

PE

Piping
systems

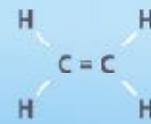


Technical details & applications

Polyethylene

Chemical composition of PE:

Ethylene



Polyethylene Polymer



Polyethylene is a thermoplastic polymer consisting of long chains produced by combining the ingredient monomer ethylene. The ethylene actually converts to ethane as it takes its place in a polymer and straight sections of the polymer are the same structure as the simple chain hydrocarbons, e.g., propane, decane and other straight single-bonded carbon chains. As with any polymer, the structure of the resulting substance defies molecular description due to cross branching of the chains.

HDPE (High Density polyethylene) is defined by a density of greater or equal to 0.941 g/cm³. HDPE has a low degree of branching and thus stronger intermolecular forces and tensile strength.

Technical information

			HDPE	MDPE	LDPE	PEUHMW
Specific gravity (ρ)	ISO 1183	g/cm ³	0.95	0.938	0.925	0.93
Max. permissible service temp		°C	-50 to 90	-50 to 85	-50 to 60	-50 to 90
Tensile strength at yield (σ _S)	ISO 527	Mpa	27	20	11	17
Elongation at break (ε _R)	ISO 527	%	≥ 700	≥ 600	≥ 600	≥ 50
Impact strength (α _n)	ISO 179	kJ/m ²	No Break	No Break	No Break	No Break
Flexural strength (σ _B 3.5%)	ISO 178	Mpa	22	40	80	27
Modulus of elasticity (E _t)	ISO 527	Mpa	1150	760	260	680
Coeff. of linear therm. expansion (α _l)	DIN 53757	K ⁻¹ × 10 ⁻⁴	1.5	1.5	1.4	?
Vicat Softening Temp	ISO 306	°C	80	80	94	80

Specific advanced high ESCR rated grades also available.

Features & advantages

- Suitable for underground pipes through adjustment to local ground movement
- Impact-resistant and tough.
- Thermal resistant Application possible between -40°C & 80°C
- Smooth internal wall Low blockage risk due to low deposit / residue effects
- Application in open air unrestricted through colouring with carbon black
- Lower cost due to relative long life
- Non conductive
- Suitable for transport of polluted waste water
- No condensation possible during short periods of cooling
- Easy installation using butt-welding and electro-fusion techniques
- Environmental friendly
- Homogeneous welded joints - Pull tight and leak proof
- Prefabrication = Fast and cost-saving installation
- Light in weight = Cost saving in transport and handling



PE products available at Sangir:

- ✓ Pipes
- ✓ Fittings
- ✓ Sheets
- ✓ Weld & solid rods
- ✓ Profiles

Applications of Polyethylene



Applications

PE piping systems, sheets and roto moulded products have versatile usage on several different industries from simple usage in agriculture to high end use in Chemical Industries.

- Municipal
- Industrial
- Marine / Dredging
- Agriculture
- Electrical
- Recreation
- Infrastructure
- Geo Thermal Heating
- Aquaculture
- Culverts
- Ventilation
- Float docks
- Residential
- Sanitation.



Technical information

Sangir manufactures polyethylene pipes of following standards per national and international norms: ISO 4427; DIN 8074; EN 1220; IS 4984; IS 14151; IS 14333. Sangir manufactures its pipes from different grades based on customer requirements however, specializes in PE100 pipes from pre-compounded black raw material. PE100 is considered as the strongest of all PE grades for piping and have maximum nominal bore for the same pressure ratings for PE 80 / 63. According to international standard ISO 4427, an HDPE material can be certified as PE100, only if it passes 10,000 hours Long Term Hydrostatic Strength (LTHS) test extrapolated to 50 years to show that it has a MRS of over 10 MPa for a lifetime of minimum 50 years.

Permissible Operating Temperature: The values in the tables apply to water, determined from the creep curve taking into account a safety coefficient of $C=1.25$.

Temperature °C	Operation period (years)	Standard Diameter-wall thickness relation (SDR)						
		41	33	26	17	11	7.4	6
		Pipe series (S)						
		20	16	12.5	8	5	3.2	2.5
		PN						
		4	5	6.3	10	16	25	32
		Permissible component operating pressure ^{1,2} (bar)						
10	5	5	6.3	7.9	12.6	20.2	31.5	40.4
	10	4.9	6.2	7.8	12.4	19.8	31	39.7
	25	4.8	6	7.6	12.1	19.3	30.2	38.7
	50	4.7	5.9	7.5	11.9	19	29.7	38
	100	4.6	5.8	7.3	11.6	18.7	29.2	37.4
20	5	4.2	5.3	6.6	10.6	16.9	26.9	26.5
	10	4.1	5.2	6.5	10.4	16.6	16.6	26
	25	4	5	6.4	10.1	16.2	16.2	25.4
	50	4	5	6.3	10	16	16	25
30	5	3.6	4.5	5.6	9	14.4	22.5	28.8
	10	3.5	4.4	5.5	8.8	14	22.1	28.3
	25	3.4	4.3	5.4	8.6	13.8	21.6	27.6
	50	3.3	4.2	5.3	8.4	13.5	21.2	27.1
40	5	3	3.8	4.8	7.7	12.3	19.3	24.7
	10	3	3.8	4.7	7.6	12.1	19	24.3
	25	2.9	3.7	4.6	7.4	11.8	18.5	23.7
	50	2.9	3.6	4.5	7.2	11.6	18.2	23.3
50	5	2.6	3.3	4.2	6.7	10.7	16.7	21.4
	10	2.6	3.2	4	6.5	10.4	16.2	20.3
	15	2.3	2.9	3.7	5.9	9.5	14.8	19
60	5	1.9	2.4	3	4.8	7.7	12.1	15.5
70	2	1.5	1.9	2.4	3.9	6.2	9.8	12.5

PE material for pipe extrusion is now available in three grades, PE63, PE80 and PE100. These are classified based on the MRS Strength of each grade. Specific properties can be improved by using modified piping grade materials. Eg.: ESCR etc.

Long term strength	MRS	Designation	D (mpa)
6.3 - 7.99	6.3	Pe63	5
8 - 9.99	8	PE80	6.3
10 - 11.19	10	PE100	8

σ : MRS / C
MRS - Minimum required strength.
C - 1.25 for water

1 We recommend the calculation of the operating pressure in piping systems to multiply the value in the table contained operating pressure with a system reduction coefficient $fs=0.8$ (this value contains installation technical influences such as welding joint, flange or also bending loads).

2 These operating pressure have to be reduced by the reducing coefficients for every application.

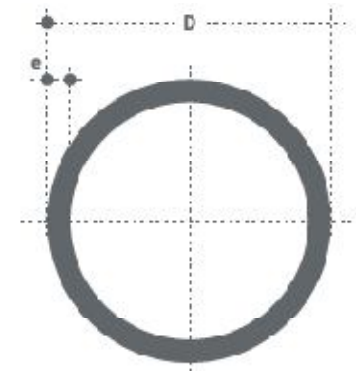
PE Pipes

HDPE Pipes as per IS 4984:1995 PE100 Grade

SDR	SDR21		SDR17.6		SDR13.6		SDR11		SDR9	
	PN6		PN8		PN10		PN12.5		PN16	
Size	e _{min}	e _{max}	e _{min}	e _{max}	e _{min}	e _{max}	e _{min}	e _{max}	e _{min}	e _{max}
20	-	-	-	-	-	-	-	-	2.3	2.8
25	-	-	-	-	-	-	2.3	2.8	2.9	3.4
32	-	-	-	-	2.4	2.9	2.9	3.4	3.7	4.3
40	-	-	2.4	2.9	3	3.5	3.7	4.3	4.6	5.3
50	2.3	2.8	3	3.5	3.7	4.3	4.6	5.3	5.7	6.5
63	2.9	3.4	3.8	4.4	4.7	5.4	5.7	6.5	7.1	8.1
75	3.5	4.1	4.5	5.2	5.6	6.4	6.8	7.7	8.5	9.6
90	4.1	4.8	5.4	6.2	6.7	7.6	8.2	9.3	10.2	11.5
110	5	5.7	6.6	7.5	8.1	9.2	10	11.2	12.4	13.9
125	5.7	6.5	7.5	8.5	9.2	10.4	11.3	12.7	14.1	15.8
140	6.4	7.3	8.4	9.5	10.3	11.6	12.7	14.2	15.8	17.6
160	7.3	8.3	9.6	10.8	11.8	13.2	14.5	16.2	18.1	20.2
180	8.2	9.3	10.8	12.1	13.3	14.9	16.3	18.2	20.3	22.6
200	9.1	10.3	12	13.4	14.8	16.5	18.1	20.2	22.6	25.1
225	10.3	11.6	13.5	15.1	16.6	18.5	20.4	22.7	25.4	28.2
250	11.4	12.8	15	16.7	18.4	20.5	22.6	25.1	28.2	31.3
280	12.8	14.3	16.8	18.7	20.6	22.9	25.3	28.1	31.6	35
315	14.4	16.1	18.9	21	23.2	25.8	28.5	31.6	35.5	39.3
355	16.2	18.1	21.2	23.6	26.2	29.1	32.1	35.6	40	44.2
400	18.2	21.2	23.9	27.7	29.5	34.2	36.2	41.9	45.1	52.1
450	20.5	23.8	26.9	31.2	33.1	38.3	40.7	47.1	50.8	58.7
500	22.8	26.5	29.9	34.6	36.8	42.6	45.2	52.2	56.4	65.1
560	25.5	29.6	33.5	38.8	41.2	47.6	50.6	58.4	-	-
630	28.7	33.3	37.7	46.4	46.4	53.6	56.9	65.7	-	-
710	32.3	37.4	42.4	49	52.3	60.4	-	-	-	-
800	36.4	42.1	47.8	55.2	58.9	68	-	-	-	-
900	41	47.4	53.8	62.1	-	-	-	-	-	-
1000	45.5	52.6	-	-	-	-	-	-	-	-

SDR: Standard Dimension Ratio Pipe OD to wall thickness.

Wall thickness Chart



Please note:

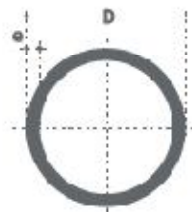
- All dimensions in mm
- Pipes also available in DIN8074, EN12201 and ASNZ 4130 standards.



HDPE Pipes as per IS4984 PE80 and IS14333 PE100 Grade

SDR	SDR41		SDR26		SDR17.6		SDR13.6		SDR11		SDR9		SDR7.4	
	PN2.5		PN4		PN6		PN8		PN10		PN12.5		PN16	
Size	e _{min}	e _{max}	e _{min}	e _{max}	e _{min}	e _{max}	e _{min}	e _{max}	e _{min}	e _{max}	e _{min}	e _{max}	e _{min}	e _{max}
16	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	2.3	2.8	2.8	3.3
25	-	-	-	-	-	-	-	-	2.3	2.8	2.8	3.3	3.5	4.1
32	-	-	-	-	-	-	2.4	2.9	3	3.5	3.6	4.2	4.5	5.2
40	-	-	-	-	2.3	2.8	3	3.5	3.7	4.3	4.5	5.2	5.6	6.4
50	-	-	2.3	2.8	2.9	3.4	3.8	4.4	4.5	5.3	5.6	6.4	6.9	7.8
63	-	-	2.5	3	3.6	4.2	4.7	5.4	5.8	6.6	7	7.9	8.7	9.8
75	-	-	2.9	3.4	4.3	5	5.6	6.4	6.9	7.8	8.4	9.5	10.4	11.7
90	2.3	2.8	3.5	4.1	5.1	5.9	6.7	7.6	8.2	9.3	10	11.2	12.5	14
110	2.7	3.2	4.3	5	6.3	7.2	8.2	9.3	10	11.2	12.3	13.8	15.2	17
125	3.1	3.7	4.9	5.6	7.1	8.1	9.3	10.5	11.4	12.8	13.9	15.5	17.3	19.3
140	3.5	4.1	5.4	6.2	8	9	10.4	11.7	12.8	14.3	15.6	17.4	19.4	21.6
160	4	4.6	6.2	7.1	9.1	10.3	11.9	13.3	14.6	16.3	17.8	19.8	22.1	24.6
180	4.4	5.1	7	7.9	10.2	11.5	13.4	15	16.4	18.3	20	22.2	24.9	27.6
200	4.9	5.6	7.7	8.7	11.4	12.8	14.9	16.6	18.2	20.3	22.3	24.8	27.6	30.6
225	5.5	6.3	8.7	9.8	12.8	14.3	16.7	18.6	20.5	22.8	25	27.7	31.1	34.5
250	6.1	7	9.7	10.9	14.2	15.9	18.6	20.7	22.8	25.3	27.8	30.8	34.5	38.2
280	6.9	7.8	10.8	12.1	15.9	17.7	20.8	23.1	25.5	28.3	31.2	34.6	38.7	42.8
315	7.7	8.7	12.2	13.7	17.9	19.9	23.4	26	28.7	31.8	35	38.7	43.5	48.1
355	8.7	9.8	13.7	15.3	20.1	22.4	26.3	29.2	32.3	35.8	39.5	43.7	49	54.1
400	9.8	11.5	15.4	18.0	22.7	26.4	29.7	34.4	36.4	42.1	44.5	51.4	55.2	63.7
450	11	12.9	17.4	20.5	25.5	29.6	33.4	38.7	41	47.4	50	57.7	-	-
500	12.2	14.3	19.3	22.4	28.4	32.9	37.1	42.9	45.5	52.6	55.6	64.1	-	-
560	13.7	16	21.6	25.1	31.7	36.7	41.5	48	51	58.9	-	-	-	-
630	15.4	18	24.3	28.2	35.7	41.3	46.7	54	57.3	66.1	-	-	-	-
710	17.4	20.3	27.4	31.8	40.2	46.5	52.6	60.7	-	-	-	-	-	-
800	19.6	22.8	30.8	35.7	45.3	52.3	-	-	-	-	-	-	-	-
900	22	25.5	32.7	40.2	51	58.9	-	-	-	-	-	-	-	-
1000	24.4	28.3	38.5	44.5	56.7	65.5	-	-	-	-	-	-	-	-

SDR: Standard Dimension Ratio Pipe OD to wall thickness.

**Please note:**

- All dimensions in mm
- SDR Rating / Pipe Specs Standard to be specified
- Dimensions may change without prior notice
- Please refer pipe wall thickness chart for thickness

HDPE & MDPE Pipes as per ISO4427, PE63, PE80 and PE100

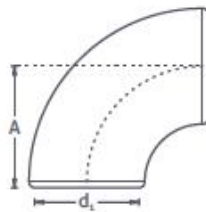
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	S 2.0	S 12.5			S 10			S 8			S 5			S 4				
PE 63	PN2.5	PN4		PN5		PN6		PN8		PN10		PN12.5		PN16		PN20		
PE 80	PN3.2	PN5		PN6		PN8		PN10		PN12.5		PN16		PN20		PN25		
PE100	PN4	PN6		PN8		PN10		PN12.5		PN16		PN20		PN25		PN32		
Size	e _{min}	e _{max}	e _{min}	e _{max}	e _{min}	e _{max}	e _{min}	e _{max}	e _{min}	e _{max}	e _{min}	e _{max}	e _{min}	e _{max}	e _{min}	e _{max}	e _{min}	e _{max}
20	-	-	-	-	-	-	-	-	-	-	2	2.3	2.3	2.7	3	3.4	-	-
25	-	-	-	-	-	-	-	-	2	2.3	2.3	2.7	3	3.4	3.5	4	-	-
32	-	-	-	-	-	-	2	2.3	2.4	2.8	3	3.4	3.6	4.1	4.4	5	-	-
40	-	-	-	-	2	2.3	2.4	2.8	3	3.3	3.7	4.2	4.5	5.1	5.5	6.2	-	-
50	-	-	2	2.3	2.4	2.8	3	3.4	3.7	4.2	4.6	5.2	5.6	6.3	6.9	7.7	-	-
63	-	-	2.5	2.9	3	3.4	3.8	4.3	4.7	5.3	5.8	6.5	7.1	8	8.5	9.6	-	-
75	-	-	2.9	3.3	3.6	4.1	4.5	5.1	5.6	6.3	6.8	7.6	8.1	9.4	10.3	11.5	-	-
90	-	-	-	-	3.5	4	5.4	6.1	6.7	7.5	8.2	9.2	10.1	11.3	12.3	13.7	-	-
110	-	-	4.2	4.8	5.3	6	6.6	7.4	8.1	9.1	10	11.1	12.3	13.7	15.1	16.8	-	-
125	-	-	4.8	5.4	6	6.7	7.4	8.3	9.2	10.3	11.4	12.7	14	15.6	17.1	19	-	-
140	-	-	5.4	6.1	6.7	7.5	8.3	9.3	10.3	11.5	12.7	14.1	15.7	17.4	19.2	21.3	-	-
160	-	-	6.2	7	7.7	8.6	9.5	10.6	11.8	13.1	14.6	16.2	17.9	19.8	21.9	24.2	-	-
180	-	-	6.9	7.2	8.6	9.6	10.7	11.9	13.3	14.8	16.4	18.2	20.1	22.3	24.6	27.2	-	-
200	-	-	7.7	8.6	9.6	10.7	11.9	13.2	14.7	16.3	18.2	20.2	22.4	24.8	27.4	30.3	-	-
225	-	-	8.6	9.6	10.8	12	13.4	14.9	16.6	18.4	20.5	22.7	25.2	27.9	30.8	34	-	-
250	-	-	9.6	10.7	11.9	13.2	14.8	16.4	18.4	20.4	22.7	25.1	27.9	30.8	34.2	37.8	-	-
280	-	-	10.7	11.9	13.4	14.9	16.6	18.4	20.6	22.8	25.4	28.1	31.3	34.6	38.3	42.3	-	-
315	7.7	8.6	12.1	13.5	15	16.6	18.7	20.7	23.2	25.7	28.6	31.6	35.2	38.9	43.1	47.6	-	-
355	8.7	9.7	13.6	15.1	16.9	18.7	21.1	23.4	26.1	28.9	32.7	35.6	39.7	43.8	48.5	53.5	-	-
400	9.8	10.9	15.3	17	19.1	21.2	23.7	26.2	29.4	32.5	36.3	40.1	44.7	49.3	54.7	60.3	-	-
450	11	12.2	17.2	19.1	21.5	23.8	26.7	29.5	33.1	36.6	40.9	45.1	50.3	55.5	61.5	67.8	-	-
500	12.3	15.7	19.1	21.2	23.9	26.4	29.7	32.8	36.8	40.6	45.4	50.1	55.8	61.5	-	-	-	-
560	13.7	15.2	21.4	23.7	26.7	29.5	33.2	36.7	41.2	45.5	50.8	55	-	-	-	-	-	-
630	15.4	17.1	24.1	26.7	30	33.1	37.4	41.3	46.3	51.1	57.2	63.1	-	-	-	-	-	-
710	17.4	19.3	27.2	30.1	33.9	37.4	42.1	46.5	52.2	57.6	-	-	-	-	-	-	-	-
800	19.6	21.7	30.6	33.8	38.1	42.1	47.4	52.3	58.8	64.8	-	-	-	-	-	-	-	-
900	22	24.5	34.4	38.3	42.9	47.5	53.3	58.8	-	-	-	-	-	-	-	-	-	-
1000	24.5	27.1	38.2	42.2	47.7	52.6	59.3	65.4	-	-	-	-	-	-	-	-	-	-
1200	29.4	35.5	45.9	50.6	57.2	63.1	-	-	-	-	-	-	-	-	-	-	-	-

SDR: Standard Dimension Ratio Pipe OD to wall thickness.

PE fittings

Moulded bend 90°

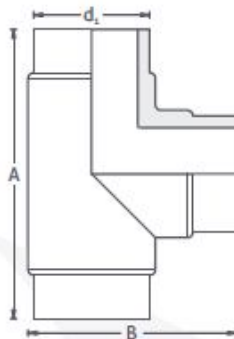
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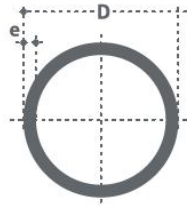
Code	d_1	A
PEBE020	20	22
PEBE025	25	27
PEBE032	32	35
PEBE040	40	44
PEBE050	50	53
PEBE063	63	66
PEBE075	75	80
PEBE090	90	95
PEBE110	110	115
PEBE125	125	130
PEBE140	140	145
PEBE160	160	167
PEBE180	180	186
PEBE200	200	205
PEBE225	225	225

Moulded Tee 90°

Type: Butt Weld



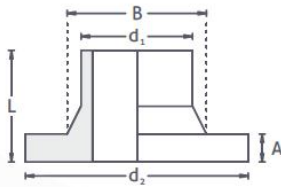
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PETE020	20	78	38
PETE025	25	83	40
PETE032	32	87	42
PETE040	40	92	45
PETE050	50	100	50
PETE063	63	128	67
PETE075	75	150	77
PETE090	90	200	102
PETE110	110	255	128
PETE125	125	250	128
PETE140	140	293	145
PETE160	160	318	161
PETE180	180	353	177
PETE200	200	385	190
PETE225	225	440	206

**Please note:**

- All dimensions in mm
- SDR Rating / Pipe Specs Standard to be specified
- Dimensions may change without prior notice
- Please refer pipe wall thickness chart for thickness

Moulded stubend, adaptor - short neck

Type: Butt Weld

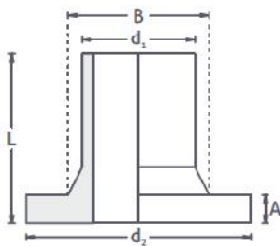


Code	d ₁	B	D ₂	L	SDR17 (A)	SDR11 (A)	SDR9 (A)	SDR7.4 (A)
PESE020	20	27	45	52	7	7	7	7
PESE025	25	33	58	53	9	9	9	9
PESE032	32	40	68	52	10	10	10	10
PESE040	40	50	78	51	11	11	11	11
PESE050	50	61	88	53	12	12	12	12
PESE063	63	75	95	50	14	15	17	19
PESE075	75	88	108	50	16	17	18	21
PESE090	90	103	129	80	17	18	20	22
PESE110	110	124	158	80	18	19	22	23
PESE125	125	128	158	80	18	25	28	31
PESE140	140	151	187	80	18	25	29	31
PESE160	160	168	213	80	18	26	29	32
PESE180	180	190	213	80	20	30	34	36
PESE200	200	225	270	95	24	32	36	39
PESE225	225	230	270	95	24	32	36	39
PESE250	250	284	322	100	25	35	38	42
PESE280	280	294	334	100	25	35	38	42
PESE315	315	335	380	100	25	35	38	42
PESE355	355	366	442	110	30	40	45	50
PESE400	400	420	495	110	33	45	50	55
PESE450	450	470	545	110	46	45	50	55
PESE500	500	520	596	125	46	60	65	72
PESE560	560	580	657	125	50	60	65	72
PESE630	630	650	710	130	50	60	65	72
PESE710	710	735	800	130	50	60	65	72
PESE800	800	825	940	130	50	60	65	72
PESE900	900	940	1050	130	50	60	65	72
PESE1000	1000	1025	1125	130	60	60	65	72
PESE1200	1200	1230	1330	170	70	80	90	100

SDR 26 / 33 / 41 also available
Thickness as per SDR chart on page 22

Long neck stubend

Weld Type: Socket

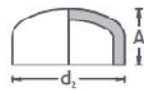


Code	d ₁	b	D ₂	h ₁	L	SDR17 (A)	SDR11 (A)	SDR9 (A)	SDR7.4 (A)
PESE050	50	61	88	13	85	12	12	12	12
PESE063	63	75	102	16	99	14	15	17	19
PESE075	75	89	122	18	111	16	17	18	21
PESE090	90	105	138	19	121	17	18	20	22
PESE110	110	125	158	19	135	18	19	22	23
PESE125	125	132	158	26	147	18	25	28	31
PESE140	140	155	188	26	156	18	25	29	31
PESE160	160	175	212	26	160	18	26	29	32
PESE180	180	180	212	31	169	20	30	34	36
PESE200	200	232	268	33	192	24	32	36	39
PESE225	225	235	268	33	183	24	32	36	39
PESE250	250	285	320	35	205	25	35	38	42
PESE280	280	291	320	36	206	25	35	38	42
PESE315	315	335	370	36	226	25	35	38	42
PESE355	355	373	430	40	245	30	40	45	50
PESE400	400	427	482	45	270	33	45	50	55

SDR 26 / 33 / 41 also available
Thickness as per SDR chart on page 22

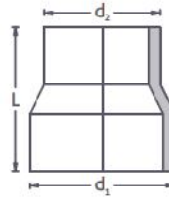
Moulded end cap

Type: Butt Weld



Code	d ₁	L	Code	d ₁	L
PEEC020	20	15	PEEC250	250	50
PEEC025	25	16	PEEC280	280	55
PEEC032	32	18	PEEC315	315	60
PEEC040	40	21	PEEC355	355	65
PEEC050	50	24	PEEC400	400	70
PEEC063	63	28	PEEC450	450	80
PEEC075	75	30	PEEC500	500	85
PEEC090	90	33	PEEC560	560	95
PEEC110	110	37	PEEC630	630	105
PEEC125	125	40	PEEC710	710	115
PEEC140	140	43	PEEC800		
PEEC160	160	45	PEEC900		
PEEC180	180	50	PEEC1000		
PEEC200	200	50	PEEC1100		
PEEC225	225	50	PEEC1200		

Larger sizes available on request.
SDR 26 / 33 / 41 also available
Thickness as per SDR chart on page 22

Moulded concentric reducer**Type: Butt Weld**

Code	d ₁	d ₂	L
PECR032020	32	20	50
PECR032025	32	25	50
PECR040025	40	25	40
PECR040032	40	32	40
PECR050025	50	25	50
PECR050032	50	32	50
PECR050040	50	40	50
PECR063032	63	32	60
PECR063040	63	40	60
PECR063050	63	50	60
PECR075040	75	40	70
PECR075050	75	50	70
PECR075063	75	63	85
PECR090040	90	40	100
PECR090050	90	50	75
PECR090063	90	63	75
PECR090075	90	75	75
PECR110040	110	40	105
PECR110050	110	50	90
PECR110063	110	63	105
PECR110075	110	75	95
PECR110090	110	90	100
PECR125040	125	40	110
PECR125050	125	50	110
PECR125063	125	63	120
PECR125075	125	75	100
PECR125090	125	90	110
PECR125110	125	110	102
PECR140040	140	40	110
PECR140050	140	50	110
PECR140063	140	63	110
PECR140075	140	75	110
PECR140090	140	90	110
PECR140110	140	110	110
PECR140125	140	125	110
PECR160040	160	40	120
PECR160050	160	50	120
PECR160063	160	63	120
PECR160075	160	75	120
PECR160090	160	90	120
PECR160110	160	110	120
PECR160125	160	125	120
PECR160140	160	140	120
PECR180050	180	50	120
PECR180063	180	63	120
PECR180075	180	75	120
PECR180090	180	90	120
PECR180110	180	110	120

Code	d ₁	d ₂	L
PECR180125	180	125	120
PECR180140	180	140	120
PECR200050	200	50	120
PECR200063	200	63	120
PECR200075	200	75	120
PECR200090	200	90	120
PECR200110	200	110	120
PECR200125	200	125	120
PECR200140	200	140	120
PECR200160	200	160	120
PECR200180	200	180	120
PECR225090	225	90	120
PECR225110	225	110	120
PECR225125	225	125	120
PECR225140	225	140	115
PECR225160	225	160	115
PECR225180	225	180	115
PECR225200	225	200	115
PECR250090	250	90	120
PECR250110	250	110	120
PECR250125	250	125	120
PECR250140	250	140	115
PECR250160	250	160	115
PECR250180	250	180	115
PECR250200	250	200	115
PECR250225	250	225	115
PECR280090	280	90	120
PECR280110	280	110	120
PECR280125	280	125	120
PECR280140	280	140	115
PECR280160	280	160	115
PECR280180	280	180	115
PECR280200	280	200	115
PECR280225	280	225	115
PECR280250	280	250	115
PECR315090	315	90	120
PECR315110	315	110	120
PECR315125	315	125	120
PECR315140	315	140	120
PECR315160	315	160	120
PECR315180	315	180	120
PECR315200	315	200	120
PECR315225	315	225	120
PECR315250	315	250	120
PECR315280	315	280	120
PECR355090	355	90	120
PECR355110	355	110	120

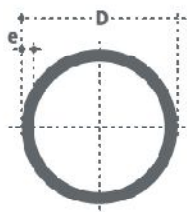
Code	d ₁	d ₂	L
PECR355160	355	160	120
PECR355180	355	180	120
PECR355200	355	200	120
PECR355225	355	225	120
PECR355250	355	250	120
PECR355280	355	280	120
PECR355315	355	315	120
PECR400160	400	160	125
PECR400180	400	180	125
PECR400200	400	200	125
PECR400225	400	225	125
PECR400250	400	250	125
PECR400280	400	280	125
PECR400315	400	315	125
PECR400355	400	355	125
PECR450160	450	160	125
PECR450180	450	180	125
PECR450200	450	200	125
PECR450225	450	225	125
PECR450250	450	250	125
PECR450280	450	280	125
PECR450315	450	315	125
PECR450355	450	355	125
PECR500200	500	200	125
PECR500225	500	225	125
PECR500250	500	250	125
PECR500280	500	280	125
PECR500315	500	315	125
PECR500355	500	355	125
PECR500400	500	400	125
PECR500450	500	450	125
PECR560450	560	450	125
PECR560500	560	500	125
PECR630400	630	400	125
PECR630450	630	450	125
PECR630500	630	500	125
PECR630560	630	560	125

Larger sizes available on request up to 1200mm.
Thickness as per SDR chart on page 22

Eccentric Reducers also available



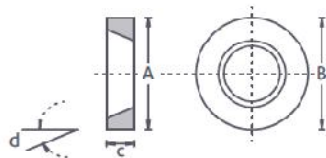
Shortneck long spigot also available.



Please note:

- All dimensions in mm
- SDR Rating / Pipe Specs Standard to be specified
- Dimensions may change without prior notice
- Please refer pipe wall thickness chart for thickness

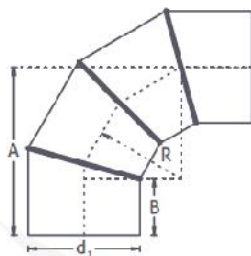
Butterfly valve spacer



Code	Size	SDR 11				SDR 17			
		A	B	C	d*	A	B	C	d*
PEBV110	110	89	160	14	20	96	160	25	25
PEBV125	125	102	192	25	25	110	192	25	20
PEBV140	140	114	192	25	20	125	192	25	25
PEBV160	160	130	213	25	25	141	213	25	20
PEBV200	200	163	270	40	30	176	270	25	30
PEBV225	225	183	270	25	25	197	270	30	30
PEBV250	250	203	334	60	25	220	334	30	30
PEBV280	280	228	334	30	30	246	334	30	20
PEBV315	315	256	380	60	30	277	380	30	30
PEBV355	355	289	444	60	30	312	444	40	30
PEBV400	400	325	495	100	25	352	495	40	30
PEBV450	450	366	545	100	25	396	545	60	30
PEBV500	500	407	602	100	25	440	602	50	25
PEBV630	630	513	708	55	20	-	-	-	-

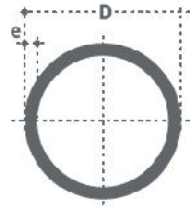
SDR 7.4 / 9 / 13.6 / 21 / 26 / 33 also available

Fabricated segment bend 90°
Type: Butt Weld



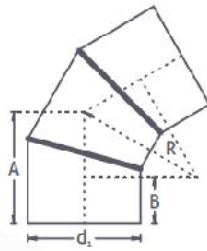
Code	OD	A	B	R
PEBEF 110	110	265	100	165
PEBEF 125	125	338	150	188
PEBEF 140	140	360	150	210
PEBEF 160	160	390	150	240
PEBEF 180	180	425	150	270
PEBEF 200	200	450	150	300
PEBEF 225	225	488	150	338
PEBEF 250	250	625	250	375
PEBEF 280	280	670	250	420
PEBEF 315	315	777	300	477
PEBEF 355	355	833	300	533
PEBEF 400	400	900	300	600
PEBEF 450	450	975	300	675
PEBEF 500	500	1100	350	750
PEBEF 560	560	1190	350	840
PEBEF 630	630	1295	350	945
PEBEF 710	710	1415	350	1065
PEBEF 800	800	1550	350	1200

Long Radius, R = 2, 3 etc. also available.
Thickness as per SDR chart on page 22

**Please note:**

- All dimensions in mm
- SDR Rating / Pipe Specs Standard to be specified
- Dimensions may change without prior notice
- Please refer pipe wall thickness chart for thickness

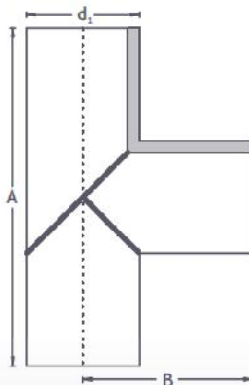
Fabricated segment bend 45°, 60°, 30°. Type: Butt Weld



Code	OD	A	B	R
PEBEF 110	110	168	100	165
PEBEF 125	125	227	150	188
PEBEF 140	140	237	150	210
PEBEF 160	160	249	150	240
PEBEF 180	180	261	150	270
PEBEF 200	200	274	150	300
PEBEF 225	225	290	150	338
PEBEF 250	250	412	250	375
PEBEF 280	280	474	250	420
PEBEF 315	315	498	300	477
PEBEF 355	355	520	300	533
PEBEF 400	400	548	300	600
PEBEF 450	450	580	300	675
PEBEF 500	500	665	350	750
PEBEF 560	560	698	350	840
PEBEF 630	630	741	350	945
PEBEF 710	710	965	350	1065
PEBEF 800	800	1043	350	1200

5° to 90°, 120°, 150° & 180° deg bends available.
Long Radius, R = 2, 3 etc. also available.

Fabricated segment tee equal Type: Butt Weld



Code	OD	A	B
PETEF 110	110	500	250
PETEF 125	125	500	250
PETEF 140	140	500	500
PETEF 160	160	600	500
PETEF 180	180	620	500
PETEF 200	200	650	500
PETEF 225	225	650	550
PETEF 250	250	700	650
PETEF 280	280	700	650
PETEF 315	315	800	700
PETEF 355	355	800	700
PETEF 400	400	1000	1100
PETEF 450	450	1100	1100
PETEF 500	500	1200	1200
PETEF 560	560	1200	1200
PETEF 630	630	1200	1200
PETEF 710	710	1500	1700
PETEF 800	800	1600	1700

Short Segment sizes per IS 8360 available.
SDR 26 / 33 / 41 also available
Thickness as per SDR chart on page 22

Reducing tee



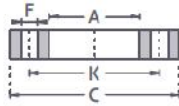
Fabricated 'Y's also available



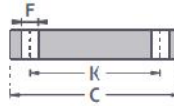
Moulded backing flanges

- a) With steel inserts
- b) Without steel inserts

Slip-on



Blind



Size	ASA 150lbs, ANSI 16.5					BS 10 Table D					DIN 2501				
d	A	K	C	F	Bolt	A	K	C	F	Bolt	A	K	C	F	Bolt
20	32	60.5	90	4 X 16	M12	32	67	95	4 X 14	M12	28	65	95	4 x 14	M12
25	37	70	98	4 X 16	M12	37	73	100	4 X 14	M12	34	75	105	4 x 14	M12
32	44	79.5	108	4 X 16	M12	44	83	115	4 X 14	M12	42	85	115	4 x 14	M12
40	52	89	117	4 X 16	M12	52	87	120	4 X 14	M12	51	100	140	4 X 18	M16
50	62	98.5	127	4 X 16	M12	62	98	135	4 X 14	M12	62	110	150	4 X 18	M16
63	78	120.5	152	4 X 20	M16	78	114	150	4 X 18	M16	78	125	165	4 X 18	M16
75	92	139.5	178	4 X 20	M16	92	127	165	4 X 18	M16	92	145	185	4 X 18	M16
90	108	152	191	4 X 20	M16	108	146	185	4 X 18	M16	108	160	200	8 X 18	M16
110	128	190.5	229	8 X 20	M16	128	178	215	4 X 18	M16	128	180	220	8 X 18	M16
125	140	216	254	8 X 23	M16	140	210	255	8 X 18	M16	135	180	220	8 X 18	M16
140	158	216	254	8 X 23	M16	158	210	255	8 X 18	M16	158	210	250	8 X 18	M16
160	178	241	279	8 X 23	M20	178	235	280	8 X 18	M16	178	240	285	8 X 23	M20
180	195	241	279	8 X 23	M20	195	235	280	8 X 18	M16	188	240	285	8 X 23	M20
200	235	298.5	343	8 X 23	M20	235	297	335	8 X 18	M16	235	295	340	8 X 23	M20
225	240	298.5	343	8 X 23	M20	240	297	335	8 X 18	M16	238	295	340	8 X 23	M20
250	290	362	406	12 X 26	M24	290	356	405	8 X 22	M20	288	350	395	12 X 23	M20
280	300	362	406	12 X 26	M24	300	356	405	8 X 22	M20	294	350	395	12 X 23	M20
315	345	432	483	12 X 26	M24	345	406	455	12 X 22	M20	338	400	445	12 X 23	M20
355	376	476	535	12 X 29	M24	376	470	525	12 X 26	M24	376	460	505	16 X 23	M20
400	430	540	600	16 X 29	M24	430	521	580	12 X 26	M24	430	515	565	16 X 27	M24
450	480	578	635	16 X 32	M30	480	584	640	12 X 26	M24	517	565	615	20 X 27	M24
500	533	635	700	20 X 32	M30	533	641	705	16 X 26	M24	533	620	670	20 X 27	M24
560	590	692	760	20 X 32	M30	590	699	760	16 X 30	M27	618	725	780	20 X 30	M27
630	660	749	813	20 X 35	M30	660	756	825	16 X 30	M27	645	725	780	20 X 30	M27
710	745	864	927	28 X 35	M33	745	845	910	20 X 30	M27					
800	835	978	1060	28 X 41	M33	835	984	1060	20 X 36	M33					

Galvanized Steel, Stainless Steel Flanges available Table E & Table F also.
HDPE Flanges with Steel Inserts as per ASA 150 and DIN 2501 available.
 Flange thickness provided as per pressure ratings requirement.