



**Ranhill
SAJ**

**SPECIFICATION FOR FLEXIBLE COUPLINGS FOR
RIGID PIPES (AC, DI, MS AND uPVC PIPES)**

**SPECIFICATION SAJ FT / FC / 001
(Rev.5.0 / 12.2018)**

**Ranhill
SAJ**

QUALITY ASSURANCE DEPARTMENT
RANHILL SAJ SDN. BHD.

Ref. No. : FT/FC/001
Date : 24/12/2018
Total Pages : 13/13

Approve by:
Ass General Manager Quality Management

**SAJ SPECIFICATIONS FOR FLEXIBLE COUPLING FOR RIGID PIPES
(AC, DI, MS AND UPVC PIPES)**

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SAJ SPECIFICATION FOR FLEXIBLE COUPLING FOR RIGID PIPES

(AC, DI, MS AND uPVC PIPES)

1.0 General

- 1.1 All flexible joints supplied otherwise stated shall conform to Spesifikasi JKR 20200-0048-99, JKR Standard Specification for Flexible Couplings and Flange Adaptors For Rigid Pipes (MS, uPVC, MS and AC Pipes). It should provide a quick, leak free and reliable method of joining plain-ended pipes for the conveyance of water.
- 1.2 The flexible couplings used for jointing plain ended pipes and fittings shall be bolted, gasket, sleeve type with diameter to properly fit onto a pipe forming permanently tight joints under all reasonable conditions of expansion, contraction, shifting and settlement in buried or above ground condition.

2.0 Flexible coupling types:

- i. Straight coupling – straight sleeve for joining plain-ended on same outside diameter.
- ii. Stepped coupling – straight sleeve with difference diameter for joining pipes with different outside diameters.
- iii. Universal coupling – bell ended central sleeve for joining various ranges of outside diameter pipes.

3.0 Coupling Dimensions

Coupling dimensions for the various sizes and different pipes usage shall follow the list of table below from the specification;

- i. Table 6 to 12 for Straight Coupling
- ii. Table 13 to 14 for Stepped Coupling
- iii. Table 20 for Universal Coupling

4.0 Working Pressures

Flexible coupling of various nominal sizes shall fit the respective pipes of same nominal size as specified in the specification with the working pressures of 16 bars.

5.0 End Rings

All end rings shall be of ductile iron complying with BS 2789 of minimum Grade 420/10.

6.0 Center Sleeve

All center sleeves shall be of ductile iron complying with BS 2789 of minimum Grade 420/10.

7.0 Bolts

- a. Bolts, nuts and washers shall be of hot-dipped galvanized carbon steel thickness between 75 μm and 125 μm .
- b. Bolts shall be provided with a trackhead or other suitable methods, to allow the use of one spanner during tightening process.

8.0 Locating Plugs

Coupling shall be supplied with locating plugs as required made of Gunmetal BS 1400 Grade LG2.

9.0 Gasket

Gaskets shall be vulcanised, moulded or extruded elastomer made of EPDM of harness range 66-75 IRHD.

10.0 Coating

Internal and external components of the Flexible Coupling shall undergo the necessary surface preparation for polymeric coating of fusion-bonded epoxy powder of thickness from 250 μm to 350 μm .
The colour of the pipes shall be blue.

11.0 Test, Inspection and Evaluation

- 11.1 All tests and inspection will be carried out in accordance to the specification.
- 11.2 In the responsibility of the Supplier to inform SAJ when the goods are being manufactured for inspection and testing prior to delivery, by which, failing to will allow SAJ reserves the right to refuse delivery.
- 11.3 Tests shall be carried out in the premise of the supplier with all apparatus and equipment required be made available to perform all tests.
- 11.4 Minimum of 10 percent of the fittings supplied will be tested prior to delivery. At test, which fails, will render the whole batch rejected.
- 11.5 The supplier shall deem to have included all costs for inspection and testing be it done by SAJ or independent body appointed by SAJ.
- 11.6 At any time, when requested, the supplier is to provide SAJ a sample of the product offered for evaluation purposes.
- 11.7 If at any time the supplier fails to deliver the required sample, the product is deemed fail to meet the specifications.

12.0 Certification

- a. Manufacturer of supplier are required to provide a copy of the certificate and testing report from SIRIM, IKRAM or other recognized certification body.
- b. Tests report required should be those tests conducted within a year period.
- c. SAJ have the right to refuse offer or reject supply if the documents required are not enclosed.

13.0 Markings

All joints supplied shall embody the following markings: -

- a) Body material – 'DI'
- b) Nominal Size (DN)
- c) Class / Working pressure (PN)
- d) Joint type
- e) Gasket markings – manufacturer, size, mould number, material grade and code used.
- f) Manufacturer's name or trade mark
- g) Year of manufacture (last two digit)
- h) Lettering "SAJ"

14.0 Packing

All flexible couplings shall be packed accordingly with proper methods and protected from damage during transit.

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SCHEDULE OF STORES

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Schedule of Stores (A)

Supply and Delivery of **Straight Coupling** To Suit **Mild Steel Pipe (JKR Standard)**

In Accordance to Specification SAJ FT / FC / 001 (Rev.5.0/12.2018)

For the Period of Year(s)

No	Nominal Diameter (mm)	Outside Diameter of pipe (mm)	Unit	Provisional Quantity	Rate (RM)	Amount (RM)
1	100	121.9	Nos			
2	150	177.3	Nos			
3	200	232.2	Nos			
4	250	286	Nos			
5	300	345.4	Nos			
6	350	399.3	Nos			
7	400	453.1	Nos			
8	450	507	Nos			
9	500	560.3	Nos			
10	600	667	Nos			
11	650	692	Nos			
12	700	754	Nos			
13	750	804	Nos			
14	800	854	Nos			
15	850	904	Nos			
16	900	954	Nos			
	TOTAL	TENDER	SUM			

(Ringgit:)

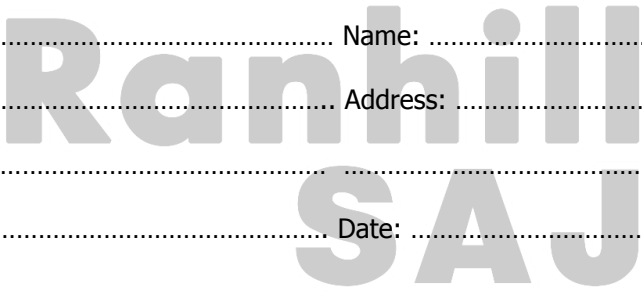
Signature of Tenderer: Signature of witness:

Name: Name:

In the capacity of: Address:

Tenderer's Seal or chop:

Date: Date:



Schedule of Stores (B)
 Supply and Delivery of **Straight Coupling** To Suit **Mild Steel Pipe (BS 534:1990)**
 In Accordance to Specification SAJ FT / FC / 001 (Rev.5.0/12.2018)
 For the Period of Year(s)

No	Nominal Diameter (mm)	Outside Diameter of pipe (mm)	Unit	Provisional Quantity	Rate (RM)	Amount (RM)
1	80	88.9	Nos			
2	100	114.3	Nos			
3	150	168.3	Nos			
4	200	219.1	Nos			
5	250	273	Nos			
6	300	323.9	Nos			
7	350	355.6	Nos			
8	400	406.4	Nos			
9	450	457	Nos			
10	500	508	Nos			
11	600	559	Nos			
12	650	610	Nos			
13	700	660	Nos			
14	750	711	Nos			
15	800	762	Nos			
16	850	813	Nos			
17	900	864	Nos			
18	1000	1016	Nos			
19	1200	1220	Nos			
20	1400	1420	Nos			
21	1600	1620	Nos			
22	1800	1820	Nos			
23	2000	2020	Nos			
24	2100	2134	Nos			
25	2220	2220	Nos			
	TOTAL	TENDER	SUM			

(Ringgit:)

Signature of Tenderer: Signature of witness:

Name: Name:

In the capacity of: Address:

Tenderer's Seal or chop:

Date: Date:

Schedule of Stores (C)

Supply and Delivery of **Straight Coupling** To Suit **Ductile Iron Pipe (BS EN 545:2002)**

In Accordance to Specification SAJ FT / FC / 001 (Rev.5.0/12.2018)

For the Period of Year(s)

No	Nominal Diameter (mm)	Outside Diameter of pipe (mm)	Unit	Provisional Quantity	Rate (RM)	Amount (RM)
1	80	98	Nos			
2	100	118	Nos			
3	150	170	Nos			
4	200	222	Nos			
5	250	274	Nos			
6	300	326	Nos			
7	350	378	Nos			
8	400	429	Nos			
9	450	480	Nos			
10	500	532	Nos			
11	600	635	Nos			
12	700	738	Nos			
13	800	842	Nos			
14	900	945	Nos			
15	1000	1048	Nos			
16	1100	1152	Nos			
17	1200	1255	Nos			
18	1400	1462	Nos			
19	1600	1668	Nos			
20	1800	1875	Nos			
21	2000	2082	Nos			
	TOTAL	TENDER	SUM			

(Ringgit:)

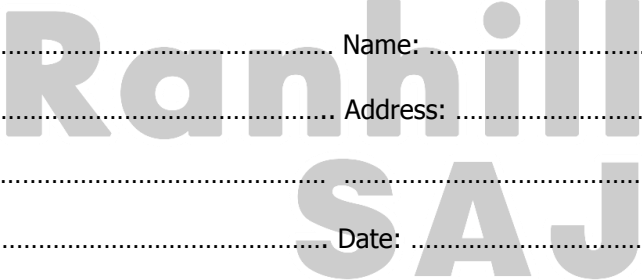
Signature of Tenderer: Signature of witness:

Name: Name:

In the capacity of: Address:

Tenderer's Seal or chop:

Date: Date:



Schedule of Stores (D)
 Supply and Delivery of **Straight Coupling** To Suit **uPVC Pipe (MS 628)**
 In Accordance to Specification SAJ FT / FC / 001 (Rev.5.0/12.2018)
 For the Period of Year(s)

No	Nominal Diameter (mm)	Outside Diameter of pipe (mm)	Unit	Provisional Quantity	Rate (RM)	Amount (RM)
1	80	88.9	Nos			
2	100	114.3	Nos			
3	150	168.3	Nos			
4	200	219.1	Nos			
5	250	273	Nos			
6	300	32.9	Nos			
7	350	355.6	Nos			
8	400	406.4	Nos			
9	450	457	Nos			
10	500	508	Nos			
	TOTAL	TENDER	SUM			

(Ringgit:)

Signature of Tenderer: Signature of witness:

Name: Name:

In the capacity of: Address:

Tenderer's Seal or chop:

Date: Date:



Schedule of Stores (E)

Supply and Delivery of **Stepped Coupling** To Connect **DI to MS Pipe**
 In Accordance to Specification SAJ FT / FC / 001 (Rev.5.0/12.2018)
 For the Period of Year(s)

No	N. D. (mm)	O. D. DI (mm)	O. D. MS (mm)	Unit	Provisional Quantity	Rate (RM)	Amount (RM)
1	80	98	88.9	Nos			
2	100	118	114.3	Nos			
3	150	170	168.3	Nos			
4	200	222	219.3	Nos			
5	250	274	273	Nos			
6	300	326	323.9	Nos			
7	350	378	355.6	Nos			
8	400	429	406.4	Nos			
9	450	480	457	Nos			
10	500	532	508	Nos			
11	600	635	610	Nos			
12	700	738	711	Nos			
13	800	842	813	Nos			
14	900	945	914	Nos			
15	1000	1048	1016	Nos			
16	1100	1152	1118	Nos			
17	1200	1255	1219	Nos			
18	1400	1462	1420	Nos			
19	1600	1668	1620	Nos			
	TOTAL	TENDER	SUM				

(Ringgit:)

Signature of Tenderer: Signature of witness:

Name: Name:

In the capacity of: Address:

Tenderer's Seal or chop:

Date: Date:

Schedule of Stores (F)
 Supply and Delivery of **Stepped Coupling** To Connect **DI to AC / CI Pipe**
 In Accordance to Specification SAJ FT / FC / 001 (Rev.5.0/12.2018)
 For the Period of Year(s)

No	N. D. (mm)	O. D. DI (mm)	O. D. MS (mm)	Unit	Provisional Quantity	Rate (RM)	Amount (RM)
1	80	98	96	Nos			
2	100	118	122	Nos			
3	150	170	177.8	Nos			
4	200	222	232	Nos			
5	250	274	286	Nos			
6	300	326	334	Nos			
7	350	378	345	Nos			
8	350	378	387	Nos			
9	400	429	439	Nos			
10	400	429	453	Nos			
11	450	480	492	Nos			
12	500	532	545	Nos			
13	500	532	560	Nos			
14	600	635	650	Nos			
15	600	635	667	Nos			
	TOTAL	TENDER	SUM				

(Ringgit:)

Signature of Tenderer: Signature of witness:

Name: Name:

In the capacity of: Address:

Tenderer's Seal or chop:

Date: Date:

Schedule of Stores (G)

Supply and Delivery of **Universal Coupling** To Connect
 Various Diameter Pipes Within Permissible Range
 In Accordance to Specification SAJ FT / FC / 001 (Rev.5.0/12.2018)
 For the Period of Year(s)

No	N. D. (mm)	Pipe Outside Min. (mm)	Diameter Max. (mm)	Unit	Provisional Quantity	Rate (RM)	Amount (RM)
1	80	88.9	99	Nos			
2	100	114	126	Nos			
3	150	168	179	Nos			
4	200	219	234	Nos			
5	250	273	286	Nos			
6	300	324	334	Nos			
7	525		535	Nos			
	TOTAL	TENDER		SUM			

(Ringgit:)

Signature of Tenderer: Signature of witness:

Name: Name:

In the capacity of: Address:

Tenderer's Seal or chop:

Date: Date:

