



**SPECIFICATION FOR  
ANTI-BACTERIA HIGH IMPACT 3-LAYER PIPE  
(AB-3P) FOR WATER SUPPLY SYSTEMS**

**SPECIFICATION SAJ PS/AB/001  
(Rev.1.0 / 12.2018)**

QUALITY ASSURANCE DEPARTMENT  
RANHILL SAJ SDN. BHD.

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OF RANHILL SAJ SDN BHD

## **Specification for Anti-Bacteria High Impact 3-Layer Pipe (AB-3P) for Water Supply Systems**

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## **Specification for Anti-Bacteria High Impact 3-Layer Pipe (AB-3P) for Water Supply Systems**

### **1.0 General**

- 1.1** This specification is applicable to Anti-Bacteria High Impact 3-Layer (AB-3P) Pipe for water supply systems and shall conform to MS 628: 1999 and BS 3505: 1986.
- 1.2** These specifications will provide necessary information on the product dimensions and requirements for the supply of pipes only.

### **2.0 Pipes**

- 2.1** The color of pipes shall be of light grey.

### **3.0 Material Used in Manufacture**

- 3.1** The material used in the manufacture of pipes, shall consist substantially of polyvinyl chloride, to which may be added only those additives with anti-bacterial properties and function and other additives which are needed to facilitate the manufacture of the polymers pipe with good finish, mechanical strength, capacity and also the ability to actively eliminate bacteria in the water flowing through the pipe.
- 3.2** None of these additives shall be used separately or together in quantities sufficient to constitute a toxic hazard, to impair the fabrication or welding properties of the pipes, or to impair the chemical and physical properties of the pipes (in particular long term mechanical and impact strength). The no lead and no zinc additives shall be used for pipe dry compound.
- 3.3** No rework material shall be used and the dispersion of all ingredients in the material composition shall be uniform.
- 3.4** When tested by method 120B of BS 2782 (Methods of Testing Plastics), the deformation temperature of the material under load shall not be lower than 75°C.

#### 4.0 Classification

- 4.1 The pipes, joints and fittings shall be classified in accordance with the Maximum Permissible Working Pressure in table below:

uPVC Classification of Pipes, Joints and Fittings

Class of Pipe	Maximum Permissible Working Pressure	
	At 20°C	At 30°C
C	9 bar	8.1 bar
D	12 bar	10.8 bar
E	15 bar	13.5 bar

#### 5.0 Thickness and Diameter

- 5.1 The pipes shall be designated by the nominal size and shall conform to the dimensions specified in Table A.

#### 6.0 Rubber Ring

All rubber ring joints:

- a. Shall be manufactured for pipe sizes of 80mm and above.
- b. Shall be of EPDM and have a hardness range of 66-75 IRHD and meet the requirements of MS 672:99 or AS 1646.
- c. Shall be factory fitted and positioned in the ring housing if required by SAJ.
- d. Supplied are designed to suit AB-3P pipe and have the following marking:-
  - i. Manufacturer name
  - ii. Standards used to manufacture
  - iii. Date of manufacture
  - iv. Batch no.
  - v. Brand name of pipe to be used with
  - vi. Rubber type.

## **7.0 Lengths**

- 7.1** The standard length of pipes shall be 6meter.
- 7.2** Other length may be supplied, if required by SAJ.
- 7.3** The contractor shall supply free of charge the extra joints required due to the supply of non-standard pipe length.

## **8.0 Tolerance on Dimensions**

- 8.1** Mean tolerances on the outside diameters and ovality (out of roundness) shall conform to the requirements of Table A attached.
- 8.2** A tolerance of +15mm/-0mm shall be allowed on the length of an individual pipe but the total length of pipe supplied shall not be less than the total length ordered.

## **9.0 Joints and Fittings**

- 9.1** AB-3P pipe joints and fittings shall be of ductile iron fitting complying to BS EN 545:1999.

## 10.0 Marking

- a. All pipe supplied shall have the following marking on the outside of pipe:
  - i. Manufacturer's identification
  - ii. Nominal size and Class
  - iii. Serial number of pipe
  - iv. Letter SAJ (50mm high)
  - v. Year of manufacture
  - vi. Standards reference
  - vii. Batch number
- b. The colour of the markings shall be black.
- c. Adhesive labels will not be accepted.

## 11.0 Pre-Delivery Inspection

- 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 failed 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.

Attachment

Table A

Nominal size (BS 3505) inch	Nominal size (MS 628) mm	Dimension of AB-3P Pipe									
		Outside Diameter		PN9+ (Class C+)							
				MS 628 (BS 3505)		AS 1477					
OD Min	OD Max	Wall-t	t min	t max							

## **SCHEDULE OF STORES**



**Ranhill SAJ Sdn. Bhd.**  
**Schedule of Stores for Supply and Delivery of uPVC Pipes**  
**For Period of ..... Year(s)**

No.	Description	Provisional Quantity	Rate (RM)	Amount (RM)
<b>A</b>	<b>UPVC Pipes Class PN 12: Bell-mouth</b>			
<b>1</b>	<b>80mm Diameter</b>			
<b>2</b>	<b>100mm</b>			
<b>3</b>	<b>155mm</b>			
<b>4</b>	<b>200mm</b>			
<b>5</b>	<b>250mm</b>			
<b>6</b>	<b>300mm</b>			
<b>7</b>	<b>350mm</b>			
<b>8</b>	<b>400mm</b>			
<b>B</b>	<b>UPVC Class PN 12: Plain Ended</b>			
<b>1</b>	<b>80mm Diameter</b>			
<b>2</b>	<b>100mm</b>			
<b>3</b>	<b>155mm</b>			
<b>4</b>	<b>200mm</b>			
<b>5</b>	<b>250mm</b>			
<b>6</b>	<b>300mm</b>			
<b>7</b>	<b>350mm</b>			
<b>8</b>	<b>400mm</b>			
	<b>TOTAL TENDER SUM</b>			

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

Signature of Tenderer: ..... Signature of Witness: .....  
 Name: ..... Name: .....  
 In the capacity of: ..... Address: .....  
 Tenderer's Seal or Chop: .....  
 Date: .....

