and can facilitate mill and sub-contractor audits should you require this.



PROJECT & QUALITY MANAGEMENT

QUALITY

Within our Group there is no compromising when it comes to quality. We know that the quality of our products is of fundamental importance to our customers so we source material from the best mills in the world with whom we have worked for many years and which meet our stringent quality expectations on an ongoing basis.

Our quality product is backed up by our commitment to providing an exceptional quality of service. From technical back-up at the enquiry stage through to ensuring every order is delivered when you need it, accompanied with the correct documentation, you will have consistent support from our experienced team.

NTS and JBP are proud to be approved to ISO 9001. NTS has ISO 14001 and OHSAS 18001 and JBP are working towards achieving this.



Approvals

For our customers: Quality Systems to ISO 9001

For our team: Health & Safety Systems to OHSAS 18001

For our locality & our planet: Environmental Systems to ISO 14001



TESTING AND INSPECTION

We can organise and arrange various inspections and material tests on your behalf whether you require destructive or non-destructive testing.

"Stock is always there - if not they find it and don't charge me extra for this service. They're flexible and go the extra mile - nothing is too much trouble."



PROJECT MANAGEMENT

We offer a full project management service tailored to your requirements. With many years of experience our team professionally manage all your project demands from dealing in a swift and attentive way with your enquiries, through systematically managing the day to day transactions to ensuring all documentation is accurate, well presented and in the format you require to conclude the project to your satisfaction.

Our specialised project division is both knowledgeable and conscientious in their approach and provide the following services:

Procurement of materials to bespoke specifications from Quality Assured mills together with in depth information on the mills and product options as required.

Collation of complete packages combining mill production and complemented from our extensive group stocks which include linepipe, fittings, flanges and valves as well as ancillary products.

We offer a segregation and storage facility in designated locations at our own sites ready for call off and delivery to the UK or abroad.

Material testing and inspection services and facilities for both third party and in house inspectors. With comprehensive, modern office space we can accommodate your project meetings and allocate offices for your exclusive use.

Composition of project data books to your required format.

Our project teams continually strive to instill our customers with confidence. Our company policies and procedures ensure that we give your needs the most efficient service to guarantee that your project is managed effectively and professionally throughout.

"A primary, dependable and high performance supply partner."



"All the sales people are extremely professional. They are all well informed with great product knowledge and the stock accuracy is a major plus. The warehouse team are also great, cutting materials and dispatching on the same day."

"They give me confidence in what they are saying. I feel like I can rely on them. If there were a problem, they would be there to support us."

PRODUCT RANGE

PRODUCT	MANUFACTURE	TYPE	SPECIFICATION	SIZE RANGE
PIPE	SEAMLESS	CARBON STEEL	API 5L GRADE B	1/2"NB TO 26"NB
			API 5L X52	1/2"NB TO 26"NB
			API 5L X65	2"NB TO 8"NB
			ASTM A106 GRADE B	1/2"NB TO 24"NB
			ASTM A333 GRADE 6	1/2"NB TO 12"NB
			ASTM A53	1/2"NB TO 24"NB
		ALLOY STEEL*	ASTM A335 P11	1/2"NB TO 10"NB
			ASTM A335 P22	
			ASTM A335 P5	
			ASTM A335 P9	
			ASTM A335 P91	
		GALVANISED THREADED AND COUPLED	ASTM A106/A53 GRADE B	1/2"NB TO 4"NB
FITTINGS	SEAMLESS BUTT WELD	STAINLESS	A312 TP316/316L	1/2"NB TO 12"NB
			DUPLEX A790 UNS31803	1"NB TO 6"NB
			SUPER DUPLEX A790 UNS32760	1 1/2"NB TO 6"NB
		CUNIFER	EEMUA C7060X 90/10	2"NB TO 8"NB
		CARBON	API 5L GRADE B / EN10217-2 P265GH TC1	6"NB TO 24"NB
			SAW***	24"NB TO 48"NB
			API 5L GRADE B	24"NB TO 48"NB
		STAINLESS	WPHY 60/65	2"NB TO 8"NB
			ASTM A234 WPB	1/2"NB TO 24"NB
			ASTM A420 WPL6	1/2"NB TO 24"NB
		CUNIFER	A403 WP316L	1/2"NB TO 12"NB
			DUPLEX A815 UNS31803	1"NB TO 6"NB
			SUPER DUPLEX A815 UNS32760	1"NB TO 6"NB
FLANGES	PLATE	CARBON	EEMUA C7060X 90/10	2"NB TO 8"NB
			EN1092-1 PN10/PN16/PN25/PN40	1/2"NB TO 24"NB
			ASTM A105 Normalised	
			ASTM A350 LF2	
	FORGED	CARBON	A694 F52/F60/F65	2"NB TO 10"NB
			A182 F316/316L	1/2"NB TO 12"NB
			DUPLEX A182 F51	1"NB TO 6"NB
			SUPER DUPLEX A182 F55	1"NB TO 6"NB
		STAINLESS	EEMUA C7060X 90/10	2"NB TO 8"NB
			EN1092-1 PN10/PN16/PN25/PN40	1/2"NB TO 24"NB
			ASTM A105 Normalised	
			ASTM A350 LF2	

We hold pipe in single and double random lengths as below:

- Single random lengths ¼" - 12" pipe
- Double random lengths 2" - 48" pipe

API 5L GR B PSL1. API 5L X42 PSL1 (≥OD 219,1mm). ISO 3183 L245. EN10208-1 L245GA
 Generally Equivalent to seamless ASTM A106 Grade B&C, ASTM A53 Grade B, EN10216-2 P265GH

* ASTM A335 P11 P22 P5 P9 P91 Mill Production.
 ** ERW = Electric Resistance welded. HFI = High Frequency Induction Welded
 *** SAW = Submerged Arc Welded



SPECIFICATION SUMMARY - CARBON STEEL

Material	Standard	Type	Grade	Product	Chemical Composition % (max unless otherwise stated)												Min Tensile		Min Yield	
					C	Mn	P	S	Si	Cu	Cr	Mo	Ni	V	Nb	Ti	MPa	PSI	MPa	PSI
Carbon Steel	API 5L PSL1	Seamless & Welded	B / L245	Linepipe	0.28 (b) 0.26 (b)	1.20 (b)	0.030	0.030		0.50	0.50	0.15	0.50	(c,d)	(c,d)	(d)	415	60,200	245	35,500
			X42 / L290	Linepipe	0.28 (b) 0.26 (b)	1.30 (b)	0.030	0.030		0.50	0.50	0.15	0.50	(d)	(d)	(d)	415	60,200	290	42,100
			X46 / L320	Linepipe	0.28 (b) 0.26 (b)	1.40 (b)	0.030	0.030		0.50	0.50	0.15	0.50	(d)	(d)	(d)	435	63,100	320	46,400
			X52 / L360	Linepipe	0.28 (b) 0.26 (b)	1.40 (b)	0.030	0.030		0.50	0.50	0.15	0.50	(d)	(d)	(d)	460	66,700	360	52,200
			X60 / L415	Linepipe	0.28 (b,e) 0.26 (b,e)	1.40 (b,e)	0.030	0.030		0.50	0.50	0.15	0.50	(f)	(f)	(f)	520	75,400	415	60,200
			X65 / L450	Linepipe	0.28 (b,e) 0.26 (b,e)	1.40 (b,e) 1.45 (b,e)	0.030	0.030		0.50	0.50	0.15	0.50	(f)	(f)	(f)	535	77,600	450	65,300
			X70 / L485	Linepipe	0.28 (b,e) 0.26 (b,e)	1.40 (b,e) 1.65 (b,e)	0.030	0.030		0.50	0.50	0.15	0.50	(f)	(f)	(f)	570	82,700	485	70,300

Figures in red relate to welded only.

- (a) Cu ≤ 0.50%, Ni ≤ 0.50%, Cr ≤ 0.50% and Mo ≤ 0.15%
- (b) For each reduction of 0.01% below the specified maximum concentration for carbon, an increase of 0.05% above the specified maximum concentration for Mn is permissible, up to a maximum of 1.65% for grades ≥ L245 or B but ≥ L360 or X52, up to a maximum of 1.75% for grades > L360 or X52, but < L485 or X70, and up to a maximum of 2.00% for grade L485 or X70
- (c) Unless otherwise agreed Nb + V ≤ 0.06%
- (d) Nb + V + Ti ≤ 0.15%
- (e) Unless otherwise agreed
- (f) Unless otherwise agreed Nb + V + Ti ≤ 0.15%

Material	Standard	Type	Grade	Product	Chemical Composition % (max unless otherwise stated)												Min Tensile		Min Yield	
					C	Mn	P	S	Si	Cu	Cr	Mo	Ni	V	Nb	Ti	MPa	PSI	MPa	PSI
Carbon Steel	A53	Seamless & Welded	B	Pipe	0.30 (b)	1.20	0.05	0.045		0.40 (a)	0.40 (a)	0.15 (a)	0.40 (a)	0.08 (a)			415	60,000	240	35,000
		Seamless	B	Pipe	0.30 (b)	0.29-1.06	0.035	0.035	0.10 (min)	0.40 (a)	0.40 (a)	0.15 (a)	0.40 (a)	0.08 (a)			415	60,000	240	35,000
	A106	Seamless	C	Pipe	0.35 (b)	0.29-1.06	0.035	0.035	0.10 (min)	0.40 (a)	0.40 (a)	0.15 (a)	0.40 (a)	0.08 (a)			485	70,000	275	40,000
		A333	Seamless & Welded low temp application	6	Pipe	0.30 (c)	0.29-1.06	0.025	0.025	0.10 (min)	0.40	0.30	0.12	0.40	0.08	0.02		415	60,000	240

- (a) Total composition for these five elements shall not exceed 1.00%
- (b) For each reduction of 0.01% below the specified carbon maximum an increase of 0.06% manganese above the specified maximum will be permitted up to a maximum of 1.65%
- (c) For each reduction of 0.01% carbon below 0.30%, an increase of 0.05% manganese above 1.06% would be permitted to a maximum of 1.35% manganese.

					C	Mn	P	S	Si	Cu	Cr	Mo	Ni	V	Nb	Ti	MPa	PSI	MPa	PSI
Carbon Steel	A234		WPB(a)	Fittings	0.3 (b,c,d)	0.29-1.06 (d)	0.050	0.058	0.10 (min)	0.4 (e)	0.4 (e)	0.15 (e)	0.4 (e)	0.08			415	60,000	240	35,000
	A234		WPC(a)	Fittings	0.35 (c,d)	0.29-1.06 (d)	0.05	0.058	0.10 (min)	0.4 (e)	0.4 (e)	0.15 (e)	0.4 (e)	0.08			485	70,000	275	40,000
	A420		WPL6(a)	Fittings	0.30	0.50-1.35	0.035	0.040	0.15-0.40	0.40	0.30	0.12	0.40	0.08	0.02 (f)		415	60,000	240	35,000

- (a) When fittings are of welded construction, the grade and marking symbol shown above shall be supplemented by letter (W)
- (b) Fittings made from bar or plate may have 0.35 max carbon.
- (c) Fittings made from forgings may have 0.35 max carbon and 0.35 max silicon with no minimum.
- (d) For each reduction of 0.01% below the specified carbon maximum, and increase of 0.06% manganese above the specified maximum will be permitted, up to a maximum of 1.65%.
- (e) The sum of copper, nickel, chromium and molybdenum shall not exceed 1.00%.
- (f) By agreement, the limit for Niobium may be increased up to 0.05% on heat analysis and 0.06% on product analysis.

					C	Mn	P	S	Si	Cu	Cr	Mo	Ni	V	Nb	Ti	MPa	PSI	MPa	PSI
Carbon Steel	ASTM A105		Normalised	Flanges	0.35 (e)	0.60-1.05 (e)	0.035	0.040	0.10-0.35	0.40 (a)	0.30 (a,b)	0.12 (a,b)	0.40 (a)	0.08			485	70,000	250	36,000
	ASTM A350		LF2	Flanges	0.30	0.60-1.35	0.035	0.040	0.15-0.30 (c)	0.40 (a)	0.30 (a,b)	0.12 (a,b)	0.40 (a)	0.08	0.02 (d)				250	36,000

- (a) The sum of copper, nickel, chromium and molybdenum and vanadium shall not exceed 1.00%.
- (b) The sum of chromium and molybdenum shall not exceed 0.32%.
- (c) When vacuum carbon-deoxidation is required by supplementary requirement S4, the silicon content shall be 0.12% max
- (d) By agreement , the limit for niobium may be increased up to 0.05% on heat analysis and 0.06% on product analysis.
- (e) For each reduction of 0.01% carbon below 0.35%, an increase of 0.06% manganese above 1.05% would be permitted to a maximum of 1.65% manganese.

SPECIFICATION SUMMARY - ALLOY STEEL

Material	Standard	Type	Grade	Product	Chemical Composition % (max unless otherwise stated)												Min Tensile		Min Yield	
					C	Mn	P	S	Si	Cu	Cr	Mo	Ni	V	Nb	Ti	MPa	PSI	MPa	PSI
Alloy Steel	A335	Seamless	P11	Pipe	0.05-0.15	0.30-0.60	0.025	0.025	0.50-1.00		1.00-1.50	0.44-0.65					415	60,000	205	30,000
	A234		WP11 CL1 (a)	Fittings	0.05-0.15	0.30-0.60	0.030	0.030	0.50-1.00		1.00-1.50	0.44-0.65					415	60,000	205	30,000
			WP11 CL2 (a)	Fittings	0.05-0.20	0.30-0.80	0.040	0.040	0.50-1.00		1.00-1.50	0.44-0.65					485	70,000	275	40,000
			WP11 CL3 (a)	Fittings	0.05-0.20	0.30-0.80	0.040	0.040	0.50-1.00		1.00-1.50	0.44-0.65					520	75,000	310	45,000
	A182		F11 CL1	Flanges	0.05-0.15	0.30-0.60	0.030	0.030	0.50-1.00		1.00-1.50	0.44-0.65					415	60,000	205	30,000
			F11 CL2	Flanges	0.10-0.20	0.30-0.80	0.040	0.040	0.50-1.00		1.00-1.50	0.44-0.65					485	70,000	275	40,000
			F11 CL3	Flanges	0.10-0.20	0.30-0.80	0.040	0.040	0.50-1.00		1.00-1.50	0.44-0.65					515	75,000	310	45,000

				C	Mn	P	S	Si	Cu	Cr	Mo	Ni	V	Nb	Ti	MPa	PSI	MPa	PSI	
Alloy Steel	A335	Seamless	P22	Pipe	0.05-0.15	0.30-0.60	0.025	0.025	0.5		1.90-2.60	0.87-1.13					415	60,000	20	30,000
	A234		WP22 CL1 (a)	Fittings	0.05-0.15	0.30-0.60	0.04	0.04	0.5		1.90-2.60	0.87-1.13					415	60,000	20	30,000
			WP22 CL3(a)	Fittings	0.05-0.15	0.30-0.60	0.04	0.04	0.5		1.90-2.60	0.87-1.13					415	75,000	310	45,000
	A182		F22 CL1	Flanges	0.05-0.15	0.30-0.60	0.04	0.04	0.5		2.00-2.50	0.87-1.13					415	60,000	20	30,000
			F22 CL3	Flanges	0.05-0.15	0.30-0.60	0.04	0.030	0.5		2.00-2.50	0.87-1.13					515	75,000	310	45,000

					C	Mn	P	S	Si	Cu	Cr	Mo	Ni	V	Nb	Ti	MPa	PSI	MPa	PSI
Alloy Steel	A335	Seamless	P5	Pipe	0.15	0.30-0.60	0.025	0.025	0.50		4.0-6.0	0.44-0.65					415	60,000	20	30,000
	A234		WP5 CL1(a)	Fittings	0.15	0.30-0.60	0.04	0.03	0.50		4.0-6.0	0.44-0.65					415	60,000	20	30,000
			WP5 CL3(a)	Fittings	0.15	0.30-0.60	0.04	0.03	0.50		4.0-6.0	0.44-0.65					520	75,000	31	45,000
	A182		F5a	Flanges	0.25	0.60	0.04	0.03	0.50		4.0-6.0	0.44-0.65	0.5					620	90,000	450

Material	Standard	Type	Grade	Product	Chemical Composition % (max unless otherwise stated)											Min Tensile		Min Yield		
					C	Mn	P	S	Si	Cu	Cr	Mo	Ni	V	Nb	Ti	MPa	PSI	MPa	PSI
Alloy Steel	A335	Seamless	P9	Pipe	0.15	0.30-0.60	0.025	0.025	0.25-1.00		8.00-10.00	0.90-1.10					415	60,000	205	30,000
	A234		WP9 CL1 (a)	Fittings	0.15	0.30-0.60	0.03	0.03	1.0		8.0-10.0	0.90-1.10					415	60,000	205	30,000
			WP9 CL2 (a)	Fittings	0.15	0.30-0.60	0.03	0.03	1.0		8.0-10.0	0.90-1.10					520	75,000	310	45,000
	A182		F9	Flanges	0.15	0.30-0.60	0.03	0.03	0.50-1.00		8.0-10.0	0.90-1.10					520	85,000	380	55,000

					C	Mn	P	S	Si	Cu	Cr	Mo	Ni	V	Nb	Ti	MPa	PSI	MPa	PSI
Alloy Steel	A335	Seamless	P91	Pipe	0.08-0.12	0.30-0.60	0.02	0.01	0.20-0.50		8.00-9.50	0.85-1.05	0.4	0.18-0.25	0.06-0.10	0.01	585	85,000	415	60,000
	A234		WP91 (a,b)	Fittings	0.08-0.12	0.30-0.60	0.02	0.01	0.20-0.50		8.00-9.5	0.85-1.05	0.4	0.18-0.25	0.06-0.10	0.01	620-840	90,000-120,000	440	64,000
	A182		F91	Flanges	0.08-0.12	0.30-0.60	0.02	0.01	0.20-0.50		8.00-9.5	0.85-1.05	0.4	0.18-0.25	0.06-0.10	0.01	620	90,000	415	60,000

(a) When fittings are of welded construction, the grade and marking symbol shown above shall be supplemented by letter (W)
(b) N 0.03-0.07%, Al 0.02% Max, Ti 0.01% Max, Zr 0.01% Max

Information Reference API 5L 45TH EDITION RELEASED SPECIFICATION FOR LINEPIPE EFFECTIVE 1ST JULY 2013
2015 ANNUAL BOOK OF ASTM STANDARDS VOLUME 01.01 STEEL - PIPING TUBING, FITTINGS
Please note this information is only as correct as the specifications stated above at the time of publication.



EQUIVALENT STANDARDS

STANDARD	DESCRIPTION	GRADE	SEAMLESS		WELDED		HISTORICAL	
			Standard*	Grade*	Standard*	Grade*	Standard*	Grade*
API 5L	Line Pipe	A	EN 10216-1	P235	EN 10217-1	P235	BS 3601	360
		B	EN 10216-1	P265	EN 10217-1	P265	BS 3601	430
		X42	ISO 3183	X42 / L290	ISO 3183	X42 / L290	EN 10208	L290NB
		X46	ISO 3183	X46 / L320	ISO 3183	X46 / L320	EN 10208	
		X52	ISO 3183	X52 / L360	ISO 3183	X52 / L360	EN 10208	L360NB
		X60	ISO 3183	X60 / L415	ISO 3183	X60 / L415	EN 10208	L415NB
		X65	ISO 3183	X65 / L450	ISO 3183	X65 / L450	EN 10208	L450QB
		X70	ISO 3183	X70 / L485	ISO 3183	X70 / L485	EN 10208	L485QB
		X80	ISO 3183	X80 / L555	ISO 3183	X80 / L555	EN 10208	L555QB
ASTM A53	Steel Pipe, Black and Hot-Dipped, Zinc Coated, Welded and Seamless	A	EN 10216-1	P235	EN 10217-1	P235	BS 3601	320 / 360
		B	EN 10216-1	P265	EN 10217-1	P265	BS 3601	430
ASTM A106	Seamless Carbon Steel Pipe for High-Temperature Service	A	EN 10216-2	P235GH			BS 3602-1	320
		B	EN 10216-2	P265GH			BS 3602-1	430
		C	EN 10216-2				BS 3602-1	500NB
ASTM A333	Seamless and Welded Steel Pipe for Low-Temperature Service	6	EN 10216-4	P265NL	EN 10217-4	P265NL	BS 3603	HFS 410 LT
ASTM A335	Seamless Ferritic Alloy Steel Pipe for High-Temperature Service	P11	EN 10216-2	10CrMo5-5			BS 3604-1	621
		P22	EN 10216-2	10CrMo9-10				
		P5	EN 10216-2	X11CrMo5				
		P9	EN 10216-2	X11CrMo9-1				
		P91	EN 10216-2	X10CrMoVNb9-1				

* Please note the above table shows the nearest equivalent standard and grade. Specific requirements must be checked before use.

Formulae	
Tube weight	Carbon equivalent value
$\text{Kg/m} = \frac{(\text{OD}-\text{WT}) \times \text{WT}}{40.5}$	$\text{CE} = \%C + \frac{\%Mn}{6} + \frac{\%Cr + \%Mo + \%V}{5} + \frac{\%Ni + \%Cu}{15}$

CONVERSION FACTORS

Linear, square and cubic measurements					
From	To	Multiply by	From	To	Multiply by
in	mm	25.4	mm	ins	0.03937
ft	m	0.3048	m	ft	3.28084
miles	km	1.609344	km	miles	0.62137
in²	mm²	645.16	mm²	in²	0.00155
ft²	m²	0.092903	m²	ft²	10.7639
in³	cm³	16.3871	cm³	in³	0.06102
ft³	m³	0.02832	m³	ft³	35.3147
ft³	litres	28.317	litres	ft³	0.0352
ft³	Imp.gallons	6.23	Imp.gallons	ft³	0.16
ft³	U.S gallons	7.4805	U.S gallons	ft³	0.1337
Imp.gallons	litres	4.5461	litres	Imp.gallons	0.22

Pressure					
From	To	Multiply by	From	To	Multiply by
ins of water	lb/in² (psi)	0.0361	lb/in² (psi)	in of water	27.7
ins of water	in of mercury	0.0735	in of mercury	in of water	13.6
ft of water	lb/in² (psi)	0.4332	lb/in² (psi)	ft of water	2.308
ft of water	in of mercury	0.8824	in of mercury	ft of water	1.133
ins of mercury	lb/in² (psi)	0.4912	lb/in² (psi)	in of mercury	2.04
cm of mercury	lb/in² (psi)	0.1934	lb/in² (psi)	cm of mercury	5.1706
atmosphere	lb/in² (psi)	14.696	lb/in² (psi)	atmosphere	0.06805
atmosphere	ft of water	34	ft of water	atmosphere	0.0294
atmosphere	mm of mercury	760	mm of mercury	atmosphere	0.00132
kg/cm²	lb/in² (psi)	14.223	lb/in² (psi)	kg/cm²	0.0703

Temperature					
From	To	Multiply by	From	To	Multiply by
Fahrenheit °F	Celsius °C	°C = (°F-32) x 0.555	Celsius °C	Fahrenheit °F	°F = (°Cx1.8) + 32

Mass, mass/unit length and density (mass/volume)					
From	To	Multiply by	From	To	Multiply by
lb	kg	0.45359	kg	lb	2.2046
Imperial tons	tonnes	1.01605	tonnes	tons	0.9842
in³ of water	lb (15°C)	0.0361	lb (15°C)	in³ of water	27.70083
ft³ of water	lb (15°C)	62.4	lb (15°C)	ft³ of water	0.01603
Imp. gallons of water	lb (15°C)	10	lb (15°C)	Imp.gallons of water	0.1
U.S. gallons of water	lb (15°C)	8.33	lb (15°C)	U.S. gallons of water	0.12
litre of water	lb (15°C)	2.2	lb (15°C)	litre of water	0.45
in³ of water	in³ of mercury	0.0735	in³ of mercury	in³ of water	13.6
in³ of mercury	lb	0.491	lb	in³ of mercury	2.037
lb/ft	kg/m	1.4882	kg/m	lb/ft	0.672
lb/ft	tons/miles	2.3571	tons/miles	lb/ft	0.4242
lb/ft³	kg/m³	16.0185	kg/m³	lb/ft	0.06243

Force					
From	To	Multiply by	From	To	Multiply by
lbf	N	4.4482	N	lbf	0.2248
kgf	N	9.80665	N	kgf	0.102
lb/in² (psi)	kPa	6.895	kPa	lb/in² (psi)	0.14503
lb/in² (psi)	Mpa	0.006895	Mpa	lb/in² (psi)	145.038
ft-lb	joules (J)	1.3558	joules (J)	ft-lb	0.73757

Pressure (stress)					
From	To	Multiply by	From	To	Multiply by
lbf/in²	kgf/cm²	0.07031	kgf/cm²	lbf/in²	14.2233
lbf/in²	bar	0.06895	bar	lbf/in²	14.5038
lbf/in²	N/m²	6894.76	N/m²	lbf/in²	0.000145
kgf/cm²	bar	0.980665	bar	kgf/cm²	1.0197
tonf/in²	kgf/mm²	1.5749	kgf/mm²	tonf/in²	0.635
tonf/in²	N/mm²	15.4443	N/mm²	tonf/in²	0.06475
kgf/mm²	N/mm²	9.80665	N/mm²	kgf/mm²	0.102

LINEPIPE SPECIFICATIONS & SIZES

Dimensions and weights of carbon and alloy steel pipe ANSI (ASTM) Specifications (mm and kg/m) - dimensions to ASME B36.10M

Nominal Bore ins/ mm	Outside Diameter mm	Wall Thickness / Mass	10	20	30	STD	40	60	XS	80	100	120	140	160	XXS
1/8" 6	10.3	mm kg/m				1.73 0.37	1.73 0.37		2.41 0.47	2.41 0.47					
1/4" 8	13.7	mm kg/m				2.24 0.63	2.24 0.63		3.02 0.80	3.02 0.80					
3/8" 10	17.1	mm kg/m				2.31 0.84	2.31 0.84		3.20 1.10	3.20 1.10					
1/2" 15	21.3	mm kg/m				2.77 1.27	2.77 1.27		3.73 1.62	3.73 1.62				4.78 1.95	7.47 2.55
3/4" 20	26.7	mm kg/m				2.87 1.69	2.87 1.69		3.91 2.20	3.91 2.20				5.56 2.90	7.82 3.64
1" 25	33.4	mm kg/m				3.38 2.50	3.38 2.50		4.55 3.24	4.55 3.24				6.35 4.24	9.09 5.45
1 1/4" 32	42.2	mm kg/m				3.56 3.39	3.56 3.39		4.85 4.47	4.85 4.47				6.35 5.61	9.70 7.77
1 1/2" 40	48.3	mm kg/m				3.68 4.05	3.68 4.05		5.08 5.41	5.08 5.41				7.14 7.25	10.15 9.55
2" 50	60.3	mm kg/m				3.91 5.44	3.91 5.44		5.54 7.48	5.54 7.48				8.74 11.1	11.07 13.4
2 1/2" 65	73.0	mm kg/m				5.16 8.63	5.16 8.63		7.01 11.4	7.01 11.4				9.52 14.9	14.02 20.4
3" 80	88.9	mm kg/m				5.49 11.3	5.49 11.3		7.62 15.3	7.62 15.3				11.13 21.4	15.24 27.7
3 1/2" 90	101.6	mm kg/m				5.74 13.6	5.74 13.6		8.08 18.6	8.08 18.6					
4" 100	114.3	mm kg/m				6.02 16.1	6.02 16.1		8.56 22.3	8.56 22.3		11.13 28.3		13.49 33.5	17.12 41.0
5" 125	141.3	mm kg/m				6.55 21.8	6.55 21.8		9.52 31.0	9.52 31.0		12.70 40.3		15.88 49.1	19.05 57.4
6" 150	168.3	mm kg/m				7.11 28.3	7.11 28.3		10.97 42.6	10.97 42.6		14.27 54.2		18.26 67.6	21.95 79.2
8" 200	219.1	mm kg/m		6.35 33.3	7.04 36.8	8.18 42.6	8.18 42.6	10.31 53.1	12.70 64.6	12.70 64.6	15.09 75.9	18.26 90.4	20.62 100.9	23.01 111.3	22.23 107.9
10" 250	273.0	mm kg/m		6.35 41.8	7.80 51.0	9.27 60.3	9.27 60.3	12.70 81.5	12.70 81.5	15.09 96.0	18.26 114.7	21.44 133.0	25.40 155.1	28.58 172.3	25.40 155.1
12" 300	323.8	mm kg/m		6.35 49.7	8.38 65.2	9.52 73.9	10.31 79.7	14.27 108.9	12.70 97.4	17.48 132.1	21.44 159.9	25.40 186.9	28.58 208.1	33.32 238.7	25.40 186.9
14" 350	355.6	mm kg/m	6.35 54.7	7.92 67.9	9.52 81.3	9.52 81.3	11.13 94.6	15.09 126.7	12.70 107.4	19.05 158.1	23.83 195.0	27.79 224.7	31.75 253.6	35.71 281.7	
16" 400	406.4	mm kg/m	6.35 62.7	7.92 77.8	9.52 93.3	9.52 93.3	12.70 123.3	16.66 160.1	12.70 123.3	21.44 203.5	26.19 245.6	30.96 286.7	36.53 333.2	40.49 365.4	
18" 450	457	mm kg/m	6.35 70.6	7.92 87.7	11.13 122.4	9.52 105.2	14.27 155.8	19.05 205.8	12.70 139.2	23.83 254.6	29.36 309.6	34.93 363.6	39.67 408.3	45.24 459.4	
20" 500	508	mm kg/m	6.35 78.6	9.52 117.2	12.70 155.1	9.52 117.2	15.09 183.4	20.62 247.8	12.70 155.1	26.19 311.2	32.54 381.6	38.10 441.5	44.45 508.2	50.01 564.9	
22" 550	559	mm kg/m	6.35 86.6	9.52 129.1	12.70 171.1	9.52 129.1	15.88 213.0	22.23 294.3	12.70 171.1	28.58 373.9	34.93 451.5	41.28 527.1	47.63 600.7	53.98 672.3	
24" 600	610	mm kg/m	6.35 94.5	9.52 141.1	14.27 209.7	9.52 141.1	17.48 255.4	24.61 355.3	12.70 187.1	30.96 442.1	38.89 547.7	46.02 640.1	52.37 720.2	59.54 808.3	
26" 650	660	mm kg/m	7.92 127.4	12.70 202.7		9.52 152.9			12.70 202.7						



Dimensions and weights of carbon and alloy steel pipe - welded
API 5L Specification (mm and kg/mtr)

Nominal Bore ins/mm	Outside Diameter mm	Wall Thickness / Mass	10	20	30	STD	40	60	XS	80	100	120	140	160	XXS
1/8" 6	10.3	mm kg/m				1.73 0.37	1.73 0.37		2.41 0.47	2.41 0.47					
1/4" 8	13.7	mm kg/m				2.24 0.63	2.24 0.63		3.02 0.80	3.02 0.80					
3/8" 10	17.1	mm kg/m				2.31 0.84	2.31 0.84		3.20 1.10	3.20 1.10					
1/2" 15	21.3	mm kg/m				2.77 1.27	2.77 1.27		3.73 1.27	3.73 1.62				4.78 1.95	7.47 2.55
3/4" 20	26.7	mm kg/m				2.87 1.69	2.87 1.69		3.91 2.20	3.91 2.20				5.56 2.90	7.82 3.64
1" 25	33.4	mm kg/m				3.38 2.50	3.38 2.50		4.55 3.24	4.55 3.24				6.35 4.24	9.09 5.45
1 1/4" 32	42.2	mm kg/m				3.56 3.39	3.56 3.39		4.85 4.47	4.85 4.47				6.35 5.61	9.70 7.77
1 1/2" 40	48.3	mm kg/m				3.68 4.05	3.68 4.05		5.08 5.41	5.08 5.41				7.14 7.25	10.15 9.55
2" 50	60.3	mm kg/m				3.91 5.44	3.91 5.44		5.54 7.48	5.54 7.48				8.74 11.1	11.07 13.4
2 1/2" 65	73.0	mm kg/m				5.16 8.63	5.16 8.63		7.01 11.4	7.01 11.4				9.52 14.9	14.02 20.4
3" 80	88.9	mm kg/m				5.49 11.3	5.49 11.3		7.62 15.3	7.62 15.3				11.13 21.4	15.24 27.7
3 1/2" 90	101.6	mm kg/m				5.74 13.6	5.74 13.6		8.08 18.6	8.08 18.6					
4" 100	114.3	mm kg/m				6.02 16.1	6.02 16.1		8.56 22.3	8.56 22.3		11.13 28.3		13.49 33.5	17.12 41.0
5" 125	141.3	mm kg/m				6.55 21.8	6.55 21.8		9.52 31.0	9.52 31.0		12.70 40.3		15.88 49.1	19.05 57.4
6" 150	168.3	mm kg/m				7.11 28.3	7.11 28.3		10.97 42.6	10.97 42.6		14.27 54.2		18.26 67.6	21.95 79.2
8" 200	219.1	mm kg/m		6.35 33.3	7.04 36.8	8.18 42.6	8.18 42.6	10.31 53.1	12.70 64.6	12.70 64.6	15.09 75.9	18.26 90.4	20.62 100.9	23.01 111.3	22.23 107.9
10" 250	273.0	mm kg/m		6.35 41.8	7.80 51.0	9.27 60.3	9.27 60.3	12.70 81.5	12.70 81.5	15.09 96.0	18.26 114.7	21.44 133.0	25.40 155.1	28.58 172.3	25.40 155.1
12" 300	323.8	mm kg/m		6.35 49.7	8.38 65.2	9.52 73.9	10.31 79.7	14.27 108.9	12.70 97.4	17.48 132.1	21.44 159.9	25.40 186.9	28.58 208.1	33.32 238.7	25.40 186.9
14" 350	355.6	mm kg/m	6.35 54.7	7.92 67.9	9.52 81.3	9.52 81.3	11.13 94.6	15.09 126.7	12.70 107.4	19.05 158.1	23.83 195.0	27.79 224.7	31.75 253.6	35.71 281.7	
16" 400	406.4	mm kg/m	6.35 62.7	7.92 77.8	9.52 93.3	9.52 93.3	12.70 123.3	16.66 160.1	12.70 123.3	21.44 203.5	26.19 245.6	30.96 286.7	36.53 333.2	40.49 365.4	
18" 450	457	mm kg/m	6.35 70.6	7.92 87.7	11.13 122.4	9.52 105.2	14.27 155.8	19.05 205.8	12.70 139.2	23.83 254.6	29.36 309.6	34.93 363.6	39.67 408.3	45.24 459.4	
20" 500	508	mm kg/m	6.35 78.6	9.52 117.2	12.70 155.1	9.52 117.2	15.09 183.4	20.62 247.8	12.70 155.1	26.19 311.2	32.54 381.6	38.10 441.5	44.45 508.2	50.01 564.9	
22" 550	559	mm kg/m	6.35 86.6	9.52 129.1	12.70 171.1	9.52 129.1	15.88 213.0	22.23 294.3	12.70 171.1	28.58 373.9	34.93 451.5	41.28 527.1	47.63 600.7	53.98 672.3	
24" 600	610	mm kg/m	6.35 94.5	9.52 141.1	14.27 209.7	9.52 141.1	17.48 255.4	24.61 355.3	12.70 187.1	30.96 442.1	38.89 547.7	46.02 640.1	52.37 720.2	59.54 808.3	
26" 650	660	mm kg/m	7.92 127.4	12.70 202.7		9.52 152.9			12.70 202.7						

API 5L Specifications continued...

Nominal Bore ins/mm	Outside Diameter mm	Wall Thickness / Mass	10	20	30	STD	40	60	XS	80	100	120	140	160	XXS
28" 700	711	mm kg/m	7.92 137.3	12.70 218.7	15.88 272.2	9.52 164.3			12.70 218.7						
30" 750	762	mm kg/m	7.92 147.3	12.70 234.7	15.88 292.2	9.52 176.8			12.70 234.7						
32" 800	813	mm kg/m	7.92 157.2	12.70 250.6	15.88 312.2	9.52 188.8	17.48 342.9		12.70 250.6						
34" 850	864	mm kg/m	7.92 167.2	12.70 266.6	15.88 332.1	9.52 200.8	17.48 364.9		12.70 266.6						
36" 900	914	mm kg/m	7.92 177.0	12.70 282.3	15.88 351.7	9.52 212.6	19.05 420.4		12.70 282.3						
40" 1000	1,016	mm kg/m				9.52 236.5			12.70 314.2						
42" 1050	1,067	mm kg/m				9.52 248.5			12.70 330.2						
44" 1100	1,118	mm kg/m				9.52 260.5			12.70 346.2						
48" 1200	1,219	mm kg/m				9.52 284.3			12.70 377.8						



PRESSURE TEMPERATURE RATINGS



Temperature					21 °C		93 °C		204 °C		316 °C		371 °C		427 °C	
					70 °F		200 °F		400 °F		600 °F		700 °F		800 °F	
Maximum Allowable Stress					MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI
					138	20,000	138	20,000	137	19,900	123	17,900	115	16,700	79	11,400
					Suggested Maximum Design Pressure based on S235 Min Yield*											
Nominal Bore & OD (ins)	Schedule Number	Wall Des.	ID (mm)	Wall Thickness (mm)	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI
1/2"	40	STD	15.76	2.77	36	5,230	36	5,230	32	4,610	26	3,750	23	3,380	21	2,980
	80	XS	13.84	3.73	50	7,310	50	7,310	43	6,210	35	5,050	31	4,560	28	4,130
	160		11.74	4.78	66	9,610	66	9,610	55	7,950	45	6,470	40	5,840	36	5,290
		XXS	6.36	7.47	104	15,100	104	15,100	86	12,400	70		63	9,120	57	8,270
3/4"	40	STD	20.96	2.87	29	4,230	29	4,230	26	3,810	21	3,100	19	2,800	17	2,410
	80	XS	18.88	3.91	41	5,970	41	5,970	36	5,190	29	4,220	26	3,810	23	3,400
	160		15.58	5.56	61	8,860	61	8,860	51	7,380	41	6,010	37	5,420	34	4,910
		XXS	11.06	7.82	88	12,700	88	12,700	72	10,400	58	8,450	53	7,620	48	6,900
1"	40	STD	26.64	3.38	27	3,960	27	3,960	25	3,590	20	2,920	18	2,630	16	2,260
	80	XS	24.3	4.55	38	5,500	38	5,500	33	4,830	27	3,930	24	3,540	22	3,140
	160		20.7	6.35	55	8,010	55	8,010	46	6,740	38	5,480	34	4,950	31	4,480
		XXS	15.2	9.1	81	11,800	81	11,800	67	9,650	54	7,850	49	7,080	44	6,410
1 1/4"	40	STD	35.1	3.56	22	3,260	22	3,260	21	2,990	17	2,430	15	2,190	13	1,860
	80	XS	32.5	4.85	31	4,560	31	4,560	28	4,070	23	3,320	21	2,990	18	2,600
	160		29.5	6.35	42	6,160	42	6,160	37	5,330	30	4,340	27	3,920	24	3,510
		XXS	22.8	9.7	68	9,870	68	9,870	56	8,150	46	6,630	41	5,980	37	5,420
1 1/2"	40	STD	40.9	3.68	20	2,920	20	2,920	19	2,700	15	2,200	14	1,980	11	1,660
	80	XS	38.1	5.08	29	4,130	29	4,130	26	3,730	21	3,030	19	2,740	16	2,360
	160		34.0	7.14	42	6,040	42	6,040	36	5,240	29	4,260	27	3,850	24	3,440
		XXS	28.0	10.16	62	8,950	62	8,950	51	7,460	42	6,070	38	5,470	34	4,960

* Based on ASME B31.1 API 5L and BS EN 13480-3 / BS EN 10217-2 / BS EN 10216-2



LINEPIPE PRESSURE TEMPERATURE RATINGS

Temperature					21 °C		93 °C		204 °C		316 °C		371 °C		427 °C	
					70 °F		200 °F		400 °F		600 °F		700 °F		800 °F	
Maximum Allowable Stress					MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI
					138	20,000	138	20,000	137	19,900	123	17,900	115	16,700	79	11,400
					Suggested Maximum Design Pressure based on S235 Min Yield*											
Nominal Bore & OD (ins)	Schedule Number	Wall Des.	ID (mm)	Wall Thickness (mm)	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI
2"	40	STD	52.5	3.91	17	2,460	17	2,460	16	2,300	13	1,870	12	1,690	9.7	1,400
	80	XS	49.2	5.5	25	3,570	25	3,570	22	3,260	18	2,650	16	2,390	14	2,030
	160		42.8	8.7	41	5,900	41	5,900	35	5,140	29	4,180	26	3,770	23	3,360
		XXS	38.2	11.07	53	7,710	53	7,710	45	6,510	37	5,300	33	4,780	30	4,330
2½"	40	STD	62.7	5.16	19	2,700	19	2,700	17	2,510	14	2,040	13	1,840	11	1,540
	80	XS	59.0	7.01	26	3,740	26	3,740	23	3,400	19	2,770	17	2,500	15	2,130
	160		54.0	9.52	36	5,240	36	5,240	32	4,620	26	3,760	23	3,390	21	2,990
		XXS	45.0	14.02	56	8,100	56	8,100	47	6,810	38	5,540	34	5,000	31	4,530
3"	40	STD	77.9	5.49	16	2,340	16	2,340	15	2,190	12	1,780	11	1,610	9.2	1,330
	80	XS	73.7	7.62	23	3,310	23	3,310	21	3,040	17	2,470	15	2,230	13	1,890
	160		66.6	11.13	35	5,010	35	5,010	31	4,440	25	3,610	22	3,260	20	2,850
		XXS	58.4	15.24	49	7,140	49	7,140	42	6,080	34	4,950	31	4,460	28	4,040
3½"	40	STD	90.1	5.74	15	2,130	15	2,130	14	2,000	11	1,630	10	1,470	8.4	1,210
	80	XS	85.4	8.08	21	3,060	21	3,060	19	2,820	16	2,290	14	2,070	12	1,740
4"	40	STD	102.3	6.02	14	1,980	14	1,980	13	1,870	10	1,520	9.4	1,370	7.8	1,130
	80	XS	97.2	8.56	20	2,870	20	2,870	18	2,650	15	2,160	13	1,950	11	1,630
	120		92.0	11.13	26	3,800	26	3,800	24	3,450	19	2,810	17	2,530	15	2,170
	160		87.3	13.49	32	4,690	32	4,690	29	4,180	23	3,400	21	3,070	18	2,670
		XXS	80.1	17.12	42	6,130	42	6,130	37	5,310	30	4,320	27	3,900	24	3,490
5"	40	STD	128.2	6.55	12	1,730	12	1,730	11	1,640	9.2	1,340	8.3	1,210	6.8	988
	80	XS	122.3	9.52	18	2,560	18	2,560	16	2,390	13	1,940	12	1,750	10	1,460
	120		115.9	12.7	24	3,490	24	3,490	22	3,190	18	2,590	16	2,340	14	1,990
	160		109.5	15.88	31	4,450	31	4,450	27	3,980	22	3,240	20	2,920	17	2,530
		XXS	103.2	19.05	38	5,440	38	5,440	33	4,780	27	3,890	24	3,510	21	3,100

* Based on ASME B31.1 API 5L and BS EN 13480-3 / BS EN 10217-2 / BS EN 10216-2

Temperature					21 °C		93 °C		204 °C		316 °C		371 °C		427 °C	
					70 °F		200 °F		400 °F		600 °F		700 °F		800 °F	
Maximum Allowable Stress					MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI
					138	20,000	138	20,000	137	19,900	123	17,900	115	16,700	79	11,400
					Suggested Maximum Design Pressure based on S235 Min Yield*											
Nominal Bore & OD (ins)	Schedule Number	Wall Des.	ID (mm)	Wall Thickness (mm)	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI
6"	40	STD	154.1	7.11	11	1,570	11	1,570	10	1,500	8.4	1,220	7.6	1,100	6.2	897
	80	XS	146.4	10.97	17	2,480	17	2,480	16	2,310	13	1,880	12	1,700	9.7	1,410
	120		139.8	14.27	23	3,270	23	3,270	21	3,010	17	2,450	15	2,210	13	1,870
	160		131.8	18.26	29	4,280	29	4,280	27	3,850	22	3,130	19	2,820	17	2,440
		XXS	124.4	21.95	36	5,240	36	5,240	32	4,620	26	3,760	23	3,390	21	2,990
8"	20		206.4	6.35	7.4	1,070	7.4	1,070	7.1	1,030	5.8	836	5.2	754	4.2	609
	30		205.0	7.04	8.2	1,190	8.2	1,190	7.9	1,140	6.4	927	5.8	836	4.7	677
	40	STD	202.7	8.18	9.6	1,390	9.6	1,390	9.1	1,320	7.4	1,080	6.7	971	5.4	790
	60		198.5	10.31	12	1,760	12	1,760	12	1,670	9.4	1,360	8.4	1,220	6.9	1,000
	80	XS	193.7	12.7	15	2,190	15	2,190	14	2,050	12	1,670	10	1,510	8.6	1,250
	100		188.9	15.09	18	2,620	18	2,620	17	2,440	14	1,990	12	1,790	10	1,500
	120		182.6	18.26	22	3,210	22	3,210	20	2,950	17	2,400	15	2,170	13	1,830
	140		177.9	20.62	25	3,660	25	3,660	23	3,340	19	2,710	17	2,450	14	2,090
		XXS	174.7	22.22	27	3,970	27	3,970	25	3,590	20	2,930	18	2,640	16	2,260
	160		173.1	23.01	28	4,130	28	4,130	26	3,720	21	3,030	19	2,730	16	2,350
10"	20		260.3	6.35	5.9	853	5.9	853	5.7	824	4.6	671	4.2	605	3.4	486
	30		257.4	7.8	7.3	1,050	7.3	1,050	7	1,010	5.7	824	5.1	743	4.1	600
	40	STD	254.5	9.27	8.7	1,260	8.7	1,260	8.3	1,200	6.8	980	6.1	883	4.9	716
	60	XS	247.6	12.7	12	1,740	12	1,740	11	1,650	9.3	1,340	8.3	1,210	6.8	991
	80		242.8	15.09	14	2,080	14	2,080	14	1,960	11	1,590	9.9	1,440	8.2	1,190
	100		236.5	18.26	18	2,540	18	2,540	16	2,370	13	1,930	12	1,740	10	1,450
	120		230.1	21.44	21	3,020	21	3,020	19	2,780	16	2,270	14	2,040	12	1,720
	140	XXS	222.2	25.4	25	3,620	25	3,620	23	3,300	19	2,680	17	2,420	14	2,060
	160		215.9	28.57	28	4,110	28	4,110	26	3,710	21	3,020	19	2,720	16	2,340

* Based on ASME B31.1 API 5L and BS EN 13480-3 / BS EN 10217-2 / BS EN 10216-2



LINEPIPE PRESSURE TEMPERATURE RATINGS

Temperature					21 °C		93 °C		204 °C		316 °C		371 °C		427 °C	
					70 °F		200 °F		400 °F		600 °F		700 °F		800 °F	
Maximum Allowable Stress					MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI
					138	20,000	138	20,000	137	19,900	123	17,900	115	16,700	79	11,400
					Suggested Maximum Design Pressure based on S235 Min Yield*											
Nominal Bore & OD (ins)	Schedule Number	Wall Des.	ID (mm)	Wall Thickness (mm)	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI
12"	20		311.2	6.35	4.9	717	4.9	717	4.8	695	3.9	566	3.5	510	2.8	409
	30		307.1	8.38	6.6	951	6.6	951	6.3	917	5.1	746	4.6	673	3.7	542
		STD	304.9	9.52	7.5	1,080	7.5	1,080	7.2	1,040	5.8	848	5.3	765	4.3	618
	40		303.3	10.31	8.1	1,180	8.1	1,180	7.8	1,130	6.3	918	5.7	828	4.6	670
		XS	298.5	12.7	10	1,460	10	1,460	9.6	1,390	7.8	1,130	7	1,020	5.7	831
	60		295.4	14.27	11	1,640	11	1,640	11	1,560	8.8	1,270	7.9	1,150	6.5	937
	80		288.9	17.48	14	2,030	14	2,030	13	1,910	11	1,560	9.7	1,400	8	1,160
	100		281.0	21.44	17	2,520	17	2,520	16	2,350	13	1,910	12	1,720	9.9	1,430
	120	XXS	273.1	25.4	21	3,010	21	3,010	19	2,780	16	2,260	14	2,040	12	1,720
	140		266.8	28.57	24	3,420	24	3,420	22	3,130	18	2,540	16	2,300	13	1,950
	160		257.3	33.32	28	4,040	28	4,040	25	3,650	20	2,970	18	2,680	16	2,300
14"	10		342.9	6.35	4.5	652	4.5	652	4.4	633	3.6	515	3.2	465	2.6	372
	20		339.8	7.92	5.6	816	5.6	816	5.4	789	4.4	642	4	579	3.2	465
	30	STD	336.6	9.52	6.8	985	6.8	985	6.5	949	5.3	772	4.8	697	3.9	561
	40		333.3	11.13	8	1,160	8	1,160	7.6	1,110	6.2	903	5.6	814	4.5	659
		XS	330.2	12.7	9.1	1,320	9.1	1,320	8.7	1,270	7.1	1,030	6.4	929	5.2	754
	60		325.4	15.09	11	1,580	11	1,580	10	1,500	8.4	1,220	7.6	1,100	6.2	901
	80		317.5	19.05	14	2,010	14	2,010	13	1,900	11	1,550	9.6	1,390	7.9	1,150
	100		307.9	23.83	18	2,550	18	2,550	16	2,380	13	1,930	12	1,740	10	1,450
	120		300.0	27.79	21	3,000	21	3,000	19	2,770	16	2,250	14	2,030	12	1,710
	140		292.1	31.75	24	3,460	24	3,460	22	3,160	18	2,580	16	2,320	14	1,970
	160		284.2	35.71	27	3,930	27	3,930	25	3,560	20	2,900	18	2,610	15	2,240

* Based on ASME B31.1 API 5L and BS EN 13480-3 / BS EN 10217-2 / BS EN 10216-2

Temperature					21 °C		93 °C		204 °C		316 °C		371 °C		427 °C	
					70 °F		200 °F		400 °F		600 °F		700 °F		800 °F	
Maximum Allowable Stress					MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI
					138	20,000	138	20,000	137	19,900	123	17,900	115	16,700	79	11,400
					Suggested Maximum Design Pressure based on S235 Min Yield*											
Nominal Bore & OD (ins)	Schedule Number	Wall Des.	ID (mm)	Wall Thickness (mm)	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI
16"	10		393.7	6.35	3.9	570	3.9	570	3.8	554	3.1	451	2.8	407	2.2	325
	20		390.6	7.92	4.9	713	4.9	713	4.8	691	3.9	562	3.5	507	2.8	406
	30	STD	387.4	9.52	5.9	859	5.9	859	5.7	830	4.7	676	4.2	609	3.4	490
	40	XS	381.0	12.7	8	1,150	8	1,150	7.6	1,110	6.2	901	5.6	813	4.5	658
	60		373.1	16.66	11	1,530	11	1,530	10	1,450	8.2	1,180	7.4	1,070	6	870
	80		363.5	21.44	14	1,980	14	1,980	13	1,870	10	1,520	9.5	1,370	7.8	1,130
	100		354.0	26.19	17	2,450	17	2,450	16	2,280	13	1,860	12	1,680	9.6	1,390
	120		344.5	30.96	20	2,920	20	2,920	19	2,700	15	2,200	14	1,980	11	1,660
	140		333.3	36.53	24	3,490	24	3,490	22	3,190	18	2,590	16	2,340	14	1,990
	160		325.4	40.49	27	3,900	27	3,900	24	3,530	20	2,870	18	2,590	15	2,220
18"	10		444.5	6.35	3.5	506	3.5	506	3.4	492	2.8	401	2.5	361	2	288
	20		441.4	7.92	4.4	632	4.4	632	4.2	614	3.4	500	3.1	451	2.5	360
		STD	438.2	9.52	5.3	762	5.3	762	5.1	738	4.1	601	3.7	542	3	435
	30		434.9	11.13	6.2	894	6.2	894	5.9	863	4.8	702	4.4	633	3.5	509
		XS	431.8	12.7	7.1	1,020	7.1	1,020	6.8	985	5.5	801	5	723	4	583
	40		428.7	14.27	7.9	1,150	7.9	1,150	7.6	1,110	6.2	900	5.6	812	4.5	657
	60		419.1	19.05	11	1,550	11	1,550	10	1,480	8.3	1,200	7.5	1,080	6.1	884
	80		409.5	23.83	14	1,960	14	1,960	13	1,850	10	1,500	9.4	1,360	7.7	1,120
	100		398.5	29.36	17	2,440	17	2,440	16	2,280	13	1,850	12	1,670	9.6	1,390
	120		387.4	34.92	20	2,930	20	2,930	19	2,710	15	2,200	14	1,990	12	1,670
	140		377.9	39.67	23	3,360	23	3,360	21	3,080	17	2,500	16	2,260	13	1,910
	160		366.7	45.24	27	3,870	27	3,870	24	3,510	20	2,850	18	2,570	15	2,210

* Based on ASME B31.1 API 5L and BS EN 13480-3 / BS EN 10217-2 / BS EN 10216-2



LINEPIPE PRESSURE
TEMPERATURE RATINGS

Temperature					21 °C		93 °C		204 °C		316 °C		371 °C		427 °C	
					70 °F		200 °F		400 °F		600 °F		700 °F		800 °F	
Maximum Allowable Stress					MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI
					138	20,000	138	20,000	137	19,900	123	17,900	115	16,700	79	11,400
					Suggested Maximum Design Pressure based on S235 Min Yield*											
Nominal Bore & OD (ins)	Schedule Number	Wall Des.	ID (mm)	Wall Thickness (mm)	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI
20"	10		495.3	6.35	3.1	455	3.1	455	3.1	443	2.5	361	2.2	325	1.8	259
	20	STD	489.0	9.52	4.7	685	4.7	685	4.6	664	3.7	541	3.4	488	2.7	390
	30	XS	482.6	12.7	6.3	918	6.3	918	6.1	886	5	721	4.5	650	3.6	523
	40		477.8	15.09	7.6	1,100	7.6	1,100	7.3	1,050	5.9	857	5.3	773	4.3	624
	60		466.8	20.62	10	1,510	10	1,510	9.9	1,440	8.1	1,170	7.3	1,060	5.9	861
	80		455.6	26.19	13	1,940	13	1,940	13	1,830	10	1,490	9.2	1,340	7.6	1,100
	100		442.9	32.54	17	2,430	17	2,430	16	2,270	13	1,850	11	1,670	9.6	1,390
	120		431.8	38.1	20	2,870	20	2,870	18	2,660	15	2,160	13	1,950	11	1,640
	140		419.1	44.45	23	3,390	23	3,390	21	3,100	17	2,520	16	2,280	13	1,930
	160		408.0	50.01	27	3,850	27	3,850	24	3,490	20	2,840	18	2,560	15	2,190
24"	10		596.9	6.35	2.6	378	2.6	378	2.5	369	2.1	300	1.9	271	1.5	216
	20	STD	590.6	9.52	3.9	569	3.9	569	3.8	554	3.1	450	2.8	406	2.2	325
		XS	584.2	12.7	5.3	763	5.3	763	5.1	738	4.1	601	3.7	542	3	435
	30		581.1	14.27	5.9	859	5.9	859	5.7	830	4.7	675	4.2	609	3.4	490
	40		574.6	17.48	7.3	1,060	7.3	1,060	7	1,020	5.7	827	5.1	746	4.2	602
	60		560.4	24.61	10	1,500	10	1,500	9.9	1,430	8	1,160	7.2	1,050	5.9	856
	80		547.7	30.96	13	1,910	13	1,910	12	1,800	10	1,470	9.1	1,320	7.5	1,090
	100		531.8	38.89	17	2,420	17	2,420	16	2,260	13	1,840	11	1,660	9.5	1,380
	120		517.6	46.02	20	2,890	20	2,890	18	2,680	15	2,180	14	1,960	11	1,650
	140		504.9	52.37	23	3,320	23	3,320	21	3,050	17	2,480	15	2,240	13	1,890
	160		490.5	59.54	26	3,810	26	3,810	24	3,460	19	2,820	18	2,540	15	2,170

* Based on ASME B31.1 API 5L and BS EN 13480-3 / BS EN 10217-2 / BS EN 10216-2

OFFSHORE STRUCTURAL TUBES

Dimensional tolerances to EN10210-2
SAW dimensional tolerances to API5L/API2B

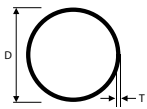
Circular	
Outside dimension (D B and H):	Circular ±1% with a min of ±0.5mm and maximum of ±10mm
Thickness (T):	-10% -12.5% may occur in smooth transition over <25% of circumference for Seamless Note: positive deviation limited by mass tolerance
Mass (M):	±6% on individual lengths
Straightness:	Maximum 0.2% of the total length and 3mm over every 1m length
Length:	+150mm/-0mm

Weldable structural steels for fixed offshore structures to EN10225 S355G13+N (steel no 1.1182+N)

Chemical Composition								
C	Si	Mn	P	S	Cr	Mo	Ni	Al (total)
max %	%	max %	max %	max %	max %	max %	max %v	max %
0.16	0.15 to 0.55	1.60	0.025	0.015	0.25	0.08	0.30	0.060
Cu	N	Nb	V	Ti	Cr+Mo+Ni+Cu	Nb+V	Nb+V+Ti	CEV
max %	max %	max %	max %	max %	max %	max %	max %	max %
0.35	0.014	0.05	0.10	0.02	0.80	0.10	0.12	0.43
Mechanical Properties								
Tensile Strength R _m (MPa)		Minimum Yield Strength R _{eH} (MPa) for thickness t in mm		Minimum average Charpy V-notch impact Energy				
460 to 620		t ≤ 25		R _e /R _m max. ratio		Temp °C		Energy (J)
* For transverse weld testing, test temperature is -20° C with minimum values of 36J		355		0.88		-40		50

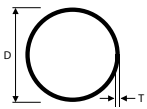
Seamless pipe and hollow sections for fixed offshore structures to EN10225 S355G15+N or Q&T (steel no 1.1190+N) and API5L X52 PSL2 (MOD)

Chemical Composition								
C	Si	Mn	P	S	Cr	Mo	Ni	Al (total)
max %	%	max %	max %	max %	max %	max %	max %	max %
0.18	0.15 to 0.55	1.60	0.025	0.007	0.250	0.08	0.30	0.060
Cu	N	Nb	V	Ti	Cr+Mo+Ni+Cu	Nb+V	Nb+V+Ti	CEV
max %	max %	max %	max %	max %	max %	max %	max %	max %
0.35	0.014	0.05	0.10	0.020	0.80	0.10	0.12	0.43
Mechanical Properties								
Tensile Strength R _m (MPa)			Minimum Yield Strength R _{eH} (MPa) for thickness t in mm			Minimum average Charpy V-notch impact Energy		
460 to 620			t ≤ 20	t 20> ≤40	R _e /R _m max. ratio	Temp °C		Energy (J)
			355	345	0.88	-40		50
Additional Information			Option 13 Z35 25.0mm and above 3.2 certs } G15+N only					



Weldable structural steels for fixed offshore structures
to EN10225 S355G13+N (steel no 1.1182+N)

Outside diameter	W.T.	Linear mass	Cross-sectional area	Second moment of area	Radius of gyration	Elastic section modulus	Plastic section modulus	Torsional inertia constant	Torsional modulus constant
D mm	T mm	M kg/m	A cm ²	I cm ⁴	i cm	W _{el} cm ³	W _{pl} cm ³	I _t cm ⁴	C _t cm ³
273.0	12.50	80.3	102	8,697	9.22	637	849	17,390	1,274
	16.00	101	129	10,710	9.10	784	1,058	21,410	1,569
323.9	12.50	96.0	122	14,850	11.0	917	1,213	29,690	1,833
	16.00	121	155	18,390	10.9	1,136	1,518	36,780	2,271
	20.00	150	191	22,140	10.8	1,370	1,850	44,280	2,730
355.6	12.50	106	135	19,850	12.1	1,117	1,472	39,700	2,233
	16.00	134	171	24,660	12.0	1,387	1,847	49,330	2,774
	20.00	166	211	29,790	11.9	1,680	2,255	59,580	3,351
	25.00	204	260	35,680	11.7	2,010	2,738	71,350	4,013
406.4	12.50	121	155	30,031	13.9	1,478	1,940	60,060	2,956
	16.00	154	196	37,450	13.8	1,843	2,440	74,900	3,686
	20.00	191	243	45,430	13.7	2,240	2,989	90,860	4,472
	25.00	235	300	54,700	13.5	2,690	3,642	109,400	5,384
457.0	12.00	132	168	41,560	15.7	1,819	2,377	83,110	3,637
	16.00	174	222	53,960	15.6	2,361	3,113	107,900	4,723
	20.00	216	275	65,680	15.5	2,870	3,822	131,400	5,749
	25.00	266	339	79,420	15.3	3,480	4,671	158,800	6,951
508.0	12.50	153	195	59,760	17.5	2,353	3,070	119,500	4,705
	16.00	194	247	74,910	17.4	2,949	3,874	149,800	5,898
	20.00	241	307	91,430	17.3	3,600	4,766	182,900	7,199
	25.00	298	379	110,900	17.1	4,370	5,837	221,800	8,734
559.0	20.00	266	339	123,200	19.1	4,406	5,813	246,300	8,813
	25.00	329	419	149,800	18.9	5,360	7,134	299,600	10,720
610.0	20.00	291	371	161,500	20.9	5,290	6,965	323,000	10,590
	25.00	361	459	196,900	20.7	6,460	8,561	393,800	12,910



Seamless pipe and hollow sections for fixed offshore structures
to EN10225 S355G15+N or Q&T (steel no 1.1190+N) and API5L X52 PSL2 (MOD)

Outside diameter	W.T.	Linear mass	Cross-sectional area	Second moment of area	Radius of gyration	Elastic section modulus	Plastic section modulus	Torsional inertia constant	Torsional modulus constant
D mm	T mm	M kg/m	A cm ²	I cm ⁴	i cm	W _{el} cm ³	W _{pl} cm ³	I _t cm ⁴	C _t cm ³
219.1	12.50	63.7	81.1	4,345	7.32	397	534	8,689	793
	16.00	80.1	102	5,297	7.20	483	661	10,590	967
273.0	12.50	80.3	102	8,697	9.22	637	849	17,390	1,274
	16.00	101	129	10,710	9.10	784	1,058	21,410	1,569
	20.00	125	159	12,800	8.97	938	1,283	25,600	1,875
	25.00	153	195	15,130	8.81	1,108	1,543	30,250	2,216
323.9	12.70	97.5	124	15,060	11.0	930	1,231	30,110	1,859
	16.00	121	155	18,390	10.9	1,136	1,518	36,780	2,271
	25.00	184	235	26,400	10.6	1,630	2,239	52,800	3,260
	30.00	217	277	30,220	10.4	1,866	2,600	60,440	3,732
355.6	20.00	166	211	29,790	11.9	1,676	2,255	59,580	3,351
	25.00	204	260	35,680	11.7	2,007	2,738	71,350	4,013
	30.00	241	307	41,010	11.6	2,307	3,189	82,020	4,613
406.4	12.50	121	155	30,030	13.9	1,478	1,940	60,060	2,956
	16.00	154	196	37,450	13.8	1,843	2,440	74,900	3,686
	20.00	191	243	45,430	13.7	2,236	2,989	90,860	4,472
	25.00	235	300	54,700	13.5	2,692	3,642	109,400	5,384
	30.00	278	355	63,220	13.3	3,111	4,259	126,400	6,223
457.0	12.50	137	175	43,140	15.7	1,888	2,470	86,290	3,776
	16.00	174	222	53,960	15.6	2,361	3,113	107,900	4,723
	20.00	216	275	65,680	15.5	2,874	3,822	131,400	5,749
	25.00	266	339	79,420	15.3	3,475	4,671	158,800	6,951
	30.00	316	402	92,170	15.1	4,034	5,479	184,300	8,068
508.0	12.70	155	198	60,640	17.5	2,387	3,116	121,300	4,775
	16.00	194	247	74,910	17.4	2,949	3,874	149,800	5,898
	20.00	241	307	91,430	17.3	3,600	4,766	182,900	7,199
	25.00	298	379	110,900	17.1	4,367	5,837	221,800	8,734
	32.00	376	479	136,100	16.9	5,360	7,261	272,300	10,720
610.0	20.00	291	371	161,500	20.9	5,295	6,965	323,000	10,590
	25.00	361	459	196,900	20.7	6,456	8,561	393,800	12,910
	30.00	429	547	230,500	20.5	7,557	10,100	461,000	15,110
660.0	20.00	316	402	206,100	22.6	6,245	8,195	412,200	12,490





Bianco Group

SAW longitudinally welded hollow section for fixed offshore structures
to EN10225 S355G8+N (steel no 1.8810+N) and
API5L X52N PSL2 (MOD)

Chemical Composition ≤ 25mm

C	Si	Mn	P	S	Cr	Mo	Ni	Al (total)
max %	%	%	max %	max %	max %	max %	max %	%
0.14	0.15 to 0.45	1.00 to 1.4	0.020	0.007	0.250	0.08	0.50	0.015 to 0.055
Cu	N	Nb	Ti	V	Cr+Mo+Ni+Cu	Nb+V	Nb+V+Ti	
max %	max %	max %	max %	max %	max %	max %	max %	
0.30	0.010	0.04	0.03	0.060	0.90	0.06	0.08	

Mechanical Properties

Pipe Body of Welded Pipes

Minimum Tensile Strength R _{ma} (MPa)		Minimum Yield Strength R _{eH} (MPa) for thickness t in mm			Minimum average Charpy V-notch impact Energy	
Min	Max	t ≤ 16	t 16> ≤25	t 25> ≤40	Temp°C	Energy (J)
470	630	355	355	345	-40	50

Additional Information

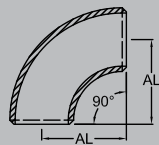
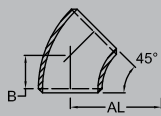
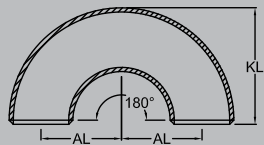
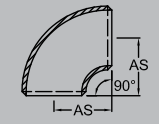
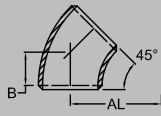
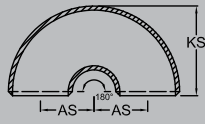
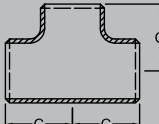
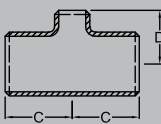
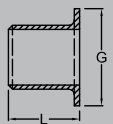
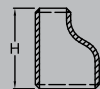
Option 13: Z35 TTT
Certs: 3.2

SAW longitudinally welded hollow section for fixed offshore structures
to EN10225 S355G8+N (steel no 1.8810+N) and
API5L X52N PSL2 (MOD)

Outside diameter D mm	W.T. T mm	Linear mass M kg/m	Cross-sectional area A cm ²	Second moment of area I cm ⁴	Radius of gyration i cm	Elastic section modulus W _{el} cm ³	Plastic section modulus W _{pl} cm ³	Torsional inertia constant I _t cm ⁴	Torsional modulus constant C _t cm ³
610.0	30.00	429	547	230,500	20.5	7,557	10,100	461,000	15,110
	20.60	351	447	266,500	24.4	7,495	9,822	532,900	14,990
711.0	25.40	429	547	321,900	24.3	9,054	11,940	643,800	18,110
	20.60	377	480	329,900	26.2	8,660	11,330	659,900	17,320
762.0	25.40	461	588	399,100	26.1	10,480	13,790	798,200	20,950
	31.80	573	729	487,100	25.8	12,790	16,970	974,200	25,570
	25.40	493	628	487,800	27.9	12,001	15,760	975,600	24,000
813.0	31.80	613	780	596,300	27.6	14,670	19,420	1,192,700	29,340
	25.40	557	709	700,400	31.4	15,330	20,060	1,400,900	30,650
914.0	31.80	692	881	858,500	31.2	18,790	24,760	1,717,000	37,570

FITTINGS SPECIFICATIONS & SIZES

Dimensions of Carbon Steel Fittings
to ASME B16.9

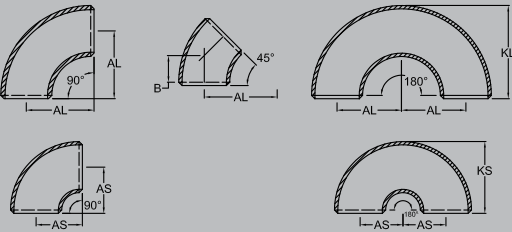
90 Degree Long Radius Elbow 	45 Degree Elbow 	180 Degree Return Bend Long Radius 
90 Degree Short Radius Elbow 	45 Degree Elbow 	180 Degree Return Bend Short Radius 
Equal Tee 	Reducing Tee 	Lap Joint Stub End 
Concentric Reducer 	Eccentric Reducer 	Cap 

Dimensions of welding fittings to ASME B16.9 - Elbows, return bends (long and short radius), stub ends and end caps (ins)

Nominal Bore (ins)	Outside Diam (ins)	ELBOWS & RETURNS (ins)					END CAPS (ins)		STUB ENDS (ins)		
		AL	KL	B	AS	KS	E	E ₁	L (short)	L (long)	G
1/2"	0.84	1.50	1.88	0.62			1.00			3.00	1.38
3/4"	1.05	1.50	2.00	0.75			1.00		2.00	3.00	1.69
1"	1.32	1.50	2.19	0.88	1.00	1.62	1.50		2.00	4.00	2.00
1 1/4"	1.66	1.88	2.75	1.00	1.25	2.06	1.50		2.00	4.00	2.50
1 1/2"	1.90	2.25	3.25	1.12	1.50	2.44	1.50		2.00	4.00	2.88
2"	2.38	3.00	4.19	1.38	2.00	3.19	1.50	1.75	2.50	6.00	3.62
2 1/2"	2.88	3.75	5.19	1.75	2.50	3.94	1.50	2.00	2.50	6.00	4.12
3"	3.50	4.50	6.25	2.00	3.00	4.75	2.00	2.50	2.50	6.00	5.00
3 1/2"	4.00	5.25	7.25	2.25	3.50	5.50	2.50	3.00	3.00	6.00	5.50
4"	4.50	6.00	8.25	2.50	4.00	6.25	2.50	3.00	3.00	6.00	6.19
5"	5.56	7.50	10.31	3.12	5.00	7.75	3.00	3.50	3.00	8.00	7.31
6"	6.62	9.00	12.31	3.75	6.00	9.31	3.50	4.00	3.50	8.00	8.50
8"	8.62	12.00	16.31	5.00	8.00	12.31	4.00	5.00	4.00	8.00	10.62
10"	10.75	15.00	20.38	6.25	10.00	15.38	5.00	6.00	5.00	10.00	12.75
12"	12.75	18.00	24.38	7.50	12.00	18.38	6.00	7.00	6.00	10.00	15.00
14"	14.00	21.00	28.00	8.75	14.00	21.00	6.50	7.50	6.00	12.00	16.25
16"	16.00	24.00	32.00	10.00	16.00	24.00	7.00	8.00	6.00	12.00	18.50
18"	18.00	27.00	36.00	11.25	18.00	27.00	8.00	9.00	6.00	12.00	21.00
20"	20.00	30.00	40.00	12.50	20.00	30.00	9.00	10.00	6.00	12.00	23.00
24"	24.00	36.00	48.00	15.00	24.00	36.00	10.50	12.00	6.00	12.00	27.25
26"	26.00	39.00	52.00	16.00	26.00		10.50				
30"	30.00	45.00	60.00	18.50	30.00		10.50				
36"	36.00	54.00		22.25	36.00		10.50				

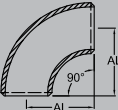
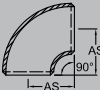
E₁ Applies for thickness above those specified in ASME B16.9 table 1-10

Dimensions of welding fittings to ASME B16.9 - Elbows, return bends (long and short radius), stub ends and end caps (mm)

											
		ELBOWS & RETURNS (mm)					END CAPS (mm)		STUB ENDS (mm)		
Nominal Bore (ins)	Outside Diam (mm)	AL	KL	B	AS	KS	E	E ₁	L (short)	L (Long)	G
½"	21.3	38	48	16			25		51	76	35
¾"	26.7	38	51	19			25		51	76	43
1"	33.4	38	56	22	25	41	38		51	102	51
1¼"	42.2	48	70	25	32	52	38		51	102	64
1½"	48.3	57	83	29	38	62	38		51	102	73
2"	60.3	76	106	35	51	81	38	44	64	152	92
2½"	73.0	95	132	44	64	100	38	51	64	152	105
3"	88.9	114	159	51	76	121	51	64	64	152	127
3½"	101.6	133	184	57	89	140	64	76	76	152	140
4"	114.3	152	210	64	102	159	64	76	152	152	157
5"	141.3	190	262	79	127	197	76	89	76	203	186
6"	168.3	229	313	95	152	237	89	102	89	203	216
8"	219.1	305	414	127	203	313	102	127	102	203	270
10"	273.0	381	518	159	254	391	127	152	127	254	324
12"	323.8	457	619	190	305	467	152	178	152	254	381
14"	355.6	533	711	222	356	533	165	191	152	305	413
16"	406.4	610	813	254	406	610	178	203	152	305	470
18"	457.0	686	914	286	457	686	203	229	152	305	533
20"	508.0	762	1,016	318	508	762	229	254	152	305	584
24"	610.0	914	1,219	381	610	914	267	305	152	305	692
26"	660.0	991		406			267				
30"	762.0	1,143		470			267				
36"	914.0	1,372		565			267				

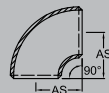
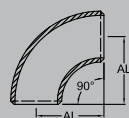
E₁ Applies for thickness above those specified in ASME B16.9 table 1-10

Approximate weight of 90 degree elbows (Kg/Pc)

														
Nominal Bore (ins)	Radius	10	20	30	40	STD	60	XS	80	100	120	140	160	XXS
½"	Long				0.08				0.18				0.22	
	Short													
¾"	Long				0.08				0.18				0.25	
	Short													
1"	Long				0.15				0.20				0.30	0.40
	Short				0.10									
1¼"	Long				0.25				0.35				0.44	0.61
	Short				0.16									
1½"	Long				0.36				0.60				0.80	0.90
	Short				0.24				0.30					
2"	Long				0.65				0.94				1.50	1.80
	Short				0.43				0.60					
2½"	Long				1.28				1.70				2.35	3.21
	Short				0.82				1.15					
3"	Long				2.03				2.75				4.00	5.20
	Short				1.35				1.85					
3½"	Long				2.87				3.95					7.49
	Short				1.90				2.60					
4"	Long				3.90				5.40		6.95		9.00	10.30
	Short				2.60				3.55		4.72			
5"	Long				6.50				8.85		12.6		15.4	18.1
	Short				4.35				6.20		8.44			
6"	Long				10.2				15.4		23.0		27.0	30.0
	Short				6.45				10.2		13.6			
8"	Long		16.6	17.5	20.3				29.9	38.0	40.5	52.0	58.0	54.5
	Short		11.1	12.3	16.50				22.5	26.4	30.0	32.0		
10"	Long		25.8	31.3	37.0				57.1	75.0	85.0	97.0	123	
	Short		17.4	21.3	31.2				40.0	50.0	53.0	62.0		

Continued over

Approximate weight of 90 degree elbows (Kg/Pc) continued

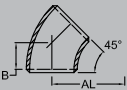


Nominal Bore (ins)	Radius	10	20	30	40	STD	60	XS	80	100	120	140	160	XXS
12"	Long		37.2	46.1	58.2	54.0	82.6	70.0	94.8	123	140	157	180	
	Short		25.0	32.8	40.0	45.0	54.9	49.0	66.3	81.0	92.0	99.0		
14"	Long	57.5	59.9	68.0	80.0	68.0	111	94.4	132	188	190	224	248	
	Short	30.5	39.5	52.5	55.4	52.5	74.0	63.1	93.1	120	124	139		
16"	Long	63.2	78.1	89.2	125	89.2	161	125	204	260	274	323	367	
	Short	39.0	52.2	71.3	82.6	71.3	107	82.6	136	166	172	198		
18"	Long	82.0	99.4	140	177	113	232	158	288	390	405	422	545	
	Short	48.5	65.4	93.1	118	90.0	154	105	192	257	283	387		
20"	Long	100	142	194	230	142	311	194	391	476	508	607	770	
	Short	67.5	110	130	153	110	207	130	260	332	376	430		
22"	Long	120	178	250		178	413	236	523	638	700	850	1,020	
	Short	84.5	132	172		132	282	157	351	430	497	555		
24"	Long	146	202	319	384	202	534	269	667	820	954	1,100	1,270	
	Short	96.5	165	213	256	165	355	188	444	530	621	680		
26"	Long					270		348						
	Short													
28"	Long					300		404						
	Short													
30"	Long					333		441						
	Short													
36"	Long					482		625						
	Short													
40"	Long					580		745						
	Short													
42"	Long					655		840						
	Short													
48"	Long					885		1,067						
	Short													





Approximate weight of 45 degree elbow (Kg/Pc)

													
Nominal Bore (ins)	10	20	30	40	STD	60	XS	80	100	120	140	160	XXS
1/2"				0.04				0.08				0.12	
3/4"				0.04				0.08				0.12	
1"				0.08				0.10				0.14	
1 1/4"				0.12				0.18				0.22	0.30
1 1/2"				0.18				0.25				0.33	0.45
2"				0.32				0.47				0.70	0.84
2 1/2"				0.64				0.85				1.20	1.60
3"				1.02				1.37				2.00	2.60
3 1/2"				1.43				1.97					3.75
4"				1.95				2.70		3.47		4.00	5.20
5"				3.25				4.42		6.31		7.50	9.08
6"				5.10				7.79		9.81		14.0	15.0
8"		9.00	10.4	11.2		13.3		15.0	19.1	21.6	26.0	29.0	27.0
10"		18.5	19.7	20.5		24.3	24.3	30.0	37.6	41.8	48.5	61.0	
12"		24.8	26.1	29.6	27.0	41.3	35.0	49.9	61.5	70.8	79.0	90.3	
14"	25.0	32.0	34.0	40.0	34.0	55.8	47.2	69.9	94.0	95.0	112	124	
16"	32.0	46.5	48.0	62.4	48.0	80.8	62.4	102	130	137	162	183	
18"	41.0	56.0	69.9	88.5	60.0	116	79.0	144	195	203	211	272	
20"	50.0	71.2	97.2	114	71.2	156	97.2	196	238	254	304	385	
22"	60.0	89.0	128		89.0	205	118	257	329	365	425	510	
24"	73.0	103	159	192	103	267	141	334	410	477	545	635	
26"					125		166						
28"					150		202						
30"					167		220						
36"					241		312						
40"					290		373						
42"					327		443						
48"					443		533						

Approximate weight of end caps (Kg/Pc)

													
Nominal Bore (ins)	10	20	30	40	STD	60	XS	80	100	120	140	160	XXS
1/2"				0.03				0.05					
3/4"				0.06				0.10					
1"				0.10				0.13				0.15	0.20
1 1/4"				0.14				0.20				0.23	0.28
1 1/2"				0.20				0.23				0.30	0.36
2"				0.30				0.30				0.55	0.59
2 1/2"				0.50				0.50				0.90	1.00
3"				0.70				0.90				1.40	1.78
3 1/2"				1.40				1.70					2.63
4"				1.60				2.00		2.31		2.75	3.17
5"				2.30				3.00		3.89		5.00	5.50
6"				3.60				4.00		6.02		7.50	8.10
8"		4.50	5.00	5.50		7.00		8.40	11.0	15.5	18.5	20.0	19.5
10"		7.00	7.63	10.0		13.6	13.6	16.2	21.0	24.0	27.0	30.0	
12"		9.00	13.0	19.0	15.0	22.0	22.0	26.9	32.5	41.0	42.0	44.5	
14"		15.5	17.0	23.0	17.0	32.0	27.0	34.7	42.0	47.0	52.0	60.0	
16"	18.0	20.0	23.0	30.0	23.0	37.0	30.0	43.5	54.0	64.0	73.0	79.0	
18"	22.0	25.0	30.3	39.0	29.0	66.0	32.0	72.5	75.0	88.0	93.0	104	
20"	31.0	36.0	49.0	66.7	36.0	94.5	49.0	98.5	100	105	153	170	
22"	35.5	42.0	59.0		42.0	107	51.0	120	135	150	198	220	
24"	44.0	52.0	74.5	93.0	52.0	120	69.0	150	180	200	250	285	
26"					46.5		66.0						
30"	51.0				57.0		79.5						
36"	62.0				79.5		107						
40"					91.0		123						
42"					105		137						
48"					116		155						

Dimensions to ASME B16.9 for equal and reducing tees, concentric and eccentric reducers (ins)

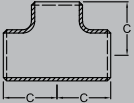
Nominal Bore (ins)	Outlet	C	D	H	Nominal Bore (ins)	Outlet	C	D	H	Nominal Bore (ins)	Outlet	C	D	H	
1"	1"	1.50			5"	5"	4.88			18"	18"	13.50			
	¾"	1.50	1.50	2.00		4"	4.88	4.62	5.00		16"	13.50	13.00	15.00	
	½"	1.50	1.50	2.00		3½"	4.88	4.50	5.00		14"	13.50	13.00	15.00	
1¼"	1¼"	1.88				3"	4.88	4.38	5.00		12"	13.50	12.62	15.00	
	1"	1.88	1.88	2.00		2½"	4.88	4.25	5.00		10"	13.50	12.12	15.00	
	¾"	1.88	1.88	2.00		2"	4.88	4.12	5.00		8"	13.50	11.75		
1½"	½"	1.88	1.88	2.00	6"	6"	5.62			20"	20"	15.00			
	1½"	2.25				5"	5.62	5.38	5.50		18"	15.00	14.50	20.00	
	1¼"	2.25	2.25	2.50		4"	5.62	5.12	5.50		16"	15.00	14.00	20.00	
2"	1"	2.25	2.25	2.50		3½"	5.62	5.00	5.50		14"	15.00	14.00	20.00	
	¾"	2.25	2.25	2.50		3"	5.62	4.88	5.50		12"	15.00	13.62	20.00	
	½"	2.25	2.25	2.50		2½"	5.62	4.75	5.50		10"	15.00	13.12		
2"	2"	2.50			8"	8"	7.00			24"	8"	15.00	12.75		
	1½"	2.50	2.38	3.00		6"	7.00	6.62	6.00		24"	17.00			
	1¼"	2.50	2.25	3.00		5"	7.00	6.38	6.00		20"	17.00	17.00	20.00	
	1"	2.50	2.00	3.00		4"	7.00	6.12	6.00		18"	17.00	16.50	20.00	
¾"	2.50	1.75	3.00	3½"		7.00	6.00	6.00	16"		17.00	16.00	20.00		
2½"	2½"	3.00			10"	10"	8.50			26"	14"	17.00	16.00	20.00	
	2"	3.00	2.75	3.50		8"	8.50	8.00	7.00		12"	17.00	15.62		
	1½"	3.00	2.62	3.50		6"	8.50	7.62	7.00		10"	17.00	15.12		
	1¼"	3.00	2.50	3.50		5"	8.50	7.50	7.00		26"	26	19.50		
	1"	3.00	2.25	3.50		4"	8.50	7.25	7.00		24"	19.50	19.00	24.00	
3"	3"	3.38				12"	12"	10.00			30"	20"	19.50	18.00	24.00
	2½"	3.38	3.25	3.50	10"		10.00	9.50	8.00	18"		19.50	17.50	24.00	
	2"	3.38	3.00	3.50	8"		10.00	9.00	8.00	16"		19.50	17.00		
	1½"	3.38	2.88	3.50	6"		10.00	8.62	8.00	14"		19.50	17.00		
	1¼"	3.38	2.75	3.50	5"		10.00	8.50	8.00	12		19.50	16.62		
3½"	3½"	3.75			14"	14"	11.00			36"	30"	22.00			
	3"	3.75	3.62	4.00		12"	11.00	10.62	13.00		26"	22.00	21.50	24.00	
	2½"	3.75	3.50	4.00		10"	11.00	10.12	13.00		24"	22.00	21.00	24.00	
	2"	3.75	3.25	4.00		8"	11.00	9.75	13.00		22"	22.00	20.50	24.00	
	1½"	3.75	3.12	4.00		6"	11.00	9.38	13.00		20"	22.00	20.00	24.00	
4"	4"	4.12			16"	16"	12.00			36"	18"	22.00	19.50		
	3½"	4.12	4.00	4.00		14"	12.00	12.00	14.00		16"	22.00	19.00		
	3"	4.12	3.88	4.00		12"	12.00	11.62	14.00		36"	36"	26.50		
	2½"	4.12	3.75	4.00		10"	12.00	11.12	14.00		30"	26.50	25.00	24.00	
	2"	4.12	3.50	4.00		8"	12.00	10.75	14.00		24"	26.50	24.00	24.00	
	1½"	4.12	3.38	4.00		6"	12.00	10.38		20"	26.50	23.00			

Dimensions to ASME B16.9 for equal and reducing tees, concentric and eccentric reducers (mm)

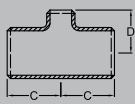
Nominal Bore (ins)	Outlet	C	D	H	Nominal Bore (ins)	Outlet	C	D	H	Nominal Bore (ins)	Outlet	C	D	H
1"	1"	38			5"	5"	124			18"	18"	343		
	¾"	38	38	51		4"	124	117	127		16"	343	330	381
	½"	38	38	51		3½"	124	114	127		14"	343	330	381
1¼"	1¼"	48				3"	124	111	127		12"	343	321	381
	1"	48	48	51		2½"	124	108	127		10"	343	308	381
	¾"	48	48	51		2"	124	105	127		8"	343	298	
1½"	½"	48	48	51	6"	6"	143			20"	20"	381		
	1½"	57				5"	143	137	140		18"	381	386	508
	1¼"	57	57	64		4"	143	130	140		16"	381	356	508
	1"	57	57	64		3½"	143	127	140		14"	381	356	508
	¾"	57	57	64		3"	143	124	140		12"	381	346	508
½"	57	57	64	2½"		143	121	140	10"		381	333		
2"	2"	64			8"	8"	178			24"	8"	381	324	
	1½"	64	60	76		6"	178	168	152		24"	432		
	1¼"	64	57	76		5"	178	162	152		20"	432	432	508
	1"	64	51	76		4"	178	156	152		18"	432	419	508
	¾"	64	44	76		3½"	178	152	152		16"	432	406	508
2½"	2½"	76			10"	10"	216				26"	14"	432	406
	2"	76	70	89		8"	216	203	178	12"		432	397	
	1½"	76	67	89		6"	216	194	178	10"		432	384	
	1¼"	76	64	89		5"	216	191	178	26"		495		
	1"	76	57	89		4"	216	184	178	24"		495	483	610
3"	3"	86				12"	12"	254				30"	20"	495
	2½"	86	83	89	10"		254	241	203	18"	495		444	610
	2"	86	76	89	8"		254	229	203	16"	495		432	
	1½"	86	73	89	6"		254	219	203	14"	495		432	
	1¼"	86	70	89	5"		254	216	203	12"	495		422	
3½"	3½"	95			14"	14"	279			36"	30"		559	
	3"	95	92	102		12"	279	270	330		26"	559	546	610
	2½"	95	89	102		10"	279	257	330		24"	559	533	610
	2"	95	83	102		8"	279	248	330		22"	559	521	610
	1½"	95	79	102		6"	279	238	330		20"	559	508	610
4"	4"	105			16"	16"	305				36"	18"	559	495
	3½"	105	102	102		14"	305	305	356	16"		559	483	
	3"	105	98	102		12"	305	295	356	36"		673		
	2½"	105	95	102		10"	305	283	356	30"		673	635	610
	2"	105	89	102		8"	305	273	356	24"		673	610	610
	1½"	105	86	102		6"	305	264	356	20"		673	584	610



Approximate weight of equal tees (Kg/Pc)

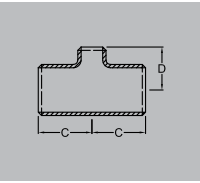
													
Nominal Bore (ins)	10	20	30	40	STD	60	XS	80	100	120	140	160	XXS
½"				0.16				0.25				0.28	
¾"				0.20				0.27				0.29	0.38
1"				0.29				0.35				0.45	0.58
1¼"				0.53				0.65				0.77	1.05
1½"				0.77				0.96				1.21	1.56
2"				1.88				1.90				2.25	2.69
2½"				2.69				3.07				3.42	4.54
3"				3.82				4.50				6.21	7.63
3½"				5.18				6.17				9.00	9.62
4"				6.00				8.44				15.5	17.0
5"				9.94				12.9		18.0		23.9	25.0
6"				16.48				19.3		24.0		38.5	39.0
8"		29.0	31.0	33.0	33.0	34.5	34.5	34.5	43.7	50.0	84.0	71.0	69.0
10"		34.7	36.8	49.4	49.4	58.6	58.6	68.0	74.0	93.0	99.0	120	
12"		59.0	61.7	70.5	65.0	103	84.9	115	136	150	177	184	
14"	87.2	90.0	93.0	114	93.0	141	127	165	206	240	275	300	
16"	90.8	100	115	168	115	208	168	249	305	330	385	425	
18"	94.5	127	181	238	135	278	190	322	380	450	500	590	
20"	120	168	265	321	168	379	245	459	540	590	720	790	
22"	143	200	355		200	510	280	600	725	840	950	110	
24"	170	240	443	571	240	656	350	748	910	1,100	1,180	1,310	
26"					288		361						
30"					389		484						
36"					588		731						
40"					690		895						
42"					831		1,113						
48"					1,113		1,499						

Approximate weight of reducing tees (Kg/Pc)

														
Nominal Bore (ins)	Outlet (ins)	10	20	30	40	STD	60	XS	80	100	120	140	160	XXS
½"	⅜"				0.16				0.25					
	¼"				0.16				0.25					
¾"	½"				0.25				0.34				0.27	0.48
	⅜"				0.25				0.34					
1"	¾"				0.35				0.40				0.46	0.57
	½"				0.34				0.40				0.44	0.55
1¼"	1"				0.55				0.60				0.80	1.09
	¾"				0.54				0.59				0.78	1.02
	½"				0.53				0.58				0.76	1.00
1½"	1¼"				0.80				0.99				1.25	1.62
	1"				0.73				0.96				1.25	1.55
	¾"				0.73				0.94				1.19	1.50
	½"				0.73				0.94				1.19	
2"	1½"				1.50				2.05				2.27	2.73
	1¼"				1.46				2.05				2.23	2.71
	1"				1.31				2.05				2.19	2.65
	¾"				1.29				2.05				2.16	2.52
2½"	2"				2.08				3.37				3.45	4.58
	1½"				2.04				3.37				3.65	4.49
	1¼"				1.99				3.37				3.60	4.46
	1"				1.96				3.37				3.57	4.27
3"	2½"				3.00				4.25				5.60	7.70
	2"				2.90				4.25				5.50	7.50
	1½"				2.88				4.25				5.50	7.50
	1¼"				2.88				4.25				5.40	7.40
	1"				2.88				4.25				5.40	7.40
4"	3½"				5.27				7.50		11.1			17.0
	3"				5.18				7.50				15.5	17.0
	2½"				5.13				7.50				15.5	17.0
	2"				4.99				7.50				15.5	17.0
	1½"				4.95				7.50				15.5	17.0

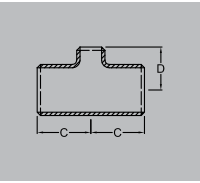
Continued over

Approximate weight of reducing tees (Kg/Pc) continued...



Nominal Bore (ins)	Outlet (ins)	10	20	30	40	STD	60	XS	80	100	120	140	160	XXS
5"	4"				8.22				12.1		18.1		23.0	26.2
	3½"				8.08				12.1					26.2
	3"				7.99				12.1				23.0	26.2
	2½"				7.90				12.1				23.0	22.2
	2"				7.81				12.1				23.0	22.2
6"	5"				16.0				18.0		29.0		30.0	38.0
	4"				16.0				18.0		29.0		30.0	29.0
	3½"				16.0				18.0					29.0
	3"				16.0				18.0				30.0	29.0
	2½"				16.0				18.0				29.0	29.0
	2"				16.0				18.0				29.0	29.0
8"	6"				28.0				34.0		52.0		52.0	51.0
	5"				28.0				34.0		44.0		52.0	51.0
	4"				28.0				34.0		44.0		49.0	51.0
	3½"				28.0				34.0					
	3"				28.0				34.0					
10"	8"		29.0	35.0	41.0		53.0	58.0	71.0	73.0	89.0	99.0	109	
	6"				41.0			52.0	53.0		82.0		101	
	5"				41.0			52.0	53.0		71.0		89.0	
	4"				41.0			52.0	53.0		71.0		85.0	
12"	10"		43.0	62.0	67.0	63.0	103	85.0	103	126	149	160	171	
	8"		41.0	60.0	64.0	63.0	82.0	82.0	82.0	122	133	144	155	
	6"				64.0	63.0		82.0	82.0					
	5"				64.0	63.0		82.0	82.0		103		144	
14"	12"		95.0	103	114	111	141	127	143	206	235	275		300
	10"		90.0	99.0	109	107	136	127	141	195	230	265		285
	8"		90.0	99.0	109	107	136	122	122	195	220	250		270
	6"				109	107		122	122		205			270
16"	14"	84.0	100	119	167	119	208	167	200	260	320	360	410	
	12"		100	110	161	119	181	167	181	250	310	340	385	
	10"		98.0	107	160	116	163	160	163	210	295	310	360	
	8"		98.0	107	160	116	161	160	163	210	280	295	295	
	6"				160	116		160	163		250		295	

Approximate weight of reducing tees (Kg/Pc) continued...

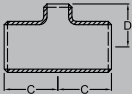


Nominal Bore (ins)	Outlet (ins)	10	20	30	40	STD	60	X5	80	100	120	140	160	XXS
18"	16"	105	127	164	238	135	257	190	279	380	440	475	550	
	14"	105	127	164	194	135	212	190	258	370	420	455	520	
	12"		127	154	194	135	212	164	234	325	410	410	500	
	10"		123	140	150	129	212	164	225	325	385	385	475	
	8"		123	140	150	129	188	154	205	310	360	360	455	
20"	18"	112	168	218	265	168	351	218	410	540	570	680	770	
	16"	112	168	218	230	168	324	218	355	470	550	630	750	
	14"	110	164	214	224	163	293	214	324	470	530	590		
	12"		164	214	224	163	293	214	324	450	500	540	700	
	10"		164	214	220	163	286	214	293	420	475	500	680	
	8"		164	214	220	163	224	214	228	390	420	450	660	
22"	20"	210	220	280		220	445	280	513	725	820	910	1,020	
	18"	190	209	260		209	390	260	415	642	780	840	965	
	16"	190	209	260		209	390	260	415	642	780	840	965	
	14"	160	173	245		172	337	245	374	525	695	725	860	
	12"		173	245		172	337	245	374	525	695	725	860	
	10"		173	245		172	337	245	374	525	695	725	860	
24"	22"	151	227	373		227	595	350	675	910	1,140	1,160	1,290	
	20"	151	227	373	390	227	545	350	606	910	1,090	1,140	1,270	
	18"	151	227	340	390	227	472	320	533	815	1,040	1,090	1,210	
	16"	150	222	340	309	222	427	320	490	815	1,010	1,060	1,180	
	14"	150	222	320	309	222	427	300	490	770	1,000	1,050	1,140	
	12"		218	320	308	218	389	300	452	770	950	980	1,090	
	10"		204	320	308	204	389	300	452	635	920	950	1,040	
26"	24"					280		350						
	22"					272		340						
	20"					264		330						
	18"					255		323						
	16"					247		309						
	14"					239		309						
	12"					231		293						

Continued over



Approximate weight of reducing tees (Kg/Pc) continued

														
Nominal Bore (ins)	Outlet (ins)	10	20	30	40	STD	60	XS	80	100	120	140	160	XXS
30"	28"					380		475						
	26"					372		463						
	24"					361		452						
	22"					351		441						
	20"					340		429						
	18"					330		417						
	16"					321		405						
	14"					312		395						
	12"					304		385						
	10"					296		377						
36"	34"					574		715						
	32"					561		700						
	30"					548		685						
	28"					537		670						
	26"					526		654						
	24"					513		643						
	22"					502		622						
	20"					493		621						
	18"					483		611						
	16"					472		602						

Approximate weight of concentric / eccentric reducers (Kg/Pc)

														
Nominal Bore (ins)	Outlet (ins)	10	20	30	40	STD	60	XS	80	100	120	140	160	XXS
¾"	½"				0.07				0.10				0.14	0.19
	⅜"				0.07				0.10					
1"	¾"				0.13				0.16				0.21	0.28
	½"				0.13				0.16				0.21	0.28
1¼"	1"				0.17				0.23				0.29	0.39
	¾"				0.17				0.23				0.29	0.39
	½"				0.17				0.23				0.29	0.39
1½"	1¼"				0.26				0.35				0.46	0.61
	1"				0.26				0.35				0.46	0.61
	¾"				0.26				0.35				0.46	0.61
	½"				0.26				0.35				0.46	0.61
2"	1½"				0.41				0.57				0.84	1.03
	1¼"				0.41				0.57				0.84	1.03
	1"				0.41				0.57				0.84	1.03
	¾"				0.41				0.57				0.84	1.03
	½"				0.41				0.57				0.84	1.03
2½"	2"				0.77				1.01				1.33	1.81
	1½"				0.77				1.01				1.33	1.81
	1¼"				0.77				1.01				1.33	1.81
	1"				0.77				1.01				1.33	1.81
3"	2½"				1.00				1.36				1.89	2.47
	2"				1.00				1.36				1.89	2.47
	1½"				1.00				1.36				1.89	2.47
	1¼"				1.00				1.36				1.89	2.47
	1"				1.00				1.36				1.89	2.47
3½"	3"				1.40				1.89					3.45
	2½"				1.40				1.89					3.45
	2"				1.40				1.89					3.45
	1½"				1.40				1.89					3.45
	1¼"				1.40				1.89					3.45

Continued over



Approximate weight of concentric / eccentric reducers (Kg/Pc) continued...

														
Nominal Bore (ins)	Outlet (ins)	10	20	30	40	STD	60	XS	80	100	120	140	160	XXS
4"	3½"				1.60				2.27					4.18
	3"				1.60				2.27				3.41	4.18
	2½"				1.60				2.27				3.41	4.18
	2"				1.60				2.27				3.41	4.18
	1½"				1.60				2.27				3.41	4.18
	1"				1.60				2.27				3.41	4.18
5"	4"				2.80				3.93		5.68		6.26	7.31
	3½"				2.80				3.93					7.31
	3"				2.80				3.93				6.26	7.31
	2½"				2.80				3.93				6.26	7.31
	2"				2.80				3.93				6.26	7.31
6"	5"				3.90				5.95		7.58		9.40	11.1
	4"				3.90				5.95		7.58		9.40	11.1
	3½"				3.90				5.95				9.40	11.1
	3"				3.90				5.95				9.40	11.1
	2½"				3.90				5.95				9.40	11.1
	2"				3.90				5.95				9.40	11.1
8"	6"				6.50				9.86		13.7		16.9	16.4
	5"				6.50				9.86		13.7		16.9	16.4
	4"				6.50				9.86		13.7		16.9	16.4
	3½"				6.50				9.86				16.9	16.4
	3"				3.90				5.95				9.40	11.1
10"	8"		7.50	9.00	10.7		14.5	14.5	17.0		23.6	27.5	30.6	
	6"				10.7			14.5	17.0		23.6		30.6	
	5"				10.7			14.5	17.0		23.6		30.6	
	4"				10.7			14.5	17.0		23.6		30.6	
12"	10"		10.2	13.2	16.3	15.0	22.2	19.8	26.8	32.4	38.0	42.3	48.6	
	8"		10.2	13.2	16.3	15.0	22.2	19.8	26.8	32.4	38.0	42.3	48.6	
	6"				16.3	15.0		19.8	26.8		38.0		48.6	
	5"				16.3	15.0		19.8	26.8		38.0		48.6	

Approximate weight of concentric / eccentric reducers (Kg/Pc) continued...

														
Nominal Bore (ins)	Outlet (ins)	10	20	30	40	STD	60	XS	80	100	120	140	160	XXS
14"	12"		22.6	26.8	31.1	26.9	42.0	35.5	52.2	64.0	73.0	78.0	86.0	
	10"		22.6	26.8	31.1	26.9	42.0	35.5	52.2	64.0	73.0	78.0	86.0	
	8"		22.6	26.8	31.1	26.9	42.0	35.5	52.2	64.0	73.0	78.0	86.0	
	6"				31.1	26.9		35.5	52.2		73.0		86.0	
16"	14"	28.0	27.9	33.1	43.8	33.0	57.0	44.0	72.2	83.0	97.00	112	121	
	12"		27.9	33.1	43.8	33.0	57.0	44.0	72.2	83.0	97.00	112	121	
	10"		27.9	33.1	43.8	33.0	57.0	44.0	72.2	83.0	97.00	112	121	
18"	8"		27.9	33.1	43.8	33.0	57.0	44.0	72.2	83.0	97.00	112	121	
	16"	34.0	33.3	48.0	59.0	40.0	79.0	53.0	96.7	116	136	145	159	
	14"	34.0	33.3	48.0	59.0	40.0	79.0	53.0	96.7	116	136	145	159	
	12"		33.3	48.0	59.0	40.0	79.0	53.0	96.7	116	136	145	159	
20"	10"		33.3	48.0	59.0	40.0	79.0	53.0	96.7	116	136	145	159	
	8"		33.3	48.0	59.0	40.0	79.0	53.0	96.7	116	136	145	159	
	18"	50.0	58.0	79.0	93.0	59.0	126	79.0	158	163	178	305	340	
	16"	50.0	58.0	79.0	93.0	59.0	126	79.0	158	163	178	305	340	
22"	14"	50.0	58.0	79.0	93.0	59.0	126	79.0	158	163	178	305	340	
	12"		58.0	79.0	93.0	59.0	126	79.0	158	163	178	305	340	
	20"	57.0	61.0	92.0		65.0	150	87.0	188	201	233	415	460	
	18"	57.0	61.0	92.0		65.0	150	87.0	188	201	233	415	460	
24"	16"	57.0	61.0	92.0		65.0	150	87.0	188	201	233	415	460	
	22"	63.0	72.0	107		72.0	180	95.0	228	241	295	540	610	
	20"	63.0	72.0	107	129	72.0	180	95.0	228	241	295	540	610	
	18"	63.0	72.0	107	129	72.0	180	95.0	228	241	295	540	610	
26"	24"					91.0		115						
	22"					91.0		115						
	20"					91.0		115						
	18"					91.0		115						

Continued over

Approximate weight of concentric / eccentric reducers (Kg/Pc) continued

														
Nominal Bore (ins)	Outlet (ins)	10	20	30	40	STD	60	XS	80	100	120	140	160	XXS
30"	28"					100		143						
	26"					100		143						
	24"					100		143						
	20"					100		143						
36"	34"					154		165						
	32"					154		165						
	30"					154		165						
	26"					150		160						
	24"					145		160						





Approximate weight of forged fittings to ASME B16.11- Screwed Fittings (Kg/Pc)

Nominal Bore (ins)	90 Deg Elbow		45 Deg Elbow		Tee		Cross		Coupling		Half Coupling		Cap		Square Head Plug		Hexgon Head Plug		Round Head Plug		Hexagon Head Bush		Union	
	3000	6000	3000	6000	3000	6000	3000	6000	3000	6000	3000	6000	3000	6000	3000	6000	3000	6000	3000	6000	3000	6000	3000	6000
1/8"	0.14	0.30	0.12	0.41	0.20	0.42	0.21	0.51	0.04	0.06	0.02	0.03	0.04	0.06	0.01	0.01	0.02	0.02	0.03	0.03	-	-	0.14	0.20
1/4"	0.14	0.30	0.12	0.41	0.20	0.42	0.21	0.51	0.04	0.06	0.02	0.03	0.04	0.06	0.01	0.01	0.02	0.02	0.04	0.04	0.02	0.02	0.14	0.20
3/8"	0.27	0.46	0.27	0.59	0.38	0.63	0.43	0.70	0.06	0.18	0.03	0.09	0.05	0.09	0.03	0.03	0.05	0.05	0.07	0.07	0.03	0.03	0.20	0.40
1/2"	0.42	0.72	0.34	0.61	0.56	0.98	0.66	1.17	0.13	0.31	0.06	0.16	0.10	0.14	0.05	0.05	0.07	0.07	0.12	0.12	0.04	0.04	0.35	0.60
3/4"	0.65	1.16	0.54	1.02	0.84	1.65	1.05	1.91	0.19	0.41	0.09	0.21	0.18	0.20	0.08	0.08	0.18	0.18	0.19	0.19	0.07	0.07	0.43	0.80
1"	1.04	1.62	0.72	1.38	1.36	2.19	1.69	2.56	0.39	0.85	0.20	0.43	0.33	0.34	0.16	0.16	0.25	0.25	0.34	0.34	0.10	0.10	0.65	0.90
1 1/4"	1.30	2.67	0.97	2.07	1.65	3.32	1.99	4.35	0.68	1.05	0.34	0.53	0.60	0.60	0.27	0.27	0.45	0.45	0.55	0.55	0.20	0.20	0.98	1.35
1 1/2"	2.22	3.21	1.84	2.61	3.10	4.42	3.69	5.17	0.99	1.81	0.50	0.91	0.70	0.77	0.38	0.38	0.60	0.60	0.72	0.72	0.30	0.30	1.26	2.50
2"	2.47	7.94	1.93	4.37	5.18	8.50	3.77	12.0	1.37	3.40	0.69	1.70	1.06	1.47	0.63	0.63	1.16	1.16	1.41	1.41	0.45	0.45	2.00	5.30
2 1/2"	7.34	9.85	3.46	7.00	8.80	13.1	9.50	16.5	2.07	4.19	1.04	2.10	1.84	2.10	0.95	0.95	1.75	1.75	2.20	2.20	0.54	0.54	4.50	7.00
3"	7.78	18.0	5.45	14.2	9.50	24.0	13.0	28.0	3.08	6.10	1.54	3.05	1.65	2.50	1.54	1.54	2.50	2.50	3.26	3.26	1.17	1.17	7.00	12.0
4"	13.3	-	9.50	14.2	17.2	24.0	19.0	-	5.44	10.0	2.73	5.03	4.57	6.30	3.85	3.85	6.00	6.00	6.00	6.00	3.15	3.15	12.0	-

Approximate weight of socket weld fittings to ASME B16.11 (Kg/Pc)

Nominal Bore (ins)	90 Deg Elbow		45 Deg Elbow		Tee		Cross		Coupling		Half Coupling		Cap	
	3000	6000	3000	6000	3000	6000	3000	6000	3000	6000	3000	6000	3000	6000
1/8"	0.12	-	0.09	-	0.12	-	0.18	-	0.05	-	0.02	0.05	0.1	-
1/4"	0.12	0.30	0.09	0.25	0.12	0.12	0.18	0.62	0.05	0.10	0.02	0.09	0.04	-
3/8"	0.11	0.30	0.09	0.25	0.10	0.18	0.18	0.62	0.05	0.18	0.03	0.11	0.05	-
1/2"	0.22	0.40	0.26	0.31	0.21	0.40	0.36	0.63	0.13	0.23	0.06	0.16	0.10	0.19
3/4"	0.31	0.62	0.35	0.52	0.31	0.62	0.45	1.04	0.18	0.32	0.09	0.32	0.16	0.27
1"	0.47	1.02	0.38	0.92	0.47	1.02	0.76	1.71	0.26	0.64	0.13	0.36	0.22	0.53
1 1/4"	0.67	1.32	0.61	1.02	0.67	1.32	1.09	2.11	0.48	0.72	0.24	0.58	0.41	0.64
1 1/2"	0.90	2.37	0.71	1.92	0.90	2.37	1.45	3.95	0.57	1.17	0.28	1.04	0.51	0.97
2"	1.36	2.72	1.14	2.28	1.36	2.72	2.35	4.22	0.92	2.08	0.46	1.40	0.85	1.64
2 1/2"	2.80	5.80	3.36	4.04	2.80	5.80	4.50	11.8	1.40	2.80	0.70	1.61	1.25	2.23
3"	4.40	8.40	4.70	5.80	4.40	8.40	7.80	13.2	1.80	3.23	0.90	3.11	1.95	3.45
4"	13.3	15.8	9.00	10.7	13.3	16.5	21.5	26.0	3.23	6.22	-	-	3.36	6.04

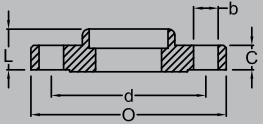
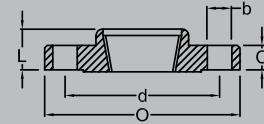
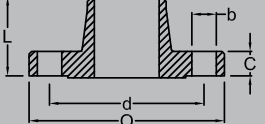
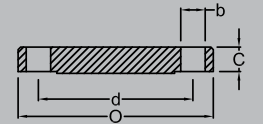
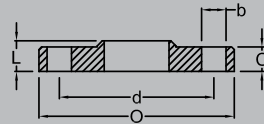
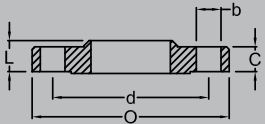
Approximate weight of OLETS - MSS SP95/97 (Kg/Pc)

Nominal Bore (ins)	Elbolets (Threaded and Socket Weld)						Threadolets		Sockolets		Weldolets			
	3000	6000	SCH 40	SCH 80	SCH 160	XXS	3000	6000	3000	6000	STD	XS	SCH 160	XXS
1/8"							0.05		0.05					
1/4"	0.23	0.34	0.23	0.23	0.34	0.34	0.05	0.14	0.05					
3/8"	0.23	0.34	0.23	0.23	0.34	0.34	0.09	0.14	0.09					
1/2"	0.30	0.39	0.30	0.30	0.39	0.39	0.11	0.20	0.14	0.23	0.07	0.07	0.11	0.11
3/4"	0.34	0.57	0.34	0.34	0.57	0.57	0.16	0.34	0.15	0.36	0.11	0.33	1.32	1.32
1"	0.52	1.00	0.52	0.52	1.00	1.00	0.28	0.56	0.27	0.60	0.18	0.18	1.32	1.32
1 1/4"	0.86	1.80	0.86	0.86	1.80	1.80	0.41	0.71	0.39	0.75	0.32	1.57	1.57	1.57
1 1/2"	1.20	2.80	1.20	1.20	2.80	2.86	0.45	0.89	0.47	0.90	0.36	0.41	1.79	1.79
2"	2.40		2.40	2.40			0.79	2.30	0.73	2.30	0.68	0.73	1.97	1.97
2 1/2"							1.36		1.25		1.02	1.13	1.53	1.53
3"							1.97		1.72		1.70	1.81	2.87	2.87
3 1/2"							2.61		1.95		2.30	2.30		
4"							3.22		3.30		3.00	3.00	4.76	4.76
5"							5.44		5.40		3.90	3.90	6.46	6.46
6"							6.94		6.60		6.40	6.40	13.7	13.7
8"											12.7	14.5		
10"											17.7	20.9		
12"											29.5	37.7		

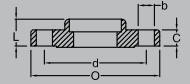
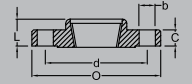
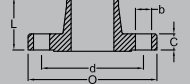
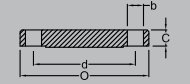
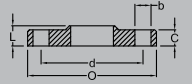
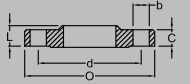


FLANGES SPECIFICATIONS & SIZES

Dimensions of Carbon Steel Flanges
to ASME B16.5

Socket	Threaded	Weld Neck
		
Blind	Lapped	Slip-on
		

Approximate dimensions of flanges to ASME B16.5

Socket	Threaded	Weld Neck	Blind	Lapped	Slip-on
					

Class 150

Nominal Bore (ins)	Outside Diameter (O)		Thickness of Flange (C)		Length through Hub (L)						Bolt Circle (d)		Number and Size of Holes (b)		
					Weld Neck		Thread / Slip-on/ Socket		Lap Joint						
	mm	ins	mm	in	mm	in	mm	in	mm	in	mm	in	No	mm	in
1/2"	88.9	3.50	11.2	0.44	47.8	1.88	15.7	0.62	15.7	0.62	60.3	2.38	4	15.7	0.62
3/4"	98.6	3.88	12.7	0.50	52.3	2.06	15.7	0.62	15.7	0.62	69.9	2.75	4	15.7	0.62
1"	108	4.25	14.2	0.56	55.6	2.19	17.5	0.69	17.5	0.69	79.4	3.12	4	15.7	0.62
1 1/4"	117	4.62	15.7	0.62	57.2	2.25	20.6	0.81	20.6	0.81	88.9	3.50	4	15.7	0.62
1 1/2"	127	5.00	17.5	0.69	62.0	2.44	22.4	0.88	22.4	0.88	98.4	3.88	4	15.7	0.62
2"	152	6.00	19.1	0.75	63.5	2.50	25.4	1.00	25.4	1.00	121	4.75	4	19.1	0.75
2 1/2"	178	7.00	22.4	0.88	69.9	2.75	28.4	1.12	28.4	1.12	140	5.50	4	19.1	0.75
3"	191	7.50	23.9	0.94	69.9	2.75	30.2	1.19	30.2	1.19	152	6.00	4	19.1	0.75
3 1/2"	216	8.50	23.9	0.94	71.4	2.81	31.8	1.25	31.8	1.25	178	7.00	8	19.1	0.75
4"	229	9.00	23.9	0.94	76.2	3.00	33.3	1.31	33.3	1.31	191	7.50	8	19.1	0.75
5"	254	10.00	23.9	0.94	88.9	3.50	36.6	1.44	36.6	1.44	216	8.50	8	22.4	0.88
6"	279	11.00	25.4	1.00	88.9	3.50	39.6	1.56	39.6	1.56	241	9.50	8	22.4	0.88
8"	343	13.50	28.4	1.12	102	4.00	44.4	1.75	44.4	1.75	299	11.75	8	22.4	0.88
10"	406	16.00	30.2	1.19	102	4.00	49.3	1.94	49.3	1.94	362	14.25	12	25.4	1.00
12"	483	19.00	31.8	1.25	114	4.50	55.6	2.19	55.6	2.19	432	17.00	12	25.4	1.00
14"	533	21.00	35.1	1.38	127	5.00	57.2	2.25	79.2	3.12	476	18.75	12	28.4	1.12
16"	597	23.50	36.6	1.44	127	5.00	63.5	2.50	87.4	3.44	540	21.25	16	28.4	1.12
18"	635	25.00	39.6	1.56	140	5.50	68.3	2.69	96.8	3.81	578	22.75	16	31.8	1.25
20"	699	27.50	42.9	1.69	145	5.69	73.2	2.88	103	4.06	635	25.00	20	31.8	1.25
24"	813	32.00	47.8	1.88	152	6.00	82.6	3.25	111	4.38	749	29.50	20	35.1	1.38

Continued over



Approximate dimensions of flanges to ASME B16.5 continued

Socket	Threaded	Weld Neck	Blind	Lapped	Slip-on

Class 300

Nominal Bore (ins)	Outside Diameter (O)		Thickness of Flange (C)		Length through Hub (L)						Bolt Circle (d)		Number and Size of Holes (b)		
					Weld Neck		Thread / Slip-on/ Socket		Lap Joint						
	mm	ins	mm	in	mm	in	mm	in	mm	in	mm	in	No	mm	in
½"	155	6.12	22.4	0.88	69.9	2.75	31.8	1.25	31.8	1.25	114	4.50	4	22.4	0.88
¾"	117	4.62	15.7	0.62	57.2	2.25	25.4	1.00	25.4	1.00	82.6	3.25	4	19.1	0.75
1"	124	4.88	17.5	0.69	62.0	2.44	26.9	1.06	26.9	1.06	88.9	3.50	4	19.1	0.75
1¼"	133	5.25	19.1	0.75	65.0	2.56	26.9	1.06	26.9	1.06	98.4	3.88	4	19.1	0.75
1½"	155	6.12	20.6	0.81	68.3	2.69	30.2	1.19	30.2	1.19	114	4.50	4	22.4	0.88
2"	165	6.50	22.4	0.88	69.9	2.75	33.3	1.31	33.3	1.31	127	5.00	8	19.1	0.75
2½"	191	7.50	25.4	1.00	76.2	3.00	38.1	1.50	38.1	1.50	149	5.88	8	22.4	0.88
3"	210	8.25	28.4	1.12	79.2	3.12	42.9	1.69	42.9	1.69	168	6.62	8	22.4	0.88
3½"	229	9.00	30.2	1.19	81.0	3.19	44.4	1.75	44.4	1.75	184	7.25	8	22.4	0.88
4"	254	10.0	31.8	1.25	85.9	3.38	47.8	1.88	47.8	1.88	200	7.88	8	22.4	0.88
5"	279	11.0	35.1	1.38	98.6	3.88	50.8	2.00	50.8	2.00	235	9.25	8	22.4	0.88
6"	318	12.5	36.6	1.44	98.6	3.88	52.3	2.06	52.3	2.06	270	10.62	12	22.4	0.88
8"	381	15.0	41.1	1.62	111	4.38	62.0	2.44	62.0	2.44	330	13.00	12	25.4	1.00
10"	445	17.5	47.8	1.88	117	4.62	66.5	2.62	95.3	3.75	387	15.25	16	28.4	1.12
12"	521	20.5	50.8	2.00	130	5.12	73.2	2.88	102	4.00	451	17.75	16	13.8	1.25
14"	584	23.0	53.8	2.12	143	5.62	76.2	3.00	111	4.38	514	20.25	20	31.8	1.25
16"	648	25.5	57.2	2.25	146	5.75	82.6	3.25	121	4.75	572	22.50	20	35.1	1.38
18"	711	28.0	60.5	2.38	159	6.25	88.9	3.50	130	5.12	629	24.75	24	35.1	1.38
20"	775	30.5	63.5	2.50	162	6.38	95.3	3.75	140	5.50	686	27.00	24	35.1	1.38
24"	914	36.0	69.9	2.75	168	6.62	106	4.19	152	6.00	813	32.00	24	41.1	1.62

Approximate dimensions of flanges to ASME B16.5 continued

Socket	Threaded	Weld Neck	Blind	Lapped	Slip-on

Class 400

Nominal Bore (ins)	Outside Diameter (O)		Thickness of Flange (C)		Length through Hub (L)						Bolt Circle (d)		Number and Size of Holes (b)		
					Weld Neck		Thread / Slip-on/ Socket		Lap Joint						
	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	No	mm	ins
½"	95.3	3.75	14.2	0.56	52.3	2.06	22.4	0.88	22.4	0.88	66.7	2.62	4	15.7	0.62
¾"	117	4.62	15.7	0.62	57.2	2.25	25.4	1.00	25.4	1.00	82.6	3.25	4	19.1	0.75
1"	124	4.88	17.5	0.69	62.0	2.44	26.9	1.06	26.9	1.06	88.9	3.50	4	19.1	0.75
1¼"	133	5.25	20.6	0.81	66.5	2.62	28.4	1.12	28.4	1.12	98.4	3.88	4	19.1	0.75
1½"	155	6.12	22.4	0.88	69.9	2.75	31.8	1.25	31.8	1.25	114	4.50	4	22.4	0.88
2"	165	6.50	25.4	1.00	73.2	2.88	36.6	1.44	36.6	1.44	127	5.00	8	19.1	0.75
2½"	191	7.50	28.4	1.12	79.2	3.12	41.1	1.62	41.1	1.62	149	5.88	8	22.4	0.88
3"	210	8.25	31.8	1.25	82.6	3.25	46.0	1.81	46.0	1.81	168	6.62	8	22.4	0.88
3½"	229	9.00	35.1	1.38	85.9	3.38	49.3	1.94	49.3	1.94	184	7.25	8	25.4	1.00
4"	254	10.0	35.1	1.38	88.9	3.50	50.8	2.00	50.8	2.00	200	7.88	8	25.4	1.00
5"	279	11.0	38.1	1.50	102	4.00	53.8	2.12	53.8	2.12	235	9.25	8	25.4	1.00
6"	318	12.5	41.1	1.62	103	4.06	57.2	2.25	57.2	2.25	270	10.62	12	25.4	1.00
8"	381	15.0	47.8	1.88	117	4.62	68.3	2.69	68.3	2.69	330	13.00	12	28.4	1.12
10"	445	17.5	53.8	2.12	124	4.88	73.2	2.88	102	4.00	387	15.25	16	31.8	1.25
12"	521	20.5	57.2	2.25	137	5.38	79.2	3.12	108	4.25	451	17.75	16	35.1	1.38
14"	584	23.0	60.5	2.38	149	5.88	84.1	3.31	117	4.62	514	20.25	20	35.1	1.38
16"	648	25.5	63.5	2.50	152	6.00	93.7	3.69	127	5.00	572	22.50	20	38.1	1.50
18"	711	28.0	66.5	2.62	165	6.50	98.6	3.88	137	5.38	629	24.75	24	38.1	1.50
20"	775	30.5	69.9	2.75	168	6.62	102	4.00	146	5.75	686	27.00	24	41.1	1.62
24"	914	36.0	76.2	3.00	175	6.88	114	4.50	159	6.25	813	32.00	24	47.8	1.88

Continued over



Approximate dimensions of flanges to ASME B16.5 continued

Socket	Threaded	Weld Neck	Blind	Lapped	Slip-on

Class 600

Nominal Bore (ins)	Outside Diameter (O)		Thickness of Flange (C)		Length through Hub (L)						Bolt Circle (d)		Number and Size of Holes (b)		
					Weld Neck		Thread / Slip-on/ Socket		Lap Joint						
	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	No	mm	ins
½"	95.3	3.75	14.2	0.56	52.3	2.06	22.4	0.88	22.4	0.88	66.7	2.62	4	15.7	0.62
¾"	117	4.62	15.7	0.62	57.2	2.25	25.4	1.00	25.4	1.00	82.6	3.25	4	19.1	0.75
1"	124	4.88	17.5	0.69	62.0	2.44	26.9	1.06	26.9	1.06	88.9	3.50	4	19.1	0.75
1¼"	133	5.25	20.6	0.81	66.5	2.62	28.4	1.12	28.4	1.12	98.4	3.88	4	19.1	0.75
1½"	155	6.12	22.4	0.88	69.9	2.75	31.8	1.25	31.8	1.25	114	4.50	4	22.4	0.88
2"	165	6.50	25.4	1.00	73.2	2.88	36.6	1.44	36.6	1.44	127	5.00	8	19.1	0.75
2½"	191	7.50	28.4	1.12	79.2	3.12	41.1	1.62	41.1	1.62	149	5.88	8	22.4	0.88
3"	210	8.25	31.8	1.25	82.6	3.25	46.0	1.81	46.0	1.81	168	6.62	8	22.4	0.88
3½"	229	9.00	35.1	1.38	85.9	3.38	49.3	1.94	49.3	1.94	184	7.25	8	22.4	0.88
4"	273	10.75	38.1	1.50	102	4.00	53.8	2.12	53.8	2.12	216	8.50	8	25.4	1.12
5"	330	13.00	44.4	1.75	114	4.50	60.5	2.38	60.5	2.38	267	10.50	8	25.4	1.12
6"	356	14.00	47.8	1.88	117	4.62	66.5	2.62	66.5	2.62	292	11.50	12	25.4	1.12
8"	419	16.50	55.6	2.19	133	5.25	76.2	3.00	76.2	3.00	349	13.75	12	31.8	1.25
10"	508	20.00	63.5	2.50	152	6.00	85.9	3.38	111	4.38	432	17.00	16	35.1	1.38
12"	559	22.00	66.5	2.62	155	6.12	91.9	3.62	117	4.62	489	19.25	20	35.1	1.38
14"	603	23.75	69.9	2.75	165	6.50	93.7	3.69	127	5.00	527	20.75	20	38.1	1.50
16"	686	27.00	76.2	3.00	178	7.00	106	4.19	140	5.50	603	23.75	20	41.1	1.62
18"	743	29.25	82.6	3.25	184	7.25	117	4.62	152	6.00	654	25.75	20	44.5	1.75
20"	813	32.00	88.9	3.50	191	7.50	127	5.00	165	6.50	724	28.50	24	44.5	1.75
24"	940	37.00	102	4.00	203	8.00	140	5.50	184	7.25	838	33.00	24	50.8	2.00

Approximate dimensions of flanges to ASME B16.5 continued

Socket	Threaded	Weld Neck	Blind	Lapped	Slip-on

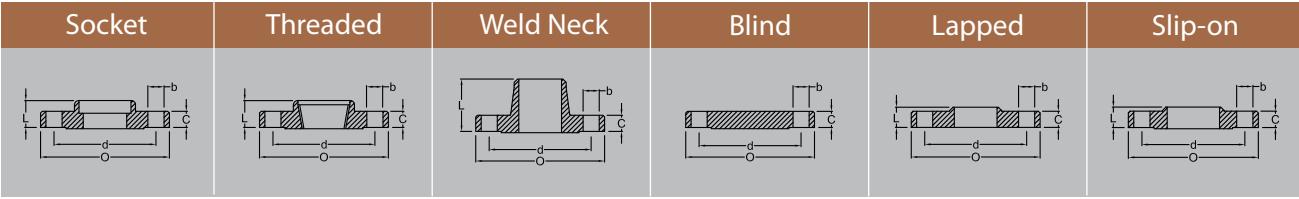
Class 900

Nominal Bore (ins)	Outside Diameter (O)		Thickness of Flange (C)		Length through Hub (L)						Bolt Circle (d)		Number and Size of Holes (b)		
					Weld Neck		Thread / Slip-on/ Socket		Lap Joint						
	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	No	mm	ins
½"	121	4.75	22.4	0.88	60.5	2.38	31.8	1.25	31.8	1.25	82.6	3.25	4	22.4	0.88
¾"	130	5.12	25.4	1.00	69.9	2.75	35.1	1.38	35.1	1.38	88.9	3.50	4	22.4	0.88
1"	149	5.88	28.4	1.12	73.2	2.88	41.1	1.62	41.1	1.62	102	4.00	4	25.4	1.00
1¼"	159	6.25	28.4	1.12	73.2	2.88	41.1	1.62	41.1	1.62	111	4.38	4	25.4	1.00
1½"	178	7.00	31.8	1.25	82.6	3.25	44.4	1.75	44.4	1.75	124	4.88	4	28.4	1.12
2"	216	8.50	38.1	1.50	102	4.00	57.2	2.25	57.2	2.25	165	6.50	8	25.4	1.00
2½"	244	9.62	41.1	1.62	105	4.12	63.5	2.50	63.5	2.50	191	7.50	8	28.4	1.12
3"	241	9.50	38.1	1.50	102	4.00	53.8	2.12	53.8	2.12	191	7.50	8	25.4	1.00
4"	292	11.50	44.4	1.75	114	4.50	69.9	2.75	69.9	2.75	235	9.25	8	31.8	1.25
5"	349	13.75	50.8	2.00	127	5.00	79.2	3.12	79.2	3.12	279	11.00	8	35.1	1.38
6"	381	15.00	55.6	2.19	140	5.50	85.9	3.38	85.9	3.38	318	12.50	12	31.8	1.25
8"	470	18.50	63.5	2.50	162	6.38	114	4.50	114	4.50	394	15.50	12	38.1	1.50
10"	546	21.50	69.9	2.75	184	7.25	108	4.25	127	5.00	470	18.50	16	38.1	1.50
12"	610	24.00	79.2	3.12	200	7.88	117	4.62	143	5.62	533	21.00	20	38.1	1.50
14"	641	25.25	85.9	3.38	213	8.38	130	5.12	155	6.12	559	22.00	20	41.1	1.62
16"	705	27.75	88.9	3.50	216	8.50	133	5.25	165	6.50	616	24.25	20	44.5	1.75
18"	787	31.00	102	4.00	229	9.00	191	6.00	191	7.50	686	27.00	20	50.8	2.00
20"	857	33.75	108	4.25	248	9.75	159	6.25	210	8.25	749	29.50	20	53.8	2.12
24"	1,041	41.00	140	5.50	292	11.50	203	8.00	267	10.50	902	35.50	20	66.5	2.62

Continued over



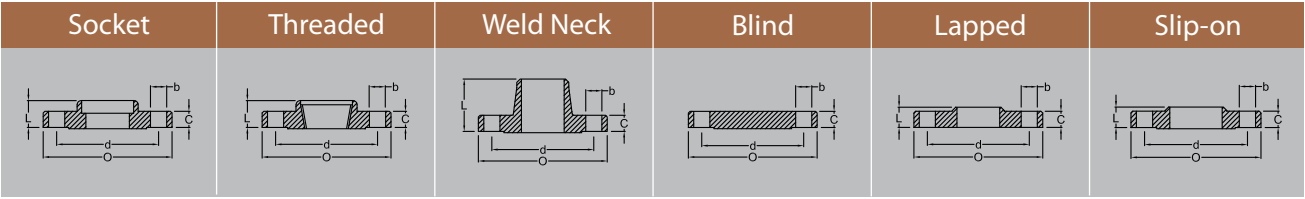
Approximate dimensions of flanges to ASME B16.5 continued



Class 1500

Nominal Bore (ins)	Outside Diameter (O)		Thickness of Flange (C)		Length through Hub (L)						Bolt Circle (d)		Number and Size of Holes (b)		
					Weld Neck		Thread / Slip-on/ Socket		Lap Joint						
	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	No	mm	ins
½"	121	4.75	22.4	0.88	60.5	2.38	31.8	1.25	31.8	1.25	82.6	32.50	4	22.4	0.88
¾"	130	5.12	25.4	1.00	69.9	2.75	35.1	1.38	35.1	1.38	88.9	3.50	4	22.4	0.88
1"	149	5.88	28.4	1.12	73.2	2.88	41.1	1.62	41.1	1.62	102	4.00	4	25.4	1.00
1¼"	159	6.25	28.4	1.12	73.2	2.88	41.1	1.62	41.1	1.62	111	4.38	4	25.4	1.00
1½"	178	7.00	31.8	1.25	82.6	3.25	44.4	1.75	44.4	1.75	124	4.88	4	28.4	1.12
2"	216	8.50	38.1	1.50	102	4.00	57.2	2.25	57.2	2.25	165	6.50	8	25.4	1.00
2½"	244	9.62	41.1	1.62	105	4.12	63.5	2.50	63.5	2.50	191	7.50	8	28.4	1.12
3"	267	10.50	47.8	1.88	117	4.62	73.2	2.88	73.2	2.88	203	8.00	8	31.8	1.25
4"	311	12.25	53.8	2.12	124	4.88	90.4	3.56	90.4	3.56	241	9.50	8	35.1	1.38
5"	375	14.75	73.2	2.88	155	6.12	105	4.12	105	4.12	292	11.50	8	41.1	1.62
6"	394	15.50	82.6	3.25	172	6.75	119	4.69	119	4.69	318	12.50	12	38.1	1.50
8"	483	19.00	91.9	3.62	213	8.38	143	5.62	143	5.62	394	15.50	12	44.5	1.75
10"	584	23.00	108	4.25	254	10.00	159	6.25	178	7.00	483	19.00	12	50.8	2.00
12"	673	26.50	124	4.88	282	11.12	181	7.12	219	8.62	572	22.50	16	53.8	2.12
14"	749	29.50	133	5.25	299	11.75			241	9.50	635	25.00	16	60.5	2.38
16"	826	32.50	146	5.75	311	12.25			260	10.25	705	27.75	16	66.5	2.62
18"	914	36.00	162	6.38	327	12.88			276	10.88	775	30.50	16	73.2	2.88
20"	984	38.75	178	7.00	356	14.00			292	11.50	832	32.75	16	79.2	3.12
24"	1,168	46.00	203	8.00	406	16.00			330	13.00	991	39.00	16	91.9	3.62

Approximate dimensions of flanges to ASME B16.5 continued

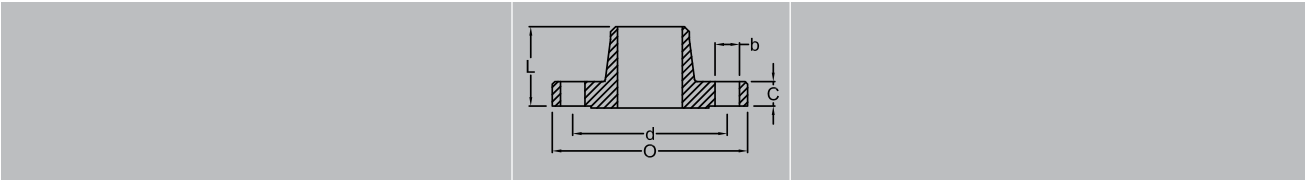


Class 2500

Nominal Bore (ins)	Outside Diameter (O)		Thickness of Flange (C)		Length through Hub (L)						Bolt Circle (d)		Number and Size of Holes (b)		
					Weld Neck		Thread / Slip-on/ Socket		Lap Joint						
	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	No	mm	ins
½"	133	5.25	30.2	1.19	73.2	2.88	39.6	1.56	39.6	1.56	88.9	3.50	4	22.4	0.88
¾"	140	5.50	31.8	1.25	79.2	3.12	42.9	1.69	42.9	1.69	95.2	3.75	4	22.4	0.88
1"	159	6.25	35.1	1.38	88.9	3.50	47.8	1.88	47.8	1.88	108	4.25	4	25.4	1.00
1¼"	184	7.25	38.1	1.50	95.3	3.75	52.3	2.06	52.3	2.06	130	5.12	4	28.4	1.12
1½"	203	8.00	44.4	1.75	111	4.38	60.5	2.38	60.5	2.38	146	5.75	4	31.8	1.25
2"	235	9.25	50.8	2.00	127	5.00	69.9	2.75	69.9	2.75	172	6.75	8	28.5	1.12
2½"	267	10.50	57.2	2.25	143	5.62	79.2	3.12	79.2	3.12	197	7.75	8	31.8	1.25
3"	305	12.00	66.5	2.62	168	6.62	91.9	3.62	91.9	3.62	229	9.00	8	35.1	1.38
4"	356	14.00	76.2	3.00	191	7.50	108	4.25	108	4.25	273	10.75	8	44.1	1.62
5"	419	16.50	91.9	3.62	229	9.00	130	5.12	130	5.12	324	12.75	8	47.8	1.88
6"	483	19.00	108	4.25	273	10.75	152	6.00	152	6.00	368	14.50	8	53.8	2.12
8"	552	21.75	127	5.00	318	12.50	178	7.00	178	7.00	438	17.25	12	53.8	2.12
10"	673	26.50	165	6.50	419	16.50	229	9.00	229	9.00	540	21.25	12	66.5	2.62
12"	762	30.00	184	7.25	464	18.25	254	10.00	254	10.00	619	24.38	12	73.2	2.88

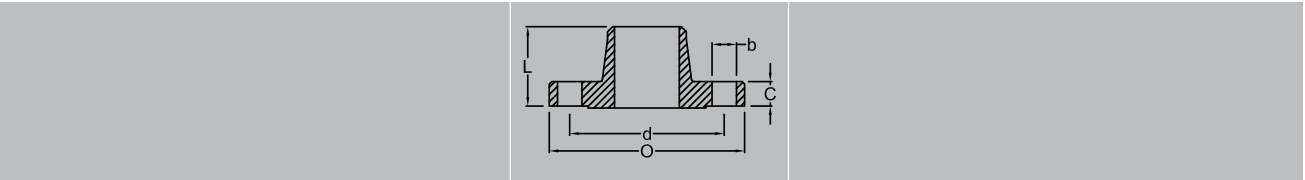


Dimensions of inside bore weld neck flange to ASME B16.5 (mm and ins)



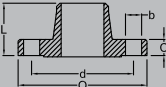
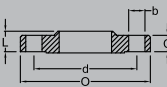
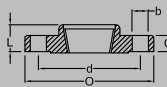
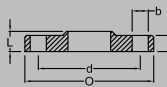
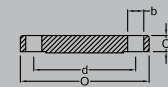
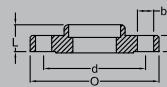
Schedule															
Nominal Bore (ins)		Outlet OD	10	20	30	40	STD	60	XS	80	100	120	140	160	XXS
½"	mm	21.3				15.8	15.8		13.9	13.9				11.8	6.4
	in	0.840				0.622	0.622		0.546	0.546				0.466	0.252
¾"	mm	26.7				20.9	20.9		18.8	18.8				15.6	11.0
	in	1.050				0.824	0.824		0.742	0.742				0.614	0.434
1"	mm	33.4				26.6	26.6		24.3	24.3				20.7	15.2
	in	1.35				1.049	1.049		0.957	0.957				0.815	0.599
1¼"	mm	42.2				35.1	35.1		32.5	32.5				29.5	22.8
	in	1.660				1.380	1.380		1.278	1.278				1.160	0.896
1½"	mm	48.3				40.9	40.9		38.1	38.1				34.0	27.9
	in	1.900				1.610	1.610		1.500	1.500				1.338	1.100
2"	mm	60.3				52.5	52.5		49.3	49.3				42.9	38.2
	in	2.375				2.067	2.067		1.939	1.939				1.689	1.503
2½"	mm	73.0				62.7	62.7		59.0	59.0				54.0	45.0
	in	2.875				2.469	2.469		2.323	2.323				2.125	1.771
3"	mm	88.9				77.9	77.9		73.7	73.7				66.6	58.4
	in	3.500				3.068	3.068		2.900	2.900				2.624	2.300
3½"	mm	101.6				90.1	90.1		85.4	85.4					
	in	4.000				3.548	3.548		3.364	3.364					
4"	mm	114				102	102		97.2	97.2		92.0		87.3	80.1
	in	4.500				4.026	4.026		3.826	3.826		3.624		3.438	3.152
5"	mm	141				128	128		122	122		116		110	103
	in	5.563				5.047	5.047		4.813	4.813		4.563		4.313	4.063

Dimensions of inside bore weld neck flange to ASME B16.5 (mm and ins) continued



Schedule															
Nominal Bore (ins)		Outlet OD	10	20	30	40	STD	60	XS	80	100	120	140	160	XXS
6"	mm	168				154	154		146	146		140		132	127
	ins	6.625				6.065	6.065		5.761	5.761		5.501		5.189	4.987
8"	mm	219		206	205	202	202	198	193	193	189	182	177	173	174
	ins	8.625		8.125	8.071	7.981	7.981	7.813	7.625	7.625	7.439	7.189	7.001	6.813	6.875
10"	mm	273		260	258	255	255	248	248	243	237	230	222	216	
	ins	10.750		10.250	10.136	10.020	10.020	9.750	9.750	9.564	9.314	9.064	8.750	8.500	
12"	mm	324		311	307	303	305	295	299	289	281	273	267	257	
	ins	12.750		12.250	12.090	11.938	12.000	11.626	11.750	11.376	11.064	10.750	10.500	10.126	
14"	mm	356	343	340	337	333	337	326	330	318	308	300	292	284	
	ins	14.000	13.500	13.375	13.250	13.124	13.250	12.814	13.000	12.500	12.126	11.814	11.500	11.188	
16"	mm	406	394	391	387	381	387	373	381	364	354	345	333	326	
	ins	16.000	15.500	15.375	15.250	15.000	15.250	14.688	15.000	14.314	13.938	13.564	13.124	12.814	
18"	mm	457	445	441	435	429	438	419	432	410	399	387	378	367	
	ins	18.000	17.500	17.375	17.124	16.876	17.250	16.500	17.000	16.126	15.688	15.250	14.876	14.438	
20"	mm	508	495	489	483	478	489	467	483	456	443	432	419	408	
	ins	20.000	19.500	19.250	19.000	18.814	19.250	18.376	19.000	17.938	17.438	17.000	16.500	16.064	
24"	mm	610	597	591	581	575	591	560	584	548	532	518	505	491	
	ins	24.000	23.500	23.250	22.876	22.626	23.250	22.064	23.000	21.564	20.938	20.376	19.876	19.314	



Approximate weight of flanges to ASME B16.5					
Weld Neck	Slip-on	Threaded	Lapped	Blind	Socket
					

Class 150 Kg/Pc								
Nominal Bore (ins)	Outside Diameter (ins)	Outside Diameter (mm)	Weld Neck	Slip On	Threaded	Lap Joint	Blind	Socket Type
1/2"	3.50	88.9	0.50	0.40	0.40	0.40	0.40	0.40
3/4"	3.88	98.6	0.70	0.70	0.70	0.70	0.70	0.70
1"	4.25	108	1.10	0.80	0.90	0.80	0.90	0.90
1 1/4"	4.62	117	1.50	1.10	1.20	1.10	1.30	1.20
1 1/2"	5.00	127	1.80	1.40	1.50	1.40	1.60	1.50
2"	6.00	152	2.70	2.20	2.30	2.20	2.60	2.30
2 1/2"	7.00	178	4.40	3.60	3.70	3.60	4.10	3.70
3"	7.50	191	5.20	4.10	4.20	4.10	5.00	4.20
3 1/2"	8.50	216	6.40	5.20	5.30	5.20	6.40	
4"	9.00	229	7.50	5.60	5.90	5.60	7.10	
5"	10.00	254	9.20	6.30	7.00	6.30	9.00	
6"	11.00	279	11.0	7.50	8.40	7.50	12.00	
8"	13.50	343	18.3	12.6	13.0	12.6	21.0	
10"	16.00	406	25.0	18.5	17.8	18.5	30.0	
12"	19.00	483	39.0	28.0	29.5	28.0	45.0	
14"	21.00	533	51.0	36.0	39.0	36.0	59.0	
16"	23.50	597	60.0	46.0	47.0	46.0	79.0	
18"	25.00	635	71.0	50.0	54.0	50.0	97.0	
20"	27.50	699	88.0	64.0	68.0	64.0	124	
24"	32.00	813	119	89.0	93.0	89.0	188	

Class 300 Kg/Pc								
Nominal Bore (ins)	Outside Diameter (ins)	Outside Diameter (mm)	Weld Neck	Slip-on	Threaded	Lap Joint	Blind	Socket Type
1/2"	3.75	95.3	0.80	0.70	0.70	0.70	0.70	0.70
3/4"	4.62	117	1.30	1.10	1.20	1.10	1.20	1.20
1"	4.88	124	1.70	1.40	1.40	1.40	1.50	1.40
1 1/4"	5.25	133	2.20	1.80	1.90	1.80	2.00	1.90
1 1/2"	6.12	155	3.20	2.60	2.80	2.60	2.90	2.80
2"	6.50	165	3.60	3.40	3.30	3.40	3.40	3.30
2 1/2"	7.50	191	5.40	4.40	4.60	4.40	5.10	4.60
3"	8.25	210	7.40	6.10	6.30	6.30	7.00	6.30
3 1/2"	9.00	229	8.90	7.50	7.80	7.50	8.90	
4"	10.00	254	11.9	10.1	10.2	10.1	11.8	
5"	11.00	279	16.0	12.5	12.9	12.5	15.5	
6"	12.50	318	20.0	14.1	15.0	14.1	21.3	
8"	15.00	381	31.0	24.8	26.0	24.8	35.2	
10"	17.50	445	44.0	37.1	38.0	37.1	57.0	
12"	20.50	521	64.0	50.0	52.0	50.0	82.0	
14"	23.00	584	88.0	70.0	72.0	70.0	106	
16"	25.50	648	113	97.0	100	97.0	140	
18"	28.00	711	134	123	126	123	178	
20"	30.50	775	171	133	138	133	223	
24"	36.00	914	238	208	213	208	345	

Class 600 Kg/Pc								
Nominal Bore (ins)	Outside Diameter (ins)	Outside Diameter (mm)	Weld Neck	Slip-on	Threaded	Lap Joint	Blind	Socket Type
1/2"	3.75	95.3	0.90	0.80	1.00	0.80	0.70	0.80
3/4"	4.62	117	1.50	1.40	1.60	1.40	1.20	1.40
1"	4.88	124	1.90	1.60	1.80	1.60	1.50	1.60
1 1/4"	5.25	133	2.60	2.10	2.60	2.10	2.00	2.10
1 1/2"	6.12	155	3.30	3.10	3.30	3.10	3.20	3.10
2"	6.50	165	4.70	3.70	3.90	3.70	4.30	3.70
2 1/2"	7.50	191	6.50	5.40	6.00	5.40	6.00	5.40
3"	8.25	210	8.70	7.30	7.40	7.30	8.00	7.30
3 1/2"	9.00	229	11.2	8.90	9.50	8.90	10.5	
4"	10.75	273	18.1	15.8	17.0	15.8	18.0	
5"	13.00	330	30.0	24.5	27.0	24.5	29.0	
6"	14.00	356	36.0	29.5	32.0	29.5	36.0	
8"	16.50	419	50.0	43.0	46.0	43.0	58.0	
10"	20.00	508	90.0	70.0	74.0	70.0	98.0	
12"	22.00	559	110	86.0	90	86.0	125	
14"	23.75	603	150	100	108	100	151	
16"	27.00	686	190	142	150	142	215	
18"	29.25	743	240	175	188	175	275	
20"	32.00	813	295	221	230	221	350	
24"	37.00	940	365	315	325	315	532	

Class 900 Kg/Pc								
Nominal Bore (ins)	Outside Diameter (ins)	Outside Diameter (mm)	Weld Neck	Slip-On	Threaded	Lap Joint	Blind	Socket Type
1/2"	4.75	121	1.90	1.74	1.74	1.71	1.77	
3/4"	5.12	130	2.60	2.34	2.34	2.30	2.42	
1"	5.88	149	3.70	3.44	3.44	3.40	3.57	
1 1/4"	6.25	159	4.30	3.91	3.91	3.85	4.14	
1 1/2"	7.00	178	5.90	5.36	5.36	5.28	5.75	
2"	8.50	216	10.8	9.85	9.85	9.78	10.1	
2 1/2"	9.62	244	15.0	13.7	13.7	13.6	14.0	
3"	9.50	241	13.7	11.6	11.6	17.8	13.1	
4"	11.50	292	22.5	19.7	19.7	27.5	26.9	
5"	13.75	349	37.4	31.9	31.9	51.5	36.5	
6"	15.00	381	47.7	41.1	41.1	62.0	47.4	
8"	18.50	470	81.3	70.7	70.7	105	82.5	
10"	21.50	546	119	101	101	179	122	
12"	24.00	610	157	133	133	269	173	
14"	25.25	641	180	153	153	365	206	
16"	27.75	705	217	185	185	459	259	
18"	31.00	787	292	258	258	598	367	
20"	33.75	857	362	317	317	712	463	
24"	41.00	1,041	665	606	606	1,090	876	



Approximate weight of flanges to ASME B16.5 Kg/Pc

Weld Neck	Slip-on	Threaded	Lapped	Blind	Socket

Class 1500 Kg/Pc

Nominal Bore (ins)	Outside Diameter (ins)	Outside Diameter (mm)	Weld Neck	Slip-on	Threaded	Lap Joint	Blind	Socket Type
1/2"	4.75	121	1.90	1.74	0.39	1.71	1.77	1.80
3/4"	5.12	130	2.60	2.34	0.56	2.30	2.42	2.41
1"	5.88	149	3.70	3.44	0.78	3.40	3.57	3.55
1 1/4"	6.25	159	4.30	3.91	1.03	3.85	4.14	4.02
1 1/2"	7.00	178	5.90	5.36	1.32	5.28	5.75	5.45
2"	8.50	216	10.8	9.85	2.06	9.78	10.1	10.2
2 1/2"	9.62	244	15.0	13.7	3.28	13.6	14.0	13.9
3"	10.50	267	19.9		3.85	17.8	19.1	
4"	12.25	311	29.9		5.30	27.5	29.9	
5"	14.75	375	55.4		6.07	51.5	58.4	
6"	15.5	394	68.4		7.45	62.0	71.8	
8"	19.00	483	117		12	105	122	
10"	23.00	584	194		17	179	210	
12"	26.50	673	288		26	269	316	
14"	29.50	749	380		35	365	420	
16"	32.50	826	485		44.5	459	558	
18"	36.00	914	644		49	598	760	
20"	38.75	984	775		62	712	965	
24"	46.00	1168	1,232		87	1,090	1,558	

Class 2500 Kg/Pc

Nominal Bore (ins)	Outside Diameter (ins)	Outside Diameter (mm)	Weld Neck	Slip On	Threaded	Lap Joint	Blind	Socket Type
1/2"	5.25	133	3.12		2.95	2.92	2.99	
3/4"	5.50	140	3.70		3.44	3.40	3.50	
1"	6.25	159	5.24		4.82	4.77	4.96	
1 1/4"	7.25	184	7.74		7.14	7.08	7.35	
1 1/2"	8.00	203	10.9		10.0	9.93	10.4	
2"	9.25	235	16.2		14.8	14.7	15.6	
2 1/2"	10.50	267	23.7		21.5	21.3	22.6	
3"	12.00	305	36.2		32.6	32.3	34.8	
4"	14.00	356	55.3		52.9	52.5	53.9	
5"	16.50	419	92.5		83.1	82.6	90.8	
6"	19.00	483	143		128	127	141	
8"	21.75	552	215		188	186	214	
10"	26.50	673	406		355	352	411	
12"	30.00	762	572		504	501	592	

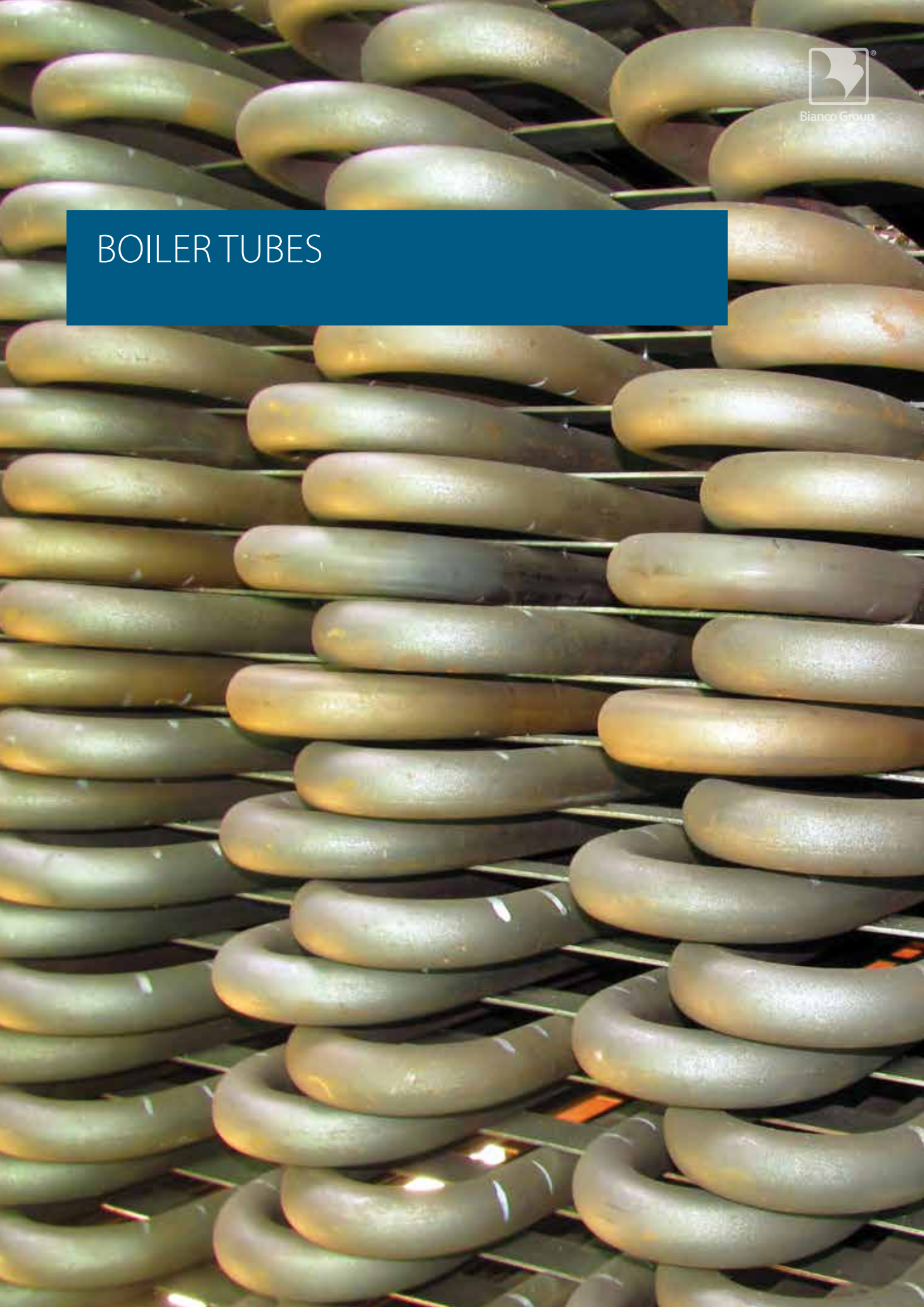
Approximate weight of PN flanges - EN1092-1 Kg/Pc

	Bossed Slip-on	Weld neck	Plate Slip-on	Blind	

		PN6			PN10			PN16		
Nominal Bore		Bossed Slip-on & Weld Neck	Plate Slip-on	Blind	Bossed Slip-on & Weld Neck	Plate Slip-on	Blind	Bossed Slip-on & Weld Neck	Plate Slip-on	Blind
(mm)	(ins)	(Type 11)	(Type 01)	(Type 05)	(Type 11)	(Type 01)	(Type 05)	(Type 11)	(Type 01)	(Type 05)
15	1/2"	0.408	0.402	0.438	0.768	0.670	0.813	0.768	0.670	0.813
20	3/4"	0.621	0.592	0.657	1.09	0.936	1.14	1.09	0.936	1.14
25	1"	0.762	0.719	0.821	1.30	1.11	1.38	1.30	1.11	1.38
32	1 1/4"	1.11	1.16	1.18	1.91	1.82	2.03	1.91	1.82	2.03
40	1 1/2"	1.26	1.35	1.39	2.15	2.08	2.35	2.15	2.08	2.35
50	2"	1.43	1.48	1.62	2.53	2.73	2.88	2.53	2.73	2.88
65	2 1/2"	1.77	1.86	2.14	3.03	3.16	3.51	3.03	3.16	3.51
80	3"	2.88	2.95	3.43	3.92	3.60	4.61	3.92	3.60	4.61
100	4"	3.41	3.26	4.22	4.62	4.39	5.65	4.62	4.39	5.65
125	5"	4.65	4.31	6.10	6.30	5.41	8.13	6.30	5.41	8.13
150	6"	5.50	4.76	7.51	7.81	7.14	10.5	7.81	7.14	10.5
200	8"	8.60	6.88	12.3	11.6	9.27	16.5	11.5	9.7	16.2
250	10"	11.7	8.92	18.5	15.8	11.8	24.1	16.7	14.2	25.0
300	12"	15.3	11.9	25.5	18.3	13.6	30.8	22.1	19.0	35.1
350	14"	20.3	16.8	31.8	25.3	20.4	39.6	32.8	28.2	48.0
400	16"	23.1	19.8	38.5	30.6	27.5	49.4	41.1	35.9	63.5
450	18"	27.0	24.6	51.2	35.1	33.6	63.0	48.5	46.1	96.6
500	20"	30.8	26.4	60.1	40.5	40.2	75.2	63.4	64.0	133
600	24"	44.0	34.8	103	52.9	54.5	124	94.0	102	226

		PN25			PN40			PN100		
Nominal Bore		Bossed Slip-on & Weld Neck	Plate Slip-on	Blind	Bossed Slip-on & Weld Neck	Plate Slip-on	Blind	Bossed Slip-on & Weld Neck	Plate Slip-on	Blind
(mm)	(ins)	(Type 11)	(Type 01)	(Type 05)	(Type 11)	(Type 01)	(Type 05)	(Type 11)	(Type 01)	(Type 05)
15	1/2"	0.768	0.670	0.813	0.768	0.670	0.813	1.20	1.10	1.16
20	3/4"	1.09	0.94	1.14	1.09	0.94	1.14	2.02	1.86	1.97
25	1"	1.30	1.11	1.38	1.30	1.11	1.38	2.63	2.37	2.54
32	1 1/4"	1.91	1.82	2.03	1.91	1.82	2.03	3.20	2.79	3.07
40	1 1/2"	2.15	2.08	2.35	2.15	2.08	2.35	4.07	3.58	3.97
50	2"	2.85	2.73	3.20	2.85	2.73	3.20	5.82	4.99	5.64
65	2 1/2"	3.68	3.48	4.29	3.68	3.48	4.29	7.57	6.33	7.44
80	3"	4.78	4.32	5.54	4.78	4.32	5.54	8.82	7.72	8.85
100	4"	6.46	6.07	7.60	6.46	6.07	7.60	13.1	10.3	13.3
125	5"	8.86	8.19	10.8	8.86	8.19	10.8	21.0	17.2	21.3
150	6"	11.7	10.3	14.6	11.7	10.3	14.6	28.3	23.6	29.4
200	8"	17.1	14.3	22.5	21.0	17.9	28.8	50.2	42.9	52.7
250	10"	24.3	20.1	33.5	34.2	29.3	44.4	81.4	69.0	85.4
300	12"	31.8	26.6	46.3	47.6	45.1	64.2	118	104	128
350	14"	48.8	41.8	68.1	69.3	66.7	89.5	169	150	175
400	16"	63.3	57.6	89.7	98.0	97.1	127			
450	18"	76.0	69.8	130	105		154			
500	20"	97.0	87.0	159	130		188			
600	24"	121	127	278	209		331			

Note: Weights for different manufacturers may vary.



Bianco Group

BOILER TUBES

BOILER TUBES

Boiler tubes are made from heat resisting carbon and low alloyed steels which can withstand loads at high pressures and temperatures. Boiler tube is used for parts of energy type equipment such as boilers, steam superheaters, steam pipelines etc. The tubes are supplied as hot rolled or cold drawn.

DIMENSIONS & TOLERANCES

Typically dimensions above 26.9mm and wall thickness from 2.6mm, material is supplied as hot rolled. The smaller diameter tubes and the thick wall tubes of larger diameters are supplied as cold drawn and are subsequently heat treated, the tubes are only delivered in this condition if it is agreed at the time of order. For mill production it is possible to deliver boiler tubes with dimensions and tolerances according to the dimensional specifications for precision tubes.

STEELS

Heat treatment and chemical composition of steel are fully in accordance with the appropriate standards. Boiler tubes are made to steel grades including the following:
EN 10216-2: P235GH, P265GH, 16Mo3, 10CrMo5-5, 13CrMo4-5, 10CrMo9-10, ASTM A 106: Grade A, Grade B, Grade C.

TUBE LENGTH

Types can be supplied as:
(a) random, (b) fixed $\pm 500\text{mm}$, (c) exact $+ 15 / - 0\text{mm}$.

Length of boiler tube		
Diameter (OD) [mm]	Wall (WT) [mm]	Length (L) Mtrs
OD < 60.3		5-6
OD ≥ 60.3	WT < 7,1	5-6 or 10-14 (22,4 by agreement)
	WT $\geq 7,1$	5-6

TUBE STRAIGHTNESS

Straightness deviation for the whole length of a tube cannot exceed value of $0.0015 \times L$. In conversion to the 1 meter length it cannot exceed 3mm.

MARKING & PACKAGING

Tubes with an outside diameter up to 51mm come with a bundle label and larger tubes are stencilled or stamped at one end of each tube with the necessary data.

STORAGE & TRANSPORTATION

When ordering, it is necessary to agree upon the way and means of temporary protecting the surface of the tubes during transportation and storing.

TESTING

Boiler tubes are tested in accordance with the purchase order, a precise list of mandatory and optional tests are shown within the standards.

The main difference in the mandatory tests between TC1 and TC2, is that TC2 requires Non Destructive testing to be carried out.

Testing comparison to DIN 17175 and EN 10216-2		
NDT	DIN Grade Level	EN Testing Class
Without ultrasound	I	TC1
With ultrasound	III	TC2

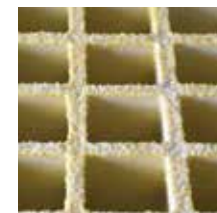
SURFACE CONDITION

Surface conditions are subject to the method of manufacture.

CORE6 COMPOSITES

We offer quality Core6 GRP components ex stock in addition to bespoke design and fully fabricated GRP non slip flooring as well as access solutions across a wide array of industries. Core6 products are designed to offer, fast, safe, effective and economic flooring and access solutions.

MOULDED GRATING



Core6 Moulded Grating is an ideal flooring solution to walkway and access areas where slips, trips and falls are a potential hazard.

PULTRUDED GRATING



Core6 Pultruded Grating is the best suited flooring solution to high load capacity access areas. The manufacturing process produces the strongest composite gratings which are often specified in high-traffic areas.

HANDRAILS / LADDERS



We design and fabricate bespoke Core6 GRP handrail systems delivered to your exact requirements and provide a virtually maintenance free alternative to conventional handrail systems.

VERTICAL SAW

Provides customers with custom size components to their exact specification.

STRUCTURAL PROFILES



We supply a range of Core6 GRP Structural Profiles including Core6 GRP Tube, I-Beam, Channel, Box and Angle Sections.

These offer a unique combination of chemical resistance, size stability, high strength, thermal and electric non-conductivity.

TREAD COVERS & GRIT PLATES



Core6 GRP non-slip stair tread covers provide an effective solution to slippery, worn or uneven stair treads. They can be installed to existing concrete, wood or steel stair treads and are highly visible, robust, durable and resistant to most chemicals.

ACCESSORIES



We offer a full range of 316 grade stainless steel fixing clips, clamps, panel-to-panel joiners, pedestals and ramps available to secure all types of Core6 GRP panels.

CORE6 WORKSHOP

Our fully equipped workshop and extensive stocks enable us to fabricate Core6 components to clients precise requirements on short lead times.





Bianco Group

INLINE™ 265

Applications Benefits

- Full body normalised for Corby sizes ($\leq$ OD168.3 mm) and normalised rolled strip with Weld Line Annealed (WLA) for Hartlepool sizes ($\geq$ OD219.1 mm) delivering improved manipulation, installation and service life benefits.
- Fully killed steel designed to eliminate any tendency for strain age embrittlement when in service.
- Fully weldable and traceable steel.
- Multi-certified with key industrial pipework standards for maximum flexibility.
- Available in a range of key industrial sizes and wall thickness.
- End (plain end or bevelled) and coating added value options available - please check on availability.

Wide Application Range

- Satisfies both PSL1 and PSL2 of API 5L Grade B and EN ISO3183 L245 as standard.
- Design temperature -20 to 400 °C.
- A cost-effective substitute for equivalent seamless tube grades.

Fit-for-purpose

- Supplied with 3.1 inspection certification to EN10204.
- Fully aligned with the Pressure Equipment Directive (PED).
- Comprehensive product datasheets and Declarations of Performance (DoP's) available upon request.

INLINE™ 265

TATA STEEL

Hot-finished, multi-certified pressure tubes for specialist applications. Based on EN10217-2/ISO3183/API 5LB with multi-certified options. Primary grade P265 GH/TC1. Specialist building, engineering and industrial services solutions. GH = Get Hot grade.

APPLICATIONS

APPLICATIONS	INLINE™ 265	COMPARABLE SEAMLESS
LOW PRESSURE GAS ($\leq$ 16 BAR)	Yes	Yes
SPECIALIST INDUSTRIAL HVAC	Yes	Yes
STEAM SERVICES	Yes	Yes
PETRO-CHEMICAL	Yes	Yes
PROCESS PLANT	Yes	Yes
LPG & FUEL OILS (SELF COLOUR ONLY)	Yes	Yes
ON-SHORE GAS/LINE PIPE (NOT ANNEX 'M')	Yes	Yes
INDUSTRIAL CONVEYANCE	Yes	Yes
SUGGESTED MAX. DESIGN TEMPERATURE	400 °C	450 °C
CONSISTENT OVALITY	Yes	No
CONSISTENT WALL THICKNESS	Yes	No
CONSISTENT END-MATCHING	Yes	No
FIXED LENGTHS AS STANDARD	Yes	No

* For ISO3183 Annex 'M' please contact the Tubes Technical Helpline for details on availability.

Inline™ 265 Product & Pressure Data

OD (mm) (NB) (inches)	Thickness (mm)	Designation		Mass (kg/m)	Length/Weight (m/tonne)	Suggested maximum design pressure (bar), based on L245/245 MPa min. yield	
		Strength	Schedule			Ambient Temp.	Elevated Temp 400 °C
60.3 (50) (2")	3.91	STD	40	5.42	5.42	148	69
88.9 (80) (3")	5.49	STD	40	11.31	11.31	142	66
114.3 (100) (4")	6.02	STD	40	16.02	16.02	121	56
168.3 (150) (6")	7.11	STD	40	28.22	28.22	97	45
219.1 (200) (8")	6.35	N/A	20	33.57	33.57	65	32
	8.18	STD	40	42.65	42.65	85	40
273.0 (250) (10")	6.35	N/A	20	42.09	42.09	52	25
	9.27	STD	40	60.5	60.5	77	37
323.9 (300) (12")	6.35	N/A	20	50.11	50.11	44	21
	9.53	STD	-	73.65	73.65	66	32
355.6 (350) (14")	7.92	N/A	20	67.74	67.74	50	24
	9.53	STD	30	81.08	81.08	60	29
406.4 (400) (16")	7.92	N/A	20	77.63	77.63	44	21
	9.53	STD	30	92.98	92.98	53	25
457.1 (450) (18")	7.92	N/A	20	87.49	87.49	39	19
	9.53	STD	-	104.84	104.84	47	23
508.0 (500) (20")	9.53	STD	20	116.78	116.78	42	20

Only key sizes shown – other sizes are available, please refer to the main Inline™ technical brochure or contact the Tubes Technical Helpline for full details.



STRUCTURAL STEELS



STRUCTURAL STEELS

NTS are the UK market leaders in the supply of Structural Steel products into both on and offshore fabrications and structures with over 20,000 tonnes of material available ex stock.

Energy projects and subsea equipment have recently included supply into the Solan and Cygnus platforms, the BP Clair Ridge flare boom and the Beatrice, Hornsea and East Anglia windfarms in the renewables sector. In the subsea sector projects include BP Quad 204, Kracken and Chevron Alder.

Civil construction projects range from nuclear power plants, high rise London buildings including The Shard and Walkie Talkie, stadia and airports including Olympic venues, Wembley, Emirates, Wimbledon Centre Court and Heathrow and Gatwick developments.

Hot Finished Hollow Section to EN10210 S355J2H/NH			
CHS	26.9mm OD x 3.2mm WT	to	660mm OD x 20mm WT
SHS	40mm x 40mm x 3mm WT	to	400mm x 400mm x 20mm WT
RHS	50mm x 30mm x 3.2mm WT	to	500mm x 300mm x 20mm WT

Cold Formed Hollow Section EN10219 S355J2H / S275J2H			
CHS	33.7mm OD x 3.00mm WT	to	508mm OD x 16mm WT
SHS	30mm x 30mm x 3mm WT	to	500mm x 500mm x 20mm WT
RHS	50mm x 30mm x 2.5mm WT	to	600mm x 400mm x 20mm WT

All our hollow section stock is CE marked and from quality European mills.

JBP carry a range of structural steel in stock, including Plate, Angle, Channel, Flat bar, Column, Beams, Round bar, Square bar and Galvanised grating floor panels. They also carry a quantity of some of these items in a shot blasted and painted condition, available ex stock. This enables us to respond with quick lead times and allows project packages to be catered for.



TEDDINGTON BELLOWS / BOLTS & GASKETS



TEDDINGTON BELLOWS



JBP are the Scottish agent and distributor for Teddington Engineered Solutions range of precision engineered bellows and expansion joints.

With over 90 years of experience and a huge presence in the global Oil and Gas storage market, Teddington's name is synonymous with exceptional quality, supreme reliability and total design flexibility. Teddington continues to be at the forefront of metallic and non-metallic Bellows and Expansion joint design and manufacture.

A customised design service and attention to the needs of their customers, be it for original contracts or replacement and servicing work, is the keynote of Teddington's success.



BOLTS & GASKETS



JBP stocks a complete range of complimentary products for our pipe, fittings and flanges.

PRODUCT	FINISH	GRADE	SIZE RANGE
STUDBOLTS	Zinc Plated & Hot Dipped Galvanised	B7	
		L7	
		B8M	
U BOLTS	Zinc Plated		
GASKETS	CNAF	Class 150	1/2" to 20"
		Class 300	1/2" to 20"
	Reinforced Graphite	Class 150	1/2" to 20"
		Class 300	1/2" to 20"
	Neoprene Rubber	Class 150	1" to 8"
RING JOINTS	Spiral Wound Carbon Steel	Class 150 to Class 2500	1/2" to 24"
	Spiral Wound Stainless Steel	Class 150 to Class 2500	1/2" to 24"
	Oval & Octagonal	Soft Iron	
INSULATING GASKET SETS	Oval & Octagonal	Stainless Steel	
		Class 150	1/2" to 12"
		Class 300	1/2" to 12"

STUDBOLTS

150lb Steel Flanges							
Nominal Pipe Size	Outside Diameter of Flange	Diameter of Bolt Circle	Number of Bolts	Diameter of Bolts	Diameter of Bolt Holes	Studbolts RF	Studbolts RTJ
1/2" 15mm	3 1/2" 88.9mm	2 3/8" 60.3mm	4	1/2" 12.7mm	5/8" 15.9mm	2 1/4" 57.1mm	
3/4" 20mm	3 7/8" 98.4mm	2 3/4" 69.8mm	4	1/2" 12.7mm	5/8" 15.9mm	2 1/4" 57.1mm	
1" 25mm	4 1/4" 107.6mm	3 1/8" 79.4mm	4	1/2" 12.7mm	5/8" 15.9mm	2 1/2" 63.5mm	3 76.2mm
1 1/4" 32mm	4 5/8" 117.5mm	3 1/2" 88.9mm	4	1/2" 12.7mm	5/8" 15.9mm	2 1/2" 63.5mm	3 76.2mm
1 1/2" 40mm	5" 127.0mm	3 7/8" 98.4mm	4	1/2" 12.7mm	5/8" 15.9mm	2 3/4" 69.8mm	3 1/4" 82.5mm

2" 50mm	6" 152.4mm	4 3/4" 120.6mm	4	5/8" 15.9mm	3/4" 19mm	3" 76.2mm	3 1/2" 88.9mm
2 1/2" 65mm	7" 177.8mm	5 1/2" 139.7mm	4	5/8" 15.9mm	3/4" 19mm	3 1/4" 82.5mm	3 3/4" 95.2mm
3" 80mm	7 1/2" 190.5mm	6" 152.4mm	4	5/8" 15.9mm	3/4" 19mm	3 1/2" 88.9mm	4" 101.6mm
3 1/2" 90mm	8 1/2" 215.9mm	7" 177.8mm	8	5/8" 15.9mm	3/4" 19mm	3 1/2" 88.9mm	4" 101.6mm
4" 100mm	9" 228.6mm	7 1/2" 190.5mm	8	5/8" 15.9mm	3/4" 19mm	3 1/2" 88.9mm	4" 101.6mm

5" 125mm	10" 254.0mm	8 1/2" 215.9mm	8	3/4" 19.0mm	7/8" 22.2mm	3 3/4" 95.2mm	4 1/4" 107.9mm
6" 150mm	11" 279.4mm	9 1/2" 241.3mm	8	3/4" 19.0mm	7/8" 22.2mm	3 3/4" 95.2mm	4 1/4" 107.9mm
8" 200mm	13 1/2" 342.9mm	11 3/4" 298.4mm	8	3/4" 19.0mm	7/8" 22.2mm	4" 101.6mm	4 1/2" 114.3mm
10" 250mm	16" 406.4mm	14 1/4" 361.9mm	12	7/8" 22.2mm	1" 25.4mm	4 1/2" 114.3mm	5" 127.0mm
12" 300mm	19" 482.6mm	17" 431.8mm	12	7/8" 22.2mm	1" 25.4mm	4 1/2" 114.3mm	5" 127.0mm

14" 350mm	21" 533.4mm	18 3/4" 476.2mm	12	1" 25.4mm	1 1/8" 28.6mm	5" 127.0mm	5 1/2" 139.7mm
16" 400mm	23 1/2" 596.9mm	21 1/4" 539.7mm	16	1" 25.4mm	1 1/8" 28.6mm	5 1/4" 133.3mm	5 3/4" 146.0mm
18" 450mm	25" 635.0mm	22 3/4" 577.8mm	16	1 1/8" 28.6mm	1 1/4" 31.7mm	5 3/4" 146.0mm	6 1/4" 158.7mm
20" 500mm	27 1/2" 698.5mm	25" 635.0mm	20	1 1/8" 28.6mm	1 1/4" 31.7mm	6" 152.4mm	6 1/2" 165.1mm
24" 600mm	32" 812.8mm	29 1/2" 749.3mm	20	1 1/4" 31.7mm	1 3/8" 34.9mm	6 3/4" 171.4mm	7 1/4" 184.1mm



300lb Steel Flanges							
Nominal Pipe Size	Outside Diameter of Flange	Diameter of Bolt Circle	Number of Bolts	Diameter of Bolts	Diameter of Bolt Holes	Studbolts RF	Studbolts RTJ
1/2" 15mm	3 3/4" 95.2mm	2 5/8" 66.7mm	4	1/2" 12.7mm	5/8" 15.9mm	2 1/2" 63.5mm	3" 76.2mm
3/4" 20mm	4 5/8" 117.5mm	3 1/4" 82.5mm	4	5/8" 15.9mm	3/4" 19.0mm	2 3/4" 69.8mm	3 1/4" 82.5mm
1" 25mm	4 7/8" 123.8mm	3 1/2" 88.9mm	4	5/8" 15.9mm	3/4" 19.0mm	3" 76.2mm	3 1/2" 88.9mm
1 1/4" 32mm	5 1/4" 133.3mm	3 7/8" 98.4mm	4	5/8" 15.9mm	3/4" 19.0mm	3" 76.2mm	3 1/2" 88.9mm
1 1/2" 40mm	6 1/8" 155.6mm	4 1/2" 114.3mm	4	3/4" 19.0mm	7/8" 22.2mm	3 1/2" 88.9mm	4" 101.6mm

2" 50mm	6 1/2" 165.1mm	5" 127.0mm	8	5/8" 15.9mm	3/4" 19.0mm	3 1/4" 82.5mm	4" 101.6mm
2 1/2" 65mm	7 1/2" 190.5mm	5 7/8" 149.2mm	8	3/4" 19.0mm	7/8" 22.2mm	3 3/4" 95.2mm	4 1/2" 114.3mm
3" 80mm	8 1/4" 209.5mm	6 5/8" 168.3mm	8	3/4" 19.0mm	7/8" 22.2mm	4" 101.6mm	4 3/4" 120.6mm
3 1/2" 90mm	9" 228.6mm	7 1/4" 184.1mm	8	3/4" 19.0mm	7/8" 22.2mm	1 1/4" 107.9mm	5" 127.0mm
4" 100mm	10" 254.0mm	7 7/8" 200.0mm	8	3/4" 19.0mm	7/8" 22.2mm	4 1/4" 107.9mm	5" 127.0mm

5" 125mm	11" 279.4mm	9 1/4" 234.9mm	8	3/4" 19.0mm	7/8" 22.2mm	4 1/2" 114.3mm	5 1/4" 133.3mm
6" 150mm	12 1/2" 317.5mm	10 5/8" 269.9mm	12	3/4" 19.0mm	7/8" 22.2mm	4 3/4" 120.6mm	5 1/2" 139.7mm
8" 200mm	15" 381.0mm	13" 330.2mm	12	7/8" 22.2mm	1" 25.4mm	5 1/4" 133.3mm	6" 152.4mm
10" 250mm	17 1/2" 444.5mm	15 1/4" 387.3mm	16	1" 25.4mm	1 1/8" 28.6mm	6" 152.4mm	6 3/4" 171.4mm
12" 300mm	20 1/2" 520.7mm	17 3/4" 450.8mm	16	1 1/8" 28.6mm	1 1/4" 31.7mm	6 1/2" 165.1mm	7 1/4" 184.1mm

14" 350mm	23" 584.2mm	20 1/4" 514.3mm	20	1 1/8" 28.6mm	1 1/4" 31.7mm	6 3/4" 171.4mm	7 1/2" 190.5mm
16" 400mm	25 1/2" 6147.7	22 1/2" 571.5mm	20	1 1/4" 31.7mm	1 3/8" 34.9mm	7 1/4" 184.1mm	8" 203.2mm
18" 450mm	28" 711.2mm	24 3/4" 628.6mm	20	1 1/4" 31.7mm	1 3/8" 34.9mm	7 1/2" 190.5mm	8 1/4" 209.5mm
20" 500mm	30 1/2" 774.7mm	27" 685.8mm	24	1 1/4" 31.7mm	1 3/8" 34.9mm	8" 203.2mm	8 3/4" 222.2mm
24" 600mm	36" 914.4mm	32" 812.8mm	24	1 1/2" 38.1mm	1 5/8" 41.3mm	9" 228.6mm	10" 254.0mm

STUDBOLTS

600lb Steel Flanges							
Nominal Pipe Size	Outside Diameter of Flange	Diameter of Bolt Circle	Number of Bolts	Diameter of Bolts	Diameter of Bolt Holes	Studbolts RF	Studbolts RTJ
1/2" 15mm	3 3/4" 95.2mm	2 5/8" 66.7mm	4	1/2" 12.7mm	5/8" 15.9mm	3" 76.2mm	3" 76.2mm
3/4" 20mm	4 5/8" 117.5mm	3 1/4" 82.5mm	4	5/8" 15.9mm	3/4" 19.0mm	3 1/4" 82.5mm	3 1/4" 82.5mm
1" 25mm	4 7/8" 123.8mm	3 1/2" 88.9mm	4	5/8" 15.9mm	3/4" 19.0mm	3 1/2" 88.9mm	3 1/2" 88.9mm
1 1/4" 32mm	5 1/4" 133.3mm	3 7/8" 98.4mm	4	5/8" 15.9mm	3/4" 19.0mm	3 3/4" 95.2mm	3 3/4" 95.2mm
1 1/2" 40mm	6 1/8" 155.6mm	4 1/2" 114.3mm	4	3/4" 19.0mm	7/8" 22.2mm	4" 101.6mm	4" 101.6mm

2" 50mm	6 1/2" 165.1mm	5" 127.0mm	8	5/8" 15.9mm	3/4" 19.0mm	4" 101.6mm	4 1/4" 107.9mm
2 1/2" 65mm	7 1/2" 190.5mm	5 7/8" 149.2mm	8	3/4" 19.0mm	7/8" 22.2mm	4 1/2" 114.3mm	4 3/4" 120.6mm
3" 80mm	8 1/4" 209.5mm	6 5/8" 168.3mm	8	3/4" 19.0mm	7/8" 22.2mm	4 3/4" 120.6mm	5" 127.0mm
3 1/2" 90mm	9" 228.6mm	7 1/4" 184.1mm	8	7/8" 22.2mm	1" 25.4mm	5 1/4" 1333mm	5 1/2" 139.7mm
4" 100mm	10 3/4" 273.0mm	8 1/2" 215.9mm	8	7/8" 22.2mm	1" 25.4mm	5 1/2" 139.7mm	5 3/4" 146.0mm

5" 125mm	13" 330.2mm	10 1/2" 266.7mm	8	1" 25.4mm	1 1/8" 28.6mm	6 1/4" 158.7mm	6 1/2" 165.1mm
6" 150mm	14" 355.6mm	11 1/2" 292.1mm	12	1" 25.4mm	1 1/8" 28.6mm	6 1/2" 165.1mm	6 3/4" 171.4mm
8" 200mm	16 1/2" 419.1mm	13 3/4" 349.2mm	12	1 1/8" 28.6mm	1 1/4" 31.7mm	7 1/2" 190.5mm	7 3/4" 196.8mm
10" 250mm	20" 508.8mm	17" 431.8mm	16	1 1/4" 31.7mm	1 3/8" 34.9mm	8 1/4" 209.5mm	8 1/2" 215.9mm
12" 300mm	22" 558.8mm	19 1/4" 488.9mm	20	1 1/4" 31.7mm	1 3/8" 34.9mm	8 1/2" 215.9mm	8 3/4" 222.2mm

14" 350mm	23 3/4" 603.2mm	20 3/4" 527.0mm	20	1 3/8" 34.9mm	1 1/2" 38.1mm	9" 228.6mm	9 1/4" 234.9mm
16" 400mm	27" 685.8mm	23 3/4" 603.2mm	20	1 1/2" 38.1mm	1 5/8" 41.3mm	9 3/4" 247.6mm	10" 254.1mm
18" 450mm	29 1/4" 742.9mm	25 3/4" 654.0mm	20	1 5/8" 41.3mm	1 3/4" 44.4mm	10 1/2" 266.7mm	10 3/4" 273.0mm
20" 500mm	32" 812.8mm	28 1/2" 723.9mm	24	1 5/8" 41.3mm	1 3/4" 44.4mm	11 1/4" 285.7mm	11 1/2" 292.1mm
24" 600mm	37" 939.8mm	33" 838.2mm	24	1 7/8" 47.6mm	2" 50.8mm	12 3/4" 323.8mm	13 1/4" 336.5mm



900lb Steel Flanges							
Nominal Pipe Size	Outside Diameter of Flange	Diameter of Bolt Circle	Number of Bolts	Diameter of Bolts	Diameter of Bolt Holes	Studbolts RF	Studbolts RTJ
1/2" 15mm	4 3/4" 120.6mm	3 1/4" 82.5mm	4	3/4" 19.0mm	7/8" 22.2mm	4" 101.6mm	4" 101.6mm
3/4" 20mm	5 1/8" 130.2mm	3 1/2" 88.9mm	4	3/4" 19.0mm	7/8" 22.2mm	4 1/4" 107.9mm	4 1/4" 107.9mm
1" 25mm	5 7/8" 149.2mm	4" 101.6mm	4	7/8" 22.2mm	1" 25.4mm	4 3/4" 120.6mm	4 3/4" 120.6mm
1 1/4" 32mm	6 1/4" 158.7mm	4 3/8" 111.1mm	4	7/8" 22.2mm	1" 25.4mm	4 3/4" 120.6mm	4 3/4" 120.6mm
1 1/2" 40mm	7" 177.8mm	4 7/8" 123.8mm	4	1" 25.4mm	1 1/8" 28.6mm	5 1/4" 133.3mm	5 1/4" 133.3mm

2" 50mm	8 1/2" 215.9mm	6 1/2" 165.1mm	8	7/8" 22.2mm	1" 25.4mm	5 1/2" 139.7mm	5 3/4" 146.0mm
2 1/2" 65mm	9 5/8" 244.5mm	7 1/2" 190.5mm	8	1" 25.4mm	1 1/8" 28.6mm	6" 152.4mm	6 1/4" 158.7mm
3" 80mm	9 1/2" 241.3mm	7 1/2" 190.5mm	8	7/8" 22.2mm	1" 25.4mm	5 1/2" 139.7mm	5 3/4" 146.0mm
3 1/2" 90mm							
4" 100mm	11 1/2" 292.1mm	9 1/4" 234.9mm	8	1 1/8" 28.6mm	1 1/4" 31.7mm	6 1/2" 165.1mm	6 3/4" 171.4mm

5" 125mm	13 3/4" 349.2mm	11" 279.4mm	8	1 1/4" 31.7mm	1 3/8" 34.9mm	7 1/4" 184.1mm	7 1/2" 190.5mm
6" 150mm	15" 381.0mm	12 1/2" 317.5mm	12	1 1/8" 28.6mm	1 1/4" 31.7mm	7 1/2" 190.5mm	7 1/2" 190.5mm
8" 200mm	18 1/2" 469.9mm	15 1/2" 393.7mm	12	1 3/8" 34.9mm	1 1/2" 38.1mm	8 1/2" 215.9mm	8 3/4" 222.2mm
10" 250mm	21 1/2" 546.1mm	18 1/2" 469.9mm	16	1 3/8" 34.9mm	1 1/2" 38.1mm	9" 228.6mm	9 1/4" 234.9mm
12" 300mm	24" 609.6mm	21" 533.4mm	20	1 3/8" 34.9mm	1 1/2" 38.1mm	9 3/4" 247.6mm	10" 254.0mm

14" 350mm	25 1/4" 641.2mm	22" 558.8mm	20	1 1/2" 38.1mm	1 5/8" 41.3mm	10 1/2" 266.7mm	11" 279.4mm
16" 400mm	27 3/4" 704.8mm	24 1/4" 615.9mm	20	1 5/8" 41.3mm	1 3/4" 44.4mm	11" 279.4mm	11 1/2" 292.1mm
18" 450mm	31" 787.4mm	27" 685.8mm	20	1 7/8" 47.6mm	2" 50.8mm	12 3/4" 323.8mm	13 1/4" 336.5mm
20" 500mm	33 3/4" 857.2mm	29 1/2" 749.3mm	20	2" 50.8mm	2 1/8" 54.0mm	13 1/2" 342.9mm	14" 355.6mm
24" 600mm	1041.4mm	35 1/2" 901.7mm	20	2 1/2" 63.5mm	2 5/8" 66.7mm	17" 431.8mm	17 3/4" 450.8mm

STUDBOLTS

1500lb Steel Flanges							
Nominal Pipe Size	Outside Diameter of Flange	Diameter of Bolt Circle	Number of Bolts	Diameter of Bolts	Diameter of Bolt Holes	Studbolts RF	Studbolts RTJ
1/2" 15mm	4 3/4" 120.6mm	3 1/4" 82.5mm	4	3/4" 19.0mm	7/8" 22.2mm	4" 101.6mm	4" 101.6mm
3/4" 20mm	5 1/8" 130.2mm	3 1/2" 88.9mm	4	3/4" 19.0mm	7/8" 22.2mm	4 1/4" 107.9mm	4 1/4" 107.9mm
1" 25mm	5 7/8" 149.2mm	4" 101.6mm	4	7/8" 22.2mm	1" 25.4mm	4 3/4" 120.6mm	4 3/4" 120.6mm
1 1/4" 32mm	6 1/4" 158.7mm	4 3/8" 111.1mm	4	7/8" 22.2mm	1" 25.4mm	4 3/4" 120.6mm	4 3/4" 120.6mm
1 1/2" 40mm	7" 177.8mm	4 7/8" 123.8mm	4	1" 25.4mm	1 1/8" 28.6mm	5 1/4" 133.3mm	5 1/4" 133.3mm

2" 50mm	8 1/2" 215.9mm	6 1/2" 165.1mm	8	7/8" 22.2mm	1" 25.4mm	5 1/2" 139.7mm	5 3/4" 146.0mm
2 1/2" 65mm	9 5/8" 244.5mm	7 1/2" 190.5mm	8	1" 25.4mm	1 1/8" 28.6mm	6" 152.4mm	6 1/4" 158.7mm
3" 80mm	10 1/2" 266.7mm	8" 203.2mm	8	1 1/8" 28.6mm	1 1/4" 31.7mm	6 3/4" 171.4mm	7" 177.8mm
3 1/2" 90mm							
4" 100mm	12 1/4" 311.1mm	9 1/2" 241.3mm	8	1 1/4" 31.7mm	1 3/8" 34.9mm	7 1/2" 190.5mm	7 3/4" 196.8mm

5" 125mm	14 3/4" 374.6mm	11 1/2" 292.1mm	8	1 1/2" 38.1mm	1 5/8" 41.3mm	9 1/2" 241.3mm	9 3/4" 247.6mm
6" 150mm	15 1/2" 393.7mm	12 1/2" 317.5mm	12	1 3/8" 34.9mm	1 1/2" 38.1mm	10" 254.0mm	10 1/4" 260.3mm
8" 200mm	19" 482.6mm	15 1/2" 393.7mm	12	1 5/8" 41.3mm	1 3/4" 44.4mm	11 1/4" 285.7mm	11 3/4" 298.4mm
10" 250mm	23" 584.2mm	19" 482.6mm	12	1 7/8" 47.6mm	2" 50.8mm	13 1/4" 336.5mm	13 1/2" 342.9mm
12" 300mm	26 1/2" 673.1mm	22 1/2" 571.5mm	16	2" 50.8mm	2 1/8" 54.0mm	14 3/4" 374.6mm	15 1/4" 387.3mm

14" 350mm	29 1/2" 749.3mm	25" 635.0mm	16	2 1/4" 57.1mm	2 3/8" 60.3mm	16" 406.4mm	16 3/4" 425.4mm
16" 400mm	32 1/2" 825.5mm	27 3/4" 704.8mm	16	2 1/2" 63.5mm	2 5/8" 66.7mm	17 1/2" 444.5mm	18 1/2" 469.9mm
18" 450mm	36" 914.4mm	30 1/2" 774.7mm	16	2 3/4" 69.8mm	2 7/8" 73.0mm	19 1/4" 488.9mm	20 1/4" 514.3mm
20" 500mm	38 3/4" 984.2mm	32 3/4" 831.8mm	16	3" 76.2mm	3 1/8" 79.4mm	21" 533.4mm	22 1/4" 565.1mm
24" 600mm	46" 1168.4mm	39" 990.6mm	16	3 1/2" 88.9mm	3 5/8" 92.1mm	24" 609.6mm	25 1/2" 647.7mm



2500lb Steel Flanges							
Nominal Pipe Size	Outside Diameter of Flange	Diameter of Bolt Circle	Number of Bolts	Diameter of Bolts	Diameter of Bolt Holes	Studbolts RF	Studbolts RTJ
1/2" 15mm	5 1/4" 133.3mm	3 1/2" 88.9mm	4	3/4" 19.0mm	7/8" 22.2mm	4 3/4" 120.6mm	4 3/4" 120.6mm
3/4" 20mm	5 1/2" 139.7mm	3 3/4" 95.2mm	4	3/4" 19.0mm	7/8" 22.2mm	4 3/4" 120.6mm	4 3/4" 120.6mm
1" 25mm	6 1/4" 158.7mm	4 1/4" 107.9mm	4	7/8" 22.2mm	1" 25.4mm	5 1/4" 133.3mm	5 1/4" 133.3mm
1 1/4" 32mm	7 1/4" 184.1mm	5 1/8" 130.2mm	4	1" 25.4mm	1 1/8" 28.6mm	5 3/4" 146.0m	6" 152.4mm
1 1/2" 40mm	8" 203.2mm	5 3/4" 146.0mm	4	1 1/8" 28.6mm	1 1/4" 31.7mm	6 1/2" 165.1mm	6 3/4" 171.4mm

2" 50mm	9 1/4" 234.9mm	6 3/4" 171.4mm	8	1" 25.4mm	1 1/8" 28.6mm	6 3/4" 171.4mm	7" 177.8mm
2 1/2" 65mm	10 1/2" 266.7mm	7 3/4" 196.8mm	8	1 1/8" 28.6mm	1 1/4" 31.7mm	7 1/2" 190.5mm	7 3/4" 196.8mm
3" 80mm	12" 304.8mm	9" 228.6mm	8	1 1/4" 31.7mm	1 3/8" 34.9mm	8 1/2" 215.9mm	8 3/4" 222.2mm
4" 100mm	14" 355.6mm	10 3/4" 273.0mm	8	1 1/2" 38.1mm	1 5/8" 41.3mm	9 3/4" 247.6mm	10 1/4" 260.3mm

5" 125mm	16 1/2" 419.1mm	12 3/4" 323.8mm	8	1 3/4" 44.4mm	1 7/8" 47.6mm	11 1/2" 292.1mm	12 1/4" 311.1mm
6" 150mm	19" 482.6mm	14 1/2" 368.3mm	8	2" 50.8mm	2 1/8" 54.0mm	13 1/2" 342.9mm	14" 355.6mm
8" 200mm	21 3/4" 552.4mm	17 1/4" 438.1mm	12	2" 50.8mm	2 1/8" 54.0mm	15" 381.0mm	15 1/2" 393.7mm
10" 250mm	26 1/2" 673.1mm	21 1/4" 539.7mm	12	2 1/2" 63.5mm	2 5/8" 66.7mm	19" 482.6mm	20" 508.0mm
12" 300mm	30" 762.0mm	24 3/8" 619.1mm	12	2 3/4" 69.8mm	2 7/8" 73.0mm	21" 533.4mm	22" 558.8mm



TEEKAY COUPLINGS / CUNIFER PFF

TEEKAY COUPLINGS



JBP stock the full range of Teekay Mechanical, Flexible and Fireproof Couplings. Teekay Couplings are used extensively for the installation of new pipelines and for the repair and maintenance of existing piping systems. They are suitable for joining most types of plain ended pipes between 20mm and 4200mm in diameter and are widely used within the Oil, Petrochemical, Water, Construction, Power, Process and shipbuilding industries.

Teekay products successfully combine strength with flexibility. Strong and robust they are capable of working pressures upto 25 Bar, are light in weight and easy to install. Available from JBP stock or on quick leadtimes from the factory.

Teekay Couplings offer the pipeline designer, installer and operator significant commercial benefits as well as positive technical advantages.



CUNIFER PFF

We can supply Cunifer 90/10 pipes, fittings and flanges from stock to suit your piping needs. Cunifer products offer superior corrosion resistance and are widely used in piping systems and marine hardware due to their alloy properties.



PRODUCT	SPECIFICATION	GRADE	SIZE RANGE
PIPES	EEMUA	C7060X 90/10	2" to 8"
FITTINGS	EEMUA	C7060X 90/10	2" to 8"
FLANGES	EEMUA	C70600 90/10	2" to 8"

Outside Diameter (OD)		10 Bar System		14 Bar System		20 Bar System	
		Wall Thickness	Theoretical Wright	Wall Thickness	Theoretical Wright	Wall Thickness	Theoretical Wright
Nominal in	Actual mm	Actual mm	kg/m	Actual mm	kg/m	Actual mm	kg/m
1/2	16.0	1.0	0.42	1.0	0.42	1.0	0.42
5/8	20.0	1.0	0.53	1.0	0.53	1.0	0.53
3/4	25.0	1.5	0.99	1.5	0.99	1.5	0.99
1	30.0	1.5	1.20	1.5	1.20	1.5	1.20
1 1/4	38.0	1.5	1.54	1.5	1.54	1.5	1.54
1 1/2	44.5	1.5	1.81	1.5	1.81	1.5	1.81
2	57.0	1.5	2.34	1.5	2.34	1.5	2.34
3	76.1	2.0	4.16	2.0	4.16	2.0	4.16
3 1/2	88.9	2.5	6.07	2.5	6.07	2.5	6.07
4	108.0	2.5	7.41	2.5	7.41	2.5	7.41
5	133.0	2.5	9.16	2.5	9.16	3.5	12.73
6	159.0	2.5	10.99	2.5	10.99	3.5	15.29
7 1/4	193.7	2.5	13.43	3.5	18.70	4.5	23.91
8	219.1	3.0	18.21	3.5	21.19	4.5	27.13
10	267.0	3.0	22.24	4.0	29.55	5.5	40.39
12	323.9	4.0	35.94	5.0	44.78	7.0	62.30
14	368.0	4.0	40.89	5.5	56.00	8.0	80.89
16	419.0	4.0	46.62	6.0	69.60	9.0	103.64
18	457.2	4.0	50.91	7.0	88.51	9.5	119.47
20	508.0	4.5	63.64	7.5	105.43	11.0	153.56



VALVES

VALVES

We offer a comprehensive range of valves actuators and controls to suit all applications. This can be done from our large range of stock or on a lead time to meet our client's specifications. Our experienced Project Team is structured to efficiently manage all types of projects.

GATE VALVES

Knife Type
Solid and Flexi Wedge Type
Slab and Expanding Through Conduit Type
 Size Range: 1/2" - 36" (DN15 – DN900)
 End Connections: Flanged, Hubbed, Welded, Threaded
 Pressure Class: ANSI 150 lbs - 2500 lbs, API 5K – 15K

GLOBE VALVES

Plug and Needle Disc Types
Bolted and Welded Bonnet
Slab and Expanding Through Conduit Type
 Size Range: 1/2" - 12" (DN15 – DN300)
 End Connections: Flanged, Hubbed, Welded, Threaded
 Pressure Class: ANSI 150 lbs - 2500 lbs, API 5K – 15K

BALL VALVES

Floating Ball and Trunnion Mounted
Double Block and Bleed Design
Soft or Metal Seated
 Size Range: 1/2" - 56" (DN15 – DN1400)
 End Connections: Flanged, Hubbed, Welded, Threaded
 Pressure Class: ANSI 150 lbs - 2500 lbs, API 5K – 15K

CHECK VALVES

Duo Plate, Wafer and Lugged Style
Swing Type
Piston and Ball Type
Nozzle Type
 Size Range: 1/2" - 36" (DN15 – DN900)
 End Connections: Flanged, Hubbed, Welded, Threaded
 Pressure Class: ANSI 150 lbs - 2500 lbs, API 5K – 15K

BUTTERFLY VALVES

Concentric Type (Rubber Lined)
High Performance Double offset
High Performance Triple offset
 Size Range: 1/2" – 56" (DN 12 – DN1400)
 Features: Double Flanged, Wafer and Lugged Style
 Pressure Class: ANSI 150 lbs - 900 lbs

ACTUATORS & CONTROLS

Single Acting Spring Return, Double Acting and Linear
Pneumatic, Hydraulic and Electric Type
Controls designed to specification

CONTROL VALVES

Our range includes Butterfly, Globe and Ball Type. Actuator, positioner and controls are all combined to meet specification.

Relief Valves: Direct Spring Pressure and Pilot Operated Type

Instrument Valves: Needle, Gauge, DB&B valves and Mono Flanges

Plug Valves: Regular and Short Pattern Type

Subsea Valves: Ball, Gate and Needle Valves ROV Operated and Actuated Design to API 6A, API 6DSS and API 17D

Materials: Available in Cast Iron, Carbon Steel, Stainless steel, Duplex and Super Duplex, Aluminium Bronze and special alloys

We also offer many other products which are available on request and in stock with ANSI, DIN, JIS and BS connections.



VICTAULIC® PIPING SYSTEM



VICTAULIC® PIPING SYSTEM



John Bell Pipeline Equipment Company Ltd is an official distributor of Victaulic®, the worldwide leader in mechanical pipe-joining solutions. With a large stock holding of Couplings and Fittings in our Aberdeenshire warehouse we have the ability to source any item of the Victaulic® piping system within a short lead time and offer a grooving service for pipes to suit.

COUPLING



Victaulic®, the originator and innovator of grooved coupling technology, offers a variety of coupling sizes and styles for almost any piping application.

FITTING



Victaulic® fittings are available in sizes through 1200mm/48". Standard fitting pressure ratings conform to ratings of installed coupling. All fittings supplied with grooves or shoulders for fast installation.

VALVES



Designed for a wide variety of applications. Victaulic® valves are engineered and manufactured for dependable, trouble-free performance, superior flow control and durable, long-lasting reliability.

GROOVING

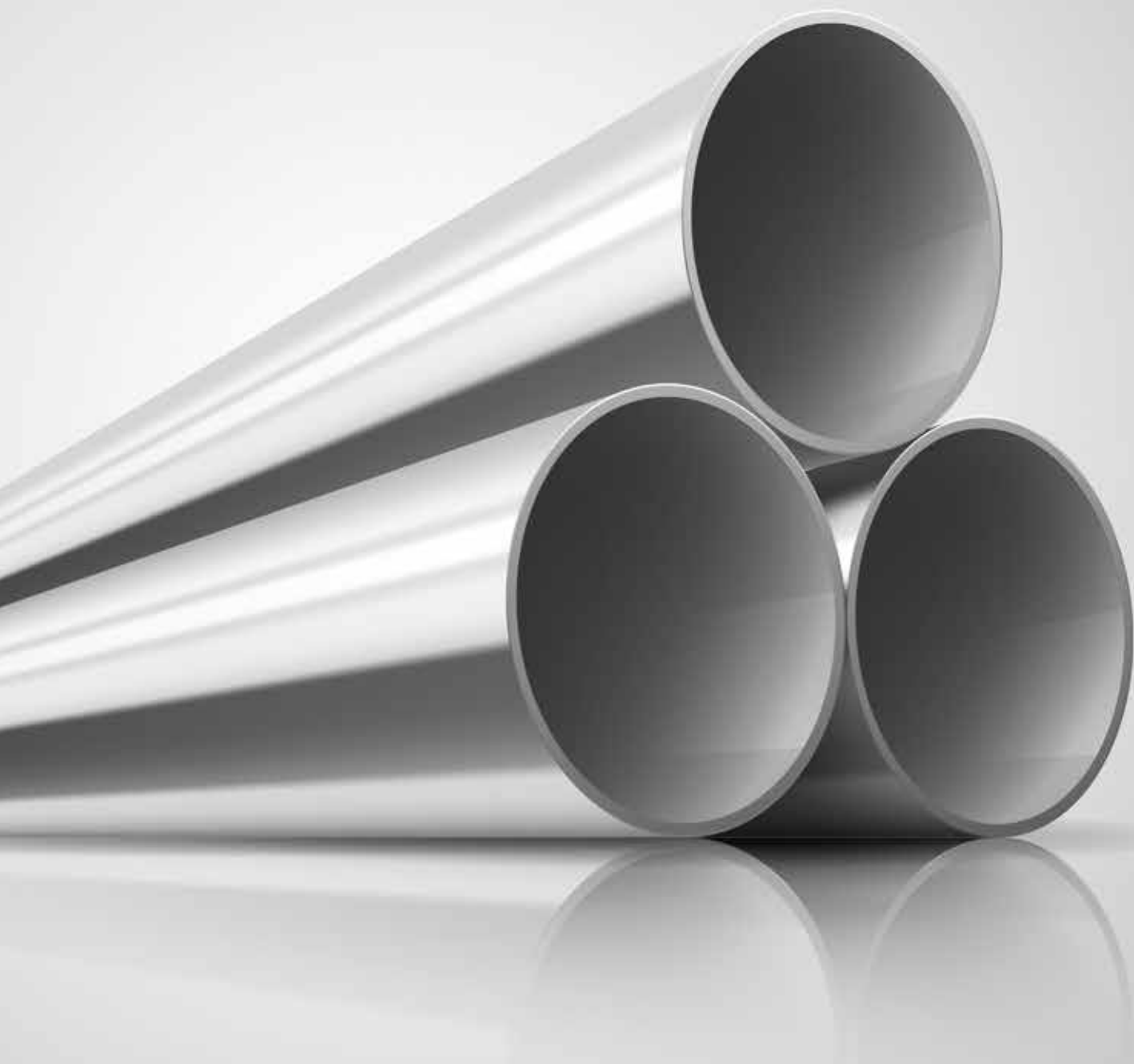


We are proud to be able to offer an in house processing service for Pipe Grooving to fit with Victaulic® piping systems. We can accommodate lengths from 500mm upwards.



Ask us today for more information email us at sales@jbpipeline.co.uk

WHITE METALS



WHITE METALS

We stock a comprehensive range of stainless steel, Duplex and Super Duplex Pipe, Fittings, and Flanges. Stainless steels are alloys with a minimum of 10.5% chromium. Other elements are added to enhance their structure and properties such as formability, strength and ability to retain it's form in low temperatures. Our standard grade 316L is available from both EU and non EU origins.

DUPLEX

Duplex is a material that has equal amounts of Austenite and Ferrite. These materials provide excellent corrosion resistance along with high strength. The mechanical properties are approximately double those of singular austenitic steel. Resistance to localised corrosion, particularly pitting, crevis corrosion and stress corrosion cracking is superior to austenitic stainless steel grades. All of our Duplex and Super Duplex materials are sourced from NORSOK M-650 approved manufacturers.

PRODUCT	TYPE	SPECIFICATION	GRADE	SIZE RANGE
PIPES	Zinc Plated	A312	316L	1/2" to 12" Sch 10S to Sch 80S
FITTINGS	Butt Weld	A403		1/2" to 6" Sch 10S to Sch 80S
	Screwed NPT	A182		1/4" to 4" 3000lb
	Socket Weld	A182		1/4" to 2" 3000lb
O'LETS	Weldolets	A184		1/2" to 2"
	Sockolets	A184		1/2" to 2"
	Thredolets	A184		1/2" to 2"
COUPLINGS	Jointing & Pipe Repair	304 or 316L		1 1/2" to 16"
FLANGES	Class 150 to 2500	A182		1/2" to 10" Sch 10S to Sch 80S
VALVES	NPT Ball	CF8M Body		1/2" to 2"
PIPES		Duplex		1" to 6" Sch 10S to Sch 160
FITTINGS	Butt Weld	Duplex		1/2" to 6" Sch 10S to Sch 80S
FLANGES	Class 150 to 600	Duplex	F51	1/2" to 6" Sch 10S to Sch 80
PIPES		Super Duplex		1 1/2" to 6" Sch 10S to Sch 160
FITTINGS	Butt Weld	Super Duplex		1" to 6" Sch 10S to Sch 80S
FLANGES	Class 150 to 300	Super Duplex	F55	1" to 6" Sch 10S to Sch 80S

NPS Designator	Outside Diameter mm	Wall Thickness mm Sch 5s	Wall Thickness mm Sch 10s	Wall Thickness mm Sch 40s	Wall Thickness mm Sch 80s
1/4"	13.7		1.65	2.24	3.02
3/8"	17.1		1.65	2.3	3.2
1/2"	21.3	1.65	1.65	2.77	3.73
3/4"	26.7	1.65	1.65	2.87	3.91
1"	33.4	1.65	1.65	3.38	4.55
1 1/4"	42.2	1.65	1.65	3.56	4.85
1 1/2"	48.3	1.65	1.65	3.68	5.08
2"	60.3	1.65	2.77	3.91	5.53
2 1/2"	73	2.11	3.05	5.16	7.01
3"	88.9	2.11	3.05	5.49	7.62
3 1/2"	101.6	2.11	3.05	5.74	8.07
4"	114.3	2.11	3.05	6.02	8.56
5"	141.3	2.77	3.4	6.55	9.52
6"	168.9	2.77	3.4	7.11	10.97
8"	219.1	2.77	3.76	8.18	12.7
10"	273	3.4	4.19	9.27	12.7
12"	323.8	3.96	4.57	9.53	12.7

NATIONAL TUBE STOCKHOLDERS LTD

NTS is one of the leading stockholders of Linepipe products in the UK, our team is professional and competent. With an offering of over 8,000 tonnes of quality products and more than 2,500 line items we are certain we can supply to our customer specific needs.

Our extensive and evolving stock range is supported by our experienced and knowledgeable sales team who are dedicated to providing a high level of customer service.

We operate from a single site in North Yorkshire and in 2018 have added a dedicated 11,000m² Pipe, Fittings and Flanges storage facility to our existing 37,000 m² of covered warehouse space. We are able to offer a large range of in-house processing and a comprehensive project management service.

We operate our own fleet of more than 20 vehicles with our own experienced team of drivers to enable us to meet individual delivery requirements. NTS are proud to be certified to ISO 9001, ISO 14001 and OHSAS 18001.



JOHN BELL PIPELINE EQUIPMENT COMPANY LTD

JBP is a market leading supplier of linepipe, fittings, flanges, valves, general steels and ancillary products. Initially focussed on supplying the high demands and exacting standards of the Aberdeen Oil and Gas industry, JBP now brings this wealth of knowledge, service and after sales care to multiple markets across the world and serves industry sectors as diverse as power and petrochemical to food and drink.

Today, with over 50 employees, JBP operates from two locations, Inverurie and Grangemouth, and is focussed on tailoring each and every offer to specific customer needs. With a core stock of over 8000 line items and a knowledge and ability to source and provide many more, JBP is committed to ensuring professionalism and integrity throughout.



JBP
John Bell Pipeline

BIANCO INTERNATIONAL LTD



Bianco International focuses on bringing the knowledge, expertise and product offering of our European Companies to new markets. In particular our sourcing capabilities, centred on relationships with the best producers in the world, and our proven Quality Assurance systems ensure quality and consistency of both product and service.

When dealing with Bianco International as a package and solutions provider you can be confident that we understand the pressures and demands of each job in detail and that our primary focus is supplying your project/order on time and in budget. We have our own employee in the Middle East and a representative in North Africa.



CLEVELAND STEEL & TUBES LTD

CST are proud to be founder members of the multi-national Bianco Group, with associate companies worldwide.

With an offering of over 70,000 tonnes of prime and surplus pipe available from our stock, and the ability to offer painting, cutting, welding and other bespoke fabrication work, we could be the solution you have been looking for.

Our experienced team can arrange additional testing and inspections, international shipping and our fabrication work comes fully CE Marked.



CST
CLEVELAND STEEL & TUBES LTD



THE BIANCO GROUP

The Bianco Group consists of over 20 steel stockholding, distribution, processing and trading companies. Located at sites throughout the UK, Europe, the US and Canada and with over 1000 employees, we serve more than 80,000 customers worldwide. As a family owned and managed group we remain committed to our founding principles of developing long term relationships and ensuring excellence in service, unrivalled reliability and the highest quality, with the aim of adding value for our customers.



The first company of the Bianco Group, F. G. Bianco, was founded in northern Italy in 1958. Today this company is still trading under the name of Tubindustria in Brescia. In the late 1960's and early 1970's SICAM in Italy, STAD in France and Cleveland Steel and Tubes in the UK were established, creating the foundations that would later allow the group to grow into our current international steel distribution network. The 1980's and 1990's saw rapid expansion across Europe and North America; in the main from organic growth but supported by strategic acquisitions, most recently with Sidergamma in Italy during 2015.

The Group specialises in providing seamless and welded tubes to the construction, process and energy industries as well as providing hot

finished and cold drawn seamless and welded tubes and solid bars to the mechanical and fluid power markets.

Today the Bianco Group is a large organisation but we continue to focus on the principles of efficiency, value and service. This can be seen both in the supply chain relationships we have, some of which date back to 1958, and through our ongoing financial investment in the businesses. We have in excess of 220,000m² of covered warehousing and stocks over 350,000 tonnes which allow us to meet and exceed the ever increasing demands of the customers and sectors we supply.

With a growing customer base, we welcome the opportunity to show you what we can do for your business.



UK AND IRELAND

- **National Tube Stockholders Ltd**
 - Dalton, North Yorkshire, Thirsk
 - Carlow, Ireland
- **John Bell Pipeline Equipment Co Ltd**
 - Inverurie, Aberdeenshire
 - Grangemouth, Stirlingshire
- **Cleveland Steel and Tubes Ltd**
- **Steel Beams and Columns Ltd**

EUROPE

Italy

- Sicam SpA
- Sicam Centro SpA
- Sidergamma
- Tubifal Srl
- Tubindustria Srl

Spain

- Proveedora de Tubos Occidental SL
- Madrid
- Vittoria
- Tarragona

Netherlands

- Ropa Staal BV

France

- STAD S.A.
- Distritube S.A.
- Sottomet S.A.
- Sopomet S.A.

Germany

- Deurohr Handels GmbH
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- **National Tube Supply Co Inc.**
 - Chicago, Illinois
 - Houston, Texas
 - Moreno Valley, California
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- **Pipe and Tube Supplies Inc.**

CANADA

- **National Tube Supply Canada Inc.**
- **Interpipe Inc.**

UAE

- **Bianco International, Abu Dhabi**



Bianco Group

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