

TEIKOKU CANNED MOTOR PUMP DATA SHEET

Messrs : Evonik Degussa Corporation

No. QFH-1388A

Aug. 10 2015

Order No. : ☒ ※1
 Job No. : ---
 Project Name : ---
 Item No. : ☒ ※1
 Item Name : ---
 Model : ☒ F61-217C4BM-0204S1V-AV

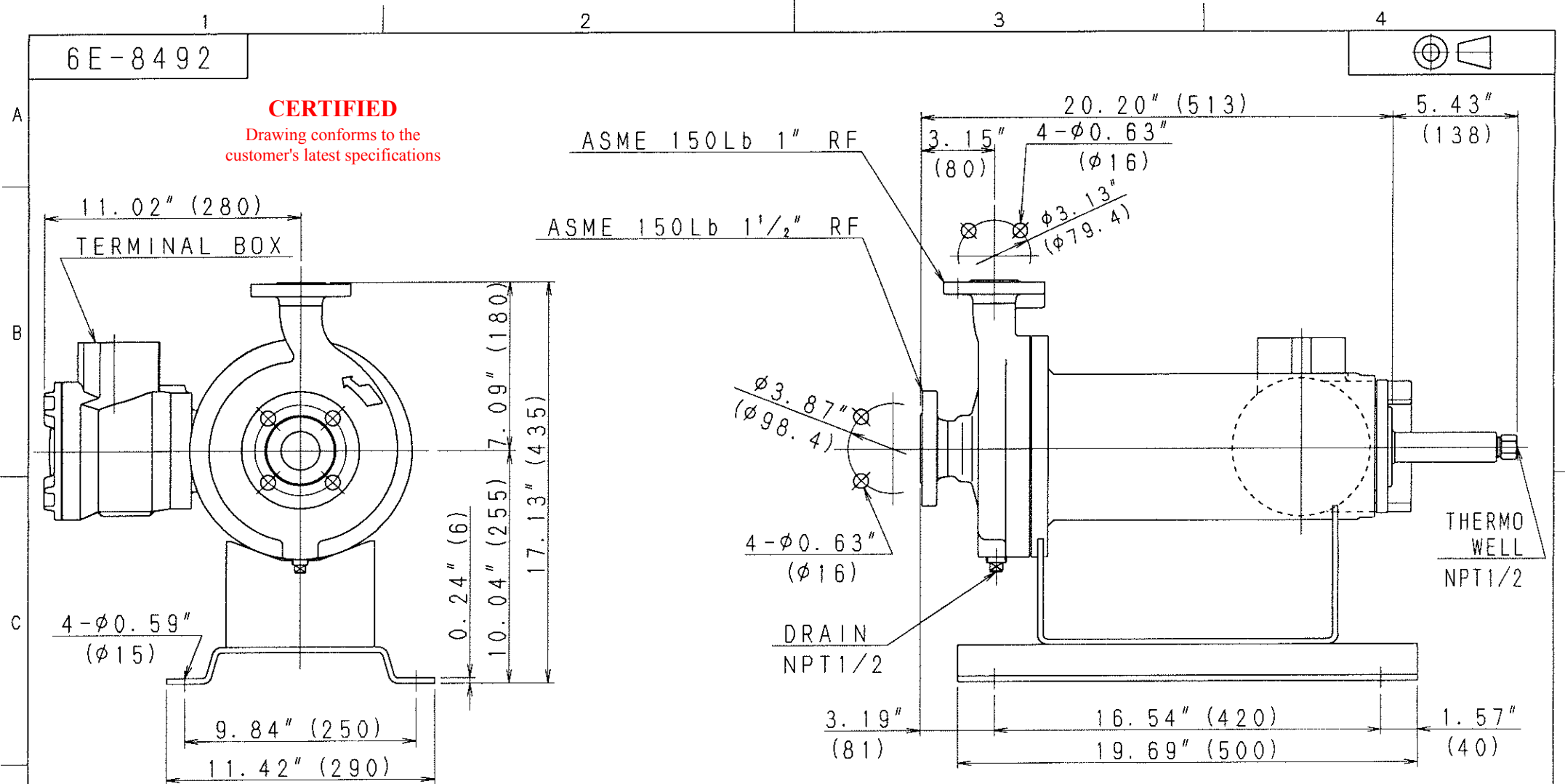
CERTIFIED
 Drawing conforms to the
 customer's latest specifications

Qty : ☒ 2Sign 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) : 32.8	Capacity (L/min) : 177.5	Casing : SCS14 (CF-8M 316 SS)	
	(m3/h) : 10.65	Impeller : SCS14 (CF-8M 316 SS)	
Suction Press. (barA) : 0.99~4.69	Discharge Press. (barA) : ---	FBH : SUS316 (316 SS)	
NPSHava. (m) : 9.1	NPSHreq. (m) : 2.4	RBH : SUS316 (316 SS)	
Liquid : Finished ACA		Motor Flange : SUS316L (316L SS)	
Temperature (Des./Nor.) (°C) : 25	/ ---	Stator Can : SUS316L (316L SS)	
Specific gravity (Des./Nor.) : 1.03	/ ---	Shaft : SUS316 (316 SS)	
Viscosity (Des./Nor.) (mPa·s) : 0.64	/ ---	Rotor Can : SUS316L (316L SS)	
Mechanical Design Temperature (°C) : ---		Bearing : Carbon Graphite	
Specific Heat (kJ/(kg·K)) : ---	Melting Temp. (°C) : ---	Shaft Sleeve : ---	
Vapor Press. (BarA) : 0.004		+ Thrust Collar : SUS316 (316 SS)+Stellite	
Solids Name : ---		Pump Gasket : ☒ SUS316 (316 SS)+Grafoil	
Concentration (wt%) : ---	Particle Size (μm) : --- S.Gr. : ---	Motor Gasket : ☒ SUS316 (316 SS)+Grafoil	
Flushing or Barrier Fluid : ---		Other Gasket : ---	
Liquid/S.Gr. (mPa·s) : ---	/	Mechanical Seal : ---	
Press. (MPaG) : S.P. + --- ± ---	Flow (L/min) : ---		
Pump Design & Construction		Performance	
Design Press ☒ (bar) : ☒ 8.93	Temp. (°C) : 25	Impeller Type : CLOSE	
Code Applied : None	Nameplate : English	No. of Stage : 1	
Nozzle Connection : ASME Finish : SMOOTH FINISH		Min. Flow (L/min) : ---	
Nozzle	Rating	Size	Facing
Suction	150LB	1-1/2"	RF
Discharge	150LB	1"	RF
Drain	---	---	---
Reverse	---	---	---
Jacket Design Press. (MPa) : ---		Min. Flow (m3/h) : ---	
Utilities Required	Media	Condition (Max)	Flow (Min.)
Casing	NONE	---	---
Motor	NONE	---	---
Heat Ex./Ext. Circ.	NONE	---	---
Motor (Stop)	---	---	---
Customer : Evonik Corporation		Spare Parts	
PO# : 4701013179/4701319034			
Project : ACA G600		Accessories	
Project# : 4142. 00940			
Evonik's Pump# : P-4560/P-4560S		Vendor Drawings and Data	
Requisition# : C0078-010			
Power Supply & Drive Motor		Dimensional Dwg. : 6E-8492	Allowable Piping Forces and Moments : 4N-6993-01
Frame No. : 217	Duty : Cont	Terminal Box : 4N-8988-01	☒ Thermowell : 4N-7445
Voltage (V) : 460	Frequency (Hz) : 60	Sectional View Dwg. : 6E-7804	
Output (kW/hp) : 3.5/4.69	Rated Amp. (A) : 7.2	Material List : ☒ P-32929	
Thermal Class : 220	Start Method : DIRECT	Est. Performance Curve : SFH-1388A	
R.P.M. (rpm) : 3600	Direction : C.C.W. (Viewed from Pump Suction)	Connection Diagram : ☒ 4N-4415-01	
Voltage for protection (V) : 120	Protection Device : Thermostat b	Recommended Spare Parts List : ☒ SC-1107	
Dry Run Protection Relay : ---		Other	
Terminal Box : Stud/Thread/ 1		Special Treatment : None	
Power Cable Conduit : NPT1	Cable O.D. (Main) (mm) : ---	Painting Color : Light Gray	
Instrument Cable Conduit : NPT3/4	Cable O.D. (Sub) (mm) : ---	Rotating Direction	
ATEX Marking : ---		Monitoring : Yes	
		Bearing Wear Monitor : Radial / Local	
Remarks :		REVISIONS	
-T-USA#385330		B: Revised 8 points, Added 2 points, Deleted 1 point (2015. 10. 27) M. Morii	
-Hazardous Area Classification: Class. 1, Div. 2, Gr. C&D T2		C: Revised 3 points, Added 1 point (2015. 11. 11) M. Morii	
☒ -Mechanical Design Temperature: 250°C (Pumps do not run at this temperature. Pumps are not expected to function post experience of this temperature.)		D: Revised 1 point (2015. 12. 2) M. Morii	
☒ -※1 Item No. P-4560 / Order No. 4701013179, Item No. P-4560S / Order No. 4701319034			



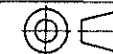
FH1388A

REVISIONS	
Customer : Evonik Corporation	
PO# : 4701013179/4701319034	
Project : ACA G600	
Project# : 4142.00940	
Evonik's Pump# : P-4560/P-4560S	
Requisition# : C0078-010	

WEIGHT	
MOTOR TYPE	Lbs/kg
215	165/75
216, 217	176/80

APPROVED	CHECKED	DRAWN	SCALE	DWG. TITLE
<i>R. Tanaka</i>	<i>R. Matsumura</i>	M. Morii	FREE	外形図 DIMENSIONAL DRAWING
株式会社 帝国電機製作所 TEIKOKU ELECTRIC MFG. CO., LTD.				TYPE: F-210-0204S1-V DWG. NO. 6E-8492

4N-8988-01

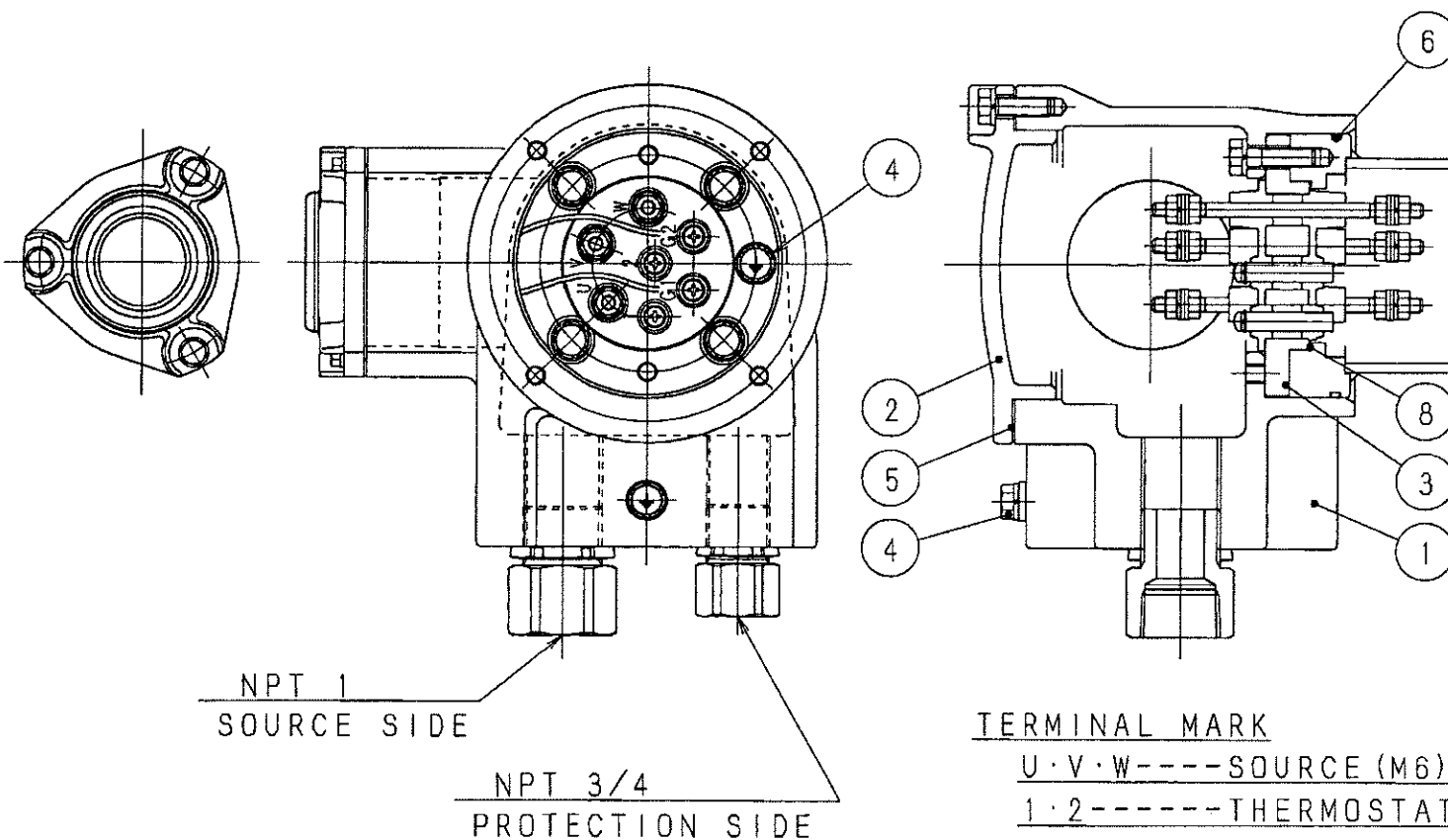


A

B

C

D



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# : 4701013179/4701319034
Project : ACA G600
Project# : 4142. 00940
Evonik's Pump# : P-4560/P-4560S
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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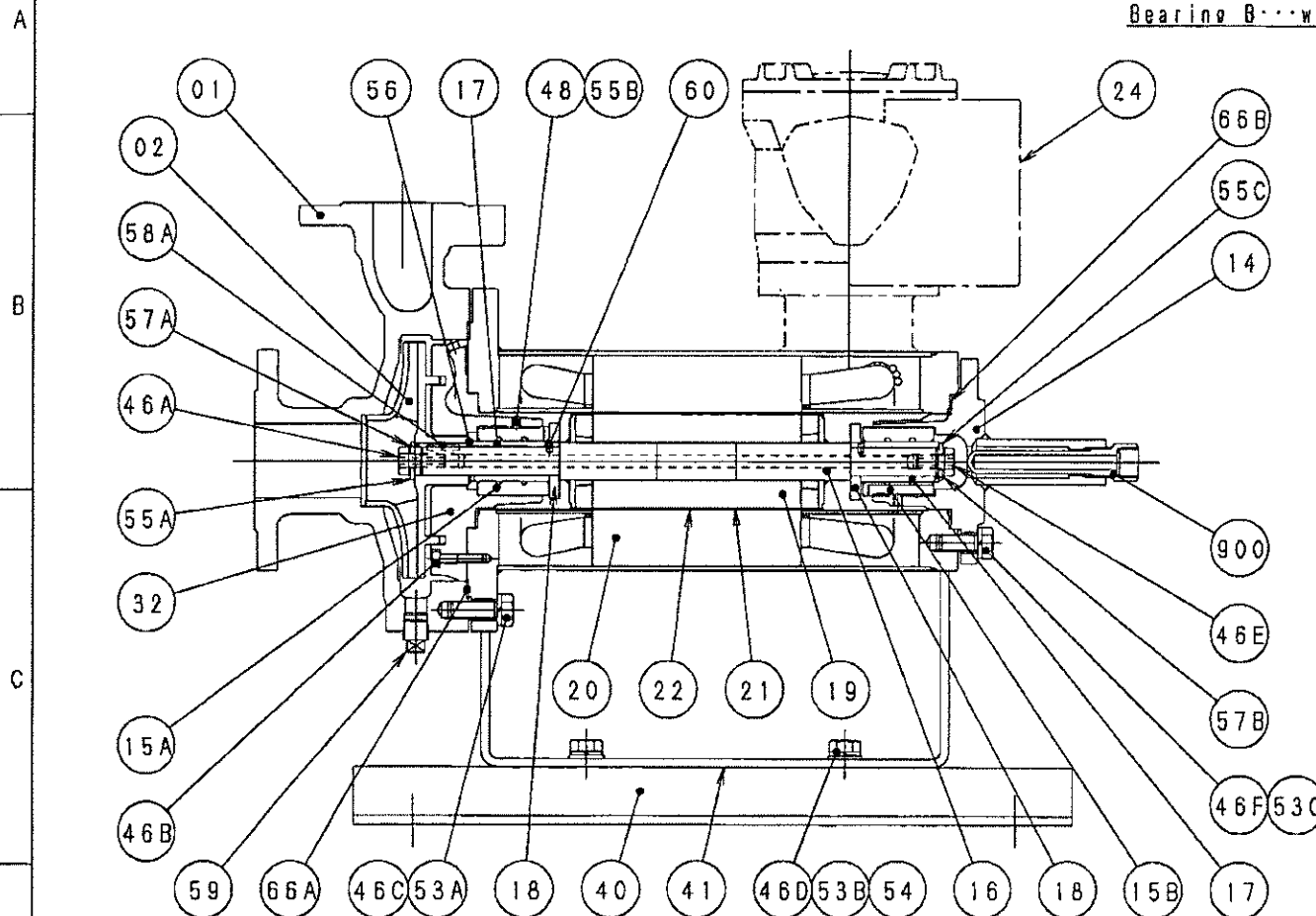
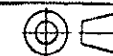
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6E-7804

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-4560/P-4560S
 Requisition# : C0078-010

APPROVED

CHECKED

DRAWN

SCALE

DWG. TITLE 構造断面図

T. T. H. R. O. K. U.

H. Kuroda
Jan 30 '15

FREE

SECTIONAL VIEW DRAWING

TYPE: F-V

DWG. NO.



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TEIKOKU ELECTRIC MFG. CO., LTD.

6E-7804

(1 / 1)

FH1375A



ESTIMATED PERFORMANCE CURVE

Date : Aug. 05. 2015
No : E18H0021-00
Dwg. No. : SFH-1388A

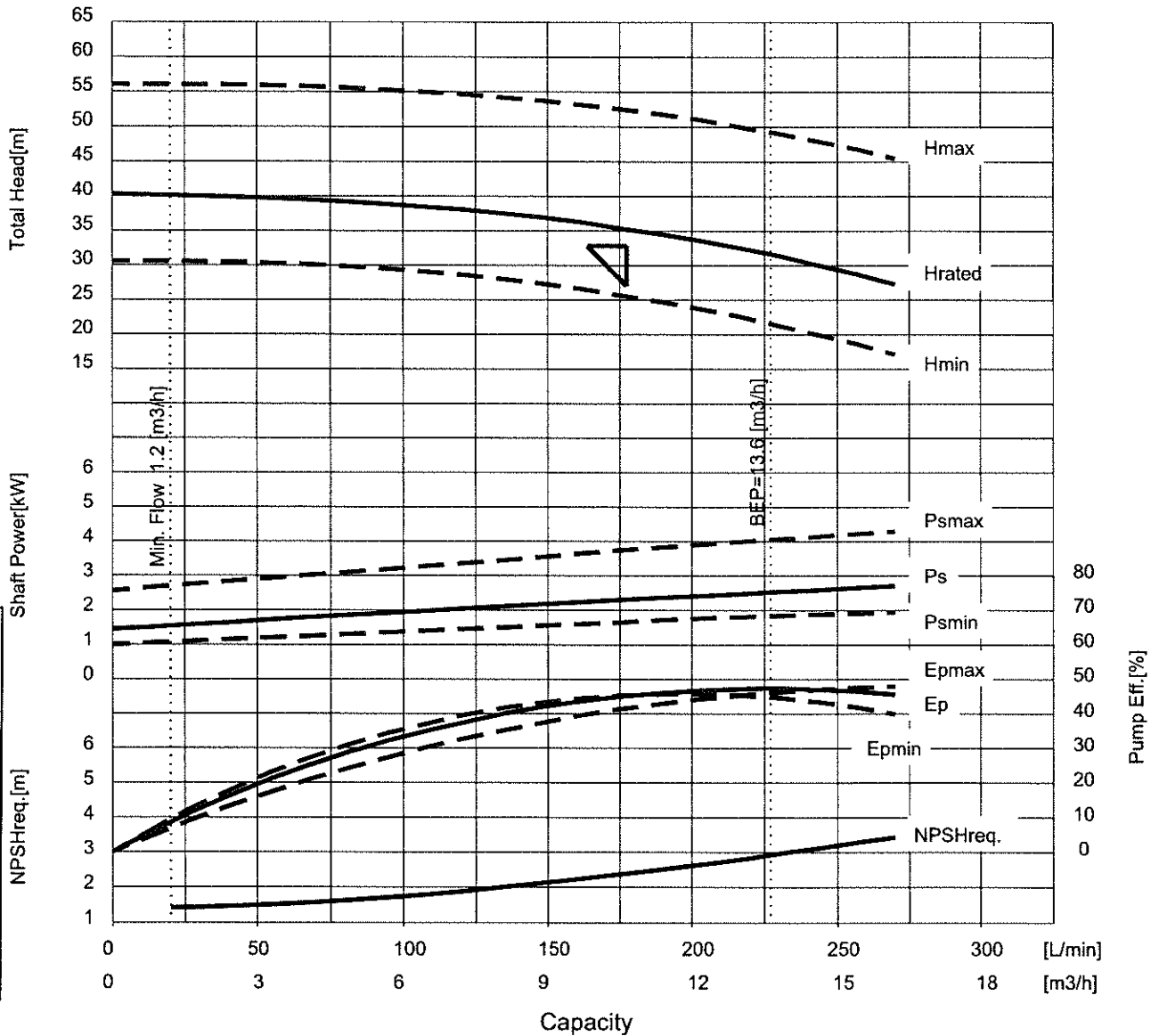
Item No. ☐ P-4560 / P-4560S

Item Name *****

Model ☐ F61-217C4BM-0204S1V-AV

Frequency 60 Hz
Voltage 460 V
Phase 3
Pole 2
Output 3.5 kW
Current 7.2 A

Total Head 32.8 m
Capacity 177.5 L/min 10.65 m³/h
Min.Flow 20 L/min 1.2 m³/h
Liquid Finished ACA
Temp. 25 degC
S.G. 1.03
NPSHavail. 9.1 m
Vis. 0.64 mPas
NPSHreq. 2.4 m



Customer : Evonik Corporation
PO# : 4701013179/4701319034
Project : ACA G600
Project# : 4142. 00940
Evonik's Pump# : P-4560/P-4560S
Requisition# : C0078-010

Remarks :

- Shut-off head : 40.3m
- 35.3m, 45.3%, 2.32kW, 3426rpm @ rated flow
- 16.2m³/hr, 2.7kW @ EOC
- 4.295kW @ EOC (max. dia.)

- Ns : 13.82, SSS : 6100
- Impeller Dia(mm):166(Max)/147(Rated)/130(Min)
- Output:4.69(hp)

C	2015.11.11	Revised 1 Point. M.Morii
B	2015.10.27	Revised 1 Point. M.Morii
REV.	Date	Description

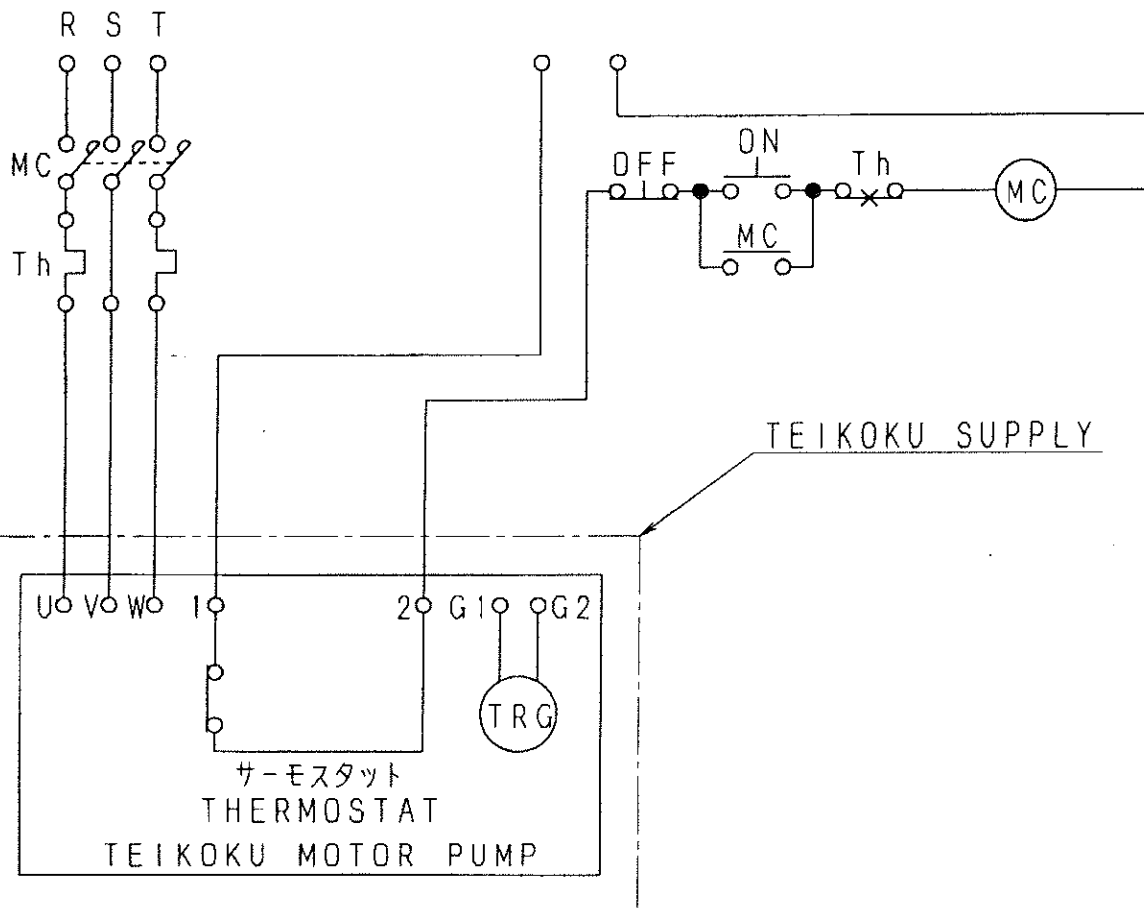
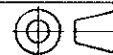
APPROVED BY	CHECKED BY	DRAWN BY
R.Takeuchi	R.Matsumura	M.Morii

TEIKOKU ELECTRIC MFG. CO., LTD.

UNIS Version 3.0.2

NDTS11_15

4N-4415-01



サーモスタット THERMOSTAT	#1	#2
耐熱クラス THERMAL CLASS	220	F
定格 RATING	220°C-CUT OFF AC250V-6.3A	150°C-CUT OFF AC230V-13A
b-接点 CONTACTOR	AC110V-10A DC24V-1.5A	AC115V-18A DC24V-18A

記号 SYMBOLS	名称 NAME
R S T	電源端子 POWER TERMINAL
U V W	TMP接続端子 TMP TERMINAL
MC	電磁開閉器 MAGNETIC CONTACTOR
ON・OFF	押釦スイッチ (起動・停止用) PUSH BUTTON SWITCH
Th	サーマルリレー THERMAL RELAY
TRG	テイコクロタリーガード TEIKOKU ROTARY GUARDIAN

REVISED

B
Rewritten
Dec. 5, '01
Y. Takeuchi

C
Rewritten
Oct. 30, '07
Y. Iwasaki

Customer : Evonik Corporation
 PO# : 4701013179/4701319034
 Project : ACA G600
 Project# : 4142. 00940
 Evonik's Pump# : P-4560/P-4560S
 Requisition# : C0078-010

APPROVED

M. Sakai

CHECKED

T. Takeuchi

DRAWN

Y. Kii
 Jun. 10, '96

SCALE

FREE

DWG. TITLE

結線図
..... CONNECTION DIAGRAM

DWG. NO.



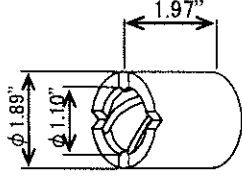
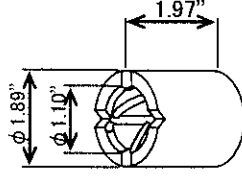
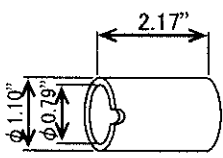
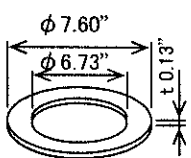
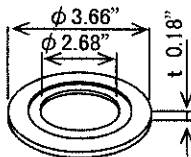
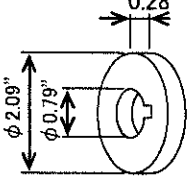
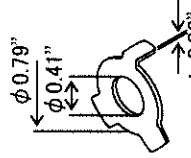
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TEIKOKU ELECTRIC MFG. CO., LTD.

4N-4415-01

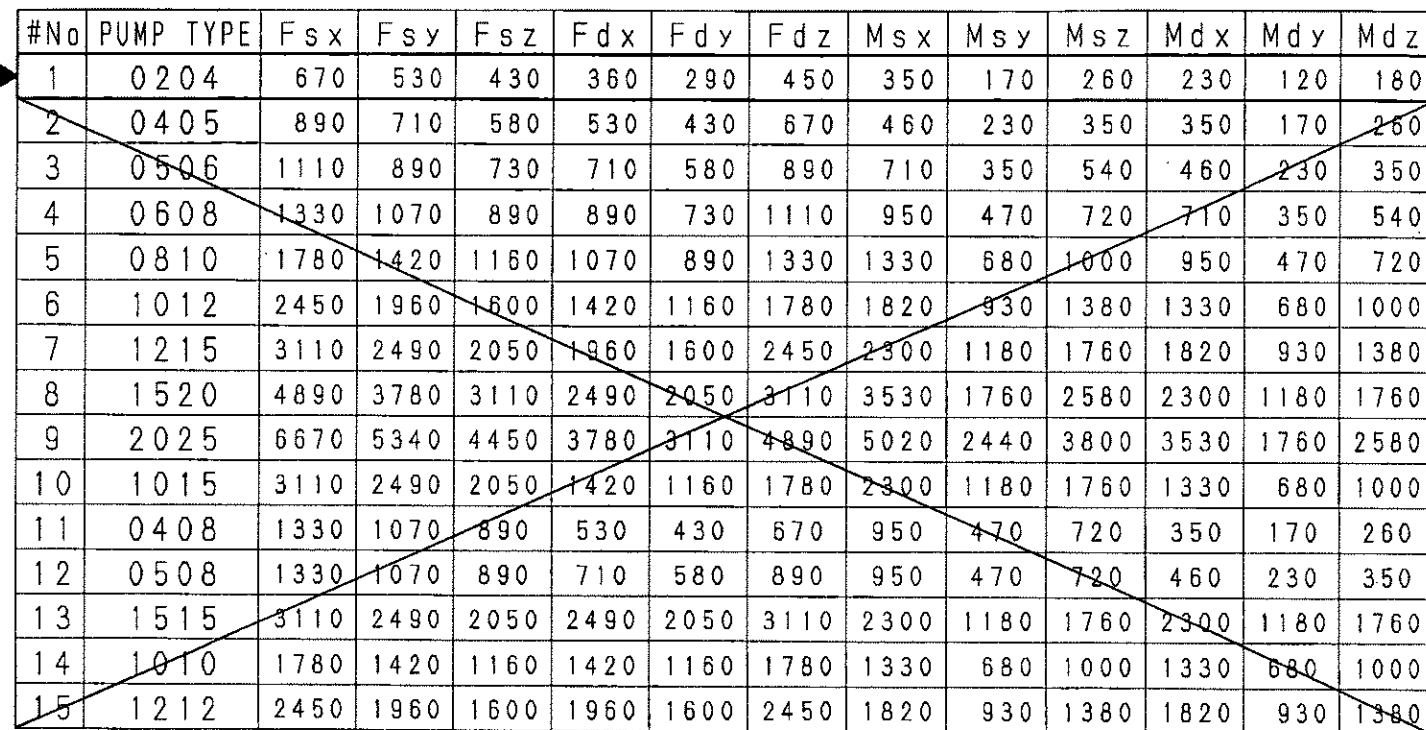
C

RECOMMENDED SPARE PARTS LIST

TYPE				SC-1107		1 1
F-V, R 210-S						
No.	PARTS NAME	DIMENSION	MATERIAL	FOR 1SETS	REMARKS	
1	BEARING B		Carbon Graphite	1	#15A 48×28×50 (mm)	
2	BEARING A (with spiral & straight grooves)		Carbon Graphite	1	#15B 48×28×50 (mm)	
3	SHAFT SLEEVE		316 SS (SUS316) + Stellite	2	#17 28×20×55 (mm)	
4	GASKET		316 SS (SUS316) + Grafoil	1	#66A 193×171×3.2 (mm)	
5	GASKET		316 SS (SUS316) + Grafoil	1	#66B 93×68×4.5 (mm)	
6	THRUST COLLAR		316 SS (SUS316) + Stellite	2	#18 53×20×7 (mm)	
7	LOCK WASHER		316L SS (SUS316L)	2	#57A, #57B 20×10.5×1.5 (mm)	
REV.	 株式会社 帝国電機製作所 TEIKOKU ELECTRIC MFG. CO., LTD.		APPROVED	CHECKED	DRAWN	
			<i>T. Tachibana</i>	<i>M. Fujikawa</i>	M. Morii Oct. 27. '15	

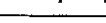
FH1379A

Customer	: Evonik Corporation
PO#	: 4701013179/4701319034
Project	: ACA G600
Project#	: 4142. 00940
Evonik's Pump#	: P-4560/P-4560S
Requisition#	: C0078-010

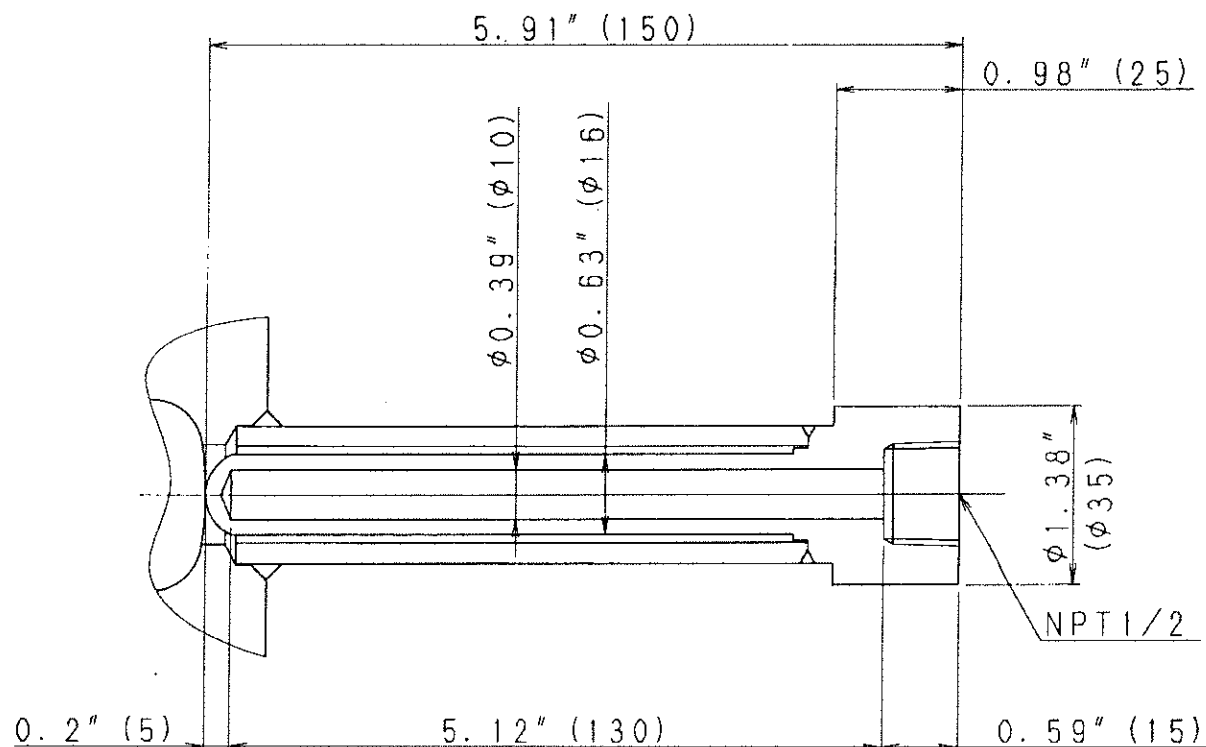
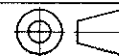


NOTE : F = force (N) M = moment (N-m)
S = suction nozzle
d = discharge nozzle

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

D	REVISED		B	C	D	E			APPROVED	CHECKED	DRAWN	SCALE	DWG. TITLE	
	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			T. Takeuchi	S. Kimura	Y. Shimizu Apr. 11' 08	FREE	許容配管荷重 ALLOWABLE PIPING FORCES AND MOMENTS	
									 株式会社 帝国電機製作所 TEIKOKU ELECTRIC MFG. CO., LTD.				SI Units AP1610 (10th)	
													DWG. NO.	4N-6993-01

4N-7445

FB1809A
FB1810A

REVISIONS

Customer : Evonik Corporation
PO# : 4701013179/4701319034
Project : ACA G600
Project# : 4142.00940
Evonik's Pump# : P-4560/P-4560S
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