ANNEXURE-B
PQR FOR KORBA & KAHALGAON PACKAGES

TECHNICAL PRE QUALIFICATION REQUIREMENTS (PQR) FOR NON RETURN VALVE (NRV)

REFERENCE: FGD/NRV/PQR/00

1. The vendor shall be an established **NRV** supplier and having adequate Engineering, Manufacturing, Testing, Inspection and Servicing facilities and shall furnish technical backup documents in proof for above requirements.
2. The vendor shall have experience of having supplied **NRV** as per the technical specification and datasheet for power plants or application of similar severity. Supply reference list with details of PO, PO date, customer name, application, size and class shall be submitted.
3. The **NRV** offered shall be from the existing regular supply range of the vendor. Vendor shall provide the product catalogue.
4. Proven track record is required. Minimum One end user certificate for the satisfactory operational performance of their product supplied meeting requirements specified in enquiry specification or higher.

   (or)

   successfully executed two POs for same or superior item meeting requirements specified in enquiry specification. Vendor to submit the corresponding datasheets / drawings / technical documents of supplied item as per POs / end user certificate.
5. In case of ordering, the Vendor shall have the responsibility for the following and same to be confirmed point wise.
   i) Vendor should have the component replacement responsibility in case of defect / failure.
   ii) Vendor shall have capability to provide assistance in commissioning activities at site, if required.
   iii) Vendor should ensure the product performance during erection & commissioning and ensure performance guarantee.

6. Backup document checklist to meet PQR to the fullest satisfaction of BHEL:

S. No	Document description	Check list	Name of the document furnished by vendor (Document Description / Number)
1	Documents to meet clause(1)	☐	
2	Supply reference document (General reference list) to meet clause (2)	☐	
3	Product Catalogues to meet clause (3)	☐	
4	Min. one end user certificate (or) Two POs to meet clause (4)	☐	
5	Confirmation to clause meet clause (5)	☐	

Vendor Signature and Seal

ANNEXURE-C
PQR FOR NTPL TUTICORIN PACKAGE

TECHNICAL PRE QUALIFICATION REQUIREMENTS (PQR) FOR NON RETURN VALVE (NRV)

REFERENCE: FGD/NRV/PQR/01

1. The vendor shall be an established **NRV** supplier and having adequate Engineering, Manufacturing, Testing, Inspection and Servicing facilities and shall furnish technical backup documents in proof for above requirements.
2. The vendor shall have experience of having supplied **NRV** as per the technical specification and datasheet for power plants or application of similar severity. Supply reference list with details of PO, PO date, customer name, application, size and class shall be submitted.
3. The **NRV** offered shall be from the existing regular supply range of the vendor. Vendor shall provide the product catalogue.
4. Proven track record is required. Minimum One end user certificate for the satisfactory operational performance of their product supplied meeting requirements specified in enquiry specification or higher.

   (or)

   Successfully executed two POs for same or superior item meeting requirements specified in enquiry specification. Vendor to submit the corresponding **Material Receipt Certificate/ Inspection Report** etc. from the end user for having received the material by the end user.
   In addition to above, vendor to submit datasheets / drawings / technical documents of supplied items for the reference PO's.
5. In case of ordering, the Vendor shall have the responsibility for the following and same to be confirmed point wise.
   i) Vendor should have the component replacement responsibility in case of defect / failure.
   ii) Vendor shall have capability to provide assistance in commissioning activities at site, if required.
   iii) Vendor should ensure the product performance during erection & commissioning and ensure performance guarantee.

6. Backup document checklist to meet PQR to the fullest satisfaction of BHEL:

S. No	Document description	Check list	Name of the document furnished by vendor (Document Description / Number)
1	Documents to meet clause(1)	☐	
2	Supply reference document (General reference list) to meet clause (2)	☐	
3	Product Catalogues to meet clause (3)	☐	
4	Min. one end user certificate (or) Two POs to meet clause (4)	☐	
5	Confirmation to clause meet clause (5)	☐	

Vendor Signature and Seal

Annexure-F; Detailed Description, Specification reference and FGD Absorber wise valves quantity					
Schedule	**BOQ Item Number**	**BOQ Item title**	**Detailed description**	**FGD Absorber wise quantity**	**Total Qty**
I	1	100NB WAFER TYPE SWING CHECK VALVE - NRV FOR KORBA FGD STAGE-I PROJECT	100NB NRV - WAFER TYPE SWING CHECK VALVE, AS PER SPECIFICATION NO .: FGD/NRV TS:01/ REV 00 AND PROJECT SPECIFIC DATASHEET FOR 100 NB NRV, REFERENCE: 8200/NRV/DS/001/REV 00. TAG NO:10HTD02AA162. Applicable PQR: Annexure-B	Korba FGD Stg.1 U#1,	1 No.
I	2	80NB NRV - WAFER TYPE SWING CHECK VALVE FOR KORBA FGD STAGE-II PROJECT	80NB NRV - WAFER TYPE SWING CHECK VALVE, AS PER SPECIFICATION NO .: FGD/NRV TS:01/ REV 00 AND PROJECT SPECIFIC DATASHEET FOR 80NB NRV, REFERENCE: 8203-8206/NRV/DS/001 Rev 00. TAG NO: FOR CUST NO: 8203: 40HTD02AA162 / FOR CUST NO: 8204:50HTD02AA162/ FOR CUST NO:8205 - 60HTD02AA162 / FOR CUST NO:8206 - 70HTD02AA162. Applicable PQR: Annexure-B	1 No. each for following FGD Absorbers: '1) Korba FGD Stg.2 U#4 (Cust No. 8203), 2) Korba FGD Stg.2 U#5 (Cust No. 8204), 3) Korba FGD Stg.2 U#6 (Cust No. 8205) 4) Korba FGD Stg.2 U#7 (Cust No. 8206)	4 Nos.
II	3	65NB WAFER TYPE SWING CHECK VALVE -NRV FOR KAHALGAON FGD PROJECT	65NB NRV - WAFER TYPE SWING CHECK VALVE, AS PER SPECIFICATION NO .: FGD/NRV TS:01/ REV 00 AND PROJECT SPECIFIC DATASHEET FOR 65 NB NRV, REFERENCE: 8209-8215/NRV/DS/001 Rev 00. TAG NOS: FOR CUST NO:8209-10HTD02AA162/ FOR CUST NO:8211 - 20HTD02AA162/ FOR CUST NO:8213 - 30HTD02AA162/ FOR CUST NO:8214-40HTD02AA162/ FOR CUST NO:8215 - 50HTD02AA162. Applicable PQR: Annexure-B	1 Nos. each for following FGD Absorbers: 1) Kahalgaon FGD Stg.1U#1 (Cust No. 8209), 2) Kahalgaon FGD Stg.1 U#3 (Cust No. 8211), 3) Kahalgaon FGD Stg.2 U#5 (Cust No. 8213), 4) Kahalgaon FGD Stg.2 U#6 (Cust No. 8214) 5) Kahalgaon FGD Stg.2 U#7 (Cust No. 8215)	5 Nos.
III	4	80NB NRV - WAFER TYPE SWING CHECK VALVE FOR NTPC SIPAT FGD PROJECT	80NB NRV - WAFER TYPE SWING CHECK VALVE, AS PER SPECIFICATION NO .: FGD/NRV TS:01/ REV 00 AND PROJECT SPECIFIC DATASHEET FOR 80 NB NRV, REFERENCE: 8223-8224/NRV/DS/001 REV 00. TAG NOS: FOR CUST NO: 8223 - 10HTD02AA162 / FOR CUST NO: 8224 - 20HTD02AA162. Applicable PQR: Annexure-B	1 No. each for following FGD Absorbers: 1)NTPC Sipat U#1 (Cust No. 8223), 2)NTPC Sipat U#2 (Cust No. 8224),	2 Nos.
IV	5	65NB WAFER TYPE SWING CHECK VALVE -NRV FOR NTPL TUTICORIN FGD PROJECT	65NB NRV - WAFER TYPE SWING CHECK VALVE, AS PER SPECIFICATION NO .: FGD/NRV TS:01/ REV 00 AND PROJECT SPECIFIC DATASHEET FOR 65NB NRV, Ref: 8207-8208/NRV/DS/001 Rev 00. TAG NOS: FOR CUST NO: 8207 - 10HTD02AA601 /FOR CUST NO: 8208 - 20HTD02AA601. Applicable PQR: Annexure-C	1 No. each for following FGD Absorbers: 1) NTPL Tuticorin Stg.1 U#1 (Cust No. 8207) 2) NTPL Tuticorin Stg.1 U#2 (Cust No. 8208)	2 Nos
IV	6	65NB NRV - WAFER TYPE SWING CHECK VALVE - MANDATORY SPARE FOR NTPL TUTICORIN PROJECT	65NB WAFER TYPE SWING CHECK VALVE (NRV) 65NB NRV - WAFER TYPE SWING CHECK VALVE, AS PER SPECIFICATION NO .: FGD/NRV TS:01/ REV 00 AND PROJECT SPECIFIC DATASHEET FOR 65NB NRV, Ref: 8207-8208/NRV/DS/001 Rev 00. Applicable PQR: Annexure-C	Mandatory spare for NTPL Turicorin project	1 No.

TECHNICAL SPECIFICATION

FOR

NON RETURN VALVES (NRV)

Specification No.: FGD/NRV TS:01/ Rev 00

Rev	Date	Description	Prepared	Checked	Approved
00	16-08-2022	Fresh Release	Sathiesh Kumar S Manager PE / FB (BM)	R Gopinath Manager PE / FB (BM)	Shankar Naik Vankadoth Sr. Manager PE / FB (BM)

Vendor's Sign & Seal

Table of Contents

S.NO	DESCRIPTION
1.	Intent of Specification
2.	Scope
3.	General Requirement
4.	Technical Specification
5.	Project specific datasheets
6.	Technical Pre – Qualification Requirements

1	INTENT OF SPECIFICATION
1.1	This specification covers the minimum requirements for the complete design, material, manufacturing, shop inspection, testing at the manufacturer's works of Non Return Valve (NRV) for Flue Gas Desulphurization plant for END CUSTOMER Project.
1.2	The vendor shall offer only proven design which meets the Provenness /Pre-qualification requirement of END CUSTOMER. Necessary document evidences as per "**Technical Pre – Qualification Requirements"** shall be submitted along with the bid. If vendor doesn't meet the specified Provenness criteria, their offer will be rejected.
1.3	Vendor shall furnish point-wise compliance to this Technical Specification and project specific datasheet.
1.4	Vendor shall make all possible efforts to comply strictly with the requirements of the specification. In case deviations are considered essential by the vendor (after exhausting all efforts), these shall be separately listed in the vendor`s proposal under separate section titled "List of deviations/exceptions to the enquiry document". Deviation shall be listed separately for each document with cross reference to Page No. / Section/ Clause No. etc. of the respective document, supported with proper reasons for deviation for our consideration. 0Any deviation not listed under the above section, even if reflected in any other portion of the proposal shall not be considered applicable. No deviation or exception will be permitted without the written approval of BHEL.
2	**SCOPE**
2.1	The scope covers design, manufacture, testing, certification, marking, identification, packing and supply of Non Return Valve (NRV) assembly for the specified duty conditions as per this specification and project specific datasheet.
2.2	All applicable accessories shall be supplied along with the valve.
2.3	This specification is not necessarily exhaustive and shall not relieve the vendor of his responsibility to provide valve, equipment and services necessary to satisfy the performance criteria and guarantees specified.
3	**GENERAL REQUIREMENT**
3.1	NRV design shall be leak proof.
3.2	The valve shall operate smoothly over the entire range from 0% to 100% stroke without binding.
3.3	NRV shall be field repairable. Disc, seals, and seats shall be replaceable without welding or cutting.
3.4	NRV shall be capable of sealing with design pressure applied.
3.5	For shipping, valves shall be dry, clean, free from moisture, dirt and loose foreign material. Valves shall be protected from rust, corrosion, and any mechanical damage during transport, shipment, and storage. Valve ends shall have covers to protect debris enter into the valve.

Vendor's Sign & Seal

3.6	Vendor shall provide a detailed description of any special lifting and/or installation requirements.
3.7	A valve manufacturer with whom an order has been placed shall not sub-order assembled valves from other sources without BHEL approval.
3.8	S.S. Name plate shall be provided with details as mentioned in technical specification.
3.9	Operation and Maintenance (O&M) manuals in soft version(PDF) shall be submitted to BHEL prior to dispatch of the equipment. O&M manual shall contain details for storage, installation, erection procedures, GA drawings, operating and troubleshooting, lubrication schedule, spares data, spares identification drawings, spares replacement procedure and special requirements if any.

Vendor's Sign & Seal

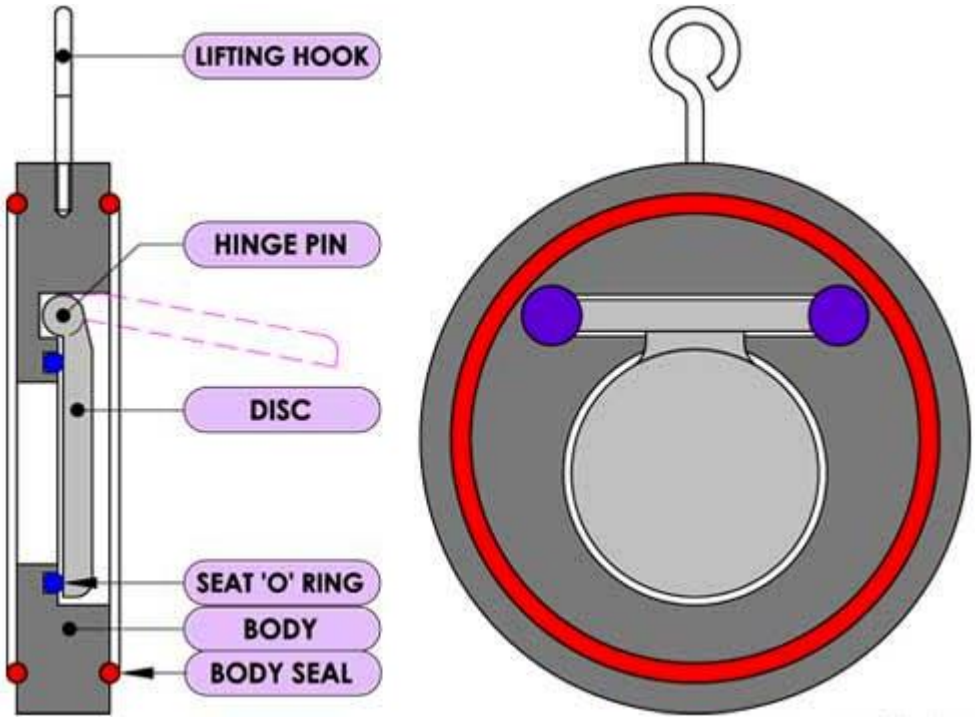
4. TECHNICAL SPECIFICATION FOR NON RETURN VALVE (NRV)

Sl. No.	Criteria	Description	Vendor Acceptance/ Comments
01.	Application	The valves are used in Compressed Air line in Wet Limestone based Flue Gas Desulphurization plant.	
02.	Scope of Supply	Wafer type Swing check valve; Consists of Thin/Light weight/Low inertia/Corrosive resistance single plate (As per typical diagram).	
03.	Pipe Orientation	Horizontal	
04.	**Standards**		
	a) Design standard	BS:5352/ ASME B16.34/ BS:1868/ API 594/ API 6D	
	b) Valve Inspection test	EN 12266-P1/ API 598/ IS-5312/ MS-SP-71	
05.	**General**	All valves shall have permanent arrow inscription on the valve body indicating the flow direction.	
06.	**Painting scheme**	➢ Surface preparation– Power tool cleaning to St3 (SSPC-SP3). ➢ Primer- Red Oxide Zinc phosphate primer to IS 12744 (two coat 30+30 micron). ➢ Finish paint- Synthetic Enamel to IS 2932 Shade: Grey white RAL 9002 (Two coats 30+30 micron). ➢ Total DFT=120 micron. or ➢ as per applicable painting schedule of the project. Note: If painting schedule is applicable then the vendor has to follow the same.	

Vendor's Sign & Seal

07.	**DOCUMENTS TO BE SUBMITTED DURING TECHNICAL OFFER**	
	a) Point wise acceptance and deviations (if any) of this specification.	
	b) Vendor to submit duly filled, sealed & signed all pages & datasheets enclosed in this specification	
	c) GA drawing showing all accessories with BOM & cross sectional view. Otherwise offer will not be considered.	
	d) Supporting Documents for Technical PQR	
08.	**DOCUMENTS TO BE APPROVED BEFORE MANUFACTURING**	
	a) GA drawing showing all accessories with BOM & cross sectional view for Approval	
	b) Valve Data Sheet for Approval.	
09.	**NAME PLATE HAS TO CONTAIN THE FOLLOWING DETAILS:** a) Tag Numbers____ b) MOC: Disc____ c) NRV size_____ and Rating_____ d) BHEL material code (Material Code No / P.O. Ref.) e) Manufactures details: Vendor Name___ Batch no___ Val. Sl. No f) Approximate weight in kgs	
10.	**INSPECTION:** Inspection shall be as per the applicable quality plan by BHEL/BHEL's authorized agency at vendor works**.**	
11.	**PACKING:** Valve assembly shall be wrapped in polythene bag and packed in a strong rigid wooden crate. Rain water should not enter into the packing during storage in the outer yard of power plant.	
12.	**OUTSIDE THE BOX:** PO number, vendor name, item size, material code, model number, Quantity inside the box to be mentioned.	
13.	**GENERAL INSTRUCTION:** a) All Necessary material test certificates to be produced at the time of inspection for Valve body, Disc, seals, Viton seals. b) Only latest revision shall be referred for all the Standards specified	

Vendor's Sign & Seal

14.	**GUARANTEE & WARRANTEE:** a) All materials shall be defect free and shall be replaceable free of cost during guarantee. b) Period: The performance of valve shall be guaranteed for a period of 24 month from date of supply or 18 months from the date of commissioning whichever is earlier.	
15.	**Typical Diagram – Wafer type Swing Check Valve**	
		

Vendor's Sign & Seal

PROJECT SPECIFIC DATASHEET FOR 100 NB NRV

Ref: 8200/NRV/DS/001 Rev 00

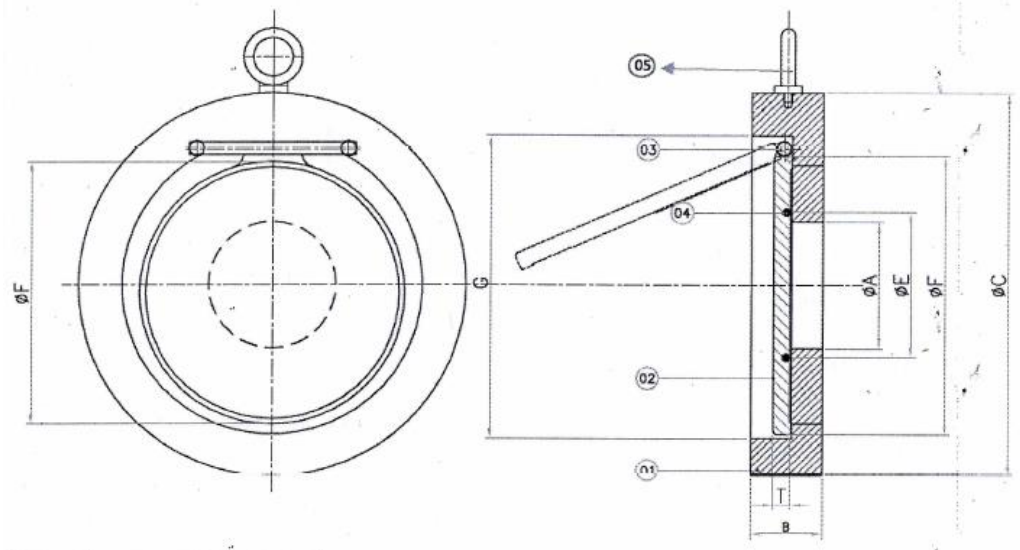
Project Name	**KORBA STAGE -I (3X200MW)**
Enquiry No./ P.O. No.	
BHEL Material Code	
Applicable Valve Tag Nos.	**10HTD02AA162**

PRODUCT : Wafer Type Swing Check Valve (NRV)

S.NO	CRITERIA	DESCRIPTION	VENDOR ACCEPTANCE/ COMMENTS
	Design criteria / Parameters		
01.	Flow medium	Oxidation air	
02.	Fluid Temperature- Design (°C)	300	
03.	Fluid Temperature- Operating (°C)	100	
04.	Lift Pressure (Bar)	0.5	
05.	Fluid Pressure- Operating (bar)	0.95	
06.	Valve Size (NB)	100	
07.	Body rating	Class 150	
	Inspection criteria		
08.	Hydro Test Pressure-Body (bar) (No detectable Visible Leakage)	1.8	
09.	Hydro Test Pressure-Seat (bar) No Leakage-(Drop tight)	1.3	
10.	**Material of construction**		
	a) Body	A216 WCB	
	b) Disc	GR SS 316L	
	c) Seat Seal	Viton min. cord ∅ 5mm	
	d) Body seal	Viton min. cord ∅ 5mm	
	e) Screw	SS 316	
	f) Hinge Pin	SS 316	
	g) End Connection	Wafer	
	h) Lifting Hook	Carbon steel with chrome Plated / GI 40 micron	
	i) Method of Fastening the Pipe with flange	Held in between two flanges through friction grip of bolt tightening torque.	
	j) Flow Direction Indicator	To be provided near handle (lifting hook) in body.	

11.

Typical Diagram – Wafer type Swing Check Valve



No.	Description
1	Body
2	Disc
3	Hinge Pin
4	Seat O Ring
5	Lifting Hook

12.

To be filled by Bidder:

Valve Design Parameters										
Vendor to fill the following design parameters with reference to Typical Diagram (Clause no. 10 in Datasheet for project specific datasheet)										
S. No	**Valve Size (NB)**	**Pipe Size**		**B**	**T**	**G**	**ØA**	**ØE**	**ØF**	**ØC**
		OD (mm)	**Thickness (mm)**							
1	100	114	5.4							

Note: The OD and Thickness dimensions mentioned in the above table is tentative. Exact dimensions shall be given post PO stage.

PROJECT SPECIFIC DATASHEET FOR 80 NB NRV

Ref: 8203-8206/NRV/DS/001 Rev 00

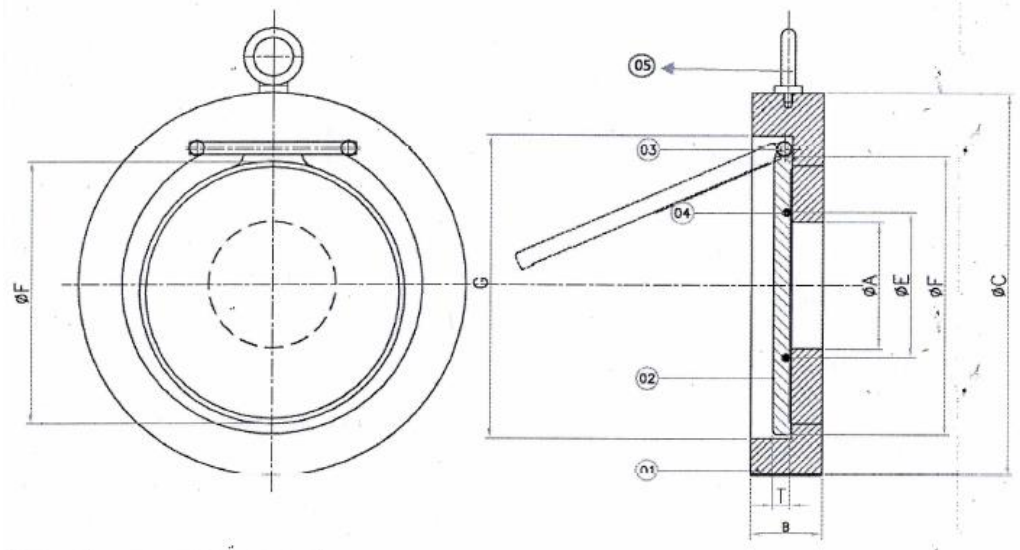
Project Name	**KORBA STAGE – II AND III (3X500 MW + 1X500 MW)**
Enquiry No./ P.O. No.	
BHEL Material Code	
Applicable Valve Tag Nos.	**40HTD02AA162, 50HTD02AA162, 60HTD02AA162 & 70HTD02AA162**

PRODUCT : Wafer Type Swing Check Valve (NRV)

S.NO	CRITERIA	DESCRIPTION	VENDOR ACCEPTANCE/ COMMENTS
	Design criteria / Parameters		
01.	Flow medium	Oxidation air	
02.	Fluid Temperature- Design (°C)	300	
03.	Fluid Temperature- Operating (°C)	100	
04.	Lift Pressure (Bar)	0.5	
05.	Fluid Pressure- Operating (bar)	0.95	
06.	Valve Size (NB)	80	
07.	Body rating	Class 150	
	Inspection criteria		
08.	Hydro Test Pressure-Body (bar) (No detectable Visible Leakage)	1.8	
09.	Hydro Test Pressure-Seat (bar) No Leakage-(Drop tight)	1.3	
10.	**Material of construction**		
	a) Body	A216 WCB	
	b) Disc	GR SS 316L	
	c) Seat Seal	Viton min. cord ∅ 5mm	
	d) Body seal	Viton min. cord ∅ 5mm	
	e) Screw	SS 316	
	f) Hinge Pin	SS 316	
	g) End Connection	Wafer	
	h) Lifting Hook	Carbon steel with chrome Plated / GI 40 micron	
	i) Method of Fastening the Pipe with flange	Held in between two flanges through friction grip of bolt tightening torque.	
	j) Flow Direction Indicator	To be provided near handle (lifting hook) in body.	

11.

Typical Diagram – Wafer type Swing Check Valve



No.	Description
1	Body
2	Disc
3	Hinge Pin
4	Seat O Ring
5	Lifting Hook

12.

To be filled by Bidder:

Valve Design Parameters										
Vendor to fill the following design parameters with reference to Typical Diagram (Clause no. 10 in Datasheet for project specific datasheet)										
S. No	**Valve Size (NB)**	**Pipe Size**		**B**	**T**	**G**	**ØA**	**ØE**	**ØF**	**ØC**
		OD (mm)	**Thickness (mm)**							
1	80	88.9	4.8							

Note: The OD and Thickness dimensions mentioned in the above table is tentative. Exact dimensions shall be given post PO stage.

PROJECT SPECIFIC DATASHEET FOR 65 NB NRV

Ref: 8209-8215/NRV/DS/001 Rev 00

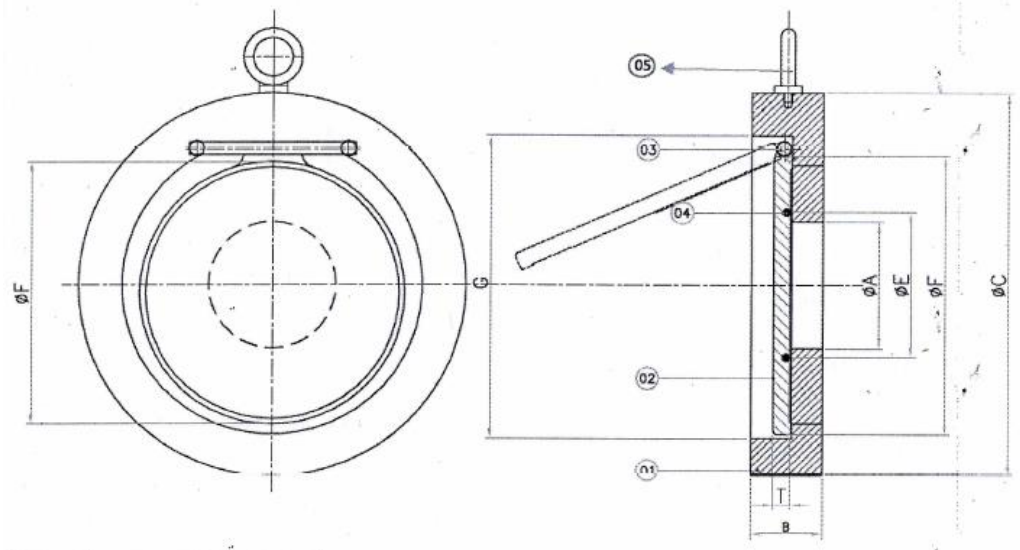
Project Name	**KAHALGAON STPS STAGE I & II (4x210 MW + 3x500 MW)**
Enquiry No./ P.O. No.	
BHEL Material Code	
Applicable Valve Tag Nos.	**10HTD02AA162, 20HTD02AA162, 30HTD02AA162, 40HTD02AA162 & 50HTD02AA162**

PRODUCT : Wafer Type Swing Check Valve (NRV)

S.NO	CRITERIA	DESCRIPTION	VENDOR ACCEPTANCE/ COMMENTS
	Design criteria / Parameters		
01.	Flow medium	Oxidation air	
02.	Fluid Temperature- Design (°C)	300	
03.	Fluid Temperature- Operating (°C)	100	
04.	Lift Pressure (Bar)	0.5	
05.	Fluid Pressure- Operating (bar)	0.95	
06.	Valve Size (NB)	65	
07.	Body rating	Class 150	
	Inspection criteria		
08.	Hydro Test Pressure-Body (bar) (No detectable Visible Leakage)	1.8	
09.	Hydro Test Pressure-Seat (bar) No Leakage-(Drop tight)	1.3	
10.	**Material of construction**		
	a) Body	A216 WCB	
	b) Disc	GR SS 316L	
	c) Seat Seal	Viton min. cord ∅ 5mm	
	d) Body seal	Viton min. cord ∅ 5mm	
	e) Screw	SS 316	
	f) Hinge Pin	SS 316	
	g) End Connection	Wafer	
	h) Lifting Hook	Carbon steel with chrome Plated / GI 40 micron	
	i) Method of Fastening the Pipe with flange	Held in between two flanges through friction grip of bolt tightening torque.	
	j) Flow Direction Indicator	To be provided near handle (lifting hook) in body.	

11.

Typical Diagram – Wafer type Swing Check Valve



No.	Description
1	Body
2	Disc
3	Hinge Pin
4	Seat O Ring
5	Lifting Hook

12.

To be filled by Bidder:

Valve Design Parameters										
Vendor to fill the following design parameters with reference to Typical Diagram (Clause no. 10 in Datasheet for project specific datasheet)										
S. No	**Valve Size (NB)**	**Pipe Size**		**B**	**T**	**G**	**ØA**	**ØE**	**ØF**	**ØC**
		OD (mm)	**Thickness (mm)**							
1	65	76.5	4.5							

Note: The OD and Thickness dimensions mentioned in the above table is tentative. Exact dimensions shall be given post PO stage.

PROJECT SPECIFIC DATASHEET FOR 80 NB NRV

Ref: 8223-8224/NRV/DS/001 Rev 00

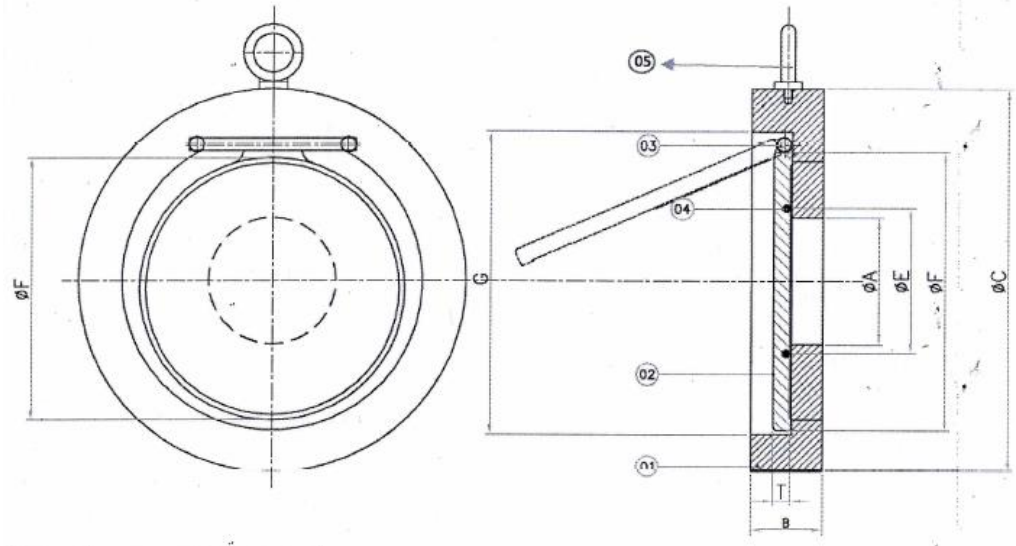
Project Name	**NTPC Sipat FGD - Stage II (2X500MW)**
Enquiry No./ P.O. No.	
BHEL Material Code	
Applicable Valve Tag Nos.	**10HTD02AA162 & 20HTD02AA162**

PRODUCT : Wafer Type Swing Check Valve (NRV)

S.NO	CRITERIA	DESCRIPTION	VENDOR ACCEPTANCE/ COMMENTS
	Design criteria / Parameters		
01.	Flow medium	Oxidation air	
02.	Fluid Temperature- Design (°C)	300	
03.	Fluid Temperature- Operating (°C)	100	
04.	Lift Pressure (Bar)	0.5	
05.	Fluid Pressure- Operating (bar)	0.95	
06.	Valve Size (NB)	80	
07.	Body rating	Class 150	
	Inspection criteria		
08.	Hydro Test Pressure-Body (bar) (No detectable Visible Leakage)	1.8	
09.	Hydro Test Pressure-Seat (bar) No Leakage-(Drop tight)	1.3	
10.	**Material of construction**		
	a) Body	A216 WCB	
	b) Disc	GR SS 316L	
	c) Seat Seal	Viton min. cord ∅ 5mm	
	d) Body seal	Viton min. cord ∅ 5mm	
	e) Screw	SS 316	
	f) Hinge Pin	SS 316	
	g) End Connection	Wafer	
	h) Lifting Hook	Carbon steel with chrome Plated / GI 40 micron	
	i) Method of Fastening the Pipe with flange	Held in between two flanges through friction grip of bolt tightening torque.	
	j) Flow Direction Indicator	To be provided near handle (lifting hook) in body.	

11.

Typical Diagram – Wafer type Swing Check Valve



No.	Description
1	Body
2	Disc
3	Hinge Pin
4	Seat O Ring
5	Lifting Hook

12.

To be filled by Bidder:

Valve Design Parameters

Vendor to fill the following design parameters with reference to Typical Diagram (Clause no. 10 in Datasheet for project specific datasheet)

S. No	Valve Size (NB)	Pipe Size		B	T	G	ØA	ØE	ØF	ØC
		OD (mm)	Thickness (mm)							
1	80	88.9	4.8							

Note: The OD and Thickness dimensions mentioned in the above table is tentative. Exact dimensions shall be given post PO stage.

PROJECT SPECIFIC DATASHEET FOR 65 NB NRV

Ref: 8207-8208/NRV/DS/001 Rev 00

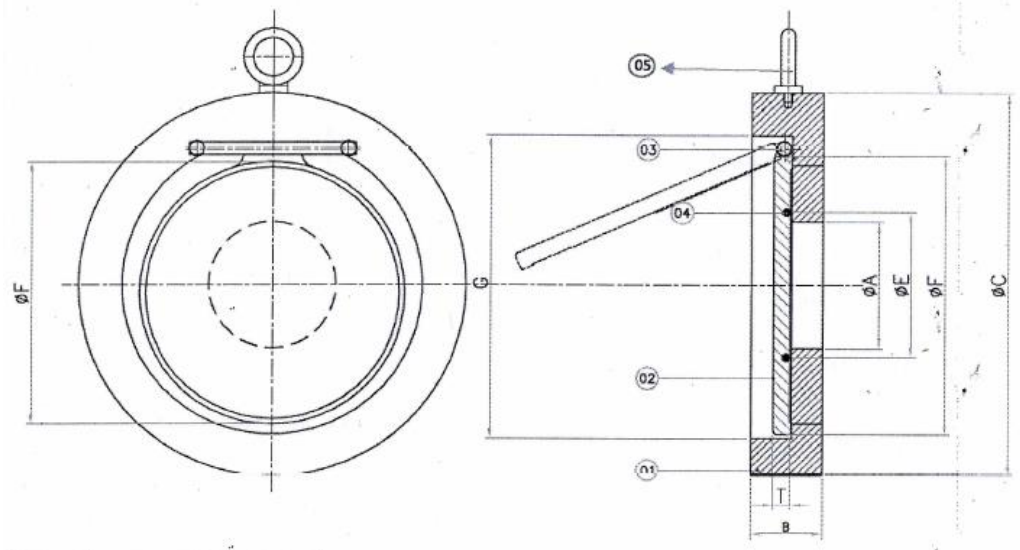
Project Name	**NTPL TUTICORIN 2X500MW**
Enquiry No./ P.O. No.	
BHEL Material Code	
Applicable Valve Tag Nos.	**10HTD02AA601 & 20HTD02AA601**

PRODUCT : Wafer Type Swing Check Valve (NRV)

S.NO	CRITERIA	DESCRIPTION	VENDOR ACCEPTANCE/ COMMENTS
	Design criteria / Parameters		
01.	Flow medium	Oxidation air	
02.	Fluid Temperature- Design (°C)	300	
03.	Fluid Temperature- Operating (°C)	100	
04.	Lift Pressure (Bar)	0.5	
05.	Fluid Pressure- Operating (bar)	0.95	
06.	Valve Size (NB)	65	
07.	Body rating	Class 150	
	Inspection criteria		
08.	Hydro Test Pressure-Body (bar) (No detectable Visible Leakage)	1.8	
09.	Hydro Test Pressure-Seat (bar) No Leakage-(Drop tight)	1.3	
10.	**Material of construction**		
	a) Body	A351CF8M / A182 F304	
	b) Disc	GR SS 316L	
	c) Seat Seal	Viton min. cord ∅ 5mm	
	d) Body seal	Viton min. cord ∅ 5mm	
	e) Screw	SS 316	
	f) Hinge Pin	SS 316	
	g) End Connection	Wafer	
	h) Lifting Hook	Carbon steel with chrome Plated / GI 40 micron	
	i) Method of Fastening the Pipe with flange	Held in between two flanges through friction grip of bolt tightening torque.	
	j) Flow Direction Indicator	To be provided near handle (lifting hook) in body.	

11.

Typical Diagram – Wafer type Swing Check Valve



No.	Description
1	Body
2	Disc
3	Hinge Pin
4	Seat O Ring
5	Lifting Hook

12.

To be filled by Bidder:

Valve Design Parameters										
Vendor to fill the following design parameters with reference to Typical Diagram (Clause no. 10 in Datasheet for project specific datasheet)										
S. No	**Valve Size (NB)**	**Pipe Size**		**B**	**T**	**G**	**ØA**	**ØE**	**ØF**	**ØC**
		OD (mm)	**Thickness (mm)**							
1	65	76.5	4.5							

Note: The OD and Thickness dimensions mentioned in the above table is tentative. Exact dimensions shall be given post PO stage.

Annexure-M

CORPORATE QUALITY ASSURANCE
SUB-VENDOR QUESTIONNAIRE

i.	***Item/Scope of Sub-contracting***	
ii.	***Address of the registered office***	***Details of Contact Person (Name, Designation, Mobile, Email)***
iii.	***Name and Address of the proposed Sub-vendor's works where item is being manufactured***	***Details of Contact Person: (Name, Designation, Mobile, Email)***
iv.	***Annual Production Capacity for proposed item/scope of sub-contracting***	
v.	***Annual production for last 3 years for proposed item/scope of sub-contracting***	
vi.	***Details of proposed works***	
1.	***Year of establishment of present works***	
2.	***Year of commencement of manufacturing at above works***	
3.	***Details of change in Works address in past (if any)***	
4.	***Total Area***	
	Covered Area	
5.	***Factory Registration Certificate***	***Details attached at Annexure – F2.1***
6.	***Design/ Research & development set-up (No. of manpower, their qualification, machines & tools employed etc.)***	***Applicable / Not applicable if manufacturing is as per Main Contractor/purchaser design) Details attached at Annexure – F2.2 (if applicable)***
7.	***Overall organization Chart with Manpower Details (Design/Manufacturing/Quality etc)***	***Details attached at Annexure – F2.3***
8.	***After sales service set up in India, in case of foreign sub-vendor (Location, Contact Person, Contact details etc.)***	***Applicable / Not applicable Details attached at Annexure – F2.4***
9.	***Manufacturing process execution plan with flow chart indicating various stages of manufacturing from raw material to finished product including outsourced process, if any***	***Details attached at Annexure – F2.5***
10.	***Sources of Raw Material/Major Bought Out Item***	***Details attached at Annexure – F2.6***
11.	***Quality Control exercised during receipt of raw material/BOI, in-process , Final Testing, packing***	***Details attached at Annexure – F2.7***

CORPORATE QUALITY ASSURANCE
SUB-VENDOR QUESTIONNAIRE

12.	***Manufacturing facilities*** ***(List of machines, special process facilities, material handling etc.)***	***Details attached at Annexure – F2.8***
13.	***Testing facilities*** ***(List of testing equipment)***	***Details attached at Annexure – F2.9***
14.	***If manufacturing process involves fabrication then-***	***Applicable / Not applicable***
	List of qualified Welders	***Details attached at Annexure – F2.10***
	List of qualified NDT personnel with area of specialization	***(if applicable)***
15.	***List of out-sourced manufacturing processes with Sub-Vendors' names & addresses***	***Applicable / Not applicable*** ***Details attached at Annexure. –F2.11*** ***(if applicable)***
16.	***Supply reference list including recent supplies***	***Details attached at Annexure – F2.12*** ***(as per format given below)***

Project/ package	*Customer Name*	*Supplied Item (Type/Rating/Model /Capacity/Size etc)*	*PO ref no/date*	*Supplied Quantity*	*Date of Supply*

17.	***Product satisfactory performance feedback letter/certificates/End User Feedback***	***Attached at annexure - F2.13***
18.	***Summary of Type Test Report (Type Test Details, Report No, Agency, Date of testing) for the proposed product*** ***(similar or higher rating)*** ***Note:- Reports need not to be submitted***	***Applicable / Not applicable*** ***Details attached at Annexure – F2.14*** ***(if applicable)***
19.	***Statutory / mandatory certification for the proposed product***	***Applicable / Not applicable*** ***Details attached at Annexure – F2.15*** ***(if applicable)***
20.	***Copy of ISO 9001 certificate*** ***(if available)***	***Attached at Annexure – F2.16***
21.	***Product technical catalogues for proposed item (if available)***	***Details attached at Annexure – F2.17***

Name:		***Desig:***		***Sign:***		***Date:***	

Company's Seal/Stamp:-