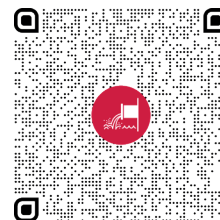


# WASTEWATER TREATMENT

perma lubrication systems in operation



The Expert in Lubrication Solutions

**perma**



## Challenges

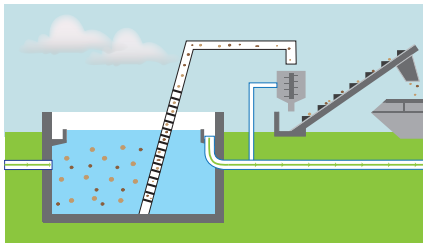
Trouble-free plant operation during the entire cleaning process is imperative for treatment of waste water. Important machine elements such as chains, spindles, roller and sliding bearings are directly exposed to dirt, water, phosphates and other chemicals. Continuous relubrication is necessary to prevent premature wear.

- Dirt, chemicals & water
- High energy costs
- Hard-to-reach and dangerous lubrication points
- High maintenance costs, lack of staff, spread out equipment & lubrication points



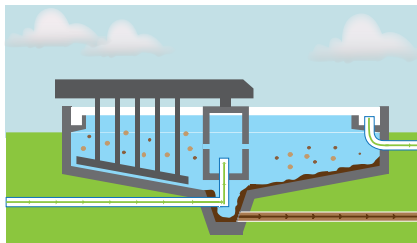
## Lubrication points

### 1 | PHYSICAL TREATMENT



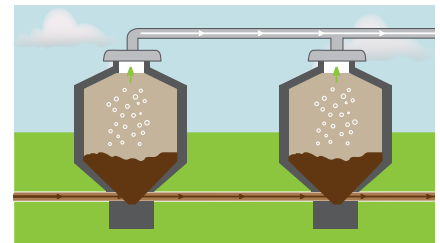
- **Screening**  
Chain guide roller
- **Grit & grease removal**  
Scraper
- **Sedimentation tank**  
Impeller wheel

### 2 | BIOLOGICAL TREATMENT



- **Aerated tank**  
Surface aerator
- **Clarification tank**  
Wheel bearing & pivot bearing

### 3 | SLUDGE TREATMENT



- **Sludge thickening**  
Sludge belt conveyor
- **Sludge dewatering**  
Screw press



Lubrication of chain guide rollers



Bearing lubrication at the fan of the aerated tank



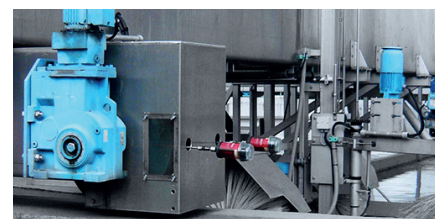
Bearing lubrication at excess sludge densifier



Lubrication of the slewing bearing



Lubrication of screen gears



Wheel bearing lubrication at circular scraper

## Solutions

### perma STAR VARIO

- + LCD display with push button displays discharge period, LC size and operating status
- + Easy to handle
- + Manual additional discharge via button on display (purge)
- + One drive for all LC sizes
- + Electromechanical reusable drive
- + Suitable for greases up to NLGI 2 | oils
- + LED (green | red) visible all round signals functioning and any errors
- + Pressure build-up to 7.5 bar allows remote mounting up to 5 m
- + Lubrication system operates reliably from -40 °C to +60 °C



### perma STAR VARIO BLUETOOTH

- + Easy handling via perma CONNECT
- + Compatible with Gateway BLUETOOTH
- + Bluetooth function
- + Illuminated LCD display



### perma STAR VARIO LONG RANGE

- + Easy handling via perma CONNECT
- + Long range thanks to LoRa® WAN technology
- + Certification for potentially explosive atmospheres (Zone 2 | Zone 22)
- + Gateway solution for up to 2,000 lubrication points
- + Illuminated LCD display

## USE IN EX-ZONES

### perma NOVA



Gas: Zone 1  
Dust: Zone 21



### perma FLEX



Gas: Zone 0 |  
Class I Div 1  
Dust: Zone 20 |  
Class II/III Div 1



### perma STAR VARIO LONG RANGE



Gas: Zone 2 |  
Class I Div 2  
Dust: Zone 22 |  
Class II/III Div 2



## MOUNTING

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.

### 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!



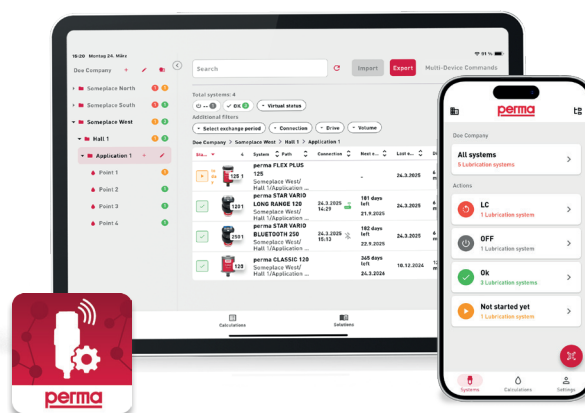
Visit the perma website for an overview of our offerings.



# EASY. SMART. CONNECTED.

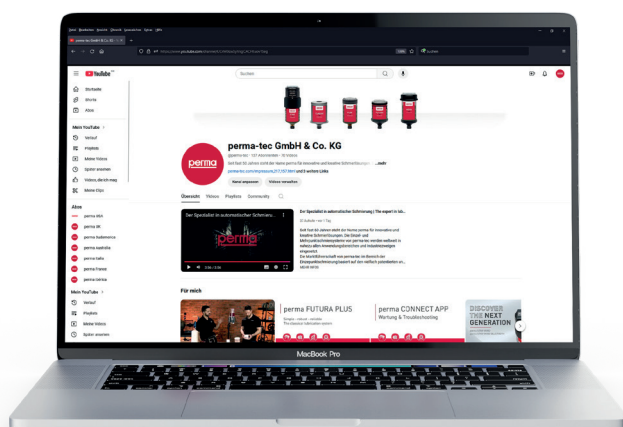
**Simple and intuitive - configure and maintain all perma lubrication systems via mobile devices.**

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



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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