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THE FOLLOWING STEAM TURBINE GENERATOR SET IS AVAILABLE FOR SALE WITH US WITH IMMEDIATE DELIVERY:

1 No. – 10 MW TRIVENI/ TDPS (2008) make Bleed-Condensing type Steam Turbine Generator Set, having the Following Technical Specifications:

TECHNICAL DETAILS:

TURBINE DETAILS:

Make	:	Triveni (India)
Model	:	Frame 13ER
Sr. No.	:	FR13ER-04
Year of make	:	2008
Power	:	10000 kW
Inlet Steam Pressure	:	64 ata
Inlet Steam Temperature	:	485 Deg. C
Inlet Steam Flow	:	49.70 TPH
Bleed Steam Pressure – I	:	16.71 ata
Bleed Steam Flow – I	:	11.35 TPH
Bleed Steam Pressure – II	:	4.74 ata
Bleed Steam Flow – II	:	4.29 TPH
Steam Exhaust Pressure	:	0.10 ata
Exhaust Steam Flow	:	34.05 TPH
Turbine Rotor Speed	:	7556 RPM
Gearbox Output Speed	:	1500 RPM
Turbine Trip Speed Range	:	8311 to 8690 RPM
Turbine Critical Speed Range	:	2800 to 3200 RPM
Weight of Turbine and Gearbox (With Oil)	:	34000 kgs

GEARBOX DETAILS:

Make	:	Triveni (India)
Sr. No.	:	2319X000081NCLF

Year of make	:	2008
Capacity	:	10500 kW
Input Speed	:	7556 RPM
Output Speed	:	1500 RPM
Ratio	:	5.037:1
Service Factor	:	1.5
No. of Teeth (Gear/Pinion)	:	136/27
Lube Oil Quality	:	ISO-VG-46
Lube Oil Quantity	:	275 LPM
Lube Oil Pressure	:	1.5 bar

ALTERNATOR DETAILS:

Make	:	Toyo Denki Power Systems
Type	:	TC 145
Sr. No.	:	2K805637-01
Capacity	:	12500 kVA
Year of make	:	2008
Speed	:	1500 RPM
Voltage	:	11000V
No. Of Phases	:	3
No. Of Poles	:	4
Current	:	656A
Frequency	:	50 Hz
P.F.	:	0.8
Connection	:	Star
Enclosure	:	IP 54
Excitation Voltage	:	163V
Excitation Current	:	627A
Weight	:	32500 kgs

MAIN LUBRICATION OIL PUMP DETAILS:

Make	:	David Brown, U.K
Type	:	Geared
Model	:	M30HSXFL –AB 5* FW
Capacity	:	140 IGPM
Driver	:	Gear Box
Discharge	:	6.0 Kg/cm ² g

AUXILLIARY OIL PUMP DETAILS:

Make	:	Rotodel
Model	:	RDN X-300I
Type	:	Geared
Capacity	:	140 IGPM
Speed	:	1440RPM
Discharge	:	6.0 Kg/cm ² g
Motor	:	20-415 HP/ V AC

EMERGENCY OIL PUMP DETAILS:

Make	:	Rotodel
Model	:	RDNX-200L
Type	:	Geared
Capacity	:	48 IGPM
Discharge Pressure	:	2.0 Kg/cm ² g
Motor	:	5-110 HP/V DC

OIL COOLER DETAILS:

Make	:	Eskay Industries
Model	:	TB2SAM4680C-R2
Type	:	Horizontal Duplex
Capacity	:	140 IGPM
Oil Temperature Inlet	:	65°C
Oil Temperature Outlet	:	45°C
No. of Tubes	:	340-5/8" "O/D x 20 BWG
Surface Area	:	67 M2
Cooling water Temp. Inlet	:	35°C
Cooling water Temp. Outlet	:	40°C
Cooling water Qty.	:	330 IGPM

OIL FILTER (Lube Oil) DETAILS:

Make	:	Industrial Entpr. (IEH-1426)
Model	:	Duplex
Capacity	:	140 IGPM
Grade of Filtration	:	10-15 Microns
Element No	:	BT0160034

CONTROL OIL FILTER DETAILS:

Make	:	Micropore
Model	:	Duplex
Capacity	:	15 IGPM
Grade of Filtration	:	10-15 Microns

EOP FILTER DETAILS:

Make	:	Industrial Enterprises (IEH-1430)
Model	:	Simplex
Capacity	:	45 IGPM
Grade of Filtration	:	10-15 Microns
Element No	:	BT0160043

PRESSURE RELIEF VALVE (MOP) IMO190005 DETAILS:

Make	:	Hopkinsons, U.K
Duty	:	Lube Oil
Size	:	1" NB
Set Pressure	:	6.05 Kg/cm ² g

Discharge Capacity : 140 IGPM

PRESSURE RELIEF VALVE (AOP) VLO100064 DETAILS:

Make : Nirmal Insudtries
Duty : Lube Oil
Size : 50 x 80 NB-ANSI 150 # RF
Set Pressure : 5.90 Kg/cm² g
Discharge Capacity : 140 IGPM

PRESSURE RELIEF VALVE (AOP) IM0190007 DETAILS:

Make : Hopkinsons, U.K
Duty : Lube Oil
Size : 1" NB
Set Pressure : 1.80 Kg/cm² g
Discharge Capacity : 25 IGPM

ACCUMULATOR DETAILS:

Make : Fawcett India Ltd
Model : 2800A-00-201
Capacity : 28 IGPM
Pre Charged Gas Pr. : 3.90 Kg/cm² g

SOLENOID VALVE DETAILS:

Make : ASCO
Volts : 110 V DC
Connection : 3/4" NPT (F)
Action : De Energise to Trip

THROTTLE VALVE LIFT DETAILS:

Throttle Valve Lift No.1 : 33 mm
Throttle Valve Lift No.2 : 19 mm
Throttle Valve Lift No.3 : 5 mm
Available lift Max. : 57

GENERAL:

HIGH SPEED COUPLING DETAILS:

Make : Euroflex Transmission 8GH-250 –S (without Spin)
Model : Drg. No. 07389.00B

LOW SPEED COUPLING DETAILS:

Make : Euroflex Transmission 10GBH-300 –S (with S pin)
Model : Drg. No. 07399.00B

GOVERNOR DETAILS:

Make : Woodward
Model : 505-Digital

ACTUATOR – HP DETAILS:

Make	:	Woodward
Model	:	505-Digital
Operating Speed	:	1006 RPM

CONDENSER DETAILS:

Make	:	GE Godavari Engg. LTD.
Model/Drawing No.	:	DD -11 -9379 -1-001 R2
Number of Passes	:	Two
Water Box Type	:	Divided
Steam Flow	:	39000 Kg/Hr
Steam Pressure	:	0.095ATA
Cleanliness Factor	:	85 %
Cooling Water Temp. (Inlet)	:	32°C
Cooling Water Temp. (Outlet)	:	41°C
Cooling Water Pressure	:	2.0 Kg/cm2 G
Cooling Water Quantity	:	2280 M3 /Hr
Cooling water inlet/outlet Size	:	20"NB x 2
Weight (working)	:	39250 Kgs
No. of tubes	:	2954 – 3/4" BWG-20, Ad. Brass
Surface Area	:	1090 M2

EJECTOR (START UP) DETAILS:

Make	:	Mazada Ltd
Capacity	:	33.74W.V., 15.3 Air
Steam Pressure	:	10 Kg/Cm2 g
Steam Temperature	:	250°C
Steam Consumption for Hogger	:	665Kg/Hr
Evacuation Time	:	20 Min.

EJECTOR (MAIN) DETAILS:

Make	:	Mazada Ltd
Capacity	:	15.3 Kg/cm ² g, Dry Air 33.74 water Vapour
Motive Steam Pressure	:	10 Kg/cm ² g
Steam Temperature	:	250°C
Steam Consumption	:	275 kg/Hr

GLAD VENT CONDENSER DETAILS:

Make	:	Eskay Industries
Model	:	EL/GC/2871
Type	:	Horizontal Shell & Tube
Steam Flow	:	250 kg/Hr
Condensate Flow	:	43500 kg/Hr
Condensate Temp. Inlet/Outlet	:	51.84 / 57.29°C
Condensate Pressure	:	12 Kg/cm ² g
Surface Area	:	9.7 M2

GVC BLOWER DETAILS:

Make	:	Nadi Air technics
Model	:	SAW-21-ACW-11-ARRT-4
Capacity	:	650Air at 2" WC
Motor Rating	:	0.5-415 HP / V AC

CONDENSATE EXTRACTION PUMP DETAILS:

Make	:	KSB Pumps Ltd
Model	:	CPKGCM 50-250
Type	:	Horizontal
Speed	:	2945 RPM
Motor	:	30, 145 kW / V AC

SCOPE OF SUPPLY:

- 1) 1 No. 10 MW TRIVENI make steam turbine coupled to TRIVENI make reduction gear box on common baseframe/ Oil Tank.
- 2) 1 No. 10 MW TDPS make alternator with Excitor and Cooler.
- 3) Complete governing system with Woodward TG-17E actuator & all interconnected pipings/ cablings, etc.
- 4) Complete oil cooling system including:
 - a) Oil tank/ Base Frame with AOP with AC Motor mounted on the tank, EOP with DC Motor mounted on Tank, Oil Vent, Air Bottle, Control Oil Filters, EOP Filters, etc. with interconnected oil pipings.
 - b) 2 Nos. Oil Coolers with 1 Set of duplex Oil Filters and 1 No. Overhead Oil Tank and all interconnecting oil pipelines.
 - c) Main oil pump mounted on gearbox shaft with it's pipings.
 - d) Oil Centrifuge with all interconnecting pipings.
- 5) Complete condensing system including:
 - i) Bellow & distance pieces mounted between turbine and condenser.
 - ii) Condenser with its mountings, inlet and outlet water pipelines, condenser bellows, Hotwell assembly, etc.
- 6) Gland Vent Condenser System including controls, valves and pipelines.
- 7) 1 No. Turbine Control Panel (including 505 Governor).
- 8) Gear box with its mountings, auxiliaries and pedestals.
- 9) Coupling between turbine & gear box and gear box & alternator.
- 10) Alternator Cooling System (Mounted on alternator top) with it's pipelines and valves.
- 11) Exciter with it's pedestals (mounted separately).
- 12) 1 No. AVR panel.
- 13) 1 No. 10 MW 11 kV generator control panel with Vacuum Circuit Breaker.
- 14) 1 No. NGR panel.
- 15) 1 No. LAPT Panel.
- 16) 1 No. Metering and Synchronizing Panel.
- 17) 1 No. Generator Protection Panel with Relays.
- 18) 1 No. Turbine Gauge Panel.
- 19) 1 No. Turbine MCC Panel.

- 20) All locally mounted controls with interconnected pipings and cables.
- 21) All interconnecting Water, Steam and Oil pipings between all the TG Set accessories.
- 22) Manuals & Drawings pertaining to the turbine, gear box and alternator.

PHOTOS:















