

Special Solutions

Your perma partner:



The Expert in Lubrication Solutions

perma



General Catalogue

→ For more information go to
the general Catalogue.

Legend

Applications:



Conveyors



Electric
motors



Pumps



Blowers /
Fans



Power supply with
15-30 V via system
or PLC

Machine elements:



Roller
bearings



Sliding bearings /
Sliding guides



Linear guides



Open gears /
Gear racks



Spindles



Shaft seals



Chains

Ex-proof certification:

Testing and certification of equipment intended for use in potentially explosive atmospheres. It certifies that the device was tested and is in compliance with ex-proof requirements and safety standards.



Ex
→ Europe



IECEx
→ Global

ANZEx

ANZEx
→ Australia and New Zealand

TIIS

TIIS
→ Japan



FM APPROVED
→ Canada and USA



FM APPROVED
→ USA



UL (Underwriters Laboratories)
→ Canada and USA



Special Solutions 4-11

- **Lubrication Systems with external power supply:** perma STAR CONTROL, perma PRO C MP-2, perma PRO C-MP 6, perma PRO LINE
- **Applications with oil:** perma ECOSY
- **Linear guides:** perma PRO LINE



Lubrication Systems 12-17

- **Single-point Lubrication Systems:** perma STAR CONTROL
- **Multi-point Lubrication Systems:** perma PRO C MP-6, perma ECOSY, perma PRO LINE, perma PRO C LINE



Lubricants 18-19



Part Numbers - Lubrication Systems 20-25

- perma Lubrication systems with part numbers and pictures



Part Numbers - Accessories 26-37

- Brackets, mounting plate, mounting angles, extensions, angles, tube connectors, tubes, reducers, reducer couplings, oil retaining valves, oil brushes, special connecting parts, mounting brackets, cartridges, bottles with part numbers and pictures
- **Special accessories:** CWL PLUS and SET Rail oiler



perma SERVICE 38-39















- perma Lubrication Systems - OVERVIEW
- **www.perma-tec.com:** Product- / Application flyer, perma SELECT Program, Videos / Photos, Installation Instructions
- **perma SERVICE:** Project Planning, Installation, Maintenance, perma MLP, perma ACADEMY

Special Solutions

Special applications often require the know-how of a specialist. Some lubrication points are very challenging and cannot be lubricated with standard lubricators. They require very specific lubricant amounts and lubrication intervals, longer feeding lines, PLC connection, discharge on demand after long equipment downtimes, or special applicators for lubricant distribution.

Special solutions not only demand close cooperation between perma engineers and end user, but also experience, creativity, perfection and economic efficiency.

Special Applications

| | |  |  |  |  |
|---|--------------------------------------|--|--|---|--|
| | |  |  |  |  |
| | | Roller / Sliding bearing → p. 12-13 + General catalogue | Chains / Oil application → Pages 8-9 | Linear guides → Pages 10-11 | Spindles / Open gears |
| Single-point Lubrication Systems | | | | | |
|  | CLASSIC FUTURA | + More information: General catalogue | + | - | + |
|  | FLEX NOVA | | ++ | - | ++ |
|  | STAR VARIO / STAR CONTROL | ++ More information: General catalogue | + | O | + |
| Multi-point Lubrication Systems → 2 to 6 lubrication points | | | | | |
|  | PRO / PRO C MP-2 | ++ | - | + | O |
|  | PRO / PRO C MP-6 / PRO C LINE | ++ | - | ++ perma PRO LINE / perma PRO C LINE | O |
|  | ECOSY | - | ++ | - | - |

O limited suitability + suitable ++ very suitable



Single- and multi-point Lubrication Systems

| | | | | |
|--|---|--|---|--|
| perma STAR CONTROL TIME / IMPULSE → Pages 12-13  | perma PRO MP-2 / perma PRO C MP-2  | perma PRO MP-6 / perma PRO C MP-6 → Pages 12-13  | perma PRO LINE / perma PRO C LINE → Pages 16-17  | perma ECOSY → Pages 14-15  |
|--|---|--|---|--|




Technical data

| | | | |
|--|--|--|--|
|  | <p>Code switch LED signal red/green</p>  <p>→ STAR Motor reusable</p> | <p>Push button + LCD-display LED signal red/green</p> <div><p>→ PRO MP-2 Motor reusable</p></div> <div><p>→ PRO Motor + MP-6 Distributor reusable</p></div> <div><p>→ ECOSY can be refilled</p></div> | |
|  | <p>-10 to +50 °C</p> <p>-20 to +60 °C</p> | | |
|  | <p>Max. 5 bar</p> | <p>Max. 25 bar</p> <p>Max. 10 bar</p> | |
|  | <p>60, 120, 250 cm³</p> | <p>250, 500 cm³ (grease up to NLGI 2)</p> <p>7 liter (oil)</p> | |

Electromechanical (discharge independent of ambient temperature and counter pressure)

| | | | | | |
|---|--|---|--|---|---|
|  Battery | perma STAR VARIO with battery: → General catalogue pages 24-25 | 1 day - 24 months | 1 day - 24 months | Different discharge amount for each outlet possible | - |
| 15-30 V DC  Time controlled | Discharge amount per 100 OPhrs OPhrs = Operating hours → 1 lube-point | Discharge amount per 100 OPhrs → 2 lube-points | Discharge amount per 100 OPhrs → up to 6 lube-points | Time between discharge Different discharge amount for each outlet possible → up to 6 lube-points | Discharge amount per 1,000 OPhrs Different discharge amount for each outlet possible → up to 6 lube-points |
| Impulse controlled | Choice of 4 discharge amounts per impulse → 1 lube-point | Discharge amount 0.25 cm ³ per impulse / outlet → 2 lube-points | Discharge amount 1.0 cm ³ per impulse / outlet → up to 6 lube-points | - | Discharge amount 0.5 cm ³ per impulse / outlet → up to 6 lube-points |
|  | EX-version available | | | | |

Special operating conditions

| | | | | | |
|--|---|--|--|--|---|
|  | Indoor / outdoor (with protection cap) | Indoor / outdoor (with protection box, page 23) | | | |
|  | High vibration | High vibration Remote mounting of lubrication system with tube extension | | | |
|  | < 5 meter tube extension at +20 °C with lubricant SF01, tube ø16mm, part no. 27.005.091 | < 5 meter tube extension at +20 °C with lubricant SF01, tube ø8mm, part no. 27.008.009 | | | < 10 meter tube extension at +20 °C with lubricant S014, tube ø6mm, part no. 27.005.016 |

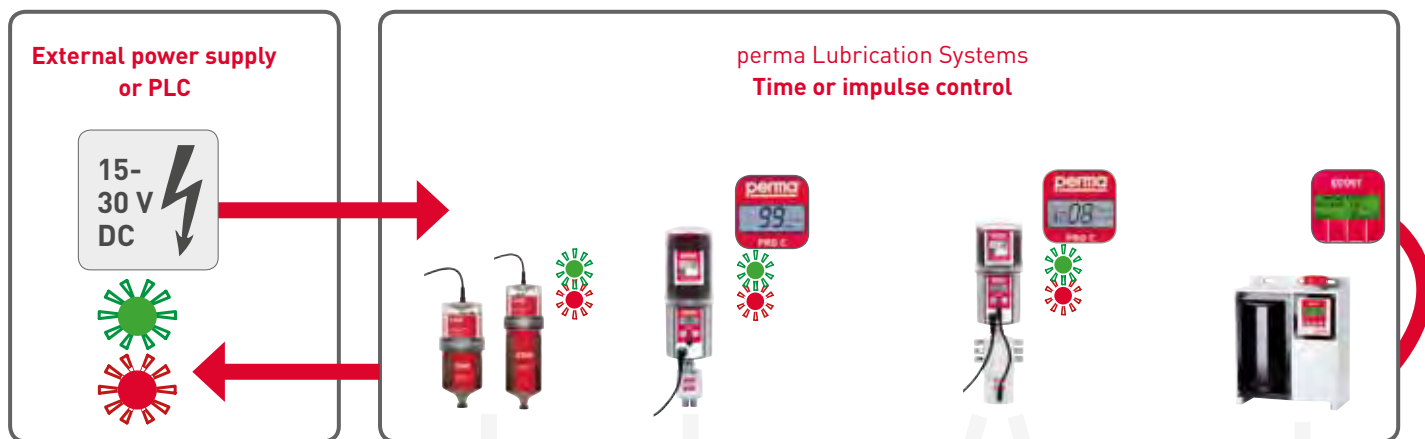
External power supply

Industrial equipment using a PLC (Programmable Logic Controller) is known for great adaptability and automatic programming documentation.

PLC programs and integrated components, like perma lubrication systems, can easily be controlled, monitored and modified from remote places.

- Automotive industry
- Chemical industry
- Power generation
- Power plants
- Food industry
- Paper industry
- Pharma industry

15-30 V Machine controlled or PLC connection



Operating status via LED

| | |
|--|--|
| | OK |
| | Error |
| | Lubricant Cartridge (LC) empty Refill / LC exchange |

Time control: The lubrication system will discharge the predefined amount **per operating hour (OPhr)**. The required discharge amount must be selected on the lubrication system.

| STAR CONTROL | PRO C MP-2 | PRO C MP-6 | PRO C LINE | ECOSY |
|--|---|---|--|---|
| Discharge amount per 100 OPhrs → 1 lube-point | Discharge amount per 100 OPhrs → 2 lube-points | Discharge amount per 100 OPhrs → up to 6 lube-points | Time between discharges Different discharge amount for each outlet possible → up to 6 lube-points | Discharge amount per 1,000 OPhrs Different discharge amount for each outlet possible → up to 6 lube-points |

Impulse control: The lubrication system will carry out **one discharge every time external power is applied**. The actual time for the discharge is programmed into the PLC. The discharge amount is either pre-set (PRO C + ECOSY) or can be selected (STAR CONTROL).

| STAR CONTROL | PRO C MP-2 | PRO C MP-6 | ECOSY |
|---|--|---|---|
| Choice of 4 discharge amounts per impulse → 1 lube-point | Discharge amount 0.25 cm³ per impulse / outlet → 2 lube-points | Discharge amount 1.0 cm³ per impulse / outlet → up to 6 lube-points | Discharge amount 0.5 cm³ per impulse / outlet → up to 6 lube-points |

Additional options for impulse control:

- Time of the discharge impulses
- How many discharge impulses
- Notification of 10% lubricant remaining

15-
30 V
DC

Advantages of automatic lubrication



Errors and operating status of the lubrication system are **transmitted directly to the PLC**.



Maintenance runs are minimized when lubrication systems are connected to the PLC.



perma lubrication systems **increase workplace safety** as they can be installed away from dangerous equipment and areas (remote mounting).



The perma lubrication system only works when the machine is in operation. This **reduces lubricant consumption** and **conserves resources**.

Benefits



Automatic lubrication systems from perma-tec can easily be integrated into machines with external power supply. This connection enables control over the lubrication system. **Signals** about operating status or error messages are **transmitted to the PLC** and can be processed accordingly (e.g. alarm).

→ **Operating status displayed** via LED lights on lubrication system and via PLC control

Lubrication can be adjusted exactly according to manufacturer`s specifications. Each lubrication point receives the **right amount** of **fresh lubricant** at the required time.

→ **Saves resources and optimizes operating efficiency**

Feedback of operating status to the control unit **drastically minimizes maintenance runs** and reduces the exposure of workers to dangerous equipment and areas.

→ **Increases workplace safety**



Solutions



Single-point Lubrication Systems: perma STAR CONTROL TIME / STAR CONTROL IMPULSE

- ✓ Different LC sizes available (60, 120, 250 cm³) / Greases up to NLGI 2 and oil
- ✓ Simple mounting: Either directly at the lubrication point or remote with grease lines
- ✓ We offer the right lubricant for every lubrication point

Multi-point Lubrication Systems: perma PRO C MP-2 / PRO C MP-6 / PRO LINE / ECOSY / NET

- ✓ One system can lubricate up to 6 lubrication points
- ✓ Extended maintenance intervals help reduce maintenance costs
- ✓ High-end solution from perma controls up to 600 lube-points (ask about perma NET!)

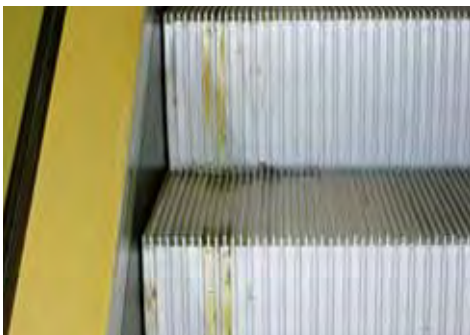


perma Lubrication Systems for Oil applications

The primary aim of all operators is equipment safety and availability. Oil lubrication presents numerous problems, some of which can be solved with "intelligent" perma lubrication systems. They provide timely and adequate lubrication which increases performance and extends equipment service life.

- Elevators
- Moving walkways
- Escalators
- Conveyors
- Lifting stations
- High rack guides

Challenges



In oil lubrication it is extremely important to apply just the right amount of lubricant. Not enough lubricant can be just as bad as too much lubricant.

The following aspects must be considered:

Potential dangers of over-lubrication

- **Slipping hazard** at the lubrication point
- **Contamination** of the environment



Severe wear from **lubricant starvation**

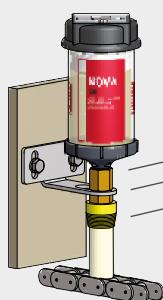
- **Premature aging of chain pins and rollers**
- Unpleasant noise development - **squeaking**
- Uneven chain movement - **jerking**
- **System failures**

Access to the system for lubrication or cleaning **is not always possible** or desired.

- Additional night work **increases maintenance costs**
- **Emergency shutdowns** required

Solution

Single-point Lubrication Systems: perma CLASSIC / FUTURA / FLEX / NOVA / STAR VARIO



perma NOVA with LC 130 → For part no. go to "General catalogue"

- Insert for bracket G1/4o x G1/4i
- Bracket
- Oil brush Ø20 mm G1/4i

- Part no. 26.0011.151
- Part no. 26.0012.150
- Part no. 26.001.400

NOTE: perma CLASSIC and perma STAR have no integrated oil retaining valve. When using these systems, you must order a separate oil retaining valve (see page 30).



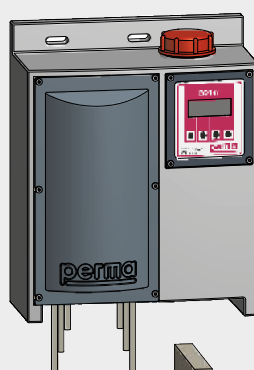
Advantages of automatic lubrication

- ✓ **Protection** against corrosion and contamination **increases chain service life**
- ✓ Reduces oil consumption (up to 75%) and **minimizes maintenance costs**
- ✓ perma lubrication systems can be **remote mounted**, away from moving machine parts. They are **easy to access** even during operation and tremendously **increase workplace safety**
- ✓ **Prevents contamination** caused by too much lubricant and **reduces the environmental impact**

Solution

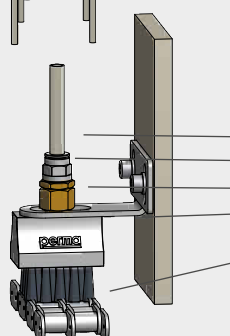
Multi-point lubrication system perma ECOSY for up to 6 lubrication points

- ✓ Up to 6 lubrication points can be lubricated. Each one with a different oil amount.
- ✓ Large oil tank results in extended maintenance intervals and reduces maintenance costs
- ✓ For hard-to-reach lubrication points: Remote mounting with tube extensions up to 10 meters for each lube-point

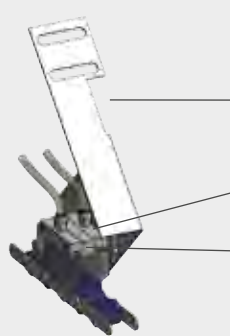


perma ECOSY

Part no. 30.000.011



- Tube black up to +100 °C oØ 6 mm x iØ 4 mm Part no. 27.005.016
- Tube connector G1/4o for tube oØ 6 mm Part no. 26.003.905
- Oil retaining valve G1/4o x G1/4i up to +60 °C Part no. 26.0011.810
- Bracket Part no. 26.0012.150
- Oil brush 60 x 30 mm G1/4i thread on top Part no. 26.001.411



- Tube black up to +100 °C oØ 6 mm x iØ 4 mm Part no. 27.005.016
- Special mounting bracket for special brush left right Part no. 27.005.068 Part no. 27.005.069
- Special brush for large chains up to +80 °C (with tapped bore M6) incl. tube connector Part no. 27.005.056 + 27.005.057
- Spacer for special brush, width: 13 mm Part no. 27.005.070

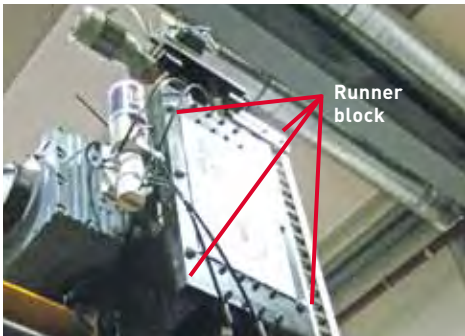
perma Lubrication Systems for Linear guides



Linear guides are machine elements that enable the movement of machines or components in linear direction. They are designed as roller guides or sliding guides. Linear guide drives are mainly screw drives, lifting gears, or a combination of both.

- Automotive industry
- Conveyor technology
- Food industry
- Packaging
- Machine tools

Lubrication points



Lubrication points are located on the **runner block** or on the **drive** (spindle, rack, belt).

A **continuous supply** of linear guide components with fresh lubricant is a basic requirement for maximum service life.

Challenges



Linear guide lubrication points present a challenge for preventive maintenance due to the **special design** and **diverse use** of linear guides. Lubrication points are often **hard to reach** and can only be accessed with additional equipment. The consequences are neglected or insufficient lubrication.

- Prevent **system downtimes** through relubrication
- Ensure **workplace safety**

Several lubrication points must be lubricated exactly according to **manufacturer specifications** while systems are running. Different lubrication points require different lubricant amounts. Improper lubrication can cause **system failures** and reduces productivity and efficiency.

- Recirculating ball- and roller guides:
The internal distribution to the 4 raceways on the runner block requires a very **specific lubricant speed / amount**.
- The **drive** (spindle or rack) often **requires more lubricant** than the runner blocks.





Advantages of automatic lubrication

- ✓ The lubricant amount can be **programmed differently for each one of the 6 outlets** according to **manufacturer specifications**.
- ✓ **Long exchange intervals** significantly **reduce maintenance time** required for lubrication runs (compared to manual lubrication).
- ✓ perma lubrication systems **minimize the risk of accidents**, as they can be **remote mounted** at a safe and easy to access place, away from moving machine parts.
- ✓ The **precise lubricant discharge prevents over-lubrication** and contributes to environmental protection.

Reference

Rexroth
Bosch Group

Use of lubricants approved
by the manufacturer

Solutions – perma Multi-point Lubrication Systems

Special systems for linear guides: perma PRO LINE / PRO C LINE

- ✓ Different discharge amounts per outlet: Number of pump strokes per discharge
- ✓ Flexibility in the number of active outlets: 1 – 6
- ✓ Flexible setting of time between discharges: Pauses between discharges in days (24 h)



Outlet assignment linear guide:

- Outlet 1: Spindle / gear rack
(= larger discharge amount)
- Outlet 2: Closed
- Outlet 3: Runner block 1
- Outlet 4: Runner block 2
- Outlet 5: Runner block 3
- Outlet 6: Runner block 4

perma PRO LINE Basic system
with battery

perma PRO C LINE Basic system
with external power supply

→ for further product information go
to page 24

perma STAR CONTROL / perma PRO C MP-6

Precise Lubrication Systems with external power supply



15-30 V
power supply via
machine or PLC

Lubrication Systems for up to 6 lubrication points

perma STAR CONTROL and perma PRO C MP-6 are machine / PLC controlled lubrication systems with external power supply. perma STAR CONTROL TIME discharges a predefined amount per 100 operating hours as long as power is applied.

perma STAR CONTROL IMPULSE carries out one discharge (amount preset by user) every time external power is applied.

perma PRO C MP-6 is a multi-point system which can be programmed to discharge in TIME or IMPULSE mode (up to 6 outlets). The MP-6 distributor dispenses directly without pressure loss.

perma

perma STAR CONTROL TIME / IMPULSE

Product characteristics

Benefits



**External power supply
via machine / PLC**

- ON / OFF mode to meet equipment operating times
- Can be connected to a fault reporting system
- No battery required



**Reusable electromechanical
STAR CONTROL drive unit**

STAR LC:
60 cm³ / 120 cm³ / 250 cm³

- Reliable, precise lubricant discharge independent of temperature and counter pressure
- One-time acquisition costs for STAR CONTROL drive unit
- 3 different LC sizes for individual lubrication requirements

Drive – reusable
Electromechanical
Power supply
External 15-30 V DC | 200 mA
Discharge period
CONTROL TIME:
Time controlled
CONTROL IMPULSE:
Impulse controlled
Lubricant volume
60 cm³, 120 cm³ or 250 cm³



Operating temperature
-10 °C to +50 °C
Pressure build-up
Max. 5 bar
< 5 meter tube extension
Lubricants
Grease up to NLGI 2 / oil
Applications
Roller and sliding bearings / sliding guides, open gears, gear racks, chains, shaft seals

perma PRO C MP-6

→ Ask for perma PRO C MP-2 with 2 outlets

Product characteristics

Benefits



**Push button programming
Display / LED lights
PRO LC 250 cm³ or 500 cm³**

- Discharge period and active outlets are easy to program and to adjust
- Shows operating status: Remaining volume / active outlets / blocked outlets / errors



**MP-6 distributor
Up to 6 outlets can be selected**

- Direct, precise lubricant discharge to remote lubrication points (up to a distance of 5 m)
- Automatic feedback from lubrication system to machine control

Drive – reusable
Electromechanical
Power supply
External 15-30 V DC | 120 mA
Discharge periods
1 day to 24 months or impulse controlled
Lubricant volume
250 cm³ or 500 cm³



Operating temperature
-20 °C to +60 °C
Pressure build-up
Max. 25 bar
< 5 meter tube extension
Lubricants
Grease up to NLGI 2
Applications
Roller and sliding bearings / sliding guides, open gears, shaft seals in motors, generators, pumps, blowers, fans and conveyors

perma ECOSY

Ideal oil lubrication for demanding applications



Exact oil discharge for up to 6 lubrication points

perma ECOSY is a multi-point lubrication oil system which can lubricate up to 6 lubrication points, each lubrication point with a different amount. It can be programmed to discharge in time, sensor, or impulse mode to meet different lubrication point requirements. The compact 7 liter oil tank can be filled by the user and holds the control unit and the pump. Due to the high pressure build-up, the system can be remote mounted with tubes, up to 10 m away from dangerous and hard to access lubrication points.

perma

Applications



perma ECOSY is ideal for the lubrication of guide ways, drive and transport chains. A special brush ensures that the oil is accurately applied to contact points, which reduces wear and protects your system against corrosion and contamination. The results are longer equipment service life, lower maintenance costs, increased customer satisfaction and an active contribution to environmental protection.



Product characteristics

Benefits



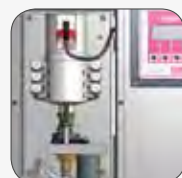
Multifunction display with different language options

- User-friendly menu
- Displays operating status



High quality, compact plastic housing with 7 liter oil tank

- Requires very little mounting space
- Extended service intervals lower maintenance costs



Time, sensor or impulse mode PLC connection

- Flexible programming of each outlet
- Operating status can be analyzed via machine control

Technical data

→ Refer to page 23 for part numbers

Tank capacity
7 liter

Number out outlets
1-6, each outlet can be programmed individually

Discharge period
Time, sensor or impulse controlled

Discharge amount
0 - 9.999 ml / 1.000 h for each outlet

Operating temperature
-20 °C to +60 °C

Pressure build-up
Max. 10 bar

Input supply voltage
**85-240 V AC | 50-60 Hz
24 V DC | 25 W**



perma ECOSY Display



perma PRO LINE / perma PRO C LINE

Precise Lubrication Systems for linear guides



The flexible multi-point lubrication system for 1 to 6 lubrication points

perma PRO LINE is a special multi-point lubrication system for linear guides. The lubricant discharge can be exactly adapted to manufacturer specifications. The PRO LC is available in two sizes (250 cm³ / 500 cm³) and supplies lubrication points with lubricant for up to 2 years. The high pressure build-up enables remote mounting with tube extensions of up to 5 m (per outlet). Remote mounting not only increases workplace safety, but also makes it possible to lubricate linear guides while they are in operation.

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Applications



Main applications for the multi-point lubrication systems perma PRO LINE and perma PRO C LINE are linear guides. Application fields range from the automotive industry to steel and paper industry. Other applications are roller and sliding bearings, open gears and spindles.



Product characteristics

Benefits



Flexible setting options:
Lubricant amount per outlet /
pause time per outlet

- Lubricant amount for each outlet can be configured individually – different amounts per outlet possible with one system
- Individual setting of pause time in between discharges for each outlet



Settings via push button
Display shows:
Remaining discharge time
Active outlets
LED red / green indicates
function

- Simple operation
- Quick inspection saves time and simplifies planning of PRO LC exchange
- Operating status displayed



Additional discharge

- Additional lubricant discharges can be triggered for all outlets during pause times
- Peak loads can be compensated
- Lubrication point can be purged (e.g. to add fresh lubricant after long system downtimes)

Technical data

→ Refer to pages 24 / 25 for part numbers

Drive – reusable

PRO LINE: Battery operated

PRO C LINE: External power supply
15–30 V | 120 mA

Discharge periods - settings

Pause time in days (24 h)

Discharges for each outlet

Lubricant volume

250 cm³ or 500 cm³

Operating temperature

-20 °C to +60 °C

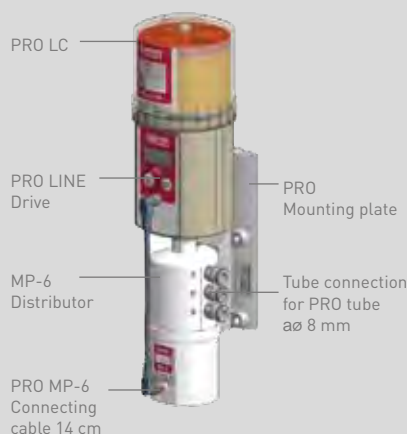
Pressure build-up

Max. 25 bar

< 5 meter tube extension / outlet

Lubricants

Grease up to NLGI 2



3 steps to your perma PRO System:

- ① **PRO LINE or PRO C LINE Basic system**
- ② **PRO KIT Accessories**
- ③ **PRO LC size and grease PRO Cover for LC**

The grease for pre-filling tube extensions must be the same grease as in the PRO LC. Refer to page 21 for 400 g prefill cartridges.

The right lubricant for a longer service life

Lubricants

perma-tec offers a wide range of high quality, high performance lubricants to meet the lubrication requirements of different industries, applications, and operating environments. Our lubricants are developed especially for the use in perma automatic lubrication systems. They are tested under laboratory conditions and in real applications to ensure optimal performance.



Food and
pharma industry



Bio-degradable for
all applications

Oil

| perma Code Name Identification according to DIN 51 517-3 → Lubricant properties | Lubricant | Base oil | Operating temperature (°C) | Viscosity at +40 °C [mm²/s] | Applications | | | |
|---|-----------|-------------|-------------------------------|--------------------------------|------------------------------|----------------------------|----------|--------|
| | | | | | Sliding bearings / guides | Open gears / gear racks | Spindles | Chains |
| S014 High performance oil → Effective lubrication even at high temperatures → Good adhesion and penetration properties → Little residue | Oil | PAO + Ester | -20 to +250 | 320 | - | - | - | ✓ |
| S032 Multipurpose oil CLP 100 → FZG scuffing load stage >12 / high micro pitting resistance → Aging and oxidation resistance → Good wear protection for gear teeth and rolling bearings | Oil | Mineral oil | -5 to +100 | 100 | ✓ | ✓ | ✓ | ✓ |
| S064 Bio oil, low viscosity CLP E 100 → Rapidly biodegradable → Good wear protection → Good viscosity / temperature behavior | Oil | Ester | -30 to +110 | 100 | ✓ | ✓ | ✓ | ✓ |
| S069 Bio oil, high viscosity CLP E 460 → Rapidly biodegradable → Very adhesive → Good viscosity / temperature behavior | Oil | Ester | -20 to +110 | 460 | ✓ | ✓ | ✓ | ✓ |
| S070 Food grade oil NSF H1 CLP H 220 → Excellent aging and oxidation stability → Neutral towards sealing materials → Good wear protection | Oil | PAO + Ester | -30 to +120 | 220 | ✓ | ✓ | ✓ | ✓ |

Additives

Additives are organic or inorganic compounds mixed into the base oil to enhance the existing oil properties or to impart new properties.
Examples: AW (anti-wear) and EP (extreme pressure) additives.
Additives are selected based on the requirements of the application.

Operating temperature

The safe function of components can be guaranteed within this temperature range. Using the lubricant outside this range can lead to damage.

Speed index

The speed factor indicates the permissible bearing speed range for lubricants. The perma lubricant overview indicates the max. speed for grease lubrication of deep groove ball bearings. The $n \times dm$ factor is a criterion for the selection of the grease taking into consideration bearing size and operating speed.

Calculation: $n \times dm = \text{speed factor}$ $dm = (D + d) \div 2$

n = Operating speed (1/min)

D = Outside bearing diameter

d = Inside (bore) bearing diameter

dm = Bearing size

→ Special lubricants are available upon request
→ The perma SELECT software helps you choose the right lubricant

(1) Please check compatibility of lubricant and sealing material.

Grease

| perma Code Name Identification according to DIN 51 502 → Lubricant properties | NLGI-grade | Thickener | Base oil | Operating temperature range (°C) | Viscosity at +40 °C [mm²/s] | Speed index | Applications | | | | | |
|---|------------|------------------------|-------------------|----------------------------------|-----------------------------|-------------|-----------------|---------------------------|---------------|-------------------------|----------|-----------------|
| | | | | | | | Roller bearings | Sliding bearings / guides | Linear guides | Open gears / gear racks | Spindles | Shaft seals (1) |
| SF01 Multipurpose grease KP2K-30 → Resistant to salt water → Free of heavy metal and silicone → Wear-reducing EP additives | 2 | Li / Ca | Mineral oil | -30 to +130 | 220 | 350,000 | ✓ | ✓ | ✓ | - | ✓ | ✓ |
| SF02 Extreme pressure grease KPF2K-30 → Good load carrying capacity → Resistant to ageing and oxidation → Good emergency lubrication properties | 2 | Li + MoS ₂ | Mineral oil | -30 to +120 | 105 | 350,000 | - | ✓ | - | ✓ | - | - |
| SF03 High temp. grease KE1T-20 → High thermal stability → Good oil retention → High water resistance | 2 | PHS + solids | Ester + PFPE | -20 to +220 | 420 | 300,000 | ✓ | ✓ | - | - | - | - |
| SF04 High performance grease K1S-20 → High performance for vibration and shock loads → Resistant to aggressive media → Multipurpose grease for extreme requirements | 0/1 | PHS | Mineral oil + PAO | -20 to +160 | 500 | 200,000 | ✓ | ✓ | ✓ | ✓ | ✓ | - |
| SF05 High temp. / Extreme pressure grease KPF1S-20 → High performance for vibrations and shock loads → Good emergency lubrication properties → Excellent aging and oxidation resistance | 0/1 | PHS + MoS ₂ | Mineral oil + PAO | -20 to +160 | 500 | 200,000 | ✓ | ✓ | - | ✓ | - | - |
| SF06 Liquid grease K0K-20 → Good water resistance → High wear protection → Good flow characteristics | 0 | Al-Com. | Mineral oil | -20 to +130 | 220 | 300,000 | ✓ | ✓ | ✓ | - | ✓ | - |
| SF08 High speed grease KHC2N-50 → Resistant to aging and oxidation → Good wear protection → High speed factor | 2 | Ca-Com. | PAO | -40 to +140 | 100 | 600,000 | ✓ | ✓ | - | - | - | - |
| SF09 Multipurpose bio grease KPE2K-40 → Rapidly biodegradable → Good low-temperature properties → High aging resistance | 2 | PHS | Ester | -40 to +140 | 100 | 300,000 | ✓ | ✓ | - | ✓ | - | - |
| SF10 Food grade grease NSF H1 K1K-40 → Synthetic → Especially for the food / pharma industry → Good flow characteristics | 1 | Al-Com. | PAO | -45 to +120 | 150 | 300,000 | ✓ | ✓ | ✓ | ✓ | - | - |

Base oil

Base oil is the main component of a grease and influences its behavior. Base oils may be mineral oil, hydrocracked oil, polyalphaolefin (PAO) oil, or synthetic ester oil.

Base oil viscosity

Base oil viscosity indicates the flow capability of the base oil. Low viscosity base oils are used for very high speeds. High viscosity base oils are used for high load applications. The viscosity of a typical roller bearing grease at +40 °C is between 15 and 500 mm²/s.

NLGI grade

Greases are divided into various consistency grades (NLGI grade).
High consistency = stiff grease = high NLGI grade
Low consistency = soft grease = low NLGI grade
NLGI starts at 000 (liquid) to 6 (very stiff).
Greases up to NLGI grade 2 are suitable for use in perma lubrication systems.

Thickeners

The thickener acts like a sponge. It holds the individual components of the grease together and ensures that the oil stays at the contact point.

perma Part numbers for ordering

Lubrication Systems



Prepare lube-point



Clean lube-point and remove grease fitting



Add sealant and screw reducer into lubrication point



Prefill lube-point and any grease lines / connections
(use the same grease that is contained in the lubrication system)



Pressure check: Lube-point / all connecting parts
Accessory set for pressure test
Part no. 27.002.005


Cartridges / Pails / Bottles / Canisters for pre-filling





| Grease | perma Code | Cartridge 400 g for grease gun  | Pail 1 kg  | Pail 5 kg  |
|--|------------|--|--|--|
| perma Multipurpose grease | SF01 | 28.001.000 | 286.0001.0000 | 287.0001.0000 |
| perma Extreme pressure grease | SF02 | 28.002.000 | 286.0002.0000 | 287.0002.0000 |
| perma High temp. grease | SF03 | 28.003.000 | 286.0003.0000 | 287.0003.0000 |
| perma High performance grease | SF04 | 28.004.000 | 286.0004.0000 | 287.0004.0000 |
| perma High temp. / Extreme pressure grease | SF05 | 28.005.000 | 286.0005.0000 | 287.0005.0000 |
| perma Liquid grease | SF06 | 28.006.000 | 286.0006.0000 | 287.0006.0000 |
| perma High speed grease | SF08 | 28.008.000 | 286.0008.0000 | 287.0008.0000 |
| perma Multipurpose bio grease | SF09 | 28.009.000 | 286.0009.0000 | 287.0009.0000 |
| perma Food grade grease NSF H1 | SF10 | 28.010.000 | 286.0010.0000 | 287.0010.0000 |
| Oil | perma Code | | Bottle 1 ltr  | Canister 5 ltr  |
| perma High performance oil | S014 | | 281.0414.0000 | 288.0414.0000 |
| perma Multipurpose oil | S032 | | 281.0432.0000 | 288.0432.0000 |
| perma Bio oil, low viscosity | S064 | | 281.0464.0000 | 288.0464.0000 |
| perma Bio oil, high viscosity | S069 | | 281.0469.0000 | 288.0469.0000 |
| perma Food grade oil NSF H1 | S070 | | 281.0470.0000 | 288.0470.0000 |
| Grease gun | Pic. 1 | 26.005.001 |  | |
| Tube with rotary joint and slide coupling for grease gun | Pic. 2 | 26.005.010 | | |
| Tube prefill adapter for tube with ø 6 mm | Pic. 3 | 27.005.066 | | |
| Tube prefill adapter for tube with ø 8 mm | Pic. 4 | 27.005.058 | | |
| Accessory set for pressure test | - | 27.002.005 | | |

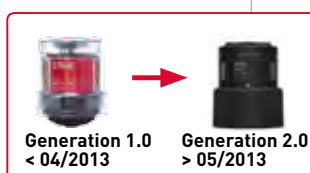


perma STAR

STAR LC (=Lubricant Canister)

 Be sure to exchange the battery pack for STAR VARIO Drive when you replace the empty LC

| | |  |  |  |
|--|--|---|---|---|
| Grease | perma Code | STAR LC S60 60 cm³ | STAR LC M120 120 cm³ | STAR LC L250 250 cm³ |
| perma Multipurpose grease | SF01 | 160.001.385 | 16.001.348 | 162.001.387 |
| perma Extreme pressure grease | SF02 | 160.002.385 | 16.002.348 | 162.002.387 |
| perma High temp. grease | SF03 | 160.003.385 | 16.003.348 | 162.003.387 |
| perma High performance grease | SF04 | 160.004.385 | 16.004.348 | 162.004.387 |
| perma High temp. / Extreme pressure grease | SF05 | 160.005.385 | 16.005.348 | 162.005.387 |
| perma Liquid grease | SF06 | 160.006.385 | 16.006.348 | 162.006.387 |
| perma High speed grease | SF08 | 160.008.385 | 16.008.348 | 162.008.387 |
| perma Multipurpose bio grease | SF09 | 160.009.385 | 16.009.348 | 162.009.387 |
| perma Food grade grease NSF H1 | SF10 | 160.010.385 | 16.010.348 | 162.010.387 |
| Oil |  Order oil retaining valve [see page 30] separately | | | |
| perma High performance oil | S014 | 160.414.385 | 16.414.348 | 162.414.387 |
| perma Multipurpose oil | S032 | 160.432.385 | 16.432.348 | 162.432.387 |
| perma Bio oil, low viscosity | S064 | 160.464.385 | 16.464.348 | 162.464.387 |
| perma Bio oil, high viscosity | S069 | 160.469.385 | 16.469.348 | 162.469.387 |
| perma Food grade oil NSF H1 | S070 | 160.470.385 | 16.470.348 | 162.470.387 |



| STAR Components / Accessories | Pic. | perma STAR VARIO | Pic. | perma STAR CONTROL TIME | Pic. | perma STAR CONTROL IMPULSE |
|--|------|------------------|------|-------------------------|------|----------------------------|
| Drive | 1 | 21.11.1001.9001 | 2 | 21.003.392 | 3 | 21.003.393 |
| Battery pack | 4 | 21.000.000 | | | | |
| Cable (5 m) | | | 5 | 26.004.001 | | |
| Cable (10 m) | | | 6 | 26.004.004 | | |
| STAR Support flange G1/4o x G1/4i (brass / plastic) | 7 | 26.001.620 | 7 | 26.001.620 | | |
| STAR Profile seal ring (NBR) | 8 | 26.001.623 | 8 | 26.001.623 | | |
| STAR Protection cap L250 (plastic) | 9 | 26.001.624 | 10 | 27.001.624 | | |
| STAR Protection cap M120 / S60 (plastic) can be cut to fit size S60 | 11 | 26.001.625 | 12 | 27.001.625 | | |



1



2



3



4



5



6



7



8



9



10



11




12








! Always use no. 7 + 8 with STAR Protection cap

If you would like more information
about perma NET please call us.
→ Phone: +49 9704 609-99


Central control for up to 600 lubrication points



perma NET is a centrally controlled lubrication network consisting of up to 100 multi-point lubrication systems, which can be cable connected up to a distance of 1000 meters. Each system can be individually programmed and settings can be changed at any time. Configuration, control and monitoring via internet browser: perma NET has an automatic alarm and can be remote monitored from any office. perma-tec also offers remote support.

| perma NET | Pic. | Part no. |  |
|--------------------------|------|--------------|--|
| NET GATEWAY | 1 | 2399.103.004 | |
| NET Power (power supply) | 2 | 2399.105.000 | |
| NET I/O | 3 | 2399.104.000 | |
| NET DRIVE | 4 | 2390.001.605 | |
| NET Termination resistor | 5 | 2399.106.000 | |
| NET Connector plug | 6 | 2399.103.002 | |
| NET Cable (per meter) | 7 | 2399.103.003 | |

Exact oil discharge for every application

| perma ECOSY | Pic. | Part no. |  |
|---|------|------------|--|
| ECOSY incl. connector plug The perma ECOSY tank can be refilled manually and holds up to 7 liters. For oil containing bottles please go to → page 21 | 1 | 30.000.011 | |
| ECOSY Control sensor | 2 | 27.005.071 | |

Our standard connection parts can be used (e.g. oil retaining valve)

Outdoor applications: Protection against dust and water jets

| Protection boxes PRO / ECOSY | Pic. | Part no. |  |
|--|------|---|--|
| Protection box single (steel) Incl. mounting plate and mounting set With pre-bored holes for grease lines and cable screw connections | 1 | 27.005.059 - for 1x PRO - | |
| Protection box double (steel) Incl. mounting plate and mounting set No bore holes for grease lines No cable screw connections | 2 | 27.005.019 - for 2x PRO or 1x ECOSY - | |
| Protection box single (plastic) Incl. mounting set & boring template No bore holes for grease lines, No cable screw connections | 3 | 27.005.084 - for 1x PRO - | |



1
Outer dimensions:
H x W x D
470 x 240 x 210 mm



2
Outer dimensions:
H x W x D
500 x 400 x 210 mm



3
Outer dimensions:
H x W x D
640 x 310 x 215 mm

perma PRO / ECOSY are attached to the mounting plate inside the protection box. The box is installed on the wall with 4 screws.

This protection box can be installed with the PRO Mounting device for wall mounting (part no. 27.008.007)



1 perma PRO Basic systems

Battery operated

Part no.

PRO MP-2 Basic system with PRO Battery B

for 2 lube-points

2290.008.690

1 x PRO MP-2 Drive with mounted distributor
incl. PRO Mounting device (for wall mounting) pre-assembled
1 x PRO MP-2 Accessory box (Tube Connector G1/8o: 2x straight / 2x 90°)



PRO MP-6 Basic system with PRO Battery B

for 6 lube-points

2290.019.601

PRO LINE Basic system with PRO Battery B

for Linear guides

2290.027.601

Each Basic system contains:

1 x PRO or PRO LINE Drive
1 x PRO Mounting device (for wall mounting) pre-assembled
1 x PRO MP-6 Distributor incl. PRO MP-6 Accessory box (consisting of 16 pcs.)
1 x PRO MP-6 Connecting cable (14 cm)



NEW

External power supply 24 V / PLC connection

Part no.

PRO CMP-2 Basic system

with PRO C M12 Cable 5 m

with PRO C M12 Cable 10 m

for 2 lube-points

2290.009.690

2290.010.690

1 x PRO MP-2 Drive with mounted distributor
incl. PRO Mounting device (for wall mounting) pre-assembled
1 x PRO MP-2 Accessory box (Tube Connector G1/8o: 2x straight / 2x 90°)



15-30 V DC



PRO CMP-6 Basic system

with PRO C M12 Cable 5 m

with PRO C M12 Cable 10 m

for 6 lube-points

2290.020.602

2290.030.602

PRO C LINE Basic system

with PRO C M12 Cable 5 m

with PRO C M12 Cable 10 m

for Linear guides

2290.027.602

2290.028.602

Each Basic system contains:

1 x PRO or PRO LINE Drive
1 x PRO Mounting device (for wall mounting) pre-assembled
1 x PRO MP-6 Distributor incl. PRO MP-6 Accessory box (consisting of 16 pcs.)
1 x PRO MP-6 Connecting cable (14 cm)



NEW

2 perma PRO KIT Accessories

→ for all PRO Basic systems

PRO KIT Accessories

→ Go to page 26-31 for part details

2290.029.999

Contents:

| | Part no. |
|---|-------------|
| 30 m Tube black for PRO | 27.008.009 |
| - each outlet <5 m tube extension possible | |
| 1 x Tube prefill adapter for tube ø 8 mm | 27.005.058 |
| 6 x Tube connector G1/4o for tube ø 8 mm straight | 27.005.011 |
| 6 x Reducer G1/8o x G1/4i (brass) | 26.0011.501 |
| 6 x Reducer M6o x G1/4i (brass) | 26.0011.511 |
| 6 x Reducer M8x1o x G1/4i (brass) | 26.0011.514 |
| 6 x Reducer M10x1o x G1/4i (brass) | 26.0011.518 |
| 2 x Extension G1/8o x G1/8i 16 mm | 27.008.023 |
| 2 x Extension G1/8a x G1/8i 36 mm | 27.008.024 |



6 x

1st order: PRO / PRO C Complete system in 3 steps



- 1 PRO Basic system:**
Battery or external power supply?
How many lube-points? Application: Linear guides
- 2 PRO KIT Accessories:**
Part no. 2290.029.999
- 3 PRO LC and PRO Cover:**
Which grease? Size 250 / 500 cm³?

ReOrder:
PRO

ReOrder:
PRO C



3 perma PRO LC (=Lubricant Canister) / PRO Cover for LC

| | perma Code | PRO LC 250 250 cm³ | PRO LC 500 500 cm³ |
|--|---------------|-----------------------|-----------------------|
| perma Multipurpose grease | SF01 | 222.0001.608 | 223.0001.609 |
| perma Extreme pressure grease | SF02 | 222.0002.608 | 223.0002.609 |
| perma High temp. grease | SF03 | 222.0003.608 | 223.0003.609 |
| perma High performance grease | SF04 | 222.0004.608 | 223.0004.609 |
| perma High temp. / Extreme pressure grease | SF05 | 222.0005.608 | 223.0005.609 |
| perma Liquid grease | SF06 | 222.0006.608 | 223.0006.609 |
| perma High speed grease | SF08 | 222.0008.608 | 223.0008.609 |
| perma Multipurpose bio grease | SF09 | 222.0009.608 | 223.0009.609 |
| perma Food grade grease NSF H1 | SF10 | 222.0010.608 | 223.0010.609 |

**Codes of lubricants
contained in your
lubrication systems
are marked here
(for ReOrder):**



⚠ Be sure to exchange the battery pack for PRO Drive when you replace the empty LC.

| | | | | |
|------------------|---|--------------|---|--------------|
| PRO Cover for LC | 1 | 2299.101.000 | 2 | 2299.102.000 |
|------------------|---|--------------|---|--------------|

For prefilling of tube extensions always use the same grease that is filled in the PRO LC. Refer to page 21 for 400 g prefill cartridges.

| PRO Components | Pic. | Part no. |
|---|------|--------------|
| PRO Drive incl. 1 x Reducer coupling G3/8i to G1/8i, nickel-plated (part no. 27.005.081) Mounting material for PRO Mounting device | 1 | 2290.001.601 |
| PRO Battery B | 2 | 2299.001.606 |
| PRO Battery B plus (for low temperature) | 3 | 2299.002.607 |
| PRO C Drive | 4 | 2290.002.602 |
| PRO C M12 Cable (5 m) | 5 | 2291.000.003 |
| PRO C M12 Cable (10 m) | 6 | 2291.000.004 |
| PRO MP-6 Distributor Mounting material for PRO Mounting device incl. PRO MP-6 Accessory box: 6 x Tube connector G1/8o for tube ø 8 mm straight 6 x Tube connector G1/8o for tube ø 8 mm 90° 4 x PRO MP-6 Plug G1/8 | 7 | 2291.000.000 |
| PRO MP-6 Connecting cable (14 cm) | 8 | 2291.000.001 |
| PRO MP-6 Connecting cable (2 m) | 9 | 2291.000.002 |
| PRO Accessories | Pic. | Part no. |
| PRO Mounting device (for wall mounting) | 10 | 27.008.007 |



4x 6x 6x

perma Part numbers for ordering

Accessories for durable installations

Correct installation with the right accessories will ensure long-term lubricator reliability and lays the foundation for a robust maintenance solution. perma accessories have been carefully selected to ensure that installations will stand the test of time in harsh operating environments.

| Extensions | Pic. | Brass | Pic. | Stainless steel 1.4571 |
|---|-----------|-------------|----------|------------------------|
| Extension 30 mm R1/4o x G1/4i | 1 | 26.0011.700 | | - |
| Extension 45 mm R1/4o x G1/4i | 2 | 26.0011.701 | 3 | 26.0012.701 |
| Extension 75 mm R1/4o x G1/4i | 4 | 26.0011.702 | 5 | 26.0012.702 |
| Extension 115 mm R1/4o x G1/4i | 6 | 26.0011.705 | | - |
| Extension 16 mm G1/8o x G1/8i (brass nickel-plated) | 7 | 27.008.023 | | - |
| Extension 36 mm G1/8o x G1/8i (brass nickel-plated) | 8 | 27.008.024 | | - |
| Extension 14 mm M6x0.75o x M6i | 9 | 26.0011.710 | | - |
| Extension 30 mm M6x0.75o x M6i | 10 | 26.0011.711 | | - |
| Extension 14 mm M6o x M6i | 11 | 26.0011.712 | | - |
| Extension 30 mm M6o x M6i | 12 | 26.0011.713 | | - |
















For prefilling of connection parts
always use the same lubricant that
is filled in the lubrication system
→ 400 g cartridges on page 21

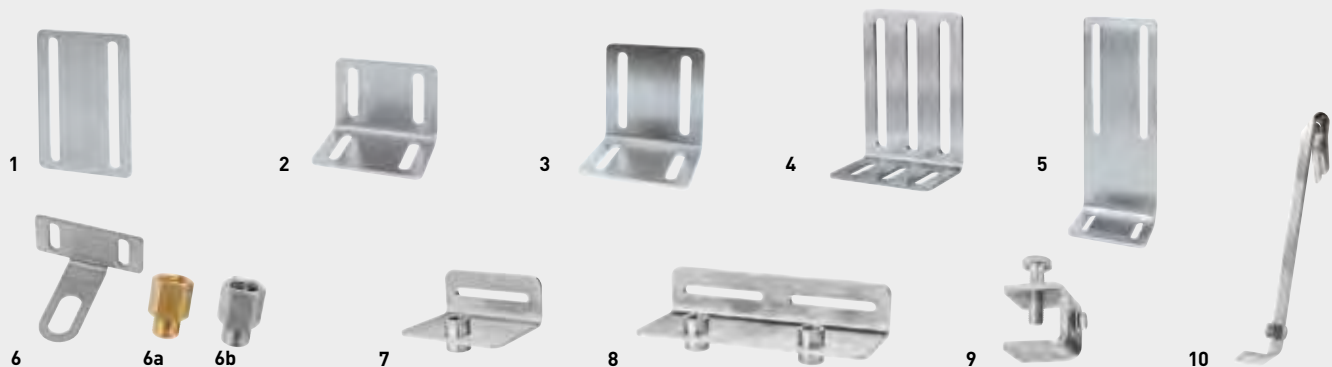
Brackets

| | Pic. | Part no. |
|--|------|------------|
| Clamp (steel, zinc-plated) for grounding the perma CLASSIC in an Ex-zone | 1 | 26.001.100 |
| Clip for CLASSIC, FUTURA, STAR (plastic) | 2 | 26.001.105 |
| Clip for FLEX, NOVA (plastic) | 3 | 26.050.150 |



Mounting plate / Mounting angles / Mounting brackets

| | Pic. | Brass | Pic. | Stainless steel 1.4301 |
|---|--|-------------|------|--|
| Mounting plate 110 x 70 x 2.5 mm - holespacing 45 mm | | | 1 | 26.001.653 |
| Mounting angle 50 x 50 x 70 x 2.5 mm - holespacing 45 mm | | | 2 | 26.001.650 |
| Mounting angle 50 x 70 x 70 x 2.5 mm - holespacing 45 mm | | | 3 | 26.001.651 |
| Mounting angle 50 x 100 x 70 x 2.5 mm - holespacing 45 mm / 22.5 mm | | | 4 | 26.001.652 |
| Mounting angle 50 x 180 x 70 x 5 mm - holespacing 45 mm | | | 5 | 26.001.654 |
| Bracket | | | 6 | Stainless steel 1.4016 26.0012.150 |
| Insert for Bracket G1/4o x G1/4i | 6a | 26.0011.151 | 6b | Stainless steel 1.4571 26.0012.151 |
| 1 point bracket G1/4i - for 1 lubrication system | NEW → Quick → Easy → No drilling | | 7 | 26.0012.655 |
| 2 point bracket G1/4i - for 2 lubrication systems | | | 8 | 26.0012.656 |
| Beam clamp 30 mm - for bracket no. 7 or 8 | | | 9 | 26.0012.659 |
| 1 point cage hanger - for bracket no. 7 or 8 | | | 10 | 26.0012.660 |




Accessories

| Tubes up to 10 bar for ECOSY / 25 bar for PRO | Pic. | Tubes with oØ 6 mm - Oil - | Pic. | Tubes with oØ 8 mm - Grease - |
|--|------|--------------------------------------|------|---|
| Tube black (PA) up to +80 °C oØ 8 mm x iØ 5 mm - for PRO - up to +100 °C oØ 6 mm x iØ 4 mm - for ECOSY - | 1 | - for ECOSY - 27.005.016 | 2 | - for PRO - 27.008.009 |
| Tube translucent (PA) up to +80 °C oØ 6 mm x iØ 4 mm - for ECOSY - | 3 | - for ECOSY - 27.005.008 | | - |



→ Tube length can be selected individually

| Tube connectors (plug-in) up to 25 bar | Pic. | Tubes with oØ 6 mm - Oil - | Pic. | Tubes with oØ 8 mm - Grease - |
|---|------|--------------------------------------|---|---|
| Tube connector G1/8o straight | 1 | 26.003.904 | 2 | 27.008.010 |
| Tube connector G1/8o 90° - rotary type | 3 | 26.003.907 | 4 | 27.008.011 |
| Tube connector G1/4o straight | 5 | 26.003.905 | 6 | 27.005.011 |
| Tube connector G1/4i straight | 7 | 27.005.038 | 8 | 27.005.026 |
| Tube connector G1/4o 90° - rotary type | 9 | 27.005.087 | 10 | 27.005.012 |
| Tube connector G3/8o straight | | - | 11 | 27.005.013 |
| Tube connector M5o straight | 12 | 26.003.906 | <p>Use tube connectors together with extension for tube oØ 6 mm to oØ 8 mm</p>  <p>Part no. 27.005.039</p> | |
| Tube connector M6o straight | 13 | 27.005.036 | | |
| Tube connector M6o 90° - swivel type | 14 | 27.005.042 | | |
| Tube connector M6x0.75o 90° - swivel type | 15 | 27.005.043 | | |
| Tube connector M8x1o straight | 16 | 27.005.044 | | |
| Tube connector M10x1o straight | 17 | 27.005.037 | | |
| Tube connector M8x1o 90° - rotary type | 18 | 27.005.034 | | |
| Tube connector M10x1o 90° - rotary type | 19 | 27.005.035 | | |




| Accessories for tube (plug-in) | Pic. | For tubes with oØ 6 mm - Oil - | Pic. | For tubes with oØ 8 mm - Grease - |
|---------------------------------------|------|--|------|---|
| Y-Connector for tube | 20 | 27.005.041 | 21 | 27.005.040 |
| Extension for tube oØ 6 mm to oØ 8 mm | 22 | 27.005.039 | | - |
| Tube prefill adapter | 23 | 27.005.066 | 24 | 27.005.058 |





| Choose the right tube for your lubrication system | iØ / oØ in mm | max. °C | max. pressure | Part no. | CLASSIC / FUTURA | FLEX / NOVA | STAR | PRO | ECOSY |
|--|------------------|------------|------------------|------------|---------------------|----------------|------|-----|-------|
| Standard tube translucent (PA) | 6 / 8 | +80 | 6 bar | 26.001.250 | ✓ | ✓ | ✓ | - | - |
| Standard tube translucent (PTFE) | 6 / 8 | +250 | 6 bar | 26.001.260 | ✓ | ✓ | ✓ | - | - |
| Low pressure tube black with NBR lining and fabric insert | 9.5 / 16 | +100 | 25 bar | 27.005.091 | ✓ | ✓ | ✓ | - | - |
| VA-Flex tubes (stainless steel 1.4571) | 8 / 12 | +260 | 25 bar | 27.005.085 | ✓ | ✓ | ✓ | ✓ | - |
| Tube black (PA) | 5 / 8 | +80 | 25 bar | 27.008.009 | - | - | - | ✓ | - |
| Tube black (PA) | 4 / 6 | +100 | 10 bar | 27.005.016 | - | - | - | - | ✓ |
| Tube translucent (PA) | 4 / 6 | +80 | 10 bar | 27.005.008 | - | - | - | - | ✓ |


Max. tube length depends on lubricant, lubrication system and ambient temperature.


| Standard tubes up to 6 bar | Pic. | Tube with oØ 8 mm x iØ 6 mm - Grease / Oil - | | | | |
|--|------|---|------|-----------------------|------|---|
| Tube up to +80 °C oØ 8 mm x iØ 6 mm (PA), per meter | 1 | 26.001.250 | | | | |
| Tube up to +250 °C oØ 8 mm x iØ 6 mm (PTFE), per meter | 2 | 26.001.260 | | | | |
| | Pic. | Alu / plastic max. +80 °C | Pic. | Brass max. +100 °C | Pic. | Stainless steel 1.4571 max. +250 °C |
| Tube connector for perma G1/4i | 3 | 26.001.202 | 4 | 26.0011.202 | 5 | 26.0012.202 |
| Tube connector G1/4o | 6 | 26.001.203 | 7 | 26.0011.203 | 8 | 26.0012.203 |
| Tube connector G1/8o | 9 | 26.001.204 | | - | | - |



1
translucent



2
translucent



3



4
nickel plated


5


6



7



8


9

→ Tube length can be selected individually

| Low pressure tube up to 25 bar | Pic. | Tube with oØ 16 mm - Grease / Oil - |
|---|------|--|
| Low pressure tube up to +100 °C (with NBR lining and fabric insert) | 1 | 27.005.091 |
| Tube connector G1/4o for tube iØ 9.5 mm (steel, zinc-plated), push-lock | 2 | 27.005.090 |


1



2

NEW
 → Longer
 → Easier
 → Sturdier

| VA-Flex tubes / Cutting ring couplings up to +260 °C | Pic. | For tubes with oØ 12 mm - Grease / Oil - |
|---|------|---|
| Tube up to +260 °C, length 1000 mm (PTFE / stainless steel 1.4301) | 1 | 27.005.085 |
| Tube up to +260 °C, length 1500 mm (PTFE / stainless steel 1.4301) | 2 | 27.005.086 |
| Cutting ring coupling R1/4o for oØ 8 mm straight (stainless steel 1.4571) | 3 | 26.0012.220 |
| Cutting ring coupling R1/8o for oØ 8 mm 90° adjustable (stainless steel 1.4571) | 4 | 26.0012.221 |
| Cutting ring coupling R1/8o for oØ 8 mm straight (stainless steel 1.4571) | 5 | 26.0012.222 |
| Cutting ring coupling straight - connector for oØ 8 mm (stainless steel 1.4571) | 6 | 26.0012.223 |



1


2


3


4


5


6

Accessories

| Reducers / Reducer coupling | Pic. | Brass | Pic. | Stainless steel 1.4571 |
|--|------|-------------|------|------------------------|
| Reducer R1/2o x G1/4i | 1 | 26.0011.500 | | - |
| Reducer G1/8o x G1/4i | 2 | 26.0011.501 | 3 | 26.0012.501 |
| Reducer G1/4o x G1/8i | 4 | 26.0011.503 | | - |
| Reducer R3/4o x G1/4i | 5 | 26.0011.504 | | - |
| Reducer R3/8o x G1/4i | 6 | 26.0011.505 | | - |
| Reducer M6o x G1/4i | 7 | 26.0011.511 | 8 | 26.0012.511 |
| Reducer M8x1o x G1/4i | 9 | 26.0011.514 | 10 | 26.0012.514 |
| Reducer M8o x G1/4i | 11 | 26.0011.515 | 12 | 26.0012.515 |
| Reducer M10x1o x G1/4i | 13 | 26.0011.518 | 14 | 26.0012.518 |
| Reducer M10o x G1/4i | 15 | 26.0011.520 | | - |
| Reducer M12o x G1/4i | 16 | 26.0011.524 | | - |
| Reducer M12x1o x G1/4i | 17 | 26.0011.525 | | - |
| Reducer M12x1.5o x G1/4i | 18 | 26.0011.526 | | - |
| Reducer M14x1.5o x G1/4i | 19 | 26.0011.528 | | - |
| Reducer M14o x G1/4i | 20 | 26.0011.529 | | - |
| Reducer M16o x G1/4i | 21 | 26.0011.530 | | - |
| Reducer M16x1.5o x G1/4i | 22 | 26.0011.531 | | - |
| Reducer Whitworth 1/4"o x G1/4i | 23 | 26.0011.533 | | - |
| Reducer coupling G3/8i to G1/8i for tube ø 8 mm, nickel plated | 24 | 27.005.081 | | - |

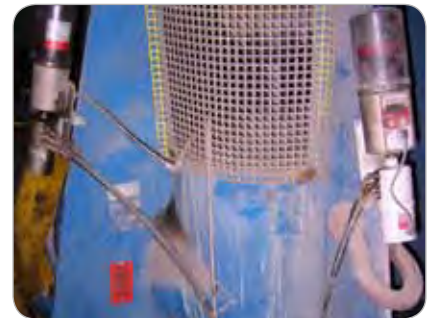


| Oil retaining valves | Pic. | Brass | Pic. | Stainless steel 1.4571 |
|---|------|-------------|------|------------------------|
| Oil retaining valve G1/4o x G1/4i up to +60 °C (with plastic valve) | 1 | 26.0011.810 | 2 | 26.0012.810 |
| Oil retaining valve G1/4o x G1/4i up to +150 °C (with metal valve) | 3 | 26.0011.811 | | - |



Seal all connection parts
with a metal bonding
adhesive (medium)

| Angles | Pic. | Brass | Pic. | Stainless steel 1.4401 |
|--------------------------|------|-------------|------|------------------------|
| Angle 45° G1/4o x G1/4i | 1 | 26.0011.300 | 2 | 26.0012.301 |
| Angle 45° M6o x G1/4i | 3 | 26.0011.304 | | - |
| Angle 45° M8x1o x G1/4i | 4 | 26.0011.305 | | - |
| Angle 45° M10x1o x G1/4i | 5 | 26.0011.306 | | - |
| Angle 90° G1/4o x G1/4i | 6 | 26.0011.350 | 7 | 26.0012.350 |
| Angle 90° M6o x G1/4i | 8 | 26.0011.353 | | - |
| Angle 90° M8x1o x G1/4i | 9 | 26.0011.354 | | - |
| Angle 90° M10x1o x G1/4i | 10 | 26.0011.355 | | - |



| Others | Pic. | Brass | Pic. | Stainless steel 1.4401 |
|--|------|-------------|------|--------------------------------------|
| Swivelling screw fitting G1/4o x G1/4i - rotary type | 11 | 26.0011.360 | | - |
| T-Adapter 3 x G1/4i | 12 | 26.0011.600 | 13 | 26.0012.600 |
| Bulkhead nipple G3/8o x G1/4i | 14 | 26.0011.601 | | - |
| Hexagon nipple R1/4o | 15 | 26.0011.602 | 16 | 26.0012.602 |
| Sleeve G1/4i | 17 | 26.0011.605 | 18 | 26.0012.605 (Stainless steel 1.4571) |

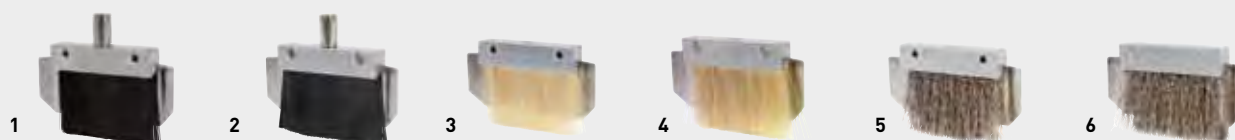


Accessories

| Oil brushes | Pic. | Brush with horsehair up to +80 °C | Pic. | High temperature brush with PPS bristles up to +180 °C | Pic. | High temperature brush with stainless steel bristles up to +350 °C |
|---|------|-----------------------------------|------|--|------|--|
| Oil brush Ø20 mm G1/4i | 1 | 26.001.400 | | - | | - |
| Oil brush 40 x 30 mm G1/4i thread on top | 2 | 26.001.410 | 3 | 26.001.420 | 4 | 26.001.430 |
| Oil brush 60 x 30 mm G1/4i thread on top | 5 | 26.001.411 | 6 | 26.001.421 | 7 | 26.001.431 |
| Oil brush 100 x 30 mm G1/4i thread on top | 8 | 26.001.412 | 9 | 26.001.422 | 10 | 26.001.432 |
| Oil brush 40 x 30 mm G1/4i lateral thread | 11 | 26.001.447 | | - | | - |
| Oil brush 60 x 30 mm G1/4i lateral thread | 12 | 26.001.448 | | - | | - |



| Special brushes / Mounting brackets | Pic. | with tapped bore M6 | Pic. | with through hole |
|--|------|---------------------|------|-------------------|
| Special brush for large chains up to +80 °C | 1 | 27.005.056 | 2 | 27.005.057 |
| Special brush for large chains up to +180 °C | 3 | 27.005.073 | 4 | 27.005.074 |
| Special brush for large chains up to +350 °C | 5 | 27.005.075 | 6 | 27.005.076 |




| | | | | |
|--|---|------------|---|------------|
| Special mounting bracket left for special brush | 7 | 27.005.068 | | - |
| Special mounting bracket right for special brush | 8 | 27.005.069 | | - |
| Spacer for special brush, width: 13 mm | | - | 9 | 27.005.070 |



| Special connecting parts | Pic. | Part no. | Pic. | Part no. | Pic. | Part no. |
|--|------|--|--|----------------------------------|------|----------------------------------|
| Lubrication pocket for gear lubrication For open gear lubrication (grease) Application: Spindles, slew rings, gear racks | 1 | 26.002.950 | Custom made to your specification Please provide: Module, no. of teeth, radius (mm) width of gear wheel (mm). | | | |
| Lubrication box with rotating brush For chain lubrication from below (oil) Application: Conveyor chains | 2 | 40x75x45 mm 26.002.955 | 3 | 40x75x61 mm 26.002.959 | 4 | 40x75x77 mm 26.002.960 |
| ReOrder for rotating brush (for chain lubrication box) | 5 | 26.001.957 | | - | | - |
| CWL Applicator assy with applicator insert | 6 | 27.006.001 | Applicator (replacement) | | | 27.006.002 |
| CWL PLUS Standard probe | 7 | 27.008.027 | For more information → page 34/35. | | | |
| CWL PLUS Off-set probe | 8 | 27.008.028 | | | | |
| Oil brush 60 x 30 mm G1/4i thread on top + lateral thread incl. plug | 9 | 27.005.047 | With polyamid bristles up to +100 °C Custom-made to your specifications. | | | |
| Rail oiler with foam insert - without oil retaining valve For sliding guide lubrication (oil). More information → page 36/37 | 10 | Gap widths 5,9, 16 mm 27.003.100 | | | | |



1



2



3



4



5



6



7



8



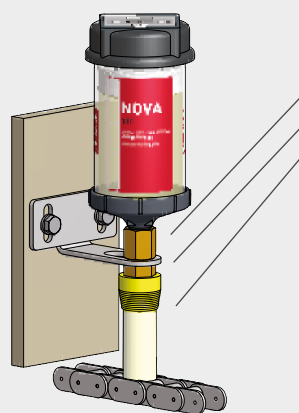
9



10

Mounting example for chain lubrication

Direct mounting



perma Lubrication system

→ For part no. go to "General catalogue"

| | |
|--|----------------------|
| Insert for bracket G1/4o x G1/4i (brass) | Part no. 26.0011.151 |
| Bracket | Part no. 26.0012.150 |
| Oil brush Ø20 mm G1/4i | Part no. 26.001.400 |

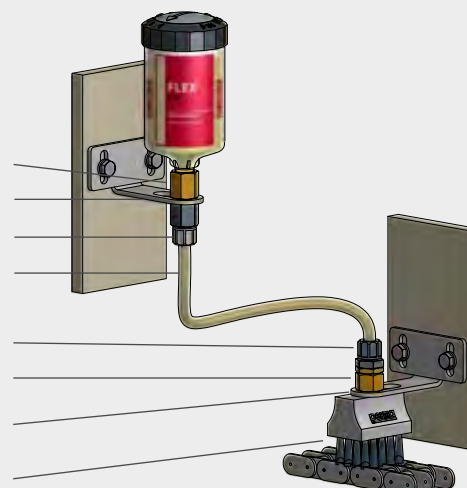
perma Lubrication system

→ For part no. go to "General catalogue"

| | |
|--|----------------------|
| Insert for bracket G1/4o x G1/4i (brass) | Part no. 26.0011.151 |
| Bracket | Part no. 26.0012.150 |
| Tube connector for perma G1/4i | Part no. 26.001.202 |
| Tube up to +80 °C oØ 8 mm x iØ 6 mm | Part no. 26.001.250 |
| Tube connector G1/4o for tube oØ 8 mm | Part no. 26.001.203 |
| Oil retaining valve G1/4o x G1/4i | Part no. 26.0011.811 |
| Bracket | Part no. 26.0012.150 |
| Oil brush 60 x 30 mm G1/4i thread on top | Part no. 26.001.411 |

Remote mounting with tube extension

Max. tube length depends on lubricant, lubrication system and ambient temperature.





perma Special solution for crane lubrication

CWL PLUS SET

TATA STEEL

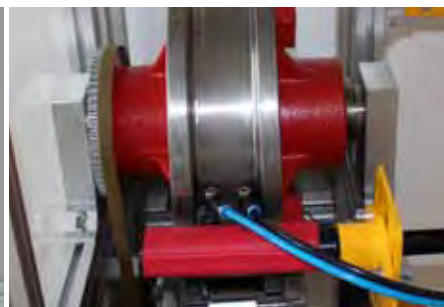
perma CWL PLUS SET for crane lubrication

The perma CWL PLUS SET is a special lubrication system designed for the lubrication of crane wheels. It automatically applies a special lubricant directly to the wheel flange. The perma Crane Wheel Lubrication SET minimizes the wear on wheel flanges and rails and lowers energy consumption. Workplace safety increases, since maintenance runs are drastically reduced. The set is easy to install, as all necessary connecting parts are included.

perma

CWL PLUS SET (Crane Wheel Lubrication)

The lubrication system perma STAR VARIO pushes lubricant into the CWL applicator assy. The applicator applies a thin coat of the special grease to the wheel flanges. When the crane wheel turns, the lubricant is transferred from the wheel flange to the side of the rail. This reduces wear on wheel flanges and rails and extends the service life of cranes.



Product characteristics

Benefits



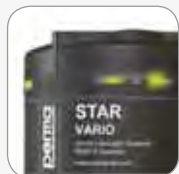
CWL PLUS Applicator for simultaneous lubricant discharge on 2 flanges

- Only one wheel on each side of the crane requires a lubrication system
- Reduces maintenance costs, as flanges and rails will last up to 10 times longer
- The direct application reduces lubricant consumption, optimizes crane operation and contributes to environmental protection



perma STAR LC L250 with special lubricant for wheel flanges

- Reduces friction and energy costs
- Lowers vibration and noise development
- Quick exchange of empty LC units – no tools required



perma STAR VARIO Motor Pressure build-up to 6 bar

- Quick and easy to install since no power cables are required
- Simple programming and exact adjustment of required lubricant amount
- Reusable drive unit saves maintenance costs

→ See our general catalogue for more details about the lubrication system perma STAR VARIO

Content



CWL PLUS SET

Part no. 27.006.383

- CWL Applicator assy with insert
- + CWL Applicator (2 x spare)
- + 2 x STAR VARIO Drive incl. STAR Battery
- + 2 x STAR LC L250 with grease S250
- + 2.5 m Dual tube connection
- + 400 g Cartridge S250
- + Accessory parts
- + Mounting material





perma Special solution for elevators

SET Rail Oilers

perma SET for elevators

perma-tec offers retrofit lubrication sets for all types of elevator systems. The sets are easy to install and the exchange of empty systems is done quickly without tools.

The perma SET lubricates elevator guide rails safely, cleanly and efficiently for up to 12 months. No more disturbing noises, vibrations, unscheduled downtimes caused by insufficient lubrication or oil contaminated elevators.

perma

Challenges

System safety and availability are the highest priorities of elevator operators. Elevator guide rails must be permanently supplied with a minimum amount of lubricant to prevent the so-called "stick-slip effect" which causes a jerking movement in the passenger cab. Strong vibrations and noises make passengers feel uneasy and cause frequent complaints, costly repairs and service calls.



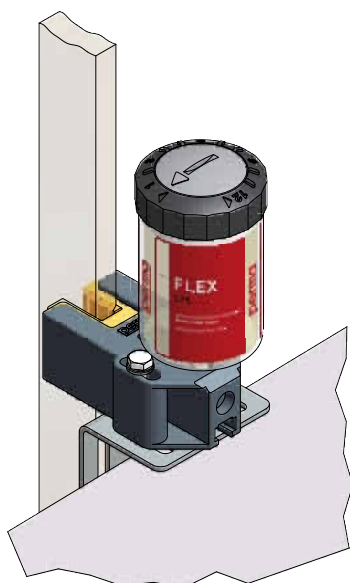
Solution – SET Rail Oiler



**Rail oiler with foam insert
for 5, 9 and 16 mm guide rails**

- Permanent guide rail cleaning and lubrication
- Reduces maintenance runs and repairs
- Low oil consumption reduces costs and prevents spills
- Smooth rides, clean cabs and fewer downtimes

2 x



2 x



**Temperature
independent
discharge**

SET Rail Oilers FLEX

Part no. 24.91.0432.1000

- 2 x Rail oiler with foam insert**
- + 2 x perma FLEX 125**
with integrated oil retaining valve
filled with S032 Multipurpose oil
- + 100 ml S032 Multipurpose oil for pre-filling**

→ For product details perma FLEX go to "General catalogue"



SET Rail Oilers NOVA

Part no. 24.11.0432.800

- 2 x Rail oiler with foam insert**
- + 2 x NOVA Control unit**
- + 2 x NOVA LC 130**
with integrated oil retaining valve
filled with S032 Multipurpose oil
- + 100 ml S032 Multipurpose oil for pre-filling**

→ For product details perma NOVA go to "General catalogue"





Roller bearings



Sliding bearings / guides



Linear guides



Open gears / gear racks



Spindles


























































































Shaft seals



Chains

perma Lubrication Systems - OVERVIEW

| Product | Lubricants | Discharge periods | Time / impulse version | Max. lube-points | Max. pressure [bar] | Operating temp. [°C] | Content [cm³] | Drive / power supply | Operation | Applications | | | | | | | | Certifications | Page |
|---|--------------------------------|---------------------------|-----------------------------|----------------------------|---------------------|----------------------|---------------|----------------------|--|---|---|---|---|---|---|---|---|--|--------------|
| | | | | | | | | | |  |  |  |  |  |  |  | | | |
| Single-point Lubrication Systems, electrochemical for grease / oil | | | | | | | | | | | | | | | | | | | |
|  | CLASSIC / FUTURA | Grease up to NLGI 2 / Oil | 1, 3, 6, 12 months [1] | Time | 1 | 4 | 0 to +40 | 120 | Electro-chemical | Activator screw |  |  | |  |  |  |  |  | GC* |
|  | FLEX | Grease up to NLGI 2 / Oil | 1, 2, 3, ..., 12 months [1] | Time | 1 | 5 | -20 to +60 | 60 125 | Electro-chemical | Dial / Rotary switch |  |  | |  |  |  |  |     | GC* |
|  | NOVA | Grease up to NLGI 2 / Oil | 1, 2, 3, ..., 12 months [2] | Time | 1 | 6 | -20 to +60 | 65 130 | Electro-chemical | Push button control and display |  |  | |  |  |  |  |     | GC* |
| Single-point Lubrication Systems, electromechanical for grease / oil | | | | | | | | | | | | | | | | | | | |
|  | STAR VARIO | Grease up to NLGI 2 / Oil | 1, 2, 3, ...12 months | Time | 1 | 6 | -10 to +60 | 60, 120, 250 | Drive motor / Battery 4.5 V | Push button control and display |  |  | |  |  |  |  |  | GC* |
|  | STAR CONTROL TIME | Grease up to NLGI 2 / Oil | Customized | Time | 1 | 5 | -10 to +50 | 60, 120, 250 | Drive motor / 15-30 V DC | Code switch |  |  | |  |  |  |  | | 12-13 |
|  | STAR CONTROL IMPULSE | Grease up to NLGI 2 / Oil | Customized | Impulse | 1 | 5 | -10 to +50 | 60, 120, 250 | Drive motor / 15-30 V DC | Code switch |  |  | |  |  |  |  | EX version available | 12-13 |
| Multi-point Lubrication Systems, electromechanical for grease | | | | | | | | | | | | | | | | | | | |
|  | PRO MP-2 | Grease up to NLGI 2 | 1 day to 24 months | Time | 2 | 25 | -20 to +60 | 250, 500 | Drive motor / Pump / Battery | Display with menu navigation |  |  |  |  |  |  | | | |
|  | PRO C MP-2 | Grease up to NLGI 2 | Customized | Time or impulse | 2 | 25 | -20 to +60 | 250, 500 | Drive motor / Pump / 15-30 V DC | Display with menu navigation |  |  |  |  |  |  | | | |
|  | PRO MP-6 / PRO LINE | Grease up to NLGI 2 | 1 day to 24 months | Time (PRO) / Amount (LINE) | 6 | 25 | -20 to +60 | 250, 500 | Drive motor / Pump / Battery | Display with menu navigation |  |  |  |  |  |  | |  | 12-13, 16-17 |
|  | PRO C MP-6 / PRO C LINE | Grease up to NLGI 2 | Customized | Time or impulse | 6 | 25 | -20 to +60 | 250, 500 | Drive motor / Pump / 15-30 V DC | Display with menu navigation |  |  |  |  |  |  | | | 12-13, 16-17 |
|  | NET | Grease up to NLGI 2 / Oil | Customized | Time and impulse | <600 | 25 | -20 to +60 | 60 – 500 | Drive motor / Pump / 90-240 V AC | NET Software / PC |  |  |  |  |  |  |  | | |
| Multi-point Lubrication Systems, electromechanical for oil | | | | | | | | | | | | | | | | | | | |
|  | ECOSY | Oil | Customized | Time, sensor, impulse | 6 | 10 | -20 to +60 | 7 l | Drive motor / Pump / 85-240 V AC 24 V DC | Display with menu navigation |  | | | | | |  | | 14-15 |

CE All perma products are approved according to CE directives.

(1) depending on ambient temperature and counter pressure

(2) depending on counter pressure

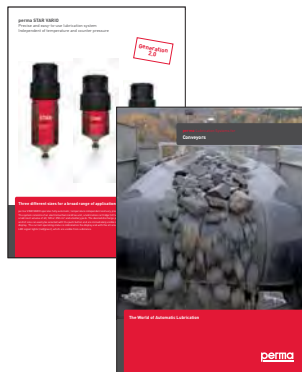
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