

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

طرح نگهداشت و افزایش تولید 27 مخزن

For checking this document issuing Motor DWG, Comp sectional DWG and Motor data sheet is necessary

HY reply) the mentioned documents will be submitted at the respective time schedule.

SHAFT COUPLING ASSEMBLY DRAWING AND BILL OF MATERIAL

نگهداشت و افزایش تولید میدان نفتی بینک

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

Class: 2

Status:

IFA: Issued for Approval

IFR: Issued for Review

IFI: Issued for Information

AFC: Approved for Construction

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

REVISION RECORD SHEET

PAGE	V00	V01	V02	V03	V04
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examples.

Clarify how you provided motor coupling manufacturer but you mentioned Motor mfg.? motor manufacturer and model shall be mention revision

motor selection and coupling are being proceeded in parallel. common procedure and the matching is in Havayar's ability.

shall be as per AVL Confirmed.

and GA NARA REPLY) OK

Compressor model shall be finalized and mentioned here KS reply) KSOPT to be filed in next revision.

Vendor shall provide based on vendor Catalog (NARA REPLY) Catalog Attached

Service factor reference shall be specified. NARA REPLY) Catalog Attached.

Shall be specified. HY REPLY) After Finalization of Motor Data

Shall be specified. NARA REPLY) This information about the surrounding environment if there is no applicable information we will exclude the indication. Please confirm

to be filled in HY REPLY) After Finalization of Motor Data

Job No. SR23006

Purchase order No.

Inquiry No. NR-23-0404-1

Revision 1

Date 23.07.11

By Y.S./LIM

Model NPE-B API

Size 840S

Manufacturer KWANGSHIN

Service factor 1.0

Serial No.

Tag No.

Conditions considered for coupling selection

Conditions	Torque (N.m)	Speed (r/min)	Steady state (normal) (6.6a)	Max driver power (3.1.30 & 6.6b)
Normal (6.6a)	23,875	420	90,300	3,600
Rated (6.7)	23,875	420	90,300	3,600
Maximum transient (5.2 & 6.2p)	180,600	3,600	90,300	3,600
Trip condition (6.2f)	180,600	3,600	90,300	3,600
Continuous cyclic (5.2 & 6.2p)	180,600	3,600	90,300	3,600
Minimum operating speed (3.1.32 & 6.2e)	180,600	3,600	90,300	3,600
Maximum continuous speed (3.1.29 & 6.2f)	180,600	3,600	90,300	3,600
Other:				

LUBRICATION

Continuous (C.3.9 & C.3.10) Batch (C.3.9) Non-lubricated Oil Spray (8.1.6)

Viscosity (SSU) @ °C Filtration ()

Pressure (kPa) Temperature (°C) Flow (l/s)

COUPLING DATA

Shaft separation (including thermal growths), DBSE (mm) : @ Ambient temperature In normal operation @

Motor float (mm.) Limited end float (mm.)(C.3.1) Spacer / non-spacer (B.2.11)

Load transmission to continue after flex-element failure (8.1.6)

Marine type required (C.3.3) Flex-hub type required (C.3.3)

Electrically insulated (8.11)

Torsional damping (b.2.6) Engagement (B.2.10)

Restrictions of elastomer in shear (b.2.7)

Required misalignment & displacement capability (6.2, 6.3, 6.4 & D.2.2)

Steady state : Angular (DEG.) Parallel offset (in.) Axial (in.) Materials (B.4.1)

Transient: Angular (DEG.) Parallel offset (in.) Axial (in.) Life exp (B.5.3)

Maximum allowable misalignment (O.3.2.2.p)

Steady state : Angular (DEG.) 0.05 Parallel offset (mm) 0.26 Axial (mm) ±0.5 Transient axial (mm)

Transient: Angular (DEG.) 0.50 Parallel offset (mm) 2.60 Axial (mm) ±5.4 Transient axial (mm)

Component balance (9.2.1) or Component balance with assembly check balance (9.2.1 & 9.2.2)

or Component balance with assembly balance (9.2.3 & 9.3.7) Potential unbalance calc. Required

Residual unbalance check of assembled coupling (9.3.8) Balance repeatability check (9.3.9)

Maximum allowable shaft unbalance (g · mm)(9.3.5.6, 9.3.6 & 9.3.7.4) Driver end Driven end

Maximum allowable residual unbalance (g · mm)(9.3.6 & 9.3.7) Driver end 20,009 Driven end 11,425

Maximum actual residual unbalance (g · mm)(Annex G) Driver end 20,009 Driven end 11,425

Torsional stiffness (N · m/rad)(O.3.2.2.j) 4.519x10^7

Moment of inertia (kg · m^2)(O.3.2.2.i) Driver end 46.0 Driven end 45.4

Spacer lateral natural freq. (8.12.2 & O.3.2.2.k) 11,392

Torque capacity of hub/shaft interface for keyless fits (N · m)(O.3.2.2.s) - KEY TYPE

List required of similar couplings (O.2.3.2.m)

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

1	TORQUE MEASURING SYSTEM		
2	<input type="checkbox"/> 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 steady state) (%)		
18	Units of torsional amplitude value (where different than steady 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 (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	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> AREA CLASSIFICATION <input type="radio"/> ELEC. AREA CLASS. <input type="radio"/> NEC <input type="radio"/> IEC <input type="radio"/> ATEX <input type="radio"/> FM <input type="radio"/> GOST <input type="radio"/> IECEx <input type="radio"/> CEC <input type="radio"/> Other. <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> EQUIPMENT CLASS _____ ZONE _____ VISUAL DISPLAY UNIT CLASS _____ ZONE _____ </div> <div style="width: 45%;"> INDOOR GROUP _____ GROUP _____ INDOOR GROUP _____ GROUP _____ </div> <div style="width: 45%;"> OUTDOOR DIVISION _____ TEMP CLASS _____ OUTDOOR DIVISION _____ TEMP CLASS _____ </div> </div> </div> <div style="width: 50%;"> POWER <input type="radio"/> Available Volts _____ Hertz _____ Cycles _____ <input type="checkbox"/> Usage Volts _____ Hertz _____ Cycles _____ <input type="checkbox"/> Power Consumption Wattage _____ <input type="checkbox"/> Power Consumption Rotation : "A" <input type="radio"/> "B" <input type="radio"/> </div> </div>		

Following items shall be mentioned:

- Power and speed of driver
- Service factor of Coupling.
- Torsional, axial and radial stiffness
- Axial and radial restoring force

NARA REPLY) OK

General Comments:

- Please omit words/phrases which are in Chinese language.
- Sectional drawing of front view shall be added.
- C.O.G shall be specified.
- Permissible radial misalignment to be mentioned as well.
- Balance grade shall be specified according to ISO 1940.
- Weight of each part and total weight shall be specified on next Rev.

NARA REPLY) OK

this document cannot be checked up to issuing the Motor DWG, Comp sectional DWG and Motor data sheet ,..etc.

KS reply) By Havayar

What is this Mark on Rev. oo of document???

NARA REPLY) REV.2 We will submit it as the final drawing.

project reference documents shall be added

HY reply) Confirmed

fatigue factor of safety shall be provided by vendor

NARA REPLY) OK

peak torque shall be specified by vendor

NARA REPLY) OK

NOTE

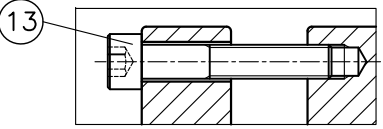
- * SPEC : 1,050 kW / 420 rpm
- * NORMAL TORQUE : 23,875 N.m
- * MAX. SPEED : 3,600 rpm
- * ALLOWABLE TORQUE : 90,300 N.m
- * SERVICE FACTOR : 3.78
- * WEIGHT : 553 kg/set
- * TORSIONAL STIFFNESS : 4.519×10^7 N.m/rad
- * GD^2 (Moment of inertia) : 91.4 kg.m²
- * ALIGNMENT
 - (1) RECOMMEND PARALLEL MISALIGNMENT : 0.54 mm(T.I.R)
 - (2) RECOMMEND ANGULAR MISALIGNMENT : 0.05°
 - (3) MAX. PARALLEL MISALIGNMENT : 5.4 mm(T.I.R)
 - (4) MAX. ANGULAR MISALIGNMENT : 0.5°
 - (5) ALLOWABLE AXIAL DISPLACEMENT : ± 5.4 mm(0°)
- * THE NYLON NUTS MAY BE DURABLE 10TIMES IN USE
- * COMPONENT BALANCE WITH ASSEMBLY CHECK BALANCE (G2.5 / 420 rpm)
- * BALANCE AFTER IMPRINTING ON THE AREA INDICATED BY THE ARROW (ITEM No.)

TIGHTENING TORQUE : 1,710 N.m

TIGHTENING TORQUE : 740 N.m

MOTOR SIDE			Q'TY
D2	B2	H2	
$+0.046$ 0 $\varnothing 220H7$	± 0.031 50Js9	$+0.3$ 0 231.4	3

WARNING
Must be removed when driving.



GENERAL TOLERANCE (mm)	SURFACE ROUGHNESS (Ra)	FINISH MARK
0.5~3	± 0.1	\sim
3~6	± 0.1	\sim
6~30	± 0.2	\sim
30~120	± 0.3	\sim
120~400	± 0.5	\sim
400~1000	± 0.8	\sim
1000~2000	± 1.2	\sim
2000~4000	± 2	\sim

15	NORD-LOCK WASHER	M27	PURCH.	PURCH.	20		GEOMET COATING
14	HEX BOLT	M27x90L	10.9	10.9	20		GEOMET COATING
13	PLUG-IN BOLT	M12	12.9	12.9	8		For assembly

12	SPRING WASHER	M30	SWRH62	SWRH62	16		
11	WRENCH BOLT	M30	12.9	12.9	16		
10	SPACER-B	$\varnothing 536$	SM45C	A108-1045	1		
9	SPACER-A	$\varnothing 536$	SM45C	A108-1045	1		
8	WASHER	$\varnothing 63$	SM45C	A108-1045	16		
7	OVER LIP WASHER	$\varnothing 63$	SM45C	A108-1045	16		
6	BUSH	$\varnothing 536$	SM45C	A108-1045	16		
5	NYLON NUT	$\varnothing 536$	SM45C	A108-1045	16		
4	REAMER	$\varnothing 536$	SM45C	A108-1045	16		
3	ELEMENT	$\varnothing 536$	SM45C	A108-1045	64		
2	FLANGE-B	$\varnothing 536$	SM45C	A108-1045	1		
1	FLANGE-A	$\varnothing 710$	SM45C	A108-1045	1		

NO.	DESCRIPTIONS	SIZE	KS	ASTM	Q'TY / SET	WEIGHT (kgf)	REMARKS
CUSTOMER		KWANGSHIN		SCALE	1 / 7	PROJECTION	
TITLE		NPE-B API 840S PANFLEX COUPLING		DWG.NO.	NPE-B API 84000S	REV. NO.	1
				REF.NO.	SR23006		
DRAWN		CHECKED	APPROVED				
Y.S. LIM		Y.S. LIM	Y.S. LIM				
23.04.03		23.04.03	23.04.03				

NARA CORPORATION