Municipal Product Catalog

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ISSUE DATE: APRIL 2016

- Pressure Piping Systems
- Water Service Systems
- Sewer Piping Systems
- Specialty Municipal Products

IPEX
Committed to Excellence

We build tough products for tough environments.®

BIONAX™ BLUE BRUTE® IPEX CENTURION®
Ultra-Rib® Philmac® 3G TEMPEST®
Q-Line® CycleTough® Vortex Flow®

18

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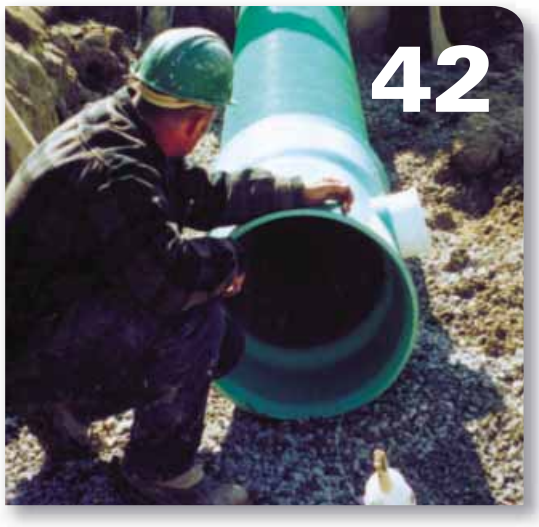
Committed to EXCELLENCE

As a leader in thermoplastic piping systems for over 50 years, IPEX provides proven products that have withstood the rigours of time – from large diameter transmission pipelines to 3/4" house connections.

Our PVC water and sewer systems do not corrode so they maintain the strength and flexibility required to handle soil movement, high traffic loads and deep burial applications. At IPEX USA LLC, we ensure our systems outperform our competitors with:

- Quality assurance testing that exceeds standards
- Custom designed PVC compounds
- Third-party certification of pipe and fittings from organizations such as Canadian Standards Association, Factory Mutual, Underwriter's Laboratories and NSF



Contents

IPEX INTEGRATED TOTAL SOLUTIONS

MUNICIPAL EASY SPEC

PRODUCT	PRESSURE RATING	SIZE RANGE	STANDARDS	APPLICATIONS
PRESSURE PIPING SYSTEMS				
Blue Brute® PVC Pipe (CIOD)	DR25 165 psi (1130 kPa) DR18 235 psi (1620 kPa) DR14 305 psi (2100 kPa)	4 - 12" (100 - 300 mm) 4 - 12" (100 - 300 mm) 4 - 12" (100 - 300 mm)	CSA B137.3 certified AWWA C900 FM 1612 approved UL 1285 Listed NSF Std. 61 certified BNQ NQ 3624-250*	Municipal transmission mains Municipal distribution mains Sewer forcemains Fire lines Industrial process lines Irrigation piping
Blue Brute® Moulded PVC Fittings (CIOD)	235 psi (1620 kPa)	4 - 12" (100 - 300 mm)	CSA B137.2 certified AWWA C900 FM 1612 approved UL 1285 Listed NSF Std. 61 certified BNQ NQ 3624-250*	Municipal transmission mains Municipal distribution mains Sewer forcemains Fire lines Industrial process lines Irrigation piping
Bionax® PVCO Pipe (CIOD)	CIOD 235 psi (1 620 kPa) CIOD 235 psi (1 620 kPa) CIOD 165 psi (1 137 kPa)	4 - 12" (100 - 300 mm) 14 - 18" (350 - 450 mm) 14 - 18" (350 - 450 mm)	CSA B137.3.1 certified CIOD AWWA C909, FM approved NSF Std. 14 certified NSF Std. 61 certified BNQ NQ 3660-950*	Municipal transmission mains Municipal distribution mains Sewer forcemains
Bionax® SR PVCO Pipe (CIOD)	CIOD 235 psi (1 620 kPa)	6 - 12" (150 - 300 mm)	CSA B137.3.1 certified CIOD AWWA C909, FM approved NSF Std. 14 certified NSF Std. 61 certified BNQ NQ 3660-950*	Municipal transmission, distribution and sewer mains in seismic sensitive areas
IPEX Centurion® PVC Pipe	SDR51 80 psi (550 kPa) SDR41 100 psi (690 kPa) SDR32.5 125 psi (860 kPa) DR25 165 psi (1130 kPa) DR18 235 psi (1620 kPa) DR14 305 psi (2100 kPa)	24 - 60" (600 - 1500 mm) 14 - 48" (350 - 1200 mm) 14 - 42" (350 - 1050 mm) 14 - 36" (350 - 900 mm) 14 - 24" (350 - 600 mm) 14 - 16" (350 - 400 mm)	CSA B137.3 certified AWWA C905 NSF Std. 61 certified BNQ NQ 3624-250*	Municipal transmission mains Sewer forcemains Irrigation piping Gravity sewer mains
IPEX Centurion Fabricated PVC Fittings (CIOD)	165 psi (1130 kPa) 235 psi (1620 kPa)	14 - 30" (350 - 750 mm)	CSA B137.3 certified AWWA C905 NSF Std. 61 certified BNQ NQ 3624-250*	Municipal transmission mains Sewer forcemains Irrigation piping Gravity sewer mains
Fusible™ Brute Fused-Joint PVC Pipe (CIOD)	SDR41 100 psi (690 kPa) SDR32.5 125 psi (860 kPa) SDR26 160 psi (1100 kPa) DR25 165 psi (1130 kPa) SDR21 200 psi (1380 kPa) DR18 235 psi (1620 kPa) DR14 305 psi (2100 kPa)	4 - 24" (100 - 600 mm) (12.2 m lengths)	CSA B137.3 certified AWWA C900 AWWA C905 NSF Std. 61 certified UL 1285 BNQ NQ 3624-250*	Municipal transmission mains Municipal distribution mains Sewer forcemains Reclaimed water piping Storm drains Irrigation piping Process and raw water lines
TerraBrute® CR Restrained-Joint PVC Pipe (CIOD)	DR18 235 psi (1620 kPa) DR14 305 psi (2100 kPa)	8 - 12" (200 - 300 mm) 4 & 6" (100 & 150 mm)	CSA B137.3 certified AWWA C900 NSF Std. 61 certified UL 1285 BNQ NQ 3624-250*	Horizontal directional drilling Pipe bursting Seismic zone piping Casing installations Steep slope pipelines
Cycle Tough® PVC Series Pipe (IPSOD)	SDR41 100 psi (690 kPa) SDR32.5 125 psi (860 kPa) SDR26 160 psi (1100 kPa) SDR21 200 psi (1380 kPa)	4 - 24" (100 - 600 mm) 3 - 24" (75 - 600 mm) 1-1/2 - 24" (40 - 600 mm) 1-1/2 - 24" (40 - 600 mm)	CSA B137.3 certified ASTM D2241 NSF Std. 61 certified	Potable water piping Sewer forcemains Reclaimed water piping Golf course irrigation piping Other irrigation piping Industrial piping
Cycle Tough® 4000 Moulded PVC Fittings (IPSOD)	200 psi (1380 kPa)	1-1/2 - 8" (40 - 200 mm)	CSA B137.2 Certified 4000 psi HDB 200 psi Pressure Rating	Potable water systems Sewage force mains Golf course and other irrigation
Cycle Tough® 4000 Fabricated PVC Fittings (IPSOD)	160 psi (1100 kPa)	10 - 24" (250 - 600 mm)	CSA B137.3 Certified	Potable water piping Sewer forcemains Reclaimed water piping Golf course irrigation piping Other irrigation piping Industrial piping

PRODUCT	PRESSURE RATING	SIZE RANGE	STANDARDS	APPLICATIONS
WATER SERVICE SYSTEMS				
Q-Line™ PE-AL-PE Service Tubing	200 psi @ 73.4°F (1380 kPa @ 23°C) 100 psi @ 180°F (690 kPa @ 82°C)	3/4 & 1" (20 & 25 mm)	CSA B137.9 certified AWWA C903 ASTM F1282 NSF Std. 14 certified NSF Std. 61 certified BNQ NQ 3660-950*	Municipal water service Reclaimed water
SEWER PIPING SYSTEMS				
Ring-Tite® PVC Sewer Pipe (PSM)	DR35	4 - 60" (100 - 1500 mm)	CSA B182.2 certified ASTM D3034 ASTM F679 ASHTO M278 BNQ NQ 3624-130 & 3624-135*	Sanitary sewer Storm sewer Industrial effluent
Enviro-Tite® PVC Sewer Pipe (PSM)	DR35	4 - 15" (100 - 375 mm)	CSA B182.2 certified ASTM D1760 BNQ NQ 3624-130 & 3624-135*	Sanitary sewer Storm sewer Industrial effluent
Ring-Tite® Heavy Wall PVC Sewer Pipe (PSM)	DR28	4 - 6" (100 - 150 mm)	Certified to CSA B182.2 BNQ NQ 3624-130 & 3624-135*	Sanitary sewer laterals Storm sewer laterals Industrial effluent
Enviro-Tite® PVC Sewer Pipe (PSM)	DR28	4 - 6" (100 - 150 mm)	Certified to CSA B182.2 BNQ NQ 3624-130 & 3624-135*	Sanitary sewer laterals Storm sewer laterals Industrial effluent
Ring-Tite® Gasketed Sewer Fittings (PSM)		4 - 42" (100 - 1050 mm)	CSA B182.2 certified ASTM D3034 ASTM F679	Sanitary sewer Storm sewer Industrial effluent
IPEX Centurion® PVC Pipe (CIOD)	DR51 DR41	24 - 48" (600 - 1200 mm)	CSA B137.3 certified AWWA C905 BNQ NQ 3624-250*	Sanitary sewer Storm sewer Industrial effluent
Ultra-Rib® PVC Sewer Pipe (Open profile OD)		8 - 24" (200 - 600 mm)	CSA B182.4 certified ASTM F794 ASHTO M304	Sanitary sewer Storm sewer Highway / culvert
Ultra-Rib® PVC Sewer Fittings (Open profile OD)		8 - 24" (200 - 600 mm)	CSA B182.4 certified ASTM F794	Sanitary sewer Storm sewer Highway / culvert
Ultra-X2® PVC Sewer Fittings (Open profile OD)		30 & 36" (750 & 900mm)	CSA B182.4 ASTM F794	Storm sewer Highway / culvert
NovaForm™ PVC Liner	DR35	6 - 15" (150 - 350 mm)	ASTM F1871	Sewer Rehabilitation Culvert Rehabilition

STRENGTH, TOUGHNESS AND FLEXIBILITY

BIONAX is a plastic pipe tougher than any piping material on the market. It requires no delicate internal or external coatings or expensive cathodic protection to resist corrosion.

BIONAX is made of biaxially oriented PVC (PVCO), a material with almost double the hydrostatic strength and three times the impact resistance of conventional PVC. It is engineered to withstand the rigors of today's installations, yet easier to install and to handle than conventional pipes.

BIONAX has the smallest carbon footprint of any commercially available piping material – proven in two independent academic studies.

BIONAX is fully certified to CSA, AWWA and ASTM standards.

The answer is obvious...

✓ **REDUCE** INSTALLATION COSTS ✓ **REDUCE** OPERATING COSTS ✓ **PROTECT** THE ENVIRONMENT

BIONAX PVCO Pressure Pipe...the only CHOICE!

Toll Free: 1-800-463-9572 • www.ipexamerica.com

IPEX BIONAX™ PVCO Pressure Pipe

Proven in tough North American climates for more than 50 years, IPEX AWWA municipal pressure pipe & fittings are manufactured from custom engineered PVC compounds to deliver superior strength and corrosion resistance, along with the ability to flex without damage – even under high traffic loads and in deep burial applications. IPEX AWWA PVC pressure pipe offers long-term performance unmatched by any other pipe material.

PRESSURE PIPE & FITTINGS




BLUE BRUTE PIPE

4" - 12" (100mm - 300mm)

BLUE BRUTE

Designed for municipal water applications, Blue Brute AWWA C900 pressure pipe delivers superior strength with corrosion resistant performance and the ability to flex without damage. Made with a high-strength, high-impact PVC compound, Blue Brute pipes perform even under high traffic loads and deep burial conditions.

Manufactured with cast-iron outside diameters, Blue Brute is compatible with existing infrastructure of older iron pipes with no special transition fittings required. Blue Brute pressure pipe is hydrostatically proof tested to two times its pressure class/rating ensuring the integrity of every length of pipe that goes into the ground.

APPLICATIONS

- Municipal Water Systems
- Fire Lines
- Forcemains
- Industrial Lines
- Irrigation Lines

STANDARDS

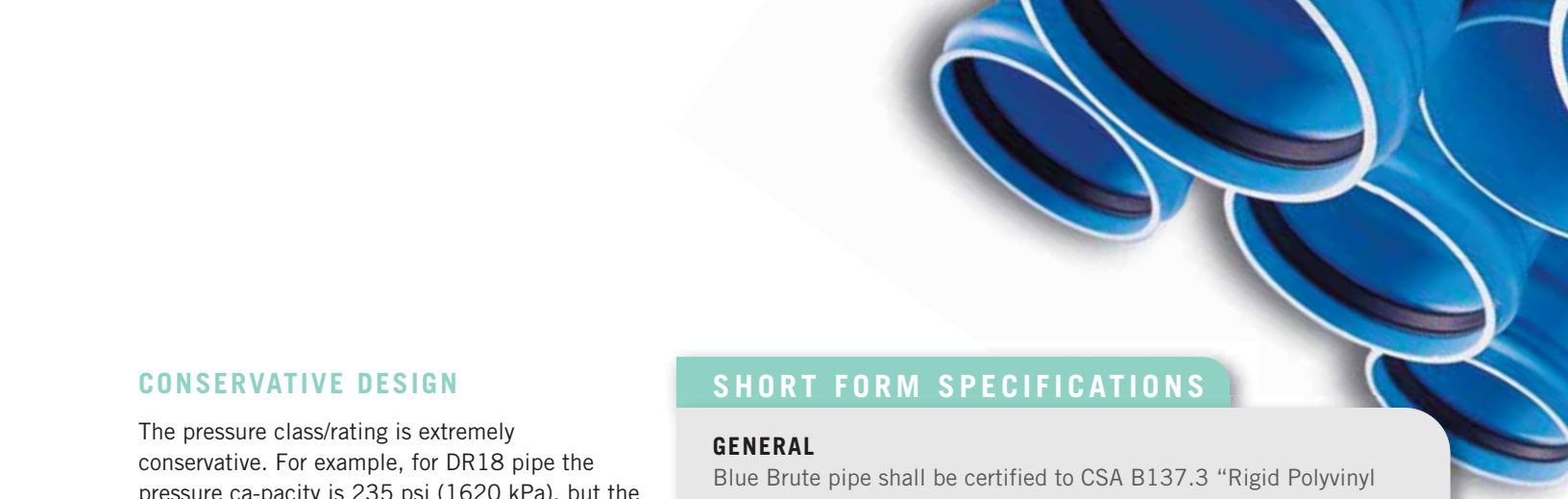
AWWA MEMBER
B137.3
3624-250
NSF-61

ADVANTAGES

1. **Corrosion-Proof Performance**
   IPEX Blue Brute systems are immune to corrosion from aggressive soils and galvanic action.
2. **Superior Hydraulics**
   The glass-like finish of PVC reduces friction losses and eliminates the tuberculation common in iron pipes. As a result, pumping costs are reduced and water quality is maintained.
3. **Cast-Iron Outside Diameter (CIOD)**
   Blue Brute systems are manufactured with a cast-iron outside diameter (CIOD). This is compatible with waterworks valves, appurtenances and restrainers.
4. **Bottle-tight Joints, Removable Gaskets**
   IPEX's patented gasket system not only withstands many times the rated system pressure, but also withstands full vacuum pressures. The removable gasket system allows special oil-resistant (nitrile) gaskets to be easily installed when working in contaminated soils.
5. **Third-party Certification**
   All IPEX municipal systems are third-party certified as applicable. In addition, IPEX Blue Brute systems have Factory Mutual approval and Underwriter's Laboratories (ULI and ULC) listings

DID YOU KNOW?

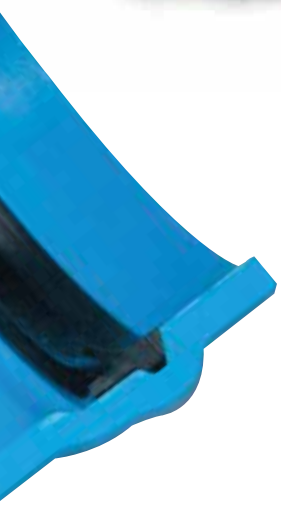
Each piece of Blue Brute is hydrostatically tested to two times its pressure class, ensuring excellent performance in the field.



CONSERVATIVE DESIGN

The pressure class/rating is extremely conservative. For example, for DR18 pipe the pressure ca-pacity is 235 psi (1620 kPa), but the minimum burst pressure is 755 psi (5210 kPa).

Dimension Ratio	AWWA Pressure Class	CSA Pressure Rating
14	305	305
18	235	235
25	165	165



SHORT FORM SPECIFICATIONS

GENERAL

Blue Brute pipe shall be certified to CSA B137.3 “Rigid Polyvinyl Chloride PVC Pipe for Pressure Applications” and shall conform to AWWA C900 “Polyvinyl Chloride (PVC) Pressure Pipe, 4" – 12" for Water Transmission and Distribution.” Blue Brute DR25 pipe shall have a pressure class/rating of 1120 kPa (165 psi). DR18 pipe shall have a pressure class/rating of 1620 kPa (235 psi). DR14 pipe shall have a pressure class/rating of 2100 kPa (305 psi).

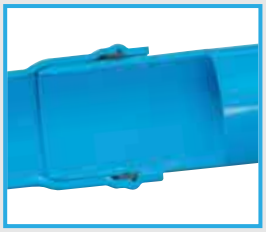
MATERIAL

Blue Brute pipe shall be made from PVC compound conforming to ASTM D1784 cell class 12454.

PRODUCT

Pipe shall be suitable for use at maximum hydrostatic working pressure equal to the pressure class/rating at 73°F (23°C). Laying lengths shall be 20 feet (6.1 meters). Pipe shall have cast-iron outside diameters. Each length of pipe must be proof-tested at two times the pressure class.

JOINING



The gasket shall be carefully fitted to the bell groove if not already factory installed. Both bell and spigot shall be clean and free of debris before approved lubricant is applied. The pipe and/or fittings shall be joined by push-fitting bell-and-spigot joint to the depth line marked on the spigot. When pipe has been cut in the field, the end shall be made square and beveled to a 15° chamfer. All insertion lines should be re-drawn, according to the IPEX Pressure Pipe Installation Guide.

Blue Brute fittings shall conform to AWWA C907 “Polyvinyl Chloride (PVC) Pressure Fittings for Water (4" through 12")” and be certified to CSA B137.2 “PVC Injection Molded Gasketed Fittings for Pressure Applications.” They shall also be UL Listed and FM approved.

FABRICATED FITTINGS

Fabricated fittings shall be made from segments of AWWA C900 PVC pipe. Segments are bonded together and may be over-wrapped with fiberglass-reinforced polyester. The pressure class must match the pipe. The fittings must meet the requirements of CSA B137.3.

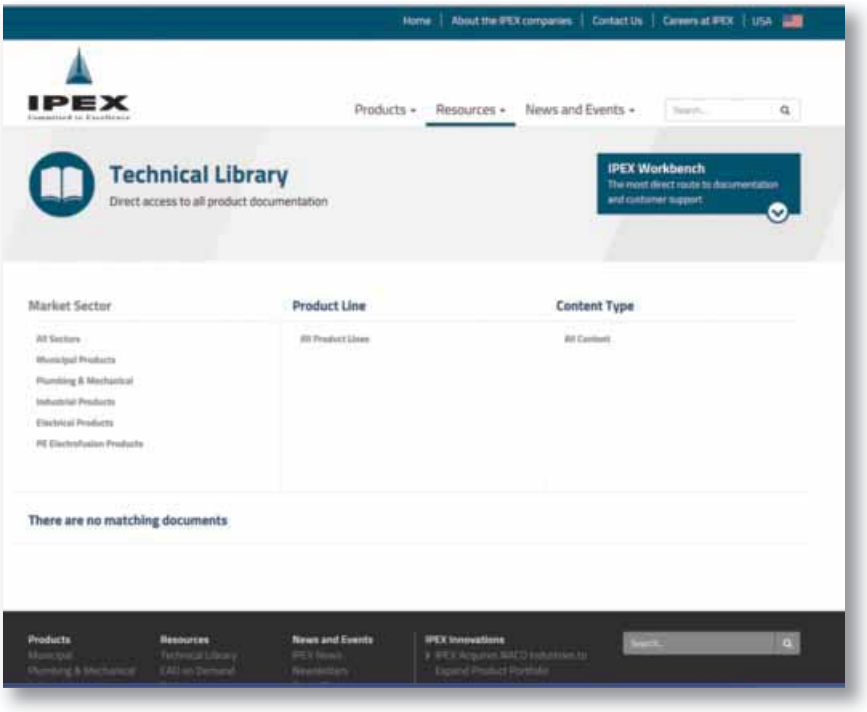
PRODUCT SELECTION CHART

Length: 20 feet | Color: Blue

	Size		Product Code	Avg. ID		Min. Wall Thickness		Avg. OD	
	in	mm		in	mm	in	mm	in	mm
PVC Pressure Pipe									
Class/Rating 165 CIOD DR 25	4	100	070104	4.42	112	0.192	5	4.80	122
	6	150	070106	6.35	161	0.276	7	6.90	175
	8	200	070108	8.33	212	0.362	9	9.05	230
	10	250	070110	10.21	260	0.444	11	11.10	282
	12	300	070112	12.15	309	0.527	13	13.20	335
Class/Rating 235 CIOD DR 18	4	100	070514	4.27	108	0.267	7	4.80	122
	6	150	070516	6.13	155	0.383	10	6.90	175
	8	200	070518	8.05	204	0.502	13	9.05	230
	10	250	070520	9.87	250	0.616	16	11.10	282
	12	300	070522	11.73	297	0.733	19	13.20	335
Class/Rating 305 CIOD DR 14	4	100	070414	4.11	104	0.343	9	4.80	122
	6	150	070416	5.91	149	0.493	13	6.90	175
	8	200	070418	7.76	198	0.646	16	9.05	230
	10	250	070420	9.51	242	0.793	20	11.10	282
	12	300	070422	11.31	287	0.943	24	13.2	335

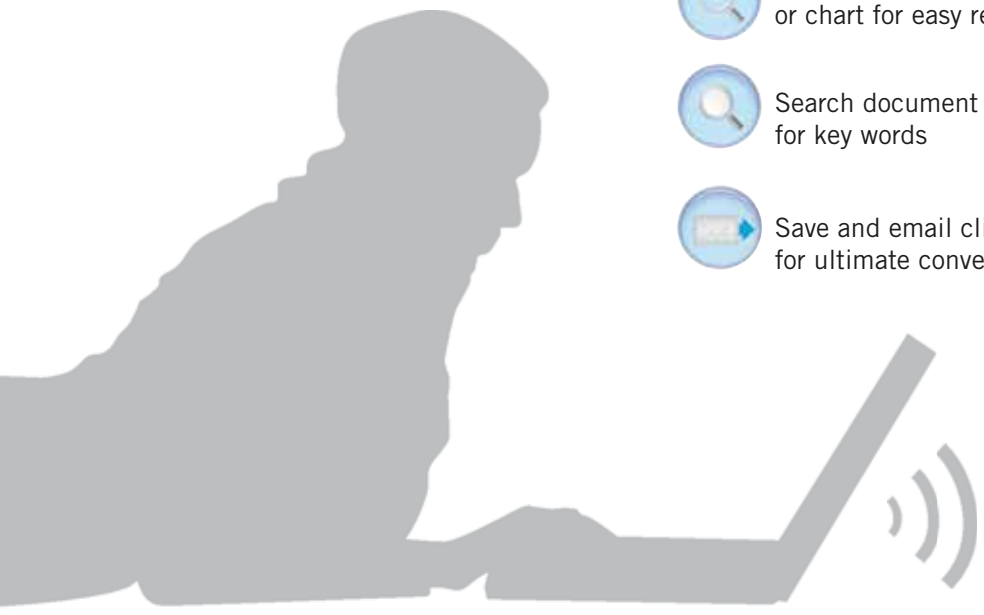
IPEX TECHNICAL MANUALS
available at **www.ipexna.com**

Obtaining the most up-to-date technical information has never been easier with our innovative **ON-LINE MANUALS**



WHAT YOU CAN DO

- Zoom to specific paragraph or chart for easy reading
- Search document for key words
- Save and email clippings for ultimate convenience
- Download as PDFs
- Environmentally Friendly!



Visit **www.ipexna.com** & check it out!

BLUE BRUTE FITTINGS

4" - 12" (100mm - 300mm)
PV /PR 235psi

BLUE BRUTE®

Blue Brute fittings are injection molded and are even tougher than the pipe. Injection molded Blue Brute fittings have a wall thickness 25% greater than DR18 pipe, and some custom-made fabricated fittings are wrapped with a tough layer of fiberglass for extra protection.

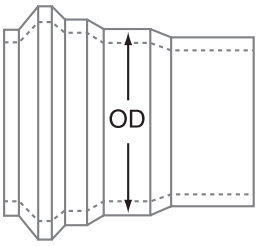
APPLICATIONS

- Municipal Water Systems
- Fire Lines
- Industrial Lines
- Forcemains
- Irrigation Lines

STANDARDS

ADVANTAGES

1. **Corrosion-Proof Performance**
   Blue Brute systems are immune to corrosion from aggressive soils and galvanic action.
2. **Superior Hydraulics**
   The glass-like finish of PVC reduces friction losses and eliminates the tuberculation common in iron pipes. As a result, pumping costs are reduced and water quality is maintained.
3. **Strength**
   A thicker bell results in a more robust fitting.
4. **Gasket Options**
   All Blue Brute fittings are shipped with standard gaskets that accept cast-iron-sized PVC pipe. Transition gaskets for IPS-sized pipe are an option for all sizes. For applications where fittings must be buried in soil with hydrocarbon contamination, Nitrile gaskets are available.
5. **Saves Time & Money**
   A consistent O.D. for each size, simplifies the restraint selection. Each fitting is labeled with the O.D. information for easy identification and restraint selection.



Bell OD for Joint Restraint Selection

Size		Min.	Max.
4"	100 mm	5.44"	5.61"
6"	150 mm	7.84"	8.03"
8"	200 mm	10.29"	10.55"
10"	250 mm	12.69"	12.96"
12"	300 mm	15.07"	15.46"

PRODUCT SELECTION CHART - PC/PR 235 psi (1620 kPa)

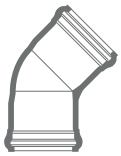
11-1/4º Elbow B x B

Dimension inches	Dimension mm	Product Code
4	100	273104
6	150	073091
8	200	073092

22-1/2º Elbow B x B

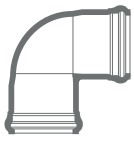
Dimension inches	Dimension mm	Product Code
4	100	073105
6	150	073106
8	200	073107
10	250	073108
12	300	073109

45º Elbow B x B



Dimension inches	Dimension mm	Product Code
4	100	073120
6	150	073121
8	200	073122
10	250	073123
12	300	073124

90º Elbow B x B



Dimension inches	Dimension mm	Product Code
4	100	073150
6	150	073151
8	200	073152

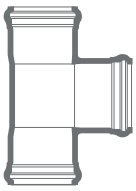
DR18, 5º CIOD Bend

Dimension inches	Dimension mm	Product Code
6	150	273076
8	200	273077
10*	250	273078
12*	300	273079

* Denotes Fabricated Fitting

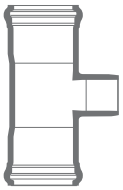
PRODUCT SELECTION CHART - PC/PR 235 PSI (1620 KPA)

Tee B x B x B



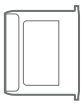
Dimension inches	Dimension mm	Product Code
4 x 4 x 4	100 x 100 x 100	073285
6 x 6 x 4	150 x 150 x 100	073241
6 x 6 x 6	150 x 150 x 150	073286
8 x 8 x 4	200 x 200 x 100	073242
8 x 8 x 6	200 x 200 x 150	073243
8 x 8 x 8	200 x 200 x 200	073287
10 x 10 x 4	250 x 250 x 100	273239
10 x 10 x 6	250 x 250 x 150	273244
10 x 10 x 8	250 x 250 x 200	273250
10 x 10 x 10	250 x 250 x 250	273288
12 x 12 x 4	300 x 300 x 100	273727
12 x 12 x 6	300 x 300 x 150	273245
12 x 12 x 8	300 x 300 x 200	273246
12 x 12 x 10	300 x 300 x 250	273247
12 x 12 x 12	300 x 300 x 300	273289

Hydrant Tee B x B x B



Dimension inches	Dimension mm	Product Code
10 x 10 x 6	250 x 250 x 150	273989
12 x 12 x 6	300 x 300 x 150	273070

Reducing Adapter (Bell x Spigot)



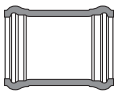
Dimension inches	Dimension mm	Product Code
6 x 4	150 x 100	073211
8 x 6	200 x 150	073212
10 x 8	250 x 200	273213
12 x 10	300 x 250	073214

Coupling with Stop B x B

Dimension inches	Dimension mm	Product Code
4	100	073030
6	150	073031
8	200	073032
10*	250	273532
12*	300	273533

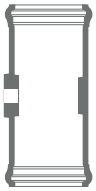
* One-piece machined coupling.
Note: 3/4" (20mm) Taps to 2" (50mm).
Taps: AWWA Thread

Repair Coupling B x B



Dimension inches	Dimension mm	Product Code
4	100	073404
6	150	073406
8	200	073408
10	250	273529
12	300	273530

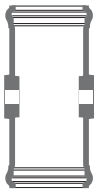
Single Tapped Coupling (AWWA Thread)



Dimension inches	Dimension mm	Product Code
4 x 4 x 3/4	100 x 100 x 20	073267
4 x 4 x 1	100 x 100 x 25	073268
6 x 6 x 3/4	150 x 150 x 20	073256
6 x 6 x 1	150 x 150 x 25	073257
6 x 6 x 1-1/4	150 x 150 x 32	073144
6 x 6 x 1-1/2	150 x 150 x 40	273300
8 x 8 x 3/4	200 x 200 x 20	073259
8 x 8 x 1	200 x 200 x 25	073260
8 x 8 x 1-1/4	200 x 200 x 32	073147
8 x 8 x 1-1/2	200 x 200 x 40	273265
8 x 8 x 2	200 x 200 x 50	073266
10 x 10 x 3/4*	250 x 250 x 20	273535
10 x 10 x 1*	250 x 250 x 25	273537
10 x 10 x 1-1/2*	250 x 250 x 40	273044
10 x 10 x 2*	250 x 250 x 50	273045
12 x 12 x 3/4*	300 x 300 x 20	273536
12 x 12 x 1*	300 x 300 x 25	273538
12 x 12 x 1-1/2*	300 x 300 x 40	273046
12 x 12 x 2*	300 x 300 x 50	273048

* One-piece machined coupling. Not UL Listed.
Note: 3/4" (20mm) Taps to 2" (50mm).
Taps: AWWA Thread

Double Tapped Coupling (AWWA Thread)

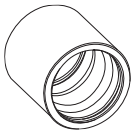


Dimension inches	Dimension mm	Product Code
6 x 6 x 3/4 x 3/4	150 x 150 x 20 x 20	073305
6 x 6 x 1 x 1	150 x 150 x 25 x 25	073308
8 x 8 x 3/4 x 3/4	200 x 200 x 20 x 20	073290
8 x 8 x 1 x 1	200 x 200 x 25 x 25	073307

Note: 3/4" (20mm) Taps to 2" (50mm).
Taps: AWWA Thread

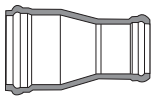
PRODUCT SELECTION CHART - PC/PR 235 PSI (1620 KPA)

High Deflection Couplings



Dimension inches	Dimension mm	Product Code
10	250	273526
12	300	273527

Reducer Coupling B x B



Dimension inches	Dimension mm	Product Code
6 x 4*	150 x 100	273226
8 x 6*	200 x 150	273227
10 x 6*	250 x 150	273228
10 x 8*	250 x 200	273229
12 x 8*	300 x 200	273231
12 x 10*	300 x 250	273232

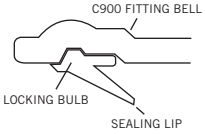
Plug Plain End

Dimension inches	Dimension mm	Product Code
4	100	073180
6	150	073181
8	200	073182
10	250	073183
12	300	073184

Tapped Plug (I.P.S. Threads)

Dimension inches	Dimension mm	Product Code
4 x 3/4	100 x 20	273192
4 x 1	100 x 25	073193
4 x 1-1/2	100 x 40	073194
4 x 2	100 x 50	273195
6 x 3/4	150 x 20	273199
6 x 1	150 x 25	273200
6 x 1-1/2	150 x 40	273201
6 x 2	150 x 50	273196
8 x 3/4	200 x 20	073203
8 x 1	200 x 25	073204
8 x 1-1/2	200 x 40	073197
8 x 2	200 x 50	273198

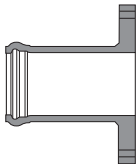
Cast Iron Size x I.P.S. Transition Gasket



Dimension inches	Dimension mm	Product Code
4	100	073655
6	150	073611
8	200	073656

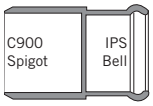
Gasket drawing is for information only.
Actual gasket may be different.

C900 Bell x Flange Adapter



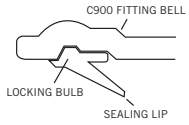
Dimension inches	Dimension mm	Product Code
4*	100	273015
6*	150	273016
8*	200	273017
10*	250	273018
12*	300	273019

C900 (Spigot) x I.P.S. (Bell) Adapter



Dimension inches	Dimension mm	Product Code
4	100	273346
6	150	273347

SBR Gasket



Dimension inches	Dimension mm	Product Code
4	100	072344
6	150	072346
8	200	273348
10	250	072350
12	300	072352

Gasket drawing is for information only.
Actual gasket may be different.

Nitrile Gasket (Oil Resistant)

Dimension inches	Dimension mm	Product Code
4	100	072924
6	150	072926
8	200	072928
10	250	072930
12	300	072932

EPDM Gasket

Dimension inches	Dimension mm	Product Code
4	100	272048
6	150	272011
8	200	272039
10	250	272040
12	300	272012

BIONAX PVCO PRESSURE PIPE

4" - 18" (100mm - 450mm)

BIONAX®

Imagine a pipe with all the benefits associated with conventional PVC, yet dramatically stronger and more impact resistant.

Bionax is a molecularly-enhanced PVC pipe designed for water mains, sewage forcemains and industrial process piping. Made from biaxially-oriented PVC material, Bionax has almost double the strength of conventional PVC and three times the impact absorption capability. Using a revolutionary new orientation process, this high-tech process orients the PVC molecules both in the axial and circumferential directions (biaxial orientation). The result is a pipe with enhanced toughness and flexibility.

Bionax is specially engineered to withstand the rigors of today's installations. With less construction inspection and less regular maintenance, the market is calling for a pipe that is more robust, stronger and easier to install. Bionax delivers on all three counts.

APPLICATIONS

- Water Mains
- Sewage Forcemains
- Industrial Process Piping

STANDARDS

AWWA MEMBER

D1784
D3139
F477
F1483

B137.3.1

NSF 14
NSF 61

Biaxially Oriented PVC Pipe for Municipal Applications

Bionax's biaxial orientation dramatically enhances the pipe properties that are important to municipal designers:

- Larger internal diameters increase flow rates and reduce pumping costs
- Higher cyclic fatigue resistance for forcemain and irrigation applications
- Reduced bend radius when compared to standard PVC pipe

FEATURES & BENEFITS

1. **Circumferential Tensile Strength**
   Bionax has almost double the tensile strength of conventional PVC (12,100 psi vs. 7,000 psi). This higher strength results in larger inside diameters, improving the hydraulics of the pipe.
2. **Impact Strength**
   Bionax provides more than triple the impact strength of standard PVC pipe. PVCO pipe can withstand extreme jobsite conditions with no damage.
3. **Crack Resistance**
   PVCO's laminar structure prevents crack propagation, preventing damage to the pipe.
4. **Longitudinal Tensile Strength**
   Bionax has higher tensile strength in the axial direction, which allows a tighter bend radius than other materials.
5. **Certification**
   Bionax is third party certified to CSA B137.3.1 and AWWA C909.

SIZES & RATINGS CIOD PIPE

Pressure Class Rating at
73°F / 23°C for **165 psi / 1150 kPa**

Pipe Size inches	Pipe Size mm	OD inches	OD mm	Product Code	
14	350	15.30	389	120006	#
16	400	17.40	442	120003	#
18	450	19.50	495	120005	#
20	500	21.60	549	*	
24	600	25.80	655	*	
30	700	32.00	813	*	

Please validate Product Code before placing an order.

Pressure Class Rating at
73°F / 23°C for **235 psi / 1620 kPa**

Pipe Size inches	Pipe Size mm	OD inches	OD mm	Product Code	
4	100	4.80	122	118000	
6	150	6.90	175	118001	
8	200	9.05	230	118002	
10	250	11.10	282	118003	
12	300	13.20	335	118004	
14	350	15.30	389	120001	#
16	400	17.40	442	120002	#
18	450	19.50	495	120004	#
20	500	21.60	549	*	
24	600	25.80	655	*	
30	700	32.00	813	*	

Please validate Product Code before placing an order.

Pressure Class Rating at
73°F / 23°C for **305 psi / 2100 kPa**

Pipe Size inches	Pipe Size mm	OD inches	OD mm	Product Code
14	350	15.30	389	*
16	400	17.40	442	*
18	450	19.50	495	*
20	500	21.60	549	*
24	600	25.80	655	*
30	700	32.00	813	*

* coming soon!

DID YOU KNOW?

Every length of CIOD Bionax is hydrotested to AWWA standards before being shipped. In fact, IPEX is the only manufacturer to have third-party certification (by NSF) to meet the stringent AWWA standards and by CSA to meet the CSA Standards.

SHORT FORM SPECIFICATIONS

SCOPE

This specification provides the requirements for molecularly oriented polyvinyl chloride (PVCO) pipe for potable-water systems and other pressure-pipe applications.

MATERIALS

- PVCO pipe shall be manufactured from rigid polyvinyl chloride (PVC) compound meeting the requirements of ASTM D1784 cell class 12454B.
- Gaskets shall meet ASTM F477 for high-head applications.

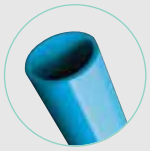
HYDROSTATIC DESIGN BASIS

- Starting-stock PVC pipe shall have a hydrostatic design basis (HDB) of 4000 psi.
- Finished PVCO pipe shall have an HDB of 7100 psi.

PIPE

- Pipe shall be biaxially oriented (molecularly oriented in hoop and axial directions).
- Pipe shall be produced with cast-iron-pipe outside diameters (CIOD) in all sizes.
- Pipe shall be joined by integral-bell gasketed joints conforming to ASTM D3139.
- Pipe spigot ends shall be chamfered by the manufacturer.
- Pipe ends shall be capped at the production facility prior to storage and shipping.
- Pipe shall be color-coloured blue.

CIOD CERTIFICATIONS



- PVC compound shall be CSA-certified to ASTM D1784 cell-class 12454B.
- PVCO pipe shall be CSA-certified to CSA Standard B137.3.1 and third-party certified to NSF Standard 14 and AWWA Standard C909.
- PVCO pipe joints shall be third-party certified to ASTM D3139.

STANDARDS

PVCO pipe shall conform to the following standards:

- ANSI/NSF Standard 14: Plastic Piping System Components and Related Materials
- ANSI/NSF Standard 61: Drinking Water System Components – Health Effects
- ASTM D1784: Rigid Polyvinyl Chloride (PVC) Compounds
- ASTM D3139: Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals
- ASTM F477: Elastomeric Seals (Gaskets) for Joining Plastic Pipe
- AWWA C909-09: Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe, 4 Inch Through 24 Inch (100 mm Through 600 mm)
- CSA B137.3.1: Molecularly oriented polyvinyl chloride (PVCO) pipe for pressure applications

BIONAX SR SEISMIC WATER PIPE

6" - 12" (150mm - 300mm)

BIONAX® SR™

Bionax SR™ – Seismic Water Pipe - combines the same strength, toughness and flexibility as standard Bionax pipe with the enhanced seismic-resistance benefits of an extended bell. The result is a municipal water transmission and distribution system which performs better than any pipe product available today. Bionax SR can absorb lateral ground strain of seismic events and provides other performance benefits including product consistency, industry standard dimensions and corrosion-resistant attributes for a North American jobsite.

The biaxial orientation and the extended bell of Bionax SR pipe provide excellent pipe and joint flexibility—precisely what is required from a water pipe if it is to remain intact after a seismic event.

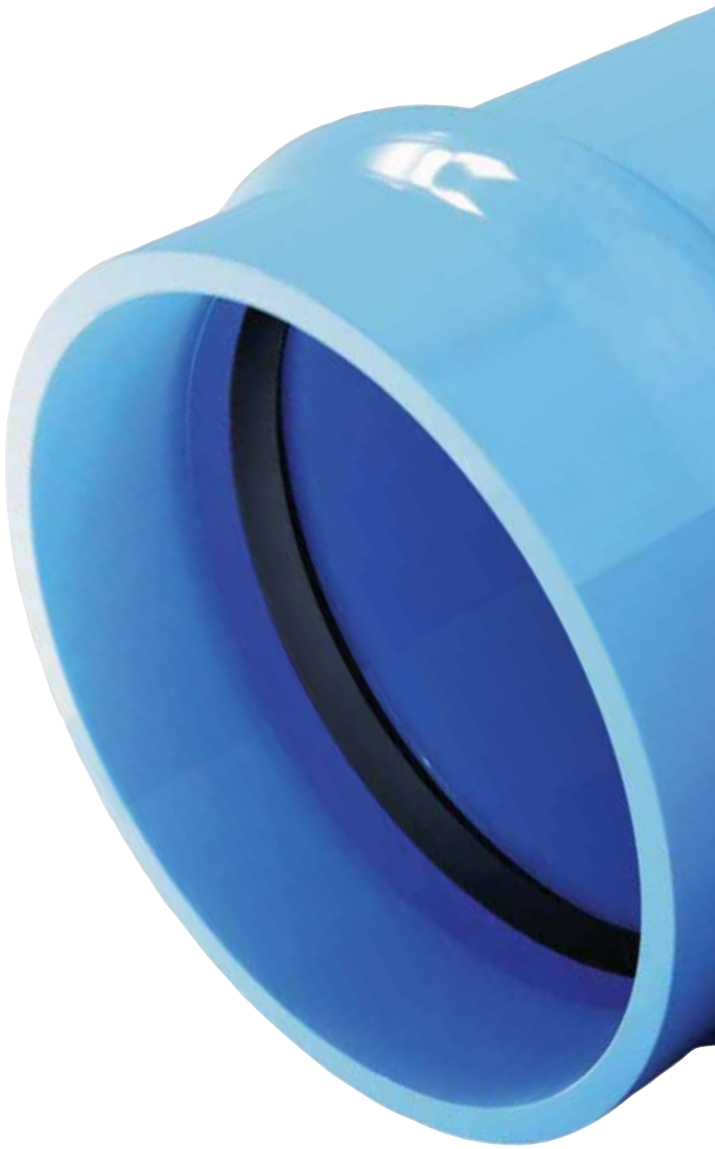
APPLICATIONS

- Municipal Water Systems
- Fire Lines
- Foremains
- Industrial Lines

STANDARDS

FEATURES & BENEFITS

1. **Circumferential Tensile Strength**
   Bionax SR has almost double the tensile strength of conventional PVC (12,100 psi vs. 7,000 psi). This higher strength results in larger inside diameters, improving the hydraulics of the pipe.
2. **Impact Strength**
   Bionax SR provides more than triple the impact strength of standard PVC pipe. PVCO pipe can withstand extreme jobsite conditions with no damage.
3. **Crack Resistance**
   PVCO's laminar structure prevents crack propagation, preventing damage to the pipe.
4. **Longitudinal Tensile Strength**
   Bionax SR has higher tensile strength in the axial direction, which allows a tighter bend radius than other materials.
5. **Light-weight**
   e.g. 300mm PC 235 psi pipe = 236 lbs.
6. **Corrosion-proof & Consistent O.D.**
7. **Certification**
   Bionax SR is third party certified to CSA B137.3.1 and AWWA C909.



SIZES & RATINGS CIOD PIPE

Pressure/Class Rating at **73ºF** / **23ºC** for **235 psi** / **1620 kPa**

Size		Average OD		Min. Wall Thickness		Average ID		Insertion Depth			
in.	mm	inches	inches	inches	inches	inches	inches	Minimum		Maximum	
6	150	6.90	175	0.221	5.62	6.44	163	6.6	167	7.6	192
8	200	9.05	230	0.290	7.36	8.44	214	8.1	207	9.1	232
10	250	11.10	282	0.356	9.03	10.35	263	8.5	217	9.5	242
12	300	13.2	335	0.423	10.74	12.31	313	10.9	277	11.9	302

SHORT FORM SPECIFICATIONS

SCOPE
This specification provides the requirements for Bionax SR molecularly oriented polyvi-nyl chloride (PVCO) pipe for potable-water systems and other pressure-pipe applications. Bionax SR Gasketed cast-iron-pipe outside diameter (CIOD) Pressure pipe is available in the following pressure classes and nominal sizes:

- PC 235psi 6" through 12" (150mm – 300mm)

MATERIALS
- Bionax SR pipe shall be manufactured from rigid polyvinyl chloride (PVC) compound meeting the requirements of ASTM D1784 cell class 12454.
- Bionax SR gaskets shall meet ASTM F477 for high-head applications

HYDROSTATIC DESIGN BASIS
- Starting-stock for Bionax SR shall have a hydrostatic design basis (HDB) of 4000 psi and finished pipe shall have an HDB of 7100 psi as determined by testing in accordance with ASTM D1598, with data evaluated in accordance with ASTM D2837.

PIPE
- Bionax SR shall be manufactured with cast-iron-pipe outside diameters (CIOD) in all siz-es. Pipe walls shall meet minimum thickness requirements for AWWA C909 and CSA B137.3.1. Laying lengths shall be 6.1 meters (20 feet). Pipe shall be joined by means of integral-bell elastomeric-gasket joints conforming to ASTM D3139. Spigot ends shall be chamfered by the manufacturer. Pipe ends shall be capped at the production facility prior to storage and shipping.

STANDARDS
PVCO pipe shall conform to the following standards:

- ANSI/NSF 14 Plastics Piping System Components and Related Materials
- ANSI/NSF Standard 61: Drinking Water System Components – Health Effects
- ASTM F1483 Standard Specification for Oriented Poly(Vinylchloride), PVCO, Pressure Pipe (PR 200psi)
- AWWA C909: Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe, 4 inch through 24 inch (100 mm through 600 mm) for Water Distribution
- BNQ NQ 3660-950 Safety of Products and Materials in Contact with Drinking Water
- CSA B137.3.1 Molecularly Oriented Polyvinylchloride (PVCO) Pipe for Pressure Applications (PR 1620kPa)
- FM 1612 Polyvinyl Chloride (PVC) Pipe and Fittings for Underground Fire Protec-tion Services (PC 150psi, 4" through 12")

FITTINGS
Bionax SR piping systems shall include IPEX Blue Brute molded and fabricated fittings.

LUBRICANT
Pipe must be assembled with IPEX water-soluble lubricant listed to NSF Standard 61.

COLOR CODING
CIOD pipe shall be color coded blue.

DID YOU KNOW?

In cities across North America, aging and corroding water pipe networks suffer pipe bursts daily. In the event of an earthquake the occurrence is multiplied to the extreme. For example, in 1994 when the Northridge Earthquake occurred in the San Fernando Valley, California, 15 seconds of the earth shaking caused 1,100 pipe bursts—more than a typical year's worth and leaving many residents without water for over two weeks.

IPEX CENTURION PRESSURE PIPING SYSTEMS

14" - 60" (350mm - 1500mm)

IPEX CENTURION®

IPEX Centurion extends the corrosion-free benefits of Blue Brute to larger diameters of pipe and new applications. The versatility and ease of installation of IPEX Centurion is unmatched – shop drawings and costly and difficult to install corrosion protection can be eliminated. In addition, unlike HDPE or concrete pressure pipe, every length of IPEX Centurion is tested to double its pressure rating.

APPLICATIONS

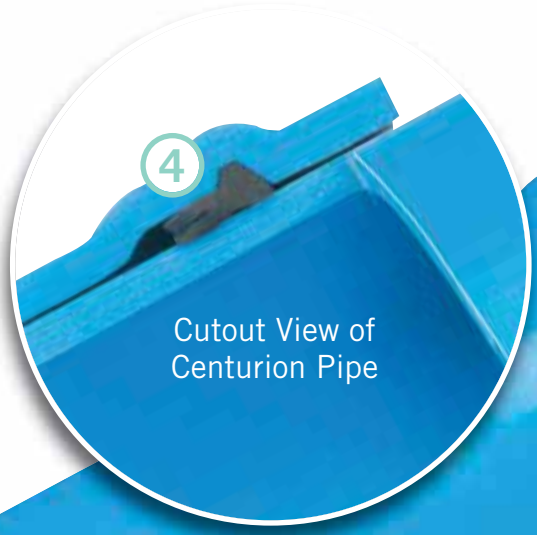
- Water Transmission Lines
- Forcemains
- Gravity Lines
- Irrigation
- Industrial Lines

STANDARDS

AWWA MEMBER

ADVANTAGES

1. **Corrosion-Proof Performance**
   IPEX Centurion systems are immune to corrosion from aggressive soils and galvanic action.
2. **Superior Hydraulics**
   The glass-like finish of PVC reduces friction losses and eliminates the tuberculation common in iron pipes. As a result, pumping costs are reduced and water quality is maintained.
3. **Cast-Iron Outside Diameter (CIOD)**
   IPEX Centurion systems are manufactured with a cast-iron outside diameter (CIOD). This is compatible with waterworks valves, appurtenances and restrainers.
4. **Bottle-tight Joints, Removable Gaskets**
   IPEX's patented gasket system not only withstands many times the rated system pressure, but also withstands full vacuum pressures. The removable gasket system allows special oil-resistant (nitrile) gaskets to be easily installed when working in contaminated soils.
5. **Centurion for Gravity Application**
   With its pressure rated joints and non-corroding construction, IPEX Centurion is a natural choice for gravity flow lines.
6. **Third-party Certification**
   All IPEX municipal systems are third-party certified as applicable including Factory Mutual approval and Underwriter's Laboratories (ULI and ULC) listings.



Cutout View of Centurion Pipe

PRESSURE CAPACITY

IPEX Centurion can withstand extremely high short-term pressures in addition to lower levels of long-term pressure. As a result AWWA C905 and CSA B137.3 include both long-term pressure capacity (pressure rating PR or pressure class PC) and short-term capacity (short-term rating STR).

SDR	Short Term Rating STR psi	Long Term Rating PC/PR psi
51	128	80
41	160	100
32.5	200	125
25	264	165
18	376	235
14	488	305

STANDARDS

AWWA C905, **CSA** B137.3, **NSF** 61

Factory Mutual FM 1612:
DR18 is FM approved to 500mm diameter (20")

Underwriter's Laboratories UL 1285:
DR18 is listed to 600mm diameter (24")
DR25 is listed to 750mm diameter (30")

SHORT FORM SPECIFICATIONS

GENERAL

Pipe must conform to AWWA C905 and be certified to CSA B137.3 "Rigid Poly (Vinyl Chloride) (PVC) Pipe for Pressure Applications." DR51, 41, 32.5, 25, 18, and 14 pipe must have the following pressure class rating: 80 psi (550 kPa), 100 psi (690 kPa), 125 psi (860 kPa), 165 psi (1 140 kPa), 235 psi (1 620 kPa) and 305 psi (2 100 kPa). For pressure applications, each length of pipe must be hydro-tested at twice the class/rating and a short-term pressure test must be conducted once per production run. Pipe to be IPEX Centurion or approved equal.

FABRICATED FITTINGS

Fabricated fittings shall be made from segments of AWWA C905 pipe that are butt-fused or bonded together. Some fittings are over-wrapped with fiberglass-reinforced polyester. The fittings must always meet the pressure rating of the pipe system.

COMPATIBILITY

IPEX Centurion is manufactured with a cast-iron outside diameter (CIOD) so it is compatible with much of the existing older infrastructure of iron pipes. In addition, IPEX Centurion can be field-cut, which means unexpected changes in the field can be accommodated quickly, without having to wait for new shop drawings.

While IPEX Centurion is compatible with iron fittings, IPEX recommends the use of IPEX Centurion fittings exclusively with IPEX Centurion pipe.

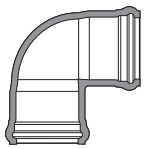
IPEX CENTURION™ LARGE DIAMETER CIOD PVC PRESSURE PIPE

	Size		Product Code	Avg. ID		Min. Wall Thickness		Avg. OD	
	in	mm		in	mm	in	mm	in	mm
PC/PR 80 (SDR51)	18	450	071004	18.7	475.9	0.38	9.7	19.5	495.3
	20	500	071520	20.8	527.0	0.42	10.8	21.6	548.6
	24	600	071524	24.8	629.6	0.50	12.9	25.8	655.3
	30	750	071526	30.7	780.9	0.63	15.9	32.0	812.8
	36	900	071528	36.8	934.7	0.75	19.1	38.3	972.8
	42	1050	071000	42.6	1082.8	0.87	22.2	44.5	1130.3
	48	1200	071135	48.7	1236.2	1.00	25.3	50.8	1290.3
	54	1350	071043	55.3	1404.6	1.13	28.7	57.6	1462.0
	60	1500	071044	59.2	1503.2	1.21	30.7	61.6	1564.9
PC/PR 100 (SDR41)	14	350	071414	14.6	369.7	0.37	9.5	15.3	388.6
	16	400	071416	16.6	420.4	0.43	10.8	17.4	442.0
	18	450	071418	18.5	471.1	0.48	12.1	19.5	495.3
	20	500	071420	20.5	521.8	0.53	13.4	21.6	548.6
	24	600	071424	24.5	623.3	0.63	16.0	25.8	655.3
	30	750	071426	30.4	773.2	0.78	19.8	32.0	812.8
	36	900	071428	36.4	925.3	0.93	23.7	38.3	972.8
	42	1050	071140	42.2	1071.4	1.09	27.5	44.5	1130.3
	48	1200	071223	48.2	1223.0	1.24	31.5	50.8	1290.3
	54	1350	071045	54.8	1391.9	1.40	35.7	57.6	1462.0
	60	1500	071046	58.6	1488.4	1.50	38.1	61.6	1564.9
PC/PR 125 (SDR32.5)	14	350	–	14.4	364.7	0.47	12.0	15.3	388.6
	16	400	071316	16.3	414.5	0.54	13.6	17.4	442.0
	18	450	071317	18.3	464.8	0.60	15.2	19.5	495.3
	20	500	071320	20.3	514.6	0.67	16.9	21.6	548.6
	24	600	071324	24.2	615.0	0.80	20.2	25.8	655.3
	30	750	071326	30.0	762.8	0.98	25.0	32.0	812.8
	36	900	071328	35.9	912.9	1.18	29.9	38.3	972.8
	42	1050	071219	41.6	1056.6	1.37	34.8	44.5	1130.3
	48	1200	–	47.7*	1211.1*	1.56*	39.6*	50.8*	1290.3*
	54	1350	–	54.1*	1374.1*	1.77*	45.0*	57.6*	1462.0*
PC/PR 165 (DR25)	14	350	071114	14.1	357.5	0.61	15.6	15.3	388.6
	16	400	071116	16.0	406.6	0.70	17.7	17.4	442.0
	18	450	071118	17.9	455.7	0.78	19.8	19.5	495.3
	20	500	071124	19.9	504.7	0.86	22.0	21.6	548.6
	24	600	071136	23.7	602.9	1.03	26.2	25.8	655.3
	30	750	071144	29.4	747.8	1.28	32.5	32.0	812.8
	36	900	071137	35.2	895.0	1.53	38.9	38.3	972.8
	42	1050	–	40.9*	1039.9*	1.78*	45.2*	44.5*	1130.3*
	48	1200	–	46.7*	1187.2*	2.03*	51.6*	50.8*	1290.3*
PC/PR 235 (DR18)	14	350	071214	13.6	345.4	0.85	21.6	15.3	388.6
	16	400	071216	15.5	392.9	0.97	24.6	17.4	442.0
	18	450	071218	17.3	440.3	1.08	27.5	19.5	495.3
	20	500	071220	19.2	487.6	1.20	30.5	21.6	548.6
	24	600	071224	22.9	582.5	1.43	36.4	25.8	655.3
	30	750	071130	28.4	722.4	1.78	45.2	32.0	812.8
	36	900	–	34.0*	863.6*	2.13*	54.1*	38.3*	972.8*
	42	1050	–	39.6*	1004.8*	2.47*	62.8*	44.5*	1130.3*
PC/PR 305 (DR14)	14	350	–	13.1	333.0	1.09	27.8	15.3	388.6
	16	400	070426	14.9	378.8	1.24	31.6	17.4	442.0

*coming soon!

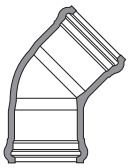
IPEX CENTURION™ FABRICATED FITTINGS (CIOD), CLASS/PRESSURE RATING 165 PSI

90° Bend



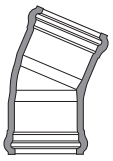
Dimension		Product Code
inches	mm	
14	350	073709
16	400	073040
18	450	073710
20	500	073711
24	600	073712
30	750	073713

45° Bend



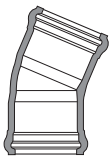
Dimension		Product Code
inches	mm	
14	350	073140
16	400	073714
18	450	073715
20	500	073716
24	600	073160
30	750	073038

22-1/2° Bend



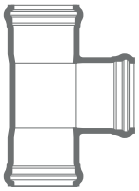
Dimension		Product Code
inches	mm	
14	350	073717
16	400	073718
18	450	073719
20	500	073720
24	600	073161
30	750	073721

11-1/4° Bend



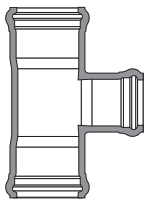
Dimension		Product Code
inches	mm	
14	350	073722
16	400	073723
18	450	073724
20	500	073725
24	600	073162
30	750	073726

Tee



Dimension		Product Code
inches	mm	
14	350	073733
16	400	073427
18	450	073747
20	500	073756
24	600	073766
30	750	073774

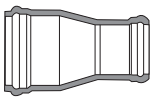
Reducer Tee G x G x G



Dimension		Product Code
inches	mm	
14 x 4	350 x 100	073728
14 x 6	350 x 150	073729
14 x 8	350 x 200	073730
14 x 10	350 x 250	073731
14 x 12	350 x 300	073732
16 x 4	400 x 100	073734
16 x 6	400 x 150	073735
16 x 8	400 x 200	073736
16 x 10	400 x 250	073737
16 x 12	400 x 300	073738
16 x 14	400 x 350	073739
18 x 4	450 x 100	073740
18 x 6	450 x 150	073741
18 x 8	450 x 200	073742
18 x 10	450 x 250	073743
18 x 12	450 x 300	073744
18 x 14	450 x 350	073745
18 x 16	450 x 400	073746
20 x 4	500 x 100	073748
20 x 6	500 x 150	073749
20 x 8	500 x 200	073750
20 x 10	500 x 250	073751
20 x 12	500 x 300	073752
20 x 14	500 x 350	073753
20 x 16	500 x 400	073754
20 x 18	500 x 450	073755
24 x 4	600 x 100	073757
24 x 6	600 x 150	073758
24 x 8	600 x 200	073759
24 x 10	600 x 250	073760
24 x 12	600 x 300	073761
24 x 14	600 x 350	073762
24 x 16	600 x 400	073763
24 x 18	600 x 450	073764
24 x 20	600 x 500	073765
30 x 4	750 x 100	073767
30 x 6	750 x 150	073011
30 x 8	750 x 200	073013
30 x 10	750 x 250	073768
30 x 12	750 x 300	073769
30 x 14	750 x 350	073770
30 x 16	750 x 400	073039
30 x 18	750 x 450	073771
30 x 20	750 x 500	073772
30 x 24	750 x 600	073773

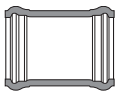
IPEX CENTURION™ FABRICATED FITTINGS (CIOD), CLASS/PRESSURE RATING 165 PSI

Reducer Coupling G x G



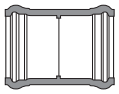
Dimension		Product Code
inches	mm	
14 x 4	350 x 100	073776
14 x 6	350 x 150	073777
14 x 8	350 x 200	073778
14 x 10	350 x 250	073779
14 x 12	350 x 300	073780
16 x 4	400 x 100	073781
16 x 6	400 x 150	073782
16 x 8	400 x 200	073783
16 x 10	400 x 250	073784
16 x 12	400 x 300	073785
16 x 14	400 x 350	073786
18 x 4	450 x 100	073787
18 x 6	450 x 150	073788
18 x 8	450 x 200	073789
18 x 10	450 x 250	073790
18 x 12	450 x 300	073791
18 x 14	450 x 350	073792
18 x 16	450 x 400	073793
20 x 4	500 x 100	073794
20 x 6	500 x 150	073795
20 x 8	500 x 200	073796
20 x 10	500 x 250	073797
20 x 12	500 x 300	073798
20 x 14	500 x 350	073799
20 x 16	500 x 400	073800
20 x 18	500 x 450	073801
24 x 4	600 x 100	073802
24 x 6	600 x 150	073803
24 x 8	600 x 200	073804
24 x 10	600 x 250	073805
24 x 12	600 x 300	073806
24 x 14	600 x 350	073807
24 x 16	600 x 400	073808
24 x 18	600 x 450	073809
24 x 20	600 x 500	073813
30 x 4	750 x 100	073814
30 x 6	750 x 150	073815
30 x 8	750 x 200	073816
30 x 10	750 x 250	073817
30 x 12	750 x 300	073818
30 x 14	750 x 350	073819
30 x 16	750 x 400	073820
30 x 18	750 x 450	073821
30 x 20	750 x 500	073822
30 x 24	750 x 600	073234

Repair Coupling



Dimension		Product Code
inches	mm	
14	350	073883
16	400	073884
18	450	073885
20	500	073886
24	600	073887
30	750	073425

Stop Coupling

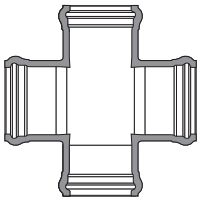


Dimension		Product Code
inches	mm	
14	350	073890
16	400	073891
18	450	073892
20	500	073893
24	600	073163
30	750	073894

Cap

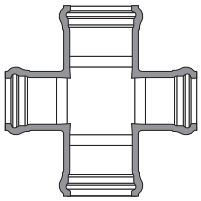
Dimension		Product Code
inches	mm	
14	350	073895
16	400	073896
18	450	073897
20	500	073898
24	600	073899
30	750	073900

Cross



Dimension		Product Code
inches	mm	
14	350	073837
16	400	073844
18	450	073852
20	500	073861
24	600	073871
30	750	073882

Reducer Cross G x G x G x G



Dimension		Product Code	Dimension		Product Code
inches	mm		inches	mm	
14 x 4	350 x 100	073832	24 x 4	600 x 100	073862
14 x 6	350 x 150	073833	24 x 6	600 x 150	073863
14 x 8	350 x 200	073834	24 x 8	600 x 200	073864
14 x 10	350 x 250	073835	24 x 10	600 x 250	073865
14 x 12	350 x 300	073836	24 x 12	600 x 300	073866
16 x 4	400 x 100	073838	24 x 14	600 x 350	073867
16 x 6	400 x 150	073839	24 x 16	600 x 400	073868
16 x 8	400 x 200	073840	24 x 18	600 x 450	073869
16 x 10	400 x 250	073841	24 x 20	600 x 500	073870
16 x 12	400 x 300	073842	30 x 4	750 x 100	073872
16 x 14	400 x 350	073843	30 x 6	750 x 150	073873
18 x 4	450 x 100	073845	30 x 8	750 x 200	073874
18 x 6	450 x 150	073846	30 x 10	750 x 250	073875
18 x 8	450 x 200	073847	30 x 12	750 x 300	073876
18 x 10	450 x 250	073848	30 x 14	750 x 350	073877
18 x 12	450 x 300	073849	30 x 16	750 x 400	073878
18 x 14	450 x 350	073850	30 x 18	750 x 450	073879
18 x 16	450 x 400	073851	30 x 20	750 x 500	073880
20 x 4	500 x 100	073853	30 x 24	750 x 600	073881
20 x 6	500 x 150	073854			
20 x 8	500 x 200	073855			
20 x 10	500 x 250	073856			
20 x 12	500 x 300	073857			
20 x 14	500 x 350	073858			
20 x 16	500 x 400	073859			
20 x 18	500 x 450	073860			

TerraBrute CR

4" - 12" (100mm - 300mm)

TerraBrute® CR

Engineered for Horizontal Directional Drilling (HDD) and other trenchless applications, TerraBrute® CR is a 100% non-metallic, CSA B137.3 / AWWA C900 PVC pressure pipe system. Non-corroding and installation friendly, TerraBrute CR allows you to standardize on PVC throughout your potable water and sewer infrastructure. Whether you're using open-cut or trenchless methods, there are no more problems matching materials and couplings. No more surprises.

TerraBrute CR's patented non-metallic "ring-and-pin" gasketed joint design outperforms all other restrained PVC pipe joints on the market, providing more than twice the pull strength of other HDD systems – up to 120,000 lbs. for 12" (300mm) pipe. Unlike competing square-shoulder designs, TerraBrute CR's rounded bell shoulders slide by roots, rocks and other debris that can protrude into the borehole. And unlike HDPE, TerraBrute CR requires no relaxation time before installation of fittings or services.

APPLICATIONS

- Municipal Water Systems
- Fire Lines
- Forcemains
- Industrial Lines

STANDARDS

AWWA MEMBER · B137.3 · 3624-250 · FM

ADVANTAGES

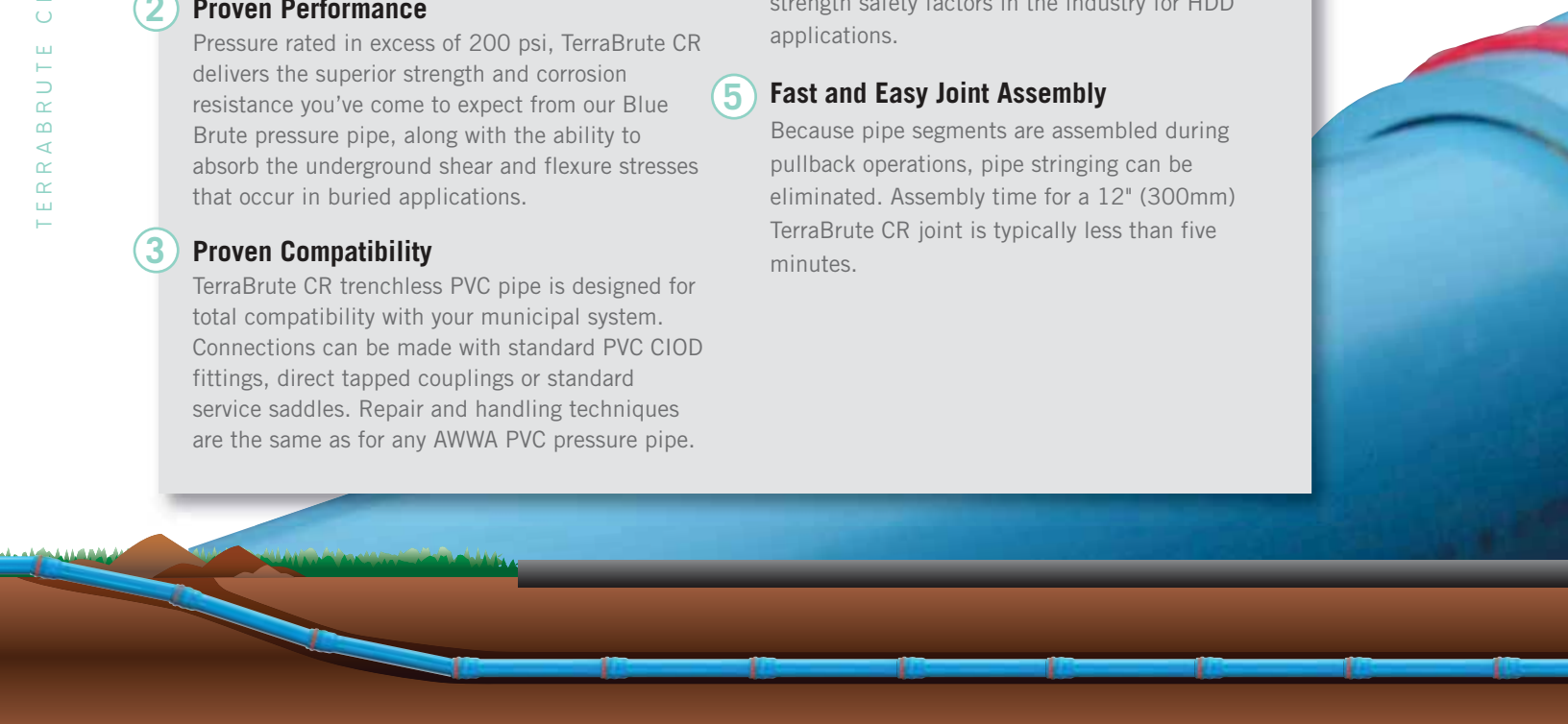
1. **Corrosion Resistant**
The new, non-metallic, "ring-and-pin" configuration of TerraBrute CR PVC pressure pipe offers complete corrosion resistance. The external "ring" is designed as two half rings for ease of installation and comes complete with the "pins" ready for insertion, creating a strong, locking joint.

2. **Proven Performance**
Pressure rated in excess of 200 psi, TerraBrute CR delivers the superior strength and corrosion resistance you've come to expect from our Blue Brute pressure pipe, along with the ability to absorb the underground shear and flexure stresses that occur in buried applications.

3. **Proven Compatibility**
TerraBrute CR trenchless PVC pipe is designed for total compatibility with your municipal system. Connections can be made with standard PVC CIOD fittings, direct tapped couplings or standard service saddles. Repair and handling techniques are the same as for any AWWA PVC pressure pipe.

4. **Proven Joining System**
Based on our gasketed bell and spigot design, proven through years of service in the field, the TerraBrute CR joint is rated higher than the pressure rating of the pipe. And unlike competing coupling joints, the TerraBrute CR joint has been specially engineered to deliver the highest pull strength safety factors in the industry for HDD applications.

5. **Fast and Easy Joint Assembly**
Because pipe segments are assembled during pullback operations, pipe stringing can be eliminated. Assembly time for a 12" (300mm) TerraBrute CR joint is typically less than five minutes.



Standards

CSA B137.3

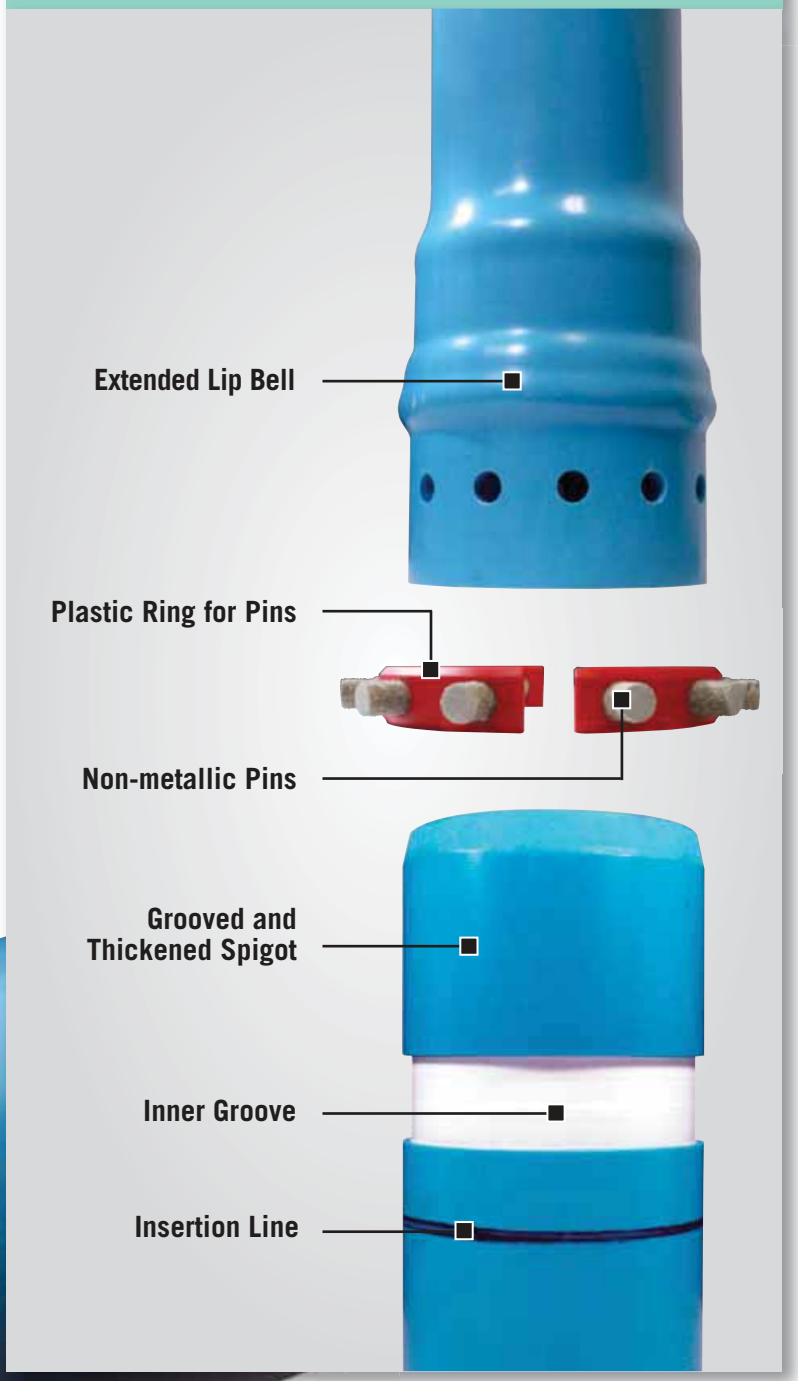
AWWA C900
TerraBrute is made from stock conforming to AWWA C900.

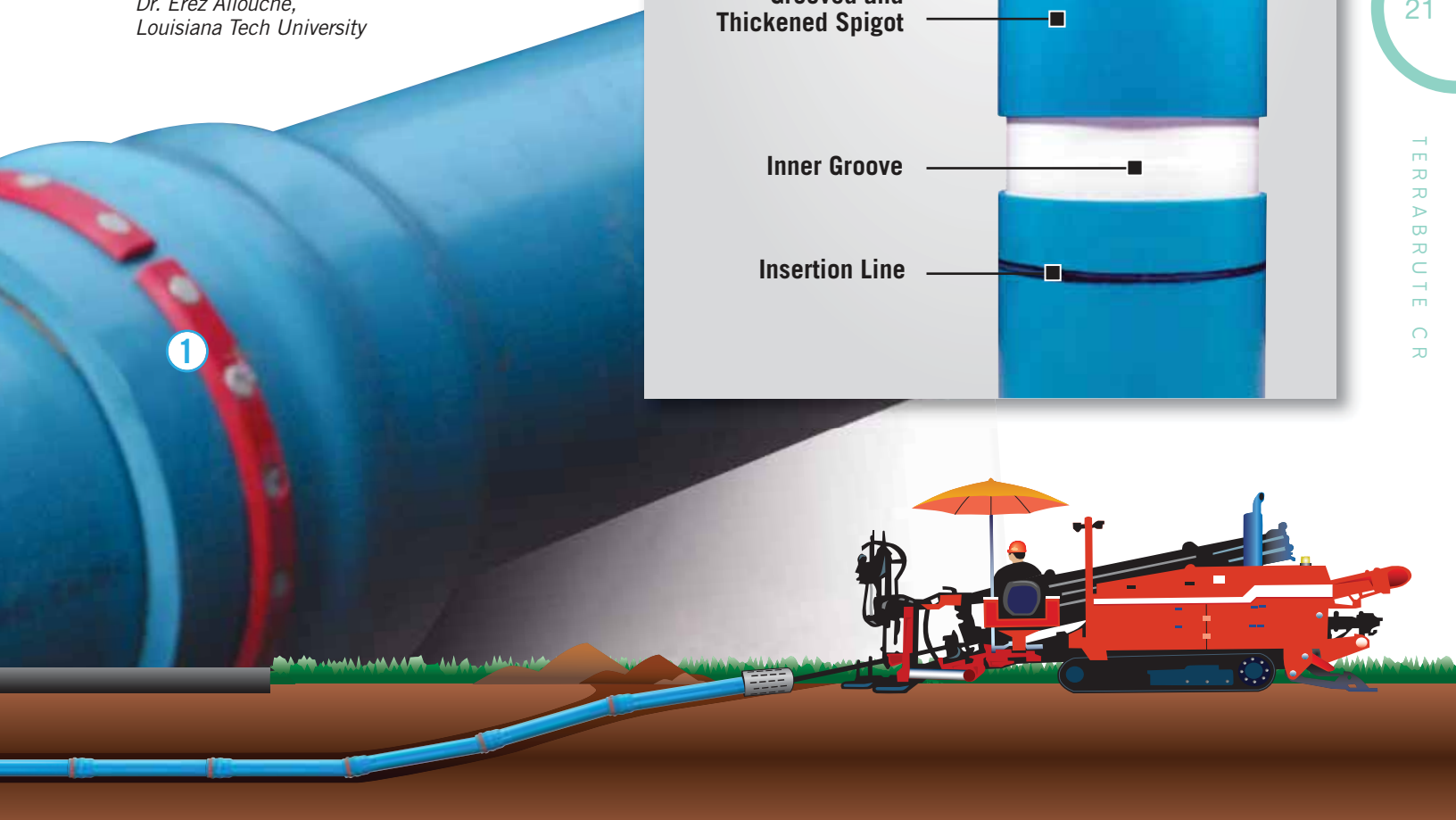
NQ 3624-250

Factory Mutual and Underwriter's Laboratories
TerraBrute is made from starting stock that is **Factory Mutual** approved and **ULC/ULI** Listed.

> **TerraBrute CR is the result of many years of research into the use of PVC pipes in HDD applications. The new non-corroding, locking joint design enables TerraBrute CR to enter new applications while maintaining the high tensile strength and bending radius of the original TerraBrute.**
>
> *Dr. Erez Allouche,*
> *Louisiana Tech University*

NEW NON-METALLIC GASKETED JOIN DESIGN





SHORT FORM SPECIFICATIONS

GENERAL

PVC pipe used for horizontal directional drilling (HDD) or other trenchless installation methods shall be manufactured with a cast iron outside diameter (CIOD) and shall be made with starting stock certified to CSA B137.3 for 4" - 12" diameters. Pipe will meet the requirements of AWWA C900, must be Factory Mutual approved, and listed by ULC and ULI.

MAXIMUM ALLOWABLE PULLING FORCE

The maximum allowable pulling force shall be the ultimate tensile capacity of the piping system divided by a safety factor of 2, as shown in the table below.

Nominal Size		Maximum Allowable Pulling Force	
mm	Inches	kN	Lbs.
100	4	50	11200
150	6	110	24700
200	8	115	25800
250	10	187	42100
300	12	275	61800

JOINT DESIGN

PVC pipe must be manufactured with an integral bell, and must have removable gaskets to allow the use of oil-resistant (nitrile) gaskets in contaminated soils.

APPLICATIONS

BRIDGE CROSSINGS

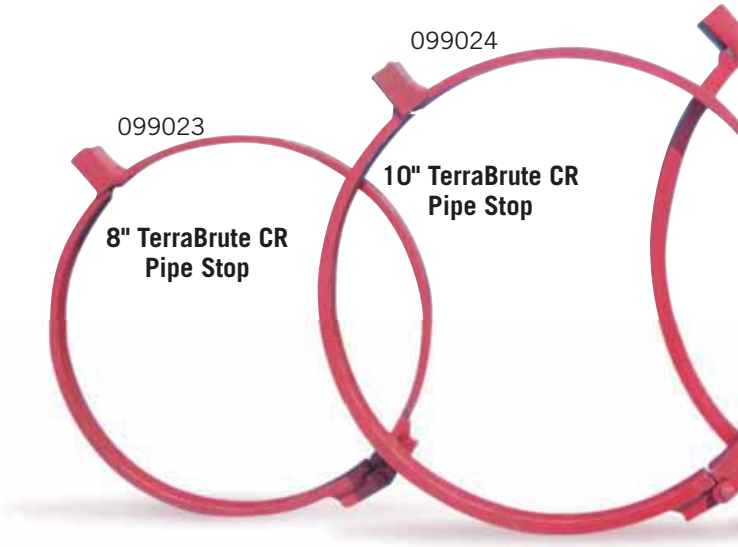
TerraBrute CR's unique "new non-metallic ring-and-pin" joint design provides for easy installation in non-HDD applications where traditional butt fusion techniques would be difficult – such as this span of suspended pressure pipe installed beneath a busy roadway bridge.

ROAD CROSSINGS

TerraBrute CR is ideally suited for short drilling projects where existing structures cannot be disturbed – such as under busy highways, roads and intersections where you connect to PVC pipes.

URBAN CENTERS

Because TerraBrute CR can be assembled segmentally just before entering the borehole, projects take up less space in restricted urban areas, compared to the long strings of pipe typical with conventional PVC and HDPE installations.



PRODUCT SELECTION CHART

TerraBrute CR Pipe & Dimensions

Nominal Diameter		Product Code	Pressure Class/Rating (2:1 safety factor)	Max Outside Diameter (Bell OD)		Avg Internal Diameter	
in	mm		psi	in	mm	in	mm
4	100	070258	305	6.49	165	4.09	104
6	150	070259	305	9.06	230	5.87	149
8	200	070260	235	11.33	288	8.03	204
10	250	070261	235	14.00	355	9.84	250
12	300	070262	235	16.36	416	11.69	297

TerraBrute CR's larger internal diameters, compared to HDPE pipe, provide the same hydraulic performance usually with one size smaller pipe, saving on material costs.

Lay Lengths

Nominal Size		Laying Lengths	
Inches	mm	Feet/Inches	m
4	100	19' 10"	6.04
6	150	19' 9"	6.03
8	200	19' 9"	6.01
10	250	19' 9"	6.01
12	300	19' 9"	6.01

Due to the extended bell configuration, TerraBrute has slightly shorter laying length than standard Blue Brute pipe.

TerraBrute® CR PIPE STOPS

IPEX TerraBrute CR Pipe Stops have been specifically designed to simplify the installation of 8", 10", and 12" TerraBrute CR. Due to fairly large insertion forces, it can often be difficult to align the internal groove with the pin holes on the larger diameter TerraBrute CR; the new TerraBrute CR Pipe Stops will virtually eliminate this problem of over-homing the pipe. TerraBrute CR Pipe Stops will reduce stoppages in the installation process to pull back and reposition the pipe.

IPEX TerraBrute CR Pipe Stops can be placed on the pipe quickly and easily; a pair of vice-grips is all that is needed to secure the Pipe Stop in place. Made from high-strength steel, TerraBrute CR Pipe Stops are designed to withstand repeated use for all of your installations.

APPLICATIONS

- Municipal Water Systems
- Fire Lines
- Foremains
- Industrial Lines

099025

12" TerraBrute CR Pipe Stop

FEATURES & BENEFITS

1. **Easy to Use**
   TerraBrute CR Pipe Stops are simple and easy to use, offering quick assembly and disassembly to help prevent installation delays. A pair of vice grips is all that is needed to secure the Pipe Stop in place.
2. **Strong & Tough**
   Made from steel, TerraBrute CR Pipe Stops are built strong, tough and are durable enough to withstand repeated use on every job.
3. **Prevents Over-Homing**
   TerraBrute CR Pipe Stops virtually eliminate the risk of over-homing the pipe. There is no need to pull back and reposition the pipe as the groove will always end up properly aligned with the pin holes.

CYCLETOUGH PIPING SYSTEMS

Pipe: 1-1/2" - 24" (40mm - 600mm)
Injection Molded Fittings: 1-1/2" - 8" (40mm - 200mm)

CycleTough®

CycleTough® IPS piping systems are specifically designed for irrigation systems and sewer forcemains. The constant cyclic surging that is associated with these applications demands a tough pipe, and more importantly, a specially engineered fitting.

CycleTough fittings have been engineered using the latest techniques in Finite Element Analysis (FEA), ensuring problem-free performance for the long haul.

IPEX CycleTough systems are made with the same high-impact, engineered compound as our Blue Brute® systems, and are tested to maintain the same high standards.

APPLICATIONS

- Forcemains
- Irrigation
- Rural Water Supply
- Water Distribution & Transmission

STANDARDS

D3139
D2241

ADVANTAGES

1. **High Pressure Capacity**
   CycleTough systems have a 2:1 safety factor for long-term pressures, and over 3.2:1 for temporary surges.

2. **Toughness Engineered**
   CycleTough fittings are engineered for versatility and reliability. Their unique design features extra material added for reinforcement to withstand the stresses imposed by tough irrigation and forcemain applications.

3. **Iron Pipe Size Outside Diameter (IPSOD)**
   CycleTough systems are made with an IPSOD, which is the same outside diameter configuration as schedule piping and most steel process piping.

4. **Bottle-tight Joints, Removable Gaskets**
   IPEX's patented gasket system not only withstands the rated system pressure, but also withstands full vacuum pressures. The removable gasket system allows special oil-resistant (nitrile) gaskets to be easily installed when working in contaminated soils.

5. **Third-party Certification**
   All CycleTough systems are certified to CSA B137.3. Third-party certification verifies a system will perform as expected, meeting all applicable standards.

UNIQUE PRESSURE GASKET SYSTEM

First Smaller Lip prevents foreign material from coming in contact with second sealing lip. It also centralizes the pipe spigot while at the same time preventing contact with lock ring.

Completely Injection Molded (including color coded polypropylene lockring) for better tolerance and dimension control.

Arched Back Pocket gives excellent tolerance to the gasket seal raceway. Transmits an even radial force from the lockring to the gasket seat.

High Impact and High Memory Polypropylene Lockring prevents gasket movement from the raceway during assembly and normal pressure conditions.

Pressure Pockets transmit internal water pressure to the pipe spigot making a tight leak-proof seal.

Massive Rubber Areas and low compression set for outstanding compression seal.

Second High Rise Sealing Lip creates a tight seal having ample sealing tolerance for pipe with nominal diameter.

DID YOU KNOW?

All CycleTough 4000 fittings use high molecular weight pipe materials with a minimum HDB of 4,000 psi. Materials with higher molecular weights tend to exhibit better resistance to crack initiation.

SHORT FORM SPECIFICATIONS

PIPES

IPSOD PVC Pipe shall be manufactured from PVC compound with an ASTM D1784 cell class 12454B. PVC Pipe will have a minimum hydrostatic design basis (HDB) of 4000 psi and a short term strength of 6400 psi. Pipe shall be certified to CSA B137.3.

FITTINGS

Injection molded PVC fittings shall be made from PVC compound with a minimum HDB of 4000 psi.

Fabricated fittings shall be made from sections of pipe certified to CSA B137.3, and fittings shall also be certified to CSA B137.3.

All pipes and fittings shall be listged to NSF Standard 61 and shall be color coded white.

WHY CYCLETOUGH FOR CYCLIC APPLICATIONS?

Current research shows that PVC pipe has a virtually unlimited lifespan under some of the most demanding cyclic conditions. While the pipe is inherently 'CycleTough', fittings are subject to a variety of different stresses that can easily damage a conventionally designed product. CycleTough injection molded fittings have been specifically designed for high-pressure cyclic applications using the latest engineering methods, and extensive computer modeling. While other PVC fittings may not be up to the task, CycleTough fittings were designed for it, with the right amount of material in the right places. That is why CycleTough fittings look different from other PVC fittings on the market: CycleTough fittings are made for tough applications.

PRESSURE RATINGS

Pressure Ratings and Burst Pressures

Size Range	Dimension Ratio	Pressure Rating (psi)	Long Term Rating (psi)
40 – 600	21	200	200
40 – 600	26	160	160
75 – 600	32.5	125	125
100 – 600	41	100	100

For more information on how these ratings are calculated, please refer to Volume I: Pressure Piping Systems Design Technical Manual

PRODUCT SELECTION CHART CYCLETOUGH PIPE

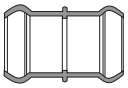
Size		Product Code	Avg. ID		Min. Wall Thickness		Avg.OD	
in	mm		in	mm	in	mm	in	mm
Series 100 (SDR41)								
4	100	061204	4.278	108.41	.109	2.78	4.50	114.3
6	150	061206	6.282	159.57	.162	4.12	6.63	168.3
8	200	061208	8.180	207.77	.209	5.32	8.62	219.1
10	250	061210	10.194	258.93	.262	6.66	10.75	273.1
12	300	061212	12.093	307.15	.311	7.90	12.75	323.9
14	350	060214	13.277	337.24	.341	8.66	14.00	355.6
16	400	060216	15.174	385.41	.390	9.90	16.00	406.4
18	450	060218	17.074	433.67	.437	11.10	18.00	457.2
20	500	060220	18.985	481.71	.488	12.40	20.00	508.0
24	600	060224	22.756	578.01	.587	14.90	24.00	609.6
Series 125 (SDR32.5)								
4	100	061104	4.208	106.88	.138	3.50	4.50	114.3
6	150	061106	6.194	157.32	.204	5.18	6.63	168.3
8	200	061108	8.063	204.80	.265	6.72	8.62	219.1
10	250	061110	10.049	255.24	.331	8.40	10.75	273.1
12	300	061112	11.921	302.78	.392	9.96	12.75	323.9
14	350	060114	13.090	332.49	.429	10.90	14.00	355.6
16	400	060116	14.957	379.90	.492	12.50	16.00	406.4
18	450	060118	16.823	427.31	.555	14.10	18.00	457.2
20	500	060120	18.698	474.93	.614	15.60	20.00	508.0
24	600	060124	22.431	569.74	.740	18.80	24.00	609.6

PRODUCT SELECTION CHART CYCLETOUGH PIPE

Size		Product Code	Avg. ID		Min. Wall Thickness		Avg.OD	
in	mm		in	mm	in	mm	in	mm
Series 160 (SDR26)								
1-1/2	40	061900	1.731	43.97	.080	2.02	1.90	48.3
2	50	061902	2.184	55.47	.091	2.30	2.38	60.4
2-1/2	65	061901	2.642	67.11	.109	2.78	2.87	73.0
3	75	061903	3.215	81.65	.135	3.42	3.50	88.9
4	100	061904	4.134	105.01	.172	4.38	4.50	114.3
6	150	061906	6.085	154.56	.255	6.48	6.63	168.3
8	200	061908	7.921	201.20	.331	8.42	8.62	219.1
10	250	061910	9.874	250.79	.413	10.50	10.75	273.1
12	300	061912	11.717	297.61	.488	12.40	12.75	323.9
14	350	060914	12.857	326.56	.539	13.70	14.00	355.6
16	400	060916	14.698	373.33	.614	15.60	16.00	406.4
18	450	060918	16.531	419.89	.693	17.60	18.00	457.2
20	500	060920	18.364	466.45	.772	19.60	20.00	508.0
24	600	060924	22.039	559.78	.925	23.50	24.00	609.6
Series 200 (SDR21)								
1-1/2	40	061300	1.709	43.42	.090	2.28	1.90	48.3
2	50	061301	2.137	54.29	.113	2.86	2.38	60.4
2-1/2	65	061302	2.584	65.62	.137	3.48	2.87	73.0
3	75	061303	3.146	79.91	.167	4.24	3.50	88.9
4	100	061304	4.046	102.77	.214	5.44	4.50	114.3
6	150	061306	5.957	151.30	.316	8.02	6.63	168.3
8	200	061308	7.756	197.00	.409	10.40	8.62	219.1
10	250	061310	9.665	245.49	.512	13.00	10.75	273.1
12	300	061312	11.467	291.25	.606	15.40	12.75	323.9
14	350	061314	12.589	319.77	.665	16.90	14.00	355.6
16	400	061316	14.381	365.27	.764	19.40	16.00	406.4
18	450	061318	16.180	410.98	.858	21.80	18.00	457.2
20	500	061320	17.980	456.70	.953	24.20	20.00	508.0
24	600	061324	21.580	548.12	1.142	29.00	24.00	609.6

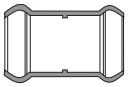
CYCLETOUGH FITTINGS

Stop Coupling G x G



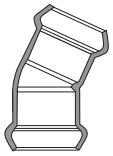
Dimension		Product Code
inches	mm	
2	50	055036
2-1/2	65	055037
3	75	055038
4	100	055039
6	150	055040
8	200	055041

Repair Coupling G x G



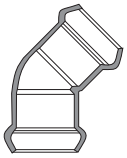
	Dimension		Product Code
	inches	mm	
	2	50	055217
	2-1/2	65	055218
	3	75	055219
	4	100	055220
	6	150	055221
	8	200	055222
*	10*	250	055223

22-1/2° Elbow G x G



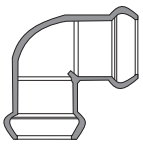
	Dimension		Product Code
	inches	mm	
*	2	50	055053
*	3	75	055054
*	4	100	055055
*	6	150	055056

45° Elbow G x G



	Dimension		Product Code
	inches	mm	
*	1-1/2	35	055059
	2	50	055060
	2-1/2	65	055061
	3	75	055062
	4	100	055063
	6	150	055064
	8	200	055065
*	10	250	055066
*	12	300	055067

90° Elbow G x G

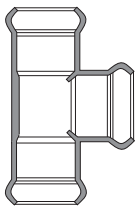


	Dimension		Product Code
	inches	mm	
*	1-1/2	35	055069
	2	50	055070
	2-1/2	65	055071
	3	75	055072
	4	100	055073
	6	150	055074
	8	200	055075
*	10	250	055076
*	12	300	055280

* Fabricated Non CSA, G = Gasket, Sp = Spigot

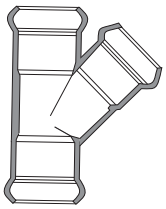
PRODUCT SELECTION CHART CYCLETOUGH FITTINGS

Tee G x G x G



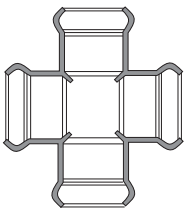
	Dimension inches	Dimension mm	Product Code
*	1-12	35	055227
	2	50	055228
	2-1/2	65	055229
	3	75	055230
	4	100	055231
	6	150	055232
	8	200	055233
*	10	250	055234
*	12	300	055281

Wye G x G x G



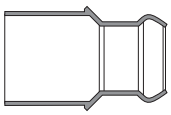
*	3	75	055291
*	4	100	055293
*	6	150	055290
*	8 x 6	200 x 150	055294
*	8	200	055298
*	12 x 6	300 x 150	055297
*	12 x 8	300 x 200	055299
*	12	300	055296

Cross G x G x G



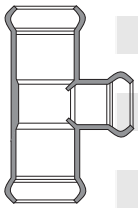
*	2	50	055045
*	2-1/2	65	055046
*	3	75	055047
	4	100	055048
	6	150	055049

Increaser Bushing G x Sp



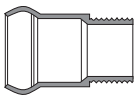
	1-1/2 x 2	35 x 50	055129
	2 x 2-1/2	50 x 65	055130
	2 x 3	50 x 75	055131
	2 x 4	50 x 100	055133
*	2 x 6	50 x 150	049280
	2-1/2 x 3	65 x 75	055132
	2-1/2 x 4	65 x 100	055134
	2-1/2 x 6	65 x 150	055136
	3 x 4	75 x 100	055135
	3 x 6	75 x 150	055137
	4 x 6	100 x 150	055138
	4 x 8	100 x 200	055139
	6 x 8	150 x 200	055140

Reducing Tee G x G x G



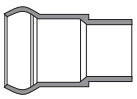
Dimension inches	Dimension mm	Product Code
2 x 1-1/2	50 x 35	055151
2-1/2 x 2	65 x 50	055153
3 x 1-1/2	75 x 35	055154
3 x 2	75 x 50	055155
3 x 2-1/2	75 x 65	055156
4 x 2	100 x 50	055157
4 x 2-1/2	100 x 65	055158
4 x 3	100 x 75	055159
6 x 2	150 x 50	055161
6 x 2-1/2	150 x 65	055162
6 x 3	150 x 75	055163
6 x 4	150 x 100	055164
8 x 2	200 x 50	055165
8 x 3	200 x 75	055166
8 x 4	200 x 100	055167
8 x 6	200 x 150	055168

Male Adapter G x Male Pipe Thread



	1-1/2	35	055099
	2	50	055100
	2-1/2	65	055101
	3	75	055102
*	4	100	055103
*	6	150	055104

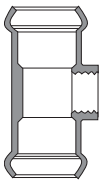
Spigot Adapter G x Sp



	1-1/2	35	055028
	2	50	055029
	2-1/2	65	055030
	3	75	055031
*	4	100	055032
*	6	150	055033

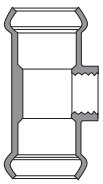
* Fabricated Non CSA, G = Gasket, Sp = Spigot
† Reduced using Solvent Welded Threading Reducer Bushings

Tap Service Tee G x G x NPT



	Dimension inches	Dimension mm	Product Code
†	2 x 1/2	50 x 15	055187
†	2 x 3/4	50 x 20	055188
†	2 x 1	50 x 25	055189
†	2 x 1-1/4	50 x 30	055190
†	2 x 1-1/2	50 x 35	055191
†	2-1/2 x 1/2	65 x 15	055192
†	2-1/2 x 3/4	65 x 20	055193
†	2-1/2 x 1	65 x 25	055194
†	2-1/2 x 1-1/4	65 x 30	055195
†	2-1/2 x 1-1/2	65 x 35	055196
	2-1/2 x 2	65 x 50	055197
†	3 x 1/2	75 x 15	055198
†	3 x 3/4	75 x 20	055199
	3 x 1	75 x 25	055200
	3 x 1-1/4	75 x 30	055201
	3 x 1-1/2	75 x 35	055202
	3 x 2	75 x 50	055203
†	4 x 1/2	100 x 15	055204
†	4 x 3/4	100 x 20	055205
	4 x 1	100 x 25	055206
	4 x 1-1/4	100 x 30	055207
	4 x 1-1/2	100 x 35	055208
	4 x 2	100 x 50	055209
†	6 x 1/2	150 x 15	055210
†	6 x 3/4	150 x 20	055211
	6 x 1	150 x 25	055212
	6 x 1-1/2	150 x 35	055214
	6 x 2	150 x 50	055215

Tap Service Tee G x G x AWWA Thread

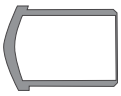


	4 x 3/4	100 x 20	055125
	4 x 1	100 x 25	055126
	6 x 3/4	150 x 20	055127
	6 x 1	150 x 25	055128

Cap

	Dimension inches	Dimension mm	Product Code
*	2	50	055400
*	3	75	055402
*	4	100	055404
*	6	150	055406
*	8	200	055408

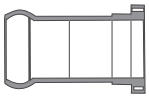
Permanent Plug



*	1-1/2	35	055107
*	2	50	055108
*	2-1/2	65	055109
*	3	75	055110
*	4	100	055111
*	6	150	055112
*	8	200	055113

The spigot plug may be solvent welded.

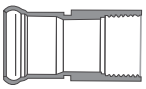
Adapter Flange x Gasket Bell



*	1-1/2	35	055091
*	2	50	055092
*	2-1/2	65	055093
*	3	75	055094
*	4	100	055095
*	6	150	055096
*	8	200	055268

Flanged fittings have a maximum operating pressure of 150 psi.

Adapter Bell x Female IPT



*	1-1/2	35	055251
*	2	50	055252
*	2-1/2	65	055253
*	3	75	055433
*	4	100	055254
*	6	150	055256

Adapter PE (Plain End) x MIPT

*	3	75	055260
*	4	100	055105
*	6	150	055106

* Fabricated Non CSA, G = Gasket, Sp = Spigot
† Reduced using Solvent Welded Threading Reducer Bushings

IPEX CycleTough® irrigation piping has remained the preferred brand of PVC piping in Canada for over 30 years. Here's why...

- Certified to CSA B137.3
- 160 psi or 200 psi options
- Sizes 1-1/2" to 24"
- Solvent-weld or gasket joint
- Easy to install, zero maintenance
- Made in Canada

So for your next irrigation project, ensure the underground piping meets the same high standard of your greens and fairways. Ask for IPEX.

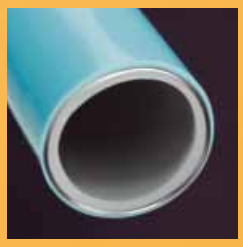
For more information on IPEX CycleTough pipe and fittings, please visit our website at **www.ipexinc.com**

Toll Free: 1-800-463-9572 • www.ipexamerica.com

IPEX CycleTough®

As copper prices continue to rise, cities across North America are turning to cost effective alternatives for their water service lines that connect municipal watermains to buildings. From composite tubing for water service lines which are immune to corrosion and mineral buildup, to compression fittings, IPEX offers water service systems that are CSA and NSF certified and backed by the quality and service you've come to expect from IPEX.

WATER SERVICE SYSTEMS




Q-LINE
WATER SERVICE TUBING

3/4" & 1" (20mm & 25mm)

Q-Line®

Introducing Q-Line – a unique composite, water service tubing that combines the advantages of both metal and plastic, while eliminating their drawbacks. Now available from IPEX, the world's leading technical innovator in thermoplastic piping systems.

Manufactured by IPEX to AWWA C903-02, Q-Line is the only water service tubing in North America that delivers the strength of metal, the flexibility of soft copper and the durability of thermoplastic. What's more, because it eliminates the shortcomings of traditional piping materials, Q-Line is superior to them all.

APPLICATIONS

- Water Service Tubing
- Municipal Watermains
- Reclaimed Water Applications

STANDARDS

AWWA MEMBER

F1282

B137.9

NSF-PW

ADVANTAGES

1. **Engineered Composite Construction**
   A composite pipe constructed of flexible aluminum tubing permanently bonded between inner and outer layers of raised temperature polyethylene (PE-RT). Q-Line's unique structure offers optimum strength and toughness in a lightweight, easily handled and installed water service tubing.
2. **Superior to Traditional Pipe**
   Unlike copper, Q-Line's non-corroding thermoplastic layers resist the most aggressive water conditions and hot-soil environments. Q-Line won't leach copper or other metallic ions, so the quality of drinking water is assured and service life is longer.
3. **Potable Water Certified**
   Q-Line carries third-party ASTM F1282 and CSA B137.9 certification, as well as NSF-PW potable water certification, and meets all North American plumbing codes for water supply up to and inside the building.
4. **High Flow Rates**
   With larger inside diameters than CTS polyethylene piping and a super-smooth interior wall that does not permit build-up of calcium or other minerals, Q-Line offers the best flow rates in the industry.
5. **Handles Like Copper**
   Simply roll Q-Line tubing down the trench and it stays where it's laid (unlike plain polyethylene). You can make goosenecks and bends easily just as you would with copper, and Q-Line keeps its shape.

CODES AND STANDARDS

Q-Line water service tubing is manufactured to AWWA C903, ASTM F1282 and CSA B137.9, and meets NSF-PW potable water requirements as well as requirements of the following national codes.

- National Plumbing code of Canada
- Uniform Plumbing Code
- International Plumbing Code
- International Residential Code
- National Standard Plumbing Code
- SBCCI Standard Plumbing Code

SHORT FORM SPECIFICATIONS

TUBING

Water service tubing shall be composite PE-AL-PE tubing manufactured in accordance with the requirements of AWWA C903 and certified to CSA B137.9 and ASTM F1282. It shall have a long term pressure rating of 1380kPa at 23ºC (200 psi at 73ºF) and 690kPa at 82ºC (100 psi at 180ºF). The pipe shall be third-party tested and certified to comply with NSF-PW potable water and NSF CL-TD chlorine resistance requirements. The service tubing shall be colour coded light blue as manufactured by IPEX under the trade name "Q-Line" or approved equal.

FITTINGS

Fittings for composite PE-AL-PE tubing shall be brass water service fittings conforming to AWWA C800.

MORE ADVANTAGES ...

Built-in Permeation Barrier

Q-Line composite water service tubing has been successfully tested against the most aggressive contaminants, like termiticides.

Zero Scrap Value

Because Q-Line's metallic core is permanently locked between layers of polyethylene, it has zero scrap metal value. So unlike copper and other valuable metals which are continually disappearing due to theft, Q-Line is more likely to stay on the job site where it's needed.

PRODUCT SELECTION CHART

Q-Line Pipes

Nominal Size		Product Code	Avg. ID		Min. Wall Thickness		Avg. OD		Min. Bending Radius		Coil Length	
in	mm		in	mm	in	mm	in	mm	in	mm	ft	m
3/4	20	115001	0.79	20	0.10	2.5	0.98	25	5.0	125	150	45.7
3/4	20	115003	0.79	20	0.10	2.5	0.98	25	5.0	125	1000	305.0
1	25	115004	0.98	25	0.14	3.5	1.26	32	6.3	160	150	45.7

Municipal Brass Water Service Fittings

Description	Product Code
3/4" Q-Line x 3/4" Copper Compression, Universal Q-Line Adapter	088083*
1" Q-Line x 1" Copper Compression, Universal Q-Line Adapter	088084*
3/4" Q-Line x 3/4" Male NPT Adapter	088129
1" Q-Line x 1" Male NPT Adapter	088250
3/4" Q-Line Coupling	088131
1" Q-Line Coupling	088251

* Adapts to any municipal valve with compression end.

Note: All brass fittings conform to AWWA C800 Standard for Underground Service Line Valves and Fittings.

ONE OF A KIND

Q-Line has unique inside and outside diameters that are different both from copper and conventional PE service tubing. Easily installed adapters that allow Q-line to be used with standard brass fittings are widely available.

PHILMAC 3G COMPRESSION FITTINGS

1/2" - 2" (12mm - 50mm)

Gone are the days of juggling and assembling loose fitting components on the job site or even having to turn off the water line when connecting a new line. Thanks to Philmac's unique Slide & Tighten™ technology, you can get a perfect seal with Philmac 3G fittings in any condition by hand or with a wrench.

Philmac fittings come pre-assembled and ready to use so there's no need to disassemble the fitting or prepare the pipe. No solvent cementing or special tools are needed. Simply insert the pipe into the fitting until you feel the first point of resistance and then tighten the nut. Visual stops and gradually increasing mechanical resistance as the nut is turned prevents over-tightening.

Philmac's compact size makes installation easy in confined spaces, and Philmac 3G fittings are engineered to avoid pipe twist during installation, reducing the risk of untightening previously-installed joints – a constant risk with brass fittings.

APPLICATIONS

- Water Service Coupling
- Residential Water Service
- Residential Irrigation Systems
- Rural Irrigation

STANDARDS

DID YOU KNOW?

Philmac's unique Slide & Tighten™ technology can give you a perfect seal just by hand or with a wrench. Just slide and tighten, and the job's done!

ADVANTAGES

1 Turn to Tighten Design

Philmac's unique design allows you to achieve a perfect seal with the turn of a hand or wrench. Visual stops and gradually increasing mechanical resistance as the nut is tightened reduces the risk of over-tightening.

2 Compact Ergonomic Grip

Small and lightweight, Philmac 3G fittings are specially shaped to your hand for easy turning. Their compact size is perfect for working in confined areas.

3 Advanced Material

Philmac 3G fittings are made from an advanced high-performance polypropylene so they're UV, impact and corrosion-resistant – tough enough for 50+ years of reliable service.

4 Dynamic Compression Sealing

Philmac 3G fittings are highly engineered to provide a robust leak-proof seal with superior pull-out resistance. In addition, the strength of the nut ensures minimal distortion when tightened with a wrench.

5 Component Interchangeability

Because both the CTSOD and ID Series fittings are based on the same core fitting design, components can be easily interchanged in order to transition from one type to another on the same fitting. And with adaptor kits available for other material types, you'll always have the right fitting for the job.

PHILMAC 3G: CTSOD AND ID SIZES

Philmac 3G Compression Fittings offer the flexibility to connect to five different types of pipe; three polyethylene pipe types (CTS, ID Series and IPS), Composite and Copper.

There are two dedicated fittings, CTS and ID Series, which come preassembled and ready to use. That leaves three others: IPS, XPA, and copper that require a conversion kit. Converting a Philmac fitting is very simple and can be done in just a few steps.

CTSOD

ID Series

OD Fittings
3/4" – 2"

ID Series
1/2" – 2"

UNIVERSAL TRANSITION COUPLING (UTC) & FITTINGS

With the Universal Transition Coupling, virtually any type of pipe can be connected to any other type of pipe. Rather than servicing specific materials, the UTC's service a range of outside pipe diameters, regardless of the piping material. The wide tolerance range allows seven couplings to cover pipe sizes from 1/2" to 2". Versatility coupled with simple slide-and-tighten installation make the Philmac UTC the practical choice.

ADVANTAGES

- ✓ Universal transition couplings are the ideal solution for connecting a wide variety of pipes.
- ✓ One coupling connects copper, galvanized iron, PVC, lead and even PE and PEX.
- ✓ Wide tolerance range allows seven couplings to cover pipe sizes from 1/2" to 2".
- ✓ Easy to fit "Slide & Tighten" technology.
- ✓ Couplings are end-load resistant with no restraint needed to prevent pipe pull-out.

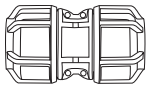
Sizing Chart

Pipe Material Standard	A 0.59" - 0.83" 15 - 21 mm	B 0.83" - 1.06" 21 - 27 mm	C 1.06" - 1.34" 27 - 34 mm	D 1.34" - 1.54" 34 - 39 mm	E 1.54" - 1.69" 39 - 43 mm	F 1.85" - 1.93" 47 - 49 mm	G 2.32" - 2.40" 59 - 61 mm
	Nominal Pipe Size (inches)						
PE / PEX CTS OD	1/2	3/4	1	1-1/4	1-1/2	–	–
PE IPS OD	–	1/2 or 3/4	1	–	1-1/4	1-1/2	2
PE SIDR 7	1/2	3/4	–	1	–	–	–
PE SIDR 9	1/2	3/4	1	–	1-1/4	–	–
PE SIDR 11.5	1/2	3/4	1	–	1-1/4	1-1/2	–
PE SIDR 15	1/2	3/4	1	–	1-1/4	–	2
Copper CTS OD	1/2	3/4	1	1 1/4	1-1/2	–	–
PVC IPS OD	–	1/2 or 3/4	1	–	1-1/4	1-1/2	2
Galvanized Iron IPS OD	–	1/2 or 3/4	1	–	1-1/4	1-1/2	2
ABS IPS OD	–	1/2 or 3/4	1	–	1-1/4	1-1/2	2
Lead - Strong	1/2	5/8	3/4	1	1-1/4	–	–
Lead - Extra Strong	–	1/2	5/8 or 3/4	1	–	–	–
Lead - Double Extra Strong	–	1/2	5/8 or 3/4*	3/4*	1	1 1/4	–

* If 3/4" XXS Lead Pipe OD is larger than 1.34", the pipe needs to be shaved if using a Size C UTC fitting. Otherwise, a size D UTC Coupling can be used when OD is larger than 1.34".

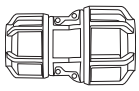
PRODUCT SELECTION CHART – CTSOD FITTINGS

Couplings Compression x Compression



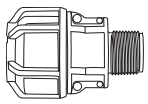
Dimension inches	Dimension mm	Product Code
3/4	20	258000
3/4	20	258001
1-1/4 x 1-1/4	30 x 30	258002
1-1/2	35	258003
2	50	258004

Reducing Couplings Compression x Compression



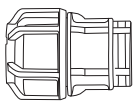
1 x 3/4	25 x 20	258005
1-1/4 x 1	30 x 25	258131

Male Adapters Compression x MIPT



3/4 x 1/2	20 x 15	258006
3/4	20	258007
1 x 1/2	25 x 15	258008
1 x 3/4	25 x 20	258009
1	25	258010
1-1/4 x 3/4	30 x 20	258011
1-1/4 x 1	30 x 25	258012
1-1/4	30	258013
1-1/2 x 1	35 x 25	258014
1-1/2 x 1-1/4	35 x 30	258015
1-1/2	35	258016
2 x 1-1/2	50 x 35	258017
2	50	258018

Female Adapters Compression x FIPT

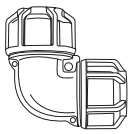


3/4 x 1/2	20 x 15	258019
3/4	20	258020
1 x 3/4	25 x 20	258021
1	25	258022
1-1/4 x 1	30 x 25	258023
1-1/4	30	258024
1-1/2 x 1-1/4	35 x 30	258025
1-1/2	35	258026
2 x 1-1/2	50 x 35	258027
2	50	258028

Elbow Compression x Compression

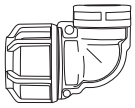
3/4	20	258029
1	25	258030
1-1/4	30	258031
1-1/2	35	258032
2	50	258033

Elbow Compression x FIPT



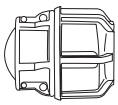
Dimension inches	Dimension mm	Product Code
3/4	20	258034
1 x 3/4	25 x 20	258035
1	25	258036
1-1/4 x 1	30 x 25	258037
1-1/4	30	258038
1-1/2 x 1-1/4	35 x 30	258039
1-1/2	35	258040

Elbow Compression x FIPT



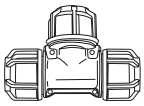
3/4	20	258151
1	25	258152
1-1/4	30	258153
1-1/2	35	258154

End Caps Compression



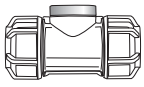
3/4	20	258042
1	25	258043
1-1/4	30	258044
1-1/2	35	258045

Tee Compression



3/4	20	258042
1	25	258043
1-1/4	30	258044
1-1/2	35	258045

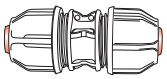
Tee Compression x Compression x FIPT



3/4	20	258047
1 x 3/4	25 x 20	258048
1	25	258049
1-1/4 x 3/4	30 x 20	258050
1-1/4 x 1	30 x 25	258051
1-1/4	30	258052
1-1/2 x 3/4	35 x 20	258053
1-1/2 x 1-1/4	35 x 30	258054
1-1/2	35	258055

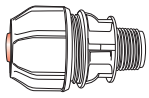
PRODUCT SELECTION CHART – ID SERIES FITTINGS

Couplings Compression x Compression



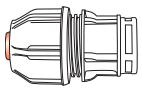
Dimension inches	Dimension mm	Product Code
1/2	15	258059
3/4 x 1/2	20 x 15	258065
3/4	20	258060
1	25	258061
1-1/4	30	258062
1-1/2	35	258063
2	50	258064

Male Adapters Compression x MIPT



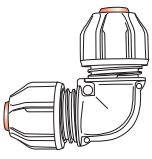
Dimension inches	Dimension mm	Product Code
1/2	15	258066
1/2 x 3/4	15 x 20	258067
3/4 x 1/2	20 x 15	258068
3/4	20	258069
3/4 x 1	20 x 25	258070
1 x 3/4	25 x 20	258071
1	25	258072
1 x 1-1/4	25 x 30	258073
1-1/4 x 1	30 x 25	258074
1-1/4	30	258075
1-1/4 x 1-1/2	30 x 35	258076
1-1/2	35	258077
1-1/2 x 2	35 x 50	258078
2	50	258079

Female Adapters Compression x FIPT



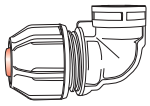
Dimension inches	Dimension mm	Product Code
1/2	15	258080
1/2 x 3/4	15 x 20	258081
3/4	20	258082
3/4 x 1	20 x 25	258083
1	25	258084
1 x 1-1/4	25 x 30	258085
1-1/4	30	258086
1-1/4 x 1-1/2	30 x 35	258087
1-1/2	35	258088
1-1/2 x 2	35 x 50	258089
2	50	258090

Elbow Compression x Compression



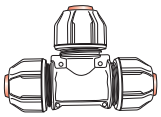
Dimension inches	Dimension mm	Product Code
1/2	15	258091
3/4	20	258092
1	25	258093
1-1/4	30	258094
1-1/2	35	258095
2	50	258096

Elbow Compression x FIPT



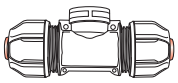
Dimension inches	Dimension mm	Product Code
1/2 x 3/4	15 x 20	258097
3/4	20	258098
3/4 x 1	20 x 25	258099
1	25	258100
1 x 1-1/4	25 x 30	258101
1-1/4	30	258130

Tee Compression



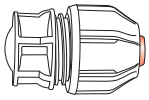
Dimension inches	Dimension mm	Product Code
1/2	15	258102
3/4	20	258103
1	25	258104
1-1/4	30	258105
1-1/2	35	258106

Tee Compression x Compression x FIPT



Dimension inches	Dimension mm	Product Code
3/4	20	258107
1 x 1/2	25 x 15	258108
1	25	258109
1-1/4 x 1/2	30 x 15	258110
1-1/4 x 3/4	30 x 20	258111
1-1/4 x 1-1/2	30 x 35	258112
1-1/2 x 2	35 x 50	258113

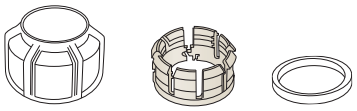
End Caps Compression



Dimension inches	Dimension mm	Product Code
1/2	15	258114
3/4	20	258115
1	25	258116
1-1/4	30	258117
1-1/2	35	258118
2	50	258183

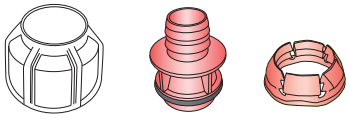
PRODUCT SELECTION CHART – ADAPTER KITS

CTS Adapter Kit (Includes Gold Collet, CTS Nut, CTS Seal)



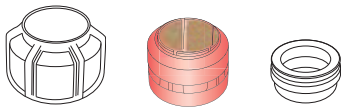
Dimension		Product Code
inches	mm	
3/4	20	258132
1	25	258133
1-1/4	30	258134
1-1/2	35	258135

ID Series Adapter Kit (Includes Red Collet, Red Insert, ID Series Nut, ID Series Seal)



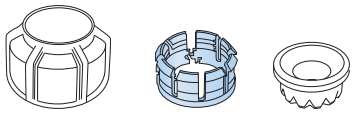
1/2	15	258137
3/4	20	258138
1	25	258139
1-1/4	30	258140
1-1/2	35	258141
2	50	258142

Copper Adapter Kit (Includes Brown Carborundum Gripper, Copper Nut, Copper Seal)



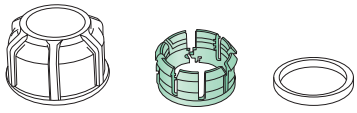
1/2	15	258119
3/4	20	258120
1	25	258121

Q-Line Adapter Kit (Includes Blue Collet, Q-Line Nut, Q-Line Seal)



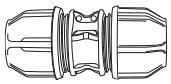
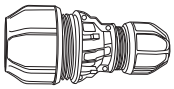
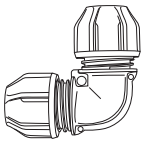
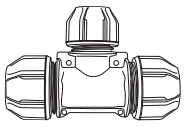
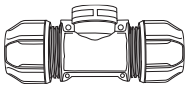
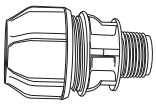
1/2	15	258122
3/4	20	258123
1	25	258124

IPS OD Adapter Kit (Includes Green Collet, IPS Nut, IPS Seal)



3/4	20	258125
1	25	258126
1-1/4	30	258127
1-1/2	35	258128
2	50	258129

PRODUCT SELECTION CHART – UNIVERSAL TRANSITION COUPLINGS (UTC) & FITTINGS

	Dimension mm	Product Code
Coupling UTC x UTC		
	15 - 21 x 15 - 21	255208
	21 - 27 x 21 - 27	255209
	27 - 34 x 27 - 34	255210
	34 - 39 x 34 - 39	255946
	39 - 43 x 39 - 43	255211
	47 - 49 x 47 - 49	255947
	59 - 61 x 59 - 61	255948
Reducing Coupling UTC x UTC		
	21 - 27 x 15 - 21	255212
	27 - 34 x 15 - 21	255214
	27 - 34 x 21 - 27	255213
	34 - 39 x 27 - 34	255197
	39 - 43 x 27 - 34	255215
Elbow UTC x UTC		
	15 - 21 x 15 - 21	255156
	21 - 27 x 21 - 27	255157
Tee UTC x UTC x UTC		
	15 - 21 x 15 - 21 x 15 - 21	255158
Tee UTC x UTC x FIPT		
	15 - 21 x 3/4 FIPT	255159
	21 - 27 x 3/4 FIPT	255167
Adapter UTC x MIPT		
	15 - 21 x 3/4 MIPT	255169
	21 - 27 x 3/4 MIPT	255344
	27 - 34 x 3/4 MIPT	255345
	27 - 34 x 1 MIPT	255196

* Item is non-stock, special order

With a long-proven track record for reliable, watertight performance underground, IPEX offers the widest range of industrial and domestic, sanitary and storm water sewage conveyance systems available on the market today. Third-party certified to applicable industry standards, all of our state-of-the-art PVC gravity sewer systems are engineered and manufactured to virtually eliminate the leakage and infiltration common with traditional materials like concrete.

SEWER PIPING SYSTEMS




RING-TITE /ENVIRO-TITE PIPING SYSTEMS

Ring-Tite
4" - 60" (100mm - 1500mm)

Enviro-Tite
4" - 15" (100mm - 375mm)

Ring-Tite® Enviro-Tite®

Ring-Tite and Enviro-Tite piping systems are DR35 and DR28 sewer pipes manufactured to demanding ASTM and CSA standards. The two products are identical except for Enviro-Tite having a minimum recycled material content of 50%. Both products have tight joints that can withstand well in excess of both the ASTM and CSA requirements.

APPLICATIONS

- Gravity Flow Sanitary Sewers
- Storm Sewers
- Sewer Laterals
- Industrial Effluent Lines

STANDARDS

RING-TITE

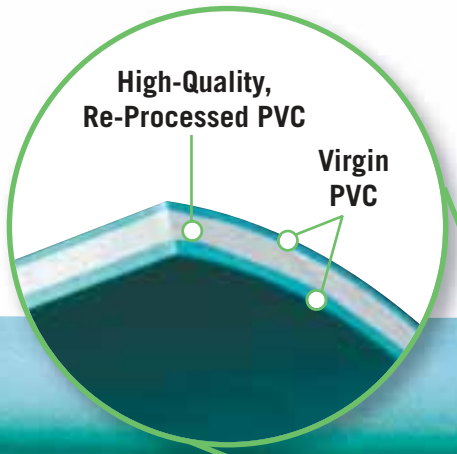
B182.2	3624-130/135	ASTM MEMBER D3034 & F679

ENVIRO-TITE

B182.7	3624-130/135	ASTM MEMBER F1760

ADVANTAGES

1. **Corrosion-proof Performance**
   IPEX Ring-Tite and Enviro-Tite systems are immune to corrosion from aggressive soils and galvanic action. In addition, H_2S and other aggressive chemicals common in sanitary sewage have no effect.
2. **Tight Joints & Lower Treatment Costs**
   Eliminate infiltration and exfiltration. Ring-Tite and Enviro-Tite joints easily outperform concrete and corrugated PE joints.
3. **Third-Party Certification**
   IPEX Ring-Tite and Enviro-Tite systems are certified to CSA B182.2. Third party certification is your verification that the product will perform as stated.
4. **High Flow Capacity**
   IPEX's PVC pipe and fittings are manufactured with smooth inner walls and provide systems with a Manning coefficient of 0.009, allowing for use of smaller diameters of pipe when compared to rough walled pipe.



50% Enviro-Tite®

SHORT FORM SPECIFICATIONS

GENERAL
Main line sewers will be PVC DR35 sewer pipe and shall be in compliance with ASTM D3034 or ASTM F1760 and third-party certified to CSA B182.2. Sewer laterals will be PVC DR28 sewer pipe and shall be third-party certified by CSA as above.

JOINTS
Sealing gaskets must meet the requirements of ASTM D3034 or ASTM F1760 or CSA B182.2. In addition, the pipe joints must be able to withstand a minimum hydrostatic pressure of 50 psi (345 kPa) without leakage.

PIPE STIFFNESS
The minimum ring stiffness shall be 46 psi (320 kPa) for DR35 pipe and 90 psi (625 kPa) for DR 28. This stiffness will be determined using the test methods prescribed by ASTM D3034 and ASTM F1760.

FITTINGS
Injection-moulded gasketed PVC fittings shall meet the requirements of ASTM D3034 and ASTM F1336 and shall be certified to CSA B182.1 or CSA B182.2. Fabricated fittings must conform to ASTM F1336 and CSA B182.2.

DIMENSIONS

	Nominal Size		Average I.D.		Min Wall Thickness		Average O.D.	
	in	mm	in	mm	in	mm	in	mm
DR35								
	4	100	3.97	100.94	0.12	3.06	4.21	107.06
	5	135	5.32	135.08	0.16	4.09	5.64	143.26
	6	150	5.92	150.29	0.18	4.55	6.28	159.39
	8	200	7.92	201.16	0.24	6.10	8.40	213.36
	10	250	9.90	251.46	0.30	7.62	10.50	266.70
	12	300	11.79	299.36	0.36	9.07	12.50	317.50
	15	375	14.43	366.42	0.44	11.10	15.30	388.62
	18	450	17.63	447.87	0.53	13.57	18.70	475.01
	21	525	20.79	527.99	0.63	16.00	22.05	559.99
	24	600	23.39	594.00	0.71	18.00	24.80	630.00
	27	675	26.36	669.42	0.80	20.29	27.95	710.00
	30	750	30.17	766.36	0.91	23.22	32.00	812.80
	36	900	36.11	917.22	1.09	27.79	38.30	972.80
	42	1050	41.95	1065.72	1.27	32.29	44.50	1130.30
	48	1200	47.89	1216.56	1.45	36.87	50.79	1290.30
	54	1350	54.27	1378.49	1.64	41.77	57.55	1462.00
	60	1500	58.08	1475.48	1.76	44.71	61.61	1564.90
DR28								
	4	100	3.91	99.42	0.15	3.82	4.21	107.06
	5	135	5.24	133.02	0.20	5.12	5.64	143.26
	6	150	5.83	148.01	0.22	5.69	6.28	159.39

PRODUCTION SELECTION CHART

Ring-Tite PVC Gravity Sewer Pipe DR28

	Dimension inches	Dimension mm	Product Code
Green	4	100	042074
	5	135	042075
	6	150	042076
White	4	100	042164
	5	135	042078
	6	150	042166

Ring-Tite PVC Gravity Sewer Pipe DR35

	Dimension inches	Dimension mm	Product Code
Green	4	100	039204
	5	135	039150
	6	150	039206
	8	200	041148
	10	250	041149
	12	300	041412
	15	375	041152
	18	450	041448
	21	525	041449
	24	600	041450
	27	675	041451
	30	750	041459
	36	900	041453
	42	1050	041481
	48	1200	041038
	54	1350	041040
	60	1500	041039
White	8	200	041008
	10	250	041016
	12	300	041021
	15	375	041027

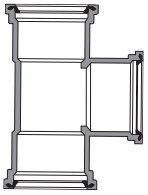
Enviro-Tite PVC Sewer Pipe DR28

	Dimension inches	Dimension mm	Product Code
Green	4	100	042036
	5	135	042037
	6	150	042038
White	4	100	042114
	5	135	042115
	6	150	042116

Enviro-Tite PVC Sewer Pipe DR35

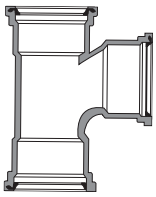
	Dimension inches	Dimension mm	Product Code
Green	4	100	039207
	5	135	039208
	6	150	039209
	8	200	041850
	10	250	041851
	12	300	041852
	15	375	041855

Tee G x G x G



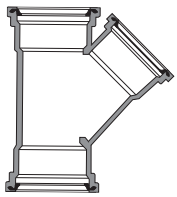
Dimension inches	Dimension mm	Product Code
4	100	043104
5	135	043443
6 x 4	150 x 100	043105
6	150	043106
8 x 4	200 x 100	043094
8 x 5	200 x 135	043095
8 x 6	200 x 150	043096
8	200	043098
10 x 4	250 x 100	043102
10 x 5	250 x 135	043085
10 x 6	250 x 150	043099
10 x 8	250 x 200	043108
10	250	043089
12 x 4	300 x 100	043091
12 x 5	300 x 135	043109
12 x 6	300 x 150	043103
12 x 8	300 x 200	043100
12 x 10	300 x 250	043078
12	300	043101
15 x 4	375 x 100	043092
15 x 5	375 x 135	043246
15 x 6	375 x 150	043110
15 x 8	375 x 200	043111
15 x 10	375 x 250	043112
15 x 12	375 x 300	043113
15	375	043107
18 x 4	450 x 100	043912
18 x 6	450 x 150	043114
18 x 8	450 x 200	043891
18 x 10	450 x 250	043911
18 x 12	450 x 300	043910
18 x 15	450 x 375	043347
18	450	043444
21 x 4	525 x 100	043004
21 x 6	525 x 150	043115
21 x 8	525 x 200	043908
21 x 10	525 x 250	043907
21 x 12	525 x 300	043889
21 x 15	525 x 375	*
21 x 18	525 x 450	043349
21	525	043906
24 x 4	600 x 100	043809
24 x 6	600 x 150	043351
24 x 8	600 x 200	043905
24 x 10	600 x 250	043353
24 x 12	600 x 300	043359
24 x 15	600 x 375	043037
24 x 18	600 x 450	043045
24 x 21	600 x 525	043354
24	600	043044
27 x 4	675 x 100	*
27 x 6	675 x 150	043888
27 x 8	675 x 200	*
27 x 10	675 x 250	043360
27 x 12	675 x 300	*
27 x 15	675 x 375	*
27 x 18	675 x 450	*
27 x 21	675 x 525	*
27 x 24	675 x 600	*
27	675	*

Tee Wye G x G x G



Dimension		Product Code
inches	mm	
4	100	043156
6 x 4	150 x 100	043158
6	150	043449
8 x 4	200 x 100	043159
8 x 6	200 x 150	043160
8	200	043450
10 x 4	250 x 100	043693
10 x 6	250 x 150	043451
10 x 8	250 x 200	043452
12 x 4	300 x 100	043453
12 x 6	300 x 150	043454
12 x 8	300 x 200	043455
15 x 4	375 x 100	043456
15 x 6	375 x 150	043457
15 x 8	375 x 200	043458
18 x 4	450 x 100	043999
18 x 6	450 x 150	043459
18 x 8	450 x 200	043460
21 x 4	525 x 100	*
21 x 6	525 x 150	043116
21 x 8	525 x 200	*
24 x 4	600 x 100	043046
24 x 6	600 x 150	*
24 x 8	600 x 200	*
27 x 4	675 x 100	*
27 x 6	675 x 150	*

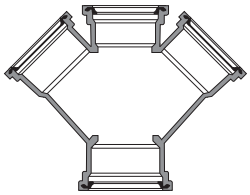
45° Wye G x G x G



Dimension		Product Code
inches	mm	
4	100	043304
5 x 4	135 x 100	043303
5	135	043305
6 x 4	150 x 100	043307
6	150	043306
8 x 4	200 x 100	043294
8 x 6	200 x 150	043296
8	200	043298
10 x 4	250 x 100	043311
10 x 6	250 x 150	043312
10 x 8	250 x 200	043313
10	250	043308
12 x 4	300 x 100	043319
12 x 6	300 x 150	043276
12 x 8	300 x 200	043314
12 x 10	300 x 250	043315
12	300	043309
15 x 4	375 x 100	043320
15 x 6	375 x 150	043153
15 x 8	375 x 200	043316
15 x 10	375 x 250	043317
15 x 12	375 x 300	043318
15	375	043310
18 x 4	450 x 100	043904
18 x 6	450 x 150	043903
18 x 8	450 x 200	043902
18 x 10	450 x 250	043362
18 x 12	450 x 300	043363
18 x 15	450 x 375	043901
18	450	043900
21 x 4	525 x 100	043899
21 x 6	525 x 150	043898
21 x 8	525 x 200	043897
21 x 10	525 x 250	043896
21 x 12	525 x 300	043895
21 x 15	525 x 375	043894
21 x 18	525 x 450	043893
21	525	043467
24 x 4	600 x 100	043488
24 x 6	600 x 150	043364
24 x 8	600 x 200	043799
24 x 10	600 x 250	043892
24 x 12	600 x 300	043042
24 x 15	600 x 375	043554
24 x 18	600 x 450	043041
24 x 21	600 x 525	*
24	600	043040
27 x 4	675 x 100	043551
27 x 6	675 x 150	043787
27 x 8	675 x 200	043549
27 x 10	675 x 250	043890
27 x 12	675 x 300	*
27 x 15	675 x 375	*
27 x 18	675 x 450	*
27 x 21	675 x 525	*
27 x 24	675 x 600	*
27	675	*

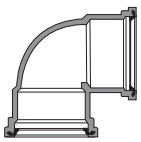
PRODUCTION SELECTION CHART

Double 45° Wye G x G x G x G



Dimension inches	Dimension mm	Product Code
6 x 4	150 x 100	043254
6	150	043255
8 x 4	200 x 100	043258
8 x 6	200 x 150	043469
8	200	043260
10 x 4	250 x 100	*
10 x 6	250 x 150	043251
12 x 4	300 x 100	*
12 x 6	300 x 150	043259
12 x 8	300 x 200	043248
15 x 4	375 x 100	*
15 x 6	375 x 150	*
15 x 8	375 x 200	*
15 x 10	375 x 250	*
15 x 12	375 x 300	*
18 x 4	450 x 100	*
18 x 6	450 x 150	*
18 x 8	450 x 200	*
18 x 10	450 x 250	*
18 x 12	450 x 300	*
18 x 15	450 x 375	*

90° Elbow G x G



Dimension inches	Dimension mm	Product Code
4	100	043214
6	150	043216
8	200	043217
10	250	043218
12	300	043219
15	375	043220
18	450	043239
21	525	043955
24	600	043989
27	675	043204

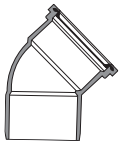
90° Elbow Sp x G

Dimension inches	Dimension mm	Product Code
4	100	043234
6	150	043236
8	200	043238
10	250	043205
12	300	043206
15	375	043221
18	450	043948
21	525	043945
24	600	043942
27	675	*

45° Elbow G x G

Dimension inches	Dimension mm	Product Code
4	100	043504
5	135	043505
6	150	043506
8	200	043507
10	250	043508
12	300	043509
15	375	043515
18	450	043971
21	525	043957
24	600	043953
27	675	043516

45° Elbow Sp x G



Dimension inches	Dimension mm	Product Code
4	100	043404
5	135	043405
6	150	043406
8	200	043407
10	250	043411
12	300	043412
15	375	043951
18	450	043203
21	525	043946
24	600	043943
27	675	*

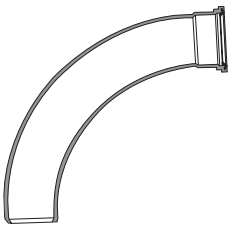
22-1/2° Elbow G x G

Dimension inches	Dimension mm	Product Code
4	100	043964
5	135	043968
6	150	043969
8	200	043963
10	250	043966
12	300	043965
15	375	043967
18	450	043174
21	525	043958
24	600	043954
27	675	043808

22-1/2° Elbow Sp x G

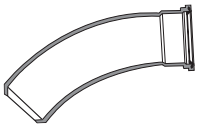
Dimension inches	Dimension mm	Product Code
4	100	043977
5	135	043976
6	150	043975
8	200	043972
10	250	043973
12	300	043974
15	375	043952
18	450	043949
21	525	043947
24	600	043944
27	675	043199

45º Long Radius Bend Sp x G



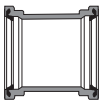
Dimension inches	Dimension mm	Product Code
4	100	043143
5	135	043365
6	150	043166
8	200	043144
10	250	043151
12	300	043152

22-1/2º Long Radius Bend Sp x G



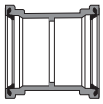
Dimension inches	Dimension mm	Product Code
4	100	043172
5	135	043366
6	150	043922
8	200	043139
10	250	043140
12	300	043141

Repair Coupling G x G (w/o pipe stop)



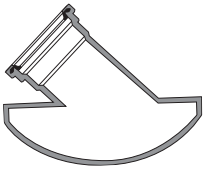
Dimension inches	Dimension mm	Product Code
4	100	043624
5	135	043625
6	150	043626
8	200	043627
10	250	043630
12	300	043631
15	375	043637
18	450	043941
21	525	043938
24	600	043937
27	675	043670

Coupling G x G (with stop)



Dimension inches	Dimension mm	Product Code
4	100	043640
5	135	043641
6	150	043643
8	200	043644
10	250	043645
12	300	043632
15	375	043638
18	450	043935
21	525	043934
24	600	043933
27	675	043940

Saddle Wye (c/w 2 straps)

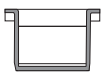


Dimension inches	Dimension mm	Product Code
6 x 4	150 x 100	043594
8 x 4	200 x 100	043595
8 x 6	200 x 150	043598
10 x 4	250 x 100	043599
10 x 6	250 x 150	043596
12 x 4	300 x 100	043600
12 x 6	300 x 150	043597
15 x 4	375 x 100	043603
15 x 6	375 x 150	043602
18 x 4	450 x 100	043440
18 x 6	450 x 150	043441
21 x 4	525 x 100	043442
21 x 6	525 x 150	*
24 x 4	600 x 100	*
24 x 6	600 x 150	043584
27 x 4	675 x 100	*
27 x 6	675 x 150	*

Saddle Tee (c/w 2 straps)

Dimension inches	Dimension mm	Product Code
6 x 4	150 x 100	043125
8 x 4	200 x 100	043124
8 x 6	200 x 150	043126
10 x 4	250 x 100	043127
10 x 6	250 x 150	043129
12 x 4	300 x 100	043130
12 x 6	300 x 150	043132
15 x 4	375 x 100	043133
15 x 6	375 x 150	043135
18 x 4	450 x 100	043429
18 x 6	450 x 150	043431
21 x 4	525 x 100	043432
21 x 6	525 x 150	043433
24 x 4	600 x 100	043434
24 x 6	600 x 150	043585
27 x 4	675 x 100	043703
27 x 6	675 x 150	043477

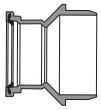
Spigot Plug



Dimension inches	Dimension mm	Product Code
4	100	043734
5	135	043735
6	150	043736
8	200	043738
10	250	043740
12	300	043741
15	375	043742
18	450	043743
21	525	043744
24	600	043745
27	675	043751

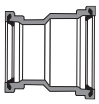
PRODUCTION SELECTION CHART

Increaser SP x G



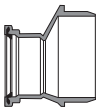
Dimension inches	Dimension mm	Product Code
5 x 4	135 x 100	043729
6 x 4	150 x 100	043939
8 x 4	200 x 100	043621
8 x 6	200 x 150	043620
10 x 4	250 x 100	043368
10 x 6	250 x 150	043618
10 x 8	250 x 200	043622
12 x 6	300 x 150	043617
12 x 8	300 x 200	043616
12 x 10	300 x 250	043623
15 x 4	375 x 100	043369
15 x 6	375 x 150	043300
15 x 8	375 x 200	043370
15 x 10	375 x 250	043371
15 x 12	375 x 300	043615
18 x 8	450 x 200	043538
18 x 10	450 x 250	043678
18 x 12	450 x 300	043629
18 x 15	450 x 375	043539
21 x 12	525 x 300	*
21 x 15	525 x 375	043288
21 x 18	525 x 450	043673
24 x 12	600 x 300	043047
24 x 15	600 x 375	043048
24 x 18	600 x 450	043674
24 x 21	600 x 525	043675
27 x 12	675 x 300	043679
27 x 15	675 x 375	*
27 x 18	675 x 450	043289
27 x 21	675 x 525	043676
27 x 24	675 x 600	043677

Increaser Coupling G x G



Dimension inches	Dimension mm	Product Code
6 x 4	150 x 100	043882
8 x 4	200 x 100	043536
8 x 6	200 x 150	043535
10 x 6	250 x 150	043528
10 x 8	250 x 200	043531
12 x 6	300 x 150	043530
12 x 8	300 x 200	043532
12 x 10	300 x 250	043520
15 x 6	375 x 150	043931
15 x 8	375 x 200	043930
15 x 10	375 x 250	043533
15 x 12	375 x 300	043534
18 x 8	450 x 200	043690
18 x 10	450 x 250	043929
18 x 12	450 x 300	043293
18 x 15	450 x 375	043928
21 x 4	525 x 100	043927
21 x 8	525 x 200	043926
21 x 10	525 x 250	043925
21 x 12	525 x 300	043924
21 x 15	525 x 375	043923
21 x 18	525 x 450	043921
24 x 4	600 x 100	043920
24 x 6	600 x 150	043919
24 x 8	600 x 200	043918
24 x 10	600 x 250	043917
24 x 12	600 x 300	043916
24 x 15	600 x 375	043915
24 x 18	600 x 450	043914
24 x 21	600 x 525	043913
27 x 12	675 x 300	*
27 x 15	675 x 375	*
27 x 18	675 x 450	*
27 x 21	675 x 525	*
27 x 24	675 x 600	*

Eccentric Increaser Sp x G



6 x 4	150 x 100	043237
10 x 4	250 x 100	043268
10 x 5	250 x 135	043655
10 x 6	250 x 150	043269
10 x 8	250 x 200	043270
12 x 4	300 x 100	043271
12 x 5	300 x 135	043656
12 x 6	300 x 150	043272
12 x 8	300 x 200	043273
12 x 10	300 x 250	043274
15 x 4	375 x 100	043275
15 x 6	375 x 150	043277
15 x 8	375 x 200	043278
15 x 10	375 x 250	043279
15 x 12	375 x 300	043280
18 x 4	450 x 100	043281
18 x 6	450 x 150	043282
18 x 8	450 x 200	043230
18 x 10	450 x 250	043512
18 x 12	450 x 300	043283
18 x 15	450 x 375	043284
21 x 15	525 x 375	043285
21 x 18	525 x 450	*
24 x 18	600 x 450	*
24 x 21	600 x 525	*
27 x 21	675 x 525	*
27 x 24	675 x 600	*

Cap

Dimension inches	Dimension mm	Product Code
4	100	043959
5	135	043960
6	150	043988
8	200	043961
10	250	043886
12	300	043987
15	375	043962
18	450	043746
21	525	043747
24	600	043168
27	675	043749

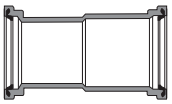
Bell Cleanout Adapter

Dimension inches	Dimension mm	Product Code
6	150	043760

Spigot Cleanout Adapter

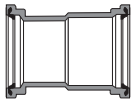
Dimension inches	Dimension mm	Product Code
6	150	043750

Adapter Coupling G x G (PVC Sp to ABS)



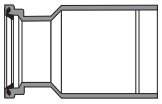
Dimension inches	Dimension mm	Product Code
4	100	043712
5 x 4	135 x 100	043711
6 x 4	150 x 100	043713

Adapter Coupling G x G (PVC Sp to AC Sp)



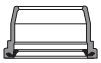
Dimension inches	Dimension mm	Product Code
4	100	043720
5 x 4	135 x 100	043642

Clay Tile Adapter Sp x Sp (Clay G to PVC G)



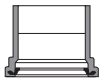
Dimension inches	Dimension mm	Product Code
4	100	043169
6	150	043170
8	200	043171

M Adapter Sp x G



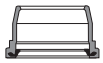
Dimension inches	Dimension mm	Product Code
6	150	081319

Adapter PVC Gasket x PVC Hub (G x Solvent Weld Hub)



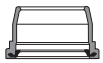
Dimension inches	Dimension mm	Product Code
4	100	043858

Bushing Adapter AC Bell x PVC Sp (Sp x G)



Dimension inches	Dimension mm	Product Code
4 x 4	100 x 100	043724
8 x 8	200 x 200	043727

Bushing Adapter PVC Bell x AC Sp (Sp x G)



Dimension inches	Dimension mm	Product Code
6 x 5	150 x 135	043619

Adapter PVC Bell (off concrete main)

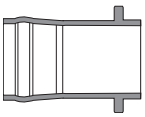
Dimension inches	Dimension mm	Product Code
4	100	043770
6	150	043771
8	200	043772

PRODUCTION SELECTION CHART

Manhole Gasket Adapter

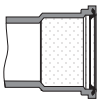
Dimension inches	Dimension mm	Product Code
4	100	043050
5	135	043056
6	150	043051
8	200	043052
10	250	043053
12	300	043054
15	375	043055
18	450	043295
21	525	*
24	600	043058

Wing Adapter (mortar-on)



Dimension inches	Dimension mm	Product Code
4	100	043190
5	135	043192
6	150	043191
8	200	043193
10	250	043194
12	300	043195
15	375	043196
18	450	*
21	525	*
24	600	*
27	675	*

Sanded Manhole Bell (w/o stop)

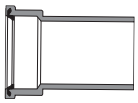


Dimension inches	Dimension mm	Product Code
4	100	043060
5	135	043334
6	150	043061
8	200	043063
10	250	043064
12	300	043065
15	375	043062
18	450	043066
21	525	043067
24	600	043068
27	675	043591

Universal Storm Sewer Saddle (c/w Bell & Seating Gasket)

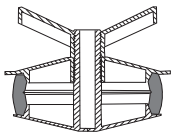
Dimension inches	Dimension mm	Product Code
4	100	082244
5	135	082245
6	150	082246
8	200	082248

Manhole Adapter G x SP (24"/600mm long)



Dimension inches	Dimension mm	Product Code
4	100	043297
5	135	043299
6	150	043301
8	200	043302
10	250	043328
12	300	043329
15	375	043330
18	450	043331
21	525	043548
24	600	043332
27	675	*

Hand Tight Expansion End Plug



Dimension inches	Dimension mm	Product Code
4	100	043200
5	135	043201
6	150	043202
8	200	043212

Stainless Steel Strap

Dimension inches	Dimension mm	Product Code
6	150	043346
8	200	043348
10	250	043350
12	300	043352

	Dimension		Product Code
	inches	mm	
Lubricant			
	1 kg container		074811
	4 kg container		074812
InsertaTees (for DR35 PVC Sewer Pipe)			
	8 x 4	200 x 100	072434
	10 x 4	250 x 100	072440
	10 x 6	250 x 150	072441
	12 x 4	300 x 100	072436
	12 x 6	300 x 150	072437
	12 x 8	300 x 200	072442
	15 x 4	375 x 100	072438
	15 x 6	375 x 150	072443
	15 x 8	375 x 200	072444
	18 x 4	450 x 100	072439
	18 x 6	450 x 150	072445
	18 x 8	450 x 200	072446
	18 x 10	450 x 250	072447
	18 x 12	450 x 300	072448
	21 x 4	525 x 100	072449
	21 x 6	525 x 150	072450
	21 x 8	525 x 200	072451
	21 x 10	525 x 250	072452
	21 x 12	525 x 300	072453
	21 x 15	525 x 375	-
	24 x 4	600 x 100	072583
	24 x 6	600 x 150	072584
	24 x 8	600 x 200	072585
	24 x 10	600 x 250	072586
	24 x 12	600 x 300	072587
	27 x 4	675 x 100	072588
	27 x 6	675 x 150	072589
	27 x 8	675 x 200	072590
	27 x 10	675 x 250	072591
	27 x 12	675 x 300	072592
*	30 x 4	750 x 100	072593
*	30 x 6	750 x 150	072594
*	30 x 8	750 x 200	072595
*	30 x 10	750 x 250	072596
*	30 x 12	750 x 300	072597
**	36 x 4	900 x 100	072598
**	36 x 6	900 x 150	072599
**	36 x 8	900 x 200	072600
**	36 x 10	900 x 250	072601
**	36 x 12	900 x 300	072602

* 30" DR35 32.000" O.D. Pipe w .915 WT Pipe
** 36" DR35 38.300" O.D. Pipe w 1.100 WT Pipe

ULTRA-RIB PIPING SYSTEMS

8" - 24" (200mm - 600mm)

Ultra-Rib®

IPEX Ultra-Rib® is a gravity flow PVC sewer pipe with concentric reinforcing ribs that encircle the pipe to provide superior ring stiffness and performance. It is an extruded, seamless pipe made from high grade PVC compound.

Ultra-Rib is available in standard sewer sizes from 200mm to 600mm (8" – 24"). Its optimized profile design offers strength and reliability, as well as economy and superior flow rates.

APPLICATIONS

- Sanitary and Storm Sewers
- Industrial Lines
- Highway & Culvert

STANDARDS

ASTM D1784 F477 | CSA 3624-135 | CSA B182.4

DID YOU KNOW?

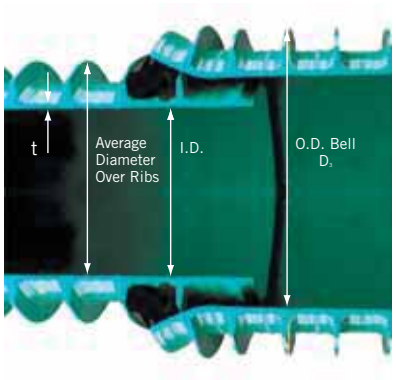
Ultra-Rib seamless 'Open Profile' wall has the same stiffness as DR35, but with a more efficient use of structural material.

ADVANTAGES

1. **Tight Joints and Lower Treatment Costs**
   Eliminate infiltration and exfiltration. Ultra-Rib's 50 psi capable joints easily outperform concrete and corrugated PE joints.
2. **Superior Flow Characteristics**
   Because of the smooth inside wall of Ultra-Rib, a Manning's number of 0.009 can be used when designing systems using Ultra-Rib pipe. This compares with Manning's numbers of up to 0.023 for other materials like clay or concrete.
3. **Abrasion Resistance**
   Ultra-Rib has been proven to be more abrasion resistant than other profile pipes, and has out-performed concrete pipe in testing at California State University.
4. **Chemical Resistance**
   PVC is virtually immune to chemical attack from any type of sewage. Hydrogen sulphide attack, which causes millions of dollars of damage to concrete and metal infrastructure, will not affect Ultra-Rib.
5. **Stress Crack Resistance**
   While some HDPE pipes have been found to crack prematurely under load, Ultra-Rib's tough PVC construction and superior formulation has been proven to be immune to these problems.

DIMENSIONS

Pipe Size		Average I.D. d		Average Diameter Over Ribs D		O.D. at Bell D_3		Waterway Wall t	
in	mm	in	mm	in	mm	in	mm	in	mm
8	200	7.89	200	8.80	224	9.78	248	0.087	2.20
10	250	9.86	251	11.00	280	12.22	311	0.091	2.30
12	300	11.74	298	13.10	333	14.59	371	0.102	2.60
15	375	14.37	365	16.04	408	17.82	453	0.110	2.80
18	450	17.65	448	19.57	497	21.77	553	0.130	3.30
21	525	20.75	527	22.80	579	25.14	638	0.160	4.06
24	600	23.50	597	25.61	650	28.24	717	0.180	4.58



SHORT FORM SPECIFICATIONS

GENERAL
IPEX Ultra-Rib PVC Pipe is available in sizes 8, 10, 12, 15, 18, 21 and 24 inch (200mm - 600mm)

MATERIAL
Ultra-Rib PVC Pipe shall be made of PVC compound having a cell classification of 12454B as defined in ASTM D1784B.

PRODUCT
The pipe shall be extruded with a smooth interior and with solid reinforcing ribs on the exterior at right angles to the pipe. The space between any two ribs serves as a gasket race.

Ultra-Rib PVC pipe and fittings shall be certified to CSA B182.4 “Profile (Ribbed) PVC Sewer Pipe and Fittings”, and shall meet the requirements of ASTM F794 “Standard Specification for Poly (Vinyl Chloride) (PVC) Ribbed Gravity Sanitary Pipe and Fittings Based on Controlled Inside Diameter”.

PIPE STIFFNESS
Pipe stiffness must be 46 lbs/in of sample length/inch of deflection at 5% vertical deflection when tested according to ASTM D2412.

JOINTS
Gaskets for use with Ultra-Rib pipe are manufactured from EPDM and are designed specifically for use with Ultra-Rib pipe. This unique design is also available in Nitrile.

Sealing gaskets shall meet the requirements of CSA B182.4 and ASTM F477, with the additional requirement that joints shall be able to withstand 345 kPa (50 psi) hydrostatic pressure.

The joint will not leak at 10.8 psi or 25' of head with 22" Hg vacuum with spigot under 5% ring deflection and joint at full axial deflection.

MOLDED FITTINGS
Injection-molded gasketed PVC fittings of ribbed construction shall be certified to CSA B182.1 or CSA B182.2 and used for direct connection to Ultra-Rib pipes in available sizes.

FABRICATED FITTINGS
Fittings fabricated for use with Ultra-Rib pipe shall be certified to CSA B182.4 or ASTM F794 and may include legs of PVC pipe meeting CSA B182.1, B182.2 or ASTM D3034 or F679.

LUBRICANT
Assembly of Ultra-Rib pipe and fittings shall be done in accordance with the manufacturer’s directions using only IPEX PVC pipe lubricant. Substitute lubricants shall not be used. IPEX lubricant shall be applied to the inside of the bell to be joined, to a uniform thickness for a distance inside the bell equivalent to three ribs from outside edge.

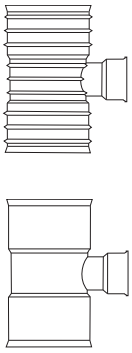
COLOR CODING
Pipe shall be color coded green.

PRODUCT SELECTION CHART

Ultra-Rib Pipe

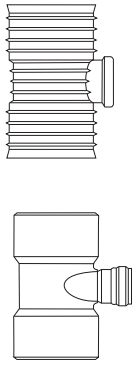
Dimension inches	Dimension mm	Product Code
8	200	086008
10	250	086010
12	300	086012
15	375	086015
18	450	086018
21	525	086021
24	600	086024

Tee B x B x B (Ultra-Rib x Ultra-Rib x Ultra-Rib)



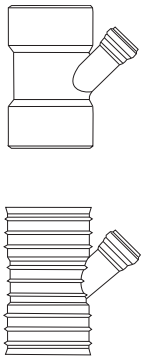
Dimension inches	Dimension mm	Product Code
8	200	087100
10 x 8	250 x 200	087101
10	250	087102
12 x 8	300 x 200	087103
12 x 10	300 x 250	087104
12	300	087105
15 x 8	375 x 200	087106
15 x 10	375 x 250	087107
15 x 12	375 x 300	087108
15	375	087109
18 x 8	450 x 200	087110
18 x 10	450 x 250	087111
18 x 12	450 x 300	087112
18 x 15	450 x 375	087113
18	450	087114
21 x 8	525 x 200	087115
21 x 10	525 x 250	087116
21 x 12	525 x 300	087117
21 x 15	525 x 375	087118
21 x 18	525 x 450	087119
21	525	087120
24 x 8	600 x 200	087121
24 x 10	600 x 250	087720
24 x 12	600 x 300	087123
24 x 15	600 x 375	087124
24 x 18	600 x 450	087125
24 x 21	600 x 525	087126
24	600	087127

Tee B x B x G (Ultra-Rib x Ultra-Rib x DR35 or 28)



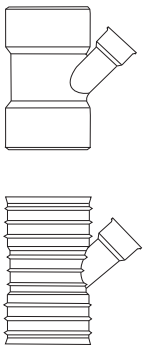
Dimension inches	Dimension mm	Product Code
8 x 4	200 x 100	087150
8 x 5	200 x 135	087151
8 x 6	200 x 150	087152
8	200	087153
10 x 4	250 x 100	087154
10 x 5	250 x 135	087155
10 x 6	250 x 150	087156
10 x 8	250 x 200	087157
12 x 4	300 x 100	087159
12 x 5	300 x 135	087160
12 x 6	300 x 150	087161
12 x 8	300 x 200	087162
12 x 10	300 x 250	087163
12	300	087164
15 x 4	375 x 100	087165
15 x 5	375 x 135	087166
15 x 6	375 x 150	087167
15 x 8	375 x 200	087168
15 x 10	375 x 250	087169
15 x 12	375 x 300	087170
18 x 4	450 x 100	087172
18 x 5	450 x 135	087173
18 x 6	450 x 150	087174
18 x 8	450 x 200	087175
18 x 10	450 x 250	087176
18 x 12	450 x 300	087177
18 x 15	450 x 375	087178
18	450	087179
21 x 4	525 x 100	087180
21 x 5	525 x 135	087181
21 x 6	525 x 150	087182
21 x 8	525 x 200	087183
21 x 10	525 x 250	087184
21 x 12	525 x 300	087185
21 x 15	525 x 375	087186
21 x 18	525 x 450	087187
21	525	087188
24 x 4	600 x 100	087190
24 x 5	600 x 135	087199
24 x 6	600 x 150	087191
24 x 8	600 x 200	087192
24 x 10	600 x 250	087193
24 x 12	600 x 300	087194
24 x 18	600 x 450	087196
24 x 21	600 x 525	087197
24	600	087198

Wye B x B x G (Ultra-Rib x Ultra-Rib x DR35 or 28)



Dimension inches	Dimension mm	Product Code
8 x 4	200 x 100	087250
8 x 5	200 x 135	087251
8 x 6	200 x 150	087252
8	200	087253
10 x 4	250 x 100	087254
10 x 5	250 x 135	087255
10 x 6	250 x 150	087256
10 x 8	250 x 200	087257
10	250	087258
12 x 4	300 x 100	087259
12 x 5	300 x 135	087260
12 x 6	300 x 150	087261
12 x 8	300 x 200	087262
12 x 10	300 x 250	087263
12	300	087264
15 x 4	375 x 100	087265
15 x 5	375 x 135	087266
15 x 6	375 x 150	087267
15 x 8	375 x 200	087268
15 x 10	375 x 250	087269
15 x 12	375 x 300	087270
15	375	087271
18 x 4	450 x 100	087272
18 x 5	450 x 135	087273
18 x 6	450 x 150	087274
18 x 8	450 x 200	087275
18 x 10	450 x 250	087276
18 x 12	450 x 300	087277
18 x 15	450 x 375	087278
18	450	087279
21 x 4	525 x 100	087235
21 x 5	525 x 135	087236
21 x 6	525 x 150	087237
21 x 8	525 x 200	087238
21 x 10	525 x 250	087239
21 x 12	525 x 300	087240
21 x 15	525 x 375	087241
21 x 18	525 x 450	087242
21	525	087243
24 x 4	600 x 100	087360
24 x 5	600 x 135	087359
24 x 6	600 x 150	087361
24 x 8	600 x 200	087362
24 x 10	600 x 250	087363
24 x 12	600 x 300	087364
24 x 15	600 x 375	087365
24 x 18	600 x 450	087366
24 x 21	600 x 525	087367
24	600	087368

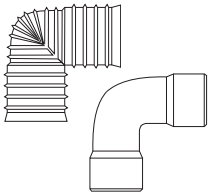
Wye B x B x B (Ultra-Rib x Ultra-Rib x Ultra-Rib)



Dimension inches	Dimension mm	Product Code
8	200	087280
10 x 8	250 x 200	087281
10	250	087282
12 x 8	300 x 200	087283
12 x 10	300 x 250	087284
12	300	087285
15 x 8	375 x 200	087286
15 x 10	375 x 250	087287
15 x 12	375 x 300	087288
15	375	087289
18 x 8	450 x 200	087290
18 x 10	450 x 250	087291
18 x 12	450 x 300	087292
18 x 15	450 x 375	087293
18	450	087294
21 x 8	525 x 200	087295
21 x 10	525 x 250	087296
21 x 12	525 x 300	087297
21 x 15	525 x 375	087298
21 x 18	525 x 450	087299
21	525	087316
24 x 8	600 x 200	087317
24 x 10	600 x 250	087318
24 x 12	600 x 300	087319
24 x 15	600 x 375	087320
24 x 18	600 x 450	087321
24 x 21	600 x 525	087322
24	600	087323

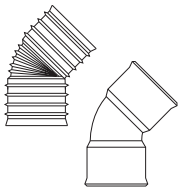
PRODUCT SELECTION CHART

90º Elbow B x B (Ultra-Rib x Ultra-Rib)



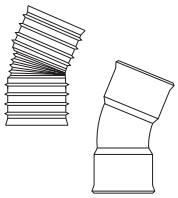
Dimension inches	Dimension mm	Product Code
8	200	087300
10	250	087301
12	300	087302
15	375	087303
18	450	087304
21	525	087305
24	600	087306

45º Elbow B x B (Ultra-Rib x Ultra-Rib)



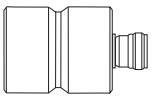
Dimension inches	Dimension mm	Product Code
8	200	087325
10	250	087326
12	300	087327
15	375	087328
18	450	087329
21	525	087330
24	600	087331

22-1/2º Elbow B x B (Ultra-Rib x Ultra-Rib)



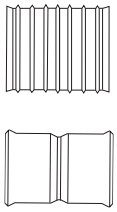
Dimension inches	Dimension mm	Product Code
8	200	087375
10	250	087376
12	300	087377
15	375	087378
18	450	087379
21	525	087380
24	600	087381

Increaser B x G (Ultra-Rib x DR35 or 28)



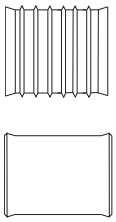
Dimension inches	Dimension mm	Product Code
8 x 4	200 x 100	087400
8 x 5	200 x 135	087401
8 x 6	200 x 150	087402
10 x 4	250 x 100	087403
10 x 5	250 x 135	087404
10 x 6	250 x 150	087405
10 x 8	250 x 200	087406
12 x 4	300 x 100	087407
12 x 5	300 x 135	087408
12 x 6	300 x 150	087409
12 x 8	300 x 200	087410
12 x 10	300 x 250	087411
15 x 4	375 x 100	087412
15 x 5	375 x 135	087413
15 x 6	375 x 150	087414
15 x 8	375 x 200	087415
15 x 10	375 x 250	087416
15 x 12	375 x 300	087417
18 x 4	450 x 100	087418
18 x 5	450 x 135	087419
18 x 6	450 x 150	087420
18 x 8	450 x 200	087421
18 x 10	450 x 250	087422
18 x 12	450 x 300	087423
18 x 15	450 x 375	087424
21 x 4	525 x 100	087482
21 x 6	525 x 150	087483
21 x 8	525 x 200	087484
21 x 10	525 x 250	087485
21 x 12	525 x 300	087486
21 x 18	525 x 450	087488
24 x 4	600 x 100	087489
24 x 6	600 x 150	087490
24 x 8	600 x 200	087491
24 x 10	600 x 250	087492
24 x 12	600 x 300	087493
24 x 15	600 x 375	087494
24 x 18	600 x 450	087495
24 x 21	600 x 525	087496

Stop Coupling B x B



Dimension inches	Dimension mm	Product Code
8	200	087450
10	250	087451
12	300	087452
15	375	087453
21	525	087455

Repair Coupling B x B

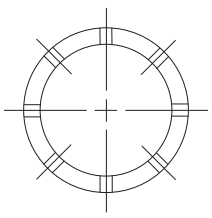


Dimension inches	Dimension mm	Product Code
8	200	087475
10	250	087476
12	300	087477
15	375	087478
18	450	087479
21	525	087480
24	600	087481

Gaskets

Dimension inches	Dimension mm	Product Code
8	200	087808
10	250	087810
12	300	087812
15	375	087915
18	450	087818
21	525	087821
24	600	087824

Standard Perforation Pattern



Hole Size = 9/16" , 14 mm
Minimum Open Area = 10,000 mm^2 / m
Other perforation types available.

Call your IPEX Inc. representative for details

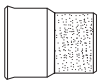
Cap B

Dimension inches	Dimension mm	Product Code
8	200	087500
10	250	087501
12	300	087502
15	375	087503
18	450	087504
21	525	087505
24	600	087506

Plug SP

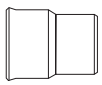
Dimension inches	Dimension mm	Product Code
8	200	087525
10	250	087526
12	300	087527
15	375	087528
18	450	087529
21	525	087530
24	600	087531

Manhole Adapter (for grout)



Dimension inches	Dimension mm	Product Code
8	200	087550
10	250	087551
12	300	087552
15	375	087553
18	450	087554
21	525	087555
24	600	087556

Ultra-Rib to DR 35 Adapter

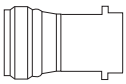


Dimension inches	Dimension mm	Product Code
8	200	087575
10	250	087576
12	300	087577
15	375	087578
18	450	087579
21	525	087580
24	600	087581

PRODUCT SELECTION CHART

Dimension		Product Code
inches	mm	

Wing Adapter (Adapts Ultra-Rib to AC, VCT or concrete Mains)



8	200	087625
10	250	087626
12	300	087627
15	375	087628
18	450	087629
21	525	087630
24	600	087631

Inserta-Tees

8 x 4	200 x 100	087650
10 x 4	250 x 100	087651
10 x 6	250 x 150	087652
10 x 8	250 x 200	087649
12 x 4	300 x 100	087653
12 x 6	300 x 150	087654
12 x 8	300 x 200	087655
12 x 10	300 x 250	**
15 x 4	375 x 100	087656
15 x 6	375 x 150	087657
15 x 8	375 x 200	087658
15 x 12	375 x 300	087648
18 x 4	450 x 100	087660
18 x 6	450 x 150	087661
18 x 8	450 x 200	087662
18 x 10	450 x 250	087663
18 x 12	450 x 300	087664
18 x 15	450 x 375	Available on Request
21 x 4	525 x 100	087665
21 x 6	525 x 150	087666
21 x 8	525 x 200	087667
21 x 10	525 x 250	087668
21 x 12	525 x 300	087674
21 x 15	525 x 375	Available on Request
24 x 4	600 x 100	087669
24 x 6	600 x 150	087670
24 x 8	600 x 200	087671
24 x 10	600 x 250	087672
24 x 12	600 x 300	087685

IPEX

Vortex Flow™
ODOR & CORROSION CONTROL

Looking for a cost-effective **solution** to sewer odor & corrosion?

Product Information & Benefits

CORROSION CONTROL

By oxidizing dissolved H_2S, a Vortex Flow Insert in a municipal sewer drop can significantly reduce concrete and metal corrosion, extending sewer life and saving the municipality money.

CHEMICAL FREE ODOR CONTROL

By increasing dissolved oxygen levels in wastewater and oxidizing sulfides and other odorous compounds, the Vortex Flow Insert eliminates the need for costly chemical injection, high-maintenance biofilters and air scrubbers.

LOW MAINTENANCE

With no moving parts, the Vortex Flow Insert operates virtually maintenance free dramatically reducing maintenance costs of manholes and sewers.

BUILT-TO-SPEC FOR ANY SIZE

Manholes, chambers and pumping stations are built in a variety of sizes. Each Vortex Flow Insert is custom designed based on the peak flow that the unit is required to handle.

Vortex Flow Inserts from IPEX are a proven method for dealing with odor and corrosion in sewer drops. Simple, cost-effective and reliable, Vortex Flow Inserts have been proven to deliver significant cost savings across North America.

Using the wastewater's own flow energy to suppress turbulence, aerate the sewage and oxidize dissolved hydrogen sulfides (H_2S), the Vortex Flow's patented spiral design sucks odorous gases downward towards the bottom of the structure where they are entrained back into the sewage flow.

Visit www.abettersewer.com to request your FREE conceptual design and learn about this one-time investment, custom designed to suit your specific sewer drop needs.

IPEX +1.800.463.9572 | www.abettersewer.com

PERFORATED SEWER PIPE (NEW ENGLAND)

4" - 6" (100mm - 150mm)

Designed for use in septic fields and for foundation drainage, our New England perforation pattern PVC sewer pipe comes with two rows of holes, and is engineered to provide even distribution of effluent from the supply header. The solvent weld assembly method offers tight joints, eliminating infiltration, exfiltration and root infestation.

APPLICATIONS

- Building Sanitary Drain and Building Storm Drain
- Building Sewer and Building Storm Sewer
- Sewer Lateral or Stub Line

STANDARDS

PVC Sewer Pipe

D2729	B182.1 B182.2	3624-130

PVC Sewer Fitting

D3034	B182.1 B182.2	

ADVANTAGES

1. **Costs Less to Operate**
   A plastic sewer system costs less to operate and maintain because it has greater flow capacity per given size and fewer joints. The pipe is flexible enough to conform to shifts and settling caused by unstable soil conditions or traffic without cracking, breaking or opening of the joints.

2. **Greater Hydraulic Efficiency**
   The greater hydraulic efficiency of BDS pipe and Manning's number of n = 0.009 results from its smooth inner wall, long lengths, and tight joints. It is not affected by sewer gases or sulfuric acid created as products of the hydrogen sulfide cycle or from aggressive soil conditions.

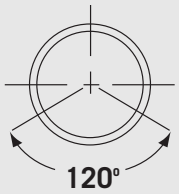
   The preceding virtues eliminate build up of slime, slime bulk and sand which improves efficiency flow and discharge over traditional materials of equivalent size for the life of the sewer system.

3. **Life Cycle**
   The economic life cycle of a PVC sewer system is projected at more than 50 years.

SHORT FORM SPECIFICATIONS

4" and 6" perforated PVC pipe shall be DR35 in 10 foot laying lengths with solvent bell ends. Pipe shall conform to requirements of ASTM D3034 and be certified to CSA B 182.1 and B 182.2.

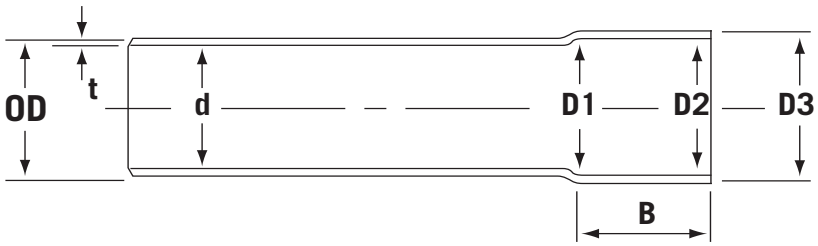
Perforations shall consist of 2 rows of 1/2" (12.7mm) holes positioned at 120° radially on the pipe. Spacing between holes shall be 5" (125mm).

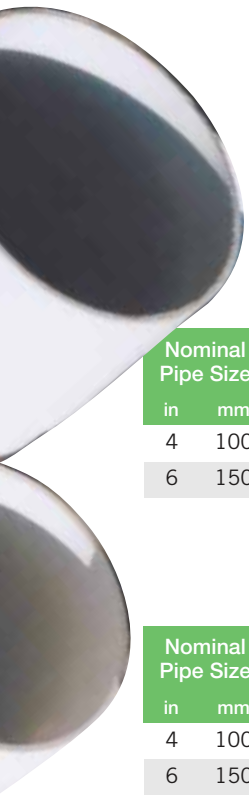


Hole Size: 1/2" (12.7mm)
Spacing: 5" O.C. (125mm)

DID YOU KNOW?

No other pipe approaches plastic pipe in terms of low weight per foot ratio to strength. The light-weight section reduces manpower needs, reduces equipment handling cost, and freight cost.





PERFORATED SEWER PIPE SELECTION CHART & PRODUCT DIMENSIONS (BELLED GASKETED)

Nominal Pipe Size		Product Code	DR	Avg Outside Diameter (O.D.)		Min. Wall Thick (t)		d		D1		D2		D3		Bell Depth B		Weight	
in	mm			in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb./100 ft.	kg/m
4	100	039143	35	4.22	107.1	0.13	3.3	3.95	100.4	4.21	106.9	4.24	107.6	4.50	114.2	1.73	43.9	107	1.6
6	150	039163	35	6.28	159.4	0.19	4.9	5.89	149.7	6.27	159.3	6.30	160.0	6.68	169.7	2.95	74.9	232	3.0

PERFORATED SEWER PIPE SELECTION CHART & PRODUCT DIMENSIONS (BELLED SOLVENT WELD)

Nominal Pipe Size		Product Code	DR	Avg Outside Diameter (O.D.)		Min. Wall Thick (t)		d		D1		D2		D3		Bell Depth B		Weight	
in	mm			in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb./100 ft.	kg/m
4	100	003649	35	4.22	107.1	0.13	3.3	3.95	100.4	4.21	106.9	4.24	107.6	4.50	114.2	1.73	43.9	107	1.6
6	150	003660	35	6.28	159.4	0.19	4.9	5.89	149.7	6.27	159.3	6.30	160.0	6.68	169.7	2.95	74.9	232	3.0

Perforated pipe is also available from 8" (200mm) to 36" (900mm).

NOVAFORM PVC LINER

For 6" - 15" (150mm - 350mm) diameters

NOVAFORM™

Across North America, aging sewer and water infrastructure has reached a critical juncture. In many cases repair and replacement is long overdue, which has led to ever increasing operating costs for municipalities. As a result, the need for a durable and cost-efficient pipe rehabilitation solution has never been more paramount. The engineers at IPEX recognized this need and have responded with NovaForm™ PVC Liner, a product that brings the lasting benefits of factory-made PVC pipe to the North American trenchless pipe rehabilitation industry.

Being made from PVC, NovaForm PVC Liner is highly-resistant to chemicals and offers excellent abrasion- and scratch-resistance properties. The smooth interior surface of PVC translates into improved hydraulic properties as well. Best of all, PVC is a sustainable pipe material which means NovaForm provides an industry leading service life.

APPLICATIONS

- Sewer Rehabilitation
- Culbert Rehabilitation

STANDARDS

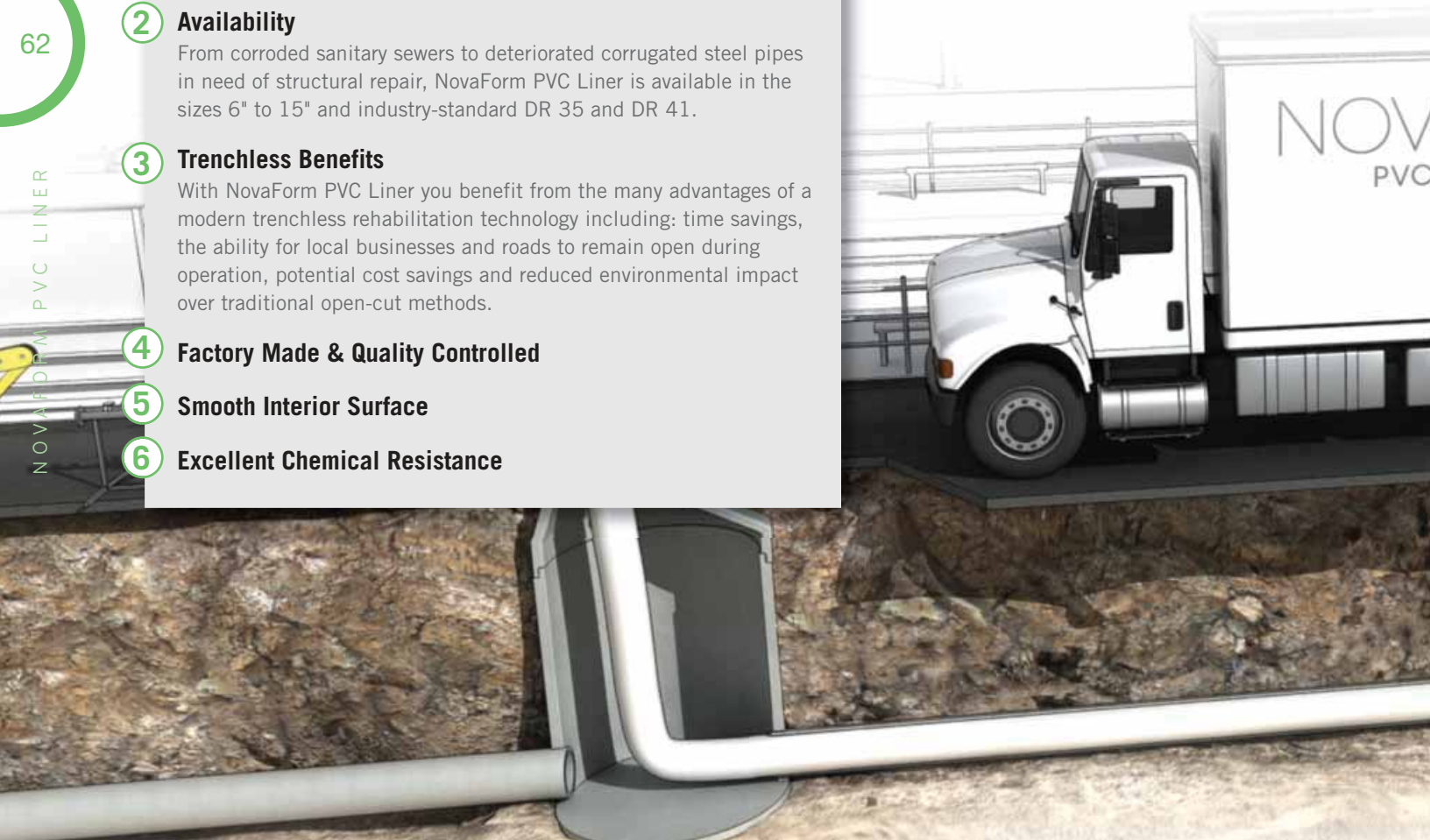
F1871

DID YOU KNOW?

Non-corroding and installation friendly PVC piping systems have become the material of choice for potable water and sewer infrastructure across North America.

ADVANTAGES

1. **Flexible, Durable, Reliable & Cost-Efficient**
   The finished NovaForm PVC Liner product provides the same proven benefits of standard PVC pipe.
2. **Availability**
   From corroded sanitary sewers to deteriorated corrugated steel pipes in need of structural repair, NovaForm PVC Liner is available in the sizes 6" to 15" and industry-standard DR 35 and DR 41.
3. **Trenchless Benefits**
   With NovaForm PVC Liner you benefit from the many advantages of a modern trenchless rehabilitation technology including: time savings, the ability for local businesses and roads to remain open during operation, potential cost savings and reduced environmental impact over traditional open-cut methods.
4. **Factory Made & Quality Controlled**
5. **Smooth Interior Surface**
6. **Excellent Chemical Resistance**



DIMENSIONS

Nominal Pipe Size		Dimension Ratio	Maximum Lengths
in	mm	in	(4' x 4' Reel)
6	150	35	1350
8	200	35	950
10	250	35	550
12	300	35	350
15	350	35	350
18	450	41	325
24	600	41	150
30	750	41	125

coming soon!

SHORT FORM SPECIFICATIONS

GENERAL
NovaForm PVC Liner is available in sizes 150mm to 350mm (6" & 15").

MATERIAL
The Pipe shall be made from PVC compound meeting all the requirements for cell classification of 12111 as defined in specification ASTM D1784 and with minimum physical properties.

PRODUCT
Pipe Flattening: There shall be no evidence of splitting, cracking or breaking when the rounded pipe is tested according to section 11.3 of ASTM F1871.
Pipe Impact Strength: The impact strength of rounded pipe shall not be less than the values when tested in accordance with test method D2444 as referenced in ASTM F1871.

PIPE STIFFNESS
Values for pipe stiffness for the rounded pipe shall comply when tested in accordance with test method D2412 as referenced in ASTM F1871.

EXTRUSION QUALITY
The extrusion quality of the pipe shall be evaluated by the following test methods:
Acetone Immersion: The pipe shall not flake or disintegrate when tested in accordance with test method D2152 as referenced in ASTM F1871.
Heat Reversion: The extrusion quality of the pipe shall be estimated by heat reversion method in accordance with practice F1057 as referenced in ASTM F1871.
Flexural Properties: The flexural strength and modulus of the pipe shall be tested in accordance with test method D790 as referenced in ASTM F1871.

COLOUR CODING
PVC Liner shall be colour-coded white.

NEXT GENERATION STORMWATER FLOW CONTROL

CONTROL BACK-UPS & CSO'S DURING PEAK FLOW EVENTS WITH TEMPEST™ INLET CONTROL DEVICES

TEMPEST LMF

The Tempest LMF system features a vortex inlet design that allows a low flow rate to be set and eliminates the passage of odors and floatables and allows for debris and sediment to collect in the structure.

TEMPEST HF

The standard Tempest HF system allows a near constant discharge rate to be set and eliminates the passage of odors and floatables and allows for debris and sediment to collect in the structure.

TEMPEST MHF

The Tempest MHF is a standard orifice plate device designed to allow a specified flow volume through the outlet pipe at a specified head.

TEMPEST HF SUMP

The Tempest HF SUMP system is designed for catch basins & manholes in which there is no sump or the outlet pipe is too low to install a standard Tempest device.

Request your FREE Conceptual Design today!

For unique municipal applications, IPEX has developed equally unique solutions. From advanced odor control and improved wastewater quality products such as our Vortex Flow™ Inserts to the EnviroStream™ Stormwater Treatment System, IPEX has your engineered solution.

SPECIALTY PRODUCTS




VORTEX FLOW INSERT FOR ODOUR & CORROSION CONTROL

Vortex Flow™

Hydrogen sulfide (H_2S) gas and other odorous gases are a fact of life with sanitary sewer drop structures. When these gases become airborne, they not only generate complaints from the neighbourhood, but also impact air quality and cause corrosion within the sewer system.

The IPEX Vortex Flow Insert (VFI) offers a revolutionary new technology to eliminate odorous emissions and minimize corrosion in vertical sewer drops. With no moving parts and requiring virtually no maintenance, VFIs have delivered significant cost savings in installations across North America.

The patented spiral flow design eliminates odorous and corrosive gases in a unique way by using the wastewater's own flow energy to suppress the turbulence which releases noxious gases. The spiral flow creates a downdraft to trap airborne gases and force air into the sewage flow, oxidizing the odorous gases. By installing a Vortex drop structure, municipalities can save thousands of dollars in monthly chemical feed, air-phase treatment and maintenance costs.

APPLICATIONS

- Manholes, Chambers and Forcemains
- Pumping Station Wet Wells
- Steep Grade Sewers
- Turbine discharges

DID YOU KNOW?

Dr. Eugene Natarius, creator of the Vortex Drop Structure, received a Technical Innovation Award from the American Public Works Association for this revolutionary design.

ADVANTAGES

1 Reduced Corrosion Extends Sewer Life

Hydrogen sulfide (H_2S) emissions from forcemain discharges can literally eat through a concrete drop manhole. By oxidizing dissolved H_2S, a Vortex Flow Insert can significantly reduce concrete and metal corrosion, extending sewer life and saving the municipality money.

2 Eliminates Odour Treatment Costs

By increasing dissolved oxygen levels in wastewater and oxidizing sulfides and other odorous compounds, the use of a Vortex Flow Insert in a drop structure eliminates the need for costly chemical injection, high-maintenance biofilters and air scrubbers.

3 Improves Waste Water Quality

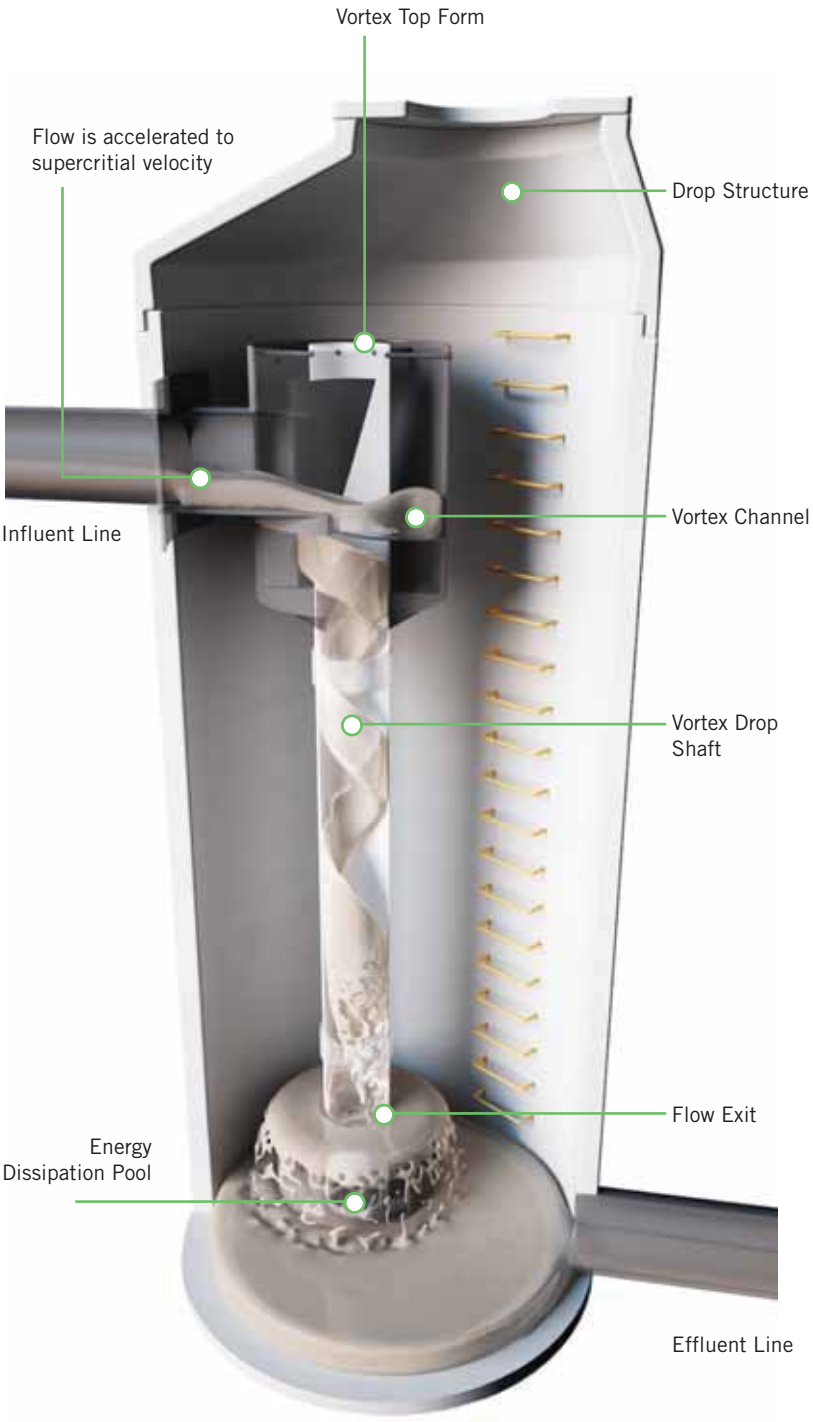
Because a Vortex drop structure reduces the odorous and corrosive elements in the flow, a Vortex Flow Insert, installed upstream of a treatment plant, can actually improve wastewater quality prior to treatment, reducing treatment costs at sewage plants.

4 Reduced Maintenance Costs

The use of a Vortex drop structure eliminates the corrosion of concrete and metal sewer components, dramatically reducing municipal maintenance costs of manholes and sewers.

5 Built-to-Spec for Any Size

Manholes, chambers and pumping stations are built in a variety of sizes. For that reason, IPEX custom designs and builds every Vortex Flow Insert based on the peak flow that the unit is required to handle.



To receive a conceptual design for a Vortex Flow Insert, go to **www.ipexamerica.com** & complete the design information form

SHORT FORM SPECIFICATIONS

All sanitary sewer drops of five feet or more in manholes or pumping stations shall be equipped with Vortex Flow Drop structures as manufactured by IPEX Inc.

Vortex units must be fabricated using AWWA C900 or AWWA C905 pipe, as well as PVC sheet conforming to ASTM D1248.

Vortex drop structures must be supplied with shop drawings approved by the Project Engineer, as well as installation instructions. The hydraulic capacity of the unit (both minimum and maximum flows) must be clearly indicated in the submission.

HOW IT WORKS

Wastewater flows into the Vortex Top Form directing the flow around a channel of decreasing radius. At the same time, the Vortex channel slopes downward to accelerate the wastewater to a supercritical velocity.

Once in the smaller Drop Shaft, the velocity and centrifugal forces generated cause the flow to hug the inside walls of the Drop Shaft. This spiraling flow creates a negative air core, drawing airborne gases down to the Energy Dissipation Pool.

The flow exit is submerged in the Energy Dissipation Pool at the bottom of the Vortex. Air and gases drawn down the air core are forced back through the waste- water and re-entrained into the flow. This significantly increases the dissolved oxygen concentration, and the odorous compounds are quickly oxidized.

STORM SEWER INLET CONTROLS

TEMPEST™ INLET CONTROL DEVICES

PROBLEM: SURCHARGED SEWER SYSTEMS

During heavy rain events, storm sewers can become overloaded causing sewer backups into residential basements and onto urban environments and streets. These events cause significant environmental and property damage and are all too common in older sections of municipalities where combined, undersized sewer systems often end up discharging a mixture of storm water runoff and sanitary wastewater into homes, streets and lakes when sewer capacities exceed historical norms. Traditional approaches to overcoming these challenges have been expensive, disruptive and time consuming for municipalities and the private sector.

SOLUTION: TEMPEST INLET CONTROL SYSTEMS

- Provides control by restricting flow into the sewer system
- Provides temporary ponding in catch basins, parking lots & roadways
- Helps preserve sewer capacity, slows down the inlet flow
- Reduces residential flooding and flash flooding
- Water surcharge is controlled & directed as per engineer design
- Can accommodate outlet pipes 6" and larger

APPLICATIONS

- Parking Lots
- Roads
- Areas where main line storm sewer capacity must be managed

DID YOU KNOW?

Tempest ICDs have a quick release mechanism that's accessed with a reach bar. The units can then be simply lifted out for easy maintenance. (Excluding Tempest HF Sump)

ADVANTAGES

1. **Reduces Sewer Overflows and Basement Backups**
   Tempest is a family of cost-effective inlet control devices that work together across a series of catch basins to limit the amount of storm water runoff that can enter a combined sewer system during a storm event. Basement backups and sewer overflows are avoided because storm water surcharges are controlled at the sewer inlet and are allowed to remain in catch basins or temporarily above ground.

2. **Integrated Odour and Floatable Control**
   In addition to flow control, Tempest systems can also alleviate sewer system odour emissions as well as prevent floating debris from entering the sewer system.

3. **Wide Range of Models & Pre-set Flow Rates**
   Available in a wide range of patent pending models and pre-set flow rates,Tempest systems can accommodate most storm water flow control requirements from 2 lps to 17 lps and beyond. Application specific solutions can also be engineered to meet your unique needs in both wet and dry catch basin environments.

4. **Easy to Install and Maintain**
   Constructed from durable PVC, Tempest units are corrosion free and built to last. The Tempest's light weight design accommodates both square and round catch basins and features a universal back plate and interchangeable components with no moving parts that makes the units quick and easy to install over a catch basin outlet pipe.
   These devices also include a quick release mechanism to allow easy access for service without the need to drain the installation.

THE TEMPEST FAMILY OF SYSTEMS

TEMPEST LMF

Restricts:
✓ Flow
✓ Odours
✓ Floatables

LOW to MODERATE FLOW RATES
2 L/s (32 GPM) – 17 L/s (270 GPM) 14 pre-set flow rates

The Tempest LMF system features a vortex inlet design that allows a low flow rate to be set and eliminates the passage of odours and floatables and allows for debris and sediment to collect in the structure.

TEMPEST HF & HF SUMP

Restricts:
✓ Flow
✓ Odours
✓ Floatables

HIGH FLOW RATES
15L/s (240 GPM) or greater 5 pre-set flow rates

The standard Tempest HF system allows a near constant discharge rate to be set and eliminates the passage of odours and floatables and allows for debris and sediment to collect in the structure.

The Tempest HF SUMP system is designed for catch basins & manholes in which there is no sump or the outlet pipe is too low to install a standard Tempest devices.

TEMPEST MHF

Restricts:
✓ Flow

MEDIUM TO HIGH FLOW RATES
9L/s (143 GPM) or greater Specified pre-set flow rates

The Tempest MHF is a standard orifice plate device designed to allow a specified flow volume through the outlet pipe at a specified head.

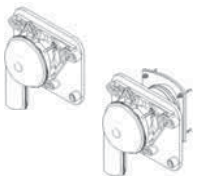
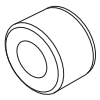
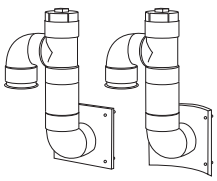
UNIVERSAL BACK PLATES

AVAILABLE FOR BOTH SQUARE AND ROUND CATCH BASINS
(excluding Tempest HF Sump)

For square catch basins

For round catch basins

PRODUCTION SELECTION CHART

	Description
LMF ICD	
 Square catch basin adapter	Low to medium flow Restricts flow to 2 Lps - 17 Lps 14 preset flow rates Floatable and odour control Supplied with neoprene gasket
Round catch basin adapter	
HF ICD and Odour Traps ICD	
 HF square catch basin adapter	Hi flow Restricts flow to 15 Lps & > 5 preset flow rates Floatable and odour control Supplied with neoprene gasket Option for odour trap only, no flow restriction
HF round catch basin adapter	
Odour trap square catch basin adapter	
Odour trap round catch basin adapter	
MHF Plate ICD	
 Square catch basin adapter	Medium to high flow Restricts flow to 9 Lps and > 5 preset flow rates Supplied with neoprene gasket
Round catch basin adapter	
MHF Plug ICD	
 8" 10" 12"	Medium to high flow Restricts flow to 9 Lps and > 5 preset flow rates
HF Sump ICD	
 Square catch basin adapter	High flow Creates a sump Restricts flow to 15 Lps and > 5 preset flow rates Floatable and odour control
Round catch basin adapter	

	Description
TEMPEST Devices	
 Universal mounting plate hub adapter	If a universal mounting plate already exists in the structure: Choose an ICD device only for a square structure Choose the universal mounting plate hub adapter and ICD device for a round structure
 LMF device	
 HF device	
 8" odour trap	
 MHF plate device	

Please contact your local IPEX representative for sizing of a TEMPEST ICD and a quotation

NOTES: In order to assist in choosing the proper TEMPEST ICD and for proper sizing and a quotation, the following information will be required when contacting IPEX for a TEMPEST ICD:

1. Feature(s) requirement: flow, floatable control, odour control
2. Flow requirement
3. Water height (Head / m)
4. Depth of sump / height of outlet pipe
5. Host pipe material
6. Inside diameter of host pipe
7. Catch basin configuration
8. Catch basin structure dimensions

THERMOPLASTICS PLAY A VITAL ROLE IN MAKING OUR WATER SUPPLY AND SEWER SYSTEMS SAFE FOR THE ENVIRONMENT – AND FOR OUR HEALTH.

Reducing water main corrosion and breakage is key to addressing the current water quality crisis in North America.

Unlike alternative materials, PVC does not serve as a nutrient for bacteria growth and its smooth interior surface is less prone to bu8ild-up of encrustants. And, because thermoplastics do not react chemically with drinking water, vinyl doesn't corrode.

Plastics consume just 2% of our oil and natural gas resources and thermoplastic resins require less energy to produce than most alternative materials.

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IPEX Municipal Piping Systems

Products manufactured by IPEX Inc. and distributed in the United States by IPEX USA LLC.

notes

Xirtec 140® PVC – Corzan® CPVC

1/2" – 24" (12mm – 600mm)
XIRTEC 140®: PVC Schedule 40 & 80 pipe and fittings systems.
CORZAN®: CPVC Schedule 80 pipe and fittings systems cell classification 24448 & 23447

Duraplus™ ABS Industrial

3/8" – 12" (9.5mm – 300mm)
Complete ABS pressure pipe, valves and fitting systems.

PROCESS PIPING SYSTEMS

Enpure™

1/2" - 4" (12mm - 100mm)
High-purity polypropylene pipe, valves and fittings with a socket fusion joining system.

ACID WASTE SYSTEMS

Enfield™

1-1/2" - 12" (40mm - 300mm)
Electrofusion acid waste system consists of Polypropylene Schedule 40 & 80 IPS pipe and fittings.

Labline®

1-1/2" - 4" (40mm - 100mm)
Mechanical joint acid waste system in polypropylene Schedule 40 & 80 IPS pipe (flame-retardant and non-flame-retardant) and fittings.

Plenumline™

1-1/2" - 4" (40mm - 100mm)
Flame-retardant PVDF mechanical joint acid waste system made for return air plenum high-temperature corrosive chemical waste applications.

THERMOPLASTIC VALVES

Thermoplastic Valves

1/2" – 12" (12mm – 300mm)
IPEX offers a variety of manual & actuated valves in PVC, CPVC, PP, PVDF and ABS.

Guardian™
Carrier: 1/2" – 12" (15mm – 300mm)
Containment: 2" – 18" (50mm – 450mm)
Vinyl double containment and leak detection system in tough industrial grade PVC and high temperature CPVC.

Encase™
1-1/2" - 12" (40mm - 300mm)
Polypropylene double containment system for corrosive waste drainage onsisting of an electrofusion fitting with a heavy-gauge resistance wire molded into the socket.

DOUBLE CONTAINMENT SYSTEMS

PAL-AT Cable Leak Detection
A microprocessor based system for continuous leak detection.

Clear-Guard
1/2" – 8" (12mm – 200mm)
Fully pressure rated clear containment PVC system with Guardian's patented Centra-Lok fitting design.

CustomGuard®
Carrier: 1/2" – 20" (15mm – 500mm)
Containment: 2" – 26" (50mm – 660mm)

Custom designed and fabricated double containment systems for similar & dissimilar materials.

Centra-Guard™
Patented point-of-collection system for above ground and below grade piping systems.

COMPRESSED AIR

Duratec® Airline
3/8" – 1" (10mm – 25mm)
Composite pipe and fittings for conveying compressed air and inert gases.

Duraplus™ Airline
1/2" – 8" (15mm – 200mm)
A high-impact, ductile ABS pressurized piping system for conveying compressed air and inert gases.

SPECIALTY PRODUCTS

Ventilation Duct
PVC 6" – 24" (150mm – 600mm)
CPVC 6" – 16" (150mm – 400mm)
Seamless PVC & CPVC ventilation duct systems for corrosive fume handling applications

Well Casings
2" – 16" (50mm – 400mm)
PVC corrosion-resistant, maintenance-free casings for well-drop-pipe and submersible pumps.

Grooved PVC Pipe
2" – 24" (50mm – 600mm)
Schedule 40, SDR 26 and SDR 21 factory-grooved PVC pipe.

ELECTRICAL PRODUCT OVERVIEW

Kwikon® ENT & Fittings

1/2" – 2" (15mm – 50mm)
Kwikon Electrical Nonmetallic Tubing (ENT) and fittings are FT-4 rated for use in non-combustible buildings for exposed and concrete encased applications.

Scepter® Rigid PVC Conduit & Fittings

1/2" – 6" (15mm – 150mm)
Scepter Schedule 40 and 80 FT-4 rated PVC electrical conduit and fittings.

ELECTRICAL SYSTEMS

SceptaCon™

2" – 6" (50mm – 150mm)
SceptaCon is a gasketed, mechanical spline-locking, PVC raceway for trenchless applications.

INEXO® The ICF Box

1, 2 & 3 Gang
INEXO is an electrical box designed specifically for ICG (Insulated Concrete Form) construction for residential & commercial applications.

Sceptalight™

Light fixtures available in a variety of mounting configurations and equipped with either fluorescent or incandescent luminaries approved for use in wet, marine or hazardous locations.

Class I, Div 2, Groups A, B, C, D
Class II, Div 2, Groups F & G

Kwikflex®

3/8" – 2" (10mm – 50mm)
Kwikflex Flexible Nonmetallic Liquid-Tight Type B Grey conduit and fittings are UL approved for direct burial and outdoor use.

EPR KIT

1-1/4" – 6" (32mm – 150mm)
EPR repair kit and adapter for broken and damaged PVC conduit or duct.

Super Duct®

2" – 6" (50mm – 150mm)
Super Duct PVC pipes & fittings for direct buried concrete/ masonry encased applications.

notes

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PRODUCT INFO, TECHNICAL DOCUMENTS, ON–SITE TRAINING & MUCH MORE ...

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- Pressure Ratings
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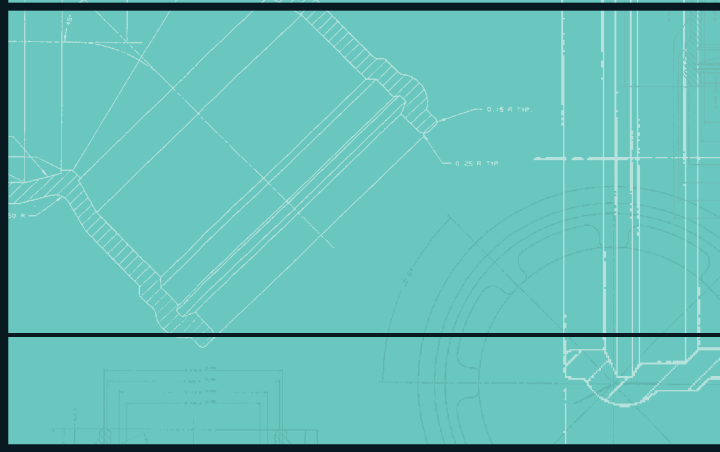
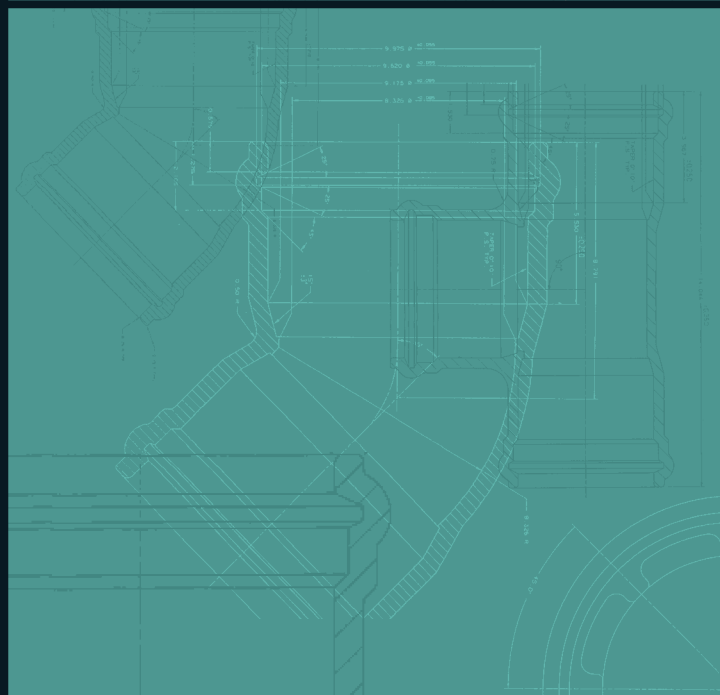
About the IPEX Group of Companies

As leading suppliers of thermoplastic piping systems, the IPEX Group of Companies provides our customers with some of the world's largest and most comprehensive product lines. All IPEX products are backed by more than 50 years of experience. With state-of-the-art manufacturing facilities and distribution centers across North America, we have earned a reputation for product innovation, quality, end-user focus and performance.

Markets served by IPEX group products are:

- Electrical systems
- Telecommunications and utility piping systems
- PVC, CPVC, PP, PVDF, PE, ABS and PEX pipe and fittings
- Industrial process piping systems
- Municipal pressure and gravity piping systems
- Plumbing and mechanical piping systems
- Electrofusion systems for gas and water
- Industrial, plumbing and electrical cements
- Irrigation systems





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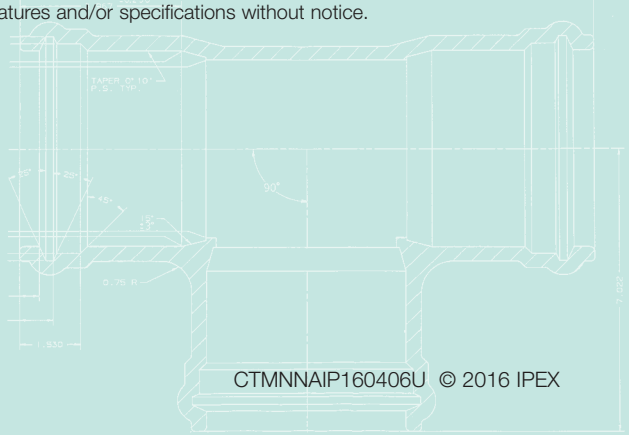

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