

for minimal quantity metering



Magnetic piston pump



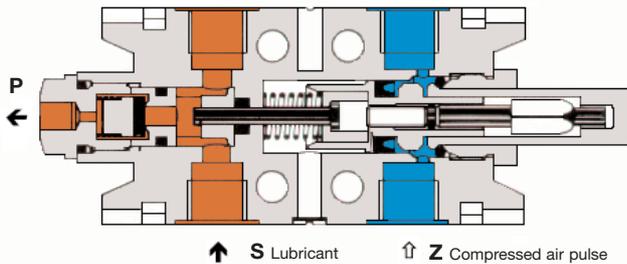
Injection oiler



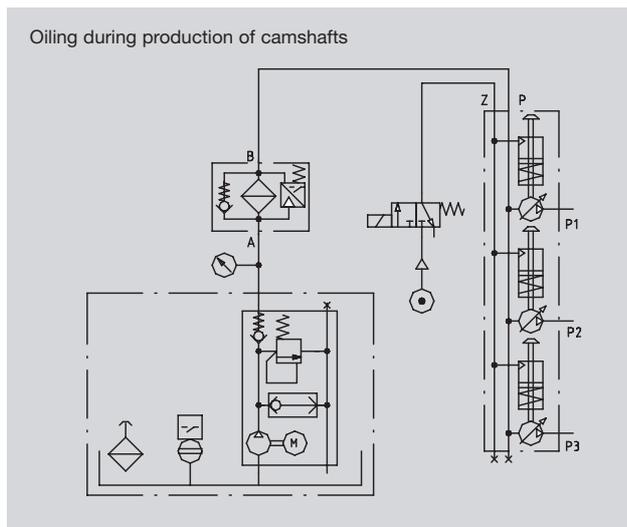
Micro pump



Grease metering



Sectional view of injection oiler



**Metering pumps deliver and meter out lubricants.**

This piston pumps are for small delivery rates from 3 to 40 mm<sup>3</sup>. The lubricant's delivery rate is partially adjustable.

**Possible applications:** spot, brush lubrication:

- Air oiling (assembly tools)
- Greasing of small parts (assembly support)
- Chain lubrication

**Main features of magnetic piston pumps**

- 2-6 outlet ports
- Electric drive with AC and DC voltage
- Compact design

**Main features of injection oilers, micropumps**

- Optimal metering of every lube point regardless of line lengths and cross sections
- Lubricant supplied from one central reservoir, a standalone reservoir, also by a central pressurized oil line in the case of injection oilers
- Metering elements can be actuated individually or in groups
- Splash lubrication through high oil acceleration (injection oiler)
- Fast sequence of pulses:
  - up to 120 pulses per minute (injection oiler)
  - up to 180 pulses per minute (micropump)
- Space-saving design
- Ecofriendly: no oil in the exhaust air

### Magnetic piston pump PE



#### with reservoir and injection nozzles

The magnetic piston pump is an electrically actuated positive-displacement micropump. A solenoid actuator moves the delivery piston inside the pump's body. The return stroke takes place with spring force. The oil is fed from a gravity oil reservoir. Pumps with up to six outlet ports and three different delivery rates can be chosen from.

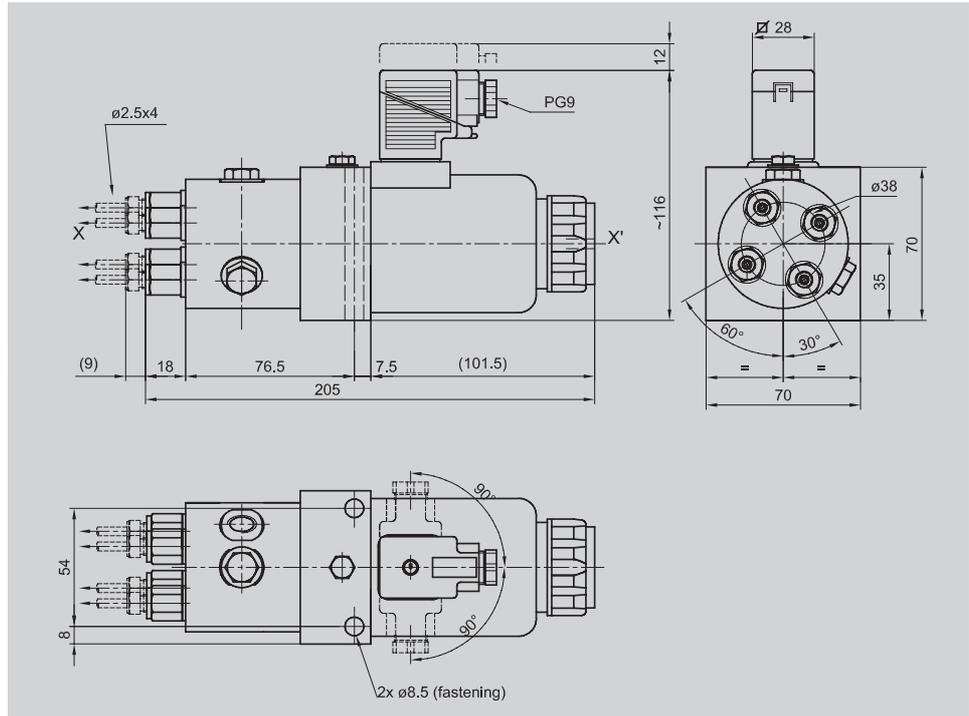
#### Order advice

Pump  
 Outlets **2 / 4 / 6**  
 Delivery rate **20 / 40 / 60**  
 Voltage  
 115 V AC **429** / 230 V AC **428** / 24 V DC **924**

**PE x xx + xxx**

#### Order example

Pump with 2 outlets, delivery rate/outlet 40 mm<sup>3</sup>, voltage 24 V DC, order No. **PE 2 40+924**



#### Technical data

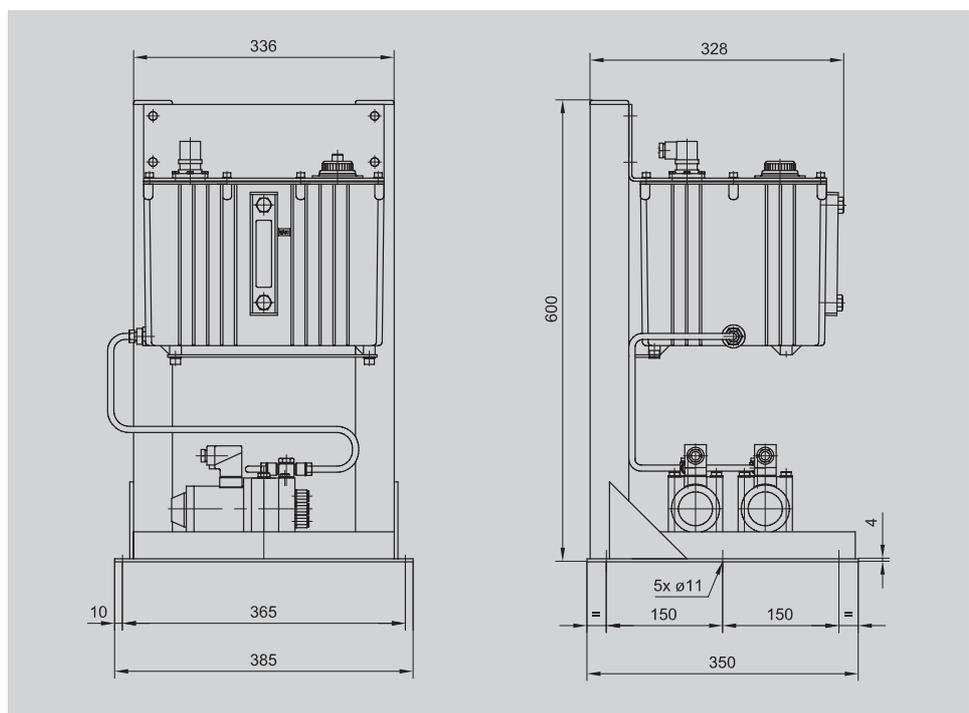
Number of outlet ports	2, 4 and 6
Delivery rate/outlet	20, 40 and 60 mm <sup>3</sup>
Voltage/frequency	115 V, 230 V, 50 Hz; 24 V DC
Power	120 W
Power consumption	1 A at 115 V, 0.55 A at 230 V
ON time	40 %
Max. frequency	2 Hz
Operating temperature	+10 to +60 °C
Max. delivery pressure	20 bars

#### Chain lubrication application

A typical application is chain lubrication. Due to the frequency and small delivery rate, the friction points of a chain can be targeted directly and with pinpoint accuracy while it's running. A proximity sensor detects the chain studs and activates the corresponding control system for the magnetic piston pump with the electric input signal.

#### Example of a chain lubrication unit

Order No. **UC.DES.135**



# Injection oiler

1- and 3-port types



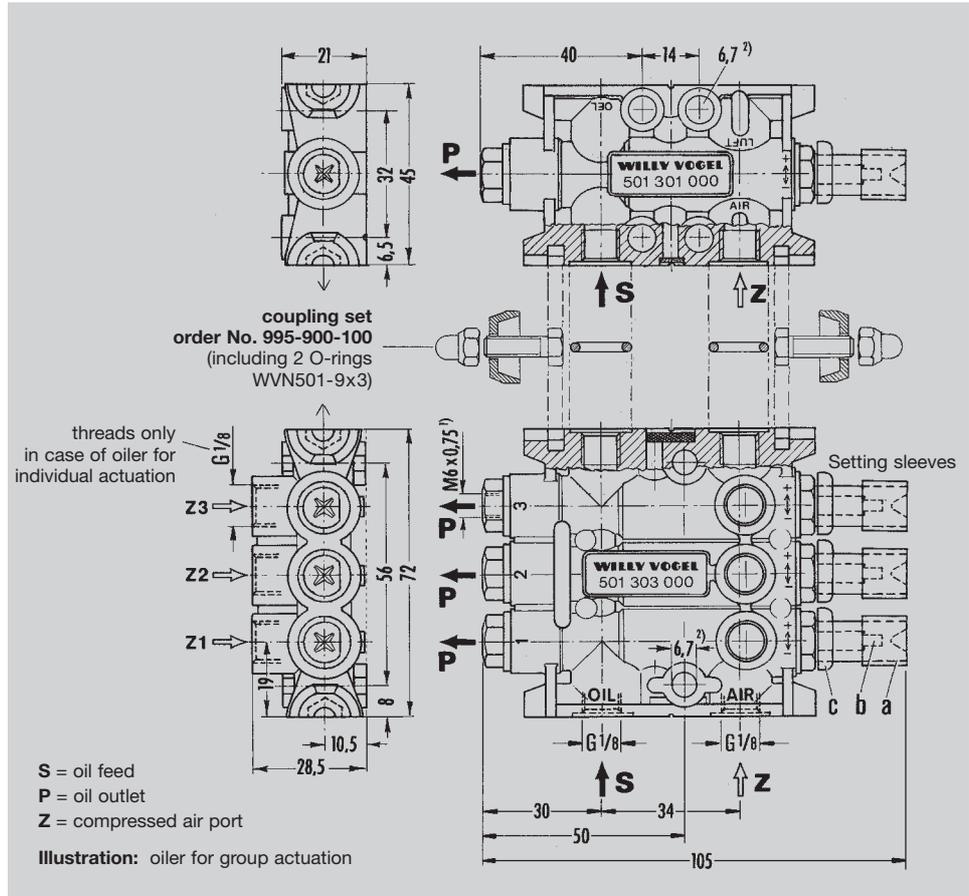
501-303-000

### Setting sleeves

- a Setting sleeve for adjustment of quantity and manual actuation for additional triggering of a lube pulse
- b Indicator pin for function display
- c Guard cap

### NB: direction of rotation

- turn to the left
- + turn to the right



### Technical data

Ambient temperature: ... -20 °C to +80 °C  
 Actuating medium: ... compressed air (Z),  
 3-10 bars,  
 max. flow 200 l/min  
 Lubricant: ... oil at 10-1100 mm<sup>2</sup>/s  
 Other media on request.  
 When grease is used, the priming process must  
 be supported with priming pressure.  
 Please inquire!

### Adjustment of volume

All injection oilers are set for maximum delivery volume at the plant. The delivery rate can be reduced in increments by turning the setting sleeve counter-clockwise.

Max. delivery rate/stroke	30 mm <sup>3</sup>
1 full turn to the left:	25 mm <sup>3</sup>
2 full turns to the left:	20 mm <sup>3</sup>
3 full turns to the left:	15 mm <sup>3</sup>
4 full turns to the left:	10 mm <sup>3</sup>
5 full turns to the left:	5 mm <sup>3</sup>
over 6 full turns to the left:	3 mm <sup>3</sup>

The setting sleeve can be set by hand. It engages 4 times per revolution (which can be heard and felt) so that intermediate settings are also possible. The maximum delivery rate is set again by turning the setting sleeve clockwise to the stop.

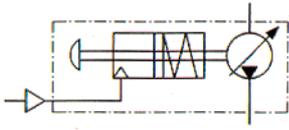
The first start-up should take place at the maximum delivery rate.

- 1) Ports tapped for solderless tube connection (for 2.5 mm diam. tubing)
- 2) Through-hole (ø 6.7) for wall mounting (M6x30 screws)

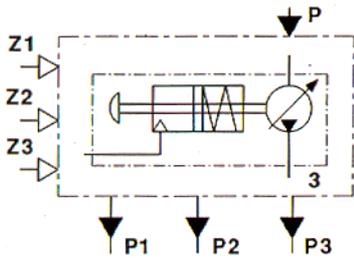
Version	Delivery rate [ccm/stroke]	Order No.	for tube diam.	Lateral connections for sensor Z S	Seal material	Features, application
1-port type	0.003 - 0.03	501-301-000	2.5	no	NBR	individual use, can be coupled to further
		501-301-008	2.5	no	FKM (FPM)	1- and 3-port-injection oilers.
		501-301-024	4	no	NBR	Basic unit for injection oilers with reservoir.
		501-301-001	2.5	yes	NBR	Basic unit for injection oiler with reservoir and sensor
		501-301-002*)	2.5	yes	NBR	(combined oiler)
3-port type	0.003 - 0.03	501-303-000	2.5	no	NBR	group actuation
		501-303-008	2.5	no	FKM (FPM)	group actuation
		501-303-003	2.5	no	NBR	individual actuation
		501-303-024	4	no	NBR	group actuation

\*) yes, but internal oil path covered by gasket 818-100-007

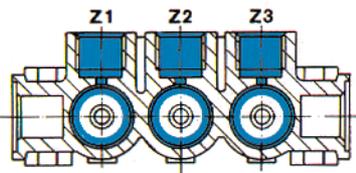
Injection oiler, 1-port type



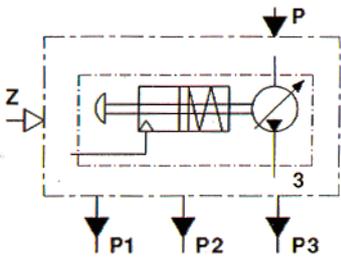
Injection oiler, 3-port type  
individual actuation



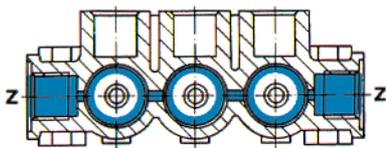
Air flow with individual actuation



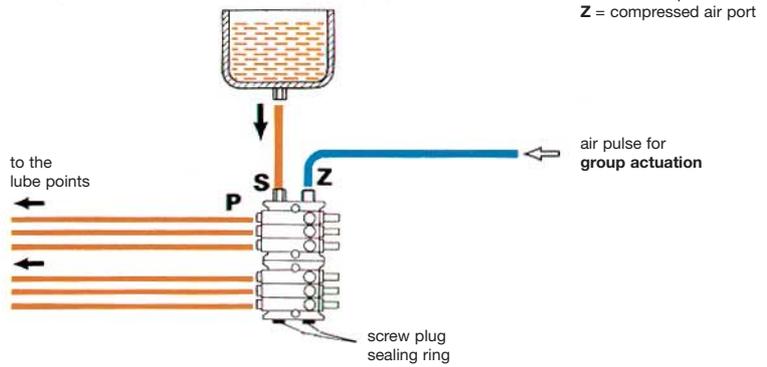
Injection oiler, 3-port type  
group actuation



Air flow with group actuation

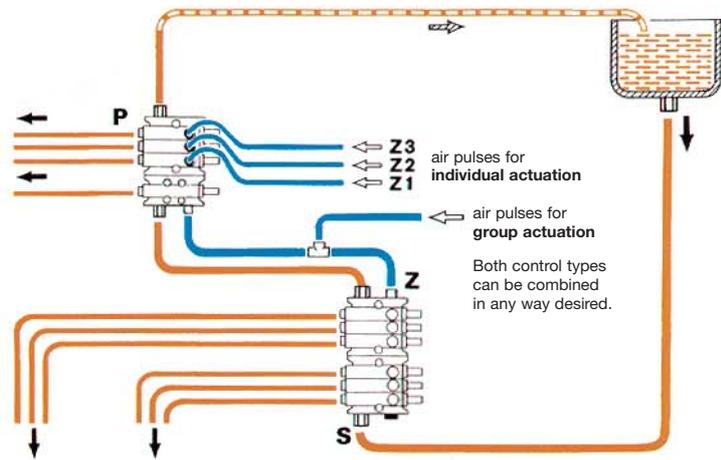


Example 1: Gravity oil layout (group actuation)



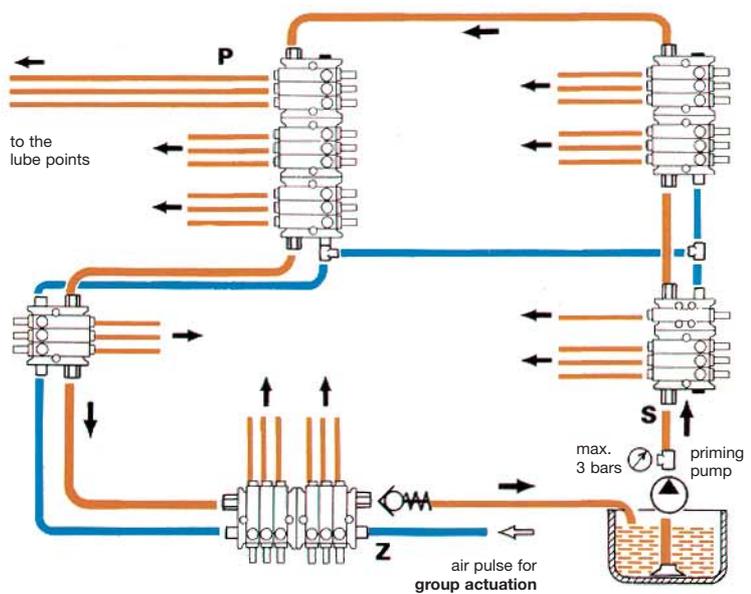
S = oil feed  
P = oil outlet port  
Z = compressed air port

Example 2: Gravity oil layout with venting line  
(group and individual actuation combined)



Both control types can be combined in any way desired.

Example 3: Configuration of a large system with ring line  
(group actuation)



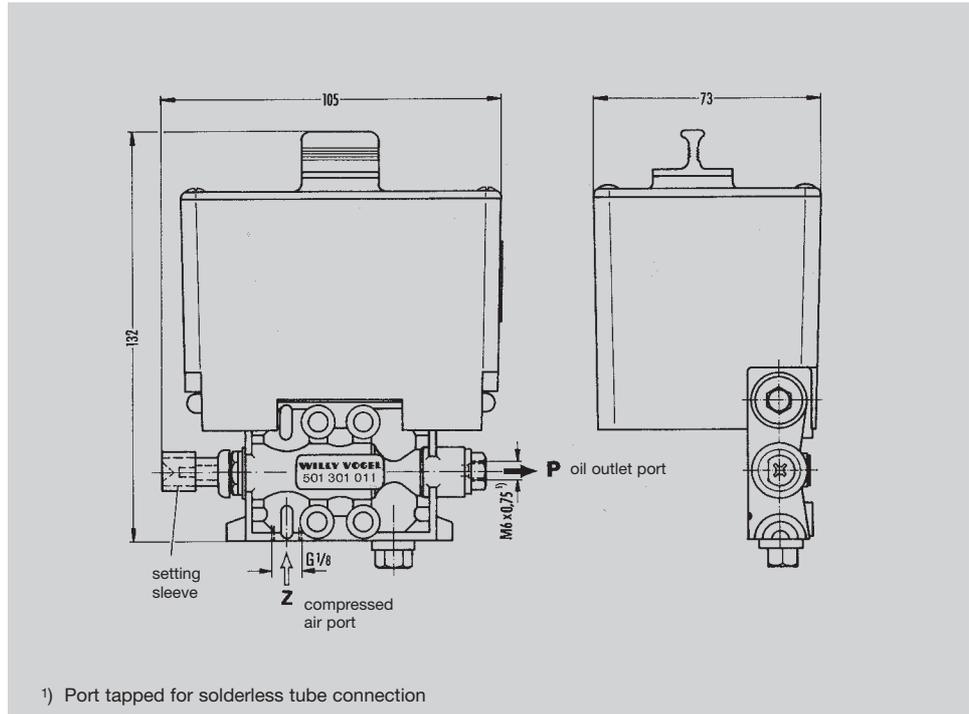
S = oil feed  
P = oil outlet port  
Z = compressed air port

## Injection oiler

with reservoir



501-301-011



The injection oiler is combined with a reservoir of transparent material when used with only a few lube points.

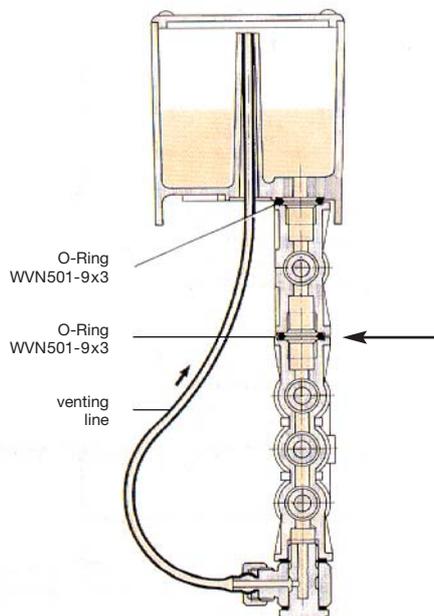
### Applications

- tool lubrication

Order No.	Seal material	
501-301-011	NBR	Mounting position as shown
501-301-028	FKM (FPM)	See page 3 for technical data
501-303-011	NBR	

**Reservoir capacity** 0.25 liter  
**Reservoir material** PA6-3-T

### Automatic venting when coupled to further injection oilers



Further injection oilers can be hooked up. The individual metering pumps can in turn be actuated individually or in groups. If the lubrication frequency has to be scaled down, the injection oiler can be coupled to a counting stage.

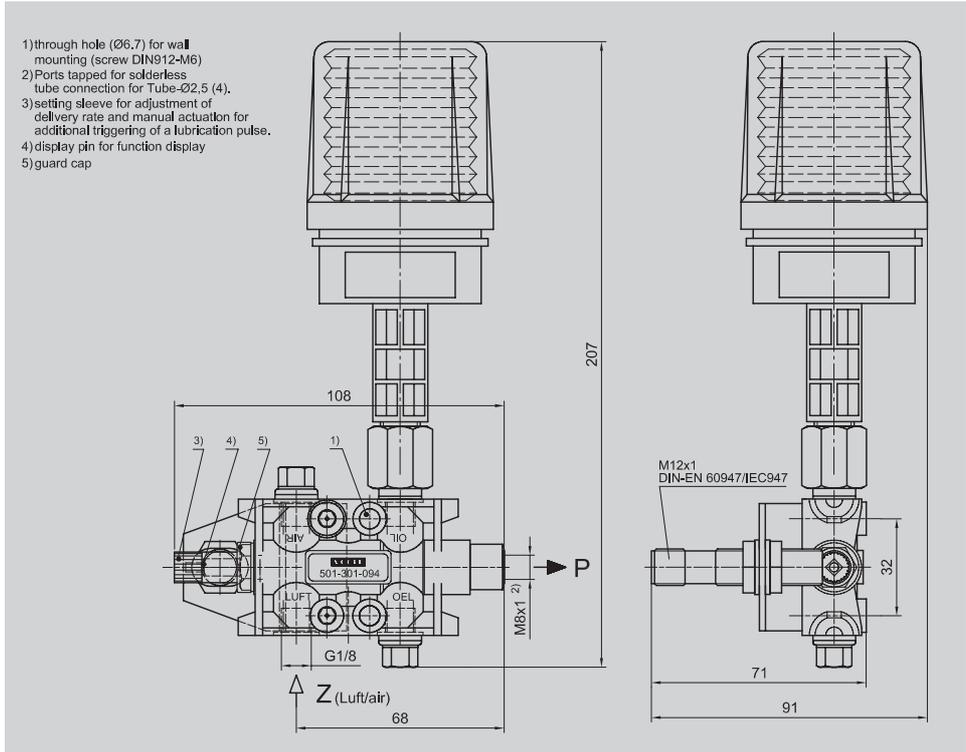
We recommend that a venting line be laid for automatic venting of the oil-conducting chambers and bores (cf. illus.).

### Grease metering



Injection oiler with grease cartridge and monitoring  
**Order No. 501-301-094**

- 1) through hole (Ø6.7) for wall mounting (screw DIN912-M6)
- 2) Ports tapped for solderless tube connection for Tube-Ø2,5 (4).
- 3) setting sleeve for adjustment of delivery rate and manual actuation for additional triggering of a lubrication pulse.
- 4) display pin for function display
- 5) guard cap



**Applications**

- Greasing small parts (assembly support)
- Selective splash lubrication of chain friction points

Spring pressure is used to deposit the lubricant from the grease cartridge. When the injection oiler is actuated, the adjusted output is ejected. The proximity switch monitors the motion of the metering piston.

Large distances can be selectively wetted with VOGEL spray nozzles (leaflet 1-5012-5-US). Steel tubing (ø4 mm) with a max. length of 500 mm should be used for this purpose.

The cartridge (order No. M-LUB.EP2.DP.2) is exchangeable; reservoirs for greater grease demand on request. To suit the respective application it is possible to operate the injection oiler with oil or grease up to NLGI grade 2.

**Technical data**

Cartridge capacity 80 ccm, grease, NLGI grade 2  
 Operating temperature ..... -20 to +70 °C  
 Mounting position ..... as shown

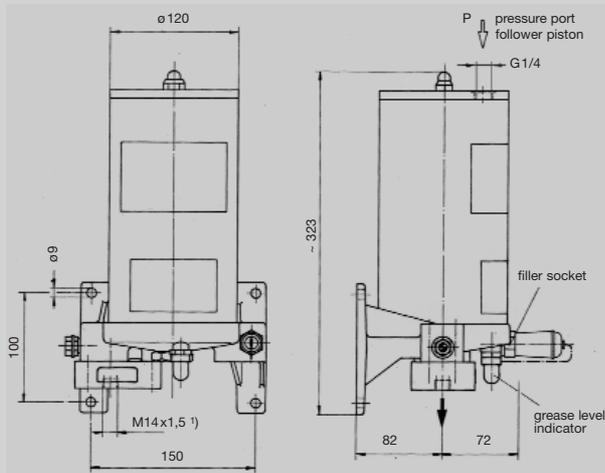
**Injection oiler**

Control medium . filtered compressed air 40 µm  
 Actuation pressure ..... 3 to 10 bars  
 Delivery rate . 0.003-0.03 ccm/stroke, adjustable  
 Material ..... housing: zinc die cast  
 seal: NBR

**Proximity switch**

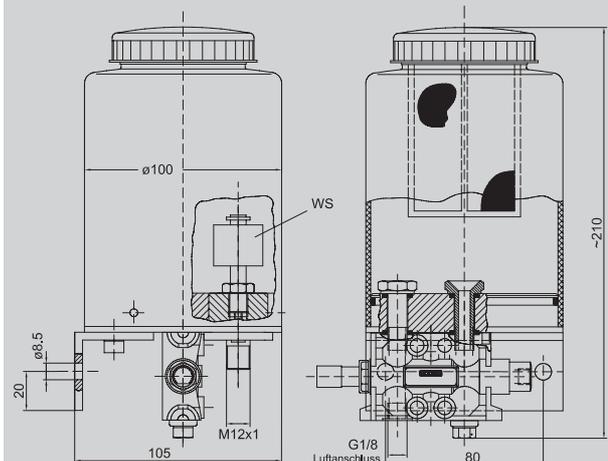
Supply voltage ..... 10 to 30 V DC  
 Rated current ..... 400 mA  
 Type of enclosure ..... IP 67  
 Switching indication ..... LED

**Order No. BF1.5**  
 (reservoir capacity 1.5 liter)



1) Port tapped for solderless 8 mm diam. tube connection

**Order No. 501-301-056**  
 (reservoir capacity 0.8 liter with WS for min. filling level)



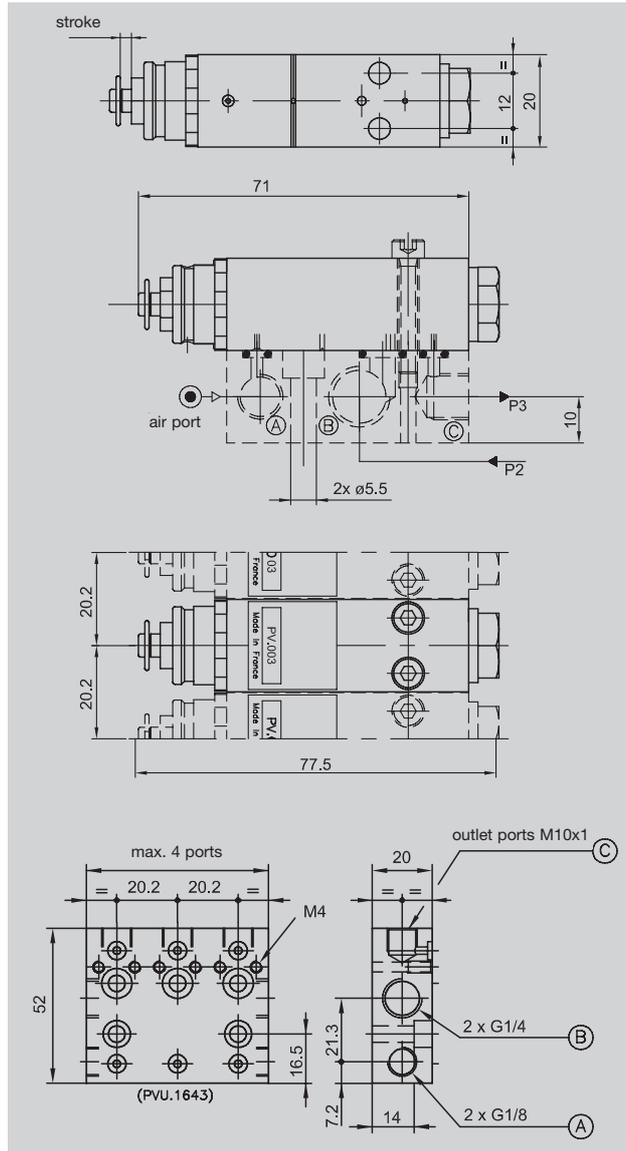
# Micropump



2-port type on baseplate

The micropump is a pneumatically actuated, miniature piston pump. The compressed air controlled by a 3/2-way valve actuates the delivery piston, which discharges the respective output on the basis of its displacement. The travel of the stroke, and thus the metering of the delivery rate, is increased or decreased with setting rings.

Care must be taken to make sure that the compressed-air line leading to the pump is relieved of pressure after each actuation so that the delivery piston can return to its initial position.



The micropump is specially designed for minimal quantity lubrication, and, namely, only for cases in which oil is to be sprayed on with compressed air.

The necessary accessories are documented in leaflet 1-5012-5-US.

### Technical data

<b>Order No.</b> .....	<b>PVR-003</b> metering rate adjustable from 0-30 mm <sup>3</sup>
<b>Order No.</b> .....	<b>PV-003</b> fixed metering rates with setting ring: 3; 5; 10 and 30 mm <sup>3</sup>
Air pressure .....	4-8 bars
Frequency .....	max. 3 Hz
Operating temperature .....	+10 to +70 °C
Max. delivery pressure .....	approx. 35 bars
Lubricant .....	mineral oils without additives, max. viscosity 100 mm <sup>2</sup> /s
Oil feed .....	gravity oil reservoir

### Baseplate

<b>Order No.</b>	Number of pumps
<b>PV.1641</b>	1
<b>PV.1642</b>	2
<b>PV.1643</b>	3
<b>PV.1644</b>	4



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In particular, we call your attention to the fact that hazardous materials of any kind, especially the materials classified as hazardous by EC Directive 67/548/EEC, Article 2, Par. 2, may only be filled into VOGEL centralized lubrication systems and components and delivered and/or distributed with the same after consultation with and written approval from VOGEL.

All products manufactured by VOGEL are not approved for use in conjunction with gases, liquefied gases, pressurized gases in solution and fluids with a vapor pressure exceeding normal atmospheric pressure (1013 mbars) by more than 0.5 bar at their maximum permissible temperature.