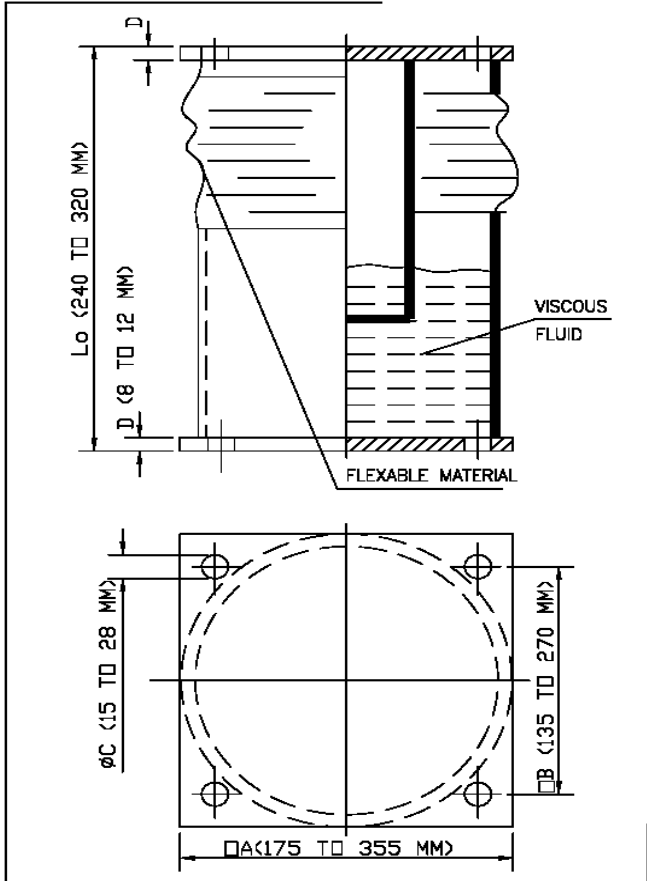


PRE-QUALIFICATION REQUIREMENTS

Following are the pre-qualification requirements (PQR) for the vendors who are not registered with BHEL-Haridwar for supply of Dampers. Offer of registered vendors (i.e. registered for supply of Dampers) shall be processed according to their registration status with BHEL at the time of opening of price-bid.

Sl No	Pre-Qualification Requirements	Vendors Confirmation Indicating page no. where documents are placed
	<p>This requirement is for Damper, which is used to take care of the Sudden Dynamic Load / Shock Load which comes on the pipe lines. It also intended dampening resistance to the vibrations of pipe lines. The Damper will have following properties:</p> <ol style="list-style-type: none"> It reacts to pipeline vibrations immediately without delay / time lag and in all degrees of freedom. It will able to follow pipeline movement ± 40 mm in vertical & horizontal direction. It will be effective for operational vibration as well as shock load. It shall be of simple structure and easy to handle and install. It contains no wear & tear parts. It should be maintenance free and very long life period (≥ 5 years). 	
1.	<p>We are providing the figure of the Damper for better understanding:</p>  <p>Rest of the materials are CS.</p>	

	<p>Vendor should have supplied Dampers of above size to major power equipment manufacturer and installed in running projects. Supplied Dampers had been used for dampening vibrations & dynamic loads of pipelines. Vendor should have successfully executed at least three such contracts not before 2010.</p>																																														
2.	<p>Vendor to furnish experience list as per above requirements in Table-1.</p> <p style="text-align: center;">TABLE-1</p> <table border="1" data-bbox="170 296 1360 800"> <thead> <tr> <th data-bbox="170 296 310 506"></th> <th data-bbox="310 296 430 506">End customer name</th> <th data-bbox="430 296 597 506">Major power equipment manufacturers' name</th> <th data-bbox="597 296 716 506">Size of Dampers used</th> <th data-bbox="716 296 873 506">Operating load range & temperature of pipe lines</th> <th data-bbox="873 296 1015 506">Material of construction of Damper</th> <th data-bbox="1015 296 1133 506">Year of execution not before 2010</th> <th data-bbox="1133 296 1230 506">At least 3 nos. of P.O. copies (not before 2010)</th> <th data-bbox="1230 296 1360 506">Contact details, telephone no. & email id of end user</th> </tr> </thead> <tbody> <tr> <td data-bbox="170 506 310 611">Minimum acceptance criteria</td> <td data-bbox="310 506 430 611">--</td> <td data-bbox="430 506 597 611">--</td> <td data-bbox="597 506 716 611">--</td> <td data-bbox="716 506 873 611">Load 0.0 to 20.0 KN & Temp. 10°C to 80°C</td> <td data-bbox="873 506 1015 611">As mentioned in the Figure provided.</td> <td data-bbox="1015 506 1133 611">--</td> <td data-bbox="1133 506 1230 611">--</td> <td data-bbox="1230 506 1360 611">--</td> </tr> <tr> <td data-bbox="170 611 310 674"></td> <td data-bbox="310 611 430 674"></td> <td data-bbox="430 611 597 674"></td> <td data-bbox="597 611 716 674"></td> <td data-bbox="716 611 873 674"></td> <td data-bbox="873 611 1015 674"></td> <td data-bbox="1015 611 1133 674"></td> <td data-bbox="1133 611 1230 674"></td> <td data-bbox="1230 611 1360 674"></td> </tr> <tr> <td data-bbox="170 674 310 737"></td> <td data-bbox="310 674 430 737"></td> <td data-bbox="430 674 597 737"></td> <td data-bbox="597 674 716 737"></td> <td data-bbox="716 674 873 737"></td> <td data-bbox="873 674 1015 737"></td> <td data-bbox="1015 674 1133 737"></td> <td data-bbox="1133 674 1230 737"></td> <td data-bbox="1230 674 1360 737"></td> </tr> <tr> <td data-bbox="170 737 310 800"></td> <td data-bbox="310 737 430 800"></td> <td data-bbox="430 737 597 800"></td> <td data-bbox="597 737 716 800"></td> <td data-bbox="716 737 873 800"></td> <td data-bbox="873 737 1015 800"></td> <td data-bbox="1015 737 1133 800"></td> <td data-bbox="1133 737 1230 800"></td> <td data-bbox="1230 737 1360 800"></td> </tr> </tbody> </table>		End customer name	Major power equipment manufacturers' name	Size of Dampers used	Operating load range & temperature of pipe lines	Material of construction of Damper	Year of execution not before 2010	At least 3 nos. of P.O. copies (not before 2010)	Contact details, telephone no. & email id of end user	Minimum acceptance criteria	--	--	--	Load 0.0 to 20.0 KN & Temp. 10°C to 80°C	As mentioned in the Figure provided.	--	--	--																												
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3.	<p>Against vendor's reply, BHEL reserves the right to ask for more information / documents / clarifications. Vendor's offer shall not be considered, if vendor fails to furnish the document / information / clarifications as mentioned above or vendor doesn't meet the acceptance criteria as mentioned in Sl. No. 1 & 2.</p>																																														
4.	<p>Quality requirement for Indigenous suppliers:</p> <ol style="list-style-type: none"> Vendor to submit quality plan in enclosed QP format. Inspection will be done by BHEL nominated inspection agency M/s QUEST as per BHEL approved quality plan. <p>3. For Ennore project:</p> <ol style="list-style-type: none"> For this item, quality plan approval from customer is required. Inspection will be done by BHEL nominated inspection agency M/s QUEST as per customer approved quality plan. 																																														
5.	<p>Quality requirement for foreign suppliers:</p> <ol style="list-style-type: none"> Vendor to submit quality plan in enclosed QP format. Inspection will be done by third party inspection agency LRS/TUV/BV as per BHEL approved quality plan. <p>3. For Ennore project:</p> <ol style="list-style-type: none"> For this item, quality plan approval from customer is required. Inspection will be done by third party inspection agency LRS/TUV/BV as per customer approved quality plan. 																																														

Notes:

- BHEL would consider the offers and open the price bids of only those bidders, who fulfill the Pre-Qualification requirements (PQRs).



Manufacturer's name & address		REFERENCE QUALITY PLAN		To be filled in by NTPC					
GERB GERB Vibration Control Systems Pvt Ltd, 27A, 2nd Phase, Peenya Industrial Area Bangalore - 560 058		Item Dampers(Viscous) Drg No STE-TL-115 Rev 10. 3-13142-95001 REV 0 Sub System IG Packager Piping	QP No 55 Rev 6 Date 03.10.11 Page 1 of 1	Signature of manufacturer <i>[Signature]</i>	Reviewed by <i>[Signature]</i>				
Sl No.	Component & Operation	Characteristics	Class	Type of Check	Quantum of Check M/C/N	Reference Documents	Acceptance Norms	Format of Records	Agency of Remarks
1	2	3	4	5	6	7	8	9	10
1 Raw Material Inspection									
1.1	Steel plate	Chemical & Mechanical	MA	Chemical analysis tensile strength, % Elongation	One/heat	IS 2082 Gr C JVHT02 SAILMA 350 SAILMA 350HI or Equivalent	Same as in col 7	Certificate	P V V
1.2	Steel tubes	Chemical & Mechanical	MA	Chemical analysis tensile strength, % Elongation	One/heat	ASTM A 106 GRB or BS3059 PII Gr 340 or DIN 2391 or Equivalent	Same as in col 7	Certificate	P V V
1.3	Viscoliquid	Penetration Speed/Random Noise Test	MA	Measurement	1 sample per lot or batch of liquid	GERB Germany standard procedure	GERB Germany standard & data sheet	Certificate	P V V
2 In-process Inspection									
2.1	Boxes	Dimensions	MA	Measure	5%	Drawing	Drawing	Certificate	P V V
2.2	Welding	Visual / RDT	MA	Visual / DPT	100%	GERB Standard ASTM-E 165	GWS 5.0	Certificate	P V V
2.3	Shot blasting	Visual Comparison (picture)	MI	Compare	1%	EN ISO 12944-4	SA 2 1/2	Certificate	P V V
3 Final Inspection									
3.1	Dampers	Dimensions	MA	Measure	5%	Drawing	Drawing	Certificate	P V V
3.2	Painting	Thickness (microns)	MA	Measure / visual	1%	As per Procedure	A5 per Drg	Certificate	P V V
3.3	Document control	Verification	MA	Verification	100%	ROP	ROP	Certificate	P V V
3.4	Packing / marking	Verification	MI	Visual / compare	100%	Order	Order	Certificate	P V V

NOTE: RECORDS IDENTIFIED WITH 'TICK' SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION
 ** M MANUFACTURER/SUB-SUPPLIER'S MAIN SUPPLIER'S NTPC PERFORM WITNESS AND V. VERIFICATION MA MA IOP
 MI MINOR AS APPROPRIATE. GERB NTPC SHALL IDENTIFIED IN COLUMN 'N' AS 'W'

FORMAT NO: QS-01-QA/P-10/F1-R1

ENGG DIV/OA & I

[Signature]
 Sanjeev Kumar Bhardwaj

Sanjeev
 09.03.2015
 सजीव कुमार भारद्वाज
 Sanjeev Kumar Bhardwaj
 अभियंता/Engineer
 गुणता आश्वासन/Quality Assurance
 बी. एच. ई. एल., अहमदाबाद/SHEL Hanover

10096-24181-95001

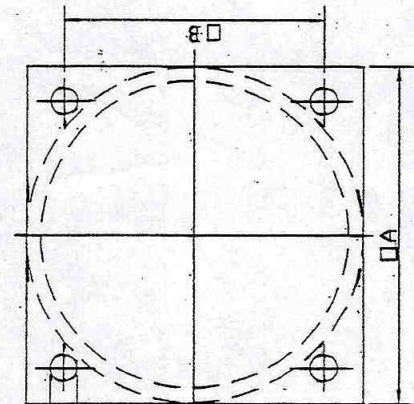
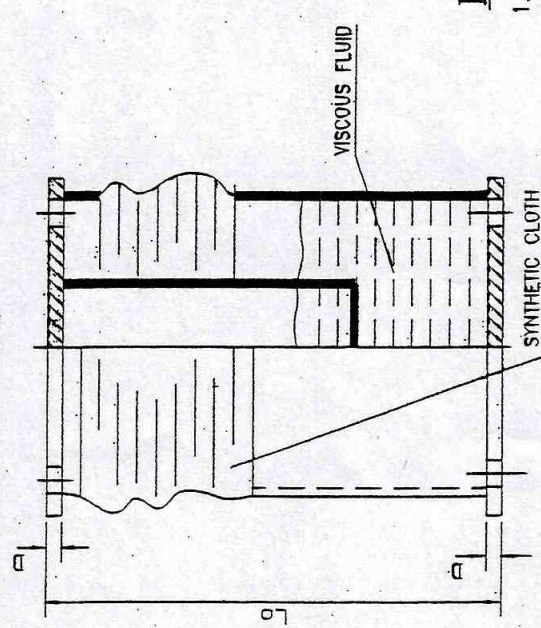
FIRST ANGLE

PROJECTION

(ALL DIMENSIONS ARE IN MM)

FORM NO. 38(B)

DU NO.	TYPE	LOAD RANGE IN KN	MOVEMENT IN mm		DA	DB	PC	D	Lo
			VERTICAL	HORIZONTAL					
9320	RRD-20	0.0-0.3	±40	±40	175	135	15	8	240
9321	RRD-40	0.3-1.5	±40	±40	175	135	15	8	240
9322	RRD-60	1.5-6.0	±40	±40	235	180	19	10	240
9323	RRD-80	6.0-9.0	±40	±40	235	180	19	10	240
9324	RRD-100	9.0-12.0	±40	±40	300	230	24	10	240
9325	RRD-125	12.0-17.0	±40	±40	300	230	24	12	260
9326	RRD-150	17.0-19.0	±40	±40	355	270	28	12	280
9327	RRD-200	19.0-20.0	±40	±40	375	290	28	16	320



NOTES:-

1. SURROUNDING TEMPERATURE 45°C.
2. THESE DAMPERS SHOULD BE SUITABLE TO TAKE SUDDEN DYNAMIC LOAD AS MENTIONED IN THE TABLE.
3. THE SKETCH INDICATES ONLY GENERAL VIEW AND OUT LINE DIMENSIONS FOR GENERAL INFORMATION.
4. DAMPER SHOULD BE PROVIDED WITH RATING NAME PLATE ALONGWITH DU NO.
5. MATERIAL FOR THE COMPONENTS SHOULD BE ASTM A106 Gr.B OR BS EN 10216 OR DIN 2391 PART-1 ST-35 OR EQUIVALENT FOR PIPES AND IS:2062 Gr.C OR DIN17100 ST-52.3 OR SAIL GRADE MA350 HISK OR EQUIVALENT FOR PLATES.

PAINTING SCHEME

PAINT TYPE : EPOXY BASE ZINC RICH PRIMER PAINT
 PRIMER PAINT : EPOXY TiO2 PIGMENTED POLYAMIDE CURED PAINT
 INTERMEDIATE PAINT : EPOXY TiO2 PIGMENTED POLYURETHANE FINISH PAINT
 FINISH (FINAL) PAINT : ALIPHATIC ACRYLIC 2 PACK POLYURETHANE FINISH PAINT
 NO. OF COAT : 2 COATS
 DFT* : 70
 NO. OF COAT : 1 COAT
 DFT* : 70
 NO. OF COAT : 2 COATS
 DFT* : 60
 TOTAL DFT 200

* DFT - DRY FILM THICKNESS (FINAL) IN MICRONS
 SHADE : DARK GREY RAL 7000 AS PER IS-5 OR EQUIVALENT

GMS No. / C B O M		STATUS OF DRG		TYPE OF PRODUCT		NAME OF CUSTOMER/PROJECT		STEAM TURBINE	
APPROV. DATE	NAME	SIGN	DATE	OR	NAME	PROJECT	DATE	NO. OF VAR	NO. OF SHEETS
GRADE OF UNTOLD DIM				DHAHAT HEAVY ELECTRICALS LTD.				RANIPUR, HARIDWAR	
M/CG. - 0/M/V/A0230208				DRN N.K.K.				Sd - 28.03.11	
WELDING - A/B/P/A0621104				R. PANJA				Sd - 28.03.11	
GAS CUTTING - 13/A0621101				APPROV. S. GOEL				Sd - 28.03.11	
REV	DATE	ALTERED	CHECKED	DEPT	STE	SCALE	WEIGHT (KG)	REF. TO ASSY. DRG.	ITEM NO.
				CODE	4011				75 77
				TITLE :		DAMPER		CARD CODE	REV.
								3-13142-95001	00
								SHEET No. 1	No. OF SHEETS 1

SIZE A3

BHARAT HEAVY ELECTRICALS LIMITED**PROJECT ENGINEERING DEPARTMENT**

PRODUCT: STEAM TURBINE

DOCUMENT NO.: 3-13177-U9000

ITEM DESCRIPTION: DAMPERS

REVISION NO.: 00

SL. NO.	DU NO.	DESCRIPTION	TYPE	DRAWING NO.	QTY/SET
1	9320	DAMPER	RRD-20	3-13142-95001	2
2	9321	DAMPER	RRD-40	3-13142-95001	6
3	9322	DAMPER	RRD-60	3-13142-95001	8

NOTES:

1. DU NOS. ARE TO BE ENGRAVED OR TAGGED ON EACH ITEM AS PER HW0400397.



(ABHAY PATEL)
AE - PED
DATE: 09.03.2015



(R PANJA)
SDGM - PED
DATE: 09.03.2015

BHARAT HEAVY ELECTRICALS LIMITED

PROJECT ENGINEERING DEPARTMENT

PRODUCT: STEAM TURBINE

DOCUMENT NO.: 3-13177-95101

ITEM DESCRIPTION: DAMPERS

REVISION NO.: 00

SL. NO.	DU NO.	DESCRIPTION	TYPE	DRAWING NO.	QTY/SET
1	9322	DAMPER	RRD-60	3-13142-95001	4
2	9323	DAMPER	RRD-80	3-13142-95001	2

NOTES:

1. DU NOS. ARE TO BE ENGRAVED OR TAGGED ON EACH ITEM AS PER HW0400397.



(ABHAY PATEL)
AE - PED
DATE: 17.06.2014



(R PANJA)
SDGM - PED
DATE: 17.06.2014

BHARAT HEAVY ELECTRICALS LIMITED

PROJECT ENGINEERING DEPARTMENT

PRODUCT: STEAM TURBINE

DOCUMENT NO.: 3-13177-95000


ITEM DESCRIPTION: DAMPERS

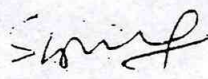
REVISION NO.: 01

SL. NO.	DU NO.	DESCRIPTION	TYPE	DRAWING NO.	QTY/SET
1	9320	DAMPER	RRD-20	3-13142-95001	8
2	9321	DAMPER	RRD-40	3-13142-95001	6
3	9322	DAMPER	RRD-60	3-13142-95001	2
4	9323	DAMPER	RRD-80	3-13142-95001	4

NOTES:

1. DU NOS. ARE TO BE ENGRAVED OR TAGGED ON EACH ITEM AS PER HW0400397.


(R PANJA)
SDGM - PED
DATE: 09.09.2011


(S C AGARWAL)
AGM-PED
DATE: 09.09.2011