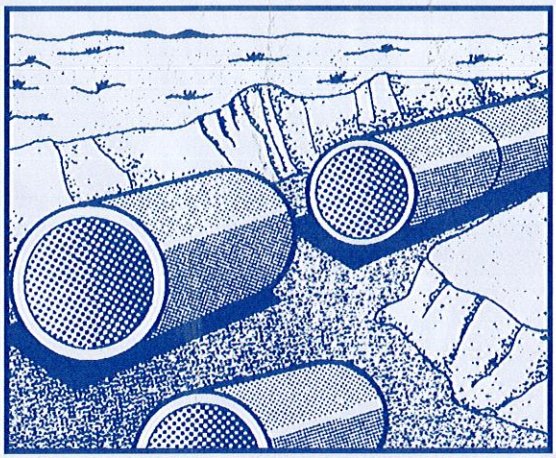
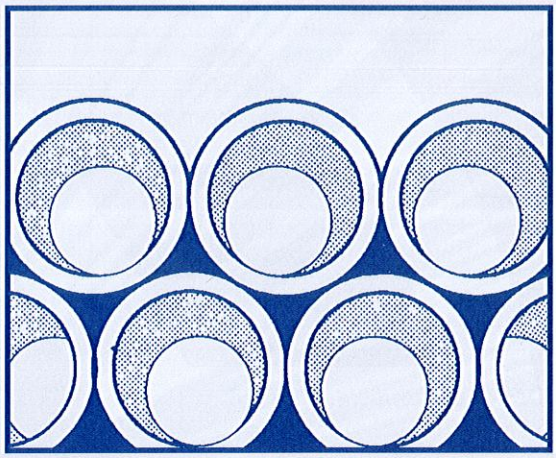
SCIB CONCRETE MANUFACTURING SDN BHD

Company No: 554888-U

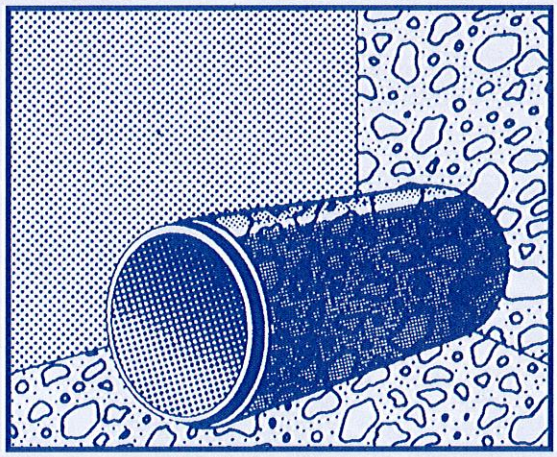
A Wholly Owned Subsidiary of Sarawak Consolidated Industries Berhad
- A Member of Bursa Malaysia Securities Berhad

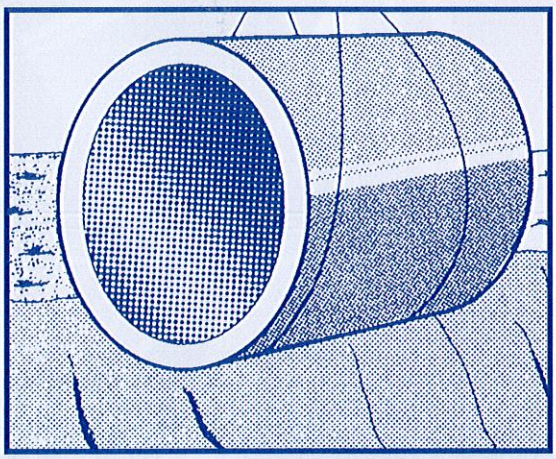
SPUN CONCRETE PIPES





SCM is Malaysia's leading manufacturer of concrete pipes. SCM factories have facilities for the manufacture and load testing of all classes of concrete pipes in accordance with AS 4058-1992 or any other specifications to meet customer's requirements.





Applications of SCM Spun pipes

- Culverts
- Drainage
- Sewerage
- Tunnels
- Vertical shaft for Manholes and Wells

SCM pipes are classified into the following:

Australian Standard AS4058 - 1992		Malaysian Standard MS881 - 1984
S	Standard Reinforced	-
X	Extra Strength Reinforced	L
Y	Special Strength Reinforced	M
Z	Special Strength Reinforced	H

Pipes of strength greater than the Z class can also be designed and manufactured. Typical ones include the 1.5 Z and 2 Z classes.

QUALITY SYSTEM SIRIM UKAS QUALITY MANAGEMENT 074

MS ISO 9001 REG. NO AR 1476

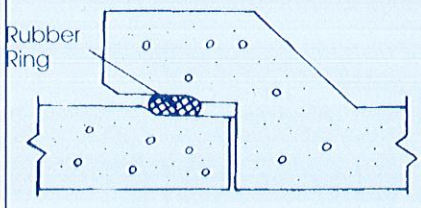
MS ISO 9001 : 2008

Quality Systems • Model for Quality Assurance in Production, Installation and Servicing

Types of Joints: Various types of joints are available in connecting concrete pipes. SCM pipes are connected using three different types of joints as follows:

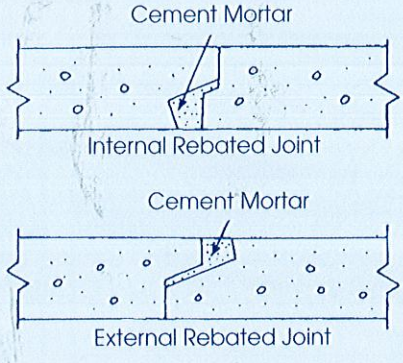
SPIGOT AND SOCKET JOINT

This joint is also commonly called the Rubber Ring Joint (RRJ). RRJ provides maximum water tightness and flexibility in concrete pipelines. A certain degree of linear deflection is allowed in this type of joint. For soft foundation, this type of joint is recommended.



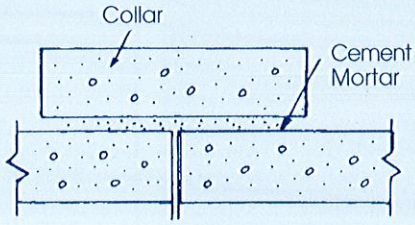
REBATED JOINT

This joint is also known as the Ogee Joint Or Flush Joint. The internal rebated joint is used for pipes of diameters 675 mm and above while the external rebated joint is for pipes of diameters 600mm and below. This is a rigid joint and any deflection or movement after installation will cause cracks, permitting leakage. This joint is not recommended where water tightness is critical.



BUTT JOINT WITH COLLAR

This joint uses a precast concrete collar to connect the pipes. This is a rigid joint and no flexibility is provided. This joint is not recommended for soft foundation where deflection can occur.



(NOTE: Butt joint may also be used without collar)

Design & Specifications

SCM pipes are designed to Australian Standard AS 4058 - 1992. Our design also conforms to Malaysian Standard MS 881 - 1984 and British Standard Specification BS 5911 - 1981. Load test requirements and specifications can be checked by our Design Engineers. Over the years, it has been proven that SCM pipes are the most reliable and one of the best quality pipes in the market. For convenience, the following table from AS 4058 - 1992 is reproduced below.

Crushing Test Loads Table (Kilonewtons per metre of effective length)

Nominal Size	Class S pipes		Class X pipes		Class Y pipes		Class Z pipes	
mm(in)	Cracking	Ultimate	Cracking	Ultimate	Cracking	Ultimate	Cracking	Ultimate
450(18")	15.0	22.5	20.0	30.0	30.0	45.0	40.0	60.0
600(24")	19.0	28.5	26.0	39.0	39.0	58.5	52.0	78.0
750 (30")	21.0	31.5	32.0	48.0	48.0	72.0	64.0	96.0
900(36")	23.0	34.5	37.0	55.5	55.5	83.5	74.0	111.0
1050(42")	25.0	37.5	42.0	63.0	63.0	94.5	84.0	126.0
1200(48")	27.0	40.5	46.0	69.0	69.0	103.5	92.0	138.0
1350(54")	29.0	43.5	50.0	75.0	75.0	112.5	100.0	150.0
1500(60")	31.0	46.5	54.0	81.0	81.0	121.5	108.0	162.0
1800(72")	35.0	52.5	62.0	93.0	93.0	139.5	124.0	186.0

Notes:

1. The test load for a pipe of intermediate size can be determined by straight-line interpolation.
2. The pipe shall sustain the above crushing test loads without developing a crack width in accordance with the following: For minimum clear cover of 10mm - 0.15mm crack width; over 10mm up to and including 20mm - 0.20mm crack width; above 20mm - 0.25mm crack width.
3. Maximum crack size is taken over a length of 300mm or more at intervals not exceeding 50mm.

NOMINAL LENGTHS AVAILABLE (IN METERS)

Type of Pipe		Type of Joint	Class	NOMINAL DIAMETER (mm) 450	600	750	900	1050	1200	1350	1500	1800
Spun Pipes												
Water/Drainage		Butt Joint with collar	All Classes	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52
		Rebated Joint	All Classes	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52
		Spigot & Socket Joint	All Classes	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05
Sewerage	1	Spigot & Socket Joint with High Alumina Cement Lining		3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05*
	2	or Sulphate Resisting Cement	All Classes	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05*
	3	or SCM Plastiline		–	–	3.05	3.05	3.05	3.05	3.05	3.05	3.05*

All Classes = X, Y, Z, 1.5Z and 2Z

* X,Y & Z only

SEWERAGE PIPE

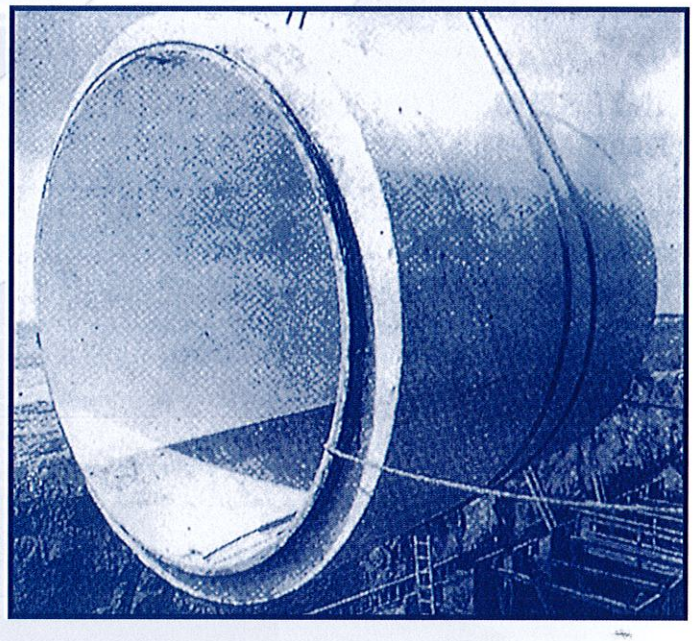
SCM sewerage pipes are manufactured to provide a corrosion barrier to withstand corrosive attack while maintaining flexibility to withstand decades of severe service.

Advantages:

- resists hydrogen sulphate and other sewer gases, acids, alkalis and salts.
- the interior lining prevents the disintegration of the concrete.
- resistant to wide variety of chemicals.
- unaffected by fungus or bacterial action.
- unaffected by continuous exposure to high humidity or water.

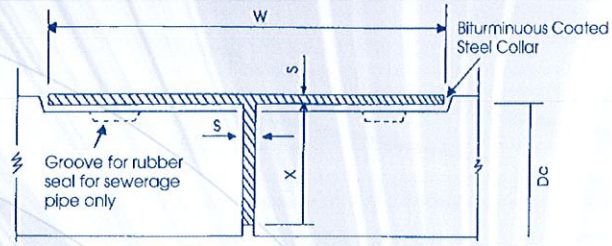
Design and Specifications:

- SCM sewerage pipes are available in sizes and classes similar to those of culvert and drainage pipes.
- SCM sewerage pipes come in three different categories of protection lining:
  - i) Using a 12 mm (1/2") thick layer of High Alumina Cement (or cement Fondu) which conforms to the K.L City Hall requirements for sewerage pipes.
  - ii) Using Sulphate Resisting Cement to British Specification BS 4027 - 1966.
  - iii) For aggresive corrosive conditions, the pipes can be lined internally with a blanket of PVC sheet. This is the SCM 'Plastiline' pipe, which is used extensively in Australia and Singapore.
- SCM sewerage pipes utilize the Rubber Ring Joint for complete water tightness and protection from the surrounding environment. Other types of joints are not recommended.
- SCM sewerage pipes are also available as jacking pipes for installation of sewer lines without open excavation. (see SCM jacking pipes.)



SCM JACKING PIPE

SCM Jacking Pipes permit the installation of pipe culverts for drainage or sewerage purposes under major highways, roads and railway lines without open excavation which invariably disturbs traffic flow. SCM Jacking Pipes are available in nominal diameters ranging from 450mm to 1800 mm. Recommended joint type is that of a butt joint with an external rebate accommodating a steel collar. (see figure)



JOINT DETAIL

For sewer lines, SCM Jacking Pipes can be made;
1) with an internal lining of 12mm thick High Alumina Cement or
2) from Sulphate Resisting Cement (SRC) or
3) with an internal PVC lining (minimum diameter 750mm)

PIPE DIMENSIONS (mm)									PIPE WEIGHT (Tonne)			STEEL COLLAR DIMENSIONS (mm)					MAXIMUM ALLOWABLE JACKING FORCE ON THE PIPE (Tonne)		
		INTERNAL DIAMETER			WALL THICKNESS			OVERALL LENGTH							X				
NOM DIA	EXT DIA	Class H	Class 1.5H	Class 2H	Class H	Class 1.5H	Class 2H		Class H	Class 1.5H	Class 2H	S	W	Dc	Class H	Class 1.5,2H	H	1.5H	1.5H
450	533	410	–	–	61.5	–	–	3050	0.71	–	–	4.5	200	522	46.0	–	64.0	–	–
	610	–	460	450	–	75.0	80.0	3050	–	1.02	1.08	4.5	200	599	–	59.5	–	96.0	96.0
600	699	570	–	–	64.5	–	–	3050	1.00	–	–	4.5	200	688	49.0	–	93.0	–	–
	775	–	610	600	–	82.5	87.5	3050	–	1.44	1.53	4.5	300	764	–	67.0	–	141.0	141.0
750	864	710	–	–	77.0	–	–	3050	1.51	–	–	4.5	300	853	61.5	–	146.0	–	–
	1016	–	760	750	–	128.0	133.0	3050	–	2.81	2.91	4.5	300	1005	–	112.5	–	310.0	310.0
900	1016	860	–	–	78.0	–	–	3050	1.84	–	–	4.5	300	1005	62.5	–	177.0	–	–
	1194	–	910	900	–	142.0	147.0	3050	–	3.69	3.81	6	300	1183	–	126.5	–	415.0	415.0
1050	1194	1010	–	–	92.0	–	–	3050	2.56	–	–	6	300	1183	76.5	–	258.0	–	–
	1346	–	1060	1050	–	143.0	148.0	3050	–	4.26	4.40	6	300	1355	–	127.5	–	478.0	478.0
1200	1346	1150	–	–	98.0	–	–	3050	3.06	–	–	6	300	1355	82.5	–	316.0	–	–
	1511	–	1210	1200	–	150.5	155.5	3050	–	5.06	5.22	6	300	1497	–	133.5	–	559.0	559.0
1350	1511	1300	–	–	105.5	–	–	3050	3.72	–	–	6	300	1497	88.5	–	375.0	–	–
	1676	–	1370	1355	–	153.0	160.5	3050	–	5.78	6.05	6	300	1662	–	136.0	–	638.0	638.0
1500	1676	1450	–	–	113.0	–	–	3050	4.43	–	–	6	300	1662	96.0	–	455.0	–	–
	1854	–	1520	1505	–	167.0	174.5	3050	–	6.99	7.28	6	300	1840	–	150.0	–	783.0	783.0
1800	2032	1750	–	–	141.0	–	–	3050	6.68	–	–	6	300	2018	124.0	–	720.0	–	–
	2210	–	1820	1805	–	195.0	202.5	2050	–	9.75	10.09	6	300	2196	–	178.0	–	1116.0	1116.0

Notes:
1. The load capacities of Class H, 1.5H & 2H shall comply with that in BS 5911 : Pt 1 : 1981
2. Two rubber seals per pipe (i.e: 2 seals per joint) to be used in pipe jointing.
3. Internal lubrication of steel collar is recommended to facilitate installation of the joint.
4. Special features on pipe may be incorporated if required by client.
5. 2 grouting holes for jacking pipes of diameter 900 mm and above will be provided located at 1/4 length from each end of pipe, diagonally to each other.

It is our policy to continuously review and improve products and their design. Information in this leaflet is therefore subject to change without notice.

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