




**Ranhill  
SAJ**

**SPECIFICATION FOR  
DUCTILE IRON PILLAR HYDRANTS**

**SPECIFICATION SAJ PH / DI / 001  
(Rev.6.0 / 01.2019)**

QUALITY ASSURANCE DEPARTMENT  
RANHILL SAJ SDN. BHD.

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OF RANHILL SAJ SDN BHD

**SAJ SPECIFICATIONS FOR DUCTILE IRON PILLAR HYDRANT**

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## SAJ SPECIFICATION FOR DUCTILE IRON PILLAR HYDRANTS

### 1.0 General

- a. This specification briefly specifies the requirement for the standard 100 mm and 150 mm pillar hydrants.
- b. Pillar hydrants will be of ductile iron material conforming to JKR Specification 20200-0042-99.

### 2.0 Types of Pillar Hydrants

#### 2.1 100 mm diameter Pillar Hydrant

- 2.1.1 The 100 mm pillar hydrant shall be designed with 65 mm dia. outlets as shown in figure 1 & 2.
- 2.1.2 The pressurized 100 mm pillar hydrant shall be equipped with landing valves as in figure 3.

#### 2.2 150 mm diameter Pillar Hydrant

- 2.2.1 The 150 mm pillar hydrants is provided with two 65 mm dia. outlets and one 100 mm dia. outlet as in Figure 4.
- 2.2.2 The pressurized 150 mm pillar hydrant is equipped with two 65 mm dia. landing valve and one 100 mm dia. outlet in figure 5 & 6.

### 3.0 Materials

#### 3.1 Body and Cap: -

- 3.1.1 The body and cap of the pillar hydrants shall be made of ductile (spheroidal graphite) iron at least of quality conforming in all respect to the requirements specified in BS 2789:1985 of Grade 420/12.

#### 3.2 Outlets: -

- 3.2.1 The material for outlets shall be made of die-cast brass which must comply with the standard BS 1400 Grade DCB1 with minimum tensile strength of 200 N/mm<sup>2</sup>.
- 3.2.2 The screwed outlets shall be provided with caps to cover the outlet thread.
- 3.2.3 The caps shall be securely attached to the hydrant by galvanized steel chain.
- 3.2.4 A minimum 3 mm thick rubber gasket conforming to BS 3457 shall be provided.
- 3.2.5 The screwed outlets shall be locked to prevent theft by using pins as shown.

### 3.3 Landing Valve: -

3.3.1 The materials used for all the components of the landing valve are as shown and must comply with BS 5041 Part:1987.

## 4.0 Dimensions

### 4.1 Body

#### 4.1.1 100 mm Pillar Hydrant

4.1.1.1	Overall height	827 mm ± 10 mm
4.1.1.2	External dia. of hydrant	130 mm ± 5 mm
4.1.1.3	Internal dia. of hydrant	102 mm ± 2.0 mm
4.1.1.4	Flange at inlet as specified in Table 11 BS 4504 1989 section 3.2 for Ductile Iron.	

#### 4.1.2 150mm Pillar Hydrants

4.1.2.1	Overall height	875 mm ± 10 mm
4.1.2.2	External diameter of hydrant	193 mm ± 3 mm
4.1.2.3	Internal diameter	150 mm ± 3 mm
4.1.2.4	Flange at inlet as specified in Table 11 BS 4504 1989 section 3.2 for Ductile Iron.	

### 4.2 Outlet

#### 4.2.1 65 mm dia. Outlet

4.2.1.1 This outlet is used as the standard outlets for the 100 mm dia. pillar hydrant and as the side outlets of the 150 mm dia. pillar hydrant.

#### 4.2.2 Outlet diameter: -

a) Internal	64mm + 0.0 mm - 1.5 mm
b) External	75 mm + 0.8 mm - 0.0 mm
c) Length of outlet	122 mm ± 1.0 mm
d) Thickness of flange	10 mm ± 1.5 mm
e) Diameter of flange	96 mm ± 1.0 mm
f) Length of thread	35 mm ± 1.0 mm
g) Diameter of thread (External)	35 mm ± 0.4 mm

- |                        |           |
|------------------------|-----------|
| h) Type of threads     | V threads |
| i) Threads per 25.4 mm | 5 1/3 Nos |

#### 4.2.3 100 mm dia. Outlet

For the front outlet for all 150 mm dia. pillar hydrants required dimensions are as follows: -

##### a) Outlet Diameter

i) Internal	95 mm + 0 mm - 1.5 mm
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ii) External	112 mm + 0.8 mm - 0 mm
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b) Length of Outlet	126 mm ± 1.0 mm
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c) Thickness of Flange	12 mm ± 1.5 mm
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d) Diameter of Flange	140 mm ± 1.0 mm
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e) Length of thread	50 mm ± 1.0 mm
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f) Type of threads	Round Threads
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g) Threads per 25.4 mm	3 Nos
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#### 4.2.4 Landing Valves

All landing valves shall comply with BS 5041 Pt 1:1987 to be used for the pressurized 100 mm pillar hydrant as well as the side outlets of the pressurized 150 mm pillar hydrant.

#### 4.3 Caps

Cap dimension are as follows:

##### 4.3.1 Cap for 65 mm dia. Outlets

a) Width of cap	42 mm ± 1.0 mm
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b) External diameter of cap	100 mm ± 2.0 mm
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c) Internal diameter	81 mm ± 0.5 mm
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d) Rubber gasket	Min. 3 mm thick
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#### 4.3.2 Cap for 100 mm dia. Outlet

- a) Width of Cap 51 mm  $\pm$  1.0 mm
- b) External diameter 190 mm  $\pm$  3 mm
- c) Internal diameter 112 mm  $\pm$  0.5 mm
- d) Rubber gasket

#### 4.4 Chain

- 4.4.1 Material to be of galvanized steel.
- 4.4.2 Minimum diameter for the link of the chain shall be 5 mm.
- 4.4.3 The total minimum length of chain used for 100 mm pillar hydrant and the 150 mm pillar hydrant shall be 660 mm and 1160 mm respectively.
- 4.4.4 Galvanized steel chain is to be fixed be embedded in lug formed in casting.

### 5.0 **Coating**

- 5.1 All machined surfaces shall be thoroughly cleaned and shall be treated with a protective composition before they become affected by rust.
- 5.2 The outer surface of the body shall be coated of either fusion bounded epoxy powder or approved fire hydrant red with minimum thickness 230  $\mu$ m conforming to AS / NZ 4158.

### 6.0 **Testing**

#### 6.1 Hydrostatic Test

- 6.1.1 The hydrant is subjected to a hydraulic pressure of not less than 24 bar for a period of not less than 24 bar of a period of not less than 1 minute.

#### 6.2 Overall Flow Test

- 6.2.1 The hydrant shall deliver not less than 200 liters / min at a constant pressure of 1.7 bar at the inlet to the hydrant (Results may be obtained by interpolation by referring to the pressure versus flow curve as in Appendix 7).

### 7.0 **Markings**

Each hydrant shall have the following markings in raised letters of minimum 50 mm high cast on the body.

- a) The Manufacturer's name and trade mark
- b) The size of the hydrant
- c) The year of manufacture (last two digits)
- d) The body material identification 'DI'
- e) Made in Malaysia
- f) Lettering "SAJ"

## 8.0 Accessories

- 8.1 Accessories and fittings associated to pillar hydrants are: -
- a) Double-flanged duckfoot 90° (¼) bends
  - b) Pipes with cast-on flanges, class K12
  - c) Valves
- 8.2 All fittings such as double-flanged duckfoot 90° (¼) bends and pipes with cast-on flanges, class K 12 connecting to the pillar hydrants shall be made of ductile iron.
- 8.3 All ductile iron fittings shall have the tensile strength of 420 Mpa and minimum elongation of 5%.
- 8.4 Coating for fittings (both internally and externally)
- 8.4.1 All fitting shall be coated with fusion bonded epoxy powder of not less than 350 µm thickness.
  - 8.4.2 All bolts, nuts and washers made of hot dipped galvanize zinc plated carbon steel coated with Rislun Nylon with the finished thickness of coating between 75 µm and 125 µm.

## 9.0 Flanged joints

- 9.1 The dimensions and tolerances of the flanges of pipes and fittings shall comply with PN 16 requirement for ductile iron.
- 9.2 Each fitting shall be supplied with a set of flange jointing materials, which shall be complete with nuts, bolts, washers and joint rings.
- 9.3 Joint rings shall be of flat section 5 mm thick, medium rubber reinforced with two-ply flexible fabric and shall not extend beyond the bolt circle.

## 10.0 Pre- Delivery Inspection and Evaluation

- a. It is 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.

**11.0 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.

**12.0 Packaging**

All pillar hydrants shall be individually packed with proper methods and protected from damage during transit.



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# **SCHEDULE OF STORES**

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Ranhill SAJ Sdn Bhd

**Schedule of Stores  
For Supply and Delivery of Pillar Hydrant  
To Specification PH/DI/001 (Rev.6.0/01.2019)  
For the Period of ..... Year(s)**

No.	Description	Unit	Prov. QTY	Rate (RM)	Amount (RM)
<b>A</b>	<b>Supply and Delivery of Pillar Hydrant complete with DI Duckfoot Bend as per Specification SAJ PH/DI/001 Rev.4.0</b>				
1	100 mm	Nos			
2	150 mm	Nos			
<b>TOTAL VALUE OF TENDER</b>					

**(Ringgit: .....**)

Signature of Tenderer: ..... Signature of witness: .....

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

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

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

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



Ranhill SAJ Sdn Bhd

**Schedule of Stores  
For Supply and Delivery of Pillar Hydrant  
To Specification PH/DI/001 (Rev.6.0/01.2019)  
For the Period of ..... Year(s)**

No.	Description	Unit	Prov. QTY	Rate (RM)	Amount (RM)
<b>B</b>	<b>Supply and Delivery of Pillar Hydrant as per Specification SAJ PH/DI/ 001 Rev.4.0</b>				
1	100 mm	Nos			
2	150 mm	Nos			
<b>TOTAL VALUE OF TENDER</b>					

**(Ringgit: .....**)

Signature of Tenderer: ..... Signature of witness: .....

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

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

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

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



Ranhill SAJ Sdn. Bhd.

**Schedule of Stores  
For Supply and Delivery of Pillar Hydrant  
To Specification PH/DI/001 (Rev.6.0/01.2019)  
For the Period of ..... Year(s)**

No.	Description	Unit	Prov. QTY	Rate (RM)	Amount (RM)
<b>C</b>	<b>Supply and Delivery of DI Duckfoot Bend as per Specification SAJ PH/DI/001 Rev.4.0</b>				
1	100 mm	Nos			
2	150 mm	Nos			
<b>TOTAL VALUE OF TENDER</b>					

**(Ringgit: .....**)

Signature of Tenderer: ..... Signature of witness: .....

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

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

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

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

