



AMULFED DAIRY

A UNIT OF GUJARAT CO-OPERATIVE MILK MARKETING FEDERATION LIMITED
PURCHASE INQUIRY

Inquiry No : **AFD/PUR/PKS/ENQ/AC/1, Dated: March 19, 2019**

Description : **Purchase Inquiry for Supply, installation and commissioning of fire Line for New Parking Area.**

Qty : **As per below Details.**

Due Date : **25.03.2019**

Dear Sir,

You are requested to give your most competitive rates for supply, installation of fire line for New Parking Area as per the attached specification/ requirement mentioned in the attached annexure.

1. The offer should reach, AmulFed Dairy (A Unit Of Gujarat Co - Operative Milk Marketing Federation Limited.) Plot No. - 35, Near Indira Bridge, Ahmedabad - Gandhinagar Highway, Village: Bhat, Dist.: Gandhinagar. Pin No.382 428.
2. The offer should be sent in sealed cover super scribing on the top left hand corner offer for inquiry No. AFD/PUR/PKS/ENQ/AC/1 dtd. 19/03/2019. Offer received after due date for whatsoever reason may be rejected.
3. Your offer should be sent through Post/Courier/mail or by Fax or personally.
4. Offer should be valid for acceptance, for 45 days from due date of submission of offer.
5. The price should be quoted on F.O.R basis inclusive of packing and forwarding, taxes, excise duties, freight etc. However if it is separate, it should be clearly mentioned in the quotation.
6. It should cover a warranty of at least one-year against manufacturing defect.
7. Realistic earliest delivery period should be indicated.
8. It is not binding on us to accept lowest offer.
9. Right to reject any or all the offers without assigning any reason is reserved by us.
10. Offer which are incomplete or not meeting the conditions or only for part items, are liable for rejections.
11. No queries regarding the status of the offer will be entertained at any time.
12. The final supplier will be the combined decision of our technical team and management and no reason of final selection will be conveyed to any bidder.
13. Payment terms with 30 days credit shall be preferred.
14. We are an ISO 14001 certified unit. We follow Eco- friendly processes in our factory & also expect same to be followed in your company.
15. For any query, you may contact Mr. Palak Shah, Purchase Department(07359001666),or mail: palak.shah@amul.coop

Encl: Annexure-I-Technical Specification

Amul SAGAR

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A. BOQ FOR PARKING FIRE FIGHTING SYSTEM

SR. NO.	MATERIAL	ITEM/ MATERIAL SPECIFICATIONS	QTY	UNIT	RATE OF SUPPLY (S)	RATE OF INSTALLATION (I)	TOTAL (S + I)
1	FLOW SWITCH WITH MOUNTING	Is of vane type water flow detector which monitor the flow of water in a wet pipe fire sprinkler system, send an alarm when a continuous flow of water occurs from an activated fire sprinkler head or from a leak in the system. Which is to be mounted on pipes with necessary clamps	8	EA			
2	FIRE ZONE INDICATE PANEL WITH HOOTER	Panel is of addressable and can sense the signal from water flow detectors and accordingly generate alarm through hooter, it can further pass the message by calling the numbers programmed in it.	1	EA			
3	CONTROL CABLE	FRLS, 2-core, 1.5 Sq. mm	650	M			
4	FIRE SPRINKLER	All the sprinklers are quartz bulb with heat sensing element operates at 57°C, these are pendent type designed in such a way that the water stream is directed downward towards the deflector which turn directs the water downwards toward the protected area. Sprinklers are made of Gun Metal selected as per relevant Indian standard and codes. With all the required accessories and fitting.	100	EA			

5	FIRE HYDRANT VALVE	Contractor shall provide on each landing and other locations as shown on the drawings one single headed Stainless Steel (S.S.) landing valve with 63mm dia, outlets and 80mm inlet (IS:5290) with individual shut off valves and cast iron wheels. Landing valves shall have flanged inlet and instantaneous type outlet, It should be of morris pattern oblique type. (SWATI MAKE)	6	EA			
6	TWO WAY FIRE INLET VALVE	Fire Brigade inlet connection shall be provided for Fire Tender. It should be installed at a point near the entry to the premises where a fire service vehicle can approach easily & feed water in system line as well as in underground water tank. Gun metal Two way fire brigade inlet with isolation / check valve shall be installed and connected with system Line & water tank.	2	EA			

7	FIRE HOSE BOX SS 304	<p>Provide S.S. 304-16 gauge cabinets for internal / external hydrants with double glass front door and locking arrangement with breakable glass key access arrangement, duly painted red with stove enameled paint fixed to wall or self supported on floor as per site conditions. The cabinet shall also have a separate chamber to keep the key with breakable glass as per approved design. Hose cabinets shall be stove enameled fire red paint with "FIRE HOSE BOX" written on it prominently, It should have 5mm hole at both side at bottom for any water drainage accumulated in it. Samples of hose cabinet for internal and external works be got approved from Client's Representative/ Consultant before installation at site.</p> <p>Fire hose cabinet suitable to accommodate 2 Nos. 15 metres long R.R.L. hoses, 1 No. branch pipe and nozzle.</p>	6	EA			
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8	FIRE HOSE PIPE 15MTR BOTH MALE FEMALE SS	<p>Each Hose Pipes shall be rubber lined woven jacketed and 63mm in dia. 15m long. They shall conform to type A (Reinforced rubber lined) SS wire binding of IS: 636 - 1979. The hose shall be sufficiently flexible and capable of being rolled.</p> <p>Each run of hose shall be complete with necessary coupling at the ends to match with the landing valve or with another run of hose pipe or with branch pipe. The couplings shall be of instantaneous swinging type. This shall be conforming to IS: 903 and of S.S.304.</p>	12	EA			
9	FIRE NOZLE SS / Branch Pipe	<p>Branch pipe shall be of Aluminium 63 mm dia, 20 mm jet hole and outlet be complete with male instantaneous spring lock type coupling for connection to the hose pipe. The branch pipe shall be externally threaded to receive the nozzle.</p>	6	EA			
10	FIRE HOSE REEL SET SS 30MTR	<p>Contractor shall provide standard fire hose reels with all accessories and fittings, drum and fittings must be of S.S. 304, having 45 meter length-20 mm dia, rubber -braided hose of with S.S. Nozzle 10 mm and control valve, connected wall mounted on circular hose reel . Hose reel shall conform to IS:884-1969. The hose reel shall be connected directly to the pipe riser through an independent connection with S. S. Ball Valve, Sample to be approved with client.</p>	6	EA			

11	15 MM PIPE GI C class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	72	M			
12	20 MM PIPE GI C class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	72	M			
13	25 MM PIPE GI C class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	72	M			
14	40 MM PIPE GI C class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	72	M			
15	50 MM PIPE GI C class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	36	M			
16	80 MM PIPE GI C class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	84	M			

17	100 MM PIPE GI C class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	156	M			
18	150 MM PIPE GI C class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	170	M			
19	15MM BEND GI C Class,, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	32	EA			
20	50MM BEND GI C Class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	24	EA			
21	80MM BEND GI C Class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	5	EA			
22	100MM BEND GI C Class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	12	EA			

23	150MM BEND GI C Class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	12	EA			
24	20MM TEE GI C Class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	32	EA			
25	25MM TEE GI C Class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	32	EA			
26	40MM TEE GI C Class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	16	EA			
27	50MM TEE GI C Class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	16	EA			
28	80MM TEE GI C Class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	6	EA			

29	100MM TEE GI C Class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	7	EA			
30	150MM TEE GI C Class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	1	EA			
31	15MM COUPLER, Heavy Duty MS, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	110	EA			
32	25MM COUPLER, Heavy Duty MS, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	2	EA			
33	15*20MM REDUCER GI C Class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	32	EA			
34	15*25MM REDUCER GI C Class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	32	EA			

35	15*80MM REDUCER GI C Class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	4	EA			
36	20*25MM REDUCER GI C Class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	32	EA			
37	25*40MM REDUCER GI C Class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	16	EA			
38	40*50MM REDUCER GI C Class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	16	EA			
39	50*80MM REDUCER GI C Class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	4	EA			
40	50*100MM REDUCER GI C Class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	4	EA			

41	80*100MM REDUCER GI C Class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	6	EA			
42	100*150MM REDUCER GI C Class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	2	EA			
43	80*150MM REDUCER GI C Class, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	2	EA			
44	15MM CLAMP HANGING	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	64	EA			
45	20MM CLAMP HANGING	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	96	EA			
46	25MM CLAMP HANGING	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	32	EA			

47	40MM CLAMP HANGING	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	16	EA			
48	50MM CLAMP HANGING	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	19	EA			
49	80MM CLAMP FIX TYPE	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	27	EA			
50	100MM CLAMP FIX TYPE	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	16	EA			
51	150MM CLAMP FIX TYPE	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	20	EA			
52	80 MM FLANGE F TABLE GI, RS, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	12	EA			

53	80 MM FLANGE 150 CLASS GI, RS, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	4	EA			
54	100 MM FLANGE 150 CLASS GI, RS, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	5	EA			
55	150 MM FLANGE 150 CLASS GI, RS, Weldeble	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	2	EA			
56	1/2"*6" NIPPLE C-CLASS BSP	Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).	60	EA			
57	PRESSURE GAUGE 0 TO 15 KG/CM2 1/2" BSP		2	EA			
58	15 BALL VALVE, S S 3-Piece design	L & T Make	8	EA			
59	25 BALL VALVE , S S 3-Piece design	L & T Make	10	EA			
60	50 BALL VALVE , S . S. Dish - Butterfly	L & T Make	8	EA			

61	80 MM VALVE, S . S. Dish - Butterfly	L & T Make	1	EA			
62	100 MM VALVE, S . S. Dish - Butterfly	L & T Make	1	EA			
63	150 MM VALVE, S . S. Dish - Butterfly	L & T Make	1	EA			
64	25 MM Air Release Valve, Gun Metal	L & T, NEW AGE	1	EA			
65	16M*100MM BOLT WITH NUT MS		16	SET			
66	16M*50MM BOLT WITH NUT MS		40	SET			
67	50*50*5 MM MS BOX PIPE MS		24	M			
68	200*200*5 MM PLATE MS		50	EA			
69	FIRE EXTINGHUSHER CO2 4.5 KG	CEASE FIRE MAKE	8	EA			
70	FIRE EXTINGHUSHER ABC 4 KG	CEASE FIRE MAKE	8	EA			
71	EXCAVATION		100	M			
72	Auguring		20	M			
73	4" CORE CUTTING		4	EA			

74	PCC Pedestal 300*300*600 mm for hydrant line support		12	EA			
75	Wrapping - Coating for under ground pipe	protection against corrosion by application of 100/ 150 mm wide and 4mm thick layer of PYPKOTE/ MAKPOLYKOTE (IS:10221) over the pipe	20	M			
76	Signages For Fire Hydrant	4"*15" , Alluminium Sheet, Autoglove type approved by client	13	EA			
77	Signages For Fire Hose Box	4"*15" , Alluminium Sheet, Autoglove type approved by client	13	EA			
78	Signages For Fire Hose Reel	4"*15" , Alluminium Sheet, Autoglove type approved by client	13	EA			
79	Signages For Fire Extinguishers CO2 Type	17"*10" , Alluminium Sheet, Autoglove type approved by client	8	EA			
80	Signages For Fire Extinguishers DCP Type	17"*10" , Alluminium Sheet, Autoglove type approved by client	8	EA			
81	Exit Signages	4"*8" , Alluminium Sheet, Autoglove type approved by client	4	EA			
82	Emergency Exit Signages	4"*12" , Alluminium Sheet, Autoglove type approved by client	2	EA			
83	Exit Right Signages	4"*12" , Alluminium Sheet, Autoglove type approved by client	8	EA			
84	Exit Left Signages	4"*12" , Alluminium Sheet, Autoglove type approved by client	8	EA			
85	Stair Exit Signages	4"*12" , Alluminium Sheet, Autoglove type approved by client	2	EA			

86	Miscelenous Safety Signages	Alluminium Sheet, Autoglove Type given and approved by client	1000 0	Sq. Inch			
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B. TECHNICAL SPECIFICATIONS

1.0 SCOPE OF WORK :

Work under this section shall consist of furnishing all labour, materials, equipment and appliances necessary and required to completely install Wet riser, Sprinkler, First Aid Fire Protection system as required for all floor as per the drawings and specified here in after or given in the Bill of Quantities.

Without restricting to the generality of the foregoing, the fire safety system shall include the following:-

- a)** Piping, Wet Riser, Hose box & accessories
- b)** Hose reels, Fire Extinguishers, Signanges etc.
- c)** Sprinkler System
- d)** Hydrant pipe, fittings, flanges & valves.

2.0 PIPE WORK :

2.1 GENERAL REQUIREMENT:

All the materials shall be of ISI mark / TAC approved, best quality conforming to the specifications and subject to the approval of the Client or his representative. If so directed, materials shall be tested in an approved testing laboratory & the contractor shall produce the test certificate in

original to the Engineer-in-charge & the entire charges for original as well as repeated tests shall be borne by the Contractor.

Before welding, the pipe faces shall be cleared, V-Grooved & then shall be welded conforming to IS: 9595 – 1980. The electrodes used for welding shall comply with IS: 814. The laying of welded pipe shall also comply to IS 5822 – 1986. The welding joints shall be tested in accordance to IS: 3600, Part 1973.

Pipes and fittings shall be fixed truly as per approved drawing given by client and as per the direction of client engineer.

Pipes and fittings shall be fixed truly vertical, horizontal or in slopes as required in a neat workman like manner.

Pipes shall be fixed in a manner as to provide easy accessibility for repair and maintenance and shall not cause obstruction in shafts, passages etc.

Pipes shall be securely fixed to walls and ceilings by **suitable clamps or supports as mentioned in IS code**. Only approved type of anchor fasteners shall be used for RCC ceiling and walls.

Valve and other apparatus shall be so located that they are easily accessible for operations, repairs and maintenance.

2.2 PIPE AND FITTINGS:

All pipes shall be conforming to IS:1239-1990 (GI C Class / Heavy class) with screwed flanged or welded joints as specified by the Client's Representative.

Pipes (exposed) shall be given one primary coat of Zinc chromate with two coat of compatible epoxy paint give an even look (Fire red, shade No. 536 as per IS: 2379).

All pipes under floors or below ground shall be provided with protection against corrosion by application of 100/ 150 mm wide and 4mm thick layer of PYPKOTE/ MAKPOLYKOTE (IS:10221) over the pipe, as per manufacturer's specifications Checking with holiday testing machine. Excavation of soft soil including backfilling, compacting, watering up to 1.3M depth.

Pipes shall be provided with electrical resistance welding. Jointing shall be butt welded with V-grooved finishing between pipe and pipe and fittings.

Joints between pipes shall be made by provided a suitable flanged tail or sockets piece and flanges on the pipe shall have appropriate number

of holes and shall be fastened with nuts, bolts and 1.5mm thick compressed asbestos gaskets.

Tee joint is must for connections / tapping for tapping of the pipe.

All welded piping is subjected to the approval of the Client's Representative and sufficient number of flanges shall be provided.

Contractor shall submit the Hydraulic calculation and Fire Load for the system in accordance with Fire Authority By Laws.

Piping shall be properly supported on or suspended from stand clamps, hangers as specified and as required. The Contractor shall adequately design all the brackets, saddles, anchors, clamps and hangers, and be responsible for their structural sufficiency in consultation with client.

Pipe supports shall be of steel, adjustable for height and primer coated with rust preventive paint and finish coated back. Where pipe and clamps are of dissimilar materials a gasket shall be provided in between. Spacing of pipe supports shall not exceed as per relevant IS Code.

Vertical risers shall be parallel to walls and column lines and shall be straight and plumb. Risers passing from floor to floor shall be supported at each floor by clamps or collars steel structural supports attached to pipe and with a 15 mm thick rubber pad or any resilient material. Where pipes pass through the roof floor, suitable flashing shall be provided to prevent water leakage. Risers shall have a suitable clean out at the lowest point and air vent at the highest point. The Contractor shall coordinate with structural.

Pipe sleeves, 50 mm larger diameter than pipes, shall be provided wherever pipes pass through walls and slabs, and annular space filled with fire proof materials like putty, fire seal etc.

Piping work shall be carried out in a workmen like manner, causing minimum disturbance to the existing services, buildings, roads and structure. The entire piping work shall be organized in consultation and coordination with other agencies work so that particular area work shall be carried out in one stretch.

Piping layout shall take due care for expansion and contraction in pipes.

All pipes using screwed fittings shall be accurately cut to the required sizes and thread in accordance with IS:554 and burrs removed before lying.

3.0 VALVES

3.1 BUTTERFLY VALVES:

All the isolation valve 50cm and above on the equipment and water lines, where specified or shown on drawings shall be wafer type butterfly valves. They shall be designed to fit without gaskets, the water tight seal being obtained by SS seat projection at the faces compressed between the flanges. It is provided as per following specifications:

- a) Type: Wafer type
- b) Body Material: Cast iron
- c) Disc Material: Stainless steel
- d) Operation: hand Lever
- e) Standard : IS:13095
- f) Test Pressure: Body 24 Bar, Seat 16 Bar

3.2 AIR RELEASE VALVE:

Provide 25mm diameter screwed inlet ball type Gun metal air valve on all high points in the system for venting. Valve shall be of the single acting type, vulcanite balls, rubber seating etc. Fitted with Isolation valve.

3.3 INSTALLATION:

- Valve shall be installing in a manner that allows future removal and service of the valve.
- Packing and gasket shall not contain asbestos.
- The valve shall be of the same size as the pipe to which they are installing.

4.0 HYDRANT VALVES

4.1 EXTERNAL YARD HYDRANTS

The Hydrant outlet shall comprise "Single Headed Single Outlet Stainless steel Landing Valve" conforming to type 'A' of IS: 5290-1977.

The Contractor shall provide S.S. Fire Hydrant valve, as specified in Bill of Quantities, the hydrants and the distance from the building shall be maintained as per relevant requirements of latest relevant codes, unless specified here with.

Each Hydrant Point shall be provided with Auto glow Aluminum Numbering/Identification(4" X 15") Plate with Hydrant Number and written "Fire Hydrant" on it approved by client.

A blank cap with chain is provided on one head of the outlet. The hydrant will have an instantaneous pattern female coupling for connecting to Hose Pipe.

The Landing Valve shall be fitted to a Tee connection on the wet riser at the landing. With G.I. nut, bolt & double washer.

5.0 HOSE PIPE, BRANCH PIPE & NOZZLE

5.1 HOSE PIPES

Hose Pipes shall be rubber lined woven jacketed and 63mm in dia. 15m long. They shall conform to type A (Reinforced rubber lined) SS wire braided of IS: 636 - 1979. The hose shall be sufficiently flexible and capable of being rolled.

Each run of hose shall be complete with necessary coupling at the ends to match with the landing valve or with another run of hose pipe or with branch pipe. The couplings shall be of instantaneous swinging type. This shall be conforming to IS: 903.

5.2 NOZZLE

The nozzle shall be of Aluminium as specified in BOQ

End Couplings, Branch pipe, and Nozzles shall conform to IS: 903 - 1985.

6.0 HOSE REEL:

Contractor shall provide and fix fire hose reels as specified in BOQ.

Each Hose Reel shall be provided with Auto glow Aluminum Numbering/Identification(4" X 15") Plate with Hose Box Number and written "Hose Box" on it.

7.0 FIRE HOSE CABINETS:

Contractor shall provide and Fire Hose Box as specified in BOQ.

Fire hose cabinet suitable to accommodate 2 Nos. 15 meters long R.R.L. hoses, 1 No. nozzle.

Each Hydrant Box shall be provided with Auto glow Aluminum Numbering/Identification(4" X 15") Plate with Hose Box Number and written "Hose Box" on it.

8.0 FIRE BRIGADE INLET CONNECTIONS:

Fire Brigade inlet connection shall be provided for Fire Tender. It should be installed at a point near the entry to the premises where a fire service vehicle can approach easily & feed water in system line as well as in underground water tank.

G.M. **Two way fire brigade inlet** with isolation / check valve shall be installed and connected with system Line & water tank.

9.0 AUTOMATIC SPRINKLER SYSTEM

Work under this section shall consist of furnishing all labour, materials, equipment and appliances necessary and required to completely install the sprinkler system as required by the drawings and specified hereinafter or given in this Bill of Quantities.

Automatic sprinkler system has been installed in whole building area. Sprinklers shall be 15mm dia, Quartz bulb type G.M. & operate at 57° C. Sprinkler should be Pendent / Upright /Side wall type with rosette plate.

Sprinkler system should be separate header with S.S. piping, drain pipe & assembly, flow switch, butterfly valve etc. Water supply to the sprinkler system shall be fed from the separate motor driven sprinkler pump.

Contractor shall supply spare Sprinkler Heads of each type as per requirement and one Spanner for each type of sprinkler neatly installed in a steel box with glass shutters at locations approved by the Engineer-in-Charge.

- a) Sprinkler mains, branch and connection from piping complete with valves, hangers, appurtenances and painting.
- b) Sprinkler heads with spare sprinklers.
- c) Connections to risers, pumps and appliances.
- d) Flow switches, installation valve.
- e) Vertical drain pipes and fittings.

10.0 FIRE EXTINGUISHERS

Installation of fully charged and tested Fire Extinguishing Hand Appliances Carbon Dioxide (Co2) type extinguisher of 4.5 kg,4 kg dry chemical powder (DCP) as required by these specifications and drawings.

Fire extinguishers shall be of CEASE FIRE make and conform to the following Indian Standard specifications and shall be with BIS approved stamp as revised and Amended upto date.

- a) CO2 Type : IS:15683
- b) Dry Powder Type : IS:15683

Fire extinguishers shall be installed as per Indian Standard Code of practice for selection, installation and maintenance of portable first aid appliances IS:2190-1979.

Hand appliances shall be installed in readily accessible locations with the Appliance brackets fixed to wall by suitable anchor fasteners.

Each appliances shall be provided with an inspection, testing, change of charge and other relevant data certificates

All appliances shall be fixed in a true workman like manner truly vertical and at current locations.

The Extinguisher shall be so distributed over the entire floor area that a person has to travel not more than 15 Mtr. to reach the nearest fire extinguishers.

Each Extinguisher shall be provided with Auto glow Aluminum Numbering/Identification(17" X 10") Plate with Extinguishers Number written "Fire Extinguisher CO2 & DCP" on it.

11.0 BALL VALVES

As specified in BOQ.

12.0 CABLING:

As specified in BOQ with proper conducting pipes, tracing, supporting etc. required in a good workmanship.

13.0 PRESSURE GAUGE

Contractor shall provide 100 mm dia Pressure Gauge of range 0 - 15 Kg /cm² conforming to IS - 3624 having bourdon tube of stainless steel 310 in cast aluminium, stove enamelled, black, weather proof case with outer, screwed aluminium bezel and complete with necessary U-type stainless steel siphon tube and cock including providing suitably painted angle iron support to the tube. Pressure gauge shall be provided at each pump suction, delivery line & common delivery header.

Contractor shall provide Pressure Switches for automation of fire pumps. Pressure switches shall be double pole single throw type suitable for 3 phase supply with diaphragm. Aluminum Enclosure with IP 66 protection as required.

14.0 TESTING OF THE SYSTEM:

All piping shall be tested to hydrostatic test pressure of 14 Kg/Cm² or twice the design pressure whichever is higher for a period of not less than 24 hours. All leaks and defects in joints revealed during the testing shall be rectified to the satisfaction of the Client's Representative.

Piping required subsequent to the above pressure test shall be re-tested in the same manner.

System may be tested in sections and such sections shall be securely capped.

The Client's Representative shall be notified well in advance by the Contractor of his intention to test a section of piping and all testing shall be witnessed by the Client's Representative.

The Contractor shall make sure that proper noiseless circulation of fluid is achieved through the system concerned. If proper circulation is not achieved due to air bound connections, the Contractor shall rectify the defective connections. He shall bear all the expenses for carrying out the above rectification including the tarring-up and re-finishing of floors, walls etc. as required.

The Contractor shall provide all materials, tools, equipment, instruments, services and labor required to perform the test, and shall ensure that the plant room and other areas are cleaned up and spill over water is removed.

The Contractor shall give the pressure test of head for hydrant at ground level and also for hydrant at terrace level.

All air shall be trapped from the pipeline through hydrants, Hose Reel & air valves. Each section of the pipe shall be slowly filled with the water & allow to stand the water for few hours with the ends closed.

Flushing of underground connections: Underground mains and lead-in connections to system risers shall be flushed before connections made to piping in order remove foreign materials which may have entered the underground during the course of installation. For hydrant system the flushing operation shall be continued until water is clear.

15.0 COMMISSIONING OF SYSTEM :

Before commissioning, the entire system shall be flushed to ensure that any earth /foreign matters which might have entered during installation are taken out. For this, pump may be operated and valves opened at different locations.

As soon as the work is complete, the system shall be commissioned and made available for use. Requirement of fire fighting installations is equally important during occupation of the building. If the building is to be occupied in part, fire fighting system of building completed shall Commissioned by isolating the system of under construction portion of the building.

The fire fighting system shall be maintained and manned from the very first day of its Commissioning.

Any defects noticed during the warranty period shall be promptly attended by the Contractor and availability of the system at all time is to be ensured.

16.0 START-UP / SYSTEM TESTING:

It will be the responsibility of the tendered to cause interim/stage inspection by the TAC/CFO during execution of the work as and when so called for by the Employer / Architect and shall carry out any rectification / modification as may be suggested by the Tariff Advisory Committee (TAC) / State Fire Officer (CFO).

Soon after the work is completed, the contractor shall inform the TAC/CFO in writing with a copy to the Architect / Employer for getting the complete system including all sub system and instrumentation, control etc. thoroughly inspected and tested for satisfactory performance. After satisfactory completion of tests of the systems by the TAC / CFO the contractor shall be required to submit as built drawings on tracing cloth to the Architect which have been so approved.

In addition to TAC, the contractor shall also be responsible for getting the system and equipment tested and approved by other Statutory Authorities like the Area Fire Officer or the State Fire Services with NOC - NO OBJECTION CERTIFICATE.

17.0 HANDING OVER:

All commissioning and testing shall be done by the Contractor to the complete satisfaction of the Engineer-in-Charge of client, and the job handed over to the Client with all required certificates and documents Contractor shall also hand over to the Client all maintenance and operation manuals and all items as per the terms of the contract.

C. SAFETY REQUIREMENTS:-

GENERAL REQUIREMENT:-

1. Contractor must submit Medical Fitness certificates for all the workers after award of contract and before commencement of any work.
2. Contractor has to depute qualified supervisor at site who has knowledge of safety and precautions of fabrication work.
3. Contractor supervisor/in-charge must brief these safety guidelines-requirements and other work related safety precautions to all their workers at least once in week
And record of the same is maintained and submitted monthly to Safety Officer AFD.
4. Contractor has to brief and made aware all their workers that they understand the importance of House Keeping and always maintain good housekeeping while work and after work.
5. For any critical work contractor has to plan properly with AFD in-charge and Safety Officer-AFD before work.
6. Contractor has to take advice of Safety Officer-AFD for any confusion / threat regarding safety of the workers and plant.
7. For any controversy or immediate threat to safety of person and plant the decision of Safety Officer – AFD is final.

PPES:-

1. Contractor has to ensure sufficient quantity of following PPEs provided for their workers all the time at workplace and made arrangement for it's upkeepment with effect from first day of contract.
 - a. Safety Shoes (Make KARAM / UDYOGI)
 - b. Safety Helmet (Make KARAM / UDYOGI)
 - c. Cut Resistance Hand Gloves (Make KARAM / UDYOGI)
 - d. Cotton Hand Gloves (Make KARAM / UDYOGI)
 - e. Welding Gloves (Make KARAM / UDYOGI)
 - f. Safety Goggles (Make KARAM / UDYOGI)
 - g. Face Shield (Make KARAM / UDYOGI)
 - h. Welding Helmet (Make KARAM / UDYOGI)
 - i. Safety Belt - Full Body, Double Lanyard, Scaffold Latch Hook (Make KARAM / UDYOGI)
 - j. Welding blanket
2. Contractor has to ensure use of all the required PPEs at work.

EQUIPMENTS:-

All the following mentioned equipments must be ISI marked and tested / calibrated by Third Party and contractor has to submit testing / calibration

certificate before commencement of work.

1. Welding Machine:-

- a. All the welding machine are in good condition having no defects
- b. Having identification and testing labels on it
- c. Having given body earthing and always connected with ELCB
- d. Having intact supply cable with top plug and no joints allowed
- e. Positive & Earthing electrodes are in good condition and always connected with lugs
- f. Arc Holder is of good condition and no defect in it
- g. Earthing electrode provided with crocodile pin

2. Hand Grinder:-

- a. Grinding m/c must be in good condition having no defects
- b. Having identification and testing labels on it
- c. Guard must be there always on the grinding wheel
- d. Body earthing if metal body
- e. Having given body earthing and always connected with ELCB
- f. Having intact supply cable with top plug and no joints allowed

3. Rod-Pipe cutter m/c:-

- a. Rod-Pipe cutter must be in good condition having no defects
- b. Having identification and testing labels on it
- c. Guard must be there always on the cutting wheel
- d. Having given body earthing and always connected with ELCB
- e. Having intact supply cable with top plug and no joints allowed

4. Hand Drill and other portable tools:-

- a. Hand Drill and other portable tools must be in good condition having no defects
- b. Having identification and testing labels on it
- c. Guard/lock must be there always on the machine
- d. Body earthing if metal body

- e. Having given body earthing and always connected with ELCB
- f. Having intact supply cable with top plug and no joints allowed

5. Gas Cutting Set:-

- a. Cutting set only have oxygen – dissolved acetylene(DA) cylinders and no LPG cylinder is allowed
- b. All the cylinders kept with contractors must be kept at designated location and location is marked and kept away from direct sunlight and any source of heat
- c. All the cylinders must be kept in vertical position with tying chain
- d. All the cylinders must have safety cap on it
- e. Proper and separate trolley for each cylinder and for the easy transport of the cylinders
- f. All the cutting set must be identified
- g. ISI marked hose pipes and no joints in it
- h. Cutting torch is in good condition (MESSER /ESSAB make)
- i. Having flash back arrestors (MESSER /ESSAB make) on torch and cylinder sides on both the hoses
- j. Double Stage Pressure regulators having pressure gauge on it on each cylinder (MESSER /ESSAB make)

6. Extension Board:-

- a. Required Number(at least 3) of Portable Extension provided by contractor
- b. All the extension board have proper fiber cover
- c. All the extension must have 1 female plug of industrial type 3-phase, 1 female plug of industrial type 1-phase, 1 female plug of three-pin
- d. Extension boards having provision of earthing wire
- e. Extension board must have ELCB on it
- f. Having intact supply cable with top plug and no joints allowed

7. Portable-Extension Ladder:-

- a. Only Certified ladder is to be procured and certificate to be shown by contractors
- b. MOC:- Aluminum
- c. With antiskid steps/rungs
- d. Single width
- e. Extension slot having proper rope and hooks for resting / sliding

8. Scaffolding:-

- a. Scaffolding is required whenever there is a requirement of work at height at above 4 meter height where there is no platform railing and proper approach to work
- b. It is to be kept / arrange by contractors
- c. Scaffolding Material must be of MS
- d. Provided with Pipes, clamps, diagonal supports, side supports and Jali (Khapeda) for platform of work.
- e. Railing of pipe to be fixed one length above Jali (khapeda)
- f. Scaffolding must be erected at equal level on floor

9. Life-Lines Ropes :-

- a. Minimum 1 nos is must
- b. It is the rope for anchorage of safety belt
- c. Make:- KARAM / UDYOGI
- d. Fray-Proof, dope-dyed polyester webbing
- e. Length- 20 mtr, Strength – 15 kN
- f. Equipped with ratchet tensioner for quick and easy tensioning of the life line between two supports
- g. Built in shock absorber in it

10. Lifting Equipments, Tools & Tackles (Chain Pulley Block / Hoist / Wire Rope Sling / Lifting Belt / Lifting Chain/ Winch Machine / Hydra / Crane etc.):-

- a. Testing Certificate is must in Form No. 10 by Competent Person for all the lifting Equipments, Tools & Tackles used at AFD by contractor.
- b. The equipment must be in good conditions without any defect and with all the required accessories

SAFETY GUIDELINES FOR WORK:-

1. Hot Work (Welding, Cutting, Grinding etc.) & Other Maintenance Work:-

- a. Use of Safety Shoes, Safety Helmet, Cotton hand gloves, Goggles is must for all the workers at work
- b. Use of Welding Helmet, Welding Gloves and Welding Blanket is must while welding work
- c. Use of Cut resistance hand gloves and face shield is must while grinding and cutting
- d. Use of Cut resistance hand gloves, face shield and welding blanket is must while Gas Cutting

- e. Ensure proper electrical, mechanical and pneumatic isolation and purging of the equipment/pipe line/ if working on any running plant/process or inside any department
- f. If required apply dummy on incoming & out going lines
- g. Take Work Permit from concern AFD in-charge when working on any running plant/process or inside any department
- h. Remove all the flammable material from the area and barricade the area properly
- i. Use Fire blankets or made arrangement such that the spark fall in safe zone.
- j. Ensure availability of Fire Extinguisher / Water nearby
- k. Make proper housekeeping after work and never kept any flame unattended.
- l. If the area is congested and having flammable material check the nearby area after work
- m. For hot work on gas & oil line ensure gas/LEL level is checked by AFD in-charge and it is not exceeded
- n. No loose connection and joints are allowed in cables (All the cables connected with plug top)
- o. Never perform ant hot work near painting work
- p. Never perform any hot work nearer to any gas line or oil line
- q. Never perform any hot work inside any tanks, drainage etc. confined place

2. Height Work (Above 2 meter of Height):-

- a. Use of Safety Shoes, Safety Helmet, Cotton hand gloves, Goggles and Safety Belt is must for all the workers working at height
- b. Ensure that there must be proper platform and approach to work at height with hand railing and ladder at height
- c. If there is no platform then must use scaffold which is made as per IS 3696 standard to approach height
- a. Scaffold must have made with Base Plate, upright, putlog, diagonal braces, handrail, jhali-khapeda for platform
- b. All the persons are going to work at height are advised to make proper scaffold as describe above
- d. Portable aluminum ladders must be used for climbing height of scaffold / platform and it is to be fixed on scaffold
- e. Ladders are used only for ascending-descending height not for any work at height.
- f. When ladder is used for ascending-descending height it must be fixed with firm structure or hold properly at base
- g. Use of Safety Belt is must while working at height above 2 meter
- h. Use Life lines for anchoring of Safety Belt where no other means is required
- i. Use intact rope for shifting tools and equipments at height
- j. Do not carry anything while climbing the ladder
- k. Cordon the below area

3. Material Lifting/Shifting Activity:-

4.

- a. Use of Safety Shoes, Safety Helmet, Cut Resistance Hand Gloves, Goggles, Safety Belt and ladder is must for all the workers involved in Material Lifting / Shifting Activity working at height
- b. Lifting equipment (Crane, Hydra, Chain Pulley, Man-lift) must be in good condition, no leakages and defects should be there. Provided with latch lock in hook
- c. Submit a copy of Form No. 10 and Valid operator license (if required) to AFD/PFP in-charge
- d. Submit a weekly crane maintenance report and in case crane/hydra stands more than 1 day in AFD/PFP, submit everyday inspection report to AFD/PFP in-charge.
- e. Lifting tackles i.e. wire rope Sling must be with cladding, Belts, D-shackles must be intact and no defects in it, Submit Form No. 10 for it.
- f. Equipment must be selected based on load capacity considering material to be lifted /shifted.
- g. Lifted material must be tied with 3 meter or more length rope for guiding it.
- h. Cordon the surrounding area.
- i. Never left suspended load unattended.

PENALTY:-

For Not following safety requirements of Amulfed Dairy and violating any safety norms of Amulfed dairy penalty of Rs. 5000 will be imposed for each violation on each day.

D. GENERAL RULES:-

1. Site Clearance with removal of scrap and good housekeeping to be done by contractor regularly.
2. No Gutkha / Pan MasalaTobaco / Cigarate / Match Boxes and smoking is permitted inside premises if found Rs. 5000 penalty will be imposed and No Entry to be Done for that person.
3. Bring all the vehicles with license and PUC and RC book.
4. For 2 wheelers helmet is must for gate entry and for 4 wheelers seat belt must be fastened.
5. Park your vehicle at parking places only.

6. Gate pass must be carried with all the persons of contractors.
7. Our unit is a Food Plant, so do not enter any area without permission of dairy in-charge, unless you allotted penalty of Rs. 5000 will be imposed.
8. Maintain a good conduct and discipline at site, for any violation and misbehave penalty of Rs. 5000 will be imposed and No Entry will be done.

