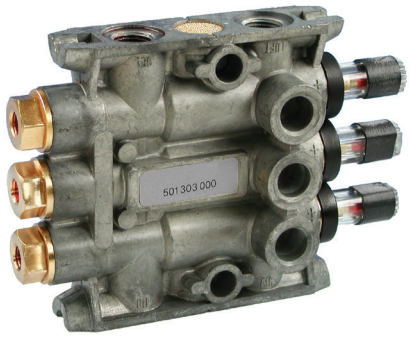
Injection oilers, micro pumps

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 mm^3. The lubricant's delivery rate is partially adjustable.

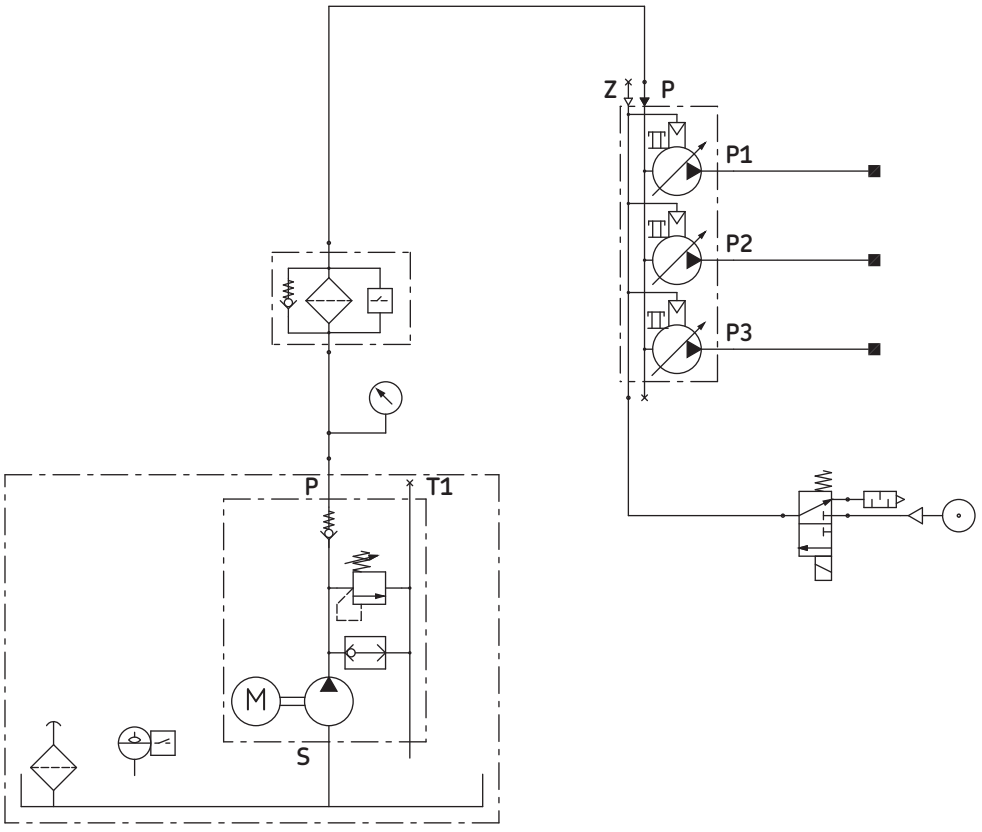
Main features

- 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

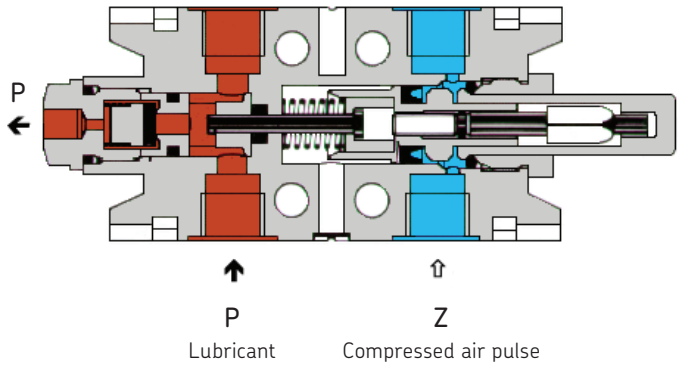
Possible applications

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

Oiling during production of camshafts



Sectional view of injection oiler



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 mm³**
1 full turn to the left:	25 mm³
2 full turns to the left:	20 mm³
3 full turns to the left:	15 mm³
4 full turns to the left:	10 mm³
5 full turns to the left:	5 mm³
over 6 full turns to the left:	3 mm³

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.

Injection oiler, 1- and 3-port type

See important product usage information on the back cover.

Technical data

Ambient temperature –20 to +80 °C
Lubricant . . . . . oil [1)]
Operating viskosity . . 10 to 1100 mm²/s
Pumping medium:
Compressed air (**Z**) . . 3 to 10 bar
Max. perm.
flow rate at 6 bar . . . 200 l/min
Mounting position. . . oil 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.*

Setting sleeves

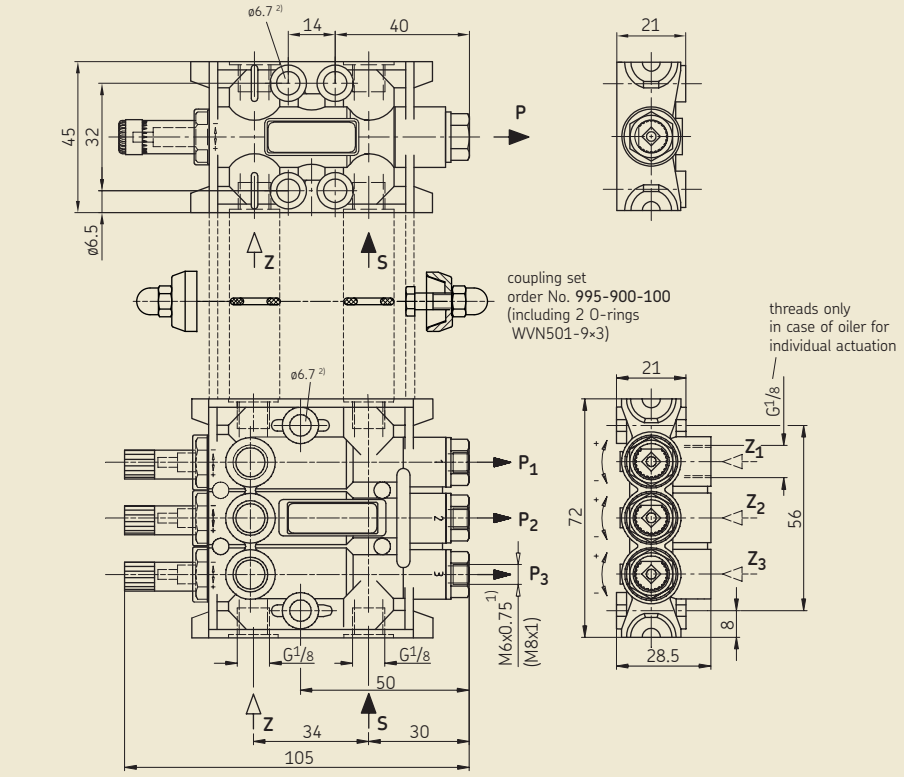
a Setting sleeve for adjustment of quantity and manual actuation for additional triggering of a lube pulse
b Indicator pin for function display
c Guard cap

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

Attention: direction of rotation

– turn to the left
+ turn to the right

Oiler for group actuation



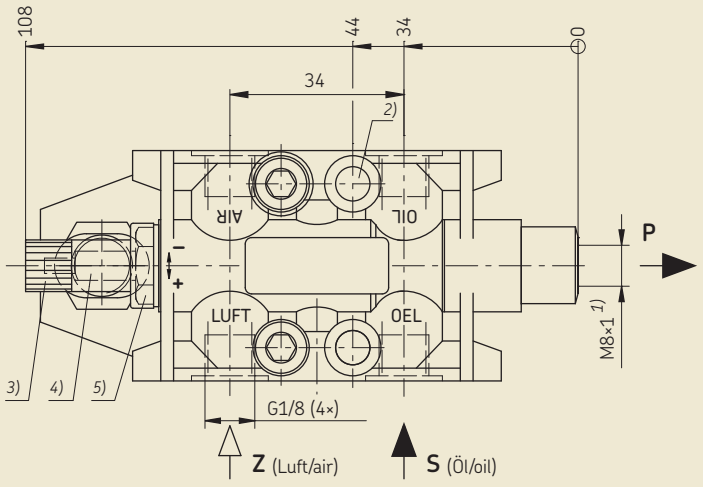
1) Ports tapped for solderless tube connection (for 2.5 mm diam. tubing)
2) Through-hole for wall mounting (M6×30 screws)

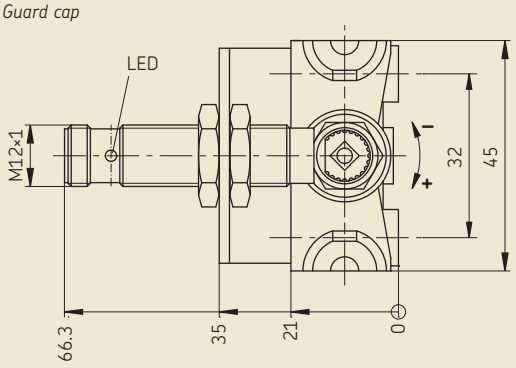
Version	Delivery rate [cm³/stroke]	Order No.	for tube diam.	Lateral connections for sensor Z S	Seal material	Features, application
1-port type	0.003 – 0.03	501-301-000	2.5	no	NBR	Individual use, can be coupled to further 1- and 3-port-injection oilers. Basis unit for injection oiler with reservoir.
		501-301-008	2.5	no	FPM	
		501-301-024	4	no	NBR	
		501-301-024-VS	4, quick connector	no	NBR	
		501-301-025	4	no	FPM	
		501-301-053	4, quick connector	no	NBR	Basis unit for injection oiler with reservoir and sensor (combined oiler)
		501-301-001	2.5	yes	NBR	internal oil discharge
		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	group actuation
		501-303-003	2.5	no	NBR	individual actuation
		501-303-024	4	no	NBR	group actuation
		501-303-028	4	no	FPM	group actuation
		501-303-029	4	no	FPM	individual actuation
		501-303-026-VS	4, quick connector	no	NBR	group actuation
3-port type	0.003 – 0.03	501-303-037	4	no	NBR	individual actuation, piston monitoring
		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

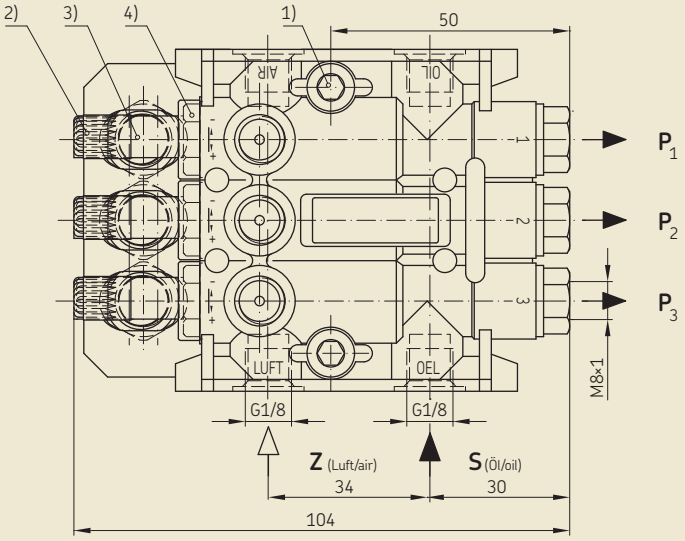
Injection oiler with proximity switch, order No. 501-301-095

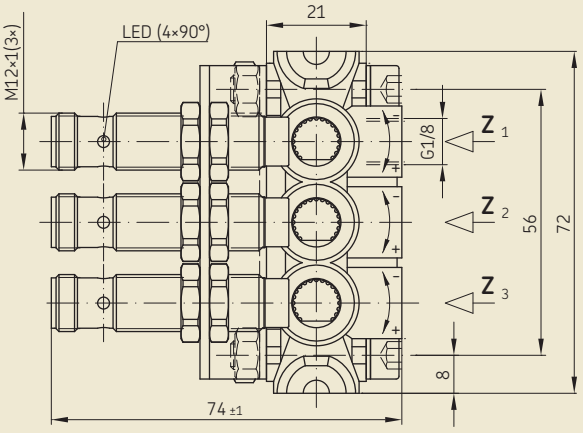




1) Ports tapped for solderless tube connection (for 4 mm diam. tubing)
2) Through-hole for wall mounting (screws DIN 912 - M6)
3) Setting sleeve for adjustment of delivery rate and manual action for additional triggering of a lubrication pulse
4) Optical indicator pin
5) Guard cap

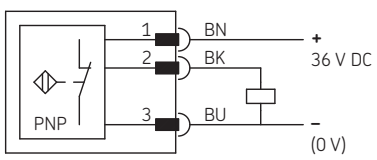
Injection oiler with proximity switch, order No. 501-303-037 and 501-303-038





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

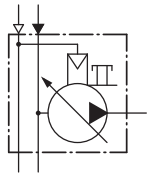
Ambient temperature	–20 to +80 °C
Lubricant	oil [1]
Operating viscosity	10 to 1100 mm²/s
Actuation medium:	
Compressed air (Z)	3 to 10 bars
Max. perm. flow rate at 6 bars	200 l/min
Seal material	NBR
Mounting position	oil duct **S** vertical

Proximity switch

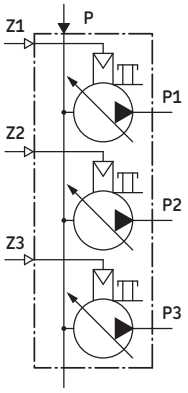
Rated voltage	24 V DC
Operating voltage	36 V DC
Rated current	100 mA
Switching indicator	LED

[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.

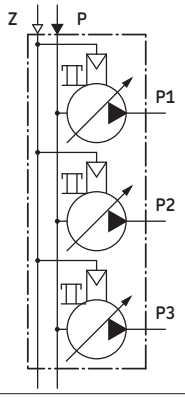
Injection oiler, 1-port type



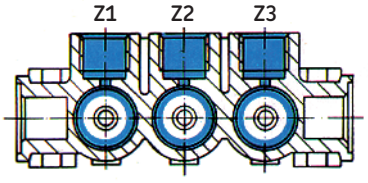
Injection oiler, 3-port type, individual actuation



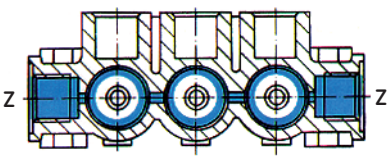
Injection oiler, 3-port type, group actuation



Air flow with individual actuation

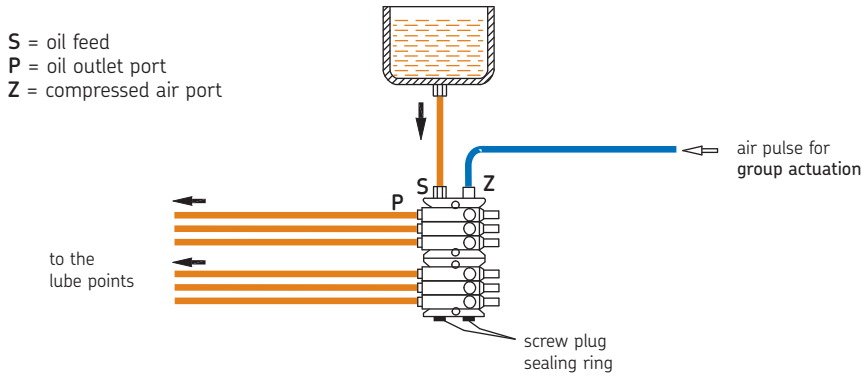


Air flow with group actuation

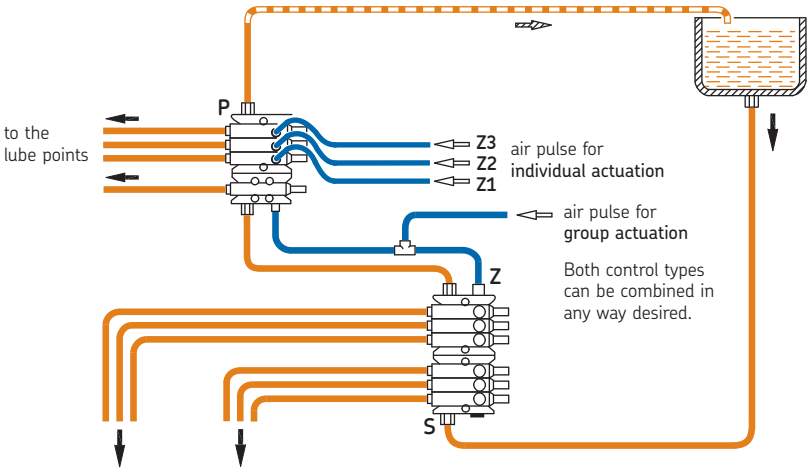


Example 1: Gravity oil layout (group actuation)

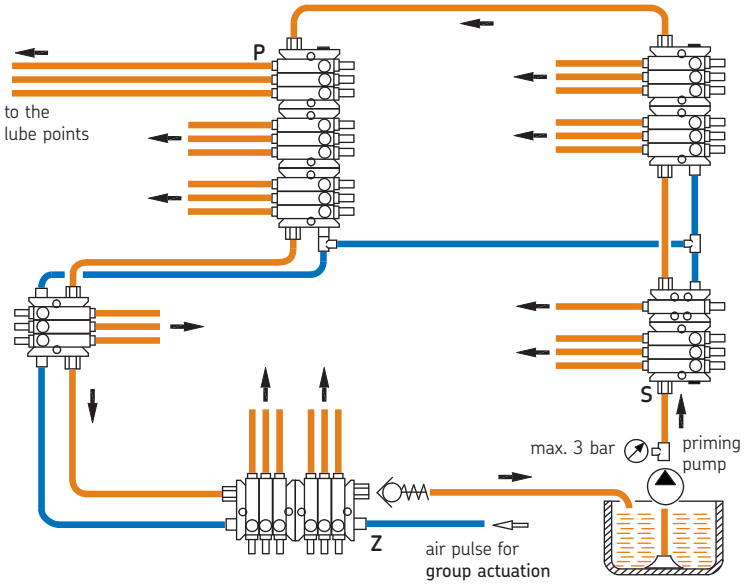
S = oil feed
P = oil outlet port
Z = compressed air port



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



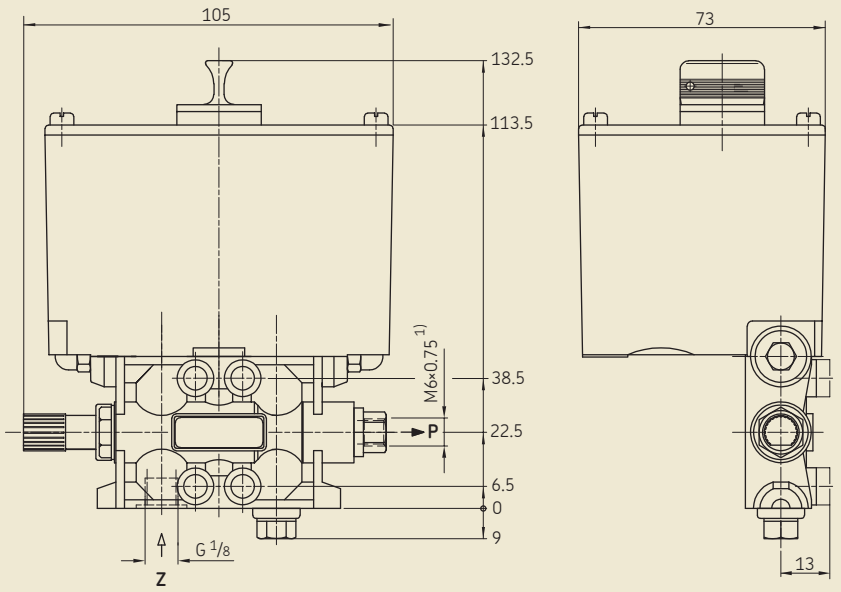
Example 3: Configuration of a large system with ring line (group actuation)



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)

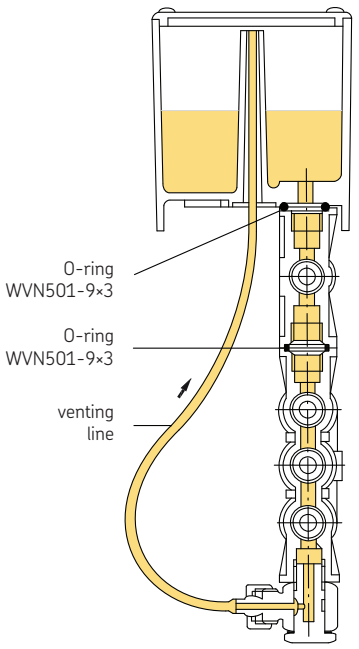
The injection oiler is combined with a reservoir of transparent material when used with only a few lube points.

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
501-301-011 501-301-028 501-301-029	1-port type	0.25	PA6-3-T	NBR FPM 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.

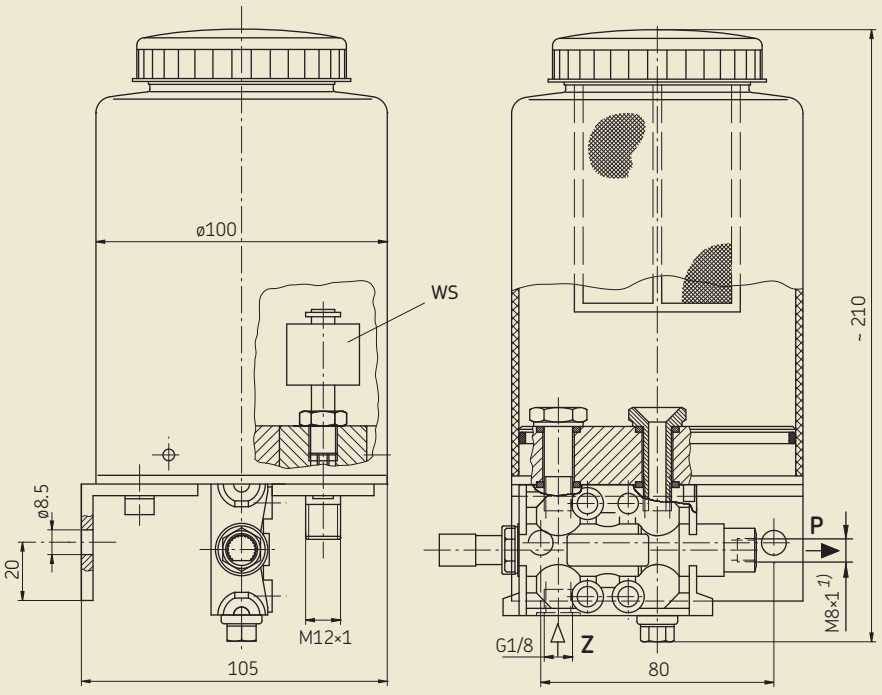
The float switch opens with sinking level.
Circular plug connection M12×1
Max. load: 10 VA
0.25 A
240 V AC

P = oil outlet
Z = compressed air connection

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

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



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

Injection oiler with proximity switch and grease cartridge

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

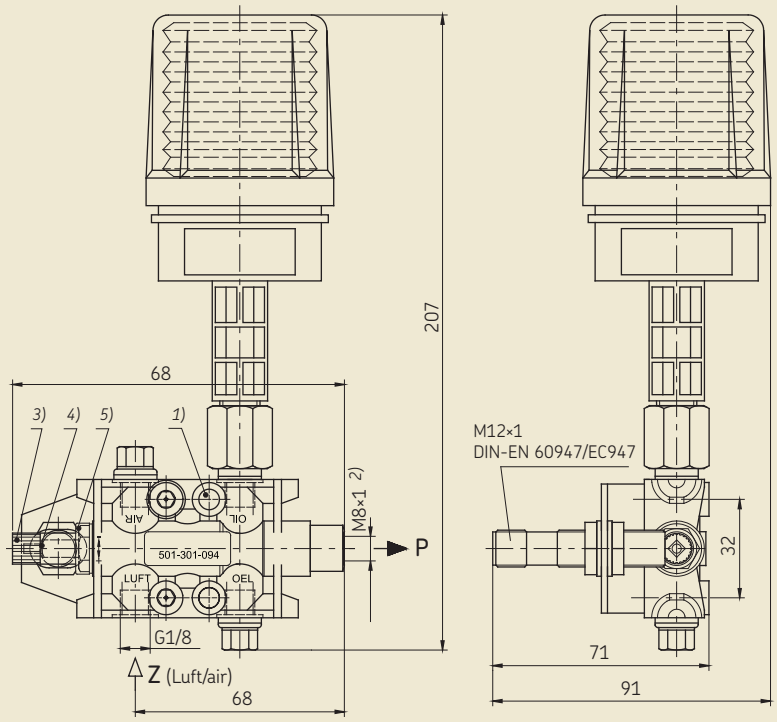
Spring pressure is used to deposit the lubricant from the grease cartridge. When the injection oiler is actuated, the adjusted output is ejected. The proximity switch monitors the motion of the metering piston.

Large distances can be selectively wetted with spray nozzles (leaflet 1-5012-5-EN). Steel tubing (4 mm diam.) 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 (BF1.5) see page 10.

To suit the respective application, it is possible to operate the injection oiler with oil or grease up to NLGI grade 2.

Injection oiler with proximity switch, order No. 501-301-094



Technical data

Order No.	501-301-094
Cartridge capacity	80 cm³, grease, NLGI grade 2
Ambient temperature	–20 to +70 °C
Mounting position	as shown
Injection oiler	
Control medium	filtered compressed air 40 µm
Actuation pressure	3 to 10 bar
Delivery rate	0.003 - 0.03 cm³/stroke, adjustable
Material	
Housing	zinc die cast
Seals	NBR
Proximity switch	
Suply voltage	10...30 V DC
Rated current	400 mA
Type of enclosure	IP 67
Switching indication	LED

1) Through-hole (ø6.7) for wall mounting (screws DIN 912-M6)

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

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

Grease reservoir

Technical data

Order No.. . . . . BF1.5

Compressed air
for following piston . . max. 10 bar

Lubricant . . . . . grease up to NLGI grade 2

Reservoir capacity . . 1.5 kg

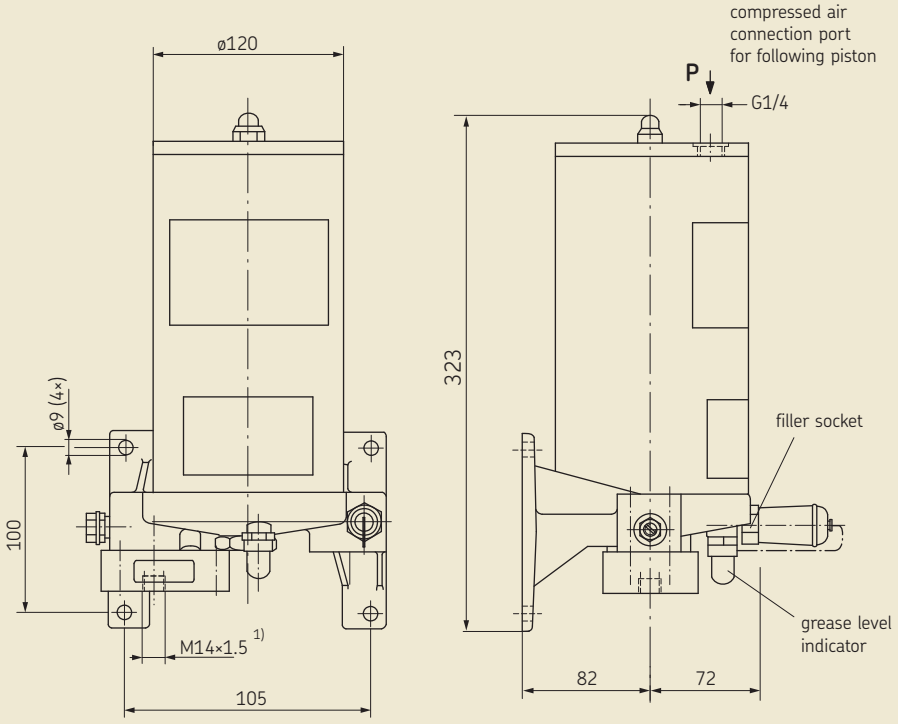
Mounting position. . . any

Connection fittings

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

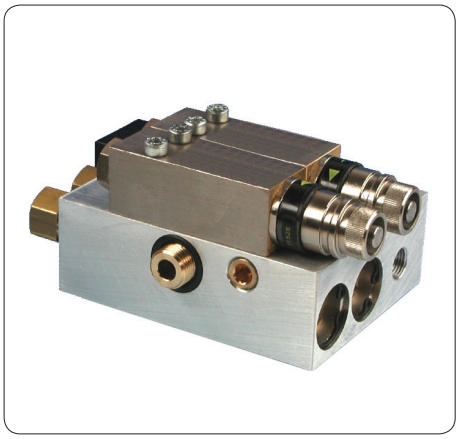
for G1/4:
washer **508-108**
adaptor **406-054** for tube 6 mm diam.
or **301-020** for tube 8 mm diam.

Grease reservoir, order No. BF1.5



1) Ports tapped for solderless tube connection (for 8 mm diam. tubing)

Micro pumps



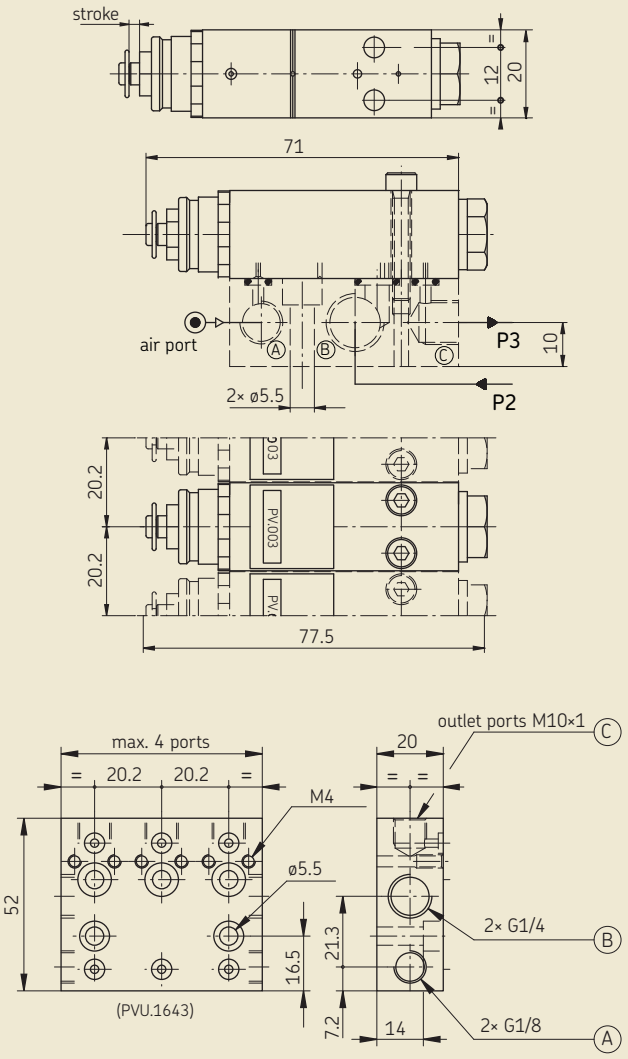
2-port type on baseplate

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



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

Technical data

Air pressure	4 - 8 bar
Ambient temperature	– 20 to + 70 °C
Frequency	max. 3 Hz
Operating temperature	+ 10 to + 70 °C
Max. delivery pressure	approx. 35 bars
Lubricant	mineral oils without additives, max. viscosity 400 mm^2/s
Oil feed	gravity oil reservoir

Order No. 1-5012-4-EN
Subject to change without notice! (07/2014)

Important product usage information
All products from SKF may be used only for their intended purpose as described in this brochure and in any instructions. If operating instructions are supplied with the products, they must be read and followed.
Not all lubricants are suitable for use in centralized lubrication systems. SKF does offer an inspection service to test customer supplied lubricant to determine if it can be used in a centralized system. SKF lubrication systems or their components are not approved for use 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.
Hazardous materials of any kind, especially the materials classified as hazardous by European Community Directive EC 67/548/EEC, Article 2, Par. 2, may only be used to fill SKF centralized lubrication systems and components and delivered and/or distributed with the same after consulting with and receiving written approval from SKF.

Further brochures
1-4003-EN Electromagnetic pump PE
1-9201-EN Transport of Lubricants in Centralized Lubrication Systems

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