

FENGYE PIPING
Fengye HDPE Piping Systems
for Water Supply, Plumbing and Pressure Applications



Mind Local, Set Global

Minding the local way is our approach of setting the global strategy. Globalization is the process whereby we aim to interact and integrate our product's businesses and technologies into the international scale. While localization is the adaptation of our product or services to meet the needs of a market with localized mindset and pratice of adjusting our product's function properties and characteristics. The following are the 6 core values and commitments we set to achieve our goals:



PRODUCT INNOVATION - we continue to improve and innovate our products based on new technological advancements, cost competitiveness, product customization and user-friendliness with creative and practical ideas in order to accommodate the localized mindset and preference.

QUALITY & WARRANTY - products are manufactured in accordance to the product standard with proper production technique and quality assurance measures in place. We warrant our products quality and life-span stipulated in our standard product warranty policies.

TOOLING SUPPORT - tooling is a must and right tooling is even more essential for plumbing work. We provide full set of reliable and user-friendly tooling to ensure proper and quality installation works and greatly reduce the possible errors made during installation.

COST EFFECTIVE - we ensure that our prices offered in the market are competitive and uphold fair competition by not slashing or under-cutting prices, yet maintaining the product sustainability by providing value added support in many different forms.

STOCK AVAILABILITY - we understand that there should not be any discontinuity of stock once the project has kicked off. We employ the "Just-in-time" stock inventory management to ensure best level of stock availability and response time.

ONSITE SUPPORT - we take note on the site condition which may result in variance during installation. We conduct regular and scheduled visits to site for product usage and installation briefing. We also support in solving site issue on request.













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Fengye HDPE Pipes

Product Standard: MS 1058-2: 2005 & ISO 4427-2: 2007+A1: 2014

GENERAL

Polyethylene (PE) has grown to be the world's most widely used and recognized thermoplastic materials. Today's modern PE resins are highly engineered for more rigorous applications such as pressure-rated water and gas pipes, landfill membranes, automotive fuel tanks and other demanding applications.

TYPE OF PE MATERIALS

The physical properties of PE materials are specific to each grade or type, and can be modified by both variations in density, and molecular weight distribution. A large number of grades of PE materials are used in pipe and fitting systems and the specific properties are tailored for the particular application.

High Density PE (HDPE) types of PE material has been used in our applications. HDPE base resins are manufactured in a low-pressure process, resulting in a chain structure with small side branches and a material density range of 0.9300960 g/cm3. HDPE materials qualify as PE80 and PE100 in accordance to their relative product standard.

COMPARISONS OF PE100 VS PE80

PE100 material can withstand a minimum circumferential stress (or hoop stress) of 10MPa compared to 8MPa of PE80 material for 50 years at 20°C. The higher long-term creep resistance of PE100 material translates to higher operating pressures at the same wall thickness, or alternatively, thinner walled pipes at the same operating pressure, offering greater hydraulic capacity than PE80 material.

PE100 material has improved notch resistance which means they are less sensitive to surface damage during laying compared to PE80 material. In addition, PE100 material exhibits improved resistance to rapid crack growth. If a fast crack begins to grow in a PE100 pipe, it will be arrested after propagating only a short distance.

STRAIGHT AND ROLLED FORMS

HDPE pipes are supplied in both straight and rolled (for sizes DN20 - DN32) forms. It is highly recommended to use straight pipes for jointing with fittings as the ovality of the pipe diameter is being maintained well compared to rolled pipes. Rolled pipes cannot restore the pipe diameter ovality completely after uncoiling due to the pipe's flexural modulus properties. However, rolled pipes are able to provide connection continuity with less fittings used and less joints being made.



UV & WEATHER RESISTANCE

HDPE has the BEST UV and weather resistance amongst other plastics. All plastic pipes are subjected to the process of surface degradation, or oxidation due to the combined effects of UV radiation, increased temperature, and moisture when pipes are stored in exposed locations.

Our Black PE pipes contain 22.5% finely divided carbon black and can be safely store outside in most climates for many years without damage from UV exposure. Carbon black is the most effective single additive to enhance the weathering characteristics of plastic materials. Others types of pipes that do not utilize carbon black do not possess the same stability and develops a faster rate of oxidation.



Fengye HDPE Pipes

Product Standard: MS 1058-2: 2005 & ISO 4427-2: 2007+A1: 2014

PERFORMANCE SPECIFICATIONS

ITEMS UNITS		CHARACTERISTIC	PARAMETER PE-80 PE-10		
Hydrostatic strength	MPa	20°C (100h) : No break & leakage 80°C (165h) : No break & leakage 80°C (1,000H) : No break & leakage	9.0 4.6 4.0	12.4 5.5 5.0	
Elongation at break	%	≥ 350			
Thermal stability (Oxidation induction time)	min	> 20	200°C		
Melt flow rate (MFR)	g/10min	Changes of MFR by processing <25%	190°C	5kgs	
Longitudinal Reversion	%	≤ 3	110°C		

PE100 DIMENSIONS

NOMINAL (MM)	OUTER DIAMETER (MM)	WALL THICKNESS (MM) PN 12.5 (SDR 13.6)	WALL THICKNESS (MM) PN 16 (SDR 11)
SIZE	MIN MAX	MIN MAX	MIN MAX
20	20.0 20.3		2.0 2.3
25	25.0 25.3	2.0 2.3	2.3 2.7
32	32.0 32.3	2.4 2.8	3.0 3.4
40	40.0 40.4	3.0 3.5	3.7 4.2
50	50.0 50.4	3.7 4.2	4.6 5.2
63	63.0 63.4	4.7 5.3	5.8 6.5
75	75.0 75.5	5.6 6.3	6.8 7.6
90	90.0 90.6	6.7 7.5	8.2 9.2
110	110.0 110.7	8.1 9.1	10.0 11.1
125	125.0 125.8	9.2 10.3	11.4 12.7
160	160.0 161.0	11.8 13.1	14.6 16.2
180	180.0 181.0	13.3 14.8	16.4 18.2
200	200.0 201.2	14.7 16.3	18.2 20.2



Fengye PE Socket Fusion Fittings

Product Standard: MS 1058-3: 2005 & BS EN 12201-3: 2011+A1: 2012

PE pipes and fittings homogeneous heat fusion joints is the most preferred jointing method in terms of performance and reliability. The principle of heat fusion is to heat two surfaces to a designated temperature, then fuse them together by application of sufficient force. This force applied causes the melted materials to flow and mix, thereby resulting in fusion.

When fused according to the pipe and/or fitting procedures, the joint area becomes as strong or stronger than the pipe itself in both tensile and pressure properties, thus homogeneously fused joints are considered leak-proof.

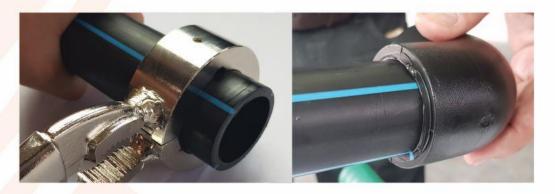
JOINTING TYPE

Socket fusion is the most convenient and versatile fusion method for small diameter (DN20) up to mid-range diameter (DN110). This technique consists of simultaneously heating both the external surface of the pipe end and the internal surface of the socket fitting until the materials reach their fusion temperature. Then, they are being pushed and held together until the joint is cooled.

JOINTING ENHANCEMENT 1 - COLD-RING

Cold-ring is a rounding clamp used to maintain the roundness of the pipe and strengthen the circumferential structure of the pipe. The positioning of Cold-ring will set and control the insertion depth of the pipe (acting as the 'hard-stop') during the jointing operation. The Cold-ring will not allow over-push or over-insert of pipe into the socket fitting, thus preventing the pipe edge crumpling or cold joint issues. The flat surrounding face of Cold-ring when push against the flat of fitting's mouth which resulting in consistent flattened beads being formed on every joint.

The Cold-ring helps the in fast and reliable installation. It can also be used repeatedly.



JOINTING ENHANCEMENT 2 - PIPE-STIFFENER

Pipe-stiffener acts as the internal support for the heated pipe to prevent crumpling due to over-heating and excessive push-in force especially when there is no usage of Pipe-stiffener. It is essential that smaller pipe sizes with wall thickness below 3mm to utilize Pipe-stiffener to prevent such phenomena.

NOMINAL (MM)		DIAMETER MM)		KNESS (MM) (SDR 13.6)		KNESS (MM) (SDR 11)
SIZE	MIN	MAX	MIN	MAX	MIN	MAX
20	20.0	20.3	-	<u> </u>	2.0	2.3
25	25.0	25.3	2.0	2.3	2.3	2.7
32	32.0	32.3	2.4	2.8	3.0	3.4







Fengye PE Socket Fusion Fittings

Product Standard: MS 1058-3: 2005 & BS EN 12201-3: 2011+A1: 2012

JOINTING ENHANCEMENT 3 - ORBIT



Orbit, available as Orbit-6TM and Orbit-9TM, are developed to mark or indicate the insertion depth of a pipe easily and to allow the immediate gross check on pipe ovality. It is an all-in-one tool which caters for pipe sizes of DN20 to DN63 (Orbit-6TM) and DN20 to DN110 (Orbit-9TM) for both PE100 PN12.5 and PN16 pipes. This full-proof design only allows respective pipe sizes to be inserted into the respective slot one at a time, hence less prone to errors when marking and checking.

PROCESSING PARAMETERS

OD,MM	INSERTION DEPTH,MM	HEAT TIME,S	JOINT TIME,S	COLD TIME,S
20	13	6	4	2
25	15	7	4	3
32	17	8	6	4
40	19	12	6	4
50	21	18	6	5
63	25	25	8	6
75	27	30	8	8
90	30	40	10	8
110	34	50	10	8

HEATING TEMPERATURE 260°C

These processing parameters are to be adhered with in order to carry out proper installation and to produce a quality joint. The jointing process can be perfected through the usage of auxiliary enchancement tools provided, such as the Cool-ring, Pipe-stiffener and Orbit.



Fengye PE Socket Fusion Fittings

Product Standard: MS 1058-3: 2005 & BS EN 12201-3: 2011+A1: 2012

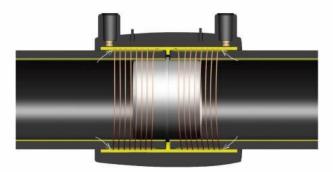
ISTALLATION PROCEDURES CUT the pipe squarely **SET UP** the welding tool with proper pipe cutter or with the appropriate by using saw with proper bushes. Set the welding side-guiding in order to temperature to 260°C, achieve a perpendicular and prepare the heating time information. **INSERT** the pipe into the **PUSH IN** both pipe & respective slot of Orbit fitting by pushing them until the end which is together against the flats preset to the respective of both surfaces within insertion depth. the joint time. Hold the joint until heating time achieved. **CLAMP ON** the pipe with JOIN the pipe & fitting the Cold-ring firmly at the by pushing them insertion depth position. together against the flats of both surfaces within the joint time. Hold the joint until it cools down. PUT ON the Pipe-stiffener into the pipe edge for pipe wall thickness below 3mm. Black color for PN16 and blue color for PN12.5 pipe.



Fengye PE Electrofusion Fittings

Product Standard: MS 1058-3: 2005 & BS EN 12201-3: 2011+A1: 2012

PE Electrofusion is the most advanced and automated PE fusion jointing method. It is also proven to be the most reliable, efficient and error proof method especially for larger diameter pipes. It is chosen in view of its practicality aspect when installing larger pipes.



The embedded heating wires have been pre-insulated and they are spaced consistently during the molding process. Heat is produced as electrical current is applied to the heating wires and spread across a large area around the PE polymer of pipes and fittings. This produces a molten state around the heated area, allowing homogeneous joints to be formed.

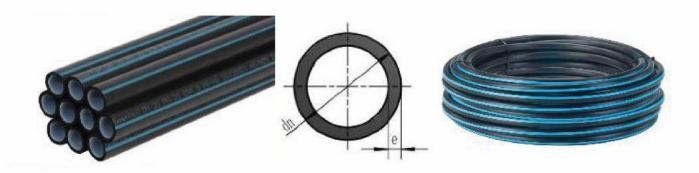
Each Electrofusion Fitting comes with a barcode, that once scanned with the control box allows for automated settings based on computerized electrofusion parameters stored within. The jointing process is then executed and carefully monitored by the control box. Once jointing is completed, the joint data is saved and is retrievable for future jointing reference and analysis.





Product List - HDPE Pipes

PE 100



		NOMINAL WALL THICKNESS (MM)				
ITEM	STRAIGHT (5M LENGTH)		COIL (100M ROLL)			
TIEM.	PN 12.5 (SDR 13.6)	PN 16 (SDR 11)	PN 12.5 (SDR 13.6)	PN 16 (SDR 11)		
DN20	_	2.0		2.0		
DN25	2.0	2.3	2.0	2.3		
DN32	2.4	3.0	2.4	3.4		
DN40	3.0	3.7		9 = 22		
DN50	3.7	4.6	5	-		
DN63	4.7	5.8	8	-		
DN75	5.6	6.8	8	-		
DN90	6.7	8.2	9	42%		
DN110	8.1	10.0	2	-		
DN125	9.2	10.3	2	120		
DN160	11.8	13.1	φ.	140		
DN180	13.3	14.8	-	124		
DN200	14.7	16.3	-	(#)		

Red color sizes upon request

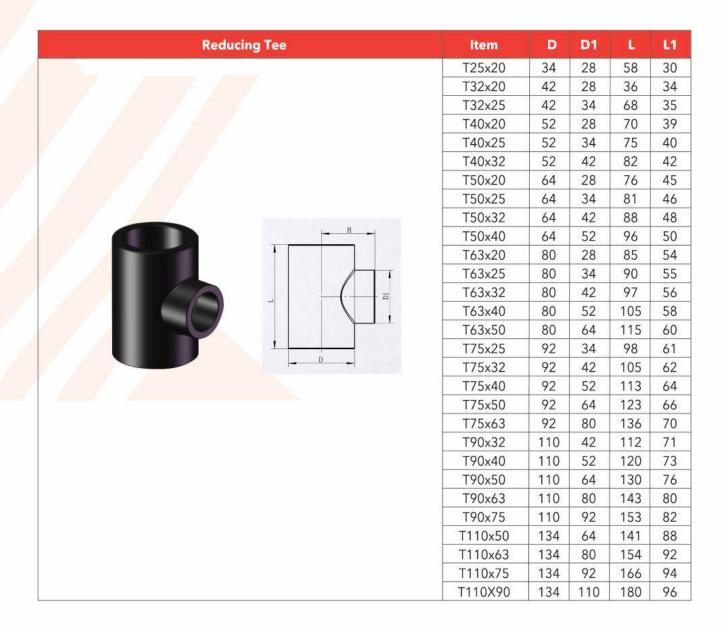


Equal Socket	Item	D	L
	S20	28	35
	S25	34	38
	S32	42	42
	S40	52	48
	S50	64	55
	S63	80	63
D	S75	92	70
	S90	110	78
	S110	134	88

Reducing Socket	Item	D	D1	L
	S25x20	34	28	38
	S32x20	42	28	42
	S32x25	42	34	42
	S40x20	52	28	48
	S40x25	52	34	48
	S40x32	52	42	48
	S50x20	64	28	55
	S50x25	64	34	55
	S50x32	64	42	55
D1 -	S50x40	64	52	55
	S63X20	80	28	63
	S63x25	80	34	63
	S63x32	80	42	63
	S63x40	80	52	63
	S63x50	80	64	63
D	S75x25	92	34	70
X 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	S75x32	92	42	70
	S75x40	92	52	70
	S75x50	92	4	70
	S75x63	92	80	70
	S90x50	110	64	78
	S90x63	110	80	78
	S90x75	110	92	78
	S110x63	134	80	88
	S110x75	134	92	88
	S110x90	134	110	88



Equa	l Tee	Item	D	L	L1
		T20	28	56	28
	H -	T25	34	64	32
		T32	42	76	38
		T40	52	90	45
	_	T50	64	106	53
		T63	80	28	64
		T75	92	146	73
	D	T90	110	168	84
		T110	134	200	100

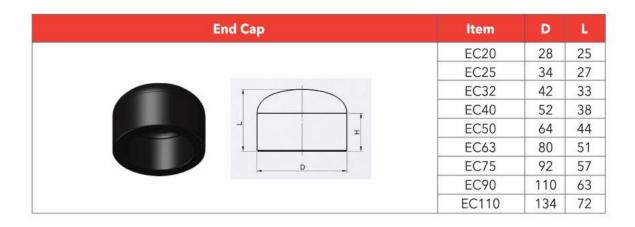




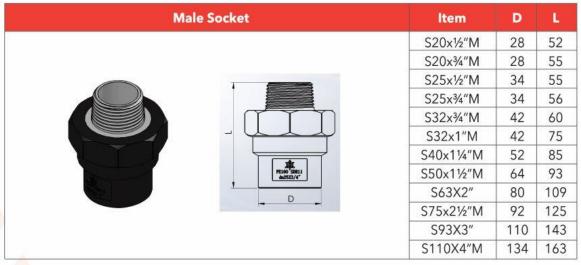
Equal Elbow	Item	D	Н
	L20	28	22
	L25	34	24
F-%.	L32	42	28
	L40	52	33
	L50	64	39
	L63	80	46
	L75	92	51
D -	L90	110	58
	L110	134	68

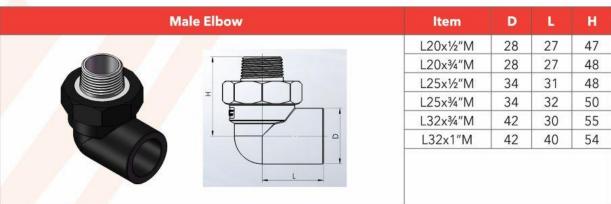
Elbow 45°	Item	D	L
	L20x45°	28	28
	L25x45°	34	32
de	L32x45°	42	35
-45.	L40x45°	52	45
	L50x45°	64	53
I	L63x45°	80	64
	L75x45°	92	73
- D	L90x45°	110	84
	L110x45°	134	110

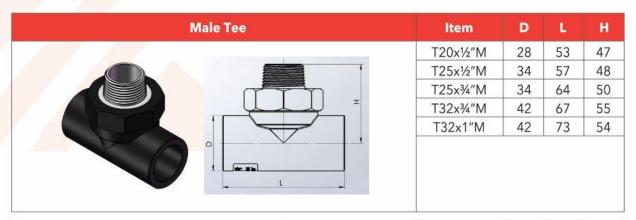
Reducing Elbow	Item	D	D1	Н	H1
	L25x20	34	28	31	33
	L32x20	42	28	33	37
	L32x25	42	34	36	38







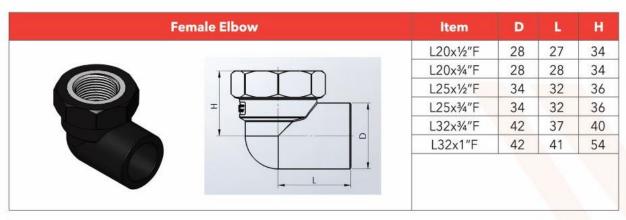


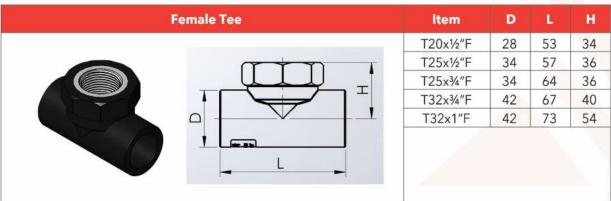


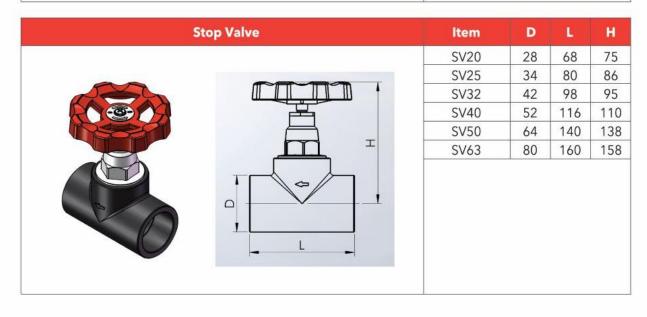
Flange Adaptor (Socket)	Item	D	L	Н
	FA40	78	52	35
	FA50	88	64	40
D	FA63	102	80	42
	FA75	122	91	44
	FA90	138	107	45
	FA110	158	133	50



Fen	nale Socket	Item	D	L
		S20x1/2"F	28	41
		S20x¾"F	28	43
		S25x1/2"F	34	43
		S25x¾"F	34	43
		S32x¾"F	42	45
	PE100 SDR11 dx25X3/4"	S32x1"F	42	57
	D	S40x11/4"F	52	62
		S50x1½"F	64	70
		S63X2"F	80	83











Heating Bushes	Item
	HB20
	HB25
	HB32
	HB40
	HB50
	HB63
	HB75
	HB90
	HB110







Pipe-stiffener	Item
	PS20-PN16
	PS25-PN16
	PS25-PN12.5
	PS32-PN12.5
88	







Product List - PE Electrofusion Fittings & Tools

Equal Socket	Item
	S63
	S75
	S90
	S110
	S125
	S160
	S200

Equal Tee	Item
	T63
	T75
	T90
14	T110
	T125
	T160
	T200

Reducing Socket	Item
	S75x63
	S90x63
	S110x63
	S110x90
	S125x90
	S125x110
	S160x90
	S160x125
	S200x110
	S200x160



Equal Fibow	Item
	L63
	L75
	L90
	L110
	L125
	L160
	L200

Elbow 45°	Item
	L63x45°
	L75x45°
	L90x45°
	L110x45°
	L125x45°
	L160×45°
	L200x45°

Branch Saddle	Item
	BS90x75
	BS110x75
2.1	BS110x90
1	BS160x75
	BS160x110
	BS200x75
	BS200x110

Tapping Saddle	Item
	TS90x75
	TS110x75
	TS110x90
	TS160x75
	TS160x110
	TS200x75
	TS200x110















Product Warranty

Fengye provides warranty to its products that are free of defects in workmanship under normal use and service provided. Warranty only applies when products are used for the purpose or conditions for which they are intended.

This warranty shall not be applied to any of our products that have been altered, repaired and/or used in any way, stored in unprotected conditions, or have been subjected to misuse, negligence, accident and/or have not been installed in accordance to installation instructions.

Installation of Fengye PE Socket Fusion Fittings recommeds the use of our tailor made welding bushes (for sizes 20mm - 110mm); also recommended are three enhancement features incorporated which are the Cold-ring (for sizes 20m - 110mm), Orbit (for sizes 20mm - 110mm), and Pipe-stiffener for wall thickness below 3mm.

For bigger pipe sizes, installation of Fengye PE Electrofusion Fittings requiring 39.5V power source to fuse, is to be carried out using our supplied or equivalent approved brand of electrofusion welding machine. Our Welding machine is rated at 3.5kW output power and 75V output voltage with temperature compensating feature, operating at 230/240 VAC requiring power supplied through a portable power generator rated at 6.5kW (minimum). If pipe is found to be more than 1.5% out of roundness, the use of Re-round Clamp is required to ensure proper installation. The fused area on pipe must be peeled and cleaned prior to insertion into the fitting.

Installation instruction must be adhered to, or our Product Warranty is null and void. Installation of electrofusion fittings must be carried out by properly trained and qualified operator(s) and/or by witness of the factory representative.

The obligation of Fengye under this warranty shall be limited to replacement of any parts that may prove defective under normal use.

Fengye shall have the rights to inspect the said product(s) and purchaser shall, if requested, return defective product(s) prepaid to us. Purchaser shall assume all responsibility and expenses for removal, reinstallation and freight charges in conjunction with the foregoing remedy.

Fengye shall not be liable for indirect, special, incidental or consequential damage or penalties and does not assume any liability of purchaser to others, or to anyone for injury to persons and/or damage to property.

Any claim regarding shortages or damage from shipment of product(s) must be submitted in writing to us within 10 days after receipts of shipment. Buyer shall note loss or damage on delivery order and provide a delivery receipt stating such with driver's signature.

Purchaser is responsible for passing on this Limited Warranty to all respective customers.

In addition, Fengye is in its best effort to offer the Product Liability Assurance up to the RM1,000,000.00 annually for 10 years at the time of purchase that covers the losses to the 3rd parties in any forms of injury and property damages. However, the amount of insured sums and scopes of coverage is upon revision base on the on-going changes of market needs and situations without prior notice.



Set up in 1983 and headquartered in the first capital market town in Zhejiang Province - Diankou Town, Zhuji City. Fengye Holding Group grasped opportunities brought by the reform, opening up of, and rapid growth of economic development. This allowed Fengye Holding Group to steadily develop into a large private enterprise group specializing in municipal plastic pipeline industry, municipal building industry, plastic wood new materials industry and investment management industry from a small local private enterprise, with registered capital of USD18,000,000 and total assets of nearly USD675,000,000.

The company is identified as the PE pipe production and construction base, national key high-tech enterprise and "A batch of five" provincial key and major enterprise by the state Ministry of Construction, Ministry of Technology, Provincial Economy and Trade Committee. It is one of the main units drafting PE pipe national standards. Ø1600mm PE water supply pipe and Ø3200mm PE drainage pipe produced by the company are the largest in Asia and their overall performance lie in international advanced levels.

The company has established a national laboratory and a provincial new pipe high-tech research & development centre, has long term close partnership with Beijing Industry University, Zhejiang University and China Building Material Institute. They possess a strong capability to develop new technologies and new products.

With 30 years of ups and downs, hard endeavors, taking capital as the linkage and market as the carrier, and relying on technology, Fengye's employees give full play on its industrialization advantage. They specialize in the plastic pipe industry through implementation of brand strategy, scale-expanding strategy and "high, new and edge" product development strategy. Product diversification and enterprise internationalization is realized as well.

Since the twentieth century, the widespread use of plastics allows plastics pipe manufacturing industry to rise steadily. The continuous and rapid growth of Chinese economy drives plastic pipe manufacturing industry to rapid advancements.

Quality being the foundation, "Fengye" brand and trademark has successfully won titles such as China top brand, national inspection exemption product and as a well-known trademark in China. Fengye Pipe Industry is the pioneer in plastic pipe manufacturing industry.

As part of Fengye's strategy to expand globally, Fengye Piping Malaysia has been set up as the first overseas country to have full, comprehensive and customized product ranges and services. And so, we have adopted the localized mindset and approach in order to serve the market better.

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