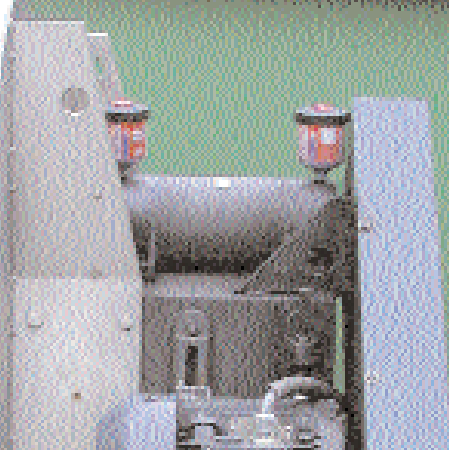


# Lubrication Systems





# Electrochemical Lubrication Systems

## Automatic Lubrication with Lubrication Systems from perma-tec

The regulated and controlled supply of lubricant to a lubrication point is the key to trouble free mechanical performance. perma lubrication systems offer such precise and consistent lubrication to individual lubrication points. The reliable function is based on an electrochemical reaction.

By screwing an activator into a perma Classic or Futura an activating pellet is dropped into a rubber bladder which contains a liquid electrolyte. A chemical reaction occurs creating pressure of up to 4 bar. This causes the bladder to expand which in turn pushes the piston forward expelling lubricant directly into the lubrication point. When all of the lubricant is discharged, the coloured piston will be clearly visible through the clear plastic top of the units. The lubrication period is determined by the various colour coded activator screws.

### perma CLASSIC

- Lubrication period up to 12 months (depending on type)
- Fully automatic, reliable and safe - no maintenance required
- Operating temperature  $\pm 0$  to  $+40$  °C (32 °F to 104 °F)
- Pressure build-up of up to 4 bar
- Indication of empty level
- 120cc lubricant volume
- Simple exchange without tools
- Works independent of mounting position - even under water
- Metal housing
- Environmentally safe electrolyte liquid based on citric acid

### perma FUTURA

- Lubrication period up to 6 months depending on type (activating screws same as perma CLASSIC, but with pink O-ring seal)
- Fully automatic, reliable and safe - no maintenance required
- Operating temperature  $\pm 0$  to  $+40$  °C (32 °F to 104 °F)
- Pressure build-up of up to 4 bar
- Transparent housing allows constant discharge monitoring
- 100cc lubricant volume
- Simple exchange without tools
- Works independent of mounting position - even under water
- Transparent, corrosion-proof and recyclable plastic housing
- Environmentally safe electrolyte liquid based on citric acid



yellow = 1 month\*



green = 3 months\*



red = 6 months\*



grey = 12 months

(\*pink O-ring for FUTURA)

perma Lubrication  
Systems for  
Roller Bearings  
Sliding Bearings  
Chains  
Open Gears  
Guideways ...

## Temperature Independent Precision Lubrication with perma STAR

With the development of the perma STAR lubrication systems, perma-tec was able to minimize the influence of ambient temperature on automatic lubrication.

The perma STAR consists of an LC-unit (Lubrication Cartridge) and an electro-mechanical drive unit (with an exchangeable battery set for perma STAR VARIO or external power supply for perma STAR CONTROL). The electromechanical drive unit builds up pressure (automatic pressure shut off at max. 5 bar), operates automatically and independent of temperature. Its unique advantage is the precise lubricant discharge.

We offer 3 different sizes of LC-units: 60cc (S60), 120cc (M120), and 250cc (L250). Each size can be set to discharge its content in 1, 3, 6, or 12 months by simply changing the configuration of the dials on the drive. This makes the perma STAR a great solution for a wide variety of lubrication requirements. The drives are interchangeable with all three sizes of the LCs and can be changed on site.

The drive unit is re-usable and saves resources. The LC-unit is made from transparent plastic for optimal fill level control and monitoring. The plastic can be recycled and is therefore environmentally friendly.

### perma STAR VARIO

- Operating temperature -10 to +50 °C (14 °F to 122 °F)
- Transparent housing for constant discharge monitoring
- 4 discharge periods: 1, 3, 6, or 12 months
- Discharge period can be individually set when changing the LC-unit
- LED lights signal the operating conditions (e.g. operating, empty, malfunction)

### perma STAR CONTROL

- Operating temperature -10 to +50 °C (14 °F to 122 °F)
- Machine connection (powered and controlled by the machine)
- Signalling of operating conditions (e.g. operating, empty, malfunction) by LED lights and machine analysis
- Lubrication system operates only when power is supplied by the machine



## Accessories and Lubricants

Different industries have different application areas. Each application has different lubrication requirements, e.g. hard to reach lubrication points, lubrication points with strong vibrations, or extremely high ambient temperatures.

perma-tec has developed solutions for these specific requirements and offers a wide variety of accessories for the optimal installation of its lubricators to different lubrication points.

perma-tec's standard program also includes more than 200 different lubricants. The lubricant line includes multi-purpose-, bio-, food grade-, high pressure-, high/low temperature-, and liquid grease.

### Accessories

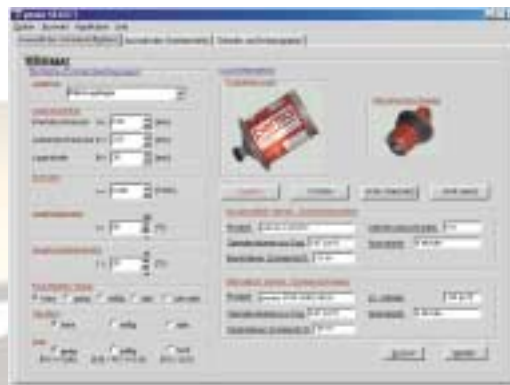


**Service:**  
**Download**  
[www.perma-tec.de](http://www.perma-tec.de)

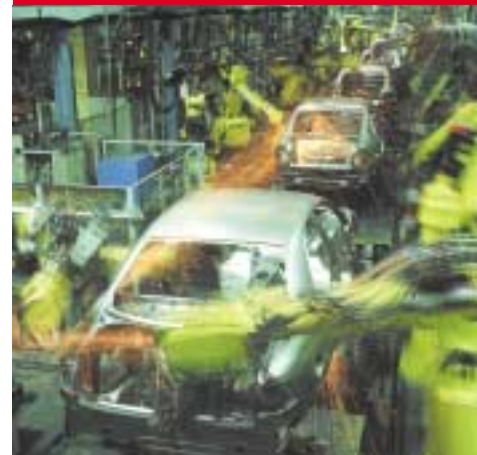
**perma SELECT software**  
The easy to use perma SELECT program assists you in finding the best suitable lubricator, settings, and lubricant for the safe operation of your equipment.

**Order form**  
**Accessory list**

**Standard lubricant line**



**perma Lubrication  
Systems in the  
Automotive Industry  
Metal processing  
Industry  
Steel Industry  
Plastic Industry  
Print- and Paper  
Industry  
Textile Industry  
Power Plants  
Rock Quarries  
Food Industry  
Concrete Industry  
Wind Energy Industry  
...**

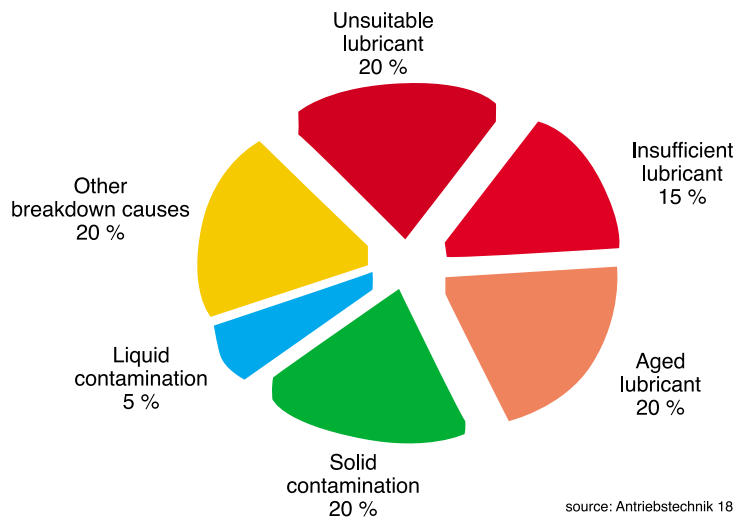


**perma**<sup>®</sup>

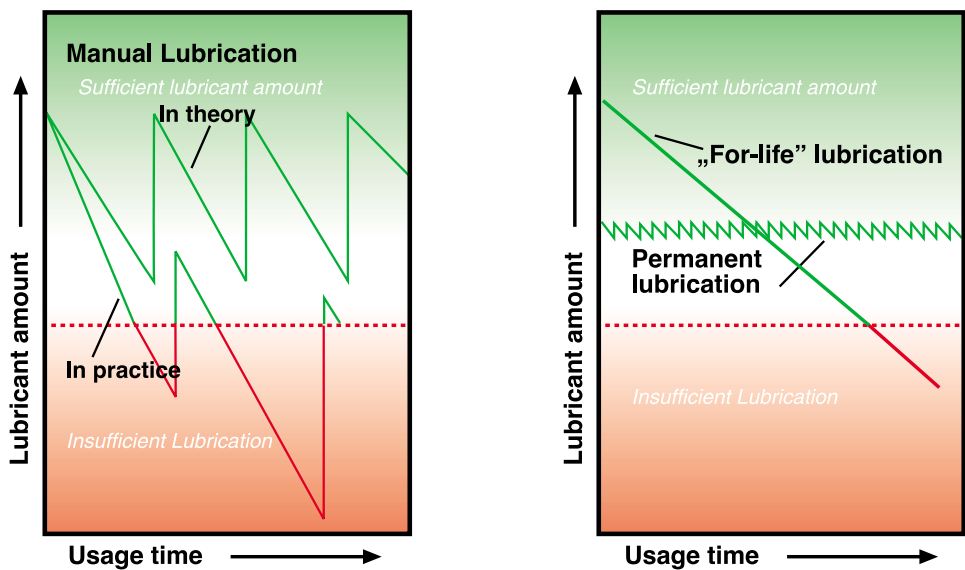
## Avoiding Damages and Saving Costs with perma Lubrication Systems

More than 50% of all premature bearing failures caused by lubrication problems could be avoided. The productivity and economic efficiency of equipment and production areas could be increased.

**Reasons for roller bearing breakdowns**



With perma lubrication systems, production breakdowns caused by incorrect or insufficient lubrication can easily and economically be eliminated. perma-tec offers a great variety of reliable, precise and fully automatic lubrication systems which can be optimally matched to the requirements of individual lubrication points. perma lubrication systems will reduce maintenance costs, help prevent expensive breakdowns and increase the service life of your equipment.



## Technical Data



Electrochemical Lubrication Systems	perma CLASSIC	perma FUTURA
<b>Construction</b>	Metal housing	Transparent plastic
<b>Powered by</b>	Electrochemical reaction	Electrochemical reaction
<b>Discharge periods with activation screws at +20 °C (68 °F) with SF01</b>	1, 3, 6 or 12 months	1, 3 or 6 months with pink O-ring seal
<b>Lubricant Volume</b>	120cc	100cc
<b>Operating temperature</b>	0 °C to +40 °C (32 °F to 104 °F)	0 °C to +40 °C (32 °F to 104 °F)
<b>Pressure build-up</b>	Max. 4 bar	Max. 4 bar



Electromechanical Lubrication Systems	perma STAR VARIO	perma STAR CONTROL
<b>Drive</b>	Electromechanical re-usable gear motor, battery set,	Electromechanical re-usable gear motor, 7...30 V DC
<b>Discharge periods</b>	1, 3, 6 or 12 months	machine controlled and impulse mode
<b>Lubricant Cartridge Volume</b>	Exchangeable LC-unit 60, 120 or 250cc	Exchangeable LC-unit 60, 120 or 250cc
<b>Operating temperature</b>	-10 °C to +50 °C (14 °F to 122 °F)	-10 °C to +50 °C (14 °F to 122 °F)
<b>Pressure build-up</b>	Max. 5 bar	Max. 5 bar

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