

DATA SHEET CIVILPIPE

HDPE SN8 & PP SN16

DRAINAGE DN100-DN1000



INFRAPIPE CIVILPIPE is a New Zealand made twinwall (corrugated) polymer pipe system that is ideal for stormwater or waste water applications. Utilising the latest manufacturing technology, INFRAPIPE CIVILPIPE is made to either the SN8 or SN16 stiffness ratings under the AS/NZS 5065:2005 standard, ensuring its suitability for road culverts and gravity pipelines. Supplied in 6 metre (approx.) lengths, INFRAPIPE CIVILPIPE is chemically inert, very light, yet incredibly strong, and able to withstand high loads and severe impacts. It is specified in DN – which is the ID of the pipe (unlike some alternatives which are OD – [see conversion table here](#)).

Table 1 CIVILPIPE DETAILS

DN	ID (A) mm	Crate Quantity	Cross Section Area mm	Effective Length mm	Overall Length mm	SN8 HDPE Weight (KG)	SN16 PP Weight (KG)
100	98	30	7,539	6413	6490	5	N/A
150	147	23	16,963	6348	6461	8	N/A
225	218	6	37,306	6283	6429	17	19
300	295	6	68,315	6188	6389	28	32
375	375	2	110,391	6183	6391	45	52
450	450	2	158,963	6123	6340	70	80
525	525	2	216,366	6041	6317	95	109
600	600	1	282,600	5920	6273	115	132
800	800	1	502,400	5936	6272	195	224
1000	1000	1	785,000	5892	6283	324	372

SUPPORTING DOCUMENTS & FURTHER DETAIL

Further detail can be found in the Design Manuals for [Pipelines](#) or [tanks](#) and the data sheets for [INFRAPIPE KRAH pipes](#), [Manholes & structures](#) and for [solid wall pipe](#).

- Read the [Installation Guide](#).
- Read the INFRAPIPE [Material Guide](#).
- Visit the [INFRAPIPE Downloads section](#).



STANDARDS

1. Certified to AS/NZS 5065:2005 licence no. AMI 74961.
2. Pipes are tested by Infrapipe to AS/NZS5065:2005 in their test lab in accordance with ISO 9969:2016 *Thermoplastic pipes – Determination of Ring Stiffness*.
3. The rubber rings are certified to EN681-1.
4. INFRAPIPE Ltd is certified to ISO 9001:2015 licence no. AMI 78044.



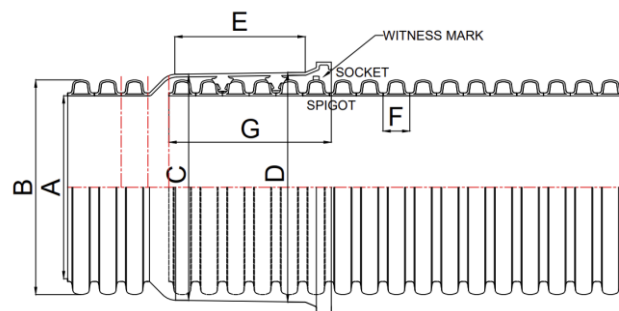
FEATURES & BENEFITS

- ✓ Best seismic resistance.
- ✓ 100-year life.
- ✓ 14 times lighter (7%) than concrete.
- ✓ Stronger.
- ✓ Quick to install.
- ✓ Completely recyclable.
- ✓ Easy to freight.
- ✓ Best abrasion resistance.
- ✓ Chemically inert.
- ✓ Biologically immune.
- ✓ No maintenance.
- ✓ Easy to modify or repair.
- ✓ Integrates with customisable KRAH pipes.
- ✓ Less manholes required.

A Class 4 concrete DN600 is 318kg/m. An INFRAPIPE SN16 DN600 is 23kg/m.

DIMENSIONS

Table 2 CIVILPIPE DIMENSIONS in mm

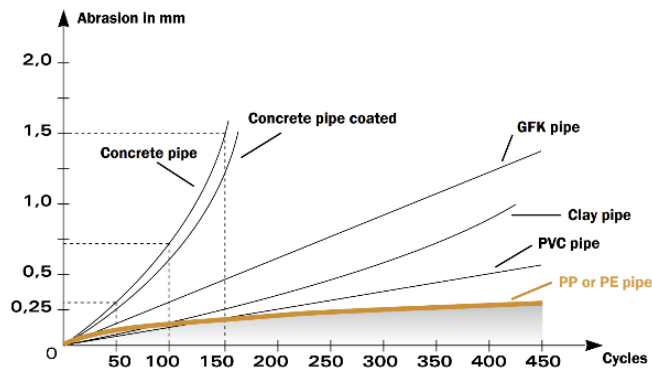


DN	B OD	C Socket ID	D Socket OD	E Spigot Length	F Pitch	G Socket Length
100	115	118/120	121/123	99	14.37	87
150	171	176/178	178/180	119	12.55	113
200	230	235/238	240/243	172	28.73	148
225	254	260/263	265/268	170	28.73	146
300	345	352/357	359/363	235	43.1	201
375	437	444/448	452/456	245	49.26	218
450	523	530/535	540/545	274	57.47	230
525	611	618/623	629/634	276	68.96	276
600	702	709/715	722/728	426	86.2	353
800	936	913/919	928/934	435	114.93	336
1000	1166	1137/1143	1154/1160	443	114.93	391



MATERIAL

- CIVILPIPE comes in two stiffness ratings – SN8 with a blue stripe and SN16 with a red stripe.
- INFRAPIPE also produces a SN6 rural equivalent to CIVILPIPE, called FARMPIPE - which has no stripe.
- HDPE/PP pipes can be buoyant in high water tables; INFRAPIPE provides anchor systems.
- HDPE/PP is the least attractive surface for fat, even before erosion, [as shown here](#).
- CIVILPIPE is tested to 20psi and therefore approved for use up to 1 Bar (14.5psi).
- [The Infrapipe chart of chemical resistance can be found here](#).
- [INFRAPIPE's material guide has further detail on material qualities](#).



Abrasion curve of various pipe materials according to the Darmstadt procedure.

ASSET LIFE

HDPE/PP has a 100 year service [life as demonstrated here](#).

As INFRAPIPE has superb abrasion and seismic resistance and is immune to chemical or biological attack in NZ conditions it is the pipe that is most certain to achieve this in the real world, and it can be recycled at the end!

ABRASION RESISTANCE

Being homogeneous and not friable, polymers enjoy the best abrasion resistance of any material, which preserves hydraulic efficiency throughout asset life.

Abrasion tests using the global standard Darmstadt procedure show the following abrasion in mm:

Thousand (k) cycles	CIVILPIPE	Concrete	PVC	FRP/GRP
50	0.1	0.3	0.05	0.15
100	0.15	0.7	0.1	0.3
150	0.2	1.5	0.2	0.5
300	0.25	-	0.35	0.9
450	0.3	-	0.55	1.3



INSTALLATION

- CIVILPIPE is delivered crated in the quantities shown on Page 1 using scalloped timber as shown here.
- [Infrapipe has a detailed document on Loading, Handling & Storing these products.](#)
- Infrapipe has a detailed document on [Inspection on Delivery.](#)
- For details on how to care for INFRAPIPE CIVILPIPE read [Infrapipes Guide to Maintaining your warranty.](#)
- INSTALLATION is in accordance with [this installation guide.](#)
- CIVILPIPE Is joined using the integrated socket and spigot with the matching rubber ring (supplied separately).
- Short (half) lengths are available for installations with trench shields.
- Trench design is covered in [this installation guide.](#)
- Minimum cover Heights in mm using engineered fill are as per the table below:



Loading condition	mm	Loading condition	mm
Not subject to vehicles	300	Vehicle load no carriageway	450
Land zoned for agricultural use	600	Vehicle load unsealed carriageway	750
In embankments or construction eqpt loads	750	Vehicle load sealed carriageway	600

For situations outside the above or depths of 6m+, contact INFRAPIPE for an engineered solution.

More detail can be found in AS/NZS 2566.1:1998 *Buried Flexible Pipelines: Structural design* and AS/NZS 2566.2:2002 *Buried flexible pipelines – Installation*.

CONNECTIONS - LATERALS

Any lateral connection can be achieved using Fernco fittings as shown here.

For larger laterals see fittings below, either stock junctions, reducing junctions or customised KRAH fittings.



CONNECTING TO MANHOLES

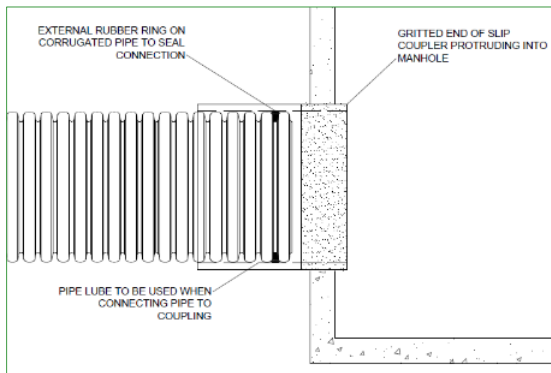
CIVILPIPE is joined to HDPE manholes with sockets or plain ends and extrusion welds. For concrete manholes, connections can be achieved in the following ways:

1. Using a standard manhole connector (DN100-DN450).
2. Using a custom-made fitting such as a slip coupler (DN375-DN1000).
3. Creating a concrete/epoxy mortar corbel around the join (DN100-1000).

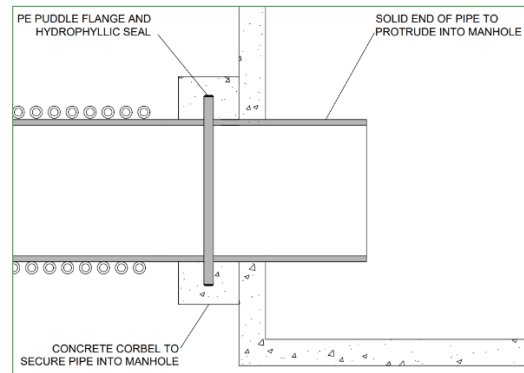


- Using a join to an INFRAPIPE KRAH pipe and then a puddle flange and/or hydrophillic seal in conjunction with a concrete/epoxy mortar corbel (DN375-DN1000).

A slip coupler



A puddle flange and concrete corbel



PIPE SLOTTING IS AVAILABLE TO ANY PATTERN

CONNECTIONS TO OTHER PIPES

Join CIVILPIPE to other pipes of HDPE/PP, PVC, concrete or clay with slip couplers, PE Restraint couplers, shearbands or Hermetica clamps.

A manhole connector



FITTINGS

The CIVILPIPE range is supported with stock fittings in the 225-600 diameters. For other requirements or other diameters contact INFRAPIPE for a customised solution which is easily achievable using the KRAH technology.

- UPVC fittings are available for 45 and 90 degree bends for 225-450.
- UPVC fittings are available for 45 degree (WYE) and 90 degree (TEE) junctions for 225-450.
- UPVC reducing junctions are available on request for 225-450.



- UPVC concentric reducers and couplers are available for 225-450.
- PP Welded SN16 fittings are available for 45 degree (WYE) and 90 degree (TEE) junctions for 225-600.
- PP Welded SN16 fittings are available for 11,22,33,45 and 90 degree bends for 225-600.
- HDPE Welded SN8 fittings are available for 45 degree (WYE) and 90 degree (TEE) junctions for 225-600.
- HDPE Welded SN8 fittings are available for 11,22,33,45 and 90 degree bends for 225-600.
- HDPE KRAH SN8 or SN16 fittings for 450-1000 are available on request.

- ✓ In diameters 100-450, any custom design or fitting can be achieved with PVC donor pipes.
- ✓ In diameters 450-1000, CIVILPIPE has been designed to integrate seamlessly with the INFRAPIPE KRAH system as they have identical ID, so any custom fitting can be manufactured to connect to CIVILPIPE.

SUSTAINABILITY

HDPE/PP is the best material for the planet.

- ✓ [Polyethylene/polypropylene has been repeatedly proven to have a 100yr+ life.](#)
- ✓ Minimal erosion equates to minimal fugitive particles.
- ✓ Alternatives which are attacked by the environment will pollute the soil heavily.
- ✓ Alternatives which are susceptible to biological attack will decay and pollute.
- ✓ INFRAPIPE is completely recyclable. The asset owner has no end-of life disposal liability.
- ✓ All production waste is recycled.
- ✓ Lighter products require less freight, less cranes and less diggers.
- ✓ Lighter products use less global resources in their manufacture.

CODES

Contact INFRAPIPE sales@infrapipe.co.nz for more information on these pipe requirements:

- For pipes of inner diameters 700,900,1100,1200,1350,1500,1600,1800,2000,2300,2500 & 3200.
- For SN ratings between SN8 & SN16, or above SN16.



- For FARMPIPE where only SN6 is required.
- For manholes, pump chambers, wetwells and other structures.
- For INFRATANK tanks 4m³ to 1000m³+

SN8 has a blue stripe, SN16 a red stripe

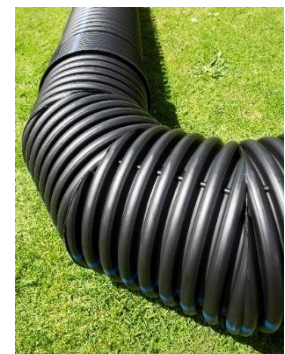
Table 3 CIVILPIPE codes

DN	SN8 Code	SN16 Code
100	TW8.100.6	-
150	TW8.150.6	-
225	TW8.225.6	TW16.225.6
300	TW8.300.6	TW16.300.6
375	TW8.375.6	TW16.375.6
450	TW8.450.6	TW16.450.6
525	TW8.525.6	TW16.525.6
600	TW8.600.6	TW16.600.6
800	TW8.800.6	TW16.800.6
1000	TW8.1000.6	TW16.1000.6



Table 4 CIVILPIPE rubber ring codes

DN	Code	Description
100	TWR.100	INFRAPIPE TWINWALL Rubber Ring DN100 to AS1646
150	TWR.150	INFRAPIPE TWINWALL Rubber Ring DN150 to AS1646
225	TWR.225	INFRAPIPE TWINWALL Rubber Ring DN225 to AS1646
300	TWR.300	INFRAPIPE TWINWALL Rubber Ring DN300 to AS1646
375	TWR.375	INFRAPIPE TWINWALL Rubber Ring DN375 to AS1646
450	TWR.450	INFRAPIPE TWINWALL Rubber Ring DN450 to AS1646
525	TWR.525	INFRAPIPE TWINWALL Rubber Ring DN525 to AS1646
600	TWR.600	INFRAPIPE TWINWALL Rubber Ring DN600 to AS1646
800		Inquire for joining options
1000		Inquire for joining options



See next page for fittings codes.

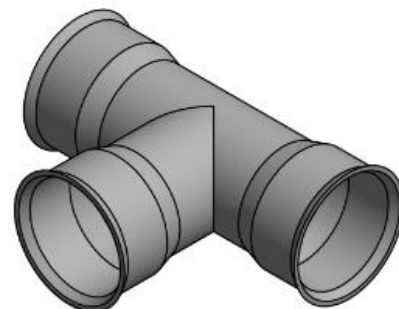




Table 5 CIVILPIPE UPVC Fittings for diameters 225-450 (for welded fittings see tables 6 & 7 below)

Code	Description
TWF.1501H.225.45	CIVILPIPE TWINWALL FITTING 225 UPVC 45DEG Fabricated Bend ZC Corrugated SBE
TWF.1501H.300.45	CIVILPIPE TWINWALL FITTING 300 UPVC 45DEG Fabricated Bend ZC Corrugated SBE
TWF.1501H.375.45	CIVILPIPE TWINWALL FITTING 375 UPVC 45DEG Fabricated Bend ZC Corrugated SBE
TWF.1501H.450.45	CIVILPIPE TWINWALL FITTING 450 UPVC 45DEG Fabricated Bend ZC Corrugated SBE
TWF.1501H.225.90	CIVILPIPE TWINWALL FITTING 225 UPVC 90DEG Fabricated Bend ZC Corrugated SBE
TWF.1501H.300.90	CIVILPIPE TWINWALL FITTING 300 UPVC 90DEG Fabricated Bend ZC Corrugated SBE
TWF.1501H.375.90	CIVILPIPE TWINWALL FITTING 375 UPVC 90DEG Fabricated Bend ZC Corrugated SBE
TWF.1501H.450.90	CIVILPIPE TWINWALL FITTING 450 UPVC 90DEG Fabricated Bend ZC Corrugated SBE
TWF.1504H.225.45	CIVILPIPE TWINWALL FITTING 225mm 45 Degree Junction ZC Corrugated SBE
TWF.1504H.300.45	CIVILPIPE TWINWALL FITTING 300mm 45 degree Junction ZC Corrugated SBE
TWF.1504H.375.45	CIVILPIPE TWINWALL FITTING 375mm 45 degree Junction ZC Corrugated SBE
TWF.1504H.450.45	CIVILPIPE TWINWALL FITTING 450mm 45 degree Junction ZC Corrugated SBE
TWF.1504H.225.90	CIVILPIPE TWINWALL FITTING 225mm 90 Degree Junction ZC Corrugated SBE
TWF.1504H.300.90	CIVILPIPE TWINWALL FITTING 300mm 90 Degree Junction ZC corrugated SBE
TWF.1504H.375.90	CIVILPIPE TWINWALL FITTING 375mm 90 Degree Junction ZC corrugated SBE
TWF.1504H.450.90	CIVILPIPE TWINWALL FITTING 450mm 90 Degree Junction ZC corrugated SBE
TWF.MC.225	CIVILPIPE TWINWALL FITTING 225 ZC Manhole Connector SN16 SLEEVED/FLARED ONE END
TWF.MC.300	CIVILPIPE TWINWALL FITTING 300 ZC Manhole Connector SN16 SLEEVED/FLARED ONE END
TWF.MC.375	CIVILPIPE TWINWALL FITTING 375 ZC Manhole Connector SN16 SLEEVED/FLARED ONE END
TWF.MC.450	CIVILPIPE TWINWALL FITTING 450 ZC Manhole Connector SN16 SLEEVED/FLARED ONE END
TWF.1511.225HD	CIVILPIPE TWINWALL FITTING ZC 225 HD Double Coupler SBE
TWF.1511.300HD	CIVILPIPE TWINWALL FITTING ZC 300 HD Double Coupler SBE
TWF.1511.375HD	CIVILPIPE TWINWALL FITTING ZC 375 HD Double Coupler SBE
TWF.1511.450HD	CIVILPIPE TWINWALL FITTING ZC 450 HD Double Coupler SBE
TWF.1523.300.225C	CIVILPIPE TWINWALL FITTING 300 225 ZC Concentric Reducer SN16 SBE
TWF.1523.375.300C	CIVILPIPE TWINWALL FITTING 375 300 ZC Concentric Reducer SN16 SBE
TWF.1523.450.375C	CIVILPIPE TWINWALL FITTING 450 375 ZC Concentric Reducer SN16 SBE

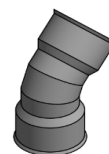




Table 6 CIVILPIPE HDPE SN8 Fittings for diameters 225-600 (for SN16 fittings see table below)

Code	Description
TWF.225.SN16.TEE	DN225.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.TEE
TWF.225.SN16.WYE	DN225.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.WYE
TWF.225.SN16.Bend.11	DN225.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.11
TWF.225.SN16.Bend.22	DN225.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.22
TWF.225.SN16.Bend.33	DN225.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.33
TWF.225.SN16.Bend.45	DN225.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.45
TWF.225.SN16.Bend.90	DN225.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.90
TWF.300.SN16.TEE	DN300.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.TEE
TWF.300.SN16.WYE	DN300.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.WYE
TWF.300.SN16.Bend.11	DN300.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.11
TWF.300.SN16.Bend.22	DN300.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.22
TWF.300.SN16.Bend.33	DN300.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.33
TWF.300.SN16.Bend.45	DN300.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.45
TWF.300.SN16.Bend.90	DN300.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.90
TWF.375.SN16.TEE	DN375.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.TEE
TWF.375.SN16.WYE	DN375.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.WYE
TWF.375.SN16.Bend.11	DN375.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.11
TWF.375.SN16.Bend.22	DN375.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.22
TWF.375.SN16.Bend.33	DN375.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.33
TWF.375.SN16.Bend.45	DN375.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.45
TWF.375.SN16.Bend.90	DN375.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.90
TWF.450.SN16.TEE	DN450.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.TEE
TWF.450.SN16.WYE	DN450.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.WYE
TWF.450.SN16.Bend.11	DN450.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.11
TWF.450.SN16.Bend.22	DN450.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.22
TWF.450.SN16.Bend.33	DN450.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.33
TWF.450.SN16.Bend.45	DN450.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.45
TWF.450.SN16.Bend.90	DN450.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.90
TWF.525.SN16.TEE	DN525.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.TEE
TWF.525.SN16.WYE	DN525.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.WYE
TWF.525.SN16.Bend.11	DN525.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.11
TWF.525.SN16.Bend.22	DN525.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.22
TWF.525.SN16.Bend.33	DN525.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.33
TWF.525.SN16.Bend.45	DN525.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.45
TWF.525.SN16.Bend.90	DN525.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.90
TWF.600.SN16.TEE	DN600.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.TEE
TWF.600.SN16.WYE	DN600.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.WYE
TWF.600.SN16.Bend.11	DN600.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.11
TWF.600.SN16.Bend.22	DN600.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.22
TWF.600.SN16.Bend.33	DN600.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.33
TWF.600.SN16.Bend.45	DN600.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.45
TWF.600.SN16.Bend.90	DN600.SN16.CIVILPIPE WELDED PP TWINWALL FITTING.Bend.90



Table 7 CIVILPIPE PP SN16 Fittings for diameters 225-600

Code	Description
TWF.225.SN8.TEE	DN225.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.TEE
TWF.225.SN8.WYE	DN225.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.WYE
TWF.225.SN8.Bend.11	DN225.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.11
TWF.225.SN8.Bend.22	DN225.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.22
TWF.225.SN8.Bend.33	DN225.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.33
TWF.225.SN8.Bend.45	DN225.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.45
TWF.225.SN8.Bend.90	DN225.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.90
TWF.300.SN8.TEE	DN300.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.TEE
TWF.300.SN8.WYE	DN300.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.WYE
TWF.300.SN8.Bend.11	DN300.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.11
TWF.300.SN8.Bend.22	DN300.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.22
TWF.300.SN8.Bend.33	DN300.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.33
TWF.300.SN8.Bend.45	DN300.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.45
TWF.300.SN8.Bend.90	DN300.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.90
TWF.375.SN8.TEE	DN375.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.TEE
TWF.375.SN8.WYE	DN375.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.WYE
TWF.375.SN8.Bend.11	DN375.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.11
TWF.375.SN8.Bend.22	DN375.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.22
TWF.375.SN8.Bend.33	DN375.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.33
TWF.375.SN8.Bend.45	DN375.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.45
TWF.375.SN8.Bend.90	DN375.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.90
TWF.450.SN8.TEE	DN450.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.TEE
TWF.450.SN8.WYE	DN450.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.WYE
TWF.450.SN8.Bend.11	DN450.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.11
TWF.450.SN8.Bend.22	DN450.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.22
TWF.450.SN8.Bend.33	DN450.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.33
TWF.450.SN8.Bend.45	DN450.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.45
TWF.450.SN8.Bend.90	DN450.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.90
TWF.525.SN8.TEE	DN525.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.TEE
TWF.525.SN8.WYE	DN525.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.WYE
TWF.525.SN8.Bend.11	DN525.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.11
TWF.525.SN8.Bend.22	DN525.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.22
TWF.525.SN8.Bend.33	DN525.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.33
TWF.525.SN8.Bend.45	DN525.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.45
TWF.525.SN8.Bend.90	DN525.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.90
TWF.600.SN8.TEE	DN600.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.TEE
TWF.600.SN8.WYE	DN600.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.WYE
TWF.600.SN8.Bend.11	DN600.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.11
TWF.600.SN8.Bend.22	DN600.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.22
TWF.600.SN8.Bend.33	DN600.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.33
TWF.600.SN8.Bend.45	DN600.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.45
TWF.600.SN8.Bend.90	DN600.SN8.CIVILPIPE WELDED HDPE TWINWALL FITTING.Bend.90