

(5)

Gndent NO. 20165570

TECHNICAL SPECIFICATION FOR "HYDROSTATIC TESTING EQUIPMENT"
SPECIFICATION NO. EMT- 6838 REV-00, (QUANTITY- 1 NO.)

SL NO.	DESCRIPTION OF BHEL REQUIREMENT	REQUIREMENT	OFFERED	DEVIATION
1.0	PURPOSE :			
	Hydrostatic testing equipment shall be used for hydrostatic testing of stator of THW turbo generator at 13.5 kg/cm ²	Vendor to note.		
2.0	SCOPE OF SUPPLY :			
2.1	The scope of supply includes design, manufacturing, supply, installation, commissioning and job proving of Hydrostatic testing equipment at BHEL works, Haridwar.	Vendor to confirm.		
3.0	JOB DESCRIPTION :			
3.1	Hydrostatic testing equipment shall be connected to the THW type stator (BHEL scope) with the SS pipe item no. 1 and SS Flexible Hose (Item no.-2). Medium of testing is water. The water in the tank (item no.-5) is pumped through pump set (item no.-3) into the circuit as shown in sketch EMT-2056. Other connections will be as per sketch EMT-2056 (sheet-1 & 2). The water is filled into the circuit up to pressure of 15 kg/cm ² . After which, water supply is cut off & pressure is adjusted with suitable pressure adjustment valve (item no.-8) as shown in sheet-2/2 of sketch EMT-2056, to maintain pressure of 13.5 kg/cm ² .	Vendor to note.		
4.0	TECHNICAL SPECIFICATION :			
4.1	Hydrostatic testing equipment should be suitable for pressure up to 40 kg/cm ² .	Vendor to confirm.		
4.2	SS PIPE WITH GAUGE SS pipe with gauge (item no.-1 of EMT-2056) shall be as per sheet-2/2 of sketch EMT-2056. Stainless steel pipe shall be of material grade SS304. Pressure gauges used shall be of reputed make.	Vendor to confirm and furnish details of press gauges in the offer.		
4.3	SS FLEXIBLE HOSE Length of SS Flexible Hose (item no.-2 of EMT-2056) shall be 5 meter. SS Flexible Hose shall be of material grade SS304. OD and ID of flexible hose pipe shall be 20 mm and 15 mm respectively. Suitable connections shall be provided at both ends to connect the hose as per sketch EMT-2056.	Vendor to confirm.		
4.4	PUMP SET Pump shall have operating pressure of minimum 13.5 kg/cm ² , maximum pressure of 40 kg/cm ² and discharge of 10-20 litres/min. Three Phase Motor of suitable capacity of reputed make shall be used for the pump.	Vendor to confirm and shall furnish the make and details of motor in the offer.		
4.5	SS WATER TANK Water Tank (item no.-5) should have minimum capacity of 400 litres. The material of tank should be stainless steel with 14 SWG or better.	Vendor to confirm.		

[Signature]
 (Mohini Tandon)

1
[Signature]
 22-3-16
 (Rahul Kumar)

[Signature]
 22/03/16

(9)

4.6	MOVABLE TROLLEY Suitable size mobile Trolley (item no.-6) complete with 4 Nos. of good quality Nylon wheels shall be provided which can accommodate all the items covered in sl. No. 4.1 to 4.5. Hooks shall also be provided in this trolley so that the whole assembly can be transported with the help of the overhead cranes. Handle shall be provided for maneuvering the trolley at shop floor.	Vendor to confirm.		
4.7	Hydrostatic testing equipment shall be provided with suitable stop valves, drain valves etc. of stainless steel of reputed make as shown in sheet-1/2 & sheet-2/2 of sketch EMT-2056. All the connections/piping's used in the hydrostatic testing equipment shall be of stainless steel.	Vendor to confirm and shall furnish the make in the offer.		
5.0	SOURCE OF ELECTRIC SUPPLY :			
5.1	BHEL will provide input power supply 3 phase, 3 wire, Operating voltage $415 \pm 10\%$ V, Frequency $50 \pm 3\%$ Hz to Isolator Switch (BHEL scope). Cable connection from isolator switch to control panel to hydrostatic testing equipment approximately 10 meter will be in the scope of vendor. There will be no neutral wire and Earthing will be provided through shop structure column.	Vendor to confirm.		
6.0	NOISE LEVEL :			
6.1	Maximum noise level generated during the operation of hydrostatic testing equipment must be less than 85 dB from 1 meter away from machine with correction factor for background noise.	Vendor to confirm.		
7.0	ENVIRONMENTAL CONDITION :			
7.1	The equipment shall be suitable to operate at ambient temperature from 5° C to 45° C and relative humidity up to 95%.	Vendor to confirm.		
8.0	SPARES :			
8.1	Spares required for 2 years trouble free operation are to be quoted separately, giving description, quantity and price of each item separately. The price of spare must not be clubbed with main equipment.	Vendor to confirm.		
8.2	Pump of equivalent capacity as supplied against clause no.4.4 - 1 no.	Vendor to confirm.		
8.3	Pressure gauge - 1 no.	Vendor to confirm.		
9.0	OPERATION AND MAINTENANCE MANUALS :			
9.1	3 Sets of operation and maintenance manuals in English language shall be supplied along with the equipment. Operation and maintenance manual shall include do's and don'ts, maintenance of hydrostatic testing equipment, make, article no. and details of all the valves and pressure gauges, safety instruction for operation etc.	Vendor to confirm.		
10.0	GENERAL ARRANGEMENT DRAWING :			
10.1	General arrangement drawing of hydrostatic testing equipment indicating all the details such as overall size, bill of material, presentation of each item of bill of material on GA drawing etc. are to be furnished in the	Vendor to confirm.		

	offer. A sketch is attached with this specification as refer (EMT-2056). However, vendor may opt better general arrangement to achieve intended performance of the system. It will be sole responsibility of vendor to prove the performance at BHEL works.			
10.2	General Arrangement Drawing with details as mentioned in Sl. No. 9.1 is to be submitted for BHEL approval within one month after placement of Purchase Order.	Vendor to confirm.		
11.0	PAINTING :			
11.1	Equipment shall be painted to color RAL 7035.	Vendor to confirm.		
11.2	Vendor will repair the paint with original paint in case the same is damaged in transit/erection, before commissioning of the equipment.	Vendor to confirm.		
12.0	PRE-DESPATCH INSPECTION :			
12.1	Hydrostatic testing equipment will be inspected by BHEL representative at vendors' works prior to dispatch. Vendor shall impart training for operation/ maintenance of the equipment at their works during pre-dispatch inspection. Following points will be verified by BHEL engineer at vendor's works.	Vendor to confirm.		
12.2	Trial run and verification of all technical features of hydrostatic testing equipment as per Technical Specification. Testing shall be done at 20 kg/cm ² for one hour.	Vendor to confirm.		
12.3	Verification of spare items, if any.	Vendor to confirm.		
13.0	INSTALLATION AND COMMISSIONING :			
13.1	Vendor shall take full responsibility for carrying out the installation and commissioning of Hydrostatic Testing Equipment at BHEL works, Haridwar.	Vendor to confirm.		
14.0	GUARANTEE/WARRANTEE:			
14.1	Guarantee/Warranty for Hydrostatic Testing Equipment shall be 18 months from the date of dispatch or 12 months from the date of final acceptance at BHEL works, Haridwar, whichever is earlier.	Vendor to confirm.		
15.0	PACKING :			
15.1	The equipment shall be suitably packed to prevent damage during transit and storage. All small and loose items like spares etc. should be suitably packed in separate wooden boxes.	Vendor to confirm.		

Mohina Tandon
22/03/16
(Mohina Tandon)
Engineer (EMT)

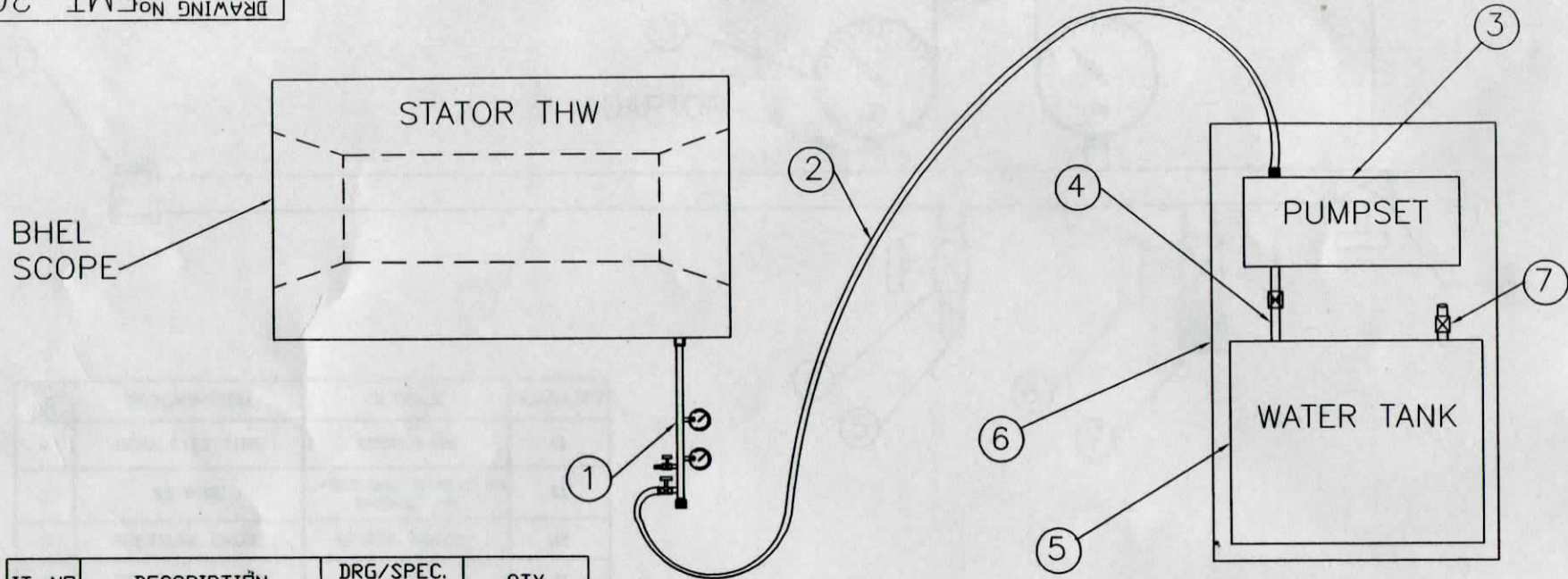
Rahul Kumar
22-3-16
(Rahul Kumar)
Sr. Engineer (Block-I)

Deep Prakash
22/03/16
(Deep Prakash)
Engineer (WEX-1)

SDGM (EMT)

14/2/17

DRAWING No. EMT-2056



IT. NO	DESCRIPTION	DRG/SPEC. NO.	QTY
1	SS PIPE WITH GAUGE	EMT-2056	01
2	SS HOSE FLEXIBLE	EMT-6838	01
3	PUMP SET	EMT-6838	01
4	SS CONNECTION PIPE WITH STOP VALVE	EMT-6838	01
5	SS WATER TANK	EMT-6838	01
6	FRAME WITH WHEEL	EMT-6838	01
7	DRAIN VALVE	EMT-6838	01

TECHNICAL REQUIREMENT (TR)

1. ITEM NO 1 TO 7 ARE IN SCOPE OF SUPPLY BY VENDOR.

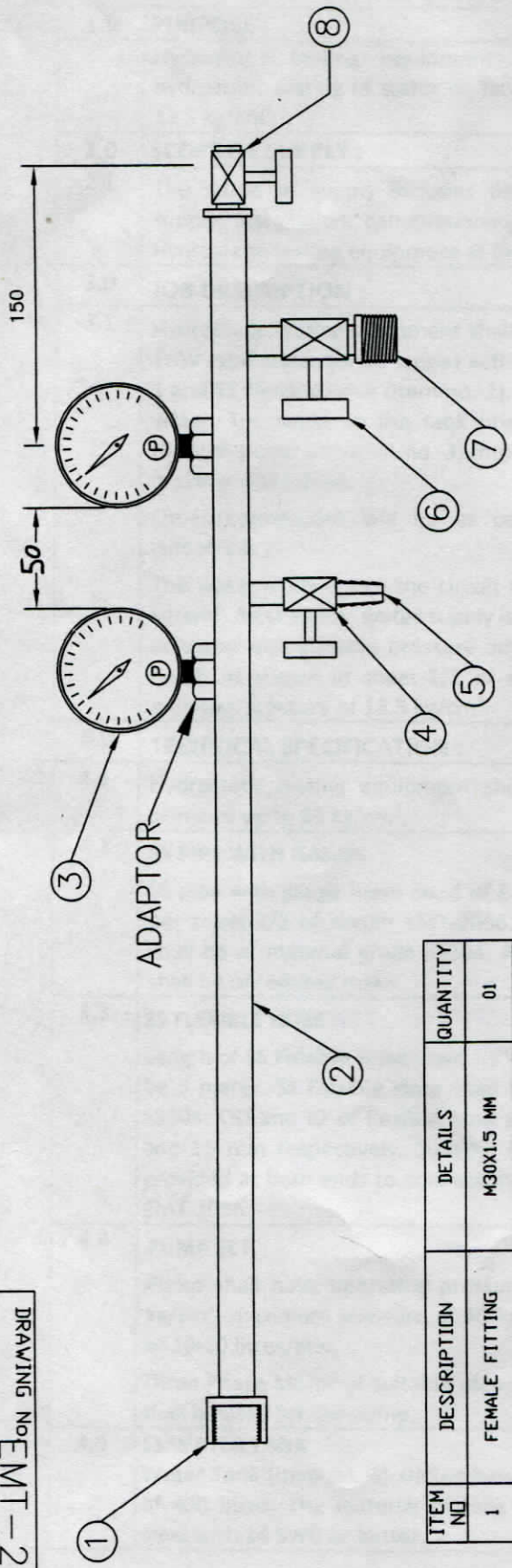
INVENTORY No. SIGN. & DATE REF. DRG. No.

GMS No./GR.SP.No.		STATUS OF DRG	
APPROVED	NAME	SIGN.	DATE
REV	DATE	ALTERED	CHECKED

BHARAT HEAVY ELECTRICALS LTD.		NAME		SIGN.		DATE		No. OF VAR.	
HARDWAR		DRN		TARUN TOMAR		22-3-16			
		CHD		MOHINA TANDON		22/3/16			
		APD		U K SINGH		22/3/16			
DEPT.		SCALE		WEIGHT(Kg)		REF. TO ASSY. DRG.		ITEM No. OF No	
CODE		N.T.S							
TITLE HYDROSTATIC TESTING EQUIPMENT						DRAWING No.		REV	
						EMT-2056		00	
						SHEET No. 01		No. OF SHEETS 02	

DRAWING No. EMT-2056

COPYRIGHT AND CONFIDENTIAL
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT
HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY
OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF COMPANY.



ITEM NO.	DESCRIPTION	DETAILS	QUANTITY
1	FEMALE FITTING	M30X1.5 MM	01
2	SS PIPE	L=920 mm, TK=2.11 mm D=26.67 mm	01
3	PRESSURE GAUGE	(0-25), kg/cm ²	02
4	SS STOP VALVE	1/2"	01
5	SS NIPPLE	1/2"	01
6	SS STOP VALVE	3/4"	01
7	SS THREADED END	M30X1.5 MM	01
8	SUITABLE VALVE FOR PRESSURE ADJUSTMENT	---	01

GMS No./GR.SP.No.		STATUS OF DRG.		TYPE OF PRODUCT		COMP. DRG. No.		M/C TOOL TRANS No.		REF. DRG. No.	
APPROVED	NAME	SIGN.	DATE	DESIGN ORDER No.		M/C MODEL No.		NAME		SIGN.	DATE
	20-3-16	[Signature]	22-3-16	BHARAT HEAVY ELECTRICALS LTD.				TARUN TOMAR		[Signature]	22-3-16
				BHEL				MOHINA TANDON		[Signature]	22-3-16
								APD. U K SINGH		[Signature]	22-3-16
REV	DATE	ALTERED	CHECKED	DEPT. CODE		WEIGHT(Kg)		REF. TO ASSY. DRG.		ITEM No. OF No. ITEMS	
				N.T.S							
				TITLE				DRAWING No.			
				SS PIPE WITH GAUGE				EMT-2056			
								SHEET No. 02 OF SHEETS 02			
								REV 00			
								SIZE A 3			

INVENTORY No. SIGN. & DATE REF. DRG. No.