ALWASAIL الوسائل

الحلول المتكاملة لشبكات مياه الشرب

NSF

WRAS
Water Regulations Advisory Scheme

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BUREAU VERITAS
Certification

*For Water Pipes, Fittings & Gas Pipes

INTRODUCTION

Polyethylene piping systems are used all over the world for the supply and conveying of several kinds of media, including liquid, gas and powers as well as in mining and quarry applications.

Polyethylene pipework systems have the main advantages over steel and ductile iron systems if lightness of weight and freedom from corrosion. The rapid growth in use of polyethylene is due in part to benefits over steel and iron systems, but possibly more to the development of several advanced and easy jointing techniques. Polyethylene has very good fatigue strength and special provision for surges frequently allowed when designing other thermoplastic pipework systems (as PVC) are not normally necessary.

In 1990 Alwasail Industrial Company started its production of High Density Polyethylene (HDPE) piping systems, low-density Polyethylene (LDPE) piping systems.

Pipes (HDPE) are produced in size up to 1200mm in diameter, with nominal pressure rating PN4, PN6, PN10, up to PN16 (other pressure ratings also availble). All pipes and fittings are manufactured in accordance with current European standards, DIN 8074, ISO 4427 / 1167 and SASO Draft No. 5208.

HDPE piping system are used worldwide for conveying of water as well as for the transportation of hazardous fluids. It offers the following advantages to the customer:

Advantages:

- Low specific Weight
- Excellent weldability
- Smooth inside surface, no deposits and no overgrowth
- Due to less frictional resistance, less pressure drop compared to metals
- Suitable for food and potable water
- Complies with the food stuff regulations
- Approved and registered for potable water supply
- Laying speed ease joining and reliability

Resistance to:

- Ultraviolet rays
- Weathering
- Chemicals
- Heat aging
- Abrasion
- Rodents
- Freezing
- Microbes freezing

Fields of Application

HDPE pipes have been in existence since the mid 50's. The experience shows that HDPE pipes is the solution to most pipe problems being recognized by clients and engineering consultants as the ideal pipe material for many pressure and non pressure applications from water and gas distribution to gravity, Sewers and surface water drainage for both new & Rehabilitation Projects. Alwasail polyethylene pipes is based on a polytholefin thermoplastic resin which is also a physiologically non-toxic material, therefore, it is suitable for a wide range of applications.

Suitable for:

Water Supply. **Alwasail** PE pipes are made from material meeting the toxicity requirement of the WHO and this can be used for transportation of drinking water.

- Pipes and fittings with pressure ratings of SDR 7.4 up to SDR 41 for water mains as well as distribution piping systems and service lines.
- Drain pipes and fittings for spring water chamber pipes.
- Ascending pipes for wells.

In contrast for pipes mad of steel or ductile iron, HDPE piping systems are light weight and corrosion resistant. Neither sour soils nor "aggressive" water will have no effect to the material. Additionally, corrosion products, which often impair the operability of the piping system, are avoided. In comparison to PVC pipes, HDPE pipes are more flexible and offer high impact resistance even in zero temperatures. The pipes may be adapted easily to the trench layout without employing additional fittings. On the other hand, fracture risks due to extreme handling conditions on the construction site are minimized. HDPE piping systems (spigot and socket joints) offer a range of longitudinal frictional connection methods. Thus, the installation of anchors or thrust blocks is not necessary and a leak proof piping system with a long life is guaranteed.

Highest drinking water quality. The suitability of the material for drinking water is ensured through independent tests. Neither the taste nor the smell of the drinking water is affected due to the contact with HDPE pipes. The smooth surface and the high abrasion resistance guarantee minimum deposits. Polyethylene is corrosion resistant, therefore, the drinking water cannot be contaminated with corrosion by-products like copper or heavy metals such as cadmium or lead, which happens frequently with older metal piping systems.

Environmental Friendly material for a clean environment. The HDPE pipes and fitting are exclusively made from the environmentally friendly materials. For instance, the energy requirements for the production of HDPE pipes is lower n comparison to metallic pipes. Furthermore, no hazardous substances, which may endanger or may pollute the environment, result from the production of the pipes is made of polyethylene. The application of HDPE piping systems provides the best solution for the environment. A 100% leak proof supply system may be installed with simple welding methods. Thus, endangering the drinking water with toxic substances is reduced. Additionally, water loss due to leaking piping systems are avoided. No other supply system offers these advantages.

For extreme conditions. HDPE piping systems are approved for installation in all types of soil. Polyethylene is a flexible and tough pipe material. Thus, these systems are especially suitable for installation in soils susceptible to ground material. The application of various jointing methods encases a leak proof supply system. Due to the light weight and the simple jointing methods, HOPE pipes are very well suitable for unfavourable conditions - for the installation in difficult terrain.

Drainage. Alwasail pipes are being used for underground drainage for buildings, waste lines for corrosive fluids and also as plumbing material for house drainage. They can also be used for sewer works. Due to its very good chemical resistance, HDPE as a perfect material for the manufacturer of large bore pipes for sewage systems. They are ideally suited for industrial waste disposal and are being used to an increasing extent as underground sewer and waste pipes.

Industry. Features like corrosion-resistance, easy installation, light weight, and flexibility make Alwasail pipes ideal for complicated plumbing in factories. They are ideal for corrosive chemicals.

Gas and Oil Pipeline Systems. PE pipes to line carbon steel pipes to transport oil & gases at higher pressure are available. The pipes are specially designed with a smooth surface and made easy to install. Thus gas lines can be installed at low costs. In drilling they are used as shot-hole casings as they are cheaper.Due to the excellent properties of HDPE, which exhibit a high impact strength and very good resistance aggressive soils. Combined with ease of handling and installation, the HDPE pipes are excellent for transporting material and other gas types including bio-gas.

HDPE PRESSURE PIPE PE100 = MRS 10 = SIGMA

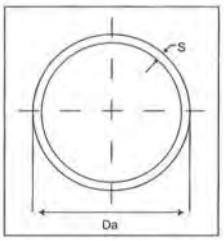
Dimensioning according to DIN 8074- ISO 4427 / 1167

Material
High Density Polyethylene PE100
MRS = 10 Mpa
σs = 8 Mpa (MRS / c)
c = 1.25

Color Black
Dimensions DIN 8074 / 8075

Standard Length
Up to Da 125 = 100m Coil
Da 140-630 = 12m

Available on Request
* Other length
* Color
* Pipes in other PN/SDR classes according to DIN 8074 / 8075



$$PN = \frac{2 \times \sigma s \times s \times 10}{Da - s}$$

Pipe Series = σsx10 / PN

Note:
PN Nominal Pressure (Bar)
Wt Pipe weight (Kg/m)
S Wall thickness (mm)
Da Nominal Outside Diameter (mm)
SDR Standard dimensional ratio (Da/s)
MRS Minimum required strength (Mpa)
σs Hydrostatic Design stress@20c
C Design factor 1.25 for water

*** Weight may vary according to polymer density. The mass has been calculated taking average density as 0.95 g/cm3. For other densities, the mass shall be established by linear interpolation, taking the wall thickness as the nominal size plus half the tolerance specified.

Nominal Outside Diameter	Pipe Series																	
	S 20			S 12.5			S 8			S 6.3			S 5			S 4		
	Standard Dimension Ratio																	
	SDR 41			SDR 26			SDR 17			SDR 13.6			SDR 11			SDR 9		
	Nominal Pressure PN for σs = 8 Mpa																	
Da	PN 4			PN 6.3			PN 10			PN 12.5			PN 16			PN 20		
mm	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m
12																		
16																12.4	1.8	0.084
20										16.4	1.8	0.107	16.2	1.9	0.112	15.4	2.3	0.133
25							21.4	1.8	0.137	21.2	1.9	0.144	20.4	2.3	0.171	19.4	2.8	0.200
32							28.2	1.9	0.187	27.2	2.4	0.232	26.2	2.9	0.272	24.8	3.6	0.327
40				36.4	1.8	0.227	35.2	2.4	0.295	34.0	3.0	0.356	32.6	3.7	0.430	31.0	4.5	0.509
50				46.0	2.0	0.314	44.0	3.0	0.453	42.6	3.7	0.549	40.8	4.6	0.666	38.8	5.6	0.788
63	59.4	1.8	0.364	58.0	2.5	0.494	55.4	3.8	0.721	53.6	4.7	0.873	51.4	5.8	1.050	48.8	7.1	1.260
75	71.2	1.9	0.457	69.2	2.9	0.675	66.0	4.5	1.020	63.8	5.6	1.240	61.4	6.8	1.470	58.2	8.4	1.760
90	85.6	2.2	0.643	83.0	3.5	0.978	79.2	5.4	1.460	76.6	6.7	1.770	73.6	8.2	2.120	69.8	10.1	2.540
110	104.6	2.7	0.943	101.6	4.2	1.430	96.8	6.6	2.170	93.8	8.1	2.620	90.0	10.0	3.140	85.4	12.3	3.780
125	118.8	3.1	1.230	115.4	4.8	1.840	110.2	7.4	2.760	106.6	9.2	3.370	102.2	11.4	4.080	97.0	14.0	4.870
140	133.0	3.5	1.540	129.2	5.4	2.320	123.4	8.3	3.460	119.4	10.3	4.220	114.6	12.7	5.080	108.6	15.7	6.110
160	152.0	4.0	2.000	147.6	6.2	3.040	141.0	9.5	4.520	136.4	11.8	5.500	130.8	14.6	6.670	124.2	17.9	7.960
180	171.2	4.4	2.490	166.2	6.9	3.790	158.6	10.7	5.710	153.4	13.3	6.980	147.2	16.4	8.420	139.8	20.1	10.100
200	190.2	4.9	3.050	184.6	7.7	4.690	176.2	11.9	7.050	170.6	14.7	8.560	163.6	18.2	10.400	155.2	22.4	12.400
225	214.0	5.5	3.860	207.8	8.6	5.890	198.2	13.4	8.930	191.8	16.6	10.900	184.0	20.5	13.100	174.6	25.2	15.800
250	237.6	6.2	4.830	230.8	9.6	7.300	220.4	14.8	11.000	213.2	18.4	13.400	204.6	22.7	16.200	194.2	27.9	19.400
280	266.2	6.9	5.980	258.6	10.7	9.100	246.8	16.6	13.700	238.8	20.6	16.800	229.2	25.4	20.300	217.4	31.3	24.300
315	299.6	7.7	7.520	290.8	12.1	11.600	277.6	18.7	17.400	268.6	23.2	21.200	257.8	28.6	25.600	244.6	35.2	30.800
355	337.6	8.7	9.550	327.8	13.6	14.600	312.8	21.1	22.100	302.8	26.1	26.900	290.6	32.2	32.500	275.6	39.7	39.100
400	380.4	9.8	12.100	369.4	15.3	18.600	352.6	23.7	28.000	341.2	29.4	34.100	327.4	36.3	41.300	310.6	44.7	49.600
450	428.0	11.0	15.300	415.6	17.2	23.500	396.6	26.7	35.400	383.8	33.1	43.200	368.2	40.9	52.300	349.4	50.3	62.700
500	475.4	12.3	19.000	461.8	19.1	28.900	440.6	29.7	43.800	426.4	36.8	53.300	409.2	45.4	64.500	388.4	55.8	77.300
560	532.6	13.7	23.600	517.2	21.4	36.200	493.6	33.2	54.800	477.6	41.2	66.900	458.4	50.8	80.800	435.0	62.5	97.000
630	599.2	15.4	29.900	581.8	24.1	45.900	555.2	37.4	69.400	537.4	46.3	84.600	515.6	57.2	102.000	-	-	-
710	675.2	17.4	38.000	655.6	27.2	58.400	625.8	42.1	88.100	605.6	52.2	107.00	581.0	64.5	130.00			
800	760.8	19.6	48.100	738.8	30.6	73.900	705.2	47.4	112.00	682.4	58.8	136.00						
900	856.0	22.0	60.900	831.2	34.4	93.400	793.4	53.3	141.00	767.8	66.1	172.00						
1000	951.0	24.5	75.200	923.6	38.2	115.00	881.4	59.3	175.00									
1200	1141.2	29.4	108.00	1108.2	45.9	166.00												

HDPE PRESSURE PIPE PE80 = MRS 8 = SIGMA 6.3

Dimensioning according to DIN 8074 - ISO 4427 / 1167

Material
High Density Polyethylene PE80
MRS = 8.0 Mpa
σs = 6.3 Mpa (MRS / c)
c = 1.25

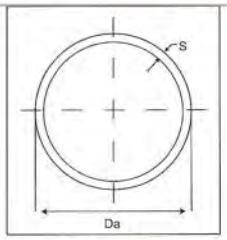
Note:
PN Nominal Pressure (Bar)
Wt Pipe weight (Kg/m)
S Wall thickness (mm)
Da Nominal Outside Diameter (mm)
SDR Standard dimensional ratio (Da/s)
MRS Minimum required strength (Mpa)
σs Hydrostatic Design stress@20c
C Design factor 1.25 for water

Color Black

Dimensions DIN 8074 / 8075

Standard Length
Up to Da 125 = 100m Coil
Da 140-630 = 12m

Available on Request
* Other length
* Color
* Pipes in other PN/SDR classes according to DIN 8074 / 8075



$$PN = \frac{2 \times \sigma s \times s \times 10}{Da - s}$$

Pipe Series = σsx10 / PN

*** Weight may vary according to polymer density. The mass has been calculated taking average density as 0.95 g/cm3. For other densities, the mass shall be established by linear interpolation, taking the wall thickness as the nominal size plus half the tolerance specified.

Nominal Outside Diameter	Pipe Series																	
	S 20			S 16			S 10.5			S 6.3			S 5			S 4		
	Standard Dimension Ratio																	
	SDR 41			SDR 33			SDR 22			SDR 13.6			SDR 11			SDR 9		
	Nominal Pressure PN for σs = 6.3 Mpa																	
Da	PN 3.2			PN 4			PN 6			PN 10			PN 12.5			PN 16		
mm	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m
12																		
16																12.4	1.8	0.084
20										16.4	1.8	0.107	16.2	1.9	0.112	15.4	2.3	0.133
25										21.2	1.9	0.144	20.4	2.3	0.171	19.4	2.8	0.200
32										27.2	2.4	0.232	26.2	2.9	0.272	24.8	3.6	0.327
40							36.2	1.9	0.238	34.0	3.0	0.356	32.6	3.7	0.430	31.0	4.5	0.509
50				46.4	1.8	0.287	45.4	2.3	0.361	42.6	3.7	0.549	40.8	4.6	0.666	38.8	5.6	0.788
63	59.4	1.8	0.364	59.0	2.0	0.399	57.2	2.9	0.563	53.6	4.7	0.873	51.4	5.8	1.050	48.8	7.1	1.260
75	71.2	1.9	0.457	70.4	2.3	0.551	68.0	3.5	0.807	63.8	5.6	1.240	61.4	6.8	1.470	58.2	8.4	1.760
90	85.6	2.2	0.643	84.4	2.8	0.791	81.8	4.1	1.140	76.6	6.7	1.770	73.6	8.2	2.120	69.8	10.1	2.540
110	104.6	2.7	0.943	103.2	3.4	1.170	100.0	5.0	1.670	93.8	8.1	2.620	90.0	10.0	3.140	85.4	12.3	3.780
125	118.8	3.1	1.230	117.2	3.9	1.510	113.6	5.7	2.160	106.6	9.2	3.370	102.2	11.4	4.080	97.0	14.0	4.870
140	133.0	3.5	1.540	131.4	4.3	1.880	127.2	6.4	2.720	119.4	10.3	4.220	114.6	12.7	5.080	108.6	15.7	6.110
160	152.0	4.0	2.000	150.2	4.9	2.420	145.4	7.3	3.540	136.4	11.8	5.500	130.8	14.6	6.670	124.2	17.9	7.960
180	171.2	4.4	2.490	169.0	5.5	3.070	163.6	8.2	4.470	153.4	13.3	6.980	147.2	16.4	8.420	139.8	20.1	10.100
200	190.2	4.9	3.050	187.6	6.2	3.840	181.8	9.1	5.510	170.6	14.7	8.560	163.6	18.2	10.400	155.2	22.4	12.400
225	214.0	5.5	3.860	211.2	6.9	4.770	204.4	10.3	7.000	191.8	16.6	10.900	184.0	20.5	13.100	174.6	25.2	15.800
250	237.6	6.2	4.830	234.6	7.7	5.920	227.2	11.4	8.590	213.2	18.4	13.400	204.6	22.7	16.200	194.2	27.9	19.400
280	266.2	6.9	5.980	262.8	8.6	7.400	254.4	12.8	10.800	238.8	20.6	16.800	229.2	25.4	20.300	217.4	31.3	24.300
315	299.6	7.7	7.520	295.6	9.7	9.370	286.2	14.4	13.600	268.6	23.2	21.200	257.8	28.6	25.600	244.6	35.2	30.800
355	337.6	8.7	9.550	333.2	10.9	11.800	322.6	16.2	17.300	302.8	26.1	26.900	290.6	32.2	32.500	275.6	39.7	39.100
400	380.4	9.8	12.100	375.4	12.3	15.100	363.6	18.2	21.900	341.2	29.4	34.100	327.4	36.3	41.300	310.6	44.7	49.600
450	428.0	11.0	15.300	422.4	13.8	19.000	409.0	20.5	27.700	383.8	33.1	43.200	368.2	40.9	52.300	349.4	50.3	62.700
500	475.4	12.3	19.000	469.4	15.3	23.400	454.4	22.8	34.200	426.4	36.8	53.300	409.2	45.4	64.500	388.4	55.8	77.300
560	532.6	13.7	23.600	525.6	17.2	29.400	509.0	25.5	42.800	477.6	41.2	66.900	458.4	50.8	80.800	435.0	62.5	97.000
630	599.2	15.4	29.900	591.4	19.3	37.100	572.6	28.7	54.100	537.4	46.3	84.600	515.6	57.2	102.000	-	-	-
710	675.2	17.4	38.00	666.4	21.8	47.20	645.4	32.3	68.700	605.6	52.2	107.00	581.0	64.5	130.00			
800	760.8	19.6	48.10	751.0	24.5	59.70	727.2	36.4	87.200	682.4	58.8	136.00						
900	856.0	22.0	60.90	844.8	27.6	75.60	818.0	41.0	110.00	767.8	66.1	172.00						
1000	951.0	24.5	75.20	938.8	30.6	93.10	909.0	45.5	136.00									
1200	1141.2	29.4	108.00	1126.6	36.7	134.00	1090.8	54.6	196.00									

HDPE PRESSURE PIPE PE80= MRS 8 = SIGMA 5.0

Dimensioning according to DIN 8074 - ISO 4427 / 1167

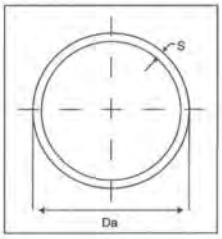
Material
High Density Polyethylene PE80
MRS = 8.0 Mpa
σs = 5.0 Mpa (MRS / c)
c = 1.6

Note:
PN Nominal Pressure (Bar)
Wt Pipe weight (Kg/m)
S Wall thickness (mm)
Da Nominal Outside Diameter (mm)
SDR Standard dimensional ratio (Da/s)
MRS Minimum required strength (Mpa)
σs Hydrostatic Design stress@20c
C Design factor 1.6 for water

Color Black
Dimensions DIN 8074 / 8075

Standard Length
Up to Da 125 = 100m Coil
Da 140-630 = 12m

Available on Request
* Other length
* Color
* Pipes in other PN/SDR classes according to DIN 8074 / 8075



$$PN = \frac{2 \times \sigma s \times s \times 10}{Da - s}$$

Pipe Series = σsx10 / PN

*** Weight may vary according to polymer density. The mass has been calculated taking average density as 0.95 g/cm3. For other densities, the mass shall be established by linear interpolation, taking the wall thickness as the nominal size plus half the tolerance specified.

Nominal Outside Diameter	Pipe Series																	
	S 16			S 12.5			S 8.3			S 5			S 4			S 3.2		
	Standard Dimension Ratio																	
	SDR 33			SDR 26			SDR 17.6			SDR 11			SDR 9			SDR 7.4		
	Nominal Pressure PN for σs = 5 Mpa																	
Da	PN 3.2			PN 4			PN 6			PN 10			PN 12.5			PN 16		
mm	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m
12																8.4	1.8	0.060
16													12.4	1.8	0.084	11.6	2.2	0.099
20							16.4	1.8	0.107	16.2	1.9	0.112	15.4	2.3	0.133	14.4	2.8	0.154
25							21.4	1.8	0.137	20.4	2.3	0.171	19.4	2.8	0.200	18.0	3.5	0.240
32							28.4	1.8	0.179	26.2	2.9	0.272	24.8	3.6	0.327	23.2	4.4	0.386
40				36.4	1.8	0.227	35.4	2.3	0.285	32.6	3.7	0.430	31.0	4.5	0.509	29.0	5.5	0.600
50	46.4	1.8	0.287	46.0	2.0	0.314	44.2	2.9	0.440	40.8	4.6	0.666	38.8	5.6	0.788	36.2	6.9	0.936
63	59.0	2.0	0.399	58.0	2.5	0.494	55.8	3.6	0.688	51.4	5.8	1.050	48.8	7.1	1.260	45.8	8.6	1.470
75	70.4	2.3	0.551	69.2	2.9	0.675	66.4	4.3	0.976	61.4	6.8	1.470	58.2	8.4	1.760	54.4	10.3	2.090
90	84.4	2.8	0.791	83.0	3.5	0.978	79.8	5.1	1.390	73.6	8.2	2.120	69.8	10.1	2.540	65.4	12.3	3.000
110	103.2	3.4	1.170	101.6	4.2	1.430	97.4	6.3	2.080	90.0	10.0	3.140	85.4	12.3	3.780	79.8	15.1	4.490
125	117.2	3.9	1.510	115.4	4.8	1.840	110.8	7.1	2.660	102.2	11.4	4.080	97.0	14.0	4.870	90.8	17.1	5.770
140	131.4	4.3	1.880	129.2	5.4	2.320	124.0	8.0	3.340	114.6	12.7	5.080	108.6	15.7	6.110	101.6	19.2	7.250
160	150.2	4.9	2.420	147.6	6.2	3.040	141.8	9.1	4.350	130.8	14.6	6.670	124.2	17.9	7.960	116.2	21.9	9.440
180	169.0	5.5	3.070	166.2	6.9	3.790	159.6	10.2	5.480	147.2	16.4	8.420	139.8	20.1	10.100	130.8	24.6	11.900
200	187.6	6.2	3.840	184.6	7.7	4.690	177.2	11.4	6.790	163.6	18.2	10.400	155.2	22.4	12.400	145.2	27.4	14.800
225	211.2	6.9	4.770	207.8	8.6	5.890	199.4	12.8	8.550	184.0	20.5	13.100	174.6	25.2	15.800	163.4	30.8	18.600
250	234.6	7.7	5.920	230.8	9.6	7.300	221.6	14.2	10.600	204.6	22.7	16.200	194.2	27.9	19.400	181.6	34.2	23.000
280	262.8	8.6	7.400	258.6	10.7	9.100	248.2	15.9	13.200	229.2	25.4	20.300	217.4	31.3	24.300	203.4	38.3	28.900
315	295.6	9.7	9.370	290.8	12.1	11.600	279.2	17.9	16.700	257.8	28.6	25.600	244.6	35.2	30.800	228.8	43.1	36.500
355	333.2	10.9	11.800	327.8	13.6	14.600	314.8	20.1	21.200	290.6	32.2	32.500	275.6	39.7	39.100	258.0	48.5	46.300
400	375.4	12.3	15.100	369.4	15.3	18.600	354.6	22.7	26.900	327.4	36.3	41.300	310.6	44.7	49.600	290.6	54.7	58.800
450	422.4	13.8	19.000	415.6	17.2	23.500	399.0	25.5	34.000	368.2	40.9	52.300	349.4	50.3	62.700	327.0	61.5	74.400
500	469.4	15.3	23.400	461.8	19.1	28.900	443.2	28.4	42.000	409.2	45.4	64.500	388.4	55.8	77.300	363.4	68.3	91.800
560	525.6	17.2	29.400	517.2	21.4	36.200	496.6	31.7	52.500	458.4	50.8	80.800	435.0	62.5	97.000	-	-	-
630	591.4	19.3	37.100	581.8	24.1	45.900	558.6	35.7	66.500	515.6	57.2	102.000	-	-	-	-	-	-
710	666.4	21.8	47.20	655.6	27.2	58.40	629.6	40.2	84.40	581.0	64.5	130.00						
800	751.0	24.5	59.70	738.8	30.6	73.90	709.4	45.3	107.00									
900	844.8	27.6	75.60	831.2	34.4	93.40	798.0	51.0	136.00									
1000	938.8	30.6	93.10	923.6	38.2	115.00	886.6	56.7	167.00									
1200	1126.6	36.7	134.00	1108.2	45.9	166.00	1064.0	68.0	241.00									

HDPE Perforated Pipe

PE80 Perforated all round pipes

Material
PE 80 acc. to DIN 8075, on request:
PE-EL polyethylene electrically conductive, PP-H 100 acc. to DIN 8078

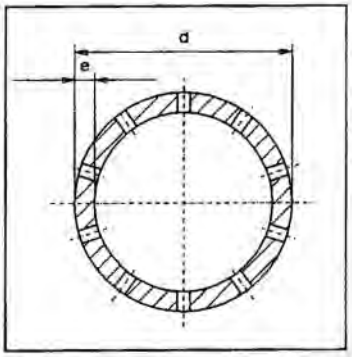
Dimensions
PE acc. to DIN 8074, PP acc. to DIN 8077 standard length 6 m, other lengths on request

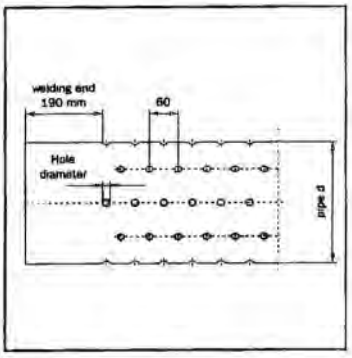
Colour
PE black,
PP grey

Design
Without runoff channel, perforated all round, hole diameter 15 mm, non-perforated pipe end min. 190 mm.

Special designs
different hole diameters (12 mm, 10 mm), perforation arrangement and perforation separation (30 mm) on request

Remarks
In the case of a commission, verifiable analyses can be compiled based on the ATV A 127. You will be invoiced for costs incurred. When connecting with electro fusion sockets, only the non-perforated area of the pipe should be used.





Pipe			SDR 17,6		SDR 11	
d mm	Hole rows	Entry area f_1 cm²/m	e mm	Entry area f_2 %	e mm	Entry area f_2 %
90	6	177	5.1	7.05	8.2	7.64
110	6	177	6.3	5.78	10.0	6.25
125	6	177	7.1	5.08	11.4	5.50
143	6	177	8.0	4.54	12.7	4.92
160	8	236	9.1	5.29	14.6	5.73
180	8	236	10.2	4.70	16.4	5.10
200	8	236	11.4	4.23	18.2	4.58
225	8	236	12.8	3.76	20.5	4.08
250	8	236	14.2	3.38	22.7	3.67
280	8	236	15.9	3.02	25.4	3.28
315	8	236	17.9	2.69	28.6	2.91
355	8	236	20.1	2.38	32.2	2.58
400	8	236	22.7	2.12	36.3	2.29
450	10	295	25.5	2.35	40.9	2.55
500	10	295	28.4	2.11	45.4	2.29
560	12	353	31.7	2.27	50.8	2.46
630	12	353	35.7	2.01	57.2	2.18

f_1 = free entry area (cm=/m), relative to pipe inside surface area
f_2 = free entry area (%), relative to pipe inside surface area

HDPE Slotted Pipe
PE80 Slotted all round pipes

Material
PE 80 acc. to DIN 8075, on request:
PE-EL polyethylene electrically conductive, PP-H 100 acc. to DIN 8078

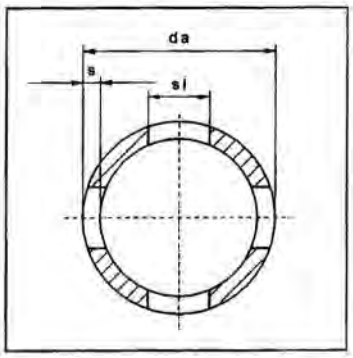
Dimensions
PE acc. to DIN 8074, PP acc. to DIN 8077 standard length 6 m, other lengths on request

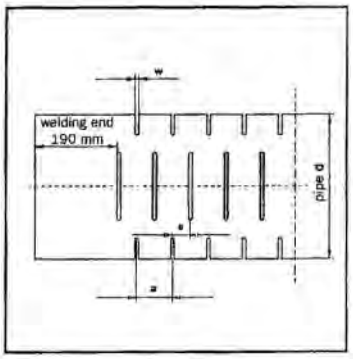
Colour
PE black, PP grey

Design
Without runoff channel, slotted all round, milling width w = 12 mm, slot separation a = 140 mm, non-slotted pipe end min. 190 mm.

Special designs
different milling widths (6 mm, 8 mm or 10 mm) on request

Remarks
In the case of a commission, verifiable analyses can be compiled based on the ATV A 127. You will be invoiced for costs incurred. When connecting with electro fusion sockets, only the non-perforated area of the pipe should be used.





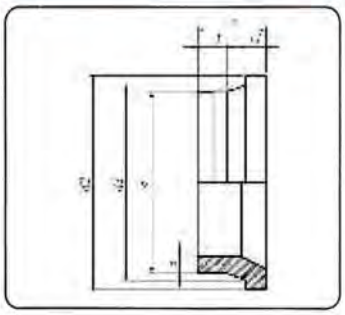
Pipe	Slot lenght	SDR 17,6			SDR 11	
d mm	Interior mm	Entry area f_1 cm²/m	e mm	Entry area f_2 %	e mm	Entry area f_2 %
180	80	199	10.2	4.0	16.4	4.3
200	80	199	11.4	3.6	18.2	3.9
225	80	199	12.8	3.2	20.5	3.4
250	80	199	14.2	2.9	22.7	3.1
280	80	199	15.9	2.6	25.4	2.8
315	80	199	17.9	2.3	28.6	2.5
355	80	199	20.1	2.0	32.2	2.2
400	80	199	22.7	1.8	36.3	1.9
450	80	199	25.5	1.6	40.9	1.7
500	80	199	28.4	1.4	45.4	1.6
560	80	199	31.7	1.3	50.8	1.4
630	80	199	35.7	1.1	57.2	1.2

f_1 = free entry area (cm²/m), relative to pipe inside surface area
f_2 = free entry area (%), relative to pipe inside surface area

قطع اللحام الحراري (الحقن)

Flange Adaptor (Stub End) بداية خط (رقبة قصيرة)

Butt Welding - Injection Molded Fittings > Short Spigot
Code: WS-BWISE-100-(Fitting Size)

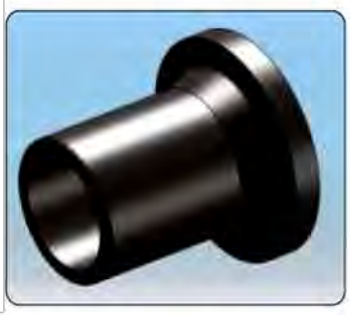


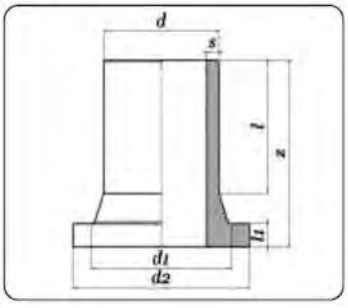
PE100, PN16, SDR11, S5

Item Code	d mm	d1 mm	d2 mm	l mm	l1 mm	z mm	s mm	wight kg
WS-BWISE-S100-355-11	355	376	430	164	40	243	32.3	9.050
WS-BWISE-S100-400-11	400	430	480	179	46	259	36.4	11.920
WS-BWISE-S100-450-11	450	517	585	50	46	120	26.7	8.330
WS-BWISE-S100-500-11	500	533	585	50	46	120	29.7	7.750
WS-BWISE-S100-560-11	560	618	685	50	50	130	33.2	10.900
WS-BWISE-S100-630-11	630	645	685	50	50	120	37.4	10.460
WS-BWISE-S100-710-11	710	740	800	50	60	140	42.1	15.470
WS-BWISE-S100-800-11	800	843	900	50	60	140	47.4	20.120
WS-BWISE-S100-900-11	900	947	1000	50	65	155	53.3	26.270
WS-BWISE-S100-1000-11	1000	1050	1113	50	70	170	59.3	36.280
WS-BWISE-S100-1100-11	1100							
WS-BWISE-S100-1200-11	1200							

Flange Adaptor (Stub End) بداية خط (رقبة طويلة)

Butt Welding - Injection Molded Fittings > Long Spigot
Code: WS-BWISE-100-(Fitting Size)



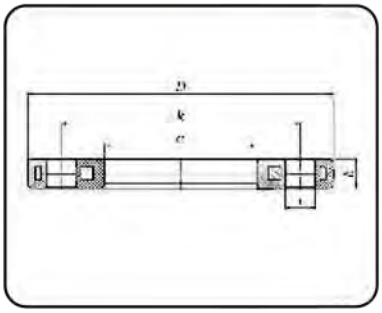


PE100, PN16, SDR11, S5

Item Code	d mm	d1 mm	d2 mm	l mm	l1 mm	z mm	s mm	wight kg
WS-BWISE-L100-50-11	50	58	88	55	12	92	4.6	0.125
WS-BWISE-L100-63-11	63	78	102	63	14	100	5.8	0.190
WS-BWISE-L100-75-11	75	92	122	70	16	120	6.8	0.300
WS-BWISE-L100-90-11	90	108	138	79	17	132	8.2	0.455
WS-BWISE-L100-110-11	110	128	158	82	18	157	10	0.690
WS-BWISE-L100-125-11	125	135	158	87	25	170	11.4	0.880
WS-BWISE-L100-140-11	140	158	188	92	25	175	12.7	1.320
WS-BWISE-L100-160-11	160	178	212	98	25	180	14.6	1.630
WS-BWISE-L100-180-11	180	188	212	105	30	190	16.4	2.020
WS-BWISE-L100-200-11	200	235	268	112	32	200	18.2	2.680
WS-BWISE-L100-225-11	225	238	268	120	32	200	20.5	3.150
WS-BWISE-L100-250-11	250	288	320	129	35	205	22.7	4.030
WS-BWISE-L100-280-11	280	294	320	139	35	215	25.4	4.750
WS-BWISE-L100-315-11	315	338	370	150	35	220	28.6	6.650

قطع اللحام الحراري (الحقن)

Steel Flange فلنجة مغطاة بلاستيك
Polypropylene (PP) Coated



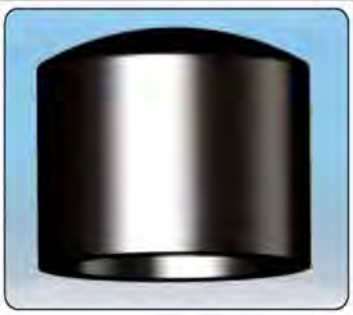
PP, ST, PN16

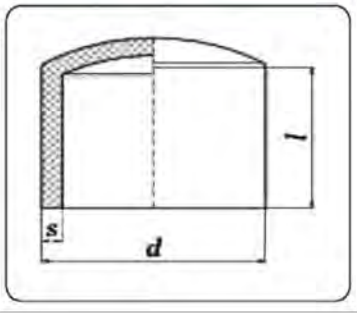
Item Code	d mm	D mm	a mm	k mm	b mm	l mm	SC mm	DS	Weight kg
WS-PPSF-100-110-11	110	224	128	180	20	18	M16	8	1.940
WS-PPSF-100-125-11	125	224	135	180	20	18	M16	8	1.785
WS-PPSF-100-140-11	140	252	158	210	24	18	M16	8	2.981
WS-PPSF-100-160-11	160	285	178	240	24	22	M20	8	3.898
WS-PPSF-100-180-11	180	285	188	240	24	22	M20	8	3.560
WS-PPSF-100-200-11	200	340	235	295	27	22	M20	12	5.401
WS-PPSF-100-225-11	225	340	238	295	27	22	M20	12	5.268
WS-PPSF-100-250-11	250	419	288	355	32	26	M24	12	10.530
WS-PPSF-100-280-11	280	419	294	355	32	26	M24	12	9.995
WS-PPSF-100-315-11	315	478	338	410	34	26	M24	12	13.650
WS-PPSF-100-355-11	355	532	376	470	42	26	M24	16	22.203
WS-PPSF-100-400-11	400	592	430	525	46	30	M27	16	28.084

PP, ST, PN16

Item Code	d mm	D mm	a mm	k mm	b mm	l mm	SC mm	DS	Weight kg
WS-PPSF-100-450-11	450	678	517	620	45	26	M24	20	35.012
WS-PPSF-100-500-11	500	688	533	620	45	26	M24	20	34.629
WS-PPSF-100-560-11	560	799	618	725	50	30	M7	20	49.763
WS-PPSF-100-630-11	630	799	645	725	50	30	M7	20	41.084

End Cap سدة (نهاية خط)
Butt Welding - Injection Molded Fittings
Code: WS-BWIEC-100-(Fitting Size)



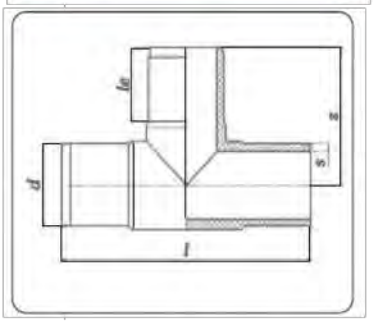


PE100, PN16, SDR11, S5

Item Code	d mm	l mm	s mm	wight kg
WS-BWIEC-100-50-11	50	57	46	0.048
WS-BWIEC-100-63-11	63	65	5.8	0.084
WS-BWIEC-100-75-11	75	72	6.8	0.131
WS-BWIEC-100-90-11	90	81	8.2	0.218
WS-BWIEC-100-110-11	110	86	10	0.333
WS-BWIEC-100-125-11	125	93	11.4	0.485
WS-BWIEC-100-140-11	140	97	12.7	0.674
WS-BWIEC-100-160-11	160	103	14.6	0.953
WS-BWIEC-100-180-11	180	110	16.4	1.330
WS-BWIEC-100-200-11	200	117	18.2	1.760
WS-BWIEC-100-225-11	225	125	20.5	2.440
WS-BWIEC-100-250-11	250	136	22.7	3.260
WS-BWIEC-100-280-11	280	145	25.4	4.460
WS-BWIEC-100-315-11	315	155	28.6	6.170

قطع اللحام الحراري (الحقن)

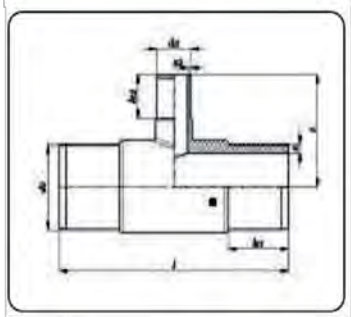
Tee قسام
Butt Welding - Injection Molded Fittings
Code: WS-BWIT-100-(Fitting Size)



PE100, PN16, SDR11, S5

Item Code	d mm	l mm	le mm	z mm	s mm	wight kg
WS-BWIT-100-50-11	50	230	57	114	4.6	0.230
WS-BWIT-100-63-11	63	230	65	115	5.8	0.370
WS-BWIT-100-75-11	75	264	72	132	6.8	0.550
WS-BWIT-100-90-11	90	301	81	150	8.2	0.900
WS-BWIT-100-110-11	110	330	86	165	10	1.480
WS-BWIT-100-125-11	125	366	93	183	11.4	2.200
WS-BWIT-100-140-11	140	380	97	190	12.7	3.020
WS-BWIT-100-160-11	160	420	103	210	14.6	3.890
WS-BWIT-100-180-11	180	460	110	230	16.4	5.770
WS-BWIT-100-200-11	200	500	117	250	18.2	7.460
WS-BWIT-100-225-11	225	540	125	270	20.5	10.700
WS-BWIT-100-250-11	250	620	135	312	22.7	14.040
WS-BWIT-100-280-11	280	690	145	346	25.4	21.880
WS-BWIT-100-315-11	315	748	155	375	28.6	28.770

Tee - Reducer قسام نقاص
Butt Welding - Injection Molded Fittings
Code: WS-BWTR-10-(Fitting Size)



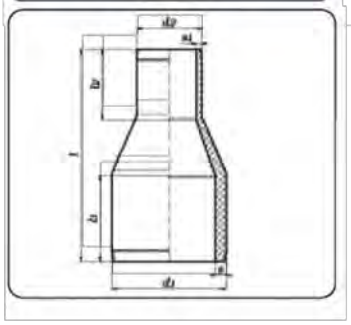
PE100, PN16, SDR11, S5

Item Code	d1-d2 mm	l mm	le1 mm	le2 mm	z mm	s1 mm	s2 mm	wight kg
WS-BWITR-100-63X50-11	63-50	230	65	57	108	5.8	4.6	0.340
WS-BWITR-100-75X50-11	75-50	264	72	57	117	6.8	4.6	0.508
WS-BWITR-100-75X63-11	75-63	264	72	65	125	6.8	5.8	0.518
WS-BWITR-100-90X63-11	90-63	301	81	65	134	8.2	5.8	0.810
WS-BWITR-100-90X75-11	90-75	301	81	72	141	8.2	6.8	0.840
WS-BWITR-100-110X63-11	110-63	330	86	65	144	10	5.8	1.246
WS-BWITR-100-110X75-11	110-75	330	86	72	151	10	6.8	1.290
WS-BWITR-100-125X90-11	125-90	366	93	81	168	11.4	8.2	1.980
WS-BWITR-100-125X110-11	125-110	366	93	86	176	11.4	10	2.090
WS-BWITR-100-160X110-11	160-110	420	103	86	193	14.6	10	3.290
WS-BWITR-100-200X160-11	200-160	500	117	103	243	18.2	14.6	6.247
WS-BWITR-100-225X160-11	225-160	540	125	103	263	20.5	14.6	8.383
WS-BWITR-100-225X110-11	250-110							
WS-BWITR-100-250X160-11	250-160							
WS-BWITR-100-280X160-11	280-160							
WS-BWITR-100-280X200-11	280-200							
WS-BWITR-100-280X250-11	280-250							
WS-BWITR-100-315X110-11	315-110							
WS-BWITR-100-315X160-11	315-160							
WS-BWITR-100-315X250-11	315-250							

قطع اللحام الحراري (الحقن)

Reducer نقاص

Butt Welding - Injection Molded Fittings
Code: WS-BWIR-100-(Fitting Size)

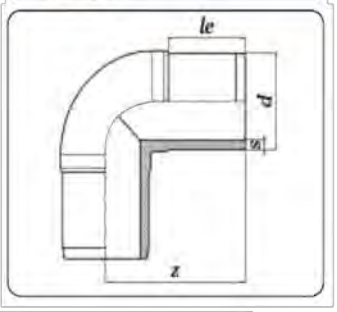


PE100, PN16, SDR11, S5

Item Code	d1-d2 mm	l mm	l1 mm	l2 mm	s1 mm	s2 mm	wight kg
WS-BWIR-L100-63X25-11	63-25	150	65	52	5.8	3	0.100
WS-BWIR-L100-90X50-11	90-50	190	81	63	8.2	4.6	0.292
WS-BWIR-L100-90X63-11	90-63	190	81	65	8.2	5.8	0.320
WS-BWIR-L100-90X75-11	90-75	190	81	70	8.2	6.8	0.360
WS-BWIR-L100-110X63-11	110-63	205	86	65	10	5.8	0.470
WS-BWIR-L100-110X75-11	110-75	205	86	70	10	6.8	0.520
WS-BWIR-L100-110X90-11	110-90	205	86	81	10	8.2	0.593
WS-BWIR-L100-125X63-11	125-63	215	92	65	11.4	5.8	0.530
WS-BWIR-L100-125X75-11	125-75	215	92	70	11.4	6.8	0.650
WS-BWIR-L100-125X90-11	125-90	215	92	81	11.4	8.2	0.680
WS-BWIR-L100-125X110-11	125-110	215	92	86	11.4	6.8	0.760
WS-BWIR-L100-140X110-11	140-110	225	96	86	12.7	8.2	1.020
WS-BWIR-L100-140X125-11	140-125	225	96	92	12.7	10	1.130
WS-BWIR-L100-160X90-11	160-90	245	102	81	14.6	10	1.180
WS-BWIR-L100-160X110-11	160-110	245	102	86	14.6	11.4	1.320
WS-BWIR-L100-160X125-11	160-125	245	102	92	18.2	8.2	1.440
WS-BWIR-L100-200X160-11	200-160	275	120	102	20.5	10	2.580
WS-BWIR-L100-225X160-11	225-160	285	128	102	20.5	11.4	3.100
WS-BWIR-L100-225X200-11	225-200	285	128	120	22.7	14.6	3.680
WS-BWIR-L100-250X160-11	250-160	314	155	102	22.7	14.6	2.680
WS-BWIR-L100-250X200-11	250-200	314	155	120	22.7	18.2	3.120
WS-BWIR-L100-250X225-11	250-225	293	155	128	22.7	20.5	3.210
WS-BWIR-L100-315X225-11	315-225	435	170	128	28.6	20.5	6.330
WS-BWIR-L100-315X250-11	315-250	390	170	155	28.6	22.7	6.105

90° Elbow كوع ٩٠°

Butt Welding - Injection Molded Fittings
Code: WS-BWIE90-100-(Fitting Size)



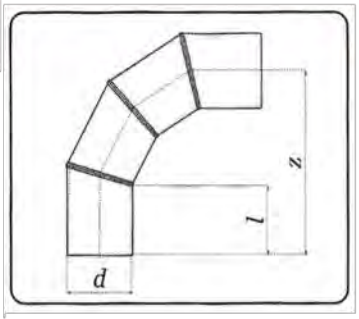
PE100, PN16, SDR11, S5

Item Code	d mm	le mm	z mm	s mm	weight kg
WS-BWIE90-100-63-11	63	63	118	5.8	0.274
WS-BWIE90-100-75-11	75	70	133	6.8	0.420
WS-BWIE90-100-90-11	90	81	150	8.2	0.658
WS-BWIE90-100-110-11	110	86	165	10	1.153
WS-BWIE90-100-125-11	125	93	180	11.4	1.540
WS-BWIE90-100-140-11	140	97	190	12.7	2.160
WS-BWIE90-100-160-11	160	103	210	14.6	2.920
WS-BWIE90-100-180-11	180	110	232	16.4	3.900
WS-BWIE90-100-180-11	200	117	253	18.2	5.530
WS-BWIE90-100-225-11	225	125	270	20.5	7.440
WS-BWIE90-100-250-11	250	135	307	22.7	9.860
WS-BWIE90-100-280-11	280	145	340	25.4	13.520
WS-BWIE90-100-315-11	315	155	370	28.6	20.600

قطع اللحام الحراري (المصنعة)

90° Elbow °٩٠ كوع

Butt Welding - Fabricated Fittings
Code: WS-BWFE-100-(Fitting Size)

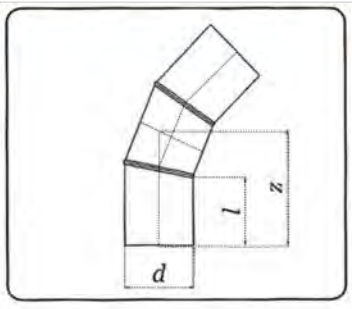


PE100, PN16

Item Code	d mm	l mm	z mm
WS-BWFE90-100-140-11	140	92	374
WS-BWFE90-100-180-11	180	105	407
WS-BWFE90-100-225-11	225	120	445
WS-BWFE90-100-250-11	250	129	466
WS-BWFE90-100-280-11	280	139	491
WS-BWFE90-100-315-11	315	150	520
WS-BWFE90-100-355-11	355	164	554
WS-BWFE90-100-400-11	400	173	591
WS-BWFE90-100-450-11	450	195	632
WS-BWFE90-100-500-11	500	212	674
WS-BWFE90-100-560-11	560	235	727
WS-BWFE90-100-630-11	630	255	782
WS-BWFE90-100-710-11	710	255	822
WS-BWFE90-100-800-11	800	255	867
WS-BWFE90-100-900-11	900		
WS-BWFE90-100-1000-11	1000		
WS-BWFE90-100-1100-11	1100		
WS-BWFE90-100-1200-11	1200		

45° Elbow °٤٥ كوع

Butt Welding - Fabricated Fittings
Code: WS-BWFE45-100-(Fitting Size)



PE100, PN16

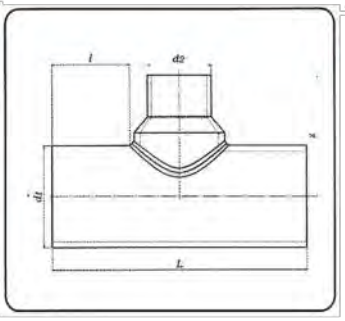
Item Code	d mm	l mm	z mm
WS-BWFE45-100-125-11	125	87	185
WS-BWFE45-100-140-11	140	92	192
WS-BWFE45-100-160-11	160	98	200
WS-BWFE45-100-180-11	180	105	210
WS-BWFE45-100-200-11	200	112	220
WS-BWFE45-100-225-11	225	120	231
WS-BWFE45-100-250-11	250	129	243
WS-BWFE45-100-280-11	280	139	257
WS-BWFE45-100-315-11	315	150	273
WS-BWFE45-100-355-11	355	164	318
WS-BWFE45-100-400-11	400	179	339
WS-BWFE45-100-450-11	450	195	362
WS-BWFE45-100-500-11	500	212	411
WS-BWFE45-100-560-11	560	235	442
WS-BWFE45-100-630-11	630	255	471
WS-BWFE45-100-710-11	710	255	505
WS-BWFE45-100-800-11	800	255	513
WS-BWFE45-100-900-11	900		
WS-BWFE45-100-1000-11	1000		
WS-BWFE45-100-1100-11	1100		
WS-BWFE45-100-1200-11	1200		

قطع اللحام الحراري (المصنعة)

Tee - Reducer (MKM) قسام نقاص

Butt Welding - Fabricated Fittings

Code: WS-BWFTR-100-(Fitting Size)



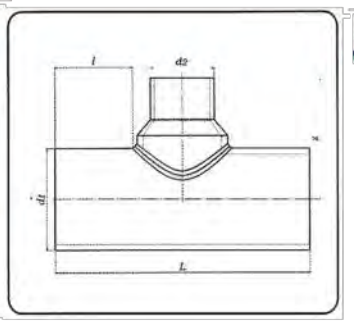
PE100, PN16, SDR11, S5

Item Code	d1 mm	d2 mm	l mm	z mm	L mm
WS-BWFTR-100-160X63-11	160	63	98	173	321
WS-BWFTR-100-160X90-11	160	90	98	189	321
WS-BWFTR-100-160X110-11	160	110	98	192	321
WS-BWFTR-100-160X125-11	160	125	98	197	336
WS-BWFTR-100-180X63-11	180	63	105	183	335
WS-BWFTR-100-180X90-11	180	90	105	199	335
WS-BWFTR-100-180X110-11	180	110	105	202	335
WS-BWFTR-100-180X125-11	180	125	105	207	350
WS-BWFTR-100-180X160-11	180	160	105	218	370
WS-BWFTR-100-200X63-11	200	63	112	193	349
WS-BWFTR-100-200X90-11	200	90	112	209	349
WS-BWFTR-100-200X110-11	200	110	112	212	384
WS-BWFTR-100-200X125-11	200	125	112	217	384
WS-BWFTR-100-200X160-11	200	160	112	228	404
WS-BWFTR-100-225X90-11	225	90	120	222	365
WS-BWFTR-100-225X110-11	225	110	120	225	400
WS-BWFTR-100-225X125-11	225	125	120	230	400
WS-BWFTR-100-225X160-11	225	160	120	241	420
WS-BWFTR-100-250X63-11	250	63	129	218	383
WS-BWFTR-100-250X90-11	250	90	129	234	383
WS-BWFTR-100-250X110-11	250	110	129	237	418
WS-BWFTR-100-250X125-11	250	125	129	242	418
WS-BWFTR-100-250X160-11	250	160	129	253	438
WS-BWFTR-100-250X200-11	250	200	129	267	483
WS-BWFTR-100-280X63-11	280	63	139	233	403
WS-BWFTR-100-280X90-11	280	90	139	249	403
WS-BWFTR-100-280X110-11	280	110	139	252	418
WS-BWFTR-100-280X125-11	280	125	139	257	458
WS-BWFTR-100-280X160-11	280	160	139	268	458
WS-BWFTR-100-280X200-11	280	200	139	282	503
WS-BWFTR-100-315X63-11	315	63	150	251	480
WS-BWFTR-100-315X90-11	315	90	150	267	480
WS-BWFTR-100-315X110-11	315	110	150	270	480
WS-BWFTR-100-315X125-11	315	125	150	275	480
WS-BWFTR-100-315X160-11	315	160	150	286	480
WS-BWFTR-100-315X200-11	315	200	150	300	525
WS-BWFTR-100-315X250-11	315	250	150	317	580
WS-BWFTR-100-355X63-11	355	63	164	271	508
WS-BWFTR-100-355X90-11	355	90	164	287	508
WS-BWFTR-100-355X110-11	355	110	164	290	508
WS-BWFTR-100-355X125-11	355	125	164	295	508
WS-BWFTR-100-355X160-11	355	160	164	306	508
WS-BWFTR-100-355X200-11	355	200	164	320	553
WS-BWFTR-100-355X250-11	355	250	164	337	608
WS-BWFTR-100-400X63-11	400	63	179	293	538
WS-BWFTR-100-400X90-11	400	90	179	309	538
WS-BWFTR-100-400X110-11	400	110	179	312	538
WS-BWFTR-100-400X125-11	400	125	179	317	538
WS-BWFTR-100-400X160-11	400	160	179	328	538
WS-BWFTR-100-400X200-11	400	200	179	342	538
WS-BWFTR-100-400X250-11	400	250	179	359	638
WS-BWFTR-100-450X63-11	450	63	195	318	590
WS-BWFTR-100-450X90-11	450	90	195	334	590
WS-BWFTR-100-450X110-11	450	110	195	337	590
WS-BWFTR-100-450X125-11	450	125	195	342	590
WS-BWFTR-100-450X160-11	450	160	195	353	590
WS-BWFTR-100-450X200-11	450	200	195	367	615
WS-BWFTR-100-450X250-11	450	250	195	384	670
WS-BWFTR-100-500X63-11	500	63	212	343	624
WS-BWFTR-100-500X90-11	500	90	212	359	624
WS-BWFTR-100-500X110-11	500	110	212	362	624
WS-BWFTR-100-500X125-11	500	125	212	367	624
WS-BWFTR-100-500X160-11	500	160	212	378	624
WS-BWFTR-100-500X200-11	500	200	212	392	624
WS-BWFTR-100-500X250-11	500	250	212	409	624
WS-BWFTR-100-560X63-11	560	63	235	373	670
WS-BWFTR-100-560X90-11	560	90	235	389	670
WS-BWFTR-100-560X110-11	560	110	235	392	670
WS-BWFTR-100-560X125-11	560	125	235	397	670
WS-BWFTR-100-560X160-11	560	160	235	408	670
WS-BWFTR-100-560X180-11	560	180	235	415	670
WS-BWFTR-100-560X200-11	560	200	235	422	670
WS-BWFTR-100-630X90-11	630	90	255	424	735
WS-BWFTR-100-630X110-11	630	110	255	427	735
WS-BWFTR-100-630X125-11	630	125	255	432	735
WS-BWFTR-100-630X160-11	630	160	255	443	735
WS-BWFTR-100-630X200-11	630	200	255	457	760

قطع اللحام الحراري (المصنعة)

Tee - Reducer (MKM) قسام نقاص

Butt Welding - Fabricated Fittings
Code: WS-BWFTR-100-(Fitting Size)



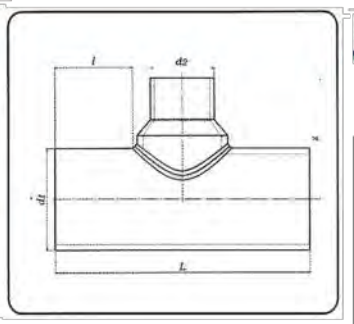
PE100, PN16, SDR11, S5

Item Code	d1 mm	d2 mm	l mm	z mm	L mm
WS-BWFTR-100-630X250-11	630	250	255	474	825
WS-BWFTR-100-630X280-11	630	280	255	484	825
WS-BWFTR-100-630X315-11	630	315	255	495	865
WS-BWFTR-100-630X355-11	630	355	255	509	910
WS-BWFTR-100-630X400-11	630	400	255	524	960
WS-BWFTR-100-630X450-11	630	450	255	540	1010
WS-BWFTR-100-630X500-11	630	500	255	557	1070
WS-BWFTR-100-630X560-11	630	560	255	580	1070
WS-BWFTR-100-710X90-11	710	90	255	464	735
WS-BWFTR-100-710X110-11	710	110	255	467	735
WS-BWFTR-100-710X125-11	710	125	255	472	735
WS-BWFTR-100-710X140-11	710	140	255	477	735
WS-BWFTR-100-710X160-11	710	160	255	483	735
WS-BWFTR-100-710X180-11	710	180	255	490	735
WS-BWFTR-100-710X200-11	710	200	255	497	760
WS-BWFTR-100-710X225-11	710	225	255	505	790
WS-BWFTR-100-710X250-11	710	250	255	514	825
WS-BWFTR-100-710X280-11	710	280	255	524	865
WS-BWFTR-100-710X315-11	710	315	255	535	910
WS-BWFTR-100-710X355-11	710	355	255	549	960
WS-BWFTR-100-710X400-11	710	400	255	564	1010
WS-BWFTR-100-710X450-11	710	450	255	580	1070
WS-BWFTR-100-710X500-11	710	500	255	597	1140
WS-BWFTR-100-710X560-11	710	560	255	620	1140
WS-BWFTR-100-710X630-11	710	630	255	640	1140
WS-BWFTR-100-800X90-11	800	90	255	509	735
WS-BWFTR-100-800X110-11	800	110	255	512	735
WS-BWFTR-100-800X125-11	800	125	255	517	735
WS-BWFTR-100-800X140-11	800	140	255	522	735
WS-BWFTR-100-800X160-11	800	160	255	528	735
WS-BWFTR-100-800X180-11	800	180	255	535	735
WS-BWFTR-100-800X200-11	800	200	255	542	790
WS-BWFTR-100-800X225-11	800	225	255	550	825
WS-BWFTR-100-800X250-11	800	250	255	559	825
WS-BWFTR-100-800X280-11	800	280	255	569	865
WS-BWFTR-100-800X315-11	800	315	255	580	910
WS-BWFTR-100-800X355-11	800	355	255	594	910
WS-BWFTR-100-800X400-11	800	400	255	609	960
WS-BWFTR-100-800X450-11	800	450	255	625	1010
WS-BWFTR-100-800X500-11	800	500	255	642	1070
WS-BWFTR-100-800X560-11	800	560	255	665	1140
WS-BWFTR-100-800X630-11	800	630	255	685	1220
WS-BWFTR-100-800X710-11	800	710	255	685	1220
WS-BWFTR-100-900X110-11	900	110			
WS-BWFTR-100-900X125-11	900	125			
WS-BWFTR-100-900X140-11	900	140			
WS-BWFTR-100-900X160-11	900	160			
WS-BWFTR-100-900X180-11	900	180			
WS-BWFTR-100-900X200-11	900	200			
WS-BWFTR-100-900X225-11	900	225			
WS-BWFTR-100-900X250-11	900	250			
WS-BWFTR-100-900X280-11	900	280			
WS-BWFTR-100-900X315-11	900	315			
WS-BWFTR-100-900X355-11	900	355			
WS-BWFTR-100-900X400-11	900	400			
WS-BWFTR-100-900X450-11	900	450			
WS-BWFTR-100-900X500-11	900	500			
WS-BWFTR-100-900X560-11	900	560			
WS-BWFTR-100-900X630-11	900	630			
WS-BWFTR-100-900X900-11	900	800			
WS-BWFTR-100-1000X140-11	1000	140			
WS-BWFTR-100-1000X160-11	1000	160			
WS-BWFTR-100-1000X180-11	1000	180			
WS-BWFTR-100-1000X200-11	1000	200			
WS-BWFTR-100-1000X225-11	1000	225			
WS-BWFTR-100-1000X250-11	1000	250			
WS-BWFTR-100-1000X280-11	1000	280			
WS-BWFTR-100-1000X315-11	1000	315			
WS-BWFTR-100-1000X355-11	1000	355			
WS-BWFTR-100-1000X400-11	1000	400			
WS-BWFTR-100-1000X450-11	1000	450			
WS-BWFTR-100-1000X500-11	1000	500			
WS-BWFTR-100-1000X560-11	1000	560			
WS-BWFTR-100-1000X630-11	1000	630			
WS-BWFTR-100-1000X800-11	1000	800			

قطع اللحام الحراري (المصنعة)

Tee - Reducer (MKM) قسام نقاص

Butt Welding - Fabricated Fittings
Code: WS-BWFTR-100-(Fitting Size)



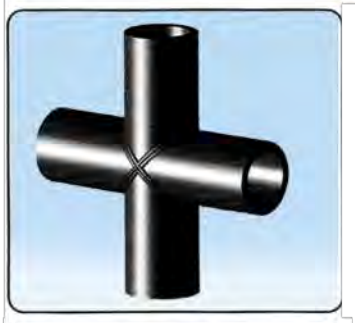
PE100, PN16, SDR11, S5

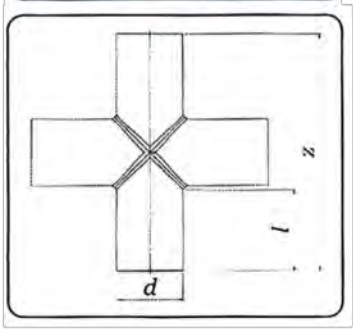
Item Code	d1 mm	d2 mm	l mm	z mm	L mm
WS-BWFTR-100-1100X125-11	1100	160			
WS-BWFTR-100-1100X180-11	1100	180			
WS-BWFTR-100-1100X200-11	1100	200			
WS-BWFTR-100-1100X225-11	1100	225			
WS-BWFTR-100-1100X250-11	1100	250			
WS-BWFTR-100-1100X280-11	1100	280			
WS-BWFTR-100-1100X315-11	1100	315			
WS-BWFTR-100-1100X355-11	1100	355			
WS-BWFTR-100-1100X400-11	1100	400			
WS-BWFTR-100-1100X450-11	1100	450			
WS-BWFTR-100-1100X500-11	1100	500			
WS-BWFTR-100-1100X560-11	1100	560			
WS-BWFTR-100-1100X630-11	1100	630			
WS-BWFTR-100-1100X710-11	1100	710			
WS-BWFTR-100-1100X800-11	1100	800			
WS-BWFTR-100-1100X900-11	1100	900			
WS-BWFTR-100-1100X1000-11	1100	1000			
WS-BWFTR-100-1200X180-11	1200	180			
WS-BWFTR-100-1200X200-11	1200	200			
WS-BWFTR-100-1200X225-11	1200	225			
WS-BWFTR-100-1200X250-11	1200	250			
WS-BWFTR-100-1200X280-11	1200	280			
WS-BWFTR-100-1200X315-11	1200	315			
WS-BWFTR-100-1200X355-11	1200	355			
WS-BWFTR-100-1200X400-11	1200	400			
WS-BWFTR-100-1200X450-11	1200	450			
WS-BWFTR-100-1200X500-11	1200	500			
WS-BWFTR-100-1200X560-11	1200	560			
WS-BWFTR-100-1200X630-11	1200	630			
WS-BWFTR-100-1200X710-11	1200	710			
WS-BWFTR-100-1200X800-11	1200	800			
WS-BWFTR-100-1200X900-11	1200	900			
WS-BWFTR-100-1200X1000-11	1200	1000			

قطع اللحام الحراري (المصنعة)

Tee Cross قسام اربع جهات

Butt Welding - Fabricated Fittings
Code: WS-BWFCT-100-(Fitting Size)





PE100, PN16

Item Code	d mm	l mm	z mm
WS-BWFCT-100-110-16	110	82	294
WS-BWFCT-100-125-16	125	87	319
WS-BWFCT-100-140-16	140	92	344
WS-BWFCT-100-160-16	160	98	376
WS-BWFCT-100-180-16	180	105	410
WS-BWFCT-100-200-16	200	112	444
WS-BWFCT-100-120-16	225	120	485
WS-BWFCT-100-129-16	250	129	528

Item Code	d mm	l mm	z mm
WS-BWFCT-100-280-16	280	139	578
WS-BWFCT-100-315-16	315	150	635
WS-BWFCT-100-355-16	355	164	703
WS-BWFCT-100-400-16	400	179	778
WS-BWFCT-100-450-16	450	195	860
WS-BWFCT-100-500-16	500	212	944
WS-BWFCT-100-560-16	560	235	1050
WS-BWFCT-100-630-16	630	255	1160

ماكينة اللحام الحراري
Butt Fusion Welding Machine

DELTA DRAGON 250B

TECHNICAL FEATURES

	DELTA DRAGON 250B	DELTA DRAGON 315B
Working range	75 ÷ 250 mm	90 ÷ 315 mm
Power supply	110 V / 230 V	230 V
	Single phase - 50/60 Hz	Single phase - 50/60 Hz
Total absorbed power	**3470 W / 3470 W**	**4420 W**
Working temperature	180 ÷ 280°C	180 ÷ 280°C
Ambient temperature	-5 ÷ +40°C	-5 ÷ +40°C
Time to reach welding temperature	< 20 min.	< 20 min.
Materials	HDPE, PP, PB, PVDF	HDPE, PP, PB, PVDF
DIMENSIONS (W x D x H)		
Machine body	1000 x 543 x 418 mm	1150 x 530 x 531 mm
WEIGHT		
Machine body	58,00 Kg	86,00 Kg
Total (Delta Dragin 250 B only)	118,00 Kg	**160,00 Kg**

DELTA DRAGON 315B

ماكينة اللحام الحراري
Butt Fusion Welding Machine

DELTA DRAGON 355B

TECHNICAL FEATURES

	DELTA DRAGON 355B	DELTA 500	
Working range	125÷ 355 mm	200 ÷ 500 mm	
Power supply	230 V Single phase - 50/60 Hz	230 V Single phase 50/60 Hz	400 V Three-phase 50/60 Hz
	180 ÷ 280°C		
Total absorbed power	**5800 W**	**7950 W**	**7200 W**
Working temperature	180 ÷ 280°C	180 ÷ 280°C	
Outside temperature range	-5 ÷ +40°C	-5 ÷ +40°C	
Time to reach welding temperature	< 20 min.	< 20 min.	
Materials	HDPE, PP, PB, PVDF	HDPE, PP, PVDF	
DIMENSIONS (W x D x H)			
Machine body	1208 x 725 x 584 mm	1330 x 840 x 845 mm	
WEIGHT			
Machine body	157,00 Kg	197,00 Kg	
Standard composition	**269 ,00 Kg**	**364,00 Kg**	

DELTA 500

ماكينة اللحام الحراري
Butt Fusion Welding Machine

TECHNICAL FEATURES

	DELTA 630
Working range	280 ÷ 630 mm
Power supply	230 - 400 V 3F+N+PE 50/60 Hz
Max. absorbed power	**12312 W**
Working temperature	180 ÷ 280°C
Outside temperature range	-5 ÷ +40°C
Time to reach welding temperature	< 35 min.
Materials	HDPE, PP, PB, PVDF For other materials contact RITMO S.p.A.
DIMENSION (W x D x H)	
Machine body	1435 x 1010 x 1000 mm
WEIGHT	
Machine body	415 Kg
Standard composition	708 Kg


"Digital Dragon" temperature controller


Fast removing system

ماكينة اللحام الحراري

BASIC LINE	DELTA DRAGON
Professional	Professional HIGH TECH

Differences

Machine Body

Adjustable welding position to fit narrow and unconfortable work fields

Large side handles for easier transport

Rollers available on machine body

ماكينة اللحام الحراري

BASIC LINE DELTA DRAGON

Professional | Professional HIGH TECH

Differences

Electro-Hydraulic Case

Rugged plastic case to protect the hydraulic system against accidental drops, hits, dust and humidity

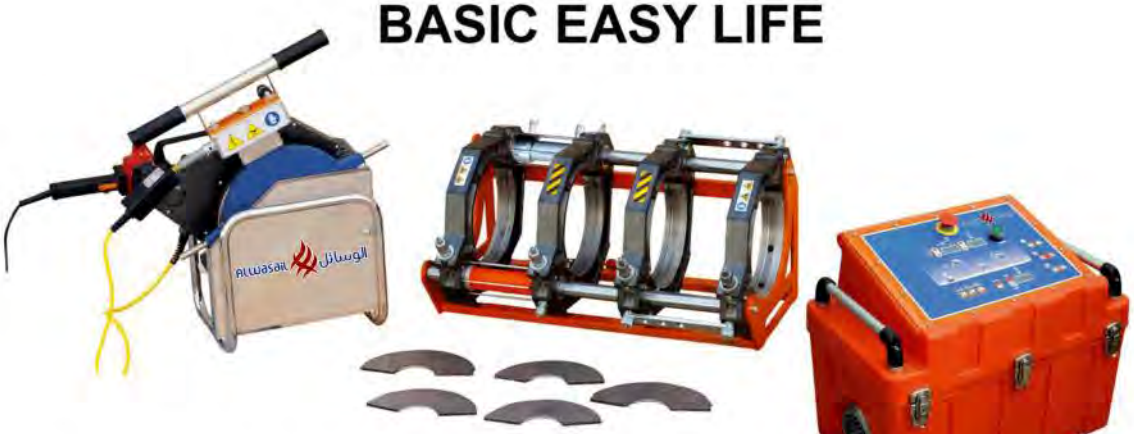
Timer mounted on case panel

Adapters

Wider gripping areas on pipes and fittings

ماكينة اللحام الحراري
Butt Fusion Welding Machine

BASIC EASY LIFE



BASIC EASY LIFE is the new evolution of the BASIC range.
Thanks to the special gearcase, the EASY LIFE system, can manage the welding process on a semi automatic way. The electronic system guarantees the continuous repeating of the welding cycles and automatically controls the preset parameters. The use of the EASY LIFE together with the **INSPECTOR** data logger guarantees certified welds comparable to those performed with a CNC automatic machine. Also the "Dual Pressure" welding method is made easy and reliable thanks to the Easy Life gearcase.

The EASY LIFE system is available for the complete BASIC range.

The Easy Life gearcase consists of: an extractable box in plastic featuring, a control panel with push buttons for managing "programming and process", welding pressure/time, an electric panel with a safety circuit breaker and overload cutout - power outlet, connection for the electronic data-logger Inspector, hydraulic hoses with non-drip fast couplings.

BASIC

EVOLUTION

BASIC EASY LIFE 160
BASIC EASY LIFE 200
BASIC EASY LIFE 250
BASIC EASY LIFE 315
BASIC EASY LIFE 355

TECHNICAL FEATURES

Dimensions (W x D x H)	585 x 384 x 463 mm
Weight	37 Kg
Power supply	230 V single phase 50/60 Hz
Total adsorbed power	**1100 W**

ماكينة اللحام الحراري
Butt Fusion Welding Machine

BASIC 160/200 is able to weld fittings such as elbows, tees, Y-branches and flange necks without any additional equipment by simply fixing the clamps' drag bar.

BASIC 160/200 includes:

- **A machine body** with 4 clamps and 2 hydraulic cylinders with fast non-drip couplings.
- **An extractable heating plate** with DIGITAL DRAGON, high - precision electronic thermo-regulator.
- **An extractable milling cutter**, with safety micro-switch.
- **An electro-hydraulic gearcase**, with a clamp opening and closing lever.
- **A hydraulic hoses** with non – drip quick couplings.

STANDARD COMPOSITION
- BASIC 160 adapters, from Ø 40 to 140 mm.
- BASIC 200 adapters, from Ø 63 to 180 mm.

ON REQUEST (ACCESSORIES)
- Tool for flange necks (only BASIC 200);
- EASY LIFE gearbox.

BASIC 160

Materials	HDPE - PB - PP - PVDF
Working range	40 ÷ 160 mm
Power supply	230 VAC
Single phase	50/60 Hz
Total absorbed power	1900 W
Working temperature	180 ÷ 280°C
Pressure working range	0 ÷ 150 bar
Weight only body machines	30 Kg

BASIC 200

Materials	HDPE - PB - PP - PVDF
Working range	63 ÷ 200 mm
Power supply	230 VAC
Single phase	50/60 Hz
Total absorbed power	3000 W
Working temperature	180 ÷ 280°C
Pressure working range	0 ÷ 150 bar
Weight only body machines	35 Kg

ماكينة اللحام الحراري
Butt Fusion Welding Machine

BASIC 250/315 is able to weld fittings such as elbows, tees, Y-branches and flange necks without any additional equipment by simply fixing the clamps' drag bar.

BASIC 250/315 includes:

- **A machine body** with 4 clamps and 2 hydraulic cylinders with fast non-drip couplings.
- **An extractable heating plate** with DIGITAL DRAGON, high - precision electronic thermo-regulator.
- **An electro-hydraulic gearcase**, with a clamp opening and closing lever.
- **A hydraulic hoses** with non – drip quick couplings.

BASIC 250

Materials	HDPE - PB - PP - PVDF
Working range	75 ÷ 250 mm
Power supply	230 VAC
Single phase	50/60 Hz
Total absorbed power	3500 W
Working temperature	180 ÷ 280°C
Pressure working range	0 ÷ 150 bar
Weight only body machines	54 Kg

STANDARD COMPOSITION
- Adapters, from Ø 75 to 225 mm.

ON REQUEST (ACCESSORIES)
- Tool for flange necks;
- EASY LIFE gearbox

BASIC 315

Materials	HDPE - PB - PP - PVDF
Working range	90 ÷ 315 mm
Power supply	230 VAC
Single phase	50/60 Hz
Total absorbed power	4500 W
Working temperature	180 ÷ 280°C
Pressure working range	0 ÷ 150 bar
Weight only body machines	86 Kg

STANDARD COMPOSITION
- Inserts from Ø 90 to 280 mm;
- Master adapters Ø 250 mm.

ON REQUEST (ACCESSORIES)
- Tool for flange necks;
- EASY LIFE gearbox.

ماكينة اللحام الحراري
Butt Fusion Welding Machine

BASIC 355 is able to weld fittings such as elbows, tees, Y-branches and flange necks without any additional equipment by simply fixing the clamps' drag bar.

BASIC 355 includes:

- **A machine body** with 4 clamps and 2 hydraulic cylinders with fast non-drip couplings.
- **An extractable heating plate** with DIGITAL DRAGON, high - precision electronic thermo-regulator.
- **An electro-hydraulic gearcase**, with a clamp opening and closing lever.
- **A hydraulic hoses** with non – drip quick couplings.

BASIC 355

Materials	HDPE - PB - PP - PVDF
Working range	125 ÷ 355 mm
Power supply	230 VAC
Single phase	50/60 Hz
Total absorbed power	4500 W
Working temperature	180 ÷ 280°C
Pressure working range	0 ÷ 150 bar
Weight only body machines	150 Kg

STANDARD COMPOSITION
- Inserts from Ø 125 to 315 mm;
- Master adapters Ø 250 mm

ON REQUEST (ACCESSORIES)
- Tool for flange necks;
- EASY LIFE gearbox.

قطع اللحام والتوصيل الكهربائية

Electrofusion Fittings

PRESSURE RATINGS
The maximum pressure rating for each type of Electrofusion fitting is in accordance with the table below:

Fitting Type	Water (cold)	Gas
Coupler	PN16	6 Bar/10 Bar
Elbow	PN16	6 Bar/10 Bar
Equal Tee	PN16	6 Bar/10 Bar
Reducer	PN16	6 Bar/10 Bar
Tapping Tee**	PN16/PN12.5	6 Bar/10 Bar
Branch Saddle**	PN16/PN12.5	6 Bar
Hydrant Products	PN12.5	n/a
Transition Fittings	PN12.5	6 Bar

** PN16 when PE100 resin / PN12.5 when PE80 resin

SDR RATINGS
The appropriate pipe SDR rating for electrofusion fittings is in accordance with the tables below:

Fitting Sizes 63mm and Below	
Fitting Type	**Pipe SDR**
Coupler	11
Elbow	11
Reducer	11
Equal Tee	11
Tapping Tee	11
Branch Saddle	11
Transition Fittings	11

Fitting Sizes Above 63mm	
Fitting Type	**Pipe SDR**
Coupler	11 to 17.6
Elbow	11 to 17.6
Equal Tee	11 to 17.6
Reducer	11 to 17.6
Tapping Tee	11 to 17.6
Branch Saddle	11 to 17.6
Hydrant Products	11 to 17.6
Transition Fittings	11 to 17.6

Testing can be carried out on SDR rated pipe out of the stated ranges if required, contact nearest Fusion Provida outlet for details.

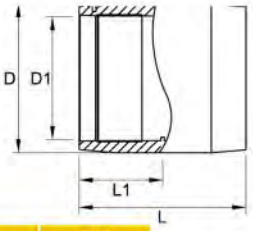
قطع اللحام والتوصيل الكهربائية
Electrofusion Fittings

APPROVAL TESTING

TYPICAL TEST	TEST CRITERIA	WATER SPECIFICATION	GAS SPECIFICATION
20°C Hydrostatic test (5000 hrs)	PE80 - 9.5 Mpa PE100 - 11 Mpa	N/A	GIS/PL2-4 GIS/PL2-6
80°C Hydrostatic test (1000 hrs)	PE80 - 4 Mpa PE100 - 5 Mpa	BS EN12201-3	BS EN1555-3 GIS/PL2-4 GIS/PL2-6
20°C Hydrostatic test (100 hrs)	PE80 - 10 Mpa PE100 - 12.4 Mpa	BS EN12201-3	BS EN1555-3 BS ISO 8085
80°C Hydrostatic test (170 hrs)	PE80 - 4.6 Mpa PE100 - 5.5 Mpa	BS EN12201-3	GIS/PL2-4 GIS/PL2-6 BS EN1555-3 BS ISO 8085
Joint strength/adhesion (socket OD>90mm)	All samples to have 75% ductility	WIS 4-32-08 BS EN12201-3	GIS/PL2-4 GIS/PL2 -6 BS EN1555-3 BS ISO 8085
Joint strength/crush (socket OD≤90mm and saddles)	No brittle failure at joint interface	BS EN12201-3	GIS/PL2-4 GIS/PL2-6 BS EN1555-3 BS ISO 8085
Dimensional stability (9000 hrs)	Within specified tolerances after conditioning @ 30°C	n/a	GIS/PL2-4 GIS/PL2-6
Material tests (taken from joint interface after fusion cycle)	MFR, OIT and density within specified limits	BS EN12201-3	GIS/PL2-4 GIS/PL2-6 BS EN1555-3 BS ISO 8085
A.R.E.L. (tensile loading for sockets<75mm)	Specified load for 500 hrs @ 80°C	n/a	GIS/PL2-4 GIS/PL2-6
Tapping tee impact (100 J impact energy)	No cracking or leaking after impact	BS EN12201-3	GIS/PL2-4 GIS/PL2-6 BS EN1555-3 ISO 8085
Tapping tee cutter torque	<45Nm for 32mm O/L<110NM for 63mm O/L	n/a	GIS/PL2-4
Pressure loss across tapping tee	State K value	n/a	GIS/PL2-4
Branch saddle pull off	Outlet pipe to fail before fitting	Internal	Internal

قطع اللحام والتوصيل الكهربائية

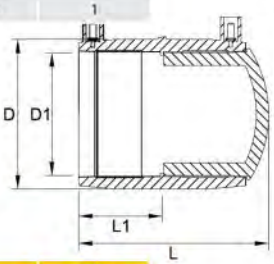
Electrofusion Fittings



COUPLER

PE100 Black - Gas 10 Bar / Water PN16

FITTING SIZE	L (mm)	L1 (mm)	D (mm)	D1 (mm)	FUSION TIME (secs)	COOLING TIME (mins)	WEIGHT (kg)	BOX QUANTITY
20mm	77	37.5	29	20	35	3	0.033	80
25mm	77	37.5	33.5	25	30	3	0.037	80
32mm	77	37.5	43	32	45	3	0.057	75/100
40mm	90	44	51.5	40	40	5	0.08	90
50mm	91	44	61.5	50	90	5	0.096	70
63mm	102	49	77	63	35	3	0.148	25/20
75mm	125	61	100	75	50	5	0.403	45
90mm	122	60	110	90	90	10	0.333	30/27
110mm	144	70	133	110	160	10	0.52	18/10
125mm	154	75	151	125	200	10	0.74	12
140mm	181	89	176	140	200	10	1.45	6
160mm	175	86	195	160	300	20	1.409	4
180mm	185	91	220	180	360	20	1.906	4
200mm	186	92	243	200	440	20	2.301	4
225mm	222	109	276	225	600	30	4.15	2
250mm	220	108	301	250	600	30	4.28	2
280mm (40V)	260	127	345	280	600	30	8.32	1
315mm (40V)	261	128	386	315	900	30	10.1	1
355mm (40V)	260	126	437	355	900	30	12.3	1
400mm (40V)	290	142	475	400	TBC	TBC	14.5	1



END CAP

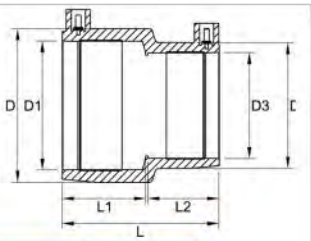
PE100 Black - Gas 10 Bar / Water PN16

FITTING SIZE	L (mm)	L1 (mm)	D (mm)	D1 (mm)	FUSION TIME (secs)	COOLING TIME (mins)	WEIGHT (kg)	BOX QUANTITY
20mm	82	37.5	29	20	35	3	0.041	80
25mm	82	37.5	33.5	25	30	3	0.048	80
32mm	84	37.5	46	32	45	3	0.073	75/100
40mm	97	44	51.5	40	40	5	0.102	90
50mm	101	44	61.5	50	90	5	0.15	70
63mm	115	49	77	63	35	5	0.226	25/20
75mm	125	61	100	75	50	5	0.553	45
90mm	138	60	110	90	90	10	0.521	30
110mm	164	70	133	110	160	10	0.97	18/10
125mm	175	75	151	125	200	10	1.24	10
140mm	236	89	176	140	200	10	2.25	6
160mm	202	85	196	160	300	20	2.21	4
180mm	214	91	220	180	360	20	2.32	4
200mm	215	108	243	200	440	30	4.2	2
225mm	222	109	276	225	600	30	7	2
250mm	220	108	301	250	600	30	8.1	2

قطع اللحام والتوصيل الكهربائية
Electrofusion Fittings

REDUCER

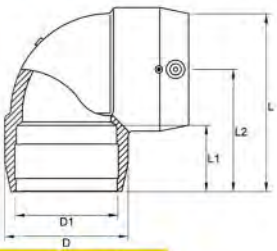
PE100 Black - Gas 10 Bar / Water PN16



FITTING SIZE	L (mm)	L1 (mm)	D (mm)	D1 (mm)	L2 (mm)	D2 (mm)	D3 (mm)	FUSION TIME (secs)	COOLING TIME (mins)	WEIGHT (kg)	BOX QUANTITY
25 x 20mm	77	38.5	34	25	36.5	29	20	35	3	0.035	80
32 x 20mm	77	38.5	43	32	36.5	29	20	40	3	0.048	75
32 x 25mm	77	38.5	43	32	36.5	34	25	30	3	0.052	75
40 x 32mm	84	41	52	40	41	43	32	50	5	0.104	100
50 x 32mm	91	46.5	62	50	41	44	32	60	5	0.087	80
50 x 40mm	91	46.5	62	50	43	52	40	60	5	0.92	80
63 x 32mm	102	52	78	63	44	44	32	90	5	0.13	60
63 x 40mm	102	52.3	77	63	45	52	40	70	5	0.103	60
63 x 50mm	102	52	78	63	48	62	50	120	10	0.138	60
75 x 63mm	126	61	98	75	57	82	63	80	7	0.44	28
90 x 63mm	122.5	61	109.5	90	55	79	63	80	5	0.3	35
110 x 63mm	158	80	140	110	58	98	63	70	10	0.62	18
110 x 90mm	137.5	70	134	110	62	111	90	120	10	0.535	20
125 x 90mm	145	75	152	125	62.5	112	90	160	10	0.7	12
160 x 90mm	192	96	200	160	73	117	90	200	22	1.44	4
160 x 110mm	193	96	200	160	80	140	110	200	22	1.52	6
180 x 125mm	221	101	216	180	83	157	125	220	10	2.09	4

90° ELBOW

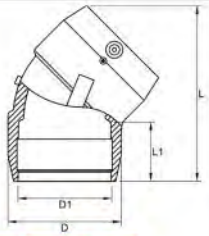
PE100 Black - Gas 10 Bar / Water PN16



FITTING SIZE	L (mm)	L1 (mm)	L2 (mm)	D (mm)	D1 (mm)	FUSION TIME (secs)	COOLING TIME (mins)	WEIGHT (kg)	BOX QUANTITY
20mm x 90deg	82	44	64	36	20	35	3	0.141	40
25mm x 90deg	72.4	37.5	55.4	33.85	25	30	3	0.062	100
32mm x 90deg	84	40	62	44	32	60	3	0.097	80
40mm x 90deg	116	50	83	67	40	50	5	0.34	55
50mm x 90deg	116	50	83	67	50	90	10	0.241	50
63mm x 90deg	123.3	50	84.1	80	63	35	5	0.294	25
75mm x 90deg	141	53	92	95	75	70	5	0.425	25
90mm x 90deg	165	59	106	113	90	90	10	0.685	15
110mm x 90deg	205	71	135	137	110	160	15	1.12	6
125mm x 90deg	228	72	152	154	125	200	15	1.57	6
160mm x 90deg	320	104	211	213	160	200	10	5	2
180mm x 90deg	320	104	211	213	180	300	20	4.12	2

قطع اللحام والتوصيل الكهربائية

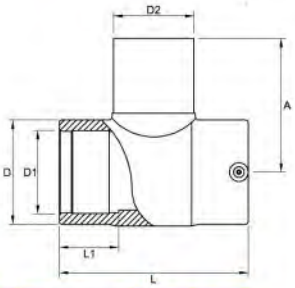
Electrofusion Fittings



45° ELBOW

PE100 Black - Gas 10 Bar / Water PN16

FITTING SIZE	L (mm)	L1 (mm)	D (mm)	D1 (mm)	FUSION TIME (secs)	COOLING TIME (mins)	WEIGHT (kg)	BOX QUANTITY
32mm x 45deg	95	39	44	32	45	3	0.08	100
40mm x 45deg	108	41.5	53	40	50	5	0.1	70
50mm x 45deg	124	44.5	63.8	50	80	5	0.134	50
63mm x 45deg	136.4	50	78.5	63	35	5	0.25	30
75mm x 45deg	165	62	97	75	70	10	0.427	35
90mm x 45deg	192	82	117	90	110	10	0.765	18
110mm x 45deg	213	75	137	110	140	10	0.894	10
125mm x 45deg	240	81	154	125	140	10	1.22	6
160mm x 45deg	320	105	217	160	240	10	4.5	2
180mm x 45deg	320	105	217	180	240	20	3.13	2

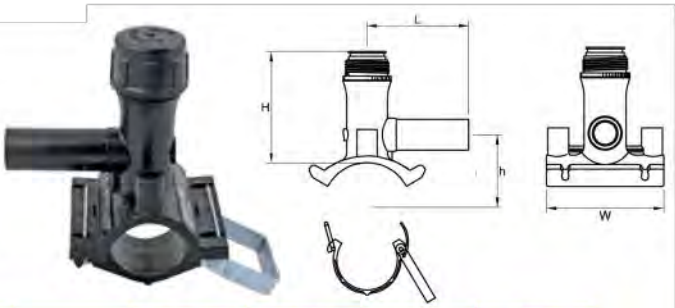


EQUAL TEE

PE100 Black - Gas 10 Bar / Water PN16

FITTING SIZE	L (mm)	L1 (mm)	D (mm)	D1 (mm)	D2 (mm)	A (mm)	FUSION TIME (secs)	COOLING TIME (mins)	WEIGHT (kg)	BOX QUANTITY
20 x 20 x 20mm	98	35	44	20	20	78	30	3	0.13	75
25 x 25 x 25mm	98	35	44	25	25	78	35	3	0.12	75
32 x 32 x 32mm	98	35	44	32	32	78	50	3	0.1	50
40 x 40 x 40mm	131	44	52	40	40	91	80	5	0.163	18
50 x 50 x 50mm	141	43	64	50	50	104	90	5	0.23	25
63 x 63 x 63mm	156	50	82	63	63	114	40	5	0.445	20
75 x 75 x 75mm	174	60	97	75	75	126	120	10	0.597	12
90 x 90 x 90mm	201	55	115	90	90	143	110	8	0.97	7
110 x 110 x 110mm	239	73	139	110	110	167	140	10	1.67	6
125 x 125 x 125mm	262	79	156	125	125	196	200	15	2.3	4
160 x 160 x 160mm	313	89	200	160	160	211	360	20	4.06	2
180 x 180 x 180mm	330	89	224	180	180	231	360	19	5.3	2

قطع اللحام والتوصيل الكهربائية
Electrofusion Fittings



MULTISEAL TAPPING TEE U/P

PE100 Black - Gas 10 Bar / Water PN16

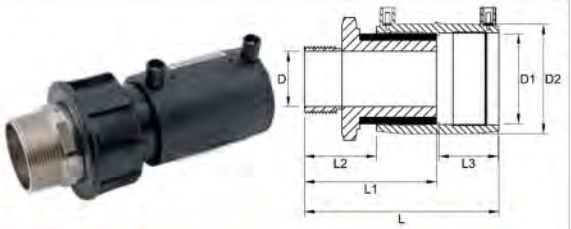
FITTING SIZE	L (mm)	H (mm)	h (mm)	W (mm)	FUSION TIME (secs)	COOLING TIME (mins)	WEIGHT (kg)	BOX QUANTITY
40 x 20mm	105	110	27	120	40	3	0.25	10
40 x 25mm	105	110	27	120	40	3	0.25	10
40 x 32mm	105	110	27	120	40	3	0.25	10
50 x 20mm	105	110	27	120	40	3	0.26	10
50 x 25mm	105	110	27	120	40	3	0.26	10
50 x 32mm	105	110	27	120	40	3	0.26	10
63 x 20mm	105	119	62	120	70	10	0.6	10
63 x 25mm	105	119	62	120	70	10	0.6	10
63 x 32mm	105	119	62	120	70	10	0.6	10
75 x 20mm	105	110	77	120	100	10	0.646	10
75 x 25mm	105	110	77	120	100	10	0.646	10
75 x 32mm	105	110	77	120	100	10	0.646	10
90 x 20mm	105	110	77	120	100	10	0.646	10
90 x 25mm	105	110	77	120	100	10	0.646	10
90 x 32mm	105	110	77	120	100	10	0.646	10
110 x 20mm	105	117	87	120	80	10	0.682	10
110 x 25mm	105	117	87	120	80	10	0.682	10
110 x 32mm	105	117	87	120	80	10	0.682	10
125 x 20mm	105	117	95	120	80	10	0.67	10
125 x 25mm	105	117	95	120	80	10	0.67	10
125 x 32mm	105	117	95	120	80	10	0.67	10
160 x 20mm	105	122	112	120	100	10	0.69	10
160 x 25mm	105	122	112	120	100	10	0.69	10
160 x 32mm	105	122	112	120	100	10	0.69	10
180 x 20mm	105	122	122	120	100	10	0.68	10
180 x 25mm	105	122	122	120	100	10	0.68	10
180 x 32mm	105	122	122	120	100	10	0.68	10
200 x 20mm	105	122	132	120	100	10	0.73	10
200 x 25mm	105	122	132	120	100	10	0.73	10
200 x 32mm	105	122	132	120	100	10	0.73	10
225 x 20mm	105	122	122	120	100	10	0.78	10
225 x 25mm	105	122	122	120	100	10	0.78	10
225 x 32mm	105	122	122	120	100	10	0.78	10

قطع اللحام والتوصيل الكهربائية

Electrofusion Fittings

MALE TRANSITION COUPLER

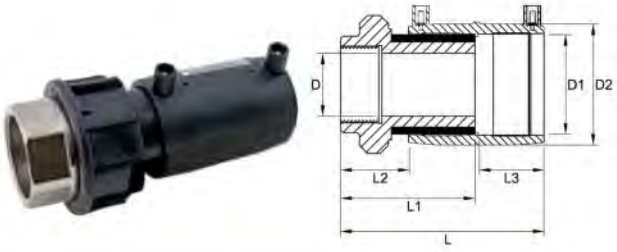
PE100 Black - Gas 10 Bar / Water PN16



FITTING SIZE	L (mm)	L1 (mm)	L2 (mm)	D (mm)	FUSION TIME (secs)	COOLING TIME (mins)	WEIGHT (kg)	BOX QUANTITY
25mm x ¾"	114	79	34	17	30	3	0.4	60
32mm x ½"	114	79	34	23	45	3	0.425	50
32mm x ¾"	114	79	34	23	45	3	0.425	50
32mm x 1"	114	79	34	23	45	3	0.426	50
32mm x 1¼"	114	79	34	23	45	3	0.431	50
32mm x 1½"	114	79	34	23	45	3	0.431	50
40mm x 1"	126	81	34	29	40	5	0.468	30
40mm x 1¼"	126	83	34	29	40	5	0.468	30
40mm x 1½"	126	83	34	29	40	5	0.468	30
40mm x 2"	126	88	34	29	40	5	0.471	30
50mm x 1"	134	86	34	38	80	5	0.418	20
50mm x 1¼"	136	88	36	38	80	5	0.548	20
50mm x 1½"	136	88	36	38	80	5	0.548	20
50mm x 2"	141	93	41	38	80	5	0.569	15
63mm x 1¼"	154	97	36	48	35	3	0.704	15
63mm x 1½"	154	97	36	48	35	3	0.704	15
63mm x 2"	159	102	41	48	35	3	0.894	15

FEMALE TRANSITION COUPLER

PE100 Black - Gas 10 Bar / Water PN16



FITTING SIZE	L (mm)	L1 (mm)	L2 (mm)	D (mm)	FUSION TIME (secs)	COOLING TIME (mins)	WEIGHT (kg)	BOX QUANTITY
25mm x ¾"	106	68	26	17	30	3	0.4	60
32mm x 1"	106	68	26	23	45	3	0.426	50
40mm x 1"	116	73	26	29	40	5	0.418	30
40mm x 1¼"	116	73	26	29	40	5	0.418	30
40mm x 1½"	116	73	26	29	40	5	0.408	30
50mm x 1½"	126	78	26	38	80	5	0.588	20
50mm x 2"	126	78	26	38	80	5	0.588	15
63mm x 1½"	148	91	30	48	35	3	0.924	15
63mm x 2"	148	91	30	48	35	3	0.894	15

ماكينة اللحام الكهربائي

QBOX ELECTROFUSION CONTROL BOX

Providing all your needs in electrofusion pipe jointing for now and the future!

FEATURES:

- Largest brightest screen it its class
- Improved user interface with helpful on-screen prompts
- Automatic contrast adjustment of the screen
- Multi-lingual display; the language can be changed at the touch of a button
- Convenient on screen display at all times of
  - remaining joint record memory capacity
  - time until next service
  - input supply voltage
  - time and date
- Well specified control system allowing for future upgrades and improvements
- Joint record data is stored in internal memory and is automatically backed up to a removable SD card for complete security
- Compatible with the Data Transfer System software; joint record data can easily be downloaded to a readily available USB memory stick for the transfer of data to PC
- Joint records can be reviewed quickly on screen
- Fusion's unique 'touch-key' technology is available on 110V UK control boxes
- Count-up timer at the end of jointing allows the cooling time to be monitored
- Robust construction employing high quality die-cast aluminium enclosure and integrated heat-sink
- IP54 rated to EN60529 preventing ingress of water and dirt
- Improved performance allows use with larger fittings
- Plus all the existing functions of a Fusion Control Box

IMPROVED MAINTENANCE AND SERVICING:

- Quick and easy calibration using the keypad
- Intelligent design allowing fascia screen and keypad to be replaced quickly and independently, reducing potential maintenance costs
- As and when the operating software is improved it can be updated quickly and easily via a USB memory stick
- Improved lead end assemblies and sense pin designed for strength, durability and ease of maintenance
- Input and output cables are more flexible and user friendly
- Standard box can be upgraded with a barcode reader if required.

فروع المبيعات (العربية السعودية)

الموقع	ص.ب	هاتف	جوال	فاكس
بريدة (المكتب الرئيسي)	١٢٤	٠٦ ٣٨٢ ١٧٨٥/١٩٠١		٠٦ ٣٨١ ١٢٠٣
بريدة (فرع الرئيسي)	١٢٤	٠٦ ٣٨١ ٦٦٥٨/٣٩١٤	٠٥٠ ٦٣٩ ٥٨٣٣/٠٥٠ ٦٣٧ ٥٦٨٥	٠٦ ٣٨١ ١٣٠٦
بريدة (الموطاء)	١٢٤	٠٦ ٣٢٤ ٩٤١٩	٠٥٠ ٦٣٩ ٠٢٩٧	٠٦ ٣٢٥ ٧٠٦٧
الدمام	٨٨٩٣	٠٣ ٨١٧ ١٣٧٥	٠٥٠ ٦٤٣ ٧٣١٧	٠٣ ٨١٧ ٦٣٤٧
حائل	٢٣٩٣	٠٦ ٥٤٣ ٥٢١٩	٠٥٠ ٦١٣ ٧٢٥٦	٠٦ ٥٣٢ ٢١٣٨
الهفوف		٠٣ ٥٨٢ ٥٥٣٤	٠٥٠ ٦٣١ ٤٠٢١	٠٣ ٥٨٢ ٥٦٣٤
جدة (واحد)	٦٩٦٣	٠٢ ٦٦٥ ٧٤٧٣/٤٥٣٦	٠٥٠ ٦٤٢ ٣٥٩٨	٠٢ ٦٦٥ ٧٤٧٣
جدة (اثنين)	٦٩٦٣	٠٢ ٢٢٧ ٥٧٣٤/٥٧٣٥	٠٥٠ ٦٤٢ ٠٩١٤ / ٠٥٠ ٦٤٣ ٧٩٠٧	٠٢ ٢٢٧ ٤٦٥٩
جيزان	١١٢	٠٧ ٣٢٧ ٤٨٨٠	٠٥٠ ٦٣٤ ٦٤٥٦	٠٧ ٣٢٧ ٤٨٨٣
الجوف	١٠٨٣	٠٤ ٦٢٤ ٤٠٧٦	٠٥٠ ٦٣٦ ٧٩٢٥	٠٤ ٦٢٤ ٦٨٤٠
الخرج	١٦٠٦	٠١ ٥٥٠ ١٦١٦	٠٥٠ ٦٤٠ ٤٣١٧	٠١ ٥٥١ ٠٤٥٨
المدينة	٢٥٠	٠٤ ٨٤٦ ١٤٩٣ (٠٤)	٠٥٠ ٦٤١ ٥٦١٠	٠٤ ٨٤٥ ٧٢٧٧
نجران	١٣١٧	٠٧ ٥٤٤ ١٩٨٦	٠٥٠ ٦٣٤ ٨٩٤٧	٠٧ ٥٤٤ ١٩٨٦
عنيزه	١٥٠٩	٠٦ ٣٦١ ٠١٢٨	٠٥٠ ٦٤١ ٨٧٦٣	٠٦ ٣٦١ ٠١٢٨
الرياض (فرع الرئيسي)	٢١٥٩٩	٠١ ٤٥٠ ٨٤٣١/٣٢/٣٣/٣٤	٠٥٠ ٦٣٥ ٤٨١٥/٠٥٠ ٦٣٥ ٩١٤٥	٠١ ٤٥٠ ٨٤٣٥/٨٤٢٢/٨١٦٦
الرياض (شارع سلام)	٢١٥٩٩	٠١ ٤١١ ٤٦٧٩	٠٥٠ ٦٤٠ ٢٤٩١	٠١ ٤١١ ١٩١٤
تبوك	٢٠٠٨	٠٤ ٤٢٨ ٨٣٧٤	٠٥٠ ٦٣٥ ٨٧٥٣	٠٤ ٤٢٨ ٨٣٧٤
الطائف	٧٠٤٢	٠٢ ٧٤٠ ٢١٧٩	٠٥٠ ٦٤٠ ٣٩٦٧	٠٢ ٧٤٠ ٢١٧٩
وادي الدواسر	٥٢٥	٠١ ٧٨٦ ٢٠٨١	٠٥٠ ٦٤١ ٩٦٤٣	٠١ ٧٨٦ ٢٠٨١
الزلفى	٧٢٥	٠٦ ٤٢٢ ٤٩٢٧	٠٥٠ ٦٣٥ ١٩٠٣	٠٦ ٤٢٣ ٢٤٢١
القرية العليا		٠٣ ٣٨٦ ١٢٢٥	٠٥٠ ٦٤٤ ٢٣٣٨	٠٣ ٣٨٦ ١٩٦٠

SALES BRANCHES (SAUDI ARABIA)

Location	P.O.Box	Tel.No.	Mobile No.	Fax No.
Buraidah (Head Office)	124	(06) 3821785/1901		(06) 381-1203
Buraidah (Main Branch)	124	(06) 381 6658/3914	050 639 5833/050 637 5685	06 381 1306
Buraidah (Al-Muwatha)	124	06 324 9419	050 639 0297	06 325 7067
Dammam	8893	03 817 1375	050 643 7317	03 817 6347
Hail	2393	06 543 5219	050 613 7256	06 532 2138
Hofuf		03 582 5534	050 6314021	03 582 5634
Jeddah (One)	6963	02 665 7473/4536	050 642 3598	02 665 7473
Jeddah (Two)	6963	02 227 5734/5735	050 642 0914/050 643 7907	02 227 4659
Jizan (Sabia)	112	07 327 4880	050 634 6456	07 327 4883
Jouf	1083	04 624 4076	050 636 7925	04 624 6840
Kharj	1606	01 550 1616	050 640 4317	01 551 0458
Madina	250	04 846 1493	050 641 5610	04 845 7277
Najran	1317	07 544 1986	050 634 8947	07 544 1986
Onaizah	1509	06 361 0128	050 641 8763	06 361 0128
Riyadh-Main Br.	21599	01 450 84 31/32//33/34	050 635 4815/050 635 9145	01 450 8435/8422/8166
Riyadh-Salam Street	21599	01 411 4679	050 640 2491	01 411 1914
Tabuk	2008	04 428 8374	050 635 8753	04 428 8374
Taif	7042	02 740 2179	050 640 3967	02 740 2179
Wadi Al-Dwasir	525	01 786 2081	050 641 9643	01 786 2081
Zulfi	725	06 422 4927	050 635 1903	06 423 2421
Olaya Village		03 386 1225	050 644 2338	03 386 1960

Manufacturing Facility

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Fax: +966 6 322 0291 /701
Email: info@al-wassel.com

ALWASAIL الوسائل
Alwasail Industrial Co. شركة الوسائل الصناعية

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Riyadh 11485
Kingdom of Saudi Arabia
Mob: +966 55 050 3389
Tel: +966 1 450 8431 / 32 / 33 / 34
Fax: +966 1 454 8057 / 450 8166
Email: ahmadsaif@al-wassel.com
abdulhameed@al-wassel.com

BUREAU VERITAS Certification
*For Water Pipes, Fittings & Gas Pipes

NSF
*For Further Details Visit NSF Web Portal

TÜV NORD
Management system as per EN ISO 9001 : 2008
Certificate Registration No. 44 100 100801

WRAS Water Regulations Advisory Scheme

The Company engages in a policy of continuous development and improvement of its products. Therefore, the company reserves the right to modify the design and / or specifications of any products or equipment without notice and without incurring liability.

MADE IN SAUDI ARABIA

صنع بالسعودية