



NISOC

شماره پیمان:

۰۵۳ - ۰۷۳ - ۹۱۸۴

تولید میدان نفتی بینک
نشان بسته ایستگاه تقویت فشار گاز
گاز (رفت و برگشتی) بینک
(BK-HD-GCS-CO

DETAILED DATA SHEET FOR

پروژه

بسته کاری

صادر کننده

BK

GCS

HY

لیست مدارک ابزار دقیق اضافه گردد:

BK-GNRAL-PEDCO-000-IN-SP-0001

Specification For Instrumentation

BK-GNRAL-PEDCO-000-IN-SP-0002

Specification For Control System

BK-GNRAL-PEDCO-000-IN-SP-0003

Specification For ESD System

BK-GNRAL-PEDCO-000-IN-SP-0004

Specification For Instrument and Control of Package Unit System (PU)

BK-GNRAL-PEDCO-000-IN-SP-0005

Specification For Control Valves

BK-GNRAL-PEDCO-000-IN-SP-0006

Specification For On-off /Shut Down Valves (ESDV/MOV)

BK-GNRAL-PEDCO-000-IN-SP-0007

Specification For Pressure Safety Valves(PSV)

BK-GCS-PEDCO-120-IN-BD-0001

Control/ESD/F&G System Block Diagram Configuration

BK-GNRAL-PEDCO-000-IN-SP-0010

Specification For Instrument/F&G Cables

BK-GNRAL-PEDCO-000-IN-SP-0011

Specification For Control Panels and System Cabinets

در قسمت valve اضافه گردد. Recycling Preferred instrument suppliers

1- Data sheet for compressor main motor :

ستون Vendor data بایستی توسط سازنده الکتروموتور تکمیل گردد اما در مدرک ارسالی بسیاری از فیلدها خالی است و برای برخی نیز عبارت Will be filled نوشته شده است که مورد قبول نمی باشد.

2- Data sheet for gas compresseor :

-کلیه فیلدهایی که بصورت Hold در دیتا شیت آورده شده اند بایستی با اطلاعات سازنده تکمیل گردند برای مثال در صفحه 15 مدرک اطلاعات موتورها بصورت Hold نمایش داده شده است که در این مقطع از پروژه پذیرفته نیست. - در صفحه 11 مدرک ارسالی ولتاژ موتور اصلی اشتباه بجای 11000 ولت 1100 ولت قید شده که بایستی اصلاح گردد. در صفحه 11 ولتاژ مورد نیاز برای پل کنترلی بایستی قید گردد.

پرویس:

- مقادیر Settleout Pressure در مدرک درج گردد.

- دلیل در نظر نگرفتن Full Vacuume برای سیلندر تشریح گردد.

-مقدار Design Pressure برابر با 62 بار لحاظ گردد.

ابزار دقیق

- Type پل های کنترلی پکیج کمپرسور گازی مشخص شود.

-کامنت های مکانیکال در دیتا شیت قید شده است.

V00

FEB.2022

IFR

Havay

Rev.

Date

Purpose of Issue / Status

Prepar

Class: 2

CLIENT Doc. Number:

status:

IFA: Issued For Approval (For Docs. with Class#1)
IFR: Issued For Review (For Docs. with Class#2)
IFI: Issued For Information (For Docs. with Class#3)
AFC: Approved For Construction

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض/ایستگاه تقویت فشار گاز خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک (قرارداد BK-HD-GCS-CO-0008_03)						 HAVAYAR INDUSTRIAL GROUP		
	DETAILED DATA SHEET FOR GAS COMPRESSORS								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	پروژه BK	بسته کاری GCS	صادرکننده HY	تجهیزات 120	رشته ME	نوع مدرک DT	سریال 0001	نسخه V00	شماره صفحه: 2 از 23

REVISION RECORD SHEET

Page	V00	V01	V02	V03	V04	V05	V06
1	X						
2	X						
3	X						
4	X						
5	X						
6	X						
7	X						
8	X						
9	X						
10	X						
11	X						
12	X						
13	X						
14	X						
15	X						
16	X						
17	X						
18	X						
19	X						
20	X						
21	X						
22	X						
23	X						
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							

Page	V00	V01	V02	V03	V04	V05	V06
40							
41							
42							
43							
44							
45							
46							
47							
48							
49							
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							
61							
62							
63							
64							
65							
66							
67							
68							
69							
70							
71							
72							
73							
74							
75							
76							
77							
78							



نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض و ابنیه تحت الارض / بسته ایستگاه تقویت فشار گاز
پکیج های کمپرسور گاز (رفت و برگشتی) بینک
قرارداد (BK-HD-GCS-CO-0008_03)



Specific model and frame size of vendor shall be clearly mentioned

شماره پیمان:

053 - 073 - 9184

DETAILED DATA SHEET FOR GAS COMPRESSOR

شماره صفحه : 3

پروژه BK کاری GCS صادرکننده HY تسهیلات 120 رشته ME مدبرک DT

0001 V00

1 APPLICABLE TO: ☐ PROPOSALS ☒ PURCHASE ☐ AS BUILT

2 FOR/USER NISOC SITE/LOCATION Binak Oil Field SERVICE Sour Gas NO. REQ'D 2 Operating / 1 Spare

3 NOTE: ☐ INDICATES INFO. TO BE COMPLETED BY PURCH. ☐ BY MANUFACTURER WITH PROPOSAL ☒ BY MANUFACTURER AFTER ORDER ☐ BY MANUFACTURER OR PURCHASER AS APPLICABLE

4

5 COMPR. MFRG Havayar / Kwangshin TYPE MODEL NO(S) KSOPT SERIAL NO(S) C-2101&C-2102 A/B/C

6 COMPR.THROWS: TOTAL NO. 2 NO. WITH CYLS. 2 NOMINAL FRAME RATING 1050 BkW @ RATED R/MIN OF 420

7 ☒ MAX/MIN ALLOWABLE SPEED

8 DRIVER MFRG. As per Sub vendor List DRIVER NAME 1050 / 420

9 DRIVE SYSTEM: ☒ DIRECT COUPLED ☐ GEARED & COUPLED ☐ V-BELT

10 TYPE OF DRIVER: ☒ IND. MOTOR ☐ SYN. MOTOR ☐ STEAM TURBINE ☐ GAS TURBINE ☐ ENGINE ☐ OTHER

11 CYLINDERS CONSTRUCTION: ☒ LUBE ☐ NON-LUBE

12

13 ☒ MAX ACCEPTABLE AVG PISTON SPEED 4 m/s

Electro motor Mfg shall be specified

OPERATING CONDITIONS (EACH MACHINE)

14

15 ☒ SERVICE OR ITEM NO.

16 ☒ STAGE

17 ☒ NORM. OR ALT. CONDITION

18 ☒ CERTIFIED PT. (X) MARK ONE

19 ☒ MOLECULAR WEIGHT

20 ☒ Cp/Cv (K) @ 65°C OR °C

21 INLET CONDITIONS: AT INLET TO: ☒ PULSE DEVICES ☒ COMPRESSOR CYLINDER FLANGES

22 NOTE: ☐ SIDE STREAM TO STAGE(S), THESE INLET PRESS. ARE FIXED

23 ☒ PRESSURE (barg) @ PUL. SUPP. INLET

24 ☒ PRESSURE (barg) @ CYL. FLANGE

25 ☒ TEMPERATURE (°C)

26 ☐ REC: SIDE STREAM TEMPS (°C)

27 ☒ COMPRESSIBILITY (Z_s)

28 INTERSTAGE: INTERSTAGE Δ P INCL: ☐ PULSE DEVICES ☐ PIPING ☐ COOLERS ☐ SEPARATORS ☐ OTHER

29 ☒ ΔP BETWEEN STAGES, %/bar

30 DISCHARGE CONDITIONS: AT OUTLET FROM: ☒ PULSE DEVICE ☒ COMP. CYL. FLANGES ☐ OTHER

31 ☒ PRESSURE (barg) @ CYL. FLANGE

32 ☒ PRESS. (barg) @ PUL. SUPP. OUTLET

33 ☐ TEMP., ADIABATIC, °C

34 ☒ TEMP., PREDICTED, °C

35 ☒ COMPRESSIBILITY (Z₂) OR (Z_{AVG})

36 * CAPACITY AT INLET TO COMPRESSOR, NO NEGATIVE TOLERANCE (-0%)

37 ☒ kg/h CAPACITY SPECIFIED

38 IS ☒ WET ☐ DRY

39 ☒ Nm³/h (1 atm & 0 °C)

40 * MFRG.'S RATED CAPACITY (AT INLET TO COMPRESSOR & kW @ CERTIFIED TOLERANCE OF ±3% FOR CAP. & ±3% FOR kW)

41 ☒ kg/h CAPACITY SPECIFIED

42 IS ☒ WET ☐ DRY

43 ☒ INLET VOLUME FLOW (m³/h)

44 ☒ Nm³/h (1.013 bar & 0°C)

45 ☒ BkW/STAGE

46 ☒ TOTAL BkW @ COMPRESSOR SHAFT

47 ☒ TOTAL kW INCLUDING

48 V-BELT & GEAR LOSSES

49 * CAPACITY FOR NNT

50 MANUFACTURER'S = REQUIRED ÷ 0.97

51 THEREFORE REQUIRED = MFR'S x 0.97

REMARKS: 10% over-design is considered for winter case based on basic documents.
Total kW including loss at PSV set pressure (60.8 barg): 949.8 kw



NISOC

نگهداشت و افزایش تولید میدان نفتی بینک

سطح الارض و ابنیه تحت الارض/بسته ایستگاه تقویت فشار گاز

خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک

قرارداد (BK-HD-GCS-CO-0008_03)



HAVAYAR
INDUSTRIAL GROUP

شماره پیمان:

053 - 073 - 9184

DETAILED DATA SHEET FOR GAS COMPRESSORS

نسخه سریال نوع مدرک رشته تسهیلات صادرکننده بسته کاری پروژه

BK GCS HY 120 ME DT 0001 V00

شماره صفحه: 4 از 23

GAS ANALYSIS AT OPERATING CONDITIONS

MOLE % (BY VOLUME) ONLY

	SERVICE/ITEM NO.	STAGE	NORMAL OR ALT	M.W.	Continuous		Continuous		Continuous		Continuous	
					1st	2nd	1st	2nd	1st	2nd	1st	2nd
					Summer				Winter			
AIR				28.966								
OXYGEN	O ₂			32.000								
NITROGEN	N ₂			28.016	0.2984	0.2984	0.3101	0.3101				
WATER VAPOR	H ₂ O			18.016	1.0314	1.0314	0.3638	0.3638				
CARBON MONOX.	CO			28.010								
CARBON DIOX.	CO ₂			44.010	3.1606	3.1606	2.5202	2.5202				
HYDRO. SULFIDE	H ₂ S			34.076	5.4119	5.4119	4.7056	4.7056				
HYDROGEN	H ₂			2.016								
METHANE	CH ₄			16.042	63.8921	63.8921	73.9809	73.9809				
ETHYLENE	C ₂ H ₄			28.052								
ETHANE	C ₂ H ₆			30.068	13.7515	13.7515	11.4249	11.4249				
PROPYLENE	C ₃ H ₆			42.078								
PROPANE	C ₃ H ₈			44.094	7.7314	7.7314	4.7371	4.7371				
I-BUTANE	C ₄ H ₁₀			58.120	0.8394	0.8394	0.3942	0.3942				
n-BUTANE	C ₄ H ₁₀			58.120	1.8594	1.8594	0.8130	0.8130				
I-PENTANE	C ₅ H ₁₂			72.146	0.6968	0.6968	0.3066	0.3066				
n-PENTANE	C ₅ H ₁₂			72.146	0.3774	0.3774	0.1450	0.1450				
n-HEXANE	C ₆ H ₁₄			86.180	0.6549	0.6549	0.2224	0.2224				
n-HEPTANE	C ₇ H ₁₆			100.20	0.1956	0.1956	0.0542	0.0542				
n-OCTANE	C ₈ H ₁₈			114.23	0.0596	0.0596	0.0149	0.0149				
n-NONANE	C ₉ H ₂₀			128.26	0.0297	0.0297	0.0071	0.0071				
n-DECANE	C ₁₀ H ₂₂			142.28	0.0099	0.0099	0.0000	0.0000				
AMMONIA	NH ₃			17.031								
HYDRO. CHLOR.	HCl			36.461								
CHLORINE	Cl ₂			70.914								
CHLORIDES - TRACES												
CALCULATED MOL WT.					24.52	24.52	21.56	21.56				
C _p /C _v (K) @ 65° OR °C												

NOTE: IF WATER VAPOR AND/OR CHLORIDES ARE PRESENT, EVEN MINUTE TRACES, IN THE GAS BEING COMPRESSED, IT MUST BE INCLUDED ABOVE.

APPLICABLE SPECIFICATIONS

- API 618, RECIPROCATING COMPRESSORS FOR PETROLEUM, CHEMICAL AND GAS INDUSTRY SERVICES
- NACE MR-0175 (6.15.1.11)

SITE/LOCATION CONDITIONS

ELEVATION 12.5 m 0.99 bar AMBIENT TEMPS: MAX 50 °C MIN 5 °C

COMPRESSOR LOCATION: MIN DESIGN METAL TEMP °C (6.15.8.1) RELATIVE HUMIDITY: MAX 100 % MIN 0 %

INDOOR HEATED UNHEATED AT GRADE LEVEL ELEVATED: m

OUTDOOR NO ROOF UNDER ROOF PARTIAL SIDES PLATFORM: ON-SHORE

OFF-SHORE WEATHER PROTECTION REQ. TROPICALIZATION REQ.

WINTERIZATION REQUIRED

UNUSUAL CONDITIONS: CORROSIVES DUST FUMES OTHER

ELECTRICAL CLASSIFICATIONS

HAZARDOUS NON-HAZARDOUS

MAIN UNIT ZONE 2 GROUP GR.IIB TEMP CLASS T3

L.O. CONSOLE ZONE 2 GROUP GR.IIB TEMP CLASS T3

CW CONSOLE ZONE 2 GROUP GR.IIB TEMP CLASS T3

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض/ بسته ایستگاه تقویت فشار گاز خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک قرارداد (BK-HD-GCS-CO-0008_03)	 HAVAYAR INDUSTRIAL GROUP
شماره پیمان: 053 - 073 - 9184	DETAILED DATA SHEET FOR GAS COMPRESSORS نسخه سریال نوع مدرک رشته تسهیلات صادرکننده بسته کاری پروژه BK GCS HY 120 ME DT 0001 V00	شماره صفحه: 5 از 23

1	PART LOAD OPERATING CONDITIONS										
2	CAPACITY CONTROL	BY:	☐ MFG'S CAP. CONTROL ☐ PURCHASERS BY-PASS ☒ BOTH ☐ OTHER _____								
3		FOR:	☐ PART LOAD COND. ☐ START-UP ONLY ☒ BOTH								
4		WITH:	☒ AUTO LOADING DELAY INTERLOCK (7.6.2.4) ☐ AUTO IMMEDIATE UNLOADING								
5		USING:	☒ FIXED VOLUME POCK. ☒ SUCTION VALVE UNLOADERS: ☒ FINGER ☐ PLUG ☐ OTHER								
6			ACTION: ☐ DIRECT (AIR-TO-UNLOAD) ☒ REVERSE (AIR-TO-LOAD/FAIL SAFE)								V03
7			NUMBER OF STEPS: ☐ ONE ☐ THREE ☒ FIVE ☐ OTHER _____								
8			☐ RAIN COVER REQUIRED OVER UNLOADERS								
9	ALL UNLOADING STEPS BASIS MANUFACTURERS CAPACITY SHOWN ON PAGE 3.										
10	INLET AND DISCHARGE PRESSURE ARE		☒ AT CYLINDER FLANGES ☐ PULSATION SUPPRESSOR FLANGES								
11	● SERVICE OR ITEM NO.		Continuous								
12	■ STAGE		1st								
13	■ NORMAL OR ALTERNATE CONDITION		Summer								
14	● PERCENT CAPACITY		0	25	50	75	100				
15	● WEIGHT FLOW, kg/h						8935.5				
16	■ Nm ³ /h (1.013 bar & 0°C)						8162.9				
17	POCKETS/VALVES OPERATION *		HE S & CE S	HE F & CE S	HE S or CE S	HE F	-				
18	■ POCKET CLEARANCE ADDED %			25% (Head Side)		25% (Head Side)					
19	■ TYPE UNLOADERS, PLUG/FINGER		Finger	Finger	Finger	Finger	Finger				
20	■ INLET TEMPERATURE, °C		36.8	36.8	36.8	36.8	36.8				
21	■ INLET PRESSURE, barg		4.80	4.80	4.80	4.80	4.80				
22	■ DISCHARGE PRESSURE, barg		18.25	18.25	18.25	18.25	18.25				
23	□ DISCHARGE TEMP., ADIABATIC °C										
24	■ DISCHARGE TEMP., PREDICTED °C						129.0000				
25	■ VOLUMETRIC EFF., %HE/%CE		- / -	36.235 / -	72.47/- / 72.47/-	36.235/ 72.47	72.47 / 72.47	/			
26	■ CALC. GAS ROD LOAD, kN, C **										
27	■ CALC. GAS ROD LOAD, kN, T **										
28	◆ COMB. ROD LOAD, kN C (GAS & INERTIA)						24453				
29	◆ COMB. ROD LOAD, kN T (GAS & INERTIA)						22951				
30	◆ ROD REV., DEGREES MIN @ X-HD PIN ***										
31	■ KW/STAGE						441.1				
32	■ TOTAL KW @ COMPRESSOR SHAFT										
33	■ TOTAL KW INCL. V-BELT & GEAR LOSSES										
34											
35	* SHOW OPERATION WITH THE FOLLOWING SYMBOLS:										
36											
37	HEAD END = HE SUCTION VALVE(S) UNLOADED = S										
38	OR } PLUS OR = F										
39	CRANK END = CE OR = V										
40											
41											
42	EXAMPLE: HE-F/CE-S = HEAD END FIXED POCKET OPEN / CRANK END SUCTION VALVE(S) UNLOADED.										
43	** C = COMPRESSION T = TENSION *** X - HD = CROSSHEAD										
44	☐ MINIMUM PRESSURE REQUIRED TO OPERATE CYLINDER UNLOADING DEVICES, _____ barg										
45	CYLINDER UNLOADING MEDIUM: ☒ AIR ☐ NITROGEN ☐ OTHER _____										
46	☒ PRESSURE AVAILABLE FOR CYLINDER UNLOADING DEVICES, MAX/MIN _____ / _____ barg										
47	REMARKS, SPECIAL REQUIREMENTS, AND/OR SKETCH										
48											
49											
50											
51											



شماره صفحه : 6 از 23

نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه
V00	0001	DT	ME	120	HY	GCS	BK

PART LOAD OPERATING CONDITIONS					
CAPACITY CONTROL BY:		☐ MFG'S CAP. CONTROL	☐ PURCHASERS BY-PASS	☒ BOTH	☐ OTHER _____
FOR:		☐ PART LOAD COND.	☐ START-UP ONLY	☒ BOTH	
WITH:		☒ AUTO LOADING DELAY INTERLOCK (7.6.2.4) ☐ AUTO IMMEDIATE UNLOADING			
USING:		☒ FIXED VOLUME POKK.	☒ SUCTION VALVE UNLOADERS:	☒ FINGER	☐ PLUG ☐ OTHER
		ACTION:	☐ DIRECT (AIR-TO-UNLOAD)	☒ REVERSE (AIR-TO-LOAD/FAIL SAFE)	V03
		NUMBER OF STEPS:	☐ ONE	☐ THREE	☒ FIVE ☐ OTHER _____
		☐ RAIN COVER REQUIRED OVER UNLOADERS			
ALL UNLOADING STEPS BASIS MANUFACTURERS CAPACITY SHOWN ON PAGE 3.					
INLET AND DISCHARGE PRESSURE ARE		☒ AT CYLINDER FLANGES ☐ PULSATION SUPPRESSOR FLANGES			
☒ SERVICE OR ITEM NO.	Continuous				
☒ STAGE	2nd				
☒ NORMAL OR ALTERNATE CONDITION	Summer				
☒ PERCENT CAPACITY	0	25	50	75	100
☒ WEIGHT FLOW, kg/h					8935.5
☐ Nm ³ /h (1.013 bar & 0°C)					8162.9
☐ POCKETS/VALVES OPERATION *	HE S & CE S	HE F & CE S	HE S or CE S	HE F	-
☒ POCKET CLEARANCE ADDED %		25% (Head Side)		25% (Head Side)	
☒ TYPE UNLOADERS, PLUG/FINGER	Finger	Finger	Finger	Finger	Finger
☒ INLET TEMPERATURE, °C	59.9	59.9	59.9	59.9	59.9
☒ INLET PRESSURE, barg	17.40	17.40	17.40	17.40	17.40
☒ DISCHARGE PRESSURE, barg	54.90	54.90	54.90	54.90	54.90
☐ DISCHARGE TEMP., ADIABATIC °C					
☒ DISCHARGE TEMP., PREDICTED °C					146.0000
☒ VOLUMETRIC EFF., %HE/%CE	- / -	37.29 / -	74.58/- / 74.58/-	37.29 / 74.58	74.58 / 74.58 /
☒ CALC. GAS ROD LOAD, kN, C **					
☒ CALC. GAS ROD LOAD, kN, T **					
☒ COMB. ROD LOAD, kN C (GAS & INERTIA)					24630
☒ COMB. ROD LOAD, kN T (GAS & INERTIA)					19948
☒ ROD REV., DEGREES MIN @ X-HD PIN ***					
☒ KW/STAGE					450.8
☒ TOTAL KW @ COMPRESSOR SHAFT					
☒ TOTAL KW INCL. V-BELT & GEAR LOSSES					
* SHOW OPERATION WITH THE FOLLOWING SYMBOLS:					
HEAD END = HE		} PLUS {	SUCTION VALVE(S) UNLOADED = S		
OR			OR		
CRANK END = CE			FIXED POCKET OPEN = F		
		}	OR		
			VARIABLE POCKET OPEN = V		
EXAMPLE: HE-F/CE-S = HEAD END FIXED POCKET OPEN / CRANK END SUCTION VALVE(S) UNLOADED.					
** C = COMPRESSION T = TENSION *** X - HD = CROSSHEAD					
☐	MINIMUM PRESSURE REQUIRED TO OPERATE CYLINDER UNLOADING DEVICES,				_____ barg
CYLINDER UNLOADING MEDIUM:	☒ AIR	☐ NITROGEN	☐ OTHER	_____	
☒	PRESSURE AVAILABLE FOR CYLINDER UNLOADING DEVICES, MAX/MIN				_____/_____ barg
REMARKS, SPECIAL REQUIREMENTS, AND/OR SKETCH					

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض/ بسته ایستگاه تقویت فشار گاز خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک قرارداد (BK-HD-GCS-CO-0008_03)	 																
شماره پیمان: 053 - 073 – 9184	DETAILED DATA SHEET FOR GAS COMPRESSORS <table style="width:100%; border: none;"> <tr> <td style="border: none;">نسخه</td><td style="border: none;">سریال</td><td style="border: none;">نوع مدرک</td><td style="border: none;">رشته</td><td style="border: none;">تسهیلات</td><td style="border: none;">صادر کننده</td><td style="border: none;">بسته کاری</td><td style="border: none;">پروژه</td> </tr> <tr> <td style="border: none;">V00</td><td style="border: none;">0001</td><td style="border: none;">DT</td><td style="border: none;">ME</td><td style="border: none;">120</td><td style="border: none;">HY</td><td style="border: none;">GCS</td><td style="border: none;">BK</td> </tr> </table>	نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه	V00	0001	DT	ME	120	HY	GCS	BK	شماره صفحه : 7 از 23
نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه											
V00	0001	DT	ME	120	HY	GCS	BK											

1	PART LOAD OPERATING CONDITIONS										
2	CAPACITY CONTROL	BY:	☐ MFG'S CAP. CONTROL ☐ PURCHASERS BY-PASS ☒ BOTH ☐ OTHER _____								
3		FOR:	☐ PART LOAD COND. ☐ START-UP ONLY ☒ BOTH								
4		WITH:	☒ AUTO LOADING DELAY INTERLOCK (7.6.2.4) ☐ AUTO IMMEDIATE UNLOADING								
5		USING:	☒ FIXED VOLUME PCK. ☒ SUCTION VALVE UNLOADERS: ☒ FINGER ☐ PLUG ☐ OTHER _____								
6			ACTION: ☐ DIRECT (AIR-TO-UNLOAD) ☒ REVERSE (AIR-TO-LOAD/FAIL SAFE)								V03
7			NUMBER OF STEPS: ☐ ONE ☐ THREE ☒ FIVE ☐ OTHER _____								
8			☐ RAIN COVER REQUIRED OVER UNLOADERS								
9	ALL UNLOADING STEPS BASIS MANUFACTURERS CAPACITY SHOWN ON PAGE 3.										
10	INLET AND DISCHARGE PRESSURE ARE		☒ AT CYLINDER FLANGES ☐ PULSATION SUPPRESSOR FLANGES								
11	☒ SERVICE OR ITEM NO. ☒ STAGE ☒ NORMAL OR ALTERNATE CONDITION ☒ PERCENT CAPACITY ☒ WEIGHT FLOW, kg/h ☒ Nm3/h (1.013 bar & 0°C) ☐ POCKETS/VALVES OPERATION * ☒ POCKET CLEARANCE ADDED % ☒ TYPE UNLOADERS, PLUG/FINGER ☒ INLET TEMPERATURE, °C ☒ INLET PRESSURE, barg ☒ DISCHARGE PRESSURE, barg ☐ DISCHARGE TEMP., ADIABATIC °C ☒ DISCHARGE TEMP., PREDICTED °C ☒ VOLUMETRIC EFF., %HE/%CE ☒ CALC. GAS ROD LOAD, kN, C ** ☒ CALC. GAS ROD LOAD, kN, T ** ☒ COMB. ROD LOAD, kN C (GAS & INERTIA) ☒ COMB. ROD LOAD, kN T (GAS & INERTIA) ☒ ROD REV., DEGREES MIN @ X-HD PIN *** ☒ kW/STAGE ☒ TOTAL kW @ COMPRESSOR SHAFT ☒ TOTAL kW INCL. V-BELT & GEAR LOSSES		Continous								
12			1st								
13			Winter								
14			0	25	50	75	100				
15							8343.5				
16							8668.6				
17			HE S & CE S	HE F & CE S	HE S or CE S	HE F	-				
18				25% (Head Side)		25% (Head Side)					
19			Finger	Finger	Finger	Finger	Finger				
20			18.9	18.9	18.9	18.9	18.9				
21	4.80	4.80	4.80	4.80	4.80						
22	18.25	18.25	18.25	18.25	18.25						
23											
24					116.0000						
25	- / -	36.235 / -	72.47/- / 72.47/-	36.235/ 72.47	72.47 / 72.47	/					
26											
27											
28											
29											
30											
31					435.2						
32											
33											
34											
35	* SHOW OPERATION WITH THE FOLLOWING SYMBOLS:										
36					SUCTION VALVE(S) UNLOADED = S						
37	HEAD END = HE				OR						
38	OR				PLUS		FIXED POCKET OPEN = F				
39	CRANK END = CE				OR		VARIABLE POCKET OPEN = V				
40											
41											
42	EXAMPLE: HE-F/CE-S = HEAD END FIXED POCKET OPEN / CRANK END SUCTION VALVE(S) UNLOADED.										
43	** C = COMPRESSION T = TENSION *** X - HD = CROSSHEAD										
44	☐ MINIMUM PRESSURE REQUIRED TO OPERATE CYLINDER UNLOADING DEVICES, _____ barg										
45	CYLINDER UNLOADING MEDIUM: ☒ AIR ☐ NITROGEN ☐ OTHER _____										
46	☒ PRESSURE AVAILABLE FOR CYLINDER UNLOADING DEVICES, MAX/MIN _____ / _____ barg										
47	REMARKS, SPECIAL REQUIREMENTS, AND/OR SKETCH										
48											
49											
50											
51											

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض/ بسته ایستگاه تقویت فشار گاز خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک قرارداد (BK-HD-GCS-CO-0008_03)	 HAVAYAR INDUSTRIAL GROUP																
شماره پیمان: 053 - 073 - 9184	DETAILED DATA SHEET FOR GAS COMPRESSORS <table style="width:100%; border: none;"> <tr> <td style="border: none;">نسخه</td><td style="border: none;">سریال</td><td style="border: none;">نوع مدرک</td><td style="border: none;">رشته</td><td style="border: none;">تسهیلات</td><td style="border: none;">صادر کننده</td><td style="border: none;">بسته کاری</td><td style="border: none;">پروژه</td> </tr> <tr> <td style="border: none;">V00</td><td style="border: none;">0001</td><td style="border: none;">DT</td><td style="border: none;">ME</td><td style="border: none;">120</td><td style="border: none;">HY</td><td style="border: none;">GCS</td><td style="border: none;">BK</td> </tr> </table>	نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه	V00	0001	DT	ME	120	HY	GCS	BK	شماره صفحه: 8 از 23
نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه											
V00	0001	DT	ME	120	HY	GCS	BK											

1	PART LOAD OPERATING CONDITIONS										
2	CAPACITY CONTROL	BY:	☐ MFG'S CAP. CONTROL ☐ PURCHASERS BY-PASS ☒ BOTH ☐ OTHER _____								
3		FOR:	☐ PART LOAD COND. ☐ START-UP ONLY ☒ BOTH								
4		WITH:	☒ AUTO LOADING DELAY INTERLOCK (7.6.2.4) ☐ AUTO IMMEDIATE UNLOADING								
5		USING:	☒ FIXED VOLUME PCK. ☒ SUCTION VALVE UNLOADERS: ☒ FINGER ☐ PLUG ☐ OTHER _____								
6			ACTION: ☐ DIRECT (AIR-TO-UNLOAD) ☒ REVERSE (AIR-TO-LOAD/FAIL SAFE)								V03
7			NUMBER OF STEPS: ☐ ONE ☐ THREE ☒ FIVE ☐ OTHER _____								
8			☐ RAIN COVER REQUIRED OVER UNLOADERS								
9	ALL UNLOADING STEPS BASIS MANUFACTURERS CAPACITY SHOWN ON PAGE 3.										
10	INLET AND DISCHARGE PRESSURE ARE		☒ AT CYLINDER FLANGES ☐ PULSATION SUPPRESSOR FLANGES								
11	☒ SERVICE OR ITEM NO. ☒ STAGE ☒ NORMAL OR ALTERNATE CONDITION ☒ PERCENT CAPACITY ☒ WEIGHT FLOW, kg/h ☒ Nm ³ /h (1.013 bar & 0°C) ☐ POCKETS/VALVES OPERATION * ☒ POCKET CLEARANCE ADDED % ☒ TYPE UNLOADERS, PLUG/FINGER ☒ INLET TEMPERATURE, °C ☒ INLET PRESSURE, barg ☒ DISCHARGE PRESSURE, barg ☐ DISCHARGE TEMP., ADIABATIC °C ☒ DISCHARGE TEMP., PREDICTED °C ☒ VOLUMETRIC EFF., %HE/%CE ☒ CALC. GAS ROD LOAD, kN, C ** ☒ CALC. GAS ROD LOAD, kN, T ** ☒ COMB. ROD LOAD, kN C (GAS & INERTIA) ☒ COMB. ROD LOAD, kN T (GAS & INERTIA) ☒ ROD REV., DEGREES MIN @ X-HD PIN *** ☒ kW/STAGE ☒ TOTAL kW @ COMPRESSOR SHAFT ☒ TOTAL kW INCL. V-BELT & GEAR LOSSES		Continous								
12			2nd								
13			Winter								
14			0	25	50	75	100				
15							8343.5				
16							8668.6				
17			HE S & CE S	HE F & CE S	HE S or CE S	HE F	-				
18				25% (Head Side)		25% (Head Side)					
19			Finger	Finger	Finger	Finger	Finger				
20			59.9	59.9	59.9	59.9	59.9				
21	17.40	17.40	17.40	17.40	17.40						
22	54.90	54.90	54.90	54.90	54.90						
23											
24					150.0000						
25	- / -	37.29 / -	74.58/- / 74.58/-	37.29 / 74.58	74.58 / 74.58	/					
26											
27											
28											
29											
30											
31					468.5						
32											
33											
34											
35	* SHOW OPERATION WITH THE FOLLOWING SYMBOLS:										
36					SUCTION VALVE(S) UNLOADED = S						
37	HEAD END = HE				OR						
38	OR	}	PLUS	{	FIXED POCKET OPEN = F						
39	CRANK END = CE	}			OR						
40					VARIABLE POCKET OPEN = V						
41											
42	EXAMPLE: HE-F/CE-S = HEAD END FIXED POCKET OPEN / CRANK END SUCTION VALVE(S) UNLOADED.										
43	** C = COMPRESSION T = TENSION *** X - HD = CROSSHEAD										
44	☐ MINIMUM PRESSURE REQUIRED TO OPERATE CYLINDER UNLOADING DEVICES, _____ barg										
45	CYLINDER UNLOADING MEDIUM: ☒ AIR ☐ NITROGEN ☐ OTHER _____										
46	☒ PRESSURE AVAILABLE FOR CYLINDER UNLOADING DEVICES, MAX/MIN _____ / _____ barg										
47	REMARKS, SPECIAL REQUIREMENTS, AND/OR SKETCH										
48											
49											
50											
51											

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض / بسته ایستگاه تقویت فشار گاز خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک قرارداد (BK-HD-GCS-CO-0008_03)	 HAVAYAR INDUSTRIAL GROUP																
شماره پیمان: 053 - 073 - 9184	DETAILED DATA SHEET FOR GAS COMPRESSORS <table border="1"> <tr> <td>نسخه</td> <td>سریال</td> <td>نوع مدرک</td> <td>رشته</td> <td>تسهیلات</td> <td>صادرکننده</td> <td>بسته کاری</td> <td>پروژه</td> </tr> <tr> <td>V00</td> <td>0001</td> <td>DT</td> <td>ME</td> <td>120</td> <td>HY</td> <td>GCS</td> <td>BK</td> </tr> </table>	نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه	V00	0001	DT	ME	120	HY	GCS	BK	شماره صفحه: 9 از 23
نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه											
V00	0001	DT	ME	120	HY	GCS	BK											

● SCOPE OF BASIC SUPPLY	
1 PURCHASER TO FILL IN (☐ ☐ ☐) AFTER COMMODITY TO INDICATE: ☐ BY COMPR. MFR. ☐ BY PURCH. ☐ BY OTHERS	
2 ● DRIVER (☒ ☐ ☐): ☐ VARIABLE SPEED ☐ SPEED RANGE ☐ r/min TO ☐ r/min	
3 ● INDUCTION MOTOR ☐ SYNCHRONOUS MOTOR ☐ STEAM TURBINE ☐ ENGINE ☐ OTHER ☐	
4 ● API 541 ☐ API 546 ☐ API 611 ☐ API 612 ☐	
5 ● OUTBOARD BEARING ☐ PROVISION FOR DRY AIR PURGE FOR OUTBOARD BEARING.	
6 ☐ SLIDE BASE FOR DRIVER (☐ ☐ ☐) ☐ SOLE PLATE FOR DRIVER (☐ ☐ ☐)	
7 ☐ MOTOR STARTING EQUIPMENT (☐ ☐ ☐); DEFINE ☐	
8 ☐ GEAR (☐ ☐ ☐): ☐ BASEPLATE FOR GEAR ☐ API 613 ☐ API 677	
9 ● COUPLING(S) (☒ ☐ ☐): ● LOW SPD. ☐ HI-SPD. ☐ QUILL SHAFT ☐ KEY-LESS DRV. ☐ KEY'D DRV. ☐ OTHER ☐	
10 ☐ API 671	
11 ☐ V-BELT DRIVE (☐ ☐ ☐): ☐ SHEAVES & V-BELTS (☐ ☐ ☐) ☐ STATIC CONDUCTING V-BELTS ☐ BANDED V-BELTS	
12 ● DRIVE GUARD(S) (☒ ☐ ☐): ☐ MANUFACTURER'S STD. ☒ NON-SPARKING ☐ CALIF CODE ☒ API 671, ANNEX G	
13 ☐ OTHER	
14 ● PULSATION SUPPRESSORS (☒ ☐ ☐): ● INITIAL INLET & FINAL DISCHARGE ● SUPPORTS (☒ ☐ ☐)	
15 ● INTERSTAGE ● SUPPORTS (☒ ☐ ☐)	
16 ☐ SUPPRESSOR(S) TO HAVE MOISTURE REMOVAL SECTION: ☐ INITIAL INLET ☐ ALL INTERSTAGE INLET	
17 ● ACOUSTICAL SIMUL. STUDY (☒ ☐ ☐): DESIGN ☐ APPROACH	
18 ☐ 1, EMPIRICAL PULSATION SUPPRESSION DEVICE SIZING	
19 ☐ 2, ACOUSTIC SIMULATION AND PIPING RESTRAINT ANALYSIS	
20 ☐ 3, ACOUSTIC SIMULATION AND PIPING RESTRAINT ANALYSIS PLUS MECHANICAL ANALYSIS	
21 <u>STUDY TO CONSIDER:</u>	
22 ALL SPECIFIED LOAD COND., INCL. ● SINGLE ACT., PLUS ● COMP.OPER.IN PARALLEL ☐ ALTERNATE GASES	
23 ☐ CRITICAL FLOW MEASUREMENT (7.9.4.2.5.3.3) ☐ WITH EXISTING COMP. AND PIPING SYSTEMS	
24 ☐ PULSATION SUPPRESS'N DEVICE LOW CYCLE FATIGUE ANALYSIS ● PIPING SYSTEM FLEXIBILITY	
25 ● VENDOR REVIEW OF PURCHASER'S PIPING ARRANGEMENT	
26 <u>NOTE: SEE APPENDIX N FOR INFORMATION REQUIRED FOR STUDY</u>	
27 PACKAGED: ☐ NO ☐ YES (☐ ☐ ☐) DEFINE BASIC SCOPE OF PACKAGING IN REMARKS SECTION, PAGE 5	
28 ☐ DIRECT GROUTED ☐ CEMENTED/MORTAR GROUT ☐ EPOXY GROUT; MFG/TYPE ☐ / ☐	
29 ☐ RAILS ☐ CHOCK BLOCKS ☐ SHIMS ☐ BASEPLT. ● SKID ☐ SOLEPLT. ☐ BOLTS OR STUDS FOR SOLEPLT. TO FRAME	
30 ☐ SUITABLE FOR COLUMN MOUNTING (UNDER SKID AND/OR BASEPLATE)	
31 ☐ LEVELING SCREWS ☐ NON-SKID DECKING ☐ SUB SOLEPLATES	
32 ● INTERCLR(S) (☐ ☒ ☐) ● OFF MOUNTED ☐ MACHINE MTD. ● AFTERCLR(S) (☐ ☒ ☐)	
33 ● SEPARATOR(S) (☐ ☒ ☐) ☐ CONDENSATE SEPARATION & COLLECTION FACILITY SYSTEM (7.8.2.1)	
34 ☐ INTERSTAGE PIP. (☐ ☐ ☐): ☐ FINAL DISC. PIP. (☐ ☐ ☐): ☐ PARTIAL PRE FAB, FIELD FIT ☐ SHOP FITTED	
35 FLANGE FINISH ☐ API 618 FLANGE FINISH > 125 < 250 (7.9.5.1.16) ● FLANGE FINISH PER ANSI 16.5 ☐ SPECIAL FINISH	
36 ☐ SPECIAL PIPING REQUIREMENTS (7.7.1.13). (DEFINE IN REMARKS SECTION NEXT PAGE)	
37 ☐ INITIAL INLET, ☐ INTERSTAGE SUCTION PIPING ARR'D FOR: ● INSULATION (☒ ☐ ☐) ● HEAT TRACING (☒ ☐ ☐)	
38 ● INLET STRAINER(S) (☒ ☐ ☐): ● INITIAL INLET ☐ SIDESTREAM INLET ● SPOOL PIECE FOR INLET STRAINERS	
39 ☐ MANIFOLD PIPING; ☐ DRAINS ☐ VENTS ☐ RELIEF VALVES ☐ AIR/GAS SUPPLY	
40 ● RELIEF VALVE(S) (☐ ☒ ☐): ☐ INITIAL INLET ● INTERSTAGE ● FINAL DISCHARGE	
41 ☐ RUPTURE DISC(S) (☐ ☐ ☐) ☐ THRU STUDS IN PIPING FLANGES	
42 ☐ FOR ATMOSPHERIC INLET AIR COMPR. ONLY: ☐ INLET AIR FILTER (☐ ☐ ☐) ☐ INLET FILTER -SILENCER (☐ ☐ ☐)	
43 ● PREFERRED TYPE OF CYLINDER COOLING (☒ ☐ ☐): ● FORCED ☐ THERMOSYPHON ☐ STAGE CYL'(S)	
44 <u>NOTE: MANUFACTURER SHALL RECOMMEND</u>	
45 <u>BEST TYPE OF COOLING AFTER</u>	
46 <u>FINAL ENGINEERING REVIEW OF ALL</u>	
47 <u>OPERATING CONDITIONS</u>	
48 ● CYL. COOLANT PIPING BY (☒ ☐ ☐) ☐ MATCH M'RKED	
49 ● SINGLE INLET/OUTLET MANIFOLD & VALVES ● SIGHT GL'SS(ES)	
50 ● INDIVIDUAL INLET/ OUTLET PER CYL. ● VALVE(S)	
51 ● CLOSED SYSTEM WITH PUMP, COOLER, SURGE TANK, & PIPING	

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض/بسته ایستگاه تقویت فشار گاز خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک قرارداد (BK-HD-GCS-CO-0008_03)		 HAVAYAR INDUSTRIAL GROUP																
شماره پیمان: 053 - 073 - 9184	DETAILED DATA SHEET FOR GAS COMPRESSORS <table border="1"> <tr> <td>نسخه</td> <td>سریال</td> <td>نوع مدرک</td> <td>رشته</td> <td>تسهیلات</td> <td>صادرکننده</td> <td>بسته کاری</td> <td>پروژه</td> </tr> <tr> <td>V00</td> <td>0001</td> <td>DT</td> <td>ME</td> <td>120</td> <td>HY</td> <td>GCS</td> <td>BK</td> </tr> </table>		نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه	V00	0001	DT	ME	120	HY	GCS	BK	شماره صفحه : 11 از 23
نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه												
V00	0001	DT	ME	120	HY	GCS	BK												
1 UTILITY CONDITIONS	2																		
2 ELECTRICAL POWER:	3																		
3 ● MAIN DRIVER	4																		
4 ● AUXILIARY MOTORS	5																		
5 ● HEATERS	6																		
6	7																		
7	8																		
8 INSTRUMENT AIR:	9																		
9 NITROGEN:	10																		
10 STEAM FOR:	11																		
11 INLET: PRESS	12																		
12 (NORM.) TEMP	13																		
13 EXH'ST: PRESS	14																		
14 (NORM.) TEMP	15																		
15	16																		
16	17																		
17 COOLING WATER FOR:	18																		
18 TYPE WATER	19																		
19 SUPP.: PRESS	20																		
20 (NORM.) TEMP	21																		
21 R'T'RN: PRESS	22																		
22 (NORM.) TEMP	23																		
23	24																		
24 COOLING FOR ROD PACKING:	25																		
25 TYPE FLUID GLYCOL H2O	26																		
26 FUEL GAS:	27																		
27 COMPOSITION	28																		
28	29																		
29 REMARKS/SPECIAL REQUIREMENTS:	30																		
30	31																		
31	32																		
32	33																		
33	34																		
34	35																		
35	36																		
36	37																		
37	38																		
38	39																		
39	40																		
40	41																		
41	42																		
42	43																		
43	44																		
44	45																		
45	46																		
46	47																		
47	48																		
48	49																		
49	50																		
50	51																		
51																			

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض/بسته ایستگاه تقویت فشار گاز خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک قرارداد (BK-HD-GCS-CO-0008_03)						 HIRGAN ENERGY HAVAYAR INDUSTRIAL GROUP				
شماره پیمان: 053 - 073 - 9184	DETAILED DATA SHEET FOR GAS COMPRESSORS							شماره صفحه : 12 از 23			
	نسخه سریال نوع مدرک رشته تسهیلات صادرکننده بسته کاری پروژه										
	BK	GCS	HY	120	ME	DT	0001			V00	
1	☒ CYLINDER DATA AT FULL LOAD CONDITION										
2	SERVICE/ITEM NO.		Sour Gas								
3	STAGE		1st	2nd							
4	INLET PRESSURE, barg		4.8	17.4							
5	DISCHARGE PRESSURE, barg		18.25	54.9							
6	CYLINDERS PER STAGE		1	1							
7	SINGLE OR DOUBLE ACTING (SA OR DA)		DA	DA							
8	BORE, mm		475	280							
9	STROKE, mm		250	250							
10	RPM:		420								
11	PISTON SPEED, m/s:		3.5	4							
12	CYLINDER LINER, YES/NO		Yes	Yes							
13	LINER NOMINAL THICKNESS, mm		15	12.5							
14	PISTON DISPLACEMENT, m ³ /h		2192.71	735.77							
15	CYLINDER DESIGN CLEARANCE, % AVERAGE										
16	VOLUMETRIC EFFICIENCY, % AVERAGE		72.47	74.58							
17	VALVES, INLET/DISCHARGE, QTY PER CYL.		4 / 4	4 / 4	/	/	/	/			
18	TYPE OF VALVES		Plate	Plate							
19	VALVE LIFT, INLET/DISCHARGE, mm		/	/	/	/	/	/			
20	VALVE VELOCITY, m/s										
21	SUCTION VALVE(S)										
22	DISCHARGE VALVE(S)										
23	ROD DIAMETER, mm		90	90							
24	MAX ALLOW. COMBINED ROD LOADING, kN, C *		24453	24630							
25	MAX ALLOW. COMBINED ROD LOADING, kN, T *		22951	19948							
26	CALCULATED GAS ROD LOAD, kN, C *										
27	CALCULATED GAS ROD LOAD, kN, T *										
28	COMBINED ROD LOAD (GAS + INERTIA), kN, C *										
29	COMBINED ROD LOAD (GAS + INERTIA), kN, T *										
30	ROD REV., DEGREES MIN @ X-HD PIN**										
31	RECIP WT. (PISTON, ROD, X-HD & NUTS), kg**										
32	MAX ALLOW. WORKING PRESSURE, barg										
33	MAX ALLOW. WORKING TEMPERATURE, °C										
34	HYDROSTATIC TEST PRESSURE, barg		36.8	91.2							
35	GAS LEAKAGE TEST PRESSURE, barg										
36	INLET FLANGE SIZE/RATING		10" / 300	6" / 600	/	/	/	/			
37	FACING		FF	FF							
38	DISCHARGE FLANGE SIZE/RATING		10" / 300	6" / 600	/	/	/	/			
39	FACING		FF	FF							
40	DISCHARGE RELIEF VALVE SETTING DATA AT INLET PRESSURES GIVEN ABOVE:										
41	RECOMMENDED SETTING, barg			60.8							
42	GAS ROD LOAD, kN, C *										
43	GAS ROD LOAD, kN, T *										
44	COMBINED ROD LOAD, kN, C *										
45	COMBINED ROD LOAD, kN, T *										
46	ROD REVERSAL, °MIN @ X-HD PIN**										
47	NOTE: CALCULATED AT INLET PRESSURES										
48	GIVEN ABOVE & RECOMMENDED SETTING.										
49	☐ SETTLE-OUT GAS PRESSURE										
50	(DATA REQUIRED FOR STARTING)										
51	NOTES/REMARKS:										

* C = COMPRESSION * T = TENSION **X-HD = CROSSHEAD

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض/بسته ایستگاه تقویت فشار گاز خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک قرارداد (BK-HD-GCS-CO-0008_03)	 HAVAYAR INDUSTRIAL GROUP																
شماره پیمان: 053 - 073 - 9184	DETAILED DATA SHEET FOR GAS COMPRESSORS <table border="1"> <tr> <th>نسخه</th> <th>سریال</th> <th>نوع مدرک</th> <th>رشته</th> <th>تسهیلات</th> <th>صادرکننده</th> <th>بسته کاری</th> <th>پروژه</th> </tr> <tr> <td>V00</td> <td>0001</td> <td>DT</td> <td>ME</td> <td>120</td> <td>HY</td> <td>GCS</td> <td>BK</td> </tr> </table>	نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه	V00	0001	DT	ME	120	HY	GCS	BK	شماره صفحه : 13 از 23
نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه											
V00	0001	DT	ME	120	HY	GCS	BK											
1 ☐ CONSTRUCTION FEATURES																		
2 SERVICE ITEM NO. Sour Gas																		
3 STAGE 2																		
4 CYLINDER SIZE (BORE DIA), mm 475 / 280																		
5 ROD RUN-OUT: NORMAL COLD VERTICAL																		
6 (per Annex C)																		
7 CYLINDER INDICATOR VALVES REQUIRED ☐	☐	☐	☐	☐	☐	☐	☐											
8 INDICATOR CONNECTIONS ABOVE 345 bar ☐	☐	☐	☐	☐	☐	☐	☐											
9 FLUOROCARBON SPRAYED CYLINDER ☐	☐	☐	☐	☐	☐	☐	☐											
MATERIALS OF CONSTRUCTION																		
10 CYLINDER(S) Nodular Cast Iron																		
11 CYLINDER LINER(S) Cast Iron																		
12 PISTON(S) Nodular Cast Iron																		
13 PISTON RINGS Filled PTFE																		
14 WEAR BANDS ☒ REQUIRED Filled PTFE																		
15 PISTON ROD(S): MATERIAL/YIELD, N/mm² S.S. /	/	/	/	/	/	/	/											
16 THREAD ROOT STRESS @ MACRL * @ X-HD END																		
17 PISTON ROD HARDNESS, BASE MATERIAL, Rc																		
18 PISTON ROD COATING ☒ REQUIRED TC																		
19 COATING HARDNESS, Rc																		
20 VALVE SEATS / SEAT PLATE Stainless Steel																		
21 VALVE SEAT MIN HARDNESS, Rc																		
22 VALVE GUARDS (STOPS) Stainless Steel																		
23 VALVE DISCS PEEK (Non-Metallic)																		
24 VALVE SPRINGS Inconel																		
25 ROD PRESSURE PACKING RINGS																		
26 ROD PRESSURE PACKING CASE																		
27 ROD PRESSURE PACKING SPRINGS																		
28 SEAL / BUFFER PACKING, DISTANCE PIECE																		
29 SEAL / BUFFER PACKING, INTERMEDIATE																		
30 WIPER PACKING RINGS																		
31 MAIN JOURNAL BEARINGS, CRANKSHAFT																		
32 CONNECTING ROD BEARING, CRANKPIN																		
33 CONNECTING ROD BUSHING, X-HD END																		
34 CROSSHEAD (X-HD) PIN BUSHING																		
35 CROSSHEAD PIN																		
36 CROSSHEAD Cast Steel																		
37 CROSSHEAD SHOES Cast Iron "Wj2" Coating																		
38 INSTRUMENTATION IN COLD SIDE																		
39 CONTACT W/PROCESS GAS HOT SIDE																		
40 * MACRL = MAXIMUM ALLOWABLE COMBINED ROD LOAD																		
41 ☒ COMPRESSOR CYLINDER ROD PACKING	DISTANCE PIECE(S): ☐ TYPE A ☐ TYPE B ☒ TYPE C ☐ TYPE D																	
42 ☐ FULL FLOATING PACKING	REF. FIGURE G-3																	
43 ☒ VENTED TO: ☒ FLARE @ _____ barg ☐ ATMOS.	COVERS: ☐ SOLID METAL ☐ SCREEN ☐ LOUVERED																	
44 ☐ SUCTION PRESSURE@ 0.8 barg	CYLINDER COMPARTMENT: ☒ VENTED TO Flare @ 0.8 barg																	
45 ☒ FORCED LUBRICATED ☐ NON-LUBE	(Outboard Distance Piece) ☒ PURGED AT Flare Press. + 1 barg																	
46 ☒ WATER COOLED, _____ STAGE(S), _____ GPM REQ'D	☐ PRESSURIZED TO _____ barg																	
47 ☒ OIL COOLED, _____ STAGE(S), _____ GPM REQ'D	☐ WITH RELIEF VALVE																	
48 ☒ WATER FILTER ☐ PROV.FUTURE WATER/OIL COOLING	FRAME COMPARTMENT: ☒ VENTED TO ATM barg																	
49 ☐ VENT/BUFFER GAS SEAL PACKING ARR. (REF. FIG I-1)	(Inboard Distance Piece) ☒ PURGED AT 0.5 ~ 1 barg																	
50 ☒ CONSTANT OR ☐ VARIABLE DISPOSAL SYSTEM	☐ PRESSURIZED TO _____ barg																	
51 ☐ BUFFER GAS PRESSURE, _____ barg	☐ WITH RELIEF VALVE																	
52 ☐ SPLASH GUARDS FOR WIPER PACKING	☐ DISTANCE PIECE MAWP Flare Press. + 1 barg																	

flare back pressure shall be specified by Hirgan and announced to vendor

 NISOC		نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض/ بسته ایستگاه تقویت فشار گاز خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک قرارداد (BK-HD-GCS-CO-0008_03)					 HAVAYAR INDUSTRIAL GROUP		
شماره پیمان: 053 - 073 - 9184		DETAILED DATA SHEET FOR GAS COMPRESSORS					شماره صفحه : 14 از 23		
		BK	GCS	HY	120	ME	DT	0001	V00

CONSTRUCTION FEATURES (CONTINUED)									
☐ FABRICATED CYLINDER, HEADS, & CONNECTION SKETCHES FOR DESIGN REVIEW BY PURCHASER. (6.15.5.13)					☒ BUFFER GAS PACKING ARR. REF: ANNEX I ☐ OIL WIPER PACKING PURGE FIGURES I-1, I-2 & I-3 ☒ INTERMEDIATE PARTITION PURGE INERT BUFFER PURGE GAS: ☒ N ₂ ☐ OTHER _____ ☒ VENT, DRAIN, PURGE PIPING BY MFG'R ☐ NO ☒ YES				
☒ COUPLING(S) ☒ LOW-SPEED ☐ HI-SPEED Between Compressor & Driver or Gear Between Driver & _____ ☒ BY MANUFACTURER ☐ TBD ☐ _____ ☒ MODEL ☐ TBD ☐ _____ ☒ TYPE ☐ TBD ☐ _____ API-671 APPLIES ☐ YES ☐ NO					☐ V-BELT DRIVE DRIVEN SHEAVE DRIVE SHEAVE (COMPRESSOR SHAFT) (DRIVER SHAFT) _____ PITCH DIA. (IN.) _____ QTY & GROOVE X-SEC. _____ POWER TRANSMITT'D _____ Incl. Belt Losses DRIVER NAMEPLATE HP RATING _____ CENTER DISTANCE (IN.) _____ QTY, TYPE, _____ X-SEC., & LENGTH BELTS _____ BELT SERVICE FACTOR (RELATIVE TO DRIVER NAMEPLATE HP RATING) _____				
☒ INSPECTION AND SHOP TESTS (REF. 8.1.5) REQ'D WITN. OBSER. *SHOP these tests shall be considered and based on ITP shall be updated ACTUAL AND RECORD _____ MFG'S _____ CYLINDER _____ CYLINDER _____ CYLINDER HELIUM LEAK TEST _____ CYL. JACKET WATER HYDRO TEST _____ *MECHANICAL RUN TEST (4 HOUR) _____ BAR-OVER TO CHECK ROD RUNOUT _____ *LUBE OIL CONSOLE RUN/TEST (4 HOUR) _____ *COOLING H ₂ O CONSOLE RUN/TEST _____ RADIOGRAPHY BUTT WELDS _____ ☒ GAS ☒ OIL ☐ FAB CYLS. _____ MAG PARTICLE/LIQUID _____ PENETRANT OF WELDS _____ SPECIFY ADDITIONAL REQUIREMENTS (8.2.1.3) _____ SHOP FIT-UP OF PULSATION SUPPL. _____ DEVICES & ALL ASSOCIATED GAS PIPING _____ *CLEANLINESS OF EQUIP., PIPING, & APPURTENANCES _____ *HARDNESS OF PARTS, WELDS & HEAT AFFECTED ZONES _____ *NOTIFICATION TO PURCHASER OF ANY REPAIRS TO MAJOR COMPONENTS _____ _____ *SPECIFIC REQUIREMENTS TO BE DEFINED, FOR EXAMPLE, DISMANTLING, AUX EQUIPMENT OPERATIONAL & RUN TESTS. _____ ANNEX K COMPLIANCE: ☐ VENDOR ☐ PURCHASER					☒ CYLINDER LUBRICATION ☐ NON-LUBE _____ STAGE(S)/SERVICE ☒ LUBRICATED 2 STAGE(S)/SERVICE TYPE OF LUBE OIL: ☐ SYNTHETIC ☒ HYDROCARBON ISO VG#100 LUBRICATOR _____ DRIVE BY: ☐ COMP. CRANKSHAFT, DIRECT ☐ CHAIN, FROM CRANKSHAFT ☒ ELECTRIC MOTOR ☐ OTHER _____ ☒ LUBRICATOR MFR As Per Vendor List _____ MODEL _____ TYPE LUBRICATOR: ☒ SINGLE PLUNGER (6.14.3) ☐ DIVIDER BLOCKS ☐ COMPARTMT, TOTAL QTY. _____ ☐ PLUNGERS (PUMPS), TOTAL QTY. _____ ☐ SPARE PLUNGERS, QTY. _____ ☐ SPARE COMPARTMT W/OUT PLUNGERS _____ ☒ HEATERS: ☐ ELECTRIC W/TERM.(S) ☐ STEAM				
					☐ ESTIMATED WEIGHTS AND NOMINAL DIMENSIONS ☐ TOTAL COMPR. WT, LESS DRIVER & GEAR _____ kg ☐ WT, OF COMPLETE UNIT, (LESS CONSOLES) _____ kg ☐ MAXIMUM ERECTION WEIGHT _____ kg ☐ MAXIMUM MAINTENANCE WEIGHT _____ kg ☐ DRIVER WEIGHT/GEAR WEIGHT _____ / _____ kg ☐ LUBE OIL/COOLANT CONSOLE _____ / _____ kg ☐ FREE STANDING PANEL _____ SPACE REQUIREMENTS, m: LENGTH WIDTH HEIGHT ☐ COMPLETE UNIT _____ ☐ LUBE OIL CONSOLE _____ ☐ CYLINDER COOLANT CONSOLE _____ ☐ FREE STANDING PANEL _____ ☐ PISTON ROD REMOVAL DIST. _____ OTHER EQUIPMENT SHIPPED LOOSE (DEFINE) ☐ PULSATION SUPP., WEIGHT _____ kg ☐ PIPING _____ kg ☐ INTERSTAGE EQUIPMENT _____ kg				

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض/بسته ایستگاه تقویت فشار گاز خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک قرارداد (BK-HD-GCS-CO-0008_03)																																																																						
شماره پیمان: 053 - 073 – 9184	DETAILED DATA SHEET FOR GAS COMPRESSORS نسخه سریال نوع مدرک رشته تسهیلات صادرکننده بسته کاری پروژه BK GCS HY 120 ME DT 0001 V00							شماره صفحه : 15 از 23																																																															
UTILITY CONSUMPTION																																																																							
ELECTRIC MOTORS																																																																							
<table border="1"> <thead> <tr> <th></th> <th>FOR INDUCTION MOTORS SEE NOTE OF 7.1.2.6 AND MOTOR DATA SHEET</th> <th>NAMEPLATE kW</th> <th>LOCKED ROTOR AMPS</th> <th>FULL LOAD STEADY STATE AMPS</th> <th>MAIN DRIVER NON-STEADY STATE AMPS AT COMPRESSOR RATED HORSEPOWER (INDUCTION MOTORS ONLY)</th> </tr> </thead> <tbody> <tr> <td>MAIN DRIVER</td> <td>1050</td> <td>HOLD</td> <td>HOLD</td> <td>AMPS</td> </tr> <tr> <td>MAIN LUBE OIL PUMP</td> <td>SHAFT DRIVEN</td> <td>SHAFT DRIVEN</td> <td>SHAFT DRIVEN</td> <td>@ COMPRESSOR RATED</td> </tr> <tr> <td>AUX LUBE OIL PUMP</td> <td>7.5</td> <td>HOLD</td> <td>HOLD</td> <td>kw OF</td> </tr> <tr> <td>MAIN CYLINDER COOLANT PUMP</td> <td>7.5</td> <td>HOLD</td> <td>HOLD</td> <td>@ CURRENT PULSATIONS</td> </tr> <tr> <td>AUX CYLINDER COOLANT PUMP</td> <td>7.5</td> <td>HOLD</td> <td>HOLD</td> <td>OF %</td> </tr> <tr> <td>MAIN ROD PKG COOLANT PUMP</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>AUX ROD PKG COOLANT PUMP</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>CYLINDER LUBRICATOR</td> <td>0.5</td> <td>HOLD</td> <td>HOLD</td> <td></td> </tr> <tr> <td>FAN MOTOR</td> <td>HOLD</td> <td></td> <td></td> <td></td> </tr> <tr> <td>BARRING DEVICE</td> <td>1.5</td> <td>HOLD</td> <td>HOLD</td> <td></td> </tr> </tbody> </table>										FOR INDUCTION MOTORS SEE NOTE OF 7.1.2.6 AND MOTOR DATA SHEET	NAMEPLATE kW	LOCKED ROTOR AMPS	FULL LOAD STEADY STATE AMPS	MAIN DRIVER NON-STEADY STATE AMPS AT COMPRESSOR RATED HORSEPOWER (INDUCTION MOTORS ONLY)	MAIN DRIVER	1050	HOLD	HOLD	AMPS	MAIN LUBE OIL PUMP	SHAFT DRIVEN	SHAFT DRIVEN	SHAFT DRIVEN	@ COMPRESSOR RATED	AUX LUBE OIL PUMP	7.5	HOLD	HOLD	kw OF	MAIN CYLINDER COOLANT PUMP	7.5	HOLD	HOLD	@ CURRENT PULSATIONS	AUX CYLINDER COOLANT PUMP	7.5	HOLD	HOLD	OF %	MAIN ROD PKG COOLANT PUMP					AUX ROD PKG COOLANT PUMP					CYLINDER LUBRICATOR	0.5	HOLD	HOLD		FAN MOTOR	HOLD				BARRING DEVICE	1.5	HOLD	HOLD								
	FOR INDUCTION MOTORS SEE NOTE OF 7.1.2.6 AND MOTOR DATA SHEET	NAMEPLATE kW	LOCKED ROTOR AMPS	FULL LOAD STEADY STATE AMPS	MAIN DRIVER NON-STEADY STATE AMPS AT COMPRESSOR RATED HORSEPOWER (INDUCTION MOTORS ONLY)																																																																		
MAIN DRIVER	1050	HOLD	HOLD	AMPS																																																																			
MAIN LUBE OIL PUMP	SHAFT DRIVEN	SHAFT DRIVEN	SHAFT DRIVEN	@ COMPRESSOR RATED																																																																			
AUX LUBE OIL PUMP	7.5	HOLD	HOLD	kw OF																																																																			
MAIN CYLINDER COOLANT PUMP	7.5	HOLD	HOLD	@ CURRENT PULSATIONS																																																																			
AUX CYLINDER COOLANT PUMP	7.5	HOLD	HOLD	OF %																																																																			
MAIN ROD PKG COOLANT PUMP																																																																							
AUX ROD PKG COOLANT PUMP																																																																							
CYLINDER LUBRICATOR	0.5	HOLD	HOLD																																																																				
FAN MOTOR	HOLD																																																																						
BARRING DEVICE	1.5	HOLD	HOLD																																																																				
ELECTRIC HEATERS																																																																							
<table border="1"> <thead> <tr> <th></th> <th>WATTS</th> <th>VOLTS</th> <th>HERTZ</th> </tr> </thead> <tbody> <tr> <td>FRAME OIL HEATER(S)</td> <td>1500</td> <td>400</td> <td>50</td> </tr> <tr> <td>CYLINDER COOLANT HEATER(S)</td> <td>12000</td> <td>230</td> <td>50</td> </tr> <tr> <td>CYL. LUBRICATOR HEATER(S)</td> <td>400</td> <td>230</td> <td>50</td> </tr> <tr> <td>MAIN DRIVER SPACE HEATER(S)</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>										WATTS	VOLTS	HERTZ	FRAME OIL HEATER(S)	1500	400	50	CYLINDER COOLANT HEATER(S)	12000	230	50	CYL. LUBRICATOR HEATER(S)	400	230	50	MAIN DRIVER SPACE HEATER(S)																																														
	WATTS	VOLTS	HERTZ																																																																				
FRAME OIL HEATER(S)	1500	400	50																																																																				
CYLINDER COOLANT HEATER(S)	12000	230	50																																																																				
CYL. LUBRICATOR HEATER(S)	400	230	50																																																																				
MAIN DRIVER SPACE HEATER(S)																																																																							
STEAM																																																																							
<table border="1"> <thead> <tr> <th></th> <th>FLOW</th> <th>PRESSURE</th> <th>TEMPERATURE</th> <th>BACK PRESSURE</th> </tr> </thead> <tbody> <tr> <td>MAIN DRIVER</td> <td>kg/h @</td> <td>barg</td> <td>°CTT TO</td> <td>barg</td> </tr> <tr> <td>FRAME OIL HEATER(S)</td> <td>kg/h @</td> <td>barg</td> <td>°CTT TO</td> <td>barg</td> </tr> <tr> <td>CYL. LUB. HEATER(S)</td> <td>kg/h @</td> <td>barg</td> <td>°CTT TO</td> <td>barg</td> </tr> <tr> <td></td> <td>kg/h @</td> <td>barg</td> <td>°CTT TO</td> <td>barg</td> </tr> <tr> <td></td> <td>kg/h @</td> <td>barg</td> <td>°CTT TO</td> <td>barg</td> </tr> </tbody> </table>										FLOW	PRESSURE	TEMPERATURE	BACK PRESSURE	MAIN DRIVER	kg/h @	barg	°CTT TO	barg	FRAME OIL HEATER(S)	kg/h @	barg	°CTT TO	barg	CYL. LUB. HEATER(S)	kg/h @	barg	°CTT TO	barg		kg/h @	barg	°CTT TO	barg		kg/h @	barg	°CTT TO	barg																																	
	FLOW	PRESSURE	TEMPERATURE	BACK PRESSURE																																																																			
MAIN DRIVER	kg/h @	barg	°CTT TO	barg																																																																			
FRAME OIL HEATER(S)	kg/h @	barg	°CTT TO	barg																																																																			
CYL. LUB. HEATER(S)	kg/h @	barg	°CTT TO	barg																																																																			
	kg/h @	barg	°CTT TO	barg																																																																			
	kg/h @	barg	°CTT TO	barg																																																																			
COOLING WATER REQUIREMENTS																																																																							
<table border="1"> <thead> <tr> <th></th> <th>FLOW m³/h</th> <th>INLET TEMP °C</th> <th>OUTLET TEMP °C</th> <th>INLET PRESS barg</th> <th>OUTLET PRESS barg</th> <th>MAX PRESS barg</th> </tr> </thead> <tbody> <tr> <td>CYLINDER JACKETS</td> <td>15.29</td> <td>58</td> <td>65</td> <td>3</td> <td></td> <td></td> </tr> <tr> <td>CYLINDER COOLANT CONSOLE</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>FRAME LUBE OIL COOLER</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>ROD PRESSURE PACKING*</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PACKING COOLANT CONSOLE (NOTE 1)</td> <td>0.4</td> <td>58</td> <td>65</td> <td>3</td> <td></td> <td></td> </tr> <tr> <td>INTERCOOLER(S)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>AFTERCOOLER</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>TOTAL QUANTITY, m³/h</td> <td>15.69</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>										FLOW m ³ /h	INLET TEMP °C	OUTLET TEMP °C	INLET PRESS barg	OUTLET PRESS barg	MAX PRESS barg	CYLINDER JACKETS	15.29	58	65	3			CYLINDER COOLANT CONSOLE							FRAME LUBE OIL COOLER							ROD PRESSURE PACKING*							PACKING COOLANT CONSOLE (NOTE 1)	0.4	58	65	3			INTERCOOLER(S)							AFTERCOOLER							TOTAL QUANTITY, m ³ /h	15.69					
	FLOW m ³ /h	INLET TEMP °C	OUTLET TEMP °C	INLET PRESS barg	OUTLET PRESS barg	MAX PRESS barg																																																																	
CYLINDER JACKETS	15.29	58	65	3																																																																			
CYLINDER COOLANT CONSOLE																																																																							
FRAME LUBE OIL COOLER																																																																							
ROD PRESSURE PACKING*																																																																							
PACKING COOLANT CONSOLE (NOTE 1)	0.4	58	65	3																																																																			
INTERCOOLER(S)																																																																							
AFTERCOOLER																																																																							
TOTAL QUANTITY, m ³ /h	15.69																																																																						
REMARKS/SPECIAL REQUIREMENTS: *ROD PACKING COOLANT MAY BE OTHER THAN WATER																																																																							



نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض و ابنیه تحت الارض/ بسته ایستگاه تقویت فشار گاز
خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک
قرارداد (BK-HD-GCS-CO-0008_03)



شماره پیمان:
053 - 073 - 9184

DETAILED DATA SHEET FOR GAS COMPRESSORS

شماره صفحه : 16 از 23

نسخه سریال نوع مدرک رشته تسهیلات صادر کننده بسته کاری پروژه
V00 0001 DT ME 120 HY GCS BK

1	☐ FRAME LUBE OIL SYSTEM									
2	☐ BASIC LUBE OIL SYSTEM FOR FRAME: ☐ SPLASH ☐ PRESSURE (FORCED) ☐ HEATERS REQUIRED:									
3	☐ REF: TYPE MAIN BEARINGS: ☐ TAP'RD ROLL'R ☐ PRECISION SL'VE ☐ ELEC. W/THERMOSTAT(S) ☐ STEAM									
4	☐ PRESSURE SYSTEM: ☐ MAIN OIL PUMP DRIVEN BY: ☐ COMP. CRANKSHAFT ☐ ELEC. MOTOR ☐ OTHER									
5	☐ PSV FOR MAIN PUMP EXTERNAL TO CRANKCASE ☐ CHECK VALVE ON MAIN PUMP (FIG G-5)									
6	☐ AUX OIL PUMP DRIVEN BY: ☐ ELEC. MOTOR ☐ OTHER									
7	☐ HAND OPERATED PRE-LUBE PUMP FOR STARTING ☐ OPERATIONAL TEST & 4 HOUR MECH RUN TEST									
8	☐ CONTINUOUS OIL FLOW THROUGH SWITCH SENSING LINE (7.7.2.5)									
9	☐ SEP. CONSOLE FOR PRESS. LUBE SYS: ☐ ONE CONSOLE FOR EA. COMP. ☐ ONE CONSOLE FOR COMPRESSORS									
10	Note: Instrumentation to be listed on Instrumentation Data Sheets. ☐ CONSOLE TO BE OF DECK PLATE TYPE CONSTRUCTION SUITABLE FOR MULTI-POINT SUPPORT AND GROUTING WITH GROUT & VENT HOLES.									
12	☐ ELECTRICAL CLASSIFICATION : ZONE 2 GROUP IIB TEMP CLASS T3 ☐ NON-HAZARDOUS									
13	☐ BASIC SYS. REQ'MTS (NORM. OIL FLOWS & VOLUMES)									
14	☐ LUBE OIL FLOW lit/min PRESSURE barg VISCOSITY SSU @ 40°C SSU @ 100°C SUMP VOLUME m ³									
15	☐ COMPRESSOR FRAME 136 136 136 136 0.18									
16	☐ DRIVER 136 136 136 136 0.18									
17	☐ GEAR 136 136 136 136 0.18									
18	☐ SYSTEM PRESSURES: ☐ DESIGN 8 barg ☐ HYDROTEST 10.4 barg									
19	☐ PRESSURE CONTROL VALVE SETTING 5.5 barg ☐ PUMP REL'F VALVE(S) SET 8 barg									
21	☐ PIPING MATERIALS:									
22	☐ UPSTREAM OF PUMPS & FILTERS ☐ CARBON STEEL ☐ STAINLESS STEEL WITH SS FLANGES ☐ STAINLESS STEEL WITH CARBON STEEL FLANGES									
23	☐ DOWNSTREAM OF FILTERS ☐ CARBON STEEL ☐ STAINLESS STEEL WITH SS FLANGES ☐ STAINLESS STEEL WITH CARBON STEEL FLANGES									
24	☐ PUMPS (Gear or Screw Type Only) ☐ RAT'D FL'W lit/min ☐ PRESSURE barg ☐ COLD START REQ'D kW ☐ DRIVER kW ☐ SPEED R/MIN ☐ COUPLING REQ'D ☐ MECH. SEAL REQ'D									
25	☐ MAIN 136 6 136 6 420 1450 1450									
26	☐ AUXILIARY 136 6 136 6 7.5 1450 1450									
27	☐ PUMP CASING MATERIAL (Ref. 6.14.2.1.5): MAIN PUMP AUX PUMP									
28	☐ GUARD(S) REQ. FOR COUPLING(S): ☐ MAIN PUMP ☐ AUX PUMP ☐ GUARD TYPE OR CODE Non-sparking									
29	☐ AUXILIARY PUMP CONTROL: ☐ MANUAL ☐ AUTOMATIC ☐ ON-OFF-AUTO SEL. SWITCH: ☐ BY PURCH. ☐ BY MFR.									
30	☐ WIRING TO TERMINAL BOX: ☐ BY PURCH. ☐ BY MFR.									
31	☐ SWITCHES ☐ RTD'S/THERMOCOUPLES									
32	☐ COOLERS: ☐ SHELL & TUBE ☐ SINGLE ☐ DUAL W/TRANSFER VALVE ☐ MFG'S STD. ☐ TEMA C ☐ TEMA R (API 660)									
33	☐ REMOVABLE BUNDLE ☐ WATER COOLED ☐ AIR COOLED (API-661)									
34	☐ W/BYPASS & TEMP CONTROL VALVE: ☐ MANUAL ☐ AUTO									
35	☐ SEE SEPARATE HEAT EXCHANGER DATA SHEETS FOR DETAILS. SPECIFY % GLYCOL ON COOLING WATER SIDE									
36	☐ FILTER(S) ☐ SINGLE ☐ DUAL W/TRANSFER VALVE ☐ ASME CODE DESIGN ☐ PED									
37	☐ DESIGN PRESSURE, barg ☐ Δ P CLEAN, barg ☐ PSE, barg									
38	☐ MICRON RATING, ☐ CARTRIDGE MATERIAL, ☐ CARTRIDGE P/N									
39	☐ BONNET MATERIAL, ☐ CASING MATERIAL, SS 316L ☐ FURN.SPARE CARTR.,QTY									
40	☐ SYS. COMPONENT SUPP.									
41	MANUFACTURER MODEL MANUFACTURER MODEL									
42	☐ MAIN PUMP As per sub vendor list ☐ OIL COOLER(S) As per sub vendor list									
43	☐ AUXILIARY PUMP As per sub vendor list ☐ TRANSFER VALVE(S) As per sub vendor list									
44	☐ MECHANICAL SEALS As per sub vendor list ☐ PUMP COUPLING(S) As per sub vendor list									
45	☐ ELECTRIC MOTORS As per sub vendor list ☐ SUCTION STRAINER(S) As per sub vendor list									
46	☐ STEAM TURBINES As per sub vendor list ☐ CHECK VALVE(S) As per sub vendor list									
47	☐ OIL FILTER(S) As per sub vendor list ☐ As per sub vendor list									



نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض و ابنیه تحت الارض/بسته ایستگاه تقویت فشار گاز
خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک
قرارداد (BK-HD-GCS-CO-0008_03)



DETAILED DATA SHEET FOR GAS COMPRESSORS

شماره صفحه : 17 از 23

شماره پیمان:

053 - 073 - 9184

نسخه سریال نوع مدرک رشته تسهیلات صادرکننده بسته کاری پروژه
V00 0001 DT ME 120 HY GCS BK

COOLANT SYSTEM

- BASIC COOLING SYS. FOR:** ☒ COMPRESSOR CYL.(S) ☐ ROD PACKING(S) ☐ PROCESS COOLER(S) ☐ OIL COOLER(S)
☐ HEATERS REQ'D FOR PRE-HEATING: ☐ ELEC./W/ THERMOSTAT(S) ☐ STEAM
- PRESSURE FORCED CIRCULATING SYS:** ☐ OPEN, PIPING BY: ☐ PURCH. ☐ MFR ☒ CLOSED, PIPING BY MFR.
MAIN COOLANT PUMP DRIVEN BY: ☒ ELEC. MOTOR ☐ STEAM TURBINE ☐ OTHER
AUX COOLANT PUMP DRIVEN BY: ☒ ELEC. MOTOR ☐ STEAM TURBINE ☐ OTHER
- SEP. CONSOLE FOR COOLANT SYSTEM:** ☒ ONE CONSOLE FOR EA. COMP. ☐ ONE CONSOLE FOR _____ COMP'RS
NOTE: Instrumentation to be listed on instrumentation data sheets. ☐ CONSOLE TO BE OF DECK PLATE TYPE CONSTRUCTION SUITABLE FOR MULTI-POINT SUPPORT AND GROUTING WITH GROUT & VENT HOLES.
- ☐ ELECTRICAL CLASSIFICATION : C ZONE 2 GROUP IIB TEMP CLASS T3 ☐ NON-HAZARDOUS

BASIC SYS. REQ'MTS (NORM. COOLANT FLOW DATA)

☐ COOLANT TO BE _____ % ETHYLENE GLYCOL SITE

	FORCED COOL'G	THERMO SYPHON	STAND PIPE	FLOW m ³ /h	PRESSURE barg	INLET TEMP °C	OUTLET TEMP °C	FLOW IND'TR
CYLINDER(S), 1st STAGE	☒	☐	☐	15.29	3	58	65	☐
CYLINDER(S), 2nd STAGE	☒	☐	☐		3	58	65	☐
CYLINDER(S), _____ STAGE	☐	☐	☐					☐
CYLINDER(S), _____ STAGE	☐	☐	☐					☐
CYLINDER(S), _____ STAGE	☐	☐	☐					☐
CYLINDER(S), _____ STAGE	☐	☐	☐					☐
PISTON ROD PACK'G TOTAL	☒			0.4	3	58	65	☐
INTERCOOLER(S) TOTAL	☐							☐
AFTERCOOLER	☐							☐
OIL COOLER(S)	☐							☐
TOTAL FLOW				15.69				

- SYS. PRESSURES:** ☐ DESIGN, _____ barg ☐ HYDROTEST, _____ barg ☒ RELIEF VALVE(S), SETTING _____ barg
COOLANT RESERVOIR: ☒ SIZE, _____ mm IN DIA X _____ mm IN HT. ☒ CAPACITY _____ m³
@ NORMAL OPERATING LEVEL
RESERVOIR MATERIAL ☒ INTERNAL COATING, TYPE Carbon Steel
LEVEL GAUGE ☒ **LEVEL TRANSMITTER** ☒ **DRAIN VALVE** ☒ **INSPECTION & CLEAN-OUT OPENINGS**
PUMPS: (CENTRIFUGAL ONLY) ☒ RAT'D FL'W ☒ PRESS. ☐ REQ'D ☒ DRIVER ☐ SPEED ☐ COUPLING ☐ MECH. SEAL
MAIN 15.69 m³/h 3.5 barg 7.5 kW r/min ☐ REQ'D ☐ REQ'D
AUXILIARY 15.69 3.5 7.5 ☐ ☐
PUMP CASING MATERIAL (Ref 6.14.2.1.5): MAIN PUMP Cast Iron AUX PUMP Cast Iron
☒ GUARD(S) REQ'D FOR COUP'G(S) ☒ MAIN PUMP ☒ AUX PUMP ☐ GUARD TYPE OR CODE
☐ AUX.PUMP CONTROL: ☐ MANUAL ☒ AUTO ☐ ON-OFF-AUTO SEL. SWITCH: ☐ BY PURCH. ☐ BY MANUFACTURER
☐ WIRING TO TERMINAL BOX: ☐ BY PURCH. ☐ BY MANUFACTURER

- ☐ **COOLANT HEAT EXCHANGER:** ☐ SHELL & TUBE ☐ SINGLE ☐ DUAL W/TRANSFER VALVE ☐ TEMA C ☐ TEMA R (API 660) (DATA SHEETS ATTACHED)
☒ AIR COOLED EXCHANGER
☒ W/BYPASS & TEM. CONTROL VALVE ☐ MANUAL ☐ AUTO ☐ LOUVERS FOR AIR EXCH.
☐ SEE SEPARATE COOLER DATA SHEET FOR DETAILS; SPECIFY % GLYCOL ON BOTH SIDES OF SHELL & TUBE

SYS. COMPONENT SUPP.	MANUFACTURER	MODEL	MANUFACTURER	MODEL
☒ MAIN PUMP	as per sub vendor list		☒ TEMP CONTROL VALVE(S)	as per sub vendor list
☒ AUXILIARY PUMP	as per sub vendor list		☒ TRANSFER VALVE(S)	as per sub vendor list
☐ MECHANICAL SEALS			☒ PUMP COUPLING(S)	as per sub vendor list
☒ ELECTRIC MOTORS	as per sub vendor list			
☐ STEAM TURBINES				

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض/ بسته ایستگاه تقویت فشار گاز خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک قرارداد (BK-HD-GCS-CO-0008_03)	 HAVAYAR INDUSTRIAL GROUP							
شماره پیمان: 053 - 073 - 9184	DETAILED DATA SHEET FOR GAS COMPRESSORS نسخه سریال نوع مدرک رشته تسهیلات صادرکننده بسته کاری پروژه BK GCS HY 120 ME DT 0001 V00	شماره صفحه : 18 از 23							
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52	PULSATION SUPPRESSION DEVICES FOR RECIPROCATING COMPRESSORS THESE SHEETS TO BE FILLED OUT FOR EACH SERVICE AND/OR STAGE OF COMPRESSION APPLICABLE TO: ☐ PROPOSALS ☒ PURCHASE ☐ AS BUILT FOR/USER National Iranian South Oil Company (NISOC) SITE/LOCATION Binak Oil Field AMBIENT TEMPERATURE MIN/MAX 5 / 50 °C COMPRESSOR SERVICE Sour Gas NUMBER OF COMPRESSORS 3 COMPRESSOR MFG. Havayar / Kwangshin MODEL/TYPE KSOPT SUPPRESSOR MFG. AVL NOTE: ☐ Ind.Data Comp.'d Purch. ☐ By Compr/Supp.Mfg.w/Proposal ☒ By Mfg(s) after order ☐ By Mfg(s)/Purchaser as Applicable GENERAL INFORMATION APPLICABLE TO ALL SUPPRESSORS TOTAL NUMBER OF SERVICES AND/OR STAGES 1 TOTAL NUMBER OF COMPRESSOR CYL. 2 TOTAL NUMBER OF CRANKTHROWS 2 STROKE 250 r/min 420 ☐ ASME CODE STAMP ☐ GOVERNMENTAL CODES OF CODE REGULATIONS APPLY ☒ OTHER APPLICABLE PRESSURE VESSEL SPEC. OR CODE ASME sec. VIII ☐ LUBE SERVICE ☐ NON-LUBE SERV. ☐ NO OIL ALLOWED INTERNALLY DRY TYPE INTER.CORR.COATING ☐ YES ☐ NO RADIOGRAPHY (X-RAY OF WELDS): ☐ NONE ☐ SPOT ☒ 100% ☐ IMPACT TEST ☐ SPECIAL WELDING REQUIREMENTS ☒ SHOP INSPECTION ☒ WITNESS HYDROTEST ☒ OUTDOOR STORAGE OVER 6 MONTHS ☒ SPECIAL PAINT SPEC ☐ WITNESSED ☐ OBSERVED CYLINDER, GAS, OPERATING, AND SUPPRESSOR DESIGN DATA <table border="1"> <tr> <td>SERVICE Wet HC gas</td> <td>STAGE NO. 1st / 2nd</td> </tr> <tr> <td>COMPRESSOR MANUFACTURER'S RATED CAPACITY Kg/h 8935.5 m3/h 1589 Nm3/h 8162.9</td> <td></td> </tr> <tr> <td>☒ LINE SIDE OPERATING PRESSURE</td> <td> INLET, 4.9 / 17.4 bar DISCHARGE 18.25 / 54.8 bar INLET, 36.8 / 59.9 °C DISCHARGE 129 / 146 °C ALLOWABLE PRESSURE DROP THROUGH SUPPRESSORS Δ P 68 / 65 mbar / 1.16 / 1.12 % Δ P 223/215 mbar / 1.16 / 1.12 % </td> </tr> <tr> <td></td> <td> INLET SUPPRESSOR DISCHARGE SUPPRESSOR ☐ YES ☒ NO / ☐ YES ☒ NO / ☐ YES ☒ NO 1 / 1 1 / 1 bar / % bar / % bar / % bar / % ☐ YES ☒ NO ☐ YES ☒ NO barg, @ °C barg, @ °C 1.438 / 0.5 m³ 0.911 / 0.339 m³ AS BUILT VOLUME (m³) m³ m³ </td> </tr> </table>	SERVICE Wet HC gas	STAGE NO. 1st / 2nd	COMPRESSOR MANUFACTURER'S RATED CAPACITY Kg/h 8935.5 m3/h 1589 Nm3/h 8162.9		☒ LINE SIDE OPERATING PRESSURE	INLET, 4.9 / 17.4 bar DISCHARGE 18.25 / 54.8 bar INLET, 36.8 / 59.9 °C DISCHARGE 129 / 146 °C ALLOWABLE PRESSURE DROP THROUGH SUPPRESSORS Δ P 68 / 65 mbar / 1.16 / 1.12 % Δ P 223/215 mbar / 1.16 / 1.12 %		INLET SUPPRESSOR DISCHARGE SUPPRESSOR ☐ YES ☒ NO / ☐ YES ☒ NO / ☐ YES ☒ NO 1 / 1 1 / 1 bar / % bar / % bar / % bar / % ☐ YES ☒ NO ☐ YES ☒ NO barg, @ °C barg, @ °C 1.438 / 0.5 m ³ 0.911 / 0.339 m ³ AS BUILT VOLUME (m ³) m ³ m ³
SERVICE Wet HC gas	STAGE NO. 1st / 2nd								
COMPRESSOR MANUFACTURER'S RATED CAPACITY Kg/h 8935.5 m3/h 1589 Nm3/h 8162.9									
☒ LINE SIDE OPERATING PRESSURE	INLET, 4.9 / 17.4 bar DISCHARGE 18.25 / 54.8 bar INLET, 36.8 / 59.9 °C DISCHARGE 129 / 146 °C ALLOWABLE PRESSURE DROP THROUGH SUPPRESSORS Δ P 68 / 65 mbar / 1.16 / 1.12 % Δ P 223/215 mbar / 1.16 / 1.12 %								
	INLET SUPPRESSOR DISCHARGE SUPPRESSOR ☐ YES ☒ NO / ☐ YES ☒ NO / ☐ YES ☒ NO 1 / 1 1 / 1 bar / % bar / % bar / % bar / % ☐ YES ☒ NO ☐ YES ☒ NO barg, @ °C barg, @ °C 1.438 / 0.5 m ³ 0.911 / 0.339 m ³ AS BUILT VOLUME (m ³) m ³ m ³								

 NISOC		نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض / بسته ایستگاه تقویت فشار گاز خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک قرارداد (BK-HD-GCS-CO-0008_03)					 HAVAYAR INDUSTRIAL GROUP	
شماره پیمان: 053 - 073 - 9184		DETAILED DATA SHEET FOR GAS COMPRESSORS					شماره صفحه: 19 از 23	
		نسخه سریال نوع مدرک رشته تسهیلات صادرکننده بسته کاری پروژه V00 0001 DT ME 120 HY GCS BK						

1	PULSATION SUPPRESSION DEVICES FOR RECIPROCATING COMPRESSORS (CONT'D)		SERVICE	Sour Gas
2	THESE SHEETS TO BE FILLED OUT FOR EACH SERVICE AND/OR STAGE OF COMPRESSION		STAGE NO.	1st / 2nd
3	CONSTRUCTION REQUIREMENTS & DATA		INLET SUPPRESSOR	DISCHARGE SUPPRESSOR
4	● SUPPRESSOR TAG NUMBER		C-2101-D1 / C-2102-D1	C-2101-D2 / C-2102-D2
5	● BASIC MATERIAL REQUIRED, CS, SS, ETC.		Carbon Steel	Carbon Steel
6	◆ ACTUAL MATERIAL DESIGNATION SHELL/HEAD		/	/
7	○ SPECIAL HARDNESS LIMITATIONS, Rc ○ YES ○ NO		SHELL & HEADS WELDS	SHELL & HEADS WELDS
8	☐ CORROSION ALLOWANCE., mm ○ REQUIRED		3 mm	3 mm
9	◆ WALL THICKNESS, mm SHELL/HEAD		TBD mm/ TBD mm	TBD mm/ TBD mm
10	■ NOM. SHELL DIA X OVERALL LGTH. (INCH/VOL.mm³)		TBC x TBC mm/ TBD mm³	TBD x TBC mm/ TBD mm³
11	■ PIPE OR ROLLED PLATE CONSTRUCTION		☐ PIPE ■ ROLLED PLATE	☐ PIPE ■ ROLLED PLATE
12	◆ ACT. MAX ALLOW. WORKING PRESS. AND TEMPERATURE		24.5 / 56.9 bar @ 180 °C	24.5 / 56.9 bar @ 180 °C
13	● MINIMUM DESIGN METAL TEMP (6.15.8.1)		°C	°C
14	● INLET SUPPRESS. TO BE SAME MAWP AS DISCH'RG SUPPRESS.		○ YES ○ NO	
15	◆ MAX EXPECTED PRESSURE DROP (Δ P, %) LINE PRESS		Δ P bar/ %	Δ P bar/ %
16	◆ WEIGHT (kg EACH)		kg	kg
17	○ INSUL NUTS & ALLOW. FOR INSULATION REQUIRED (X)			
18	◆ EXPECTED P-P PULSE @ LINE SIDE/CYL FLG, % LINE PRESS BASED ON FINAL SUPPRESSOR DESIGN		%/ %	%/ %
19	☐ SUPPORTS, TYPE/QUANTITY			
21	CONNECTION REQUIREMENTS & DATA			
22	● LINE SIDE FLANGE. SIZE/RATING/FACING/TYPE		10" 300lb RF / Single 6" 600lb RF	10" 300lb RF / Single 6" 600lb RF
23	● COMP CYL FLANGE(S), QTY/SIZE/RATING/FACING/TYPE		Single 10" 300lb RF / Single 6" 600lb RF	Single 10" 300lb RF / Single 6" 600lb RF
24	● FLANGE FINISH, ○ PER 7.9.5.1.16 ○ SPECIAL (SPECIFY) >125 <250 ● PER ANSI 16.5			
26	● INSPECTION OPENINGS REQUIRED		● YES ○ NO ● BLINDED	● YES ○ NO ● BLINDED
27	○ SPEC. QTY. SIZE, /FLG TYPE & RATING			
28	◆ * QTY. SIZE, /FLG TYPE & RATING			
29	● VENT CONNECTIONS REQUIRED		● YES ○ NO	● YES ○ NO
30	○ SPEC. QTY. SIZE, /FLG TYPE & RATING			
31	◆ * QTY. SIZE, /FLG TYPE & RATING			
32	● DRAIN CONNECTIONS REQUIRED		● YES ○ NO	● YES ○ NO
33	○ SPEC. QTY. SIZE, /FLG TYPE & RATING			
34	◆ * QTY. SIZE, /FLG TYPE & RATING			
35	○ PRESSURE CONNECTIONS REQUIRED		● YES ○ NO	● YES ○ NO
36	○ SPEC. QTY. SIZE, /FLG TYPE & RATING			
37	◆ * QTY. SIZE, /FLG TYPE & RATING			
38	○ TEMPERATURE CONNECTIONS REQUIRED		● YES ○ NO	● YES ○ NO
39	○ SPEC. QTY. SIZE, /FLG TYPE & RATING			
40	○ CYL NOZZLE ○ MAIN BODY			
41	◆ * QTY. SIZE, /FLG TYPE & RATING			
42				
43				
44				
45				
46	OTHER DATA AND NOTES			
47	◆ COMPRESSOR MFG'S SUPP. OUTLINE OR DRAWING NO.		BK-GCS-HY-120-ME-DW-0032	BK-GCS-HY-120-ME-DW-0032
48	◆ SUPP. MFG'S OUTLINE OR DRAWING NO.			
49	NOTES * = AS BUILT			
50				
51				



نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض و ابنیه تحت الارض/ بسته ایستگاه تقویت فشار گاز
خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک
قرارداد (BK-HD-GCS-CO-0008_03)



DETAILED DATA SHEET FOR GAS COMPRESSORS

شماره صفحه: 20 از 23

شماره پیمان:

053 - 073 - 9184

نسخه سریال نوع مدرک رشته تسهیلات صادرکننده بسته کاری پروژه
V00 0001 DT ME 120 HY GCS BK

INSTRUMENTATION

PURCHASER TO FILL IN () AFTER COMMODITY TO INDICATE: BY COMP. MFR. BY PURCH. BY OTHERS

INSTRUMENT & CONTROL

- ONE FOR EA. UNIT ONE COMMON TO ALL UNITS
MACHINE M'TED FREE STANDING (OFF UNIT) LOCAL REMOTE OUTDOORS
PNEUMATIC ELEC. ELECTRONIC HYDRAULIC PROGRAMMABLE CONT'L'R
NEMA 7, CLASS, GROUP, DIVISION INTRINSICALLY SAFE
I/S BARRIERS ()
NEMA 4, WATERTIGHT & DUSTTIGHT PURGED TO NFPA 496 TYPE X Y Z
OTHER NEMA LOW PURGE PRESS. ALARM SHUTDOWN
VIB, ISOLATORS STRIP HEATERS PURGE CONN. EXTRA CUTOUTS
ANNUNCIATOR W/FIRST-OUT INDICATION LOCATED ON CONTROL PANEL
PURCHASER'S CONN. BROUGHT OUT TO TERMINAL BOX BY VENDOR
ONE FOR EA. UNIT ONE COMMON TO ALL UNITS
MACHINE M'TED FREE STANDING (OFF UNIT) WITH STAND OUTDOORS
CLASS, GROUP, DIVISION
CONSTANT PRESSURE DISPOSAL SYSTEM VARIABLE PRESSURE DISPOSAL SYSTEM

BUFFER GAS CONTROL

PANEL ()

ADDITIONAL PANEL REMARKS:

INSTRUMENTATION SUITABLE FOR: INDOORS OUTDOORS OTHER

LIQUID LEVEL GAUGES LIQUID LEVEL SWITCHES PRESS. TRANSMITTERS PRESSURE SAFETY VALVES SIGHT FLOW INDICATORS VIBRATION MONITORS & EQUIP. THERMOCOUPLES RTD'S SOLENOID VALVES ANNUNCIATOR PROGRAMMABLE CONTROLLER

FUNCTION	MFR	As per Sub vendor List	SIZE & TYPE	See Instrument Data Sheet	MTL	See data sheet
LIQUID LEVEL GAUGES	MFR	As per Sub vendor List	SIZE & TYPE	See Instrument Data Sheet	MTL	See data sheet
DIFF. PRESSURE GAUGES	MFR	As per Sub vendor List	SIZE & TYPE	See Instrument Data Sheet	MTL	See data sheet
PRESS. TRANSMITTERS	MFR	As per Sub vendor List	TYPE	See Instrument Data Sheet	MTL	See data sheet
LIQUID LEV. TRANSMITTER	MFR	As per Sub vendor List	TYPE	See Instrument Data Sheet	MTL	See data sheet
PRESSURE SWITCHES	MFR	As per Sub vendor List	TYPE	See Instrument Data Sheet	MTL	See data sheet
TEMPERATURE SWITCHES	MFR	As per Sub vendor List	TYPE	See Instrument Data Sheet	MTL	See data sheet
LIQUID LEVEL SWITCHES	MFR	As per Sub vendor List	TYPE	See Instrument Data Sheet	MTL	See data sheet
DIFF. PRESSURE SWITCHES	MFR	As per Sub vendor List	TYPE	See Instrument Data Sheet	MTL	See data sheet
CONTROL VALVES	MFR	As per Sub vendor List	TYPE	See Instrument Data Sheet	MTL	See data sheet
PRESSURE SAFETY VALVES	MFR	As per Sub vendor List	TYPE	See Instrument Data Sheet	MTL	See data sheet
SIGHT FLOW INDICATORS	MFR	As per Sub vendor List	TYPE	See Instrument Data Sheet	MTL	See data sheet
VIBRATION MONITORS & EQUIP.	MFR	As per Sub vendor List	TYPE	See Instrument Data Sheet	MTL	See data sheet
THERMOCOUPLES	MFR	As per Sub vendor List	TYPE	See Instrument Data Sheet	MTL	See data sheet
RTD'S	MFR	As per Sub vendor List	TYPE	See Instrument Data Sheet	MTL	See data sheet
SOLENOID VALVES	MFR	As per Sub vendor List	TYPE	See Instrument Data Sheet	MTL	See data sheet
ANNUNCIATOR	MFR	As per Sub vendor List	MODEL & (QTY SPARE POINTS)	()		
PROGRAMMABLE CONTROLLER	MFR	As per Sub vendor List	TYPE	SEE PANEL DATA SHHET	MTL	
	MFR	As per Sub vendor List	TYPE		MTL	

PRESSURE GAUGE REQUIREMENTS LIQUID FILLED PRESSURE GAUGES: YES NO

FUNCTION	LOCALLY MOUNTED	PANEL MOUNTED	LOCALLY MOUNTED	PANEL MOUNTED
LUBE OIL MAIN PUMP DISCHAR.	()	()	PROCESS GAS: INLET PRESS.	()
LUBE OIL AUX. PUMP DISCHARG.	()	()	@ EA. STAGE	()
LUBE OIL PRESS. AT FRAME HEADER ()	()	()	DISCH. PRESS.	()
LUBE OIL FILTER Δ P	()	()	@ EA. STAGE	()
COOLING H ₂ O INLET HEADER	()	()		()
	()	()		()

REMARKS:



نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض و ابنیه تحت الارض/بسته ایستگاه تقویت فشار گاز
خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک
قرارداد (BK-HD-GCS-CO-0008_03)



DETAILED DATA SHEET FOR GAS COMPRESSORS

شماره صفحه : 21 از 23

شماره پیمان:

053 - 073 - 9184

نسخه سریال نوع مدرک رشته تسهیلات صادرکننده بسته کاری پروژه
V00 0001 DT ME 120 HY GCS BK

INSTRUMENTATION (CONT'D)

TEMPERATURE MEASUREMENT REQUIREMENTS

FUNCTION

LOCALLY MOUNTED

PANEL MOUNTED

GAUGE W/ CAPILLARY

THERMO CPL SYS

RTD SYS

I/S SYS

LUBE OIL ● INLET TO ○ OUT OF FRAME (■ ○ ○) (□ ○ ○) ○ ○ ○ ○
LUBE OIL ● INLET TO ● OUT OF COOLER (■ ○ ○) (□ ○ ○) ○ ○ ○ ○
MAIN JRNL BEARINGS (THERMOCOUPLES OR RTD'S ONLY) (■ ○ ○) (□ ○ ○) ○ ○ ● ○
MOTOR BEARING(S) (THERMOCOUPLES OR RTD'S ONLY) (■ ○ ○) (□ ○ ○) ○ ○ ● ○
CYL. COOLANT MANIFOLD: ● INLET ○ OUTLET (■ ○ ○) (□ ○ ○) ○ ○ ○ ○
CYL. JKT. COOLANT: ○ INLET ● OUTLET ● EA. CYL (■ ○ ○) (□ ○ ○) ○ ○ ● ○
PROCESS GAS: ● INLET ● DISCH. ● EACH CYL (■ ○ ○) (□ ○ ○) ○ ○ ○ ○
INTERCOOLER(S) ● INLET ● GAS ○ COOLANT (□ ● ○) (□ ○ ○) ○ ○ ○ ○
● OUTLET ● GAS ○ COOLANT (□ ● ○) (□ ○ ○) ○ ○ ○ ○
AFTERCOOLER: ● INLET ● GAS ○ COOLANT (□ ● ○) (□ ○ ○) ○ ○ ○ ○
○ OUTLET ○ GAS ○ COOLANT (□ ● ○) (□ ○ ○) ○ ○ ○ ○
PKG COOLANT ○ INLET ● OUTLET (■ ○ ○) (□ ○ ○) ○ ○ ○ ○
PRESS. PGK CASE, CYL PIST ROD (THRM/CPLS OR RTD'S ONLY) (■ ○ ○) (□ ○ ○) ○ ○ ● ○
COMPRESSOR VALVES ○ SUCT. ○ DISCH. TC'S OR RTD'S ONLY (□ ○ ○) (□ ○ ○) ○ ○ ○ ○

ALARM & SHUTDOWN SYSTEM REQ/MTS

NOTE: ALARM & SHUTDOWN DEVICES SHALL BE INDIVIDUALLY SEPARATE

ANNUNCIATION POINTS

ALARM DEVICES: ○ TRANSMITTER ○ SWITCH
SHUTDOWN DEVICES ○ TRANSMITTER ○ SWITCH

FUNCTION	ALARM		SHUT DOWN		TOTAL NO. OF POINTS
	IN PNL BY MFR	IN CTL ROOM PNL OTH'RS	IN PNL BY MFR	IN CTL ROOM PNL OTH'RS	
LOW LUBE OIL PRESS. @ BEARING HEADER	(■ ○ ○)	(■ ○ ○)	●	●	Later
HIGH LUBE OIL Δ P ACROSS FILTER	(■ ○ ○)	(□ ○ ○)	●	○	Later
LOW LUBE OIL LEVEL, FRAME	(■ ○ ○)	(□ ○ ○)	●	○	
AUX LUBE OIL PUMP, FAIL TO START	(■ ○ ○)	(□ ○ ○)	●	○	
CYL LUBE SYSTEM PROTECTION	(■ ○ ○)	(□ ○ ○)	●	○	Later
COMPR. VIBRATION, SHUTDOWN ONLY		(□ ○ ○)	○	○	
VIBRATION, W/ CONTINUOUS MONITORING	(■ ○ ○)	(■ ○ ○)	●	●	Later
ROD DROP DETECTOR, CONTACT TYPE(1/CYL)	(□ ○ ○)	(□ ○ ○)	○	○	
ROD DROP PROXIMITY PROBE (1/CYL)	(■ ○ ○)	(□ ○ ○)	●	○	Later
OIL TEMP OUT OF FRAME	(□ ○ ○)	(□ ○ ○)	○	○	Later
HIGH GAS DISCH. TEMP EACH CYLINDER	(■ ○ ○)	(■ ○ ○)	●	●	Later
HIGH JACKET COOLANT TEMP., EA. CYL	(□ ○ ○)	(□ ○ ○)	○	○	
LOW SUCTION PRESS., FIRST STG INLET	(■ ○ ○)	(□ ○ ○)	●	○	Later
HI DISCH. PRESS. ● FINAL ○ EA STG	(■ ○ ○)	(■ ○ ○)	●	●	Later
HI CYL. GAS Δ P, EACH STAGE	(□ ○ ○)	(□ ○ ○)	○	○	
HI LIQ. LEV., EA. MOISTURE SEPARATOR	(□ ● ○)	(□ ○ ○)	●	○	Later
LOW PURGE GAS PRESS, DISTANCE PIECE(S)	(■ ○ ○)	(□ ○ ○)	●	○	Later
HI X-HD PIN TEMP	(□ ○ ○)	(□ ○ ○)	○	○	
PRESS PKG CASE (PISTON ROD TEMP)	(■ ○ ○)	(■ ○ ○)	●	●	Later
	(□ ○ ○)	(□ ○ ○)	○	○	

TOTAL NUMBER OF ANNUNCIATION POINTS

SWITCH CONTACT OPERATION

NOTE: EACH SWITCH SHALL BE MINIMUM SPDT ARRANGEMENT

ALARM CONTACTS SHALL:

- OPEN (DE-ENER.) TO SOUND ALARM & BE ENERGIZED WHEN COMPR. IS IN OPERATION
- CLOSE (ENERGIZE) TO SOUND ALARM & BE DE-ENERGIZED WHEN COMPR. IS IN OPERATION

SHUTDOWN CONTACTS SHALL:

- OPEN (DE-ENERGIZED) TO SHUTDOWN & BE ENERGIZE WHEN COMPR. IS IN OPERATION
- CLOSE (ENERGIZE) TO SHUTDOWN & BE DE-ENERGIZE WHEN COMPR. IS IN OPERATION

REF: 7.6.6.2 FOR MINIMUM RECOMMENDED PROTECTION REQUIREMENTS



نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض و ابنیه تحت الارض/ بسته ایستگاه تقویت فشار گاز
خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک
قرارداد (BK-HD-GCS-CO-0008_03)



شماره پیمان:

053 - 073 - 9184

DETAILED DATA SHEET FOR GAS COMPRESSORS

شماره صفحه : 22 از 23

نسخه سریال نوع مدرک رشته تسهیلات صادرکننده بسته کاری پروژه
V00 0001 DT ME 120 HY GCS BK

INSTRUMENTATION (CONT'D)

MISCELLANEOUS INSTRUMENTATION

SIGHT FLOW IND. (COOLANT ONLY) (☐ ☐ ☐) FOR: ☐ INTERCOOLER(S) ☐ AFTER CLR ☐ OIL COOLER
☒ CYL JACKET COOLANT ☒ ROD PRESS. PKG COOLANT

PNEUMATIC PRESSURE TRANSMITTERS (☐ ☐ ☐) FOR: _____

PRESSURE TRANSMITTERS (ELEC. OUTP.) (☐ ☐ ☐) FOR: Valve Unloader

PNEUMATIC LEVEL TRANSMITTERS (☐ ☐ ☐) _____

ALARM HORN & ACKN'LMT TEST BUTTON (☐ ☐ ☐) _____

CONDUIT & WIRING W/JUNCT. BOXES (CON-SOLES) (☐ ☐ ☐) _____

TEST VALVES (☐ ☐ ☐) FOR: _____

DRAIN VALVES (☐ ☐ ☐) FOR: Cooler , damper

GAUGE GLASS(ES) (☐ ☐ ☐) FOR: Oil, Lubricator, Distance Piece Pot, Crank case frame

TACHOMETER (☐ ☐ ☐) _____ SPEED RANGE _____ TO _____ r/min

CRANKSHAFT KEY PHASER (☐ ☐ ☐) FOR: _____

AND TRANSDUCER (☐ ☐ ☐) _____

SEPARATE LUBE OIL CONSOLE INSTRUMENTATION:

PURCH. TO LIST REQ'MTS IN ADDITION TO ANY ABOVE REQ'MTS

(☐ ☐ ☐) _____

(☐ ☐ ☐) _____

(☐ ☐ ☐) _____

(☐ ☐ ☐) _____

(☐ ☐ ☐) _____

(☐ ☐ ☐) _____

SEPARATE COOLING WATER CONSOLE INSTRUMENT:

PURCH. TO LIST REQ'MTS IN ADDITION TO ANY ABOVE REQ'MTS

(☐ ☐ ☐) _____

(☐ ☐ ☐) _____

(☐ ☐ ☐) _____

(☐ ☐ ☐) _____

(☐ ☐ ☐) _____

(☐ ☐ ☐) _____

RELIEF VALVES

LOCATION

BY

MANUFACTURER

TYPE

SIZE

SETTING

1 st Discharge (☐ ☒ ☐) Later Later Later Later

2nd Discharge (☐ ☒ ☐) Later Later Later Later

Main Oil Pump Discharge Discharge (☒ ☐ ☐) Later Later Later Later

Aux Oil Pump Discharge Discharge (☒ ☐ ☐) Later Later Later Later

N2 Gas Supply for Rod Packing (☒ ☐ ☐) Later Later Later Later

N2 Gas Supply for Intermediate Packing (☒ ☐ ☐) Later Later Later Later

(☐ ☐ ☐) _____

(☐ ☐ ☐) _____

(☐ ☐ ☐) _____

(☐ ☐ ☐) _____

NOTES: SEE MOTOR DATA SHEET FOR ADDITIONAL MOTOR INSTRUMENTATION REQUIREMENTS

ADDITIONAL INSTRUMENTATION REMARKS/SPECIAL REQUIREMENTS:

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض/ بسته ایستگاه تقویت فشار گاز خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک قرارداد (BK-HD-GCS-CO-0008_03)	 HAVAYAR INDUSTRIAL GROUP
شماره پیمان: 053 - 073 - 9184	DETAILED DATA SHEET FOR GAS COMPRESSORS	
	نسخه سریال نوع مدرک رشته تسهیلات صادرکننده بسته کاری پروژه	
	V00 0001 DT ME 120 HY GCS BK	

NOTES

1	1) PACKING COOLANT CONSOLE AND CYLINDER JACKETS HAVE COMMON COOLING WATER DISTRIBUTION SYSTEM.	Rev
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		
51		
52		
53		
54		