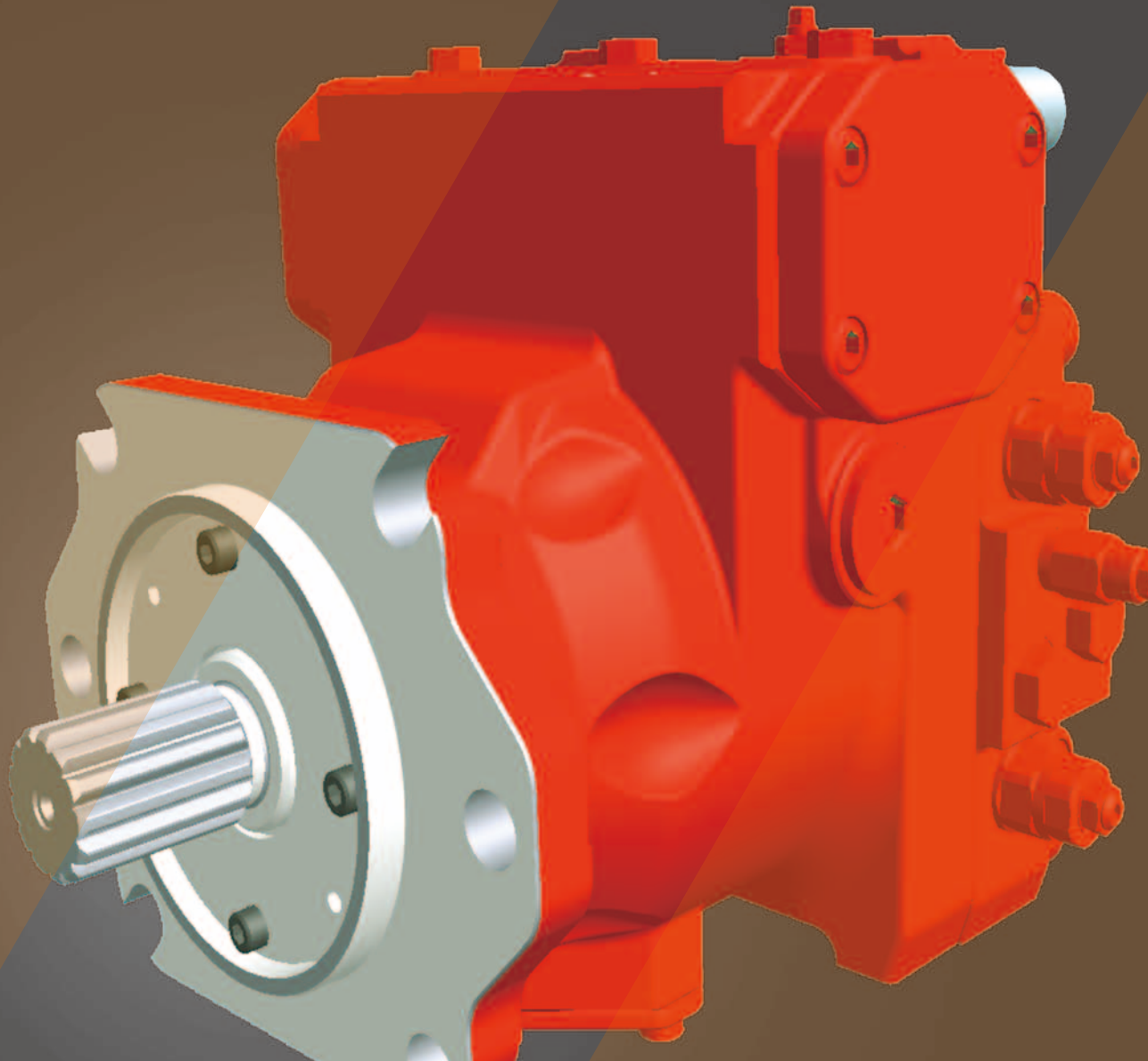


Closed Loop  
Swash Plate Type Axial Piston Pump  
**K8V Series**



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# I . Applications / Product Usage

**The following must be taken into consideration before use.**

1. The operating condition of the products shown in this catalog varies depending upon each application. Therefore, the product suitability must be judged by the designer of the hydraulic system and/or the person who finalizes the technical specifications of the machine after analysis and testing. The product specification shall be determined based on the latest catalog and technical documents. The system must be designed taking into account the possibility of machine failure to ensure that all safety, warning, and application requirements are met.
2. For the proper use of the products, descriptions given in the SAFETY PRECAUTIONS must be observed.
3. The technical information in this catalog represents typical characteristics and performance of the products as of the published date.
4. If the products are intended to use in the following, please consult with Kawasaki in advance.
  - (1) Use the product under the operating conditions or environments other than those described in the technical documents.
  - (2) Use the product in the nuclear sector, aviation sector, medical sector, and/or food sector.
  - (3) Use the product in applications which may cause substantial harm to others and their property, and especially in applications where ensuring safety is a requirement.
5. The information described in this catalog is subject to change without notice. For the latest information, please contact Kawasaki.

# II. Safety Precautions

Before using the product, you **MUST** read this catalog and **MUST** fully understand how to use the product. To use the product safely, you **MUST** carefully read all Warnings and Cautions in this catalog.

## 1. Cautions related to operation



- Use the personal protective equipment to prevent injury when the product is in operation.



- Some components are heavy. Handle the product carefully not to hurt your hands and lower back.



- Do not step on, hit or drop, or apply strong force to the product, as these actions may cause operation failure, product damage, or oil leakage.



- Wipe off any oil on the product or the floor completely, as oil can create slippery conditions that may cause drop of the product and personal injury.

## 2. Warnings and Cautions related to installation and removal of the product



- Installation, removal, piping, and wiring must be done by a qualified technician.



- Make sure that the hydraulic power unit is turned off and that the electric motor or engine has completely stopped before starting installation or removal. You must also check that the system pressure has dropped to zero.



- Make sure that the power source is turned off before installing electric components to reduce the risk of electric shock.



- Clean the threads and the mounting surface to prevent damage or oil leakage. Inadequate cleaning may cause insufficient torque and broken seals.



- Use the designated bolts and fasten them with prescribed torque when installing the product. Use of undesignated bolts, and excessive or insufficient tightening torque may induce operation failure, damage, or oil leakage.

## 3. Warnings and Cautions for operation



- Always equip the product with explosion or ignition protection if it is used in potentially explosive or combustible atmospheres.



- Shield rotary parts, such as the motor and pump shaft, to avoid injury.



- Stop operation immediately, and take proper measures when the abnormality such as unusual noise, oil leakage, and smoke is found. Continuing operation under such condition may bring about damage, a fire hazard, or injury.



- Make sure that all pipes, hoses, and connecting points with pipes or hoses, are correctly connected and tightened before starting operation.



- Use the product under the operating conditions and limitations described in the catalog, drawings, and specification sheets.



- Do not touch the product in operation, to reduce the risk of skin burn.



- Use the proper hydraulic oil and maintain the filtration at the recommended level to prevent premature wear and damage.

## 4. Cautions related to maintenance



- Never modify the product without approval from Kawasaki.



- Disassembly of the product may void the warranty.



- Keep the product clean and dry when storing or transporting.



- The seals may need to be replaced if the product has been stored for an extended period of time.



- Making adjustments of this product will result in the warranty being null and void.

# III. Handling Precautions

## 1. Operating Fluid and Temperature Range

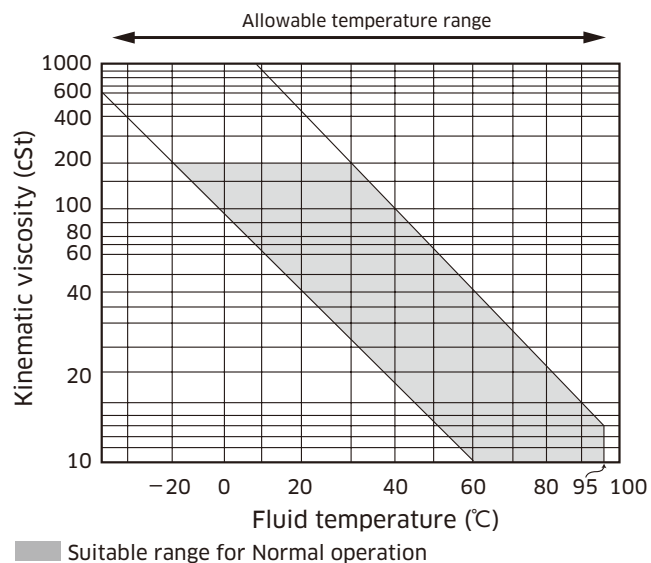
### 1) Operating fluid

Values shown in this catalog are based upon using mineral oil based anti-wear hydraulic fluid. To ensure optimal performance use of mineral oil based anti-wear hydraulic fluid is recommended.

### 2) Viscosity and temperature range

To minimize both oil and seal deterioration, a maximum operating temperature of 60°C should be considered. Please note that the regulator may become slow to respond when operating at low temperatures (below 20°C) in extreme cold environments. At such low temperature it is strongly suggested that a warm up cycle is introduced until an operating temperature of 20°C is achieved.

	Suitable range for Normal operation	Allowable range
Viscosity [mm <sup>3</sup> /s(cSt)]	10 to 200	10 to 1,000
Fluid Temperature [°C (°F)]	-20 to +95 (-4 to +203)	



## 2. Filtration and Contamination Control

### 1) Filtration of working oil

The most important means to prevent premature damage to the pump and associated equipment and to extend its working life, is to ensure that hydraulic fluid contamination control of the system is working effectively.

This begins by ensuring that at the time of installation that all piping, tanks etc. are rigorously cleaned in a sanitary way. Flushing should be provided using an off line filtration system and after flushing the filter elements should be replaced.

### 2) Suggested acceptable contamination level

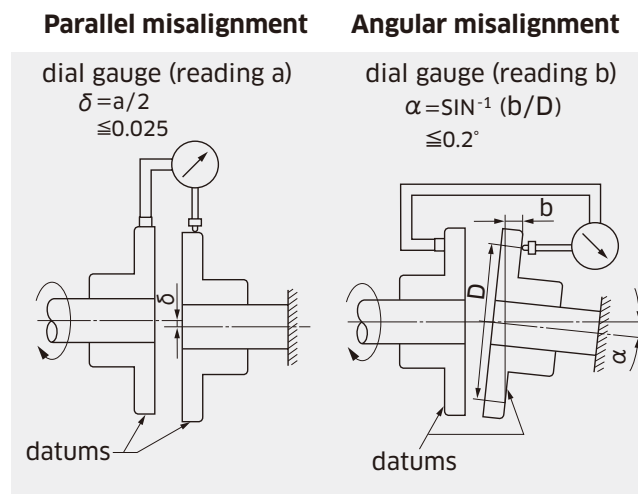
The relationship between contamination level and pump life is very difficult to predict as it depends on the type and nature of the contaminant present in the system. Sand or Silica in particular, due to its abrasive nature, does significantly reduce the expected life of a pump. Based on the precondition that there is no significant presence of Silica type substances then a minimum Cleanliness level of -/18/15 ISO 4406 or SAE AS 4059E Table 1 Class 9 (NAS 1638 Class 9).

## III. Handling Precautions

### 3. Drive Shaft Coupling

Alignment between the prime mover and the pump shaft should be within a tolerated margin, that is, parallel misalignment within 0.05mm TIR\* and angular misalignment within 0.2° TIR\*. In case the pump is directly coupled to the engine flywheel, use a flexible coupling.

\*TIR = Total Indicator Reading



### 4. Oil Filling and Air Bleeding

#### 1) Pump case filling

Be sure to fill the pump casing with oil through the drain port, filling only the suction line with oil is totally insufficient. The pump contains bearings and high-speed sliding parts including pistons with shoes and a spherical bush that need to be continuously lubricated. Part seizure or total premature failure will occur very quickly if this procedure is not rigidly followed.

#### 2) Air bleeding

Run the pump unloaded for a period to ensure that all residual air within the system is released.

#### 3) Long term out of usage

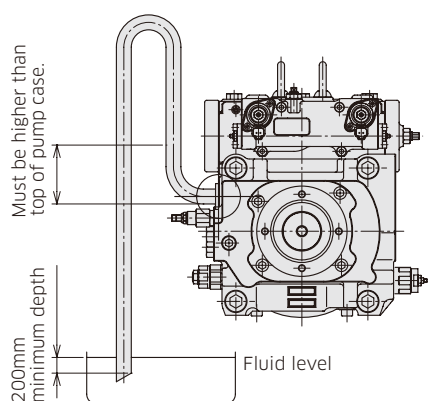
It is undesirable to leave the pump out of use for a long period e.g. a year or more. In such a situation it is recommended that the pump is run for a short period on a more frequent basis even if it is just unloaded. With regard to a pump held in storage then rotating the shaft on a frequent basis is sufficient. If the pump is left out for more than the suggested time it will require a service inspection.

## III. Handling Precautions

### 5. Drain Piping

#### 1) Installation of drain line

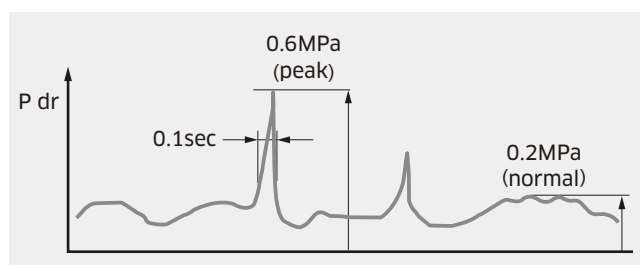
It is the preferred option to mount the pump with the case drain piping initially rising above the pump before continuing to the tank. Do not connect the drain line to the inlet line.



#### Cautions

- A) Inlet and drain pipes must be immersed by 200 mm minimum from the lowest level under operating conditions.
- B) Height from the oil level to the centre of the shaft must be within 1 meter maximum.
- C) The oil in the pump case must be refilled when the pump has not been operated for one month or longer.

The uppermost drain port should be used and the drain piping must be larger in size than the drain port to minimize pressure in the pump case. The pump case pressure must not exceed 0.2 MPa as shown in the illustration below. (Peak pressure must never exceed 0.6 MPa.)



#### 2) Size of drain hose or drain pipe

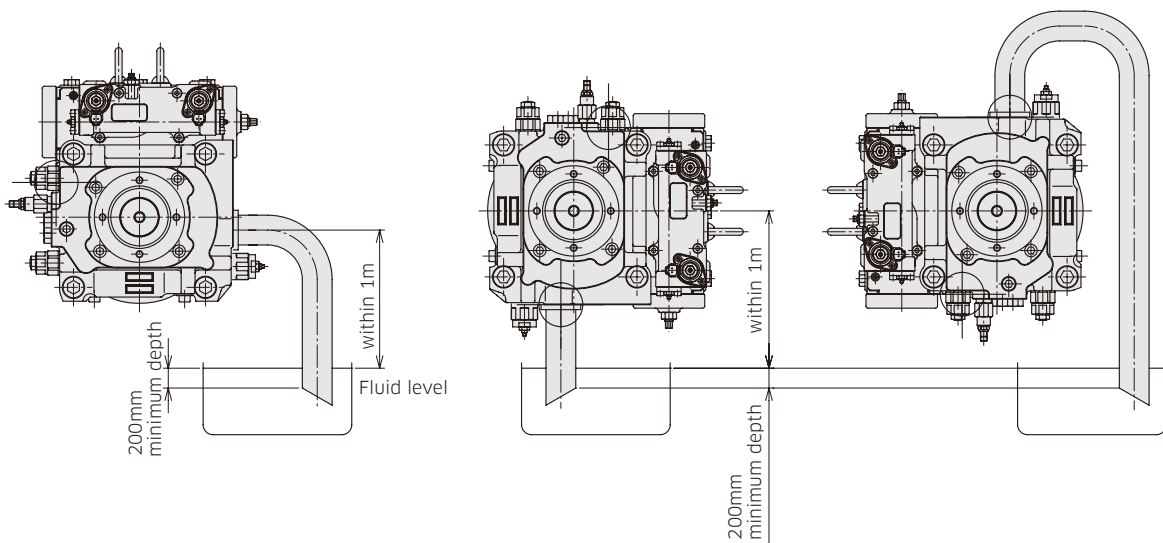
The internal bore size of the drain hose or drain pipe must be larger than that of the drain port. Arrange the drain line as short as possible.

## III. Handling Precautions

### 6. Mounting the Pump Above the Tank

When installing the pump above the tank, please ensure to connect the charge inlet line as shown below and fill it with hydraulic fluids.

Suction line



### 7. Shaft Loading and Bearing Life

Although K8V pumps are equipped with bearings that can accept some external radial forces, exertion of external radial loads will affect bearing life. Depending on the load magnitude, the load position, and the load orientation, bearing life may be influenced and reduced.

Consult with Kawasaki for further details.

### 8. Minimum Boost Pressure

The K8V series pump requires the minimum boost pressure of 2.0 MPa in the low pressure line in order to provide stable control. In addition, setting value of the charge pressure should be lower than that of the low pressure relief valve.



# IV. Conversion Factors, Formula and Definition

## ◆ Conversion Factors

	Formula	Note
Displacement	1 cm <sup>3</sup> = 0.061 in <sup>3</sup>	
Pressure	1 MPa = 145 psi	
Flow	1 L/min = 0.264 gpm	US gallon
Torque	1 Nm = 0.74 lb ft	
Power	1 kW = 1.341 hp	
Weight	1 kg = 2.205 lb	

## ◆ Formula

	Metric system		Imperial system	
<b>Output flow</b>	$Q = q \times N \times \eta_v / 1000$	L/min	$Q = q \times N \times \eta_v / 231$	gal/min
<b>Input torque</b>	$T = q \times \Delta P / 2\pi / \eta_m$	Nm	$T = q \times \Delta P / 24\pi / \eta_m$	lbf-ft
<b>Input power</b>	$L = T \times N / 9550 = Q \times \Delta P / 60 / \eta_t$	kW	$L = T \times N / 5252 = Q \times \Delta P / 1714 / \eta_t$	hp

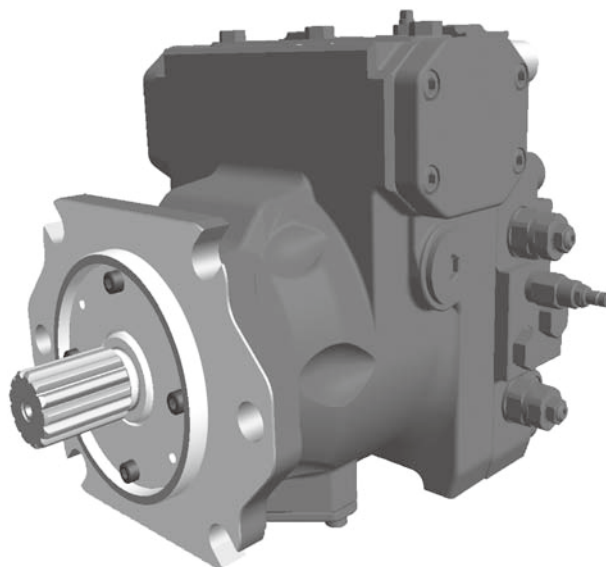
## ◆ Definition

q	= Pump displacement / rev.	cm <sup>3</sup> (in <sup>3</sup> )
L	= Input power	kW (hp)
N	= Speed	min <sup>-1</sup> (rpm)
N <sub>max</sub>	= Maximum speed at maximum displacement	min <sup>-1</sup> (rpm)
ΔP	= P <sub>high</sub> - P <sub>low</sub> (Differential pressure)	MPa (psi)
P <sub>high</sub>	= High pressure	MPa (psi)
P <sub>low</sub>	= Low pressure	MPa (psi)
P <sub>rated</sub>	= Rated pressure	MPa (psi)
P <sub>peak</sub>	= Peak pressure	MPa (psi)
P <sub>c</sub>	= charge pressure	MPa (psi)
T	= Input torque	Nm (lbf-ft)
T <sub>max</sub>	= Maximum input torque	Nm (lbf-ft)
η <sub>v</sub>	= Pump volumetric efficiency	
η <sub>m</sub>	= Pump mechanical efficiency	
η <sub>t</sub>	= Pump total efficiency	



# K8V Series

## Closed Loop Swash Plate Type Axial Piston Pump



### ■ Specifications

Size: 71, 90, 125  
 Rated Pressure: 40 MPa  
 Peak Pressure: 45 MPa

### ■ General Descriptions

The K8V series are variable displacement axial piston pumps for closed loop systems, with superior overall efficiency, stability, and control characteristics.

The K8V pumps are applicable for a wide range of applications, including industrial vehicles such as construction machinery, agricultural equipment with hydrostatic drive systems, and other closed loop applications. Also, this pump can be used in combination with M7V series motors for high pressure closed loop applications.

The K8V series with a range in pump size from 71 to 130 cm<sup>3</sup>/rev are equipped with electric or hydraulic pilot displacement control. The K8V series pumps, having the integrated components required for a closed system, such as a charge pump, high and low pressure relief valves, and a cut-off valve, enable a compact closed loop system.

### ■ Features

- Swash plate type, variable displacement axial piston pump for closed loop system
- High overall efficiency
- Suitable for wide range of applications
- Precise flow control
- High stability
- Excellent reliability
- Various integrated valves
- Bypass function for emergency towing

# 1

# Ordering Code

## 1-1 Pump Options

Please fill the Inquiry Form on page 36 and 37 in order to specify the requirement.

Model Code **K8V 125 A R D1 A1 A B B X X X X - P1 D C B - 01**

### 1. K8V Series Pump

K8V Series, Variable Displacement, Axial Piston, Closed Loop Pump

### 2. Size

	71	90	125
Pump Size	●	●	●

### 3. Model Code

	71	90	125
A Series A	●	●	●

### 4. Direction of Rotation

	71	90	125
R Clockwise	●	●	●
L Counterclockwise	●	●	●

### 5. Mounting Flange and Shaft

	71	90	125
C1 SAE C Mount & SAE C Shaft (14T-12/24DP)	●	—	—
C2 SAE C Mount & SAE CC Shaft (17T-12/24DP)	●	—	—
D1 SAE D Mount & SAE D Shaft (13T-8/16 DP)	—	●	●
D2 SAE D Mount & SAE F Shaft (15T-8/16 DP)	—	—	●

### 6. Through Drive

	71	90	125
A1 SAE A, 2 bolt, Through Drive (9T, 16/32 DP)	●	●	●
B1 SAE B, 2 bolt, Through Drive (13T, 16/32 DP)	●	●	●
B2 SAE BB, 2 bolt, Through Drive (15T, 16/32 DP)	●	●	●
C1 SAE C, 2/4 bolt, Through Drive (14T, 12/24 DP)	●	●	●
C2 SAE CC, 2/4 bolt, Through Drive (17T, 12/24 DP)	—	●	●
D1 SAE D, 2/4 bolt, Through Drive (13T, 8/16 DP)	—	●	●
X Without Through Drive	●	●	●

### 7. Thread Type (Suction/Delivery)

	Type of Threaded Port	Thread Type for Flange Port	71	90	125
A	UNF	Metric	●	●	●
B	Metric	Metric	○	○	○
C	UNF	UNF	●	●	●

### 8. Charge Pump

	71	90	125
A 20 cm <sup>3</sup>	●	●	—
B 28 cm <sup>3</sup>	—	—	●
X Without Integrated Charge Pump	●	●	●

### 9. Stroking Speed Control Orifice

	71	90	125
A $\Phi 0.8$	●	—	●
B $\Phi 1.0$	●	●	●
C $\Phi 1.2$	●	●	●
D $\Phi 1.4$	—	●	—
X Without Orifice Available Only with Code X of Pressure Cut-off Valve [16]	●	●	●

### 10. Mechanical Stroke Limiter

	71	90	125
A With Mechanical Stroke Limiter	○	○	○
X Without Mechanical Stroke Limiter	●	●	●

### 11. Filtration System

	71	90	125
A Integral Pressure Filtration	○	○	○
B Remote Pressure Filtration With Ports For External Charge Circuit Filter	●	●	●
X Without Pressure Filtration	●	●	●

### 13. Special Features

	71	90	125
A A ~ Code Corresponding to the Feature will Be Set Up When Necessary	○	○	○
X Without Any Special Feature	●	●	●

### 12. Swivel Angle Sensor

	71	90	125
A With Swivel Angle Sensor	○	○	○
X Without Swivel Angle Sensor	●	●	●

● : Available  
○ : Under development  
— : Not available

# 1. Ordering Code

## 1-2 Regulator Options

Please fill the Inquiry Form on page 36 and 37 in order to specify the requirement.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18  
 Model Code **K8V 125 A R D1 A1 A B B X X X X - P1 D C B - 01**

**14. Control Option** \_\_\_\_\_

		71	90	125
P1	Electronic Proportional Displacement Control (24V)	●	●	●
P2	Electronic Proportional Displacement Control (12V)	●	●	●
P3	Hydraulic Proportional Displacement Control	●	●	●
M1	Manual Control with Lever	○	○	○

**15. High Pressure Relief Valve** \_\_\_\_\_

		71	90	125
A	30 MPa	●	●	●
B	35 MPa	●	●	●
C	40 MPa	●	●	●
D	45 MPa	●	●	●
S	Customized Pressure Setting for Special Case	●	●	●

**16. Pressure Cut-Off Valve** \_\_\_\_\_

		71	90	125
A	30 MPa	●	●	●
B	35 MPa	●	●	●
C	40 MPa	●	●	●
S	Customized Pressure Setting for Special Case	●	●	●
X	Without Pressure Cut-Off Valve	●	●	●

Note: The pressure setting of cut-off valve must be at least 5MPa lower than the pressure setting of high pressure relief valve.

**17. Low Pressure Relief Valve** \_\_\_\_\_

		71	90	125
B	2.5 MPa	●	●	●
S	Customized Pressure Setting for Special Case	●	●	●
X	Without Low Pressure Relief Valve	●	●	●

**18. Design Code** \_\_\_\_\_

**	01 ~
----	------

● : Available  
 ○ : Under development  
 — : Not available

# 2

## Technical Information

### 2-1 Specifications

Size		71	90	125	
Displacement	Main pump	cm <sup>3</sup>	71	90	130
	Charge pump	cm <sup>3</sup>	20	20	28
Pressure, main	Rated	MPa	40		
	Peak	MPa	45		
Pressure, charge	Rated	MPa	2.5		
	Peak	MPa	4.0		
Allowable case pressure		MPa	0.2 continuous / 0.6 peak		
Speed	Rated* <sup>1</sup>	min <sup>-1</sup>	3,300	3,050	2,850
	Maximum* <sup>2</sup> (intermittent)	min <sup>-1</sup>	4,100	3,800	3,450
	Minimum	min <sup>-1</sup>	500	500	500
Case volume		L	2.5	3.0	4.0
Temperature range		°C	- 20 to +95 (case drain: 115 maximum, intermittent)		
Viscosity range		cSt	10 to 1,000		
Maximum contamination level			ISO 4406 -/18/15		
Allowable through drive torque	Nm	SAE A	123	123	123
		SAE B	395	395	395
		SAE BB	455	575	640
		SAE C	455	575	725
		SAE CC	-	575	830
		SAE D	-	575	830
Mass		kg	60	72	95
Moment of inertia		kg · m <sup>2</sup>	$8.71 \times 10^{-3}$	$1.21 \times 10^{-2}$	$2.35 \times 10^{-2}$
Torsional stiffness		Nm/rad	$7.97 \times 10^4$	$1.46 \times 10^5$	$2.04 \times 10^5$
Coating			Red synthetic resin primer		

\* 1 : maximum allowable speed for continuous operation.

\* 2 : maximum allowable speed for limited operating period and duty. Exceeding this value will result in a reduced service life or the destruction of the pump.

Note: Operation above the maximum values or below the minimum values may result in a loss of function, a reduced service life or the destruction of the pump.

#### ■ Allowable maximum input torque

	SAE C (Ordering code[5]: C1)	SAE CC (Ordering code[5]: C2)	SAE D (Ordering code[5]: D1)	SAE F (Ordering code[5]: D2)
Spline specification	14T DP=12/24	17T DP=12/24	13T DP=8/16	15T DP=8/16
Allowable and maximum input torque (Nm)	600	1,070	1,470	2,255
Pump size	K8V71	K8V71 (Combination pump)	K8V90/125	K8V125 (Combination pump)

Input shaft splines conform to SAE J744.

Involute splines conform to ANSI B92.1a, 30° pressure angle, side fit.

Two mounting options are available each for the K8V71 and the K8V125.

If a combination pump of the K8V71 or the K8V125 requires the input torque higher than the allowable maximum input torque of C1 (600Nm) or D1 (1470Nm), C2 or D2 option must be chosen.

Proper lubrication is required to reduce friction and wear of the shaft.

## 2. Technical Information

# 2-1 Specifications

### ◆ Relief Valve

#### 1. High pressure relief valve

High pressure relief valves (two valves) are equipped to protect the pump from being overloaded.

The high pressure relief valves act to protect the pump from pressure spikes in dynamic control situations and are not equipped for continuous operation.

The settings of the high pressure relief valves are shown in the table below.

##### Pressure settings

Code[15]	Pressure setting (MPa)
A	30
B	35
C	40
D	45
S	Customized pressure setting for a special case Please contact Kawasaki.

Note:

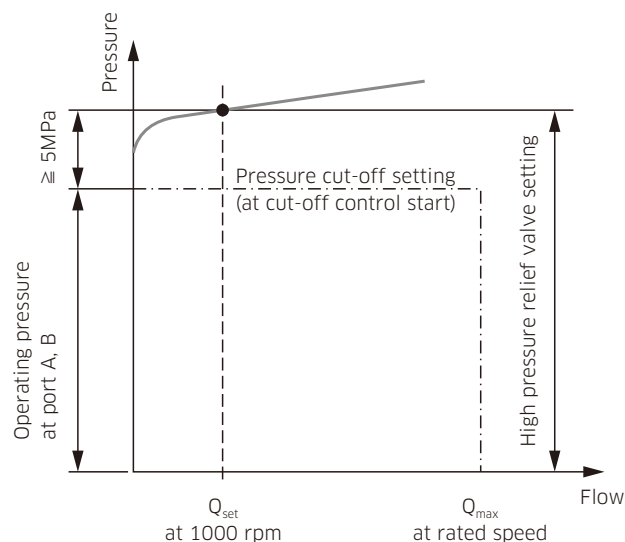
The allowable setting range of the high pressure relief valve is from 30 MPa to 45 MPa, and the customized pressure must be set within this range. For the customized pressure setting contact Kawasaki with the required pressure setting value. The pressure of the high pressure relief valve is factory preset at 40 MPa, if not specified.

#### 2. Low pressure relief valve

Low pressure relief valve is equipped to control the pressure for charge line and servo line.

The pressure setting of an integrated low pressure relief valve is preset at 2.5 MPa at the factory.

Do not adjust the pressure of the low pressure relief valve, as it may reduce the controllability of the pump.



High pressure relief valve setting diagram

### ◆ Pressure Cut-off

Pressure cut-off is the function which adjusts the pump displacement to the neutral position when the pressure reaches its pressure setting.

The pressure cut-off is set lower than high pressure relief valve setting, so that the maximum pump pressure is controlled by the pressure cut-off valve, whereas the high pressure relief valve acts to the pressure spike.

The cut-off pressure must be set at least 5 MPa lower than the setting of the high pressure relief valves.

The allowable setting range of the cut-off pressure is from 30 MPa to 40 MPa.

## 2. Technical Information

# 2-1 Specifications

### ◆ Charge Pump

Charge flow is required on all K8V pumps applied in closed circuit systems. The charge pump supplies flow to replenish, cool and filter oil, provide charge pressure and servo pressure, and flow for system control and auxiliary functions.

The integrated charge pump is available. The available charge pump sizes are as follows;

K8V71/90: 20 cm<sup>3</sup>/rev

K8V125: 28 cm<sup>3</sup>/rev

Pressure and flow for charge circuit can be supplied by an external auxiliary pump.

An auxiliary pump for charge circuit can also be mounted on the back of main pump using through drive mounting.

In case the auxiliary pump is used for charge circuit, connect the charge pump delivery line to port C so that the flow is provided to the low pressure line and servo line. The integrated low pressure relief valve can be used in this case. If the integrated low pressure relief valve is not used, provide an appropriate relief valve in the system.



## 2. Technical Information

### 2-1 Specifications

#### Filtration of Charge Pump

Filtration of the hydraulic fluid reduces premature wear, and enhances the reliability and productivity of the products. To ensure the cleanliness of the working fluid is essential to optimize function of the machine, and extend the service life.

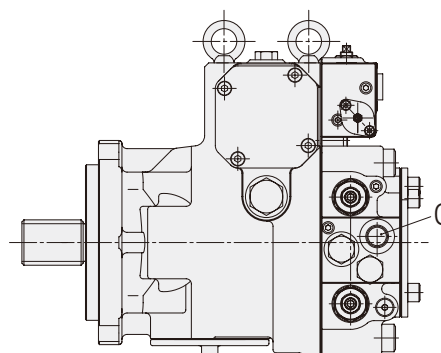
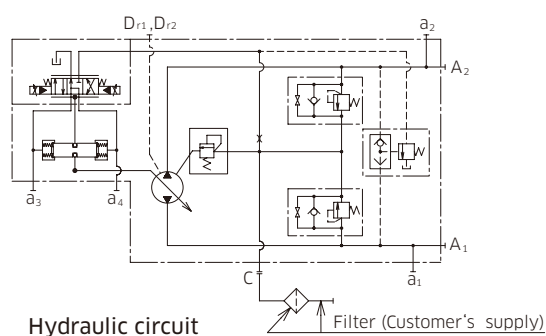
#### Filtration system

##### 1) External filtration system / External supply (Ordering code [11] : X)

This option is for a pump without an integrated charge pump.

External charge pump supply comes from port C.

Filter arrangement should be made separately.



##### 2) Remote filtration system (Ordering code [11] : B)

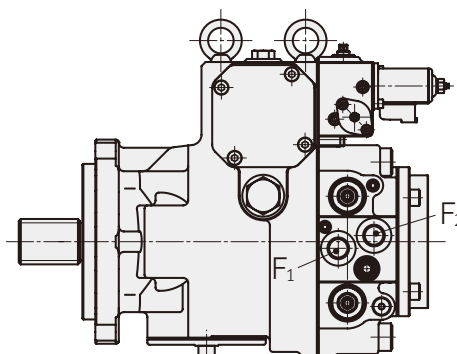
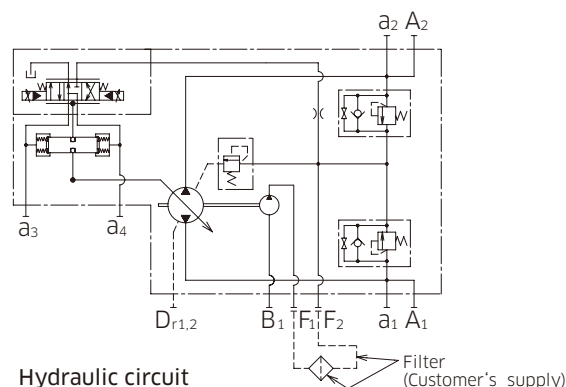
This is for a pump equipped with an integrated charge pump and ports for external charge circuit filter. The filter will be located in the discharge (pressure) line of the charge pump, as shown in the hydraulic circuit below.

Filters with bypass are not recommended.

Filter arrangement should be made separately, as the filter is not included in the delivery contents.

Charge pressure outlet: Port  $F_1$

Charge pressure inlet: Port  $F_2$



## 2. Technical Information

# 2-2 Functional Description of Regulator

### ◆ Electric Proportional Control (Ordering code [14] : P1, P2)

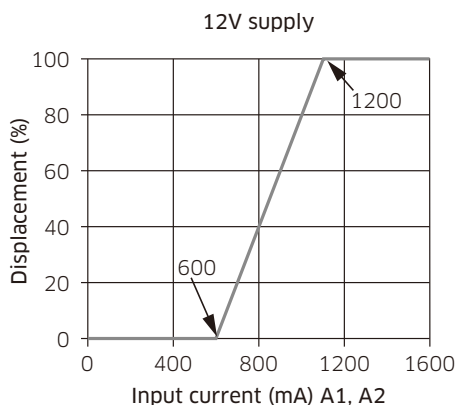
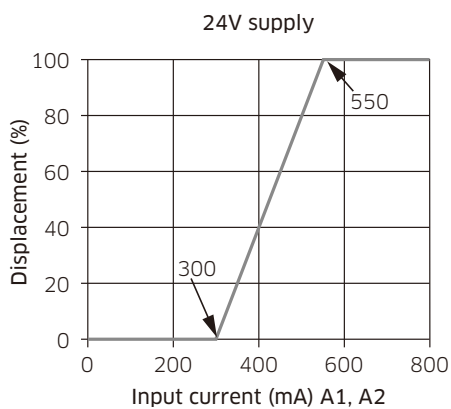
Pump delivery flow can be proportionally controlled by the input current to the electric proportional reducing valve equipped on the regulator.

The input current of the electric proportional reducing valve signals the control spool in a regulator to stroke, and to supply pressure to the servo piston. The pump displacement varies with the stroke of the servo piston.

The feedback lever, connected with the servo piston at the one end, moves with the stroke of the servo piston. This movement causes the sleeve of the control spool which is connected to the other end of the feedback lever to stroke, and closes the flow passage to the servo piston.

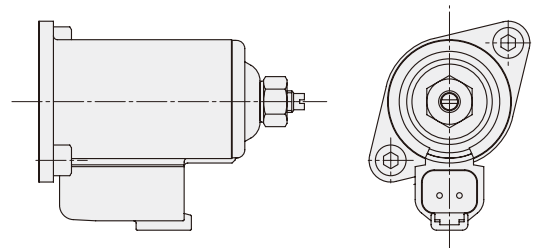
Consequently, the stroke of the servo piston stops, and the pump displacement becomes proportional to the input current.

### Control characteristics



The above figures is the control characteristics of electric proportional control. The control characteristics of electric proportional control is not adjustable.

### ● Electrical specifications



#### Connector type

LADD DISTRIBUTION, DT04-2P

Rated Current and Coil Resistance

For 24 V supply: 0.7 A, 15 Ω (at 20°C)

For 12 V supply: 1.6 A, 3.3 Ω (at 20°C)

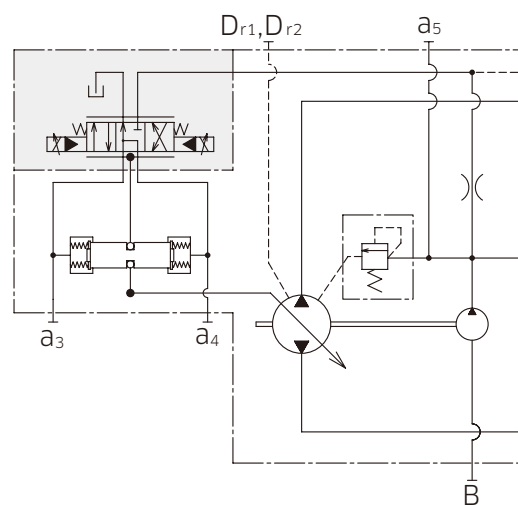
Recommended dither condition

85 Hz, 200 mAp-p for 24 V

85 Hz, 600 mAp-p for 12 V

(Note)

Electric displacement control regulator requires the minimum servo pressure is 2.0 MPa.



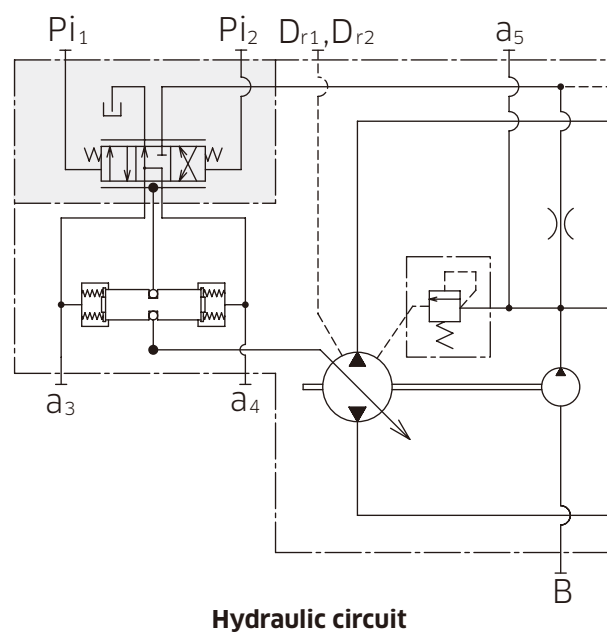
Hydraulic circuit

## 2. Technical Information

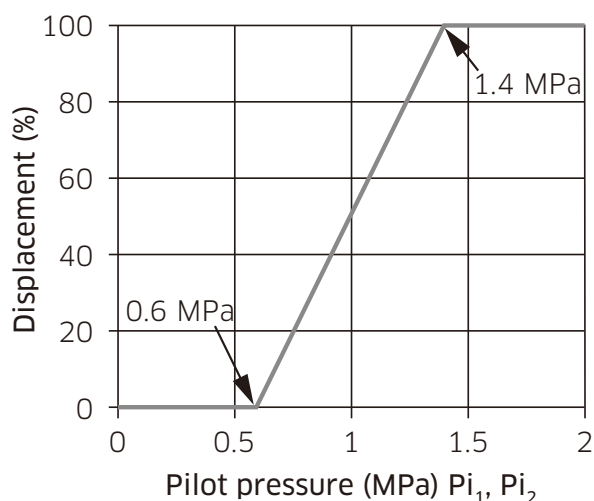
### 2-2 Functional Description of Regulator

#### ◆ Hydraulic Pilot Displacement Control (Ordering code [14] : P3)

Pump delivery flow can be proportionally controlled by the external pilot pressure supply. The external pilot pressure signals the control spool in a regulator to stroke, and to supply pressure to the servo piston. The pump displacement varies with the stroke of the servo piston. The feedback lever, connected with the servo piston at the one end, moves with the stroke of the servo piston. This movement causes the sleeve of the control spool which is connected with the other end of the feedback lever to stroke, and closes the flow passage to the servo piston. Consequently, the stroke of the servo piston stops, and the pump displacement becomes proportional to the external pilot pressure.



#### Control characteristics



The above figure is the standard control characteristic of hydraulic pilot displacement control. If non standard control characteristics is required, please contact Kawasaki.

## 2. Technical Information

# 2-2 Functional Description of Regulator

### ◆ Mechanical Stroke Limiter

Mechanical stroke limiter is available for option. By an adjusting screw the maximum displacement can be adjusted infinitely to the required displacement setting.

This option is under development. For details contact Kawasaki.

### ◆ Stroking Speed Control Orifice

Pump stroking speed (response) can be adjusted by changing the control orifice which is integrated in the servo line. The available control orifices and those response (for reference) are shown in the table below.

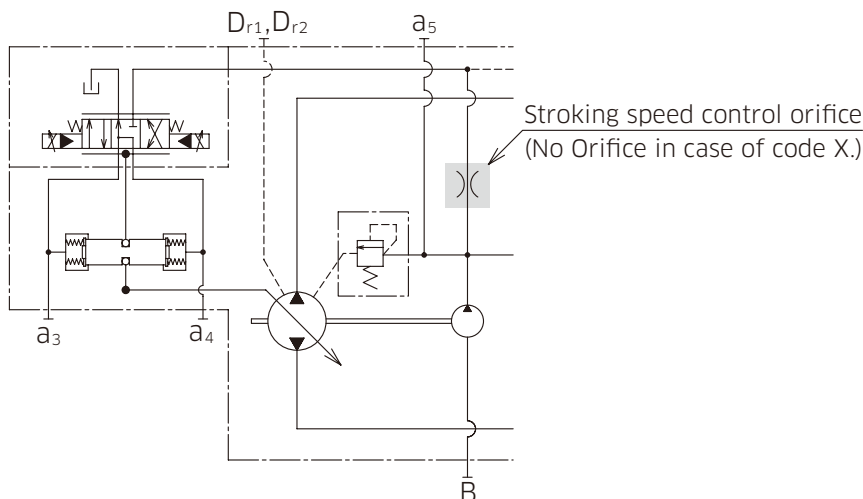
The typical orifice size used is as below;

K8V71:  $\Phi 1.0$

K8V90:  $\Phi 1.2$

K8V125:  $\Phi 1.0$

	Code [9]	Orifice size	Stroking time	
			Neutral to Max.	Max. to Neutral
K8V71	A	$\Phi 0.8$	2.0 to 3.0 sec	0.3 to 1.0 sec
	B	$\Phi 1.0$	1.5 to 2.0 sec	
	C	$\Phi 1.2$	1.0 to 1.5 sec	
K8V90	B	$\Phi 1.0$	2.0 to 2.5 sec	0.5 to 1.5 sec
	C	$\Phi 1.2$	1.5 to 2.0 sec	
	D	$\Phi 1.4$	1.0 to 1.5 sec	
K8V125	A	$\Phi 0.8$	4.0 to 5.0 sec	0.5 to 1.5 sec
	B	$\Phi 1.0$	3.0 to 4.0 sec	
	C	$\Phi 1.2$	2.0 to 3.0 sec	





### 3. Dimensions

## 3-1 Installation Dimensions

\* Dimensions in mm.

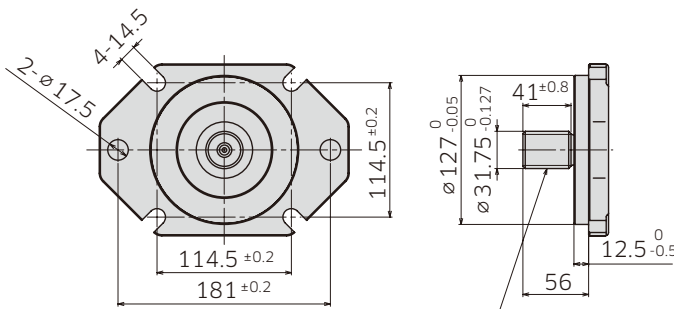
### ◆ K8V71 Mounting Flange and Shaft Options

#### SAE C Spline Shaft

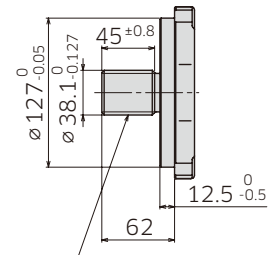
Ordering Code '5.Mounting Flange and Shaft' : C1

#### SAE CC Spline Shaft

Ordering Code '5.Mounting Flange and Shaft' : C2



SAE "C" 30° Involute spline shaft  
SAE J744-32-4  
14T 12/24 DP



SAE "CC" 30° Involute spline shaft  
SAE J744-38-4  
17T 12/24 DP

### ◆ K8V71 Port Details

#### Main flanged ports

Des	Port name	Port size	Flange thread	Tightening torque (Nm)
-----	-----------	-----------	---------------	------------------------

#### UNF thread version

A <sub>1</sub> , A <sub>2</sub>	Pressure port	SAE J518C high pressure (Code 62) 1"	7/16-14UNC-2B-17-21.5	98
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#### Metric thread version

A <sub>1</sub> , A <sub>2</sub>	Pressure port	SAE J518C high pressure (Code 62) 1"	M12-17	98
---------------------------------	---------------	--------------------------------------	--------	----

#### Auxiliary port

Des	Port name	Port size	Tightening torque (Nm)
Dr <sub>1</sub> , Dr <sub>2</sub>	Drain port	1-1/16-12UN-2B-19 (ISO 11926-1 : 1995)	170
a <sub>1</sub> , a <sub>2</sub> , a <sub>3</sub> , a <sub>4</sub>	Gauge port	9/16-18UNF-2B-12.7 (ISO 11926-1 : 1995)	59
B	Inlet port	1-5/16-12UN-2B-19 (ISO 11926-1 : 1995)	300
a <sub>5</sub>	Gauge port	3/4-16UNF-2B-15 (ISO 11926-1 : 1995)	98
e	Air vent port	9/16-18UNF-2B-12.7 (ISO 11926-1 : 1995)	59
F <sub>1</sub>	External filter port (out)	3/4-16UNF-2B-15 (ISO 11926-1 : 1995)	98
F <sub>2</sub>	External filter port (in)	3/4-16UNF-2B-15 (ISO 11926-1 : 1995)	98
C	External charge pressure supply port	3/4-16UNF-2B-15 (ISO 11926-1 : 1995)	98
Pi <sub>1</sub> , Pi <sub>2</sub>	Pilot port	9/16-18UNF-2B-12.7 (ISO 11926-1 : 1995)	59

### 3. Dimensions

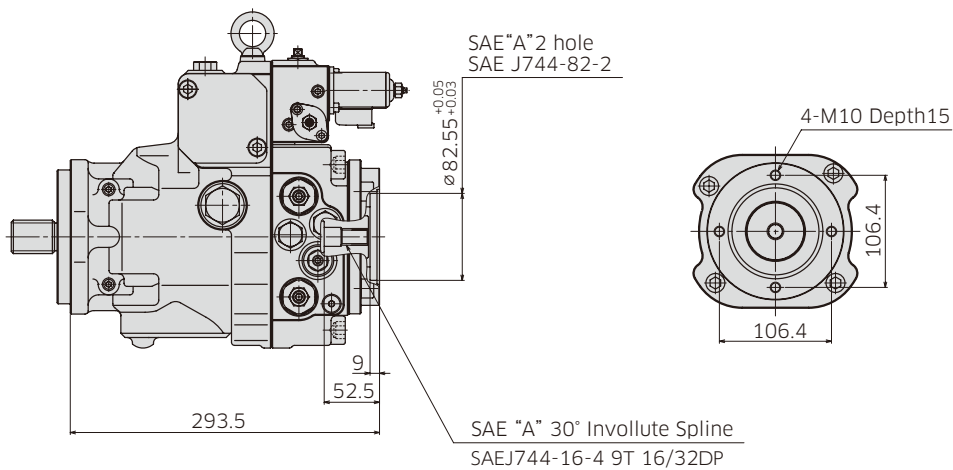
## 3-1 Installation Dimensions

\*Dimensions in mm.

### ◆ K8V71 Through Drive Options

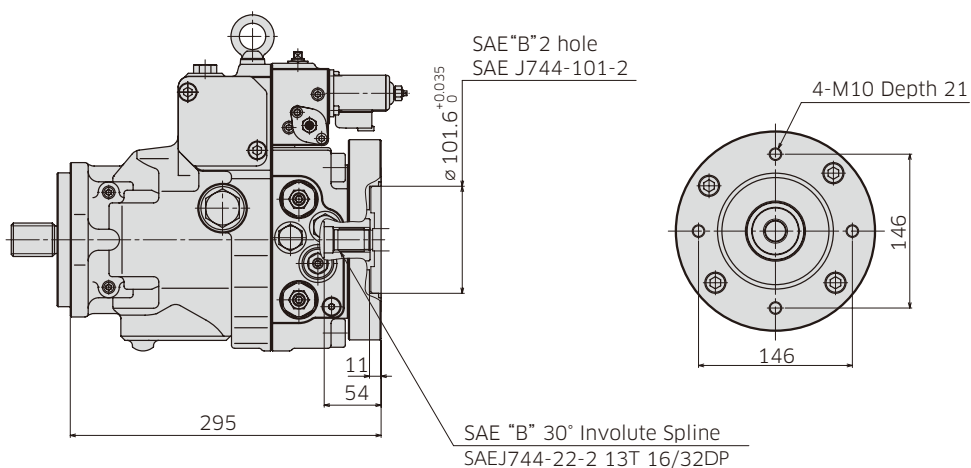
**Through Drive SAE A**

**Ordering Code '6.Through Drive' : A1**



**Through Drive SAE B**

**Ordering Code '6.Through Drive' : B1**



Involute spline according to ANSI B92.1a, 30° pressure angle, flat root, side fit

### 3. Dimensions

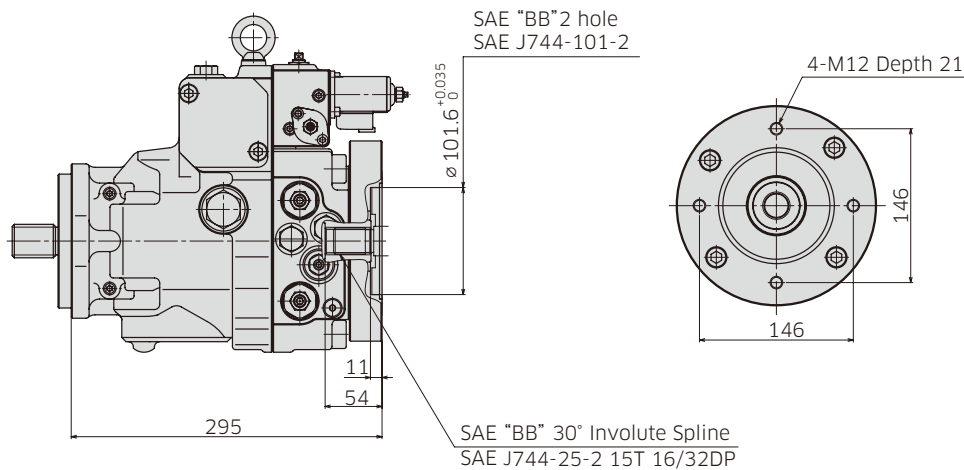
## 3-1 Installation Dimensions

\* Dimensions in mm.

### ◆ K8V71 Through Drive Options

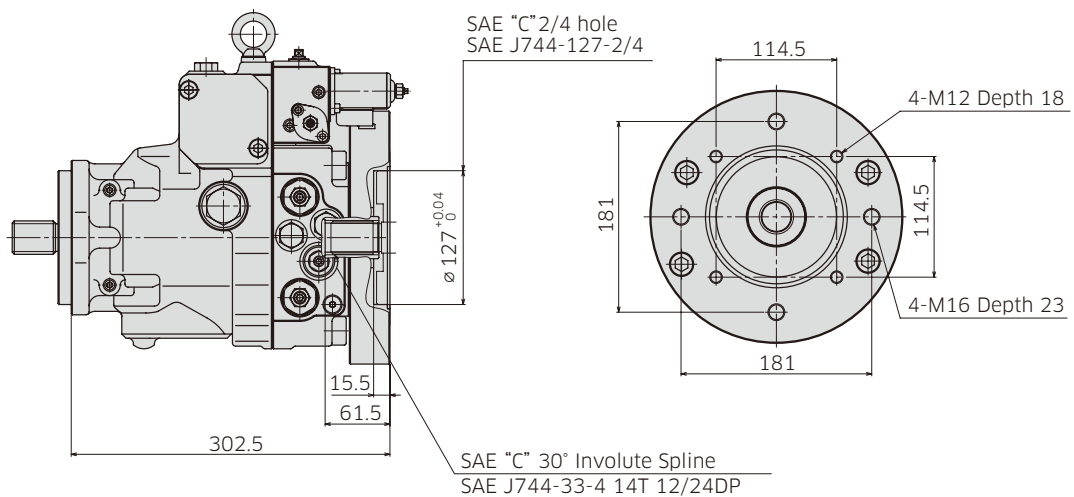
**Through Drive SAE BB**

**Ordering Code '6.Through Drive' : B2**



**Through Drive SAE C**

**Ordering Code '6.Through Drive' : C1**



Involute spline according to ANSI B92.1a, 30° pressure angle, flat root, side fit





## 3. Dimensions

# 3-1 Installation Dimensions

### ◆ K8V90 Port Details

#### Main flanged ports

Des	Port name	Port size	Flange thread	Tightening torque (Nm)
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#### UNF thread version

A <sub>1</sub> , A <sub>2</sub>	Pressure port	SAE J518C high pressure (code 62) 1"	1/2-13UNC-2B-19/24	98
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#### Metric thread version

A <sub>1</sub> , A <sub>2</sub>	Pressure port	SAE J518C high pressure (code 62) 1"	M12-17	98
---------------------------------	---------------	--------------------------------------	--------	----

#### Auxiliary port

Des	Port name	Port size	Tightening torque (Nm)
Dr <sub>1</sub> , Dr <sub>2</sub>	Drain port	1-1/16-12UN-2B-19 (ISO 11926-1 : 1995)	170
a <sub>1</sub> , a <sub>2</sub> , a <sub>3</sub> , a <sub>4</sub>	Gauge port	9/16-18UNF-2B-12.7 (ISO 11926-1 : 1995)	59
B	Inlet port	1-5/16-12UN-2B-19 (ISO 11926-1 : 1995)	300
a <sub>5</sub>	Gauge port	7/8-14UNF-2B-16.7 (ISO 11926-1 : 1995)	143
e	Air vent port	9/16-18UNF-2B-12.7 (ISO 11926-1 : 1995)	59
F <sub>1</sub>	External filter port (out)	7/8-14UNF-2B-16.7 (ISO 11926-1 : 1995)	143
F <sub>2</sub>	External filter port (in)	7/8-14UNF-2B-16.7 (ISO 11926-1 : 1995)	143
C	External charge pressure supply port	7/8-14UNF-2B-16.7 (ISO 11926-1 : 1995)	143
Pi <sub>1</sub> , Pi <sub>2</sub>	Pilot port	9/16-18UNF-2B-12.7 (ISO 11926-1:1995)	59

### 3. Dimensions

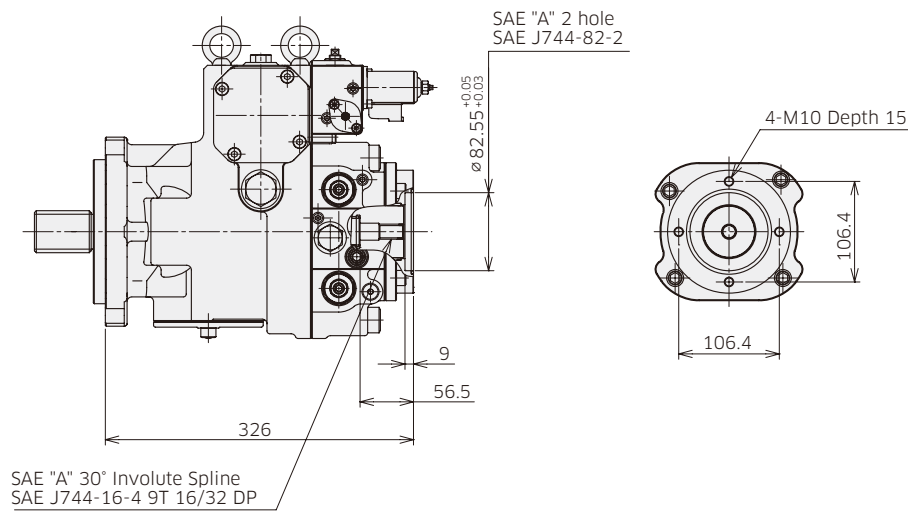
## 3-1 Installation Dimensions

\* Dimensions in mm.

### ◆ K8V90 Through Drive Options

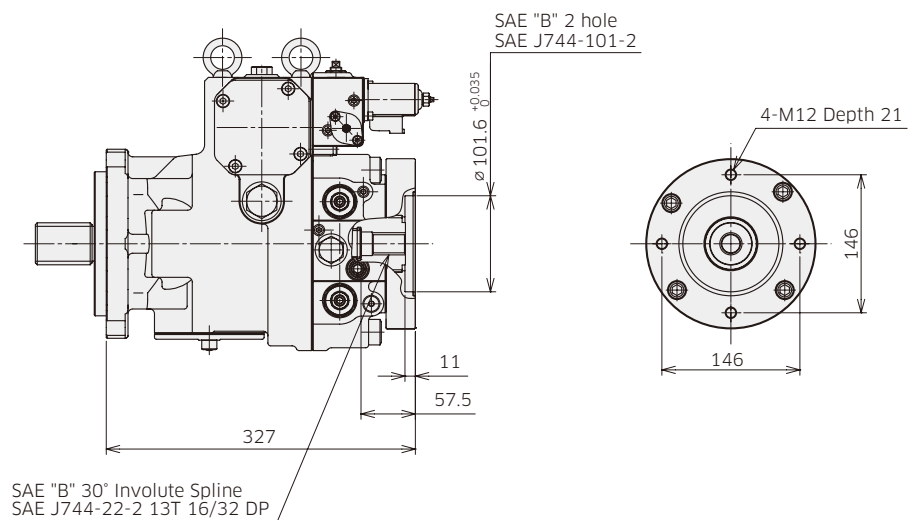
**Through Drive SAE A**

**Ordering Code '6.Through Drive' : A1**



**Through Drive SAE B**

**Ordering Code '6.Through Drive' : B1**



Involute spline according to ANSI B92.1a, 30° pressure angle, flat root, side fit

### 3. Dimensions

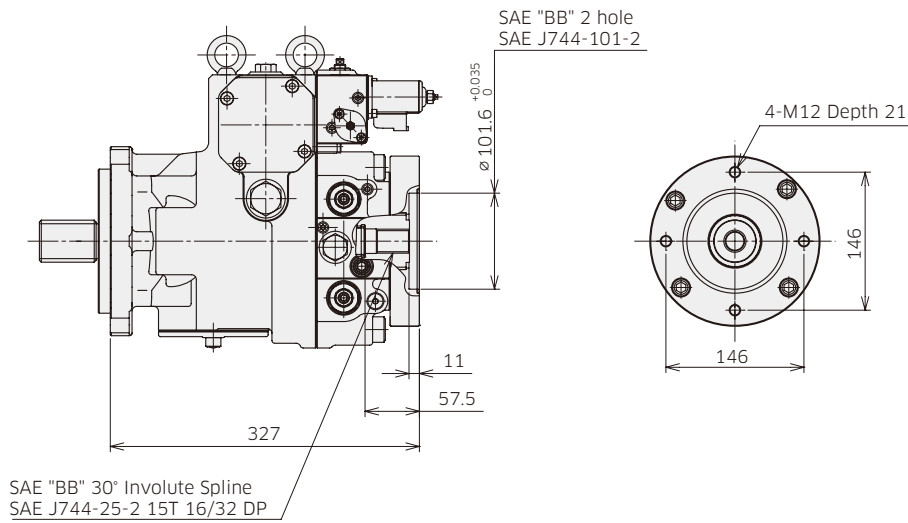
## 3-1 Installation Dimensions

\* Dimensions in mm.

### ◆ K8V90 Through Drive Options

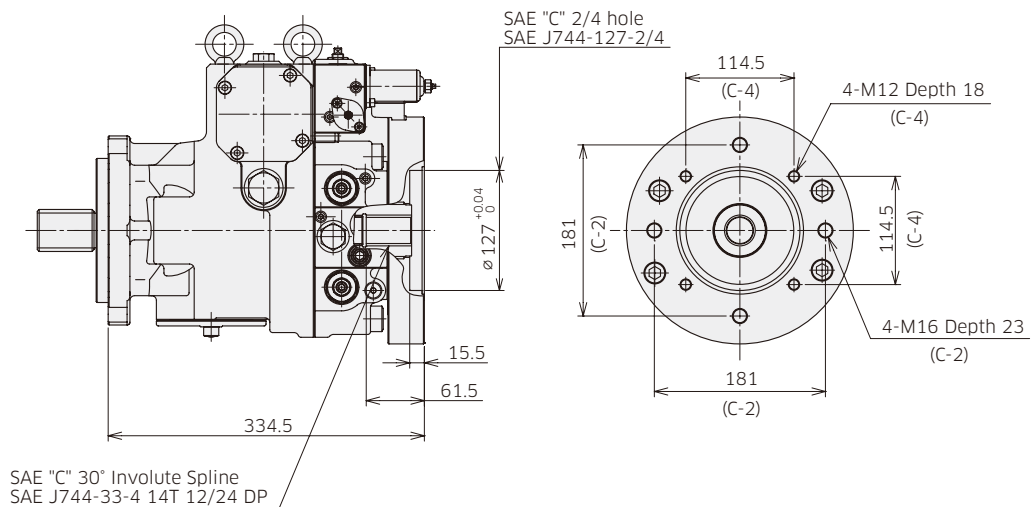
Through Drive SAE BB

Ordering Code '6.Through Drive' : B2



Through Drive SAE C

Ordering Code '6.Through Drive' : C1



Involute spline according to ANSI B92.1a, 30° pressure angle, flat root, side fit

### 3. Dimensions

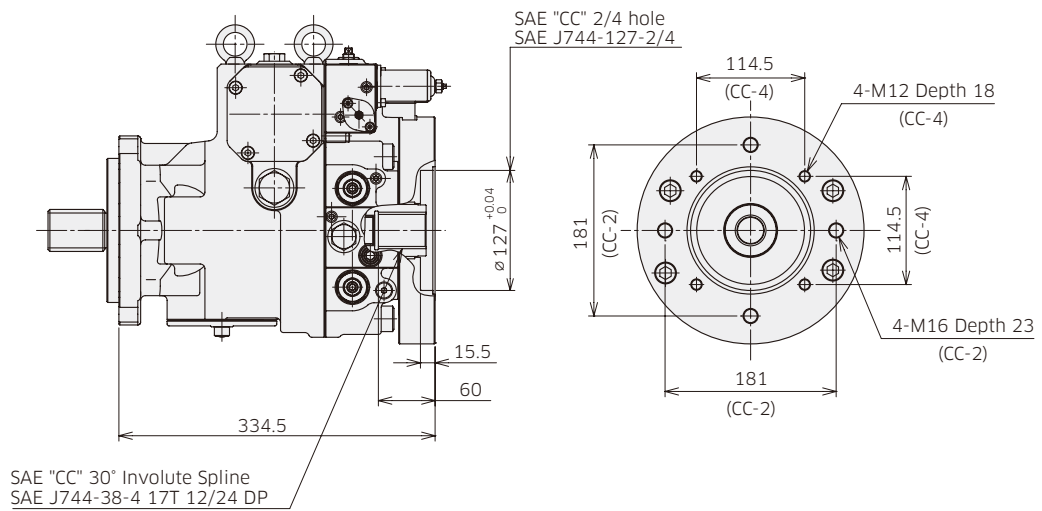
## 3-1 Installation Dimensions

\* Dimensions in mm.

### ◆ K8V90 Through Drive Options

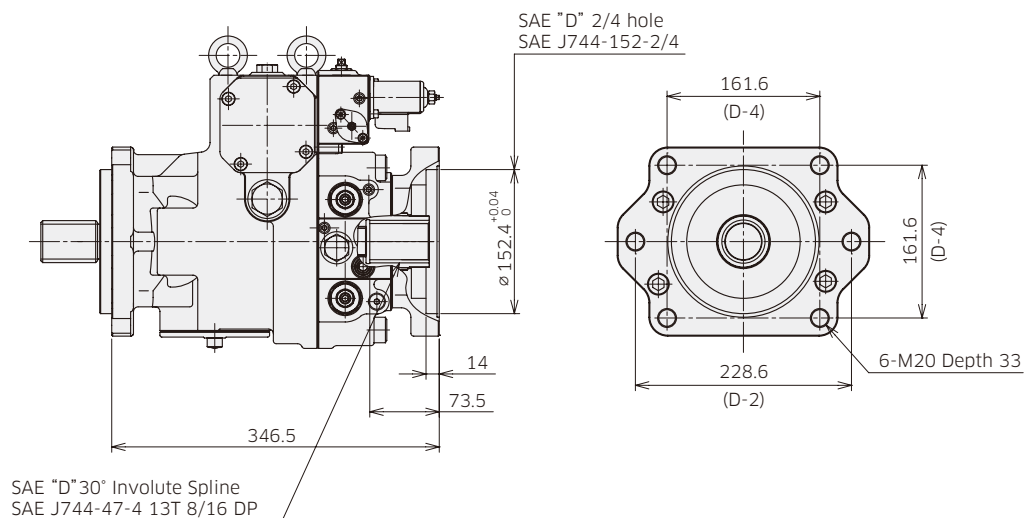
Through Drive SAE CC

Ordering Code '6.Through Drive' : C2



Through Drive SAE D

Ordering Code '6.Through Drive' : D1



Involute spline according to ANSI B92.1a, 30° pressure angle, flat root, side fit

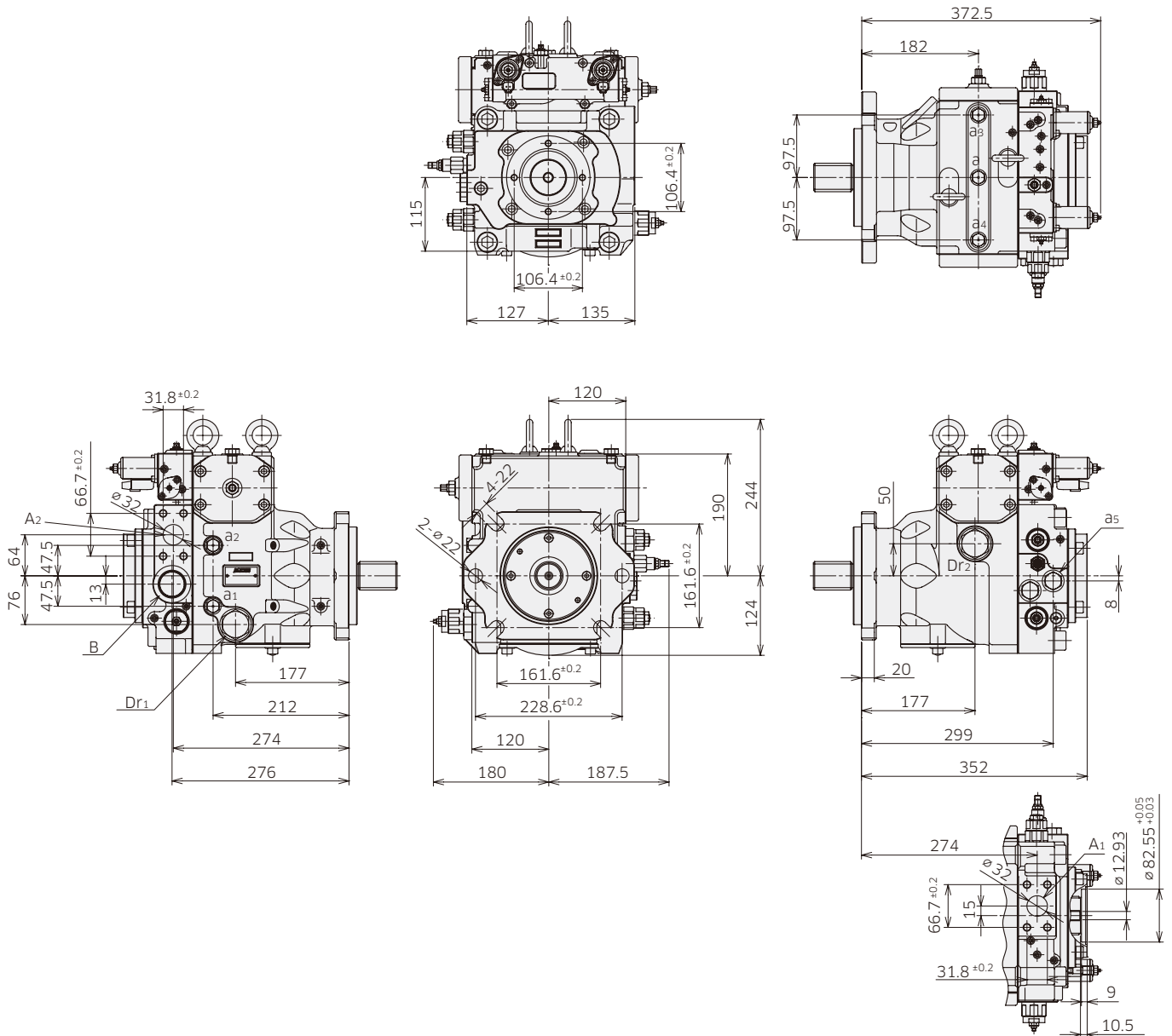
### 3. Dimensions

## 3-1 Installation Dimensions

\* Dimensions in mm.

### ◆ K8V125

Model Code : K8V 125 A R D1 A1 \* B \* X X X X - P1 \* \* \* - \* \*



(Note) See port details for thread size on port A1 and A2.

### 3. Dimensions

## 3-1 Installation Dimensions

\* Dimensions in mm.

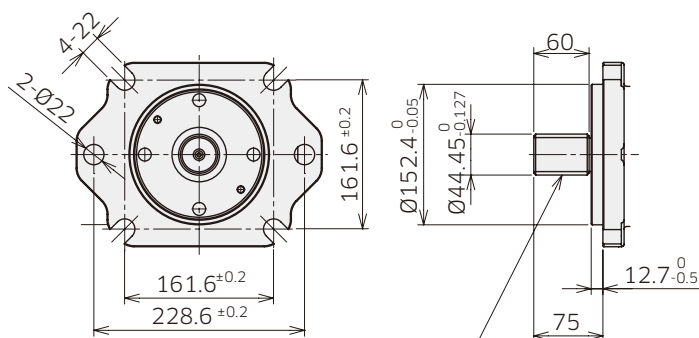
### ◆ K8V125 Mounting Flange and Shaft Options

#### SAE D Spline Shaft

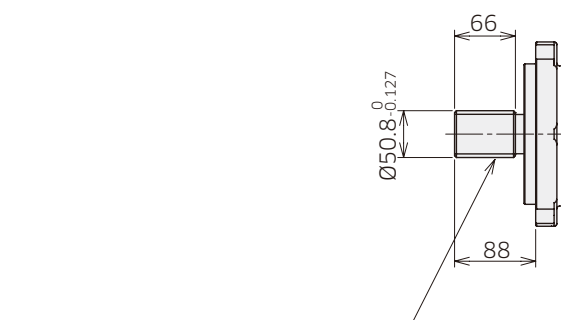
Ordering Code '5.Mounting Flange and Shaft' : D1

#### SAE F Spline Shaft

Ordering Code '5.Mounting Flange and Shaft' : D2



SAE "D" 30° Involute Spline Shaft  
SAE J744-44-4  
13T 8/16 DP



SAE "F" 30° Involute Spline Shaft  
SAE J744-50-4  
15T 8/16 DP

### ◆ K8V125 Port Details

#### Main flanged ports

Des	Port name	Port size	Flange thread	Tightening torque (Nm)
-----	-----------	-----------	---------------	------------------------

#### UNF thread version

A <sub>1</sub> , A <sub>2</sub>	Pressure port	SAE J518C high pressure (code 62) 1-1/4"	1/2-13UNC-2B-19/24	157
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#### Metric thread version

A <sub>1</sub> , A <sub>2</sub>	Pressure port	SAE J518C high pressure (code 62) 1-1/4"	M14-19	157
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#### Auxiliary port

Des	Port name	Port size	Tightening torque (Nm)
Dr <sub>1</sub> , Dr <sub>2</sub>	Drain port	1-5/16-12UN-2B-19 (ISO 11926-1 : 1995)	300
a <sub>1</sub> , a <sub>2</sub> , a <sub>3</sub> , a <sub>4</sub>	Gauge port	9/16-18UNF-2B-12.7 (ISO 11926-1 : 1995)	59
B	Inlet port	1-5/8-12UN-2B-24 (ISO 11926-1 : 1995)	350
a <sub>5</sub>	Gauge port	7/8-14UNF-2B-16.7 (ISO 11926-1 : 1995)	143
e	Air vent port	9/16-18UNF-2B-12.7 (ISO 11926-1 : 1995)	59
F <sub>1</sub>	External filter port (out)	7/8-14UNF-2B-16.7 (ISO 11926-1 : 1995)	143
F <sub>2</sub>	External filter port (in)	7/8-14UNF-2B-16.7 (ISO 11926-1 : 1995)	143
C	External charge pressure supply port	7/8-14UNF-2B-16.7 (ISO 11926-1 : 1995)	143
Pi <sub>1</sub> , Pi <sub>2</sub>	Pilot port	9/16-18UNF-2B-12.7 (ISO 11926-1 : 1995)	59

### 3. Dimensions

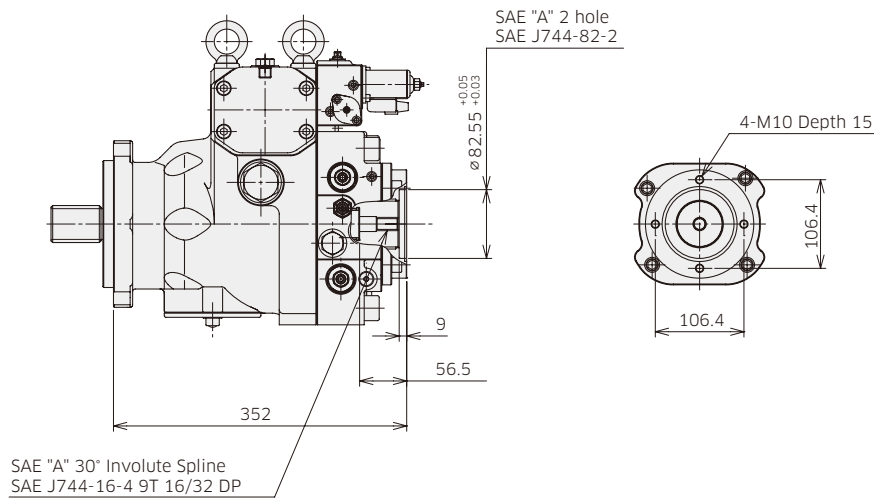
## 3-1 Installation Dimensions

\* Dimensions in mm.

### ◆ K8V125 Through Drive Options

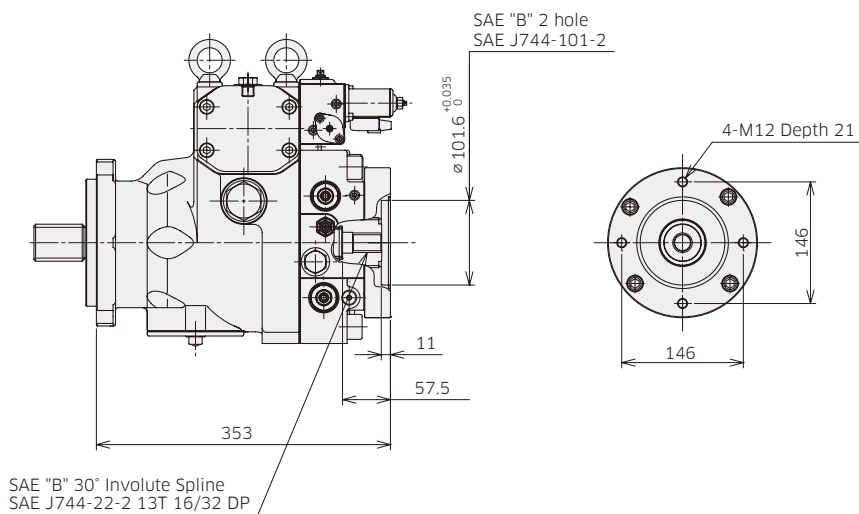
**Through Drive SAE A**

**Ordering Code '6.Through Drive' : A1**



**Through Drive SAE B**

**Ordering Code '6.Through Drive' : B1**



Involute spline according to ANSI B92.1a, 30° pressure angle, flat root, side fit



### 3. Dimensions

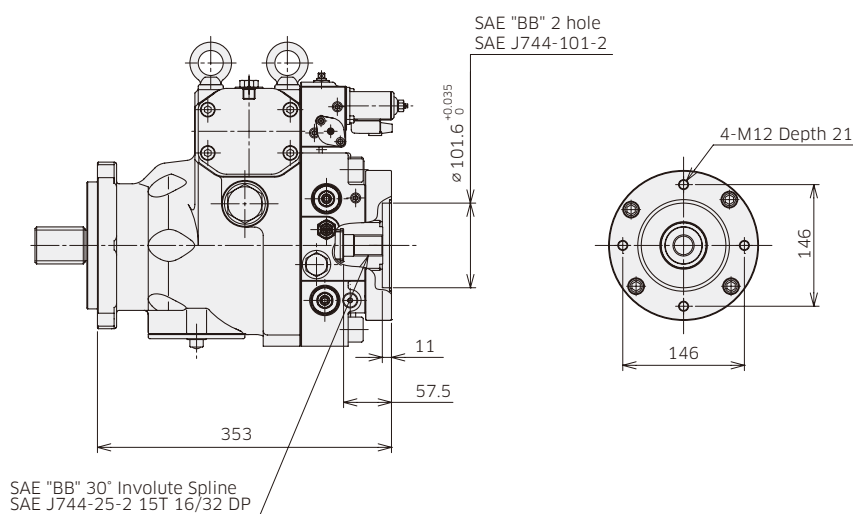
## 3-1 Installation Dimensions

\*Dimensions in mm.

### ◆ K8V125 Through Drive Options

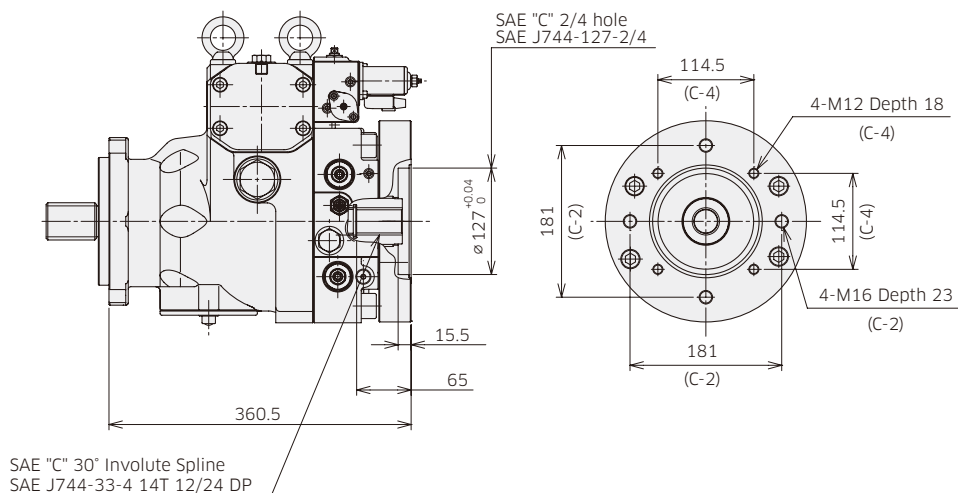
**Through Drive SAE BB**

**Ordering Code '6.Through Drive' : B2**



**Through Drive SAE C**

**Ordering Code '6.Through Drive' : C1**



Involute spline according to ANSI B92.1a, 30° pressure angle, flat root, side fit

### 3. Dimensions

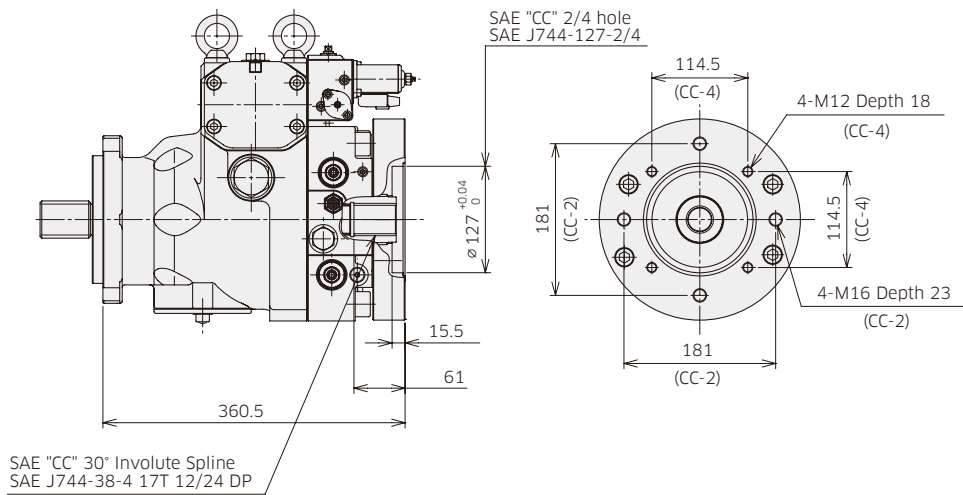
## 3-1 Installation Dimensions

\* Dimensions in mm.

### ◆ K8V125 Through Drive Options

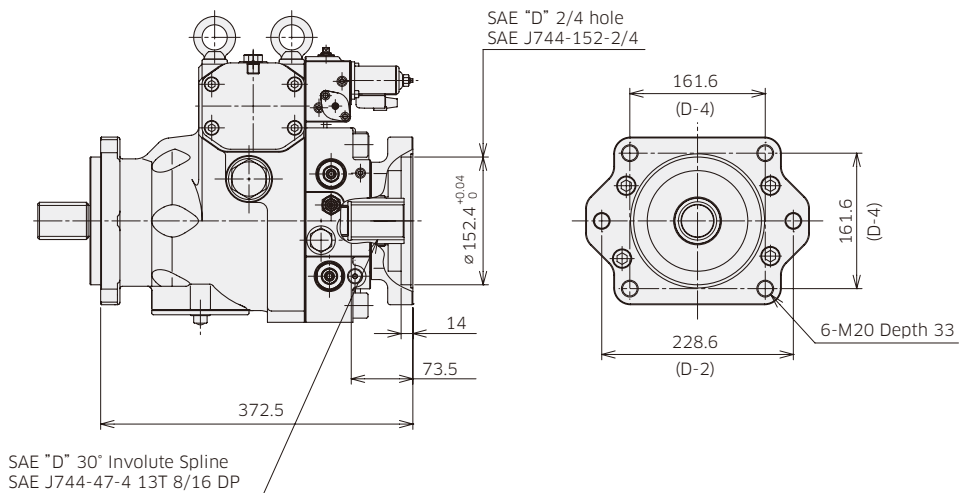
Through Drive SAE CC

Ordering Code '6.Through Drive' : C2



Through Drive SAE D

Ordering Code '6.Through Drive' : D1



Involute spline according to ANSI B92.1a, 30° pressure angle, flat root, side fit

### 3. Dimensions

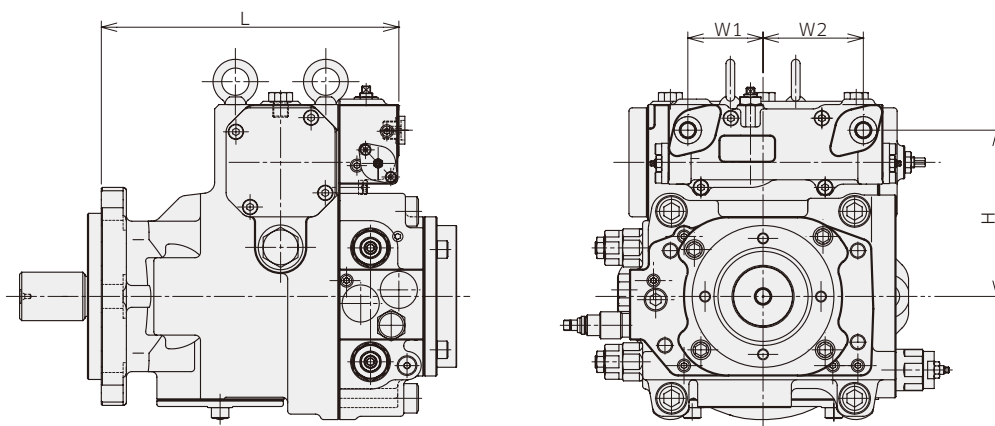
## 3-1 Installation Dimensions

### ◆ Hydraulic Pilot Displacement Control

K8V71 Model Code : K8V 71 A R C1 A1 C A C X X X X - P3 \* \* \* - \* \*

K8V90 Model Code : K8V 90 A R D1 A1 C A C X X X X - P3 \* \* \* - \* \*

K8V125 Model Code : K8V 125 A R D1 A1 C A B X X X X - P3 \* \* \* - \* \*



(Dimensions : mm)

	L	W1	W2	H
K8V71	246	69	92	139
K8V90	273	69	92	152.5
K8V125	299	69	92	167.5

### 3. Dimensions

## 3-2 Installation of Auxiliary Pumps

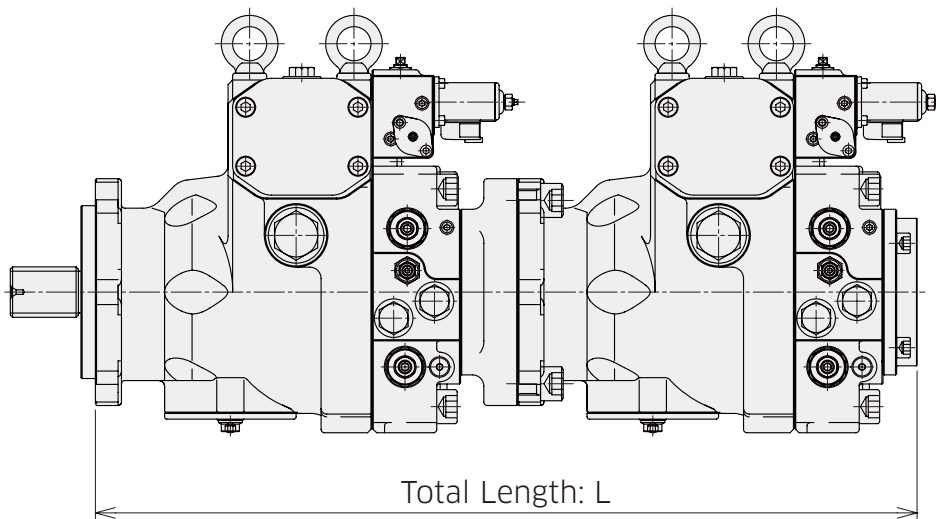
#### ■ Allowable mass moment for combination pump

K8V series allows combination of multiple pumps using through drive mounting. Any pump up to the same size of the first pump may be mounted to the first pump.

In case of tandem configuration comprising of two pumps of the same rated size the allowable maximum dynamic acceleration to the pump unit is 10G. No additional mounting support is necessary in connecting two pumps, but use a 4-bolt mounting on the first pump when installing the pump unit. If the third pump is to be mounted on the rear of the second pump, the pump mass moment at the mounting flange shall be within the rated mass moment. Also, the input torque on the shaft needs to be within the limit of input torque tolerance. (See "Allowable maximum input torque" on page 13)

#### ■ Total length of tandem unit (Dimensions: mm)

First pump	Second pump		
	K8V71	K8V90	K8V125
K8V71	596	-	-
K8V90	628	672.5	-
K8V125	654	698.5	724.5



Please complete the table to specify the requirements.  
Please contact Kawasaki for any questions.

# K8V Series Inquiry Form



Please tick the box for options.  
Options with ★ are under development.

Date: \_\_\_\_\_ Machine Model: \_\_\_\_\_  
 Application: \_\_\_\_\_  
 Customer Name \_\_\_\_\_

## Closed Loop Swash Plate Type Axial Piston Pump

Model Code	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
	K8V		A											-				-	

Items	Model Code No.	Requirements	Kawasaki feed back
Pump Size	2	71 <input type="checkbox"/>	
		90 <input type="checkbox"/>	
		125 <input type="checkbox"/>	
Model Code	3	A : Series A	
Direction of Rotation	4	R : Clockwise <input type="checkbox"/>	
		L : Counterclockwise <input type="checkbox"/>	
Mounting Flange and Shaft	5	C1 : SAE C Mount & SAE C Shaft (14T-12/24DP) (for K8V71) <input type="checkbox"/>	
		C2 : SAE C Mount & SAE CC Shaft (17T-12/24DP) (for K8V71) <input type="checkbox"/>	
		D1 : SAE D Mount & SAE D Shaft (13T-8/16DP) (for K8V90/125) <input type="checkbox"/>	
		D2 : SAE D Mount & SAE F Shaft (15T-8/16DP) (for K8V125) <input type="checkbox"/>	
Through Drive	6	A1 : SAE A, 2 bolt, Through Drive (9T-16/32DP) <input type="checkbox"/>	
		B1 : SAE B, 2 bolt, Through Drive (13T-16/32DP) <input type="checkbox"/>	
		B2 : SAE BB, 2 bolt, Through Drive (15T-16/32DP) <input type="checkbox"/>	
		C1 : SAE C, 2/4 bolt, Through Drive (14T-12/24DP) <input type="checkbox"/>	
		C2 : SAE CC, 2/4 bolt, Through Drive (17T-12/24DP) (for K8V90/125) <input type="checkbox"/>	
		D1 : SAE D, 2/4 bolt, Through Drive (13T-8/16DP) (for K8V90/125) <input type="checkbox"/>	
		X : Without Through Drive <input type="checkbox"/>	
Thread Type (Suction/Delivery)	7	Type of Threaded Port	Thread Type for Flange Port
		A : UNF <input type="checkbox"/>	Metric <input type="checkbox"/>
		B : Metric <input type="checkbox"/> ★	Metric <input type="checkbox"/>
Charge Pump	8	A : 20 cm <sup>3</sup> (for K8V71/90) <input type="checkbox"/>	
		B : 28 cm <sup>3</sup> (for K8V125) <input type="checkbox"/>	
		X : Without Integrated Charge Pump <input type="checkbox"/>	
Stroking Speed Control Orifice	9	A : Φ0.8 (for K8V71/125) <input type="checkbox"/>	
		B : Φ1.0 <input type="checkbox"/>	
		C : Φ1.2 <input type="checkbox"/>	
		D : Φ1.4 (for K8V90) <input type="checkbox"/>	
		X : Without Orifice (Available Only with Code [X] of Low Pressure Relief Valve 16) <input type="checkbox"/>	
Mechanical Stroke Limiter	10	A : With Mechanical Stroke Limiter <input type="checkbox"/> ★	
		X : Without Mechanical Stroke Limiter <input type="checkbox"/>	

Please complete the table to specify the requirements.  
Please contact Kawasaki for any questions.

## K8V Series Inquiry Form

### Closed Loop Swash Plate Type Axial Piston Pump

Model Code	1	2	3	4	5	6	7	8	9	10	11	12	13		14	15	16	17		18
	K8V		A											-					-	

Items	Model Code No.	Requirements	Kawasaki feed back
Filtration System (When the code "X" (without charge pump) is selected in the section 8 (code for charge pump), the code "X"(without filter) must be selected in the section 11.)	11	A : Integral Pressure Filtration <input type="checkbox"/> ★	
		B : Remote Pressure Filtration with Ports For External Charge Circuit Filter <input type="checkbox"/>	
		X : Eternal filtration system / External supply <input type="checkbox"/>	
Swivel Angle Sensor	12	A : With Swivel Angle Sensor <input type="checkbox"/> ★	
		X : Without Swivel Angle Sensor <input type="checkbox"/>	
Special Features	13	A : A~ (Code Corresponding to the Feature will be set up When Necessary) <input type="checkbox"/> ★	
		X : Without Any Special Feature <input type="checkbox"/>	
Control Options	14	P1 : Electronic Proportional Displacement Control (24V) <input type="checkbox"/>	
		P2 : Electronic Proportional Displacement Control (12V) <input type="checkbox"/>	
		P3 : Hydraulic Proportional Displacement Control <input type="checkbox"/>	
		M1 : Manual Control with Lever <input type="checkbox"/> ★	
High Pressure Relief Valve	15	A : 30 MPa <input type="checkbox"/>	
		B : 35 MPa <input type="checkbox"/>	
		C : 40 MPa <input type="checkbox"/>	
		D : 45 MPa <input type="checkbox"/>	
		S : Customized Pressure Setting for Special Case <input type="checkbox"/>	
Pressure Cut-Off Valve (High pressure relief set pressure $\geq$ Pressure cut-off setting pressure + 5 MPa)	16	A : 30 MPa <input type="checkbox"/>	
		B : 35 MPa <input type="checkbox"/>	
		C : 40 MPa <input type="checkbox"/>	
		S : Customized Pressure Setting for Special Case <input type="checkbox"/>	
		X : Without Pressure Cut-Off Valve <input type="checkbox"/>	
Low Pressure Relief Valve	17	B : 2.5 MPa <input type="checkbox"/>	
		S : Customized Pressure Setting for Special Case <input type="checkbox"/>	
		X : Without Low Pressure Valve <input type="checkbox"/>	
Design Code	18	** : 0.1~ <input type="checkbox"/>	

Comments (Other requirements)	Operating condition, Duty cycle etc. (Describe your detail)

Request Volume	Request Delivery Date	Note



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