

TEIKOKU CANNED MOTOR PUMP DATA SHEET

Messrs : Evonik Degussa Corporation

No. QFH-1381A

Aug. 10 2015

Order No. : 4701013179

Job No. : ---

Project Name : ---

Item No. : P-3320

Item Name : ---

Model : ☒ F62-317C4BL-0204T1B1V-AV

Qty : 1

CERTIFIEDDrawing conforms to the
customer's latest specificationsSign For Receipt
(For customer)

TEIKOKU ELECTRIC MFG. CO., LTD.

Approved by	Checked by	Designed by
R. Takeuchi	R. Matsumura	M. Morii

Operating Conditions		Materials																										
Total Head (m) : 85.4	Capacity (L/min) : 100	Casing : SCS14(CF-8M 316 SS)																										
	(m3/h) : 6	Impeller : SCS14(CF-8M 316 SS)																										
Suction Press. (barA) : 0.72~4.44	Discharge Press. (barA) : ---	FBH : SUS316 (316 SS)																										
NPSHava. (m) : 6	NPSHreq. (m) : 1.8	RBH : SUS316 (316 SS)																										
Liquid : Acetic Acid		Motor Flange : SUS316L (316L SS)																										
Temperature (Des./Nor.) (°C) : 25	/ ---	Stator Can : SUS316L (316L SS)																										
Specific gravity (Des./Nor.) : 1.07	/ ---	Shaft : SUS316 (316 SS)																										
Viscosity (Des./Nor.) (mPa·s) : 1.1	/ ---	Rotor Can : SUS316L (316L SS)																										
Mechanical Design Temperature (°C) : ---		Bearing : Carbon Graphite																										
Specific Heat (kJ/(kg·K)) : ---	Melting Temp. (°C) : ---	Shaft Sleeve : SUS316 (316 SS)+Stellite																										
Vapor Press. (BarA) : 0.02		+ Thrust Collar : SUS316 (316 SS)+Stellite																										
Solids Name : ---		Pump Gasket : ☒ SUS316 (316 SS)+Grafoil																										
Concentration (wt%) : ---	Particle Size (μm) : ---	Motor Gasket : ☒ SUS316 (316 SS)+Grafoil																										
Flushing or Barrier Fluid : ---		Other Gasket : ---																										
Liquid/S.Gr. (mPa·s) : ---	/	Mechanical Seal : ---																										
Press. (MPaG) : S.P. + --- ± ---	Flow (m3/h) : ---																											
Pump Design & Construction		Performance																										
Design Press ☒ (bar) : ☒ 14.62	Temp. (°C) : 25	Impeller Type : CLOSE																										
Code Applied : None	Nameplate : English	No. of Stage : 1																										
Nozzle Connection : ASME Finish : SMOOTH FINISH <table border="1"> <thead> <tr> <th>Nozzle</th><th>Rating</th><th>Size</th><th>Facing</th><th>Position</th></tr> </thead> <tbody> <tr> <td>Suction</td><td>150LB</td><td>1-1/2"</td><td>RF</td><td>END</td></tr> <tr> <td>Discharge</td><td>150LB</td><td>1"</td><td>RF</td><td>TOP</td></tr> <tr> <td>Drain</td><td>---</td><td>---</td><td>---</td><td>---</td></tr> <tr> <td>Reverse</td><td>---</td><td>---</td><td>---</td><td>---</td></tr> </tbody> </table>		Nozzle	Rating	Size	Facing	Position	Suction	150LB	1-1/2"	RF	END	Discharge	150LB	1"	RF	TOP	Drain	---	---	---	---	Reverse	---	---	---	---	Min. Flow (L/min) : --- Min. Flow (m3/h) : ---	
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Drain	---	---	---	---																								
Reverse	---	---	---	---																								
Jacket Design Press. (MPa) : ---		Spare Parts																										
<table border="1"> <thead> <tr> <th>Utilities Required</th><th>Media</th><th>Condition (Max)</th><th>Flow (Min.)</th><th>Connection</th></tr> </thead> <tbody> <tr> <td>Casing</td><td>NONE</td><td>---</td><td>---</td><td>---</td></tr> <tr> <td>Motor</td><td>NONE</td><td>---</td><td>---</td><td>---</td></tr> <tr> <td>Heat Ex./Ext. Circ.</td><td>NONE</td><td>---</td><td>---</td><td>---</td></tr> <tr> <td>Motor (Stop)</td><td>---</td><td>---</td><td>---</td><td>---</td></tr> </tbody> </table>		Utilities Required	Media	Condition (Max)	Flow (Min.)	Connection	Casing	NONE	---	---	---	Motor	NONE	---	---	---	Heat Ex./Ext. Circ.	NONE	---	---	---	Motor (Stop)	---	---	---	---	Accessories	
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Motor (Stop)	---	---	---	---																								
Customer : Evonik Corporation PO# : 4701013179 Project : ACA G600 Project# : 4142.00940 Evonik's Pump# : P-3320 Requisition# : C0078-010		Vendor Drawings and Data																										
Frame No. : 317 Duty : Cont Voltage (V) : 460 Frequency (Hz) : 60 Phase : 3 Pole : 2 Output (kW/hp) : 9.2/12.34 Rated Amp. (A) : 19 Start Amp. (A) : 61 Thermal Class : 220 Start Method : DIRECT R.P.M. (rpm) : 3600 Direction : C.C.W. (Viewed from Pump Suction) Voltage for protection (V) : 120 Protection Device : Thermostat b Dry Run Protection Relay : --- Terminal Box : Stud/Thread/ 1 Power Cable Conduit : NPT1 Cable O.D. (Main) (mm) : --- Instrument Cable Conduit : NPT3/4 Cable O.D. (Sub) (mm) : --- ATEX Marking : ---		Dimensional Dwg. : ☒ 6E-8788 Allowable Piping Forces and Moments : 4N-6993-01 Terminal Box : 4N-8988-01 Sectional View Dwg. : ☒ 6E-8789 ☒ Thermowell : 4N-7445 Material List : ☒ P-32929 Est. Performance Curve : SFH-1381A Connection Diagram : ☒ 4N-8389 Recommended Spare Parts List : ☒ SB-8710																										
Power Supply & Drive Motor		Other																										
		Special Treatment : None Painting Color : Light Gray Rotating Direction : --- Monitoring : None Bearing Wear Monitor : Radial / Local																										

Remarks :

-T-USA#385330

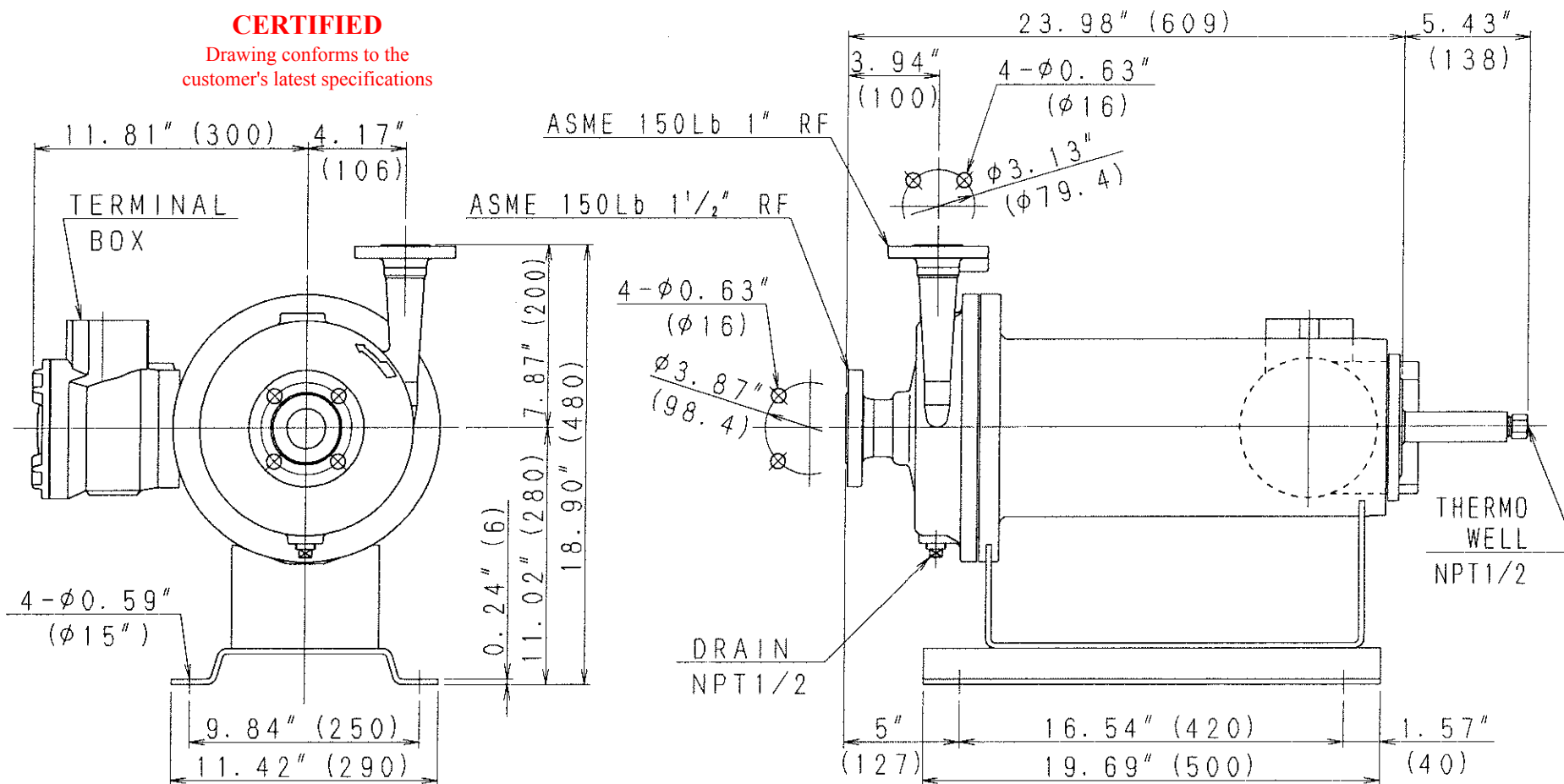
-Hazardous Area Classification : Class.1, Div.2, Gr.C&D T2

☒ -Mechanical Design Temperature : 175°C (Pumps do not run at this temperature. Pumps are not expected to function post experience of this temperature.)

REVISIONS

 B: Revised 10 points. Added 2 points. Deleted 7 points
 (2015.10.29) M. Morii
 C: Revised 1 point (2015.11.18) M. Morii
 D: Revised 1 point (2015.12.2) M. Morii

6E-8788

CERTIFIEDDrawing conforms to the
customer's latest specifications

FH1381A

WEIGHT: 265Lb (120kg)

Customer : Evonik Corporation
PO# : 4701013179
Project : ACA G600
Project# : 4142.00940
Evonik's Pump# : P-3320
Requisition# : C0078-010

APPROVED

CHECKED

DRAWN

SCALE

DWG. TITLE 外形図

*T. Takahashi**M. Fujikawa*M. Morii
Oct-28-'15

FREE

DIMENSIONAL DRAWING

TYPE: F-310-0204TB1-V

DWG. NO.

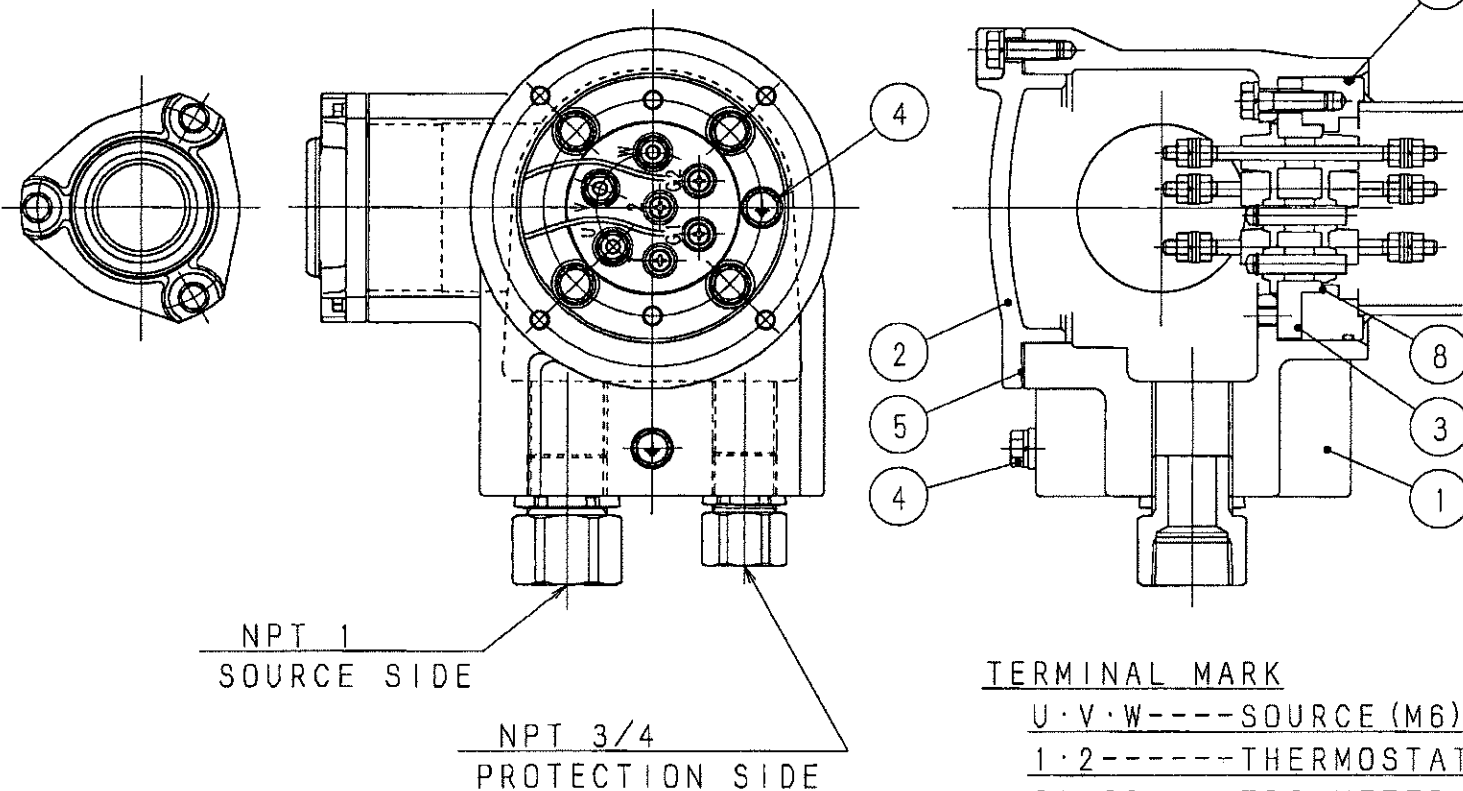
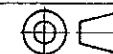


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6E-8788

4N-8988-01



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

TERMINAL MARK

U · V · W ---- SOURCE (M6)

1 · 2 ----- THERMOSTAT (M4)

G1 · G2 ---- TRG METER (M4)

FG2021A

REVISIONS

Customer : Evonik Corporation
PO# : 4701013179
Project : ACA G600
Project# : 4142. 00940
Evonik's Pump# : P-3320
Requisition# : C0078-010

APPROVED

T. Takeuchi

CHECKED

R. Okamoto

DRAWN

K. Nakazumi

Mar. 26 ' 15

SCALE

FREE

DWG. TITLE

TERMINAL BOX

SIZE : S

Hermetic (Special)

DWG. NO.

4N-8988-01



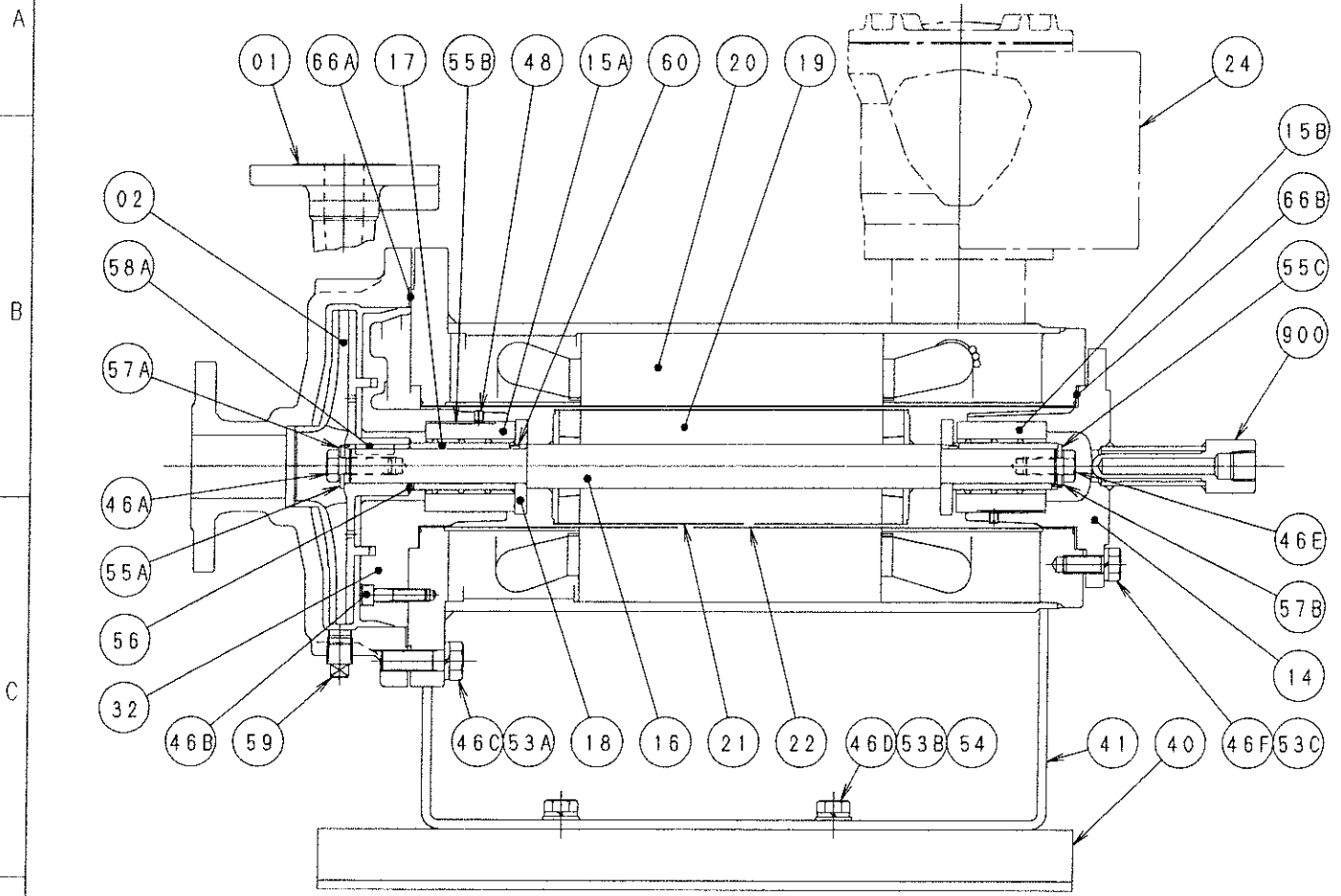
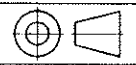
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TEIKOKU ELECTRIC MFG. CO., LTD.

6E-8789

NOTE

Bearing A...with spiral & straight 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 A	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
40	BASE	60	PIN
41	HOLDER		
46A	BOLT	66A	GASKET
46B	BOLT	66B	GASKET
46C	BOLT		
46D	BOLT	900	THERMOWELL
46E	BOLT		
46F	BOLT		

FH1381A

REVISIONS		Customer : Evonik Corporation PO# : 4701013179 Project : ACA G600 Project# : 4142. 00940 Evonik's Pump# : P-3320 Requisition# : C0078-010	APPROVED	CHECKED	DRAWN	SCALE	DWG. TITLE 構造断面図
				M. Fujikawa	M. Morii	FREE	SECTIONAL VIEW DRAWING
					Oct. 28 '15		TYPE: F-B
			株式会社 帝国電機製作所 TEIKOKU ELECTRIC MFG. CO., LTD.				DWG. NO.
							6E-8789

(1 / 1)

FH1375A



ESTIMATED PERFORMANCE CURVE

Date : Aug. 06. 2015
No : E18H0027-02
Dwg. No. : SFH-1381A

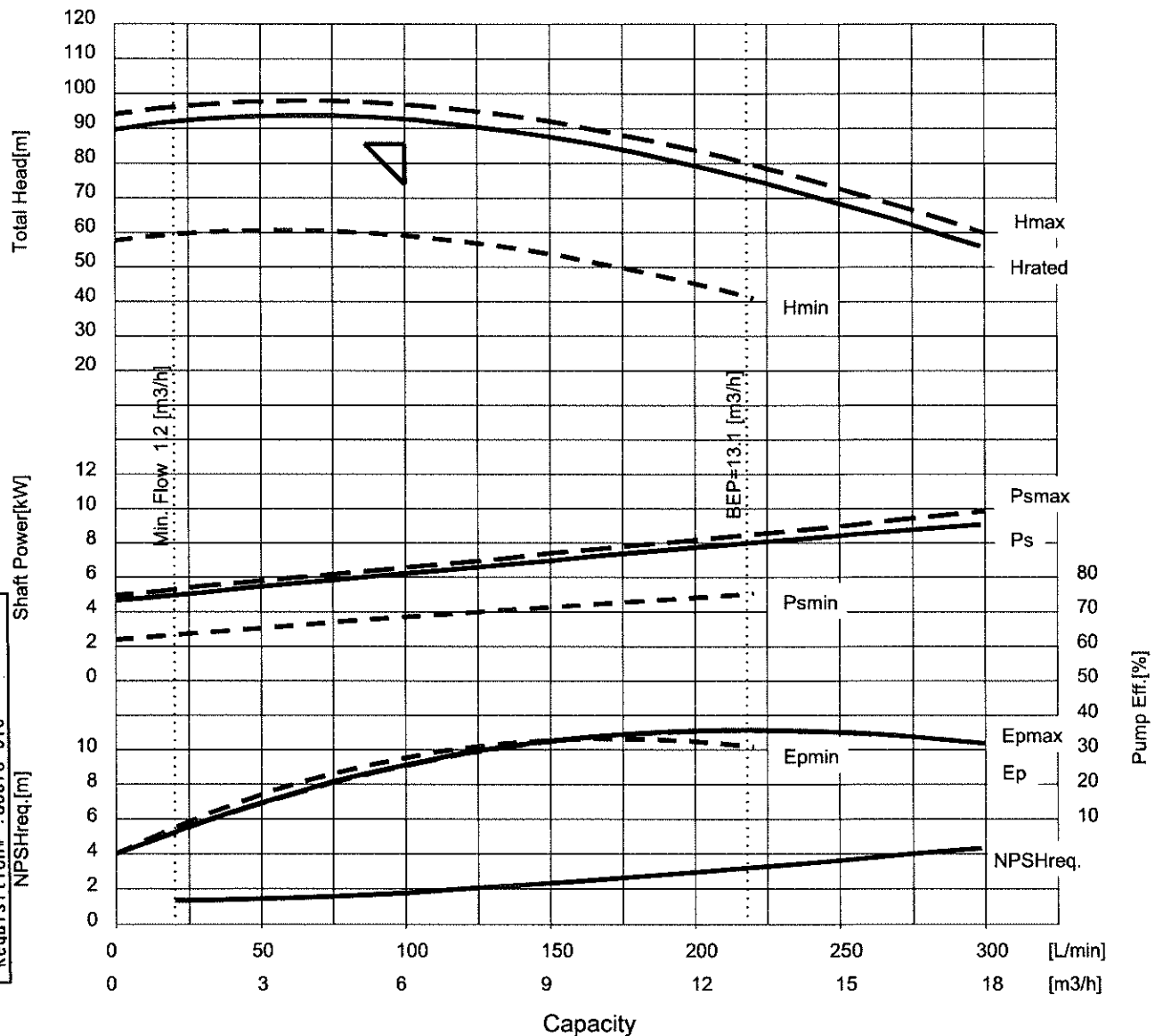
Item No. P-3320

Item Name *****

Model **F62-317C4BL-0204T1B1V-AV**

Frequency 60 Hz
Voltage 460 V
Phase 3
Pole 2
Output 9.2 kW
Current 19 A

Total Head 85.4 m
Capacity 100 L/min 6 m³/h
Min.Flow 20 L/min 1.2 m³/h
Liquid Acetic Acid
Temp. 25 degC
S.G. 1.07
NPSHavail. 6 m
Vis. 1.1 mPas
NPSHreq. 1.8 m



Customer : Evonik Corporation
PO# : 4701013179
Project : ACA G600
Project# : 4142.00940
Evonik's Pump# : P-3320
Requisition# : C0078-010

Remarks :

- Shut-off head : 89.6m
- 92.5m, 25.9%, 6.23kW, 3454rpm @ rated flow
- 17.91m³/hr, 9.1kW @ EOC
- 9.868kW @ EOC (max. dia.)
- Ns : 7.659, SSS : 5126
- Impeller Dia(mm):208(Max)/203(Rated)/166(Min)
- Output:12.34(hp)

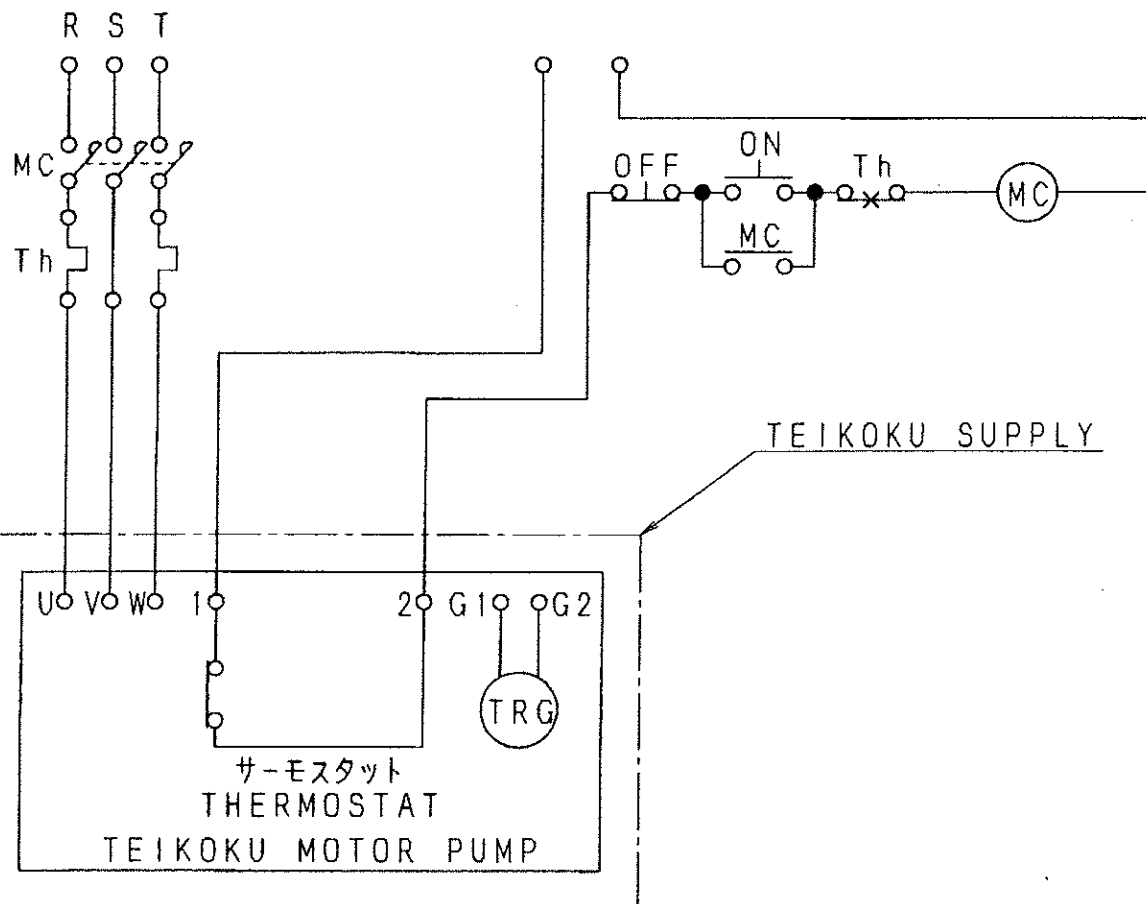
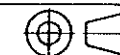
B	2015.10.29	Revised 1 Point. M.Morii
REV.	Date	Description

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

TEIKOKU ELECTRIC MFG. CO., LTD.

UNIS Version 3.0.2
NDTS11_15

4N-8389



THERMOSTAT	
Canned Motor THERMAL CLASS	220
RATING	374°F-CUT OFF
b-CONTACTOR	AC250V-2.5A AC110V-3.0A DC24V-3.0A

SYMBOLS	NAME
R S T	POWER TERMINAL
U V W	TMP TERMINAL
MC	MAGNETIC CONTACTOR
ON-OFF	PUSH BUTTON SWITCH
Th	THERMAL RELAY
TRG	TEIKOKU ROTARY GUARDIAN

FE1968A

Customer :Evonik Corporation
PO# :4701013179
Project :ACA G600
Project# :4142.00940
Evonik's Pump# :P-3320
Requisition# :C0078-010

APPROVED

T. Takami

CHECKED

R. Matsumura

DRAWN

N. Kaiami
Feb. 21 '13

SCALE

FREE

DWG. TITLE

結線図

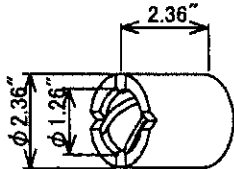
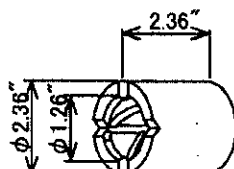
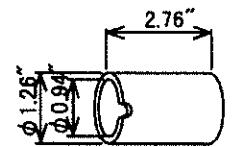
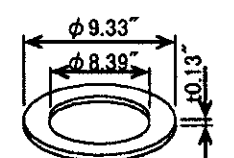
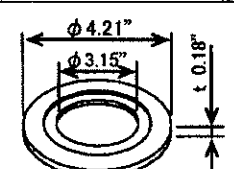
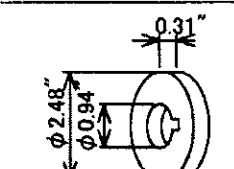
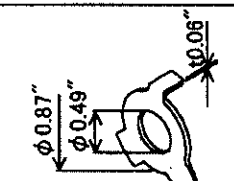
CONNECTION DIAGRAM
S (374°F)

DWG. NO.

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TEIKOKU ELECTRIC MFG. CO., LTD.

4N-8389

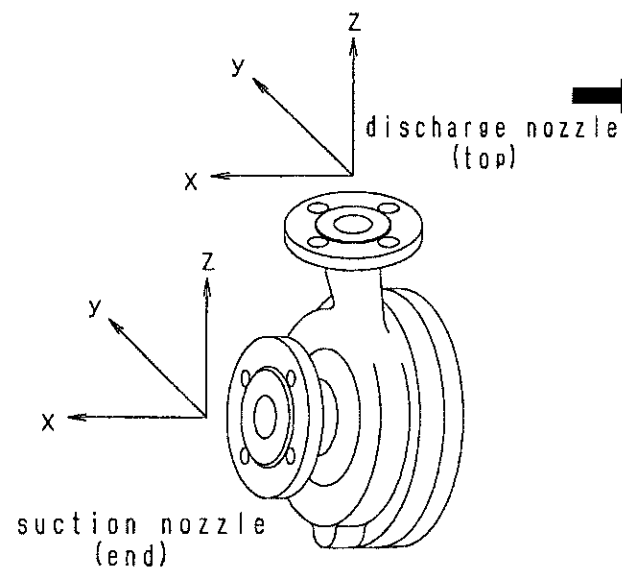
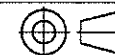
RECOMMENDED SPARE PARTS LIST

TYPE				SB-8710		1 1
R,F-V 310-T						
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		316 SS (SUS316) + Grafoil	1	#66A 237 × 213 × 3.2 (mm)	
5	GASKET		316 SS (SUS316) + Grafoil	1	#66B 107 × 80 × 4.5 (mm)	
6	THRUST COLLAR		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.	 株式会社 帝国電機製作所 TEIKOKU ELECTRIC MFG. CO., LTD.		APPROVED	CHECKED	DRAWN	
			<i>R. dds</i>	<i>R. Takashi</i>	A. Kambayashi Mar. 11. '10	

F81219

Customer	: Evonik Corporation
PO#	: 4701013179
Project	: ACA G600
Project#	: 4142. 00940
Evonik's Pump#	: P-3320
Requisition#	: C0078-010

4N-6993-01

CASING

#No	PUMP TYPE	Fsx	Fsy	Fsz	Fdx	Fdy	Fdz	Msx	Msy	Msx	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

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)

Customer :Evonik Corporation
PO# :4701013179
Project :ACA G600
Project# :4142.00940
Evonik's Pump# :P-3320
Requisition# :C0078-010

DQ1377

REVISIONS

B

Rewritten
Aug. 7'08
K. Nakazumi

C

Revised
API610 8th
Edition to API610
10th Edition.
Sep. 3'08
Y. Shimizu

D

#11~#13
Added
Sep. 2'13
K. Nakazumi

E

#14, #15 Added
Mar. 20'15
K. Nakazumi

APPROVED

CHECKED

DRAWN

SCALE

DWG. TITLE

許容配管荷重

T. Takeuchi

S. Kimura

Y. Shimizu
Apr. 11'08

FREE

ALLOWABLE PIPING FORCES AND MOMENTS

SI Units

API610 (10th)



株式会社 帝国電機製作所

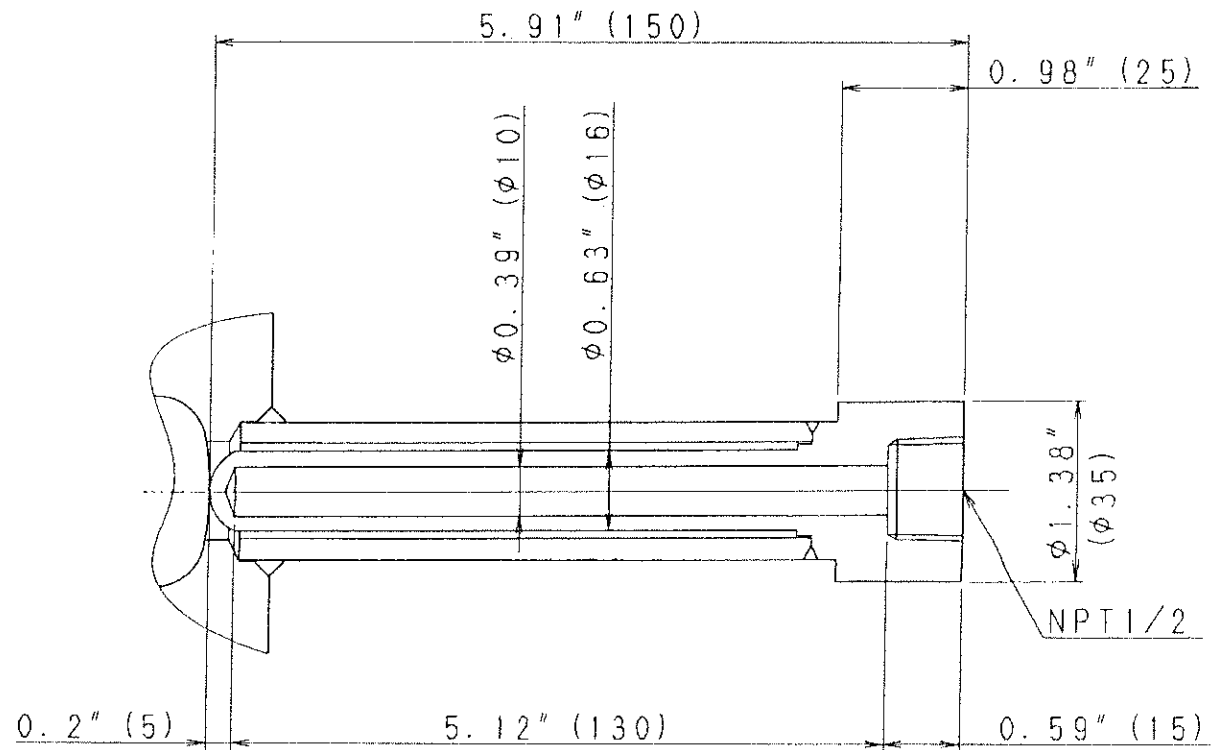
TEIKOKU ELECTRIC MFG. CO., LTD.

DWG. NO.

4N-6993-01

E

4N-7445



FB1809A
FB1810A

REVISIONS

Customer : Evonik Corporation
PO# : 4701013179
Project : ACA G600
Project# : 4142. 00940
Evonik's Pump# : P-3320
Requisition# : C0078-010

APPROVED

CHECKED

DRAWN

SCALE

DWG. TITLE

S. Takahata *S. Takahata*

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