

GAS TURBINE DRIVEN CENTRIFUGAL COMPRESSOR (SINGLE STAGE)
NO. OF GTC PACKAGES REQUIRED: 01 (ONE)

CASE-1 (GPU RUNNING)/CASE-2 (GPU STOP)

		Case-1a: 3.5 MMSCMD, Ps_max, Ts_max, MW=17.88;							
		Case-1b: 3.5 MMSCMD, Ps_min, Ts_min, MW=17.88;							
		Case-1c: 3.5 MMSCMD, Ps_min, Ts_max, MW=17.88;							
		Case-1d: 3.5 MMSCMD, Ps_max, Ts_min, MW=17.88;							
		Case-2a: 3.5 MMSCMD, Ps_max, Ts_max, MW=19.9163;							
		Case-2b: 3.5 MMSCMD, Ps_min, Ts_min, MW=19.9163;							
		Case-2c: 3.5 MMSCMD, Ps_min, Ts_max, MW=19.9163;							
		Case-2d: 3.5 MMSCMD, Ps_max, Ts_min, MW=19.9163;							
		CASE-1				CASE-2			
		Case-1a	Case-1b	Case-1c	Case-1d	Case-2a	Case-2b	Case-2c	Case-2d
Description	Symbol								
		<i>Stage-1</i>	<i>Stage-1</i>	<i>Stage-1</i>	<i>Stage-1</i>	<i>Stage-1</i>	<i>Stage-1</i>	<i>Stage-1</i>	<i>Stage-1</i>
Flowrate	kg/hr	110121.00				122940.00	122794.00	122965.00	122424.00
	MMSCMD	3.50				3.50	3.50	3.50	3.50
Avg. Mol. Wt.	M	17.88	17.88	17.88	17.88	19.9163	19.9163	19.9163	19.9163
Suction Temp.(°C)	ts	55	40	55	40	35	15	35	15
Suction Pressure (kg/cm²,G)	Ps	39	36	36	39	28	25	25	28
Discharge Pressure (kg/cm²,G)	Pd	92	92	92	92	92	92	92	92
Compress. Factor (suction)	zs	0.931	0.924	0.936	0.919	0.920	0.910	0.928	0.900
Compress. Factor (discharge)	zd	0.931	0.924	0.936	0.919	0.920	0.910	0.928	0.900
Compress. Factor (average)	za=(zs+zd)/2	0.9313	0.9242	0.936	0.9185	0.9202	0.9097	0.9282	0.8999
Adiabatic Exponent	k=cp/cv	1.382	1.3981	1.3731	1.4089	1.3623	1.3849	1.349	1.4022
Gas Composition	Mole%	Case-1				Case-2			
		Nitrogen: 0.23				Water Vapour: Fully Saturated			
		Carbondioxide: 2.36				Nitrogen: 0.16			
		Hydrogen Sulphide:0.00141				Carbondioxide: 2.47			
		Methane: 90.35				Hydrogen Sulphide: 0.00141			
		Ethane: 5.93				Methane: 85.73			
		Propane: 1.06				Ethane: 5.06			
		N-Butane: 0.05				Propane: 3.74			
						N-Butane: 1.79			
						N-Pantane: 0.56			
						Hexane+ : 0.48			
GT fuel gas									

1. **Primary Fuel for GT:** Re-gasified LNG (RLNG) from 18" Gandhar-Jhanore line.

NOTE: Selection of Gas Turbine shall be based on Primary source of fuel i.e. RLNG

2. Secondary Fuel for GT: Semi-rich gas (SRG) from Compressor inlet common header (same as mentioned for Case-1 & Case-2 above).

Component	RLNG	
	Gas	
	Max. LHV	Min. LHV
C1	93.32912	90.74001
C2	5.62274	6.24112
C3	0.27888	1.81558
iC4	0.047754	0.32322
nC4	0.05217	0.47376
iC5	0.00333	0.01843
nC5	0.00086	0.00487
N2	0.6651	0.38304
Total		
Molecular Weight		
Fuel Gas Supply Conditions @ vendor's battery limit		
Pressure (kg/cm ² G)	28-30	
Temperature (°C)	18-35	
LHV (kCal/Sm3)	8834	8445
HC Dew Point (°C)	(-)68.75°C@ 30 kg/cm2G	

Fuel Gas Properties for SRG are as follows:

Sl. No.	Component	SRG Gas	
		Case-1	Case-2
1.	Nitrogen	0.23	0.16
2.	Carbondioxide	2.36	2.47
3.	Hydrogen Sulphide	0.00141	0.00141
4.	Methane	90.35	85.73
5.	Ethane	5.93	5.06
6.	Propane	1.06	3.74
7.	N-Butane	0.05	1.79
8.	N-Pentane	----	0.56
9.	Hexane Plus	----	0.48
	Total		
	Molecular Weight		
	Fuel Gas Supply Conditions @ vendor's battery limit		
	Pressure (kg/cm ² G)	36-39	25-28
	Temperature (°C)	40-55	15-35
	LHV (kCal/Sm3)	8396.761	9288.321
	HC Dew Point (°C)	(-)103 @ Atm. Pr.	(-)35 @ Atm. Pr.

Sl#	Parameter	Minimum	Normal / Average	Maximum / Design
(A) METEOROLOGICAL DATA				
1	Elevation above mean sea level, m		8	

2	Barometric pressure, mBar			
3	Ambient temperature, °C	t _{min} = 6	t _{nor} =	t _{max} =47
4	Relative humidity, %	20%@ t _{min}	@ t _{nor}	90%@ t _{max}
5	Rainfall data for 24-hour period			305 mm
6	Wind data (a) wind velocity			160 km/hr
	(b) wind direction (% days per year)	N(5), NE(13.5), E(5.75), SE(10.25), S(10), SW (37.5), W(6), NW(9), Calm(3)		
(B) DATA FOR EQUIPMENT DESIGN				
1	Design dry bulb temperature, °C	42		
2	Design wet bulb temperature, °C	29		
3	Low ambient temperature for MDMT, °C	6		
4	Design air temperature for air cooled exchangers where <i>followed</i> by water cooling, °C	40		
5	Design air temperature for air cooled exchangers Where <i>not followed</i> by water cooling, °C	42		
6	Coincident temperature and relative humidity for Air Blower / Air Compressor design.	40 °C & RH 90%		