




**Ranhill  
SAJ**

**SPECIFICATION FOR  
DUCTILE IRON TYPE B GATE VALVES FOR  
WATERWORKS PURPOSES  
(DN 50 TO DN 600)**

**SPECIFICATION SAJ VL / GV / 001  
(Rev.5.0 / 05.2019)**

**Ranhill**  
QUALITY ASSURANCE DEPARTMENT  
RANHILL SAJ SDN. BHD.

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Head of Quality Assurance

**SAJ SPECIFICATIONS FOR DUCTILE IRON TYPE B GATE VALVES  
(DN 50 TO DN 600)**

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## SAJ SPECIFICATION FOR DUCTILE IRON TYPE B GATE VALVES (DN 50 TO DN 600)

### 1.0 General

- a. Features required are as follows or otherwise the Spesifikasi JKR 20200-0083-00 and BS 5163 shall be used.

### 2.0 Features Required

- a. All gate valves shall be double flanged and of ductile iron body.
- b. All gate valves shall be fitted with non-rising stainless steel spindle with 12 mm stem thread lead and close in clockwise direction.
- c. All non-metallic materials used shall comply with BS 6920.
- d. Stem shall be machined rolled or forged.
- e. All gate valves stem shall be sealed by toroidal sealing rings (O-ring) with two seals and a dust cover.
- f. Seals can be repaired when the valves are under pressure and the gates in the fully open position.
- g. The valve shall have a maximum one stem turn without raising the wedge from the closed position.
- h. The valve shall be able to withstand without permanent distortion all stresses in normal service.
- i. Valve body, bonnet and stem cap shall be fully coated with 250 $\mu$ m ~ 350 $\mu$ m thickness heat-treated fusion bonded epoxy powder resin internally and externally.
- j. Gate valves shall be fitted with valve closing and opening indicators.
- k. Gate valves sizes 450mm and above shall be provided with suitable size built-in by-pass gate valve Type B.
- l. Ductile iron caps shall be provided and secured with non-corrodible fastener in such a manner they can be removed and replaced when required.
- m. Gearboxes, if required, shall be arranged for smooth operation of the valves and suitable for operation by a mild steel key and bar.
- n. The bonnet design shall be countersunk and sealed screws between the bonnet and body.
- o. All bonnet screws shall be of hexagon socket head cap screw of stainless steel and seal with hot melt.

- p. All valves shall be of resilient seated type.
- q. The resilient wedge shall have two sealing points and core fully vulcanised with EPDM rubber at all sides and the wedge design shall be capable to receive the stem nut.
- r. All flanges shall have raised face on both ends. Surface is to be machined and drilled to BS 4504 PN 16.
- s. Flanges shall be at right angles to and concentric with the axis of the bore.

### **3.0 Testing**

- a. All gate valves will undergo testing as specified in the specification.
- b. Test certificate is to be provided and traceable to each valve supplied by individual serial number.
- c. For valves up to and including DN 600 shall be close-end valve seat test at 17.6 bar and hydrostatic pressure test at 24 bars. All tests shall show no signs of leakage.



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#### 4.0 Materials

Summary of materials used are as follows:

ITEM	COMPONENTS	MATERIAL	GRADE	STANDARD
1	Hand wheel setscrew & washer	Stainless steel	304S31	BS 970:Part 1
2	(Stem cap setscrew)	Stainless steel	304S31	BS 970:Part 1
3	Hand wheel	Ductile iron	420/12	BS 2789
4	(Stem cap)	Ductile iron	420/1	BS 2789
5	Gland	Ductile iron	420/12	BS 2789
6	Gland bolts & nuts	Stainless steel	304S31	BS 970:Part 1
7	Seal Ring (Gland packing)	Rubber O-Ring	EPDM	BS EN 681
8	Seal Housing	Ductile iron	420/12	BS 2789
9	Seal housing gasket	Rubber	EPDM	BS EN 681
10	Stem	Stainless steel	304S31	BS 970:Part 1
11	Bonnet	Ductile iron	420/12	BS 2789
12	Bonnet bolt & nuts	Stainless steel	304S31	BS 970:Part 1
13	Bonnet gasket	Rubber	EPDM	BS EN 681
14	Stem nut	Gunmetal	LG2	BS 1400
15	Wedge ring / Body ring (not applicable for resilient seating)	Gunmetal	LG2	BS 1400
16	Wedge	Ductile iron or Ductile iron vulcanised with rubber	420/12  EPDM	BS 2789  BS EN 681
17	Body	Ductile iron	420/12	BS 2789
18	Dust seal / excluder	Rubber O-Ring	EPDM	BS EN 681
19	Seal cartridge	Gunmetal	LG2	BS 2789
20	Stem seal	Rubber O-Ring	EPDM	BS EN 681

## 5.0 Markings

Valves shall have the following body markings in raised letters: -

- a) The nominal size (i.e. DN .....
- b) The nominal pressure designation (i.e. PN.....)
- c) The body material identification – “D I”
- d) The seat material – “RES”
- e) The manufacture’s name and trademark
- f) Year of manufacture (last two digit)
- g) Standard Reference – “BS 5163”
- h) Designation type – “TYPE B”
- i) Directional of closing markings – “CLOSE”

Serial number of the valve and date of manufacture shall be clearly printed on the valve body.

## 6.0 Packing

- a. All valves are to be individually wrapped and protected from damage during transit by using plastic sheet wrappers individually.
- b. Valves shall be in fully open position. Gate valves shall be delivered with stem covers and stainless steel set screw.

## 7.0 Pre- Delivery Inspection and Evaluation

- a. It is the responsibility of the tenderer to inform SAJ for inspection purposes during manufacturing and before delivery.
- b. SAJ reserve the right to inspect and witness the testing of product offered.
- c. At any time, when requested, the supplier is to provide SAJ a sample of the product offered for evaluation purposes. All costs shall be borne by the supplier.
- d. If at any time the supplier fails to deliver the required sample, the product is deemed fail to meet the specifications.

## 8.0 Certification

- a. Manufacturer of supplier are required to provide a copy of the certificate and testing report from SIRIM, IKRAM or other recognised certification body.
- b. Tests report required shall 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.



# **SCHEDULE OF STORES**

# Ranhill SAJ

**Information to be supplied by the Tenderer**

**The tenderer should include the following information.**

<b>Nos.</b>	<b>Description of item</b>	<b>Feature / Material Type</b>
a)	Type B	Yes / No
b)	Resilient seat	Yes / No
c)	Maximum differential pressure	
d)	Body material	
e)	Bonnet material	
f)	Stem material	
g)	Stuffing box material	
h)	Gland / Seal Housing	
i)	Wedge	
j)	Cap	
k)	Hand Wheel	
l)	Spindle (stem)	
m)	Stem Seal	
n)	Dust Seal	
o)	Bonnet Gasket (3 mm. Min.)	
p)	Seal Cartridge	
q)	All Bolt & Stem Nut	
r)	Surface Coating (Internal & External)	
s)	The resilient wedge should be guided by valve body design.	Yes / No

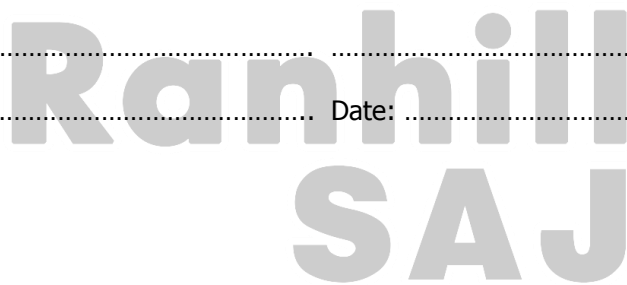
Signature of Tenderer: ..... Signature of Witness: .....

Name: ..... Name: .....

In the capacity of: ..... Address: .....

Tenderer's Seal or chop: .....

Date: ..... Date: .....





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**Schedule of Stores  
For Supply and Delivery Of Ductile Iron Type B Gate Valves  
For the Period of ..... Year(s)**

No.	Description	Unit	Prov. QTY	Rate (RM)	Amount (RM)
	Double flanged ductile iron Type Resilient sluice valve PN 16 conforming to Spesifikasi SAJ VL/GV 001				
1	50 mm	Nos			
2	100 mm	Nos			
3	100 mm	Nos			
3	150 mm	Nos			
4	200 mm	Nos			
5	250 mm	Nos			
6	300 mm	Nos			
7	350 mm	Nos			
8	400 mm	Nos			
9	450 mm c/w built-in bypass	Nos			
10	500 mm c/w built-in bypass	Nos			
11	600 mm c/w built-in by pass	Nos			
	<b>TOTAL VALUE OF TENDER FOR PN 16 VALVES</b>				

**(RINGGIT: .....**)

Signature of Tenderer: ..... Signature of Witness: .....

Name: ..... Name: .....

In the capacity of: ..... Address: .....

Tenderer's Seal or chop: .....

Date: ..... Date: .....

