

Bringing valuable
"water" to you



KAWAMOTO PUMP

**Inverter Control Automatic
Water Supply Unit**

PUMPER® KF

KF2-A·P/KFH2/KF2-T/KF2-R

JAPAN Technology

**Pioneer for inverter control
water supply system**

Environment - friendly

**Alternate·Parallel~
Max 6 Pumps Rotary**

**Reliable Back up
Operation Function**

**Stainless Steel
Silent & Clean**

PAT.



Ver. 1.1



KF2-A·P



KF2-T



KF2-R

Kawamoto

PUMPER® KF



Energy-saving ·
at estimated
water supply

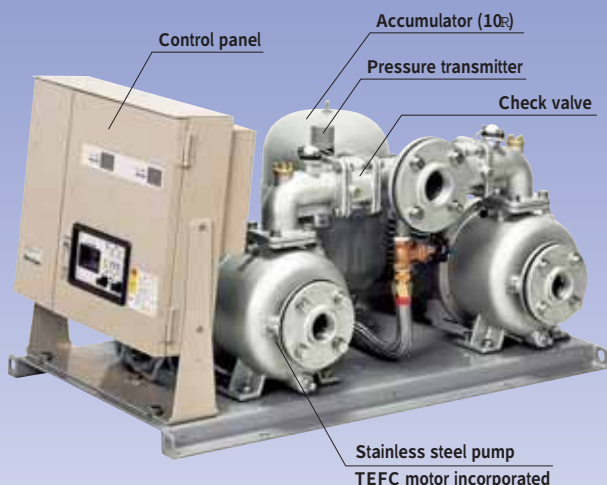
Application Water supply to buildings,

Alternate·alternate & parallel operation

Compact 3 pumps rotary

KF2-A·P

PAT.



Series products

Hot
water
85°C
Max

Stainless steel
hot water pressure unit
PUMPER®KFH

Refer to P.18

**Constant pressure at
estimated terminal outlet
40% energy-saving
operation**

The pump speed is controlled by an inverter according to the fluctuations in the water amount used, thereby reducing pressure fluctuations at the estimated terminal outlet, and leading to a maximum 40% save in energy.

(Comparison of type KF2 and KAWAMOTO conventional product KNV)
(Comparison of type KF2-R and KAWAMOTO conventional product type KNVR)

**High power factor and
higher harmonic measures**

Using the high power factor devices *1 with a DC reactor provided as a standard for each pump, basic electricity rates can be reduced by 5%(in Japan) and the generation of higher harmonics can be suppressed. *2 Complete measures against noise are also taken with the surge killer and noise filter for main circuit and control circuit.

(A high efficiency noise filter is incorporated for the type KF2-R.)

*1. Power factor 85.5% or more

*2. Complies with the "Higher harmonic suppression measure procedures for general-purpose inverter (input current 20A or less) set by the Japan Electrical Machine Industry Association.

**Multi-function
control panel**

In addition to the inverter, earth leakage circuit breaker (with Alarm), digital voltage, current and operation frequency display provided for each pump, various maintenance functions including a cumulative operation hour, cumulative number of starts display and alarm buzzer are provided for each pump. This guarantees reliable protection functions as well as long-term stable water supply. An inflow motorized valve circuit * is also provided as a standard.

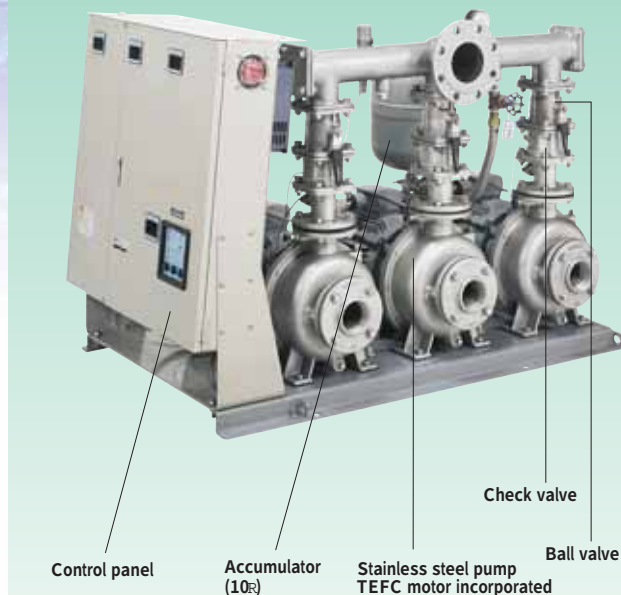
(* Excluding 0.75kW and below with Type KF2.)

**Reliable backup
functions**

Water supply suspension are avoided as much as possible with the backup functions that kick in when there is pump failure, inverter failure as well as pressure transmitter failure and control PCB failure. (type KF2-R)

Emergency back up operation switch is equipped with for avoiding water supply suspension caused by control printed circuit failure.

KF2



Stainless Steel Precision Casting

Precision cast steel stainless steel is used for the pump's casing and flange, etc., so there is no worry of strain.

For the water contact sections, stainless steel, resin and CAC (BC) parts are used so there is no worry of red discolorment of water.

High-response, high-pumping properties

A new control method with fast pressure response and small pressure fluctuation width has been incorporated. Coupled with the high pumping performance provided with the high efficiency 3D impeller enables quiet, powerful and smooth water supply.

Low-noise totally enclosed motor

A low-noise totally enclosed motor has been incorporated as a standard for all models. This long-life motor is resistant against insulation deterioration caused by dust or moisture absorption.

Compact and lightweight for installation work improvement

The type KF2 is a compact and lightweight unit with 520mm height (3.7kW or less) enabling installation even under a reservoir tank.

With the type KF2, the suction and discharge flanges are arranged at the same direction, and the discharge pipe is arranged at the center of the unit.

The volume of the type KF2-R has been reduced by up to 45% compared to the conventional type SKF3.

The discharge direction can be set to either the left or right side.

Temperature detective function

Thermo sensor for each pump is adopted

Heater terminal

A heater terminal is provided as a standard making heater installation easier.

Individual sluice valve at discharge side

Sluice valve (stainless steel ball valve) at discharge side as standard (except KF2-A·P)

Unified domestic standards

Use with either 50Hz or 60Hz and positive or negative suction is possible.

silent · clean · constant pressure terminal outlet high-quality automatic unit

factories, industry, small regional drinking water, other general water supply

water supply unit

Rotary operation multiple pump unit to handle even large water amount.
Operation of up to six pumps has been incorporated into a series

-T

PAT.

KF2-R

PAT. PEND.

Control Panel

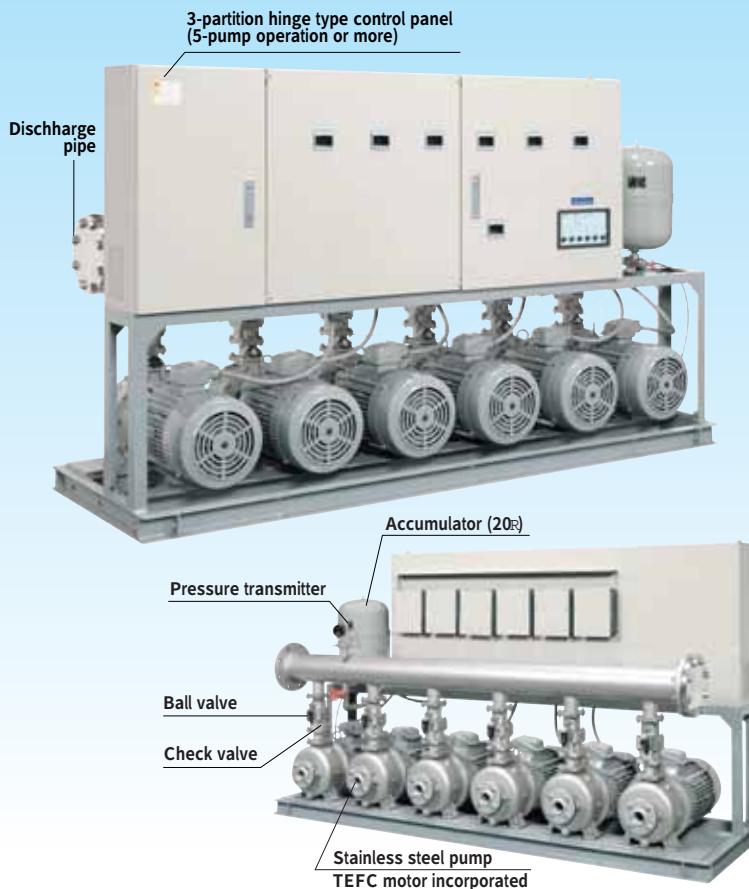


Earth leakage circuit breaker
Heater terminal
Noise filter
(High efficiency noise absorb material)
Inverter (for each pump)
Earth leakage circuit breaker
(Control PCB · heater)

Maintenance is easy since individual
ball valves are as adopted



Ball valve



3-partition hinge type control panel
(5-pump operation or more)

Discharge
pipe

Accumulator (20ℓ)

Pressure transmitter

Ball valve

Check valve

Stainless steel pump
TEFC motor incorporated

Standard specifications

Control method	Constant pressure at estimated terminal outlet using frequency control (constant discharge pressure also possible)
Operation method	Alternate or alternate/parallel and multiple pump rotation (max. six pump operation)
Installation place	Indoors (ambient temperature 0 to 40°C, humidity 90% or less, altitude 1,000m or less)
Liquid	Clean water, 0 to 40°C
Pump (material)	Stainless steel multi-stage turbine pump (impeller: resin or CAC406 (BC6) or SCS13, shaft: water contact section SUS304, casing: SCS13)
Motor	TEFC indoor : 3.7kW and below , TEFC outdoor : 5.5kW or over No. of poles: 2 poles (max. frequency during automatic operation: 60 Hz)
Suction conditions	Positive suction (0 to 5m (*1)) or negative suction (suction total head within -6m (*2))
Power supply	3 phase 380V~440V (200V is also available), single phase 200V (KF2: 0.4, 0.75, 1.1kW)
Companion flange shape	JIS 10K thin type
Paint color (Munsell No.)	Control panel: gray (5Y7/1), accumulator: gray (10Y5.5/0.5), others: gray (2.5PB5.1/0.8)

(*1) 3m for 40-5.5kW, 50-7.5kW. Consult KAWAMOTO PUMP in ease of exceeding 5m positive suction
(*2) Suction actual head -within 4m, For 0.4kW, suction total head within -4m

Note) Consult KAWAMOTO PUMP for when using flashing valve and using the pump for long periods with small discharge amount.

Special specifications

- Japan Center For Better Living approved product.
- KF2 built-in sluice valve type (excluding suction bore 65mm models ,only for BL approved products)
- CAC (BC) impeller type (excluding suction bore 32mm, 65mm and over 5.5kw models)
- With Inflow motorized valve (solenoid valve) circuit(in control box) ... below 0.75kW
- With heater
- Control panel position change (excluding KF2-40T5.5, KF2-65T)
- One stand-by pump unit type (Excluding KF2-A·P)
- With emergency stop function circuit (KF2-R)



Inflow solenoid
valve circuit

Special accessories

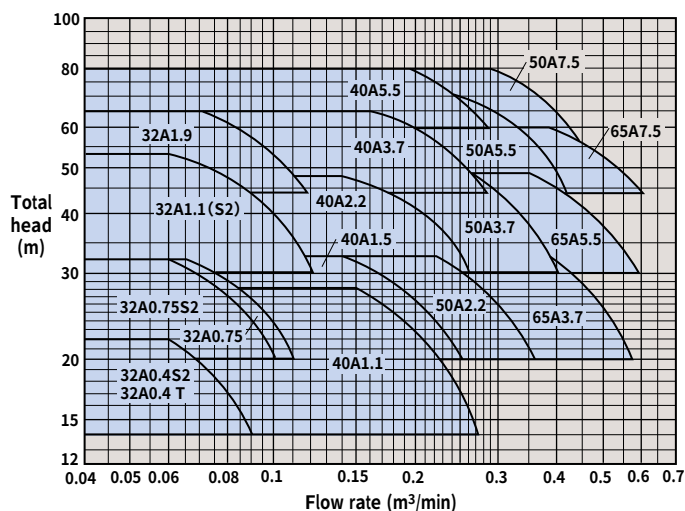
- Pump cover ... For KF2 (Steel plate, stainless steel)
- Heater
- Foot valve (for negative suction application)
- Level relay (KF2-0.75kW and below, low water level monitor)
- Vibration proof bed
- Electrode
- Foundation bolt

※ Except special specification 400V models using flash valve and (over 5.5kW) and control panel position changed models

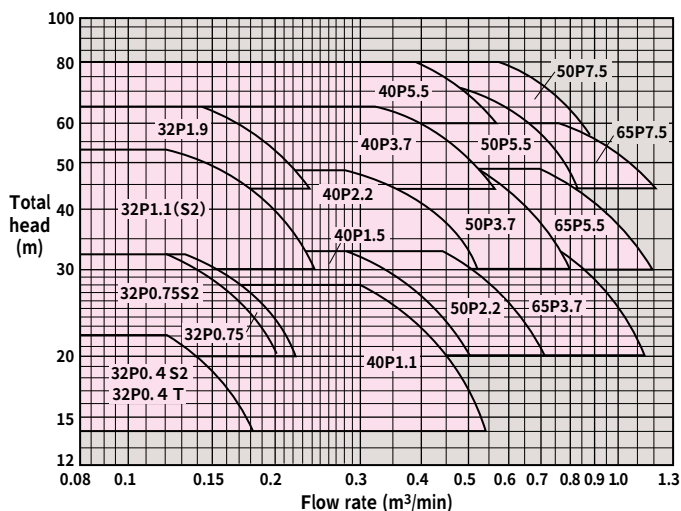


Connection to
change discharge
direction

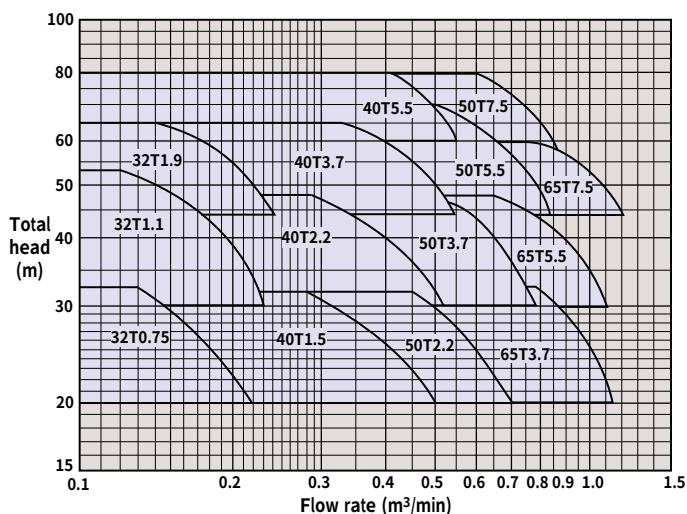
KF2-A (Alternate operation of 2 pumps)



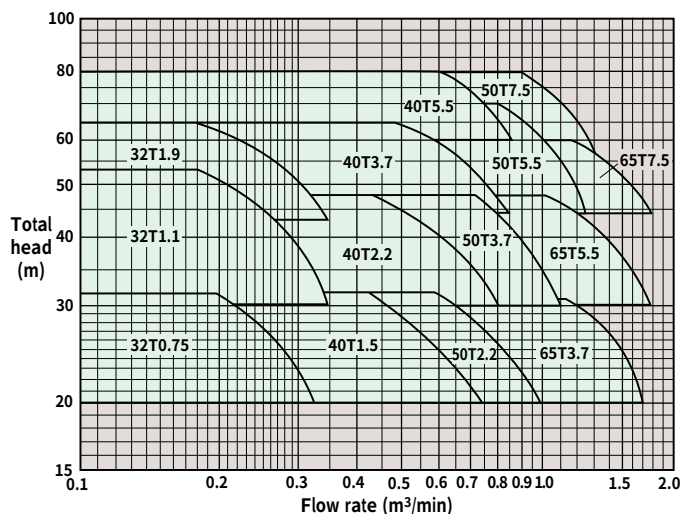
KF2-P (Alternate/parallel operation of 2 pumps)



KF2-T 2/3 Pump Rotary (Special Specification)

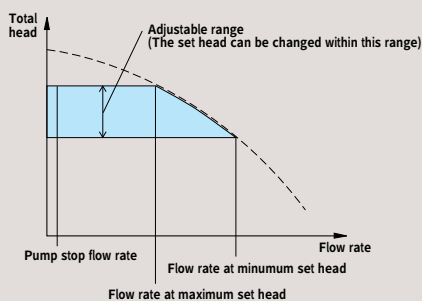


KF2-T 3/3 Pump Rotary (Standard Specification)



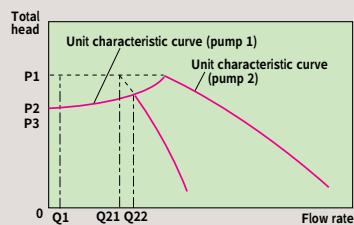
(The specifications indicate the values with the unit loss from the check valve, etc., subtracted.)

Guide to Selection table



- The total head is the value obtained by subtracting the loss caused by the check valve (shock-less valve) from the pump performance.
- When changing the set head, change it within the set head adjustment range. The starting pressure is automatically adjusted to the pressure at estimated terminal outlet -0.04MPa (0.4kgf/cm^2).
- The suction conditions must be set within the positive suction 5m to suction total head -4m (-6m for 7.5kW). The maximum flow rate determined by the set head will differ according to the suction conditions.

Explanation of operation



<Alternate, Paralle>

P1 : Set head
P2 : Estimated terminal head
P3 : Starting head (P2- 0.04MPa (0.4kgf/cm^2))
Q1 : Stop flow rate (10l/min)
Q21, Q22: Parallel-OFF, parallel-ON flow rate
※The dotted line shows the case for constant discharge pressure operation.

■Alternate operation

- When water is consumed while the pump is stopped and the pressure drops to P3, the pump will start running.
- When the flow rate is Q1 or higher, the pump will continue water supply at the constant pressure at estimated terminal outlet.
- When the used water rate drops to below Q1, the pump will stop.
- Steps ① to ③ are alternately repeated between the first pump and second pump.

■Alternate/parallel operation

- If the flow rate reaches Q22 or higher while the first pump is running, the pressure sensor will activate and the second pump will start for parallel operation.
- When the flow rate drops below Q21 during parallel operation, the pressure sensor will activate, the pump started first will stop, and only one pump will run.
- If the flow rate is less than Q21, alternate operation will take place.

※ Performance curves and technical information are subject to change without notice. Consult KAWAMOTO PUMP for exact pump specifications.

Specifications Table

■ Specifications table (Pump stop flow rate: 10 $\frac{1}{3}$ /min)

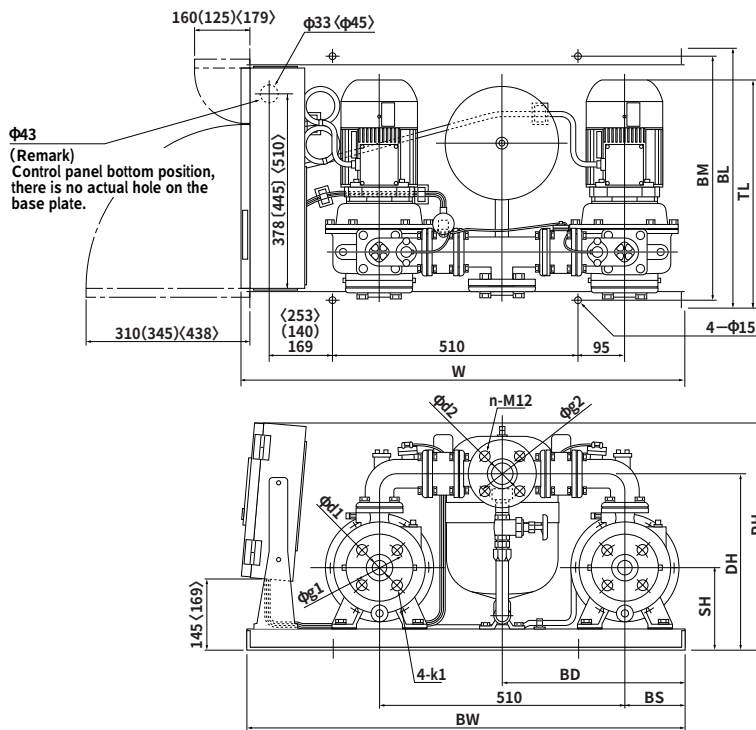
Unit bore	Suction bore	Operation method	Type	Motor (Maximum number of operation units)	Standard specifications			Set head adjustment range	Accumulator charged pressure	Sound (*1)	Power factor	
					Flow rate	Total head	Set head					Starting pressure
mm	mm			kW	m³/min	m	m	MPa[kgf/cm²]	m	MPa[kgf/cm²]	dB [A]	(%)
40	32	Alternate	KF2-32A0.4S2	0.4 *	0.06	22	22	0.16{1.6}	14~22	0.069{0.7}	41~43	—
			KF2-32A0.4T	0.4	0.06	22	22	0.16{1.6}	14~22	0.069{0.7}	41~43	86.8
			KF2-32A0.75S2	0.75 *	0.06	32	32	0.25{2.5}	20~32	0.12 {1.2}	47~50	—
			KF2-32A0.75	0.75	0.065	32	32	0.25{2.5}	20~32	0.12 {1.2}	46~50	90.0
			KF2-32A1.1S2	1.1 *	0.06	53	53	0.43{4.4}	30~53	0.22 {2.2}	48~51	—
			KF2-32A1.1	1.1	0.06	53	53	0.43{4.4}	30~53	0.22 {2.2}	48~51	87.5
	40		KF2-32A1.9	1.9	0.07	65	65	0.54{5.5}	44~65	0.31 {3.2}	48~55	85.5
			KF2-40A1.1	1.1	0.145	28	28	0.21{2.1}	14~28	0.069{0.7}	48~50	87.5
			KF2-40A1.5	1.5	0.14	32	32	0.25{2.5}	20~32	0.12 {1.2}	49~52	89.6
			KF2-40A2.2	2.2	0.14	48	48	0.38{3.9}	30~48	0.20 {2.0}	49~52	89.2
			KF2-40A3.7	3.7	0.16	65	65	0.54{5.5}	44~65	0.31 {3.2}	55~56	88.7
			KF2-40A5.5	5.5	0.19	80	80	0.67{6.8}	60~80	0.44 {4.5}	55~59	87.9
	50		KF2-50A2.2	2.2	0.225	32	32	0.25{2.5}	20~32	0.12 {1.2}	52~54	89.2
			KF2-50A3.7	3.7	0.265	48	48	0.38{3.9}	30~48	0.20 {2.0}	54~55	88.7
KF2-50A5.5			5.5	0.24	70	70	0.58{5.9}	44~70	0.34 {3.5}	58~60	87.9	
KF2-50A7.5			7.5	0.28	80	80	0.67{6.8}	56~80	0.44 {4.5}	58~63	90.4	
50	65		KF2-65A3.7	3.7	0.38	32	32	0.25{2.5}	20~32	0.12 {1.2}	54~56	88.7
			KF2-65A5.5	5.5	0.35	48	48	0.38{3.9}	30~48	0.20 {2.0}	58~60	87.9
			KF2-65A7.5	7.5	0.38	60	60	0.49{5.0}	44~60	0.31 {3.2}	58~62	90.4
40	32		Alternate/parallel	KF2-32P0.4S2	0.4 ×2 *	0.12	22	22	0.16{1.6}	14~22	0.069{0.7}	41~46
		KF2-32P0.4T		0.4 ×2	0.12	22	22	0.16{1.6}	14~22	0.069{0.7}	41~46	90.3
		KF2-32P0.75S2		0.75 ×2 *	0.12	32	32	0.25{2.5}	20~32	0.12 {1.2}	47~53	—
		KF2-32P0.75		0.75 ×2	0.13	32	32	0.25{2.5}	20~32	0.12 {1.2}	46~53	90.7
KF2-32P1.1S2		1.1 ×2 *		0.12	53	53	0.43{4.4}	30~53	0.22 {2.2}	48~54	—	
KF2-32P1.1		1.1 ×2		0.12	53	53	0.43{4.4}	30~53	0.22 {2.2}	48~54	91.5	
50	40	KF2-32P1.9		1.9 ×2	0.14	65	65	0.54{5.5}	44~65	0.31 {3.2}	48~58	89.9
		KF2-40P1.1		1.1 ×2	0.29	28	28	0.21{2.1}	14~28	0.069{0.7}	48~53	91.5
		KF2-40P1.5		1.5 ×2	0.28	32	32	0.25{2.5}	20~32	0.12 {1.2}	49~55	92.5
		KF2-40P2.2		2.2 ×2	0.28	48	48	0.38{3.9}	30~48	0.20 {2.0}	49~55	91.6
KF2-40P3.7		3.7 ×2		0.32	65	65	0.54{5.5}	44~65	0.31 {3.2}	55~59	90.3	
KF2-40P5.5		5.5 ×2		0.38	80	80	0.67{6.8}	60~80	0.44 {4.5}	55~62	91.4	
65	50	KF2-50P2.2		2.2 ×2	0.45	32	32	0.25{2.5}	20~32	0.12 {1.2}	52~57	91.6
		KF2-50P3.7		3.7 ×2	0.53	48	48	0.38{3.9}	30~48	0.20 {2.0}	54~58	90.3
		KF2-50P5.5		5.5 ×2	0.48	70	70	0.58{5.9}	44~70	0.34 {3.5}	58~63	91.4
		KF2-50P7.5		7.5 ×2	0.56	80	80	0.67{6.8}	56~80	0.44 {4.5}	58~66	92.7
KF2-65P3.7		3.7 ×2		0.76	32	32	0.25{2.5}	20~32	0.12 {1.2}	54~59	90.3	
KF2-65P5.5		5.5 ×2		0.70	48	48	0.38{3.9}	30~48	0.20 {2.0}	58~63	91.4	
80	65	KF2-65P7.5		7.5 ×2	0.76	60	60	0.49{5.0}	44~60	0.31 {3.2}	58~65	92.7
		50		32	2/3 pump rotary	KF2-32T0.75G	0.75 ×2	0.13	32	32	0.25{2.5}	20~32
KF2-32T1.1G	1.1 ×2		0.12			53	53	0.43{4.4}	30~53	0.22 {2.2}	48~54	91.5
KF2-32T1.9G	1.9 ×2		0.14			65	65	0.54{5.5}	44~65	0.31 {3.2}	48~58	89.9
KF2-40T1.5G	1.5 ×2		0.28			32	32	0.25{2.5}	20~32	0.12 {1.2}	49~55	92.5
KF2-40T2.2G	2.2 ×2		0.28			48	48	0.38{3.9}	30~48	0.20 {2.0}	49~55	91.6
KF2-40T3.7G	3.7 ×2		0.32			65	65	0.54{5.5}	44~65	0.31 {3.2}	55~59	90.3
KF2-40T5.5	5.5 ×2		0.41			80	80	0.67{6.8}	60~80	0.44 {4.5}	55~62	91.4
KF2-50T2.2G	2.2 ×2		0.45			32	32	0.25{2.5}	20~32	0.12 {1.2}	52~57	91.6
KF2-50T3.7G	3.7 ×2		0.53			48	48	0.38{3.9}	30~48	0.20 {2.0}	54~58	90.3
KF2-50T5.5	5.5 ×2		0.5			70	70	0.58{5.9}	44~70	0.34 {3.5}	58~63	91.4
100	65	KF2-50T7.5	7.5 ×2	0.6		80	80	0.67{6.8}	56~80	0.44 {4.5}	58~66	92.7
		KF2-65T3.7	3.7 ×2	0.76		32	32	0.25{2.5}	20~32	0.12 {1.2}	54~59	90.3
		KF2-65T5.5	5.5 ×2	0.66		48	48	0.38{3.9}	30~48	0.20 {2.0}	58~63	91.4
		KF2-65T7.5	7.5 ×2	0.76		60	60	0.49{5.0}	44~60	0.31 {3.2}	58~65	92.7
50	32	3/3 pump rotary	KF2-32T0.75G	0.75 ×3	0.195	32	32	0.25{2.5}	20~32	0.12 {1.2}	46~57	91.3
			KF2-32T1.1G	1.1 ×3	0.18	53	53	0.43{4.4}	30~53	0.22 {2.2}	48~59	92.8
			KF2-32T1.9G	1.9 ×3	0.18	65	65	0.54{5.5}	44~65	0.31 {3.2}	48~59	91.0
			KF2-40T1.5G	1.5 ×3	0.42	32	32	0.25{2.5}	20~32	0.12 {1.2}	49~59	93.2
80	40		KF2-40T2.2G	2.2 ×3	0.42	48	48	0.38{3.9}	30~48	0.20 {2.0}	49~59	89.1
			KF2-40T3.7G	3.7 ×3	0.48	65	65	0.54{5.5}	44~65	0.31 {3.2}	55~63	91.7
			KF2-40T5.5	5.5 ×3	0.6	80	80	0.67{6.8}	60~80	0.44 {4.5}	55~66	92.5
			KF2-50T2.2G	2.2 ×3	0.59	32	32	0.25{2.5}	20~32	0.12 {1.2}	52~61	89.1
100	65		KF2-50T3.7G	3.7 ×3	0.7	48	48	0.38{3.9}	30~48	0.20 {2.0}	54~63	91.7
			KF2-50T5.5	5.5 ×3	0.78	70	70	0.58{5.9}	44~70	0.34 {3.5}	58~66	92.5
			KF2-50T7.5	7.5 ×3	0.9	80	80	0.67{6.8}	56~80	0.44 {4.5}	58~67	93.3
			KF2-65T3.7	3.7 ×3	1.12	32	32	0.25{2.5}	20~32	0.12 {1.2}	54~63	91.7
100	65		KF2-65T5.5	5.5 ×3	1.0	48	48	0.38{3.9}	30~48	0.20 {2.0}	58~65	92.5
			KF2-65T7.5	7.5 ×3	1.14	60	60	0.49{5.0}	44~60	0.31 {3.2}	58~67	93.3

(*)For single-phase 200V.

(※1) The noise level is the maximum value given in the specifications. (Reference valve)

(Note) When using large amount flow rate such as a flushing valve, please consult KAWAMOTO PUMP.

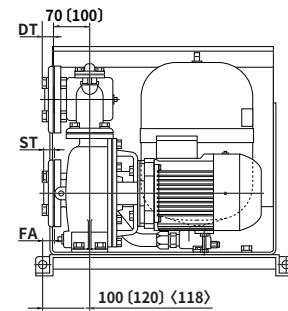
Alternate



Alternate·Parallel

Flange

Discharge bore mm	Suction bore mm	operation method	Flange						
			d1	d2	g1	g2	ST	DT	n
40	32	Alternate, Parallel	PT1 $\frac{1}{4}$	PT1 $\frac{1}{2}$	100	105	25	25	4
	40		PT1 $\frac{1}{2}$	PT1 $\frac{1}{2}$	105	105	25	25	
	50		PT2	PT1 $\frac{1}{2}$	120	105	27	25	
50	65	Alternate, Parallel	PT2	PT2	140	120	31	27	
40	32		PT1 $\frac{1}{4}$	PT1 $\frac{1}{2}$	100	105	25	25	
50	40		PT1 $\frac{1}{2}$	PT2	105	120	25	27	
65	50		PT2	PT2 $\frac{1}{2}$	120	140	27	31	
80	65		PT2 $\frac{1}{2}$	PT3	140	150	31	33	8



() is less than 0.75kW < > is 5.5 & 7.5kW
() is bore 65mm

Dimensions

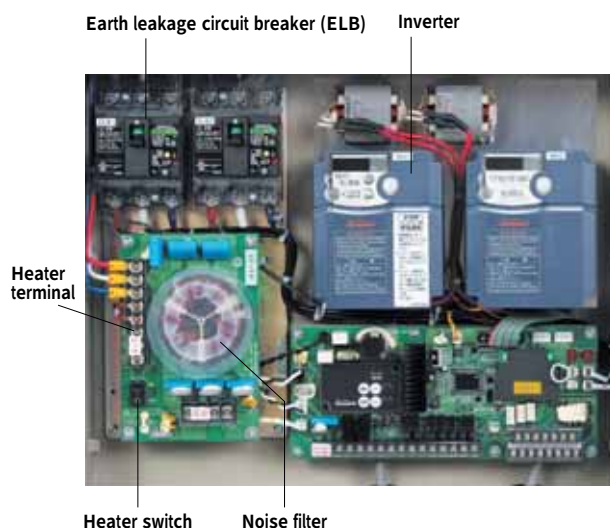
	Discharge bore mm	Suction bore mm	Model	Motor	Combination							Base					Weight	Vibration proof bed
				kW	SH	DH	PH	AD	W	FA	TL	BL	BM	BW	BD	BS	kg	
Alternate	40	32	KF2-32A0.4S2	0.4	168	363	470	100	930	-28	—	535	505	910	380	125	98	PJ-935A RK-960 QGP-38 BK-970
			KF2-32A0.4T	0.4	168	363	470	100	930	-28	—	535	505	910	380	125	97	
			KF2-32A0.75S2	0.75	168	363	470	100	930	-28	—	535	505	910	380	125	108	
			KF2-32A0.75	0.75	168	363	470	100	930	-28	—	535	505	910	380	125	107	
			KF2-32A1.1S2	1.1	168	363	520	100	930	2	551	535	505	910	380	125	130	
			KF2-32A1.1	1.1	168	363	520	100	930	2	551	535	505	910	380	125	128	
		40	KF2-32A1.9	1.9	168	363	520	100	930	2	551	535	505	910	380	125	141	PJ-935A RK-960 QGP-38 BK-970
			KF2-40A1.1	1.1	168	363	520	100	930	-40	—	535	505	910	380	125	124	
			KF2-40A1.5	1.5	168	363	520	100	930	-40	—	535	505	910	380	125	130	
			KF2-40A2.2	2.2	168	363	520	100	930	2	551	535	505	910	380	125	141	
			KF2-40A3.7	3.7	168	363	520	100	930	2	561	535	505	910	380	125	165	
			KF2-40A5.5	5.5	183	396	631	118	1044	13	—	650	620	1000	400	145	192	
	50	65	KF2-50A2.2	2.2	168	363	520	100	930	-40	—	535	505	910	380	125	141	PJ-1026A QGP-55 RK-1060 BK-970
			KF2-50A3.7	3.7	168	363	520	100	930	2	563	535	505	910	380	125	165	
			KF2-50A5.5	5.5	183	396	631	118	1044	13	—	650	620	1000	400	145	194	
			KF2-50A7.5	7.5	183	396	631	118	1044	13	—	650	620	1000	400	145	256	
			KF2-50A1.1	1.1	183	421	520	120	1018	10	—	650	620	1000	400	145	185	
			KF2-65A5.5	5.5	203	465	631	120	1044	20	—	650	620	1000	400	145	203	
Alternate·Parallel	40	32	KF2-32P0.4S2	0.4 × 2	168	363	470	100	930	-28	—	535	505	910	380	125	98	PJ-935A RK-960 QGP-38 BK-970
			KF2-32P0.4T	0.4 × 2	168	363	470	100	930	-28	—	535	505	910	380	125	97	
			KF2-32P0.75S2	0.75 × 2	168	363	470	100	930	-28	—	535	505	910	380	125	108	
			KF2-32P0.75	0.75 × 2	168	363	470	100	930	-28	—	535	505	910	380	125	107	
			KF2-32P1.1S2	1.1 × 2	168	363	520	100	930	2	551	535	505	910	380	125	130	
			KF2-32P1.1	1.1 × 2	168	363	520	100	930	2	551	535	505	910	380	125	128	
		40	KF2-32P1.9	1.9 × 2	168	363	520	100	930	2	551	535	505	910	380	125	141	PJ-935A RK-960 QGP-38 BK-970
			KF2-40P1.1	1.1 × 2	168	363	520	100	930	-40	—	535	505	910	380	125	125	
			KF2-40P1.5	1.5 × 2	168	363	520	100	930	-40	—	535	505	910	380	125	131	
			KF2-40P2.2	2.2 × 2	168	363	520	100	930	2	551	535	505	910	380	125	142	
			KF2-40P3.7	3.7 × 2	168	363	520	100	930	2	561	535	505	910	380	125	166	
			KF2-40P5.5	5.5 × 2	183	396	631	118	1044	13	—	650	620	1000	400	145	193	
	65	50	KF2-50P2.2	2.2 × 2	168	363	520	100	930	-40	—	535	505	910	380	125	143	PJ-1026A QGP-55 RK-1060 BK-970
			KF2-50P3.7	3.7 × 2	168	363	520	100	930	2	563	535	505	910	380	125	167	
			KF2-50P5.5	5.5 × 2	183	396	631	118	1044	13	—	650	620	1000	400	145	195	
			KF2-50P7.5	7.5 × 2	183	396	631	118	1044	13	—	650	620	1000	400	145	259	
			KF2-65P3.7	3.7 × 2	183	421	520	120	1018	10	—	650	620	1000	400	145	186	
			KF2-65P5.5	5.5 × 2	203	465	631	120	1044	20	—	650	620	1000	400	145	204	
	80	65	KF2-65P7.5	7.5 × 2	203	465	631	120	1044	20	—	650	620	1000	400	145	265	PJ-1026A QGP-55 RK-1060 BK-1060
			KF2-65P7.5	7.5 × 2	203	465	631	120	1044	20	—	650	620	1000	400	145	265	

Control Panel

ECSG3 type

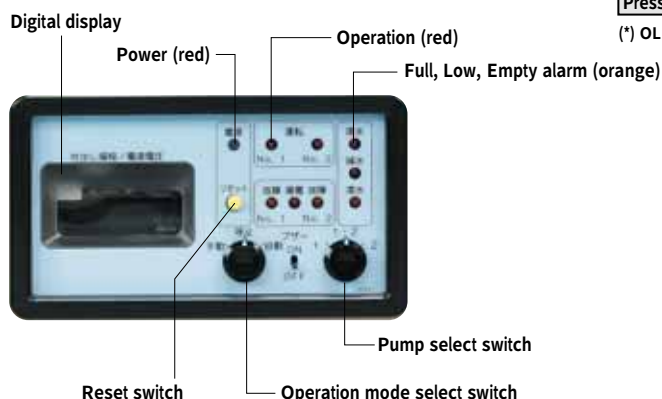


Photo : Example of ECSG3 (below 3.7kw)



※ Emergency back up operation function is equipped

<Display detail>



- Inverter, DC reactor and Earth leakage circuit breaker for each pump
- Noise filter
- Emergency back up operation function
- Circuit for inflow motorized valve for twin reservoir
- Compatible twin reservoir system (5-pole)

Type	ECSG3-A•P
Output	1.1kW or more
Operation method	A alternate, P alternate parallel
Rated voltage	Single 200V, 3 phase 380~440V (200V is also available)
Installation place	Indoors, altitude 1,000m or less, ambient temperature 0 to 40°C, humidity 90% or less
Main components	Earth leakage circuit breaker (with AL) For each pump DC reactor For each pump Noise filter For main circuit and control circuit Inverter For each pump Control PCB With water level sensor
Operation display	Power supply Lamp Operation Lamp (for each pump) Discharge head Digital Power voltage, current, frequency Digital Cumulative operation time/No. of starts Digital
Trouble alarms	Trouble Lamp (for each pump) Pressure drop Lamp (trouble message) Residual current Lamp Pressure transmitter trouble Lamp (trouble message) Full, water level dropping, empty Lamp
Functions	Water level control ○Twin reservoir type (5-pole) Inflow motorized (solenoid) valve control ○Twin reservoir type (3-pole) Pump trouble ○ (Automatic substitute operation [overload, locking, phase failure, short circuit]) Inverter trouble ○ (Automatic substitute operation) Malfunction preventing retry ○ (Refer to following table) Buzzer ○ (With ON-OFF switch)
External no-voltage signal	Operation ○ (independent) Trouble ○ (independent) Full ○ Water level dropping ○ Empty ○

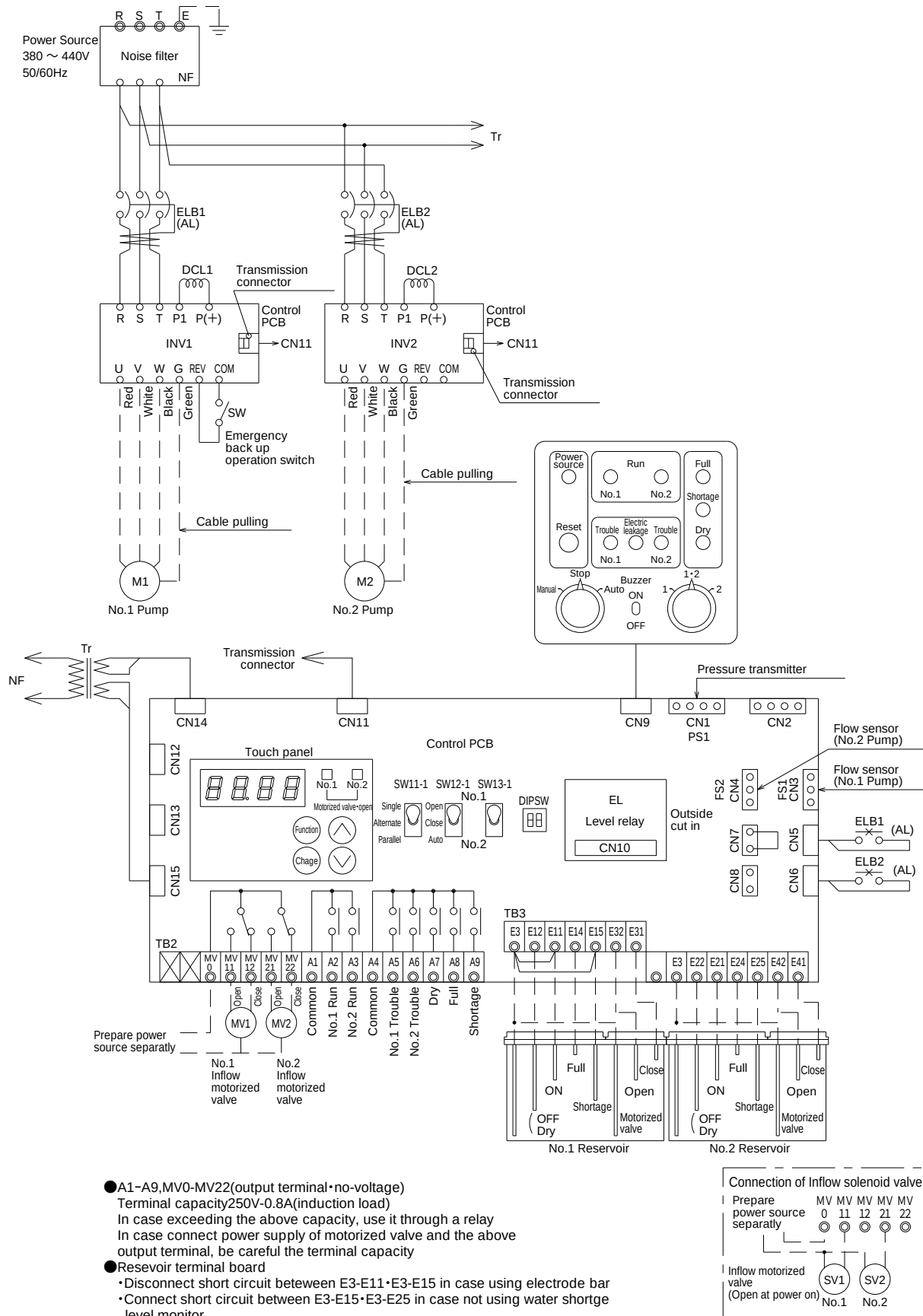
(*) When one special accessory level relay is provided.

■ List of trouble messages

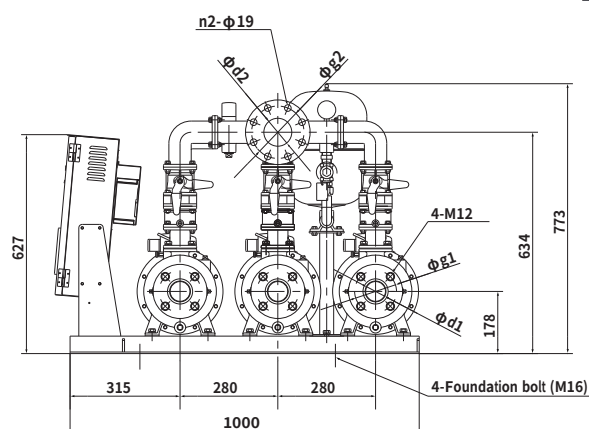
Item	Lamp display	Trouble message	External output	Retry
Inverter	Overload	○Trouble	OC1 to 3*	○
	Locking, phase failure			
	Ground fault			
	Over/undervoltage	○Trouble (overvoltage)	OV-LV	○
Memory error	Inverter heating	○Trouble	OH1	○
	Pressure drop	○Trouble	HdL	○
	Pressure transmitter trouble	○Trouble	PEd	○
				—

(*) OL is displayed when the electronic thermal overload protection activates. (There is no retry.)

7

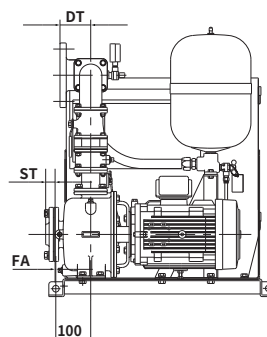


(0.75~3.7kW)

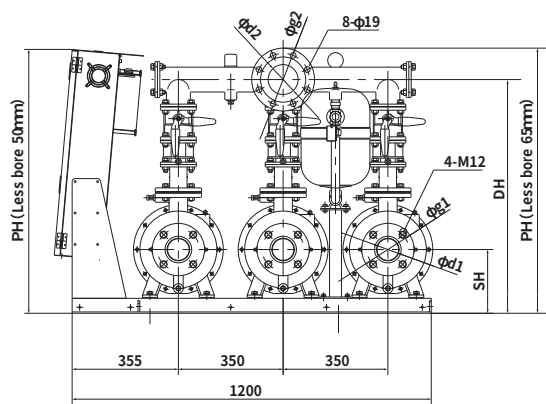


Discharge bore	Suction bore	Flange						
mm	mm	d1	d2	g1	g2	ST	DT	n2
50	32	PT1 $\frac{1}{4}$	PT2	100	120	25	27	4
80	40	PT1 $\frac{1}{2}$	PT3	105	150	25	33	8
	50	PT2	PT3	120	150	25	33	8

Discharge bore	Suction bore	Model	Motor	Combinations	Weight	Vibration proof bed
mm	mm		kW	FA	kg	
50	32	KF2-32T0.75G	0.75 × 3	32	170	QGP-1008142 or PW-1102J311
		KF2-32T1.1G	1.1 × 3	2	195	
		KF2-32T1.9G	1.9 × 3	2	215	
80	40	KF2-40T1.5G	1.5 × 3	44	195	
		KF2-40T2.2G	2.2 × 3	2	215	
		KF2-40T3.7G	3.7 × 3	2	235	
	50	KF2-50T2.2G	2.2 × 3	44	215	
		KF2-50T3.7G	3.7 × 3	2	240	

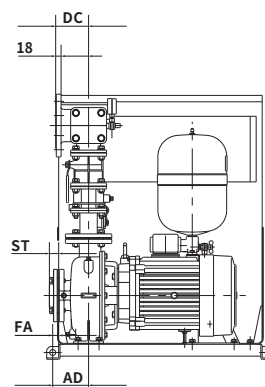


(5.5~7.5kW) ※including 65T3.7

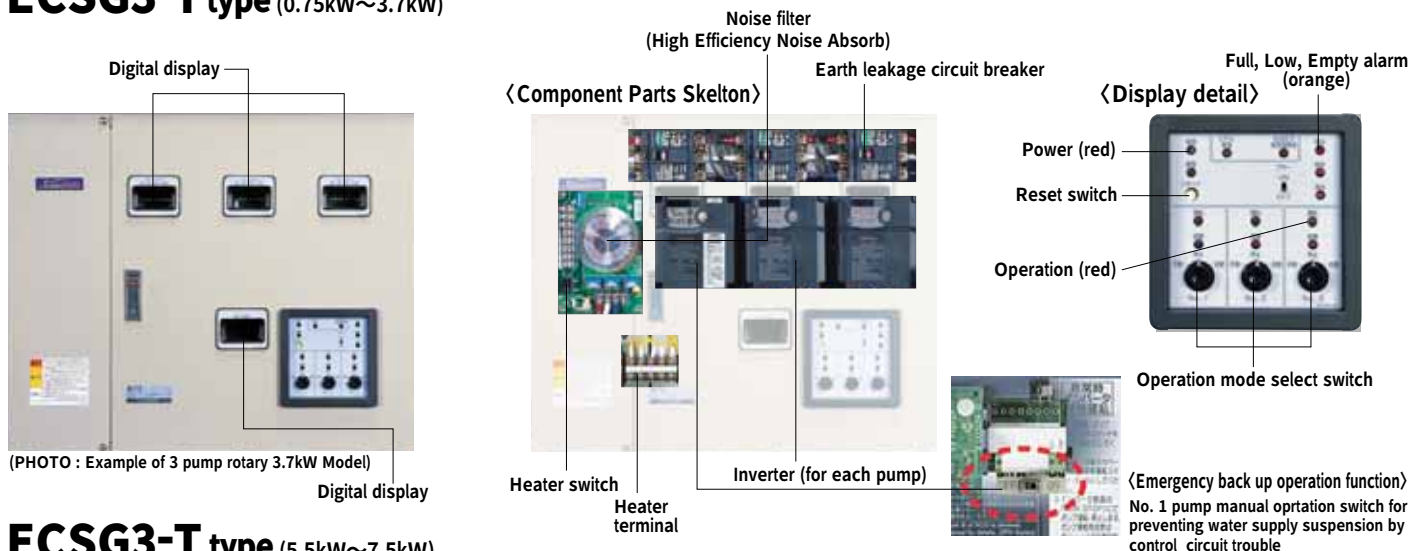


Discharge bore	Suction bore	Flange				
mm	mm	d1	g1	d2	g2	ST
80	40	PT1½	105	150	105	25
	50	PT2	120	150	120	27
100	65	PT2½	140	175	140	31

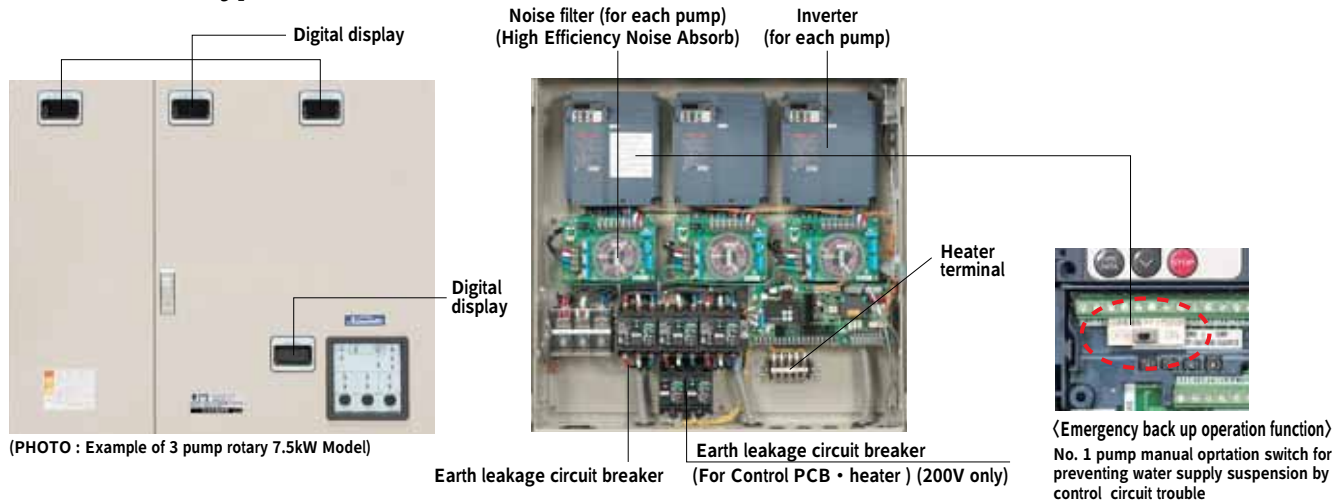
Discharge bore	Suction bore	Model	Motor	Combinations						Weight	Vibration proof bed
mm	mm		kW	DH	SH	PH	AD	FA	DC	kg	
80	40	KF2-40T5.5	5.5 × 3	669	193	882	118	13	88	350	PBKV-MBP100 or PW-1301J231
	50	KF2-50T5.5	5.5 × 3	669	193	882	118	13	88	359	
		KF2-50T7.5	7.5 × 3	669	193	882	118	13	88	425	
100	65	KF2-65T3.7	3.7 × 3	736	213	841	120	10	110	273	
		KF2-65T5.5	5.5 × 3	781	213	886	120	20	110	368	
	65	KF2-65T7.5	7.5 × 3	781	213	886	120	20	110	437	



ECSG3-T type (0.75kW~3.7kW)



ECSG3-T type (5.5kW~7.5kW)



- Inverter, DC reactor and residual current circuit breaker for each pump
- Noise filter, Circuit for inflow motorized valve for twin reservoir
- Emergency backup operation function (1.5~7.5kW)
- Compatible twin reservoir system (5 pole)

Type	ECSG3-T	
Operation method	3 pumps rotary {2/3 or 3/3 (standard)}	
Installation place	Indoor, altitude 1,000m or less, ambient temperature 0 to 40°C, humidity 90% or less	
Main components	Earth leakage circuit breaker (with AL)	For Each pump
	DC reactor	For Each pump
	Noise filter	○ High efficiency noise absorption material incorporated
	Inverter	For Each pump
	Control PCB	Control PCB, Display PCB
	Power supply	Lamp
	Operation	Lamp (for each pump)
	Discharge head	Digital
	Power voltage, current, frequency	Digital
	Cumulative operation time • No. of start	Digital
Operation display	Trouble display	Trouble
	Residual current	Lamp (for each pump)
	Pressure transmitter trouble	Lamp (trouble message)
	Full, water level dropping, empty	Lamp
	Water level control	○ Twin reservoir type (5 pole)
	Inflow motorized (solenoid) valve	○ Twin reservoir type (3 pole)
	Pump trouble	○ Automatic substitute operation
	Inverter trouble	○ Automatic substitute operation
	Discharge pressure transmitter trouble	○
	CPU trouble	○
External non-voltage signal	Buzzer	○ (With ON-OFF switch)
	Emergency backup operation	○ (No. 1 inverter) ※1
	Operation	○ (independent)
	Trouble	○ (independent)
	Full	○
	Water level	○
	dropping	○

(※1) 1.5~7.5kW

List of trouble message

Item	Lamp display	Trouble message	External output (individual trouble)	Retry
Sudden over current (Locking, output side short circuit, ground fault)	○ trouble	OC1~3	○	○
Electric thermal relay work (overload)	○ trouble	OL1/OLU	○	—
Low voltage	○ trouble	LU	○	—
Excess voltage	○ trouble	OU1~3	○	○
Phase failure	○ trouble	OPL	○	—
Overheat	○ trouble	OH1	○	—
Memory trouble	○ trouble	Er1	○	—
CPU trouble	○ trouble	Er3	○	—
Communication trouble	○ trouble	Er8	○	—
Data save error at low voltage	○ trouble	ErF	○	—
Pressure drop	○ trouble	HdL	○	○
Pressure transmitter trouble	○ Pressure transmitter trouble	PEd	○	—
Control PCB trouble	○ CPU trouble	CPE	○	—
Large flow rate operation	—	PE2	—	—

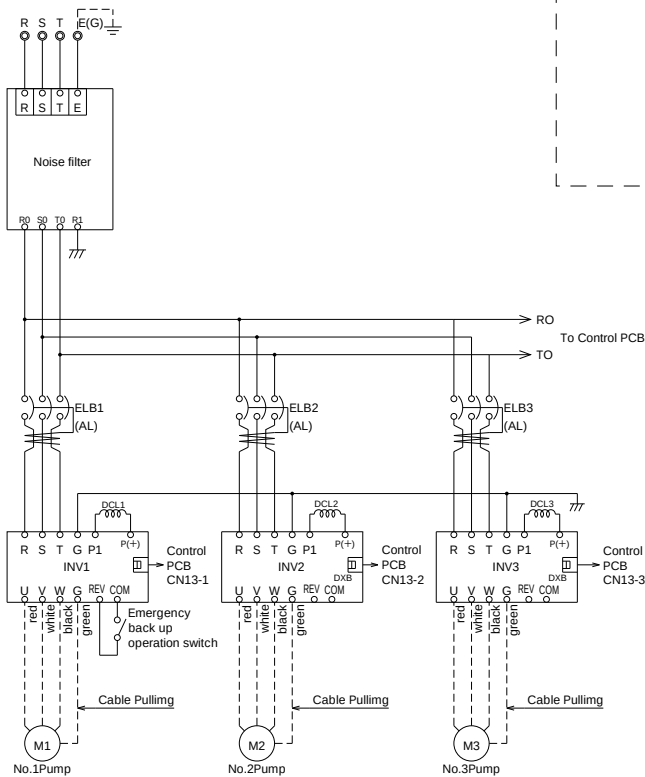
Lightning measures

Lightning surge protection are taken on the "Pumper KF2 and KF2-R" as a standard. However, in special installation places such as on mountain peaks or when the earth resistance is large, the attenuation effect of the lightning surge absorber will drop, so earth the earthing wire to one point with the shortest distance, and always provide special Class 3 (Class C) earthing from this device.

Control Panel Wiring Diagram

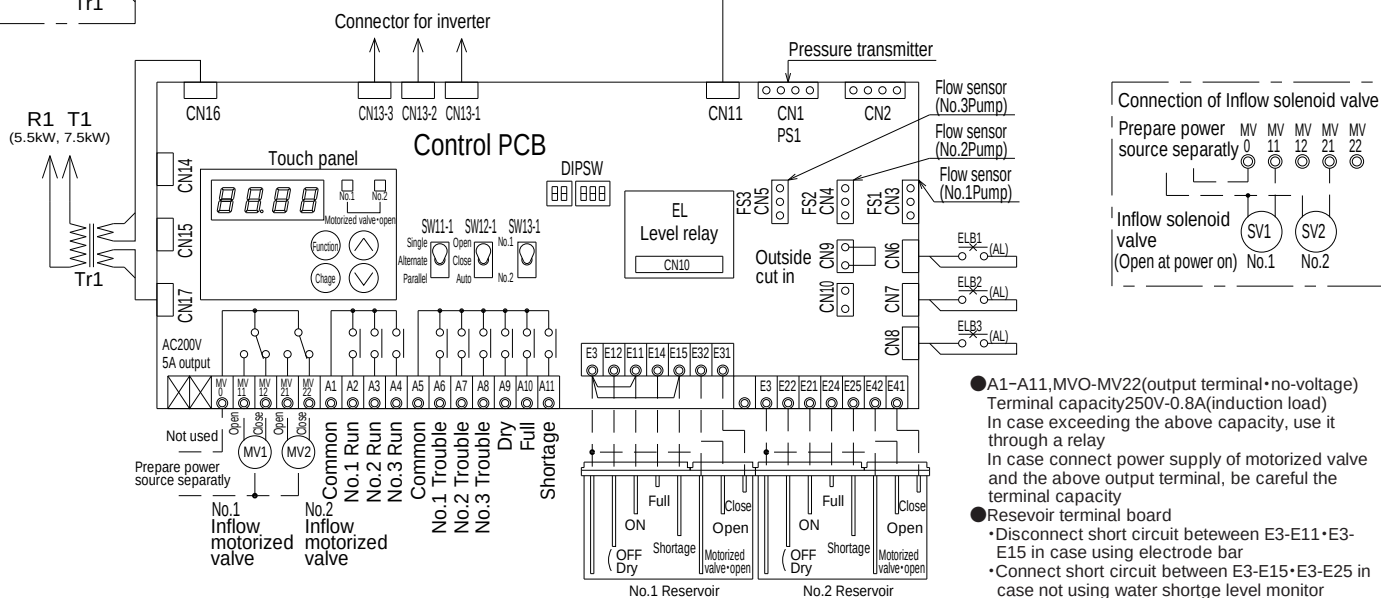
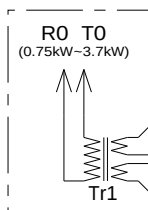
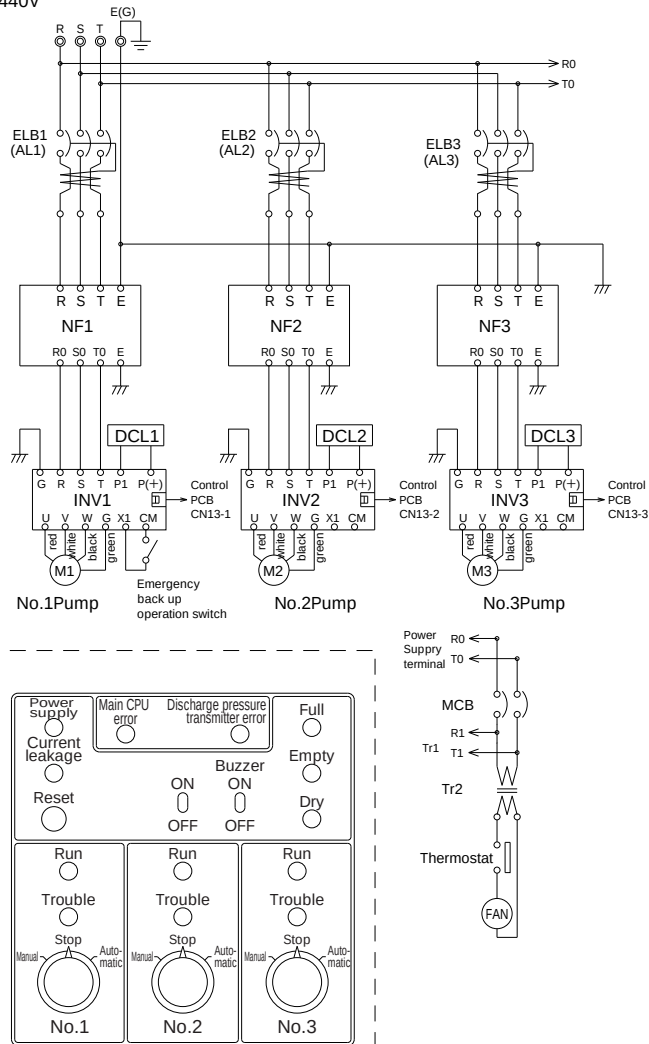
Less than 3.7kW

Power source
AC380~440V
50/60Hz

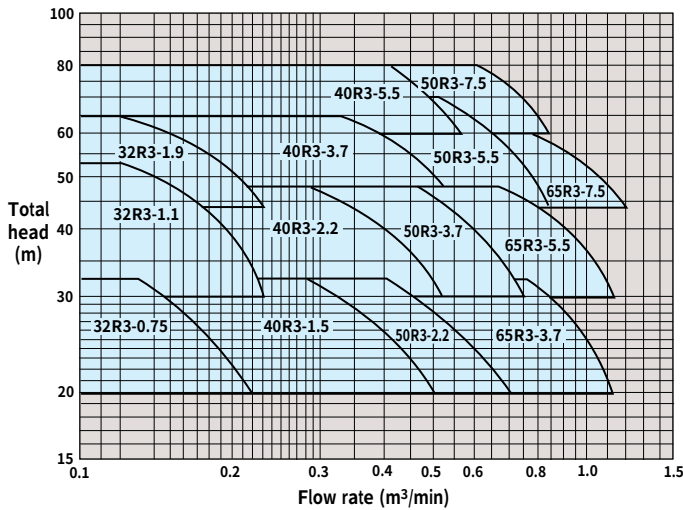


More than 5.5kW

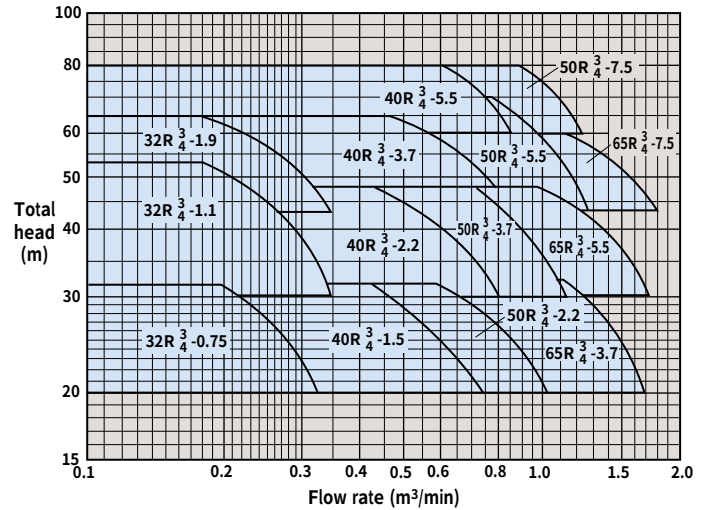
Power source
AC380~440V
50/60Hz



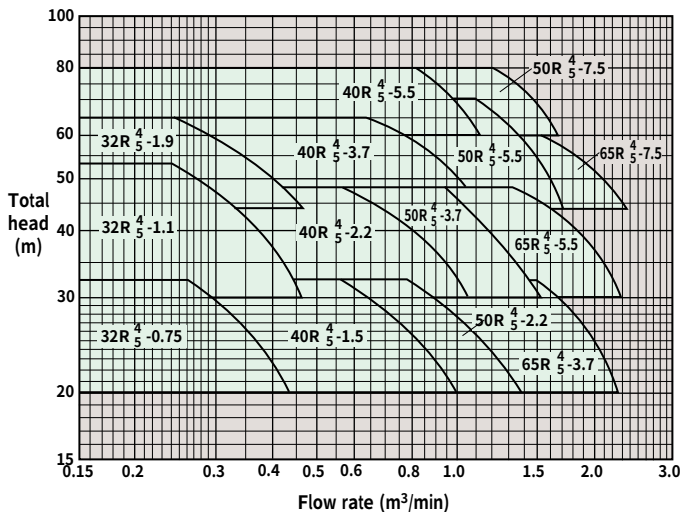
KF2-R3 2/3 Pumps Rotary



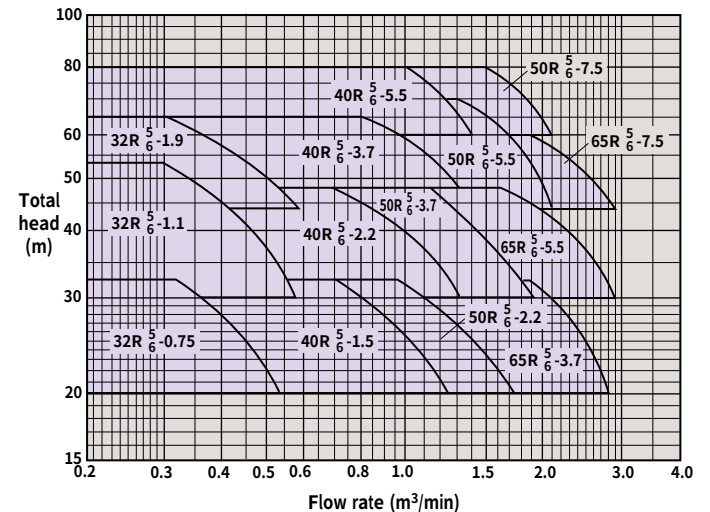
KF2-R3·4 3/3, 3/4 Pumps Rotary



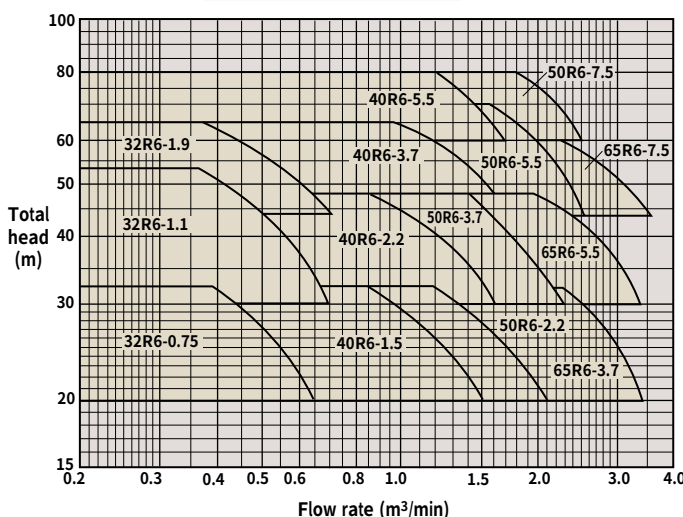
KF2-R4·5 4/4, 4/5 Pumps Rotary



KF2-R5·6 5/5, 5/6 Pumps Rotary

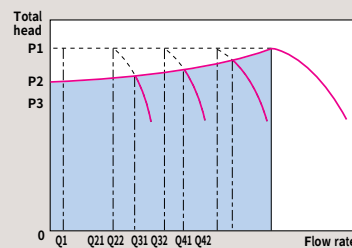


KF2-R6 6/6 Pumps Rotary



(The specifications indicate the values with the unit loss from the check valve, etc., subtracted.)

Explanation of operation



《Example for four-pump rotary》

P1: Set head
P2: Estimated terminal head
P3: Starting head
(P2=0.04MPa {0.4kg/cm²})
Q1: Stop flow rate (10l/min)
Q21, Q22: 2nd pump ON/OFF flow rate
Q31, Q32: 3rd pump ON/OFF flow rate
Q41, Q42: 4th pump ON/OFF flow rate
* The dotted line shows the case for constant discharge pressure operation.

- ① When water is used while the pump is stopped and the pressure drops to P3, the pump will start running.
- ② When the flow rate is between Q1 and Q21 or more, the water supply will continue at the constant pressure at estimated terminal outlet.
- ③ When the flow rate drops to below Q1, the pump will stop.
- ④ If the flow rate is less than Q21, alternate operation will take place.
- ⑤ If the flow rate reaches Q22 or higher while the first pump is running, the second pump will start up and two-pump operation will take place. If the flow rate increases more, the pumps will start up in order of the third pump and fourth pump as Q32 and Q42 are reached, and operation of up to four pumps will take place.
- ⑥ When the flow rate drops below Q41 during four-pump operation, the pressure detector will activate, and the number of operating pumps will be reduced to three pumps. If the used water rate drops further to Q31 or Q21, the pumps will be reduced accordingly, and either two-pump or one-pump operation will take place.
- ⑦ When the flow rate drops to below Q1, the pump will stop.

※ Performance curves and technical information are subject to change without notice. Consult KAWAMOTO PUMP for exact pump specifications.

Specifications Table

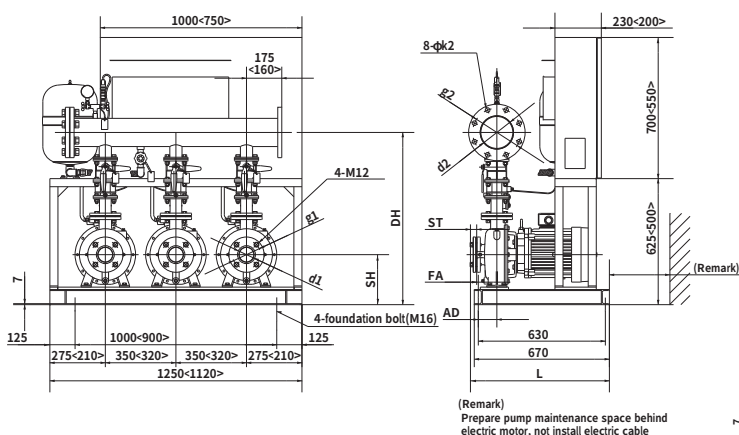
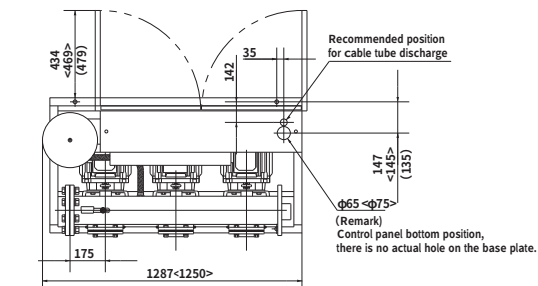
■ Specifications table (Pump stop flow rate: 10 $\frac{1}{2}$ l/min)

Unit bore mm	Suction bore mm	Operation method	Type	Motor (Maximum number of operation units) kW	Standard specifications			Set head adjustment range m	Accumulator charged pressure MPa[kgf/cm ²]	Sound (*1) dB [A]	Power factor (%)		
					Flow rate m ³ /min	Total head m	Set head m					Starting pressure MPa[kgf/cm ²]	
65	32	2/3 pumps rotary	KF2-32R3-0.75G	0.75 × 2	0.13	32	32	0.25{2.5}	20~32	0.19{1.9}	53	90.7	
			KF2-32R3-1.1G	1.1 × 2	0.12	53	53	0.43{4.4}	30~53	0.33{3.4}	54	91.5	
			KF2-32R3-1.9G	1.9 × 2	0.12	65	65	0.54{5.5}	44~65	0.42{4.3}	58	89.9	
80	40		KF2-40R3-1.5G	1.5 × 2	0.28	32	32	0.25{2.5}	20~32	0.19{1.9}	55	92.5	
			KF2-40R3-2.2G	2.2 × 2	0.28	48	48	0.38{3.9}	30~48	0.29{3.0}	55	91.6	
			KF2-40R3-3.7G	3.7 × 2	0.32	65	65	0.54{5.5}	48~65	0.42{4.3}	59	90.3	
100	50		KF2-40R3-5.5G	5.5 × 2	0.41	80	80	0.67{6.8}	60~80	0.58{5.9}	62	91.4	
			KF2-50R3-2.2G	2.2 × 2	0.4	32	32	0.25{2.5}	20~32	0.19{1.9}	57	91.6	
			KF2-50R3-3.7G	3.7 × 2	0.47	48	48	0.38{3.9}	30~48	0.29{3.0}	58	90.3	
125	65		KF2-50R3-5.5G	5.5 × 2	0.5	70	70	0.58{5.9}	44~70	0.50{5.1}	63	91.4	
			KF2-50R3-7.5G	7.5 × 2	0.6	80	80	0.67{6.8}	60~80	0.58{5.9}	66	92.7	
			KF2-65R3-3.7G	3.7 × 2	0.76	32	32	0.25{2.5}	20~32	0.19{1.9}	59	90.3	
3/3,3/4 pumps rotary	3/3,3/4 pumps rotary	KF2-65R3-5.5G	5.5 × 2	0.66	48	48	0.38{3.9}	30~48	0.32{3.3}	63	91.4		
		KF2-65R3-7.5G	7.5 × 2	0.76	60	60	0.49{5.0}	44~60	0.42{4.3}	65	92.7		
		65	32	KF2-32R3(4)-0.75G	0.75 × 3	0.195	32	32	0.25{2.5}	20~32	0.19{1.9}	57	91.3
				KF2-32R3(4)-1.1G	1.1 × 3	0.18	53	53	0.43{4.4}	30~53	0.33{3.4}	59	92.8
				KF2-32R3(4)-1.9G	1.9 × 3	0.18	65	65	0.54{5.5}	44~65	0.42{4.3}	59	91.0
		80	40	KF2-40R3(4)-1.5G	1.5 × 3	0.42	32	32	0.25{2.5}	20~32	0.19{1.9}	59	93.2
				KF2-40R3(4)-2.2G	2.2 × 3	0.42	48	48	0.38{3.9}	30~48	0.29{3.0}	59	89.1
				KF2-40R3(4)-3.7G	3.7 × 3	0.48	65	65	0.54{5.5}	48~65	0.42{4.3}	63	91.7
		100	50	KF2-40R3(4)-5.5G	5.5 × 3	0.6	80	80	0.67{6.8}	60~80	0.58{5.9}	66	92.5
				KF2-50R3(4)-2.2G	2.2 × 3	0.59	32	32	0.25{2.5}	20~32	0.19{1.9}	61	89.1
				KF2-50R3(4)-3.7G	3.7 × 3	0.7	48	48	0.38{3.9}	30~48	0.29{3.0}	63	91.7
		125	65	KF2-50R3(4)-5.5G	5.5 × 3	0.78	70	70	0.58{5.9}	44~70	0.50{5.1}	66	92.5
KF2-50R3(4)-7.5G	7.5 × 3			0.9	80	80	0.67{6.8}	60~80	0.58{5.9}	67	93.3		
KF2-65R3(4)-3.7G	3.7 × 3			1.12	32	32	0.25{2.5}	20~32	0.19{1.9}	63	91.7		
4/4,4/5 pumps rotary	4/4,4/5 pumps rotary	KF2-65R3(4)-5.5G	5.5 × 3	1.0	48	48	0.38{3.9}	30~48	0.32{3.3}	65	92.5		
		KF2-65R3(4)-7.5G	7.5 × 3	1.14	60	60	0.49{5.0}	44~60	0.42{4.3}	67	93.3		
		65	32	KF2-32R4(5)-0.75G	0.75 × 4	0.26	32	32	0.25{2.5}	20~32	0.19{1.9}	59	—
				KF2-32R4(5)-1.1G	1.1 × 4	0.24	53	53	0.43{4.4}	30~53	0.33{3.4}	61	87.8
				KF2-32R4(5)-1.9G	1.9 × 4	0.24	65	65	0.54{5.5}	44~65	0.42{4.3}	61	87.2
		80	40	KF2-40R4(5)-1.5G	1.5 × 4	0.56	32	32	0.25{2.5}	20~32	0.19{1.9}	61	89.9
				KF2-40R4(5)-2.2G	2.2 × 4	0.56	48	48	0.38{3.9}	30~48	0.29{3.0}	61	90.3
				KF2-40R4(5)-3.7G	3.7 × 4	0.64	65	65	0.54{5.5}	48~65	0.42{4.3}	65	92.3
		100	50	KF2-40R4(5)-5.5G	5.5 × 4	0.8	80	80	0.67{6.8}	60~80	0.58{5.9}	68	93.2
				KF2-50R4(5)-2.2G	2.2 × 4	0.79	32	32	0.25{2.5}	20~32	0.19{1.9}	63	90.3
				KF2-50R4(5)-3.7G	3.7 × 4	0.94	48	48	0.38{3.9}	30~48	0.29{3.0}	65	92.3
		125	65	KF2-50R4(5)-5.5G	5.5 × 4	1.1	70	70	0.58{5.9}	44~70	0.50{5.1}	67	93.2
KF2-50R4(5)-7.5G	7.5 × 4			1.19	80	80	0.67{6.8}	60~80	0.58{5.9}	68	93.6		
KF2-65R4(5)-3.7G	3.7 × 4			1.52	32	32	0.25{2.5}	20~32	0.19{1.9}	64	92.3		
5/5,5/6 pumps rotary	5/5,5/6 pumps rotary	KF2-65R4(5)-5.5G	5.5 × 4	1.3	48	48	0.38{3.9}	30~48	0.32{3.3}	66	93.2		
		KF2-65R4(5)-7.5G	7.5 × 4	1.52	60	60	0.49{5.0}	44~60	0.42{4.3}	69	93.6		
		80	32	KF2-32R5(6)-0.75G	0.75 × 5	0.325	32	32	0.25{2.5}	20~32	0.19{1.9}	60	—
				KF2-32R5(6)-1.1G	1.1 × 5	0.3	53	53	0.43{4.4}	30~53	0.33{3.4}	62	90.2
				KF2-32R5(6)-1.9G	1.9 × 5	0.3	65	65	0.54{5.5}	44~65	0.42{4.3}	62	90.2
		100	40	KF2-40R5(6)-1.5G	1.5 × 5	0.7	32	32	0.25{2.5}	20~32	0.19{1.9}	62	90.8
				KF2-40R5(6)-2.2G	2.2 × 5	0.7	48	48	0.38{3.9}	30~48	0.29{3.0}	62	91.7
				KF2-40R5(6)-3.7G	3.7 × 5	0.8	65	65	0.54{5.5}	48~65	0.42{4.3}	66	92.7
		125	50	KF2-40R5(6)-5.5G	5.5 × 5	1.0	80	80	0.67{6.8}	60~80	0.58{5.9}	69	93.4
				KF2-50R5(6)-2.2G	2.2 × 5	0.98	32	32	0.25{2.5}	20~32	0.19{1.9}	64	91.7
				KF2-50R5(6)-3.7G	3.7 × 5	1.17	48	48	0.38{3.9}	30~48	0.29{3.0}	66	92.7
		150	65	KF2-50R5(6)-5.5G	5.5 × 5	1.3	70	70	0.58{5.9}	44~70	0.50{5.1}	68	93.4
KF2-50R5(6)-7.5G	7.5 × 5			1.48	80	80	0.67{6.8}	60~80	0.58{5.9}	69	93.6		
KF2-65R5(6)-3.7G	3.7 × 5			1.87	32	32	0.25{2.5}	20~32	0.19{1.9}	65	92.7		
6/6 pumps rotary	6/6 pumps rotary	KF2-65R5(6)-5.5G	5.5 × 5	1.62	48	48	0.38{3.9}	30~48	0.32{3.3}	67	93.4		
		KF2-65R5(6)-7.5G	7.5 × 5	1.9	60	60	0.49{5.0}	44~60	0.42{4.3}	70	93.6		
		80	32	KF2-32R6-0.75G	0.75 × 6	0.39	32	32	0.25{2.5}	20~32	0.19{1.9}	61	—
				KF2-32R6-1.1G	1.1 × 6	0.36	53	53	0.43{4.4}	30~53	0.33{3.4}	63	90.8
				KF2-32R6-1.9G	1.9 × 6	0.36	65	65	0.54{5.5}	44~65	0.42{4.3}	63	90.8
		100	40	KF2-40R6-1.5G	1.5 × 6	0.84	32	32	0.25{2.5}	20~32	0.19{1.9}	63	91.4
				KF2-40R6-2.2G	2.2 × 6	0.84	48	48	0.38{3.9}	30~48	0.29{3.0}	63	92.1
				KF2-40R6-3.7G	3.7 × 6	0.96	65	65	0.54{5.5}	48~65	0.42{4.3}	67	93.4
		125	50	KF2-40R6-5.5G	5.5 × 6	1.2	80	80	0.67{6.8}	60~80	0.58{5.9}	70	93.5
				KF2-50R6-2.2G	2.2 × 6	1.18	32	32	0.25{2.5}	20~32	0.19{1.9}	65	92.1
				KF2-50R6-3.7G	3.7 × 6	1.4	48	48	0.38{3.9}	30~48	0.29{3.0}	67	93.4
		150	65	KF2-50R6-5.5G	5.5 × 6	1.56	70	70	0.58{5.9}	44~70	0.50{5.1}	69	93.5
KF2-50R6-7.5G	7.5 × 6			1.78	80	80	0.67{6.8}	60~80	0.58{5.9}	70	93.7		
KF2-65R6-3.7G	3.7 × 6			2.24	32	32	0.25{2.5}	20~32	0.19{1.9}	66	93.4		
		KF2-65R6-5.5G	5.5 × 6	1.95	48	48	0.38{3.9}	30~48	0.32{3.3}	68	93.5		
		KF2-65R6-7.5G	7.5 × 6	2.28	60	60	0.49{5.0}	44~60	0.42{4.3}	71	93.7		

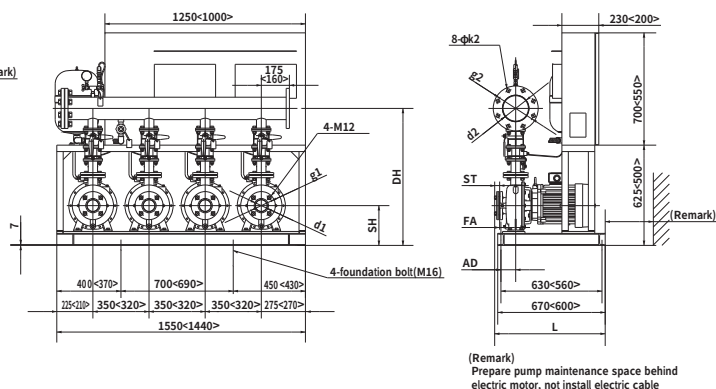
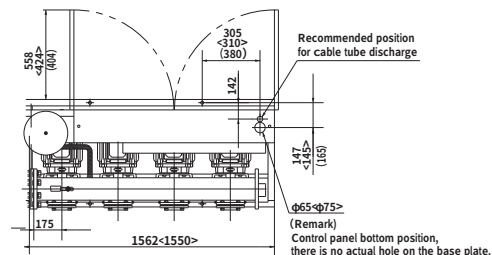
(*1)The noise level is the maximum value given in the specifications. (Reference value)

(Note) When using large amount flow rate such as a flushing valve, please consult KAWAMOTO PUMP.

3 Pumps Rotary



4 Pumps Rotary



Flange (Common in 3 pumps and 4 pumps rotary operation models.)

Unit bore mm	suction bore mm	Flange							
		d1	g1	d2	g2	n2	k2	ST	
65	32	PT1 ¹ / ₄	100	65	140	4	19	25	
		PT1 ¹ / ₄	100	65	140	4	19	25	
		PT1 ¹ / ₄	100	65	140	4	19	25	
80	40	PT1 ¹ / ₂	105	80	150	8	19	25	
		PT1 ¹ / ₂	105	80	150	8	19	25	
		PT1 ¹ / ₂	105	80	150	8	19	25	
100	50	PT2	120	100	175	8	19	27	
		PT2	120	100	175	8	19	27	
125	65	PT2 ¹ / ₂	140	125	210	8	23	31	

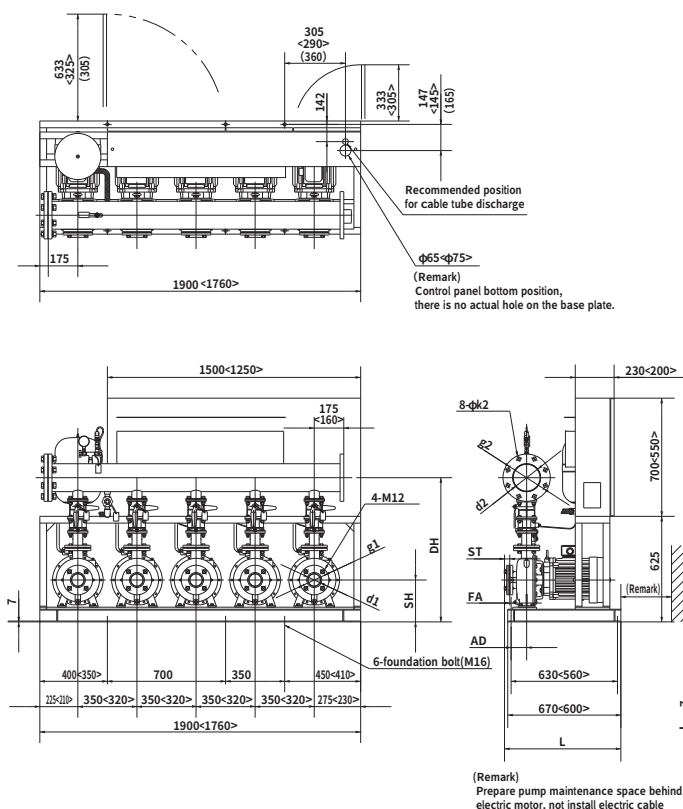
Dimension table

※ There are holes also for power supply cable(with rubber bush) below 3.7kw models.
() is less than 3.7kw models. () is 65mm-3.7kw model. Foundation bolts are optional accessory.

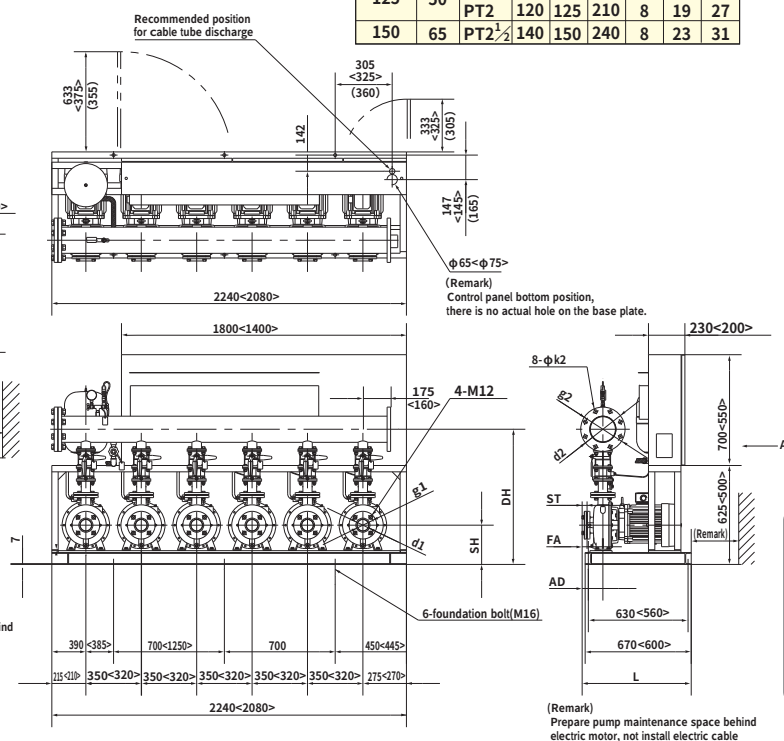
	Unit bore	suction bore	type	Motor	Combinations					Weight	Vibration Proof bed	
	mm	mm		kW	SH	DH	FA	L	AD	kg		
3 pumps rotary	65	32	KF2-32R3-0.75G	0.75	178	676	-23	—	95	202	QGP-88	PW-1101J221
			KF2-32R3-1.1G	1.1	178	676	7	611	95	230		PW-1101J221-1
			KF2-32R3-1.9G	1.9	178	676	7	611	95	248	QGP-92	PW-1301J221
	80	40	KF2-40R3-1.5G	1.5	178	676	-35	—	95	227	QGP-88	PW-1101J221-1
			KF2-40R3-2.2G	2.2	178	676	7	611	95	250		PW-1301J221
			KF2-40R3-3.7G	3.7	178	676	7	611	95	270	QGP-92	PW-1451J351-1
	100	50	KF2-50R3-5.5G	5.5	228	745	15	689	90	403		PW-1451J351-2
			KF2-50R3-2.2G	2.2	178	676	-35	613	95	250	QGP-88	PW-1101J221-1
			KF2-50R3-3.7G	3.7	178	676	7	613	95	275	QGP-92	PW-1301J221-1
	125	65	KF2-50R3-5.5G	5.5	228	745	15	691	90	409		PW-1301J221
			KF2-50R3-7.5G	7.5	228	745	15	691	90	476		PW-1601J281
			KF2-65R3-3.7G	3.7	228	809	8	689	92	368	QGP-93	PW-1451J351-1
4 pumps rotary	65	32	KF2-65R3-5.5G	5.5	248	854	8	689	92	440	QGP-89	PW-1451J351-1
			KF2-65R3-7.5G	7.5	248	854	8	689	92	507		PW-1601J281
	80	40	KF2-32R4-0.75G	0.75	178	676	-23	—	95	256	QGP-89	PW-1451J351-1
			KF2-32R4-1.1G	1.1	178	676	7	611	95	295		PW-1451J351-2
			KF2-32R4-1.9G	1.9	178	676	7	611	95	319	QGP-93	PW-1601J281
	100	50	KF2-40R4-1.5G	1.5	178	676	-35	—	95	291	QGP-89	PW-1451J351-1
			KF2-40R4-2.2G	2.2	178	676	7	611	95	322		PW-1601J281-1
			KF2-40R4-3.7G	3.7	178	676	7	611	95	347	QGP-93	PW-1601J281
	125	65	KF2-40R4-5.5G	5.5	228	745	15	689	90	527		PW-1601J281-1
			KF2-50R4-2.2G	2.2	178	676	-35	613	95	321		PW-1601J281
			KF2-50R4-3.7G	3.7	178	676	7	613	95	353	QGP-89	PW-1601J281-1
			KF2-50R4-5.5G	5.5	228	745	15	691	90	532		PW-1601J281
	125	65	KF2-50R4-7.5G	7.5	228	745	15	691	90	622	QGP-93	PW-1601J281
			KF2-65R4-3.7G	3.7	228	809	8	689	92	463		PW-1601J281-1
			KF2-65R4-5.5G	5.5	248	854	8	689	92	572	QGP-89	PW-1601J281
			KF2-65R4-7.5G	7.5	248	854	8	689	92	657		PW-1601J281-1

L is omitted in case L ≤ 600.
(-) shows reverse direction to the drawing

5 Pumps Rotary



6 Pumps Rotary



Flange (Common in 5 pumps and 6 pumps) rotary operation models.

Unit bore mm	suction bore mm	Frage						
		d1	g1	d2	g2	n2	k2	ST
80	32	PT1 ¹ / ₄	100	80	150	8	19	25
		PT1 ¹ / ₄	100	80	150	8	19	25
		PT1 ¹ / ₄	100	80	150	8	19	25
100	40	PT1 ¹ / ₂	105	100	175	8	19	25
		PT1 ¹ / ₂	105	100	175	8	19	25
		PT1 ¹ / ₂	105	100	175	8	19	25
125	50	PT2	120	125	210	8	19	27
		PT2	120	125	210	8	19	27
150	65	PT2 ¹ / ₂	140	150	240	8	23	31

Dimension table

※There are holes also for power supply cable(with rubber bush) below 3.7kw models.
() is less than 3.7kW models. () is 65mm-3.7kW model. Foundation bolts are optional accessory.

	Unit bore	suction bore	type	Motor	Combinations					Weight	Vibration Proof bed	
	mm	mm		kW	SH	DH	FA	L	AD	kg		
5 pumps rotary	80	32	KF2-32R5-0.75G	0.75	178	676	-23	—	95	313	PBKV-MBP90	PW-175J341
			KF2-32R5-1.1G	1.1	178	676	7	611	95	361		PW-175J341-1
			KF2-32R5-1.9G	1.9	178	676	7	611	95	391		
	100	40	KF2-40R5-1.5G	1.5	178	676	-35	—	95	358	PBKV-MBP94	PW-175J341-2
			KF2-40R5-2.2G	2.2	178	676	7	611	95	397		PW-210J311-1
			KF2-40R5-3.7G	3.7	178	676	7	611	95	429		
	125	50	KF2-50R5-5.5G	5.5	228	745	15	689	90	660	PBKV-MBP90	PW-210J311-2
			KF2-50R5-2.2G	2.2	178	676	-35	613	95	403		PW-175J341-1
			KF2-50R5-3.7G	3.7	178	676	7	613	95	445		
	150	65	KF2-50R5-5.5G	5.5	228	745	15	691	90	675	PBKV-MBP94	PW-210J311-1
			KF2-50R5-7.5G	7.5	228	745	15	691	90	784		PW-210J311-2
			KF2-65R5-3.7G	3.7	228	809	8	689	92	571		PW-210J311
6 pumps rotary	80	32	KF2-65R5-5.5G	5.5	248	854	8	689	92	720	PBKV-MBP94	PW-210J311-1
			KF2-65R5-7.5G	7.5	248	854	8	689	92	824		PW-210J311-2
			KF2-32R6-0.75G	0.75	178	676	-23	—	95	368	PBKV-MBP91	PW-210J301
	100	40	KF2-32R6-1.1G	1.1	178	676	7	611	95	424		PW-210J301-1
			KF2-32R6-1.9G	1.9	178	676	7	611	95	460		
			KF2-40R6-1.5G	1.5	178	676	-35	—	95	420	PBKV-MBP95	PW-210J301
	125	50	KF2-40R6-2.2G	2.2	178	676	7	611	95	467		PW-210J301-1
			KF2-40R6-3.7G	3.7	178	676	7	611	95	504		
			KF2-40R6-5.5G	5.5	228	745	15	689	90	788	PBKV-MBP91	PW-230J171-1
	150	65	KF2-50R6-2.2G	2.2	178	676	-35	613	95	472		PW-210J171-1
			KF2-50R6-3.7G	3.7	178	676	7	613	95	520		
			KF2-50R6-5.5G	5.5	228	745	15	691	90	808	PBKV-MBP95	PW-230J171-1
	150	65	KF2-50R6-7.5G	7.5	228	745	15	691	90	936		PW-230J171
			KF2-65R6-3.7G	3.7	228	809	8	689	92	672		
			KF2-65R6-5.5G	5.5	248	854	8	689	92	855	PBKV-MBP95	PW-230J171-1
			KF2-65R6-7.5G	7.5	248	854	8	689	92	986		PW-230J171-2

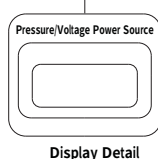
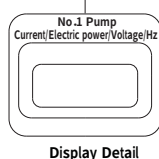
L is omitted in case L≤600.

(-) shows reverse direction to the drawing

Control Panel

ECSG3-R type

(PHOTO : 6 Pumps Rotary 3.7 kW Model)



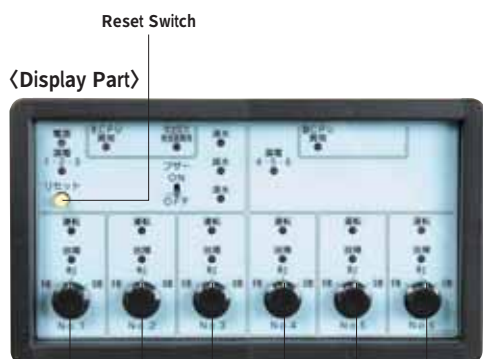
Noise Filter
(High Efficiency Noise Absorb)

Earth leakage circuit breaker
and DC Reactor



Inverter

Heater Terminal



<Display Part>

Operation Mode Select Switch

- Inverter, DC reactor and Earth leakage circuit breaker for each pump
- Noise filter, double tank type inflow motorized valve circuit
- Compatible twin reservoir (5-pole)
- Backup functions for pressure transmitter trouble and control PCB trouble

Type	ECSG3-R
Operation method	Multiple pump control rotary (three to six pump operation)
Rated voltage	3 phase 380~440V (200V is also available)
Installation place	Indoors, altitude 1,000m or less, ambient temperature 0 to 40°C, humidity 90% or less
Main components	Earth leakage circuit breaker (with AL)
	DC reactor
	Noise filter
	Inverter
Operation display	Control PCB
	Power supply
	Operation
	Discharge head
Operation alarms	Power voltage, current, frequency
	Cumulative operation time/No. of starts
	Trouble
	Pressure drop
Functions	Residual current
	Pressure transmitter trouble
	Full, water level dropping, empty
	Water level control
Signal	Inflow motorized (solenoid) valve control
	Pump trouble
	Inverter trouble
	Malfunction preventing retry
External no-voltage signal	Pressure transmitter trouble
	Control PCB trouble
	Buzzer
	Operation
Full	Trouble
	Water level dropping
	Empty

List of trouble messages (type KF2-R)

	Item	Lamp display	Trouble message	External output	Retry	Backup operation
Inverter	Overload	○Trouble	OL	○	—	○
	Locking, phase failure	○Trouble	OC1 to 3	○	—	○
	Ground fault	○Trouble	OC1 to 3	○	—	○
	Over/under voltage	○Trouble	OV-LV	○	○	○
	Inverter heating	○Trouble	OH1	○	—	○
	Pressure drop	○Trouble	HdL	○	—	○
Pressure transmitter trouble	Pressure transmitter trouble	○Trouble	PEd	○	—	○
	Control PCB trouble	○Trouble	ECU	○	—	○

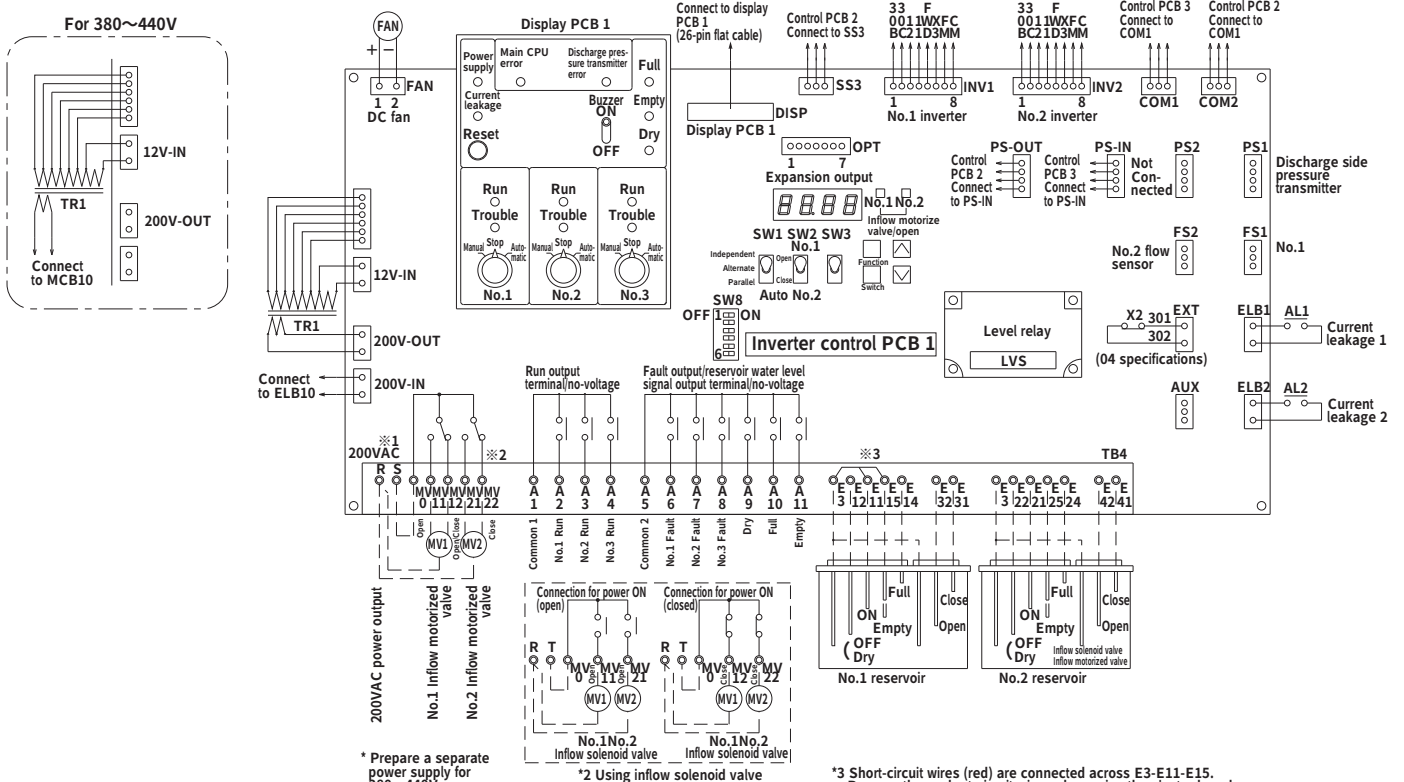
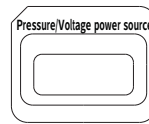
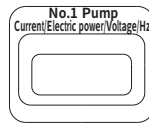
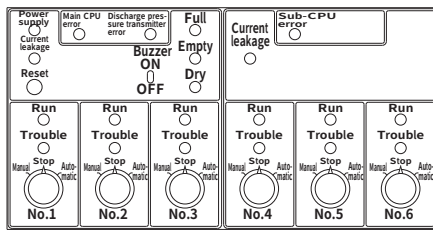
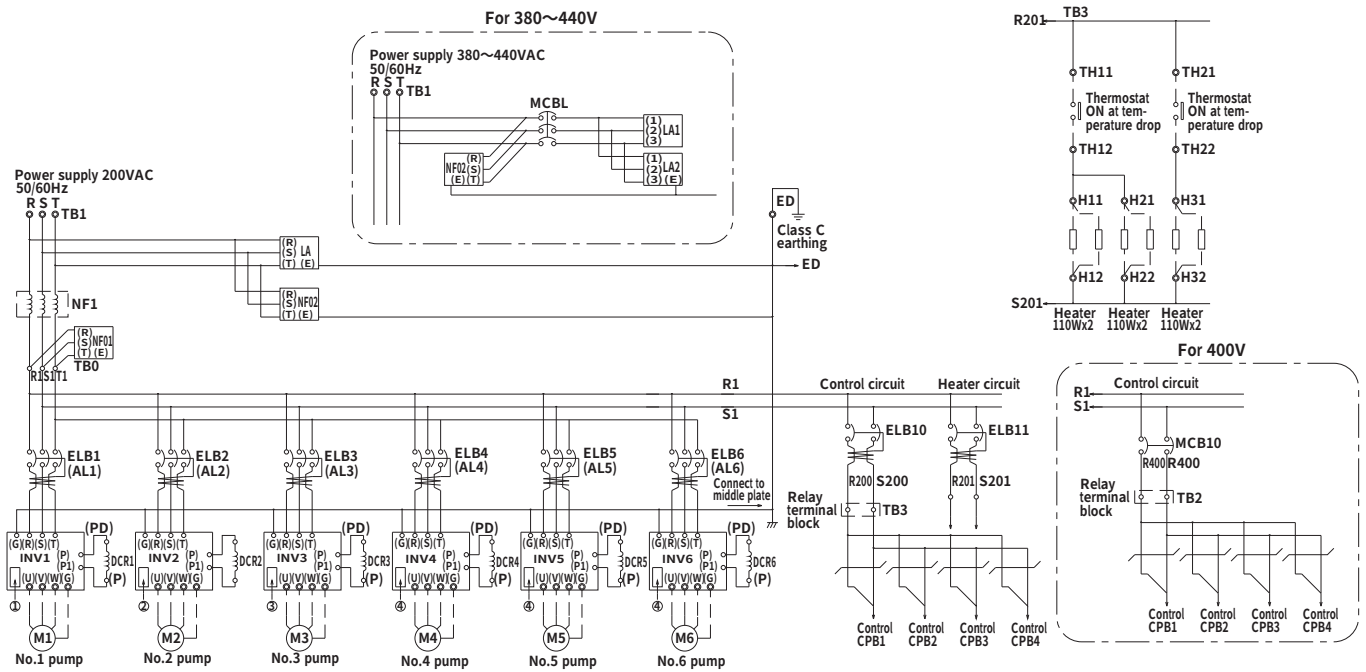
Back up (substitutional) operation

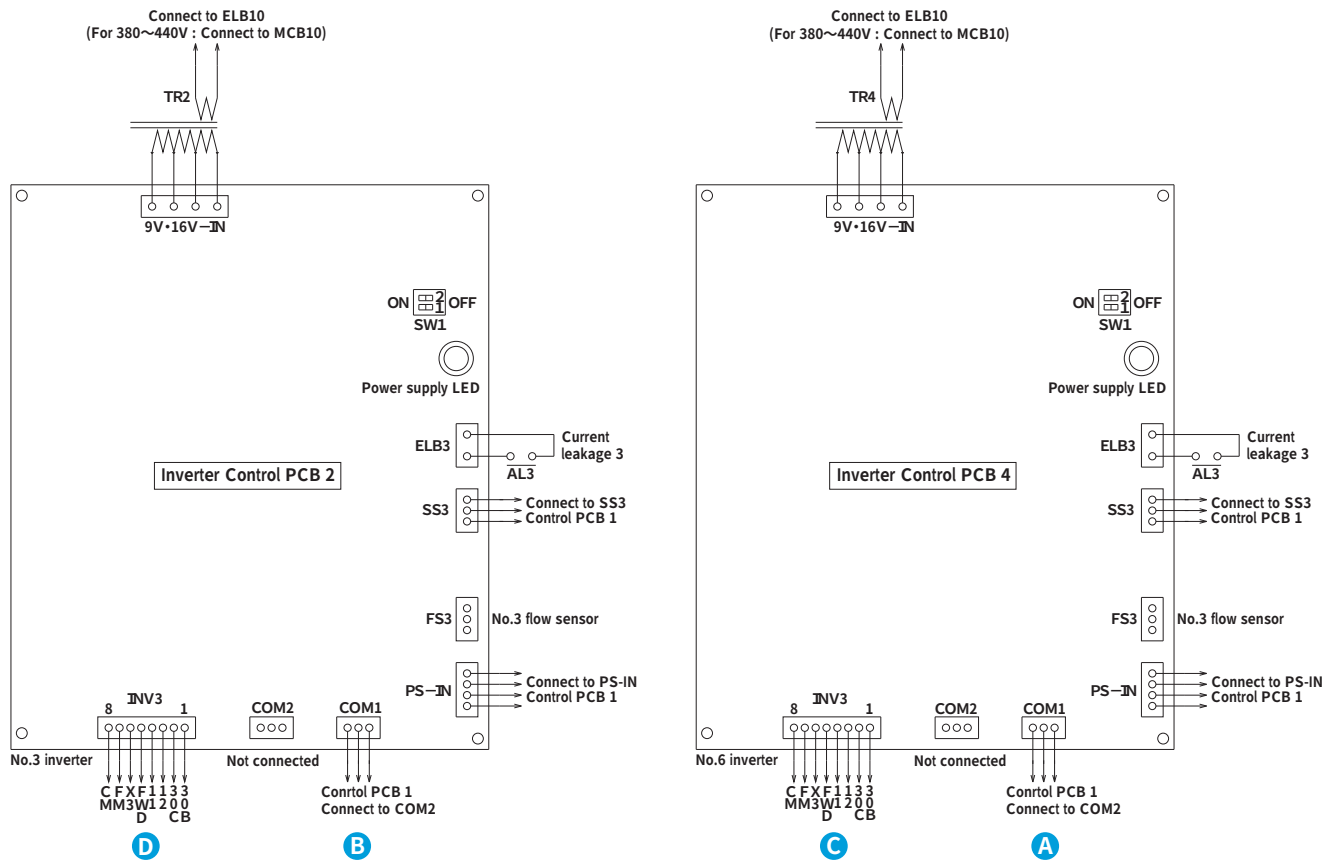
If trouble occurs, a normal control PCB, inverter and pump are automatically selected, and operation is continued.

Lightning measures

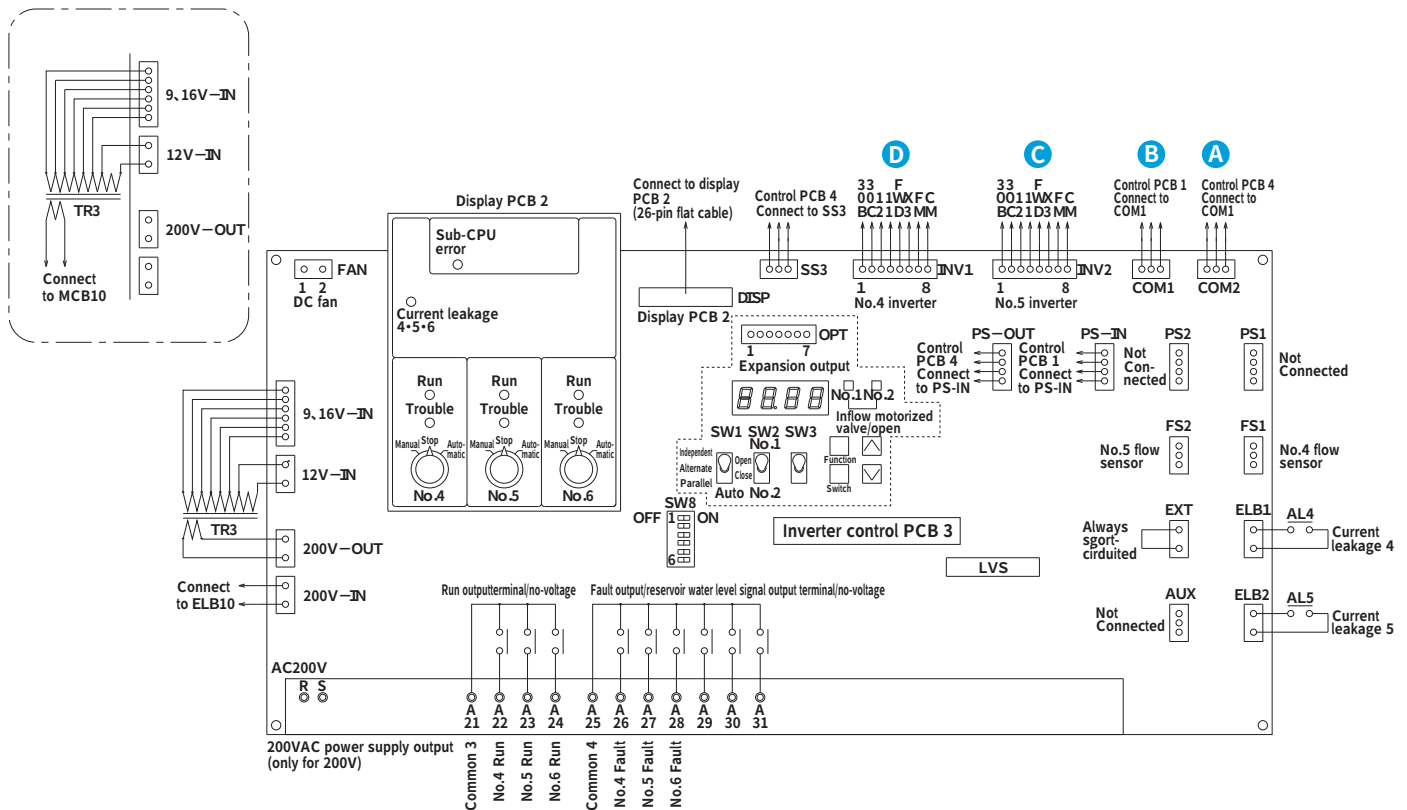
Lightning surge protection are taken on the "Pumper KF2 and KF2-R" as a standard. However, in special installation places such as on mountain peaks or when the earth resistance is large, the attenuation effect of the lightning surge absorber will drop, so earth the earthing wire to one point with the shortest distance, and always provide special Class 3 (Class C) earthing from this device.

Control Panel Wiring Diagram





For 380~440V

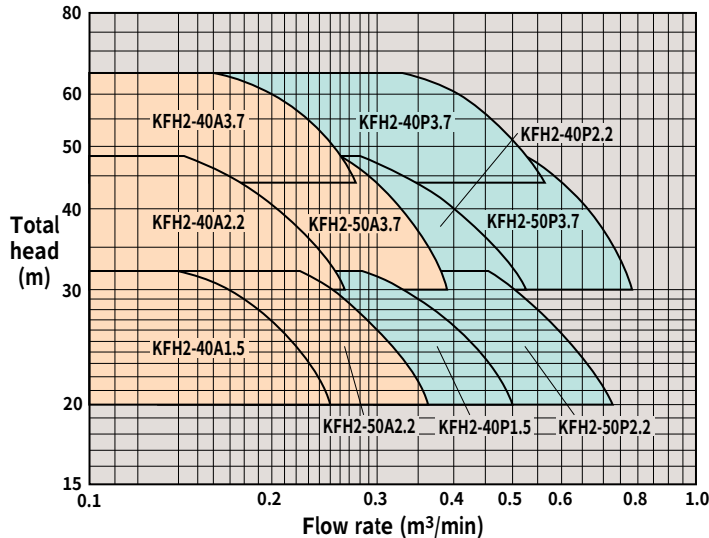




Standard specifications

Control method	Constant pressure at estimated terminal outlet using frequency control (constant discharge pressure also possible)
Operation method	Alternate or alternate/parallel of 2 pumps
Installation place	Indoors (ambient temperature 0 to 40°C, humidity 90% or less, altitude 1,000m or less)
Liquid	Clean water, 0 to 85°C
Pump (material)	Stainless steel multi-stage turbine pump (impeller : SCS13, shaft: water contact section SUS304, casing : SCS13)
Motor	TEFC indoor type No. of poles: 2 poles (max. frequency during automatic operation: 60 Hz)
Suction conditions	Positive suction (0 to 5m)
Power supply	3 phase 380~440V (200V is also available)
Phase flange shape	JIS 10 K thin type
Paint color (Munsell No.)	Control panel: gray (5Y7/1), accumulator: gray (10Y5.5/0.5), others: gray (2.5PB5.1/0.8)

Selection chart



Selection table (Pump stop flow rate: 10 l/min)

sidcharge bore	suction bore	Operation	Model	Motor (Maximum number of operation units)	Standard specifications			Set head adjustment range	Accumulator charged pressure	Sound (*1)	Vibration proof bed
					Flow rate	Total head	Starting pressure				
mm	mm			mm	kW	m³/min	m	MPa{kgf/cm²}	m	MPa{kgf/cm²}	
40	40	Alternate	KFH2-40A1.5	1.5	0.14	32	0.25 {2.5}	20~32	0.12 {1.2}	50~52	QGP-38 or PJ--935A or RK-960 or BK-970
			KFH2-40A2.2	2.2	0.14	48	0.38 {3.9}	30~48	0.20 {2.0}	50~53	
			KFH2-40A3.7	3.7	0.16	65	0.54 {5.5}	44~65	0.31 {3.2}	55~58	
			KFH2-50A2.2	2.2	0.225	32	0.25 {2.5}	20~32	0.12 {1.2}	53~56	
	KFH2-50A3.7		3.7	0.265	48	0.38 {3.9}	30~48	0.20 {2.0}	55~57		
50	40	KFH2-40P1.5	1.5 x 2	0.28	32	0.25 {2.5}	20~32	0.12 {1.2}	50~55		
		KFH2-40P2.2	2.2 x 2	0.28	48	0.38 {3.9}	30~48	0.20 {2.0}	50~56		
		KFH2-40P3.7	3.7 x 2	0.32	65	0.54 {5.5}	44~65	0.31 {3.2}	55~61		
65	50	Alternate/Parallel	KFH2-50P2.2	2.2 x 2	0.45	32	0.25 {2.5}	20~32	0.12 {1.2}	53~59	
			KFH2-50P3.7	3.7 x 2	0.53	48	0.38 {3.9}	30~48	0.20 {2.0}	55~60	

(Note) When using flushing valve, select 2.2kW or more.

(*1) The noise level is the maximum value given in the specifications.

■ Please refer to KF2-A-P (P5~6) about control panel.

■ Dimension drawing : Please inquire us.

Application

- Exclusive hot water supply automatic pressure unit : Max 85°C
- Booster for water heater, solar water heater, etc.

Feature

- Precision stainless steel casting pump unit
- Constant pressure hot water supply at estimated terminal outlet : Energy saving 40% Max.
- Substantial standard equipments : Inverter for each pump, residual current circuit breaker
- High reliability : TEFC motor, surge killer, noise filter, DC reactor
- High power factor : Power factor more than 85.5%
- Unified domestic standard : Common specification in 50Hz and 60Hz

Components parts

Control panel	ECSGA3-A-P
Flow sensor	○
Pressure transmitter	○
Check valve	○ (Stainless steel shockless type)
Accumulator	○ (PTD3-2AS)
Others	Companion flange, base

Special specification

- With BK Type vibration proof bed

Optional accessory

- Pump cover
- Water level sensor
- Discharge connecting pipe for other direction
- Vibration isolator
- Foot valve



SAFETY PRECAUTIONS

- Always read the instruction manual carefully before starting to ensure correct use.
- Select a product which matches the application. Using the pump in an incorrect application could lead to faults.
- Always follow the Electrical Facility Technology Standards and in-house standards and safety and accurately select and complete electrical wiring work.
- Always ground the unit and install the dedicated residual current circuit breaker. There is a risk of failure or electric shock in the event of a failure or residual current. Consult your dealer for information on grounding the unit.

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No.	0810 ⑧ / E