


Data/requisition sheet for						Design book No. : _____ page : _____	
 Shell Global Solutions CENTRIFUGAL/AXIAL COMPRESSORS						Contr. job No. _____	
						MESC No. _____	
1	Equipment No. : K-9601-1A/B				Number required : 2		
2	OPERATING DATA						
3	Vapour or gas handled : Yes				Maximum allowable discharge pressure : 9.0 barg		
4	Process gas to be kept oil free : Yes				Discharge relief valve setting : barg		
5	Operation : Continuous				Aftercooler outlet temperature : 50.0 °C		
6	Entrainment : gas to be kept free of solids				Max. allowable temperature of compression : 165.0 °C		
7	Corrosive gas : No due to				Liquid injection required : No		
8	Hazardous service : Yes due to H2S				Estimated isentropic power : 0.481 MW		
9					Casing minimum design temperature : -15.0 °C		
10					Casing minimum design pressure : barg		
11	Operating conditions	(Note 2)	Case 1:	Case 2:	Case 3:	Case 4:	
12	Flow rate	kg/hr (Note 3)	26758	7526	18071	20630	
13	Actual inlet capacity	m3/hr	291355	82176	167215	221907	
14	Inlet pressure	barg	0.2	0.2	0.2	0.2	
15	Discharge pressure	barg	3.7	3.7	3.7	3.7	
16	Inlet temperature	°C	59.6	61.5	61.1	61.2	
17	Mol. weight at inlet	kg/kmol	50.0	50.2	58.7	50.86	
18	Cp/Cv at inlet	-	1.105	1.104	1.090	1.103	
19	Cp at inlet	kJ/kg/°C	1.840	1.846	1.843	1.843	
20	Z (compr. factor) at inlet	-	0.984	0.985	0.977	0.984	
21	System settling out pressure	barg	-	-	-	-	
22							
23							
24	Guarantee case						
25	Allowable Section Polytropic head deviation						
26	COMPRESSOR				COMPRESSOR DRIVE		
27	Type : Centrifugal				Type : Electric motor (50Hz)		
28	Casing design :				Direction of rotation :		
29					Speed :		
30	No. of casings :				Estimated nominal power : 0.706 MW		
31	No. of impellers per casing :				Transmission :		
32							
33							
34	LOCATION				MAIN CASING CONNECTIONS		
35	Location : Land based				Suction branch :		
36	Compressor housing :				= flange : ANS, class		
37	Lifting facilities :				= facing : smooth		
38	Ambient temperature : maximum 30.0 °C				Discharge branch :		
39	: minimum -15.0 °C				= flange : ANS, class		
40	Other :				= facing : smooth		
41	Winterization required :						
42	IP area classification :						
43	IP temperature class : T				Individual stage drains required :		
44	Storage conditions :				Borescope connections required :		
45							
46							
47							
48							
49							
50							
51							
52	Compressors shall be in accordance with DEP 31.29.40.30-Gen.						
53							
54	REMARKS ON REVISIONS						
55	0: For client review						
56							
57							
58							
59							
Made by : SAP		Date: 09-Nov-10	CONSIGNEE : DONG Oil Pipe PLANT : DO Terminal Hejre Crude Stabilization Project EQUIPMENT 1st Stage Compressor			Rev. letter	1
Checked by : KONJ		Date: 11-Nov-10				Date	25/02/2011
Approved by : KONJ		Date: 11-Nov-10				Signed	KONJ
Sheet No. 1 cont'd on sheet No. 2							
Eng. by :		Shell Global Solutions International B.V			Equipment No. :		K-9601-1A/B
Principal :		DONG Oil Pipe			Req. No. :		

**Shell Global Solutions CENTRIFUGAL/AXIAL COMPRESSORS**

Data/requisition sheet for

Design book No. : page :

Contr. job No.

MESC No.

Equipment No. : K-9601-1A/B

Number required : 2

OPERATING DATA

Vapour or gas handled	: Yes	Maximum allowable discharge pressure	: 9.0	barg
Process gas to be kept oil free	: Yes	Discharge relief valve setting	:	barg
Operation	: Continuous	Aftercooler outlet temperature	: 50.0	°C
Entrainment	: gas to be kept free of solids	Max. allowable temperature of compression	: 165.0	°C
Corrosive gas	: No due to	Liquid injection required	: No	
Hazardous service	: Yes due to H2S	Estimated isentropic power	: 0.481	MW
		Casing minimum design temperature	: -15.0	°C
		Casing minimum design pressure	:	barg

Operating conditions	(Note 2)	Case 1:	Case 2:	Case 3:	Case 4:						
Flow rate	kg/hr (Note 3)	26758	7526	18071	20630						
Actual inlet capacity	m3/hr	291355	82176	167215	221907						
Inlet pressure	barg	0.2	0.2	0.2	0.2						
Discharge pressure	barg	3.7	3.7	3.7	3.7						
Inlet temperature	°C	59.6	61.5	61.1	61.2						
Mol. weight at inlet	kg/kmol	50.0	50.2	58.7	50.86						
Cp/Cv at inlet	-	1.105	1.104	1.090	1.103						
Cp at inlet	kJ/kg/°C	1.840	1.846	1.843	1.843						
Z (compr. factor) at inlet	-	0.984	0.985	0.977	0.984						
System settling out pressure	barg	-	-	-	-						
Guarantee case											
Allowable Section Polytropic head deviation											

COMPRESSOR**COMPRESSOR DRIVE**

Type	: Centrifugal	Type	: Electric motor (50Hz)
Casing design	:	Direction of rotation	:
		Speed	:
No. of casings	:	Estimated nominal power	: 0.706 MW
No. of impellers per casing	:	Transmission	:

LOCATION**MAIN CASING CONNECTIONS**


Location	: Land based	Suction branch	:
Compressor housing	:	= flange	: ANS, class
Lifting facilities	:	= facing	: smooth
Ambient temperature	: maximum 30.0 °C		
	: minimum -15.0 °C	Discharge branch	:
Other	:	= flange	: ANS, class
Winterization required	:	= facing	: smooth
IP area classification	:		
IP temperature class	: T	Individual stage drains required	:
Storage conditions	:	Borescope connections required	:


Compressors shall be in accordance with DEP 31.29.40.30-Gen.

REMARKS ON REVISIONS

0: For client review

Made by : SAP	Date: 09-Nov-10	CONSIGNEE : DONG Oil Pipe	Rev. letter	1			
Checked by : KONJ	Date: 11-Nov-10	PLANT : DO Terminal Hejre Crude Stabilization Project	Date	25/02/2011			
Approved by : KONJ	Date: 11-Nov-10	EQUIPMENT 1st Stage Compressor	Signed	KONJ			
Sheet No. 1 cont'd on sheet No. 2							
Eng. by :	Shell Global Solutions International B.V			Equipment No. :	K-9601-1A/B		
Principal :	DONG Oil Pipe			Req. No. :			

 Shell Global Solutions CENTRIFUGAL/AXIAL COMPRESSORS		Design book No. : _____ page : _____	
		Contr. job No. : _____	
		MESC No. : _____	
MATERIAL SPECIFICATION		VIBRATION DETECTORS	
Part	Material ASTM No.	Detectors required : Yes/No?	
Casing and cover(s)		Manufacturer : _____	
Impellers		Type : _____	
Shaft		Number at each bearing : _____	
Shaft sleeve(s)		Casing accelerometers : Yes/No?	
Diaphragm(s)		GearBox accelerometers : Yes/No?	
Labyrinths		Monitors required : Yes/No?	
		Monitor location : _____	
Rotor blading 1)		Monitor enclosure : _____	
Stator blading 1)		AXIAL POSITION DETECTORS	
Oil coolers		Detectors required : Yes/No?	
Inter/after coolers 2)		Number at each bearing : _____	
Liquid separators		Manufacturer : _____	
Receiver		Type : hydraulic / electronic	
Silencers		Key phaser required : Yes/No?	
Copper or copper alloys	Copper?	Monitors required : Yes/No?	
Coatings	Coatings?	Monitor location : _____	
1) : For axial compressors		Monitor enclosure : _____	
2) Shell and tube heat exchanger design code : _____			
UTILITY DATA		TESTS	
Steam conditions for auxiliary equipment :		Type of test	Required
- Live steam, normal : barg @ deg C		Hydrostatic	Mandatory
maximum : barg @ deg C		Impeller overspeed	Mandatory
minimum : barg @ deg C		Mechanical run	Mandatory
- Exhaust conditions, normal : barg		Gas leakage	Yes/No?
maximum : barg		Complete unit	Yes/No?
minimum : barg		Post-test inspection	Yes/No?
		Performance test :	Location?
Cooling water type : fresh / brackish / salt		Applicable test code	Select code?
Cooling water max. inlet temperature : deg C		Tolerances as 4.3.3.1.7	Yes/No?
Cooling water max. allowable outlet temperature : deg C			
Cooling water supply pressure : barg		Sound level test	Yes/No?
Cooling water return pressure : barg		Balance line DP v Thrust	Yes/No?
Cooling water fouling coefficient : W/m2.K		per section testing	Yes/No?
Flare pressures Maximum : barg			
Minimum : barg			
ADDITIONAL REQUIREMENTS			
Vendor's data shall be submitted on API data sheets.			
Design audit review required : Yes/No?			
Vendor to review overall machine control system : Yes/No?			
Partial train operation required : Yes/No?			
Field run on atmospheric air : Yes/No?			
REMARKS ON REVISIONS			
Eng. by : Shell Global Solutions International B.V		Sheet No. 3 cont'd on sheet No. 4	
Principal : DONG Oil Pipe		Equipment No. : K-9601-1A/B	
		Req. No. : _____	

 Shell Global Solutions		CENTRIFUGAL/AXIAL COMPRESSORS		page :	
INSTRUMENTATION REQUIREMENTS					
General					
Local instrument panel / combined for compressor and drive		Select?			
Compressor control system / type		Select?			
Compressor safeguarding system		Select?			
Anti surge system		Select?			
Pressure instruments					
Pressure of :		Indicator		Connection(s)	
- Differential across suction strainer		Select?		Yes/No?	
- Inlet / interstage / discharge of compressor		Select?		Yes/No?	
- Low pressure side of balance piston		Yes/No?		Yes/No?	
- Discharge of lube / seal oil pumps		Yes/No?		Yes/No?	
- Differential across lube oil / seal oil filters		Yes/No?		Yes/No?	
- Lube oil at bearings		Yes/No?		Yes/No?	
- Seal oil at seals		Yes/No?		Yes/No?	
- Gas reference pressure		Yes/No?		Yes/No?	
- Seal oil to gas reference differential		Yes/No?		Yes/No?	
- Differential across seal gas / buffer gas filters		Yes/No?		Yes/No?	
- Buffergas supply		Select?		Yes/No?	
Temperature instruments					
Temperature of :		Indicator		Connection(s) 1)	
- Inlet / interstage / discharge of compressor / balancing line		Select?		Yes/No?	
- Seals Sensor type :		Yes/No?		Yes/No?	
- Bearings Sensor type :		Yes/No?		Yes/No?	
- Lube / seal oil in reservoir		Yes/No?		Yes/No?	
- Lube / seal oil at inlet/outlet of coolers		Yes/No?		Yes/No?	
- Cooling water at inlet/outlet of coolers		Select?		Yes/No?	
- Lube / seal oil outlet at bearings / seals		Yes/No?		Yes/No?	
- Cooling gas outlet of dry gas seals		Yes/No?		Yes/No?	
1) Shall include a thermowell, except for seals and bearings					
Level instruments					
Level of :		Indicator		Connection(s) 1)	
- Lube oil / seal oil reservoir(s)		Yes/No?		Yes/No?	
- Liquid separators		Yes/No?		Yes/No?	
- Lube oil / Seal oil overhead tank(s)		Yes/No?		Yes/No?	
- Seal oil drain traps		Yes/No?		Yes/No?	
SAFETY,ALARM AND SHUTDOWN DEVICES *					
Initiating condition:	Alarm	Shutdown	Other	Description	Supplied
- High liquid level in the compressor inlet separator	X	X	O		Select?
- High compressor discharge temperature	X	O	O		Select?
- Low lube oil pressure	X	X	X	Start stand-by pump	Select?
- Low level in the lube/seal oil reservoir(s)	X	O	O		Select?
- High lube/seal oil temperature at cooler outlet	X	O	O		Select?
- High diff. pressure over lube/seal oil filters	X	O	O		Select?
- High diff. pressure over seal gas/buffer gas filters	X	O	O		Select?
- Low diff. pressure over primary gas seal	X	X	O		Select?
- High seal oil level in overhead tank	X	O	O		Select?
- Low seal oil level in overhead tank (liq film seals)	X	X	X	Start stand-by pump	Select?
- Low seal oil/ref. gas diff. pressure (mech. cnt. seals)	X	X	X	Start stand-by pump	Select?
- High level in seal oil drain traps/ degassing drum	X	O	O		Select?
- High primary gas seal leakage flow	X	O	O		Select?
- High/Low diff. flow buffer gas/primary seal leakage	X	O	O		Select?
- Excessive vibration	X	O	O		Select?
- Excessive axial rotor displacement	X	X	O		Select?
- Excessive bearing temperature(s)	X	O	O		Select?
<div style="text-align: right;"> Sheet No. 4 cont'd on sheet No. 5 </div>					
Eng. by :				Equipment No. : K-9601-1A/B	
Principal :				Req. No. :	