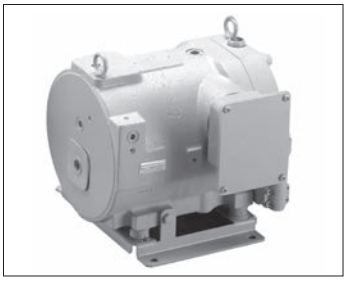
RP series Rotor Pumps



Features

- **Low noise**
  Substantial reduction of the operation noise, by 10 to 15 db (comparison with DAIKIN products), and improved sound quality are achieved by adopting noise reduction technology unique to DAIKIN.
- **Downsizing**
  The integrated structure reduces the total length by approximately 40% in comparison with DAIKIN conventional models, makes handling simpler, and is leading to downsizing the main machine.
- **Low pulsation**
  Pulsation has also been reduced by approximately 50% in comparison with DAIKIN conventional models.
- **High reliability**
  The fully enclosed structure with no shaft protruding from the casing eliminates the possibility of oil leakage without an oil seal. In addition, the oil-cooled motor suppresses temperature rise of the coil and enables prolonged continuous overloaded operation.
- **CE compliant**
  These models are best suited to integration into European Safety Standard (CE) compliant equipment since they are equipped with a terminal box that satisfies the IP54 ingress protection grade and complies with international standards such as EN60034-1.

Nomenclature

- **Pressure compensator control**

RP	※※	A	※	–	※※	※	–	30	※※	–	※
1	2	3	4		9	10		11	12		13

- **Combination control (pressure feedback method)**

RP	※※	C	※	※	H	–	※※	※	–	30
1	2	3	5	6	7		9	10		11

- **Combination control (solenoid operated method)**

RP	※※	C	※	※	J	※	–	※※	※	–	30
1	2	3	5	6	7	8		9	10		11

Note: Refer to Page C-6 for possible combinations of pump capacities, control methods, and motor outputs.

1 Model No.
RP: RP series rotor pump

2 Pump capacity
08: 8.0 cm^3/rev
15: 14.8 cm^3/rev
23: 24.4 cm^3/rev
38: 37.7 cm^3/rev

3 Control method I
A: Pressure compensator control
C: Combination control

4 Pressure adjustment range
(See the pressure adjustment range table)

5 Low pressure adjustment range
1: 2.5 to 7 MPa {25 to 70 kgf/cm^2}
2: 2.5 to 14 MPa {25 to 140 kgf/cm^2}

6 High pressure adjustment range
1: 2.5 to 7 MPa {25 to 70 kgf/cm^2}
2: 2.5 to 14 MPa {25 to 140 kgf/cm^2}
3: 3.5 to 21 MPa {35 to 210 kgf/cm^2}

7 Control method II
H: Pressure feedback method
J: Solenoid operated method

8 Voltage code for the solenoid valve
A: AC 100 V (50/60 Hz), AC 110 V (60 Hz)
B: AC 200 V (50/60 Hz), AC 220 V (60 Hz)
P: DC 24 V

9 Motor output (See the motor specification table)

10 Voltage specifications
No designation: AC 200 V (50/60 Hz), AC 220 V (60 Hz)
X: AC 230 V (50 Hz)
Y: AC 380 V (50 Hz), AC 400 V (50/60 Hz)
AC 415 V (50 Hz), AC 440 V (60 Hz)
AC 460 V (60 Hz)

11 Design No.
(The design No. is subject to change)

12 Control method III
No designation: Without remote control system
RC: With remote control system

13 Pump installation
No designation: Foot support mount
T: Vertical installation*1

Note: *1 Vertical installation can only be applied to RP08 and RP15. Since the vibration-absorbing rubber pad has no effect in vertical installation, be sure to secure sufficient rigidity on the mounting base and incorporate a structure that absorbs vibration. Insufficient rigidity of the mounting base may cause noise and vibration.

Refer to Page N-8 for NDR series rotor packs, i.e. hydraulic units equipped with an RP series rotor pump.

Models and pressure adjustment range table

● **Pressure compensator control**

4 Pressure adjustment range

Code	Pressure adjustment range MPa {kgf/cm^2}	Without remote control system				With remote control system			
		RP08	RP15	RP23	RP38	RP08	RP15	RP23	RP38
1	1.5 to 7 {15 to 70}	✓	✓	✓	✓	–	–	–	–
1	2.0 to 7 {20 to 70}	–	–	–	–	✓	–	–	–
2	1.5 to 14 {15 to 140}	✓	✓	✓	✓	–	–	–	–
2	2.0 to 14 {20 to 140}	–	–	–	–	✓	✓*1	✓*2	✓
3	2.0 to 21 {20 to 210}	–	–	–	–	–	✓*2	✓*3	✓*4
3	3.5 to 21 {35 to 210}	–	✓*2	✓*3	✓*4	–	–	–	–

Note: *1 Applies only to the models with the motor output of 1.5 kW.
*2 Applies only to the models with the motor output of 2.2 kW.
*3 Applies only to the models with the motor output of 3.7 kW.
*4 Applies only to the models with the motor output of 5.5 kW.

● **Combination control**

5 Low pressure adjustment range

Code	Pressure adjustment range MPa {kgf/cm^2}	Without remote control system							
		Pressure feedback method				Solenoid operated method			
		RP08	RP15	RP23	RP38	RP08	RP15	RP23	RP38
1	2.5 to 7 {25 to 70}	–	✓	✓	✓	–	✓	✓	✓
2	2.5 to 14 {25 to 140}	–	✓	✓	✓	–	✓	✓	✓

6 High pressure adjustment range

Code	Pressure adjustment range MPa {kgf/cm^2}	Without remote control system							
		Pressure feedback method				Solenoid operated method			
		RP08	RP15	RP23	RP38	RP08	RP15	RP23	RP38
1	2.5 to 7 {25 to 70}	–	✓	✓	✓	–	✓	✓	✓
2	2.5 to 14 {25 to 140}	–	✓	✓	✓	–	✓	✓	✓
3	3.5 to 21 {35 to 210}	–	✓	✓	✓	–	✓	✓	✓

9 : Motor output

Code	Output kW (Number of poles: 4P)	Insulation type	Applicable model			
			RP08	RP15	RP23	RP38
07	0.75	Type B	✓	–	–	–
15	1.5		–	✓	–	–
22	2.2		–	✓	✓	–
37	3.7		–	–	✓	✓
55	5.5		–	–	–	✓

Specifications

Model code	Pump			Motor				Mass kg
	Theoretical discharge rate cm^3/rev	Maximum operating pressure MPa {kgf/cm^2}	Discharge rate adjustment range 60 Hz L/min	Output kW (Number of poles: 4P)	Rated current A*3			
					200 V (50 Hz)	200 V (60 Hz)	220 V (60 Hz)	
RP08A※-07-30(RC)	8.0	14 {140}*1	4.8 to 14.0	0.75	3.8	3.4	3.4	30
RP15A※-15-30(RC)	14.8	14 {140}	12.0 to 25.0	1.5	6.8	6.0	5.8	45
RP15A※-22-30(RC)		21 {210}		2.2	9.6	8.8	8.4	
RP15C※※H(J)-15-30		21 {210}	High quantity adjustment range 12.0 to 25.0*2 Low quantity adjustment range 3.5 to 10.0	1.5	6.8	6.0	5.8	H:50 (J:52)
RP15C※※H(J)-22-30				2.2	9.6	8.8	8.4	
RP23A※-22-30(RC)	24.4	14 {140}	20.0 to 42.0	2.2	10.0	9.2	8.7	67
RP23A※-37-30(RC)		21 {210}		3.7	15.1	14.7	13.4	73
RP23C※※H(J)-22-30		21 {210}	A*2	2.2	10.0	9.2	8.7	H:70 (J:72)
RP23C※※H(J)-37-30			B*2	3.7	15.1	14.7	13.4	H:76 (J:78)
RP38A※-37-30(RC)	37.7	14 {140}	20.0 to 64.0	3.7	15.1	14.7	13.4	73
RP38A※-55-30(RC)		21 {210}		5.5	22.0	21.2	19.6	87
RP38C※※H(J)-37-30		21 {210}	High quantity adjustment range 30.0 to 64.0*2 Low quantity adjustment range 5.8 to 25.0	3.7	15.1	14.7	13.4	H:76 (J:78)
RP38C※※H(J)-55-30				5.5	22.0	21.2	19.6	H:90 (J:92)

The unit is painted in white (Munsell code N8.5).

Note: *1 Some restrictions apply to the conditions of use when using the product at a pressure in the range 7 to 14 MPa {70 to 140 kgf/cm^2}.

○ JR-G(T)02 and JRP-G02 are recommended for the remote control system's relief valve. If the vent port is blocked, the pressure compensation structure does not work and the pump operates at a fixed pressure. In such a case, connect a relief valve at the discharge side of the pump.

*2 The high quantity adjustment range may be restricted due to the setting for the low quantity range. See the graphs on Page C-9 for details.

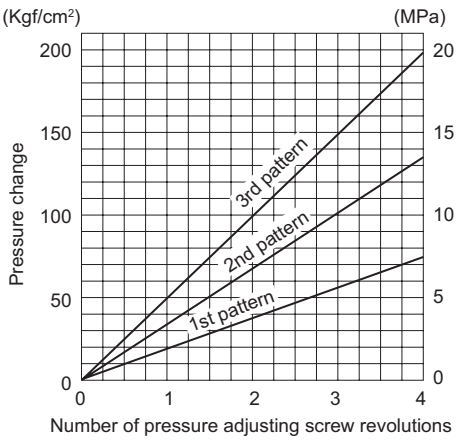
A: RP23-22 High quantity adjustment range: 20.0 to 42.0, Low quantity adjustment range: 3.7 to 15.0

B: RP23-37 High quantity adjustment range: 30.0 to 42.0, Low quantity adjustment range: 5.8 to 25.0

*3 Refer to Page C-11 for the reference current values for selecting the thermistor capacity.

● Piping flanges are not provided with the pump. Order them separately as required by referring to Page S-4.

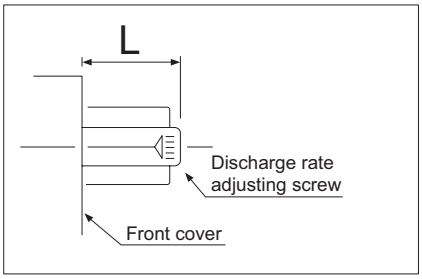
Relationship between number of revolutions of the pressure adjusting screw and variation of discharge pressure



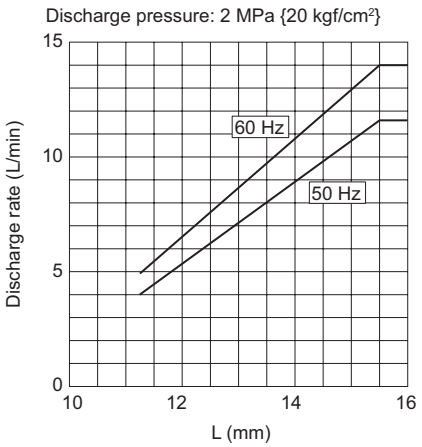
- ○ Although the discharge pressure varies depending on the load conditions, the PC pressure setting that serves as the upper limit for the discharge pressure can be set using the PC valve's pressure adjusting function.
  - Turning the adjusting screw clockwise (tightening direction) increases the PC pressure setting.
  - Turning the adjusting screw counterclockwise (loosening direction) decreases the PC pressure setting.
- ○ Excessive loosening of the pressure adjusting screw may cause oil to leak from the threaded section or parts to spring out. Do not loosen the screw beyond the pressure adjustment range.
- ○ The 1st to 3rd patterns correspond to the pressure adjustment range designation codes 1 to 3.

Relationship between the protruding length of the discharge rate adjusting screw and the discharge rate (pressure compensator control)

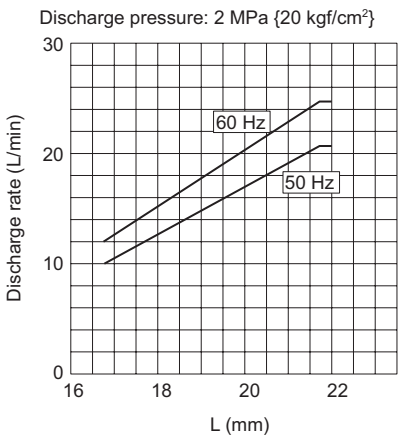
- ○ The discharge rate can be set to the desired value by turning the discharge rate adjusting screw provided on the front cover.
  - Turning the adjusting screw clockwise (tightening direction) decreases the discharge rate.
  - Turning the adjusting screw counterclockwise (loosening direction) increases the discharge rate.
- ○ The relationship between the discharge rage and the protruding length of the adjusting screw is shown below.
- ○ Set the discharge rate to no lower than two-thirds of the maximum discharge rate, otherwise the suction capacity may be insufficient.
- ○ Overtightening of the discharge rate adjusting screw may cause oil to leak from the threaded section. Do not tighten the screw beyond the adjustment range.



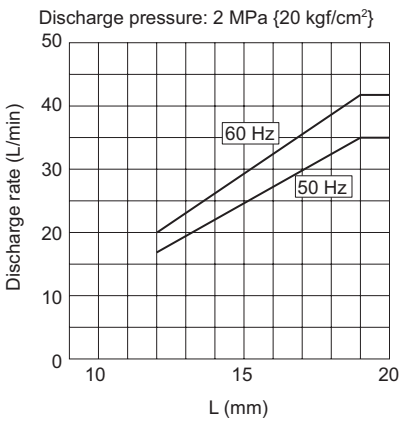
RP08A※



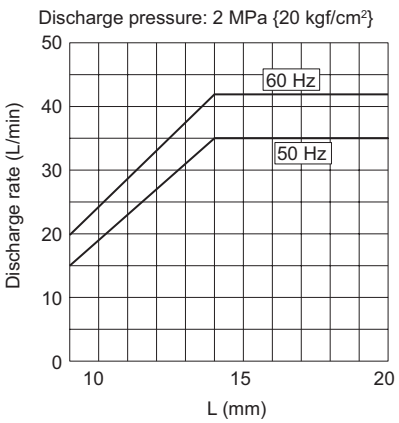
RP15A※



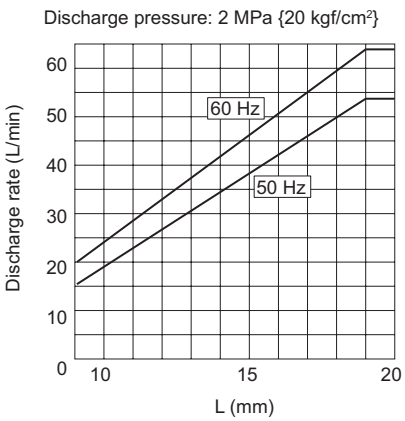
RP23A※-22



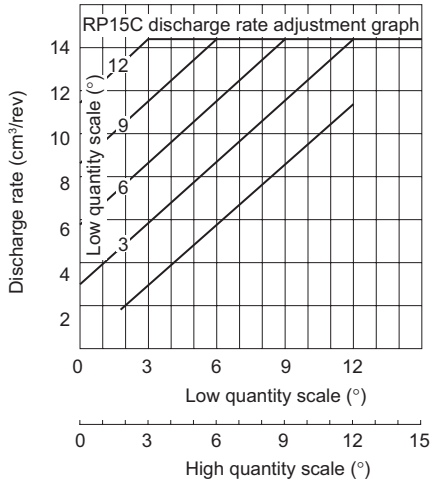
RP23A※-37

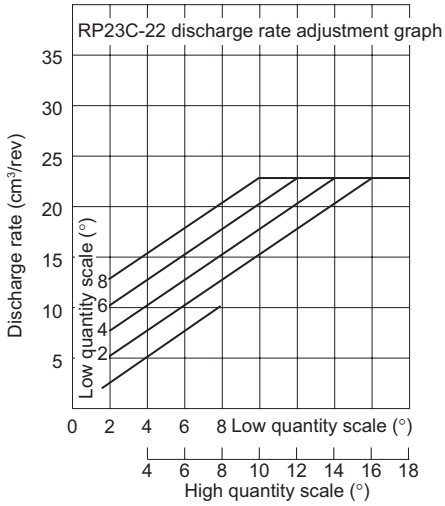


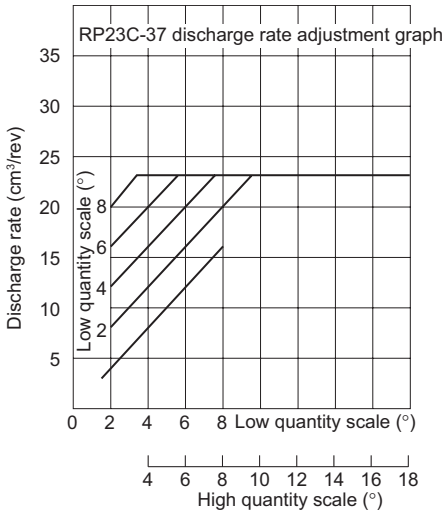
RP38A※

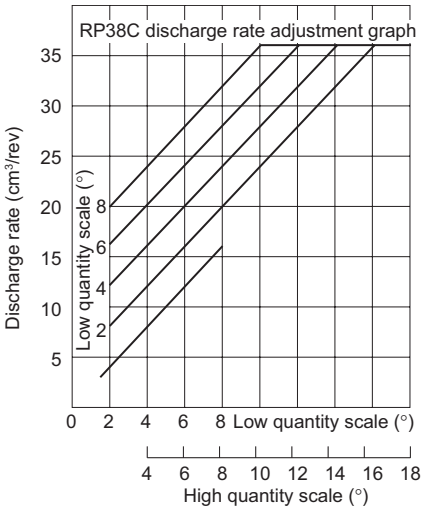


Relationship between the protruding length of the discharge rate adjusting screw and the discharge rate (combination control)









Note: Refer to Page A-12 for the discharge rate setting procedure.

The discharge rate adjusting screws are provided with scales on the nameplates as shown below.

Pump model	Scale (°)	
	Low quantity adjusting screw	High quantity adjusting screw
RP15	0 to 12	0 to 15
RP23, 38	0 to 8	4 to 18

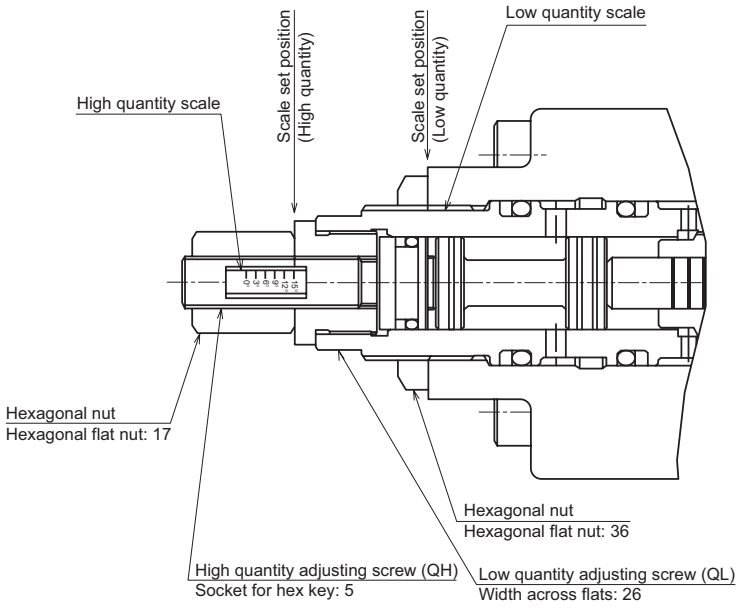
(Scale graduation: 1°)

Factory settings

The discharge rate for the high quantity range is factory adjusted to the maximum discharge rate and the discharge rate for the low quantity range is generally factory adjusted as follows.

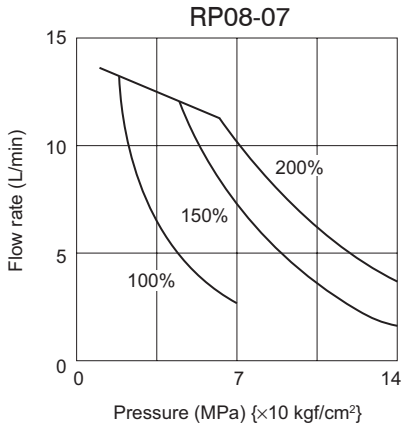
Pump type	Low quantity (QL) setting
RP15C-15	Scale position: 2°
RP15C-22	Scale position: 4°
RP23C-22	Scale position: 2°
RP23C-37	Scale position: 3°
RP38C-37	Scale position: 3°
RP38C-55	Scale position: 5°

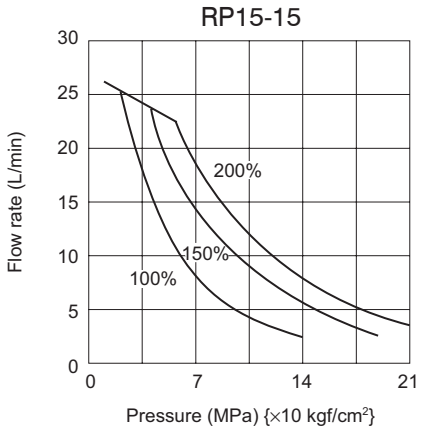
Discharge rate adjusting section

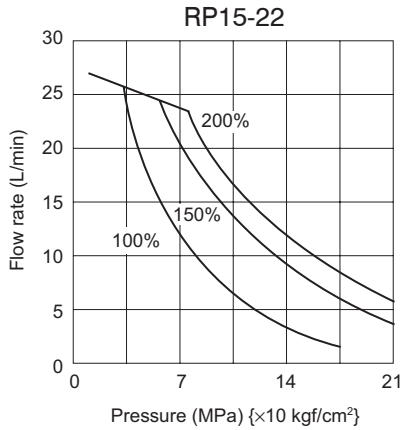


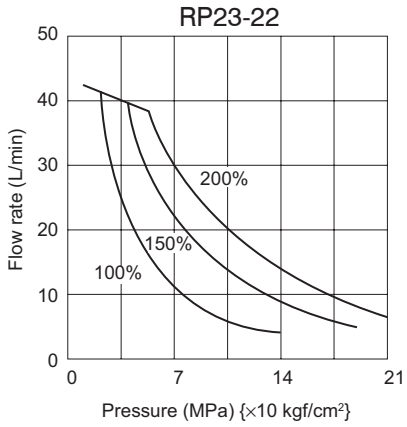
Pressure - Flow Rate characteristics

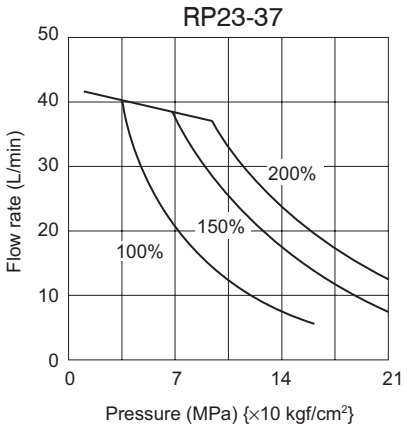
● 220 V (60 Hz)

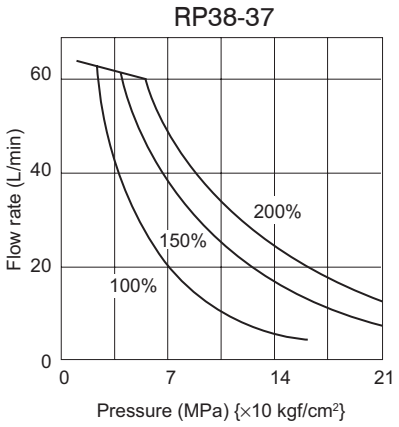


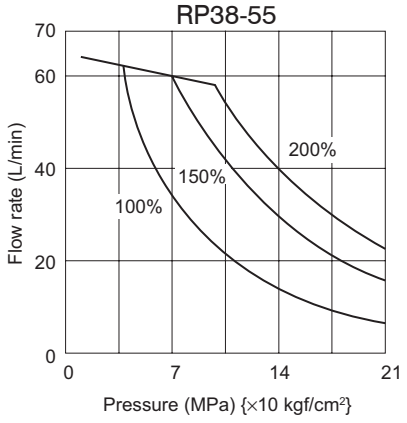








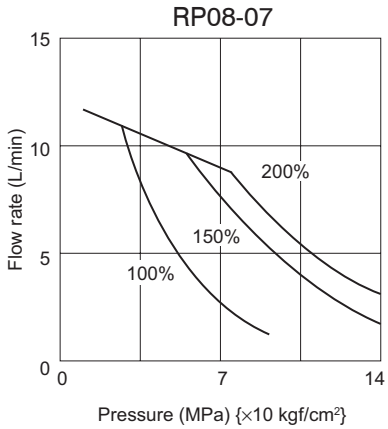


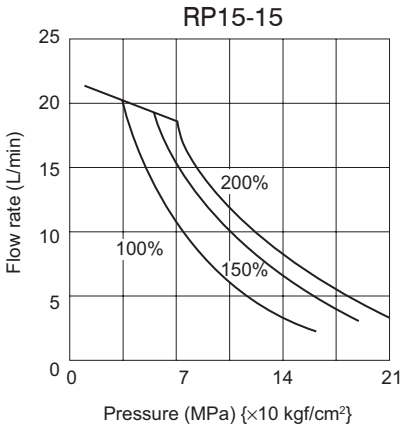


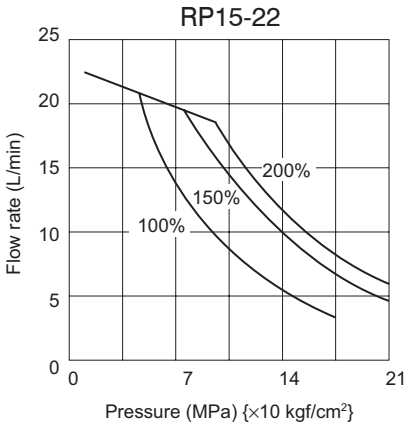
Note: The diagrams show the pressure - flow rate characteristics under the following conditions.
- 100%: Output at the rated current
- 150%: Output at 150% of the rated current (continuous operation possible)
- 200%: Output at 200% of the rated current (momentary operation possible)

* Refer to the next page for the thermistor capacities of rotor pumps.

● 200 V (50 Hz)

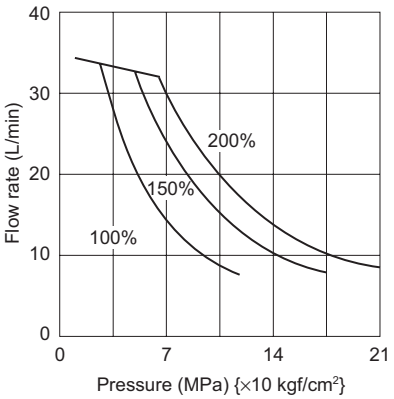




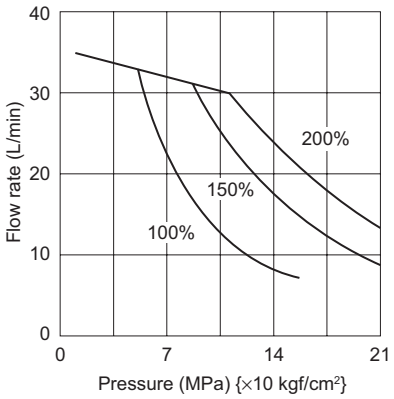


Pressure - Flow Rate characteristics

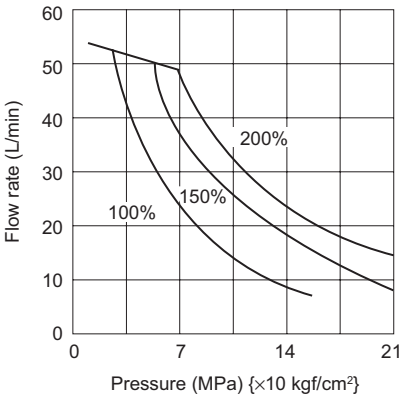
RP23-22



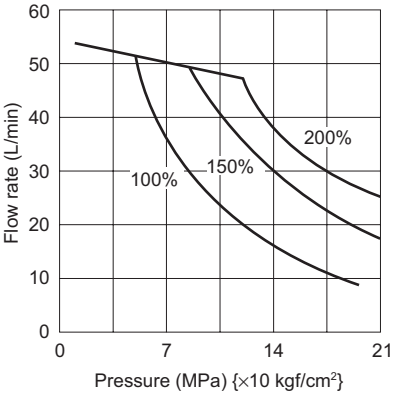
RP23-37



RP38-37



RP38-55



* The reference current values for selecting the thermistor capacity are given below for each of the rotor pump models and operation conditions.

Model	RP08-07		
Input power	200 V (50 Hz)	200 V (60 Hz)	220 V (60 Hz)
Input current = 100% (A)	3.8	3.4	3.4
Input current = 150% (A)	5.7	5.1	5.1
Input current = 200% (A)	7.6	6.8	6.8

Note: When taking the power supply voltage fluctuation of 10% into account, it is recommended to use the thermistor current setting obtained by multiplying the current value at the 150% load in the tables to the left by 1.1.

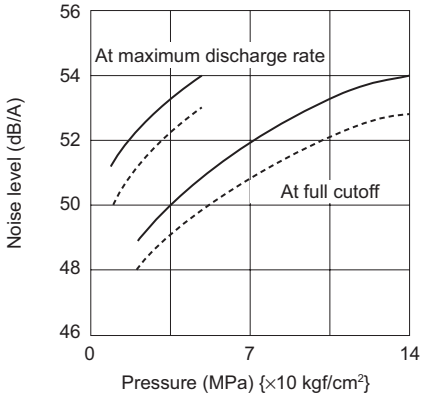
Model	RP15-15			RP15-22		
Input power	200 V (50 Hz)	200 V (60 Hz)	220 V (60 Hz)	200 V (50 Hz)	200 V (60 Hz)	220 V (60 Hz)
Input current = 100% (A)	6.8	6.0	5.8	9.6	8.8	8.4
Input current = 150% (A)	10.2	9.0	8.7	14.4	13.2	12.6
Input current = 200% (A)	13.6	12.0	11.6	19.2	17.6	16.8

Model	RP23-22			RP23-37		
Input power	200 V (50 Hz)	200 V (60 Hz)	220 V (60 Hz)	200 V (50 Hz)	200 V (60 Hz)	220 V (60 Hz)
Input current = 100% (A)	10.0	9.2	8.7	15.1	14.7	13.4
Input current = 150% (A)	15.0	13.8	13.1	22.7	22.1	20.1
Input current = 200% (A)	20.0	18.4	17.4	30.2	29.4	26.8

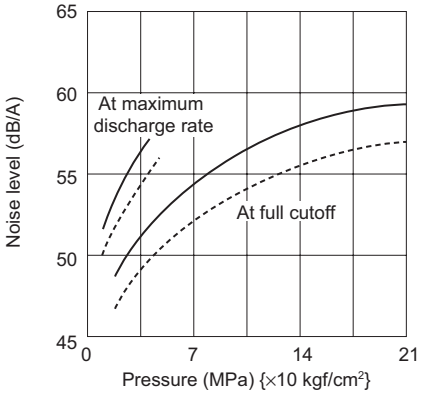
Model	RP38-37			RP38-55		
Input power	200 V (50 Hz)	200 V (60 Hz)	220 V (60 Hz)	200 V (50 Hz)	200 V (60 Hz)	220 V (60 Hz)
Input current = 100% (A)	15.1	14.7	13.4	22.0	21.2	19.6
Input current = 150% (A)	22.7	22.1	20.1	33.0	31.8	29.4
Input current = 200% (A)	30.2	29.4	26.8	44.0	42.4	39.2

Noise characteristics (measuring position: 1 m from pump front)

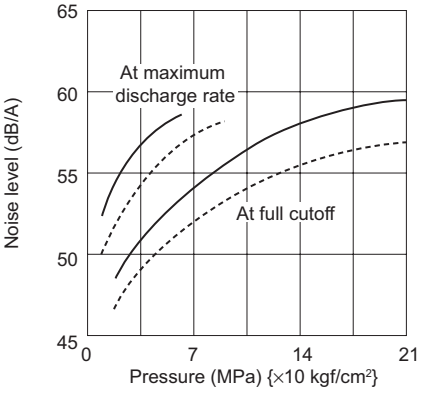
RP08-07



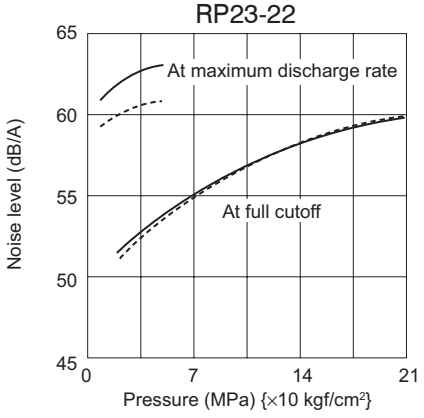
RP15-15



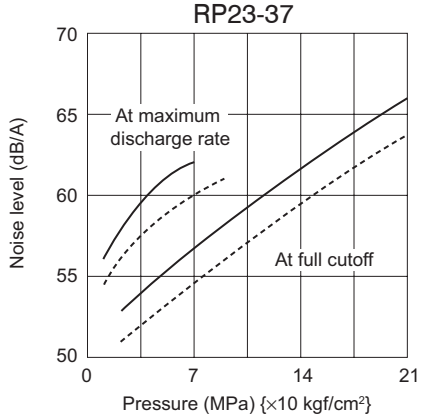
RP15-22



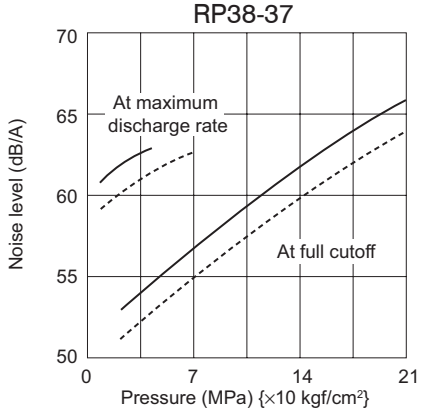
RP23-22



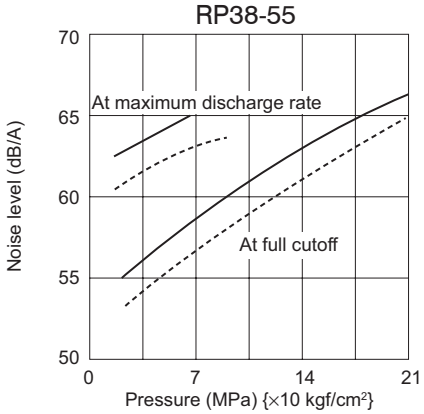
RP23-37

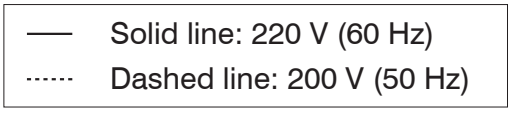


RP38-37



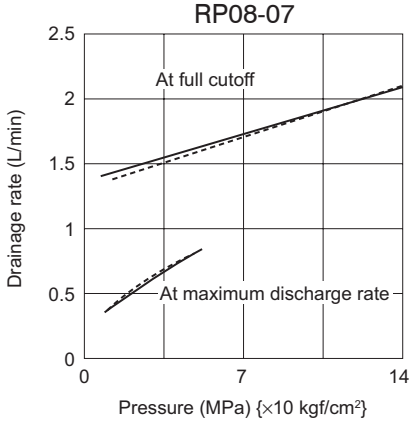
RP38-55



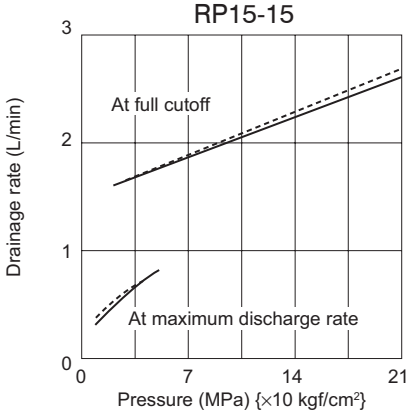


Drainage volume characteristics

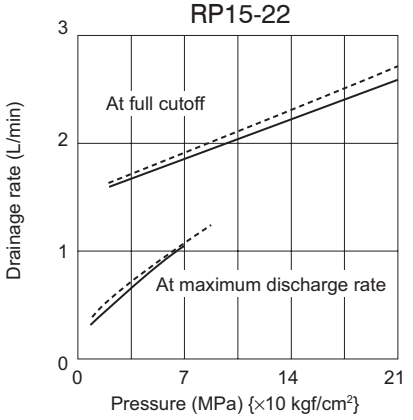
RP08-07



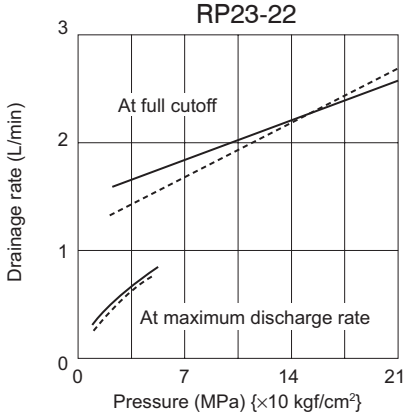
RP15-15



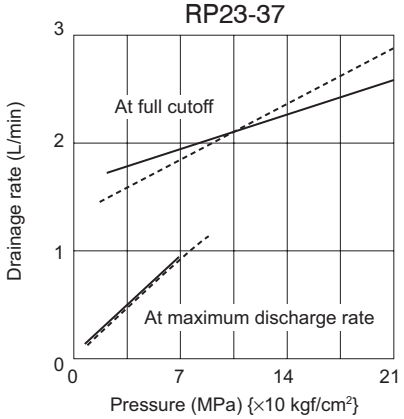
RP15-22



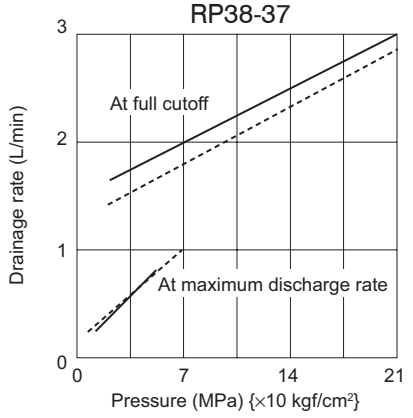
RP23-22



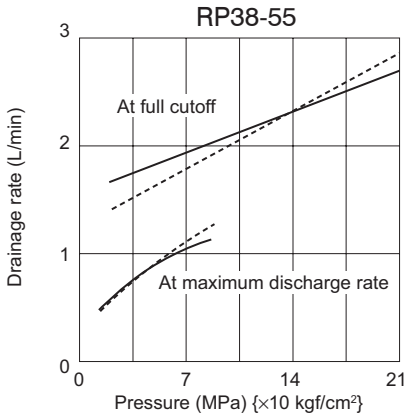
RP23-37



RP38-37



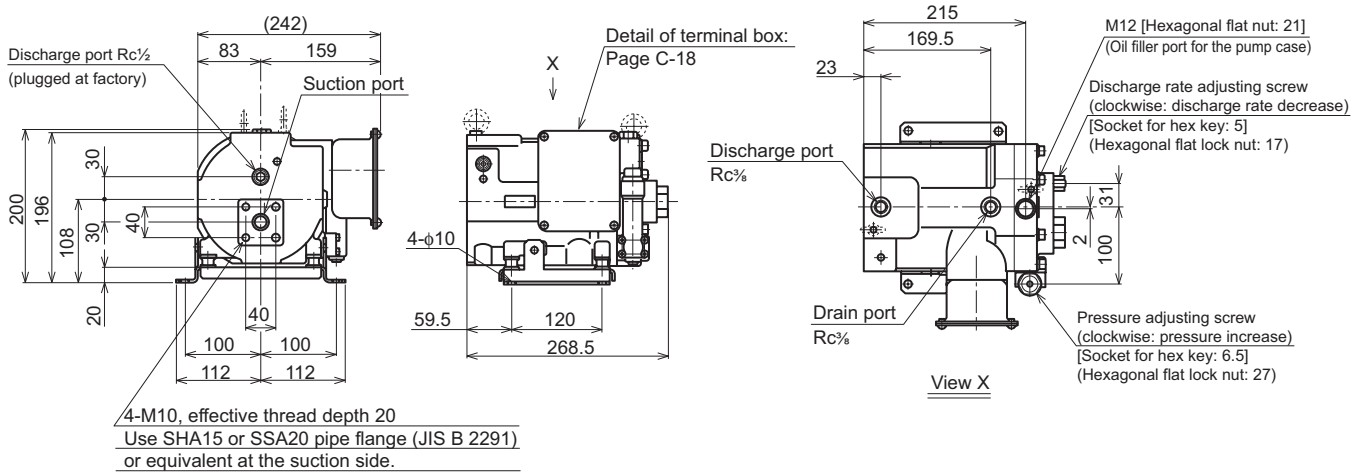
RP38-55



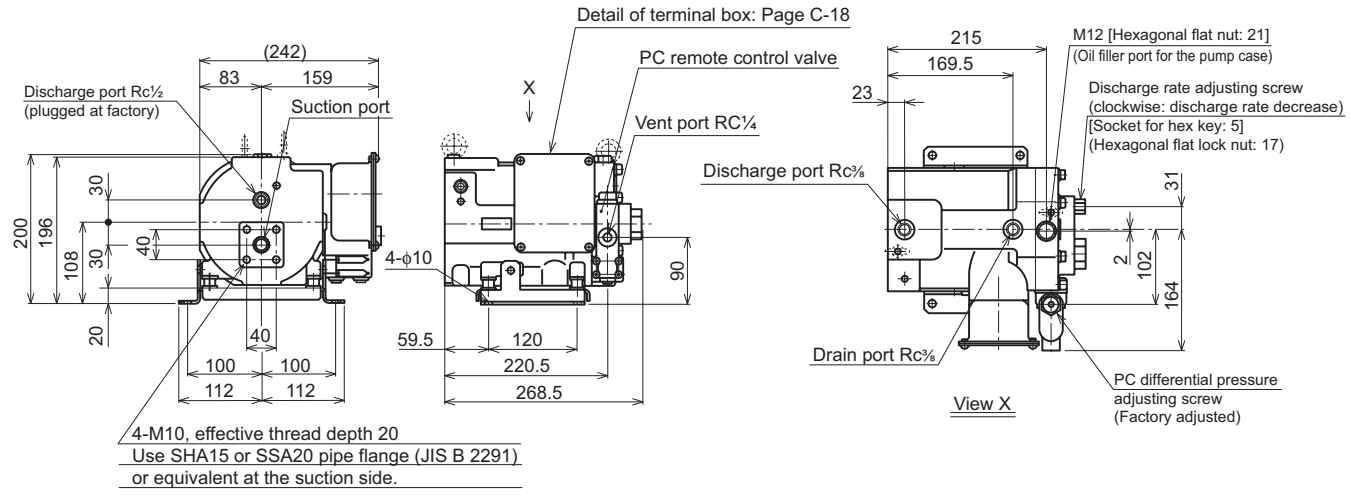
—— Solid line: 220 V (60 Hz)
------ Dashed line: 200 V (50 Hz)

External dimension diagram

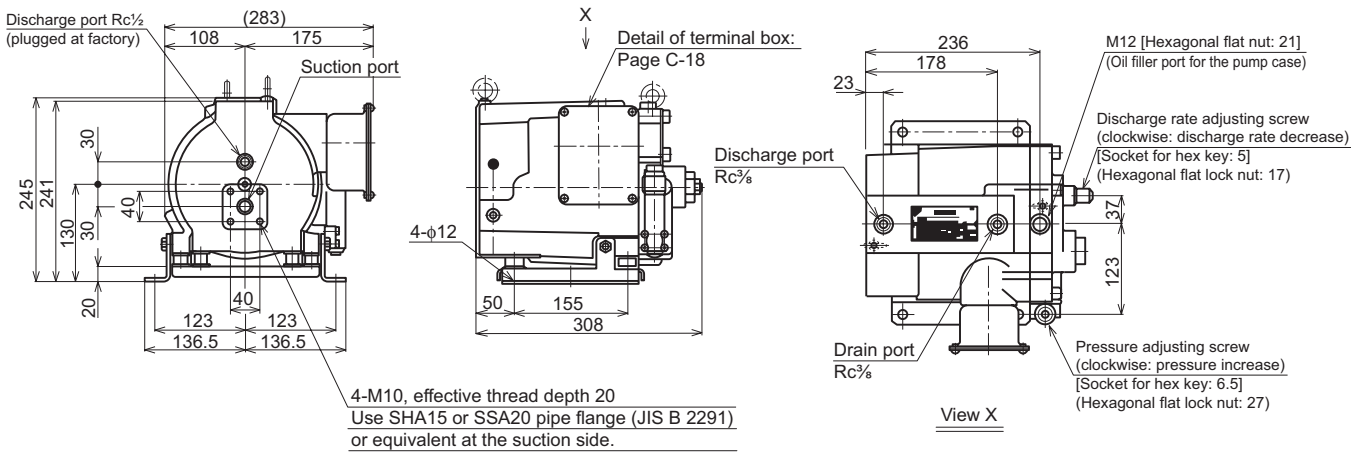
RP08A※-07-30



RP08A2-07-30RC

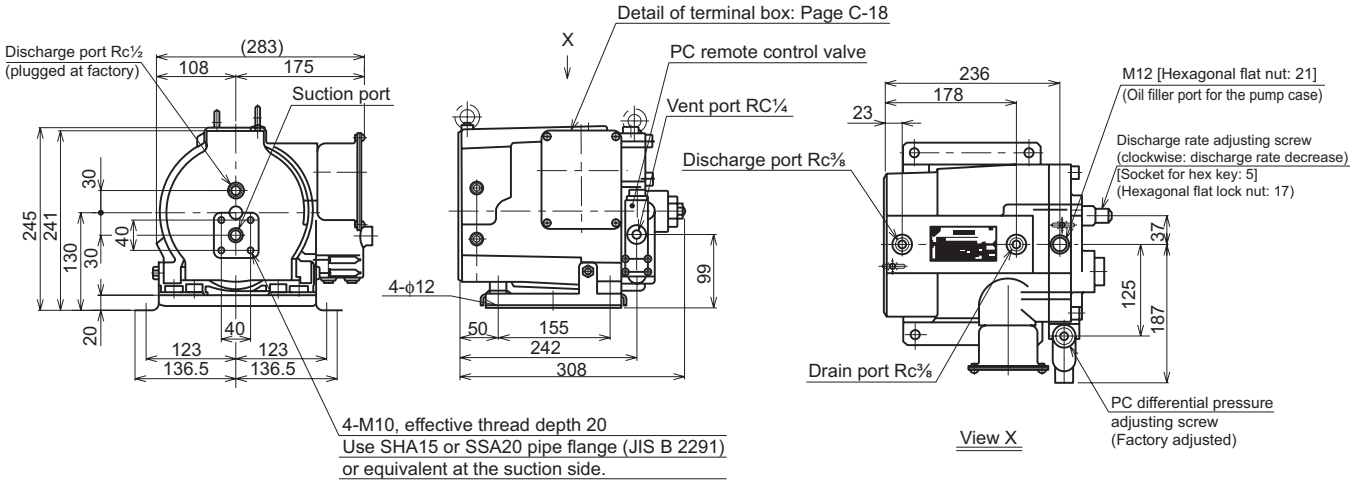


RP15A※-15-30
RP15A※-22-30

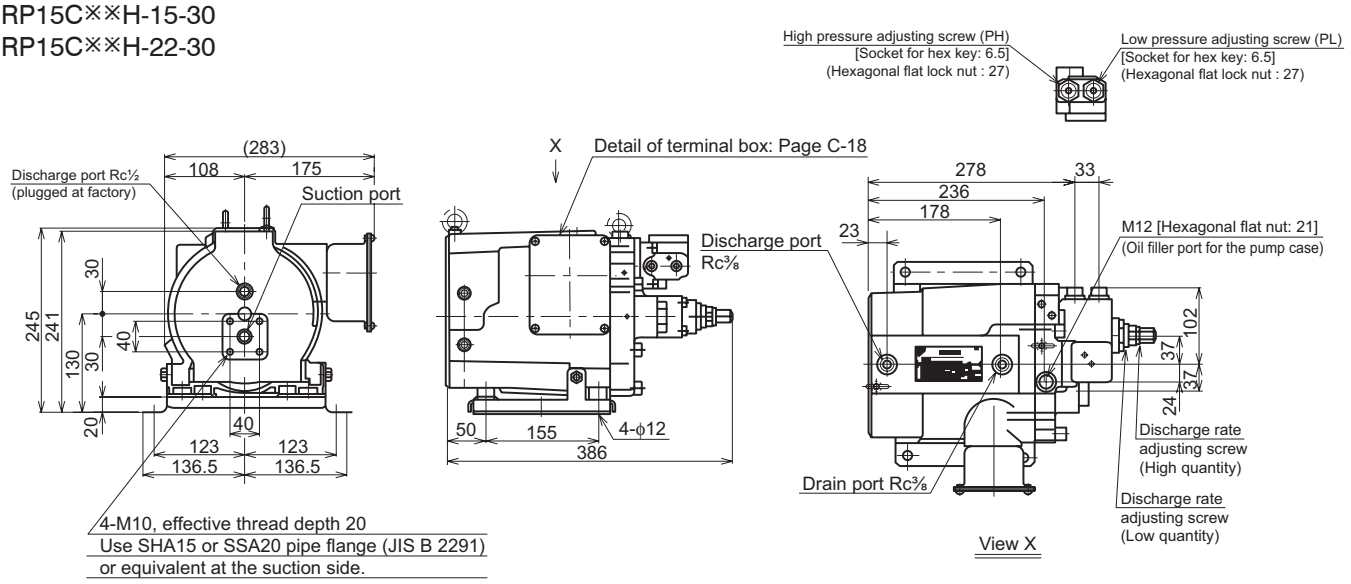


External dimension diagram

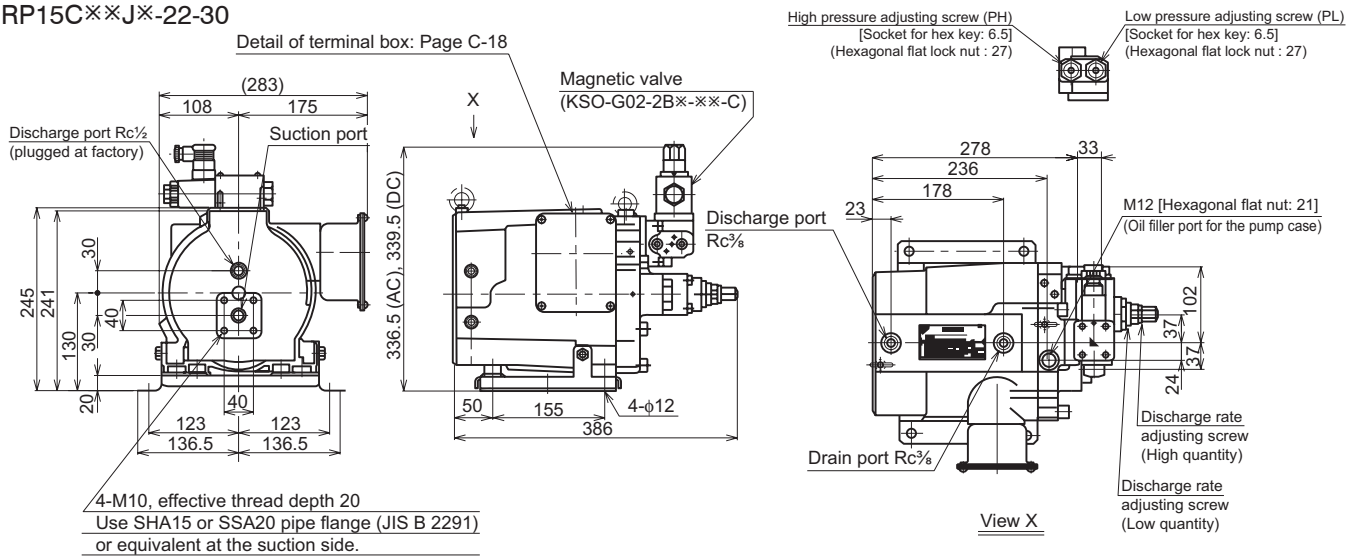
RP15A2-15-30RC
RP15A3-22-30RC



RP15C※※H-15-30
RP15C※※H-22-30

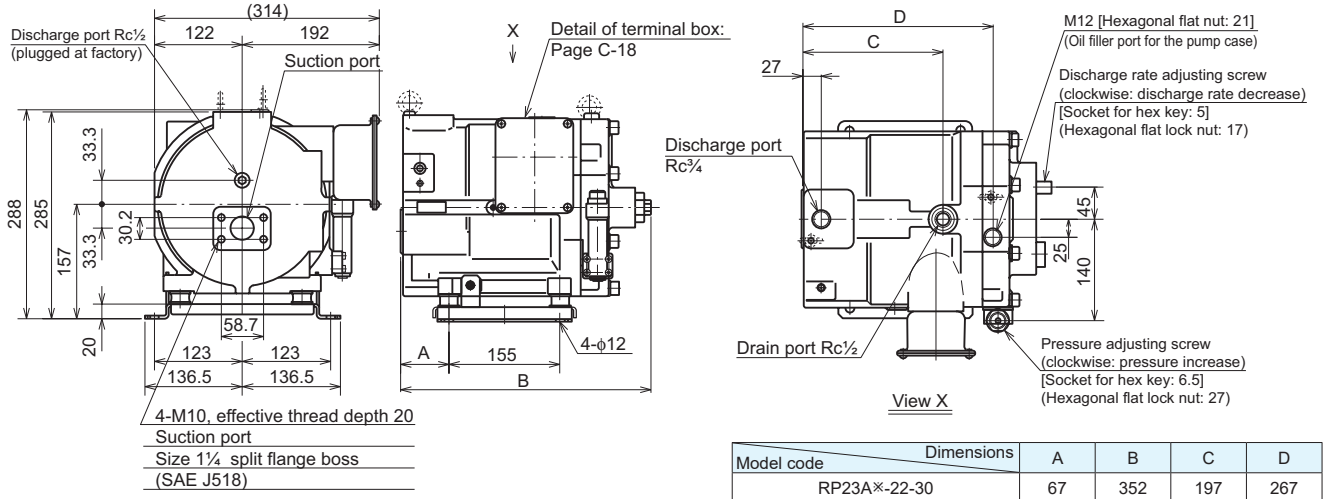


RP15C※※J※-15-30
RP15C※※J※-22-30



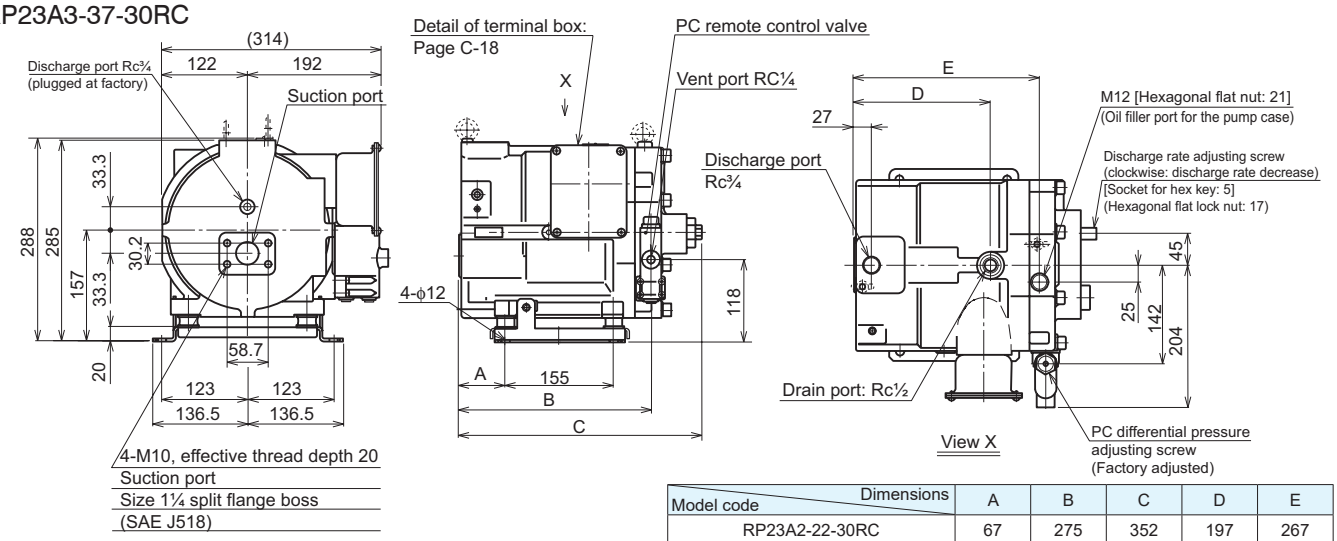
External dimension diagram

RP23A※-22-30
RP23A※-37-30



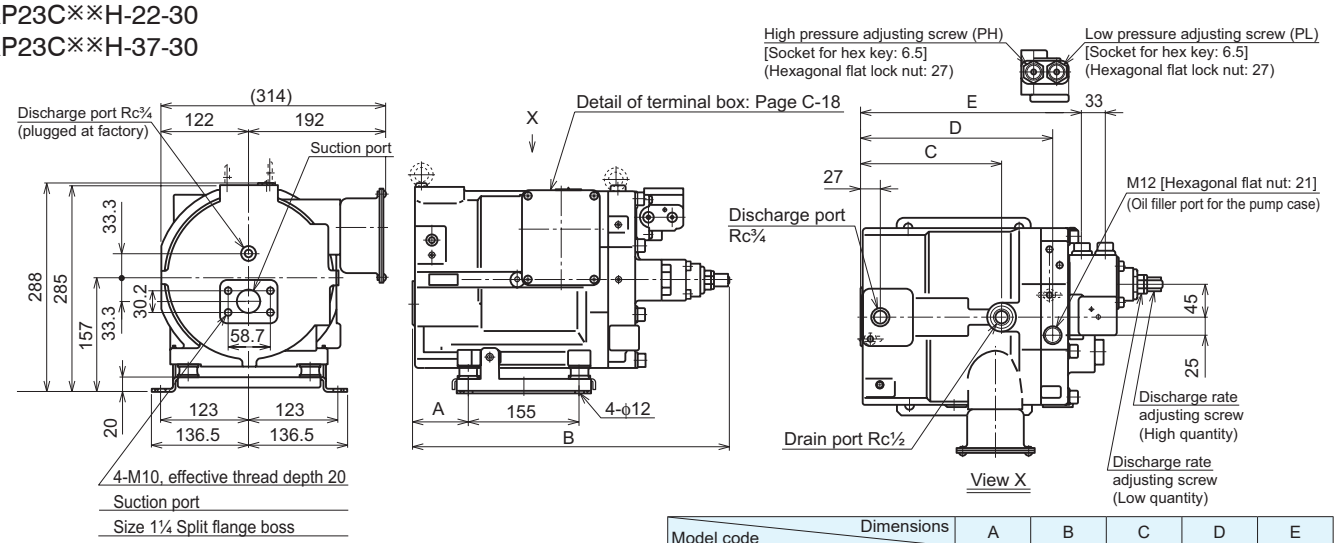
Model code \ Dimensions	A	B	C	D
RP23A※-22-30	67	352	197	267
RP23A※-37-30	77	372	217	287

RP23A2-22-30RC
RP23A3-37-30RC



Model code \ Dimensions	A	B	C	D	E
RP23A2-22-30RC	67	275	352	197	267
RP23A3-37-30RC	77	295	372	217	287

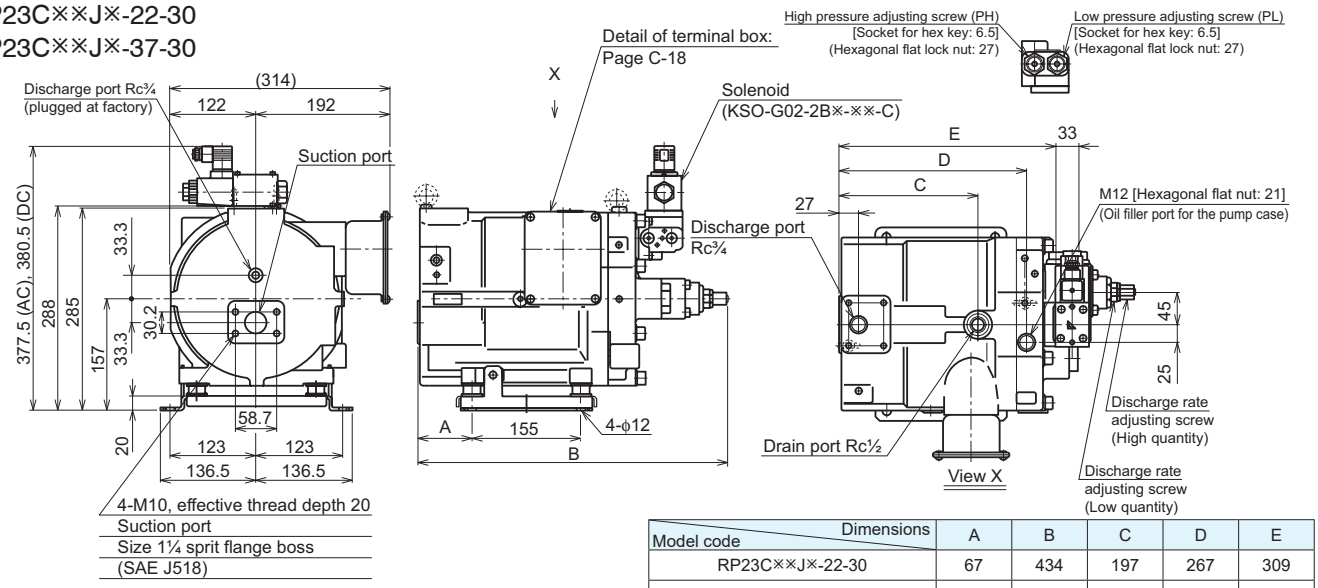
RP23C※※H-22-30
RP23C※※H-37-30



Model code \ Dimensions	A	B	C	D	E
RP23C※※H-22-30	67	434	197	267	309
RP23C※※H-37-30	77	454	217	287	329

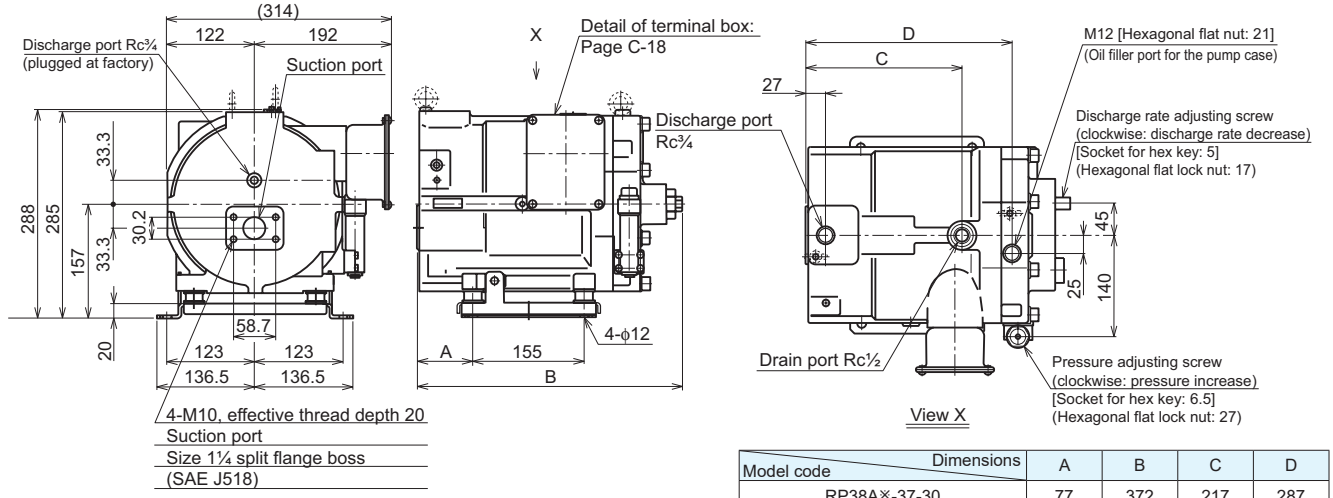
External dimension diagram

RP23C※※J※-22-30
RP23C※※J※-37-30



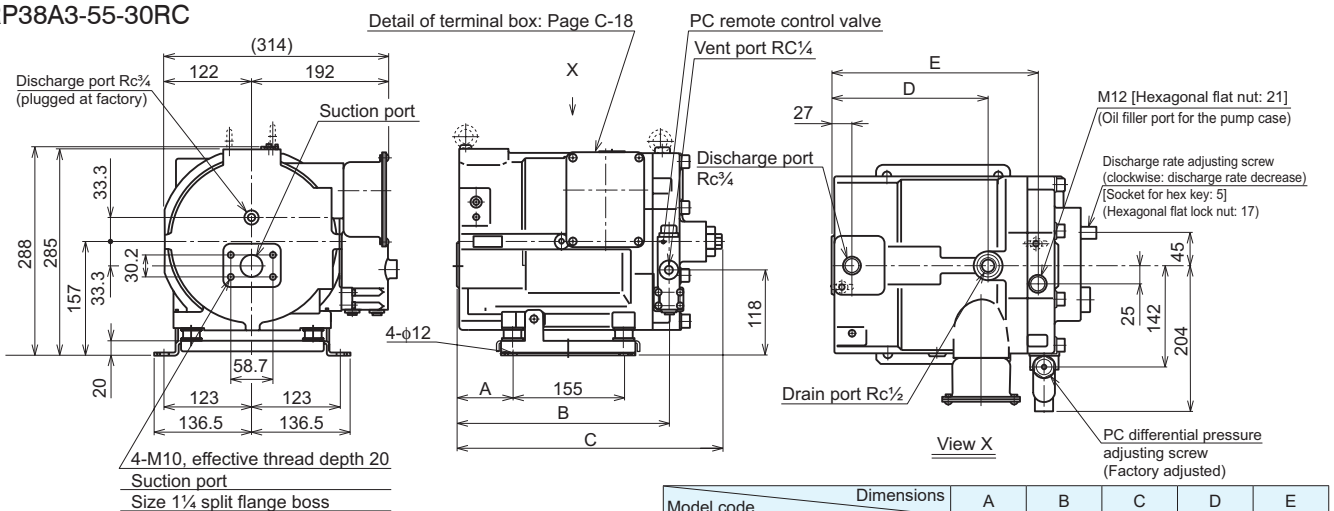
Model code \ Dimensions	A	B	C	D	E
RP23C※※J※-22-30	67	434	197	267	309
RP23C※※J※-37-30	77	454	217	287	329

RP38A※-37-30
RP38A※-55-30



Model code \ Dimensions	A	B	C	D
RP38A※-37-30	77	372	217	287
RP38A※-55-30	96	410	255	325

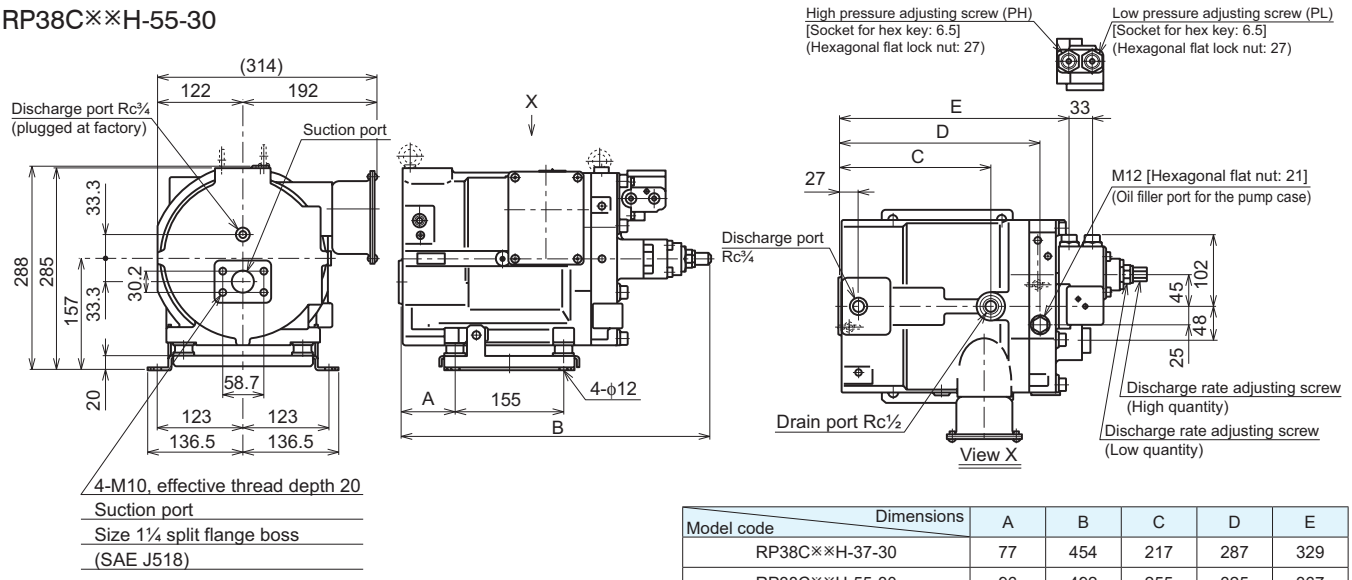
RP38A2-37-30RC
RP38A3-55-30RC



Model code \ Dimensions	A	B	C	D	E
RP38A2-37-30RC	77	295	372	217	287
RP38A3-55-30RC	96	333	410	255	325

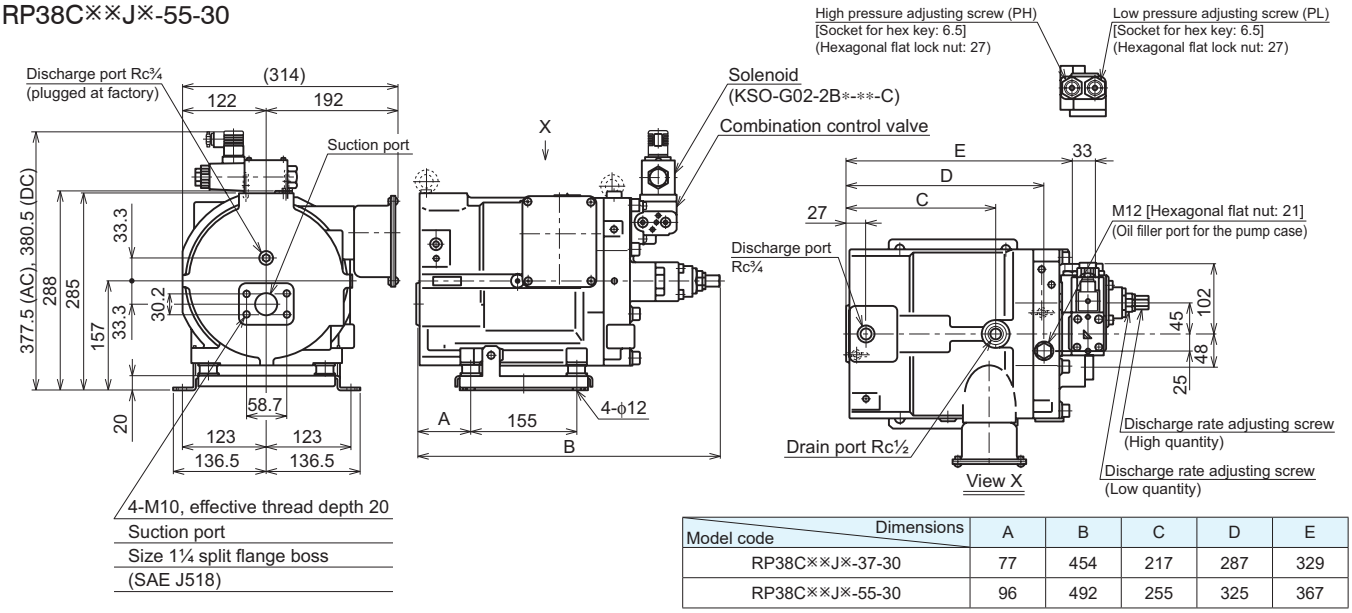
External dimension diagram

RP38C※※H-37-30
RP38C※※H-55-30



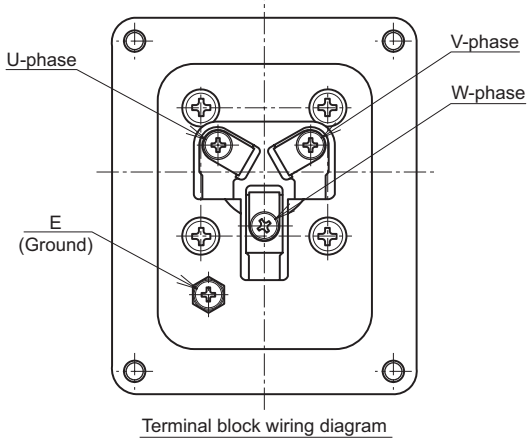
Model code \ Dimensions	A	B	C	D	E
RP38C※※H-37-30	77	454	217	287	329
RP38C※※H-55-30	96	492	255	325	367

RP38C※※J※-37-30
RP38C※※J※-55-30



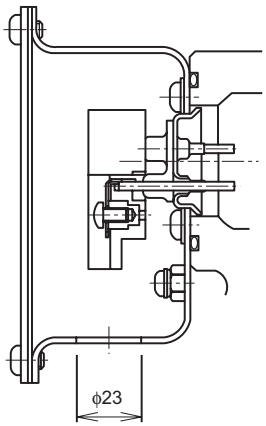
Model code \ Dimensions	A	B	C	D	E
RP38C※※J※-37-30	77	454	217	287	329
RP38C※※J※-55-30	96	492	255	325	367

Detail of terminal box

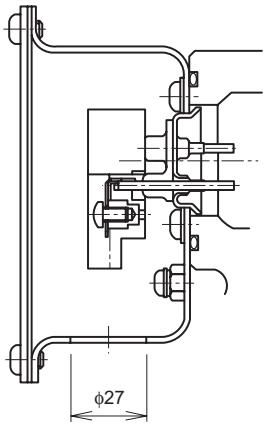


Terminal block wiring diagram

(Connecting screw size, fastening torque: M5 × 4 pcs., 3 N·m max.)

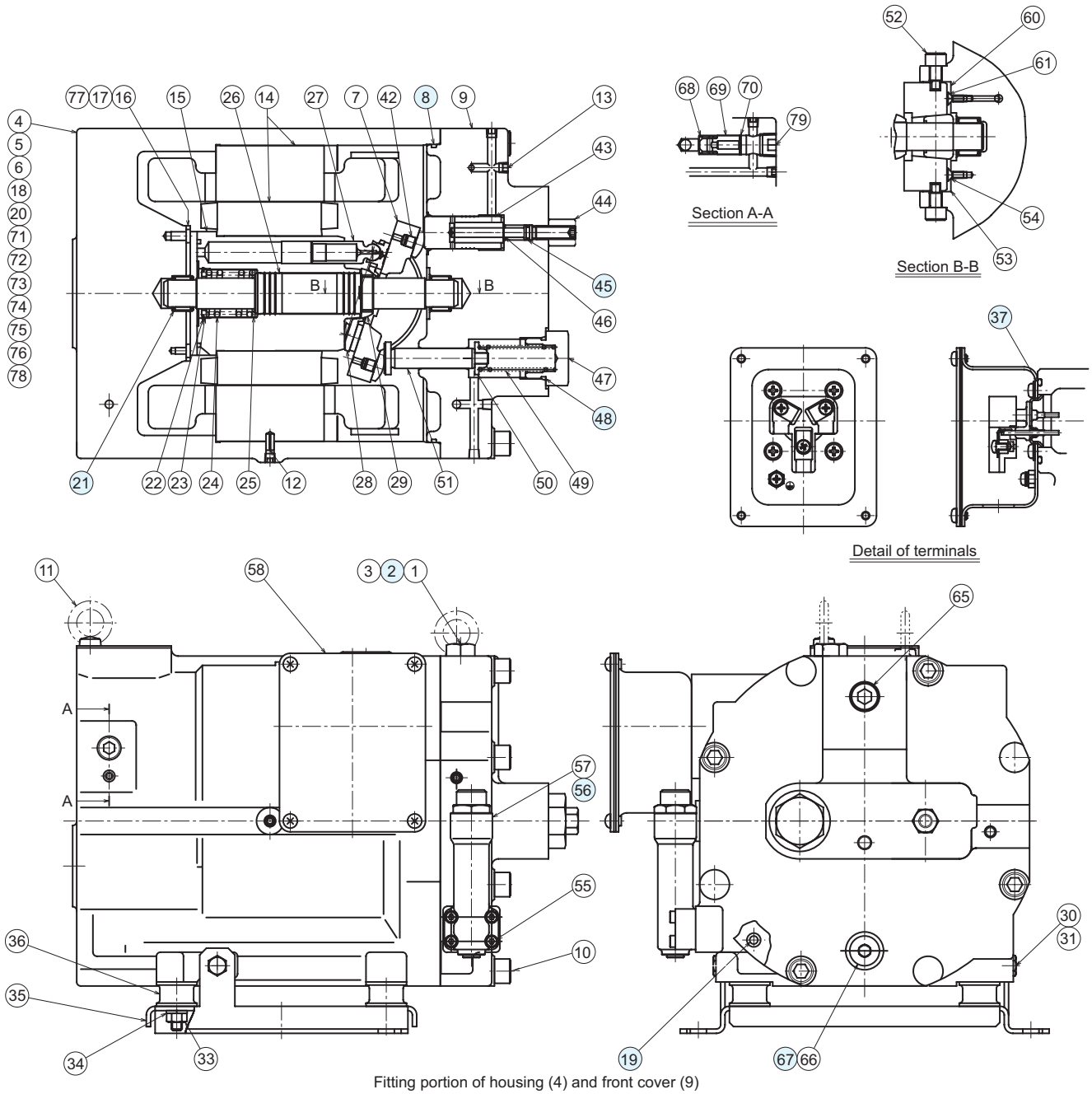


Motor capacity: 3.7 kW maximum



Motor capacity: 5.5 kW

Sectional structural diagram



Seal/bearing table

Part No.	Product name	Quantity	Part specifications			Material
			RP08	RP15	RP23, RP38	
2	Sealing washer	1	WF12192			NBR
8	O-ring	1	AS568-160 (HS90)	AS568-167 (HS90)	AS568-172 (HS90)	NBR
19	O-ring	1	JIS B 2401 1B-P7			NBR
21	Needle bearing	2	HK1210	HMK1715	F2016	
37	O-ring	1	JIS B 2401 1B-G45			NBR
45	O-ring	1	JIS B 2401 1A-P8			NBR
48	O-ring	1	AS568-914 (HS90)			NBR
56	Gasket	1	1740698 (special part)			
67	O-ring	1	JIS B 2401 1B-P14			NBR