

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 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

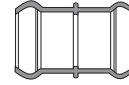
Series 200 (SDR21)

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

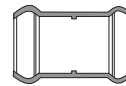
Dimension	Product Code	
	inches	mm

Stop Coupling G x G



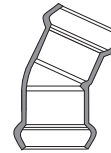
2	50	055036
2-1/2	65	055037
3	75	055038
4	100	055039
6	150	055040
8	200	055041

Repair Coupling G x G



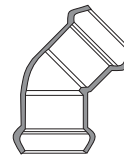
2	50	055217
2-1/2	65	055218
3	75	055219
4	100	055220
6	150	055221
8	200	055222
* 10*	250	055223

22-1/2° Elbow G x G



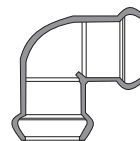
* 2	50	055053
* 3	75	055054
* 4	100	055055
* 6	150	055056

45° Elbow G x G



* 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



* 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