

CAST IRON SOIL PIPES & FITTINGS

HUBLESS TYPE
ISO 6594
BS EN 877



NORWARDS INDUSTRIES SDN. BHD.

(Company Reg. No.: 442356-M)

INTRODUCTION

ABOUT US

Incorporated on 11th of August 1997 as a company of industry and trading, specialize in producing sewerage, water supply and drainage system pipe and fittings and complete set of accessories. Our sales network could be found everywhere in local and overseas market. We welcome all special casting by providing sample or by drawing from clients. All needs from clients are our responsibility.

EXPERIENCE

The Company consists of a panel of key personnel's who are well versed in Designing, Costing, Estimating, Planning and Supervising. Our previous experience is stated as below:-

1) Supply of hydro-mechanical product to high rise buildings, apartments, condominiums, flats, hotels, shopping complexes, hospitals, factories and warehouse.
2) Supply of Heavy Duty Cast Iron, Ductile Iron and Pipe Fitting for water and waste water management projects such as : Reservoirs, waste water treatment plant, water treatment plants, dams and etc.

A. Sewerage System :-

i. Ductile Iron Pipes & Fittings - BS EN 545
ii. Ductile Iron Manhole Cover - BS EN 124

B. Water Supply System:-

i. Ductile Iron Pipes & Fittings - BS EN 545 / BS 4772
ii. Ductile Iron Mechanical Flange Adaptor & Coupling

C. Sanitary, Soil & Drainage System:-

i. 'TCP' Hubless Cast Iron Pipes & Fittings – ASTM A 888 / CISPI 301
– ISO 6594 & BS EN 877
ii. 'TCP' Floor Drain & Floor Clean-Out
iii. 'TCP' Roof Drain
iv. 'TCP' Scupper Drain, Air Vent Cap & Area Drain
v. Mild Steel Pipe Hanger Or Bracket

D. Filtration System:-

i. Rose Strainer With Stainless Steel Basket

VISION

Norwards aims to be world class, committed to customer satisfaction and to encourage the spirit of leadership amongst our dedicated team to creating a healthy environment for continuous growth, profit and prosperity. Norwards Company is willing to take ***"Quality First, Clients First"*** and ***"Honesty and Belief"*** as the enterprise policy together with all staffs.

We sincerely welcome overseas and domestic partners to the company "Goal" for further co-operation and common development.

PHILOSOPHY & QUALITY ASSURANCE

Norwards Company is committed to providing goods and services which meet customer's expectations and needs.

- The aim is to achieve "Quality Right The First Time" and "Tested Through Time".
- Norwards shall constantly strive for continuous improvement through teamwork, training and motivation.

QUALITY POLICY

1. Norwards is committed to providing goods and services which meet customer's requirements, expectations and needs.
2. The aim is to achieve ***"Quality First, Clients First"***.
3. Norwards shall constantly strive for continuous improvement through teamwork, training and motivation.

ENVIRONMENTAL POLICY

Norwards Industries Sdn. Bhd. is committed to :

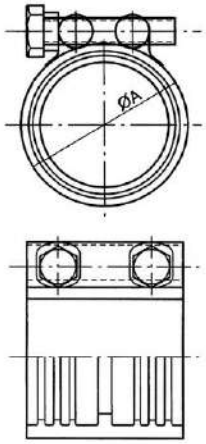
1. Meet environmental legislation and regulation as applicable, on and on-going basis, with an aim to improve the quality of life.
2. Strive for prevention of pollution through continuous improvement of process, technology and equipment, wherever applicable.
3. Aim to achieve continuous improvement of environmental performance through setting of objectives and targets and reviewing results.
4. Promote conservation of resources.

Communicate environmental policy to all employees and to ensure that this policy is available to all interested parties.

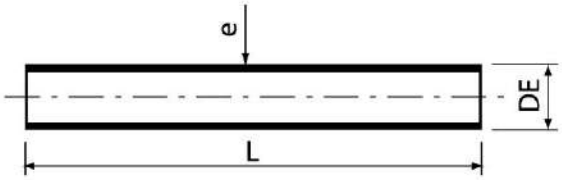
'TCP' Stainless Steel Coupling

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





'TCP' Hubless Cast Iron Pipes





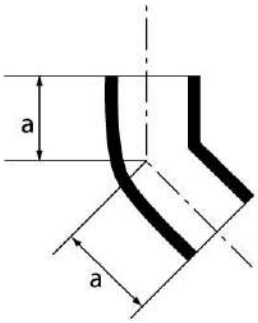
Symbol :

Tolerance on L : ±20mm

Nominal Diameter (mm)	External Diameter, DE (mm)	Diameter Tolerance (mm)	Nominal Wall Thickness, e Norm. (mm)	Minimum Wall Thickness, e Min. (mm)	Pipe Length, L (mm)	Mass (Approximate) For A Working Length (L) of 3M, (kg)
50	58	+2.0 ; -1.0	3.5	3.0	3000	13.0
75	83	+2.0 ; -1.0	3.5	3.0	3000	18.9
100	110	±2.0	3.5	3.0	3000	25.2
150	160	±2.0	4.0	3.5	3000	42.2
200	210	±2.5	5.0	4.0	3000	69.3
250	274	±2.5	5.5	4.5	3000	99.8
300	326	±2.5	6.0	5.0	3000	129.7

'TCP' Hubless Cast Iron Fittings

45° Cast Iron Bend





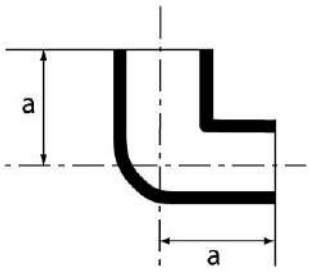
Symbol :  Tolerance on a : ±5mm

Nominal Diameter (mm)	Length, a (mm)	Nominal Wall Thickness, e Norm. (mm)	Minimum Wall Thickness, e Min. (mm)
50	50	4.2	3.0
75	60	4.2	3.0
100	70	4.2	3.0
150	90	5.3	3.5
200	110	6.0	4.0
250	130	7.0	4.5
300	155	8.0	5.0

88° Cast Iron Bend

Symbol :

Tolerance on a : ±5mm



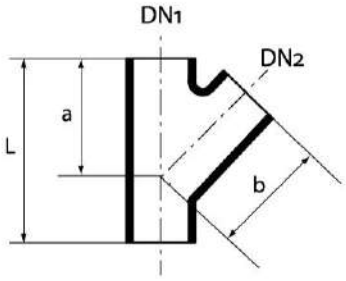


Nominal Diameter (mm)	Length, a (mm)	Nominal Wall Thickness, e Norm. (mm)	Minimum Wall Thickness, e Min. (mm)
50	75	4.2	3.0
75	95	4.2	3.0
100	110	4.2	3.0
150	145	5.3	3.5
200	180	6.0	4.0
250	220	7.0	4.5
300	260	8.0	5.0

'TCP' Hubless Cast Iron Fittings

45° Cast Iron Y Single Branches

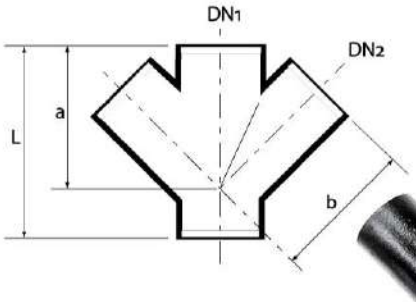




Symbol :

Tolerance on L, a, b : ±5mm

45° Cast Iron Y Double Branches



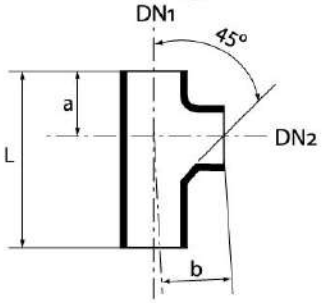


45° Cast Iron Y Single/Double Branches

NOMINAL SIZE		L	a	b
DN1	DN2	(mm)	(mm)	(mm)
50	50	160	115	115
75	50	180	135	135
75	75	215	155	155
100	50	185	150	150
100	75	220	170	170
100	100	260	190	190
150	100	280	225	225
150	150	355	265	265
200	150	375	300	300
200	200	455	340	340
250	200	470	380	380
250	250	560	430	430
300	250	580	465	465
300	300	660	505	505

'TCP' Hubless Cast Iron Fittings

88° Cast Iron Sanitary T Single Branches

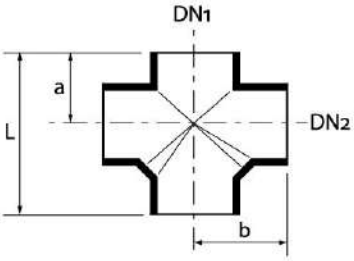




Symbol :

Tolerance on
L, a, b : ±5mm

88° Cast Iron Sanitary T Double Branches





88° Cast Iron Sanitary T Single/Double Branches

NOMINAL SIZE		L	a	b
DN1	DN2	(mm)	(mm)	(mm)
50	50	145	65	75
75	50	155	73	90
75	75	180	85	95
100	50	170	75	105
100	75	190	88	115
100	100	220	105	115
150	50	200	100	140
150	75	220	100	140
150	100	245	115	145
150	150	295	145	155
200	100	270	126	175
200	150	325	152	185
200	200	365	180	180
250	250	455	225	225
300	300	530	265	265

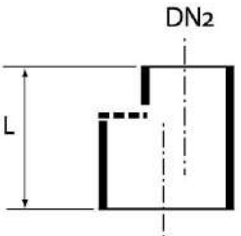
'TCP' Hubless Cast Iron Fittings

Reducer

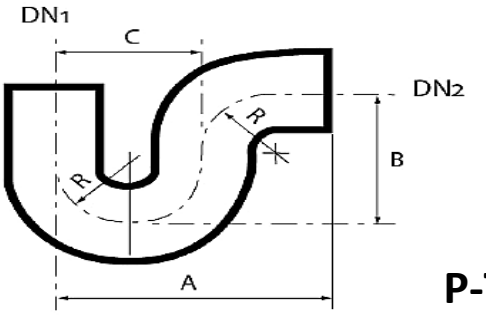
NOMINAL SIZE		L
DN1	DN2	(mm)
75	50	80
100	50	80
100	75	90
150	75	100
150	100	105
200	100	115
200	150	125
250	150	135
250	200	145
300	200	160
300	250	170

Symbol :

Tolerance on
L, a, b : ±5mm



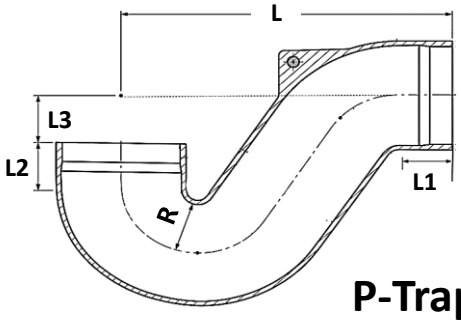






P-Trap

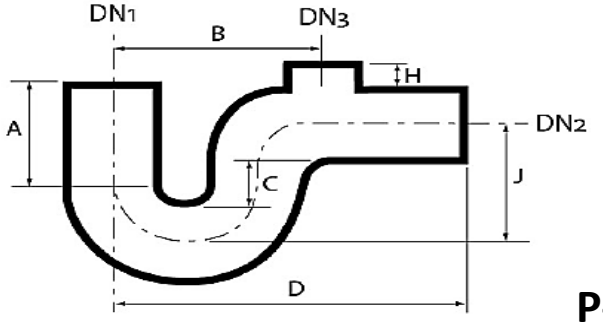
NOMINAL SIZE		A	B	C	R
DN 1	DN2	(mm)	(mm)	(mm)	(mm)
50	50	165	105	90	45
150	150	360	160	170	100





P-Trap (W-Model)

NOMINAL SIZE	L	L1	L2	L3	R
	(mm)	(mm)	(mm)	(mm)	(mm)
DN 75	218	49	49	37	50
DN 100	284	48	48	49	65



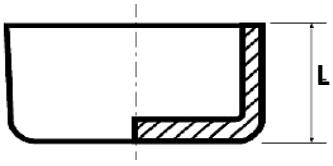


P-Trap With Vent / Without Vent

NOMINAL SIZE			A	B	C	D	J	H
DN1	DN2	DN3	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
100	100	50	120	223	70	355	170	49
100	75	50	110	240	45	361	140	55

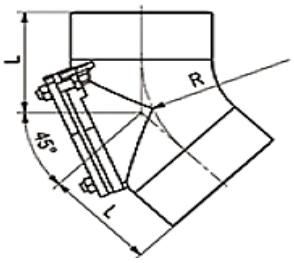
NOMINAL SIZE	Length (mm)
50	30
75	35
100	40
150	50
200	60
250	70
300	80

"TCP" Hubless Cast Iron Fittings
Clean-Out Plug / End Cap





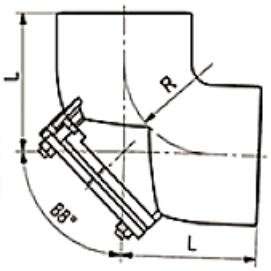




45° Cast Iron Bend with Access

NOMINAL SIZE	L	R
DN	mm	mm
100	90	115
150	120	160

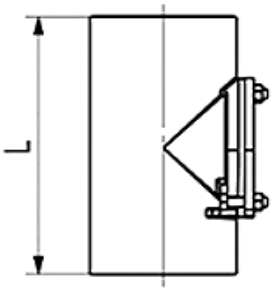




88° Cast Iron Bend with Access

NOMINAL SIZE	L	R
DN	mm	mm
50	75	46
75	95	62
100	110	72
150	145	98
200	175	120

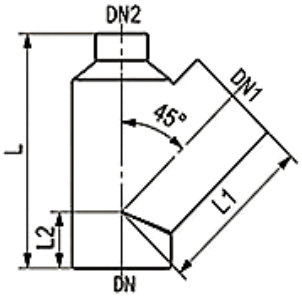




Test Tee

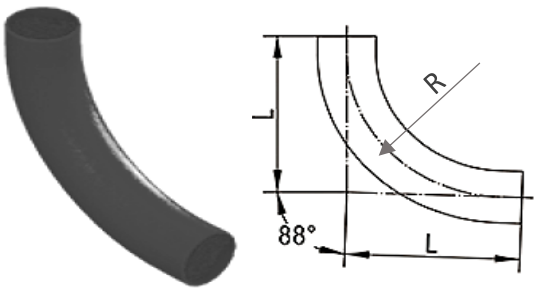
NOMINAL SIZE	L
DN	mm
50	165
75	200
100	215
150	260
200	300





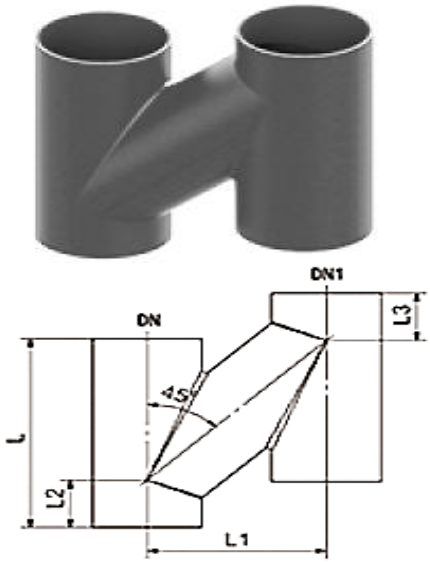
Bottle Shaped Tee

NOMINAL SIZE			L1	L2	L3
DN	DN1	DN2	mm	mm	mm
75	75	50	180	95	95
100	100	50	220	110	110
100	100	75	220	110	110



88° Cast Iron Long Bend

NOMINAL SIZE	L	R
DN	mm	mm
75	288	25
100	330	300
150	390	350



" H " Tee

NOMINAL SIZE		L	L1	L2	L3
DN	DN1	mm	mm	mm	mm
100	75	270	170	45	55
100	100	255	210	65	65
150	100	345	230	65	65
150	150	410	240	85	85
200	150	370	250	70	70

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 gurantee that you will have the following advantages:-

- **THE CLEAR CUT WINNER**
  Detailed comparison why TCP Hubless pipe system is a winner.

- **LOW THERMAL EXPANSION**
  Cast iron pipes expand and contract at 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 & CONENIENCE**
  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	TCP 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	DIN/ISO/CISPI 301
9.	**Resistance To Fire and Heat**	Low	Very Low	Good	Good
10.	**Resale Value**	No	No	Yes	Yes

MANUFACTURER:

TCP THAI CAST MANUFACTURING LTD., PART

SOLE AGENT:

NORWARDS INDUSTRIES SDN. BHD.
(Company Reg. No.: 442356-M)