

# KB2

KAWAMOTO  
PACKAGED BOOSTER PUMP UNIT  
<NON-INVERTER TYPE>  
2 POLES / 50 Hz  
SUCTION SIZE JIS 32~65



KB2

# APPLICATIONS AND FEATURES

## ■ AUTOMATIC OPERATION CONSTANTPRESSURE PUMP

- 1.1 Operation type  
P type = Alternate/parallel operation of 2 pumps
- 1.2 Contactless pressure sensor to start pump, flow sensor to stop pump, specially designed low noise type electric motor and multi-stage pump with double volute casing realized silent operation.
- 1.3 High efficiency is obtained by multi-stage centrifugal pump and three dimensional impeller.
- 1.4 Energy-saving effect is realized by operation time adjustment function with alternate and alternate/parallel operation type.

## ■ PACKAGED PUMP UNIT COMPLETE WITH PUMP(S), CONTROL PANEL, PRECHARGED PRESSURE TANK(ACCUMULATOR), VALVES, SWITCHES ETC., READY FOR INSTALLATION

- 2.1 Compact type close coupled multi-stage high head centrifugal pump reduced total height of pump unit.
- 2.2 Stainless steel precision casting is adopted for pump casing, so no fear of strain.
- 2.3 Specially designed impact relief type stainless steel check valve is adopted to prevent from water hammer.

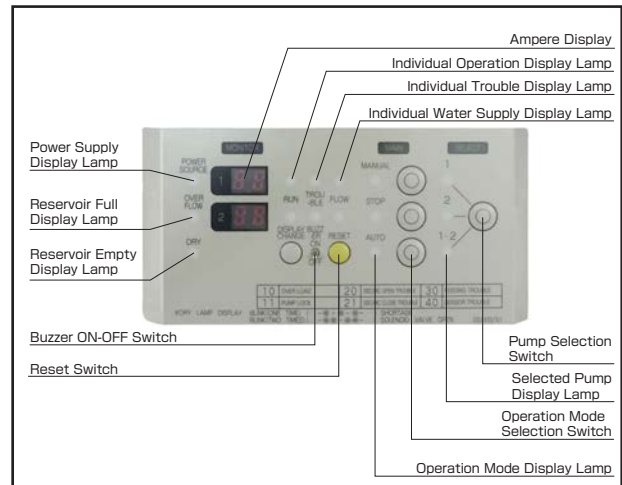
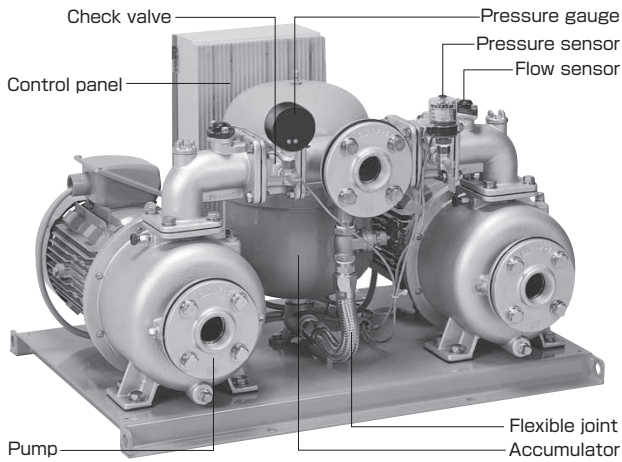
## ■ SUITABLE FOR DRINKING WATER AS IT IS NO FEAR OF MAKING RED DISCOLOUMENT OF WATER

- 3.1 Stainless steel, bronze, reinforced resin and stainless casting steel are adopted for the portion contacting with water, so, no fear of making red discolourment of water.
- 3.2 For accumulator, harmless diaphragm conforming to Notice No.434 of the Ministry of Welfare of Japan is adopted.

## ■ SPECIFICATIONS

Control	Constant pressure water supply by optoelectronic pressure sensor and flow sensor
Operation	Alternate/parallel
Installation	Outdoor
Liquid	Clean water, 0~40°C
Pump	Stainless steel multi-stage centrifugal pump Impeller : Resin, Bronze or SCS13 Casing : SCS13 Shaft : SUS304
Motor	Type : TEFC 50Hz : 3,000rpm
Suction	Negative suction : Max total suction head – 6m Positive suction : 0~5m
Colour	Pump & piping : Silver Accumulator : Gray Control panel : 5Y7/1

# APPLICATIONS AND FEATURES



## ■ MICRO-COMPUTER MONITORING (ALTERNATE AND ALTERNATE/PARALLEL OPERATION TYPE)

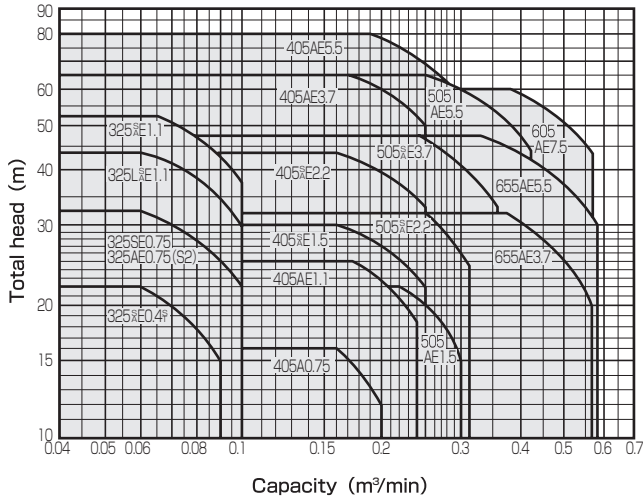
1. Pump operation statuses is individually displayed on control panel and if trouble occurs, such trouble is displayed with trouble display function.
2. If a trouble occurs in one of two pumps, starting of such pump will be tested up to two times (re-try function), and if trouble is still not eliminated, operation will automatically be transferred to the other pump for continuous water supply.

## ■ STATUS OF INDIVIDUAL DISPLAY

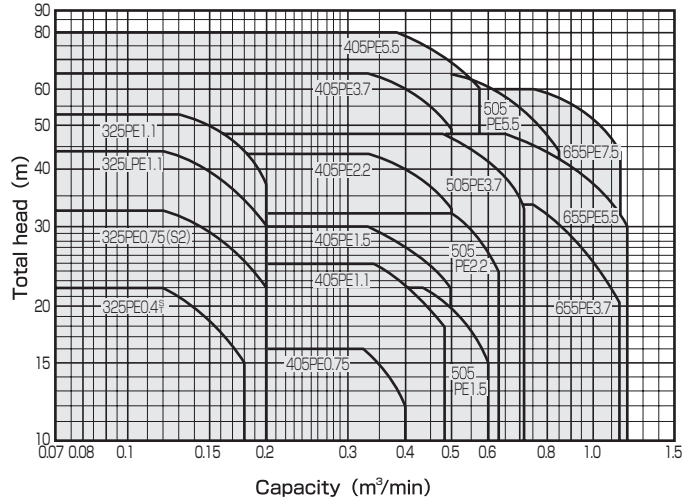
Condition	Digital display	Display contents	Note
Power input	F4 F5	No trouble at initial condition	Any trouble is checked by micro-computer about power supply, and if there is no abnormality, F4 and F5 is displayed.
Stop	00	Stopping	
Operate	0.1-9.9	Current	When less than 9.9A
	10-99	Current	Between 10A and 100A
	up Current	Current When decreasing operating number of pumps, flushes right side	More than 100A When the number of operating pump decreases, the lamp lit for more than 3 seconds. (If parallel operation continues, the lamp lits within 3 seconds.)
Trouble	00	Abnormality at power supply end	S-phase failure or frequency abnormality
	01	Reverse phase at power supply end	
	10	Overloading	Detect between 105% and 400% of rated current
	11	Locking	Detect at the current more than 400% of rated current
	20	MC open	No working of magnetic contactor
	21	MC short	Short circuit of magnetic contactor
	30	No discharging	Although pump is operating but no discharge of water
40	Abnormality of flow sensor	Defective connection of sensor	

# 50Hz SELECTION

## ALTERNATE OPERATION



## ALTERNATE/PARALLEL OPERATION



## SPECIFICATIONS

Unit bore mm	Suction bore mm	Operation	Model	Motor kW	Performance				ON adjustable range MPa[kgf/cm <sup>2</sup> ]	Accumulator MPa[kgf/cm <sup>2</sup> ]	Noise dB(A)	
					Capacity m <sup>3</sup> /min	Total Head m	ON pressure MPa[kgf/cm <sup>2</sup> ]	OFF pressure MPa[kgf/cm <sup>2</sup> ]				
40	32	Alternate	KB2-325AE0.4S <sup>(※1)</sup>	0.4 <sup>(※2)</sup>	0.06	22	0.22 {2.2}	0.28 {2.9}	0.15 {1.5}	0.12 {1.2}	44	
			KB2-325AE0.4T <sup>(※1)</sup>	0.4	0.06	22	0.22 {2.2}	0.28 {2.9}	0.15 {1.5}	0.12 {1.2}	42	
			KB2-325AE0.75S2	0.75 <sup>(※2)</sup>	0.06	32	0.31 {3.2}	0.39 {4.0}	0.22 {2.2}	0.17 {1.7}	52	
			KB2-325AE0.75	0.75	0.06	32	0.31 {3.2}	0.39 {4.0}	0.22 {2.2}	0.17 {1.7}	50	
			KB2-325LAE1.1	1.1	0.06	44	0.43 {4.4}	0.52 {5.3}	0.29 {3.0}	0.25 {2.5}	49	
			KB2-325AE1.1	1.1	0.065	53	0.52 {5.3}	0.65 {6.6}	0.36 {3.7}	0.29 {3.0}	51	
	40		40	KB2-405AE0.75 <sup>(※1)</sup>	0.75	0.16	16	0.16 {1.6}	0.24 {2.4}	0.12 {1.2}	0.088{0.9}	46
				KB2-405AE1.1	1.1	0.17	25	0.25 {2.5}	0.31 {3.2}	0.18 {1.8}	0.14 {1.4}	50
				KB2-405AE1.5	1.5	0.16	30	0.29 {3.0}	0.35 {3.6}	0.22 {2.2}	0.17 {1.7}	53
				KB2-405AE2.2	2.2	0.16	44	0.43 {4.4}	0.51 {5.2}	0.32 {3.3}	0.25 {2.5}	50
				KB2-405AE3.7	3.7	0.165	65	0.64 {6.5}	0.73 {7.4}	0.49 {5.0}	0.34 {3.5}	54
				KB2-405AE5.5	5.5	0.19	80	0.78 {8.0}	0.92 {9.4}	0.59 {6.0}	0.44 {4.5}	57
40	50	KB2-505AE1.5 <sup>(※1)</sup>	1.5	0.22	22	0.22 {2.2}	0.29 {3.0}	0.15 {1.5}	0.12 {1.2}	50		
		KB2-505AE2.2	2.2	0.25	32	0.31 {3.2}	0.44 {4.5}	0.24 {2.4}	0.20 {2.0}	51		
		KB2-505AE3.7	3.7	0.24	48	0.47 {4.8}	0.59 {6.0}	0.32 {3.3}	0.27 {2.8}	55		
		KB2-505AE5.5	5.5	0.25	65	0.64 {6.5}	0.74 {7.6}	0.43 {4.4}	0.34 {3.5}	58		
		KB2-655AE3.7	3.7	0.37	32	0.31 {3.2}	0.41 {4.2}	0.23 {2.3}	0.17 {1.7}	56		
		KB2-655AE5.5	5.5	0.325	48	0.47 {4.8}	0.56 {5.7}	0.29 {3.0}	0.25 {2.5}	60		
50	65	KB2-655AE7.5	7.5	0.375	60	0.59 {6.0}	0.68 {6.9}	0.43 {4.4}	0.31 {3.2}	62		
		KB2-325PE0.4S <sup>(※1)</sup>	0.4×2 <sup>(※2)</sup>	0.12	22	0.22 {2.2}	0.28 {2.9}	0.15 {1.5}	0.12 {1.2}	47		
		KB2-325PE0.4T <sup>(※1)</sup>	0.4×2	0.12	22	0.22 {2.2}	0.28 {2.9}	0.15 {1.5}	0.12 {1.2}	45		
		KB2-325PE0.75S2	0.75×2 <sup>(※2)</sup>	0.12	32	0.31 {3.2}	0.39 {4.0}	0.22 {2.2}	0.17 {1.7}	54		
		KB2-325PE0.75	0.75×2	0.12	32	0.31 {3.2}	0.39 {4.0}	0.22 {2.2}	0.17 {1.7}	52		
		KB2-325LPE1.1	1.1×2	0.12	44	0.43 {4.4}	0.52 {5.3}	0.29 {3.0}	0.25 {2.5}	51		
	50	40	KB2-325PE1.1	1.1×2	0.13	53	0.52 {5.3}	0.65 {6.6}	0.36 {3.7}	0.29 {3.0}	53	
			KB2-405PE0.75 <sup>(※1)</sup>	0.75×2	0.32	16	0.16 {1.6}	0.24 {2.4}	0.12 {1.2}	0.088{0.9}	49	
			KB2-405PE1.1	1.1×2	0.34	25	0.25 {2.5}	0.31 {3.2}	0.18 {1.8}	0.14 {1.4}	52	
			KB2-405PE1.5	1.5×2	0.32	30	0.29 {3.0}	0.35 {3.6}	0.22 {2.2}	0.17 {1.7}	55	
			KB2-405PE2.2	2.2×2	0.32	44	0.43 {4.4}	0.51 {5.2}	0.32 {3.3}	0.25 {2.5}	52	
			KB2-405PE3.7	3.7×2	0.33	65	0.64 {6.5}	0.73 {7.4}	0.49 {5.0}	0.34 {3.5}	56	
65	50	KB2-405PE5.5	5.5×2	0.38	80	0.78 {8.0}	0.92 {9.4}	0.59 {6.0}	0.44 {4.5}	60		
		KB2-505PE1.5 <sup>(※1)</sup>	1.5×2	0.44	22	0.22 {2.2}	0.29 {3.0}	0.15 {1.5}	0.12 {1.2}	53		
		KB2-505PE2.2	2.2×2	0.5	32	0.31 {3.2}	0.44 {4.5}	0.24 {2.4}	0.20 {2.0}	54		
		KB2-505PE3.7	3.7×2	0.48	48	0.47 {4.8}	0.59 {6.0}	0.32 {3.3}	0.27 {2.8}	57		
		KB2-505PE5.5	5.5×2	0.5	65	0.64 {6.5}	0.74 {7.6}	0.43 {4.4}	0.34 {3.5}	61		
		KB2-655PE3.7	3.7×2	0.74	32	0.31 {3.2}	0.41 {4.2}	0.23 {2.3}	0.17 {1.7}	58		
80	65	KB2-655PE5.5	5.5×2	0.65	48	0.47 {4.8}	0.56 {5.7}	0.29 {3.0}	0.25 {2.5}	62		
		KB2-655PE7.5	7.5×2	0.75	60	0.59 {6.0}	0.68 {6.9}	0.43 {4.4}	0.31 {3.2}	64		

※1 Positive suction only    ※2 Single phase 200V    ※3 Lowest adjustable starting pressure

# CONTROL PANEL <TYPE:ECFW-F>

## ■ SPECIFICATIONS

Type	ECFW-F	
Operation	Alternate of 2 pumps	Alternate/Parallel of 2 pumps
Materials	Box:Steel (1.2t) Door:Resin (2.0t)	
Colour	Gray	
Installation site	Outdoor	
Ambient temperature	-5~40°C	
Humidity	Below 90%Rh	
Assorted equipment	Magnetic contactor	○ (2 pcs)
	Main select switch	○ (Manual-Stop-Auto)
	Motor protection	○ (Software based on ampere)
	Select switch for respective pump	○ (No.1-No.2, No.1&2)
	Ammeter	○
	Floatless switch	○
	Alarm buzzer	○
Function	Trouble detect	○
	Automatic switch over to another pump	○
	No discharge detect	○
	Auto adjust of ON-OFF frequency	○
	Auto adjust of parallel operation ON-OFF	○
	Re-try of defect pump	○
Display lamp	Power supply	○ (Red)
	Operation mode (Auto-Stop-Manu )	○ (Red) × 3pc
	Pump selection (No.1,2 or 1&2)	○ (Red) × 3pc
	Operation	○ (Red) × 2pc
	Trouble	○ (Orange) × 2pc
	Discharging	○ (Red) × 2pc
	Reservoir full	○ (Orange)
	Reservoir empty	○ (Orange)
External signal (No volt)	Operation	○
	Trouble	○
	Reservoir full	○
	Reservoir empty	○



**GUIDE TO SELECTION TABLE**

- ① Total head : Main pump performance less friction loss of valve
- ② Suction condition on the selection chart and table :  
Positive suction series : 0m  
Negative suction series : -4m
- ③ ON pressure is adjustable within(A).  
In the case of positive suction(0~0.5kg/cm<sup>2</sup>), additional pressure is obtainable.

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**OPERATION MECHANISM**

P1 : Pump ON pressure  
Q1 : Pump OFF pressure  
Q2 : Parallel operation OFF flow rate  
Q3 : Parallel ON flow rate

**■ ALTERNATE OPERATION**

- ① The pump is stopping at pressure(P) in the left figure.
- ② When water is consumed and pressure drops to P1, the pump starts
- ③ When the flow rate is more than Q1, a pump continues operations.
- ④ When the flow rate becomes less than Q1, a pump stops operation.
- ⑤ Two pumps repeat(1)~(4) alternately.

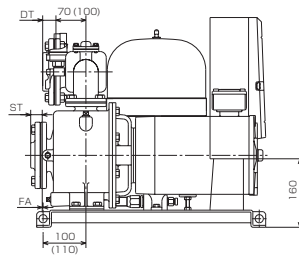
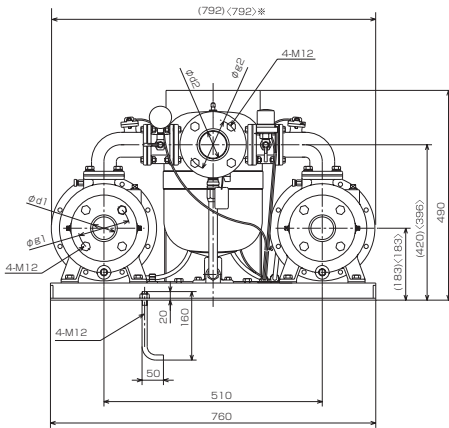
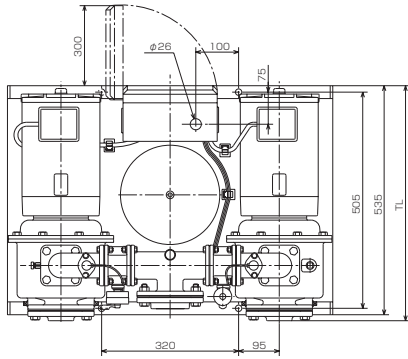
**■ ALTERNATE/PARALLEL OPERATION**

- ① When the flow rate is less than Q3, operation mechanism is same as ALTERNATE OPERATION.
- ② If the flow rate reaches to Q3 during operation of one pump, the pressure becomes to P1 and parallel operation by two pumps starts
- ③ If the flow rate becomes less than Q2 during two pumps parallel operation, the first pump stops and the other pump continues operation.
- ④ When the flow rate is more than Q3, two pumps repeat(2)~(3) operation.

# DIMENSIONS

## 0.4~3.7 kW

Unit=mm



### ● Flange

Unit bore mm	Suction bore mm	Operation	d1	d2	g1	g2	ST	DT
40	32	Alternate	PT1¼	PT1½	100	105	25	25
40	40		PT1½	PT1½	105	105	25	25
40	50		PT2	PT1½	120	105	27	25
50	65		PT2½	PT2	140	120	31	27
40	32	Alternate/ Parallel	PT1¼	PT1½	100	105	25	25
50	40		PT1½	PT2	105	120	25	27
65	50		PT2	PT2½	120	140	27	31
80	65		PT2½	PT3	140	150	31	33

Note1 : ( ) is 65mm bore pumps.

Note2 : <math>\langle \rangle</math> is KB2-405E3.7

Note3 : \* Pumps other than 65mm pumps and KB405E3.7 are less than 760mm.

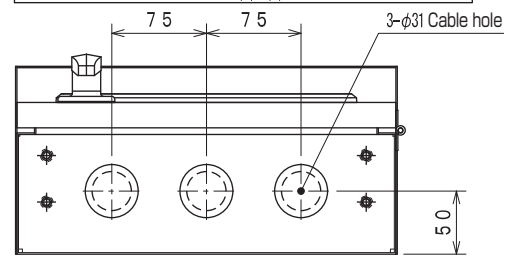
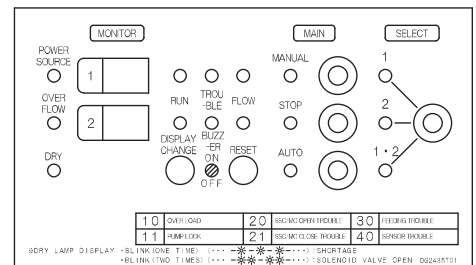
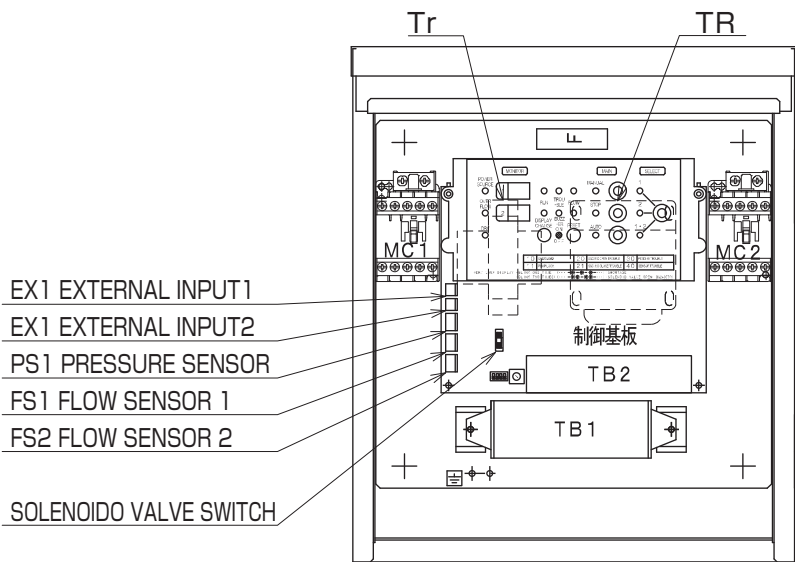
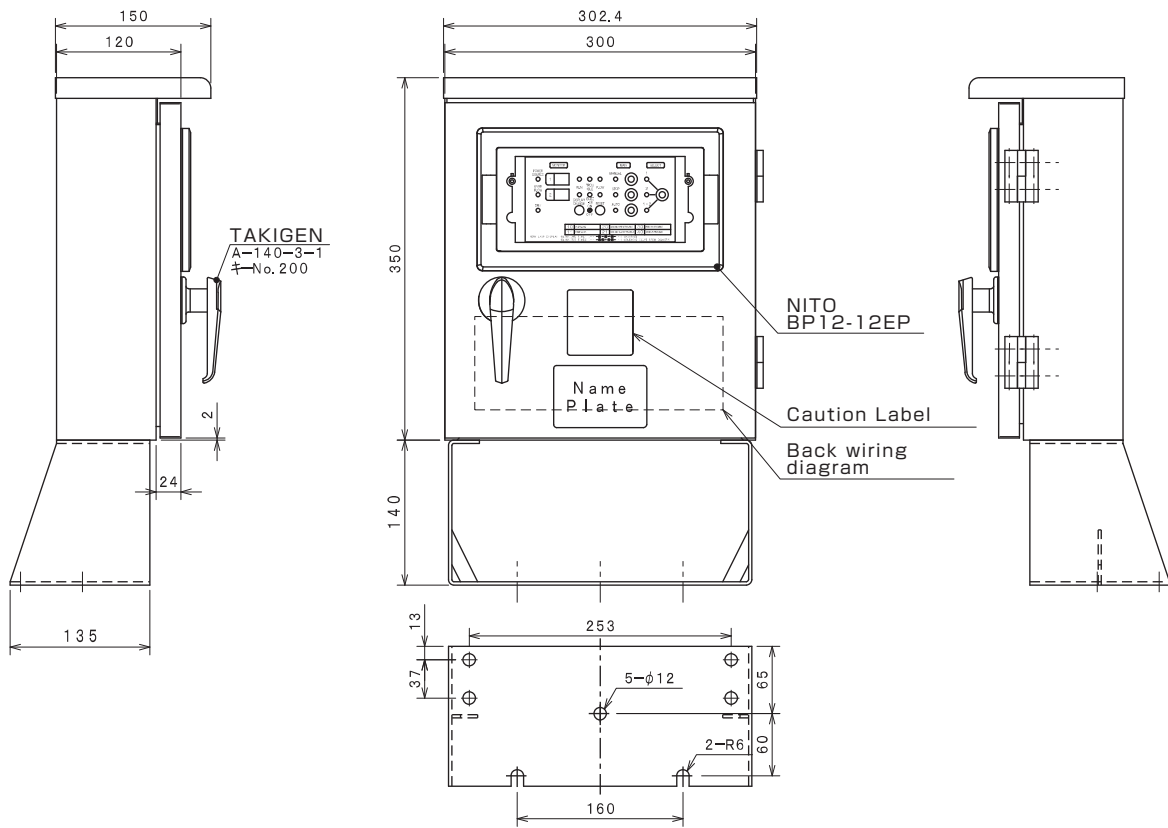
Note4 : Flange is special accessories.

Hz	Unit bore mm	Suction bore mm	Operation	Model	Motor	Combination		Weight
					kW	FA	TL	kg
50	40	32	2 pumps Alternate	KB2-325AE0.4T	0.4	-28	-	89
				KB2-325AE0.75(S2)	0.75	-28	-	101(100)
				KB2-325LAE1.1	1.1	2	551	112
				KB2-325AE1.1	1.1	5	554	113
				KB2-405AE0.75	0.75	-40	-	102
				KB2-405AE1.1	1.1	-40	-	112
	40	40		KB2-405AE1.5	1.5	-40	-	118
				KB2-405AE2.2	2.2	2	551	121
				KB2-405AE3.7	3.7	-3	564	167
				KB2-505AE1.5	1.5	-40	-	127
				KB2-505AE2.2	2.2	2	553	130
				KB2-505AE3.7	3.7	2	563	150
	40	50	KB2-505AE3.7	3.7	-10	548	173	
	50	65	2 pumps Alternate/ Parallel	KB2-655AE3.7	3.7	-10	548	173
				KB2-325PE0.4T	0.4×2	-28	-	89
				KB2-325PE0.75(S2)	0.75×2	-28	-	101(100)
				KB2-325LPE1.1	1.1×2	2	551	112
				KB2-325PE1.1	1.1×2	5	554	113
				KB2-405PE0.75	0.75×2	-40	-	103
	50	40		KB2-405PE1.1	1.1×2	-40	-	113
				KB2-405PE1.5	1.5×2	-40	-	119
				KB2-405PE2.2	2.2×2	2	551	122
				KB2-405PE3.7	3.7×2	-3	564	168
				KB2-505PE1.5	1.5×2	-40	-	129
KB2-505PE2.2				2.2×2	2	553	132	
65	50	KB2-505PE3.7	3.7×2	2	563	152		
		KB2-655PE3.7	3.7×2	-10	548	175		

Note : FA is distance from foundation hole to pump flange face.



# DIMENSION DIAGRAM - 3PHASES 380V



OUTER PLATE	SGCC 1.2t
DOOR	SGCC 1.2t
INNER PLATE	SPHC 2.3t
PAINT	MUNSELL 5Y7/1
WEIGHT	11.5kg

TB1

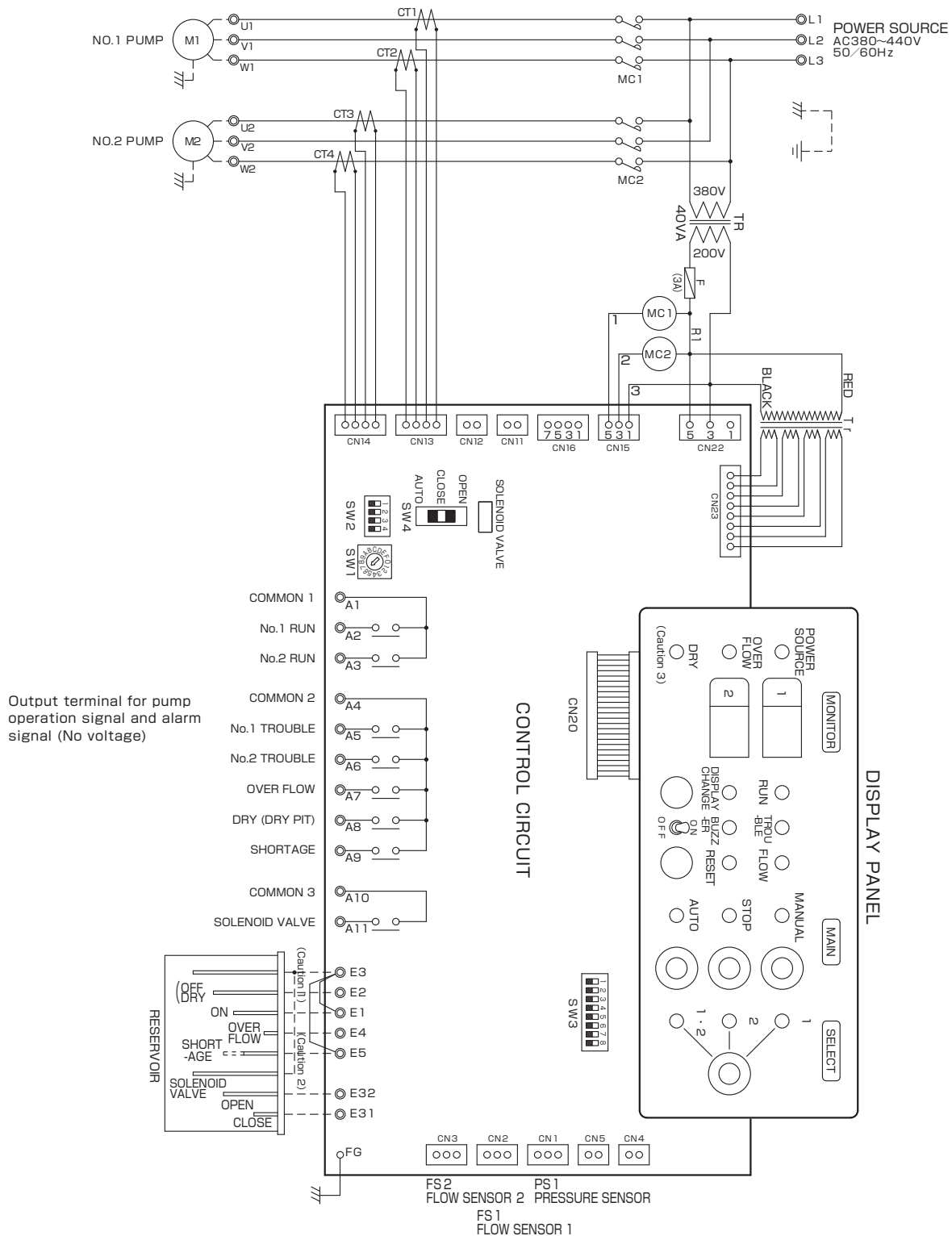
L1	L2	L3	U1	V1	W1	U2	V2	W2
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TB2

A1	A2	A3	A10	A11	E4	E5	E32	E31
A4	A5	A6	A7	A8	A9	E3	E2	E1



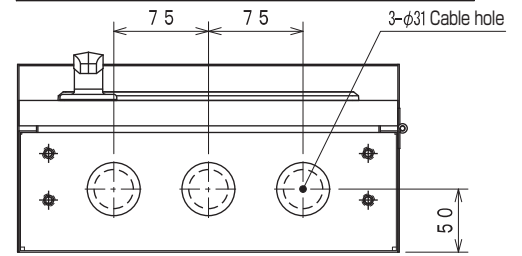
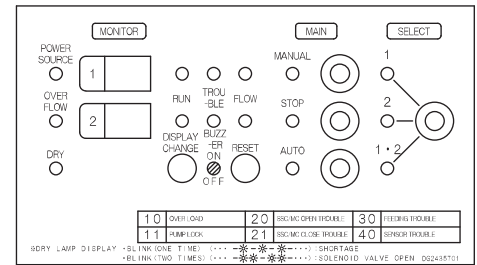
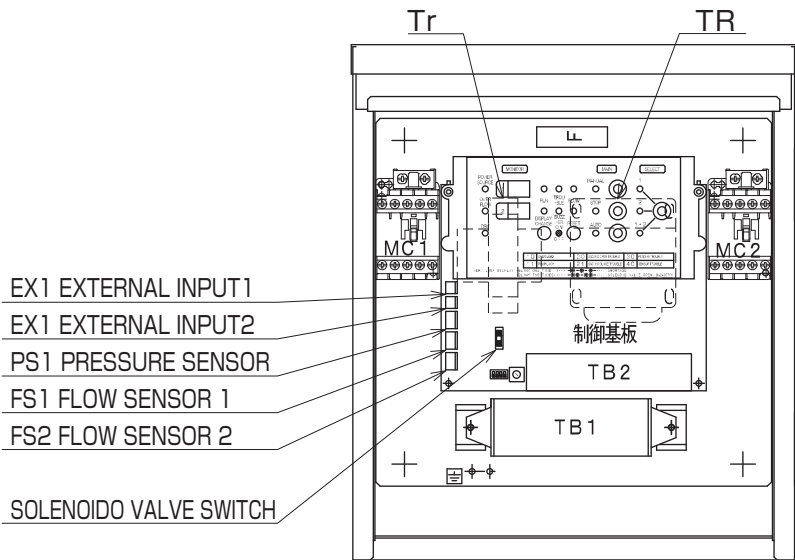
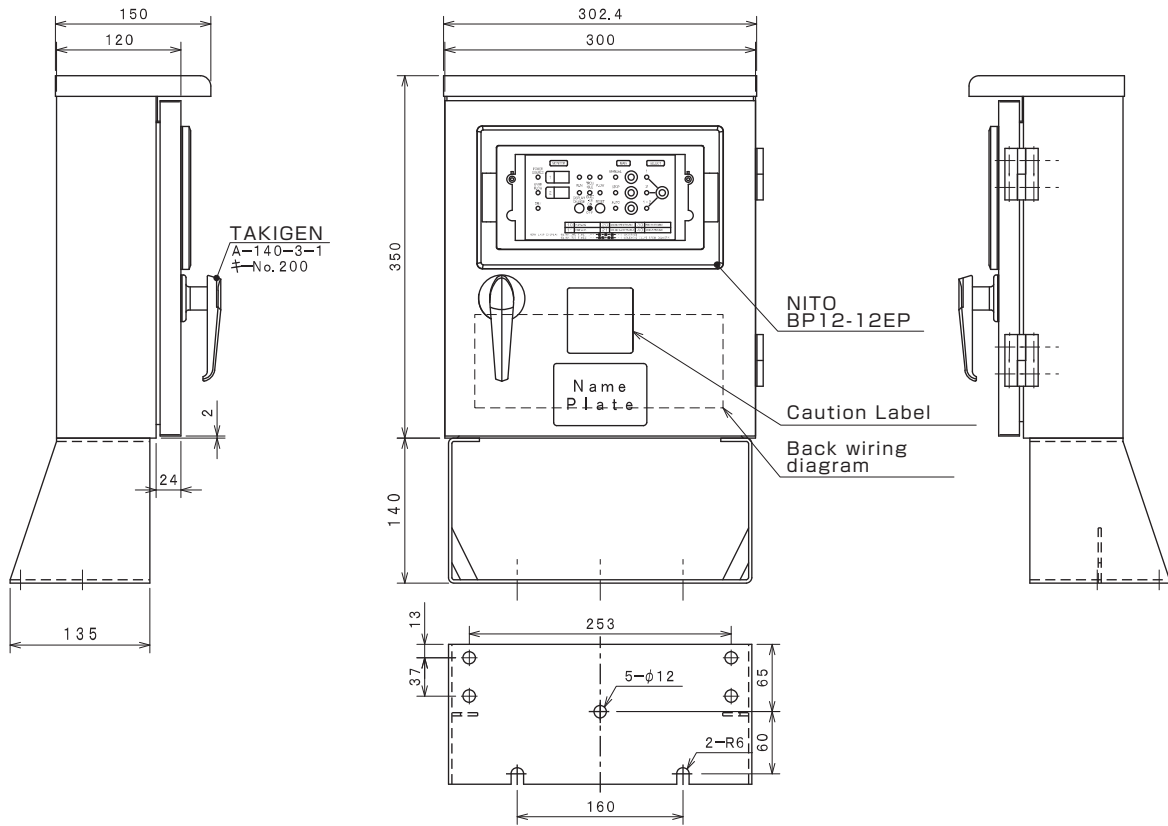
# WIRING DIAGRAM - 3 PHASES 380V



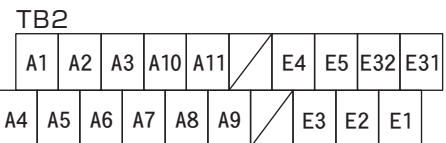
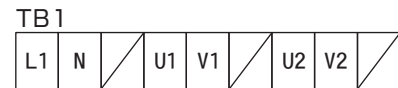
**Caution**

- 1 : When you use the electrode or the float switch, please remove the short-circuit line between E3 and E1, E3 and E5.
- 2 : When you don't use the function of SHORTAGE, please connect the short-circuit line between E3 and E5.
- 3 : When SHORTAGE is detected, the DRY lamp is blinked every second.  
When the SOLENOID VALVE opens, the DRY lamp is blinked two times every two seconds.

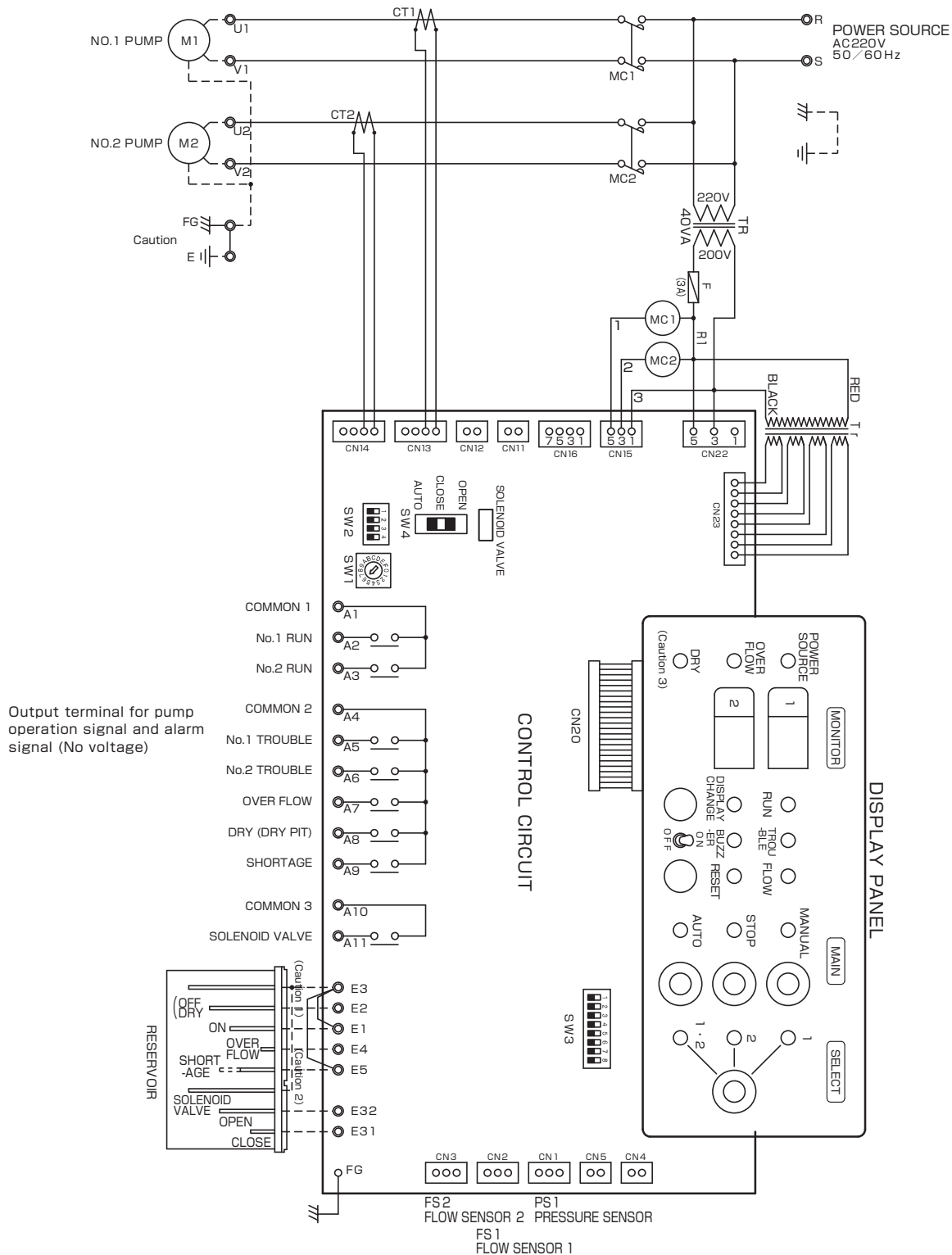
# DIMENSION DIAGRAM - 1 PHASE 220V



OUTER PLATE	SGCC 1.2t
DOOR	SGCC 1.2t
INNER PLATE	SPHC 2.3t
PAINT	MUNSELL 5Y7/1
WEIGHT	11.5kg



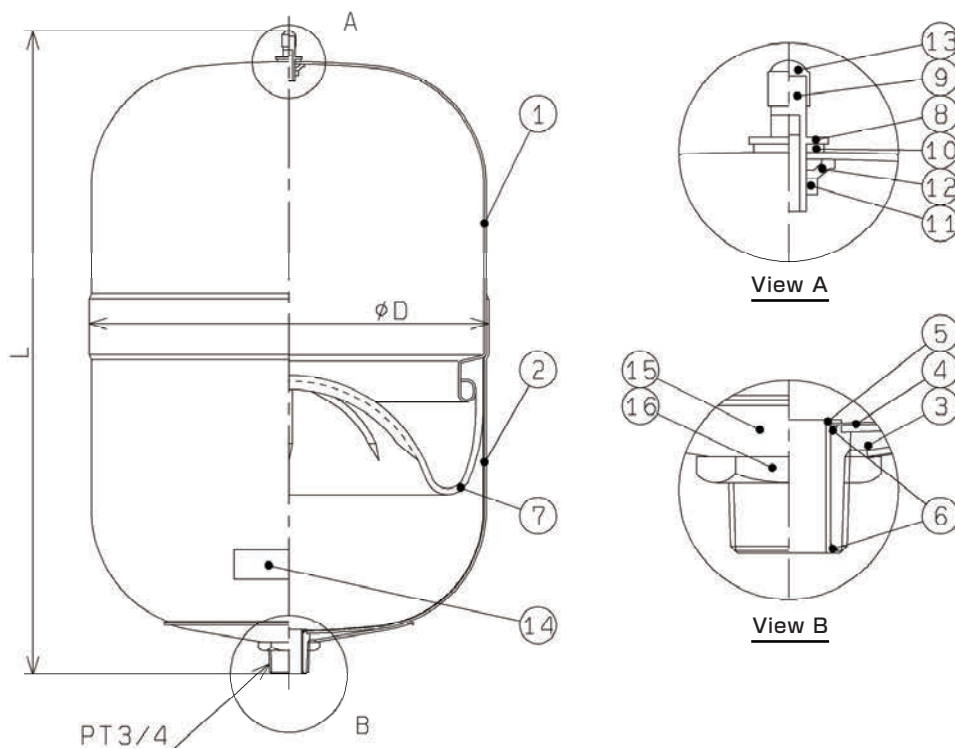
# CIRCUIT DIAGRAM - 1 PHASE 220V



**Caution**

- When you use the electrode or the float switch, please remove the short-circuit line between E3 and E1, E3 and E5.
- When you don't use the function of SHORTAGE, please connect the short-circuit line between E3 and E5.
- When SHORTAGE is detected, the DRY lamp is blinked every second. When the SOLENOID VALVE opens, the DRY lamp is blinked two times every two seconds.

# SECTION VIEW



## SPECIFICATIONS

Discription	Unit	PTD3-1
Length (L)	mm	375
Width (W)	mm	233
Setting pressure	MPa (kgf/cm <sup>2</sup> )	0.29 (3.0)
Capacity	L	11.45
Weight	kg	4.5
Max. working pressure	MPa (kgf/cm <sup>2</sup> )	0.83 (8.5)
Setting Gas	-	Nitrogen gas
Liquid for usage	-	Clean water

No	Discription	Q'ty	Material	Remark	No	Discription	Q'ty	Material	Remark
1	Shell upper	1	SPCE	t=1.6	9	Core	1	C3604BD	-
2	Shell	1	SPCE	t-1.6	10	Seal washer	1	SPCC, NBR	-
3	Nipple	1	SUS316L	-	11	Nut	1	C3604BD	-
4	Lining sheet	1	Polypropylene	-	12	Washer	1	SPCC, NBR	-
5	Lining pipe	1	TB340	-	13	Cap	1	C3604BD	-
6	O ring	2	NBR	-	14	Nameplate	1	Resin Film	-
7	Bladder	1	CM	NOK CA55	15	Supporter	1	SPCC, NBR	Ni-Cr galvanized
8	Gas valve body	1	C3604BD	-	16	Lock nut	1	Steel	Ni-Cr galvanized

# PUMP DATA

Unit bore mm	Suction bore mm	Model	Impeller material	Applicable pump cover	Mechanical seal (※)	Pressure sensor	Applicable Vibration isolator
40	32	KB2-325 $\hat{P}$ E0.4T	Resin		$\phi$ 16 EA103-16J	PSR-2.2K	BK-820
		KB2-325 $\hat{P}$ E0.75S2	//			PSR-3.2K	//
		KB2-325 $\hat{P}$ LAE1.1	//			PSR-5.3K	//
		KB2-325 $\hat{P}$ SE1.1	//			PSR-4.4K	//
40	40	KB2-405 $\hat{P}$ E0.75	SCS13	No.26 $\frac{B}{S}$ No.36 $\frac{B}{S}$	$\phi$ 20 EA560-20J	PSR-1.6K	//
		KB2-405 $\hat{P}$ E1.1	//			PSR-2.5K	//
		KB2-405 $\hat{P}$ E1.5	//			PSR-3.0K	//
		KB2-405 $\hat{P}$ E2.2	//			PSR-4.4K	//
		KB2-405 $\hat{P}$ E3.7	CAC406 (BC6)	PSR-6.5K	//		
		KB2-405 $\hat{P}$ E5.5	//	No.45 (S)	$\phi$ 25 EA560-25J	PSR-8.0K	BK-1060
40	50	KB2-505 $\hat{P}$ E1.5	SCS13	No.26 $\frac{B}{S}$ No.36 $\frac{B}{S}$	$\phi$ 20 EA560-20J	PSR-2.0K	BK-820
		KB2-505 $\hat{P}$ E2.2	//			PSR-3.0K	//
		KB2-505 $\hat{P}$ E3.7	//			PSR-4.8K	//
		KB2-505 $\hat{P}$ E5.5	CAC406 (BC6)	No.45 (S)	$\phi$ 25 EA560-25J	PSR-6.5K	BK-1060
50	65	KB2-655 $\hat{P}$ E3.7	//	No.26 $\frac{B}{S}$ No.36 $\frac{B}{S}$	$\phi$ 20 EA560-20J	PSR-3.2K	BK-820
		KB2-655 $\hat{P}$ E5.5	//	No.45 (S)	$\phi$ 25 EA560-25J	PSR-4.8K	BK-1060
		KB2-655 $\hat{P}$ E7.5	//			PSR-5.5K	//

※ Ceramics × Carbon

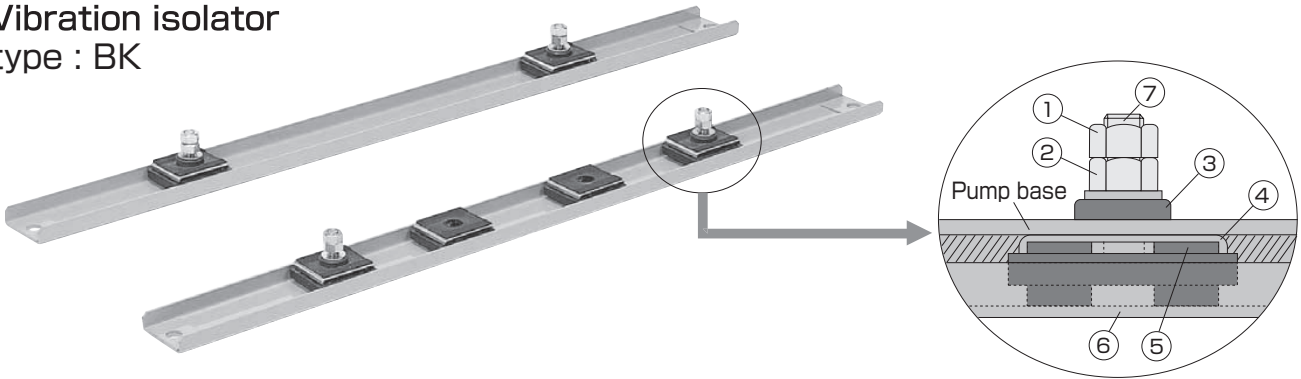
# MOTOR DATA & OPTIONAL EQUIPMENT

## ■ MOTOR DATA

Hz	Output kW	Rated value				Starting		Method	Insulation	Bearing	
		Current A	Speed min <sup>-1</sup>	Efficiency %	Power Factor %	Current A	Torque %			Inboard	Outboard
50	0.4T	1.3	2850	76.6	77.2	8.0	295	DOL	F	6304 ZC3	6203 ZC3
	0.75	2.0	2795	80.2	85.7	12.0	390			6305 ZC3	6303 ZC3
	1.1	2.9	2860	80.9	83.5	18.2	530			6306 ZC3	6303 ZC3
	1.5	3.4	2850	85	86.6	21.6	354			6306 ZC3	6303 ZC3
	2.2	4.8	2880	85.1	88.1	33.0	325			6307 ZC3	6206 ZC3
	3.7	7.6	2885	87.7	88.1	61.3	372			6307 ZC3	6206 ZC3
	5.5	11.5	2910	87.0	89.8	89.3	318			6309 ZC3	6207 ZC3
	7.5	15	2930	87.8	88.5	120	140			6310 ZC3	6207 ZC3

## ■ OPTIONAL EQUIPMENT

Vibration isolator  
type : BK

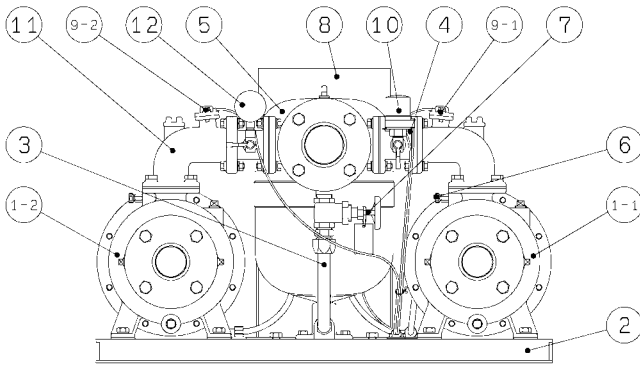


Isolation efficiency	More than 80%
Stopper	By stainless steel (SUS304 for JIS G4303) made bolt of M12 to withstand horizontal earthquake gravitational acceleration of 1G and vertical earthquake gravitational acceleration of 0.5G

NO.	Name
1	Nut
2	Plain washer
3	Rubber pad
4	Spacer
5	Isolator
6	Frame
7	Bolt

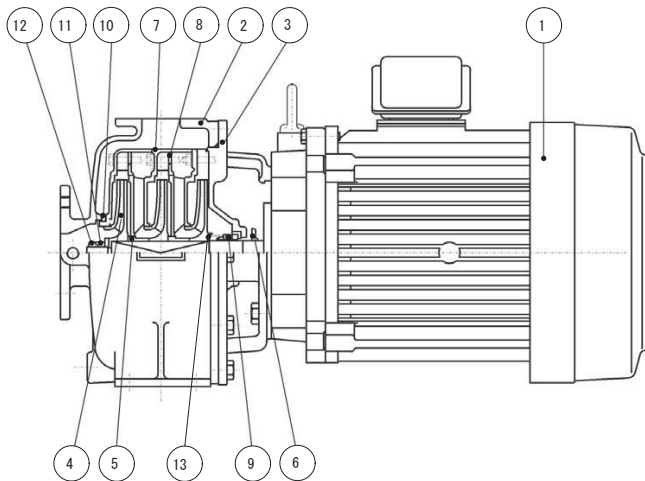
# SECTION VIEW

## UNIT PUMP PARTS LIST



NO.	Name	Description
1-1	Pump	No.1
1-2	Pump	No.2
2	Base plate	SPCC
3	Flexible joint	SUS304
4	Check valve	SCS13(JIS G5121) impact relief type
5	Accumulator	10ℓ
6	Air vent	SUS304
7	Gate valve	Bronze
8	Control panel	ECFW-F
9-1	Flow sensor	For No.1 pump
9-2	Flow sensor	For No.2 pump
10	Pressure sensor	
11	Connecting elbow	SCS13(JIS G5121)

## MAIN PUMP PARTS LIST



NO.	Name	Description
1	Motor	
2	Casing	SCS13(JIS G5121)
3	Casing cover	SCS13(JIS G5121)
4	Impeller	Resin, Bronze or SCS13
5	Sleeve	Bronze or SUS304
6	Deflector	NBR
7	Guide vane	Resin or BC6(JIS H5120)
8	Seperator	Resin or BC6(JIS H5120)
9	Mechanical seal	Ceramic x Carbon
10	O ring	Rubber(NBR)
11	Impeller nut	SUS304
12	Plain washer	SUS304
13	Spring stopper	SUS304

# IMPORTANT SAFETY PRECAUTIONS

Always read the manual thoroughly and fully comprehend the contents for safe operation before starting use. Precautions for using products safely and for preventing personal injuries or physical damage are given in the manual.

- Matters falling under the following may not be covered by the warranty: uses out of the specified scope of application, failure to comply with precautions, improper repairs and alterations, matters arising from natural disasters, matters arising from the installation environment (improper power source, foreign objects, sand etc.), non-compliance with laws and regulations or standards pertaining thereto, accidental or intentional damage or injury, replacement of consumable parts, defects due to resale, etc.
- Do not use the product for applications out of the product specifications. Doing so may cause electric shock, fire, water leakage, etc.
- Have spare equipment ready when using pumps for equipment for living things (fish farms, fish tanks, aquariums, etc.) or critical equipment.
- Pump failure may cause lack of oxygen and water quality deterioration, and may affect the lives of the living things.  
When using pumps for equipment for living things (fish farms, fish tanks, aquariums, etc.), do not install the pump in the tank where the living things are put into. The current leakage or sealing liquid leak from the mechanical seal may cause the death of the living things.
- If used to transport food-related items, give due consideration to the materials used. Contamination by foreign objects may occur.
- Avoid using for living things which disagrees with copper alloy. It may affect the lives of the living things.
- Select a product which is appropriate for your application. Inappropriate use of products may cause accidents.
- Conduct construction in accordance with the applicable laws and regulations (the Technical Standards of Electric Installation, interior wiring regulation, Building Standards Act, Water Supply Law, etc.). Not only does it violate the laws and regulations, but it also may cause injuries due to electric shock, fire, falling and tipping over.
- Do not use in places where people are assumed to get in contact with the product (baths, pools, lakes, etc.). Electric leak may occur and cause electric shock.
- Depending on the equipment, attach a filter etc. appropriate for your application on the discharge side before use, perform thorough flushing to check that there is no contamination. Cutting oil, rubber mold releasing agent, foreign objects etc. from the manufacturing line and cutting oil, foreign objects etc. from the pipeline may contaminate the liquid which is to be handled.
- Do not operate pumps with a specification of 50Hz at 60Hz. It may cause damage due to overpressure or burn damage of motors etc. due to overload. Do not operate pumps with a specification of 60Hz at 50Hz. Pump performance may be reduced.
- Only repair technicians may disassemble, repair, modify the product or replace cables. Defects may cause failure, damage, electrification or fire.
- It is recommended that both periodic and daily inspections be performed in order to ensure that the pump will operate reliably for as long as possible. Failure to perform inspections may lead to pump failure, accidents etc. For periodic inspections, please consult your distributor or our nearest sales office.

## Note

Specifications/Configurations may be altered as a result of improvements and such.  
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