Mandala Nusantara Limited

Wayang Windu Geothermal Power Project

Installation, Operation, and Maintenance Manual

of

Portable Sump Pump

ISSUED for CONSTRUCTION
Date 14. MAY 1999
Approved by : K. Hayama
FUJI ELECTRIC CO., LTD.

WAYANG WINDU GEOTHERMAL POWER PROJECT
2 x 110 MW POWER STATION
WEST JAVA, INDONESIA

MANDALA NUSANTARA LIMITED

A.F.E.NO.	WORK ORDER NO.	DRAWING NO.	SHEET NO. OF	REV.

Control No. WWP-ME-1523

Fuji Electric Co., Ltd.
Thermal Power Division
Plant Engineering Department

Rev	Description	Date	Drawn	Approved
B	Revised according to DQS099903mn.doc of 13th March 1999 as shown on page 3 and issued for construction.	14May1999	Nakajima	K. Hayama
A	Revised according to DQS087907fe.rtf of 8Feb1999.	17Feb1999	P.NY Y. Nakajima	T. Hashii
0	Issued	22Dec1998	P.NY Y. Nakajima	T. Hashii

Contents

B

B This section was provided at Rev-B.

Revision B

Followings were included in this manual according to DQS099903mn.doc dated 13th March 1999.

1. All data sheet and drawing those are included in "Drawings of Portable Sump Pump PL521722 Rev-0"

2. Description of the system indicating function of the pump in the system

3. Maker's name in the list of "Subvending Parts"

(B) This section was provided at Rev-B.

Reference Drawing

(1) Design Sheet of Portable Sump Pump
Drawing No. PL521348 Rev-0
Control No. WWP-ME-0233

(2) Drawings of Submersible Sump Pump
Drawing No. PL521722 Rev-0
Control No. WWP-ME-0200

(B) This section was provided at Rev-B.

System Description

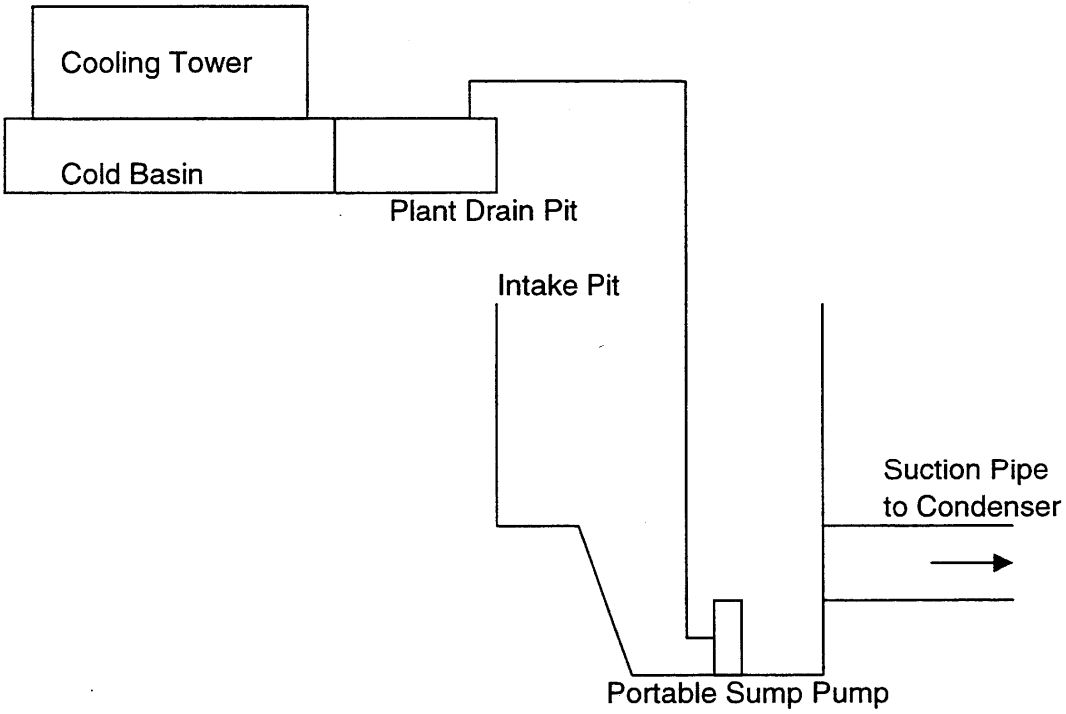
System Configuration

The system consists of the followings.

(1) Intake Pit from Cooling Tower Cold Basin

(2) 2 x 100% Portable Sump Pump

(3) Plant Drain Pit adjacent to Cooling Tower Cold Basin



Purpose of Portable Sump Pump

To collect and discharge sludge at the bottom of Intake Pit.
And to avoid entering sludge to Condenser.

Function of Submersible Sump Pump

To take sludge and water mixture in Intake Pit and to deliver it to Plant Drain Pit.

Installation of Portable Sump Pump

Installed temporarily during shut down period of the plant, at the bottom of Intake Pit.

Operation of Portable Sump Pump

Operated to collect sludge and water mixture at the bottom of Intake Pit.

(B) This section was provided at Rev-B.

Data Sheet

Manufacturer
- Name ..... Tsurumi Manufacturing Co., Ltd.
- Location ..... Osaka Head Office : Tsurumi 4-16-40 Tsurumi-ku Osaka
  Tokyo Head Office : Ueno 5-8-5 Taito-ku Tokyo

Size and Type
- Type .....submersible torque flow drainage pump
- Model KTV2-8
- Number of stages 1
- Diameter of discharge.....50mm

Operating Conditions and Performance
- Rated capacity .....6.0m^3/h (0.1m^3/min)
- Total head at rated capacity 13m
- Pump efficiency at rated capacity 35.5%
- Shaft power.....0.597kW
- Shut-off head 15m
- Speed 2,780rpm

Materials of Construction
- Pump casing .....Ethylene Propylene Rubber
- Impeller.....Urethane Rubber
- Bearing .....upper : ball #6203ZZC3
  lower : ball #6204ZZC3
- Shaft .....Stainless Steel 420J2
- Shaft seal.....mechanical seal
- Shaft sleeve .....Stainless Steel 304
- Lubrication .....Turbine oil ISO VG32

Driver
- Rated output 0.75kW
- Number of phases 3
- Number of pole 2
- Synchronous speed 3,000rpm
- Rated current 1.8A
- Rated voltage.....380V
- Rated frequency 50Hz
- Class of insulation.....E
- Starting method .....Direct-on-line

		NO. 図番	AE-0126-1①
	W-694		

性能曲線図 PUMP PERFORMANCE CURVES

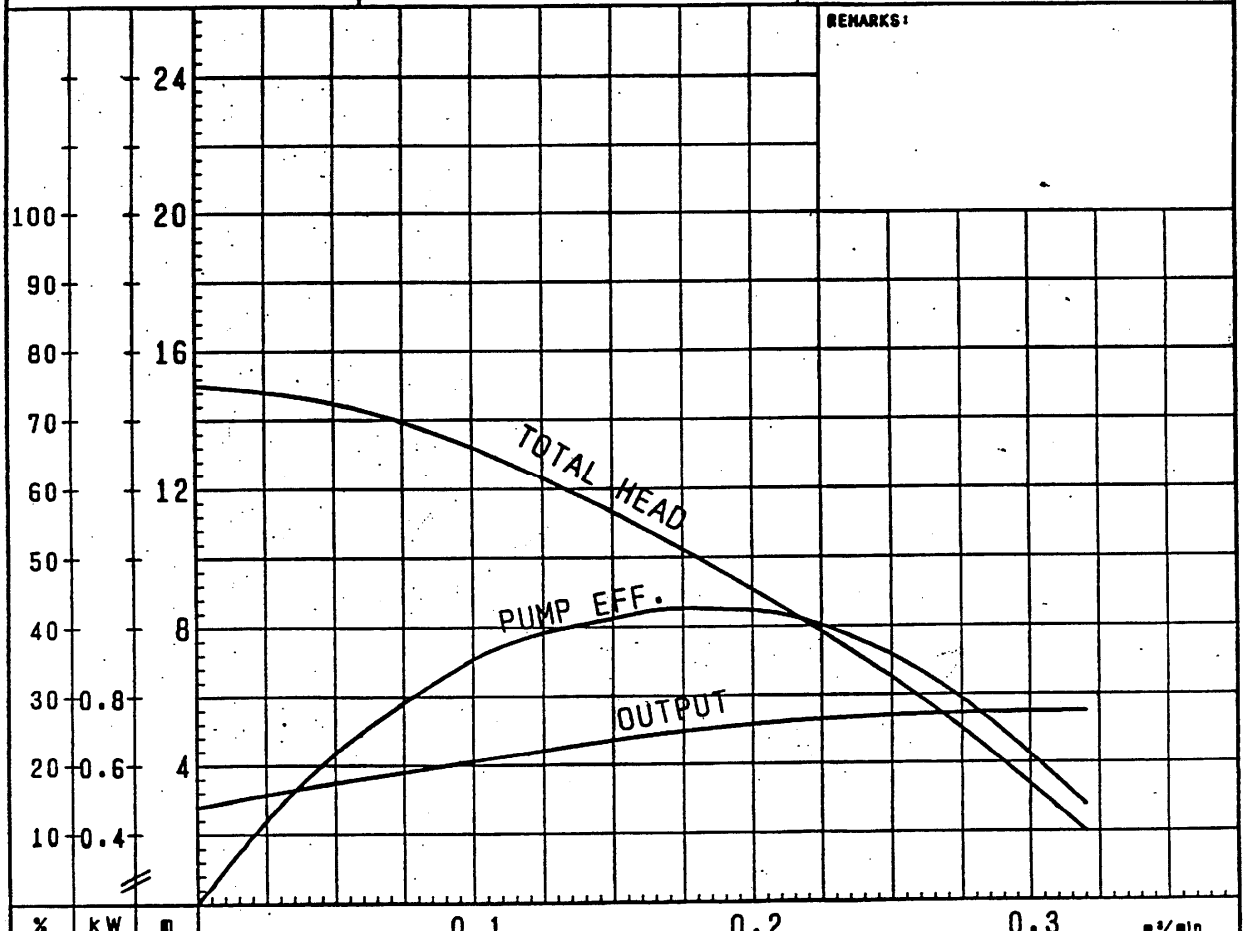
TYPE SUBMERSIBLE GENERAL 名称 DEWATERING TORQUE FLOW PUMP	MODEL 型式 KTV2-8	FREQUENCY 周波数 50 Hz

CUSTOMER'S NAME 御注文先 殿

EQUIPMENT TITLE 機器名称 NO.

	標準仕様 STANDARD SPECIFICATIONS	御注文仕様 REQUIRED SPECIFICATIONS
口径 : DISCHARGE BORE	mm	50 mm
全揚程 : TOTAL HEAD	m	13 m
吐出し量 : CAPACITY	m³/min	0.1 m³/min
出力 : MOTOR OUTPUT	kW	0.75 kW
相×電圧 : PHASE × VOLTAGE	φ× V	3 φ× 380 V
電流 : CURRENT	A	1.8 A
極数: POLES／回転数: REVOLUTION	P／ rpm	2 P／ S.S. 3000 rpm
始動方式 : STARTING METHOD		DIRECT ON LINE
絶縁階級 : INSULATION CLASS		E

REMARKS:

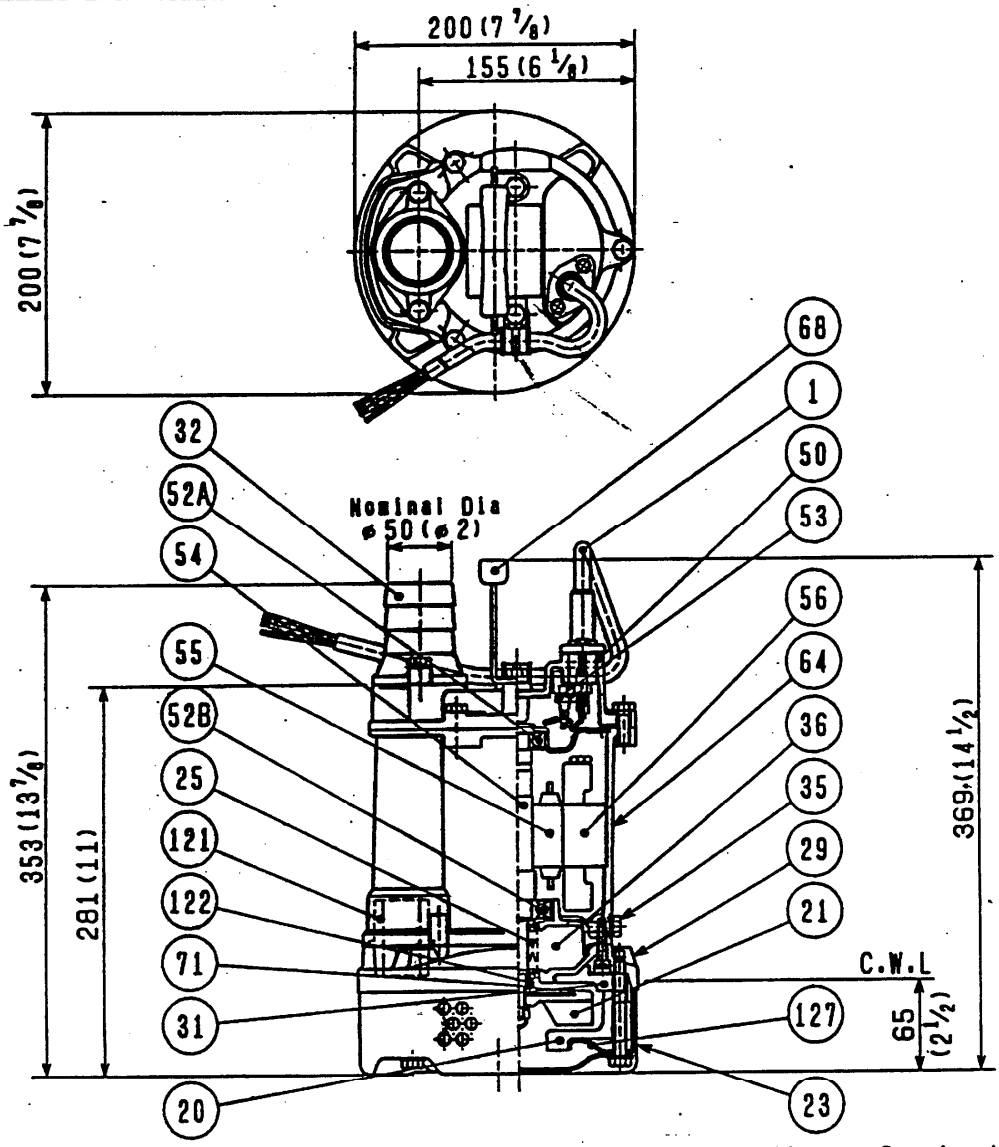


株式会社鶴見製作所 TSURUMI MFG. CO., LTD. 8/24

		No. 図番	AE-0132-2
	TW-694		

外形・構造図 DIMENSION・SECTIONAL DRAWING

TYPE 名称	MODEL 型式
SUBMERSIBLE GENERAL DEWATERING TORQUE FLOW PUMP	KTV2-8



C.W.L:Continuous Running Water Level

NO.	DESCRIPTIONS	Q'TY	MATERIAL/NOTE	NO.	DESCRIPTIONS	Q'TY	MATERIAL/NOTE
1	Cabtyre Cable	1	PVC Sheath	53	Motor Protector	1	
20	Pump Casing	1	Ethylene Propylene Rubber	54	Shaft	1	Stainless Steel #420J2
21	Impeller	1	Urethane Rubber	55	Rotor	1	
23	Strainer Stand	1	Steel Plate	56	Stator Complete	1	
25	Mechanical Seal	1	W-14V	64	Motor Frame	1	Aluminium Alloy Castings
29	Oil Casing	1	Aluminium Alloy Casting	68	Handle	1	Steel Plate & Rubber
31	Wearing Plate	1	Ethylene Propylene Rubber	71	Shaft Sleeve	1	Stainless Steel #304
32	Hose Coupling	1	Aluminium Alloy Castings	121	Duct Sleeve	1	Ethylene Propylene Rubber
35	Oil Plug	1	Stainless Steel #304	122	V-Seal	1	Nitrile Butadien Rubber
36	Lubricant		Turbine Oil (ISO V632)	127	Fixing Plate	1	Steel Plate
50	Motor Bracket	1	Aluminium Alloy Casting				
52A	Upper Bearing	1	#6203ZZC3				
52B	Lower Bearing	1	#6204ZZC3				

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