



Technical Brochure

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Metalis Energy are world leading specialists in high integrity, high pressure, safety critical pipeline components and drilling manifold systems for today's latest generation high-performance environment drill-rigs and drill ship applications. In today's demanding deep-water harsh environments where safety, high-performance and certified quality materials are absolutely paramount, why take a chance using substandard unquantified materials where quality and testing are in doubt.

All our products are manufactured in the UK, Europe or the USA and have a proven track record in the harshest drilling environments. All products are design verified and independently certified by either ABS or DNV as standard.

If you need high integrity, high pressure pipeline components for a priority new-build or tight deadline drill-rig refurbishment, whether it's a jack-up, semi-sub or drillship for choke & kill, high pressure / high temperature mud & cement line applications... Metalis Energy has the solution for you.

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Products Overview

Manifold Packages

Choke & Kill manifolds including Control Panel

Mud Manifolds

Cement Manifolds

Mud / Gas Separators

High Pressure Valves

API 6A Gate Valves

Mud Gate Valves API 6A Choke Valves API 6A Plug Valves

High Pressure Tubing

2" NB to 6" NB SCH XXS

Including Special Wall Thicknesses

A519 Gr. 4130 (7500 PSI & Above)

API 5L X52 (5000 psi & Below)

Manifold Fittings

Long Sweep Elbows

Long Sweep & Long Sweep Full Flow Tee's

Goosenecks

ANSI B16.9, Block & Cushion Type

API Products

API 6A Flanges

API 6A Studded Blocks

API 16A Hubs & Clamps

Hammer Unions

Hammer Unions in sizes 2" to 6", Fig 1002 through to 2202.

We can offer our unions in standard or sour gas service, using either butt weld or screwed ends.

Quality Assurance

Our dedication to quality assurance is second to none. All of our projects are conducted from start to finish using our strict quality system which is in full accordance with BS EN ISO 9001. We also ensure that all of the products we offer are in accordance with all relative industry standards and specific customer requirements. We are always open to any input from our customers as to how to improve our products and services as we continue to grow. All of our products can also be manufactured to meet any necessary specifications brought forward by our clients whether it is chemical compositions or specialist packaging.

All our products are manufactured in the UK, Europe or the USA and have a proven track record in the harshest drilling environments. All products are design verified and independently certified by either ABS or DNV as standard.

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Seamless Pipe

All pipe and tubing supplied by Metalis Energy is supplied in accordance with the following international standards where applicable.

API spec 5L	American petroleum institute specification for line pipe
NACE MR 01 75	Sulphide Stress Corrosion Cracking Resistant Metallic Materials for Oil Field Equipment
ASME B16.10	Welded and Seamless Wrought Steel Pipes
ASTM	American Society for Testing and Materials.

Material certification to BS EN 10204 3.1 is provided as standard, material certification to BS EN 10204 3.2 can be provided if required.

Table 4.1

Material	Min Tensile Strength	Min Yield Strength	Brinell Hardness number	Charpy Impact value
ASTM A106 Gr B	35,000psi	60,000psi	-	-
A333 Gr 6	35,000psi	60,000psi	-	18J min AV at -45 deg C
API 5L X52	52,000psi	65,000psi	-	27j min AV at -50 deg C
A182 F316L	25,000psi	70,000psi	-	-
A519 4130	85,000psi	105,000psi	237 HB	42K min AV -50 deg C

Metalis can provide pipe and tubing in other material grades, please contact us with any other material requirements you may have. Specific working pressures available upon request.

See the tables below for the dimensional data of standard Metalis pipe sizes. Please note that these are lists of only the most common sizes stocked by Metalis. If you have any requirements for specific sizes or special materials that are not in the lists please contact sales@metalisenergy.com and we will be more than happy to assist.

Table 4.2

Nominal Bore (in)	Outside Diameter (Inches)	Outside Diameter (mm)		Sch 80	Sch XS	Sch 100	Sch 120	Sch 140	Sch 160	Sch XXS
1"	1.315	33.401	Wall thickness (mm) Weight (kg/m)	4.55 3.29	4.55 3.29	- -	- -	- -	6.35 4.30	9.70 7.88
2"	2.375	60.325	Wall thickness (mm) Weight (kg/m)	5.54 7.60	5.54 7.60	- -	- -	- -	8.74 11.29	11.07 13.65
3"	3.500	88.900	Wall thickness (mm) Weight (kg/m)	7.62 15.51	7.62 15.51	- -	- -	- -	11.13 21.67	15.24 28.11
4"	4.500	114.300	Wall thickness (mm) Weight (kg/m)	8.56 22.64	8.56 22.64	- -	11.13 28.75	- -	13.49 34.05	17.12 41.66
5"	5.563	141.300	Wall thickness (mm) Weight (kg/m)	9.53 31.44	9.53 31.44	- -	12.70 40.90	- -	15.88 49.94	19.05 58.32
6"	6.625	168.275	Wall thickness (mm) Weight (kg/m)	10.97 43.21	10.97 43.21	- -	14.27 55.03	- -	18.26 68.53	21.92 80.43

Table 4.3 - Common Specialist Pipe Sizes

Nominal Bore (in)	Outside Diameter (Inches)	Outside Diameter (mm)	Inside Diameter (inches)	Inside Diameter (mm)	Wall thickness (mm)	Weight (kg/m)
4"	4.5	114.3	3.0	76.2	19.05	44.39
5"	5.5	139.7	3.0	76.2	31.75	84.52
5"	5.75	146.05	4.0	101.6	22.23	66.07
6"	6.75	171.45	5.0	127.0	22.23	84.53
-	7.4	187.96	4.0	101.6	43.18	154.17

High Pressure Manifold Fittings

Metalis Energy only supplies the highest quality manifold fittings manufactured in the UK from wrought steel forgings – far superior to steel casings or steel plate. The fittings have been designed to meet all of the following international standards:

MSS-SP75	Specifications for High test Wrought Butt Weld Fittings.
ANSI B31.3	Chemical Plant and Petroleum Refinery Piping.
ANSI 16.9	Factory made Wrought Steel Butt Weld Fittings.
NACE MR-01-75	Sulphide Stress Cracking Resistant Metallic Materials for Oil Field Equipment. ASME VIII
Division 1 section 13.10	Boiler and Pressure Vessel Code.
API 6A	Specifications for Wellhead and Christmas Tree Equipment



Metalis forged manifold fixings are available for the following pressure ratings:

MAX WORKING PREESSURE*	5,000psi	10,000psi	15,000psi
Test pressure	10,000psi	15,000psi	22,500psi
Material	Carbon Manganese Steel (ASTM A860 Gr WPHY 52)	Low Alloy steel (AISI 4130)	Low Alloy steel (AISI 4130)
Min Yield	52,000psi	85,000psi	85,000psi
Operating temps	-46 to 204 deg C	-46 to 204 deg C	-46 to 204 deg C

*Working pressures can be affected by a number of factors such as butt weld prep sizes. Please contact Metalis for specific working pressures.

All tees and crosses can be supplied with reducing connections, these may effect the sizes of these fittings, please contact Metalis for clarification.

See the tables below for the dimensional data of standard Metalis manifold fittings. Please note that these are lists of only the most common sizes stocked by Metalis. If you have any requirements for specific sizes or special materials that are not in the lists please contact sales@metalisenergy.com and we will be more than happy to assist.

Long sweep 90 degree elbow

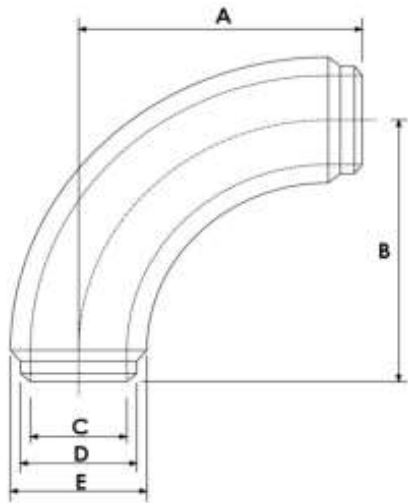


Table 5.1 – Long Sweep 90 deg Elbow Standard Sizes (All dims in inches unless otherwise stated)

NB	A	B	C	D	E	WEIGHT (KG)
2" XXS	8.00	8.00	1.50	2.375	3.50	14
3" XXS	8.00	8.00	2.30	3.50	4.50	22
4" XXS	11.00	11.00	3.15	4.50	5.50	42
5" XXS	12.00	12.00	4.06	5.56	6.63	57
6" XXS	15.00	15.00	4.90	6.625	8.00	94
5.5" OD x 3.0" ID	12.00	12.00	3.06	5.50	6.63	62
6.75" OD x 5.0" ID	15.00	15.00	5.00	6.75	8.00	94

Long sweep 45 degree elbow

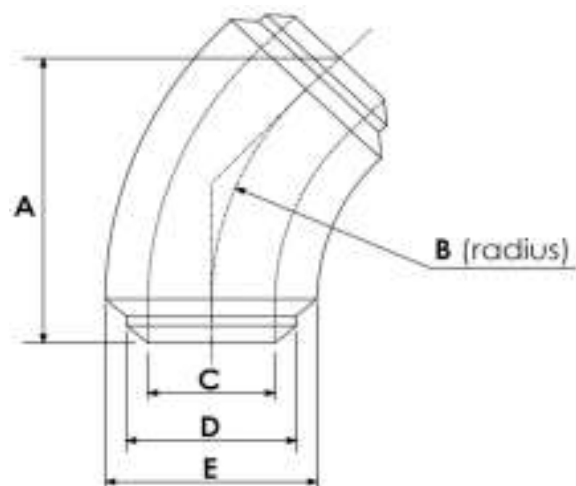


Table 5.2 – Long Sweep 45 deg Elbow Standard Sizes (All dims in inches unless otherwise stated)

NB	A	B	C	D	E	WEIGHT (KG)
2" XXS	8.00	6.00	1.50	2.375	3.50	9
3" XXS	8.00	6.00	2.30	3.50	4.50	15
4" XXS	11.00	8.25	3.15	4.50	5.50	29
5" XXS	11.50	9.50	4.06	5.56	6.63	38
6" XXS	13.69	12.00	4.90	6.625	8.00	72
5.5" OD x 3.0" ID	11.50	9.50	3.06	5.50	6.63	43
6.75" OD x 5.0" ID	13.69	12.00	5.00	6.75	8.00	72

Long sweep full flow tee

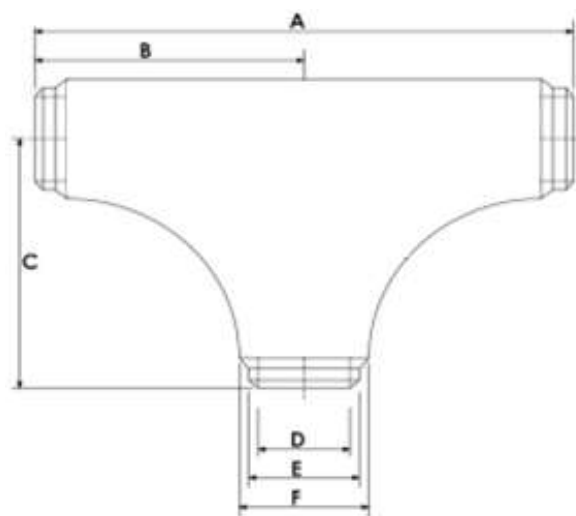


Table 5.3 – Long Sweep Full Flow Tee Standard Sizes (All dims in inches unless otherwise stated)

NB	A	B	C	D	E	F	WEIGHT (KG)
2" XXS	16.00	8.00	8.00	1.50	2.37	4.50	44
3" XXS	16.00	8.00	8.00	2.30	3.50	4.50	38
4" XXS	22.00	11.00	11.00	3.15	4.50	5.56	63
5" XXS	24.00	12.00	12.00	4.06	5.56	6.63	88
6" XXS	30.00	15.00	15.00	4.90	6.63	7.75	170
5.5" OD x 3.0" ID	24.00	12.00	12.00	3.06	5.50	6.63	93
6.75 OD x 5.00" ID	30.00	15.00	15.00	5.00	6.75	7.75	170

Long sweep tee

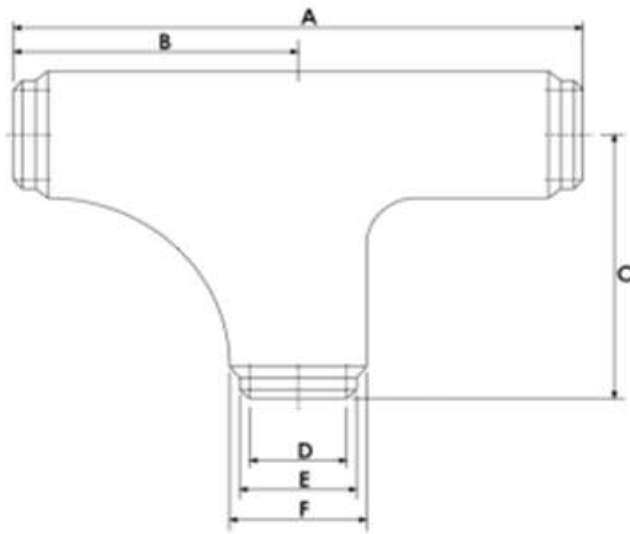


Table 5.4 – Long Sweep Tee Standard Sizes (All dims in inches unless otherwise stated)

NB	A	B	C	D	E	F	WEIGHT (KG)
2" XXS	13.00	8.00	8.00	1.50	2.37	4.50	36
3" XXS	13.00	8.00	8.00	2.30	3.50	4.50	31
4" XXS	16.00	11.00	11.00	3.15	4.50	5.56	52
5" XXS	19.00	12.00	12.00	4.06	5.56	6.63	75
6" XXS	27.00	15.00	15.00	4.90	6.63	7.75	145
5.5" OD x 3.0" ID	19.00	12.00	12.00	3.06	5.50	6.63	80
6.75 OD x 5.00" ID	27.00	15.00	15.00	5.00	6.75	7.75	145

Long Sweep Tee C/W Integral Bull Plug

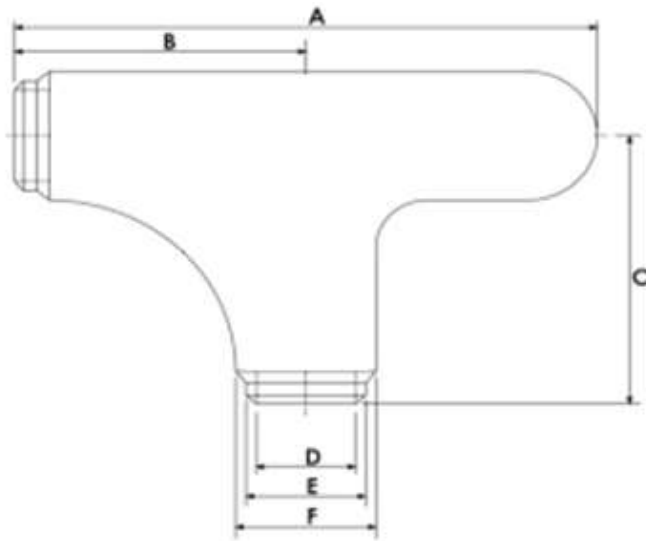


Table 5.5 – Long Sweep Tee C/W Bull Plug Standard Sizes (All dims in inches unless otherwise stated)

NB	A	B	C	D	E	F	WEIGHT (KG)
2" XXS	15.20	8.00	8.00	1.50	2.37	4.50	40
3" XXS	15.20	8.00	8.00	2.30	3.50	4.50	34
4" XXS	19.50	11.00	11.00	3.15	4.50	5.56	59
5" XXS	23.00	12.00	12.00	4.06	5.56	6.63	86
6" XXS	31.70	15.00	15.00	4.90	6.63	7.75	160
5.5" OD x 3.0" ID	23.00	12.00	12.00	3.06	5.50	6.63	91
6.75 OD x 5.00" ID	31.70	15.00	15.00	5.00	6.75	7.75	16

Long Sweep Full Flow Cross

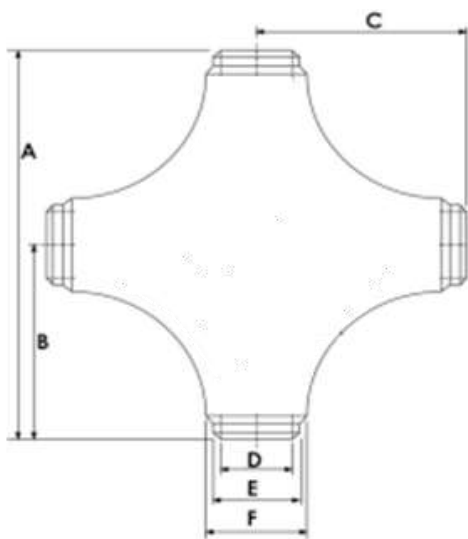


Table 5.6 – Long Sweep Full Flow Cross Standard Sizes (All dims in inches unless otherwise stated)

NB	A	B	C	D	E	F	WEIGHT (KG)
2" XXS	16.00	8.00	8.00	1.50	2.37	4.50	59
3" XXS	16.00	8.00	8.00	2.30	3.50	4.50	60
4" XXS	22.00	11.00	11.00	3.15	4.50	5.56	81.
5" XXS	24.00	12.00	12.00	4.06	5.56	6.63	111
6" XXS	30.00	15.00	15.00	4.90	6.63	7.75	243
5.5" OD x 3.0" ID	24.00	12.00	12.00	3.06	5.50	6.63	116
6.75 OD x 5.00" ID	30.00	15.00	15.00	5.00	6.75	7.75	243

90 Degree 3d Double Backed Elbow

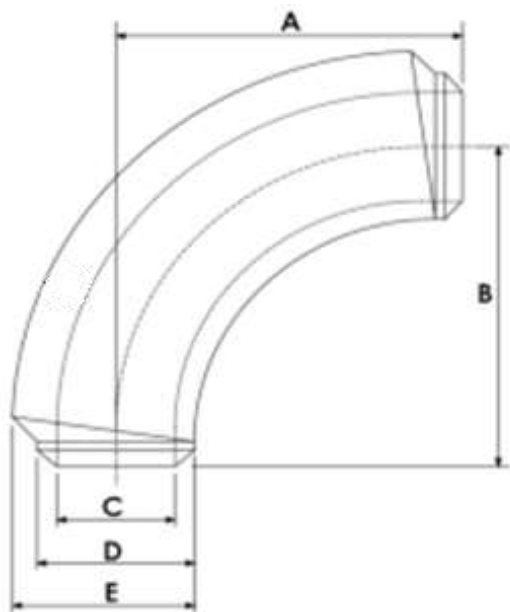


Table 5.7 – 90 Deg 3D Double Backed Elbow Standard Sizes (All dims in inches unless otherwise stated)

NB	A	B	C	D	E	WEIGHT (KG)
2" XXS	7.00	7.00	1.50	2.37	3.50	11
3" XXS	12.00	12.00	2.30	3.50	4.50	30
4" XXS	14.00	14.00	3.15	4.50	5.50	47
5" XXS	17.00	17.00	4.06	5.56	6.60	75
6" XXS	21.00	21.00	4.90	6.63	8.25	135
5.5" OD x 3.0" ID	17.00	17.00	3.06	5.50	6.60	80
6.75 OD x 5.00" ID	21.00	21.00	5.00	6.75	8.25	135

45 Degree 3d Doubled Backed Elbow

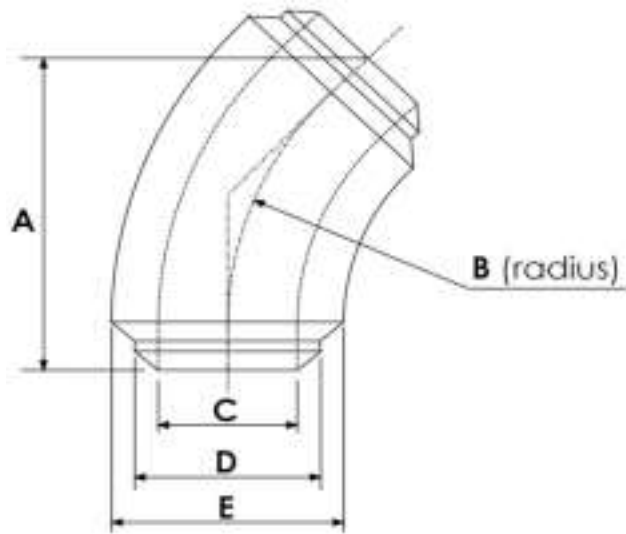


Table 5.8 – 45 Deg 3D Double Backed Elbow Standard Sizes (All dims in inches unless otherwise stated)

NB	A	B	C	D	E	WEIGHT (KG)
2" XXS	4.76	4.76	1.50	2.37	3.50	10
3" XXS	6.73	6.73	2.30	3.50	4.33	20
4" XXS	6.97	6.97	3.15	4.50	5.50	28
5" XXS	8.22	8.22	4.06	5.56	6.60	45
6" XXS	10.43	10.43	4.90	6.63	8.25	94
5.5" OD x 3.0" ID	8.22	8.22	3.06	5.50	6.60	50
6.75 OD x 5.00" ID	10.43	10.43	5.00	6.75	8.25	94

Standpipe Gooseneck 160 Degree C/W Top Outlet

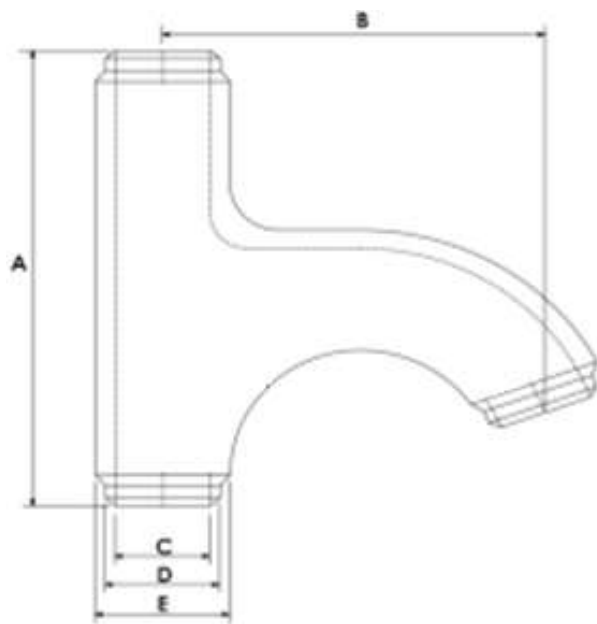


Table 5.9 – Standpipe Gooseneck 160 Deg Standard Sizes (All dims in inches unless otherwise stated)

NB	A	B	C	D	E	WEIGHT (KG)
2" XXS	13.00	12.00	1.50	2.37	4.50	40
3" XXS	13.00	12.00	2.30	3.50	4.50	42
4" XXS	16.00	14.00	3.15	4.50	5.56	75
5" XXS	19.00	16.00	4.06	5.56	6.63	107
6" XXS	27.00	24.00	4.90	6.63	7.75	210
5.5" OD x 3.0" ID	19.00	16.00	3.06	5.50	6.63	112
6.75 OD x 5.00" ID	27.00	24.00	5.00	6.75	7.75	210

Standpipe Gooseneck 160 Degree C/W Top Integral Bullplug

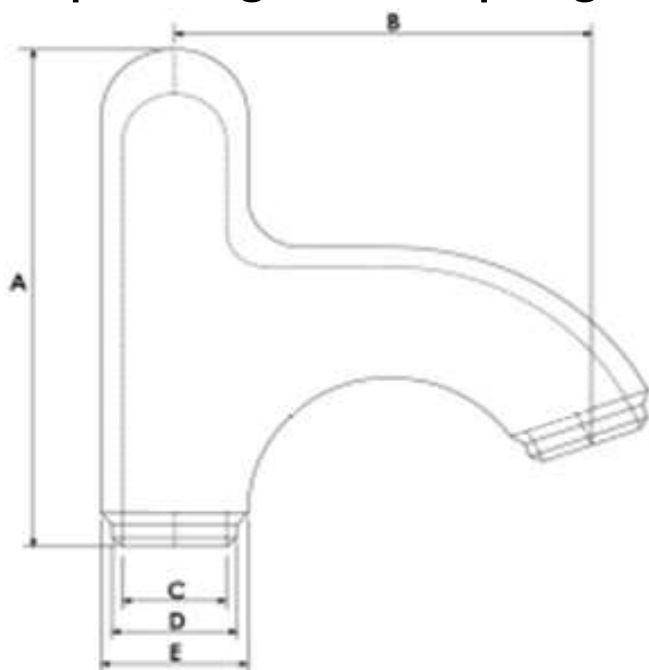


Table 5.10 – Standpipe Gooseneck 160 Deg CW Top Bull Plug Standard Sizes (All dims in inches unless otherwise stated)

NB	A	B	C	D	E	WEIGHT (KG)
2" XXS	15.20	12.00	1.50	2.37	4.50	45
3" XXS	15.20	12.00	2.30	3.50	4.50	47
4" XXS	19.50	14.00	3.15	4.50	5.56	81
5" XXS	23.00	16.00	4.06	5.56	6.63	117
6" XXS	29.00	24.00	4.90	6.63	7.75	225
5.5" OD x 3.0" ID	23.00	16.00	3.06	5.50	6.63	122
6.75 OD x 5.00" ID	29.00	24.00	5.00	6.75	7.75	225

ANSI B16.9 Fittings

Metalis Energy only supplies the highest quality ANSI B16.9 fixings & block type fittings manufactured in UK. The fittings have been designed to meet all of the following international standards:

MSS-SP75	Specifications for High test Wrought Butt Weld Fittings
MSS-SP43	Wrought stainless steel butt weld fittings
ANSI B31.3	Chemical Plant and Petroleum Refinery Piping
ANSI 16.9	Factory made Wrought Steel Butt Weld Fittings
NACE MR-01-75	Sulphide Stress Cracking Resistant Metallic Materials for Oil Field Equipment
ASME VIII Division 1 section 13.10	Boiler and Pressure Vessel Code.
API 6A	Specifications for Wellhead and Christmas Tree Equipment.



Table 6.1 – Standard Fitting Materials

Material	Min Tensile Strength	Min Yield Strength	Brinell Hardness number	Charpy Impact value
A182 Gr 316L	25,000psi	70,000psi	-	-
A234 Gr WPB	35,000psi	60,000psi	197 HB	-
A420 WPL6	35,000psi	60,000psi	-	18J min AV -45 deg C
A860 Gr WPHY52	52,000psi	66,000psi	235 HB	27J min AV -50 deg C
A182 F51 UNS 31803	65,000psi	90,000psi	237 HB	27J min AV -50 deg C
AISI 4130	75,000psi	105,000psi	237 HB	42J min AV -50 deg C

* Metalis can provide fittings in other material grades, please contact us with any other material requirements you may have. Specific working pressures available upon request.

See the tables below for the dimensional data of standard Metalis fitting sizes. Please note that these are lists of only the most common sizes stocked by Metalis. If you have any requirements for specific sizes or special materials that are not in the lists please contact sales@metalisenergy.com and we will be more than happy to assist.

90 Degree Long Radius Elbow

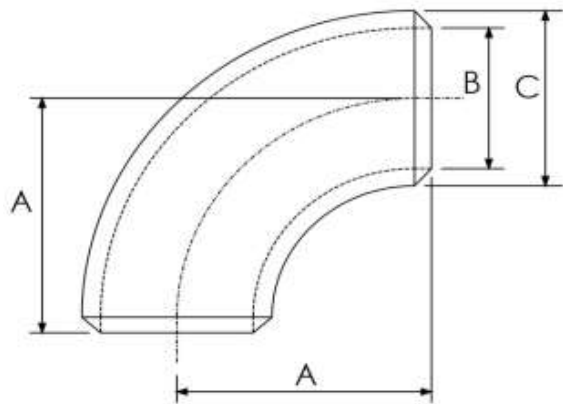


Table 6.2 – 90 Deg Long Radius Elbow Standard Sizes (All dims in inches unless otherwise stated)

NB	A	B	C	WEIGHT (KG)
2" XXS	3.00	1.50	2.37	2
3" XXS	4.50	2.30	3.50	5
4" XXS	6.00	3.15	4.50	10
5" XXS	7.50	4.06	5.56	18
6" XXS	9.00	4.90	6.63	30
5.5" OD x 3" ID	7.50	3.00	5.50	22
6.75" OD x 5" ID	9.00	5.00	6.75	31

45 Degree Long Radius Elbow

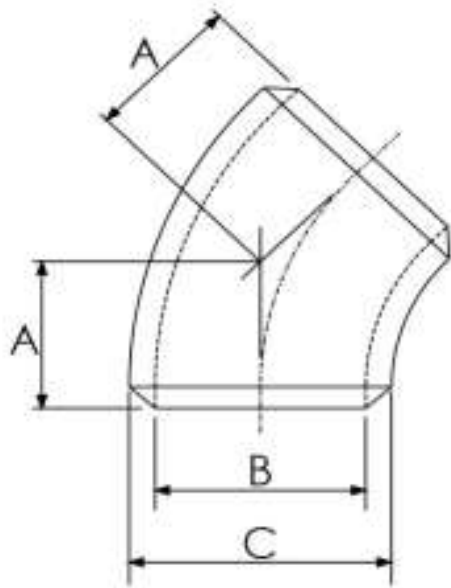


Table 6.3 – 45 Deg Long Radius Elbow Standard Sizes (All dims in inches unless otherwise stated)

NB	A	B	C	WEIGHT (KG)
2" XXS	1.38	1.50	2.37	1
3" XXS	2.00	2.30	3.50	3
4" XXS	2.50	3.15	4.50	5
5" XXS	3.10	4.06	5.56	9
6" XXS	3.75	4.90	6.63	15
5.5" OD x 3" ID	3.10	3.00	5.50	12
6.75" OD x 5" ID	3.75	5.00	6.75	16

Buttweld Equal Tee

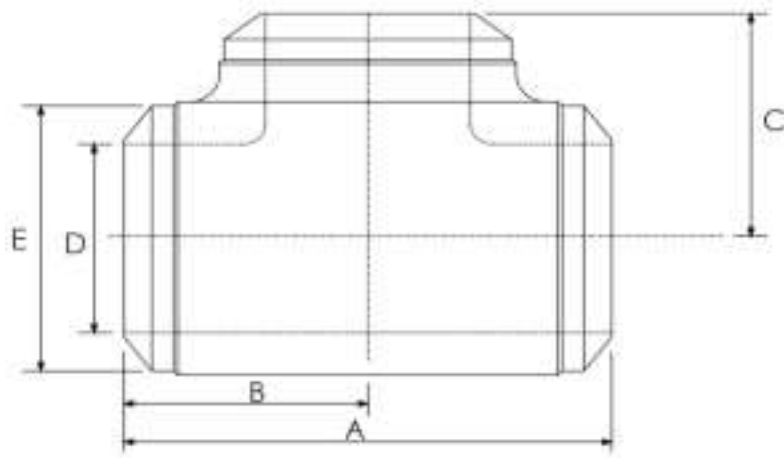


Table 6.4 – Equal Tee Standard Sizes (All dims in inches unless otherwise stated)

NB	A	B	C	D	E	WEIGHT (KG)
2" XXS	5.04	2.52	2.52	1.50	2.37	3
3" XXS	6.78	3.39	3.39	2.30	3.50	8
4" XXS	8.24	4.12	4.12	3.15	4.50	17
5" XXS	9.76	4.88	4.88	4.06	5.56	25
6" XXS	11.26	5.63	5.63	4.90	6.63	39
5.5" OD x 3" ID	9.76	4.88	4.88	3.00	5.50	29
6.75" OD x 5" ID	11.26	5.63	5.63	5.00	6.75	40

Butt weld Equal Cross

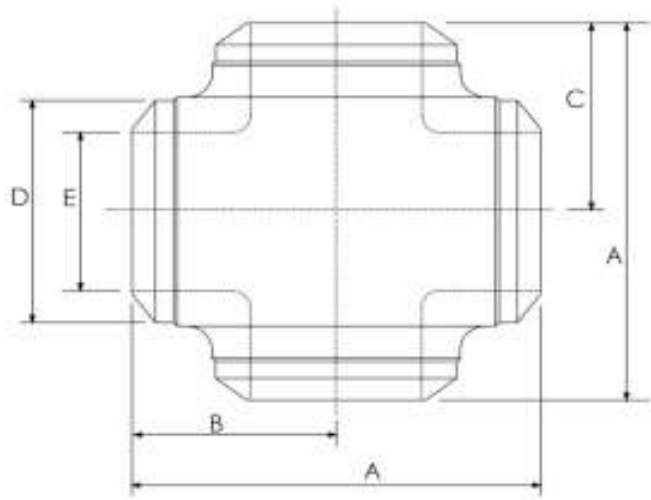


Table 6.5 – Equal Cross Standard Sizes (All dims in inches unless otherwise stated)

NB	A	B	C	D	E	WEIGHT (KG)
2" XXS	5.04	2.52	2.52	1.50	2.37	4
3" XXS	6.78	3.39	3.39	2.30	3.50	9
4" XXS	8.24	4.12	4.12	3.15	4.50	18
5" XXS	9.76	4.88	4.88	4.06	5.56	26
6" XXS	11.26	5.63	5.63	4.90	6.63	40
5.5" OD x 3" ID	9.76	4.88	4.88	3.00	5.50	30
6.75" OD x 5" ID	11.26	5.63	5.63	4.90	6.63	42

* Reducing tees and crosses are available; these may alter the dimensions of the fittings. Please contact Metalis for further information.

Bull Plug

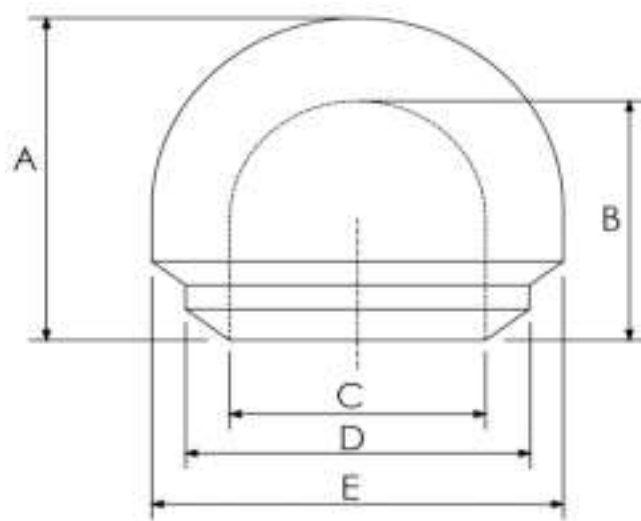


Table 6.6 – Bull Plug Standard Sizes (All dims in inches unless otherwise stated)

NB ("")	A	B	C	D	E	WEIGHT (KG)
2" XXS	2.75	1.90	1.50	2.37	2.620	1
3" XXS	3.55	2.36	2.30	3.50	3.750	3
4" XXS	4.53	3.19	3.15	4.50	4.875	6
5" XXS	5.50	4.00	4.06	5.56	5.935	10
6" XXS	6.70	4.95	4.90	6.63	7.130	18
5.5" OD x 3" ID	5.50	3.00	3.00	5.50	5.935	12
6.75" OD x 5" ID	6.70	4.80	5.00	6.75	7.130	20

Concentric Reducer

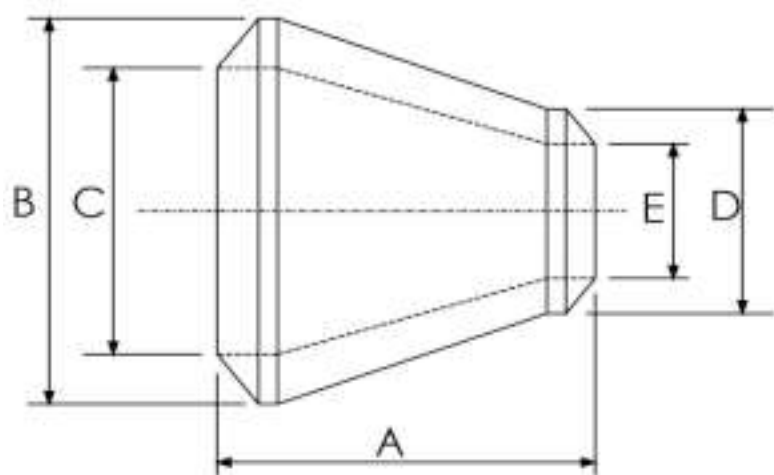


Table 6.7 – Concentric Reducer Standard Sizes (All dims in inches unless otherwise stated)

NB (") (SCH XXS)	A	B	C	D	E	WEIGHT (KG)
3" x 2"	3.50	3.50	2.30	2.37	1.50	2.5
4" x 2"	4.00	4.50	3.15	2.37	1.50	4.5
4" x 3"	4.00	4.50	3.15	3.50	2.30	4.5
5" x 2"	5.00	5.56	4.06	2.37	1.50	7.5
5" x 3"	5.00	5.56	4.06	3.50	2.30	7.5
5" x 4"	5.00	5.56	4.06	4.50	3.15	7.5
6" x 3"	5.50	6.63	4.90	3.50	2.30	11
6" x 4"	5.50	6.63	4.90	4.50	3.15	11
6" x 5"	5.50	6.63	4.90	5.56	4.06	11

Eccentric Reducer

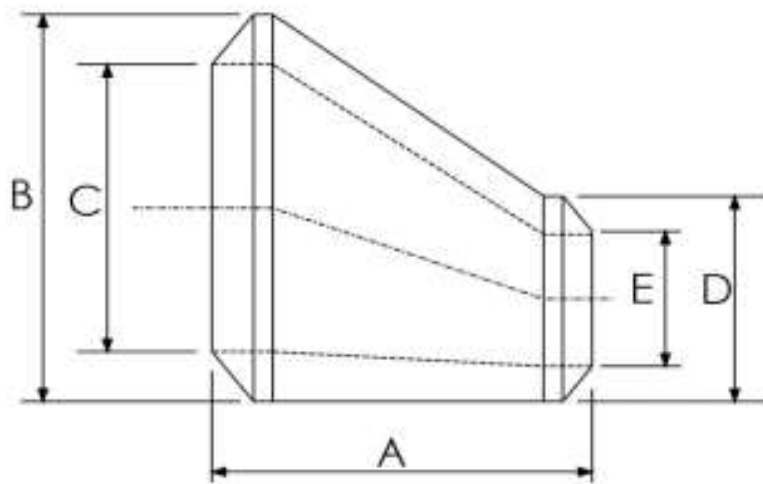


Table 6.8 – Eccentric Reducer Standard Sizes (All dims in inches unless otherwise stated)

NB ("") (SCH XXS)	A	B	C	D	E	WEIGHT (KG)
3" x 2"	3.50	3.50	2.30	2.37	1.50	2.5
4" x 2"	4.00	4.50	3.15	2.37	1.50	4.5
4" x 3"	4.00	4.50	3.15	3.50	2.30	4.5
5" x 2"	5.00	5.56	4.06	2.37	1.50	7.5
5" x 3"	5.00	5.56	4.06	3.50	2.30	7.5
5" x 4"	5.00	5.56	4.06	4.50	3.15	7.5
6" x 3"	5.50	6.63	4.90	3.50	2.30	11
6" x 4"	5.50	6.63	4.90	4.50	3.15	11
6" x 5"	5.50	6.63	4.90	5.56	4.06	11

API 6A Products

Metalis Energy only supplies the highest quality API 6A Products including flanges and studded blocks manufactured in UK. Flanges available are weld neck, target, blind & test blind.

They have been designed to be strictly in accordance with the following standards:

MSS-SP75	Specifications for High test Wrought Butt Weld Fittings.
ANSI B31.3	Chemical Plant and Petroleum Refinery Piping.
ANSI 16.9	Factory made Wrought Steel Butt Weld Fittings.
NACE MR-01-75	Sulphide Stress Cracking Resistant Metallic Materials for Oil Field Equipment.
API 6A	Specifications for Wellhead and Christmas Tree Equipment.

All API 6A equipment can be specified with the following:

PSL level 1, 2, 3 or 4

Material Class, AA, BB, CC, DD, EE-NL

PR-1 or PR-2

Temperature classes: K thru Y (-60degC to 345degC)

See the tables below for the dimensional data of standard Metalis flange sizes. Please note that these are lists of only the most common sizes stocked by Metalis. If you have any requirements for specific sizes or special materials that are not in the lists please contact sales@metalisenergy.com and we will be more than happy to assist. Metalis are capable of supplying all API sizes.



Type 6B Welding Neck Flanges – 5,000 PSI Rated Working Pressure

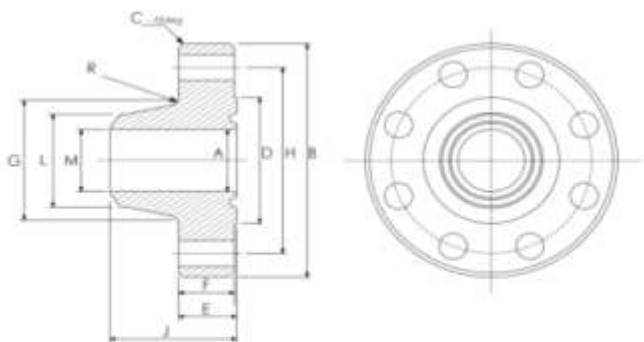


Table 7.1 – API 6A – TYPE 6B 5,000psi Weldneck Flange dimensions (All dims in inches unless otherwise stated)

-	A	B	-	C	D	E	F	G	H	-	-	-	-	-	J	L	M	-
NOMINAL SIZE & BORE OF FLANGES	MAX. BORE	OUTSIDE DIAMETER OF FLANGES	TOLERANCE	MAX. CHAMFER	DIAMETER OF RAISED FACE	TOTAL THICKNESS OF FLANGE	BASIC THICKNESS OF FLANGE	DIAMETER OF HUB	DIAMETER OF BOLT CIRCLE	NUMBER OF BOLTS	DIAMETER OF BOLTS	DIAMETER OF BOLT HOLES	BOLT HOLE TOLERANCE (SEE NOTES)	LENGTH OF BOLTS	TOTAL LENGTH OF WELD NECK LINE PIPE FLANGE	NECK DIAMETER OF WELD NECK LINE PIPE FLANGE	MAXIMUM BORE OF WELD NECK FLANGE	RING TYPE, RX
2-1/16"	2.09	8.50	+0.06	0.12	4.88	1.81	1.50	4.12	6.50	8	7/8"	1.00	+0.06	6.00	4.31	2.38	1.72	24
2-9/16"	2.59	9.62	+0.06	0.12	5.38	1.94	1.62	4.88	7.50	8	1"	1.12	+0.06	6.50	4.44	2.88	2.16	27
3-1/8"	3.22	10.50	+0.06	0.12	6.62	2.19	1.88	5.25	8.00	8	1-1/8"	1.25	+0.06	7.25	4.94	3.50	2.65	35
4-1/16"	4.28	12.25	+0.06	0.12	7.62	2.44	2.12	6.38	9.50	8	1-1/4"	1.38	+0.06	8.00	5.19	4.50	3.47	39
5-1/8"	5.16	14.75	+0.06	0.12	9.00	3.19	2.88	7.75	11.50	8	1-1/2"	1.62	+0.06	10.00	6.44	5.56	4.34	44

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