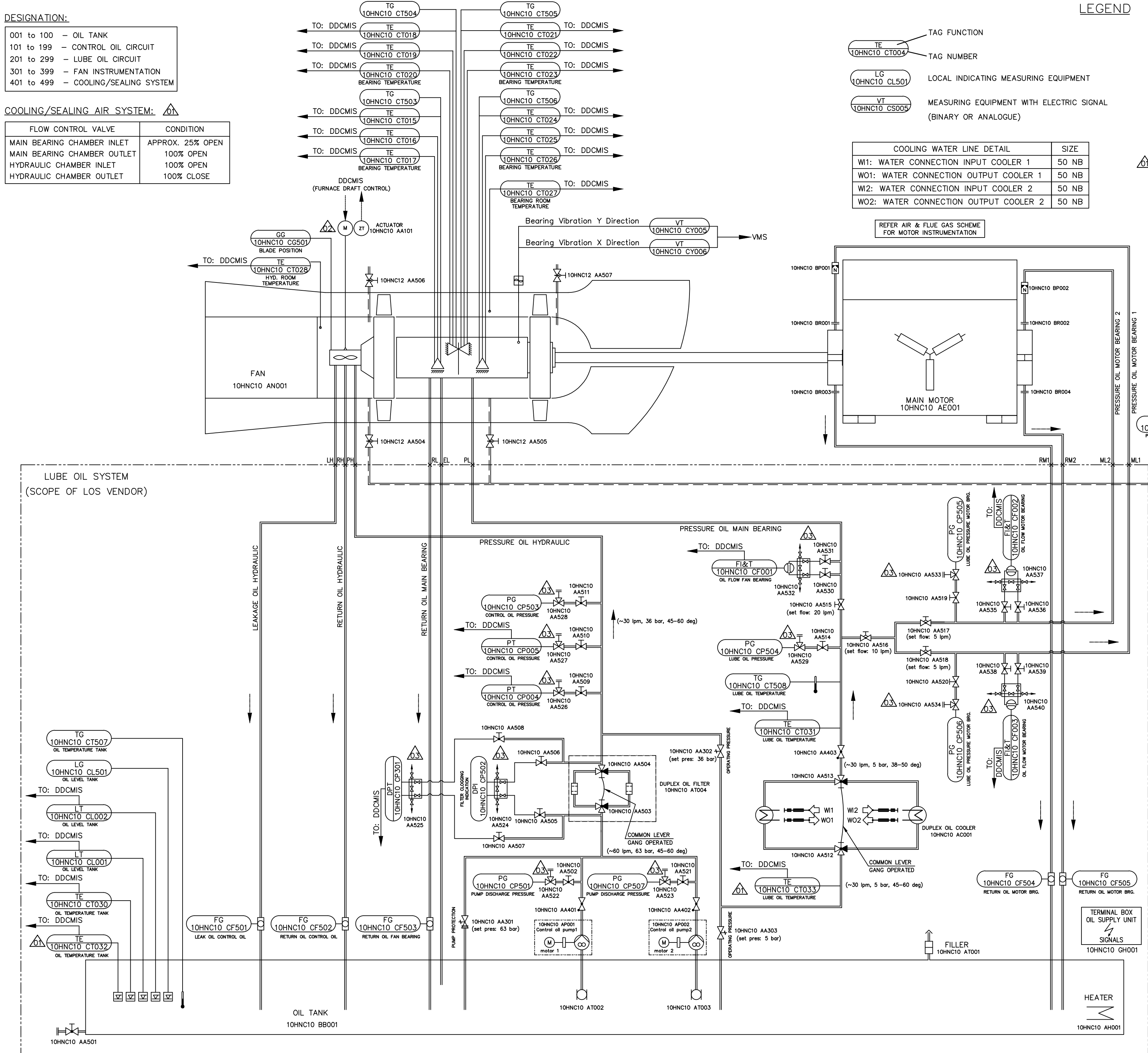


001 to 100	- OIL TANK
101 to 199	- CONTROL OIL CIRCUIT
201 to 299	- LUBE OIL CIRCUIT
301 to 399	- FAN INSTRUMENTATION
401 to 499	- COOLING/SEALING SYSTEM

FLOW CONTROL VALVE	CONDITION
MAIN BEARING CHAMBER INLET	APPROX. 25% OPEN
MAIN BEARING CHAMBER OUTLET	100% OPEN
HYDRAULIC CHAMBER INLET	100% OPEN
HYDRAULIC CHAMBER OUTLET	100% CLOSE



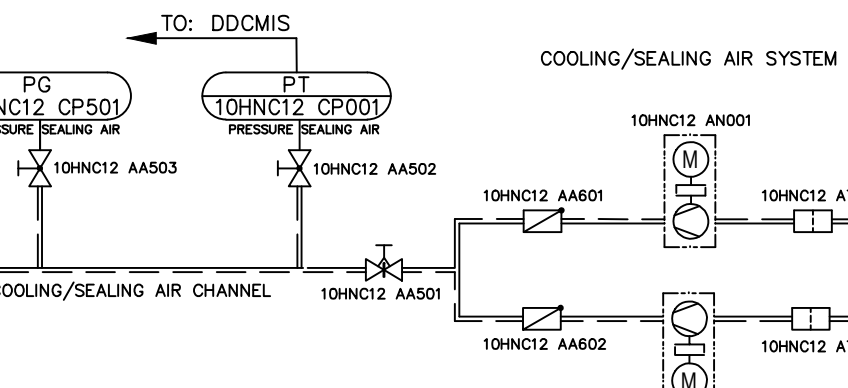
01. THIS SCHEME IS APPLICABLE FOR ONE FAN AND SIMILAR SYSTEM IS APPLICABLE FOR OTHER FAN AND ALSO FOR OTHER UNITS.
02. KKS TAG NOS. HAVE BEEN MARKED FOR ID FAN – A LUBE OIL SYSTEM.
03. KKS TAG NOS. FOR ID FAN – B LUBE OIL SYSTEM SHALL BE 10HNC15. FOR UNIT-2 IT SHALL BE 20HNC10 & 20HNC15 RESPECTIVELY FOR ID FAN-A & B.
04. PIPE LINES & VALVES IN THE COOLING WATER INLET & OUTLET ARE IN THE SCOPE OF BHEL/PC REFER THE SCHEME OF COOLING WATER SUPPLY & RETURN DRG NO: 0-00-303-31747 SUBMITTED BY BHEL/PC FOR COOLING WATER DETAILS & COOLER CONNECTIONS.
05. REFER SCHEME OF AIR & FLUE GAS PATH WITH INSTRUMENTATION DRG NO: 0-97-288-91000 SUBMITTED BY BHEL/C&I TRICHY FOR INSTRUMENTS OTHER THAN FAN LUBE OIL SYSTEM.
06. GRADE OF OIL : ISO VG68
07. FOR LOCATION OF LUBE OIL SYSTEM PLEASE REFER GA DRAWING FOR ID FAN AND MOTOR WITH FOUNDATION PLAN AND LOADING DETAILS BHEL DRG NO : 1-00-099-29189.
08. BLADE PITCH ACTUATOR(ELECTRICAL)(ITEM NO: 318) SHALL BE SUPPLIED BY BHEL/TRICHY.
09. TEMPERATURE SENSING ELEMENT (DUPEX-RTD) (ITEM NO: 301 TO 312) & TEMPERATURE GAUGE (ITEM NO:313-316) ARE NOT PART OF LUBE OIL SYSTEM AND WILL BE SUPPLIED SEPARATELY BY BHEL/BAP.
10. VIBRATION PROBES (ITEM NO: 319, 320) ARE NOT PART OF LUBE OIL SYSTEM AND WILL BE SUPPLIED SEPARATELY BY BHEL/EDN.
11. 2 OUT OF 3 LOGIC COMPUTATION FOR FAN BEARING RTD (TAG:10HNC10 CT015 TO 10HNC10 CT026) SHALL BE IMPLEMENTED BY BHEL/PEM IN DCS FOR GENERATING ALARM/TRIP SIGNAL.
12. TEMPERATURE SENSING ELEMENT (RTD) IN FAN BEARING AND LUBE OIL SYSTEM SHALL BE 4-WIRE DUPEX TYPE ONLY.
13. PRESSURE GAUGE'S SHALL BE PROVIDED WITH SNUBBER(SS) TO SUPPRESS THE EFFECT OF PRESSURE PULSE.
14. 2-WAY VALVE MANIFOLD(SS) IS APPLICABLE FOR PG & PT. 5-WAY VALVE MANIFOLD(SS) IS APPLICABLE FOR DPG, DPT & FT.

	OIL		COUPLING
	AIR		HEATER
	WATER		FLOW SIGHT-GLASS
	SAFETY VALVE		THERMOMETER
	PRESSURE RELIEF VALVE		FLOW MEASURING DEVICE
	NON RETURN VALVE		PUMP
	SHUT-OFF VALVE		FILTER
	3-WAY VALVE		HEAT EXCHANGER (OIL COOLER)
	SLIDING VALVE		
	THROTTLE VALVE		

BHEL/SITE C&I SHALL ENSURE INSTALLATION OF STALL WARNING INSTRUMENTS AS PER ERECTION DRAWING NO. 3-00-000-40682 RELEASED BY BHEL/RANIPET AND IMPLEMENTATION OF STALL WARNING CONTROL LOGIC FOR FAN AS PER SCHEME & WRITE-UP OF AUTO CONTROL RELEASED BY BHEL/TRICHY C&I

AA0XX	CONTROL VALVE
AA3XX	SAFETY VALVE
AA4XX	NON-RETURN VALVE
AA5XX	HAND VALVE
AA6XX	SELF-ACTING FITTING
Bx0xx	ANALOGUE MEASURING
Bx3xx	BINARY MEASURING
Bx5xx	LOCAL INDICATING MEASURING EQUIPMENT

LUBE OIL LINE DETAIL	SIZE	MOC
PH: PRESSURE OIL HYDRAULIC	OD22X2Thk.	
RH: RETURN OIL HYDRAULIC	OD22X2Thk.	
LH: LEAKAGE OIL HYDRAULIC	OD22X2Thk.	SEAMLESS
PL: PRESSURE OIL MAIN BEARING	OD18X1.5Thk.	STEEL
RL: RETURN OIL MAIN BEARING	NB50, SCH40	(CARBON
EL: PRESSURE EQUALISATION LINE	OD18X1.5Thk.	STEEL-CS)
ML: PRESSURE OIL MOTOR BEARING	OD18X1.5Thk.	
RM: RETURN OIL MOTOR BEARING	OD18X1.5Thk.	



SEQUENCE SIGNAL	ALARM	FAN MOTOR START PERMISSIVE	FAN MOTOR TRIP	LUBE PUMP MOTOR TRIP	STAND BY OIL PUMP ON	HEATER ON OFF	STAND BY COOLING /SEALING AIR FAN ON	INITIATED BY
FAN BLADES & OUTLET DAMPER CLOSED		●						Refer A & FG Drawing
MAX. LEVEL IN OIL TANK $\geq 75\%$		●						LT(007,008) 10HNC10 CL001/002
MIN. LEVEL IN OIL TANK $\leq 60\%$	●							LT(007,008) 10HNC10 CL001/002
MIN. LEVEL IN OIL TANK $\leq 50\%$				●				LT(007,008) 10HNC10 CL001/002
OIL TANK TEMPERATURE $\leq 17^{\circ}\text{C}$	●							TE(009,010) 10HNC10 CT030,032
OIL TANK TEMPERATURE $\geq 60^{\circ}\text{C}$	●							TE(009,010) 10HNC10 CT030,032
TEMP. IN OIL TANK $\leq 25^{\circ}\text{C}$						●		HEATER WITH THERMOSTAT (003)
TEMP. IN OIL TANK $\geq 35^{\circ}\text{C}$							●	HEATER WITH THERMOSTAT (003)
DIFF. PRESSURE ACROSS FILTER ≥ 5 bar	●							DP-T(120) 10HNC10 CP-301
CONTROL OIL PRESSURE ≥ 22 bar		●						PT(123,125) 10HNC10 CP004/005
CONTROL OIL PRESSURE ≤ 15 bar (Time delay: 15 sec)	●				●			PT(123,125) 10HNC10 CP004/005
LUBE OIL FLOW ≥ 16 l/min		●						FI&T(212) 10HNC10 CF001
LUBE OIL FLOW ≤ 12 l/min (Fan Brgs.)	●							FI&T(212) 10HNC10 CF001
LUBE OIL TEMPERATURE $> 70^{\circ}\text{C}$	●							TE(207) 10HNC10 CT031
FAN BRG. TEMP HIGH $\geq 90^{\circ}\text{C}$								TE (301–312) 10HNC10 CT015–026
FAN BRG. TEMP VERY HIGH $\geq 110^{\circ}\text{C}$			●					TE (301–312) 10HNC10 CT015–026
FAN BRG. VIBRATION LEVEL $> 4.5\text{mm/s}$ [rms] (Lead time: 10)	●							VT(319,320) 10HNC10 CY005,006
FAN BRG. VIBRATION LEVEL $> 9\text{mm/s}$ [rms] (Lead time: 2min)			●					VT(319,320) 10HNC10 CY005,006
FAN BRG. VIBRATION LEVEL $> 15\text{mm/s}$ [rms] (Lead time: 5 sec)								VT(319,320) 10HNC10 CY005,006
MOTOR								
LUB OIL FLOW PER BEARING < 3 LPM	●							FI&T(221,222) 10HNC10 CF002,003
LUB OIL FLOW PER BEARING < 2 LPM (Time delay: 30 sec)			●					FI&T(221,222) 10HNC10 CF002,003
SEAL AIR OUTLET PRESSURE $\leq 100\text{mmWC}$	●						●	P(T408) 10HNC12 CP001
BEARING ROOM TEMPERATURE $\geq 80^{\circ}\text{C}$								TE(521) 10HNC10 CT027
HYDRAULIC ROOM TEMPERATURE $\geq 80^{\circ}\text{C}$	●							TE(522) 10HNC10 CT028

REFER P & ID FOR COMBUSTION AIR & FLUE GAS SYSTEM DRG NO. : 0-97-288-91000
FOR FURTHER DETAILS.

NOTE: STALL WARNING INSTRUMENTS MENTIONED ABOVE WERE NOT PART OF LUBE OIL SYSTEM.
THE SAME WILL BE SUPPLIED SEPARATELY BY BHEL/EDN.

S. NO	EQUIPMENT	KKS TAG NO
001	OIL TANK (CAPACITY: 500 LTR) (MOC:CS)	10HNCIO BB001
002	DRAIN VALVE WITH SCREW PLUG	10HNCIO AA501
003	HEATER WITH THERMOSTAT(3KW)	10HNCIO AH001
004	FILLER AND AIR BREATHER FILTER	10HNCIO AT001
005	LEVEL GAUGE	10HNCIO CL501
006	TEMPERATURE GAUGE	10HNCIO CT507
007	LEVEL TRANSMITTER (GWR TYPE)	10HNCIO CL001
008	LEVEL TRANSMITTER (GWR TYPE)	10HNCIO CL002
009	TEMPERATURE SENSING ELEMENT	10HNCIO CT030
010	TEMPERATURE SENSING ELEMENT	10HNCIO CT032
011	TERMINAL BOX (OIL SUPPLY UNIT)	10HNCIO GH001
012	LUBE OIL PUMP WITH MOTOR	10HNCIO AP001
102	LUBE OIL PUMP WITH MOTOR	10HNCIO AP002
103	SUCTION STRAINER	10HNCIO AT002
104	SUCTION STRAINER	10HNCIO AT003
105	NON RETURN VALVE	10HNCIO AA401
106	NON RETURN VALVE	10HNCIO AA402
107	PRESSURE RELIEF VALVE (63 BAR)	10HNCIO AA301
108	SHUT OFF VALVE	10HNCIO AA502
109	PRESSURE GAUGE	10HNCIO CP501
110	SHUT OFF VALVE	10HNCIO AA521
111	PRESSURE GAUGE	10HNCIO CP507
112	DOUBLE REVERSING OIL FILTER (ELEMENT:SS)	10HNCIO AT004
113	THREE-WAY VALVE	10HNCIO AA503
114	THREE-WAY VALVE	10HNCIO AA504
115	SHUT OFF VALVE	10HNCIO AA505
116	SHUT OFF VALVE	10HNCIO AA506
117	DIFFERENTIAL PRESSURE GAUGE	10HNCIO CP502
118	SHUT OFF VALVE	10HNCIO AA507
119	SHUT OFF VALVE	10HNCIO AA508
120	DIFFERENTIAL PRESSURE TRANSMITTER	10HNCIO CP301
121	PRESSURE RELIEF VALVE (36 BAR)	10HNCIO AA302
122	SHUT OFF VALVE	10HNCIO AA509
123	PRESSURE TRANSMITTER	10HNCIO CP004
124	SHUT OFF VALVE	10HNCIO AA510
125	PRESSURE TRANSMITTER	10HNCIO CP005
126	SHUT OFF VALVE	10HNCIO AA511
127	PRESSURE GAUGE	10HNCIO CP503
128	2-WAY VALVE MANIFOLD	10HNCIO AA522
129	2-WAY VALVE MANIFOLD	10HNCIO AA523
130	5-WAY VALVE MANIFOLD	10HNCIO AA524
131	5-WAY VALVE MANIFOLD	10HNCIO AA525
132	2-WAY VALVE MANIFOLD	10HNCIO AA526
133	2-WAY VALVE MANIFOLD	10HNCIO AA527
134	2-WAY VALVE MANIFOLD	10HNCIO AA528
135	FLOW SIGHT GLASS	10HNCIO CF501
136	FLOW SIGHT GLASS	10HNCIO CF502

NO	EQUIPMENT	KKS TAG NO
201	PRESSURE RELIEF VALVE (5 BAR)	10HNC10 AA303
202	TEMPERATURE SENSING ELEMENT	10HNC10 CT033
203	DUPLEX COOLER(TUBE:SS316, SHEEL:IS 2062)	10HNC10 AC001
204	THREE-WAY VALVE	10HNC10 AA512
205	THREE-WAY VALVE	10HNC10 AA513
206	NON-RETURN VALVE	10HNC10 AA403
207	TEMPERATURE SENSING ELEMENT	10HNC10 CT031
208	TEMPERATURE GAUGE	10HNC10 CT508
209	SHUT OFF VALVE	10HNC10 AA514
210	PRESSURE GAUGE	10HNC10 CP504
211	THROTTL VALVE (SET POINT: 20 LPM)	10HNC10 AA515
212	FLOW INDICATOR CUM TRANSMITTER	10HNC10 CF001
213	FLOW SIGHT GLASS	10HNC10 CF503
214	THROTTL VALVE (SET POINT: 10LPM)	10HNC10 AA516
215	THROTTL VALVE (SET POINT: 5LPM)	10HNC10 AA517
216	THROTTL VALVE (SET POINT: 5LPM)	10HNC10 AA518
217	SHUT-OFF VALVE	10HNC10 AA519
218	PRESSURE GAUGE	10HNC10 CP505
219	SHUT-OFF VALVE	10HNC10 AA520
220	PRESSURE GAUGE	10HNC10 CP506
221	FLOW INDICATOR CUM TRANSMITTER	10HNC10 CF002
222	FLOW INDICATOR CUM TRANSMITTER	10HNC10 CF003
223	ORIFICE	10HNC10 BP001
224	ORIFICE	10HNC10 BP002
225	INLET FLEX. CONNECTOR TO SUIT FOR G 3/4" CONNECTION	10HNC10 BR001
226		10HNC10 BR002
227	OUTLET FLEX. CONNECTOR TO SUIT FOR DN50, PN6 AS PER DIN 2573	10HNC10 BR003
228		10HNC10 BR004
229	FLOW SIGHT GLASS	10HNC10 CF504
230	FLOW SIGHT GLASS	10HNC10 CF505
231	2-WAY VALVE MANIFOLD	10HNC10 AA529
232	SHUT OFF VALVE	10HNC10 AA530
233	SHUT OFF VALVE	10HNC10 AA531
234	5-WAY VALVE MANIFOLD	10HNC10 AA532
235	2-WAY VALVE MANIFOLD	10HNC10 AA533
236	2-WAY VALVE MANIFOLD	10HNC10 AA534
237	SHUT OFF VALVE	10HNC10 AA535
238	SHUT OFF VALVE	10HNC10 AA536
239	5-WAY VALVE MANIFOLD	10HNC10 AA537
240	SHUT OFF VALVE	10HNC10 AA538
241	SHUT OFF VALVE	10HNC10 AA539
242	5-WAY VALVE MANIFOLD	10HNC10 AA540
301	TEMPERATURE SENSING ELEMENT	10HNC10 CT015
302	TEMPERATURE SENSING ELEMENT	10HNC10 CT016
303	TEMPERATURE SENSING ELEMENT	10HNC10 CT017
304	TEMPERATURE SENSING ELEMENT	10HNC10 CT018
305	TEMPERATURE SENSING ELEMENT	10HNC10 CT019
306	TEMPERATURE SENSING ELEMENT	10HNC10 CT020
307	TEMPERATURE SENSING ELEMENT	10HNC10 CT021
308	TEMPERATURE SENSING ELEMENT	10HNC10 CT022
309	TEMPERATURE SENSING ELEMENT	10HNC10 CT023
310	TEMPERATURE SENSING ELEMENT	10HNC10 CT024
311	TEMPERATURE SENSING ELEMENT	10HNC10 CT025
312	TEMPERATURE SENSING ELEMENT	10HNC10 CT026
313	TEMPERATURE GAUGE	10HNC10 CT503
314	TEMPERATURE GAUGE	10HNC10 CT504
315	TEMPERATURE GAUGE	10HNC10 CT505
316	TEMPERATURE GAUGE	10HNC10 CT506
317	BLADE POSITION (SCALE)	10HNC10 CG501
318	BLADE PITCH ACTUATOR (ELECTRICAL)	10HNC10 AA101
319	VIBRATION PROBE	10HNC10 CY005
320	VIBRATION PROBE	10HNC10 CY006
321	TEMPERATURE SENSING ELEMENT	10HNC10 CT027
322	TEMPERATURE SENSING ELEMENT	10HNC10 CT028
401	FILTER	10HNC12 AT001
402	FILTER	10HNC12 AT002
403	COOLING/SEALING AIR FAN 1	10HNC12 AN001
404	COOLING SEALING AIR FAN 2	10HNC12 AN002
405	NON-RETURN FLAP	10HNC12 AA601
406	NON-RETURN FLAP	10HNC12 AA602
407	CONTROL VALVE	10HNC12 AA501
408	SHUT-OFF VALVE	10HNC12 AA502
409	PRESSURE TRANSMITTER	10HNC12 CP001
410	SHUT-OFF VALVE	10HNC12 AA503
411	PRESSURE GAUGE	10HNC12 CP501
412	CONTROL VALVE	10HNC12 AA504
413	CONTROL VALVE	10HNC12 AA505
414	CONTROL VALVE	10HNC12 AA506
415	CONTROL VALVE	10HNC12 AA507

CUSTOMER Nos. : R678 & R679

PROJECT		2X660MW UDAGUDI SUPERCRITICAL TPP STAGE-I			
CUSTOMER:		TAMILNADU GENERATION & DISTRIBUTION CORPORATION LTD. 5th Floor, Western Wing, NPKRR Maaligai 144, Anna salai, Chennai-600002			
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		DESIN		PRASANNA	Sd/-
		CHD		P.M.JAVID	Sd/-
		APPD		P.M.JAVID	Sd/-
TITLE		LUBE OIL SCHEME FOR ID FAN			
SAF 38.5/25-2		CAPACITY: 60 LPM/63 BAR			
DEPT.		SCALE		DRAWING NO.	
SIGN		N.T.S		1-00-107-29193	
		SHEET		-	
REV.		03			