(7)

16.0 STAINLESS STEEL HEADER (INLET) & OUTLET: For 08 no.s of stator bars

As this exercise has to be carried out at site on fully assembled generator (Refer sketch at Annexure-II), stainless steel cylindrical headers(inlet & outlet) are required for testing 08 no.s of stator bars at one time.
The dimensions of the headers are as follows:

Cross sectional dia(OD) of the header: 73mm(approx.)main and branch pipe=33mm(approx.)
Wall Thickness: 3.0mm(approx..)
Height of tubular inlet/outlet header– 1.5 m(approx.)

16 Nos of acid resistant nipples (08 nos each at inlet & outlet header) shall be supplied to you during fabrication of this system.

16 nos of acid resistant suitable steel-wire jacket reinforced hoses along with interconnection accessories including any special tools are required which shall be connected to the stator bars at the entry and exit by suitable nipples.

Two no.s of circular header made up of any suitable material that can handle acid mixture having dimensions as mentioned above are required. Inlet and outlet headers shall be fixed on suitable fabricated stand.
In case of inlet header, on one side flange connection shall be provided for connecting the hot water / acid output from the tank and on other side, manually operated Valves (MVI----MV16) and 08 no.s nipples are to be provided, along the length of the header, for fixing flexible hoses to connect stator winding bars with the inlet header.

In case of outlet header, on one side flange connection shall be provided for connecting the return path of both hot water / acid, manually operated Valve (MVI-----MV16) and 08 no. nipples are to be provided, along the length of header, for fixing flexible hoses to connect stator winding bar with the outlet header.

ID of teflon hose pipe is 12 mm and length is max. 1000 mm. Both ends of teflon hoses has Union Nut provision to be fitted to nipple of matching threads(Ø30mm). 16nos. of Teflon hoses are also required and should be included in the scope of supply.

17.0 Pre-Qualification Requirement(PQR)

Only those vendors (OEMs/ Authorised dealer), who have supplied and installed at least one Such facility for removal of the blockages in TG stator bars, Data processing S/W, cables and other essential accessories in past seven years (on the date of opening of tender) and the supplied similar system, is presently working satisfactorily for more than one year (on the date of opening of tender) after Installation, should quote.

Suparna
सुपर्णा मजुमदार
उप महाप्रबन्धक
आई.एस.ई एवं सी.पी.एल
बी.एच.ई.एल. (हीप), हरिद्वार

The following information should be submitted by vendor about the companies where simiiar facility have been supplied. This is required from all the vendor for qualification of their offer.

a. Name of the customer/company where facility for removal of the blockages in TG stator bars is installed.

b. Complete postal address of the customer.

c. P.O.No., date, scope of supply and Month & year of installation.

d. Name and designation of contact person of the customer.

e. Phone, Fax no. and e-mail address of the contact person of the customer.

f. Performance certificate from the customers regarding satisfactory performance of facility for removal of the blockages in TG stator bars or similar system supplied to them (Original Certificate or Through E-mail directly from customer). The original performance certificate may be returned after verification by BHEL, if required.

18.0 General :

18.1 Although we have given above schematic and specification, keeping in view our end application you may suggest alternatives also.

18.2 The whole set up should be complete with flanges, couplings, inter connection reinforced pipes/hoses compatible with the required pressure and temperature taking into account the toxic content of the acid mixture.

18.3 All the welded and flange joints must be leak proof.

18.4 The system should be completely equipped with high pressure and high temperature flexible hoses inter connecting tank outlet, pump inlet, pump output.

18.5 The offer should be complete with recommended spares and tools.

18.6 Two sets of drawings and operation/service/maintenance manuals should be provided with the system. One of these two sets of drawings and operation/service manuals to be supplied on CD. O&M should also contain information/detail guide lines for preservation, erection, assembly and disassembly of main items of the system, safety requirements/guidelines, circuit diagram.

18.7 All the items indicated in the sketch are in the scope of supply.

सुपर्णा मजुमदार
उप महाप्रबन्धक
आई.एस.ई एवं सी.पी.एल
बी.एच.ई.एल. (हीप), हरिद्वार

18.8 The system should be operable from 230±10% Volts,1-ø or 3-wire,415±10% Volts,3-ø, 50±3% Hz source mains supply. (In case of three phase supply there will be no neutral wire and earthing will be provided through shop (steel) structure column.

18.9 The system should operate satisfactorily and within specified requirements under following tropical environmental conditions.

Ambient temperature : 10 to 45 °C

Humidity : Upto max. 90 %

18.10 A systematic painting scheme should be used for different parts of the system which will be indicated at the time of placement of order.

18.11 A pre-despatch inspection shall be carried out by BHEL at manufacturers works. Based on that dispatch clearance shall be given by BHEL.

18.12 The party should get their final design/engineering documents of the system approved from BHEL before procurement of materials and launch of fabrication/production of the system at BHEL,Haridwar works.

18.13 Supplier shall carry out the erection, piping layout as per requirement, start up, commissioning, testing of each item of the facility and other supplied equipments / accessories etc.

18.14 Welding sets and welding consumables required during erection Installation shall be arranged by the supplier.

18.15 Supplier shall provide guarantee for complete Installation, its Control and all supplied accessories / equipments for 24 months from the date of commissioning at BHEL Works.

18.16 Supplier shall submit Quality Plan within two months after issue of Purchase Order.

18.17 Supplier shall ensure proper packing for all items of the Installation to avoid any damage / loss in transit.

18.18 Party should quote separately for spares and commissioning & transportation charges. Price split up should be provided for all the items mentioned in the budgetary offer. Duties applicable should be mentioned clearly in the offer.

18.19 Since the system usage is foreseen at BHEL works as well as at site, it should be portable. From portability point of view, design of overall system should be such that all the items should be as compact as possible.

सुपर्णा मजुमदार
उप महाप्रबन्धक
आई.एस.ई एवं सी.पी.एल
बी.एच.ई.एल. (हीप), हरिद्वार

(4)

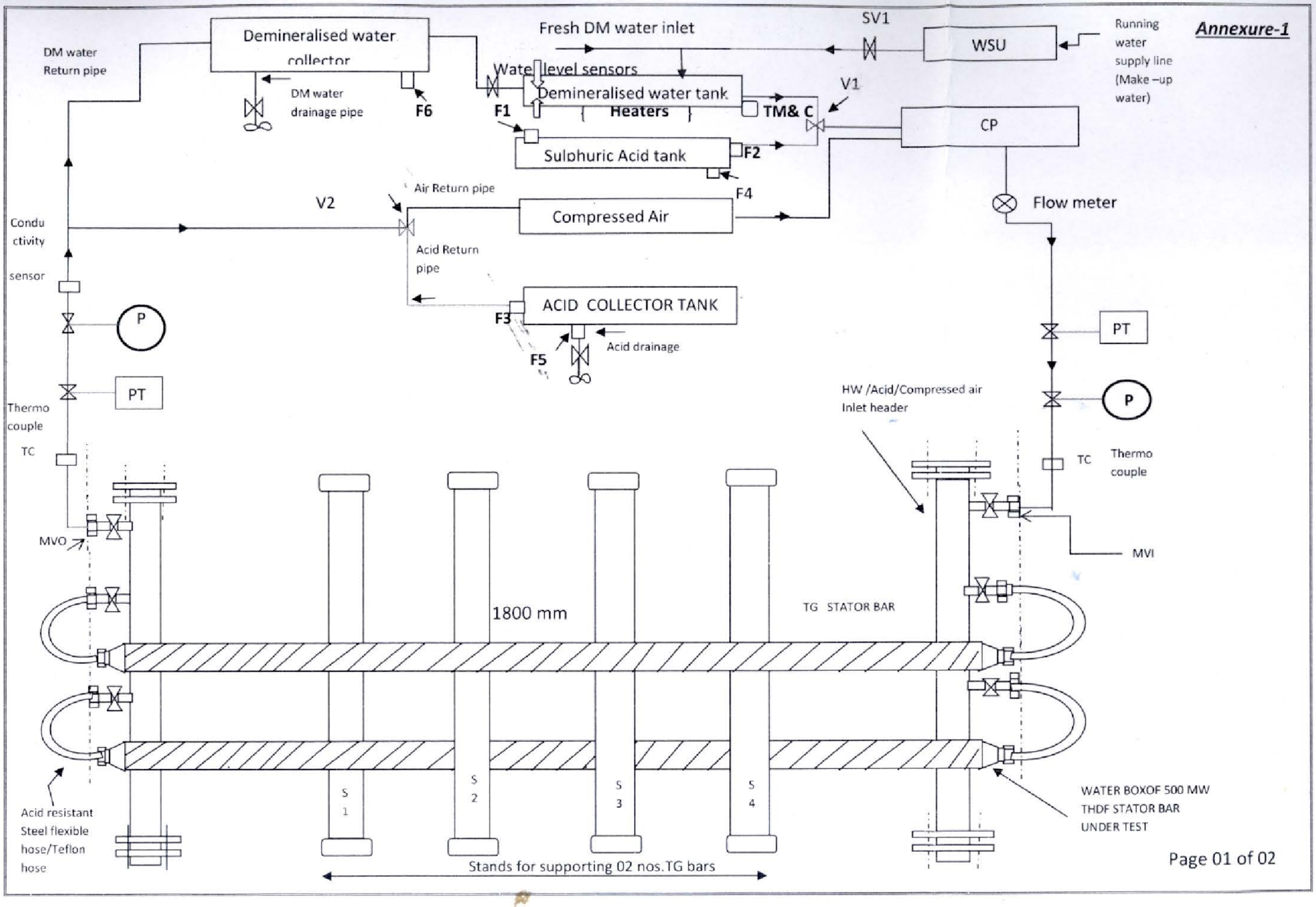
18.0 Spares:

1. Flow meter – 1no.
2. Conductivity meter – 1 no.
3. Thermocouple/PRTs- 2nos
4. Pressure Transmitter – 2nos
5. Pressure Gauge – 2nos
6. Pump/Motor Assembly - 1no
7. Teflon hoses – 4nos
8. Any other spares required for operation of the system.

Supanna
सुपर्णा मजुमदार
उप महाप्रबन्धक
आई.एस.ई एवं सी.पी.एल
बी.एच.ई.एल. (हीप), हरिद्वार

EXPERIMENTAL SET-UP AT GRI FOR TWO BARS

Annexure-1



Annexure-1

General Layout for removal of the blockages in TG stator bars

S1-S4 - Fabricated support for T.G. stator Bar (Height of support 1800 M.M.)

CP - Circulation Pump

V1 V2 - Manually operating L-shaped valve

SV - Solenoid valve

HW - HEADER Hot water header

TC-Thermocouple

P - Pressure gauge

PT- Pressure Transducer

WSU- Water softening unit

MVI- Manually operated valve on inlet Header

MVO- Manually operated valve on outlet header

Flowmeter:Clamp type

F1,F2,F3,F4,F5 :Flanges, TM & C:Temperature measurement and control devices.

SET-UP AT SITE FOR 08 BARS

Annexure-II

Demineralised water collector

DM water Return pipe

DM water drainage pipe

Fresh DM water inlet

SV

WSU

Running water supply line

Demineralised water tank

V1

CP

Sulphuric Acid tank

Air Return pipe

V2

Compressed Air

Flow meter

Conductivity sensor

Acid Return pipe

ACID COLLECTOR TANK

Acid drainage pipe

PT

P

Flow meter

Thermo couple

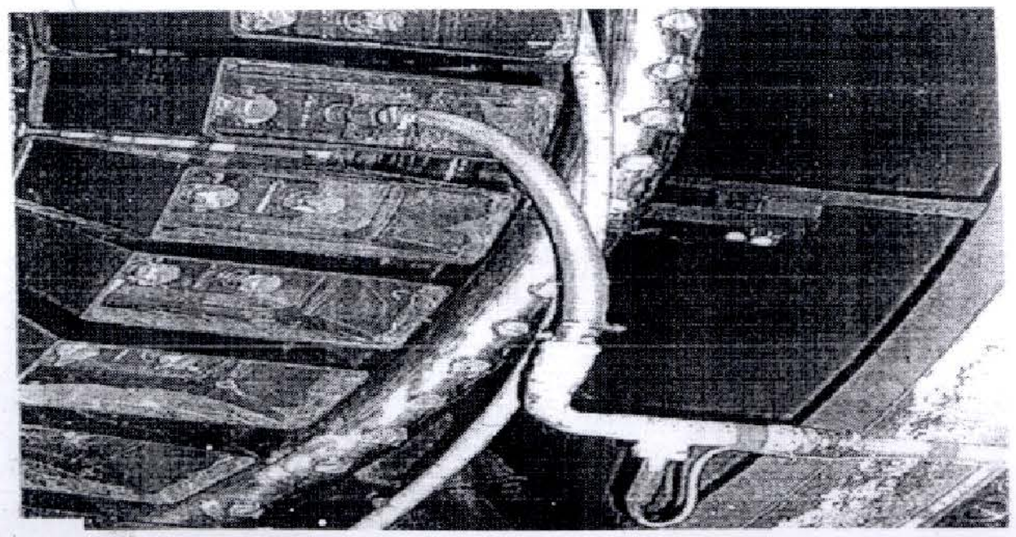
TC

Thermo couple

TC

8

1



08

1

Flow exit through Turbine side

Entry through exciter side