



COPLASTIX®

# Penstocks

## Technical Data Sheet

## Material Specification

Coplastix® Series 50-40 is a rectangular-faced penstock designed for modern sewage treatment. It's made with steel or stainless steel frames and the latest synthetic materials, and is available in sizes ranging from 400mm to 2000mm.

### Features

- Corrosion resistance
- Choice of frame material
- Mechanically fixed renewable seals
- Low maintenance
- Lower installation costs
- Custom built

#### Frames

Frames are manufactured from mild steel to BS EN 10025:1993 grade S275 or stainless steel to BS EN 10088:1995 grades 1.4301 (304) or 1.4401(316). Mild steel frames can be protected to suit sea water, potable or sewage application, stainless steel natural finish.

The penstock frames for both wall and channel mounting (downward closing) have a resilient flush invert seal to allow smooth transmission of the flow through the penstock.

#### Frame Seals

The sealing arrangements for the Coplastix® Penstocks combine the use of resilient and low friction synthetic materials, which ensures a high degree of sealing with easy movement.

#### Doors

Doors are manufactured as a composite sandwich construction comprising a lightweight rigid, cellular core with a fully welded steel box section matrix between two other skins of rigid, compressed composite plastic which is asbestos free, ultra violet stabilised, rigid and non toxic.

All materials are chemically bonded and sealed. Doors for non-rising spindle penstocks have a stainless steel lining tube inside the central vertical box section of the inner matrix.

#### Spindles

Rising or non-rising type in stainless steel BS EN 10088:1995 grades 1.4301 (304) or 1.4401 (316) with extension spindles in the same material as standard.

#### Frame Yokes

Frame yokes form an integral part of the frame and are positioned to allow removal of the door .

#### Stem Nuts

The stem nuts are phosphor bronze to BS 12167:1998.

For nonrising stems, the nut is housed in a cast-iron bracket secured to top of the penstock door. For rising stems, the nut is housed in the handwheel.

#### Fixing Bolts

Can be supplied when requested.

#### Pressure Pads

Adjustable pressure pads are fitted as standard and pre-set at the works to provide maximum degree of water tightness.

#### WEIR (Downward Opening)

Coplastix® Weir Penstocks are constructed as described for the wall mounted type other than the stem is secured to the lower edge of the penstock door via a cast iron bracket, thus permitting maximum unhibited flow over the upper weir edge of the door. Flush invert does not apply for Weir Penstocks.

The sealing arrangements for the Coplastix® Penstocks combine the use of resilient and low friction synthetic materials which ensures a high degree of sealing with easy movement.

FIG 1. See table 1

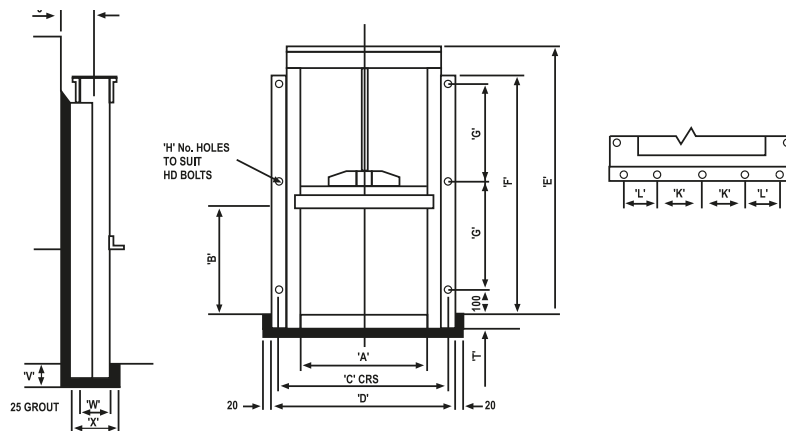
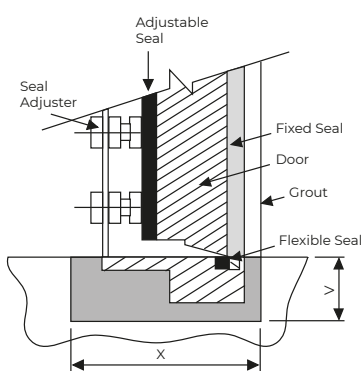


TABLE 1

Effective Gate Opening	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	AA	AB	dia.			
DIMENSIONS IN MILLIMETRES																															
150x150	370	460	-	55	105	55	300	355	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	18	
200x200	400	570	-	65	120	60	350	450	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	18	
250x250	470	687	-	75	125	72	410	280	280	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	18	
300x300	520	790	-	75	125	64	460	280	280	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	22	
350x350	590	890	-	90	125	63	530	350	300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	22	
400x400	670	1007	-	110	125	67	610	390	400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	22	
450x450	710	1135	-	100	150	90	650	300	480	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	22	
500x500	800	995	270	120	210	110	740	500	400	-	-	-	-	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	6	22
600x600	900	985	560	150	220	120	830	245	300	335	-	-	-	500	-	55	-	-	-	-	-	-	-	-	-	-	-	-	8	12	22
700x700	1000	1135	570	150	220	120	930	295	350	385	-	-	-	500	-	55	-	-	-	-	-	-	-	-	-	-	-	-	8	12	22
800x800	1100	1285	580	150	220	120	1030	345	400	435	-	-	-	500	-	55	-	-	-	-	-	-	-	-	-	-	-	-	8	12	22
900x900	1200	1485	590	150	220	120	1130	245	300	300	535	-	-	500	-	55	-	125	375	380	375	-	-	-	-	-	-	100	10	14	22
1000x1000	1300	1685	600	150	220	120	1230	285	330	330	635	-	-	500	-	45	340	125	410	410	410	-	-	-	-	-	-	100	13	17	22
1100x1100	1440	1785	725	190	235	135	1350	345	415	415	500	-	-	255	250	70	340	125	335	340	340	335	-	-	-	-	-	125	15	19	28
1200x1200	1540	1885	895	190	235	135	1450	375	450	450	500	-	-	255	400	75	365	125	360	365	365	360	-	-	-	-	-	125	15	19	28
1300x1300	1640	2035	915	190	235	135	1550	295	360	360	550	-	-	255	400	65	390	125	385	390	390	385	-	-	-	-	-	125	18	22	28
1400x1400	1740	2235	895	190	235	135	1650	320	385	385	650	-	-	255	400	65	495	125	330	330	330	330	330	-	-	-	-	125	20	24	28
1500x1500	1840	2335	1060	190	235	135	1750	345	410	410	650	-	-	255	500	65	525	125	350	350	350	350	350	-	-	-	-	125	20	24	28
1600x1600	2000	2485	1080	240	240	140	1880	370	435	435	700	-	-	255	550	65	570	140	370	380	380	380	370	-	-	-	-	140	20	24	28
1700x1700	2100	2685	1086	240	240	140	1980	295	360	360	800	800	255	550	65	595	140	395	395	400	395	395	-	-	-	-	140	22	26	28	
1800x1800	2200	2785	1246	240	240	140	2080	310	385	385	850	850	355	600	75	690	140	350	345	345	345	345	350	140	24	28	28	28	28	28	
1900x1900	2300	2935	1250	240	240	140	2180	325	400	400	900	900	355	600	75	720	140	370	360	360	360	360	370	140	24	28	28	28	28	28	
2000x2000	2400	3135	1260	240	240	140	2280	345	420	420	950	950	355	600	75	760	140	380	380	380	380	380	380	140	24	28	28	28	28	28	

FIG 2. See table 2.

Section Showing Invert Seal Arrangement for Wall Penstock with Recess



Section Showing Side Seal Arrangement for Wall Penstocks

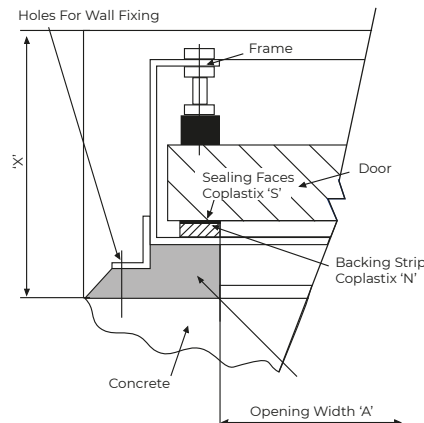
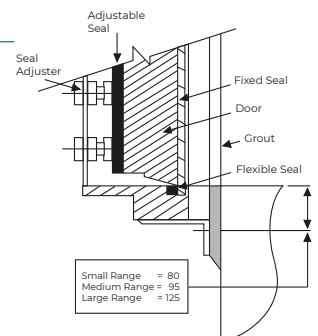


TABLE 2

RANGE	J	T	V	W	X
DIMENSIONS IN MILLIMETRES					
SMALL	104	50	80	165	215
MEDIUM	122	60	80	195	235
LARGE	146	80	100	245	295

FIG 3.

Section Showing Invert Seal Arrangement for Wall Penstocks Without Recess



Small Range = 80  
Medium Range = 95  
Large Range = 125

**SMALL RANGE FIG.1 WALL MOUNTED VERSION**

WIDTH A	DEPTH B	C	D	E	F	G	H	J	K	L	M
DIMENSIONS IN MILLIMETRES											
400	400	560	600	977	880	370	6	104	-	-	-
450	450	610	650	1077	980	420	6	104	-	-	-
500	500	660	700	1177	1080	470	6	104	-	-	-
600	600	760	800	1377	1280	570	6	104	300	-	-
600	800	760	800	1777	1680	770	6	104	300	-	-
700	700	860	900	1577	1480	670	6	104	350	-	-
800	600	960	1000	1377	1280	570	6	104	400	-	-
800	800	960	1000	1777	1680	385	10	104	400	-	-
800	1000	960	1000	2177	2080	485	10	104	400	-	-
900	900	1060	1000	1977	1880	435	10	104	450	-	-

**MEDIUM RANGE FIG.1 WALL MOUNTED VERSION**

WIDTH A	DEPTH B	C	D	E	F	G	H	J	K	L	M
DIMENSIONS IN MILLIMETRES											
800	1200	990	1050	2597	2480	585	10	122	400	-	-
1000	600	1190	1250	1397	1280	570	6	122	500	-	-
1000	800	1190	1250	1797	1680	770	6	122	500	-	-
1000	1000	1190	1250	2197	2080	485	10	122	500	-	-
1000	1200	1190	1250	2597	2480	585	10	122	500	-	-
1000	1400	1190	1250	2997	2880	685	10	122	500	-	-
1200	600	1390	1450	1397	1280	570	6	122	300	300	300
1200	800	1390	1450	1797	1680	385	10	122	300	300	300
1200	1000	1390	1450	2197	2080	485	10	122	300	300	300
1200	1200	1390	1450	2597	2480	468	12	122	300	300	300
1200	1400	1390	1450	2997	2880	548	12	122	300	300	300
1200	1600	1390	1450	3397	3280	628	12	122	300	300	300
1200	1800	1390	1450	3797	3680	590	14	122	300	300	300
1400	800	1590	1650	1797	1680	385	10	122	300	400	400
1400	1000	1590	1650	2197	2080	388	12	122	300	400	400
1400	1200	1590	1650	2597	2480	468	12	122	300	400	400
1400	1400	1590	1650	2997	2880	457	14	122	300	400	400

**LARGE RANGE FIG.1 WALL MOUNTED VERSION**

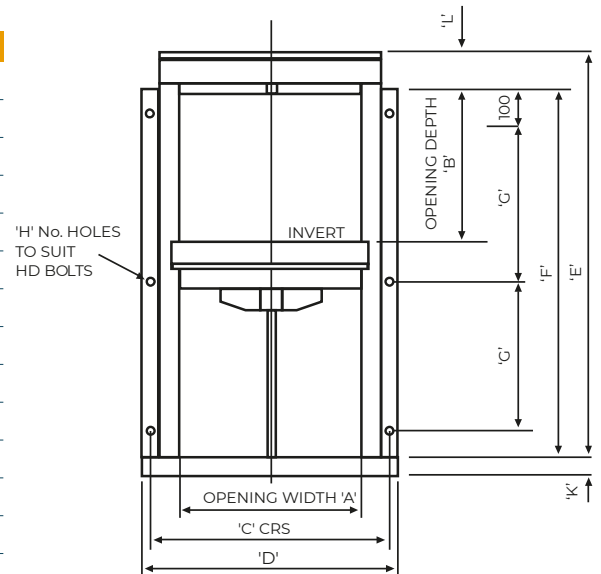
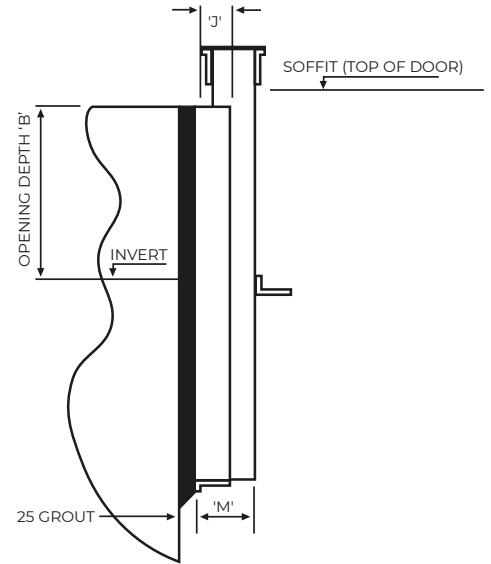
WIDTH A	DEPTH B	C	D	E	F	G	H	J	K	L	M
<b>DIMENSIONS IN MILLIMETRES</b>											
1400	1600	1650	1710	3420	3270	780	10	146	300	400	400
1400	1800	1650	1710	3820	3670	587	14	146	300	400	400
1400	2000	1650	1710	4220	4070	653	14	146	300	400	400
1500	1500	1750	1810	3220	3070	487	14	146	450	400	400
1600	800	1850	1910	1820	1670	760	6	146	500	400	400
1600	1000	1850	1910	2220	2070	480	10	146	500	400	400
1600	1200	1850	1910	2620	2470	580	10	146	500	400	400
1600	1400	1850	1910	3020	2870	453	14	146	500	400	400
1600	1600	1850	1910	3420	3270	520	14	146	500	400	400
1600	1800	1850	1910	3820	3670	587	14	146	500	400	400
1600	2000	1850	1910	4220	4070	653	14	146	500	400	400
1800	1000	2050	2110	2220	2070	480	10	146	600	400	400
1800	1200	2050	2110	2620	2470	387	14	146	600	400	400
1800	1400	2050	2110	3020	2870	453	14	146	600	400	400
1800	1600	2050	2110	3420	3270	520	14	146	600	400	400
1800	1800	2050	2110	3820	3670	440	18	146	600	400	400
1800	2000	2050	2110	4220	4070	490	18	146	600	400	400
2000	1000	2250	2310	2220	2070	480	10	146	700	400	400
2000	1200	2250	2310	2620	2470	387	14	146	700	400	400
2000	1400	2250	2310	3020	2870	453	14	146	700	400	400
2000	1600	2250	2310	3420	3270	390	18	146	700	400	400
2000	1800	2250	2310	3820	3670	440	18	146	700	400	400
2000	2000	2250	2310	4220	4070	490	18	146	700	400	400

**SMALL RANGE FIG.4 WEIR PENSTOCK (DOWNWARD OPENING)**

WIDTH A	DEPTH B	C	D	E	F	G	H
<b>DIMENSIONS IN MILLIMETRES</b>							
400	400	560	600	1062	977	370	6
450	450	610	650	1162	1077	420	6
500	500	660	700	1262	1177	470	6
600	600	760	600	1462	1377	570	6
600	800	760	800	1862	1777	770	6
700	700	860	900	1662	1577	670	6
800	600	960	1000	1462	1377	570	6
800	800	960	1000	1862	1777	385	10
800	1000	960	1000	2262	2177	485	10
900	900	1060	1100	2062	1977	435	10

SMALL RANGE FIG.4 WEIR PENSTOCK (DOWNWARD OPENING)							
WIDTH A	DEPTH B	C	D	E	F	G	H
DIMENSIONS IN MILLIMETRES							
400	400	560	600	1062	977	370	6
450	450	610	650	1162	1077	420	6
500	500	660	700	1262	1177	470	6
600	600	760	600	1462	1377	570	6
600	800	760	800	1862	1777	770	6
700	700	860	900	1662	1577	670	6
800	600	960	1000	1462	1377	570	6
800	800	960	1000	1862	1777	385	10
800	1000	960	1000	2262	2177	485	10
900	900	1060	1100	2062	1977	435	10

MEDIUM RANGE FIG.4 WEIR PENSTOCK (DOWNWARD OPENING)							
WIDTH A	DEPTH B	C	D	E	F	G	H
DIMENSIONS IN MILLIMETRES							
800	1200	990	1050	2707	2597	585	10
1000	600	1190	1250	1507	1397	570	6
1000	800	1190	1250	1907	1797	770	6
1000	1000	1190	1250	2307	2197	485	10
1000	1200	1190	1250	2707	2597	585	10
1000	1400	1190	1250	3107	2997	685	10
1200	600	1390	1450	1507	1397	570	6
1200	800	1390	1450	1907	1797	385	10
1200	1000	1390	1450	2307	2197	485	10
1200	1200	1390	1450	2707	2597	468	12
1200	1400	1390	1450	3107	2997	548	12
1200	1600	1390	1450	3507	3397	628	12
1200	1800	1390	1450	3907	3797	590	14
1400	800	1590	1650	1907	1797	385	10
1400	1000	1590	1650	2307	2197	388	12
1400	1200	1590	1650	2707	2597	468	12
1400	1400	1590	1650	3107	2997	457	14

**FIG 4. See table 1**


**MEDIUM RANGE FIG.4 WEIR PENSTOCK (DOWNWARD OPENING)**

WIDTH A	DEPTH B	C	D	E	F	G	H
DIMENSIONS IN MILLIMETRES							
1400	1600	1650	1710	3580	3430	780	10
1400	1800	1650	1710	3980	3830	587	14
1400	2000	1650	1710	4380	4230	653	14
1500	1500	1750	1810	3380	3230	487	14
1600	800	1850	1910	1980	1830	760	6
1600	1000	1850	1910	2380	2230	480	10
1600	1200	1850	1910	2780	2630	580	10
1600	1400	1850	1910	3180	3030	453	14
1600	1600	1850	1910	3580	3430	520	14
1600	1800	1850	1910	3980	3830	587	14
1600	2000	1850	1910	4380	4230	653	14
1800	1000	2050	2110	2380	2230	480	10
1800	1200	2050	2110	2780	2630	387	14
1800	1400	2050	2110	3180	3030	453	14
1800	1600	2050	2110	3580	3430	520	14
1800	1800	2050	2110	3980	3830	440	18
1800	2000	2050	2110	4380	4230	490	18
2000	1000	2250	2310	2380	2230	480	10
2000	1200	2250	2310	2780	2630	387	14
2000	1400	2250	2310	3180	3030	453	14
2000	1600	2250	2310	3580	3430	390	18
2000	1800	2250	2310	3980	3830	440	18
2000	2000	2250	2310	4380	4230	490	18

**FIG 5.**
