

**Engtex**

A member of Engtex Group Berhad  
- listed on the Main Market  
of Bursa Malaysia [KLSE]

ENGTEX DUCTILE IRON PIPE INDUSTRY SDN. BHD. (577932-D)



# EDIP

DUCTILE IRON PIPES AND FITTINGS



## STANDARDS

The major standards for the specification of ductile iron pipelines are listed as below.

- BS EN 545 - Ductile iron pipes, fittings accessories and their joints for water pipelines.
- BS EN 598 - Ductile iron pipes, fittings accessories and their joints for sewerage applications.
- ISO 2531 - Ductile iron pipes, fittings, accessories and their joints for water applications.

### Tolerance on Pipes Length

The standard manufacturing length of a spigot and socket push-in joint pipe is 6.0m. The tolerance on the length of pipe is  $\pm 100\text{mm}$ . All pipes from which test bars have been cut are accepted by the purchaser as complete lengths.

### Tolerance on Straightness of Pipes

Pipes shall be straight, with a maximum deviation of 0.125% of their length.

### Works Proof and Leak Tightness Test Pressures

Prior to the internal cement lining and external bitumen coating processes, the hydrostatic test for push-in joint pipes is carried out after metallic zinc coating. The test detects leak, sweat or other defects of the pipe body.

Nominal Diameter	Centrifugally cast pipes
<b>K9</b>	
DN 80 to DN 300	50 bar
DN 350 to DN 600	40 bar
DN 700 to DN 800	32 bar
<b>Class 40</b>	
DN 80 to DN 400	40 bar

### Coating

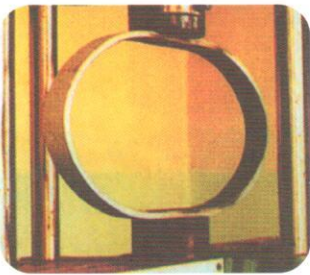
Unless otherwise specified by the purchaser, all pipes are coated externally with metallic zinc covered by a finishing paint layer.

	Centrifugally cast pipes
External	Metallic zinc & bitumen coating
Internal	Cement mortar lining

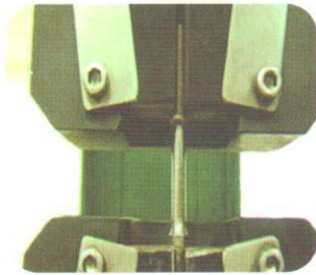
### Thickness of Cement Mortar Lining (t)

DN	Nominal value (mm)
80 to 300	4
350 to 600	5
700 to 800	6

## Remarkable Mechanical Properties



Ring Test



Tensile Test

	Centrifugally cast pipes
	DN80 to DN800
Tensile strength	Min 420 N/mm <sup>2</sup>
Elongation	Min 10%
Hardness	Max 230 HB

### Tolerance on Wall Thickness

Minimum wall thicknesses are as follows.

Type of casting	Nominal iron wall thickness	Limit deviation on the nominal wall thickness <sup>a</sup>
Pipes centrifugally cast Class 40	$\leq 5,0$	-1,3
	$> 5,0$	-(1,3 + 0,001 DN)
Pipes centrifugally cast K class	$\leq 6,0$	-1,3
	$> 6,0$	-(1,3 + 0,001 DN)

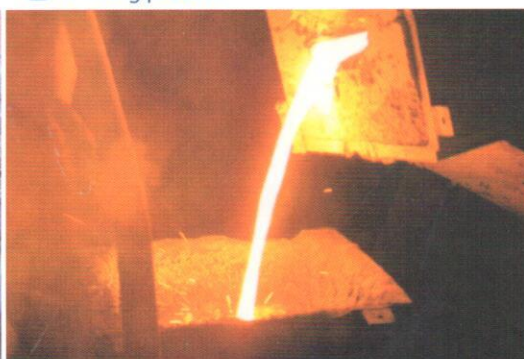
<sup>a</sup> The lower limit only is given, so as to ensure sufficient resistance to internal pressure.

## MANUFACTURING PROCESS

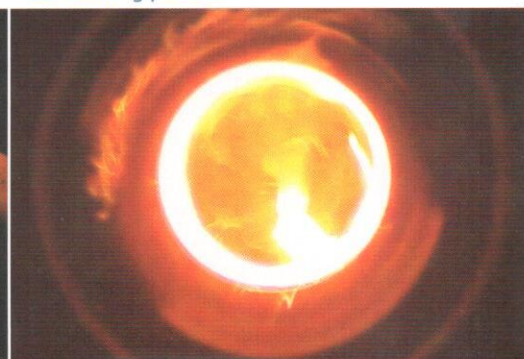
### 1 Raw Material



### 2 Melting process

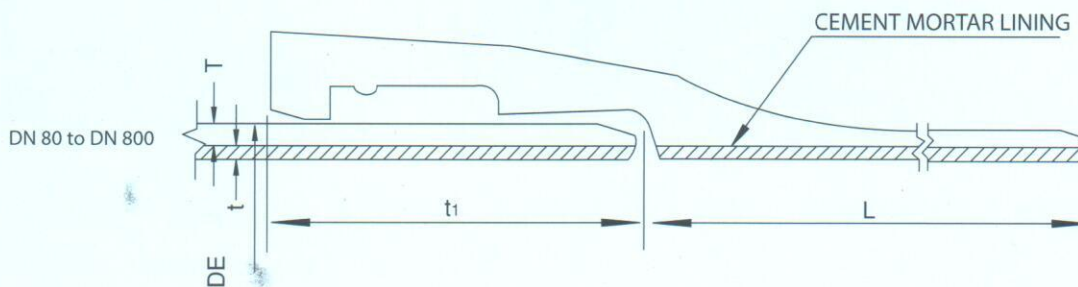


### 3 Casting process



# PUSH-IN JOINT DUCTILE IRON PIPES

## DIMENSIONS FOR K9 & CLASS 40 PIPES (All dimensions in millimetres)

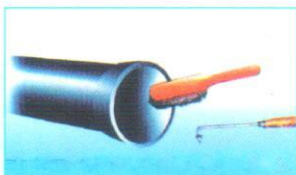


Nominal Diameter DN	DE	t <sub>1</sub>	T		t	L
			K9	CLASS 40		
80	98	85	6.0	4.8	4.0	6000
100	118	88	6.0	4.8	4.0	6000
150	170	94	6.0	5.0	4.0	6000
200	222	100	6.3	5.4	4.0	6000
250	274	105	6.8	5.8	4.0	6000
300	326	110	7.2	6.2	4.0	6000
350	378	110	7.7	7.0	5.0	6000
400	429	110	8.1	7.8	5.0	6000
450	480	120	8.6	-	5.0	6000
500	532	120	9.0	-	5.0	6000
600	635	120	9.9	-	5.0	6000
700	738	150	10.8	-	6.0	6000
800	842	160	11.7	-	6.0	6000

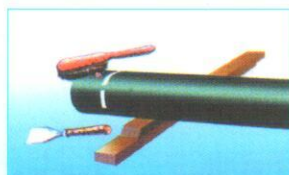
## INSTALLATION PROCESS

### Installation

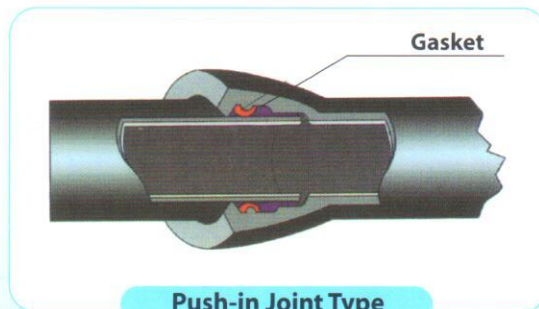
Suitable for various topographies and any climate conditions. The simple method of installation greatly speeds up the progress of project.



Socket cleaning, especially the gasket placing position should be well cleaned



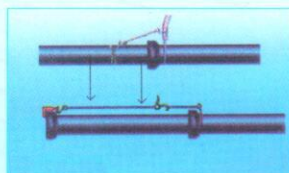
Spigot cleaning & lubricating



Push-in Joint Type



Putting a rubber gasket on socket end



Connecting pipes ( push-in )

The push-in flexible joint is an extremely strong and efficient joint, extensively used throughout the world. Apart from normal anchoring precautions on bends and tees, no bolt tightening is necessary and the simple push-in connection with a single separate component-rubber gasket-allows rapid, low cost pipe laying even in wet conditions.

#### 4 Annealing process



#### 5 Metallic zinc coating process



#### 6 Hydrostatic pressure test



METALLURGY



Raw Material



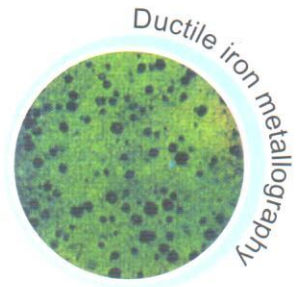
Melting



Nodulisation



Grey iron metallurgy



Ductile iron metallurgy

## DUCTILE IRON PIPE MANUFACTURING PROCESS



Casting



Annealing



Metallic Zinc Coating



Hydrostatic Pressure Test



Cement Mortar Lining



Bitumen Coating



Marking & Packing



FINISHING

7 Cement mortar process



8 Bitumen coating process



9 Finished product



## DUCTILE IRON FITTINGS

We offer over 500 various sizes of fittings as listed below.

For further information, please refer to technical specifications catalogue.

**Sizes Available :** DN80-800mm

### BEND

- Double Socket Bend
- Double Flanged Bend
- Double Flanged Duckfoot Bend
- Double Flanged Long Radius Bend

### TAPER

- Double Socket Taper
- Double Flanged Concentric Taper
- Double Flanged Flat Taper

### ANGLE BRANCH

- All Socket Angle Branch
- All Flanged Angle Branch

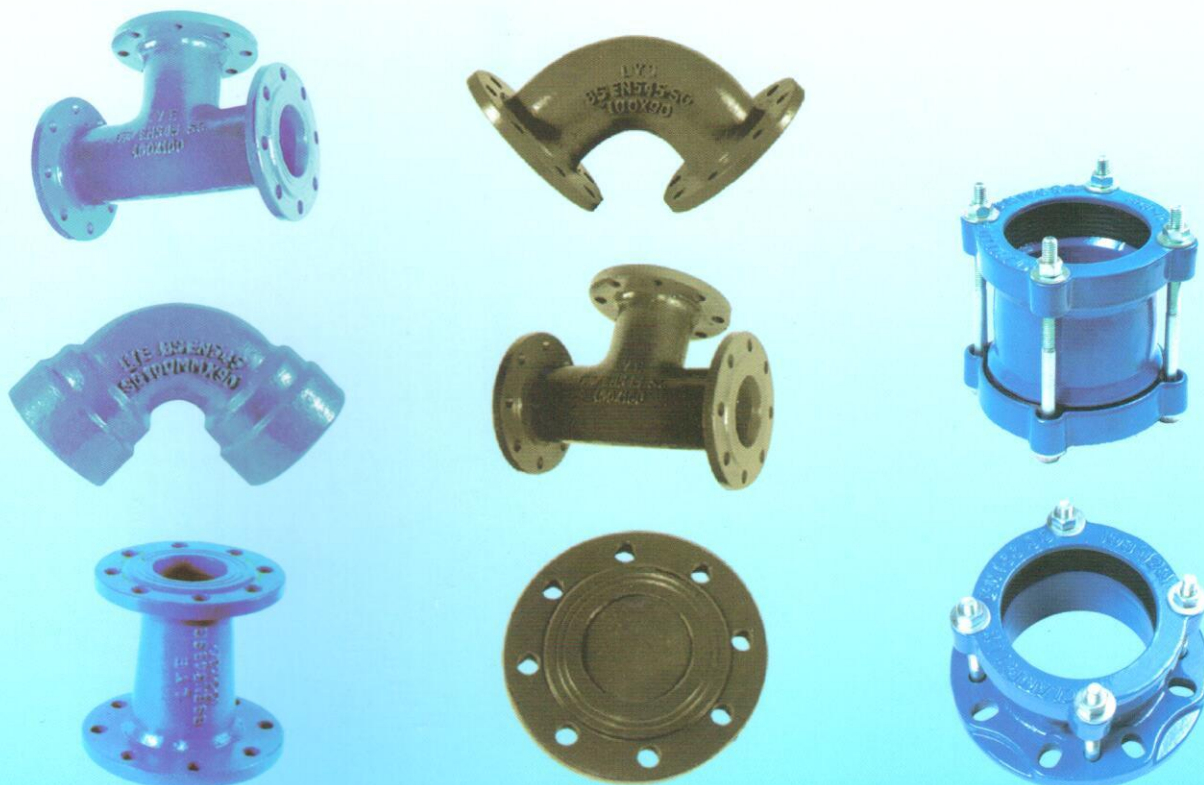
### TEE

- All Socket Tee
- All Flanged Tee
- Double Socket Tee With Flanged Branch
- Double Socket Level Invert Tee With Flanged Branch
- All Flanged Level Invert Tee
- All Flanged Radial Tee

### OTHER

- Flanged Socket Piece
- Flanged Spigot Piece
- Flanged Bell Mouth
- Double Socket Collar
- Blank Flange
- Flange Adaptor
- Straight Coupling

*Products are available in Fusion Bonded Epoxy (FBE) finishing for above ground level application and Bitumen Coating for under ground application.*



## COMPANY PROFILE

Engtex Ductile Iron Pipe Industry Sdn. Bhd. (EDIPI) is a primary subsidiary of Engtex Group Berhad, a public company listed on the Main Market of Bursa Malaysia since 2nd August 2002 that is well known as one of the largest leading integrated manufacturer and one-stop distribution centre for pipes, valves, pipe-fittings, plumbing materials and steel products, providing total supply-chain solution for water works, sewerage system and construction industries.

EDIPI is principally engaged in the activity of manufacturing ductile iron pipes, joints, fittings and industrial casting products. The company's main production facility located on an 18 acres plant at Gebeng Industrial Estate, Kuantan, has a workforce of 250 persons with a production output capacity of 60,000 metric tonne per annum.

Since the commencement of our production operation in April 2002, the company has invested continuously to upgrade, modernize and improve our production facilities to produce premium quality ductile iron pipes with sizes ranging from DN80 to DN800 that are widely accepted by authorities, professionals and industry experts in both domestic and overseas markets.

In line with our continuous quality improvement policy, EDIPI is also investing resources in the area of product development, quality improvement and after sales services to deliver high quality products and services to our customer. Our factory's management system has obtained ISO 9001:2008 Quality Management System, Quality Environment System (5S), MS ISO 14001:2004 Environmental Management System and OHSAS 18001:2007 Occupational Health and Safety Management System certifications.

EDIPI's ductile iron pipes marketed under brand names of "SUASA UNIK", "EDIP" and "ENGTEX" are produced in compliance with international standards of BS EN 545, BS EN 598 and ISO 2531 certified by IKRAM Malaysia and PSB Singapore. Our product is also approved by CPRU Brunei and Ministry of Commerce and Industry, Sultanate of Oman.

In line with the increasing usages of ductile iron pipes due to its ductility, easy installation, high resistance to corrosive environment, low maintenance cost and low damage rate, and our market globalisation move, EDIPI is rapidly growing our overseas markets which include Singapore, Indonesia, Brunei, Vietnam, Hong Kong, Taiwan, Sri Lanka, Middle East and etc.

## CERTIFICATIONS

Engtex Ductile Iron Pipe Industry Sdn. Bhd. has obtained various certifications for its management system and products as follows:



### Management System

- ISO 9001:2008 Quality Management System
- 5S Quality Environment Management System
- MS ISO 14001:2004 Environmental Management System
- OHSAS 18001:2007 Occupational Health and Safety Management System

### Product Certification

- BS EN 545 Ductile iron pipes, fittings, accessories and their joints for water pipelines
- BS EN 598 Ductile iron pipes, fittings, accessories and their joints for sewerage applications
- ISO 2531 Ductile iron pipes, fittings, accessories and their joints for water applications

# Engtex

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Tel: 609-583 7822 Fax: 609-583 7827 Email: edip@engtex.com.my

#### Sales Office:

Lot 36, BRP 9/2B, Putra Industrial Park, Bukit Rahman Putra,  
47000 Sg. Buloh, Selangor Darul Ehsan, Malaysia.  
Tel: 603-6140 1111 (Hunting Line) Fax: 603-6141 4868 Email: edim@engtex.com.my

Authorised Dealer:

