Boiler Auxiliary Plant , Bharat Heavy Electricals Limited , Ranipet Tamilnadu- 632406

Purchase Department

Enquiry No: BAP/PUR/EFCV dt.17.07.2015
Due on: 08.08.2015

Item: Excess Flow Check Valve

Synopsis :

(i) **Annexure-I**
Pre-Qualification Requirement
Description of item , Quantity details and Relevant specification

(ii) **Annexure-II :** General terms and conditions of tender

(iii) **Annexure-III :** Commercial terms and conditions Annexure, MSME split provision & CA certificate format.

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Annexure–I To Open Tender ref: BAP/PUR/EFCV dt.17.07.2015
For Supply Of "Excess Flow Check Valve" , Due on : 08.08.2015
Pre-Qualification Requirement

(1) Vendor should be a manufacturer of this item.

(2) Vendor should have supplied at least 15 nos of Rota meter for past two years. Purchase order copies for the supply made in the past two years should be enclosed along with technical-commercial offer.

Offers of such vendors will be considered at our end who meets the above two requirements.

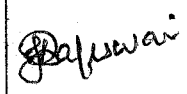
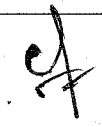
Annexure–I To Open Tender ref: BAP/PUR/EFCV dt.17.07.2015
For Supply Of "Excess Flow Check Valve" , Due on : 08.08.2015
Description of Item, Qty , Drawing and Relevant Specification

Sl No	Description of Item	Qty	Unit	Delivery Required
01	Supply of "Excess flow Check Valve with Isolation valve on both sides" for Ammonia Pipe line of Ammonia Injection System. Size: 1 ½'' (One & Half Inch).	**04**	**No**	02 No – 24.06.2016 02 No – 24.02.2017

Specification to be followed: TEP:AI:EFCV:REV 00.

TECHNICAL SPECIFICATION FOR EXCESS FLOW CHECK VALVE

TEP:AI:EFCV:Rev 00

NAME		**DESIGNATION**	**SIGN**	**DATE.**
PREPARED	**K.RAJESWARI**	**Asst. Engineer**		17.06.15
CHECKED	**ADARSH VERMA**	**Engineer**		17.06.15
APPROVED	**C.Ganesh**	**SM/AQCS**		17.06.15
ISSUED BY				
EDC – AQCS				
REVISION NO : 00				

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TECHNICAL SPECIFICATION FOR EXCESS FLOW CHECK VALVE

TEP:AI:EFCV:Re

01. Scope: Scope includes supply of Excess flow check valve for installation in ammonia gas flow pipe line of Ammonia injection system.

02. Application: Ammonia Flue Gas conditioning System (AFGCS) is used to enhance the performance of the ESP in coal fired boilers. Ammonia gas is diluted and injected into the flue gas before the ESP. Ammonia gas (of industry grade pure) is taken from cylinder and reduced to a pressure level of 2 kg/cm2 and diluted with air (from a blower) and injected into the flue gas. A pressure regulating valve is used for reducing the pressure and a flow control valve is used for controlling the flow rate of ammonia before it mixes with air. AFGCS is a continuous working system for the purpose of pollution control. The offered EFCV is to be used in a Ammonia Injection system envisaged in a electrostatic precipitator inlet duct. The ammonia vapor goes to the discharge of the Air blower, where the ammonia is getting mixed with air maintaining the ammonia concentration of 0.5% to 1.5%.

03. Codes & Standards:

The EFCV shall conform to the applicable codes and standards besides the following:

a) ASME B 16.5;2003----Pipe flanges and flanged fittings

b) ASME B 31.3;2006----Process Piping

04. Location of the Plant: Refer Enquiry.

05. Properties and Characteristics of Ammonia:

Physical State	: Gas, Liquid under pressure
Colour	: Colourless
Odour	: Pungent
Corrosivity	: In presence of moisture, corrosive to copper, Zinc, copper alloys and galvanized surfaces
Water solubility	: Highly soluble
Boiling Point	: - 33.3 Deg C at atm. pressure
Melting point	: - 77.7 Deg C
Specific Gravity	: 0.63(at + 4 Deg C)
Vapour density	: 7.55 kg/m3(at 24 Deg C)
Vapour Pressure	: 10 atm at 25.7 Deg C

06. Design Requirement:

Excess Flow Check Valve: Size: 1 1/2" (One and half Inch) and Quantity--02 nos.

Sl. No	Item	Excess Flow Check Valve
01	Type	Flanged Excess Flow Check valves.
02	End Connection	Flange Welded to valve Body
03	Flange Rating	150 lbs, B16.5, SORF
04	Material	SS316
05	Pin	SS
05	Spring	Inconnel x-750
06	Service	Ammonia Vapour at 10 kg/cm2 (g)
07	DP across the valve	4kg/cm2 (g)
08	Hydro test	15kg/cm2 (g)

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TECHNICAL SPECIFICATION FOR EXCESS FLOW CHECK VALVE

Gate Valve: Size : 1 1/2 " (One and half inch) Quantity:04 Nos.(on either side of EFCV)

Sl. No.	Item	Gate Valve
01	Type	Isolation valve.
02	Body & Bonnet	ASTM A182 F316 forged stainless steel(Nb15 to 25)
	Body & Bonnet	ASTM A351 CF8 cast stainless steel; (Nb40 to 100)
03	Stem, Disc and Seat	ASTM A182 F316 forged stainless steel;
04	Packing	flexible graphite with braided carbon/graphite end rings;
05	End Connection	Flanged and Butt welding
06	Flange Rating	150 lbs, B16.5, SORF
07	Handle	Wheel Type
08	Service	Ammonia Vapour at 10 kg/cm2 (g)

The offered instruments body and internals should meet the service conditions of the liquid. MOC should avoid: copper, Zinc, copper alloys and galvanized surfaces in the construction of instrument.

07. Design Requirement:

a) SS Name plate shall be provided for each EFCV indicating Tag no, MOC, Design conditions, Size, Type and weight.

b) Vendor to enclose Drawing showing the detailed dimensions, cross sections and MOC of EFCV and its components along with Name plate details.

c) Flow direction shall be clearly marked on the body of EFCV.

d) The EFCV shall be designed for Full rated pressure at its rating.

e) Vendor to provide "Pressure Drop Vs Flow rate curves for EFCV.

f) Vendor shall confirm the suitability of the item specified or equivalent offered, for the conditions specified.

g) The offered EFCV shall be suitable for installation on both vertical and horizontal lines.

h) The EFCV shall be provided with isolation valves / Gate valves on either ends. MOC shall be as per the specification.

08. General Requirements:

1. Flanged and Butt welding End valves shall be as per API standard 600.
2. Face to face or End to End dimensions of flanged end valves and end to end dimensions of Butt welding end valves shall be as per ASME B16.10. For valve not covered by ASME B 16.10, the dimensions shall be as per applicable valve standards.
3. Valve stem/shaft materials shall be of high strength (hardened) alloy or stainless steel suitable for the service conditions specified.
4. Rising stem gate and globe valves shall be provided with a back seating feature. The direction of flow shall be cast or stamped on the valve body. Riveted tags are acceptable.
5. The manufacturer shall guarantee that the body and weld ends of gate valves have the required corrosion allowances.
6. Gate valves shall meet the high-pressure closure test requirements of API Standard 598.

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09. Identification & Marking:

a) Valves shall be marked in accordance with MSS SP 25, Standard Marking System for Valves and Flanges.

b) Valves shall have the tag number stamped on a 316 stainless steel tag and attached to the valve with stainless steel wire. Embossed stainless steel bands are acceptable.

10. Preparation for Shipping & Storage:

a) Valves shall be adequately packaged for shipping to prevent damage in transit and during storage at the erection site.

b) The flange face on valves are to be protected with a bolted on wood/fibre or metal flange cover the same size as the flange outside diameter. Socket weld and threaded ends of valves shall be protected with plastic plugs.

11.Documents to be submitted along with the offer:

a. Write-up on technical features of valves offered along with Catalogues, drawings etc

b. GA drawing with overall dimensions (approx), Weight (Approx), cross-section drawing of the Valves with part list, Material of construction and relevant standards.

c. The list of commissioning spares required for the valves should be furnished.

d. Material specification for the components.

e. The list of recommended spares required for the valves to operate for three years shall be furnished.

f. Alternatives suggested if any to meet the application/design requirement.

g. Deviations from the technical specification if any, should be spelt clearly for evaluation of the offer.

12. Documents to be furnished by the vendor after receipt of PO:

a. List of Drawing and documents/ test certificates to be submitted for review, approval and information with submission dates.

b. Quality Assurance Plan for approval.

c. Detailed dimensional general arrangement drawing of the valves. This drawing shall indicate all the design data and information like clearance dimensions for dis-assembly, weight, part nos, test pressures, statutory or ant special requirements, sizes, quantities..

d. Cross section drawing of the Valves with complete part list, materials of construction and relevant standards for each part.

e. Surface preparation and Painting procedures.

f. Catalogues, data sheets and drawings for all valves.

g. Installation, operation and maintenance manual along with lubrication schedule.

13. Inspection and testing :

i) Dimensional Checks of the offered valves

ii) Material test certificates the various components as per the approved drawing.

iii) Component should be inspected and pressure tested -- Body and Seat at a pressure of 1.5 times the nominal pressure in a medium of air.

iv) Strength and leak tests shall be as per any of the standards MSS-SP-61,API 598 or BS EN 12266-1 and 2 at the test pressures as per the standard values. Stainless steel valves shall be tested using potable water.

v) All test as applicable for EFCV as per applicable standards shall be conducted at shop and proof of such tests shall be submitted for review/approval.

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i) The EFCV in assembled condition shall be tested at shop at the test pressure.

14. Painting: Painting shall be as per the relevant CQR for this project. All machined surfaces shall applied with rust preventive coating.

15. Packing: The vendor shall pack the item such that the equipments shall not get damaged during transport, storage and handling. The packing materials shall withstand long storage, kept inside covered area. BHEL PO.NO., Item Name, Quantity, Vendor Name and Consignee details shall be furnished on the packing. The individual items are to be numbered and tagged in the part items and should linked to the erection drawing parts list for easy reference and identification of the parts. Valve assembly shall be covered with water proof sheet(Polythene) and should be packed in wooden boxes. The suction and delivery openings are to be covered so as to avoid water entry during storage. Bolted connections are to be made after applying anti-seize compound.

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