



Duraline India Pvt. Ltd.

Delhi Office:

A/10, Sanskrit Bhawan,
Qutab Institutional Area,
Aruna Asif Ali Marg,
New Delhi - 110 067
Tel: +91- 11-431234 00
Fax: +91-11-41716816
Website : www.duraline-aapac.com

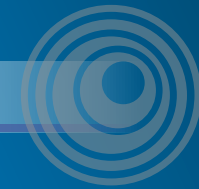
Middle East L. L. C. Office:

Plot No. 5171, 5184, 5216 Phase V,
Sohar Industrial area, Sohar,
Sultanate of Oman,
Ph. +968 99877943
Website : www.duraline-aapac.com

Mumbai Office:

703, Centre Point,
Andheri Kurla Road, J.B. Nagar,
Andheri (E), Mumbai -59
Tel: +91-22 - 67084216 / 17
Fax: +91-22 - 66955316





PRODUCT RANGE

Dura-line offers world class product in the following Application

- **Infrastructure Pressure Pipe (Water and Sewerage)**
 - HDPE pipe for Water supply and Sewage from 20mm to 1000mm Nominal diameter as per various National and International standard in PE63/80/100 Pressure Rating PN 2.5 to PN25.
 - HDPE/MDPE Pipe for house service connection
- **Distribution of Gaseous fuel**
 - Gas pipe for city gas distribution
 - Transportation & distribution of coal bed methane & gas gathering
 - Product as per various national & international standard
- **Agricultures and Landscaping**
 - Sprinkler Irrigation system for Agricultures, horticulture and plantation
 - Landscape irrigation system
 - Portable Sprinkler pipe with Quick Action couplers up to 160mm dia pipe.
 - Coil pipe for submersible pump in swallow and deep tube-well
- **Industry and Environment**
 - Effluent and Slurry transportation
 - Marine Outfall, dredging, etc
 - Dust Control in mines
- **Fittings and Specials for various application**
 - Fabricated, Tees and Bends up to 1000mm diameter
 - Molded PE Fittings up to 1000mm diameter
 - Compression Fittings
 - Electro-fusion Fittings

PRODUCT STANDARDS

Fluid Pipe and System: ISO: 4427, EN: 12201, DIN: 8075/ 8074, IS: 4984, IS: 14333, BS: 6437, MS: 1058, AS/NZS: 4130, IS14151

Range of Fittings: ISO: 4427, IS: 8008, IS: 8360

Gas Pipe: ISO: 4427, IS: 14885

Double Wall Corrugated Pipe: as per IS: 14930



Profile

Dura-Line

Dura-Line Corp. headquartered in Knoxville, Tennessee, USA is the world's largest manufacturer of "Silicore™" PLB HDPE Ducts, conduits and diversified range of Polyethylene Piping Systems for Water & Gas. Dura-line serves client in over 120 countries and the current manufacturing facilities of company are located at United States, Mexico, Czech Republic, India and Oman. Dura-line currently operates 16 state of the art manufacturing facilities globally. Duraline AAME head quartered at New Delhi serves clients in Asia, Africa and Middle East.

About Dura-line India P Ltd

DuraLine India commenced commercial production in 1997 and now has three state of the art plants – two in Goa and one in Neemrana, Rajasthan with an annual installed capacity of 60,000 MT. Backed by a strong R&D and a large repertoire of 'cutting-edge technology' offerings, Dura-line has a tradition of providing quality products and services exceeding customer's expectation.

Dura-line offers products and solutions and turn-key services for building reliable and robust water and waste water piping network. The solution includes end-to-end services from route designing and engineering, supply, jointing and testing of water & Waste Water Piping systems.

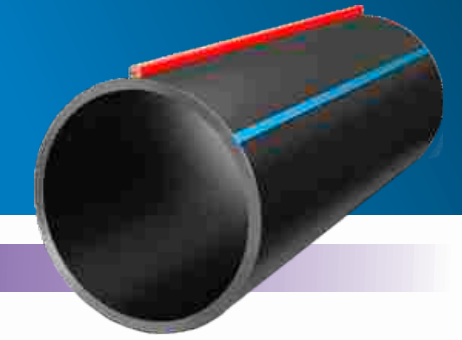
About Dura-Line Middle East

Duraline Middle East LLC is a joint venture between Duraline India and Al Jasser LLC, Muscat. The new state of the art manufacturing facility at Sohar, Oman has been commissioned to cater to the growing need of Middle East and North Africa (MENA) countries for their Water, Gas and Telecom requirements.

Dura-Line's Strength

- Global Foot Print – 16 manufacturing facilities, production over 200,000 MT per Annum
- World Class Manufacturing facilities and processes certified as per ISO 9001, ISO 14001, ISO 180001
- Innovative Product Range
 - Invented telecom duct PE co-extruded with Silicore™
 - Duratrac™, Detectable Polyethylene pipe for traceability and depth assessment
- One-stop solution for fluid and telecom network project,
- Training services on site and at Goa Pipe learning Centre
 - Product accreditation from Global agencies like WRAS, KIWA, DVGW, BVQI, TUV etc
 - Exclusive supplier to Global Telcos like AT&T, Verizon, Vodafone, Airtel etc

APPLICATIONS OF DURA-LINE PE PIPE



PRESSURE PIPE FOR WATER, SEWAGE APPLICATION

Dura-Line Produces widest range of PE pipe from 20 to 1000mm dia as per various National and International standard using PE63/80/100 HDPE/ MDPE resin as Raw materials. The pipes are manufactured in between PN 2.5 and 16 for various pressure applications. The plain ended solid wall pipes are used for Water Supply, Drainage, Storm Water Disposal etc.

Dura-line HDPE Pipe – Properties

PROPERTIES	VALUE
PropertiesRecommended Service Temperature	-45°C to +55°C
Vicate Softening Temperature	125°C
Decomposition Temperature	360°C
Ultra Violet Stability	Excellent
Flow Factor (C Factor in Hazen Williamson formula)	150
pH factor of Conveyed Fluid	1.0 to 14.0
Melt Flow Factor	0.20 to 1.10 gms in 10 Min
Reversion	Less than 3%
Density	940.0 to 958.0 Kg/m3
Impact Strength	Excellent
Resistance to Abrasion	Excellent
Life Expectancy	More than 50 Years

PE PIPE FOR TRANSPORTATION OF GASEOUS FUEL

Gas Pipes are being used by CGD (City Gas Distribution Companies) for transportation of the Gaseous fuel for domestic use. These pipes are also found use in transportation of Coal Bed Methane (CBM) / Natural Gas from mines to various industries.

Dura-line, Mexico has pioneered production of PE Gas Pipe in 1998 supplying PE Pipes to Resol, Gas de France, Gas de Suez, British Gas, Advatica etc. Dura-line, Goa has been the source of Gas Pipes for Indian Operation.



Salient Features

- **Manufactured from Compounded HDPE / MDPE Resin.**
- **Standards: ISO 4437, IS 14885**
- **Color Of the Pipe**
 - Yellow for PE 80 Grade Raw Material
 - Orange for PE 100 Grade Raw Material
- **Pipes designated by SDR Value**

DuraFlo, KRISHI COIL PIPES FOR TUBE-WELL USE

- **DuraFlo pipe is one the most innovative product introduced for Tube-well application. This is a double layered PE pipe with an inner white solid lubricated layer to reduce friction.**
 - Reduces friction to flow, hence higher flow from tube-well is achievable.
 - PE does not rust or corrode – Long Life
 - Available in Coils: 100 to 1000 mtr
 - Diameter of Coil: 20mm to 110mm

SPRINKLER IRRIGATION SYSTEM

Dura-Line manufactures complete range of PE pipes and fittings for sprinkler irrigation system as per IS 14151 part 1 and part 2.

- **Duraloc: Couplers come with metallic C- type lock for ease in operation**
- **Durafit: Quick Action hook system for efficient locking.**
- **Necessary fittings like Bend, Tee, End cap are manufactured in house as per customer requirement.**
- **Sprinkler Nozzles with high co-efficient of Distribution are available as per IS 12232 Part-1.**
- **Uses in Field Crop, Tea and Coffee Gardens, Landscape etc**



PE PIPES FOR INDUSTRIAL APPLICATION

PE, due to its inert properties found application in handling chemicals, brine, sour water etc. It is also found uses in slurry and sand pumping due to its abrasion resistance quality.

Some of the popular application of PE pipe in various Industries.

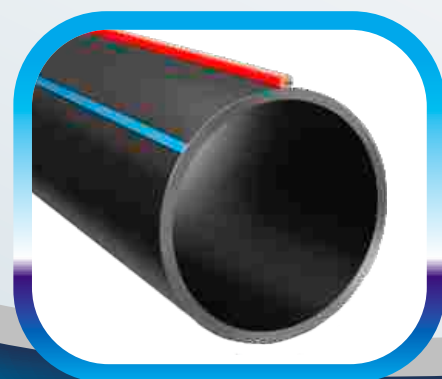
- Effluent disposal,
- Marine Outfall line / Sea Water Intake.
- Under sea installation of pipe for transportation of potable water.
- Liner Pipe in Petroleum Industries
- Transportation of DM Water,
- Slurry transportation,
- Dust Suppression system in mines and haul road,
- Dewatering.
- Mineral Washeries.

DURATRAC™ AND DURASURE

Dura-Line Water pipe and telecom ducts are available with a co-extruded highly conductive copper wire encased in HDPE along the length of the pipe. The wire transmit a low frequency electro-magnetic signal from a receiver. The signal from the copper wire is received by a hand-held receiver providing exact location (Latitude, Longitude, depth etc) in the backlit LCD display. The receiver can be connected by GPS to down load the data on the PC. Necessary jointing kits and tools are also available for jointing the pipes across valves, fittings etc.

Advantages:

- Gives quick and precise location of the underground piping system.
- Use of electronic detection device with such pipes offers inch-by-inch accurate traceability.
- Facilitates precise digging during maintenance activity thereby saving on time and labor – and associated cost
- Avoids damage to other utilities buried underground – avoid penalties
- Keep a check on the accuracy of as-built drawings.



FITTINGS AND ACCESSORIES

A wide range of fittings are available for installation of HDPE Pipes as per site requirement and purpose. The range of fittings can be separated into three classes.

Butt fusion Fittings

- Bends, Tees, End Cap, Pipe Ends, Flanges etc
- Can be fabricated or Molded
- Standards: ISO 4427, IS 8008, IS 8360 etc
- Low Cost
- Fittings can be tailor made
- Range 20mm to 1000mm dia

COMPRESSION/ MECHANICAL FITTINGS

Compression fittings are very popular for water supply network. Compression Saddles, Compression Couplers, bends etc are cost effective in lower diameter.

- Ease in installation (Does not need Welding machine at site)
- Tapping saddles are very popular for House Service Connection
- Easy and Quick repair of damaged pipe

ELECTRO-FUSION FITTINGS

Electrofusion fittings come with in-built electrical heating element, which generates heat when connected to electric source. The resulted heat fuses the fitting with the pipe uniformly offering an extremely reliable joint.

- Fittings: Couplers, Bend, Tee, Saddles etc are very popular,
- Widely Used in Gas supply pipe line,
- Reliability of Fittings are very high,
- Cost of Fittings high
- Needs qualified mechanics for jointing.
- Fittings available up to 630mm dia



JOINTING METHODS

Butt Fusion

Butt-welding method is most popular and economical method of jointing PE pipes. Butt welding machine are available for installation up to 2000mm dia pipe. A typical butt welding machine consists of following mechanisms:

- **Shaver to clean the sides to be joined together and making them parallel to each other,**
- **Heating Mirror to provide heat on its sides, so that the jointing ends soak heat and bids are formed of the molten resin,**
- **Hydraulics to press together the pipes and hold them together for eventual fusion.**
- **Other accessories: Clamps, Crane, Trolley etc**

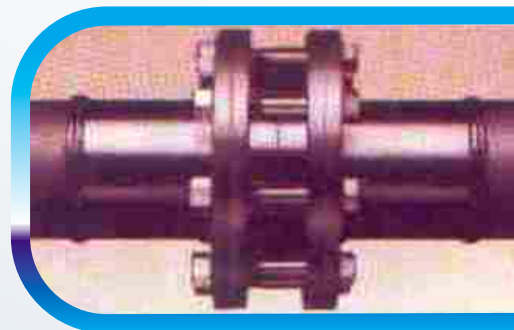
Electro-fusion Jointing

Jointing is done by electro-fusion fittings. The ID of the fittings matches to the OD of the pipe, so that ends of the pipes are easily pushed into both side of fitting. Power source is connected to the resistance coil inside the fittings generating requisite heat to fuse the pipe and fittings together.

Mechanical Joints

Mechanical Joints provide the joints, which can be detached for servicing etc.

- **Compression Joints – Joined by Compression fittings (Coupler, Bends, Tees etc)**
- **Flanged Joints – Pipe End and Slip on Flanges (MS/ PE) can be used on both sides of the pipe for jointing them by nuts, bolts and Washers.**



ADVANTAGES OF PE PIPE

- **Smooth Inner wall (C-Value: 150) offers minimum resistance to flow reducing operating cost.**
- **Long life: Life expectancy more than 50 years**
- **High Impact Strength / Flexible. Pipe available in coil up to 110mm diameter.**
- **Light Weight – Low transportation Cost and ease in installation.**
- **Food Grade Material – highly recommended for Potable water. No bacterial or Algae growth.**
- **Temperature resistance: -40 to 60 Deg Celsius.**
- **Resistance to UV Ray**
- **Excellent Water Hammer / Surge characteristics.**
- **Preferred Material for Horizontal Drilling, Pipe bursting etc.**
- **Leak Proof Joint. Jointing by Butt fusion, with jointing strength higher than the pipe.**

TRAINING ACADEMY

Duraline-Plumettaz Academy has been established inside the Goa plant with the objective of imparting training on the best world-wide practices and advanced techniques of Fiber Network roll out.

The mission of the Academy is to improve the quality versatility and life of fiber optic networks through the promotion and implementation of most advanced techniques of telecom duct and cable installation in the field. The academy offers various customized training programs covering field practices for duct laying, duct integrity testing, cable jetting, micro technology, and basic knowledge of fiber optics with hands-on exposure to splicing machine, OTDR, joint closures, and termination boxes etc.

Dura-Line Pipes Learning Center has been established with the purpose of sharing knowledge and learning related to polyethylene piping systems and fluid pipeline installations. Towards this objective the Learning Centre conducts training programs and publishes a periodical newsletter for personnel from corporates, municipalities, PWDs (public works departments), industrial plants, mining companies, consultants and contractors.



COMPARISON AMONG VARIOUS PIPE MATERIAL

PREFERRED SUPPLIER TO MAJOR INFRASTRUCTURE COMPANY

Sr. No	Property	HDPE	P.V.C.	Mild Steel (MS)
1	Life	>50 years underground.	More than 20 years(When not exposed to sun)	Less than 10 years under protection
2	Health Hazard	No additives during Manufacturing. Hence totally safe	Lead based stabilizer causes long term health hazard	Corroded pipes allow out side contaminated water to seep into the system.
3	Weathering Resistance	Good due to presence of Carbon Black	Tends to becomes brittle when exposed to sun.	Poor resistance against Corrosion and chemicals
4	Recommended Temperature	"-40 to +50 Deg C"	"+1 to+45 deg C"	Can stand any temperature
5	Chemical Resistance	High degree of resistance to acids alkalis and high anti corrosive properties	Moderate resistance to most alkalis and acids	Poor
6	Water hammer characteristics	Excellent water hammer characteristics.50% better than in MS and 30% better than PVCpipes	Need higher diameter pipelines to control surge pressure under similar conditions as that of HDPE	Poor resistance to absorb surge wave. Needs thrust blocks.
7	Flexibility	Highly Flexible Can be bent over curves. Requiring very fewer fittings	Limited flexibility and requires lots of fittings and specials during installation	Highly Rigid. Needs huge fittings and specials
8	Lengths	Pipe up to 110 mm can be supplied in Coils of 100 Mt. Small dia pipe can be supplied in 1000 Mt.	Comes in straight lengths of maximum 6mts	Comes in straight lengths of maximum 6mts
9	Load bearing capacity	Flexible. Deform under load and recovers on its release.	Low impact strength. Cracks under heavy loads.	Can take high dead load and live load
10	Maintenance	Virtually Maintenance free	Regular maintenance to replace broken parts.	High maintenance after few years of use
11	Internal / External Coatings	Not Required	Not Required	Requires coating to prevent corrosion and reduce friction
12	Soil Settlement	Resistance to ground movement, even earthquakes	Poor resistance to Soil movement	Poor resistance to Soil movement
13	Friction to Flow	Smooth inside surface. C Factor-150. Lowest resistance to flow	Smooth inside surface. C Factor-150. Lowest resistance to flow	Rough inside surface. Roughness increases with age



Accreditation



Partner of choice to Major Telecom Companies

