

	Project :	ROURKELA PP-II EXPANSION (1 x 250MW)	Document No.	PY-AD-4-M087-8315-04
			REV	01P
	Package :	Fire Protection & Detection System	Page	1 of 2

17.05.17	00	INITIAL SUBMISSION	--	AMIT	MNSR
Date	Rev	Description of Revision	ALT	CHD	APPD
CUSTOMER: 		NTPC-SAIL POWER COMPANY (P) LIMITED			
CONSULTANT 		MECON LIMITED			
CONTRACTOR: 		BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION, HYDERABAD			
Doc. No		PY-AD-4-M087-8315-04			Rev: 01P
PACKAGE		FIRE PROTECTION & DETECTION SYSTEM			
TITLE		PIPES - MS BLACK, GALVANIZED -MEDIUM INCLUDING FITTINGS			
PREPARED BY		SUMANT		14.05.2017	
CHECKED BY		AMIT		16.05.2017	
APPROVED BY		MNSR		17.05.2017	

BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING & SYSTEMS DIVISION HYDERABAD-32			Doc no	PY-AD-4-M087-8315-04
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Sl. No.	Description	Material Standard	Dimensional Standard	
A. PIPES NORMALLY FILLED WITH WATER				
1. M.S. Pipes (Underground / Aboveground)				
	Up to 50 NB	Mild steel, Black ERW to IS:1239, Part-I	IS: 1239, Part-I, Heavy Gr. PE	
	65 NB to150 NB		IS: 1239, Part-I, Heavy Gr. BE	
	200 NB & Above	Mild steel, Black, ERW to IS: 3589, Gr. Fe 410	Thickness: 6.35 mm for 200 NB to 350 NB,BE Thickness: 7.14 mm for 400 NB, BE Thickness: 8 mm beyond 400 NB,BE	
2. Fittings				
Fittings (Elbows (R=1.5D) / Reducers/Tees)				
	Up to 50 NB	Forged to ASTM A 105	SW ends to ANSI B16.11,3000#	
	65 NB to 300 NB	ASTM A 234 Gr WPB	BW Ends to ANSI B-16.9, Sch. 40	
	350 NB & Above	MITRE bends (R=1.5D) Fabricated from parent pipe	BW ends to ASME B16.25	
3. Flanges				
	All sizes	Fabricated from Plate conforming to IS: 2062 Gr. B	Dimensions/ Drilling as per ASME B16.5, Class 150#	
			Facing: FF for all	
4. Gasket				
	All Sizes	CNAF as per BS:7531,Gr.Y Full face type to suit flanges as per ANSI B 16.5, 150# Flat Face		
5. MS FASTENER				
	Bolt	MS to IS: 1367 Cl. 4.6 Full threaded as per IS: 1367		
	Nut	MS to IS: 1367 Cl. 4.0		
	Washer	MS to IS: 2016		
B. PIPES NORMALLY EMPTY BUT PERIODICALLY FILLED WITH WATER				
1. G.I. Pipes (Aboveground)				
	50 NB and Below	MS ERW Galvanized to IS:1239,Part-1, Galvanized as per IS: 4736	IS: 1239, Part-I, Heavy Grade, SCRD	
	Above 50 NB to 150 NB		IS: 1239, Part-I,Heavy Grade, BW	
	200 NB & Above	MS ERW Galvanized to IS-3589 Gr 410 , Galvanized as per IS: 4736	6.35 mm thickness for 200 NB to 350 NB,BE 7.14 mm thickness for 400 NB,BE 8 mm thickness beyond 400 NB, BE	
2. Fittings (Elbows / Reducers / Tees / Cross)				
	50 NB and Below	MS as per IS 1239 Part-I , Galvanized as per IS: 4759	Screwed Ends	
	65 NB to 150 NB	MS as per IS 1239 Part-I , Galvanized as per IS: 4759	BW Ends	
	200 NB & Above	MITRE bends (R=1.5D) Fabricated from parent pipe	BW Ends	
3.	Slip-On / blind flanges for all sizes	IS: 2062 Gr. B, Galvanized	Dimensions/Drilling as per ANSI B 16.5, Class 150 # and Flat Face	
4. Gaskets				
	All Sizes	CNAF as per BS: 7531,Gr.Y. Full face type to suit flanges as per ANSI B 16.5, 150# Flat Face		
5. MS FASTENER				
	Bolt	MS Galvanized to IS: 1367 Cl. 4.6 Full threaded as per IS: 1367		
	Nut	MS Galvanized to IS: 1367 Cl. 4.0		
	Washer	MS Galvanized to IS: 2016		
Note: In case of branching connections from GI mains for spray piping networks, pipe may be welded for more than two pipe size reduction instead of standard tee.				

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CONSULTANT 		MECON LIMITED			
CONTRACTOR:  		BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION, HYDERABAD			
Doc. No		PY-AD-4-M087-8315-06			Rev: 00
PACKAGE		FIRE PROTECTION & DETECTION SYSTEM			
TITLE		DATA SHEET OF CAST IRON GATE VALVE			
PREPARED BY		SUMANT		14.05.2017	
CHECKED BY		AMIT		16.05.2017	
APPROVED BY		MNSR		17.05.2017	



TECHNICAL DATA SHEET OF CAST IRON GATE VALVE

1. Type : Rising Spindle type
2. Size : 50 NB & Above
3. Service : 50 NB & Above
4. Code and Standard : IS: 14846
5. Rating : IS: 14846
6. Working Pressure : 10.5 kg/cm²
7. Design Pressure : 11.5 Kg./cm²
8. Test Pressure
 - a. Body : 24 Kg./cm² (for 5min)
 - b. Seat : 16 Kg./cm² (for 2min)
9. Material of Construction
 - a. Body : CI to IS: 210, Gr. FG-260
 - b. Bonnet : CI to IS: 210, Gr. FG-260
 - c. Wedge/Disc : CI to IS: 210, Gr. FG-260
 - d. Stem : SS to ASTM A-276, Type 410
 - e. Bolts : CS to IS: 1363
 - f. Nuts : CS to IS: 1363
 - g. Gaskets : Rubber conforming to IS:638 Type-B
 - h. End Connections : Flanged
 - i. Gland : CI to IS: 210, Gr. FG-260
 - j. Gland Packing : Jute & Hemp as per IS5414
 - k. Hinge Pin : NA
10. Inspection : As per approved QAP
11. Quantity : As per approved BOQ/Drg.

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CONSULTANT 		MECON LIMITED			
CONTRACTOR:  		BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION, HYDERABAD			
Doc. No		PY-AD-4-M087-8315-07			Rev: 00
PACKAGE		FIRE PROTECTION & DETECTION SYSTEM			
TITLE		DATA SHEET OF CAST IRON BUTTERFLY VALVE			
PREPARED BY		SUMANT		14.05.2017	
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TECHNICAL DATA SHEET OF CAST IRON BUTTERFLY VALVE

1. Type :
 - a) Valves 300 mm and larger in size shall be flanged type.
 - b) Wafer Type butterfly valve for pipe made up of steel and pipe sizes upto 300 NB .
2. Manufacturing Standard : EN 593
3. Testing Standard : EN 12266 - 1/API 598
4. Class/Rating : PN 16
5. Hydraulic Test Pressure
 - a) Body : 24 kg/cm²
 - b) Seat : 17.6 kgf/cm²
6. Material of construction
 - a) Body : Cast Iron IS: 210 Gr. FG260
 - b) Disc : Cast Iron IS: 210 Gr. FG260
 - c) Spindle : SS AISI 410
 - d) 'O' Ring : Nitrile rubber
 - e) Rubber Lining : Nitrile rubber bonded on hard body.
 - f) Ratchet Box : Cast Iron IS: 210 Gr. FG260
 - g) Flow control lever : MS
7. Hydrostatic Test Pressure:
 - Body : 24 Kg/cm² Gauge Pressure for 5 mins.
 - Seat : 16 kg/cm² Gauge Pressure for 2 mins.
8. Flanges : Valves are suitable to fix in between flanges drilled to ANSI B 16.5
9. Operation : Lever Operated.
10. Quantity : As per Approved Drawings
11. Testing & Inspection : As per Approved QAP

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CONSULTANT 		MECON LIMITED			
CONTRACTOR:  		BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION, HYDERABAD			
Doc. No		PY-AD-4-M087-8315-10			Rev: 00
PACKAGE		FIRE PROTECTION & DETECTION SYSTEM			
TITLE		DATA SHEET OF Y - TYPE STRAINER			
PREPARED BY		SUMANT		14.05.2017	
CHECKED BY		AMIT		16.05.2017	
APPROVED BY		MNSR		17.05.2017	



TECHNICAL DATASHEET OF Y- TYPE STRAINER

- | | | |
|-------------------------------|---|--|
| 1. Service | : | Fire Water |
| 2. Size | : | 150 NB/100 NB/80 NB |
| 3. Working Pressure | : | 8.8 Kg/cm ² (g) |
| 4. Design Pressure | : | 10.6 Kg/cm ² (g) |
| 5. Design Temperature | : | 50° C |
| 6. Design Code | : | ASME Sec.VIII,DIV-1 |
| 7. Corrosion allowance | : | 2 mm |
| 8. Filter Rating | : | 30 Mesh with 30 SWG |
| 9. Screen area ratio | : | 6:1 |
| 10. Max. Permissible Pr. Drop | | |
| a) Clean condition | : | 1.5 MWC |
| b) 50% Clogged Condition | : | 2.5 MWC |
| 11. Material of construction | | |
| a) Body | : | MS, IS:3589 / MS, IS:1239,Part-I |
| b) Filter medium | : | SS-316 |
| c) In/Out Nozzle | : | IS 1239,Part-I |
| d) Gaskets | : | Rubber |
| 12. End Connection | : | IS 2062 GrB, Flanged to ANSI B16.5, 150#, FF |
| 13. Hydrostatic Test Pressure | : | 16.0 Kg/cm ² (g) |



Project :

ROURKELA PP-II EXPANSION (1 x 250MW)

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CUSTOMER: 		NTPC-SAIL POWER COMPANY (P) LIMITED			
CONSULTANT 		MECON LIMITED			
CONTRACTOR:  		BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION, HYDERABAD			
Doc. No	PY-AD-4-M087-8315-19				Rev: 00
PACKAGE	FIRE PROTECTION & DETECTION SYSTEM				
TITLE	DATASHEET OF DELUGE VALVE				
PREPARED BY	SUMANT			14.05.2017	
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DELUGE VALVE

1. Type : Differential pressure, quick release, diaphragm operated
2. Type of actuation : Electrically actuated by solenoid valve / Hydraulically actuated by QB
3. Size : 80/100/150 NB
4. Quantity : As per approved BOM
5. Trim type : Wet Trim
6. End Connection : Flanged End as per ANSI B16.5
7. Mounting : 90° pattern inlet to outlet vertical mounting
8. Material of construction
 - a) Body : Cast Iron IS:210 Gr. FG 260
 - b) Cover : Cast Iron IS:210 Gr. FG 260
 - c) Clapper : Ductile Iron to ASTM: A536
 - d) Seat : Bronze IS:318 LTB-II
 - e) Seat Rubber : Neoprene Rubber
 - f) Diaphragm : Neoprene Rubber
 - g) Clamp Ring : Ductile Iron to ASTM: A536
9. Accessories provided with Deluge Valve
 - a) Test Strainer, Drain Valve & NRV : Yes
 - b) Water Motor Gong : Yes
 - c) Isolation Valve at upstream and : Yes
 - d) Instruments such as Pressure Gauge : Yes
10. Whether capable of resetting manually : Yes
11. Markings : Mfg. Trade Name, Year of Mfg. & Sr. No., Size & Model, "UL" Listed
12. Inspection and Testing : As per approved QAP
13. Working pressure : 3.5 to 12 Kg/cm²
14. Hydrostatic test pressure of body : 25 Kg/cm² for 5 mins duration
- 15 Approval : UL listed
- 16 Painting : Total DFT Min. 125 microns
 - a) Primer : Zinc Filled Epoxy
 - b) Finish : P.O Red
- 17 Operation : Automatic / Manual

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CONSULTANT 		MECON LIMITED			
CONTRACTOR: 		BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION, HYDERABAD			
Doc. No		PY-AD-4-M087-8315-20			Rev: 00
PACKAGE		FIRE PROTECTION & DETECTION SYSTEM			
TITLE		DATA SHEET OF H.V.W.SPRAY NOZZLES & M.V.W. SPRAY NOZZLE			
PREPARED BY		SUMANT		14.05.2017	
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TECHNICAL DATA SHEET OF HVWS SPRAY NOZZLE

1. Type : High Velocity Water Spray Nozzle
2. Application : HVW Spray System for
 1. Generator Transformer (1 Nos)
 2. Station Transformer (1 Nos)
 3. Unit Transformers (2 Nos)
 4. Turbine oil tank and purifier
 5. Central Lube oil system
 6. Boiler Burner fronts
 7. Turbine oil canal pipe lines
 8. Generator Oil system
3. End Connection : 3/4" BSPT
4. Effective Working Pressure : 3.5 to 10.5 bar
5. Maximum Working Pressure : 12 bar
6. Material of Construction
 - a) Body : SS 304
 - b) Scroll : SS 304
 - c) Finish : Nickel Chrome Plated
7. Approval : UL Listed
8. Spray angle : 50 Deg to 150 Deg
9. K Factor : K18 to K42
10. Range at minimum pressure : Will be furnished after receipt of vendors data
11. Effective coverage at minimum : Will be furnished after receipt of vendors data
12. Inspection and testing : As per approved QAP



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TECHNICAL DATA SHEET OF MVWS SPRAY NOZZLE

1. Type : Medium Velocity Water Spray Nozzle
2. Application : HVW Spray System for
 1. Cable galleries in TG building
 2. Coal Conveyers Gallery
3. End Connection : 1/2" BSPT (M)
4. Effective Working Pressure : 1.4 to 3.5 kg/cm² (g)
5. Maximum Working Pressure : 12 kg/cm² (g)
6. Material of Construction
 - a) Body : SS-304
 - b) Insert : SS-304
7. Approval : UL Listed
8. Spray angle : 60 Deg to 150 Deg
9. K Factor : 18 Metric to 102 Metric
10. Range at minimum pressure : 60° to 150°
11. Inspection and testing : As per approved QAP

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CUSTOMER: 		NTPC-SAIL POWER COMPANY (P) LIMITED			
CONSULTANT 		MECON LIMITED			
CONTRACTOR:  		BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION, HYDERABAD			
Doc. No		PY-AD-4-M087-8315-22			Rev: 00
PACKAGE		FIRE PROTECTION & DETECTION SYSTEM			
TITLE		DATA SHEET OF PRESSURE SWITCH			
PREPARED BY		SUMANT		23.05.2017	
CHECKED BY		AMIT		23.05.2017	
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TECHNICAL DATASHEET OF PRESSURE SWITCH

- | | |
|-----------------------------|--|
| 1. Make | : As per approved Vendor list |
| 2. Sensing element material | : Diaphragm or bellows |
| 3. No. of Contacts | : 2 No.+2NC. SPDT snap action dry contact |
| 4. Repeatability | : +/- 0.5% of full range |
| 5. Process connection | ½ inch NPT (F) |
| 6. Elect.Connection | : Plug in socket. |
| 7. Set point | Provided over full range. |
| 8. Dead band adjustment | : Adjustment upto 10% at set points. |
| 9. Other accessories | : Siphon, snubber, chemical seal, pulsation dampeners as required by process |
| 10. Enclosure | : Weather and dust proof as per IP-55 |

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CONSULTANT 		MECON LIMITED			
CONTRACTOR: 		BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION, HYDERABAD			
Doc. No		PY-AD-4-M087-8315-23			Rev: 00
PACKAGE		FIRE PROTECTION & DETECTION SYSTEM			
TITLE		DATA SHEET OF PRESSURE GAUGE			
PREPARED BY		SUMANT		23.05.2017	
CHECKED BY		AMIT		23.05.2017	
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TECHNICAL DATASHEET OF PRESSURE GAUGE

- | | | |
|----------------------------|---|---|
| 1. Dial size | : | 6" (150mm),aluminium , White background with black marking |
| 2. Accuracy | : | (+/-) 1% of range span |
| 3. Body Material | : | Die-cast aluminium |
| 4. Sensing elementmaterial | : | SS 316 |
| 5. Case & Bezel | : | Die cast Alum. Weather proof case stove enameled block with screwed type
inner bezel of ABS plastic and glycerin filled. |
| 6. Process connection | : | 1/2" NPT |
| 7. Housingprotection | : | IP 65 |
| 8. Range | : | |
| a. Range 0 -2 Kg/Cm.sq | : | Pump suction |
| 9. b. Range 0-16 Kg/Cm.sq | : | Pump Discharge |
| Other accessories | : | Blow out discs, siphon, snubber, pulsation dampner, chemical seal, gauge
isolation valve, 3 way cock |
| 10. Tag Plate | : | SS |

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CONSULTANT 		MECON LIMITED			
CONTRACTOR: 		BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION, HYDERABAD			
Doc. No		PY-AD-4-M087-8315-29			Rev: 01P
PACKAGE		FIRE PROTECTION & DETECTION SYSTEM			
TITLE		DATA SHEET OF SOLENOID VALVE			
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TECHNICAL DATASHEET OF SOLENOID VALVE

1. Type	: 2/3 way pilot operated, Normally closed	REV-01P
2. Duty	: Suitable for continuous energization	
3. Sealing	: Air tight and leak proof	
4. Operating Pressure (Min/ Max)	: 0/11 Bar	
5. Class of Insulation	: Class-H	
6. Coil voltage	: 24V DC	
7. End connection	: ½"NPT(F)	
8. Cable Entry	: ½"NPT(F)	
9. Coil enclosure	: Stainless Steel	
10. Type of Enclosure	: Weather Proof (As per IP 67)	
11. Body material	: SS316	REV-01P
12. Qty.	: As per approved drawing	
13. Accessories	: Cable glands, SS Tag plate	