

INSTRUCTION MANUAL
OF
MANUALLY OPERATED GREASE PUMP

KM-42AK

KM-52AK


KM-42, 52AK MANUALLY OPERATED GREASE PUMP INSTRUCTION MANUAL

KM-type manually operated grease pump is used to the single-line (progress operated type) centralized lubricating equipment which is fit to the small scale lubricating system.


Operate it with following suitable lubrication this manual.


To use this pump and all centralized lubricating system, be sure to read this handling manual and drawing (construction drawing, circuit diagram), and after making sure to understand these contents enough, it can be controlled operation and maintenance. It is necessary to get basic knowledge of hydraulic, piping and this equipment to maintain the system.

Wrong operation may cause accident. To prevent these accident beforehand, be sure to operate rightly following this manual.


 **CAUTION** This sign shows receiving a serious or slight injury or occurring material damage, in case of wrong operation.


1. Caution to operate

 **CAUTION** Stop the operation when the handle operation is extraordinarily heavy than usual. Be sure to the pressure does not exceed 21MPa at gauge.

 **CAUTION** Do not put out the pipe or plug absolutely except maintenance and inspection. Because it is danger, if inside is high pressure. Be careful on working maintenance and inspection with following points.

2. Caution to maintenance and inspection

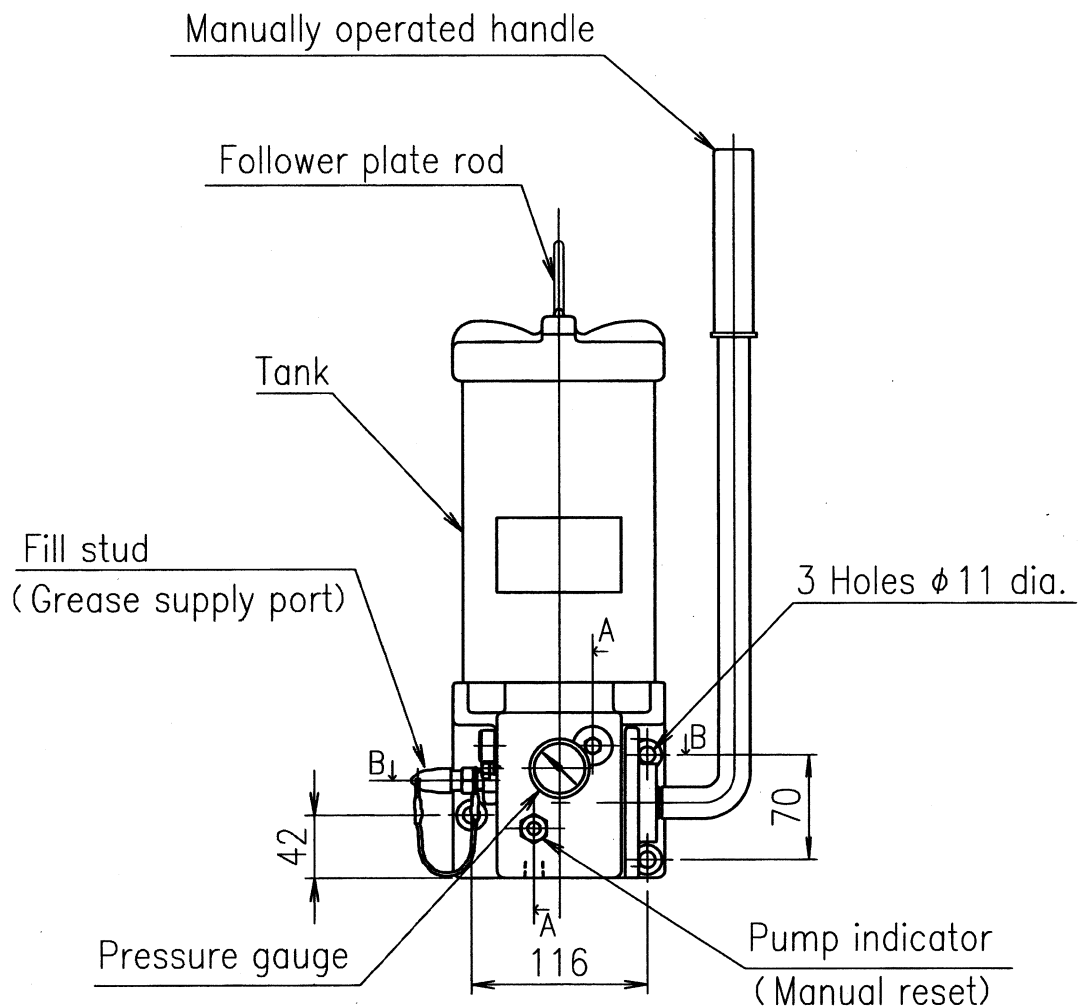
 **CAUTION** When maintaining and inspecting this equipment, starting to loosen the fitting or plug slowly and discharge as leaking pressure grease in the pipe because of danger. If loosening at a time, burst open the plug or pipe by the inside pressure may cause serious injury.

 **CAUTION** Be sure to inspect the lubrication of condition the bearing once a month, and confirm condition is normally.

1. Specification

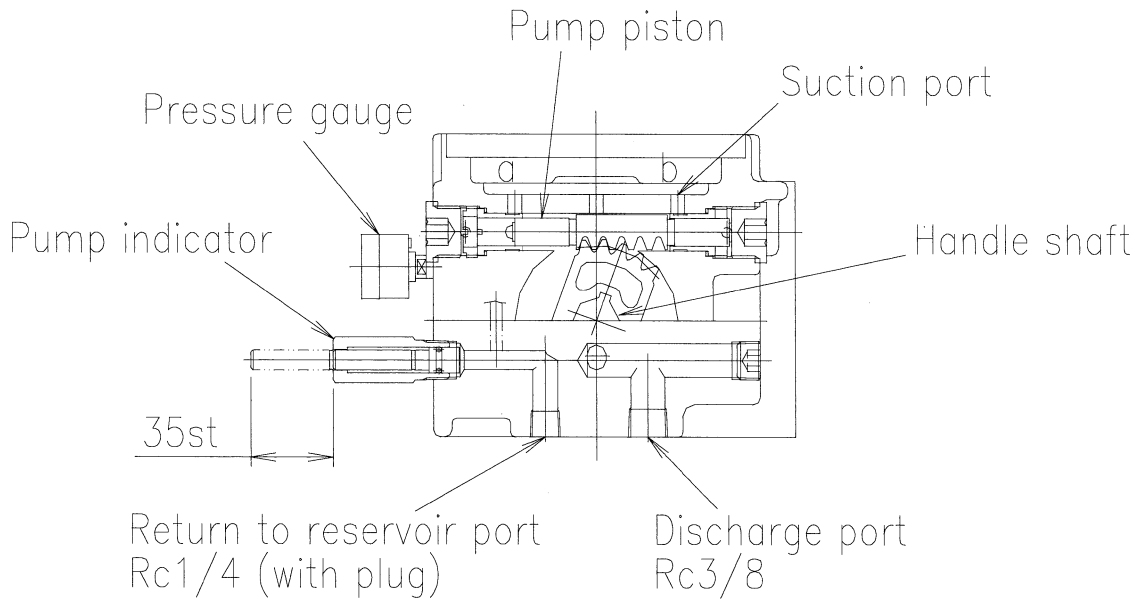
KM-42, 52AK

- Max. working pressure: 21MPa
- Discharge volume: 3.5cm³/stroke
- Tank capacity: 2ℓ (42AK), 4ℓ (52AK)
- Tank material: metal
- Grease in use: NLGI No. 0 to 2 grease
(Mixed consistency is more than 240 at working temperature)
- Lubricant charge port: quick coupler type
(Use the charge pump "PF-3-20, PF-1-20, 50FP or EFP-10" to charge grease)
- Operating place: indoor
(In case at the outdoors or special environment such as dusty place, protection cover is necessary.)
- Install method: 3-point bolt (M10) mount.
(No attachments of bolt, nut, washer)



2. Explanation of Construction and Operation

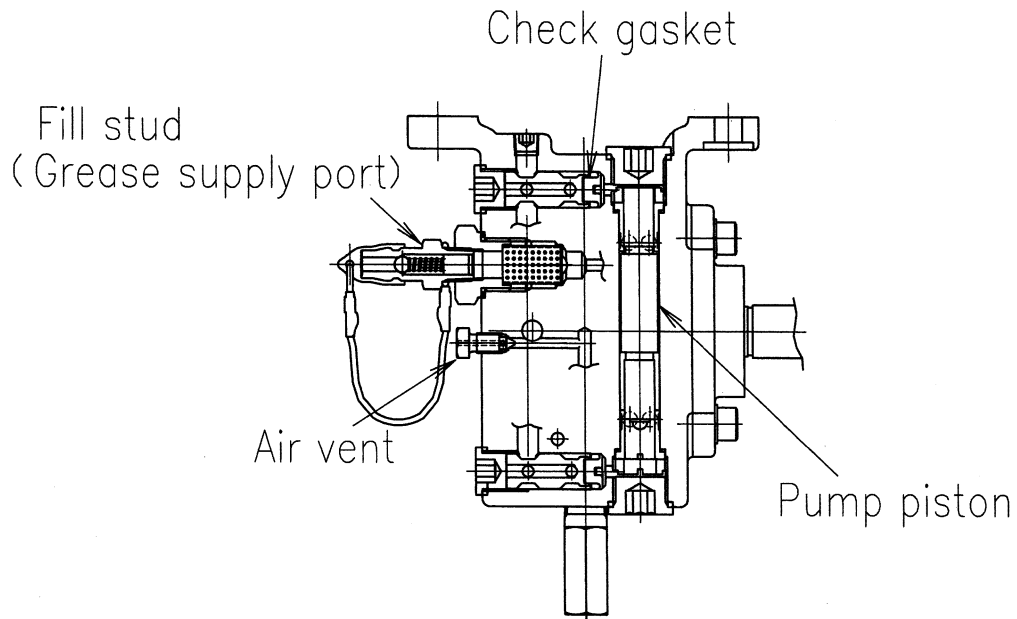
This pump is composed of pump body part and tank body part, and it is operated moving the handle about 40 degrees at front and back, and discharges grease. The handle is connected with the pinion through the handle shaft, and the pinion is meshed with the rack in the pump piston. Therefore handle operation makes pump piston moving reciprocally, and thus sucks and discharging grease.



A-A SECTION

When the pump piston moves one side, suction port (a or b) of the other side is opened, grease comes into the cylinder by vacuum force of the movement of the pump piston.

Then operating the handle reversed direction, the movement of the pump piston also reverse operation to close the suction port, which formerly sucks grease. Moreover, continuous handle operation makes higher pressure in the cylinder, pushes to discharge port. At this time, another side of the pump piston, sucking grease to the cylinder. These reciprocation work of the handle makes pump also repeating go and return work to discharge grease.



B-B SECTION

Monitoring of lubrication. (Pump indicator)

Pump indicator of the pump front side, opens into the discharge port of master distributing valve through the return port of the bottom. According to the handle operation (lubrication), part of grease is come back from master distributing valve to the pump. Returned grease pushes out indicator, then make sure to lubricate normally.

In small-required grease volume type, it is planed to complete one cycle lubrication by full stroke of indicator. In case large volume required several stroke.

When the indicator strokes fully, lubricate by pushing back the indicator by finger. If continuing lubrication at the full stroke position, the supply of grease may be possible. But monitor by indicator is not possible.

Plan of the pump indicator refer to our catalogue " SINGLE LINE CENTRALIZED LUBLCATING SYSTEM "

Indication of remaining grease volume.

In the tank, there is a follower plate, which keeps the grease level horizontally. And by position of the follower plate rod connected to the follower plate, it is possible to confirm how much grease remains in the tank.

3. Preparation

Installation of KM pump

Fix the pump firmly to keep the handle operation smooth.

Piping

Connect pipe and lubricating system by selecting the piping materials suitable for Max. operating pressure (21 MPa) of KM pump. As the piping material, refer to our catalogue " SINGLE LINE CENTRALIZED LUBRICATING SYSTEM ".

Before connecting, be sure to do flashing and to charge grease in the pipe.

Replenishment of the grease

According to consumption of grease, it needs to replenish new grease. When replenishment, use charge pump as optional goods (PF-1, PF-3, 50FP, EFP-10).

Quick coupler type charging hose is able to put on and off easily.

So as not to blow air to KM pump, ventilate air from the charge pump enough.

Also be careful to avoid blowing air when discharging grease volume being small.

Be sure on connection it no foreign matter is stuck to the connector of quick coupler and fillstud.

Make charge pump to work, fulfill the tank with grease.

When the follower plate rod of KM pump rise to show red line, charge is completed.

Air ventilation of the pump

Loosen the air vent valve of the pump side, and operate the handle of KM pump.

Then grease mixed with air is pushed out from air vent valve. Operate the handle until there is no grease mixed with air, then only grease comes out, air ventilation is complete.

That's all preparation is complete.

4. Lubricating operation

If the preceding preparation is complete, operate just handle by watching the pump indicator and pressure gauge, thus grease is supplied all over the lubricating system.

5. Caution

Using high viscosity grease at low temperature causes hard handle operating force and difficulty on lubrication. Use suitable viscosity grease for environmental temperature.

In case of charging grease to the tank, be sure to use the charge pump. If charging grease by removing the upper cap, it causes mixture with air and dust. It causes bad suction or other troubles.

Do not increase pressure more than Max. working pressure (21MPa) by handle operation to avoid troubles at the pump and other equipment.

6. Maintenance - Inspection

Keep record of the pressure at normal condition (different in summer and winter) for reference on inspection.

If operating pressure is high abnormally, it is supposed clogging in the lubricating system.

Inspect and repair the whole system.

If operating pressure is low abnormally and pumps indicator does not move, it is supposed to mix with air in the pump and lubricating system.

Do air ventilation.

About once a month, inspect lubricating condition of the bearing and leakage of the lubricating system and lubricating pressure.

INSTRUCTION MANUAL
OF
MANUALLY OPERATED GREASE PUMP

KM-32AKP-10
KM-52AKP


KM-32AKP-10, KM-52AKP MANUALLY OPERATED GREASE PUMP INSTRUCTION MANUAL

KM-type manually operated grease pump is used to the single-line (progress operated type) centralized lubricating equipment which is fit to the small scale lubricating system.


Operate it with following suitable lubrication this manual.


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
1. Caution to operate

 **CAUTION** Stop the operation when the handle operation is extraordinarily heavy than usual. Be sure to the pressure does not exceed 21MPa at gauge.
On operation, do not place stress on the other part (such as Tank, Pressure gauge or Piping) except the handle.

 **CAUTION** Do not put out the pipe or plug absolutely except maintenance and inspection. Because it is danger, if inside is high pressure. Be careful on working maintenance and inspection with following points.

2. Caution to maintenance and inspection

 **CAUTION** When maintaining and inspecting this equipment, starting to loosen the fitting or plug slowly and discharge as leaking pressure grease in the pipe because of danger. If loosening at a time, burst open the plug or pipe by the inside pressure may cause serious injury.

 **CAUTION** Be sure to inspect the lubrication of condition the bearing once a month, and confirm condition is normally.

1. Specification

KM-32AKP-10, KM-52AKP

Max. working pressure: 21MPa

Discharge volume: 3.5cm³/stroke

Tank capacity: 1.6ℓ (32AKP-10), 3ℓ (52AKP)

Tank material: plastic

Grease in use: NLGI No. 0~2 grease

(Mixed consistency is more than 240 at working temperature)

Lubricant charge port: quick coupler type

(Use the charge pump "PF-3-20, PF-1-20 or EFP-10"
to charge grease)

Operating place: indoor

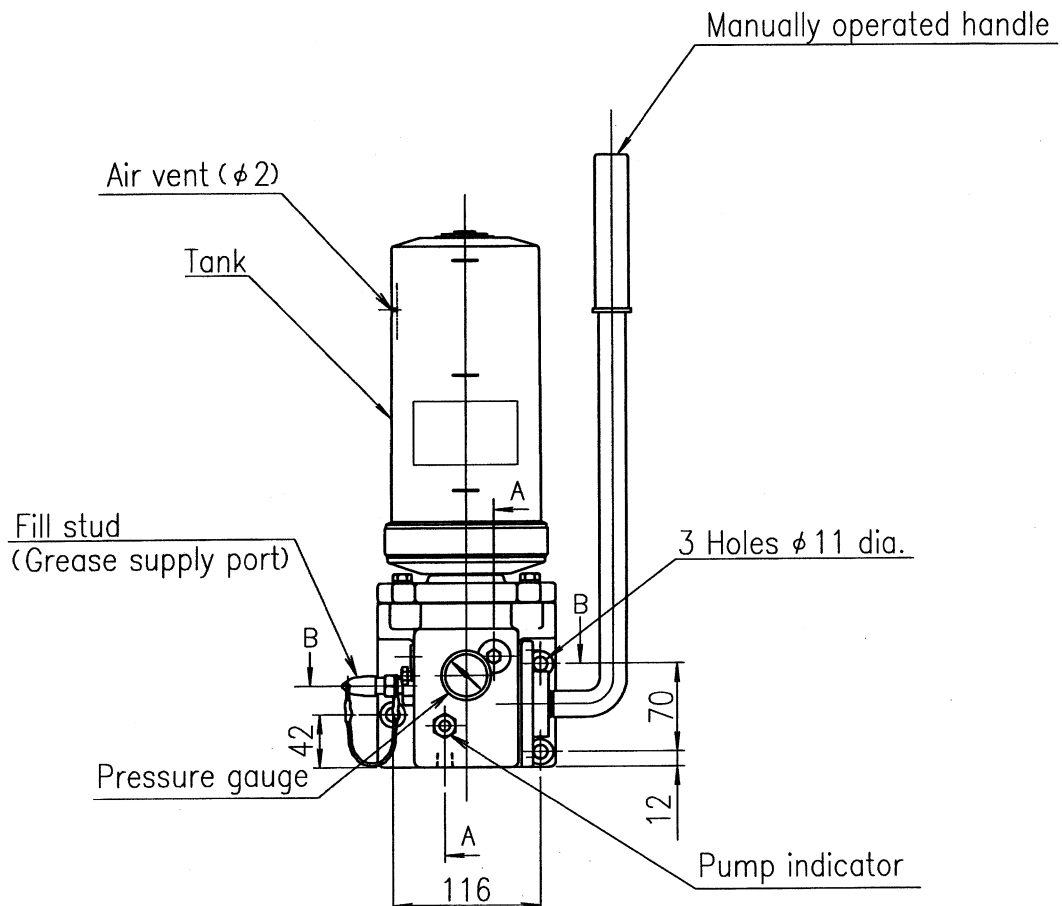
(In case at the outdoors or special environment such as dusty
place,

protection cover is necessary.)

Install method: 3-point bolt (M10) mount.

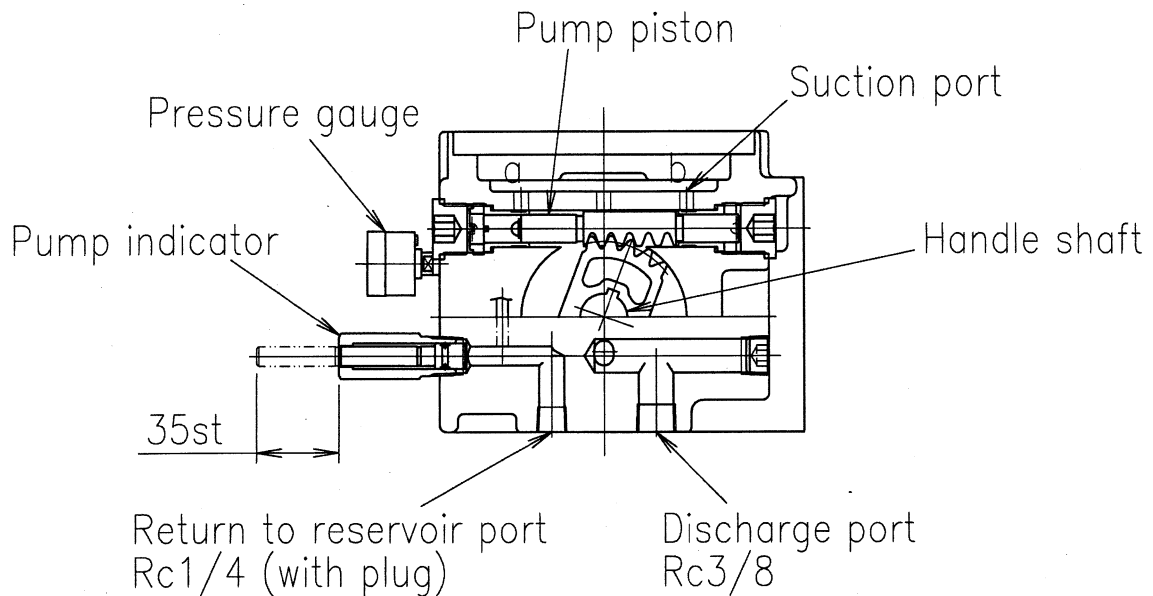
(No attachments of bolt, nut, washer)

KM-32AKP-10



2. Explanation of Construction and Operation

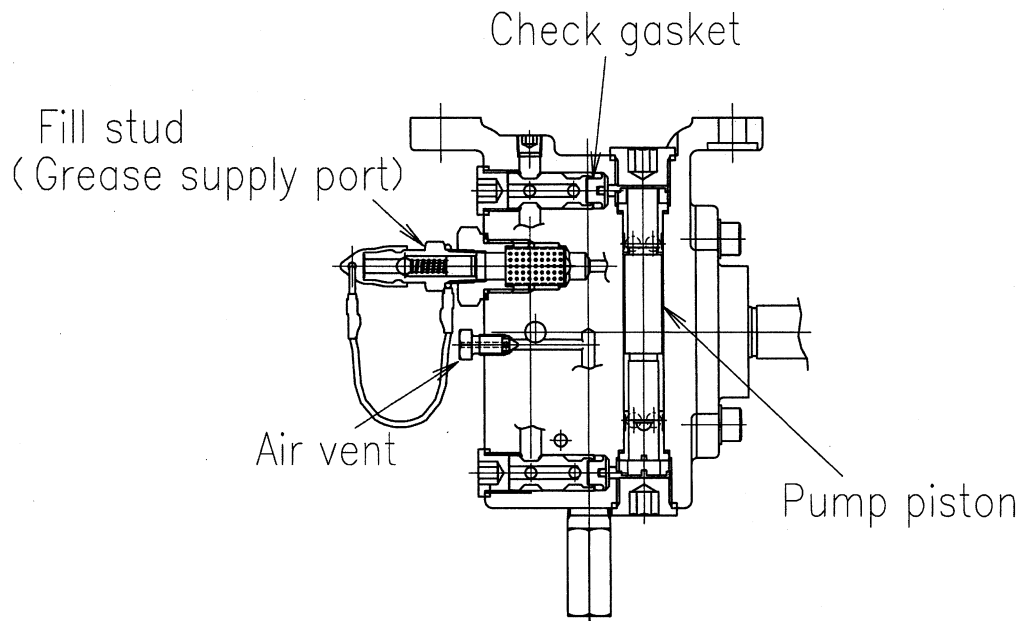
This pump is composed of pump body part and tank body part, and it is operated moving the handle about 40 degrees at front and back, and discharges grease. The handle is connected with the pinion through the handle shaft, and the pinion is meshed with the rack in the pump piston. Therefore handle operation makes pump piston moving reciprocally, and thus sucks and discharging grease.



A-A SECTION

When the pump piston moves one side, suction port (a or b) of the other side is opened, grease comes into the cylinder by vacuum force of the movement of the pump piston.

Then operating the handle reversed direction, the movement of the pump piston also reverse operation to close the suction port, which formerly sucks grease. Moreover, continuous handle operation makes higher pressure in the cylinder, pushes to discharge port. At this time, another side of the pump piston, sucking grease to the cylinder. These reciprocation work of the handle makes pump also repeating go and return work to discharge grease.



B-B SECTION

Monitoring of lubrication. (Pump indicator)

Pump indicator of the pump front side, opens into the discharge port of master distributing valve through the return port of the bottom. According to the handle operation (lubrication), part of grease is come back from master distributing valve to the pump. Returned grease pushes out indicator, then make sure to lubricate normally.

In small-required grease volume type, it is planed to complete one cycle lubrication by full stroke of indicator. In case large volume required several stroke.

When the indicator strokes fully, lubricate by pushing back the indicator by finger. If continuing lubrication at the full stroke position, the supply of grease may be possible. But monitor by indicator is not possible.

Plan of the pump indicator refer to our catalogue " SINGLE LINE CENTRALIZED LUBLCATING SYSTEM "

Indication of remaining grease volume.

In the tank, there is a follower plate, which keeps the grease level horizontally. And by position of the follower plate, it is possible to confirm how much grease remains in the tank.

3. Preparation

Installation of KM pump

Fix the pump firmly to keep the handle operation smooth.

Piping

Connect pipe and lubricating system by selecting the piping materials suitable for Max. operating pressure (21 MPa) of KM pump. As the piping material, refer to our catalogue " SINGLE LINE CENTRALIZED LUBRICATING SYSTEM ".

Before connecting, be sure to do flashing and to charge grease in the pipe.

Replenishment of the grease

According to consumption of grease, it needs to replenish new grease. When replenishment, use charging pump as optional goods (PF-1, PF-3, EFP-10).

Quick coupler type charging hose is able to put on and off easily.

So as not to blow air to KM pump, before connecting the hose to KM pump, fulfill the hose of charging pump with grease.

Also, when discharging grease volume being small, stop charging and be careful to avoid blowing air.

Be sure on connection it no foreign matter is stuck to the connector of quick coupler and fillstud.

Fulfill the tank with grease by operating charging pump.

At the first time, charge to empty tank, pushing air below follower plate out from air vent hole of the tank side.

When the grease comes out from air vent hole, stop charging grease.

From the second time, stop to charge when the follower plate rises up to lower part of drain hole of $\phi 2$ of the tank.

Air ventilation of the pump

Loosen the air vent valve of the pump side, and operate the handle of KM pump.

Then grease mixed with air is pushed out from air vent valve. Operate the handle until there is no grease mixed with air, then only grease comes out, air ventilation is complete. Tighten the air vent valve as before.

That's all preparation is complete.

4. Lubricating operation

If the preceding preparation is complete, operate just handle by watching the pump indicator and pressure gauge, thus grease is supplied all over the lubricating system.

5. Caution

Using high viscosity grease at low temperature causes hard handle operating force and difficulty on lubrication. Use suitable viscosity grease for environmental temperature.

In case of charging grease to the tank, be sure to use the charge pump. If charging grease by removing the upper cap, it causes mixture with air and dust. It causes bad suction or other troubles.

Do not increase pressure more than Max. working pressure (21MPa) by handle operation to avoid troubles at the pump and other equipment.

On operating the handle, do not place stress on the other part (such as Tank, Pressure gauge or Connecting piping and so on) except the handle, to avoid a damage of the parts.

6. Maintenance · Inspection

Keep record of the pressure at normal condition (different in summer and winter) for reference on inspection.

If operating pressure is high abnormally, it is supposed clogging in the lubricating system.

Inspect and repair the whole system.

If operating pressure is low abnormally and pumps indicator does not move, it is supposed to mix with air in the pump and lubricating system.

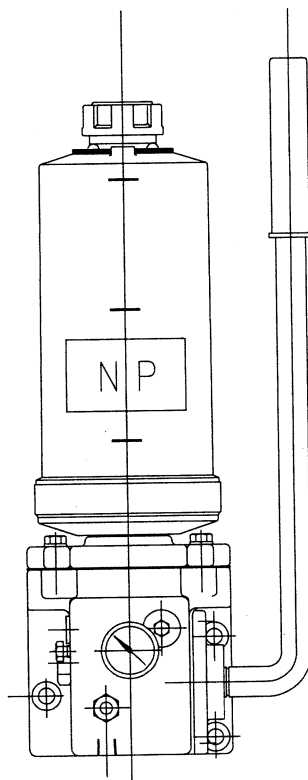
Do air ventilation.

About once a month, inspect lubricating condition of the bearing and leakage of the lubricating system and lubricating pressure.

KM-3BKP-10 MANUALLY OPERATED OIL PUMP INSTRUCTION MANUAL

KM-type manually operated oil pump is used to the single-line (progress operated type) centralized lubricating equipment which is fit to the small scale lubricating system.

Operate it with following suitable lubrication this manual.



To use this pump and all centralized lubricating system, be sure to read this handling manual and drawing (dimension drawing, circuit diagram), and after making sure to understand these contents enough, it can be controlled operation and maintenance. It is necessary to get basic knowledge of hydraulic, piping and this equipment to maintain the system.

Wrong operation may cause accident. To prevent these accident beforehand, be sure to operate rightly following this manual.

⚠ CAUTION This sign shows receiving a serious or slight injury or occurring material damage, in case of wrong operation.

1. Caution to operate**⚠ CAUTION**

Stop the operation when the handle operation is heavy than usual. Be sure to the pressure does not exceed 10MPa at gauge.

On operation, do not place stress on the other part (such as Tank, Pressure gauge or Piping) except the handle.

⚠ CAUTION

Do not put out the pipe or plug absolutely except maintenance and inspection. Because it is danger, if inside is high pressure. Be careful on working maintenance and inspection with following points.

2. Caution to maintenance and inspection**⚠ CAUTION**

When maintaining and inspecting this equipment, starting to loosen the fitting or plug slowly and discharge as leaking pressure oil in the pipe because of danger. If loosening at a time, burst open the plug or pipe by the inside pressure may cause serious injury.

⚠ CAUTION

Be sure to inspect the lubrication of condition the bearing once a month, and confirm condition is normally.

1. Specification

KM-3BKP-10

Max. working pressure: 10MPa

Discharge volume: 7cm³/stroke

Tank capacity: 1.6ℓ

Tank material: plastic

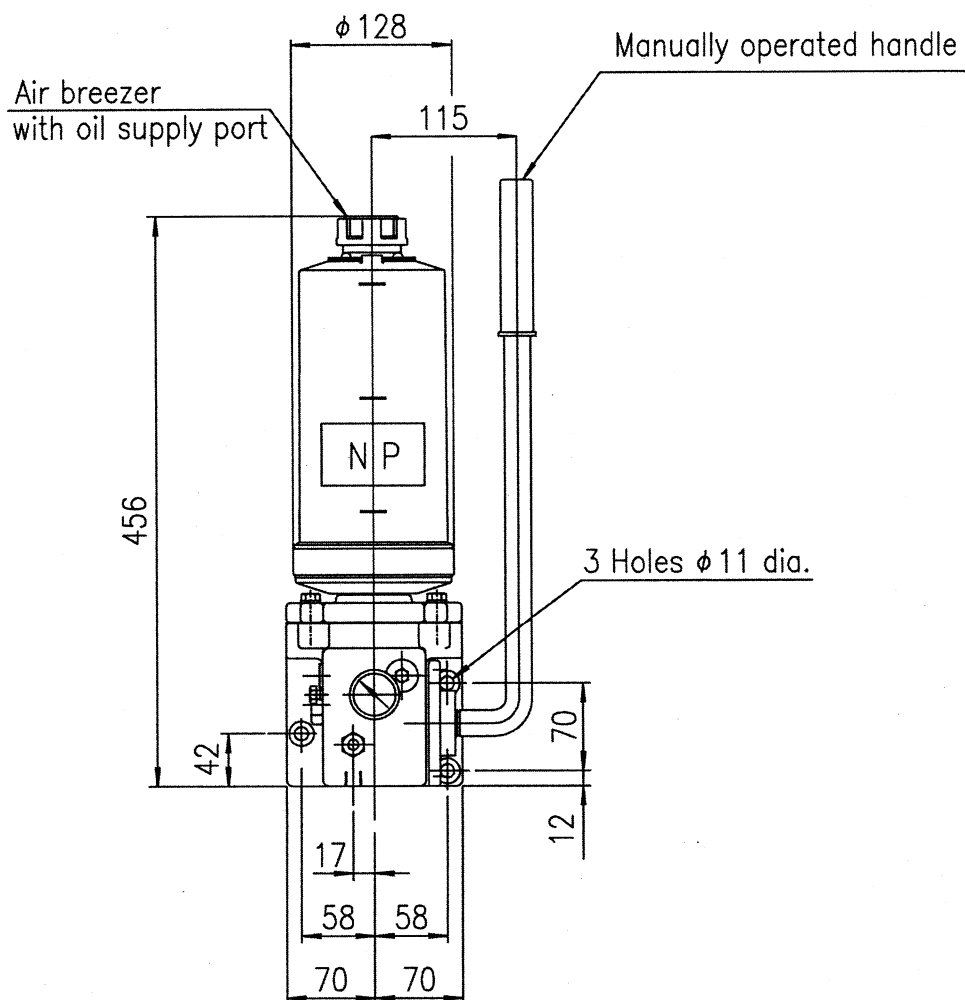
Oil in use: Hydraulic oil

Operating place: indoor

(In case at the outdoors or special environment such as dusty place, protection cover is necessary.)

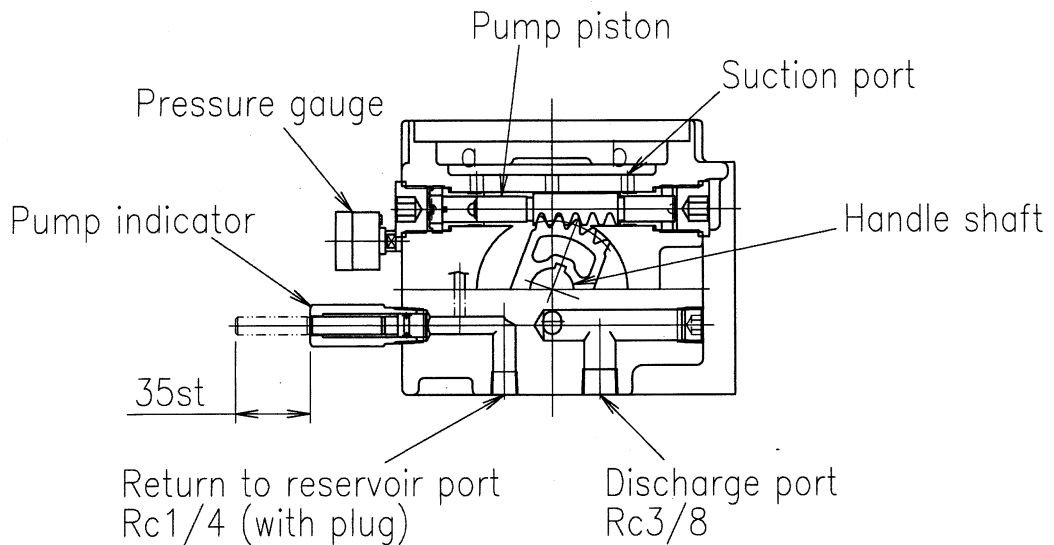
Install method: 3-point bolt (M10) mount.

(No attachments of bolt, nut, washer)



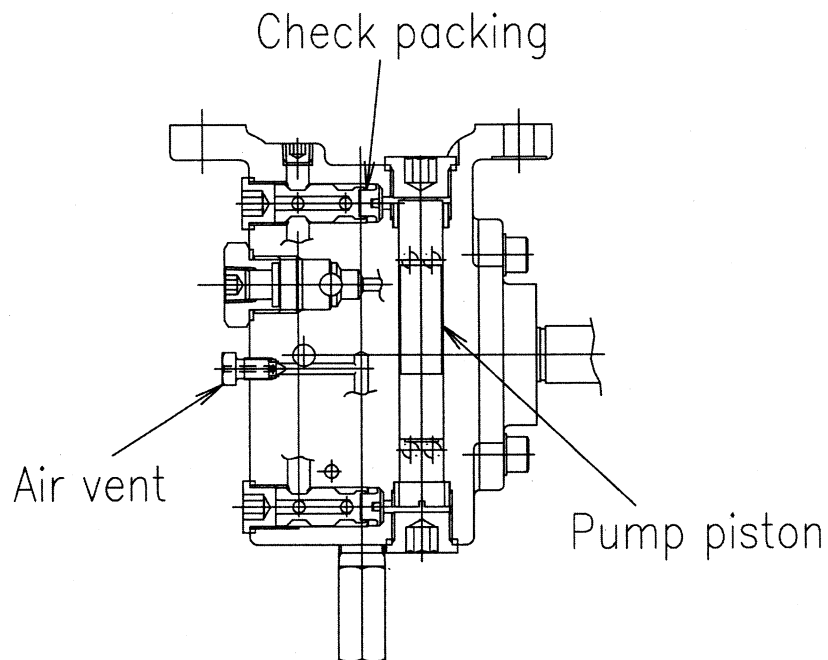
2. Explanation of Construction and Operation

This pump is composed of pump body part and tank body part, and it is operated moving the handle about 40 degrees at front and back, and discharges oil. The handle is connected with the pinion through the handle shaft, and the pinion is meshed with the rack in the pump piston. Therefore handle operation makes pump piston moving reciprocally, and thus sucks and discharging oil.



When the pump piston moves one side, suction port (a or b) of the other side is opened, oil comes into the cylinder by vacuum force of the movement of the pump piston.

Then operating the handle reversed direction, the movement of the pump piston also reverse operation to close the suction port, which formerly sucks oil. Moreover, continuous handle operation makes higher pressure in the cylinder, pushes to discharge port. At this time, another side of the pump piston, sucking oil to the cylinder. These reciprocation work of the handle makes pump also repeating go and return work to discharge oil.



Monitoring of lubrication. (Pump indicator)

Pump indicator of the pump front side, opens into the discharge port of master distributing valve through the return port of the bottom. According to the handle operation (lubrication), part of oil is come back from master distributing valve to the pump. Returned oil pushes out indicator, then make sure to lubricate normally.

In small-required oil volume type, it is planed to complete one cycle lubrication by full stroke of indicator. In case large volume required several stroke.

When the indicator strokes fully, lubricate by pushing back the indicator by finger. If continuing lubrication at the full stroke position, the supply of oil may be possible. But monitor by indicator is not possible.

Plan of the pump indicator refer to our catalogue " SINGLE LINE CENTRALIZED LUBLCATING SYSTEM "

3. Preparation

Installation of KM pump

Fix the pump firmly to keep the handle operation smooth.

Piping

Connect pipe and lubricating system by selecting the piping materials suitable for Max. operating pressure (10 MPa) of KM pump. As the piping material, refer to our catalogue " SINGLE LINE CENTRALIZED LUBRICATING SYSTEM ".

Before connecting, be sure to do flashing and to charge oil in the pipe.

Replenishment of the oil

According to consumption of oil, it needs to replenish new oil.
Replenish oil removing oil supply port cap on upper part of tank.

Air ventilation of the pump

Loosen the air vent valve of the pump side, and operate the handle of KM pump.

Then oil mixed with air is pushed out from air vent valve. Operate the handle until there is no oil mixed with air, then only oil comes out, air ventilation is complete. Tighten the air vent valve as before.

That's all preparation is complete.

4. Lubricating operation

If the preceding preparation is complete, operate just handle by watching the pump indicator and pressure gauge, thus oil is supplied all over the lubricating system.

5. Caution

In case of charging oil to the tank, be sure to charge with strainer. If charging oil by removing strainer, it causes mixture with air and dust. It causes bad suction or other troubles.

Do not increase pressure more than Max. working pressure (10 MPa) by handle operation to avoid troubles at the pump and other equipment.

On operating the handle, do not place stress on the other part (such as Tank, Pressure gauge or Connecting piping and so on) except the handle, to avoid a damage of the parts.

6. Maintenance · Inspection

If operating pressure is high abnormally, it is supposed clogging in the lubricating system.

Inspect and repair the whole system.

If operating pressure is low abnormally and pumps indicator does not move, it is supposed to mix with air in the pump and lubricating system.

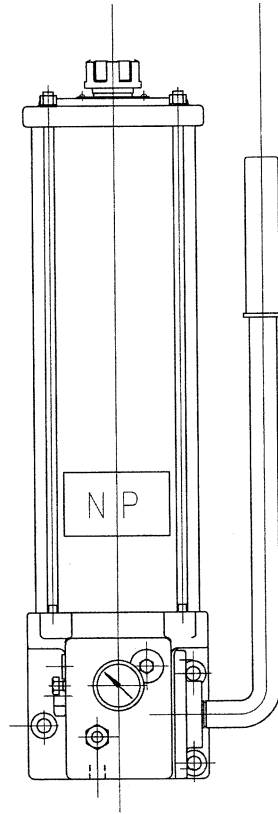
Do air ventilation.

About once a month, inspect lubricating condition of the bearing and leakage of the lubricating system and lubricating pressure.

KM-5BKP MANUALLY OPERATED OIL PUMP INSTRUCTION MANUAL

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⚠ CAUTION

Be sure to inspect the lubrication of condition the bearing once a month, and confirm condition is normally.

1. Specification

KM-5BKP

Max. working pressure: 10MPa

Discharge volume: 7cm³/stroke

Tank capacity: 3ℓ

Tank material: plastic

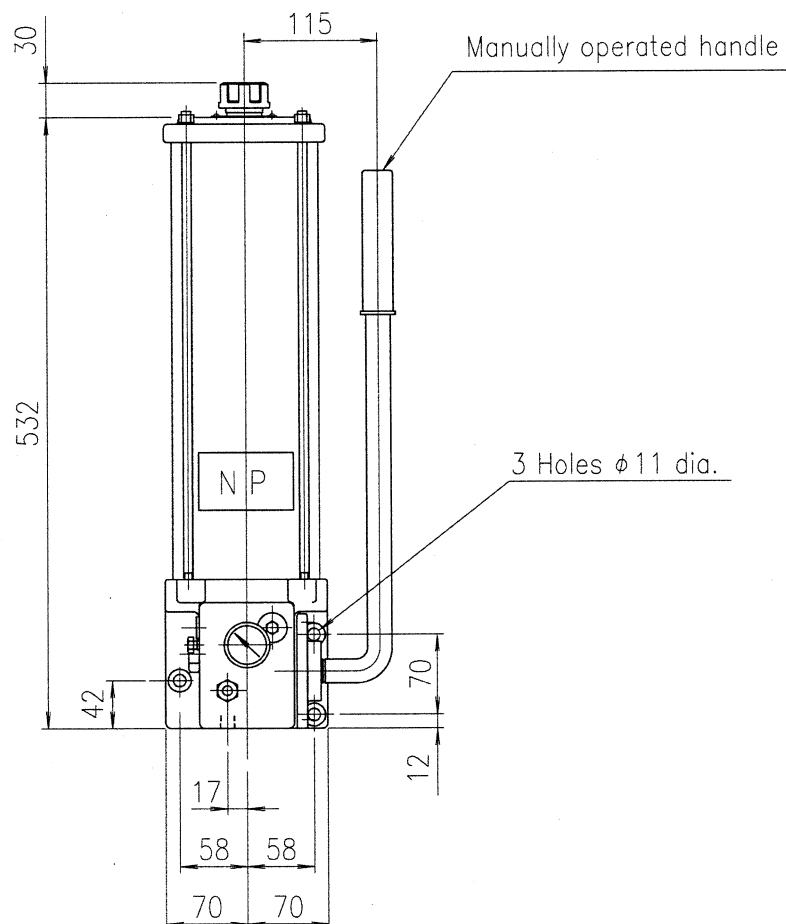
Oil in use: Hydraulic oil

Operating place: indoor

(In case at the outdoors or special environment such as dusty place, protection cover is necessary.)

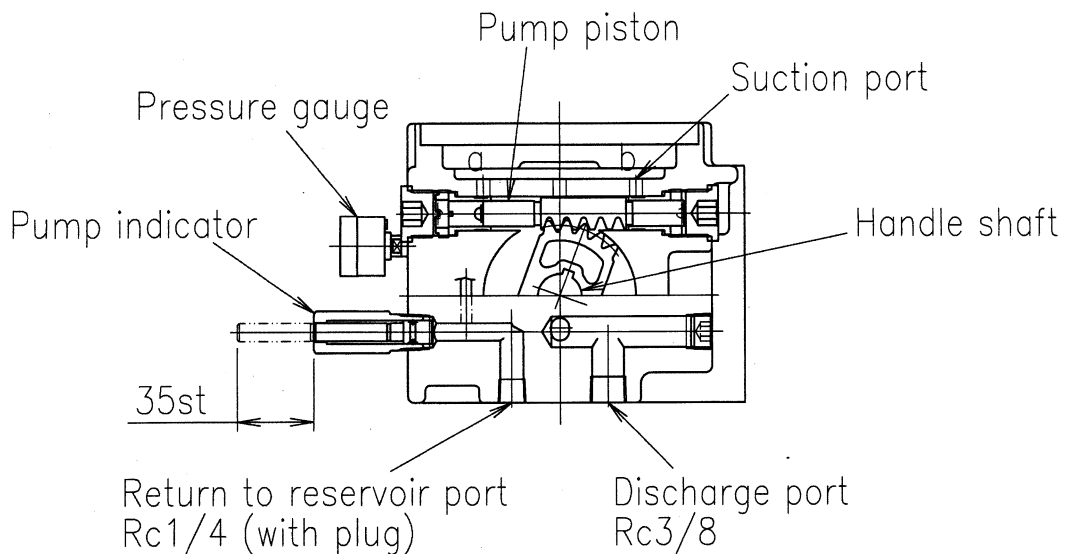
Install method: 3-point bolt (M10) mount.

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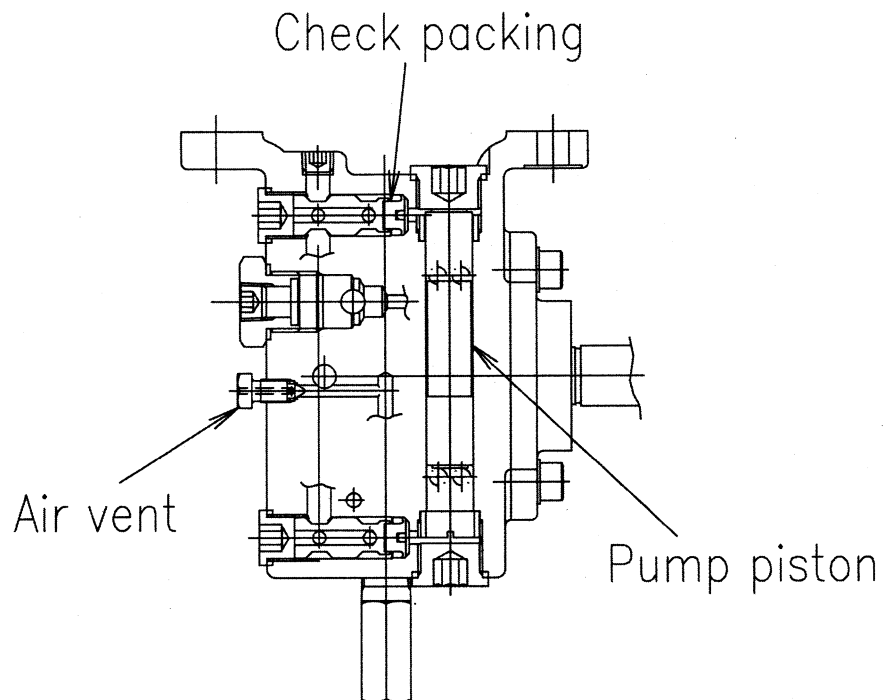
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3. Preparation

Installation of KM pump

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Piping

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Before connecting, be sure to do flashing and to charge oil in the pipe.

Replenishment of the oil

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Replenish oil removing oil supply port cap on upper part of tank.

Air ventilation of the pump

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Do air ventilation.

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