

2x800 MW LARA TPS

TECHNICAL SPECIFICATION
FOR
STEAM TRAPS

SPECIFICATION No. PE-TS-508-100-M010
ISSUE NO. 01
REV NO. 01



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



TECHNICAL SPECIFICATION
STEAM TRAPS
2x800 MW LARA TPS

PE-TS-508-100-M010

Issue No: 01

Rev. No. 01

Date : 19.01.2026

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PROJECT INFORMATION

SL.NO	DESCRIPTION	DETAILS
1	CUSTOMER	NTPC LTD.
2	CUSTOMER'S CONSULTANT	-
3	LOCATION	
3.1	COORDINATES	
3.2	NEAREST RAILWAY STATION	Raigarh
3.3	NEAREST SEA PORT	Not Available
3.4	NEAREST AIRPORT	Raipur
3.5	NEAREST NATIONAL HIGHWAY	NH-200
4	METEOROLOGICAL DATA	
4.1	MAXIMUM TEMPERATURE	48.3 deg C
4.2	MINIMUM TEMPERATURE	6.4 deg C
4.3	RELATIVE HUMIDITY (FOR DESIGN)	84%
4.4	AVERAGE ANNUAL RAINFALL	1429.3mm
4.5	SEISMIC ZONE (AS PER IS 1893)	Zone II
4.6	HEIGHT ABOVE MSL	220m



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SCOPE

SCOPE OF THIS PACKAGE COVERS THE FOLLOWING:

SL.NO	PARAMETERS	REQUIREMENT
1	Supply Including Design, Engineering, Manufacturing of	
a)	Main Supply	YES
2	Inspection & Testing	YES
3	Painting	YES
4	Packing	YES
5	Transportation & Delivery To Site	YES
6	Erection & Commissioning	NO
7	Supervision of Erection & Commissioning	NO
8	Mandatory Spares	YES
9	Performance Guarantee (PG) Test	NO
10	O & M Service	NO
11	O & M Spares	NO



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GENERAL TECHNICAL REQUIREMENT	
1.0	Requirements: a) Thermostatic steam traps with integral strainer b) Inverted bucket steam traps with external Y-type strainer/integral strainer c) Ball float steam traps with external Y-type strainer d) External Y-type strainer
2	Bidder shall ensure that the offered traps & strainers shall comply with all applicable statutory and regulatory requirements.
3	In the event of any conflict between the requirements of two clauses of this specification, documents or requirements of different codes and standards specified, the more stringent requirement as per the interpretation of the BHEL shall apply.
4	Drawing/document submission shall be through web based Document Management System(DMS) of BHEL. Bidder would be provided access to the DMS for drawing/document submission. Bidder to ensure internet connectivity of min speed of 2Mbps at their end.
5	Drawings/ documents submitted by supplier at any stage shall be complete in all respects. Any incomplete drawing submitted shall be treated as non- submission with delays attributable to supplier.
6	Latest codes and standards shall be applicable as on date of techno-commercial bid opening.
7	The strainer shall have a screwed blow-off connection with a removable plug.
8	Straining area of strainer shall be kept as minimum four times of the pipe cross-sectional area.
9	The traps should be suitable for horizontal mounting with internals easily accessible and replaceable.
10	Arrow showing inlet should be cast on the body of traps and strainers.
11	The trap cover shall be such that it can be removed without breaking the inlet or discharge pipe.
12	On line cleaning of the strainer element shall also be possible.
13	Seat diameter for Inverted Bucket trap shall be selected based on the required maximum condensate flow rate & working pressure.



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PAINTING REQUIREMENT

Package	Condition	Surface Preparation	Primer Coat	No. of Coats	DFT (in Microns)	Paint shade	Total DFT
Steam Traps	Plain Area	Surface preparation shall be done as per SP3 - Power Tool Cleaning .	Heat Resistance Aluminium Paint to IS:13183 Gr.-I	1(PRIMER) + 1(FINISH)	20	Aluminium	40

Notes

1	For Stainless Steel traps & strainers: No painting needs to be done.
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TECHNICAL DATA - 1 (THERMOSTATIC STEAM TRAPS WITH INTEGRAL STRAINER)			
SL.NO	DESCRIPTION		DETAIL
1.0	DESIGN CODES & STANDARDS		
1.1	Codes and Standards		Supplier's own proven design
1.2	End Connections for size > = 50NB		BW as per ANSI B16.25
1.2	End Connections for size < 50NB		SW as per ANSI B16.11
2.0	MATERIAL OF CONSTRUCTION		
2.1	Body		Carbon Steel (ASTM A 105)
2.2	Cover		Carbon Steel (ASTM A 105)
2.3	Thermostatic Element	Stainless Steel (AISI 304)	Stainless Steel (AISI 304)
2.4	Valve seat		Stainless Steel (hardness min. 250BHN)
2.5	Gasket		Spiral wound SS and Graphite (Asbestos Free)
2.6	Strainer		Stainless Steel (Perforated)
2.7	Bolts/Nuts		ASTM A193 Gr.B7/ASTM A194 Gr.2H
2.8	Internals		Stainless Steel
2.9	Name plate (for trap & strainer tag no.)		SS 316 (minimum 2 mm thick)

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TECHNICAL DATA - 2 (INVERTED BUCKET STEAM TRAPS WITH EXTERNAL Y-TYPE STRAINER)		
SL.NO	DESCRIPTION	DETAIL
1.0	DESIGN CODES & STANDARDS	
1.1	Codes and Standards	Supplier's own proven design
1.2	End Connections	BW as per ANSI B16.25
2.0	MATERIAL OF CONSTRUCTION	
2.1	Body	Cast Carbon Steel as per ASTM A216 Gr.WCB
2.2	Cap/cover	Cast Carbon Steel as per ASTM A216 Gr.WCB
2.3	Valve	AISI 420 (furnace hardened to minimum 40 RC). Differential hardness shall be maintained between
2.4	Valve seat	AISI 420 (furnace hardened to minimum 40 RC). Differential hardness shall be maintained between
2.5	Lever	AISI 304
2.6	Bucket, Bucket clip	AISI 304
2.7	Other internals	Stainless steel
2.8	Bolts/Nuts	ASTM A193 Gr.B7/ASTM A194 Gr.2H
2.9	Gasket	Non asbestos type
2.1	Name plate (for trap tag no.)	SS 316 (minimum 2 mm thick)

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TECHNICAL DATA - 3 (BALL FLOAT STEAM TRAPS WITH EXTERNAL Y-TYPE STRAINER)		
SL.NO	DESCRIPTION	DETAIL
1.0	DESIGN CODES & STANDARDS	
1.1	Codes and Standards	Supplier's own proven design
1.2	End Connections	BW as per ANSI B16.25
2.0	CONSTRUCTION FEATURES	
2.1	Body	Cast Carbon Steel as per ASTM A216 Gr.WCB
2.2	Cover	Cast Carbon Steel as per ASTM A216 Gr.WCB
2.3	Valve	AISI 420 (furnace hardened to 50 RC). Differential hardness shall be maintained between seats.
2.4	Valve seat	AISI 420 (furnace hardened to 50 RC). Differential hardness shall be maintained between seats.
2.5	Float	AISI 304
2.6	Other Internals	AISI 304
2.7	Bolts/Nuts	ASTM A193 Gr.B7/ASTM A194 Gr.2H
2.8	Gasket	Non asbestos type
2.9	Name plate (for trap tag no.)	SS 316 (minimum 2 mm thick)

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TECHNICAL DATA - 4 (EXTERNAL Y-TYPE STRAINER)

SL.NO	DESCRIPTION	DETAIL
1.0	DESIGN CODES & STANDARDS	
1.1	Codes and Standards	Supplier's own proven design
1.2	End Connections	BW as per ANSI B16.25
2.0	CONSTRUCTION FEATURES	
2.1	Body and Strainer cap/cover	Cast Carbon Steel as per ASTM A216 Gr.WCB
2.2	Strainer screen	AISI 420 (furnace hardened to 50 RC) Differential hardness shall be maintained between seats. 0.8 mm perforated with 20 mesh screen
2.3	Gasket	AISI 304
2.4	Name plate (for strainer tag no.)	SS 316 (minimum 2 mm thick)



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QUALITY PLAN

	MANUFACTURER/BIDDER/VENDOR NAME & ADDRESS		QUALITY PLAN					SPEC. NO.: PE-TS-508-100-M010		DATE: 19.01.2026	
			CUSTOMER: LATER					QP NO.: PE-QP-508-100-M010A		DATE: 19.01.2026	
			PROJECT: 2x800MW LARA TPS					PO NO.: LATER		DATE:	
			ITEM: STEAM TRAPS (THERMOSTATIC)			SYSTEM: POWER PIPING		SECTION: II		PAGE 1 OF 2	
SL NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY	REMARKS	
1	2	3	4	5	6	7	8	9	10	11	
					M B/C			D	M B C		

1.0 RAW MATERIAL INSPECTION														
1.1	Body, Cap/Cover Thermostatic: Bimetallic Assembly, Valve, Valve Seat, Plug	Mechanical Properties & Chemical Composition	MA	Mech., Chemical Tests	One / Heat	---	Appd. Drg./ Material Std.	Appd. Drg./ Material Std.	MTC	√	V	V	-	Body & Cap/Cover should carry Heat Marks for co-relation with Mill Test Certificates
		Casting Defects	MA	Visual	100%	---	MSS-SP-55	MSS-SP-55	IR	√	P	V	-	
1.2	Screen (Strainer)	Chemical Properties	MA	Chemical Test	One / Sheet	---	Appd. Drg./ Rel. Std.	Appd. Drg./ Rel. Std.	TC	√	P	V	-	
		Mesh Size / Perforation Dia.	MA	Measurement		---	Appd. Drg.	Appd. Drg.	IR	√	P	V	-	

2.0 IN-PROCESS INSPECTION														
2.1	All Components (After Machining)	Dimensions	MA	Measurement	100%	---	Mfg. Drg.	Mfg. Drg.	Log Book	-	P	V	-	
		Surface Defects	MA	Visual	100%	---	-	Free from Defects	Log Book	-	P	V	-	
2.2	Thermostatic: Valve & Valve Seat	Hardness of Disc	CR	Hardness Test	100%	---	Appd. Drg./ Rel. Std.	Appd. Drg./ Rel. Std.	TC	√	P	V	-	
		Surface Defect	CR	LPT	100%	---	ASTM E165	No Defects	NDT Report	√	P	V	-	
		Surface Finish	CR	Blue Matching	100%	---	Uniform Metal to Metal Contact		IR	√	P	V	-	
2.3	End Connection	Surface Defects	CR	LPT	100%	---	ASTM E165	No Defects	NDT Report	√	P	V	-	

3.0 TESTING														
3.1	Cap/Cover	Alignment	MA	Visual	100%	---	Manufacturer's Std.	Proper Fitting	Log Book	-	P	V	-	
3.2	Valve & Valve Seat (Thermostatic only)	Leak Tightness	CR	Pneumatic/ Hydraulic	100%	---	Appd. Drg.	Appd. Drg.	TR	√	P	V	-	
3.3	Complete Assembly	Leak Tightness of Body	CR	Hydraulic	100%	Refer Note '1'	Appd. Drg.	No Leakage	TC/ IBR Cert.	√	P	W#	-	# If IBR is applicable, in addition to witness, IBR certificate to be verified.
		Function of Trap	CR	Performance Test*	100%	Refer Note '1'	Manufacturer's Test procedure	Smooth & Effective Operation	TR	√	P	W	-	*Performance testing in simulated condition as per test procedure

4.0 FINAL INSPECTION														
4.1	Complete Trap	End Connection & Overall Dimensions, Fixing of Nameplate with Tag Nos.	CR	Measurement, Visual	100%	Refer Note '1'	Appd. Drg.	Appd. Drg.	IR	√	P	W	-	

BIDDER/SUPPLIER	
Sign & Date	
Seal	

BHEL					
ENGINEERING			QUALITY		
	Sign & Date	Name		Sign & Date	Name
Checked by:	ARVIND KUMAR	Arvind Kumar	Checked by:	Ashish Panigrahi	Ashish Panigrahi
Reviewed by:	Govind Singh Fartyal	GS Fartyal	Reviewed by:	Harish Kumar	Harish Kumar

FOR CUSTOMER REVIEW & APPROVAL			
Doc No:			
	Sign & Date	Name	Seal
Reviewed by:			
Approved by:			

	MANUFACTURER/BIDDER/VENDOR NAME & ADDRESS		QUALITY PLAN					SPEC. NO.: PE-TS-508-100-M010		DATE: 19.01.2026			
			CUSTOMER: LATER					QP NO.: PE-QP-508-100-M010A		DATE: 19.01.2026			
			PROJECT: 2x800MW LARA TPS					PO NO.: LATER		DATE:			
			ITEM: STEAM TRAPS (THERMOSTATIC)			SYSTEM: POWER PIPING		SECTION: II		PAGE 2 OF 2			
SL NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY	REMARKS	
1	2	3	4	5	6		7	8	9	10		11	
					M	B/C			D	M	B	C	
4.2	Painting	Surface Preparation & Paint Thickness (DFT)	MA	Visual, Measurement	100%	---	Appd. Drg.	Appd. Drg.	IR	√	P	V	-
4.3	Packing	Packing Soundness	MA	Visual	100%	---	Manufacturer's Std. / Appd. Packing Procedure	Manufacturer's Std. / Appd. Packing Procedure	IR	√	P	V	-

NOTES:

- 10% or min. 2 nos. at random, whichever is higher, by BHEL/Customer for each type, size & rating.
- Welding and Impregnation of casting are not permitted.
- The latest revision/year of issue of all the standard indicated in the QP shall be referred.

Legends:

D: Documentation; Records identified with "Tick"(√), shall be essentially included by supplier in QA Documentation	MA: Major Characteristic	P: Perform	HT: Heat Treatment
M: Supplier/ Manufacturer/ Sub-Supplier	CR: Critical Characteristic	W: Witness	LPT: Liquid Penetrant Test
B: Main Supplier/BHEL/ Third Party Inspection agency	TC: Test Certificate	V: Verification	UT: Ultrasonic Test
C: Customer	TR: Test Report	IR: Inspection Report	RT: Radiography Test
TPIA: Third Party Inspection Agency	MTC: Mill Test Certificate	ADS: Actuator Data Sheet	MPI: Magnetic Particle Inspection
DFT: Dry Film Thickness			

BIDDER/SUPPLIER	
Sign & Date	
Seal	

BHEL					
ENGINEERING			QUALITY		
	Sign & Date	Name		Sign & Date	Name
Checked by:	ARVIND KUMAR	Arvind Kumar	Checked by:	Ashish Panigrahi	Ashish Panigrahi
Reviewed by:	Govind Singh Fartyal	GS Fartyal	Reviewed by:		Harish Kumar

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Approved by:			

	MANUFACTURER/BIDDER/VENDOR NAME & ADDRESS		QUALITY PLAN					SPEC. NO.: PE-TS-508-100-M010		DATE: 19.01.2026			
			CUSTOMER: NTPC LTD.					QP NO.: PE-QP-508-100-M010B		DATE: 19.01.2026			
			PROJECT: 2x800MW LARA TPS					PO NO.: LATER		DATE:			
			ITEM: STEAM TRAPS (INVERTED BUCKET) & Y-TYPE STEAM STRAINER			SYSTEM: POWER PIPING		SECTION: II		PAGE 1 OF 2			
SL NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY	REMARKS	
1	2	3	4	5	6		7	8	9	10		11	
					M	B/C			D	M	B	C	

1.0 RAW MATERIAL INSPECTION

1.1	Body, Cap/Cover <u>Applicable for Traps only:</u> Valve, Valve Seat, Bucket, Valve Lever, Bucket Clip & Weight	Mechanical Properties & Chemical Composition	MA	Mech., Chemical Tests	One / Heat	---	Appd. Drg./ Material Std.	Appd. Drg./ Material Std.	MTC	√	V	V	-	Body & Cap/Cover should carry Heat Marks for co-relation with Mill Test Certificates
		Casting Defects	MA	Visual	100%	---	MSS-SP-55	MSS-SP-55	IR	√	P	V	-	
1.2	Screen (Y-Type Strainer)	Chemical Properties	MA	Chemical Test	One / Sheet	---	Appd. Drg./ Rel. Std.	Appd. Drg./ Rel. Std.	TC	√	P	V	-	
		Mesh Size / Perforation Dia.	MA	Measurement		---	Appd. Drg.	Appd. Drg.	IR	√	P	V	-	

2.0 IN-PROCESS INSPECTION

2.1	All Components (After Machining)	Dimensions	MA	Measurement	100%	---	Mfg. Drg.	Mfg. Drg.	Log Book	-	P	V	-	
		Surface Defects	MA	Visual	100%	---	-	Free from Defects	Log Book	-	P	V	-	
2.2	Valve, Valve Seat of Traps	Hardness	CR	Hardness Test	100%	---	Appd. Drg./ Rel. Std.	Appd. Drg./ Rel. Std.	TC	√	P	V	-	
		Surface Defect	CR	LPT	100%	---	ASTM E165	No Defects	NDT Report	√	P	V	-	
		Surface Finish	CR	Blue Matching	100%	---	Uniform Metal to Metal Contact		IR	√	P	V	-	
2.3	End Connection	Surface Defects	CR	LPT	100%	---	ASTM E165	No Defects	NDT Report	√	P	V	-	

3.0 TESTING

3.1	Cap/Cover	Alignment	MA	Visual	100%	---	Manufacturer's Std.	Proper Fitting	Log Book	-	P	V	-	
3.2	Valve, Valve Seat of Traps	Leak Tightness	CR	Pneumatic/ Hydraulic	100%	---	Appd. Drg.	Appd. Drg.	TR	√	P	V	-	
3.2	Complete Assembly	Leak Tightness of Body (Trap, Strainer)	CR	Hydraulic	100%	Refer Note '1'	Appd. Drg.	No Leakage	TC/ IBR Cert.	√	P	W#	-	# If IBR is applicable, in addition to witness, IBR certificate to be verified.
		Function of Trap	CR	Performance Test*	100%	Refer Note '1'	Manufacturer's Test procedure	Smooth & Effective Operation	TR	√	P	W	-	*Performance testing in simulated condition as per test procedure

BIDDER/SUPPLIER	
Sign & Date	
Seal	

BHEL					
ENGINEERING			QUALITY		
	Sign & Date	Name		Sign & Date	Name
Checked by:	ARVIND KUMAR	Arvind Kumar	Checked by:	Ashish Panigrahi	Ashish Panigrahi
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Approved by:			

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			CUSTOMER: NTPC LTD.					QP NO.: PE-QP-508-100-M010B		DATE: 19.01.2026			
			PROJECT: 2x800MW LARA TPS					PO NO.: LATER		DATE:			
			ITEM: STEAM TRAPS (INVERTED BUCKET) & Y-TYPE STEAM STRAINER			SYSTEM: POWER PIPING		SECTION: II		PAGE 2 OF 2			
SL NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY	REMARKS	
1	2	3	4	5	6		7	8	9	10		11	
					M	B/C			D	M	B	C	

4.0 FINAL INSPECTION														
4.1	Complete Trap & Strainer	End Connection & Overall Dimensions, Fixing of Nameplate with Tag Nos.	CR	Measurement, Visual	100%	Refer Note '1'	Appd. Drg.	Appd. Drg.	IR	√	P	W	-	
4.2	Painting	Surface Preparation & Paint Thickness (DFT)	MA	Visual, Measurement	100%	---	Appd. Drg.	Appd. Drg.	IR	√	P	V	-	
4.3	Packing	Packing Soundness	MA	Visual	100%	---	Manufacturer's Std. / Appd. Packing Procedure	Manufacturer's Std. / Appd. Packing Procedure	IR	√	P	V	-	

NOTES:

- 10% or min. 2 nos. at random, whichever is higher, by BHEL/Customer for each type, size & rating.
- Welding and Impregnation of casting are not permitted.
- The latest revision/year of issue of all the standard indicated in the QP shall be referred.

Legends:

D: Documentation; Records identified with "Tick"(√), shall be essentially included by supplier in QA Documentation	MA: Major Characteristic	P: Perform	HT: Heat Treatment
M: Supplier/ Manufacturer/ Sub-Supplier	CR: Critical Characteristic	W: Witness	LPT: Liquid Penetrant Test
B: Main Supplier/BHEL/ Third Party Inspection agency	TC: Test Certificate	V: Verification	UT: Ultrasonic Test
C: Customer	TR: Test Report	IR: Inspection Report	RT: Radiography Test
TPIA: Third Party Inspection Agency	MTC: Mill Test Certificate	ADS: Actuator Data Sheet	MPI: Magnetic Particle Inspection
DFT: Dry Film Thickness			

BIDDER/SUPPLIER	
Sign & Date	
Seal	

BHEL					
ENGINEERING			QUALITY		
	Sign & Date	Name		Sign & Date	Name
Checked by:	ARVIND KUMAR	Arvind Kumar	Checked by:	Ashish Panigrahi	Ashish Panigrahi
Reviewed by:	Govind Singh Fartyal	GS Fartyal	Reviewed by:		Harish Kumar

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Doc No:			
	Sign & Date	Name	Seal
Reviewed by:			
Approved by:			

	MANUFACTURER/BIDDER/VENDOR NAME & ADDRESS		QUALITY PLAN					SPEC. NO.: PE-TS-508-100-M010		DATE: 19.01.2026			
			CUSTOMER: NTPC LTD.					QP NO.: PE-QP-508-100-M010C		DATE: 19.01.2026			
			PROJECT: 2x800MW LARA TPS					PO NO.: LATER		DATE:			
			ITEM: BALL FLOAT STEAM TRAPS WITH THERMOSTATIC AIR VENT & Y-TYPE STEAM STRAINER			SYSTEM: POWER PIPING		SECTION: II		PAGE 1 OF 2			
SL NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY	REMARKS	
1	2	3	4	5	6		7	8	9	10		11	
					M	B/C				D	M	B	C

1.0 RAW MATERIAL INSPECTION

1.1	Body, Cap/Cover	Mechanical Properties & Chemical Composition	MA	Mech., Chemical Tests	One / Heat	---	Appd. Drg./ Material Std.	Appd. Drg./ Material Std.	MTC	√	V	V	-	Body & Cap/Cover should carry Heat Marks for co-relation with Mill Test Certificates
		Heat treatment	MA	Review of HT Chart	100%	---	Appd. Drg./ Rel. Std.	Appd. Drg./ Rel. Std.	TC	√	V	V	-	
		Surface Defects	MA	Visual	100%	---	MSS-SP-55	MSS-SP-55	IR	√	P	V	-	
1.2	Ball float with Lever, valve, Valve seat, Pivot Frame, Support Frame, Pivot Pin, valve seat Gasket	Chemical Properties	MA	Chemical Test	One / Heat	---	Appd. Drg./ Rel. Std.	Appd. Drg./ Rel. Std.	TC	√	P	V	-	
		Surface Defects	MA	Visual	100%	---	MSS-SP-55	MSS-SP-55	IR	√	P	V	-	
1.3	Screen (Y-Type Strainer)	Chemical Properties	MA	Chemical Test	One / Sheet	---	Appd. Drg./ Rel. Std.	Appd. Drg./ Rel. Std.	TC	√	P	V	-	
		Mesh Size / Perforation Dia.	MA	Measurement		---	Appd. Drg.	Appd. Drg.	IR	√	P	V	-	
1.4	Thermostatic air vent	Materials	MA	Review of all TC/MTC	100%	---	Mfg. Drg./ Mfg Spec	Mfg. Drg./ Mfg Spec	IR	√	P	V	-	
1.5	Fasteners	Mechanical Properties & Chemical Composition	MA	Mech., Chemical Tests	One / Type	---	Appd. Drg./ Rel. Std.	Appd. Drg./ Rel. Std.	Appd. Drg.	√	P	V	-	

2.0 IN-PROCESS INSPECTION

2.1	All Components (After Machining)	Dimensions	MA	Measurement	100%	---	Mfg. Drg.	Mfg. Drg.	Log Book	-	P	V	-	
		Surface Defects	MA	Visual	100%	---	-	Free from Defects	Log Book	-	P	V	-	
2.2	Valve, Valve Seat	Surface Defect	CR	LPT	100%	---	ASTM E165	No Defects	NDT Report	√	P	V	-	
		Lapping /Surface Finish	MA	Blue Matching	100%	---	Uniform Metal to Metal Contact		IR	√	P	V	-	

3.0 TESTING

3.1	Cap/Cover	Alignment	MA	Visual	100%	---	Manufacturer's Std.	Proper Fitting	Log Book	-	P	V	-	
3.2	Valve, Valve Seat of Traps	Leak Tightness	CR	Pneumatic/ Hydraulic	100%	---	Appd. Drg.	Appd. Drg.	TR	√	P	V	-	

BIDDER/SUPPLIER	
Sign & Date	
Seal	

BHEL					
ENGINEERING			QUALITY		
	Sign & Date	Name		Sign & Date	Name
Checked by:		Arvind Kumar	Checked by:		Ashish Panigrahi
Reviewed by:		GS Fartyal	Reviewed by:		Harish Kumar

FOR CUSTOMER REVIEW & APPROVAL			
Doc No:			
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Approved by:			

	MANUFACTURER/BIDDER/VENDOR NAME & ADDRESS		QUALITY PLAN					SPEC. NO.: PE-TS-508-100-M010		DATE: 19.01.2026				
			CUSTOMER: NTPC LTD.					QP NO.: PE-QP-508-100-M010C		DATE: 19.01.2026				
			PROJECT: 2x800MW LARA TPS					PO NO.: LATER		DATE:				
			ITEM: BALL FLOAT STEAM TRAPS WITH THERMOSTATIC AIR VENT & Y-TYPE STEAM STRAINER			SYSTEM: POWER PIPING		SECTION: II		PAGE 2 OF 2				
SL NO.	COMPONENT & OPERATIONS	CHARACTERIST-ICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY		REMARKS	
1	2	3	4	5	6		7	8	9	10		11		
					M	B/C				D	M	B	C	
3.2	Complete Assembly	Leak Tightness of Body (Trap, Strainer)	CR	Hydraulic	100%	Refer Note '1'	Appd. Drg.	No Leakage	TC/IBR Cert.	√	P	W#	-	# If IBR is applicable, in addition to witness, IBR certificate to be verified.
		Function of Trap	CR	Performance Test*	100%	Refer Note '1'	Manufacturer's Test procedure	Smooth & Effective Operation	TR	√	P	W	-	*Performance testing in simulated condition as per test procedure
4.0 FINAL INSPECTION														
4.1	Complete Trap & Strainer	End Connection & Overall Dimensions, Fixing of Nameplate with Tag Nos.	CR	Measurement, Visual	100%	Refer Note '1'	Appd. Drg.	Appd. Drg.	IR	√	P	W	-	
4.2	Painting	Surface Preparation, Paint Thickness (DFT) & Paint Shade	MA	Visual, Measurement	100%	---	Appd. Drg.	Appd. Drg.	IR	√	P	V	-	
4.3	Packing	Packing Soundness	MA	Visual	100%	---	Manufacturer's Std. / Appd. Packing Procedure	Manufacturer's Std. / Appd. Packing Procedure	IR	√	P	V	-	

NOTES:

- 10% or min. 2 nos. at random, whichever is higher, by BHEL/Customer for each type, size & rating.
- Welding and Impregnation of casting are not permitted.
- The latest revision/year of issue of all the standard indicated in the QP shall be referred.

Legends:

D: Documentation; Records identified with "Tick"(√), shall be essentially included by supplier in QA Documentation
M: Supplier/ Manufacturer/ Sub-Supplier
B: Main Supplier/BHEL/ Third Party Inspection agency
C: Customer
TPIA: Third Party Inspection Agency
DFT: Dry Film Thickness

MA: Major Characteristic
CR: Critical Characteristic
TC: Test Certificate
TR: Test Report
MTC: Mill Test Certificate

P: Perform
W: Witness
V: Verification
IR: Inspection Report
ADS: Actuator Data Sheet

HT: Heat Treatment
LPT: Liquid Penetrant Test
UT: Ultrasonic Test
RT: Radiography Test
MPI: Magnetic Particle Inspection

BIDDER/SUPPLIER	
Sign & Date	
Seal	

BHEL					
ENGINEERING			QUALITY		
	Sign & Date	Name		Sign & Date	Name
Checked by:	ARVIND KUMAR	Arvind Kumar	Checked by:	Ashish Panigrahi	Ashish Panigrahi
Reviewed by:	Govind Singh Fartyal	GS Fartyal	Reviewed by:	Harish Kumar	Harish Kumar

FOR CUSTOMER REVIEW & APPROVAL			
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Approved by:			



TECHNICAL SPECIFICATION
STEAM TRAPS
2x800 MW LARA TPS

PE-TS-508-100-M010

Issue No: 01

Rev. No. 01

Date : 19.01.2026

PACKING REQUIREMENT

Sl.no	DESCRIPTION
1	Type of Packing:
1.1	The traps & strainers shall be dispatched in total assembled form.
1.2	Body ends shall be suitably sealed to protect them against damage during transit and storage.
1.3	Traps & strainers with butt welding & socket welding ends shall be protected by means of polythene caps/ rubber and protectors to prevent damage of ends & also to avoid foreign material entering the valve while shipment & storage.
1.4	All the traps & strainers shall be packed suitably in wooden box in order to avoid damage during transit and also during storage at site.
3	Cushioning material and moisture absorber:
3.1	Suitable cushioning shall be provided by rubberized coir/ thermocol / expanded soft polyethylene foam.
3.2	Adequate quantity of packed desiccant shall be suitably placed inside the packing box.
4	Packing slip & holder:
4.1	Packing slip kept in polyethylene bag shall be placed inside the wooden box at appropriate place.
4.2	One copy of packing slip wrapped in polyethylene bag covered in galvanized iron tin sheet/ aluminium packing slip holder shall be fixed on the external surface of the packing box.



TECHNICAL SPECIFICATION
STEAM TRAPS
2x800 MW LARA TPS

PE-TS-508-100-M010

Issue No. 01

Rev. No. 01

Date : 19.01.2026

BILL OF QUANTITY



**DATASHEET - A
REQUIREMENT OF STEAM TRAPS
FOR 2x800 MW LARA PROJECT**

SPECIFICATION NO.: -PE-TS-508-100-M010

VOL: IIB

SECTION: II

REV:00 DATE: 19.01.2026

SHEET 1 OF 1

SL. NO.	TYPE	TAG No.	CONNECTING PIPE SIZE (NB)	PIPE THICKNESS (MM)	SERVICE DESCRIPTION	SERVICE	DESIGN PRESSURE (KG/CM2(G))	DESIGN TEMP(deg C)	OPERATING PRESSURE AT INLET OF TRAP (Kg/cm2) (A)	OPERATING PRESSURE AT DISCHARGE OF TRAP (Kg/cm2) (A)	MAX. CONDESATE RATE (KG/HR)	FACTOR OF SAFETY	BODY	MATERIAL BODY INTERNALS	END CONN	IBR REQUIRED	TOTAL QUANTITY (MAIN)	MANDATORY SPARES (COMPLETE TRAPS WITH EXTERNAL Y-TYPE STRAINER) (Nos.)
1	THERMOSTATIC STEAM TRAP-LP	LATER	33.4	4.55	POWER CYCLE	INTERMITTENT	20	399	16	0.22 (VAC)/ATM	10	NOT LESS THAN 2	CS/SS	SS	SW	YES	85	20
2	THERMOSTATIC STEAM TRAP-HP	LATER	33.4	4.55	POWER CYCLE	INTERMITTENT	76.2	387	66.95	0.22 (VAC)	10		CS/SS/ EQUIVALENT OR HIGHER	SS	SW	YES	4	20
3a	INVERTED BUCKET TRAP	LATER	88.9	5.49	DRAIN LINE	CONTINUOUS	3.5 / VAC	105	1.03 (VAC)	0.22 (VAC)	800		CS/SS	SS	BW	NO	2	4
3b	EXTERNAL Y-TYPE STRAINER	LATER	88.9	5.49	DRAIN LINE	CONTINUOUS	3.5 / VAC	105	1.03 (VAC)	0.22 (VAC)	800		CS/SS	SS	BW	NO	2	4
4a	BALL FLOAT STEAM TRAP	LATER	114.3	6.02	SEAL WATER OUTLET FROM BFP	CONTINUOUS	3.5 / VAC	150	2.5	0.1 (VAC)	24000		CS/SS	SS	BW	NO	4	4
4b	EXTERNAL Y-TYPE STRAINER	LATER	114.3	6.02	SEAL WATER OUTLET FROM BFP	CONTINUOUS	3.5 / VAC	150	2.5	0.1 (VAC)	24000		CS/SS	SS	BW	NO	4	4
LEGENDS: CS: CARBON STEEL, SS: STAINLESS STEEL, VAC: VACUUM, ATM: ATMOSPHERIC, SW: SOCKET WELDED, BW: BUTT WELDED																	101	56
NOTES: 1. For item at Sl. no. 2, bidder to furnish MOC of the trap offered. The same as mentioned shall be binding. 2. For items at Sl. nos. 1 & 2, bidder to provide suitable matching pieces to match with connecting pipe size. For items at Sl. nos. 3a & 3b and 4a & 4b, strainer inlet & trap outlet shall be matched with connecting pipe size by bidder. Strainer outlet and trap inlet shall be matched through expander/reducer. Bidder to consider all reducer/expander as required in the strainer in their scope. 3. For evaluation, items at Sl. nos. 3a & 3b shall be considered as single item. However bidder to quote unit price for both the items separately. 4. Similarly for evaluation, items at Sl. nos. 4a & 4b shall be considered as single item. However bidder to quote unit price for both the items separately.																		

	TECHNICAL SPECIFICATION STEAM TRAPS 2x800MW LARA TPS		PE-TS-508-100-M010
			Issue No. 01
			Rev. No. 01
			Date : 19.01.2026
DOCUMENTATION REQUIREMENT			
DRAWINGS & DOCUMENTS TO BE SUBMITTED BY ALL THE BIDDERS ALONG WITH THE BID			
	SI. No.	DOCUMENT TITLE	
	1	PQR CREDENTIALS	
	2	COMPLIANCE CERTIFICATE (DULY SIGNED & STAMPED)	
DRAWINGS & DOCUMENTS TO BE SUBMITTED BY SUCCESSFUL BIDDER AFTER AWARD OF CONTRACT FOR 2x800 MW LARA TPS ALONG WITH SUBMISSION SCHEDULE			
	SI. No.	DOCUMENT TITLE	SUBMISSION SCHEDULE
	1	GA DRAWING	Within 15 days from PO
	2	QUALITY PLAN DULY SIGNED & STAMPED	Within 15 days from PO
BHEL/Customer comments/approval and SUPPLIER Re-submission schedule after 2x800MW LARA TPS purchase order placement			
	Supplier Submission of project specific GA drawing, Quality plan		Within 7 days from project specfic PO
	BHEL/Customer comments/approval		Within 18 days of SUPPLIER submission.
	SUPPLIER Re-submission		Within 5 days of BHEL / Customer comments.
DRAWINGS & DOCUMENTS TO BE SUBMITTED AS FINAL/AS-BUILT DOCUMENT AGAINST 2x800 MW LARA TPS PURCHASE ORDER			
	SI. No.	DOCUMENT TITLE	
	1	APPROVED DOCUMENTS	
	2	O&M MANUAL	



TECHNICAL SPECIFICATION
STEAM TRAPS
2x800 MW LARA TPS

PE-TS-508-100-M010

Issue No. 01

Rev. No. 01

Date : 19.01.2026

COMPLIANCE CERTIFICATE

1	It is hereby confirmed that the technical specification (sheet 1 to) has been read and understood. We confirm compliance to the tender specification including any prebid clarification and amendments issued prior to techno-commercial bid opening without any deviation.
2	It is hereby declared that any technical submittals which was not specifically asked by BHEL in NIT shall not to be considered as part of bid and shall not be evaluated by BHEL.

Signature of authorised Representative

Name and Designation :

Name & Address of the Bidder

Date



TECHNICAL SPECIFICATION
STEAM TRAPS
2x800 MW LARA TPS

PE-TS-508-100-M010

Issue No. 01

Rev. No. 01

Date : 19.01.2026

PRE QUALIFICATION REQUIREMENT (TECHNICAL)



PRE - QUALIFYING REQUIREMENTS

DOCUMENT No: PE-TS-999-000-M056

REVISION No:01 DATE: 19.01.2026

SHEET: 1 of 3

Project: 2x800MW LARA / 2x800 MW SINGRAULI / 1x800MW SIPAT / 2x660 MW TALCHER

Package: Steam Traps

CRITERIA FOR EVALUATION (TECHNICAL):

1. Technical Pre-Qualifying Requirements:

1.1 The bidder should have designed, in-house manufactured, tested, inspected and supplied traps (as mentioned below) for use in a power plant or for similar application.

- CS/SS/AS thermostatic steam traps of min. 15NB size;
- CS/SS/AS Inverted bucket / Ball float steam traps of min. 20NB size.

1.2 The item(s) mentioned in point 1.1 should have performed successfully for atleast one year. To establish meeting this requirement, the bidder shall conform to any one of the following clauses through supporting documents:

- (i) One (1) Performance certificate along with correlated purchase order from End-user having the item(s) performing successfully for atleast one (1) year from date of commissioning. The one-year period should have been completed prior to the date of bid submission as defined by BHEL-PEM in NIT.

Documents Required:

Performance certificate from End-user (duly signed & dated) specifying that the product is performing successfully for one (1) year from date of commissioning (also to be mentioned in certificate) along with correlated purchase order.

Or

- (ii) One (1) repeat contract from a purchaser (i.e. 2 Nos of Purchase orders from one purchaser). A contract shall be considered as repeat, when the second contract is given by the same purchaser after lapse of minimum one (1) year from date of placement of first contract. The contracts should have been placed prior to the date of bid submission as defined by BHEL-PEM in NIT.

Documents Required:

Purchase order(s) and supply details like Material dispatch clearance certificate (MDCC)/ Material receipt certificate (MRC)/Lorry receipt (LR)/ Invoice of first Purchase order.

Standard document No.:PE-TS-999-000-M061

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PRE - QUALIFYING REQUIREMENTS

DOCUMENT No: PE-TS-999-000-M056

REVISION No:01 DATE: 19.01.2026

SHEET: 2 of 3

Note:

All the documents as mentioned at CLAUSE 1.2(i) & (ii) shall be within 15 years from date of bid submission as defined by BHEL-PEM in NIT.

1.3 In addition to above, bidder should have the following facilities for all type/size/material of traps & strainers meeting BHEL requirement as mentioned in Data sheet-A of technical specification:

a) Capability of designing and manufacturing of the item(s).

Documents required:

Purchase order (s) / Certificate / Undertaking indicating capacity and details of manufacturing facilities

b) In-house testing facilities for carrying out tests as per relevant standards & Quality plan. In case, the in-house testing facilities are not available, then bidder shall furnish undertaking that test(s) will be carried out from govt. approved lab or test house recognized by reputed customers.

Documents required:

Details of testing facilities.

1.4 To establish business continuity, bidder is required to submit at least One (1) Purchase orders for any type of traps (thermodynamic/thermostatic/inverted bucket/ball float) in last 3 (three) years prior to the date of bid submission defined by BHEL-PEM.

2. Bidder to also comply with general points mentioned below.

2.1 Offers of the JV companies/ Joint Bidders/ bidders having collaboration/ licensing agreement/ MOU/ Indian subsidiaries shall be evaluated as follows:

- If bidder happens to be an Indian subsidiary of foreign OEM, then the credentials of the foreign OEM can also be considered for meeting PQR.
- If bidder happens to be the Joint Venture Company, then the credentials of any of JV partners can be also considered for meeting PQR.
- If bidder happens to be the having valid collaboration agreement/ MOU/ licensing agreement with some other company, then the credentials of collaborator/ MOU partner/ licensing company can also be considered for meeting PQR.

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PRE - QUALIFYING REQUIREMENTS

DOCUMENT No: PE-TS-999-000-M056

REVISION No:01 DATE: 19.01.2026

SHEET: 3 of 3

Note: If bidder(s) qualifies on the basis of credentials of his principal/ JV partner/ Collaborator/ joint bidder etc., then the principal/ JV partner/ Collaborator/ MOU partner/ joint bidder shall be responsible for overall design vetting and warranty/ guarantee of the package. The scope matrix clearly defining their respective roles including design vetting, manufacturing of critical component, E&C etc. and warranty/ guarantee shall be submitted along with the offer.

2.2 Bidder to note that the arrangement of bidding (joint bid partners/ collaborator/ MOU partner/ licensing company etc.) once offered to BHEL as a part of bidding documents cannot be changed till the execution of contract(s).

2.3 Consideration of offer shall be subject to customer's approval of bidders, if applicable.

2.4 Bidder to submit all supporting documents in English. If documents submitted by bidder are in language other than English, a self-attested English translated document should also be submitted.

2.5 After satisfactory fulfilment of all the above criteria/ requirement, offer shall be considered for further evaluation as per NIT and all the other terms of the tender.

2.6 Bidder to ensure that Third Party/customer issued certificates being submitted as proof of PQR qualification should have verifiable details of document/ certificate issuing authority such as name & designation of issuing authority and its organization contact number and email-id etc. In case the same found not available, purchaser has right to reject such document from evaluation.

2.7 Attached annexure (**Annexure-1: SUB-VENDOR QUESTIONNAIRE**) to be filled by the bidders (i.e. Sub-vendors of Main Contactor) on quality & general terms. Requisite Documents (like factory registration certificate, R&D set-up details etc.) asked in the Annexure-1, shall also be attached as Annexure-F2.1 to Annexure F2.17 along with the filled response in the Annexure-1.

2.8 Notwithstanding anything stated above, BHEL reserves the right to assess the capabilities and capacity of the bidder/collaborators to perform the contract, should the circumstances warrant such assessment in the overall interest of BHEL.

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ANNEXURE-1
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



ANNEXURE-1
SUB-VENDOR QUESTIONNAIRE

12.	Manufacturing facilities <i>(List of machines, special process facilities, material handling etc.)</i>	<i>Details attached at Annexure – F2.8</i>			
13.	Testing facilities <i>(List of testing equipment)</i>	<i>Details attached at Annexure – F2.9</i>			
14.	If manufacturing process involves fabrication then-	<i>Applicable / Not applicable</i>			
	List of qualified Welders	<i>Details attached at Annexure – F2.10</i>			
	List of qualified NDT personnel with area of specialization	<i>(if applicable)</i>			
15.	List of out-sourced manufacturing processes with Sub-Vendors' names & addresses	<i>Applicable / Not applicable</i> <i>Details attached at Annexure. –F2.11</i> <i>(if applicable)</i>			
16.	Supply reference list including recent supplies	<i>Details attached at Annexure – F2.12</i> <i>(as per format given below)</i>			
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	<i>Attached at annexure - F2.13</i>
	<i>letter/certificates/End User Feedback</i>				
18.	Summary of Type Test Report (Type Test Details, Report No, Agency, Date of testing) for the proposed product <i>(similar or higher rating)</i> Note:- Reports need not to be submitted		<i>Applicable / Not applicable</i> <i>Details attached at Annexure – F2.14</i> <i>(if applicable)</i>		
19.	Statutory / mandatory certification for the proposed product		<i>Applicable / Not applicable</i> <i>Details attached at Annexure – F2.15</i> <i>(if applicable)</i>		
20.	Copy of ISO 9001 certificate <i>(if available)</i>		<i>Attached at Annexure – F2.16</i>		
21.	Product technical catalogues for proposed item (if available)		<i>Details attached at Annexure – F2.17</i>		
Name:					
Desig:					
Sign:					
Date:					

Company's Seal/Stamp:-



TECHNICAL SPECIFICATION
STEAM TRAPS
2x800 MW LARA TPS

PE-TS-508-100-M010

Issue No. 01

Rev. No. 01

Date : 19.01.2026

GeM REPORT

Project: 2X660MW TALCHER STPP STAGE-III

Package: STEAM TRAPS

- Pre - Qualifying Requirements
- GeM Availability Report and Past Transaction Summary
- Technical Specification STEAM TRAPS
However, Project Information (sheet 03) is separately attached.

IS SAME AS

Project: 2x800MW LARA SUPER THERMAL POWER PROJECT STAGE-II

Package: STEAM TRAPS

- Pre - Qualifying Requirements
Document No: PE-TS-999-000-M056
- Gem Availability Report and Past Transaction Summary
Document No: GEM/GARPTS/23012026/M3FDQQRJ9CHH
- Technical Specification STEAM TRAPS
Document No: PE-TS-508-100-M010

	TECHNICAL SPECIFICATION STEAM TRAPS 2X660MW TALCHER STPP STAGE-III	PE-TS-497-100-M010
		Issue No: 01
		Rev. No. 00
		Date : 27.01.2026

PROJECT INFORMATION

SL.NO	DESCRIPTION	DETAILS
1	CUSTOMER	NTPC LTD.
2	CUSTOMER CONSULTANT	NTPC LTD.
3	LOCATION	ODISHA
3.1	COORDINATES	20°55' N,85°25' E
3.2	NEAREST RAILWAY STATION	TALCHER
3.3	NEAREST SEA PORT	NA
3.4	NEAREST AIRPORT	BHUBANESWAR
3.5	NEAREST NATIONAL HIGHWAY	NH-23
4	METEOROLOGICAL DATA	
4.1	MAXIMUM TEMPERATURE	47.2 Deg C
4.2	MINIMUM TEMPERATURE	3.5 Deg C
4.3	RELATIVE HUMIDITY (FOR DESIGN)	83%
4.4	AVERAGE ANNUAL RAINFALL	1300.1 mm
4.5	SEISMIC ZONE (AS PER IS 1893)	3
4.6	HEIGHT ABOVE MSL	RL 71.0 M
5	ELECTRICAL DATA	
5.1	AMBIENT TEMPERATURE FOR DESIGN OF ELECTRICAL EQUIPMENT	50 deg C
5.2	RATED FREQUENCY	50 Hz
5.3	FREQUENCY VARIATION	(+3% to -)5%
5.4	AC VOLTAGE	415V, 3 Phase
5.5	AC VOLTAGE VARIATION	+/-10%
5.6	DC VOLTAGE	220V
5.7	DC VOLTAGE VARIATION	(+)10% to (-)15%
5.8	FAULT LEVEL (KA/SEC)	50 at rated voltage



**DATASHEET - A
REQUIREMENT OF STEAM TRAPS
FOR 2X660MW TALCHER STPP STAGE-III**

SPECIFICATION NO.: -
VOL: IIB
SECTION: II
REV:00 DATE: 27.01.2026
SHEET 1 OF 1

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
SL. NO.	TYPE	CONNECTING PIPE SIZE (NB)	PIPE THICKNESS (MM)	SERVICE DESCRIPTION	SERVICE	DESIGN PRESURE (KG/CM2(G))	DESIGN TEMP(deg C)	OPERATING PRESSURE AT INLET OF TRAP (Kg/cm2) (A)	OPERATING PRESSURE AT DISCHARGE OF TRAP (Kg/cm2) (A)	MAX. CONDENSATE RATE (KG/HR)	FACTOR OF SAFETY	BODY	MATERIAL BODY INTERNALS	END CONN	IBR REQUIRED	TOTAL QUANTITY (MAIN)	MANDATORY SPARES (COMPLETE TRAPS WITH EXTERNAL Y-TYPE STRAINER) (Nos.)
1	THERMOSTATIC STEAM TRAP-LP	33.4	4.55	POWER CYCLE	INTERMITTENT	20	399	16	0.1 (VAC)/ATM	10	NOT LESS THAN 2	CS/SS	SS	SW	YES	30	20
2	THERMOSTATIC STEAM TRAP-HP	33.4	4.55	POWER CYCLE	INTERMITTENT	76.7	392	39.76	0.1 (VAC)	10		CS/SS/ EQUIVALENT OR HIGHER	SS	SW	YES	4	20
3a	INVERTED BUCKET TRAP	88.9	5.49	DRAIN LINE	CONTINUOUS	3.5 / VAC	115	1.03 (VAC)	0.1 (VAC)	800		CS/SS	SS	BW	NO	2	4
3b	EXTERNAL Y-TYPE STRAINER	88.9	5.49	DRAIN LINE	CONTINUOUS	3.5 / VAC	115	1.03 (VAC)	0.1 (VAC)	800		CS/SS	SS	BW	NO	2	4
																38	48

NOTES:

- For item at Sl. no. 2, bidder to furnish MOC of the trap offered in the Remarks Column. The same as mentioned shall be binding.
- For items at Sl. nos. 1 & 2, bidder to provide suitable matching pieces to match with connecting pipe size.
- For items at Sl. nos. 3a & 3b, strainer inlet & trap outlet shall be matched with connecting pipe size by bidder. Strainer outlet and trap inlet shall be matched through expander/reducer. Bidder to consider all reducer/expander as required in the strainer in their scope.
- For evaluation, items at Sl. nos. 3a & 3b shall be considered as single item. However bidder to quote unit price for both the items separately.

Project: 2x800MW SINGRAULI SUPER THERMAL POWER PROJECT STAGE-III

Package: STEAM TRAPS

- Pre - Qualifying Requirements
- GeM Availability Report and Past Transaction Summary
- Technical Specification STEAM TRAPS
However, Project Information (sheet 03) is separately attached.

IS SAME AS

Project: 2x800MW LARA SUPER THERMAL POWER PROJECT STAGE-II

Package: STEAM TRAPS

- Pre - Qualifying Requirements
Document No: PE-TS-999-000-M056
- Gem Availability Report and Past Transaction Summary
Document No: GEM/GARPTS/23012026/M3FDQQRJ9CHH
- Technical Specification STEAM TRAPS
Document No: PE-TS-508-100-M010

	TECHNICAL SPECIFICATION BUTTERFLY VALVES (STEAM SERVICE) 2x800MW SINGRAULI SUPER THERMAL POWER PROJECT STAGE-III	PE-TS-512-100-M021
		Issue No: 01
		Rev. No. 00
		Date : 04.02.26

PROJECT INFORMATION

SL.NO	DESCRIPTION	DETAILS
1	CUSTOMER	NTPC LTD.
2	CUSTOMER'S CONSULTANT	-
3	LOCATION	
3.1	COORDINATES	
3.2	NEAREST RAILWAY STATION	Shaktinagar
3.3	NEAREST SEA PORT	Not Available
3.4	NEAREST AIRPORT	Varanasi
3.5	NEAREST NATIONAL HIGHWAY	NH-39
4	METEOROLOGICAL DATA	
4.1	MAXIMUM TEMPERATURE	45.0 deg C
4.2	MINIMUM TEMPERATURE	4.3 deg C
4.3	MAXIMUM RELATIVE HUMIDITY	83%
4.4	MINIMUM RELATIVE HUMIDITY	21%
4.5	AVERAGE ANNUAL RAINFALL	1199.5mm
4.6	SEISMIC ZONE (AS PER IS 1893)	Zone III
4.7	HEIGHT ABOVE MSL	272m
4.8	BASIC WIND SPEED (AS PER IS 875)	39m/sec
5	ELECTRICAL DATA	
5.1	AMBIENT TEMPERATURE FOR DESIGN OF ELECTRICAL EQUIPMENT	Refer Actuator data sheet and wiring diagram of technical specification
5.2	RATED FREQUENCY	
5.3	FREQUENCY VARIATION	
5.4	AC VOLTAGE	
5.5	AC VOLTAGE VARIATION	
5.6	DC VOLTAGE	
5.7	DC VOLTAGE VARIATION	
5.8	FAULT LEVEL (KA/SEC)	



**DATASHEET - A
REQUIREMENT OF STEAM TRAPS
FOR 2x800 MW SINGRAULI PROJECT**

SPECIFICATION NO.: -PE-TS-512-100-M010

VOL: IIB

SECTION: II

REV:00 DATE: 04.02.2026

SHEET 1 OF 1

SL. NO.	TYPE	TAG No.	CONNECTING PIPE SIZE (NB)	PIPE THICKNESS (MM)	SERVICE DESCRIPTION	SERVICE	DESIGN PRESURE (KG/CM ² (G))	DESIGN TEMP(deg C)	OPERATING PRESSURE AT INLET OF TRAP (Kg/cm ² (A))	OPERATING PRESSURE AT DISCHARGE OF TRAP (Kg/cm ² (A))	MAX. CONDESATE RATE (KG/HR)	FACTOR OF SAFETY	BODY	MATERIAL BODY INTERNALS	END CONN	IBR REQUIRED	TOTAL QUANTITY (MAIN)	MANDATORY SPARES (COMPLETE TRAPS WITH EXTERNAL Y-TYPE STRAINER) (Nos.)
1	THERMOSTATIC STEAM TRAP-LP	LATER	33.4	4.55	POWER CYCLE	INTERMITTENT	20	399	16	0.22 (VAC)/ATM	10	NOT LESS THAN 2	CS/SS	SS	SW	YES	85	20
2	THERMOSTATIC STEAM TRAP-HP	LATER	33.4	4.55	POWER CYCLE	INTERMITTENT	76.2	387	66.95	0.22 (VAC)	10		CS/SS/ EQUIVALENT OR HIGHER	SS	SW	YES	4	20
3a	INVERTED BUCKET TRAP	LATER	88.9	5.49	DRAIN LINE	CONTINUOUS	3.5 / VAC	105	1.03 (VAC)	0.22 (VAC)	800		CS/SS	SS	BW	NO	2	4
3b	EXTERNAL Y-TYPE STRAINER	LATER	88.9	5.49	DRAIN LINE	CONTINUOUS	3.5 / VAC	105	1.03 (VAC)	0.22 (VAC)	800		CS/SS	SS	BW	NO	2	4
4a	BALL FLOAT STEAM TRAP	LATER	114.3	6.02	SEAL WATER OUTLET FROM BFP	CONTINUOUS	3.5 / VAC	150	2.5	0.1 (VAC)	24000		CS/SS	SS	BW	NO	4	4
4b	EXTERNAL Y-TYPE STRAINER	LATER	114.3	6.02	SEAL WATER OUTLET FROM BFP	CONTINUOUS	3.5 / VAC	150	2.5	0.1 (VAC)	24000		CS/SS	SS	BW	NO	4	4
LEGENDS: CS: CARBON STEEL, SS: STAINLESS STEEL, VAC: VACUUM, ATM: ATMOSPHERIC, SW: SOCKET WELDED, BW: BUTT WELDED																	101	56
NOTES: 1. For item at Sl. no. 2, bidder to furnish MOC of the trap offered. The same as mentioned shall be binding. 2. For items at Sl. nos. 1 & 2, bidder to provide suitable matching pieces to match with connecting pipe size. For items at Sl. nos. 3a & 3b and 4a & 4b, strainer inlet & trap outlet shall be matched with connecting pipe size by bidder. Strainer outlet and trap inlet shall be matched through expander/reducer. Bidder to consider all reducer/expander as required in the strainer in their scope. 3. For evaluation, items at Sl. nos. 3a & 3b shall be considered as single item. However bidder to quote unit price for both the items separately. 4. Similarly for evaluation, items at Sl. nos. 4a & 4b shall be considered as single item. However bidder to quote unit price for both the items separately.																		

1 X 800 MW SIPAT STPP STAGE III
Technical Specification of Steam Traps
Specification No. PE-TS-520-100-M010

Project: 1 X 800 MW SIPAT STPP STAGE III

Package: Steam Traps

- Pre - Qualifying Requirements
 - GeM Availability Report and Past Transaction Summary
 - Technical Specification STEAM TRAPS
- However, Project Information (Sl. No. 1) and Bill of Quantity (Sl. No. 8) is separately attached.

IS SAME AS

Project: 2x800MW LARA SUPER THERMAL POWER PROJECT STAGE-II

Package: STEAM TRAPS

- Pre - Qualifying Requirements
Document No: PE-TS-999-000-M056
- Gem Availability Report and Past Transaction Summary
Document No: GEM/GARPTS/23012026/M3FDQQRJ9CHH
- Technical Specification STEAM TRAPS
Document No: PE-TS-508-100-M010

	TECHNICAL SPECIFICATION STEAM TRAP SIPAT SUPER THERMAL POWER PROJECT STAGE-III (1X800 MW) EPC PACKAGE	PE-TS-520-100-M010
		Issue No: 01
		Rev. No. 00
		Date :02.02.2026

PROJECT INFORMATION

SL.NO	DESCRIPTION	DETAILS
1	CUSTOMER	NTPC LTD.
2	CUSTOMER'S CONSULTANT	-
3	LOCATION	
3.1	COORDINATES	
3.2	NEAREST RAILWAY STATION	Jairamnagar
3.3	NEAREST SEA PORT	Not Available
3.4	NEAREST AIRPORT	Raipur
3.5	NEAREST NATIONAL HIGHWAY	Bilaspur - Baloda State Highway
4	METEOROLOGICAL DATA	
4.1	MAXIMUM TEMPERATURE	48.0 deg C
4.2	MINIMUM TEMPERATURE	6.2 deg C
4.3	RELATIVE HUMIDITY (FOR DESIGN)	88%
4.4	AVERAGE ANNUAL RAINFALL	1354.1mm
4.5	SEISMIC ZONE (AS PER IS 1893)	Zone II
4.6	HEIGHT ABOVE MSL	245m
5	ELECTRICAL DATA	
5.1	AMBIENT TEMPERATURE FOR DESIGN OF ELECTRICAL EQUIPMENT	Refer Actuator data sheet and wiring diagram of technical specification
5.2	RATED FREQUENCY	
5.3	FREQUENCY VARIATION	
5.4	AC VOLTAGE	
5.5	AC VOLTAGE VARIATION	
5.6	DC VOLTAGE	
5.7	DC VOLTAGE VARIATION	
5.8	FAULT LEVEL (KA/SEC)	

 BILL OF QUANTITY (BOQ) REQUIREMENT OF STEAM TRAPS FOR 1 X 800 MW SIPAT STPP STAGE III PROJECT												PE-TS-520-100-M010					
												REV:00					
												DATE: 02.02.2026					
Sl. No.	TYPE	TAG No.	CONNECTING PIPE SIZE (NB)	PIPE THICKNESS (MM)	SERVICE DESCRIPTION	SERVICE	DESIGN PRESSURE (KG/CM2(G))	DESIGN TEMP(deg C)	OPERATING PRESSURE AT INLET OF TRAP (Kg/cm2) (A)	OPERATING PRESSURE AT DISCHARGE OF TRAP (Kg/cm2) (A)	MAX. CONDESATE RATE (KG/HR)	FACTOR OF SAFETY	BODY	MATERIAL BODY INTERNALS	END CONN	IBR REQUIRED	TOTAL QUANTITY (MAIN)
1	THERMOSTATIC STEAM TRAP-LP	LATER	33.4	4.55	POWER CYCLE	INTERMITTENT	20	399	16	0.22 (VAC)/ATM	10	NOT LESS THAN 2	CS/SS	SS	SW	YES	70
2	THERMOSTATIC STEAM TRAP-HP	LATER	33.4	4.55	POWER CYCLE	INTERMITTENT	76.2	387	66.95	0.22 (VAC)	10		CS/SS/ EQUIVALENT OR HIGHER	SS	SW	YES	2
3a	INVERTED BUCKET TRAP	LATER	88.9	5.49	DRAIN LINE	CONTINUOUS	3.5 / VAC	105	1.03 (VAC)	0.22 (VAC)	800		CS/SS	SS	BW	NO	1
3b	EXTERNAL Y-TYPE STRAINER	LATER	88.9	5.49	DRAIN LINE	CONTINUOUS	3.5 / VAC	105	1.03 (VAC)	0.22 (VAC)	800		CS/SS	SS	BW	NO	1
4a	BALL FLOAT STEAM TRAP	LATER	114.3	6.02	SEAL WATER OUTLET FROM BFP	CONTINUOUS	3.5 / VAC	150	2.5	0.1 (VAC)	24000		CS/SS	SS	BW	NO	2
4b	EXTERNAL Y-TYPE STRAINER	LATER	114.3	6.02	SEAL WATER OUTLET FROM BFP	CONTINUOUS	3.5 / VAC	150	2.5	0.1 (VAC)	24000		CS/SS	SS	BW	NO	2
LEGENDS: CS: CARBON STEEL, SS: STAINLESS STEEL, VAC: VACUUM, ATM: ATMOSPHERIC, SW: SOCKET WELDED, BW: BUTT WELDED, N/A: NOT APPLICABLE																	78
NOTES: 1. For item at Sl. no. 2, bidder to furnish MOC of the trap offered. The same as mentioned shall be binding. 2. For items at Sl. nos. 1 & 2, bidder to provide suitable matching pieces to match with connecting pipe size. For items at Sl. nos. 3a & 3b and 4a & 4b, strainer inlet & trap outlet shall be matched with connecting pipe size by bidder. Strainer outlet and trap inlet shall be matched through expander/reducer. Bidder to consider all reducer/expander as required in the strainer in their scope. 3. For evaluation, items at Sl. nos. 3a & 3b shall be considered as single item. However bidder to quote unit price for both the items separately. 4. Similarly for evaluation, items at Sl. nos. 4a & 4b shall be considered as single item. However bidder to quote unit price for both the items separately.																	

PROJECT: 2x800 MW LARA PROJECT, 2x800 MW SINGRAULI PROJECT, 1x800 MW SIPAT SUPER THERMAL POWER PROJECT STAGE-III, 2X660MW TALCHER STPP STAGE-III

PACKAGE: STEAM TRAPS

BOQ cum PRICE SCHEDULE

Sl. No.	Item Description	Type of Scope	UOM	LARA		SINGRAULI		TALCHER		SIPAT		Total for all 04 (Four) Projects	Unit Ex-Works (Rs.)	Total Ex-Works (Rs.)	Freight in %	Freight amount in (Rs.)	Total Ex-Works (including Freight) (Rs.)	GST type (CGST/S GST/IGST /UTGST)	GST rate in %	GST amount in (Rs.)	Total F.O.R Price Including Freight & GST (Rs.)
				MAIN	MANDATORY SPARES	MAIN	MANDATORY SPARES	MAIN	MANDATORY SPARES	MAIN	MANDATORY SPARES										
1	THERMOSTATIC STEAM TRAP - LP (WITH INTEGRAL STRAINER)	Main Supply + Mandatory Spares	NOS	85	20	85	20	30	20	70	0	330									
2	THERMOSTATIC STEAM TRAP-HP (WITH INTEGRAL STRAINER)	Main Supply + Mandatory Spares	NOS	4	20	4	20	4	20	2	0	74									
3	INVERTED BUCKET TRAP (WITHOUT STRAINER)	Main Supply + Mandatory Spares	NOS	2	4	2	4	2	4	1	0	19									
4	EXTERNAL Y-TYPE STRAINER (TO INVERTED BUCKET TRAP)	Main Supply + Mandatory Spares	NOS	2	4	2	4	2	4	1	0	19									
5	BALL FLOAT STEAM TRAP ((WITHOUT STRAINER)	Main Supply + Mandatory Spares	NOS	4	4	4	4	0	0	2	0	18									
6	EXTERNAL Y-TYPE STRAINER (TO BALL FLOAT STEAM TRAP)	Main Supply + Mandatory Spares	NOS	4	4	4	4	0	0	2	0	18									

Note: Also refer Technical Specification for details and BOQ notes