

# 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



### 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.

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

**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.

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

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

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



### **i 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 listed to NSF Standard 61 and shall be color coded white.





## PRODUCT SELECTION CHART CYCLETOUGH PIPE

Size		Product Code	Avg. ID		Min. Wall Thickness		Avg. OD	
in	mm		in	mm	in	mm	in	mm

### 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.

#### 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

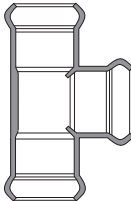
### PRESSURE RATINGS

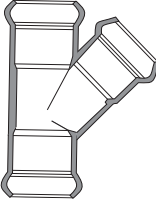
#### Pressure Ratings and Burst Pressures

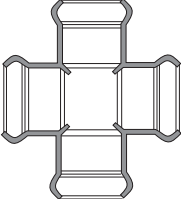
Size Range	Dimension Ratio	Pressure Rating (psi)	Long Term Rating (psi)
40 – 600	21	200	200
40 – 600	26	160	160
75 – 600	32.5	125	125
100 – 600	41	100	100

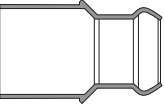
For more information on how these ratings are calculated, please refer to Volume I: Pressure Piping Systems Design Technical Manual

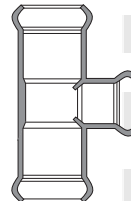
## PRODUCT SELECTION CHART CYCLETOUGH FITTINGS

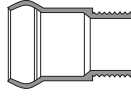
	Dimension		Product Code
	inches	mm	
	* 1-1/2	35	055227
	2	50	055228
	2-1/2	65	055229
	3	75	055230
	4	100	055231
	6	150	055232
	8	200	055233
	* 10	250	055234
	* 12	300	055281

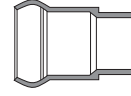
Wye G x G x G			
	* 3	75	055291
	* 4	100	055293
	* 6	150	055290
	* 8 x 6	200 x 150	055294
	* 8	200	055298
	* 12 x 6	300 x 150	055297
	* 12 x 8	300 x 200	055299
	* 12	300	055296

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			
	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