

LUBRICATION PUMP MMP

Operating Instructions



Modification of indicated specifications and design reserved

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1 PURPOSE

This document serves as a user guide for proper handling, storage, installation, commissioning, operation and maintenance of the product:

Lubrication Pump MMP

It is a product in standard design. Individual products are identified and provided with a nameplate, bearing the code number, year of manufacture and serial number.

2 APPLICATION

The MMP lubrication pump is used as a source of pressurised lubricant for multi-line central lubrication systems. Considering the variable number of outlets (max. 8) and in combination with progressive distributor types PR and BVA, these are recommended for application in smaller circuits, i.e. for regular lubrication of machines and equipment. Furthermore, it may be used as a pressure source for central lubrication of mobile machines and equipment, mainly for the chassis of lorries, buses, trolley-buses, semi-trailers, trailers, building machines, agriculture and forestry equipment.

The MMP lubrication pump is supplied with variable lubricant reservoir volumes of 0.6, 0.8, 1.0, and 1.2 litres. The reservoirs are made from organic glass. The number of outputs is selectable, from 1 to 8. One pumping unit with a nominal charge volume of $2.5 \text{ cm}^3 \text{ min}^{-1}$ (must be always placed in position 1.) and another seven with a nominal charge volume of $1.5 \text{ cm}^3 \text{ min}^{-1}$ (placed in position 2-8). The working units are optionally equipped with a relief valve and a $\varnothing 6 \text{ mm}$ output pipe fitting. The supplied electric motor is equipped for 12 and 24 V DC connections. Optionally, the lubrication pump may be fitted with an AP3 control timer - see AP3 operating instructions.

3 DESCRIPTION

The main part of the lubrication pump is the pump body made of aluminium alloy and the cam mechanism allowing for fitting the pump with 1 to 8 working dosing units. Each working unit is fitted with one threaded female G1/4" outlet for pipe with 6 or 8mm external diameters.

Working units with the safety valves are supplied with fittings for a pipe with an outside diameter 6 mm. Filling of lubrication pump can be the following variants. If the lubrication pump is equipped with the maximum number of the working units (eight working units), the filling is only possible via filling coupling ID 425 000 100 200 (only a top filling). If the lubrication pump is equipped with 1 up to 7 working units, the filling is possible via the filling coupling ID 425 000 100 200 (a top filling) or the filling nipple DIN 71412 placed on the body.

The lubricant reservoir with top cover is placed on the body vertically. Lubricant reservoirs are equipped with a scraper blade to improve pumping of the grease. The electric motor for the cam mechanism is located in the lower part of the pump body and protected with a cover. A connector for attaching to 12 or 24 V DC supplies is placed on the left side of the pump.

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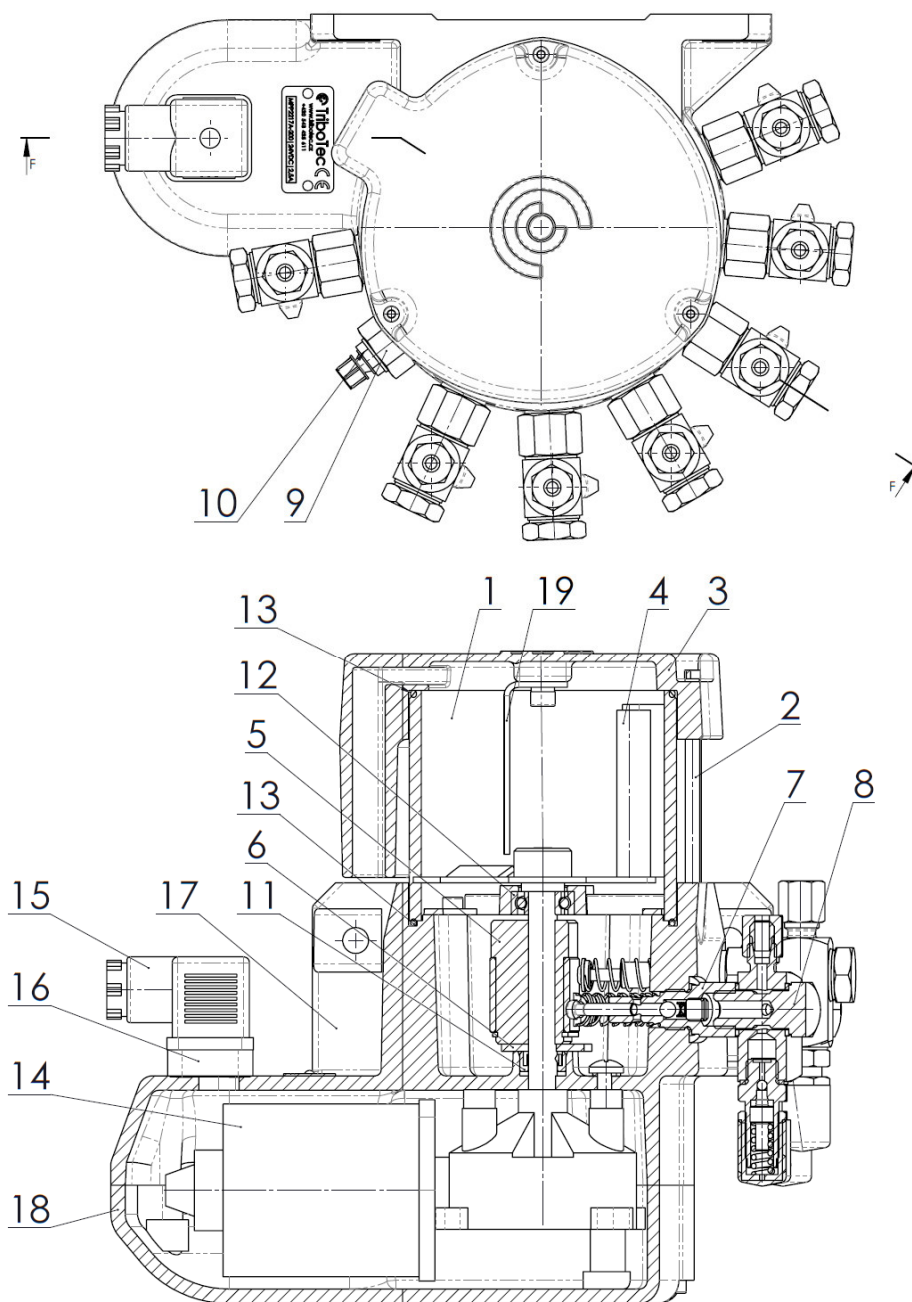


Figure 1 MMP Components

Table 1 MMP Components

Pos.	Name
1	Reservoir
2	Bolt
3	Cover
4	Scraper
5	Cam
6	Washer
7	Working unit

Pos.	Name
8	Relief valve
9	Reducer
10	Grease fitting
11	Shaft seal
12	Bearing
13	O-ring
14	Electric motor

Pos.	Name
15	Connector
16	Supply connector
17	Body
18	Housing
19	Slide gate

4 FUNCTION

The lubrication pump operates on the piston pump principle. The electric motor drives the cam mechanism, controlling the pistons of working pumping units in straight reciprocating motion. A negative pressure inside the unit's working cylinder occurs when the piston slides out of the working pumping unit and when it is fully extended, the suction channel opens, which results in suction. When it is drawn back in, lubricant is pressed out and proceeds through a non-return valve to the lubrication pump's outlet. Simultaneously, with the rotation of the central shaft and cam, the scraper blade moves, separating the lubricant from the reservoir wall and pushing it into the suction area. Its motion provides a visual check over the lubrication pump operation.

5 TECHNICAL PARAMETERS

Table 1 Technical parameters

Maximum working pressure	350 bar
Operating pressure	280 bar
Nominal fixed dose	2.5 cm ³ min. ⁻¹ (outlet on position pos.1) 1.5 cm ³ min. ⁻¹ (outlets on position pos. 2 - 8)
Lubricant reservoir capacity	0.6; 0.8; 1.0; 1.2 dm ³
Number of outlets	1 to 8 (Top-fill reservoir) 1 to 7 (Also available without top-fill reservoir)
Outlet thread joint	G1/4" for tube outside dia. 6,8 and 10 mm
Outlet fitting with safety valve	For tube outside dia. 6mm
Electric motor	24 V DC, 2.5 A 12 V DC, 4 A
Grease	Max. NLGI - 2
Working environment temperature	-25 to 40 °C
Weight	7 kg (according to design)

The stated outputs refer to NLGI - 2 lubricating greases at an operating temperature of +20 °C and a backpressure of 250 bar.

NOTE

The outlets are usually fitted with the dosing units in anticlockwise direction to ensure the smooth running of the lubricator. If the special outlets are required, it is necessary to send to the supplier a list of outlets which are fitted with dosing units (see the drawing). If it is required, the standard model of MMP lubrication pump can be fitted with a safety valve. The safety valve also serves as a protecting element preventing the lubricant pressure from exceeding the operating pressure in the lubricating circuit.

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6 TYPE IDENTIFICATION KEY MMP

Model code	MMP	a	b	c	d	e	f	g
Code example	MMP	2	2	1	V6A	2	1	0
Type designation								
type of lubrication pump -----MMP								
Lubricant pump cover								
for grease with top filling ----- 1								
for grease without top filling ----- 2								
Filling coupling								
filling coupling ID 425000100200 (only top filling) ----- 1								
filling nipple DIN 71412 (max 7. working units) ----- 2								
filling nipple DIN 71412+filling coupling ID 425000100200 ----- 3								
Lubricant reservoir capacity								
0,6 dm ³ ----- 1								
0,8 dm ³ ----- 2								
1,0 dm ³ ----- 3								
1,2 dm ³ ----- 4								
Working unit with dose 2,5 cm³·min⁻¹ (pos. 1)								
Plug ----- X								
1 ----- V								
Number of working units with dose 1,5 cm³·min⁻¹ (pos. 2-8)								
0 ----- 0								
1 ----- 1								
...								
6 ----- 6								
7 (only top filling) ----- 7								
Safety valve without pressure gauge for tube Ø6 mm								
none ----- X								
all ----- A								
selected outlets (specification in order) ----- B								
Operating voltage of electric motor								
12 V DC ----- 1								
24 V DC ----- 2								
Wiring								
connector ----- 0								
connector + cable 5 m ----- 1								
connector + cable 10 m ----- 2								
Control timer								
without control timer ----- 0								
with external control timer AP3 ID:9 55 0816 ----- 1								

MODEL CODE EXAMPLE: MMP 221-V6A-210

Lubrication pump MMP, grease without top filling, standard filling connection DIN 71412, reservoir capacity 0,6 dm³, 1+6 working units with safety valves, electric motor 24 V DC, the connector with cable 5 m, without the external control automatic.

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7 DIMENSIONAL DRAWING

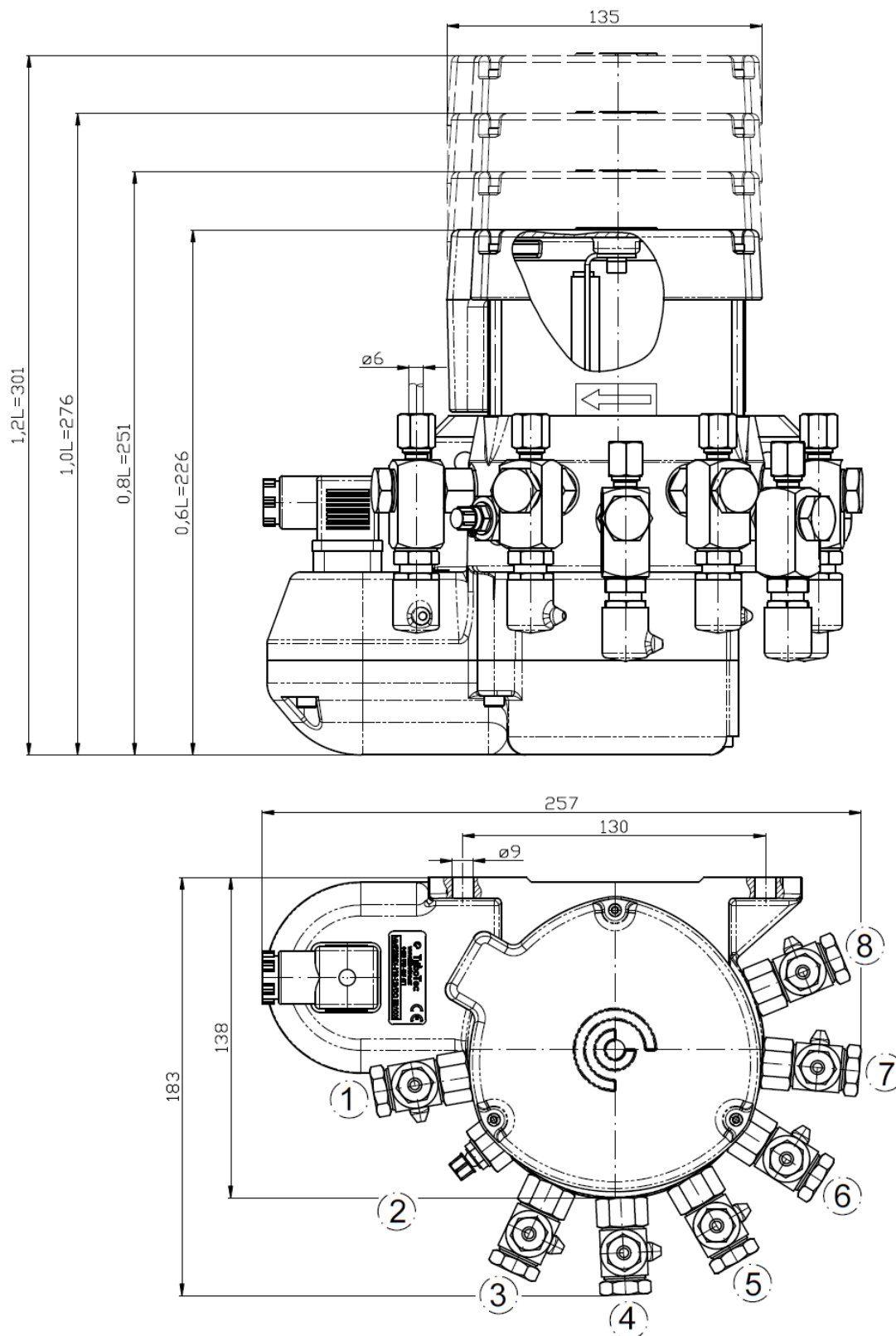


Figure 2 Dimensional drawing of MMP 221-V6A-200 lubrication pump

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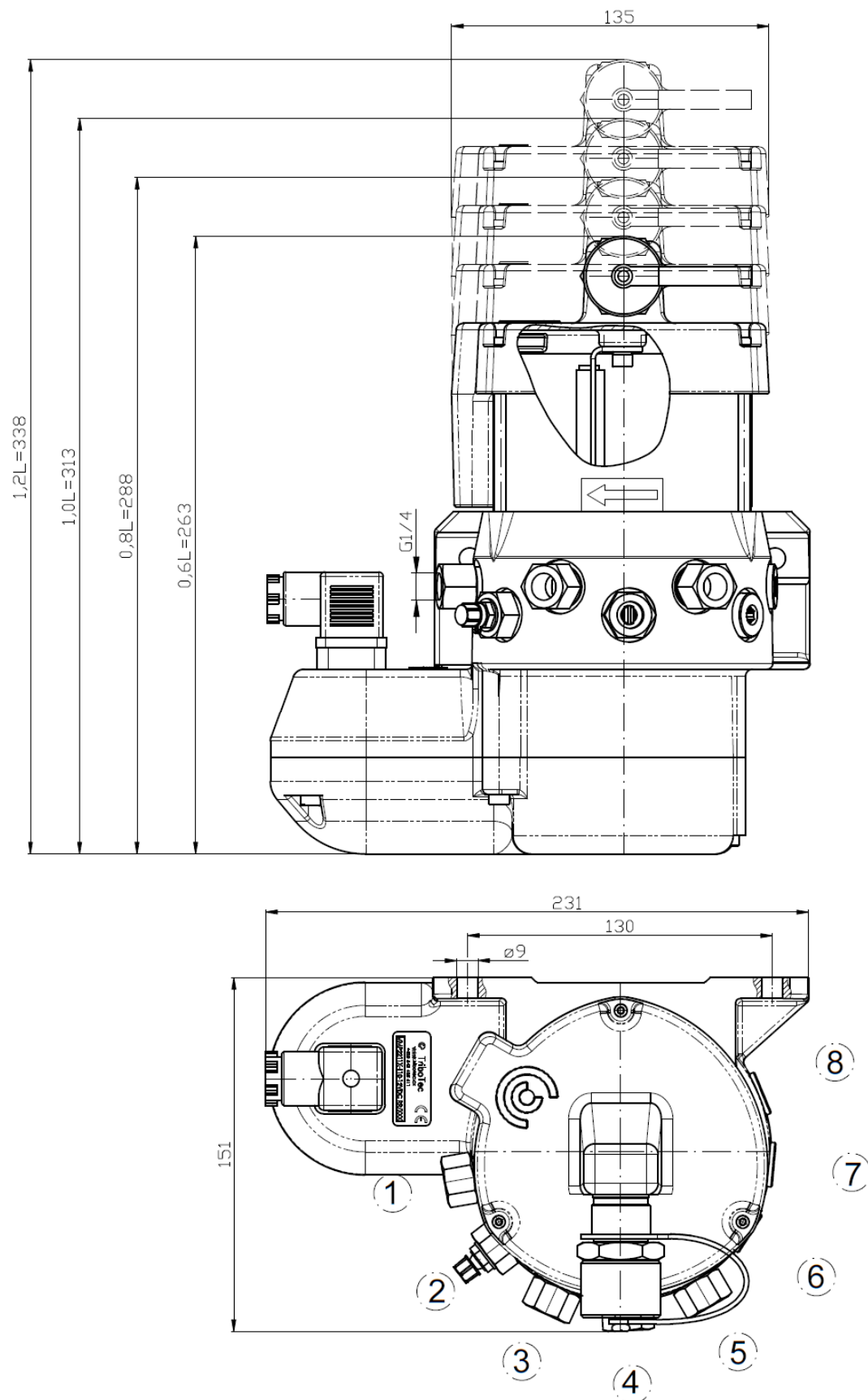


Figure 3 Dimensional drawing of MMP 131-V3X-200 lubrication pump

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8 HYDRAULIC DIAGRAM

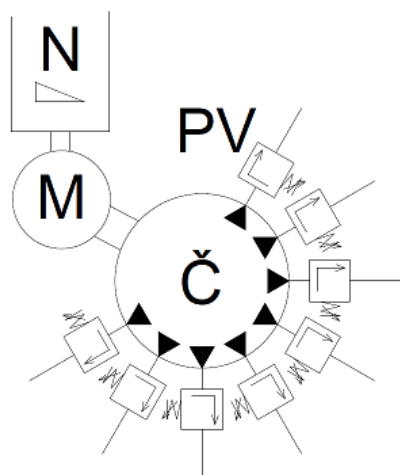


Figure 4 Hydraulic diagram

Table 2 Description of hydraulic diagram

Č	Pump
M	Electric motor
PV	Relief valve
N	Reservoir

9 INSTALLATION AND PUTTING INTO OPERATION

Mount the lubrication pump horizontally through the two mounting holes with M8 bolts. Connect the lubrication pump's power connector according to the electrical connection diagram. Fill the pump's reservoir with the specified clean lubricant through the lubricating nipple. The lubrication pump should not be filled with unclean or otherwise contaminated lubricant. The pump is switched on by turning the machine's switch or the switch of the utility vehicle's drive; observe whether it runs smoothly and regularly. The lubricant remaining in the lubrication pump after pressure tests as a protective agent is emptied. Once the lubricant flows regularly and without air bubbles, the lubrication circuit piping can be connected to the outlet fitting.

WARNING

When filling the tank with lubricant, it is important to ensure its purity. For filling, only use the lubricant that is pure, i.e. free of all impurities, and the lubricant intended for central lubricating systems. The lubrication pump should be operated with a lubricant appropriate to climatic conditions, according to NLGI classification (greases), and the specific application. When working, avoid any contamination of the lubricant. If the lubricant becomes contaminated with any impurities, the lubricant should be immediately removed from the lubrication pump, the pump should be disassembled, each part should be carefully cleaned and subsequently, its functionality should be checked.

10 WIRING DIAGRAM, ELECTRICAL CONNECTION

Electrical connection may only be carried out by an authorized person qualified for work on electrical equipment.

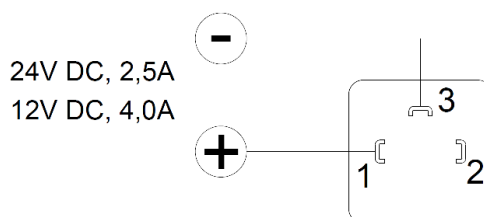


Figure 5 Electrical connections

11 ADJUSTMENT OF OPERATING PARAMETERS

The MMP lubrication pump is not equipped with an adjustable working unit.

12 BASIC SETTING

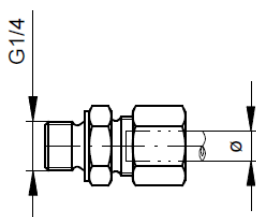
Table 3 Basic adjustment

PARAMETER	VALUE
Pressure of the relief valve	350 bar
Delivered quantity	1.5 cm ³ .min ⁻¹ (fixed)

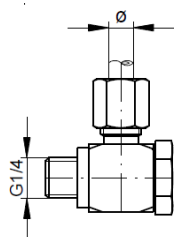
13 MAINTENANCE AND INSPECTION

Except for timely replenishment of lubricant, the lubrication pump does not need any special maintenance. The lubrication pump operator should keep the unit clean. Cleaning may only be carried out when the lubrication pump is switched off.

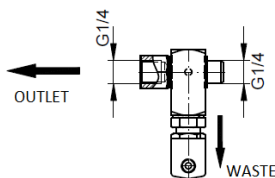
14 ACCESSORIES



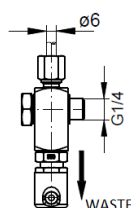
Indication	Code
Straight fitting Ø6 / G1/4	703 014 000 052
Straight fitting Ø8 / G1/4	703 014 000 056
Straight fitting Ø10 / G1/4	703 014 000 034



Indication	Code
Banjo fitting Ø6 / G1/4	703 017 000 043
Banjo fitting Ø8 / G1/4	703 017 000 032
Banjo fitting Ø10 / G1/4	703 017 000 023

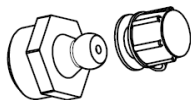


Indication	Code
Safety valve 350 bar	8 45 1591

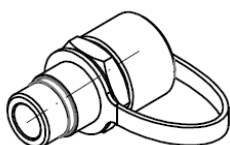


Indication	Code
Safety valve 350 bar	8 45 1703

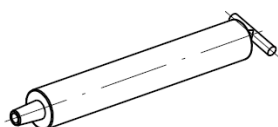
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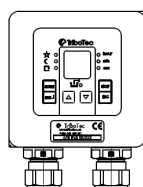
Indication	Code
Nipple DIN 71412	425 113 001 366
Cover of nipple	321 100 104 268



Indication	Code
Straight filling fitting	425 000 100 200
Filling with PRP 05 ID 425 000 100 200	



Indication	Code
Filling pump PRP 05	425 100 000 201



Indication	Code
Control timer AP3, IP65	9 55 0816
Separate operating instruction	

15 WORK SAFETY

Electrical connection of the lubrication pump must be executed professionally and applicable safety precautions must be adhered to. The customer is liable for correct and professional installation.

The lubrication pump MMP may be operated and its operating parameters adjusted solely by authorized persons who are duly informed and trained in such activities.

16 STORAGE AND TRANSPORT

For storage of the product, the customer must adhere to environmental conditions according to combination of classes IE11 as per ČSN EN 60721-3-1 (temperature range +5 °C to +40 °C, relative humidity range 5 to 85 %) and for transport, the conditions of combination of classes IE21 as per ČSN EN 60721-3-2 (temperature range -25 °C to 60 °C, relative humidity 75 %). The customer is responsible for storage of the product after delivery. It is also possible to use cardboard packaging with crushed polystyrene filler or similar protection against mechanical damage of the MMP lubrication pump. It must be placed on a vehicle so that mechanical loading by stacking, damaging by shocks and weather effects during transportation can be avoided. Loading and unloading must be carried out carefully, avoiding fall and mechanical damage of the shipment.

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17 QUALITY WARRANTY

TRIBOTEC guarantees that all products manufactured by TRIBOTEC will be free of material and workmanship defects on the date of sale from TRIBOTEC to the original buyer of these products.

With the exception of any special, extended or limited warranty published by TRIBOTEC, any product confirmed by TRIBOTEC as defective will be repaired or replaced by TRIBOTEC for a period of six (6) months from the date of sale.

This warranty is only valid in the event that the products are installed, operated and maintained in compliance with the written instructions and requirements contained in this document.

This warranty does not cover and TRIBOTEC will not be liable for product's normal wear and tear. The company will not be liable for defects on the product, its damage or wear and tear caused by the following:

1. Defective installation (unless performed directly by TRIBOTEC),
2. Misuse, i.e. use and operation under other than specified operating conditions,
3. Using for other purposes than recommended,
4. Abrasion,
5. Pollutants or chippings,
6. Corrosion caused by installation in other than recommended working environment,
7. Inadequate or unsuitable maintenance,
8. Damage due to negligence, accident or by malicious damage,
9. Using spare parts not delivered by TRIBOTEC,
10. Additional installation of parts and components not delivered or not approved by TRIBOTEC,
11. Incompatibility of a TRIBOTEC product with devices, accessories or materials not delivered by TRIBOTEC, or by their incorrect design, production, installation or maintenance.

TRIBOTEC covers the items sold by TRIBOTEC, whether as part of the product or separately, but not manufactured by TRIBOTEC (such as electric motor, switches, relays, pressure gauges, etc.) with the guarantee period covering the complete product at its expense in full, except the cases TRIBOTEC advised the customer of in this document or in the purchase contract. In such cases, TRIBOTEC will provide the buyer with reasonable co-operation in submitting complaints regarding the components or parts in question to the manufacturer.

THIS WARRANTY IS THE EXCLUSIVE WARRANTY AND REPLACES ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

TRIBOTEC will not be responsible for indirect, incidental damages and losses or consequential damages and losses caused by Force Majeure, resulting from the fact that TRIBOTEC has supplied the products.

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18 POSSIBLE FAULTS AND THEIR ELIMINATION

Table 4 Possible faults and their elimination

FAULT	PROBABLE CAUSE	REMEDY
Machine fails to supply lubricant	Lack of lubricant in reservoir	Refill the reservoir with lubricant
	Worn-out working unit	Replace the working unit
Machine's electric motor is inoperable	No current is consumed by the electric motor	Check the supply voltage of the pump motor
		Check the supply cables; replace if faulty
		Upstream protection device or circuit-breaker tripped

19 ANNEXES

No. 1 EC Declaration of Conformity

No. 2 Spare parts catalogue

EU DECLARATION OF CONFORMITY

Under the provision of Directive 2006/42/EC of the European Parliament and Council of 17 May 2006 on machinery, and amending Directive 95/16/EC.

Producer: **TRIBOTEC, spol. s r.o.**
Košuličova 4, 619 00 Brno

Name and address of the person authorised to complete the technical file: **TRIBOTEC, spol. s r.o.**
Košuličova 4, 619 00 Brno

Product: **Lubrication pump**
Type: **MMP**

Description, design:

The MMP lubrication pump is used as a source of pressurised lubricant for multi-line central lubrication systems. The main part of the lubrication pump is the pump body made of aluminium alloy and the cam mechanism allowing for fitting the pump with 1 to 8 working dosing units. The lubricant reservoir with top cover is placed on the body vertically. The supplied electric motor is equipped for 12VDC and 24VDC connections.

This declaration of conformity is issued under the sole responsibility of the manufacturer.

The object of the declaration described above is in conformity with the relevant Union harmonisation legislation.

TRIBOTEC, spol. s r.o., Košuličova 4, 619 00 Brno hereby confirms that the products qualities comply with the basic requirements of:

- Directive 2006/42/EC of the European Parliament and of the Council - on machinery, Transposed to Government Regulation NV č.176/2008 Sb.,

List of harmonised technical standards applied for the conformity assessment:

- ČSN EN ISO 12100:2010 - Safety of machinery. General principles for design. Risk assessments and risk reduction.
- ČSN ISO 5170:1994 – Machine tools. Lubrication systems.
- ČSN EN 60204-1ed.2/A1:2009 - Safety of machinery - Electrical equipment of machines - Part 1: General requirements;
- ČSN EN 60529:1993+A2:2014 - Degrees of protection provided by enclosures (IP Code).
- ČSN EN 809+A1: 2010 – Pumps and pump unit for liquids – Common safety requirements.
- ČSN EN 12162+A1:2009 – Liquid pumps – Safety requirements – Procedure for hydrostatic testing.

In usual conditions of application, as specified by the producer, the product is safe.

Conformity assurance of the product with the technical documentation:

TRIBOTEC, spol. s r.o. certified by ISO 9001:2015, No. of the certificate: CZ006111-1.

Certification by Bureau Veritas Certification Czech Republic, s.r.o., Olbrachtova 1, 140 02 Praha 4.

Scope of supply: Design, production, sale, installation and service of the central lubrication and hydraulic systems and systems for rail transport.

Place and date of the Declaration: Brno, 4.10.2017

The person authorized to make the Declaration on behalf of the producer:

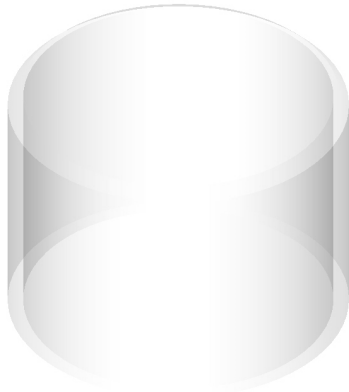
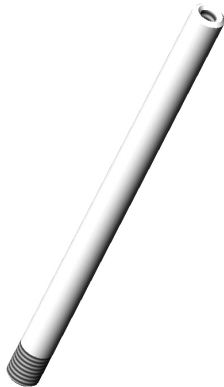
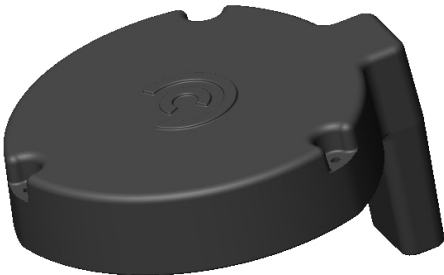
Name: Michal Vašíček

Grade: Managing director

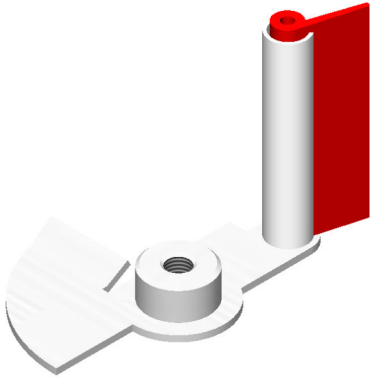
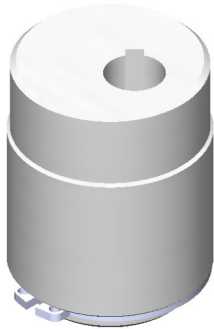
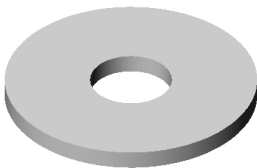
Signature:

tribotec spol. s r.o.
Košuličova 4, 619 00 Brno
centrální mazání
hydraulika

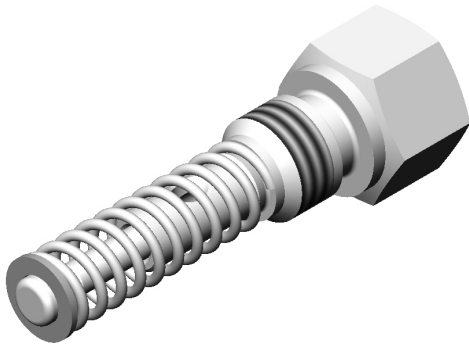
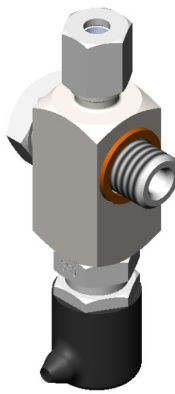
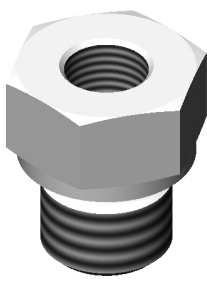
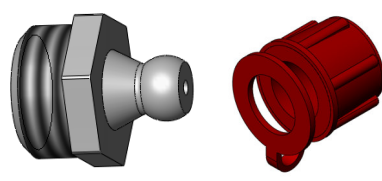
Lubrication pump MMP

Item	Description	Figure
1	<u>Tank</u> Tank 0.6L ID: 45 2030 Tank 0.8L ID: 45 2041 Tank 1.0L ID: 45 2042 Tank 1.2L ID: 45 2043	
2	<u>Connection bolt</u> Connection bolt – 0.6 ID: 45 2024 Connection bolt – 0.8 ID: 45 2044 Connection bolt – 1.0 ID: 45 2045 Connection bolt – 1.2 ID: 45 2046	
3	<u>Cover</u> ID: 45 2014	
4	<u>Cover with filing M20x1.5</u> ID: 45 2073	

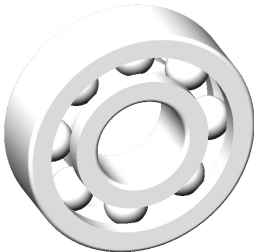
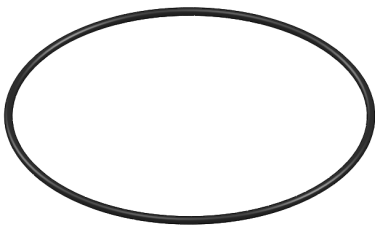
Lubrication pump MMP

Item	Description	Figure
5	<u>Slide gate</u> Slide gate – 0.6 ID: 45 2062 Slide gate – 0.8 ID: 45 2074 Slide gate – 1.0 ID: 45 2075 Slide gate – 1.2 ID: 45 2076	
6	<u>Scraper</u> Scraper 0.6L ID: 8 45 2266 Scraper 0.8L ID: 8 45 2022 Scraper 1.0L ID: 8 45 2269 Scraper 1.2L ID: 8 45 2088	
7	<u>Eccentric</u> ID: 8 45 2028	
8	<u>Washer</u> ID: 311 218 510 315	

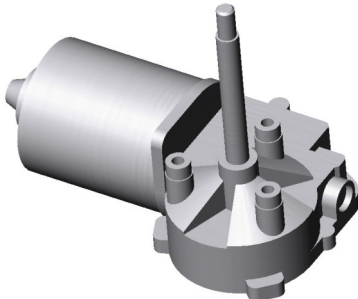
Lubrication pump MMP

Item	Description	Figure
9	<u>Working unit</u> ID: 8 45 2031 – dose 1,5 cm³.min-1 ID: 8 45 2460 – dose 2,5 cm³.min-1	
10	<u>Safety valve BZV-6-350bar</u> ID: 8 45 1703	
11	<u>Reduction M14x1.5 - M10x1</u> ID: 53 4878	
12	<u>Grease nipple</u> ID: 425 113 101 369 <u>Cover</u> ID: 321 100 104 268	

Lubrication pump MMP

Item	Description	Figure
13	<u>Filling coupling</u> ID: 425 000 100 200	
14	<u>Shaft sealing</u> ID: 273 521 101 003	
15	<u>Bearing</u> ID: 324 165 000 000	
16	<u>O-ring</u> ID: 273 111 104 025	

Lubrication pump MMP

Item	Description	Figure
17	<u>Electric motor</u> Electric motor 24 V DC ID: 8 45 2466 Electric motor 12 V DC ID: 8 45 2467	
18	<u>Connector</u> ID: 358 000 794 238	
19	<u>Connector coupler plug</u> ID: 358 000 704 228	