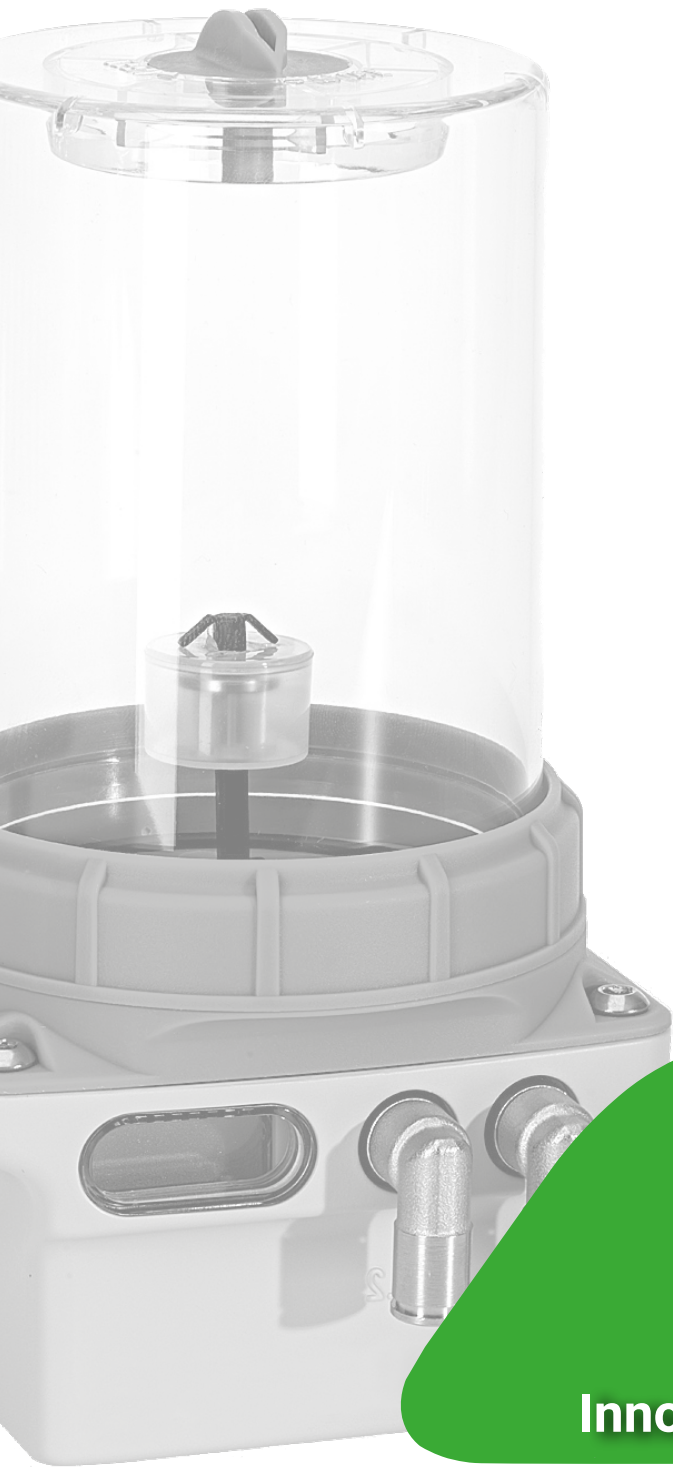
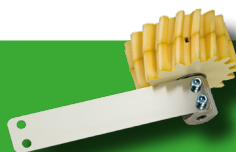
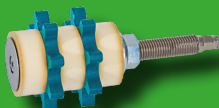


TriboServ



Home of
Innovative Lubrication Systems

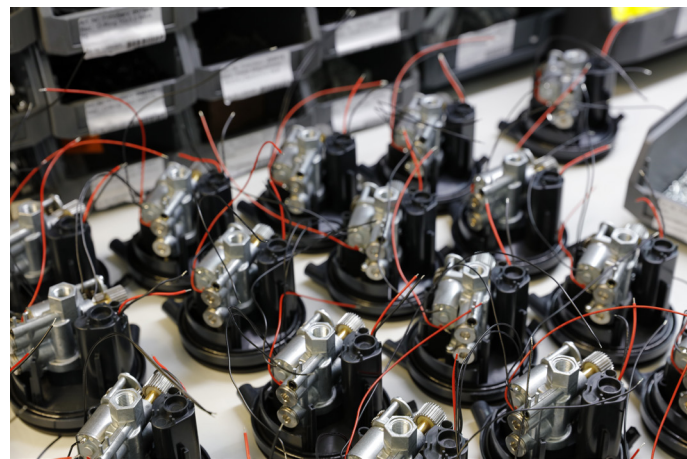




Concept & construction

Manufacturing & control

Installation & assembly



Your specialist for automatic lubrication systems

The right quantity of lubricant at the right time on the right place?

Preventive maintenance through

- 🟢 automatic lubrication
- 🟢 distributing & dosage
- 🟢 efficient applying
- 🟢 monitoring

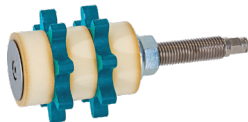
TriboServ offers the solution with modern lubrication systems for challenging applications.

TriboServ develops and manufactures innovative, automatic lubrication systems for industrial applications, with the focus on **small quantity lubrication** of oil and grease.

As a certified system supplier, TriboServ offers you



FlexxPump single and multi-point lubrication systems, lubricant distributors, applicators for lubrication of gears and chains as well as suitable accessories.



Aykut Ozdemir, President
SpectroLube Inc.

Call us for action -

„Performance with experience“ is our motto!



Quality Management

We are certified.

ISO 9001:2015

Legend of symbols

	Dimensions		Capacity of cartridges
	Connection plug		Weight
	Applications		Heating
	Quantity of outlet ports		Length of connecting to inlet
	Number of cycles		Material
	Outlet port		Pause time
	Base oil		RoHS conformity
	DIN marking		Protection class
	Pressure build-up		Voltage
	Dynamic viscosity/ Viscosity range		PLC connection option
	Mounting position/Mounting		Monitoring
	Input volume flow		Thickener
	Operating temperature		Volume per delivery stroke/ distribution ratio
	Emptying time		

GENERAL

Page

Comparison of lubrication methods
Your advantages

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DISPENSING & DOSING

FlexxPump1
FlexxPump4
FlexxPump4 Oil



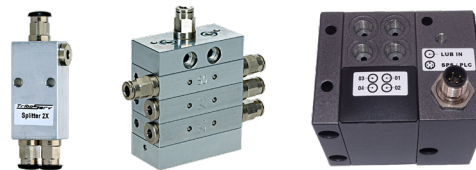
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DISTRIBUTING

Splitters
Progressive distributors
ESV - Electromechanically controlled distributors



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CONTROL & MONITORING

Condition Monitoring
Variants of condition monitoring
Monitored progressive distributor



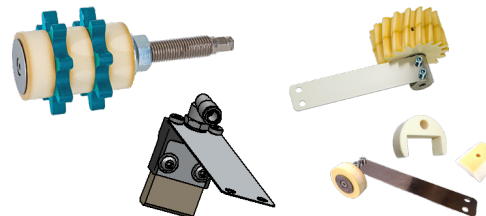
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APPLYING

FlexxGear lubrication gears
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LUBRICANTS & ARTICLE LIST

Grease and oil cartridges
Tips and hints
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Manual vs. automatic

More than two-thirds of unpredictable bearing failures are lubricant-related.

The failures are mainly caused by an incorrect choice of lubricant, aged lubricant or too little or too much lubricant.

This means that incorrect lubrication is the main cause of all bearing damage.

In order to avoid damage caused by incorrect lubrication on machine elements, the correct interpretation of the lubrication point is essential.

Comparison of lubrication types

Manual lubrication

The following problems may occur with manual lubrication:

- X Production stop**, the plant must be stopped during the maintenance period
- X Over- or insufficient lubrication** due to incorrect selection of maintenance periods or incorrect relubrication quantities
- X Mix-up of lubricant**
- X High risk of contamination** in the lubricant points

In these cases, the worst possible consequence is a premature failure of the machine element or even the entire system, usually because lubrication cannot be ensured at controlled intervals.

Automatic lubrication

Automatic lubrication with the lubrication systems allows you to

- ✔ **Reliable supply** of your lubrication points even in hard-to-reach places
- ✔ **Regular conveying** of the optimum amount of lubricant set to the lubrication point to each machine element
- ✔ **Automatic lubrication** during operation of the system
- ✔ **Safe and regular** restoration of fat service life
- ✔ **Controlled operation** of the machine elements under optimal conditions

Change and take advantage of automatic lubrication

It is very easy to change from manual lubrication to automatic lubrication systems from TriboServ:

You can use **FlexxPump lubrication systems** wherever you need lubrication in industrial applications.

Our product portfolio includes robust single-point lubricators, complete lubrication systems, lubricant manifolds and lubricating applicators as well as the appropriate accessories.

Automatic lubrication Your advantages at a glance

✓ Simplification of maintenance work

By switching to automatic lubrication systems from **TriboServ**, you simplify the performance of maintenance work.

Because automatic relubrication can be used at any point that needs to be lubricated.

- 🌿 Delivery times from 1 up to 36 months
- 🌿 Operating temperature from -20 °C/+68 °F up to +70 °C/+158 °F
- 🌿 Greases up to NLGI class 2
- 🌿 Oils up to 30.000 mm²/s
- 🌿 Adjustable pause times from 1 up to 240 h
- 🌿 Adjustable delivery stroke from 1 up to 30

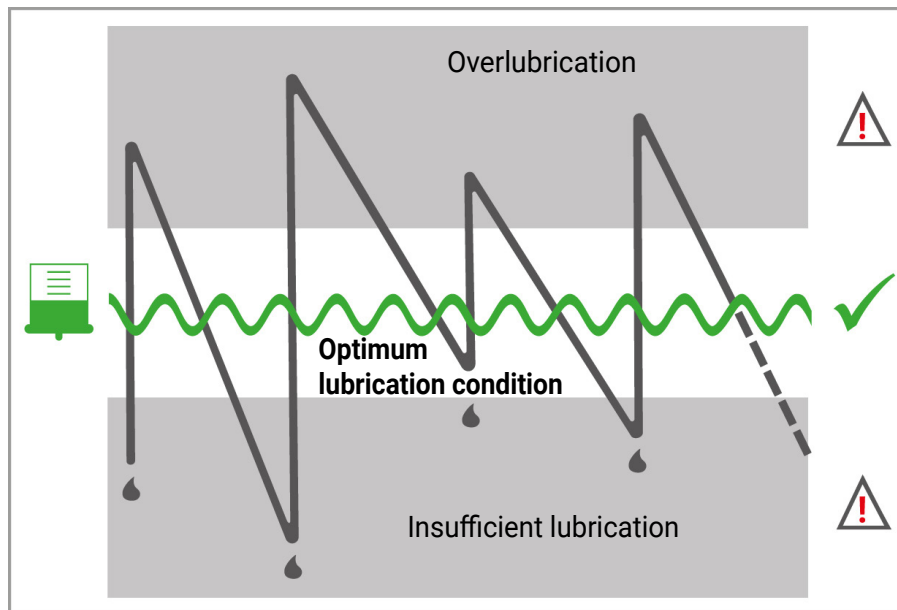
Manual vs. automatic lubrication

Overlubrication - too much lubricant

- ➔ Increasing the operating temperature
- ➔ High lubricant consumption

Insufficient lubrication - too little lubricant

- ➔ Increase of friction and wear
- ➔ Risk of damage to the bearing



Automatic lubrication by TriboServ lubrication systems enables you to regularly and reliably lubricate the lubrication points with the desired amount of lubricant.

Compared to manual lubrication, over- or insufficient lubrication is prevented.

Automatic lubrication Your advantages at a glance

✓ Service life of plants and machines

If wear occurs in the bearing earlier than expected, this can lead to unwanted downtime. The correct lubrication method has a major influence on the length of the service life of a grease-lubricated bearing. Solid particles and water can contaminate the bearing and thus accelerate wear - the life of the bearing is shortened.

With the automatic lubrication systems from **TriboServ** you prevent bearing failures.



Causes of bearing failure

Insufficient amount of lubricant

- Direct contact of friction points
- Increase of friction and wear

Ageing of lubricant

- No maintenance on hard-to-reach Lubrication points
- Exceeding the minimum shelf life (loss of quality)

Unsuitable lubricant

- Does not meet lubrication requirements
- Mixing of lubricants

Solid contamination

- Particle deposition during manual Relubrication
- Poor cleanliness in the workplace



Automatic lubrication by TriboServ

- ✓ Reliable supply of lubricant to lubrication points
- ✓ Long service life of machines and systems due to permanent relubrication
- ✓ Reduction of maintenance costs and unwanted machine and plant failures
- ✓ Prevents the ingress of foreign particles and liquids in the bearing
- ✓ Protection against friction and wear in the bearing
- ✓ Increasing the service life of the bearing

✓ Economy

With **TriboServ lubrication systems** you reduce the costs for expensive repair and maintenance measures. This is because automatic lubrication prevents premature wear and thus reduces downtimes.

Cost savings through automatic lubrication

- ✓ Predictable maintenance intervals
- ✓ Reduction of repair and maintenance costs
- ✓ Monitoring and control of lubrication points

Automatic lubrication Your advantages at a glance

✓ Occupational safety

During maintenance and repair work in machines and systems, occupational safety is increased with the use of **TriboServ lubrication systems**.

Reduction of the risk of accidents with TriboServ lubrication systems

- Reduction of hazardous work in hard-to-reach areas
- The use of lubrication systems avoids direct contact with lubricants that are hazardous to health
- Reduction of the risk of slipping and accident due to contamination with lubricant



✓ Environmental protection

With **TriboServ lubrication systems** you protect the environment and act sustainably. Our **plug & play solution** with interchangeable lubricant cartridges help to reduce energy and material consumption.

Protecting the environment with TriboServ lubrication systems



- **Reduction of the lubricant consumption**
It will be delivered only as much lubricant as the machine elements requires
- **Closed lubrication system, no contamination of the environment by lubricant**
- **Replaceable lubricant cartridges**
Disposal of the complete lubrication system not necessary
- **TriboServ products are very robust and durable**

Automatic lubrication Your advantages at a glance

✓ **Your satisfaction is very important to us**

Right from the start, we rely on a trusting cooperation with our customers.

Whatever you need, we will advise you and design an effective, reliable and economic solution together with you. Therefore, we are working to the principles of early error prevention, immediate error correction and collaborative error correction.

TriboServ convinces with performance, service and reliability.



Fig.: Certificate of ISO 9001

- **Your claim is our motivation**
 The focus is on the requirements and needs of our customers
- **Development and innovations**
 Our products are completely **developed, tested and manufactured** in Germany
- **Exchange and dialogue with customers**
 Benefit from the many years of experience of our employees
- **Made in Germany**
 We are certified according to **ISO 9001**. We are committed to providing you with the best possible quality of our products

Knowledge - we are the experts

The rotary lube pump's lubricant delivery principle is an innovative and intelligent new development that is the heart of **FlexxPump**.

It is patented and protected in Europe as well as in the USA and allows high flexibility for each of your applications as well as self-monitoring of pump and lubrication point.

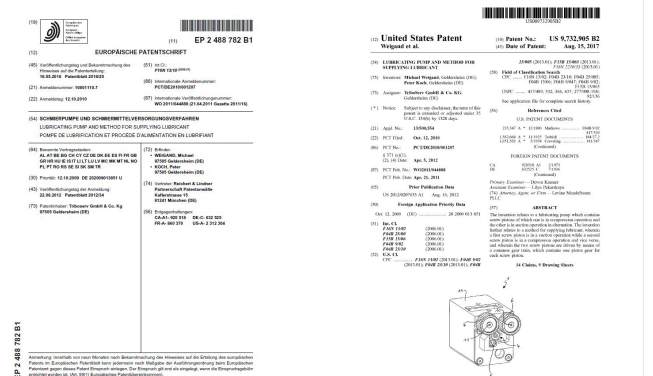


Fig.: European patent specification and US patent

Compact & powerful

FlexxPump1 - automatic lubricator

DISPENSING & DOSING



Compact and powerful - the FlexxPump1 lubrication system

The **FlexxPump1** can be used as a **single point lubricator** or as a **lubrication system** in combination with **progressive distributors** or **electromechanical distributors**.

✓ Your Advantages

- **Replaceable cartridges with 125 ml or 250 ml capacity** for a reliable long-term supply of the lubrication point
- **Easy assembly and installation** thanks to compact sizes, even in very tight spaces
- **Use under the most adverse environmental conditions**, such as vibration, dust, heat or cold



Fig.: Example of FlexxPump1 lubrication system

The **FlexxPump1** is available in **2** different versions:

FlexxPump1 B

with 4.5 V Battery pack



FlexxPump1 ND

with 24 VDC Connection and/or
interface for PLC control



Areas of Application

Lubrication of



Bearings



Chains



Linear guidance
systems



Ball screws



Gears









Plain bearings

FlexxPump1 B













The following operating modes can be easily set on the FlexxPump1 B

- Hour mode "h"
- Emptying time mode "Et"

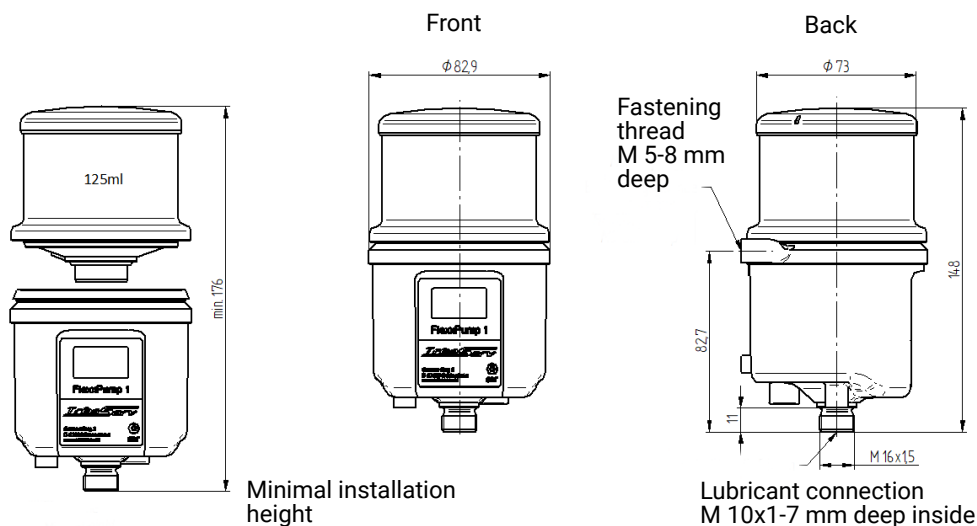
Features

	1 ... 99 h
	1 ... 10
	1 ... 24 months
	not included
	Greases up to NLGI class 2, oils up to 30.000 mm ² /s
	Pressure monitoring, empty level warning, proper machine operation, error messages

Technical Informations

	4.5 VDC
	M 12x1 4-pin, A-encoding
	1
	min. -15 °C/+5 °F (lithium) min. +15 °C/+59 °F (alkaline) max. +70 °C/+158 °F
	30 bar/435 psi
	54
	0.15 cm ³
	125 ml 250 ml
	External thread M 16x1.5, internal thread M 10x1
	standing
	approx. 365 g
	W x H x D 83 x 149 x 85 mm

Schematic drawing of FlexxPump1 B



FlexxPump1 ND













The following operating modes can be easily set on the FlexxPump1 ND

- Hour mode "h"
- Emptying time mode "Et"
- Pulse mode "PUL"

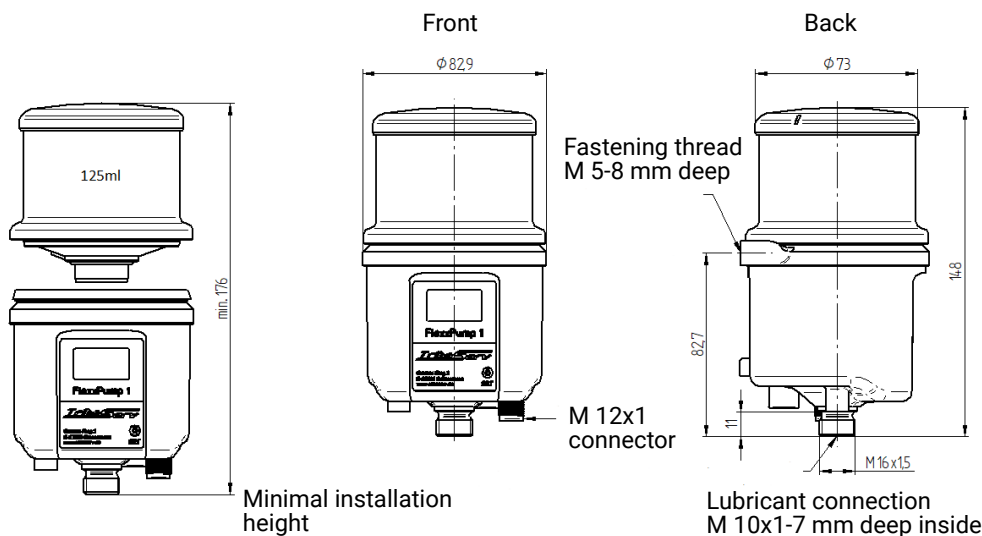
Features

	1 ... 99 h
	1 ... 10
	1 ... 24 months
	included
	Greases up to NLGI class 2, oils up to 30.000 mm ² /s
	Pressure monitoring, empty level warning, proper machine operation, error messages

Technical Informations

	+24 VDC
	M 12x1 4-pin, A-encoding
	1
	min. -20 °C/+68 °F max. +70 °C/+158 °F
	50 bar/725 psi
	54
	0.15 cm ³
	125 ml 250 ml
	External thread M 16x1.5, internal thread M 10x1
	standing
	approx. 365 g
	W x H x D 83 x 149 x 85 mm

Schematic drawing of FlexxPump1 ND



All-purpose lubricator

FlexxPump4 - automatic lubricator



Flexible and powerful - the FlexxPump4 lubricator

The **FlexxPump4** enables a very flexible direct supply of at least **one and a maximum of four lubrication points**.

Due to high pressure output capacity up to **70 bar**, it can also be used as a **multi-point lubrication system** in conjunction with **distributor systems**.

✓ Your Advantages

- Replaceable cartridges with **125 ml or 250 ml capacity** for a reliable long-term supply of the lubrication point
- Easy assembly and installation** thanks to compact sizes, even in very tight spaces
- Use under the most adverse environmental conditions**, such as vibration, dust, heat or cold

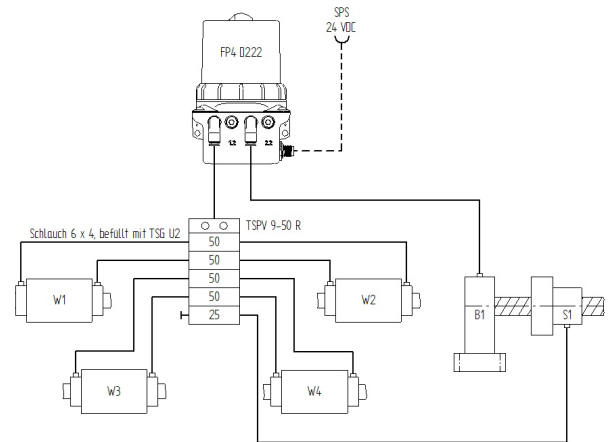


Fig.: Example of FlexxPump4 lubrication system

The **FlexxPump4** is available in **3** different versions:

FlexxPump4 B

with 6 V Battery pack
optional: external battery pack

FlexxPump4 ND

with 24 VDC Connection

FlexxPump4 D

with interface for PLC control



Areas of Application

Lubrication of



Bearings



Chains



Linear guidance systems



Ball screws



Gears










Plain bearings

FlexxPump4 B

The following operating modes can be easily set on the FlexxPump4 B

- Hour mode "h"
- Emptying time mode "Et"

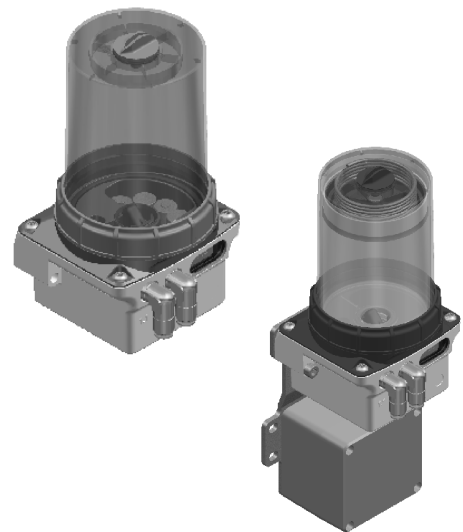
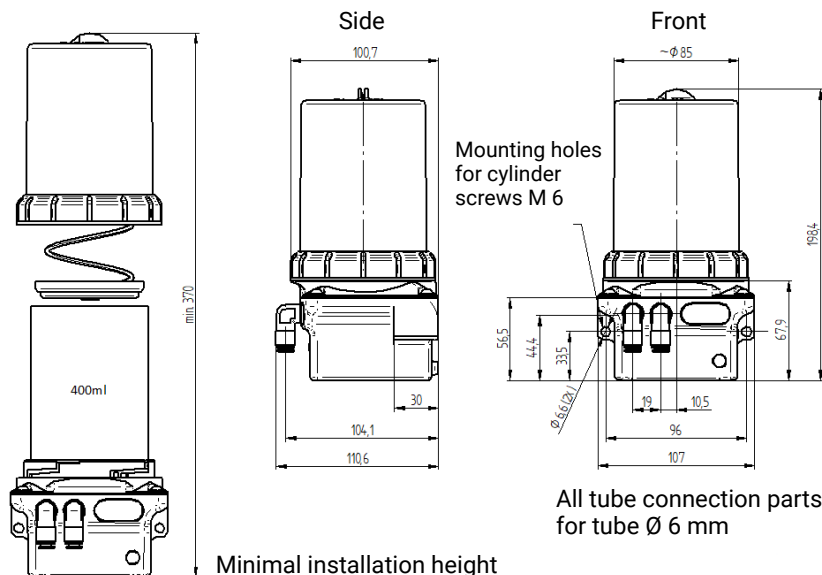
Features

	1 ... 240 h
	1 ... 30
	1 ... 36 months
	depending on version
	optional
	Greases up to NLGI class 2
	Pressure monitoring, level pre-warning empty level warning, properly machine operation, error messages

Technical Informations

	6 V
	max. 2
	min. -20 °C/+68 °F max. +70 °C/+158° F
	70 bar/1015 psi
	54
	0.15 cm ³
	400 ml standard 250 ml
	Connector for tube Ø 6 mm
	any
	max. 1100 g (without cartridge)
	W x H x D 108 x 200 x 111 mm (400 ml cartridge) 108 x 165 x 111 mm (250 ml cartridge)

Schematic drawing of FlexxPump4 B










FlexxPump4 with external battery, helpful at battery change for oil applications

FlexxPump4 ND


The following operating modes can be easily set on the FlexxPump4 ND

- Hour mode "h"
- Emptying time mode "Et"
- Pulse mode "PUL"

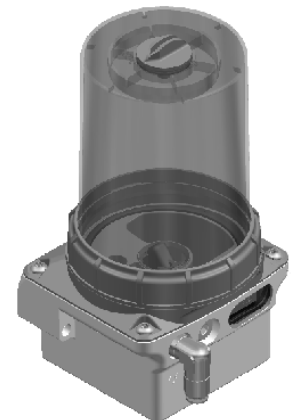
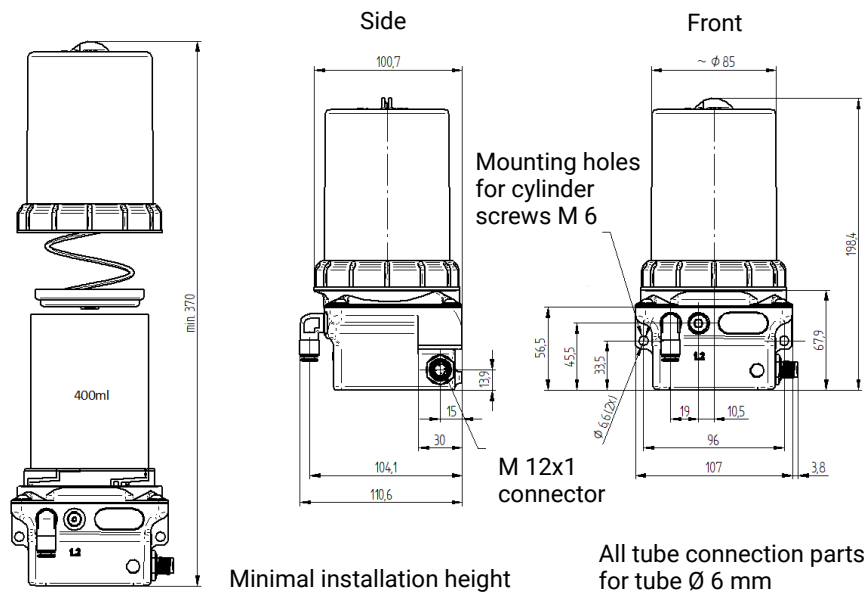
Features

	1 ... 240 h
	1 ... 30
	1 ... 36 months
	included
	optional
	Greases up to NLGI class 2
	Pressure monitoring, level pre-warning empty level warning, properly machine operation, error messages

Technical Informations

	+24 VDC
	max. 2
	min. -20 °C/+68 °F max. +70 °C/+158 °F
	70 bar/1015 psi
	54
	0.15 cm ³
	400 ml standard 250 ml
	Connector for tube Ø 6 mm
	any
	max. 1100 g (without cartridge)
	W x H x D 108 x 200 x 111 mm (400 ml cartridge) 108 x 165 x 111 mm (250 ml cartridge)

Schematic drawing of FlexxPump4 ND










FlexxPump4 D












The following operating modes can be easily set on the FlexxPump4 D

- Hour mode "h"
- Emptying time mode "Et"
- Pulse mode "PUL"

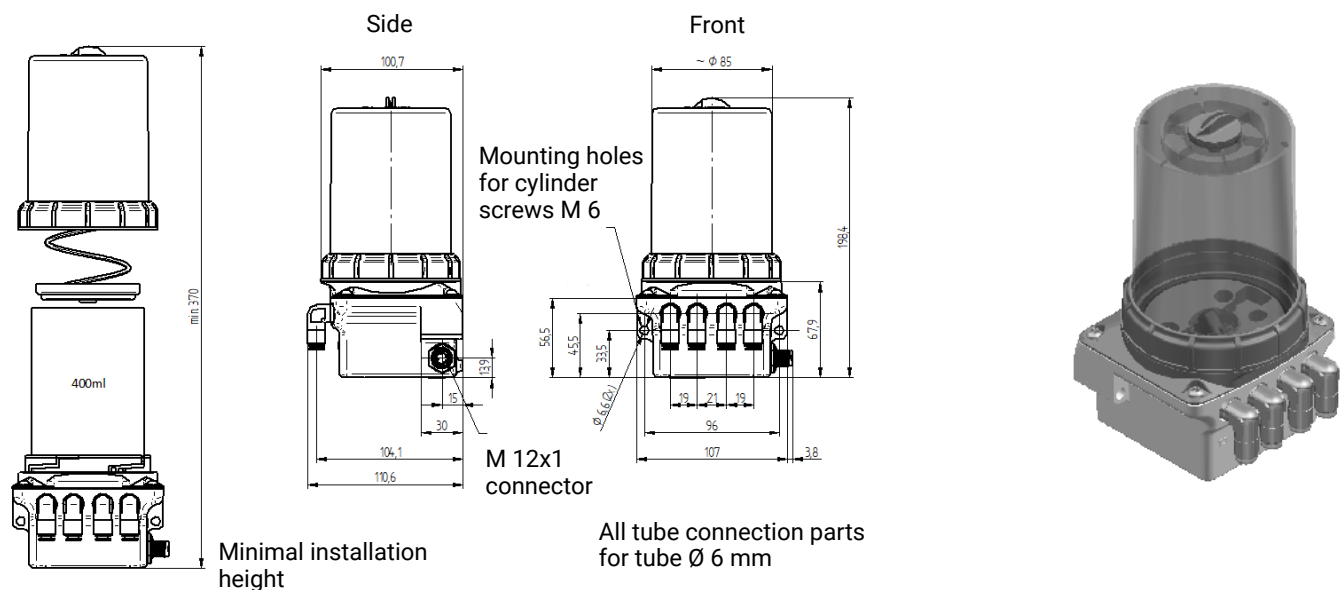
Features

	1 ... 240 h
	1 ... 30
	1 ... 36 months
	included
	optional
	Greases up to NLGI class 2
	Pressure monitoring, level pre-warning empty level warning, properly machine operation, error messages

Technical Informations

	+24 VDC
	4, individually controllable
	min. -20 °C/+68 °F max. +70 °C/+158 °F
	70 bar/1015 psi
	54
	0.15 cm ³
	400 ml standard 250 ml
	Connector for tube Ø 6 mm
	any
	max. 1500 g (without cartridge)
	W x H x D 108 x 200 x 111 mm (400 ml cartridge) 108 x 165 x 111 mm (250 ml cartridge)

Schematic drawing of FlexxPump4 D



Compact & powerful

FlexxPump4 OIL - multi-point lubricator for oil



Flexible and powerful - the FlexxPump4 lubricator

The **FlexxPump4** enables a very flexible direct supply of at least **one and a maximum of four lubrication points**.

Due to high pressure output capacity up to **70 bar/1015 psi**, it can also be used as a **multi-point lubrication system** in conjunction with **distributor systems**.

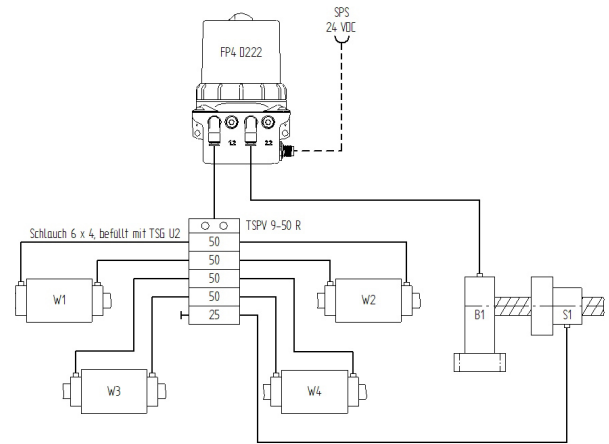


Fig.: Example of FlexxPump4 OIL lubrication system

✓ Your Advantages

- Replaceable cartridges with 125 ml or 250 ml capacity for a reliable long-term supply of the lubrication point
- Integrated check valves to prevent unwanted lubricating oil leakage when changing cartridges
- Easy assembly and installation thanks to compact sizes, even in very tight spaces
- Use under the most adverse environmental conditions, such as vibration, dust, heat or cold

The **FlexxPump4** is available in **3** different versions:

FlexxPump4 B
with 4.5 V Battery pack

FlexxPump4 ND
with 24 VDC Connection

FlexxPump4 D
with interface for PLC control



Areas of application

Lubrication of



Bearings



Chains



Linear guidance systems



Ball screws



Gears









Plain bearings

FlexxPump4 B OIL












The following operating modes can be easily set on the FlexxPump4 B OIL

- Hour mode "h"
- Emptying time mode "Et"

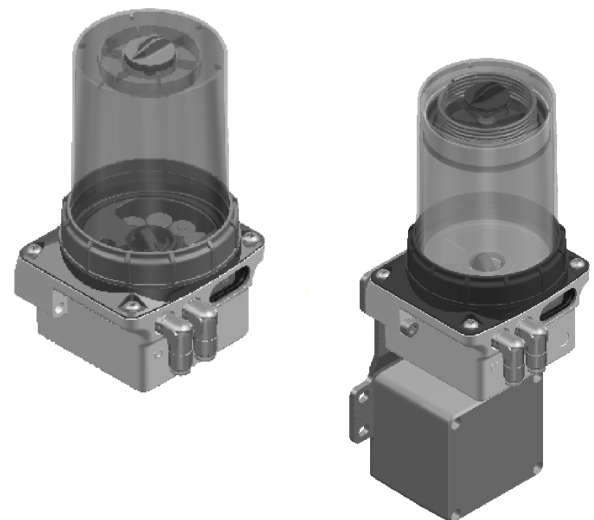
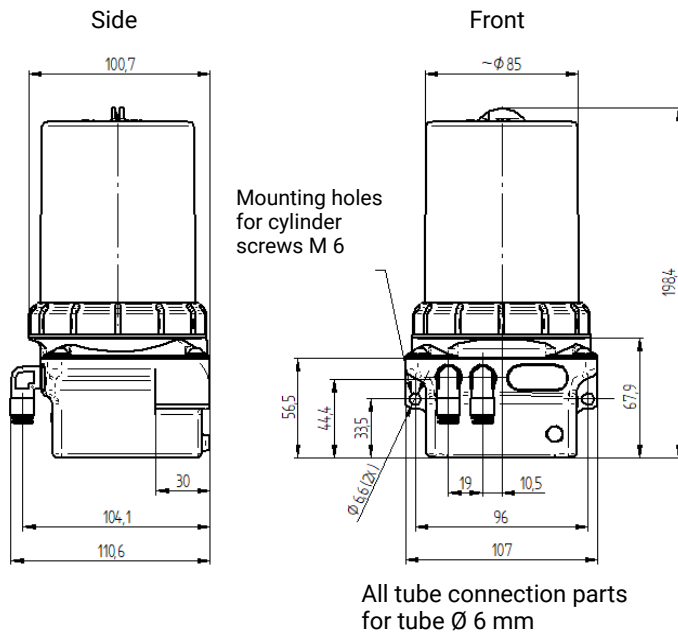
Features

	1 ... 240 h
	1 ... 30
	1 ... 36 months
	depending on version
	min. viscosity 15 mm ² /s (+40 °C/+104 °F) max. viscosity 1.000 mm ² /s (+40 °C/+104 °F)
	Pressure monitoring, level pre-warning empty level warning, properly machine operation, error messages

Technical Informations

	6 V
	max. 2
	-20 °C/+68 °F up to +60 °C/+140 °F (lithium) +15 °C/+59 °F up to +60 °C/+140 °F (alcaline)
	70 bar/1015 psi
	54
	0.15 cm ³
	450 ml standard 250 ml
	Connector for tube Ø 6 mm
	any
	max. 1100 g (without cartridge)
	W x H x D 108 x 200 x 111 mm (400 ml cartridge) 108 x 165 x 111 mm (250 ml cartridge)

Schematic drawing of FlexxPump4 B OIL









FlexxPump4 with external battery, helpful for battery change at oil applications

FlexxPump4 ND OIL

The following operating modes can be easily set on the FlexxPump4 ND OIL

- Hour mode "h"
- Emptying time mode "Et"
- Pulse mode "PUL"

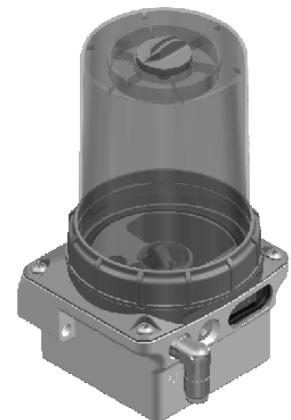
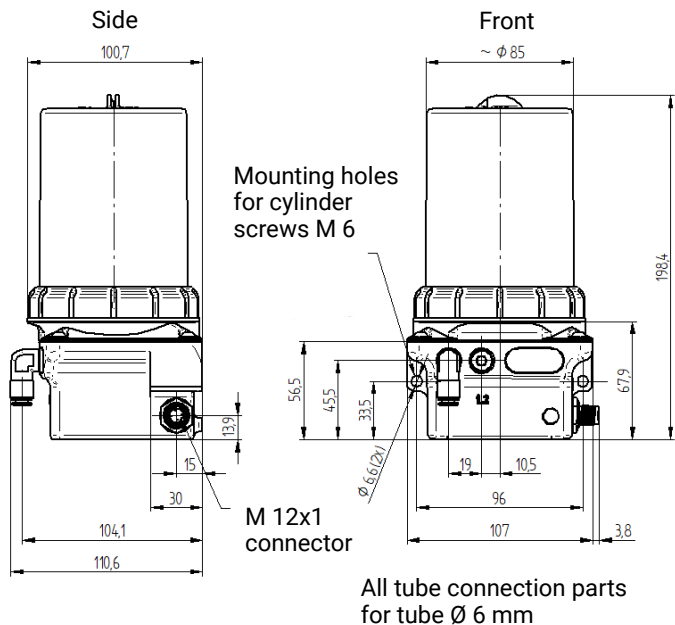
Features

	1 ... 240 h
	1 ... 30
	1 ... 36 months
	included
	min. viscosity 15 mm ² /s (+40 °C/+104 °F) max. viscosity 1.000 mm ² /s (+40 °C/+104 °F)
	Pressure monitoring, level pre-warning empty level warning, properly machine operation, error messages

Technical Informations

	+24 VDC
	max. 2
	min. -20 °C/+68 °F max. +60 °C/+140 °F
	70 bar/1015 psi
	54
	0.15 cm ³
	450 ml standard 250 ml
	Connector for tube Ø 6 mm
	any
	max. 1100 g (without cartridge)
	W x H x D 108 x 200 x 111 mm (400 ml cartridge) 108 x 165 x 111 mm (250 ml cartridge)

Schematic drawing of FlexxPump4 ND OIL









FlexxPump4 D OIL












The following operating modes can be easily set on the FlexxPump4 D OIL

- Hour mode "h"
- Emptying time mode "Et"
- Pulse mode "PUL"

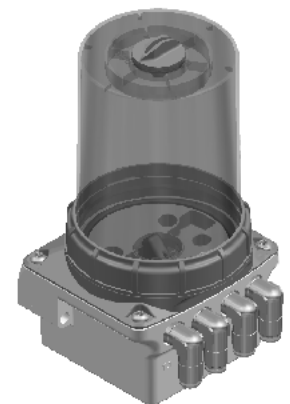
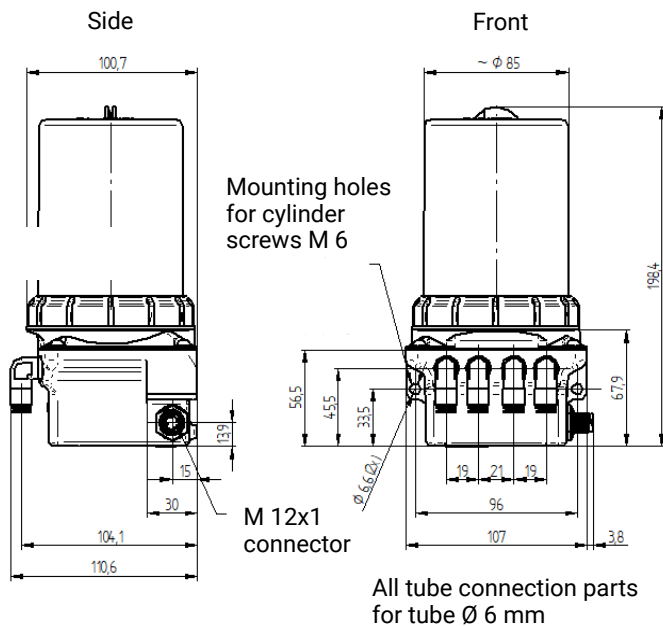
Features

	1 ... 240 h
	1 ... 30
	1 ... 36 months
	included
	min. viscosity 15 mm ² /s (+40 °C/+104 °F) max. viscosity 1.000 mm ² /s (+40 °C/+104 °F)
	Pressure monitoring, level pre-warning empty level warning, properly machine operation, error messages

Technical Informations

	+24 VDC
	4, individually controllable
	min. -20 °C/+68 °F max. +60 °C/+140 °F
	70 bar/1015 psi
	54
	0.15 cm ³
	450 ml standard 250 ml
	Connector for tube Ø 6 mm
	any
	max. 1500 g (without cartridge)
	W x H x D 108 x 200 x 111 mm (400 ml cartridge) 108 x 165 x 111 mm (250 ml cartridge)

Schematic drawing of FlexxPump4 D OIL

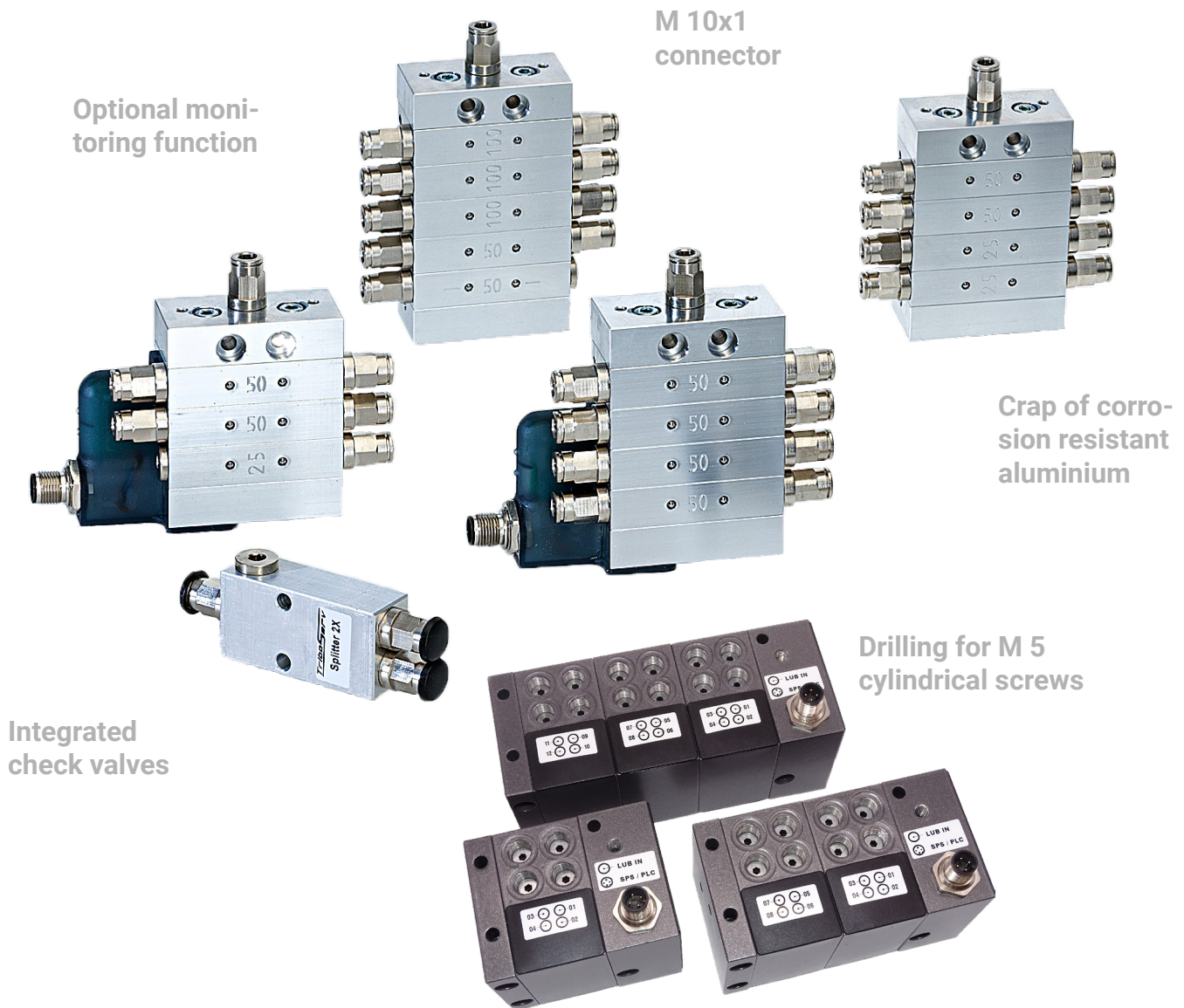


Lubricant distributing - at the right time to the right place

DISTRIBUTE your lubricant to the lubrication points like you want and how many quantity do you want. With our

- 🟢 **splitters**
- 🟢 **progressive distributors**
- 🟢 **electro-mechanical distributors**

you will have an equal dosing of lubricant on lubrication points.



DISTRIBUTE

Splitter - the uncomplicated one

Cost-effective and equal dosing at **2 outlets**.

TriboServ Splitters are flow distributors based on the hydraulic throttle principle.

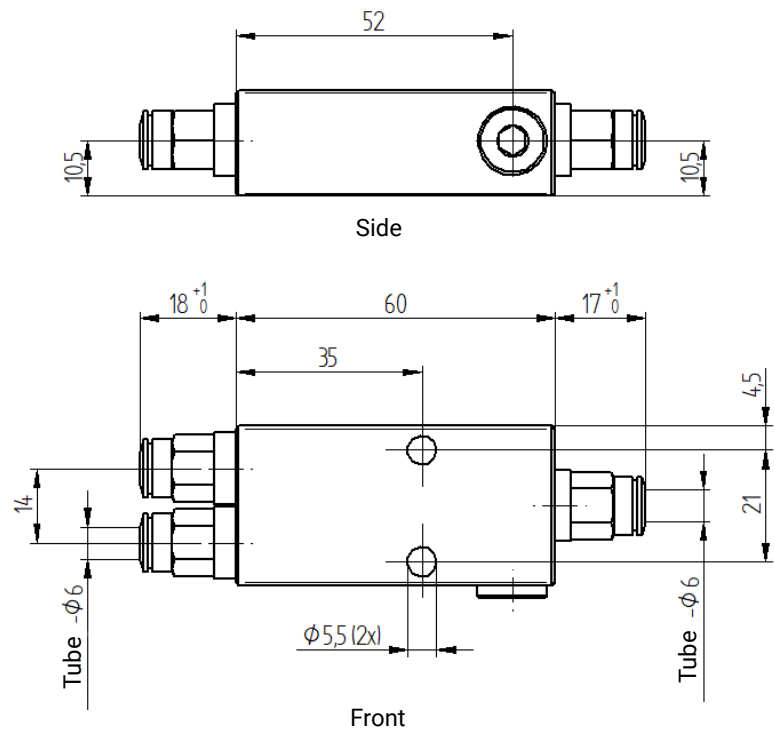
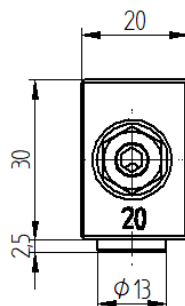
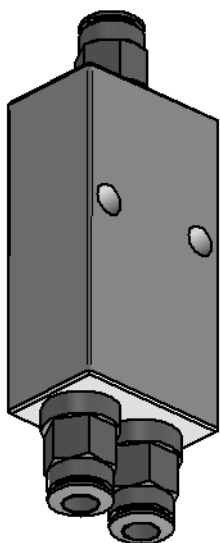
Typical applications of the splitters are wherever the back pressures of the lubrication points to be lubricated are not very different from each other.

✓ Your advantages

- Uncomplicated and cost effective**
 No moving parts are required for distribution of the lubricants
- No backflow of lubricant**
 by check valves in the opening direction at each outlet



Schematic drawing of splitter with 2 outlets



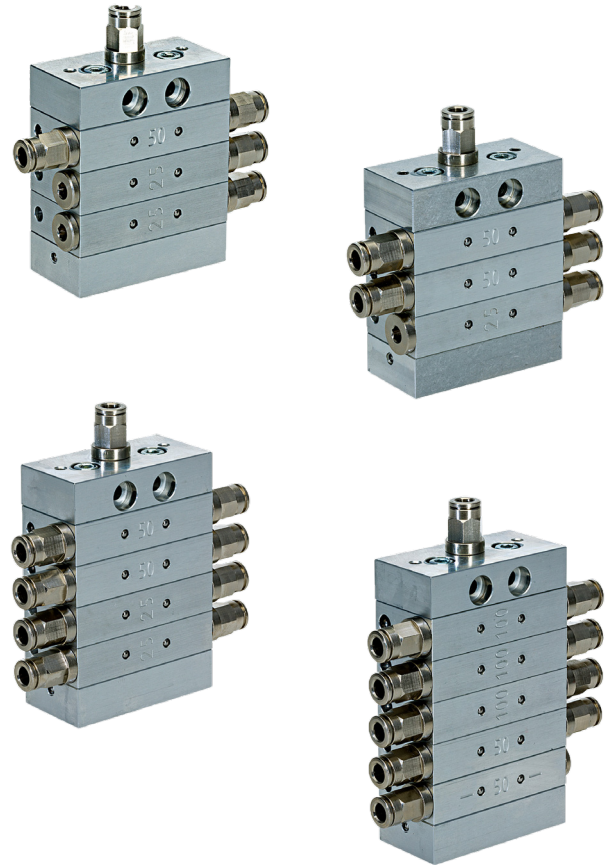
Progressive distributor - universal and flexible

Progressive distributor for reliable supply up to 14 lubrication points.

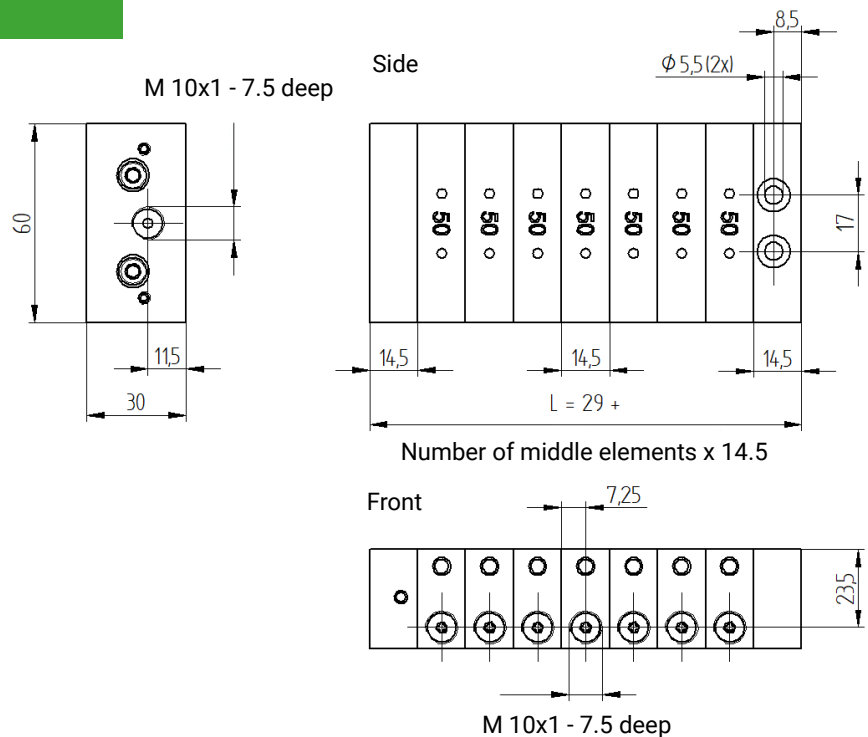
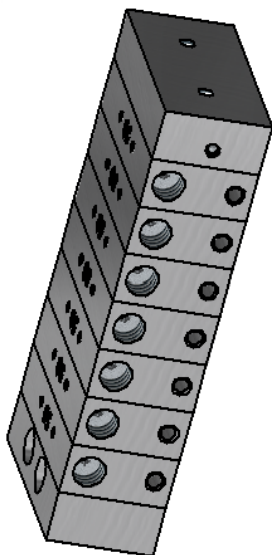
The lubricant conveyed by a lubricant pump is divided by the **TSPV** into equal or different subsets according to the number of outlets and conveyed to the lubrication points.

✓ Your advantages

- Universally applicable for the supply at up to 14 lubrication points
- Working pressure of max. 100 bar/1450 psi
- Suitable for use with lubricant pumps of the FlexxPump series
- Low weight due to housing made of corrosion-resistant aluminium
- Suitable for use in highly dynamic applications










Schematic drawing of TSPV



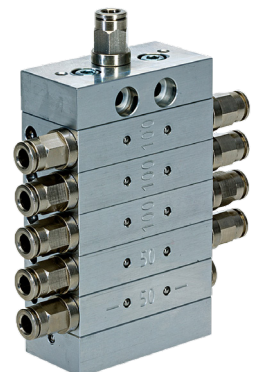
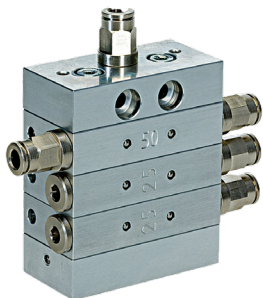
Progressive distributor - universal and flexible

Features

	1:40 (standard 1:1)
	yes
	not included
	Mounting holes for M5 cylinder screws ISO 4762/DIN 912
	Crap of corrosion resistant aluminium
	Greases up to NLGI class 2, oils with minimal viscosity ISO VG 68
	M 10x1

Technical Informations

	--
	--
	2 - 14
	min. -20 °C/+68 °F max. +70 °C/+158 °F
	100 bar/1450 psi
	--
	25 mm ³ , 50 mm ³ (standard) 100 mm ³
	200 cm ³ /min
	2 m
	any



Areas of application

Distribution of lubricant in

- Machine tool
- Robots
- Electric motors and fans
- Chain conveyors
- Handling and assembly equipment



Lubricant distributing - at the right time to the right place

Integrated check valves

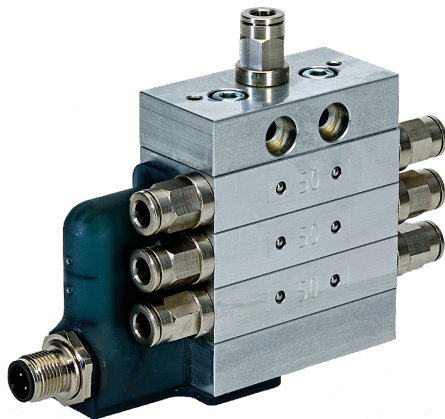
To improve dosing accuracy and increase reliability, **check valves are integrated as standard** in the outlets of the distributor.

External check valves on the connected lubricant lines are therefore not required.



Mounting 3D

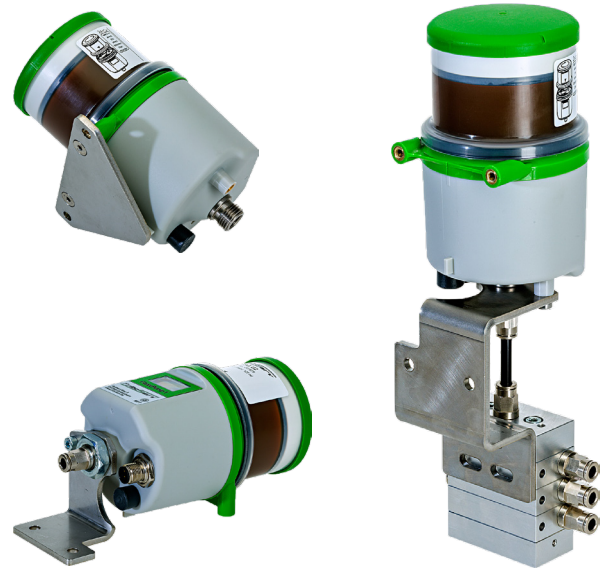
With our various **mounting aids**, the lubrication system can be fastened in **any direction, horizontally, vertically or vertically**, individually according to your requirements and environmental conditions.



Flexibly configurable - Distribution ratio 1:40

With the help of special distributors, it is possible to realize lubricant quantity differences from one outlet to the remaining outlets in a ratio of up to 1:40.

Various special distributors with different dosing quantities are available on request.



Monitoring

The monitoring function of the **TSPVN progressive distributor** offers you more advantages

- Reliable function control of the distributor
- Adaptation of lubricant amount via the indicated number of circulations
- Intact lubricant supply pipes
- No blocked outlets

ESV - the high-end distributor

The **electro-mechanical distributor** offers you the highest possible flexibility in distributing the lubricant to the lubrication points.

It is practically an **electronically controlled and controlled valve terminal** for grease and oil.

✓ Your advantages

- 🟢 Universally applicable for the supply at 4, 8 or 12 lubrication points
- 🟢 Individual outlets can be controlled independently of each other
- 🟢 Dosing quantities can be controlled completely freely by the electronics and can be flexibly changed
- 🟢 Working pressure of max. 200 bar/ 2900 psi
- 🟢 Suitable for use with lubricant pumps of the FlexxPump series
- 🟢 Low weight due to housing made of corrosion-resistant aluminium
- 🟢 Suitable for use in highly dynamic applications



The **power supply and control** of the electronics installed in the **ESV** can be carried out from a **PLC**.

The **communication** between the **ESV** and the **PLC** takes place with a very easily programmable command and response protocol.

🌱 Areas of application

Lubrication of



Bearings



Chains



Linear guidance systems



Ball screws










Gears












Plain bearings

ESV - the high-end distributor

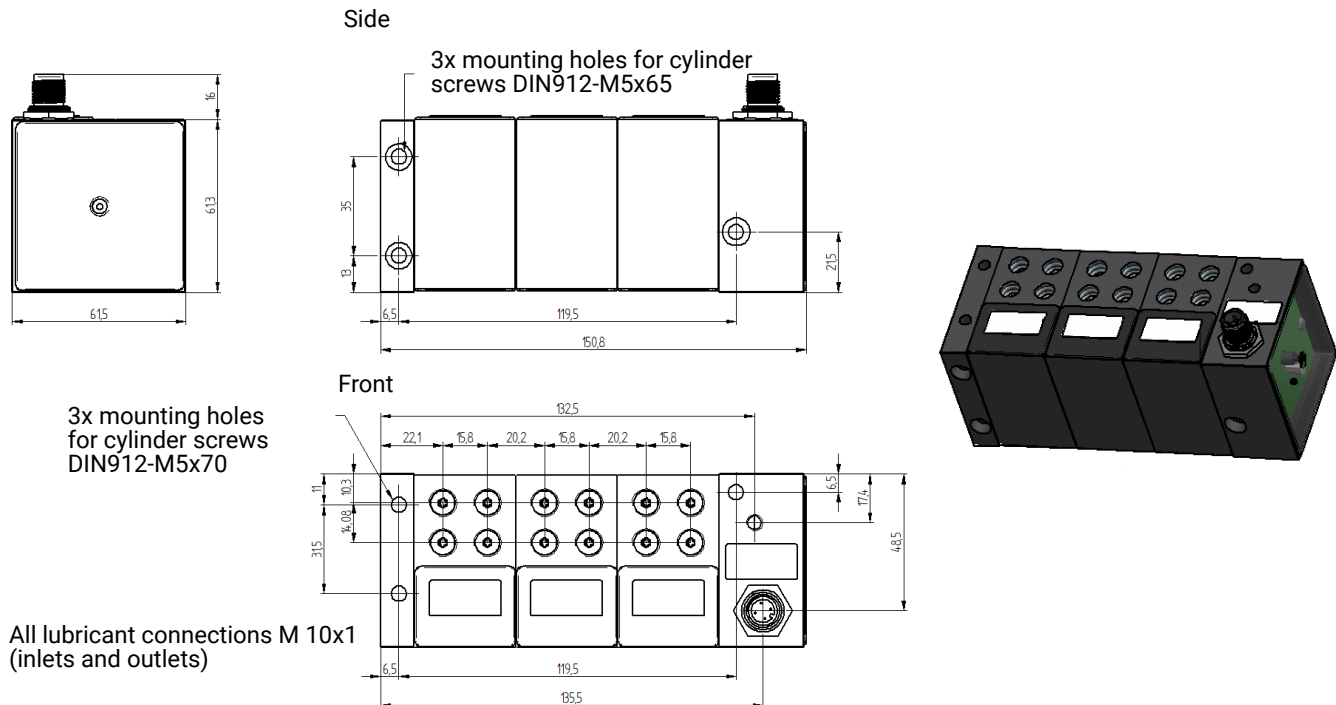
Features

	1 - 12 Number of outlet 1
	yes
	included
	Mounting holes for M5 cylinder screws ISO 4762/DIN 912
	Crap of corrosion resistant aluminium
	Greases up to NLGI class 3, oils with 30.000 cSt (+40 °C/+104 °F)
	M 10x1 lubricant inlet thread M 6

Technical Informations

	24 VDC +/-10 %
	M 12x1, 4-pin
	min. -20 °C/+68 °F max. +70 °C/+158 °F
	200 bar
	54
	60 cm ³ /min
	1470 g
	W x H x D 115 x 83 x 62 mm
	any

Schematic drawing of ESV



Monitoring - more data, more safety

Condition Monitoring

The **use of our lubrication systems** allows you not only regular and reliable lubrication but also the possibility of **monitoring the lubrication process**.

Conditions such as

- Vacancy pre-warning
- Cartridge vacancy
- Counterpressure
- Properly function

can be retrieved and monitored at any time.

This is done by evaluating data collected during the pumping process.



Your advantages

- 🟢 Easy maintenance and safety
- 🟢 Avoidance of errors and failures
- 🟢 Planning safety
- 🟢 Economy



Variants of monitoring

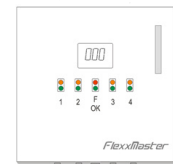
Quick Check In combination with FlexxPump 1 and 4 series
Evaluation via OLED display directly on site



PLC In combination with FlexxPump 4 series
Battery version:
Evaluation directly on site or via LED cable
Cable version:
Evaluation directly on site or Evaluation and remote maintenance via PLC



FlexxMaster In combination with FlexxPump 4 series
Central installation in the field of vision
Display/LCD:
Display for settings and messages
LED status indicator for 1 up to 4 outlets



TSPVN Queryable progressive distributor
Functional remote monitoring of relubrication at up to 14 lubrication points



TSPVN - the all-purpose distributor

Enhanced by a monitoring unit, the progressive distributor becomes a reliable indicator of functioning lubrication.

The **TSPVN** offers the possibility for functional remote monitoring.

A signal transmitted from a pumping piston to a sensor at each circulation generates an evaluable return signal that can be tapped at the plug.

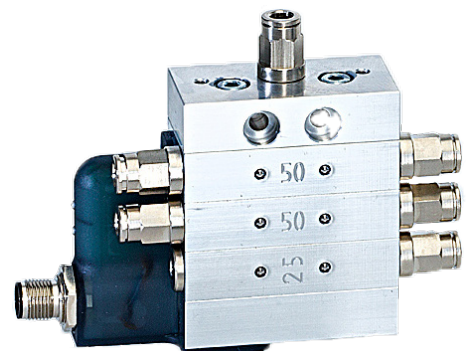
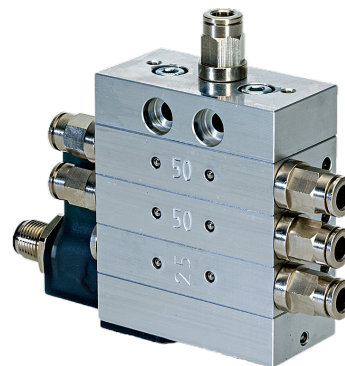
✓ Your advantages

- Universally applicable for the supply at up to 14 lubrication points
- Functional remote monitoring
- Working pressure of max. 100 bar/1450 psi
- Suitable for use with lubricant pumps of the FlexxPump series
- Low weight due to housing made of corrosion-resistant aluminium
- Suitable for use in highly dynamic applications

Areas of application

Distribution of lubricant in








- Machine tool
- Robots
- Electric motors and fans
- Chain conveyors
- Handling and assembly equipment



TSPVN - the all-purpose distributor

TSPVN with monitoring unit for reliable supply at up to 14 lubrication points.

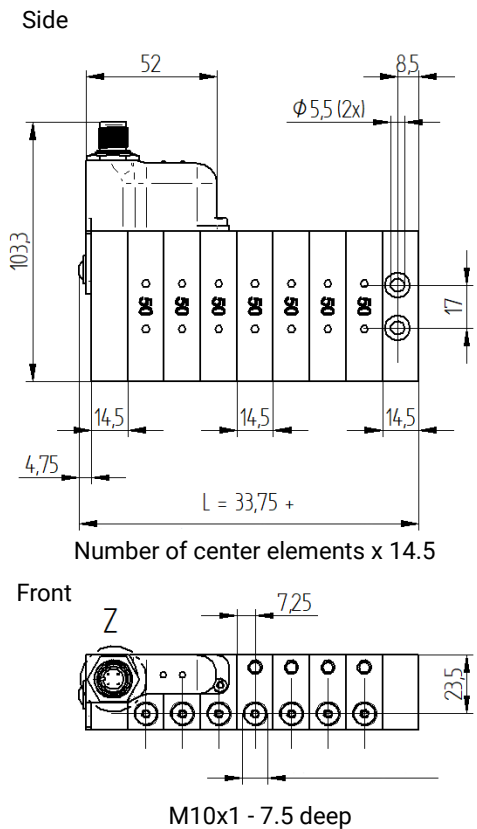
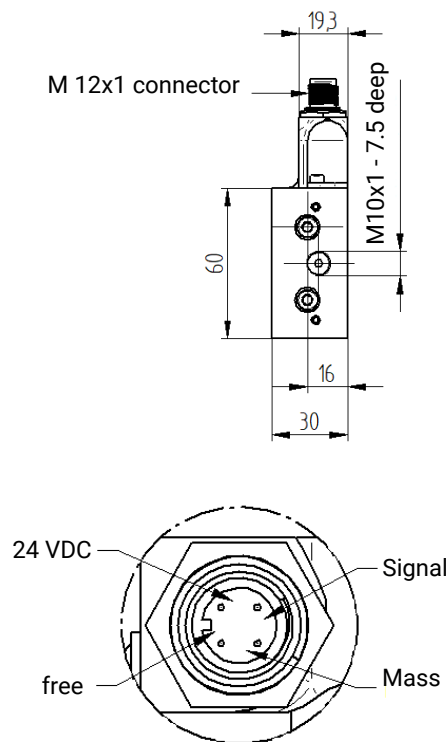
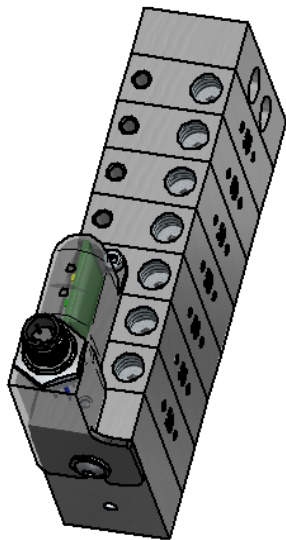
Features

	1:40 (standard 1:1)
	yes
	included
	Mounting holes for M5 cylinder screws ISO 4762/DIN 912
	Crap of corrosion resistant aluminium
	Greases up to NLGI class 2, oils with minimal viscosity ISO VG 68
	M 10x1

Technical Informations

	+24 VDC
	M 12x1 4-pin, A-encoding
	1 - 14
	min. -20 °C/+68 °F max. +70 °C/+158 °F
	100 bar/1450 psi
	54
	25 mm ³ , 50 mm ³ (standard) 100 mm ³
	200 cm ³ /min
	2 m
	any

Schematic drawing of TSPVN



FlexxGear - the best for efficient lubrication

FlexxGear lubrication gear

Applicator for rack and pinion

Sizes from module 1.5 to module 30, straight-toothed, helical right-toothed or helical left-toothed, with or without an axis – the product variety of the **TriboServ FlexxGear lubrication gear** offers the right solution for every toothing.

Features

Modular design

The lubricating gears are made of profiled segment discs (special polymer foam).

Memory function

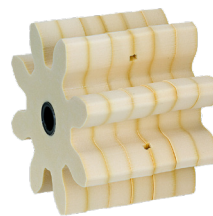
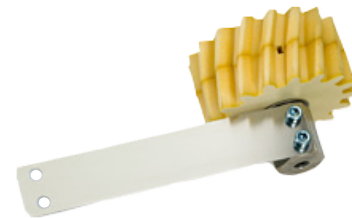
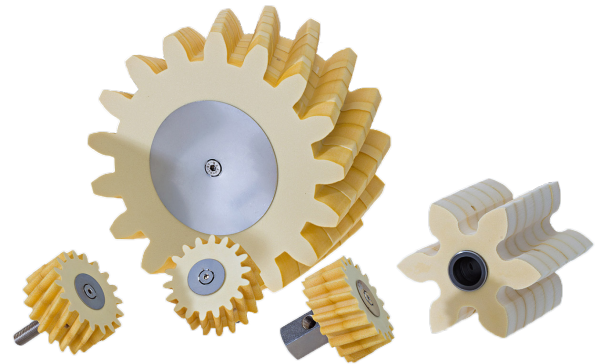
Due to the open-cell structure of the polymer foam, the lubricating gears are able to store the lubricant.

Lubricant supply via channels

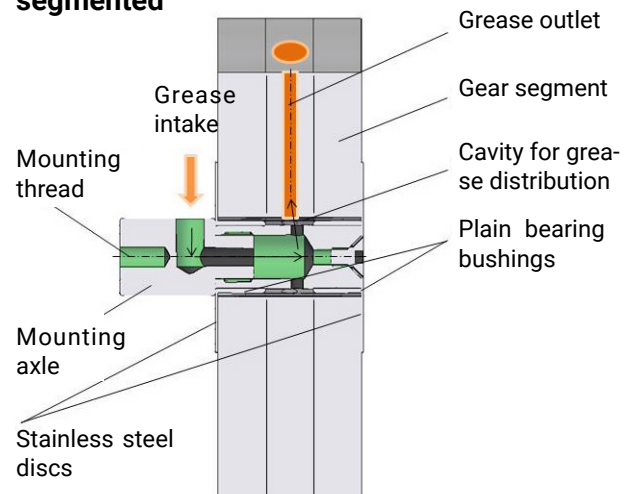
Lubricant supplied via the axes is passed through channels between the segments radially to the outside, to the tooth base and tooth flanks of the lubricating gears and discharged in small, well-dosed quantities.

✓ Your advantages

- Formation of a uniform, thin lubricant film
- Avoidance of premature wear due to insufficient lubrication
- Avoidance of overlubrication
- Significant reduction of used fat and the associated excessive pollution of the environment



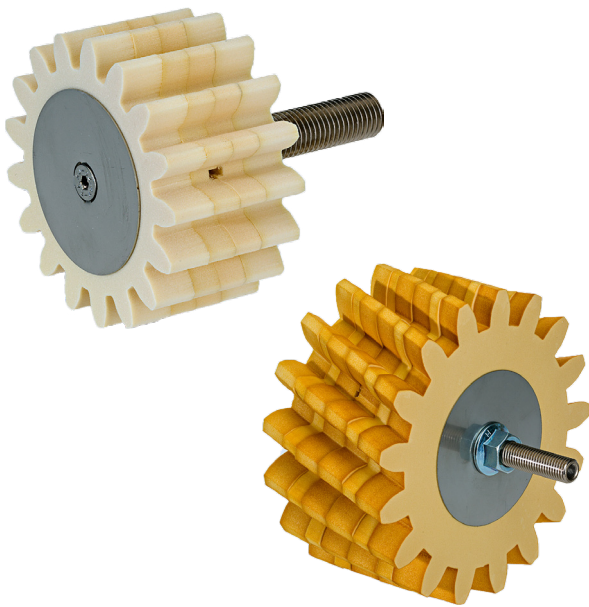
PU lubrication gear, segmented



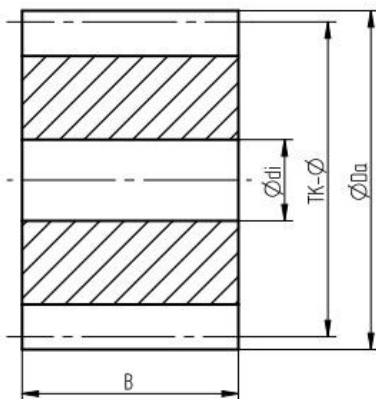
FlexxGear - applicator for rack and pinion

In addition to the standard range, **TriboServ offers straight and helical lubrication gears** in special designs.

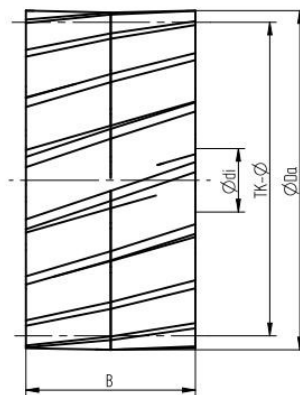
These differ in the angle of bevel, the number of teeth or in the module.



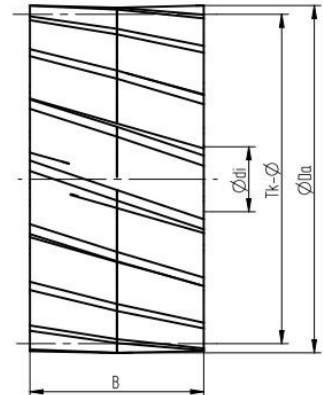
Schematic drawing of FlexxGear



FlexxGear straight toothed



FlexxGear helical-left toothed



FlexxGear helical-right toothed

Technical Informations



M 2 - M 10



Special polymer foam



min. -30 °C/-22 °F
max. +90 °C/+194 °F/+140 °C/+284 °F



Greases up to NLGI class 2, oils up to 30.000mm²/s (+40 °C/+104 °F)



5 m/s
> 2 m/s, use splash guards

- Very good wear characteristics and chemical resistance
- Tested and approved paint compatibility and silicone-free
- Plain bearing and sealed hub

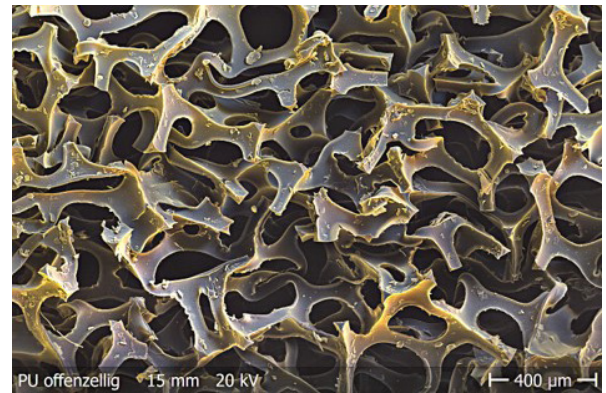


Fig.: Microscope image special polymer foam

FlexxPinion - the best for efficient lubrication

FlexxPinion Chain lubrication pinion Applicator for chain lubrication

To minimize wear and elongation of the chain, chains must always be lubricated.

FlexxPinion chain lubrication pinions ensure that lubricant reaches the right lubrication point in sufficient quantity.

Eigenschaften

Modular design

The lubricating gears are made of profiled segment discs (special polymer foam) and sprockets (glass fibre reinforced polyamide).

Memory function

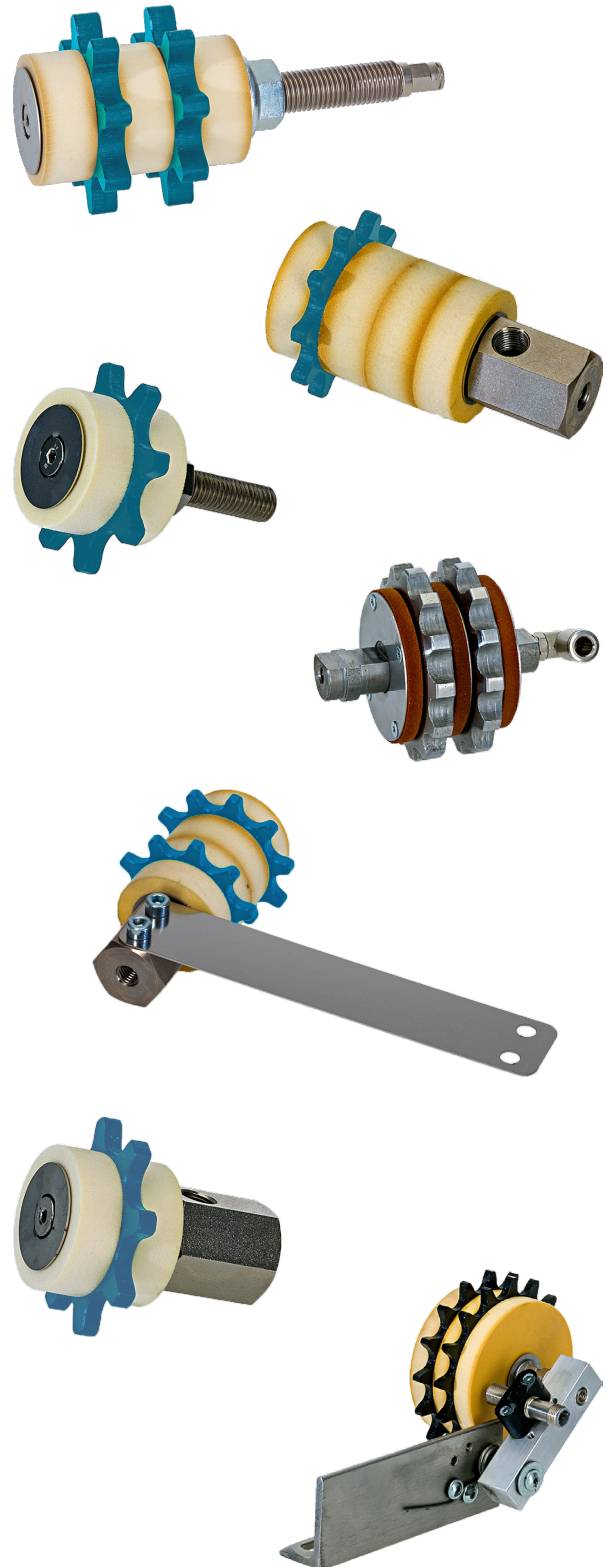
Due to the open-cell structure of the polymer foam, the chain lubrication pinions are able to store the lubricant.

Lubricant supply and dispensing

The chain lubricating oil supplied via the axles enters the lubrication rollers made of open-cell PU foam, where it is stored and delivered to the chain links in small, well-dosed quantities.

✓ Your advantages

- Avoidance of premature wear and elongation of the chain due to insufficient lubrication
- Avoidance of overlubrication
- Reduction of maintenance effort
- Saving of energy during operation



FlexxGear - applicator for chain lubrication

Installation

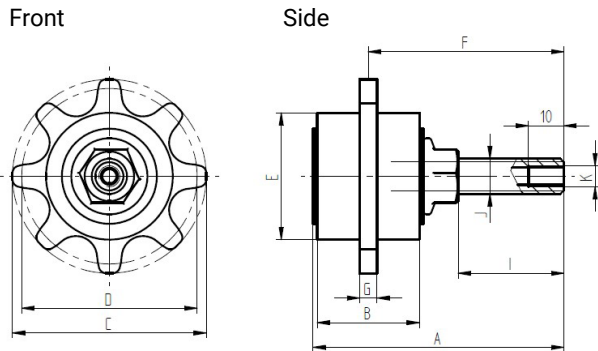
The chain lubrication pinion is installed parallel to the direction of travel of the chain.

The plastic pinion automatically sets the optimum distance between the foam rollers and the chain tab for oil transfer.

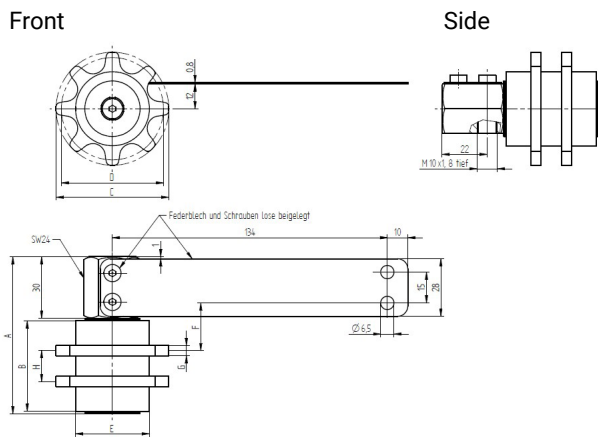
Application

The chain lubrication pinions are intended for the lubrication of drive chains.

Schematic drawings of FlexxPinion



FlexxPinion Simplex



FlexxPinion Duplex

Technical Informations



Chain types simplex, duplex and triplex



min. -30 °C/-22 °F
max. +140 °C/+284 °F



5 m/s
> 2 m/s, use splash guards



all common chain oils



Segment discs made of special polymer foam,
Sprockets made of glass fibre reinforced polyamide PA6 GF15

- Very good wear characteristics and chemical resistance
- Tested and approved paint compatibility and silicone-free
- Plain bearing and sealed hub

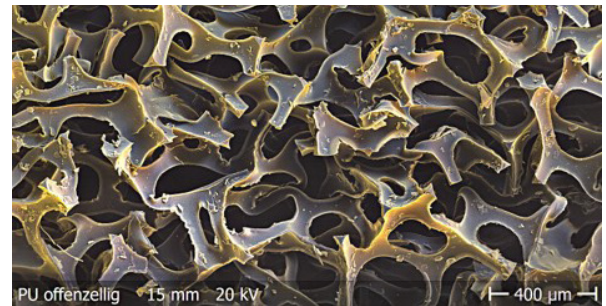
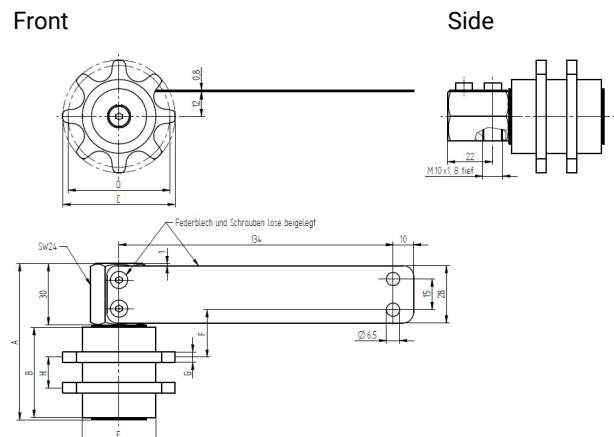


Fig.: Microscope image special polymer foam

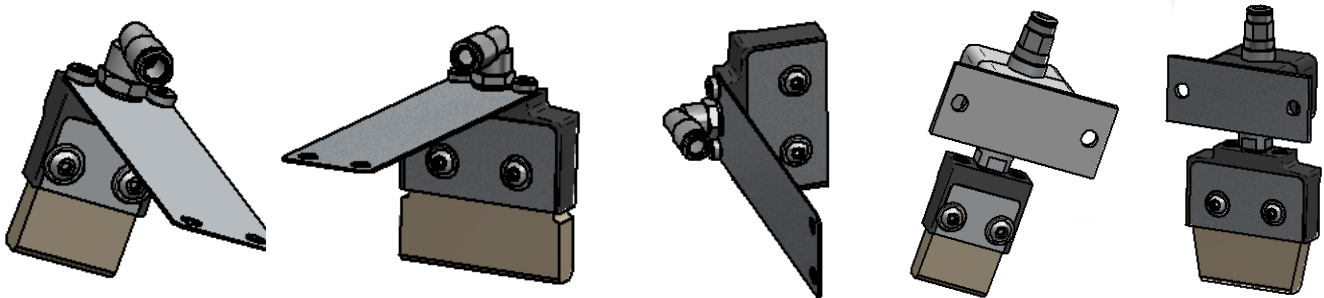


FlexxPinion Triplex

New - chain lubrication with FlexxStrip

FlexxStrip -

the new applicator for the lubrication of chains with different design



The innovative **FlexxStrip lubrication system** enables automatic application of oil on **chains of different designs** in the simplest way.

Due to the elastic foam strip, a small amount of oil is always transferred to the metal surface through contact with the chain links.

Application

FlexxStrip are suitable for applying oil to metal or plastic surfaces.

The main application of the FlexxStrip is the permanent lubrication of chains with chain oil.

FlexxStrip for accumulating roller conveyor chains

For the lubrication of the chain links of accumulating roller conveyor chains, a central recess is necessary, otherwise the large conveyor rollers would collide.

For the most common accumulating roller conveyor chains, the FlexxStrip have been adapted accordingly.

✓ Your advantages

- 🟢 **hard-wearing**
Longer in use compared to brushes and brushes due to very wear-resistant, elastic PU foam
- 🟢 **safe**
thanks to factory-installed check valves that prevent the connected oil lines from idling
- 🟢 **durable and robust**
due to the very abrasive PU foam
- 🟢 **easy to assemble**
by means of versatile accessories
- 🟢 **flexible**
The different design options of the FlexxStrip result in system solutions for almost all chains and special chains
- 🟢 **inexpensive**
Only as much oil reaches the FlexxStrip as is conveyed by a lubrication system

FlexxStrip - easy applying of lubricating oil

Lubrication only with oil

It is not possible to apply pasty substances such as fats or pastes with the **FlexxStrip**. The foams can only penetrate liquid substances.

Principle of operation of the application

The PU foam can be filled again and again with a small amount of oil by a suitable lubrication system, such as **Flexx pump**. This leads to the complete filling of the open-cell pores in the PU foam of the **FlexxStrip**.

The mechanical contact between the chain tabs and the **FlexxStrip** results in oil transfer to the chain lugs.

The oil can then creep to the lubrication points in the chain itself, ensuring reliable lubrication and thus minimizing wear.

Installation

The **FlexxStrip** is installed parallel to the direction of travel of the chain.

The plastic pinion automatically sets the optimum distance between the foam rollers and the chain tab for oil transfer.

Exchange of FlexxStrip

Should the **FlexxStrip** have to be replaced due to dirt or wear, this can be realized by simply dismantling the cover plate on the housing.

The various **PU foam inserts of the FlexxStrip** are available as spare parts.

Technical Informations



min. -30 °C/-22 °F
max. +80 °C/+176 °F



5 m/s



all common chain oils



15 ... 320 cSt



Housing made of ABS, stainless steel,
FlexxStrip made of special polymer foam

- Very good wear characteristics and chemical resistance
- Tested and approved paint compatibility and silicone-free
- Plain bearing and sealed hub

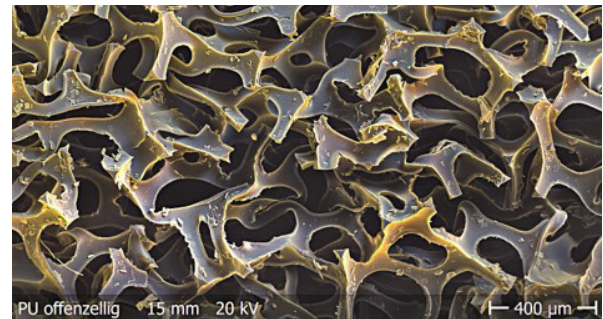
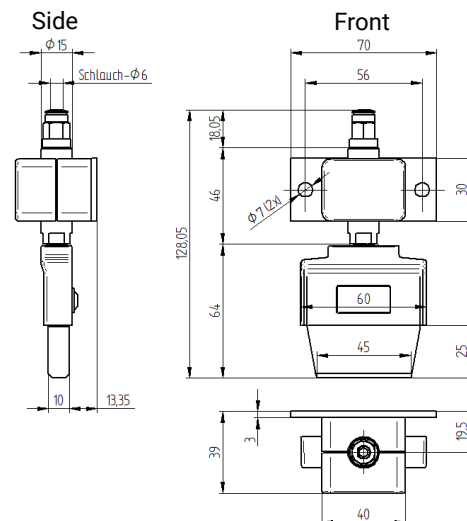


Fig.: Microscope image special polymer foam

Schematic drawing of FlexxStrip

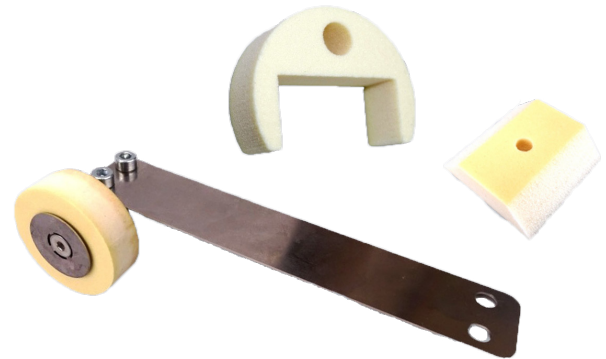


FlexxRoll and special foam parts

Lubricating and wiper elements

Made of special polymer foam, the **FlexxRoll** and **special foam parts** offer a storage function for lubricating oils that are to be applied evenly thanks to the open-cell structure.

For surfaces that need to be freed from excess lubricant or dirt, our **wiper elements** are the right choice.



- ✔ **Very good wear characteristics and chemical resistance**
- ✔ **Tested and approved paint compatibility and silicone-free**
- ✔ **Plain bearing and sealed hub (FlexxRoll)**

We offer the right counterpart for every surface to be lubricated or cleaned.



Fig.: Mechanical production with our own CNC machining centres

Solutions - for challenging applications

More than two-thirds of unpredictable bearing failures are lubricant-related. The failures are mainly caused by an incorrect choice of lubricant, aged lubricant or too little or too much lubricant. This means that incorrect lubrication is the main cause of all bearing damage.

In order to avoid damage caused by incorrect lubrication on machine elements, the correct interpretation of the lubrication point is essential.

Here we know our way around Automatic lubrication of TriboServ

With our 3-step method, you can easily switch to TriboServ lubrication systems.

Step 1

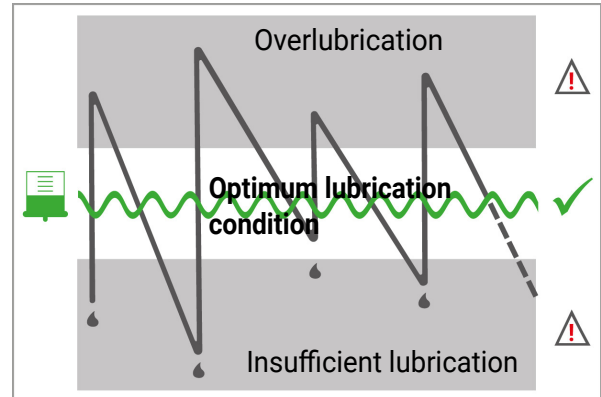
Identify the specific requirements of your lubrication problem, determine the operating and environmental conditions in your company.

Step 2

Together with you, we develop an optimal lubrication solution for your application. In consultation with you, we take over all necessary steps from planning to your approval.

Step 3

Installation and adjustment of the lubricant system, on request we take care of this for you.



Automatic lubrication by TriboServ lubrication systems enables you to regularly and reliably lubricate the lubrication points with the desired amount of lubricant. Compared to manual lubrication, over- or insufficient lubrication is prevented.

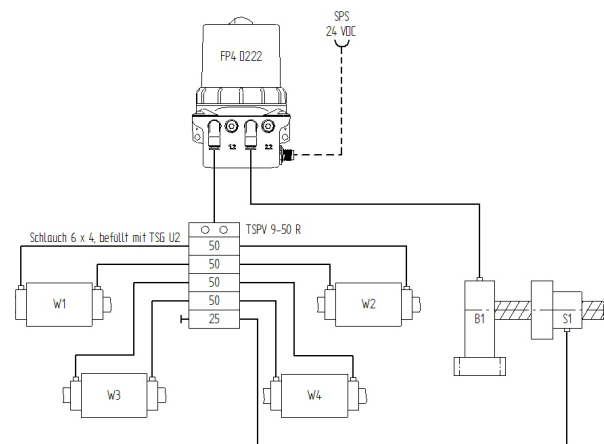


Fig.: Example of FlexxPump4 lubrication system

TriboServ lubrication

also in your branch



Areas of Application

Lubrication of



Bearings



Chains



Linear guidance systems



Ball screws



Gears



Plain bearings

TriboServ products are used in many industries, whether as a **single-point lubrication device** or **multi-point lubrication system**.

Through the permanent further development of our products, we are able to meet the individual requirements of our customers in a wide variety of industries.

Use of lubrication systems in

- Asphalt mixing plants
- Elevators
- Automobile industry
- Biogas plants
- Chemical & pharmaceutical industry
- Gypsum, lime & cement plants
- Wood industry
- Gravel & gravel works
- Treatment plants
- Power stations
- Plastics & rubber processing
- Food & Beverage
- Mechanical engineering
- Refineries
- Recycling companies
- Heavy Industry & Mining
- Steel industry
- Wind turbines
- Pulp & Paper Industry

Example of application

TriboServ products in use

Application in potash and salt production

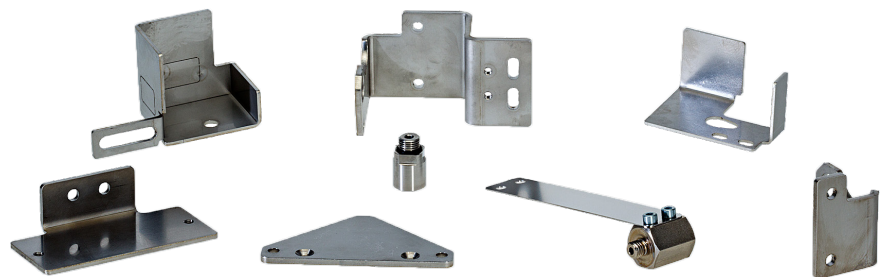


Accessories - complete your lubrication system

It is important to us that the effort for you is as low as possible.

Therefore, we offer our lubrication technology not only separately, but also as a plug & play solution.

Whether mounting brackets or hoses filled with your chosen lubricant - with us you get all other suitable accessories for your special application.



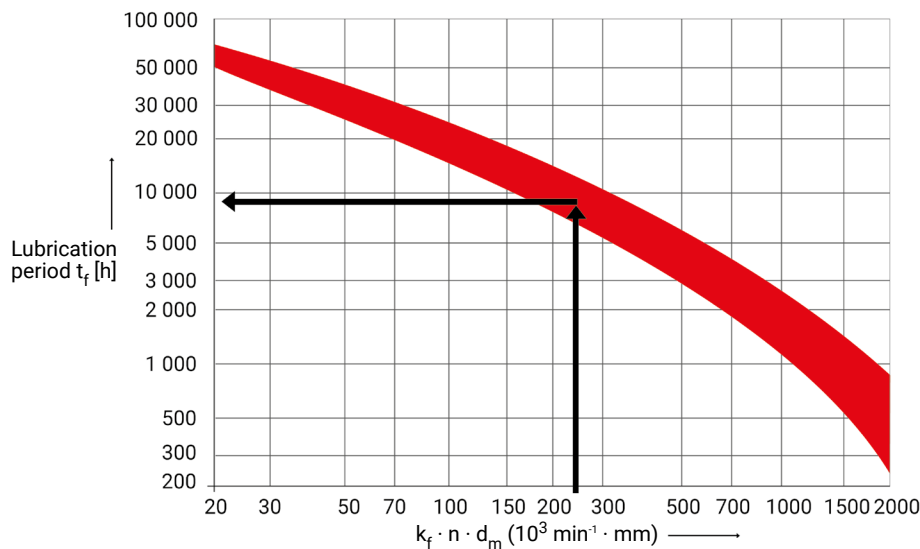
Lubricants - oils and greases for FlexxPump



We offer a wide variety of oils and greases. The standard program includes a lubricant suitable for every application you may have.

With the help of the grease service life diagram, the operating time of the grease cartridge can be derived for the grease used, depending on the distribution ratio at the lubrication points.

Chart of grease service life








Lubrication periods under favourable environmental conditions.

Grease service life F_{10} for standard greases based on lithium soap acc. to DIN 51825, at 70°C, 10 % probability of failure.

Bearing form	k_f	Bearing form	k_f	Bearing form	k_f
Deep groove ball bearings	single-row 0.9...1.1	Spherical ball bearings	1.3...1.6	Axial Cylindrical roller bearings	90
	double-row 1.5	Axial deep groove ball bearings	5...6	Needle bearings	3.5
Angular contact ball bearings	single-row 1.6	Axial angular contact ball bearings	double-row 1.4	Tapered roller bearings	4
	double-row 2	Cylindrical roller bearings	single-row 3...3.5*	Spherical roller bearings	10
Spindle bearings	a = 15° 0.75		double-row 3.5	Spherical roller bearings without boards ("E")	7...9
	a = 25° 0.9		full-row 25	Spherical roller bearings with middle boards	9...12
Four-point bearings	1.6				




*) for radially and constantly axially loaded bearings; if axial load changes, $k_f = 2$

TriboServ Greases

Product	Features					
TSG M2	Water resistant universal grease, good anti-corrosion properties	Rolling bearings, universal applications Motors, industrial fan-bearings	KP2K-30	Lithium soap	Mineral oil	200
TSG U2	Water resistant high-performance grease, good wear and anti-corrosion properties	Linear bearings, ball screws, rolling bearings Linear motion equipment, robotics and automation equipment	KP2K-20	Lithium (special) soap	Mineral oil	100
TSG OG1	Free of graphite, excellent anti-corrosion properties	Gear drives Low-speed rolling bearings	OGP0N-30	Lithium calcium complex soap	Mineral oil	800
TSG OG2	High graphite content for heavy loads	Gear drives Slideways	KPF2P-20	Aluminium complex soap	Mineral oil	500
TSG FG2	NSF H1 approved, excellent anti-corrosion properties	Rolling bearings Sliding bearings, guidings, food industry	KP2R-25	Calcium-sulfonate complex thickener	Medical white oil	100
TSG BIO2	Ready biodegradable according to OECD 301	Rolling bearings in environmentally sensitive applications	KPE2K-30	Lithium soap	Synthetic oil (ester)	100
TSG LT2	For Applications down to -30°C (-22°F)	Rolling bearings Low temperature applications	KPHC2P-40	Calcium-sulfonate complex thickener	Synthetic oil (PAO)	46
TSG HT2	Reliable lubrication at very high temperatures	Rolling bearings High temperature applications	KPHC2P-20	Polyurea thickener	Synthetic oil (PAO)	150
TSG HS1	Soft grease for high speeds	High-speed spindle bearings High-speed gear drives	KP1K-20	Lithium soap + polyurea thickener	Synthetic oil/mineral oil blend	55
TSG HS2	Relubrication of high-speed (spindle) bearings	High-speed spindle bearings Highest speed proof	KP2K-30	Lithium (special) soap	Mineral oil	22



TriboServ Oils

Product	Features			
TSO C150	Universal chain oil, NSF H1 approved	Chains Guidings	Synthetic oil (PAO)	150
TSO C4000	High adhesion properties, excellent creeping properties, NSF H1 approved	Chains Guidings Gear drives	Synthetic oil / mineral oil blend (PAO/ester)	4000
TSO C6000	Extrem adhesion properties, excellent anti-corrosion properties	Gear drives Guidings	Synthetic oil (ester)	30000

Replacement cartridges for all lubricators

Cartridge sizes

FlexxPump1 B + ND:

125ml and 250ml, filled with grease or oil

FlexxPump4 B, ND + D:

250ml and 400ml, filled with grease or oil

The one-piece oil and grease cartridges are used in all automatic lubricators of the **FlexxPump1** and **FlexxPump4** series.

The easy **plug-and-play solution** enables the fast and safe cartridge replacement.



Filling of customer-specific lubricants is possible.
Just get in touch with us.

Tips & hints

Interesting facts about the use of the FlexxPump

Replaceable cartridge system

Our **Flexx-Pump lubrication systems** use a replaceable cartridge system.

Thus, you do **not** have to dispose of the **entire pump** when empty, but simply put a fresh, new cartridge on the **FlexxPump**.

Operation and settings

You can choose between **three** operating modes:

Mode

Adjustment of lubrication cycle time

This allows setting the number of lubrication strokes (C) and a lubrication cycle duration (h) in hours. Lubrication cycle durations (h) between 1...240 hour(s) and lubrication strokes (C) between 1...30 can be set.

Mode

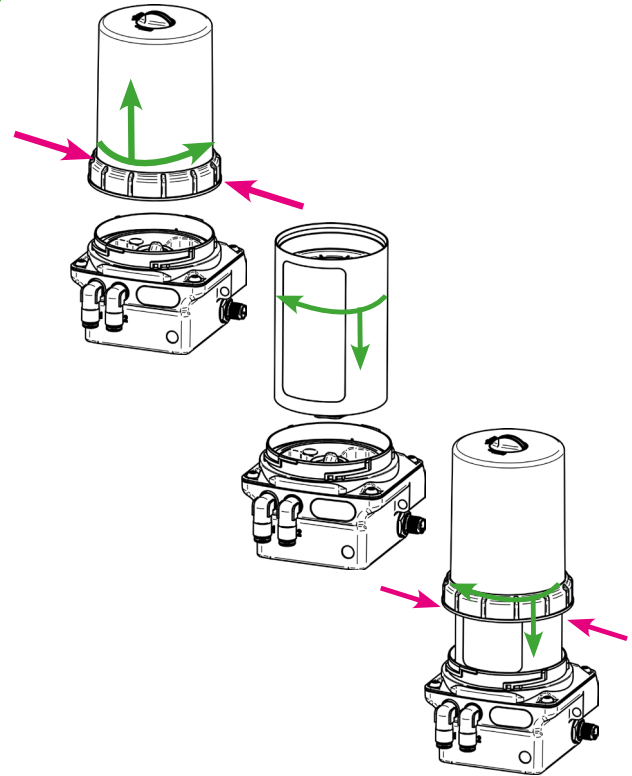
Emptying time setting

This allows setting the emptying time of the cartridge in months. Emptying times between 1...36 months(s) and lubrication strokes (C) between 1...30 can be set.

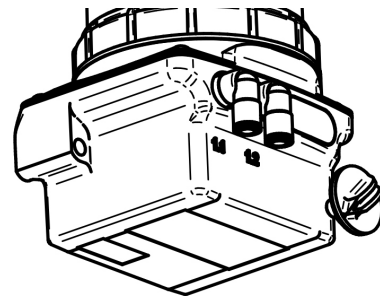
The pump automatically calculates the lubrication cycle time.

Control via PLC

Alternatively, the FP4 D/FP4 D OIL can also be integrated into a controller (PLC) and commanded and controlled in **pulse control mode**.



Actions with the magnetic pen



1. Turn the magnetic pin to the OPEN position and remove it from the upper part of the FP4 ND.
2. Move the magnetic pin to the action surface on the front of the FP4 ND.
3. Remove the magnetic pin from the action area as soon as the desired menu item is displayed on the display.

TriboServ Item list

FlexxPump1 battery pumps		
211 001	FlexxPump1 B125	Battery tool, external thread M 16, internal thread M 10x1, without lubricant cartridge and battery
211 002	FlexxPump1 B125-M12	Battery tool, external thread M 16, internal thread M 10x1, with M 12x1 - plug for LED cable, without lubricant cartridge, without battery
FlexxPump1 power supply pumps		
210 998	FlexxPump1 N125	Power supply pump 24 VDC, external thread M16, internal thread M10x1, setting for 125 ml cartridge, without lubricant cartridge
210 999	FlexxPump1 N250	Power supply pump 24 VDC, external thread M 16, internal thread M 10x1, setting for 250 ml cartridge, without lubricant cartridge
FlexxPump4 - battery pumps - 400ml oder 250ml		
214 578	FlexxPump4 B411-EXT	6 V, timing, 1 outlet, rotatable angle hose connection for 6 mm hose, without lubricant cartridge and battery, for 400 ml content, external battery
214 580	FlexxPump4 B412-EXT	6 V, timing, 2 outlets, rotatable angle hose connection for 6 mm hose, without lubricant cartridge and battery, for 400 ml content, external battery
214 574	FlexxPump4 B211-EXT	6 V, timing, 1 outlet, rotatable angle hose connection for 6 mm hose, without lubricant cartridge and battery, for 250 ml content, external battery
214 576	FlexxPump4 B212-EXT	6 V, timing, 2 outlets, rotatable angle hose connection for 6 mm hose, without lubricant cartridge and battery, for 250 ml content, external battery
210 717	FlexxPump4 B411	6 V, timing, 1 outlet, rotatable angle hose connection for 6 mm hose, without lubricant cartridge and battery, for 400 ml content
210 718	FlexxPump4 B412	6 V, timing, 2 outlets, rotatable angle hose connection for 6 mm hose, without lubricant cartridge and battery, for 400 ml content
210 725	FlexxPump4 B211	6 V, timing, 1 outlet, rotatable angle hose connection for 6 mm hose, without lubricant cartridge and battery, for 250 ml content
210 726	FlexxPump4 B212	6 V, timing, 2 outlets, rotatable angle hose connection for 6 mm hose, without lubricant cartridge and battery, for 250 ml content
FlexxPump4 power supply pumps		
215 350	FlexxPump4 ND411	24 VDC, timing, 1 outlet, rotatable angle hose connection for 6 mm hose, without lubricant cartridge, for 400 ml content
215 351	FlexxPump4 ND412	24 VDC, timing, 2 outlets, rotatable angle hose connection for 6 mm hose, without lubricant cartridge, for 400 ml content
215 354	FlexxPump4 ND211	24 VDC, timing, 1 outlet, rotatable angle hose connection for 6 mm hose, without lubricant cartridge, for 250 ml content
215 355	FlexxPump4 ND212	24 VDC, timing, 2 outlets, rotatable angle hose connection for 6 mm hose, without lubricant cartridge, for 250 ml content
FlexxPump4 power supply pumps for oil		
215 358	FlexxPump4 ND411-OIL	24 VDC, timing, 1 outlet, rotatable angle hose connection for 6 mm hose, without lubricant, with oil insert V 2.0
215 359	FlexxPump4 ND412-OIL	24 VDC, timing, 2 outlets, rotatable angle hose connection for 6 mm hose, without lubricant, with oil insert V 2.0
FlexxPump4 DLS pumps - 400ml		
210 928	FlexxPump4 D411	24 VDC, PLC control, 1 outlet, rotatable angle hose connection for 6 mm hose, without lubricant cartridge, for 400 ml content
210 929	FlexxPump4 D412	24 VDC, green, PLC control, 2 outlets, rotatable angle hose connection for 6 mm hose, without lubricant, for 400 ml content
210 930	FlexxPump4 D422	24 VDC, PLC control, 2 pump bodies, 2 outlets, rotatable angle hose connection for 6 mm hose, without lubricant, for 400 ml content
210 931	FlexxPump4 D423	24 VDC, PLC control, 2 pump bodies, 3 outlets, rotatable angle hose connection for 6 mm hose, without lubricant, for 400 ml content
210 932	FlexxPump4 D424	24 VDC, PLC control, 2 pump bodies, 4 outlets, rotatable angle hose connection for 6 mm hose, without lubricant, for 400 ml content

TriboServ Item list

FlexxPump4 DLS pumps - 250ml		
210 938	FlexxPump4 D211	24 VDC, PLC control, 1 outlet, rotatable angle hose connection for 6 mm hose, without lubricant cartridge, for 250 ml content
210 939	FlexxPump4 D212	24 VDC, PLC control, 2 outlets, rotatable angle hose connection for 6 mm hose, without lubricant cartridge, for 250 ml content
210940	FlexxPump4 D222	24 VDC, PLC control, 2 pump bodies, 2 outlets, rotatable angle hose connection for 6 mm hose, without lubricant cartridge, for 250 ml content
210 941	FlexxPump4 D223	24 VDC, PLC control, 2 pump bodies, 3 outlets, rotatable angle hose connection for 6 mm hose, without lubricant cartridge, for 250 ml content
210 942	FlexxPump4 D224	24 VDC, PLC control, 2 pump bodies, 4 outlets, rotatable angle hose connection for 6 mm hose, without lubricant cartridge, for 250 ml content
FlexxPump4 DLS pumps for oil - 400ml		
210 948	FlexxPump4 D411-OIL	24 VDC, PLC control, 1 outlet, rotatable angle hose connection for 6 mm hose, without lubricant, with oil insert V2.0, for 400 ml content
210 949	FlexxPump4 D412-OIL	24 VDC, PLC control, 2 outlets, rotatable angle hose connection for 6 mm hose, without lubricant, with oil insert V 2.0, for 400 ml content
210950	FlexxPump4 D422-OIL	24 VDC, PLC control, 2 Pumpenkörper, 2 outlets, rotatable angle hose connection for 6 mm hose, without lubricant, with oil insert V 2.0, for 400 ml content
210 951	FlexxPump4 D423-OIL	24 VDC, PLC control, 2 Pumpenkörper, 3 outlets, rotatable angle hose connection for 6 mm hose, without lubricant, with oil insert V 2.0, for 400 ml content
210 952	FlexxPump4 D424-OIL	24 VDC, PLC control, 2 Pumpenkörper, 4 outlets, rotatable angle hose connection for 6 mm hose, without lubricant, with oil insert V 2.0, for 400 ml content
FlexxPump1 cartridges		
207 639	FP1 cartridge 125 ml	TSG OG1 - High-performance adhesive grease, NLGI 1
207 675	FP1 cartridge 125 ml	TSG U2 - Universal grease, NLGI 2
207677	FP1 cartridge 125 ml	TSG FG2 - Food grease with H1 approval, NLGI 2
207 679	FP1 cartridge 125 ml	TSG M2 - Multi-purpose grease, NLGI 2
208 141	FP1 cartridge 125 ml	TSG HT2 - High temperature grease, NLGI 2
208 614	FP1 cartridge 125 ml	TSO C4000 - High-performance chain oil with H1 approval
209 967	FP1 cartridge 250 ml	TSG OG1 - High-performance adhesive grease, NLGI 1
209 968	FP1 cartridge 250 ml	TSG U2 - Universal grease, NLGI 2
209 969	FP1 cartridge 250 ml	TSG FG2 - Food grease with H1 approval, NLGI 2
209 970	FP1 cartridge 250 ml	TSG M2 - Multi-purpose grease, NLGI 2
209 972	FP1 cartridge 250 ml	TSG HT2 - High temperature grease, NLGI 2
209 975	FP1 cartridge 250 ml	TSO C4000 - High-performance chain oil with H1 approval
FlexxPump4 cartridges		
700 709	FP4 cartridge 400 ml	TSG OG1 - High-performance adhesive grease, NLGI 1
700 700	FP4 cartridge 400 ml	TSG U2 - Universal grease, NLGI 2
700 707	FP4 cartridge 400 ml	TSG FG2 - Food grease with H1 approval, NLGI 2
700 705	FP4 cartridge 400 ml	TSG M2 - Multi-purpose grease, NLGI 2
700 706	FP4 cartridge 400 ml	TSG HT2 - High temperature grease, NLGI 2
700 711	FP4 cartridge 400 ml	TSO C4000 - High-performance chain oil with H1 approval
211 427	FP4 cartridge 250 ml	TSG OG1 - High-performance adhesive grease, NLGI 1
211 424	FP4 cartridge 250 ml	TSG U2 - Universal grease, NLGI 2
701 546	FP4 cartridge 250 ml	TSG FG2 - Food grease with H1 approval, NLGI 2
211 425	FP4 cartridge 250 ml	TSG M2 - Multi-purpose grease, NLGI 2
211 428	FP4 cartridge 250 ml	TSG HT2 - High temperature grease, NLGI 2
211 431	FP4 cartridge 250 ml	TSO C4000 - High-performance chain oil with H1 approval

TriboServ Item list

FlexxPump accessories		
207 011	Battery pack FP1 alkaline 4.5 V	Pack with 3 pieces of alkaline AAA, FlexxPump 125
211 150	Battery pack FP1 LiFe 4.5 V	Pack with 3 pieces of LiFe AAA, FlexxPump 125
211 516	Battery pack alkaline 6 V	Pack for FlexxPump4 - consists of 4 x 1.5 V alkaline AA
212 028	Battery pack LiFe 6 V	Pack for FlexxPump4 - consists of 4 x 1.5 V LiFe AA
700 374	Power supply 24 VDC	incl. connection cable with M12x1 socket, length 1.8 m, for FlexxPump and FlexxMaster
700 221	Connection cable for power supply	Length 1.8 m, plugs IEC 320-C14
700 078	Connection cable with M 12x1 socket	4 x 0,34 mm ² , max. 4 A, PUR suitable for drag chains - length 5 m
700 079	Connection cable with M 12x1 socket	4 x 0,34 mm ² , max. 4 A, PUR suitable for drag chains - length 10 m
211 068	Thread adapter M 16x1 G1/4 FP1	Internal thread M 16x1,5 for FP1 connection thread - on G1/4"
211 069	Bracket FlexxPump1	Mounting plate für FP1
211 071	Brackets FlexxPump1	Mounting bracket for attaching FlexxPump1 to threaded connection
211 072	Brackets FlexxPump1 with TSPV	Mounting bracket for FlexxPump1 and TSPV distributor
700 010	SAT 066 G - VPE1	M6 for hose 6 mm, straight, 1 piece
700 009	SAT 186 G - VPE1	G 1/8" for hose 6 mm, straight, 1 piece
700 105	SAT 186 W - VPE1	G 1/8" for hose 6 mm, angled, 1 piece
700 106	SAT 146 W - VPE1	G 1/4" for hose 6 mm, angled, 1 piece
700 140	SAT 106 W - VPE1	M 10x1 for hose 6 mm, angled, 1 piece
700 434	Y-piece for hose 6 mm	
TSPV distributors		
207 232	TSPV 2 - 50 - stroke 0.05 ml	incl. SAT, built-in check valves, vented and flushed
207 233	TSPV 3 - 50 R - stroke 0.05 ml - outlet right	incl. SAT, built-in check valves, vented and flushed
208 159	TSPV 3 - 50 L - stroke 0.05 ml - outlet left	incl. SAT, built-in check valves, vented and flushed
207 234	TSPV 4 - 50 R - stroke 0.05 ml - outlet right	incl. SAT, built-in check valves, vented and flushed
207 235	TSPV 5 - 50 R - stroke 0.05 ml - outlet right	incl. SAT, built-in check valves, vented and flushed
208 160	TSPV 5 - 50 L - stroke 0.05 ml - outlet left	incl. SAT, built-in check valves, vented and flushed
207236	TSPV 6 - 50 - stroke 0.05 ml	incl. SAT, built-in check valves, vented and flushed
207 237	TSPV 7 - 50 R - stroke 0.05 ml - outlet right	incl. SAT, built-in check valves, vented and flushed
208 161	TSPV 7 - 50 L - stroke 0.05 ml - outlet left	incl. SAT, built-in check valves, vented and flushed
207 238	TSPV 8 - 50 - stroke 0.05 ml	incl. SAT, built-in check valves, vented and flushed
207 239	TSPV 9 - 50 R - stroke 0.05 ml - outlet right	incl. SAT, built-in check valves, vented and flushed
208 162	TSPV 9 - 50 L - stroke 0.05 ml - outlet left	incl. SAT, built-in check valves, vented and flushed
207240	TSPV 10 - 50 - stroke 0.05 ml	incl. SAT, built-in check valves, vented and flushed

TriboServ Item list

TSPV distributors with query		
209 378	TSPVN 2 - 50 - stroke 0.05 ml	incl. SAT, built-in check valves, vented and flushed
209 385	TSPVN 3 - 50 R - stroke 0.05 ml - outlet right	incl. SAT, built-in check valves, vented and flushed
209 387	TSPVN 3 - 50 L - stroke 0.05 ml - outlet left	incl. SAT, built-in check valves, vented and flushed
209 439	TSPVN 4 - 100 R - stroke 0.1 ml - outlet right	incl. SAT, built-in check valves, vented and flushed
209 438	TSPVN 4 - 100 L - stroke 0.1 ml - outlet left	incl. SAT, built-in check valves, vented and flushed
209 391	TSPVN 5 - 50 R - stroke 0.05 ml - outlet right	incl. SAT, built-in check valves, vented and flushed
209 393	TSPVN 5 - 50 L - stroke 0.05 ml - outlet left	incl. SAT, built-in check valves, vented and flushed
209 328	TSPVN 6 - 50 - stroke 0.05 ml	incl. SAT, built-in check valves, vented and flushed
209 395	TSPVN 7 - 50 R - stroke 0.05 ml - outlet right	incl. SAT, built-in check valves, vented and flushed
209 397	TSPVN 7 - 50 L - stroke 0.05 ml - outlet left	incl. SAT, built-in check valves, vented and flushed
209 329	TSPVN 8 - 50 - stroke 0.05 ml	incl. SAT, built-in check valves, vented and flushed
209 399	TSPVN 9 - 50 R - stroke 0.05 ml - outlet right	incl. SAT, built-in check valves, vented and flushed
209401	TSPVN 9 - 50 L - stroke 0.05 ml - outlet left	incl. SAT, built-in check valves, vented and flushed
209 403	TSPVN 10 - 50 - stroke 0.05 ml	incl. SAT, built-in check valves, vented and flushed
Lubrication gears		
702 069	Lubrication gear M2 Z17 B20 SL	diagonally left toothed, complete with sleeve, with grooves
702 014	Lubrication gear M2 Z17 B20 SR	diagonally right toothed, with sleeve, with grooves
702 030	Lubrication gear M2 Z17 B20 G	straight toothed, complete with sleeve, with grooves
702 018	Lubrication gear M3 Z17 B30 SL	diagonally left toothed, with sleeve, with grooves
702 070	Lubrication gear M3 Z17 B30 SR	diagonally right toothed, with grooves, complete with sleeve
702 021	Lubrication gear M3 Z17 B30 G	straight toothed, with grooves, complete with sleeve
702 020	Lubrication gear M4 Z17 B40 SL	diagonally left toothed, with grooves, complete with sleeve
702 071	Lubrication gear M4 Z17 B40 SR	diagonally right toothed, with grooves, complete with sleeve
702 063	Lubrication gear M4 Z17 B40 G	straight toothed, with grooves, complete with sleeve
702 073	Lubrication gear M5 Z17 B50 SL	diagonally left toothed, with grooves, complete with sleeve
702 074	Lubrication gear M5 Z17 B50 SR	diagonally right toothed, with grooves, complete with sleeve
201 706	Lubrication gear M5 Z17 B50 G	straight toothed, with grooves, complete with sleeve
702 075	Lubrication gear M6 Z17 B60 SL	diagonally left toothed, with grooves, complete with sleeve
702 076	Lubrication gear M6 Z17 B60 SR	diagonally right toothed, with grooves, complete with sleeve
204 186	Lubrication gear M6 Z17 B60 G	straight toothed, with grooves, complete with sleeve

TriboServ Item list

Chain lubrication pinion		
700 390	FlexxPinion 08 B-1, GA	Z12, 1/2" x 5/16", complete with axis 30 straight
700 391	FlexxPinion 10 B-1, GA	Z10, 5/8" x 3/8", complete with axis 30 straight
700 392	FlexxPinion 12 B-1, GA	Z12, 3/4" x 7/16", Z8, complete with axis 30 straight
700 388	FlexxPinion 16 B-1, GA	Z8, 1" x 1", complete with axis 40 straight
700 383	FlexxPinion 20 B-1, GA	Z8, 1 1/4" x 3/4", complete with axis 50 straight
700 403	FlexxPinion 24 B-1, GA	Z10, 1 1/2" x 1", complete with axis 60 straight
207 926	FlexxPinion 28 B-1, GA	Z8, 1 3/4" x 1 1/4", complete with axis 60 straight
700 741	FlexxPinion 32 B-1, GA	Z8, 2" x 1 1/4", complete with axis 80 straight
700 629	FlexxPinion 08 B-1, WA	Z12, 1/2" x 5/16", complete with axis 30 angled
700 833	FlexxPinion 10 B-1, WA	Z10, 5/8" x 3/8", complete with axis 30 angled
700 620	FlexxPinion 12 B-1, WA	Z8, 3/4" x 7/16", complete with axis 30 angled
700 879	FlexxPinion 16 B-1, WA	Z8, 1" x 1", complete with axis 40 angled
211 342	SET FlexxPinion 20 B-1, WA	Z8, 1 1/4" x 3/4", axle angled, drilled for spring plate, spring plate and screws loosely enclosed
700 812	FlexxPinion 24 B-1, WA	Z10, 1 1/2" x 1", Z10, complete with axis 60 angled
212 464	FlexxPinion 28 B-1, WA	Z8, 1 3/4" x 1 1/4", complete with axis 60 angled
211 338	SET FlexxPinion 08 B-1	Z12, 1/2" x 5/16", axle angled, drilled for spring plate, spring plate and screws loosely enclosed
211 339	SET FlexxPinion 10 B-1	Z10, 5/8" x 3/8", axle angled, drilled for spring plate, spring plate and screws loosely enclosed
211 340	SET FlexxPinion 12 B-1	Z8, 3/4" x 7/16", axle angled, drilled for spring plate, spring plate and screws loosely enclosed
211 341	SET FlexxPinion 16 B-1	Z8, 1" x 1", axle angled, drilled for spring plate, spring plate and screws loosely enclosed
211 342	SET FlexxPinion 20 B-1	Z8, 1 1/4" x 3/4", axle angled, drilled for spring plate, spring plate and screws loosely enclosed
211 343	SET FlexxPinion 24 B-1, 2FB	Z10, 1 1/2" x 1", axle angled on both sides, drilled for spring plate, 2 spring plates and screws loosely enclosed
212 465	SET FlexxPinion 28 B-1, 2FB	Z8, 1 3/4" x 1 1/4", axle angled on both sides, drilled for spring plate, 2 spring plates and screws loosely enclosed
212 466	SET Chain lubrication pinion 32 B-1, 2FB	Z8, 2" x 1 1/4", axle angled on both sides, drilled for spring plate, 2 spring plates and screws loosely enclosed
700 442	FlexxPinion 08 B-2, GA	Z12, 1/2" x 5/16", complete with axis 40 straight
700 679	FlexxPinion 10 B-2, GA	Z10, 5/8" x 3/8", complete with axis 40 straight
700 690	FlexxPinion 12 B-2, GA	Z8, 3/4" x 7/16", complete with axis 45 straight
700 387	FlexxPinion 16 B-2, GA	Z8, 1" x 1", complete with axis 80 straight
701 108	FlexxPinion 20 B-2, GA	Z8, 1 1/4" x 3/4", complete with axis 80 straight
700 286	FlexxPinion 24 B-2, GA	Z8, 1 1/2" x 1", complete with axis 100 straight
212 463	FlexxPinion 28 B-2, GA	Z8, 1 3/4" x 1 1/4", complete with axis 120 straight
700 446	FlexxPinion 32 B-2, GA	Z8, 2 x 1 1/4", complete with axis 120 straight

TriboServ Item list

Chain lubrication pinion		
700 858	FlexxPinion 08 B-2, WA	Z12, 1/2" x 5/16", complete with axis 40 angled
700 251	FlexxPinion 10 B-2, WA	Z10, 5/8" x 3/8", complete with axis 40 angled
701 106	FlexxPinion 12 B-2, WA	Z8, 3/4" x 7/16", complete with axis 45 angled
700 878	FlexxPinion 16 B-2, WA	Z8, 1" x 1", complete with axis 80 angled
700 880	FlexxPinion 20 B-2, WA	Z8, 1 1/4" x 3/4", complete with axis 80 angled
701 109	FlexxPinion 24 B-2, WA	Z10, 1 1/2" x 1", complete with axis 100 angled
211 355	SET FlexxPinion 08 B-2	Z12, 1/2" x 5/16", axle angled, drilled for spring plate, spring plate and screws loosely enclosed
211 356	SET FlexxPinion 10 B-2	Z10, 5/8" x 3/8", axle angled, drilled for spring plate, spring plate and screws loosely enclosed
211 357	SET FlexxPinion 12 B-2	Z8, 3/4" x 7/16", Z8, axle angled, drilled for spring plate, spring plate and screws loosely enclosed
211 358	SET FlexxPinion 16 B-2, 2FB	Z8, 1" x 1", axle angled on both sides, drilled for spring plate, spring plate and screws loosely enclosed
212 467	SET FlexxPinion 20 B-2, 2FB	Z8, 1 1/4" x 3/4", axle angled on both sides, drilled for spring plate, spring plate and screws loosely enclosed
212 468	SET FlexxPinion 24 B-2, 2FB	Z10, 1 1/2" x 1", axle angled on both sides, drilled for spring plate, spring plate and screws loosely enclosed
212 469	SET FlexxPinion 28 B-2, 2FB	Z8, 1 3/4" x 31mm, axle angled on both sides, drilled for spring plate, spring plate and screws loosely enclosed
212 471	SET FlexxPinion 32 B-2, 2FB	Z8, 2" x 31mm, axle angled on both sides, drilled for spring plate, spring plate and screws loosely enclosed
212 472	SET FlexxPinion 08 B-3	Z12, axle angled, with spring plate, spring plate and screws loosely enclosed
212 477	SET FlexxPinion 10 B-3	Z10, 5/8" x 3/8", axle angled, with spring plate, spring plate and screws loosely enclosed
212 476	SET FlexxPinion 12 B-3, 2FB	Z8, axle angled on both sides, spring plate bilateral, spring plate and screws loosely enclosed
212 473	SET FlexxPinion 16 B-3, 2FB	Z8, axle angled on both sides, spring plate bilateral, spring plate and screws loosely enclosed
212 474	SET FlexxPinion 20 B-3, 2FB	Z8, axle angled on both sides, spring plate and screws loosely enclosed
212 475	SET FlexxPinion 24 B-3, 2FB	Z10, axle angled on both sides, spring plate bilateral, spring plate and screws loosely enclosed
212 552	SET FlexxPinion 28 B-3, 2FB	Z8, axle angled on both sides, spring plate bilateral, spring plate and screws loosely enclosed
212 553	SET FlexxPinion 32 B-3, 2FB"	Z8, axle angled on both sides, spring plate bilateral, spring plate and screws loosely enclosed
700 082	SAT 066 W	Hose connection part M 6, pluggable for hose 6 mm, angled
700 010	SAT 066 G	Hose connection part M 6, pluggable for hose 6 mm, straight
700 140	SAT 106 W	Hose connection part M 10 x 1, pluggable for hose 6 mm, angled
700 139	SAT 106 G	Hose connection part M 10 x1, pluggable for hose 6mm, straight
700 105	SAT 186 W	Hose connection part G 1/8", pluggable for hose 6 mm, angled
700 009	SAT 186 G	Hose connection part G 1/8", pluggable for hose 6 mm, straight
700 102	SAT 766 W	Hose connection part M 6 x 0,75, pluggable for hose 6 mm, angled
700 097	SAT 766 G	Hose connection part M 6 x 0,75, pluggable for hose 6 mm, straight
700 434	Y-piece for hose 6 mm	High pressure resistant up to 80 bar



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