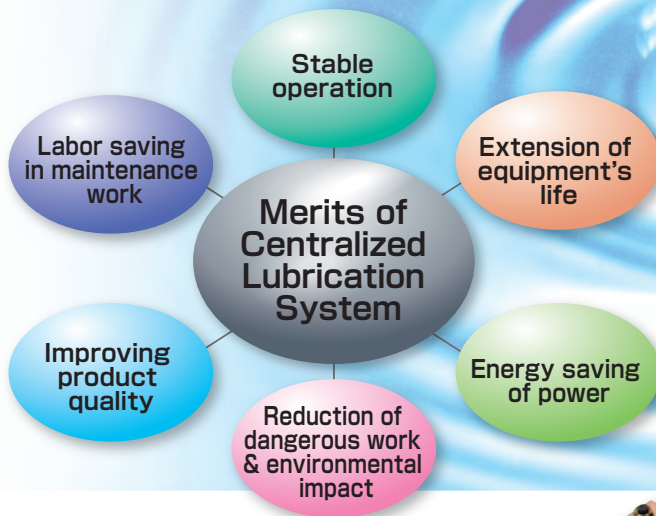


KOWA'S Lubrication product line ups

SELECTION GUIDE

for Lubrication system

Centralized lubrication system is a device that supplies lubricant at the right time and in the right quantity based on lubrication technology (Tribology), which enables stable operation of machinery and equipment.



Centralized Lubrication System

- Single line system
- Dual line system
- Oil air system
- Monitoring items
- Chain lubrication, etc.

Forced Circulating Lubrication System

- Oil feeding equipment
- Flow meters (Oil flow)
- Various unit manufacturing



KOWA CORPORATION

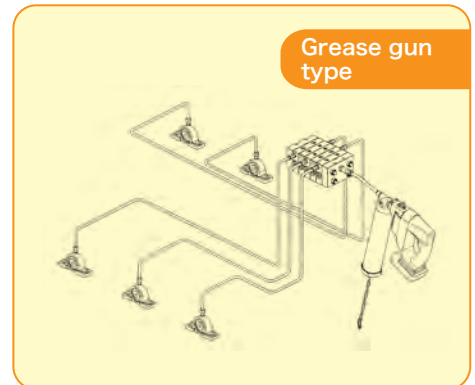
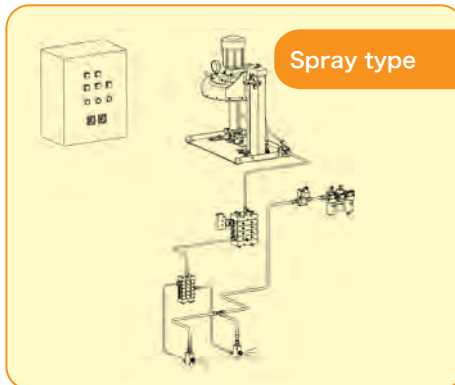
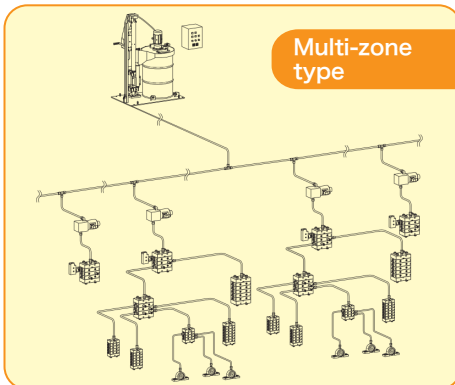
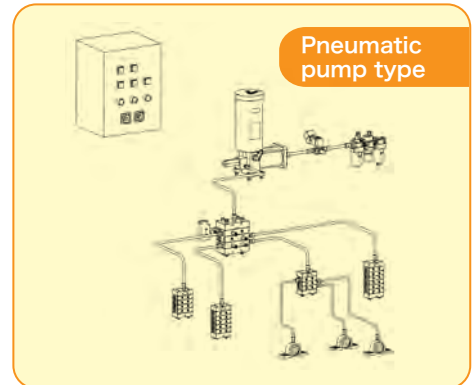
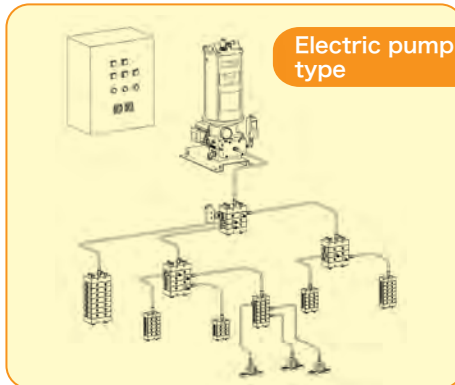
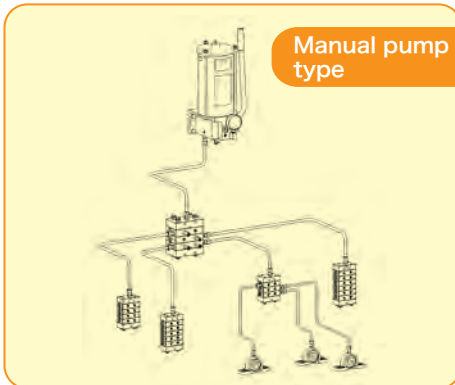
SINGLE LINE SYSTEM

Characteristic of Single line system

- 1 All supply lines (pump - distribution valve - bearing) consist of a single piping line.
- 2 If even one of the lubrication points is blocked, the distributor valve piston will not operate and the main pipe pressure will rise, signaling an abnormality, thus ensuring that all points are lubricated.
- 3 By selecting the distribution valve piston, the required amount of lubricant for each point is set at the planning stage.

Six types of Single line system

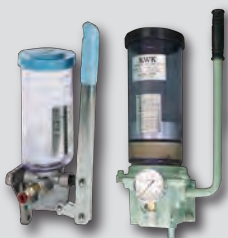
Single line systems are classified into six types according to the pump drive system, scale of equipment and the nature of the lubrication target.



Lubrication pump line-up

Distribution Valve line-up

Manual pump KSP-105 / KMPS-2 Series



There are two series of manual pumps with different discharge pressure and volume. A wide variety of tank sizes are available. In addition, both filling type and 400g cartridge grease type are available.

Electric pump KEPS Series



These are standard electric pumps with tank. You can choose two different discharge amount and a wide variety of tank size and level switch are available.

Electric pump KSP-820 / KSPN1000 Series

This series of electric pumps can send lubricant directly from drums or pails. Agitator blades level the oil surface to help efficient suction and minimize the grease remaining. Empty tins can be easily and safely replaced with the manual lifter.



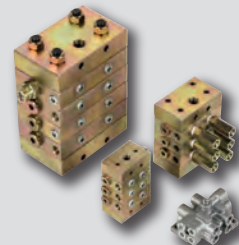
Compact pump KSP Series

Compact pumps suitable for small-scale lubrication. Electric and Air-driven types are available.



- KSP-33 Series (Electric)
- KSP-2 Series (Electric)
- KSP-402, 502 (Pneumatic)

Four types for single-line system



KL / KM / KJ Series

The block stacking type distribution valve, by selecting the piston size in the block, the amount of lubricant per outlet can be precisely adjusted. Maximum working pressure is 20.6 MPa for KL/KM series and 14.7 MPa for KJ series.

KU Series

Aluminum die-cast distribution valve with a choice of 4, 6, 8 or 12 discharge port. With auxiliary fittings, the number of port can be changed to odd number. Maximum working pressure is 14.7 MPa.

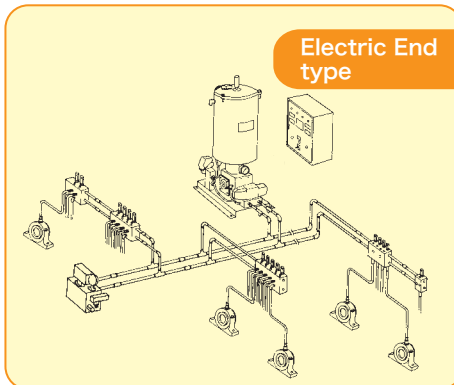
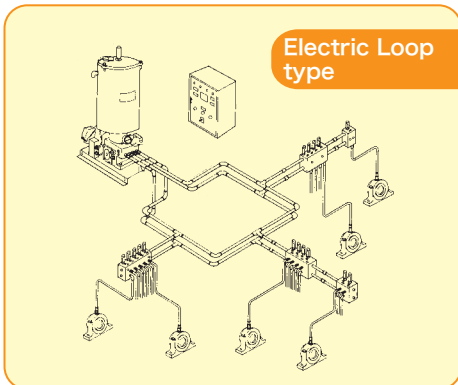
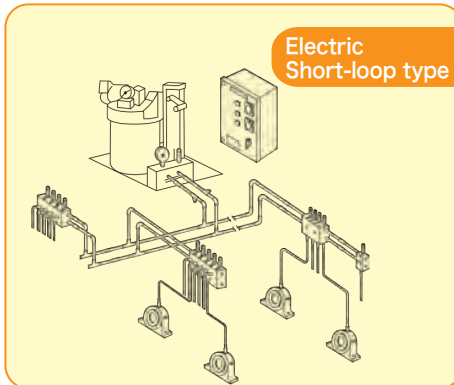
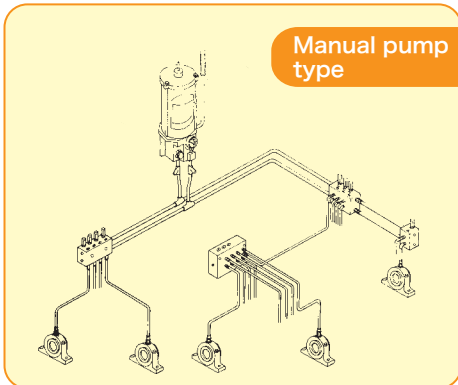
DUAL LINE SYSTEM

Characteristic of Dual line system

- 1 From a pump to distribution valves, the system consists of two piping lines.
- 2 The system can continue to operate even there's a blockage in the line.
- 3 The amount of lubricant can be adjusted for each port with the adjustment screw on the distribution valve.
- 4 Distribution valves can be easily added or closed as the number of oil supply points increases or decreases.

Four types of Dual line system

Dual line systems are classified into four types according to the pump drive and piping system.



Lubrication pump line-up

Manual pump KMP-2 Series



Manual switching valve is equipped. A wide variety of tank sizes are available. In addition, both filling type and 400g cartridge grease type are available.

Electric pump KSP-820 / KSPN1000 Series

This series of electric pumps can send lubricant directly from drums or pails. Agitator blades level the oil surface to help efficient suction and minimize the grease remaining. Empty tins can be easily and safely replaced with the manual lifter.



Electric pump KEP Series

These are standard electric pump with tank. You can choose four different discharge amount and a wide variety of tank size and level switch is available.



PRESSURE CONTROL VALVE

Electric end system requires a pressure control valve (KCV-2). It is installed at the end of the piping and sends a stop signal to the pump when set pressure is detected.



ELECTRIC CONTROL PANEL

An electrical control panel is required for the use of electric lubrication pumps. It can control pump operation and take in signals such as alarms. Wall-mounted, unit base-mounted and box-integrated models are available. Compact control panels with touch panels are also available to meet a wide variety of requirements.

● Touch panel type



● Unit base type



● Box integrated type



Distribution valve line-up



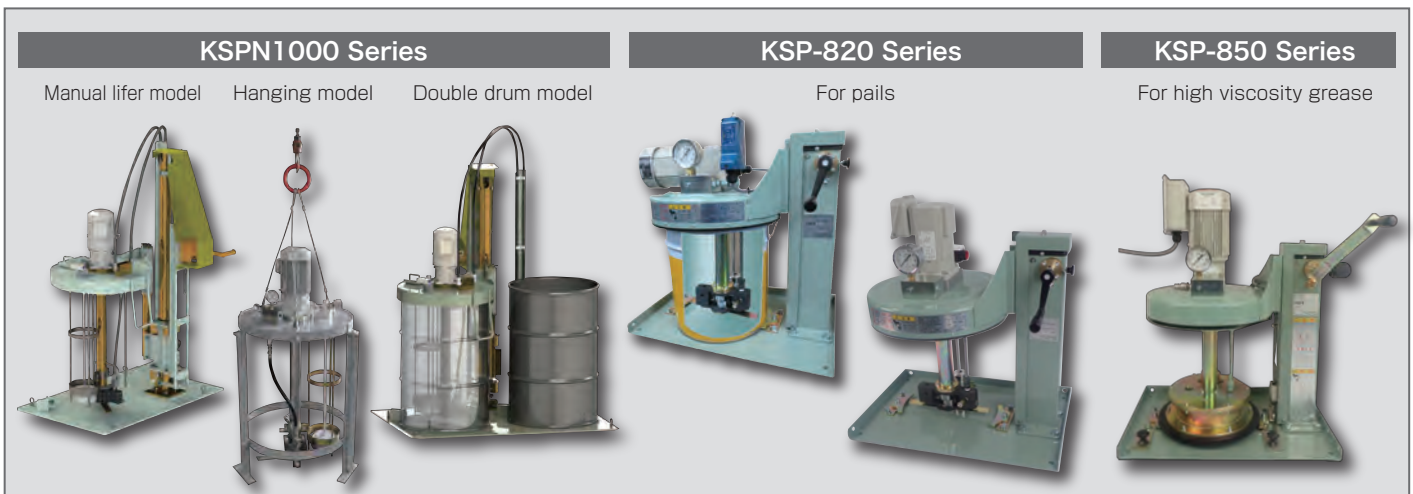
Dual distribution valves can be easily added or closed as the number of supplying points increases or decreases. The discharge quantity can be adjusted within a certain range for each oil supply point.

A cover is also available as an option to protect from dust and debris.

- KS / KW Series (Standard Type)
- KS-C / KW-C Series (with Counter)
- KS-S / KW-S Series (with Limit Switch)

Direct-coupled pump for Drum cans (KSPN1000 Series) Direct-coupled pump for Pail cans (KSP-820 / KSP-850 Series) Electric Lubrication Pump

Among electric lubrication pumps, direct-coupled drum and pail lubrication pumps are used in a variety of industries because they are easy to handle and have a strong pump structure that is resistant to debris chewing. In addition, an electric pump enables accurate quantity discharge. The discharge quantity does not get affected by the surrounding environment such as temperature.



Characteristic of the pump

Photo shows KSPN1000 Series

Motor with reduction gear

Drum cover

Low level switch

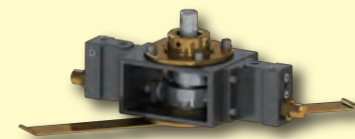
Agitator

Manual lifter

Manual lifter makes it easy to raise and lower the pump. No follower plate makes it easy to replace empty cans.

Pump body

A durable double plunger pump dramatically reduces problems caused by air bites and foreign objects.



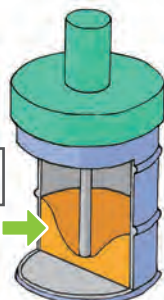
Double plunger pump (enlarged view)

Effect of Agitator

In general piston pumps, grease remains in a mortar shape and the remaining could not be sucked out. This innovative pump, on the other hand, an agitator levels the grease surface and helps the pump to suck it efficiently, reducing the amount of grease remaining.

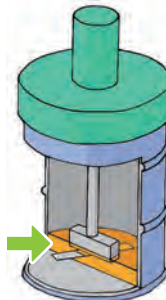
General piston pump

Grease remains in a mortar shape



Pump with an agitator

Reducing the grease remaining



The vibration caused by the rotating agitator prevents grease from remaining on the can walls.

- ① KSPN1000 series also includes with a manual lifter model, a hanging model, a double drum model where a spare drum can be placed, and for high-viscosity grease model (KSPN1500 series).
- ② A wide range of discharge volumes is available.
- ③ The motor voltage can be selected from single-phase 100 V AC, three-phase 200 V AC and three-phase 400 V AC, and is also compatible with different voltages.
- ④ There is also a model that can discharge two lines separately with one pump to meet the various planning requirements of the customer.

MONITORING ITEMS

It is difficult to check the operation of distribution valves scattered over a wide area without fail. In addition, distribution valves may be installed in high or hazardous locations. Monitoring items enable the operating status of distribution valves to be checked quickly and accurately.

Wireless monitoring system for Dual-line distribution valves

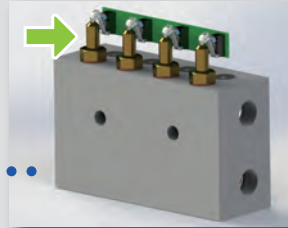
Wiring costs can be reduced by using wireless technology to monitor the status of distribution valves. Troubles caused by poor lubrication can be avoided by monitoring the entire system via PC or PLC.

System Overview



The status of the indicator rod is periodically transmitted to the receiver.

Sensor detects the movement of the indicator rod.



Line-of-sight distance approx. 500 meter



Received status information is monitored on a PC or PLC.

Basic features of the system

- It uses 920 MHz band specified low-power (LPWA) radios. The communication distance is approximately 500 meter in a line-of-sight environment. (Our experimental values)
- The transmitter is battery-powered and requires no wiring. One battery (Lithium thionyl chloride AA battery 3.6V) provides about 3 years of continuous use. (Conditions: when monitoring is carried out every 3 hours) *The signal conditions vary greatly depending on the installation environment. Please contact us for prior verification of radio wave conditions.

Patented
No. 7144815
No. 7144816

Wired monitoring system for Dual-line distribution valves

System Overview

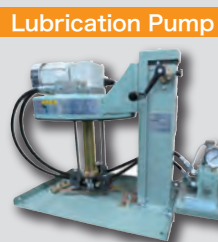
Monitoring box



LCD counter

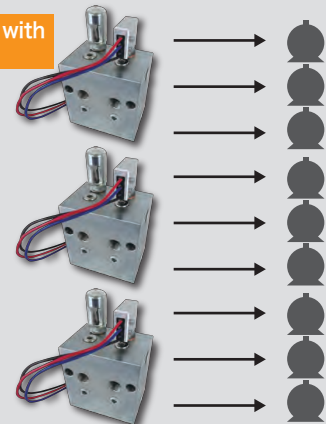


Counting signal



Lubrication Pump

Distribution valve with limit switch



Basic features of the system

- The LCD counter is battery-operated and does not require a power supply.
- Battery life is approximately seven years and the LCD counter can display up to six digits.
- Monitoring boxes are customized according to the number of distribution valves.

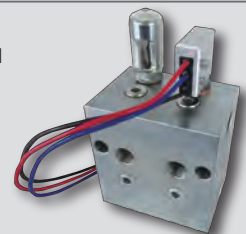
Dual line distribution valve with counter

The number of times the distribution valve is operated is displayed on a counter, which improves the efficiency of maintenance work and enables early detection of faulty parts.



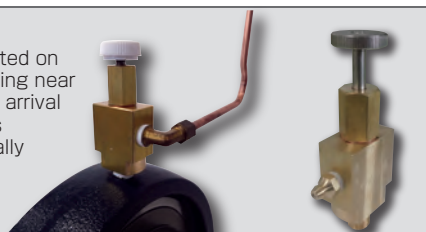
Dual line distribution valve with limit switch

A limit switch detects the vertical movement of the distributor valve indicator rod and outputs an electrical signal.



GREASE CHECKER KGC Series

A grease checker mounted on the bearing or in the piping near the bearing detects the arrival of grease and visualizes whether grease is actually supplied to the bearing. Heat-resistant versions are also available.



GREFLOW KGF-04

Volumetric flow sensor mounted on the bearing or in the piping near the bearing. It detects the passage of lubricant through the GREFLOW and outputs an electrical signal. Flow sensor display boards are also available.



Filling Pump (KGP Series)

For Drum cans KGP-710 Series



Electric filling pump for drums enables stable filling. A double plunger pump reduces troubles caused by air bites and foreign objects. Our original agitator levels the grease surface and helps the pump to suck it efficiently, reducing the amount of grease remaining. The voltage can be selected from 400 V AC and 200 V AC. A low-level switch is also available as an option.

For Pail cans KGP-420 Series



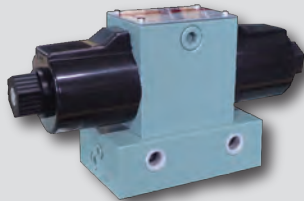
Manual filling pump for pail cans.

※When filling the KSP-105 series, the mouthpiece needs to be changed. For more information, please contact us.

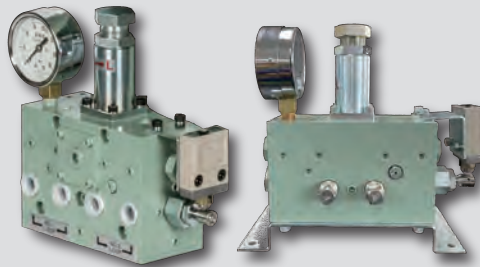
※The grease tank must be filled with our dedicated pump. Quick hose coupling allows easy connection and disconnection.

Switching valves for Dual line electric lubrication pumps (KMV / KRV Series)

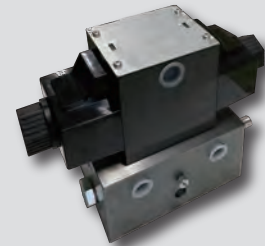
SOLENOID SWITCHING VALVE for end type KMV-1



HYDRAULIC SWITCHING VALVE for Loop and Short-Loop type KRV-22/32



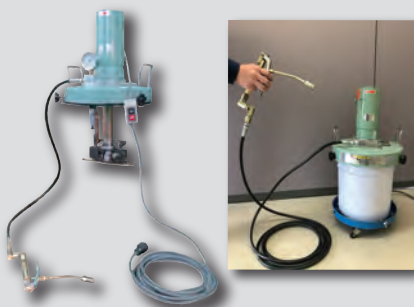
SOLENOID SWITCHING VALVE for Loop and Short-Loop type Pressure regulating valve built-in type KMV-2



※Switching valves are required for switching the lubricant line, and available models depend on the type of pump and system. For more information, please contact us. Electric lubrication pumps are equipped with a switching valve as standard.

Single Lubrication System

Portable pail direct-coupled Electric Grease Pump KSP821GH-D2



Electric, no compressed air required, can be used with 100 V AC outlet. As with the KSP820 series, an agitator levels the grease surface and helps the pump to suck it efficiently, reducing the amount of grease remaining. A lever gun, 5meter high pressure hose and switch box are included as standard, and a pressure gauge and special dolly are available as options.

Cordless Electric Grease Gun KBP series



※It comes with a battery, charger and shoulder belt as standard.

Rechargeable cordless grease gun. A fixed amount of grease is discharged by simply pulling the trigger. A wide range of variations are available, including 400 g cartridge type, filling type and high-pressure type.

Single Lubricator Junpet KJP series



Single lubricator driven by dry cell batteries. The motor enables fixed discharges amount and uses the grease up without waste. Available in 60g / 400g cartridge type and filling type.

Oil Air System

Oil air system provides a continuous supply of a small amount of oil along a continuous compressed air flow in the tube. Our original distribution valve precisely supplies a small amount of oil, which is mixed with the air flow by a mixing valve. The oil spirals continuously along the tube wall and reaches the bearing. Due to the sealing effect of the compressed air, the bearings are protected against debris and, what is more, do not contaminate the surrounding environment and atmosphere like grease or oil mist.



System configuration

Oil-air systems can be broadly divided into dual-line and single-line systems. The system consists of an oil unit, control panel, mixing valves, distributor and multi-connectors for hose detachment. Proposals can be made according to oil-air monitoring and the size of the installation.



Characteristic

- 1 Sealing effect extends bearing life.
- 2 Reduces oil consumption and the costs compared to oil mist.
- 3 Reliable distribution valves ensure that the right amount of oil is delivered precisely.
- 4 The equipment surroundings are kept clean as there is no mist dispersal.
- 5 Due to fewer restrictions on pipework installation, oil air can be supplied even where there are pipe rises.

The oil flows through the pipe in a liquid state and does not generate a mist.



Oil bearing

Grease Bearing

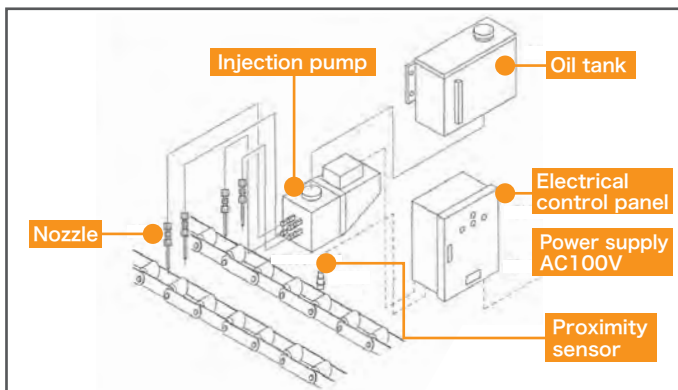


By oil-air system, the condition of the bearings is easier to see and the maintenance is much easier.

Chain lubrication (KIP series)

Injection pump systems are the ideal lubrication solution for small to large conveyor chains. The system injects the right amount of oil at the right time and in the right quantity at the specified point by activating the pump while sensing the timing with a proximity sensor.

System Configuration



Characteristic

- 1 The non-contact system has no effect on the chain.
- 2 The right amount of spray prevents oil flow misting and reduces contamination of the surrounding environment. In addition, the pinpoint spray minimizes oil adhesion to the products on the conveyor.
- 3 Various control options can be selected, including manual start/stop and automatic start/stop.
- 4 The oil tank size is available in 2L/5L/10L/30L.

Pump body

2L Acrylic tank

30L tank



Spray valve / Y-shaped strainer / High-pressure ball valve / Two-way check valve

Spray valves
KP series

Y type strainer
YST series

High-pressure ball valves
HT series

Two-way check valve
TWCV3/8



KOWA manufactures a wide variety of units, not only forced circulating lubrication units. We have delivered more than **10,000** units to date, and our accumulated know-how enables us to design and manufacture units that meet various needs of customers. We also have our own pickling facility and can provide high-quality products at low cost by carrying out pickling in-house.

Manufacture of forced circulating lubrication systems and various units.

Our strength in designing

- *Know-how for various international and other standards
- *Design drafting using 3D-CAD
- *Extensive experience in water and gas handling units



Forced circulating lubrication units are standardized as 'K-series'. The series has been standardized by thorough value engineering (VE), enabling short delivery times and low costs. For more information, see the dedicated catalogue.

Characteristic of our factory

Inspection Equipment

Data measuring device by automatic recording software

Frequency converter

Boosting transformer

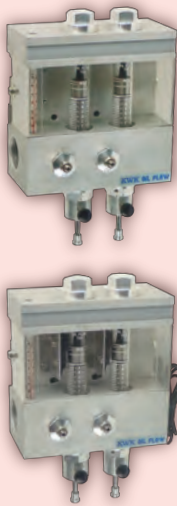
Automatic test and recording units
(electric heaters and control panels, filters, flow meters)

Test equipment for flushing process
(contamination kits, particle counters)

In-house Pickling facility



High-precision Oil Flow with flow control function (KOF series)



Main characteristics

- Equipped with a rod for cleaning the glass tube.
- Easy flow rate adjustment even during operation.
- Flow rate can be adjusted by the measuring cone and the height of float in the glass tube, and is very accurate and reliable.
- The different sizes of 10A and 15A can be incorporated in the same body
- Flow abnormalities can be identified at a glance. Models with a contact switch to signal flow abnormalities are also available.
- High performance is guaranteed even in high temperature and harsh environment such as paper and pulp mills. Also it is applied for reduction gears.



Conventional feed-off lubricators had difficulties in adjusting the flow rate, and only skilled operators can do it properly, resulting in problems such as oil shortages, over-supply and uneven lubrication.



Even under the harshest conditions in paper and pulp mills, the oil flow can be adjusted easily, reliably and quickly by anyone thanks to a unique mechanism. The oil flow can be unitized as shown in the picture to allow installation in tight spaces on the side of the machine.

*Size of oil flow unitization depends on the number of points and the presence or absence of an abnormality detection assembly box, so please contact us for more information.

Dedicated catalogues are available for each product; please contact our branches or distributors for more details.

KOWA CORPORATION

Head Office: 1-3-31 Nishi-kujo, Konohana-ku, Osaka 554-0012
Tel:0081-6-6462-7155 Fax: 0081-6-6468-3298

Osaka Branch: 1-3-31 Nishi-kujo, Konohana-ku, Osaka 554-0012
Tel:0081-6-6462-7151 Fax: 0081-6-6468-3298

Tokyo Branch: MH kiya building 6F
12 Kanda mikura-cho, chiyoda-ku Tokyo 101-0038
Tel:0081-3-3253-3161 Fax: 0081-3-3253-3166

Nishinohon Branch: 1-3-40 Shiromicho, Fukuyama City, Hiroshima 720-0054
Tel:0081-84-923-0347 Fax: 0081-84-923-5414

Ichikawa Factory: 474-1 Kamiseka, Ichikawa-cho, Kanzaki-gun, Hyogo 679-2303
Tel:0081-790-27-1313 Fax: 0081-790-27-1314

Agency