

	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنيه 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	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرک	سريال	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

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					

please clarify how you provided motor data to coupling manufacturer but you have not mentioned Motor mfg.?motor manufacturer and model shall be mention in next revision

vendor logo shall be

date shall be modified in DD/MM/YYYY in data sheet and GA

Job No. SR23006

Page 3

Item No.

Purchase order No.

Date

Inquiry No.

By Y.S. LIM

Revision

Date 23.07.11

API 671 5th Edition
SI units

Compressor model shall be finalized and mentioned here

vendor shall be as per project AVL

1	Note: Information to be completed	☐ by Purchaser
2		☒ Purchase ☐ As built
3	INDUSTRIAL GROUP	No. required 3
4	Old Development Project	Service: Sour Gas Compressor
5	Driver: Type ELECTRIC MOTOR	Manufacturer
6	Nameplate power (kW) 1.050	Service factor 1.0
7	Driven unit: RECIPROCATING COMP.	Manufacturer KWANGSHIN
8	Nameplate power (kW)	Service factor
9	Coupling type: ☒ Flexible element ☐ Gear ☐ Quill shaft ☐ Torsional Damp/Resilient ☐ Other	
10	Manufacturer: NARA CORPORATION	Model NPE-B API
11	Size 840S	Drawing Number NPE-B API 84000S
12	CONDITIONS CONSIDERED FOR COUPLING SELECTION	
13	Conditions	Torque (N.m)
14	Steady state (normal) (6.6a)	23,875
15	Max driver power (3.1.30 & 6.6b)	
16	Rated (6.7)	23,875
17	Maximum transient (5.2 & 6.2p)	
18	Trip condition (6.2f)	
19	Continuous cyclic (5.2 & 6.2p)	
20	Minimum operating speed (3.1.32 & 6.2e)	
21	Maximum continuous speed (3.1.29 & 6.2f)	
22	Other:	
23	Frequency of transients (events/time) (6.2p & 7.4.3)	
24	Number of starts (6.12)	
25	Minimum required coupling service factor (6.9) 2.8	
26	As designed coupling service factor(6.9) 3.78	
27	Cyclic torque rating (7.4.3)	
28	Allowable shaft unbalance (9.3.5.6, 9.3.6 or 9.3.7.4)	
29	Ambient temperature (6.2k) (°C) Maximum 50	
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	
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.) 0.05 Parallel offset (mm) 0.26 Axial (mm) ±0.5	
46	Transient: Angular (DEG.) 0.50 Parallel offset (mm) 2.60 Axial (mm) ±5.4	
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)	
51	Maximum allowable residual unbalance (g · mm)(9.3.6 & 9.3.7)	
52	Maximum actual residual unbalance (g · mm)(Annex G)	
53	Torsional stiffness (N · m/rad)(O.3.2.2.j) 4.519x10^7	
54	Moment of inertia (kg · m^2)(O.3.2.2.i) Driver end 46.0	
55	Spacer lateral natural freq. (8.12.2 & O.3.2.2.k) 11,392	
56	Torque capacity of hub/shaft interface for keyless fits (N · m)(O.3.2.2.s) - KEY TYPE	
57	List required of similar couplings (O.2.3.2.m)	

Vendor shall provide Size based on vendor Cataloge

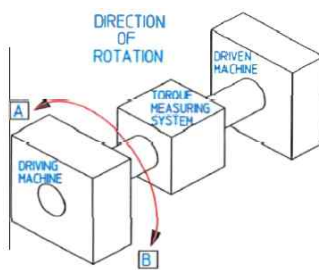
Service factor reference shall be specified.

to be filled in

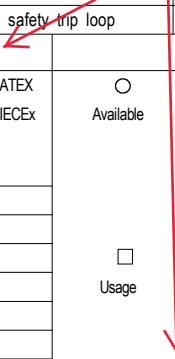
COUPLING DATASHEET API 671 5th Edition SI units		Page <u>4</u> of <u>6</u>	
		Job No. <u>SR23006</u>	
		Item No. <u>C-2101A/B/C</u> <u>C-2102A/B/C</u>	
		Purchase order No. _____	
		Date _____	
Inquiry No. <u>NR-23-0404-1</u>		By <u>Y.S. LIM</u>	
Revision <u>1</u>		Date <u>23.07.11</u>	

1 COUPLING DATA (Continued)		
2 Flexible-element coupling :		
3 ☐ initial deflection (mm.) _____	☐ Prestretch _____	☐ Compression _____
		☐ Maximum axial deflection (mm) <u>±5.4</u>
4 ☐ Calculated axial natural freq., ANF (O.3.2.2.h) <u>24.8</u>	☐ Test of ANF (12.4.1) _____	
		☐ Actual ANF _____
5 ☐ Maximum enclosure temperature at maximum continuous speed (°C) O.3.2.3) _____		
6 MATERIALS (10.1)		
	Drive end materials	Driven end materials
8 Hub / flange	<u>A108-1045 (SM45C)</u>	<u>A108-1045 (SM45C)</u>
9 Spacer	<u>A108-1045 (SM45C)</u>	<u>A108-1045 (SM45C)</u>
10 Sleeve	<u>N/A</u>	<u>N/A</u>
11 Flexible element	<u>A276-304 (STS304)</u>	<u>A276-304 (STS304)</u>
12 Flexible-element guard	<u>A108-1045 (SM45C)</u>	<u>A108-1045 (SM45C)</u>
13 Bolts	<u>A322-4140 (SCM440)</u>	<u>A322-4140 (SCM440)</u>
14 Nuts	<u>A108-1045 (SM45C)</u>	<u>A108-1045 (SM45C)</u>
15 ☐ Protective coating (10.6) _____ ☐ Vendor standard _____ ☒ Customer Specified <u>Zinc phosphate</u>		
16 ☐ Internal teeth hardness (Rockwell C) (C.3.8) _____		
17 ☐ External teeth hardness (Rockwell C) (C.3.8) _____		
18 COUPLING HUB MACHINING		
	Driver end	Driven end
19 ☐ Type (integral, cylindrical, taper) (8.4 & 8.6.1.1)	<u>Cylindrical</u>	<u>Integral</u>
20 ☐ Keyed or hydraulically fitted (8.6.1.1 & 8.6.1.2)	<u>Keyed</u>	<u>Bolt</u>
21 ☐ Taper (1 deg. included angle, 1:24, 1:16.)	<u>N/A</u>	<u>N/A</u>
22 (8.6.2.1, 8.6.2.2 & 8.6.2.3)	<u>N/A</u>	<u>N/A</u>
23 ☐ Keyway dimensions and number (8.6.3)	<u>50x28, Single</u>	<u>N/A</u>
24 ☐ Nominal bore diameter (mm)	<u>Ø220</u>	<u>N/A</u>
25 ☐ Interference fit (mm.) max / min. (8.6.1.3 & 8.6.1.4)	<u>+0.046 / -0.029</u>	<u>N/A</u>
26 ☐ Alternative hub interference fit (mm) max / min (8.6.4)	<u>N/A</u>	<u>N/A</u>
27 ☐ Puller holes (8.6.3.4)	<u>2-M20 TAP</u>	<u>2-M20 TAP</u>
28 ☐ Trim balance holes (9.4)	<u>N/A</u>	<u>N/A</u>
30 COUPLING GUARD (Annex H)		
31 ☐ Coordinator (H.2.1) _____		
32 ☐ Type (H.2.2 & H.2.6) _____		
33 ☒ Base mounted (H.3) _____		
34 ☒ Spark resistant (H.2.11) _____		
35 ☐ Transparent window for each oil spray point (H.5.4) _____		
36 ☐ Vent connection (H.4.5) _____		
37 ☐ Dn 25 with filter / breather _____		
38 ☐ Dn 25 flanged, rating and facing _____		
39 ☐ Regulation (H.2.8) _____		
40 ☐ Internal Temp Calculation by (H.2.14) _____		
41 ☐ Purge gas _____ ☐ Dry air purge (H.4.7) _____		
42 ☐ Purge connection size and type _____		
43 ☐ Purge rate required (/h) _____		
44 ☐ Oil mist cooling _____ ☐ Gas Cooling _____		
45 ☐ Contract guard to be used during shop test (H.4.8) _____		
46 ☐ Additional guard details _____		
47 ACCESSORIES		
48 ☐ One set of ring and plug gages by (11.2.5)		
49 ☐ Coupling manufacturer _____ ☐ Purchaser _____		
50 ☐ Drill template for integral flanged shaft ends by (8.5.1)		
51 ☐ Coupling manufacturer _____ ☐ Purchaser _____		
52 ☐ Lapping tools by (11.2.6)		
53 ☐ Coupling manufacturer _____ ☐ Purchaser _____		
54 ☐ Two-piece stop rings bt : (11.2.3)		
55 ☐ Coupling manufacture <u>to be marked</u>		
56 ☐ Hydraulic installation / removal tooling (to include hand pumps, pressure gauge(s), fittings & hoses by : (11.2.1)		
57 ☐ Coupling manufacturer _____ ☐ Purchaser _____		
58 ☐ Puller by : (11.2.4)		
59 ☐ Coupling manufacturer _____ ☐ Purchaser _____		
60 ☐ Idling adapter (Solo) plate by coupling manufacturer (8.7)		
61 ☐ Moment simulator by coupling manufacturer (8.8.1)		
62 ☐ Torque Measuring System (11.3.1)		
63 ☐ Supplier (11.3.2) : _____		
49 APPLICABLE SPECIFICATIONS		49 PREPARATION FOR SHIPMENT
50 ☐ API-671, Special purpose couplings		50 ☐ Outdoor storage for more than 3 months (12.5.2)
51 ☐ Keyless-fit design code ANSI / AGMA 9003 / DIN 7190		51 ☐ Expected storage time : _____
52		52 ☐ Shipping : ☐ Domestic _____ ☐ Storage : ☐ Indoor _____
53 MEETINGS / TESTING		53 (12.5.3) ☒ Export (12.5.2) ☒ Outdoor
54 ☐ Information determined in (13.1.2)		54 ☐ Additional inscribed information (12.5.8) _____
55 ☐ Testing to be observed or witnessed (12.2.1)		55 ☐ See coupling purchase order for preservation, boxing, and shipping instructions
56		

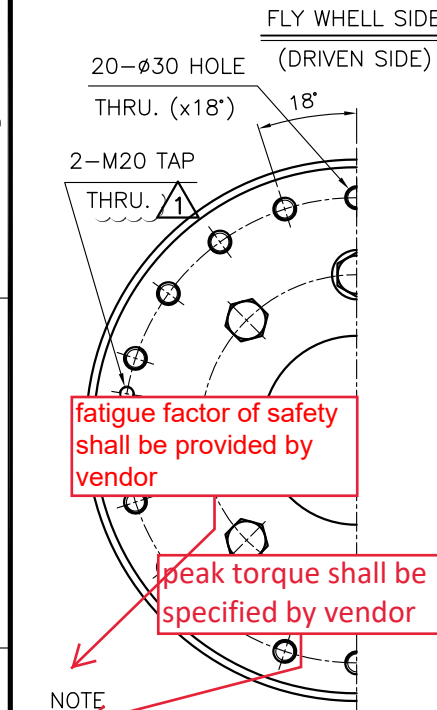
		Page <u>5</u> of <u>6</u> Job No. <u>SR23006</u> Item No. <u>C-2101A/B/C</u> <u>C-2102A/B/C</u> Purchase order No. _____ Date _____ Inquiry No. <u>NR-23-0404-1</u> By <u>Y.S. LIM</u> Revision <u>1</u> Date <u>23.07.11</u>	
COUPLING DATASHEET API 671 5th Edition SI units			

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 INDOOR OUTDOOR ZONE GROUP DIVISION TEMP CLASS VISUAL DISPLAY UNIT CLASS INDOOR OUTDOOR ZONE GROUP DIVISION TEMP CLASS POWER ☐ Available Volts Hertz Cycles ☐ Usage Volts Hertz Cycles ☐ Power Consumption Wattage ☐ Power Consumption  Rotation : "A" ☐ "B" ☐		

to be filed in in next revision



*** 경고 *** 이 도면은 나라코퍼레이션의 자산이므로 당사의 승인 없이 이 도면을 제3자에게 양도, 복사, 판매하거나 이 도면에 의해 제작 및 판매하는 것은 불법입니다.

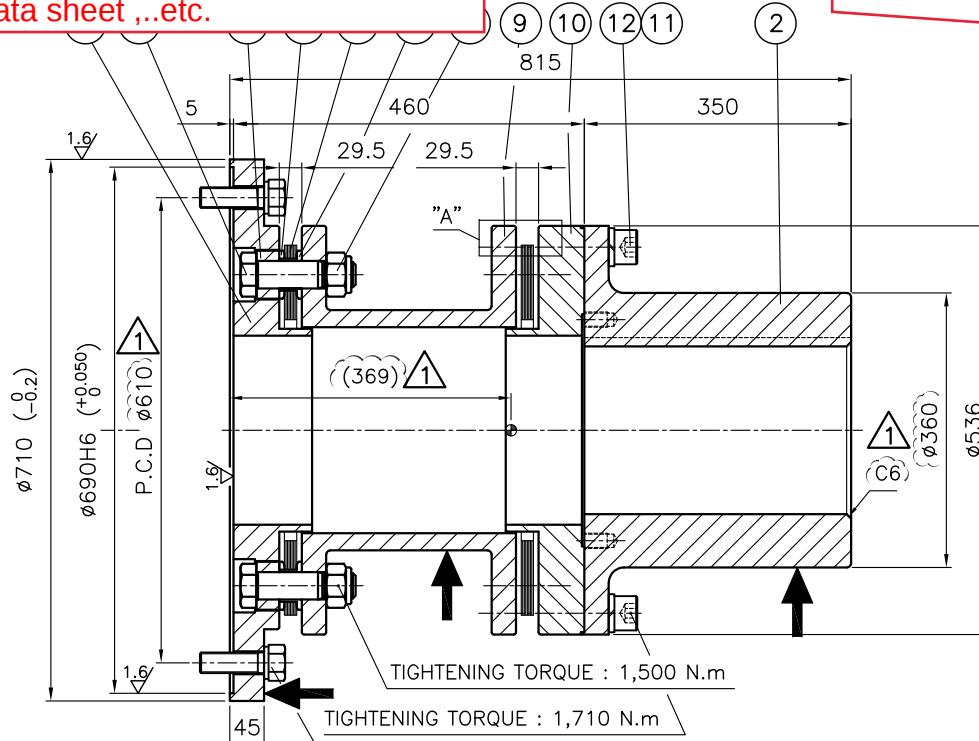


NOTE

- * 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.)

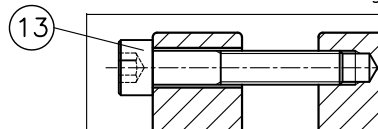
this document cannot be checked up to issuing the Motor DWG, Comp sectional DWG and Motor data sheet ,..etc.

project reference documents shall be added



MOTOR SIDE			
D2	B2	H2	Q'TY
$\phi 220H7$	50Js9	231.4	3

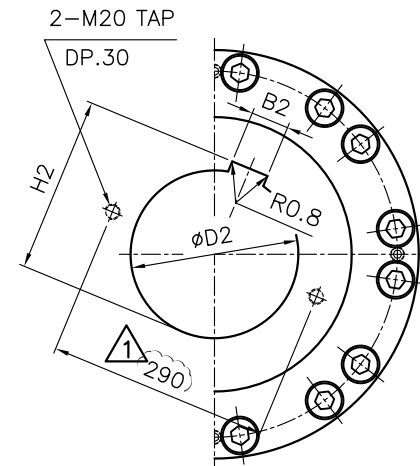
WARNING
Must be removed when driving.



GENERAL TOLERANCE (mm)	SURFACE ROUGHNESS
0.5~3	100S
3~6	50S
6~30	25S
30~120	12.5S
120~400	6.3S
400~1000	3.2S
1000~2000	1.6S
2000~4000	0.8S

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

MOTOR SIDE (DRIVER SIDE)



12	SPRING WASHER	M30	SWRH62	SWRH62	16		
11	WRENCH BOLT	M30	12.9	12.9	16		
10	SPACER-B	$\phi 536$	SM45C	A108-1045	1		
9	SPACER-A	$\phi 536$	SM45C	A108-1045	1		
8	WASHER	$\phi 63$	SM45C	A108-1045	16		
7	OVER LOAD WASHER	$\phi 63$	SM45C	A108-1045	16		
6	BUSHING	$\phi 63$	SM45C	A108-1045	16		
5	NYLON NUT	M33	SM45C	A108-1045	16		
4	R			A322-4140	16		
3	E			A276-304	64		
2	F			A108-1045	1		
1	F			A108-1045	1		

please add a note, this coupling is based on API671 edition 5

NO.	DESCRIPTIONS	SIZE	KS	ASTM	Q'TY	WEIGHT	REMARKS
CUSTOMER			SCALE	1 / 7	PROJECTION		
TITLE			DWG.NO.	NPE-B API 8400S	REV. NO.		
			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