

Document No.: P120-D-604, Rev.-0

Title : **Data Sheet for Pipes, Fittings, Flanges and Fasteners**

Package : Fire Fighting System for Akrimota TPS of Gujarat Mineral Development Corporation

Contractor : Unitech Machines Limited

A. SERVICE : HYDRANT SYSTEM, HWW SPRAY SYSTEM (UPTO DELUGE VALVE) AND SPRINKLER SYSTEM		
1. PIPES	Material Standard	Dimension Standard
50 NB and below	Carbon steel, ERW, IS:1239 (I)	IS:1239, Part-I, Heavy Grade, plain ends for socket welding
65 NB upto 150 NB	Carbon steel, ERW, IS:1239 (I)	IS:1239, Part-I, Heavy Gr. Bevelled ends for butt welding
Above 150 NB	Carbon steel, ERW, IS:3589, Gr. 330, 8 mm thk.	IS:3589, Bevelled ends for butt welding.
2. FITTINGS		
a. Elbows (R=1.5D)/Reducers		
50 NB and below	Forged carbon steel ASTM A-105	SW ends to ANSI B 16.11 (3000#)
65 NB to 150 NB	Carbon Steel to IS:1239, Part-II/ASTM A-234, Grade WPB	BW ends to IS:1239, Part-II/ BW ends to ANSI B-16.9, Sch.-40
200 NB and above	Mitre bends (R=1.5D) Fabricated from parent pipe	ANSI B 16.9, BW ends
b. Tees		
50 NB and below	Forged carbon steel to ASTM A-105	SW ends to ANSI B16.11 (3000#)
65 NB to 150 NB	Carbon Steel to IS:1239, Part-II/ASTM A-234, Grade WPB	BW ends to IS:1239, Part-II/ BW ends to ANSI B-16.9, Sch.-40
200 NB and above	Branching in the Main pipe	

Pipe Make : Tata steel / JSW steel / SAIL

<b>3. Slip on Flanges / Blind Flanges</b>		
All sizes	IS-2062 Gr. A	Dimensions/Drilling as per ANSI B16.5, Class 150# and flat face
<b>B. SERVICE : HWV SPRAY SYSTEM (BEYOND DELUGE VALVE)</b>		
<b>1. PIPES</b>	<b>Material Standard</b>	<b>Dimension Standard</b>
150 NB and below	MS ERW Galvanized IS:1239 (I)	IS:1239, Part-I, Heavy Grade, Plain ends
<b>2. FITTINGS (Elbows/Tees/Reducers)</b>		
150 NB and below	Malleable Cast Iron	IS:1879 Screwed
<b>3. Flanges / Blind Flanges</b>		
All sizes	IS-2062 Gr. A, Galvanized	Drilling as per ANSI B16.5, Class 150# and screwed, Flat Face
<b>C. SERVICE : CO<sub>2</sub> FIRE SUPPRESSION SYSTEM</b>		
<b>1. PIPES</b>	<b>Material Standard</b>	<b>Dimension Standard</b>
150 NB and below	CS Seamless, ASTM A-106 Galvanized	ASTM A-106, Gr. B, Sch.-80 BW ends
<b>2. FITTINGS (Elbows/Tees/Reducers)</b>		
50 NB and below	ASTM A-105, Galvanized	SW ends to ANSI B-16.11, 3000#
65 NB and above	A-234, Grade-WPB, Galvanized	BW ends to ANSI B-16.9, Sch.-80
<b>3. Slip on Flanges / Blind Flanges</b>		
All sizes	IS-2062 Gr. A, Galvanized	Dimensions/Drilling as per ANSI B16.5, Class 300#, Flat Face

<b>D. SERVICE : FOAM SYSTEM</b>			
<b>1. PIPES</b>	<b>Material Standard</b>	<b>Dimension Standard</b>	
<b>For Foam Concentrate</b>			
25NB and below	SS ERW, ASTM A-312, Gr. TP-304	ASTM A-312, Gr. TP-304, Sch.-20 S, BW ends	
<b>Other than Foam Concentrate</b>			
All Sizes	Carbon steel, galvanised ERW:IS:1239 (I)	IS:1239, Part-I, Heavy Grade	
<b>2. FITTINGS</b>			
<b>a. Elbows (R=1.5D)/Tees/Reducer</b>			
<b>For Foam Concentrate</b>			
25NB and below	ASTM A-182, Gr. F-304	BW ends to ANSI B-16.11, 3000#	
<b>Other than Foam Concentrate</b>			
50 NB and below	ASTM A-105	SW ends to ANSI B-16.11, 3000#	
65 NB and above	Malleable Cast iron	IS:1879 Screwed	
<b>3. Flanges / Blind Flanges</b>			
<b>For Foam Concentrate</b>			
25NB and below	ASTM A-240, TP-304	Dimensions/Drilling as per ANSI B16.5, Class 150#, SOFF	
<b>Other than Foam Concentrate</b>			
50 NB and below	Forged Carbon Steel to ASTM A-105	Dimensions/Drilling as per ANSI B16.5, Class 150#, Flat Face	
65 NB and above	IS:2062, Gr-A, Galvanised	Dimensions/Drilling as per ANSI B16.5, Class 150#, Flat Face	

E. FASTENERS FOR ALL SERVICES		
1.	Bolts & Nuts	
	For Black Pipes	
	All sizes	IS-1367 Cl. 4.6 for bolts IS-1367 Cl. 4 for nuts
	For GI/SS Pipes	Same as above but galvanised
2.	Gaskets	
	All sizes	Full face CAF as per IS:2712, 3 mm thk.
		ANSI B16.21

**MACHINES LIMITED**

Document No.: P120-D-608, Rev.-0  
 Item : Valves (Gate & NRV)  
 Package : Fire Detection, Alarm and Protection System for Akrimota TPS  
 of Gujarat Mineral Development Corporation  
 Contractor : Unitech Machines Limited

Sl. No.	Particulars	Gate Valve	Non-Return Valve
1.	Type	: Outside screw yoke type with rising stem	Swing Check
2.	Size	: 65 NB to 300 NB.	65NB to 300NB
3.	Quantity	: As per approved drawing/ BOQ	As per approved BOQ
4.	Design Code / Standard	:	
a.	65 NB to 300 NB	: BS:5150	IS:5312
5.	Pressure Class	:	
a.	65 NB to 300 NB	: PN1.6	PN 1.6
6.	Material of Construction	:	
a.	Body	: Cast Iron to IS:210 Gr. FG200	Cast Iron to IS:210, Gr. FE 200
b.	Bonnet	: Cast Iron to IS:210 Gr. FG200	Cast Iron to IS:210, Gr. FE 200
c.	Wedge	: Cast Iron to IS:210 Gr. FG-200	N.A.
d.	Seat Ring	: AISI:410	AISI:410
e.	Spindle	: AISI:410	N.A.
f.	Gland	: Cast Iron to IS:210 Gr. FG-200	N.A.
g.	Gland Packing	: Jute & hemp to IS:5414	N.A.
h.	Gasket	: Rubber to IS:638 Type B	Rubber-- to IS:638, Type B
i.	Bolt & Nuts	: MS to IS:1367	M.S. to IS:1367
j.	Yoke	: Cast Iron to IS:210 Gr. FG200	N.A.
7.	End Connection	: Flat Face Flanged, drilled to ANSI B:16.5, 150#	Flat face flanged, drilled to ANSI B16.5, 150#

Sheet 1 of 2

Make: KSB, Fawcress, Intesivalve

8.	Hydrostatic Test Pressure	:		
a.	Body/seat (Kg/cm <sup>2</sup> )	:	24/16	24/16
9.	Accessories / Special Features	:		
a.	Handwheel for gate valves	:	Provided	N.A.
b.	Draining arrangement	:	As per requirement	As per requirement
c.	Position Indicator (located at a place visible to the operator)	:	Provided	N.A.
11.	Inspection & Testing	:	As per approved MQP/ICL	As per approved MQP/ICL
12.	Statutory Approval	:	TAC approved	TAC approved

IS

# UNITECH MACHINES LIMITED

Document No.: P120-D-621, Rev.-0  
Item : **Data Sheet for Underground Wrapping & Coating Material and Paint**  
Package : **Fire Detection, Alarm and Protection System for Akrimota TPS**  
of Gujarat Mineral Development Corporation  
Contractor : Unitech Machines Limited

## A. UNDERGROUND WRAPPING & COATING MATERIAL

Type : Polymeric Construction  
Design Code : IS:10221/AWWA C-203  
Material of Construction : It incorporates a centre core of thick HMHDPE film. A reinforcement of fibre glass mat lends mechanical strength & dimensional stability to the product. Interleaved between the layers of Polyethylene films are 3 layers of Polymeric mix. The tape is terminated on both exteriors by Thermofusible HMHDPE film. All the seven layers are calendered together to create this revolutionary 4mm thick tape.  
No. of Wraps : One (1) No. wrap suitably overlapped  
Thickness of Tape : 4mm  
Width of Tape : 150mm/250mm  
Overlap : As mentioned in the enclosed Technical Brochure

### TECHNICAL SPECIFICATIONS

CHARACTERISTICS OF MODIFIED MIX	TESTING PROCEDURE	PYPKOTE4MM
Softening Point	LTM01 (ASTM D-36)	65°C - 121°C
Penetration 25°C 100g, 5 sec	LTM02 (ASTM D-5)	3dmm - 20 dmm
Filler Content	LTM04 (IS-1217)	20% - 30%
CHARACTERISTICS OF THE TAPE	TESTING PROCEDURE	PYPKOTE4MM
Normal Thickness	Measurement	4 ± 0.2mm
Pliability	LTM03 (ASTM D-228)	+ 17°C does not break
Heat Resistance	LTM05 (ASTM D-146)	Does not drip at 100°C
Tensile Strength (+25°C)		
- Lengthwise	LTM07	300 N/5cm
- Crosswise	DIN - 52123	100N/5cm

**UNITECH MACHINES LIMITED**

Document No.: P120-D-621, Rev.-0

Elongation		
- Lengthwise	LTM07	20%
- Crosswise	DIN-52123	30%

<b>CHARACTERISTICS OF PYPEKOTE PRIMER</b>	<b>TEST METHOD</b>	<b>SPECIFICATION</b>
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Viscosity	Ford Cup-B4	35 to 100 seconds
Drying Time	Measurement	20 to 30 minutes
Flash Point	Open Cup	> 23°C
Density	Measurement	0.900 to 0.950
Volatile Matter	IS-10221	Max. 75%

Inspection : As per approved Quality Plan

Quantity : As per BOQ

Make : IWL

CATALOGUE : YES (1 sheet)  
ENCLOSED :

Document No : P120-D-612, Rev.-1  
Item : **Data Sheet for Hose Pipe**  
Package : Fire Detection, Alarm and Protection System for Akrimota TPS  
of Gujarat Mineral Development Corporation  
Contractor : Unitech Machines Limited

A.	HOSE PIPE	
1.0	Make	Sukan/Minimax /Aag : As per approved Vendor List
2.0	Type	: Non-percolating, RRL Flexible Hose
3.0	Code/Standard	: IS:636, Type B
4.0	Working pressure	: 7.0 Kg/cm <sup>2</sup> (g)
5.0	Hydro-static Test Pressure	: 21 Kg/cm <sup>2</sup>
6.0	Burst Pressure	: 32 Kg/cm <sup>2</sup>
7.0	Size and length of hose	: 63 mm NB x 15 m long for yard hydrant 63 mm NB x 7.5 m long for internal hydrant
8.0	Quick coupling end	: Instantaneous spring lock type quick coupling of S.S. construction at both end
9.0	Quantity	: As per approved Drg./BOQ
10.0	Inspection & Testing	As per approved MQP

Document No.: P120-D-613, Rev.-0  
Item : **Data Sheet for Hose Box**  
Package : **Fire Detection, Alarm and Protection System for Akrimota TPS  
of Gujarat Mineral Development Corporation**  
Contractor : **Unitech Machines Limited**

1.0	Type	:	Wall mounted/post mounted
2.0	Size	:	To accommodate a pair of 15 mtr. Long hoses, 1 branch pipe, nozzle and spanner
3.0	Quantity	:	As per BOQ
4.0	Material of construction	:	Fabricated out of 16 SWG mild steel sheet
5.0	Dimensions	:	
6.0	Door type	:	Double hanged door fitted with 3 mm thk. plain glass
7.0	Marking	:	Fire in 150 mm size lettering on glass in red colour
8.0	Locking arrangement	:	In built lock with duplicate keys
9.0	Painting (Inside and Outside)	:	Two coats of Red Oxide primer and two coats of synthetic enamel paint Colour Shade : Fire Red (IS-5, Shade No. 536)
10.0	Inspection & testing	:	As per approved quality plan / check list

Make : Sukan Equipments Pvt Ltd / Aary

Document No : P120-D-611, Rev.-0  
Item : Data Sheet for Hydrant Valve & Branch Pipe with Nozzles  
Package : Fire Detection, Alarm and Protection System for Akrimota TPS  
of Gujarat Mineral Development Corporation  
Contractor : Unitech Machines Limited

Make - SUKAN Equipments Pvt Ltd.

**A. Hydrant Valve**

1. Type : Single outlet, Female Oblique type, outlet angled towards ground
2. Code / standard : IS:5290, Type A
3. Quantity : As per approved drawings\BOQ
4. Flow : 900 LPM at 7 Kg/cm<sup>2</sup>
5. Working pressure (kg/cm<sup>2</sup>) : Max. 7  
Min. 3.5
6. Hydrostatic test pressure (kg/cm<sup>2</sup>) : 21
7. Constructional features
  - a) Bonnet : Screwed
  - b) Stem : Rising
8. End specifications
  - a) Inlet connections : Flanged drilled to ANSI B16.5 of size 80mm, 150# Flat face
  - b) Outlet connections : Instantaneous spring lock type coupling of size 63mm as per IS:5290 with cap and chain
9. Material of construction
  - a) Body & bonnet : SS Grade 4 of IS:3444:1987
  - b) Stop valve, valve seat & trim : SS Grade 4 of IS:3444:1987
  - c) Instantaneous coupling, blank cap chain : SS Grade 4 of IS:3444:1987
  - d) Valve spindle : Stainless Steel to IS:6603
  - e) Handwheel : Cast Iron to IS:210/Mild Steel to IS:1030
  - f) Spring : Stainless Steel wire to IS:6528
10. Direction of rotation : Indicated on handwheel
11. Approval : TAC approved

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**B. BRANCH PIPE WITH NOZZLE**

- 1.0 Code/Standard : IS:903
- 2.0 Material of Construction
  - a. Branch Pipe : SS Gr. 4 of IS:3444:1987
  - b. Nozzle : SS Gr. 4 of IS:3444:1987
- 3.0 Nozzle size (mm) : 20
- 4.0 Quantity : As per approved BOQ
- 5.0 Accessories : Nozzle Spanner
- 6.0 Inspection & Testing : As per approved MQP/ICL
- 7.0 Approval : ISI approved

Make : Sukan equipments Pvt. Ltd.