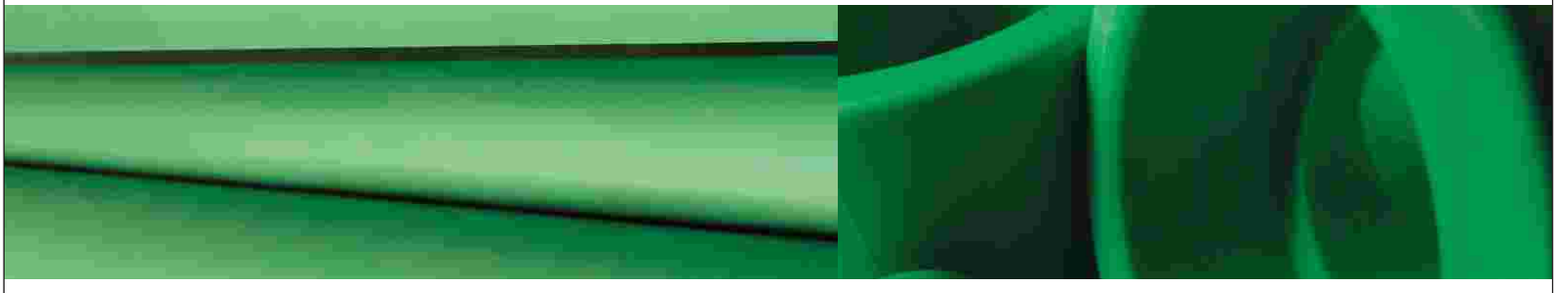
POLYDEX



The reliable hot and cold water pipe system

DADEX

Polydex piping systems can be used for distribution systems in housing, administration and community buildings as well as for industrial installations. Polydex is designed for transport of cold and hot water. It is also used for the distribution of compressed air. Polydex is the first complete PPR piping system in Pakistan that conforms to international quality and safety standards.

In order to take advantage of its chemical resistance and other system properties and use of system for transport of other liquids, gaseous or solid media - an individual assessment of any such case would be needed.

MATERIAL & SPECIFICATION

Material

Polydex pipe system is manufactured from Polypropylene Random (PPR). PPR is a 100% certified food-grade material. Its resistance to high temperatures has made PPR a popular piping system recommended for domestic and industrial usage. The physical and chemical properties of PPR make it a superior and safe piping system for supply of potable water and other fluids.

Standard Specifications

Polydex pipe system conforms to the following international standards:

Pipes* DIN 8077- 8078 PN 20

Fittings** DIN 16962 PN 25

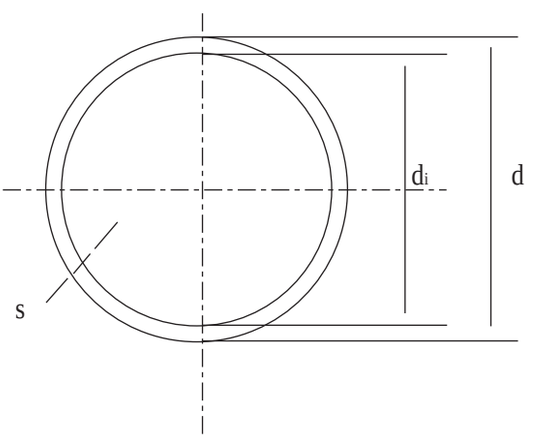
* Pipe in PN 10 for cold water application can also be manufactured against commercially feasible and confirmed orders.

** Polydex fittings carry a mark 'W' or 'EK'.

RANGE

Polydex pipes and fittings are available in the following diameter: (wall thickness and internal diameter pertains to pipes only)

Outer diameter	Wall thickness	Internal diameter
d	s	d_i
mm	*mm*	*mm*
20	3.4	13.2
25	4.2	16.6
32	5.4	21.2
40	6.7	26.6
50	8.4	33.2
63	10.5	42.0
75	12.5	50.0
90	15.0	60.0
110	18.4	73.2



Complete range of fittings is available. Special fittings are also available such as flange connections and short by-pass bends.

FIELDS OF APPLICATION

Hot and cold water installations in:

- Residences and Apartments
- Hospitals
- Hotels and Offices
- School Buildings
- Commercial Buildings and Plazas
- Swimming Pools

Pipe System Network

- Various industries (for transportation of aggressive fluids)
- Chilled water for central air conditioning

FEATURES & BENEFITS

- ### Potability

Polydex conforms to international standards that approve its use for distribution of drinking water and other liquids.

- ### Welding Capability

All elements of Polydex pipe system can be easily joined by heat fusion.

- ### Metal Insert in Fittings

All threaded inserts in the fittings are made of nickel plated brass and machined from solid bars. Polydex pipes and fittings can easily be fixed with metal fittings such as taps, bib cocks and stop cocks which enhance its utility for a wide spectrum of applications.

- ### Easy to Handle (Versatility)

Polydex is light, thus it is easy to handle and transport.

- ### Reduced Head Loss

Polydex has a smooth internal surface, hence there are no chances of encrustation. This leads to reduced head loss and smooth flow.

- ### Noise Free

Polydex has high insulation capacity which reduces noise tremendously, even in case of water hammering.

- ### Resistant to Frost

Polydex pipe system can sustain sub zero temperatures. Elasticity of the material allows the pipes to expand if the liquid being conveyed freezes due to low temperature. Polydex does not crack or break due to frosting.

- ### Resistant to Abrasion and Corrosion

Polydex resists corrosion and abrasion even in presence of acidic and alkaline substances having pH values ranging between 1 to 14.

- ### Environment Friendly

Polydex is environment friendly and can be recycled.

- ### Low Electrical Conductivity

Polydex is a poor conductor of electricity and is safe against stray currents.

- ### Low Heat Conductivity

The material used for Polydex is a poor conductor of heat. As a result, condensation and heat dispersion of the transported fluid are reduced. Due to this, it instantly allows hot or cold water to flow through pipes even if the piping system has not reached average working room temperature.

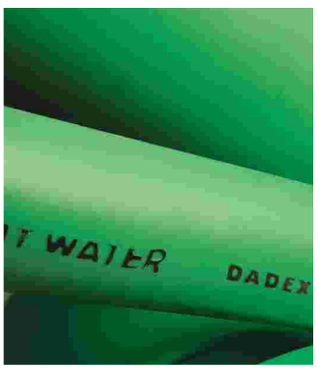
- ### Fitness for Use in Seismic Areas

Polydex is manufactured from a flexible material and can therefore be used in seismic areas.

JOINTING TECHNIQUE

Heat Fusion

Jointing of Polydex pipes is carried out by a method called 'heat fusion'. This is done by means of a welding machine. The male and female parts of pipes and fittings are joined together to form a joint.



The ends of the two parts are heated simultaneously. Once the welding temperature is reached, the two end parts (which are in molten form) are pressed together. They are held together till the recommended cooling time *(See Table 1)*. When fully cooled, a permanent leak-free joint is formed. Heat fusion is an irreversible process, hence care should be taken in jointing in order to avoid loss of fittings.

WELDING - Getting Started:

1. Cut the pipe at right angle with a cutter.
2. Mark off the welding depth at the pipe end.
3. Simultaneously heat the ends of both pipe and fittings as per recommended heating time. *(see Table 1)*
4. Push the pipe end into the fitting and ensure its alignment of assembly within the specified time period.

Table 1 Fusion Data For PPR

Outer Diameter	Average Heating Time*	Average Working Time (max.)	Average Cooling Time (min.)
mm	sec	sec	sec
20	5	4	2
25	7	4	2
32	8	6	4
40	12	6	4
50	18	6	4
63	24	8	6
75	30	8	6
90	40	8	6
110	50	10	8

* Average Heating Time refers to the start time when the pipe and fitting are inserted up to the marked welding depth in the welding machine.

WELDING - Guidelines:

1. Always ensure that the welding machine corresponds to the required jointing size.
2. Required operating temperature of the welding machine is approximately 260°C.
3. Cut the pipe at right angles by using a cutter.
4. Always clean the pipe from burrs, cuttings and chips.
5. Remember to mark the welding depths at the end of the pipe before heating.
6. Push the end of the pipe into the welding machine up to the marked welding depth and push the fitting into the welding machine simultaneously.
7. Quickly remove the pipe and fitting from the welding machine on completion of the recommended heating time. Continue to press the pipe into the fitting until the welding depth mark is covered with the bead of material from the fittings.
8. Allow the joint to cool down as per specified cooling time before starting installation.

INSTALLATION GUIDELINES

Concealed Installations

Polydex does not cause any problem when embedded in the wall or floor, because naturally occurring frictional forces prevent the thermal expansion and contraction. Also the characteristic of deformability of the system can absorb expansions in walled installation.

Fastening technique for open installation

Suspended pipelines require compensation for thermal changes and this can be achieved by proper placement of fixed and sliding clamps in the installation network. See our technical brochure for details.

(a) Fixed Point

Fixed clamps help limit the uncontrollable movements of the pipelines and divide them into sections. Fixed point spacing must be performed on the basis of pipe diameter. The material used to perform this operation must possess certain characteristics so that it does not damage the external surface of the pipe.

(b) Sliding Point

Sliding clamps allow the axial movement of the pipe without damaging it. On locating a sliding clamp it has to be ensured that movements of the pipeline are not hindered by fittings or armatures installed next to them.

POLYDEX CLAMP SPACES PN20

Diameter	Clamp spacing distances according to temperature, cm						
mm	20°C	30°C	40°C	50°C	60°C	70°C	80°C
20	120	115	109	105	104	100	95
25	140	130	125	121	118	112	108
32	160	158	154	150	145	140	135
40	185	175	168	164	160	155	150
50	200	178	185	175	170	165	155
63	210	205	195	187	180	175	165
75	230	225	215	195	182	180	170

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