

❖ Specification of Pipe for Fire Water Service for sizes up to 150 MM

Material	CARBON STEEL
Mat-spec	IS 1239 PART 1
Coating	BLACK
Manufacturing-process	ERW
End-preparation	PLAIN
Schedule-number	HEAVY
Thickness	5.49 MM

❖ Specification of Pipe for Fire Water Service for sizes above 150 MM

Mat	CARBON STEEL
Mat-spec	IS 3589 GRADE FE 410
Manufacturing-process	ERW
End-preparation	BEVELLED
Thickness-wall-mm	For 200 to 350 NB- 6.35 mm & For 400 NB & above-8 mm

❖ SCOPE OF INSPECTION FOR PIPELINES AS PER IS: 1239 (PART-I)/IS 3589

The following inspection measures will be carried out at manufacturer's work:

- A. 100% visual inspection of pipes for external appearance.**
- B. Dimension check : Each pipes will be checked out for outside diameter, wall thickness and out of ovality.**
- C. Co-relation of the pipes with RAW materials Test Certificates giving chemical properties.**
- D. Physical and chemical analysis of pipe pc, selected at random from lot. At least one piece of 1 ft length will be taken from each heat for properties check. However our inspector will be free to take more than one piece from each heat subject to maximum of 1% of tendered quantities for properties check.**
- E. Test piece/test pieces taken for properties check will be provided by you free of cost.**

❖ Specification for SORF Flange & Blind Flange

Design-spec	ANSI B16.5
Mat	CARBON STEEL
Mat-spec	ASTM A105
Facing-flange	RAISED FACE
Finish-flange-facing	125 AARH
Pressure-designation-ASME-C	150

❖ Specification for Elbows, TEEs, Reducers

Design-spec	ANSI B16.9 (For long radius Elbow & other fittings) ANSI B-16.28 (For short radius Elbow & other fittings) ANSI B-16.11 (For screwed Fittings)
Mat	CARBON STEEL
Mat-spec	ASTM A234 WPB
Manufacturing Process	Seamless
Schedule number	40
End	Bevelled to ANSI16.25

**❖ SCOPE OF INSPECTION FOR BLIND/SLIP ON FLANGES RAISED
FACED FORGED FLANGES : ASTM A 105 & ANSI B16.5**

Inspection of forged flanges will be carried out in stages-

- 1. All blank forged flanges, before machining will be stamped. Samples of these blank forged flanges will be tested for physical and chemical properties and will be verified with ASTM A 105 standard. Cost of samples will be borne by vendor.**
- 2. Stamp transfer will be carried out during manufacturing process.**
- 3. Visual and dimensional check of the finished flanges will be carried out as per ANSI 16.5 standard.**
- 4. 10% pieces will be selected at random from the lot for dimensional check.**
- 5. Acceptance/rejection will be as per respective ASTM/ANSI standard.**

❖ SCOPE OF INSPECTION FOR PIPE FITTINGS : ASTM A 234 WPB

The inspection of pipe fittings will be carried out as per ASTM A 234 Gr. WPB (including the supplementary requirement in this standard)

This will cover the following:

- 1. Visual inspection for physical appearance.**
- 2. Dimensional check as per requisite standards.**

3. Against each inspection call, one piece per size per heat no. in the quantities offered for inspection will be taken at random and tested for:
 - a. Physical properties
 - b. Chemical properties
4. Macro etching test may be carried out on one piece taken at random, per size, per heat no, different from that taken for physical properties and chemical composition

❖ **Specification of CS Gate Valve**

Design-spec	API STD 600
Design-spec-end-flanges	ANSI B16.5
Temperature-limit-deg-C	20 KG/CM2 AT 38 DEG.C
Pressure-designation-	ASME-C 150
Type-of-wedge	SOLID
Type-of-stem	RISING
Type-of-bonnet	BOLTED
Type-of-bore	FULL
Type-of-back-seat	INTEGRAL
Type-of-gasket-bonnet	SPIRAL WOUND
Facing-flange	RAISED FACE
Finish-flange-facing	SERRATED
Mat-body-bonnet	CARBON STEEL
Mat-body	CARBON STEEL
Mat-bonnet	CARBON STEEL
Mat-trim	ALLOY STEEL 13 CHROME
Mat-stem	ALLOY STEEL 13 CHROME
Mat-wedge	ALLOY STEEL 13 CHROME
Mat-wedge	CARBON STEEL
Mat-body-seats	ALLOY STEEL 13 CHROME
Mat-body-seats	CARBON STEEL
Mat-gasket-spw-filler	CAF
Mat-back-seat-separate	ALLOY STEEL 13 CHROME
Mat-packing-stem	INCONEL BRAIDED GRAPHITE ASB
Mat-spec-body-bonnet	ASTM A216 GRADE WCB

Mat-spec-body	ASTM A216 GRADE WCB
Mat-spec-bonnet	ASTM A216 GRADE WCB
Mat-spec-stem	ASTM A182 GRADE F 6A
Mat-spec-wedge-body-seats	ASTM A182 GRADE F 6A
Mat-spec-wedge-body-seats	ASTM A216 GRADE WCB
Mat-spec-wedge	ASTM A182 GRADE F 6A
Mat-spec-wedge	ASTM A216 GRADE WCB
Mat-spec-gasket-spw-windings	ASTM A240 TYPE 304
Mat-spec-bolt-s-nut-s	ASTM A193 GRADE B7
Mat-spec-bolt-s-nut-s	ASTM A194 GRADE 2H
Mat-spec-bolt-s	ASTM A193 GRADE B7
Mat-spec-gland-eyebolt-s	ASTM A193 GRADE B7
Mat-spec-gland-eyebolt-s	SAE 4140
Mat-spec-gland-eyebolt-s	ASTM A307 GRADE B
Mat-spec-nut-s	ASTM A194 GRADE 2H

❖ Specification of CS Non Return Valve

Design-spec	BS 1868
Design-spec-end-flanges	ANSI B16.5
Pressure-designation-ASME-C	150
Type-of-cover	BOLTED
Type-of-gasket-cover	SPIRAL WOUND
Facing-flange	RAISED FACE
Finish-flange-facing	SERRATED
Mat-body-cover	CARBON STEEL
Mat-body	CARBON STEEL NRV
Mat-cover	CARBON STEEL
Mat-trim	ALLOY STEEL 13 CHROME
Mat-body-seats	ALLOY STEEL 13 CHROME
Mat-disc-hinge	ALLOY STEEL 13 CHROME
Mat-hinge-pin	ALLOY STEEL 13 CHROME
Mat-gasket-spw-filler	CAF

❖ Specification of CS Strainer

Design-spec-flange-s	ASME B16.5
Mat	CARBON STEEL
Mat-spec-body	ASTM A105
Mat-spec-screen	AISI 316
Perforations-screen-mm	10 mesh (2mm Opening)
Add-reqrmts	SCH 40
Pressure-designation-ASME-C	150

❖ Specification of Manual HVLR

750-500 USGPM MANUALLY OPERATED VARIABLE FLOW HVLR FOAM-CUM_WATER MONITOR

Outdoor, Stand Post Type (Fixed) Manually Operated, Single Barrel, Lever Operated/hand wheel operated, Non Aspirating, Field Adjustable Variable flow.

Approval - UL Listed / FM Approved

Pressure - Max 12.6 Kg/cm², Min 7.0 Kg/cm²

Movement - Horizontally- 340 Deg, Vertically-105 Deg (+90 Deg, -15Deg)

Nozzle - Type-Water cum Foam Diffuser type with Hollow Jet and Fog /

Spray Forms with Foam Pick up tube , Foam Expansion Ratio – 1:3 to 1:7

Foam Induction Mechanism - Self Inducting , Aqua Powered Able to induct 3% foam both flow settings (750/500 USGPM), Inlet / Outlet – 63mm male/ Female instantaneous coupling as per IS:903

Performance - Operating Pressure- 7.0 Kg/cm², Flow Rate- Variable (750USGPM- 500 USGPM) with single nozzle

Material of Construction:

Nozzle, Monitor Body, Flange, Swivel Joint, Gear, Spindle for worm,

Worm, Drain valve, Foam Induction device, Nuts/bolts - SS316 / SS-316 L/ Brass

Hand-wheel for Nozzle horizontal/vertical movement - SS316 / SS-316 L /Brass / SS-304 in line with the UL / FM approval

Pick up tube - PVC tube reinforced with high tensile steel wire helix as per ASTM D1785 sch.80 (3-4 meter length)

Hydrostatic Test (10 % W by TPIA, 100 % Performance by Bidder) – 25 Kg/cm² for 5 minutes, without any leakage or distortion of the any part.

❖ Specification of Hose BOX

BOX,HOSE-	ISI MARKED
MATERIAL	MILD STEEL
SIZE	30X24X10 INCH

❖ Specification of Double Hydrant

"VALVE, DOUBLE HYDRANT,	ISI MARKED"
MATERIAL:	MILD STEEL/CARBON STEEL
SIZE:	100MM

❖ Specification of Hose

Service	FIRE WATER
Mat	ALUMINIUM
Mat-binding-wire	SYNTHETIC
Diameter-id	63MM

❖ Specification of DCP Fire extinguisher

DESIGN-SPEC: DCP TYPE FIRE EXTINGUISHER AS PER IS 15683 / 2006

"MAT-BODY : CRCA SHEET, MINIMUM THICKNESS 2 MM (DD OR EDD QUALITY) AS"
PER IS 513

MAT-SPEC : CRCA SHEET (DD OR EDD QUALITY) AS PER IS 513

EXTINGUISHING-ABILITY: MINIMUM 3A (A-CLASS OF FIRE) 21B (B-CLASS OF
FIRE)

EXTINGUISHING-MEDIUM: DCP WITH ISI MARK (SODIUM-BI-CARBONATE OR
POTASSIUM-BI-CARBONATE)

ADD-REQRMTS: CO2 CARTRIDGE

OPERATOR : SQUEEZ GRIP CAP WITH CONTROLLABLE DISCHARGE

CAPACITY : 9 KG

ACCESSORIES: HOSE WITH OPEN NOZZLE DCP(POWDER)AS PER IS: IS 4308

❖ Specification of 75 Kg DCP Fire extinguisher

Design-spec	IS 2171
Mat-body	IS 2825
Mat-spec	IS 2002 GR.A
Extinguishing-ability	FIGHTING FIRES OF CLASS B & CL
Extinguishing-medium	DRY CHEMICAL POWDER
Add-reqrmts	ISI 2171 MARKED
Operator	TROLLEY MOUNTED
Capacity	75 KG
DCP FILLER WITH GAS (CO2) CARTRIDGE	
DCP (POWDER)	AS PER ISI 4308
CARTRIDGE	AS PER IS 4947

❖ Specification of CO2 Fire extinguisher

Design-spec	IS 2878
Mat-body	CYLINDER AS PER IS 7285 WITH I
Extinguishing-medium	CO2
"Add-reqrmts	VALVE AS PER IS 3224,HOSE-1 MT"
Capacity	4.5 KG
Accessories	WALL MOUNTING BRACKETS

➤ Specification of First Aid Box

- (i) Twenty-four small sterilized dressings.
- (ii) Twelve medium size sterilized dressings.
- (iii) Twelve large size sterilized dressings.
- (iv) Twelve large size sterilized burn dressings.
- (v) Twelve (15 gin) packets of sterilized cotton wool.
- (vi) One (200 ml) bottle of cetrimide solution (1 per cent) or a suitable antiseptic solution.
- (vii) One (200 ml) bottle of mercurochrome (2 per cent) solution in water.
- (viii) One (200 ml) bottle of sal-volatile having the dose and mode of administration indicated on the label.
- (ix) One pair of scissors.
- (x) One roll of adhesive plaster (6 cm x 1 in).
- (xi) Two roll of adhesive plaster (2 cm. x 1 in).
- (xii) Twelve pieces of sterilized eye pads in separate sealed packets.
- (xiii) A bottle containing 100 tablets (each of 325 mg.) of aspirin or any other analgesic).
- (xiv) One polythene wash bottle (500 cc) for washing eyes.
- (xv) Twelve roller bandages 10 cm. wide.
- (xvi) Twelve roller bandages 5 cm wide.
- (xvii) Six triangular bandages.
- (xviii) One tourniquet.
- (xix) A supply of suitable splints.
- (xx) Two packets of safety pins.
- (xxi) Kidney tray.
- (xxii) A snake-bite lancet.
- (xxiii) One (30 ml) bottle containing potassium permanganate crystals.
- (xxiv) One copy of first-aid leaflet issued by the Directorate General of Factory Advice Service and Labour Institutes, Government of India, Bombay.

Recommended Make-

S No	Material Description	Recommended Make/Vendor
1	IS Pipes	<ul style="list-style-type: none">• M/s. Jindal Pipes• M/s. Steel Authority of India• M/s. Surya Roshni• M/s. Tata Iron and Steel Co.Ltd.• M/s. Indus Tubes• M/s. Advance Steel Tubes• M/s. Asian Mills• M/s. Ratnamani• M/s. Man Industries (I) Ltd.• M/s. Maharashtra Seamless Ltd.• M/s. Sadaf Trading Co.• M/s. Simplex Metal & Alloys• M/s. Hind Metal Syndicate Pvt.Ltd.
2	Pipe fittings	<ul style="list-style-type: none">• M/s. Pipefit Engineers• M/s. S&G Engineers Pvt.Ltd.• M/s. Tube Bend (Calcutta) Pvt.Ltd.• M/s. Tube Product Incorporate• M/s. Teekay Tubes Ltd.• M/s. True Forge• M/s. Super Forge• M/s. M.S.Fittings Manufacturing Co.• M/s. Sawan Engineers

		<ul style="list-style-type: none"> • M/s Jindal Forging
3	CS Gate Valves/NRV	<ul style="list-style-type: none"> • M/s KSB Pumps Ltd. • M/s. Larsen & Toubro Ltd. • M/s. Bharat Heavy Electricals Ltd. • M/s. NSSL Limited • M/s. Steel Strong Valves (I) Pvt.Ltd. • M/s. Oswal Industries Ltd. • M/s. Fluidline Valves Co.Pvt.Ltd. • M/s. Flow Chem Industries
4	CS Strainer	<ul style="list-style-type: none"> • M/s. Sungov Engg. Pvt.Ltd. • M/s. Superflo Filters Pvt.Ltd. • M/s. Multitex Filtration Engrs. Pvt.Ltd. • M/s. H.Sarkar & Co. • M/s. Otoklin Global Business Ltd
5	Manual HVLR	<ul style="list-style-type: none"> • Newage Fire Protection Pvt. Ltd • Vimal Fire Protection Pvt. Ltd
6	Hose Box/Nozzles	<ul style="list-style-type: none"> • Newage Fire Protection Pvt. Ltd. • HD Fire Protect Pvt. Ltd. • Vimal Fire Protection Pvt. Ltd. • Safex Fire Services Ltd • Gunnebo India Ltd. • Zenith Fire Services • Nitin Fire Protection Industries Ltd. • Fire Stone Industries
7	Double Hydrant	<ul style="list-style-type: none"> • Newage Fire Protection Pvt. Ltd. • Fire Stone Industries
8	Hose	<ul style="list-style-type: none"> • Newage Hose Manufacturing Co. • Chhatariya Firetech Industries

		<ul style="list-style-type: none"> • Industrial Commercial Corporation
9	Fire Extinguisher	<ul style="list-style-type: none"> • Supremex Equipments • United Fire Equipments Pvt Ltd
10	Pressure/Compund Gauges	<ul style="list-style-type: none"> • A.N.Instruments • General Instruments • Switzer • Hillerkar • Waree. • H.Guru • Pricol
11	Paint	<ul style="list-style-type: none"> • BERGER PAINTS(I) LTD • CDC CARBOLINE • ASIAN PAINTS(I)LTD • GOODLAS NEROLAC PAINTS LTD • SHALIMAR PAINTS • BOMBAY PAINTS • AKZO NOBEL COATINGS INDIA LTD • SIGMA COATINGS • COROMANDEL PAINTS AND CHEMICALS LTD
12	Structural Steel	<ul style="list-style-type: none"> • TISCO • SAIL • Vizag Steel • IISCO • Jindal • Essar
13	Fasteners	<ul style="list-style-type: none"> • TVS • UNBRAKO • LPS

		<ul style="list-style-type: none"> • TATA
14	Stud & Nuts	<ul style="list-style-type: none"> • AEP Engineering • Fix Fit Fasteners • Console Engineering
15	Gasket	<ul style="list-style-type: none"> • Champion Jointings Ltd. India • Goodrich Gasket Pvt. Ltd. India • IGP Engineers Ltd India • Jayem Industries India • Madras Industrial Products India • Star Flex Sealing India Pvt.Ltd. India • Unique Industrial Packing India • Vircap Sealing Tech.Pvt. Ltd.
16	Welding Electrodes	<ul style="list-style-type: none"> • Advani Orlikon • IOL • Philips • D&H • L&T • ESAB • mailam • GEE
17	Third Party Inspection Agency	<ul style="list-style-type: none"> • Bureau Veritas Industrial Services • SGS India Pvt.Ltd • Germanischer Lloyds Industrial Services Pvt. Ltd. • Indian Register of Shipping • Det Norske Veritas • Lloyds Register Industrial Services Ltd. • Tata Projects Ltd. • Engineers India Ltd.

		<ul style="list-style-type: none"> • Projects & Development India Ltd. • UL India Pvt. Ltd. • MECON Engineers • RITES Ltd. • Intertek Testing Services India Pvt.Ltd
18	Cables	<ul style="list-style-type: none"> • Universal Cables Ltd. • Finolex Cables Ltd. • Nicco Corporation Ltd. • Torrent Cables Ltd. • Crystal Cables Industries Ltd. • KEI Industries Ltd. • Gemscab Industries Ltd. • TCL Cables Ltd. • Vijaya Cables • Polycab Wires P.Ltd. • RPG Cables Ltd.
19	Cable Lugs	<ul style="list-style-type: none"> • DOWELL'S ELECTRICALS • FORWARD ENGG INDUSTRIES • POWER ENGG CO • JAINSON • USHA MARTIN INDUSTRIES LTD
20	Flp Cable Glands	<ul style="list-style-type: none"> • Comet industries • HMI • Gripwell • Forward Engineering • Cosmos