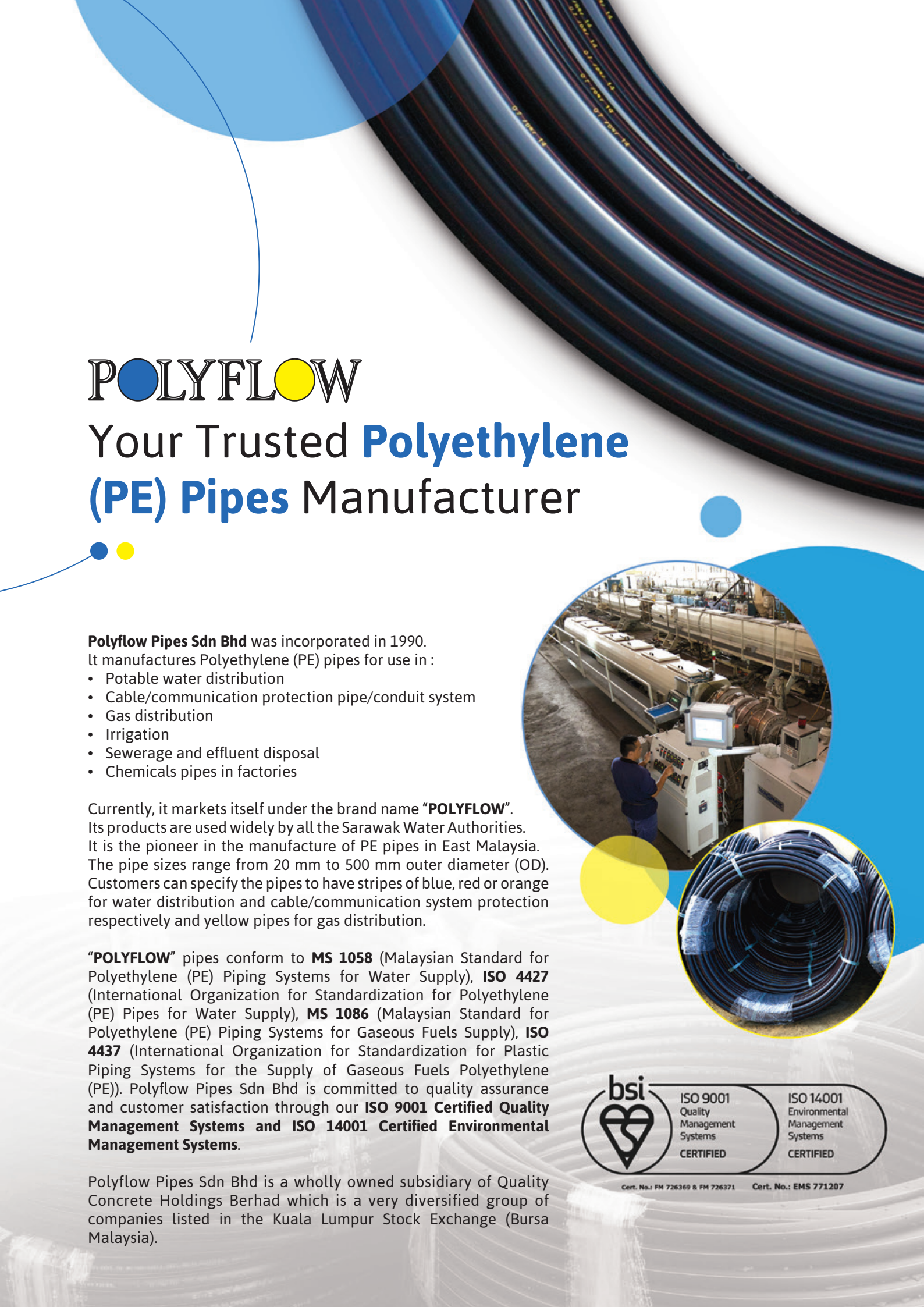




Company Profile

POLYFLOW PIPES SDN BHD

[199001005833 (197401-H)]



POLYFLOW

Your Trusted **Polyethylene (PE) Pipes** Manufacturer

Polyflow Pipes Sdn Bhd was incorporated in 1990.

It manufactures Polyethylene (PE) pipes for use in :

- Potable water distribution
- Cable/communication protection pipe/conduit system
- Gas distribution
- Irrigation
- Sewerage and effluent disposal
- Chemicals pipes in factories

Currently, it markets itself under the brand name **"POLYFLOW"**.

Its products are used widely by all the Sarawak Water Authorities.

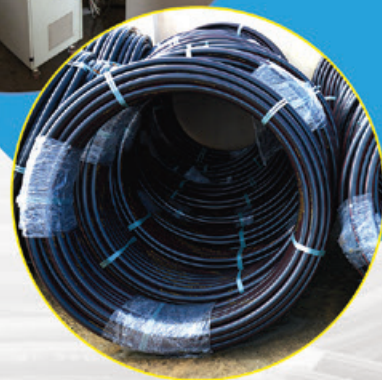
It is the pioneer in the manufacture of PE pipes in East Malaysia.

The pipe sizes range from 20 mm to 500 mm outer diameter (OD).

Customers can specify the pipes to have stripes of blue, red or orange for water distribution and cable/communication system protection respectively and yellow pipes for gas distribution.

"POLYFLOW" pipes conform to **MS 1058** (Malaysian Standard for Polyethylene (PE) Piping Systems for Water Supply), **ISO 4427** (International Organization for Standardization for Polyethylene (PE) Pipes for Water Supply), **MS 1086** (Malaysian Standard for Polyethylene (PE) Piping Systems for Gaseous Fuels Supply), **ISO 4437** (International Organization for Standardization for Plastic Piping Systems for the Supply of Gaseous Fuels Polyethylene (PE)). Polyflow Pipes Sdn Bhd is committed to quality assurance and customer satisfaction through our **ISO 9001 Certified Quality Management Systems** and **ISO 14001 Certified Environmental Management Systems**.

Polyflow Pipes Sdn Bhd is a wholly owned subsidiary of Quality Concrete Holdings Berhad which is a very diversified group of companies listed in the Kuala Lumpur Stock Exchange (Bursa Malaysia).



ISO 9001
Quality
Management
Systems
CERTIFIED

ISO 14001
Environmental
Management
Systems
CERTIFIED

Cert. No.: FM 726369 & FM 726371

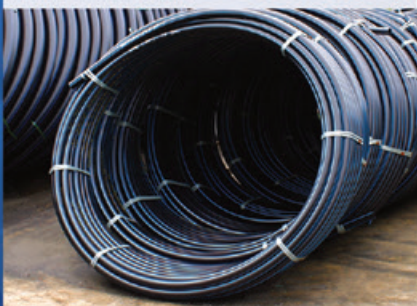
Cert. No.: EMS 771207

Our Products

WATER PE PIPES

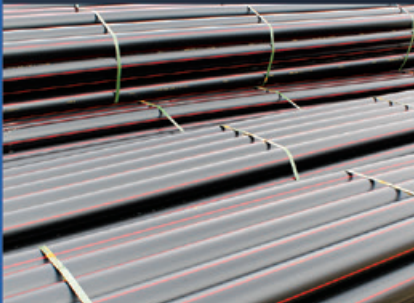


Blue Stripe Water Pipes
(Straight lengths)



Blue Stripe Water Pipes
(Coiled lengths)

CABLE/COMMUNICATION PE PIPES



**Red/Orange Stripe
Cable/Communication Pipes**
(Straight lengths)



**Red/Orange Stripe
Cable/Communication Pipes**
(Coiled lengths)

GAS PE PIPES



Yellow Gas Pipes
(Straight lengths)



Yellow Gas Pipes
(Coiled lengths)

FITTINGS



Push Fit Compression Fittings



Tapping Saddles



Fabricated Fittings

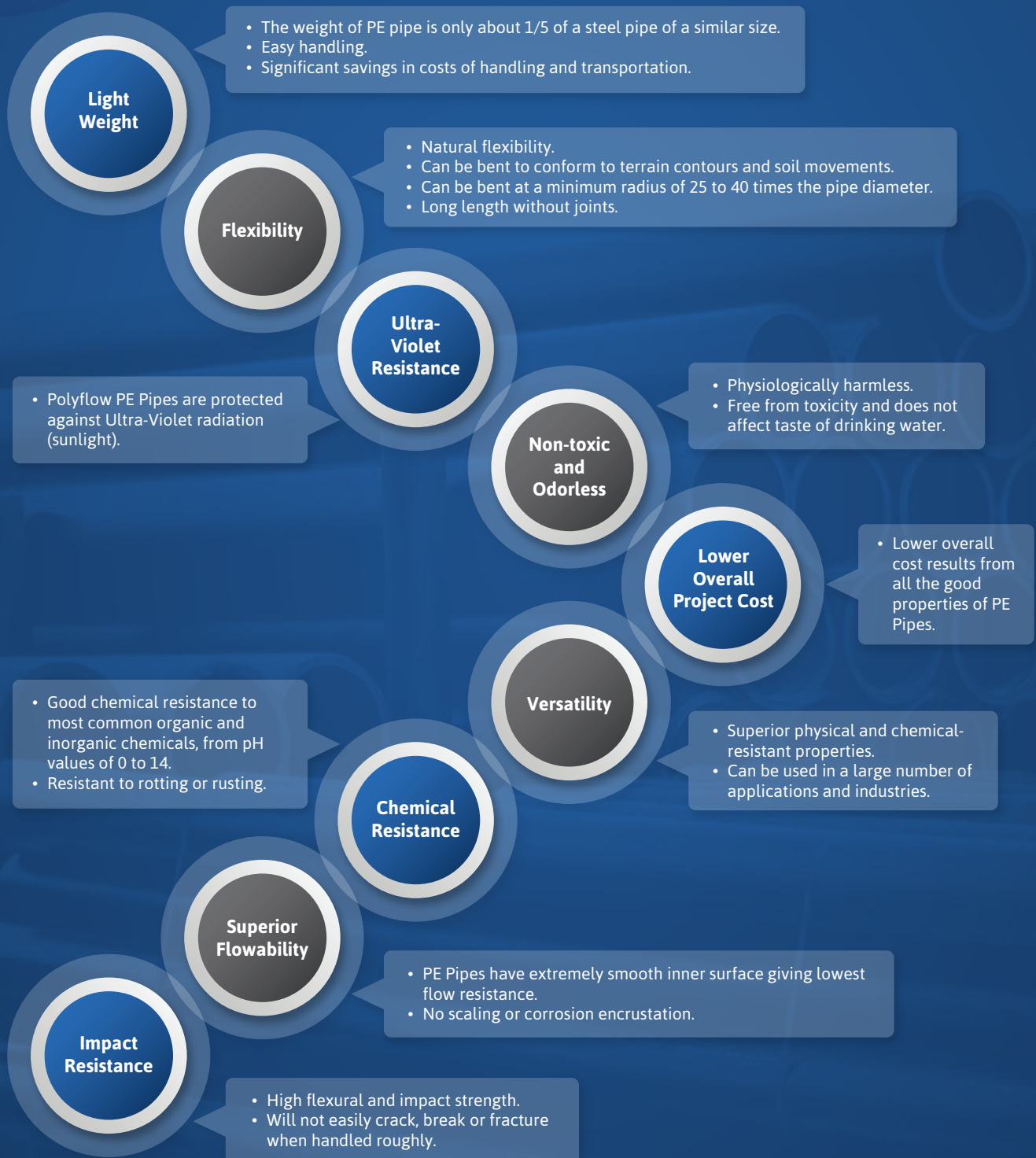


End Caps, Stub Ends and Flanges



Electrofusion Fittings

Properties of High Density Polyethylene Pipes



Applications of PE Pipes

1. Potable Water Distribution - On land or underwater.
2. Irrigation, Agriculture and Aquaculture.
3. Sewerage and Effluent Disposal.
4. Pipes Relining.
5. Conveyance of Chemicals.
6. Gas Distribution.
7. Cable/Communication Protection Pipe/Conduit System.

Back-Up Service from Manufacturer

- Installation & Welding Services.
- Technical Advice Available.
- Training on Welding provided for Pipe Installation.

Certification and Standards



Polyflow Pipes Sdn Bhd
Quality Management Systems and
Environmental Management Systems
of PE pipes manufacturing are
certified with **ISO 9001 and ISO 14001**
by **British Standard Institution (BSI)**



"Polyflow" Water
Pipes are certified
by **SIRIM QAS**
International Sdn
Bhd

Polyflow Pipes Product Standards

- MS 1058 • ISO 4427 For Water Supply
- MS 1086 • ISO 4437 For Gaseous Fuels
- MS 1058 • BS EN50086-2-4 • ASTM D3350 For Cable/Communication Protection Pipe/Conduit Systems

Polyflow Pipes factory conducts the following Quality Assurance Test :-

- a) Dimensional : Outside Diameter, Wall Thickness, Length, Circular Cross-section
- b) Visual : Surface Finish, Marking
- c) Weight : According to Standards
- d) Performance : Internal Pressure Creep Test
- e) Thermal : Dimensional Changes after subjection to heat
- f) Tensile Strength : Elongation Test
- g) Thermal Stability : Oxidation Induction Time

Typical Properties of HDPE

PROPERTIES	TESTING METHOD	UNIT	VALUE
Density	ISO 1183	G/cc	0.954
Melt Index, Condition 190°C/5kg	ISO 1133	G/10min	0.2-1.4
Thermal Stability	MS 1058	min	>20
ESCR, Condition A & B, F ₅₀ F ₂₀	ASTM D1693	h	>1000 >500
Tensile Yield Strength	ISO R 527	MPa	22
Tensile Strength, break	ISO R 527	MPa	32
Ultimate Elongation	ISO R 527	%	>500
Flexural Modulus	ASTM D 3350	MPa	758

Polyethylene (PE80) Pipes for Water Supply

MS 1058 : PART 2 : 2005 • ISO 4427 : PART 2 : 2007

DIMENSIONS:

Nominal OD	PE80										
	NB	PN 6 SDR21		PN 8 SDR17		PN 10 SDR13.6		PN 12.5 SDR11		PN 16 SDR9	
(mm)	(inches)	t (min)	id	t (min)	id	t (min)	id	t (min)	id	t (min)	id
16											
20								2.0	15.6	2.3	15.0
25						2.0	20.6	2.3	20.0	3.0	18.6
32	1.0			2.0	27.6	2.4	26.8	3.0	25.6	3.6	24.2
40				2.4	34.8	3.0	33.4	3.7	32.0	4.5	30.4
50	1.5	2.4	44.8	3.0	43.6	3.7	42.0	4.6	40.2	5.6	38.0
63	2.0	3.0	56.6	3.8	54.8	4.7	53.0	5.8	50.6	7.1	47.8
75	2.5	3.6	67.2	4.5	65.4	5.6	63.0	6.8	60.6	8.4	57.2
90	3.0	4.3	80.8	5.4	78.4	6.7	75.8	8.2	72.6	10.1	68.6
110	4.0	5.3	98.6	6.6	96.0	8.1	92.8	10.0	88.8	12.3	84.0
125	5.0	6.0	112.2	7.4	109.2	9.2	105.4	11.4	100.8	14.0	95.4
160	6.0	7.7	143.6	9.5	139.8	11.8	135.0	14.6	129.2	17.9	122.2
180	6.5	8.6	161.8	10.7	157.4	13.3	151.8	16.4	145.4	20.1	137.6
200		9.6	179.6	11.9	174.8	14.7	169.0	18.2	161.6	22.4	152.8
225	8.0	10.8	202.2	13.4	196.6	16.6	190.0	20.5	181.8	25.2	171.8
250	9.0	11.9	224.8	14.8	218.8	18.4	211.2	22.7	202.2	27.9	191.2
280	10.0	13.4	251.6	16.6	245.0	20.6	236.6	25.4	226.4	31.3	214.0
315	11.0	15.0	283.4	18.7	275.6	23.2	266.0	28.6	254.8	35.2	240.8
355	13.0	16.9	319.4	21.2	310.4	26.1	300.0	32.2	287.2	39.7	271.4
400	14.0	19.1	359.6	23.7	350.0	29.4	338.0	36.3	323.6	44.7	306.0
450	16.0	21.5	404.6	26.7	393.8	33.1	380.2	40.9	364.0	50.3	344.2
500	18.0	23.9	449.6	27.7	439.4	36.8	422.6	45.4	404.4	55.8	382.6
560	20.0	26.7	503.8	33.2	490.0	41.2	473.2	50.8	453.2		
630	22.0	30.0	566.8	37.4	551.2	46.3	532.6	57.2	509.6		
710		33.9	638.6	42.1	621.4	52.2	600.2				
800		38.1	719.8	47.4	700.2	58.8	676.4				
900		42.9	809.8	53.3	787.8						
1000		47.7	899.6	59.3	875.2						

LENGTHS AVAILABLE:

OD 20/25/32 mm	100/200/300 m coiled lengths
OD 50/63 mm	100 m coiled lengths
OD 75/90/110 mm	50 m coiled & 6.1 m straight lengths
OD 160 mm above	Available on request

KEY:

OD : Outer Diameter
 t (min) : Minimum Wall Thickness
 id : Internal Diameter
 PN : Nominal Pressure (bar)
 NB : Nominal Bore of Metal Pipes
 SDR : Standard Dimension Ratio

Polyethylene (PE100) Pipes for Water Supply

MS 1058 : PART 2 : 2005 • ISO 4427 : PART 2 : 2007

DIMENSIONS:

Nominal OD	PE100												
	NB	PN 6 SDR26		PN 8 SDR21		PN 10 SDR17		PN 12.5 SDR13.6		PN 16 SDR11		PN 20 SDR9	
(mm)	(inches)	t (min)	id	t (min)	id	t (min)	id	t (min)	id	t (min)	id	t (min)	id
16													
20										2.0	15.6	2.3	15.0
25								2.0	20.6	2.3	20.0	3.0	18.6
32	1.0					2.0	27.6	2.4	26.8	3.0	25.6	3.6	24.2
40				2.0	35.6	2.4	34.8	3.0	33.4	3.7	32.0	4.5	30.4
50	1.5	2.0	45.6	2.4	44.8	3.0	43.6	3.7	42.0	4.6	40.2	5.6	38.0
63	2.0	2.5	57.6	3.0	56.6	3.8	54.8	4.7	53.0	5.8	50.6	7.1	47.8
75	2.5	2.9	68.8	3.6	67.2	4.5	65.4	5.6	63.0	6.8	60.6	8.4	57.2
90	3.0	3.5	82.4	4.3	80.8	5.4	78.4	6.7	75.8	8.2	72.6	10.1	68.6
110	4.0	4.2	101.0	5.3	98.6	6.6	96.0	8.1	92.8	10.0	88.8	12.3	84.0
125	5.0	4.8	114.8	6.0	112.2	7.4	109.2	9.2	105.4	11.4	100.8	14.0	95.4
160	6.0	6.2	146.8	7.7	143.6	9.5	139.8	11.8	135.0	14.6	129.2	17.9	122.2
180	6.5	6.9	165.4	8.6	161.8	10.7	157.4	13.3	151.8	16.4	145.4	20.1	137.6
200		7.7	183.6	9.6	179.6	11.9	174.8	14.7	169.0	18.2	161.6	22.4	152.8
225	8.0	8.6	206.6	10.8	202.2	13.4	196.6	16.6	190.0	20.5	181.8	25.2	171.8
250	9.0	9.6	229.6	11.9	224.8	14.8	218.8	18.4	211.2	22.7	202.2	27.9	191.2
280	10.0	10.7	257.4	13.4	251.6	16.6	245.0	20.6	236.6	25.4	226.4	31.3	214.0
315	11.0	12.1	289.4	15.0	283.4	18.7	275.6	23.2	266.0	28.6	254.8	35.2	240.8
355	13.0	13.6	326.2	16.9	319.4	21.2	310.4	26.1	300.0	32.2	287.2	39.7	271.4
400	14.0	15.3	367.6	19.1	359.6	23.7	350.0	29.4	338.0	36.3	323.6	44.7	306.0
450	16.0	17.2	413.6	21.5	404.6	26.7	393.8	33.1	380.2	40.9	364.0	50.3	344.2
500	18.0	19.1	459.6	23.9	449.6	27.7	439.4	36.8	422.6	45.4	404.4	55.8	382.6
560	20.0	21.4	514.8	26.7	503.8	33.2	490.0	41.2	473.2	50.8	453.2		
630	22.0	24.1	579.2	30.0	566.8	37.4	551.2	46.3	532.6	57.2	509.6		
710		27.2	652.8	33.9	638.6	42.1	621.4	52.2	600.2				
800		30.6	735.6	38.1	719.8	47.4	700.2	58.8	676.4				
900		34.4	827.2	42.9	809.8	53.3	787.8						
1000		38.2	919.6	47.7	899.6	59.3	875.2						

LENGTHS AVAILABLE:

OD 20/25/32 mm	100/200/300 m coiled lengths
OD 50/63 mm	100 m coiled lengths
OD 75/90/110 mm	50 m coiled & 6.1 m straight lengths
OD 160 mm above	Available on request

KEY:

OD : Outer Diameter
 t (min) : Minimum Wall Thickness
 id : Internal Diameter
 PN : Nominal Pressure (bar)
 NB : Nominal Bore of Metal Pipes
 SDR : Standard Dimension Ratio

Polyethylene Smooth Wall Pipes for Electrical Cable Installation

BLACK WITH RED STRIPES

DIMENSIONS:

Nominal OD	PIPE SERIES					
	SDR 11		SDR 13.6		SDR 17	
	Wall Thickness (mm)		Wall Thickness (mm)		Wall Thickness (mm)	
(mm)	t (min)	t (max)	t (min)	t (max)	t (min)	t (max)
20	2.0	2.3	-	-	-	-
25	2.3	2.7	2.0	2.3	-	-
32	3.0	3.4	2.4	2.8	2.0	2.3
50	4.6	5.2	3.7	4.2	3.0	3.4
63	5.8	6.5	4.7	5.3	3.8	4.3
75	6.8	7.6	5.6	6.3	4.5	5.1
90	8.2	9.2	6.7	7.5	5.4	6.1
110	10.0	11.1	8.1	9.1	6.6	7.4
125	11.4	12.7	9.2	10.3	7.4	8.3
140	12.7	14.1	10.3	11.5	8.3	9.3
160	14.6	16.2	11.8	13.1	9.5	10.6
180	16.4	18.2	13.3	14.8	10.7	11.9
200	18.2	20.2	14.7	16.3	11.9	13.2
225	20.5	22.7	16.6	18.4	13.4	14.9
250	22.7	25.1	18.4	20.4	14.8	16.4
280	25.4	28.1	20.6	22.8	16.6	18.4

LENGTHS AVAILABLE:

OD 20/25/32 mm	100/300 m coiled lengths
OD 50/63 mm	100 m coiled lengths
OD 90/110 mm	50 m coiled lengths
OD 125 mm above	6 m, 9 m, 12 m straight lengths

KEY:

OD : Outer Diameter
t (min) : Minimum Wall Thickness
t (max) : Maximum Wall Thickness
SDR : Standard Dimension Ratio

High Density Polyethylene (HDPE) Smooth Wall Conduits for Telecommunication Cable

BLACK WITH ORANGE STRIPES

DIMENSIONS:

Nominal OD	PIPE SERIES			
	SDR 11 Wall Thickness (mm)		SDR 13.6 Wall Thickness (mm)	
(mm)	t (min)	t (max)	t (min)	t (max)
32	3.0	3.4	2.4	2.8
40	3.7	4.2	3.0	3.5
50	4.6	5.2	3.7	4.2
110	10.0	11.1	8.1	9.1

LENGTHS AVAILABLE:

OD 32 mm	300 m coiled lengths
OD 40/50 mm	100 m coiled lengths
OD 110 mm	50 m coiled lengths

KEY:

OD : Outer Diameter
t (min) : Minimum Wall Thickness
t (max) : Maximum Wall Thickness
SDR : Standard Dimension Ratio

Polyethylene Pipes Yellow for Gaseous Fuels Supply

MS 1086 : PART 2 : 2007

DIMENSIONS:

Nominal OD		Maximum Outer Diameter	Standard Dimension Ratio (SDR)		
			SDR 11		
OD mm	NB inches	Max. OD mm	Minimum Thickness t _(min)	Maximum Thickness t _(max)	Internal Diameter (id)
20	½	20.3	3.0	3.4	14.0
25	¾	25.3	3.0	3.4	19.0
32	1.0	32.3	3.0	3.4	26.0
40	1.25	40.4	3.7	4.2	32.6
50	1.5	50.4	4.6	5.2	40.8
63	2.0	63.4	5.8	6.5	51.4
75	2.5	75.5	6.8	7.6	61.4
90	3.0	90.6	8.2	9.2	73.6
110	4.0	110.7	10.0	11.2	90.0
125	5.0	125.8	11.4	12.7	102.2
140	5.5	140.9	12.7	14.1	114.6
160	6.0	161.0	14.6	16.2	130.8
180	6.5	181.1	16.4	18.2	147.2
200	7.5	201.1	18.2	20.2	163.6
225	8.0	226.4	20.5	22.7	184.0
250	9.0	251.5	22.7	25.1	204.6

LENGTHS AVAILABLE:

OD 20/25/32 mm	100/300 m coiled lengths
OD 50/63 mm	100 m coiled lengths
OD 90/110 mm	50 m coiled lengths
OD 125 mm above	6 m, 9 m, 12 m straight lengths

KEY:

OD : Outer Diameter
t (min) : Minimum Wall Thickness
t (max) : Maximum Wall Thickness
 id : Internal Diameter
 NB : Nominal Bore of Metal Pipes
 SDR : Standard Dimension Ratio

Testing Guidelines for HDPE Water Pipelines



A. High Co-efficient of Expansion of HDPE Pipes

Since PE pipe has a relatively high co-efficient of expansion, the pressure test should not be carried out in a hot afternoon. In high temperature surroundings, the volume of make up water required is relatively large. If there is a sudden cooling of the pipeline during the test (due to cloudy skies or rain), then the pressure in the pipeline could rise critically over 2 times the rated pressure. Therefore, test should preferably be carried out in the cool hours (i.e. very early morning) to prevent excessive expansion of the pipeline.

B. Pressure Reduction Factor

An additional factor needed to be considered in the testing of PE pipes is the Pressure Reduction Factor. Please see overleaf for the Reference Chart. The implications are as follows:-

- The Recommended Maximum Working Pressure (in bars) is not the same figure as the Pipe Pressure number. For example, at our normal Malaysian temperature of 30 °C, a PN 10 pipe is designed for a recommended maximum working pressure of 8 bars only. Conversely, if the working pressure is 10 bars at normal temperature, then the recommended pipe should be PN12.5 instead of PN10.
- During testing of the pipes after pipes jointing has been done, the testing pressure should not be selected based on the pressure rating of the pipe at 20 °C (i.e. the Pressure No.). For example, if the ambient temperature is about 30 °C, then the recommended maximum working pressure for a PN6 pipe would be 4.8 bars. Then the appropriate testing pressure should be 1.5 times 4.8 bars or 7.2 bars or 106 psi.
- Since temperature plays such an important role in the pressure rating of the PE pipe, it also inevitably means that pipe-testing needs to be done at the correct temperature. It is advisable that testing should not be carried out in the middle of the day or even towards the late afternoon because heat accumulation by the pipe and the water inside the PE pipe can cause the water temperature to rise very high (heat absorption is accelerated by the black colour of the pipe). The pipe and the water temperature can rise so high at different positions of the pipe that the testing would be out of control and the pipe may even fail unnecessarily. Hence, it is more proper to have the pipe-testing done in the early morning hours when the pipe and the water in the pipe have not accumulated much heat yet and the temperature of the pipe material is not high.

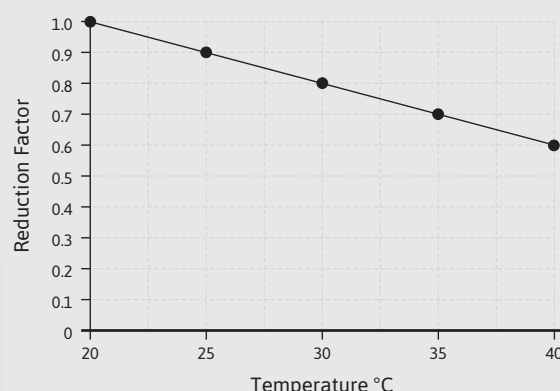
Pressure Reduction Factor

Diagram 1 shows the pressure reduction factors for use in temperatures above 20 °C and up to 40 °C. This is applicable for water and other fluids which do not adversely affect the long term properties of the PE material up to 40 °C. For use at 30 °C, the maximum recommended working pressure are tabulated in Table A.

Table A. Recommended Maximum Working pressure at 30°C

PIPE MATERIAL / TYPE	NOMINAL PRESSURE	RECOMMENDED MAXIMUM WORKING PRESSURE (BAR)
PE80 & PE100	16.0	12.8
	12.5	10.0
	10.0	8.0
	8.0	6.4
	6.0	4.8

Diagram 1 : Working pressure reduction factor versus temperature.



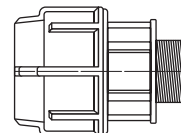
Compression Fittings

Dimension Specifications

(Conform to Standards: BS 5114, AS 4129, ISO 3458, ISO 3459, ISO 3501, ISO 3503 & ISO 14236)

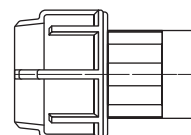
MALE THREADED ADAPTOR

- | | | |
|----------------|-------------------|-------------------|
| 1. 20mm x 1/2" | 6. 32mm x 3/4" | 11. 63mm x 2" |
| 2. 20mm x 3/4" | 7. 32mm x 1" | 12. 75mm x 2" |
| 3. 25mm x 1/2" | 8. 50mm x 1 1/2" | 13. 75mm x 2 1/2" |
| 4. 25mm x 3/4" | 9. 50mm x 2" | 14. 90mm x 3" |
| 5. 25mm x 1" | 10. 63mm x 1 1/2" | 15. 110mm x 4" |



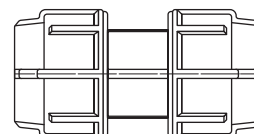
FEMALE THREADED ADAPTOR

- | | | |
|----------------|------------------|-------------------|
| 1. 20mm x 1/2" | 6. 32mm x 3/4" | 11. 75mm x 2 1/2" |
| 2. 20mm x 3/4" | 7. 32mm x 1" | 12. 90mm x 3" |
| 3. 25mm x 1/2" | 8. 50mm x 1 1/2" | 13. 110mm x 4" |
| 4. 25mm x 3/4" | 9. 63mm x 2" | |
| 5. 25mm x 1" | 10. 75mm x 2" | |



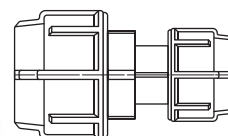
STRAIGHT COUPLER

- | | |
|----------------|------------------|
| 1. 20mm x 20mm | 5. 63mm x 63mm |
| 2. 25mm x 25mm | 6. 75mm x 75mm |
| 3. 32mm x 32mm | 7. 90mm x 90mm |
| 4. 50mm x 50mm | 8. 110mm x 110mm |



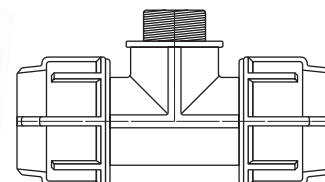
REDUCING COUPLER

- | | | |
|----------------|-----------------|------------------|
| 1. 25mm x 20mm | 6. 50mm x 32mm | 11. 75mm x 63mm |
| 2. 32mm x 20mm | 7. 63mm x 25mm | 12. 90mm x 63mm |
| 3. 32mm x 25mm | 8. 63mm x 32mm | 13. 90mm x 75mm |
| 4. 50mm x 20mm | 9. 63mm x 50mm | 14. 110mm x 90mm |
| 5. 50mm x 25mm | 10. 75mm x 50mm | |



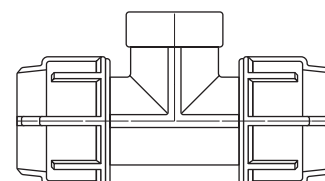
MALE THREADED TEE

- | | | |
|----------------|------------------|-------------------|
| 1. 20mm x 1/2" | 5. 25mm x 1" | 9. 63mm x 2" |
| 2. 20mm x 3/4" | 6. 32mm x 3/4" | 10. 75mm x 2 1/2" |
| 3. 25mm x 1/2" | 7. 32mm x 1" | 11. 90mm x 3" |
| 4. 25mm x 3/4" | 8. 50mm x 1 1/2" | 12. 110mm x 4" |



FEMALE THREADED TEE

- | | | |
|----------------|------------------|-------------------|
| 1. 20mm x 1/2" | 5. 25mm x 1" | 9. 63mm x 2" |
| 2. 20mm x 3/4" | 6. 32mm x 3/4" | 10. 75mm x 2 1/2" |
| 3. 25mm x 1/2" | 7. 32mm x 1" | 11. 90mm x 3" |
| 4. 25mm x 3/4" | 8. 50mm x 1 1/2" | 12. 110mm x 4" |



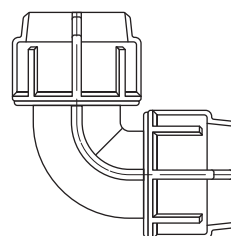
Compression Fittings

Dimension Specifications

(Conform to Standards: BS 5114, AS 4129, ISO 3458, ISO 3459, ISO 3501, ISO 3503 & ISO 14236)

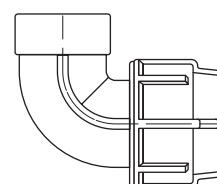
EQUAL BEND

- | | |
|----------------|------------------|
| 1. 20mm x 20mm | 5. 63mm x 63mm |
| 2. 25mm x 25mm | 6. 75mm x 75mm |
| 3. 32mm x 32mm | 7. 90mm x 90mm |
| 4. 50mm x 50mm | 8. 110mm x 110mm |



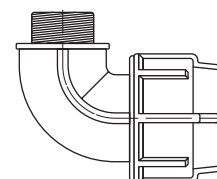
FEMALE THREADED BEND

- | | | |
|----------------|------------------|-------------------|
| 1. 20mm x 1/2" | 6. 32mm x 1/2" | 11. 75mm x 2 1/2" |
| 2. 20mm x 3/4" | 7. 32mm x 3/4" | 12. 90mm x 3" |
| 3. 25mm x 1/2" | 8. 32mm x 1" | 13. 110mm x 4" |
| 4. 25mm x 3/4" | 9. 50mm x 1 1/2" | |
| 5. 25mm x 1" | 10. 63mm x 2" | |



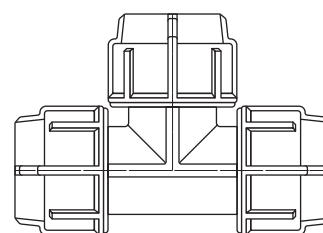
MALE THREADED BEND

- | | | |
|----------------|------------------|-------------------|
| 1. 20mm x 1/2" | 6. 32mm x 3/4" | 11. 75mm x 2 1/2" |
| 2. 20mm x 3/4" | 7. 32mm x 1" | 12. 90mm x 3" |
| 3. 25mm x 1/2" | 8. 50mm x 1 1/2" | 13. 110mm x 4" |
| 4. 25mm x 3/4" | 9. 50mm x 2" | |
| 5. 25mm x 1" | 10. 63mm x 2" | |



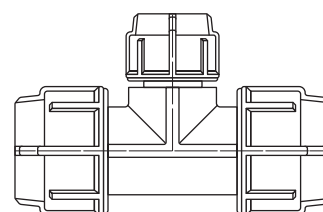
EQUAL TEE

- | | |
|----------------|------------------|
| 1. 20mm x 20mm | 5. 63mm x 63mm |
| 2. 25mm x 25mm | 6. 75mm x 75mm |
| 3. 32mm x 32mm | 7. 90mm x 90mm |
| 4. 50mm x 50mm | 8. 110mm x 110mm |



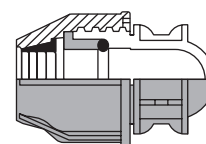
REDUCING TEE

- | | |
|----------------|------------------|
| 1. 25mm x 20mm | 7. 63mm x 50mm |
| 2. 32mm x 20mm | 8. 75mm x 50mm |
| 3. 32mm x 25mm | 9. 75mm x 63mm |
| 4. 50mm x 25mm | 10. 90mm x 63mm |
| 5. 50mm x 32mm | 11. 90mm x 75mm |
| 6. 63mm x 32mm | 12. 110mm x 90mm |



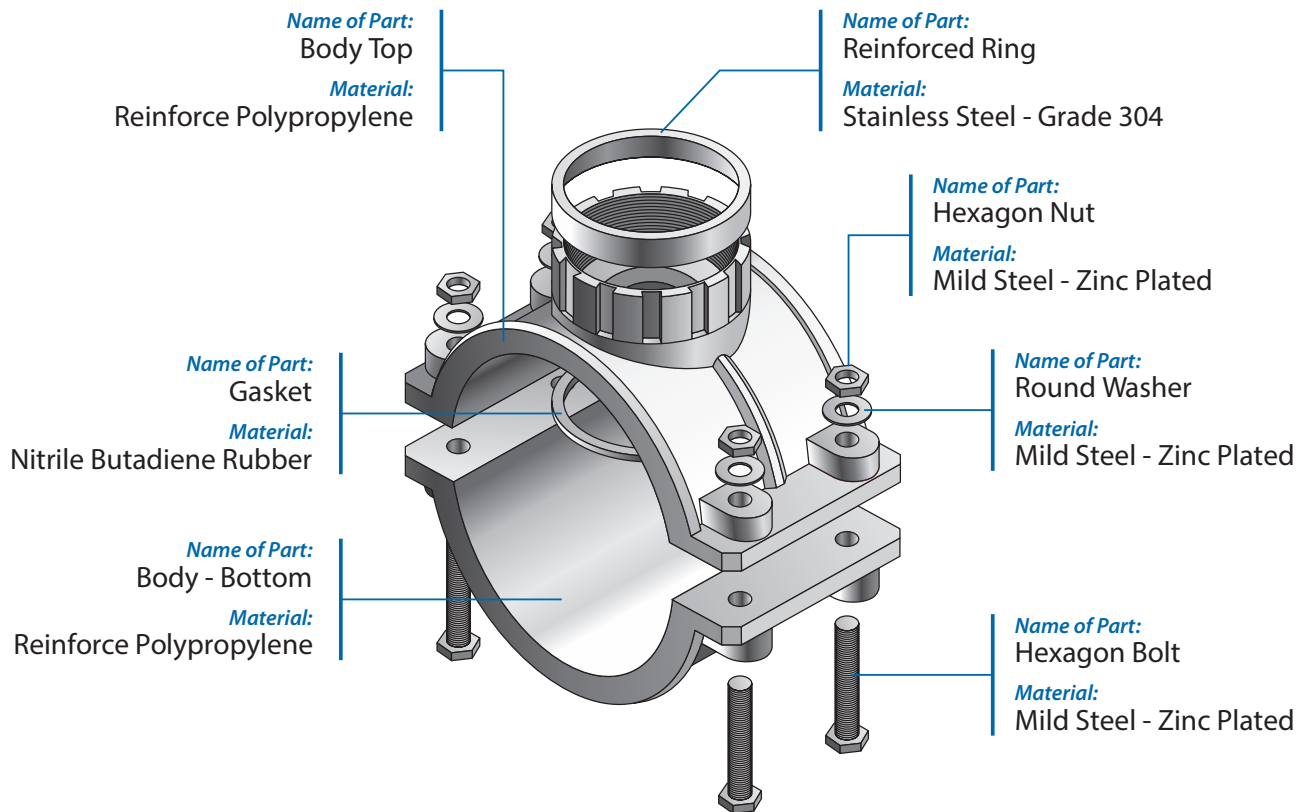
END CAP

- | | |
|----------------|------------------|
| 1. 20mm x 20mm | 5. 63mm x 63mm |
| 2. 25mm x 25mm | 6. 75mm x 75mm |
| 3. 32mm x 32mm | 7. 90mm x 90mm |
| 4. 50mm x 50mm | 8. 110mm x 110mm |



Mechanical Clamp/ Tapping Saddles

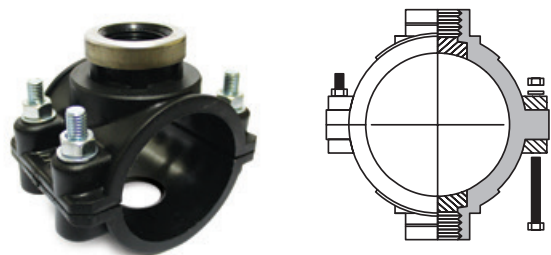
(Conform to Standards: ISO 3607, ISO 3609, UNI EN12201, DIN 8072-8074 & DIN 8077)



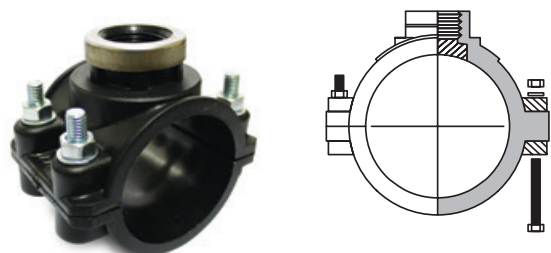
TAPPING SADDLE

- | | | |
|-------------------|--------------------|--------------------|
| 1. 32mm x 1/2" | 15. 90mm x 1/2" | 29. 160mm x 1/2" |
| 2. 32mm x 3/4" | 16. 90mm x 3/4" | 30. 160mm x 3/4" |
| 3. 32mm x 1" | 17. 90mm x 1" | 31. 160mm x 1" |
| 4. 50mm x 1/2" | 18. 90mm x 1 1/2" | 32. 160mm x 1 1/2" |
| 5. 50mm x 3/4" | 19. 90mm x 2" | 33. 160mm x 2" |
| 6. 50mm x 1" | 20. 110mm x 1/2" | 34. 180mm x 3/4" |
| 7. 63mm x 1/2" | 21. 110mm x 3/4" | 35. 180mm x 1" |
| 8. 63mm x 3/4" | 22. 110mm x 1" | 36. 180mm x 1 1/2" |
| 9. 63mm x 1" | 23. 110mm x 1 1/2" | 37. 180mm x 2" |
| 10. 75mm x 1/2" | 24. 110mm x 2" | 38. 225mm x 3/4" |
| 11. 75mm x 3/4" | 25. 125mm x 1/2" | 39. 225mm x 1" |
| 12. 75mm x 1" | 26. 125mm x 3/4" | 40. 225mm x 1 1/2" |
| 13. 75mm x 1 1/2" | 27. 125mm x 1" | 41. 225mm x 2" |
| 14. 75mm x 2" | 28. 125mm x 2" | |

Double Outlet

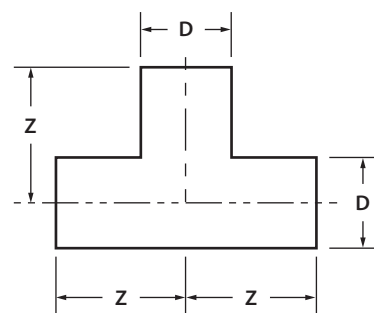
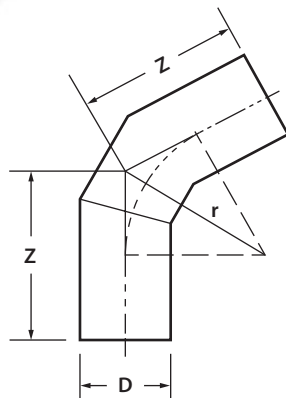
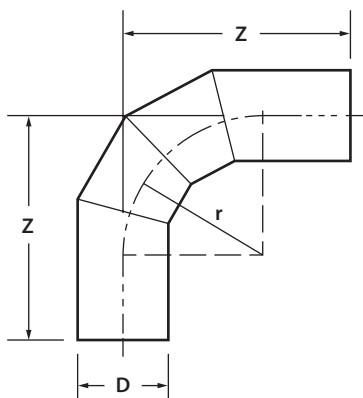


Single Outlet



Fabricated Fittings

(Conform to Standards: MS 1058, ISO 4427, ASTM D3261, BS7291 & ISO 13953)

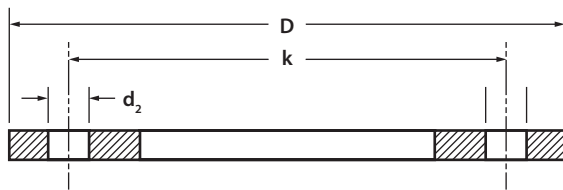


D	r	Bends			Z (TEE)
		Z (90°)	Z (60°)	Z (45°)	
63	94	244	204	190	180
90	135	285	228	206	195
110	165	315	245	218	205
125	188	338	258	228	215
160	240	390	288	249	230
225	338	488	345	290	265
250	375	625	466	412	375
280	420	670	492	424	390
345	518	818	599	515	475
400	600	900	646	548	500
450	675	975	689	580	525
500	750	1100	783	665	600
560	840	1190	835	698	630
630	945	1295	896	741	665

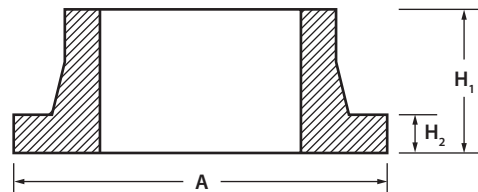
Backing Flanges and Stub Ends



(Conform to Standards:
ISO 9624 & ISO 7005-1)

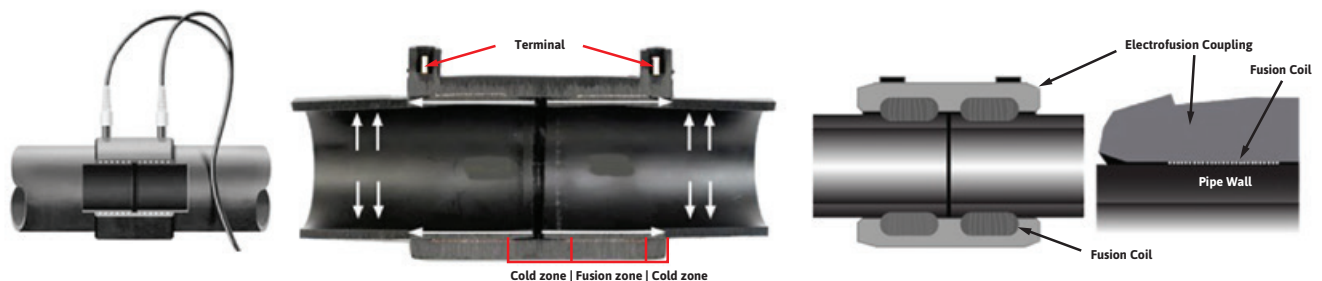


(Conform to Standards:
DIN 16963, GB/T 13663, ISO 4427,
ISO 4437, EN 1555 & EN 12201)



Pipe Size	Flange For Stub End Use	Flange Outer Diameter	Bolt Circle Diameter	Bolt Hold Diameter	No. of Bolts	Bolt Size	Stub End OD	Stub End Height	Rim Thickness
(mm)		D (mm)	k (mm)	d ₂ (mm)	No.	(mm)	A (mm)	H ₁ (mm)	H ₂ (mm)
63	50	165	125	18	4	M16	103	50	15
90	80	200	160	18	8	M16	140	80	20
110	100	220	180	18	8	M16	158	80	20
125	100	220	180	18	8	M16	158	80	25
160	150	285	240	22	8	M20	212	80	25
180	175	315	270	22	8	M20	242	80	30
225	200	340	295	22	12	M20	268	80	40
250	250	405	355	26	12	M24	320	80	40
280	250	405	355	26	12	M24	324	100	40
315	300	460	410	26	12	M24	378	100	50
345	300	460	410	26	12	M24	382	100	50
355	300	515	460	26	12	M24	430	120	50
400	350	520	470	26	16	M24	440	120	50
450	400	580	525	30	16	M27	492	120	50
500	450	640	585	30	20	M27	550	120	50
560	500	715	650	33	20	M30	614	120	50
630	600	840	770	36	20	M33	720	120	50

Electrofusion Fittings for Gas and Water Pipes



ELECTROFUSION FITTING SYSTEM

Electrofusion fittings feature a unique resistance element design, in the form of heating wire embedded on/within the outer layer in the inner wall of the fittings. The fusion is achieved in the following way:

The fittings are fixed with barcode labels which contain specification including pipe size, fusion pressure, heating temperature, SDR, heating/fusion/cooling times etc. A controller with processor unit and barcode reader will scan the barcode labels, start the fusion cycle and automatically monitor the electrofusion jointing process. When electric current is applied via an Automatic Controller equipped with power cord leads to the fittings, the plastic around the heating elements in the fitting and on the pipe surface begins to melt and form a melt pool. With continued application of current, the melt pool deepens at the pipe and fitting interface which in turn forces internal pressures to build up.

The increasing material expansion between pipe and fitting, which is hindered by the cold zones outside the Fusion (Hot) zone, leads to a buildup of a welding pressure between pipe and fitting and a homogeneous welding connection emerges.

This process is known as co-crystallization between the melted pipe and fitting material. Re-solidification during cooling phase forms a fusion joint which is as strong as the pipe itself.

As a result of this electro-fusion process, every joint will be sealed precisely to specification, automatically, every time, minimizing the risk of human error.

The effectiveness of electrofusion depends on:

- a) Preparation of the jointing surfaces.
- b) Ensuring that the surfaces to be welded have satisfactory contact during the welding and cooling cycles.

The pipe surfaces to be fused need to be scraped to remove the surface oxidation layer prior to fusion.

To prepare the jointing surfaces, the pipe surface must be scraped with an appropriate pipe scraper, as recommended by the pipe or fitting manufacturer, to remove the entire surface of the pipe over the area indicated for the fitting, to a depth of approximately 0.3mm. Metal files, rasps, emery paper & etc. are not suitable preparation tools. The scraped surface must be wiped with the recommended isopropanol impregnated pipe wipe, as recommended by the pipe or fitting manufacturer, to remove any dust residue. The prepared surfaces must be completely dry before proceeding.

All electrofusion fittings/couplings (regardless of manufacturer) require the pipe to be restrained or sufficiently supported on each side of the pipe to:

- a) Restrict movement during the fusion and cooling process.
- b) Alleviate or eliminate sources of stress and/or strain until both the fusion cycle and the cooling cycle are completed.

Electrofusion Fittings

(Conform to Standards: BS EN12201-3, EN1555-3, ISO 4427-3 & ISO 4437-3)

ELECTROFUSION COUPLER

1. 20mm	6. 75mm	11. 180mm	16. 355mm
2. 25mm	7. 90mm	12. 225mm	17. 400mm
3. 32mm	8. 110mm	13. 250mm	
4. 50mm	9. 125mm	14. 280mm	
5. 63mm	10. 160mm	15. 315mm	



ELECTROFUSION ELBOW

1. 20mm	5. 63mm	9. 125mm
2. 25mm	6. 75mm	10. 160mm
3. 32mm	7. 90mm	11. 180mm
4. 50mm	8. 110mm	



45° ELBOW



90° ELBOW

ELECTROFUSION REDUCER

1. 32mm x 25mm	7. 63mm x 32mm	13. 110mm x 90mm	19. 125mm x 75mm
2. 32mm x 20mm	8. 63mm x 25mm	14. 110mm x 75mm	20. 125mm x 63mm
3. 50mm x 32mm	9. 63mm x 20mm	15. 110mm x 63mm	21. 160mm x 110mm
4. 50mm x 25mm	10. 90mm x 75mm	16. 110mm x 50mm	22. 160mm x 90mm
5. 50mm x 20mm	11. 90mm x 63mm	17. 125mm x 110mm	23. 180mm x 160mm
6. 63mm x 50mm	12. 90mm x 32mm	18. 125mm x 90mm	



ELECTROFUSION EQUAL AND UNEQUAL TEE

1. 25mm x 25mm	9. 63mm x 32mm	17. 90mm x 32mm	25. 160mm x 160mm
2. 25mm x 20mm	10. 63mm x 25mm	18. 110mm x 110mm	26. 160mm x 125mm
3. 32mm x 32mm	11. 63mm x 20mm	19. 110mm x 90mm	27. 160mm x 110mm
4. 50mm x 25mm	12. 75mm x 75mm	20. 110mm x 75mm	28. 160mm x 90mm
5. 50mm x 20mm	13. 90mm x 90mm	21. 110mm x 63mm	29. 180mm x 180mm
6. 50mm x 75mm	14. 90mm x 75mm	22. 110mm x 50mm	
7. 63mm x 63mm	15. 90mm x 63mm	23. 125mm x 125mm	
8. 63mm x 50mm	16. 90mm x 50mm	24. 125mm x 63mm	



ELECTROFUSION SERVICE TAPPING TEE

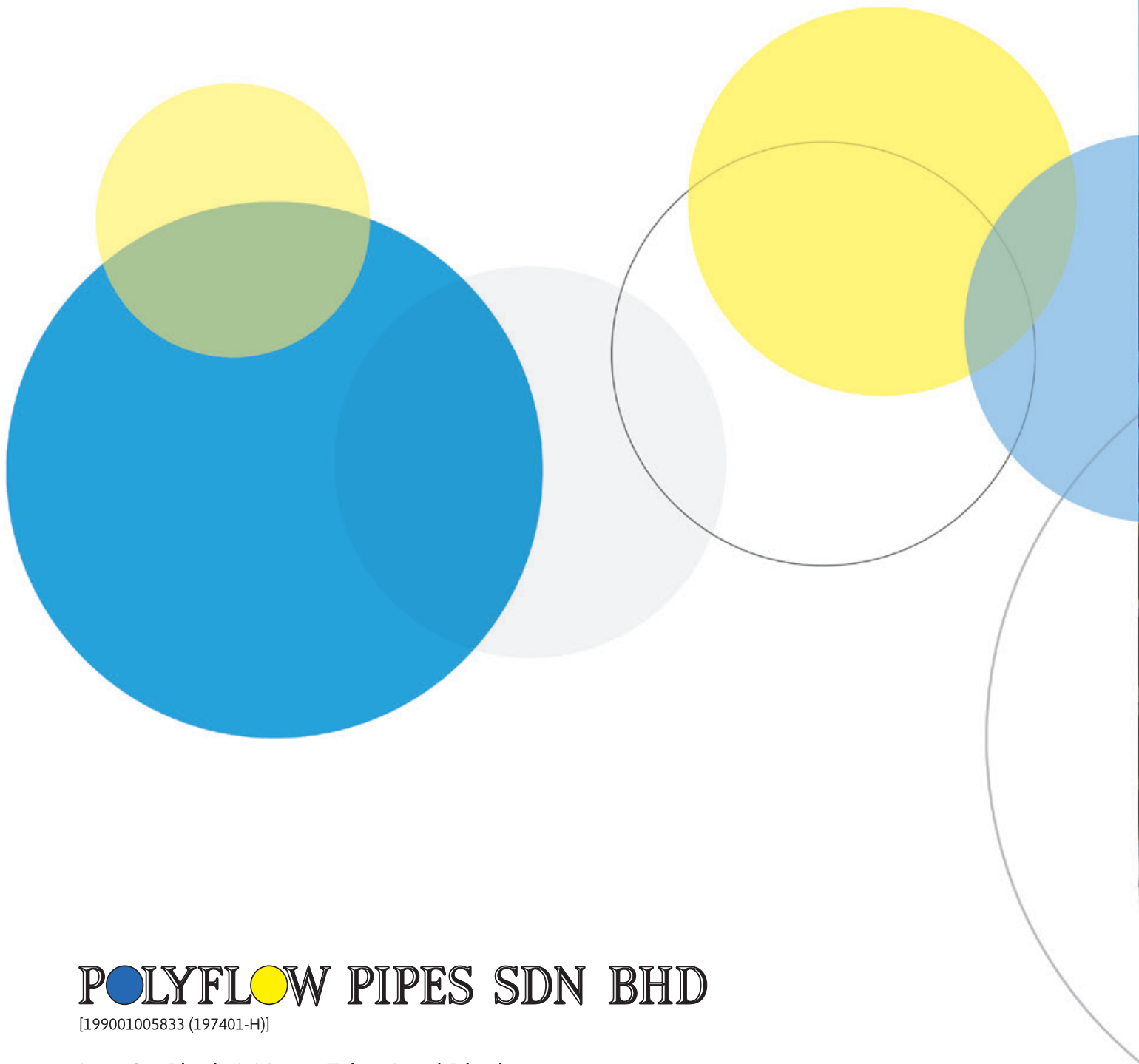
1. 63mm x 32mm	6. 90mm x 32mm	11. 110mm x 20mm	16. 225mm x 50mm
2. 63mm x 25mm	7. 110mm x 63mm	12. 160mm x 63mm	17. 250mm x 63mm
3. 63mm x 20mm	8. 110mm x 50mm	13. 160mm x 50mm	18. 315mm x 63mm
4. 90mm x 63mm	9. 110mm x 32mm	14. 160mm x 32mm	
5. 90mm x 50mm	10. 110mm x 25mm	15. 225mm x 63mm	



ELECTROFUSION END CAP

1. 20mm	5. 63mm	9. 125mm
2. 25mm	6. 75mm	10. 160mm
3. 32mm	7. 90mm	11. 180mm
4. 50mm	8. 110mm	





POLYFLOW PIPES SDN BHD

[199001005833 (197401-H)]

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