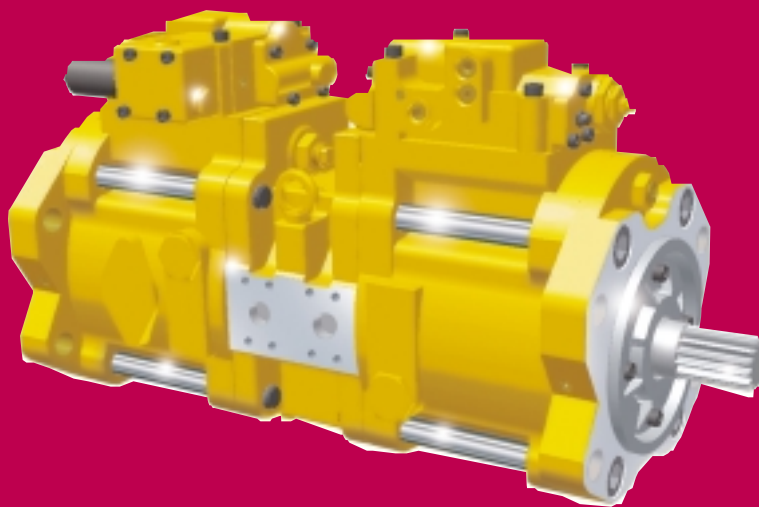


Kawasaki

K3V
K5V
SERIES

**K3V/K5V Series Axial Piston Pumps
Service Manual**



KPM
Kawasaki Precision Machinery

ON APPLICATION / USAGE OF THE PRODUCTS

Although our products are designed on the basis of our profound knowledge and long experience, and manufactured under the strict quality control system, the following must be taken into consideration in actual use.

1

The operating conditions of the products shown in this catalog vary depending upon each application. Therefore, the decision of the products' suitability to the system considered must be made by the designer of the hydraulic system and/or the person in charge of determining the specification after making analysis and conducting tests, if necessary. The study of the specification shall be done based on the latest catalog and technical documents, and the system must be composed taking into account situations regarding the possibility of machine failure.

2

Prior to use of the products, descriptions given in the SAFETY PRECAUTIONS must be observed for the proper use.

3

The technical information in this catalog represents typical characteristics and performance of the products, and is not guaranteed one.

4

In case the products are used in the following conditions or environments, please consult us prior to the use.

- ① Unspecified conditions or environments
- ② Use for atomic power, aviation, medical treatment, and/or food
- ③ Use likely to affect human beings or assets significantly or requiring particular safety

5





The information described in this catalog is subject to change without notice. For updated information, please consult our company.

SAFETY PRECAUTIONS






Before you use the product, you **MUST** read the operation or operators manual and **MUST** fully understand how to use the product.

To use the product safely, you **MUST** carefully read all Warnings and Cautions in this manual. You **MUST** also observe the related regulations and rules regarding safety.








■ Cautions related to operation

- ①  Use the safety equipment to avoid the injury when you operate the product.
CAUTION
- ②  Pay enough attention on handling method to avoid pinching hands or back problems that may be caused by heavy weight of the product or handling posture.
CAUTION
- ③  Do not step on the product, hit it, drop it or give strong outside force to it, as one of these actions may cause the failure of work, damage or oil leakage.
CAUTION
- ④  Wipe the oil on the product or floor off completely, as the oil creates slippery conditions that may result in dropping the product or injuring.
CAUTION





■ Warnings and Cautions related to installation and removal of the product

- ①  Installation, removal, plumbing, and wiring must be done by the certified person.
CAUTION
*CERTIFIED PERSON: a person who has enough knowledge like a person who is trained by Kawasaki's hydraulic school.
- ②  Make it sure that the power of 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 the system pressure has dropped to zero.
WARNING
- ③  Turn off the power before starting wiring or other works related to the electric power, otherwise you may be stuck by an electric shock.
WARNING
- ④  Clean the threads and mounting surface completely, otherwise you may experience damages or oil leakage caused by insufficient tightening torque or broken seal.
CAUTION
- ⑤  Use the specified bolts and keep the specified tightening torque when you install the product. Usage of unauthorized bolts, lack of torque or excess of torque may create problems such as failure of work, damage and oil leakage.
CAUTION

■ Warnings and Cautions for operation

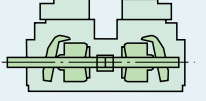
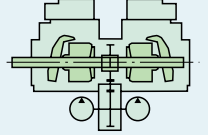
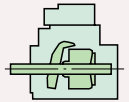
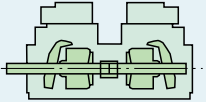
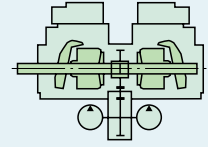
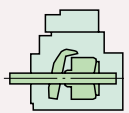
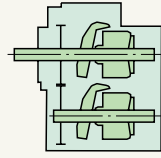
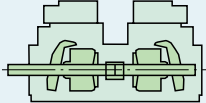
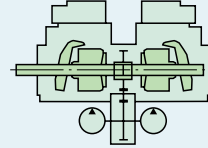
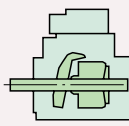
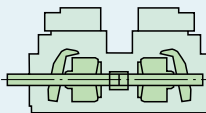
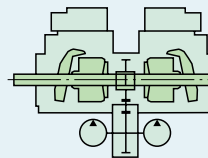
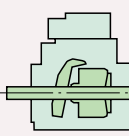
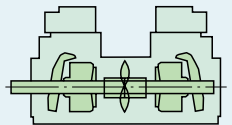
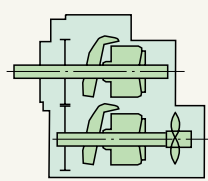
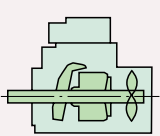
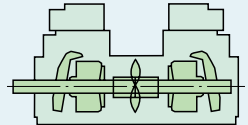
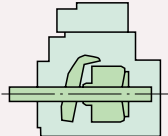
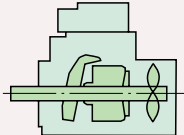
- ①  Never use the product not equipped with anti-explosion protection in the circumstances of possible explosion or combustion.
DANGER
- ②  Shield the rotating part such as motor shaft and pump shaft to avoid injuries caused by being caught of fingers or cloths.
WARNING
- ③  Stop the operation immediately if you find something wrong such as unusual noise, oil leakage or smoke, and fix it properly. If you continue operating, you may encounter damage, fire or injury.
WARNING
- ④  Make it sure that plumbing and wiring are correct and all the connection is tightened correctly before you start operating, especially if it is the first run.
CAUTION
- ⑤  Use the product under the specification mentioned in the catalog, drawings and specification sheet.
CAUTION
- ⑥  Keep your body off the product during the operations as it may become hot and burn your body.
CAUTION
- ⑦  Use the proper hydraulic oil, and maintain the contamination in the recommended level, otherwise it may not work or be damaged.
CAUTION

■ Cautions related to maintenance

- ①  Never modify the product without approval of Kawasaki.
CAUTION
- ②  Do not disassemble and assemble without approval by Kawasaki. It may cause troubles and failure, or it may not work as specified. If it is necessary by all means to disassemble and assemble, it must be done by an authorized person.
CAUTION
- ③  Keep the product from dust and rust by paying attention to the surrounding temperature and humidity when you transport or store the product.
CAUTION
- ④  Replacing the seals may be required if you use the product after long time storage.
CAUTION

Out of a Wide Variety of Our Swash Plate Type Axial Piston Pumps, We Introduce below Those Most Suitable for Construction Machines with Open Circuits.

KPM Swash Plate Type Axial Piston Pumps Programs for Industrial Vehicles

| Displacement | Double pump (Tandem type) | Double pump (Parallel type) | Single pump |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 60 cm ³ | <ul style="list-style-type: none"> •K3V63DT •K5V80DT  | <ul style="list-style-type: none"> •K3V63DTP •K5V80DTP  | <ul style="list-style-type: none"> •K3V63S •K5V80S  |
| 80 | | | |
| 110 | <ul style="list-style-type: none"> •K3V112DT •K5V140DT  | <ul style="list-style-type: none"> •K3V112DTP •K5V140DTP  | <ul style="list-style-type: none"> •K3V112S •K5V140S  |
| 140 | | <ul style="list-style-type: none"> •K3V112DP •K5V140DP  | |
| 200 | <ul style="list-style-type: none"> •K3V140DT  | <ul style="list-style-type: none"> •K3V140DTP  | <ul style="list-style-type: none"> •K3V140S  |
| 280 | <ul style="list-style-type: none"> •K5V200DT  | <ul style="list-style-type: none"> •K5V200DTP  | <ul style="list-style-type: none"> •K5V200S  |
| | <ul style="list-style-type: none"> •K5V200DTH  | <ul style="list-style-type: none"> •K5V200DPH  | <ul style="list-style-type: none"> •K5V200SH  |
| | <ul style="list-style-type: none"> •K3V280DTH  | | <ul style="list-style-type: none"> •K3V280S  |
| | | | <ul style="list-style-type: none"> •K3V280SH  |

A Thorough Function Design Enabled Such Attractive Features

1. High Power Density

A lighter and more compact machine with higher pressure rating and increased power density (output power/mass) was obtained by adopting a half log type swash plate.

In particular, the double pump with its tandem arrangement, has eliminated a power divider, has an increased transmission efficiency, and is lighter.

2. High Efficiency and Large Self-Priming Capability

The spherical valve plate and improved hydraulic balance provide stable cylinder rotation, thus achieving high efficiency even in a low-pressure and low-speed operating range.

3. Long Life

A long life is obtained by adopting main bearings of large capacity and the piston-return mechanism that compensates for the wear of the shoe.

4. Low Noise

Even less noise has been achieved because of the optimum design of the valve plate and the casing rigidity.

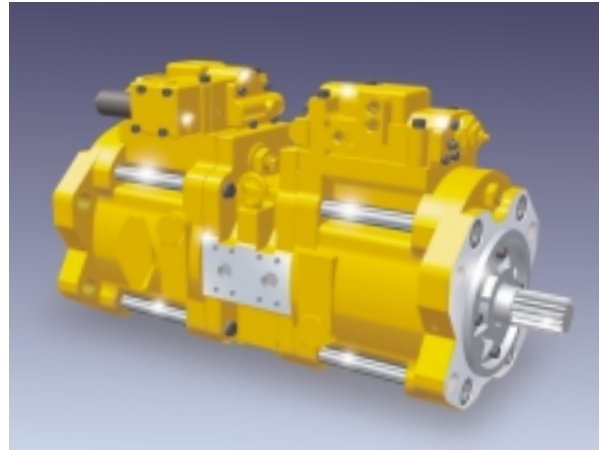
5. Wide Range of Controls

The pump can be controlled in various kinds of control methods and is capable of responding to either mechanical, hydraulic or electrical input.

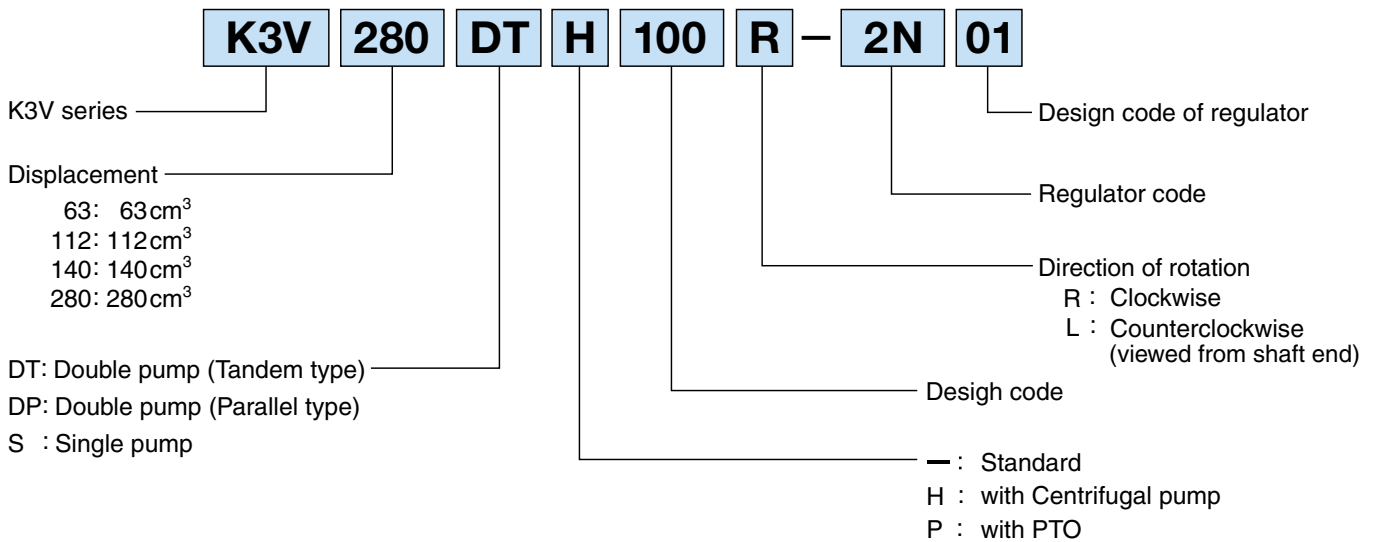


K3V SERIES

The N series pump, which was used widely as a piston pump especially for construction machines, has been modified to the K3V series, meeting the present-day requirements. This pump has optimum function design and is provided with further improved power density, efficiency, and reliability, attained from our many years of experiences with the NV series.



ORDERING CODE



SPECIFICATIONS

1MPa = 10.197kgf/cm²
 1N·m = 0.10197kgf·m

| Size | | 63 | 112 | 140 | 280 |
|--------------------------------------------------------|--------------------------|-------------------------------------|---------------|-------|-----------------------|
| Displacement (cm ³) | | 63 | 112 | 140 | 280 |
| Pressure (MPa) | *1 Rated | 34.3 | | | |
| | Peak | 39.2 | | | |
| Speed (min ⁻¹) | *2 Max. for self priming | 2,650 | 2,360 | 2,150 | 1,600 (*4) (2,000) |
| | *3 Max. | 3,250 | 2,700 | 2,500 | 2,000 |
| Max. input torque of tandem pump (N·m) | | 343 | 588 | 1,120 | 1,950 |
| Max. input torque of attached gear pump with PTO (N·m) | | 125 | | 294 | — |
| Mass (kg) | Single | 48 | 68 | 86 | 140 |
| | Tandem | 81 | 125 | 160 | 270 |
| Hydraulic fluid | Type | *5 Antiwear hydraulic fluid | | | |
| | Oil temperature range | -20 ~ +95 °C | | | |
| | Oil viscosity range | 10 ~ 1,000 mm ² /S (cSt) | | | |
| | Filtration | Suction line | 80 ~ 150 mesh | | |
| Return line | | nominal 10 micron meter | | | |

*1. Pressure to which guarantee of performance, functions or service life is applied. Durability is unlimited (except for the bearing life).

*2. At max. displacement. In case of engine driving, max. idling speed should be below this value. This suction pressure should be -0.01 MPa and above.

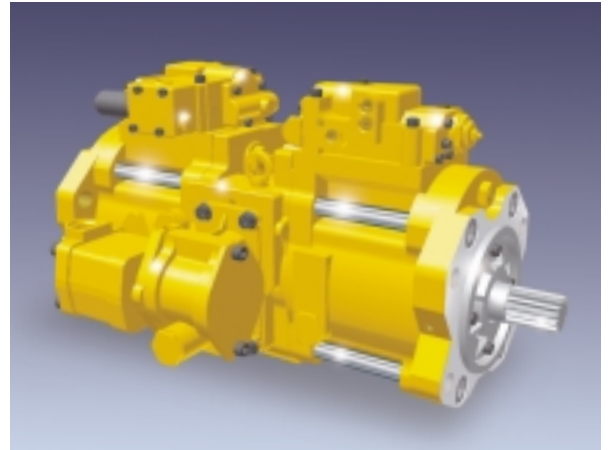
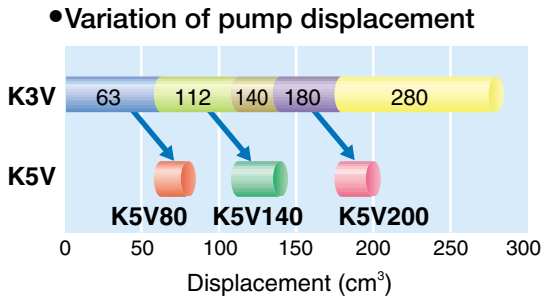
*3. Suction pressure should be above 0.1MPa.

*4. Max. speed with centrifugal pump

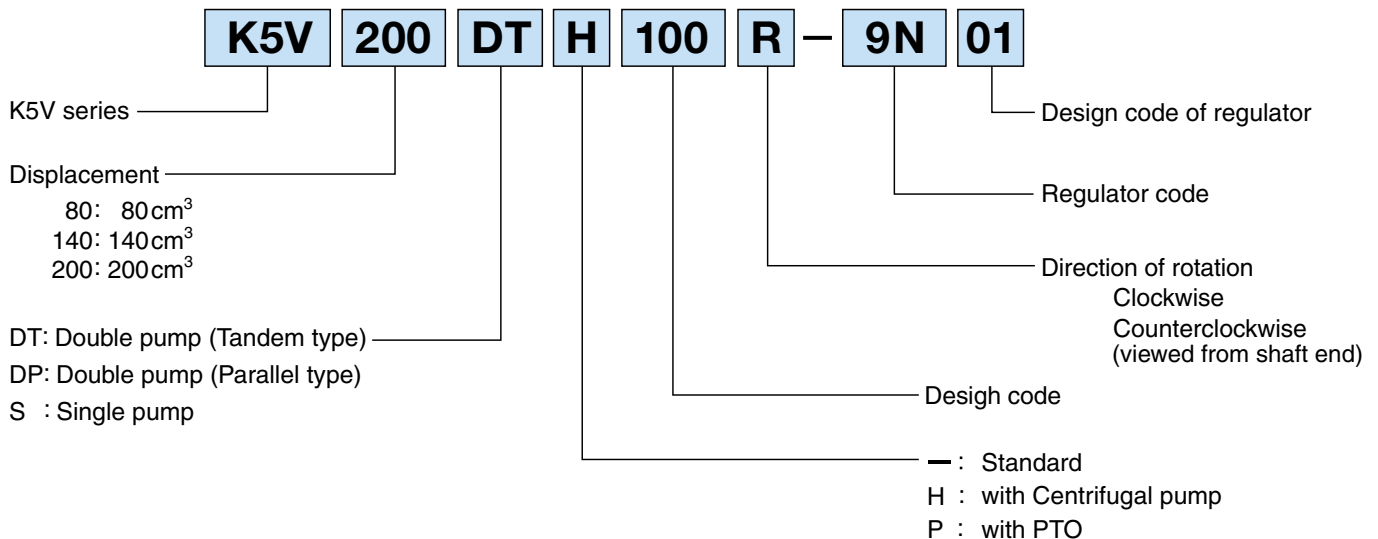
*5. When other kinds of fluid would be used, please consult with us.

K5V SERIES

With new technology the K5V series has enabled increased power density.



ORDERING CODE



SPECIFICATIONS

1MPa=10.197kgf/cm²
1N·m=0.10197kgf·m

| Size | 80 | 140 | 200 |
|--------------------------------------------------------|--------------------------|-------------------------------------|-------|
| Displacement (cm ³) | 80 | 140 | 200 |
| Pressure (MPa) | *1 Rated | | |
| | 34.3 | | |
| Speed (min ⁻¹) | Peak | | |
| | 39.2 | | |
| Max. input torque of tandem pump (N·m) | *2 Max. for self priming | 2,460 | 2,160 |
| | *3 Max. | 3,000 | 2,500 |
| Max. input torque of attached gear pump with PTO (N·m) | 1,900 (2,200)*4 | | 2,200 |
| | 529 | | 843 |
| Mass (kg) | 125 | | 294 |
| | Single | 48 | 68 |
| Hydraulic fluid | Tandem | 81 | 125 |
| | Type | *5 Antiwear hydraulic fluid | |
| | Oil temperature range | -20 ~ +95 °C | |
| | Oil viscosity range | 10 ~ 1,000 mm ² /S (cSt) | |
| Filtration | Suction line | 80 ~ 150 mesh | |
| | Return line | nominal 10 micron meter | |

*1. Pressure to which guarantee of performance, functions or service life is applied. Durability is unlimited (except for the bearing life).

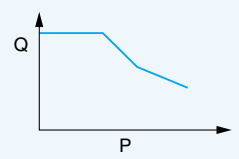
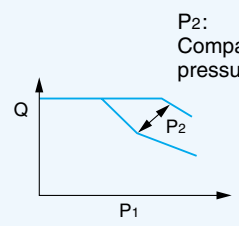
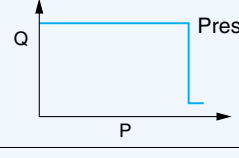
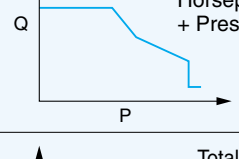
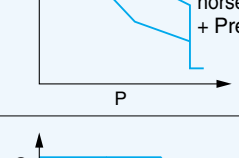
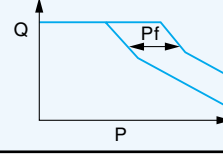
*2. At max. displacement. In case of engine driving, max. idling speed should be below this value. This suction pressure should be -0.01MPa and above.

*3. Suction pressure should be above 0.1MPa.

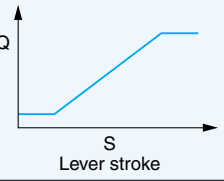
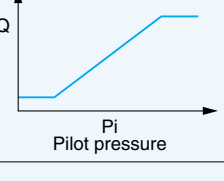
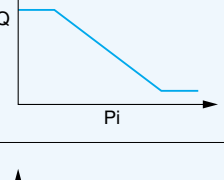
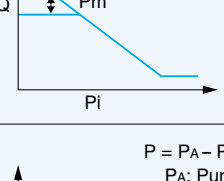
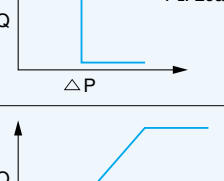
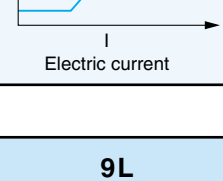
*4. Max. speed with centrifugal pump

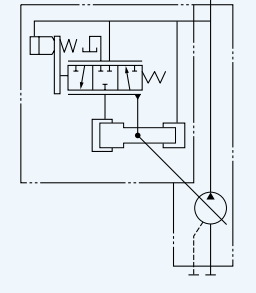
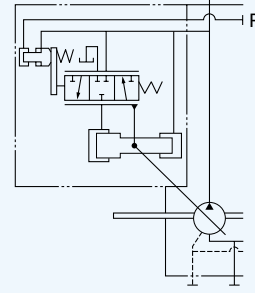
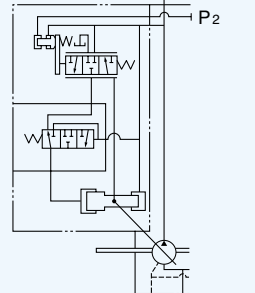
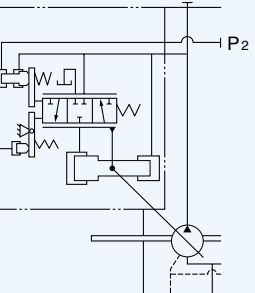
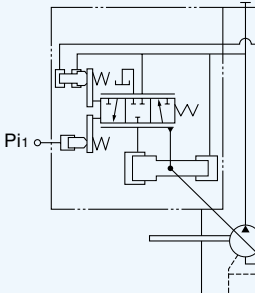
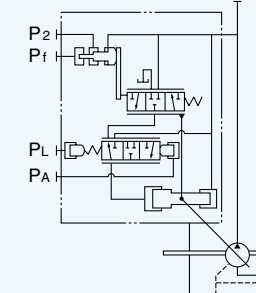
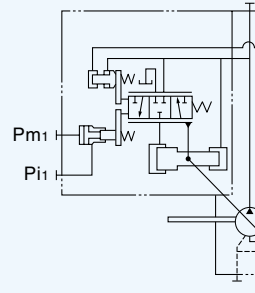
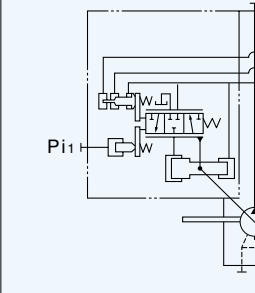
*5. When other kinds of fluid would be used, please consult with us.

•Horsepower Control

| Code | Control type | Control curve | Function & features |
|------|-----------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Constant horsepower control |  | According to the rise of delivery pressure of a pump, the tilting angle of the pump is automatically decreased, and the constant torque control is achieved. |
| 2 | Total horsepower control |  | 1. According to the rise of delivery pressure of a pump, the tilting angle of the pump is automatically decreased, and the constant torque control is achieved. (compensation control) 2. The total horsepower control can be achieved by decreasing the horsepower of a pump depending upon the pressure of its companion pump. |
| 4 | High pressure cut-off |  | If the pressure rises above the set value, the pump outlet flow is automatically decreased by the pressure cut-off control. |
| 5 | |  | |
| 6 | |  | |
| 9 | Variable horsepower control |  | Variable horsepower control can be obtained by supplying pilot pressure or electric current. |

•Flow Control

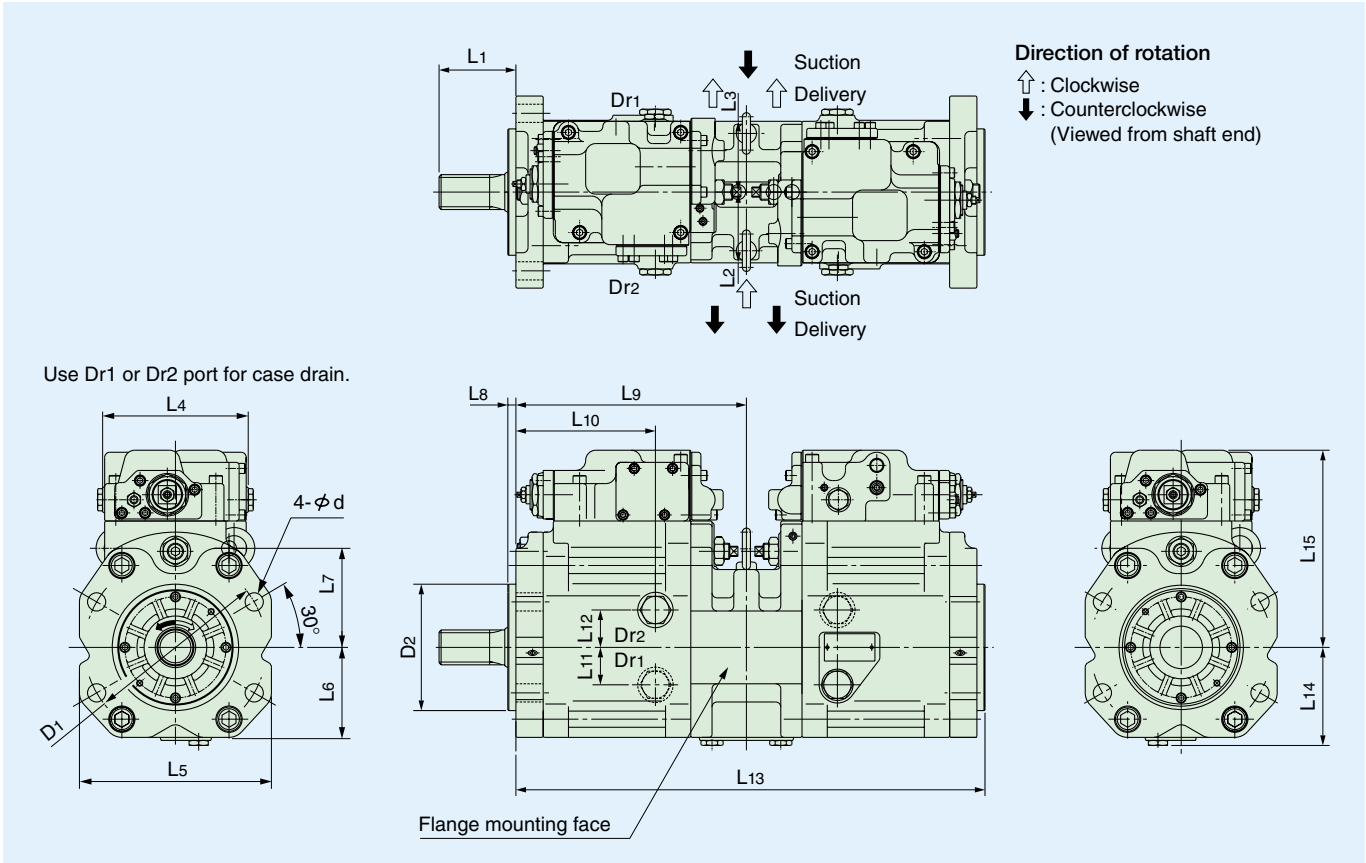
| Code | Control type | Control curve | Function & features |
|------|---------------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| M | Manual flow control |  | With the manual control, the outlet flow can be steplessly controlled. |
| P | Positive flow control |  | Positive flow control can be carried out by using the pilot pressure. |
| N | Negative flow control |  | Negative flow control can be carried out by using the pilot pressure. |
| C | 2-stage max. flow control |  | Two-stage max. flow control can be obtained by supplying external pilot pressure. (only in negative flow control) |
| L | Load sensing control |  | Load sensing control can be obtained. |
| E | Electric flow control |  | With the electric current, the outlet flow can be controlled. |

| Code No. | 10 | 20 | 60 | 2P | 2N | 9L | 2C | 9N |
|-----------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Control type | Constant horsepower control | Total horsepower control | Total horsepower control + High-pressure cut-off | Positive flow control + Total horsepower control | Negative flow control + Total horsepower control | Load sensing control + Total horsepower control + Variable horsepower control | Negative flow control + Total horsepower control + Two-stage max. flow control | Negative flow control + Total horsepower control + Variable horsepower control |
| Circuit diagram |  |  |  |  |  |  |  |  |

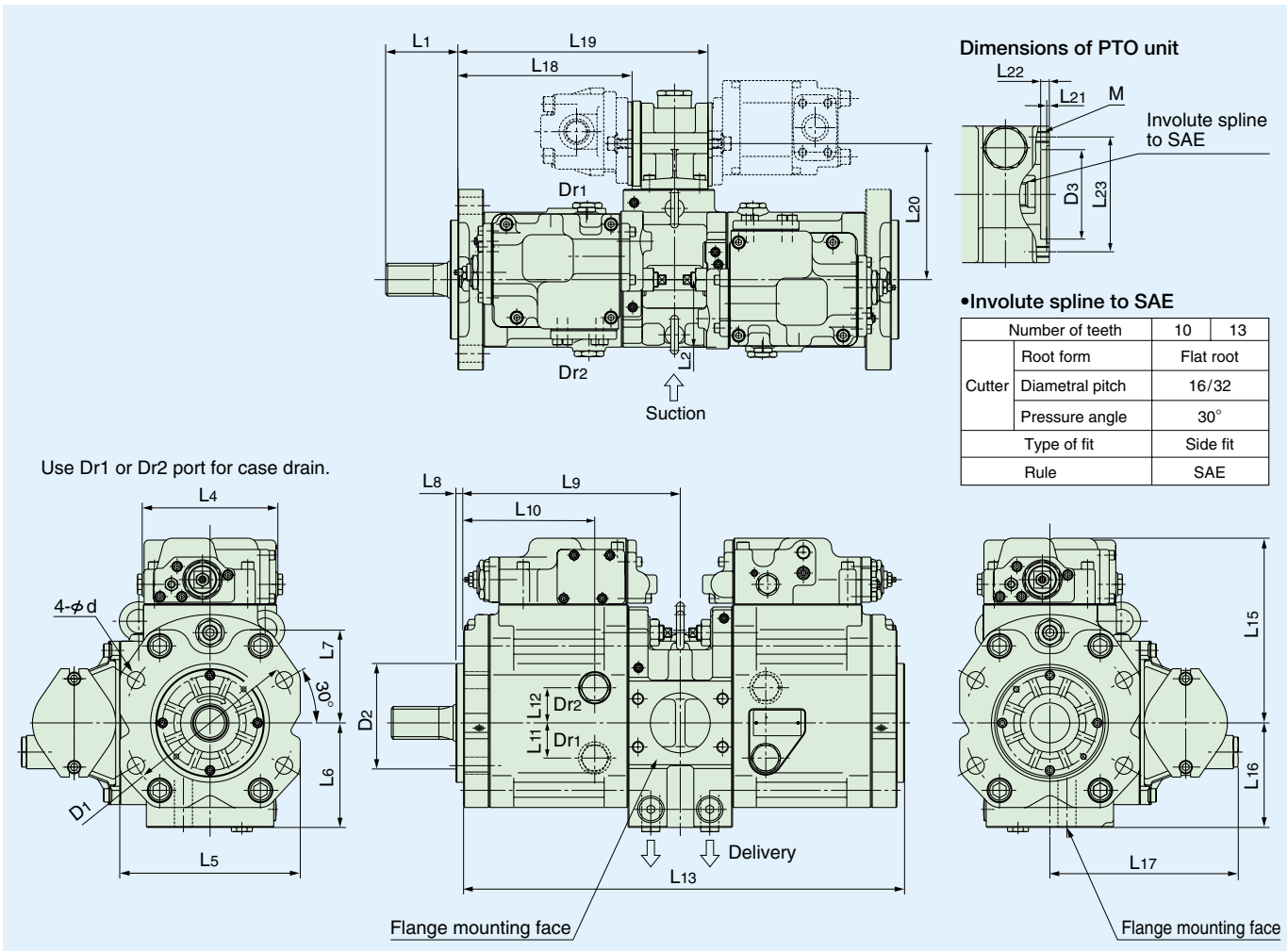
Flow control and Horsepower control can be combined with each other. Examples of applied circuits are shown above. Please consult us about other kinds of control, if necessary.

DIMENSIONS

• Tandem Type



• Tandem Type (with PTO)



•Dimensions

| Size | D1 | D2 | D3 | d | L1 | L2 | L3 | L4 | L5 | L6 | L7 | L8 | L9 | L10 | L11 | L12 | L13 | L14 | L15 |
|--------|-----|-----|-------|----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|
| K3V63 | 180 | 125 | 82.55 | 18 | 76 | 70 | 70 | 142 | 190 | 89 | 98 | 8 | 228 | 138 | 37 | 37 | 464 | 97 | 195 |
| K3V112 | 224 | 160 | 82.55 | 22 | 78 | 80 | 80 | 142 | 234 | 100 | 110 | 8 | 265 | 167 | 41 | 41 | 538 | 109 | 220 |
| K3V140 | 250 | 180 | 101.6 | 22 | 93 | 92 | 92 | 142 | 256 | 112 | 123 | 8 | 305 | 190 | 53 | 53 | 618 | 121 | 245 |
| K3V280 | 300 | 200 | — | 26 | 115 | 150 | 125 | 142 | 300 | 127 | 140 | 8 | 356 | 203 | 70 | 70 | 792 | 150 | 286 |
| K5V80 | 180 | 125 | 82.55 | 18 | 76 | 70 | 70 | 142 | 190 | 89 | 98 | 8 | 228 | 138 | 37 | 37 | 464 | 97 | 195 |
| K5V140 | 224 | 160 | 82.55 | 22 | 78 | 80 | 80 | 142 | 234 | 100 | 110 | 8 | 265 | 167 | 41 | 41 | 538 | 109 | 220 |
| K5V200 | 250 | 180 | 101.6 | 22 | 93 | 92 | 92 | 142 | 256 | 112 | 123 | 8 | 305 | 190 | 53 | 53 | 618 | 121 | 245 |

(mm)

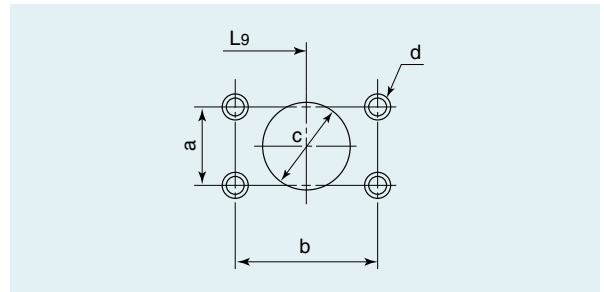
| Size | L16 | L17 | L18 | L19 | L20 | L21 | L22 | L23 | M |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|----------|
| K3V63 | 110 | 213 | 177 | 268 | 150 | 2.4 | 8 | 106 | 2-M10-25 |
| K3V112 | 110 | 213 | 214 | 305 | 150 | 2.4 | 8 | 106 | 2-M10-25 |
| K3V140 | 122 | 292 | 257 | 361 | 200 | 2.4 | 15 | 127 | 4-M12-22 |
| K5V80 | 110 | 213 | 177 | 268 | 150 | 2.4 | 8 | 106 | 2-M10-25 |
| K5V140 | 110 | 213 | 214 | 305 | 150 | 2.4 | 8 | 106 | 2-M10-25 |
| K5V200 | 122 | 292 | 257 | 361 | 200 | 2.4 | 15 | 127 | 4-M12-22 |

•Dimensions of shaft end

| Size | Spec. | No. of teeth | Pitch circle dia (mm) | Pressure angle | Module | Rule |
|--------|-------|--------------|-----------------------|----------------|--------|------------|
| K3V63 | | 14 | 29.6 | 30° | 12/24 | SAE |
| K3V112 | | 14 | 35.0 | 20° | 2.5 | JIS B 1603 |
| K3V140 | | 17 | 42.5 | 20° | 2.5 | JIS B 1603 |
| K3V280 | | 18 | 54.0 | 20° | 3.0 | JIS B 1603 |
| K5V80 | | 12 | 30.0 | 20° | 2.5 | JIS B 1603 |
| K5V140 | | 17 | 42.5 | 20° | 2.5 | JIS B 1603 |
| K5V200 | | 17 | 42.5 | 20° | 2.5 | JIS B 1603 |

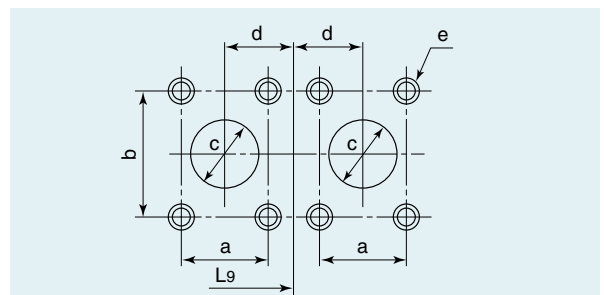
•Flange mounting face for Suction port (SAE Rule) (mm)

| Size | a | b | c | d-Screw depth |
|--------|------|-------|-----|---------------|
| K3V63 | 50.8 | 88.9 | ∅60 | M12-18 |
| K3V112 | 50.8 | 88.9 | ∅60 | M12-18 |
| K3V140 | 61.9 | 106.4 | ∅76 | M16-24 |
| K3V280 | 69.8 | 120.7 | ∅89 | M16-24 |
| K5V80 | 50.8 | 88.9 | ∅60 | M12-18 |
| K5V140 | 50.8 | 88.9 | ∅60 | M12-18 |
| K5V200 | 61.9 | 106.4 | ∅76 | M16-24 |



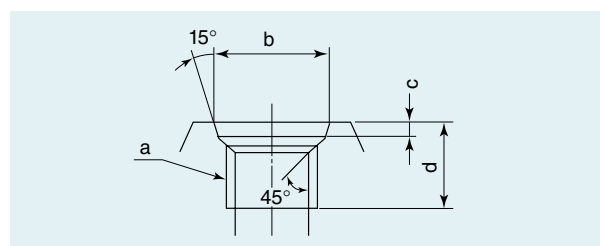
•Flange mounting face for Delivery port (SAE Rule) (mm)

| Size | a | b | c | d | e-Screw depth |
|--------|------|------|-----|------|---------------|
| K3V63 | 23.8 | 50.8 | ∅19 | 31.0 | M10-16 |
| K3V112 | 23.8 | 50.8 | ∅19 | 31.0 | M10-16 |
| K3V140 | 27.8 | 57.2 | ∅25 | 37.5 | M12-22 |
| K3V280 | 31.8 | 66.7 | ∅32 | 61.5 | M12-20 |
| K5V80 | 23.8 | 50.8 | ∅19 | 31.0 | M10-16 |
| K5V140 | 23.8 | 50.8 | ∅19 | 31.0 | M10-16 |
| K5V200 | 27.8 | 57.2 | ∅25 | 37.5 | M12-22 |



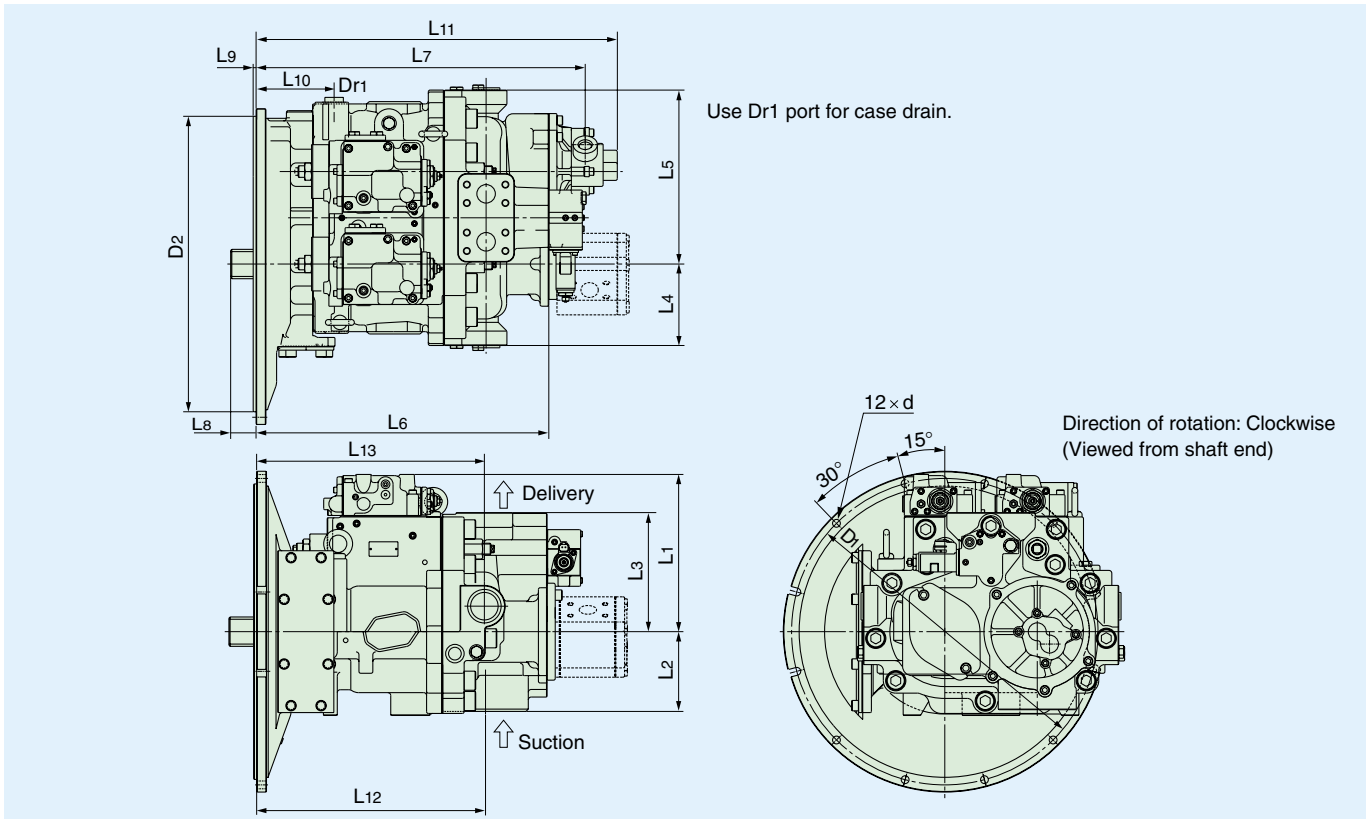
•Drain port (Rule: JIS B 2351) (mm)

| Size | a | b | c | d |
|--------|-------|------|-----|----|
| K3V63 | G 1/2 | 22.6 | 2.5 | 19 |
| K3V112 | G 3/4 | 30.8 | 3.5 | 20 |
| K3V140 | G 3/4 | 30.8 | 3.5 | 23 |
| K3V280 | G 3/4 | 30.8 | 3.5 | 23 |
| K5V80 | G 1/2 | 22.6 | 2.5 | 19 |
| K5V140 | G 3/4 | 30.8 | 3.5 | 20 |
| K5V200 | G 3/4 | 30.8 | 3.5 | 23 |



DIMENSIONS

• Parallel Type



• Dimensions

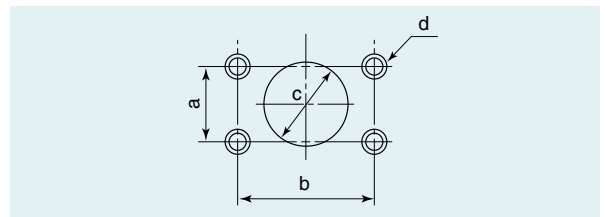
| Size | D1 | D2 | d | L1 | L2 | L3 | L4 | L5 | L6 | L7 | L8 | L9 | L10 | L11 | L12 | L13 |
|--------|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|----|----|-----|-----|-----|-----|
| K3V112 | 429 | 410 | 11 | 235 | 113 | 163 | 111 | 256 | 428 | 493 | 34 | 5 | 148 | 522 | 391 | 385 |
| K5V140 | 429 | 410 | 11 | 235 | 113 | 163 | 111 | 256 | 428 | 493 | 34 | 5 | 148 | 522 | 391 | 385 |
| K5V200 | 530 | 511 | 14 | 272 | 138 | 206 | 141 | 301 | 507 | 570 | 34 | 5 | 135 | 625 | 400 | 398 |

• Dimensions of shaft end

| Size | Spec. | No. of teeth | Pitch circle dia (mm) | Pressure angle | Module | Rule |
|--------|-------|--------------|-----------------------|----------------|--------|------------|
| K3V112 | | 14 | 35.0 | 20° | 2.5 | JIS B 1603 |
| K5V140 | | 17 | 42.5 | 20° | 2.5 | JIS B 1603 |
| K5V200 | | 15 | 47.6 | 30° | 8/16 | ANSI |

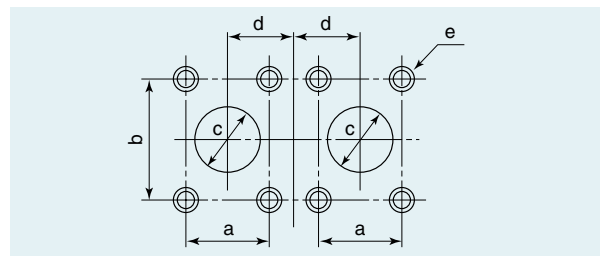
• Flange mounting face for Suction port (SAE Rule) (mm)

| Size | a | b | c | d—Screw depth |
|--------|------|-------|-----|---------------|
| K3V112 | 50.8 | 88.9 | ∅60 | M12–18 |
| K5V140 | 50.8 | 88.9 | ∅60 | M12–18 |
| K5V200 | 69.9 | 120.7 | ∅83 | M16–24 |



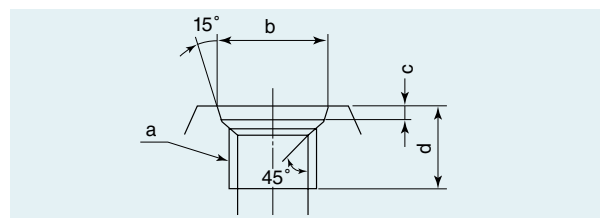
• Flange mounting face for Delivery port (SAE Rule) (mm)

| Size | a | b | c | d | e—Screw depth |
|--------|------|------|-----|------|---------------|
| K3V112 | 23.8 | 50.8 | ∅19 | 34.0 | M10–16 |
| K5V140 | 23.8 | 50.8 | ∅19 | 34.0 | M10–16 |
| K5V200 | 31.8 | 66.7 | ∅32 | 41.5 | M12–22 |



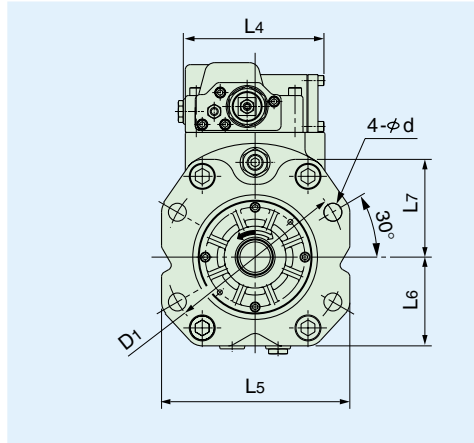
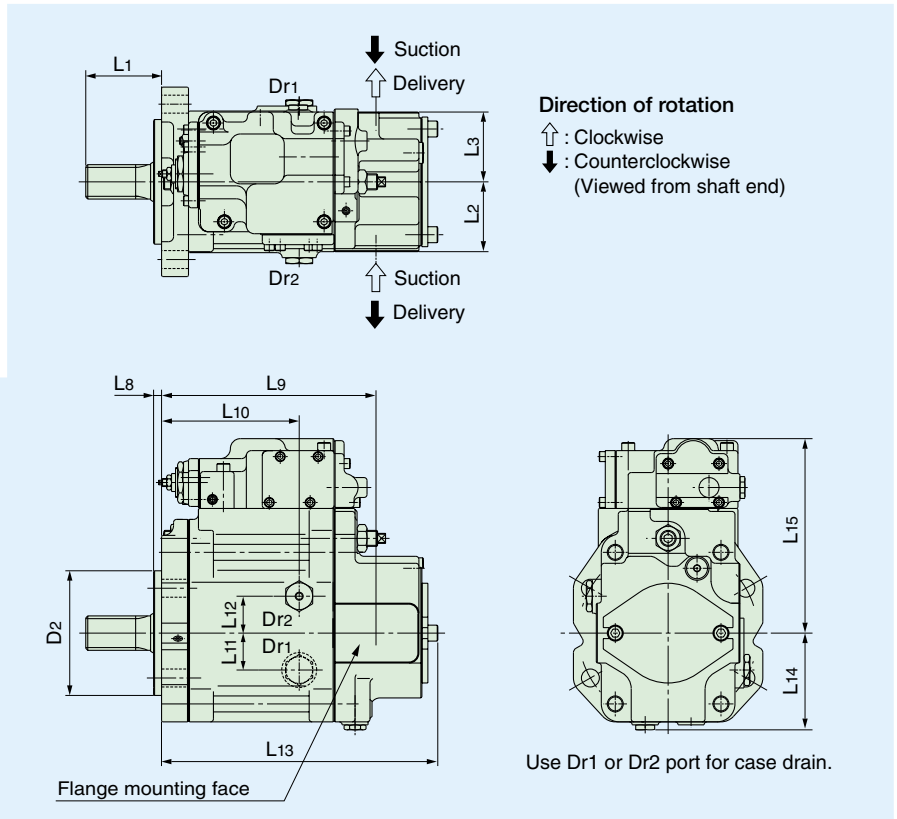
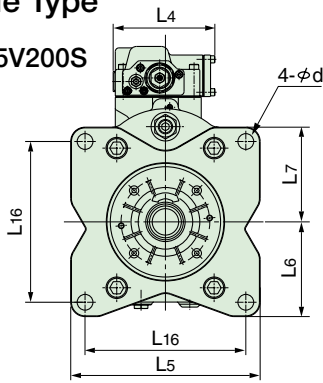
• Drain port (Rule: JIS B 2351) (mm)

| Size | a | b | c | d |
|--------|-------|------|-----|----|
| K3V112 | G 3/4 | 30.8 | 3.5 | 20 |
| K5V140 | G 3/4 | 30.8 | 3.5 | 20 |
| K5V200 | G 3/4 | 30.8 | 3.5 | 23 |



• Single Type

for K5V200S



• Dimensions

(mm)

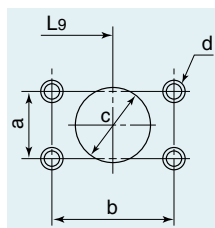
| Size | D1 | D2 | d | L1 | L2 | L3 | L4 | L5 | L6 | L7 | L8 | L9 | L10 | L11 | L12 | L13 | L14 | L15 | L16 |
|--------|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| K3V63 | 180 | 125 | 18 | 76 | 70 | 70 | 142 | 190 | 89 | 98 | 8 | 210 | 138 | 37 | 37 | 277 | 89 | 195 | — |
| K3V112 | 224 | 160 | 22 | 78 | 80 | 80 | 142 | 234 | 100 | 110 | 8 | 250 | 167 | 41 | 41 | 309 | 109 | 220 | — |
| K3V140 | 250 | 180 | 22 | 93 | 92 | 92 | 142 | 256 | 112 | 123 | 8 | 292 | 190 | 53 | 53 | 366 | 121 | 245 | — |
| K3V280 | 300 | 200 | 22 | 115 | 150 | 125 | 142 | 300 | 127 | 140 | 8 | 343 | 203 | 70 | 70 | 433 | 135 | 286 | — |
| K5V80 | 180 | 125 | 18 | 76 | 70 | 70 | 142 | 190 | 89 | 98 | 8 | 210 | 138 | 37 | 37 | 277 | 89 | 195 | — |
| K5V140 | 224 | 160 | 22 | 78 | 92 | 92 | 142 | 234 | 100 | 110 | 8 | 264 | 167 | 41 | 41 | 338 | 109 | 220 | — |
| K5V200 | — | 165 | 22 | 75 | 92 | 92 | 142 | 265 | 132 | 132 | 16 | 300 | 190 | 53 | 53 | 389 | 121 | 245 | 225 |

• Dimensions of shaft end

| Size | Spec. | No. of teeth | Pitch circle dia (mm) | Pressure angle | Module | Rule |
|--------|-------|--------------|-----------------------|----------------|--------|------------|
| K3V63 | | 14 | 29.6 | 30° | 12/24 | SAE |
| K3V112 | | 14 | 35.0 | 20° | 2.5 | JIS B 1603 |
| K3V140 | | 17 | 42.5 | 20° | 2.5 | JIS B 1603 |
| K3V280 | | 18 | 54.0 | 20° | 3.0 | JIS B 1603 |
| K5V80 | | 12 | 30.0 | 20° | 2.5 | JIS B 1603 |
| K5V140 | | 17 | 42.5 | 20° | 2.5 | JIS B 1603 |
| K5V200 | | 13 | 41.3 | 30° | 8/16 | SAE |

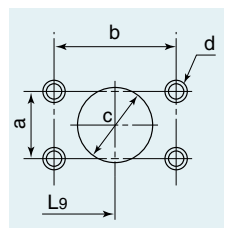
• Flange mounting face for Suction port (SAE Rule) (mm)

| Size | a | b | c | d-Screw depth |
|--------|------|-------|-----|---------------|
| K3V63 | 35.7 | 69.9 | φ38 | M12-18 |
| K3V112 | 30.2 | 58.7 | φ38 | M12-18 |
| K3V140 | 50.8 | 88.9 | φ60 | M12-18 |
| K3V280 | 69.9 | 120.7 | φ80 | M12-20 |
| K5V80 | 35.7 | 69.9 | φ38 | M12-18 |
| K5V140 | 50.8 | 88.9 | φ60 | M12-18 |
| K5V200 | 61.9 | 106.4 | φ76 | M16-24 |



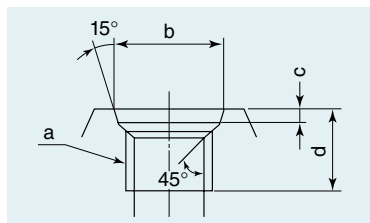
• Flange mounting face for Delivery port (SAE Rule) (mm)

| Size | a | b | c | d-Screw depth |
|--------|------|------|-----|---------------|
| K3V63 | 27.8 | 57.2 | φ25 | M12-16 |
| K3V112 | 23.8 | 50.8 | φ19 | M10-16 |
| K3V140 | 31.8 | 66.7 | φ32 | M12-18 |
| K3V280 | 31.8 | 66.7 | φ32 | M12-20 |
| K5V80 | 27.8 | 57.2 | φ25 | M12-16 |
| K5V140 | 31.8 | 66.7 | φ32 | M12-18 |
| K5V200 | 36.5 | 79.4 | φ38 | M16-24 |



• Drain port (Rule: JIS B 2351) (mm)

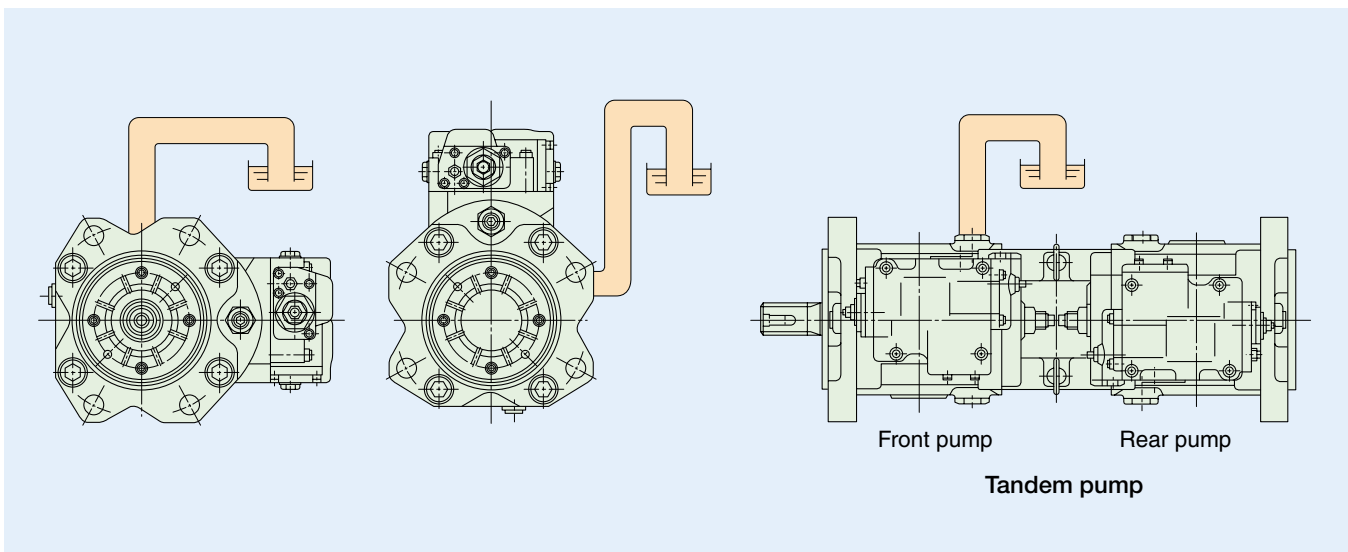
| Size | a | b | c | d |
|--------|-------|------|-----|----|
| K3V63 | G 1/2 | 22.6 | 2.5 | 19 |
| K3V112 | G 3/4 | 30.8 | 3.5 | 20 |
| K3V140 | G 3/4 | 30.8 | 3.5 | 23 |
| K3V280 | G 3/4 | 30.8 | 3.5 | 23 |
| K5V80 | G 1/2 | 22.6 | 2.5 | 19 |
| K5V140 | G 3/4 | 30.8 | 3.5 | 20 |
| K5V200 | G 3/4 | 30.8 | 3.5 | 23 |



CAUTION FOR INSTRUCTION

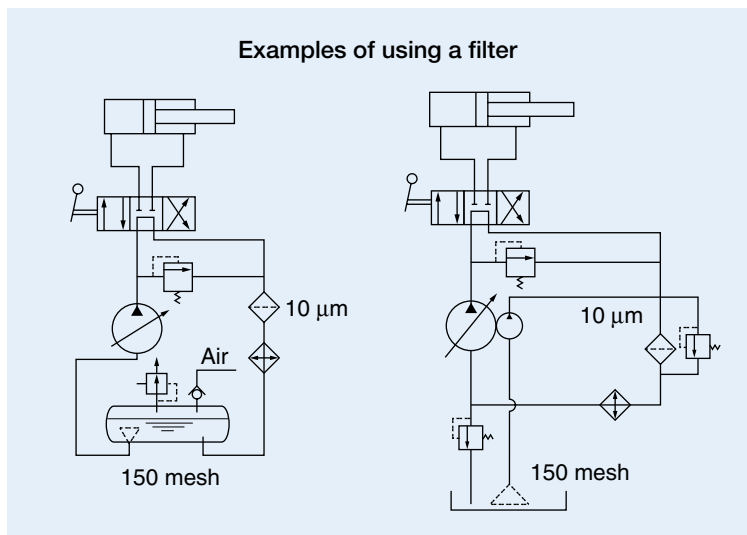
1 Mounting Direction and Drain Piping

- The pump shaft should be mounted in the horizontal direction as shown in the figure below.
- The drain line loop must be extended above the top of the pump case.
- The upper drain port should be used, and the drain pipe size must be equal to or larger than the drain port size.
- In case of the pumps with centrifugal pump, the drain lines must be settled on each pump.



2 Filtration

- For satisfactory service life of these pumps in application, the operating fluid should be continuously filtered to keep at least the cleanliness level of NAS 1638 Class 9.
- A 10 μm filter must be used in the return line and a 80 ~ 150 mesh strainer in the suction lines.



3

Connection of Driving Shaft

- Please use a flexible coupling for connection of the pump drive shaft with an engine flywheel or an electric motor shaft.
- Alignment should be so carried out that the parallel error may be held with in ± 0.03 mm.
- Do not put a radial or thrust load at the shaft end.

4

Starting

- Before starting-up, fill the pump case with system fluid through the case drain connection. Case must remain full of fluid to provide internal lubrication.

5

Case Drain pressure

- Please be careful so that the drain pressure in the casing does not exceed 0.1 MPa normally and 0.4 MPa at its peak.
- A suitable size of drain hose and drain filter should be selected.

