Multi outlet pump unit

GMF (with motor)
PMF (without motor)

Translation of the original operation manual

Version EN 02/2019

Translation
With delivery into member countries of the European Community, this operating manual has to be translated into the user's language. If details of the translated operating manual do no coincide with the original ones, then the original operating manual (German) is to be referred to for clarification or the manufacturer to be contacted.

Table of content

1. Important information on this operating manual

This operating manual forms part of the machine and has to be made available to the operating and maintenance staff at any time.
The safety instructions specified herein have to be obeyed.
If the machine is traded, the operating manual is to be included in the shipment.

In addition to this operating manual, the current laws and regulations of the user's country have to be considered as well, in any case.

1.1 User

This operating manual has been written for technically qualified users, who have been instructed or trained for the operation of this pump unit.

1.2 Obligation to read

As owner and user of this pump unit, you are obliged reading and understanding this operating manual, in particular the chapter "Safety instructions". It is your safety that is dealt with. In case of question and doubt, please get in contact with WOERNER.

1.3 Questions: What to do?

If questions arise, which you cannot solve with this operating manual, do not hesitate asking WOERNER for support. In such case, describe the problem as precisely as possible.

1.4 Operating manual

1.4.1 Validity

This operating manual fits to the series design of the multi outlet pump units GMF and PMF. If some sections of the operating manual refer to some special versions, then it will be especially pointed to.

1.4.2 Content and purpose

This operating manual delivers all the relevant information for start-up, operation and maintenance of the pump unit to assist you using the unit efficiently as well safely according to its design and intended purpose of use.

1.4.3 Site of operation

Make the operating manual available to the users at their workplace at any time.

1.4.4 Meaning of the safety instructions and safety signs

Safety instructions

The pictograms and warning words used in safety instructions, safety rules and references of this operating manual do mean:

Danger!	Immediately threatening danger that may lead to heavy body injuries.
Warning!	Possibly dangerous situation that may lead to heavy body injuries.

Caution!	Possibly dangerous situation that may lead to slight body injuries.
Caution!	Warning of material damage.

Note!	Possibly dangerous situation that may lead to possible damage to the product or objects in its environment.
Important!	Instructions for use and other useful information that facilitate usage of the product according to its design.

Danger!	Immediately threatening danger by electric current that may lead to heavy body injuries.

2. Identification

2.1 Product mark and type designation

Piston pump unit of the manufacturer Eugen Woerner GmbH & Co. KG

Product types: GMF and PMF

2.2 Product version

Version from the year of production July 2015

2.3 Product denomination

The identification plate has been attached to the side of the pump case and informs on:
Manufacturer
Type (GMF)
No. <order number> (for example, 612345/1)
Year of production

2.4 Manufacturer and address

Eugen Woerner GmbH & Co. KG
Hafenstrasse 2
DE-97877 Wertheim

Phone +49 9342 803-0
Facsimile +49 9342 803-202
Net www.woerner.de
E-Mail info@woerner.de

2.5 Conformity

The pump unit meets the provisions as specified in the EC-directive for machines (2006/42/EC).

Declaration of conformity, see annex (chapter 11)

3. Product description

3.1 Use

The pump unit has been exclusively designed for the supply of lubricating oils and greases up to the NLGI-class 3.

3.2 Limits of application

The range of application of the pump unit has been limited as follows:

Temperature range		
without motor:		-20 ... +80 °C
with motor:		-20 ... +40 °C
Adm. supply pressure:		max. 350 bar
Medium:	Oil and grease up to consistency class 3	

Depending on the real version, the application limits can be further restricted. The further restrictions are pointed to later in details in this instruction manual.

In addition, the range of application of the pump unit is determined by the medium to be supplied. Therefore, to finally define the range of application, consult also the technical data sheets of the medium to be used.

3.3 Environmental conditions

Operating this pump unit in aggressive atmosphere (vapour of solvents, acids, bases, salt water mist, etc.) may cause damage, respectively corrosion of components and consequently, failure of the equipment and hazards due to emerging lubricant!

Ambient temperature range

lower limit temperature:		-20 °C
upper limit temperature	without motor:	+80 °C
	with motor:	+40 °C
Relative air humidity:		max. 70%

Noise level: <70 dB(A)

Physical environment
If the equipment is planned to be operated at a level higher than 1,000 m above sea level, consult the manufacturer, in every case.

3.4 Use according to design

The pump unit must be exclusively used for the supply of lubricating oils or greases in central lubricating installations, which the following conditions have to be considered for:

- Observance of the safety instructions and safety rules in this operating manual.
- Compliance with the maintenance and service instructions in this operating manual.

Any other usage or any usage beyond the designed one may lead to heavy personal and material damages.

Forbidden: Supply of gases, liquefied gases, gases solved under pressure, vapours and other liquids, whose saturation pressure exceeds 0,5 bar above the normal atmospheric pressure (1013 mbar) at the admissible maximum temperature, also highly flammable or explosive media as well as foodstuff!

Important! Please consider the safety specification sheets of the applied substances as well!

3.5 Technical data

3.5.1 Components

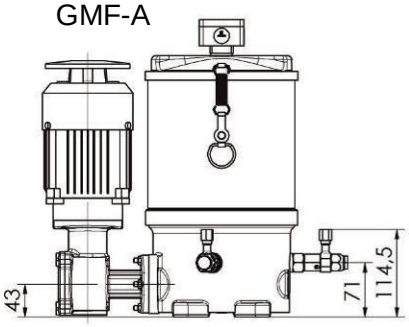
The pump unit GMF consists of 4 components:

- Pump body
- Pump elements
- Reservoir with filling level switch (optional)
- Drive

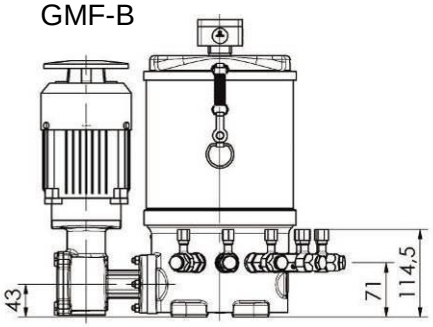
3.5.2 Dimensions

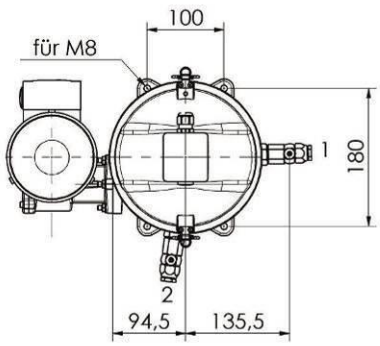
The following drawings depict the dimensions of the multi-outlet pump unit GMF. The dimensions may vary according to type:

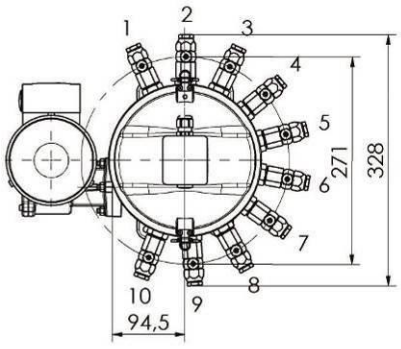
GMF-A



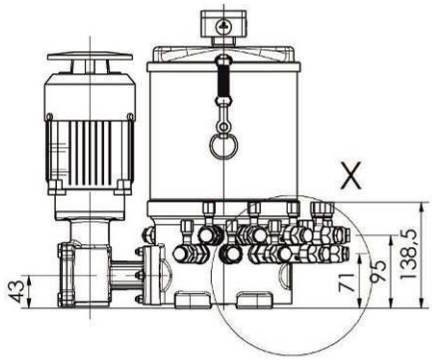
GMF-B

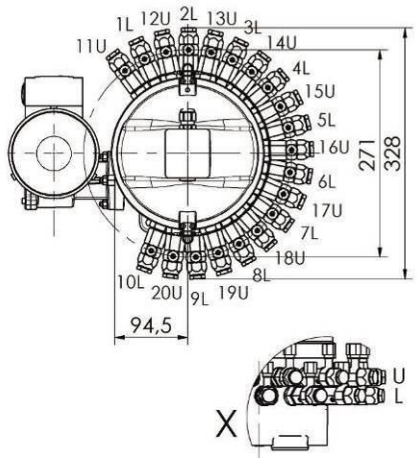




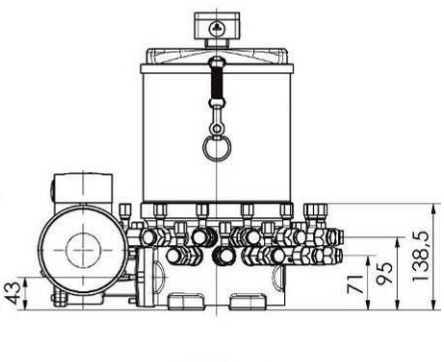


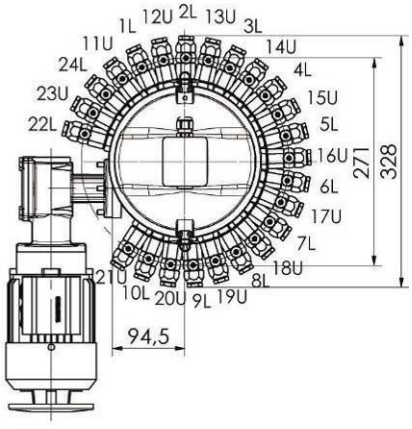
GMF-C



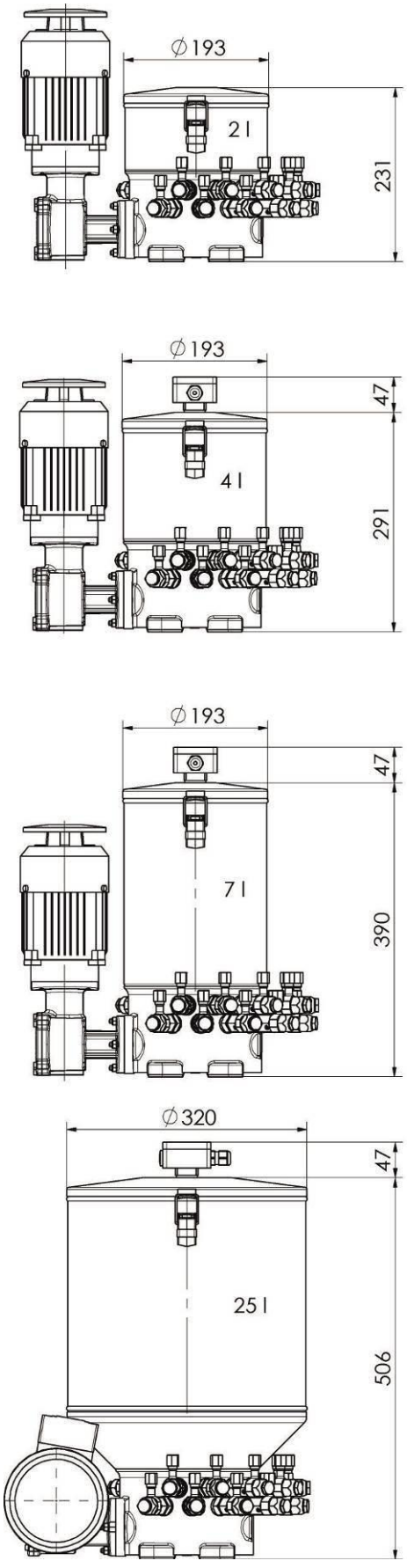


GMF-D

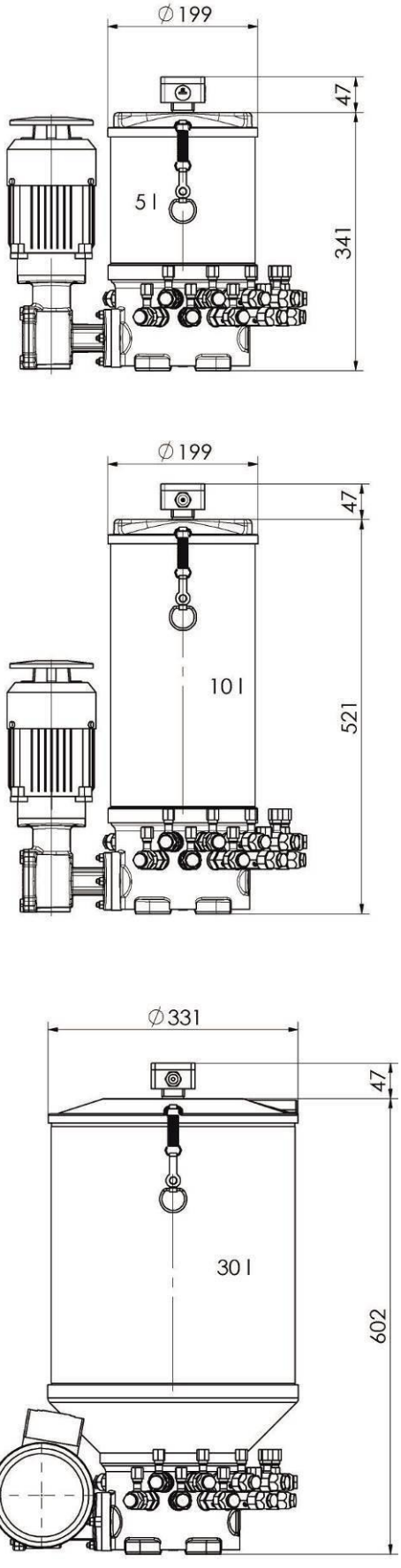




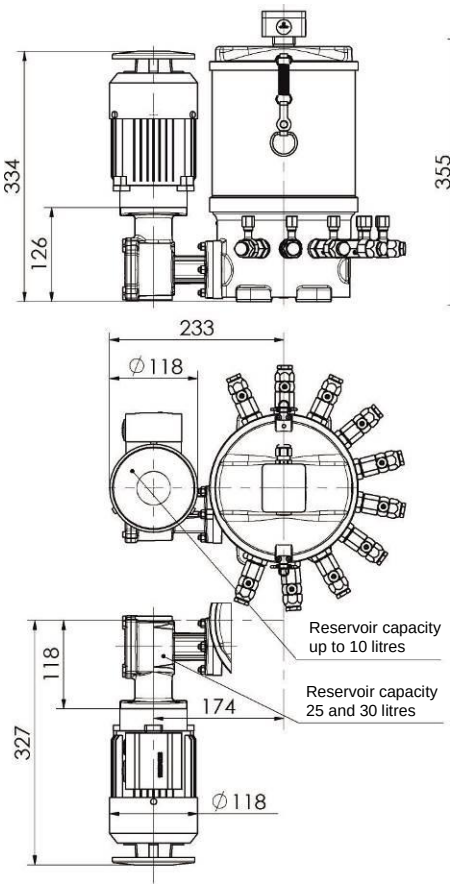
Reservoir made from special steel



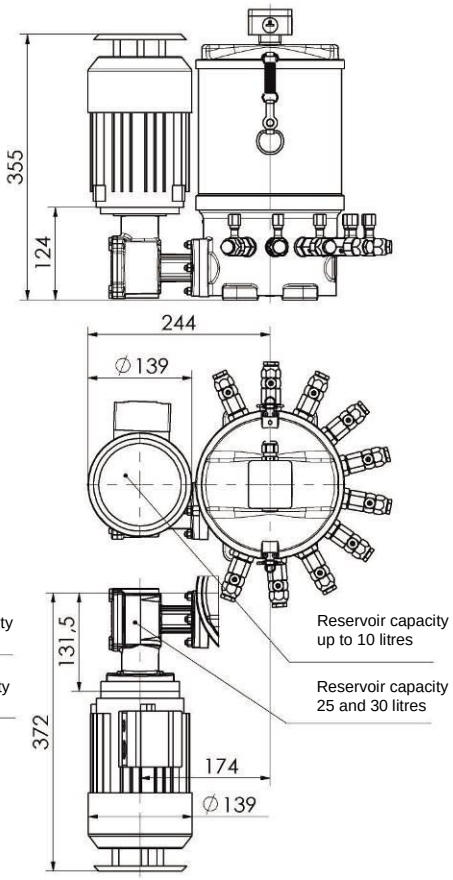
Reservoir made from polyester



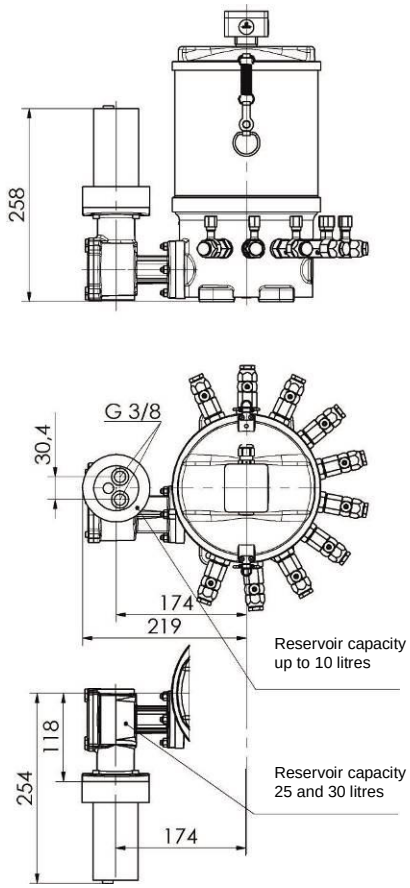
Drive "M"



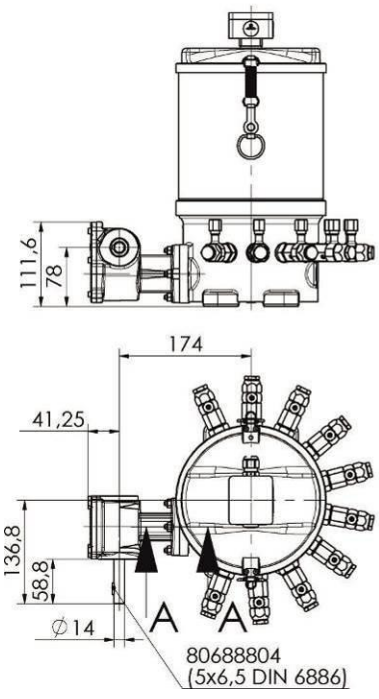
Drive "N"



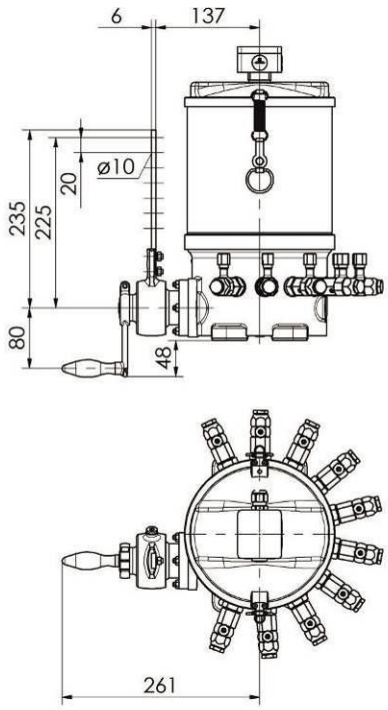
Drive "L"



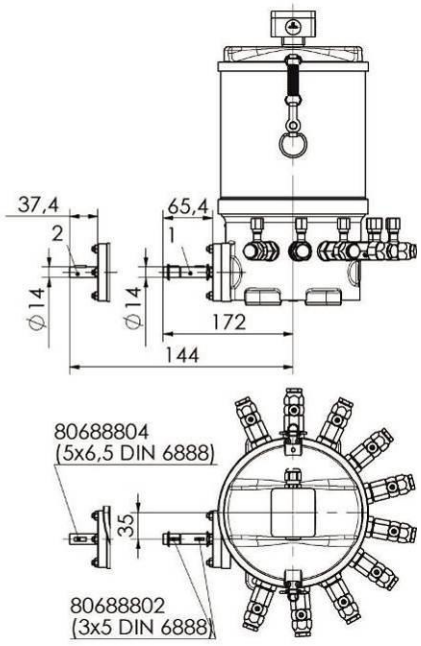
Drive "V"



Drive "O"



Drive "R", "U"



3.5.3 Weights

The weight G of the pump unit is composed of the following components according to type:

- Pump body with drive P
- Reservoir B
- Follower piston (optional) FK
- Filling level switch (optional) FS
- Pump elements PE

The weight is calculated as follows:

G = P + B + FK + FS + PE x number of PE

Weight of the pump case with drive (P):

Drive	M	N	L	V	O	R, U	P
Weight	10,6 kg	12,8 kg	8,3 kg	7,9 kg	7,1 kg	5,2 kg	5,1 kg

Weight of the reservoir (B):

Material	Special steel				Polyester		
Capacity	2 l	4 l	7 l	25 l	5 l [1)]	10 l [2)]	30 l [3)]
Weight	1,1 kg	1,3 kg	2,2 kg	3,8 kg	1,6 kg	1,8 kg	4,3 kg

[1)] with follower piston 2,5 l
[2)] with follower piston 7,5 l
[3)] with follower piston 24 l

Weight of the follower piston (FK)
for reservoir 5 and 10 l: 0,8 kg
for reservoir 30 l: 2,7 kg

Weight of the filling level switch (FS): 0,18 kg

Weight of the pump element (PE): 0,3 kg

3.5.4 Pump specification

The GMF is made up of the pump case with pump elements, attached reservoir and drive.
Technical data of the pump unit:

- Number of pump elements
  - GMF-A max. 2
  - GMF-B max. 10
  - GMF-C max. 20
  - GMF-D max. 24
- Volumetric displacement per stroke
  - every pump element 6 adjustable max. 0,08 cm^3
  - every pump element 8 adjustable max. 0,15 cm^3
  - every pump element 22 0,22 cm^3
- Number of strokes of the elements 1 … 25 min^{-1}

- Admissible supply pressure — 350 bar
- Temperature range — without motor: -20 … +80 °C; with motor: -20 … +40 °C
- Material — Pump body: Aluminium; Pump element: Steel; Reservoir: Special steel / polyester; Seals: NBR

3.5.5 Drive specification

3.5.5.1 Motors "M" and "N"

- Mains voltage — 230/400 V
- Frequency — 50 Hz
- Synchronous speed — 1500 min^{-1}
- Power — Drive "M": 0,18 kW; Drive "N": 0,37 kW
- Protection class — DIN EN 60529 IP55
- Temperature class — F

The maximal admissible operating pressure depends on motor as well as total transmission ratio and amounts to:

Overall trans-mission	Delivery volume ** per element cm³/min		max. operating pressure bar (with 20 elements installed)			
			Drive "M"		Drive "N"	
	Element ø6	Element ø8	Element ø6	Element ø8	Element ø6	Element ø8
60:1	1,8	3,4	230	100	350	200
97:1	1,1	2,1	330	170		350
160:1	0,7	1,3	350	270		
316:1	0,4	0,7		320		
625:1	0,2	0,3		350		
1250:1	0,1	0,2				
2500:1 *	0,05	0,1				

* on request only ** Benchmarks

3.5.5.2 Hydraulic motor "L"

- Power (with oil flow 3,5 l/min) — 0,25 kW
- Speed (with oil flow 3,5 l/min) — 400 min^{-1}
- Speed — max. 1950 min^{-1}
- Pressure drop — max. 100 bar
- Oil flow — max. 16 l/min

3.5.5.3 Oscillating drive "O"

The eccentric stroke required for the oscillating drive is calculated with the following formula:

$$h = 2 \times L \times \pi \times n_1 \times i \times n^{-1}$$

h	Eccentric stroke	mm
L	Rocker arm length	mm
n_1	Number of strokes of the pump elements	min^{-1}
i	Transmission ratio	
n	Drive shaft speed	min^{-1}

Transmission ratio i:

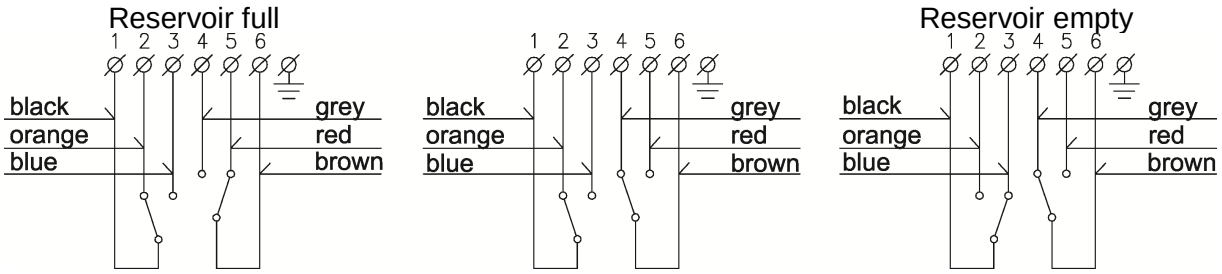
1,33:1	1,78:1	2,33:1	4,25:1	7,66:1	12,7:1	25:1	50:1	66:1

3.5.6 Filling level monitoring specification

The (optional) filling level monitoring is characterised by the following technical data:

- Switching power max. 40 W / 60 VA
- Switching voltage max. 230 VUC
- Switching current max. 0,5 A
- Protection class DIN EN 60529 IP65
- Connection Threaded terminals
- Cable inlet M16x1,5
- Wire cross-section 0.5 … 1,5 mm²

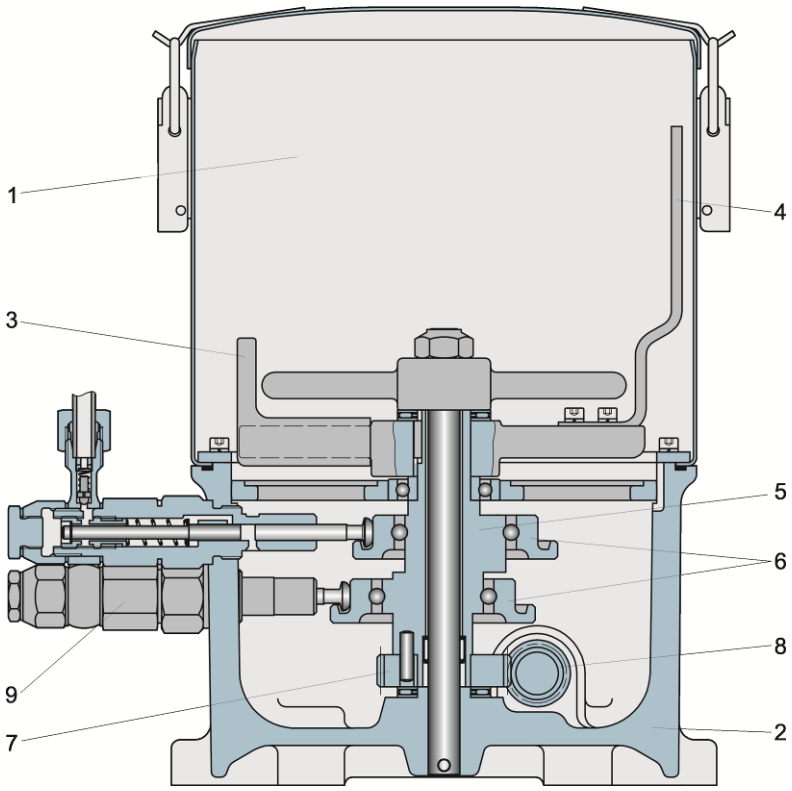
Connecting diagram:



When inductive or capacitive loads are to be connected, appropriate protective devices (diode, RC-element, varistor) have to be installed

4. Description of function

4.1 Components



1 Reservoir
2 Pump case
3 Agitator
4 Agitator blade
5 Pump shaft
6 Pressure ring
7 Worm wheel
8 Worm
9 Pump element

4.2 Drive

4.2.1 Motor

The pump unit is motor-driven through a right-angle gearbox flange-mounted on the side of the pump case.

4.2.2 Hydraulic motor

The pump unit is driven by hydraulic motor and right-angle gearbox flange-mounted on the side of the pump case.

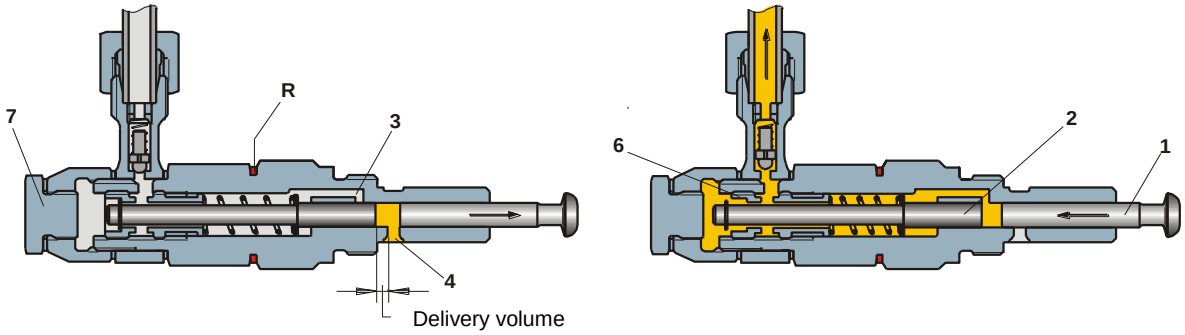
4.2.3 Oscillating drive

An external eccentric transmits a longitudinal movement onto a rocker arm. In a gearbox, the oscillation is converted into rotation to drive the worm shaft in the pump case.

4.3 Function

The drive puts the pump shaft into rotation through a worm gearing. Together with this pump shaft, a pressure ring rotates eccentrically, which the pump elements are hung in. Due to the eccentricity of the pressure ring related to the pump shaft, each displacing piston passes, mechanically operated, through equally long pressure and suction strokes with every revolution of the pump shaft. The function of the pump elements will be explained later. An agitator is linked with the pump shaft forcing the lubricant to the suction borehole of the pump elements to comminute air bubbles.

4.4 Pump elements



The displacing piston **1** and control piston **2** generate the suction stroke. For that purpose, the eccentric shaft moves the displacing piston **1**, whilst a spring actuates the control piston **2**. The control piston closes the pressure borehole **3** and stops at a defined position according to the adjusted delivery volume. The displacing piston continues traversing and produces a vacuum in the measuring-out chamber and the lubricant is taken in from the reservoir by the displacing piston after opening the suction borehole **4**.

For the pressure stroke, the displacing piston **1** travels to the left to shut the suction borehole **4** and the control piston **2** is displaced by the lubricant enclosed between displacing piston and control one until the control piston opens the pressure borehole **3** to enable the displacing piston to feed the lubricant to the outlet.

The pump element having a piston diameter of 8 mm = 0,15 cm³/stroke is marked with a red ring **R**.

Adjustment of the delivery volume:
The delivery volume can be reduced to a minimum of about 25% of the rated one. For that purpose, take the following actions:

- Turn out the plug screw **7**.
- Set the required delivery volume at the adjusting nipple **7** with the wrench included in the delivery.
  Clockwise turn: Reducing the delivery volume.
  Anticlockwise turn: Increasing the delivery volume.
  The adjusting nipple features a hexagon, against which a spring-loaded piston exerts pressure in radial direction. In this way, the delivery volume is prevented from automatically changing. At the same time, this type of locking serves as a measure for the adjustment of the delivery volume. Six notches correspond to one turn of the adjusting nipple and reduction by approximately 33% of the rated volumetric displacement. As for precise adjustment to a defined delivery volume per stroke, a volumetric prove-measurement has to be taken. The pump elements are delivered adjusted to maximum volumetric displacement.
- Turn in the plug screw **7**.

5. Safety instructions

5.1 Fundamental

The pump unit is shipped from the works in faultless condition and guarantees high technical safety.

The pump unit complies with the rules of technology as well as current labour safety and health protection regulations. There is, however, danger in case of maloperation and abuse for the:

- Body and life of both users and third parties,
- Pump unit or other material values of the users, and
- Efficient usage of the pump unit.

5.2 Required users' skills

Persons, who work with and on the pump unit, have to be authorised and instructed accordingly by the user. They must be able detecting and eliminating possible danger. For that purpose, knowledge on accident prevention rules, first-aid measures and local rescue equipment is imperative.

Technically skilled staff properly instructed on the product is allowed to carry-out inspection, service and maintenance only.

Skilled electricians are the only ones permitted to intervene in electrical installations according to DIN VDE 1000-10.

For planning and inspection of the work, specialists with product-specific training are responsible.

5.3 Safety devices

From mechanical aspect, the pump unit is inherently safe due to its design.

The pump unit must be operated only with the lid of the reservoir closed.

5.3.1 Reservoir lid

The reservoir lid is locked by two fasteners as shown in this picture.
In normal use both fasteners must be closed.
If it´s necessary to open the lid it is mandatory to follow the instructions below.

Always ensure that the pump is switched off before opening the lid!

Description

Locking hook

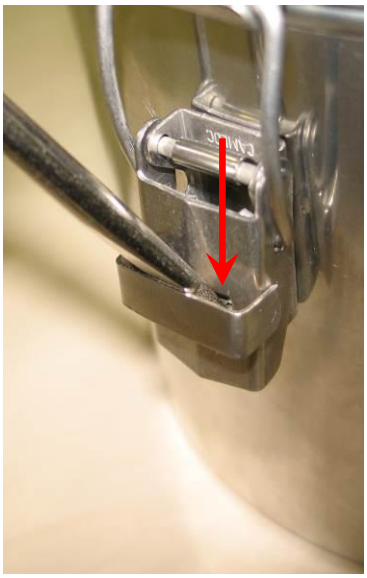
Locking lug

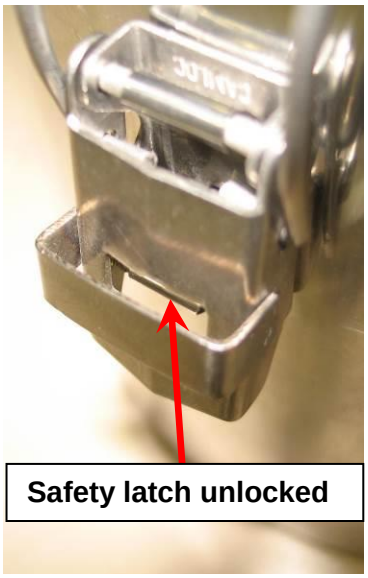
Safety latch (locked)

Safety cover

Locking lever

Opening





Step 1: Push the safety latch with a suitable tool from top.
Step 2: After safety latch is unlocked, lift the locking lever and release the locking lug from the locking hook to fully unlock the fastener.
Step 3: Repeat step 1 and 2 for the second fastener.

Closing

Before locking the fasteners, make sure that the locking lugs are hung in the locking hook.

Step 1 Push the locking lever until the safety latch snaps in (audible "klick").
Step 2 Repeat step 1 for the second fastener.

Warning! **Try if safety latch is snapped in by pulling the locking lever.**
Lifting the locking lever is not possible if the safety latch is in the locked position.

5.4 Accident prevention

Stick to these measures to prevent accidents:

- Hinder unauthorised persons from access to the pump unit.
- Keep foreign persons away from dangerous areas and dangerous sites.
- Inform repeatedly present foreign persons on residual dangers. As for residual dangers, see section "Residual dangers".

5.5 Residual dangers

As regards the pump unit itself, there are no residual dangers for persons and equipment if that pump unit is used according to its design as well as intended purpose, and the specified cycles as well as measures for maintenance and service are kept.

If the pump unit is delivered with the media pre-filled, then consider the product and safety sheets of the filled-in medium in addition to this instruction manual.

5.6 Improper use

If the pump unit is used for purposes other than specified and agreed upon, there is danger for heavy damage to both persons and equipment.

Referring to experience, improper use may include, for example:

- Supply of highly flammable or explosive media.
- Supply of media, which are able reacting with materials the pump unit has been made of.
- Supply of foodstuff.

5.7 General safety regulations and duties

In general, using the pump unit the following safety regulations and duties are to be complied with:

- Consider the generally accepted rules for labour safety. This is also true, in addition, for the current basic rules on labour safety and accident prevention on the site of operation.
- When used in vehicles, obey to the generally accepted rules and regulations of the Road Code.
- As user comply with the regulations for the usage of working equipment.
- Operate the pump unit in clean and faultless state only.
- Never remove, modify, bridge or neglect any protection, safety and monitoring equipment, in no case.
- Do not reconstruct or modify the pump unit.
- Report faults or damage to the user.
- For repair, incorporate original spare parts only.
- The user has to inspect and maintain in good condition all the protection, safety and monitoring equipment on a regular basis.
- After each repair, make sure that the pump unit is in faultless state and take a test run.

5.8 Exclusion of liability

If damage to persons, equipment, environment and assets occurs due to ignoring this operating manual regardless if intentionally or unintentionally, WOERNER shall not be held responsible. No claim for warranty will be accepted. This is also true for any consequential damage.

5.9 Specialities for types built in compliance with the provision 2014/34/EU (ATEX)

- The multi-outlet pump unit was designed for an ambient temperature range of -20 ... +80 °C.
- Install the multi-outlet pump unit apart from directly adjacent electrical equipment. (EN1127-1 sections 5.3.5 … 5.3.9)
- The multi-outlet pump unit and all the metallic as well as electrically insulated attachments have to be integrated into the existing potential equalization system. Pipes and connected components have to be grounded.
- Static charges on parts made from synthetic material and cables have to be excluded.
- For cleaning surfaces of parts made from synthetic material use wet cloth only.
- When, within the equipment, separating a potential equalization or a part with potential equalization from a metallic component, for example, during repair work, then a connecting line of appropriate cross-section has to be installed for bridging, when an electrically conducting connection was interrupted.
- As for cleaning and maintenance intervention, make sure that no inflammable sparks can be generated by friction and shock.
- Replace corroded components.
- Consider the operating manuals of attachments, in particular the ones of electrical components.
- As for drives, which do not meet the stipulations of the operating manual, the user shall carry out an ignition hazard assessment.
- Motor-based drives with valid EC-prototype examination are allowed to be incorporated only.
- The drive power must not exceed 0,37 kW.
- In case of failure and/or faults, get the pump unit checked and repaired by competent personnel or WOERNER themselves.
- Dismantle the pump unit and handle the single parts exclusively **outside of potentially explosive areas**.

6. Transport, installation, start-up and putting out of operation

6.1 Transport

Transport the pump unit cautiously to its destination. For that purpose, make use of proper equipment (for example, handcart, or the like).

6.2 Unpacking

Lift the pump unit carefully from the packaging and place that unit on a stable as well as plane support.

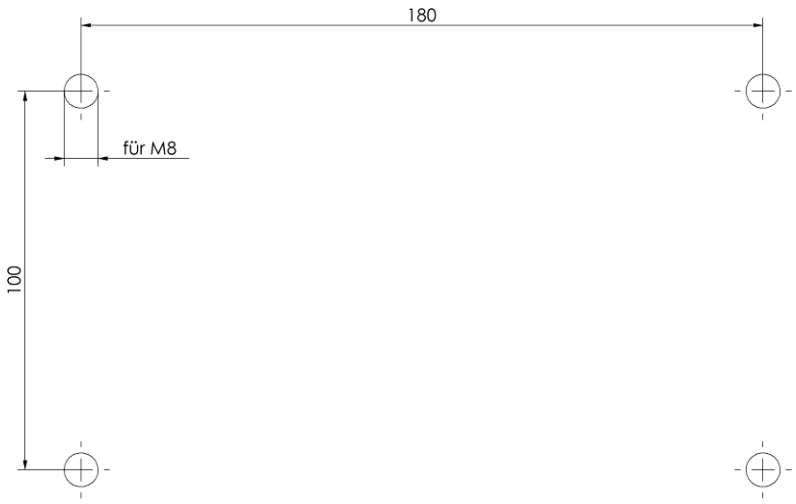
Note!	Consider that inside the pump unit and components attached according to the bill of delivery, there might be residues of blue-coloured test oil.

6.3 Installation

The pump unit is prepared for being mounted on floor by means of four screws M8. The mounting area has to be that stable to be able absorbing the weight of the pump unit including the filled reservoir. **In addition, make sure that the mounting surface is plane**.

As for the installation the pump unit take necessary prevent measures to protect the unit from unintentional shocks.

Drilling pattern:



6.4 Power supply and powering-up

6.4.1 Motor

Important! Compare the indications of the local voltage supply with the technical data of the pump unit.

Important! Lay the mains cable that way to prevent any unintentional tearing off.

Important! Skilled electricians are the only ones allowed to intervene in electrical installations according to DIN VDE 1000-10.

Connect the pump unit to the voltage supply.
Before starting-up, double-check the installation for correct electrical connection.

Warning!
There is danger to life when intervening into the electrical installations!

Skilled electricians are the only ones allowed to intervene in electrical installations according to DIN VDE 1000-10.

6.4.2 Hydraulic motor

Important! Compare the pressure of the local hydraulic supply with the technical data.

Important! Lay all the lines that they are protected from unintentional tearing-off.

Important! Skilled electricians are the only ones allowed to install connections.

Connect the pump unit to the hydraulic line.
Before starting-up, inspect the correct installation of the connections.

6.4.3 Oscillating drive

Link the eccentric with the rocker arm of the pump drive. Before starting-up, check the rocker arm for proper length depending on the eccentric stroke (as for the formula, see section 3.5.5).

Important! Improperly set-up rocker arm length may lead to damage of the pump.

6.5 Start-up

The function of the pump unit was checked in the workshop. Thus, the pump unit is ready for use and can be connected to the local power supply system.

Important! Observe the safety instructions in section "Power supply and powering-up".
First fill lubricant and then start the pump unit, in every case.
The filling level must not be lower than 10-15 mm above the reservoir's bottom edge.

Actions to be taken for start-up:

a) Filling the pump unit with lubricant

Operate the pump unit with clean oil or grease from original packages only!

The pump unit is to be filled with grease the very first time through the filling nipple in order to ensure that the suction chamber of the pump is kept free of air bubbles.
Recommendation: Alternatively, fill the pump the very first time with gear oil up to the agitator blade to provide for faster and better ventilation. While doing so, however, select such kind of gear oil, which is compatible with the lubricant to be filled!

Danger of injury when reaching with your hands into reservoir with the pump unit running. Before reaching, separate the pump unit from the power supply.

b) Venting of the pump unit

Venting on the pump element
For that purpose, switch-on the pump unit with the lubricant feeding lines not installed as many times as necessary to have the lubricant emerging at the outlet without air bubbles.

c) Connecting the lubricant feeding lines

Make sure that the lines feeding the lubricating point have been cleaned and enable free flow!

Link the outlets of the pump elements to the lubricant feeding lines. These lines must be clean and enable free flow. Connect the lubricant feeding lines to the points to be fed only, when the lubricant emerges from the respective line without air bubbles. Inspect every connector of the lubricant feeding lines for tightness and lubricating points for free lubricant supply.

Beware that the pump unit can build up a maximum pressure of far beyond 500 bar depending on the ambient conditions!

Warning! If the pump unit has not yet been equipped with pressure relieving valves at the date of shipment, the lubricant feeding lines are to be completed with suitable protective elements in order to avoid overload of both the pump and lubricant feeding lines.

Warning! Pump pressure above the admissible operating pressure of 350 bar may lead to destruction of the installation and health-hazardous situations!

6.6 Putting out of operation

The pump unit is put out of operation by switching-off and deinstalling from the external power supply.

7. Operating manual

7.1 Trouble shooting and remedy

No.	Failure	Cause	Remedy
1	No lubricant supply	Power supply failed.	Inspect the terminals. Check the controller for power supply.
		Reservoir is empty.	Refill lubricant. Vent the pump unit and lubricant lines.
		Air in the lubricant lines.	Fill the lines with lubricant.
		Improper lubricant for the actual application.	Replace the lubricant in the entire equipment.
		Leaky line system.	Seal the leaky spot.
		The multi-outlet pump unit is blocked.	Get the multi-outlet pump repaired.
		Pump element failed.	Replace the pump element.
2	Lubricant pressure too high	Piping system or lubricating point obstructed.	Test the line system for free flow. Dismantle the obstructing components and clean or replace them.
		Improper lubricant for the actual application.	Replace the lubricant in the entire equipment.
		Pipe cross-section too small.	Replace the pipes with ones having a larger cross-section.

If the above described trouble shooting guide should not successfully work and the proposed remedy does not help eliminating the fault to restore the proper function of the pump unit, please get in contact with WOERNER.

7.2 Refilling the reservoir

If the equipment is operating with oil, refill directly into the reservoir.
If the equipment is operating with grease, refilling by filling pump through the filling inlet is recommended. In this way, the medium is filled without air and dirt, to large extent.

Important!	For opening the reservoir lid always follow the instructions from chapter 5.3.1 of this operation manual!
Important!	For refilling the reservoir from above through the opening always ensure that the pump is switched off before opening the lid!
Important!	With filling-level control and follow-up piston: Before re-filling the tank, take out the follow-up piston from top and assemble, then!

7.3 Powering down

Powering down is by disconnecting the pump unit from the power supply.

8. Cleaning, servicing, fault remedy and repair

Note!	Skilled technicians provided with product-specific training as well as basic mechanical knowledge and professional experience are the only ones allowed for maintenance and repair.
Important!	For cleaning, maintenance and repair always disconnect the pump unit from the power supply and lock the unit from re-switching on.
Important!	While working on the pump unit and even during your absence, ensure that no other person can introduce changes or create another situation meanwhile.

8.1 Cleaning

Important!	Do not clean the pump unit with a high-pressure cleaning device or compressed air.
Important!	Do not spray-off the pump unit with water.
Important!	Using solvent-containing cleaning agents, there is danger of damage to components.

The pump unit may be cleaned with commercial agents. Before starting cleaning, make sure that such cleaning agents do not harm the materials the pump unit has been made from.

8.2 Maintenance

Warning!	There is danger of injury when safety and protective elements are removed, modified, bridged or put out of function for maintenance and service purposes. Consider the dangerous spots especially described in the chapter Safety instructions. Take effective measures to avoid injuries.

Important!	Consider also the maintenances instructions for the single components of the respecting operating manuals collected in the annex.

8.3 Inspection chart

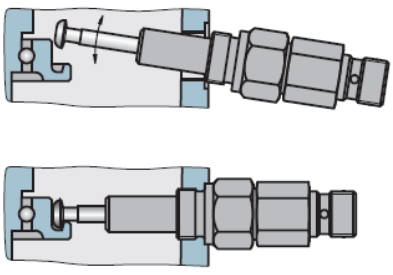
No.	Description	Interval
1	Inspect if the safety equipment has been installed and works properly.	daily
2	Inspect the lubricant lines and connections for mechanical damage and leakage.	monthly
3	Inspect the pump unit and components for mechanical damage and leakage.	weekly
4	Check the gear oil.	
4a	Drive "O", filling quantity 15 cm³, gear oil ISO VG 220.	3,000 operating hours
4b	Drives "L", "M", "N" und "V" from July 2013.	maintenance free
5	Check the filling level of the pump unit.	weekly

8.4 Repair

Replacing the pump element:

Note!	Before dismantling the pump element, drain the reservoir, otherwise lubricant may escape.
Note!	When dismounting the pump element make sure that the displacing piston is removed from the reservoir as well. If not, the pump may be damaged and consequently, fail.

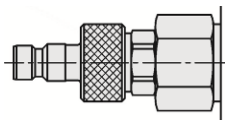
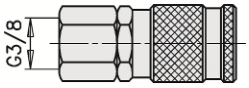
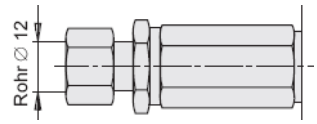
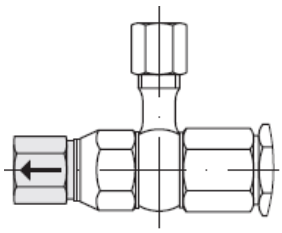
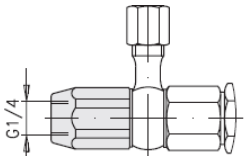
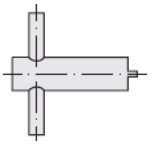
Cautiously screw out the pump element. Replace the pump element by a spare one.
Assemble the pump element as follows:



- Insert the pump element, with the displacing piston pulled out by its half, under an angle to top into the supporting bore of the case.
- Tilt the pump element downward as soon as the displacing piston head rests on the pressure ring and engages into the slot of the pressure ring.
- Screw in the pump element.

Fill the borehole of the pump element supporting the displacing pistons with grease to facilitate both assembly and start-up.
For any further repair, please contact WOERNER.

8.5 Accessories

Designation	Order-no.	
Filling port:		
Seal nipple "V" with dust-protection cap	**110.127-65K**	
Seal coupling with dust-protection cap	**110.135-65K**	
Filling nipple "B"	**110.550-66K**	
Pressure relieving valve:		
Pressure relieving valve 70 bar	**110.566-65**	
Pressure relieving valve 150 bar	**110.564-65**	
Pressure relieving valve 400 bar	**110.560-65**	
Pressure relieving valve set to customer's specification, 50 … 160 bar	**110.568-65**	
Pressure relieving valve set to customer's specification, 160 … 250 bar	**110.562-65**	
Additional accessories		
Gauge port G 1/4	**110.068-65K**	
Function display	**752.528-69**	
Adjusting wrench	**110.004-65**	

8.6 List of spare parts

See data sheet E9501.

9. Return to manufacturer

The safety and health of our employees, the regulation on hazardous substances GeFStoffV, the regulations for safety at the workplace and regulations for disposal of used oil require filling in the form "Declaration of harmlessness" for all the products, which are returned to our works.
Without this declaration accompanied to the return shipment, the returned goods will not be accepted.

In order to quickly proceed, please send to us in advance the completely filled-in copy of the declaration of harmlessness. The original has to be attached to the freight bill.

In order to be able estimating the damage and repair expenditure of the goods without delay and in economical manner, we need in addition the precise description of the complaint and conditions of use.

Quotations are drawn up only, if explicitly demanded. Such quotation is to be paid for.

If the order for repair is placed or a new product purchased instead of the repair, then the arising costs will not be charged for, respectively, the quoted costs will be compensated for.

If, after receipt of the quotation, no repair is decided for, then the product will be returned at the sender’s charge!

Before shipping the product, make sure that the following measures have been taken:

- **Empty and clean the product.**
- **Plug all openings.**
- Pack the product safely and attach complete shipping documents.
- Attach the declaration of harmlessness.

Declaration of Harmlessness

Firm:	
Address:	

We herewith confirm for the product(s) returned from us that

Product designation:	
Woerner order number:	

1. **All the components have been completely drained and cleaned,**
2. **the remaining residual contaminations are free of health and environment hazardous substances, and**
3. **the substances used in the product(s) correspond to the instructions in the product documentations regarding intended purpose of application and use according to design. The respective safety sheets have been attached.**

Date of return:	
Name, position:	
Phone number:	
Date, signature:	
Firm stamp:	

Appendices:	☐ **Safety data sheet**

10. Disposal

When disposing the pump unit and its components, consider the current national laws and regulations of the user‘s country!!!

11. Appendix

11.1 Content of the declaration of conformity

We hereby declare that the product

Pump unit GMF
as of model year 2015

meets all relevant provisions of the directive on **Machinery (2006/42/EC)**.
Furthermore, the machine complies with all provisions of the Directive on **Electromagnetic Compatibility (2004/108/EC).**

The following harmonised standards were applied:

DIN EN ISO 12100

DIN EN 60204-1

DIN EN ISO 4413

If the pump is supplied to ATEX specifications, a separate EG declaration of conformity will be supplied along with it.

In charge for documentation: Stefan Tiederle

11.2 Declaration of Conformity

EG-Konformitätserklärung

nach 2006/42/EG, Anhang II, Nr.1 A

EC Declaration of Conformity

according to 2006/42/EC, Annex II, No.1 A

Déclaration de conformité CE

selon la directive 2006/42/CE, annexe II, n° 1 A

Hiermit erklären wir, dass das Produkt / die Produkte	We hereby declare that the product / the products	Nous déclarons par la présente que le produit / les produits

PMF / GMF

Ab Baujahr	as of Model year	avec année de construction à partir de
	2016	
mit allen einschlägigen Bestimmungen der EG-Maschinenrichtlinie 2006/42/EG in Übereinstimmung ist. Die Maschine ist auch in Übereinstimmung mit allen einschlägigen Bestimmungen der folgenden EG-Richtlinien:	fulfils all relevant provisions of Directive 2006/42/EC. The machinery is also in compliance with all relevant provisions of the following EC-directives:	satisfait à l'ensemble des dispositions pertinentes de la directive 2006/42/CE relative aux machines. Cette machine satisfait également à toutes les dispositions pertinentes des directives CE suivantes :
	2014/30/EU	
Angewandte Normen:	Standards applied:	Normes appliquées:
	DIN EN ISO 12100: 2013 **DIN EN 60204-1: 2014** **DIN EN ISO 4413: 2011**	
	Herr Stefan Tiederle Eugen Woerner GmbH & Co. KG Hafenstraße 2 DE-97877 Wertheim	
ist bevollmächtigt, die technischen Unterlagen zusammenzustellen.	is authorised to compile the technical file.	est autorisé(e) à constituer la documentation technique.

Wertheim, den 20.04.2016

Dr. Sven Schultheis
- Geschäftsführer / managing Director / Directeur gérant