Your perma partner:

Catalogue



The Expert in Lubrication Solutions



Special Solutions
→ **For more information go to Catalogue "Special Solutions".**

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
→ Australia and New Zealand

TIIS
→ Japan

FM APPROVED
→ Canada and USA

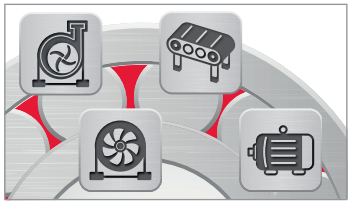
FM APPROVED
→ USA

UL (Underwriters Laboratories)
→ Canada and USA



perma – The Expert in Lubrication Solutions 4-7

· References
· perma-tec
· Facts and figures / Location
· Advantages at a glance



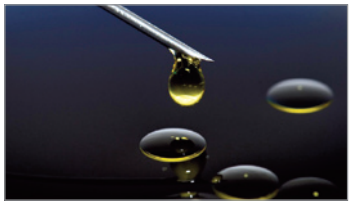
Applications 8-17

· perma Lubrication Systems for
conveyors, electric motors, pumps, blowers and fans



Single-point Lubrication Systems 18-25

· **Electrochemical:** perma CLASSIC / perma FUTURA, perma FLEX, perma NOVA
· **Electromechanical:** perma STAR VARIO



Lubricants 26-27



Direct mounting / Remote mounting 28-31

· Quick Start Guide
· Cartridges / pails / bottles / canisters for pre-filling
· Conversion tables, perma SELECT Program
· **perma MOUNTING SETS**: Direct mounting / Remote mounting



Part Numbers - Lubrication Systems 32-35

· perma Lubrication Systems with part numbers and pictures



Part Numbers - Accessories 36-41

· 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



perma SERVICE 42-43

· 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

Satisfied customers from around the world

References



Industries around the world rely on automatic lubrication systems from perma-tec

perma-tec manufactures and sells single- and multi-point lubrication systems for all types of applications. perma products are backed by multiple patents and are used in every industry. In order to provide the best solution for each individual application, we involve our customers in the development process from start to finish. Since 1964 we have sold over 53 million lubricators to customers in mining, steel, power plants, machine building, automotive, food-, plastic- and chemical industries.

perma-tec

perma-tec has been providing innovative and creative lubrication solutions for almost 50 years. Our single- and multi-point lubrication systems can be found in almost all types of industries and applications around the world.

perma-tec's leadership in single-point lubrication is based on many patents and certifications. All perma products are developed, tested and manufactured in the company's German headquarters and live up to the "Made in Germany" quality standard.

With many years of experience and a network of subsidiaries and competent partners around the world we can offer our customers lubrication solutions that meet the highest technical requirements.



1934
Formation of the metal ware factory for house- and kitchen appliances in Bad Kissingen

1964
Invention and patent of **perma CLASSIC** single-point lubrication system

1989
Acquisition by **private investment group**

1991
New management and extensive reorganization

1995
H-T-L perma subsidiaries

2000
Change of company name to **perma-tec GmbH & Co. KG**

2005
New building for production and warehouse / Office building extension

2011
Additional warehouse / office building

→ Facts and figures

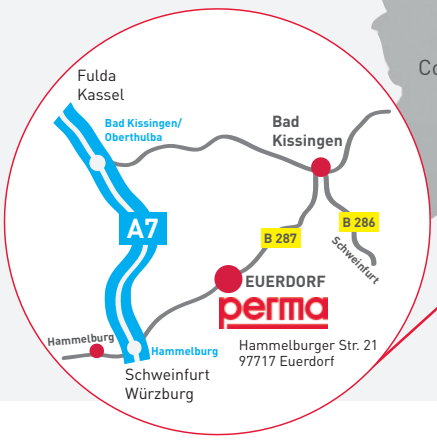
Employees worldwide	202
Employees in Germany	140
Turnover 2012 (not consolidated)	68 Mio. €
Share of sales earned abroad	76 %

Subsidiaries perma H-T-L

USA	1995
France	1995
Iberica	1996
Italia	1997
UK	1998
Australia	2004
India	2008

Distributor network in more than 60 countries

Last update: 03/2013







perma Lubrication Systems

Advantages at a glance

Every 11 seconds a perma product is installed or exchanged worldwide. Manual lubrication is a thing of the past. Today, anyone looking for a safe and effective way to lubricate equipment with long-term cost reduction takes advantage of automatic lubrication. perma-tec offers technical and economical solutions for all lubrication points.

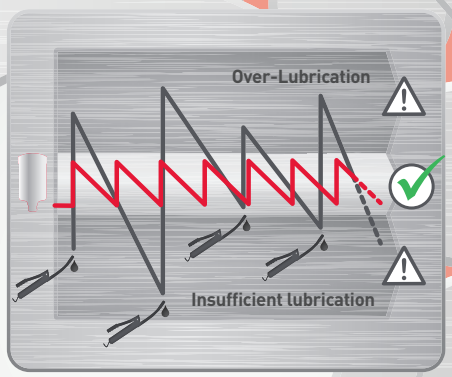
Technical aspects

perma prevents up to 55 % of roller bearing failures

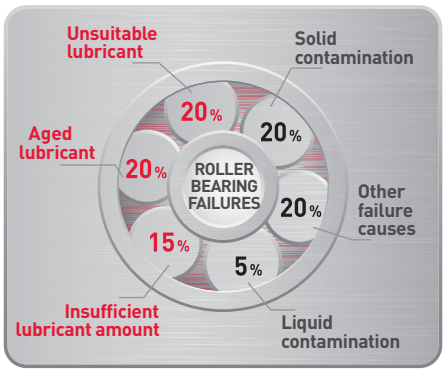
- A constant renewal of the lubricating film **ensures equipment availability**
- Reliable, clean and precise **lubrication around the clock**
- Discharge periods from **1 – 24 months**
- Lubricant volume **60 cm³ up to 7.000 cm³**
- Operating temperature from **-20 °C to +60 °C**

perma Lubrication Systems have always been manufactured in Germany.

Made in Germany







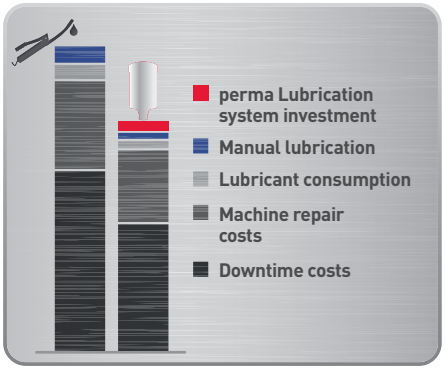
Source:
Internal calculation: Material cost and time, maintenance runs / roller bearing industry

Economical aspects

perma reduces costs by up to 25 %

- Continuous production processes and **predictable maintenance intervals**
- Continuous, low maintenance, **long-term lubrication**
- Permanent supply of lube-points with **fresh lubricant**
- Consistently high lubricant quality guarantees **high equipment availability**
- **Energy cost reduction**

Manual vs. perma lubrication



perma-tec quality management system is certified according to DIN EN ISO 9001 and DIN EN ISO/IEC 80079-23.

Safety aspects

perma reduces the risk of accidents by up to 90 %

- **Extended exchange intervals**
- **Reduced maintenance** runs
- Time spent in **danger zones** is **reduced**
- Significantly **reduced** risk of workplace **accidents**



perma-tec is member of the "Association of German Safety Engineers (VDSI)".

VDSI Verband Deutscher Sicherheitsingenieure e.V.

Environmental aspects

perma - certified environmental management system

- **Reduced lubricant consumption** through controlled lubrication
- **Closed systems** – lubricant cannot escape into the environment
- **Reusable components** help minimize energy and material costs
- **Environmentally friendly materials** for simple and clean disposal



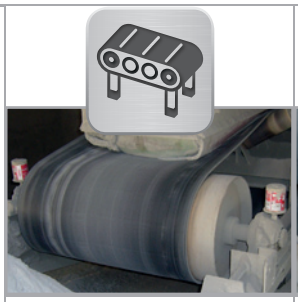
perma-tec is certified according to DIN EN ISO 14001.

Selection made easy

The right Lubrication System

For years, perma-tec has been offering lubrication solutions uniquely suited for belt conveyors, electric motors, pumps, fans and blowers.
This chapter explains the lubrication challenges and shows suitable solutions for these applications.

Main applications

	 **Conveyors** → Pages 10-11	 **Electric motors** → Pages 12-13	 **Pumps** → Pages 14-15	 **Blowers / Fans** → Pages 16-17
Single-point Lubrication Systems				
 **CLASSIC FUTURA**	++	o	+	+
 **FLEX**	+	+	++	++
 **NOVA**	+	++	+	++
 **STAR**	++	++	++	++
Recommended lubricants	**SF01 / SF04**	**SF01 / SF08**	**SF01 / SF08**	**SF01 / SF02 / SF08**

o limited suitability + suitable ++ very suitable

If your application is not listed here,
please contact your local perma distributor.

Single-point Lubrication Systems

	perma CLASSIC / FUTURA → Pages 18-19	perma FLEX → Pages 20-21	perma NOVA → Pages 22-23	perma STAR VARIO → Pages 24-25
				
Technical data				
SET	**Activator** 	**Rotary switch**  → All-in-one system	**Push button + LCD-display**  → NOVA Control unit reusable	**Push button + LCD-display LED-signal red/green**  → STAR VARIO Motor reusable
°C	**0 to +40 °C**	**-20 to +60 °C**		**-10 to +60 °C**
	Max. 4 bar	**Max. 5 bar**	**Max. 6 bar**	**6 bar**
cm³	**120 cm³**	**60, 125 cm³**	**65, 130 cm³**	**60, 120, 250 cm³**
12	**Electrochemical**			**Electromechanical**
	Tamper-proof	Discharge period may be changed at any time / system can be turned off		
	1, 3, 6, 12 months **at +20 °C / SF 01** without counter pressure	**1, 2, 3 ... 12 months** **at +20 °C / SF 01** without counter pressure	**1, 2, 3 ... 12 months** **independent of operating temperature**	**1, 2, 3 ... 12 months** **independent of operating temperature and counter pressure**
	Approved for underwater and underground	**IP 68**	**IP 65**	**IP 65**
	CE Ex	CE Ex IECEx FM TIIS	CE Ex IECEx FM TIIS ANZEx	CE cULus LISTED
Special operating conditions				
	Indoor / outdoor (limited)	**Indoor or outdoor**		
	Low vibration	**Medium vibration**		**High vibration**
	< 1 meter tube extension at +20 °C with lubricant SF01, tube oØ16mm, part no. 101555	**< 3 meter tube extension** at +20 °C with lubricant SF01, tube oØ16mm, part no. 101555		**< 5 meter tube extension** at +20 °C with lubricant SF01, tube oØ16mm, part no. 101555



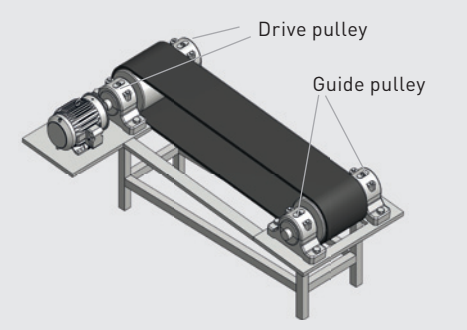
perma Lubrication Systems for

Conveyors

Belt conveyors are one of the most widely used pieces of equipment in all kinds of industries. For smooth process flows it is essential that they operate efficiently with maximum availability.
To prevent equipment failures, conveyors need optimal lubrication despite extreme operating conditions like dirt, dust and strong vibration. Unscheduled downtimes, costly repairs and emergency service calls make up a significant share of the operating costs.

- → Mining
- → Power plants
- → Food industry
- → Recycling industry
- → Quarrying industry
- → Cement plants

Lubrication points



Pillow block housings and spherical roller bearings are used for **drive / guide pulley** support.

Bearings and **bearing housing seals** must be permanently supplied with lubricant.

Challenges





Large conveyor systems often extend over several levels and are **difficult to reach**. Optimal lubrication should take place while the system is running.

Lubrication points are often **neglected** because they are located up high, around the back, or in places with little room to maneuver. Maintenance work in such areas during operation is extremely **dangerous** and **jeopardizes workplace safety**.

Insufficient lubrication causes **premature equipment damage** creating **unscheduled** and **costly downtimes**.

- → **Dirt** and **water** must be kept from entering lubrication points
- → Lubrication points must receive the **right lubricant, in small amounts, at regular intervals**
- → **No unnecessary system downtimes** due to relubrication
- → Ensure **workplace safety**

Advantages of automatic lubrication

- The lubricant seals lubrication points and **prevents contamination**
- **Lubrication** takes place **while the system is running** without interrupting the work process
- perma lubrication systems can be installed outside of danger zones (remote mounting), which drastically **reduces the risk of accidents**
- Precise lubricant discharge **lowers lubricant consumption** and **environmental impact**

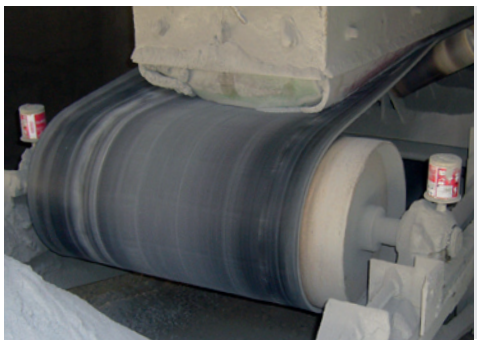
Reference

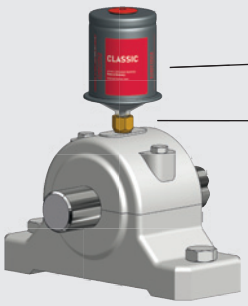
Die Kompetenz in Kalium und Magnesium

Solutions

Direct mounting on the lubrication point: e.g. perma CLASSIC / perma FUTURA

→ Easy, quick mounting
→ For lube-points with little vibration / shocks
→ For easy-to-access and safe lubrication points





perma CLASSIC — **Part numbers on page 33**

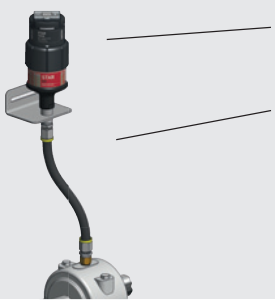
MOUNTING SET Direct mounting — **Part no. 101476**

→ Details on page 30

Remote mounting to the lubrication point: e.g. perma STAR VARIO

→ For lube-points with strong vibration / shocks (isolation of lubrication system)
→ When workers' safety is at risk: Mounting in safe areas
→ For hard-to-access lubrication points





perma STAR VARIO with LC S60 — **Part numbers on page 35**

MOUNTING SET with low pressure tube — **Part no. 101482**

→ Details on page 31

More lubrication solutions on page 8. More details on perma MOUNTING SETS on page 30/31.



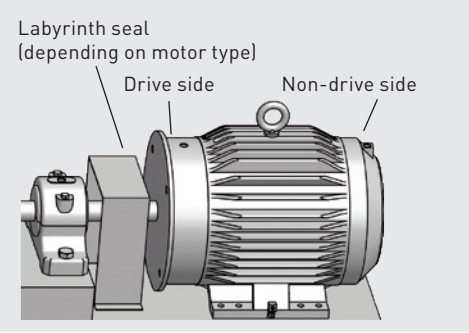
perma Lubrication Systems for

Electric motors

Electric motors are used for a variety of applications where they convert electricity into motion. Efficient lubrication and maintenance practices are essential for the reliability of electric motors.
Many motors are located in hard-to-reach or dangerous areas and are not lubricated according to manufacturer specifications. Overgreasing and lubricant starvation are the major causes for bearing damage and electric motor failures.

- → Mining
- → Power plants
- → Food industry
- → Recycling industry
- → Quarrying industry
- → Cement plants

Lubrication points



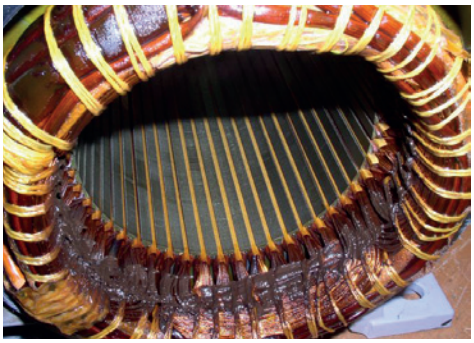
Lubrication points are located on the **drive** and **non-drive end of the motor.**
Grease escape (grease drain hole, grease trap, grease relief port) is important. Bearings will overheat if grease cannot escape or if grease traps are filled up with old grease.

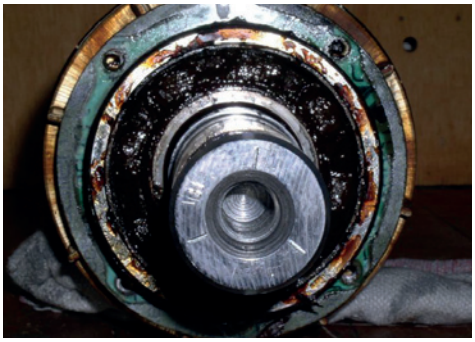
The right lubricant
Motors with relubrication fittings have plates specifying grease amounts and relubrication intervals.
→ **See page 26 / 27 for more details on lubricants**

Speed high	Baseoil thinner	NLGI 0-2
Speed low	Baseoil thicker	



Challenges





During manual lubrication, the **grease** is applied in **uneven amounts**. Too much lubricant at one time causes temporary **overgreasing**. Long relubrication intervals lead to **lubricant starvation.**

- → Excess grease takes hours to be distributed in the bearing: **Bearing heating / fire hazard; Shut-off** by temperature control
- → Bearing damage from lubricant starvation results in unscheduled **equipment downtimes** and higher production costs
- → **Increased maintenance costs** caused by premature wear

Relubrication on running motors (recommended by motor manufacturers) puts workers in danger. Maintenance work in **dangerous** and **hard-to-reach places** increases the risk for workplace accidents.

- → **High risk of work-related injuries**
- → **Motor shut-down** required when entering dangerous areas

Advantages of automatic lubrication

- **Relubrication while the motor is running** minimizes bearing heating
- **Projectable service runs** reduce material and staff costs
- **Increased workplace safety** through automatic lubrication of lubrication points that are difficult to access
- Precise lubricant discharge **reduces lubricant consumption** and **environmental impact**

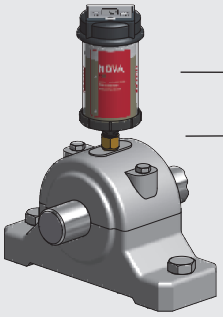
Aurubis

Solutions

Direct mounting on the lubrication point: e.g. perma NOVA

→ Easy, quick mounting
→ For lube-points with little vibration / shocks
→ For easy-to-access and safe lubrication points





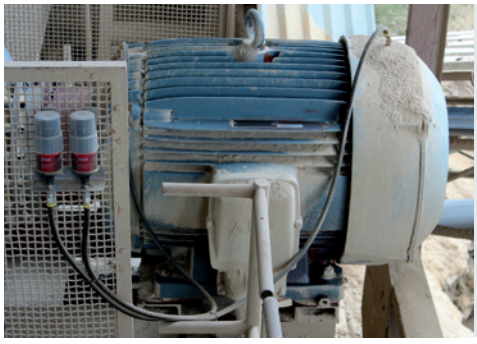
perma NOVA 130 — **Part numbers on page 34**

MOUNTING SET Direct mounting — **Part no. 101476**

→ Details on page 30

Remote mounting to the lubrication point: e.g. perma STAR VARIO

→ For lube-points with strong vibration / shocks (isolation of lubrication system)
→ When workers' safety is at risk: Mounting in safe areas
→ For hard-to-access lubrication points





perma STAR VARIO with LC M120 — **Part numbers on page 35**

MOUNTING SET with low pressure tube — **Part no. 101482**

→ Details on page 31

More lubrication solutions on page 8. More details on perma MOUNTING SETS on page 30/31.



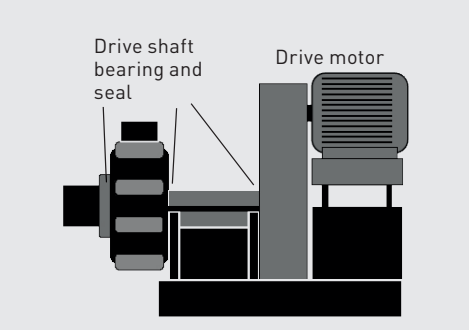
perma Lubrication Systems for

Pumps

Pumps are the most important equipment of many applications and industries. A failing pump can stop the entire work- or production process. One of the main factors for trouble-free operation is effective lubrication. A regular injection of fresh, clean grease provides extra protection against ingress of dirt and water and will extend the service life of your pumps.

- → Mining industry
- → Chemical industry
- → Power generation
- → Food industry
- → Oil and gas production
- → Paper industry
- → Pharma industry
- → Environmental technology
- → Water and wastewater

Lubrication points



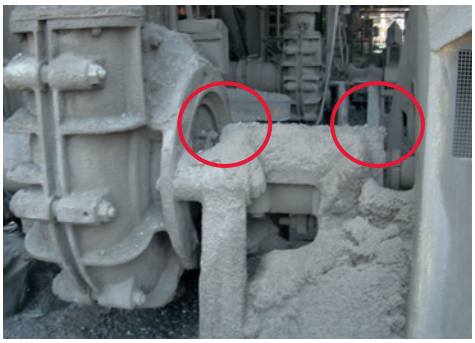
Lubrication points (roller bearings) are located on the **drive shaft** between drive motor and pump.

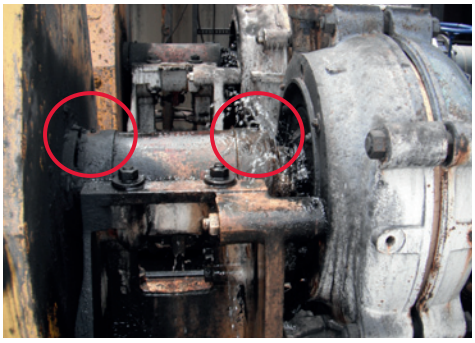
Lubrication of **gland and labyrinth seals** prevents the ingress of dirt or pumped media.

Bearings and bearing housing seals must be permanently supplied with the right lubricant in the amount specified by pump manufacturers.

More information about drive motor lubrication on page 12/13 “Electric motors”.

Challenges





Pumps are often operated under extreme conditions with **heavy contamination** from slurry or dust and **hazardous materials** such as acids.

- → **Dirt, water or other contaminants** must not enter bearing points

Many lubrication points can only be accessed with **extreme protection measures** (safety gloves and protective masks). As a result, they are not lubricated as often as required or are completely neglected.

Insufficient lubrication of bearings and seals results in **accelerated bearing wear** and **impeller gland leaks**.

- → Optimal and continuous **lubrication with fresh lubricant** during operation
- → Operation in **potentially explosive areas**
- → **Workplace safety** must be ensured

Advantages of automatic lubrication

- Automatic lubrication of difficult-to-access lubrication points **increases workplace safety**
- Precise discharge **reduces** lubricant consumption and **environmental impact**
- **Less maintenance runs** minimize the time workers spend in dangerous areas
- Some perma lubrication systems **can be used underground** and in **potentially explosive areas**

Reference

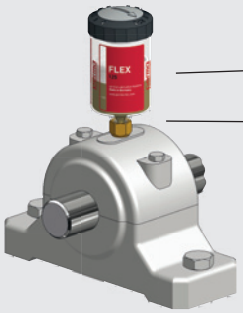
VATTENFALL

Solutions

Direct mounting on the lubrication point: e.g. perma FLEX

→ Easy, quick mounting
→ For lube-points with little vibration / shocks
→ For easy-to-access and safe lubrication points





perma FLEX 125 — **Part numbers on page 33**

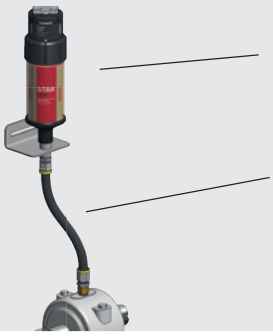
MOUNTING SET Direct mounting — **Part no. 101476**

→ Details on page 30

Remote mounting to the lubrication point: e.g. perma STAR VARIO

→ For lube-points with strong vibration / shocks (isolation of lubrication system)
→ When workers' safety is at risk: Mounting in safe areas
→ For hard-to-access lubrication points



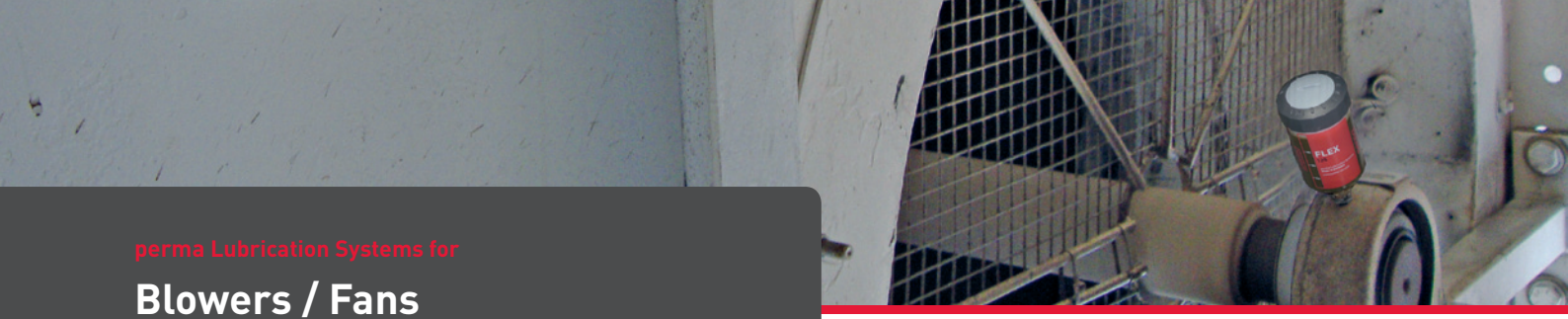


perma STAR VARIO with LC L250 — **Part numbers on page 35**

MOUNTING SET with low pressure tube — **Part no. 101482**

→ Details on page 31

More lubrication solutions on page 8. More details on perma MOUNTING SETS on page 30/31.



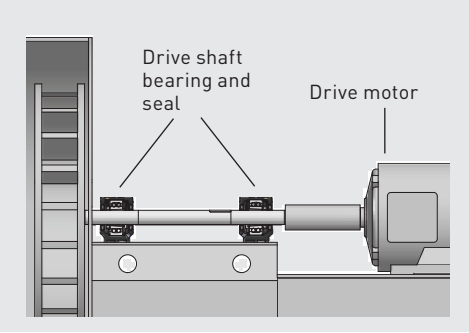
perma Lubrication Systems for

Blowers / Fans

Blowers and fans are used in almost all key industries where they provide adequate amounts of primary and secondary air. Flue gas fans remove air containing dust, gases and other harmful substances.
In primary air zones, induced draft fans are used in scrubbers, dust collectors, heat exchangers and desulfurization plants.

- → Mining
- → Chemical industry
- → Glas industry
- → Wood-working
- → Power plants
- → Food industry
- → Refinery

Lubrication points

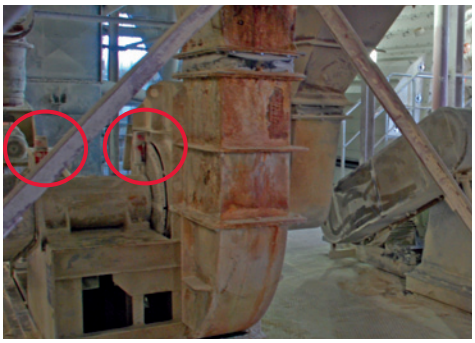


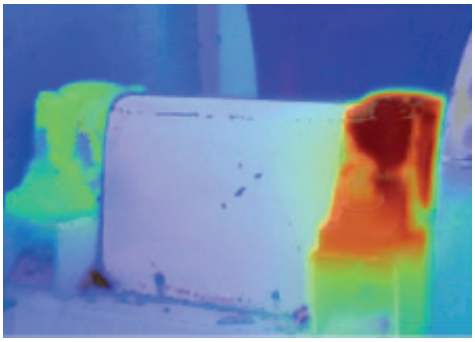
The lubrication points (roller bearings) are located at the **drive shaft** between drive motor and fan impeller.

Bearings and shaft seals must be permanently supplied with the right lubricant in the amount specified by fan manufacturers.

More information about drive motor lubrication on page 12/13 “Electric motors”.

Challenges





Blowers and fans are often used in **extreme operating conditions** with many **contaminants** in the air. Dust and other substances entering the bearing system will lead to increased wear of individual components and a shorter service life of the fan.

- → Contaminants (e.g. **dust**) in the air must not enter lubrication points

Regular lubrication of bearings and seals is essential for uninterrupted operation. Fan and blower lubrication points are often extremely dirty and hard to reach, which makes maintenance even more difficult. When manufacturer recommended lubrication intervals are not observed, the system will eventually fail as a result of **lubricant starvation.**

- → **Excessive bearing heating** from insufficient lubrication
- → Lubricant must meet **operating requirements** (vibration/ oscillation, speed, operating temperature, load)
- → **Observing relubrication intervals** (depending on bearing type, bearing size and ambient conditions)

Advantages of automatic lubrication

- perma lubrication systems **seal** and **protect** lubrication points **against contamination**
- Precise metering of lubricant amount **reduces lubricant consumption**
- Safe and continuous lubrication in areas with **explosive atmospheres**
- Different lubricant volumes for precise discharge settings to **meet lube-point requirements**

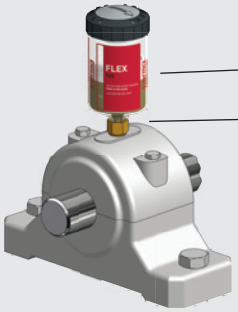
Reference

Solutions

Direct mounting on the lubrication point: e.g. perma FLEX

→ Easy, quick mounting
→ For lube-points with little vibration / shocks
→ For easy-to-access and safe lubrication points





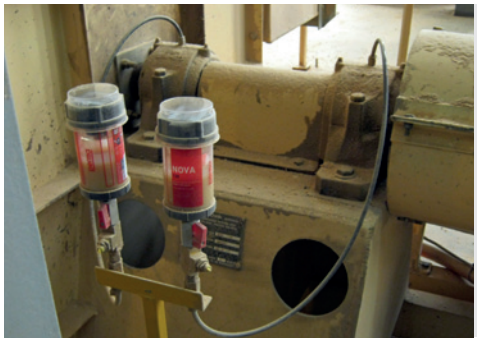
perma FLEX 125 — **Part numbers on page 33**

MOUNTING SET Direct mounting — **Part no. 101476**

→ Details on page 30

Remote mounting to the lubrication point: e.g. perma NOVA

→ For lube-points with strong vibration / shocks (isolation of lubrication system)
→ When workers' safety is at risk: Mounting in safe areas
→ For hard-to-access lubrication points





perma NOVA 130 — **Part numbers on page 34**

MOUNTING SET with low pressure tube — **Part no. 101481**

→ Details on page 31

More lubrication solutions on page 8. More details on perma MOUNTING SETS on page 30/31.

perma CLASSIC / perma FUTURA

The world's best selling lubrication systems



I M2 c X
II 2G c IIC T6 X
II 2D c T80°C X
0 °C ≤ Ta ≤ +40 °C

Made in Germany

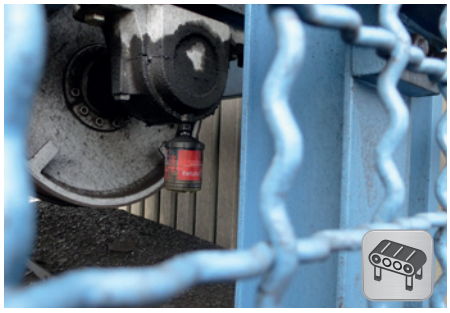
Simple, robust, reliable

perma CLASSIC and perma FUTURA can be used for all applications with ambient temperatures of 0 °C to +40 °C. The reliable operating principle is based on an electro-chemical reaction. The lubrication period is determined by color coded activator screws (and the average ambient temperature). Depending on your application's requirement, you may choose to discharge 120 cm^3 in a period of 1, 3, 6 or 12 months. The activator screw generates pressure (max. 4 bar) which moves the piston forward and continuously injects small lubricant amounts into the lubrication point.

perma

Applications

perma CLASSIC and perma FUTURA are used for single-point lubrication of roller- and sliding bearings, sliding guides, open gears, gear racks, spindles, shaft seals, chains, etc. perma CLASSIC has a metal housing and is preferred for use in steel- and automotive industry, mining and mechanical engineering. perma FUTUA has a corrosion-proof plastic housing, which makes it ideal for hygienically clean environments as in the food and chemical industry.







Product characteristics — Benefits



Simple activation with activator screw

Activation
1, 3, 6 or 12 months

- → Quick installation / tamper-proof
- → Simple exchange / no special tools required
- → Inexpensive automatic single-point lubrication



perma CLASSIC
Metal housing

- → Robust housing for use in harsh environments

perma FUTURA
Transparent plastic housing with integrated support flange

- → Easy fill level check via position of the lubricant delivery piston
- → Corrosion-proof / suitable for underwater use



Ex-proof certification
Mining approval

- → Safe and reliable lubrication in explosive areas
- → Less exposure to safety hazards increases workplace safety
- → Suitable for underground use

Technical data

→ Refer to page 33 for part numbers

Drive
Electrochemical reaction

Housing
CLASSIC: Metal
FUTURA: Transparent plastic

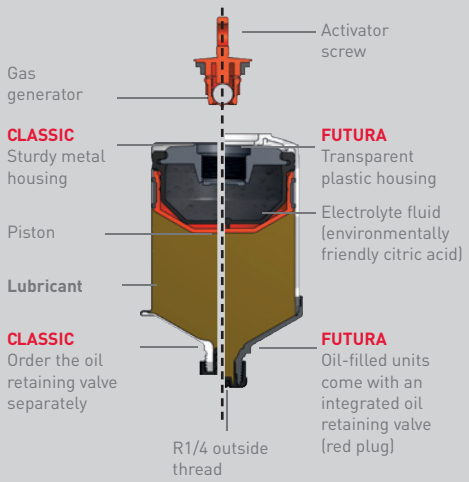
Discharge period at +20 °C / SF01
1, 3, 6 or 12 months

Lubricant volume
120 cm³

Operating temperature
0 °C to +40 °C

Pressure build-up
Max. 4 bar

Lubricants
Grease up to NLGI 2 / oil



Dimensions
Ø 70 x 99 mm

Dimensions
Ø 67 x 111 mm

Discharge period in months:
Time between activation and first discharge: **1 day**

120 cm³	101331	101332	101333	101335
at 0 °C	4	8	15	>18
at +10 °C	2	5	8	18
at +20 °C	**1**	**3**	**6**	**12**
at +30 °C	0.8	2	3	6
at +40 °C	0.6	1	2	3

To select the most suitable activator screw
→ **go to page 29**

perma FLEX

The all-in-one lubrication system in two compact sizes



II 1G Ex ia IIC T6
II 1D Ex iaD 20 T85°C
I M1 Ex ia I

TIIS

Made in Germany

Flexible use – even for challenging lubrication points

The automatic lubrication system perma FLEX is available in two convenient sizes (60 cm³ / 125 cm³). It can be used for inside or outside applications at temperatures ranging from -20 °C to +60 °C. Discharge period setting is flexible and can be adjusted from 1 – 12 months using the dial on top of the lubricator.
perma FLEX comes fully assembled and ready-to-use. Simply turn the dial to the desired discharge period and the system is activated. The electronically controlled chemical reaction will build up the pressure that is necessary to continually supply the lubrication point with fresh lubricant.

perma

Applications

perma FLEX is a single-point lubrication system for all types of applications and industries. Ingress protection to IP 68 level guarantees reliable lubrication in extremely dusty and moist environments. The wide operating temperature range makes it suitable for many applications indoors and outdoors. If necessary, the discharge period can be adjusted even after activation. It can be switched off during longer non-operation periods.





Product characteristics — Benefits



All-in-one system with dial for discharge period setting
1, 2, 3,... 12 months

- → Ready-to-use system / no assembly necessary
- → Quick and easy activation with dial
- → Discharge 1-12 months / in monthly steps = more flexibility



Reliable operation at -20 °C to +60 °C

- → For use in hot and cold environments
- → Year-round use for outdoor applications

Ex-proof certification
FM certification
IP 68 protection

- → Safe lubrication in dangerous and critical areas
- → Reliable lubrication in moist and dusty areas
- → Increased workplace safety

Technical data

→ Refer to page 33 for part numbers

Drive
Gas generating unit

Discharge period at +20 °C / SF01
1, 2, 3, ... 12 months

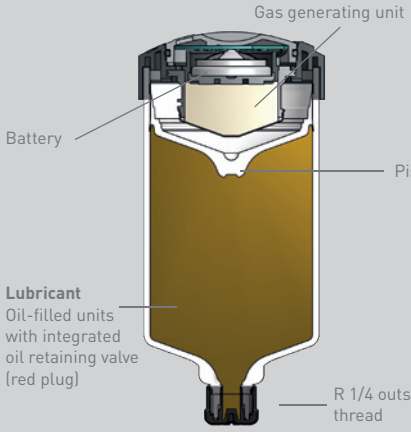
Lubricant volume
60 cm³ or 125 cm³

Operating temperature range
-20 °C to +60 °C

Pressure build-up
Max. 5 bar

Protection class
IP 68

Lubricants
Grease up to NLGI 2 / oil



Dimensions
FLEX 60: Ø 58 x 84,5 mm
FLEX 125: Ø 58 x 117 mm

Rotary switch for discharge period setting

Figures based on laboratory tests for emptying without counter pressure using NLGI 2 lubricant.

Grease residues possible at temperatures >+40 °C or discharge period settings >6 months.



	1	3	6	9	12
at -20 °C	2	5	10	13	15
at 0 °C	1.3	3.8	7.2	11	13
at +20 °C	**1**	**3**	**6**	**9**	**12**
at +40 °C	0.8	2.5	5.2	7.5	10
at +60 °C	0.6	2	4	-	-

perma NOVA

The first temperature independent, electrochemical lubrication system





NEW

I M1 Ex ia I Ma
II 2G Ex ia IIC T4 Gb
II 2D Ex ia IIIC T135°C Db
ZELM 09 ATEX 0420 X
-20 °C ≤ Ta ≤ +60 °C

Ex ia I Ma
Ex ia IIC T4 Gb
Ex ia IIIC T135°C Db
IECEx ZLM 09.0013X

ANZEx
TIIS

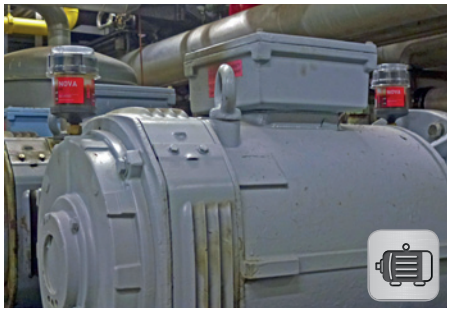
Made in Germany

For applications with high variations in temperature

perma NOVA can be used for all applications that are within a temperature range of -20 °C up to +60 °C. The discharge period (1 – 12 months) can be easily programmed by pushing the SET-button on the NOVA control unit. A temperature sensor periodically measures the ambient temperature and the control unit calculates the required gas generation based on this data. This ensures a continuous and controlled discharge. perma NOVA consists of a reusable control unit, a lubricant canister (LC) filled with grease or oil (with integrated oil retaining valve), and a protection cover. The perma NOVA LC is available in sizes of 65 cm^3 and 130 cm^3.

Applications

perma NOVA is especially suited for single-point lubrication of roller- and sliding bearings, sliding guides, open gears, gear racks, shaft seals and chains located in areas with considerable temperature variations (e.g. outside installations).
The system is protected against dust and water jets when the individual parts are assembled correctly (IP65).
perma NOVA with LC 65 cm³ is ideal for the lubrication of electric motors.





Product characteristics — Benefits



Electronic control unit with temperature compensation
shows discharge period / operating status
LCD display and SET-button
Setting: 1, 2, 3, ... 12 months

- → Reusable NOVA Control unit
- → Temperature independent during the entire discharge period
- → Accelerated pressure build-up for first discharge within one day
- → Simple handling / easy adjustments



System works reliably from -20 °C to +60 °C

- → Ideal for applications with considerable temperature variations
- → One system for subfreezing as well as high-temperature applications
- → Integrated support flange for stronger connections



Ex-proof certification
FM certification
IP 65

- → Safe and reliable lubrication in explosive areas
- → Increased workplace safety
- → Dust-tight and protected against water jets

Technical data

→ Refer to page 34 for part numbers

Drive – reusable
Electrochemical reaction via gas generating cell
Electronic temperature compensation

Discharge period
1, 2, 3, ... 12 months

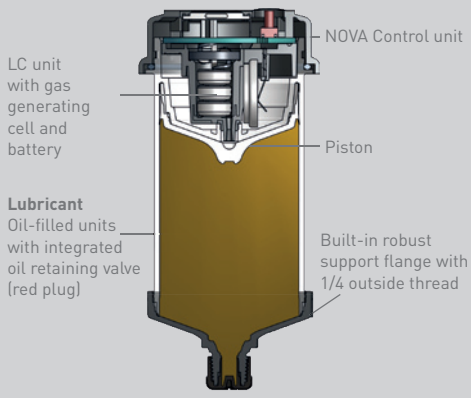
Lubricant volume
65 cm³ or 130 cm³

Operating temperature range
-20 °C to +60 °C

Pressure build-up
Max. 6 bar

Protection class
IP 65

Lubricants
Grease up to NLGI 2 / oil



Dimensions
LC 65: Ø 65 x 100 mm
LC 130: Ø 65 x 137 mm



Cover for protection during transport and against **dust and dirt**

NOVA Control unit
LCD-display with push button (Discharge period and function)
Part no. 107271

To determine the suitable discharge period and LC size → **go to page 29**

NOVA LC 130
Part no. go to page 34

perma STAR VARIO

Precise and easy-to-use lubrication system
Independent of temperature and counter pressure

Generation 2.0



Made in Germany

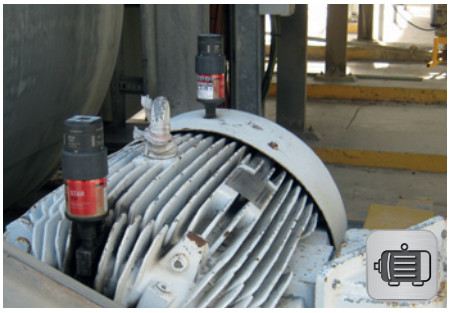
Three different sizes for a broad range of applications

perma STAR VARIO operates fully automatically, independent of temperature and very precisely. The system consists of an electromechanical drive unit, a lubricant canister (LC) with a lubricant volume of 60, 120 or 250 cm³ and a battery pack. The desired discharge period and LC size can easily be selected with the push button and are immediately visible in the display. The current operating status is indicated on the display and via the all around LED signal lights (red/green), which are visible from a distance.

Applications

perma STAR VARIO is used for single-point lubrication of roller- and sliding bearings, sliding guides, open gears, gear racks, spindles, shaft seals, and chains. This lubrication system is ideal for applications that require precise lubricant metering. It is a preferred system for electric motors with very specific relubrication amounts.
perma STAR VARIO is protected against dust and water jets when the individual parts are assembled correctly.





Product characteristics — Benefits



LCD-display with push button
shows discharge period, LC size and operating status

Setting:
1, 2, 3, ... 12 months and LC size

- → Simple and self-explanatory operation
- → Precise settings, based on manufacturer recommendations, prevent lubricant starvation and save lubricant
- → Settings can be changed at any time
- → System can be turned off for extended equipment shut downs



Electromechanical, reusable drive unit with battery pack

All around visible LED lights
signal function and errors

- → Reliable, precise lubricant discharge independent of temperature and counter pressure
- → Short ROI through reduced follow-up costs
- → Quick function control from a distance saves time and improves overall workflow



Pressure build-up to 6 bar allows remote mounting with tubes up to 5 m

Purge function

- → Installation at safe- and easy-to-access places reduces workplace accidents and saves time
- → Reduces equipment downtime since the exchange can be carried out while the machines are running
- → Lubrication point can be purged to clear blockages

Technical data

→ Refer to page 35 for part numbers

Drive – reusable
Electromechanical

Power supply
STAR VARIO Battery pack 4.5 V

Discharge period
1, 2, 3, ... 12 months

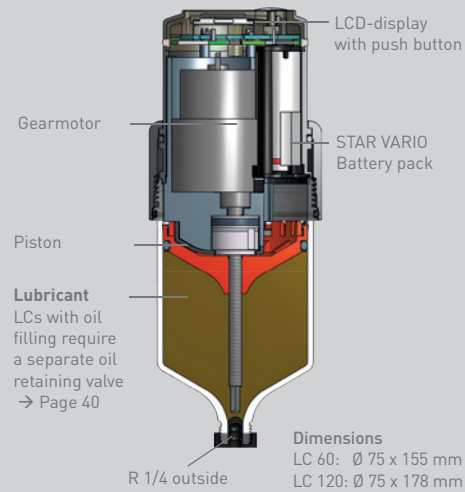
Lubricant volume
60 cm³, 120 cm³ or 250 cm³

Operating temperature
-10 °C to +60 °C

Pressure build-up
6 bar

Protection class
IP 65

Lubricants
Grease up to NLGI 2 / oil





For extreme conditions:
STAR Protection cap - Page 35
L250 101419
M120 / S60 101420



STAR VARIO Drive incl. Protection cap
107529

To determine the suitable discharge period and LC size → **go to page 29**



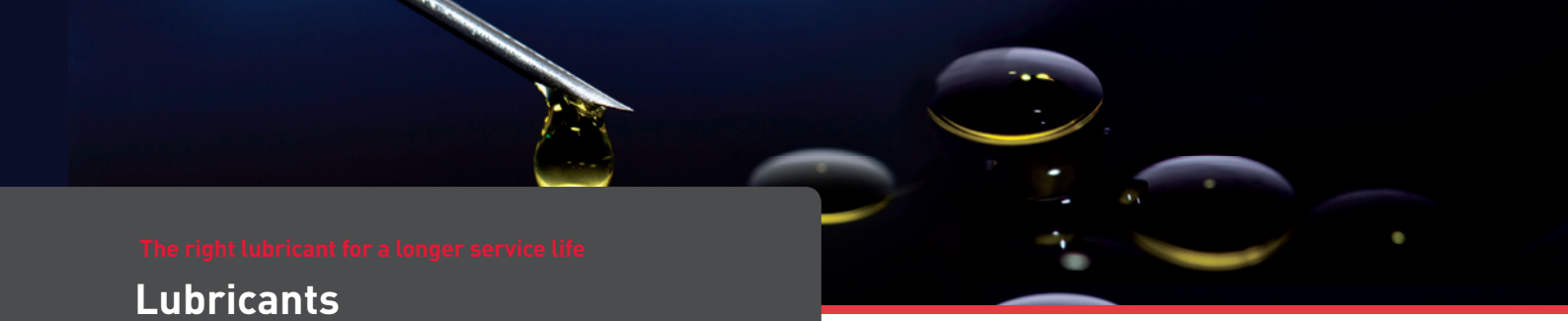
STAR VARIO Battery pack
101351



STAR LC 60, 120 or 250 cm³
Part no. go to page 35



STAR Support flange
101416



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.

NSF H1 Food and pharma industry

BIO 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	Applications: Open gears / gear racks	Applications: Spindles	Applications: 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 x dm factor is a criterion for the selection of the grease taking into consideration bearing size and operating speed.

Calculation: **n x dm = speed factor** **dm = (D + d) ÷ 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 + MoS2	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 resistence	0/1	PHS + MoS2	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.



Direct mounting / Remote mounting

Quick Start Guide

Prepare lube-point



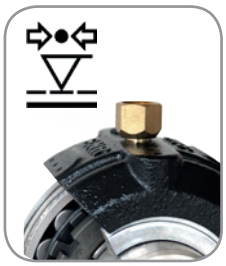
Clean lube-point and remove grease fitting



Add sealant and screw reducer into lubrication point



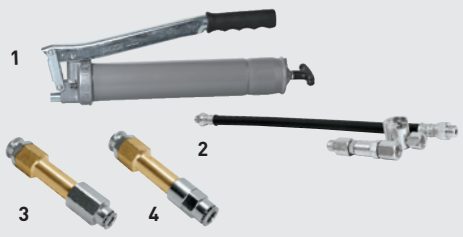
Prefill lube-point and any grease lines / connections
(use the same grease that is contained in the lubrication system)



Pressure check: Lube-point / all connecting parts
Accessory set for pressure test
Part no. 101480

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	101585	107494	107508
perma Extreme pressure grease	SF02	101588	107495	107509
perma High temp. grease	SF03	101589	107496	107510
perma High performance grease	SF04	101590	107497	107511
perma High temp. / Extreme pressure grease	SF05	101591	107498	107512
perma Liquid grease	SF06	101592	107499	107513
perma High speed grease	SF08	101593	107500	107514
perma Multipurpose bio grease	SF09	101594	107501	107515
perma Food grade grease NSF H1	SF10	101595	107502	107516
Oil	**perma Code**		**Bottle 1 ltr**	**Canister 5 ltr**
perma High performance oil	SO14		107463	107520
perma Multipurpose oil	SO32		107465	107521
perma Bio oil, low viscosity	SO64		107469	107523
perma Bio oil, high viscosity	SO69		107472	107525
perma Food grade oil NSF H1	SO70		107473	107526

Grease gun	Pic. 1	101455	
Tube with rotary joint and slide coupling for grease gun	Pic. 2	101461	
Tube prefill adapter for tube with oØ 6 mm	Pic. 3	101532	
Tube prefill adapter for tube with oØ 8 mm	Pic. 4	101526	
Accessory set for pressure test	-	101480	

For the right lubricant / lubrication system / discharge period setting use the perma SELECT software.

Free download: www.perma-tec.com



Activation / Installation of Lubrication System



perma CLASSIC / perma FUTURA



perma FLEX



perma NOVA / perma STAR VARIO



Note activation / exchange date on label



Remove plug



Screw lubrication system into lube-point

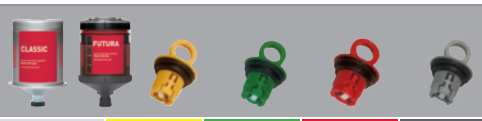
Conversion tables

Conversion:
1 stroke with grease gun = approx. 1.5 cm³ (1.2 g)
or use our **perma SELECT** software

perma Videos:
Mounting / Activation / Installation
→ www.perma-tec.com/video-clips

Activator / setting based on the required lubricant amount:

120 cm³ Lubricant



Activator / months at +20 °C with SF01	1	3	6	12
Lubricant / day [cm³]	4.0	1.3	0.7	0.3
Lubricant / week [cm³]	28.0	9.3	4.7	2.3
Strokes with grease gun / day	2-3	1	0.5	0.25
Strokes with grease gun / week	16-20	5-7	3-4	1-2

60 - 65 cm³ Lubricant



Setting / month	1	2	3	4	5	6	7	8	9...	...12
Lubricant / day [cm³]	2.0	1.0	0.7	0.5	0.4	0.3	0.3	0.3	0.2	0.2
Lubricant / 100 hours [cm³]	8.3	4.2	2.8	2.1	1.7	1.4	1.2	1.0	0.9	0.7
Lubricant / week [cm³]	14.0	7.0	4.7	3.5	2.8	2.3	2.0	1.8	1.6	1.6
Strokes with grease gun / day	1-2	<1	0.5	-	-	0.25	-	-	-	0.13
Strokes with grease gun / 100 h	5-7	3	2	1.5	<1.5	1	<1	<1	<1	0.5
Strokes with grease gun / week	9-11	5	3	2-3	2	1-2	<1.5	<1.5	1	<1

120 - 130 cm³ Lubricant



Setting / month	1	2	3	4	5	6	7	8	9...	...12
Lubricant / day [cm³]	4.2	2.1	1.4	1.0	0.8	0.7	0.6	0.5	0.5	0.4
Lubricant / 100 hours [cm³]	17.4	8.7	5.8	4.3	3.5	2.9	2.5	2.2	1.9	1.6
Lubricant / week [cm³]	29.2	14.6	9.7	7.3	5.8	4.9	4.2	3.6	3.2	2.6
Strokes with grease gun / day	3	1-2	1	<1	<1	0.5	-	-	-	0.25
Strokes with grease gun / 100 h	11-13	5-7	4	3	2-3	2	<2	1.5	<1.5	1
Strokes with grease gun / week	18-22	9-11	6-7	5	4	3-4	3	2-3	2	1-2

250 cm³ Lubricant



Setting / month	1	2	3	4	5	6	7	8	9...	...12
Lubricant / day [cm³]	8.3	4.2	2.8	2.1	1.7	1.4	1.2	1.0	0.9	0.7
Lubricant / 100 hours [cm³]	34.7	17.4	11.6	8.7	6.9	5.8	5.0	4.3	3.9	3.1
Lubricant / week [cm³]	58.3	29.2	19.4	14.6	11.7	9.7	8.3	7.3	6.5	5.2
Strokes with grease gun / day	5-6	3-4	2	1.5	<1.5	1	<1	<1	<1	0.5
Strokes with grease gun / 100 h	22-24	9-13	7-9	5-7	4-6	3-5	2-4	1-3	2	1-2
Strokes with grease gun / week	36-40	21-18	12-14	9-11	7-9	6-7	5-6	5	4-5	3-4

perma MOUNTING SETS

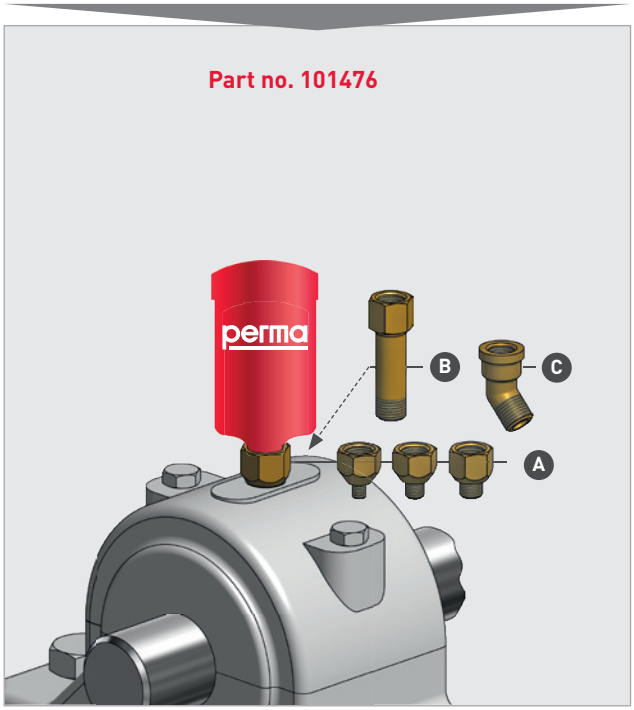
Direct mounting

MOUNTING SET Direct mounting for perma CLASSIC / FUTURA / FLEX / NOVA

Order lubrication system separately



Part no. 101476



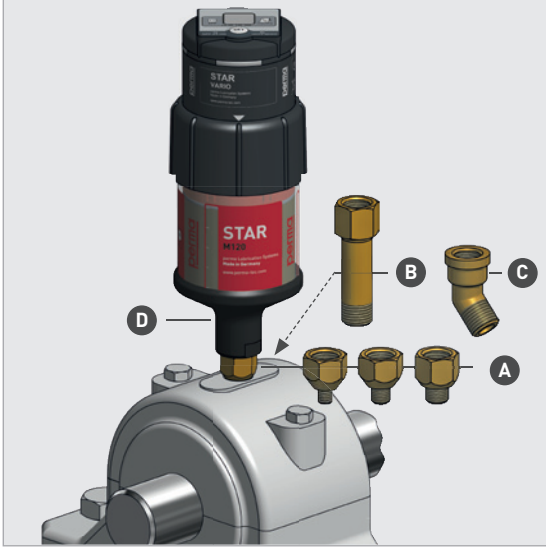
Contents	
A	1 x Reducer G1/8o x G1/4i 1 x Reducer M6o x G1/4i 1 x Reducer M8x1o x G1/4i 1 x Reducer M10x1o x G1/4i
B	1 x Extension R1/4o x G1/4i - 45 mm
C	1 x Angle 45° G1/4o x G1/4i

MOUNTING SET Direct mounting for perma STAR VARIO

Order lubrication system separately



Part no. 101477



Contents	
A	1 x Reducer G1/8o x G1/4i 1 x Reducer M6o x G1/4i 1 x Reducer M8x1o x G1/4i 1 x Reducer M10x1o x G1/4i
B	1 x Extension R1/4o x G1/4i - 45 mm
C	1 x Angle 45° G1/4o x G1/4i
D	1 x STAR Support flange G1/4o x G1/4i





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

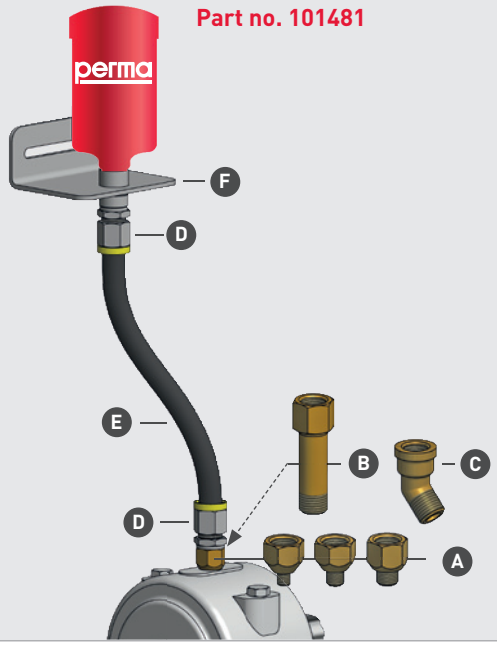
Remote mounting with tube

MOUNTING SET Remote mounting with low pressure tube for perma CLASSIC / FUTURA / FLEX / NOVA

Order lubrication system separately



Part no. 101481



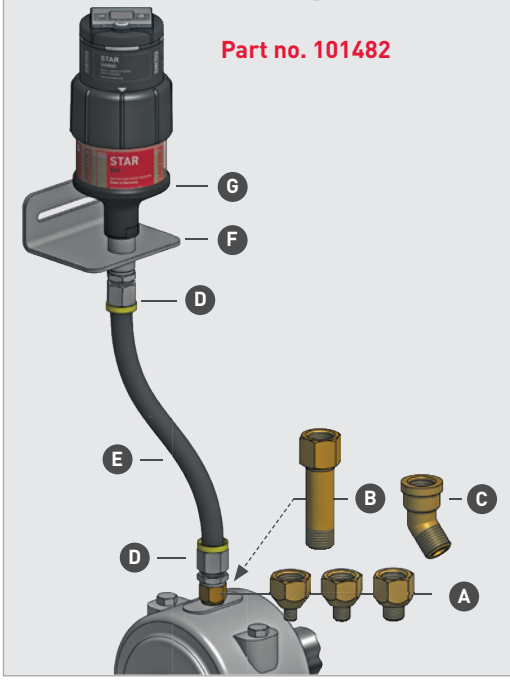
Contents	
A	1 x Reducer G1/8o x G1/4i 1 x Reducer M6o x G1/4i 1 x Reducer M8x1o x G1/4i 1 x Reducer M10x1o x G1/4i
B	1 x Extension R1/4o x G1/4i - 45 mm
C	1 x Angle 45° G1/4o x G1/4i
D	2 x Tube connector G1/4o for tube iØ 9,5 mm (steel, zinc-plated) - push-lock
E	**1,5 m** Low pressure tube up to +100 °C (with NBR lining and fabric insert)
F	1 x 1 point bracket G1/4i for 1 lubrication system

MOUNTING SET Remote mounting with low pressure tube for perma STAR VARIO

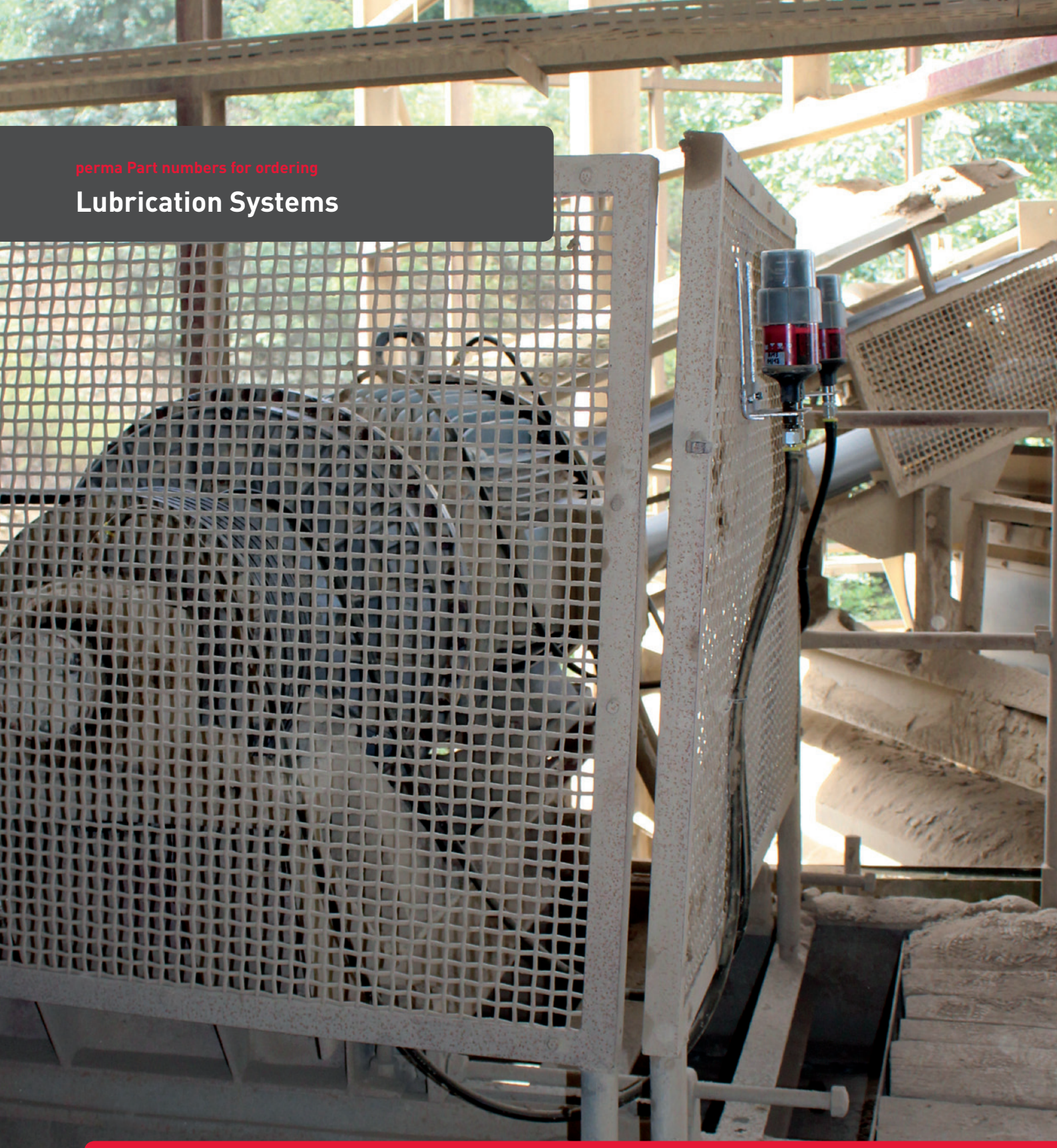
Order lubrication system separately



Part no. 101482



Contents	
A	1 x Reducer G1/8o x G1/4i 1 x Reducer M6o x G1/4i 1 x Reducer M8x1o x G1/4i 1 x Reducer M10x1o x G1/4i
B	1 x Extension R1/4o x G1/4i - 45 mm
C	1 x Angle 45° G1/4o x G1/4i
D	2 x Tube connector G1/4o for tube iØ 9,5 mm (steel, zinc-plated) - push-lock
E	**3 m** Low pressure tube up to +100 °C (with NBR lining and fabric insert)
F	1 x 1 point bracket G1/4i for 1 lubrication system
G	1 x STAR Support flange G1/4o x G1/4i



perma Part numbers for ordering

Lubrication Systems

perma

1st order and ReOrder:



1st order and ReOrder:



1st order and ReOrder:



perma CLASSIC / perma FUTURA / perma FLEX









Grease	perma Code	perma CLASSIC 120 cm³	perma FUTURA 120 cm³	perma FLEX 60 cm³	perma FLEX 125 cm³
perma Multipurpose grease	SF01	100020	106997	107224	107155
perma Extreme pressure grease	SF02	100034	107008	107226	107161
perma High temp. grease	SF03	100045	107012	107227	107163
perma High performance grease	SF04	100052	107016	107228	107164
perma High temp. / Extreme pressure grease	SF05	100063	107020	107229	107167
perma Liquid grease	SF06	100074	107024	107230	107168
perma High speed grease	SF08	100083	107029	107232	107170
perma Multipurpose bio grease	SF09	100089	107032	107233	107172
perma Food grade grease NSF H1	SF10	100096	107037	107234	107173
Oil	**perma Code**	⚠ Order oil retaining valve (p. 40) separately	**incl. oil retaining valve**	**incl. oil retaining valve**	**incl. oil retaining valve**
perma High performance oil	SO14	100427	107083	107246	107199
perma Multipurpose oil	SO32	100449	107090	107247	107200
perma Bio oil, low viscosity	SO64	100473	107099	107248	107202
perma Bio oil, high viscosity	SO69	100483	107103	107249	107204
perma Food grade oil NSF H1	SO70	100489	107107	107251	107205

CLASSIC / FUTURA Activators	Pic.	Part no.
Activator **yellow** 1 month	1	101331
Activator **green** 3 months	2	101332
Activator **red** 6 months	3	101333
Activator **grey** 12 months	4	101335



1



2



3



4

FLEX Accessories	Pic.	Part no.
FLEX Support flange G1/4o x G1/4i (alu)	5	101469
FLEX Protection cap (steel)	6	101471



5



6



perma NOVA

NOVA LC (=Lubricant Canister)

⚠ NOVA LC incl. battery & oil retaining valve



Control unit must be ordered separately



Control unit must be ordered separately

Grease	perma Code	perma NOVA LC 65 cm³	perma NOVA LC 130 cm³
perma Multipurpose grease	SF01	107415	107286
perma Extreme pressure grease	SF02	107416	107291
perma High temp. grease	SF03	107417	107294
perma High performance grease	SF04	107418	107296
perma High temp. / Extreme pressure grease	SF05	107419	107299
perma Liquid grease	SF06	107420	107302
perma High speed grease	SF08	107421	107304
perma Multipurpose bio grease	SF09	107422	107307
perma Food grade grease NSF H1	SF10	107423	107309
Oil	**perma Code**	**incl. oil retaining valve**	**incl. oil retaining valve**
perma High performance oil	SO14	107425	107356
perma Multipurpose oil	SO32	107426	107361
perma Bio oil, low viscosity	SO64	107427	107366
perma Bio oil, high viscosity	SO69	107428	107368
perma Food grade oil NSF H1	SO70	107429	107370

→ Suitable lubricants for your application: see page 26 / 27.

NOVA Control unit	Part no.	
NOVA Control unit, reusable 1-12 months	107271	



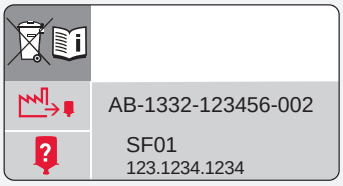
20 cm³

Would you like to see how our electrochemical lubrication systems work?

→ **Contact us and ask for your perma MINI sample MINI@perma-tec.com!**

Important information on lubricator label

Production date / serial # / lubricant filled.



Serial number
(Product code - year / week of manufacture - number)

Lubricant code
Part no.





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	104044	100724	104473
perma Extreme pressure grease	SF02	104048	100733	104480
perma High temp. grease	SF03	104051	100739	104485
perma High performance grease	SF04	104054	100744	104488
perma High temp. / Extreme pressure grease	SF05	104057	100750	104492
perma Liquid grease	SF06	104061	100755	104497
perma High speed grease	SF08	104063	100762	104500
perma Multipurpose bio grease	SF09	104065	100766	104502
perma Food grade grease NSF H1	SF10	104069	100770	104506
Oil	⚠ Order oil retaining valve (see page 40) separately			
perma High performance oil	SO14	104180	101096	104685
perma Multipurpose oil	SO32	104188	101117	104696
perma Bio oil, low viscosity	SO64	104198	101137	104711
perma Bio oil, high viscosity	SO69	104202	101145	104716
perma Food grade oil NSF H1	SO70	104204	101148	104719



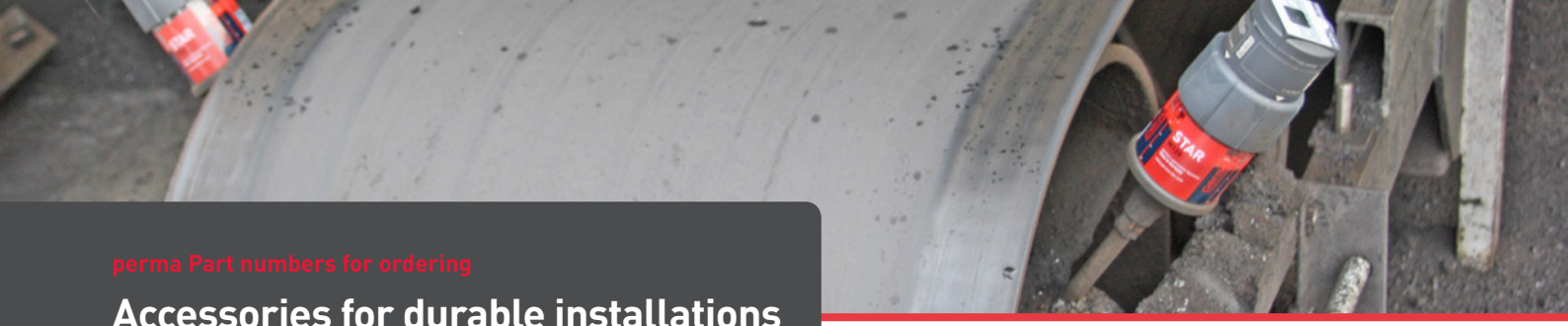




STAR Components / Accessories	Pic.	perma STAR VARIO	Pic.	perma STAR CONTROL TIME	Pic.	perma STAR CONTROL IMPULSE
Drive	1	107529	2	101366	3	101367
Battery pack	4	101351				
Cable (5 m)			5	101451		
Cable (10 m)			6	101452		
STAR Support flange G1/4o x G1/4i (brass / plastic)	7	101416	7	101416		
STAR Profile seal ring (NBR)	8	101418	8	101418		
STAR Protection cap L250 (plastic)	9	101419	10	101474		
STAR Protection cap M120 / S60 (plastic) can be cut to fit size S60	11	101420	12	101475		

Always use no. 7 + 8 with STAR Protection cap



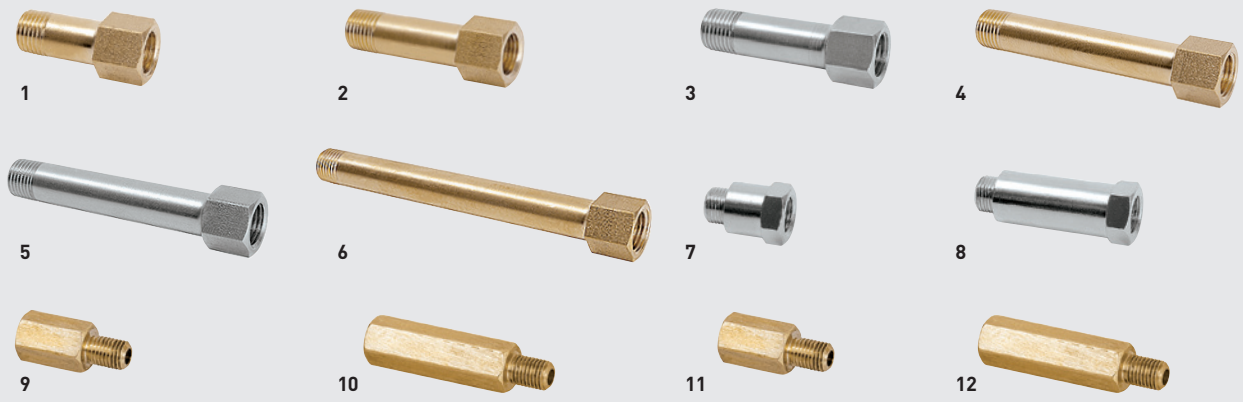


perma Part numbers for ordering

Accessories for durable installations

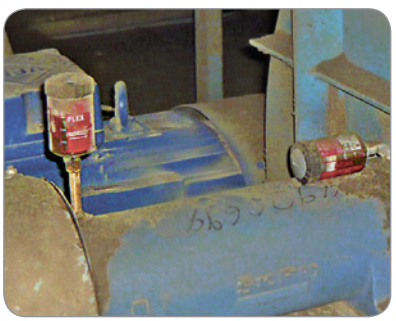
Care taken to “get it right” during installation will ensure long-term lubricator reliability and sets the foundation for a robust maintenance solution. perma accessories have been carefully selected to ensure that installations will stand the test of time in harsh operating environments.

Extensions	Pic.	Brass	Pic.	Stainless steel 1.4571
Extension 30 mm R1/4o x G1/4i	1	104887		-
Extension 45 mm R1/4o x G1/4i	2	104888	3	104887
Extension 75 mm R1/4o x G1/4i	4	104887	5	104888
Extension 115 mm R1/4o x G1/4i	6	104888		-
Extension 16 mm G1/8o x G1/8i (brass nickel-plated)	7	104887		-
Extension 36 mm G1/8o x G1/8i (brass nickel-plated)	8	104888		-
Extension 14 mm M6x0.75o x M6i	9	104887		-
Extension 30 mm M6x0.75o x M6i	10	104888		-
Extension 14 mm M6o x M6i	11	104887		-
Extension 30 mm M6o x M6i	12	104888		-









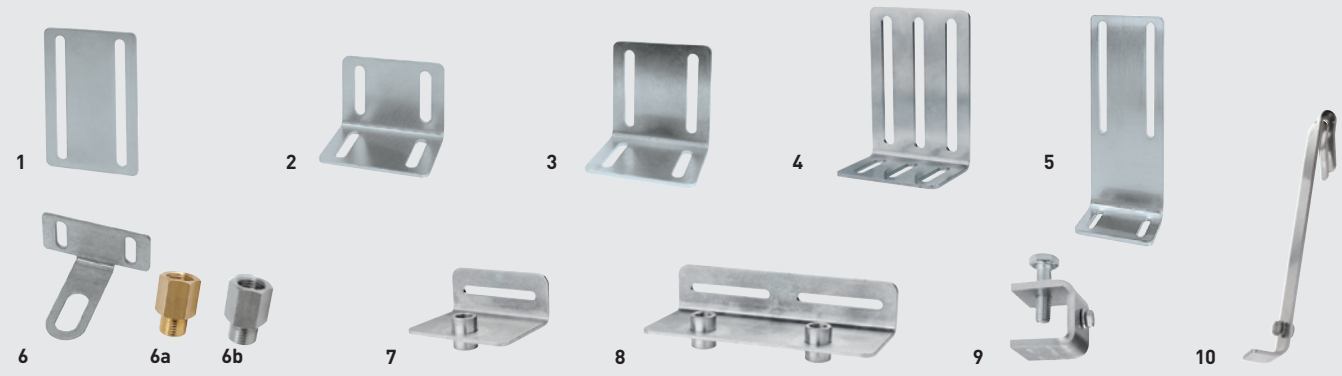
For prefilling of connection parts always use the same lubricant that is filled in the lubrication system
→ 400 g cartridges on page 28

Brackets	Pic.	Part no.
Clamp (steel, zinc-plated) for grounding the perma CLASSIC in an Ex-zone	1	101384
Clip for CLASSIC, FUTURA, STAR (plastic)	2	101386
Clip for FLEX, NOVA (plastic)	3	101464



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	101432
Mounting angle 50 x 50 x 70 x 2.5 mm - holespacing 45 mm			2	101429
Mounting angle 50 x 70 x 70 x 2.5 mm - holespacing 45 mm			3	101430
Mounting angle 50 x 100 x 70 x 2.5 mm - holespacing 45 mm / 22.5 mm			4	101431
Mounting angle 50 x 180 x 70 x 5 mm - holespacing 45 mm			5	101433
Bracket			6	**Stainless steel 1.4016** 104864
Insert for Bracket G1/4o x G1/4i	6a	104820	6b	**Stainless steel 1.4571** 104865
1 point bracket G1/4i - for 1 lubrication system			7	104883
2 point bracket G1/4i - for 2 lubrication systems			8	104884
Beam clamp 30 mm - for bracket no. 7 or 8			9	104885
1 point cage hanger - for bracket no. 7 or 8			10	104886

NEW
→ Quick
→ Easy
→ No drilling









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 - 101499	2	- for PRO - 101569
Tube translucent (PA) up to +80 °C oØ 6 mm x iØ 4 mm - for ECOSY -	3	- for ECOSY - 101494		-



1 2 3

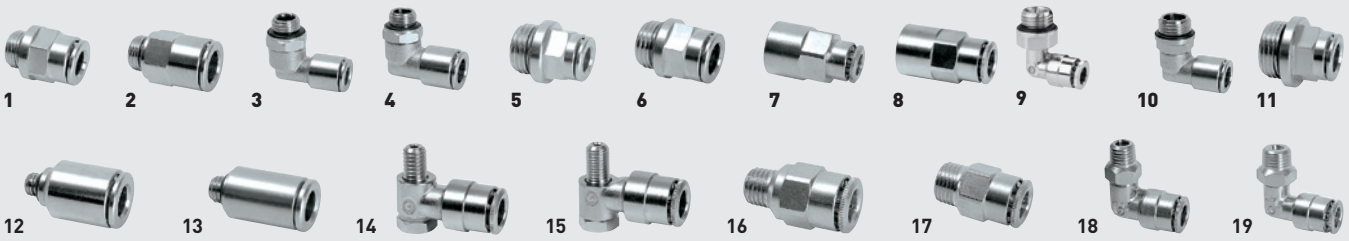
→ Tube length can be selected individually

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	101446	2	101570
Tube connector G1/8o 90° - rotary type	3	101449	4	101571
Tube connector G1/4o straight	5	101447	6	101496
Tube connector G1/4i straight	7	101511	8	101502
Tube connector G1/4o 90° - rotary type	9	101551	10	101497
Tube connector G3/8o straight		-	11	101498
Tube connector M5o straight	12	101448		
Tube connector M6o straight	13	101509		
Tube connector M6o 90° - swivel type	14	101515		
Tube connector M6x0.75o 90° - swivel type	15	101516		
Tube connector M8x1o straight	16	101517		
Tube connector M10x1o straight	17	101510		
Tube connector M8x1o 90° - rotary type	18	101507		
Tube connector M10x1o 90° - rotary type	19	101508		

Use Tube connectors together with extension for tube oØ 6 mm to oØ 8 mm



Part no. 101512



1 2 3 4 5 6 7 8 9 10 11

12 13 14 15 16 17 18 19

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	101514	21	101513
Extension for tube oØ 6 mm to oØ 8 mm	22	101512		-
Tube prefill adapter	23	101532	24	101526



20 21 22 23 24

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	101393	✓	✓	✓	-	-
Standard tube translucent (PTFE)	6 / 8	+250	6 bar	101394	✓	✓	✓	-	-
Low pressure tube black with NBR lining and fabric insert	9.5 / 16	+100	25 bar	101555	✓	✓	✓	-	-
VA-Flex tubes (stainless steel 1.4571)	8 / 12	+260	25 bar	101549	✓	✓	✓	✓	-
Tube black (PA)	5 / 8	+80	25 bar	101569	-	-	-	✓	-
Tube black (PA)	4 / 6	+100	10 bar	101499	-	-	-	-	✓
Tube translucent (PA)	4 / 6	+80	10 bar	101494	-	-	-	-	✓

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	101393
Tube up to +250 °C oØ 8 mm x iØ 6 mm (PTFE), per meter	2	101394

	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	101390	4	104821	5	104866
Tube connector G1/4o	6	101391	7	104822	8	104867
Tube connector G1/8o	9	101392		-		-

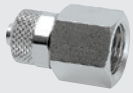


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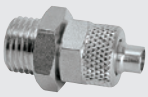

3


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	101555
Tube connector G1/4o for tube iØ 9.5 mm (steel, zinc-plated), push-lock	2	101554

NEW
→ Longer
→ Easier
→ Sturdier


1


2

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	101549
Tube up to +260 °C, length 1500 mm (PTFE / stainless steel 1.4301)	2	101550
Cutting ring coupling R1/4o for oØ 8 mm straight (stainless steel 1.4571)	3	104868
Cutting ring coupling R1/8o for oØ 8 mm 90° adjustable (stainless steel 1.4571)	4	104869
Cutting ring coupling R1/8o for oØ 8 mm straight (stainless steel 1.4571)	5	104870
Cutting ring coupling straight - connector for oØ 8 mm (stainless steel 1.4571)	6	104871


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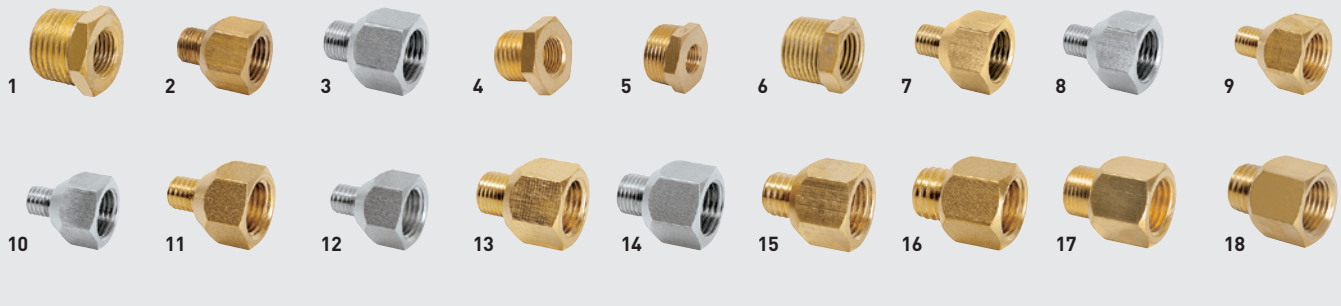

4


5


6

Accessories

Reducers / Reducer coupling	Pic.	Brass	Pic.	Stainless steel 1.4571
Reducer R1/2o x G1/4i	1	104832		-
Reducer G1/8o x G1/4i	2	104833	3	104875
Reducer G1/4o x G1/8i	4	104834		-
Reducer R3/4o x G1/4i	5	104835		-
Reducer R3/8o x G1/4i	6	104836		-
Reducer M6o x G1/4i	7	104837	8	104876
Reducer M8x1o x G1/4i	9	104838	10	104877
Reducer M8o x G1/4i	11	104839	12	104878
Reducer M10x1o x G1/4i	13	104840	14	104879
Reducer M10o x G1/4i	15	104841		-
Reducer M12o x G1/4i	16	104842		-
Reducer M12x1o x G1/4i	17	104843		-
Reducer M12x1.5o x G1/4i	18	104844		-
Reducer M14x1.5o x G1/4i	19	104845		-
Reducer M14o x G1/4i	20	104846		-
Reducer M16o x G1/4i	21	104847		-
Reducer M16x1.5o x G1/4i	22	104848		-
Reducer Whitworth 1/4"o x G1/4i	23	104849		-
Reducer coupling G3/8i to G1/8i for tube oØ 8 mm, nickel plated	24	101545		-



Check thread size at lubrication point

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	104862	2	104889
Oil retaining valve G1/4o x G1/4i up to +150 °C (with metal valve)	3	104863		-

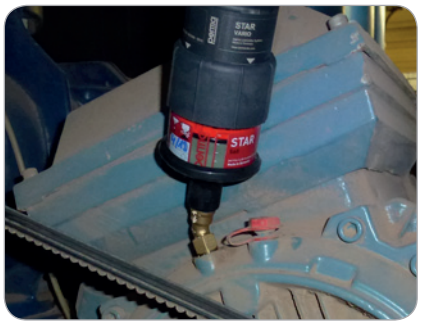


Seal all connection parts with a metal bonding adhesive (medium)

Angles	Pic.	Brass	Pic.	Stainless steel 1.4401
Angle 45° G1/4o x G1/4i	1	104823	2	104873
Angle 45° M6o x G1/4i	3	104824		-
Angle 45° M8x1o x G1/4i	4	104825		-
Angle 45° M10x1o x G1/4i	5	104826		-
Angle 90° G1/4o x G1/4i	6	104827	7	104874
Angle 90° M6o x G1/4i	8	104828		-
Angle 90° M8x1o x G1/4i	9	104829		-
Angle 90° M10x1o x G1/4i	10	104830		-









Others	Pic.	Brass	Pic.	Stainless steel 1.4401
Swivelling screw fitting G1/4o x G1/4i - rotary type	11	104831		-
T-Adapter 3 x G1/4i	12	104850	13	104880
Bulkhead nipple G3/8o x G1/4i	14	104851		-
Hexagon nipple R1/4o	15	104852	16	104881
Sleeve G1/4i	17	104853	18	**Stainless steel 1.4571** 104882




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	✓	✓		✓	✓	✓	✓	Ex	18-19
	**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	✓	✓		✓	✓	✓	✓	Ex IECEx TIIS FM	20-21
	**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	✓	✓		✓	✓	✓	✓	Ex TIIS IECEx ANZEx FM	22-23
	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	Push button control and display	✓	✓		✓	✓	✓	✓	cULus LISTED	24-25
	**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	✓	✓		✓	✓	✓	✓		SS*
	**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	SS*
	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	✓	✓	✓	✓	✓	✓		cULus LISTED	SS*
	**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	✓	✓	✓	✓	✓	✓			SS*
	**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		✓				✓			SS*

CE All perma products are approved according to CE directives. (1) depending on ambient temperature and counter pressure (2) depending on counter pressure

***SS** = Special Solutions - For more information go to Catalogue "Special Solutions". Part no. 103779

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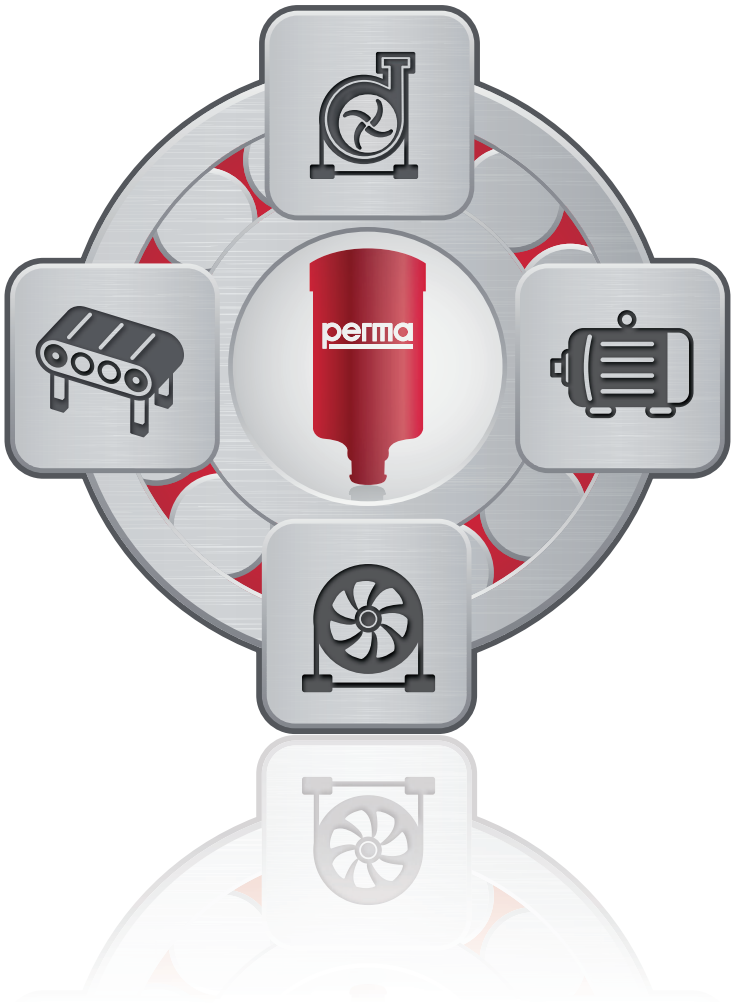
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