

Injection oilers, micro pumps

for minimal quantity metering

Injection oiler, 3-port type



Injection oiler, 1-port type



Micro pump



Delivery rates

Metering pumps deliver lubricants in a measured amount. These piston pumps are for small delivery rates from 3 to 30 mm³. The lubricant's delivery rate is partially adjustable.

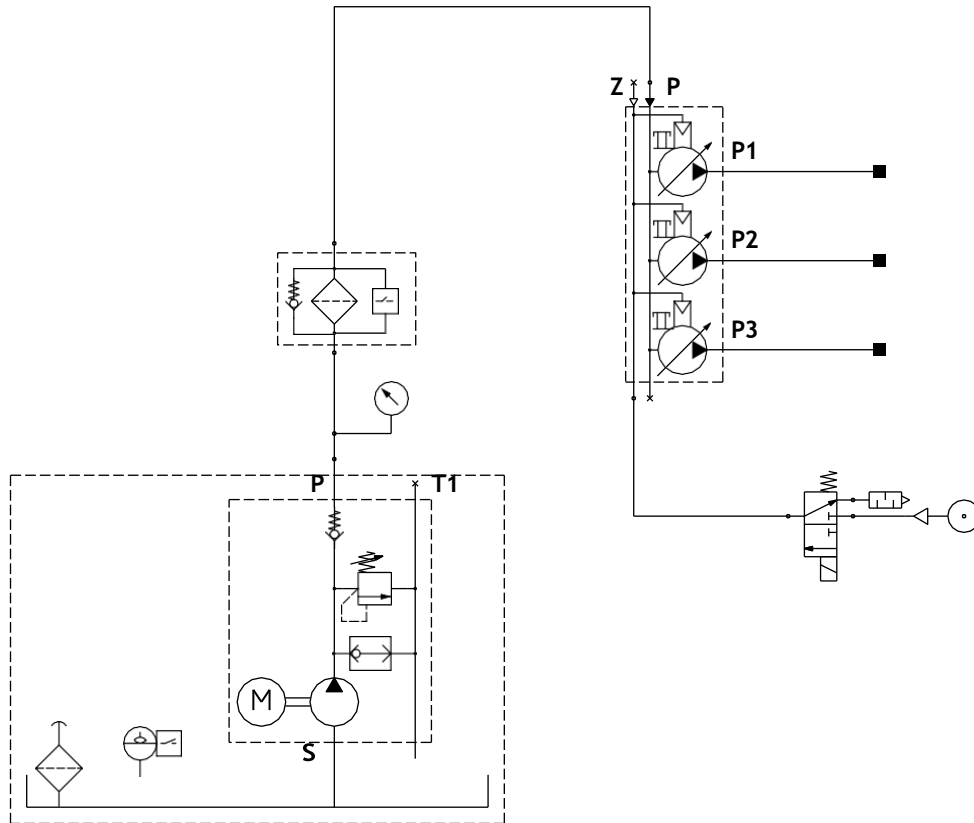
Main features

- Optimal metering of every lube point regardless of line lengths and cross sections
- Lubricant supplied from one central reservoir, a standalone reservoir, and 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)
- Space saving design
- Ecofriendly: no oil in the exhaust air

Possible applications

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

Oiling during production of camshafts



Adjustment of delivery rate

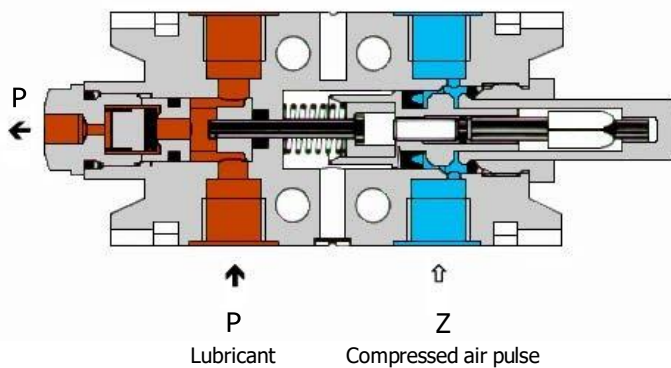
All injection oilers are set for maximum delivery volume at the plant. The delivery rate can be reduced in increments by turning the setting sleeve counterclockwise.

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

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.

Sectional view of injection oiler



Injection oiler, 1- and 3-port type

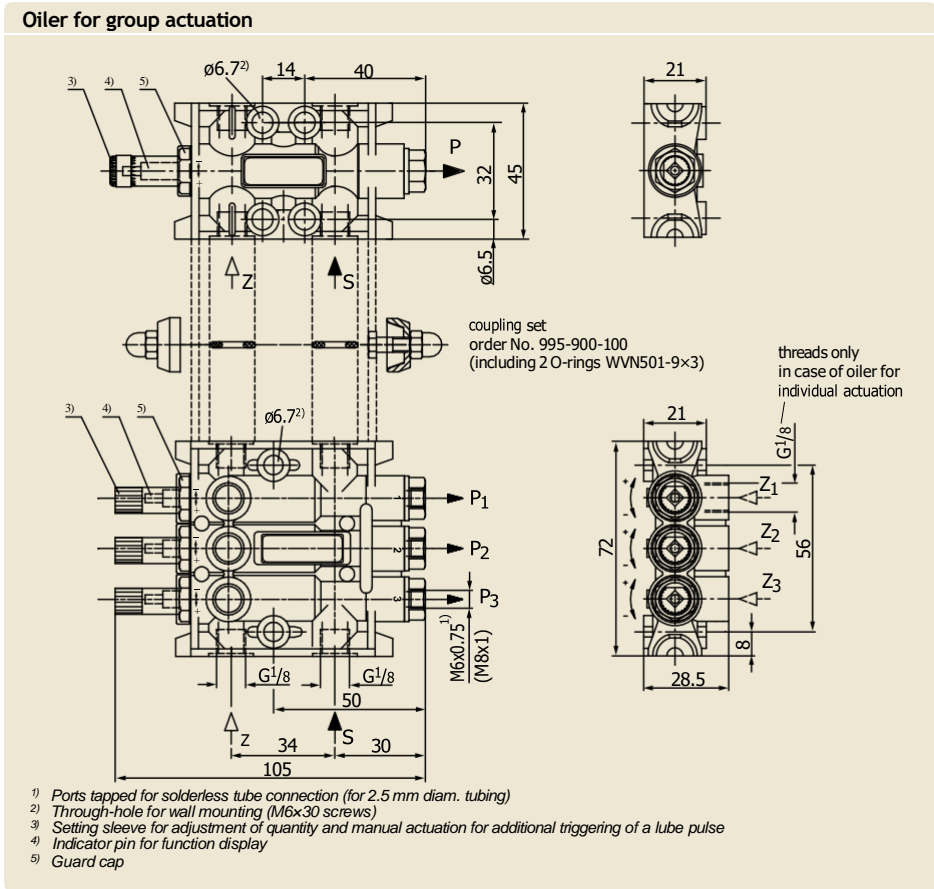
See important product usage information on the back cover.



Technical data

Ambient temperature . -20 to +80 °C
 Lubricantoil ¹⁾
 Operating viscosity . . . 10 to 1100 mm²/s
 Pumping medium:
 Compressed air (Z) . . 3 to 10 bar
 Max. perm. flow rate at 6 bar200 l/min
 Mounting positionoil duct S vertical

*1) other media on request.
 If fluid grease or grease is used, the suction action must be supported with priming (max. 3 bar). Please inquire about the correct use of other media.*



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

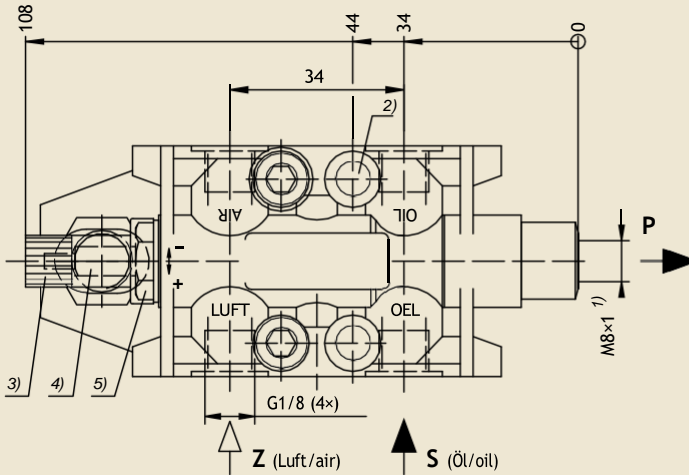
Attention: direction of rotation
 - turn to the left
 + turn to the right

Version	Delivery rate [cm ³ /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 1- and 3-port-injection oilers. Basis unit for injection oiler with reservoir.
		501-301-008	2.5	no	FPM	
		501-301-024	4	no	NBR	
		501-301-024-VS	4, quick connector	no	NBR	Basis unit for injection oiler with reservoir and sensor (combined oiler)
		501-301-025	4	no	FPM	
		501-301-053	4, quick connector	no	NBR	
		501-301-001	2.5	yes	NBR	
501-301-002	2.5	yes ^{*)}	NBR	external oil discharge		
3-port type	0.003 – 0.03	501-303-000	2.5	no	NBR	group actuation
		501-303-008	2.5	no	FPM	
		501-303-003	2.5	no	NBR	
		501-303-024	4	no	NBR	
		501-303-028	4	no	FPM	
		501-303-029	4	no	FPM	
		501-303-026-VS	4, quick connector	no	NBR	
		501-303-037	4	no	NBR	
501-303-038	4	no	NBR	group actuation, piston monitoring		

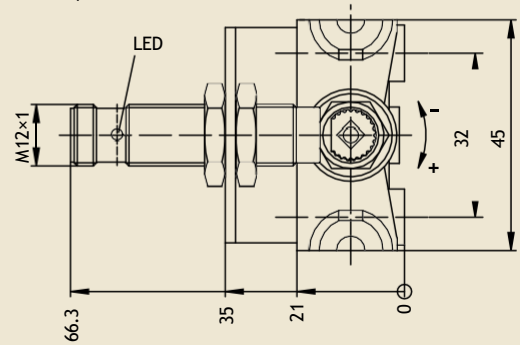
^{*)} yes, but internal oil path covered by gasket 818-100-007

Injection oiler, 1-port or 3-port type, with proximity switch

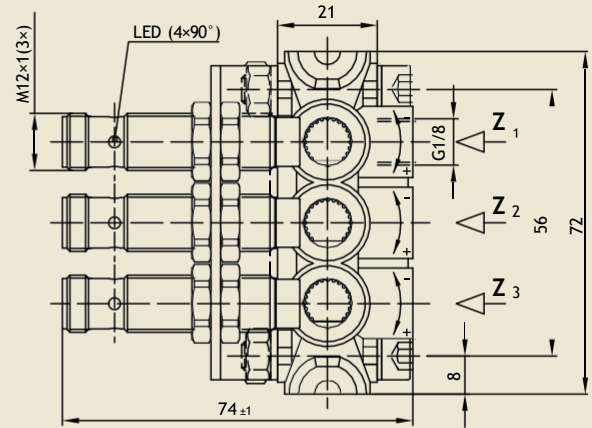
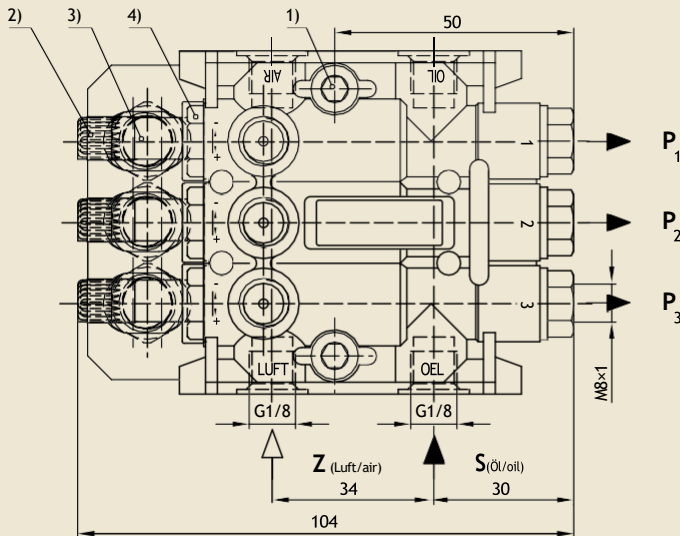
Injection oiler with proximity switch, order No. 501-301-095



- 1) Ports tapped for solderless tube connection (for 4 mm diam. tubing)
- 2) Through-hole for wall mounting (screws DIN 912-M6)
- 3) Setting sleeve for adjustment of delivery rate and manual action for additional triggering of a lubrication pulse
- 4) Optical indicator pin
- 5) Guard cap

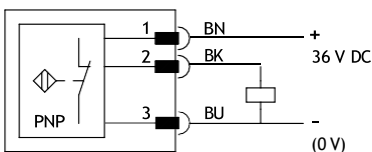


Injection oiler with proximity switch, order No. 501-303-037 and 501-303-038



- 1) Through-hole (ø6.7) for wall mounting (Schrauben DIN 912-M6)
- 2) Setting sleeve for adjustment of delivery rate and manual action for additional triggering of a lubrication pulse
- 3) Optical indicator pin
- 4) Guard cap

Circuit diagram



Technical data

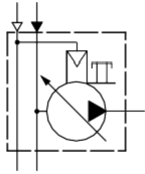
Ambient temperature..... 20 to +80 °C
 Lubricant..... oil ¹⁾
 Operating viscosity..... 10 to 1100 mm²/s
 Actuation medium:
 Compressed air (Z)..... 3 to 10 bars
 Max. perm. flow rate at 6 bars . . .200 l/min
 Seal material..... NBR
 Mounting position oil duct S vertical

Proximity switch
 Rated voltage 24 V DC
 Operating voltage 36 V DC
 Rated current 100 mA
 Switching indicator LED

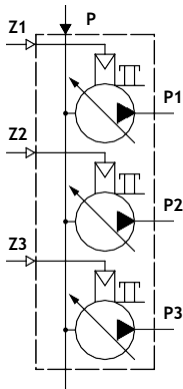
¹⁾ other media on request. If fluid grease or grease is used, the suction action must be supported with priming (max. 3 bar). Please inquire.

Injection Oilers, Micro Pumps

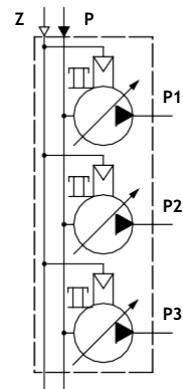
Injection oiler, 1-port type



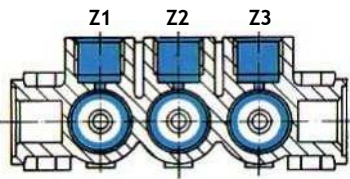
Injection oiler, 3-port type, individual actuation



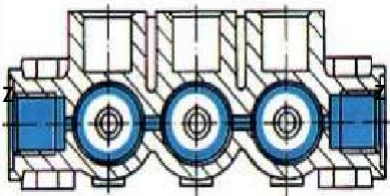
Injection oiler, 3-port type, group actuation



Air flow with individual actuation

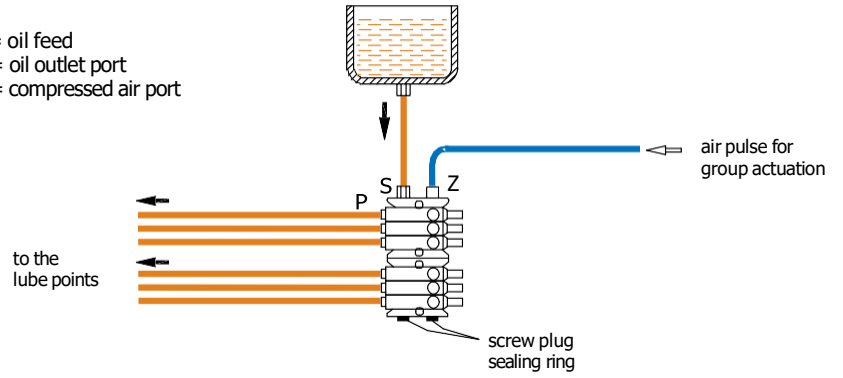


Air flow with group actuation

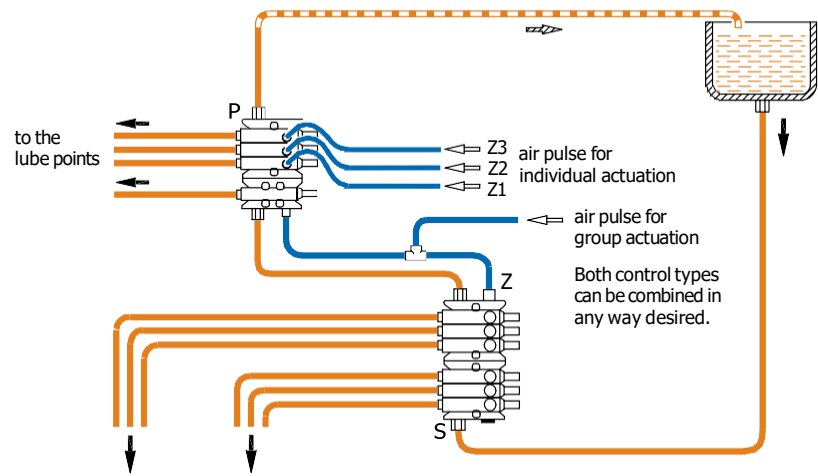


Example 1: Gravity oil layout (group actuation)

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

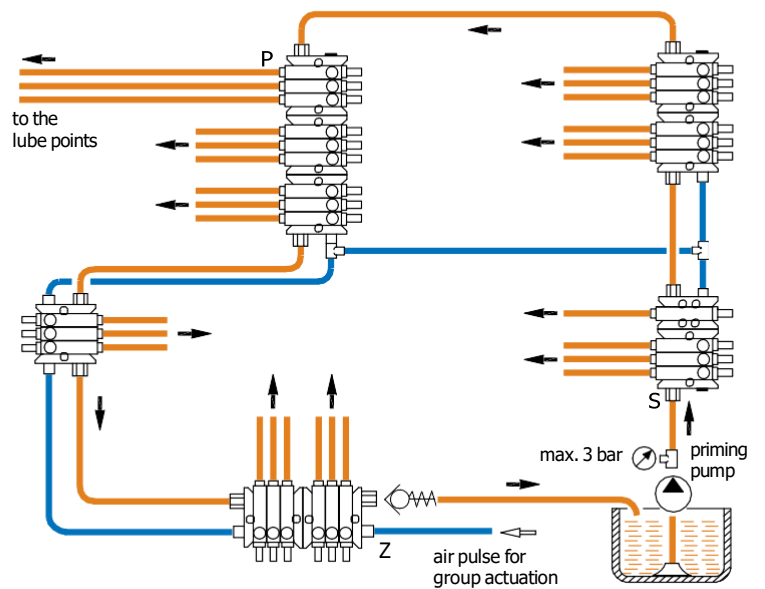


Example 2: Gravity oil layout with venting line (group and individual actuation combined)



Both control types can be combined in any way desired.

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

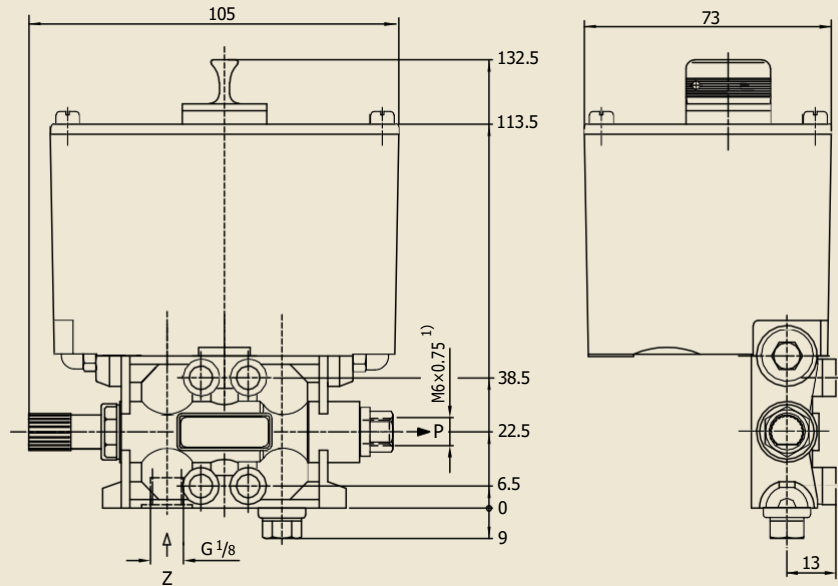


Injection oilers, 1- and 3-port type, with reservoir

Injection oiler, 1-port type, with reservoir



Injection oiler, 1-port type, with reservoir



1) Ports tapped for solderless tube connection (for 2.5 mm diam. tubing)

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

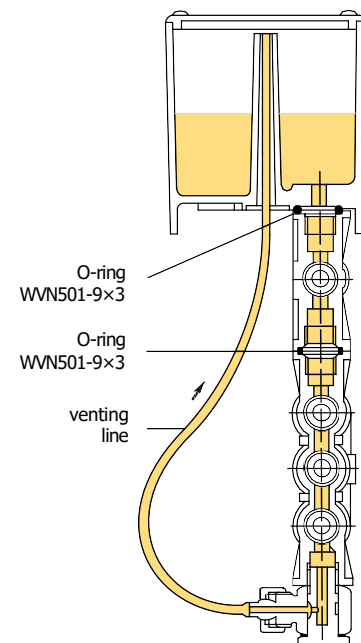
Applications

- tool lubrication

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 with a counting stage.

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

Automatic venting when coupled to further injection oilers



Injection oilers with reservoir

Order No.	Version	Reservoir capacity [l]	Reservoir material	Seal material
501-301-011				NBR
501-301-028	1-port type	0.25	PA6-3-T	FPM
501-301-029				NBR
501-303-011	3-port type	0.25	PA6-3-T	NBR

Mounting position as shown
See page 3 for technical data
See page 2 for adjustment of delivery rate

Injection oiler, 1-port type, with reservoir

The reservoir is equipped with a float switch (WS) for minimum level.

The float switch opens with sinking level.

Circular plug connection M12×1

Max. load: 10 VA

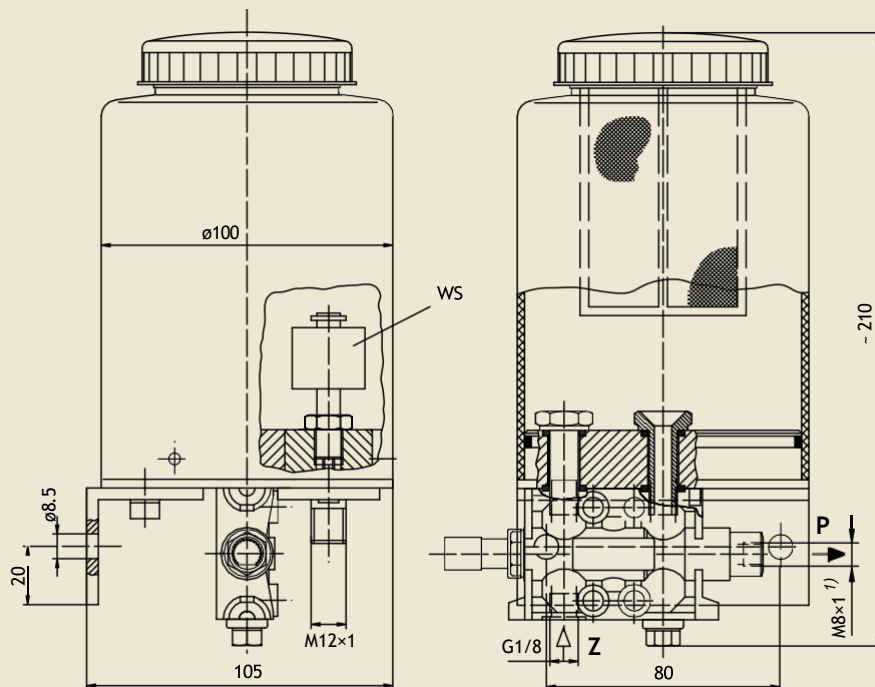
0.25 A

240 V AC

P = oil outlet

Z = compressed air connection

Injection oiler with reservoir, order No. 501-301-056



1) Ports tapped for solderless tube connection (for 4 mm diam. tubing)

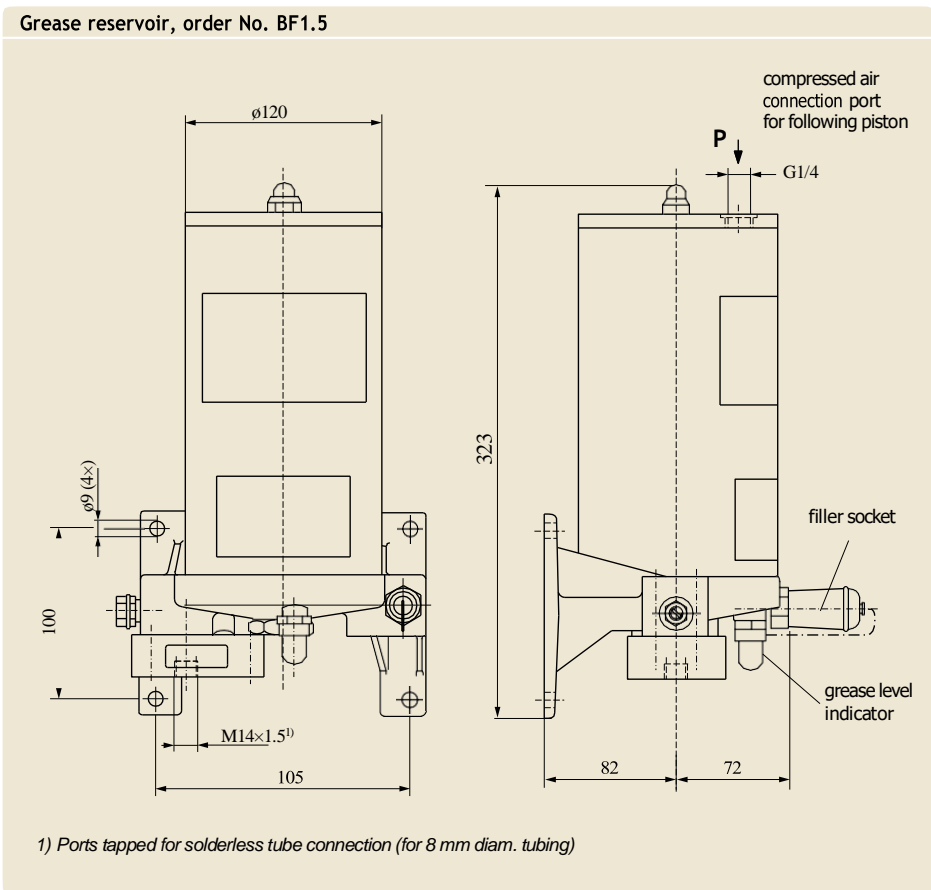
Order No.	Reservoir capacity [l]	Seal material
501-301-056	0.8	NBR

Mounting position as shown

See page 3 for technical data

See page 2 for adjustment of delivery rate

Grease reservoir



Connection fittings

for M14×1.5:
 socket union 408-202
 double tapered sleeve 408-001

for G¹/₄:
 washer 508-108
 adaptor 406-054 for tube 6 mm diam.
 or 301-020 for tube 8 mm diam.

Technical data

Order No.BF1.5

Compressed air for following pistonmax. 10 bar

Lubricantgrease up to
NLGI grade 2

Reservoir capacity1.5 kg

Mounting position.....any

Micro pumps

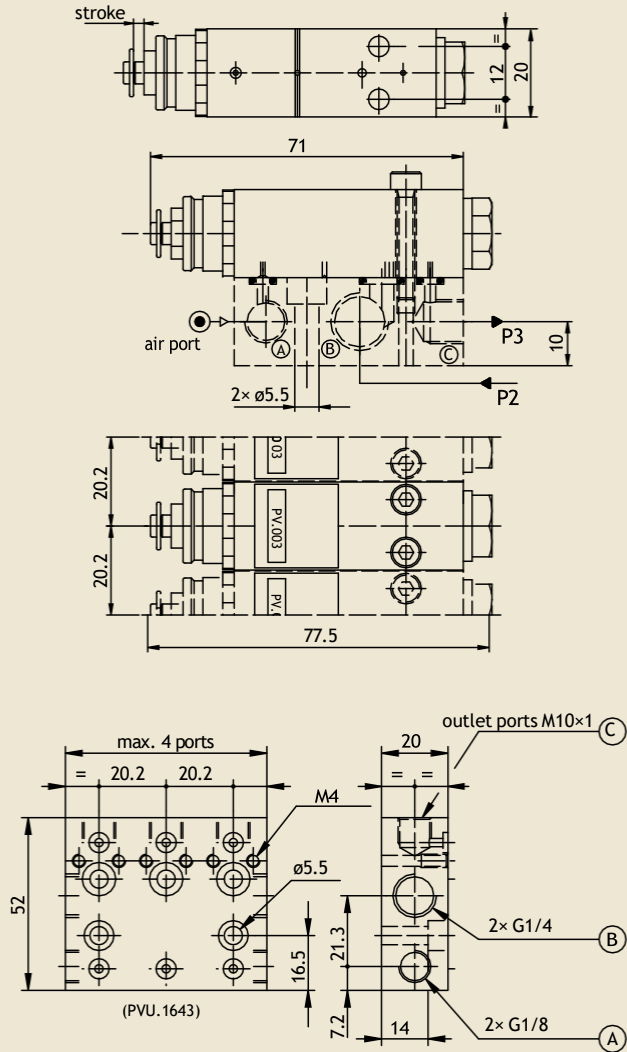


The micro pump is a pneumatically actuated, miniature piston pump. The compressed air controlled by a 3/2-way valve actuates the delivery piston, which discharges the respective output on the basis of its displacement. The travel of the stroke, and thus the metering of the delivery rate, is increased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

Micro pump, baseplate



Technical data

Air pressure 4-8 bar
 Ambient temperature . -20 to +70 °C
 Frequencymax. 3 Hz
 Operating temperature +10 to +70 °C
 Max. delivery pressure approx. 35 bars

Lubricantmineral oils without additives, max. viscosity 400 mm²/s

Oil feedgravity oil reservoir

Micro pump	
Order No.	Metering
PVR-003	metering rate adjustable from 0 - 30 mm ³
PV-003	fixed metering rates with setting ring: 3, 5, 10 and 30 mm ³

Baseplate	
Order No.	Number of pumps
PV.1641	1
PV.1642	2
PV.1643	3
PV.1644	4
PV.1645	5

