

KURODA

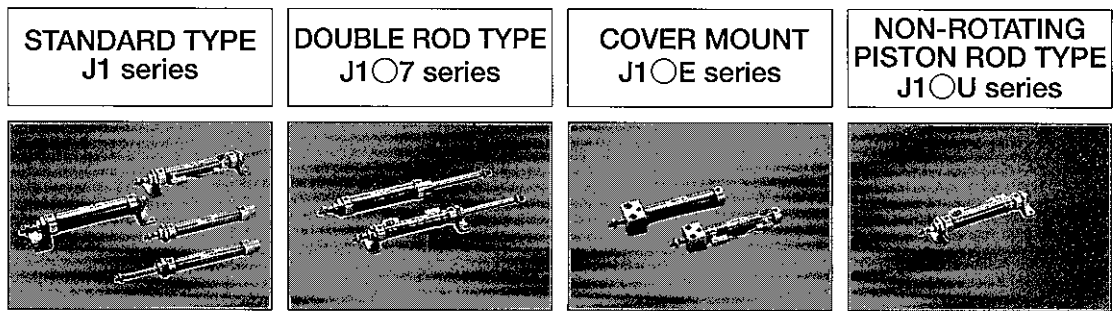
MINIATURE AIR CYLINDER

J1 SERIES



AIR CYLINDER/J1 series

Bore/ ϕ 20, ϕ 25, ϕ 32, ϕ 40, ϕ 50, ϕ 63



Type of Action

Double acting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Single acting (Spring return)	<input type="radio"/>	—	<input type="radio"/>	<input type="radio"/>
Single Acting (Spring extend)	<input type="radio"/>	—	<input type="radio"/>	<input type="radio"/>

Bore

ϕ 20	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	—	—	—
ϕ 25	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ϕ 32	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	—	—	—
ϕ 40	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ϕ 50	<input type="radio"/>	—	—	<input type="radio"/>	<input type="radio"/>	—	—	<input type="radio"/>	—	—
ϕ 63	<input type="radio"/>	—	—	<input type="radio"/>	<input type="radio"/>	—	—	<input type="radio"/>	—	—

Cushion

Damper cushion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Air cushion	*△	—	—	—	—	—	—	—	—	—

* : ϕ 50 and ϕ 63 is standard, ϕ 20 to ϕ 40 is custom-made

Mounting

Nose	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	* <input type="radio"/>	* <input type="radio"/>	* <input type="radio"/>
Both-foot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	—	—	—	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Single foot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	—	—	—	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rod side flange	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	—	—	—	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Head side flange	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	—	—	—	—	—	—	—
Eye	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	—	—	—	—	—	—	—
Rod side trunnion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	—	—	—	—	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Head side trunnion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	—	—	—	—	—	—	—

* : Basic type (clevis cut)

Model With Switch

AX type	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SR type	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ZC type	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Accessories

[Standard] ●Nose nut ●Rod end nut

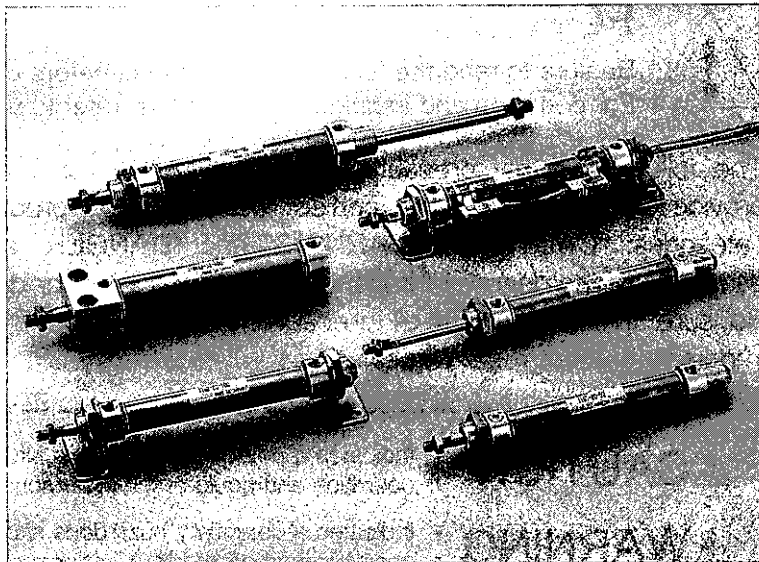
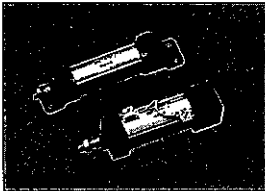
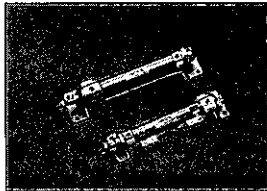
[Option] ●Rod end clevis ●Rod end eye

Custom-made Cylinder

- Clevis cut type cylinder
- Axial port position cylinder
- Single rod, dual stroke cylinder
- Double rod, dual stroke cylinder
- Adjustable stroke cylinder with rod extended
- Adjustable stroke cylinder with rod retracted
- Stainless-steel cylinder
- Heat-resisting cylinder

HI-PAL
J1○HA series

WITH LOCK
MECHANISM
J1○L series



○	○
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—	—

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- Simple appearance owing to use of stainless-steel tube
- Built-in magnet makes it possible to mount a switch in every model.
Simple mounting of switch using band fastener.
- Seventeen mounting methods (11 mounting methods for $\phi 50$, $\phi 63$) are available so that the most suitable mounting method can be chosen.
- Stainless-steel (hard chromium plated) piston rods (bore : $\phi 20$ to $\phi 32$).
(Except non-rotating piston rod and with locking mechanism)

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FOR SAFETY USE

Be sure to read the following instructions before use.

For common and individual instructions, refer to the text of this catalogue.

The following safety precautions are provided to prevent damage and danger to personnel and to provide instructions on the correct usage of this product. These precautions are classified into 3 categories; "CAUTION", "WARNING" and "DANGER" according to the degree of possible injury or damage and the degree of imminence of such injury or damage.

Be sure to comply with all precautions along with JIS B8370^(※1) and ISO 4414^(※2), as they include important content regarding safety.

- | | |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| △ CAUTION | • Indicates a potentially hazardous situation which may arise due to improper handling or operation and could result in personal injury or property-damage-only accidents. |
| △ WARNING | • Indicates a potentially hazardous situation which may arise due to improper handling or operation and could result in serious personal injury or death. |
| △ DANGER | • Indicates an impending hazardous situation which may arise due to improper handling or operation and could result in serious personal injury or death. |

(※1) JIS B8370 : General Rules for Pneumatic Systems

(※2) ISO 4414 : Pneumatic fluid power-General rules relating to systems

△ WARNING

- **The applicability of pneumatic equipment to the intended system should be judged by the pneumatic system designer or the personnel who determined specifications for such system.**

As operating conditions for products contained in this catalogue are diversified, the applicability of pneumatic equipment to the intended system should be determined by the pneumatic system designer or the personnel who determined specifications for such system after conducting an analysis or testing as necessary.

The system designer shall be responsible for assuring the intended system performance and safety.

Before making a system, the system designer should thoroughly examine all specifications for such a system and also take into consideration the possibility of any trouble with the equipment.

- **The pneumatic equipment should be handled by persons who have sufficient knowledge and rich experience.**

Inproper handling of compressed air will result in danger.

Assembling, operation and maintenance of machinery using pneumatic equipment should be performed by persons who have sufficient knowledge and rich experience.

- **Never operate machinery nor remove the equipment until safety is assured.**

- Before checking or servicing machinery and equipment, be sure to check that steps for prevention of dropping or runaway of the driven component have been completely taken.

- When removing the equipment, make sure that the above-mentioned safety measures have been done beforehand.

Then turn off air supply and power to the system and purge compressed air in the system.

- When restarting machinery and equipment, check that proper prevention of malfunction has been provided for and then restart carefully.

- **When using the pneumatic equipment in the following conditions or environments, take the proper safety measures and consult KURODA beforehand.**

- Conditions and environments other than specified and outdoor use.

- Applications to nuclear power equipment, railroads, aircraft, vehicles, medical equipment, equipment connected with food and drink, amusement facilities and safety devices such as emergency interruption devices, clutch/brake circuits for a press and the likes.

- Applications which require extreme safety and will also greatly affect men and property.



AIR CYLINDER/COMMON INSTRUCTIONS ①

Be sure to read them before use.

Also refer to Par."For Safty Use"and instructions mentioned for each series of air cylinders.

DESIGN

! WARNING

- **When exerting force changes due to a twist or other accident in the sliding part of the machine, the air cylinder may produce a shockable action.**

In this case, the air cylinder may catch the human body such as hands and feet or the machine may suffer a damage. Therefore, it is necessary to adjust the machine and make a design so that the air cylinder can smoothly operate without injuring the human body.

- **Especially when there is the possibility that the human body is endangered, fit a protective cover.**

When there is the possibility that applied load or the moving part of the air cylinder endangers the human body, design the system so that the huan body cannot directly touch these parts.

- **Firmly clamp the air cylinder to prevent the fixed part and connection of the air cylinder from loosening.**

Especially when using the air cylinder in a place where it is frequently operated or in a vibratory place, use a firm clamping method.

- **A decelerating circuit or shock absorber may be required according to circumstances.**

When the load moves at high speed or the mass is large, it is difficult to absorb a shock only by the built-in cushion.

Provide a circuit to decelerate the cylinder before the piston enters cushion stroke or a shock absorber on the load side.

In this case, fully take into consideration the rigidity of the machine.

- **Take into consideration the possibility of pressure failure in the circuit due to outage etc.**

For an air cylinder used in the clamping mechanism, if clamping pressure in the circuit lowes due to outage etc., clamping force will reduce, so that the load may sometimes come off. To avoid such danger, design the system to incorporate a safty device to protect the human body and machine. Also provide the hanger and lift with proper prevention against dropping.

- **Take into consideration the possibility of power failure.**

Take proper countermeasures against equipment controlled by air pressure, electricity, hydraulic pressure, etc. so as to protect the human body and machine even if these power sources are faulty.

- **Design a circuit to prevent the load and piston rod from sudden protrusion.**

When the air cylinder is driven with a 3-position exhaust center type solenoid valve or when the air cylinder is started after air pressure is applied to one side of the piston after exhausting residual air from the cylinder, the load and piston rod may sometimes suddenly protrude. In this case, the air cylinder may the human body such as hands and feet or damage the machine.

Select a device to prevent the sudden protrusion of the piston rod and design a proper circuit.

DESIGN

! WARNING

- **Take into consideration the action of air cylinders in an emergency.**

When the machine is stopped by a person in an emergency or stopped by the safety device due to the occurrence of outage, system trouble, etc., the air cylinder may catch the human body or damage the machine according to circumstances. To avoid such an accident, take into consideration the action of air cylinder in designing a system so as to prevent an injury to the human body and a damage to the machine.

- **Take into consideration the action of an air cylinder when it restarts from stoppage in an emergency or abnormal state.**

Make a design to prevent an injury to the human body and a damage to the machine when the air cylinder is restarted.

When it is necessary to reset the air cylinder to the starting position, make a design to incorporate a safety manual control unit.

- **Stopping at intermediate position**

When stopping the air cylinder piston at an intermediate position using a 3-position closed center type solenoid valve, it is difficult to stop it accurately because of its compressibility, unlike a hydraulic cylinder can does. In addition, as the solenoid valve and air cylinder allow a certain degree of air leak, they cannot stop at the fixed position for a long period of time according to circumstances.

When it is required to stop them at the fixed position for a long period of time, contact KURODA.

- **Remodeling air cylinders**

Do not remodel air cylinders.

! CAUTION

- **When adjusting the driving speed of an air cylinder, install a speed controller.**

Adjust the driving speed on the low speed side and then adjust it gradually until the prescribed speed is attained.

SELECTION

! WARNING

- **Refer to specifications.**

Air cylinders listed in this catalog are designed for compressed air.

When using other fluid than compressed air, contact KURODA beforehand.

Do not use the air cylinder outside the specified pressure and temperature range; this may result in a breakdown or faulty opration.



AIR CYLINDER/COMMON INSTRUCTIONS ②

Be sure to read them before use.

Also refer to Par. "For Safty Use" and instructions mentioned for each series of air cylinders.

INSTALLATION

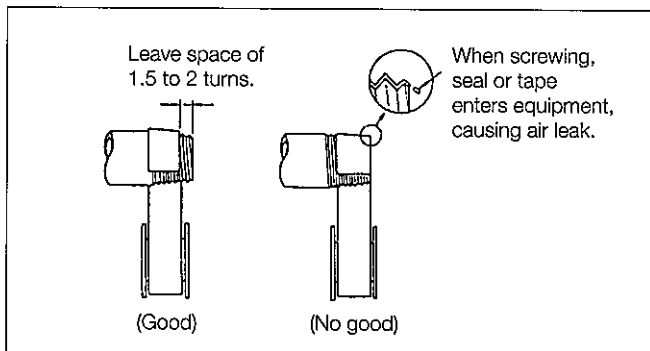
! CAUTION

- **Avoid applying eccentric load and lateral load to the piston rod.**
Applying eccentric load and lateral load to the piston rod causes a faulty operation and a damage to the packing.
- **For a long stroke cylinder, provide a reinforcing ring.**
For a long stroke cylinder, provide a reinforcing ring to prevent droop of rod, deflection of tube and damage to rod by vibration and external load.
- **Do not flaw and dent the cylinder tube and piston rod sliding part.**
Even a slight flaw or dent will cause a faulty operation and a damage to the packing.
- **Prevent seizure of rotating parts.**
Apply grease to the rotating parts (pin etc.) to prevent seizure.
- **Do not start the system before making sure that equipment is properly operated.**
After installing the air cylinder, connect compressed air and power supply. Perform functional test and leak test properly and check that the system is correctly operated with safety. Then start the system.

PIPING

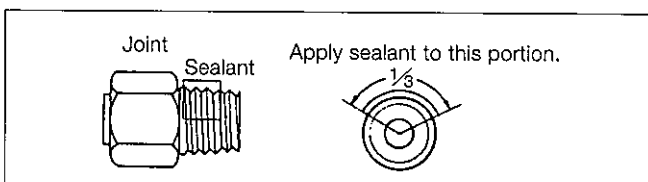
! CAUTION

- **Before piping**
Thoroughly flush the inside of each pipe to remove chips, coolant, dust, etc. before piping.
- **How to wind a seal tape**
When winding a seal tape around the threaded portion, leave space of 1.5 to 2 thread turns.



• How to apply liquid sealant

When applying liquid sealant to the threaded portion, apply a proper amount to about $\frac{1}{3}$ of the periphery of the threaded portion and then screw it.



PIPING

! CAUTION

- **Screw of pipe and joint**
When screwing the pipe and joint, use care to prevent chips and sealant from entering the pipe and joint. Tighten them within a proper range of clamping torque.

Port size	Clamping torque (N·m)
M3	0.3~ 0.5
M5	1.5~ 2.0
R, Rc $\frac{1}{8}$	7.0~ 9.0
R, Rc $\frac{1}{4}$	12 ~14
R, Rc $\frac{3}{8}$	22 ~24
R, Rc $\frac{1}{2}$	28 ~30
R, Rc $\frac{3}{4}$	28 ~30
R, Rc1	36 ~38

- **Avoid wrong piping.**

When connecting a pipe to a air cylinder, be careful not to mistake the supply port by referring to the nameplate affixed to the product or the product catalogue.

CUSHION (For air cylinder with built-in cushion)

! CAUTION

- **Adjust the cushion by rotating the cushion needle.**
The cushion has been properly adjusted before it has leaves our factory. When using the air cylinder, readjust the cushion to meet the applied load and the driving speed of the cylinder. Rotating the cushion needle clockwise makes small the throttle to increase cushioning performance.
- **After adjusting the cushion, be sure to tighten the lock nut.**
- **Do not use the air cylinder with the cushion needle fully opened:**
otherwise causing a damage to the packing.



AIR CYLINDER/Common INSTRUCTIONS ③

Be sure to read them before use.

Also refer to Par."For Safty Use"hand instructions mentioned for each series of air cylinders.

LUBRICATION

! CAUTION

• Oil supply to lubricated air cylinders

Set an air lubricator in the pneumatic circuit and supply Class 1 turbine oil ISO VG32 (containing no additive).

Do not use other oils (sprindle oil, machine oil, etc.), otherwise causing a damage to the sealed part.

• Oil supply to non-lubricated air cylinders

The non-lubricated air cylinder can be used without lubrication, but can be used with lubrication.

When using it with lubrication, do not discontinue supplying oil. Otherwise, the applied lubricant may run off, sometimes resulting in an operation failure.

When using a lubricant, Class 1 turbine oil ISO VG32 (containing no additive) is recommended.

QUALITY OF AIR

! WARNING

• Use pure air

Compressed air containing corrosive gases, chemicals, salt, etc. causes a breakdown or operation ailure. So do not use such air.

! CAUTION

• Fit an air filter with filtration of 5 μm or fine.

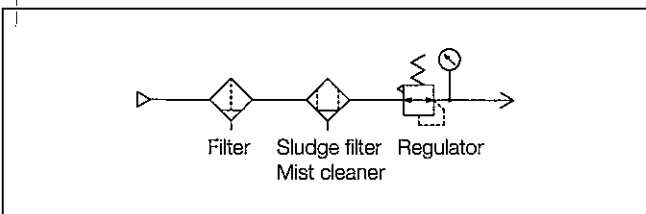
• Install an air dryer.

Compressed air containing much drainage causes the operation failure of pneumatic equipment. Install an air dryer, lower the temperature and reduce drainage.

• Take proper countermeasures against sludge.

If sludge produced in compressor oil enters pneumatic equipment, it will cause the operation failure of pneumatic equipment.

It is recommendable to use compressor oil (NISSEKI FAIRCALL A68, IDEMITSU DAPHUNY SUPER CS68) featuring minimized sludge production or use a sludge filter or mist cleaner to prevent sludge from entering the pneumatic equipment.



• Use at low temperature

When using pneumatic equipment at temperature of 5 °C or below, install an air dryer or take other countermeasures to prevent drainage and moisture in compressed air from freezing or solidifying.

OPERATING ENVIRONMENT

! DANGER

- Do not use air cylinders in a explosive environment.

! WARNING

- Do not use air cylinders in a corrosive environment.
- When using air cylinders in a place attended with much dust, water drops or oil drops, fit bellows or other proper means to the piston rod.
For use in a dusty place, use an air cylinder with powerful scraper.

MAINTENANCE AND INSPECTION

! WARNING

• Inspection before maintenance

Check that proper prevention against the dropping and runaway of load has been provided. Then turn off air and power supply to the system and discharge residual air in the system before doing maintenance.

For 3-position closed center type, compressed air is contained between solenoid valve and air cylinder. Discharge the residual air.

• Inspection after maintenance

When restarting the system, check that protrusion prevention has been provided. Then connect compressed air supply and power supply to the pneumatic system, and perform functional and leak tests to make sure that the air cylinder is properly installed and works safety withouty fail.

• Disassembling the air cylinder

As the cover and tube are fixed with adhesives, they cannot be disassembled.

When disassembling is required, contact KURODA beforehand.

! CAUTION

• Draining

To maintain constant air quality, drain the air filter periodically.



MAGNETIC PROXIMITY SWITCH/Common INSTRUCTIONS ①

Be sure to read them before use.

Also refer to Par. "For Safety Use" and instructions mentioned for each series of switches.

DESIGN AND SELECTION

! WARNING

- Use the switch within the range of specifications described in this catalogue.

Applying load current, voltage, temperature and shock exceeding the range of specifications will cause a damage to the switch and a faulty operation.

Thoroughly read the specifications and use the switch within the range of the specifications.

Especially, be sure to use the switch within the maximum contact capacity and load current range.

- Be careful of distance between adjacent cylinders.

When 2 or more cylinders, each of switch is equipped with a switch are close installed or a magnetic material moves very close to the cylinders, there is the possibility that the switch malfunctions due to magnetic interference between the switch and magnetic material.

- Pay attention to switch-on time at the center of stroke.

Example : The piston is set at the center of stroke and load is driven when the piston passes the switch. In this case, if piston speed is extremely high, operating time is short even when the switch is turned on.

As a result, load cannot be fully moved according to circumstances.

In this case, piston speed is expressed as follows :

$$V = \frac{\text{Operating range of switch (mm)}}{\text{Operating time of load (ms)}} \times 1000 \quad (\text{mm/s})$$

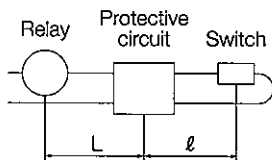
- Reduce the length of wiring as much as practicable.

<Reed switch>

When capacitive load is driven or the wiring from switch to load is long, inrush current increases due to line floating capacity at the time of switch-on ; this results in a damage to the switch or shortens the switch service life.

①When using a switch with built-in contact protective circuit and the length of wiring is more than 5 m, be sure to connect a protective circuit near to the switch in series.

In case of capacitive load :



When "L" is longer than 10 m, set "l" at 100 to 200 mm.

②Even when using a switch with built-in contact protective circuit and length of wiring is more than 30 m, the protective circuit may not fully absorb inrush current according to circumstances ; this sometimes shortens the switch service life.

For how to connect a protective circuit contact KURODA.

<Solid-state switch>

When inrush current caused by line floating capacity occurs, take a proper countermeasure to absorb the rush current.

DESIGN AND SELECTION

! WARNING

- Be careful of leak current.

For a 2-wire solid-state switch, current (leak current) flows in it to operate the internal circuit even if the switch is turned off.

When 2 or more switches are connected in parallel, leak current increases corresponding to the number of connected switches.

When leak current is larger than operating current for turning off load, the load is not turned off.

- Be careful of internal voltage drop of switch.

<Reed switch>

When 2 or more switches with LED are connected in series, voltage drop occurs by the number of connected switches due to the resistance of light emitting diode. (Refer to "Internal Voltage Drop" described in "Specifications for Switch".)

Note that load may not be sometimes moved even if the switch operates normally.

When the voltage drop of light emitting diode becomes a problem, use a switch without LED.

<Solid-state switch>

When connecting 2-wire solid-state switches in series, pay attention to the same points as those for connecting reed switches. However, note that the internal voltage drop is generally larger than that of reed switches.

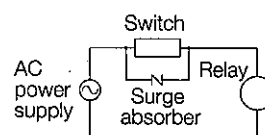
- Do not use load that produces surge voltage.

<Reed switch>

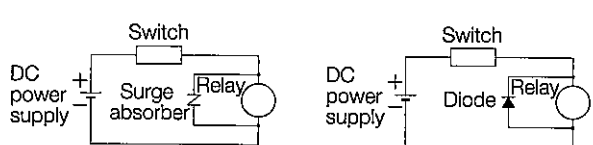
When driving a relay or other load that produces surge voltage, use a switch with built-in contact protective circuit or connect a protective circuit to the switch.

In case of inductive load

Load at 100 V AC



Load at DC



<Solid-state switch>

A zener diode for surge protection is connected to the output side of a solid-state switch. However, it may be broken if surge is repeatedly applied to it.

When directly driving a relay, solenoid valve or other load that produces surge, use a switch with built-in surge absorbing element.



MAGNETIC PROXIMITY SWITCH/COMMON INSTRUCTIONS ②

Be sure to read them before use.

Also refer to Par. "For Safety Use" and instructions mentioned for each series of switches.

DESIGN AND SELECTION

! WARNING

- When using the switch in an interlock circuit, pay attention to the following points;

When a switch for cylinder is used for interlock signals requiring high degree of reliability, provide the switch with a mechanical protective function against trouble and malfunction or use a double-interlock system by using the switch together with other switch (sensor etc.).

In addition, check the switch periodically to make sure that it works normally.

- Provide space for maintenance.

In designing a system, take into account space for maintenance and inspection.

INSTALLATION AND ADJUSTMENT

! WARNING

- Do not drop or hit the switch.

When handling the switch, do not drop or hit it or do not apply an excessive shock to it (refer to specification for each switch).

- Do not swing around the switch while holding the lead wire.

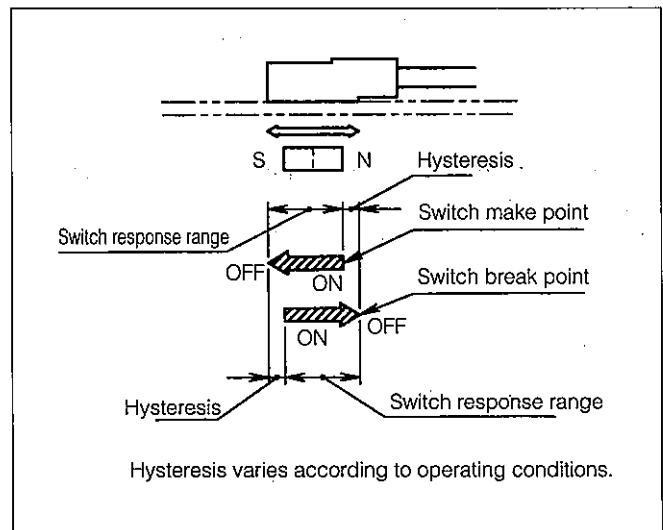
If excessive tensile force is applied to the lead wire, the inside wire may be broken or the internal mechanism of the switch may suffer a damage.

- Fix the switch with prescribed clamping torque.

When the switch is fixed with clamping torque exceeding the prescribed value, the set screw, metal fixture, switch, etc. may be broken.

- Set the switch at the center of its response range.

The magnet (piston) moves to a point at which it turns on the switch and then it moves in opposite direction to other point at which it turns off the switch. The distance between these points is called hysteresis. When the switch is installed within this distance, its operation may be sometimes unstable. Set the switch so that magnet is located at the center of its response range (within which the switch is turned on). (Set positions described in this catalog are the most suitable positions at the stroke end.)





MAGNETIC PROXIMITY SWITCH/Common INSTRUCTIONS ③

Be sure to read them before use.

Also refer to Par. "For Safety Use" and instructions mentioned for each series of switches.

WIRING

! WARNING

- Properly wire in accordance with each lead wire color or terminal No.

In this case, be sure to turn off power to the electric circuit on the connection side.

- Do not make wrong wiring.

As DC current has polarity, do not confuse (+) with (-).

<Reed switch>

When the connection of wiring is reversed, the switch is operated but the lamp is not on.

If current exceeding the prescribed operating range flows to the switch, the lamp will be broken and the switch fails.

<Solid-state switch>

Even if the connection of wiring of a 2-lead wire switch is reversed, the protective circuit prevents the breakdown of the switch. In this case, however, the switch is left turned on. Note that, if the connection of wiring of a 2-lead wire switch is reversed with load short-circuited, the switch will be broken.

If the power line of a 3-lead wire switch is reversely wired ("+" replaces with "-"), the protective circuit will protect the switch. However, note that, if the power line is replaced with the output line by mistake, the switch will be broken.

- Do not wire the switch together with the power line and high voltage line.

Wire the switch by keeping away from the power line and high voltage line.

Otherwise, the control circuit including the switch may malfunction due to noise.

- Avoid applying repetitive bending stress and tensile force to the lead wire.

When setting the switch in a moving part, sag the wiring so that repetitive stress and tensile force will not be applied to the lead wire.

Wiring that produces repetitive bending stress and tensile force cause the breaking of wire.

- Check for poor insulation.

Check lead wire connection, extension cable and terminal base for poor insulation. If poor insulation occurs, excess current will flow to the switch, sometimes resulting in a damage to the switch.

- Be sure to connect load before turning on power supply.

When a 2-lead wire switch is turned on without connecting load such as relay, PLC, etc., excess current will momentarily flow to the switch, resulting in a damage to the switch.

- Do not turn on the switch with load short-circuited.

If the switch is turned on with load short-circuited, excess current will flow to the switch, sometimes resulting in a damage to the switch.

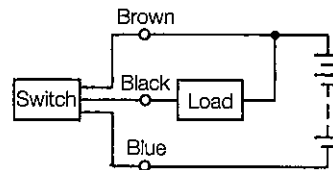
WIRING

! WARNING

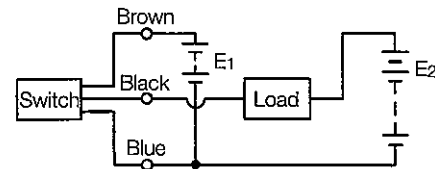
- It is possible to provide power supply to load and power supply to switches individually and also to use them in common.

When power supplies are individually provided, they should have the same voltage.

Where power supply to load and power supply to switch are commonly used :



Where power supply to load and power supply to switch are not commonly used :



E₁ and E₂ should be the same voltage.



MAGNETIC PROXIMITY SWITCH/COMMON INSTRUCTIONS ④

Be sure to read them before use.

Also refer to Par. "For Safety Use" and instructions mentioned for each series of switches.

OPERATING ENVIRONMENT

! DANGER

- **Never use the switch in an explosive or ignitable atmosphere.**

As the switch is not proof against explosion, never use it in an explosive gas atmosphere or ignitable atmosphere ; otherwise causing an explosion or fire.

! WARNING

- **Do not use the switch in a place where there is a strong magnetic field or a large current.**

If the switch is used in a place where there is a strong magnetic field or a large current (large magnet, spot welding machine, etc.), the switch will malfunction or the magnet in the cylinder will be demagnetized.

- **Do not use the switch in a place where it is always splashed with water.**

The switch is designed to meet structural requirements IP67 prescribed by IEC Standard. However do not use the switch in a place where it is always splashed with water; otherwise causing an insulation failure or malfunction.

- **Do not use the switch in an environment containing oil and chemicals.**

When the switch is used in an environment containing coolant, washings, oils and chemicals, the inside of the switch is adversely affected even if it is used for a short period of time. When it is necessary to use the switch in such an environment, contact KURODA.

- **Do not use the switch in a place where an extreme temperature change occurs.**

Using the switch in a place attended with an unusual temperature change will adversely affect the inside of the switch. When it is necessary to use the switch in such an environment, contact KURODA.

- **Do not use the switch in a place where an excessive shock occurs.**

<Reed switch>

For a reed switch, if an excessive shock (over 980m/s²) is applied to it during operation, the contact may malfunction according to circumstances.

When a proximity switch is used in place of a reed switch, the deficiency can be reduced. In this case, check shock resistance given in specifications.

- **Do not use the switch in a place where surge is produced.**

<Solid-state switch>

When there is a large surge source around the solid-state switch, the circuit element in the switch may be adversely affected.

OPERATING ENVIRONMENT

! WARNING

- **Be careful of adjacent magnetic material. Keep the switch away from magnetic material by more than 3.5 mm.**

When there is magnetic material such as iron close to the cylinder with a built-in magnet is absorbed and thus the switch may not operate according to circumstances.

Note that, when chips and iron powder such as weld spatters accumulate during operation, the same situation as above-mentioned will also occur.

MAINTENANCE AND INSPECTION

! WARNING

Perform the following maintenance and inspection periodically.

- **Check the switch set screw and metal fixture for looseness and retighten as necessary.**

If the switch set screw and metal fixture are loosened, the switch set position will shift, resulting in an unstable operation or malfunction.

Readjust the set position and tighten the set screw and fixture.

- **Check the lead wire for damage.**

A damage to the coating of the lead wire may lead to insulation failure and breaking of wire.

When a damage is found, change the switch and repair the lead wire immediately.



HI-PAL CYLINDER/INDIVIDUAL INSTRUCTIONS

Be sure to read before use.

Also read both "For Safety Use" and common instructions.

HANDLING

! CAUTION

• Controlling piston speed

When controlling piston speed, do so gradually from the low speed side until the prescribed speed is attained by means of the speed control needle provided in the solenoid valve.

Turning the needle clockwise reduces piston speed and turning it counterclockwise increases piston speed.

For air cylinders with rod extended at the time of power on, R1 needle is used to control rod-extending speed and R2 needle is used to control rod-retracting speed.

For air cylinders with rod retracted at the time of power on, R1 needle is used to control rod-retracting speed and R2 needle is used to control rod-extending speed.

• Changing rod-extending type cylinder for rod retracting type cylinder

It is not possible to change a cylinder designed for rod extension at the time of power on for a cylinder designed for rod retraction at the time of power on.

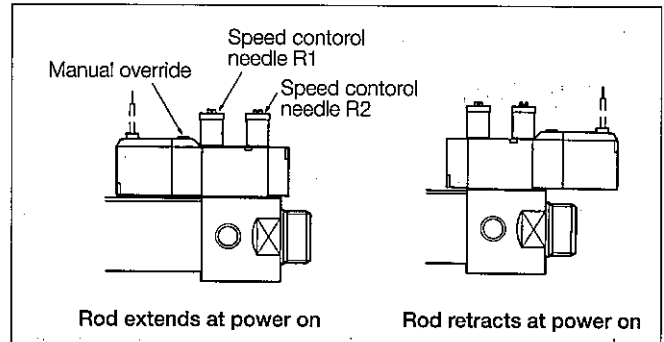
Specify either of the two clearly when ordering.

HANDLING

! CAUTION

• Manual operation of solenoid valve

The solenoid valve can be manually operated by pressing Manual Override provided on the solenoid valve.





CYLINDERS WITH LOCK MECHANISM/INDIVIDUAL INSTRUCTIONS

Be sure to read before use.

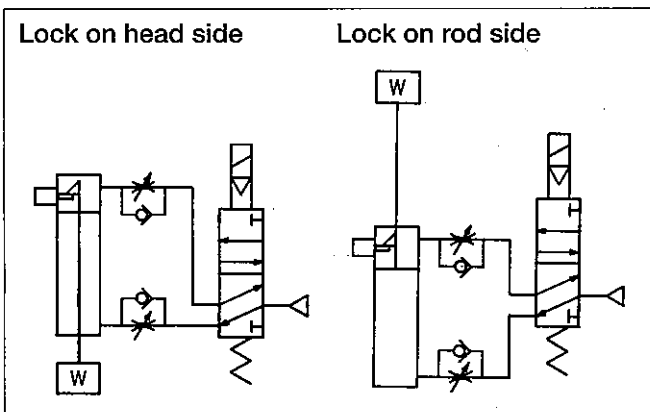
Also read both "For Safety Use" and common instructions.

PRECAUTIONS FOR PNEUMATIC CIRCUITS

! WARNING

- When controlling a cylinder equipped with a locking mechanism, do so in the pneumatic circuit mentioned below:

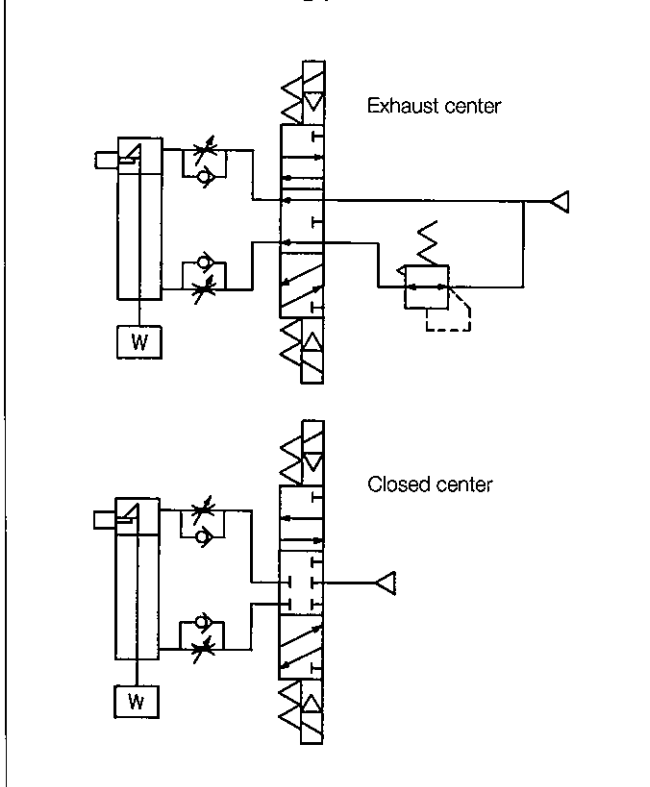
Before starting operation, make sure that the circuit is such that air may be supplied to the port without a locking mechanism. In other pneumatic circuits, there is the possibility that the locking mechanism does not work or runaway occurs.



- Especially, never control the cylinder in a pneumatic circuit combined with a 3-position solenoid valve.

If air is not exhausted from the port equipped with a locking mechanism, the lock will not be actuated.

Do not use the following pneumatic circuits :



OPERATION PRESSURE

! CAUTION

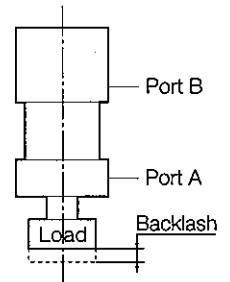
- Apply air pressure of higher than 0.15 MPa to the port equipped with a locking mechanism. Applying a lower pressure will not unlock the piston.

BACKLASH AT LOCKING SIDE STROKE END

! CAUTION

The cylinder is so designed that there is backlash when locking at the stroke end as shown in the drawing.

Note that, when air pressure is released from port A, load will drop by an amount equivalent to backlash.



(Unit : mm)

Series	Bore	Backlash at locking
J1OL	$\phi 20$ 、 $\phi 25$	Below 1
	$\phi 32$ 、 $\phi 40$	Below 1.5

MANUAL UNLOCKING

! WARNING

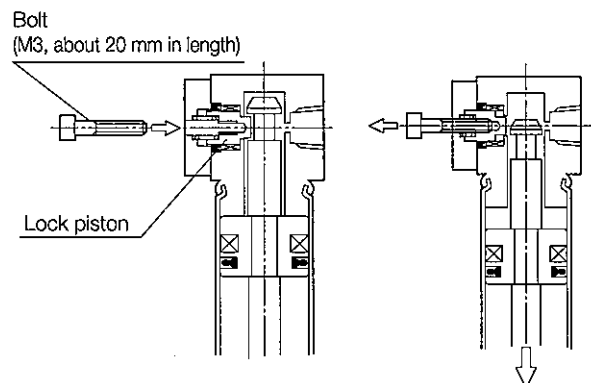
- Before unlocking manually, be sure to supply air to the port without a locking mechanism.

If unlocked with air exhausted from the port without a locking mechanism, excessive force will be applied to the locking mechanism or the piston rod will suddenly move (drop) due to dead load, causing an accident.

- Manual unlocking

To unlock manually, insert an M3 bolt (length : about 20 mm) from the manual unlock port, screw it into the internal lock piston and pull out the bolt.

Remove the bolt during ordinary operation beforehand.

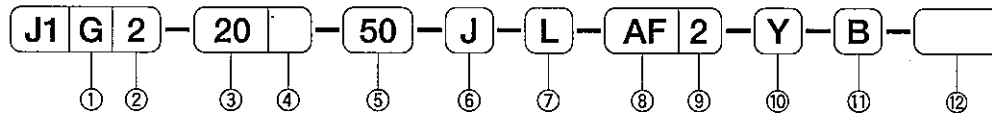


AIR CYLINDER/STANDARD TYPE

J1 series

φ 20, φ 25, φ 32, φ 40, φ 50, φ 63

ORDERING INSTRUCTIONS



①Magnet

G	Built-in magnet	Cylinder with switch available
---	-----------------	--------------------------------

②Action

2	Double-acting, single rod
1	Single-acting, single rod (Spring return)
0	Single-acting, single rod (Spring extend)

③Bore (mm)

20	φ 20
25	φ 25
32	φ 32
40	φ 40
50	φ 50
63	φ 63

④Cushion

No symbol	Damper cushion
B	Both-side air cushion

(Note) φ 20 to φ 40 : Damper cushion
φ 50 and φ 63 : B (both-side air cushion) alone

⑤Stroke (mm)

Refer to Standard Strokes (Page 14).

⑥Dustproof cover

No symbol	No dustproof cover provided (Standard)
J	With bellows (Nylon tarpaulin)
JN	With bellows (Chloroprene)
JK	With bellows (CONEX)

CONEX : Registered trademark of Teijin Ltd.

⑦Mounting

N	Nose (Basic type of φ 50, φ 63)
L	Both-foot
LS	Single foot
A	Rod side flange
B	Head side flange
R	Rod side trunnion
H	Head side trunnion
C	Eye (Basic type of φ 20 to φ 40)

(Note) LS : φ 20, φ 25 alone

Model No. of Mounting Bracket

Bore (mm)	φ 20	φ 25	φ 32	φ 40	φ 50	φ 63
Foot mount bracket	J120-L	J120-L	J132-L	J140-L	J150-L	J163-L
Flange mount bracket	J120-A	J120-A	J132-A	J140-A	J150-A	J163-A
Trunnion mount bracket	J120-R	J120-R	J132-R	J140-R	J150-R	J163-R
Bracket	For C	J120-BA	J120-BA	J132-BA	J140-BA	—
	For R, H	J120-BC	J120-BC	J132-BC	J140-BC	—

(Note) Bracket C : With pin, snap ring

⑧Type of switch

No symbol	No switch	
AF	AX101	Reed switch
AG	AX105	
AH	AX111	
AJ	AX115	
AE	AX125	DC5~30V
AK	AX11A	
AL	AX11B	AC5~120V
JA	ZC201A	
JB	ZC201B	DC5~28V
JC	ZC205A	
JD	ZC205B	DC10~28V
S	SR405	
BE	AX201	Solid-state switch
BF	AX205	
BH	AX221	
BJ	AX225	
CE	AX211	
CF	AX215	
JJ	ZC230A	DC5~30V
JK	ZC230B	
JL	ZC253A	DC10~28V
JM	ZC253B	
		DC10~30V

⑨Number of switch

No symbol	No switch
2	With 2 units
1	With 1 unit

⑩Bracket at rod end

No symbol	No bracket
Y	With rod end clevis
I	With rod end eye

(Note) Y : Provided with pin

⑪Bracket

No symbol	No bracket
B	With bracket

(Note) Models with bracket : C, R and H

⑫Special shape of rod end

No symbol	Standard
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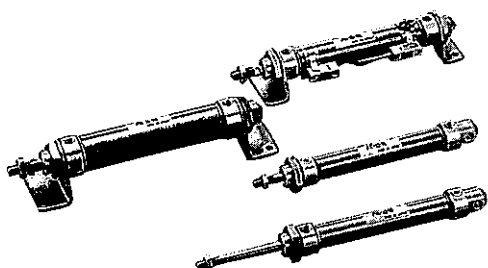
(Note) Refer to Pages 37 and 38.

Model No. of Packing Kit

Bore (mm)	Packing kit
φ 20	J120-PS
φ 25	J125-PS
φ 32	J132-PS
φ 40	J140-PS
φ 50	J150-PS
φ 63	J163-PS

(Note) Packing kit : Rod packing alone

AIR CYLINDER/STANDARD TYPE J1 series



SPECIFICATIONS

Action	Unit	Double-acting	Single-acting
Fluid		Non-lubricated air	
Pressure range	MPa	$\phi 20 \sim \phi 40 : 0.05 \sim 1$ $\phi 50 \sim \phi 63 : 0.02 \sim 1$	0.15~1
Proof pressure	MPa	1.5	
Temperature range	°C	-10~70	
Piston speed range	mm/s	20~700	50~700
Cushion		$\phi 20 \sim \phi 40$: Damper cushion $\phi 50, \phi 63$: Air cushion	
Piston stroke allowance	mm	Below 250mm : $\begin{matrix} +1.0 \\ 0 \end{matrix}$ 251~900mm : $\begin{matrix} +1.4 \\ 0 \end{matrix}$	
Mounting		Nose, Both-foot, Single foot, Rod side flange, Headside flange, Rod side trunnion, Headside trunnion, Eye	

- (Note) •When setting a switch at the intermediate position, set the maximum cylinder speed to less than 300 mm/s by reason of the relation with the response speed of relays etc.
•Use the cylinder within a temperature range where it is not frozen.
•When changing the port position and cushion valve position, consult KURODA beforehand.

STANDARD STROKE

(Unit : mm)

Action	Bore	Standard stroke																Max. stroke
		15	25	30	50	75	100	125	150	175	200	250	300	350	400	450	500	
Double-acting	$\phi 20$	○	○	○	○	○	○	○	○	○	○	—	—	—	—	—	—	900
	$\phi 25$	○	○	○	○	○	○	○	○	○	○	○	○	—	—	—	—	900
	$\phi 32$	○	○	○	○	○	○	○	○	○	○	○	○	○	○	—	—	900
	$\phi 40$	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	900
	$\phi 50$	—	○	—	○	○	○	—	○	—	○	○	○	○	○	○	○	900
	$\phi 63$	—	○	—	○	○	○	—	○	—	○	○	○	○	○	○	○	900
Single-acting	$\phi 20$	—	○	—	○	○	○	○	○	—	—	—	—	—	—	—	—	150
	$\phi 25$	—	○	—	○	○	○	○	○	○	—	—	—	—	—	—	—	200
	$\phi 32$	—	○	—	○	○	○	○	○	○	—	—	—	—	—	—	—	200
	$\phi 40$	—	○	—	○	○	○	○	○	○	—	—	—	—	—	—	—	200

CYLINDER FORCE (THEORETICAL OUTPUT)

(Unit : N)

Bore (mm)	Rod outside dia. (mm)	Direction of rod	Operating pressure (MPa)									
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
$\phi 20$	$\phi 8$	Out stroke	31.4	62.8	94.2	126	157	188	220	251	283	314
		In stroke	26.4	52.8	79.2	106	132	158	185	211	238	264
$\phi 25$	$\phi 10$	Out stroke	49.1	98.2	147	196	245	295	344	393	442	491
		In stroke	41.2	82.4	124	165	206	247	288	330	371	412
$\phi 32$	$\phi 12$	Out stroke	80.4	161	241	322	402	483	563	643	724	804
		In stroke	69.1	138	207	276	345	414	484	553	622	691
$\phi 40$	$\phi 14$	Out stroke	126	251	377	503	628	754	880	1005	1131	1257
		In stroke	110	220	331	441	551	661	771	882	992	1102
$\phi 50$	$\phi 20$	Out stroke	196	393	589	785	982	1178	1374	1571	1767	1963
		In stroke	165	330	495	660	825	990	1155	1319	1484	1649
$\phi 63$	$\phi 20$	Out stroke	312	623	935	1247	1559	1870	2182	2494	2806	3117
		In stroke	280	561	841	1121	1402	1682	1962	2242	2523	2803

(Note) Output force of double-acting cylinder (Effective output)=Cylinder force (Theoretical output)×0.85

Output force of single-acting cylinder (Effective output)=Cylinder force (Theoretical output)×0.85—Spring tensile strength

AIR CYLINDER/STANDARD TYPE J1 series

SPRING TENSILE STRENGTH

(Unit : N)

Bore (mm)	Load	Stroke (mm)			
		15	25	30	50~200
φ 20	At stroke 0	20.6	12.9	20.6	12.9
	At max. stroke	32.2			
φ 25	At stroke 0	32.5	20.4	32.5	20.4
	At max. stroke	50.7			
φ 32	At stroke 0	51.3	32.3	51.3	32.3
	At max. stroke	79.9			
φ 40	At stroke 0	80.4	50.6	80.4	50.6
	At max. stroke	125.2			

CYLINDER MASS/Double Acting

(Unit : g)

Bore (mm)	Basic mass (Basic type)	Additional mass per stroke of 1 mm	Mounting bracket mass					Rod end bracket mass		Switch mass		
			Foot(2 pcs.)	Flange	Trunnion	Eye	Bracket	Eye	Clevis	AX	ZC	SR
φ 20	155	0.85	140	55	55	—	115	—	55	50	25	271
φ 25	220	1.15	140	55	55	—	115	—	100			
φ 32	320	1.65	220	90	90	—	150	—	100			
φ 40	520	2.15	280	110	130	—	185	—	175			
φ 50	985	3.27	560	315	335	30	460	200	340			
φ 63	1350	4.36	705	420	335	30	460	200	340			

(Note) Switch mass includes the mass of cord (1.5 m) and switch fastening band.

CYLINDER MASS/Single Acting

(Unit : g)

Bore (mm)	Basic mass (Basic type)	Additional mass per stroke						Mounting bracket mass	Rod end bracket mass	Switch mass
		15	25	30	50	75	100			
φ 20	221	12	20	90	106	192	278	Refer to double-acting type.	Refer to double-acting type.	Refer to double-acting type.
φ 25	312	16.5	27.5	125	147	266.5	386			
φ 32	457	24	40	185	217	394	571			
φ 40	701	31.5	52.5	244	286	519.5	753			

[Example of calculation]

J1G2-20-50-L-AF2

$$155 + (0.85 \times 50) + 140 + (50 \times 2) = 437.5g$$

AIR CYLINDER/STANDARD TYPE J1 series

MODEL WITH SWITCH/For detailed specifications, handling precautions and mounting method of switches, refer to Page 80.

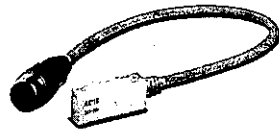
•AX Type Switch

•ZC Type Switch

•SR Type Switch

Cord type

Connector type



LIST OF SWITCHES

Type	Symbol of switch	Load voltage range	Load current range	Max. switching capacity	Protective circuit	Pilot lamp	Connection	Cord length	Applicable load
Reed switch	AF AX101	DC5~30V AC5~120V	DC: 5~40mA AC: 5~20mA	DC: 1.5W AC: 2VA	Not provided	LED (Red LED lights up at ON.)	0.3 mm ² 2-core, OD ϕ 4 mm Cord direction : Axial	1.5m	Miniature relay PLC
	AG AX105							5m	
	AH AX111				1.5m				
	AJ AX115				5m				
	AE AX125	DC5~50V AC5~120V	5~20mA	2VA	Provided	LED (Red LED lights up at ON.)	4-pin connector Cord direction : Axial	5m	
	AK AX11A	AC5~120V						0.5m	
	AL AX11B	DC5~30V	5~40mA	1.5W	Not provided	Not provided	0.2 mm ² 2-core, OD ϕ 3 mm Cord direction : Axial	0.5m	
	JA ZC201A	AC85~115V	AC: 2~25mA	—				1m	
	JB ZC201B	DC5~28V	DC: 0.1~40mA	—	Not provided	LED (Red LED lights up at ON.)	0.2 mm ² 2-core, OD ϕ 3 mm Cord direction : Axial	3m	
	JC ZC205A	DC10~28V	DC: 5~40mA	—				1m	
	JD ZC205B				3m				
S SR405	AC80~220V	2~300mA	30VA	Provided	Neon lamp (Red lights up at OFF.)	0.5 mm ² 2-core, OD ϕ 6 mm Cord direction : Axial	5m		
Solid-state switch	BE AX201	DC5~30V	5~40mA	—	Provided	LED (Red LED lights up at ON.)	0.3 mm ² 2-core, OD ϕ 4 mm Cord direction : Axial	1.5m	Miniature relay PLC IC circuit
	BF AX205							5m	
	CE AX211					1.5m			
	CF AX215					5m			
	BH AX221	DC5~30V	Max.200mA NPN open collector output	—	Provided	LED (Red LED lights up at ON.)	0.3 mm ² 3-core, OD ϕ 4 mm Cord direction : Axial	1.5m	
	BJ AX225							5m	
	JJ ZC230A	DC10~28V	5~40mA	—	Provided	LED (Lights up at ON.)	0.2 mm ² 2-core, OD ϕ 3 mm Cord direction : Axial	1m	
	JK ZC230B							3m	
	JL ZC253A	DC4.5~28V	MAX.100mA	—	Provided	LED (Lights up at ON.)	0.2 mm ² 3-core, OD ϕ 3 mm Cord direction : Axial	1m	
	JM ZC253B							3m	

(Note) •When using inductive load (relay etc.) in a switch without a protective circuit, be sure to fit a protective circuit (SK-100) to the load.
•AX type switch can be mounted on other type than above-mentioned. Refer to Specifications for Switches at the end of this catalog.

MINIMUM STROKE FOR AIR CYLINDER WITH SWITCH

(Unit : mm)

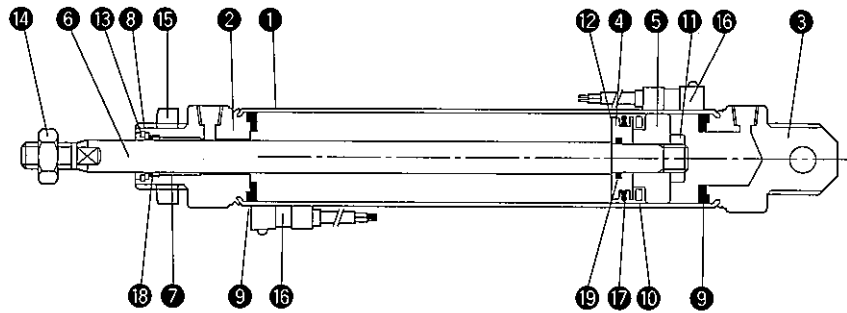
Bore	Number of mounted switch										
	With 1 unit					With 2 units					
	Reed switch				Solid-state switch		Reed switch			Solid-state switch	
	AX	ZC201	ZC205	SR	AX	ZC	AX	ZC	SR	AX	ZC
ϕ 20, ϕ 25	10	10	15	15	10	10	15	15	35	20	10
ϕ 32~ ϕ 63				10							

AIR CYLINDER/STANDARD TYPE J1 series

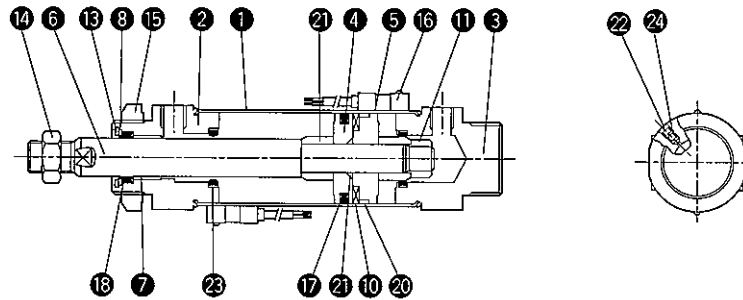
CONSTRUCTIONS AND PARTS LIST

Double-acting

$\phi 20 \sim \phi 40$



$\phi 50, \phi 63$



No.	Description	Material
1	Cylinder tube	Stainless steel
2	Rod cover	Aluminium alloy
3	Head cover	Aluminium alloy
4	Piston A	Aluminium alloy
5	Piston B	$\phi 20 \sim 40$: Aluminium alloy (Abrasion-resistant surface) $\phi 50, 63$: Aluminum alloy
6	Piston rod	$\phi 20 \sim 32$: Stainless steel (Hard chromium plating) $\phi 40 \sim 63$: Carbon steel for machine structure (Hard chromium plating)
7	Bushing	Sintered oil-impregnated bearing
8	Rod packing hold-down plate	Cold rolled steel
9	Cushion pad	Urethane rubber
10	Magnet	—
11	Piston nut	Rolled steel for general structure
12	Piston washer	Cold rolled steel
13	Snap ring	Spring steel
14	Rod end nut	Rolled steel for general structure
15	Nose nut	Rolled steel for general structure
16	Switch	—
17	Piston packing	Nitril rubber
18	Rod packing	Nitril rubber
19	O-ring for piston rod	Nitril rubber
20	Wear ring	Synthetic resins
21	Cushion ring	Carbon steel for machine structure
22	Cushion valve	Carbon steel for machine structure
23	Cushion packing	Metal ring + Nitril rubber
24	O-ring for cushion valve	Nitril rubber

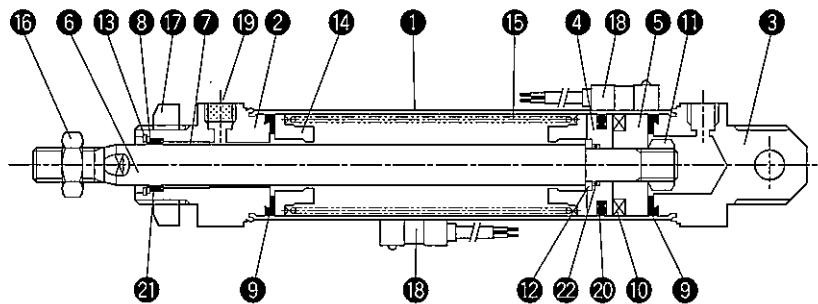
(Note) This cylinder cannot be disassembled. rod packing alone can be changed.

AIR CYLINDER/STANDARD TYPE J1 series

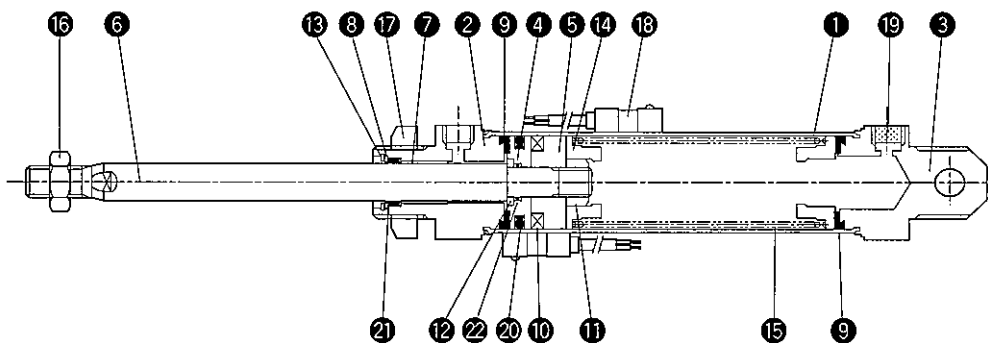
CONSTRUCTIONS AND PARTS LIST

Single-acting cylinder

Single-acting, spring return



Single-acting, spring extend



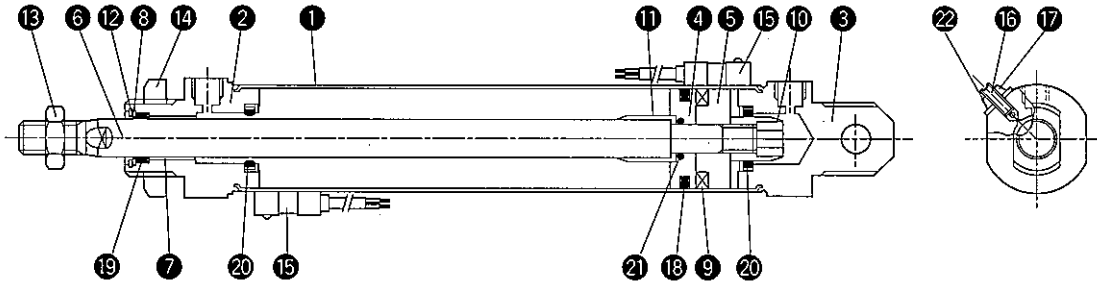
No.	Description	Material
1	Cylinder tube	Stainless steel
2	Rod cover	Aluminium alloy
3	Head cover	Aluminium alloy
4	Piston A	Aluminium alloy
5	Piston B	Aluminium alloy (Abrasion-resistant surface)
6	Piston rod	$\phi 20\sim 32$: Stainless steel (Hard chromium plating) $\phi 40$: Carbon steel for machine structure (Hard chromium plating)
7	Bushing	Sintered oil-impregnated bearing
8	Rod packing hold-down plate	Cold rolled steel
9	Cushion pad	Urethane rubber
10	Magnet	—
11	Piston nut	Rolled steel for general structure
12	Piston washer	Cold rolled steel
13	Snap ring	Spring steel
14	Spring stopper	Aluminium alloy
15	Spring	Stainless steel
16	Rod end nut	Rolled steel for general structure
17	Nose nut	Rolled steel for general structure
18	Switch	—
19	Filter plug	Synthetic resins
20	Piston packing	Nitril rubber
21	Rod packing	Standard type : Nitril rubber Non-rotating piston rod type : Urethane rubber
22	O-ring for piston rod	Nitril rubber

(Note) This cylinder cannot be disassembled. rod packing alone can be changed.

AIR CYLINDER/STANDARD TYPE J1 series

CONSTRUCTIONS AND PARTS LIST

Double-acting cylinder with air cushion



※The above-mentioned drawing is a structural drawing for bores $\phi 32$ and $\phi 40$.
For bores $\phi 20$ and $\phi 25$, cushion valve position is different from that shown in this drawing.

No.	Description	Material
1	Cylinder tube	Stainless steel
2	Rod cover	Aluminium alloy
3	Head cover	Aluminium alloy
4	Piston A	Aluminium alloy
5	Piston B	Aluminium alloy (Abrasion-resistant surface)
6	Piston rod	$\phi 20\sim 32$: Stainless steel (Hard chromium plating) $\phi 40$: Carbon steel for machine structure (Hard chromium plating)
7	Bushing	Dry bearing
8	Rod packing hold-down plate	Cold rolled steel
9	Magnet	—
10	Cushion nut	$\phi 20, 25$: Aluminium alloy $\phi 32, 40$: Rolled steel for general structure
11	Cushion ring	Rolled steel for general structure
12	Snap ring	Spring steel
13	Rod end nut	Rolled steel for general structure
14	Nose nut	Rolled steel for general structure
15	Switch	—
16	Cushion valve	Rolled steel for general structure
17	Lock-nut for cushion valve	Rolled steel for general structure
18	Piston packing	Nitril rubber
19	Rod packing	Nitril rubber
20	Cushion packing	Metal ring + Nitril rubber
21	O-ring for piston rod	Nitril rubber
22	Dieslet	Metal ring + Nitril rubber

(Note) This cylinder cannot be disassembled. rod packing alone can be changed.

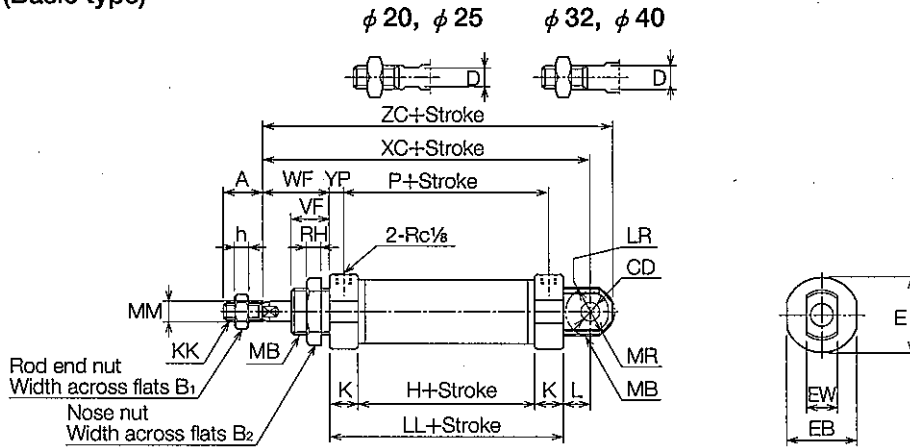
AIR CYLINDER/STANDARD TYPE J1 series

DIMENSIONS

Double-acting Eye mounting/C

(Unit : mm)

$\phi 20 \sim \phi 40$ (Basic type)

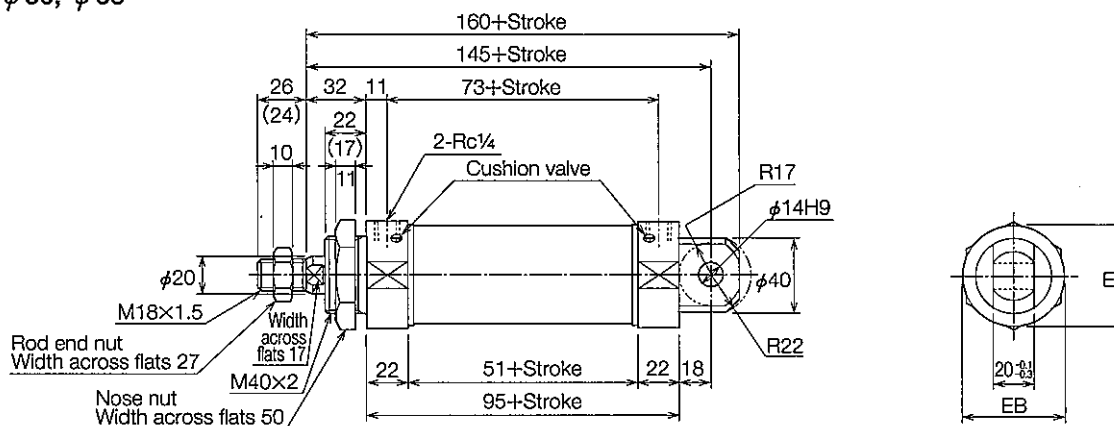


Bore	A	B1	B2	CD	D	E	EB	EW	H	h	K	KK	L	LL	LR	MB	MM	MR	P
$\phi 20$	20 (20)	13	30	$\phi 8^{H9}$	6	$\phi 28$	26	$16_{-0.3}^{-0.1}$	31	5	14	M 8x1.25	12	59	R11	M22x1.5	$\phi 8$	R12	45
$\phi 25$	22 (22)	17	30	$\phi 8^{H9}$	8	$\phi 31$	29	$16_{-0.3}^{-0.1}$	35	6	14.5	M10x1.5	12	64	R11	M22x1.5	$\phi 10$	R12	49
$\phi 32$	22 (22)	19	32	$\phi 10^{H9}$	10	$\phi 38$	36	$16_{-0.3}^{-0.1}$	40	7	15	M12x1.25	14	70	R13	M24x2	$\phi 12$	R14	55
$\phi 40$	24 (24)	22	41	$\phi 12^{H9}$	12	$\phi 46$	44	$20_{-0.3}^{-0.1}$	42	8	15	M14x1.5	16	72	R15	M30x2	$\phi 14$	R16	57

Bore	RH	VF	WF	XC	YP	ZC
$\phi 20$	7	16 (13)	24	95	7	105
$\phi 25$	7	18 (15)	28	104	7.5	114
$\phi 32$	8	20 (16)	30	114	7.5	126
$\phi 40$	9	22 (18)	32	120	7.5	132

(Note) Bracketed figures in size A and VF columns are thread lengths.

$\phi 50, \phi 63$



(Note) Bracketed figures in columns are thread lengths.

Bore	E	EB
$\phi 50$	$\phi 56$	54
$\phi 63$	$\phi 70$	68

● For other sizes than mentioned in this drawing, refer to Nose Type/N (Basic type).

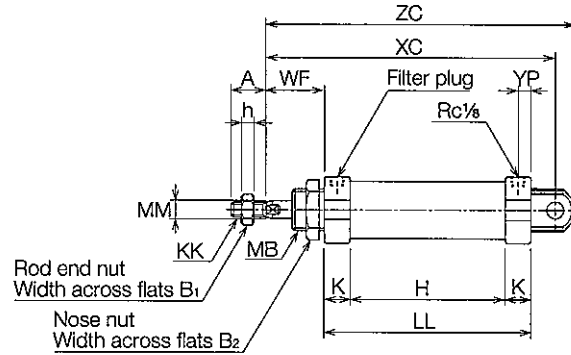
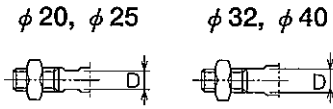
AIR CYLINDER/STANDARD TYPE J1 series

DIMENSIONS

Single-acting, spring return Eye mounting/C

(Unit : mm)

$\phi 20 \sim \phi 40$ (Basic type)



Bore	A	B1	B2	D	h	K	KK	MB	MM	WF	YP
$\phi 20$	20 (20)	13	30	6	5	14	M 8×1.25	M22×1.5	$\phi 8$	24	7
$\phi 25$	22 (22)	17	30	8	6	14.5	M10×1.5	M22×1.5	$\phi 10$	28	7.5
$\phi 32$	22 (22)	19	32	10	7	15	M12×1.25	M24×2	$\phi 12$	30	7.5
$\phi 40$	24 (24)	22	41	12	8	15	M14×1.5	M30×2	$\phi 14$	32	7.5

Bore	H										LL									
	15st	25st	30st	50st	75st	100st	125st	150st	175st	200st	15st	25st	30st	50st	75st	100st	125st	150st	175st	200st
$\phi 20$	71	81	111	131	181	231	281	331	381	431	99	109	139	159	209	259	309	359	409	459
$\phi 25$	75	85	115	135	185	235	285	335	385	465	104	114	144	164	214	264	314	364	414	464
$\phi 32$	80	90	120	140	190	240	290	340	390	440	110	120	150	170	220	270	320	370	420	470
$\phi 40$	82	92	122	142	192	242	292	342	392	442	112	122	152	172	222	272	322	372	422	472

Bore	XC										ZC									
	15st	25st	30st	50st	75st	100st	125st	150st	175st	200st	15st	25st	30st	50st	75st	100st	125st	150st	175st	200st
$\phi 20$	135	145	175	195	245	295	345	395	445	495	145	155	185	205	255	305	355	405	455	505
$\phi 25$	144	154	184	204	254	304	354	404	454	504	154	164	194	214	264	314	364	414	464	514
$\phi 32$	154	164	194	214	264	314	364	414	464	514	166	176	206	226	276	326	376	426	476	526
$\phi 40$	160	170	200	220	270	320	370	420	470	520	172	182	212	232	282	332	382	432	482	532

(Note) Bracketed figures in size A columns are thread lengths.

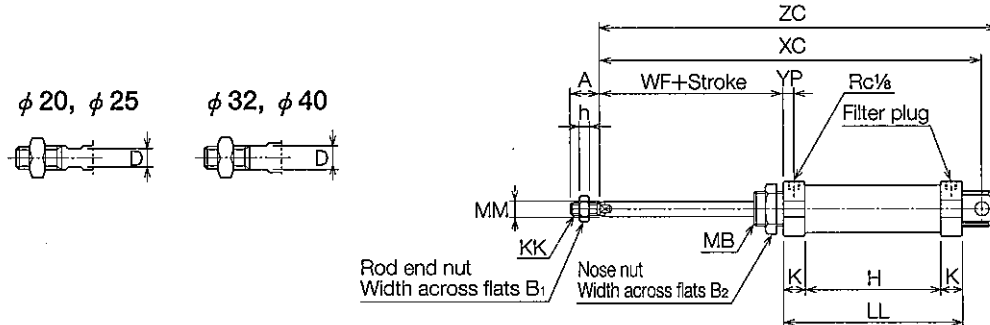
AIR CYLINDER/STANDARD TYPE J1 series

DIMENSIONS

Single-acting, spring extend Eye mounting/C

(Unit : mm)

$\phi 20 \sim \phi 40$ (Basic type)



Bore	A	B1	B2	D	h	K	KK	MB	MM	WF	YP
$\phi 20$	20 (20)	13	30	6	5	14	M 8×1.25	M22×1.5	$\phi 8$	24	7
$\phi 25$	22 (22)	17	30	8	6	14.5	M10×1.5	M22×1.5	$\phi 10$	28	7.5
$\phi 32$	22 (22)	19	32	10	7	15	M12×1.25	M24×2	$\phi 12$	30	7.5
$\phi 40$	24 (24)	22	41	12	8	15	M14×1.5	M30×2	$\phi 14$	32	7.5

Bore	H										LL									
	15st	25st	30st	50st	75st	100st	125st	150st	175st	200st	15st	25st	30st	50st	75st	100st	125st	150st	175st	200st
$\phi 20$	71	81	111	131	181	231	281	331	381	431	99	109	139	159	209	259	309	359	409	459
$\phi 25$	75	85	115	135	185	235	285	335	385	465	104	114	144	164	214	264	314	364	414	464
$\phi 32$	80	90	120	140	190	240	290	340	390	440	110	120	150	170	220	270	320	370	420	470
$\phi 40$	82	92	122	142	192	242	292	342	392	442	112	122	152	172	222	272	322	372	422	472

Bore	XC										ZC									
	15st	25st	30st	50st	75st	100st	125st	150st	175st	200st	15st	25st	30st	50st	75st	100st	125st	150st	175st	200st
$\phi 20$	150	170	205	245	320	395	470	545	620	695	160	180	215	255	330	405	480	555	630	705
$\phi 25$	159	179	214	254	329	404	479	554	629	704	169	189	224	264	339	414	489	564	639	714
$\phi 32$	169	189	224	264	339	414	489	564	639	714	181	201	236	276	351	426	501	576	651	726
$\phi 40$	175	195	230	270	345	420	495	570	645	720	187	207	242	282	357	432	507	582	657	732

(Note) Bracketed figures in size A columns are thread lengths.

AIR CYLINDER/STANDARD TYPE J1 series

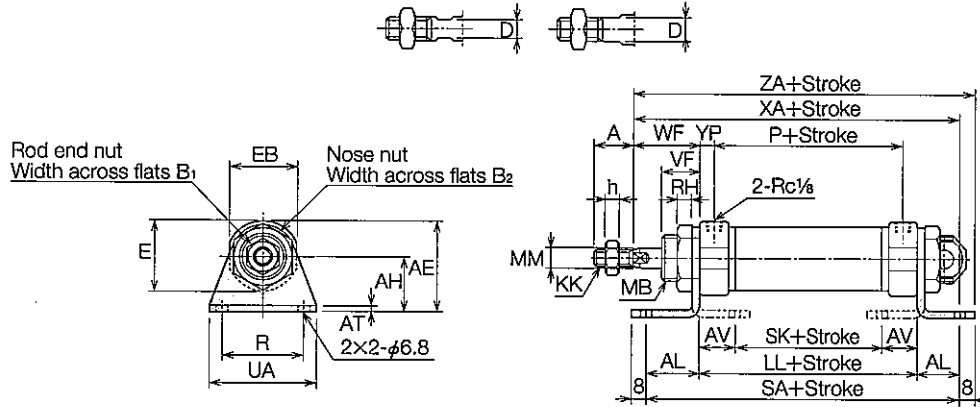
DIMENSIONS

Double-acting Both-foot mounting/L

(Unit : mm)

$\phi 20 \sim \phi 40$

$\phi 20, \phi 25$ $\phi 32, \phi 40$



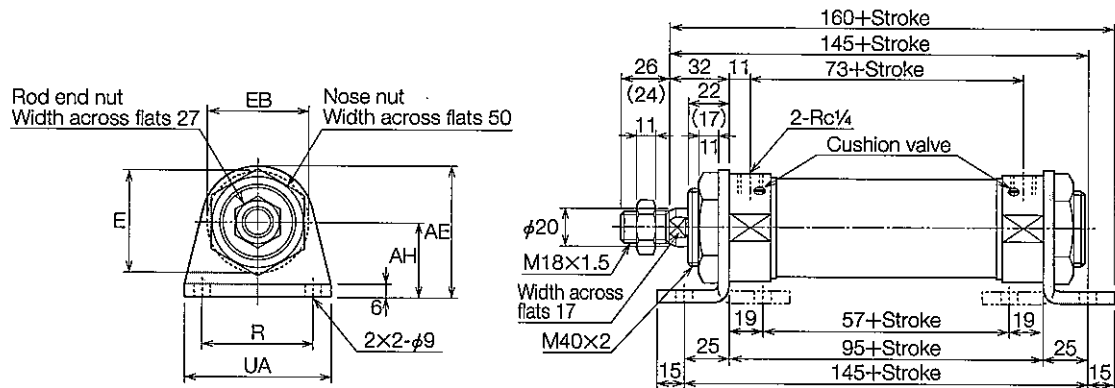
● For other sizes than mentioned in this drawing, refer to eye mounting/C (Basic type).

Bore	A	AE	AH	AL	AT	AV	B1	B2	D	E	EB	h	KK	LL	MB	MM	P	R	RH	SA
$\phi 20$	20 (20)	42	25	16	3.2	12.8	13	30	6	$\phi 28$	26	5	M 8×1.25	59	M22×1.5	$\phi 8$	45	40	7	91
$\phi 25$	22 (22)	42	25	16	3.2	12.8	17	30	8	$\phi 31$	29	6	M10×1.5	64	M22×1.5	$\phi 10$	49	40	7	96
$\phi 32$	22 (22)	51	32	25	4	21	19	32	10	$\phi 38$	36	7	M12×1.25	70	M24×2	$\phi 12$	55	45	8	120
$\phi 40$	24 (24)	59	36	25	4	21	22	41	12	$\phi 46$	44	8	M14×1.5	72	M30×2	$\phi 14$	57	50	9	122

Bore	SK	UA	VF	WF	XA	YP	ZA
$\phi 20$	33.4	55	16 (13)	24	99	7	107
$\phi 25$	38.4	55	18 (15)	28	108	7.5	116
$\phi 32$	28	60	20 (16)	30	125	7.5	133
$\phi 40$	30	65	22 (18)	32	129	7.5	137

(Note) Bracketed figures in size A and VF columns are thread lengths.

$\phi 50, \phi 63$



(Note) Bracketed figures in columns are thread lengths.

Bore	AE	AH	E	EB	R	UA
$\phi 50$	70	40	$\phi 56$	54	60	80
$\phi 63$	80	45	$\phi 70$	68	74	95

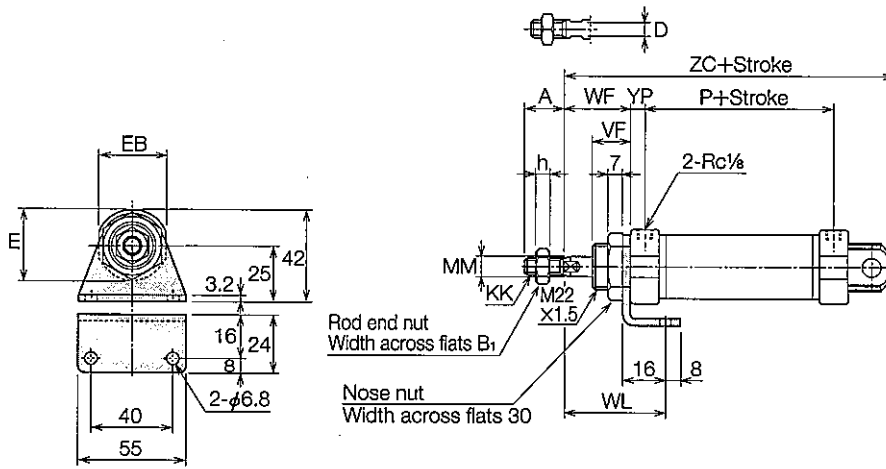
AIR CYLINDER/STANDARD TYPE J1 series

DIMENSIONS

Double-acting Single foot mounting/LS

(Unit : mm)

$\phi 20, \phi 25$



● For other sizes than mentioned in this drawing, refer to eye mounting/C (Basic type).

Bore	A	B1	D	E	EB	h	KK	MM	P	VF	WF	WL	YP	ZC
$\phi 20$	20 (20)	13	6	$\phi 28$	26	5	M 8×1.25	$\phi 8$	45	16	24	36.8	7	105
$\phi 25$	22 (22)	17	8	$\phi 31$	29	6	M10×1.5	$\phi 10$	49	18	28	40.8	7.5	114

(Note) Bracketed figures in size A columns are thread lengths.

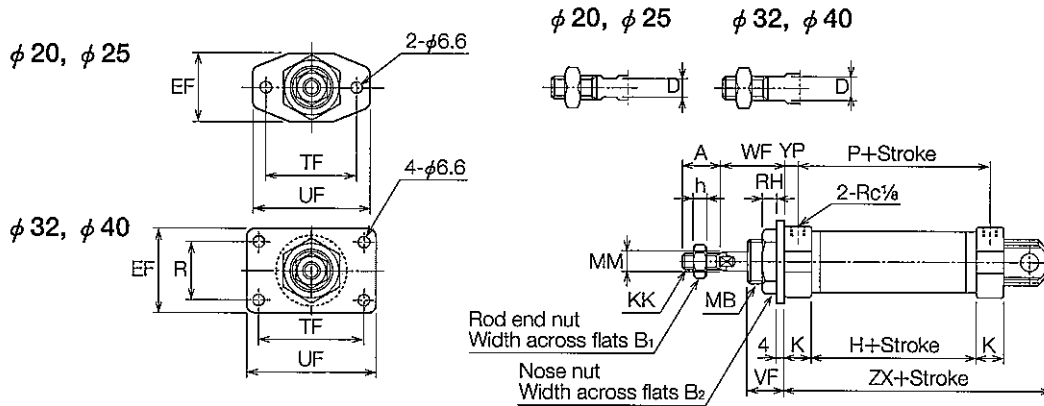
AIR CYLINDER/STANDARD TYPE J1 series

DIMENSIONS

Double-acting Rod side flange mounting/A

(Unit : mm)

$\phi 20 \sim \phi 40$



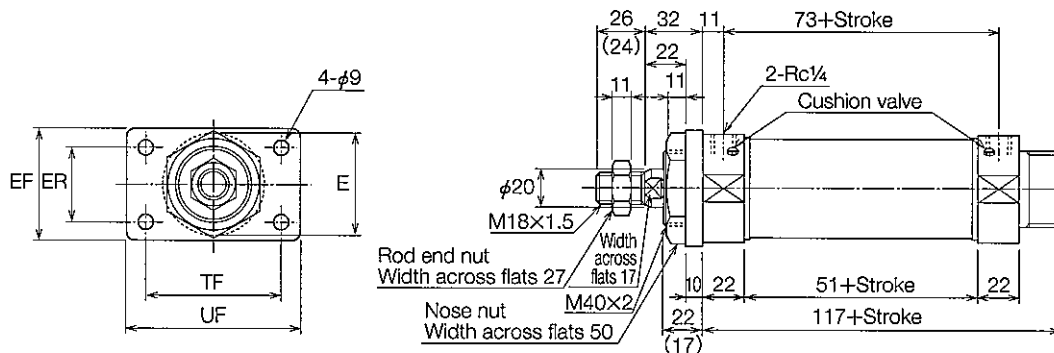
● For other sizes than mentioned in this drawing, refer to eye mounting/C (Basic type).

Bore	A	B1	B2	D	E	EF	H	h	K	KK	MB	MM	P	R	RH	TF	UF	VF
$\phi 20$	20 (20)	13	30	6	$\phi 28$	38	31	5	14	M 8x1.25	M22x1.5	$\phi 8$	45	—	7	50	65	16
$\phi 25$	22 (22)	17	30	8	$\phi 31$	38	35	6	14.5	M10x1.5	M22x1.5	$\phi 10$	49	—	7	50	65	18
$\phi 32$	22 (22)	19	32	10	$\phi 38$	47	40	7	15	M12x1.25	M24x2	$\phi 12$	55	33	8	58	72	20
$\phi 40$	24 (24)	22	41	12	$\phi 46$	51	42	8	15	M14x1.5	M30x2	$\phi 14$	57	36	9	70	84	22

Bore	WF	YP	ZX
$\phi 20$	24	7	81
$\phi 25$	28	7.5	86
$\phi 32$	30	7.5	96
$\phi 40$	32	7.5	100

(Note) Bracketed figures in size A columns are thread lengths.

$\phi 50, \phi 63$



(Note) Bracketed figures in columns are thread lengths.

Bore	E	EF	ER	TF	UF
$\phi 50$	$\phi 56$	60	40	74	94
$\phi 63$	$\phi 70$	70	50	80	100

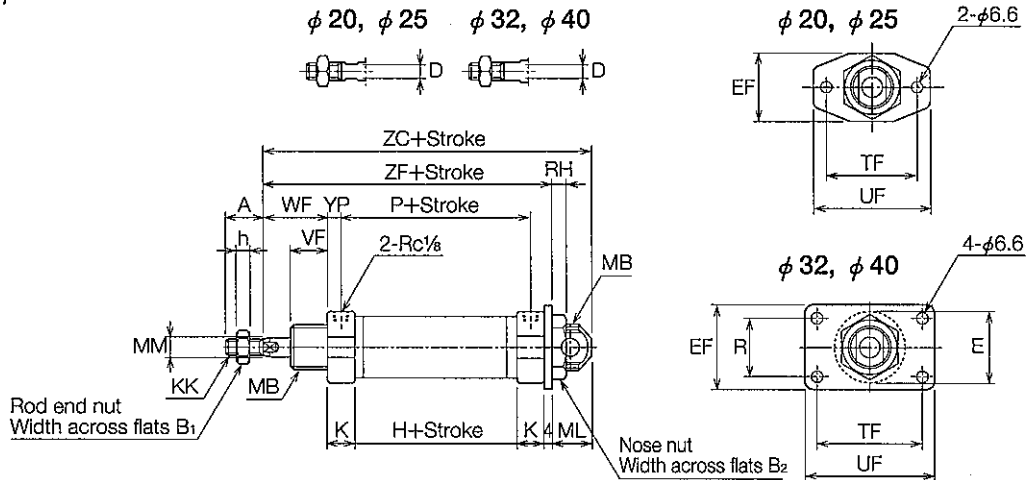
AIR CYLINDER/STANDARD TYPE J1 series

DIMENSIONS

Double-acting Head side flange mounting/B

(Unit : mm)

$\phi 20 \sim \phi 40$



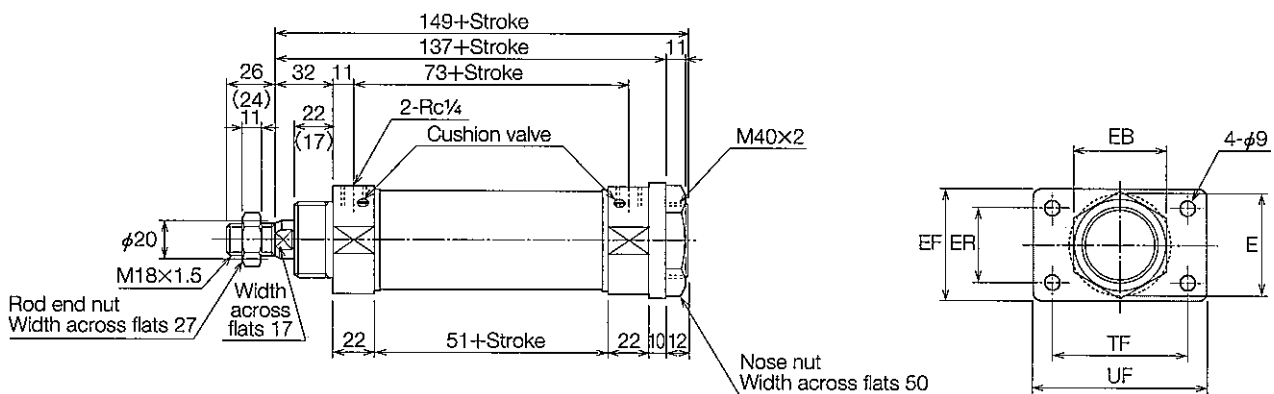
● For other sizes than mentioned in this drawing, refer to eye mounting/C (Basic type).

Bore	A	B1	B2	D	E	EF	H	h	K	KK	MB	ML	MM	P	R	RH	TF	UF	VF
$\phi 20$	20 (20)	13	30	6	$\phi 28$	38	31	5	14	M 8×1.25	M22×1.5	18	$\phi 8$	45	—	7	50	65	16 (13)
$\phi 25$	22 (22)	17	30	8	$\phi 31$	38	35	6	14.5	M10×1.5	M22×1.5	18	$\phi 10$	49	—	7	50	65	18 (15)
$\phi 32$	22 (22)	19	32	10	$\phi 38$	47	40	7	15	M12×1.25	M24×2	22	$\phi 12$	55	33	8	58	72	20 (16)
$\phi 40$	24 (24)	22	41	12	$\phi 46$	51	42	8	15	M14×1.5	M30×2	24	$\phi 14$	57	36	9	70	84	22 (18)

Bore	WF	YP	ZC	ZF
$\phi 20$	24	7	105	87
$\phi 25$	28	7.5	114	96
$\phi 32$	30	7.5	126	104
$\phi 40$	32	7.5	132	108

(Note) Bracketed figures in size A and VF columns are thread lengths.

$\phi 50, \phi 63$



(Note) Bracketed figures in columns are thread lengths.

Bore	E	EB	EF	ER	TF	UF
$\phi 50$	$\phi 56$	54	60	40	74	94
$\phi 63$	$\phi 70$	68	70	50	80	100

AIR CYLINDER/STANDARD TYPE J1 series

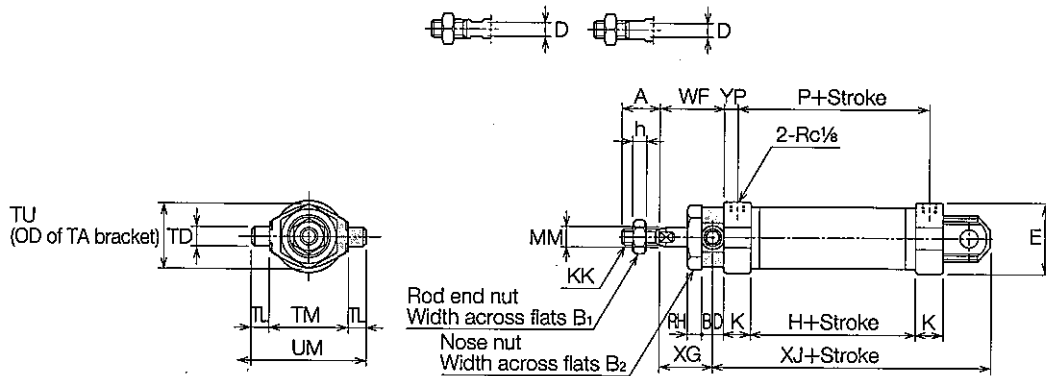
DIMENSIONS

Double-acting Rod side trunnion mounting/R

(Unit : mm)

$\phi 20 \sim \phi 40$

$\phi 20, \phi 25 \quad \phi 32, \phi 40$



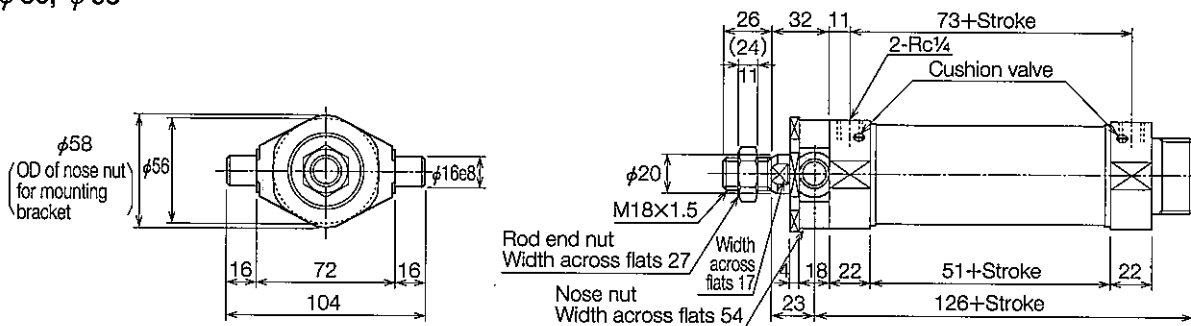
● For other sizes than mentioned in this drawing, refer to eye mounting/C (Basic type).

Bore	A	B1	B2	BD	D	E	H	h	K	KK	MM	P	RH	TD	TL	TM	TU	UM	WF	XG
$\phi 20$	20 (20)	13	30	10	6	$\phi 28$	31	5	14	M 8×1.25	$\phi 8$	45	7	$\phi 8^{e8}$	8	36	32	52	24	19
$\phi 25$	22 (22)	17	30	10	8	$\phi 31$	35	6	14.5	M10×1.5	$\phi 10$	49	7	$\phi 8^{e8}$	8	36	32	52	28	23
$\phi 32$	22 (22)	19	32	12	10	$\phi 38$	40	7	15	M12×1.25	$\phi 12$	55	8	$\phi 10^{e8}$	10	44	36	64	30	24
$\phi 40$	24 (24)	22	41	14	12	$\phi 46$	42	8	15	M14×1.5	$\phi 14$	57	9	$\phi 12^{e8}$	12	50	44	74	32	25

Bore	XJ	YP
$\phi 20$	86	7
$\phi 25$	91	7.5
$\phi 32$	102	7.5
$\phi 40$	107	7.5

(Note) Bracketed figures in size A columns are thread lengths.

$\phi 50, \phi 63$



(Note) Bracketed figures in columns are thread lengths.

AIR CYLINDER/STANDARD TYPE J1 series

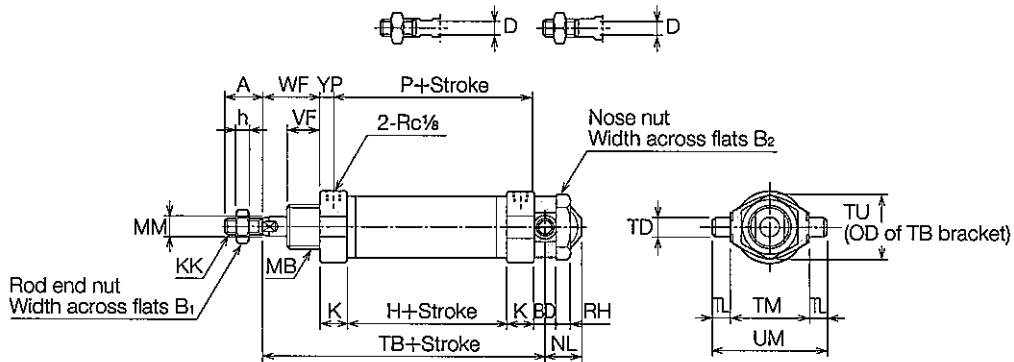
DIMENSIONS

Double-acting Head side trunnion mounting/H

(Unit : mm)

$\phi 20 \sim \phi 40$

$\phi 20, \phi 25 \quad \phi 32, \phi 40$



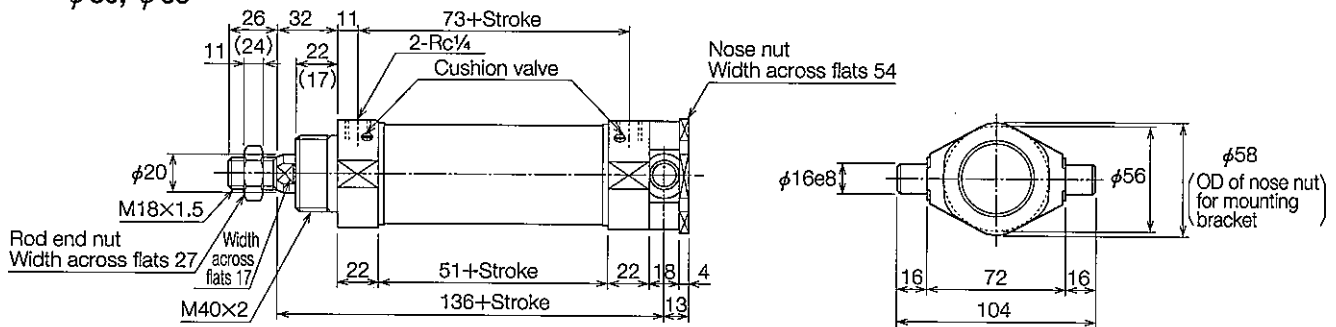
● For other sizes than mentioned in this drawing, refer to eye mounting/C (Basic type).

Bore	A	B1	B2	BD	D	E	H	h	K	KK	MB	MM	NL	P	RH	TB	TD	TL	TM
$\phi 20$	20 (20)	13	30	10	6	$\phi 28$	31	5	14	M 8×1.25	M22×1.5	$\phi 8$	17	45	7	88	$\phi 8^{e8}$	8	36
$\phi 25$	22 (22)	17	30	10	8	$\phi 31$	35	6	14.5	M10×1.5	M22×1.5	$\phi 10$	17	49	7	97	$\phi 8^{e8}$	8	36
$\phi 32$	22 (22)	19	32	12	10	$\phi 38$	40	7	15	M12×1.25	M24×2	$\phi 12$	20	55	8	106	$\phi 10^{e8}$	10	44
$\phi 40$	24 (24)	22	41	14	12	$\phi 46$	42	8	15	M14×1.5	M24×2	$\phi 14$	21	57	9	111	$\phi 12^{e8}$	12	50

Bore	TU	UM	VF	WF	YP
$\phi 20$	32	52	16 (13)	24	7
$\phi 25$	32	52	18 (15)	28	7.5
$\phi 32$	36	64	20 (16)	30	7.5
$\phi 40$	44	74	22 (18)	32	7.5

(Note) Bracketed figures in size A and VF columns are thread lengths.

$\phi 50, \phi 63$



(Note) Bracketed figures in columns are thread lengths.

AIR CYLINDER/STANDARD TYPE J1 series

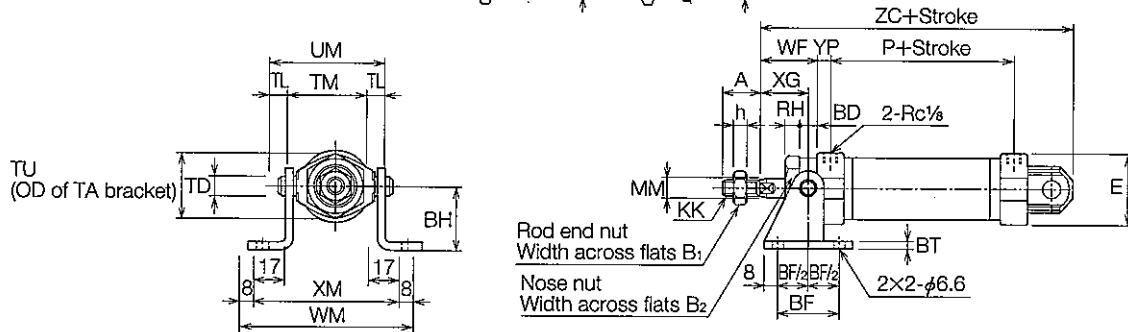
DIMENSIONS

Double-acting Rod side trunnion mounting with bracket/R-B

(Unit : mm)

$\phi 20 \sim \phi 40$

$\phi 20, \phi 25$ $\phi 32, \phi 40$



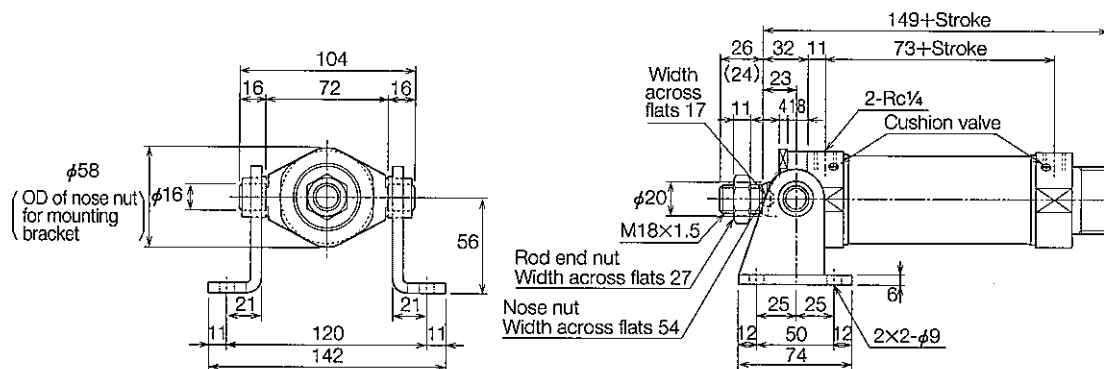
● For other sizes than mentioned in this drawing, refer to eye mounting/C (Basic type).

Bore	A	B1	B2	BD	BF	BH	BT	D	E	h	KK	MM	P	RH	TD	TL	TM	TU	UM	WF
$\phi 20$	20 (20)	13	30	10	32	32	3.2	6	$\phi 28$	5	M 8×1.25	$\phi 8$	45	7	$\phi 8^{e8}$	8	36	32	52	24
$\phi 25$	22 (22)	17	30	10	32	32	3.2	8	$\phi 31$	6	M10×1.5	$\phi 10$	49	7	$\phi 8^{e8}$	8	36	32	52	28
$\phi 32$	22 (22)	19	32	12	36	36	4	10	$\phi 38$	7	M12×1.25	$\phi 12$	55	8	$\phi 10^{e8}$	10	44	36	64	30
$\phi 40$	24 (24)	22	41	14	40	40	4	12	$\phi 46$	8	M14×1.5	$\phi 14$	57	9	$\phi 12^{e8}$	12	50	44	74	32

Bore	WM	XG	XM	YP	ZC
$\phi 20$	87	19	71	7	105
$\phi 25$	87	23	71	7.5	114
$\phi 32$	95	24	79	7.5	126
$\phi 40$	101	25	85	7.5	132

(Note) Bracketed figures in size A columns are thread lengths.

$\phi 50, \phi 63$



(Note) Bracketed figures in columns are thread lengths.

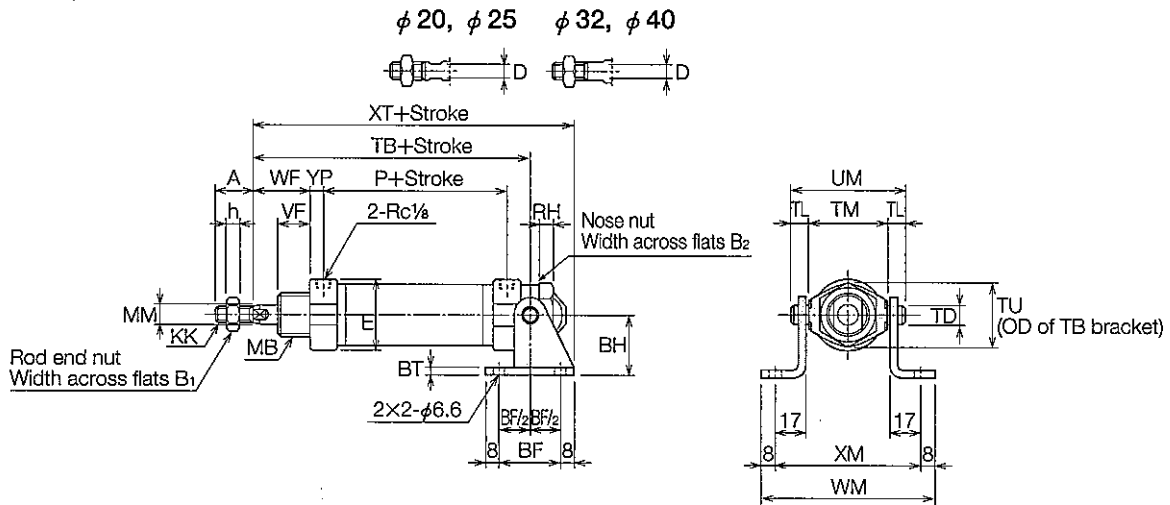
AIR CYLINDER/STANDARD TYPE J1 series

DIMENSIONS

Double-acting Head side trunnion mounting with bracket/H-B

(Unit : mm)

φ 20 ~ φ 40



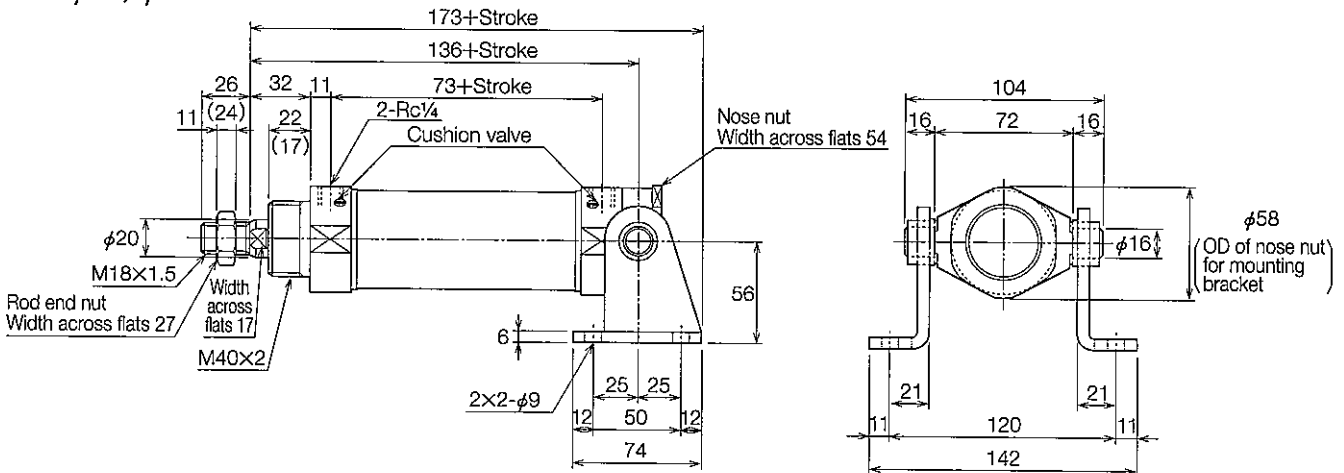
● For other sizes than mentioned in this drawing, refer to eye mounting/C (Basic type).

Bore	A	B1	B2	BF	BH	BT	D	E	h	KK	MB	MM	P	RH	TB	TD	TL	TM	TU
φ 20	20 (20)	13	30	32	32	3.2	6	φ 28	5	M 8×1.25	M22×1.5	φ 8	45	7	88	φ 8 ^{e8}	8	36	32
φ 25	22 (22)	17	30	32	32	3.2	8	φ 31	6	M10×1.5	M22×1.5	φ 10	49	7	97	φ 8 ^{e8}	8	36	32
φ 32	22 (22)	19	32	36	36	4	10	φ 38	7	M12×1.25	M24×2	φ 12	55	8	106	φ 10 ^{e8}	10	44	36
φ 40	24 (24)	22	41	40	40	4	12	φ 46	8	M14×1.5	M24×2	φ 14	57	9	111	φ 12 ^{e8}	12	50	44

Bore	UM	VF	WF	WM	XM	XT	YP
φ 20	52	16 (13)	24	87	71	112	7
φ 25	52	18 (15)	28	87	71	121	7.5
φ 32	64	20 (16)	30	95	79	132	7.5
φ 40	74	22 (18)	32	101	85	139	7.5

(Note) Bracketed figures in size A and VF columns are thread lengths.

φ 50, φ 63



(Note) Bracketed figures in columns are thread lengths.

AIR CYLINDER/STANDARD TYPE J1 series

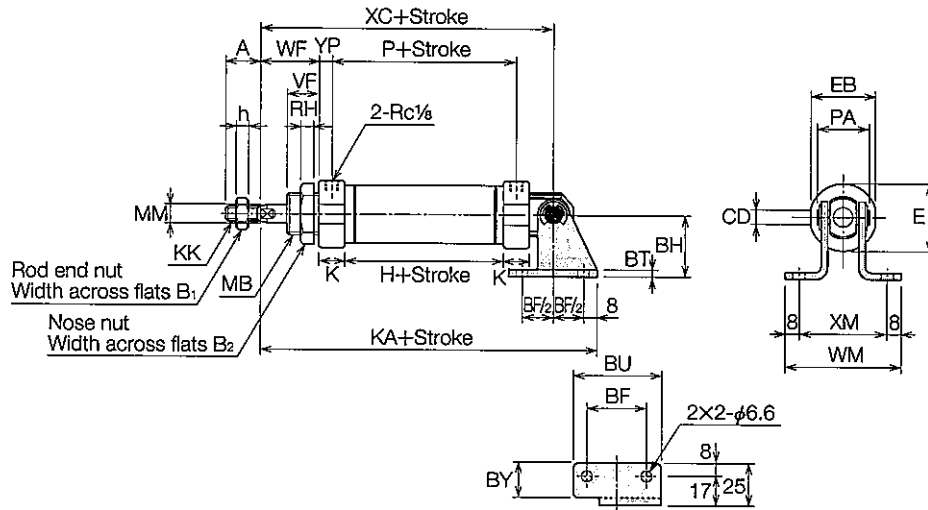
DIMENSIONS

Double-acting Eye mounting with bracket/C-B

(Unit : mm)

φ 20~ φ 40 (Basic type)

φ 20, φ 25 φ 32, φ 40



●For other sizes than mentioned in this drawing, refer to eye mounting/C (Basic type).

Bore	A	B1	B2	BF	BH	BT	BU	BY	CD	D	E	EB	H	h	K	KA	KK	MB	MM
φ 20	20 (20)	13	30	32	32	3.2	48	21.8	φ 8	6	φ 28	26	31	5	14	119	M 8×1.25	M22×1.5	φ 8
φ 25	22 (22)	17	30	32	32	3.2	48	21.8	φ 8	8	φ 31	29	35	6	14.5	128	M10×1.5	M22×1.5	φ 10
φ 32	22 (22)	19	32	36	36	4	52	21	φ 10	10	φ 38	36	40	7	15	140	M12×1.25	M24×2	φ 12
φ 40	24 (24)	22	41	40	40	4	56	21	φ 12	12	φ 46	44	42	8	15	148	M14×1.5	M30×2	φ 14

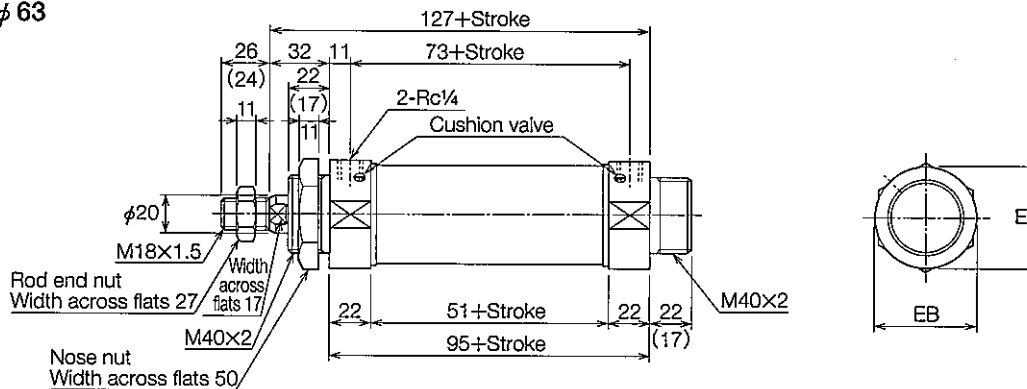
Bore	P	PA	RH	VF	WF	WM	XC	XM	YP
φ 20	45	31	7	16 (13)	24	67	95	51	7
φ 25	49	31	7	18 (15)	28	67	104	51	7.5
φ 32	55	32	8	20 (16)	30	67	114	51	7.5
φ 40	57	36	9	22 (18)	32	71	120	55	7.5

(Note) Bracketed figures in size A and VF columns are thread lengths.

Double-acting Nose mounting/N (Basic type)

(Unit : mm)

φ 50, φ 63



(Note) Bracketed figures in columns are thread lengths.

Bore	E	EB
φ 50	φ 56	54
φ 63	φ 70	68

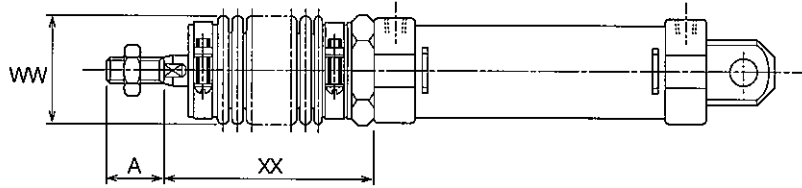
AIR CYLINDER/STANDARD TYPE J1 series

DIMENSIONS

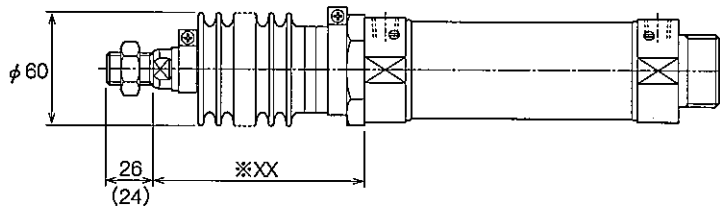
With dustproof cover/J

(Unit : mm)

$\phi 20 \sim \phi 40$



$\phi 50, \phi 63$



(Note) Bracketed figures in columns are thread lengths.

※XX=1/4×(Stroke)+65

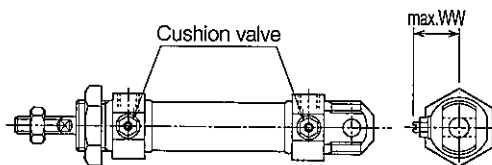
Round off fractions below the decimal point.

Bore	A	WW	Size XX of each stroke													
			~25	~50	~75	~100	~125	~150	~175	~200	~250	~300	~350	~400	~450	~500
$\phi 20$	20 (20)	$\phi 36$	49	59	69	74	84	94	104	114	134	154	174	194	214	234
$\phi 25$	22 (22)	$\phi 36$	53	63	73	78	88	98	108	118	138	158	178	198	218	238
$\phi 32$	22 (22)	$\phi 40$	45	55	65	70	80	85	95	100	120	130	150	170	190	210
$\phi 40$	24 (24)	$\phi 45$	42	52	57	62	72	82	87	92	102	117	127	142	162	182

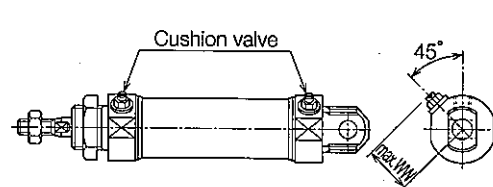
With air cushion/B

(Unit : mm)

$\phi 20, \phi 25$



$\phi 32, \phi 40$



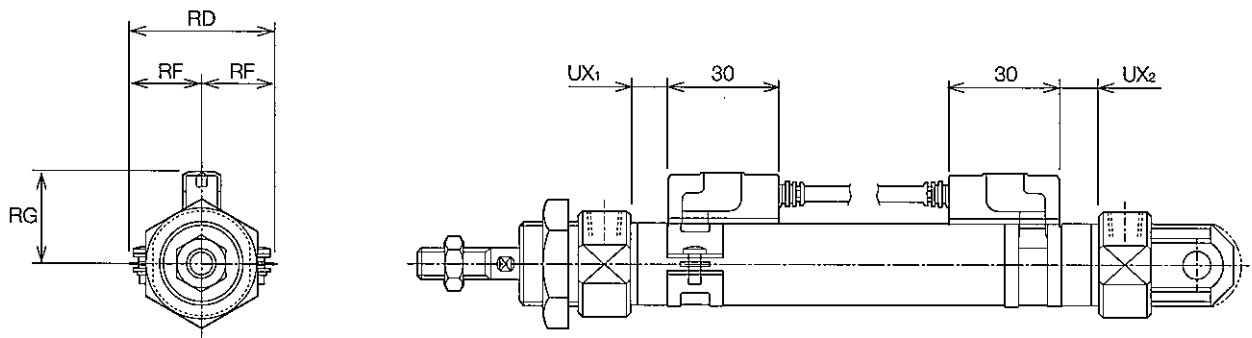
Bore	WW
$\phi 20$	21
$\phi 25$	22.5
$\phi 32$	29
$\phi 40$	33

●For other sizes than mentioned in this drawing, refer to eye mounting/C (Basi type).

AIR CYLINDER/STANDARD TYPE J1 series

SWITCH SET POSITION

(Unit : mm)



Bore	RD			RF			RG		
	AX type	ZC type	SR type	AX type	ZC type	SR type	AX type	ZC type	SR type
φ 20	38	33	50	19	16.5	25	25	20	33
φ 25	44	36	52	22	18	26	27	22	35
φ 32	48	39	54	24	19.5	27	31	26	38
φ 40	54	43	58	27	21.5	29	35	30	43
φ 50	60	49	48	30	24.5	24	39	35	46
φ 63	68	49	52	34	24.5	26	47	42	53

●The above drawing shows an air cylinder with AX type switch.

Bore	UX1						UX2					
	AX1□□	AX2□□	ZC201	ZC205	ZC230	SR	AX1□□	AX2□□	ZC201	ZC205	ZC230	SR
					ZC253						ZC253	
φ 20	7	7	9.5	6	8	2	7	7	7.5	4	6	0
φ 25	9	9	11	7.5	9.5	1	8	8	10	6.5	8.5	1
φ 32	10	10	13.5	10	12	5	10	10	12.5	9	11	5
φ 40	12	12	13.5	10	12	6	12	12	15.5	11	13	6
φ 50	16	16	18.5	15	17	7	16	16	18.5	15	17	7
φ 63	16	16	18.5	15	17	7	17	17	18.5	15	17	7

HYSTERESIS AND RESPONSE RANGE OF SWITCHES

(Unit : mm)

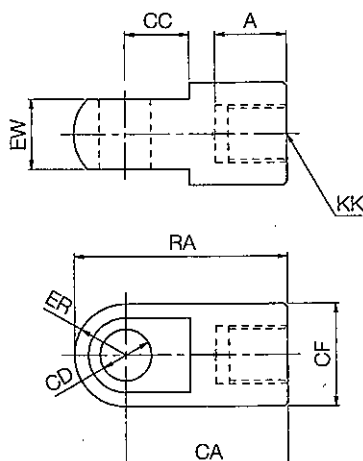
Bore	Reed switch								Solid-state switch					
	AX1□□		ZC201		ZC205		SR		AX2□□		ZC230		ZC253	
	Response range	Hysteresis	Response range	Hysteresis	Response range	Hysteresis	Response range	Hysteresis	Response range	Hysteresis	Response range	Hysteresis	Response range	Hysteresis
φ 20	4~9	Below 1	5~9	Below 2	6~8	Below 2	6~9	Below 2	2~5	Below 1	1~4	Below 0.5	2~4	Below 0.5
φ 25	5~9				6~9		7~10				2~4			
φ 32					6~10		2~6				2~5			
φ 40					7~11						2~4			
φ 50					8~11		8~12				8~11			
φ 63	8~11	8~13	8~12	8~11	3~6	3~5	3~5	3~5						

AIR CYLINDER/STANDARD TYPE J1 series

ACCESSORIES

Rod end eye

(Unit : mm)



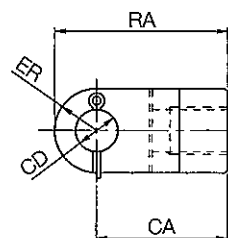
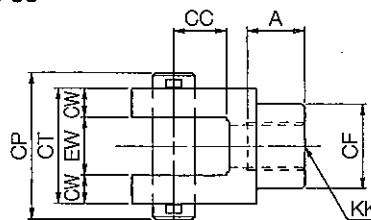
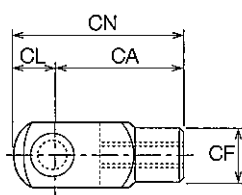
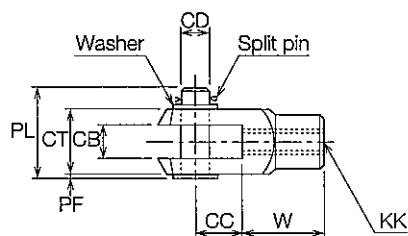
Model No.	Applicable bore	A	CA	CC	CD	CF	ER	EW	KK	RA
K150-I	φ 50, φ 63	22	46	16	φ 12 ^{H9}	φ 25	R12.5	18 ^{-0.1} _{-0.4}	M18×1.5	58.5

Rod end clevis

(Unit : mm)

φ 20 ~ φ 32

φ 40 ~ φ 63



Model No.	Applicable bore	CA	CB	CC	CD	CF	CL	CN	CT	KK	PF	PL	W
J120-Y	φ 20	32	8 ^{+0.4} _{+0.15}	16	φ 8 ^{H8} _{f7}	φ 14	10	42	□16	M 8×1.25	2	24.5	16
J125-Y	φ 25	40	10 ^{+0.4} _{+0.15}	20	φ 10 ^{H8} _{f7}	φ 18	12	52	□20	M10×1.5	2.5	30	20
J132-Y	φ 32	48	12 ^{+0.4} _{+0.15}	24	φ 12 ^{H8} _{f7}	φ 20	14	62	□24	M12×1.25	3	36.5	24

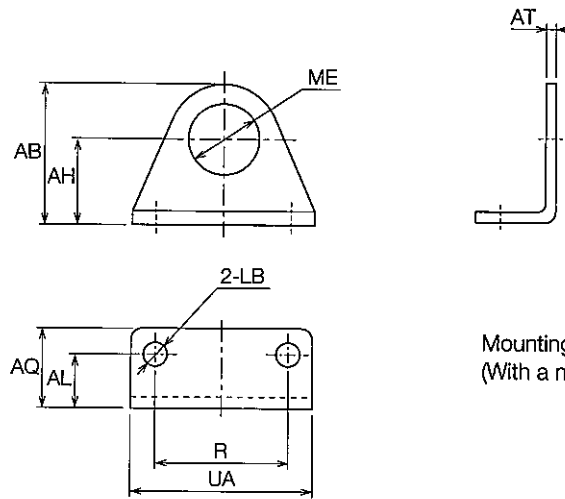
Model No.	Applicable bore	A	CA	CC	CD	CF	CP	CT	CW	ER	EW	KK	RA
J140-Y	φ 40	25	60	20	φ 14 ^{H9} _{f8}	φ 24	58	□44	12	R12	20 ^{+1.5} _{+0.5}	M14×1.5	72
K150-Y	φ 50, φ 63	22	46	16	φ 12 ^{H9} _{f8}	φ 25	48	36	9	R12.5	18 ^{+0.4} _{+0.1}	M18×1.5	58.5

AIR CYLINDER/STANDARD TYPE J1 series

ACCESSORIES

Foot mount bracket

(Unit : mm)

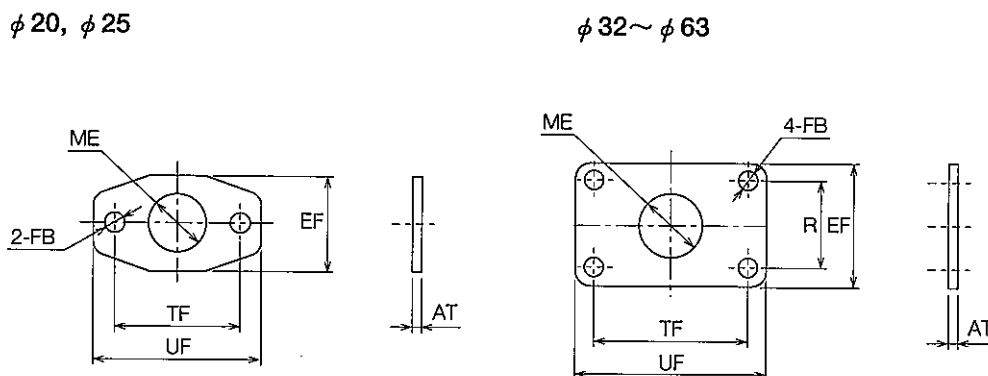


Mounting bracket is a 2-piece set.
(With a nose nut)

Model No.	Applicable bore	AB	AH	AL	AQ	AT	LB	ME	R	UA
J120-L	$\phi 20$	42	25	16	24	3.2	$\phi 6.8$	$\phi 22.5$	40	55
	$\phi 25$									
J132-L	$\phi 32$	50	32	25	33	4	$\phi 6.8$	$\phi 24.5$	45	60
J140-L	$\phi 40$	58	36	25	33	4	$\phi 6.8$	$\phi 30.5$	50	65
J150-L	$\phi 50$	70	40	25	40	6	$\phi 9$	$\phi 40.5$	60	80
J163-L	$\phi 63$	77	45	25	40	6	$\phi 9$	$\phi 40.5$	74	95

Flange mount bracket

(Unit : mm)

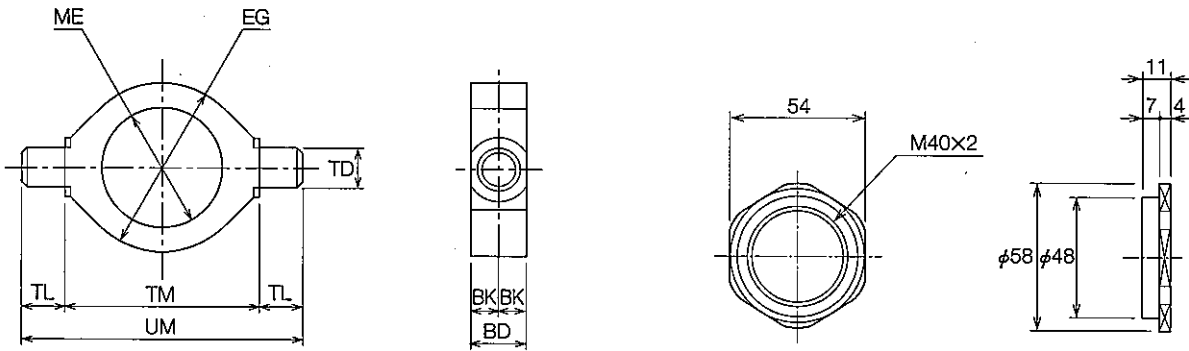


Model No.	Applicable bore	AT	EF	FB	ME	TF	UF	R
J120-A	$\phi 20$	4	38	$\phi 6.6$	$\phi 22$	50	65	—
	$\phi 25$							
J132-A	$\phi 32$	4	47	$\phi 6.6$	$\phi 24$	58	72	33
J140-A	$\phi 40$	4	51	$\phi 6.6$	$\phi 30$	70	84	36
J150-A	$\phi 50$	10	60	$\phi 9$	$\phi 40$	74	94	40
J163-A	$\phi 63$	10	70	$\phi 9$	$\phi 40$	80	100	50

AIR CYLINDER/STANDARD TYPE J1 series

Trunnion mount bracket

(Unit : mm)

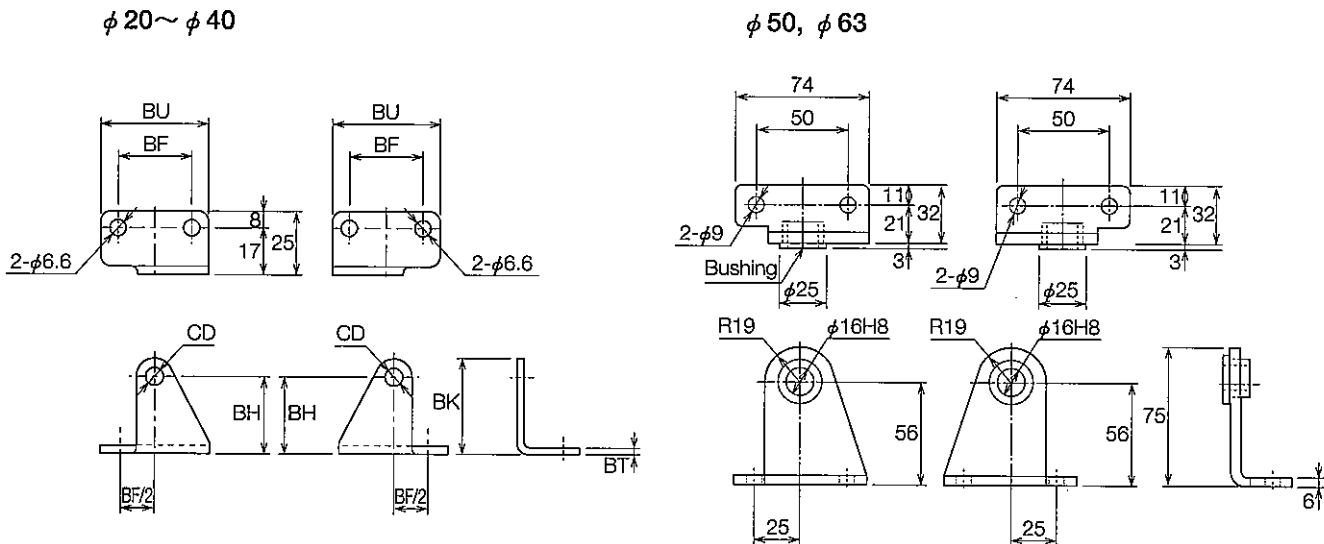


φ 50, φ 63 alone

Model No.	Applicable bore	BD	BK	EG	ME	TD	TM	TL	UM
J120-R	φ 20	10	5	φ 32	φ 22.5	φ 8 ^{e8}	36	8	52
	φ 25								
J132-R	φ 32	12	6	φ 36	φ 24.5	φ 10 ^{e8}	44	10	64
J140-R	φ 40	14	7	φ 44	φ 30.5	φ 12 ^{e8}	50	12	74
J150-R	φ 50	18	9	φ 56	φ 40.5	φ 16 ^{e8}	72	16	104
	φ 63								

Bracket

(Unit : mm)



Model No.		Applicable bore	BF	BH	BK	BT	BU	CD
For C	For R, H							
J120-BA	J120-BC	φ 20	32	32	40	3.2	48	φ 8
		φ 25						
J132-BA	J132-BC	φ 32	36	36	46	4	52	φ 10
J140-BA	J140-BC	φ 40	40	40	52	4	56	φ 12

AIR CYLINDER/STANDARD TYPE J1 series

SPECIAL ROD END SHAPES (Custom-made)

(Unit : mm)

Designation Mark
A10

Bore	MM	WF
φ 20	φ 8	26
φ 25	φ 10	28
φ 32	φ 12	30
φ 40	φ 14	32
φ 50, φ 63	φ 20	32

Designation Mark
A14

Bore	A	KK	MM	WF
φ 20	—	—	—	—
φ 25	20	M 8×1.25	φ 10	28
φ 32	22	M10×1.25	φ 12	30
φ 40	24	M12×1.25	φ 14	32
φ 50, φ 63	26	M14×1.5	φ 20	32

Designation Mark
A16

Bore	A	KK	MM	WF
φ 20	20	M 8×1.25	φ 8	24
φ 25	22	M10×1.25	φ 10	28
φ 32	22	M12×1.25	φ 12	30
φ 40	24	M14×1.5	φ 14	32
φ 50, φ 63	26	M20×1.5	φ 20	32

Designation Mark
A20

Bore	A	AA	d	MM	WF
φ 20	13	5	φ 4	φ 8	29
φ 25	16	6	φ 5	φ 10	34
φ 32	18	7	φ 6	φ 12	38
φ 40	20	8	φ 7	φ 14	42
φ 50, φ 63	30	12	φ 10	φ 20	52

Designation Mark
A27

Bore	A	KK	MM	WF
φ 20	7	M 4×0.7	φ 8	26
φ 25	7	M 5×0.8	φ 10	28
φ 32	9	M 6×1	φ 12	30
φ 40	12	M 8×1.25	φ 14	32
φ 50, φ 63	15	M10×1.5	φ 20	32

Designation Mark
A29

Bore	A	KK	L	MM	WF
φ 20	—	—	—	—	—
φ 25	20	M 8×1.25	5	φ 10	31
φ 32	22	M10×1.25	8	φ 12	38
φ 40	24	M12×1.25	8	φ 14	40
φ 50, φ 63	26	M16×1.5	10	φ 20	45

AIR CYLINDER/STANDARD TYPE J1 series

SPECIAL ROD END SHAPES (Custom-made)

(Unit : mm)

Designation Mark
A30

Bore	A	AA	d	ML	MM	WF
φ 20	13	5	φ 4	5 ⁰ _{-0.1}	φ 8	21
φ 25	16	6	φ 5	6 ⁰ _{-0.1}	φ 10	23
φ 32	18	7	φ 6	7 ⁰ _{-0.1}	φ 12	25
φ 40	20	8	φ 7	8 ⁰ _{-0.1}	φ 14	27
φ 50, φ 63	30	12	φ 10	12 ⁰ _{-0.1}	φ 20	27

Designation Mark
A37

Bore	A	KK	d	L	MM	WF
φ 20	7	M 4×0.7	φ 4	5	φ 8	26
φ 25	7	M 5×0.8	φ 6	5	φ 10	28
φ 32	9	M 6×1	φ 8	7	φ 12	30
φ 40	12	M 8×1.25	φ 10	7	φ 14	32
φ 50, φ 63	12	M10×1.5	φ 12	10	φ 20	32

Designation Mark
G14

Bore	A	KK	MG	WF
φ 20	—	—	—	—
φ 25	20	M 8×1.25	9	28
φ 32	—	—	—	—
φ 40	24	M12×1.25	14	32
φ 50, φ 63	26	M16×1.5	19	32

Designation Mark
G27

Bore	A	KK	MG	WF
φ 20	—	—	—	—
φ 25	7	M 5×0.8	9	28
φ 32	—	—	—	—
φ 40	12	M 8×1.25	14	32
φ 50, φ 63	15	M10×1.5	19	32

Designation Mark
G37

Bore	A	KK	d	L	MG	WF
φ 20	—	—	—	—	—	—
φ 25	7	M 5×0.8	φ 6	5	9	28
φ 32	—	—	—	—	—	—
φ 40	12	M 8×1.25	φ 10	7	14	32
φ 50, φ 63	12	M10×1.5	φ 12	10	19	32

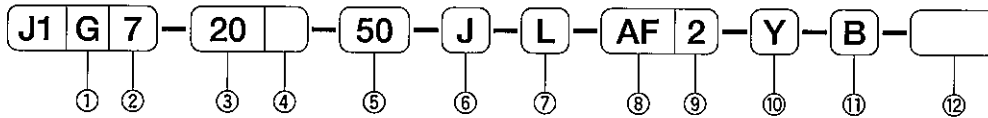
(Note) When ordering other size than standard for asterisked items, consult KURODA beforehand.

AIR CYLINDER/DOUBLE ROD TYPE

J1○7 series

φ 20, φ 25, φ 32, φ 40, φ 50, φ 63

ORDERING INSTRUCTIONS



①Magnet

G	Built-in magnet	Cylinder with switch available
---	-----------------	--------------------------------

②Action

7	Double-acting, double rod
---	---------------------------

③Bore (mm)

20	φ 20
25	φ 25
32	φ 32
40	φ 40
50	φ 50
63	φ 63

④Cushion

No symbol	Damper cushion
B	Both-side air cushion

(Note) φ 20 to φ 40 : Damper cushion
φ 50 and φ 63 : B (both-side air cushion) alone

⑤Stroke (mm)

Refer to Standard Strokes (Page 40).

⑥Dustproof cover

No symbol	No dustproof cover provided (Standard)
J	With bellows (Nylon tarpaulin)
JN	With bellows (Chloroprene)
JK	With bellows (CONEX)
JJ	With bellows on both side (Nylon tarpaulin)
JJN	With bellows on both side (Chloroprene)
JJK	With bellows on both side (CONEX)

CONEX : Registered trademark of Teijin Ltd.

⑦Mounting

N	Nose (Basic type of φ 50, φ 63)
L	Both-foot
LS	Single foot
A	Rod side flange
R	Rod side trunnion

(Note) LS : φ 20, φ 25 alone

Model No. of Packing Kit

Bore (mm)	Packing kit
φ 20	J120-PS
φ 25	J125-PS
φ 32	J132-PS
φ 40	J140-PS
φ 50	J150-PS
φ 63	J163-PS

(Note) Packing kit : Rod packing alone

⑧Type of switch

No symbol	No switch	
AF	AX101	Reed switch
AG	AX105	
AH	AX111	
AJ	AX115	
AE	AX125	
AK	AX11A	DC5~30V
AL	AX11B	AC5~120V
JA	ZC201A	DC5~30V
JB	ZC201B	DC5~28V
JC	ZC205A	DC10~28V
JD	ZC205B	
S	SR405	AC80~220V
BE	AX201	Solid-state switch
BF	AX205	
BH	AX221	
BJ	AX225	
CE	AX211	
CF	AX215	
JJ	ZC230A	
JK	ZC230B	
JL	ZC253A	
JM	ZC253B	

⑨Number of switch

No symbol	No switch
2	With 2 units
1	With 1 unit

⑩Bracket at rod end

No symbol	No bracket
Y	With rod end clevis
I	With rod end eye
YY	With two rod end clevis
II	With two rod end eye

(Note) Y, YY : Provided with pin

⑪Bracket

No symbol	No bracket
B	With bracket

(Note) Models with bracket : C, R and H

⑫Special shape of rod end

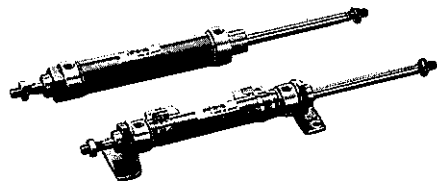
No symbol	Standard
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(Note) Refer to Pages 37 and 38.

Model No. of Mounting Bracket

Bore (mm)	φ 20	φ 25	φ 32	φ 40	φ 50	φ 63
Foot mount bracket	J120-L	J120-L	J132-L	J140-L	J150-L	J163-L
Flange mount bracket	J120-A	J120-A	J132-A	J140-A	J150-A	J163-A
Trunnion mount bracket	J120-R	J120-R	J132-R	J140-R	J150-R	J163-R
Bracket for R	J120-BC	J120-BC	J132-BC	J140-BC	—	—

AIR CYLINDER/DOUBLE ROD TYPE J1○7 series



SPECIFICATIONS

Action	Unit	Double-acting
Fluid		Non-lubricated air
Pressure range	MPa	$\phi 20 \sim \phi 40 : 0.05 \sim 1$ $\phi 50, \phi 63 : 0.02 \sim 1$
Proof pressure	MPa	1.5
Temperature range	°C	-10~70
Piston speed range	mm/s	$\phi 20 \sim \phi 40 : 50 \sim 700$ $\phi 50, \phi 63 : 20 \sim 700$
Cushion		$\phi 20 \sim \phi 40 : \text{Damper cushion}$ $\phi 50, \phi 63 : \text{Air cushion}$
Piston stroke allowance	mm	Below 250mm : $\begin{matrix} +1.0 \\ 0 \end{matrix}$ 251~900mm : $\begin{matrix} +1.4 \\ 0 \end{matrix}$
Mounting		Nose, Both foot, single foot Rod side flange, Rod side trunnion

(Note) • When setting a switch at the intermediate position, set the maximum cylinder speed to less than 300 mm/s by reason of the relation with the response speed of relays etc.

- Use the cylinder within a temperature range where it is not frozen.
- When changing the port position and cushion valve position, consult KURODA beforehand.

STANDARD STROKE

(Unit : mm)

Bore	Standard stroke																Max. stroke
	15	25	30	50	75	100	125	150	175	200	250	300	350	400	450	500	
$\phi 20$	○	○	○	○	○	○	○	○	○	○	—	—	—	—	—	—	900
$\phi 25$	○	○	○	○	○	○	○	○	○	○	○	○	—	—	—	—	900
$\phi 32$	○	○	○	○	○	○	○	○	○	○	○	○	○	○	—	—	900
$\phi 40$	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	900
$\phi 50$	—	○	—	○	○	○	—	○	—	○	○	○	○	○	○	○	900
$\phi 63$	—	○	—	○	○	○	—	○	—	○	○	○	○	○	○	○	900

CYLINDER FORCE (THEORETICAL OUTPUT)

(Unit : N)

Bore (mm)	Rod outside dia. (mm)	Operating pressure (MPa)										
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1	
$\phi 20$	$\phi 8$	26.4	52.8	79.2	106	132	158	185	211	238	264	
$\phi 25$	$\phi 10$	41.2	82.4	124	165	206	247	288	330	371	412	
$\phi 32$	$\phi 12$	69.1	138	207	276	345	414	484	553	622	691	
$\phi 40$	$\phi 14$	110	220	331	441	551	661	771	882	992	1102	
$\phi 50$	$\phi 20$	165	330	495	660	825	990	1155	1319	1484	1649	
$\phi 63$	$\phi 20$	280	561	841	1121	1402	1682	1962	2242	2523	2803	

(Note) Output force of cylinder (Effective output)=Cylinder force (Theoretical output)×0.85

AIR CYLINDER/DOUBLE ROD TYPE J1○7 series

CYLINDER MASS

(Unit : g)

Bore (mm)	Basic mass (Basic type)	Additional mass per stroke of 1 mm	Mounting bracket mass				Rod end bracket mass		Switch mass		
			Foot (2 pcs.)	Flange	Trunnion	Bracket	Eye	Clevis	AX	ZC	SR
φ 20	186	1.25	140	55	55	115	—	55	50	25	271
φ 25	274	1.8	140	55	55	115	—	100			
φ 32	398	2.55	220	90	90	150	—	100			
φ 40	630	3.4	280	110	130	185	—	175			
φ 50	1165	5.73	560	315	335	460	200	340			
φ 63	1530	6.82	705	420	335	460	200	340			

(Note) Switch mass includes the mass of switch fastening band.

[Example of calculation]

J1G2-20-50-L-AF2

$$186+(1.25 \times 50)+140+(50 \times 2)=488.5\text{g}$$

AIR CYLINDER/DOUBLE ROD TYPE J1○7 series

MODEL WITH SWITCH/For detailed specifications, handling precautions and mounting method of switches, refer to Page 80.

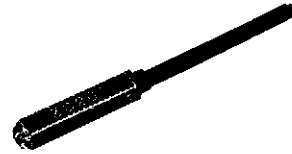
●AX Type Switch

●ZC Type Switch

●SR Type Switch

Cord type

Connector type



LIST OF SWITCHES

Type	Symbol of switch	Load voltage range	Load current range	Max. switching capacity	Protective circuit	Pilot lamp	Connection	Cord length	Applicable load			
Reed switch	AF AX101	DC5~30V	DC: 5~40mA AC: 5~20mA	DC: 1.5W AC: 2VA	Not provided	LED (Red LED lights up at ON.)	0.3 mm ² 2-core, OD ϕ 4 mm Cord direction : Axial	1.5m	Miniature relay PLC			
	AG AX105							5m				
	AH AX111				AC5~120V			Provided		1.5m		
	AJ AX115									5m		
	AE AX125	DC5~50V AC5~120V	5~20mA	2VA	Not provided	Not provided	4-pin connector Cord direction : Axial	5m				
	AK AX11A	AC5~120V						Provided		LED (Red LED lights up at ON.)	0.5m	
	AL AX11B	DC5~30V	5~40mA	1.5W	Not provided	Not provided	0.2 mm ² 2-core, OD ϕ 3 mm Cord direction : Axial	0.5m				
	JA ZC201A	AC85~115V	AC: 2~25mA	—				Not provided		Not provided	1m	
	JB ZC201B	DC5~28V	DC: 0.1~40mA	—	Not provided	LED (Red LED lights up at ON.)	0.2 mm ² 2-core, OD ϕ 3 mm Cord direction : Axial	3m				
	JC ZC205A	DC10~28V	DC: 5~40mA	—				Not provided		LED (Red LED lights up at ON.)	0.5 mm ² 2-core, OD ϕ 6 mm Cord direction : Axial	1m
	JD ZC205B											3m
S SR405	AC80~220V	2~300mA	30VA	Provided	Neon lamp (Red lights up at OFF.)	0.5 mm ² 2-core, OD ϕ 6 mm Cord direction : Axial	5m					
Solid-state switch	BE AX201	DC5~30V	5~40mA	—	Provided	LED (Red LED lights up at ON.)	0.3 mm ² 2-core, OD ϕ 4 mm Cord direction : Axial	1.5m	Miniature relay PLC IC circuit			
	BF AX205							5m				
	CE AX211							LED (Dual light : Red/green)		1.5m		
	CF AX215									5m		
	BH AX221	DC5~30V	Max.200mA NPN open collector output	—	Provided	LED (Red LED lights up at ON.)	0.3 mm ² 3-core, OD ϕ 4 mm Cord direction : Axial	1.5m				
	BJ AX225							5m				
	JJ ZC230A	DC10~28V	5~40mA	—	Provided	LED (Lights up at ON.)	0.2 mm ² 2-core, OD ϕ 3 mm Cord direction : Axial	1m				
	JK ZC230B							3m				
	JL ZC253A	DC4.5~28V	MAX.100mA	—	Provided	LED (Lights up at ON.)	0.2 mm ² 3-core, OD ϕ 3 mm Cord direction : Axial	1m				
	JM ZC253B							3m				

(Note) •When using inductive load (relay etc.) in a switch without a protective circuit, be sure to fit a protective circuit (SK-100) to the load.
•AX type switch can be mounted on other type than above-mentioned. Refer to Specifications for Switches at the end of this catalog.

MINIMUM STROKE FOR AIR CYLINDER WITH SWITCH

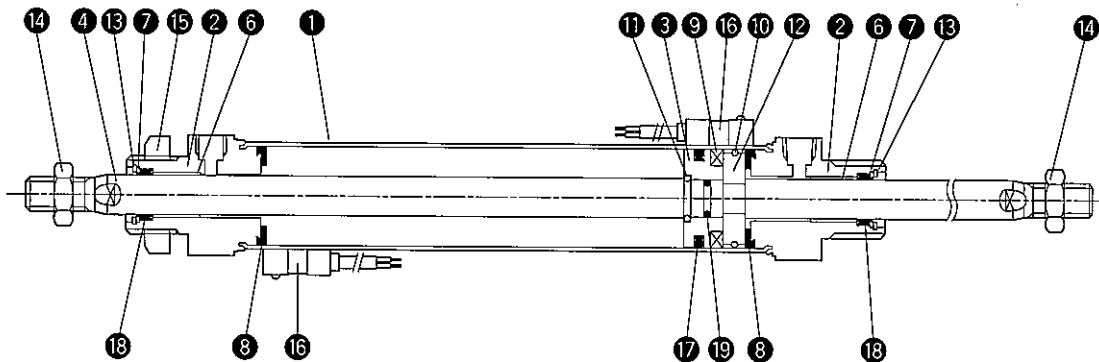
(Unit : mm)

Bore	Number of mounted switch										
	With 1 unit						With 2 units				
	Reed switch				Solid-state switch		Reed switch			Solid-state switch	
	AX	ZC201	ZC205	SR	AX	ZC	AX	ZC	SR	AX	ZC
ϕ 20, ϕ 25	10	10	15	15	10	10	15	15	35	20	10
ϕ 32~ ϕ 63				10							

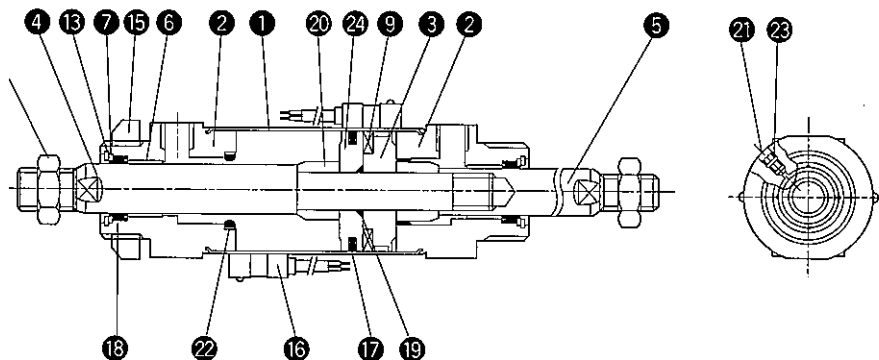
AIR CYLINDER/DOUBLE ROD TYPE J1○7 series

CONSTRUCTIONS AND PARTS LIST

φ 20 ~ φ 40



φ 50, φ 63



No.	Description	Material
1	Cylinder tube	Stainless steel
2	Rod cover	Aluminium alloy
3	Piston	Aluminium alloy
4	Piston rod A	φ 20~32 : Stainless steel (Hard chromium plating) φ 40~63 : Carbon steel for machine structure (Hard chromium plating)
5	Piston rod B	Carbon steel for machine structure (Hard chromium plating)
6	Bushing	Sintered oil-impregnated bearing
7	Rod packing hold-down plate	Cold rolled steel
8	Cushion pad	Urethane rubber
9	Magnet	—
10	Stopper ring	Stainless steel
11	Stopper	Stainless steel
12	Split ring	Stainless steel
13	Snap ring	Spring steel
14	Rod end nut	Rolled steel for general structure
15	Nose nut	Rolled steel for general structure
16	Switch	—
17	Piston packing	Nitril rubber
18	Rod packing	Nitril rubber
19	O-ring for piston rod	Nitril rubber
20	Cushion ring	Carbon steel for machine structure
21	Cushion valve	Carbon steel for machine structure
22	Cushion packing	Metal ring + Nitril rubber
23	O-ring for cushion valve	Nitril rubber
24	Packing housing	Aluminium alloy

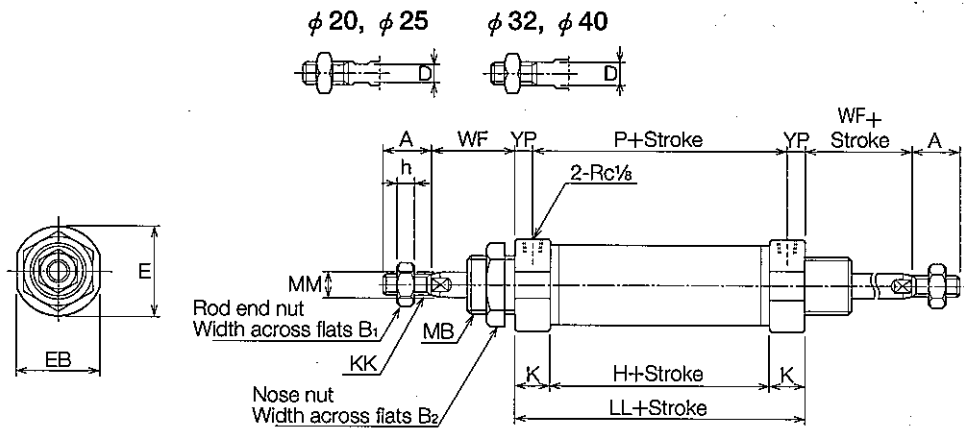
(Note) This cylinder cannot be disassembled. rod packing alone can be changed.

AIR CYLINDER/DOUBLE ROD TYPE J1○7 series

DIMENSIONS

Double-acting

$\phi 20 \sim \phi 40$

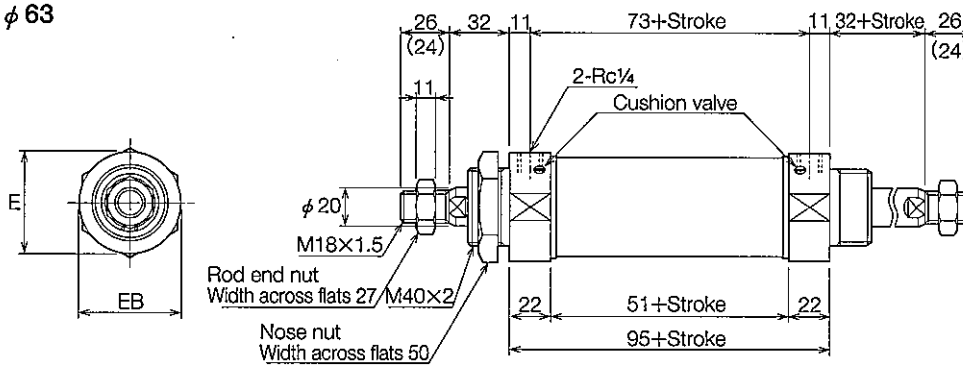


● For other sizes than mentioned in this drawing, refer to nose mounting/N (Basic type).

Bore	A	B1	B2	D	E	EB	H	h	K	KK	LL	MB	MM	P	WF	YP
$\phi 20$	20 (20)	13	30	6	$\phi 28$	26	31	5	14	M 8×1.25	59	M22×1.5	$\phi 8$	45	24	7
$\phi 25$	22 (22)	17	30	8	$\phi 31$	29	35	6	14.5	M10×1.5	64	M22×1.5	$\phi 10$	49	28	7.5
$\phi 32$	22 (22)	19	32	10	$\phi 38$	36	40	7	15	M12×1.25	70	M24×2	$\phi 12$	55	30	7.5
$\phi 40$	24 (24)	22	41	12	$\phi 46$	44	42	8	15	M14×1.5	72	M30×2	$\phi 14$	57	32	7.5

(Note) Bracketed figures in size A columns are thread lengths.

$\phi 50, \phi 63$



(Note) Bracketed figures in columns are thread lengths.

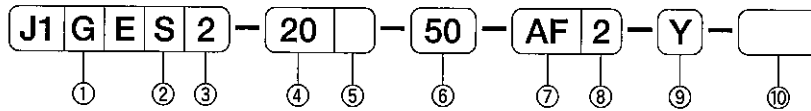
Bore	E	EB
$\phi 50$	$\phi 56$	54
$\phi 63$	$\phi 70$	68

COVER MOUNT CYLINDER

J1 ○ E series

φ 20, φ 25, φ 32, φ 40, φ 50, φ 63

ORDERING INSTRUCTIONS



① Magnet

G	Built-in magnet	Cylinder with switch available
---	-----------------	--------------------------------

② Mounting

S	Bottom mounting
F	Front mounting

③ Action

2	Double-acting, single rod
1	Single-acting, single rod (Spring return)
0	Single-acting, single rod (Spring extend)
7	Double-acting, double rod

④ Bore (mm)

20	φ 20
25	φ 25
32	φ 32
40	φ 40
50	φ 50
63	φ 63

⑤ Cushion

No symbol	Damper cushion
B	Both-side air cushion

(Note) φ 20 to φ 40 : Damper cushion
φ 50 and φ 63 : B (both-side air cushion) alone

⑥ Stroke (mm)

Refer to Standard Strokes (Page 46).

⑦ Type of switch

No symbol	No switch		
AF	AX101		
AG	AX105	DC5~30V	
AH	AX111	AC5~120V	
AJ	AX115		
AE	AX125	DC5~50V AC5~120V	
AK	AX11A	DC5~30V	
AL	AX11B	DC5~30V	Solid-state switch
JA	ZC201A	AC85~115V	
JB	ZC201B	DC5~28V	
JC	ZC205A	DC10~28V	
JD	ZC205B		
S	SR405	AC80~220V	
BE	AX201	DC5~30V	
BF	AX205		
BH	AX221		
BJ	AX225		
CE	AX211	DC10~28V	
CF	AX215		
JJ	ZC230A	DC10~30V	
JK	ZC230B		
JL	ZC253A		
JM	ZC253B		

⑧ Number of switch

No symbol	No switch
2	With 2 units
1	With 1 unit

⑨ Bracket at rod end

No symbol	No bracket
Y	With rod end clevis
I	With rod end eye
YY	With two rod end clevis
II	With two rod end eye

(Note) Y, YY : Provided with pin

⑩ Special shape of rod end

No symbol	Standard
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(Note) Refer to Pages 37 and 38.

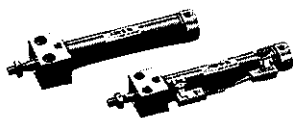
Model No. of Packing Kit

Bore (mm)	Packing kit
φ 20	J120-PS
φ 25	J125-PS
φ 32	J132-PS
φ 40	J140-PS
φ 50	J150-PS
φ 63	J163-PS

(Note) Packing kit : Rod packing alone

COVER MOUNT CYLINDER J1○E series

SPECIFICATIONS



Action	Unit	Double-acting, single rod	Double-acting, double rod	Single-acting
Fluid		Non-lubricated air		
Pressure range	MPa	$\phi 20 \sim \phi 40 : 0.05 \sim 1$ $\phi 50 \sim \phi 63 : 0.02 \sim 1$		0.15~1
Proof pressure	MPa	1.5		
Temperature range	°C	-10~70		
Piston speed range	mm/s	20~700	$\phi 20 \sim \phi 40 : 50 \sim 700$ $\phi 50 \sim \phi 63 : 20 \sim 700$	50~700
Cushion		$\phi 20 \sim \phi 40$: Damper cushion $\phi 50 \sim \phi 63$: Air cushion		
Piston stroke allowance	mm	Below 250mm : $^{+1.0}_0$ 251~900mm : $^{+1.4}_0$		
Mounting		Bottom mounting, Front mounting		

(Note) •When setting a switch at the intermediate position, set the maximum cylinder speed to less than 300 mm/s by reason of the relation with the response speed of relays etc.

•Use the cylinder within a temperature range where it is not frozen.

•When changing the port position and cushion valve position, consult KURODA beforehand.

STANDARD STROKE

(Unit : mm)

Action	Bore	Standard stroke															Max. stroke	
		15	25	30	50	75	100	125	150	175	200	250	300	350	400	450		500
Double-acting	$\phi 20$	○	○	○	○	○	○	○	○	○	○	—	—	—	—	—	—	900 (450)
	$\phi 25$	○	○	○	○	○	○	○	○	○	○	○	○	—	—	—	—	900 (450)
	$\phi 32$	○	○	○	○	○	○	○	○	○	○	○	○	○	○	—	—	900 (450)
	$\phi 40$	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	900 (450)
	$\phi 50$	—	○	—	○	○	○	—	○	—	○	○	○	○	○	○	○	900 (450)
	$\phi 63$	—	○	—	○	○	○	—	○	—	○	○	○	○	○	○	○	900 (450)
Single-acting	$\phi 20$	—	○	—	○	○	○	○	○	—	—	—	—	—	—	—	—	150
	$\phi 25$	—	○	—	○	○	○	○	○	○	—	—	—	—	—	—	—	200
	$\phi 32$	—	○	—	○	○	○	○	○	○	—	—	—	—	—	—	—	200
	$\phi 40$	—	○	—	○	○	○	○	○	○	—	—	—	—	—	—	—	200

(Note) () : Double-acting, double rod

CYLINDER FORCE (THEORETICAL OUTPUT)

(Unit : N)

Bore (mm)	Rod outside dia. (mm)	Direction of rod	Operating pressure (MPa)									
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
$\phi 20$	$\phi 8$	Out stroke	31.4	62.8	94.2	126	157	188	220	251	283	314
		In stroke	26.4	52.8	79.2	106	132	158	185	211	238	264
$\phi 25$	$\phi 10$	Out stroke	49.1	98.2	147	196	245	295	344	393	442	491
		In stroke	41.2	82.4	124	165	206	247	288	330	371	412
$\phi 32$	$\phi 12$	Out stroke	80.4	161	241	322	402	483	563	643	724	804
		In stroke	69.1	138	207	276	345	414	484	553	622	691
$\phi 40$	$\phi 14$	Out stroke	126	251	377	503	628	754	880	1005	1131	1257
		In stroke	110	220	331	441	551	661	771	882	992	1102
$\phi 50$	$\phi 20$	Out stroke	196	393	589	785	982	1178	1374	1571	1767	1963
		In stroke	165	330	495	660	825	990	1155	1319	1484	1649
$\phi 63$	$\phi 20$	Out stroke	312	623	935	1247	1559	1870	2182	2494	2806	3117
		In stroke	280	561	841	1121	1402	1682	1962	2242	2523	2803

(Note) Output force of double-acting cylinder (Effective output)=Cylinder force (Theoretical output)×0.85

Output force of single-acting cylinder (Effective output)=Cylinder force (Theoretical output)×0.85—Spring tensile strength

COVER MOUNT CYLINDER J1○E series

SPRING TENSILE STRENGTH

(Unit : N)

Bore (mm)	Load	Stroke (mm)			
		15	25	30	50~200
φ 20	At stroke 0	20.6	12.9	20.6	12.9
	At max. stroke	32.2			
φ 25	At stroke 0	32.5	20.4	32.5	20.4
	At max. stroke	50.7			
φ 32	At stroke 0	51.3	32.3	51.3	32.3
	At max. stroke	79.9			
φ 40	At stroke 0	80.4	50.6	80.4	50.6
	At max. strok	125.2			

COVER MOUNT CYLINDER J1○E series

MODEL WITH SWITCH/For detailed specifications, handling precautions and mounting method of switches, refer to Page 80.

•AX Type Switch

•ZC Type Switch

•SR Type Switch

Cord type

Connector type



LIST OF SWITCHES

Type	Symbol of switch	Load voltage range	Load current range	Max. switching capacity	Protective circuit	Pilot lamp	Connection	Cord length	Applicable load
Reed switch	[AF] AX101	DC5~30V AC5~120V	DC: 5~40mA AC: 5~20mA	DC: 1.5W AC: 2VA	Not provided	LED (Red LED lights up at ON.)	0.3 mm ² 2-core, OD ϕ 4 mm Cord direction : Axial	1.5m	Miniature relay PLC
	[AG] AX105							5m	
	[AH] AX111				5m				
	[AJ] AX115								
	[AE] AX125	DC5~50V AC5~120V	5~20mA	2VA	Provided	LED (Red LED lights up at ON.)	4-pin connector Cord direction : Axial	5m	
	[AK] AX11A	DC5~120V						5~40mA	
	[AL] AX11B	DC5~30V	5~40mA	1.5W	Provided	LED (Red LED lights up at ON.)	4-pin connector Cord direction : Axial	0.5m	
	[JA] ZC201A	AC85~115V	AC: 2~25mA	—	Not provided	Not provided	0.2 mm ² 2-core, OD ϕ 3 mm Cord direction : Axial	1m	
	[JB] ZC201B	DC5~28V	DC: 0.1~40mA	—				3m	
	[JC] ZC205A	DC10~28V	DC: 5~40mA	—	Not provided	LED (Red LED lights up at ON.)	0.5 mm ² 2-core, OD ϕ 6 mm Cord direction : Axial	1m	
[JD] ZC205B	3m								
[S] SR405	AC80~220V	2~300mA	30VA	Provided	Neon lamp (Red lights up at OFF.)	0.5 mm ² 2-core, OD ϕ 6 mm Cord direction : Axial	5m		
Solid-state switch	[BE] AX201	DC5~30V	5~40mA	—	Provided	LED (Red LED lights up at ON.) LED (Dual light : Red/green)	0.3 mm ² 2-core, OD ϕ 4 mm Cord direction : Axial	1.5m	Miniature relay PLC IC circuit
	[BF] AX205							5m	
	[CE] AX211							1.5m	
	[CF] AX215								
	[BH] AX221	DC5~30V	Max.200mA NPN open collector output	—	Provided	LED (Red LED lights up at ON.)	0.3 mm ² 3-core, OD ϕ 4 mm Cord direction : Axial	1.5m	
	[BJ] AX225							5m	
	[JJ] ZC230A	DC10~28V	5~40mA	—	Provided	LED (Lights up at ON.)	0.2 mm ² 2-core, OD ϕ 3 mm Cord direction : Axial	1m	
	[JK] ZC230B							3m	
	[JL] ZC253A	DC4.5~28V	MAX.100mA	—	Provided	LED (Lights up at ON.)	0.2 mm ² 3-core, OD ϕ 3 mm Cord direction : Axial	1m	
	[JM] ZC253B							3m	

(Note) •When using inductive load (relay etc.) in a switch without a protective circuit, be sure to fit a protective circuit (SK-100) to the load.
•AX type switch can be mounted on other type than above-mentioned. Refer to Specifications for Switches at the end of this catalog.

MINIMUM STROKE FOR AIR CYLINDER WITH SWITCH

(Unit : mm)

Bore	Number of mounted switch										
	With 1 units					With 2 units					
	Reed switch				Solid-state switch		Reed switch			Solid-state switch	
	AX	ZC201	ZC205	SR	AX	ZC	AX	ZC	SR	AX	ZC
ϕ 20, ϕ 25	10	10	15	15	10	10	15	15	35	20	10
ϕ 32~ ϕ 63				10							

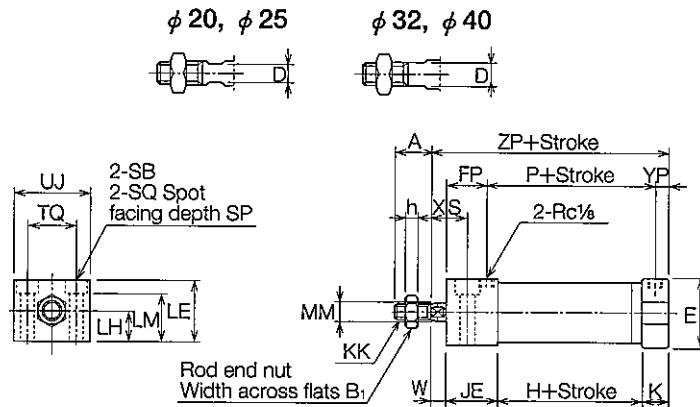
COVER MOUNT CYLINDER J1○E series

DIMENSIONS

Double-acting, single rod Bottom mounting/S

(Unit : mm)

$\phi 20 \sim \phi 40$

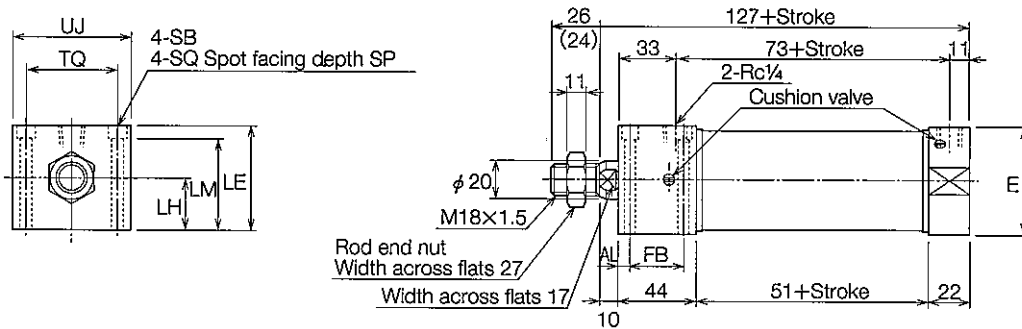


Bore	A	B1	D	E	FP	H	h	JE	K	KK	LE	LH	LM	MM	P	SB	SP	SQ
$\phi 20$	20 (20)	13	6	$\phi 28$	23	31	5	30	14	M 8×1.25	28	14	21.5	$\phi 8$	45	$\phi 6.6$	6.5	$\phi 11$
$\phi 25$	22 (22)	17	8	$\phi 31$	25.5	35	6	32.5	14.5	M10×1.5	34	17	27.5	$\phi 10$	49	$\phi 6.6$	6.5	$\phi 11$
$\phi 32$	22 (22)	19	10	$\phi 38$	28	40	7	35	15	M12×1.25	40	20	31.4	$\phi 12$	54.5	$\phi 9$	8.6	$\phi 14$
$\phi 40$	24 (24)	22	12	$\phi 46$	30	42	8	37	15	M14×1.5	48	24	37.2	$\phi 14$	56.5	$\phi 11$	11	$\phi 17.5$

Bore	TQ	UJ	W	XS	YP	ZP
$\phi 20$	20	34	8	18	7	83
$\phi 25$	24	38	10	20	7.5	92
$\phi 32$	30	46	10	22	7.5	100
$\phi 40$	36	56	10	22	7.5	104

(Note) Bracketed figures in size A columns are thread lengths.

$\phi 50, \phi 63$



(Note) Bracketed figures in columns are thread lengths.

Bore	AL	E	FB	LE	LH	LM	SB	SP	SQ	TQ	UJ
$\phi 50$	7	$\phi 56$	30	56	28	49.5	$\phi 6.6$	6.5	$\phi 11$	50	64
$\phi 63$	9	$\phi 70$	27	70	35	61.4	$\phi 9$	8.6	$\phi 14$	56	74

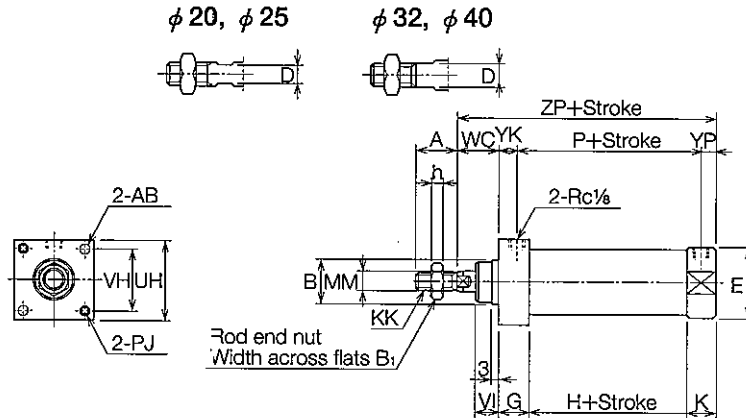
COVER MOUNT CYLINDER J1○E series

DIMENSIONS

Double-acting, single rod Front mounting/F

(Unit : mm)

$\phi 20 \sim \phi 40$

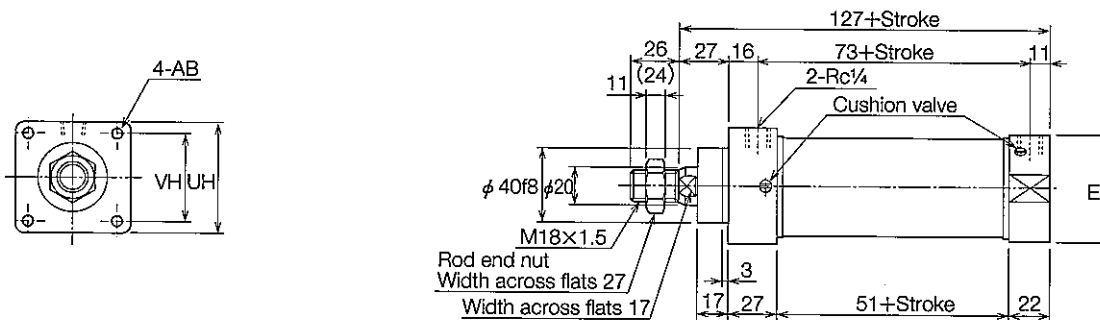


Bore	A	AB	B	B1	D	E	G	H	h	K	KK	MM	P	PJ	UH	VI	VH	WC
$\phi 20$	20 (20)	$\phi 5.5$	$\phi 20f8$	13	6	$\phi 28$	20	31	5	14	M 8×1.25	$\phi 8$	45	M5×0.8	□34	10	□24	18
$\phi 25$	22 (22)	$\phi 5.5$	$\phi 22f8$	17	8	$\phi 31$	22.5	35	6	14.5	M10×1.5	$\phi 10$	49	M5×0.8	□38	10	□28	20
$\phi 32$	22 (22)	$\phi 6.6$	$\phi 24f8$	19	10	$\phi 38$	23	40	7	15	M12×1.25	$\phi 12$	54.5	M6×1	□46	12	□36	22
$\phi 40$	24 (24)	$\phi 9$	$\phi 28f8$	22	12	$\phi 46$	25	42	8	15	M14×1.5	$\phi 14$	56.5	M8×1.25	□56	12	□42	22

Bore	YK	YP	ZP
$\phi 20$	13	7	83
$\phi 25$	15.5	7.5	92
$\phi 32$	16	7.5	100
$\phi 40$	18	7.5	104

(Note) Bracketed figures in size A columns are thread lengths.

$\phi 50, \phi 63$



(Note) Bracketed figures in columns are thread lengths.

Bore	AB	E	VH	UH
$\phi 50$	$\phi 6.6$	$\phi 56$	□48	□62
$\phi 63$	$\phi 9$	$\phi 70$	□58	□74

COVER MOUNT CYLINDER J1○E series

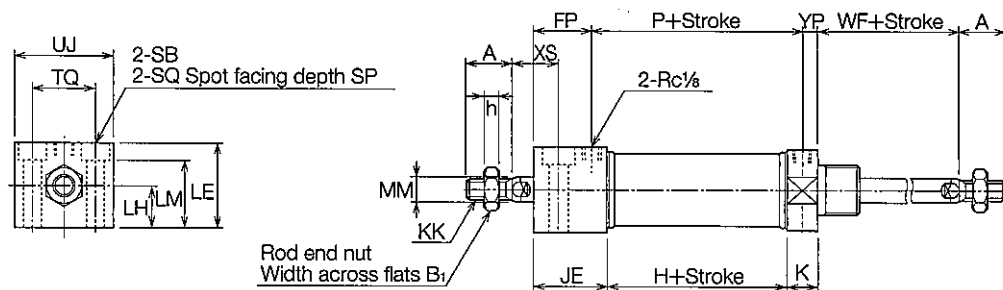
DIMENSIONS

Double-acting, double rod Bottom mounting/S and Single-acting Bottom mounting/S

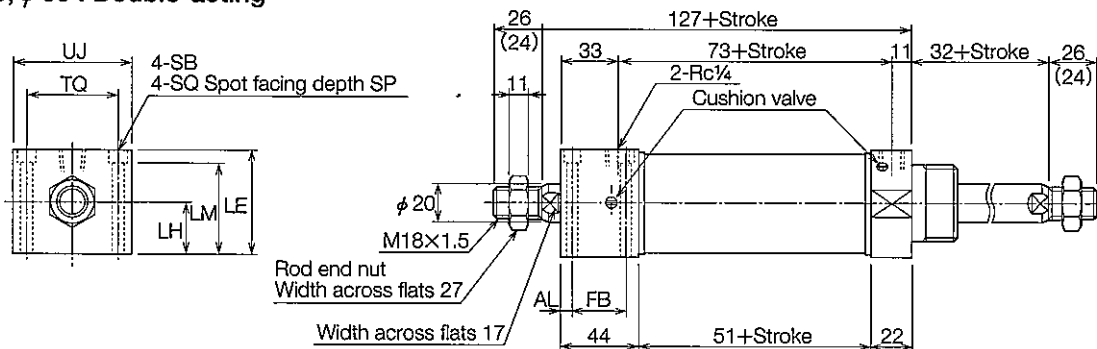
(Unit : mm)

φ 20~ φ 40 : Double-acting

● For other sizes than mentioned in this drawing, refer to Basic type.



φ 50, φ 63 : Double-acting

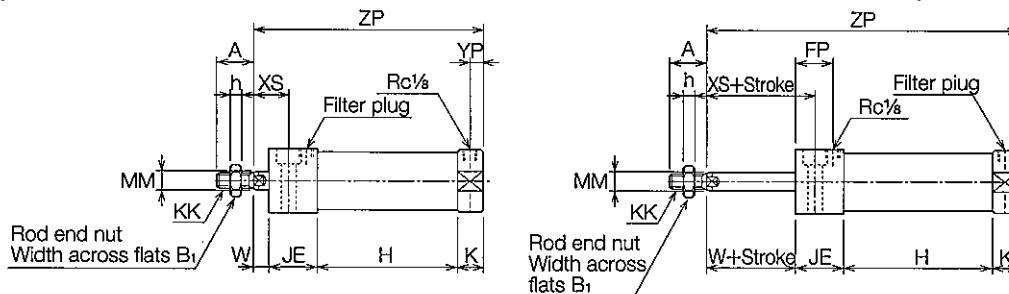


(Note) Bracketed figures in columns are thread lengths.

φ 20~ φ 40

Single-acting, spring return

Single-acting, spring extend



Bore	A	B1	E	FP	h	JE	K	KK	LE	LH	LM	MM	P	SB	SP	SQ	TQ	UJ	XS
φ 20	20 (20)	13	φ 28	23	5	30	14	M 8×1.25	28	14	21.5	φ 8	45	φ 6.6	6.5	φ 11	20	34	18
φ 25	22 (22)	17	φ 31	25.5	6	32.5	14.5	M10×1.5	34	17	27.5	φ 10	49	φ 6.6	6.5	φ 11	24	38	20
φ 32	22 (22)	19	φ 38	28	7	35	15	M12×1.25	40	20	31.4	φ 12	54.5	φ 9	8.6	φ 14	30	46	22
φ 40	24 (24)	22	φ 46	30	8	37	15	M14×1.5	48	24	37.2	φ 14	56.5	φ 11	11	φ 17.5	36	56	22

Bore	AL	E	FB	LE	LH	LM	SB	SP	SQ	TQ	UJ
φ 50	7	φ 56	30	56	28	49.5	φ 6.6	6.5	φ 11	50	64
φ 63	9	φ 70	27	70	35	61.4	φ 9	8.6	φ 14	56	74

Bore	W	WF	YP
φ 20	8	24	7
φ 25	10	28	7.5
φ 32	10	30	7.5
φ 40	10	32	7.5

Bore	H							ZP											
	Double rod	15st	25st	30st	50st	75st	100st	15st		25st		30st		50st		75st		100st	
		Single-acting							Return	Extend	Return	Extend	Return	Extend	Return	Extend	Return	Extend	Return
φ 20	31	71	81	111	131	181	231	123	138	133	158	163	193	183	233	233	308	283	383
φ 25	35	75	85	115	135	185	235	132	147	142	167	172	202	192	242	242	317	292	392
φ 32	40	80	90	120	140	190	240	140	155	150	175	180	210	200	250	250	325	300	400
φ 40	42	82	92	122	142	192	242	144	159	154	179	184	214	204	254	254	329	304	404

(Note) Bracketed figures in size A columns are thread lengths.

COVER MOUNT CYLINDER J1○E series

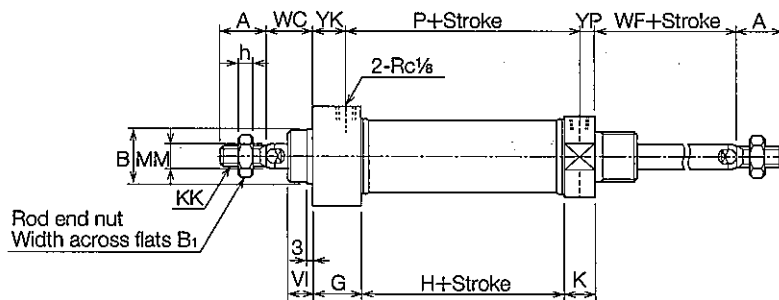
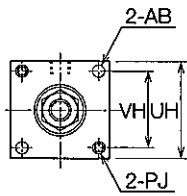
DIMENSIONS

Double-acting, double rod Front mounting/F and Single-acting Front mounting/F

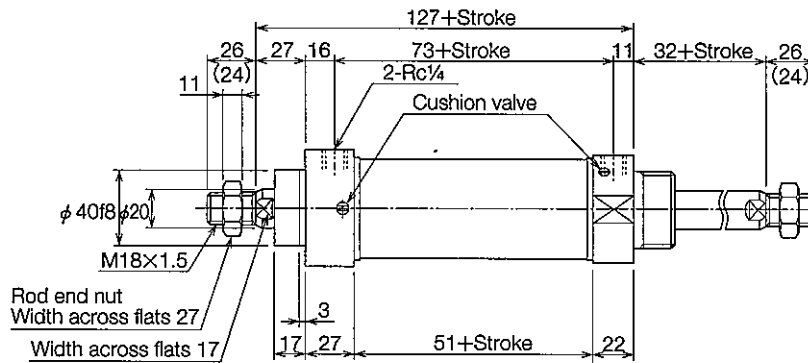
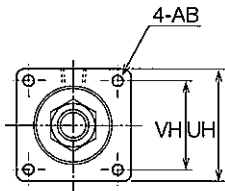
(Unit : mm)

●For other sizes than mentioned in this drawing, refer to Basic type.

φ 20 ~ φ 40 : Double-acting



φ 50, φ 63 : Double-acting

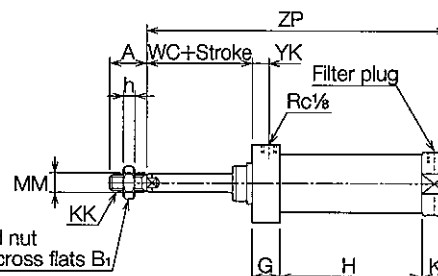
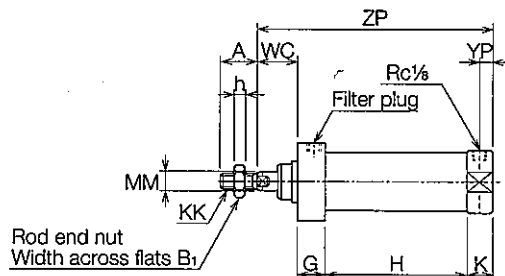


(Note) Bracketed figures in columns are thread lengths.

φ 20 ~ φ 40

Single-acting, spring return

Single-acting, spring extend



Bore	A	AB	B	B1	E	G	h	K	KK	MM	P	PJ	UH	VH	VI
φ 20	20 (20)	φ 5.5	φ 20 ^{f8}	13	φ 28	20	5	14	M 8×1.25	φ 8	45	M5×0.8	□34	□24	10
φ 25	22 (22)	φ 5.5	φ 22 ^{f8}	17	φ 31	22.5	6	14.5	M10×1.5	φ 10	49	M5×0.8	□38	□28	10
φ 32	22 (22)	φ 6.6	φ 24 ^{f8}	19	φ 38	23	7	15	M12×1.25	φ 12	54.5	M6×1	□46	□36	12
φ 40	24 (24)	φ 9	φ 28 ^{f8}	22	φ 46	25	8	15	M14×1.5	φ 14	56.5	M8×1.25	□56	□42	12

Bore	AB	E	VH	UH
φ 50	φ 6.6	φ 56	□48	□62
φ 63	φ 9	φ 70	□58	□74

Bore	WC	WF	YK	YP
φ 20	18	24	13	7
φ 25	20	28	15.5	7.5
φ 32	22	30	16	7.5
φ 40	22	32	18	7.5

Bore	H							ZP											
	Double rod	15st	25st	30st	50st	75st	100st	15st		25st		30st		50st		75st		100st	
		Single-acting							Return	Extend	Return	Extend	Return	Extend	Return	Extend	Return	Extend	Return
φ 20	31	71	81	111	131	181	231	123	138	133	158	163	193	183	233	233	308	283	383
φ 25	35	75	85	115	135	185	235	132	147	142	167	172	202	192	242	242	317	292	392
φ 32	40	80	90	120	140	190	240	140	155	150	175	180	210	200	250	250	325	300	400
φ 40	42	82	92	122	142	192	242	144	159	154	179	184	214	204	254	254	329	304	404

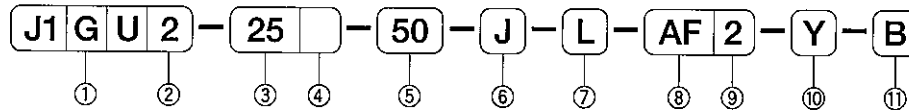
(Note) Bracketed figures in size A columns are thread lengths.

AIR CYLINDER/NON-ROTATING PISTON ROD TYPE

J1○U series

φ 25, φ 40, φ 50, φ 63

ORDERING INSTRUCTIONS



①Magnet

G	Built-in magnet	Cylinder with switch available
---	-----------------	--------------------------------

②Action

2	Double-acting, single rod
1	Single-acting, single rod (Spring return)
0	Single-acting, single rod (Spring extend)
7	Double-acting, double rod

③Bore (mm)

25	φ 25
40	φ 40
50	φ 50
63	φ 63

(Note) φ 50 and φ 63 is double-acting alone.

④Cushion

No symbol	Damper cushion
B	Both-side air cushion

(Note) Damper cushion is standard.

⑤Stroke (mm)

Refer to Standard Strokes (Page 54).

⑥Dustproof cover

No symbol	No dustproof cover provided (Standard)
J	With bellows (Nylon tarpaulin)
JN	With bellows (Chloroprene)
JK	With bellows (CONEX)

CONEX : Registered trademark of Teijin Ltd.

⑦Mounting

N	Basic type
L	Both-foot
LS	Single foot
A	Rod side flange
R	Rod side trunnion

(Note) LS : φ 20, φ 25 alone

Model No. of Mounting Bracket

Bore (mm)	φ 25	φ 40	φ 50	φ 63
Foot mount bracket	J120-L	J140-L	J150-L	J163-L
Flange mount bracket	J120-A	J140-A	J150-A	J163-A
Trunnion mount bracket	J120-R	J140-R	J150-R	J163-R
Bracket for R	J120-BC	J140-BC	—	—

⑧Type of switch

No symbol	No switch		
AF	AX101	Reed switch	
AG	AX105		
AH	AX111		
AJ	AX115		
AE	AX125	DC5~30V	Solid-state switch
AK	AX11A	AC5~120V	
AL	AX11B	DC5~30V	
JA	ZC201A	DC5~50V AC5~120V	
JB	ZC201B	AC5~120V	
JC	ZC205A	DC10~28V	
JD	ZC205B	DC10~28V	
S	SR405	AC80~220V	
BE	AX201	DC5~30V	
BF	AX205		
BH	AX221		
BJ	AX225		
CE	AX211	DC10~28V	
CF	AX215		
JJ	ZC230A		
JK	ZC230B		
JL	ZC253A	DC10~30V	
JM	ZC253B		

⑨Number of switch

No symbol	No switch
2	With 2 units
1	With 1 unit

⑩Bracket at rod end

No symbol	No bracket
Y	With rod end clevis
I	With rod end eye

(Note) Y : Provided with pin

⑪Bracket

No symbol	No bracket
B	With bracket

(Note) Models with bracket : R

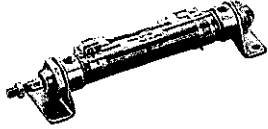
Model No. of Packing Kit

Bore (mm)	Packing kit
φ 25	J1U25-PS
φ 40	J1U40-PS
φ 50	J1U50-PS
φ 63	J1U63-PS

(Note) Packing kit : Rod packing alone

AIR CYLINDER/NON-ROTATING PISTON ROD TYPE J1○U series

SPECIFICATIONS



Action	Unit	Double-acting, single rod	Double-acting, double rod	Single-acting
Fluid		Non-lubricated air		
Pressure range	MPa	$\phi 25, \phi 40 : 0.1 \sim 1$ $\phi 50, \phi 63 : 0.05 \sim 1$		0.15~1
Proof pressure	MPa	1.5		
Temperature range	°C	-10~70		
Piston speed range	mm/s	50~700	50~700	50~700
Cushion		$\phi 25, \phi 40$: Damper cushion $\phi 50, \phi 63$: Air cushion		
Piston stroke allowance	mm	Below 250mm : $\begin{matrix} +1.0 \\ 0 \end{matrix}$ 251~900mm : $\begin{matrix} +1.4 \\ 0 \end{matrix}$		
Mounting		Basic type, Both-foot, Single-foot, Rod side flange, Rod side trunnion		

- (Note) •When setting a switch at the intermediate position, set the maximum cylinder speed to less than 300 mm/s by reason of the relation with the response speed of relays etc.
 •Use the cylinder within a temperature range where it is not frozen.
 •When changing the port position and cushion valve position, consult KURODA beforehand.

STANDARD STROKE

(Unit : mm)

Action	Bore	Standard stroke															Max. stroke	
		15	25	30	50	75	100	125	150	175	200	250	300	350	400	450		500
Double-acting, single rod	$\phi 25$	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	500
	$\phi 40$	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	500
	$\phi 50$	—	○	—	○	○	○	—	○	—	○	○	○	○	○	○	○	500
	$\phi 63$	—	○	—	○	○	○	—	○	—	○	○	○	○	○	○	○	500
Double-acting, Double rod	$\phi 25$	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	450
	$\phi 40$	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	450
	$\phi 50$	—	○	—	○	○	○	—	○	—	○	○	○	○	○	○	○	450
	$\phi 63$	—	○	—	○	○	○	—	○	—	○	○	○	○	○	○	○	450
Single-acting	$\phi 25$	—	○	—	○	○	○	○	○	○	○	○	○	○	○	○	○	200
	$\phi 40$	—	○	—	○	○	○	○	○	○	○	○	○	○	○	○	○	200

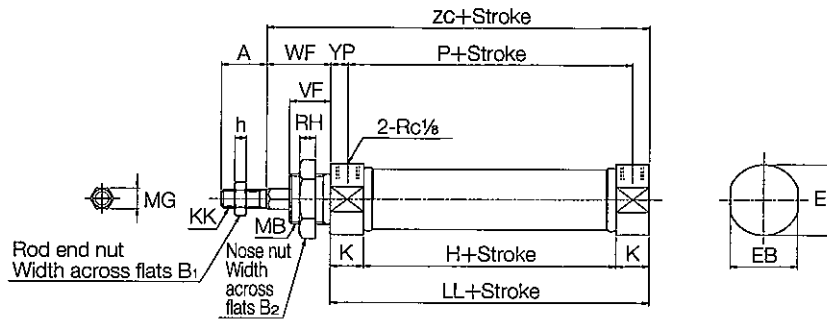
AIR CYLINDER/NON-ROTATING PISTON ROD TYPE J1○U series

DIMENSIONS

Double-acting

(Unit : mm)

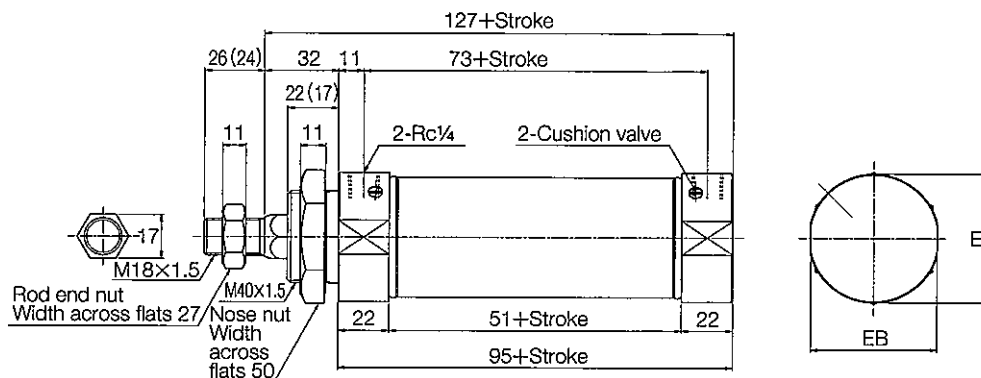
$\phi 25, \phi 40$



Bore	A	B1	B2	E	EB	H	h	K	KK	LL	MB	MG	P	RH	VF	WF	YP	ZC
$\phi 25$	20 (17)	17	30	$\phi 31$	29	35	6	14.5	M10×1.5	64	M22×1.5	9	49	7	18 (15)	28	7.5	114
$\phi 40$	24 (24)	22	41	$\phi 46$	44	42	8	15	M14×1.5	72	M30×2	14	57	9	22 (18)	32	7.5	132

(Note) Bracketed figures in size A columns are thread lengths.

$\phi 50, \phi 63$



(Note) Bracketed figures in columns are thread lengths.

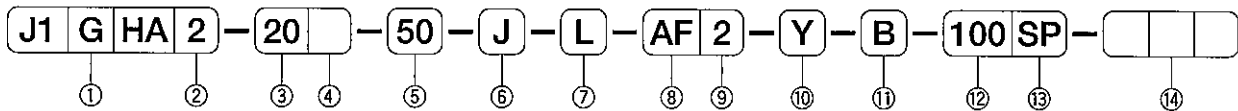
Bore	E	EB
$\phi 50$	$\phi 56$	54
$\phi 63$	$\phi 70$	68

HI-PAL CYLINDER/WITH SOLENOID VALVE

J1○HA series

φ 20, φ 25, φ 32, φ 40

ORDERING INSTRUCTIONS



① Magnet

G	Built-in magnet	Cylinder with switch available
---	-----------------	--------------------------------

② Action

2	Double-acting, single rod Rod extends at power on.
4	Double-acting, single rod Rod retracts at power on.

③ Bore (mm)

20	φ 20
25	φ 25
32	φ 32
40	φ 40

④ Cushion

No symbol	Damper cushion (Standard)
B	Both-side air cushion

⑤ Stroke (mm)

Refer to Standard Strokes (Page 65).

⑥ Dustproof cover

No symbol	No dustproof cover provided (Standard)
J	With bellows (Nylon tarpaulin)
JN	With bellows (Chloroprene)
JK	With bellows (CONEX)

CONEX : Registered trademark of Teijin Ltd.

⑦ Mounting

N	Nose (Basic type)
L	Both-foot
A	Rod side flange
R	Rod side trunnion

⑧ Type of switch

No symbol	No switch			
AF	AX101	DC5~30V AC5~120V		
AG	AX105			
AH	AX111			
AJ	AX115			
AE	AX125	DC5~50V AC5~120V	Reed switch	
AK	AX11A	AC5~120V		
AL	AX11B	DC5~30V		
JA	ZC201A	AC85~115V		
JB	ZC201B	DC5~28V		
JC	ZC205A	DC10~28V		
JD	ZC205B			
S	SR405	AC80~220V		
BE	AX201	DC5~30V		Solid-state switch
BF	AX205			
BH	AX221			
BJ	AX225			
CE	AX211			
CF	AX215			
JJ	ZC230A	DC10~28V		
JK	ZC230B			
JL	ZC253A	DC10~30V		
JM	ZC253B			

⑨ Number of switch

No symbol	No switch
2	With 2 units
1	With 1 unit

⑫ Voltage

100	AC100/110V
200	AC200/220V
D24	DC24V

⑩ Bracket at rod end

No symbol	No bracket
Y	With rod end clevis
I	With rod end eye

(Note) Y : Provided with pin

⑬ Wiring

L	Lead wire
SP	Connector with lead wire
UP	Connector with lead wire

⑪ Bracket

No symbol	No bracket
B	With bracket

(Note) Models with bracket : R alone

⑭ Special shape of rod end

No symbol	Standard
-----------	----------

(Note) Refer to Pages 37 and 38.

Model No. of Mounting Bracket

Bore (mm)	φ 20	φ 25	φ 32	φ 40
Foot mount bracket	J120-L	J120-L	J132-L	J140-L
Flange mount bracket	J120-A	J120-A	J132-A	J140-A
Trunnion mount bracket	J120-R	J120-R	J132-R	J140-R
Bracket for R	J120-BC	J120-BC	J132-BC	J140-BC

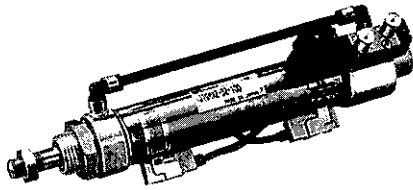
Model No. of Packing Kit

Bore (mm)	Packing kit
φ 20	J120-PS
φ 25	J125-PS
φ 32	J132-PS
φ 40	J140-PS

(Note) Packing kit : Rod packing alone

HI-PAL CYLINDER/WITH SOLENOID VALVE J1○HA series

φ 20, φ 25, φ 32, φ 40



SPECIFICATIONS

Action	Unit	Double-acting			
Fluid		Non-lubricated air			
Pressure range	MPa	0.2~0.7			
Proof pressure	MPa	1.05			
Temperature range	°C	5~50			
Piston speed range	mm/s	50~500			
Cushion		Damper cushion (Standard) Air cushion (Custom-made)			
Piston stroke allowance	mm	Below 250mm : $\begin{matrix} +1.0 \\ 0 \end{matrix}$ 251~900mm : $\begin{matrix} +1.4 \\ 0 \end{matrix}$			
Mounting		Nose, Both-foot, Rod-side flange, Rod side trunnion			
Solenoid valve		PCS245			
Rated voltage	V	AC100/110, 200/220 DC24			
Insulation grade		JIS B			
Permissible voltage fluctuation	%	AC : ± 10 DC : $\begin{matrix} +10 \\ -15 \end{matrix}$			
Frequency	Hz	50/60			
Apparent power	AC	Hold	50Hz	VA	(100/200) 2.5
			60Hz	VA	(100/200) 2.0
		Start	50Hz	VA	(100/200) 2.9
			60Hz	VA	(100/200) 2.5
Power consumption	W	1.8			

(Note) •When setting a switch at the intermediate position, set the maximum cylinder speed to less than 300 mm/s by reason of the relation with the response speed of relays etc.
•Use the cylinder within a temperature range where it is not frozen.

STANDARD STROKE

(Unit : mm)

Bore	Standard stroke																Max. stroke
	15	25	30	50	75	100	125	150	175	200	250	300	350	400	450	500	
φ 20	○	○	○	○	○	○	○	○	○	○	—	—	—	—	—	—	900
φ 25	○	○	○	○	○	○	○	○	○	○	○	○	—	—	—	—	900
φ 32	○	○	○	○	○	○	○	○	○	○	○	○	○	○	—	—	900
φ 40	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	900

HI-PAL CYLINDER/WITH SOLENOID VALVE J1○HA series

MODEL WITH SWITCH/For detailed specifications, handling precautions and mounting method of switches, refer to Page 80.

●AX Type Switch

●ZC Type Switch

●SR Type Switch

Cord type

Connector type



LIST OF SWITCHES

Type	Symbol of switch	Load voltage range	Load current range	Max. switching capacity	Protective circuit	Pilot lamp	Connection	Cord length	Applicable load			
Reed switch	AF AX101	DC5~30V	DC: 5~40mA AC: 5~20mA	DC: 1.5W AC: 2VA	Not provided	LED (Red LED lights up at ON.)	0.3 mm ² 2-core, OD φ 4 mm Cord direction : Axial	1.5m	Miniature relay PLC			
	AG AX105							5m				
	AH AX111				AC5~120V	DC: 5~40mA AC: 5~20mA		DC: 1.5W AC: 2VA		Provided	LED (Red LED lights up at ON.)	1.5m
	AJ AX115											5m
	AE AX125	DC5~50V AC5~120V			Not provided	Not provided		5m				
	AK AX11A	AC5~120V	5~20mA	2VA	Provided	LED (Red LED lights up at ON.)	4-pin connector Cord direction : Axial	0.5m				
	AL AX11B	DC5~30V	5~40mA	1.5W				0.5m				
	JA ZC201A	AC85~115V	AC: 2~25mA	—	Not provided	Not provided	0.2 mm ² 2-core, OD φ 3 mm Cord direction : Axial	1m				
	JB ZC201B	DC5~28V	DC: 0.1~40mA	—				3m				
	JC ZC205A	DC10~28V	DC: 5~40mA	—	Not provided	LED (Red LED lights up at ON.)	Cord direction : Axial	1m				
	JD ZC205B							3m				
S SR405	AC80~220V	2~300mA	30VA	Provided	Neon lamp (Red lights up at OFF.)	0.5 mm ² 2-core, OD φ 6 mm Cord direction : Axial	5m					
Solid-state switch	BE AX201	DC5~30V	5~40mA	—	Provided	LED (Red LED lights up at ON.)	0.3 mm ² 2-core, OD φ 4 mm Cord direction : Axial	1.5m				
	BF AX205							5m				
	CE AX211							LED (Dual light : Red/green)	1.5m			
	CF AX215								5m			
	BH AX221	DC5~30V	Max. 200mA NPN open collector output	—	Provided	LED (Red LED lights up at ON.)	0.3 mm ² 3-core, OD φ 4 mm Cord direction : Axial	1.5m				
	BJ AX225							5m				
	JJ ZC230A	DC10~28V	5~40mA	—	Provided	LED (Lights up at ON.)	0.2 mm ² 2-core, OD φ 3 mm Cord direction : Axial	1m				
	JK ZC230B							3m				
	JL ZC253A	DC4.5~28V	MAX.100mA	—	Provided	LED (Lights up at ON.)	0.2 mm ² 3-core, OD φ 3 mm Cord direction : Axial	1m				
	JM ZC253B							3m				

(Note) •When using inductive load (relay etc.) in a switch without a protective circuit, be sure to fit a protective circuit (SK-100) to the load.
•AX type switch can be mounted on other type than above-mentioned. Refer to Specifications for Switches at the end of this catalog.

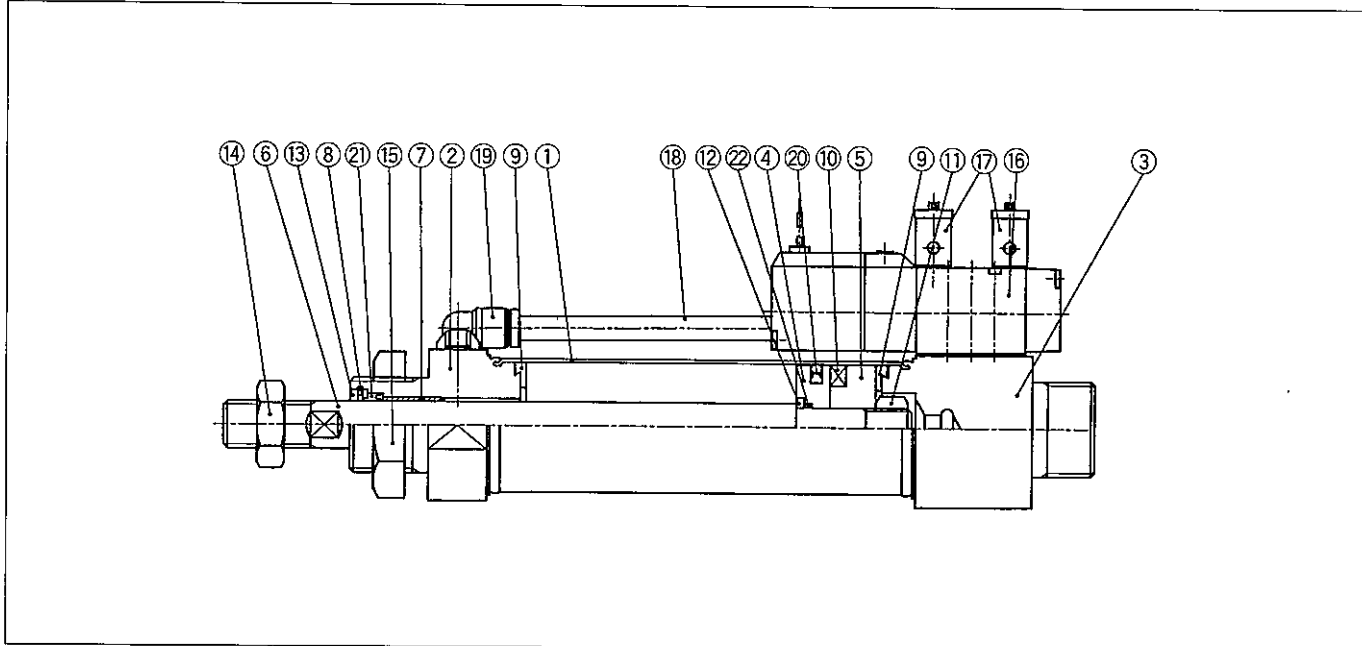
MINIMUM STROKE FOR AIR CYLINDER WITH SWITCH

(Unit : mm)

Bore	Number of mounted switch										
	With 1 unit						With 2 units				
	Reed switch				Solid-state switch		Reed switch			Solid-state switch	
	AX	ZC201	ZC205	SR	AX	ZC	AX	ZC	SR	AX	ZC
φ 20, φ 25	10	10	15	15	10	10	15	15	35	20	10
φ 32, φ 40				10							

HI-PAL CYLINDER/WITH SOLENOID VALVE J1○HA series

CONSTRUCTIONS



PARTS LIST

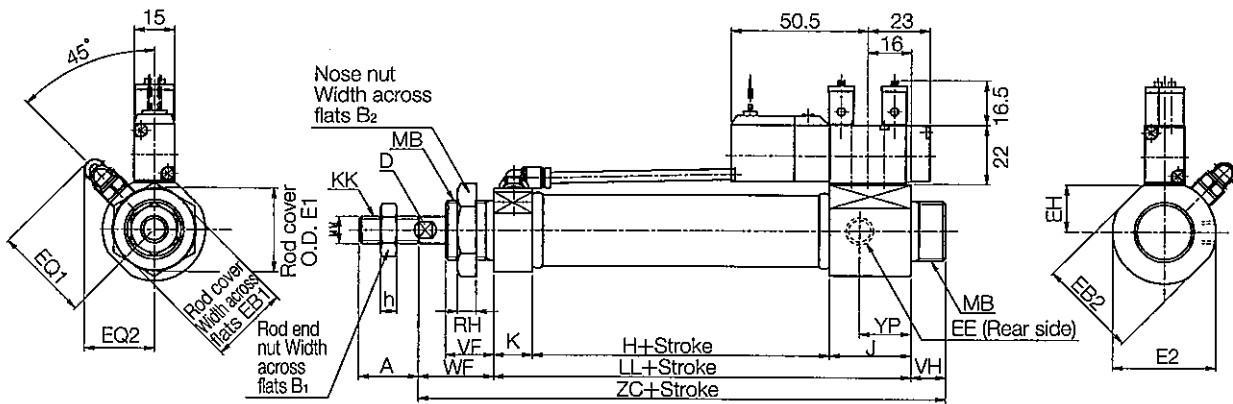
No.	Description	Material	No.	Description	Material
①	Cylinder tube	Stainless steel	⑪	Piston nut	Rolled steel for general structure
②	Rod cover	Aluminium alloy	⑫	Piston washer	Cold rolled steel
③	Head cover	Aluminium alloy	⑬	Snap ring	Spring steel
④	Piston A	Aluminium alloy	⑭	Rod end nut	Rolled steel for general structure
⑤	Piston B	Aluminium alloy	⑮	Nose nut	Rolled steel for general structure
⑥	Piston rod	$\phi 20\sim 32$: Stainless steel (Hard chromium plating) $\phi 40$: Carbon steel for machine structure (Hard chromium plating)	⑯	Solenoid valve	
⑦	Bushing	Dry bearing	⑰	Metering valve	
⑧	Rod packing hold-down plate	Cold rolled steel	⑱	Tube	Synthetic resins
⑨	Cushion pad	Urethane rubber	⑲	Instant fitting	Nitril rubber
⑩	Magnet	—	⑳	Piston packing	Nitril rubber
			㉑	Rod packing	Nitril rubber
			㉒	O-ring for piston rod	Nitril rubber

HI-PAL CYLINDER/WITH SOLENOID VALVE J1○HA series

DIMENSIONS

(Unit : mm)

Nose mounting/N



Bore	A	B1	B2	D	E1	E2	EB1	EB2	EH	H	h	J	K	KK
φ 20	20 (20)	13	30	6	φ 28	φ 38	26	36	17.3	31	5	30	14	M 8×1.25
φ 25	22 (22)	17	30	8	φ 31	φ 38	29	36	17.3	35	6	30	14.5	M10×1.5
φ 32	22 (22)	19	32	10	φ 38	φ 40	36	38	18.5	40	7	30	15	M12×1.25
φ 40	24 (24)	22	41	12	φ 46	φ 50	44	48	23.8	42	8	30	15	M14×1.5

Bore	LL	MB	MM	RH	VF	VH	WF	YP	ZC	EE	EQ1	EQ2
φ 20	75	M22×1.5	φ 8	7	16	13	24	19	112	Rc1/8	35	26
φ 25	79.5	M22×1.5	φ 10	7	18	13	28	19	120.5	Rc1/8	35	26
φ 32	85	M24×2	φ 12	8	20	16	30	19	131	Rc1/8	40.5	30
φ 40	87	M30×2	φ 14	9	22	16	32	19	135	Rc1/8	45.5	34

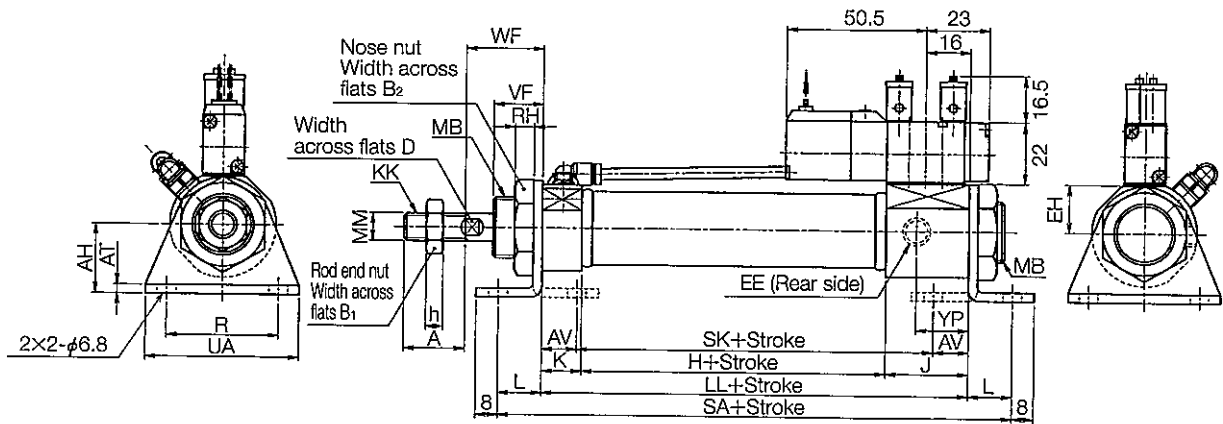
(Note) Bracketed figures in size A columns are thread lengths.

HI-PAL CYLINDER/WITH SOLENOID VALVE J1○HA series

DIMENSIONS

(Unit : mm)

Both-foot mounting/L



Bore	A	B1	B2	D	EH	H	h	J	K	KK	LL	MB	MM
φ 20	20 (20)	13	30	6	17.3	31	5	30	14	M 8×1.25	75	M22×1.5	φ 8
φ 25	22 (22)	17	30	8	17.3	35	6	30	14.5	M10×1.5	79.5	M22×1.5	φ 10
φ 32	22 (22)	19	32	10	18.5	40	7	30	15	M12×1.25	85	M24×2	φ 12
φ 40	24 (24)	22	41	12	23.8	42	8	30	15	M14×1.5	87	M30×2	φ 14

Bore	RH	VF	WF	YP	EE	AH	AT	AV	L	R	SA	SK	UA
φ 20	7	16	24	19	Rc1/8	25	3.2	12.8	16	40	107	49.4	55
φ 25	7	18	28	19	Rc1/8	25	3.2	12.8	16	40	111.5	53.9	55
φ 32	8	20	30	19	Rc1/8	32	4	21	25	45	135	43	60
φ 40	9	22	32	19	Rc1/8	36	4	21	25	50	137	45	65

(Note) Bracketed figures in size A columns are thread lengths.

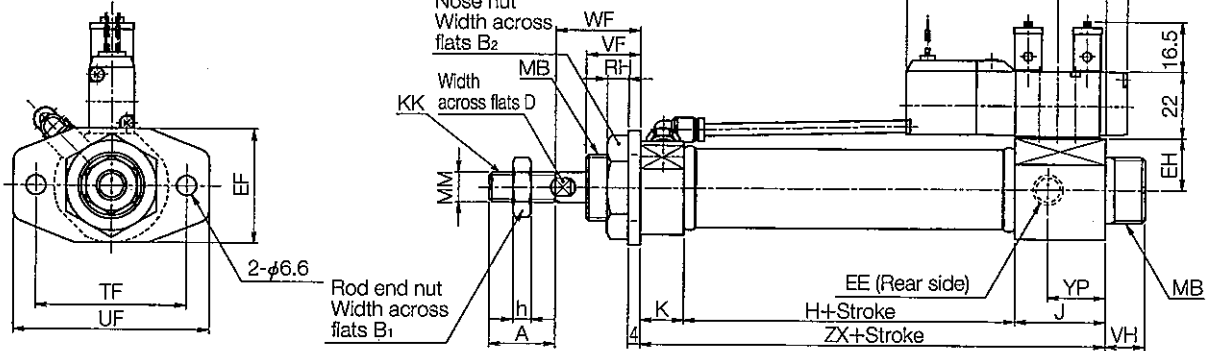
HI-PAL CYLINDER/WITH SOLENOID VALVE J1○HA series

DIMENSIONS

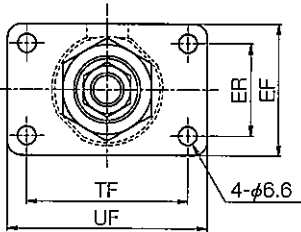
(Unit : mm)

Rod side flange mounting/A

φ 20, φ 25



φ 32, φ 40



Bore	A	B1	B2	D	EH	H	h	J	K	KK	MB	MM	RH
φ 20	20 (20)	13	30	6	17.3	31	5	30	14	M 8×1.25	M22×1.5	φ 8	7
φ 25	22 (22)	17	30	8	17.3	35	6	30	14.5	M10×1.5	M22×1.5	φ 10	7
φ 32	22 (22)	19	32	10	18.5	40	7	30	15	M12×1.25	M24×2	φ 12	8
φ 40	24 (24)	22	41	12	23.8	42	8	30	15	M14×1.5	M30×2	φ 14	9

Bore	VF	VH	WF	YP	EE	EF	ER	TF	UF	ZX
φ 20	16	13	24	19	Rc1/8	38	—	50	65	75
φ 25	18	13	28	19	Rc1/8	38	—	50	65	79.5
φ 32	20	16	30	19	Rc1/8	47	33	58	72	85
φ 40	22	16	32	19	Rc1/8	51	36	70	84	87

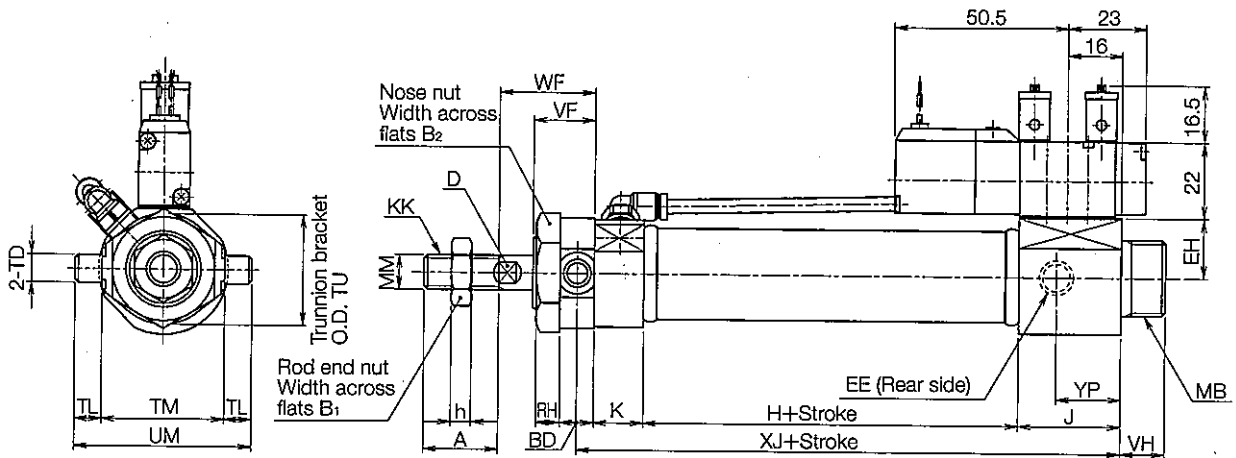
(Note) Bracketed figures in size A columns are thread lengths.

HI-PAL CYLINDER/WITH SOLENOID VALVE J1○HA series

DIMENSIONS

(Unit : mm)

Rod side trunnion mounting/R



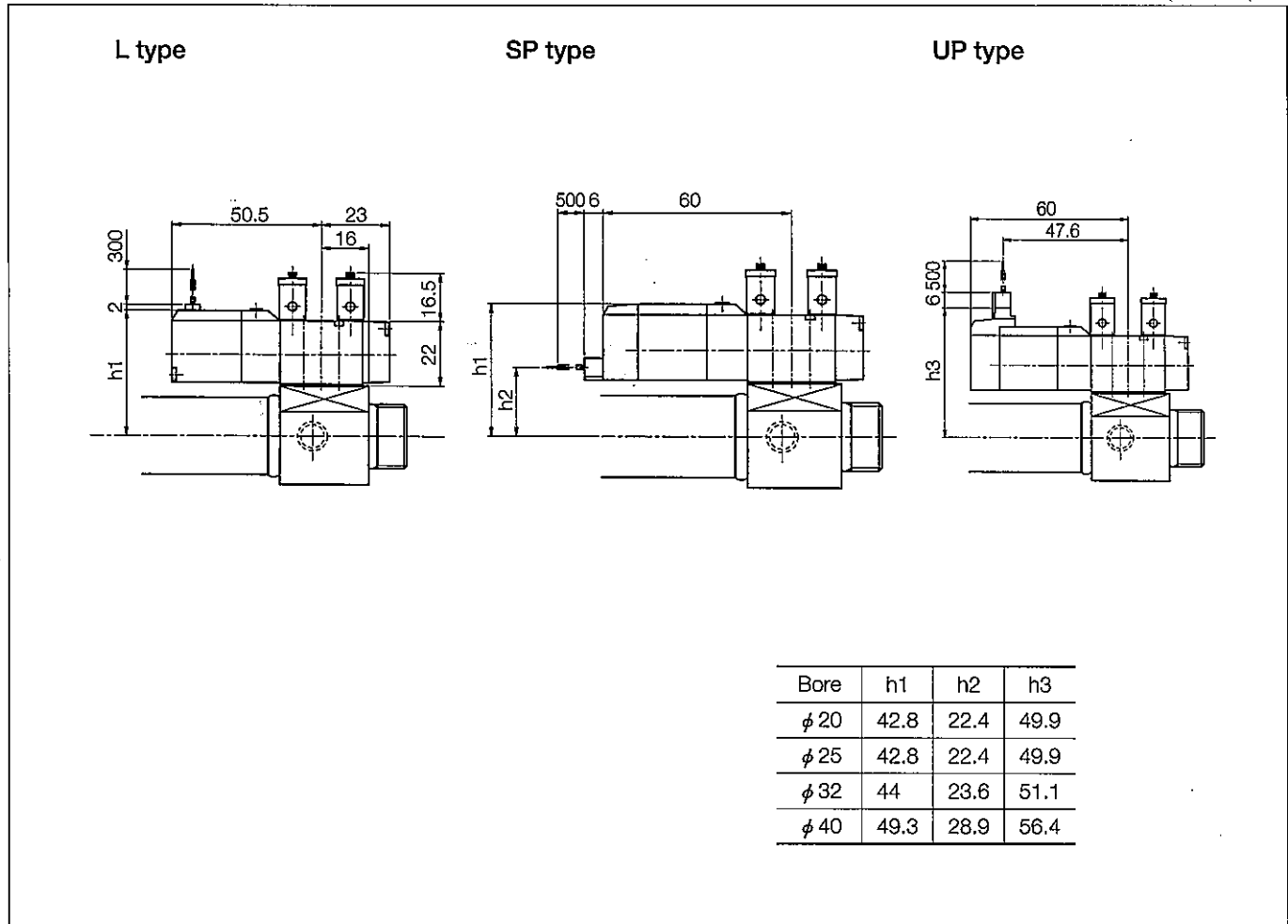
Bore	A	B1	B2	D	EH	H	h	J	K	KK	MB	MM	RH
φ 20	20 (20)	13	30	6	17.3	31	5	30	14	M 8×1.25	M22×1.5	φ 8	7
φ 25	22 (22)	17	30	8	17.3	35	6	30	14.5	M10×1.5	M22×1.5	φ 10	7
φ 32	22 (22)	19	32	10	18.5	40	7	30	15	M12×1.25	M24×2	φ 12	8
φ 40	24 (24)	22	41	12	23.8	42	8	30	15	M14×1.5	M30×2	φ 14	9

Bore	VF	VH	WF	YP	EE	BD	TD	TL	TM	TU	UM	XJ
φ 20	16	13	24	19	Rc1/8	10	φ 8 ^{e8}	8	36	32	52	80
φ 25	18	13	28	19	Rc1/8	10	φ 8 ^{e8}	8	36	32	52	84.5
φ 32	20	16	30	19	Rc1/8	12	φ 10 ^{e8}	10	44	36	64	91
φ 40	22	16	32	19	Rc1/8	14	φ 12 ^{e8}	12	50	44	74	94

(Note) Bracketed figures in size A columns are thread lengths.

HI-PAL CYLINDER/WITH SOLENOID VALVE J1○HA series

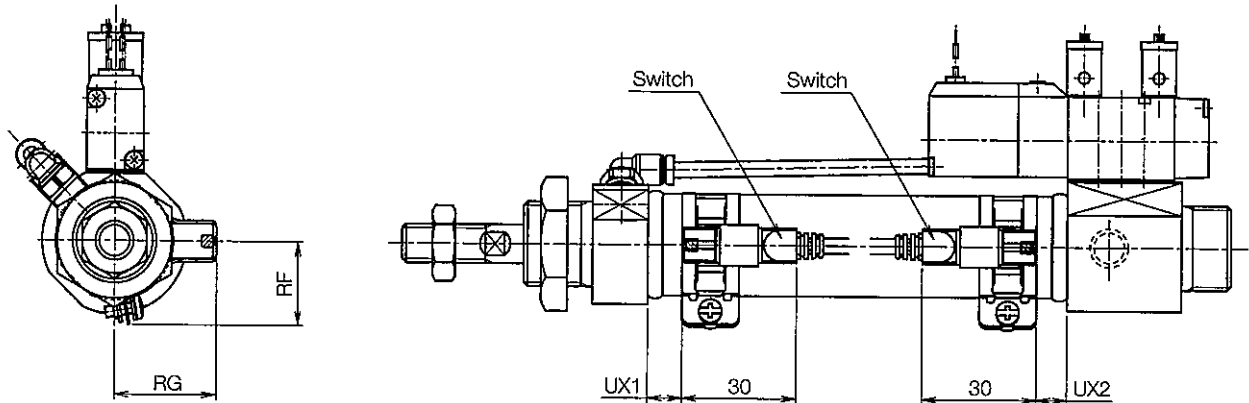
DIMENSIONS ACCORDING TO WIRING SPECIFICATIONS FOR SOLENOID VALVES (Unit : mm)



HI-PAL CYLINDER/WITH SOLENOID VALVE J1○HA series

SWITCH SET POSITION

(Unit : mm)



Bore	RF			RG		
	AX type	ZC type	SR type	AX type	ZC type	SR type
φ 20	19	16.5	25	25	20	33
φ 25	22	18	26	27	22	35
φ 32	24	19.5	27	31	26	38
φ 40	27	21.5	29	35	30	43

●The above drawing shows an air cylinder with AX type switch.

Bore	UX1					UX2				
	AX1□□	AX2□□	ZC201	ZC205	ZC230 ZC253	AX1□□	AX2□□	ZC201	ZC205	ZC230 ZC253
φ 20	7	7	9.5	6	8	7	7	7.5	4	6
φ 25	9	9	11	7.5	9.5	8	8	10	6.5	8.5
φ 32	10	10	13.5	10	12	10	10	12.5	9	11
φ 40	12	12	13.5	10	12	12	12	15.5	11	13

HYSTERESIS AND RESPONSE RANGE OF SWITCHES

(Unit : mm)

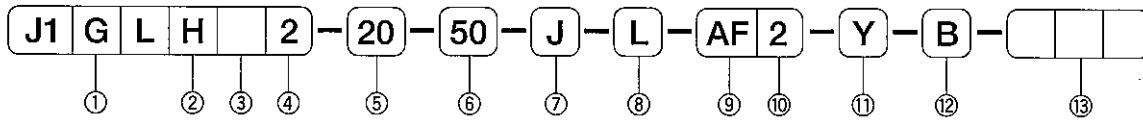
Bore	Reed switch								Solid-state switch					
	AX1□□		ZC201		ZC205		SR		AX2□□		ZC230		ZC253	
	Response range	Hysteresis	Response range	Hysteresis	Response range	Hysteresis	Response range	Hysteresis	Response range	Hysteresis	Response range	Hysteresis	Response range	Hysteresis
φ 20	4~9	Below 1	5~9	Below 2	6~8	0.5~1.5	6~9	Below 2	2~5	Below 1	1~4	Below 0.5	2~4	Below 0.5
φ 25	5~9				6~9	Below 2	7~10		2~6		2~4			
φ 32					6~11	2~5								
φ 40	6~10	2~6	2~5											

AIR CYLINDER/WITH LOCK MECHANISM

J1○L series

φ 20, φ 25, φ 32, φ 40

ORDERING INSTRUCTIONS



①Magnet

G	Built-in magnet	Cylinder with switch available
---	-----------------	--------------------------------

②Lock position

H	Head side
R	Rod side

③Head cover/rod cover shape

No symbol	Basic type
ND	Boss cut type
NB	Axial port position
EB	Bottom cover mount
EF	Front cover mount

(Note) Refer to "Combination of head cover/rod cover shape and mounting" on Page 75.

④Action

2	Double-acting, single rod
---	---------------------------

⑤Bore (mm)

20	φ 20
25	φ 25
32	φ 32
40	φ 40

⑥Stroke (mm)

Refer to Standard Strokes (Page 75).

⑦Dustproof cover

No symbol	No dustproof cover provided (Standard)
J	With bellows (Nylon tarpaulin)
JN	With bellows (Chloroprene)
JK	With bellows (CONEX)

CONEX : Registered trademark of Teijin Ltd.

⑧Mounting

N	Nose
L	Both-foot
LS	Single foot
A	Rod side flange
B	Head side flange
R	Rod side trunnion
H	Head side trunnion
C	Eye (Basic type)

(Note) LS : φ 20, φ 25 alone

⑨Type of switch

No symbol	No switch		
AF	AX101		
AG	AX105	DC5~30V	
AH	AX111	AC5~120V	
AJ	AX115		
AE	AX125	DC5~50V AC5~120V	
AK	AX11A	AC5~120V	
AL	AX11B	DC5~30V	
JA	ZC201A	AC85~115V	
JB	ZC201B	DC5~28V	
JC	ZC205A	DC10~28V	
JD	ZC205B		
S	SR405	AC80~220V	Solid-state switch
BE	AX201	DC5~30V	
BF	AX205		
BH	AX221		
BJ	AX225		
CE	AX211		
CF	AX215		
JJ	ZC230A	DC10~28V	
JK	ZC230B		
JL	ZC253A		
JM	ZC253B		

⑩Number of switch

No symbol	No switch
2	With 2 units
1	With 1 unit

⑪Bracket at rod end

No symbol	No bracket
Y	With rod end clevis
I	With rod end eye

(Note) Y : Provided with pin

⑫Bracket

No symbol	No bracket
B	With bracket

(Note) Models with bracket : R, H and C alone

⑬Special shape of rod end

No symbol	Standard
-----------	----------

(Note) Refer to Pages 37 and 38.

Model No. of Mounting Bracket

Bore (mm)	φ 20	φ 25	φ 32	φ 40	
Foot mounting	J120-L	J120-L	J132-L	J140-L	
Flange mounting	J120-A	J120-A	J132-A	J140-A	
Trunnion mounting	J120-R	J120-R	J132-R	J140-R	
Bracket	For C	J120-BA	J120-BA	J132-BA	J140-BA
	For R, H	J120-BC	J120-BC	J132-BC	J140-BC

Model No. of Packing Kit

Bore (mm)	Packing kit
φ 20	J120-PS
φ 25	J125-PS
φ 32	J132-PS
φ 40	J140-PS

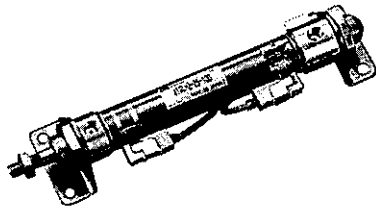
(Note) Packing kit : Rod packing alone

AIR CYLINDER/WITH LOCK MECHANISM J1○L series

φ 20, φ 25, φ 32, φ 40

Each air cylinder is equipped with a magnet.

When compressed air discharges at the stroke end, locking mechanism is actuated to lock the piston, thereby preventing the cylinder from dropping and also preventing a trouble when restarting operation.



SPECIFICATIONS

Action	Unit	Double-acting
Fluid		Non-lubricated air
Pressure range	MPa	0.2~1
Proof pressure	MPa	1.5
Temperature range	°C	-10~70
Piston speed range	mm/s	20~700
Cushion		Damper cushion
Piston stroke allowance	mm	Below 250 : $\begin{matrix} +1.0 \\ 0 \end{matrix}$ 251~900 : $\begin{matrix} +1.4 \\ 0 \end{matrix}$
Lock position	mm	Head side, rod side
Piston travel when locked		φ 20, φ 25 : Below 1 φ 32, φ 40 : Below 1.5
Mounting		Basic type, Both-foot, Single foot, Rod-side flange, Head-side flange, Rod side trunnion, Head-side trunnion, Cover mount

(Note) •When setting a switch at the intermediate position, set the maximum cylinder speed to less than 300 mm/s by reason of the relation with the response speed of relays etc.

•Use the cylinder within a temperature range where it is not frozen.

STANDARD STROKE

(Unit : mm)

Bore	Standard stroke																Max. stroke
	15	25	30	50	75	100	125	150	175	200	250	300	350	400	450	500	
φ 20	○	○	○	○	○	○	○	○	○	○	—	—	—	—	—	—	900
φ 25	○	○	○	○	○	○	○	○	○	○	○	○	—	—	—	—	900
φ 32	○	○	○	○	○	○	○	○	○	○	○	○	○	○	—	—	900
φ 40	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	900

HOLDING POWER (Unit : N)

Bore (mm)	Holding power
φ 20	220
φ 25	330
φ 32	550
φ 40	860

COMBINATION OF HEAD COVER/ROD COVER SHAPE AND MOUNTING

Lock position	Shape of head cover/rod cover	Mounting							
		Nose /N	Both-foot /L	Single foot /LS	Rod-side flange /A	Head-side flange /B	Rod-side trunnion /R	Head-side trunnion /H	Eye (Basic type) /C
Rod side	Basic type	—	○	△	○	○	○	○	○
	Boss cut type/ND	○	—	△	○	—	○	—	—
	Axial port position/NB	○	—	△	○	—	○	—	—
Head side	Basic type	—	○	△	○	○	○	○	○
	Boss cut type/ND	○	—	△	○	—	○	—	—
	Axial port position/NB	○	—	△	○	—	○	—	—
	Cover mount Bottom mounting type/EB	○	—	—	—	—	—	—	—
	Cover mount Front mounting type/EF	○	—	—	—	—	—	—	—

○ : Matchable combination △ : Matchable for φ 20, φ 25

AIR CYLINDER/WITH LOCK MECHANISM J1○L series

MODEL WITH SWITCH/For detailed specifications, handling precautions and mounting method of switches, refer to Page 80.

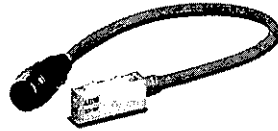
•AX Type Switch

•ZC Type Switch

•SR Type Switch

Cord type

Connector type



LIST OF SWITCHES

Type	Symbol of switch	Load voltage range	Load current range	Max. switching capacity	Protective circuit	Pilot lamp	Connection	Cord length	Applicable load	
Reed switch	AF AX101	DC5~30V	DC: 5~40mA AC: 5~20mA	DC: 1.5W AC: 2VA	Not provided	LED (Red LED lights up at ON.)	0.3 mm ² 2-core, OD φ 4 mm Cord direction : Axial	1.5m	Miniature relay PLC	
	AG AX105							5m		
	AH AX111	AC5~120V			Provided	Not provided		Not provided		1.5m
	AJ AX115									5m
	AE AX125	DC5~50V AC5~120V	AC5~120V	5~20mA	2VA	Provided	LED (Red LED lights up at ON.)	4-pin connector Cord direction : Axial		5m
	AK AX11A	AC5~120V								5~40mA
	AL AX11B	DC5~30V	5~40mA	1.5W	Provided	LED (Red LED lights up at ON.)	4-pin connector Cord direction : Axial	0.5m		
	JA ZC201A	AC85~115V	AC: 2~25mA	—	Not provided	Not provided	0.2 mm ² 2-core, OD φ 3 mm Cord direction : Axial	1m		
	JB ZC201B	DC5~28V	DC: 0.1~40mA	—	Not provided	Not provided		3m		
	JC ZC205A	DC10~28V	DC: 5~40mA	—	Not provided	LED (Red LED lights up at ON.)		1m		
	JD ZC205B							3m		
S SR405	AC80~220V	2~300mA	30VA	Provided	Neon lamp (Red lights up at OFF.)	0.5 mm ² 2-core, OD φ 6 mm Cord direction : Axial	5m			
Solid-state switch	BE AX201	DC5~30V	5~40mA	—	Provided	LED (Red LED lights up at ON.)	0.3 mm ² 2-core, OD φ 4 mm Cord direction : Axial	1.5m	Miniature relay PLC IC circuit	
	BF AX205							5m		
	CE AX211					LED (Dual light : Red/green)		1.5m		
	CF AX215							5m		
	BH AX221	DC5~30V	Max. 200mA NPN open collector output	—	Provided	LED (Red LED lights up at ON.)	0.3 mm ² 3-core, OD φ 4 mm Cord direction : Axial	1.5m		
	BJ AX225							5m		
	JJ ZC230A	DC10~28V	5~40mA	—	Provided	LED (Lights up at ON.)	0.2 mm ² 2-core, OD φ 3 mm Cord direction : Axial	1m		
	JK ZC230B							3m		
	JL ZC253A	DC4.5~28V	MAX.100mA	—	Provided	LED (Lights up at ON.)	0.2 mm ² 3-core, OD φ 3 mm Cord direction : Axial	1m		
	JM ZC253B							3m		

(Note) •When using inductive load (relay etc.) in a switch without a protective circuit, be sure to fit a protective circuit (SK-100) to the load.
•AX type switch can be mounted on other type than above-mentioned. Refer to Specifications for Switches at the end of this catalog.

MINIMUM STROKE FOR AIR CYLINDER WITH SWITCH

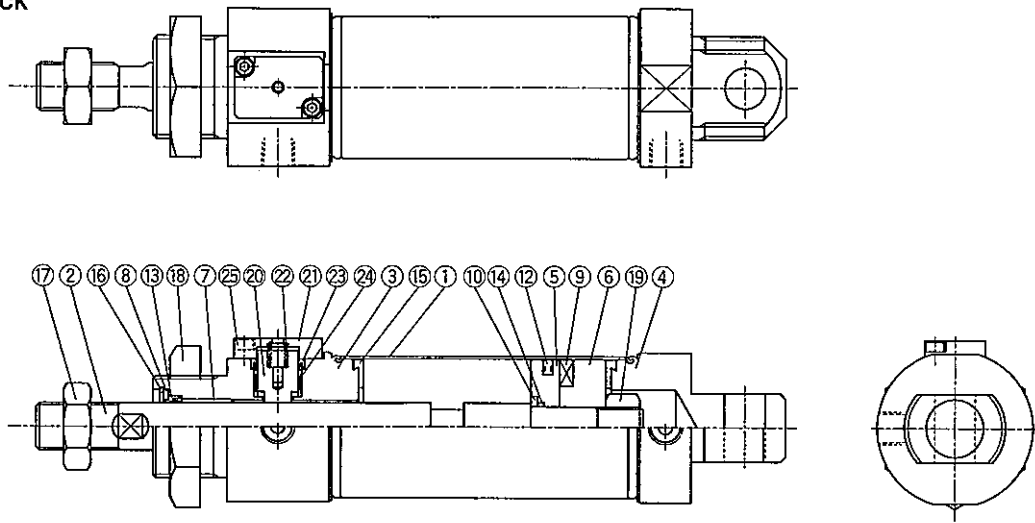
(Unit : mm)

Bore	Number of mounted switch										
	With 1 unit						With 2 units				
	Reed switch				Solid-state switch		Reed switch			Solid-state switch	
	AX	ZC201	ZC205	SR	AX	ZC	AX	ZC	SR	AX	ZC
φ 20, φ 25	10	10	15	15	10	10	15	15	35	20	10
φ 32, φ 40				10							

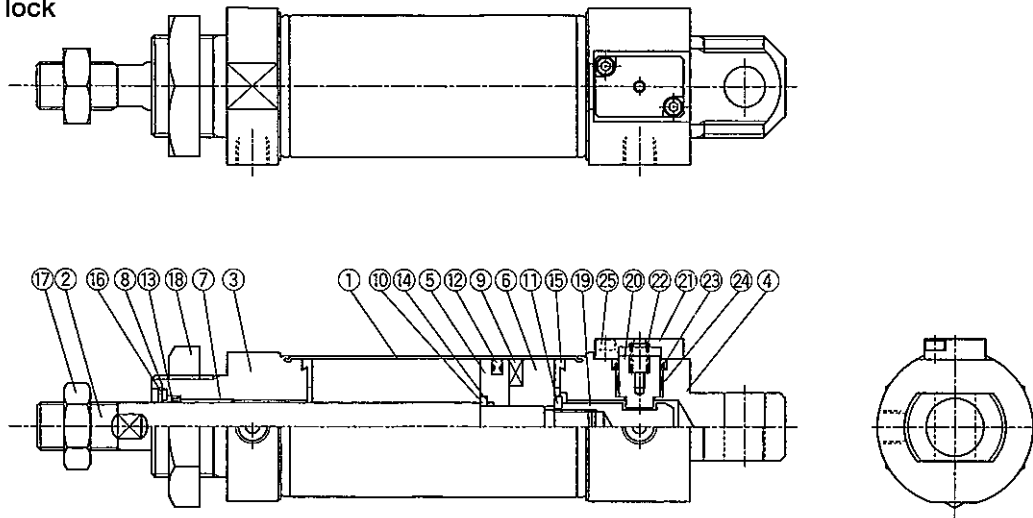
AIR CYLINDER/WITH LOCK MECHANISM J1○L series

CONSTRUCTIONS

Rod side lock



Head side lock



※The above drawing is basic type cylinder.

PARTS LIST

No.	Description	Material	No.	Description	Material
①	Cylinder tube	Stainless steel	⑭	O-ring for piston rod	Nitril rubber
②	Piston rod	Carbon steel for machine structure (Hard chromium plating)	⑮	Cushion pad	Urethane rubber
③	Rod cover	Aluminium alloy	⑯	Snap ring	Spring steel
④	Head cover	Aluminium alloy	⑰	Rod end nut	Rolled steel for general structure
⑤	Piston A	Aluminium alloy	⑱	Nose nut	Rolled steel for general structure
⑥	Piston B	Aluminium alloy (Abrasion-resistant surface)	⑲	Piston nut (with lock)	Carbon steel for machine structure
⑦	Bushing	Dry bearing	⑳	Lock piston	Stainless steel
⑧	Rod packing hold-down plate	Cold rolled steel	㉑	Lock cover	Aluminium alloy
⑨	Magnet	—	㉒	Lock spring	Piano wire
⑩	Piston washer	Cold rolled steel	㉓	Lock packing	Nitril rubber
⑪	Washer	Cold rolled steel	㉔	Bushing	Dry bearing
⑫	Piston packing	Nitril rubber	㉕	Hexagon socket head bolt	Steel
⑬	Rod packing	Nitril rubber			

AIR CYLINDER/WITH LOCK MECHANISM J1○L series



(Unit : mm)

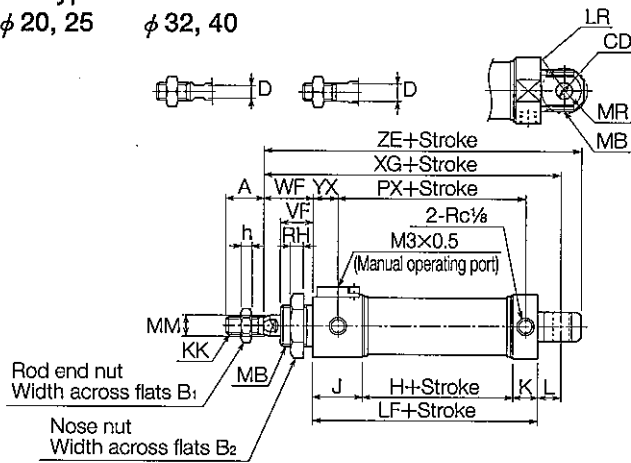
DIMENSIONS

Basic type

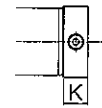
Rod side lock

Basic type

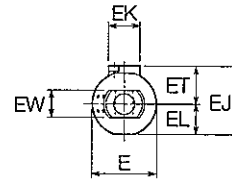
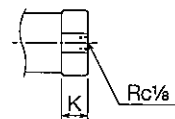
φ 20, 25 φ 32, 40



Boss cut type

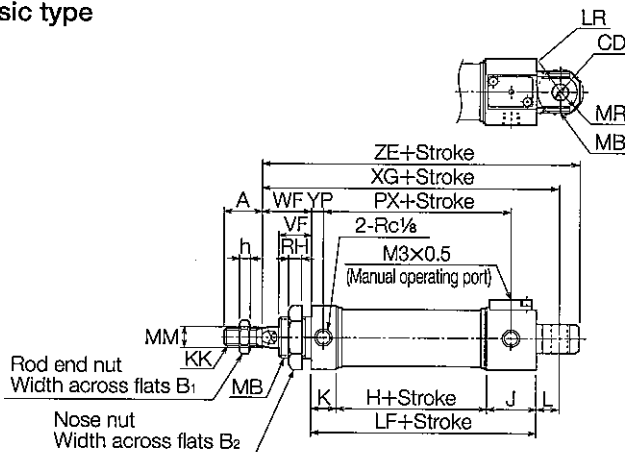


Axial port position

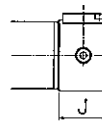


Head side lock

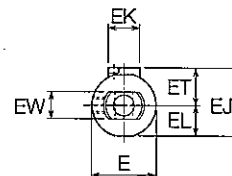
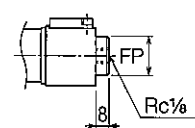
Basic type



Boss cut type



Axial port position



Bore	A	B1	B2	CD	D	E	EJ	EK	EL	ET	EW	FP	H	h	J	K	KK	L
φ 20	20 (20)	13	30	φ 8 ^{H9}	8	φ 28	31.5	12.5	13	18.5	16 ^{-0.1 -0.3}	φ 22	31	5	24	14	M 8×1.25	12
φ 25	22 (22)	17	30	φ 8 ^{H9}	8	φ 31	34	12.5	14.5	19.5	16 ^{-0.1 -0.3}	φ 22	35	6	24.5	14.5	M10×1.5	12
φ 32	22 (22)	19	32	φ 10 ^{H9}	10	φ 38	40.5	18	18	22.5	16 ^{-0.1 -0.3}	φ 24	40	7	30	15	M12×1.25	14
φ 40	24 (24)	22	41	φ 12 ^{H9}	12	φ 48	48	18	22	26	20 ^{-0.1 -0.3}	φ 30	42	8	30	15	M14×1.5	16

Bore	LF	LR	MB	MM	MR	PX	RH	VF	WF	XG	YX	YP	ZE
φ 20	69	R11	M22×1.5	φ 8	R12	50	7	16 (13)	24	105	12	7	115
φ 25	74	R11	M22×1.5	φ 10	R12	54.5	7	18 (15)	28	114	12	7.5	124
φ 32	85	R13	M24×2	φ 12	R14	62.5	8	20 (16)	30	129	15	7.5	141
φ 40	87	R15	M30×2	φ 14	R16	64.5	9	22 (18)	32	135	15	7.5	147

(Note) •Bracketed figures in size A and VF columns are thread lengths.

•For other mounting bracket, refer to J1 cylinder.

AIR CYLINDER/WITH LOCK MECHANISM J1○L series

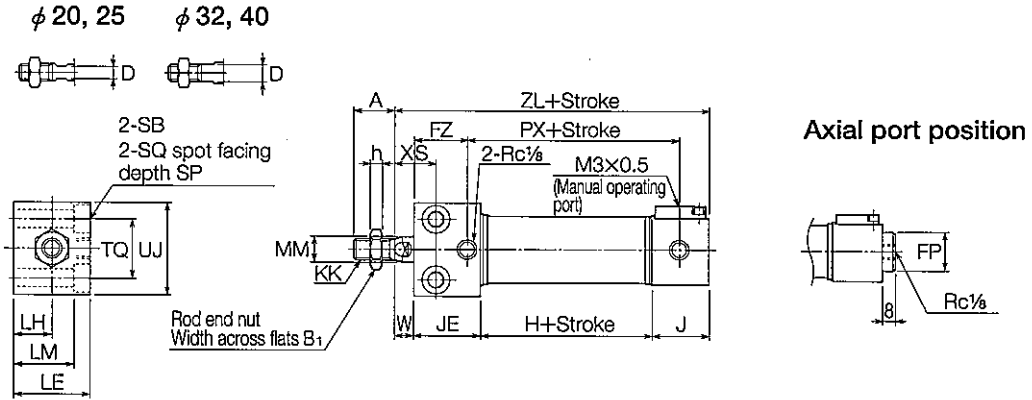


(Unit : mm)

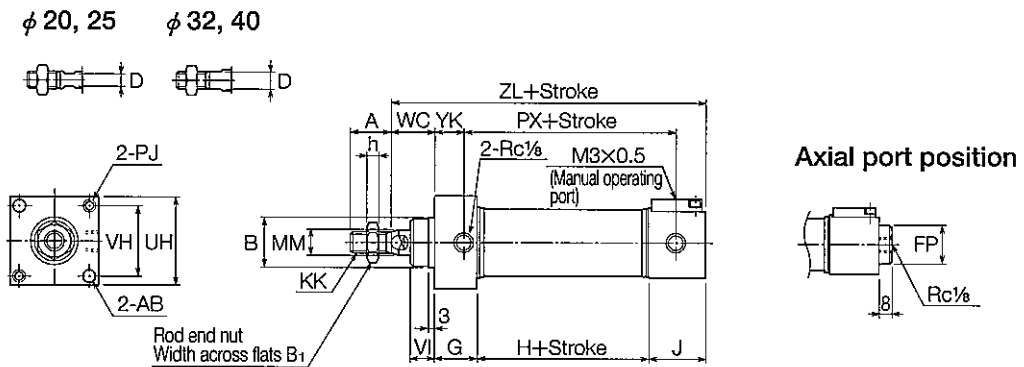
DIMENSIONS

Cover mount type

Bottom mounting



Front mounting



※ : Cover mount : Provided only for head side lock.

Bore	A	AB	B	B1	D	FP	FZ	G	H	h	J	JE	KK	LE	LH	LM	MM
φ 20	20 (20)	φ 5.5	φ 20 ^{f8}	13	6	φ 22	23	20	31	5	24	30	M 8×1.25	28	14	21.5	φ 8
φ 25	22 (22)	φ 5.5	φ 22 ^{f8}	17	8	φ 22	25.5	22.5	35	6	24.5	32.5	M10×1.5	34	17	27.5	φ 10
φ 32	22 (22)	φ 6.6	φ 24 ^{f8}	19	10	φ 24	28	23	40	7	30	35	M12×1.25	40	20	31.4	φ 12
φ 40	24 (24)	φ 9	φ 28 ^{f8}	22	12	φ 30	30	25	42	8	30	37	M14×1.5	48	24	37.2	φ 14

Bore	PJ	PX	SB	SP	SQ	TQ	UH	UJ	VH	VI	W	WC	XS	YK	ZL
φ 20	M5×0.8	50	φ 6.6	6.5	φ 11	20	□34	34	□24	10	8	18	18	13	93
φ 25	M5×0.8	54.5	φ 6.6	6.5	φ 11	24	□38	38	□28	10	10	20	20	15.5	102
φ 32	M6×1	62.5	φ 9	8.6	φ 14	30	□46	46	□36	12	10	22	22	16	115
φ 40	M8×1.25	64.5	φ 11	10.8	φ 17.5	36	□56	56	□42	12	10	22	22	18	119

(Note) Bracketed figures in size A columns are thread lengths.



MAGNETIC PROXIMITY SWITCH

FOR CYLINDER

AX Type/AZ Type Switches ————— P.81

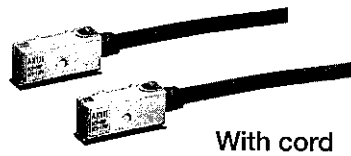
ZC Type Switch ————— P.90

SR Type Switch ————— P.93

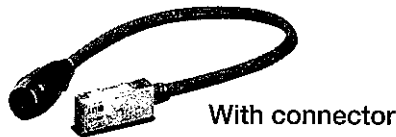
AX TYPE/AZ TYPE SWITCHES

REED SWITCH

AX type

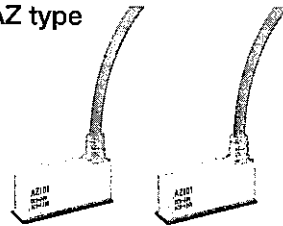


With cord

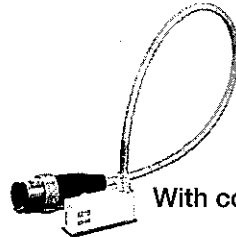


With connector

AZ type



With cord



With connector

Applicable cylinders

Series	Bore (mm)
X1G	φ 125, φ 140, φ 160
J1G	φ 20, φ 25, φ 32, φ 40, φ 50, φ 63
K1G	φ 32, φ 40, φ 50, φ 63, φ 80, φ 125
A1G	φ 125, φ 140, φ 160

(Note) AZ type switch applicable X1G series alone.

SPECIFICATIONS

Model No.	With cord (1.5m)	AX101, AZ101	AX111, AZ111	—	—	—
	With cord (5m)	AX105, AZ105	AX115, AZ115	—	—	AX125, AZ125
	With connector (For AC)	—	—	AX11A, AZ11A	—	—
	With connector (For DC)	—	—	—	AX11B, AZ11B	—
Load voltage	AC5~120V	DC5~30V	AC5~120V	DC5~30V	AC5~120V	DC5~50V
Load current	AC : 5~20mA	DC : 5~40mA	AC : 5~20mA	DC : 5~40mA	AC : 5~20mA	DC : 5~40mA
Max. Switching capacity	AC : 2VA DC : 1.5W					
Internal voltage drop	TYP : 2V (At 10mA) Below 3V (At 40mA)				0V	
Leak current	0mA	Below 10 μA				0mA
Response time	Below 1ms					
Reset time	Below 1ms					
Insulation resistance	100MΩ or more at DC500V megger (Between case and cord)					
Withstand voltage	AC1500V for one minute (Between case and cord)					
Shock resistance	294m/s ² (No repeating)					
Impact resistance	Double amplitude 1.5mm, 10 to 55Hz (One sweep, one minute), 2 hours in each of X, Y, Z directions					
Surrounding temperature	-10~+70°C (No dew condensation shall occur.)					-10~+100°C (No dew condensation shall occur.)
Connection	0.3mm ² , 2-core, OD φ 4mm, oil-resistant cable cord					
Protection grade	IP67 (IEC Standard), JIS C0920 (Dust and water proof type)					
Contact protective circuit	Not provided	Provided				Not provided
Pilot lamp	LED (Red LED lights up at ON)					Not provided
Electric circuit						<p>No positive/negative polarity</p>
Applicable load	Miniature relay, PLC					Miniature, relay, PLC, IC circuit

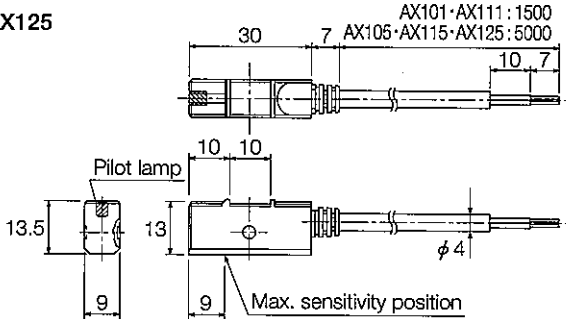
(Note) •When applying inductive load (miniature relay etc.) to a switch without a protective, be sure to fit a protective circuit (SK-100) to the load.
 •For the cord length of a switch with connector and the connector pin arrangement, refer to DIMENSIONS.
 •When using a programmable controller for AC voltage input as load, select a switch with a contact protection circuit.

AX TYPE/AZ TYPE SWITCHES

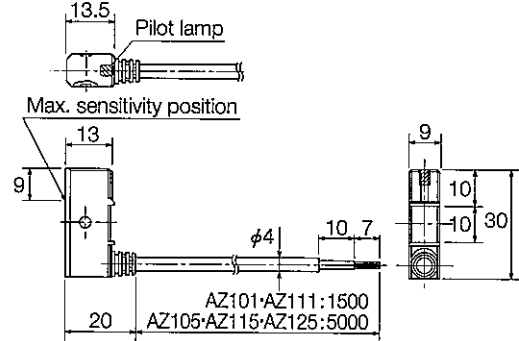
DIMENSIONS

(Unit : mm)

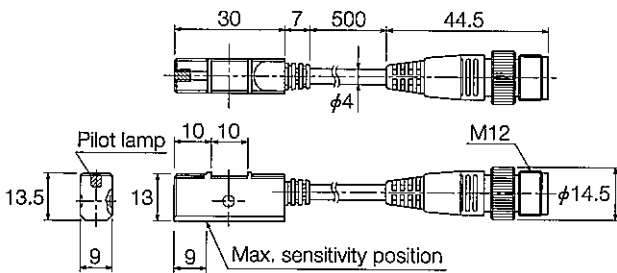
- With cord
- AX101 · AX105
- AX111 · AX115
- AX125



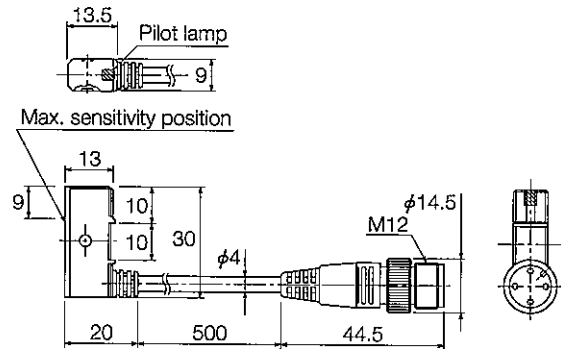
- With cord
- AZ101 · AZ105
- AZ111 · AZ115
- AZ125



- With connector
- AX11A · AX11B



- With connector
- AZ11A · AZ11B

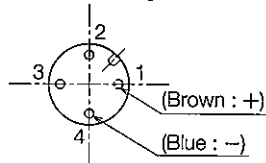
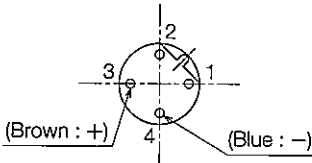


AX11A (For AC)
AZ11A (For AC)

AX11B (For DC)
AZ11B (For DC)

Connector pin arrangement

Connector pin arrangement



Applicable Connectors

Maker	Name of Connector Series	
COHERENCE	VA connector	VA-4DS, VA-4DL
OMRON	XS2 sensor I/O connector	XS2
HIROSE	Connector for FA sensors	HR24

*For detailed information, refer to catalogs supplied from each maker.

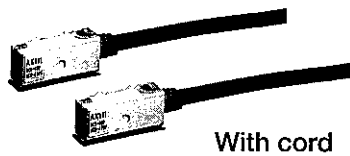
● Standard No. for Connector

- Models M12X1 screw locking
- IEC 947-5-2
- DIN/VDE 0660 part208 A2
- NECA (Nippon Electric Control Equipment Industries Association) 4202 Connector for FA Sensors

AX TYPE/AZ TYPE SWITCHES

SOLID-STATE PROXIMITY SWITCH (2-wire, one-light type)

AX type

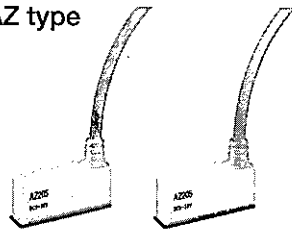


With cord

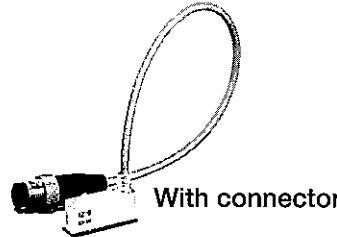


With connector

AZ type



With cord



With connector

Applicable cylinders

Series	Bore (mm)
X1G	ϕ 125, ϕ 140, ϕ 160
J1G	ϕ 20, ϕ 25, ϕ 32, ϕ 40, ϕ 50, ϕ 63
K1G	ϕ 32, ϕ 40, ϕ 50, ϕ 63, ϕ 80, ϕ 125
A1G	ϕ 125, ϕ 140, ϕ 160

(Note) AZ type switch applicable X1G series alone.

SPECIFICATIONS

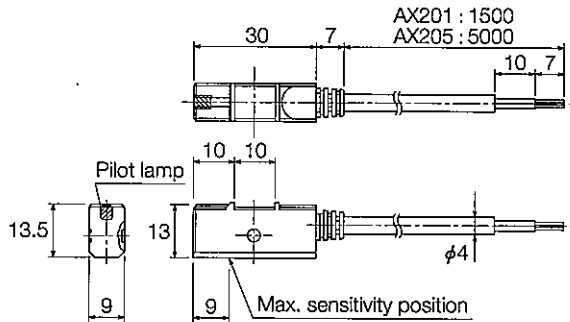
Model No.	With cord (1.5m)	AX201	AZ201
	With cord (5m)	AX205	AZ205
	With connector	AX20B	AZ20B
Wire direction		Axial	Perpendicular to axis
Load voltage		DC5~30V	
Load current		DC : 5~40mA	
Internal voltage drop		Below 3V (At 40mA)	
Leak current		Below 1mA	
Response time		Below 1ms	
Reset time		Below 1ms	
Insulation resistance		100M Ω or more at DC500V megger (Between case and cord)	
Withstand voltage		AC1500V for one minute (Between case and cord)	
Shock resistance		490m/s ² (No repeating)	
Impact resistance		Double amplitude 0.6mm, 10 to 200Hz (log sweep, one hour) in each of X, Y, Z directions	
Surrounding temperature		-10~+70°C (No dew condensation shall occur.)	
Connection		0.3mm ² , 2-core, OD ϕ 4mm, oil-resistant cabtyre cord	
Protection grade		IP67 (IEC Standard), JIS C0920 (Dust and water proof type)	
Output protective circuit		Provided	
Pilot lamp		LED (Red LED lights up at ON)	
Electric circuit			
Applicable load		Miniature relay, PLC	

AX TYPE/AZ TYPE SWITCHES

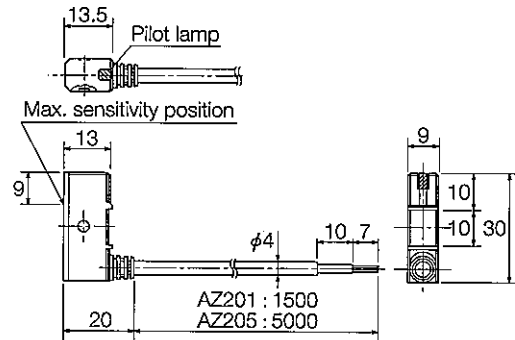
DIMENSIONS

(Unit : mm)

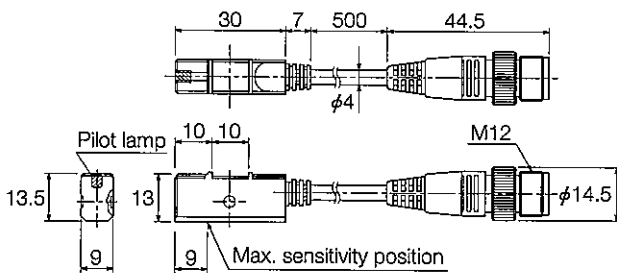
●With cord
AX201 · AX205



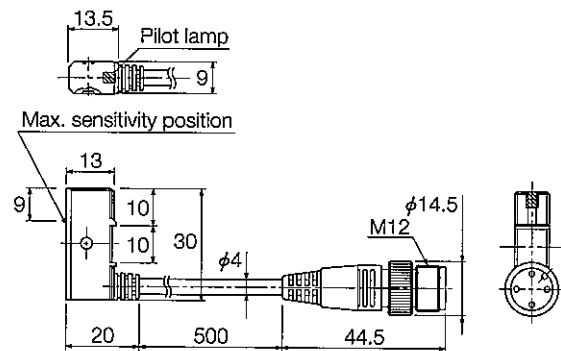
●With cord
AZ201 · AZ205



●With connector
AX20B

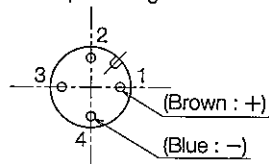


●With connector
AZ20B



AX20B (For DC)
AZ20B (For DC)

Connector pin arrangement



●Standard No. for Connector

Models M12X1 screw locking

- IEC 947-5-2
- DIN/VDE 0660 part208 A2
- NECA (Nippon Electric Control Equipment Industries Association) 4202 Connector for FA Sensors

Applicable Connectors

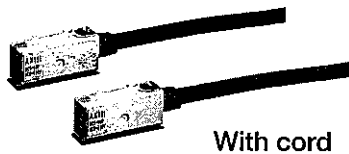
Maker	Name of Connector Series	
COHERENCE	VA connector	VA-4DS, VA-4DL
OMRON	XS2 sensor I/O connector	XS2
HIROSE	Connector for FA sensors	HR24

•For detailed information, refer to catalogs supplied from each maker.

AX TYPE/AZ TYPE SWITCHES

SOLID-STATE PROXIMITY SWITCH (2-wire, dual light type)

AX type

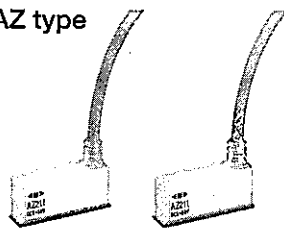


With cord

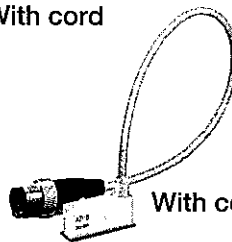


With connector

AZ type



With cord



With connector

Applicable cylinders

Series	Bore (mm)
X1G	φ 125, φ 140, φ 160
J1G	φ 20, φ 25, φ 32, φ 40, φ 50, φ 63
K1G	φ 32, φ 40, φ 50, φ 63, φ 80, φ 125
A1G	φ 125, φ 140, φ 160

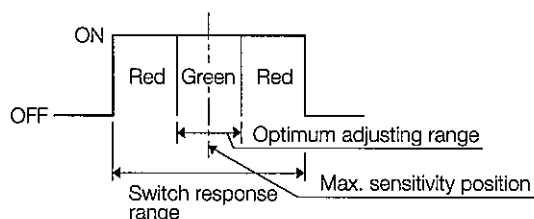
(Note) AZ type switch applicable X1G series alone.

SPECIFICATIONS

Model No.	With cord (1.5m)	AX211, AZ211
	With cord (5m)	AX215, AZ215
	With connector	AX21C, AZ21C
AX21D, AZ21D		
Wire direction	Axial	
Load voltage	DC5~30V	
Load current	DC : 5~40mA	
Internal voltage drop	Below 3V (At 40mA)	
Leak current	Below 1mA	
Response time	Below 1ms	
Reset time	Below 1ms	
Insulation resistance	100MΩ or more at DC500V megger (Between case and cord)	
Withstand voltage	AC1500V for one minute (Between case and cord)	
Shock resistance	490m/s ² (No repeating)	
Impact resistance	Double amplitude 0.6mm, 10 to 200Hz (log sweep, one hour) in each of X, Y, Z directions	
Surrounding temperature	-10~+70°C (No dew condensation shall occur.)	
Connection	0.3mm ² , 2-core, OD φ 4mm, oil-resistant cabtyre cord	
Protection grade	IP67 (IEC Standard), JIS C0920 (Dust and water proof type)	
Output protective circuit	Provided	
Pilot lamp	Switch response range : Red/green LED lights up. Optimum adjusting range : Green LED lights up.	
Electric circuit		
Applicable load	Miniature relay, PLC	

(Note) AX211CE, AX215CE and AX21BCE conforming to CE mark are available.

INDICATION BY LED

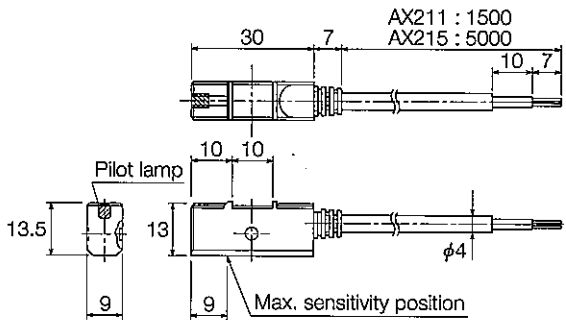


AX TYPE/AZ TYPE SWITCHES

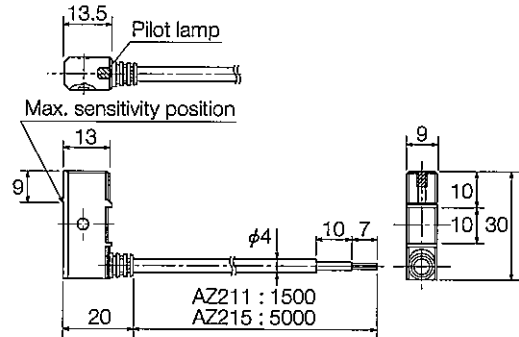
DIMENSIONS

(Unit : mm)

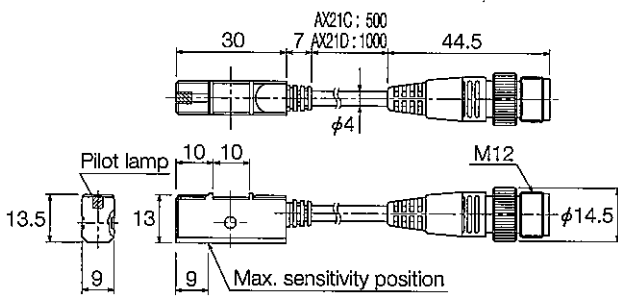
●With cord
AX211 · AX215



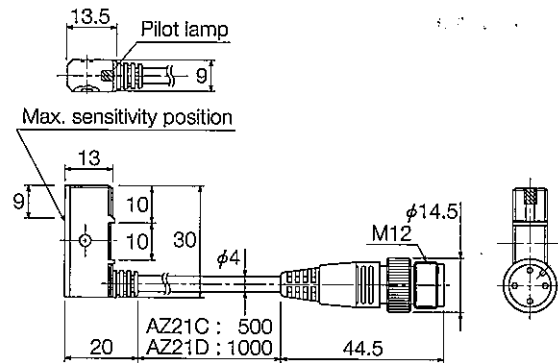
●With cord
AZ211 · AZ215



●With connector
AX21C · AX21D

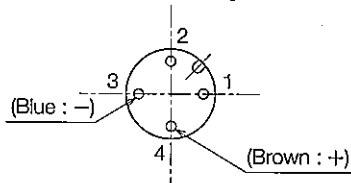


●With connector
AZ21C · AZ21D



AX21C · AX21D (For DC)
AZ21C · AZ21D (For DC)

Connector pin arrangement



Applicable Connectors

Maker	Name of Connector Series	
COHERENCE	VA connector	VA-4DS, VA-4DL
OMRON	XS2 sensor I/O connector	XS2
HIROSE	Connector for FA sensors	HR24

•For detailed information, refer to catalogs supplied from each maker.

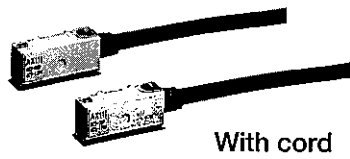
•As to connector pin arrangement (1 : +, 4 : -) for IEC Standard, contact KURODA.

•AX21B conforming to TMS Standard is also available.

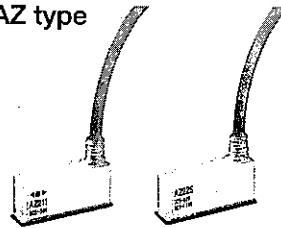
AX TYPE/AZ TYPE SWITCHES

SOLID-STATE PROXIMITY SWITCH (3-wire type)

AX type



AZ type



Applicable cylinders

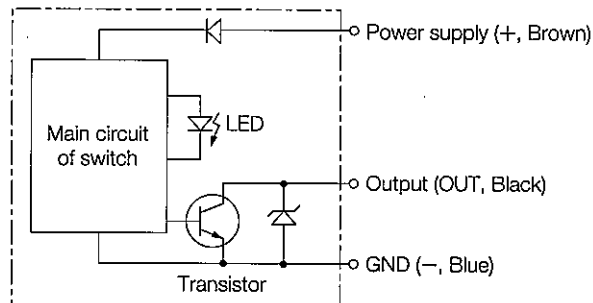
Series	Bore (mm)
X1G	ϕ 125, ϕ 140, ϕ 160
J1G	ϕ 20, ϕ 25, ϕ 32, ϕ 40, ϕ 50, ϕ 63
K1G	ϕ 32, ϕ 40, ϕ 50, ϕ 63, ϕ 80, ϕ 125
A1G	ϕ 125, ϕ 140, ϕ 160

(Note) AZ type switch applicable X1G series alone.

SPECIFICATIONS

Model No.	With cord (1.5m)	AX221	AZ221
	With cord (5m)	AX225	AZ225
Wire direction	Axial		Perpendicular to axis
Power voltage	DC5~30V		
Load voltage	DC : 5~30V		
Load current	Max. 200mA (NPN open collector output)		
Current consumption	Max. 15mA		
Internal voltage drop	Max. 0.6V at 200mA		
Leak current	Max. 10 μ A at DC30V		
Response time	Below 1ms		
Reset time	Below 1ms		
Insulation resistance	100M Ω or more at DC500V megger (Between case and cord)		
Withstand voltage	AC1500V for one minute (Between case and cord)		
Shock resistance	490m/s ² (No repeating)		
Impact resistance	Double amplitude 0.6mm, 10 to 200Hz (log sweep, one hour) in each of X, Y, Z directions		
Surrounding temperature	-10~+70°C (No dew condensation shall occur.)		
Connection	0.3mm ² , 3-core, OD ϕ 4mm, oil-resistant cabtyre cord		
Protection grade	IP67 (IEC Standard), JIS C0920 (Dust and water proof type)		
Output protective circuit	Provided		
Pilot lamp	LED (Red LED lights up at ON)		

Electric circuit



Applicable load

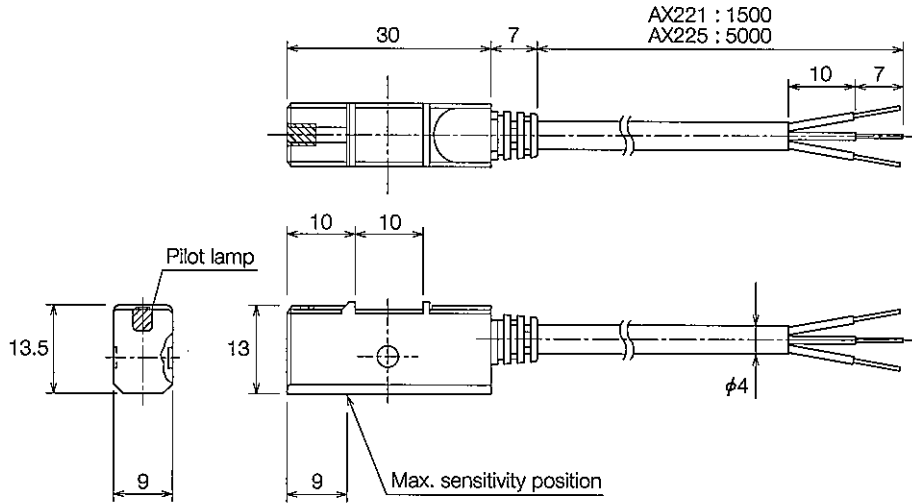
Miniature, relay, PLC, IC circuit

AX TYPE/AZ TYPE SWITCHES

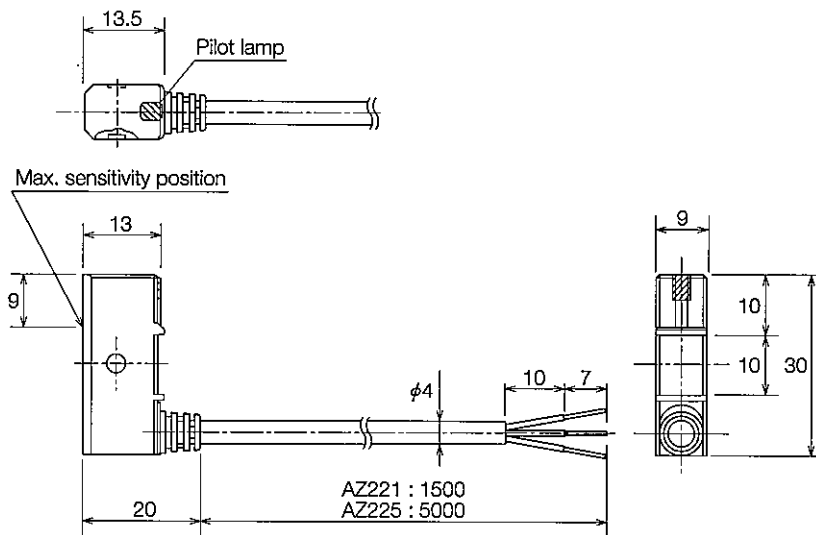
DIMENSIONS

(Unit : mm)

●With cord
AX221 · AX225

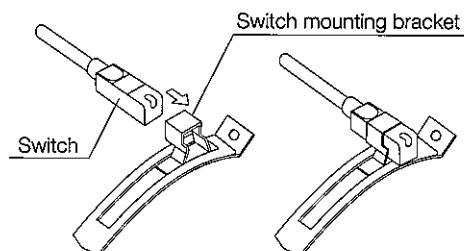
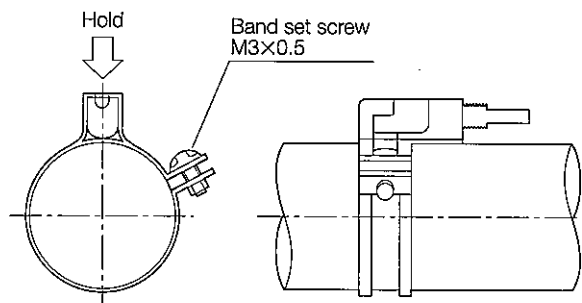


●With cord
AZ221 · AZ225



AX TYPE/AZ TYPE SWITCHES

MOUNTING THE SWITCH

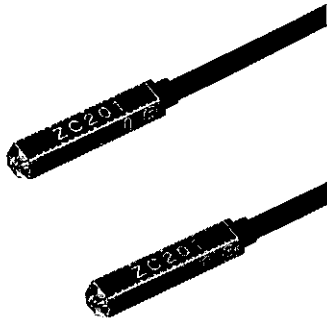


1. Twist the band and draw out one side of the switch mounting bracket from the slit of the band.
2. Insert the switch into the switch mounting bracket while adjusting to the slot and then fit the switch mounting bracket to the band again.
3. Remove the band set screw (M3), wind the band around the cylinder tube and set it to the detecting position roughly.
4. Fit the mounting hole on the band to the screw, lightly tighten the band set screw to fix temporarily.
5. Move the band and switch on the tube to set the detecting position. When the switch is turned on, it lights up. The detecting position of the switch will slightly change according to a change in piston and surrounding temperature. To ensure position detection, shift the switch set position from the switch-on position toward the piston entry side by 2 to 3mm. For the switch mounting position in case of stroke end detection, refer to UX value given in the catalog. For the dual light type, mount the switch so that the switch pilot lamp (green) lights up at the desired position.
6. When the set position has been determined, lightly hold the top of the switch and tighten the band set screw to fix. [Recommended clamping torque : 0.3N·m] (Note) Improper clamping torque may shift the switch position.

Model No. of switch mounting bracket

Model No. for AX type switch	Applicable bore (mm)
J120-AJ	φ 20
J125-AJ	φ 25
J132-AJ	φ 32
J140-AJ	φ 40
J150-AJ	φ 50
J163-AJ	φ 63

ZC TYPE SWITCHES



Compact, lightweight magnetic proximity switch

- Compact and lightweight (Comparison with switches of this type made by KURODA)
- Operating on both AC and DC voltages
- Oil-resistant cabtyre cord is used.

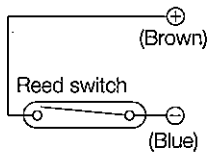
Applicable cylinders

Series	Bore (mm)
J1G	φ 20, φ 25, φ 32, φ 40, φ 50, φ 63

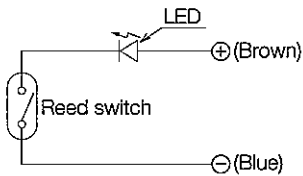
REED SWITCH

ELECTRIC CIRCUIT

ZC201



ZC205



SPECIFICATIONS

Model No.	With cord (1m)	ZC201A	ZC205A
	With cord (3m)	ZC201B	ZC205B
Wire direction	Axial		
Load voltage	AC	85~115V	—
	DC	5~28V	10~28V
Load current	AC	2~25mA	—
	DC	0.1~40mA	5~40mA
Internal voltage drop *1	Max. 2.1V (at load current 40mA)	Max. 10mV (at load current 40mA)	
Leak current	0mA		
Response time	Below 1ms		
Reset time	Below 1ms		
Insulation resistance	100MΩ or more at DC500V megger (Between case and cord)		
Withstand voltage	AC1500V for one minute (Between case and cord)		
Shock resistance *2	294m/s ²		
Impact resistance *2	Double amplitude 1.5mm, 10 to 55Hz (88.3m/s ²) Resonance frequency 2750±250Hz		
Surrounding temperature	0~+60°C (No dew condensation shall occur.)		
Connection	PVC 0.2mm ² , 2-core		
Protection grade	IP67 (IEC Standard), JIS C0920 (Water proof type)		
Pilot lamp	Not provided	LED (Lights up at ON)	
Applicable load	Miniature relay, PLC		

(Note) *When applying inductive load (miniature relay etc.) to a switch without a protective, be sure to fit a protective circuit (SK-100) to the load.

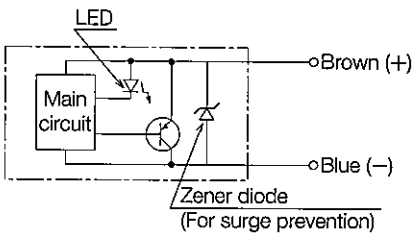
*1 : Internal voltage drop varies according to load current.

*2 : As per KURODA's test standard

ZC TYPE SWITCHES

SOLID-STATE PROXIMITY SWITCH (2-wire, one-light type)

ELECTRIC CIRCUIT



SPECIFICATIONS

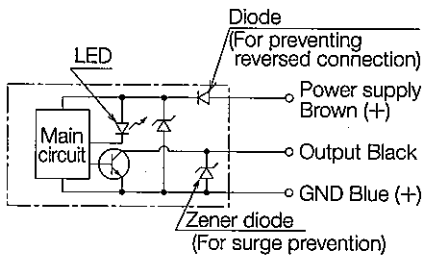
Model No.	With cord (1m)	ZC230A
	With cord (3m)	ZC230B
Wire direction	Axial	
Load voltage	DC10~28V	
Load current	4~50mA	
Internal voltage drop *1	3.5V MAX	
Leak current	Max. 1mA (at DC24V)	
Response time	Below 1ms	
Reset time	Below 1ms	
Insulation resistance	100MΩ or more at DC500V megger (Between case and cord)	
Withstand voltage	AC500V (50/60Hz) for one minute (Between case and cord)	
Shock resistance *2	294m/s ² (No repeating)	
Impact resistance *2	Double amplitude 1.5mm, 10 to 55Hz (88.3m/s ²)	
Surrounding temperature	0~+60°C (No dew condensation shall occur.)	
Connection	PVC 0.2mm ² , 2-core	
Protection grade	IP67 (IEC Standard), JIS C0920 (Water proof type)	
Output protective circuit	Provided	
Pilot lamp	LED (Lights up at ON)	
Applicable load	Miniature relay, PLC	

(Note) *1 : Internal voltage drop varies according to load current.

*2 : As per KURODA's test standard

SOLID-STATE PROXIMITY SWITCH (3-wire type)

ELECTRIC CIRCUIT



Model No.	With cord (1m)	ZC253A
	With cord (3m)	ZC253B
Wire direction	Axial	
Power voltage	DC : 4.5~28V	
Load current	Max. 100mA (NPN open collector output)	
Internal voltage drop *1	Max. 0.5V (at load current 50mA)	
Leak current	50 μ A MAX. (DC24V)	
Response time	Below 1ms	
Reset time	Below 1ms	
Insulation resistance	100MΩ or more at DC500V megger (Between case and cord)	
Withstand voltage	AC500V (50/60Hz) for one minute (Between case and cord)	
Shock resistance *2	294m/s ² (No repeating)	
Impact resistance *2	Double amplitude 1.5mm, 10 to 55Hz (88.3m/s ²) Resonance frequency 2750±250Hz	
Surrounding temperature	0~+60°C (No dew condensation shall occur.)	
Connection	PVC 0.2mm ² , 3-core	
Protection grade	IP67 (IEC Standard), JIS C0920 (Water proof type)	
Pilot lamp	LED (Lights up at ON)	
Applicable load	Miniature relay, PLC	

(Note) *1 : Internal voltage drop varies according to load current.

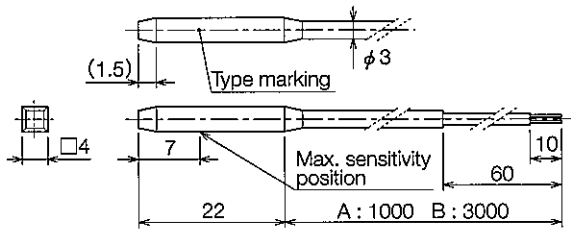
*2 : As per KURODA's test standard

ZC TYPE SWITCH

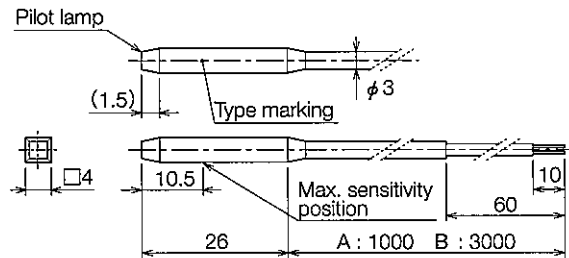
DIMENSIONS

(Unit : mm)

●ZC201□

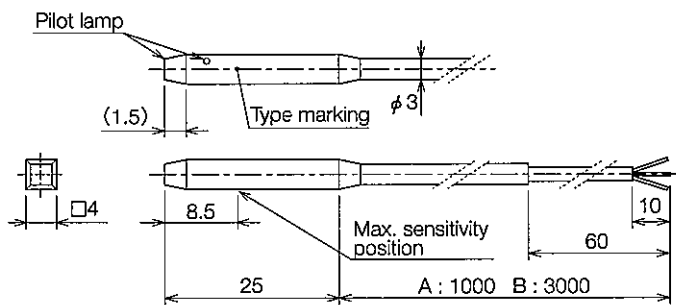


●ZC205□

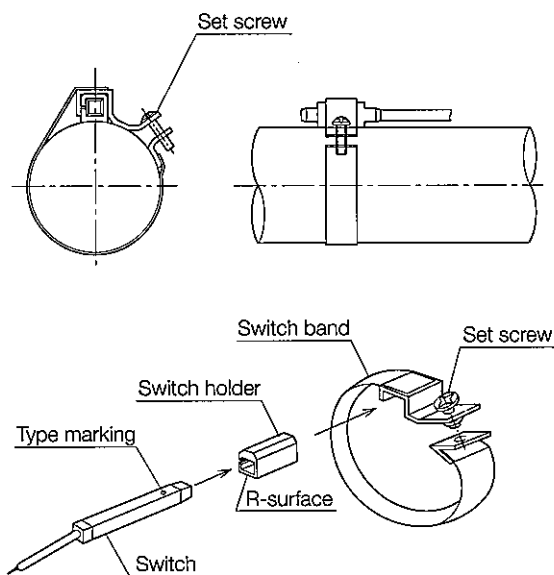


●ZC230□

●ZC253□



MOUNTING THE SWITCH



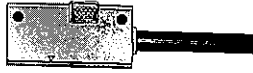
1. Set the switch in the switch holder so that the R-surface of the switch holder turns down and the type marking surface turns up.
2. Fix the switch holder to the tube using the switch band temporarily, with the R-surface of the switch holder turned down.
3. Tighten the set screw, with the top of the switch held at the detecting position.
[Clamping torque : 0.5N·m]
(Note) Tighten the set screw at the proper clamping torque. Improper clamping torque may shift the switch position.
4. When adjusting the switch finely axially, it is possible to shift the switch alone by loosening the set screw slightly.

Model No. of switch mounting bracket

Model No. for ZC type switch	Applicable bore (mm)
J120-ZJ	φ 20
J125-ZJ	φ 25
J132-ZJ	φ 32
J140-ZJ	φ 40
J150-ZJ	φ 50
J163-ZJ	φ 63

SR TYPE SWITCHES

REED SWITCH



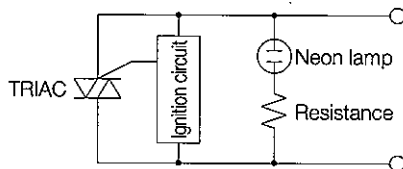
Applicable cylinders

Series	Bore (mm)
J1G	$\phi 20, \phi 25, \phi 32, \phi 40, \phi 50, \phi 63$
K1G	$\phi 32, \phi 40, \phi 50, \phi 63, \phi 80, \phi 100, \phi 125$
A1G	$\phi 125, \phi 140, \phi 160$

SPECIFICATIONS

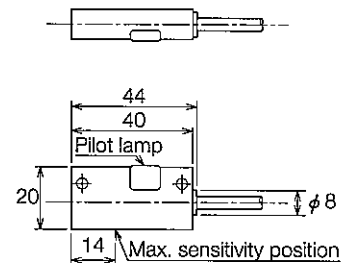
Model No.	SR405 (With cord 5m)
Load voltage	AC80~220V
Load current	2~300mA
Max. Switching capacity	30VA
Internal voltage drop	Below 2V
Leak current	Below 1mA
Response time	Below 1ms
Reset time	Below 11ms
Insulation resistance	100M Ω or more at DC500V megger (Between case and cord)
Withstand voltage	AC1500V for one minute (Between case and cord)
Shock resistance	294m/s ² (No repeating)
Impact resistance	98m/s ² , 10 to 55Hz (log sweep, 10 minutes), 2 hours in each of X, Y, Z directions
Surrounding temperature	-10~+70°C (No dew condensation shall occur.)
Connection	0.5mm ² , 2-core, OD $\phi 6$ mm, oil-resistant cabtyre cord (Gray)
Protection grade	IP67 (IEC Standard), JIS C0920 (Shock-and vibration-proof type)
Pilot lamp	Neon lamp (Lights up at OFF)
Applicable load	Miniature relay, PLC, Miniature solenoid, Pilot lamp

ELECTRIC CIRCUIT



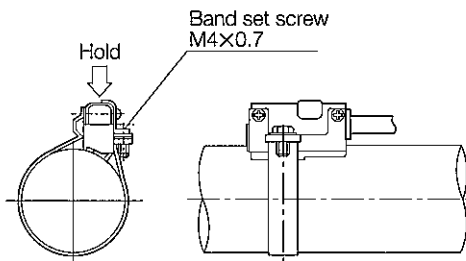
DIMENSIONS

(Unit : mm)



SR TYPE SWITCHES

MOUNTING THE SWITCH



1. Fit the switch to the band with the switch set screws (M3, 2 pcs.)

[Clamping torque : 0.3N·m]

2. Remove the band set screw (M4), wind the band around the cylinder tube and set the detecting position roughly.
3. Adjust the mounting hole on the band to the screw and screw in the set screw lightly to fix temporarily.
4. Set the detecting position by moving the band and switch on the tube.

When the switch turns on, the pilot lamp for DC is on and that for AC is off.

The detecting position of the switch will slightly change according to a change in piston rotation and surrounding temperature.

To ensure position detection, shift the switch set position from the switch-on position toward the piston entry side by 2 to 3mm.

For the switch mounting position in case of stroke end detection, refer to UX value given in the catalog.

5. When the set position has been determined, lightly hold the top of the switch and tighten the band set screw to fix.

[Recommended clamping torque : 0.3N·m]

(Note) Improper clamping torque may shift the switch position.

Model No. of switch mounting bracket

Model No. for SR type switch	Applicable bore (mm)
J120-SJ	φ 20
J125-SJ	φ 25
J132-SJ	φ 32
J140-SJ	φ 40
J150-SJ	φ 50
J163-SJ	φ 63

▲ WARNING

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