



Pump unit GMZ-E



Pump used to supply oil and grease from a barrel directly through a lid-hole or a bunghole.

## Technical data:

Delivery volume per stroke:					
Pump elen	0,08 cm <sup>3</sup> /stro	ke			
Number of stro	22 mi	n <sup>-1</sup>			
Number of pur	nts: 1 <sup>•</sup>	15			
Delivery press	350 b	ar			
Lubricant:					
Oil: V	iscosity >	180 (	зP		
		(200 cSt, 26 °	E)		
Grease: C	lass NLG	I 000	. 2		
from class	s 1 onwa	rd follow-up pla	ate		
required ac	ditionally				
Lubricant: The intended lubricant must be suitable for use with centralized lubrication equipment.					
Pipe connection	6, 8 and 10 m	m			
Temperature r	ange:	-10 +40	°C		
Lower or	higher	temperatures	by		
request.					
Seal material:		NBR (Perbuna	n)		
Electrical dat	<b>.</b> .				

### Electrical data:

Motor:	
Voltage:	
at 50Hz D/Y:	220-240/380-415 V
at 60Hz Y:	440-460 V
Current:	
at 50Hz D/Y:	1.21/0.7 A
at 60Hz D/Y:	1.07/0.62 A
Rated speed: 1)	1000 min <sup>-1</sup>
Power rating:	180 W
Protection type:	IP55
Insulation class:	F
(Other motors up	on request)
Level monitor: (pres	ssure switch)
Switching voltage AC	at max. 230 VAC
0 0	at max. 5 A
	inductive at max. 3 A
Switching voltage DC	C: at max. 125 VDC
0 0	at max. 0,4 A
ind	luctive at max. 0,05 A
Plug connector:	DIN 43650
Protection type:	IP65
<b></b>	
Connection diagram:	
0	
Switch position	
shown represents	
"barrel empty"	
(pump casing	I I I I
depressurized)	

<sup>1)</sup> With standard motor and 50 Hz frequency

Pump unit GMZ-E 111.460

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## Operation of pump:

The barrel pump consists of the following components:

Feed pump (15), pump housing (6), pump elements (1) and drive motor (3). The feed pump (15) is powered by the drive motor (3) via the vertical eccentric shaft (5).

## Phase 1

During the suction stroke the delivery piston (11) forced downward by the control piston (9) is pressed upward again by the compression spring (13). The vacuum resulting in the intermediate chamber (12) causes the lubricant to be drawn in via the non-return valve (14).

### Phase 2

During the next half revolution of the control piston (9), the delivery piston (11) is forced downward again and the lubricant contained in the intermediate chamber (12) is delivered in upward direction via the nonreturn valve (10).

### Phase 3

Further rotation of the control spool (9) through 180° results in a new suction stroke and the non-return valve (10) closing at the same time enables the spring-loaded delivery piston (11) to force the lubricant above it into the upper pump housing (6).

The level monitor (4) signals "barrel empty" when no more lubricant is delivered by the feed pump (15), however there is still lubricant left in the pump housing.

The vertical eccentric shaft (5) drives a pressure ring (7) to which the pump elements (1) are attached. Due to the eccentricity of the pressure ring (7) each delivery piston performs one constant delivery and suction stroke per pump shaft revolution.

The pump elements (1) draw accurately metered quantities of lubricant (dependent on element adjustment) from the lubricant reservoir in the pump housing (6).

- 1 Pump element
- 2 Vent screw G1/4
- 3 Gear motor
- 4 Level control5 Eccentric shaft
- 6 Pump casing
- 7 Pressure ring
- 8 Threaded connection G2

- 9 Control piston
- 10 Check valve 11 - Delivery piston
- 11 Delivery pistori 12 Intermediate chambe
- 12 Intermediate chamber
- 13 Pressure spring
- 14 Check valve
- 15 Delivery pump

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#### Pump elements mode of operation:

Suction stroke is accomplished by delivery piston 1 and control piston 2. In this process, delivery piston 1 is actuated by the eccentric shaft, whilst the spring actuates control piston 2. The control piston closes pressure hole 3 and is kept in a certain position as determined by the preset delivery volume. The delivery piston moves on, causing a vacuum to be built up in the proportioning space. When the delivery piston has opened suction hole 4, lubricant starts to be sucked from the reservoir.

In case of **pressure stroke**, delivery piston **1** moves to the left. In this motion, suction hole **4** is closed and control piston **2** displaced by virtue of the lubricant being available in between the delivery and control pistons until it releases pressure hole **3** and the lubricant is delivered through the delivery piston to the outlet. The pump elements are delivered with maximum delivery volume, i.e. they are set to full stroke.

The **delivery volume** can be adjusted continuously between 25 and 100% of the nominal delivery volume. After having removed lock screw **7**, the stroke is to be changed by means of the enclosed spanner through adjustment nipple **6**. When turning the nippe to the right, delivery volume will decrease. At the adjustment nipple, there is a hexagon against which a spring loaded piston is pressing radially. Thus, any independent change of the delivery volume will be prevented. At the same time, the latching serves as a measure for setting the delivery volume.

Six latches equal one rotation of the adjustment nipple and a reduction of the nominal delivery volume by 33%. 14 latches (minimum) equal a delivery volume reduction down to 25% of the nominal delivery volume.

# PMF pump elements assembly:

When fitting another pump element into the reciprocating pump, please proceed as shown in the sketch beside: With the delivery piston being approximately pulled out half, insert the pump element diagonally upward into the casing's reception hole. Insertion and operation will be easier when the hole that serves to accommodate the delivery piston is filled with grease. Do not put the pump element into horizontal position and screw in, unless the delivery piston's head touches the pressure ring and

ratches into the latter's groove. When demounting, pull the pump element cautiously out of the casing such that the delivery piston will remain within the pump element.

Delivery volume

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Pressure stroke

Subject to modifications -

Suction

R

5

stroke



## **Operating instructions:**

Direction of motor rotation: When connecting the motor make sure the drive shaft rotates counter-clockwise when viewing the fan.

The gear is maintenance-free filled with synthetic oil for its whole working life.

Venting:

Before putting the pump into operation remove the plug (2) to vent the pump housing.

The lubricant supply lines must be clean and allow free passage. Do not connect the lines to the lubrication point before the lubricant flows out bubble-free.

### Leak testing:

Inspect all supply line connections for leaks. No lubricant return lines may be connected to the pump unit.

Follow-up plate:

Caution! When using the follow-up plate, do not install it in barrels having deep indentations.

After installation press the rubber seal against the barrel wall.

### Caution:

Do not use any barrels with foil inlays!



Version	min. inner height h	Barrel dimensio Inner diameter d	ons max. outer diameter D	suitable for barrel with nominal filling capacity
1	850	550 570	610	200 I acc. to DIN 6644
2	540	340 360	385	50 I acc. to DIN 6644





## Ordering-example:

Pump unit GMZ-E; version for 200I barrel; with barrel cover; without transfer plate; 8 pcs. of element 6 with pipe connector Ø6; standard motor

## Order-designation:

GMZ-E.B / 1 / D / 0 / 8 / 0 / 0 / A

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## Spare parts:

Item	Designation	Order-no.
1	Drive motor 0,18kW, 230/400V, 50Hz other motors upon request	948.092-18
2	Inserted feather key A6x6x22	806.885-07
3	Coupling	111.431-64
4	Pressure switch	111.467-45
5	Drive complete incl. items 2, 3, 6, 7 and 8	111.425-65
6	Groove ball bearing 6204-2RS	912.000-11
7	Special groove ball bearing	912.001-01
8	Drive shaft	111.432-64
9	Ring piece 6	110.070-65
	Ring piece 8	110.080-65
10	Adjusting anonnar	110.090-65
10		110.004-65
10	Pump element 6	110.082-65
12	Version 1 Version 2	111.436-25 111.461-45
13	Coupling tube Version 1 Version 2	111.395-65 111.464-65
14	Grease follow-up plate Version 1 Version 2	111.451-65 111.462-45
15	Outer tube Version 1 Version 2	111.397-45
16	Feed pump complete incl.	111.385-65
	items 17, 18, 19 and 20	
17	Axial bearing	111.433-64
18	Inserted feather key	111.434-64
19	Compression spring 0,5x4,5x11	911.200-09
20	Compression spring 3,2x20x74	911.201-01
	Set of seals Pump	111.425-64
	Sealing grease follow-up plate Version 1	111.451-64

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- Subject to modifications -