



ROYAL PVC Co.LTD

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## SECTION 05

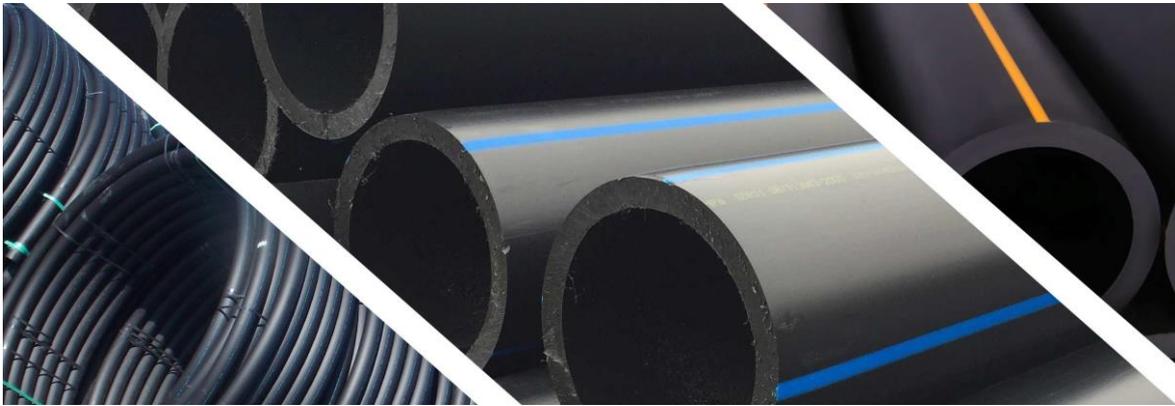
Royal HDPE Pipe





## ROYAL HDPE PIPE

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**STANDARD:****DIN 8074 & 8075****Use of Polyethylene Pipe**

Polyethylene is the first choice material for Pipe distribution system for over 35 years, In 2001 76% of small diameter water Pipes in Europe were made from Polyethylene and now a day's some 3.4 million tons of polyolefin (Polyethylene and Polypropylene) are dedicated to Pipe grade production globally.

**Advantage of Royal Polyethylene Pipe**

Polyethylene has become the most popular material as it offers Significant Benefits Compared to alter- native materials, namely.

**1. Low Maintenance:**

Royal P.E Pipe retains their strength and functionality with minimum maintenance. They are easily weld able into long sections, Exhibits slow crake growth resistance and a long life time in both static and dynamic loads.

(Advantage of perfect leak proof, no crack , no break and deformation under pressure)

PE pipe require less fitting for connection because they are elastic and in many places they do not require connection where the other types do because PE pipes are bendable with a radius of

## 2. Low Cast Of Installation

Royal P.E Pipes are flexible, light weight and tough, enable easier site handling and Installation along with easier coiling into long lengths for easier handling and storage. (Availability of more than one connection method ( butt welding ,electrocuton welding , push fit sockets, etc) There is no need to take protection precaution at the time of installation like cathodic protection,

## 3. Long Life Time

Royal P.E Pipes can be certified to last at least for 50 years and withstand harsh terrains and climate with no corrosions. They exhibit excellent Chemical resistance and good resistance to weather ability and UV along with resistance to microorganism and rodent attack.



## 4. High Safety Record and No Leakage:

Weld ability brings leak free joints over long distances, and the ability to withstand high axial and bending loads without joint failure. Advantage of being not affected from earth movement like landslide earthquakes, etc. Also safe application in irregular surface like sea river lake passage and at place where there may be frequent earth movements.





## APPLICATIONS OF ROYAL PE PIPE

### Drinking Water

Royal PE Pipe is the best choice to use it for the transport of water. Due to food grade material, their flexibility, longer lengths and lesser number of fittings they are more economical as compare to other pipe material like G.I pipes. They are easy to be used in hilly terrain areas due to their flexibility.

### Natural Gas

Royal HDPE&MDPE pipes are suitable for the distribution of natural gas because they have good resistance against chemicals; corrosion and stress crack etc. the royal HDPE pipe are also good for the transport of other gases like Carbon Dioxide, Carbon Monoxide, Hydrogen etc.

### Sewage Disposal

Royal HDPE pipe can easily be used for the discharge of dirty and polluted fluid form the domestic commercial and industrial buildings.

### Telecommunications

Royal PE pipe is very suitable option as ducts for optic fiber in telecommunication. In this case the PE pipe can be ribbed to facilitate less content area and friction while pulling the cable. Moreover the cable in these pipes can be pulled in longer length up to 500 meter thereby reducing the number of jointing.

### Relining

The Royal PE pipe can be used for the relining of drainage water pipe line due to their flexibility and excellent fusion property. The process has proved to be more cost effective as compare to the replacement with new pipes

### Natural Gas

Royal PE pipe can effectively be used for pumping reactive chemicals in Mining and Processing Industries as these pipes do not react with chemicals and hence make these processes safe and easy

## PRODUCT SELECTOR (TYPICAL) AND MARKING

The Product Selector lists the normally available range of pressure pipes (HDPE/MDPE) and fittings for Socket, Butt (also popped), Saddle and/or Electro-fusion (Basically, 2nd Generation).

Pipes and fittings in the Royal P.E. Gas Pipes Systems are manufactured in two classes, SDR 11 and SDR 17/17.6, where:-

SDR = Standard Dimension Ratio = Average Pacified Outside Diameter

Minimum Specified Wall Thickness This Symbol relates to SDR-11 (4bar) This symbol relates to SDR-17 (2 bar)

### Nearest Equivalent Inch Size

Soket Fusion					Butt or Socket				Butt Fusion					
20	25	32	40	50	75	90	110	125	140	160	180	200	225	250
1/2"	3/2"	1"	1 1/4"	1 1/2"	2 1/2"	3"	4"							

Pipe pressure rating in accordance with the following formula:

- And P=Internal Pressure, psi
- S=long term hydrostatic strength, psi (1600)
- DR=Dimension Ratio = D/t
- D=outside diameter, actual, inches
- T=Wall, minimum Wall Thickness, inches
- DF= design factor (0.5 for water @ 73.4° F)

## INSTALLATION DIAGRAM FOR PE PIPES

- The Connection methods include:
  - $dia \leq 63$ , adopt thermal-fusion socket connection or electric-fusion connection
  - $dn \leq 75$ , adopt thermal-fusion butt joint or electric-fusion connection  
Connected to metal pipes, adopt flange connection or transition fitting connection.
- Thermal socket connection:  
When adopting this method, use thermal welding machine, here under the specific procedures:
  - Check the pipe surface to see whether it is damaged, clean all the burrs attached on the incision.
  - Measure the depth of the socket, mark on the pipe-surface.

Outer Diameter (mm)	Heating Period (S)	Maximum Transit Time (S)	Minimum Cooling Time (S)
20	5	4	2
25	7	4	2
32	8	6	4
40	12	6	4
50	18	6	4
63	24	8	6

■ Thermal-fusion butt jointing:

When adopting this method, use thermal fusion butt welding machine, the specific procedures are as following:

- Clamp down the pipe on the jig of the welding machine
- Clean up the connection part and milling the connection side.  
Adjust the joining parts; make the misplacement less than 10% of the wallthickness.
- Put the heating panel.
- Pull out the heating panel when finishing heating.
- Joint the two heating parts swiftly, increase pressure to the fusion-joint pressure and keep the pressure until it cools down.
- Thermal-fusion is completed.



## CONVERSION TABLE

SI Unit	Alternate SI Unit	Conversion Factor K 1/K		U.S. Unit	Conversion Factor 1/K		
Length	M	1	1	In (inch)	39.370 2.54x10 <sup>-2</sup>		
				Ft (foot)	3.281 0.305		
				Mi (mile)	6.214x10 <sup>-4</sup> 1609.344		
Area	M <sup>2</sup>	10 <sup>4</sup>	10 <sup>-4</sup>	In <sup>2</sup>	15506.452x10 <sup>-4</sup>		
				Ft <sup>2</sup>	10.764 0.093		
				Mi <sup>2</sup>	3.861x10 <sup>-7</sup> 2.59x10 <sup>6</sup>		
Volume	M <sup>3</sup>	1000	0.001	Ft <sup>3</sup>	35.315 0.0283		
				Gal(gallon)	264.172 3.785x10 <sup>-3</sup>		
				Gal(gallon)UK	219.969 4.546x10 <sup>-3</sup>		
Mass	Kg	1000	0.001	lbm (pound)	1.205 0.454		
				Gr (grain)	15432.4 6.479x10 <sup>-5</sup>		
				Oz (ounce)	35.274 2.835x10 <sup>-2</sup>		
Force	N	0.102	9.807	lbf	0.225 4.448		
						10 <sup>5</sup>	10 <sup>-5</sup>
						0.102 9.807	10 0.1
Pressure	n/mm <sup>2</sup> =mpa	10 <sup>7</sup>	10 <sup>-7</sup>	Psi (lbf/in <sup>2</sup> )	145 6.895x10 <sup>-3</sup>		
				mmHg=torr(0°)	7500.62 1.333x10 <sup>-4</sup>		
Energy	J	0.102 9.807	10 <sup>7</sup> 10 <sup>-7</sup>	lbf-ft	0.738 1.356		
				Cal	0.239 4.184		
				BTU	9.478x10 <sup>-4</sup> 1055.06		
Power	W	0.860	1.162	BTU /hr	3.415 0.293		
Temperature (absolute) (difference)	K K, °C			°R (Rankine)	1.80.555		
					1.80.555		
Viscosity (dynamic)	Pas=N s/m <sup>2</sup>	0.102 9.807	1000 0.001	lbf s/ft <sup>2</sup>	0.0209 47.880		
Viscosity (kinematic)	M <sup>2</sup> /S			Ft <sup>2</sup> /s	10.764 0.093		
Density	Kg/m <sup>3</sup>	0.001 1000		lb/ft <sup>3</sup>	0.0624 16.018		
Thermal Conductivity	W/mk	0.860 1.162		BTU in/ft <sup>2</sup> hr°F	1.933 0.144		
				BTU /ft hr °F	0.578 1.731		
Specific Entropy	Kj/kg K	2.390x10 <sup>-1</sup> 4.184		BTU/lbm °R	2.388x10 <sup>-1</sup> 4.187		



+93 (0) 786 500 436    +93 (0) 777 09 56 85  
+93 (0) 786 292 901    +93 (0) 785 64 62 32  
+93 (0) 788 288 244    +93 (0) 700 28 82 44



info@royalpvc.af  
royal\_pvcaf@yahoo.com



[www.royalpvc.af](http://www.royalpvc.af)



Main Office Address: 2nd Floor, Haroon Market, Between Haji Yaqoub & Ansari Square, Share-e Naw, Kabul, Afghanistan

Factory Address: Near to Hussain khil High School, Distric# 12, Naw Abad, Bagrami, Kabul, Afghanistan.

## COMPANY PROFILE & THCHNICAL MANUAL

- Royal PVC Pressure Pipe
- Royal PVC Electrical Conduit
- Royal PVC Sewerage Pipe
- Royal PVC Fittings
- Royal HDPE Pipe
- Royal PPRC Pipe & Fittings