

HYDRO CONCRETE PRODUCT

DESCRIPTION

Type of Products	RC Cylinder Pipe (Reinforced Concrete Cylinder Pipe) PC Cylinder Pipe (Prestressed Concrete Cylinder Pipe) Reinforced Concrete Box Culvert Reinforced Concrete U-Ditch
System of Joints	Steel socket-spigot joint with welding or rubber gasket (Class IV : Hardness 50 ± 5) Spigot joint (Box Culvert and U-Ditch)
Installation Method	Jacked + Micro-tunneling conduits (RC Cylinder Pipe) Open Cut / Trench or embankment conduits (RC Cylinder Pipe and PC Cylinder Pipe)

DESIGN & MANUFACTURING REFERENCE

Design	JIS A 5332 - 1980	Rolled Reinforced Concrete Pipes
	JIS A 5333 - 1983	Core Type Prestressed Concrete Pipes
Manufacturing	SNI 2847 - 2013	Indonesian Standard Code for Concrete
	BS EN 639 - 1994	Common Requirements for Concrete Pressure Pipes
	BS EN 641 - 1994	Reinforced Concrete Pressure Pipes, Cylinder Type
	BS EN 642 - 1994	Prestressed Concrete Pressure Pipes, Cylinder and Non-Cylinder
	SNI 2847 - 2013	Indonesian Standard Code for Concrete
	AASHTO - LRFD	Design Code for Box Culverts
	Concrete Design Manual	Concrete Pressure Pipe by AWWA
	WB - PCP - PS - 06	Production Manufacturing Procedure

PRODUCT SHAPE & SPECIFICATION | REINFORCED CONCRETE CYLINDER PIPE

Class 1

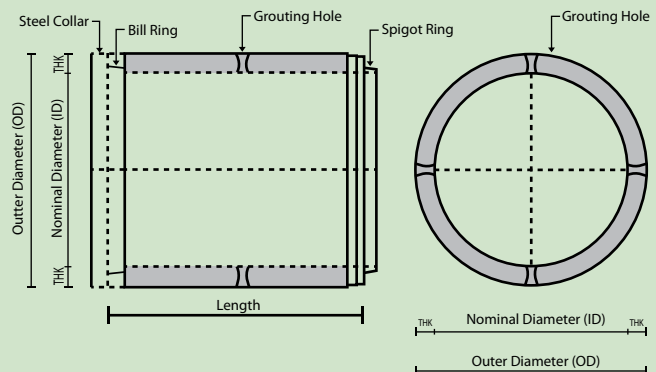
Concrete Compressive Strength $f_c' = 42 \text{ MPa}$ (Cube = 500 kg/cm^2)

Nominal Diameter (mm)	Thickness of Pipes (t) (mm)	Outer Diameter (OD) (mm)	Theoretical Weight of Pipe L = 2500 mm (kg)
1500	115	1730	3647
1600	125	1850	4234
1800	140	2080	5333
2000	155	2310	6559
2100	165	2430	7338
2200	170	2540	7911
2400	185	2770	9390
2500	195	2890	10319
2600	200	3000	10996
2800	215	3230	12728
3000	220	3440	13909
3200	230	3660	15490
3500	250	4000	18408
4000	290	4580	24428

Class 2

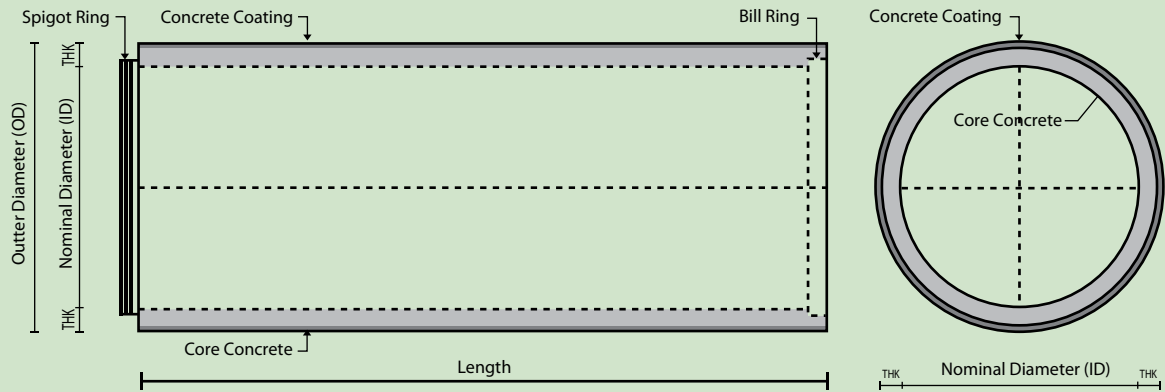
Concrete Compressive Strength $f_c' = 52 \text{ MPa}$ (Cube = 600 kg/cm^2)

Nominal Diameter (mm)	Thickness of Pipes (t) (mm)	Outer Diameter (OD) (mm)	Theoretical Weight of Pipe L = 2500 mm (kg)
1600	160	1920	5530
1800	180	2160	7000
2000	200	2400	8640



- Note :
1. Pipe specification can be adjusted according to internal & external load acting on the pipe
 2. Effective length of pipe = 2500 mm
 3. Class 1 : Internal pressure $\leq 6 \text{ Bar}$
 4. Class 2 : Internal pressure 6-12 Bar

PRODUCT SHAPE & SPECIFICATION | PRESTRESSED CONCRETE CYLINDER PIPE



Concrete Compressive Strength at Core Concrete $f_c' = 50 \text{ MPa}$ (Cube = 600 kg/cm^2)
 Concrete Compressive Strength at Coating Concrete $f_c' = 40 \text{ MPa}$ (Cube = 500 kg/cm^2)

Nominal Diameter (mm)	Thickness of Pipes (t) (mm)	Outer Diameter (OD) (mm)	Theoretical Weight of Pipe L = 6000 mm (kg)
1500	115	1730	8752
1600	125	1850	10161
1800	165	2130	15279
2000	175	2150	16287
2100	150	2300	15197
2200	160	2520	17794
2400	170	2740	20588
2500	175	2850	22060
2600	185	2970	24279
2800	195	3190	27522
3000	205	3410	30962
3200	215	3630	34600
3500	235	3970	41362
4000	265	4530	53261

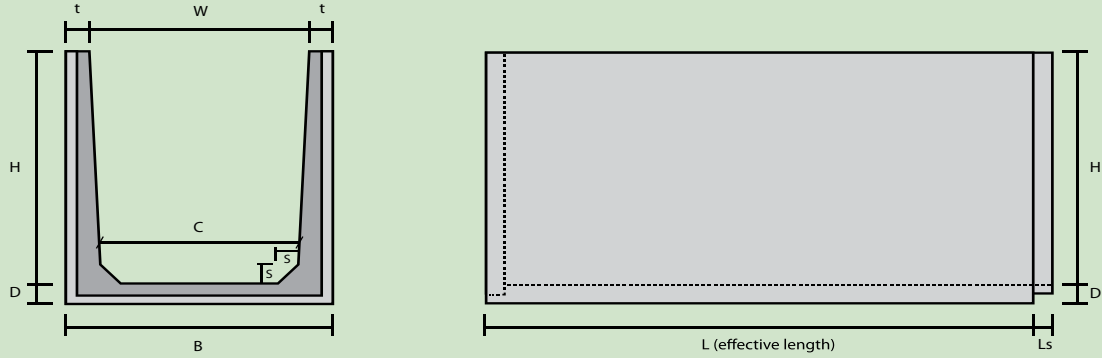


Note : 1. Pipe specification can be adjusted according to internal & external load acting on the pipe
 2. Internal pressure $\geq 12 \text{ Bar}$

PRODUCT APPLICATION



PRODUCT SHAPE & SPECIFICATION | U-DITCH



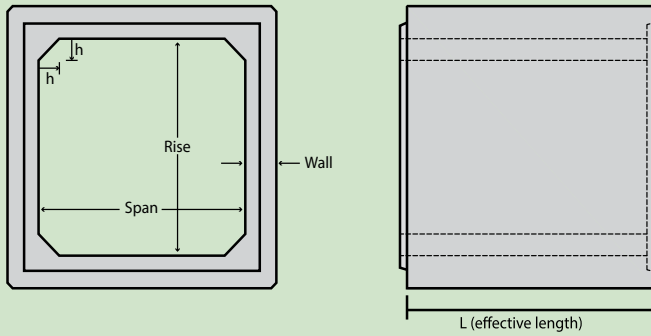
Concrete Compressive Strength $f_c' = 28 \text{ MPa}$

Type	Eff. Length (L) (mm)	Dimension (mm)								Weight (kg/pcs)	
		(W)	(H)	(B)	(C)	(D)	(t)	(s)	(Ls)	L=1200	L=2400
300 x 200	1200 / 2400	300	200	390	294	60	45	40	40	131	262
300 x 300	1200 / 2400	300	300	390	294	60	45	40	40	159	318
300 x 400	1200 / 2400	300	400	390	294	60	45	40	40	187	374
300 x 500	1200 / 2400	300	500	390	294	60	45	40	40	215	430
400 x 300	1200 / 2400	397	300	500	390	70	52	70	70	216	432
400 x 400	1200 / 2400	400	400	500	390	70	50	70	70	247	494
400 x 500	1200 / 2400	400	500	500	390	70	50	70	70	278	556
400 x 600	1200 / 2400	400	600	500	390	70	50	70	70	310	620
500 x 300	1200 / 2400	494	300	640	488	70	73	70	70	284	568
500 x 400	1200 / 2400	497	400	640	488	70	72	70	70	327	654
500 x 500	1200 / 2400	500	500	640	488	70	70	70	70	369	738
500 x 600	1200 / 2400	500	600	640	488	70	70	70	70	413	826
500 x 700	1200 / 2400	500	700	640	488	70	70	70	70	457	914
600 x 400	1200 / 2400	594	400	740	584	70	73	70	70	352	704
600 x 500	1200 / 2400	597	500	740	584	70	72	70	70	396	792
600 x 600	1200 / 2400	600	600	740	584	70	70	70	70	438	876
600 x 700	1200 / 2400	600	700	740	584	70	70	70	70	483	966
600 x 800	1200 / 2400	600	800	740	584	70	70	70	70	527	1054
800 x 600	1200 / 2400	795	600	940	780	70	73	70	70	488	976
800 x 700	1200 / 2400	797	700	940	780	70	72	70	70	532	1064
800 x 800	1200 / 2400	800	800	940	780	70	70	70	70	574	1148
800 x 1000	1200 / 2400	800	1000	940	780	70	70	70	70	664	1328
800 x 1200	1200 / 2400	800	1200	940	780	70	70	70	70	754	1508
1000 x 800	1200 / 2400	978	800	1180	900	100	101	100	100	974	1948
1000 x 1000	1200 / 2400	1000	1000	1180	900	100	90	100	100	1089	2178
1000 x 1200	1200 / 2400	1000	1200	1180	900	100	90	100	100	1227	2454
1000 x 1400	1200 / 2400	1000	1400	1180	900	100	90	100	100	1365	2730
1200 x 1000	1200 / 2400	1178	1000	1390	1080	105	106	100	100	1266	2532
1200 x 1200	1200 / 2400	1200	1200	1390	1080	105	95	100	100	1386	2772
1200 x 1400	1200 / 2400	1200	1400	1390	1080	105	95	100	100	1536	3072
1200 x 1600	1200 / 2400	1200	1600	1390	1080	105	95	100	100	1686	3372
1400 x 1200	1200 / 2400	1378	1200	1620	1260	150	121	120	120	1877	3754
1400 x 1400	1200 / 2400	1400	1400	1620	1260	150	110	120	120	2015	4030
1400 x 1600	1200 / 2400	1422	1600	1620	1260	150	99	120	120	2141	4282
1400 x 1800	1200 / 2400	1444	1800	1620	1260	150	88	120	120	2253	4506
1600 x 1400	1200 / 2400	1576	1400	1840	1440	170	132	150	150	2431	4862
1600 x 1600	1200 / 2400	1600	1600	1840	1440	170	120	150	150	2578	5156
1600 x 1800	1200 / 2400	1620	1800	1840	1440	170	110	150	150	2720	5440
1600 x 2000	1200 / 2400	1642	2000	1840	1440	170	99	150	150	2845	5690

PRODUCT APPLICATION

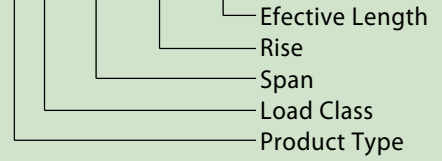


PRODUCT SHAPE & SPECIFICATION | BOX CULVERT



PRODUCT IDENTIFICATION

BC-A. 1000.1600.1200



LOAD CLASSIFICATION

Class	Load Type	Loading
A	Pedestrian Load	qLL = 500 kg/m ² or PL = 2 Ton
B	Light Duty Truck	MST - 8 Ton
C	Heavy Duty Truck	MST - 10 Ton

Note: MST = Muatan Sumbu Terberat (Heaviest Axle Load Vehicle)

DIMENSION SPECIFICATION

Concrete Compressive Strength $f_c' = 35 \text{ MPa}$

Type Box Culvert	Dimension (mm)					Weight (kg/pcs)
	Span	Rise	Length	Wall	(h)	
BC.800.800.1200	800	800	1200	115	70	1.292
BC.800.1000.1200	800	1000	1200	115	70	1.430
BC.800.1200.1200	800	1200	1200	115	70	1.568
BC.1000.1000.1200	1000	1000	1200	120	100	1.673
BC.1000.1200.1200	1000	1200	1200	120	100	1.817
BC.1000.1400.1200	1000	1400	1200	120	100	1.961
BC.1000.1500.1200	1000	1500	1200	120	100	2.033
BC.1200.1200.1200	1200	1200	1200	135	100	2.223
BC.1200.1400.1200	1200	1400	1200	135	100	2.385
BC.1200.1600.1200	1200	1600	1200	135	100	2.547
BC.1400.1400.1200	1400	1400	1200	150	150	2.925
BC.1400.1600.1200	1400	1600	1200	150	150	3.105
BC.1400.1800.1200	1400	1800	1200	150	150	3.285

Type Box Culvert	Dimension (mm)					Weight (kg/pcs)
	Span	Rise	Length	Wall	(h)	
BC.1500.1000.1200	1500	1000	1200	160	150	2.842
BC.1500.1500.1200	1500	1500	1200	160	150	3.322
BC.1500.2000.1200	1500	2000	1200	160	150	3.802
BC.2000.1500.1200	2000	1500	1200	250	200	6.240
BC.2000.2000.1500	2000	2000	1200	250	200	6.990
BC.2000.2500.1200	2000	2500	1200	250	200	7.740
BC.2500.2000.1200	2500	2000	1200	300	200	9.420
BC.2500.2500.1200	2500	2500	1200	300	200	10.320
BC.2500.3000.1200	2500	3000	1200	300	200	11.220
BC.3000.2000.1200	3000	2000	1200	300	250	10.455
BC.3000.2500.1200	3000	2500	1200	300	250	11.355
BC.3000.3000.1200	3000	3000	1200	300	250	12.255
BC.3000.3500.1200	3000	3500	1200	300	250	13.155

PRODUCT APPLICATION



Product Delivery



Box Culvert Installation



Highway Crossing Drainage



Pedestrian Crossing Underpass