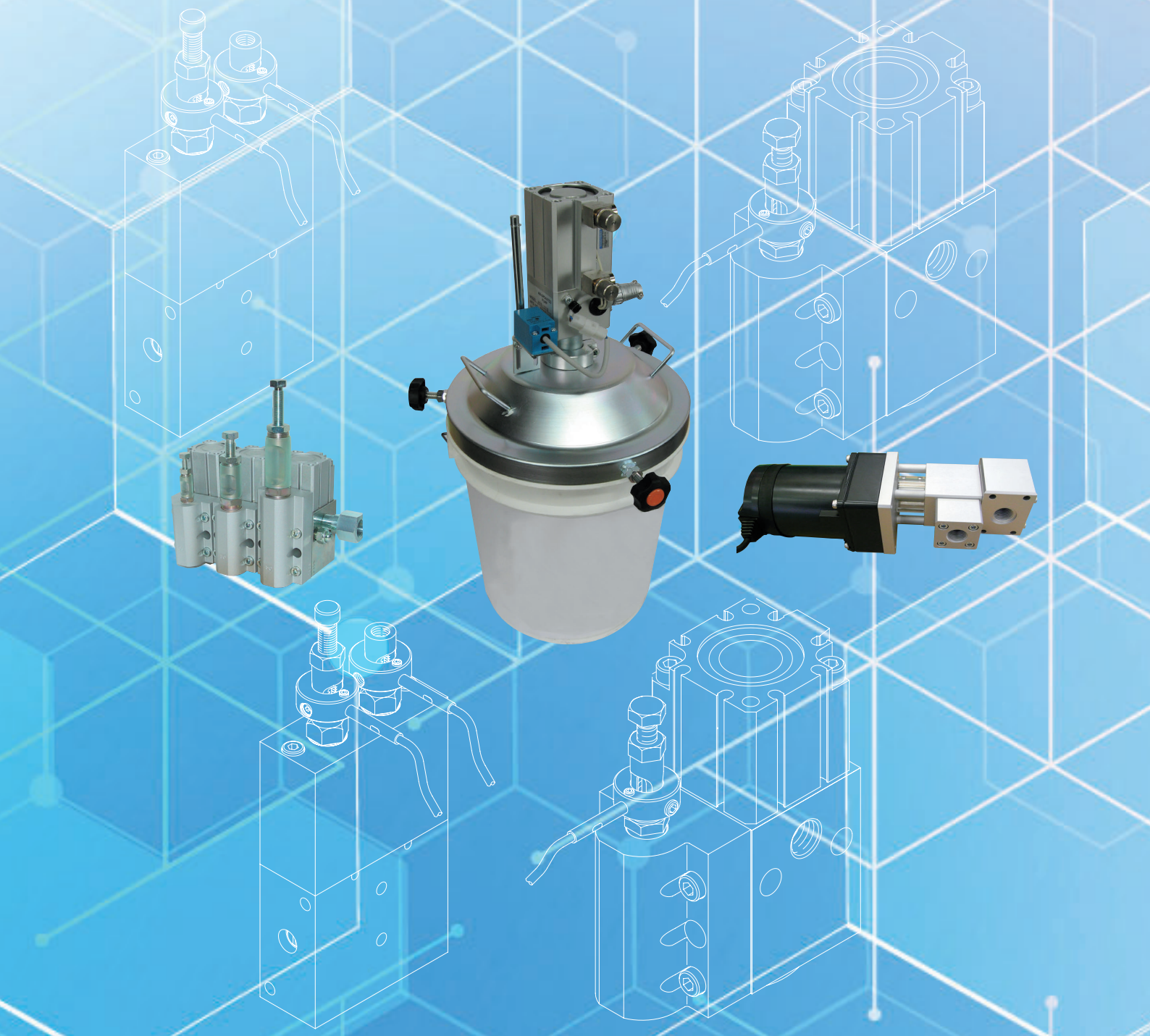
KOGANEI
https://www.koganei.co.jp

Catalog No.BK-K002

NEW Products

Precise Dispensing System



Guide to Lubrication System Products

Our company provides sales and after-sales service for individual products such as lubricating pumps and precise fluid dispensers for our lubrication system products.

We are unable to provide the services listed below, so we ask that customers prepare and handle these matters themselves.

If you have any questions regarding services other than those listed below, please contact us.

①Overall lubrication system design ②Sales of pipes and fittings ③Piping work ④Support for trial operations

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Before Use

Be sure to read the "Safety Precautions" on page ② or on our website, as well as the "Instruction Manual" included with the product.

Safety Precautions

Be sure to read these precautions carefully before use.

Before selecting and using products, please read all the Safety Precautions carefully to ensure proper product use.
Our products are designed and manufactured as parts for use in general industrial machinery.
The Safety Precautions shown below are to help you use the product safely and correctly, and to prevent injury or damage to assets.
Safety regulations related to the overall design and management of equipment and devices must be observed in conjunction with the latest applicable standards, regulations, and other safety regulations.

- ISO4414 (JIS B 8370: General rules for pneumatic systems)
- ISO4413 (JIS B 8361: General rules for hydraulic systems)
- Labor standards laws, occupational safety and health laws
- ISO12100 (JIS B 9700: Safety of machinery - General principles for design)
- IEC60204 (JIS B 9960: Safety of machinery - Electrical equipment for machines)
- ISO10218 (JIS B8433: Safety requirements for industrial robots)

The directions are ranked according to degree of potential danger or damage: "DANGER", "WARNING", and "CAUTION".

⚠ DANGER	Incorrect handling involves a high degree of immediate danger and can result in death or serious injury[NOTE 1] to the user.
⚠ WARNING	Incorrect handling can result in death or serious injury[NOTE 1] to the user.
⚠ CAUTION	Incorrect handling can result in minor injury[NOTE 2] to the user or property damage[NOTE 3].

Note 1: Serious injury refers to injuries such as blindness, physical injury, burns (high or low temperature), electric shock, fractures, or poisoning that result in lasting aftereffects, or that require hospitalization or long-term outpatient treatment.
2: Minor injury refers to injuries such as physical injury, burns, or electric shock that do not require hospitalization or long-term outpatient treatment.
3: Property damage refers to consequential damage involving buildings, household goods, mounted equipment, livestock, pets, etc.

The danger, warning, and caution items listed under these “Safety Precautions” do not cover all possible cases. Read the Catalog and Owner’s Manual carefully, and always keep safety first.

⚠ WARNING

- Do not use the product under conditions, environments, or for purposes not specified in the catalogs, instruction manuals, or other documentation.
- This product is not designed or intended for the following applications. If you are considering such applications, please consult our sales representative.
  1. Medical equipment related to maintenance or management of human lives or bodies
  2. Mechanical devices or equipment designed for the purpose of moving or transporting people
  3. Critical safety components in mechanical devices
  4. Applications requiring a particularly high level of safety

(nuclear power, aerospace equipment, railways, aviation, marine vessels, vehicles, military equipment, medical devices, food and beverage manufacturing equipment, combustion equipment, entertainment equipment, functional safety equipment, etc.)

- The product should be selected and handled by people with sufficient knowledge and experience, such as a system designer or other responsible person, who have read the safety precautions and specifications in the catalogs and instruction manuals. Additionally, compliance should be verified as needed.
- Because these products can be used under a wide variety of conditions, decisions concerning conformance with a particular system should be made upon the careful evaluation by the person in charge of system design. Assurances concerning expected system performance and safety are the responsibility of the designer who decides system conformity. Be sure to consider the possibility of machine breakdown, and to configure a system that ensures safety and reliability, such as by using fail-safes.
- When using this product in a system, use only genuine Koganei parts or compatible parts (recommended parts). Also, when doing maintenance and repairs, always use genuine Koganei parts or compatible parts (recommended parts) and follow the prescribed methods and procedures.
- Never attempt to modify the product. Also, never attempt inappropriate disassembly or assembly of the product relating to its basic configuration, or its performance or functions.
- Before applying energy (compressed air, electricity, etc.) to the product and before operating the equipment, be sure to check the safety of the state of the equipment connections and operating range.
- Non-routine operations involving the product, such as maintenance inspections, servicing, or replacement, must only be performed after implementing safety measures to confirm there is no danger from any energy that exists inside the equipment or facilities.

⚠ CAUTION

- Use safety circuits or system designs to prevent damage to machinery or injury to personnel when the machine is shut down abnormally due to emergency stop or power failure.
- The product can exhibit degraded performance and function over its operating life. Always conduct daily inspections, and confirm that all requisite system functions are satisfied, to prevent accidents from happening.

After reading these materials, always store them where they are easily available for reference by users of the product.

Warranty and General Disclaimer

1. Warranty Period
The warranty period for Koganei products is 1 year from the date of delivery.
* However, some products have a 2-year warranty; contact your nearest Koganei sales office or the Koganei overseas department for details.

2. Scope of Warranty and General Disclaimer

(1) When a product purchased from Koganei or from an authorized Koganei distributor or agent malfunctions during the warranty period in a way that is attributable to Koganei's responsibility, Koganei will repair or replace the product free of charge. Even if a product is still within the warranty period, its durability is determined by its operation cycles and other factors. Contact your nearest Koganei sales office or the Koganei overseas department for details.

(2) The Koganei product warranty covers individual products. Therefore, Koganei is not responsible for incidental losses (repair of this product, various expenses required for replacement, etc.) caused by breakdown, loss of function, or loss of performance of Koganei products.

(3) Koganei is not responsible for any losses or for any damages to other machinery caused by breakdown, loss of function, or loss of performance of Koganei products.

(4) Koganei is not responsible for any losses due to use or storage of the product in a way that is outside of the product specifications prescribed in Koganei catalogs and instruction manuals, and/or due to actions that violate the mounting, installation, adjustment, maintenance or other safety precautions.

(5) Koganei is not responsible for any losses caused by breakdown of the product due to factors outside the responsibility of Koganei, including but not limited to fire, natural disaster, the actions of third parties, and intentional actions or errors by the purchaser.

Features

●Outstanding Accuracy!

Our revolutionary precise dispensing system is unaffected by conditions such as temperature and viscosity

This precise dispensing system reliably applies or supplies a fixed amount of lubricant.
It consists of a pneumatic pump that pressurizes the lubricant and a precise fluid dispenser that applies the lubricant to the workpiece.
The pneumatic pump can use up all the grease in the pail without waste, right down to the bottom of the can.
We have multiple series of precise fluid dispensers available, allowing you to select the type best suited to the fluid and application. Plus, the plunger (volumetric metering) system minimizes the effect of viscosity on discharge.
Precise Fluid Dispensers with a suction back function can suppress fluid dripping.

●Applications

- Applying grease to various automotive parts, such as electrical connectors, brakes, door locks, seat rails, while they are on manufacturing and assembly lines.
- Applying grease to various electrical equipment, such as video cameras, BD/DVD recorders, printers, home appliances, while they are on manufacturing and assembly lines.
- Also applicable for precise lubrication (grease or oil) of oil seals, rolling bearings, gas meters, and other parts on a wide range of manufacturing or assembly lines.

●Selecting supply pumps

Main Items \ Supply Pump Models		ACG-011FK	ACG-020	ACG-040	GSI-P334FK
Grease used (NLGI No.)	No. 0 to No. 2	●	●	●	●
Applicable cans and pails	1 kg can	●			
	2.5 kg can	●			
	Pail (18 L, 20 L)		●	●	●
Page		13	11, 12	12	13

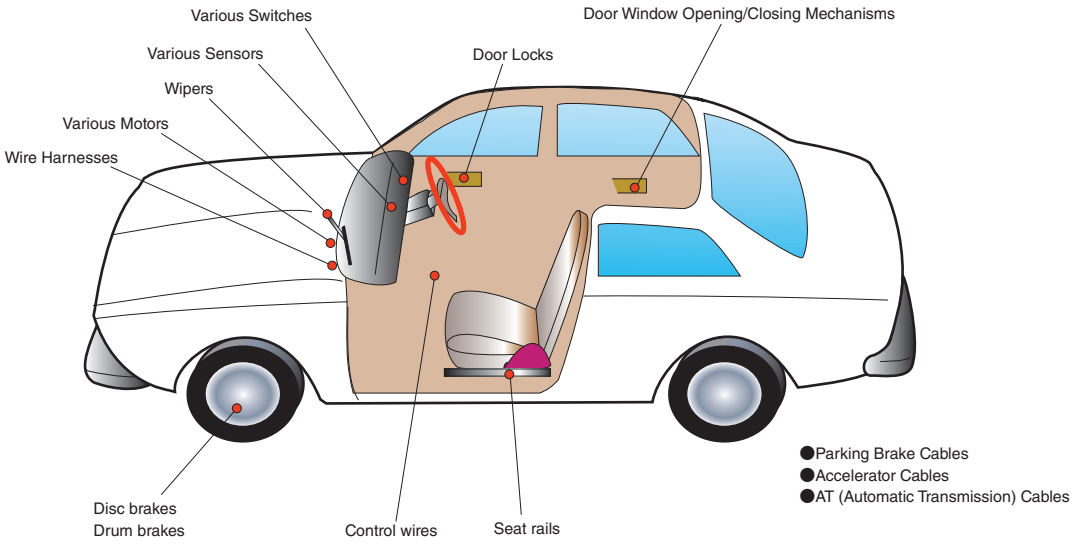
●Selecting Precise Fluid Dispensers

Main Items \ Precise Fluid Dispenser Models		ACV-001 SPP	ACV-002 SPP	ACV-010 SPP	ACV-020 SPPDD	CVM-03	CVM-10	CVM-50	CVM-100	CVM-200	CVN-02
Discharge rate cm³/stroke	0.005 to 0.12	●									
	0.01 to 0.23		●								
	0.03 to 0.2										●
	0.04 to 1.2			●							
	0.05 to 0.3					●					
	0.06 to 2.0				●						
	0.2 to 1.2						●				
	0.5 to 5.0							●			
	2 to 10								●		
	4 to 20									●	
Operating Fluid Pressure	3 MPa or less	●	●	●	●						
	5.9 to 14.7 MPa					●	●	●	●	●	
	5.9 to 20.6 MPa										●
Operating Air Pressure	0.2 to 0.7 MPa	●	●	●	●						
	0.3 to 0.7 MPa					●	●	●	●	●	●
Grease used (NLGI)	No. 0 to No. 2	●	●	●	●	●	●	●	●	●	●
Page		15	15	16	17	20	20	20	20	20	21

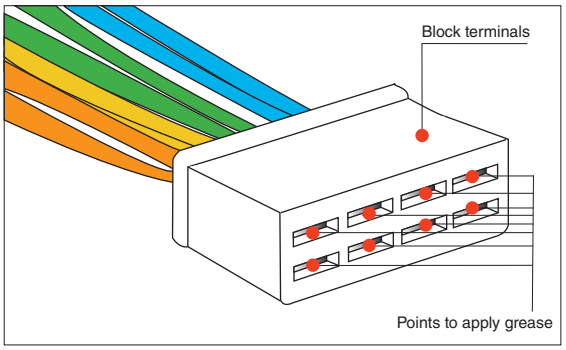
Examples for Precise Volume Application and Precise Dispensing Systems

●Precise Volume Application of Grease

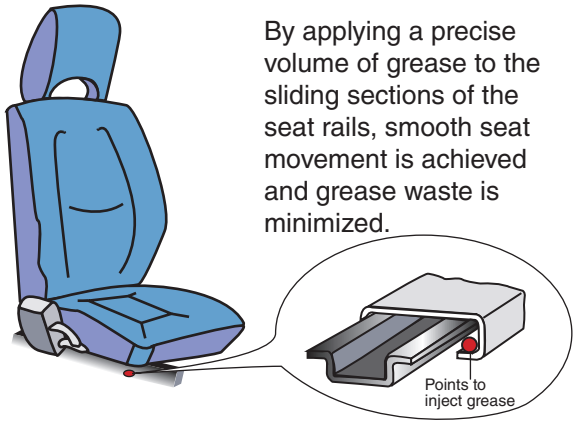
For Automotive Parts, Home Appliances, and More



Applying grease to connectors in automotive wire harnesses



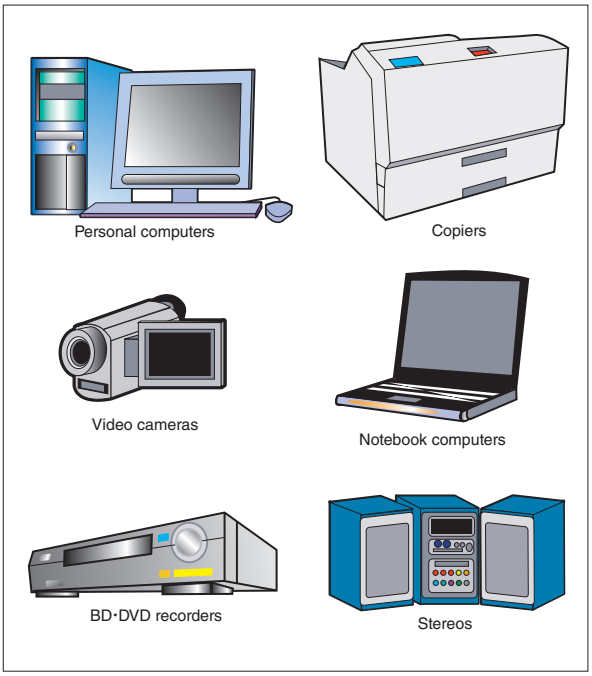
Applying grease to car seat slide rails



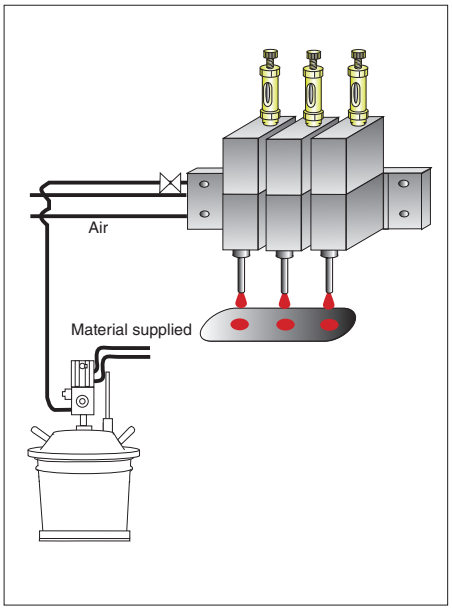
By applying a precise volume of grease to the sliding sections of the seat rails, smooth seat movement is achieved and grease waste is minimized.

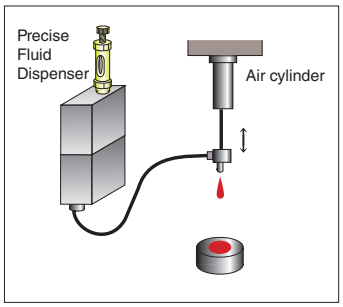
Applying precise volume of grease to housings for audio equipment, etc.

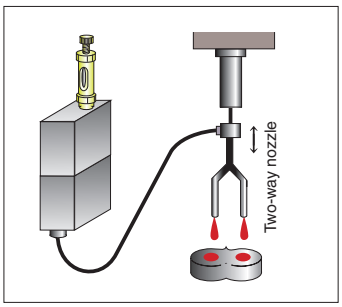
A very small amount of grease is applied to sliding and rotating parts of video cameras, BD/DVD recorders, etc. This ensures smooth operation and reduces noise.



Dot Application of Grease



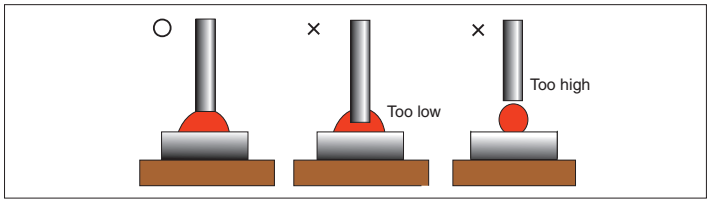




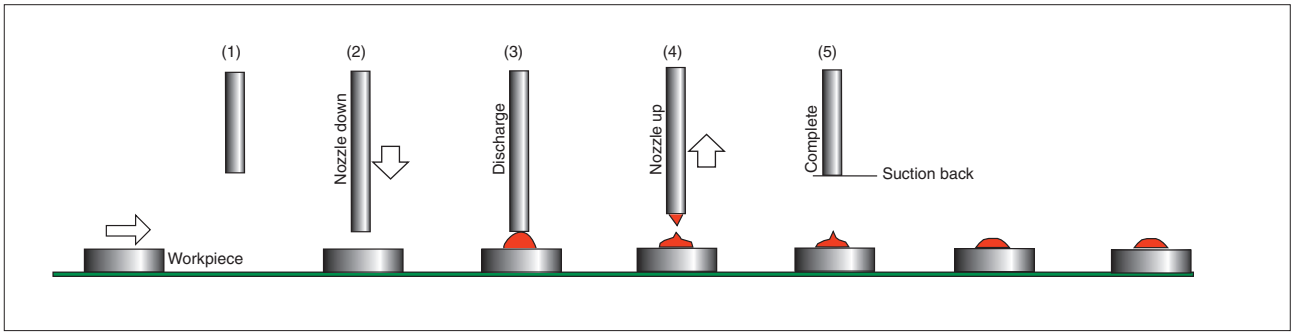
Tips for accurate application

(1) Lower the nozzle → discharge → raise the nozzle, then turn off the pilot and main plungers.

(2) Adjust the gap between the nozzle tip and the application surface according to the discharge rate → Ensure the nozzle tip does not sink into the grease.

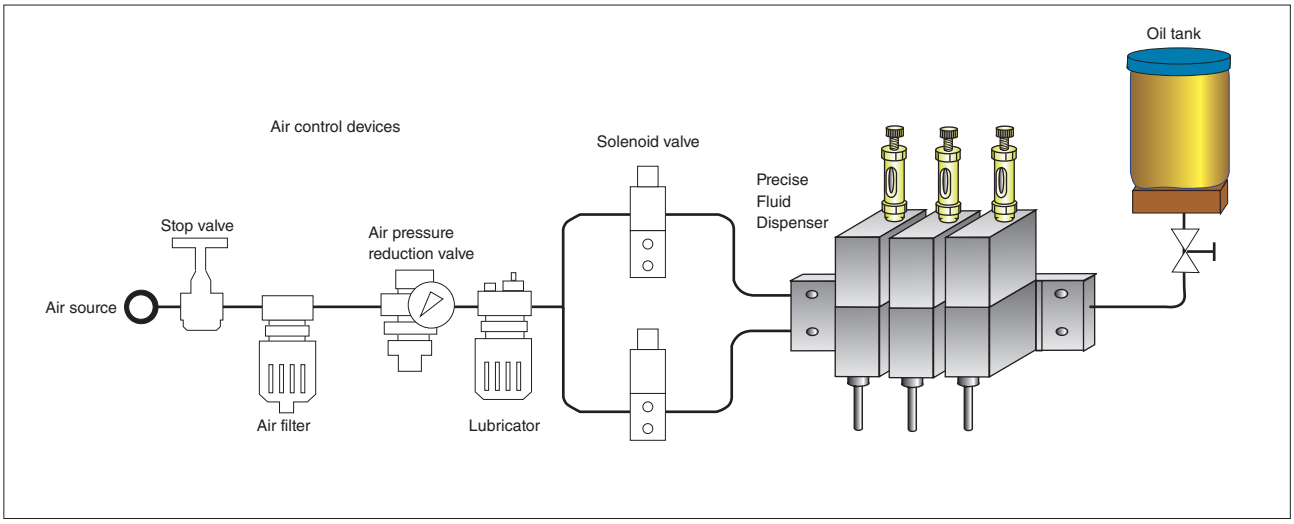


Flow and positioning of nozzle and product

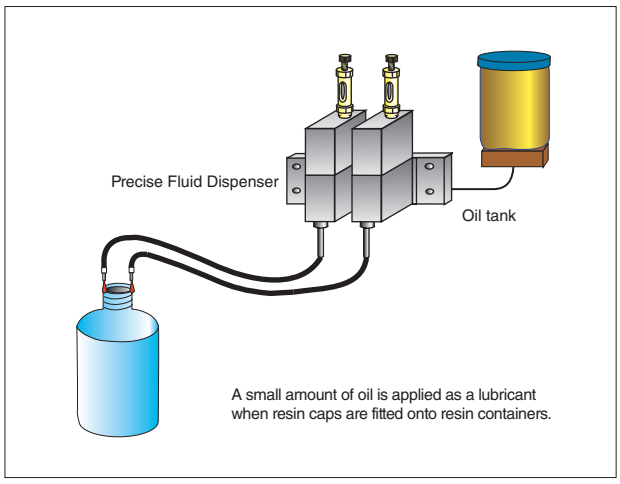


●Precise Volume Discharge of Liquids

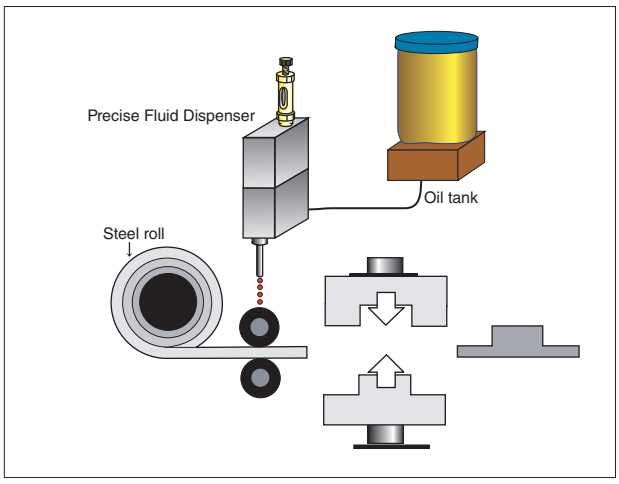
Using the ACV-□□□LS precise fluid dispenser for oil enables high-accuracy oil discharge.



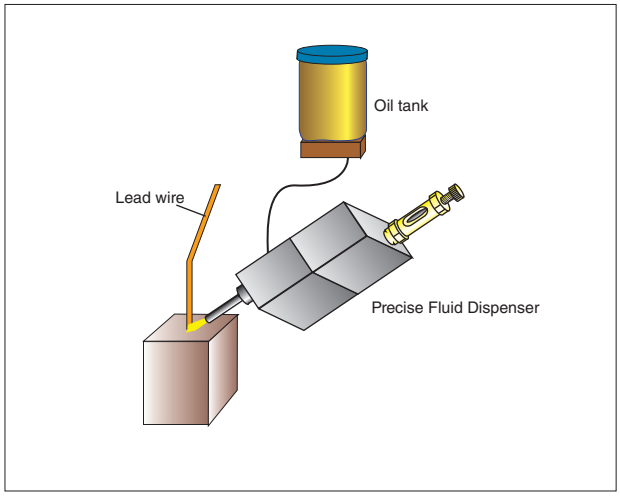
Applying Oil



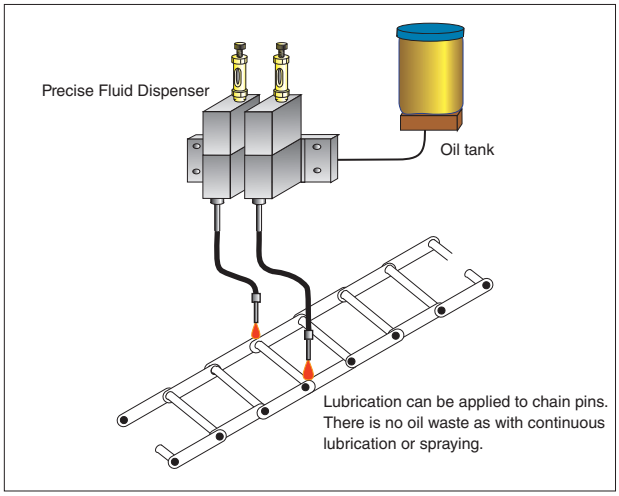
Applying Stamping Oil



Applying Coating Agent



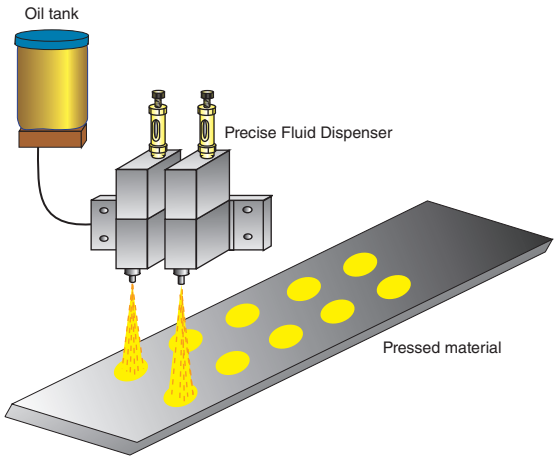
Applying Oil to Chains



●Precise Volume Spray of Liquids

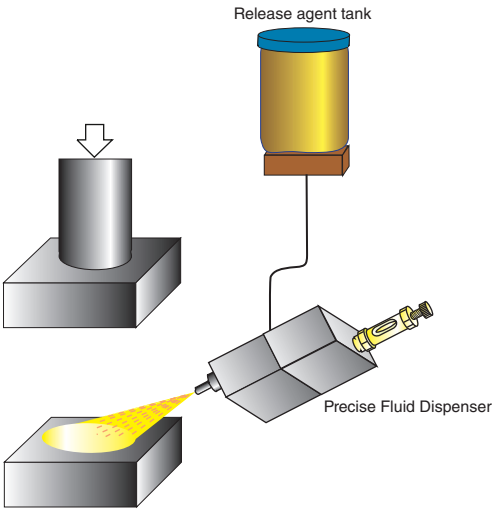
Using an ACV precise fluid dispenser allows high pressure to be applied directly to the liquid to be sprayed. Compared to spraying with compressed air, this is an environmentally friendly spray method with less liquid splatter.

Spraying Stamping Oil



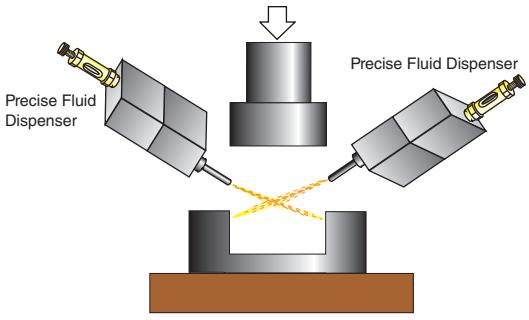
Lubricating oil can be sprayed onto the material being pressed.
Since it uses no compressed air and produces minimal splatter, there is no wasted oil.

Spraying Release Agent



●Remote Spraying of Oil

Oil can be sprayed over a distance horizontally.
The spraying distance may vary depending on the oil's viscosity, the amount of oil, and the supplied air pressure.

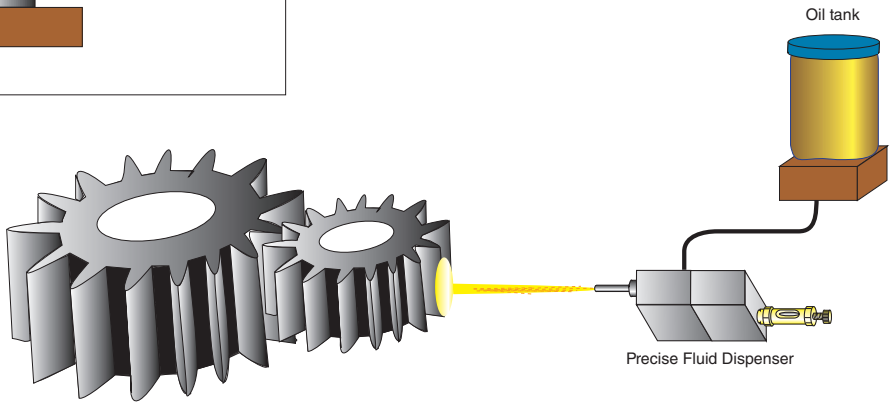


Lubrication of Press Dies

Lubricating oil can be sprayed onto dies.

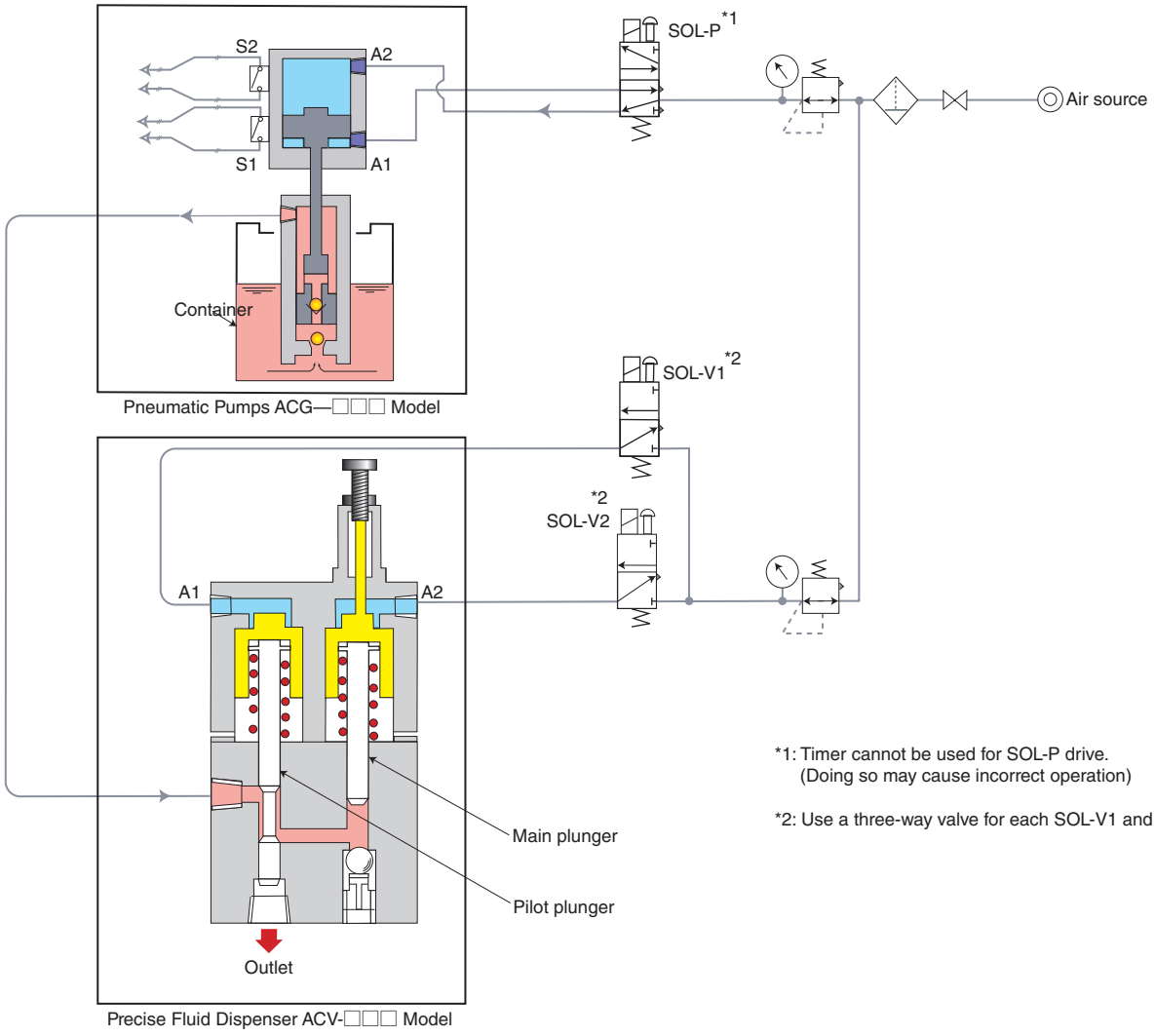
Lubrication of Gears

Oil can be sprayed onto gear teeth surfaces, even those that are vertical.



Precise Dispensing System Circuit Diagram

Circuit Diagram



*1: Timer cannot be used for SOL-P drive.
(Doing so may cause incorrect operation)

*2: Use a three-way valve for each SOL-V1 and SOL-V2.

Timing Chart

Pneumatic Pump

Step / Operation	1	2	3	4	1	2
Air cylinder (Grease plunger synchronization)						
Solenoid valve (SOL- P)						
Leading edge sensor (S1)						
Trailing end sensor (S2)						
Actuation Command (Start)						
	1 cycle					

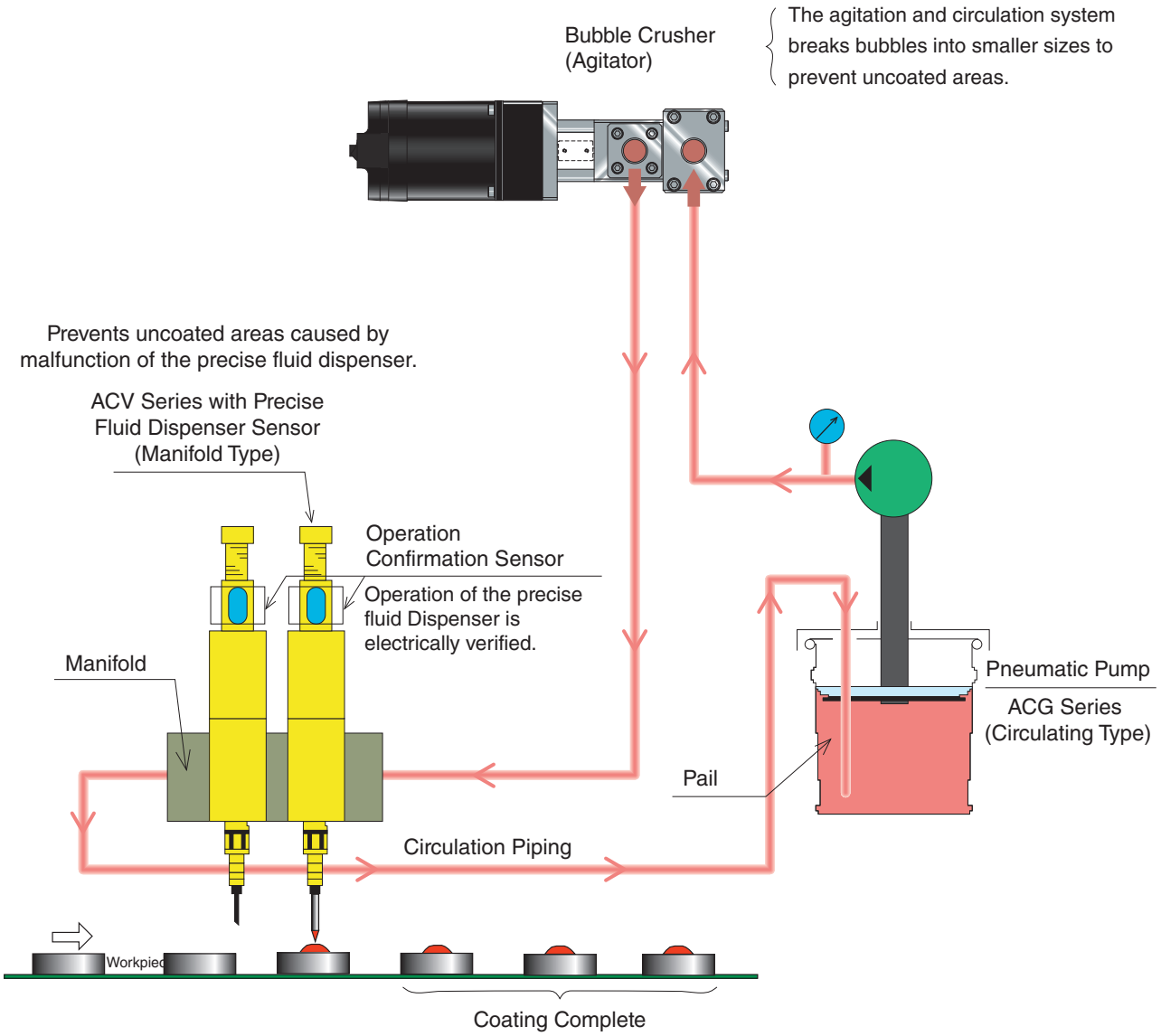
Precise Fluid Dispenser

Step / Operation	1	2	3	4	1	2
Solenoid valve (SOL- V1)						
Solenoid valve (SOL- V2)						
Pilot plunger						
Main plunger						
Actuation Command						
Timing (Reference value SEC)	t1 (0.5)	t2 (0.5)	t3 (0.5)	t4 (1.0)	t2 = Discharge time t4 = Intake time	Tact time T

* Synchronization of the pneumatic pump and precise fluid dispenser is not necessary for control purposes.

●System to Prevent Uncoated Areas

(Bubble Crusher System + Sensor-Equipped Precise Fluid Dispenser)



Dual System Prevents Uncoated Areas

Point 1

The bubble crusher (agitation and circulation system) breaks down air bubbles in the grease to prevent uncoated areas. (See page ㉓)

Point 2

Operation of the precise fluid dispenser (indicator rod) can be confirmed electrically by a sensor. (See page ㉒)

Pneumatic Pumps ACG Series

Features of Pneumatic Pumps ACG Series

- Most greases, except for special greases, can be used without waste.
- The follower plate just rests on top of the grease.
  Oil separation is minimized because the grease is not pressed at high pressure.
- There is no need to discard grease to bleed the air when replacing the pail.

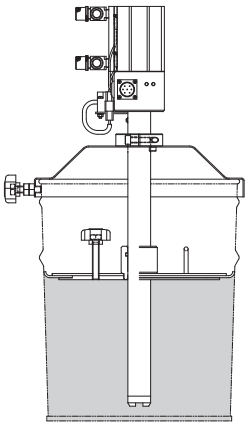
Specifications for applicable pails

* The specifications for pails that can be used with the ACG-020, ACG-040, and GSI-P334FK models are as follows.

Model	Inner Diameter		Nominal Capacity L
	Top	Bottom	
No. 1	286±3	272±3	18
No. 2	286±3	272±3	20

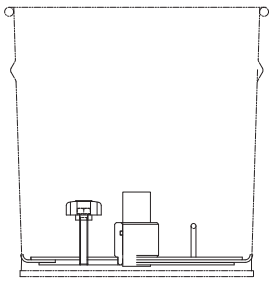
JIS Z1620 Type 1 and Type 2, No. 1 and No. 2

During use



After use

Follower plate position



Pail and follower plate (Grease remaining)

Note that consuming all the grease down to the bottom of the can may cause air to be sucked in. (Adjust the grease remaining level to the height of the pump's low-level switch.)

●For use with ACV precise fluid dispensers

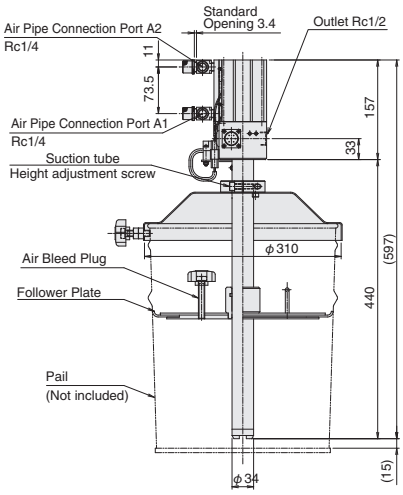
Pneumatic Pump ACG-020 Model

This is a supply pump for pails.
(Pails not included.)

Specifications

Item	Specifications	
Product name code	RK970800	
Discharge rate	24cm³/cycle	
Pressure Ratio	8:1	
Discharge pressure	3.1 MPa/at air pressure 0.4 MPa	
Operating Air Pressure	0.2 to 0.4 MPa	
Applicable cans and pails	Pails (* Refer to applicable pail specifications on this page)	
Air consumption	100NL/min (air pressure 0.4 MPa)	
Air Cylinder Sensor Switch (with indicator light)	Model	ZE135A (2-wire non-contact type)
	Operating Voltage Range	10 to 28 VDC
	Load Current	4 to 20 mA (at 25°C; 10 mA at 60°C)
	Internal Voltage Drop	4V MAX.
	Leakage current	0.7 mA MAX. (DC24V, 25°C)
Low-level switch (with indicator light)	Model	FL2R-12K6H (N/C)
	Operating Voltage Range	10 to 30 VDC
	Switching Capacity	4 to 100 mA
Mass	Approx. 11 kg	

ACG-020 Model Dimensions (mm)



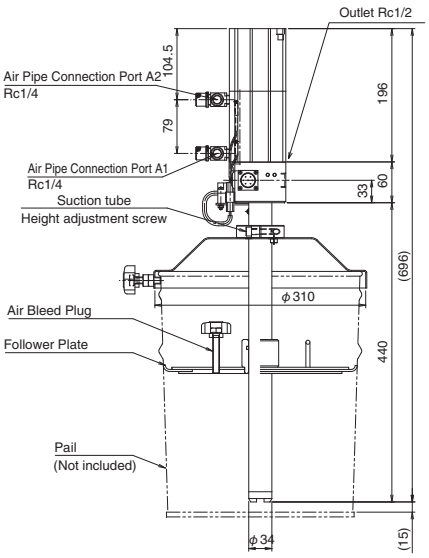
●For use with CVM precise fluid dispensers
Pneumatic Pump ACG-040 Model

High-pressure supply pump for pails.
(Pails not included.)

Specifications

Item	Specifications	
Product name code	RK970900	
Discharge rate	21㎤/cycle	
Pressure Ratio	20:1	
Discharge pressure	12 MPa/at air pressure 0.6 MPa	
Operating Air Pressure	0.4 to 0.6 MPa	
Applicable cans and pails	Pails (* Refer to applicable pail specifications on page ⑪)	
Air consumption	360NL/min (air pressure 0.6 MPa)	
Air Cylinder Sensor Switch (with indicator light)	Model	ZE135A (2-wire non-contact type)
	Operating Voltage Range	10 to 28 VDC
	Load Current	4 to 20 mA (at 25°C; 10 mA at 60°C)
	Internal Voltage Drop	4V MAX.
	Leakage current	0.7 mA MAX. (DC24V, 25°C)
Low-level switch (with indicator light)	Model	FL2R-12K6H (N/C)
	Operating Voltage Range	10 to 30 VDC
	Switching Capacity	4 to 100 mA
Mass	Approx. 12 kg	

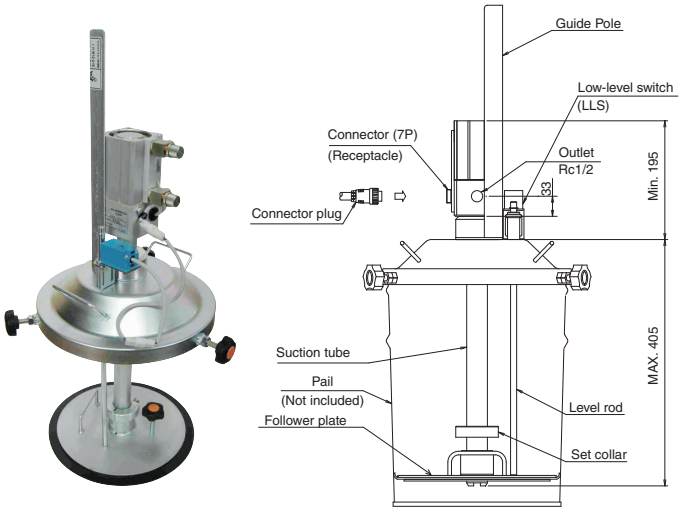
ACG-040 Model Dimensions (mm)



●Modification Kit for ACG-020 and 040 Models (Product Name Code: RK465300)

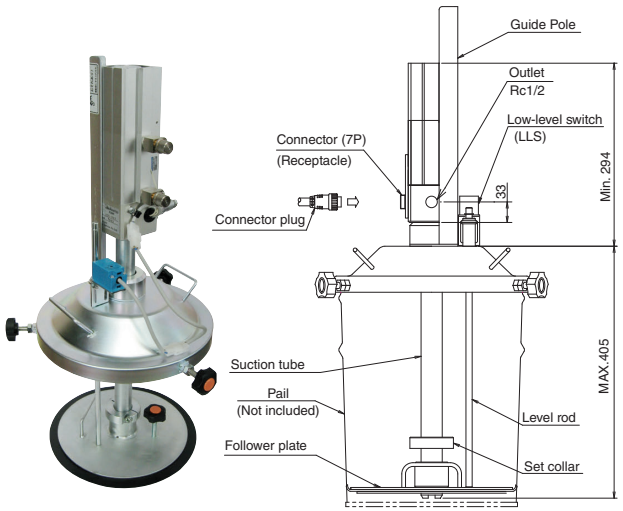
A modification kit is available to accommodate relatively high-viscosity grease.
This kit is to be added to the ACG-020 or ACG-040 models. In addition, hoses, tubes, and cables to be connected to the pump should be installed so that they do not cause reaction force or tension, nor interfere with pump movement.

ACG-020 Model with Modification Kit Installed Dimensions (mm)



For the specifications of the ACG-020 pump, refer to page ⑪.

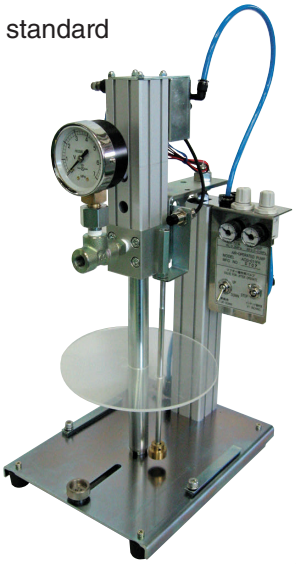
ACG-040 Model with Modification Kit Installed Dimensions (mm)



For the specifications of the ACG-040 pump, refer to this page.

●Air-Lifter Type
Pneumatic Pump ACG-011FK Model

Compact supply pump for 1 to 2.5 kg grease cans. (Grease cans not included.)
- Easy grease can replacement
- Air equipment and pressure gauge included as standard

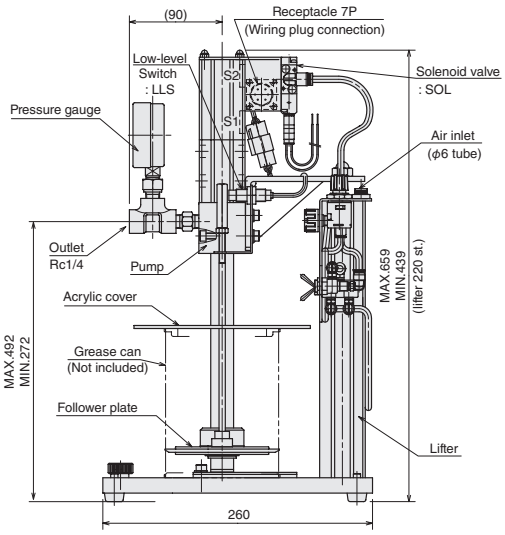


Specifications

Item	Specifications	
Product name code	RK970400	
Discharge rate	6.3cm³/cycle	
Pressure Ratio	5:1	
Discharge pressure	MAX. 2.5 MPa/at air pressure 0.5 MPa	
Air supply pressure	For pump (RP): 0.3 to 0.5 MPa For lifter (RL): 0.2 MPa or less	
Air consumption	64NL/min (at air pressure 0.4 MPa)	
Air Cylinder Sensor Switch (S1, S2)	Model	ZE135A (2-wire non-contact type)
	Operating Voltage Range	10 to 28 VDC
	Load Current	4 to 20 mA (at 25°C; 10 mA at 60°C)
	Internal Voltage Drop	4V MAX.
	Leakage current	0.7 mA MAX. (DC24V, 25°C)
Low-level switch (LLS)	Model	FK7M-8K6N
	Operating Voltage Range	10 to 28 VDC
	Leakage current	0.8 mA or less
	Output	Switching current 3 to 100 mA, residual voltage 3V or less
Solenoid valve (SOL)	Model	110-4E1-83-PSL 24V
	Operating Voltage Range	DC21. 6 to 26. 4V, rated 24 VDC
	Current value	65 mA (at rated voltage)
	Lead wire	Length 300 mm, red (+), black (-)
	Solenoid specifications	Single solenoid
		2 positions, 5 ports
Applicable grease	NLGI No. 0 to 2, 1-kg to 2.5-kg cans	
Mass	Approx. 6 kg (without follower plate and grease can)	

* Follower plates are manufactured to fit the shape of the grease can.
When ordering, please provide a drawing of the grease can and the grease brand.

ACG-011FK Model Dimensions (mm)



Grease Station

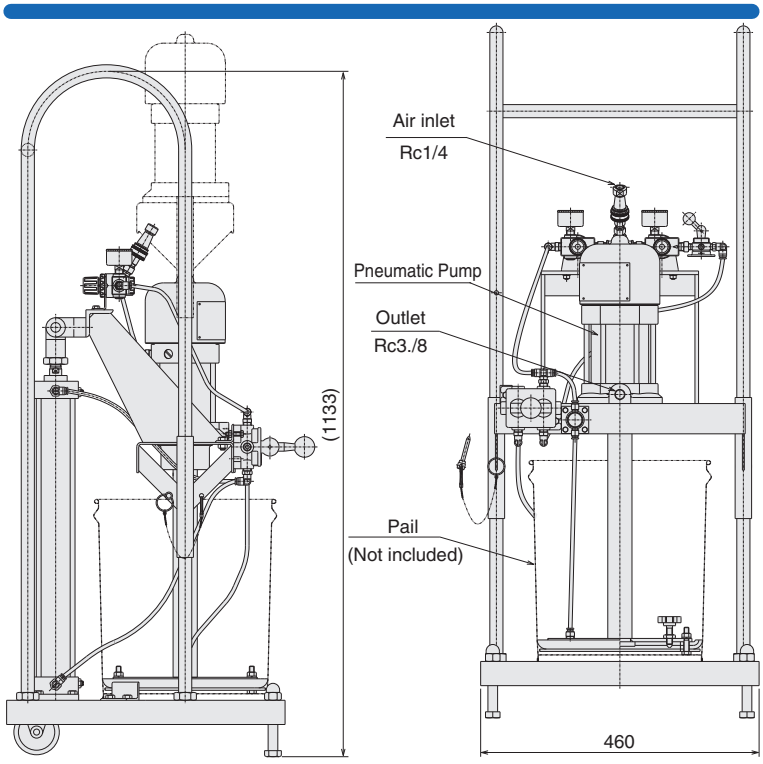
●For use with CVM precise fluid dispensers
Grease Station GSI–P334FK Model

* Please contact us about the delivery date for made-to-order products.

Specifications

Item	Specifications
Product name code	RK972500
Discharge rate	11cm³/cycle
Pressure Ratio	34:1
Discharge pressure	MAX. 22.5MPa
Operating Air Pressure	0.3 to 0.7 MPa
Applicable grease	NLGI No.0 to 2
Applicable cans and pails	Pails (* See page ⑪ for applicable pail specifications)
Mass	Approx. 47 kg (excluding pail)

GSI-P334FK Model Dimensions (mm)



Precise Fluid Dispenser

ACV type (low-pressure specifications)

This precise fluid dispenser operates entirely on air pressure. There is no need to supply the fluid at high pressure.
For low-viscosity fluids, a supply pump is not required. However, for high-viscosity fluids, use a supply pump (ACG-020 or ACG-011FK) or a pressure tank.
This precise fluid dispenser can also be used in a manifold type configuration. The number of outlets can be easily increased or decreased by using a block off plate.

Applicable fluids

Grease and oil
Note: Do not use in combination with a pump + pressure reducing valve made by another company, as this may cause failure of the precise fluid dispenser.
If you use a pump, use a dedicated pump, either the ACG-011FK or the ACG-020.

Basic specifications

Product name code	RK386700	RK381500	RK386800	RK382400	RK386900	RK385000	RK389700
Model	ACV-001SPP	ACV-001LS	ACV-002SPP	ACV-002LS	ACV-010SPP	ACV-010LS	ACV-020SPPDD
Discharge rate	0.005 to 0.12 ㎤/stroke		0.01 to 0.23 ㎤/stroke		0.04 to 1.2 ㎤/stroke		0.06 to 2.0 ㎤/stroke
Operating Air Pressure	0.2 to 0.7 MPa						
Operating Fluid Pressure	Max.3MPa						
Pressure Ratio	1:14		1:9		1:9		1:7
Mass	0.45kg		0.45kg		1.6kg		1.6kg

See pages ⑮ to ⑱ for outline drawings.

Model
ACV-0□□□
- Specifications
- Discharge rate
- Standard model

Specifications
- SPP ····· For grease ····· page ⑮
- LS ····· For oil ····· page ⑱
- F ····· The plunger material is SUS (please contact us), or the packings in the fluid areas are made of fluororesin.
- DD ····· Both pilot plunger and main plunger are double-acting types (please contact us)
- With sensor ····· Equipped with sensor to confirm operations ····· page ㉒

* Orders cannot be placed using the model codes. Please order by using the product name code.

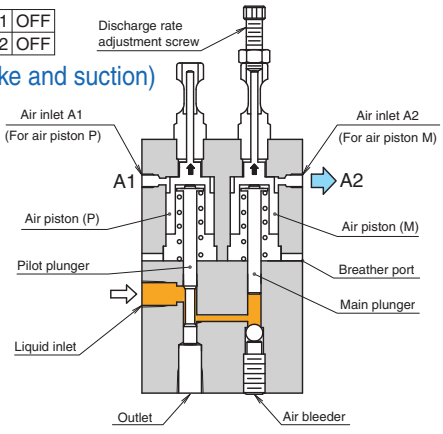
●Description of ACV Operations (see the timing chart on page ⑨)

1 Standby

SOL-V1	OFF
SOL-V2	OFF

(Main plunger upstroke and suction)

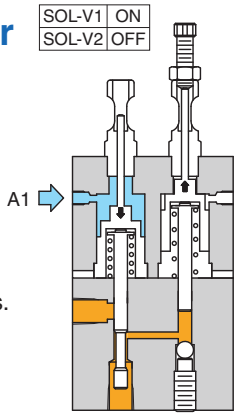
When the solenoid valve (SOL-V2) turns OFF, air inside the main air cylinder (upper chamber) is exhausted through A2, and the main plunger is raised by spring force. At this point, liquid is metered beneath the main plunger, then the pump enters standby.



2 Pilot plunger descends

SOL-V1	ON
SOL-V2	OFF

When the solenoid valve (SOL-V1) turns ON, air enters the pilot-side air cylinder (upper side) from A1, causing the air piston (P) to descend and the pilot plunger also descends. Once the descent is complete, the outlet and the passage below the main plunger open.

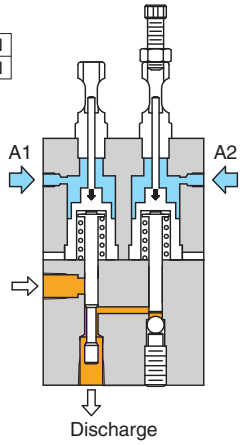


3 Discharge

SOL-V1	ON
SOL-V2	ON

(Main plunger descends)

When the solenoid valve (SOL-V2) turns ON, air enters the main-side air cylinder (upper side) from A2, causing the air piston (M) to descend and the main plunger also descends. At this point, the liquid metered beneath the main plunger is discharged through the outlet to the nozzle side.

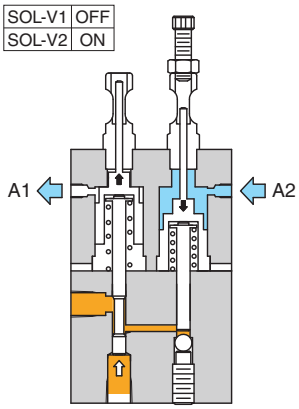


4 Pilot plunger ascends

SOL-V1	OFF
SOL-V2	ON

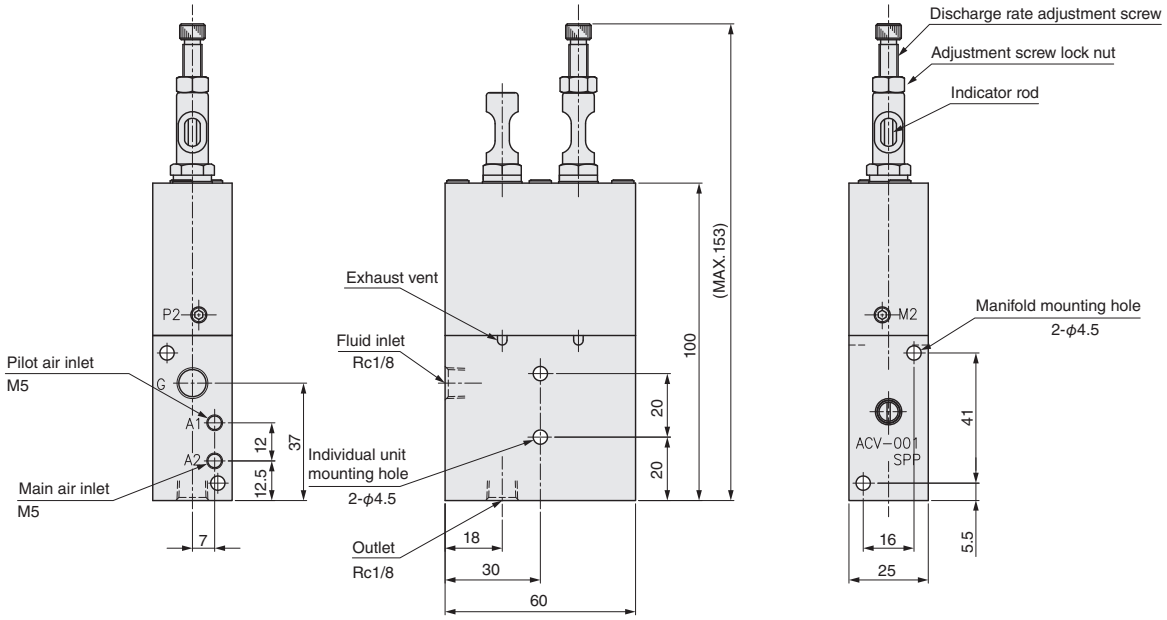
When the solenoid valve (SOL-V1) turns OFF, air in the air cylinder is discharged through A1, and the pilot-side air piston and plunger are raised by spring force. The residual pressure in the nozzle causes the remaining grease to be drawn back into the outlet to prevent dripping. (Suction back function)

(Returns to 1)



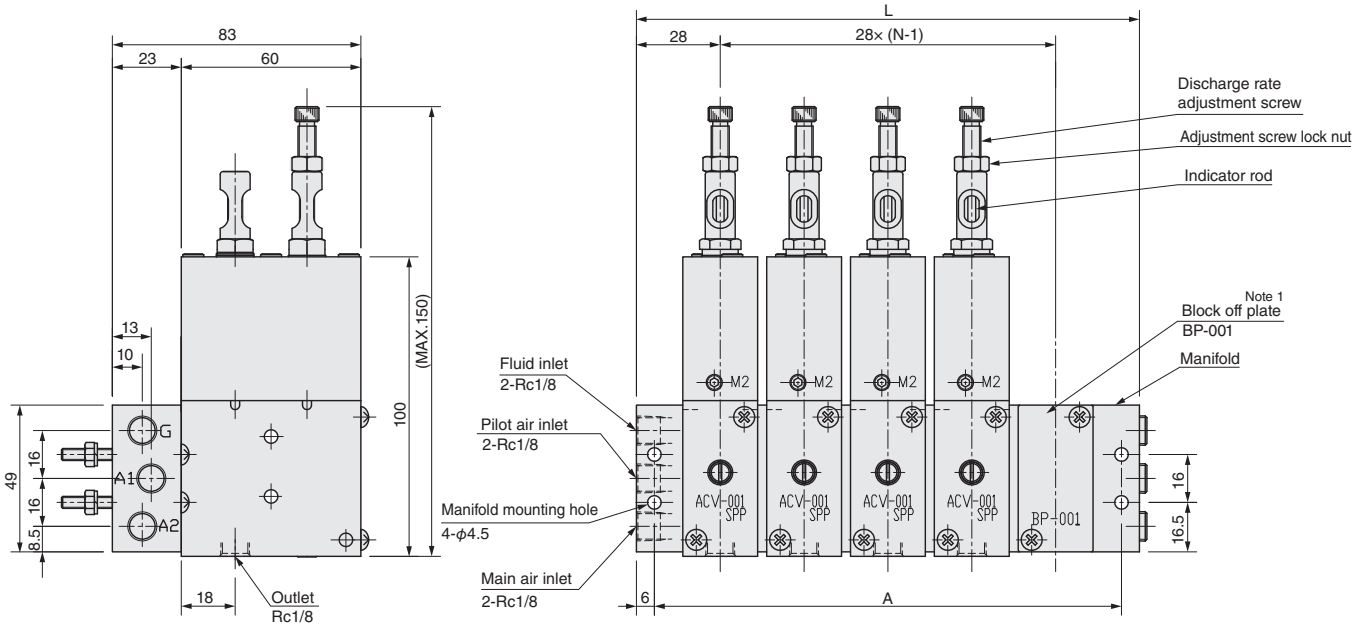
ACV-001SPP, -002SPP Model Dimensions (mm)

ACV-001SPP, -002SPP Precise Fluid Dispenser Individual Unit



* The ACV-001SPP model and ACV-002SPP model have the same dimensions.

ACV-001SPP, -002SPP Precise Fluid Dispenser Manifold Type



* The ACV-001SPP model and ACV-002SPP model have the same dimensions.

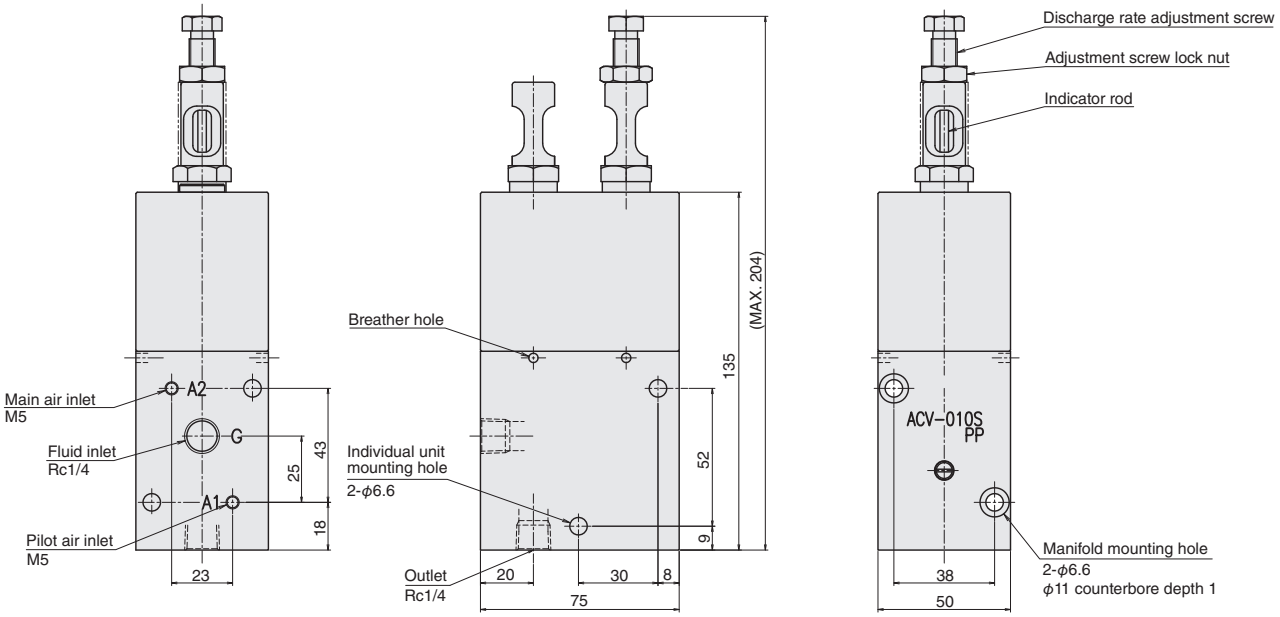
Manifold specifications (precise fluid dispensers are not included in the product name codes below)

Product name code	Manifold model	Number of units N	L	A	Unit with precise fluid dispenser Mass (kg)
RK871200	MC2-001	2	84	72	Approx. 1.2
RK871300	MC3-001	3	112	100	Approx. 1.7
RK871400	MC4-001	4	140	128	Approx. 2.2
RK871500	MC5-001	5	168	156	Approx. 2.7
RK871600	MC6-001	6	196	184	Approx. 3.2
RK871700	MC7-001	7	224	212	Approx. 3.8

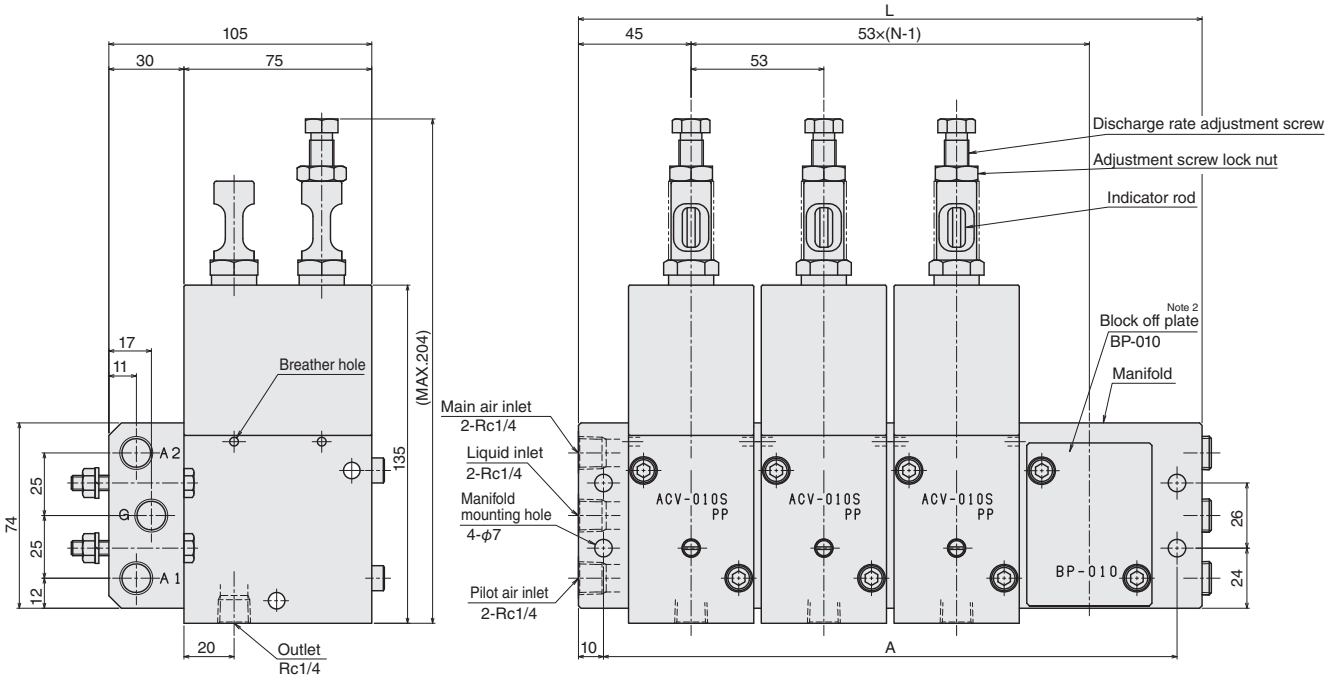
Note 1: Block the position where the precise fluid dispenser is not used with the optional block off plate BP-001 (product name code: RK872900).
2: The manifold for the ACV-002SPP model precise fluid dispenser is the same as the one shown in the table above.
3: Recommended screws for mounting manifold: 4-M4×40L
4: Precise Fluid Dispensers and manifolds are purchased separately.

ACV-010SPP Model Dimensions (mm)

ACV-010SPP Precise Fluid Dispenser Individual Unit



ACV-010SPP Precise Fluid Dispenser Manifold Type



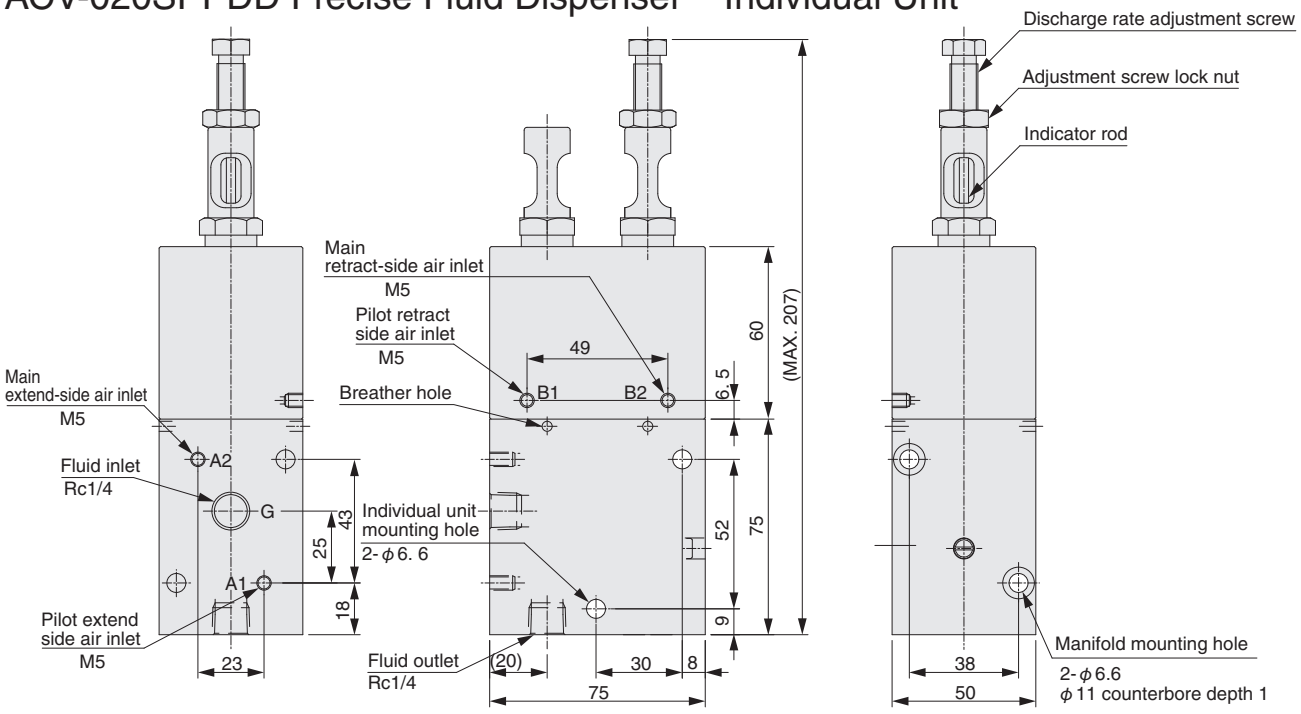
Manifold specifications (precise fluid dispensers are not included in the product name codes below)

Product name code	Manifold model	Number of units N	L	A	Unit with precise fluid dispenser Mass (kg)
RK872300	MC2-010	2	143	123	Approx. 4.0
RK872400	MC3-010	3	196	176	Approx. 6.0
RK872500	MC4-010	4	249	229	Approx. 7.8

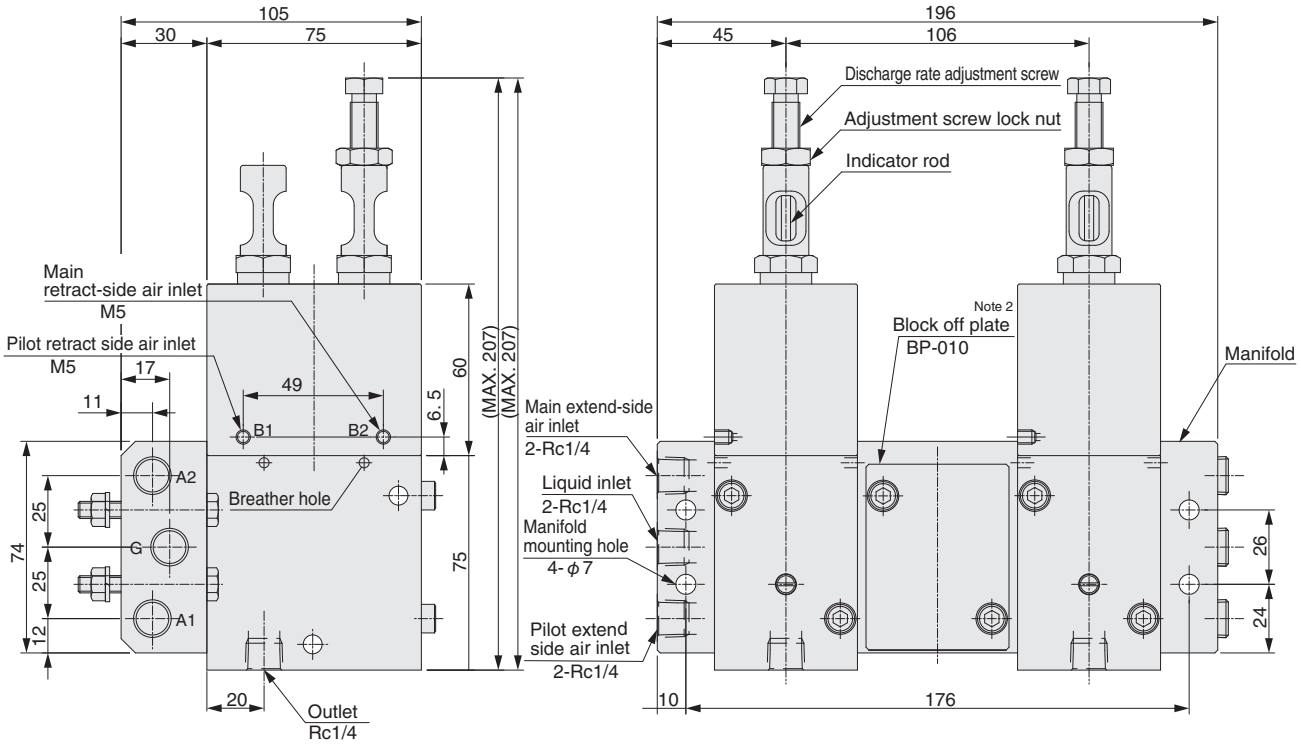
Note 1: Systems of 5 units or more can also be produced. (Please contact us.)
2: Block the position where the precise fluid dispenser is not used with the optional block off plate BP-010 (product name code: RK873000).
3: Recommended screws for mounting manifold: 4-M6×45L
4: Precise Fluid Dispensers and manifolds are purchased separately.

(mm)

ACV-020SPPDD Precise Fluid Dispenser Individual Unit



ACV-020SPPDD Precise Fluid Dispenser Manifold Type



Manifold specifications (precise fluid dispensers are not included in the product name codes below)

Product name code	Manifold model	Number of units N	Unit with precise fluid dispenser Mass (kg)
RK872400	MC3-010	2	Approx. 4.4

Note 1: This precise fluid dispenser is a reciprocating type and has an air supply port on the side, so it cannot be installed adjacent to a manifold.
2: Block the position where the precise fluid dispenser is not used with the optional block off plate BP-010 (product name code: RK873000).
3: Recommended screws for mounting manifold: 4-M6×45L
4: Precise Fluid Dispensers and manifolds are purchased separately.

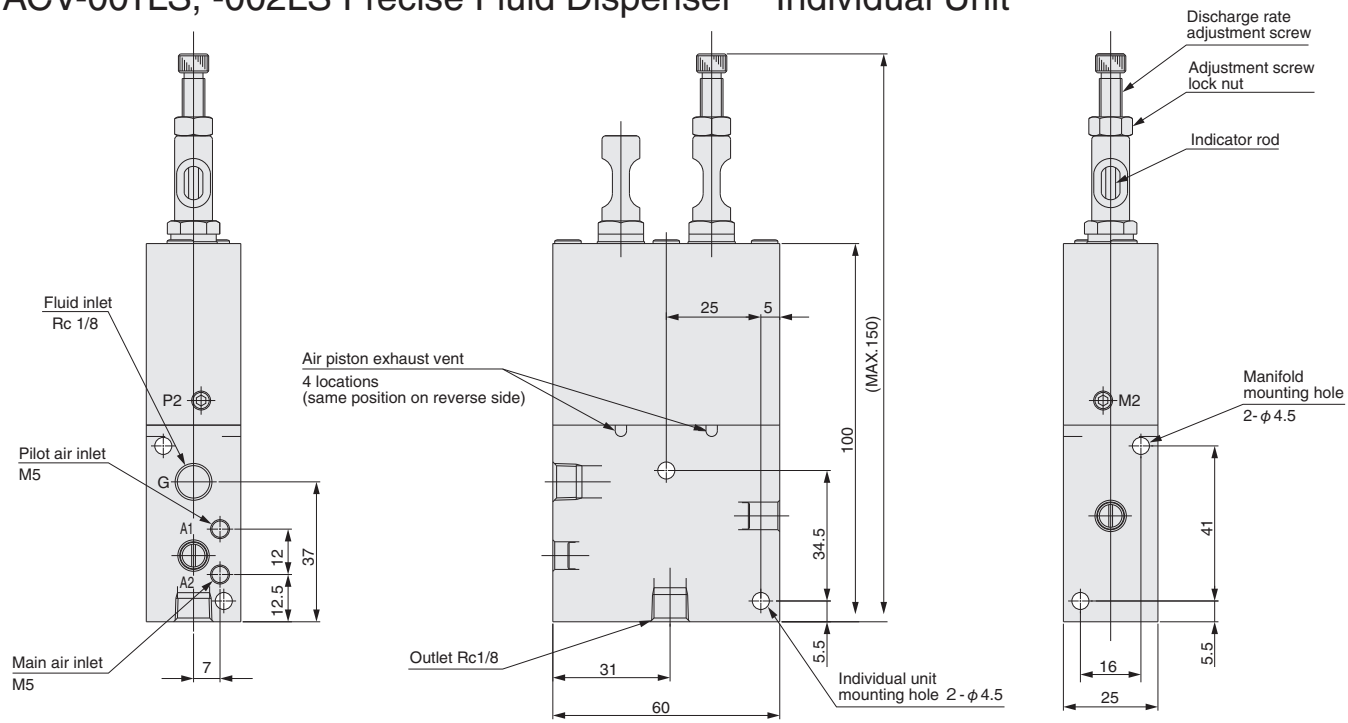
(mm)

ACV-Type Precise Fluid Dispensers (for Oil)

The ACV-***LS-type precise fluid dispensers do not have the suction back function.

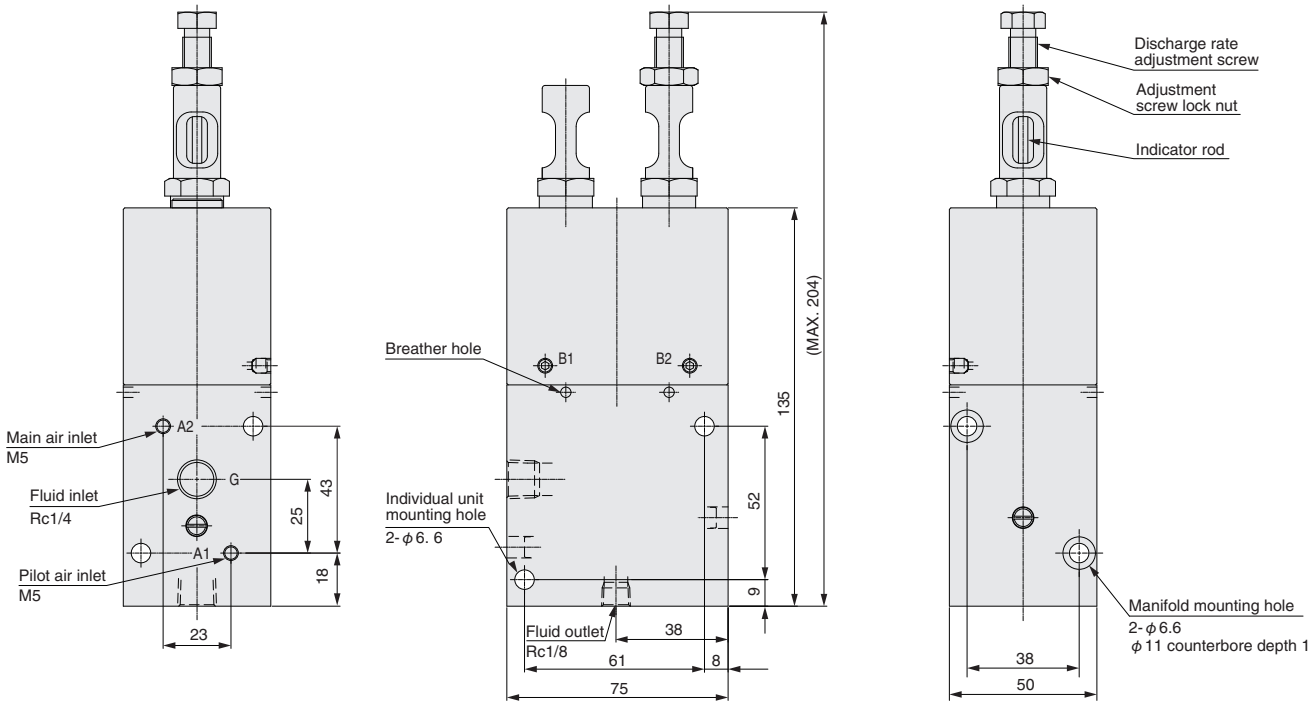
(Using a precise fluid dispenser with a suction back function for oil applications causes air to be sucked in through the nozzle tip, which makes the output flow unstable.)

ACV-001LS, -002LS Precise Fluid Dispenser Individual Unit



* The ACV-001LS model and ACV-002LS model have the same dimensions.

ACV-010LS Precise Fluid Dispenser Individual Unit



Precise Fluid Dispenser

CVM type (high-pressure specifications)

- The pilot block and main block are separate.
  You can change the discharge volume by simply replacing the main block while keeping the pilot block as is.
- Sales are per unit.
- Up to four units can be combined as a single unit by using tie bolts. (See diagram on page ⑳)
- Large, medium, and small precise fluid dispensers can be installed as a single assembly.
- The pilot plunger is a reciprocating type. Accordingly, use a 5-way solenoid valve.

Basic Specifications

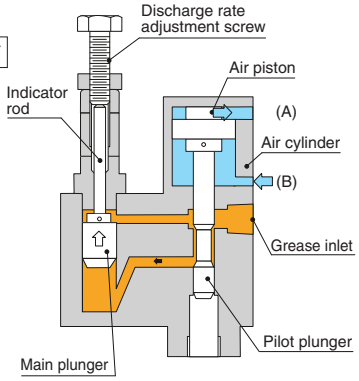
Liquid used: Grease (oil cannot be used)

Item		Specifications				
		CVM-03	CVM-10	CVM-50	CVM-100	CVM-200
Product name code		RK792100	RK792500	RK792900	RK793300	RK793700
Discharge rate		0.05 to 0.3 cm³/stroke	0.2 to 1.2 cm³/stroke	0.5 to 5 cm³/stroke	2 to 10 cm³/stroke	4 to 20 cm³/stroke
Operating pressure range	Grease line	5.9 to 14.7 MPa				
	Air line	0.3 to 0.7 MPa				
Grease circuit pressure rating		20.6MPa				
Grease used		NLGI No. 0 to No. 2				
Mass		Approx. 1.4 kg	Approx. 1.5 kg	Approx. 1.6 kg	Approx. 3.6 kg	Approx. 4.3 kg

●Description of CVM Operations

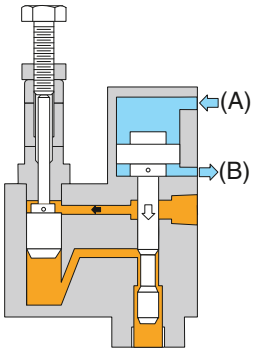
1 Standby SOL-V OFF

When the solenoid valve turns OFF, the pilot plunger stops at the upper end along with the air piston due to the pressure of the air supplied from the lower side B of the air cylinder.
The main plunger is pressurized by the grease supplied from the fluid inlet on both the upper and lower sides, but is pushed up and stopped at the upper end due to the difference in pressure receiving area.
At this point, grease for the next discharge is metered into the lower side of the main plunger.



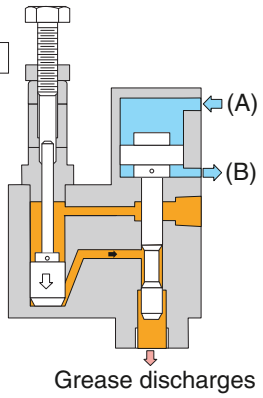
2 Pilot plunger descends SOL-V ON

When the solenoid valve turns ON and air is supplied through air cylinder A, the pilot plunger descends together with the air piston. At the same time, the air inside the air cylinder is exhausted to the atmosphere through lower B to the solenoid valve side.
As a result, the oil passage is switched so that only the upper side of the main plunger is pressurized, while the lower side connects to the outlet.



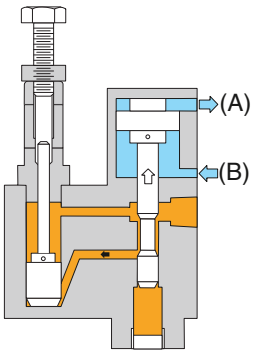
3 Discharge process SOL-V ON

Since the outlet is open to the atmosphere via the nozzle, the main plunger descends under the pressure of the grease, and the grease metered below the main plunger is discharged.

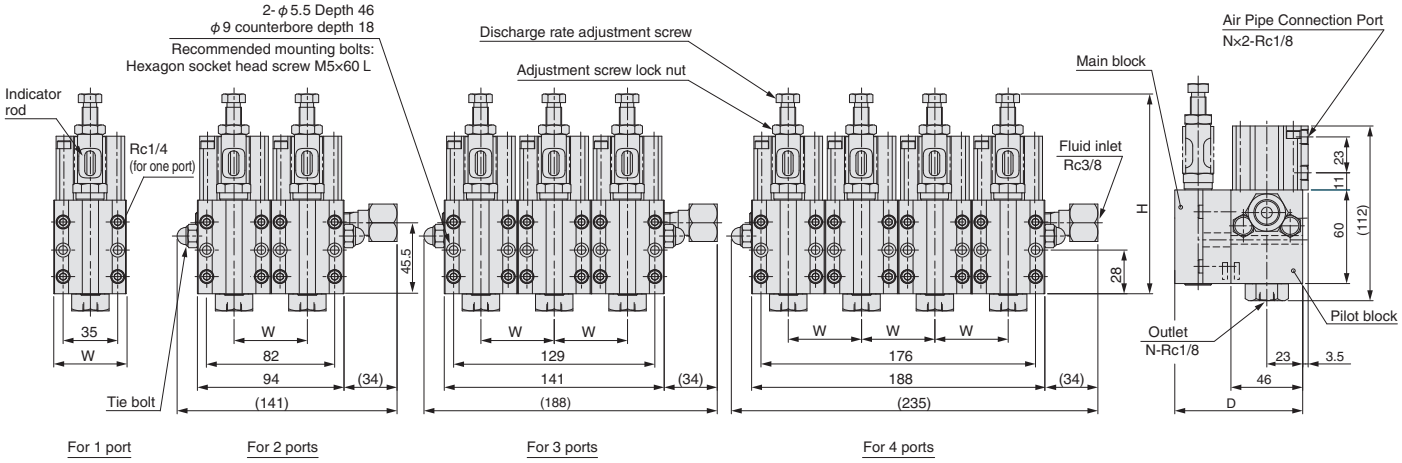


4 Pilot plunger ascends SOL-V OFF

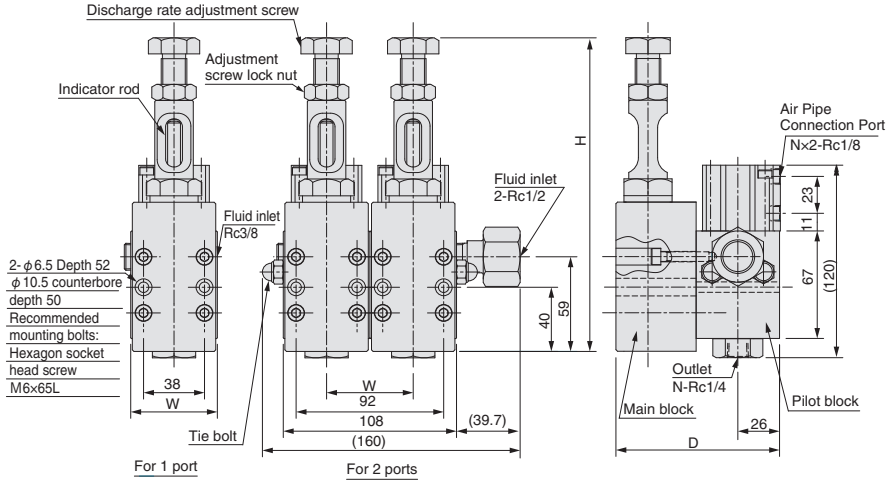
When the solenoid valve turns OFF, air supplied to the lower B port of the air cylinder causes the pilot plunger and air piston to ascend, while the air inside the air cylinder is exhausted to the atmosphere from the upper A port through the solenoid valve.
At this time, the residual pressure in the nozzle causes the remaining grease to be drawn back into the outlet to prevent dripping. (Suction back function)
Furthermore, the grease supplied from the fluid inlet is pressurized on both the upper and lower sides of the main plunger, but the main plunger rises due to the difference in pressure area and returns to state 1.



Precise Fluid Dispenser CVM Model Dimensions (mm)



For CVM-03·10·50 models



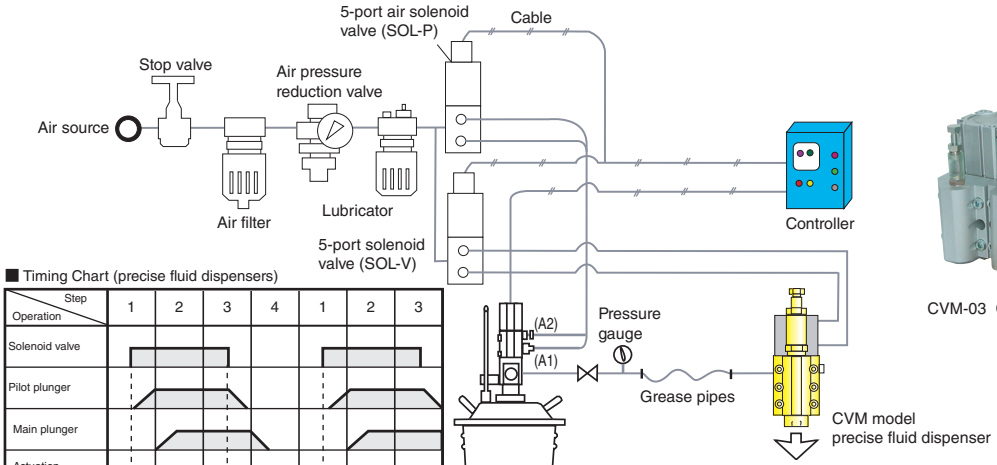
In case of CVM-100·200 models

* N represents the number of units.

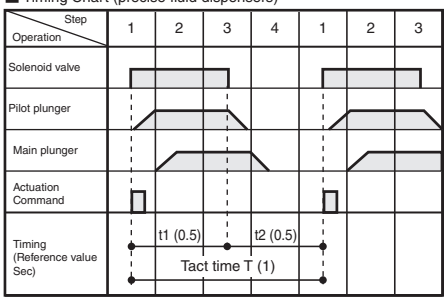
Model	External dimensions (for 1 port)		
	W	D	H(MAX)
CVM-03	47	82	104.2
CVM-10	47	82	128.0
CVM-50	47	82	176.3
CVM-100	54	102	195.5
CVM-200	54	110	247

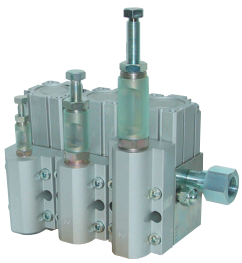
Use the tie bolt set (sold separately) listed below to connect and use the system as shown in this diagram.

Applications	Model	Code
For CVM-03.10.50	Tie Bolt Set 2-CVM (2-units)	RK870800
	Tie Bolt Set 3-CVM (3-units)	RK870900
	Tie Bolt Set 4-CVM (4-units)	RK871000
For CVM-100.200	Tie Bolt Set 2-CVM-100 (2-units)	RK873700



■ Timing Chart (precise fluid dispensers)





CVM-03 CVM-10 CVM-50

CVM-100

CVM-200

Precise Fluid Dispenser

CVN type (high-pressure specifications)

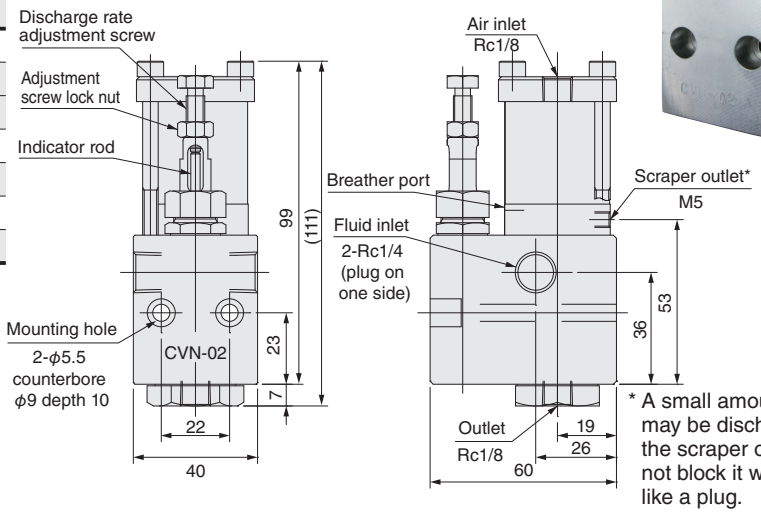
- 30% lighter than the CVM-03 precise fluid dispenser. Plus, size is compact.
- Compared to the CVM model, it suppresses the amount of suction back, resulting in improved stability and ease of maintenance during small-volume dispensing.

* Timing chart is the same as the CVM series. (See page ⑳)

Liquid used: Grease (oil cannot be used)

Item		CVN-02
Discharge rate		0.03 to 0.2 ㎤/stroke
Operating pressure range	Grease line	5.9 to 20.6 MPa
	Air line	0.3 to 0.7 MPa
Grease circuit pressure rating		20.6MPa
Grease used		NLGI No. 0 to No. 2
Product name code		RK389200
Mass		Approx. 1.0 kg

CVN Model Dimensions (mm)

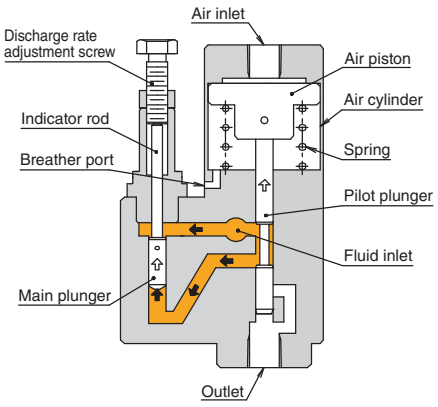


* A small amount of grease may be discharged from the scraper outlet, so do not block it with anything like a plug.

●Description of CVN Operations

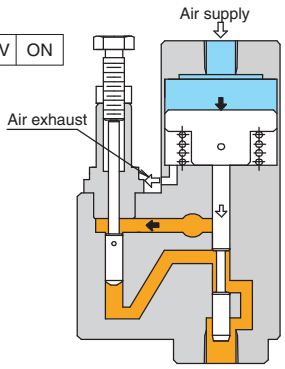
1 Standby SOL-V OFF

When the solenoid valve turns OFF, the pilot plunger stops at the upper end along with the air piston by spring force.
The main plunger is pressurized by the grease supplied from the fluid inlet on both the upper and lower sides, but is pushed up and stopped at the upper end due to the difference in pressure receiving area.
At this point, grease for the next discharge is metered into the lower side of the main plunger.



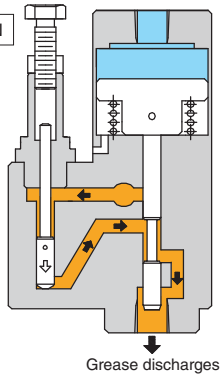
2 Pilot plunger descends SOL-V ON

When the solenoid valve turns ON and air is supplied through the air inlet, the pilot plunger descends together with the air piston. At the same time, the air inside the air cylinder is exhausted to the atmosphere through the breather port. As a result, the oil passage is switched so that only the upper side of the main plunger is pressurized, while the lower side connects to the outlet.



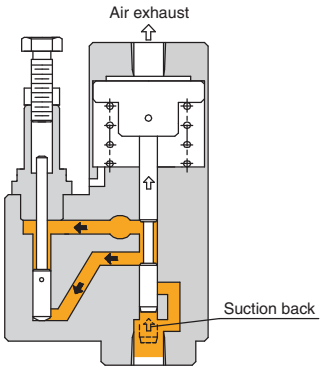
3 Discharge process SOL-V ON

Since the outlet is open to the atmosphere via the nozzle, the main plunger descends under the pressure of the grease, and the grease metered below the main plunger is discharged.



4 Pilot plunger ascends SOL-V OFF

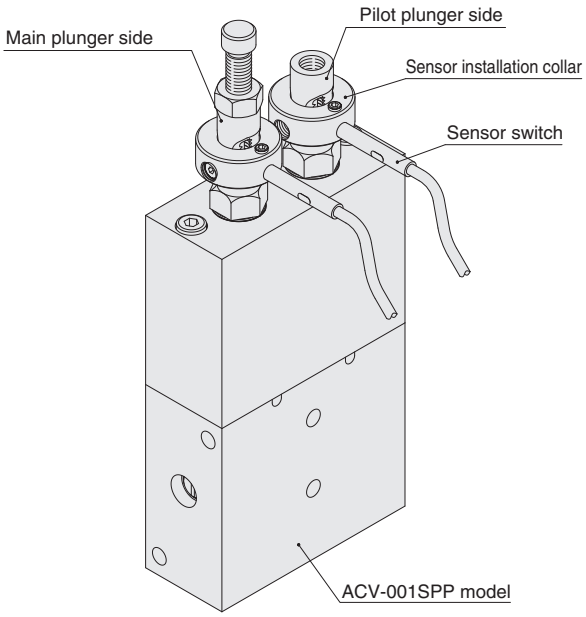
When the solenoid valve is turned OFF, the pilot plunger rises with the air piston due to the force of the spring, and the air in the air cylinder is exhausted to the atmosphere through the solenoid valve side. At this time, the residual pressure in the nozzle causes the remaining grease to be drawn back into the outlet to prevent dripping.
(Suction back function)
Furthermore, the grease supplied from the fluid inlet is pressurized on both the upper and lower sides of the main plunger, but the main plunger rises due to the difference in pressure area and returns to state 1.



Sensor to Check Operation of Precise Fluid Dispenser

By installing the sensor, the operation of the precise fluid dispenser (indicator rod) can be checked electronically.

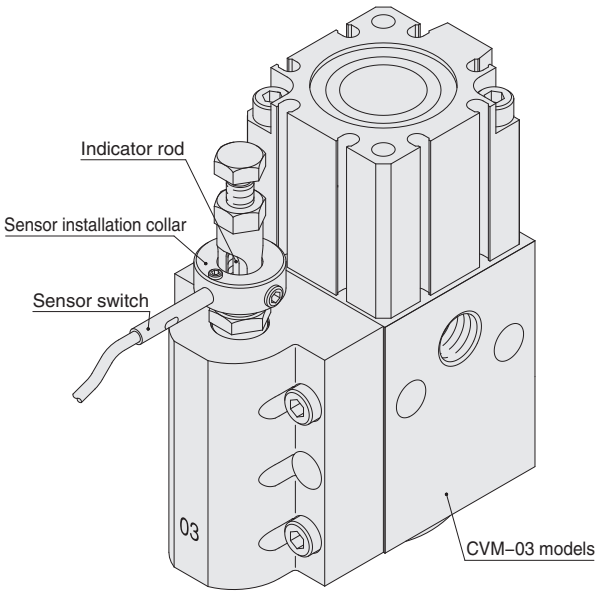
ACV Series



For ACV-001SPP models

Discharge rate (detection range)	(0.05) to 0.12 ㎤/stroke

CVM–03 Series



For CVM-03 models

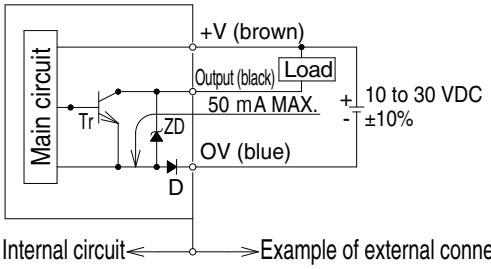
Discharge rate (detection range)	(0.15) to 0.3 ㎤/stroke

Basic sensor specifications

Note: Sensor specifications are subject to change. Please contact us.

Item	Specifications
Power supply voltage	10 to 30 VDC [including 10% ripple (P-P)]
Current consumption	10 mA or less
Output	NPN transistor open collector ・Maximum input current: 50 mA ・Applied voltage: 30 VDC or less ・Residual voltage: 2 VDC or less (at maximum input current)
Operating Indicator Light	Orange LED (lights when output is ON)
Protection rating	IP67 (IEC), immersion-proof (JIS)
Cable length	2m

Sensor circuit diagram



Code ·····D : Diode to protect against reverse power connection
ZD: Zener diode to absorb surge voltage
Tr : NPN output transistor

Sensor product name code

Model	Product name code
For ACV-001, ACV-002, CVM-03	RK472700
For ACV-010, CVM-10	RK472800
For CVM-50	RK472900
This is an assembly consisting of a sensor switch and a sensor mounting collar.	

* The quantity for the above part number code is one set. To use two sets (such as for ACV models), order two sets.

Bubble Crusher AST Model

Koganei's Proprietary Grease Agitation and Circulation System

Patent No. 4951546

●Trouble applying grease due to the presence of air bubbles?

Air bubbles mixed into the grease cause missed application from the dispenser (precise fluid dispenser).

●Are you troubled by poor operations due to oil separation?

Oil separation in grease causes non-precise concentrations of solid particles. This leads to malfunctions in grease pumps and dispensers (precise fluid dispensers).

This can be improved by introducing a bubble crusher (circulation system) into the application line.

●Are you having trouble disposing of leftover grease?

Collecting and reusing leftover grease can cause air contamination. In addition, disposal of grease remaining in the can incurs costs as industrial waste disposal.

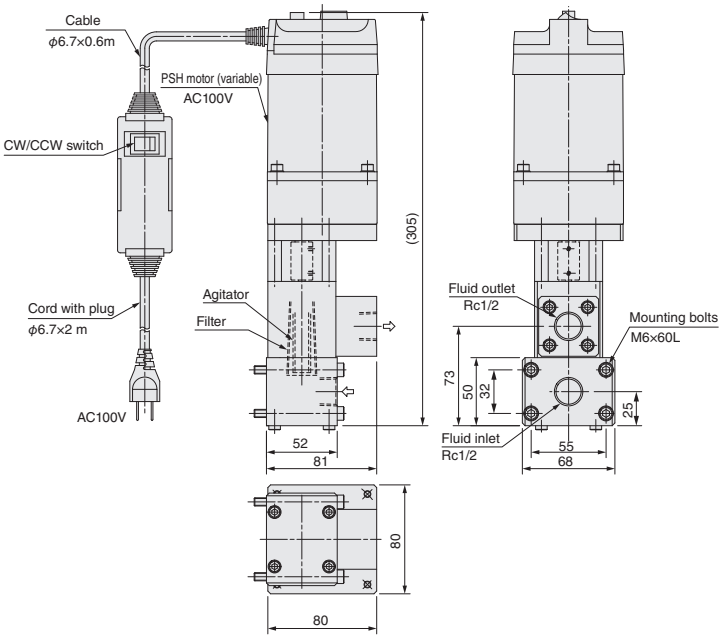
Introducing a bubble crusher (circulation system) enables the recycling of waste grease. (Reduces processing costs)

Bubble Crusher AST-04 Model

Item		Specifications
Product name code		RK497200
Grease supply pressure		MAX.3MPa
Grease used		NLGI No. 0 to No. 2
Applicable pumps		ACG-020
Motor	Maximum output	25W
	Voltage	Single phase 100 V
	Current value	0.7A
	Power consumption	60W
	Variable speed	90 to 1400 r/min (50 Hz) 90 to 1500 r/min (60 Hz)
	Reduction ratio	1/3
Mass		Approx. 3.5 kg

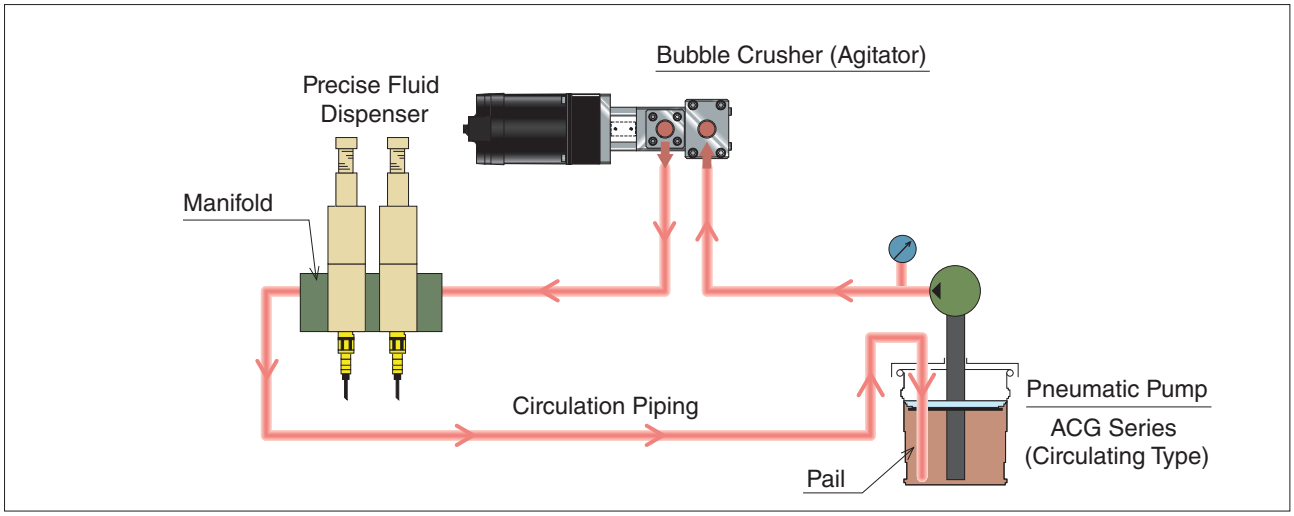
*1. Depending on the properties and flow rate of the grease, the motor may lock up. In such cases, reduce the grease supply pressure and flow rate.
*2. Periodically inspect and clean the internal filter.

AST-04 Model Dimensions (mm)



Agitation and Circulation System Configuration Diagram

The bubble crusher is installed between the pump and the precise fluid dispenser. A return pipe from the precise fluid dispenser to the pail is installed to form a circulation circuit.
* Keep the piping between the bubble crusher and the precise fluid dispenser as short as possible.

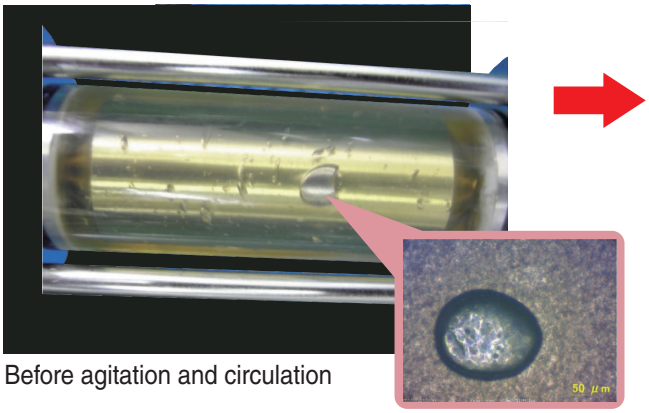


Effects of Agitation and Circulation

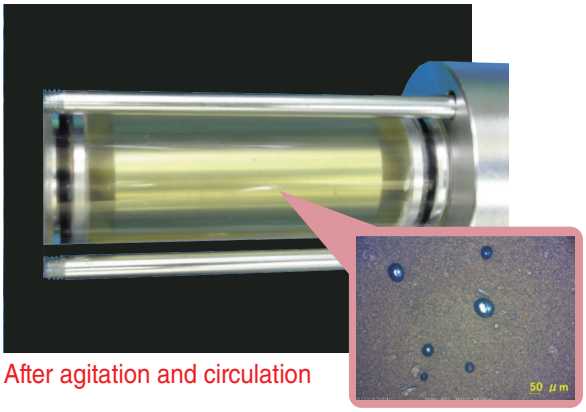
(* Effectiveness varies depending on the properties of the grease. This must be verified in advance as necessary.)

Comparison of air bubbles before and after agitation and circulation

Comparison of air bubbles before and after agitation and circulation with approximately 40 cm³ of air bubbles intentionally mixed in (agitation and circulation time: 30 minutes)



Before agitation and circulation

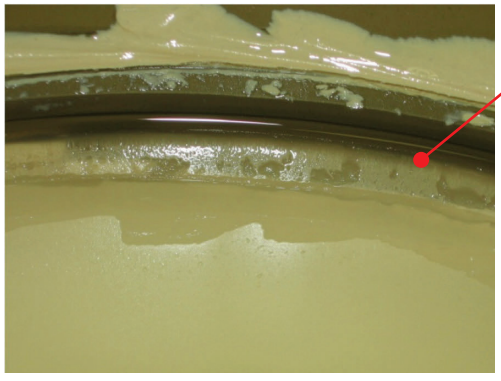


After agitation and circulation

Air bubbles are finer

Comparison of Oil Separation

Comparison of oil separation before and after agitation and circulation



The separated oil rises to the surface

Before agitation and circulation

After agitation and circulation

Oil is evenly mixed

MEMO

MEMO

Limited Warranty

KOGANEI CORP. warrants its products to be free from defects in material and workmanship subject to the following provisions.

Warranty Period The warranty period is 180 days from the date of delivery.

Koganei Responsibility If a defect in material or workmanship is found during the warranty period, KOGANEI CORP. will replace any part proved defective under normal use free of charge and will provide the service necessary to replace such a part.

Limitations

- This warranty is in lieu of all other warranties, expressed or implied, and is limited to the original cost of the product and shall not include any transportation fee, the cost of installation or any liability for direct, indirect or consequential damage or delay resulting from the defects.
- KOGANEI CORP. shall in no way be liable or responsible for injuries or damage to persons or property arising out of the use or operation of the manufacturer's product.
- This warranty shall be void if the engineered safety devices are removed, made inoperative or not periodically checked for proper functioning.
- Any operation beyond the rated capacity, any improper use or application, or any improper installation of the product, or any substitution upon it with parts not furnished or approved by KOGANEI CORP., shall void this warranty.
- This warranty covers only such items supplied by KOGANEI CORP. The products of other manufacturers are covered only by such warranties made by those original manufacturers, even though such items may have been included as the components.

The specifications are subject to change without notice.

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