‘ESB’ HUBLESS CAST IRON DRAINAGE PIPES & FITTINGS

ISO 6594:2006

BS EN 877

Products Are Manufactured in an ISO 9001 Certified Company

SIRIM

INDEX

CERTIFICATE


SCHEDULE

LESEN PENSIJILAN BARANGAN
Product Certification Licence

ENGTEX SDN. BERHAD
LOT 36, JALAN BRP 9/6
PUTRA INDUSTRIAL PARK
BUKIT RAHMAN PUTRA
47020, SUNGAI BULOH
SELANGOR, MALAYSIA

CAST IRON DRAINAGE PIPE-SPIGOT SERIES

Please refer to detail in the SCHEDULE


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ABOUT US

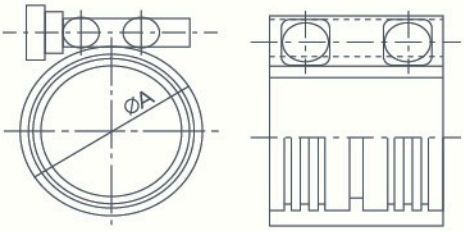
ENGTEX SDN. BERHAD (Engtex) began as a hardware retail shop in Kuala Lumpur in 1983 and has since grown to be a leading 'one-stop' distribution centre and integrated manufacturers in suppliers for pipeline systems, infrastructure, and construction in Malaysia. **Engtex** offers a wide range of products including pipes, valves, fittings, hardware, iron and steel products, and building/construction materials, providing a reliable and cost-effective supply chain solutions to our customers.

Our products are widely used by customers in plumbing, sewerage, and waterworks; mechanical and electrical engineering works such as fire-fighting system, HVAC/air-conditioning system; infrastructure projects; civil construction; electromechanical; disaster mitigation; industrial, commercial and general purpose.

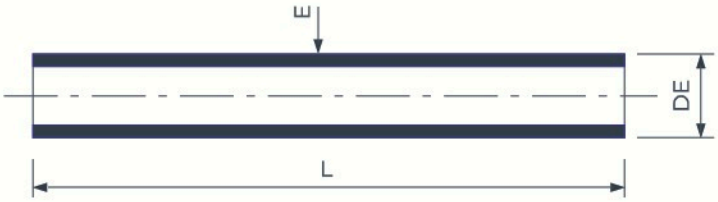
Engtex's parent company, Engtex Group Berhad had been listed on the Main Market of Bursa Malaysia since 2 August 2002. Today, Engtex Group Berhad has become a Malaysian-grown conglomerate with consistent annual turnover of RM1.5 billion per annum. We, at **Engtex**, is committed to investing in product development and supply chain management, enhancing quality and after-sales services to ensure complete customer satisfaction.

"ESB" BRAND STAINLESS STEEL COUPLING (300 SERIES TYPE B)

DIAMETER	
IMPERIAL (Inch)	METRIC (mm)
2	50
3	75
4	100
6	150
8	200
10	250
12	300



"ESB" BRAND HUBLESS CAST IRON PIPES



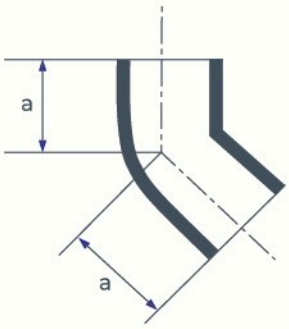
Symbol : ——— Tolerance on L : ±20mm

DIAMETER (mm)			WALL THICKNESS, e (mm)		PIPE LENGTH, L (mm)	APPROXIMATELY PIPE WEIGHT FOR 3m L, M (kg)
NOMINAL	EXTERNAL, DE	TOLERANCE	NOMINAL	MINIMUM		
50	58.00	+2.00 ; -1.00	3.50	3.00	3000.00	13.00
75	83.00	+2.00 ; -1.00	3.50	3.00	3000.00	18.90
100	110.00	± 2.00	3.50	3.00	3000.00	25.20
150	160.00	± 2.00	4.00	3.50	3000.00	42.20
200	210.00	± 2.50	5.00	4.00	3000.00	69.30
250	274.00	±2.50	5.50	4.50	3000.00	99.80
300	326.00	±2.50	6.00	5.00	3000.00	129.70

Remark : BS EN 877 available on request.

Please Note: Technical data provided is indicative only and may be subject to change without notice

"ESB" BRAND 45° HUBLESS CAST IRON BEND

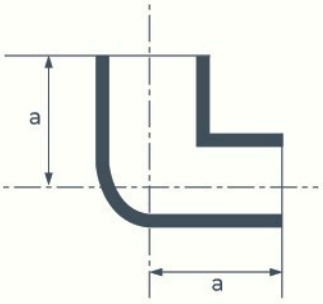


Symbol :

Tolerance on
L, a, b : ±5mm

NOMINAL DIAMETER (mm)	LENGTH, a (mm)	WALL THICKNESS, e (mm)		APPROXIMATELY WEIGHT, M (kg)
		NOMINAL	MINIMUM	
50	50.00	4.20	3.00	0.50
75	60.00	4.20	3.00	1.00
100	70.00	4.20	3.00	1.60
150	90.00	5.30	4.00	3.50
200	110.00	6.00	4.50	6.20
250	130.00	7.00	5.50	10.80
300	155.00	8.00	6.50	17.50

"ESB" BRAND 88° HUBLESS CAST IRON BEND



Symbol :

Tolerance on
L, a, b : ±5mm

NOMINAL DIAMETER (mm)	LENGTH, a (mm)	WALL THICKNESS, e (mm)		APPROXIMATELY WEIGHT, M (kg)
		NOMINAL	MINIMUM	
50	50.00	4.20	3.50	0.70
75	60.00	4.20	3.50	1.40
100	70.00	4.20	3.50	3.70
150	90.00	5.30	4.00	4.90
200	110.00	6.00	4.50	8.80
250	220.00	7.00	5.50	17.30
300	260.00	8.00	6.50	27.40

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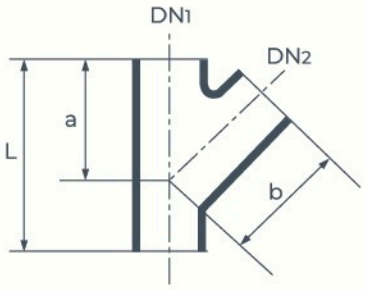
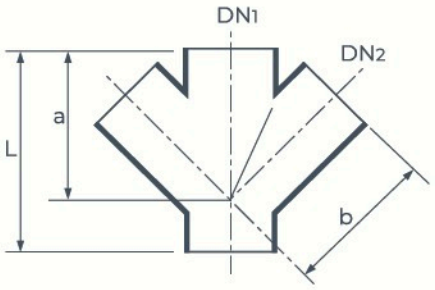
"ESB" BRAND 45° HUBLESS CAST IRON Y SINGLE AND DOUBLE BRANCHES



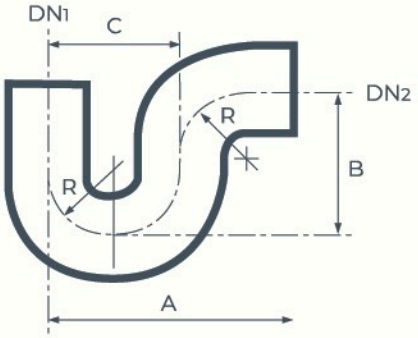


Symbol :

Tolerance on
L, a, b : ±5mm

NOMINAL SIZE		LENGTH (mm)		
DN1	DN2	L	a	b
50	50	160.00	115.00	115.00
75	50	180.00	135.00	135.00
75	75	215.00	155.00	155.00
100	50	185.00	150.00	150.00
100	75	220.00	170.00	170.00
100	100	260.00	190.00	190.00
150	100	280.00	225.00	225.00
150	150	355.00	265.00	265.00
200	150	375.00	300.00	300.00
200	200	455.00	340.00	340.00
250	200	470.00	380.00	380.00
250	250	560.00	430.00	430.00
300	250	580.00	465.00	465.00
300	300	660.00	505.00	505.00

"ESB" BRAND HUBLESS CAST IRON P-TRAP



NOMINAL SIZE		LENGTH (mm)			
DN1	DN2	A	B	C	R
50	50	191	102	102	45.00
75	75	230	180	128	64.00
100	100	267	220	152	70.00

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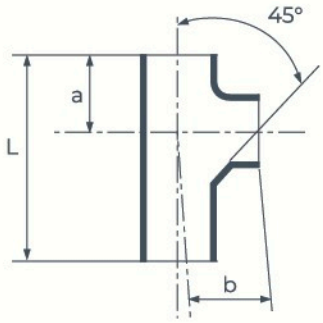
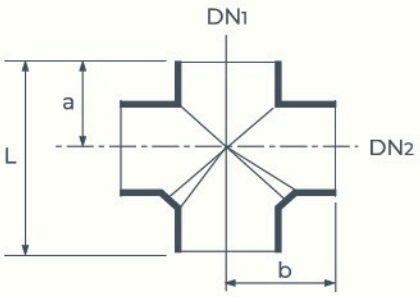
"ESB" BRAND 88° HUBLESS CAST IRON SANITARY T SINGLE AND DOUBLE BRANCHES





Symbol :

Tolerance on
L, a, b : ±5mm

NOMINAL SIZE		LENGTH (mm)		
DN1	DN2	L	a	b
50	50	145.00	65.00	75.00
75	50	155.00	73.00	90.00
75	75	180.00	85.00	95.00
100	50	170.00	75.00	105.00
100	75	190.00	88.00	115.00
100	100	220.00	105.00	115.00
150	50	200.00	100.00	140.00
150	75	220.00	100.00	140.00
150	100	245.00	115.00	145.00
150	150	295.00	145.00	155.00
200	100	270.00	125.00	175.00
200	150	325.00	152.00	185.00
200	200	365.00	180.00	180.00
250	200	455.00	225.00	225.00
300	150	530.00	265.00	265.00

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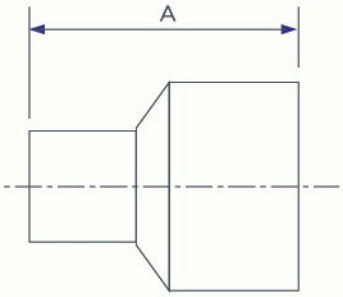
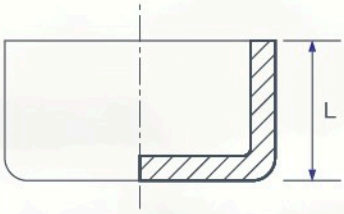
"ESB" BRAND 88° HUBLESS CAST IRON REDUCER

NOMINAL SIZE		LENGTH (mm)
DN1	DN2	A
75	50	80.00
100	50	80.00
100	75	90.00
150	75	100.00
150	100	105.00
200	100	115.00
200	150	125.00
250	200	145.00
300	250	170.00



"ESB" BRAND HUBLESS CAST IRON END CAP

DIAMETER (mm)	LENGTH (mm)
NOMINAL	L
50	30.00
75	35.00
100	40.00
150	50.00
200	60.00
250	70.00
300	80.00



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ACCESSORIES

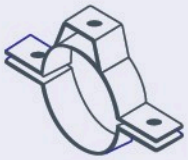
PIPE RING TYPE A

SIZE RANGE	:	1"-8"
MATERIAL	:	Mild Steel
FINISH	:	Hot-Dip Galvanized
SERVICE	:	Recommended for suspension of non-insulated, stationary pipe lines.
MAXIMUM TEMPERATURE	:	650°F
COMPLIES WITH	:	Federal Specification WW-H171E (Type 10) and Manufacturers. Standardization Society SP-69 (Type 10)
FEATURES	:	- Permis installation before or after pipe is in place. - Provides economical installation.
ORDERING	:	Specify pipe size, figure number, name.

PIPE RING TYPE B

SIZE RANGE	:	1"-8"
MATERIAL	:	Mild Steel
FINISH	:	Hot-Dip Galvanized
SERVICE	:	Recommended for suspension of non-insulated, stationary pipe lines.
MAXIMUM TEMPERATURE	:	450°F
COMPLIES WITH	:	Federal Specification WW-H171E (Type 11) and Manufacturers. Standardization Society SP-69 (Type 11)
FEATURES	:	- Permis installation before or after pipe is in place. - Provides economical installation.
ORDERING	:	Specify pipe size, figure number, name.

PIPE RING TYPE C



SIZE RANGE	:	2"-8"
MATERIAL	:	Mild Steel
FINISH	:	Hot-Dip Galvanized
SERVICE	:	Recommended for suspension of non-insulated, stationary pipe lines.
MAXIMUM TEMPERATURE	:	450°F
COMPLIES WITH	:	Federal Specification WW-H171E (Type 25) and Manufacturers. Standardization Society SP-69 (Type 12)
FEATURES	:	- Rapid installation assured by hinged design and single closure screw. - When used with nipple, this clamp is particularly adaptive for use on refrigeration or compressor piping subject to vibration. - Interior design provides firm grip on pipe. - Inside of ring tapered to prevent entrapment of condensed moisture.
ORDERING	:	Specify pipe size, figure number, name.

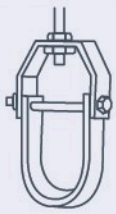
PIPE RING TYPE D

SIZE RANGE	:	3/4"-10"
MATERIAL	:	Mild Steel
FINISH	:	Hot-Dip Galvanized
SERVICE	:	Recommended for suspension of non-insulated, stationary pipe lines.
MAXIMUM TEMPERATURE	:	750°F
COMPLIES WITH	:	Federal Specification WW-H171E (Type 4) and Manufacturers.
INSTALLATION		Normally used with bolt and nut or hanger rod
FEATURES	:	- Load rating meet ANSI code requirements and are substantiated by laboratory test. - Clamps tightly to pipe - Wide range of sizes.
ORDERING	:	Specify pipe size, figure number, name.

PIPE RING TYPE E

SIZE RANGE	:	1"-8"
MATERIAL	:	Mild Steel
FINISH	:	Hot-Dip Galvanized
MAXIMUM TEMPERATURE	:	650°F
COMPLIES WITH	:	Federal Specification WW-H171E (Type 26) and Manufacturers. Standardization Society SP-69 (Type 26)
ORDERING	:	Specify pipe size, figure number, name.

ADJUSTABLE CLEVIS HANGER



SIZE RANGE	:	3/4"-12"
MATERIAL	:	Mild Steel
FINISH	:	Hot-Dip Galvanized
SERVICE	:	Recommended for suspension of non-insulated, stationary pipe lines.
MAXIMUM TEMPERATURE	:	650°F
COMPLIES WITH	:	Federal Specification WW-H171E (Type 1) and SP-69 (Type 1).
INSTALLATION	:	Hanger load nut above clevis must be tightened securely to assure proper hanger performance.
ADJUSTMENT	:	Vertical adjustment without removing pipe may be made from 1 1/8" to 5", varying with the size of clevis. Tighten upper nut after adjustment.
FEATURES	:	- Design has yoke on outside of lower U-strap so yoke cannot slide totawrd centre of bolt is minimized. - Sizes 2 1/2" and up have rod and two buts instead of bolt and nut; thread length on clevis rod is such that the threads locks the nuts in place and threads are not in shear plane.
ORDERING	:	Specify pipe size, figure number, name.

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PRODUCT INFORMATION

Cast iron is introduced because of its strength and easy installation. It is now top of the list for owners, developers and contractors. Regardless of project types and specifications, we guarantee that you will have the following advantages:-

THE CLEAR CUT WINNER

Detailed comparison why Hubless pipe system is a winner.

LOW THERMAL EXPANSION

Cast iron pipes expand and contract a low rate similar to those of building materials such as steel, concrete and masonry, eliminating the need for costly expansion joints.

SUPERIOR NOISE SUPPRESSION

Cast iron soil pipe has been proven by laboratory tests to have a superior noise suppression characteristic.

AGAINST CORROSION

Studies have also shown that cast iron soil pipe provides great resistance to commonly used corrosive chemicals.

AGAINST FIRE

Cast iron exceeds the standard requirements. It can be used to penetrate fire separations without the need for castly devices, and will not produce large quantities of toxic gases in a fire situation.

HIGH RIGIDITY

Overall, no other drainage materials come close to cast iron soil pipe for rigidity and ability to maintain dimensional stability.

COST & CONVENIENCE

It is so easy to assemble that it cuts down installation time and cost.

THE CLEAR CUT WINNER

SL. NO.	PROPERTY	ASBESTOS CEMENT	SWR PVC PIPES	SAND CAST C.I. PIPES	C.I. PIPES
1	Impact Strength	Low	Minimum	Good	High Strength
2	Durability	1-4 Years	4-5 Years (After Which It Becomes Brittle)	20 Years	Lifelong
3	Inside Bore	Not Very Smooth	Smooth	Rough	Very Smooth
4	Choking	Frequent Choking	No Choking	Frequent Choking	No Choking
5	Maintenance	Frequent Maintenance	Less Maintenance	Frequent Maintenance	No Maintenance
6	Repair	Repair Not Possible	Repair Not Possible	Not Easy to Repair	No Repair Required
7	Installation Time	High	Low	High	Minimum
8	Conforms To International Standard	No	No	No	ISO
9	Resistance To Fire And Heat	Low	Very Low	Good	Good
10	Resale Value	No	No	Yes	Yes

LOW THERMAL EXPANSION

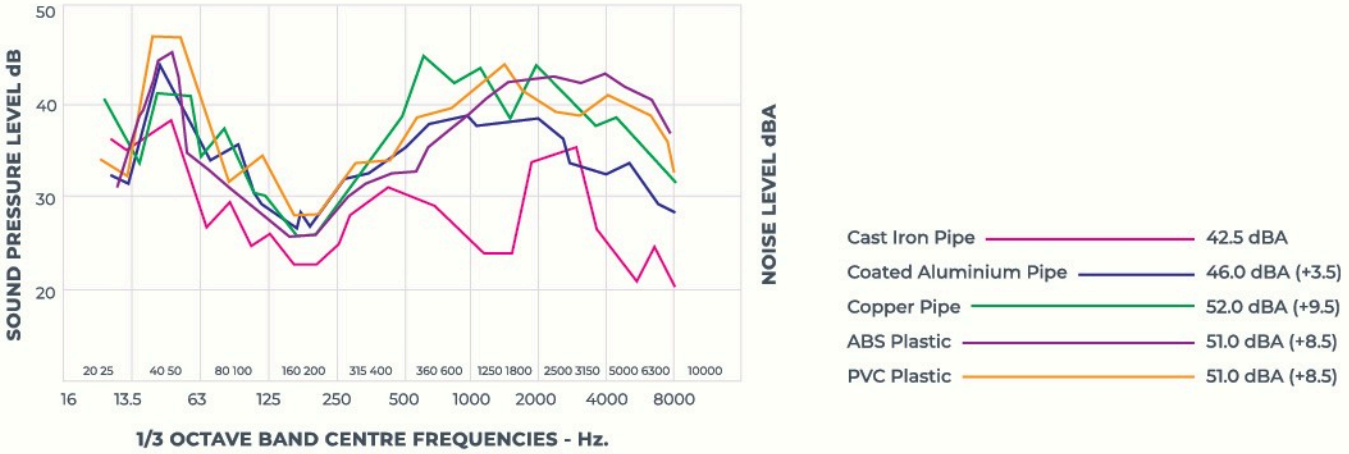
Allowance for expansion and contraction of building materials is an important consideration in any situation where construction is often undertaken in different temperatures. Once a building is “closed in" and reaches normal indoor temperatures, the building materials expand or contract.

MATERIAL	LINEAR EXPANSION IN 100 ft. (30.48m) OF PIPE FOR A TEMPERATURE RISE TO 100°F(55.5°c)
Brick	0.64 Inch. (16.26mm)
Cast Iron	0.71 Inch. (18.03mm)
Asbestos-cement	0.72 Inch. (18.29mm)
Steel	0.73 Inch. (18.54mm)
Concrete	0.74 Inch. (18.80mm)
Copper	1.10 Inch. (27.94mm)
Aluminum	1.54 Inch. (39.12mm)
PVC	3.50 Inch. (88.90mm)
ABS	6.70 Inch. (170.18mm)

Note that cast iron expands at approximately the same amount as brick, steel and concrete. Cast iron pipe expands 0.71 inches in 100 feet at a temperature rise of 100°F. (18.03mm in 30.48m at temperature rise of 55.5°C)

We in ESB make pipes to meet the World's conditions.

SUPERIOR NOISE SUPPRESSION



The illustrated chart above shows that cast iron pipe noise level is significantly lower than the other specimens. The "A" scale reading and the differences compared to cast iron pipe are quite significant. A difference of 3 dB is distinctly noticeable. A difference of 10 dB is considered to be doubling subjective loudness. The actual difference in sound power output compared to cast iron is approximately 2 1/4 times for aluminium, 7 times for plastic and 9 times for copper.

The tests above were conducted using 10 feet section of pipe. Sound output differences between cast iron and other materials could be expected to be much greater in longer pipe runs in high-rise office or apartment construction.

AGAINST CORROSION

History proves that Cast Iron soil pipes and fittings resist corrosion from solutions commonly found in drain, waste and vent systems. Many installations are still in use after more than a century of continuous service. Natural qualities of cast iron make it the ideal material for drain, waste and vent use-without additional linings or coating.

There was a study, made to test the superiority of cast iron against chemical. These chemicals were poured into the test system and held for 1 hour intervals for a period of 4 weeks.

- 5% Acetic Acid
- 0.1 n Sulphuric Acid
- 0.2 N Sodium Hydroxide
- 5% Sodium Chloride
- 5% Kerosene
- 5% Household Detergent
- 5% Sodium Hypochlorite (bleach)

TEST RESULTS

The results were: There was no significant corrosion observed on the cast iron pipe over the test period. However, the other materials showed definite signs of pitting corrosion on the joint area of the pipe.

NATURAL CORROSION RESISTANCE

In the laboratory and through more than a century of actual use, cast iron soil pipe has been proven as the best material to withstand corrosion. You can rely on cast iron with confidence because its natural qualities of corrosion resistance make it the best.

HOT WATER RESISTANT

Discharge of superheated water from commercial, industrial or residential appliances will not affect cast iron pipe.

ENVIRONMENT FRIENDLY

Cast-iron centrifugal spun pipes are absolutely environmental friendly and 95% of the material can be recycled.

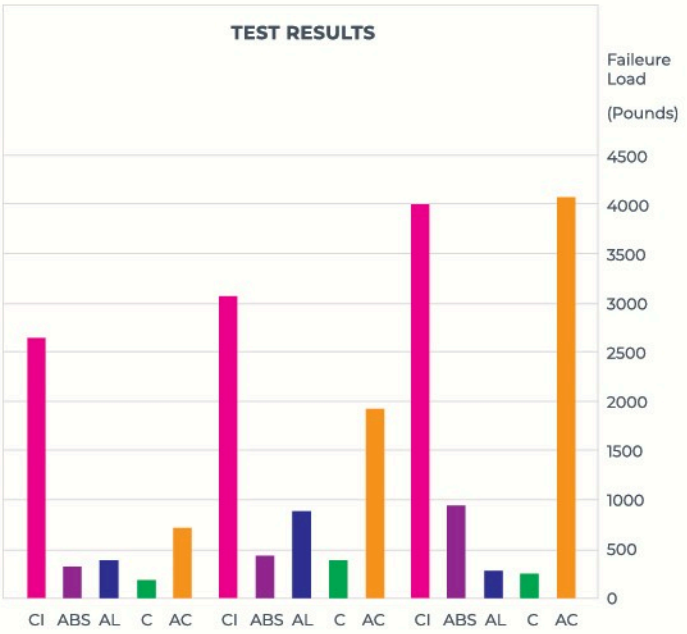
AGAINST FIRE

Fire rated construction is one important thing to look into; to ensure the safety of building occu- pants. It requires the integrity of a fire separation be maintained for up to two hours during blaze. Because cast iron soil pipes which penetrate fire separations will not allow the passage of flames from one compartment to another, fire retardants and cut off devices are not required.

Some drain, waste and vent materials produce large quantities of deadly hydrogen cyanide or hydrogen chloride gas, even when exposed only to relatively low temperatures near a fire area. Noncombustible cast iron soil pipe will not produce toxic gases even when directly involved in a fire. Our pipes can withstand temperatures up to 600°C without distortion.

HIGH RIGIDITY

Test was conducted to prove rigidity over four other common types of three inches (75mm) diameter pipe. Results as shown below.



Abbreviations

Cast Iron - CI	Copper - C
Plastic - ABS	Asbestos - AC
Aluminium - AL	

The performance of cast iron exceeded the industry requirements in the three tests. Cast iron soil pipe is superior for drain, waste and bent use as it can withstand significant external soil loads while it maintains dimensional integrity and proper drain grade. Results of the pierce test prove it can withstand repeated use of power cleaning tools while other materials have failed.

COST & CONVENIENCE

WHY WE ARE CONVENIENT

01 Save time and money by taking advantage of the simple and easy method to install stainless steel coupling.

02 The centrifugal process ensures the uniform thickness in the pipes. As such, there will be no cutting wastage.

03 The centrifugal process ensures the cast pipe to have high density and close grains, thus eliminating porosity - the cause of leakages.

04 Few tools are required to make a joint – a spanner is all you need. No molten lead or soldering is required and toxic glues or solvents are eliminated.

05 TCP brand has produced a number of combination fittings which combine two or more fittings into a single unit. This provides for less labor, less possibility of leakage and more rigidity.

06 Should there be any removal or rotating of a fitting be required after the initial installation, simply remove or loosen the necessary couplings. Alterations or additions can be quickly and easily made with minimum interruption to your work process.

07 Cleaning of cast iron plumbing system can be undertaken with push rods or sharp cutting tools without damage to the product. There is no need to worry about the use of harsh chemicals.

08 Because of the rigidity of the cast iron pipe, fewer hangers are required when suspending pipe. There is no tendency for drain lines to sag between supports.

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CUTTING TECHNIQUES

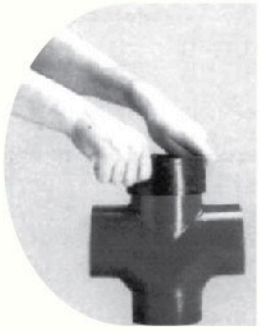
ESB Brand pipes can be easily and quickly cut using either of the following methods. It should be ensured that the cut ends are square and any burrs removed. It should also be ensured that whatever cutting method is used, it complies with all relevant health and safety regulations and also with the safety guidelines from the cutting tool manufacturer's operating manual.

Power Driven Abrasive Wheel Cutter
This provides a fast method of cutting iron pipe.

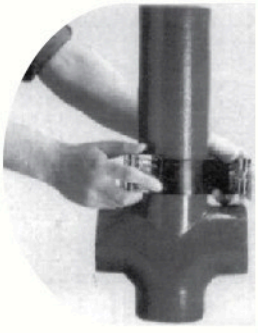
Wheel Cutter
An efficient "non-power" cutter is readily available.

⚠ WARNING **Chain or compression type cutters should not be used.**

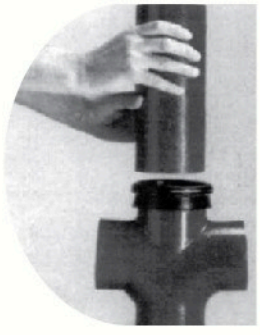
SYSTEM ASSEMBLY METHOD



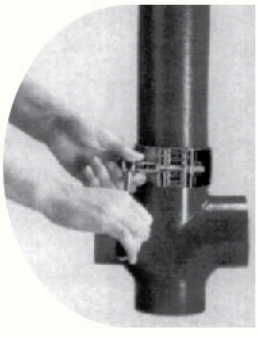
01 Dismantle the ESB brand coupling and place the gasket over the spigot.



03 Wrap the ESB brand stainless steel collar around joint ensuring the gasket is within the collar.



02 Roll back the gasket, offer the next spigot into position ensuring the central register of the gasket is between the spigots.



04 Tighten the bolt and the joint is complete.

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