

Appendix

Gear pump head M with gearbox



FILL-Systems GmbH
Leipziger Str. 33
01097 Dresden
Germany

TEL
+49 351 89 66 91-00

FAX
+49 351 89 66 91-99

MAIL
info@fill-systems.com

WEB
www.fill-systems.com

Gear pump head M with gearbox

© *FILL-Systems GmbH*, 21.05.2019

1 Gear pump head M



Fig. 1: Gear pump head M
(Art. 302045)

Fillable products

Using the gear pump head M, slightly viscous products with a viscosity of **about 0.1 - 1000 mPa·s**, can be filled.

To eliminate temperature differences and segregation, we strongly recommend processing the product by stirring well. The ideal processing temperatures for the gears are between 2 °C and max. 95 °C (chemical-resistant gears: 2 °C to max. 50 °C). The product may in general not contain abrasive ingredients (fruit pits, sand / clay particles, etc.). If necessary, the product must be filtered before filling.

The **flow** of the gear pump head M depends on the product to be filled and reaches about **17 litres/minute** (with water) at maximum capacity (**1400/min**).



Products at a temperature greater than 95 °C should never be filled with the gears (chemical-resistant gears: 50 °C). Gears and pump head housing have different dimensions, which would jam the gears and thus damage the pump head and the gears themselves.

Assembly and usage of the clamp

The clamp (**1**) is placed over the pump head in the provided grooves of pipe bend and filling pipe (see **Fig. 2**). This ensures the correct position of pipe bend and filling pipe and they are additionally secured to the pump head.

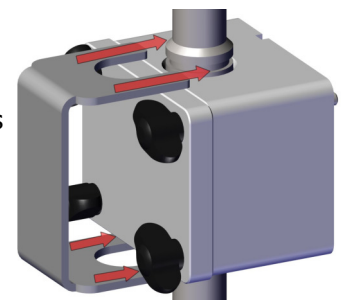


Fig. 2:
Assembling the clamp

Cleaning

To clean the pumphead (including filling nozzle and priming hose as per our recommendation), it can be removed from the gearbox and disassembled.

To do this, proceed as follows (see **Fig 4**):

- remove pump head from the gearbox by unscrewing both the wing screws (**2**) diagonally at top right and bottom left
- remove clamp (**1**) (see **Fig. 3**, reverse arrow direction)
- disconnect filling pipe and pipe bend from the pump head (therefor the clamp can be used as support (siehe **Fig. 3**))
- loosen wing screws (**3**) (bottom right and top left) and remove cover (**4**)
- remove cover gasket (**7**) from the frame and the gears from the housing (**8**).

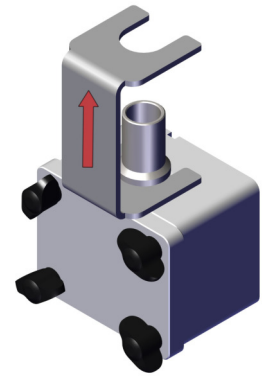


Fig. 3: Support for disassembling

Attention: The gears sit tightly on the shafts due to their very precise fitting. To facilitate removal, they can be lifted with a flat screwdriver through the openings for the filling pipes

- strictly avoid force and scraping etc.

Attention! Do not lose small parts.

Pump head housing (incl. shafts), gears and cover can now be cleaned, e.g. in the sink by hand (small parts) or in the dishwasher. Recesses can be brushed out or wiped with a small brush or a sponge respectively. Only commercially available dish washing / cleaning agents should be used for this purpose.

The assembly then takes place in reverse order. The O-rings of pipe bend and filling pipes are to be moistened with water or product before plugging in the pump head.

The gearbox is mounted / dismounted to the driving module by means of the two hexagon bolts. The gear pump head M is mounted directly to the gearbox. In case of a necessary cleaning, e.g. if some product got into the interior, the gearbox can also be completely disassembled and cleaned. For regular cleaning it is sufficient to wipe the gearbox with a damp cloth.

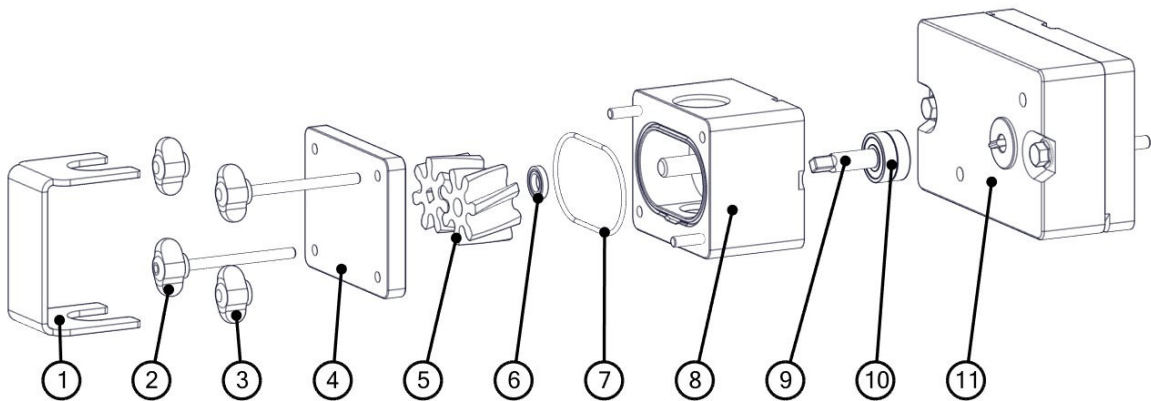


Fig. 4: Gear pumphead M with gearbox, exploded view drawing

Item	Number	Description	Wear part	Art.
1	1 pc.	Clamp		
2	2 pc.	Wing screw		
3	2 pc.	Wing nut		
4	1 pc.	Cover	x	
5	1 pc.	Pair of gears	x	302076
6	2 pc.	Shaft seal	x	307031
7	1 pc.	Cover gasket	x	
8	1 pc.	Pump head housing with passive shaft	x	
9	1 pc.	Driving shaft	x	307100
10	2 pc.	Ball bearing		
11	1 pc.	Gearbox, ratio 1:2	x	302070

The shaft seals (**6**) are generally to be replaced after 20,000 kg, but at least once a year. For the exchange of all seals on the pump head, we offer a seal sets: Art. 307107 (food grade).

The gearbox (**11**) is included in the scope of delivery, but is not a part of the gear pump head M.



The pump head must never be operated in a dry state, i.e. without product. Without the lubricating effect of the product, the synthetic gears would rub against one another and could thereby be damaged or destroyed. On the other hand, no lubrication is necessary with all other parts of the filling equipment.

2 Changing shaft seals, gears and driving shaft

Procedure as for gear pump head S (pictures therefore different).



Be careful when changing the shaft seals, not to damage any part of the pump head.

When assembling the shaft seals and the pump head, please pay attention to the order and installation direction according to Fig. 4.



Fig. 5: Gear pump head S, disassembled

Disassemble the gear pump head as described in chapter **Putting into operation: Pump head** (see **Fig. 5**).



Fig. 6: Press out the driving shaft

Press the square-shaped driving shaft (including ball bearing) out of the housing by light pressure with the finger (see **Fig. 6**).



Fig. 7: Remove the driving shaft



Fig. 8: Remove the shaft seals

Remove the two seal shafts one after the other out of the housing with a suitable tool (see **Fig. 8**).

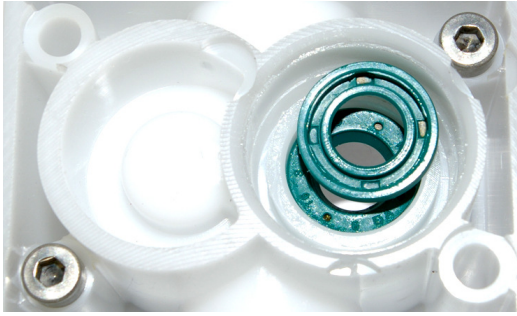


Fig. 9: Insert the shaft seals



Fig. 10: Press in the driving shaft

Lubricate the new shaft seals with food grade grease (e.g. vaseline) and insert them into the housing (see **Fig. 9**):

The first shaft seal with the groove downwards, the second one with the groove upwards. The two flat sides of the shaft seals have to face each other.

Press the two shaft seals carefully, straight and completely into the provided drilling hole.

Grease the driving shaft, insert it into the housing from behind, so that it is flush with the housing (see **Fig. 10**). Be careful not to damage the shaft seals.

Insert the pair of gears, put the cover gasket into the specific groove, place the cover and tighten (hand-tight) all the screws.

