

	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض							
	خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک (قرارداد BK-HD-GCS-CO-0008_03)							
شماره پیمان: 053 - 073 - 9184	SHAFT COUPLING ASSEMBLY DRAWING AND BILL OF MATERIAL						شماره صفحه: 1 از 6	
	پروژه BK	بسته کاری GCS	صادر کننده HY	تسهیلات 120	رشته ME	نوع مدرک DW	سریال 0002	نسخه V00

طرح نگهداشت و افزایش تولید 27 مخزن

SHAFT COUPLING ASSEMBLY DRAWING AND BILL OF MATERIAL

نگهداشت و افزایش تولید میدان نفتی بینک

V00	JUL.2023	IFI	Havayar Co.	M.Fakharian	A.M.Mohseni	
Rev.	Date	Purpose of Issue/Status	Prepared by:	Checked by:	Approved by:	CLIENT Approval

Class: 3

Status:

IFA: Issued for Approval
 IFR: Issued for Review
 IFI: Issued for Information
 AFC: Approved for Construction

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک (قرارداد BK-HD-GCS-CO-0008_03)						 HAVAYAR INDUSTRIAL GROUP																
	SHAFT COUPLING ASSEMBLY DRAWING AND BILL OF MATERIAL <table border="1"> <tr> <td>نسخه</td> <td>سریال</td> <td>نوع مدرک</td> <td>رشته</td> <td>تسهیلات</td> <td>صادر کننده</td> <td>بسته کاری</td> <td>پروژه</td> </tr> <tr> <td>V00</td> <td>0002</td> <td>DW</td> <td>ME</td> <td>120</td> <td>HY</td> <td>GCS</td> <td>BK</td> </tr> </table>						نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه	V00	0002	DW	ME	120	HY	GCS	BK	شماره صفحه : 2 از 6
نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه																
V00	0002	DW	ME	120	HY	GCS	BK																
شماره پیمان : 053 - 073 - 9184																							

REVISION RECORD SHEET

PAGE	V00	V01	V02	V03	V04
1	X				
2	X				
3	X				
4	X				
5	X				
6	X				
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					
55					
56					
57					
58					
59					
60					
61					
62					
63					
64					
65					

PAGE	V00	V01	V02	V03	V04
66					
67					
68					
69					
70					
71					
72					
73					
74					
75					
76					
77					
78					
79					
80					
81					
82					
83					
84					
85					
86					
87					
88					
89					
90					
91					
92					
93					
94					
95					
96					
97					
98					
99					
100					
101					
102					
103					
104					
105					
106					
107					
108					
109					
110					
111					
112					
113					
114					
115					
116					
117					
118					
119					
120					
121					
122					
123					
124					
125					
126					
127					
128					
129					
130					

COUPLING DATASHEET API 671 5th Edition SI units		Page <u>3</u> of <u>6</u>	
		Job No. <u>SR23006</u>	
		Item No. <u>C-2101A/B/C</u> <u>C-2102A/B/C</u>	
		Purchase order No. _____ Date _____	
Inquiry No. <u>NR-23-0404-1</u>		By <u>Y.S. LIM</u>	
Revision <u>1</u>		Date <u>23.07.11</u>	

1 Note: Information to be completed ☐ by Purchaser ☒ by Coupling manufacturer	
2 Applicable to: ☐ Proposal ☒ Purchase ☐ As built	
3 ☐ Owner: <u>HAVAYAR INDUSTRIAL GROUP</u>	No. required <u>3</u>
4 Site: <u>Binak Oil Field Development Project</u> Service: <u>Sour Gas Compressor</u>	
5 ☐ Driver: Type <u>ELECTRIC MOTOR</u> Manufacturer _____ Model _____	
6 Nameplate power (kW) <u>1,050</u>	Service factor <u>1.0</u> Serial No. _____ Tag. No. _____
7 ☐ Driven unit: <u>RECIPROCATING COMP.</u> Manufacturer <u>KWANGSHIN</u> Model _____	
8 Nameplate power (kW) _____	Service factor _____ Serial No. _____ Tag. No. _____
9 Coupling type: ☒ Flexible element ☐ Gear ☐ Quill shaft ☐ Torsional Damp/Resilient ☐ Other	
10 ☐ Manufacturer: <u>NARA CORPORATION</u> Model <u>NPE-B API</u> Size <u>840S</u> Drawing Number <u>NPE-B API 84000S</u>	
11 ☐ CONDITIONS CONSIDERED FOR COUPLING SELECTION ☐ RATINGS	
Conditions	Torque (N.m)
Speed (r/min)	Torque (N.m)
Speed (r/min)	Speed (r/min)
Service factor	Service factor
14 Steady state (normal) (6.6a)	23,875 420 Steady state (normal) (6.6a) 90,300 3,600 3.78
15 Max driver power (3.1.30 & 6.6b)	Max driver power (3.1.30 & 6.6b)
16 Rated (6.7)	23,875 420 Rated (6.7) 90,300 3,600 3.78
17 Maximum transient (5.2 & 6.2p)	Peak (7.3) 180,600 3,600
18 Trip condition (6.2f)	Momentary (7.3) 90,300 3,600
19 Continuous cyclic (5.2 & 6.2p)	Shaft juncture driving (6.14)
20 Minimum operating speed (3.1.32 & 6.2e)	Shaft juncture driven (6.14)
21 Maximum continuous speed (3.1.29 & 6.2f)	
22 Other: _____	
23 ☐ Frequency of transients (events/time) (6.2p & 7.4.3) _____ ☐ Non-synchronous exciting frequency (8.12.1) _____	
24 ☐ Number of starts (6.12) _____ ☐ Period of Uninterrupted Operation (5.2.1) _____	
25 ☐ Minimum required coupling service factor (6.9) <u>2.8</u> Based on either: ☐ Normal (6.6a) ☐ Max Driver Power (6.6b) ☐ Rated (6.7)	
26 ☐ As designed coupling service factor(6.9) <u>3.78</u> (Based on purchaser's selection) ☐ Other (6.10)	
27 ☐ Cyclic torque rating (7.4.3) _____ ☐ Coupling to shaft juncture (6.12) _____	
28 ☐ Allowable shaft unbalance (9.3.5.6, 9.3.6 or 9.3.7.4) _____ ☐ Future Conditions (5.3) _____	
29 ☐ Ambient temperature (6.2k) (°C) Maximum <u>50</u> Minimum <u>5</u>	
30 Environment (10.3)(10.4) ☐ Hydrogen chloride ☐ Hydrogen sulfide ☒ Other : _____	
31 LUBRICATION	
32 ☐ Continuous (C.3.9 & C.3.10) ☐ Batch (C.3.9) ☒ Non-lubricated ☐ Oil Spray (8.1.6)	
33 ☐ Viscosity (SSU) @ _____ °C ☐ Filtration () _____	
34 ☐ Pressure (kPa) ☐ Temperature (°C) ☐ Flow (l/s)	
35 COUPLING DATA	
36 ☐ Shaft separation (including thermal growths), DBSE (mm) :	
37 @ Ambient temperature _____ In normal operation _____ @ maximum transient _____	
38 ☐ Motor float (mm.) _____ ☐ Limited end float (mm.)(C.3.1) _____ ☐ Spacer / non-spacer (B.2.11) _____	
39 ☐ Load transmission to continue after flex-element failure (8.1.6) ☐ Electrically insulated (8.11)	
40 ☐ Marine type required (C.3.3) ☐ Flex-hub type required (C.3.3) ☐ Torsional damping (b.2.6) _____ ☐ Engagement (B.2.10) _____	
41 ☐ Required misalignment & displacement capability (6.2, 6.3, 6.4 & D.2.2) ☐ Restrictions of elastomer in shear (b.2.7) _____	
42 Steady state : Angular (DEG.) _____ Parallel offset (in.) _____ Axial (in.) _____ ☐ Materials (B.4.1) _____	
43 Transient: Angular (DEG.) _____ Parallel offset (in.) _____ Axial (in.) _____ ☐ Life exp (B.5.3) _____	
44 ☐ Maximum allowable misalignment (O.3.2.2.p)	
45 Steady state : Angular (DEG.) <u>0.05</u> Parallel offset (mm) <u>0.26</u> Axial (mm) <u>±0.5</u> Transient axial (mm) _____	
46 Transient: Angular (DEG.) <u>0.50</u> Parallel offset (mm) <u>2.60</u> Axial (mm) <u>±5.4</u> Transient axial (mm) _____	
47 ☐ Component balance (9.2.1) or ☐ Component balance with assembly check balance (9.2.1 & 9.2.2)	
48 or ☐ Component balance with assembly balance (9.2.3 & 9.3.7) ☐ Potential unbalance calc. Required	
49 ☐ Residual unbalance check of assembled coupling (9.3.8) ☐ Balance repeatability check (9.3.9)	
50 ☐ Maximum allowable shaft unbalance (g · mm)(9.3.5.6, 9.3.6 & 9.3.7.4) Driver end _____ Driven end _____	
51 ☐ Maximum allowable residual unbalance (g · mm)(9.3.6 & 9.3.7) Driver end <u>20,009</u> Driven end <u>11,425</u>	
52 ☐ Maximum actual residual unbalance (g · mm)(Annex G) Driver end <u>20,009</u> Driven end <u>11,425</u>	
53 ☐ Torsional stiffness (N · m/rad)(O.3.2.2.j) <u>4.519x10^7</u>	
54 ☐ Moment of inertia (kg · m^2)(O.3.2.2.i) Driver end <u>46.0</u> Driven end <u>45.4</u>	
55 ☐ Spacer lateral natural freq. (8.12.2 & O.3.2.2.k) <u>11,392</u>	
56 ☐ Torque capacity of hub/shaft interface for keyless fits (N · m)(O.3.2.2.s) - <u>KEY TYPE</u>	
57 ☐ List required of similar couplings (O.2.3.2.m)	

COUPLING DATASHEET API 671 5th Edition SI units		Page 4 of 6	
		Job No. SR23006	Item No. C-2101A/B/C C-2102A/B/C
		Purchase order No.	Date
		Inquiry No. NR-23-0404-1	By Y.S. LIM
		Revision 1	Date 23.07.11
1	COUPLING DATA (Continued)		
2	Flexible-element coupling :		
3	☐ initial deflection (mm.) ☐ Prestretch ☐ Compression ☐ Maximum axial deflection (mm) ±5.4		
4	☐ Calculated axial natural freq., ANF (0.3.2.2.h) 24.8 ☐ Test of ANF (12.4.1) ☐ Actual ANF		
5	☐ Maximum enclosure temperature at maximum continuous speed (°C) 0.3.2.3)		
6	MATERIALS (10.1)		
7		Drive end materials	Driven end materials
8	Hub / flange	A108-1045 (SM45C)	A108-1045 (SM45C)
9	Spacer	A108-1045 (SM45C)	A108-1045 (SM45C)
10	Sleeve	N/A	N/A
11	Flexible element	A276-304 (STS304)	A276-304 (STS304)
12	Flexible-element guard	A108-1045 (SM45C)	A108-1045 (SM45C)
13	Bolts	A322-4140 (SCM440)	A322-4140 (SCM440)
14	Nuts	A108-1045 (SM45C)	A108-1045 (SM45C)
15	☐ Protective coating (10.6) ☐ Vendor standard	☒ Customer Specified Zinc phosphate	
16	☐ Internal teeth hardness (Rockwell C) (C.3.8)	Driver end actual	Driven end actual
17	☐ External teeth hardness (Rockwell C) (C.3.8)	Driver end actual	Driven end actual
18	COUPLING HUB MACHINING		
19		Driver end	Driven end
20	☐ Type (integral, cylindrical, taper) (8.4 & 8.6.1.1)	Cylindrical	Integral
21	☐ Keyed or hydraulically fitted (8.6.1.1 & 8.6.1.2)	Keyed	Bolt
22	☐ Taper (1 deg. included angle, 1:24, 1:16.)	N/A	N/A
23	(8.6.2.1, 8.6.2.2 & 8.6.2.3)	N/A	N/A
24	☐ Keyway dimensions and number (8.6.3)	50x28, Single	N/A
25	☐ Nominal bore diameter (mm)	Ø220	N/A
26	☐ Interference fit (mm.) max / min. (8.6.1.3 & 8.6.1.4)	+0.046 / -0.029	N/A
27	☐ Alternative hub interference fit (mm) max / min (8.6.4)	N/A	N/A
28	☐ Puller holes (8.6.3.4)	2-M20 TAP	2-M20 TAP
29	☐ Trim balance holes (9.4)	N/A	N/A
30	COUPLING GUARD (Annex H)		
31	☐ Coordinator (H.2.1)	☐ Regulation (H.2.8)	
32	☐ Type (H.2.2 & H.2.6)	☐ Internal Temp Calculation by (H.2.14)	
33	☒ Base mounted (H.3)	☐ Purge gas ☐ Dry air purge (H.4.7)	
34	☒ Spark resistant (H.2.11)	☐ Purge connection size and type	
35	☐ Transparent window for each oil spray point (H.5.4)	☐ Purge rate required (/h)	
36	☐ Vent connection (H.4.5)	☐ Oil mist cooling ☐ Gas Cooling	
37	☐ Dn 25 with filter / breather	☐ Contract guard to be used during shop test (H.4.8)	
38	☐ Dn 25 flanged, rating and facing	☐ Additional guard details	
39	ACCESSORIES		
40	☐ One set of ring and plug gages by (11.2.5)	☐ Hydraulic installation / removal tooling (to include hand pumps, pressure gauge(s), fittings & hoses by : (11.2.1)	
41	☐ Coupling manufacturer ☐ Purchaser	☐ Coupling manufacturer ☐ Purchaser	
42	☐ Drill template for integral flanged shaft ends by (8.5.1)	☐ Puller by : (11.2.4)	
43	☐ Coupling manufacturer ☐ Purchaser	☐ Coupling manufacturer ☐ Purchaser	
44	☐ Lapping tools by (11.2.6)	☐ Idling adapter (Solo) plate by coupling manufacturer (8.7)	
45	☐ Coupling manufacturer ☐ Purchaser	☐ Moment simulator by coupling manufacturer (8.8.1)	
46	☐ Two-piece stop rings bt : (11.2.3)	☐ Torque Measuring System (11.3.1)	
47	☐ Coupling manufacturer ☐ Purchaser	☐ Supplier (11.3.2) :	
48			
49	APPLICABLE SPECIFICATIONS	PREPARATION FOR SHIPMENT	
50	☐ API-671, Special purpose couplings	☐ Outdoor storage for more than 3 months (12.5.2)	
51	☐ Keyless-fit design code ANSI / AGMA 9003 / DIN 7190	☐ Expected storage time :	
52		☐ Shipping : ☐ Domestic Storage : ☐ Indoor	
53	MEETINGS / TESTING	(12.5.3) ☒ Export (12.5.2) ☒ Outdoor	
54	☐ Information determined in (13.1.2)	☐ Additional inscribed information (12.5.8)	
55	☐ Testing to be observed or witnessed (12.2.1)	☐ See coupling purchase order for preservation, boxing, and shipping instructions	
56			

		Page <u>5</u> of <u>6</u> Job No. <u>SR23006</u> Item No. <u>C-2101A/B/C</u> <u>C-2102A/B/C</u> Purchase order No. _____ Date _____ Inquiry No. <u>NR-23-0404-1</u> By <u>Y.S. LIM</u> Revision <u>1</u> Date <u>23.07.11</u>	
COUPLING DATASHEET API 671 5th Edition SI units			

1	TORQUE MEASURING SYSTEM		
2	☐ Manufacturer : _____ Model _____ Size _____ Assy. Dwg. No. _____		
3			
4	○ CONDITIONS CONSIDERED FOR TORQUE MEASURING SYSTEM SELECTION(S) (11.3.1 & Annex L)		
5	Conditions to be Specified for Torque Measuring System		Torque Measuring System
6			
7	Torque measuring system coupling location (between which machines?)		
8	Normal Torque (Nm) to be measured (1% accuracy)		
9	Maximum torque (Nm) to be measured		
10	Maximum number of times maximum torque expected		
11	Maximum torque components capability (Nm)		
12	Minimum speed (RPM) at which torque measurement is required		
13	Maximum speed (RPM) at which torque measurement is required		
14	Which torque measurements are to be taken		
15	System bandwidth minimum frequency system capable of resolving (Hz)		
16	System bandwidth maximum frequency system capable of resolving (Hz)		
17	Accuracy of torsional amplitude value (where different than stead state) (%)		
18	Units of torsional amplitude value (where different than stead state)		
19	Requirements for analog output		
20	Visual display requirements		
21	Machine movements from the cold installed position to the hot running condition		
22	Convention : state for each machine		
23	Axial : (state direction and amount of movement)		
24	Vertical : (state direction and amount of movement)		
25	Horizontal : (state direction and amount of movement)		
26	What is the requested accuracy for :		
27	Maximum torque the system will display		
28	Cyclic, maximum (or what) torque and frequencies		
29	Advise if any rotordynamic restrictions apply such as torsional stiffness		
30	Signal output		
31	Requirements for analog output (if not 4 - 20 mA)		
32	Requirements for visual display unit		
33	Location of visual display unit		
34	Ranges of output scaling for each parameter		
35	Measurement requirement of negative torque (same direction of rotation)		
36	Maximum allowable temperature for components within coupling guard (Deg C)		
37	Calibration temperature compensation range (Deg C)		
38	Electro-magnetic interference (noise) specific requirements		
39	Rotation and power flow – specify A or B from diagram below		
40	Spare components, shafts or system desired		
41	Advise if torque measuring system is incorporated into the safety trip loop		
42	AREA CLASSIFICATION ☐ ELEC. AREA CLASS. ☐ NEC ☐ IEC ☐ ATEX ☐ FM ☐ GOST ☐ IECEx ☐ CEC ☐ Other. EQUIPMENT CLASS GROUP ZONE GROUP VISUAL DISPLAY UNIT CLASS GROUP ZONE GROUP OUTDOOR DIVISION TEMP CLASS OUTDOOR DIVISION TEMP CLASS		
43	POWER ☐ Available ☐ Usage ☐ Power Consumption Wattage _____ ☐ Power Consumption Volts Hertz Cycles Volts Hertz Cycles Rotation : "A" ☐ "B" ☐		
44			
45			
46			
47			
48			
49			
50			
51			
52			
53			
54			
55			
56			
57			
58			

