

**1X700 MW BELLARY 3 TPP
1X600 MW KAKATIYA TPP
3X660 MW BARA PRAYAGRAJ STPP
1X600 MW AVANATHA TPP
1X600 MW JHABUA POWER LTD
4X600 MW OP JINDAL STPP
2X600 MW DAINIK BHASKAR TPP
3X660 MW LALITPUR STPP
2 X 660 MW SINGRAULI TPP
1X600 MW RAYALSEEMA TPP UNIT-6
1X600 MW VISA RAIGARH POWER
2X800 MW YERMARUS STPP
2X600 MW ADILABAD SCCL TPP**

VOLUME – IIB

**TECHNICAL SPECIFICATION
FOR
SPRING LOADED BYPASS VALVES**

SPECIFICATION NO. PE-TS-999-100-M009 (REV-00)



**BHARAT HEAVY ELECTRICALS LIMITED, POWER SECTOR
PROJECT ENGINEERING MANAGEMENT
NOIDA, INDIA**

	TITLE: PREAMBLE	SPECIFICATION NO. PE-SS-999-100-Q001	
		VOLUME	
		SECTION	
		REV. NO.	DATE: 26/08/2011
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1.0 The tender document contains three (3) volumes. The bidder shall meet the requirements of all the three volumes.

1.1 Volume-I (CONDITIONS OF CONTRACT)

This consists of four parts as below:-

- Volume-IA : This part contains instructions to bidders for making bids to BHEL.
- Volume-IB : This part contains general commercial conditions of the tender & includes provision that vendor is responsible for the quality of item supplied by their sub-vendors.
- Volume-IC : This part contains special conditions of contract.
- Volume-ID : This part contains commercial conditions for erection & commissioning site work, as applicable.

1.2 Volume-II TECHNICAL SPECIFICATIONS

Technical requirements are stipulated in Volume-II which comprises of :-

- Volume-IIA : General Technical Conditions
- Volume-IIB : Technical Specification including Drawings, if any.

1.2.1 Volume-IIB

This volume is sub-divided into following sections:-

- Section-A : This section outlines the scope of enquiry.
- Section-B : This section provides "Project Information".
- Section-C : This section indicates technical requirements specific to the contract, not covered in Section-D.
- Section-D : This section comprises of technical specifications of equipments complete with data sheet A, B and C.

Data Sheet - A Specifies data and other requirements pertaining to the Equipment.

Data Sheet - B Specifies data to be filled by the bidder (Data Sheet-B is contained in Volume-III).

Data Sheet -C Indicates data/documents to be furnished after the award of contract as per agreed schedule by the vendor (as applicable).

1.2.2 Volume-III (TECHNICAL SCHEDULES)


This volume contains technical schedules and Data Sheets-B, which are to be duly filled by the bidder and the same shall be furnished with the technical bid.

2.0 The requirements mentioned in Section-C / Data Sheets-A of section-D shall prevail and govern in case of conflict between the same and the corresponding requirements mentioned in the descriptive portion in Section-D

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DATA SHEET-C

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SECTION-A

SCOPE OF ENQUIRY

	SCOPE OF ENQUIRY SPRING LOADED BYPASS VALVES	SPECIFICATION NO. PE-TS-999-100-M009	
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SCOPE OF ENQUIRY

1.00.00 SCOPE

This enquiry covers the Design, Manufacture, Inspection & Testing at vendor's and/or his sub-vendor's works, proper packing and delivery to site of Spring Loaded Bypass valves complete with all accessories as per the requirements mentioned in different sections of the specification for 1X700 MW BELLARY 3 TPP, 1X600 MW KAKATIYA TPP, 3X660 MW BARA PRAYAGRAJ STPP, 1X600 MW AVANATHA TPP, 1X600 MW JHABUA POWER LTD, 4X600 MW OP JINDAL STPP, 2X600 MW DAINIK BHASKAR TPP, 3X660 MW LALITPUR STPP, 2 X 660 MW SINGRAULI TPP, 1X600 MW RAYALSEEMA TPP UNIT-6, 1X600 MW VISA RAIGARH POWER, 2X800 MW YERMARUS STPP and 2X600 MW ADILABAD SCCL TPP.


2.00.00 GENERAL TECHNICAL INSTRUCTIONS

- 2.01.00 It is not the intent to specify herein all the details of design and manufacture. However the equipment shall conform in all respects to high standards of design, engineering and workmanship, and shall be capable of performing the required duties in a manner acceptable to Engineer/ Owner, who will interpret the meaning of drawing and specifications, and shall be entitled to reject any component or material, which in his judgement is not in full accordance herewith.
- 2.02.00 The omission of specific reference to any component/ accessories necessary for the proper performance of Spring Loaded Bypass valves shall not relieve the bidder of the responsibility of providing such facilities to complete the supply of Spring Loaded Bypass valves at quoted prices.
- 2.03.00 Design/ drawings/ data sheets etc. shall be subject to approval of BHEL as per specification, in the event of order.
- 2.04.00 BHEL's / customer's representative shall be given access to the shop in which the equipment are being manufactured or tested and all test records shall be made available to him.
- 2.05.00 The equipment covered under this specification shall not be despatched unless the same have been finally inspected, accepted and shipping release issued by BHEL.

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SECTION-B

PROJECT INFORMATION


	PROJECT INFORMATION SPRING LOADED BYPASS VALVES 1X700 MW BELLARY STPP		SPECIFICATION NO. PE-TS-999-100-M 009
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PROJECT INFORMATION

The proposed 1 x 700 MW Bellary Super Thermal Power Project would be set up by Karnataka Power Corporation Ltd at Kudatini Village, Bellary Dist, Karnataka state INDIA.

The bidder shall acquaint himself by a visit to the site, if felt necessary, with the conditions prevailing at site before submission of the bid. The information given here in under is for general guidance and shall not be contractually bidding on BHEL/OWNER. All relevant site data/information as may be necessary shall have to be obtained/collected by the bidder.


Sl. No.	FEATURES	DETAILS
1	Owner	Karnataka Power Corporation Ltd
2	Site Location	Kudatini Village, Bellary Dist, Karnataka state INDIA.
3	Altitude	478 Mt above MSL
4	Annual mean of temp daily max.	42.5°C
	Annual mean of temp daily min.	19.5°C
5	Relative humidity	Varies between 11% and 70%
6	Average Annual rainfall	492 to 846 mm most of which occurs during August to October
7	Maximum mean wind speed	19 km / hr in the month of July.
8	Seismic data as per IS 1893: 2002 a) Zone b) Importance factor (I)	Zone-III 1.5 (as per latest IS1893)

	PROJECT INFORMATION SPRING LOADED BYPASS VALVES 1X600 MW KAKATIYA TPP		SPECIFICATION NO. PE-TS-999-100-M 009	
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PROJECT INFORMATION

KAKATIYA TPP

Coal fired thermal power unit of 600 MW at Kakatiya Thermal Power Project located at near Chelpur village, Ghanapur Mandal, Warangal district of Andhra Pradesh. The bidder shall acquaint himself by a visit to the site, if felt necessary, with the conditions prevailing at site before submission of the bid. All relevant site data/information as may be necessary shall have to be obtained/collected by the bidder.


	PROJECT INFORMATION SPRING LOADED BYPASS VALVES 3X660 MW BARA PRAYAGRAJ STPP		SPECIFICATION NO. PE-TS-999-100-M009
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PROJECT INFORMATION


The proposed 3 x 660 MW Prayagraj Super Thermal Power Project would be set up by Jaiprakash Power Ventures Limited in the district of Allahabad, Uttar Pradesh, India.

The bidder shall acquaint himself by a visit to the site, if felt necessary, with the conditions prevailing at site before submission of the bid. The information given here in under is for general guidance and shall not be contractually bidding on BHEL/OWNER. All relevant site data/information as may be necessary shall have to be obtained/collected by the bidder.

SITE LOCATION AND CONDITION		
1	OWNER	JAIPRAKASH POWER VENTURES LIMITED
2	PROJECT	3X660 MW PRAYAGRAJ SUPER THERMAL POWER PROJECT
3	APPROACH TO SITE The proposed site is located in Bara thehsil of Allahabad district in the state of Uttar Pradesh. The site is at a distance of about 34 km from Allahabad Dist. Head Quarters. The site is situated at a latitude of 25o 11' 50.95" (approx) and longitude of 81o 39' 39.33" (approx). The site is well connected by rail and road. Loghara railway station, in Allahabad division of NC railway, which falls on Mumbai-Howrah main line is at about 2-3 km from the west end boundary of the proposed plant. The National Highway NH 76 is 500m adjacent to the South West boundary of the plant. Bamrauli airport, Allahabad is the nearest airport which is about 28 km from the project site.	

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4.0	Location of the plant	Bara ,near Allahabad
5.0	Elevation above mean sea level	127 m above MSL
6.0	Climatic conditions	
6.1	Temperatures: Monthly basis	
	Mean of daily max.	32.8 °C
	Mean of daily min.	19.5 °C
6.2	Temperatures : Annual basis	
	- Mean of daily max.	32.4 °C
	- Mean of daily min.	19.8 °C
6.3	Highest temperature recorded	42.3 °C in the month of May
6.4	Lowest temperature recorded	8.7 °C in the month of January
6.5	Relative humidity	70-80% during monsoon and 15-20% during summer season..
6.6	Annual average rain fall	975 mm
6.7	Mean Wind speed:	6.3 km/hr
7.0	Seismic data (as per IS : 1893)	Zone -3

	PROJECT INFORMATION SPRING LOADED BYPASS VALVES 1X600 MW AVANATHA TPP	SPECIFICATION NO. PE-TS-999-100-M 009	
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PROJECT INFORMATION


AVANTHA BHANDAR

The site is located near villages chote bhandar, Bade bhandar, Sarvani & Amali Bhone Tehsil Raigargh, District Raigarh, Chhatisgarh state. The bidder shall acquaint himself by a visit to the site, if felt necessary, with the conditions prevailing at site before submission of the bid. The information given here in under is for general guidance and shall not be contractually bidding on BHEL/OWNER. All relevant site data/information as may be necessary shall have to be obtained/collected by the bidder. Some other information related to site are listed below:

Nearest Road Head : 0.5 km from NH-216.

Nearest Rail Head : Kirorimal Nagar – 21 km.

Nearest Airport : Raipur – 265 km.

	PROJECT INFORMATION SPRING LOADED BYPASS VALVES 1X600 MW JHABUA POWER LTD		SPECIFICATION NO. PE-TS-99-100-M 009
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PROJECT INFORMATION

The JPL Thermal Power Project consisting of 1x 600MW Unit will be set up in Seoni district, Madhya Pradesh state, India.

The site is located 40KM away from the National Highway -7 between Nagpur Jabalpur. The site can be approached from either Jabalpur or from Nagpur. From Jabalpur site can be approached via Dhuma (on National Highway) Kahani- Mehta on major district road and then up to Barela by another Blacktopped road. The other alternative is Jabalpur- Bargi- Panarzir-Barela. The site can also be approached from Nagpur end via Lakhanandoun (ON National Highway). Kahani –Mehta both on state high way and the last leg via blacktopped road.

Nearest railway station is Binaiki at approximately 2 km from proposed power plant site. Nearest airport is Jabalpur at a distance of 80km. nearest sea port is paradip (Orissa) at about 800km from the site.

Geological Conditions

Site Elevation : 550 m above MSL

Seismic Intensity

Seismic Intensity : As per IS: 1893-2002, part –I & As per IS: 1893-2002, part –IV

Zone : III

Importance factor : 1.75

Zone factor : 0.16

Meteorological Conditions

Ambient Temperature

(a) Maximum dry bulb temperature : 39.7° C

(b) Minimum dry bulb temperature : 13.7° C

Relative Humidity

(a) Max. : 63.0%

(b) Min. : 19.0%

Rain fall

(a) Max. Recorded : 458 mm

(b) Average Annual rain fall : 984 mm

(c) Period of Monsoon (Average)


Showers : June – September

Wind data

(a) Basic wind speed : 47 m/s as per latest revision of IS : 875 Part III

(b) Wind direction : North East direction

Climate conditions : Hot/Arid


	<p align="center">PROJECT INFORMATION SPRING LOADED BYPASS VALVES 4X600 MW OP JINDAL TPP</p>		SPECIFICATION NO. PE-TS-999-100-M009
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PROJECT INFORMATION

A) O P JINDAL STPP

The site is adjacent to existing 4X250 MW thermal plant in village Tamnar, tehsil Gharghoda, district Raigarh, state Chhatisgarh and approximately 40 Km by road from Raigarh railway station. The Raigarh railway station is on the Mumbai-Howarah main line. The nearest airport is Raipur and nearest sea port is Kolkata.


The bidder shall acquaint himself by a visit to the site, if felt necessary, with the conditions prevailing at site before submission of the bid. The information given here in under is for general guidance and shall not be contractually bidding on BHEL/OWNER. All relevant site data/information as may be necessary shall have to be obtained/collected by the bidder.

	PROJECT INFORMATION SPRING LOADED BYPASS VALVES 2X600 MW DAINIK BHASKAR TPP		SPECIFICATION NO. PE-TS-999-100-M009	
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PROJECT INFORMATION

DB Power Limited proposes to set up a 2x600 MW power plant named as DB thermal Power Station. The proposed plant would be located near village badadarha of Janjgir-Champa district in Chattisgarh state in India. The bidder shall acquaint himself by a visit to the site, if felt necessary, with the conditions prevailing at site before submission of the bid. The information given here in under is for general guidance and shall not be contractually bidding on BHEL/OWNER. All relevant site data/information as may be necessary shall have to be obtained/collected by the bidder.

Sl. No.	FEATURES	DETAILS
1	Owner	DAINIK BHASKAR POWER LIMITED
2	Site Location	The site is earmarked to be located south of Mumbai-Howrah B.G. line of South Eastern Railway near Robertson railway Station.
3	Altitude	230 Mt above MSL
4	Max. temperatures Deg. C	33.1
5	Minimum temperature Deg. C	21
6	Relative humidity (%) Maximum Minimum	88 19
7	Average Annual rainfall during June to September	850-2150 mm
8	The basic wind speed Vb(as per IS:875 Latest Revision) at 10 m above the mean ground level	8 Km/Hr (In the month of June)
9	Seismic condition	Zone-III IN ACCORDANCE WITH IS:1893, PART 3


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PROJECT INFORMATION

The proposed 3 x 660 MW Lalitpur Super Thermal Power Project would be set up by Bajaj Hindustan Limited at Mirchwara and Buraugaon near Utari river, Lalitpur District, U.P, India.

The bidder shall acquaint himself by a visit to the site, if felt necessary, with the conditions prevailing at site before submission of the bid. The information given here in under is for general guidance and shall not be contractually bidding on BHEL/OWNER. All relevant site data/information as may be necessary shall have to be obtained/collected by the bidder.


Sl. No.	FEATURES	DETAILS
1	Owner	Bajaj Hindustan Limited
2	Site Location	At Mirchwara and Buraugaon near Utari river, Lalitpur, District, U.P, India
3	Nearest Railway Station	Lalitpur railway station (At a distance of 37 kms from site) in the connecting railway line between Jhansi & Bhopal.
4	Access Road	Approach to site from national highway which is about 23 km from Bansi on NH-26 which connects Jhansi and Sagar.
5	Nearest Airport	Gwalior Airport (At a distance 186 km from site)
6	Nearest Sea Port	Kolkata
7	Altitude	345 Mt above MSL
8	Annual mean of temp daily max.	32.4°C
	Annual mean of temp daily min.	17.5°C
9	Relative humidity (%) Maximum	87
	Relative humidity (%)Minimum	22
10	Average Annual rainfall	91.42 mm
11	The basic wind speed	47mt/s
12	Seismic data as per IS 1893: 2002 a) Zone b) Zone factor-Z c) Importance factor (I)	Zone-III 0.16 1.75 (as per latest IS1893)

	PROJECT INFORMATION SPRING LOADED BYPASS VALVES 2X660 MW SINGRAULI STPP	SPECIFICATION NO. PE-TS-999-100-M 009	
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PROJECT INFORMATION

The proposed 2 x 660 MW Singrauli Super Thermal Power Project would be set up by DB Power (MP) Limited at Village Gorgi, Tehsil Deosar, Singrauli, Madhya Pradesh, India. The bidder shall acquaint himself by a visit to the site, if felt necessary, with the conditions prevailing at site before submission of the bid. The information given here in under is for general guidance and shall not be contractually bidding on BHEL/OWNER. All relevant site data/information as may be necessary shall have to be obtained/collected by the bidder.


Sl. No.	FEATURES	DETAILS
1	Owner	DB Power (MP) Limited
2	Site Location	Village Gorgi, Tehsil Deosar, Singrauli, Madhya Pradesh
3	Nearest Airport	Allahabad(110 km)
4	Nearest Major Town	Sidhi (35 km)
5	Latitude and Longitude	Latitude :24° 07'01.9" N Longitude : 81° 55' 18.5" E

	PROJECT INFORMATION SPRING LOADED BYPASS VALVES 1X600 MW RAYALSEEMA TPP	SPECIFICATION NO. PE-TS-999-100-M 009	
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PROJECT INFORMATION

The proposed 1 x 600 MW Rayalseema Thermal Power Project would be set up by APGENCO at V.V. Reddy Nagar, near Kalamalla Village, which is 9 KM North of Chilamakur Village on Kadapa (Cuddapah) – Tadipatri road, A.P., India. The bidder shall acquaint himself by a visit to the site, if felt necessary, with the conditions prevailing at site before submission of the bid. The information given here in under is for general guidance and shall not be contractually bidding on BHEL/OWNER. All relevant site data/information as may be necessary shall have to be obtained/collected by the bidder.

Sl. No.	FEATURES	DETAILS
1	Owner	Andhra Pradesh Power Generation Co. Ltd.
2	Site Location	Rayalaseema Thermal Power Project is located at V.V. Reddy Nagar, near Kalamalla Village, which is 9 KM North of Chilamakur Village on Kadapa (Cuddapah) – Tadipatri road. Chilamakur is 43 KM from Kadapa (Cuddapah).
3	Nearest Railway Statin	Muddanur Railway Station: South Central Railway (10 KM from site)
4	Nearest Airport	Renigunta (150 KM from site).
5	Access Roads	Metal road off Chilamakur village on Kadapa – Tadipatri Road.
6	Nearest Major Town	Proddatur (13 KM from site)
7	Site Elevation	172M-190M above MSL
8	Seismic Data	Zone II as per IS:1893-2002
9	Ambient Temperature (Dry Bulb)	Daily maximum (Mean) : 40.30C
		Daily minimum (Mean) : 19.10C
10	Relative Humidity	Maximum during monsoon : 49 to 74 percent (June to October)
		Humidity during summer : 35 to 60 percent (March to June)
		Humidity during winter : 55 to 70 percent (November to March)

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Sl. No.	FEATURES	DETAILS
11	Rainfall	Maximum per annum : 1273.6 mm
		Average per annum : 742.8 mm
		Tropical monsoon : June to October
12	Wind Velocity & Pressure (As per IS: 875-1987)	Basic Wind Speed : 39 M/Sec. at 10 M above mean retarding surface
		Terrain classification : Category –III


	PROJECT INFORMATION SPRING LOADED BYPASS VALVES 600 MW VISA RAIGARH TPP		SPECIFICATION NO. PE-TS-999-100-M 009
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PROJECT INFORMATION

A) VISA RAIGARH

The site is located in District Raigarh, Chhatisgarh state. The bidder shall acquaint himself by a visit to the site, if felt necessary, with the conditions prevailing at site before submission of the bid. The information given here in under is for general guidance and shall not be contractually bidding on BHEL/OWNER. All relevant site data/information as may be necessary shall have to be obtained/collected by the bidder. Some other information related to site is listed below:


Nearest Highway : National Highway no. 200 is around 2 Kms.
Nearest Sea Port : Paradip approximately 525 Kms.
Nearest Airport : Raipur – 250 km
Nearest railway Station : Bhupdeopur and Kirodimal Nagar around 4 Kms on Howrah-Mumbai main railway line.

	PROJECT INFORMATION SPRING LOADED BYPASS VALVES 2X800 MW YERMARUS TPP	SPECIFICATION NO. PE-TS-999-100-M 009	
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PROJECT INFORMATION

Yermarus Thermal Power Station (2x800 MW) is being set up by Raichur Power Corporation Ltd in Yermarus , Raichur Dist,. Karnataka State. The bidder shall acquaint himself by a visit to the site, if felt necessary, with the conditions prevailing at site before submission of the bid. The information given here in under is for general guidance and shall not be contractually bidding on BHEL/OWNER. All relevant site data/information as may be necessary shall have to be obtained/collected by the bidder.


<u>2x800 MW YEMARUS TPP</u>		
1	Owner	Raichur Power Corporation Ltd
2	Consultant	M/s Evonik Energy Services (I) Private Limited
3	Location and Approach	Yermarus , Raichur Dist Karnataka State, INDIA. It is situated at about 8 Kms from Raichur on the Raichur-Hyderabad State Highway13 and 12 kms away from Bank of river Krishna and about 5 kms from Raichur Thermal Power Station.
3.1	Nearest Railway Station	Chicksugur Railway Station which is about 2 kms from site.
3.2	Name Airport	Hyderabad around 200 kms
	Nearest Port	Chennai around at about 470 kms from site.
3.3	Airport	The nearest commercial airport is Patna at a distance of about 90 kms from the project site.
2	Ambient Air Temperature	
2.1	Maximum Deg. :	45.0 Deg. C
2.2	Minimum Deg. :	6.0 Deg. C
3	Relative Humidity	
3.1	Maximum :	85% during monsoon
	Minium	20%
4	Rainfall	
4.1	Annual Average Rain	720 mm

	PROJECT INFORMATION SPRING LOADED BYPASS VALVES 2X600 MW ADILABAD TPP	SPECIFICATION NO. PE-TS-999-100-M 009	
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PROJECT INFORMATION

The proposed 2 x 600 MW Adilabad Thermal Power Project would be set up by SINGARENI COLLIERIES COMPANY LTD. (a Government of INDIA Undertaking), near Pegadapalli village, Jaipur Mandal, District-Adilabad of Andhra Pradesh. The bidder shall acquaint himself by a visit to the site, if felt necessary, with the conditions prevailing at site before submission of the bid. The information given here in under is for general guidance and shall not be contractually bidding on BHEL/OWNER. All relevant site data/information as may be necessary shall have to be obtained/collected by the bidder.

Sl. No.	FEATURES	DETAILS
1	Owner	SINGARENI COLLIERIES COMPANY LTD.
	Consultant	NTPC
2	Site Location	Located near Pegadapalli village, Jaipur Mandal, District-Adilabad of Andhra Pradesh. The site is 14.6Km from nearest town Mancherial and 4.6 Km from State Highway.
3	Nearest Airport	Shamshabad Airport, Hyderabad (250 Km)
4	Nearest Railway Station	Mancherial railway station on Nagpur-Kazipet main rail line of South Central Railway, located at a distance of about 14.6 kms.

	TITLE: TECHNICAL SPECIFICATION SPRING LOADED BYPASS VALVE	SPECIFICATION NO. PE-TS-999-100-M009	
		VOLUME : IIB	
		SECTION: C	
		REV. NO.: 00	DATE: 15.05.2012
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SECTION-C

SPECIFIC TECHNICAL REQUIREMENTS

	TITLE: SPECIFIC TECHNICAL REQUIREMENTS SPRING LOADED BYPASS VALVES	SPECIFICATION NO. PE-TS-999-100-M009	
		SECTION C	
		REV. NO.: 01	DATE: 25.09.2012
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1. GENERAL

- 1.1 The valves shall meet the technical requirements and conform to the standard technical specifications and Data sheet A of Section D. In addition, the requirements of this Section-C shall also be complied with. However, wherever the details given in the standard technical specification of of Section-D and Data sheet A are different, the requirements of Data sheet A shall prevail. Similarly in the event of contradictions between Section –C & Section –D/ Data sheet A, Section –C shall prevail.
- 1.2 The technical requirements for valves shall, in general, be as per the attached standard Technical specification for Valves, and Data sheets A of Vol. II B Section D.

2. SCOPE OF SUPPLY

- 2.1 The valves complete with all accessories to be supplied shall be as per Data sheet A of Section D. Each valve (quantity and other details specified in Data Sheet-A) shall be complete with the following accessories.
 - i) Lifting arrangement provision for handling i.e., lifting lugs, eye bolts etc.
 - ii) Commissioning spares as per Data sheet-A.
 - iii) Special Tools and tackles, if any.
 - iv) Mandatory spares as applicable as per Data sheet A
- 2.2 Finish paints for touch-up painting of equipment after erection at site in sealed containers.
- 2.3 Various drawings, datasheets, operation and maintenance manuals etc., as specified in Data Sheet-C.

3. EXCLUSIONS:


Equipment required for Erection & Commissioning at site are excluded from the bidder's scope

4. QUALITY ASSURANCE

The Quality Plans enclosed with this specification specify minimum quality control requirement. During contract stage vendor shall furnish these Quality Plans duly signed & stamped indicating their compliance. Quality plans shall be approved by BHEL and customer (If necessary). All inspection and testing shall be carried out by BHEL/ BHEL representative and BHEL customer (if necessary). In case inspection is by both BHEL and their customer, then the inspection can be carried out jointly or separately, which will be informed later.

5. PAINTING REQUIREMENT:

Surface preparation shall be as per SSPC-SP-3/ Power Tool Cleaning followed by 2 coat of Heat Resistance Aluminium paint to IS 13183 Gr. I or equivalent, paint shade Aluminium and total DFT of paint will be equal to 80 microns minimum.

	TITLE: SPECIFIC TECHNICAL REQUIREMENTS SPRING LOADED BYPASS VALVES	SPECIFICATION NO. PE-TS-999-100-M009	
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6. PACKING INSTRUCTIONS:

- a) Each valve shall be drained, cleaned, prepared and suitably protected in such a way so as to minimize the possibility of damage and deterioration during transit and storage.
- b) The valve has to be dispatched in total assembled form.
- c) Body ends shall be suitably sealed to protect them against damage during transit and storage.
- d) Valves with butt-welding ends shall be protected by means of polythene caps/rubber end protectors to prevent damage to ends & also to avoid foreign material entering the valve during shipment & storage.
- e) Valve Tag Nos. shall be incorporated in all the dispatch documents.
- f) Proper care shall be taken to avoid damage to the painted surface during transit.
- g) All the valves shall be packed suitably in wooden cases in order to avoid damage during transit and also during storage at site in tropical climate conditions for a period of 15-18 months.
- h) Spare parts shall be packed separately and clearly marked. Spares shall also be suitably packed for transit and long storage period at site.
- i) For 700 MW BELLARY 3 TPP, 600 MW KAKATIYA TPP, 660 MW BARA PRAYAGRAJ STPP, 600 MW OP JINDAL STPP, 600 MW DAINIK BHASKAR TPP, 660 MW LALITPUR STPP, 660 MW SINGRAULI TPP, 600 MW RAYALSEEMA TPP UNIT-6, 600 MW VISA RAIGARH POWER, 800 MW YERMARUS STPP and 600 MW ADILABAD SCCL TPP projects, the valve shall be transported by sea. The packing for the same shall be seaworthy as per specification attached separately.
- j) For 600 MW AVANATHA TPP, 600 MW JHABUA POWER LTD, 600 MW OP JINDAL STPP, 600 MW DAINIK BHASKAR TPP projects, the valve shall be transported by air. Valve shall be suitably packed to avoid any damage during transit.

7. SPARES

- a) **Mandatory Spares:** These shall be as per Data Sheet A.
- b) **Recommended Spares:** List of recommended spares for 3 year reliable operation along with the unit price shall be indicated in the schedule of prices for recommended spares enclosed in Volume-III.
Cost of Recommended spares shall not be included in the base price.

Order for the spares may be placed simultaneously or otherwise at the option of purchaser.

	TITLE: SPECIFIC TECHNICAL REQUIREMENTS SPRING LOADED BYPASS VALVES	SPECIFICATION NO. PE-TS-999-100-M009	
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8. DOCUMENTS TO BE SUBMITTED ALONG WITH OFFER

Bidder shall submit the following documents (enclosed in Vol III) duly filled, signed and stamped along with the bid:


- a) Compliance sheet
- b) Schedule of Deviations if any.
- c) Schedules of Price & Unit Price for each project.
- d) Schedule of declaration.
- e) Relevant drawings for the offered valve showing following information:
 - Standard governing the valve, design pressure/temperature, rating.
 - Complete cross sectional arrangement of the valve.
 - Binding dimensions, dismantling clearances and weights.
 - Bill of material incorporating all the materials of construction of various parts along with BS/ASTM standards to which the materials conform to.
 - Special features, if any, as called for in the specifications.
 - Differential pressure for valves when starting to open and when fully opens.
 - Hydraulic/air test pressure for body/seat and duration of test.
 - Valve sizing calculations to justify seat area selected.
- f) Manufacture's descriptive and illustrative literature on the type of valve offered.
- g) Standard to which the hydraulic and other test shall comply.
- h) Discharge capacity of the valve at various set pressures.

The above are the only documents which will be used for technical evaluation unless other documents are asked for during technical clarifications. Any other technical document enclosed with the bid shall be ignored for the purpose of technical evaluation. All other documents attached with the specification are for information of the vendor and no comments shall be marked on these.

9. It may be noted that for 3X660 MW Lalitpur STPP no raw material/component/sub assembly/assembly/equipment shall be sourced from China either directly or indirectly, for manufacturer or supply in the BTG package.

	TITLE: TECHNICAL SPECIFICATION SPRING LOADED BYPASS VALVE	SPECIFICATION NO. PE-TS-999-100-M009	
		VOLUME : IIB	
		SECTION: D	
		REV. NO.: 00	DATE: 15.05.2012
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SECTION-D **STANDARD TECHNICAL SPECIFICATIONS** **FOR VALVES**

	TITLE: SPRING LOADED BYPASS VALVES	SPECIFICATION NO. PE-SS-999-100-M009	
		VOLUME . II B	
		SECTION D	
		REV. NO. 02	DATE. 15.05.2012
		SHEET 1	OF 2

1.0 GENERAL

This specification covers the design, materials, construction features, manufacture and testing of Spring Loaded Bypass valves at Vendor's or/ and sub-Vendor's works inclusive of painting and packing requirements.

2.0 CODES AND STANDARDS:

- 2.1 The valves covered under this specification shall be of manufacturer's own proven design and shall be suitable for the required technical parameters mentioned in Data sheet A. However BS:759 shall be referred to wherever applicable.
- 2.2 In case of any conflict between the above Codes/Standards and this specification, the latter shall prevail and in case any further conflict in this matter, the interpretation of the specification by the Engineer shall be final & binding.

3.0 DESIGN REQUIREMENTS

All valves shall be suitable for the service conditions i.e. flow, temperature and pressure under which they are required to operate and those performing similar duties shall be interchangeable with each other unless otherwise specified.

4.0 MATERIALS

- 4.1 The materials of construction of main parts of valves shall be specified in Data sheet-A.
- 4.2 The materials of construction of the remaining parts shall be as per relevant code/ standard governing the valves and to suit the service conditions. These materials shall be subject to approval of the purchaser.
- 4.3 Materials used in manufacture of valves shall be of tested quality.

5.0 CONSTRUCTION FEATURES:

- 5.1 All valves shall be globe type construction.
- 5.2 The seat and disc shall be easily removable and shall be suitable for easy relapping.
- 5.3 Valves shall have pressure seal bonnet / bolted bonnet construction and the adjusting screw shall be covered under a cap.
- 5.4 An arrow indicating the direction of flow shall be embossed on the body of the valves.
- 5.5 A metallic (stainless steel plate 2mm thick) nameplate shall be fitted on each valve. Nameplate inscription required for each valve shall be indicated at the contract stage. Inscriptions shall be engraved 1 mm deep filled with enamel paint.
- 5.6 Suitable lifting lugs and eye bolts shall be provided for valves of weight 500 Kg and above.

6.0 LUBRICATION:

- 6.1 Lubrication, if any, required for smooth and easy operation of valves shall be mentioned.
- 6.2 Choice of lubrication shall be based on ambient temperature condition of 50°C.

	TITLE: SPRING LOADED BYPASS VALVES	SPECIFICATION NO. PE-SS-999-100-M009	
		VOLUME . II B	
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- 6.3 Type of lubricant to be used and its annual consumption (based on 100 operations per year) shall be indicated by the tenderer.

7.0 INSPECTION AND TESTS:

- 7.1 The items covered under this contract shall be subjected to inspection, testing and quality surveillance. The Inspection Agency shall, at all reasonable times have access to Vendor's works, Quality Control records and all facilities as reasonably required for carrying out the inspection and testing efficiently, and these shall be provided by the vendor free of cost
- 7.2 Valves coming under the purview of IBR shall be inspected by Independent Inspecting authority approved by Indian Boiler Board and the test Certificate in IBR Form III-C duly countersigned shall be submitted. The Independent Inspecting Authority proposed by the vendor shall be informed in the offer.
- 7.3 The minimum NDT/testing and inspection requirements for valve shall be as per the attached Quality Plan. However, in case of order, final inspection and testing shall be carried out as per the final approved quality plan without any price implications.
- 7.4 Body of all valves shall be hydraulically tested at 1.5 times the design pressure for leak tightness.

8.0 PAINTING

The surface preparation of all exterior and interior surfaces of valves shall include the following:

- a) Removal of oil, grease and dirt.
- b) Removal of rust and scale etc.,
- c) Sand blasting/ shot blasting.

All exterior surfaces of valves shall be painted with primer and finish coated with coating of min. 150 microns thickness. Color shade etc. shall be subject to BHEL/ Customer approval.

9.0 CLEANING AND PROTECTION FOR DESPATCH

- 9.1 Suitable rust preventive shall be applied on machined exposed surfaces.
- 9.2 Valve ends shall be protected from external damage and sealed against the ingress of dirt by means of polythene caps/rubber end protectors.
- 9.3 Valve Tag Nos. shall also be incorporated in all the despatch documents.

THIS QP IS APPLICABLE FOR 1X700 MW BELLARY 3 TPP, 1X600 MW KAKATIYA TPP, 3X660 MW BARA PRAYAGRAJ STPP, 1X600 MW AVANATHA TPP, 1X600 MW JHABUA POWER LTD, 4X600 MW OP JINDAL STPP, 2X600 MW DAIK BHASKAR TPP, 3X660 MW LALITPUR STPP, 2 X 660 MW SINGRAULI TPP, 1X600 MW RAYALSEEMA TPP UNIT-6, 1X600 MW VISA RAIGARH POWER AND 2X800 MW YERMARUS STPP.



QUALITY PLAN				CUSTOMER:		PROJECT:		SPEC. NO :PE-SS-999-100-M009		
				BIDDER/VENDOR		QP NUMBER: PE-QP-380-100-M012		SPEC. TITLE : TECH. SPEC. SLBV		
SHEET 1 OF 3		CHARACTERISTICS CHECKED		SYSTEM		FEED WATER		ITEM: SPRING LOADED BYPASS VALVE		
S.NO.	COMPONENT/ OPERATION	CATE-GORY	TYPE/METHOD OF CHECK	EXTENT OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY	REMARKS	
								P	W	V
1.0	MATERIALS									
1.1	BODY, BONNET, CAP, SPINDLE, DISC, BODY SEAT, SPRING PLATES, FASTENERS									
		1. PHYSICAL, CHEMICAL PROPERTIES	PHYSICAL, CHEMICAL TESTS	ONE/HEAT / HEAT BATCH	APPROVED DRG./TECH. SPEC.	APPROVED DRG/TECH SPEC	TEST CERT	3/2	2	1
		2. DIMENSION	MEASUREMENT	100%	-DO	-DO	-DO-	3/2	2	1
		3. HEAT TREATMENT	HT CHART REVIEW	100%	-DO-	-DO-	HT CHART	3/2	2	1
		4. SURFACE DEFECTS	VISUAL	100%	MSS-SP-55	MSS-SP-55	INSPN. REPORT	3/2	2	1
1.2	BODY, BONNET, CAP, BODY SEAT									
		1. SURFACE DEFECTS	PT/MT	100%	ASTME 165/ASTME 709	ASTME 165/ASTME 709	TEST CERT.	3/2	2	1
		2. SUB-SURFACE DEFECTS	RT/UT	100%	ANSI B16.34/TECH SPEC	ANSI B16.34/TECH SPEC	INSPN REPORT	3/2	2,1	2,1
1.3	SPRING & VALVE GUIDE									
		1. PHYSICAL, CHEMICAL PROPERTIES	PHYSICAL, CHEMICAL TESTS	100%	APPROVED DRG./TECH. SPEC.	APPROVED DRG/TECH SPEC	TEST CERT	3/2	2	1
1.4	BONNET BUSH & ADJUSTING SCREW									
		1. CHEM PROPERTIES	CHEM. TESTS	100%	APPROVED DRG./TECH. SPEC.	APPROVED DRG/TECH SPEC	TEST CERT	3/2	2	1
1.5	SPRING									
		1. ENDURANCE	ENDURANCE TEST	1/BATCH	RELEVANT SPEC./BS:759	RELEVANT SPEC.	-DO-	3/2	2	1
		2. SPRING RATE	LOAD TEST	1/BATCH	APPROVED DRG./MFR. STANDARD	APPROVED DRG./MFR. STANDARD	-DO-	3/2	2	1
		3. SCRAGGING	FULL DEFLECTION	100%	RELEVANT SPEC.	NO PERMANENT SET IN 10 CYCLES	-DO-	3/2	2	1
		4. SURFACE DEFECTS	PT/MT	100%	ASTME 165/ASTME-709	ASTME 165/ASTME-709	-DO-	3/2	2	1
2.0	IN PROCESS									
2.1	CONTROL MACHINING OF BODY,BONNET,									
		1. DIMENSIONS	MEASUREMENT	100%	MFG DRG	MFG DRG.	INSPN. REPORT	3/2	2	1


BHEL			BIDDER/VENDOR	
			PARTICULARS	
			NAME	
			SIGNATURE	
			DATE	
			BIDDER'S/ VENDOR'S COMPANY SEAL	

THIS QP IS APPLICABLE FOR 1X700 MW BELLARY 3 TPP, 1X600 MW KAKATIYA TPP, 3X660 MW BARA PRAYAGRAJ STPP, 1X600 MW AVANATHA TPP, 1X600 MW JHABUA POWER LTD, 4X600 MW OP JINDAL STPP, 2X600 MW DAIK BHASKAR TPP, 3X660 MW LALITPUR STPP, 2 X 660 MW SINGRAULI TPP, 1X600 MW RAYALSEEMA TPP UNIT-6, 1X600 MW VISA RAIGARH POWER AND 2X800 MW YERMARUS STPP.



QUALITY PLAN				CUSTOMER:		PROJECT:		SPEC. NO : PE-SS-999-100-M009					
				BIDDER/VENDOR		QP NUMBER: PE-QP-380-100-M012		SPEC. TITLE : TECH. SPEC. SLBV					
S.NO.	COMPONENT/ OPERATION	SHEET 2 OF 3	CHARACTERISTICS CHECKED	SYSTEM	FEED WATER		ITEM: SPRING LOADED BYPASS VALVE	SECTION-C			REMARKS		
					CATE- GORY	TYPE/METHOD OF CHECK		EXTENT OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS		FORMAT OF RECORD	AGENCY
									P	W	V		
	CAP, DISC, BODY SEAT, SPINDLE, SPRING PLATE ETC.		2 SURFACE FINISH 3. SURFACE DEFECTS (PRESSURE PARTS)	MA	VISUAL	100%	-DO-	-DO-	-DO-	3/2	2	1	
2.2	SS DEPOSIT ON DISC/BODY SEAT		WELD DEPOSIT	CR	PT/MT	100%	ASTME 165/ ASTME 709	ASTME 165/ ASTME 709	-DO-	3/2	2	1	
2.3	DISC SEAT , BODY SEAT & VALVE GUIDE		1. HARDNESS 2. CONTACT PATTERN	MA	VISUAL	100%	INTERNAL STANDARD	INTERNAL STANDARD	LOG BOOK	3/2	2	1	
			3. SURFACE DEFECTS	CR	HARDNESS TEST BLUE MATCHING	100%] 100%]	APPROVED DRAWING/ TECHNICAL SPEC	APPROVED DRAWING/ TECHNICAL SPEC	TEST CERT.	3/2	2	1	
2.4	SPINDLE		3. SURFACE DEFECTS		PT/MT	100%	ASTME 165.	NO DEFECTS	-DO-	3/2	2	1	
			1. SURFACE DEFECTS	CR	PENETRANT TEST	100%	ASTME 165	NO DEFECT	TEST CERT.	3/2	2	1	
			2. HARDNESS	MA	MEASUREMENT	100%	APPD DRG.	APPD DRG.	INSPN REPORT	3/2	2	1	
3.0	ASSEMBLY TESTING		1. DIMENSIONS	MA	MEASUREMENT	100%	APPROVED DRAWING	APPROVED DRAWING	INSPN REPORT	3/2	2,1	-	
			2. BODY LEAK TIGHTNESS	CR	HYDRAULIC	100%	APPROVED DRAWING/ TECHNICAL SPEC.	NO LEAKAGE	TEST CERT. & IBR III-C TEST CERT.	3/2	2,1	-	
			3. SEAT LEAK TIGHTNESS	CR	HYDRAULIC	100%	-DO-	NO LEAKAGE	-DO-	3/2	2,1	-	
			4. PRESSURE SETTING	CR	HYDRAULIC	100%	SMOOTH OPERATION, VALVE TO OPEN AT SET PRESSURE		-DO-	3/2	2,1	-	
4.0	END CONNECTION (FOR B.W. ENDS)		1. DIMENSIONS	MA	MEASUREMENT	100%	APPROVED DRAWING/ TECHNICAL SPEC.	APPROVED DRAWING/ TECHNICAL SPEC.	INSPN. REPORT	3/2	2	1	
			2. SURFACE DEFECTS	CR	PENETRANT TEST	100%	ASTME 165	NO DEFECTS	TEST CERT.	3/2	2	1	
5.0	FINAL INSPECTION		CLEANLINESS AND	MA	VISUAL	100%	APPROVED	APPROVED	INSPN.	3/2	2	1	
BHEL				PARTICULARS		BIDDER/VENDOR							
				NAME									
				SIGNATURE									
				DATE		BIDDER'S/ VENDOR'S COMPANY SEAL							

THIS QP IS APPLICABLE FOR 1X700 MW BELLARY 3 TPP, 1X600 MW KAKATIYA TPP,3X660 MW BARA PRAYAGRAJ STPP, 1X600 MW AVANATHA TPP, 1X600 MW JHABUA POWER LTD, 4X600 MW OP JINDAL STPP, 2X600 MW DAINIK BHASKAR TPP, 3X660 MW LALITPUR STPP, 2 X 660 MW SINGRAULI TPP, 1X600 MW RAYALSEEMA TPP UNIT-6, 1X600 MW VISA RAIGARH POWER AND 2X800 MW YERMARUS STPP.

	QUALITY PLAN			CUSTOMER:		PROJECT:		SPEC. NO :PE-SS-999-100-M009						
	SHEET 3 OF 3			BIDDER/VENDOR		QP NUMBER: PE-QP-380-100-M012		SPEC. TITLE : TECH. SPEC. SLBV						
S.NO.	COMPONENT/ OPERATION	CHARACTERISTICS CHECKED	SYSTEM	CATE- GORY	TYPE/METHOD OF CHECK	FEED WATER	EXTENT OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY	SECTION-C	VOLUME- IIB	REMARKS


		COMPLETENESS						DRAWING/ TECHNICAL SPEC.	DRAWING/ TECHNICAL SPEC.	REPORT				
6.0	PAINTING	QUALITY AND THICKNESS OF PAINT	MA	VISUAL & MEASUREMENT	100%			-DO-	-DO-	-DO-	3/2	2	1	
7.0	PACKING	AS PER TECHNICAL SPECIFICATION	MA	VISUAL	100%			TECHNICAL SPEC.	TECHNICAL SPEC.	-DO-	3/2	2	1	

ABBREVIATIONS

CR	= CRITICAL CHARACTERISTIC	P	= PERFORMED BY	W= WITNESSED BY	V = VERIFIED BY
MA	=MAJOR CHARACTERISTIC	1	= BHEL/THIRD PARTY INSPECTION AGENCY	2= VENDOR	3 = SUB VENDOR

BHEL	PARTICULARS	BIDDER/VENDOR	
	NAME		
	SIGNATURE		
	DATE		
		BIDDER'S/ VENDOR'S COMPANY SEAL	


MFGR.'s LOGO			MANUFACTURER'S NAME AND ADDRESS LATER		MANUFACTURING QUALITY PLAN				PROJECT : 2X600 MW ADILABAD TPP				
					ITEM :SPRING LOADED BYPASS VALVE		QP NO.:PE-QP-999-139-M012		PACKAGE : CONTRACT NO. :				
							REV.NO.: 00	DATE:					
SUB-SYSTEM:FEED WATER					PAGE: 3 OF 3		MAIN-SUPPLIER:BHEL PEM NOIDA						
SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLAS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY		REMARKS
1.	2.	3.	4.	5.	M	C/N	7.	8.	9.	D*	** 10.		11.
		2. BODY LEAK TIGHTNESS 3. SEAT LEAK TIGHTNESS 4. SEAT LEAK TIGHTNESS 5. PRESSURE SETTINGS AS PER APPD DRGS	CR	HYDRAULIC	100%	100%	APPROVED DRG/.	NO LEAKAGE	✓	CERT. & IBR III-C TEST	P/W	W	W
			CR	HYDRAULIC	100%	100%	-DO-	NO LEAKAGE	✓	CERT. -DO-	P/W	W	W
			CR	AIR	100%	100%	-DO-	-DO-					
			CR	HYDRAULIC	100%	100%	SMOOTH OPERATION, VALVE TO OPEN AT SET PRESSURE	-DO-	✓	P/W	W	W	
4.0	END CONNECTION (FOR B.W. ENDS)	1. DIMENSIONS	MA	MEASUREME NT	100%	100%	APPROVED DRAWING/ TECHNICAL SPEC.	APPROVED DRAWING/ TECHNICAL SPEC.	✓	INSPN. REPORT	P/W	W	W
		2. SURFACE DEFECTS	CR	PENETRANT TEST	100%	100%	ASTME 165	NO DEFECTS	✓	TEST CERT.	P/W	V	V
5.0	FINAL INSPECTION	CLEANLINESS AND COMPLETENESS	MA	VISUAL	100%	--	APPROVED DRAWING/ TECHNICAL SPEC.	APPROVED DRAWING/ TECHNICAL SPEC.		INSPN. REPORT	P/W	W	V
6.0	PAINTING	QUALITY AND THICKNESS OF PAINT	MA	VISUAL & MEASUREME NT	100%	100%	-DO-	-DO-	✓	-DO-	P/W	V	V
7.0	PACKING	AS PER TECHNICAL SPECIFICATION	MA	VISUAL	100%	100%	TECHNICAL SPEC.	TECHNICAL SPEC.	✓	-DO-	P/W	V	V

		LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/SUB-SUPPLIER C: MAIN SUPPLIER, N: NTPC P: PERFORM W: WITNESS AND V: VERIFICATION. AS APPROPRIATE, CHP: NTPC SHALL IDENTIFY IN COLUMN "N" AS ' W"		DOC. NO.:		REV CAT.....	
MANUFACTURER/ SUB-SUPPLIER	MAIN-SUPPLIER	SIGNATURE		FOR NTPC USE		REVIEWED BY	APPROVED BY

	DATA SHEET-A SPRING LOADED BYPASS VALVE 1X700MW BELLARY	SPECIFICATION NO. PE-TS-999-100-M009	
		VOLUME : IIB	
		SECTION: D	
		REV. NO.: 00	DATE: 15.05.2012
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**REQUIREMENT OF SPRING LOADED BYPASS VALVE
BILL OF MATERIAL FOR MAIN & SPARES**

DESCRIPTION	QUANTITY (NOS)			
SPRING LOADED BYPASS VALVE	MAIN VALVE(NOS.)	COMMISSIONING SPARES		MANDATORY SPARES (COMPLETE ASSEMBLY WITHOUT COMMISSIONING SPARES) (NOS)
		BONNET GASKET (NOS)	CAP GASKET (NOS)	
FDV-35	1	1	1	NIL
FDV-36	1	1	1	

	DATA SHEET-A SPRING LOADED BYPASS VALVE 1X700 MW BELLARY 3 TPP	SPECIFICATION NO. PE-TS-999-100-M009	
		VOLUME-IIB	
		SECTION : D	
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Material of Construction

SNO	COMPONENT	MATERIALS
1	BODY, BONNET, CAP	ASTMA216GrWCC
2	STEM	ASTMA182 Gr F6a
3	SPRINGS	ALLOY STEEL
4	BODY SEAT	ASTMA 105 Hard Faced (Stellite or Equivalent)
5	BONNET BUSH & LOCK NUT, ADJUSTING SCREW	PHOSPHOR BRONZE (ASTM B139 / BS1400)
6	BOTTOM & TOP SPRING PLATE	STAINLESS STEEL (BS970-420 / ASTM276-420)
7	BODY & CAP STUD	ASTMA193 Gr B7
8	BODY & CAP NUT	ASTMA 194 Gr 2H
9	BONNET & CAP GASKETS	SPIRAL WOUND GASKETS
10	VALVE HEAD	NICKLE CHROME ALLOY/ Seating Surface Hard Faced (Stellite or Equivalent)
11	VALVE GUIDE	NICKLE CHROME ALLOY

	DATA SHEET-A SPRING LOADED BYPASS VALVE 1X700 MW BELLARY 3 TPP	SPECIFICATION NO. PE-TS-999-100-M009	
		VOLUME-IIB	
		SECTION : D	
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GENERAL DESCRIPTION

Two banks of HP Heaters of 50% capacity on feed water side are installed in the regenerative feed cycle i.e. HPH-6A/7A/8A & HPH 6B/7B/8B. Each heater bank is provided with motor operated gate valves at the inlet & outlet. The two (2) feed water bypass lines, of 50% capacity each, are provided across HP Heater banks with spring loaded bypass valve (SLBV) FDV-35 & FDV-36 for facilitating individual as well as both heater banks isolation due to any operational problem. Each SLBV is sized to pass 50% of BMCR feed water flow and works on differential pressure across the valve. Each SLBV has a staggered set pressure so that it acts as a back protection.


TECHNICAL REQUIREMENTS

1.	Quantity	:	2 nos. / unit, Tagged FDV-35 & FDV-36 (Total two nos. for one unit).
2.	Type	:	Globe type spring loaded bypass valve.
3.	Size of valve	:	To be decided by bidder based on sizing data.
4.	a) End connection b) Connecting pipe size c) Connecting pipe material	:	Butt welded. OD 406.4 mm x 56 mm Thk. SA 106 GrC
5.	No. of Heater banks.	:	2 nos.
6.	Pressure drop across each heater bank.	:	4.5 kg/cm ² at 1200 T/Hr
7.	Operating conditions.	:	FDV-35: valve shall pass 1200 T/Hr of feed water at 195.3 °C & 310 kg/cm ² (a). Set pressure 4.8 kg/cm ² . Fully opens at 10% over pressure. FDV-36: valve shall pass 1200 T/Hr of feed water at 195.3 °C & 310 kg/cm ² (a). Set pressure 5.2 kg/cm ² . Fully opens at 10% over pressure.
8.	Set pressure range	:	Each valve shall be adjustable for opening when differential pressure settings are 4.5 to 5.5 kg/cm ² .
9.	Design pressure and temperature	:	350 kg/cm ² (g) and 310 °C
10.	Valve body Material	:	ASTM A216 WCC
11.	Regulatory requirement	:	IBR certificate in form IIIC

	DATA SHEET-A SPRING LOADED BYPASS VALVE 1X600MW KAKATIYA	SPECIFICATION NO. PE-TS-999-100-M009	
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**REQUIREMENT OF SPRING LOADED BYPASS VALVE
BILL OF MATERIAL FOR MAIN & SPARES**

DESCRIPTION	QUANTITY (NOS)			
SPRING LOADED BYPASS VALVE	MAIN VALVE(NOS.)	COMMISSIONING SPARES		MANDATORY SPARES (COMPLETE ASSEMBLY WITHOUT COMMISSIONING SPARES) (NOS)
		BONNET GASKET (NOS)	CAP GASKET (NOS)	
FDV-11	1	1	1	NIL
FDV-12	1	1	1	

	DATA SHEET-A SPRING LOADED BYPASS VALVE 1X600 MW KAKATIYA TPP	SPECIFICATION NO. PE-TS-999-100-M009	
		VOLUME-IIB	
		SECTION : D	
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Material of Construction

SNO	COMPONENT	MATERIALS
1	BODY, BONNET, CAP	ASTMA216GrWCC
2	STEM	ASTMA182 Gr F6a
3	SPRINGS	ALLOY STEEL
4	BODY SEAT	ASTMA 105 Hard Faced (Stellite or Equivalent)
5	BONNET BUSH & LOCK NUT, ADJUSTING SCREW	PHOSPHOR BRONZE (ASTM B139 / BS1400)
6	BOTTOM & TOP SPRING PLATE	STAINLESS STEEL (BS970-420 / ASTM276-420)
7	BODY & CAP STUD	ASTMA193 Gr B7
8	BODY & CAP NUT	ASTMA 194 Gr 2H
9	BONNET & CAP GASKETS	SPIRAL WOUND GASKETS
10	VALVE HEAD	NICKLE CHROME ALLOY/ Seating Surface Hard Faced (Stellite or Equivalent)
11	VALVE GUIDE	NICKLE CHROME ALLOY


	DATA SHEET-A SPRING LOADED BYPASS VALVE 1X600 MW KAKATIYA TPP	SPECIFICATION NO. PE-TS-999-100-M009	
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GENERAL DESCRIPTION

Two banks of HP Heaters of 50% capacity on feed water side are installed in the regenerative feed cycle i.e. HPH-5A / 6A/ 7A & HPH 5B / 6B/ 7B. Each heater bank is provided with motor operated gate valves at the inlet & outlet. The two (2) feed water bypass lines, of 50% capacity each, are provided across HP Heater banks with spring loaded bypass valve (SLBV) FDV-11 & FDV-12 for facilitating individual as well as both heater banks isolation due to any operational problem. Each SLBV is sized to pass flow as per the data given below and works on differential pressure across the valve.


TECHNICAL REQUIREMENTS

1.	Quantity	:	2 nos. Tagged FDV-11 & FDV- 12
2.	Type	:	Globe type spring loaded bypass valve.
3.	Size of valve	:	To be decided by bidder based on sizing data.
4.	a) End connection b) Connecting pipe size c) Connecting pipe material	:	Butt welded. OD 355.6 mm x 36 mm Thk. SA 106 GrC
5.	No. of Heater banks.	:	2 nos.
6.	Pressure drop across each heater bank.	:	4.0 kg/cm ² at 1000 T/Hr
7.	Operating conditions	:	FDV-11: valve shall pass 1000 T/Hr of feed water at 168 °C & 210 kg/cm ² (a). Set pressure 4.5 kg/cm ² . Fully opens at 10% over pressure. FDV-12: valve shall pass 1000 T/Hr of feed water at 168 °C & 210 kg/cm ² (a). Set pressure 5.0 kg/cm ² . Fully opens at 10% over pressure.
8.	Set pressure range	:	Each valve shall be adjustable for opening when differential pressure settings are 3.5 to 5.5 kg/cm ² .
9.	Design pressure and temperature	:	230 kg/cm ² (g) and 290 °C
10.	Valve body Material	:	ASTM A216 WCC
11.	Regulatory requirement	:	IBR certificate in form IIIC

	DATA SHEET-A SPRING LOADED BYPASS VALVE 3X660 MW BARA PRAYAGRAJ STPP	SPECIFICATION NO. PE-TS-999-100-M009	
		VOLUME : IIB	
		SECTION: D	
		REV. NO.: 00	DATE: 15.05.2012
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REQUIREMENT OF SPRING LOADED BYPASS VALVE
BILL OF MATERIAL FOR MAIN & SPARES

DESCRIPTION	QUANTITY (NOS)			
SPRING LOADED BYPASS VALVE	MAIN VALVE(NOS.)	COMMISSIONING SPARES		MANDATORY SPARES (COMPLETE ASSEMBLY WITHOUT COMMISSIONING SPARES) (NOS)
		BONNET GASKET (NOS)	CAP GASKET (NOS)	
FDV-35	3	3	3	NIL
FDV-36	3	3	3	

	DATA SHEET-A SPRING LOADED BYPASS VALVE 3X660 MW BARA PRAYAGRAJ STPP	SPECIFICATION NO. PE-TS-999-100-M009	
		VOLUME-IIB	
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Material of Construction

SNO	COMPONENT	MATERIALS
1	BODY, BONNET, CAP	ASTMA216GrWCC
2	STEM	ASTMA182 Gr F6a
3	SPRINGS	ALLOY STEEL
4	BODY SEAT	ASTMA 105 Hard Faced (Stellite or Equivalent)
5	BONNET BUSH & LOCK NUT, ADJUSTING SCREW	PHOSPHOR BRONZE (ASTM B139 / BS1400)
6	BOTTOM & TOP SPRING PLATE	STAINLESS STEEL (BS970-420 / ASTM276-420)
7	BODY & CAP STUD	ASTMA193 Gr B7
8	BODY & CAP NUT	ASTMA 194 Gr 2H
9	BONNET & CAP GASKETS	SPIRAL WOUND GASKETS
10	VALVE HEAD	NICKLE CHROME ALLOY/ Seating Surface Hard Faced (Stellite or Equivalent)
11	VALVE GUIDE	NICKLE CHROME ALLOY


	DATA SHEET-A SPRING LOADED BYPASS VALVE 3X660 MW BARA PRAYAGRAJ STPP		SPECIFICATION NO. PE-TS-999-100-M009
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GENERAL DESCRIPTION

Two banks of HP Heaters of 50% capacity on feed water side are installed in the regenerative feed cycle i.e. HPH-6A/7A/8A & HPH 6B/7B/8B. Each heater bank is provided with motor operated gate valves at the inlet & outlet. The two (2) feed water bypass lines, of 50% capacity each, are provided across HP Heater banks with spring loaded bypass valve (SLBV) FDV-35 & FDV-36 for facilitating individual as well as both heater banks isolation due to any operational problem. Each SLBV is sized to pass 50% of BMCR feed water flow and works on differential pressure across the valve. Each SLBV has a staggered set pressure so that it acts as a back protection.


TECHNICAL REQUIREMENTS

1.	Quantity	:	2 nos. / unit, Tagged FDV-35 & FDV-36 (Total six nos. for three units).
2.	Type	:	Globe type spring loaded bypass valve.
3.	Size of valve	:	To be decided by bidder based on sizing data.
4.	a) End connection b) Connecting pipe size c) Connecting pipe material	:	Butt welded. OD 406.4 mm x 56 mm Thk. SA 106 GrC
5.	No. of Heater banks.	:	2 nos.
6.	Pressure drop across each heater bank.	:	4.5 kg/cm ² at 1200 T/Hr
7.	Operating conditions.	:	FDV-35: valve shall pass 1200 T/Hr of feed water at 192.8 °C & 310 kg/cm ² (a). Set pressure 4.8 kg/cm ² . Fully opens at 10% over pressure. FDV-36: valve shall pass 1200 T/Hr of feed water at 192.8 °C & 310 kg/cm ² (a). Set pressure 5.2 kg/cm ² . Fully opens at 10% over pressure.
8.	Set pressure range	:	Each valve shall be adjustable for opening when differential pressure settings are 4.5 to 5.5 kg/cm ² .
9.	Design pressure and temperature	:	350 kg/cm ² (a) and 310 °C
10.	Valve body Material	:	ASTM A216 WCC
11.	Regulatory requirement	:	IBR certificate in form IIIC

	DATA SHEET-A SPRING LOADED BYPASS VALVE 1X600 MW AVANATHA TPP	SPECIFICATION NO. PE-TS-999-100-M009	
		VOLUME : IIB	
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		REV. NO.: 00	DATE: 15.05.2012
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REQUIREMENT OF SPRING LOADED BYPASS VALVE
BILL OF MATERIAL FOR MAIN & SPARES

DESCRIPTION	QUANTITY (NOS)			
SPRING LOADED BYPASS VALVE	MAIN VALVE(NOS.)	COMMISSIONING SPARES		MANDATORY SPARES (COMPLETE ASSEMBLY WITHOUT COMMISSIONING SPARES) (NOS)
		BONNET GASKET (NOS)	CAP GASKET (NOS)	
FDV-11	1	1	1	NIL
FDV-12	1	1	1	

	DATA SHEET-A SPRING LOADED BYPASS VALVE 1X600 MW AVANATHA TPP	SPECIFICATION NO. PE-TS-999-100-M009	
		VOLUME-IIB	
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Material of Construction

SNO	COMPONENT	MATERIALS
1	BODY, BONNET, CAP	ASTMA216GrWCC
2	STEM	ASTMA182 Gr F6a
3	SPRINGS	ALLOY STEEL
4	BODY SEAT	ASTMA 105 Hard Faced (Stellite or Equivalent)
5	BONNET BUSH & LOCK NUT, ADJUSTING SCREW	PHOSPHOR BRONZE (ASTM B139 / BS1400)
6	BOTTOM & TOP SPRING PLATE	STAINLESS STEEL (BS970-420 / ASTM276-420)
7	BODY & CAP STUD	ASTMA193 Gr B7
8	BODY & CAP NUT	ASTMA 194 Gr 2H
9	BONNET & CAP GASKETS	SPIRAL WOUND GASKETS
10	VALVE HEAD	NICKLE CHROME ALLOY/ Seating Surface Hard Faced (Stellite or Equivalent)
11	VALVE GUIDE	NICKLE CHROME ALLOY


	DATA SHEET-A SPRING LOADED BYPASS VALVE 1X600 MW AVANATHA TPP		SPECIFICATION NO. PE-TS-999-100-M009
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GENERAL DESCRIPTION

Two banks of HP Heaters of 50% capacity on feed water side are installed in the regenerative feed cycle i.e. HPH-5A / 6A & HPH 5B / 6B. Each heater bank is provided with motor operated gate valves at the inlet & outlet. The two (2) feed water bypass lines, of 50% capacity each, are provided across HP Heater banks with spring loaded bypass valve (SLBV) FDV-11 & FDV-12 for facilitating individual as well as both heater banks isolation due to any operational problem. Each SLBV is sized to pass flow as per the data given below and works on differential pressure across the valve.

TECHNICAL REQUIREMENTS

1.	Quantity	:	2 nos. / unit, Tagged FDV-11 & FDV- 12 (Total Four nos. for two units).
2.	Type	:	Globe type spring loaded bypass valve.
3.	Size of valve	:	To be decided by bidder based on sizing data.
4.	a) End connection b) Connecting pipe size c) Connecting pipe material	:	Butt welded. OD 355.6 mm x 34 mm Thk. SA 106 GrC
5.	No. of Heater banks.	:	2 nos.
6.	Pressure drop across each heater bank.	:	3.0 kg/cm ² at 1000 T/Hr
7.	Operating conditions.	:	FDV-11: valve shall pass 1000 T/Hr of feed water at 167.2 °C & 213 kg/cm ² (a). Set pressure 3.3 kg/cm ² . Fully opens at 10% over pressure. FDV-12: valve shall pass 1000 T/Hr of feed water at 167.2 °C & 213 kg/cm ² (a). Set pressure 3.6 kg/cm ² . Fully opens at 10% over pressure.
8.	Set pressure range	:	Each valve shall be adjustable for opening when differential pressure settings are 2.5 to 4.0 kg/cm ² .
9.	Design pressure and temperature	:	230 kg/cm ² (a) and 265 °C
10.	Valve body Material	:	ASTM A216 WCC
11.	Regulatory requirement	:	IBR certificate in form IIIC

	DATA SHEET-A SPRING LOADED BYPASS VALVE 1X600 MW JHABUA POWER LTD	SPECIFICATION NO. PE-TS-999-100-M009	
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REQUIREMENT OF SPRING LOADED BYPASS VALVE
BILL OF MATERIAL FOR MAIN & SPARES

DESCRIPTION	QUANTITY (NOS)			
SPRING LOADED BYPASS VALVE	MAIN VALVE(NOS.)	COMMISSIONING SPARES		MANDATORY SPARES (COMPLETE ASSEMBLY WITHOUT COMMISSIONING SPARES) (NOS)
		BONNET GASKET (NOS)	CAP GASKET (NOS)	
FDV-11	1	1	1	NIL
FDV-12	1	1	1	

	DATA SHEET-A SPRING LOADED BYPASS VALVE 1X600 MW JHABUA POWER LTD	SPECIFICATION NO. PE-TS-999-100-M009	
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Material of Construction

SNO	COMPONENT	MATERIALS
1	BODY, BONNET, CAP	ASTMA216GrWCC
2	STEM	ASTMA182 Gr F6a
3	SPRINGS	ALLOY STEEL
4	BODY SEAT	ASTMA 105 Hard Faced (Stellite or Equivalent)
5	BONNET BUSH & LOCK NUT, ADJUSTING SCREW	PHOSPHOR BRONZE (ASTM B139 / BS1400)
6	BOTTOM & TOP SPRING PLATE	STAINLESS STEEL (BS970-420 / ASTM276-420)
7	BODY & CAP STUD	ASTMA193 Gr B7
8	BODY & CAP NUT	ASTMA 194 Gr 2H
9	BONNET & CAP GASKETS	SPIRAL WOUND GASKETS
10	VALVE HEAD	NICKLE CHROME ALLOY/ Seating Surface Hard Faced (Stellite or Equivalent)
11	VALVE GUIDE	NICKLE CHROME ALLOY


	DATA SHEET-A SPRING LOADED BYPASS VALVE 1X600 MW JHABUA POWER LTD	SPECIFICATION NO. PE-TS-999-100-M009	
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GENERAL DESCRIPTION

Two banks of HP Heaters of 50% capacity on feed water side are installed in the regenerative feed cycle i.e. HPH-5A / 6A & HPH 5B / 6B. Each heater bank is provided with motor operated gate valves at the inlet & outlet. The two (2) feed water bypass lines, of 50% capacity each, are provided across HP Heater banks with spring loaded bypass valve (SLBV) FDV-11 & FDV-12 for facilitating individual as well as both heater banks isolation due to any operational problem. Each SLBV is sized to pass flow as per the data given below and works on differential pressure across the valve.

TECHNICAL REQUIREMENTS

1.	Quantity	:	2 nos. / unit, Tagged FDV-11 & FDV- 12 (Total Four nos. for two units).
2.	Type	:	Globe type spring loaded bypass valve.
3.	Size of valve	:	To be decided by bidder based on sizing data.
4.	a) End connection b) Connecting pipe size c) Connecting pipe material	:	Butt welded. OD 355.6 mm x 34 mm Thk. SA 106 GrC
5.	No. of Heater banks.	:	2 nos.
6.	Pressure drop across each heater bank.	:	3.0 kg/cm ² at 1000 T/Hr
7.	Operating conditions.	:	FDV-11: valve shall pass 1000 T/Hr of feed water at 167.2 °C & 213 kg/cm ² (a). Set pressure 3.3 kg/cm ² . Fully opens at 10% over pressure. FDV-12: valve shall pass 1000 T/Hr of feed water at 167.2 °C & 213 kg/cm ² (a). Set pressure 3.6 kg/cm ² . Fully opens at 10% over pressure.
8.	Set pressure range	:	Each valve shall be adjustable for opening when differential pressure settings are 2.5 to 4.0 kg/cm ² .
9.	Design pressure and temperature	:	230 kg/cm ² (a) and 265 °C
10.	Valve body Material	:	ASTM A216 WCC
11.	Regulatory requirement	:	IBR certificate in form IIIC

	DATA SHEET-A SPRING LOADED BYPASS VALVE 4X600 MW OP JINDAL STPP	SPECIFICATION NO. PE-TS-999-100-M009	
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REQUIREMENT OF SPRING LOADED BYPASS VALVE
BILL OF MATERIAL FOR MAIN & SPARES

DESCRIPTION	QUANTITY (NOS)			
SPRING LOADED BYPASS VALVE	MAIN VALVE(NOS.)	COMMISSIONING SPARES		MANDATORY SPARES (COMPLETE ASSEMBLY WITHOUT COMMISSIONING SPARES) (NOS)
		BONNET GASKET (NOS)	CAP GASKET (NOS)	
FDV-11	4	4	4	NIL
FDV-12	4	4	4	

	DATA SHEET-A SPRING LOADED BYPASS VALVE 4X600 MW OP JINDAL STPP	SPECIFICATION NO. PE-TS-999-100-M009	
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Material of Construction

SNO	COMPONENT	MATERIALS
1	BODY, BONNET, CAP	ASTMA216GrWCC
2	STEM	ASTMA182 Gr F6a
3	SPRINGS	ALLOY STEEL
4	BODY SEAT	ASTMA 105 Hard Faced (Stellite or Equivalent)
5	BONNET BUSH & LOCK NUT, ADJUSTING SCREW	PHOSPHOR BRONZE (ASTM B139 / BS1400)
6	BOTTOM & TOP SPRING PLATE	STAINLESS STEEL (BS970-420 / ASTM276-420)
7	BODY & CAP STUD	ASTMA193 Gr B7
8	BODY & CAP NUT	ASTMA 194 Gr 2H
9	BONNET & CAP GASKETS	SPIRAL WOUND GASKETS
10	VALVE HEAD	NICKLE CHROME ALLOY/ Seating Surface Hard Faced (Stellite or Equivalent)
11	VALVE GUIDE	NICKLE CHROME ALLOY

	DATA SHEET-A SPRING LOADED BYPASS VALVE 4X600 MW OP JINDAL STPP		SPECIFICATION NO. PE-TS-999-100-M009
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GENERAL DESCRIPTION

Two banks of HP Heaters of 50% capacity on feed water side are installed in the regenerative feed cycle i.e. HPH-5A / 6A & HPH 5B / 6B. Each heater bank is provided with motor operated gate valves at the inlet & outlet. The two (2) feed water bypass lines, of 50% capacity each, are provided across HP Heater banks with spring loaded bypass valve (SLBV) FDV-11 & FDV-12 for facilitating individual as well as both heater banks isolation due to any operational problem. Each SLBV is sized to pass flow as per the data given below and works on differential pressure across the valve.


TECHNICAL REQUIREMENTS

1.	Quantity	:	2 nos. / unit, Tagged FDV-11 & FDV- 12 (Total Eight nos. for four units).
2.	Type	:	Globe type spring loaded bypass valve.
3.	Size of valve	:	To be decided by bidder based on sizing data.
4.	a) End connection b) Connecting pipe size c) Connecting pipe material	:	Butt welded. OD 355.6 mm x 34 mm Thk. SA 106 GrC
5.	No. of Heater banks.	:	2 nos.
6.	Pressure drop across each heater bank.	:	3.0 kg/cm ² at 1000 T/Hr
7.	Operating conditions.	:	FDV-11: valve shall pass 1000 T/Hr of feed water at 167.2 °C & 213 kg/cm ² (a). Set pressure 3.3 kg/cm ² . Fully opens at 10% over pressure. FDV-12: valve shall pass 1000 T/Hr of feed water at 167.2 °C & 213 kg/cm ² (a). Set pressure 3.6 kg/cm ² . Fully opens at 10% over pressure.
8.	Set pressure range	:	Each valve shall be adjustable for opening when differential pressure settings are 2.5 to 4.0 kg/cm ² .
9.	Design pressure and temperature	:	230 kg/cm ² (a) and 265 °C
10.	Valve body Material	:	ASTM A216 WCC
11.	Regulatory requirement	:	IBR certificate in form IIIC

	DATA SHEET-A SPRING LOADED BYPASS VALVE 2X600 MW DAINIK BHASKAR TPP	SPECIFICATION NO. PE-TS-999-100-M009	
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REQUIREMENT OF SPRING LOADED BYPASS VALVE
BILL OF MATERIAL FOR MAIN & SPARES

DESCRIPTION	QUANTITY (NOS)			
SPRING LOADED BYPASS VALVE	MAIN VALVE(NOS.)	COMMISSIONING SPARES		MANDATORY SPARES (COMPLETE ASSEMBLY WITHOUT COMMISSIONING SPARES) (NOS)
		BONNET GASKET (NOS)	CAP GASKET (NOS)	
FDV-11	2	2	2	NIL
FDV-12	2	2	2	

	DATA SHEET-A SPRING LOADED BYPASS VALVE 2X600 MW DAINIK BHASKAR TPP		SPECIFICATION NO. PE-TS-999-100-M009	
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Material of Construction

SNO	COMPONENT	MATERIALS
1	BODY, BONNET, CAP	ASTMA216GrWCC
2	STEM	ASTMA182 Gr F6a
3	SPRINGS	ALLOY STEEL
4	BODY SEAT	ASTMA 105 Hard Faced (Stellite or Equivalent)
5	BONNET BUSH & LOCK NUT, ADJUSTING SCREW	PHOSPHOR BRONZE (ASTM B139 / BS1400)
6	BOTTOM & TOP SPRING PLATE	STAINLESS STEEL (BS970-420 / ASTM276-420)
7	BODY & CAP STUD	ASTMA193 Gr B7
8	BODY & CAP NUT	ASTMA 194 Gr 2H
9	BONNET & CAP GASKETS	SPIRAL WOUND GASKETS
10	VALVE HEAD	NICKLE CHROME ALLOY/ Seating Surface Hard Faced (Stellite or Equivalent)
11	VALVE GUIDE	NICKLE CHROME ALLOY


	DATA SHEET-A SPRING LOADED BYPASS VALVE 2X600 MW DAINIK BHASKAR TPP		SPECIFICATION NO. PE-TS-999-100-M009
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GENERAL DESCRIPTION

Two banks of HP Heaters of 50% capacity on feed water side are installed in the regenerative feed cycle i.e. HPH-5A / 6A & HPH 5B / 6B. Each heater bank is provided with motor operated gate valves at the inlet & outlet. The two (2) feed water bypass lines, of 50% capacity each, are provided across HP Heater banks with spring loaded bypass valve (SLBV) FDV-11 & FDV-12 for facilitating individual as well as both heater banks isolation due to any operational problem. Each SLBV is sized to pass flow as per the data given below and works on differential pressure across the valve.


TECHNICAL REQUIREMENTS

1.	Quantity	:	2 nos. / unit, Tagged FDV-11 & FDV- 12 (Total four nos. for two units).
2.	Type	:	Globe type spring loaded bypass valve.
3.	Size of valve	:	To be decided by bidder based on sizing data.
4.	a) End connection b) Connecting pipe size c) Connecting pipe material	:	Butt welded. OD 355.6 mm x 36 mm Thk. SA 106 GrC
5.	No. of Heater banks.	:	2 nos.
6.	Pressure drop across each heater bank.	:	3.0 kg/cm ² at 1000 T/Hr
7.	Operating conditions.	:	FDV-11: valve shall pass 1000 T/Hr of feed water at 167.2 °C & 210 kg/cm ² (a). Set pressure 3.3 kg/cm ² . Fully opens at 10% over pressure. FDV-12: valve shall pass 1000 T/Hr of feed water at 167.2 °C & 210 kg/cm ² (a). Set pressure 3.6 kg/cm ² . Fully opens at 10% over pressure.
8.	Set pressure range	:	Each valve shall be adjustable for opening when differential pressure settings are 2.5 to 4.0 kg/cm ² .
9.	Design pressure and temperature	:	230 kg/cm ² (a) and 265 °C
10.	Valve body Material	:	ASTM A216 WCC
11.	Regulatory requirement	:	IBR certificate in form IIIC

	DATA SHEET-A SPRING LOADED BYPASS VALVE 3X660 MW LALITPUR STPP	SPECIFICATION NO. PE-TS-999-100-M009	
		VOLUME : IIB	
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REQUIREMENT OF SPRING LOADED BYPASS VALVE
BILL OF MATERIAL FOR MAIN & SPARES

DESCRIPTION	QUANTITY (NOS)			
SPRING LOADED BYPASS VALVE	MAIN VALVE(NOS.)	COMMISSIONING SPARES		MANDATORY SPARES (COMPLETE ASSEMBLY WITHOUT COMMISSIONING SPARES) (NOS)
		BONNET GASKET (NOS)	CAP GASKET (NOS)	
FDV-42	3	3	3	NIL
FDV-43	3	3	3	

	DATA SHEET-A SPRING LOADED BYPASS VALVE 3X660 MW LALITPUR STPP	SPECIFICATION NO. PE-TS-999-100-M009	
		VOLUME-IIB	
		SECTION : D	
		REV. NO.: 00	DATE: 15.05.2012
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Material of Construction

SNO	COMPONENT	MATERIALS
1	BODY, BONNET, CAP	ASTMA216GrWCC
2	STEM	ASTMA182 Gr F6a
3	SPRINGS	ALLOY STEEL
4	BODY SEAT	ASTMA 105 Hard Faced (Stellite or Equivalent)
5	BONNET BUSH & LOCK NUT, ADJUSTING SCREW	PHOSPHOR BRONZE (ASTM B139 / BS1400)
6	BOTTOM & TOP SPRING PLATE	STAINLESS STEEL (BS970-420 / ASTM276-420)
7	BODY & CAP STUD	ASTMA193 Gr B7
8	BODY & CAP NUT	ASTMA 194 Gr 2H
9	BONNET & CAP GASKETS	SPIRAL WOUND GASKETS
10	VALVE HEAD	NICKLE CHROME ALLOY/ Seating Surface Hard Faced (Stellite or Equivalent)
11	VALVE GUIDE	NICKLE CHROME ALLOY

It may be noted that for 3X660 MW Lalitpur STPP no raw material/component/sub assembly/assembly/equipment shall be sourced from China either directly or indirectly, for manufacturer or supply in the BTG package.


	DATA SHEET-A SPRING LOADED BYPASS VALVE 3X660 MW LALITPUR STPP	SPECIFICATION NO. PE-TS-999-100-M009	
		VOLUME-IIB	
		SECTION : D	
		REV. NO.: 00	DATE: 15.05.2012
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GENERAL DESCRIPTION

Two banks of HP Heaters of 50% capacity on feed water side are installed in the regenerative feed cycle i.e. HPH-6A/7A/8A & HPH 6B/7B/8B. Each heater bank is provided with motor operated gate valves at the inlet & outlet. The two (2) feed water bypass lines, of 50% capacity each, are provided across HP Heater banks with spring loaded bypass valve (SLBV) FDV-42 & FDV-43 for facilitating individual as well as both heater banks isolation due to any operational problem. Each SLBV is sized to pass 50% of BMCR feed water flow and works on differential pressure across the valve. Each SLBV has a staggered set pressure so that it acts as a back protection.


TECHNICAL REQUIREMENTS

1.	Quantity	:	2 nos. / unit, Tagged FDV-42 & FDV-43 (Total six nos. for three units).
2.	Type	:	Globe type spring loaded bypass valve.
3.	Size of valve	:	To be decided by bidder based on sizing data.
4.	a) End connection b) Connecting pipe size c) Connecting pipe material	:	Butt welded. OD 406.4 mm x 56 mm Thk. SA 106 GrC
5.	No. of Heater banks.	:	2 nos.
6.	Pressure drop across each heater bank.	:	3.65 kg/cm ² at 960 T/Hr
7.	Operating conditions.	:	FDV-42: valve shall pass 1100 T/Hr of feed water at 193.4°C & 310 kg/cm ² (a). Set pressure 5.0 kg/cm ² . Fully opens at 10% over pressure. FDV-43: valve shall pass 1100 T/Hr of feed water at 193.4°C & 310 kg/cm ² (a). Set pressure 5.4 kg/cm ² . Fully opens at 10% over pressure.
8.	Set pressure range	:	Each valve shall be adjustable for opening when differential pressure settings are 3.65 to 5.6 kg/cm ² .
9.	Design pressure and temperature	:	335 kg/cm ² (a) and 310°C
10.	Valve body Material	:	ASTM A216 WCC
11.	Regulatory requirement	:	IBR certificate in form IIIC

	DATA SHEET-A SPRING LOADED BYPASS VALVE 2 X 660 MW SINGRAULI TPP	SPECIFICATION NO. PE-TS-999-100-M009	
		VOLUME : IIB	
		SECTION: D	
		REV. NO.: 00	DATE: 15.05.2012
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REQUIREMENT OF SPRING LOADED BYPASS VALVE
BILL OF MATERIAL FOR MAIN & SPARES

DESCRIPTION	QUANTITY (NOS)			
SPRING LOADED BYPASS VALVE	MAIN VALVE(NOS.)	COMMISSIONING SPARES		MANDATORY SPARES (COMPLETE ASSEMBLY WITHOUT COMMISSIONING SPARES) (NOS)
		BONNET GASKET (NOS)	CAP GASKET (NOS)	
FDV-42	2	2	2	NIL
FDV-43	2	2	2	

	DATA SHEET-A SPRING LOADED BYPASS VALVE 2 X 660 MW SINGRAULI TPP		SPECIFICATION NO. PE-TS-999-100-M009
			VOLUME-IIB
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Material of Construction

SNO	COMPONENT	MATERIALS
1	BODY, BONNET, CAP	ASTMA216GrWCC
2	STEM	ASTMA182 Gr F6a
3	SPRINGS	ALLOY STEEL
4	BODY SEAT	ASTMA 105 Hard Faced (Stellite or Equivalent)
5	BONNET BUSH & LOCK NUT, ADJUSTING SCREW	PHOSPHOR BRONZE (ASTM B139 / BS1400)
6	BOTTOM & TOP SPRING PLATE	STAINLESS STEEL (BS970-420 / ASTM276-420)
7	BODY & CAP STUD	ASTMA193 Gr B7
8	BODY & CAP NUT	ASTMA 194 Gr 2H
9	BONNET & CAP GASKETS	SPIRAL WOUND GASKETS
10	VALVE HEAD	NICKLE CHROME ALLOY/ Seating Surface Hard Faced (Stellite or Equivalent)
11	VALVE GUIDE	NICKLE CHROME ALLOY


	DATA SHEET-A SPRING LOADED BYPASS VALVE 2 X 660 MW SINGRAULI TPP	SPECIFICATION NO. PE-TS-999-100-M009	
		VOLUME-IIB	
		SECTION : D	
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GENERAL DESCRIPTION

Two banks of HP Heaters of 50% capacity on feed water side are installed in the regenerative feed cycle i.e. HPH-6A/7A/8A & HPH 6B/7B/8B. Each heater bank is provided with motor operated gate valves at the inlet & outlet. The two (2) feed water bypass lines, of 50% capacity each, are provided across HP Heater banks with spring loaded bypass valve (SLBV) FDV-42 & FDV-43 for facilitating individual as well as both heater banks isolation due to any operational problem. Each SLBV is sized to pass 50% of BMCR feed water flow and works on differential pressure across the valve. Each SLBV has a staggered set pressure so that it acts as a back protection.


TECHNICAL REQUIREMENTS

1.	Quantity	:	2 nos. / unit, Tagged FDV-42 & FDV-43 (Total four nos. for two units).
2.	Type	:	Globe type spring loaded bypass valve.
3.	Size of valve	:	To be decided by bidder based on sizing data.
4.	a) End connection b) Connecting pipe size c) Connecting pipe material	:	Butt welded. OD 406.4 mm x 56 mm Thk. SA 106 GrC
5.	No. of Heater banks.	:	2 nos.
6.	Pressure drop across each heater bank.	:	3.65 kg/cm ² at 960 T/Hr
7.	Operating conditions.	:	FDV-42: valve shall pass 1100 T/Hr of feed water at 194.5°C & 300 kg/cm ² (a). Set pressure 4.5 kg/cm ² . Fully opens at 10% over pressure. FDV-43: valve shall pass 1100 T/Hr of feed water at 194.5°C & 300 kg/cm ² (a). Set pressure 5.0 kg/cm ² . Fully opens at 10% over pressure.
8.	Set pressure range	:	Each valve shall be adjustable for opening when differential pressure settings are 3.65 to 5.2 kg/cm ² .
9.	Design pressure and temperature	:	335 kg/cm ² (a) and 300°C
10.	Valve body Material	:	ASTM A216 WCC
11.	Regulatory requirement	:	IBR certificate in form IIIC

	DATA SHEET-A SPRING LOADED BYPASS VALVE 1X600MW RAYALSEEMA	SPECIFICATION NO. PE-TS-999-100-M009	
		VOLUME : IIB	
		SECTION: D	
		REV. NO.: 00	DATE: 15.05.2012
		SHEET 1 OF 3	


REQUIREMENT OF SPRING LOADED BYPASS VALVE
BILL OF MATERIAL FOR MAIN & SPARES

DESCRIPTION	QUANTITY (NOS)			
SPRING LOADED BYPASS VALVE	MAIN VALVE(NOS.)	COMMISSIONING SPARES		MANDATORY SPARES (COMPLETE ASSEMBLY WITHOUT COMMISSIONING SPARES) (NOS)
		BONNET GASKET (NOS)	CAP GASKET (NOS)	
FDV-11	1	1	1	NIL
FDV-12	1	1	1	

	DATA SHEET-A SPRING LOADED BYPASS VALVE 1X600 MW RAYALSEEMA TPP	SPECIFICATION NO. PE-TS-999-100-M009	
		VOLUME-IIB	
		SECTION : D	
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Material of Construction

SNO	COMPONENT	MATERIALS
1	BODY, BONNET, CAP	ASTMA216GrWCC
2	STEM	ASTMA182 Gr F6a
3	SPRINGS	ALLOY STEEL
4	BODY SEAT	ASTMA 105 Hard Faced (Stellite or Equivalent)
5	BONNET BUSH & LOCK NUT, ADJUSTING SCREW	PHOSPHOR BRONZE (ASTM B139 / BS1400)
6	BOTTOM & TOP SPRING PLATE	STAINLESS STEEL (BS970-420 / ASTM276-420)
7	BODY & CAP STUD	ASTMA193 Gr B7
8	BODY & CAP NUT	ASTMA 194 Gr 2H
9	BONNET & CAP GASKETS	SPIRAL WOUND GASKETS
10	VALVE HEAD	NICKLE CHROME ALLOY/ Seating Surface Hard Faced (Stellite or Equivalent)
11	VALVE GUIDE	NICKLE CHROME ALLOY

	DATA SHEET-A SPRING LOADED BYPASS VALVE 1X600 MW RAYALSEEMA TPP UNIT-6		SPECIFICATION NO. PE-TS-999-100-M009
			VOLUME-IIB
			SECTION : D
			REV. NO.: 00
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GENERAL DESCRIPTION

Two banks of HP Heaters of 50% capacity on feed water side are installed in the regenerative feed cycle i.e. HPH-5A / 6A & HPH 5B / 6B. Each heater bank is provided with motor operated gate valves at the inlet & outlet. The two (2) feed water bypass lines, of 50% capacity each, are provided across HP Heater banks with spring loaded bypass valve (SLBV) FDV-11 & FDV-12 for facilitating individual as well as both heater banks isolation due to any operational problem. Each SLBV is sized to pass flow as per the data given below and works on differential pressure across the valve.

TECHNICAL REQUIREMENTS

1.	Quantity	:	2 nos. Tagged FDV-11 & FDV- 12
2.	Type	:	Globe type spring loaded bypass valve.
3.	Size of valve	:	To be decided by bidder based on sizing data.
4.	a) End connection b) Connecting pipe size c) Connecting pipe material	:	Butt welded. OD 355.6 mm x 36 mm Thk. SA 106 GrC
5.	No. of Heater banks.	:	2 nos.
6.	Pressure drop across each heater bank.	:	3.0 kg/cm ² at 1000 T/Hr
7.	Operating conditions	:	FDV-11: valve shall pass 1000 T/Hr of feed water at 167.2 °C & 209 kg/cm ² (a). Set pressure 3.3 kg/cm ² . Fully opens at 10% over pressure. FDV-12: valve shall pass 1000 T/Hr of feed water at 167.2 °C & 209 kg/cm ² (a). Set pressure 3.6 kg/cm ² . Fully opens at 10% over pressure.
8.	Set pressure range	:	Each valve shall be adjustable for opening when differential pressure settings are 2.5 to 4.0 kg/cm ² .
9.	Design pressure and temperature	:	230 kg/cm ² (g) and 260 °C
10.	Valve body Material	:	ASTM A216 WCC
11.	Regulatory requirement	:	IBR certificate in form IIIC

	DATA SHEET-A SPRING LOADED BYPASS VALVE 1X600 MW VISA RAIGARH POWER	SPECIFICATION NO. PE-TS-999-100-M009	
		VOLUME : IIB	
		SECTION: D	
		REV. NO.: 00	DATE: 15.05.2012
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REQUIREMENT OF SPRING LOADED BYPASS VALVE
BILL OF MATERIAL FOR MAIN & SPARES

DESCRIPTION	QUANTITY (NOS)			
SPRING LOADED BYPASS VALVE	MAIN VALVE(NOS.)	COMMISSIONING SPARES		MANDATORY SPARES (COMPLETE ASSEMBLY WITHOUT COMMISSIONING SPARES) (NOS)
		BONNET GASKET (NOS)	CAP GASKET (NOS)	
FDV-11	1	1	1	NIL
FDV-12	1	1	1	

	DATA SHEET-A SPRING LOADED BYPASS VALVE 1X600 MW VISA RAIGARH POWER	SPECIFICATION NO. PE-TS-999-100-M009	
		VOLUME-IIB	
		SECTION : D	
		REV. NO.: 00	DATE: 15.05.2012
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Material of Construction

SNO	COMPONENT	MATERIALS
1	BODY, BONNET, CAP	ASTMA216GrWCC
2	STEM	ASTMA182 Gr F6a
3	SPRINGS	ALLOY STEEL
4	BODY SEAT	ASTMA 105 Hard Faced (Stellite or Equivalent)
5	BONNET BUSH & LOCK NUT, ADJUSTING SCREW	PHOSPHOR BRONZE (ASTM B139 / BS1400)
6	BOTTOM & TOP SPRING PLATE	STAINLESS STEEL (BS970-420 / ASTM276-420)
7	BODY & CAP STUD	ASTMA193 Gr B7
8	BODY & CAP NUT	ASTMA 194 Gr 2H
9	BONNET & CAP GASKETS	SPIRAL WOUND GASKETS
10	VALVE HEAD	NICKLE CHROME ALLOY/ Seating Surface Hard Faced (Stellite or Equivalent)
11	VALVE GUIDE	NICKLE CHROME ALLOY

	DATA SHEET-A SPRING LOADED BYPASS VALVE 1X600 MW VISA RAIGARH POWER	SPECIFICATION NO. PE-TS-999-100-M009	
		VOLUME-IIB	
		SECTION : D	
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GENERAL DESCRIPTION

Two banks of HP Heaters of 50% capacity on feed water side are installed in the regenerative feed cycle i.e. HPH-5A / 6A & HPH 5B / 6B. Each heater bank is provided with motor operated gate valves at the inlet & outlet. The two (2) feed water bypass lines, of 50% capacity each, are provided across HP Heater banks with spring loaded bypass valve (SLBV) FDV-11 & FDV-12 for facilitating individual as well as both heater banks isolation due to any operational problem. Each SLBV is sized to pass flow as per the data given below and works on differential pressure across the valve.

TECHNICAL REQUIREMENTS

1.	Quantity	:	2 nos. / unit, Tagged FDV-11 & FDV- 12
2.	Type	:	Globe type spring loaded bypass valve.
3.	Size of valve	:	To be decided by bidder based on sizing data.
4.	a) End connection b) Connecting pipe size c) Connecting pipe material	:	Butt welded. OD 355.6 mm x 36mm Thk. SA 106 GrC
5.	No. of Heater banks.	:	2 nos.
6.	Pressure drop across each heater bank.	:	3.0 kg/cm ² at 1000 T/Hr
7.	Operating conditions.	:	FDV-11: valve shall pass 1000 T/Hr of feed water at 167.2 °C & 213 kg/cm ² (a). Set pressure 3.3 kg/cm ² . Fully opens at 10% over pressure. FDV-12: valve shall pass 1000 T/Hr of feed water at 167.2 °C & 213 kg/cm ² (a). Set pressure 3.6 kg/cm ² . Fully opens at 10% over pressure.
8.	Set pressure range	:	Each valve shall be adjustable for opening when differential pressure settings are 2.5 to 4.0 kg/cm ² .
9.	Design pressure and temperature	:	230 kg/cm ² (a) and 265 °C
10.	Valve body Material	:	ASTM A216 WCC
11.	Regulatory requirement	:	IBR certificate in form IIIC

	DATA SHEET-A SPRING LOADED BYPASS VALVE 2X800 MW YERMARUS STPP	SPECIFICATION NO. PE-TS-999-100-M009	
		VOLUME : IIB	
		SECTION: D	
		REV. NO.: 00	DATE: 15.05.2012
		SHEET 1 OF 3	

REQUIREMENT OF SPRING LOADED BYPASS VALVE
BILL OF MATERIAL FOR MAIN & SPARES

DESCRIPTION	QUANTITY (NOS)			
SPRING LOADED BYPASS VALVE	MAIN VALVE(NOS.)	COMMISSIONING SPARES		MANDATORY SPARES (COMPLETE ASSEMBLY WITHOUT COMMISSIONING SPARES) (NOS)
		BONNET GASKET (NOS)	CAP GASKET (NOS)	
FDV-42	2	2	2	NIL
FDV-43	2	2	2	

	DATA SHEET-A SPRING LOADED BYPASS VALVE 2X800 MW YERMARUS STPP	SPECIFICATION NO. PE-TS-999-100-M009	
		VOLUME-IIB	
		SECTION : D	
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Material of Construction

SNO	COMPONENT	MATERIALS
1	BODY, BONNET, CAP	ASTMA216GrWCC
2	STEM	ASTMA182 Gr F6a
3	SPRINGS	ALLOY STEEL
4	BODY SEAT	ASTMA 105 Hard Faced (Stellite or Equivalent)
5	BONNET BUSH & LOCK NUT, ADJUSTING SCREW	PHOSPHOR BRONZE (ASTM B139 / BS1400)
6	BOTTOM & TOP SPRING PLATE	STAINLESS STEEL (BS970-420 / ASTM276-420)
7	BODY & CAP STUD	ASTMA193 Gr B7
8	BODY & CAP NUT	ASTMA 194 Gr 2H
9	BONNET & CAP GASKETS	SPIRAL WOUND GASKETS
10	VALVE HEAD	NICKLE CHROME ALLOY/ Seating Surface Hard Faced (Stellite or Equivalent)
11	VALVE GUIDE	NICKLE CHROME ALLOY


	DATA SHEET-A SPRING LOADED BYPASS VALVE 2X800 MW YERMARUS STPP		SPECIFICATION NO. PE-TS-999-100-M009	
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GENERAL DESCRIPTION

Two banks of HP Heaters of 50% capacity on feed water side are installed in the regenerative feed cycle i.e. HPH-6A / 7A/ 8A & HPH 6B / 7B/ 8B. Each heater bank is provided with motor operated gate valves at the inlet & outlet. The two (2) feed water bypass lines, of 50% capacity each, are provided across HP Heater banks with spring loaded bypass valve (SLBV) FDV-42 & FDV-43 for facilitating individual as well as both heater banks isolation due to any operational problem. Each SLBV is sized to pass flow as per the data given below and works on differential pressure across the valve.

TECHNICAL REQUIREMENTS


1.	Quantity	:	2 nos. Tagged FDV-42 & FDV- 43
2.	Type	:	Globe type spring loaded bypass valve.
3.	Size of valve	:	To be decided by bidder based on sizing data.
4.	a) End connection b) Connecting pipe size c) Connecting pipe material	:	Butt welded. OD 457 mm x 62 mm Thk. SA 106 GrC
5.	No. of Heater banks.	:	2 nos.
6.	Pressure drop across each heater bank.	:	3.8 kg/cm ² at 1168 T/Hr
7.	Operating conditions	:	FDV-42: valve shall pass 1168 T/Hr of feed water at 193 °C & 290 kg/cm ² (a). Set pressure 4.2 kg/cm ² . Fully opens at 10% over pressure. FDV-43: valve shall pass 1168 T/Hr of feed water at 193 °C & 290 kg/cm ² (a). Set pressure 4.6 kg/cm ² . Fully opens at 10% over pressure.
8.	Set pressure range	:	Each valve shall be adjustable for opening when differential pressure settings are 3.5 to 5.0 kg/cm ² .
9.	Design pressure and temperature	:	350 kg/cm ² (g) and 300 °C
10.	Valve body Material	:	ASTM A216 WCC
11.	Regulatory requirement	:	IBR certificate in form IIIC

	DATA SHEET-A SPRING LOADED BYPASS VALVE 2X600 MW ADILABAD SCCL TPP	SPECIFICATION NO. PE-TS-999-100-M009	
		VOLUME : IIB	
		SECTION: D	
		REV. NO.: 00	DATE: 15.05.2012
		SHEET 1 OF 3	

REQUIREMENT OF SPRING LOADED BYPASS VALVE
BILL OF MATERIAL FOR MAIN & SPARES


DESCRIPTION	QUANTITY (NOS)			
SPRING LOADED BYPASS VALVE	MAIN VALVE(NOS.)	COMMISSIONING SPARES		MANDATORY SPARES (COMPLETE ASSEMBLY WITHOUT COMMISSIONING SPARES) (NOS)
		BONNET GASKET (NOS)	CAP GASKET (NOS)	
FDV-11	2	2	2	2
FDV-12	2	2	2	

Note: FDV-11 & FDV-12 are of same type. Mandatory spare are taken common for both valves.

	DATA SHEET-A SPRING LOADED BYPASS VALVE 2X600 MW ADILABAD SCCL TPP	SPECIFICATION NO. PE-TS-999-100-M009	
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Material of Construction

SNO	COMPONENT	MATERIALS
1	BODY, BONNET, CAP	ASTMA216GrWCC
2	STEM	ASTMA182 Gr F6a
3	SPRINGS	ALLOY STEEL
4	BODY SEAT	ASTMA 105 Hard Faced (Stellite or Equivalent)
5	BONNET BUSH & LOCK NUT, ADJUSTING SCREW	PHOSPHER BRONZE (ASTM B139 / BS1400)
6	BOTTOM & TOP SPRING PLATE	STAINLESS STEEL (BS970-420 / ASTM276-420)
7	BODY & CAP STUD	ASTMA193 Gr B7
8	BODY & CAP NUT	ASTMA 194 Gr 2H
9	BONNET & CAP GASKETS	SPIRAL WOUND GASKETS
10	VALVE HEAD	NICKLE CHROME ALLOY/ Seating Surface Hard Faced (Stellite or Equivalent)
11	VALVE GUIDE	NICKLE CHROME ALLOY


	DATA SHEET-A SPRING LOADED BYPASS VALVE 2X600 MW ADILABAD SCCL TPP	SPECIFICATION NO. PE-TS-999-100-M009	
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GENERAL DESCRIPTION

Two banks of HP Heaters of 50% capacity on feed water side are installed in the regenerative feed cycle i.e. HPH-5A / 6A/ 7A & HPH 5B / 6B/ 7B. Each heater bank is provided with motor operated gate valves at the inlet & outlet. The two (2) feed water bypass lines, of 50% capacity each, are provided across HP Heater banks with spring loaded bypass valve (SLBV) FDV-11 & FDV-12 for facilitating individual as well as both heater banks isolation due to any operational problem. Each SLBV is sized to pass flow as per the data given below and works on differential pressure across the valve.

TECHNICAL REQUIREMENTS

1.	Quantity	:	2 nos. Tagged FDV-11 & FDV- 12
2.	Type	:	Globe type spring loaded bypass valve.
3.	Size of valve	:	To be decided by bidder based on sizing data.
4.	a) End connection b) Connecting pipe size c) Connecting pipe material	:	Butt welded. OD 355.6 mm x 38 mm Thk. SA 106 GrC
5.	No. of Heater banks.	:	2 nos.
6.	Pressure drop across each heater bank.	:	4.0 kg/cm ² at 1025 T/Hr
7.	Operating conditions	:	FDV-11: valve shall pass 1025 T/Hr of feed water at 168 °C & 220 kg/cm ² (a). Set pressure 4.5 kg/cm ² . Fully opens at 10% over pressure. FDV-12: valve shall pass 1025 T/Hr of feed water at 168 °C & 220 kg/cm ² (a). Set pressure 5.0 kg/cm ² . Fully opens at 10% over pressure.
8.	Set pressure range	:	Each valve shall be adjustable for opening when differential pressure settings are 3.5 to 5.5 kg/cm ² .
9.	Design pressure and temperature	:	260 kg/cm ² (g) and 290 °C
10.	Valve body Material	:	ASTM A216 WCC
11.	Regulatory requirement	:	IBR certificate in form IIIC

	SPRING LOADED BYPASS VALVES DATA SHEET C	SPECIFICATION NO. PE-TS-999-100-M009	
		VOLUME : IIB	
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DATA SHEET - C

Drawings/documents distribution schedule to be followed by the successful bidder:

1.0 The successful bidder shall submit the following drawings/documents within two weeks after award of contact.

1.1 Relevant drawings/leaflets for the valves showing following information.

- i) Complete cross sectional arrangement of the valve.
- ii) Binding dimensions, dismantling clearances & weights.
- iii) Bill of material incorporating all the materials of construction of various parts along with BS/ASTM/IS standards to which the materials conform to.
- iv) Special features, if any, as called for in the specific requirement
- v) Type of oil/Grease wherever required and its annual consumption.

2.0 Quality Plan duly signed & stamped with bidder's seal.

3.0 Within the stipulated time period as per vendor's drawings/ documents schedule, the following shall be submitted but not later than one month before first dispatch.

- a) Drawings of components & details as deemed necessary.
- b) Instruction manual for erection, operation and maintenance.
- c) Storage instructions.

4.0 Before dispatch of the equipment the vendor shall furnish the following.

- a) Material Test certificates.
- b) Shop test reports and certificates.

5.0 Distribution of drawings / documents for all projects:

After award of the contract the successful bidder shall furnish drawings/ documents as per following distribution schedule.

Sl. No.	Type of Document	No of Hard copies	No. of Soft copies
1	Documents submitted for Approval	2 Nos.	1 Nos.
2	Final Distribution(Approved Documents)	12 Nos.	1 Nos.
3	O&M Manuals	12 Nos.	2 Nos.