HANSEN™

FITTINGS & PIPES

NYLON 6
FITTINGS
FOR HDPE PIPES

It's Every Plumber's Dream

No Compression Rings
No 'O' Rings
No Crimping
No Solvent Cement

PATENT NO: MY-127837-A
SIRIM CERTIFIED TO BS 5114:1975 (1981) (AMD.2-1987), MS 1058
License No: PS 068809, PS 068806
SPAN CERTIFIED

Print Edition for September 2017

NYLON 6

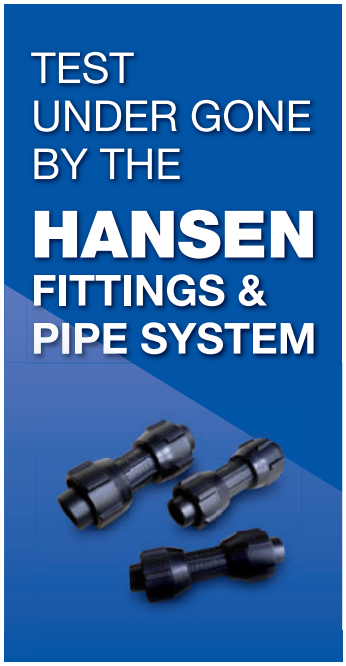
A HIGH PERFORMANCE MATERIAL

Approved by the Water Supply (Water Quality) Regulations 1989 & Water Regulations Advisory Committee (WRAS) of UK for its use in potable water, this material is superior to existing materials being used in terms of strength and ability to withstand heat. The fittings are designed and comply to British Standard BS 5114: 1975 (1981) (AMD.2 – 1987) and ISO 22391-3.

MECHANICAL PROPERTIES

Hansen fittings, together with high density polyethylene (HDPE) pipes or polyethylene – raised temperature (PE-RT) pipes, provide an unsurpassable potable water system. These sleek fittings are slim enough to be buried in walls and are able to withstand very high pressures.

Mechanical Properties	Test Conditions	Units	Standards	Nylon 6
Tensile Modulus	1 mm/min	MPa	ISO 527	3600
Tensile Stress at break	5 mm/min	MPa	ISO 527	75
Tensile Strain at break	5 mm/min	%	ISO 527	12
Flexural Modulus	2 mm/min	MPa	ISO 178	3100
Flexural Strenght	5 mm/min	MPa	ISO 178	120
Temperature of Deflection under load method Af	MPa	°C	ISO 75	190
Coefficient of Linear Thermal Expansion	23 to 55°C	10^{-4} / K	ASTM E 831	0.3
Water Absorbtion	Saturation Value in water at 23°C	%	ISO 62	8.5
Density		gm / cm^3	ISO 1183	1.23



The only plastic fittings system for potable water in Malaysia to have under gone the cyclic pressure shock test
tested at 23°C ± 2°C for 10,000 cycles of alternate internal positive pressure of 1 bar ± 0.5 bar and 15 bar ± 0.5 bar at frequency of at least 30 pressure cycles per minute.

Resistance to pull out of assembled joint
The jointed assembly is applied a constant tension for 1 hour on the basis that it is subjected to a maximum internal test pressure of 37.5 bar.

Hydrostatic pressure test
The assembly shall withstand without leakage for 1 hour an internal positive pressure of 3 times its maximum sustained working pressure which is 37.5 bar.

Hydrostatic requirement when subjected to bending stress
When the assembly is bent to a radius of 20 times the diameter of the pipe, the jointed assembly shall withstand for 1 hour without leakage an internal positive pressure of 37.5 bar.

External pressure requirement
The jointed assembly shall withstand for 1 hour without leakage, a pressure of 0.80 bar above atmospheric pressure.

Effect on water
complies to BS 6920: Part 1 and Part 2.

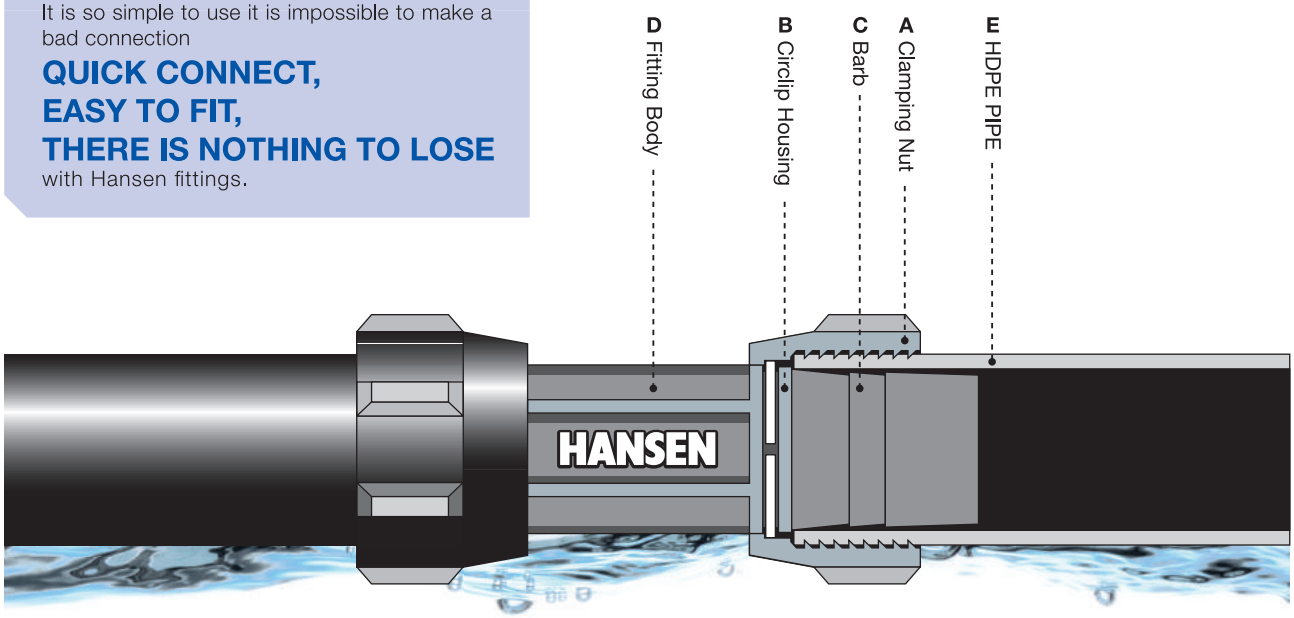
Opacity
the wall of the fittings shall not transmit more than 0.2% of the visible light falling on it.

HOW IT WORKS

It is so simple to use it is impossible to make a bad connection

**QUICK CONNECT,
EASY TO FIT,
THERE IS NOTHING TO LOSE**

with Hansen fittings.



Push the Hansen fitting **D** into the pipe **E** (High Density Polyethylene Pipe) up to the circlip housing **B**.

Wind the nut onto the pipe a few turns by hand and tighten with a spanner until fully engaged against circlip housing **B**. Barb **C** on the Hansen fitting has 2 functions.

It seals and holds the polypipe in place from the inside. The clamping nut **A** also has 2 functions. It clamps the pipe down onto the barb **C** creating a high pressure seal and also gives a permanent vice like hold on the outside of the polypipe **E**.

HOW TO FIT THE **HANSEN** POLYPIPE FITTING

1

Cut the polypipe square with pipe cutters, knife or saw to the required length.

2

Push fittings into the pipe as far as possible.

3

Wind the nut onto pipe a few turns. Tighten with spanner or stillson.

4

Simply the best. No heat, crimping, or solvent cement required. Leak proof. Nothing to lose.

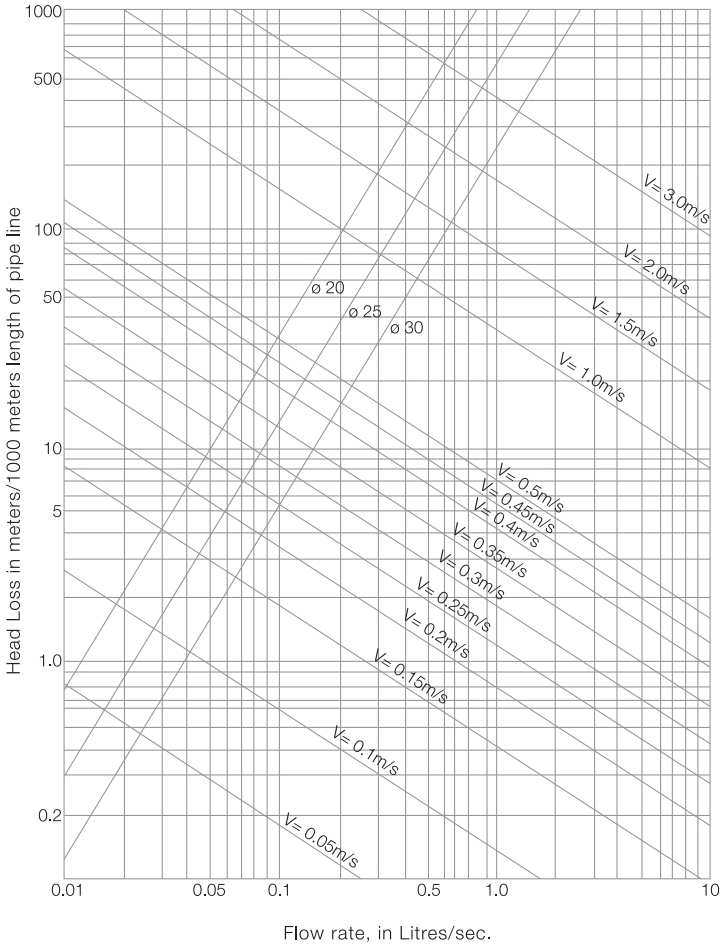
BBB / HANSEN

HIGH DENSITY POLYETHYLENE PIPES FOR COLD WATER SYSYEM

Our pipes are SIRIM approved and manufactured using approved raw materials, high density polyethylene and comply to ***MS 1058***. The main advantages of polyethylene pipes for the transport of pressure fluids can be summarised as follows:

- ease, reliability and cost efficiency of jointing and laying operations.
- non toxic, low abrasion and flexibility.
- excellent resistance to water hammer phenomena.
- absence of scale on inside walls results in consistancy of pipeline hydraulic performance.
- immune to corrosion phenomena and has very good resistance to a wide range of chemicals.

FLOW DIAGRAM
for high density polyethylene (hdpe) pipes



V = Velocity in m/sec
ø = Nominal pipe size in mm

HYDRAULIC PROPERTIES

The velocity of flow in hdpe does not normally exceed 1-2 meters per second in distribution mains. The hydraulically smooth bore of a hdpe pipe gives excellent flow characteristics through its operational life and the hydraulic friction co-efficient normally used in the design of hdpe pipes working under pressure are:

- ***Colebook-White*** k = 0.003 mm (max 0.01 mm to allow for some deposition with age)
- ***Hazen Williams*** c = 150

The Colebook-White based formula is recognised by engineers through out the world as the most accurate basis for hydraulic design.

$$Q = \frac{\pi D^2}{4} \cdot \sqrt{2gD\frac{H}{L}} \cdot \log_{10}\left[\frac{D}{\frac{k}{3.7} + \frac{2.51\vartheta}{\sqrt{2gD\frac{H}{L}}}}\right]^2$$

Q = discharge (m^3/s)
D = pipe internal diameter (m)
g = 9.8 m/s^2
$\frac{H}{L}$ = hydraulic gradient (m/m)
k = Colebrook-White roughness co-efficient (m)
ϑ = Kinematic viscosity of water (m^2/s)

PIPE SIZES

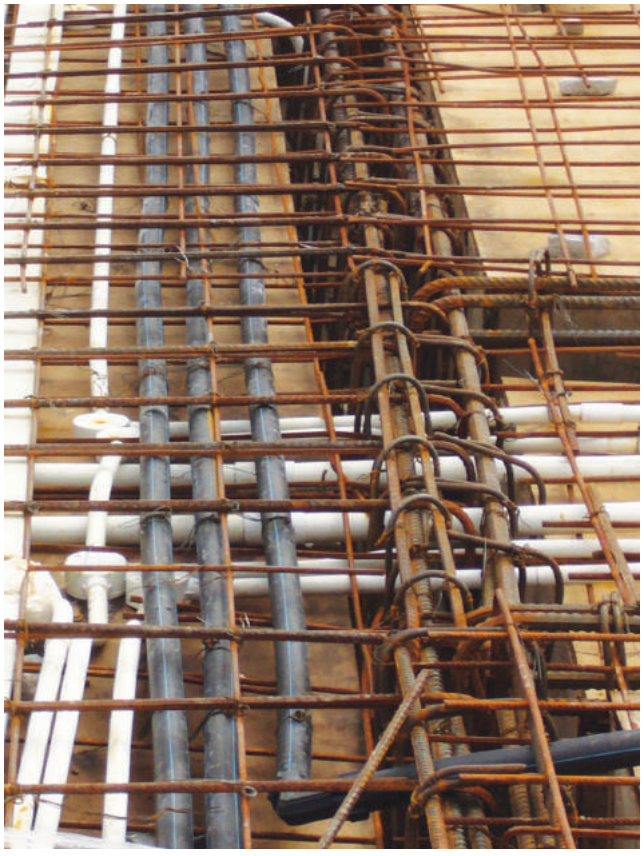
BBB / HANSEN PE PIPE

			Outer Diameter		Wall Thickness	
OD (mm)	Nominal Size (inch)	Working Pressure (bar)	Max(mm)	Min(mm)	Max(mm)	Min(mm)
20.0	½"	16.0	20.3	20.0	2.7	2.3
25.0	¾"	12.5	25.3	25.0	2.7	2.3
32.0	1"	12.5	32.3	32.0	3.4	3.0
40.0	1¼"	12.5	40.4	40.0	4.2	3.7
50.0	1½"	12.5	50.4	50.0	5.2	4.6

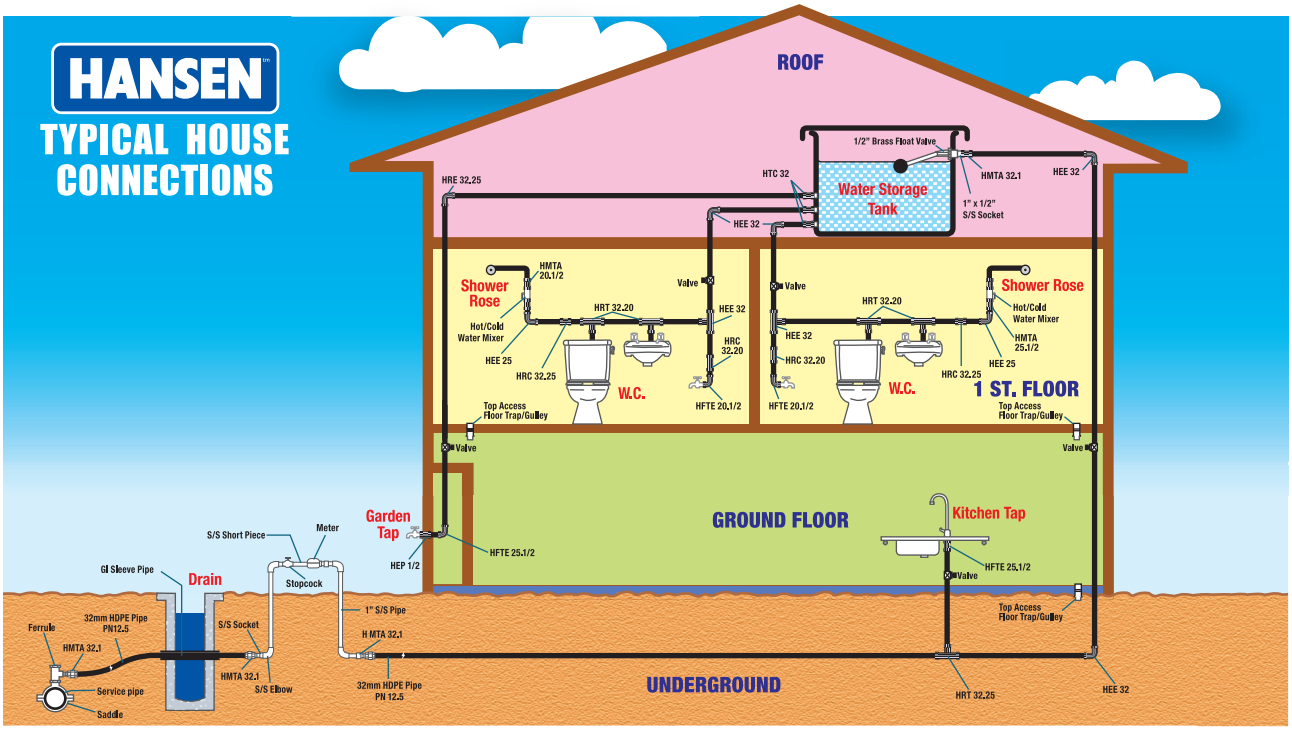
BENEFITS OF POLYETHYLENE (HDPE) PIPES

- A comprehensive range of high density polyethylene pipes and fittings provides a complete system for potable water.
- UV Stabilized
- Proven joint systems (used in Europe, USA, Canada, New Zealand, Australia, Indonesia and Thailand) offer long term, leak-free performance. Sleek joint system for use in confined areas or locations susceptible to ground movement and small enough to conceal in the wall.
- ***No Compression Rings, No 'O' rings, No Crimping, No Solvent Cement*** - fast, leak proof and simple installation, requires no special site equipment or skilled labour. ***Low installation costs*** combined with the long life of Hansen pipe and fittings make it the ***cost-effective choice***.
- Excellent hydraulic flow characteristics.
- Materials used are not permeated or degraded by organic or inorganic contaminants in the soil. They do not rust, or corrode.
- The high strength of Nylon and high density Polyethylene makes it suitable for high stress applications where fatigue or pressure surge may be experienced and gives security against unforeseen circumstances like ground subsidence.
- ***Patented System*** - no "backyard" manufacturers or imitations. You are assured of high quality leak proof products.
- Test results from reputed testing bodies (SIRIM, etc) are available on request.
  -support bracket min 1m / bracket recommended.

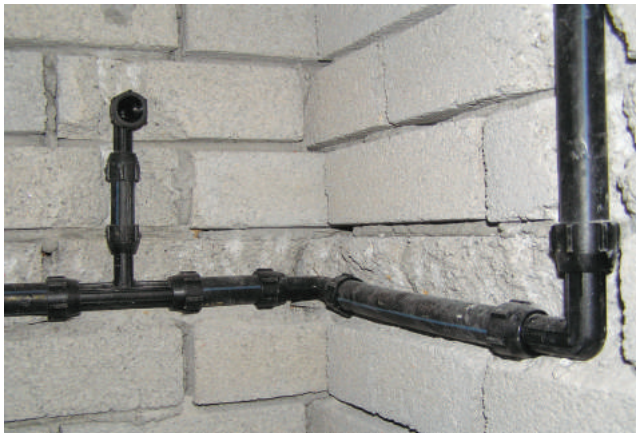
Compatible with high density polyethylene (HDPE) pipe manufactured to	MS 1058
	BS 6572
	BS 6730
	ISO 161-1
	DIN 8074



FULL HOUSE PLAN



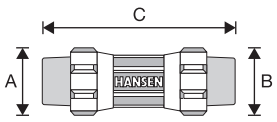
SITE PICTURES



FITTINGS SPECIFICATIONS

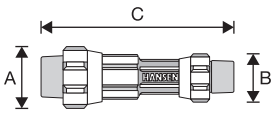
Hansen Fittings are compatible with high density polyethylene (HDPE) pipes manufactured to MS1058: Part 2: 2002 - 20mm fittings (PN 16), 25mm, 32mm, 40mm & 50mm (PN 12.5).

Equal Coupling



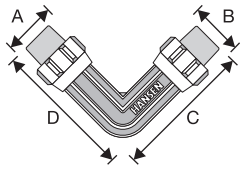
Code	Size (mm)	A	B	C
HEC 20	20 x 20	30	30	85
HEC 25	25 x 25	36	36	94
HEC 32	32 x 32	44	44	105
HEC 40	40 x 40	48	48	116
HEC 50	50 x 50	61	61	126

Reducing Coupling



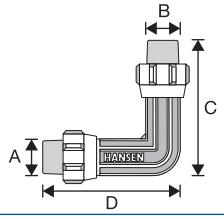
Code	Size (mm)	A	B	C
HRC 25.20	25 x 20	36	30	109
HRC 32.20	32 x 20	44	30	118
HRC 32.25	32 x 25	44	36	122
HRC 40.32	40 x 32	48	44	119
HRC 50.32	50 x 32	61	44	124
HRC 50.40	50 x 40	61	48	132

Equal Elbow



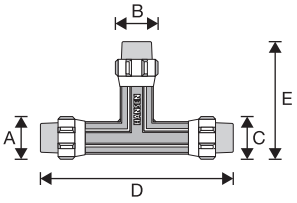
Code	Size (mm)	A	B	C	D
HEE 20	20 x 20	30	30	72	72
HEE 25	25 x 25	36	36	83	83
HEE 32	32 x 32	44	44	97	97
HEE 40	40 x 40	48	48	115	115
HEE 50	50 x 50	61	61	125	125

Reducing Elbow



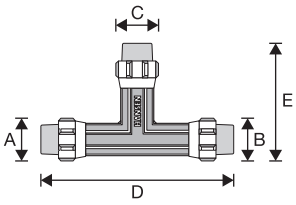
Code	Size (mm)	A	B	C	D
HRE 25.20	25 x 20	36	30	77	77
HRE 32.25	32 x 25	44	36	89	91
HRE 40.32	40 x 32	48	44	112	113
HRE 50.40	50 x 40	61	48	119	122

Equal Tee



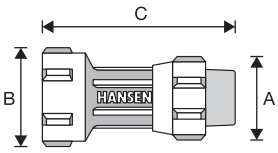
Code	Size (mm)	A	B	C	D	E
HET 20	20 x 20 x 20	30	30	30	128	73
HET 25	25 x 25 x 25	36	36	36	144	83
HET 32	32 x 32 x 32	44	44	44	166	97
HET 40	40 x 40 x 40	48	48	48	199	115
HET 50	50 x 50 x 50	61	61	61	209	124

Reducing Tee



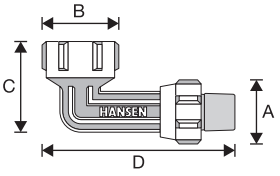
Code	Size (mm)	A	B	C	D	E
HRT 25.20	25 x 25 x 20	36	36	30	144	78
HRT 32.20	32 x 32 x 20	44	44	30	160	84
HRT 32.25	32 x 32 x 25	44	44	36	160	89
HRT 40.32	40 x 40 x 32	48	48	44	199	113
HRT 50.32	50 x 50 x 32	61	61	44	209	116
HRT 50.40	50 x 50 x 40	61	61	48	209	127

Female Thread Adaptor (BSPT Female)



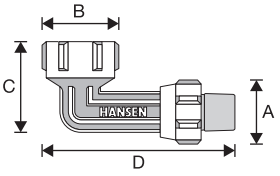
Code	Size (mm)	A	B	C
HFTA 20.½	20 x ½"	30	½" BSPT Female	72
HFTA 25.¾	25 x ¾"	36	¾" BSPT Female	80
HFTA 32.1	32 x 1"	44	1" BSPT Female	90

Female Thread Elbow (BSPT Female)



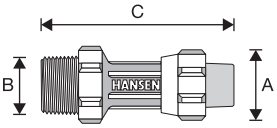
Code	Size (mm)	A	B	C	D
HFTE 20.½	20 x ½"	30	½" BSPT Female	44	79
HFTE 25.½	25 x ½"	36	½" BSPT Female	50	91
HFTE 25.¾	25 x ¾"	36	¾" BSPT Female	50	91
HFTE 32.1	32 x 1"	44	1" BSPT Female	61	107

Female Brass Thread Elbow (BSPT Female)



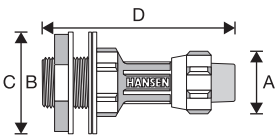
Code	Size (mm)	A	B	C	D
HFTE-B 20.½	20 x ½"	30	½" BSPT Female	44	79
HFTE-B 25.½	25 x ½"	36	½" BSPT Female	50	91

Male Thread Adaptor (BSPT Male)

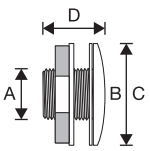


Code	Size (mm)	A	B	C
HMTA 20.½	20 x ½"	30	½" BSPT Male	83
HMTA 25.½	25 x ½"	36	½" BSPT Male	87
HMTA 25.¾	25 x ¾"	36	¾" BSPT Male	90
HMTA 32.1	32 x 1"	44	1" BSPT Male	100
NEW HMTA 32.¾	32 x ¾	44	¾" BSPT Male	97
HMTA 40.1¼	40 x 1¼"	48	1¼" BSPT Male	113
HMTA 50.1½	50 x 1½"	61	1½" BSPT Male	124

Tank Connector (BSPT Male & Female)

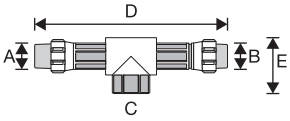


Code	Size (mm)	A	B	C	D
HTC 25.¾	25 x ¾"	36	¾" BSPT Male	70	105
HTC 32.1	32 x 1"	44	1" BSPT Male	54	117



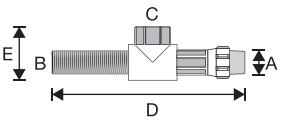
Code	Size (mm)	A	B	C	D
HTC 40.1¼	40 x 1¼"	42	1¼" BSPT Female	86	50
HTC 50.1½	50 x 1½"	45	1½" BSPT Female	90	59

Tee with Female Thread Branch (BSPT Female)



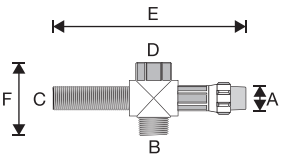
Code	Size (mm)	A	B	C	D	E
NEW HTFTB 20.20.½	20 x 20 x ½"	30	30	½" BSPT Female	175	47
HTFTB 25.25.½	25 x 25 x ½"	36	36	½" BSPT Female	159	47
HTFTB 32.25.½	32 x 25 x ½"	44	36	½" BSPT Female	168	47
HTFTB 32.32.½	32 x 32 x ½"	44	44	½" BSPT Female	174	47
HTFTB 25.25.1	25 x 25 x 1"	36	36	1" BSPT Female	164	53
HTFTB 32.25.1	32 x 25 x 1"	44	36	1" BSPT Female	175	53
HTFTB 32.32.1	32 x 32 x 1"	44	44	1" BSPT Female	180	53

Male Tee with Female Branch (BSPT Male & Female)



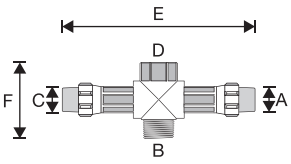
Code	Size (mm)	A	B	C	D	E
HMTFB 25.½.½	25 x ½" x ½"	20	½" BSPT Male	½" BSPT Female	164	47
HMTFB 25.¾.½	25 x ¾" x ½"	26	¾" BSPT Male	½" BSPT Female	166	47
HMTFB 32.½.½	32 x ½" x ½"	20	½" BSPT Male	½" BSPT Female	171	47
HMTFB 32.¾.½	32 x ¾" x ½"	26	¾" BSPT Male	½" BSPT Female	173	47

Male Cross Tee (BSPT Male & Female)



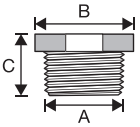
Code	Size (mm)	A	B	C	D	E	F
HMCT 25.½.¾.½	25 x ½" x ¾" x ½"	36	½" BSPT Male	¾" BSPT Male	½" BSPT Female	166	63
HMCT 25.½.½.½	25 x ½" x ½" x ½"	36	½" BSPT Male	½" BSPT Male	½" BSPT Female	164	63
HMCT 32.½.¾.½	32 x ½" x ¾" x ½"	44	½" BSPT Male	¾" BSPT Male	½" BSPT Female	173	63
HMCT 32.½.½.½	32 x ½" x ½" x ½"	44	½" BSPT Male	½" BSPT Male	½" BSPT Female	171	63

Cross Tee (BSPT Male & Female)



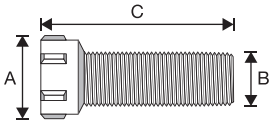
Code	Size (mm)	A	B	C	D	E	F
HCT 25.½.25.½	25 x ½" x 25 x ½"	36	½" BSPT Male	36	½" BSPT Female	159	63
HCT 25.½.32.½	25 x ½" x 32 x ½"	36	½" BSPT Male	44	½" BSPT Female	166	63
HCT 32.½.32.½	32 x ½" x 32 x ½"	44	½" BSPT Male	44	½" BSPT Female	174	63

Bush (BSPT Male & Female)



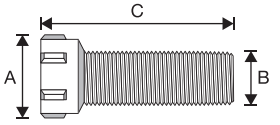
Code	Size (mm)	A	B	C
HB 1.¾	1" x ¾"	1" BSPT Male	¾" BSPT Female	29
HB ¾.½	¾" x ½"	¾" BSPT Male	½" BSPT Female	26

Extension Piece (BSPT Female & Male)



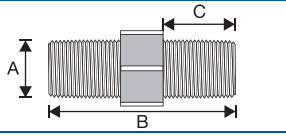
Code	Size (mm)	A	B	C
HEP ½	1½"L x ½"	½" BSPT Female	½" BSPT Male	58

Extension Piece Brass Threaded (BSPT Female & Male)



Code	Size (mm)	A	B	C
HEP-B ½	1½"L x ½"	½" BSPT Female	½" BSPT Male	58

Equal Nipple (BSPT Male)



Code	Size (mm)	A	B	C
HEN ½.½	½" x ½"	½" BSPT Male	42	16

www.sansico.com.my

SANSICO
HANSEN

Sansico Industries Sdn Bhd (448766-D)
No. 20, Jalan Uranus AK U5/AK,
Taman Subang Impian, Seksyen U5,
40150 Shah Alam, Selangor.

Tel : (603) 7859 7299 (**Hunting Line**)
Fax : (603) 7859 0299
E-mail : enquiry@sansico.com.my