प्लाज्मा अनुसंधान संस्थान
INSTITUTE FOR PLASMA RESEARCH
परमाणु ऊर्जा विभाग, भारत सरकार का एक सहायता प्राप्त संस्थान
An Aided Institute of Department of Atomic Energy, Government of India

इन्दिरा पुल के पास, भाट, गांधीनगर – 382 428 भारत
दूरभाष: (079) 2396 2020/2021/2028
फैक्स: 91-079-23962277
वेब: www.ipr.res.in

NEAR INDIRA BRIDGE, BHAT
DIST. GANDHINAGAR - 382 428 (INDIA)
Phone: (079) 2396 2000/2026/2332
Fax : 91-079-23962277
Web : www.ipr.res.in

ENQUIRY

ENQUIRY NO : IPR/EQF/18-19/028
Date : 19-04-2018

Due on : 28-06-2018 by 1:00 PM IST

Reminder-1 Dt: 25-05-2018

Please send your offer in sealed envelope specifying Enquiry No, Date & Due Date, ALONG WITH your credentials for the following items which we are interested to import directly against Foreign Trade Policy 2015-2020.

Important Note:

Please note that e-mail quotations are not acceptable however you may send your queries (if any) to importpurchase@ipr.res.in

Please ensure your sealed quotation reaches this office not later than above mentioned due date and time.

Kindly go through the following documents properly before quoting which are available on the IPR web portal i.e., http://www.ipr.res.in/documents/tender_terms.html / attached herewith.

1) Instructions to the bidders & Terms and conditions (refer Form No: **IPR-FP-01.V3**)
2) Bidding format

GST for Goods and Services (IGST/CGST/SGST TAX BENEFITS): Please refer **clause no: 14** of Form No: **IPR-FP-01.V3**

QUOTATION SHOULD BE ADDRESSED TO PURCHASE OFFICER ONLY

Sr No	Description	Quantity
1	Flow control valve-FCV2 (Detailed specification has been attached)	1.0 Nos.
2	Pressure control valve-PCV1(Detailed specification has been attached)	1.0 Nos.
3	Pressure control valve-PCV2(Detailed specification has been attached)	1.0 Nos.
4	Pressure control valve-PCV3(Detailed specification has been attached)	1.0 Nos.
5	Pressure control valve-PCV4(Detailed specification has been attached)	1.0 Nos.

Note: Please quote with complete technical details (Technical compliance sheet and product data sheet).
Payment will be made as follows :-
- Through Letter of Credit :- The L/C will be established for

90% value of purchase order and the same will be paid against presentation of shipping documents.
- Through Wire Transfer : 10% payment will be paid through wire transfer after receipt and final acceptance of the item/s at IPR site and on submission of performance Bank Guarantee for 10% of the order value, valid throughout warranty period.

Encl: Refer attached sheet for detailed technical specification.

Sd/-

Mr. D. Ramesh
Purchase Officer-II

Information to Vendors: We are working towards a single platform for our future requirement. Hence, please refer IPR website i.e, http://www.ipr.res.in/documents/tenderseng.html for our future requirement.

Specification for Supply of Flow Control Valves/Pressure Control Valves

A. Flow Control Valves (FCV)

1	**Valve Number**	**FCV-2**
2	Valve type (ONN/OFF)/Control Valve	Flow Control Valve
3	Process Fluid	Helium Gas
4	Number of Valves	1
5	**Nominal Flow Parameter**	
	a. Mass flow rate(g/sec)	45.08
	b. Inlet Pressure, Bar(a)	13.63
	c. Nominal Inlet Temperature (K)	~35
	d. Allowable press. Drop when 80% open and with nominal flow rate (mbar)	<50
	e. Calculated Cv at 50% opening of (supplier to verify and propose, if required)	Supplier should provide
6	**Maximum and Minimum Flow Parameter**	
	a. Maximum/Minimum Pressure	20 Bar(a) /10^-3 mbar (Vacuum)
	b. Maximum/Minimum Temperature (K)	325/4
7	Valve Size (supplier to verify and propose, if required)	DN25
8	Process fluid Pipe Size to which valve will be connected (inch NB)(Thickness-Schedule)	1.5 Inch (10S)

B. Pressure Control Valves (PCV)

1	**Valve Number**	**PCV-1**
2	Valve type (ONN/OFF)/Control Valve	Pressure Control Valve
3	Process Fluid	Helium Gas
4	Number of Valves	1
5	**Nominal Flow Parameter**	
	a. Mass flow rate(g/sec)	20
	b. Inlet Pressure, Bar(a)	14
	c. Outlet Pressure, Bar(a)	4
	d. Nominal Inlet Temperature (K)	~7
	e. Calculated Cv at 50% opening of valve (supplier to verify and propose, if required)	Supplier should provide
6	**Maximum and Minimum Flow Parameter**	
	a. Maximum/Minimum Pressure	20 Bar(a) /10^-3 mbar (Vacuum)
	b. Maximum/Minimum Temperature (K)	325/4
7	Valve Size (supplier to verify and propose, if required)	DN15
8	Process fluid Pipe Size to which valve will be connected (inch)(Thickness-Schedule)	1 Inch (10S)

1	**Valve Number**	**PCV-2**
2	Valve type (ONN/OFF)/Control Valve	Pressure Control Valve
3	Process Fluid	Helium Gas
4	Number of Valves	1
5	**Nominal Flow Parameter**	
	a. Mass flow rate(g/sec)	20
	b. Inlet Pressure, Bar(a)	4
	c. Outlet Pressure, Bar(a)	1.3
	d. Nominal Inlet Temperature (K)	~5
	e. Calculated Cv at 50% opening of valve (supplier to verify and propose, if required)	Supplier should provide
6	**Maximum and Minimum Flow Parameter**	
	a. Maximum/Minimum Pressure	20 Bar(a) /10^-3 mbar (Vacuum)
	b. Maximum/Minimum Temperature (K)	325/4
7	Valve Size (supplier to verify and propose, if required)	DN15
8	Process fluid Pipe Size to which valve will be connected (inch)(Thickness-Schedule)	1 Inch(10S)

1	**Valve Number**	**PCV-3**
2	Valve type (ONN/OFF)/Control Valve	Pressure Control Valve
3	Process Fluid	Helium Gas
4	Number of Valves	1
5	**Nominal Flow Parameter**	
	f. Mass flow rate(g/sec)	50
	g. Inlet Pressure, Bar(a)	1.3
	h. Outlet Pressure, Bar(a)	1.25
	i. Nominal Inlet Temperature (K)	~4.7
	j. Calculated Cv at 50% opening of valve (supplier to verify and propose, if required)	Supplier should provide
6	**Maximum and Minimum Flow Parameter**	
	c. Maximum/Minimum Pressure	20 Bar(a) /10^-3 mbar (Vacuum)
	d. Maximum/Minimum Temperature (K)	325/4
7	Valve Size (supplier to verify and propose, if required)	DN25
8	Process fluid Pipe Size to which valve will be connected (inch)(Thickness-Schedule)	1 Inch(10S)

1	**Valve Number**	**PCV-4**
2	Valve type (ONN/OFF)/Control Valve	Pressure Control Valve
3	Process Fluid	Helium Gas
4	Number of Valves	1
5	**Nominal Flow Parameter**	
	a. Mass flow rate(g/sec)	20
	b. Inlet Pressure, Bar(a)	13
	c. Outlet Pressure, Bar(a)	1.3
	d. Nominal Inlet Temperature (K)	~80
	e. Calculated Cv at 80% opening of Valve and for nominal flow parameters (supplier to verify and propose, if required)	Supplier should provide
6	**Maximum and Minimum Flow Parameter**	
	a. Maximum/Minimum Pressure	20 Bar(a) /10^-3 mbar (Vacuum)
	b. Maximum/Minimum Temperature (K)	325/4
7	Valve Size (supplier to verify and propose, if required)	DN15
8	Process fluid Pipe Size to which valve will be connected (inch NB) (Thickness-Schedule)	2 Inch (10S)

Common specification for All flow control valve(FCV) and Pressure control valve(PCV)

Sr. No	Specification	IPR Requirement
1	Stem Height between 300^0C to operating Temperature	~600 mm
2	Mounting and Support	Flange of the valve will be welded to the port of the vacuum chamber and will be supported on this port.
3	Hydraulic Pressure Test	As per ASME or Equivalent Code
4	Valve body Pattern	Straight Body
5	Valve Body and bonnet Material	SS304L or equivalent as per standard
6	End Connection to the process pipe	Butt Welded Type
7	Valve Action (failure close/failure open)	Failure close
8	Actuator	Pneumatic diaphragm
9	Air Filter and Regulator	Required
10	Feedback Positioner	Required
11	Signal for valve operation	4-20mA
12	Valve Travel	Linear
13	Available compressed air pressure at IPR for valve operation	~5 Bar(g)
14	Acceptable helium leak rate to atmosphere, while process fluid(Helium gas at ambient temp) pressure is 2 bar(g)	<10^-5 mbar lit/sec
15	Acceptable helium leak rate from seat sealing while pressure difference between upstream (Helium gas at room temp) and downstream is 2 bar.	<10^-4 mbar lit/sec
16	Positioner type	Electro-pneumatic
17	Orientation of installation	Vertical
18	Stem Sealing to improve leakage to ambient	Bellow Seal
19	Seat Sealing Material	Teflon or KLF
20	Number of Cycles of closing and opening during operation	~10000 cycles
21	Material of Process pipe to which valve to be welded	SS304L
22	Valve will be used within vacuum chamber	Vacuum jacket is not required
23	Safety Standard	EN61508 or Equivalent

Marking

Following Marking have to written clearly on the valve either by engraving or any other means which is indelible and not separable.

(i) Name of vendor/Manufacturer
(ii) Serial Number
(iii) Nominal Diameter
(iv) Material
(v) Any other details (Like Nominal Operating Pressure, References no, Cv etc.)

Spare parts list with separate price

Complete spare parts list with price for each element should be supplied by vendor. IPR will choose as per requirement.

For valve PCV4 supplier should include spare valve plug for next higher size than Cv required for technical specification mentioned in above table for PCV4.

Quality Assurance, Pre-Dispatch Inspection and Tests for Valves

Specifications as per application requirements are described in the specification table and to achieve these specifications sufficient quality control and assurance plan should be implemented during manufacturing and testing of these valves.

Following tests should be included and test certificates should be submitted to IPR before shipment of the valve. After review and approval, dispatch clearance will be given.

1. Hydraulic Pressure Test
2. Leak Tightness test: See Specification
3. Functional Test (Calibration and Hysteresis)
4. If operating temperature is below 80 K, thermal intercept provision should be provided by vendor to reduce conduction heat load to the process fluid.

Documentation

The vendor/manufacturer should supply following documents along with valve

1. The general assembly drawing with following documents should be supplied along with the valve.
2. The material test certificates.
3. The documentation for assembly, disassembly and Maintenance with detailed procedures.
4. The operating and maintenance manuals.

Scope of Supply

(i) Following list of valves should be supplied, whose detailed technical specification has been mentioned in this document at the beginning.

Category	Valves	No of Valves
(A)	Flow Control Valve	
	(i) FCV2	1
(B)	Pressure Control Valve	
	(i) PCV 1	1
	(ii) PCV 2	1
	(iii) PCV 3	1
	(iv) PCV 4	1

(ii) Documentations as per above mentioned section-‘Documentation’

Required Delivery Period: 8 Weeks