

Messrs : Evonik Degussa Corporation

Aug. 10 2015

Job No. _____

Project Name : _____

Item No. : ☐ *

Item Name : _____

Model : F61-317C4BM-0508TS1-AV

Qty : 2

Sign For Receipt
(For customer)

TEIKOKU ELECTRIC MFG. CO., LTD.

Approved by

Checked by

Designed by

R. Takeuchi

R. Matsumura

M. Mori

CERTIFIED

Drawing conforms to the customer's latest specifications

Remarks :	
-T-USA#385330	
-Hazardous Area Classification: Class.1, Div.2, Gr.C&D T2	
②-Mechanical Design Temperature: 200°C (Pumps do not run at this temperature. Pumps are not expected to function post experience of this temperature.)	
②-※1 Item No.P-9112 / Order No.4701013179, Item No.P-9112S / Order No.4701319034	

REVIEWS

B: Revised 3 points, Added 2 points, Deleted 1 point

(2015. 10. 28) M. Mori

C: Revised 3 points, Added 1 point (2015.11.11) M. Norii

D-Revised 1 point (2015.11.18) M. Mori

E: Revised 1 point (2015.12.2) M. Morij

6E-8487

Note:

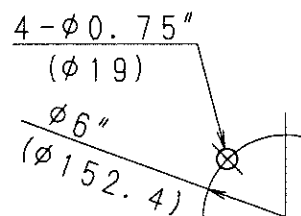
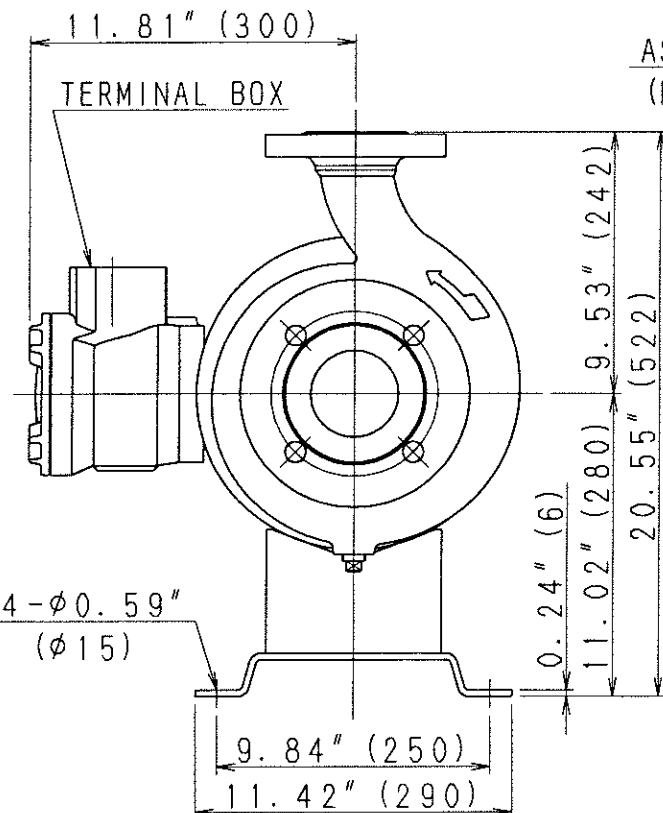
Thickness and outside diameter follows those of ANSI#300 flange.

CERTIFIED

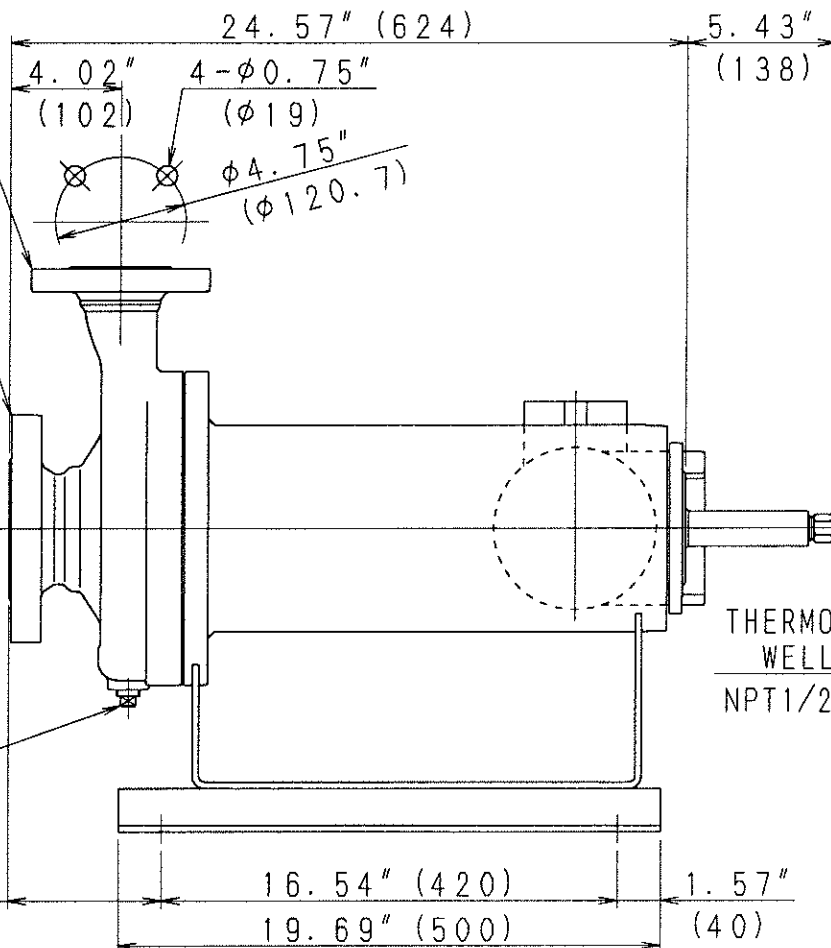
Drawing conforms to the customer's latest specifications

ASME 150Lb Equiv. 2" RF
(Please see note)

ASME 150Lb Equiv. 3" RF
(Please see note)



DRAIN
NPT1/2



FH1391A

WEIGHT: 138kg (305Lb)

REVISIONS

Customer : Evonik Corporation
PO# : 4701013179/4701319034
Project : ACA G600
Project# : 4142.00940
Evonik's Pump# : P-9112/P-9112S
Requisition# : C0078-010

APPROVED

CHECKED

DRAWN

SCALE

DWG. TITLE 外形図

R. Matsumura

M. Morii
Aug. 5 '15

FREE

DIMENSIONAL DRAWING

TYPE: F-310-0508TS1-V

DWG. NO.

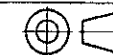


株式会社 帝国電機製作所

TEIKOKU ELECTRIC MFG. CO., LTD.

6E-8487

4N-8988-01

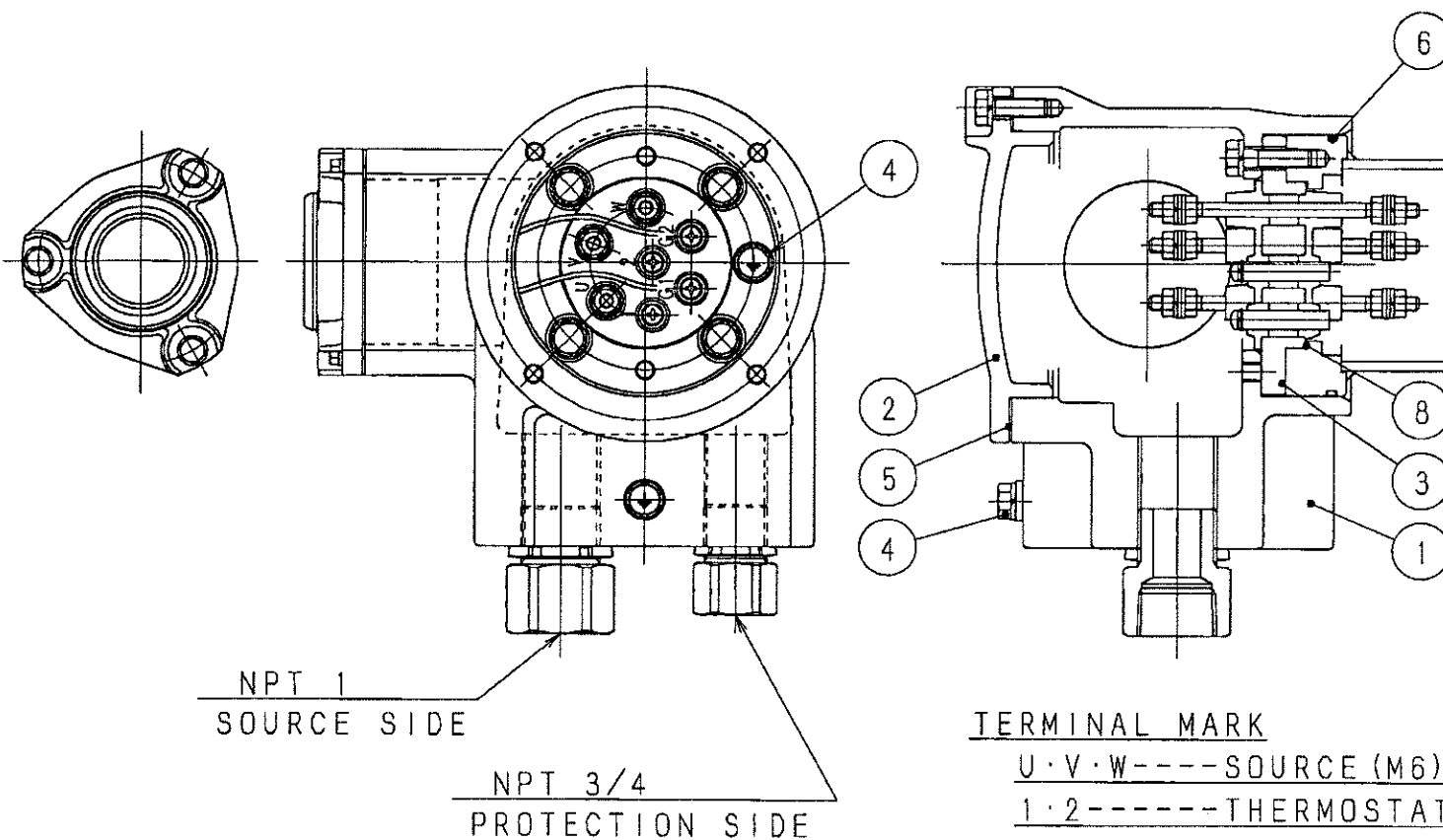


A

B

C

D

NPT 1
SOURCE SIDENPT 3/4
PROTECTION SIDE

TERMINAL MARK

U · V · W ---- SOURCE (M6)

1 · 2 ----- THERMOSTAT (M4)

G1 · G2 ---- TRG METER (M4)

No.	NAME
1	TERMINAL BOX
2	TERMINAL COVER
3	TERMINAL PLATE
4	EARTH TERMINAL
5	GASKET
6	O-RING
7	TRG METER
8	O-RING

FG2021A

REVISIONS

Customer : Evonik Corporation
PO# : 4701013179/4701319034
Project : ACA G600
Project# : 4142. 00940
Evonik's Pump# : P-9112/P-9112S
Requisition# : C0078-010

APPROVED

CHECKED

DRAWN

SCALE

DWG. TITLE

T. Takeuchi

R. Okamoto

K. Nakazumi

FREE

TERMINAL BOX

Mar. 26 '15

SIZE : S

Hermetic (Special)



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TEIKOKU ELECTRIC MFG. CO., LTD.

DWG. NO.

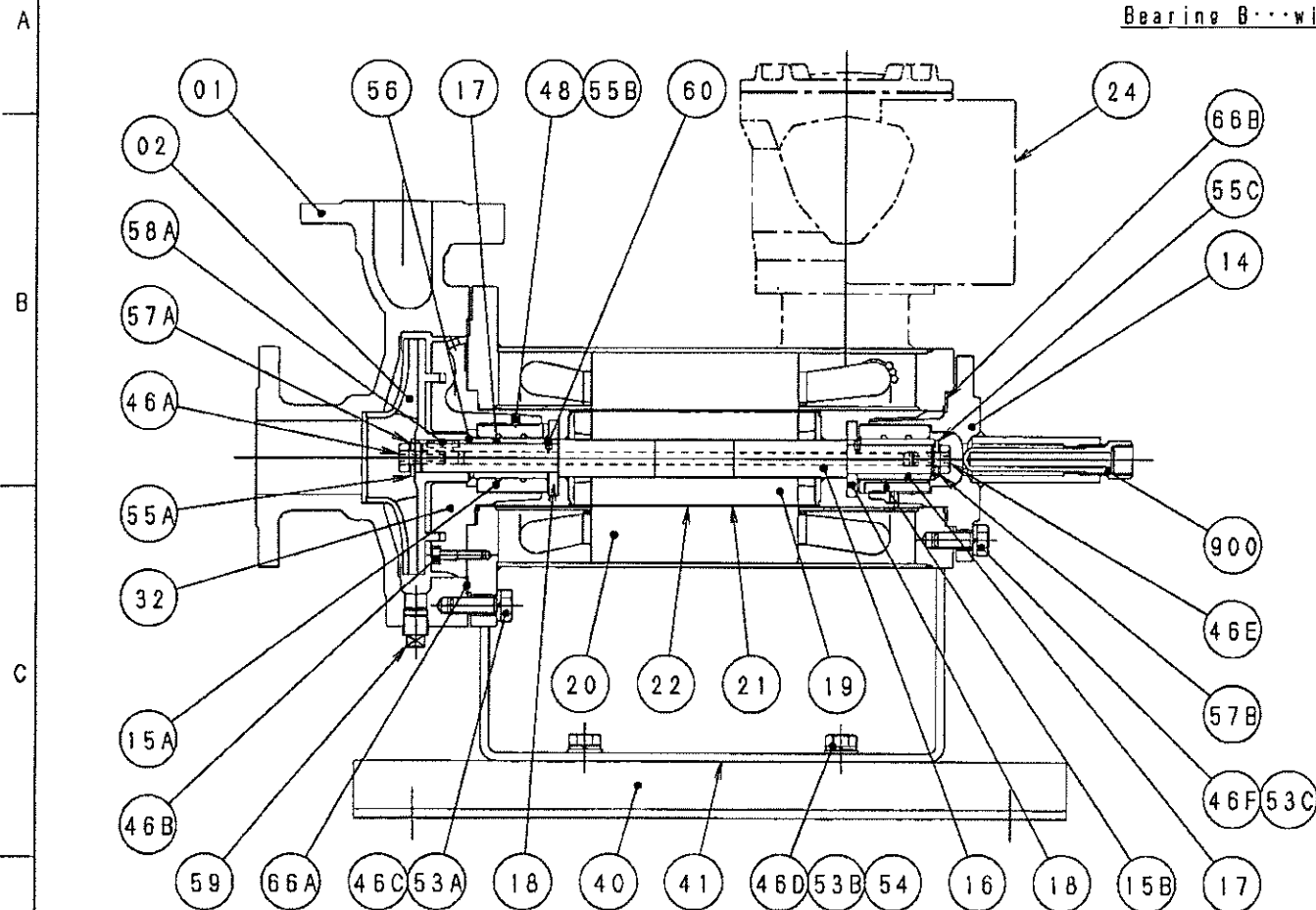
4N-8988-01

6E-7804

NOTE

Bearing A...with spiral & straight grooves

Bearing B...with spiral grooves



NO.	NAME OF PARTS	NO.	NAME OF PARTS
01	CASING	48	SET SCREW
02	IMPELLER		
14	R. B. HOUSING	53A	SPRING WASHER
15A	BEARING B	53B	SPRING WASHER
15B	BEARING A	53C	SPRING WASHER
16	SHAFT	54	PLAIN WASHER
17	SHAFT SLEEVE	55A	WASHER
18	THRUST COLLAR	55B	WASHER
19	ROTOR ASSY	55C	WASHER
20	STATOR ASSY	56	ADJUSTING WASHER
21	ROTOR CAN	57A	LOCK WASHER
22	STATOR CAN	57B	LOCK WASHER
24	TERMINAL BOX ASSY	58A	KEY
32	F. B. HOUSING	59	PLUG
		60	PIN
40	BASE		
41	HOLDER	66A	GASKET
46A	BOLT	66B	GASKET
46B	BOLT		
46C	BOLT	900	THERMOWELL
46D	BOLT		
46E	BOLT		
46F	BOLT		

FG1829A

REVISIONS

Customer : Evonik Corporation
PO# : 4701013179/4701319034
Project : ACA G600
Project# : 4142. 00940
Evonik's Pump# : P-9112/P-9112S
Requisition# : C0078-010

APPROVED

CHECKED

DRAWN

SCALE

DWG. TITLE 構造断面図

*T. Tachibana**R. Okamoto*H. Kuroda
Jan 30 '15

FREE

SECTIONAL VIEW DRAWING

TYPE: F-V

DWG. NO.



株式会社 帝国電機製作所

TEIKOKU ELECTRIC MFG. CO., LTD.

6E-7804

MATERIAL LIST

(1/1)

NO.	NAME	MATERIAL (JIS Std./Eq. ASTM, AISI Std.)	REMARKS
01	CASING	SCS14 / CF-8M 316 SS	
02	IMPELLER	SCS14 / CF-8M 316 SS	
14	R. B. HOUSING	SUSF316 or SCS14 / F 316 SS or CF-8M 316 SS	
15A	BEARING B	Carbon Graphite	
15B	BEARING A	Carbon Graphite	
16	SHAFT	SUS316 / 316 SS	
17	SHAFT SLEEVE	SUS316 / 316 SS + Stellite	
18	THRUST COLLAR	SUS316 / 316 SS + Stellite	
19	ROTOR ASS'Y		
20	STATOR ASS'Y		
21	ROTOR CAN	SUS316L / 316L SS	
22	STATOR CAN	SUS316L / 316L SS	
24	TERMINAL BOX ASS'Y	FC200 / Cl.No. 35 etc.	
32	F. B. HOUSING	SUSF316 or SCS14 / F 316 SS or CF-8M 316 SS	
40	BASE	SS400 / Carbon Steel	
41	HOLDER	SS400 / Carbon Steel	
46A	BOLT	SUS316 / 316 SS	
46B	BOLT	SUS316 / 316 SS	
46C	BOLT	SUS304 / 304 SS	
46D	BOLT	S20C / AISI 1020	
46E	BOLT	SUS316 / 316 SS	
46F	BOLT	SUS304 / 304 SS	
48	SET SCREW	SUS316 / 316 SS	
53A	SPRING WASHER	SUS304 / 304 SS	
53B	SPRING WASHER	SWRH / Carbon Steel	
53C	SPRING WASHER	SUS304 / 304 SS	
54	PLAIN WASHER	SPCC / Carbon Steel	
55A	WASHER	SUS316L / 316L SS	
55B	WASHER	SUS316L / 316L SS	
55C	WASHER	SUS316L / 316L SS	
56	ADJUSTING WASHER	SUS316L / 316L SS	
57A	LOCK WASHER	SUS316L / 316L SS	
57B	LOCK WASHER	SUS316L / 316L SS	
58A	KEY	SUS316 / 316 SS	
59	PLUG	SUS316 / 316 SS	
60	PIN	SUS316 / 316 SS	
66A	GASKET	T/#9007-LC / PTFE	Customer : Evonik Corporation PO# : 4701013179/4701319034 Project : ACA G600 Project# : 4142. 00940 Evonik's Pump# : P-9112/P-9112S Requisition# : C0078-010
66B	GASKET	T/#9007-LC / PTFE	
900	THERMOWELL	SUS316 / 316 SS	
(F-V)		APPROVED <i>T. T. H. M. L.</i>	CHECKED <i>R. Matsumura</i>
		DRAWN K. Nakazumi Dec. 12 '13	
		P-31990	

FF1893A



ESTIMATED PERFORMANCE CURVE

Date : Aug. 05. 2015
No : E18H0020-00
Dwg. No. : SFH-1392A

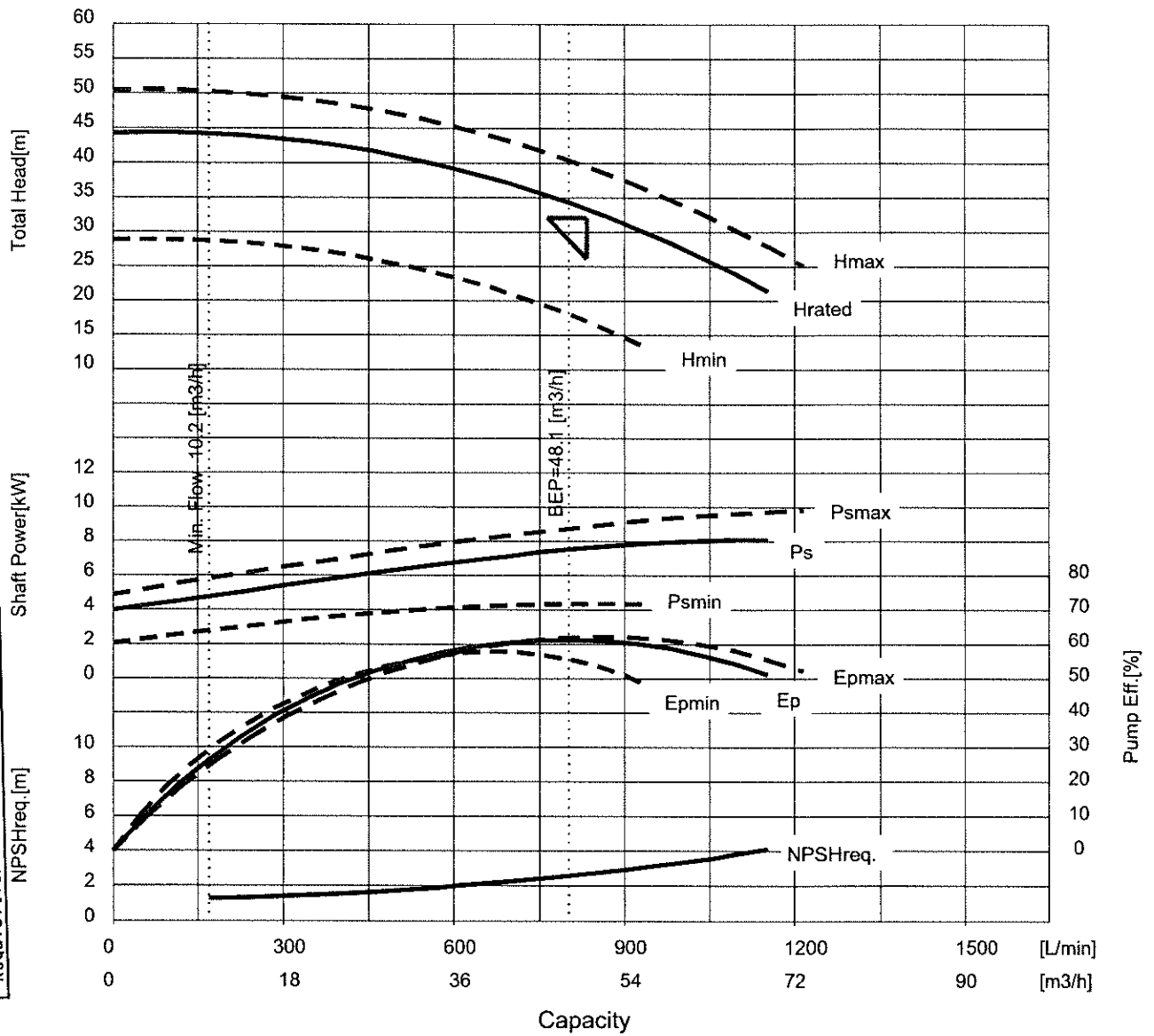
Item No. **P-9112 / P-9112S**

Item Name ****

Model **F61-317C4BM-0508TS1-AV**

Frequency 60 Hz
Voltage 460 V
Phase 3
Pole 2
Output 8.4 kW
Current 17 A

Total Head 32 m
Capacity 833.4 L/min 50 m³/h
Min.Flow 170 L/min 10.2 m³/h
Liquid Finished ACA
Temp. 25 degC
S.G. 1.03
NPSHavail. 4.8 m
Vis. 0.64 mPas
NPSHreq. 2.7 m



Customer : Evonik Corporation
PO# : 4701013179/4701319034
Project : ACA G600
Project# : 4142. 00940
Evonik's Pump# : P-9112/P-9112S
Requisition# : C0078-010

Remarks :

- Shut-off head : 44.2m
- 33.3m, 61.2%, 7.62kW, 3413rpm @ rated flow
- 69.18m³/hr, 8.1kW @ EOC
- 9.813kW @ EOC (max. dia.)

- Ns : 25.96, SSS : 12154
- Impeller Dia(mm):166(Max)/156(Rated)/130(Min)
- Output:11.26(hp)

B	2015.11.11	Revised 1 Point. M.Morii
REV.	Date	Description

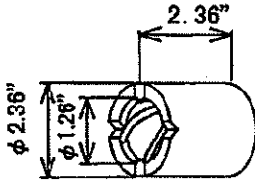
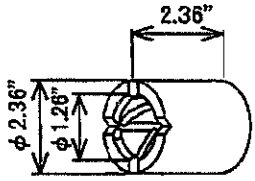
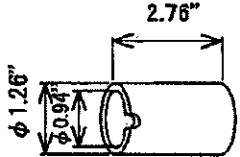
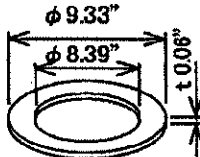
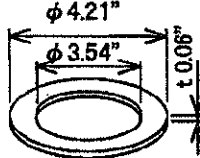
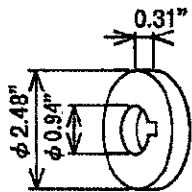
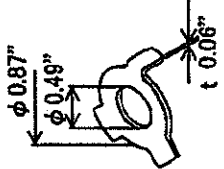
APPROVED BY	CHECKED BY	DRAWN BY
R.Takeuchi	R.Matsumura	M.Morii

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UNIS Version 3.0.2
NDTS11_15

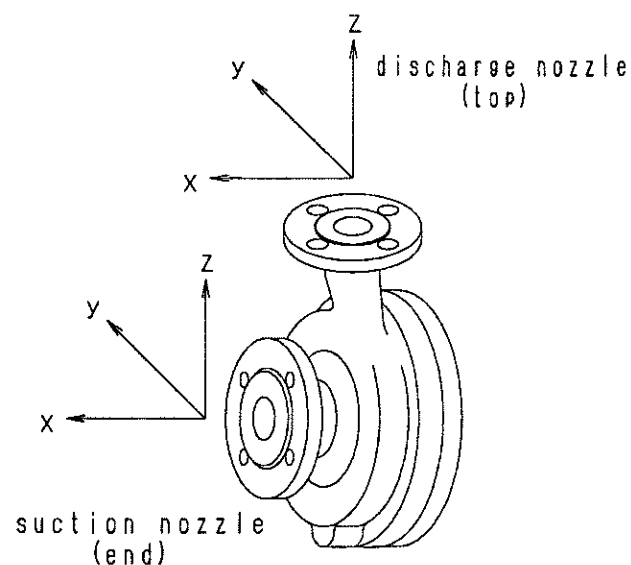
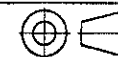
Customer : Evonik Corporation
 PO# : 4701013179/4701319034
 Project : ACA G600
 Project# : 4142. 00940
 Evonik's Pump# : P-9112/P-9112S
 Requisition# : C0078-010

RECOMMENDED SPARE PARTS LIST

TYPE F-V, R 310-T					SB-4032	1 1
No.	PARTS NAME	DIMENSION	MATERIAL	FOR 1SETS	REMARKS	
1	BEARING B		Carbon Graphite	1	#15A 60 × 32 × 60 (mm)	
2	BEARING A (with spiral & straight grooves)		Carbon Graphite	1	#15B 60 × 32 × 60 (mm)	
3	SHAFT SLEEVE		316 SS (SUS316) + Stellite	2	#17 32 × 24 × 70 (mm)	
4	GASKET		PTFE	1	#66A 237 × 213 × 1.5 (mm)	
5	GASKET		PTFE	1	#66B 107 × 90 × 1.5 (mm)	
6	THRUST COLLOR		316 SS (SUS316) + Stellite	2	#18 63 × 24 × 8 (mm)	
7	LOCK WASHER		316L SS (SUS316L)	2	#57A, #57B 22 × 12.5 × 1.5 (mm)	
REV.	来歴 REV.	 株式会社 帝国電機製作所 TEIKOKU ELECTRIC MFG. CO., LTD.		APPROVED	CHECKED	DRAWN
	② Rewritten (Apr. 14 '15) N. Kawanishi			T. Inoue.	T. Matsumura	Y. Maruyama Aug. 25. '99

C/D362

4N-6993-12



#No	PUMP TYPE	Fsx	Fsy	Fsz	Fdx	Fdy	Fdz	Msx	Msy	Msz	Mdx	Mdy	Mdz
1	0204	670	530	430	360	290	450	350	170	260	230	120	180
2	0405	890	710	580	530	430	670	460	230	350	350	170	260
3	0506	1110	890	730	710	580	890	710	350	540	460	230	350
4	0608	1330	1070	890	890	730	1110	950	470	720	710	350	540
5	0810	1780	1420	1160	1070	890	1330	1330	680	1000	950	470	720
6	1012	2450	1960	1600	1420	1160	1780	1820	930	1380	1330	680	1000
7	1215	3110	2490	2050	1960	1600	2450	2300	1180	1760	1820	930	1380
8	1520	4890	3780	3110	2490	2050	3110	3530	1760	2580	2300	1180	1760
9	2025	6670	5340	4450	3780	3110	4890	5020	2440	3800	3530	1760	2580
10	1015	3110	2490	2050	1420	1160	1780	2300	1180	1760	1330	680	1000
11	0408	1330	1070	890	530	430	670	950	470	720	350	170	260
12	0508	1330	1070	890	710	580	890	950	470	720	460	230	350
13	1515	3110	2490	2050	2490	2050	3110	2300	1180	1760	2300	1180	1760
14	1010	1780	1420	1160	1420	1160	1780	1330	680	1000	1330	680	1000
15	1212	2450	1960	1600	1960	1600	2450	1820	930	1380	1820	930	1380

suction nozzle
(end)CASING

Customer : Evonik Corporation
PO# : 4701013179/4701319034
Project : ACA G600
Project# : 4142.00940
Evonik's Pump# : P-9112/P-9112S
Requisition# : C0078-010

NOTE : F = force (N) M = moment (N-m)

S = suction nozzle

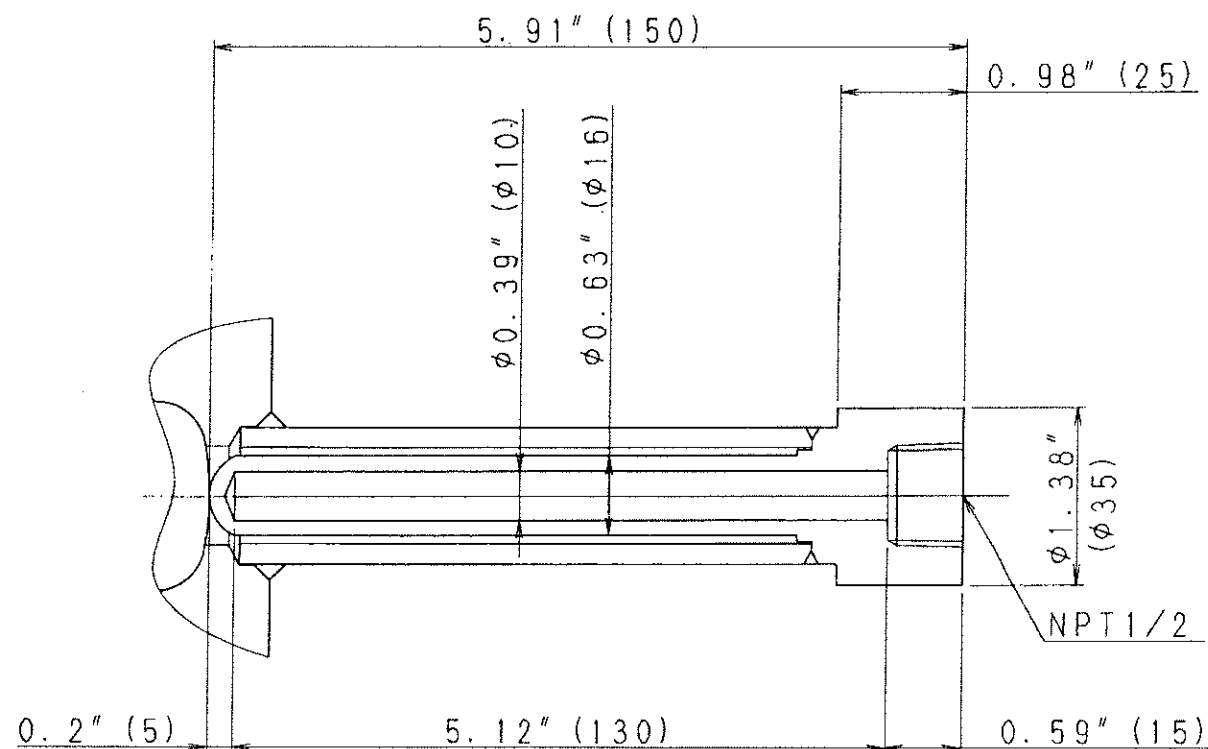
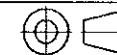
d = discharge nozzle

See the figure for orientation of nozzle loads (x, y, z)

DQ1377

REVISES	B	C	D	E	APPROVED	CHECKED	DRAWN	SCALE	DWG. TITLE	DWG. NO.
					T. Takeuchi	S. Kimura	Y. Shimizu	FREE	ALLOWABLE PIPING FORCES AND MOMENTS	
	Rewritten Aug. 7'08 K. Nakazumi	Revised API610 8th Edition to API610 10th Edition. Sep. 3'08 Y. Shimizu	#11~#13 Added Sep. 2'13 K. Nakazumi	#14, #15 Added Mar. 20'15 K. Nakazumi			Apr. 11'08		許容配管荷重 SI Units API610 (10th)	
					株式会社 帝国電機製作所 TEIKOKU ELECTRIC MFG. CO., LTD.				4N-6993-12	E

4N-7445

FB1809A
FB1810A

REVISIONS

Customer :Evonik Corporation
PO# :4701013179/4701319034
Project :ACA G600
Project# :4142.00940
Evonik's Pump# :P-9112/P-9112S
Requisition# :C0078-010

APPROVED

CHECKED

DRAWN

SCALE

DWG. TITLE

S. Takahashi *S. Takahashi*

K. Yamamoto

Apr. 22 '10

FREE

THERMOWELL



株式会社 帝国電機製作所

TEIKOKU ELECTRIC MFG. CO., LTD.

DWG. NO.

4N-7445