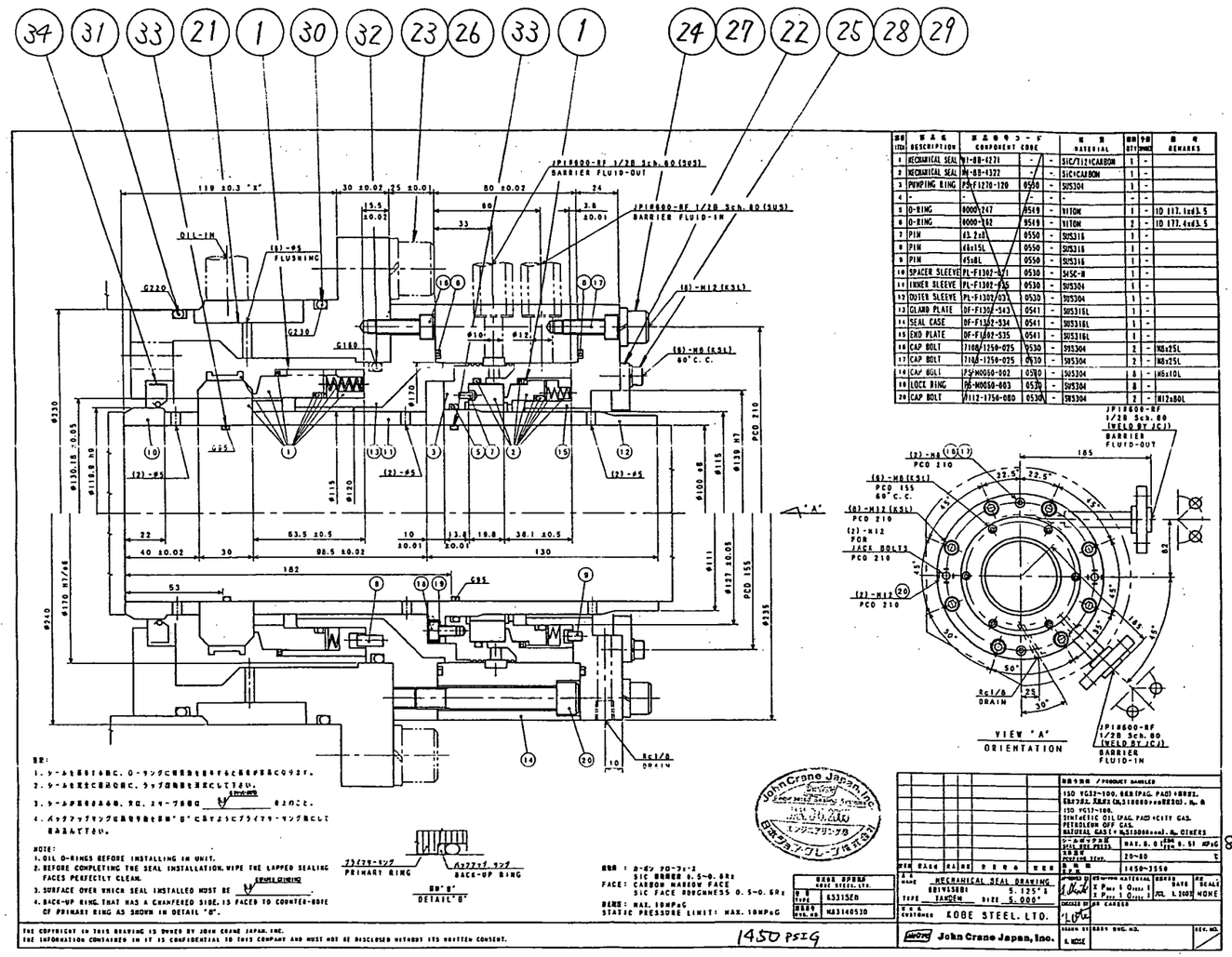
DRAFTING NOTES

04-00863-0にて作成



ITEM	DESCRIPTION	COMPONENT CODE			MATERIAL	QTY		REMARKS
1	MECHANICAL SEAL	M-BB-0271	-	-	SiC/T12/CARBON	1	-	
2	MECHANICAL SEAL	M-BB-0272	-	-	SiC/CARBON	1	-	
3	PUMPING RING	PS-F1270-120	0550	-	SUS304	1	-	
4	-	-	-	-	-	-	-	
5	O-RING	6000-247	0549	-	VITON	1	-	ID 117.1xφ3.5
6	O-RING	6000-182	0549	-	VITON	2	-	ID 177.4xφ3.5
7	PIN	φ3.2x8	0550	-	SUS316	1	-	
8	PIN	φ6x15L	0550	-	SUS316	1	-	
9	PIN	φ5x8L	0550	-	SUS316	1	-	
10	SPACER SLEEVE	PL-F1302-071	0530	-	S45C-N	1	-	
11	INNER SLEEVE	PL-F1302-035	0530	-	SUS304	1	-	
12	OUTER SLEEVE	PL-F1302/03	0520	-	SUS304	1	-	
13	GLAND PLATE	DF-F1302-543	0541	-	SUS316L	1	-	
14	SEAL CASE	DF-F1302-534	0541	-	SUS316L	1	-	
15	END PLATE	DF-F1302-535	0541	-	SUS316L	1	-	
16	CAP BOLT	7100/1250-025	0530	-	SUS304	2	-	M8x25L
17	CAP BOLT	7100-1250-025	0530	-	SUS304	2	-	M8x25L
18	CAP BOLT	PS/M0050-002	0530	-	SUS304	8	-	M6x10L
19	LOCK RING	PS-M0050-003	0530	-	SUS304	8	-	
20	CAP BOLT	7112-1750-080	0530	-	SUS304	2	-	M12x80L

NOTE:
1. OIL O-RINGS BEFORE INSTALLING IN UNIT.
2. BEFORE COMPLETING THE SEAL INSTALLATION, WIPE THE LAPPED SEALING FACES PERFECTLY CLEAN.
3. SURFACE OVER WHICH SEAL INSTALLED MUST BE ▽ SURFACE FINISHING.
4. BACK-UP RING THAT HAS A CHAMFERED SIDE, IS FACED TO COUNTER-BORE OF PRIMARY RING AS SHOWN IN DETAIL "B".

FACE: CARBON NARROW FACE
SIC FACE ROUGHNESS 0.5~0.6Ra
BOREE: MAX. 10MPaG
STATIC PRESSURE LIMIT: MAX. 10MPaG

870 PSIG

1450 PSIG

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MECHANICAL SEAL DRAWING
TYPE TANDEM SIZE 5.000"
CUSTOMER KOBE STEEL, LTD.
M83140530
John Crane Japan, Inc.

	S	34	P-GA04-004#29	FS SEAL	PURCHASE	1						
	S	33	BGRN-OG-0095	O-RING	FPM (4D)	2						
	S	32	BGRN-OG-0160	O-RING	FPM (4D)	1						
	S	31	BGRN-OG-0220	O-RING	FPM (4D)	1						
	S	30	BGRN-OG-0230	O-RING	FPM (4D)	1						
	S	29	BWME-FA-006	PLAIN WASHER	SS400	6						
	S	28	BWWC-BD-006	SPRG WASHER-SQ	SWRH62B	6						
	S	27	BWWC-BD-012	SPRG WASHER-SQ	SWRH62B	8						
	S	26	BWWC-BD-020	SPRG WASHER-SQ	SWRH62B	8						
	S	25	BBLK-RA-M006-016	HEX SOCKET BOLT	SCM435-Q	6						
	S	24	BBLK-RA-M012-145	HEX SOCKET BOLT	SCM435-Q	8						
	S	23	BBLK-RA-M020-060	HEX SOCKET BOLT	SCM435-Q	8						
	S	22	M83140072	LABYRINTH RING	A6061FH-T6	1						
	S	21	M83140193	MECHANICAL SEAL BOX	S45C-N	1						
	S	1	M83140530	MECHANICAL SEAL (TANDEM)	PURCHASE	1						
	MS		M83100544	MECHANICAL SEAL A' SSY (TANDEM)		1						
REV. MARK	SP. NO.	ITEM	PART NO.	NAME	MATERIAL	QTY	MASS/PIECE kg					REMARKS

RO	ISSUED	04-1-8	田辺	田辺	川口	川口	
REV NO.	REVISION NOTE	DATE	DRAWN	DESIGNED	CHECKED	APPROVED	

ENGINEERING DEPT.

CAREER

REF. DWG.

REF. Q. NO.

FOR LIBRARY

CAD ICAD

SCALE -/-

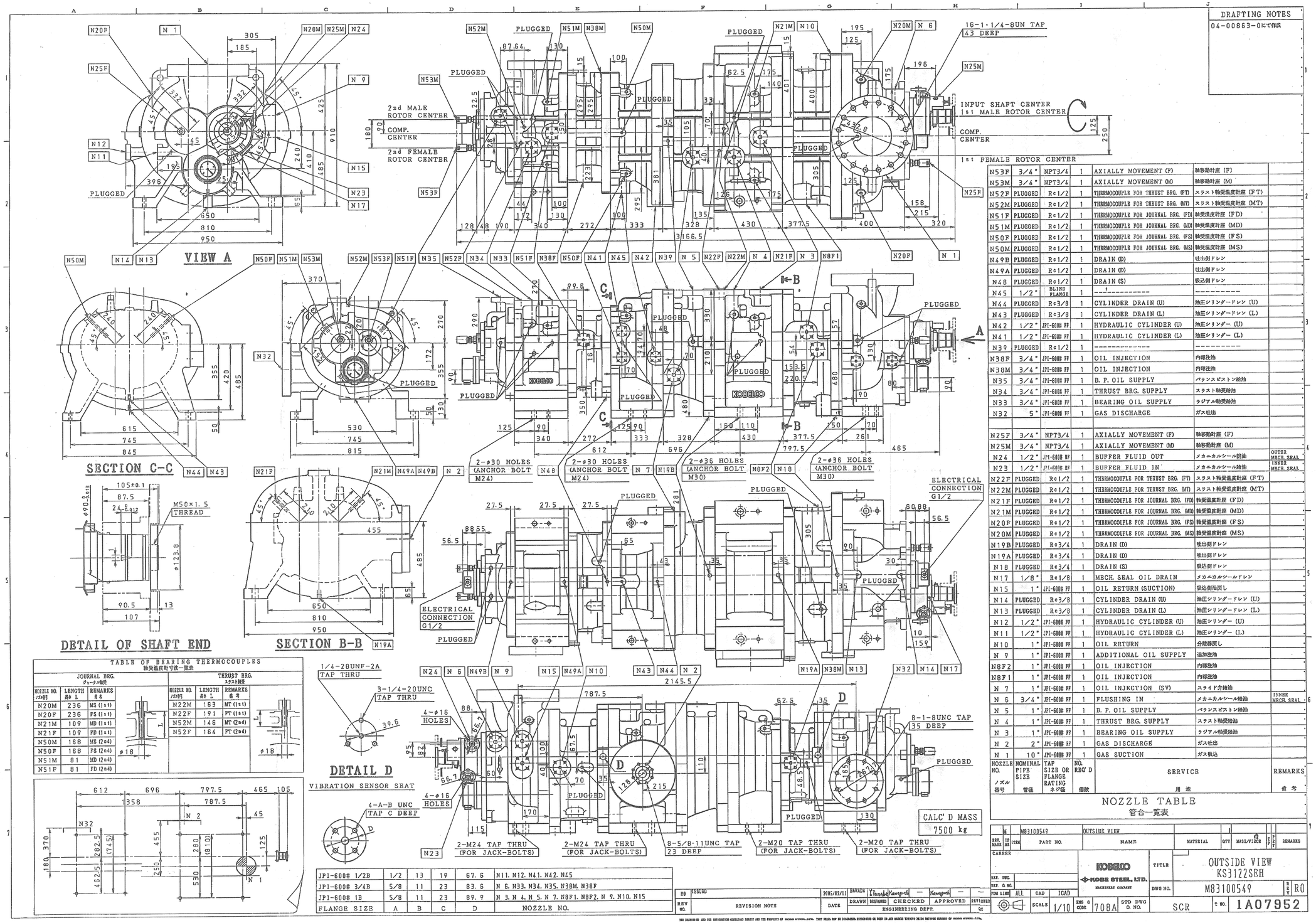
KOBELCO
KOBE STEEL, LTD.
MACHINERY COMPANY

TITLE: MECHANICAL SEAL A' SSY KS31SEH (TANDEM)

DWG NO. M83100544 REV RO

ENG'G CODE 708A STD DWG Q. NO. SCR

SHEET NO. 2A05543



DRAFTING NOTES

04-00863-0にて作成

TABLE OF BEARING THERMOCOUPLES
軸受温度計寸法一覧表

JOURNAL BRG. ジャーナル軸受 NOZZLE NO. ノズル番号	LENGTH 長さ L	REMARKS 備考	THRUST BRG. スラスト軸受 NOZZLE NO. ノズル番号	LENGTH 長さ L	REMARKS 備考
N20M	236	MS (1st)	N22M	163	MT (1st)
N20F	236	FS (1st)	N22F	191	FT (1st)
N21M	109	MD (1st)	N52M	146	MT (2nd)
N21F	109	FD (1st)	N52F	164	FT (2nd)
N50M	168	MS (2nd)			
N50F	168	FS (2nd)			
N51M	81	MD (2nd)			
N51F	81	FD (2nd)			

JP1-600H 1/2B	1/2	13	19	67.6	N11. N12. N41. N42. N45
JP1-600H 3/4B	5/8	11	23	83.6	N 6. N33. N34. N35. N38M. N38F
JP1-600H 1B	5/8	11	23	89.9	N 3. N 4. N 5. N 7. N8F1. N8F2. N 9. N10. N15
FLANGE SIZE	A	B	C	D	NOZZLE NO.

NOZZLE NO. ノズル番号	NOMINAL PIPE SIZE 管径	TAP SIZE OR FLANGE RATING ネジ径	NO. REQ'D 個数	SERVICE 用途	REMARKS 備考
N53F	3/4"	NPT3/4	1	AXIALLY MOVEMENT (F)	軸移動計座 (F)
N53M	3/4"	NPT3/4	1	AXIALLY MOVEMENT (M)	軸移動計座 (M)
N52F	PLUGGED	Rc1/2	1	THERMOCOUPLE FOR THRUST BRG. (FT)	スラスト軸受温度計座 (FT)
N52M	PLUGGED	Rc1/2	1	THERMOCOUPLE FOR THRUST BRG. (MT)	スラスト軸受温度計座 (MT)
N51F	PLUGGED	Rc1/2	1	THERMOCOUPLE FOR JOURNAL BRG. (FD)	軸受温度計座 (FD)
N51M	PLUGGED	Rc1/2	1	THERMOCOUPLE FOR JOURNAL BRG. (MD)	軸受温度計座 (MD)
N50F	PLUGGED	Rc1/2	1	THERMOCOUPLE FOR JOURNAL BRG. (FS)	軸受温度計座 (FS)
N50M	PLUGGED	Rc1/2	1	THERMOCOUPLE FOR JOURNAL BRG. (MS)	軸受温度計座 (MS)
N49B	PLUGGED	Rc1/2	1	DRAIN (D)	吐出側ドレン
N49A	PLUGGED	Rc1/2	1	DRAIN (D)	吐出側ドレン
N48	PLUGGED	Rc1/2	1	DRAIN (S)	吸込側ドレン
N45	1/2"	BLIND FLANGE	1	----------	----------
N44	PLUGGED	Rc3/8	1	CYLINDER DRAIN (U)	油圧シリンダードレン (U)
N43	PLUGGED	Rc3/8	1	CYLINDER DRAIN (L)	油圧シリンダードレン (L)
N42	1/2"	JP1-600H FF	1	HYDRAULIC CYLINDER (U)	油圧シリンダー (U)
N41	1/2"	JP1-600H FF	1	HYDRAULIC CYLINDER (L)	油圧シリンダー (L)
N39	PLUGGED	Rc1/2	1	----------	----------
N38F	3/4"	JP1-600H FF	1	OIL INJECTION	内部注油
N38M	3/4"	JP1-600H FF	1	OIL INJECTION	内部注油
N35	3/4"	JP1-600H FF	1	B. P. OIL SUPPLY	バランスピストン給油
N34	3/4"	JP1-600H FF	1	THRUST BRG. SUPPLY	スラスト軸受給油
N33	3/4"	JP1-600H FF	1	BEARING OIL SUPPLY	ラジアル軸受給油
N32	5"	JP1-600H FF	1	GAS DISCHARGE	ガス吐出
N25F	3/4"	NPT3/4	1	AXIALLY MOVEMENT (F)	軸移動計座 (F)
N25M	3/4"	NPT3/4	1	AXIALLY MOVEMENT (M)	軸移動計座 (M)
N24	1/2"	JP1-600H RF	1	BUFFER FLUID OUT	メカニカルシール排油
N23	1/2"	JP1-600H RF	1	BUFFER FLUID IN	メカニカルシール給油
N22F	PLUGGED	Rc1/2	1	THERMOCOUPLE FOR THRUST BRG. (FT)	スラスト軸受温度計座 (FT)
N22M	PLUGGED	Rc1/2	1	THERMOCOUPLE FOR THRUST BRG. (MT)	スラスト軸受温度計座 (MT)
N21F	PLUGGED	Rc1/2	1	THERMOCOUPLE FOR JOURNAL BRG. (FD)	軸受温度計座 (FD)
N21M	PLUGGED	Rc1/2	1	THERMOCOUPLE FOR JOURNAL BRG. (MD)	軸受温度計座 (MD)
N20F	PLUGGED	Rc1/2	1	THERMOCOUPLE FOR JOURNAL BRG. (FS)	軸受温度計座 (FS)
N20M	PLUGGED	Rc1/2	1	THERMOCOUPLE FOR JOURNAL BRG. (MS)	軸受温度計座 (MS)
N19B	PLUGGED	Rc3/4	1	DRAIN (D)	吐出側ドレン
N19A	PLUGGED	Rc3/4	1	DRAIN (D)	吐出側ドレン
N18	PLUGGED	Rc3/4	1	DRAIN (S)	吸込側ドレン
N17	1/8"	Rc1/8	1	MECH. SEAL OIL DRAIN	メカニカルシールドレン
N15	1"	JP1-600H FF	1	OIL RETURN (SUCTION)	吸込側油戻し
N14	PLUGGED	Rc3/8	1	CYLINDER DRAIN (U)	油圧シリンダードレン (U)
N13	PLUGGED	Rc3/8	1	CYLINDER DRAIN (L)	油圧シリンダードレン (L)
N12	1/2"	JP1-600H FF	1	HYDRAULIC CYLINDER (U)	油圧シリンダー (U)
N11	1/2"	JP1-600H FF	1	HYDRAULIC CYLINDER (L)	油圧シリンダー (L)
N10	1"	JP1-600H FF	1	OIL RETURN	分離器戻し
N 9	1"	JP1-600H FF	1	ADDITIONAL OIL SUPPLY	追加注油
N8F2	1"	JP1-600H FF	1	OIL INJECTION	内部注油
N8F1	1"	JP1-600H FF	1	OIL INJECTION	内部注油
N 7	1"	JP1-600H FF	1	OIL INJECTION (SV)	スライド弁給油
N 6	3/4"	JP1-600H FF	1	FLUSHING IN	メカニカルシール給油
N 5	1"	JP1-600H FF	1	B. P. OIL SUPPLY	バランスピストン給油
N 4	1"	JP1-600H FF	1	THRUST BRG. SUPPLY	スラスト軸受給油
N 3	1"	JP1-600H FF	1	BEARING OIL SUPPLY	ラジアル軸受給油
N 2	2"	JP1-600H RF	1	GAS DISCHARGE	ガス吐出
N 1	10"	JP1-600H FF	1	GAS SUCTION	ガス吸込

NOZZLE TABLE
管台一覧表

CALC'D MASS 7500 kg

REV NO.	REVISION NOTES	DATE	DRAWN	DESIGNED	CHECKED	APPROVED	REVISED
R0	ISSUED	2005/02/11	HAKADA	Y.Tanaka	Kawaguchi	Kawaguchi	—

ENGINEERING DEPT. QC

EST. MARK	TP SEQ NO.	ITEM	PART NO.	NAME	MATERIAL	QTY	MASS/PIECE	PATT	REMARKS
			M83100549	OUTSIDE VIEW		1			

CAREER

REF. DWG.
REF. O. NO.

KOBELCO
KOBE STEEL, LTD.
MACHINERY COMPANY

TITLE: OUTSIDE VIEW KS3122SEH

DWG NO. M83100549 REV R0

FOR LINE ALL | CAD ICAD | SCALE 1/10 | ENG'G CODE 708A | STD DWG O. NO. SCR | T NO. 1A07952

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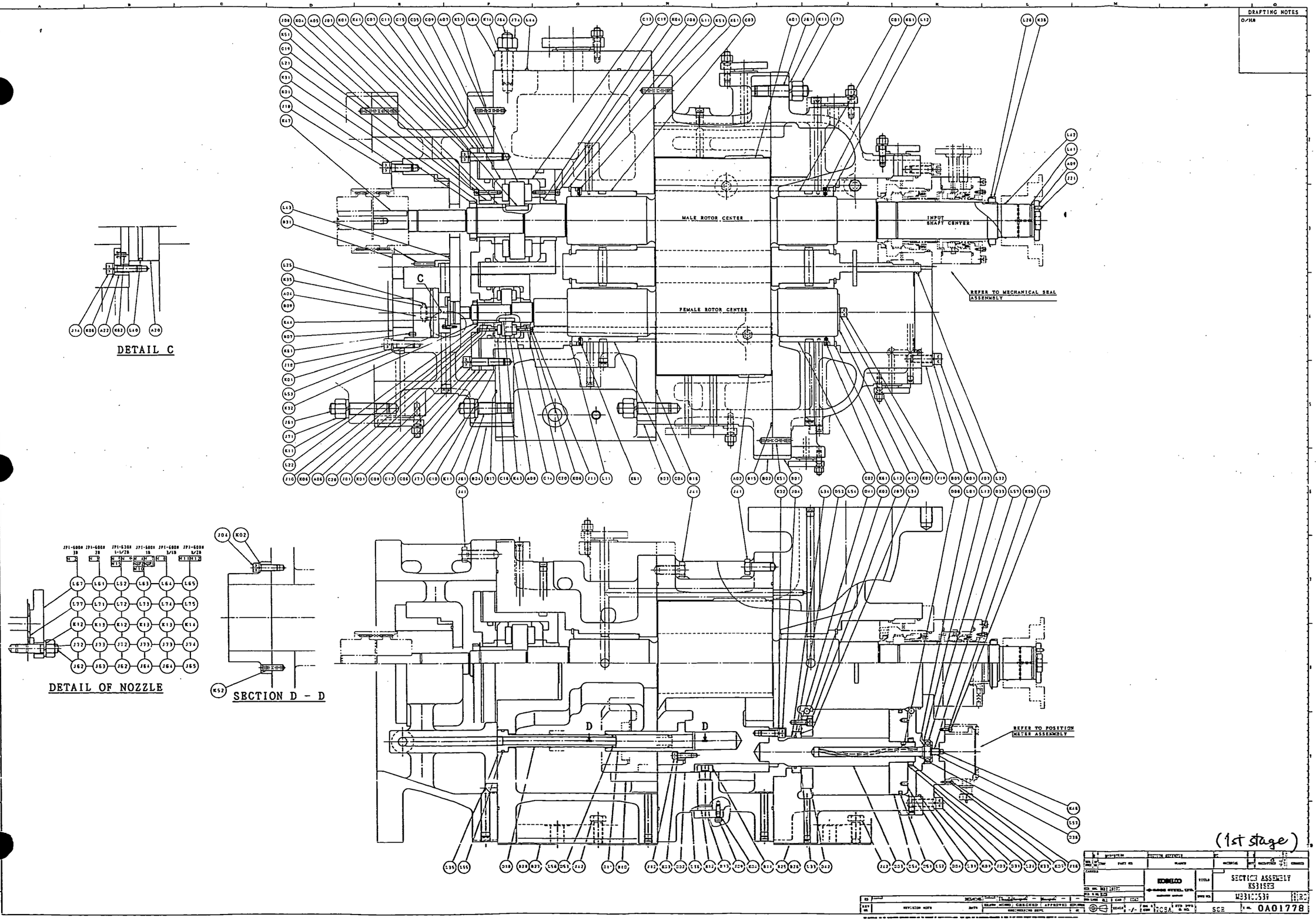

DRAFTING NOTES
MALE ROTOR CENTER
FEMALE ROTOR CENTER
INPUT SHAFT CENTER
REFER TO MECHANICAL SEAL ASSEMBLY
REFER TO POSITION METER ASSEMBLY
DETAIL C
DETAIL OF NOZZLE
SECTION D - D
(1st stage)
SECTION ASSEMBLY
KS31553
M33100539
0A01778

NOTES:
1. MAIN TERMINAL BOX IS FREE STANDING AND MUST BE SUPPORTED FROM BELOW BY CUSTOMER. APPROXIMATE WEIGHT OF BOX: 400 LB.
2. APPROXIMATE WEIGHT OF MOTOR: 5,150 LB. AND ROTOR 1089 LB.
3. THIS MOTOR IS SUITABLE FOR DIRECT CONNECTION ONLY.
4. THIS MOTOR IS SUITABLE FOR ROTATION IN EITHER DIRECTION.
5. WHEN LIFTING MOTOR, LIFT BY TWO DIAGONALLY OPPOSITE TRUNNIONS AT THE SAME TIME.
6. SHIMS MAY BE NECASSARY UNDER MOTOR FEET.
7. NON-DRIVE END BEARING IS INSULATED, INSULATE ANY CONNECTIONS TO THIS BEARING.
8. THE NORMALLY CLOSED THERMOSTATS IN THIS MOTOR SHOULD BE CONNECTED TO CAUSE THE STARTER TO OPEN WHEN THEIR PRESET TEMPERATURE IS REACHED. THE CONTACT RATING IS 360 VA @ 120-600 VOLTS AC.
9. FLOOD LUBRICATION DATA: .25 GPM PER BEARING AT 25 PSIG. .047 DIA. ORIFICE PROVIDED IN EACH OIL SUPPLY LINE TO REGULATE OIL FLOW.
10. CONSTANT LEVEL OILERS ARE FOR SELF LUBRICATION ONLY.

MOTOR DATA:
ROTOR END FLOAT : .50"
END FLOAT OF LTD END FLOAT CPLG : .19"
OIL CAPACITY PER BEARING : 1.7 QT DRIVE END, 1.8 QT NON-DRIVE END.
USE A HIGH QUALITY TURBINE OIL HAVING A VISCOSITY OF 300 TO 350 SUS @ 100°F (150 VG 68)
FOR ALIGNMENT REQUIREMENTS SEE THE INSTRUCTION BOOK.

01	1-13-05

THIS IS A CAD DRAWING NO MANUAL CHANGES ARE ALLOWED

NOTE #1 WAS MAIN BOX MAY BE ROTATED IN STEPS OF 90°

NOTE #8 WAS .15 GPM/BRG .037"DIA ORIFICE

OIL FILL LABEL ON NON-DRIVE END OF MOTOR ADDED

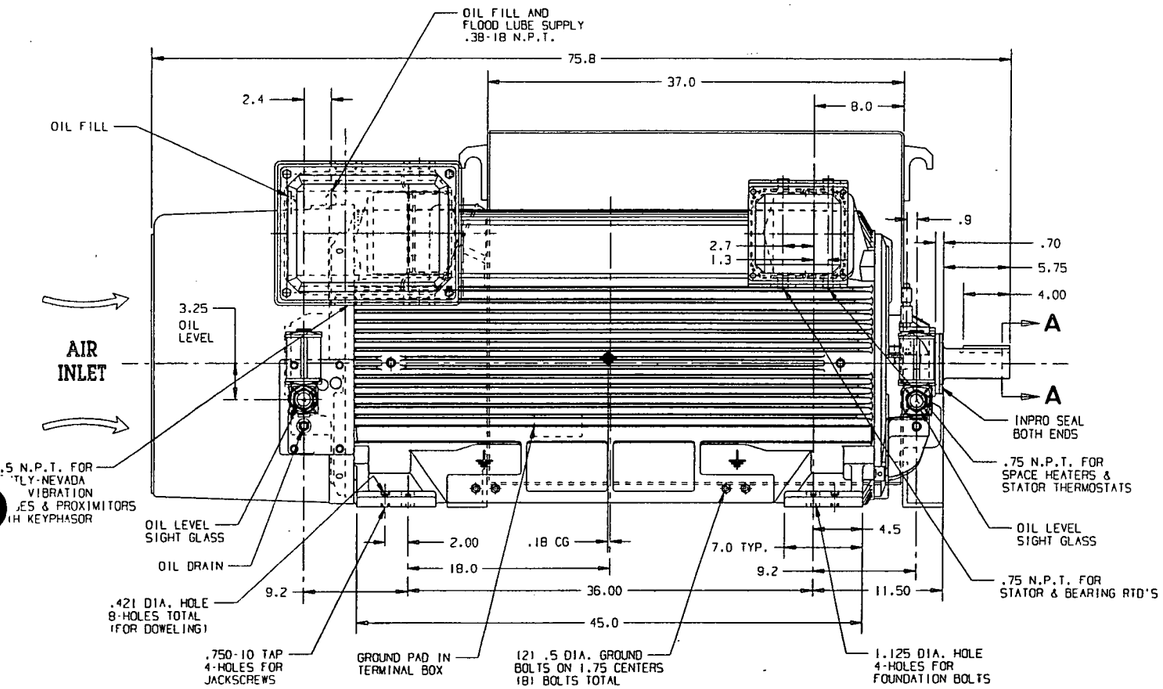
MAIN TERMINAL BOX RE-DESIGNED COMPLETE (WAS BOX SIZE FA821 FEET ADDED.

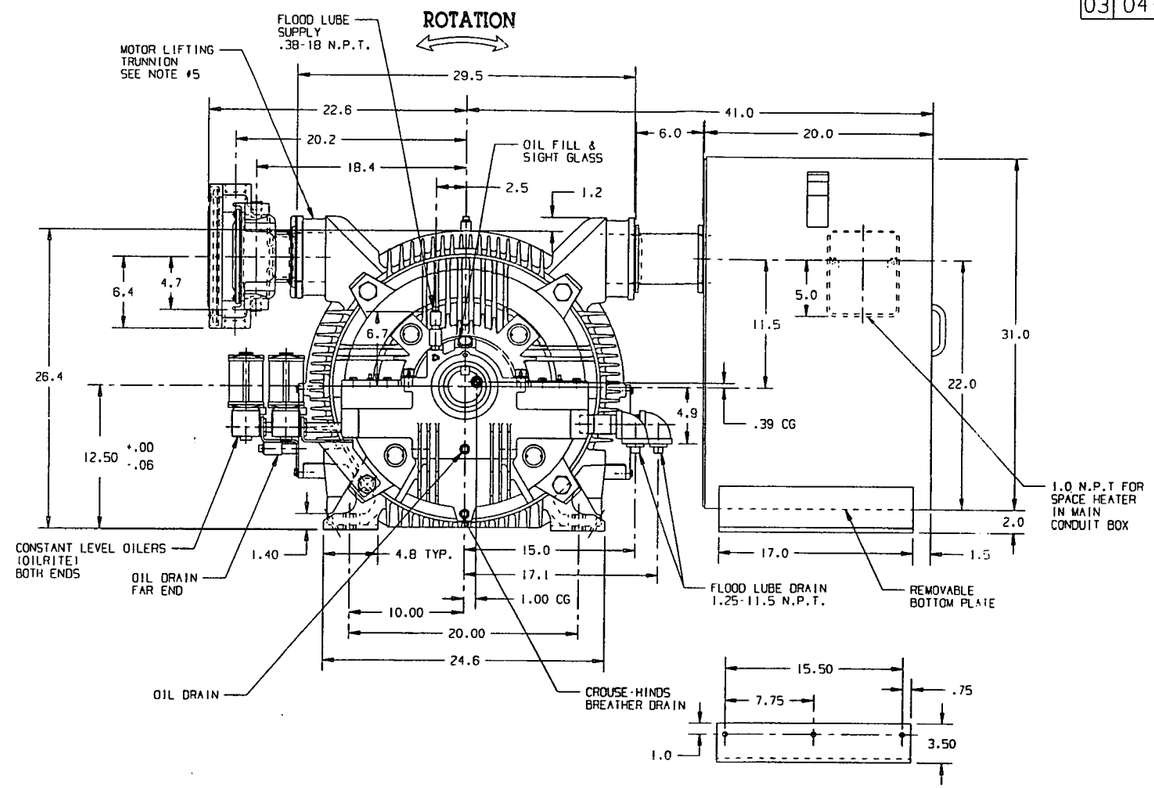
02	01-20-05 MB

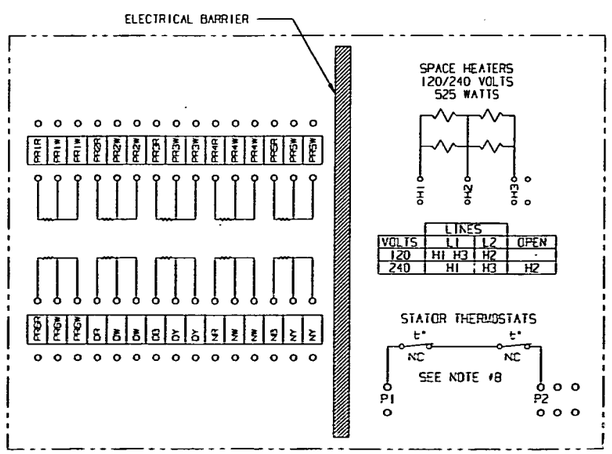
(8-10) SPACE HEATER CONN. DIAG. IN MAIN TERMINAL BOX UPDATED TO DUAL VOLTAGE.

EFF. FUT. ESO

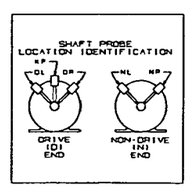
03	04-12-05 MB

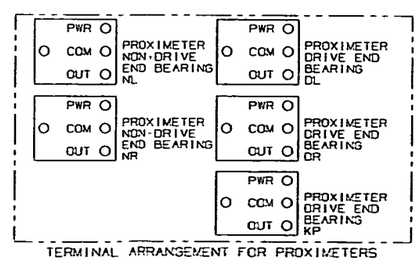




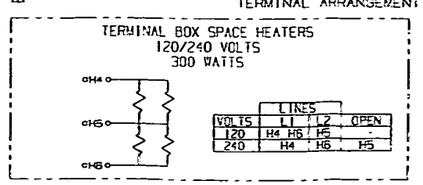


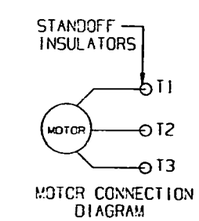
TERMINAL BOARD ARRANGEMENT IN AUXILIARY BOX FOR SPACE HEATERS & STATOR THERMOSTATS, 100-OHM STATOR & BEARING RTD'S



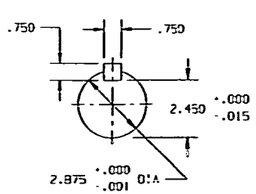


TERMINAL ARRANGEMENT FOR PROXIMETERS





MOTOR CONNECTION DIAGRAM



SECTION A-A

SIEMENS
CERTIFIED PRINT
CUSTOMER INITIATED CHANGES MAY AFFECT PRICE AND DELIVERY. PRODUCTION WILL PROCEED ON THE BASIS OF THIS DRAWING

CUSTOMER ENGINEERING DESIGNS TRANSFER
P.O.# 1003-ES-323
S.O.# E17880-01

HP	RPM	Frame	Type	Volts	Ph	Hz
450	1800	5011S	CZ	4300	3	60

E17880-01

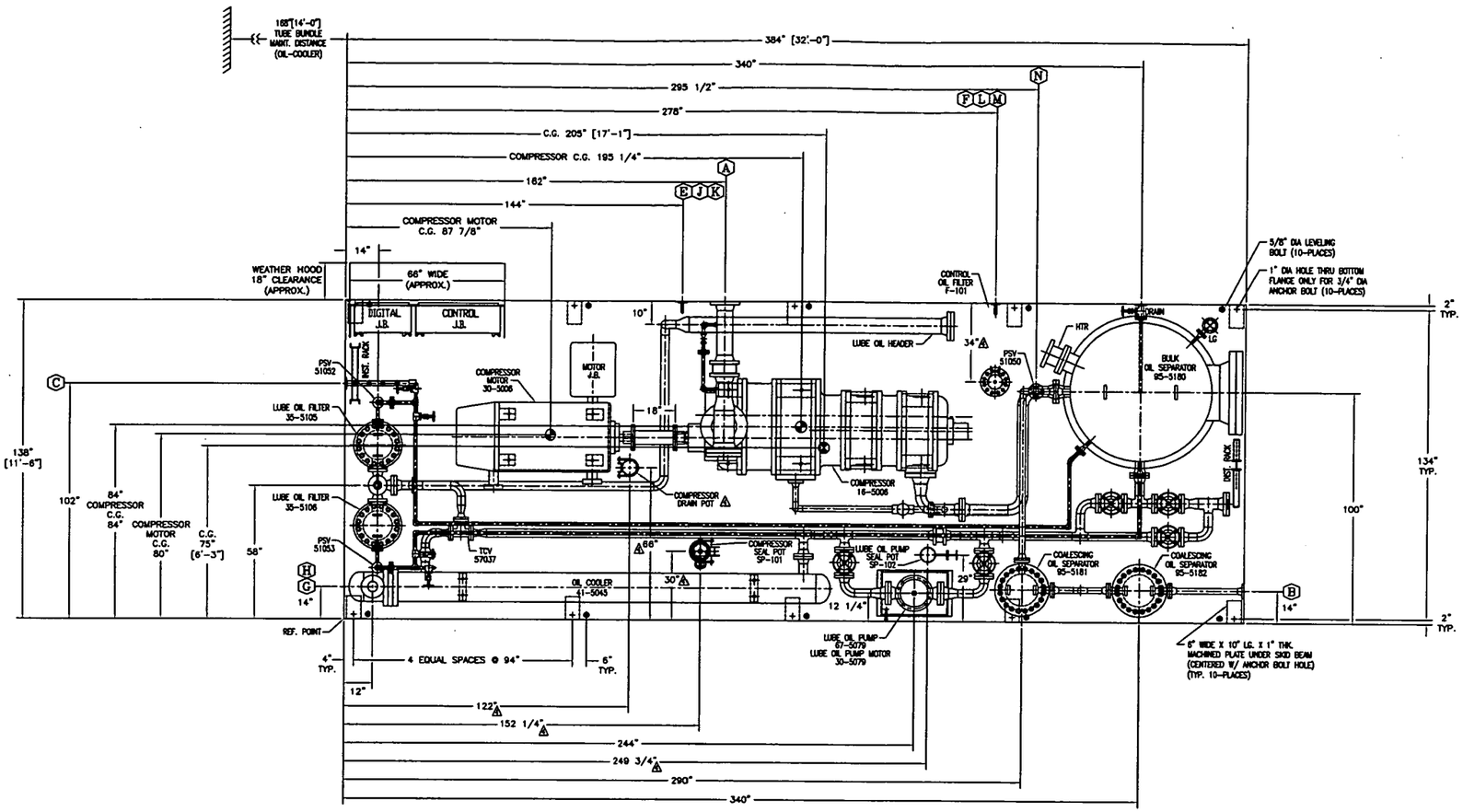
CONFIDENTIAL-PROPERTY OF Siemens Energy & Automation, Inc. POWER CONVERSION DIVISION NORWOOD PLANT

NAME: OUTLINE

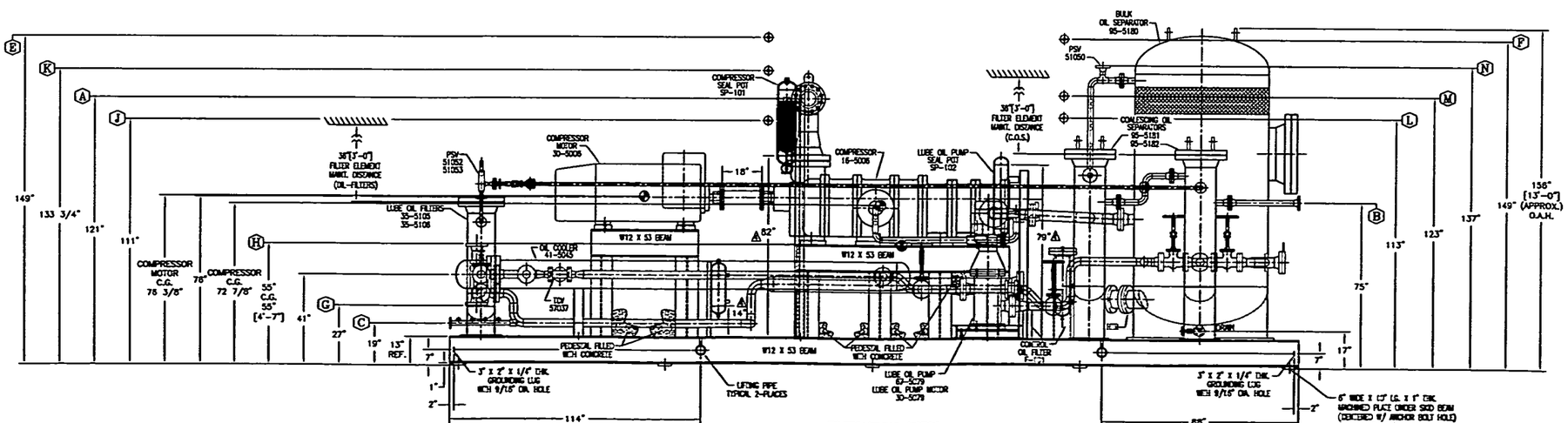
STANDARD SHAFT EXTENSION 2.875 X 5.75 4-POLE SLV BRG

DR RGS 1-13-05	SIMILAR TO 72-117-606-011		CZ 5011S
AP ESO	SCALE .15	SHEET 1 of 1	PART NO. 72-117-880-011 ISSUE 03

72-117-880-011



PLAN VIEW



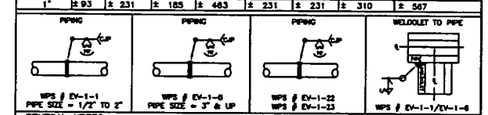
ELEVATION VIEW
(LOOKING EAST)

CUSTOMER CONNECTIONS

DESIGNATION	DESCRIPTION	SIZE & RATING
A	GAS INLET	6"-300# RFWN FLANGE
B	GAS OUTLET	2"-300# RFWN FLANGE
C	INSTRUMENT AIR	1 1/2"-150# RFSW FLANGE
E	FLARE (MECH. SEAL OIL POT)	1"-150# RFSW FLANGE
F	FLARE (PUMP SEAL OIL POT)	1"-150# RFSW FLANGE
G	COOLING WATER SUPPLY (OIL COOLER)	4"-300# RFWN FLANGE
H	COOLING WATER RETURN (OIL COOLER)	4"-300# RF FLANGE
J	COOLING WATER SUPPLY (MECH. SEAL OIL POT)	3/4"-150# RFSW FLANGE
K	COOLING WATER RETURN (MECH. SEAL OIL POT)	3/4"-150# RFSW FLANGE
L	COOLING WATER SUPPLY (PUMP SEAL OIL POT)	3/4"-150# RFSW FLANGE
M	COOLING WATER RETURN (PUMP SEAL OIL POT)	3/4"-150# RFSW FLANGE
N	INLET LINE TO PSV-51050 (FURNISHED/INSTALLED BY OTHERS)	2"-300# RFWN FLANGE

ALLOWABLE PIPE NOZZLE LOADS

SIZE	AXIAL FORCE (LBS.) FX	VERTICAL FORCE (LBS.) FY	LATERAL FORCE (LBS.) FZ	AXIAL MOMENTS (IN.LBS) MX	VERTICAL MOMENTS (IN.LBS) MY	LATERAL MOMENTS (IN.LBS) MZ	RESULTANT FORCE (LBS.) F	RESULTANT MOMENTS (IN.LBS) M
6"	± 555	± 1388	± 1110	± 16650	± 8325	± 8325	± 1862	± 20392
4"	± 370	± 925	± 740	± 7400	± 3700	± 3700	± 1241	± 9063
3"	± 278	± 694	± 555	± 4164	± 2082	± 2082	± 931	± 5100
2"	± 185	± 463	± 370	± 1850	± 925	± 925	± 621	± 2266
1 1/2"	± 139	± 347	± 278	± 1041	± 521	± 521	± 466	± 1275
1"	± 93	± 231	± 185	± 463	± 231	± 231	± 310	± 567



GENERAL NOTES

1. ALL DIMENSIONS ARE IN INCHES.
2. ALL CUSTOMER CONNECTIONS ARE +/- 1/8"
3. ALL PIPING SHALL BE DONE IN ACCORDANCE WITH ASME/ANSI B31.3,
4. ALL BUTT WELDS SHALL BE FULL PENETRATION.
5. ALL THREADED CONNECTIONS EXCEPT PLUGS SHALL BE SEAL WELDED.
6. ALL FLANGE BOLT HOLES TO STRADDLE N/S & VERT. CENTERLINES.
7. ALL BURRS & SHARP EDGES SHALL BE REMOVED.
8. UNLESS OTHERWISE SPECIFIED, ALL TUBING SHALL BE 316 SS. 1/2"OD (0.035") WALL. TUBE FITTINGS ARE SWAGELOK.
9. ALL PIPING & TUBING SHALL BE ADEQUATELY SUPPORTED OR FASTENED.
10. COMPLETE SYSTEM SHALL BE PRESSURE TESTED PNEUMATICALLY @ 495 PSIG.
11. COMPLETE SYSTEM SHALL BE SHIPPED WITH 10 PSIG DRY NITROGEN.
12. ALL FLANGE SEALING SURFACES SHALL BE PROTECTED.
13. COATING SYSTEM AS OUTLINED IN EDTI JOB PAINTING SPECIFICATIONS.
14. CENTER OF GRAVITY= ⊖
15. EQUIPMENT CENTER OF GRAVITY= ⊕
16. COMP. & MOTOR PEDESTALS MUST BE FILLED WITH CONCRETE (BY CUSTOMER)
17. COMPRESSOR TO BE FILLED WITH OIL.
18. SPIRAL WOUND GASKETS SHALL BE USED.
19. ADEQUATE REMOVAL SPACE SHALL BE ALLOWED FOR ALL PARTS/COMPONENTS NEEDING MAINTENANCE.

MACHINERY WEIGHTS

DRY WEIGHT:	66,000 LBS. (APPROX.)
OPERATING WEIGHT:	69,000 LBS. (APPROX.)

COMPRESSOR TOTAL WEIGHT: 14,538 LBS. (APPROX.)

MOTOR TOTAL WEIGHT: 6,180 LBS. (APPROX.)

COMPRESSOR ROTOR WEIGHTS:

1ST STAGE MALE:	684.79 LBS.
1ST STAGE FEMALE:	480.78 LBS.
2ND STAGE MALE:	597.07 LBS.
2ND STAGE FEMALE:	171.80 LBS.

MOTOR ROTOR WEIGHTS:

ROTOR:	1288.00 LBS.

JACOBS PROJECT NUMBER: 58-BK6560-HH000609
SAP NO.: 10533658

QTY.REQ'D.: 1

REV.	DESCRIPTION	DRAWN	CHK'D	CHK'D	APP'D	DATE
4	AS-BUILT REVISION.	JB	PD			07/23/05
3	REVISED LOCATION OF CONNECTIONS F, L & M. ADDED "DIA."TO HOLE DIMENSIONS. ADDED CUSTOMER CONNECTION N.	JB	PD	PD	PD	04/27/05
2	REVISED CONNECTIONS L & M TO 3/4"-150#.	JB	PD	PD	PD	04/05/05
1	REVISED LOCATION OF CONNECTIONS F, L & M.	JB	PD	PD	PD	03/07/05
0	REVISED CONNECTIONS, ADDED CONNECTIONS, ADDED CONCRETE, ADDED TYP. BOTTOM SKID PLATES.	JB	PD	PD	PD	01/07/05

EDTI
-AN ENGINEERED-
-SYSTEMS COMPANY-
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TITLE: MACHINERY ARRANGEMENT
RETURN GAS COMPRESSOR SYSTEM

DRN:	CHK'D:	APP'D:	CLIENT:	DATE:	DRAWING NO:	SHEET NO:	REV:
PD	PD	AB	GEMOR	11/04/04	ES-323-011	1 OF 1	4
DRAWN: J.BARROWS		SCALE: 1"=30"		CAD FILE: 323011			