

PRODUCT CATALOG

INDUSTRIAL

ORPIPE

STANDARD LINER 1.3 MM



2025
PT. ORI POLYTEC COMPOSTES
Indonesia



OUTSTANDING
RESILIENCE
INNOVATIVE

ORI GROUP OF COMPANIES

- PT. ORIGA MULIA FRP
- PT. ORI POLYTEC COMPOSITES
- PT. ORINDO ERATEC
- PT. AMERTEC ERAPLAST

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BUTT & WRAP JOINT

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INTRODUCTION



ORI Group was founded in 1983 and has since risen to become one of Asia's leading manufacturers and fabricators of **corrosion-resistant fiberglass products**. With advanced facilities at several plants in Indonesia, the ORI group remains dedicated to being at the forefront of **Fiber-Reinforced Plastics**.

PT. ORI POLYTEC COMPOSITES

With capacity 6500 ton per year, we offers an extensive range of Fiber-

reinforced plastic composite products incorporating many advantages compared to other alternative materials in terms of strength quality control. The ability to deliver on spec, on time and on budget has positioned ORI Group as a manufacturer, not only of the highest quality products, but also of top-quality results.

FACILITY

- Filament Winders from size diameter 15 to 4.000 mm of mandrels.
- Filament Winders with CNC M/C Control and the latest Winding Pattern Development Software.
- Filament Winders with CNC M/C Control up to diameter 3.000 mm for RPM Pipe.
- Cylindrical Grinder machine up to diameter 3.000 mm for pipe and mandrels production.
- Diamond wire cut FRP with CNC M/C Control segmented cutting machine.
- Vertical Movable Filament Winders CNC M/C up to diameter 10.000 mm of Vessels.
- Large Diameter CNC Horizontal Lathe Spindle
- CNC Milling, Lathe and Drilling
- Hydrostatic Testing Machines for test pipe up to DN 3.000 mm and 12.000 mm in length.
- Testing Equipment to ensure the product quality such as:
 - ☐ Glass Transition Temperature Testing Machine
 - ☐ Universal Tensile Testing Machine
 - ☐ Controlled Temperature Oven Container for Post Curing & Survival Testing
 - ☐ Muffle Furnace
 - ☐ Visco Meter
 - ☐ Digital Izod & Charpy Impact Tester
 - ☐ Vertical & Horizontal Flame Chamber
 - ☐ Hydrotest & Burst Test Equipment
 - ☐ Ultrasonic Thickness Gauge

SERVICES

- | | | | |
|---------------------------------------|-----------------------------------|--|---|
| ☐ Engineering | ☐ Design | ☐ Manufacturing | ☐ Spooling |
| ☐ Installation | ☐ Training | ☐ Supervision | ☐ FRP Inspection & Testing |

AREA OF SERVICES

- | | | | |
|---|---------------------------------------|--------------------------------------|---|
| ☐ Industrial | ☐ Pulp & Paper | ☐ Power Plant | ☐ Battery Industry |
| ☐ Petro-Chemical | ☐ Oil & Gas | ☐ Water Line | ☐ Mining |

MATERIAL

ORI piping systems are engineered to withstand harsh environments, including chemical and seawater applications. We utilize thermosetting Polyester, Vinyl ester, and Epoxy resins to create a strong bond with Fibers that are designed to endure the specified pressure in both pipes and fittings.

MANUFACTURING

- ORI Pipe is manufactured by Helical Filament Winding CNC machine combined with a Hand Lay-up process for fitting.
- Standards between 3 -12 meters and may also be manufactured depending on the desired length according to the project needs with diameter size range is Ø15 mm to Ø 3.000 mm
- Standard Chemical Barrier Liner standard 1.3 mm
- Standard Pressure design PN 1 bar up to PN 16 bar. May also be manufactured above 16 Bar
- Standard Stiffness categories: SN 1.250, SN 2.500, SN 5.000, SN 10.000
- Anti-UV external top coat as standard feature
- Optional: External Top Coat color, Conductive, Fire Retardant, Full Vacuum
- Special design based on the Customer's needs

QUALITY CONTROL SYSTEM

ORI always ensures that every incoming material, whether resin, glass or other, is in accordance with the quality requirements, both by checking through documents and through the in-house Laboratory. ORI has procedures and standards that must be followed when carrying out the manufacturing process, with strict checks by the QC team to ensure the quality of the product output. OPC serves shipments from ex-works to DDP sites, with packing quality that meets standards and also has forwarding partners who can work together.

We have a strict procedure in carrying out checks to ensure the quality of each item we receive is in accordance with the specified standards. We carry out routine controls both through questionnaires and site surveys to carry out periodic evaluations.



The entire control system is governed by procedures integrated into ISO provisions. ORI piping systems are engineered to withstand harsh environments, including chemical and seawater applications. We utilize thermosetting Polyester, Vinyl ester, and Epoxy resins to create a strong bond with Fibers that are designed to endure the specified pressure in both pipes and fittings.

APPLICABLE STANDARD

PIPE	FITTINGS	FLANGE	TESTING
SNI 6785	ASTM D6041	ASME B16.5	ASTM D1599
ISO 14692	ASTM D3567	ASME B16.7	ASTM D2412
ASTM D3517	ASTM D5685	AWWA C207	ASTM D3681
ASTM D2996	ASTM D3840	DIN 16965	ASTM D2992
DIN EN1796	DIN 16965	JIS 5K, JIS 10K	ASTM D3681
JIS K6745	JIS K6771	GB/T	JIS K 7133

Other standard are available upon request

SUPERIORITIES AND ADVANTAGES OF FRP

FRP/GRP has been the perfect choice for corrosive and abrasive environments for the past 50 years (can withstand environments such as extreme temperature, high pressure, chemicals, etc). At a given temperature and chemical environment, we can recommend the right materials for the most critical applications. Corrosion resistance is often the primary reason for choosing corrosion composites



- **LIGHTWEIGHT**
- **HIGH STRENGTH & TOUGH**
- **HIGH MECHANICAL PROPERTIES**
- **NON-CONDUCTIVE**
- **DURABLE**
- **COST EFFECTIVE**
- **EASY CUTTING AND FINISHING**

RESIN SELECTION TABLE

Fluid	Max. Conc. %	Max. Temp °C	Isophthalic Polyester	Vinyl Ester Bhisphenol-A	Vinyl Ester Novolac	Notes
ACIDS						
Sulfuric Acid (H ₂ SO ₄)	50%	60	✗	✓	✓✓	Use Novolac if >50% or temp >60°C
Hydrochloric Acid	20%	50	✗	✓	✓✓	Novolac preferred for higher durability
Nitric Acid (HNO ₃)	10%	40	✗	✗	✓	Only Novolac resistant to oxidation
Phosphoric Acid	85%	60	✓	✓✓	✓✓	Stable in both vinyl and novolac
Acetic Acid	5%	60	✗	✓	✓✓	Food industry, pereaksi kimia organik
Citric Acid	10%	60	✓	✓✓	✓✓	Used in food, pharma & CIP systems
Sulfamic Acid	5%	60	✓	✓✓	✓✓	Descaler in industrial cleaning
ALKALIS						
Sodium Hydroxide NaOH	20%	60	✗	✓	✓✓	Novolac offers long-term service
Potassium Hydroxide	10%	60	✗	✓	✓✓	Avoid polyester
Sodium Carbonate	10%	70	✓	✓✓	✓✓	Used in chemical processing
Sodium Hypochlorite	10%	40	✗	✗	✓✓	Aggressive oxidizer; use Novolac only
Caustic Soda 50% (NaOH)	50%	50	✗	✗	✓✓	Pulp, chemical, and water treatment
Ammonium Hydroxide	5%	50	✗	✓	✓✓	Found in fertilizers and refrigerants
Soda Ash (Na ₂ CO ₃)	10%	70	✓	✓✓	✓✓	Alkaline cleaner and softener
OXYDIZERS						
Chlorine (Cl ₂)	0.5	50	✗	✓	✓✓	Vinyl Brominated recommended
Hydrogen Peroxide	10%	40	✗	✗	✓	Use Novolac due to strong oxidizing
Potassium Permanganate (KMnO ₄)	5%	40	✗	✗	✓	High oxidizing potential
Sodium Chlorite (NaClO ₂)	5%	50	✗	✓	✓✓	Used in bleaching and disinfecting systems
Ozone (O ₃ , dissolved)	-	40	✗	✗	✓	Applied in oxidation water treatment
ORGANIC SOLVENT						
Ethanol	10%	50	✗	✓	✓✓	Check for long-term exposure
Toluene	100%	40	✗	✗	✓✓	Only Novolac acceptable
Acetone	100%	40	✗	✗	✓	Novolac with care and proper testing
Benzene	100%	40	✗	✗	✓✓	Petrochemical solvent
Isopropyl Alcohol (IPA)	10%	50	✗	✓	✓✓	Electronics and industrial cleaning
Methanol	10%	50	✗	✓	✓✓	Used in biodiesel and formaldehyde
Diesel / Light Oil	-	60	✓	✓	✓✓	Fuel handling & storage tanks
NEUTRAL FLUIDS						
Water	-		✓	✓✓	✓✓	
Sea Water	-	60	✓	✓✓	✓✓	Common in cooling / offshore systems
Demineralized Water	-	90	✓✓	✓✓	✓✓	All resins compatible
Hot Water	-	90	✓	✓✓	✓✓	Choose based on cycle & pressure
Boiler Feed Water	-	90	✓	✓✓	✓✓	Common in power plants
Cooling Tower Water	-	60	✓	✓✓	✓✓	Open loop systems
Brine (Saturated Salt)	Saturated	60	✓	✓✓	✓✓	Desalination and cooling use
Process Condensate	-	80	✓	✓✓	✓✓	Clean steam return streams
Treated Effluent	-	70	✓	✓✓	✓✓	Discharge or reuse flows

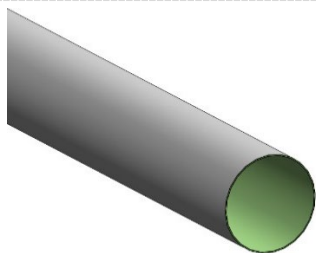
Legend: Maximum Concentration maximum %, Maximum Temperature ° Celsius

✓ = Acceptable under controlled conditions, ✓✓ = Highly recommended, ✗ = Not recommended

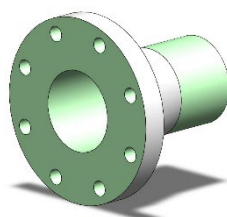
above table are for reference only, please consult to manufacturer for other specific application.



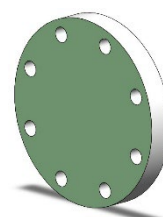
STANDARD PRODUCT



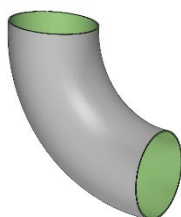
PIPE



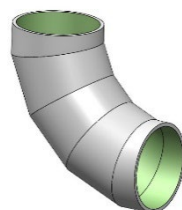
FLANGE



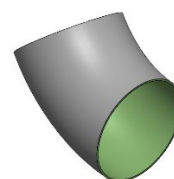
BLIND FLANGE



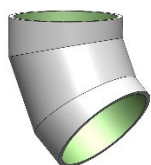
ELBOW 90° LR



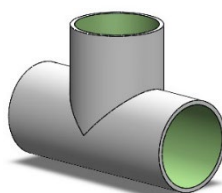
MITER ELBOW 90° LR



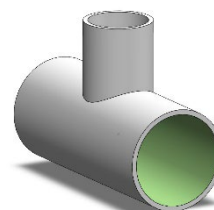
ELBOW 45° LR



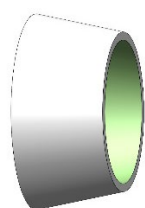
MITER ELBOW 45° LR



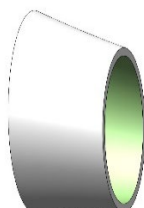
EQUAL TEE



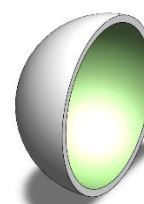
REDUCING TEE



CON. REDUCER



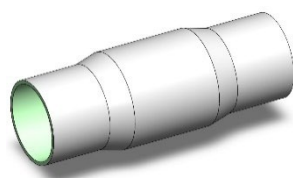
ECC. REDUCER



END CAP

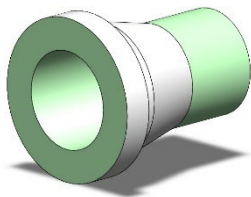


END CAP



BUTT & WRAP JOINT

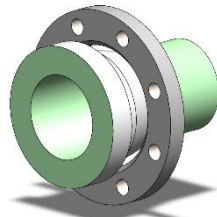
CUSTOMIZED PRODUCT



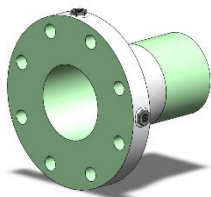
STUB FLANGE



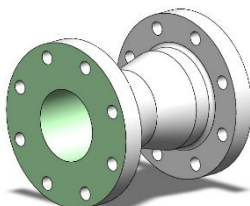
LOOSE FLANGE



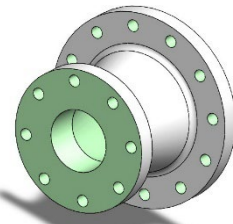
STUB + LOOSE FLANGE



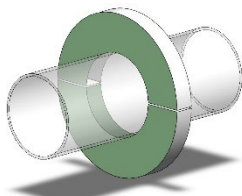
ORIFICE FLANGE



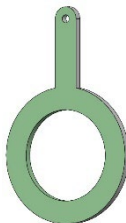
DOUBLE FLANGE



REDUCING FLANGE



PUDDLE FLANGE



SPACER RING



SPACER BLIND

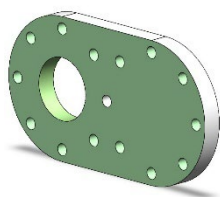
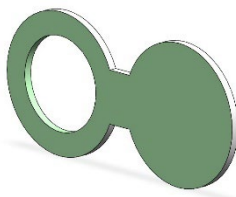
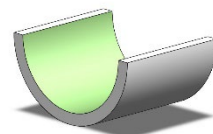


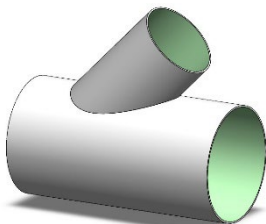
FIGURE 8



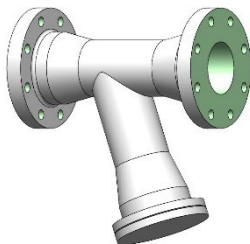
SPECTACLE BLIND



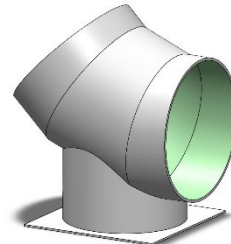
SADDLE BLANK



LATERAL TEE



STRAINER



DUMMY SUPPORT

STANDARD PRODUCT DIMENSION

General abbreviation:

ID = Inside Diameter

L = Length

T = Thickness

W = Estimated weight

R / L = Radius / Length for Elbow use 1.5x ID (Long Radius)

= Short radius (1.0xID), 3D radius (3.0xID) and 5D radius (5.0xID) are available upon request.

= All fittings diameter size up to DN600 are moulded, DN650 and above are segmented pipes.

¹⁾ = Thickness for vacuum condition calculated based on intermittent case.

²⁾ = Length for pipe Local market 3 – 6 and 12 meter. Export market 3 – 5,85 – 11,89 meter.

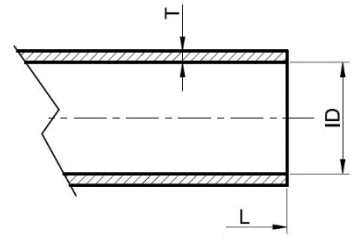
³⁾ = Standard bolts drilling default refer to ASME B16.5 and ASME B14.47 Series A.

= Can be changed according to customer requirements.

All pipe and fittings diameters above DN1500 up to DN3000 are available upon request.

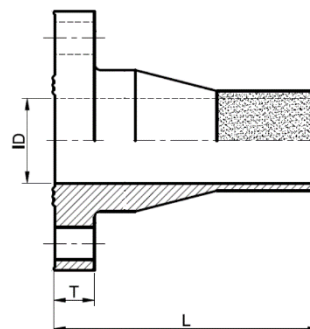
PIPE

SERIES			081250		102500		122500		125000		165000F	
Pressure Rating			8 bar		10 bar		12 bar		12 bar		16 bar	
Stiffness Class (SN)			1250 N/m ²		2500 N/m ²		2500 N/m ²		5000 N/m ²		5000 N/m ²	
Max. Vacuum ¹⁾			- 0.2 bar		- 0.4 bar		- 0.5 bar		- 0.8 bar		- 1 bar	
ID		L ²⁾	T		T		T		T		T	
mm	inch	mm	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m
15	1/2	3000	3.5	0.3	3.5	0.3	3.5	0.3	3.5	0.3	3.5	0.3
20	3/4	3000	3.5	0.4	3.5	0.4	3.5	0.4	3.5	0.4	3.5	0.4
25	1	3000	3.5	0.6	3.5	0.6	3.5	0.6	3.5	0.6	3.5	0.6
32	1-1/4	3000	3.5	0.7	3.5	0.7	3.5	0.7	3.5	0.7	3.5	0.7
40	1-1/2	3000	3.5	0.9	3.5	0.9	3.5	0.9	3.5	0.9	3.5	0.9
50	2	6000	3.5	1	3.5	1	3.5	1	3.5	1	3.5	1
65	2-1/2	6000	3.5	1	3.5	1	3.5	1	3.5	1	3.5	1
80	3	6000	3.5	2	3.5	2	3.5	2	3.5	2	3.5	2
100	4	6000	3.5	2	3.5	2	3.5	2	3.5	2	3.5	2
125	5	6000	3.5	3	3.5	3	3.5	3	3.5	3	3.5	3
150	6	12000	3.5	3	3.5	3	3.5	3	3.5	3	3.8	4
200	8	12000	3.5	4	3.6	5	3.8	5	4.2	5	4.6	6
250	10	12000	3.6	6	4.2	7	4.4	7	4.9	8	5.4	9
300	12	12000	4.0	8	4.7	9	5.0	10	5.6	11	6.3	12
350	14	12000	4.5	10	5.3	12	5.6	12	6.3	14	7.1	16
400	16	12000	4.9	12	5.8	15	6.2	16	7.0	18	7.9	20
450	18	12000	5.3	15	6.4	18	6.8	19	7.7	22	8.7	25
500	20	12000	5.8	18	6.9	22	7.4	24	8.4	27	9.5	30
550	22	12000	6.2	22	7.5	26	8.0	28	9.1	32	10.3	36
600	24	12000	6.7	26	8.0	31	8.6	33	9.8	37	11.1	42
650	26	12000	7.1	29	8.6	36	9.2	38	10.5	43	11.9	49
700	28	12000	7.5	33	9.2	41	9.8	44	11.2	50	12.7	57
750	30	12000	8.0	38	9.7	46	10.5	50	11.9	57	13.5	64
800	32	12000	8.4	43	10.3	52	11.1	56	12.6	64	14.3	73
850	34	12000	8.8	48	10.8	58	11.7	63	13.3	72	15.2	82
900	36	12000	9.3	53	11.4	65	12.3	70	14.0	80	16.0	92
950	38	12000	9.7	59	11.9	72	12.9	78	14.7	89	16.8	101
1000	40	12000	10.2	65	12.5	79	13.5	86	15.4	98	17.6	112
1050	42	12000	10.6	71	13.0	87	14.1	94	16.1	107	18.4	123
1100	44	12000	11.0	77	13.6	95	14.7	103	16.8	118	19.2	134
1150	46	12000	11.5	84	14.2	104	15.3	112	17.5	128	20.0	146
1200	48	12000	11.9	91	14.7	112	15.9	121	18.2	139	20.8	159
1250	50	12000	12.4	99	15.3	122	16.5	131	18.9	150	21.6	172
1300	52	12000	12.8	106	15.8	131	17.1	141	19.6	162	22.4	185
1350	54	12000	13.2	113	16.4	141	17.7	152	20.3	174	23.3	200
1400	56	12000	13.7	122	16.9	150	18.3	163	21.0	187	24.1	215
1450	58	12000	14.1	130	17.5	161	18.9	174	21.7	200	24.9	230
1500	60	12000	14.6	139	18.0	172	19.5	186	22.4	214	25.7	245



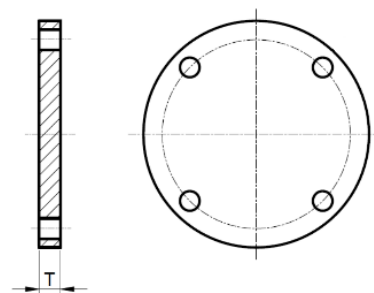
FLANGE

SERIES			PN10			PN12			PN16		
Pressure Rating			10 bar			12 bar			16 bar		
Applicable for series			081250 & 102500			122500 & 125000			165000F		
Standard Bolting ³⁾			ASME B16.5 (1/2"-24") & ASME B16.47A (26"-60")								
Surface			Flat Face with seal-ring, Plain end for Butt & Wrap joint								
ID		TYPE	T	L	W	T	L	W	T	L	W
mm	inch	FF	mm	mm	kg	mm	mm	kg	mm	mm	kg
15	1/2	FF	15	150	0.2	15	150	0.2	15	150	0.2
25	1	FF	20	150	0.4	20	150	0.4	20	150	0.4
40	1-1/2	FF	20	150	0.6	20	150	0.6	20	150	0.6
50	2	FF	25	150	1	25	150	1	25	150	1
80	3	FF	25	200	2	30	200	2	30	200	2
100	4	FF	30	200	3	30	200	3	30	200	3
125	5	FF	30	200	3	35	250	4	35	250	4
150	6	FF	30	200	4	35	250	5	35	250	5
200	8	FF	35	250	6	40	250	7	40	250	7
250	10	FF	35	250	8	45	300	11	45	300	12
300	12	FF	35	250	11	50	350	17	50	350	18
350	14	FF	35	300	13	50	350	20	50	400	22
400	16	FF	40	300	18	55	400	28	55	450	31
450	18	FF	40	300	20	60	400	34	60	500	38
500	20	FF	45	350	28	65	500	45	65	500	49
600	24	FF	50	400	41	70	550	64	70	600	71
650	26	FF	50	450	47	70	550	71	70	600	80
700	28	FF	60	450	63	75	550	85	75	600	95
750	30	FF	65	500	77	75	600	96	75	650	107
800	32	FF	70	550	97	85	650	127	85	700	141
850	34	FF	75	600	115	85	650	137	85	750	156
900	36	FF	75	600	125	90	700	161	90	800	183
950	38	FF	80	600	147	90	700	177	90	800	202
1000	40	FF	80	600	157	100	750	215	100	850	244
1050	42	FF	90	650	194	100	750	230	100	850	262
1100	44	FF	90	700	212	105	800	265	105	900	301
1150	46	FF	95	700	238	105	800	280	105	950	325
1200	48	FF	95	750	257	110	850	318	110	1000	368
1250	50	FF	100	750	289	110	850	338	110	1000	939
1300	52	FF	100	800	310	115	900	380	115	1050	442
1350	54	FF	105	800	347	115	900	404	115	1050	471
1400	56	FF	105	800	368	125	950	474	125	1100	549
1450	58	FF	110	850	415	125	950	501	125	1100	581
1500	60	FF	110	850	433	130	1050	560	130	1200	650



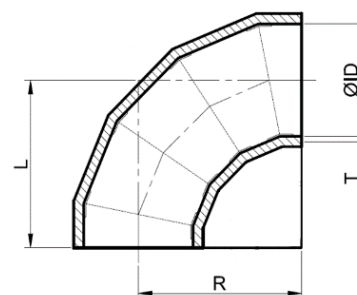
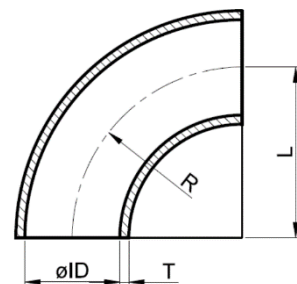
BLIND FLANGE

SERIES			PN10		PN12		PN16	
Pressure Rating			10 bar		12 bar		16 bar	
Applicable for series			081250 & 102500		122500 & 125000		165000F	
Standard Bolting ³⁾			ASME B16.5 (1/2"-24") & ASME B16.47A (26"-60")					
Surface			Flat Face with seal ring					
ID		TYPE	T	W	T	W	T	W
mm	inch		mm	kg	mm	kg	mm	kg
15	1/2	FF						
25	1	FF						
40	1-1/2	FF						
50	2	FF						
80	3	FF						
100	4	FF						
125	5	FF						
150	6	FF						
200	8	FF						
250	10	FF						
300	12	FF						
350	14	FF						
400	16	FF						
450	18	FF						
500	20	FF						
600	24	FF						
650	26	FF						
700	28	FF						
750	30	FF						
800	32	FF						
850	34	FF						
900	36	FF						
950	38	FF						
1000	40	FF						
1050	42	FF						
1100	44	FF						
1150	46	FF						
1200	48	FF						
1250	50	FF						
1300	52	FF						
1350	54	FF						
1400	56	FF						
1450	58	FF						
1500	60	FF						



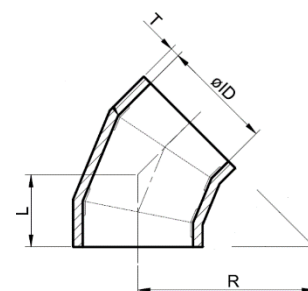
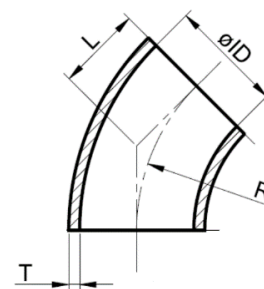
ELBOW 90

SERIES			081250			102500			122500			125000			165000F		
Pressure Rating			8 bar			10 bar			12 bar			12 bar			16 bar		
Stiffness Class (SN)			1250 N/m ²			2500 N/m ²			2500 N/m ²			5000 N/m ²			5000 N/m ²		
Max. Vacuum ¹⁾			- 0.2 bar			- 0.4 bar			- 0.5 bar			- 0.8 bar			- 1 bar		
ID		R = L ²⁾	T		W	T		W	T		W	T		W	T		W
mm	inch	mm	mm	kg		mm	kg		mm	kg		mm	kg		mm	kg	
15	1/2	23	4.4	0.02		4.4	0.02		4.4	0.02		4.4	0.02		4.4	0.02	
20	3/4	30	4.4	0.03		4.4	0.03		4.4	0.03		4.4	0.03		4.4	0.03	
25	1	38	4.4	0.04		4.4	0.04		4.4	0.04		4.4	0.04		4.4	0.04	
32	1-1/4	48	4.4	0.1		4.4	0.1		4.4	0.1		4.4	0.1		4.4	0.1	
40	1-1/2	60	4.4	0.1		4.4	0.1		4.4	0.1		4.4	0.1		4.4	0.1	
50	2	75	4.4	0.1		4.4	0.1		4.4	0.1		4.4	0.1		4.4	0.1	
65	2-1/2	98	4.4	0.2		4.4	0.2		4.4	0.2		4.4	0.2		4.4	0.2	
80	3	120	4.4	0.4		4.4	0.4		4.4	0.4		4.4	0.4		4.4	0.4	
100	4	150	4.4	0.6		4.4	0.6		4.4	0.6		4.4	0.6		4.4	0.6	
125	5	188	4.4	0.9		4.4	0.9		4.4	0.9		4.4	0.9		4.4	0.9	
150	6	225	4.4	1.3		4.4	1.3		4.4	1.3		4.4	1.3		4.8	1.4	
200	8	300	4.4	2.2		4.5	2.3		4.8	2.4		5.3	2.7		5.8	2.9	
250	10	375	4.5	3.5		5.3	4.1		5.5	4.3		6.1	4.9		6.8	5.4	
300	12	450	5.0	5.7		5.9	6.7		6.3	7.1		7.0	8.0		7.9	9.0	
350	14	525	5.6	9		6.6	10		7.0	11		7.9	12		8.9	14	
400	16	600	6.1	12		7.3	15		7.8	16		8.8	18		9.9	20	
450	18	675	6.6	17		8.0	20		8.5	22		9.6	25		10.9	28	
500	20	750	7.3	23		8.6	27		9.3	29		10.5	33		11.9	38	
550	22	825	7.8	29		9.4	36		10.0	38		11.4	43		12.9	49	
600	24	900	8.4	38		10.0	45		10.8	49		12.3	56		13.9	63	
650	26	975	8.9	47		10.8	57		11.5	61		13.1	70		14.9	80	
700	28	1050	9.4	58		11.5	71		12.3	76		14.0	87		15.9	98	
750	30	1125	10.0	71		12.1	86		13.1	93		14.9	106		16.9	120	
800	32	1200	10.5	84		12.9	104		13.9	112		15.8	127		17.9	145	
850	34	1275	11.0	100		13.5	123		14.6	133		16.6	152		19.0	174	
900	36	1350	11.6	118		14.3	145		15.4	157		17.5	179		20.0	205	
950	38	1425	12.1	137		14.9	169		16.1	183		18.4	209		21.0	240	
1000	40	1500	12.8	160		15.6	196		16.9	212		19.3	243		22.0	278	
1050	42	1575	13.3	183		16.3	225		17.6	245		20.1	280		23.0	321	
1100	44	1650	13.8	208		17.0	258		18.4	280		21.0	320		24.0	367	
1150	46	1725	14.4	238		17.8	295		19.1	318		21.9	365		25.0	418	
1200	48	1800	14.9	268		18.4	332		19.9	360		22.8	413		26.0	473	
1250	50	1875	15.5	303		19.1	375		20.6	405		23.6	465		27.0	533	
1300	52	1950	16.0	339		19.8	419		21.4	454		24.5	522		28.0	598	
1350	54	2025	16.5	377		20.5	469		22.1	507		25.4	583		29.1	671	
1400	56	2100	17.1	420		21.1	520		22.9	564		26.3	649		30.1	746	
1450	58	2175	17.6	464		21.9	578		23.6	625		27.1	719		31.1	827	
1500	60	2250	18.3	514		22.5	636		24.4	690		28.0	794		32.1	914	



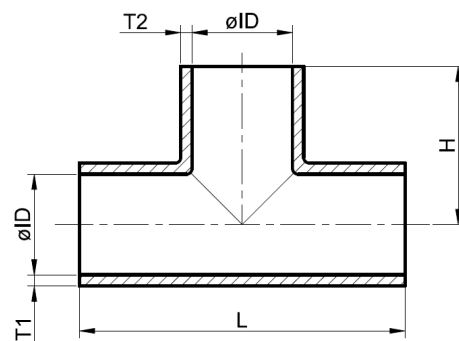
ELBOW 45

SERIES				081250		102500		122500		125000		165000F	
Pressure Rating				8 bar		10 bar		12 bar		12 bar		16 bar	
Stiffness Class (SN)				1250 N/m ²		2500 N/m ²		2500 N/m ²		5000 N/m ²		5000 N/m ²	
Max. Vacuum ¹⁾				- 0.2 bar		- 0.4 bar		- 0.5 bar		- 0.8 bar		- 1 bar	
ID		R	L ²⁾	T	W	T	W	T	W	T	W	T	W
mm	inch	mm	mm	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
15	1/2	23	10	4.4	0.01	4.4	0.01	4.4	0.01	4.4	0.01	4.4	0.01
20	3/4	30	12	4.4	0.01	4.4	0.01	4.4	0.01	4.4	0.01	4.4	0.01
25	1	38	16	4.4	0.02	4.4	0.02	4.4	0.02	4.4	0.02	4.4	0.02
32	1-1/4	48	20	4.4	0.03	4.4	0.03	4.4	0.03	4.4	0.03	4.4	0.03
40	1-1/2	60	25	4.4	0.05	4.4	0.05	4.4	0.05	4.4	0.05	4.4	0.05
50	2	75	31	4.4	0.1	4.4	0.1	4.4	0.1	4.4	0.1	4.4	0.07
65	2-1/2	98	41	4.4	0.1	4.4	0.1	4.4	0.1	4.4	0.1	4.4	0.1
80	3	120	50	4.4	0.2	4.4	0.2	4.4	0.2	4.4	0.2	4.4	0.2
100	4	150	62	4.4	0.3	4.4	0.3	4.4	0.3	4.4	0.3	4.4	0.3
125	5	188	78	4.4	0.4	4.4	0.4	4.4	0.4	4.4	0.4	4.4	0.4
150	6	225	93	4.4	0.6	4.4	0.6	4.4	0.6	4.4	0.6	4.8	0.7
200	8	300	124	4.4	1.1	4.5	1.1	4.8	1.2	5.3	1.3	5.8	1.5
250	10	375	155	4.5	1.8	5.3	2.1	5.5	2.2	6.1	2.4	6.8	2.7
300	12	450	186	5.0	2.8	5.9	3.3	6.3	3.6	7.0	4.0	7.9	4.5
350	14	525	217	5.6	4.3	6.6	5.1	7.0	5.4	7.9	6.1	8.9	6.9
400	16	600	249	6.1	6.2	7.3	7.3	7.8	7.8	8.8	8.9	9.9	10
450	18	675	280	6.6	8.4	8.0	10	8.5	11	9.6	12	10.9	14
500	20	750	311	7.3	11	8.6	14	9.3	15	10.5	17	11.9	19
550	22	825	342	7.8	15	9.4	18	10.0	19	11.4	22	12.9	25
600	24	900	373	8.4	19	10.0	23	10.8	24	12.3	28	13.9	32
650	26	975	404	8.9	24	10.8	29	11.5	31	13.1	35	14.9	40
700	28	1050	435	9.4	29	11.5	35	12.3	38	14.0	43	15.9	49
750	30	1125	466	10.0	35	12.1	43	13.1	46	14.9	53	16.9	60
800	32	1200	497	10.5	42	12.9	52	13.9	56	15.8	64	17.9	72
850	34	1275	528	11.0	50	13.5	61	14.6	67	16.6	76	19.0	87
900	36	1350	559	11.6	59	14.3	73	15.4	78	17.5	89	20.0	102
950	38	1425	590	12.1	69	14.9	84	16.1	92	18.4	105	21.0	120
1000	40	1500	621	12.8	80	15.6	98	16.9	106	19.3	121	22.0	139
1050	42	1575	652	13.3	92	16.3	113	17.6	122	20.1	140	23.0	160
1100	44	1650	683	13.8	104	17.0	129	18.4	140	21.0	160	24.0	184
1150	46	1725	715	14.4	119	17.8	147	19.1	159	21.9	182	25.0	209
1200	48	1800	746	14.9	134	18.4	166	19.9	180	22.8	207	26.0	237
1250	50	1875	777	15.5	152	19.1	188	20.6	203	23.6	233	27.0	267
1300	52	1950	808	16.0	169	19.8	210	21.4	227	24.5	261	28.0	299
1350	54	2025	839	16.5	188	20.5	235	22.1	254	25.4	292	29.1	336
1400	56	2100	870	17.1	210	21.1	260	22.9	282	26.3	324	30.1	373
1450	58	2175	901	17.6	232	21.9	289	23.6	312	27.1	359	31.1	414
1500	60	2250	932	18.3	257	22.5	318	24.4	345	28.0	397	32.1	457



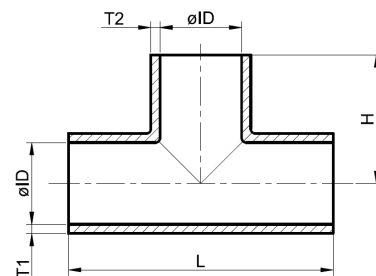
EQUAL TEE

SERIES		081250				
Pressure Rating		8 bar				
Stiffness Class (SN)		1250 N/m ²				
Max. Vacuum ¹⁾		- 0.2 bar				
ID		L	H	T1	T2	W
mm	inch	mm	mm	mm	kg	mm
15	1/2	200	150	5.3	5.3	0.2
20	3/4	200	100	5.3	5.3	0.2
25	1	200	100	5.3	5.3	0.2
32	1-1/4	200	100	5.3	5.3	0.3
40	1-1/2	250	150	5.3	5.3	0.4
50	2	250	150	5.3	5.3	0.5
65	2-1/2	300	150	5.3	5.3	0.8
80	3	300	150	5.3	5.3	0.9
100	4	350	200	5.3	5.3	1.4
125	5	350	200	5.3	5.3	1.8
150	6	400	200	5.3	5.3	2.3
200	8	450	250	5.3	5.3	3.5
250	10	500	250	5.4	5.4	4.8
300	12	600	300	6.0	6.0	7.7
350	14	650	350	6.8	6.8	11.2
400	16	700	350	7.4	7.4	14.6
450	18	800	400	8.0	8.0	20.3
500	20	850	450	8.7	8.7	26.7
600	24	1000	500	10.1	10.1	42.7
700	28	1100	550	11.3	11.3	61.3
750	30	1250	650	12.0	12.0	80.6
800	32	1300	650	12.6	12.6	92.6
900	36	1450	750	14.0	14.0	130.1
1000	40	1550	800	15.3	15.3	169.4
1050	42	1650	850	15.9	15.9	196.6
1100	44	1700	850	16.5	16.5	218.0
1150	46	1750	900	17.3	17.3	247.7
1200	48	1850	950	17.9	17.9	282.5
1250	50	1900	950	18.6	18.6	312.1
1300	52	1950	1000	19.2	19.2	346.9
1350	54	2050	1050	20.0	20.0	393.3
1400	56	2100	1050	20.6	20.6	426.9
1450	58	2150	1100	21.3	21.3	472.8
1500	60	2300	1150	21.9	21.9	533.8



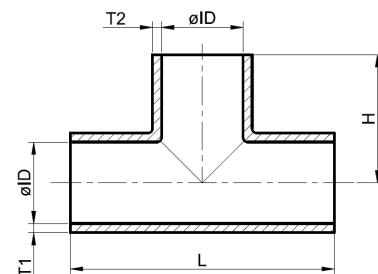
EQUAL TEE

SERIES		102500					122500				
Pressure Rating		10 bar					12 bar				
Stiffness Class (SN)		2500 N/m ²					2500 N/m ²				
Max. Vacuum ¹⁾		- 0.5 bar					- 0.5 bar				
ID		L	H	T1	T2	W	L	H	T1	T2	W
mm	inch	mm	mm	mm	kg	mm	mm	mm	mm	mm	kg
15	1/2	200	150	5.3	5.3	0.2	200	150	5.3	5.3	0.2
20	3/4	200	100	5.3	5.3	0.2	200	100	5.3	5.3	0.2
25	1	200	100	5.3	5.3	0.2	200	100	5.3	5.3	0.2
32	1 1/4	200	100	5.3	5.3	0.3	200	100	5.3	5.3	0.3
40	1 1/2	250	150	5.3	5.3	0.4	250	150	5.3	5.3	0.4
50	2	250	150	5.3	5.3	0.5	250	150	5.3	5.3	0.5
65	2 1/2	300	150	5.3	5.3	0.8	300	150	5.3	5.3	0.8
80	3	300	150	5.3	5.3	0.9	300	150	5.3	5.3	0.9
100	4	350	200	5.3	5.3	1.4	350	200	5.3	5.3	1.4
125	5	350	200	5.3	5.3	1.8	350	200	5.3	5.3	1.8
150	6	400	200	5.3	5.3	2.3	400	200	5.3	5.3	2.3
200	8	450	250	5.4	5.4	3.6	450	250	5.7	5.7	3.8
250	10	500	250	6.3	6.3	5.6	500	250	6.6	6.6	5.9
300	12	600	300	7.1	7.1	9.0	650	350	7.5	7.5	10.6
350	14	650	350	8.0	8.0	13.2	700	350	8.4	8.4	14.6
400	16	750	400	8.7	8.7	18.9	800	400	9.3	9.3	21.1
450	18	800	400	9.6	9.6	24.5	850	450	10.2	10.2	28.2
500	20	900	450	10.4	10.4	33.0	1000	500	11.1	11.1	39.3
600	24	1100	550	12.0	12.0	56.0	1150	600	12.9	12.9	63.8
700	28	1200	600	13.8	13.8	81.9	1300	650	14.7	14.7	94.6
750	30	1300	650	14.6	14.6	100.3	1350	700	15.8	15.8	114.1
800	32	1350	700	15.5	15.5	119.4	1450	750	16.7	16.7	138.1
900	36	1500	750	17.1	17.1	163.1	1600	800	18.5	18.5	187.8
1000	40	1650	850	18.8	18.8	220.8	1800	900	20.3	20.3	257.6
1050	42	1700	850	19.5	19.5	246.0	1850	950	21.2	21.2	292.9
1100	44	1800	900	20.4	20.4	285.4	1950	1000	22.1	22.1	337.1
1150	46	1850	950	21.3	21.3	323.1	2000	1000	23.0	23.0	373.0
1200	48	2000	1000	22.1	22.1	373.9	2100	1050	23.9	23.9	424.7
1250	50	2050	1050	23.0	23.0	418.9	2150	1100	24.8	24.8	473.6
1300	52	2150	1100	23.7	23.7	471.7	2300	1150	25.7	25.7	541.9
1350	54	2200	1100	24.6	24.6	516.2	2350	1200	26.6	26.6	599.4
1400	56	2300	1150	25.4	25.4	576.7	2450	1250	27.5	27.5	669.8
1450	58	2400	1200	26.3	26.3	645.4	2500	1250	28.4	28.4	726.1
1500	60	2450	1200	27.0	27.0	705.8	2650	1350	29.3	29.3	826.7



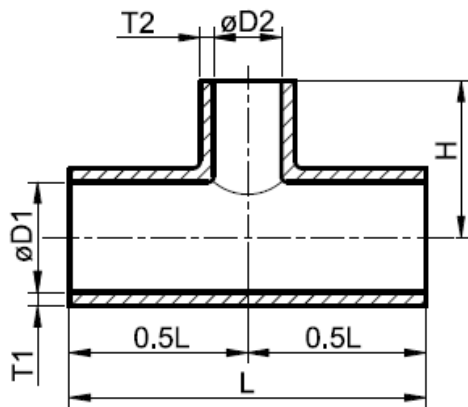
EQUAL TEE

SERIES		125000					165000F				
Pressure Rating		12 bar					16 bar				
Stiffness Class (SN)		5000 N/m ²					5000 N/m ²				
Max. Vacuum ¹⁾		- 0.8 bar					- 1.0 bar				
ID		L	H	T1	T2	W	L	H	T1	T2	W
mm	inch	mm	mm	mm	kg	mm	mm	mm	kg	kg	mm
15	1/2	200	150	5.3	5.3	0.2	200	150	5.3	5.3	0.2
20	3/4	200	100	5.3	5.3	0.2	200	100	5.3	5.3	0.2
25	1	200	100	5.3	5.3	0.2	200	100	5.3	5.3	0.2
32	1-1/4	200	100	5.3	5.3	0.3	200	100	5.3	5.3	0.3
40	1-1/2	250	150	5.3	5.3	0.4	250	150	5.3	5.3	0.4
50	2	250	150	5.3	5.3	0.5	250	150	5.3	5.3	0.5
65	2-1/2	300	150	5.3	5.3	0.8	300	150	5.3	5.3	0.8
80	3	300	150	5.3	5.3	0.9	300	150	5.3	5.3	0.9
100	4	350	200	5.3	5.3	1.4	350	200	5.3	5.3	1.4
125	5	350	200	5.3	5.3	1.5	350	200	5.3	5.3	1.8
150	6	400	200	5.3	5.3	1.9	400	200	5.7	5.7	2.5
200	8	450	250	5.7	5.7	3.2	450	250	6.9	6.9	4.6
250	10	500	250	6.6	6.6	4.9	500	250	8.1	8.1	7.2
300	12	700	350	7.5	7.5	9.3	700	350	9.5	9.5	14.1
350	14	750	400	8.4	8.4	13.3	750	400	10.7	10.7	20.2
400	16	900	450	9.3	9.3	19.8	900	450	11.9	11.9	30.2
450	18	1000	500	10.2	10.2	27.1	1000	500	13.1	13.1	41.5
500	20	1050	550	11.1	11.1	34.9	1050	550	14.3	14.3	53.7
600	24	1250	650	12.9	12.9	55.5	1250	650	16.7	16.7	89.5
700	28	1400	700	14.7	14.7	81.5	1400	700	19.1	19.1	131.9
750	30	1550	800	15.8	15.8	104.6	1550	800	20.3	20.3	168.2
800	32	1600	800	16.7	16.7	120.5	1600	800	21.5	21.5	194.0
900	36	1800	900	18.5	18.5	169.0	1800	900	24.0	24.0	274.7
1000	40	1950	1000	20.3	20.3	225.1	2000	1000	26.4	26.4	373.1
1050	42	2050	1050	21.2	21.2	248.6	2100	1050	27.6	27.6	430.0
1100	44	2100	1050	22.1	22.1	275.9	2150	1100	28.8	28.8	485.0
1150	46	2250	1150	23.0	23.0	324.1	2300	1150	30.0	30.0	560.7
1200	48	2350	1200	23.9	23.9	366.9	2400	1200	31.2	31.2	634.9
1250	50	2400	1200	24.8	24.8	402.2	2450	1250	32.4	32.4	705.8
1300	52	2550	1300	25.7	25.7	463.6	2550	1300	33.6	33.6	792.1
1350	54	2650	1350	26.6	26.6	517.8	2650	1350	35.0	35.0	889.0
1400	56	2750	1400	27.5	27.5	575.9	2750	1400	36.2	36.2	989.3
1450	58	2800	1400	28.4	28.4	623.5	2800	1400	37.4	37.4	1071.4
1500	60	2950	1500	29.3	29.3	705.1	2950	1500	38.6	38.6	1212.0



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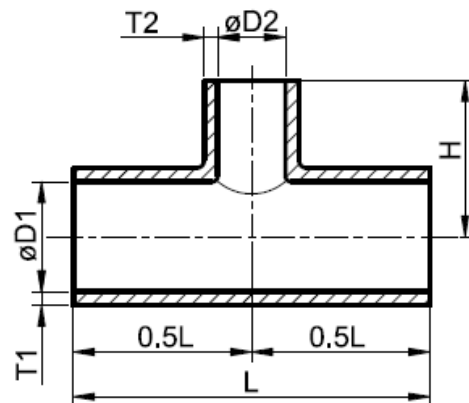
SERIES				081250				
Pressure Rating				8 bar				
Stiffness Class (SN)				1250 N/m²				
Max. Vacuum ¹⁾				- 0.2 bar				
D1 x D2		D1 x D2		L	H	T1	T2	W
mm	mm	inch	inch	mm	mm	mm	mm	mm
40	15	1-1/2	0.5	200	150	5.3	5.3	0.3
40	25	1-1/2	1	200	150	5.3	5.3	0.3
50	25	2	1	200	150	5.3	5.3	0.4
50	40	2	1 1/2	250	150	5.3	5.3	0.5
80	40	3	1 1/2	300	150	5.3	5.3	0.8
80	50	3	2	300	150	5.3	5.3	0.8
100	50	4	2	300	150	5.3	5.3	1.0
100	80	4	3	300	200	5.3	5.3	1.2
125	80	5	3	300	200	5.3	5.3	1.4
125	100	5	4	350	200	5.3	5.3	1.6
150	50	6	2	300	200	5.3	5.3	1.4
150	80	6	3	300	200	5.3	5.3	1.6
150	100	6	4	350	200	5.3	5.3	1.8
200	50	8	2	300	200	5.3	5.3	1.8
200	100	8	4	350	250	5.3	5.3	2.4
200	150	8	6	400	250	5.3	5.3	3.0
250	100	10	4	350	250	5.4	5.3	2.9
250	150	10	6	450	250	5.4	5.3	3.5
250	200	10	8	450	250	5.4	4.3	4.1
300	150	12	6	450	300	6.0	5.3	5.0
300	200	12	8	500	300	6.0	5.3	5.8
300	250	12	10	550	300	6.0	5.4	6.6
350	200	14	8	500	300	6.8	5.3	7.1
350	250	14	10	550	300	6.8	5.4	8.12
350	300	14	12	600	3506.3	6.8	6.0	9.7
400	250	16	10	550	350	7.4	5.4	9.9
400	300	16	12	600	350	7.4	6.0	11.3
400	350	16	14	650	350	7.4	6.8	12.9
500	200	20	8	550	400	8.7	5.3	13.3
500	300	20	12	650	400	8.7	6.0	16.8
500	400	20	16	750	400	8.7	7.4	21.0
600	300	24	12	700	450	10.1	6.0	23.7
600	400	24	16	800	450	10.1	7.4	29.0
600	500	24	20	900	500	10.1	8.7	35.9
700	400	28	16	800	500	11.3	7.4	36.6
700	500	28	20	900	550	11.3	8.7	44.7
700	600	28	24	1000	550	11.3	10.1	52.8
750	500	30	20	1000	550	12.0	8.7	53.7
750	600	30	24	1100	600	12.0	10.1	63.7



D1 x D2		D1 x D2		L	H	T1	T2	W
inch	inch	inch	inch	mm	mm	mm	mm	kg
750	700	30	28	1200	600	12.0	11.3	73.2
800	600	32	24	1100	600	12.6	10.1	69.3
800	700	32	28	1200	600	12.6	11.3	79.3
800	750	32	30	1250	650	12.6	12.0	86.9
900	600	36	24	1150	350	14.0	10.1	86.5
900	700	36	28	1250	650	14.0	11.3	98.1
900	800	36	32	1350	700	14.0	12.6	113.1
1000	700	40	28	1250	700	15.3	11.3	116.1
1000	800	40	32	1350	750	15.3	12.6	132.9
1000	900	40	36	1450	800	15.3	14.0	151.8
1100	800	44	32	1400	800	16.5	12.6	157.7
1100	900	44	36	1500	850	16.5	14.0	178.5
1100	1000	44	40	1600	1550	16.5	15.3	198.1
1200	900	48	36	1550	900	17.9	14.0	209.6
1200	1000	48	40	1650	900	17.9	15.3	231.4
1200	1100	48	44	1750	900	17.9	16.5	253.5
1300	1000	52	40	1650	950	19.2	15.3	262.5
1300	1100	52	44	1750	950	19.2	16.5	287.0
1300	1200	52	48	1850	1000	19.2	17.9	318.4
1400	1100	56	44	1800	1000	20.6	16.5	329.4
1400	1200	56	48	1900	1050	20.6	17.9	363.4
1400	1300	56	52	2000	1050	20.6	19.2	394.5
1500	1200	60	48	2000	1100	21.9	17.9	420.5
1500	1300	60	52	2100	1100	21.9	19.2	454.3
1500	1400	60	56	2200	1100	21.9	20.6	489.5

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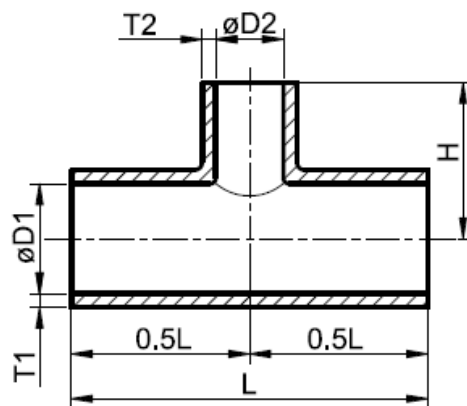
SERIES					102500				
Pressure Rating					10 bar				
Stiffness Class (SN)					2500 N/m ²				
Max. Vacuum ¹⁾					- 0.5 bar				
D1 x D2		D1 x D2		L	H	T1	T2	W	
mm	mm	inch	inch						
40	15	1-1/2	0.5	200	150	5.3	5.3	0.3	
40	25	1-1/2	1	200	150	5.3	5.3	0.3	
50	25	2	1	200	150	5.3	5.3	0.4	
50	40	2	1 1/2	250	150	5.3	5.3	0.5	
80	40	3	1 1/2	300	150	5.3	5.3	0.8	
80	50	3	2	300	150	5.3	5.3	0.8	
100	50	4	2	300	150	5.3	5.3	1.0	
100	80	4	3	300	200	5.3	5.3	1.2	
125	80	5	3	300	200	5.3	5.3	1.4	
125	100	5	4	350	200	5.3	5.3	1.6	
150	50	6	2	300	200	5.3	5.3	1.4	
150	80	6	3	300	200	5.3	5.3	1.6	
150	100	6	4	350	200	5.3	5.3	1.8	
200	50	8	2	300	200	5.4	5.3	1.8	
200	100	8	4	350	250	5.4	5.3	2.4	
200	150	8	6	400	250	5.4	5.3	3.0	
250	100	10	4	350	250	6.3	5.3	3.3	
250	150	10	6	400	250	6.3	5.3	3.9	
250	200	10	8	450	250	6.3	5.4	4.7	
300	150	12	6	450	300	7.1	5.3	5.6	
300	200	12	8	500	300	7.1	5.4	6.6	
300	250	12	10	550	300	7.1	6.3	7.8	
350	200	14	8	500	300	8.0	5.4	8.1	
350	250	14	10	550	300	8.0	6.3	9.5	
350	300	14	12	600	350	8.0	7.1	11.4	
400	250	16	10	600	350	8.7	6.3	12.5	
400	300	16	12	650	350	8.7	7.1	14.2	
400	350	16	14	700	350	8.7	8.0	16.1	
500	200	20	8	600	400	10.4	5.4	16.7	
500	300	20	12	700	400	10.4	7.1	21.1	
500	400	20	16	800	450	10.4	8.7	26.9	
600	300	24	12	800	450	12.0	7.1	31.7	
600	400	24	16	900	500	12.0	8.7	38.8	
600	500	24	20	1000	500	12.0	10.4	46.1	
700	400	28	16	900	550	13.8	8.7	50.0	
700	500	28	20	1000	550	13.8	10.4	59.0	
700	600	28	24	1100	600	13.8	12.0	70.4	
750	500	30	20	1050	600	14.6	10.4	68.6	
750	600	30	24	1150	650	14.6	12.0	81.2	



D1 x D2		D1 x D2		L	H	T1	T2	W	
inch	inch	inch	inch						
750	700	30	28	1250	650	14.6	13.8	93.9	
800	600	32	24	1150	650	15.5	12.0	89.0	
800	700	32	28	1250	650	15.5	13.8	102.4	
800	750	32	30	1300	700	15.5	14.6	111.7	
900	600	36	24	1200	700	17.1	12.0	110.8	
900	700	36	28	1300	700	17.1	13.8	126.1	
900	800	36	32	1400	750	17.1	15.5	145.2	
1000	700	40	28	1350	750	18.8	13.8	153.4	
1000	800	40	32	1450	800	18.8	15.5	174.7	
1000	900	40	36	1550	800	18.8	17.1	194.9	
1100	800	44	32	1500	850	20.4	15.5	208.1	
1100	900	44	36	1600	850	20.4	17.1	230.8	
1100	1000	44	40	1700	900	20.4	18.8	259.2	
1200	900	48	36	1700	900	22.1	17.1	277.2	
1200	1000	48	40	1800	950	22.1	18.8	308.3	
1200	1100	48	44	1900	950	22.1	20.4	337.2	
1300	1000	52	40	1850	1000	23.7	18.8	356.8	
1300	1100	52	44	1950	1000	23.7	20.4	388.7	
1300	1200	52	48	2050	1050	23.7	22.1	428.4	
1400	1100	56	44	1950	1100	25.4	20.4	442.3	
1400	1200	56	48	2050	1150	25.4	22.1	486.0	
1400	1300	56	52	2150	1150	25.4	23.7	526.3	
1500	1200	60	48	2100	1200	27.0	22.1	550.2	
1500	1300	60	52	2200	1200	27.0	23.7	593.8	
1500	1400	60	56	2350	1200	27.0	25.4	648.9	

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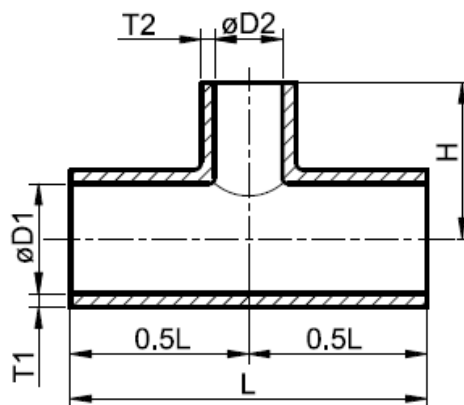
SERIES					122500				
Pressure Rating					12 bar				
Stiffness Class (SN)					2500 N/m ²				
Max. Vacuum ¹⁾					- 0.5 bar				
D1 x D2		D1 x D2		L	H	T1	T2	W	
mm	mm	inch	inch						
40	15	1-1/2	0.5	200	150	5.3	5.3	0.3	
40	25	1-1/2	1	200	150	5.3	5.3	0.3	
50	25	2	1	200	150	5.3	5.3	0.4	
50	40	2	1 1/2	250	150	5.3	5.3	0.5	
80	40	3	1 1/2	300	150	5.3	5.3	0.8	
80	50	3	2	300	150	5.3	5.3	0.8	
100	50	4	2	300	150	5.3	5.3	1.0	
100	80	4	3	300	200	5.3	5.3	1.2	
125	80	5	3	300	200	5.3	5.3	1.4	
125	100	5	4	350	200	5.3	5.3	1.6	
150	50	6	2	300	200	5.3	5.3	1.4	
150	80	6	3	300	200	5.3	5.3	1.6	
150	100	6	4	350	200	5.3	5.3	1.8	
200	50	8	2	300	200	5.7	5.3	1.9	
200	100	8	4	350	250	5.7	5.3	2.5	
200	150	8	6	400	250	5.7	5.3	3.1	
250	100	10	4	350	250	6.6	5.3	3.4	
250	150	10	6	400	250	6.6	5.3	4.1	
250	200	10	8	450	250	6.6	5.7	4.9	
300	150	12	6	500	300	7.5	5.3	6.5	
300	200	12	8	550	300	7.5	5.7	7.5	
300	250	12	10	600	300	7.5	6.6	8.7	
350	200	14	8	550	300	8.4	5.7	9.3	
350	250	14	10	600	300	8.4	6.6	10.7	
350	300	14	12	650	350	8.4	7.5	12.8	
400	250	16	10	650	350	9.3	6.6	14.2	
400	300	16	12	700	400	9.3	7.5	16.6	
400	350	16	14	750	400	9.3	8.4	18.7	
500	200	20	8	700	400	11.1	5.7	20.5	
500	300	20	12	800	450	11.1	7.5	25.7	
500	400	20	16	900	450	11.1	9.3	31.5	
600	300	24	12	850	500	12.9	7.5	36.3	
600	400	24	16	950	500	12.9	9.3	43.4	
600	500	24	20	1050	550	12.9	11.1	52.7	
700	400	28	16	1000	550	14.7	9.3	58.2	
700	500	28	20	1100	600	14.7	11.1	69.0	
700	600	28	24	1200	650	14.7	12.9	81.9	
750	500	30	20	1100	650	15.8	11.1	78.2	
750	600	30	24	1200	650	15.8	12.9	90.5	



D1 x D2		D1 x D2		L	H	T1	T2	W	
inch	inch	inch	inch						
750	700	30	28	1300	700	15.8	14.7	106.3	
800	600	32	24	1250	700	16.7	12.9	104.0	
800	700	32	28	1350	700	16.7	14.7	118.7	
800	750	32	30	1400	700	16.7	15.8	126.8	
900	600	36	24	1300	750	18.5	12.9	129.1	
900	700	36	28	1400	750	18.5	14.7	145.9	
900	800	36	32	1500	800	18.5	16.7	167.6	
1000	700	40	28	1500	800	20.3	14.7	181.9	
1000	800	40	32	1600	850	20.3	16.7	206.0	
1000	900	40	36	1700	850	20.3	18.5	228.7	
1100	800	44	32	1650	900	22.1	16.7	245.0	
1100	900	44	36	1750	900	22.1	18.5	270.4	
1100	1000	44	40	1850	950	22.1	20.3	302.0	
1200	900	48	36	1800	950	23.9	18.5	317.0	
1200	1000	48	40	1900	1000	23.9	20.3	351.5	
1200	1100	48	44	2000	1050	23.9	22.1	389.6	
1300	1000	52	40	1950	1100	25.7	20.3	411.2	
1300	1100	52	44	2050	1100	25.7	22.1	447.7	
1300	1200	52	48	2150	1150	25.7	23.9	492.7	
1400	1100	56	44	2100	1150	27.5	22.1	511.5	
1400	1200	56	48	2200	1200	27.5	23.9	560.0	
1400	1300	56	52	2350	1200	27.5	25.7	613.9	
1500	1200	60	48	2300	1250	29.3	23.9	643.8	
1500	1300	60	52	2450	1250	29.3	25.7	702.7	
1500	1400	60	56	2550	1300	29.3	27.5	762.3	

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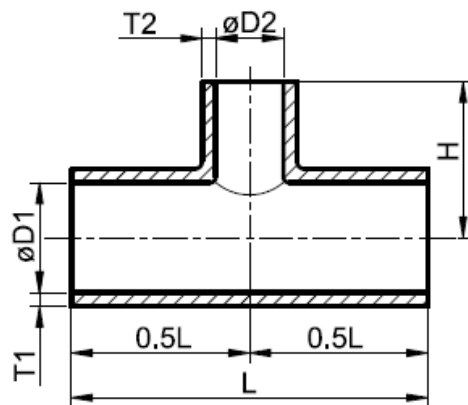
SERIES				125000					
Pressure Rating				12 bar					
Stiffness Class (SN)				5000 N/m ²					
Max. Vacuum ¹⁾				- 0.8 bar					
D1 x D2		D1 x D2		L	H	T1	T2	W	
mm	mm	inch	inch	mm	mm	mm	mm	mm	
40	15	1-1/2	0.5	200	150	5.3	5.3	0.3	
40	25	1-1/2	1	200	150	5.3	5.3	0.3	
50	25	2	1	200	150	5.3	5.3	0.4	
50	40	2	1 1/2	250	150	5.3	5.3	0.5	
80	40	3	1 1/2	300	150	5.3	5.3	0.8	
80	50	3	2	300	150	5.3	5.3	0.8	
100	50	4	2	300	150	5.3	5.3	1.0	
100	80	4	3	300	200	5.3	5.3	1.2	
125	80	5	3	300	200	5.3	5.3	1.2	
125	100	5	4	350	200	5.3	5.3	1.5	
150	50	6	2	300	200	5.3	5.3	1.3	
150	80	6	3	300	200	5.3	5.3	1.4	
150	100	6	4	350	200	5.3	5.3	1.7	
200	50	8	2	300	200	5.7	5.3	1.7	
200	100	8	4	350	250	5.7	5.3	2.3	
200	150	8	6	400	250	5.7	5.3	2.8	
250	100	10	4	350	250	6.6	5.3	3.1	
250	150	10	6	400	250	6.6	5.3	3.7	
250	200	10	8	450	250	6.6	5.7	4.4	
300	150	12	6	550	300	7.5	5.3	6.3	
300	200	12	8	600	300	7.5	5.7	7.2	
300	250	12	10	650	300	7.5	6.6	8.3	
350	200	14	8	600	300	8.4	5.7	9.0	
350	250	14	10	650	300	8.4	6.6	10.2	
350	300	14	12	700	400	8.4	7.5	12.6	
400	250	16	10	750	350	9.3	6.6	14.3	
400	300	16	12	800	400	9.3	7.5	16.5	
400	350	16	14	850	400	9.3	8.4	18.4	
500	200	20	8	750	400	11.1	5.7	18.2	
500	300	20	12	850	450	11.1	7.5	22.5	
500	400	20	16	950	500	11.1	9.3	28.0	
600	300	24	12	950	500	12.9	7.5	33.3	
600	400	24	16	1050	550	12.9	9.3	40.0	
600	500	24	20	1150	600	12.9	11.1	48.1	
700	400	28	16	1100	600	14.7	9.3	51.1	
700	500	28	20	1200	650	14.7	11.1	60.2	
700	600	28	24	1300	700	14.7	12.9	70.9	
750	500	30	20	1300	650	15.8	11.1	71.5	
750	600	30	24	1400	700	15.8	12.9	82.8	



D1 x D2		D1 x D2		L	H	T1	T2	W	
inch	inch	inch	inch	mm	mm	mm	mm	kg	
750	700	30	28	1500	750	15.8	14.7	95.9	
800	600	32	24	1400	750	16.7	12.9	92.2	
800	700	32	28	1500	750	16.7	14.7	104.2	
800	750	32	30	1550	800	16.7	15.8	113.5	
900	600	36	24	1500	800	18.5	12.9	117.2	
900	700	36	28	1600	800	18.5	14.7	131.2	
900	800	36	32	1700	850	18.5	16.7	149.1	
1000	700	40	28	1650	850	20.3	14.7	158.9	
1000	800	40	32	1750	900	20.3	16.7	178.7	
1000	900	40	36	1850	950	20.3	18.5	200.6	
1100	800	44	32	1800	950	22.1	16.7	203.4	
1100	900	44	36	1900	1000	22.1	18.5	226.4	
1100	1000	44	40	2000	1050	22.1	20.3	252.0	
1200	900	48	36	2050	1050	23.9	18.5	274.9	
1200	1000	48	40	2150	1100	23.9	20.3	302.7	
1200	1100	48	44	2250	1100	23.9	22.1	328.9	
1300	1000	52	40	2200	1150	25.7	20.3	349.0	
1300	1100	52	44	2300	1200	25.7	22.1	382.1	
1300	1200	52	48	2400	1250	25.7	23.9	418.2	
1400	1100	56	44	2400	1250	27.5	22.1	442.6	
1400	1200	56	48	2500	1300	27.5	23.9	481.3	
1400	1300	56	52	2650	1350	27.5	25.7	530.3	
1500	1200	60	48	2600	1350	29.3	23.9	551.5	
1500	1300	60	52	2750	1400	29.3	25.7	604.3	
1500	1400	60	56	2850	1450	29.3	27.5	652.8	

REDUCING TEE

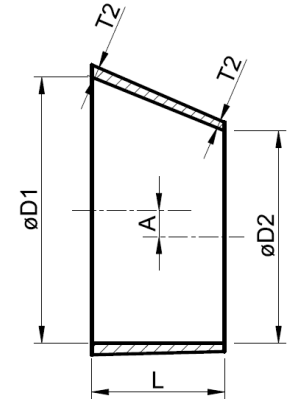
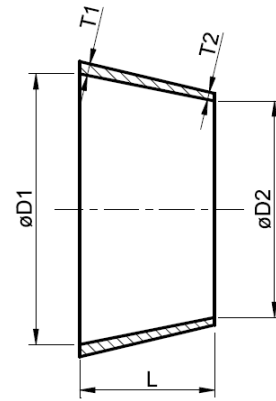
SERIES				165000F					
Pressure Rating				16 bar					
Stiffness Class (SN)				5000 N/m ²					
Max. Vacuum ¹⁾				- 1.0 bar					
D1 x D2		D1 x D2		L	H	T1	T2	W	
mm	mm	inch	inch	mm	mm	mm	mm	mm	
40	15	1-1/2	0.5	200	150	5.3	5.3	0.3	
40	25	1-1/2	1	200	150	5.3	5.3	0.3	
50	25	2	1	200	150	5.3	5.3	0.4	
50	40	2	1 1/2	250	150	5.3	5.3	0.5	
80	40	3	1 1/2	300	150	5.3	5.3	0.8	
80	50	3	2	300	150	5.3	5.3	0.8	
100	50	4	2	300	150	5.3	5.3	1.0	
100	80	4	3	300	200	5.3	5.3	1.2	
125	80	5	3	300	200	5.3	5.3	1.4	
125	100	5	4	350	200	5.3	5.3	1.6	
150	50	6	2	300	200	5.7	5.3	1.5	
150	80	6	3	300	200	5.7	5.3	1.7	
150	100	6	4	350	200	5.7	5.3	2.0	
200	50	8	2	300	200	6.9	5.3	2.2	
200	100	8	4	350	250	6.9	5.3	2.9	
200	150	8	6	400	250	6.9	5.7	3.7	
250	100	10	4	350	250	8.1	5.3	4.0	
250	150	10	6	400	250	8.1	5.7	4.9	
250	200	10	8	450	250	8.1	6.9	6.0	
300	150	12	6	550	300	9.5	5.7	8.6	
300	200	12	8	600	300	9.5	6.9	10.0	
300	250	12	10	650	300	9.5	8.1	11.6	
350	200	14	8	600	300	10.7	6.9	12.5	
350	250	14	10	650	300	10.7	8.1	14.3	
350	300	14	12	700	400	10.7	9.5	17.7	
400	250	16	10	750	350	11.9	8.1	20.1	
400	300	16	12	800	400	11.9	9.5	23.3	
400	350	16	14	850	400	11.9	10.7	26.0	
500	200	20	8	750	400	14.3	6.9	27.8	
500	300	20	12	850	450	14.3	9.5	34.6	
500	400	20	16	950	500	14.3	11.9	43.1	
600	300	24	12	950	500	16.7	9.5	51.4	
600	400	24	16	1050	550	16.7	11.9	61.7	
600	500	24	20	1150	600	16.7	14.3	74.3	
700	400	28	16	1100	600	19.1	11.9	82.5	
700	500	28	20	1200	650	19.1	14.3	77.8	
700	600	28	24	1300	700	19.1	16.7	91.7	
750	500	30	20	1300	650	20.3	14.3	91.9	
750	600	30	24	1400	700	20.3	16.7	106.5	



D1 x D2		D1 x D2		L	H	T1	T2	W
inch	inch	inch	inch	mm	mm	mm	mm	kg
750	700	30	28	1500	750	20.3	19.1	123.6
800	600	32	24	1400	750	21.5	16.7	118.8
800	700	32	28	1500	750	21.5	19.1	134.7
800	750	32	30	1550	800	21.5	20.3	146.1
900	600	36	24	1500	800	24.0	16.7	152.2
900	700	36	28	1600	800	24.0	19.1	170.5
900	800	36	32	1700	850	24.0	21.5	193.4
1000	700	40	28	1650	900	26.4	19.1	209.4
1000	800	40	32	1750	950	26.4	21.5	235.6
1000	900	40	36	1850	1000	26.4	24.0	265.5
1100	800	44	32	1800	1000	28.8	21.5	267.9
1100	900	44	36	1900	1050	28.8	24.0	299.3
1100	1000	44	40	2050	1050	28.8	26.4	334.7
1200	900	48	36	2050	1100	31.2	24.0	363.0
1200	1000	48	40	2200	1100	31.2	26.4	402.3
1200	1100	48	44	2300	1150	31.2	28.8	442.6
1300	1000	52	40	2250	1150	33.6	26.4	464.6
1300	1100	52	44	2350	1200	33.6	28.8	508.0
1300	1200	52	48	2450	1250	33.6	31.2	555.5
1400	1100	56	44	2450	1250	36.2	28.8	590.8
1400	1200	56	48	2550	1300	36.2	31.2	641.8
1400	1300	56	52	2650	1350	36.2	33.6	697.3
1500	1200	60	48	2650	1350	38.6	31.2	735.9
1500	1300	60	52	2750	1400	38.6	33.6	795.1
1500	1400	60	56	2850	1450	38.6	36.2	860.1

CON. REDUCER

SERIES				081250			
Pressure Rating				10 bar			
Stiffness Class (SN)				1250 N/m ²			
Max. Vacuum ¹⁾				- 0.2 bar			
D1 x D2		D1 x D2		T1	T2	L	W
mm	mm	inch	inch	mm	mm	mm	mm
40	15	1 1/2	0.5	4.4	4.4	62.5	0.04
40	25	1 1/2	1	4.4	4.4	37.5	0.0
50	25	2	1	4.4	4.4	62.5	0.05
50	40	2	1 1/2	4.4	4.4	25	0.02
80	40	3	1 1/2	4.4	4.4	100	01
80	50	3	2	4.4	4.4	75	0.1
100	50	4	2	4.4	4.4	125	0.2
100	80	4	3	4.4	4.4	50	0.1
125	80	5	3	4.4	4.4	112.	0.2
125	100	5	4	4.4	4.4	62.5	0.1
150	50	6	2	4.4	4.4	250	0.5
150	80	6	3	4.4	4.4	175	0.4
150	100	6	4	4.4	4.4	125	0.3
200	50	8	2	4.4	4.4	375	1.0
AAA	100	8	4	4.4	4.4	250	0.5
200	150	8	6	4.4	4.4	125	0.5
250	100	10	4	4.5	4.4	375	1.4
250	150	10	6	4.5	4.4	250	1.1
250	200	10	8	4.5	4.4	125	0.6
300	150	12	6	5.0	4.4	375	2.0
300	200	12	8	5.0	4.4	250	1.5
300	250	12	10	5.0	4.5	125	0.8
350	200	14	8	5.6	4.4	375	2.7
350	250	14	10	5.6	4.5	250	2.0
350	300	14	12	5.6	5.0	125	1.1
400	250	16	10	6.1	4.5	375	3.5
400	300	16	12	6.1	5.0	250	2.5
400	350	16	14	6.1	5.6	125	1.4
500	200	20	8	7.3	4.4	750	9.0
500	300	20	12	7.3	5.0	500	6.8
500	400	20	16	7.3	6.1	250	3.8
600	300	24	12	8.4	5.0	750	13.3
600	400	24	16	8.4	6.1	500	9.9
600	500	24	20	8.4	7.3	250	5.4
700	400	28	16	9.4	6.1	750	18.2
700	500	28	20	9.4	7.3	500	13.3
700	600	28	24	9.4	8.4	250	7.2
750	500	30	20	10.0	7.3	625	18.4
750	600	30	24	10.0	8.4	375	11.9
750	700	30	28	10.0	9.4	125	4.3



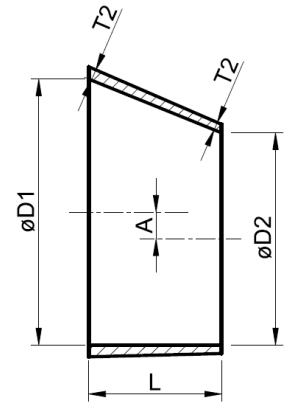
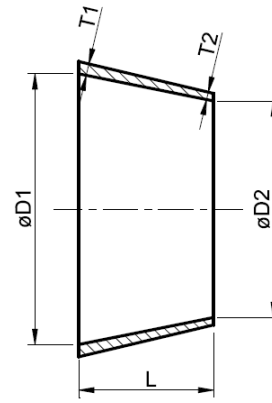
$$L=2.5*(D1-D2)$$

$$A=0.5*(D1-D2)$$

D1 x D2		D1 x D2		T1	T2	L	W
mm	mm	inch	inch	mm	mm	mm	kg
800	600	32	24	10.5	8.4	500	17.3
800	750	32	30	10.5	10.0	125	4.8
800	700	32	28	10.5	9.4	250	9.3
900	600	36	24	11.6	8.4	750	30.8
900	700	36	28	11.6	9.4	500	21.9
900	800	36	32	11.6	10.5	250	11.6
1000	700	40	28	12.8	9.4	750	38.3
1000	800	40	32	12.8	10.5	500	27.0
1000	900	40	36	12.8	11.6	250	14.3
1100	800	44	32	13.8	10.5	750	46.2
1100	900	44	36	13.8	11.6	500	32.4
1100	1000	44	40	13.8	12.8	250	17.0
1200	900	48	36	14.9	11.6	750	55.2
1200	1000	48	40	14.9	12.8	500	38.6
1200	1100	48	44	14.9	13.8	250	20.2
1300	1000	52	40	16.0	12.8	750	65.0
1300	1100	52	44	16.0	13.8	500	45.2
1300	1200	52	48	16.0	14.9	250	23.6
1400	1100	56	44	17.1	13.8	750	75.7
1400	1200	56	48	17.1	14.9	500	52.5
1400	1300	56	52	17.1	16.0	250	27.2
1500	1200	60	48	18.3	14.9	750	87.1
1500	1300	60	52	18.3	16.0	500	60.2
1500	1400	60	56	18.3	17.1	250	31.2

CON. REDUCER

SERIES		102500					
Pressure Rating		10 bar					
Stiffness Class (SN)		2500 N/m ²					
Max. Vacuum ¹⁾		- 0.5 bar					
D1 x D2		D1 x D2		T1	T2	L	W
mm	mm	inch	inch	mm	mm	mm	mm
40	15	1 1/2	0.5	4.4	4.4	62.5	0.04
40	25	1 1/2	1	4.4	4.4	37.5	0.03
50	25	2	1	4.4	4.4	62.5	0.0
50	40	2	1 1/2	4.4	4.4	25	0.0
80	40	3	1 1/2	4.4	4.4	100	0.1
80	50	3	2	4.4	4.4	75	0.1
100	50	4	2	4.4	4.4	125	0.2
100	80	4	3	4.4	4.4	50	0.1
125	80	5	3	4.4	4.4	112.5	0.2
125	100	5	4	4.4	4.4	62.5	0.1
150	50	6	2	4.4	4.4	250	0.5
150	80	6	3	4.4	4.4	175	0.4
150	100	6	4	4.4	4.4	125	0.3
200	50	8	2	4.5	4.4	375	1.0
200	100	8	4	4.5	4.4	250	0.8
200	150	8	6	4.5	4.4	125	0.5
250	100	10	4	5.3	4.4	375	1.6
250	150	10	6	5.3	4.4	250	1.2
250	200	10	8	5.3	4.5	125	0.7
300	150	12	6	5.9	4.4	375	2.3
300	200	12	8	5.9	4.5	250	1.7
300	250	12	10	5.9	5.3	125	1.0
350	200	14	8	6.6	4.5	375	3.2
350	250	14	10	6.6	5.3	250	2.3
350	300	14	12	6.6	5.9	125	1.3
400	250	16	10	7.3	5.3	375	4.2
400	300	16	12	7.3	5.9	250	3.0
400	350	16	14	7.3	6.6	125	1.6
500	200	20	8	8.6	4.5	750	10.7
500	300	20	12	8.6	5.9	500	8.1
500	400	20	16	8.6	7.3	250	4.6
600	300	24	12	10.0	5.9	750	15.9
600	400	24	16	10.0	7.3	500	11.8
600	500	24	20	10.0	8.6	250	6.5
700	400	28	16	11.5	7.3	750	22.4
700	500	28	20	11.5	8.6	500	16.3
700	600	28	24	11.5	10.0	250	8.8
750	500	30	20	12.1	8.6	625	22.3
750	600	30	24	12.1	10.0	375	14.5
750	700	30	28	12.1	11.5	125	5.2



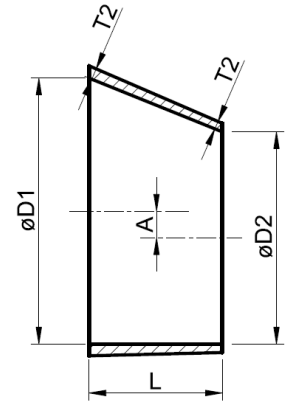
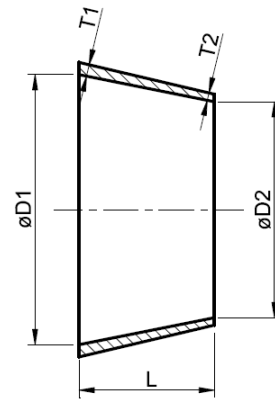
$$L = 2.5 * (D1 - D2)$$

$$A = 0.5 * (D1 - D2)$$

D1 x D2		D1 x D2		T1	T2	L	W
mm	mm	inch	inch	mm	mm	mm	kg
800	600	32	24	12.9	10.0	500	21.2
800	750	32	30	12.9	11.5	250	11.4
800	700	32	28	12.9	12.1	125	5.9
900	600	36	24	14.3	10.0	750	37.8
900	700	36	28	14.3	11.5	500	26.9
900	800	36	32	14.3	12.9	250	14.3
1000	700	40	28	15.6	11.5	750	46.9
1000	800	40	32	15.6	12.9	500	33.1
1000	900	40	36	15.6	14.3	250	17.5
1100	800	44	32	17.0	12.9	750	57.1
1100	900	44	36	17.0	14.3	500	40.1
1100	1000	44	40	17.0	15.6	250	21.0
1200	900	48	36	18.4	14.3	750	68.2
1200	1000	48	40	18.4	15.6	500	47.6
1200	1100	48	44	18.4	17.0	250	24.9
1300	1000	52	40	19.8	15.6	750	80.3
1300	1100	52	44	19.8	17.0	500	55.8
1300	1200	52	48	19.8	18.4	250	29.1
1400	1100	56	44	21.1	17.0	750	93.3
1400	1200	56	48	21.1	18.4	500	64.7
1400	1300	56	52	21.1	19.8	250	33.6
1500	1200	60	48	22.5	18.4	750	107.4
1500	1300	60	52	22.5	19.8	500	74.2
1500	1400	60	56	22.5	21.1	250	38.4

CON. REDUCER

SERIES				122500			
Pressure Rating				12 bar			
Stiffness Class (SN)				2500 N/m ²			
Max. Vacuum ¹⁾				- 0.5 bar			
D1 x D2		D1 x D2		T1	T2	L	W
mm	mm	inch	inch	mm	mm	mm	mm
40	15	1 1/2	0.5	4.4	4.4	62.5	0.04
40	25	1 1/2	1	4.4	4.4	37.5	0.03
50	25	2	1	4.4	4.4	62.5	0.05
50	40	2	1 1/2	4.4	4.4	25	0.02
80	40	3	1 1/2	4.4	4.4	100	0.1
80	50	3	2	4.4	4.4	75	0.1
100	50	4	2	4.4	4.4	125	0.2
100	80	4	3	4.4	4.4	50	0.1
125	80	5	3	4.4	4.4	112.5	0.2
125	100	5	4	4.4	4.4	62.5	0.1
150	50	6	2	4.4	4.4	250	0.5
150	80	6	3	4.4	4.4	175	0.4
150	100	6	4	4.4	4.4	125	0.3
200	50	8	2	4.8	4.4	375	1.0
200	100	8	4	4.8	4.4	250	0.8
200	150	8	6	4.8	4.4	125	0.5
250	100	10	4	5.5	4.4	375	1.7
250	150	10	6	5.5	4.4	250	1.3
250	200	10	8	5.5	4.8	125	0.7
300	150	12	6	6.3	4.4	375	2.5
300	200	12	8	6.3	4.8	250	1.8
300	250	12	10	6.3	5.5	125	1.0
350	200	14	8	7.0	4.8	375	3.4
350	250	14	10	7.0	5.5	250	2.5
350	300	14	12	7.0	6.3	125	1.3
400	250	16	10	7.8	5.5	375	4.5
400	300	16	12	7.8	6.3	250	3.2
400	350	16	14	7.8	7.0	125	1.7
500	200	20	8	9.3	4.8	750	11.4
500	300	20	12	9.3	6.3	500	8.7
500	400	20	16	9.3	7.8	250	4.9
600	300	24	12	10.8	6.3	750	17.1
600	400	24	16	10.8	7.8	500	12.7
600	500	24	20	10.8	9.3	250	7.0
700	400	28	16	12.3	7.8	750	23.8
700	500	28	20	12.3	9.3	500	17.3
700	600	28	24	12.3	10.8	250	9.4
750	500	30	20	13.1	9.3	625	24.2
750	600	30	24	13.1	10.8	375	15.7
750	700	30	28	13.1	12.3	125	5.6



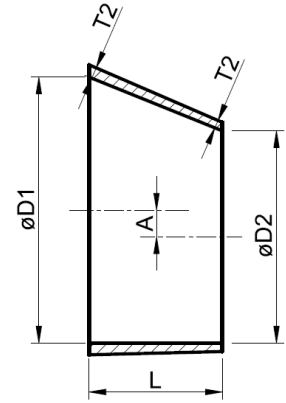
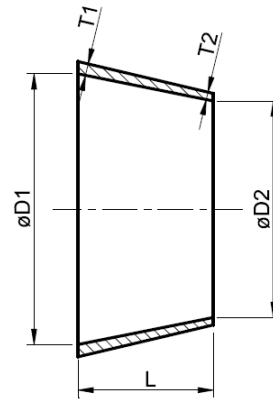
$$L = 2.5 * (D1 - D2)$$

$$A = 0.5 * (D1 - D2)$$

D1 x D2		D1 x D2		T1	T2	L	W
mm	mm	inch	inch	mm	mm	mm	kg
800	600	32	24	13.9	10.8	500	22.9
800	750	32	30	13.9	12.3	250	12.3
800	700	32	28	13.9	13.1	125	6.3
900	600	36	24	15.4	10.8	750	40.8
900	700	36	28	15.4	12.3	500	29.0
900	800	36	32	15.4	13.9	250	15.4
1000	700	40	28	16.9	12.3	750	50.7
1000	800	40	32	16.9	13.9	500	35.8
1000	900	40	36	16.9	15.4	250	18.9
1100	800	44	32	18.4	13.9	750	61.7
1100	900	44	36	18.4	15.4	500	43.3
1100	1000	44	40	18.4	16.9	250	22.7
1200	900	48	36	19.9	15.4	750	73.8
1200	1000	48	40	19.9	16.9	500	51.5
1200	1100	48	44	19.9	18.4	250	26.9
1300	1000	52	40	21.4	16.9	750	86.9
1300	1100	52	44	21.4	18.4	500	60.4
1300	1200	52	48	21.4	19.9	250	31.5
1400	1100	56	44	22.9	18.4	750	101.1
1400	1200	56	48	22.9	19.9	500	70.1
1400	1300	56	52	22.9	21.4	250	36.4
1500	1200	60	48	24.4	19.9	750	116.3
1500	1300	60	52	24.4	21.4	500	80.4
1500	1400	60	56	24.4	22.9	250	41.6

CON. REDUCER

SERIES				125000			
Pressure Rating				12 bar			
Stiffness Class (SN)				5000 N/m ²			
Max. Vacuum ¹⁾				- 0.8 bar			
D1 x D2		D1 x D2		T1	T2	L	W
mm	mm	inch	inch	mm	mm	mm	mm
40	15	1 1/2	0.5	4.4	4.4	62.5	0.04
40	25	1 1/2	1	4.4	4.4	37.5	0.03
50	25	2	1	4.4	4.4	62.5	0.05
50	40	2	1 1/2	4.4	4.4	25	0.03
80	40	3	1 1/2	4.4	4.4	100	0.1
80	50	3	2	4.4	4.4	75	0.1
100	50	4	2	4.4	4.4	125	0.2
100	80	4	3	4.4	4.4	50	0.1
125	80	5	3	4.4	4.4	112.5	0.3
125	100	5	4	4.4	4.4	62.5	0.2
150	50	6	2	4.4	4.4	250	0.6
150	80	6	3	4.4	4.4	175	0.5
150	100	6	4	4.4	4.4	125	0.4
200	50	8	2	4.8	4.4	375	1.2
200	100	8	4	4.8	4.4	250	0.9
200	150	8	6	4.8	4.4	125	0.5
250	100	10	4	5.5	4.4	375	1.9
250	150	10	6	5.5	4.4	250	1.4
250	200	10	8	5.5	4.8	125	0.8
300	150	12	6	6.3	4.4	375	2.7
300	200	12	8	6.3	4.8	250	2.0
300	250	12	10	6.3	5.5	125	1.1
350	200	14	8	7.0	4.8	375	3.7
350	250	14	10	7.0	5.5	250	2.7
350	300	14	12	7.0	6.3	125	1.5
400	250	16	10	7.8	5.5	375	4.9
400	300	16	12	7.8	6.3	250	3.5
400	350	16	14	7.8	7.0	125	1.9
500	200	20	8	9.3	4.8	750	12.6
500	300	20	12	9.3	6.3	500	9.6
500	400	20	16	9.3	7.8	250	5.4
600	300	24	12	10.8	6.3	750	18.8
600	400	24	16	10.8	7.8	500	13.9
600	500	24	20	10.8	9.3	250	7.7
700	400	28	16	12.3	7.8	750	26.2
700	500	28	20	12.3	9.3	500	19.0
700	600	28	24	12.3	10.8	250	10.3
750	500	30	20	13.1	9.3	625	26.6
750	600	30	24	13.1	10.8	375	17.2
750	700	30	28	13.1	12.3	125	6.2



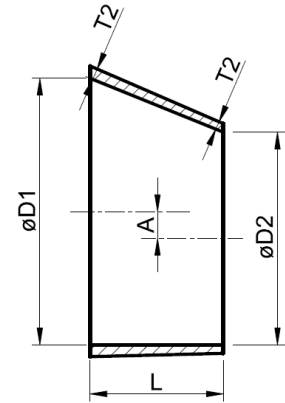
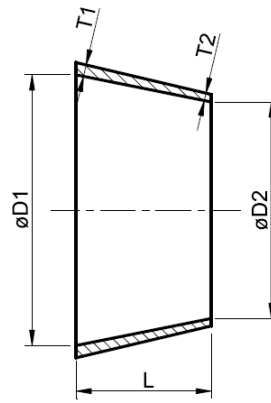
$$L=2.5*(D1-D2)$$

$$A=0.5*(D1-D2)$$

D1 x D2		D1 x D2		T1	T2	L	W
mm	mm	inch	inch	mm	mm	mm	kg
800	600	32	24	13.9	10.8	500	25.2
800	750	32	30	13.9	12.3	250	13.5
800	700	32	28	13.9	13.1	125	7.0
900	600	36	24	15.4	10.8	750	44.8
900	700	36	28	15.4	12.3	500	31.9
900	800	36	32	15.4	13.9	250	16.9
1000	700	40	28	16.9	12.3	750	55.8
1000	800	40	32	16.9	13.9	500	39.4
1000	900	40	36	16.9	15.4	250	20.8
1100	800	44	32	18.4	13.9	750	67.9
1100	900	44	36	18.4	15.4	500	47.6
1100	1000	44	40	18.4	16.9	250	25.0
1200	900	48	36	19.9	15.4	750	81.1
1200	1000	48	40	19.9	16.9	500	56.7
1200	1100	48	44	19.9	18.4	250	29.6
1300	1000	52	40	21.4	16.9	750	95.6
1300	1100	52	44	21.4	18.4	500	66.5
1300	1200	52	48	21.4	19.9	250	34.6
1400	1100	56	44	22.9	18.4	750	111.2
1400	1200	56	48	22.9	19.9	500	77.1
1400	1300	56	52	22.9	21.4	250	40.0
1500	1200	60	48	24.4	19.9	750	127.9
1500	1300	60	52	24.4	21.4	500	88.4
1500	1400	60	56	24.4	22.9	250	45.8

CON. REDUCER

SERIES				165000F			
Pressure Rating				16 bar			
Stiffness Class (SN)				5000 N/m ²			
Max. Vacuum ¹⁾				- 1.0 bar			
D1 x D2		D1 x D2		T1	T2	L	W
mm	mm	inch	inch	mm	mm	mm	mm
40	15	1 1/2	0.5	4.4	4.4	62.5	0.04
40	25	1 1/2	1	4.4	4.4	37.5	0.03
50	25	2	1	4.4	4.4	62.5	0.05
50	40	2	1 1/2	4.4	4.4	25	0.02
80	40	3	1 1/2	4.4	4.4	100	0.1
80	50	3	2	4.4	4.4	75	0.1
100	50	4	2	4.4	4.4	125	0.2
100	80	4	3	4.4	4.4	50	0.1
125	80	5	3	4.4	4.4	112.5	0.2
125	100	5	4	4.4	4.4	62.5	0.1
150	50	6	2	4.8	4.4	250	0.6
150	80	6	3	4.8	4.4	175	0.5
150	100	6	4	4.8	4.4	125	0.3
200	50	8	2	5.8	4.4	375	1.3
200	100	8	4	5.8	4.4	250	1.0
200	150	8	6	5.8	4.8	125	0.6
250	100	10	4	6.8	4.4	375	2.1
250	150	10	6	6.8	4.8	250	1.6
250	200	10	8	6.8	5.8	125	0.9
300	150	12	6	7.9	4.8	375	3.1
300	200	12	8	7.9	5.8	250	2.3
300	250	12	10	7.9	6.8	125	1.3
350	200	14	8	8.9	5.8	375	4.3
350	250	14	10	8.9	6.8	250	3.1
350	300	14	12	8.9	7.9	125	1.7
400	250	16	10	9.9	6.8	375	5.7
400	300	16	12	9.9	7.9	250	4.1
400	350	16	14	9.9	8.9	125	2.2
500	200	20	8	11.9	5.8	750	14.7
500	300	20	12	11.9	7.9	500	11.2
500	400	20	16	11.9	9.9	250	6.3
600	300	24	12	13.9	7.9	750	22.1
600	400	24	16	13.9	9.9	500	16.3
600	500	24	20	13.9	11.9	250	9.0
700	400	28	16	15.9	9.9	750	30.9
700	500	28	20	15.9	11.9	500	22.4
700	600	28	24	15.9	13.9	250	12.2
750	500	30	20	16.9	11.9	625	31.1
750	600	30	24	16.9	13.9	375	20.1
750	700	30	28	16.9	15.9	125	7.2



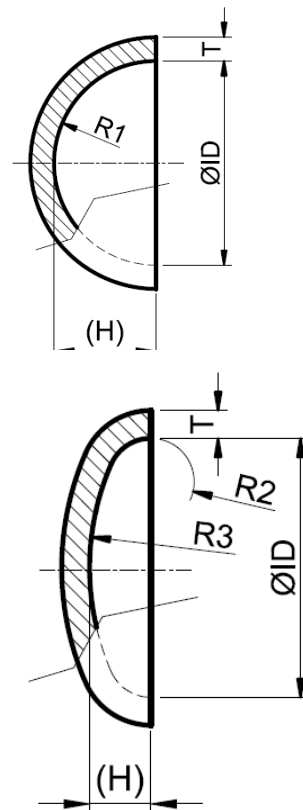
$$L = 2.5 * (D1 - D2)$$

$$A = 0.5 * (D1 - D2)$$

D1 x D2		D1 x D2		T1	T2	L	W
mm	mm	inch	inch	mm	mm	mm	kg
800	600	32	24	17.9	13.9	500	29.5
800	750	32	30	17.9	15.9	250	15.8
800	700	32	28	17.9	16.9	125	8.2
900	600	36	24	20.0	13.9	750	53.0
900	700	36	28	20.0	15.9	500	37.7
900	800	36	32	20.0	17.9	250	20.0
1000	700	40	28	22.0	15.9	750	66.1
1000	800	40	32	22.0	17.9	500	46.7
1000	900	40	36	22.0	20.0	250	24.6
1100	800	44	32	24.0	17.9	750	80.6
1100	900	44	36	24.0	20.0	500	56.5
1100	1000	44	40	24.0	22.0	250	29.7
1200	900	48	36	26.0	20.0	750	96.5
1200	1000	48	40	26.0	22.0	500	67.4
1200	1100	48	44	26.0	24.0	250	35.2
1300	1000	52	40	28.0	22.0	750	113.8
1300	1100	52	44	28.0	24.0	500	79.2
1300	1200	52	48	28.0	26.0	250	41.2
1400	1100	56	44	30.1	24.0	750	133.1
1400	1200	56	48	30.1	26.0	500	92.3
1400	1300	56	52	30.1	28.0	250	47.9
1500	1200	60	48	32.1	26.0	750	153.3
1500	1300	60	52	32.1	28.0	500	106.0
1500	1400	60	56	32.1	30.1	250	54.9

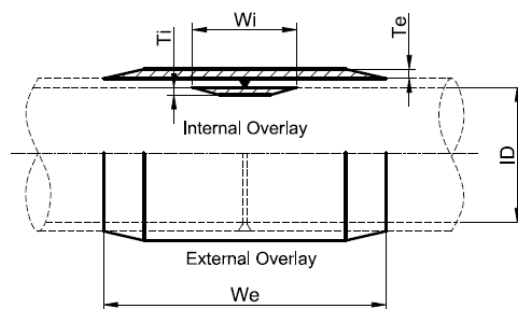
END CAP

SERIES			081250		102500		122500		125000		165000F	
Pressure Rating			8 bar		10 bar		12 bar		12 bar		16 bar	
Stiffness Class (SN)			1250 N/m ²		2500 N/m ²		2500 N/m ²		5000 N/m ²		5000 N/m ²	
Max. Vacuum ¹⁾			- 0.2 bar		- 0.4 bar		- 0.5 bar		- 0.8 bar		- 1 bar	
ID		H	T	W	T	W	T	W	T	W	T	W
mm	inch	mm	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
15	1/2	7.5	4.4	0.01	4.4	0.01	4.4	0.01	4.4	0.01	4.4	0.01
20	3/4	10	4.4	0.01	4.4	0.01	4.4	0.01	4.4	0.01	4.4	0.01
25	1	12.5	4.4	0.01	4.4	0.01	4.4	0.01	4.4	0.01	4.4	0.01
32	1-1/4	16	4.4	0.02	4.4	0.02	4.4	0.02	4.4	0.02	4.4	0.02
40	1-1/2	20	4.4	0.03	4.4	0.03	4.4	0.03	4.4	0.03	4.4	0.03
50	2	25	4.4	0.01	4.4	0.01	4.4	0.01	4.4	0.01	4.4	0.01
65	2-1/2	32.5	4.4	0.1	4.4	0.1	4.4	0.1	4.4	0.1	4.4	0.1
80	3	40	4.4	0.1	4.4	0.1	4.4	0.1	4.4	0.1	4.4	0.1
100	4	50	4.4	0.2	4.4	0.2	4.4	0.2	4.4	0.2	4.4	0.2
125	5	62.5	4.4	0.3	4.4	0.3	4.4	0.3	4.4	0.3	4.4	0.3
150	6	75	4.4	0.4	4.4	0.4	4.4	0.4	4.4	0.4	4.8	0.4
200	8	100	4.4	0.6	4.5	0.6	4.8	0.6	5.3	0.6	5.8	0.6
250	10	125	4.5	1.0	5.3	1.0	5.5	1.0	6.1	1.0	6.8	1.0
300	12	150	5.0	1.6	5.9	1.6	6.3	1.6	7.0	1.6	7.9	1.6
350	14	175	5.6	2.5	6.6	2.5	7.0	2.5	7.9	2.5	8.9	2.5
400	16	200	6.1	3.6	7.3	3.6	7.8	3.6	8.8	3.6	9.9	3.6
450	18	225	6.6	4.9	8.0	4.9	8.5	4.9	9.6	4.9	10.9	4.9
500	20	250	7.3	6.6	8.6	6.6	9.3	6.6	10.5	6.6	11.9	6.6
600	24	300	8.4	11	10.0	11	10.8	11	12.3	11	13.9	11
700	28	165	9.4	16.7	11.5	16.7	12.3	16.7	14.0	16.7	15.9	16.7
750	30	177	10.0	20.4	12.1	20.4	13.1	20.4	14.9	20.4	16.9	20.4
800	32	189	10.5	24.4	12.9	24.4	13.9	24.4	15.8	24.4	17.9	24.4
900	36	213	11.6	34.1	14.3	34.1	15.4	34.1	17.5	34.1	20.0	34.1
1000	40	236	12.8	46.2	15.6	46.2	16.9	46.2	19.3	46.2	22.0	46.2
1050	42	248	13.3	52.9	16.3	52.9	17.6	52.9	20.1	52.9	23.0	52.9
1100	44	260	13.8	60.3	17.0	60.3	18.4	60.3	21.0	60.3	24.0	60.3
1150	46	272	14.4	68.9	17.8	68.9	19.1	68.9	21.9	68.9	25.0	68.9
1200	48	283	14.9	77.6	18.4	77.6	19.9	77.6	22.8	77.6	26.0	77.6
1250	50	295	15.5	87.7	19.1	87.7	20.6	87.7	23.6	87.7	27.0	87.7
1300	52	307	16.0	97.9	19.8	97.9	21.4	97.9	24.5	97.9	28.0	97.9
1350	54	319	16.5	109.7	20.5	109.7	22.1	109.7	25.4	109.7	29.1	109.7
1400	56	331	17.1	121.6	21.1	121.6	22.9	121.6	26.3	121.6	30.1	121.6
1450	58	343	17.6	135.2	21.9	135.2	23.6	135.2	27.1	135.2	31.1	135.2
1500	60	354	18.3	148.7	22.5	148.7	24.4	148.7	28.0	148.7	32.1	148.7

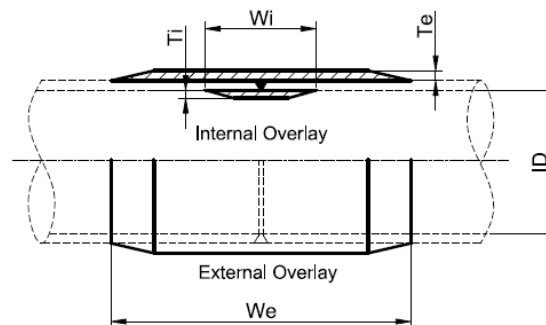


BUTT & WRAP JOINT

SERIES		081250				
Pressure Rating		8 bar				
Stiffness Class (SN)		1250 N/m ²				
Max. Vacuum ¹⁾		- 0.2 bar				
ID		We	Te	Wi	Ti	W
mm	inch	mm	mm	mm	mm	kg
15	1/2	100	4.4	-	-	0.03
20	3/4	100	4.4	-	-	0.04
25	1	100	4.4	-	-	0.1
32	1-1/4	100	4.4	-	-	0.1
40	1-1/2	100	4.4	-	-	0.1
50	2	100	4.4	-	-	0.1
65	2-1/2	150	4.4	-	-	0.2
80	3	150	4.4	-	-	0.2
100	4	150	4.4	-	-	0.3
125	5	150	4.4	-	-	0.4
150	6	150	4.4	-	-	0.5
200	8	150	4.4	-	-	0.6
250	10	150	4.5	-	-	0.8
300	12	200	5.0	-	-	1.4
350	14	200	5.6	-	-	1.9
400	16	200	6.1	-	-	2.3
450	18	250	6.6	-	-	3.5
500	20	250	7.3	-	-	4.3
600	24	300	8.4	-	-	7.1
700	28	300	9.4	-	-	9.3
750	30	400	10.0	200	2.1	14.1
800	32	400	10.5	250	2.1	15.8
900	36	450	11.6	250	2.1	22.2
1000	40	450	12.8	300	2.1	27.0
1050	42	500	13.3	300	3.6	32.8
1100	44	500	13.8	300	3.6	35.6
1150	46	500	14.4	300	3.6	38.9
1200	48	550	14.9	350	3.6	46.2
1250	50	550	15.5	350	3.6	50.2
1300	52	550	16.0	350	3.6	53.9
1350	54	600	16.6	375	3.6	63.4
1400	56	600	17.1	375	3.6	67.8
1450	58	600	17.8	400	3.6	72.7
1500	60	700	18.3	400	3.6	90.3

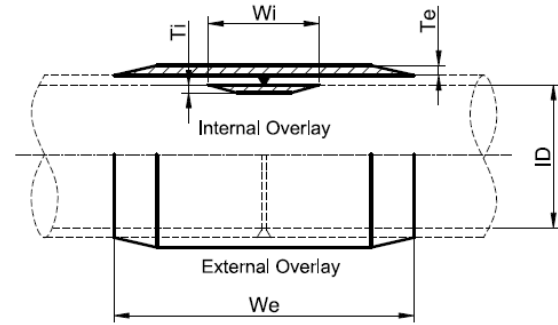


BUTT & WRAP JOINT



SERIES		102500					122500				
Pressure Rating		10 bar					12 bar				
Stiffness Class (SN)		2500 N/m ²					2500 N/m ²				
Max. Vacuum ¹⁾		- 0.4 bar					- 0.5 bar				
ID		We	Te	Wi	Ti	W	We	Te	Wi	Ti	W
mm	inch	mm	mm	mm	mm	kg	mm	mm	mm	mm	kg
15	1/2	100	4.4	-	-	0.03	100	4.6	-	-	0.03
20	3/4	100	4.4	-	-	0.04	100	4.6	-	-	0.04
25	1	100	4.4	-	-	0.1	100	4.6	-	-	0.1
32	1-1/4	100	4.4	-	-	0.1	100	4.6	-	-	0.1
40	1-1/2	100	4.4	-	-	0.1	100	4.6	-	-	0.1
50	2	100	4.4	-	-	0.1	100	4.6	-	-	0.1
65	2-1/2	150	4.4	-	-	0.2	150	4.6	-	-	0.2
80	3	150	4.4	-	-	0.2	150	4.6	-	-	0.3
100	4	150	4.4	-	-	0.3	150	4.6	-	-	0.3
125	5	150	4.4	-	-	0.4	150	4.6	-	-	0.4
150	6	150	4.4	-	-	0.5	150	4.6	-	-	0.5
200	8	150	4.5	-	-	0.6	150	4.9	-	-	0.7
250	10	150	5.3	-	-	0.9	150	5.7	-	-	1.0
300	12	200	5.9	-	-	1.7	250	6.5	-	-	2.3
350	14	200	6.6	-	-	2.2	250	7.3	-	-	3.0
400	16	250	7.3	-	-	3.4	300	8.1	-	-	4.6
450	18	250	8.0	-	-	4.2	300	8.8	-	-	5.6
500	20	300	8.6	-	-	6.1	400	9.6	-	-	9.1
600	24	400	10.0	-	-	11.3	450	11.2	-	-	14.2
700	28	400	11.5	-	-	15.2	500	12.7	-	-	21.0
750	30	450	12.1	200	2.1	19.3	500	13.7	200	2.1	24.1
800	32	450	12.9	250	2.1	21.8	550	14.4	250	2.1	29.9
900	36	500	14.3	250	2.1	30.2	600	16.0	250	2.1	40.7
1000	40	550	15.6	300	2.1	40.5	700	17.6	300	2.1	57.9
1050	42	550	16.3	300	3.6	44.2	700	18.3	300	3.6	63.5
1100	44	600	17.0	300	3.6	52.8	750	19.1	300	3.6	74.3
1150	46	600	17.8	300	3.6	57.7	750	19.9	300	3.6	80.8
1200	48	700	18.4	350	3.6	72.7	800	20.7	350	3.6	93.5
1250	50	700	19.1	350	3.6	78.8	800	21.5	350	3.6	101.0
1300	52	750	19.8	350	3.6	90.7	850	22.2	350	3.6	115.7
1350	54	750	20.5	375	3.6	97.8	850	23.0	375	3.6	124.4
1400	56	750	21.1	375	3.6	104.5	900	23.8	375	3.6	141.2
1450	58	800	21.9	400	3.6	119.5	900	24.6	400	3.6	151.0
1500	60	800	22.5	400	3.6	127.2	1000	25.4	400	3.6	179.1

BUTT & WRAP JOINT



SERIES		125000					165000F				
Pressure Rating		12 bar					16 bar				
Stiffness Class (SN)		5000 N/m ²					5000 N/m ²				
Max. Vacuum ¹⁾		- 0.8 bar					- 1 bar				
ID		We	Te	Wi	Ti	W	We	Te	Wi	Ti	W
mm	inch	mm	mm	mm	mm	mm	mm	mm	mm	kg	Mm
15	1/2	100	4.6	-	-	0.0	100	4.6	-	-	0.0
20	3/4	100	4.6	-	-	0.0	100	4.6	-	-	0.0
25	1	100	4.6	-	-	0.1	100	4.6	-	-	0.1
32	1-1/4	100	4.6	-	-	0.1	100	4.6	-	-	0.1
40	1-1/2	100	4.6	-	-	0.1	100	4.6	-	-	0.1
50	2	100	4.6	-	-	0.1	100	4.6	-	-	0.1
65	2-1/2	150	4.6	-	-	0.2	150	4.6	-	-	0.2
80	3	150	4.6	-	-	0.3	150	4.6	-	-	0.3
100	4	150	4.6	-	-	0.4	150	4.6	-	-	0.3
125	5	150	4.6	-	-	0.4	150	4.6	-	-	0.4
150	6	150	4.6	-	-	0.5	150	4.9	-	-	0.5
200	8	150	4.9	-	-	0.8	150	6.0	-	-	0.8
250	10	150	5.7	-	-	1.1	150	7.0	-	-	1.2
300	12	300	6.5	-	-	3.0	300	8.2	-	-	3.5
350	14	300	7.3	-	-	4.0	300	9.2	-	-	4.6
400	16	400	8.1	-	-	6.7	400	10.3	-	-	7.7
450	18	450	8.8	-	-	9.3	450	11.3	-	-	10.8
500	20	450	9.6	-	-	11.2	450	12.4	-	-	13.1
600	24	550	11.2	-	-	19.1	550	14.4	-	-	22.4
700	28	600	12.7	-	-	27.7	600	16.5	-	-	32.7
750	30	700	13.7	200	2.1	38.8	700	17.6	350	2.1	43.4
800	32	700	14.4	250	2.1	44.0	700	18.6	350	2.1	49.0
900	36	800	16.0	250	2.1	62.1	800	20.8	400	2.1	70.5
1000	40	850	17.6	300	2.1	80.6	850	22.9	400	2.1	91.6
1050	42	900	18.3	300	3.6	95.6	900	23.9	450	3.6	106.5
1100	44	900	19.1	300	3.6	104.2	900	25.0	450	3.6	116.4
1150	46	1000	19.9	300	3.6	124.9	1000	26.0	500	3.6	140.8
1200	48	1050	20.7	350	3.6	142.8	1050	27.0	500	3.6	160.5
1250	50	1050	21.5	350	3.6	154.0	1050	28.1	500	3.6	173.6
1300	52	1100	22.2	350	3.6	173.2	1100	29.1	550	3.6	196.1
1350	54	1150	23.0	375	3.6	194.5	1150	30.3	550	3.6	221.5
1400	56	1200	23.8	375	3.6	216.9	1200	31.1	600	3.6	247.9
1450	58	1200	24.6	400	3.6	232.3	1200	32.4	600	3.6	265.3
1500	60	1300	25.4	400	3.6	267.3	1300	33.4	650	3.6	306.9

SALES & SUPPORT

Katharina

Sales Manager

✉ katharina@ori.co.id

☎ +62 82113246785

Wahyudi

Sales Manager

✉ wahyudi@ori.co.id

☎ +62 81288813878

Donny

Panggabean

Sales Manager

✉ donny@ori.co.id

☎ +62 81384777196

Yudo Bahari

Sales Manager

✉ yudo@ori.co.id

☎ +62 2323238819



For more information please visit ORI website: <https://www.ori.co.id/>