

# REFINERIES

perma lubrication systems in operation



The Expert in Lubrication Solutions

**perma**



## Challenges

The highly engineered processing methods in refineries pose great challenges to man and machine. Pumps and fans are among the key machine elements in refineries. perma lubrication systems guarantee reliable, continuous lubrication for such applications.

- Hard-to-reach and dangerous lubrication points
- Extreme operating conditions  
(varying temperatures, contamination & corrosion, strong vibrations)
- Various requirements and high loads
- Potentially explosive areas
- High occupational safety risk



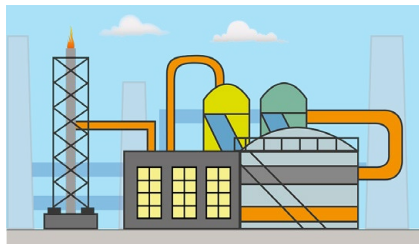
## Lubrication points

### 1 | PUMP STATIONS & SHIP UNLOADING



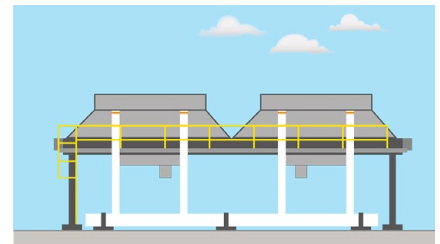
- **Pumps**  
Pumps, electric motors
- **Transporting**  
Electric motors

### 2 | REFINERY



- **Pumps**  
Electric motors, fuel pumps
- **Venting**  
Blowers & fans, electric motors

### 3 | AIR-COOLED HEAT EXCHANGERS



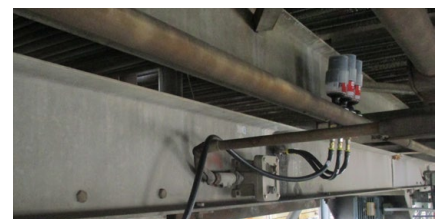
- **Cooling**  
Electric motors, blowers & fans



Electric motor lubrication on coolant compressors



Fuel pump lubrication in the refinery process



Fin fan lubrication in a heat exchanger



Electric motor lubrication in a pump station



Bearing lubrication for electric motors



Lubrication of a fan system



## perma STAR VARIO EX & perma STAR VARIO BLUETOOTH EX

Reusable drive

Lubricant volume  
60, 120, 250, 500 cm<sup>3</sup> |  
2.03, 4.06, 8.45, 16.91 fl.oz.

Pressure build-up  
7.5 bar | 109 psi

Operating temperature  
-40 °C\* to +60 °C | -40 °F\* to +140 °F

### SPECIAL FEATURES OF EXPLOSION PROTECTION

Poka-Yoke safeguard mechanism ensures the use of the correct battery pack

Approved for use in all hazardous areas



### USE IN EX-ZONES

Gas: Zone 0 | Div 1

Dust: Zone 20 | Div 1

### SERVICE & MAINTENANCE

Replacement of the intrinsically safe battery pack and STAR LC directly on site

\*Only use with suitable low temperature lubricants!

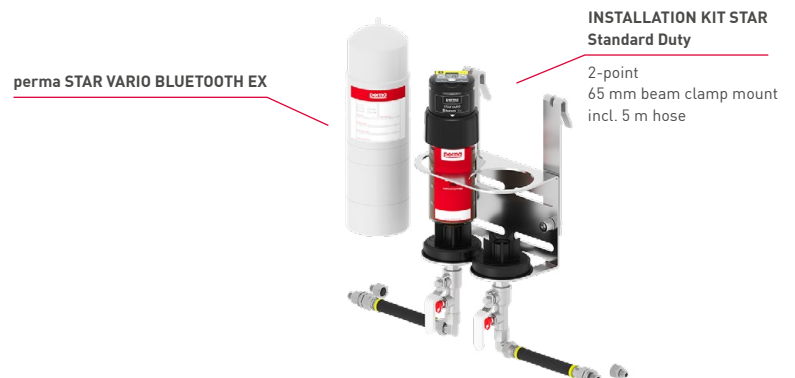
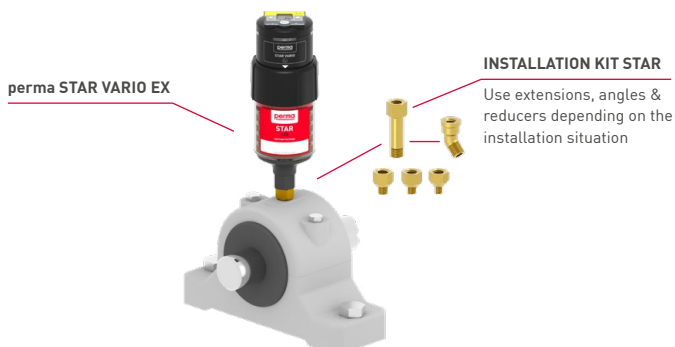
The selection of the ideal lubrication solution requires the consideration of various factors, including the specific type of application, operating speed and load of the machine, and the ambient temperature. Below are some proposed solutions:

#### Direct mounting | e.g. with perma STAR VARIO EX

- Easy, quick mounting
- For lubrication points with little vibration | shocks
- For easy-to-reach and safe lubrication points

#### Remote mounting | e.g. with perma STAR VARIO BLUETOOTH EX

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



## perma SERVICES

You have questions about our products or need assistance with the survey, system installation and maintenance of your equipment? Your perma contact has answers and is happy to assist!



Visit the perma website for an overview of our offerings.

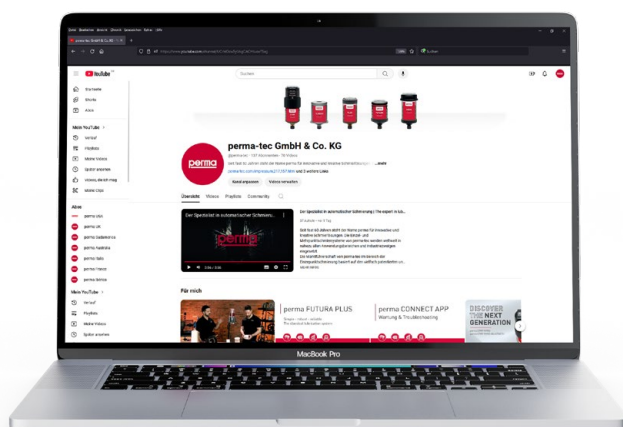
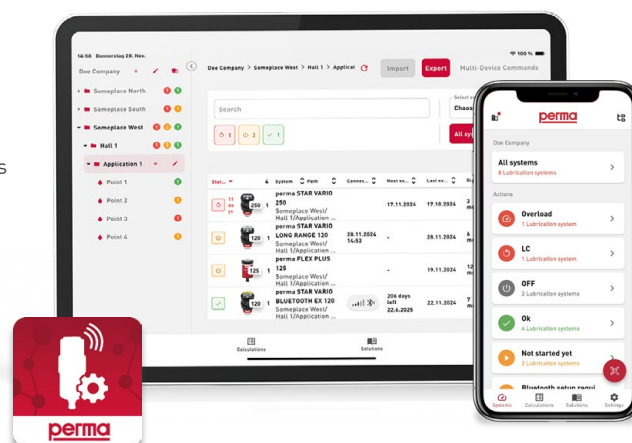


# EASY. SMART. CONNECTED.

- Maximum efficiency through centralized control of your maintenance
- Comprehensive overview of all lubrication points
- Convenient remote control and configuration of your lubrication systems
- Precise calculation of relubrication amounts and discharge periods
- Notifications allow for prompt responses

Get perma CONNECT now!

Download it to your smartphone | tablet or open web application under: <https://perma-connect.com>



To quickly get started with perma CONNECT, a range of step-by-step tutorial videos are available.

Click here to visit the perma YouTube channel!



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