### Single Line Lubrication Systems

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#### Gear wheel pump unit

- Super 3 EA-tronic left: 03-1-10-01
- Super 3 EA-tronic right: 03-1-10-03
- Super EA-tronic with 4 l-reservoir: 03-1-11-01
- Super EA-tronic with 6 l-reservoir: 03-1-12-01
- Mini EA-tronic with 3 l-reservoir: 03-1-13-01
- Mini 2 EA-tronic: 03-1-14-01
- ES: 03-1-20-01
- ES 2711 with 3 l-reservoir: 03-1-21-01
- ES 2711 with 6 l-reservoir: 03-1-21-03
- ES 2711 with 13 l-reservoir: 03-1-21-05
- ES 2711 with 16 l-reservoir: 03-1-21-07
- ES 2711 with 30 l-reservoir: 03-1-21-09
- EA 3 / EA 6: 03-1-30-01
- EA 3 / EA 6 with 3 l-reservoir: 03-1-31-01
- EA 3 / EA 6 with 6 l-reservoir: 03-1-31-03
- EA 3 / EA 6 with 13 l-reservoir: 03-1-31-05
- EA 3 / EA 6 with 16 l-reservoir: 03-1-31-07
- EA 3 / EA 6 with 30 l-reservoir: 03-1-31-09
- EA 1,5 oil with 3 l-reservoir: 03-1-32-01
- EA 1,5 oil with 6 l-reservoir: 03-1-32-03
- EA 1,5 fluid grease with 3 l-reservoir: 03-1-32-05
- EA 1,5 fluid grease with 6 l-reservoir: 03-1-32-07
- BEKA XLube: 03-1-32-03

#### Pneumatic pump units

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- P30-6 with 6 l-reservoir: 03-2-11-01
- P5.6 / P8.6 with 6 l-reservoir: 03-2-12-01
- P5.2 / P8.4 / P8.8: 03-2-13-01
- P30.2 to P50.8: 03-2-14-01
- P5.1,2 / P8.1,2 with 1,2 l-reservoir: 03-2-15-01
- P30 / P50 without reservoir: 03-2-16-01
- P605 without reservoir: 03-2-17-01

#### Hydraulic pump units

- PH1-6 / PH6-6 / PH10-6 with 6 l-reservoir: 03-3-01-01
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  - Metering valves (static system) ........................................... 03-5-20-01
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  - Metering distributor blocks DVB-2 type 4180 with threaded connection ............................................. 03-5-20-07
  - Metering distributor blocks DVB-2 type 4181 with plug-in connection ................................................. 03-5-20-08
  - Metering distributor blocks DVB-3 type 41820, 41823, 41824 with threaded connection .......................... 03-5-20-09
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- Manifold size 1 ..................................................................... 03-6-10-01
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#### Single line distributor
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- Metering valve BL-11 (static system) ....................................... 03-9-50-01
Single Line Lubrication Systems

Technical basics

System description
With the single line system, the lubricant (oil or fluid grease) is supplied by intermittent pressure via a main line to the metering elements and from there it is metered out and passed to the lubrication points.

Single line systems can provide several friction points with lubricant. The distribution of the lubricant is carried out at all lub points at the same time.

Arrangement
In principle, a single line system consists of a central lubrication pump and a main line, which can optionally be branched off.

Function
After switching-on the system, the pump builds up the initial pressure p1 in the main line. During pressurization time t1 the metering elements deliver measured amounts of lubricant.

When the necessary system pressure p2 has been reached, the pressure switch indicates the end of the metering process and possibly starts the relubrication time t2.

The pressure rises up to the opening pressure p3 of the pressure limitation valve at the pump. After the relubrication time t2 is the pump switched off and the break time t4 follows.

During the break time t4 the pressure in the main line is within the time t3 relieved by a residual pressure valve in the pump down to original pressure p1.

The residual pressure prevents the main line from running empty during the break time.

When the pressure switch is at the pump, the relubrication time t2 helps to ensure that also at more remotely installed metering elements enough pressure is build up. When the pressure switch is installed at the end of the pressure line (or at the most remote point), the relubrication time is not necessary.

The relief time t3 has to be shorter than break time t4 as the piston do not return into their original position when the pressure is not relieved down to original pressure p1. The consequence would be no or insufficient metering by the metering elements.

Advantages
- simple arrangement of the system
- easy set-up, easy assembly
- extension or modification of the system as required
- easy maintenance
- economic supply of many lubrication points with only one pump
- exact metering due to a wide range of types

Application
Typical applications for single line systems are machines such as machine tools, printing-presses, paper converting machines, packing machines, textile machines, presses as well as plastic-, wood- or metalworking machinery.

Technical basics
**System design**

When the components for a single line system are selected, the choice of the pump, the size of the system and the lubricant type are important.

You can choose between manually, hydraulically, pneumatically or electrically driven actuation.

The lubricant metering is differentiated between the dynamic metering system and the static metering system.

At the dynamic system is the delivery piston fitted into the valve drilling. With pressurization is then the delivery piston shifted against a spring and the lubricant which is on the opposite side of the piston is delivered to the lubrication point. The delivery volume of the pump has to be big enough that the shifting speed of the delivery piston is higher than the speed of the lubricant flow to the drilling.

After the lubricant metering, the main line is relieved. The lubricant is then restacked via the annular gap into the metering chamber by the reset of the delivery piston. filled in the chamber. The necessary fast pressurization of the metering valves requires a pump with a high delivery capacity.

**Reference values for the installation of the dynamic system**

An exact lubricant metering is only possible, when there are no losses at the annular gap during the metering. Therefore keep to the following limit values for the installation:

- **Effective volume** of manually, hydraulically and pneumatically operated pumps: Max. 60 % of the pump’s output rate.
- **Effective volume** of gear pumps: Output rate of the pump in 0.2 sec. Example: Delivery rate of the pump 1 l/min = effective volume 3.3 cm³.
- Length of the main line from the pump to the most distant lub point: Max. 10 m.
- The total lengths of the main, as well as the secondary-lines: Max. 15 m.

**Reference values for the installation of a static system**

In the static system control and re-stacking of the metering piston is done via the control sleeves. The static system allows a slow pressurization provided the metering is exact. However, when measuring out the effective volume, limit values for the static system have to be observed, too:

- For manually, hydraulically and pneumatically operated pumps: Max. 60 % of the pump’s delivery rate so that a sufficient reserve for the pressurization is ensured.
- **Effective volume** for gear pump units: Delivery rate of the pump in 10 sec. Example: Pump output rate 0.4 l/min, effective volume = 66 cm³.
- Length of the main line from the pump to the most distant metering valve: Max. 50 m.

1) Effective volume = the volume per lubrication cycle used by the metering elements and used as expansion volume of the pipes and tubes.
**Set-up and installation of single line systems**

Corresponding to the number and arrangement of the lube points and the pump’s drive, a scheme is made first.

The following example shows a single line unit with integrated control and pressure switch:

When the metering elements are installed, take care that air which is possibly in the main line, can be ventilated with a screw at the end of the main line, when the system is put into operation.

For secondary lines, you have to provide a vent screw at the end of each branch after the metering elements.

The outlets of the metering elements at the end of a main line should not be installed sloping or directly downwards, for the case that air gets into the system and the metering elements cannot deliver.

The main line(s) should always be installed rising. When the metering elements are installed as shown above, there is no possibility to bleed the main line completely after start-up.

The main line of a single line system has to be laid out in a way that the air can evade towards the ventilation screw. Please never lay out the main line falling from the ventilation screw.

The ventilation screw directly after the last metering element makes it possible that air inclusions can be transported out by this element.

If outlets at the distributor block are locked, a metering element in the last connection before the vent screw has to be provided.

---

**Calculating the system**

Once the system has been installed the next step is, to calculate the necessary output rate of expansions are subject to the specific materials (see below).

Reference values for the volume consumption:

- Steel pipe approx. 0.05 cm³/m
- Polyamide pipe 6 x 1 approx. 0.4 cm³/m
- Polyamide pipe 6 x 1.2 approx. 0.15 cm³/m
- Hose approx. 0.1 cm³/m/s

**Example of a system calculation:**

- **Main line:**
  - 8 m steel pipe (0.05 cm³/m)
  - Volume intake: 0.40 cm³
  - 2 m polyamide pipe 6 x 1.2 (0.15 cm³/m)
  - Volume intake: 0.30 cm³

- **Metering valves:**
  - 10 metering valves with 0.02 cm³/cycle
  - Total metering volume: 0.20 cm³
  - 12 metering valves with 0.03 cm³/cycle
  - Total metering volume: 0.36 cm³

**Complete consumption of the system per lubrication cycle:**

1.26 cm³
Calculating the system

Once the system has been installed, the next step is to calculate the necessary output rate of the. The line expansions are subject to the specific materials (see below).

Reference values for the volume consumption:

- Steel pipe: approx. 0.05 cm³/m
- Polyamide pipe 6 x 1: approx. 0.4 cm³/m
- Polyamide pipe 6 x 1.2: approx. 0.15 cm³/m
- Hoses: approx. 0.1 cm³/m

Example of a system calculation:

**Main line:**
- 8 m steel pipe (0.05 cm³/m)
  Volume intake: 0.40 cm³
- 2 m polyamide pipe 6 x 1.2 (0.15 cm³/m)
  Volume intake: 0.30 cm³

**Metering valves:**
- 10 metering valves with 0.02 cm³/cycle
  Total metering volume: 0.20 cm³
- 12 metering valves with 0.03 cm³/cycle
  Total metering volume: 0.36 cm³

**Complete consumption of the system per lubrication cycle:** 1.26 cm³

Selection of the pump

When choosing a pump, take into consideration:

A manual, hydraulic or pneumatic pump needs an output rate of at least 2.1 cm³/per piston stroke for the lubrication system (as per above sample), at a permitted volume of 60% of the pump delivery rate.

For gear pump units the necessary delivery rate has to be determined according to the lubrication system.

Dynamic single line system

Effective volume for gear pump units:

Delivery rate of the pump in 0.2 sec., according to example: 0.378 l/min

**Note:** The viscosity of a lubricant for a gear pump has not been considered in this calculation. The effective volume of gear pump units might be exceeded considerably. However, ask in our company for the current values for your case.

Static single line system

Effective volume of gear pump units: Delivery rate of the pump in 10 sec. according to example: 0.008 l/min

**Note:** This calculation shows that, with all our single line gear pump units of our program, systems with several hundred metering valves can be operated with the static system.
Technical description

The single line unit Super 3 EA-tronic (series 2805) supplies the lubrication points by dynamic metering valves or static metering valves.

Drive unit and electronic control with monitoring are arranged compactly and with a cover protected against ambient influences.

The Super 3 EA-tronic can be operated with an internal (BEKA EA-tronic) or external control.

Hydraulic diagram

Connection diagram (without control)

Technical Data

Unit
- Pump type: gear pump
- Output rate: 0.4 l/min
- Operating pressure: max. 35 bar
- Lubricant: oil
- Viscosity range: 20 - 700 mm²/s
- Temperature range: medium 0 - 70 °C, ambient 0 - 40 °C
- Reservoir capacity: 3 l
- Reservoir material: plastic, transparent
- Drive: electric motor
- Power: 185/210 W
- Operating voltage: 115 V AC 50/60 Hz, 1.6/1.9 A, 230 V AC 50/60 Hz, 0.8/1.0 A, 24 V DC, 3.9 A
- Three-phase current:
  - 200-240/345-420 V; 50 Hz, 0.44/0.25 A
  - 254-277/440-480 V; 60 Hz, 0.44/0.25 A

Float switch (oil)
- Voltage: 250 V AC/DC
- Starting current: 0.5 A
- Capacity: 10 VA
- Switch: standard NO contact (Opening contact by turning the float)

Proximity switch (fluid grease)
- Voltage: 10 - 60 V DC
- Switching type: pos. switch NC/NO
- Switching current: 200 mA
- Current consumption (without load): < 20 mA
- Protection class: switch IP 67, plug IP 54

Pressure switch
- Voltage: 42 V
- Capacity: 100 VA
- Connection: AMP 6.3 x 0.8
Single Line Lubrication Systems

Gear pump units

Super 3 EA-tronic left

Order key type-no. 2805 (left)

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<tr>
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<th>fluid grease</th>
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* not available with control unit!

Subject to alterations!

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Single Line Lubrication Systems

Gear pump units

Technical description

The single line unit Super 3 EA-tronic series 2806 supplies the lubrication points by dynamic metering valves or static metering valves.

Drive unit and electronic control with monitoring are arranged compactly and with a cover protected against ambient influences.

The Super 3 EA-tronic can be operated with an internal (BEKA EA-tronic) or external control.

 Hydraulic plan

 Connection plan (without Control unit)

Technical Data

Unit
Pump type: gear pump
Output rate: 0.4 l/min
Operating pressure: max. 35 bar
Lubricant: oil

Fluid grease NLGI cl. 000-00 (according to release list)
Viscosity range: 20 - 700 mm²/s
Temperature range: medium 0 - 70 °C
ambient 0 - 40 °C
Reservoir capacity: 3 l
Reservoir material: plastic, transparent
Protection class: IP 54

Drive: electric motor
Power: 185/210 W
Operating voltage 115 V AC 50/60 Hz, 1.6/1.9 A
Nominal current: 230 V AC 50/60 Hz, 0.8/1.0 A
24 V DC, 3.9 A
Three-phase current:
200-240/345-420 V; 50 Hz, 0.44/0.25 A
254-277/440-480 V; 60 Hz, 0.44/0.25 A

Float switch (oil)
Voltage: 250 V AC/DC
Starting current: 0.5 A
Capacity: 10 VA
Switch: standard contact NO

Proximity switch (fluid grease)
Voltage: 10 - 60 V DC
Switching type: pos. switch NC/NO
Switching current: 200 mA
Current consumption (without load): < 20 mA
Protection class: switch IP 67, plug IP 54

Pressure switch
Voltage: 42 V
Capacity: 100 VA
Connection: AMP 6,3 x 0,8

Subject to alterations!
Super 3 EA-tronic right

Order key type-no. 2806 (right)

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Special models

2806.A.1.9.1.2.00.000

* not available with control unit!
Technical description
The single line unit Super EA-tronic series 2800 supplies the lubrication points by dynamic metering valves or static metering valves.

Drive unit and electronic control with monitoring are arranged compactly and with a cover protected against ambient influences.

The Super EA-tronic can be operated with an internal (BEKA EA-tronic) or external control.

Technical Data
Unit
Pump type: gear pump
Output rate: 0,4 l/min
Operating pressure: max. 35 bar
Lubricant: oil fluid grease NLGI cl. 000-00
(according to release list)
Viscosity range: 20 - 700 mm²/s
Temperature range: medium 0 - 70°C
ambient 0 - 40°C
Reservoir capacity: 4 l
Reservoir material: aluminum
Protection class: IP54
Drive: electric motor
Power: 185/210 W
Operating voltage 230 V AC 50/60 Hz, 0,8/1,0 A
Nominal current: 24 V DC, 3,9 A
Three-phase current: 200-240/345-420 V; 50 Hz, 0,44/0,25 A
254-277/440-480 V; 60 Hz, 0,44/0,25 A

Float switch (oil)
Voltage: 250 V AC/DC
Starting current: 0,5 A
Capacity: 10 VA
Switch: standard NO contact
(opening contact by turning of the float)

Proximity switch (fluid grease)
Voltage: 10 - 60 V DC
Switching type: pos. switch NC/NO
Switching current: 200 mA
Current consumption (without load): < 20 mA
Protection class: switch IP 67, plug IP 54

Pressure switch
Voltage: 42 V
Capacity: 100 VA
Connection: AMP 6,3 x 0,8

Diagram: standard design, 230 V AC, oil
**Super EA-tronic** with 4 l-reservoir

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**Order key type-no. 2800 (Super)**

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**Level monitoring**

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**Control unit**

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**Pressure gauge**

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**Voltage**

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P1: Pressure connection R 1/4 left

S1: Signal lamp red
S2: Signal lamp green
S3: Intermediate lubrication button

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**Technical Data**

- **Unit**
  - Pump type: gear pump
  - Output rate: 0,4 l/min
  - Operating pressure: max. 35 bar
  - Lubricant: oil, fluid grease NLGI l. 000-00 c (according to release list)
  - Viscosity range: 20 - 700 mm²/s
  - Temperature range: medium 0 - 70°C, ambient 0 - 40°C
  - Reservoir capacity: 4 l
  - Reservoir material: aluminum
  - Pr class: IP54 protection
  - Drive: electric motor
  - Power: 185/210 W
  - Operating voltage 115 V AC 50/60 Hz, 1,6/1,9 A
  - Nominal current: 230 V AC 50/60 Hz, 0,8/1,0 A
  - 24 V DC, 3,9 A
  - Three-phase current: 200-240/345-420 V; 50 Hz, 0,44/0,25 A
  - 254-277/440-480 V; 60 Hz, 0,44/0,25 A
  - Float switch (oil)
    - Voltage: 250 V AC/DC
    - Starting current: 0,5 A
    - Capacity: 10 VA
    - Switch: standard NO contact (opening contact by turning of the float)
  - Proximity switch (fluid grease)
    - Voltage: 10 - V DC 60
    - Switching type: pos. switch NC/NO
    - Switching current: 200 mA
    - Current consumption (without load): < 20 mA
    - Protection class: switch IP 67, plug IP 54
  - Pressure switch
    - Voltage: 42 V
    - Capacity: 100 VA
    - Connection: AMP 6,3 x 0,8
    - 6 µF 450 V, 50 Hz
    - 220 - 240 V AC 50/60 Hz
  - Diagram: standard design, 230 V AC/50 Hz L1 N NC +24 V +24 V (max.)

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Single Line Lubrication Systems

Technical description

The single line unit Super EA-tronic series 2800 supplies the lubrication points by dynamic metering valves or static metering valves.

Drive unit and electronic control with monitoring are arranged compactly and with a cover protected against ambient influences.

The Super EA-tronic can be operated with an internal (BEKA EA-tronic) or an external control.

Hydraulic diagram

Connection diagram (without control unit)

Technical Data

Unit
Pump type: gear pump
Output rate: 0,4 l/min
Operating pressure: max. 35 bar
Lubricant: oil
fluid grease NLGI cl. 000-00
(according to release list)
Viscosity range: 20 - 700 mm²/s
Temperature range: medium 0 - 70°C
ambient 0 - 40°C
Reservoir capacity: 6 l
Reservoir material: steel sheet
Protection class: IP 54
Drive: electric motor
Power: 185/210 W
Operating voltage 115 V AC 50/60 Hz, 1,6/1,9 A
Nominal current: 230 V AC 50/60 Hz, 0,8/1,0 A
24 V DC, 3,9 A
Three-phase current:
200-240/345-420 V; 50 Hz, 0,44/0,25 A
254-277/440-480 V; 60 Hz, 0,44/0,25 A

Float switch (oil)
Voltage: 250 V AC/DC
Starting current: 0,5 A
Capacity: 10 VA
Switch: standard NO contact
(opening contact by turning of the float)

Proximity switch (fluid grease)
Voltage: 10 - 60 V DC
Switching type: pos. switch NC/NO
Switching current: 200 mA
Current consumption (without load): < 20 mA
Protection class: switch IP 67, plug IP 54

Pressure switch
Voltage: 42 V
Capacity: 100 VA
Connection: AMP 6,3 x 0,8
Subject to alterations!
Order key type-no. 2800 (Super)

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<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Control unit</td>
<td>without</td>
</tr>
<tr>
<td></td>
<td>standard</td>
</tr>
<tr>
<td></td>
<td>special function pressure red. monitoring</td>
</tr>
<tr>
<td>Code-no.</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Pressure gauge</td>
<td>without</td>
</tr>
<tr>
<td></td>
<td>with</td>
</tr>
<tr>
<td>Code-no.</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Voltage</td>
<td>115 V AC</td>
</tr>
<tr>
<td></td>
<td>230 V AC</td>
</tr>
<tr>
<td></td>
<td>24 V DC</td>
</tr>
<tr>
<td></td>
<td>3~/400 V</td>
</tr>
<tr>
<td>Code-no.</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

Special models
Technical description
The single line unit Mini EA-tronic series 2800 supplies the lubrication points by dynamic metering valves or static metering valves.

Drive unit and electronic control with monitoring are arranged compactly and with a cover protected against ambient influences.

The Mini EA-tronic can be operated with an internal (BEKA EA-tronic) or an external control.

Hydraulic diagram

Connection diagram (without control unit)
Single Line Lubrication Systems

Gear pump units

Mini EA-tronic with 3 l-reservoir

Order key type-no. 2800 (Mini)

<table>
<thead>
<tr>
<th>Capacity</th>
<th>3 l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
<td>01</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level monitoring</th>
<th>without</th>
<th>with, for oil</th>
<th>with, for fluid grease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control unit</th>
<th>without</th>
<th>standard</th>
<th>special function pressure red. monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
<td>0</td>
<td>9</td>
<td>A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pressure gauge</th>
<th>without</th>
<th>with</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Voltage</th>
<th>115 V AC</th>
<th>230 V AC</th>
<th>24 V DC</th>
<th>3~/400 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Special models

Subject to alterations!

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E-MAIL: beka@beka-lube.de

Mini EA-tronic
with 3 l-reservoir

P1: Pressure connection R 1/4 left = standard

t
S1: Signal lamp red
S2: Signal lamp green
S3: Intermediate lubrication button
Technical description
The single line unit Mini 2 EA-tronic series 2810 supplies the lubrication points by dynamic metering valves or static metering valves.

Drive unit and electronic control with monitoring are arranged compactly and with a cover protected against ambient influences.

The Mini 2 EA-tronic can be operated with an internal (BEKA EA-tronic) or an external control.

Hydraulic diagram

Connection diagram (without control unit)

Technical Data

Unit
- Pump type: gear pump
- Output rate: 0,4 l/min
- Operating pressure: max. 35 bar
- Lubricant: oil fluid grease NLGI cl. 000-00 (according to release list)
- Viscosity range: 20 - 700 mm²/s
- Temperature range: medium 0 - 70°C ambient 0 - 40°C
- Reservoir capacity: 1,5 l
- Reservoir material: plastic, transparent
- Protection class: IP 54
- Drive: electric motor
- Power: 185/210 W
- Operating voltage: 115 V AC 50/60 Hz, 1,6/1,9 A
- Nominal current: 230 V AC 50/60 Hz, 0,8/1,0 A

Float switch (oil)
- Voltage: 250 V AC/DC
- Starting current: 0,5 A
- Capacity: 10 VA
- Switch: standard NO contact (Opening contact by turning of the float)

Proximity switch (fluid grease)
- Voltage: 10 - 60 V DC
- Switching type: pos. switch NC/NO
- Switching current: 200 mA
- Current consumption (without load): < 20 mA
- Protection class: switch IP 67, plug IP 54

Pressure switch
- Voltage: 42 V
- Capacity: 100 VA
- Connection: AMP 6,3 x 0,8
Single Line Lubrication Systems

Gear pump units

Mini 2 EA-tronic

Order key type-no. 2810

<table>
<thead>
<tr>
<th>Code-no.</th>
<th>Level monitoring</th>
<th>EA-tronic**</th>
<th>Control unit</th>
<th>PA-tronic***</th>
<th>Tableau</th>
<th>Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
<td>without control unit</td>
<td>without pressure switch</td>
<td>00</td>
<td>90</td>
<td>00</td>
<td>115 V AC</td>
</tr>
<tr>
<td>Code-no.</td>
<td>with for fluid grease</td>
<td>with pressure switch</td>
<td>01</td>
<td>91</td>
<td>01</td>
<td>230 V AC</td>
</tr>
<tr>
<td>Code-no.</td>
<td>with for oil without control unit (NC)</td>
<td>with pressure switch with memory</td>
<td>B0</td>
<td>91</td>
<td>2</td>
<td>24 V DC</td>
</tr>
<tr>
<td>Code-no.</td>
<td>with for fluid grease</td>
<td>without pressure switch with memory</td>
<td>B1</td>
<td>90</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Code-no.</td>
<td>with for oil without control unit (NC)</td>
<td>without pressure switch with memory</td>
<td>E0</td>
<td>91</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Code-no.</td>
<td>with for fluid grease</td>
<td>without pressure switch with memory</td>
<td>5</td>
<td>90</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Code-no.</td>
<td>with for oil without control unit (NC)</td>
<td>without pressure switch with memory</td>
<td>6</td>
<td>91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code-no.</td>
<td>with for fluid grease</td>
<td>without pressure switch with memory</td>
<td>7</td>
<td>90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code-no.</td>
<td>with for oil without control unit (NC)</td>
<td>without pressure switch with memory</td>
<td>8</td>
<td>91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code-no.</td>
<td>with for fluid grease</td>
<td>without pressure switch with memory</td>
<td>9</td>
<td>90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code-no.</td>
<td>with for oil without control unit (NC)</td>
<td>without pressure switch with memory</td>
<td>0</td>
<td>91</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Special models

* external pressure switch necessary
** break: time- or cycle dependent (machine cycle); lubrication: Switching off via presurization
*** break: time-or cycle dependent (machine cycle); lubrication: Switching off via time or distributor circulations

Technical description

The single line unit Mini 2 EA-tronic series 2810 supplies the lubrication points by dynamic metering valves or static metering valves. Drive unit and electronic control with monitoring are arranged compactly and with a cover protected against ambient influences. The Mini 2 EA-tronic can be operated an internal (BEKA EA-tronic) or an external control.

Technical Data

- **Unit**
  - Pump type: gear pump
  - Output rate: 0,4 l/min
  - Operating pressure: max. 35 bar
  - Lubricant: oil
  - Fluid grease NLGI l. 000-00 c (according to release list)
  - Viscosity range: 20 - 700 mm²/s
  - Temperature range: medium 0 - 70°C
  - Reservoir capacity: 1,5 l
  - Reservoir material: plastic, transparent
  - Protection class: IP 54
  - Drive: electric motor
  - Power: 185/210 W
  - Operating voltage 115 V AC 50/60 Hz, 1,6/1,9 A
  - Nominal current: 230 V AC 50/60 Hz, 0,8/1,0 A
  - Float switch (oil)
  - Voltage: 250 V AC/DC
  - Starting current: 0,5 A
  - Capacity: 10 VA
  - Switch: standard NO contact (Opening contact by turning of the float)
  - Proximity switch (fluid grease)
  - Voltage: 10 - V 60 DC
  - Switching type: pos. switch NC/NO
  - Switching current: 200 mA
  - Current consumption (without load): < 20 mA
  - Protection class: switch IP 67, plug IP 54
  - Pressure switch
  - Voltage: 42 V
  - Capacity: 100 VA
  - Connection: AMP 6,3 x 0,8

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**Technical description**

The single line unit S95 supplies the lubrication points by dynamic metering valves or static metering valves. The single line pump S95 has no reservoir and can be controlled with an external control.

---

**Technical Data**

**Unit**

- **Pump Type:** gear pump
- **Output rate:** 0,4 l/min
- **Operating pressure:** 30 bar
- **Lubricant:** oil
  - fluid grease NLGI cl. 000-00 (according to release list)
- **Viscosity range:** 20 - 700 mm²/s
- **Temperature range:**
  - medium 0 - 70°C
  - ambient 0 - 40°C

**Motor**

- **Drive:** three-phase motor
- **Power:** 0,1 kW
- **Operating mode:** S1
- **Protection class:** IP 54

**Operating voltage and nominal current:**

- 200-240/345-420 V, 50 Hz, 0,44/0,25 A
- 254-277/440-480 V, 60 Hz, 0,44/0,25 A

**Revolutions:** 2700/3200 r/min
Single Line Lubrication Systems

Gear pump units

Order key type-no. 2710

2710.150001
**Technical description**

The single line unit ES 2711 supplies the lubrication points by dynamic metering valves or static metering valves.  

The single line unit ES 2711 can be controlled with an external control.

---

**Hydraulic diagram**

---

**Connection diagram (without control unit)**

---

**Technical Data**

**Unit**

- Pump type: gear pump
- Output rate: 0.4 l/min
- Operating pressure: max. 35 bar
- Lubricant: oil
  - fluid grease NLGI cl. 000-00 (according to release list)
- Viscosity range: 20 - 700 mm²/s
- Temperature range:
  - medium 0 - 70°C
  - ambient 0 - 40°C
- Reservoir capacity: 4 l
- Reservoir material: aluminum
- Protection class: IP 54

**Motor**

- Drive: three-phase motor
- Power: 0.1 kW
- Operating mode: S1
- Protection class: IP 54
- Operating voltage and nominal current:
  - 200-240/345-420 V, 50 Hz, 0.44/0.25 A
  - 254-277/440-480 V, 60 Hz, 0.44/0.25 A
- Revolutions: 2700/3200 r/min

**Float switch (oil)**

- Voltage: 250 V AC/DC
- Starting current: 1 A
- Capacity: 60 VA
- Protection class: IP 65
- Electric connection: DIN 43 650
- Switch: changeover contact

**Proximity switch (fluid grease)**

- Voltage: 10 - 60 V DC
- Switching type: pos. switch NC/NO
- Switching current: 200 mA
- Current consumption (without load): < 20 mA
- Protection class: switch IP 67, plug IP 54
- Connection: compact plug 3-pol. + PE
Single Line Lubrication Systems

Gear pump units

ES 2711 with 3 l-reservoir

Order key type-no. 2711

<table>
<thead>
<tr>
<th>Capacity</th>
<th>3 l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
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<tr>
<td>Level monitoring</td>
<td>without</td>
</tr>
<tr>
<td>Code-no.</td>
<td>0</td>
</tr>
<tr>
<td>Pressure connection</td>
<td>Ø 6 mm</td>
</tr>
<tr>
<td>Code-no.</td>
<td>1</td>
</tr>
</tbody>
</table>

Special models

Subject to alterations!

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Technical description
The single line pump ES 2711 supplies the lubrication points via dynamic metering valves or static metering valves. The single line pump ES 2711 can be controlled with an external control unit.

Hydraulic diagram

Connection diagram (without Control unit)
**Single Line Lubrication Systems**

**Gear pump units**

**ES 2711 with 6 l-reservoir**

---

**Technical description**

The single line pump ES 2711 supplies the lubrication points via dynamic metering valves or static metering valves.

The single line pump ES 2711 can be controlled with an external control unit.

---

**Technical Data**

- **Unit**
  - Pump type: gear pump
  - Output rate: 0.4 l/min
  - Operating pressure: max. 35 bar
  - Lubricant: oil
  - Fluid grease NLGI cl. 000-00 (according to release list)
  - Viscosity range: 20 - 700 mm²/s
  - Temperature range: medium 0 - 70°C
  - Ambient 0 - 40°C
  - Reservoir capacity: 6 l
  - Reservoir material: steel sheet
  - Protection class: IP 54

- **Motor**
  - Drive: three-phase motor
  - Power: 0.1 kW
  - Operating mode: S1
  - Protection class: IP 54
  - Operating voltage and nominal current: 200-240/345-420 V, 50 Hz, 0.44/0.25 A
  - 254-277/440-480 V, 60 Hz, 0.44/0.25 A
  - Revolutions: 2700/3200 r/min

- **Float switch (oil)**
  - Voltage: 250 V AC/DC
  - Starting current: 1 A
  - Power supply: 60 VA
  - Protection class: IP 65
  - Electric connection: DIN 43 650
  - Switch: changeover contact

- **Proximity switch (fluid grease)**
  - Voltage: 10 - 60 DC
  - Switching type: pos. switch NC/NO
  - Switch current: 200 mA
  - Current consumption (without load): < 20 mA
  - Protection class: switch IP 67, plug IP 54
  - Connection: 3-pol. + PE

---

**Order key type-no. 2711**

<table>
<thead>
<tr>
<th>Capacity</th>
<th>6 l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
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<tr>
<td>Level monitoring</td>
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<tr>
<td>without</td>
<td>with, for oil</td>
</tr>
<tr>
<td>with, for fluid grease</td>
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</tr>
<tr>
<td>Code-no.</td>
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<tr>
<td>Pressure connection Ø 6 mm</td>
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<tr>
<td>0.6 mm</td>
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</tr>
<tr>
<td>Code-no.</td>
<td>1</td>
</tr>
<tr>
<td>Special models</td>
<td></td>
</tr>
</tbody>
</table>

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Subject to alterations!

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**Single Line Lubrication Systems**

**Gear pump units**

**Technical description**

The single line pump ES 2711 supplies the lubrication points by dynamic metering valves or static metering valves.

The single line pump ES 2711 can be controlled with an external control unit.

### Hydraulic diagram

![Hydraulic diagram](image)

### Connection diagram (without control unit)

![Connection diagram](image)

### Technical Data

**Unit**
- **Pump type:** gear pump
- **Output rate:** 0,4 l/min
- **Operating pressure:** max. 35 bar
- **Lubricant:** oil fluid grease NLGI cl. 000-00 (according to release list)
- **Viscosity range:** 20 - 700 mm²/s
- **Temperature range:** medium 0-70 °C, ambient 0 - 40°C
- **Reservoir capacity:** 13 l
- **Reservoir material:** aluminum
- **Protection class:** IP 54

**Motor**
- **Drive:** three-phase motor
- **Power:** 0,1 kW
- **Operating mode:** S1
- **Protection class:** IP 54
- **Operating voltage and nominal current:** 200-240/345-420 V, 50 Hz, 0,44/0,25 A, 254-277/440-480 V, 60 Hz, 0,44/0,25 A
- **Revolutions:** 2700/3200 r/min

**Float switch (oil)**
- **Voltage:** 250 V AC/DC
- **Starting current:** 1 A
- **Capacity:** 60 VA
- **Protection class:** IP 65
- **Electric connection:** DIN 43 650
- **Switch:** changeover contact

**Proximity switch (fluid grease)**
- **Voltage:** 10 - 60 V DC
- **Switching type:** pos. switch NC/NO
- **Switching current:** 200 mA
- **Current consumption (without load):** < 20 mA
- **Protection class:** switch IP 67, plug IP 54
- **Connection:** plug acc. to DIN 43650; 3-pol. + PE
Single Line Lubrication Systems

Gear pump units

ES 2711 with 13 l-reservoir

Order key type-no. 2711

<table>
<thead>
<tr>
<th>Capacity</th>
<th>13 l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
<td>03</td>
</tr>
<tr>
<td>Level monitoring</td>
<td>without</td>
</tr>
<tr>
<td>Code-no.</td>
<td>0</td>
</tr>
<tr>
<td>Pressure connection</td>
<td>Ø 6 mm</td>
</tr>
<tr>
<td>Code-no.</td>
<td>1</td>
</tr>
<tr>
<td>Special models</td>
<td></td>
</tr>
</tbody>
</table>

Technical description

The single line pump ES 2711 supplies the lubrication points by dynamic metering valves or static metering valves.

The single line pump ES 2711 can be controlled with an external control unit.

Technical Data

<table>
<thead>
<tr>
<th>Unit</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump type</td>
<td>gear pump</td>
</tr>
<tr>
<td>Output rate</td>
<td>0.4 l/min</td>
</tr>
<tr>
<td>Operating pressure</td>
<td>max. 35 bar</td>
</tr>
<tr>
<td>Lubricant</td>
<td>oil</td>
</tr>
<tr>
<td>Fluid grease</td>
<td>NLGI cl. 000-00</td>
</tr>
<tr>
<td>(according to release list)</td>
<td></td>
</tr>
<tr>
<td>Viscosity range</td>
<td>20 - 700 mm /s</td>
</tr>
<tr>
<td>Temperature range</td>
<td>medium 0-70 °C</td>
</tr>
<tr>
<td>ambient 0 - 40°C</td>
<td></td>
</tr>
<tr>
<td>Reservoir capacity</td>
<td>13 l</td>
</tr>
<tr>
<td>Reservoir material</td>
<td>aluminum</td>
</tr>
<tr>
<td>Protection class</td>
<td>IP 54</td>
</tr>
<tr>
<td>Motor Drive</td>
<td>three-phase motor</td>
</tr>
<tr>
<td>Power</td>
<td>0.1 kW</td>
</tr>
<tr>
<td>Operating mode</td>
<td>S1</td>
</tr>
<tr>
<td>Protection class</td>
<td>IP 54</td>
</tr>
<tr>
<td>Operating voltage and nominal current:</td>
<td>200-240/345-420 V, 50 Hz, 0.44/0.25 A</td>
</tr>
<tr>
<td>254-277/440-480 V, 60 Hz, 0.44/0.25 A</td>
<td></td>
</tr>
<tr>
<td>Revolutions</td>
<td>2700/3200 r/min</td>
</tr>
<tr>
<td>Float switch (oil)</td>
<td>Voltage: 250 V AC/DC</td>
</tr>
<tr>
<td>Starting current</td>
<td>1 A</td>
</tr>
<tr>
<td>Capacity</td>
<td>60 VA</td>
</tr>
<tr>
<td>Protection class</td>
<td>switch IP 65, plug IP 54</td>
</tr>
<tr>
<td>Electric connection</td>
<td>DIN 43 650; <a href="mailto:info@beka.nl">info@beka.nl</a></td>
</tr>
<tr>
<td>Switch</td>
<td>changeover contact</td>
</tr>
<tr>
<td>Proximity switch (fluid grease)</td>
<td>Voltage: 10 - 60 V DC</td>
</tr>
<tr>
<td>Switching type</td>
<td>pos. switch NC/NO</td>
</tr>
<tr>
<td>Switching current</td>
<td>200 mA</td>
</tr>
<tr>
<td>Current consumption (without load)</td>
<td>&lt; 20 mA</td>
</tr>
<tr>
<td>Protection class</td>
<td>switch IP 67, plug IP 54</td>
</tr>
<tr>
<td>Connection</td>
<td>plug3-pol. + PE acc. to DIN 43650; <a href="http://www.beka.nl">www.beka.nl</a></td>
</tr>
<tr>
<td>tel. 0168 371 538</td>
<td>fax. 0168 338 329</td>
</tr>
</tbody>
</table>
Single Line Lubrication Systems

Gear pump units

Technical description

The single line pump ES 2711 supplies the lubrication points by dynamic metering valves or static metering valves.

The single line pump ES 2711 can be controlled with an external control unit.

Hydraulic diagram

Connection diagram (without control unit)

Technical Data

Unit
- Pump type: gear pump
- Output rate: 0.4 l/min
- Operating pressure: max. 35 bar
- Lubricant: oil
  fluid grease NLGI cl. 000-00 (according to release list)
- Viscosity range: 20 - 700 mm²/s
- Temperature range: medium 0 - 70°C
  ambient 0 - 40°C
- Reservoir capacity: 16 l
- Reservoir material: steel sheet
- Protection class: IP 54

Motor
- Drive: three-phase motor
- Power: 0.1 kW
- Operating mode: S1
- Protection class: IP 54
- Operating voltage and nominal current:
  200-240/345-420 V, 50 Hz, 0.44/0.25 A
  254-277/440-480 V, 60 Hz, 0.44/0.25 A
- Revolutions: 2700/3200 r/min

Float switch (oil)
- Voltage: 250 V AC/DC
- Starting current: 1 A
- Capacity: 60 VA
- Protection class: IP 65
- Electric connection: DIN 43 650
- Switch: changeover contact

Proximity switch (fluid grease)
- Voltage: 10 - 60 V DC
- Switching type: pos. switch NC/NO
- Switching current: 200 mA
- Current consumption (without load): < 20 mA
- Protection class: switch IP 67, plug IP 54
- Connection: plug acc. to DIN 43 650; 3-pol. + PE
Single Line Lubrication Systems

ES 2711 with 16 l-reservoir

Order key type-no. 2711

**Content**
- 16 l (wall fastening)

**Code-no.**
- 04

**Level monitoring**
- without
- with, for oil
- with, for fluid grease

**Pressure connection**
- Ø 6 mm

**Code-no.**
- 1

**Special models**

Technical description

The single line pump ES 2711 supplies the lubrication points by dynamic metering valves or static metering valves.

The single line pump ES 2711 can be controlled with an external control unit.

Technical Data

- **Unit**
- **Pump type:** gear pump
- **Output rate:** 0.4 l/min
- **Operating pressure:** max. 35 bar
- **Lubricant:** oil
- **Viscosity range:** 20 - 700 mm²/s
- **Temperature range:** medium 0 - 70°C
- Ambient 0 - 40°C
- **Reservoir capacity:** 16 l
- **Reservoir material:** steel sheet
- **Protection class:** IP 54
- **Motor**
- **Drive:** three-phase motor
- **Power:** 0.1 kW
- **Operating mode:** S1
- **Protection class:** IP 54
- **Operating voltage and nominal current:** 200-240/345-420 V, 50 Hz, 0.44/0.25 A
  - 254-277/440-480 V, 60 Hz, 0.44/0.25 A
- **Revolutions:** 2700/3200 r/min
- **Float switch (oil)**
  - **Voltage:** 250 V AC/DC
  - **Starting current:** 1 A
  - **Capacity:** 60 VA
  - **Protection class:** IP 65
  - **Electric connection:** DIN 43 650
  - **Switch:** changeover contact
- **Proximity switch (fluid grease)**
  - **Voltage:** 10 - 60 V DC
  - **Switching type:** pos. switch NC/NO
  - **Switching current:** 200 mA
  - **Current consumption (without load):** < 20 mA
  - **Protection class:** switch IP 67, plug IP 54
- **Connection:** plug 3-pol. + PE acc. to DIN 43 650

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**Single Line Lubrication Systems**

**Gear pump units**

**Technical description**

The single line pump ES 2711 supplies the lubrication points by dynamic metering valves or static metering valves.

The single line pump ES 2711 can be controlled with an external control unit.

**Technical Data**

**Unit**
- Pump type: gear pump
- Output rate: 0.4 l/min
- Operating pressure: max. 35 bar
- Lubricant: oil, fluid grease NLGI cl. 000-00 (according to release list)
- Viscosity range: 20 - 700 mm²/s
- Temperature range: medium 0 - 70°C, ambient 0 - 40°C
- Reservoir capacity: 30 l
- Reservoir material: aluminum
- Protection class: IP 54

**Motor**
- Drive: three-phase motor
- Power: 0.1 kW
- Operating mode: S1
- Protection class: IP 54
- Operating voltage and nominal current: 200-240/345-420 V, 50 Hz, 0.44/0.25 A, 254-277/440-480 V, 60 Hz, 0.44/0.25 A
- Revolutions: 2700/3200 r/min

**Float switch (oil)**
- Voltage: 250 V AC/DC
- Starting current: 1 A
- Capacity: 60 VA
- Protection class: IP 65
- Electric connection: DIN 43 650
- Switch: changeover contact

**Proximity switch (fluid grease)**
- Voltage: 10 - 60 V DC
- Switching type: pos. switch NC/NO
- Switching current: 200 mA
- Current consumption (without load): < 20 mA
- Protection class: switch IP 67, plug IP 54
- Connection: plug acc. to DIN 43 650; 3-pol. + PE
Single Line Lubrication Systems

Gear pump units

ES 2711 with 30 l-reservoir

Order key type-no. 2711

<table>
<thead>
<tr>
<th>Capacity</th>
<th>30 l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
<td>06</td>
</tr>
<tr>
<td>Level monitoring</td>
<td></td>
</tr>
<tr>
<td>without</td>
<td>with, for oil</td>
</tr>
<tr>
<td>Code-no.</td>
<td>0</td>
</tr>
<tr>
<td>Pressure connection</td>
<td>Ø 6 mm</td>
</tr>
<tr>
<td>Code-no.</td>
<td>1</td>
</tr>
<tr>
<td>Special models</td>
<td></td>
</tr>
</tbody>
</table>
**Technical description**

The single line units EA3 and EA6 supply the lubrication points by dynamic metering valves or static metering valves.

The single line units EA3 and EA6 have no own reservoir.

The EA3 unit should be used for system with metering valves for a total metering quantity of max. 3 cm³/per lubrication pulse (the EA6 accordingly up to 6 cm³/pulse).

**Hydraulic diagram**

![Hydraulic diagram](image)

**Connection diagram** (without control unit)

![Connection diagram](image)

**Technical Data**

**Pump**
- Type: gear pump
- Output rate: EA3: 3 cm³/pulse or 1 l/min *
  EA6: 6 cm³/pulse or 2 l/min**
- Operating pressure: 35 bar
- Lubricant: oil
- Viscosity range: 20 - 700 mm²/s
- Temperature range: medium 0 - 70°C
  ambient 0 - 40°C

**Motor**
- Drive: three-phase motor
- Power:
  - EA3: 0,17 kW S1
  - EA6: 0,27 kW S3
- Protection class: IP 54
- Operating voltage and nominal current:
  - 200-240/345-420 V, 50 Hz, 0,76/0,44 A
  - 254-277/440-480 V, 60 Hz, 0,76/0,44 A
- Revolutions: 2700/3200 r/min

* for dynamic metering valves with a total delivery rate of max. 3 cm³/pulse
**for dynamic metering valves with a total delivery rate of max. 6 cm³/pulse
**Technical Data**

**Pump**
- Type: gear pump
- Output rate: EA3: 3 cm³/pulse or 1 l/min *
- EA6: 6 cm³/pulse or 2 l/min **
- Operating pressure: 35 bar
- Lubricant: oil
- Viscosity range: 20 - 700 mm²/s
- Temperature range: medium 0 - 70°C, ambient 0 - 40°C

**Motor**
- Drive: three-phase motor
- Power: EA3 0,17 kW S1
  - EA6 0,27 kW S3
- Protection class: IP 54
- Operating voltage and nominal current: 200-240/345-420 V, 50 Hz, 0,76/0,44 A
  - 254-277/440-480 V, 60 Hz, 0,76/0,44 A
- Revolutions: 2700/3200 r/min

  * for dynamic metering valves with a total delivery rate of max. 3 cm³/pulse
  ** for dynamic metering valves with a total delivery rate of max. 6 cm³/pulse

**Technical description**

The single line units EA3 and EA6 supply the lubrication points by dynamic metering valves or static metering valves.

The single line units EA3 and EA6 have no own reservoir.

The EA3 unit should be used for system with metering valves for a total metering quantity of max. 3 cm³/pulse (the EA6 accordingly up to 6 cm³/pulse).

**Order key type-no. 2700**

<table>
<thead>
<tr>
<th>Delivery rate</th>
<th>Code-no.</th>
<th>Special models</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 cm³/pulse (1 l/min)</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>6 cm³/pulse (2 l/min)</td>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>

**Technical notes**

- Return connection, model without reservoir
- Return connection, model with reservoir
- Pressure connection R 1/4
- Ventilation valve
- Suction connection
Single Line Lubrication Systems

Gear pump units

Technical description
The single line unit EA 3 / EA 6 with reservoir supplies the lubrication points by dynamic metering valves or static metering valves.

The single line pump EA 3 can be controlled with an external control device.

Hydraulic diagram

Technical Data
Pump
Type: gear pump
Output rate: EA3: 3 cm³/pulse or 1 l/min *
        EA6: 6 cm³/pulse or 2 l/min**
Operating pressure: 35 bar
Lubricant: oil
Viscosity range: 20 - 700 mm²/s
Temperature range: medium 0 - 70°C
        ambient 0 - 40°C
Reservoir capacity: 3 l
Reservoir material: aluminium

Motor
Drive: three-phase motor
Power:
        EA3: 0,17 kW S1
        EA6: 0,27 kW S3
Protection class: IP 54
Operating mode: S1
Operating voltage and nominal current:
        200-240/345-420 V, 50 Hz, 0,44/0,25 A
        254-277/440-480 V, 60 Hz, 0,44/0,25 A
Revolutions: 2700/3200 r/min

Float switch
Voltage: 250 V AC/DC
Starting current: 1 A
Capacity: 60 VA
Protection class: IP 65
Electric connection: DIN 43 650
Switch: changeover contact

* for dynamic metering valves with a total delivery rate of max. 3 cm³/pulse
** for dynamic metering valves with a total delivery rate of max. 6 cm³/pulse

Diagram of the filling-level switch (model oil): Reservoir not empty

Connection diagram (without control unit)
Single Line Lubrication Systems

Gear pump units

EA 3 / EA 6 with 3 l-reservoir

Order key type-no. 2705

<table>
<thead>
<tr>
<th>Feature</th>
<th>EA3: 3 cm³/pulse (1 l/min)</th>
<th>EA6: 6 cm³/pulse (2 l/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery rate</td>
<td>3 cm³/pulse</td>
<td>6 cm³/pulse</td>
</tr>
<tr>
<td>Code-no.</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>Capacity</td>
<td>3 l</td>
<td></td>
</tr>
<tr>
<td>Code-no.</td>
<td>03</td>
<td></td>
</tr>
<tr>
<td>Level monitoring</td>
<td>without</td>
<td>with, for oil</td>
</tr>
<tr>
<td>Code-no.</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Special models

Subject to alterations!
Single Line Lubrication Systems

Gear pump units

Technical description
The single line unit EA 3 / EA 6 with reservoir supplies the lubrication points by dynamic metering valves or static metering valves.

The single line unit EA 6 can be controlled with an external control device.

Hydraulic diagram

Connection diagram (without control unit)

Diagram of the filling-level switch (model oil):
Reservoir not empty

Technical Data

Pump
Type: gear pump
Output rate: EA3: 3 cm³/pulse or 1 l/min *
EA6: 6 cm³/pulse or 2 l/min**
Operating pressure: 35 bar
Lubricant: oil
Viscosity range: 20 - 700 mm²/s
Temperature range: medium 0 - 70°C
ambient 0 - 40°C
Reservoir capacity: 6 l
Reservoir material: steel sheet

Motor
Drive: three-phase motor
Power:
EA3: 0,17 kW S1
EA6: 0,27 kW S3
Protection class: IP 54
Operating mode: S1
Operating voltage and nominal current:
200-240/345-420 V, 50 Hz, 0,44/0,25 A
254-277/440-480 V, 60 Hz, 0,44/0,25 A
Revolutions: 2700/3200 r/min

Float switch
Voltage: 250 V AC/DC
Starting current: 1 A
Capacity: 60 VA
Protection class: IP 65
Electric connection: DIN 43 650
Switch: changeover contact

* for dynamic metering valves with a total delivery rate of max. 3 cm³/pulse
** for dynamic metering valves with a total delivery rate of max. 6 cm³/pulse
**Order key type-no. 2705**

<table>
<thead>
<tr>
<th><strong>Delivery rate</strong></th>
<th>3 cm³/pulse (1 l/min)</th>
<th>6 cm³/pulse (2 l/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code-no.</strong></td>
<td>30</td>
<td>60</td>
</tr>
</tbody>
</table>

| **Capacity** | 6 l |
| **Code-no.** | 04 |

| **Level monitoring** | without | with, for oil |
| **Code-no.** | 0 | 1 |

**Special models**

---

Technical description

The single line unit EA3 / EA6 with reservoir supplies the lubrication points by dynamic metering valves or static metering valves.

The single line unit EA 6 can be controlled with an external device.

---

**Technical Data**

- **Pump**
  - Type: gear pump
  - Output rate: 3 cm³/pulse or 1 l/min
  - EA3: 6 cm³/pulse or 2 l/min
  - Operating pressure: 35 bar
  - Lubricant: oil
  - Viscosity range: 20 - 700 mm²/s
  - Temperature range: medium 0 - 70°C, ambient 0 - 40°C
  - Reservoir capacity: 6 l
  - Reservoir material: steel sheet

- **Motor**
  - Drive: three-phase motor
  - Power:
    - EA3: 0,17 kW S1
    - EA6: 0,27 kW S3
  - Protection class: IP 54
  - Operating mode: S1
  - Operating voltage and nominal current:
    - 200-240/345-420 V, 50 Hz, 0,44/0,25 A
    - 254-277/440-480 V, 60 Hz, 0,44/0,25 A
  - Revolutions: 2700/3200 r/min

- **Float switch**
  - Voltage: 250 V AC/DC
  - Starting current: 1 A
  - Capacity: 60 VA
  - Protection class: IP 65
  - Electric connection: DIN 43 650
  - Switch: changeover contact

* for dynamic metering valves with a total delivery rate of max. 3 cm³/pulse

**for dynamic metering valves with a total delivery rate of max. 6 cm³/pulse**
Single Line Lubrication Systems

Gear pump units

EA 3 / EA 6 with 13 l-reservoir

Technical description

The single line unit EA 3 / EA 6 with reservoir supplies the lubrication points by dynamic metering valves or static metering valves.

The single line pump EA 6 can be controlled with an external control unit.

Technical Data

Pump
Type: gear pump
Output rate: EA3: 3 cm³/pulse or 1 l/min *
EA6: 6 cm³/pulse or 2 l/min**
Operating pressure: 35 bar
Lubricant: oil
Viscosity range: 20 - 700 mm²/s
Temperature range: medium 0 - 70°C
ambient 0 - 40°C
Reservoir capacity: 13 l
Reservoir material: aluminum

Motor
Drive: three-phase motor
Power:
EA3: 0,17 kW S1
EA6: 0,27 kW S3
Protection class: IP 54
Operating mode: S1
Operating voltage and nominal current:
200-240/345-420 V, 50 Hz, 0,44/0,25 A
254-277/440-480 V, 60 Hz, 0,44/0,25 A
Revolutions: 2700/3200 r/min

Float switch
Voltage: 250 V AC/DC
Starting current: 1 A
Capacity: 60 VA
Protection class: IP 65
Electric connection: DIN 43 650
Switch: changeover contact

* for dynamic metering valves with a total delivery rate of max. 3 cm³/pulse
** for dynamic metering valves with a total delivery rate of max. 6 cm³/pulse
**Single Line Lubrication Systems**

**Gear pump units**

**EA 3 / EA 6 with 13 l-reservoir**

---

**Technical description**

The single line unit EA3 / EA6 with reservoir supplies the lubrication points by dynamic metering valves or static metering valves.

The single line pump EA 6 can be controlled with an external control unit.

---

**Technical Data**

**Pump**

- **Type:** gear pump
- **Output rate:** 3 cm³/pulse or 1 l/min (EA3: 30 cm³/pulse or 1 l/min, EA6: 60 cm³/pulse or 2 l/min)**
- **Operating pressure:** 35 bar
- **Lubricant:** oil
- **Viscosity range:** 20 - 700 mm²/s
- **Temperature range:** medium 0 - 70°C, ambient 0 - 40°C
- **Reservoir capacity:** 13 l
- **Reservoir material:** aluminum

**Motor**

- **Drive:** three-phase motor
- **Power:** EA3: 0,17 kW S1, EA6: 0,27 kW S3
- **Protection class:** IP 54
- **Operating mode:** S1
- **Operating voltage and nominal current:** 200-240/345-420 V, 50 Hz, 0,44/0,25 A, 254-277/440-480 V, 60 Hz, 0,44/0,25 A
- **Revolutions:** 2700/3200 r/min

**Float switch**

- **Voltage:** 250 V AC/DC
- **Starting current:** 1 A
- **Capacity:** 60 VA
- **Protection class:** IP 65
- **Electric connection:** DIN 43 650
- **Switch:** changeover contact

**Order key type-no. 2705**

- **Delivery rate:** 3 cm³/pulse (1 l/min) 6 cm³/pulse (2 l/min)
- **Code-no.:** 30 60
- **Capacity:** 13 l
- **Code-no.:** 05
- **Level monitoring:** without, with, for oil
- **Code-no.:** 0 1

**Special models**

---

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Single Line Lubrication Systems

Technological description

The single line unit EA 3 / EA 6 with reservoir supplies the lubrication points by dynamic metering valves or static metering valves.

The single line pump EA 6 can be controlled with an external control device.

Hydraulic diagram

Connection diagram (without control unit)

Technical Data

Pump
Type: gear pump
Output rate: EA3: 3 cm³/pulse or 1 l/min *
EA6: 6 cm³/pulse or 2 l/min**
Operating pressure: 35 bar
Lubricant: oil
Viscosity range: 20 - 700 mm²/s
Temperature range: medium 0 - 70°C
ambient 0 - 40°C
Reservoir capacity: 16 l
Reservoir material: steel sheet

Motor
Drive: three-phase motor
Power: EA3: 0,17 kW S1
EA6: 0,27 kW S3
Protection class: IP 54
Operating mode: S1
Operating voltage and nominal current:
200-240/345-420 V, 50 Hz, 0,44/0,25 A
254-277/440-480 V, 60 Hz, 0,44/0,25 A
Revolutions: 2700/3200 r/min

Float switch
Voltage: 250 V AC/DC
Starting current: 1 A
Capacity: 60 VA
Protection class: IP 65
Electric connection: DIN 43 650
Switch: changeover contact

* for dynamic metering valves with a total metering quantity of max. 3 cm³/pulse
**for dynamic metering valves with a total metering quantity of max. 6 cm³/pulse
**Technical Description**

The single line unit EA3 / EA6 with reservoir supplies the lubrication points by dynamic metering valves or static metering valves.

**Order key type-no. 2705**

<table>
<thead>
<tr>
<th>Feature</th>
<th>EA3: 3 cm³/pulse (1 l/min)</th>
<th>EA6: 6 cm³/pulse (2 l/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Delivery rate</strong></td>
<td>3 cm³/pulse</td>
<td>6 cm³/pulse</td>
</tr>
<tr>
<td><strong>Code-no.</strong></td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td><strong>Capacity</strong></td>
<td>16 l</td>
<td></td>
</tr>
<tr>
<td><strong>Code-no.</strong></td>
<td>07</td>
<td></td>
</tr>
<tr>
<td><strong>Level monitoring</strong></td>
<td>without</td>
<td>with, for oil</td>
</tr>
<tr>
<td><strong>Code-no.</strong></td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Special models</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Technical Data**

- **Pump**
  - Type: gear pump
  - Output rate: 3 cm³/pulse or 1 l/min (*EA3*)
  - Operating pressure: 35 bar
  - Lubricant: oil
  - Viscosity range: 20 - 700 mm²/s
  - Temperature range: medium 0 - 70°C
  - Reservoir capacity: 16 l

- **Motor**
  - Drive: three-phase motor
  - Power: EA3: 0.17 kW S1, EA6: 0.27 kW S3
  - Protection class: IP 54
  - Operating mode: S1
  - Operating voltage and nominal current: 200-240/345-420 V, 50 Hz, 0.44/0.25 A, 254-277/440-480 V, 60 Hz, 0.44/0.25 A
  - Revolutions: 2700/3200 r/min

- **Float switch**
  - Voltage: 250 V AC/DC
  - Starting current: 1 A
  - Capacity: 60 VA
  - Protection class: IP 65
  - Electric connection: DIN 43 650
  - Switch: changeover contact

  *for dynamic metering valves with a total metering quantity of max. 3 cm³/pulse

  **for dynamic metering valves with a total metering quantity of max. 6 cm³/pulse

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**Technical description**

The single line unit EA 3 / EA 6 with reservoir supplies the lubrication points by dynamic metering valves or static metering valves. The single line pump EA 6 can be controlled with an external control device.

---

**Technical Data**

**Pump**
- Type: gear pump
- Output rate:
  - EA3: 3 cm³/pulse or 1 l/min at 2800 r/min *
  - EA6: 6 cm³/pulse or 2 l/min at 2800 r/min**
- Operating pressure: 35 bar
- Lubricant: oil
- Viscosity range: 20 - 700 mm²/s
- Temperature range:
  - medium 0 - 70 °C
  - ambient 0 - 40 °C
- Reservoir capacity: 30 l
- Reservoir material: aluminum

**Motor**
- Drive: three-phase current
- Power:
  - EA3: 0,17 kW S1
  - EA6: 0,27 kW S3
- Protection class: IP 54
- Operating mode: S1
- Operating voltage and nominal current:
  - 200-240/345-420 V, 50 Hz, 0,44/0,25 A
  - 254-277/440-480 V, 60 Hz, 0,44/0,25 A
- Revolutions: 2700/3200 r/min

**Float switch**
- Voltage: 250 V AC/DC
- Starting current: 1 A
- Capacity: 60 VA
- Protection class: IP 65
- Electric connection: DIN 43 650
- Switch: changeover contact

---

* for dynamic metering valves with a total metering quantity of max. 3 cm³/pulse
** for dynamic metering valves with a total metering quantity of max. 6 cm³/pulse
Order key type-no. 2705

<table>
<thead>
<tr>
<th>Delivery rate</th>
<th>Code-no.</th>
<th>Capacity</th>
<th>Code-no.</th>
<th>Level monitoring</th>
<th>Special models</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 cm³/pulse (1 l/min)</td>
<td>30</td>
<td>30 l</td>
<td>1</td>
<td>without</td>
<td></td>
</tr>
<tr>
<td>6 cm³/pulse (2 l/min)</td>
<td>60</td>
<td></td>
<td>11</td>
<td>with, for oil</td>
<td></td>
</tr>
</tbody>
</table>

**Technical Data**

**Pump**
- Type: gear pump
- Output rate:
  - EA3: 3 cm³/pulse or 1 l/min at 2800 r/min
  - EA6: 6 cm³/pulse or 2 l/min at 2800 r/min
- Operating pressure: 35 bar
- Lubricant: oil
- Viscosity range: 20 - 700 mm²/s
- Temperature range: medium 0 - 70 °C
- Reservoir capacity: 30 l
- Reservoir material: aluminum

**Motor**
- Drive: three-phase current
- Power:
  - EA3: 0,17 kW S1
  - EA6: 0,27 kW S3
- Protection class: IP 54
- Operating mode: S1
- Operating voltage and nominal current:
  - 200-240/345-420 V, 50 Hz, 0,44/0,25 A
  - 254-277/440-480 V, 60 Hz, 0,44/0,25 A
- Revolutions: 2700/3200 r/min

**Float switch**
- Voltage: 250 V AC/DC
- Starting current: 1 A
- Capacity: 60 VA
- Protection class: IP 65
- Electric connection: DIN 43 650
- Switch: changeover contact

* for dynamic metering valves with a total metering quantity of max. 3 cm³/pulse
** for dynamic metering valves with a total metering quantity of max. 6 cm³/pulse
**Technical description**

The single line unit EA 1,5 supplies the lubrication points by dynamic metering valves or static metering valves.

The single line pump EA 1,5 can be controlled with an external control device.

---

**Technical Data**

**Unit**
- Pump type: gear pump
- Output rate: 0.4 l/min
- Operating pressure: max. 40 bar
- Lubricant: oil
- Viscosity range: 20 - 700 mm²/s
- Temperature range: medium 0 - 70°C, ambient 0 - 40°C
- Reservoir capacity: 3 l
- Reservoir material: plastic, transparent

**Motor**
- Drive: electric motor, 2-poles
- Protection class: IP 54
- Operating mode: S1
- Power: 0.1 kW
- Operating voltage and nominal current:
  - 200-240/345-420 V, 50 Hz, 0.44/0.25 A
  - 254-277/440-480 V, 60 Hz, 0.44/0.25 A
- Revolutions: 2700/3200 r/min

**Float switch**
- Voltage: 230 V AC/DC
- Starting current: max. 0.5 A
- Capacity: max. 10 VA
- Protection class: IP 65
- Connection: Tuchel-plug, pole 1 and 3
- Switch: N/O contact
  - (opening contact by turning of the float)

**Pressure switch**
- Voltage: max. 42 V
- Capacity: 100 VA
- Protection class: IP 65
- Connection: AMP 6,3x0,8
Single Line Lubrication Systems

Gear pump units

**EA 1,5 oil with 3 l-reservoir**

**Technical description**

The single line unit EA 1,5 supplies the lubrication points by dynamic metering valves or static metering valves.

**Technical Data**

- **Unit**
  - Pump type: gear pump
  - Output rate: 0,4 l/min
  - Operating pressure: max. 40 bar
  - Lubricant: oil
  - Viscosity range: 20 - 700 mm²/s
  - Temperature range: medium 0 - 70°C, ambient 0 - 40°C
  - Reservoir capacity: 3 l
  - Reservoir material: plastic, transparent
  - Motor: drive: electric motor, 2-poles, 0,44 A, Y 0,25 A, Protection class IP 54, Operating mode S1, Power: 0,1 kW, Operating voltage and nominal current: 200-240/345-420 V, 50 Hz, 0,44/0,25 A, 254-277/440-480 V, 60 Hz, 0,44/0,25 A, Revolutions: 2700/3200 r/min
- **Float switch**
  - Voltage: 230 V AC/DC
  - Starting current: max. 0,5 A
  - Capacity: max. 10 VA
  - Protection class: IP 65
  - Connection: Tuchel-plug, pol 1 and 3 e
  - Switch: N/O contact (opening contact by turning of the float)
- **Pressure switch**
  - Voltage: max. 42 V
  - Capacity: 100 VA
  - Protection class: IP 65
  - Connection: AMP 6,3x0,8

**Order key type-no. 2727**

<table>
<thead>
<tr>
<th>Reservoir capacity</th>
<th>3 l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
<td>1</td>
</tr>
<tr>
<td>Level monitoring</td>
<td></td>
</tr>
<tr>
<td>without</td>
<td>with</td>
</tr>
<tr>
<td>Code-no.</td>
<td>0</td>
</tr>
<tr>
<td>Pressure switch</td>
<td></td>
</tr>
<tr>
<td>without</td>
<td>with</td>
</tr>
<tr>
<td>Code-no.</td>
<td>0</td>
</tr>
<tr>
<td>Pressure gauge</td>
<td></td>
</tr>
<tr>
<td>without</td>
<td>with</td>
</tr>
<tr>
<td>Code-no.</td>
<td>0</td>
</tr>
<tr>
<td>Pressure connection</td>
<td>Ø 6 mm</td>
</tr>
<tr>
<td>Code-no.</td>
<td>1</td>
</tr>
</tbody>
</table>

*Subject to alterations!*
Technical description
The EA 1,5 single line unit serves for the supply of lube points via metering valves (dynamic system) or dosing valves (static system).

The EA 1,5 single line unit can be controlled with an external control.

Technical data
Unit
Pump type: gear pump
Output rate: 0,4 l/min
Operating pressure: max. 40 bar
Pressure limiting valve adjusted to: 35 bar
Medium: oil
Viscosity range: 20 - 700 mm²/s
Temperature range: medium 0 - 70 °C
ambient 0 - 40 °C
Reservoir capacity: 6 l
Reservoir material: plastic, transparent

Motor
Drive: electric motor, 2 poles
Protection class: IP 54
Operational mode: S1
Power: 0,1 kW
Operational voltage and nominal current:
200-240/345-420 V, 50 Hz, 0,44/0,25 A
254-277/440-480 V, 60 Hz, 0,44/0,25 A
Speed: 2700/3200 r.p.m.

Float switch
Voltage: 230 V AC
Start-up current: 1 A
Switching capacity: 60 VA
Protection class: IP 65
Switching contact: change-over contact

Pressure switch
Switching point: 20 bar
Switching contact: N/O contact
Voltage: max. 42 V
Switching capacity: 100 VA
Protection class: IP 65
Connection: AMP 6,3x0,8
Technical description

The EA 1,5 single line unit serves for the supply of lube points via metering valves (dynamic system) or dosing valves (static system).

Technical data

<table>
<thead>
<tr>
<th>Unit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump type</td>
<td>gear pump</td>
</tr>
<tr>
<td>Output rate</td>
<td>0,4 l/min</td>
</tr>
<tr>
<td>Operating pressure</td>
<td>max. 40 bar</td>
</tr>
<tr>
<td>Pressure limiting valve</td>
<td>adjusted to: 35 bar</td>
</tr>
<tr>
<td>Medium</td>
<td>oil</td>
</tr>
<tr>
<td>Viscosity range</td>
<td>20 - 700 mm /s</td>
</tr>
<tr>
<td>Temperature range</td>
<td>medium 0 - 70 °C, ambient 0 - 40 °C</td>
</tr>
<tr>
<td>Reservoir capacity</td>
<td>6 l</td>
</tr>
<tr>
<td>Reservoir material</td>
<td>plastic, transparent</td>
</tr>
<tr>
<td>Motor</td>
<td>Drive: electric motor, 2 poles</td>
</tr>
<tr>
<td></td>
<td>0,44 A, Y 0,25 A</td>
</tr>
<tr>
<td></td>
<td>Protection class: IP 54</td>
</tr>
<tr>
<td></td>
<td>Operational mode: S1</td>
</tr>
<tr>
<td></td>
<td>Power: 0,1 kW</td>
</tr>
<tr>
<td></td>
<td>Operational voltage and nominal current:</td>
</tr>
<tr>
<td></td>
<td>200-240/345-420 V, 50 Hz, 0,44/0,25 A</td>
</tr>
<tr>
<td></td>
<td>254-277/440-480 V, 60 Hz, 0,44/0,25 A</td>
</tr>
<tr>
<td></td>
<td>Speed: 2700/3200 r.p.m.</td>
</tr>
<tr>
<td>Float switch</td>
<td>Voltage: 230 V AC</td>
</tr>
<tr>
<td></td>
<td>Start-up current: 1 A</td>
</tr>
<tr>
<td></td>
<td>Switching capacity: 60 VA</td>
</tr>
<tr>
<td></td>
<td>Protection class: IP 65</td>
</tr>
<tr>
<td></td>
<td>Switching contact: change-over contact</td>
</tr>
<tr>
<td>Pressure switch</td>
<td>Switching point: 20 bar</td>
</tr>
<tr>
<td></td>
<td>Switching contact: N/O contact</td>
</tr>
<tr>
<td></td>
<td>Voltage: max. 42 V</td>
</tr>
<tr>
<td></td>
<td>Switching capacity: 100 VA</td>
</tr>
<tr>
<td></td>
<td>Protection class: IP 65</td>
</tr>
<tr>
<td></td>
<td>Connection: AMP 6,3x0,8</td>
</tr>
</tbody>
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Order key for type-no. 2727

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Code-no.</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Reservoir capacity</td>
<td>5</td>
<td>6 l</td>
</tr>
<tr>
<td>Level monitoring</td>
<td>0</td>
<td>without</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>with</td>
</tr>
<tr>
<td>Pressure switch</td>
<td>0</td>
<td>without</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>with</td>
</tr>
<tr>
<td>Pressure gauge</td>
<td>0</td>
<td>without</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>with</td>
</tr>
<tr>
<td>Pressure connection</td>
<td>1</td>
<td>Ø 6 mm</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Ø 8 mm</td>
</tr>
<tr>
<td>Special model</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Single Line Lubrication Systems

Gear pump units

Technical description
The single line unit EA 1.5 supplies the lubrication points by dynamic metering valves or static metering valves.

The single line pump EA 1.5 can be controlled with an external control device.

Technical Data

Unit
Pump type: gear pump
Output rate: 0.4 l/min
Operating pressure: max. 40 bar
Lubricant: fluid grease of NLGI class 000-00
(acc. to release list)
Temperature range: medium 0 - 70°C
ambient 0 - 40°C
Reservoir capacity: 3 l
Reservoir material: plastic, transparent

Motor
Drive: electric motor, 2-pole
\(\begin{align*}
\triangle 0.44 \text{ A}, Y 0.25 \text{ A} \\
\end{align*}\)
Protection class: IP 54
Operating mode: S1
Power: 0.1 kW
Operating voltage and nominal current:
\(\begin{align*}
200-240/345-420 \text{ V}, 50 \text{ Hz}, 0.44/0.25 \text{ A} \\
254-277/440-480 \text{ V}, 60 \text{ Hz}, 0.44/0.25 \text{ A} \\
\end{align*}\)
Revolutions: 2700/3200 r/min

Proximity switch
Voltage: 10 - 60 V DC
Switching type: pos. switch NC/NO
Switching current: 200 mA
Current consumption (without load): < 20 mA
Protection class: switch IP 67, plug IP 54
Connection: compact plug, 3-pol. + PE

Pressure switch
Voltage: max. 42 V
Capacity: 100 VA
Protection class: IP 65
Connection: AMP 6,3x0,8
The single line unit EA 1,5 supplies the lubrication points by dynamic metering valves or static metering valves.

**Technical description**

- **Pump type:** gear pump
- **Output rate:** 0,4 l/min
- **Operating pressure:** max. 40 bar
- **Lubricant:** fluid grease of NLGI class 000-00 (acc. to release list)
- **Temperature range:** medium 0 - 70°C, ambient 0 - 40°C
- **Reservoir capacity:** 3 l
- **Reservoir material:** plastic, transparent
- **Motor Drive:** electric motor, 2-pole
- **Protection class:** IP 54
- **Operating mode:** S1
- **Power:** 0,1 kW
- **Operating voltage and nominal current:**
  - 200-240/345-420 V, 50 Hz, 0,44/0,25 A
  - 254-277/440-480 V, 60 Hz, 0,44/0,25 A
- **Revolutions:** 2700/3200 r/min
- **Proximity switch:**
  - **Voltage:** 10 - V DC
  - **Switching type:** pos. switch NC/NO
  - **Switching current:** 200 mA
  - **Current consumption (without load):** < 20 mA
  - **Protection class:** switch IP 67, plug IP 54
  - **Connection:** compact plug, 3-pol. + PE
- **Pressure switch:**
  - **Voltage:** max. 42 V
  - **Capacity:** 100 VA
  - **Protection class:** IP 65
  - **Connection:** AMP 6,3x0,8
- **Pressure connection:** Ø 6 mm

**Order key type-no. 2728**

<table>
<thead>
<tr>
<th>Reservoir capacity</th>
<th>3 l</th>
<th>Code-no.</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level monitoring</td>
<td>without</td>
<td>with</td>
<td></td>
</tr>
<tr>
<td>Code-no.</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Pressure switch</td>
<td>without</td>
<td>with</td>
<td></td>
</tr>
<tr>
<td>Code-no.</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Pressure gauge</td>
<td>without</td>
<td>with</td>
<td></td>
</tr>
<tr>
<td>Code-no.</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Pressure connection</td>
<td>Ø 6 mm</td>
<td>Ø 8 mm</td>
<td></td>
</tr>
<tr>
<td>Code-no.</td>
<td>1</td>
<td>2</td>
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**Special models**

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<th>Code-no.</th>
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<tbody>
<tr>
<td>2728.1.0.1.2.000</td>
</tr>
</tbody>
</table>

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Single Line Lubrication Systems

Gear pump units

Technical description

The EA 1,5 single line unit serves for the supply of lube points via metering valves (dynamic system) or dosing valves (static system).

The EA 1,5 single line unit can be controlled with an external control.

Technical data

Unit
Pump type: gear pump
Output rate: 0,4 l/min
Operating pressure: max. 40 bar
Pressure limiting valve adjusted to: 35 bar
Medium: fluid grease of NLGI class 000-000 (acc. to release list)
Temperature range: medium 0 - 70 °C
ambient 0 - 40 °C
Reservoir capacity: 6 l
Reservoir material: plastic, transparent

Motor
Drive: electric motor, 2 poles
Protection class: IP 54
Operational mode: S1
Power: 0.1 kW
Operational voltage and nominal current:
200-240/345-420 V, 50 Hz, 0,44/0,25 A
254-277/440-480 V, 60 Hz, 0,44/0,25 A
Speed: 2700/3200 r.p.m.

Proximity switch
Voltage: 10 - 60 V DC
Start-up current: 200 mA
Current consumption (unloaded): < 20 mA
Protection class: switch IP 67, connector IP 54
Connection: change-over contact

Pressure switch
Switching point: 20 bar
Switching contact: N/O contact
Voltage: max. 42 V
Switching capacity: 100 VA
Protection class: IP 65
Connection: AMP 6,3x0,8
**Single Line Lubrication Systems**

**Gear pump units**

**EA 1,5** fluid grease with 6 l-reservoir

---

**Order key for type-no. 2728**

<table>
<thead>
<tr>
<th>Reservoir capacity</th>
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</thead>
<tbody>
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</table>

<table>
<thead>
<tr>
<th>Level monitoring</th>
<th>without</th>
<th>with</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
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<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pressure switch</th>
<th>without</th>
<th>with</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
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<td>1</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Pressure gauge</th>
<th>without</th>
<th>with</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
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<td>1</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Pressure connection</th>
<th>Ø 6 mm</th>
<th>Ø 8 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

**Special models**

---

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Single Line Lubrication Systems

Technical description
The single line unit BEKA XLube supplies the lubrication points by dynamic metering valves or static metering valves.

The single line pump BEKA XLube can be controlled with an external control device.

Technical Data

Unit
- Pump type: gear pump
- Output rate: 0,25 l/min
- Operating pressure: max. 28 bar
- Lubricant: oil fluid grease NLGI cl. 000-00 (according to release list)
- Viscosity range: 20 - 700 mm²/s
- Temperature range: medium 0 - 70°C ambient 0 - 40°C
- Reservoir capacity: 1,2 l
- Reservoir material: plastic, transparent

Motor
- Drive: electric motor KM4030/2
- Power: 67 W
- Operating pressure: 230 V AC, 50/60 Hz
- Revolutions: 2800 r/min

Float switch (oil)
- Voltage: 250 V AC/DC
- Starting current: 0,5 A
- Capacity: 10 VA
- Switch: standard NO contact (opening contact by turning of the float)

Proximity switch (fluid grease)
- Voltage: 10 - 60 V DC
- Switching type: pos. switch NC/NO
- Switching: 200 mA
- Current consumption (without load): < 20 mA
- Protection class: switch IP 67, plug IP 54

Pressure switch
- Voltage: 42 V
- Capacity: 100 VA
- Connection: AMP 6,3 x 0,8
Order key type-no. 2712

<table>
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<th>Description</th>
<th>Code-no.</th>
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<td>Delivery rate</td>
<td>0,25 l/min</td>
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<tr>
<td>Pump type</td>
<td>Gear pump</td>
<td></td>
</tr>
<tr>
<td>Output rate</td>
<td>0,25 l/min</td>
<td></td>
</tr>
<tr>
<td>Operating pressure</td>
<td>max. 28 bar</td>
<td></td>
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<tr>
<td>Lubricant</td>
<td>oil</td>
<td></td>
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<tr>
<td>fluid grease NLGI cl.</td>
<td>000-00</td>
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<tr>
<td>Viscosity range</td>
<td>20 - 700 mm /s</td>
<td></td>
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<tr>
<td>Temperature range</td>
<td>medium 0 - 70°C</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ambient 0 - 40°C</td>
<td></td>
</tr>
<tr>
<td>Reservoir capacity</td>
<td>1,2 l</td>
<td></td>
</tr>
<tr>
<td>Reservoir material</td>
<td>plastic, transparent</td>
<td></td>
</tr>
<tr>
<td>Motor</td>
<td>Drive: electric motor KM4030/2</td>
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<tr>
<td>Power</td>
<td>67 W</td>
<td></td>
</tr>
<tr>
<td>Operating pressure</td>
<td>230 V AC, 50/60 Hz</td>
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<tr>
<td>Revolutions</td>
<td>2800 r/min</td>
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<tr>
<td>Float switch</td>
<td>Voltage: 250 V AC/DC</td>
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</tr>
<tr>
<td></td>
<td>Starting current: 0,5 A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Capacity: 10 VA</td>
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</tr>
<tr>
<td></td>
<td>Switch: standard NO contact</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(opening contact by turning of the float)</td>
<td></td>
</tr>
<tr>
<td>Proximity switch</td>
<td>Voltage: 10 - V DC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Switching type: pos. switch NC/NO</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Switching: 200 mA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Current consumption (without load): &lt; 20 mA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Protection class: switch IP 67, plug IP 54</td>
<td></td>
</tr>
<tr>
<td>Pressure switch</td>
<td>Voltage: 42 V</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Capacity: 100 VA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Connection: AMP 6,3 x 0,8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standard connection:</td>
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</tr>
<tr>
<td>Electric connection</td>
<td>NO (black) at clamp 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NC (white) can be reconnected</td>
<td></td>
</tr>
<tr>
<td></td>
<td>otherwise if necessary</td>
<td></td>
</tr>
<tr>
<td>Electric connection</td>
<td>Type of connection</td>
<td>Depends on specification</td>
</tr>
<tr>
<td>Electric switch</td>
<td>1 = 10 - 35 V DC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 = Mass</td>
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</tr>
<tr>
<td></td>
<td>3 = NC or NO</td>
<td></td>
</tr>
<tr>
<td></td>
<td>alternat.</td>
<td></td>
</tr>
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<td>brown</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>black</td>
<td></td>
</tr>
</tbody>
</table>

Subject to alterations!

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Technical description
The pneumatic pump unit of type no. 2564 supplies the lubrication points via dynamic metering valves.

Mode of operation
Lubrication starts when the piston is pressurized. The compressed air has to be adjusted in a way that the pressure relief valve only opens when all metering valves have lubricated. This ensures that all metering valves supply enough lubricant to the lubrication points.

When the 3/2-way solenoid valve switches, the piston is pushed into its original position. The main line is relieved down to < 1 bar by the relief valve and the metering valves restack the lubricant for the next lubrication pulse. At the same time, the lubricant is sucked out of the reservoir for the next stroke.

The metering valves' total dosage should not exceed 60% of the pump's delivery quantity.

Hydraulic plan

Technical Data

Pneumatic pump
Output rate: 30 cm³/stroke or 50 cm³/stroke
Ratio: 1 : 9
Flow pressure: 5 - 10 bar
Volume: P30 = 300 cm³
P50 = 550 cm³
Lubricant: oil, 20 - 700 mm²/s fluid grease (according to release list)
Temperature range: medium 0 - 70°C ambient 0 - 40°C
Reservoir capacity: 2,7 l
Reservoir material: plastic, transparent

Float switch (oil)
Contact type: changeover contact
Voltage: 250 V AC/DC
Starting current: max. 1 A
Capacity: max. 60 VA

Proximity switch (fluid grease)
Operating voltage: 10 - 60V DC
Switching type: positive switching NO / NC
Switching current: 200 mA
Current consumption (without load): < 20 mA
Protection class: switch IP 67, plug IP 54

Operating mode:
Pneumatic actuation via 3/2 way solenoid valve. Repositioning of the pump by spring force.
Single Line Lubrication Systems

Pneumatic pump units

Order key type-no. 2564

<table>
<thead>
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<th>Feature</th>
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</thead>
<tbody>
<tr>
<td>Delivery rate</td>
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</tr>
<tr>
<td>Output rate</td>
<td>30 cm³/stroke</td>
<td>50 cm³/stroke</td>
</tr>
<tr>
<td>Code-no.</td>
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<td>50</td>
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<tr>
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<td>3</td>
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<tr>
<td>Code-no.</td>
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<td>3</td>
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<tr>
<td>Pressure relief valve</td>
<td>without</td>
<td>with</td>
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<tr>
<td>Code-no.</td>
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<td>1</td>
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<tr>
<td>Reservoir capacity</td>
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<tr>
<td>Code-no.</td>
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<tr>
<td>Level monitoring</td>
<td>without</td>
<td>with, for oil</td>
</tr>
<tr>
<td>Code-no.</td>
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<td>1</td>
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<tr>
<td>Return line connect</td>
<td>without</td>
<td>with</td>
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<td>Code-no.</td>
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<td>1</td>
</tr>
<tr>
<td>Special models</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Compressed air connection

Outlet position 3

Outlet position 2

Return at external pressure limiting valve

Technical Data

Pneumatic pump

Output rate:
- 30 cm³/stroke or
- 50 cm³/stroke

Ratio: 1 : 9

Flow pressure: 5 - 10 bar

Volume:
- P30 = 300 cm³
- P50 = 550 cm³

Lubricant:
- oil, 20 - 700 mm²/s
- fluid grease (according to release list)

Temperature range:
- medium 0 - 70°C
- ambient 0 - 40°C

Reservoir capacity: 2,7 l

Reservoir material: plastic, transparent

Float switch (oil)

Contact type: changeover contact

Voltage: 250 V AC/DC

Starting current: max. 1 A

Capacity: max. 60 VA

Proximity switch (fluid grease)

Operating voltage: 10 - 60 V DC

Switching type: positive switching NO/NC

Switching current: 00 mA

Current consumption < 20 mA (without load):

Protection class: IP 67

Operating mode:
- Pneumatic actuation via 3/2 way solenoid valve.
- Repositioning of the pump by spring force.

Technical description

The pneumatic pump unit of type no. 2564 supplies the lubrication points via dynamic metering valves.

Mode of operation

Lubrication starts when the piston is pressurized.

The compressed air has to be adjusted in a way that the pressure relief valve only opens when all metering valves have lubricated. This ensures that all metering valves supply enough lubricant to the lubrication points.

When the 3/2-way solenoid valve switches, the piston is pushed into its original position. The main line is relieved down to < 1 bar by the relief valve and the metering valves restack the lubricant for the next lubrication pulse. At the same time, the lubricant is sucked out of the reservoir for the next stroke.

The metering valves’ total dosage should not exceed 60% of the pump’s delivery quantity.

Hydraulic plan
Single Line Lubrication Systems

Pneumatic pump units

Technical description
The pneumatic pump unit of type no. 2564 supplies the lubrication points via dynamic metering valves.

Mode of operation
Lubrication starts when the piston is pressurized. The compressed air has to be adjusted in a way that the pressure relief valve only opens when all metering valves have lubricated. This ensures that all metering valves supply enough lubricant to the lubrication points.

When the 3/2-way solenoid valve switches, the piston is pushed into its original position. The main line is relieved down to < 1 bar by the relief valve and the metering valves restack the lubricant for the next lubrication pulse. At the same time, the lubricant is sucked out of the reservoir for the next stroke.

The metering valves’ total dosage should not exceed 60% of the pump’s delivery quantity.

Technical Data
Pneumatic pump
Output rate: 30 cm³/stroke or 50 cm³/stroke
Ratio: 1 : 9
Flow pressure: 5 - 10 bar
Volume: approx. 300 cm³
Pressure relief valve: adjusted to 50 bar
Lubricant: oil, 20 - 700 mm²/s fluid grease (according to release list)
Temperature range: medium 0 - 70°C ambient 0 - 40°C
Reservoir capacity: 6 l
Reservoir material: steel sheet

Float switch (oil)
Contact type: changeover contact
Voltage: 250 V AC/DC
Starting current: max. 1 A
Capacity: max. 60 VA

Proximity switch (fluid grease)
Operating voltage: 10 - 60 V DC
Switching type: positive switching NO / NC
Switching current: 200 mA
Current consumption (without load): < 20 mA
Protection class: switch IP 67, plug IP 54

Operating mode:
Pneumatic actuation via 3/2-way solenoid valve. Repositioning of the pump by spring force.
**Single Line Lubrication Systems**

**Pneumatic pump units**

**P30-6 with 6 l-reservoir**

**Technical Data**

**Pneumatic pump**

Output rate:
- 30 cm³/stroke or
- 50 cm³/stroke

Ratio: 1 : 9

Flow pressure: 5 - 10 bar

Volume: approx. 300 cm³

Pressure relief valve: adjusted to 50 bar

Lubricant: oil, 20 - 700 mm/s

Fluid grease (according to release list)

Temperature range: medium 0 - 70°C

ambient 0 - 40°C

Reservoir capacity: 6 l

Reservoir material: steel sheet

Float switch (oil)

Contact type: changeover contact

Voltage: 250 V AC/DC

Starting current: max. 1 A

Capacity: max. 60 VA

Proximity switch (fluid grease)

Operating voltage: 10 - 60 V DC

Switching type: positive switching NO / NC

Switching current: 0 mA

Current consumption: < 20 mA (without load)

Protection class: IP 67

Operating mode:
- Pneumatic actuation via 3/2-way solenoid valve.
- Repositioning of the pump by spring force.

**Order key type-no. 2564**

<table>
<thead>
<tr>
<th>Delivery rate</th>
<th>30 cm³/stroke</th>
<th>50 cm³/stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
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<td>50</td>
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<table>
<thead>
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<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pressure relief valve</th>
<th>without</th>
<th>with</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
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<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<th>6 l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
<td>A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level monitoring</th>
<th>without</th>
<th>with, for oil</th>
<th>with, for fluid grease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Return line connect.</th>
<th>without</th>
<th>pipe Ø 6 mm</th>
<th>pipe Ø 8 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

**Special models**

Subject to alterations!

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Technical description
The pneumatic pump unit of type no. 2565 supplies the lubrication points via dynamic metering valves.

Method of operation
Lubrication starts when the piston is pressurized. The compressed air has to be adjusted in a way that the pressure relief valve only opens when all metering valves have lubricated. This ensures that all metering valves supply enough lubricant to the lubrication points.

When the 3/2-way solenoid valve switches, the piston is pushed into its original position. The main line is relieved down to < 1 bar by the relief valve and the metering valves restack the lubricant for the next lubrication pulse. At the same time, the lubricant is sucked out of the reservoir for the next stroke.

The metering valves’ total dosage should not exceed 60% of the pump’s delivery quantity.

Technical Data
Pneumatic pump
Output rate: 10 cm³/stroke or 15 cm³/stroke
Ratio: with 10 cm³/stroke 1 : 11
Flow pressure: 4 - 8 bar
Drive volume: 133 cm³ / stroke
Pressure relief valve: adjusted to 50 bar
Lubricant: oil, 20 - 700 mm²/s
fluid grease (according to release list)
Temperature range: medium 0 - 70°C
ambient 0 - 40°C
Reservoir capacity: 6 l
Reservoir material: steel sheet

Float switch (oil)
Contact type: changeover contact
Switching voltage: max. 220 V
Switching current: max. 1A
Capacitance: max. 60 VA

Proximity switch (fluid grease)
Operating voltage: 10 - 60V DC
Switching type: positive switching NO / NC
Switching current: 200 mA
Current consumption (without load): < 20 mA
Protection class: switch IP 67, plug IP 54

Operating mode:
Pneumatic actuation via 3/2-way solenoid valve.
Repositioning of the pump by spring force
### Technical Data

**Pneumatic pump unit**

- **Output rate:**
  - 10 cm³/stroke
  - 15 cm³/stroke

- **Ratio:**
  - with 10 cm³/stroke: 1 : 11
  - with 15 cm³/stroke: 1 : 8

- **Flow pressure:** 4 - 8 bar

- **Drive volume:** 133 cm³/stroke

- **Pressure relief valve:** adjusted to 50 bar

- **Lubricant:** oil, 20 - 700 mm/s
  - fluid grease (according to release list)

- **Temperature range:**
  - Medium: 0 - 70°C
  - Ambient: 0 - 40°C

- **Reservoir capacity:** 6 l

- **Reservoir material:** steel sheet

- **Level monitoring**
  - Code-no.:
    - without: 0
    - with, for oil: 1
    - with, for fluid grease: 2

- **Return line connect.**
  - Code-no.:
    - without: 0
    - pipe Ø 6 mm: 1
    - pipe Ø 8 mm: 2

- **Special models**

---

### Order key type-no. 2565

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<td></td>
</tr>
<tr>
<td><em>15 cm³</em>/stroke</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td><strong>Outlet position</strong></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>Pressure relief valve</strong></td>
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<td></td>
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<tr>
<td>without</td>
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<td></td>
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<tr>
<td>with</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Reservoir capacity</strong></td>
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<td></td>
</tr>
<tr>
<td>6 l</td>
<td>6</td>
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<td><strong>Level monitoring</strong></td>
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<td></td>
</tr>
<tr>
<td>without</td>
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<td></td>
</tr>
<tr>
<td>with, for oil</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>with, for fluid grease</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>Return line connect.</strong></td>
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<td></td>
</tr>
<tr>
<td>without</td>
<td>0</td>
<td>pipe Ø 6 mm</td>
</tr>
<tr>
<td>with, pipe Ø 8 mm</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Special models</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Single Line Lubrication Systems

Pneumatic pump units

Technical description
The pneumatic pump unit of type no. 2563 supplies the lubrication points via dynamic metering valves.

Method of operation
Lubrication starts when the piston is pressurized. The compressed air has to be adjusted in a way that the pressure relief valve only opens when all metering valves have lubricated. This ensures that all metering valves supply enough lubricant to the lubrication points.

When the 3/2-way solenoid valve switches, the piston is pushed into its original position. The main line is relieved down to < 1 bar by the relief valve and the metering valves restack the lubricant for the next lubrication pulse. At the same time, the lubricant is sucked out of the reservoir for the next stroke.

The metering valves' total dosage should not exceed 60% of the pump’s delivery quantity.

Technical Data

Pneumatic pump
Output rate: 10 cm³/stroke or 15 cm³/stroke
Ratio: with 10 cm³/stroke 1 : 11
with 15 cm³/stroke 1 : 8
Flow pressure: 4 - 8 bar
Drive volume: 133 cm³ / stroke
Pressure relief valve: adjusted to 50 bar
Lubricant: oil, 20 - 700 mm²/s
liquid grease (according to release list)
Temperature range: medium 0 - 70°C
ambient 0 - 40°C
Reservoir capacity: 2 / 4,2 / 8 l
Reservoir material: plastic, transparent

Float switch (oil)
Connection: Tuchel plug M12x1
Contact type: NO contact
Switching voltage: max. 60 V
Switching current: max. 0,5 A
Capacity: max. 10 VA

Proximity switch (fluid grease)
Operating voltage: 10 - 35V DC
Connecting type: positive switching NO / NC
Switching current: 200 mA
Current consumption (without load): < 20 mA
Protection class: switch IP 67, plug IP 54

Operating mode:
Pneumatic actuation via 3/2-way solenoid valve.
Repositioning of the pump by spring force.
Order key type-no. 2563

<table>
<thead>
<tr>
<th></th>
<th>10 cm³/stroke</th>
<th>15 cm³/stroke</th>
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</thead>
<tbody>
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<tr>
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<tr>
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<td></td>
</tr>
<tr>
<td>Code-no.</td>
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<td>2</td>
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<td><strong>Pressure relief valve</strong></td>
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<td></td>
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<tr>
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<td><strong>Reservoir capacity</strong></td>
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</tr>
<tr>
<td>Code-no.</td>
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<td>1</td>
</tr>
<tr>
<td><strong>Return line connect.</strong></td>
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</tr>
<tr>
<td>Code-no.</td>
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<td>1</td>
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</tbody>
</table>

Special models

Subject to alterations!

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**Technical description**

The pneumatic pump unit of type no. 2564 supplies the lubrication points via dynamic metering valves.

**Mode of operation**

Lubrication starts when the piston is pressurized. The compressed air has to be adjusted in a way that the pressure relief valve only opens when all metering valves have lubricated. This ensures that all metering valves supply enough lubricant to the lubrication points.

When the 3/2-way solenoid valve switches, the piston is pushed into its original position. The main line is relieved down to < 1 bar by the relief valve and the metering valves restack the lubricant for the next lubrication pulse. At the same time, the lubricant is sucked out of the reservoir for the next stroke.

The metering valves’ total dosage should not exceed 60% of the pump’s delivery quantity.

**Technical Data**

**Pneumatic pump**

- **Output rate:** 30 cm³/stroke or 50 cm³/stroke
- **Ratio:** 1 : 9
- **Flow pressure:** 5 - 10 bar
- **Drive volume:** P30 = 300 cm³, P50 = 550 cm³
- **Pressure relief valve:** adjusted to 50 bar
- **Lubricant:** oil, 20 - 700 mm²/s fluid grease (according to release list)
- **Temperature range:** medium 0 - 70°C, ambient 0 - 40°C
- **Reservoir capacity:** 2 / 4,2 / 8 l
- **Reservoir material:** plastic, transparent

**Float switch (oil)**

- **Connection:** Tuchel plug M12x1
- **Contact type:** NO contact
- **Switching voltage:** max. 60 V
- **Switching current:** max. 0,5 A
- **Capacity:** max. 10 VA

**Proximity switch (fluid grease)**

- **Operating voltage:** 10 - 60 V DC
- **Switching type:** positive switching NO / NC
- **Switching current:** 200 mA
- **Current consumption (without load):** < 20 mA
- **Protection class:** switch IP 67, plug IP 54

**Operating mode:**

Pneumatic activation via 3/2-way solenoid valve. Repositioning of the pump by spring force.
**Single Line Lubrication Systems**

**Pneumatic pump units**

---

**Order key type-no. 2564**

<table>
<thead>
<tr>
<th><strong>Delivery rate</strong></th>
<th>30 cm³/stroke</th>
<th>50 cm³/stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code-no.</strong></td>
<td>30</td>
<td>50</td>
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</tbody>
</table>

<table>
<thead>
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<th><strong>Outlet position</strong></th>
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<th>2</th>
<th>3</th>
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</thead>
<tbody>
<tr>
<td><strong>Code-no.</strong></td>
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<td>2</td>
<td>3</td>
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</table>

<table>
<thead>
<tr>
<th><strong>Pressure relief valve</strong></th>
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<th>with</th>
</tr>
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<tbody>
<tr>
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</tr>
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<table>
<thead>
<tr>
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<th>2 l</th>
<th>4,2 l</th>
<th>8 l</th>
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<td>7</td>
<td>9</td>
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<table>
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<tr>
<th><strong>Level monitoring</strong></th>
<th>without</th>
<th>with, for oil</th>
<th>with, for fluid grease</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code-no.</strong></td>
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<td>1</td>
<td>2</td>
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</table>

<table>
<thead>
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<tbody>
<tr>
<td><strong>Code-no.</strong></td>
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<td>1</td>
</tr>
</tbody>
</table>

---

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Technical description
The pneumatic pump unit of type no. 2562 supplies the lubrication points via dynamic metering valves.

Method of operation
Lubrication starts when the piston is pressurized. The compressed air has to be adjusted in a way that the pressure relief valve only opens when all metering valves have lubricated. This ensures that all metering valves supply enough lubricant to the lubrication points.

When the 3/2-way solenoid valve switches, the piston is pushed into its original position. The main line is relieved down to < 1 bar by the relief valve and the metering valves restack the lubricant for the next lubrication pulse. At the same time, the lubricant is sucked out of the reservoir for the next stroke.

The metering valves' total dosage should not exceed 60% of the pump’s delivery quantity.

Technical Data

Pneumatic pump
- Output rate: 10 cm³/stroke or 15 cm³/stroke
- Ratio: with 10 cm³/stroke 1:11, with 15 cm³/stroke 1:8
- Flow pressure: 4 - 8 bar
- Drive volume: 133 cm³/stroke
- Pressure relief valve: adjusted to 50 bar
- Lubricant: oil, 20 - 700 mm²/s, fluid grease (according to release list)
- Temperature range: medium 0 - 70°C, ambient 0 - 40°C
- Reservoir capacity: 1,2 l
- Reservoir material: plastic, transparent

Float switch
- Contact type: changeover contact
- Switching voltage: max. 220 V
- Switching current: max. 1 A
- Capacity: max. 60 VA

Operating mode:
Pneumatic actuation via 3/2-way solenoid valve. Repositioning of the pump by spring force.
Order key type-no. 2562

<table>
<thead>
<tr>
<th>Delivery rate</th>
<th>10 cm³/stroke</th>
<th>15 cm³/stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
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<th>3</th>
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<td>03</td>
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<table>
<thead>
<tr>
<th>Level monitoring</th>
<th>without</th>
<th>with, for oil (for fluid grease without level monitoring)</th>
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</thead>
<tbody>
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<td>Code-no.</td>
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<table>
<thead>
<tr>
<th>Pressure relief valve</th>
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<th>without</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
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<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Special models</th>
</tr>
</thead>
</table>

Compressed air connection R1/4"
**Technical description**

The pneumatic pump unit of type no. 2564 supplies the lubrication points via dynamic metering valves.

**Mode of operation**

Lubrication starts when the piston is pressurized. The compressed air has to be adjusted in a way that the pressure relief valve only opens when all metering valves have lubricated. This ensures that all metering valves supply enough lubricant to the lubrication points.

When the 3/2-way solenoid valve switches, the piston is pushed into its original position. The main line is relieved down to < 1 bar by the relief valve and the metering valves restack the lubricant for the next lubrication pulse. At the same time, the lubricant is sucked out of the reservoir for the next stroke.

The metering valves’ total dosage should not exceed 60% of the pump’s delivery quantity.

**Technical Data**

**Pneumatic pump**

- **Output rate:** 30 cm³/stroke or 50 cm³/stroke
- **Ratio:** 1 : 9
- **Flow pressure:** 5 - 10 bar
- **Volume:**
  - P30 = 300 cm³
  - P50 = 550 cm³
- **Pressure relief valve:** adjusted to 50 bar
- **Lubricant:**
  - oil, 20 - 700 mm²/s
  - fluid grease (according to release list)
- **Temperature range:**
  - medium 0 - 70°C
  - ambient 0 - 40°C

**Operating mode:**

Pneumatic actuation via 3/2-way solenoid valve. Repositioning of the pump by spring force.
Single Line Lubrication Systems

Pneumatic pumps

P30 and P50 without reservoir

Technical Data

Pneumatic pump

Output rate:
30 cm³/stroke or
3
50 cm³/stroke

Ratio: 1 : 9

Flow pressure: 5 - 10 bar

Volume: P30 = 300 cm³
P50 = 550 cm³

Pressure relief valve: adjusted to 50 bar

Lubricant: oil, 20 - 700 mm²/s

fluid grease (according to release list)

Temperature range: medium 0 - 70°C
ambient 0 - 40°C

Operating mode:
Pneumatic actuation via 3/2-way solenoid valve.
Repositioning of the pump by spring force.

Technical description

The pneumatic pump unit of type no. 2564 supplies the lubrication points via dynamic metering valves.

Mode of operation
Lubrication starts when the piston is pressurized. The compressed air has to be adjusted in a way that the pressure relief valve only opens when all metering valves have lubricated. This ensures that all metering valves supply enough lubricant to the lubrication points.

When the 3/2-way solenoid valve switches, the piston is pushed into its original position. The main line is relieved down to < 1 bar by the relief valve and the metering valves restack the lubricant for the next lubrication pulse. At the same time, the lubricant is sucked out of the reservoir for the next stroke.

The metering valves' total dosage should not exceed 60% of the pump's delivery quantity.

Order key type-no. 2564

<table>
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<tr>
<th>Delivery rate</th>
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<th>50 cm³/stroke</th>
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</table>

Special models

Clamp measures for P50

View .X
Technical description
The pneumatic pump unit of type no. 2566 supplies the lubrication points via dynamic metering valves.

Method of operation
Lubrication starts when the piston is pressurized. The compressed air has to be adjusted in a way that the pressure relief valve only opens when all metering valves have lubricated. This ensures that all metering valves supply enough lubricant to the lubrication points.

When the 3/2-way solenoid valve switches, the piston is pushed into its original position. The main line is relieved down to < 1 bar by the relief valve and the metering valves restack the lubricant for the next lubrication pulse. At the same time, the lubricant is sucked out of the reservoir for the next stroke.

The metering valves' total dosage should not exceed 60% of the pump's delivery quantity.

Technical Data
Pneumatic pump
Output rate:
- 3 cm³/stroke
- 9.5 cm³/stroke
- 15 cm³/stroke
Ratio:
- with 3 cm³/stroke 1 : 32
- with 9.5 cm³/stroke 1 : 12
- with 15 cm³/stroke 1 : 8
Flow pressure: 3 - 8 bar
Lubricant:
- oil, 20 - 700 mm²/s
- fluid grease (according to release list)
Temperature range:
- medium 0 - 70°C
- ambient 0 - 40°C

Operating mode:
Pneumatic actuation via 3/2-way solenoid valve. Repositioning of the pump by spring force.
### Pneumatic pumps

**Order key type-no. 2566**

<table>
<thead>
<tr>
<th>Delivery rate</th>
<th>Code-no.</th>
<th>Special models</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 cm³/stroke</td>
<td>03</td>
<td></td>
</tr>
<tr>
<td>9,5 cm³/stroke</td>
<td>09</td>
<td></td>
</tr>
<tr>
<td>15 cm³/stroke</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

**Technical description**

The pneumatic pump unit of type no. 256 supplies the lubrication points via dynamic metering valves.

**Method of operation**

Lubrication starts when the piston is pressurized. The compressed air has to be adjusted in a way that the pressure relief valve only opens when all metering valves have lubricated. This ensures that all metering valves supply enough lubricant to the lubrication points.

When the 3/2-way solenoid valve switches, the piston is pushed into its original position. The main line is relieved down to < 1 bar by the relief valve and the metering valves restack the lubricant for the next lubrication pulse. At the same time, the lubricant is sucked out of the reservoir for the next stroke.

The metering valves' total dosage should not exceed 60% of the pump's delivery quantity.
## Technical description

The hydraulic pump units PH1-6 to PH10-6 are applied at machines and systems at which hydraulic oil can be used for the drive.

Dynamic metering valves are used to supply the lubrication points.

The control is carried out via a 3/2-way solenoid valve for a simple piston stroke and via a 4/2-way solenoid valve for up-and-down stroke.

### Hydraulic plan

![Hydraulic Plan](image)

### Technical Data

#### Hydraulic pump

- **Output rate:**
  - PH1: 1 cm³/stroke
  - PH6: 6 cm³/stroke
  - PH10: 10 cm³/stroke

- **Ratio:**
  - PH1: 1 : 2
  - PH6: 1 : 2
  - PH10: 1 : 1

- **Actuating pressure:** 22 - 200 bar
- **Per. operating pressure:** max. 55 bar
- **Relief pressure:** 1 - 2 bar
- **Pressure relief valve:** adjusted to 55 bar
- **Lubricant:** oil, 20 - 700 mm²/s fluid grease (according to release list)
- **Temperature range:**
  - medium 0 - 70°C
  - ambient 0 - 40°C
- **Reservoir capacity:** 6 l
- **Reservoir material:** steel sheet

#### Float switch

- **Contact type:** changeover contact
- **Voltage:** 250 V AC/DC
- **Starting current:** max. 1 A
- **Capacity:** max. 60 VA

#### Operating mode:

# Single Line Lubrication Systems

## Hydraulic pump units

**PH1-6 / PH6-6 / PH10-6 with 6 l-reservoir**

---

### Technical Description

The hydraulic pump units PH1-6 to PH10-6 are applied at machines and systems at which hydraulic oil can be used for the drive. Dynamic metering valves are used to supply the lubrication points. The control is carried out via a 3/2-way solenoid valve for a simple piston stroke and via a 4/2-way solenoid valve for up-and-down stroke.

### Technical Data

#### Hydraulic Pump

- **Output rate:**
  - PH1: 1 cm³/stroke
  - PH6: 6 cm³/stroke
  - PH10: 10 cm³/stroke
- **Ratio:**
  - PH1: 1 : 2
  - PH6: 1 : 2
  - PH10: 1 : 1
- **Actuating pressure:** 22 - 200 bar
- **Per. operating pressure:** max. 55 bar
- **Relief pressure:** 1 - 2 bar
- **Pressure relief valve:** adjusted to 55 bar
- **Lubricant:** oil, 20 - 700 mm²/s
- **Fluid grease** (according to release list)
- **Temperature range:**
  - Medium: 0 - 70°C
  - Ambient: 0 - 40°C
- **Reservoir capacity:** 6 l
- **Reservoir material:** steel sheet
- **Float switch**
  - **Contact type:** changeover contact
  - **Voltage:** 250 V AC/DC
  - **Starting current:** max. 1 A
  - **Capacity:** max. 60 VA
- **Operating mode:** Hydraulic actuation via 3/2-way solenoid valve (simple piston stroke) resp. 4/2-way solenoid valve (up-and-down stroke). Return of the pump by spring force.

---

### Order key type-no. 2578

<table>
<thead>
<tr>
<th><strong>Delivery rate</strong></th>
<th>PH1: 1 cm³/stroke</th>
<th>PH6: 6 cm³/stroke</th>
<th>PH10: 10 cm³/stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code-no.</strong></td>
<td>01</td>
<td>02</td>
<td>03</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th><strong>Reservoir capacity</strong></th>
<th>6 l</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code-no.</strong></td>
<td>01</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Pressure connection</strong></th>
<th>Ø 6 mm</th>
<th>Ø 8 mm</th>
<th>Ø 10 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code-no.</strong></td>
<td>01</td>
<td>02</td>
<td>03</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Level monitoring</strong></th>
<th>with, for oil</th>
<th>without</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code-no.</strong></td>
<td>01</td>
<td>02</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Special models</strong></th>
</tr>
</thead>
</table>

---

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**Technical description**

The hydraulic pumps PH1 to PH10 are used at machines and systems at which hydraulic oil can be used for the drive.

Dynamic metering valves are used to supply the lubrication points.

The control is carried out via an 3/2-way solenoid valve for simple piston stroke and via 4/2-way solenoid valve for up-and-down stroke.

**Technical Data**

**Hydraulic pump**

Output rate:
- PH1: 1 cm³/stroke
- PH6: 6 cm³/stroke
- PH10: 10 cm³/stroke

Ratio:
- PH1: 1 : 2
- PH6: 1 : 2
- PH10: 1 : 1

Starting pressure: 22 - 200 bar
Per. operating pressure: max. 55 bar
Relief pressure: 1 - 2 bar
Pressure relief valve: adjusted to 55 bar
Lubricant: oil, 20 - 700 mm²/s fluid grease (according to release list)
Temperature range: medium 0 - 70°C, ambient 0 - 40°C

**Operating mode:**

Hydraulic pumps

PH1 / PH6 / PH10 without reservoir

Order key type-no. 2577

<table>
<thead>
<tr>
<th>Delivery rate</th>
<th>PH1: 1 cm³/stroke</th>
<th>PH6: 6 cm³/stroke</th>
<th>PH10: 10 cm³/stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
<td>01</td>
<td>02</td>
<td>03</td>
</tr>
<tr>
<td>Pressure connection</td>
<td>L</td>
<td>R</td>
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<tr>
<td>Code-no.</td>
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<td>02</td>
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<tr>
<td>Pressure relief valve</td>
<td>with</td>
<td>without</td>
<td></td>
</tr>
<tr>
<td>Code-no.</td>
<td>01</td>
<td>02</td>
<td></td>
</tr>
</tbody>
</table>

Special models

Subject to alterations!

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Technical description
The manual piston pumps of type no. 2532 and 2533 with 1,2 l reservoir are used for small systems to supply the lubrication points via dynamic metering valves or static metering valves. The lubrication system’s total dosage quantity should not exceed 60% of the piston pump’s delivery rate. The hand lever can be placed left, right or in the middle. Note: Press the lever slowly and steadily until stop!

Technical data
Manual piston pump
Output rate: 6 / 10 / 15 cm³/stroke
Operating pressure: 30 bar
Lubricant: oil, 20 - 700 mm²/s fluid grease (according to release list)
Reservoir capacity: 1,2 l
Reservoir material: plastic, transparent

Order key type-no. 2532

<table>
<thead>
<tr>
<th>Delivery rate</th>
<th>Code-no.</th>
<th>Lever position</th>
<th>Pressure relief valve</th>
<th>Special models</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 cm³/stroke</td>
<td>06</td>
<td>L</td>
<td>without</td>
<td></td>
</tr>
<tr>
<td>10 cm³/stroke</td>
<td>10</td>
<td>R</td>
<td>with</td>
<td></td>
</tr>
<tr>
<td>15 cm³/stroke</td>
<td>15</td>
<td>M</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Single Line Lubrication Systems

Manual piston pumps

Manual pump 2533

Technical Data
Manual piston pump

Output rate: 6 / 10 cm³/stroke
Operating pressure: 30 bar
Lubricant: oil, 20 - 700 mm²/s fluid grease (according to release list)
Reservoir capacity: 1.2 l
Reservoir material: plastic, transparent

Lever positions:
ML = middle, pull direction left
MR = middle, pull direction right
L = left        R = right

For positions ML/MR, the pressure connection is at the front!

Order key type-no. 2533

<table>
<thead>
<tr>
<th>Delivery rate</th>
<th>6 cm³/stroke</th>
<th>10 cm³/stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
<td>06</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lever position</th>
<th>R</th>
<th>R</th>
<th>L</th>
<th>L</th>
<th>ML</th>
<th>MR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pos. pressure connection</td>
<td>L</td>
<td>R</td>
<td>R</td>
<td>L</td>
<td>1</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pressure relief valve</th>
<th>without</th>
<th>with</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Special models
Technical description
The metering elements supply the necessary lubricant precisely metered to the lubrication points. The lubrication quantity is determined by the metering volume of the metering elements.

BEKA-metering valves operate only according to the piston principle. Only a metallic piston offers
- long-lasting resistance (temperature, aging)
- supply of oils and fluid greases.
These characteristics make the difference between the piston principle and flexible pressure units, as for instance membranes.

Metering valves (dynamic system)
In contrast to the metering valves, the dynamic metering valves have no sealing sleeves, which control the restacking of the lubricant. With dynamic metering valves, restacking is effected via the piston’s radial clearance. Despite the annular gap, the lubricant is delivered to the lubrication point without leakage due to “dynamic” pressurization. On the other hand, the annular gap allows a fast re-filling after the main line’s relief. The dynamic system requires a higher pump power than the static one.

Advantages of the system:
- Economic and simple technology with only few components
- Compact form and small dimensions
- A wide range of different output rates
**Functional description**

**Normal position**
The lubricant is in the dosage chamber of the metering valve. The quantity of lubricant is determined by the piston stroke.

**Piston stroke**
As soon as the pump delivers, lubricant flows from the main line into the metering valve and pushes the delivery piston towards the non-return valve with approx. 20 bar. The lubricant is displaced and via the non-return valve delivered to the lub point. The conical nipple of the delivery piston prevents any lubricant leakage.

**Re-filling**
After the pump has been switched off, the main line is relieved and the spring pushes the piston back into its initial position. Via the annular gap is the metering chamber again filled with lubricant (restacking). For a safe restacking, the following break times have to be observed:
- Oil: at least 5 seconds*
- Fluid grease: at least 20 seconds*

* depends on the lubricant’s viscosity. In general: The higher the viscosity, the longer the re-stacking time.
Single Line Lubrication Systems

Metering elements

Technical data of type no. Z31ZV

Installation position: optional
Temperature range: 0 - 70°C
Operating pressure: 15 - 40 bar
Relief pressure: < 1 bar
Lubricants: oils
Viscosity range: 50 - 700 mm²/s

The sealing ring (order no. 090760300321) is included in the delivery.

Metering valves series Z31ZV, size 1
with threaded connection

<table>
<thead>
<tr>
<th>Metering volume mm³/stroke</th>
<th>L mm</th>
<th>L1 mm</th>
<th>Model oil and fluid grease</th>
<th>Order-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Type</td>
<td>Order-no.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Pipe Ø 4</td>
</tr>
<tr>
<td>10</td>
<td>41</td>
<td>55</td>
<td>Z31ZV1 4030 001 00</td>
<td>4030 001 01</td>
</tr>
<tr>
<td>20</td>
<td>41</td>
<td>55</td>
<td>Z31ZV2 4030 002 00</td>
<td>4030 002 01</td>
</tr>
<tr>
<td>30</td>
<td>41</td>
<td>55</td>
<td>Z31ZV3 4030 003 00</td>
<td>4030 003 01</td>
</tr>
<tr>
<td>50</td>
<td>41</td>
<td>55</td>
<td>Z31ZV5 4030 005 00</td>
<td>4030 005 01</td>
</tr>
<tr>
<td>100</td>
<td>41</td>
<td>55</td>
<td>Z31ZV10 4030 010 00</td>
<td>4030 010 01</td>
</tr>
<tr>
<td>150</td>
<td>44</td>
<td>58</td>
<td>Z31ZV15 4030 015 00</td>
<td>4030 015 01</td>
</tr>
</tbody>
</table>

Metering valves of series Z31ZV, size 2
with threaded connection

<table>
<thead>
<tr>
<th>Metering volume mm³/stroke</th>
<th>L mm</th>
<th>L1 mm</th>
<th>Model oil and fluid grease</th>
<th>Order-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Type</td>
<td>Order-no.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Pipe Ø 4</td>
</tr>
<tr>
<td>200</td>
<td>51</td>
<td>68</td>
<td>Z31ZV20 4030 020 00</td>
<td>4030 020 01</td>
</tr>
</tbody>
</table>

Metering valves of series Z31ZV, size 3
with threaded connection

<table>
<thead>
<tr>
<th>Metering volume mm³/stroke</th>
<th>L mm</th>
<th>L1 mm</th>
<th>Model oil and fluid grease</th>
<th>Order-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Type</td>
<td>Order-no.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Pipe Ø 4</td>
</tr>
<tr>
<td>400</td>
<td>75</td>
<td>75</td>
<td>Z31ZV40 4030 040 00</td>
<td>4030 040 01</td>
</tr>
<tr>
<td>500</td>
<td>75</td>
<td>75</td>
<td>Z31ZV50 4030 050 00</td>
<td>4030 050 01</td>
</tr>
<tr>
<td>600</td>
<td>75</td>
<td>75</td>
<td>Z31ZV60 4030 060 00</td>
<td>4030 060 01</td>
</tr>
<tr>
<td>1000</td>
<td>75</td>
<td>75</td>
<td>Z31ZV100 4030 100 00</td>
<td>4030 100 01</td>
</tr>
</tbody>
</table>
**Proportioning valves** (dynamic system)  
with plug-in connection

---

**Technical data of type no. Z31ZV**

- **Installation position:** optional
- **Temperature range:** 0 - 70°C
- **Operating pressure:** 15 - 40 bar
- **Relief pressure:** ≤ 1 bar
- **Lubricants:** oils
  - fluid greases NLGI-cl. 000 - 00
  - (according to release list)
- **Viscosity range:** 20 - 700 mm²/s

The sealing ring (order-no. 090760300321) is included in the delivery.

---

**Metering valves of type no. Z31ZV**  
with plug-in connection

<table>
<thead>
<tr>
<th>Metering volume (mm³/stroke)</th>
<th>Type</th>
<th>Pipe Ø4 mm w.sealing ring Order-no.</th>
<th>Pipe Ø6 mm w.sealing ring Order-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Z31ZV1</td>
<td>403600101</td>
<td>403600105</td>
</tr>
<tr>
<td>20</td>
<td>Z31ZV2</td>
<td>403600201</td>
<td>403600205</td>
</tr>
<tr>
<td>30</td>
<td>Z31ZV3</td>
<td>403600301</td>
<td>403600305</td>
</tr>
<tr>
<td>50</td>
<td>Z31ZV5</td>
<td>403600501</td>
<td>403600505</td>
</tr>
<tr>
<td>100</td>
<td>Z31ZV10</td>
<td>403601001</td>
<td>403601005</td>
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<tr>
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<td>Z31ZV15</td>
<td>403601501</td>
<td>403601505</td>
</tr>
</tbody>
</table>

---

Thread M 8x1 on request!

**Proportioning valves** (dynamic system)  
with plug-in connection

---

**Technical data of type no. Z31ZV**

- **Installation position:** optional
- **Temperature range:** 0 - 70°C
- **Operating pressure:** 15 - 40 bar
- **Relief pressure:** ≤ 1 bar
- **Lubricants:** oils
  - fluid greases NLGI-cl. 000 - 00
  - (according to release list)
- **Viscosity range:** 20 - 700 mm²/s

The sealing ring (order-no. 090760300321) is included in the delivery.

---

**Metering valves of type no. Z31ZV**  
with plug-in connection

<table>
<thead>
<tr>
<th>Metering volume (mm³/stroke)</th>
<th>Type</th>
<th>Pipe Ø4 mm w.sealing ring Order-no.</th>
<th>Pipe Ø6 mm w.sealing ring Order-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Z31ZV1</td>
<td>403600101</td>
<td>403600105</td>
</tr>
<tr>
<td>20</td>
<td>Z31ZV2</td>
<td>403600201</td>
<td>403600205</td>
</tr>
<tr>
<td>30</td>
<td>Z31ZV3</td>
<td>403600301</td>
<td>403600305</td>
</tr>
<tr>
<td>50</td>
<td>Z31ZV5</td>
<td>403600501</td>
<td>403600505</td>
</tr>
<tr>
<td>100</td>
<td>Z31ZV10</td>
<td>403601001</td>
<td>403601005</td>
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<tr>
<td>150</td>
<td>Z31ZV15</td>
<td>403601501</td>
<td>403601505</td>
</tr>
</tbody>
</table>

---

Thread M 8x1 on request!
**Technical data of type no. Z31ZV**

Installation position: optional
Temperature range: 0 - 70°C
Operating pressure: 15 - 40 bar
Relief pressure: max. 4 bar
Lubricants: oils, fluid greases NLGI-cl. 000 - 00 (according to release list)
Viscosity range: 20 - 700 mm²/s

**Ordering information**

<table>
<thead>
<tr>
<th>Metering volume mm³/stroke</th>
<th>Type</th>
<th>Order-no.</th>
<th>Drawing</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Z31ZV1</td>
<td>4036 001 02</td>
<td>1</td>
</tr>
<tr>
<td>20</td>
<td>Z31ZV2</td>
<td>4036 002 02</td>
<td>1</td>
</tr>
<tr>
<td>30</td>
<td>Z31ZV3</td>
<td>4036 003 02</td>
<td>1</td>
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<td>Z31ZV5</td>
<td>4036 005 02</td>
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<td>4036 010 02</td>
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<tr>
<td>200</td>
<td>Z31ZV20</td>
<td>4036 020 02</td>
<td>2</td>
</tr>
</tbody>
</table>

**Technical data of type no. Z31ZV**

Installation position: optional
Temperature range: 0 - 70°C
Operating pressure: 15 - 40 bar
Relief pressure: max. 4 bar
Lubricants: oils, fluid greases NLGI-cl. 000 - 00 (according to release list)
Viscosity range: 20 - 700 mm²/s
Proportioning valves (dynamic system)
Technical description
The metering elements supply the necessary lubricant precisely metered to the lubrication points. The respective quantity is determined by the metering volume of the metering element.

Metering valves (static system)
The lubricant re-stacking is controlled by a control sleeve at the BEKA metering valves.

As for the function no pressure surge is necessary, the pressurization in the system can be carried out slowly. The designation "static" therefore cannot be explained with "not dynamic".

Even with a slow pressurization, BEKA metering valves show an exact metering and a high repeating accuracy.

Advantages of the system
- wide viscosity range
  (oil, fluid grease)
- ideal for precise and exactly repeated applications
- low pump power required
- long lines possible
- nearly unlimited number of lubrication points with continuous lubricant supply (no pressure surge required)
**Single Line Lubrication Systems**

**Metering elements**

**Metering valves** *(static system)*

---

**Functional description**

**Normal position**
The lubricant is in the metering chamber of the valve. The quantity of lubricant is limited by its space and the stroke of the delivery piston.

**Piston stroke**
As soon as the pump delivers, lubricant flows from the main line into the metering valve.

The piston is moved upwards against the spring force. This pushes the lubricant from the metering chamber to the lub point.

For this procedure, no particular pressurization speed is needed. The function of the metering valve is guaranteed for a wide viscosity range.

The lubricant’s flow direction is set by the control sleeve.

**Re-filling**
After the lubricant delivery is the main line relieved. The spring pushes back the delivery piston. The control sleeve seals the main line. The lubricant, which is in the piston chamber, is restacked by the spring into the dosage chamber.

The metering piston returns into its normal position and the metering valve is ready for the next cycle.

---

**Diagram Description**

1. **Metering chamber filled with lubricant**
2. **Lubricant is metered exactly and delivered to the lubrication point**
3. **The delivery piston is pushed upwards**
4. **The pressurization from the main line opens the control sleeve**
5. **The dosage chamber is filled with new lubricant**
6. **The metering valve is pushed down into the normal position**
7. **Main line is relieved. The control sleeve has a sealing effect when pressure reduces.**

---

**Advantages of the system**
- Wide viscosity range (oil, fluid grease)
- Ideal for precise and exactly repeated applications
- Low pump power required
- Long lines possible
- Nearly unlimited number of lubrication points with continuous lubricant supply (no pressure surge required)

---
**Single Line Lubrication Systems**

**Metering elements**

**Technical data of series Z31DV**

<table>
<thead>
<tr>
<th>Installation position:</th>
<th>optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature range:</td>
<td>0 - 70°C</td>
</tr>
<tr>
<td>Operating pressure:</td>
<td>15 - 40 bar</td>
</tr>
<tr>
<td>Relief pressure:</td>
<td>max. 4 bar</td>
</tr>
<tr>
<td>Lubricants:</td>
<td>oils fluid greases NLGI-cl. 000 - 00</td>
</tr>
<tr>
<td>(according to release list)</td>
<td></td>
</tr>
<tr>
<td>Viscosity range:</td>
<td>20 - 700 mm/s</td>
</tr>
</tbody>
</table>

The sealing ring (order-no. 090760300321) is included in the delivery.

**Metering valves of series Z31DV**

**with threaded connection**

<table>
<thead>
<tr>
<th>Metering-volume mm/stroke</th>
<th>Type</th>
<th>Order-no. for pipe Ø 4</th>
<th>Order-no. for pipe Ø 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>Z31DV3</td>
<td>4031 030 00</td>
<td>4031 030 01</td>
</tr>
<tr>
<td>50</td>
<td>Z31DV5</td>
<td>4031 050 00</td>
<td>4031 050 01</td>
</tr>
<tr>
<td>100</td>
<td>Z31DV10</td>
<td>4031 100 00</td>
<td>4031 100 01</td>
</tr>
<tr>
<td>150</td>
<td>Z31DV15</td>
<td>4031 150 00</td>
<td>4031 150 01</td>
</tr>
<tr>
<td>200</td>
<td>Z31DV20</td>
<td>4031 200 00</td>
<td>4031 200 01</td>
</tr>
</tbody>
</table>

Thread M 8x1 on request!

**with plug-in connection for polyamide pipes**

<table>
<thead>
<tr>
<th>Metering-volume mm/stroke</th>
<th>Type</th>
<th>Order-no. for pipe Ø 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>Z31DV3</td>
<td>4031 030 05</td>
</tr>
<tr>
<td>50</td>
<td>Z31DV5</td>
<td>4031 050 05</td>
</tr>
<tr>
<td>100</td>
<td>Z31DV10</td>
<td>4031 100 05</td>
</tr>
<tr>
<td>150</td>
<td>Z31DV15</td>
<td>4031 150 05</td>
</tr>
<tr>
<td>200</td>
<td>Z31DV20</td>
<td>4031 200 05</td>
</tr>
</tbody>
</table>

**with angular plug-in connection for polyamide pipes**

<table>
<thead>
<tr>
<th>Metering-volume mm/stroke</th>
<th>Type</th>
<th>Order-no. for pipe Ø 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>Z31DV3</td>
<td>4031 030 11</td>
</tr>
<tr>
<td>50</td>
<td>Z31DV5</td>
<td>4031 050 11</td>
</tr>
<tr>
<td>100</td>
<td>Z31DV10</td>
<td>4031 100 11</td>
</tr>
<tr>
<td>150</td>
<td>Z31DV15</td>
<td>4031 150 11</td>
</tr>
<tr>
<td>200</td>
<td>Z31DV20</td>
<td>4031 200 11</td>
</tr>
</tbody>
</table>

Subject to alterations!
**Metering valves (static system)**

*with threaded and plug-in connection*

---

**Technical data of type no. Z31DDV**

- Installation position: optional
- Temperature range: 0 - 70°C
- Operating pressure: 12 - 40 bar
- Relief pressure: max. 1 bar
- Lubricants: oils
- Viscosity range: 20 - 700 mm²/s

The sealing ring (order-no 090760300321) is included in the delivery.

---

**Metering valves of series Z31DDV**

*with threaded connection*

<table>
<thead>
<tr>
<th>Metering-volume mm³/stroke</th>
<th>Type</th>
<th>Order-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>Z31DDV3</td>
<td>4032 030 00</td>
</tr>
<tr>
<td>60</td>
<td>Z31DDV6</td>
<td>4032 060 00</td>
</tr>
<tr>
<td>100</td>
<td>Z31DDV10</td>
<td>4032 100 00</td>
</tr>
<tr>
<td>160</td>
<td>Z31DDV16</td>
<td>4032 160 00</td>
</tr>
</tbody>
</table>

---

**Metering valves of series Z31DDV**

*with plug-in connection*

<table>
<thead>
<tr>
<th>Metering-volume mm³/stroke</th>
<th>Type</th>
<th>Order-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>Z31DDV3</td>
<td>4032 030 07</td>
</tr>
<tr>
<td>60</td>
<td>Z31DDV6</td>
<td>4032 060 07</td>
</tr>
<tr>
<td>100</td>
<td>Z31DDV10</td>
<td>4032 100 07</td>
</tr>
<tr>
<td>160</td>
<td>Z31DDV16</td>
<td>4032 160 07</td>
</tr>
</tbody>
</table>
Single Line Lubrication Systems

Metering elements

Function

See functional description metering valves.

Technical data type 4018

Material: distributor block - aluminum
Metering nipple - brass

Number of lubrication points: 1 to 10
Connections:
- Main line M10x1 for pipe Ø6 mm
- Lubrication line M8x1 for pipe Ø4 mm

Model for olive acc. to DIN 3862 and retaining screw according to DIN 3871

Installation position: optional, with outlet upwards if possible

Temperature range: 0 - 80°C
Operating pressure: 15 - 40 bar

Relief pressure: max. 3 bar

Viscosity range: 10 - 1000 mm²/s

Table of order-no. for dosage nipple with O-ring:

<table>
<thead>
<tr>
<th>Dosage nipple code no. (stamped on the dosage nipple)</th>
<th>Metering volume (mm³/stroke)</th>
<th>Order-no. dosage nipple</th>
</tr>
</thead>
<tbody>
<tr>
<td>1***</td>
<td>10</td>
<td>40180000</td>
</tr>
<tr>
<td>2</td>
<td>20</td>
<td>40180005</td>
</tr>
<tr>
<td>3</td>
<td>30</td>
<td>40180001</td>
</tr>
<tr>
<td>6</td>
<td>60</td>
<td>40180002</td>
</tr>
<tr>
<td>10</td>
<td>100</td>
<td>40180003</td>
</tr>
<tr>
<td>16</td>
<td>160</td>
<td>40180004</td>
</tr>
</tbody>
</table>

*** Metering nipple 10 mm³ cannot be exchanged!

Metering nipple with O-ring 7,5x1,5 exchangeable,
Order-no. see table

A/F 12
O-ring
M10x1

For locking the metering nipples:

Screw plug DIN 908 - M8x1,
Order-no.: 090090800113
Sealing ring similar to DIN 7603 - A8x12x1,5
Order-no.: 0907603A00611

Order example for a metering distributor block for 7 lubrication points:

Order-no. 4018 3 4 2 9 5 5

Order key

<table>
<thead>
<tr>
<th>Metering volume (mm³)</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>60</th>
<th>100</th>
<th>160</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order-code-no.</td>
<td>0** 1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Please indicate the metering volume from left to right, **0 = for not used lubricant outlets

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Single Line Lubrication Systems

Metering elements

Metering distributor blocks DVB-1 type 40181 with plug-in connection

Function
See functional description metering valves..

Technical data type 40181

Material: distributor block - aluminum

dosage nipple - brass

Number of lubrication points: 1 to 10

Connections:
Main line M10x1, pipe Ø6 mm
Lubrication line plug-in connection M8x1, pipe Ø4 mm
Model for olive according to DIN 3862 and retaining screw according to DIN 3871
Installation position: optional, with outlet upwards if possible
Temperature range: 0 - 80°C
Operating pressure: max. 3 bar
Relief pressure: 15 - 40 bar
Lubricants: oils
fluid greases NLGI-cl. 000 - 00
(according to release list)
Viscosity range: 10 - 1000 mm²/s

Table of order-no. for dosage nipple with O-ring and plug-in connection:

<table>
<thead>
<tr>
<th>Metering nipple Code-no. (stamped on metering nipple)</th>
<th>Metering volume (mm³/stroke)</th>
<th>Order-no. metering nipple</th>
</tr>
</thead>
<tbody>
<tr>
<td>1***</td>
<td>10</td>
<td>4018100000</td>
</tr>
<tr>
<td>2</td>
<td>20</td>
<td>4018100005</td>
</tr>
<tr>
<td>3</td>
<td>30</td>
<td>4018100001</td>
</tr>
<tr>
<td>6</td>
<td>60</td>
<td>4018100002</td>
</tr>
<tr>
<td>10</td>
<td>100</td>
<td>4018100003</td>
</tr>
<tr>
<td>16</td>
<td>160</td>
<td>4018100004</td>
</tr>
</tbody>
</table>

*** Dosage nipple 10 mm³ cannot be exchanged!

Order example for a metering distributor block for 6 lubrication points:

Order-no. 40181
Type-no. 3 3 4 2 5 5

Order key

<table>
<thead>
<tr>
<th>Metering volume (mm³)</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>60</th>
<th>100</th>
<th>160</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
<td>0**</td>
<td>9</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

* Please indicate the metering volume from left to right, **0= non-used outlets
**Single Line Lubrication Systems**

**Metering elements**

**Metering distributor blocks DVB-2 type 4180** with threaded connection

### Function
See functional description metering valves.

### Technical data type 4180

**Material:**
- distributor block - aluminum
- dosage nipple - brass

**Number of lubrication points:** 1 to 10

**Connections:**
- Lubrication line: M8x1 for pipe Ø4 mm
- Model for olive acc. to DIN 3862 and retaining screw according to DIN 3871

**Main line:** M12x1

**Installation position:** optional, with outlet upwards if possible

**Temperature range:** 0 - 80°C

**Operating pressure:** 16 - 50 bar

**Relief pressure:** max. 4 bar

**Lubricants:**
- oils
- fluid greases NLGI-cl. 000 - 00
- (according to release list)

**Viscosity range:** 10 - 1000 mm²/s

### Table of order-no. for dosage nipple with O-ring:

<table>
<thead>
<tr>
<th>Metering Code-no.</th>
<th>Metering volume (mm³/stroke)</th>
<th>Order-no. metering nipple</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,1</td>
<td>100</td>
<td>41800001</td>
</tr>
<tr>
<td>0,2</td>
<td>200</td>
<td>41800002</td>
</tr>
<tr>
<td>0,3</td>
<td>300</td>
<td>41800003</td>
</tr>
<tr>
<td>0,4</td>
<td>400</td>
<td>41800004</td>
</tr>
<tr>
<td>0,6</td>
<td>600</td>
<td>41800006</td>
</tr>
</tbody>
</table>

**For locking the metering nipples:**
- Screw plug DIN 908 - M8x1
- Order-no.: 090090800113
- Sealing ring similar to DIN 7603 - A8x12x1,5
- Order-no.: 0907603A00611

**Metering nipple with O-ring 12x1,5**
- exchangeable, order-no. see table

**Order example for metering distributor block for 5 lube points:**

<table>
<thead>
<tr>
<th>Order-no.</th>
<th>Type-no.</th>
<th>Metering volume (mm³*)</th>
<th>Order-code-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4180</td>
<td>100 200 300 400 600</td>
<td>0** 1 2 3 4 6</td>
</tr>
</tbody>
</table>

* Please indicate the metering volume from left to right, **0 = for not used lubricant outlets

---

For more information or support, contact BEKA Nederland B.V.
Wagenmakerij 11
4762 AV Zevenbergen
info@beka.nl
www.beka.nl

Subject to alterations!
Function
See functional description metering valves.

Technical data type 4181
Material: distributor block - aluminum
dosage nipple - brass

Number of lubrication points: 1 to 10

Connections:
Lubrication line plug-in connection M8x1,
pipe Ø4 mm
Main line M12x1
Installation position: optional, with outlet upwards
if possible
Temperature range: 0 - 80°C
Operating pressure: 16 - 50 bar
Relief pressure: max. 4 bar

Lubricants: oils
fluid greases NLGI-cl. 000 - 00
(according to release list)

Viscosity range: 10 - 1000 mm²/s

Table of dimensions of the figs. on the left:

<table>
<thead>
<tr>
<th>L (mm)</th>
<th>46</th>
<th>63</th>
<th>80</th>
<th>97</th>
<th>114</th>
<th>131</th>
<th>148</th>
<th>165</th>
<th>182</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1 (mm)</td>
<td>-</td>
<td>-</td>
<td>45</td>
<td>-</td>
<td>82</td>
<td>99</td>
<td>116</td>
<td>133</td>
<td>150</td>
</tr>
</tbody>
</table>

Table order-no. for dosage nipple with O-ring:

<table>
<thead>
<tr>
<th>Metering nipple Code-no. (stamped on metering nipple)</th>
<th>Metering volume (mm³/stroke)</th>
<th>Order-no. metering nipple</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,1</td>
<td>100</td>
<td>41810001</td>
</tr>
<tr>
<td>0,2</td>
<td>200</td>
<td>41810002</td>
</tr>
<tr>
<td>0,3</td>
<td>300</td>
<td>41810003</td>
</tr>
<tr>
<td>0,4</td>
<td>400</td>
<td>41810004</td>
</tr>
<tr>
<td>0,6</td>
<td>600</td>
<td>41810006</td>
</tr>
</tbody>
</table>

Order example for metering distributor block for 5 lube points:

Order-no. 4181 1 3 2 1 2

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Function
See functional description metering valves.

Technical data
Type 41820, 41823, 41824
Material: distributor block - aluminum
dosage nipple - brass
Number of lubrication points: 1 to 3
Connections:
Lubrication line: M8x1 for pipe Ø4 mm
Model for olive acc. to DIN 3862 and retaining screw acc. to DIN 3871
Main line: M12x1 or G1/8
Installation position: optional, with outlet upwards
if possible
Temperature range: 0 - 80°C
Operating pressure: 16 - 50 bar
Relief pressure: max. 4 bar
Lubricants: fluid greases NLGI-cl. 000 - 00
(according to release list)
Viscosity range: 10 - 1000 mm²/s

Table of order-no. for dosage nipple with O-ring:

<table>
<thead>
<tr>
<th>Metering nipple Code-no. (stamped on metering nipple)</th>
<th>Metering volume (mm³/stroke)</th>
<th>Order-no. metering nipple</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,2</td>
<td>200</td>
<td>41820001</td>
</tr>
<tr>
<td>0,4</td>
<td>400</td>
<td>41820002</td>
</tr>
<tr>
<td>0,6</td>
<td>600</td>
<td>41820003</td>
</tr>
<tr>
<td>1,0</td>
<td>1000</td>
<td>41820004</td>
</tr>
<tr>
<td>1,5</td>
<td>1500</td>
<td>41820005</td>
</tr>
</tbody>
</table>

For locking the metering nipples:
Screw plug DIN 908 - M8x1,
Order-no.: 09009800113
Sealing ring similar to DIN 7603 - A9x12x1,5,
Order-no.: 0907603A00611

Metering element with O-ring 14x1,5 mm exchangeable, order-no. see table

Order example for metering distributor block for 3 lube points:
Order key: M12x1 G 1/8
Order-code-no. = type-no.: 41823 41824
Metering volume (mm³)*: 200 400 600 1000 1500
Order-Code-no.: 1 2 3 4 5

* Please indicate the metering volume from left to right

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**Single Line Lubrication Systems**

**Metering elements**

**Metering distributor blocks DVB-3 type 41840, 41841, 41842 with plug-in connection**

**Function**

See functional description metering valves.

**Technical data**

**Type 41840, 41841, 41842**

- **Material:** distributor block - aluminum
  dosage nipple - brass

- **Number of lubrication points:** 1 to 3

- **Connections:**
  - Lubrication line: plug-in connection, M8x1, pipe Ø4 mm
  - Main line: M12x1 or G1/8
  - Installation position: optional, with outlet upwards if possible
  - Operating pressure: 16 - 50 bar
  - Relief pressure: max. 4 bar
  - Lubricants: oils, fluid greases NLGI-cl. 000 - 00 (according to release list)
  - Temperature range: 0 - 80°C
  - Viscosity range: 10 - 1000 mm²/s

**Table of order-no. for dosage nipple with O-ring and plug-in connection:**

<table>
<thead>
<tr>
<th>Metering nipple Code-no. (stamped on metering nipple)</th>
<th>Metering volume (mm³/stroke)</th>
<th>Order-no. Metering nipple</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,2</td>
<td>200</td>
<td>41840001</td>
</tr>
<tr>
<td>0,4</td>
<td>400</td>
<td>41840002</td>
</tr>
<tr>
<td>0,6</td>
<td>600</td>
<td>41840003</td>
</tr>
<tr>
<td>1,0</td>
<td>1000</td>
<td>41840004</td>
</tr>
<tr>
<td>1,5</td>
<td>1500</td>
<td>41840005</td>
</tr>
</tbody>
</table>

**Order example for metering distributor block for 2 lube points:**

<table>
<thead>
<tr>
<th>Order no.</th>
<th>Metering distrib.</th>
<th>Metering volume (mm³)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order key</td>
<td>Connection thread main line</td>
<td>200</td>
</tr>
<tr>
<td>M12x1 G 1/8</td>
<td>41841 41842</td>
<td>400</td>
</tr>
<tr>
<td>41840</td>
<td>600</td>
<td>1000</td>
</tr>
<tr>
<td>41840</td>
<td>1500</td>
<td>41840</td>
</tr>
<tr>
<td>Metering Code-no.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

* Please indicate the metering volume from left to right

Subject to alterations!

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### Function

The 231-DV metering units for a direct lube point connection operate according to the static system. They can be plugged directly into the lube point connection.

### Technical data

**Model:** steel  
**Relief pressure:** max. 1 bar  
**Lubricants:** oils according to release list

<table>
<thead>
<tr>
<th>Order-no.</th>
<th>Code</th>
<th>Screw-in thread D</th>
<th>Metering volume (mm³/stroke)</th>
<th>Type A Model G</th>
<th>Type B Model L</th>
<th>Type C Model T</th>
<th>Type D Model W</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>M 8x1k</td>
<td>d=Ø4 mm</td>
<td>4176 A 0311</td>
<td>4176 B 0311</td>
<td>4176 C 0311</td>
<td>4176 D 0311</td>
<td>4176 E 0311</td>
</tr>
<tr>
<td></td>
<td>M 10x1k</td>
<td>d=Ø6 mm</td>
<td>4176 A 0312</td>
<td>4176 B 0312</td>
<td>4176 C 0312</td>
<td>4176 D 0312</td>
<td>4176 E 0312</td>
</tr>
<tr>
<td>60</td>
<td>M 8x1k</td>
<td>d=Ø4 mm</td>
<td>4176 A 0611</td>
<td>4176 B 0611</td>
<td>4176 C 0611</td>
<td>4176 D 0611</td>
<td>4176 E 0611</td>
</tr>
<tr>
<td></td>
<td>M 10x1k</td>
<td>d=Ø6 mm</td>
<td>4176 A 0612</td>
<td>4176 B 0612</td>
<td>4176 C 0612</td>
<td>4176 D 0612</td>
<td>4176 E 0612</td>
</tr>
<tr>
<td>100</td>
<td>M 8x1k</td>
<td>d=Ø4 mm</td>
<td>4176 A 1011</td>
<td>4176 B 1011</td>
<td>4176 C 1011</td>
<td>4176 D 1011</td>
<td>4176 E 1011</td>
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<tr>
<td></td>
<td>M 10x1k</td>
<td>d=Ø6 mm</td>
<td>4176 A 1012</td>
<td>4176 B 1012</td>
<td>4176 C 1012</td>
<td>4176 D 1012</td>
<td>4176 E 1012</td>
</tr>
</tbody>
</table>
**Function**
The 231-DV metering units with rotary connection operate according to the static system. They can be plugged directly into the lub point connection. With the rotary connection, movements of the lubricated parts are also possible during operation.

**Technical data**

Model: steel  
Connection: male connection Ø4 mm for polyamide pipe  
Operating pressure: max. 35 bar  
Relief pressure: max. 1 bar  
Lubricants: oils ISO VG 40 - 250 mm²/s

**Type E Model LS, pivotable**

<table>
<thead>
<tr>
<th>Metering volume (mm³/stroke)</th>
<th>Code</th>
<th>Screw-in thread</th>
<th>Order-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>3</td>
<td>M 8x1 conic.</td>
<td>4174E0311</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M 10x1 conic.</td>
<td>4174E0312</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 1/8” conic.</td>
<td>4174E0313</td>
</tr>
<tr>
<td>60</td>
<td>6</td>
<td>M 8x1 conic.</td>
<td>4174E0611</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M 10x1 conic.</td>
<td>4174E0612</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 1/8” conic.</td>
<td>4174E0613</td>
</tr>
<tr>
<td>100</td>
<td>10</td>
<td>M 8x1 conic.</td>
<td>4174E1011</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M 10x1 conic.</td>
<td>4174E1012</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 1/8” conic.</td>
<td>4174E1013</td>
</tr>
</tbody>
</table>

**Type F Model TS, pivotable**

<table>
<thead>
<tr>
<th>Metering volume (mm³/stroke)</th>
<th>Code</th>
<th>Screw-in thread</th>
<th>Order-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>3</td>
<td>M 8x1 conic.</td>
<td>4174F0311</td>
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<tr>
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<td>4174F0312</td>
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<td>R 1/8” conic.</td>
<td>4174F0313</td>
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<tr>
<td>60</td>
<td>6</td>
<td>M 8x1 conic.</td>
<td>4174F0611</td>
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<td>M 10x1 conic.</td>
<td>4174F0612</td>
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<tr>
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<td>R 1/8” conic.</td>
<td>4174F0613</td>
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<tr>
<td>100</td>
<td>10</td>
<td>M 8x1 conic.</td>
<td>4174F1011</td>
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<td>M 10x1 conic.</td>
<td>4174F1012</td>
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<tr>
<td></td>
<td></td>
<td>R 1/8” conic.</td>
<td>4174F1013</td>
</tr>
</tbody>
</table>
**Single Line Lubrication Systems**

**Metering elements**

---

### Function

Manifold with threads at one (Z32...) or both sides (Z33...) serve as a strip for metering elements, as e.g. metering valves. Manifolds can be delivered with connection thread (D) M10x1 or M8x1.

- **Model:** steel, surface galvanized
- **Connection:** Ø6 mm, for solderless pipe connection according to DIN 2367
  - with olive and retaining screw (included in the delivery)

### Accessories

- **Ventilation screw M10x1**
  - Order-no. 0802000255
- **Sealing ring DIN 7603-A10x14x1**
  - Order-no 090760300321

---

**Type**

<table>
<thead>
<tr>
<th>Type</th>
<th>Number of outlets</th>
<th>A</th>
<th>B</th>
<th>L</th>
<th>Order-no. Connection (D) M10x1</th>
<th>Order-no. Connection (D) M8x1</th>
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<tr>
<td>Z32VL7</td>
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<td>Z32VL10</td>
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<td>237</td>
<td>4020 001 12</td>
<td>4020 001 12 05</td>
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---

**Z33VL2**

- 2x1
- --
- --
- 45
- 4020 010 02
- 4020 010 02 05

---

**Z33VL4**

- 2x2
- --
- --
- 57
- 4020 010 04
- 4020 010 04 05

---

**Z33VL6**

- 2x3
- 18
- 36
- 75
- 4020 010 06
- 4020 010 06 05

---

**Z33VL8**

- 2x4
- 36
- 54
- 93
- 4020 010 08
- 4020 010 08 05

---

**Z33VL10**

- 2x5
- 54
- 72
- 111
- 4020 010 10
- 4020 010 10 05

---

**Z33VL12**

- 2x6
- 72
- 90
- 129
- 4020 010 12
- 4020 010 12 05

---

**Z33VL14**

- 2x7
- 90
- 108
- 147
- 4020 010 14
- 4020 010 14 05

---

**Z33VL16**

- 2x8
- 108
- 126
- 165
- 4020 010 16
- 4020 010 16 05

---

**Z33VL18**

- 2x9
- 126
- 144
- 183
- 4020 010 18
- 4020 010 18 05

---

**Z33VL20**

- 2x10
- 144
- 162
- 201
- 4020 010 20
- 4020 010 20 05

---

**Z33VL22**

- 2x11
- 162
- 180
- 219
- 4020 010 22
- 4020 010 22 05

---

**Z33VL24**

- 2x12
- 180
- 198
- 237
- 4020 010 24
- 4020 010 24 05

---

**With union screws**

---

**Single Line Lubrication Systems**

---

**Metering elements**

---

**Ventilation screw M10x1**

- Order-no. 0802000255

---

**Sealing ring DIN 7603-A10x14x1**

- Order-no 090760300321

---

**Subject to alterations!**

---

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## Manifolds

**size 1**

without union screws

### Model with outlets at one side (Z32...)

![Model diagram](image)

### Model with outlets on both sides (Z33...)

![Model diagram](image)

### Function

Manifolds with screw-in threads at one (Z32...) or both (Z33...) sides serve for the fixture of metering elements, as e.g. measure or metering valves.

- **Model:** steel, surface galvanized
- **Connection (D):** M8x1, M10x1

### Accessories

- Double cone olive Ø 6
- Retaining screw Ø 6
- Ventilation screw M10x1
- Sealing ring DIN 7603-A

### Table: Manifolds with screw-in threads at one or both sides

<table>
<thead>
<tr>
<th>Type</th>
<th>Number of outlets</th>
<th>A</th>
<th>B</th>
<th>L</th>
<th>Order-no. Connection (D) M10x1</th>
<th>Order-no. Connection (D) M8x1</th>
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<tr>
<td>Z32VL1</td>
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<td>45</td>
<td>F4020/01-00 001</td>
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<td>Z32VL4</td>
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<td>F4020/06-01 012</td>
</tr>
</tbody>
</table>

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**Single Line Lubrication Systems**

**Metering elements**

**Function**

Manifolds with plug-in threads at one (Z32...) or both (Z33...) sides serve for the fixture of metering elements, as e.g. metering valves.

- **Model:** steel, surface galvanized
- **Connection:** Ø6 mm, for solderless pipe connection according to DIN 2367 with olive and union screw (included in the delivery)

**Accessories**

- Ventilation screw M10x1 Order-no. 0802000255
- Sealing ring DIN 7603-A 10x14x1 Order-no. 090760300321

**Type** | **Number of outlets** | **A** | **L** | **Order number**
--- | --- | --- | --- | ---
Z32VL1/2 | 1 | -- | 50 | 4020 002 01
Z32VL3/2 | 2 | -- | 70 | 4020 002 02
Z32VL4/2 | 3 | 20 | 90 | 4020 002 03
Z32VL5/2 | 4 | 40 | 110 | 4020 002 04
Z32VL6/2 | 5 | 60 | 130 | 4020 002 05
Z32VL7/2 | 6 | 80 | 150 | 4020 002 06
Z32VL8/2 | 7 | 100 | 170 | 4020 002 07
Z32VL9/2 | 8 | 120 | 190 | 4020 002 08
Z32VL10/2 | 9 | 140 | 210 | 4020 002 09
Z32VL20/2 | 10 | 160 | 230 | 4020 002 10

Z33VL2/2 | 1x2 | -- | 50 | 4020 011 02
Z33VL4/2 | 2x2 | -- | 70 | 4020 011 04
Z33VL6/2 | 2x3 | 20 | 90 | 4020 011 06
Z33VL8/2 | 2x4 | 40 | 110 | 4020 011 08
Z33VL10/2 | 2x5 | 60 | 130 | 4020 011 10
Z33VL12/2 | 2x6 | 80 | 150 | 4020 011 12
Z33VL14/2 | 2x7 | 100 | 170 | 4020 011 14
Z33VL16/2 | 2x8 | 120 | 190 | 4020 011 16
Z33VL18/2 | 2x9 | 140 | 210 | 4020 011 18
Z33VL20/2 | 2x10 | 160 | 230 | 4020 011 20
**Function**

Manifolds with screw-in threads at one (Z32...) or both (Z33...) sides serve for the fixture of metering elements, as e.g. metering valves.

Model: steel, surface galvanized

Connection: M10x1

**Accessories**

- Olive Ø 6 Order-no. 09038620023
- Union screw Ø 6 Order-no. 0802000190
- Ventilation screw M10x1 Order-no. 0802000255
- Sealing ring DIN 7603-A 10x14x1 Order-no. 090760300321

---

### Manifolds size 2

**without union screws**

**Type** | **Number of outlets** | **A** | **L** | **Order number**
---|---|---|---|---
Z32VL1/2 | 1 | -- | 50 | F4020/12-00 001
Z32VL2/2 | 2 | -- | 70 | F4020/12-00 002
Z32VL3/2 | 3 | 20 | 90 | F4020/12-00 003
Z32VL4/2 | 4 | 40 | 110 | F4020/12-00 004
Z32VL5/2 | 5 | 60 | 130 | F4020/12-00 005
Z32VL6/2 | 6 | 80 | 150 | F4020/12-00 006
Z32VL7/2 | 7 | 100 | 170 | F4020/12-00 007
Z32VL8/2 | 8 | 120 | 190 | F4020/12-00 008
Z32VL9/2 | 9 | 140 | 210 | F4020/12-00 009
Z32VL10/2 | 10 | 160 | 230 | F4020/12-00 010

---

**Type** | **Number of outlets** | **A** | **L** | **Order number**
---|---|---|---|---
Z33VL2/2 | 1x2 | -- | 50 | F4020/11-00 001
Z33VL4/2 | 2x2 | -- | 70 | F4020/11-00 002
Z33VL6/2 | 2x3 | 20 | 90 | F4020/11-00 003
Z33VL8/2 | 2x4 | 40 | 110 | F4020/11-00 004
Z33VL10/2 | 2x5 | 60 | 130 | F4020/11-00 005
Z33VL12/2 | 2x6 | 80 | 150 | F4020/11-00 006
Z33VL14/2 | 2x7 | 100 | 170 | F4020/11-00 007
Z33VL16/2 | 2x8 | 120 | 190 | F4020/11-00 008
Z33VL18/2 | 2x9 | 140 | 210 | F4020/11-00 009
Z33VL20/2 | 2x10 | 160 | 230 | F4020/11-00 010
Technical description
The single line distributor NV (relubrication system) supply lubricant after pressure-relief process into the lines towards the lube points, i.e. after the pump is switched off. Each outlet has one lube point.

Exchangeable metering nipples guarantee a perfect adjustment of lubricant requirements of the friction point. The number of pump actuations per time unit of the lubrication system, enable an additional coordination of the lubricant volume.

Technical data
Operating pressure:  
- min. 15 bar  
- max. 45 bar

Temperature range:  
- -20 °C to +70 °C

Lubricant:  
- fluid grease NLGI-cl. 000, 00

- oils 68 - 1000 mm²/s

Metering volume: optional
- 0.1 / 0.2 / 0.3 / 0.4 / 0.6 / 1.0 cm³/stroke and outlet

Material:  
- housing GD-Zn  
- additional parts brass

No. of outlets at one distributor:  
- min. 1 outlet  
- max. 6 outlets

(Several single line distributors NV can be assembled behind each other with a connector)

Weights:  
- NV-2: 285 g  
- NV-4: 485 g  
- NV-6: 715 g
Function
When lubricant is supplied through the inlet drilling (1) into the distributor or towards the metering nipple (2), it presses the edge of the valve sleeve (3) with retaining plate (4) inside. Thus lubricant can pass this parts and flow towards the metering nipple (2). The metering piston (5) is contrary to the spring force (6) pressed upwards and the lubrication chamber (7) is filled with lubricant.

As soon as all distributors are filled, the pressure switch switches off the pump when the necessary pressure is reached. Due to the pressure relief in the inlet drilling (1), the metering piston (5) is pressed downwards by the metering spring (6) and the valve sleeve (3) with retaining plate (4) is pressed, contrary to the valve spring (8), to the left side. Now the outlet drilling (9) is open and lubricant flows to the lube point.

After this supply process, the valve sleeve (3) with retaining plate (4) is pressed to the right by the valve spring (8) and the outlet drilling (9) is closed again.

A new lubrication cycle starts as soon as the adjusted break time is processed.
Single Line Lubrication Systems

Single line distributor

**Metering nipple**
The metering volume is recognizable by the form.

![Metering nipple diagram]

* Spare part number O-ring 12x1.5: 09037710017141

**Table order-no.:**

<table>
<thead>
<tr>
<th>Metering volume (cm³ / stroke and outlet)</th>
<th>Order-no. for metering nipple with O-ring</th>
</tr>
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<tbody>
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</tr>
<tr>
<td>0.2</td>
<td>402002</td>
</tr>
<tr>
<td>0.3</td>
<td>402003</td>
</tr>
<tr>
<td>0.4</td>
<td>402004</td>
</tr>
<tr>
<td>0.6</td>
<td>402006</td>
</tr>
<tr>
<td>1.0</td>
<td>402010</td>
</tr>
</tbody>
</table>

**Single line distributor NV**
Die Single line distributor NV are only delivered with installed metering nipples.

**Order key**
for single line distributor NV

Order example: 4020 4 1241

<table>
<thead>
<tr>
<th>Type-no.</th>
<th>Number of outlets</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Please indicate code numbers from left to right</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Delivery quantity (cm³/stroke and outlet)</th>
<th>Code-no.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>1</td>
</tr>
<tr>
<td>0.2</td>
<td>2</td>
</tr>
<tr>
<td>0.3</td>
<td>3</td>
</tr>
<tr>
<td>0.4</td>
<td>4</td>
</tr>
<tr>
<td>0.6</td>
<td>6</td>
</tr>
<tr>
<td>1.0</td>
<td>0</td>
</tr>
<tr>
<td>0 (outlet closed)</td>
<td>9</td>
</tr>
</tbody>
</table>

**Order-no. connector:**
402080

**Order-no.:**
402090
Combination of single line distributor NV
If more than six outlets of the NV-6 are needed, two single line distributors NV can be combined by means of a connector.

There are two connectors offered:

Order-no. connector: 402080

Sealing of inlets or outlets
If necessary, one inlet or several outlets can be sealed by a screw plug and a sealing ring. Those outlets are then shut down. Other meterings are not affected.

Order-no. connector: 402090

Parts

<table>
<thead>
<tr>
<th>Parts</th>
<th>Order-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inlet</td>
<td></td>
</tr>
<tr>
<td>Screw plug M16x1,5</td>
<td>100300012</td>
</tr>
<tr>
<td>Seal. ring DIN 7603-A16x20x1,5</td>
<td>090760300711</td>
</tr>
<tr>
<td>Outlet</td>
<td></td>
</tr>
<tr>
<td>Screw plug M8x1</td>
<td>100300004</td>
</tr>
<tr>
<td>Seal. ring DIN 7603-A8x11,5x1</td>
<td>090760300211</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inlet</th>
<th>100300012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screw plug M16x1,5</td>
<td>100300012</td>
</tr>
<tr>
<td>Seal. ring DIN 7603-A16x20x1,5</td>
<td>090760300711</td>
</tr>
<tr>
<td>Outlet</td>
<td>100300004</td>
</tr>
<tr>
<td>Screw plug M8x1</td>
<td>10030004</td>
</tr>
<tr>
<td>Seal. ring DIN 7603-A8x11,5x1</td>
<td>090760300211</td>
</tr>
</tbody>
</table>
Technical description
The single line distributor UEN supplies lubricant after pressure- relief process into the lines towards the lube points, i.e. after the pump is switched off. Each outlet has one lube point.

Due to the piston control unit of the distributor, high system pressures are possible. Because of the restoring force of the metering piston, high operational safety is possible at large line lengths or at cold temperatures.

Technical data
Operating pressure at inlet: 210 bar
  max. 300 bar
Outlet pressure: max. 50 bar
Relief pressure: max. 40 bar
Temperature range: -30 °C to +60 °C
Lubricant: fluid grease; greases up to NLGI-cl. 2 acc. to release list
Metering volume: see table
Material: steel,
  zinc-nickel-coating acc. to DIN 50979
Number of metering elements or of outlets of one single line distributors:
  min. 1 metering element: UEN-1
  max. 6 metering elements: UEN-6
  (up to 12 metering elements possible with a connecting element, up to 24 metering elements possible with two connecting elements)
Weights: see table of dimensional drawing (next page)

Table of metering volume:

<table>
<thead>
<tr>
<th>Designation metering element</th>
<th>Metering volume* (mm³/stroke)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 UEN</td>
<td>25</td>
</tr>
<tr>
<td>50 UEN</td>
<td>50</td>
</tr>
<tr>
<td>100 UEN</td>
<td>100</td>
</tr>
<tr>
<td>200 UEN</td>
<td>200</td>
</tr>
<tr>
<td>400 UEN</td>
<td>400</td>
</tr>
</tbody>
</table>

* Metering tolerance is approx. 20 % and depends on lubricant and temperature
Single Line Lubrication Systems

**UEN (relubrication system)**

### Technical Description

The single line distributor UEN supplies lubricant after pressure-relief process into the lines towards the lube points, i.e. after the pump is switched off. Each outlet has one lube point. Due to the piston control unit of the distributor, high system pressures are possible. Because of the restoring force of the metering piston, high operational safety is possible at large line lengths or at cold temperatures.

### Technical Data

- **Operating pressure at inlet:** 210 bar max. 300 bar
- **Outlet pressure:** max. 50 bar
- **Relief pressure:** max. 40 bar
- **Temperature range:** -30 °C to +60 °C
- **Lubricant:** fluid grease; greases up to NLGI-cl. 2 acc. to release list
- **Metering volume:** see table
- **Material:** steel, zinc-nickel-coating acc. to DIN 50979

### Table of Dimensions:

<table>
<thead>
<tr>
<th>Number of metering elem.</th>
<th>Dimension “A” (mm)</th>
<th>Dimension “B” (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>63,4</td>
<td>44</td>
</tr>
<tr>
<td>2</td>
<td>87,4</td>
<td>68</td>
</tr>
<tr>
<td>3</td>
<td>111,4</td>
<td>92</td>
</tr>
<tr>
<td>4</td>
<td>135,4</td>
<td>116</td>
</tr>
<tr>
<td>5</td>
<td>159,4</td>
<td>140</td>
</tr>
<tr>
<td>6</td>
<td>183,4</td>
<td>164</td>
</tr>
</tbody>
</table>

### Table of Weight for One Single Line Distributors UEN:

<table>
<thead>
<tr>
<th>Number of metering elements with metering elements</th>
<th>Weight of a distributor (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25/50/100 UEN</td>
<td></td>
</tr>
<tr>
<td>200/400 UEN</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2,44</td>
</tr>
<tr>
<td>2</td>
<td>4,24</td>
</tr>
<tr>
<td>3</td>
<td>6,04</td>
</tr>
<tr>
<td>4</td>
<td>7,84</td>
</tr>
<tr>
<td>5</td>
<td>9,64</td>
</tr>
<tr>
<td>6</td>
<td>11,44</td>
</tr>
</tbody>
</table>
**Function**

When lubricant is supplied through the inlet drilling (1) into the distributor, it presses the control piston (2) upwards against the spring force whereupon the lubricant outlet (3) is closed. When pressure increases, the metering piston (4) is pressed upwards against the spring force and the lubricant chamber (5) is filled. The indicator pin (6) is displayed and shows that the distributor is filled with lubricant.

As soon as all distributors are filled, the pump is switched off by reaching the switching pressure. The following pressure relief at the inlet drilling (7) makes the control piston (8) being pressed down and hence, the lubricant outlet (9) is opened.

Now the metering piston (10) is pressed downwards and the stored lubricant in the lubrication chamber (11) is rearranged and supplied to the outlet (9). The indication pin (12) is not displayed anymore.

A new lubrication cycle starts as soon as the adjusted break time is processed.

- **Red** = pressure channels
- **Green** = following metering stroke
- **Blue** = already supplied
The single line distributor UEN without accessories can be ordered with max. six metering elements according to the order key below as standard.

Other single line distributors UEN with accessories or with more than six metering elements must be ordered separately because of their variation.

### Order key type-no. 4124

<table>
<thead>
<tr>
<th>Type number</th>
<th>4124</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
<td>4124</td>
</tr>
<tr>
<td><strong>Number of metering elements</strong></td>
<td></td>
</tr>
<tr>
<td>Code-no.</td>
<td>1</td>
</tr>
<tr>
<td><strong>Metering vol. per outlet (mm³/stroke)</strong></td>
<td></td>
</tr>
<tr>
<td>Code-letter</td>
<td>C</td>
</tr>
<tr>
<td><strong>Special model</strong></td>
<td>no</td>
</tr>
<tr>
<td>Code-no.</td>
<td>000</td>
</tr>
</tbody>
</table>

#### Screw plug

In order to lock the threaded connection at the end element, a screw plug with sealing ring has to be ordered separately.

Screw plug G 1/4 (ZnNi-coating) with sealing ring

**Order-no.:** 04030189342100
Single Line Lubrication Systems

Single line distributor

Elements
The single line distributor UEN consists of one initial element, one to six metering elements and one end element.

Each metering element has one outlet and a functional indication (indication pin).

Initial element
The initial element has a threaded connection G 1/4.

Order-numbers
Initial element (with O-ring): 4124990010
Weight: 0,31 kg

O-ring DIN 3771 - Ø 6 x 1,5 - NBR as spare part: 09037710031181

Metering elements
Each metering element has a threaded connection M10x1 at the outlet.

Order numbers
Metering element 25 UEN (with O-ring): 4124990022
Metering element 50 UEN (with O-ring): 4124990023
Metering element 100 UEN (with O-ring): 4124990020
Metering element 200 UEN (with O-ring): 4124990024
Metering element 400 UEN (mit O-ring): 4124990021
O-ring DIN 3771 - Ø 6 x 1,5 - NBR as spare part: 09037710031181

End element
The end element has a threaded connection G 1/4.

Order number
End element: F4124/03-02
Weight: 0,33 kg
**Combination of outlets**

For lube points with divergent metering volumes, two, three or four outlets can be combined by means of a distributor bridge.

**Distributor bridge 2-outlets**

Order-no. total: 4124990005

Hollow screw with outlet AF 13

Hollow screw without outlet AF 5

USIT-ring U 10,35x16x2 (1.4401 + NBR 80)
Order-no.: 100150010383 (for spare part)

**Distributor bridge 3-outlets**

Order-no. total: 4124990081 4124990082

Hollow screw with outlet AF 13

Hollow screw without outlet AF 5

USIT-ring U 10,35x16x2 (1.4401 + NBR 80)
Order-no.: 100150010383 (as spare part)

**Distributor bridge 4-outlets**

Order-no. total: 4124990083 4124990084

Hollow screw with outlet AF 13

Hollow screw without outlet AF 5

USIT-ring U 10,35x16x2 (1.4401 + NBR 80)
Order-no.: 100150010383 (as spare part)
Connecting element for adding outlets

If distributors with more than six metering elements are necessary, they can be extended to max. 12 outlets (2x6 metering elements) by means of connecting elements. When using a connecting element, a special end element is needed.

**Connecting element**

Order-no. (with O-ring): 4124990040
Weight: 0.75 kg

O-ring DIN 3771 - Ø 6 x 1.5 - NBR as spare part: 09037710031181

**End element for connecting element**

The end element for connecting element has a threaded connection G 1/4.

Order-no.: F4124/03-04
Weight: 0.32 kg

Threaded connection G 1/4
The dimensional drawing shows a single line lubrication system with various elements and dimensions. The drawing includes measurements for the different parts of the system, such as the distributor, inlet, and outlets.

A table is also provided with the following information:

<table>
<thead>
<tr>
<th>Number of Metering elem.</th>
<th>Dim. “A” (mm)</th>
<th>Dim. “B” (mm)</th>
<th>Dim. “C” (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>44</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>68</td>
<td>92</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>92</td>
<td>116</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>116</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>140</td>
<td>164</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>164</td>
<td>188</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>131,4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>179,4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>227,4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>275,4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>323,4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>12</td>
<td>371,4</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
**Electronic pressure switch**

The electronic pressure switch monitors the system pressure in the pressure line and switches off the pump when reaching 210 bar to start the relief in the pressure lines.

If more single line distributors are installed in the lubrication system, the electronic pressure switch shall be installed at the inlet, which is the farthest away from the pump to ensure that the switching pressure is reached in the complete system.

Compared with a mechanic pressure switch, the electrical one exclude lubricant hardenings at the measuring inlet.

For installing the electronic pressure switch, there is an element with pressure switch flange that is assembled as standard at the initial element.

**Electronic pressure switch with pressure switch flange and fastening** (complete). 
**Order-no.:** 4124990012

---

**Element with pressure switch flange**

**Order number**

Electronic pressure switch: 042100415  
Weight: 0,75 kg

**Element with pressure switch flange**

Order-no.: 4124990080  
(w. O-ring, toothed lock washer and cylinder screw)  
Weight: 0,5 kg

**Spare parts**

O-ring DIN 3771 - Ø 16 x 2 - NBR: 09037710034141  
Toothed lock washer DIN 6797 - A 6,4 - stainless steel (1 pcs): 0906797003311  
Cylinder screw with hexagon socket DIN 912 - M6x50 - stainless steel (1 pcs): 090091204571
Mechanical pressure switch

The mechanical pressure switch monitors the system pressure in the line and switches off the pump when reaching 210 bar in order to start the pressure line relief.

When installing the mechanical pressure switch, a widened initial- or end element is necessary instead of the standard ones. Hence, five or eleven metering elements can be combined to one single line distributor by means of a connecting element.

Dimensional drawing
Emergency grease nipple

Lubrication points can be lubricated individually by an emergency grease nipple (1). This must be done at relieved pressure connection (2). Lubricant then flows, without any metering, through the single line distributor towards the lubrication points.

The initial filling for distributors that are delivered without grease filling can be done via the emergency grease nipple.

If hoses must be exchanged, they can also be filled via the emergency grease nipple.

Attention:

When lubricating or filling via the emergency grease nipple, the max. pressure of 280 bar must not be exceeded as otherwise the sealings will be damaged. The function of the single line distributor can no more be guaranteed. Therefore it is recommended to use a hand lever grease press for lubrication or filling.

Order number

Manometer, 0 - 400 bar, with glycerine filling: 0460110122141

Manometer connection G1/4 - L10: 04062961

Male stud coupling with cutting ring with cylindric threaded connection G 1/4, for pipe-Ø 10, series L: 04062450

Elbow swivelling fitting with cutting ring with cylindric threaded connection G 1/4, for pipe-Ø 10, series L: 04062452

End element with pressure switch flange

Order-no.: F4124/03-03

Weight: 0,83 kg

Threaded connection G 1/4

End element with pressure switch flange for connection elements (beginning at six metering elements),

Order-no.: F4124/03-05

Weight: 0,81 kg

Threaded connection G 1/4

Dimensional drawing:

Single line elements **UEN with mech. pressure switches (beginning at six metering elements)** must be equipped with an end element with **pressure switch flange for connection elements**.
Emergency grease nipple

Lubrication points can be lubricated individually by an emergency grease nipple (1). This must be done at relieved pressure connection (2). Lubricant then flows, without any metering, through the single line distributor towards the lubrication points.

The initial filling for distributors that are delivered without grease filling can be done via the emergency grease nipple.

If hoses must be exchanged, they can also be filled via the emergency grease nipple

Attention:

When lubricating or filling via the emergency grease nipple, the max. pressure of 280 bar must not be exceeded as otherwise the sealings will be damaged. The function of the single line distributor can no more be guaranteed. Therefore it is recommended to use a hand lever grease press for lubrication or filling.
Extend or shorten a distributor

The single line distributors UEN can be adjusted at any time to their applications of use due to their disk construction. If lube points are added or reduced, the single line distributor can be extended or shortened by metering elements.

Description
- unscrew the cylinder screws that fix the distributor
  Attention: at single line distributors with electronic pressure switch, the element with pressure switch flange must be removed before
- separate the distributor at the requested disk
- add or remove the metering elements
- screw the single line distributor together with the according cylinder screws (see table) and toothed lock washers

Table of order-no. for cylinder screw with hexagon socket DIN 912 or DIN 6912 (1 pcs) in stainless steel only for single line distributor UEN with electronic pressure switch:

<table>
<thead>
<tr>
<th>Distributor size</th>
<th>Cylinder screw</th>
<th>Order-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>UEN-1</td>
<td>M6 x 50</td>
<td>090691201931</td>
</tr>
<tr>
<td>UEN-2</td>
<td>M6 x 70</td>
<td>090091203671</td>
</tr>
<tr>
<td>UEN-3</td>
<td>M6 x 95</td>
<td>090691202631</td>
</tr>
<tr>
<td>UEN-4</td>
<td>M6 x 120</td>
<td>0900912111E1</td>
</tr>
<tr>
<td>UEN-5</td>
<td>M6 x 140</td>
<td>0900912050D1</td>
</tr>
<tr>
<td>UEN-6</td>
<td>M6 x 170</td>
<td>0900912112E1</td>
</tr>
</tbody>
</table>

Table of order-no. for cylinder screw with hexagon socket DIN 912 or DIN 6912 (1 pcs) in stainless steel only for single line distributor UEN with mechanical pressure switch:

<table>
<thead>
<tr>
<th>Distributor size</th>
<th>Cylinder screw</th>
<th>Order-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>UEN-1</td>
<td>M6 x 70</td>
<td>090091203671</td>
</tr>
<tr>
<td>UEN-2</td>
<td>M6 x 95</td>
<td>090091202631</td>
</tr>
<tr>
<td>UEN-3</td>
<td>M6 x 120</td>
<td>0900912111E1</td>
</tr>
<tr>
<td>UEN-4</td>
<td>M6 x 140</td>
<td>0900912050D1</td>
</tr>
<tr>
<td>UEN-5</td>
<td>M6 x 170</td>
<td>0900912112E1</td>
</tr>
</tbody>
</table>

If an O-ring, that seals the distributors between the elements, is damaged and does not seal anymore, it can be ordered.

O-ring DIN 3771 - Ø 6 x 1,5 - NBR for initial element and metering element,
Order-no.: 09037710031181

Enlargement of a single line distributor UEN-4 by two metering elements (400 UEN):

Attention: Take care of utmost cleanness!
Example
The single line distributor UEN can be adjusted according to customer requests.

In the drawing are four individual single line distributors UEN combined to one distributor by means of two connecting elements.
### Technical description

The single line distributor GVO-1 supplies lubricant under pump pressure via the lines directly to the lube points. Each outlet supplies one lube point.

The metering of lubricant can be adjusted for each distributor or at each metering valve for each lube point steplessly variable. The single line distributor GVO-1 have an indicator pin for the visual function control.

### Technical data

- **Operating pressure:** max. 70 bar  
  min. 50 bar
- **Relief pressure:** < 15 bar
- **Temperature range:** -25 °C to +175 °C
- **Lubricant:** oils, 68 - 1000 mm²/s  
  fluid grease, NLGI 000, 00
- **Metering volume:** 0,016 to 0,050 cm³ / stroke and outlet
- **Metering setting:** by means of set screw  
  min. to max. metering volume = approx. 1,5 revolution
- **Material:** zinc nickel-coating acc. to DIN 50979
- **No. of outlets or metering valves of a single line distributor:**  
  min. 1  
  max. 15
- **Weight:** see table

### Table with weights:

<table>
<thead>
<tr>
<th>No. of outlets or metering valves</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (w/o distributor strip)</td>
<td>0,090</td>
</tr>
<tr>
<td>1</td>
<td>0,153</td>
</tr>
<tr>
<td>2</td>
<td>0,287</td>
</tr>
<tr>
<td>3</td>
<td>0,421</td>
</tr>
<tr>
<td>4</td>
<td>0,554</td>
</tr>
<tr>
<td>5</td>
<td>0,688</td>
</tr>
<tr>
<td>6</td>
<td>0,822</td>
</tr>
<tr>
<td>7</td>
<td>0,955</td>
</tr>
<tr>
<td>8</td>
<td>1,089</td>
</tr>
<tr>
<td>10</td>
<td>1,356</td>
</tr>
<tr>
<td>12</td>
<td>1,624</td>
</tr>
<tr>
<td>15</td>
<td>2,025</td>
</tr>
</tbody>
</table>
**Functional description**

When lubricant is delivered through the inlet drilling (1) into the distributor or the metering valve, it presses the supply piston (2) upwards against the resilience. Hence lubricant that is already in the outlet chamber (3) is supplied to the outlet (4). At the end of the supply piston movement new lubricant flows into the metering chamber (5). The metering piston (6) is pressed to the right against resilience and the metering chamber (5) is filled. The indication pin (7) is shown and displays that the metering chamber (5) is filled with lubricant.

Due to the following pressure relief in the inlet drilling (8) the delivery piston (9) is pressed downwards by the spring. Now lubricant is pressed out of the metering chamber into the outlet chamber (11) by resilience of the metering piston (10). This is displayed by the non-visible indicator pin.

After the pressure relief the metering piston is ready for the next lubrication cycle.

By moving the set screw (13) the metering volume can be adjusted after loosening the counter nut (14).

**Setting of metering volume**

The set screw (13) limits the way to the metering piston and hence controls the metering volume. Turning it clockwise reduces the volume, turning it counter-clockwise increases the volume.

Loosen the counter nut (14) to adjust the requested volume via the set screw. Observe that the adjusting way from min. to the max. volume is approx. 1,5 revolutions of the screw. Afterwards tighten the nut (14) again.

The metering volume can be reduced to approx. 30 % of the max. metering volume without affecting the function of the valves.

The metering valves are adjusted to full up- and down stroke when being delivered. Do the setting after the start-up and after a ventilation of the pressure connection.

---

**Technical description**

The single line distributor GVO-1 supplies lubricant under pump pressure via the lines directly to the lube points. Each outlet supplies one lube point. The metering of lubricant can be adjusted for each distributor or at each metering valve for each lube point steplessly variable. The single line distributor GVO-1 have an indicator pin for the visual function control.

**Technical data**

- Operating pressure: max. 70 bar, min. 50 bar
- Relief pressure: < 15 bar
- Temperature range: -25 °C to +175 °C
- Lubricant: oils, 68 - 1000 mm²/s, fluid grease, NLGI 000, 00
- Metering volume: 0,016 to 0,050 cm³ / stroke and outlet
- Metering setting: by means of set screw
- Material: zinc nickel-coating acc. to DIN 50979
- No. of outlets or metering valves of a single line distributor: min. 1, max. 15
- Weight: see table

**Table with weights:**

<table>
<thead>
<tr>
<th>No. of outlets or metering valves</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0,090</td>
</tr>
<tr>
<td>2</td>
<td>0,153</td>
</tr>
<tr>
<td>3</td>
<td>0,287</td>
</tr>
<tr>
<td>4</td>
<td>0,421</td>
</tr>
<tr>
<td>5</td>
<td>0,554</td>
</tr>
<tr>
<td>6</td>
<td>0,688</td>
</tr>
<tr>
<td>7</td>
<td>0,955</td>
</tr>
<tr>
<td>8</td>
<td>1,089</td>
</tr>
<tr>
<td>10</td>
<td>1,356</td>
</tr>
<tr>
<td>12</td>
<td>1,624</td>
</tr>
<tr>
<td>15</td>
<td>2,025</td>
</tr>
</tbody>
</table>

**Break time**

**Supply time**

**Relief time**

**Refill time**
Single Line Lubrication Systems

Single line distributor

Table of dimensions:

<table>
<thead>
<tr>
<th>Number of outlets, resp. metering valves</th>
<th>Dim. “L” (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>41</td>
</tr>
<tr>
<td>2</td>
<td>60</td>
</tr>
<tr>
<td>3</td>
<td>79</td>
</tr>
<tr>
<td>4</td>
<td>98</td>
</tr>
<tr>
<td>5</td>
<td>117</td>
</tr>
<tr>
<td>6</td>
<td>136</td>
</tr>
<tr>
<td>7</td>
<td>155</td>
</tr>
<tr>
<td>8</td>
<td>174</td>
</tr>
<tr>
<td>10</td>
<td>212</td>
</tr>
<tr>
<td>12</td>
<td>250</td>
</tr>
<tr>
<td>15</td>
<td>307</td>
</tr>
</tbody>
</table>

Metering valve without distributor strip
Outlet pipe-Ø 4, order-no.: 41260010001
Outlet pipe-Ø 1/8”, order-no.: 41260010002

Order key for type-no. 4126

<table>
<thead>
<tr>
<th>Type-no.</th>
<th>4126</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
<td>4126</td>
</tr>
</tbody>
</table>

Single line distributor: GVO-1

<table>
<thead>
<tr>
<th>No. of outlets</th>
<th>1 2 3 4 5 6 7 8 10 12 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-no.</td>
<td>01 02 03 04 05 06 07 08 10 12 15</td>
</tr>
</tbody>
</table>

Inlet thread: M10x1, 1/8-27 NPTF

Outlet thread: M8x1, pipe-Ø 4, 5/16-24, pipe-Ø 1/8”

Special model: standard

Code-no.: 000
<table>
<thead>
<tr>
<th>Number of outlets, resp. Dim. (mm)</th>
<th>M 1</th>
<th>M 2</th>
<th>M 3</th>
<th>M 4</th>
<th>M 5</th>
<th>M 6</th>
<th>M 7</th>
<th>M 8</th>
<th>M 10</th>
<th>M 12</th>
<th>M 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>41</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>79</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>98</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>117</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>136</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>7</td>
<td>155</td>
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<tr>
<td>8</td>
<td>174</td>
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<td></td>
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<tr>
<td>10</td>
<td>212</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>250</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>307</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Order key for type-no. 4126

- **Inlet thread**: M8x1, pipe-Ø 4
- **Outlet thread**: 1/8-27 NPTF
- **Special model**: 000
- **Standard**: 001
- **Code-no.**: 03

**Outlet pipe-Ø 4**

- **Code-no.**: 4126 001 12 1 1 000
- **Order key**: GVO-1

**Outlet pipe-Ø 1/8”**

- **Code-no.**: 4126 001 12 1 1 000
- **Order key**: GVO-1

**Sealing rings**

- DIN 7603-11x14x1 ca. 38,3 Ø 11
- ca. 70 (pipe-Ø 4)
- ca. 64 (pipe-Ø 1/8"
- ca. 35,1
- ca. 38,3
Single Line Lubrication Systems

Single line distributor

**Description**

The BL-1 single line distributors (static system) deliver the lubricant under pressure via lines directly to the lube points. Only one lube point is assigned to each metering valve.

Metering can infinitely be adjusted for each lube point at each distributor, respectively each metering valve. The BL-1 single line distributors have an indicator pin for the visual control of the function.

We use elastomeric seals for the BL-1. Those can be replaced by the customer, if necessary. The required material for assembly can be ordered.

**Technical data**

- **Operating pressure:**
  - max. 240 bar
  - min. 140 bar
- **Relief pressure:** < 50 bar
- **Temperature range:** -26 °C to +93 °C
- **Medium:** oil, fluid grease; grease up to NLGI-cl. 2
- **Dosage volume:** see table
- **Material:** steel, the category of corrosion protection means protection against red rust of up to 720 h
- **No. of outlets or metering valves of a single line distributor:**
  - min. 1
  - max. 6
- **Weights:** see table

**Table of metering volume:**

<table>
<thead>
<tr>
<th>Model</th>
<th>Adjustable metering volume (cm³ / stroke and outlet)</th>
<th>Metering volume per turning of the set screw (cm³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BL-1</td>
<td>0,2 bis 1,2</td>
<td>approx. 0,13</td>
</tr>
</tbody>
</table>

**Table of weights:**

<table>
<thead>
<tr>
<th>BL-1 metering valve with strip</th>
<th>Weights (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>single (w/o strip) å</td>
<td>0,53</td>
</tr>
<tr>
<td>single*</td>
<td>0,91</td>
</tr>
<tr>
<td>2-fold*</td>
<td>1,49</td>
</tr>
<tr>
<td>3-fold*</td>
<td>2,19</td>
</tr>
<tr>
<td>4-fold*</td>
<td>2,91</td>
</tr>
<tr>
<td>5-fold*</td>
<td>3,62</td>
</tr>
<tr>
<td>6-fold*</td>
<td>4,35</td>
</tr>
</tbody>
</table>

* see dimensional drawings

---

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**Functional description**

When lubricant is delivered through the inlet bore (1) and into the distributor, respectively the metering valve, the control piston (2) is pushed upwards by the lubricant. This enables the lubricant to flow on to the metering piston (4) in the pressure channel (3). The metering piston (4) is pushed downwards against the spring force and the lubricant volume, which has been preadjusted at the set-screw (5), is delivered from the relief chamber (6) to the outlet (7) by that. The retracted pin (8) indicates function.

With the following pressure relief in the inlet bore (9) is the control piston (10) pushed downwards by the spring (13). The lubricant above the metering piston (11) is delivered through the bore of the control piston (10) into the relief chamber (12). The metering piston (11) is moved upwards again by the spring (13). When the metering piston (11) is in top position, the indicator pin (14) will be in extended state.

The metering valve is now ready for the next lubrication cycle.

**Dosage volume adjustment**

The distances of the metering strokes are adjusted with the set-screw (5) and this way is the dosage volume regulated. Turning the set-screw clockwise reduces the dosage volume, turning it counterclockwise increases the dosage volume.

For adjustment, loosen the hexagon nut (15). Then adjust the dosage volume with the set-screw (5) and tighten the hexagon nut (15) again.

Optionally, you can choose between four different dosage sleeves which are available as accessory. They help to adjust the dosage volume even quicker (see table accessories). For better differentiation, each dosage sleeve has an assigned color.

It is possible to reduce the dosage volume down to only 10% of the maximum value without affecting the function of the metering valves.

The metering valves are delivered set to full stroke. Please only adjust the dosage volume after start-up, complete ventilation of the pressure connection and only with pressureless lubrication lines.

---

**Table of weights:**

<table>
<thead>
<tr>
<th>Model</th>
<th>BL-1 single (w/o strip)</th>
<th>BL-1 single*</th>
<th>BL-1 0,2 bis 1,2 approx. 0,13</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>with strip</td>
<td>0,91</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4,35</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5-fold*</td>
<td>3,62</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4-fold*</td>
<td>2,91</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3-fold*</td>
<td>2,19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2-fold*</td>
<td>1,49</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6-fold*</td>
<td>4,35</td>
</tr>
</tbody>
</table>

---

**Table of metering volume:**

<table>
<thead>
<tr>
<th>Model</th>
<th>Adjustable Metering volume and outlet</th>
<th>Adjusted Metering volume</th>
<th>Adjusted Metering volume (cm³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Break</td>
<td>0,53</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relief</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Subject to alterations!**

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Filling connection

Lube points can be lubricated individually by means of the filling nipples (1). This has to be done with relieved pressure connection (2). The lubricant then flows through the single line distributor and directly to the lube points, without being metered.

First filling of the single line distributors can be done via the filling nipple.

If hoses need to be replaced, those can also be individually filled via the filling nipples.

During pressurization or when the filling nipple is not used, it has to be closed with a lock nut (3).

Attention:
Take care that the maximum pressure (see technical data) is not exceeded when the filling nipple is used, as otherwise seals might get damaged.
The proper function of the single line can no longer be ensured then. It is therefore recommended to use a hand lever grease gun with pressure gauge for lubricating or filling.

Metering valves

Metering valves can either be ordered individually or in form of a manifold with 1 to 6 positions (metering distributor block).

Two versions of the individual metering valves are available:
- for installation into the manifold (see next page)
- for installation into the line connection (see right side)

Metering valve for installation into line connection

Order-no. for metering valve:

<table>
<thead>
<tr>
<th>Inlet $G_1$</th>
<th>Outlets $G_2$</th>
<th>Order-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8-18 NPTF</td>
<td>1/8-27 NPTF</td>
<td>41250120221000</td>
</tr>
</tbody>
</table>

Outlet fittings on request, if necessary

Outlet fittings on request, if necessary

\[ G_1, G_2 \text{ see table (inch dimensions in brackets) } \]
Single Line Lubrication Systems
Einleitungsteilnehmer

BL-1 (static system)

Dimensional drawing:

Single line distributor
BL-1 metering valve metering valve
1-fold
2-fold
3-fold
4-fold
5-fold
6-fold

Outlet fittings

Filling connection
Art.-No. 412507006

Table of drawing torques:

<table>
<thead>
<tr>
<th>A/F</th>
<th>Drawing torque (Nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>15 ± 2</td>
</tr>
<tr>
<td>22</td>
<td>65 ± 5</td>
</tr>
</tbody>
</table>

Table of order-no. for BL-1 single line distributor or metering valves, with filling connection (enclosed loose):

<table>
<thead>
<tr>
<th>Metering valve</th>
<th>Order-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>single</td>
<td>41250080021</td>
</tr>
<tr>
<td>w/o strip</td>
<td></td>
</tr>
<tr>
<td>1-fold</td>
<td>41250081221</td>
</tr>
<tr>
<td>2-fold</td>
<td>41250082221</td>
</tr>
<tr>
<td>3-fold</td>
<td>41250083221</td>
</tr>
<tr>
<td>4-fold</td>
<td>41250084221</td>
</tr>
<tr>
<td>5-fold</td>
<td>41250085221</td>
</tr>
<tr>
<td>6-fold</td>
<td>41250086221</td>
</tr>
</tbody>
</table>
**Single Line Lubrication Systems**

**Single line distributor**

**BL-1 (static system)**

### Spare parts

A repair kit or sealing kit can be ordered, if required. (see table):

<table>
<thead>
<tr>
<th>Spare part kits</th>
<th>Order-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repair kit including the following positions:</td>
<td>4125009</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Name</th>
<th>Pcs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Metering piston</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Control piston</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Compression spring</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Washer</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Ball</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Sealing ring</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>Thread seal</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>Indicator pin</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>Edge seal</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>Quad ring</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>Grooved ring</td>
<td>1</td>
</tr>
</tbody>
</table>

| Sealing kit includes positions 7, 9, 10, 11 (see name / pcs. above) | 4125010 |

Pay attention to the torques of the hexagon parts and the correct seat of the sealing rings for the installation of spare parts.

**Take care for utmost cleanliness when working at the distributors.**

### Accessory

A protective cap for the set-screw as well as dosage sleeves for quicker dosage volume adjustment can be ordered optionally (see table):

<table>
<thead>
<tr>
<th>Accessory</th>
<th>Order-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROTECTIVE CAP</td>
<td>1004010285</td>
</tr>
<tr>
<td>DOSAGE SLEEVE</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output rate (cm³/stroke)</th>
<th>Color</th>
<th>Order-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.50</td>
<td>red</td>
<td>F4125/51-00 001</td>
</tr>
<tr>
<td>0.75</td>
<td>natural</td>
<td>F4125/51-00 002</td>
</tr>
<tr>
<td>1.00</td>
<td>golden</td>
<td>F4125/51-00 003</td>
</tr>
<tr>
<td>1.20</td>
<td>green</td>
<td>F4125/51-00 004</td>
</tr>
</tbody>
</table>

Subject to alterations!
**Description**

The BL-11 metering valve (static system) delivers the lubricant under pump pressure directly to the lubrication point.

The lubricant dosage can infinitely be adjusted. A pin serves for visual function control.

We use elastomeric seals for the BL-11. These seals can be replaced by the customer if necessary. The required tools for assembly can be ordered.

**Technical data**

<table>
<thead>
<tr>
<th>Operating pressure:</th>
<th>max. 240 bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>min. 70 bar</td>
<td></td>
</tr>
<tr>
<td>Relief pressure:</td>
<td>&lt; 55 bar</td>
</tr>
<tr>
<td>Temperature range:</td>
<td>-40 °C to +93 °C</td>
</tr>
<tr>
<td>Medium:</td>
<td>fluid grease; grease up to NLGI-cl. 2</td>
</tr>
<tr>
<td>Dosage volume:</td>
<td>see table</td>
</tr>
<tr>
<td>Material:</td>
<td>galvanized steel, yellow chromated</td>
</tr>
<tr>
<td>Weights:</td>
<td>metering valve: 2,8 kg</td>
</tr>
<tr>
<td></td>
<td>filling connection: 0,02 kg</td>
</tr>
</tbody>
</table>

**Order-no.:**

Metering valve BL-11: 4125034

**Table of dosage volume:**

<table>
<thead>
<tr>
<th>Type</th>
<th>Adjustable dosage volume (cm³ / stroke and outlet)</th>
<th>Dosage volume per revolution of set-screw (cm³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BL-11</td>
<td>1 to 11</td>
<td>approx. 0,6</td>
</tr>
</tbody>
</table>
**Functional description**

When lubricant is delivered through the inlet drill (1) in the metering valve, the control piston (2) is pushed upwards by the lubricant. This enables the lubricant to flow on to the metering piston (4) in the pressure channel (3). The metering piston (4) is pushed downwards against the spring force and the lubricant volume, which has been preadjusted at the set-screw (5), is delivered from the relief chamber (6) to the outlet (7) by that. The retracted pin (8) indicates function.

With the following pressure relief in the inlet bore (9) is the control piston (10) pushed downwards by the spring (13). The lubricant above the metering piston (11) is delivered through the bore of the control piston (10) into the relief chamber (12). The metering piston (11) is moved upwards again by the spring (13). When the metering piston (11) is in top position, the indicator pin (14) will be in extended state.

The metering valve is now ready for the next lubrication cycle.

**Dosage volume adjustment**

The distances of the metering strokes are adjusted with the set-screw and this way is the dosage volume regulated. Turning the set-screw clockwise reduces the dosage volume, turning it counter-clockwise increases the dosage volume.

For adjustment, loosen the hexagon nut. Then adjust the dosage volume with the set-screw and tighten the hexagon nut again.

Furthermore you can choose between four different dosage sleeves, which can be ordered optionally. They help to adjust the dosage volume even quicker (see table accessories). For better differentiation, each dosage sleeve has an assigned color.

It is possible to reduce the dosage volume down to only 10% of the maximum value without affecting the function of the metering valves.

The metering valves are delivered set to full stroke. Please only adjust the dosage volume after start-up, complete ventilation of the pressure connection and only with pressureless lubrication lines.
Filling connection
The lubrication point can be lubricated individually by means of the filling nipple (1). This has to be done with relieved pressure connection (2). The lubricant then flows through the metering valve and directly to the lube point, without being metered.

First filling of the metering valve can be done via the filling nipple.

If the hose needs to be replaced, it can also be filled via the filling nipple.

During pressurization or when the filling nipple is not used, it has to be closed with a lock nut (3).

Attention:
Take care that the maximum pressure (see technical data) is not exceeded when the filling nipple is used, as otherwise seals might get damaged.
The proper function of the metering valve can no longer be ensured then. It is therefore recommended to use a hand lever grease gun with pressure gauge for lubricating or filling.

Table of drawing torques:

<table>
<thead>
<tr>
<th>A/F</th>
<th>Drawing torque (Nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>15 ± 2</td>
</tr>
<tr>
<td>50</td>
<td>160 ± 10</td>
</tr>
</tbody>
</table>

Dimensional drawing:

Outlet or inlet fitting on request, if needed
Filling connection art.-no. 412507006 acc. to drawing FAZ03594_00 enclosed, loose
Set-screw

Outlet or inlet fitting

<table>
<thead>
<tr>
<th>Accessory</th>
<th>Order-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROTECTIVE CAP</td>
<td>1004010201</td>
</tr>
<tr>
<td>DOSAGE SLEEVE</td>
<td>F4125/51-00 005</td>
</tr>
</tbody>
</table>

Spare parts

<table>
<thead>
<tr>
<th>Spare parts</th>
<th>Order-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repair kit</td>
<td>4125035</td>
</tr>
</tbody>
</table>

Included positions:

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Name</th>
<th>Pcs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Guide sleeve</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Control piston</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Piston bushing</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Compression spring</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Quad ring</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Grooved ring</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Washer</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>O-ring Ø 42 x 2,5</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>O-ring Ø 23 x 2,6</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>Supporting ring</td>
<td>2</td>
</tr>
</tbody>
</table>

Accessory:

Protective cap for the set-screw as well as dosage sleeves for quicker dosage volume adjustment can be ordered optionally (see table):
Spare parts

A repair kit can be ordered, if necessary (see table).

<table>
<thead>
<tr>
<th>Spare parts</th>
<th>Order-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repair kit</td>
<td>4125035</td>
</tr>
<tr>
<td>including the following positions:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pos.</th>
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<td>Compression spring</td>
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<td>Quad ring</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Grooved ring</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Washer</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>O-ring Ø 42 x 2,5</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>O-ring Ø 23 x 2,62</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>Supporting ring</td>
<td>2</td>
</tr>
</tbody>
</table>

Pay attention to the torques of the hexagon parts and the correct seat of the sealing rings for the installation of spare parts.

Take care for utmost cleanliness when working at the distributors.

Accessory

A protective cap for the set-screw as well as dosage sleeves for quicker dosage volume adjustment can be ordered optionally (see table):

<table>
<thead>
<tr>
<th>ACCESSORY</th>
<th>Order-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROTECTIVE CAP</td>
<td>1004010201</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DOSAGE SLEEVE</th>
<th>Order-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output rate (cm³/stroke)</td>
<td>Color</td>
</tr>
<tr>
<td>3,0</td>
<td>red</td>
</tr>
<tr>
<td>5,0</td>
<td>natural</td>
</tr>
<tr>
<td>7,0</td>
<td>gold</td>
</tr>
<tr>
<td>9,0</td>
<td>black</td>
</tr>
<tr>
<td>11,0</td>
<td>green</td>
</tr>
</tbody>
</table>

Accessory:

Protective cap
Dosage sleeve