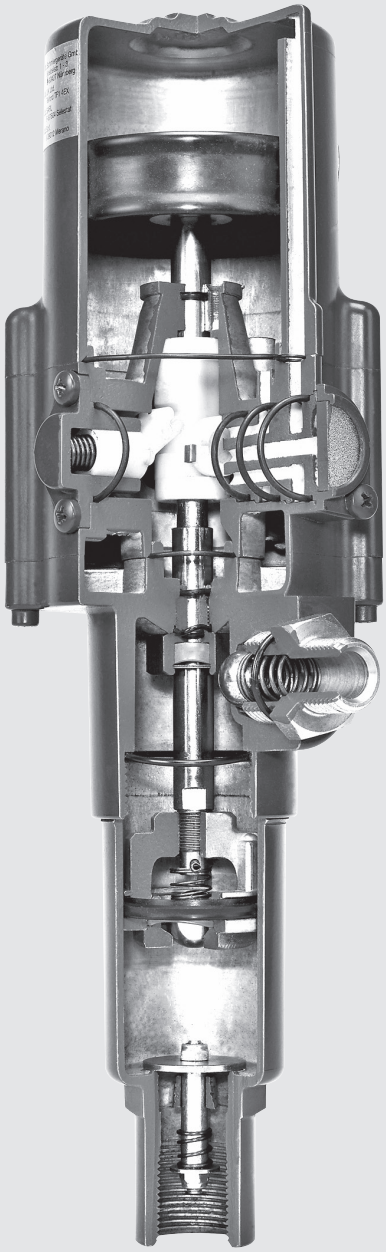
PRESSOL

WORKSHOP MANUAL

PNEUMATIC PUMPS



INTENDED CONDITIONS OF USE

- To ensure that usage stipulations are met, read through the Operating Instructions completely before using the pump and observe all stipulations.
- Any departure from the usage stipulations (other fluid media, use of force) or user modifications (changes, use of non-original parts) can be dangerous and are considered as non-intended usage.
- The user is liable for any damage resulting from non-intended use. Before performing any repair and maintenance work, release the pressure in the system.
- Have repair and maintenance work only performed by qualified and skilled personnel.
- Only use genuine spare parts for repairs because otherwise the warranty will expire.

REPAIR/SERVICE

- The pumps were developed and produced according to the highest quality standards.
- Should a problem develop, despite all quality controls, please contact our customer service:

  PRESSOL Schmiergeräte GmbH
  Phone: +49 09462 17-216
  Telefax: +49 09462 1063
  service@pressol.com

- **The Workshop Manuals are available for download under www.pressol.com under the heading „Catalogues and brochures“.**
- For problem solving, Pressol provides detailed video clips which can be accessed under **www.pressol.com/clips**

WORKSHOP MANUAL
PNEUMATIC PUMPS

CONTENT

PNEUMATIC OIL AND DIESEL PUMP 1:1

PNEUMATIC
OIL AND DIESEL PUMP 1:1

MALFUNCTIONS	CAUSES	SOLUTIONS
Pump runs, but does not deliver sufficiently oil/diesel. Formation of foam. Pump continues to run when the shut-off nozzle is closed (individual strokes at longer intervals)	**Empty tank / container**	▸ Check and if required replace or refill container/tank CLIP 7
	Pump sucks in air	▸ Check the complete suction line including connectors for tightness and if required reseal CLIP 7
	Defective / leaky suction valve in the pump cylinder	▸ Carefully heat up the screw joint of the pump cylinder [36] with a gas flame ▸ Loosen the pump cylinder ▸ Check the valve plate [34] for damage (bent) or dirt and check its seat in the pump cylinder [36] replace it if required ▸ To do this, loosen the nut [33] CLIP 1 required tools: **a / b / c / e / f**
	Leaky / defective valve in the pump piston	▸ Carefully heat up the screw joint of the pump cylinder [36] with a gas flame ▸ Loosen the pump cylinderr ▸ Check the seat of the valve plate [29] on the piston pump [30] and check the valve spring [27] for damage or dirt and remplace them if required ▸ To do this, remove the nut [31] and the pump piston [30] from the piston rod [12.4] CLIP 1 required tools: **a / b / c / d**
	Leaky / defective sealing ring in the pump piston	▸ Check the sealing ring [32] for damage, dirt and wear and replace it if required CLIP 1 required tools: **a / b / c / d**

a Fixture white
b Blow torch
c Open-end wrench WAF 46
d Open-end wrench WAF 14
e Open-end wrench WAF 8
f Socket wrench WAF 8


a


b

c


d


e


e

PNEUMATIC
OIL AND DIESEL PUMP 1:1

MALFUNCTIONS	CAUSES	SOLUTIONS
Pump does not start or runs only for a short time Pump works, but runs slowly or stops	**Excessive counterpressure**	▸ Open the delivery valve, hose cross-section too small, hose too long CLIP 8
	Excessive viscosity of the medium	▸ maximum viscosity allowed up to SAE 15 W 5 at 15°C CLIP 8
	Not enough compressed air	▸ Ensure sufficient supply of compressed air (max. air consumption 400 l/min) ▸ Dirty filter element [23]. For cleaning, remove the reducer, [24] with pressure reducing valve [25] and compressed air connector CLIP 2 required tools: **a / b**
	Unsufficient pressure	▸ Ensure sufficient supply of compressed air (recommended air pressure) 6 to 8 bar ▸ Defective pressure reducing valve [25]. Replace the valve CLIP 2 required tools: **a / b**
	Dirty / icy silencer	▸ Clean the silencer, to do this, remove screws [1] and cage [2] ▸ Clean the silencer [3] with detergent and compressed air ▸ Use only lubricated compressed air (treatment unit with water separator and oil mister) CLIP 2 required tools: **c / d**

a Open-end wrench WAF 17
b Open-end wrench WAF 19
c Vice with soft jaws (not shown)
d Screwdriver, cross-recess


a


b


d

PNEUMATIK-
OIL AND DIESEL PUMP 1:1

MALFUNCTIONS	**CAUSES**	SOLUTIONS
Pump sputters or stops Pump stops, compressed air continuously escapes through the silencer	**Impurities in the controller housing, excessive wear of controller parts, defective controller parts**	▸ Check the complete controller **Disassembly of the distributor**: ▸ Loosen the screws [1] by a maximum of 2 turns ▸ Briefly apply compressed air to the pump to loosen the distributor ▸ Remove the screws [1] the cage [2] and the silencer [3] and take the complete distributor [4.1] ▸ Check the complete distributor assembly [4.1 – 4.6] especially the O-rings [4.2, 4.3, 4.4], the face of the distributor [4.1] the valve plate [4.5] and the clamp [4.6] ▸ In case of a defect, replace the complete assembly ▸ During assembly, pay attention to the correct position and the correct seat of the valve plate [4.5] and the clamp [4.6] **Disassembly of the shift levers:** ▸ Loosen the screws [1.1] and remove the inserts [5] on both sides ▸ Remove the compression springs [6.2], sleeves [6.3] and shift levers [6.4] of the controller housing[18] ▸ Check the components for completeness (spalling, spring fracture) ▸ In case of a defect, replace always the complete components on both sides. ▸ Before assembly, put at first the O-rings [6.1] into the controller housing [18] then position the control valve [12.3] in central position on the piston rod and put the shift levers [6.3]and compression spring [6.2] pre-assembled with sleeve [6.4] into the two grooves at the control valve [12.3] ▸ Use the mounting aid (86896) to put the inserts [5] into the controller housing [18] and screw them down CLIP **3** required tools: **a / b / c / d**

a Vice with soft jaws (not shown)
b Screwdriver, cross-recess
c Lockable compressed air connection
d Needle-nose pliers


b


c


d

PNEUMATIK-
OIL AND DIESEL PUMP 1:1

MALFUNCTIONS	CAUSES	SOLUTIONS
Pump stops, compressed air continuously escapes through the silencer	**Leaky piston unit, leaky O-ring in the controller housing**	▸ To do this, dismantle the complete control unit as described under 8. ▸ Dismantle the pump cylinder [36] and the piston [30], as described under 6 ▸ Remove the screws [19] ▸ At the piston rod's [12.4] wrench flat, the pump body can then be fixed in a vice (with clamping jaws with smooth surfaces) ▸ Now, take off the pressure cylinder [7] loosen the nut [9] and remove the washer [10], the piston unit [11] and the levelling washer [13] from the piston rod [12.2] ▸ Check the piston unit [11] for damage (voids, cracks) and wear ▸ In addition, check and if required replace the O-ring [12.1] on the piston rod [12.2] ▸ Remove the screws [14] and the washer [15] to check the O-ring [16] CLIP 4 required tools: **a / b / c / d / e / f / g / h / i**
Oil escapes at the silencer	**Condensed water/oil in the compressed air hose**	▸ Empty the treatment unit, condensate separator, correctly adjust the oil mister CLIP **6**
	Defective seal between pump and controller	▸ To do this, dismantle the complete, control unit as described under 8 ▸ Dismantle the pump cylinder [36] and the piston [30], as described under 6 ▸ Remove the screws [19] ▸ Then, remove the connecting flange [21] from the controller housing [18] while holding the piston rod [12.4] ▸ Now, dismantle the adapter [22.4] and check the O-rings [22.1, 22.2 , 22.3] and the sealing ring [22.5] for damage and wear ▸ If required, replace the complete adapter unit CLIP **5** required tools: **a / b / c / d / e / f / g / h / i / j**

a Vice with soft jaws (not shown)
b Blow torch
c Open-end wrench WAF 46
d Open-end wrench WAF 17
e Open-end wrench WAF 14
f Screwdriver, cross-recess
g Lockable compressed air connection
h Needle-nose pliers
i Allen key WAF 5
j Socket wrench WAF 24


b

c


d


e


f


g


h


i


j

PNEUMATIC
OIL AND DIESEL PUMP 1:1

SPARE PARTS LIST

1	Gefu self-tapping screw M 5x16	**87220**
2	Cage	**87207**
3	Silencer	**87227**
4.1	Distributor	**87204**
4.2	O-ring-NBR 70-26 x 2	**87223**
4.3	O-ring-NBR 70-24 x 2	**87224**
4.4	O-ring-NBR 70-22 x 2	**87225**
4.5	Valve plate	**87213**
4.6	Clamp	**87214**
5	Insert	**87206**
6.1	O-ring NBR 70-26 x 2	**87223**
6.2	Compression spring	**87215**
6.3	Sleeve	**87209**
6.4	Shift lever	**87210**
7	Pressure cylinder	**03268**
8	O-ring NBR 70-81 x 1,5	**03316**
9	Nut DIN 985 M10	**03311**
10	Washer	**87116**
11	Piston unit NBR 70-80 x 22,5	**03324**
12.1	O-ring NBR 70-8 x 1	**03262**
12.2	Piston rod	**87354**
13	Levelling washer	**03250**
14	Gefu self-tapping screw M4 x 12	**87221**
15	Washer	**87212**
16	O-ring NBR 90-12 x 2	**02380**
17	O-ring NBR 70-8 x 1	**03262**
18	Controller housing	**87211**
19	Cylinder screw M 5x80	**87222**
20	O-ring NBR 70-35 x 1,5	**87226**
21	Connecting flange	**87218**
22.1	O-ring NBR 90-12 x 2	**02380**
22.2	O-ring NBR 70-14 x 1,78	**88164**
22.3	O-ring NBR 70-19 x 1,5	**88165**
22.4	Adapter	**88152**
22.5	Lip seal NBR 72-20 x 12 x 5,5	**03338**
22.6	Locking ring DIN 984-20 x 1	**03264**
23	Filter element	**87228**
24	Reducer	**20122**
25	Pressure reducing valve	**04698**
26	Washer, curved	**03509**
27	Compression spring	**02851**
28	Washer	**03507**
29	Valve plate	**03410**
30	Pump piston	**02847**
31	Nut	**03415**
32	Lip seal NBR 84 80 x 68 x 8,5mm	**03389**
33	Nut	**01085**
34	Valve plate	**03417**
35	O-ring NBR 70-82 x 2,5	**02850**
36	Pump cylinder	**02855**
37	Valve rod	**03336**
38	Compression spring	**02852**
39	Washer	**02853**

REPAIR KITS

Seal kit	**72070**
Piston rod	**87354**
Shift lever	**72090**
Distributor	**87351**

PNEUMATIC RADIATOR ANTIFREEZE PUMP 1:1

PNEUMATIC
RADIATOR ANTIFREEZE PUMP 1:1

MALFUNCTIONS	CAUSES	SOLUTIONS
Pump runs, but does not deliver (sufficiently) oil/diesel, formation of foam	**Empty tank / container**	▸ Check and if required replace or refill container/tank CLIP **7**
	Pump sucks in air	▸ Check the complete suction line including connectors for tightness and if required reseal CLIP **7**
Pump continues to run when the shut-off nozzle is closed (individual strokes at longer intervals)	**Defective / leaky suction valve in the pump cylinder**	▸ Carefully heat up the screw joint of the pump cylinder [36] with a gas flame ▸ Loosen the pump cylinder ▸ Check the seat of the valve plate [34] on the piston pump [36] for damage or dirt and remplace them if required ▸ To do this, loosen the nut [33] CLIP **1** required tools: **a / b / c / e / f**
	Leaky / defective valve in the pump piston	▸ Carefully heat up the screw joint of the pump cylinder [36] with a gas flame ▸ Loosen the pump cylinder ▸ Check the seat of the valve plate [29] on the piston pump [30] and the valve spring [27] for damage or dirt and replace them if required ▸ To do this, remove the nut [31] and the pump piston [30] from the piston rod [12.4] CLIP **1** required tools: **a / b / c / d**
	Leaky / defective sealing ring in the pump piston	▸ Check the sealing ring [32] for damage, dirt and wear and replace it if required CLIP **1** required tools: **a / b / c / d**

a Fixture white
b Blow torch
c Open-end wrench WAF 46
d Open-end wrench WAF 14
e Open-end wrench WAF 8
f Socket wrench WAF 8


a


b

c


d


e


e

PNEUMATIC
RADIATOR ANTIFREEZE PUMP 1:1

MALFUNCTIONS	CAUSES	SOLUTIONS
Pump does not start or runs only for a short time	**Excessive counterpressure**	▸ Open the delivery valve, hose cross-section too small, hose too long CLIP 8
Pump works, but runs slowly or stops	**Excessive viscosity of the medium**	▸ Maximum viscosity allowed up to SAE 15 W 5 at 15°C CLIP 8
	Not enough compressed air	▸ Ensure sufficient supply of compressed air (max. air consumption 400 l/min) ▸ Dirty filter element [23]. For cleaning, remove the reducer [24] with pressure reducing valve [25] and compressed air connector CLIP 2 required tools: **a / b**
	Unsufficient pressure	▸ Ensure sufficient supply of compressed air (recommended air pressure 6 to 8 bar) ▸ Defective pressure reducing valve [25]. Replace the valve CLIP 2 required tools: **a / b**
	Dirty / icy silencer	▸ Clean the silencer. To do this, remove screws [1] and cage [2] ▸ Clean the silencer [3] with detergent and compressend air ▸ Use only lubricated compressed air (treatment unit with water separator and oil mister) CLIP 2 required tools: **c / d**

a Open-end wrench WAF 17
b Open-end wrench WAF 19
c Vice with soft jaws (not shown)
d Screwdriver, cross-recess


a


b


d

PNEUMATIC
RADIATOR ANTIFREEZE PUMP 1:1

MALFUNCTIONS	**CAUSES**	SOLUTIONS
Pump sputters or stops Pump stops. Compressed air continuously escapes through the silencer	**Impurities in the controller housing, excessive wear of controller parts, defective controller parts**	▸ Check the complete controller **Disassembly of the distributor:** ▸ Loosen the screws [1] by a maximum of 2 turns ▸ Briefly apply compressed air to the pump to loosen the distributor. ▸ Remove the screws [1] the cage [2] and the silencer [3] and take off the complete distributor [4.1] ▸ Check the complete distributor assembly [4.1 – 4.6], especially the O-rings [4.2, 4.3, 4.4], the face of the distributor [4.1] the valve plate [4.5] and the clamp [4.6] ▸ In case of a defect, replace the complete assembly ▸ During assembly, pay attention to the correct position and the correct seat of the valve plate [4.5] and the clamp [4.6] **Disassembly of the shift levers:** ▸ Loosen the screws [1.1] and remove the inserts [5] on both sides ▸ Remove the compression springs [6.2], sleeves [6.3] and shift levers [6.4] of the controller housing [18] ▸ Check the components for completeness (spalling, spring fracture) ▸ In case of a defect, replace always the complete components on both sides ▸ Before assembly, put at first the O-rings [6.1] into the controller housing [18] then position the control valve [12.3] in central position on the piston rod and put the shift levers [6.4] pre-assembled with sleeve [6.3] and compression spring [6.2] into the two grooves at the control valve [12.3] ▸ Use the mounting aid (86896) to put the inserts [5] into the controller housing [18] and screw them down CLIP 3 required tools: **a** / **b** / **c** / **d**

a Vice with soft jaws (not shown)
b Screwdriver, cross-recess
c Lockable compressed air connection
d Needle-nose pliers


b


c


d

PNEUMATIC
RADIATOR ANTIFREEZE PUMP 1:1

MALFUNCTIONS	**CAUSES**	SOLUTIONS
Pump stops, compressed air continuously escapes through the silencer	**Leaky piston unit, leaky O-ring in the controller housing**	▸ To do this, dismantle the complete control unit as described under 14 ▸ Dismantle the pump cylinder [36] and the piston [30], as described under 12 ▸ Remove the screws [19] ▸ At the piston rod's [12.4] wrench flat, the pump body can then be fixed in a vice (with clamping jaws with smooth surfaces) ▸ Now, take off the pressure cylinder [7], loosen the nut [9] and remove the washer [10], the piston unit [11] and the levelling washer [13] from the piston rod [12.2] ▸ Check the piston unit [11] for damage (voids, cracks) and wear ▸ In addition, check and if required replace the O-ring [12.1] on the piston rod [12.2] ▸ Remove the screws [14] and the washer [15] to check the O-ring [16] CLIP **4** required tools: **a / b / c / d / e / f / g / h / i**
Oil escapes at the silencer	**Condensed water/oil in the compressed air hose**	▸ Empty the treatment unit / condensate separator, correctly adjust the oil mister. CLIP **6**
	Defective seal between pump and controllert	▸ To do this, dismantle the complete control unit as described under 14 ▸ Dismantle the pump cylinder [36] and the piston [30], as described under 12 ▸ Remove the screws [19] ▸ Then, remove the connecting flange [21] from the controller housing [18] while holding the piston rod [12.4] ▸ Now, dismantle the adapter [22.4] and check the O-rings [22.1, 22.2 , 22.3] and the sealing ring [22.5] for damage and wear ▸ If required, replace the complete adapter unit CLIP **5** required tools: **a / b / c / d / e / f / g / h / i / j**

a Vice with soft jaws (not shown)
b Blow torch
c Open-end wrench WAF 46
d Open-end wrench WAF 17
e Open-end wrench WAF 14
f Screwdriver, cross-recess
g Lockable compressed air connection
h Needle-nose pliers
i Allen key WAF 5
j Socket wrench WAF 24


b

c


d


e


f


g


h


i


j

PNEUMATIC
RADIATOR ANTIFREEZE PUMP 1:1

SPARE PARTS LIST

1	Gefu self-tapping screw M 5x16	**87220**
1.1	Gefu self-tapping screw M 5x16	**87220**
2	Cage	**87207**
3	Silencer	**87227**
4.1	Distributor	**87204**
4.2	O-ring NBR 70-26 x 2	**87223**
4.3	O-ring NBR 70-24 x 2	**87224**
4.4	O-ring NBR 70-22 x 2	**87225**
4.5	Valve plate	**87213**
4.6	Clamp	**87214**
5	Insert	**87206**
6.1	O-ring NBR 70-26 2	**87223**
6.2	Compression spring	**87215**
6.3	Sleeve	**87209**
6.4	Shift lever	**87210**
7	Pressure cylinder	**03268**
8	O-ring NBR 70-81 1,5	**03316**
9	Nut DIN 985 M10	**03311**
10	Washer	**87116**
11	Piston unit NBR 70-80 x 22,5	**03324**
12.1	O-ring NBR 70-8 x 1	**03262**
12.2	Piston rod	**87354**
13	Levelling washer	**03250**
14	Gefu self-tapping screw M4 x 12	**87221**
15	Washer	**87212**
16	O-ring NBR 90-12 x 2	**02380**
17	O-ring NBR 70-8 x 1	**03262**
18	Controller housing	**87211**
19	Cylinder screw M5 x 80	**87222**
20	O-ring NBR 70-35 x 1,5	**87226**
21	Connecting flange	**87218**
22.1	O-ring NBR 90-12 x 2	**02380**
22.2	O-ring NBR 70-14 x 1,78	**88164**
22.3	O-ring NBR 70-19 x 1,5	**88165**
22.4	Adapter	**88152**
22.5	Rod seal 12 x 20 x 5,5	**87791**
22.6	Locking ring DIN 984-20 x 1	**03264**
23	Filter element	**87228**
24	Reducer	**20122**
25	Pressure reducing valve	**04698**
26	Washer, curved	**03509**
27	Compression spring	**02851**
28	Washer	**03507**
29	Valve plate 60 x 10,6 mm	**03410**
30	Pump piston	**02847**
31	Nut	**03415**
32	Piston seal 80 x 68 x 8,5	**87792**
33	Nut	**01085**
34	Valve plate	**03417**
35	O-ring NBR 70-82 x 2,5	**02850**
36	Pump cylinder	**87790**
37	Valve rod	**03336**
38	Compression spring	**02852**
39	Washer	**02853**

REPAIR KITS

Piston rod	**87354**
Shift lever	**72090**
Distributor	**87351**

PNEUMATIC OIL PUMP 3:1

PNEUMATIC OIL PUMP 3:1

MALFUNCTIONS	CAUSES	SOLUTIONS
Pump runs, but does not deliver (sufficiently) oil, formation of foam Pump continues to run when the shut-off nozzle is closed (individual strokes at longer intervals)	**Empty tank / container**	▸ Check and if required replace or refill container/tank CLIP 7
	Pump sucks in air	▸ Check the complete suction line including connectors for tightness and if required reseal CLIP 7
	Defective / leaky suction valve in the pump cylinder	▸ Carefully heat up the screw joint of the pump cylinder [36] with a gas flame ▸ Loosen the pump cylinder ▸ Check the valve plate [35] and its seat in the pump cylinder [36] for damage (bent) or dirt and replace it if required ▸ To do this, loosen the nut [34] CLIP 9 required tools: **a / b / c / e / f**
	Leaky / defective valve in the pump piston	▸ Carefully heat up the screw joint of the pump cylinder [36] with a gas flame ▸ Loosen the pump cylinder ▸ Check the valve ball [29] its seat in the valve screw [31] and the valve spring [28] for damage or dirt and replace them if required ▸ Remove the clamping sleeve [26], unscrew the pump piston unit [27] from the piston rod [12.4] and loosen the valve screw [31] ▸ During assembly in reverse order – pay attention to the correct seat of the valve spring [28] under the clamping sleeve [26] CLIP 9 required tools: **a / b / c / d / g / h / i**
	Leaky / defective sealing ring in the pump piston	▸ Check the sealing ring [32] for damage, dirt and wear and replace it if required CLIP 9 required tools: **a / b / c / d / g / h / i**

a Fixture white
b Blow torch
c Open-end wrench WAF 36
d Open-end wrench WAF 32
e Open-end wrench WAF 8
f Socket wrench WAF 8
g Pin punch D3 and D5
h Water pump pliers
i Hammer


a


b


c


d


e


f


g


h


i

PNEUMATIC OIL PUMP 3:1

MALFUNCTIONS	CAUSES	SOLUTIONS
Pump does not start or runs only for a short time	**Excessve counterpressure**	▸ Open the delivery valve, hose cross-section too small, hose too long CLIP **8**
Pump works, but runs slowly or stops	**Excessive viscosity of the medium**	▸ Maximum viscosity allowed up to SAE 90 at 15°C CLIP **8**
	Not enough compressed air	▸ Ensure sufficient supply of compressed air (max. air consumption 400l/min) ▸ Dirty filter element [23]. For cleaning, remove the reducer [24] with pressure reducing valve [25] and compressed air connector CLIP **2** required tools: **a / b**
	Unsufficient pressure	▸ Ensure sufficient supply of compressed air (recommended air pressure 6 to 8 bar) ▸ Defective pressure reducing valve [25]. Replace the valve CLIP **2** required tools: **a / b**
	Dirty / icy silencer	▸ Clean the silencer. To do this, remove the screws [1] and cage [2] ▸ Clean the silencer [3] with detergent and compressend air ▸ Use only lubricated compressed air (treatment unit with water separator and oil mister) CLIP **2** required tools: **c / d**

a Open-end wrench WAF 17
b Open-end wrench WAF 19
c Vice with soft jaws (not shown)
d Screwdriver, cross-recess


a


b


d

PNEUMATIC OIL PUMP 3:1

MALFUNCTIONS	CAUSES	SOLUTIONS
Pump sputters or stops	**Impurities in the controller housing, excessive wear of controller parts, defective controller parts**	▸ Check the complete controller **Disassembly of the distributor:** ▸ Loosen the screws [1] by a maximum of 2 turns ▸ Briefly apply compressed air to the pump to loosen the distributor ▸ Remove the screws [1] the cage [2] and the silencer [3] and take off the complete distributor [4.1] ▸ Check the complete distributor assembly [4.1 – 4.6], especially the O-rings [4.2, 4.3, 4.4], the face of the distributor [4.1] the valve plate [4.5], and the clamp [4.6] ▸ In case of a defect, replace the complete assembly. ▸ During assembly, pay attention to the correct position and the correct seat of the valve plate [4.5] and the clamp [4.6] **Disassembly of the shift levers:** ▸ Loosen the screws [1.1] and remove the inserts [5] on both sides ▸ Remove the compression springs [6.2], sleeves [6.3] and shift levers [6.4] of the controller housing [18] ▸ Check the components for completeness (spalling, spring fracture). ▸ In case of a defect, replace always the complete components on both sides ▸ Before assembly, put at first the O-rings [6.1] into the controller housing [18] then position the control valve [12.3] in central position on the piston rod and put the shift levers [6.4]; pre-assembled with sleeve [6.3] and compression spring [6.2], into the two grooves at the control valve [12.3] ▸ Use the mounting aid (86896) to put the inserts [5] into the controller housing [18] and screw them down CLIP 3 required tools: **a / b / c / d**
Pump stops Compressed air continuously escapes through the silencer		

a Vice with soft jaws (not shown)
b Screwdriver, cross-recess
c Lockable compressed air connection
d Needle-nose pliers


b


c


d

PNEUMATIC OIL PUMP 3:1

MALFUNCTIONS	CAUSES	SOLUTIONS
Pump stops compressed air continuously escapes through the silencer	**Leaky piston unit, leaky O-ring in the controller housing**	▸ To do this, dismantle the complete control unit as described under 20 ▸ Dismantle the pump cylinder [36] and the piston [27], as described under 18 ▸ Remove the screws [19] ▸ At the piston rod's [12.4] wrench flat, the pump body can then be fixed in a vice (with clamping jaws with smooth surfaces) ▸ Now, take off the pressure cylinder [7] loosen the nut [9] and remove the washer [10], the piston unit [11] and the levelling washer [13] from the piston rod [12.2] ▸ Check the piston unit [11] for damage (voids, cracks) and wear ▸ In addition, check and if required replace the O-ring [12.1] on the piston rod [12.2] ▸ Remove the screws [14] and the washer [15] to check the O-ring [16] CLIP **4** required tools: **a / b / c / d / e / f / g / h / i / j / k / l**
Oil escapes at the silencer	**Condensed water/oil in the compressed air hose**	▸ Empty the treatment unit / condensate separator, correctly adjust the oil mister. CLIP **6**
	Defective seal between pump and controller	▸ To do this, dismantle the complete control unit as described under 20. ▸ Dismantle the pump cylinder [36] and the piston [27], as described under 18 ▸ Remove the screws [19] ▸ Then, remove the connecting flange[21] from the controller housing [18] while holding the piston rod [12.4] ▸ Now, dismantle the adapter [22.4] and check the O-rings [22.1, 22.2, 22.3] and the sealing ring [22.5] for damage and wear ▸ If required, replace the complete adapter unit CLIP **5** required tools: **a / b / c / d / e / f / g / h / i / j / k / l / m**

a Vice with soft jaws (not shown)
b Blow torch
c Open-end wrench WAF 36
d Open-end wrench WAF 32
e Open-end wrench WAF 17
f Pin punch D3 and D5
g Water pump pliers
h Hammer
i Screwdriver, cross-recess
j Lockable compressed air connection
k Needle-nose pliers
l Allen key WAF 5
m Socket wrench WAF 24


b


c


d


e


f


g


h


i


j


k


l


m

PNEUMATIC OIL PUMP 3:1

SPARE PARTS LIST

1	Gefu self-tapping screw M 5x16	**87220**
1.1	Gefu self-tapping screw M 5x16	**87220**
2	Cage	**87207**
3	Silencer	**87227**
4.1	Distributor	**87204**
4.2	O-ring NBR 70-26 x 2	**87223**
4.3	O-ring NBR 70-24 x 2	**87224**
4.4	O-ring NBR 70-22 x 2	**87225**
4.5	Valve plate	**87213**
4.6	Clamp	**87214**
5	Insert	**87206**
6.1	O-ring-NBR 70-26 x 2	**87223**
6.2	Compression spring	**87215**
6.3	Sleeve	**87209**
6.4	Shift lever	**87210**
7	Pressure cylinder	**03268**
8	O-ring NBR 70-81 x 1,5	**03316**
9	Nut DIN 985 M10	**03311**
10	Washer	**87116**
11	Piston unit NBR 70-80 x 22,5	**03324**
12.1	O-ring NBR 70-8 x 1	**03262**
12.2	Piston rod	**87353**
13	Levelling washer	**03250**
14	Gefu self-tapping screw M4 x 12	**87221**
15	Washer	**87212**
16	O-ring NBR 90-12 x 2	**02380**
17	O-ring NBR 70-8 x 1	**03262**
18	Controller housing	**87211**
19	Cylinder screw M5 x 80	**87222**
20	O-ring NBR 70-35 x 1,5	**87226**
21	Connecting flange	**87217**
22.1	O-ring NBR 90-12 x 2	**02380**
22.2	O-ring NBR 70-14 x 1,78	**88164**
22.3	O-ring NBR 70-19 x 1,5	**88165**
22.4	Adapter	**88152**
22.5	Lip seal PU 93 20 x 12 x 5,7 mm	**03387**
22.6	Locking ring DIN 984-20 x 1	**03264**
23	Filter element	**87228**
24	Reducer	**20122**
25	Pressure reducing valve	**04698**
26	Slotted spring pin DIN 1481	**87630**
27	Pump piston	**02844**
28	Compression spring	**02851**
29	Steel ball, D = 17 mm	**03263**
30	O-ring 26.7 x 1.78 PU 90	**87521**
31	Screw WAF 32	**87646**
32	Lip seal NBR 84-48 x 40x5,5	**03390**
33	O-ring NBR 70-53 x 2	**02849**
34	Nut DIN 985	**01085**
35	Valve plate	**03416**
36	Pump cylinder	**02854**
37	Valve rod	**03336**
38	Compression spring	**02852**
39	Unterlegscheibe	**02853**

REPAIR KITS

Seal kit	**72071**
Piston rod	**87353**
Shift lever	**72090**
Distributor	**87351**

PNEUMATIC OIL PUMP 5:1

PNEUMATIC OIL PUMP 5:1

MALFUNCTIONS	**CAUSES**	SOLUTIONS
Pump runs, but does not deliver (sufficiently) oil/diesel. Formation of foam	**Empty tank / container**	▸ Check and if required replace or refill container/tank CLIP **7**
	Pump sucks in air	▸ Check the complete suction line including connectors for tightness and if required reseal CLIP **7**
Pump continues to run when the shut-off nozzle is closed (individual strokes at longer intervals)	**Defective / leaky suction valve in the pump cylinder**	▸ Carefully heat up the screw joint of the pump cylinder [40] with a gas flame ▸ Loosen the pump cylinder ▸ Check the valve ball [39] and its seat in the pump cylinder [40] or damage or dirt and replace then if required ▸ To do this, loosen the locking ring [36] and remove the pin [37] CLIP **10** required tools: **a / b / c / e / f**
	Leaky / defective valve in the pump piston	▸ Carefully heat up the screw joint of the pump cylinder [40] with a gas flame ▸ Loosen the pump cylinder ▸ Check the valve ball [32] its seat in the valve screw [34], and the valve spring [31] for damge or dirt and replace them if required ▸ To do this, remove the pump piston unit [29] and proceed as follows: Remove the clamping sleeve [30], unscrew the pump piston unit [29] from the piston rod [12.4] and loosen the valve screw [34]. During assembly in reverse order pay attention to the correct seat of the valve spring [31] under the clamping sleeve [30] CLIP **10** required tools: **a / b / c / d / g / h / i**
	Leaky / defective sealing ring in the pump piston	▸ Check the sealing ring [35] for damage, dirt and wear and replace it if required CLIP **10** required tools: **a / b / c / d / g / h / i**

a Fixture white
b Blow torch
c Open-end wrench WAF 36
d Open-end wrench WAF 32
e Locking ring pliers, internal
f Needle-nose pliers
g Pin punch D3 and D5
h Water pump pliers
i Hammer


a


b


c


d


e


f


g


h


i

PNEUMATIC OIL PUMP 5:1

MALFUNCTIONS	CAUSES	SOLUTIONS
Pump does not start or runs only for a short time	**Excessive counterpressure**	▸ Open the delivery valve, hose cross-section too small, hose too long CLIP 8
Pump works, but pump runs slowly or stops	**Excessive viscosity of the medium**	▸ maximum viscosity allowed up to SAE 140 at 15°C CLIP 8
	Not enough compressed air	▸ Ensure sufficient supply of compressed air (max. air consumption 400l/min) ▸ Dirty filter element [23]. For cleaning, remove the reducer [24] with pressure reducing valve [25] and compressed air connector CLIP 2 required tools: **a / b**
	Unsufficient pressure	▸ Ensure sufficient supply of compressed air (recommended air pressure 6 to 8 bar) ▸ Defective pressure reducing valve [25]. Replace the valve CLIP 2 required tools: **a / b**
	Dirty / icy silencer	▸ Clean the silencer. To do this, remove screws [1] und cage [2] ▸ Clean the silencer [3] with detergent and compressend air ▸ Use only lubricated compressed air (treatment unit with water separator and oil mister) CLIP 2 required tools: **c / d**

a Open-end wrench WAF 19
b Open-end wrench WAF 17
c Vice with soft jaws (not shown)
d Screwdriver, cross-recess


a


b


d

PNEUMATIC OIL PUMP 5:1

MALFUNCTIONS	**CAUSES**	SOLUTIONS
Pump sputters or stops Pump stops, compressed air continuously escapes through the silencer	**Impurities in the controller housing, excessive wear of controller parts, defective controller parts**	▸ Check the complete controller **Disassembly of the distributor:** ▸ Loosen the screws [1] by a maximum of 2 turns ▸ Briefly apply compressed air to the pump to loosen the distributor ▸ Remove the screws [1] the cage [2] and the silencer [3] and take off the complete distributor [4.1] ▸ Check the complete distributor assembly [4.1 – 4.6] especially the O-rings [4.2, 4.3, 4.4], the face of the distributor [4.1] the valve plate [4.5] sand the clamp [4.6] ▸ In case of a defect, replace the complete assembly. ▸ During assembly, pay attention to the correct position and the correct seat of the valve plate [4.5] and the clamp [4.6] **Disassembly of the shift levers:** ▸ Loosen the screws [1.1] and remove the inserts [5] on both sides ▸ Remove the compression springs [6.2], sleeves [6.3] and shift levers [6.4] of the controller housing [18] ▸ Check the components for completeness (spalling, spring fracture) ▸ In case of a defect, replace always the complete components on both sides ▸ Before assembly, put at first the O-rings [6.1] into the controller housing [18], then position the control valve [12.3] in central position on the piston rod and put the shift levers [6.4] pre-assembled with sleeve [6.3] and compression spring [6.2] into the two grooves at the control valve [12.3] ▸ Use the mounting aid(86896) to put the inserts [5] into the controller housing [18] and screw them down CLIP 3 required tools: **a / b / c / d**

a Vice with soft jaws (not shown)
b Screwdriver, cross-recess
c Lockable compressed air connection
d Needle-nose pliers


b


c


d

PNEUMATIC OIL PUMP 5:1

MALFUNCTIONS	**CAUSES**	SOLUTIONS
Pump stops, compressed air continuously escapes through the silencer	**Leaky piston unit, leaky O-ring in the controller housing**	▸ Dismantle the complete controller as described under 26 ▸ Dismantle the pump cylinder [40] and the piston [29], as described under 24 ▸ Remove the screws [19] ▸ At the piston rod's [12.4] wrench flat, the pump body can then be fixed in a vice (with clamping jaws with smooth surfaces) ▸ Now, take off the pressure cylinder [7] loosen the nut [9] and remove the washer [10], the piston unit [11] and the levelling washer [13] from the piston rod [12.2] ▸ Check the piston unit [11] for damage (voids, cracks) and wear ▸ In addition, check and if required replace the O-ring [12.1] on the piston rod [12.2] ▸ To check the O-ring [16] remove the screws [14] and the washer [15] CLIP **4** required tools: **a / b / c / d / e / f / g / h / i / j / k / l**
Oil escapes at the silencer	**Condensed water/oil in the compressed air hose**	▸ Empty the treatment unit / condensate separator, correctly adjust the oil mister CLIP **6**
	Defective seal between pump and controller	▸ To do this, dismantle the complete controller as described under 26 ▸ Dismantle the pump cylinder [40] and the piston [29], as described under 24 ▸ Remove the screws [19] ▸ Then, remove the connecting flange [21] from the controller housing [18] while holding the piston rod [12.4] ▸ Now, dismantle the adapter [22.4] and check the O-rings [22.1, 22.2, 22.3] and the sealing ring [22.5] for damage and wear ▸ If required, replace the complete adapter unit CLIP **5** required tools: **a / b / c / d / e / f / g / h / i / j / k / l / m**

a Vice with soft jaws (not shown)
b Blow torch
c Open-end wrench WAF 36
d Open-end wrench WAF 32
e Open-end wrench WAF 17
f Pin punch D3 and D5
g Water pump pliers
h Hammer
i Screwdriver, cross-recess
j Lockable compressed air connection
k Needle-nose pliers
l Allen key WAF 5
m Socket wrench WAF 24


b


c


d


e


f


g


h


i


j


k


l


m

PNEUMATIC OIL PUMP 5:1

MALFUNCTIONS	CAUSES	SOLUTIONS
Oil escapes between connecting flange and controller housing	**Defective O-ring in the conecting flange**	▸ To do this, dismantle the complete control unit as described under 26 ▸ Dismantle the pump cylinder [40] and the piston [29], as described under 24 ▸ Remove the screws [19] ▸ Then, remove the connecting flange [21] from the controller housing [18] while holding the piston rod [12.4] ▸ Now, dismantle the locking ring [28] and the sealing ring [27] and check them for damage and wear CLIP **11** required tools: **a / b / c / d / e / f / g / h / i / j / k / l / m**

a Vice with soft jaws (not shown)
b Blow torch
c Open-end wrench WAF 36
d Open-end wrench WAF 32
e Open-end wrench WAF 17
f Socket wrench WAF 24
g Allen key WAF 5
h Lockable compressed air connection
i Pin punch D3 and D5
j Water pump pliers
k Hammer
l Screwdriver, cross-recess
m Needle-nose pliers


b

c

d

e

f

g

h

i

j

k

l

m

PNEUMATIC OIL PUMP 5:1

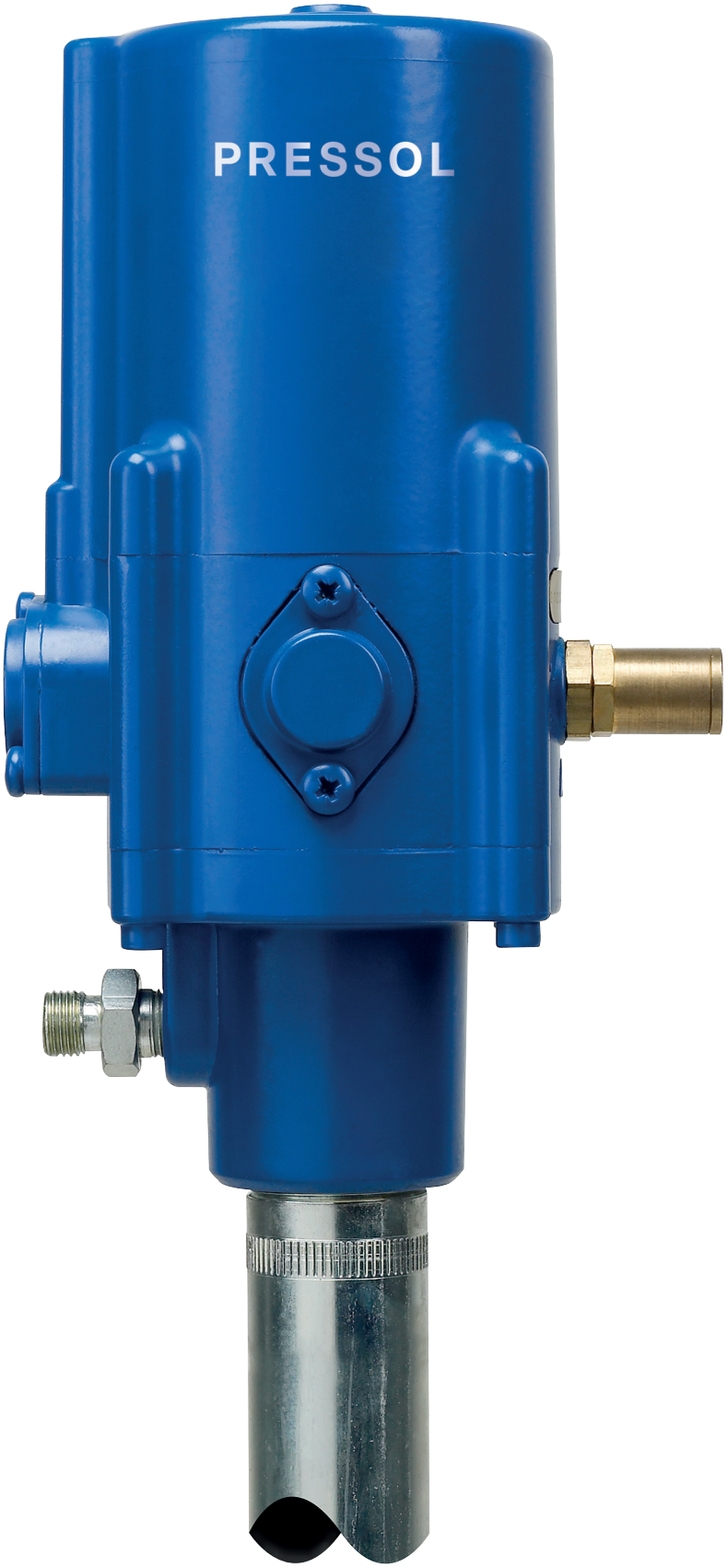
SPARE PARTS LIST

1	Gefu self-tapping screw M 5x16	**87220**
1.1	Gefu self-tapping screw M 5x16	**87220**
2	Cage	**87207**
3	Silencer	**87227**
4.1	Distributor	**87204**
4.2	O-ring NBR 70-26 x 2	**87223**
4.3	O-ring NBR 70-24 x 2	**87224**
4.4	O-ring NBR 70-22 x 2	**87225**
4.5	Valve plate	**87213**
4.6	Clamp	**87214**
5	Insert	**87206**
6.1	O-ring NBR 70-26 x 2	**87223**
6.2	Compression spring	**87215**
6.3	Sleeve	**87209**
6.4	Shift lever	**87210**
7	Pressure cylinder	**03268**
8	O-ring NBR 70-81 x 1,5	**03316**
9	Nut DIN 985 M10	**03311**
10	Washer	**87116**
11	Piston unit NBR 70-80 x 22,5	**03324**
12.1	O-ring NBR 70-8 x 1	**03262**
12.2	Piston rod	**87655**
13	Levelling washer	**03250**
14	Gefu self-tapping screw M4 x 12	**87221**
15	Washer	**87212**
16	O-ring NBR 90-12 x 2	**02380**
17	O-ring NBR 70-8 x 1	**03262**
18	Controller housing	**87211**
19	Cylinder screw M5 x 80	**87222**
20	O-ring NBR 70-35 x 1,5	**87226**
21	Connecting flange 5:1	**87642**
22.1	O-ring NBR 90-12 x 2	**02380**
22.2	O-ring NBR 70-14 x 1,78	**88164**
22.3	O-ring NBR 70-19 x 1,5	**88165**
22.4	Adapter	**88152**
22.5	Lip seal PU 93 20 x 12 x 5,7 mm	**03387**
22.6	Locking ring DIN 984-20 x 1	**03264**
23	Filter element	**87228**
24	Reducer	**20122**
25	Pressure reducing valve	**04698**
26	Support washer	**87648**
27	Lip seal NBR 90 44 x 34 x 7 mm	**87632**
28	Locking ring	**87634**
29.1	Piston tube	**88168**
29.2	Stop plate	**88113**
29.3	Lip seal PU 93 20 x 12 x 5,7 mm	**03387**
29.4	O-ring 26.7x1.78 PU 90	**87521**
29.5	Double piston	**87645**
30	Slotted spring pin DIN 1481	**87630**
31	Compression spring	**02851**
32	Steel ball, D = 17 mm	**03263**
33	O-ring 26.7x1.78 PU 90	**87521**
34	Screw	**87646**
35	Lip seal NBR 84-48 x 40 x 5,5	**03390**
36	Locking ring	**03328**
37	Locking pin	**87746**
38	O-ring NBR 70	**87629**
39	Steel ball, D = 19,05 mm	**87631**
40	Pump cylinder	**87643**

REPAIR KITS

Seal kit	**72072**
Piston rod	**87655**
Shift lever	**72090**
Distributor	**87351**

PNEUMATIC GREASE PUMP 10:1



PNEUMATIC GREASE PUMP 10:1

MALFUNCTIONS	CAUSES	SOLUTIONS
Pump runs, but does not deliver sufficiently grease Pump continues to run when the shut-off nozzle is closed (individual strokes at longer intervals)	**Empty tank / container**	▸ Check and if required replace container CLIP **12**
	Pump sucks in air	▸ Run the pump at a maximum pressure of 3 bar and loosen the pressure hose directly at the pump for venting ▸ Press the follower plate down in the container until grease escapes from the center boring ▸ Shake the container CLIP **12**
	Defective / leaky suction valve in the pump cylinder	▸ Check the suction valve [37] for damage or dirt and replace it if required ▸ To do this, unscrew the complete valve [37] out of the pump cylinder [35] and dismantle the clamping sleeve [38]. ▸ Check the interior sealing surface in the suction valve [37] and the valve cone [36] and replace them if damaged CLIP **16** required tools: **a / b / c /d**
	Leaky / defective valve in the pump piston	▸ Check the valve, to do this, remove the complete suction valve [37] and the pump cylinder [35] ▸ Screw the valve screw [34] out of the piston [29] while holding the piston ▸ Clean and check the valve ball [33] and the ball seat in the valve screw [34] and replace it if required CLIP **16** required tools: **a / e / f / g**
	Leaky / defective sealing ring in the pump piston	▸ Check the sealing ring, to do this, remove the complete suction valve [37] and the pump cylinder [35] ▸ Clean and check the sealing ring [30] if damaged, replace also the O-ring below it CLIP **16** required tools: **a / e / f / g**

a Vice with soft jaws (not shown)
b Water pump pliers
c Pin punch D3 and D5
d Hammer
e 2x Pipe wrench
f Open-end wrench WAF 14
g Allen key WAF 8


b


c


d


e


f


g

PNEUMATIC GREASE PUMP 10:1

MALFUNCTIONS	CAUSES	SOLUTIONS
Pump does not start or runs only for a short time	**Excessive counterpressure**	▸ Open the delivery valve, hose cross-section too small, hose too long CLIP 8
Pump works, but pump runs slowly or stops	**Excessive viscosity of the medium**	▸ Maximum admissible degree of consistency NLGI 3 at 15°C CLIP 8
	Not enough compressed air	▸ Ensure sufficient supply of compressed air (max. air consumption 400 l/min) ▸ Dirty filter element [23]. For cleaning, remove the reducer [24] with pressure reducing valve [25] and compressed air connector CLIP 2 required tools: **a / b**
	Unsufficient pressure	▸ Ensure sufficient supply of compressed air (recommended air pressure 6 to 8 bar) ▸ Defective pressure reducing valve [25]. Replace the valve CLIP 2 required tools: **a / b**
	Dirty / icy silencer	▸ Clean the silencer, To do this, remove screws [1] and cage [2] ▸ Clean the silencer [3] with detergent and compressend air ▸ Use only lubricated compressed air (treatment unit with water separator and oil mister) CLIP 2 required tools: **c / d**

a Open-end wrench WAF 19
b Open-end wrench WAF 17
c Vice with soft jaws (not shown)
d Screwdriver, cross-recess


a


b


d

PNEUMATIC GREASE PUMP 10:1

MALFUNCTIONS	**CAUSES**	SOLUTIONS
Pump sputters or stops Pump stops, compressed air continuously escapes through the silencer	**Impurities in the controller housing, excessive wear of controller parts, defective controller parts**	▸ Check the complete controller **Disassembly of the distributor:** ▸ Loosen the screws [1] by a maximum of 2 turns ▸ Briefly apply compressed air to the pump to loosen the distributor ▸ Remove the screws [1], the cage [2] and the silencer [3] and take off the complete distributor [4.1] ▸ Check the complete distributor assembly [4.1 – 4.6] especially the O-rings [4.2, 4.3, 4.4], the face of the distributor [4.1] the valve plate [4.5] and the clamp [4.6] ▸ In case of a defect, replace the complete assembly ▸ During assembly, pay attention to the correct position and the correct seat of the valve plate [4.5] and the clamp [4.6] **Disassembly of the shift levers:** ▸ Loosen the screws [1.1] and remove the inserts [5] on both sides ▸ Remove the compression springs [6.2], sleeves [6.3] and shift levers [6.4] of the controller housing [18] ▸ Check the components for completeness (spalling, spring fracture) ▸ In case of a defect, replace always the complete components on both sides ▸ Before assembly, put at first the O-rings [6.1] into the controller housing [18] then position the control valve [12.3] in central position on the piston rod and put the shift levers [6.4] ; pre-assembled with sleeve [6.3] and compression spring [6.2] into the two grooves at the control valve [12.3] ▸ Use the mounting aid (86896) to put the inserts [5] into the controller housing [18] and screw them down CLIP **3** required tools: **a / b / c / d**

a Vice with soft jaws (not shown)
b Screwdriver, cross-recess
c Lockable compressed air connection
d Needle-nose pliers


b


c


d

PNEUMATIC GREASE PUMP 10:1

MALFUNCTIONS	**CAUSES**	SOLUTIONS
Pump stops, compressed air continuously escapes through the silencer	**Leaky piston unit, leaky O-ring in the controller housing, leaky O-ring in the controller housing**	▸ To do this, dismantle the complete control unit as described under 34 ▸ Dismantle the complete high-pressure tube [28] and the piston rod [26]. To do this, put the pump in the mounting device (86 896) and loosen the high-pressure tube [28] from the connecting flange[21.1] ▸ Put the pump in the mounting device (86 897), and pull the high-pressure hose[28] back until the cross boring with the clamping sleeve [22] becomes visible in the piston rod [26] ▸ Now remove the clamping sleeve [22] and unscrew the high-pressure tube [28] and the piston rod [26] from the piston rod [12.4] ▸ Put the pump again in the mounting device (86 896) and remove the screws [19] ▸ At the piston rod's [12.4] wrench flat, the pump body can then be fixed in a vice (with clamping jaws with smooth surfaces) ▸ Now, take off the pressure cylinder [7] loosen the nut [9] and remove the washer [10], the piston unit [11] and the levelling washer [13] from the piston rod [12.2] ▸ Check the piston unit [11] for damage (voids, cracks) and wear ▸ In addition, check and if required replace the O-ring [12.1] on the piston rod [12.2] ▸ Remove the screws [14] and the washer [15] to check the O-ring [16] CLIP 4 required tools: **a / b / c / d / e / f / g / h / i / j**

a Vice with soft jaws (not shown)
b Screwdriver, cross-recess
c Lockable compressed air connection
d Needle-nose pliers
e Water pump pliers
f 2 x Pipe wrench
g Pin punch D3 and D5
h Hammer
i Allen key WAF 5
j Open-end wrench WAF 17
k Locking ring pliers, internal


b


c


d


e


f


g


h


i


j

PNEUMATIC GREASE PUMP 10:1

MALFUNCTIONS	CAUSES	SOLUTIONS
Oil/ grease escapes at the silencer	**Condensed water/oil in the compressed air hose**	▸ Empty the treatment unit / condensate separator, correctly adjust the oil mister CLIP 6
	Defective seal between pump and controller	▸ Proceed as described under point 34 and 35 ▸ Dismantle [21.3, 21.4, 21.5, 21.6 and 21.7] in the connecting flange [21.1]] ▸ Check the sealing ring [21.6] and the O-Ring [21.3] for damage or wear and replace them if required CLIP 5 required tools: **a / b / c / d /e / f / g / h / i / j / k / l / m**

a Vice with soft jaws (not shown)
b Screwdriver, cross-recess
c Lockable compressed air connection
d Needle-nose pliers
e Open-end wrench WAF 30
f Open-end wrench WAF 17
g Open-end wrench WAF 8
h Water pump pliers
i 2x Pipe wrench
j Pin punch D3 and D5
k Hammer
l Allen key WAF 5
m Locking ring pliers, internal


b


c


d


e


f


g


h


i


j


k


l


m

PNEUMATIC GREASE PUMP 10:1

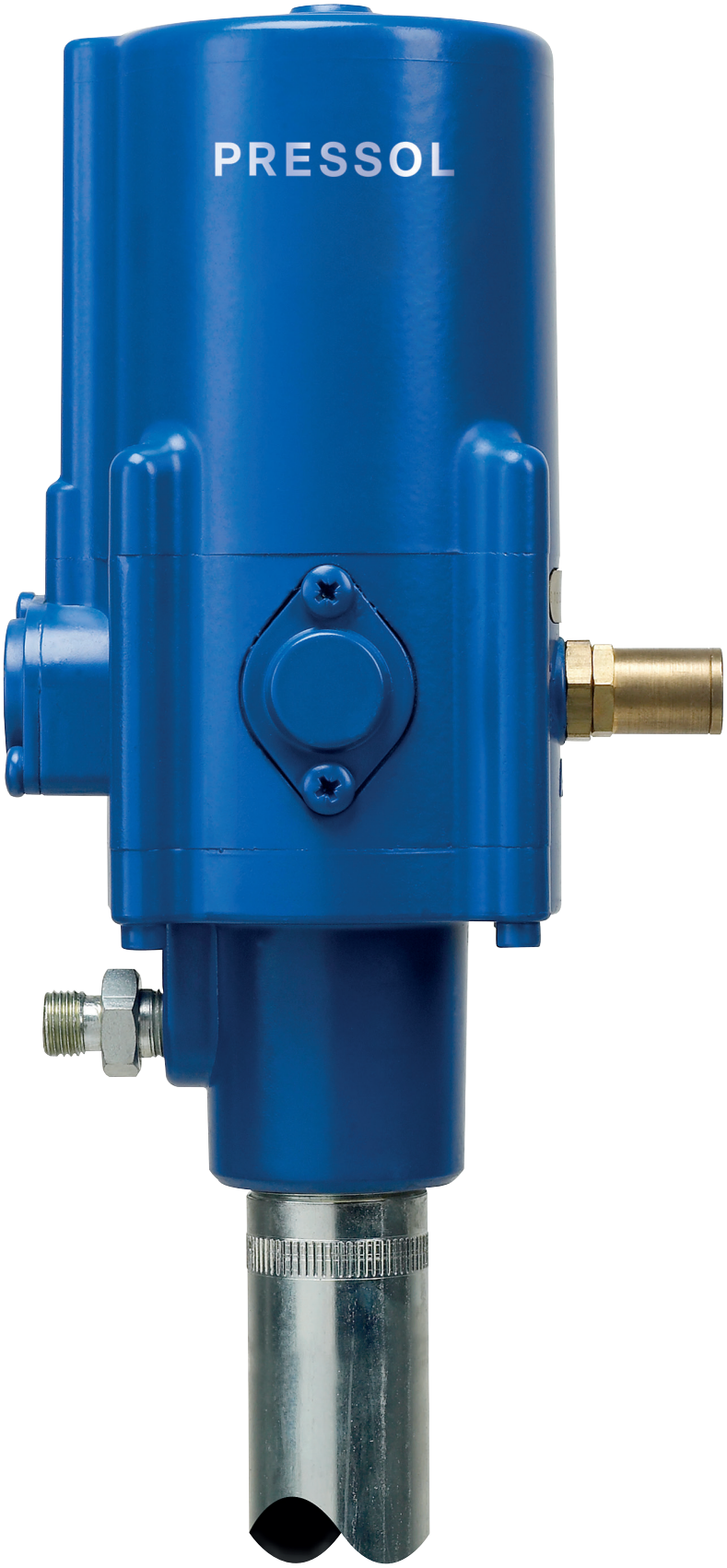
SPARE PARTS LIST

1	Gefu self-tapping screw M 5x16	**87220**
1.1	Gefu self-tapping screw M 5x16	**87220**
2	Cage	**87207**
3	Silencer	**87227**
4.1	Distributor	**87204**
4.2	O-ring NBR 70-26 x 2	**87223**
4.3	O-ring NBR 70-24 x 2	**87224**
4.4	O-ring NBR 70-22 x 2	**87225**
4.5	Valve plate	**87213**
4.6	Clamp	**87214**
5	Insert	**87206**
6.1	O-ring NBR 70-26 x 2	**87223**
6.2	Compression spring	**87215**
6.3	Sleeve	**87209**
6.4	Shift lever	**87210**
7	Pressure cylinder	**03268**
8	O-ring NBR 70-81 x 1,5	**03316**
9	Nut DIN 985 M10	**03311**
10	Washer	**87116**
11	Piston unit NBR 70-80 x 22,5	**03324**
12.1	O-ring NBR 70-8 x 1	**03262**
12.2	Piston rod	**87352**
13	Levelling washer	**03250**
14	Gefu self-tapping screw M4 x 12	**87221**
15	Washer	**87212**
16	O-ring NBR 90-12 x 2	**02380**
17	O-ring NBR 70-8 x 1	**03262**
18	Controller housing	**87211**
19	Cylinder screw M5 x 80	**87222**
20	O-ring NBR 70-35 x 1,5	**87226**
21.1	Connecting flange 50:1	**87216**
21.2	Slide bearing	**03307**
21.3	O-ring NBR 90-12 x 2	**02380**
21.4	Washer	**87262**
21.5	Support washer	**03292**
21.6	Lip seal PU 93 20 x 12 x 5,7 mm	**03387**
21.7	Locking ring DIN 984-20 x 1	**03264**
22	Slotted spring pin ISO 8752	**03260**
23	Filter element	**87228**
24	Reducer	**20122**
25	Pressure reducing valve	**04698**
26	Piston rod	**82814**
27	O-ring 26.7x1.78 PU 90	**87521**
28	High-pressure tube	**82827**
29	Piston	**82829**
30	Turcon glyd ring	**82881**
31	Piston guide ring	**82880**
32	Compression spring, cyl. 0,8 x 10 x 20 x 3,5	**82875**
33	Steel ball, 16mm	**82879**
34	Valve screw	**82874**
35	Pump cylinder	**82828**
36	Valve cone	**82872**
37	Suction valve	**82873**
38	Slotted spring pin ISO 8752	**84163**

REPAIR KITS

Seal kit	**72073**
Piston rod	**87352**
Shift lever	**72090**
Distributor	**87351**

PNEUMATIC GREASE PUMP 15:1



PNEUMATIC GREASE PUMP 15:1

MALFUNCTIONS	CAUSES	SOLUTIONS
Pump runs, but does not deliver sufficiently grease. Pump continues to run when the shut-off nozzle is closed (individual strokes at longer intervals)	**Empty tank / container**	▸ Check and if required replace container CLIP **12**
	Pump sucks in air	▸ Run the pump at a maximum pressure of 3 bar and loosen the pressure hose directly at the pump for venting ▸ Press the follower plate down in the container until grease escapes from the center boring ▸ Shake the container CLIP **12**
	Suction fitting or strainer in the pump dirty	▸ Check and clean the suction fitting [43] CLIP **13** required tools: **a / b**
	Defective / leaky suction valve in the pump cylinder	▸ Check the sealing cone [39] and the lip seal [38] for damage or dirt and replace if required ▸ To do this, dismantle [43, 42, 41, 40] ▸ Check the interior sealing surface in the valve body [40] if damaged, replace part ▸ Check the outside surface of the threaded rod [31] replace if damaged CLIP **13** required tools: **a / b / c / d / e / f / g**
	Leaky / defective valve in the pump piston	▸ Check the valve. To do this, dismantle [43, 42, 41, 40, 39, 36, 34] ▸ Pull the complete piston rod downwards by means of a mandrel in the cross boring of the piston[29] ▸ Remove the clamping sleeve [27] and unscrew the piston [29] and the ball [28] ▸ Clean and check the ball [28] and the ball seat in the piston [29] and replace them if required CLIP **13** required tools: **a / b / c / d / e / f / g**
	Leaky / defective sealing ring in the pump piston	▸ Check the sealing ring, to do this dismantle [43, 42, 41, 40, 39, 36, 34] ▸ Remove the sealing ring [35] from the adapter [34] clean and check it and replace it if required CLIP **13** required tools: **a / b / c / d / e / f / g**

a Vice with soft jaws (not shown)
b Open-end wrench WAF 30
c Open-end wrench WAF 8
d Water pump pliers
e Locking ring pliers, internal
f 2x Pipe wrench
g Pin punch D3 and D6
h Hammer


b


c


d


e


f


g


h

PNEUMATIC GREASE PUMP 15:1

MALFUNCTIONS	CAUSES	SOLUTIONS
Pump does not start or runs only for a short time	**Excessive counterpressure**	▸ Open the delivery valve, hose cross-section too small, hose too long CLIP 8
Pump works, but pump runs slowly or stops	**Excessive viscosity of the medium**	▸ Maximum admissible degree of consistency NLGI 3 at 15°C CLIP 8
	Not enough compressed air	▸ Ensure sufficient supply of compressed air (max. air consumption 400l/min) ▸ Dirty filter element [23]. For cleaning, remove the reducer [24] with pressure reducing valve [25] and compressed air connector CLIP 2 required tools: **a / b**
	Unsufficient pressure	▸ Ensure sufficient supply of compressed air (recommended air pressure 6 to 8 bar) ▸ Defective pressure reducing valve [25]. Replace the valve CLIP 2 required tools: **a / b**
	Dirty / icy silencer	▸ Clean the silencer to do this, remove screws [1] and cage [2] ▸ Clean the silencer [3] with detergent and compressend air ▸ Use only lubricated compressed air (treatment unit with water separator and oil mister) CLIP 2 required tools: **c / d**

a Vice with soft jaws (not shown)
b Open-end wrench WAF 19
c Open-end wrench WAF 17
d Screwdriver, cross-recess


b


c


d

PNEUMATIC GREASE PUMP 15:1

MALFUNCTIONS	**CAUSES**	SOLUTIONS
Pump sputters or stops	**Impurities in the controller housing,** **excessive wear of controller parts,** **defective controller parts**	▸ Check the complete controller **Disassembly of the distributor:** ▸ Loosen the screws [1] by a maximum of 2 turns ▸ Briefly apply compressed air to the pump to loosen the distributor ▸ Remove the screws [1], the cage [2] and the silencer [3] and take off the complete distributor [4.1] ▸ Check the complete distributor assembly [4.1 – 4.6] especially the O-rings [4.2, 4.3, 4.4], the face of the distributor [4.1] the valve plate [4.5] and the clamp [4.6] ▸ In case of a defect, replace the complete assembly. ▸ During assembly, pay attention to the correct position and the correct seat of the valve plate [4.5] and the clamp [4.6] **Disassembly of the shift levers:** ▸ Loosen the screws [1.1] and remove the inserts [5] on both sides ▸ Remove the compression springs [6.2], sleeves [6.3] and shift levers [6.4] of the controller housing [18] ▸ Check the components for completeness (spalling, spring fracture).) ▸ In case of a defect, replace always the complete components on both sides ▸ Before assembly, put at first the O-rings [6.1] into the controller housing [18] then position the control valve [12.3] in central position on the piston rod and put the shift levers [6.4] pre-assembled with sleeve [6.3]and compression spring [6.2]] into the two grooves at the control valve [12.3] ▸ Use the mounting aid (86896) to put the inserts [5] into the controller housing [18] and screw them down CLIP 3 required tools: **a / b / c / d**

a Vice with soft jaws (not shown)
b Screwdriver, cross-recess
c Lockable compressed air connection
d Needle-nose pliers


b


c


d

PNEUMATIC GREASE PUMP 15:1

MALFUNCTIONS	**CAUSES**	SOLUTIONS
Pump stops, compressed air continuously escapes through the silencer	**Leaky piston unit, leaky O-ring in the controller housing**	▸ To do this, dismantle the complete controller as described under 42 ▸ Dismantle the complete pump unit, inlcuding the high-pressure tube and the piston rod ▸ To do this, remove the suction fitting [43], push the piston rod and the grease feeder [41] in the upper end position and dismantle it ▸ Dismantle then the the valve body [40] and the valve cone [39] ▸ Put the pump in the mounting device (86 896) and loosen the high-pressure tube [33] from the connecting flange [21.1] ▸ Put the pump in the mounting device (86 897), pull the high-pressure tube [33] backwards until the cross boring with the clamping sleeve [22] becomes visible in the piston rod [26] ▸ Remove now the clamping sleeve [22] and unscrew the high-pressure tube [33] and the piston rod [26] from the piston rod [12.4] ▸ Put the pump again in the mounting device (86 896) and remove the screws [19] ▸ At the piston rod's [12.4] wrench flat, the pump body can then be fixed in a vice (with clamping jaws with smooth surfaces) ▸ Now, take off the pressure cylinder [7] loosen the nut [9] and remove the washer [10], the piston unit [11] and the levelling washer [13] from the piston rod [12.4] ▸ Check the piston unit [11] for damage (voids, cracks) and wear ▸ In addition, check and if required replace the O-ring [12.1] on the piston rod [12.2] ▸ Remove the screws [14] and the washer [15] to check the O-ring [16] CLIP 4 required tools: **a / b / c / d / e / f / g / h / i / j / k / l**

a Vice with soft jaws (not shown)
b Screwdriver, cross-recess
c Lockable compressed air connection
d Needle-nose pliers
e Gabelschlüßel SW 30
f Open-end wrench WAF 17
g Open-end wrench WAF 8
h Water pump pliers
i 2 x Pipe wrench
j Pin punch D3 and D5
k Hammer
l Allen key WAF 5


b


c


d


e


f


g


h


i


j


k


l

PNEUMATIC GREASE PUMP 15:1

MALFUNCTIONS	CAUSES	SOLUTIONS
Oil escapes at the silencer	**Condensed water/oil in the compressed air hose**	▸ Empty the treatment unit / condensate separator, correctly adjust the oil mister CLIP 6
	Defective seal between pump and controller	▸ Proceed as described under page 42 and 43. ▸ Dismantle [21.3, 21.4, 21.5, 21.6 and 21.7] in the connecting flange [21.1] ▸ Check the sealing ring [21.6] and the O-ring [21.3] for damage or wear and replace them if required CLIP 5 required tools: **a / b / c / d /e / f / g / h / i / j / k / l / m**

a Vice with soft jaws (not shown)
b Screwdriver, cross-recess
c Lockable compressed air connection
d Needle-nose pliers
e Open-end wrench WAF 30
f Open-end wrench WAF 17
g Open-end wrench WAF 8
h Water pump pliers
i 2x Pipe wrench
j Pin punch D3 and D5
k Hammer
l Allen key WAF 5
m Locking ring pliers, internal


b


c


d


e


f


g


h


i


j


k


l


m

PNEUMATIC GREASE PUMP 15:1

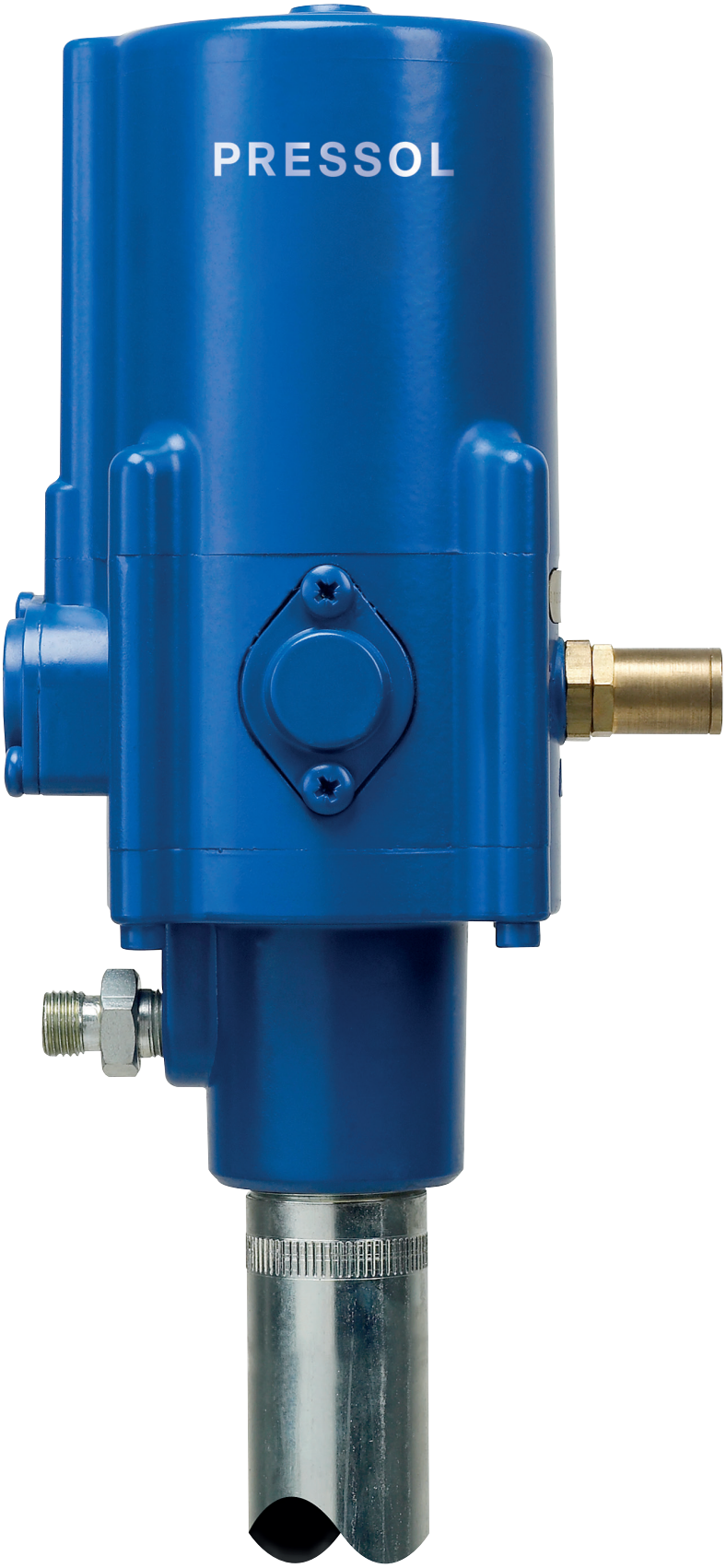
SPARE PARTS LIST

1	Gefu self-tapping screw M 5x16	**87220**
1.1	Gefu self-tapping screw M 5x16	**87220**
2	Cage	**87207**
3	Silencer	**87227**
4.1	Distributor	**87204**
4.2	O-ring NBR 70-26 x 2	**87223**
4.3	O-ring NBR 70-24 x 2	**87224**
4.4	O-ring NBR 70-22 x 2	**87225**
4.5	Valve plate	**87213**
4.6	Clamp	**87214**
5	Insert	**87206**
6.1	O-ring NBR 70-26 x 2	**87223**
6.2	Compression spring	**87215**
6.3	Sleeve	**87209**
6.4	Shift lever	**87210**
7	Pressure cylinder	**03268**
8	O-ring NBR 70-81 x 1,5	**03316**
9	Nut DIN 985 M10	**03311**
10	Washer	**87116**
11	Piston unit NBR 70-80 x 22,5	**03324**
12.1	O-ring NBR 70-8 x 1	**03262**
12.2	Piston rod	**87352**
13	Levelling washer	**03250**
14	Gefu self-tapping screw M4 x 12	**87221**
15	Washer	**87212**
16	O-ring NBR 90-12 x 2	**02380**
17	O-ring NBR 70-8 x 1	**03262**
18	Controller housing	**87211**
19	Cylinder screw M5 x 80	**87222**
20	O-ring NBR 70-35 x 1,5	**87226**
21.1	Connecting flange 50:1	**87216**
21.2	Slide bearing	**03307**
21.3	O-ring NBR 90-12 x 2	**02380**
21.4	Washer	**87262**
21.5	Support washer	**03292**
21.6	Lip seal PU 93 20 x 12 x 5,7 mm	**03387**
21.7	Locking ring DIN 984-20 x 1	**03264**
22	Slotted spring pin ISO 8752	**03260**
23	Filter element	**87228**
24	Reducer	**20122**
25	Pressure reducing valve	**04698**
26	Piston rod	**87518**
27	Slotted spring pin	**03260**
28	Steel ball, D = 6 mm	**03304**
29	Pressure piston	**82481**
30	Nut DIN 934	**00808**
31	Threaded rod	**87509**
32	O-ring 26.7x1.78 PU 90	**87521**
33	High-pressure tube	**87513**
34	Adapter for grease pump	**82480**
35	Rod seal-PU 90	**03317**
36	Pressure cylinder	**82479**
37	Locking ring	**03501**
38	Lip seal PU93	**00152**
39	Valve cone	**03477**
40	Valve body	**82482**
41	Grease feeder	**87528**
42	Nut DIN 985	**01085**
43	Suction fitting	**87504**

REPAIR KITS

Seal kit	**72074**
Piston rod	**87352**
Shift lever	**72090**
Distributor	**87351**

PNEUMATIC GREASE PUMP 50:1



PNEUMATIC GREASE PUMP 50:1

MALFUNCTIONS	CAUSES	SOLUTIONS
Pump runs, but does not deliver sufficiently grease	**Empty tank / container**	▸ Check and if required replace container CLIP **12**
Pump continues to run when the shut-off nozzle is closed (individual strokes at longer intervals)	**Trapped air in the container or in the pump**	▸ Run the pump at a maximum pressure of 3 bar and loosen the pressure hose directly at the pump for venting ▸ Press the follower plate down in the container until grease escapes from the center boring ▸ Shake the container CLIP **12**
	Suction fitting or strainer in the pump dirty	▸ Check and clean the suction fitting [45] ▸ Check and clean the strainer [41] to do this dismantle [45, 44, 43, 42] CLIP **13** required tools: **a / b / c / d / e**
	Leaky / defective suction valve in the pump piston	▸ Check the sealing cone [39] and the lip seal [38] for damage or dirt and replace if required ▸ To do this, dismantle [45, 44, 43, 40] ▸ Check the interior sealing surface [40] if damaged replace the part ▸ Check the outside surface of the threaded rod [31] replace if damaged CLIP **13** required tools: **a / b / c / d / e / f / g / h**
	Leaky / defective valve in the pump piston	▸ Check the valve, to do this, dismantle [45, 44, 43, 40, 39, 36, 34] ▸ Pull the complete piston rod downwards by means of a mandrel in the cross boring of the piston [29] ▸ Remove the clamping sleeve [27] and unscrew the piston [29] and the ball [28] ▸ Clean and check the ball [28] and the ball seat in the piston [29] and replace it if required CLIP **13** required tools: **a / b / c / d / e / f / g / h**
	Leaky / defective sealing ring in the pump piston	▸ Check the sealing ring, to do this, dismantle [45, 44, 43, 40, 39, 36, 34] ▸ Loosen the sealing ring [35] from the adapter [34] clean and replace it if required CLIP **13** required tools: **a / b / c / d / e / f / g / h**

a Vice with soft jaws (not shown)
b Gabelschlüßel SW 30
c Open-end wrench WAF 8
d Water pump pliers
e 2 x Locking ring pliers, internal
f 2 x Pipe wrench
g Pin punch D3 and D5
h Hammer


b


c


d


e


f


g


h

PNEUMATIC GREASE PUMP 50:1

MALFUNCTIONS	CAUSES	SOLUTIONS
Pump does not start or runs only for a short time	**Excessive counterpressure**	▸ Open the delivery valve, hose cross-section too small, hose too long CLIP 8
Pump works, pump runs slowly or stops	**Excessive viscosity of the medium**	▸ Maximum admissible degree of consistency NLGI 2 at 15°C CLIP 9
	Not enough compressed air	▸ Ensure sufficient supply of compressed air (max. air consumption 400 l/min) ▸ Dirty filter element [23]. For cleaning, remove the reducer [24] with pressure reducing valve [25] and compressed air connector CLIP 2 required tools: **a / b**
	Unsufficient pressure	▸ Ensure sufficient supply of compressed air (recommended air pressure 6 to 8 bar) ▸ Defective pressure reducing valve [25] . Replace the valve CLIP 2 required tools: **a / b**
	Dirty / icy silencer	▸ Clean the silencer, to do this, remove the screws [1] and the cage [2] ▸ Clean the silencer [3] with detergent and compressend air ▸ Use only lubricated compressed air (treatment unit with water separator and oil mister) CLIP 2 required tools: **c / d**

a Open-end wrench WAF 19
b Open-end wrench WAF 17
c Vice with soft jaws (not shown)
d Screwdriver, cross-recess


a


b


d

PNEUMATIC GREASE PUMP 50:1

MALFUNCTIONS	**CAUSES**	SOLUTIONS
Pump sputters or stops Pump stops, compressed air continuously escapes through the silencer	**Impurities in the controller housing, excessive wear of controller parts, defective controller parts**	▸ Check the complete controller **Disassembly of the distributor:** ▸ Loosen the screws [1] by a maximum of 2 turns ▸ Briefly apply compressed air to the pump to loosen the distributor ▸ Remove the screws [1] the cage [2] and the silencer [3] and take off the complete distributor [4.1] ▸ Check the complete distributor assembly [4.1 – 4.6] especially the O-rings [4.2, 4.3, 4.4], the face of the distributor [4.1] the valve plate [4.5] and the clamp [4.6] ▸ In case of a defect, replace the complete assembly. ▸ During assembly, pay attention to the correct position and the correct seat of the valve plate [4.5] and the clamp [4.6] **Disassembly of the shift levers:** ▸ Loosen the screws [1.1] and remove the inserts [5] on both sides ▸ Remove the compression springs [6.2], sleeves [6.3] and shift levers [6.4] of the controller housing [18] ▸ Check the components for completeness (spalling, spring fracture) ▸ In case of a defect, replace always the complete components on both sides ▸ Before assembly, put at first the O-rings [6.1] into the controller housing [18] then position the control valve [12.3] in central position on the piston rod and put the shift levers [6.4] pre-assembled with sleeve [6.3] and compression spring [6.2] into the two grooves at the control valve [12.3] ▸ Use the mounting aid (86896) to put the inserts [5] into the controller housing [18] and screw them down CLIP 3 required tools: **a** / **b** / **c** / **d**

a Vice with soft jaws (not shown)
b Screwdriver, cross-recess
c Lockable compressed air connection
d Needle-nose pliers


b


c


d

PNEUMATIC GREASE PUMP 50:1

MALFUNCTIONS	**CAUSES**	SOLUTIONS
Pump stops, compressed air continuously escapes through the silencer	**Leaky piston unit, leaky O-ring in the controller housing**	▸ To do this, dismantle the complete control unit as described under 50 ▸ Dismantle the complete pump unit, inlcuding the high-pressure tube and the piston rod ▸ To do this, remove the suction fitting [45], push the piston rod and the grease feeder [43] in the upper end position and dismantle it. ▸ Dismantle then the the valve body [40] and the valve cone [39] ▸ Put the pump in the mounting device (86 896) and loosen the high-pressure tube [33] from the connecting flange [21.2] ▸ Put the pump in the mounting device (86 897), pull the high-pressure tube [33] back until the cross boring with the clamping sleeve [22] becomes visible in the piston rod [26] ▸ Remove now the clamping sleeve [22] and unscrew the high-pressure tube [33] and piston rod [26] from the piston rod [12.4] ▸ Put the pump again in the mounting device (86 896) and remove the screws [19] ▸ At the piston rod's [12.4] wrench flat, the pump body can then be fixed in a vice (with clamping jaws with smooth surfaces) ▸ Now, take off the pressure cylinder [7] loosen the nut [9] and remove the washer [10], the piston unit [11] and the levelling washer [13] from the piston rod [12.4] ▸ Check the piston unit [11] for damage (voids, cracks) and wear ▸ In addition, check and if required replace the O-ring [12.1] on the piston rod [12.2] ▸ Remove the screws [14] and the washer [15] to check the O-ring [16] CLIP 4 required tools: **a / b / c / d / e / f / g / h / i / j / k / l**

a Vice with soft jaws (not shown)
b Screwdriver, cross-recess
c Lockable compressed air connection
d Needle-nose pliers
e Open-end wrench WAF 30
f Open-end wrench WAF 17
g Open-end wrench WAF 8
h Water pump pliers
i 2 x Pipe wrench
j Pin punch D3 and D5
k Hammer
l Allen key WAF 5


b


c


d


e


f


g


h


i


j


k


l

PNEUMATIC GREASE PUMP 50:1

MALFUNCTIONS	CAUSES	SOLUTIONS
Oil / grease escapes at the silencer	**Condensed water/oil in the compressed air hose**	▸ Empty the treatment unit / condensate separator, correctly adjust the oil mister. CLIP 6
	Defective seal between pump and controller	▸ Proceed as described under point 50 and 51 ▸ Dismantle [21.3, 21.4, 21.5, 21.6 and 21.7] in the connecting flange [21.1] ▸ Check the sealing ring [21.6] and the O-ring [21.3] for damage or wear and replace them if required CLIP 5 required tools: **a / b / c / d / e / f / g / h / i / j / k / l / m**

a Vice with soft jaws (not shown)
b Screwdriver, cross-recess
c Lockable compressed air connection
d Needle-nose pliers
e Open-end wrench WAF 30
f Open-end wrench WAF 17
g Open-end wrench WAF 8
h Water pump pliers
i 2 x Pipe wrench
j Pin punch D3 and D5
k Hammer
l Allen key WAF 5
m Locking ring pliers, internal


b


c


d


e


f


g


h


i


j


k


l


m

PNEUMATIC GREASE PUMP 50:1

SPARE PARTS LIST

1	Gefu self-tapping screw M 5x16	**87220**
1.1	Gefu self-tapping screw M 5x16	**87220**
2	Cage	**87207**
3	Silencer	**87227**
4.1	Distributor	**87204**
4.2	O-ring NBR 70-26 x 2	**87223**
4.3	O-ring NBR 70-24 x 2	**87224**
4.4	O-ring NBR 70-22 x 2	**87225**
4.5	Valve plate	**87213**
4.6	Clamp	**87214**
5	Insert	**87206**
6.1	O-ring NBR 70-26 x 2	**87223**
6.2	Compression spring	**87215**
6.3	Sleeve	**87209**
6.4	Shift lever	**87210**
7	Pressure cylinder	**03268**
8	O-ring NBR 70-81 x 1,5	**03316**
9	Nut DIN 985 M10	**03311**
10	Washer	**87116**
11	Piston unit NBR 70-80 x 22,5	**03324**
12.1	O-ring NBR 70-8 x 1	**03262**
12.2	Piston rod	**87352**
13	Levelling washer	**03250**
14	Gefu self-tapping screw M4 x 12	**87221**
15	Washer	**87212**
16	O-ring NBR 90-12 x 2	**02380**
17	O-ring NBR 70-8 x 1	**03262**
18	Controller housing	**87211**
19	Cylinder screw M5 x 80	**87222**
20	O-ring NBR 70-35 x 1,5	**87226**
21.1	Connecting flange 50:1	**87216**
21.2	Slide bearing	**03307**
21.3	O-ring NBR 90-12 x 2	**02380**
21.4	Washer	**87262**
21.5	Support washer	**03292**
21.6	Lip seal PU 93 20 x 12 x 5,7 mm	**03387**
21.7	Locking ring DIN 984-20 x 1	**03264**
22	Slotted spring pin ISO 8752	**03260**
23	Filter element	**87228**
24	Reducer	**20122**
25	Pressure reducing valve	**04698**
26	Piston rod	**87516**
27	Slotted spring pin ISO 8752	**03260**
28	Steel ball, D = 6 mm	**03304**
29	Pressure piston	**87508**
30	Nut DIN 934	**00808**
31	Threaded rod	**87509**
32	O-ring 26.7 x 1.78 PU 90	**87521**
33	High-pressure tube	**87511**
34	Adapter	**87507**
35	Rod seal-24 x 16 x 5,7-PU93	**87522**
36	Pressure cylinder	**87506**
37	Locking ring bore hole 13 x 1	**03501**
38	Lip seal PU93	**00152**
39	Valve cone	**03477**
40	Valve body	**87505**
41	Strainer	**03503**
42	Locking ring	**03328**
43	Grease feeder	**87528**
44	Nut DIN 985	**01085**
45	Suction fitting	**87504**

REPAIR KITS

Seal kit	**72075**
Piston rod	**87352**
Shift lever	**72090**
Distributor	**87351**

REPAIR KITS PARTS LIST

Pneumatic oil and diesel pump 1:1	**Seal kit 72070**		**Piston rod 87354**	**Shift lever 72090**	**Distributor 87351**
	03262	87224	03262	87210	87204
	03324	02380	87205	87209	87223
	87225	88164	87208	87215	87224
	03316	88165	02841	87223	87225
	87223	03389			87213
	87226	02850			87214
	03338				

Pneumatic radiator antifreeze pump 1:1	**Piston rod 87354**	**Shift lever 72090**	**Distributor 87351**
	03262	87210	87204
	87205	87209	87223
	87208	87215	87224
	02841	87223	87225
			87213
			87214

Pneumatic oil pump 3:1	**Seal kit 72071**		**Piston rod 87353**	**Shift lever 72090**	**Distributor 87351**
	03262	02380	03262	87210	87204
	03324	03387	87205	87209	87223
	87225	03390	87208	87215	87224
	03316	02849	02843	87223	87225
	87223	88164			87213
	87226	88165			87214
	87224	87521			

Pneumatic oil pump 5:1	**Seal kit 72072**		**Piston rod 87655**	**Shift lever 72090**	**Distributor 87351**
	03262	02380	03262	87210	87204
	03324	88164	87205	87209	87223
	87225	88165	87208	87215	87224
	03316	03387	87633	87223	87225
	87223	87629			87213
	87226	87632			87214
	87521	03390			
	87224				

REPAIR KITS PARTS LIST

Pneumatic grease pump 10:1	**Seal kit 72073**		**Piston rod 87352**	**Shift lever 72090**	**Distributor 87351**
	87521	87225	03262	87210	87204
	03316	87224	87205	87209	87223
	03324	03262	87208	87215	87224
	02380	87226	02840	87223	87225
	87223	03387			87213
					87214

Pneumatic grease pump 15:1	**Seal kit 72074**		**Piston rod 87352**	**Shift lever 72090**	**Distributor 87351**
	87521	87223	03262	87210	87204
	03317	87225	87205	87209	87223
	00152	87224	87208	87215	87224
	03316	03262	02840	87223	87225
	03324	87226			87213
	02380	03387			87214

Pneumatic grease pump 50:1	**Seal kit 72075**		**Piston rod 87352**	**Shift lever 72090**	**Distributor 87351**
	03262	87224	03262	87210	87204
	03324	02380	87205	87209	87223
	87225	03387	87208	87215	87224
	03316	87521	02840	87223	87225
	87223	87522			87213
	87226	00152			87214

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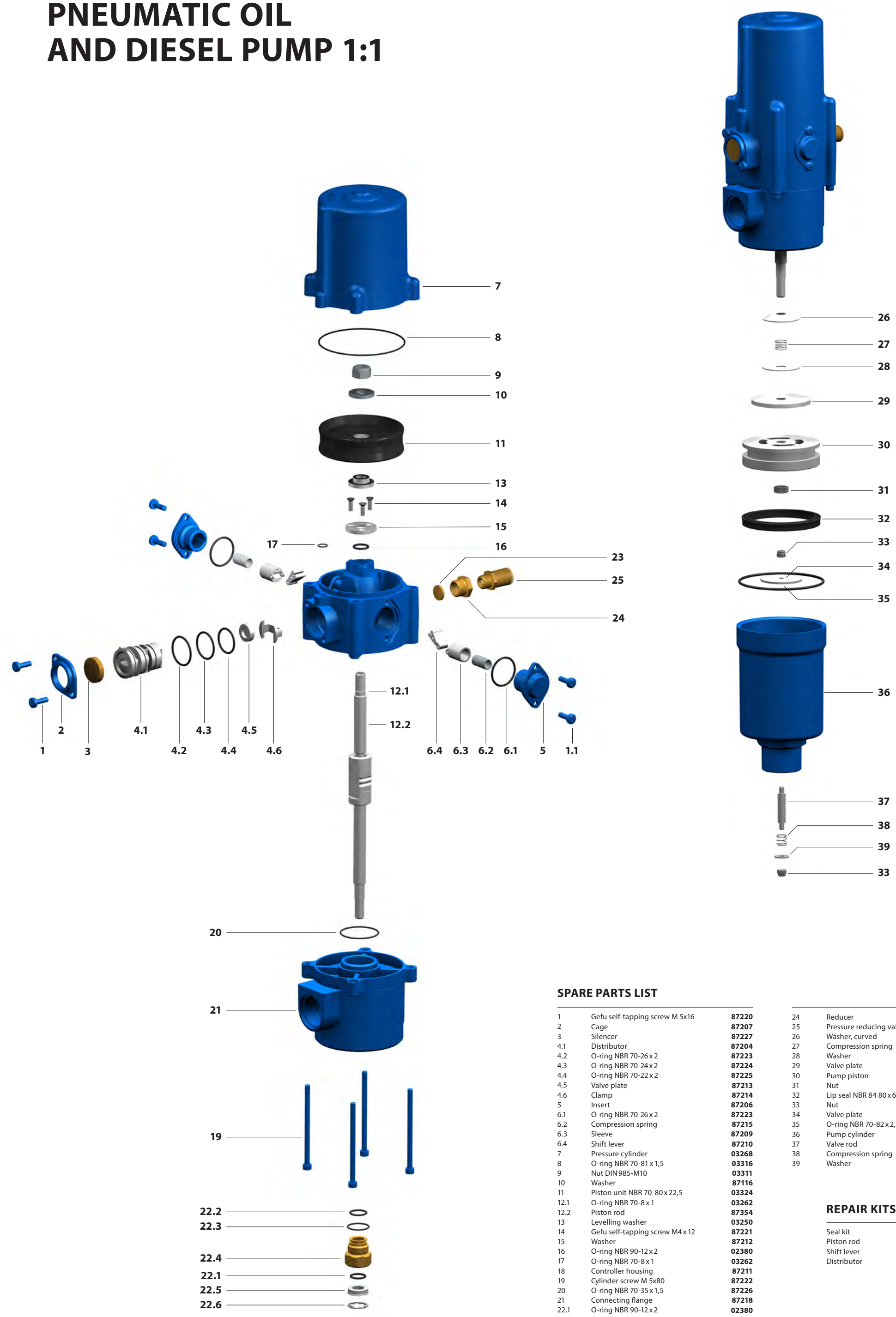
PNEUMATIC OIL AND DIESEL PUMP 1:1



SPARE PARTS LIST

1	Gefu self-tapping screw M 5x16	**87220**
2	Cage	**87207**
3	Silencer	**87227**
4.1	Distributor	**87204**
4.2	O-ring NBR 70-26 x 2	**87223**
4.3	O-ring NBR 70-24 x 2	**87224**
4.4	O-ring NBR 70-22 x 2	**87225**
4.5	Valve plate	**87213**
4.6	Clamp	**87214**
5	Insert	**87206**
6.1	O-ring NBR 70-26 x 2	**87223**
6.2	Compression spring	**87215**
6.3	Sleeve	**87209**
6.4	Shift lever	**87210**
7	Pressure cylinder	**03268**
8	O-ring NBR 70-81 x 1,5	**03316**
9	Nut DIN 985-M10	**03311**
10	Washer	**87116**
11	Piston unit NBR 70-80 x 22,5	**03324**
12.1	O-ring NBR 70-8 x 1	**03262**
12.2	Piston rod	**87354**
13	Levelling washer	**03250**
14	Gefu self-tapping screw M4 x 12	**87221**
15	Washer	**87212**
16	O-ring NBR 90-12 x 2	**02380**
17	O-ring NBR 70-8 x 1	**03262**
18	Controller housing	**87211**
19	Cylinder screw M 5x80	**87222**
20	O-ring NBR 70-35 x 1,5	**87226**
21	Connecting flange	**87218**
22.1	O-ring NBR 90-12 x 2	**02380**
22.2	O-ring NBR 70-14 x 1,78	**88164**
22.3	O-ring NBR 70-19 x 1,5	**88165**
22.4	Adapter	**88152**
22.5	Lip seal NBR 72-20 x 12 x 5,5	**03338**
22.6	Locking ring DIN 984-20 x 1	**03264**
23	Filter element	**87228**
24	Reducer	**20122**
25	Pressure reducing valve	**04698**
26	Washer, curved	**03509**
27	Compression spring	**02851**
28	Washer	**03507**
29	Valve plate	**03410**
30	Pump piston	**02847**
31	Nut	**03415**
32	Lip seal NBR 84 80 x 68 x 8,5mm	**03389**
33	Nut	**01085**
34	Valve plate	**03417**
35	O-ring NBR 70-82 x 2,5	**02850**
36	Pump cylinder	**02855**
37	Valve rod	**03336**
38	Compression spring	**02852**
39	Washer	**02853**

REPAIR KITS

Seal kit	**72070**
Piston rod	**87354**
Shift lever	**72090**
Distributor	**87351**

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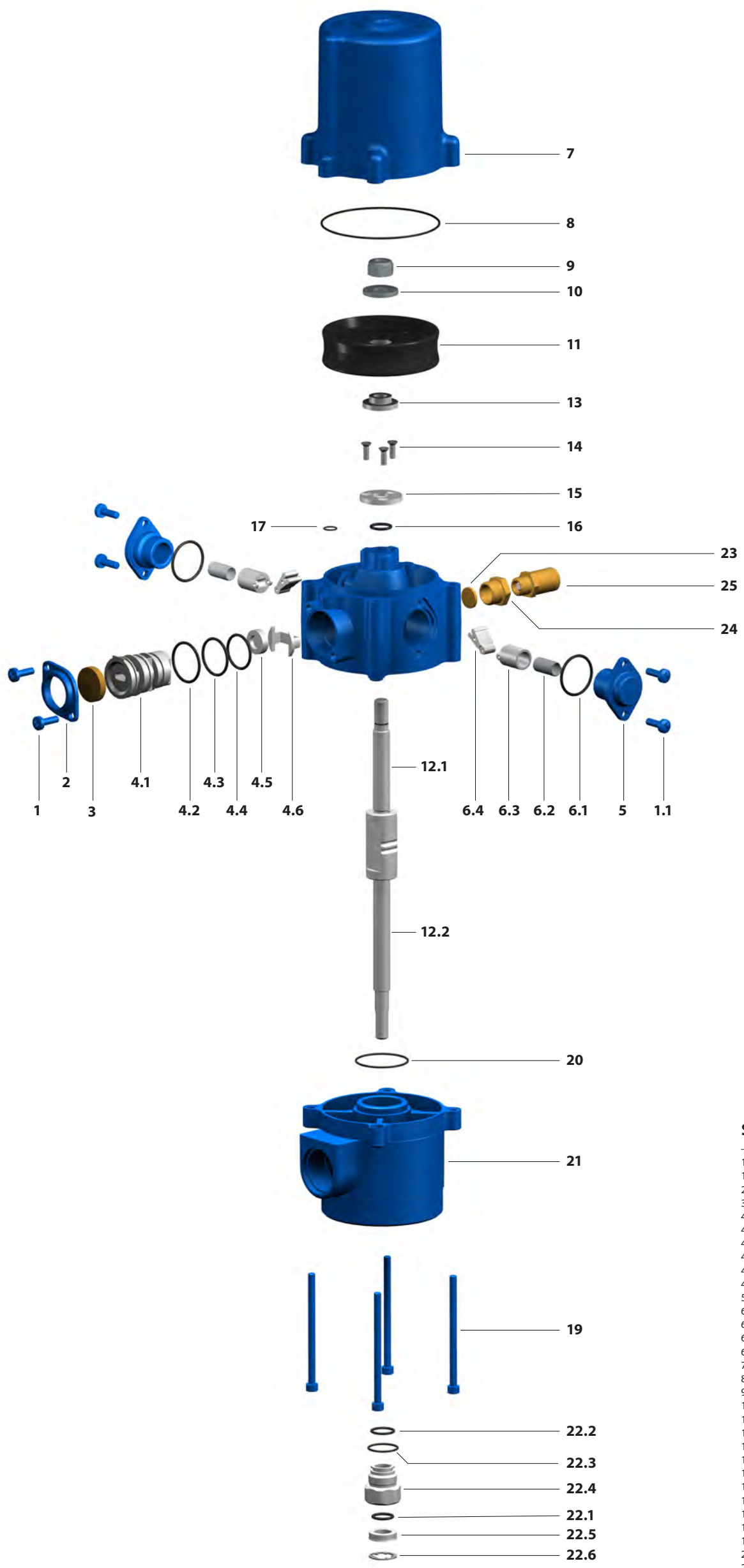
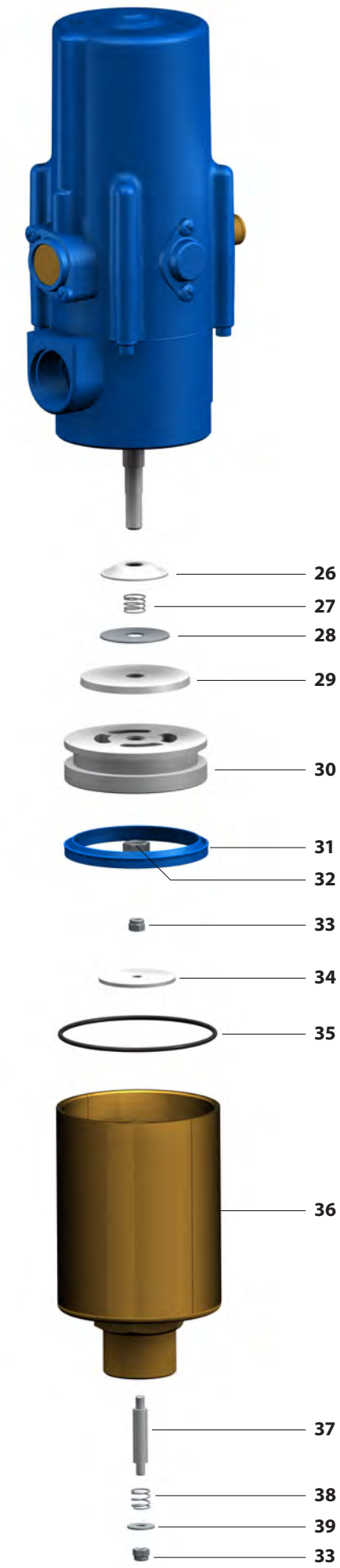
PNEUMATIC RADIATOR ANTIFREEZE PUMP 1:1





SPARE PARTS LIST

1	Gefu self-tapping screw M 5x16	**87220**
1.1	Gefu self-tapping screw M 5x16	**87220**
2	Cage	**87207**
3	Silencer	**87227**
4.1	Distributor	**87204**
4.2	O-ring NBR 70-26 x 2	**87223**
4.3	O-ring NBR 70-24 x 2	**87224**
4.4	O-ring NBR 70-22 x 2	**87225**
4.5	Valve plate	**87213**
4.6	Clamp	**87214**
5	Insert	**87206**
6.1	O-ring NBR 70-26 2	**87223**
6.2	Compression spring	**87215**
6.3	Sleeve	**87209**
6.4	Shift lever	**87210**
7	Pressure cylinder	**03268**
8	O-ring NBR 70-81 1,5	**03316**
9	Nut DIN 985-M10	**03311**
10	Washer	**87116**
11	Piston unit NBR 70-80 x 22,5	**03324**
12.1	O-ring NBR 70-8 x 1	**03262**
12.2	Piston rod	**87354**
13	Levelling washer	**03250**
14	Gefu self-tapping screw M4 x 12	**87221**
15	Washer	**87212**
16	O-ring NBR 90-12 x 2	**02380**
17	O-ring NBR 70-8 x 1	**03262**
18	Controller housing	**87211**
19	Cylinder screw M5 x 80	**87222**
20	O-ring NBR 70-35 x 1,5	**87226**
21	Connecting flange	**87218**
22.1	O-ring NBR 90-12 x 2	**02380**
22.2	O-ring NBR 70-14 x 1,78	**88164**
22.3	O-ring NBR 70-19 x 1,5	**88165**
22.4	Adapter	**88152**
22.5	Rod seal 12 x 20 x 5,5	**87791**
22.6	Locking ring DIN 984-20 x 1	**03264**
23	Filter element	**87228**
24	Reducer	**20122**
25	Pressure reducing valve	**04698**
26	Washer, curved	**03509**
27	Compression spring	**02851**
28	Washer	**03507**
29	Valve plate 60 x 10,6 mm	**03410**
30	Pump piston	**02847**
31	Nut	**03415**
32	Piston seal 80 x 68 x 8,5	**87792**
33	Nut	**01085**
34	Valve plate	**03417**
35	O-ring NBR 70-82 x 2,5	**02850**
36	Pump cylinder	**87790**
37	Valve rod	**03336**
38	Compression spring	**02852**
39	Washer	**02853**

REPAIR KITS

Piston rod	**87354**
Shift lever	**72090**
Distributor	**87351**

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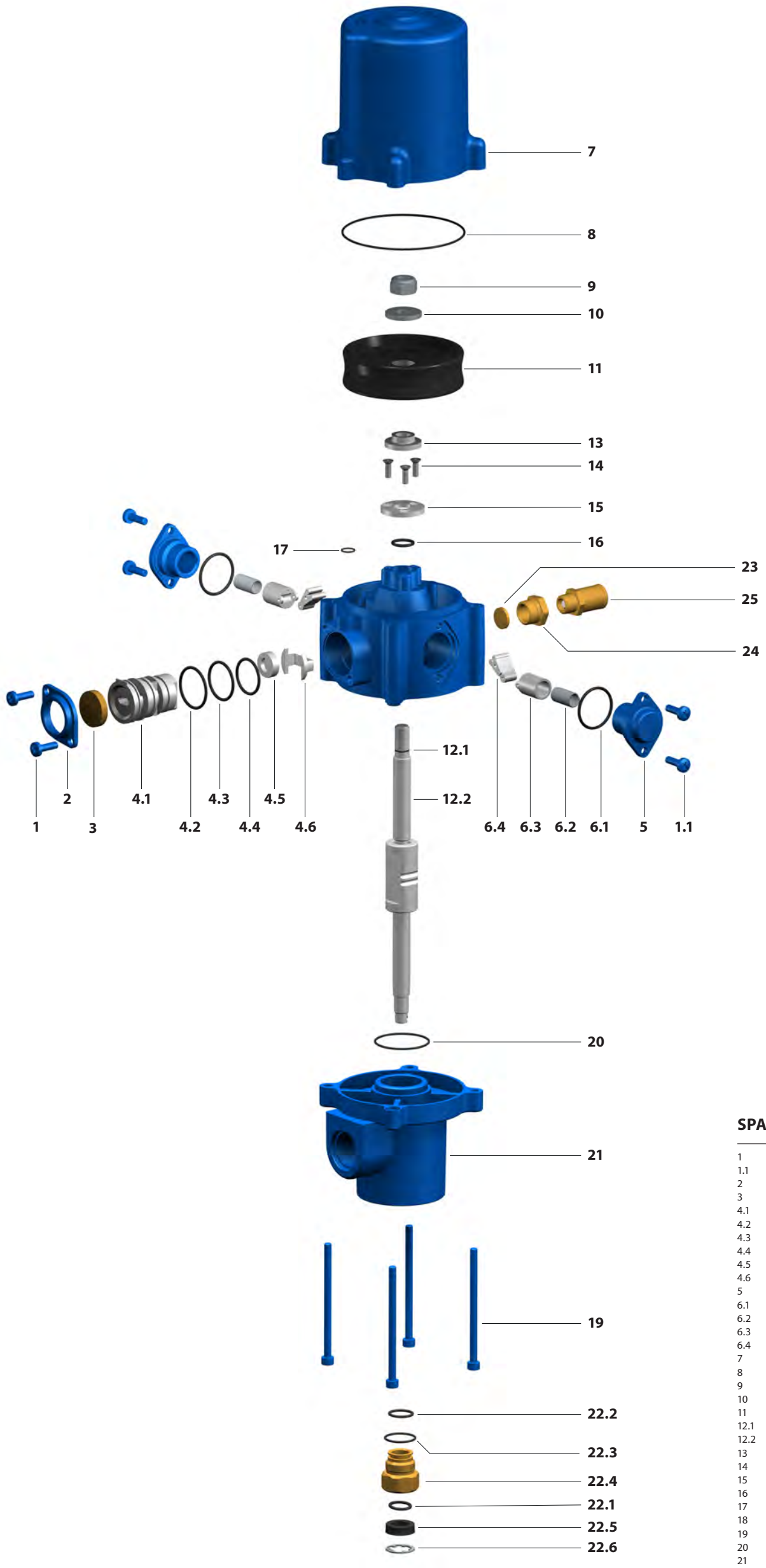
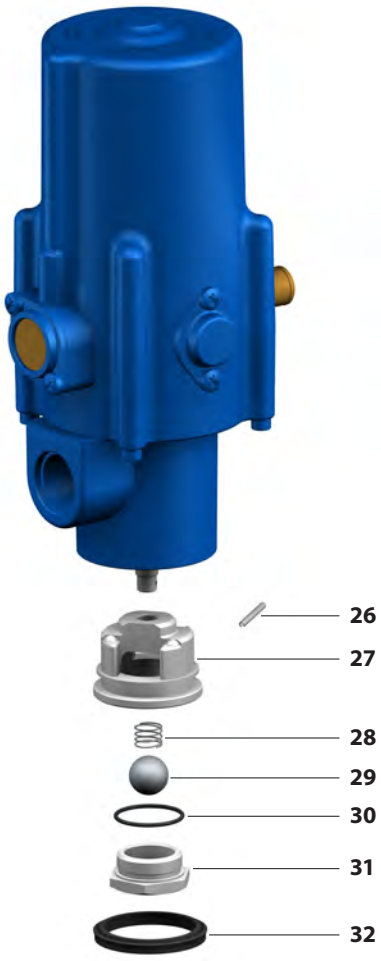
PNEUMATIC OIL PUMP 3:1





SPARE PARTS LIST

1	Gefu self-tapping screw M 5x16	**87220**
1.1	Gefu self-tapping screw M 5x16	**87220**
2	Cage	**87207**
3	Silencer	**87227**
4.1	Distributor	**87204**
4.2	O-ring NBR 70-26 x 2	**87223**
4.3	O-ring NBR 70-24 x 2	**87224**
4.4	O-ring NBR 70-22 x 2	**87225**
4.5	Valve plate	**87213**
4.6	Clamp	**87214**
5	Insert	**87206**
6.1	O-ring NBR 70-26 x 2	**87223**
6.2	Compression spring	**87215**
6.3	Sleeve	**87209**
6.4	Shift lever	**87210**
7	Pressure cylinder	**03268**
8	O-ring NBR 70-81 x 1,5	**03316**
9	Nut DIN 985-M10	**03311**
10	Washer	**87116**
11	Piston unit NBR 70-80 x 22,5	**03324**
12.1	O-ring NBR 70-8 x 1	**03262**
12.2	Piston rod	**87353**
13	Levelling washer	**03250**
14	Gefu self-tapping screw M4 x 12	**87221**
15	Washer	**87212**
16	O-ring NBR 90-12 x 2	**02380**
17	O-ring NBR 70-8 x 1	**03262**
18	Controller housing	**87211**
19	Cylinder screw M5 x 80	**87222**
20	O-ring NBR 70-35 x 1,5	**87226**
21	Connecting flange	**87217**
22.1	O-ring NBR 90-12 x 2	**02380**
22.2	O-ring NBR 70-14 x 1,78	**88164**
22.3	O-ring NBR 70-19 x 1,5	**88165**
22.4	Adapter	**88152**
22.5	Lip seal PU 93 20 x 12 x 5,7 mm	**03387**
22.6	Locking ring DIN 984-20 x 1	**03264**
23	Filter element	**87228**
24	Reducer	**20122**
25	Pressure reducing valve	**04698**
26	Slotted spring pin DIN 1481	**87630**
27	Pump piston	**02844**
28	Compression spring	**02851**
29	Steel ball, D = 17 mm	**03263**
30	O-ring 26.7 x 1.78 PU 90	**87521**
31	Screw WAF 32	**87646**
32	Lip seal NBR 84-48 x 40x5,5	**03390**
33	O-ring NBR 70-53 x 2	**02849**
34	Nut DIN 985	**01085**
35	Valve plate	**03416**
36	Pump cylinder	**02854**
37	Valve rod	**03336**
38	Compression spring	**02852**
39	Washer	**02853**

REPAIR KITS

Seal kit	**72071**
Piston rod	**87353**
Shift lever	**72090**
Distributor	**87351**

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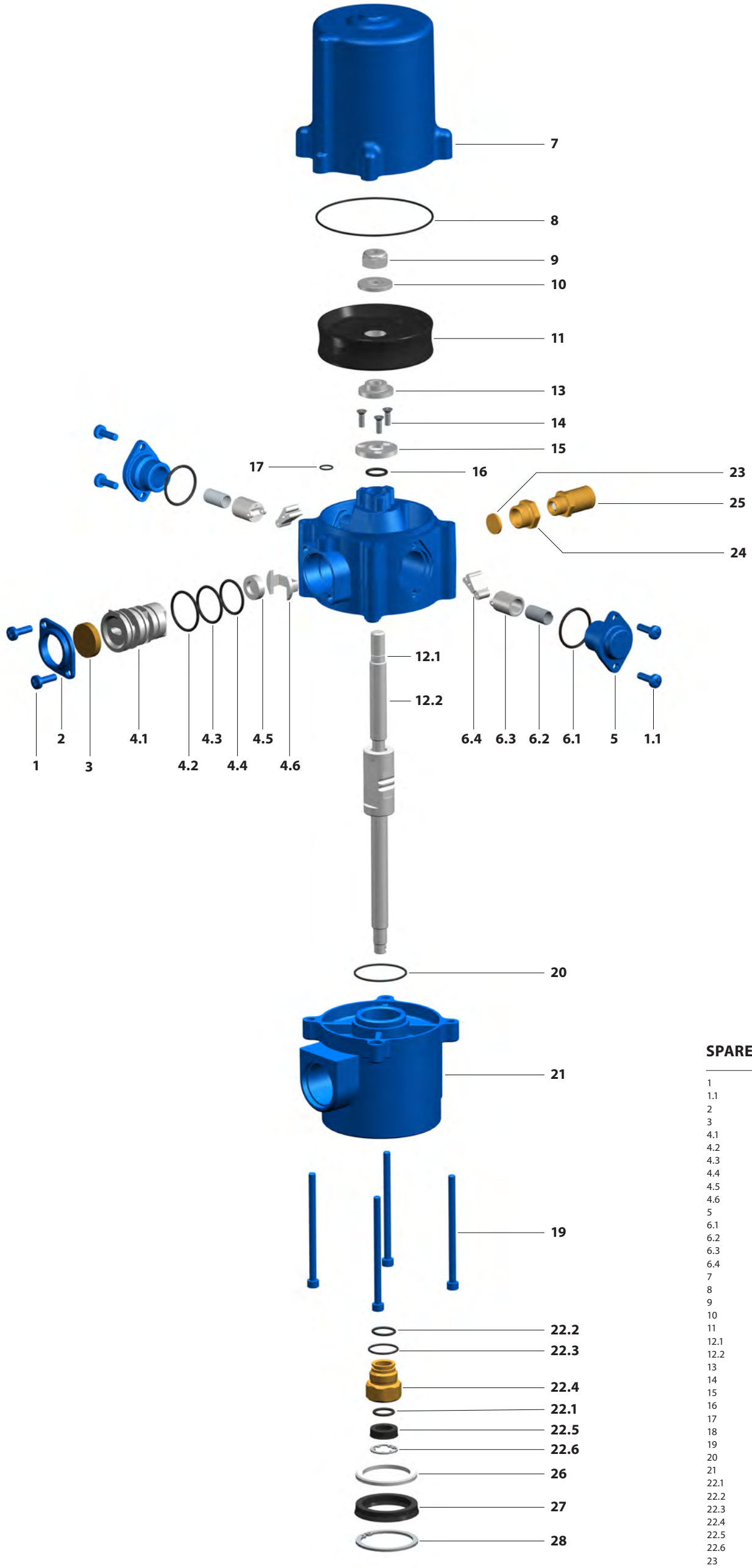
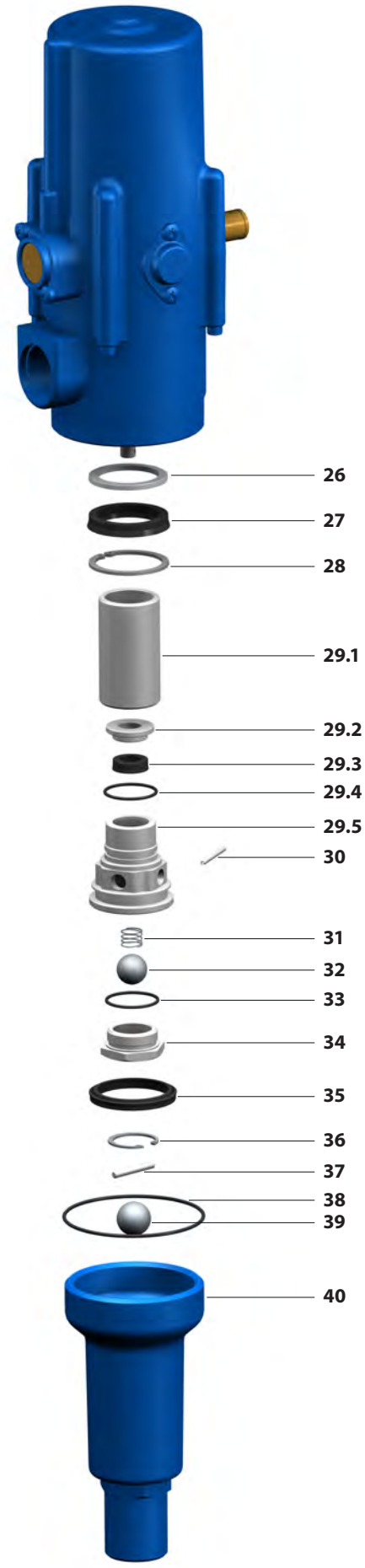
PNEUMATIC OIL PUMP 5:1





SPARE PARTS LIST

1	Gefu self-tapping screw M 5x16	**87220**
1.1	Gefu self-tapping screw M 5x16	**87220**
2	Cage	**87207**
3	Silencer	**87227**
4.1	Distributor	**87204**
4.2	O-ring NBR 70-26 x 2	**87223**
4.3	O-ring NBR 70-24 x 2	**87224**
4.4	O-ring NBR 70-22 x 2	**87225**
4.5	Valve plate	**87213**
4.6	Clamp	**87214**
5	Insert	**87206**
6.1	O-ring NBR 70-26 x 2	**87223**
6.2	Compression spring	**87215**
6.3	Sleeve	**87209**
6.4	Shift lever	**87210**
7	Pressure cylinder	**03268**
8	O-ring NBR 70-81 x 1,5	**03316**
9	Nut DIN 985-M10	**03311**
10	Washer	**87116**
11	Piston unit NBR 70-80 x 22,5	**03324**
12.1	O-ring NBR 70-8 x 1	**03262**
12.2	Piston rod	**87655**
13	Levelling washer	**03250**
14	Gefu self-tapping screw M4 x 12	**87221**
15	Washer	**87212**
16	O-ring NBR 90-12 x 2	**02380**
17	O-ring NBR 70-8 x 1	**03262**
18	Controller housing	**87211**
19	Cylinder screw M5 x 80	**87222**
20	O-ring NBR 70-35 x 1,5	**87226**
21	Connecting flange 5:1	**87642**
22.1	O-ring NBR 90-12 x 2	**02380**
22.2	O-ring NBR 70-14 x 1,78	**88164**
22.3	O-ring NBR 70-19 x 1,5	**88165**
22.4	Adapter	**88152**
22.5	Lip seal PU 93 20 x 12 x 5,7 mm	**03387**
22.6	Locking ring DIN 984-20 x 1	**03264**
23	Filter element	**87228**
24	Reducer	**20122**
25	Pressure reducing valve	**04698**
26	Support washer	**87648**
27	Lip seal NBR 90 44 x 34 x 7 mm	**87632**
28	Locking ring	**87634**
29.1	Piston tube	**88168**
29.2	Stop plate	**88113**
29.3	Lip seal PU 93 20 x 12 x 5,7 mm	**03387**
29.4	O-ring 26.7x1.78 PU 90	**87521**
29.5	Double piston	**87645**
30	Slotted spring pin DIN 1481	**87630**
31	Compression spring	**02851**
32	Steel ball, D = 17 mm	**03263**
33	O-ring 26.7x1.78 PU 90	**87521**
34	Screw	**87646**
35	Lip seal NBR 84-48 x 40 x 5,5	**03390**
36	Locking ring	**03328**
37	Locking pin	**87746**
38	O-ring NBR 70	**87629**
39	Steel ball, D = 19,05 mm	**87631**
40	Pump cylinder	**87643**

REPAIR KITS

Seal kit	**72072**
Piston rod	**87655**
Shift lever	**72090**
Distributor	**87351**

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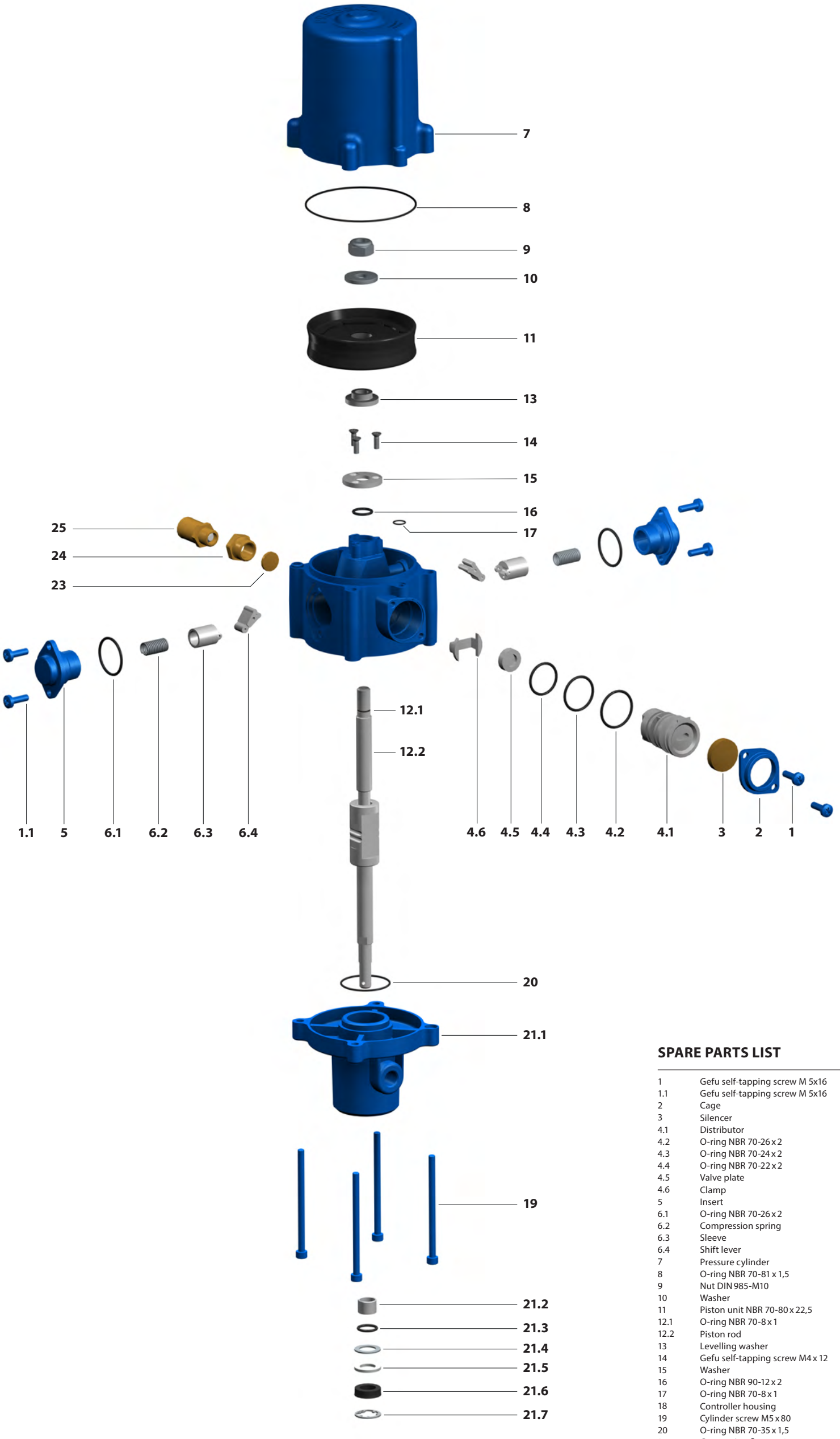
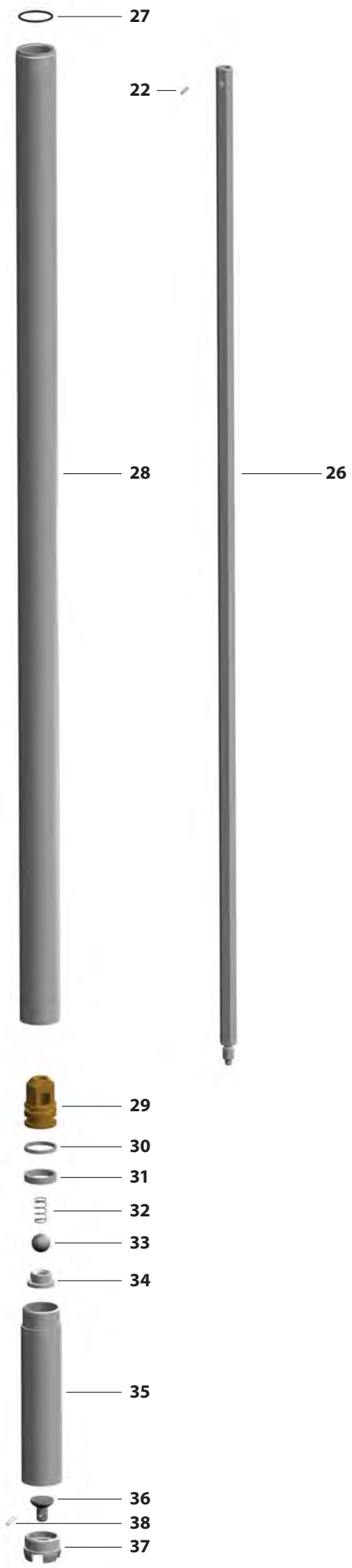
PNEUMATIC GREASE PUMP 10:1





SPARE PARTS LIST

1	Gefu self-tapping screw M 5x16	**87220**
1.1	Gefu self-tapping screw M 5x16	**87220**
2	Cage	**87207**
3	Silencer	**87227**
4.1	Distributor	**87204**
4.2	O-ring NBR 70-26 x 2	**87223**
4.3	O-ring NBR 70-24 x 2	**87224**
4.4	O-ring NBR 70-22 x 2	**87225**
4.5	Valve plate	**87213**
4.6	Clamp	**87214**
5	Insert	**87206**
6.1	O-ring NBR 70-26 x 2	**87223**
6.2	Compression spring	**87215**
6.3	Sleeve	**87209**
6.4	Shift lever	**87210**
7	Pressure cylinder	**03268**
8	O-ring NBR 70-81 x 1,5	**03316**
9	Nut DIN 985-M10	**03311**
10	Washer	**87116**
11	Piston unit NBR 70-80 x 22,5	**03324**
12.1	O-ring NBR 70-8 x 1	**03262**
12.2	Piston rod	**87352**
13	Levelling washer	**03250**
14	Gefu self-tapping screw M4 x 12	**87221**
15	Washer	**87212**
16	O-ring NBR 90-12 x 2	**02380**
17	O-ring NBR 70-8 x 1	**03262**
18	Controller housing	**87211**
19	Cylinder screw M5 x 80	**87222**
20	O-ring NBR 70-35 x 1,5	**87226**
21.1	Connecting flange 50:1	**87216**
21.2	Slide bearing	**03307**
21.3	O-ring NBR 90-12 x 2	**02380**
21.4	Washer	**87262**
21.5	Support washer	**03292**
21.6	Lip seal PU 93 20 x 12 x 5,7 mm	**03387**
21.7	Locking ring DIN 984-20 x 1	**03264**
22	Slotted spring pin ISO 8752	**03260**
23	Filter element	**87228**
24	Reducer	**20122**
25	Pressure reducing valve	**04698**
26	Piston rod	**82814**
27	O-Ring 26.7x1.78 PU 90	**87521**
28	High-pressure tube	**82827**
29	Piston	**82829**
30	Turcon Glyd Ring	**82881**
31	Piston guide ring	**82880**
32	Compression spring cylindrical	**82875**
33	Steel ball, 16mm	**82879**
34	Valve screw	**82874**
35	Pump cylinder	**82828**
36	Valve cone	**82872**
37	Suction valve	**82873**
38	Slotted spring pin ISO 8752	**84163**

REPAIR KITS

Seal kit	**72073**
Piston rod	**87352**
Shift lever	**72090**
Distributor	**87351**

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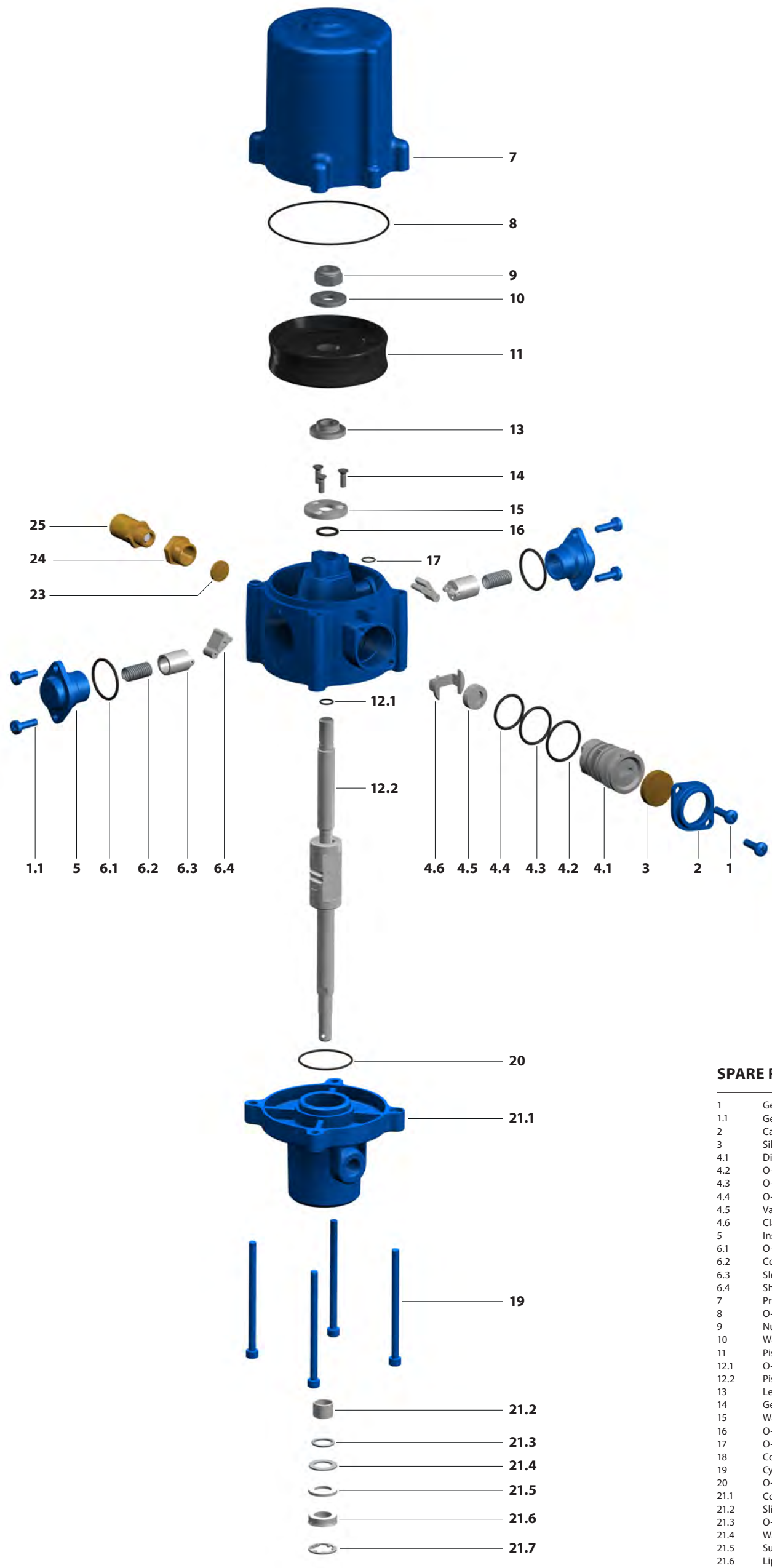
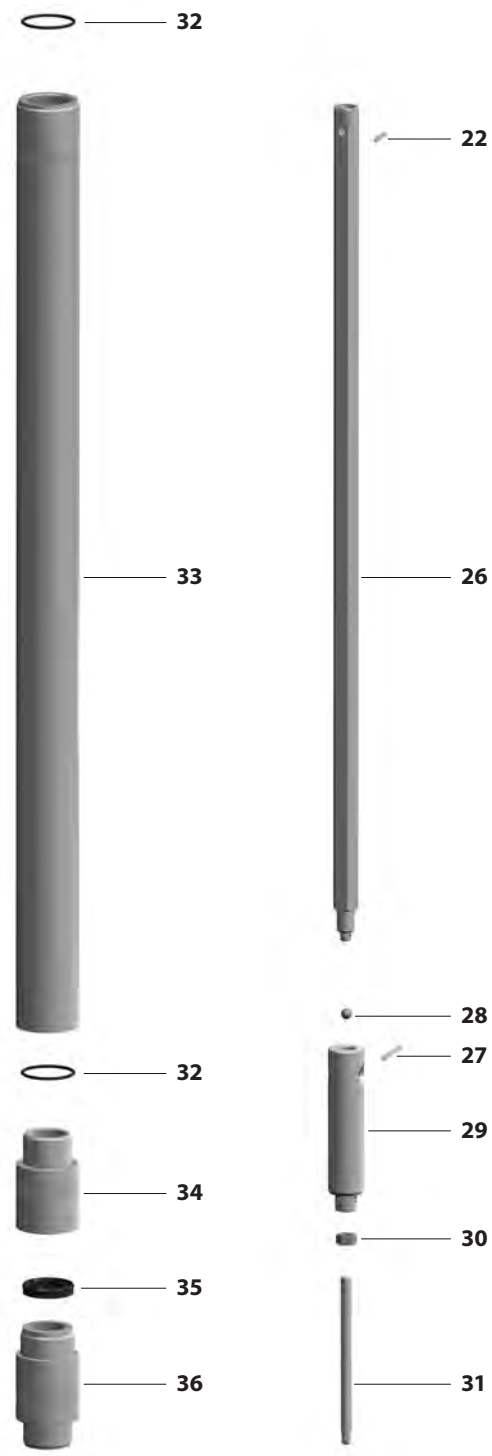
PNEUMATIC GREASE PUMP 15:1





SPARE PARTS LIST

1	Gefu self-tapping screw M 5x16	**87220**
1.1	Gefu self-tapping screw M 5x16	**87220**
2	Cage	**87207**
3	Silencer	**87227**
4.1	Distributor	**87204**
4.2	O-ring NBR 70-26 x 2	**87223**
4.3	O-ring NBR 70-24 x 2	**87224**
4.4	O-ring NBR 70-22 x 2	**87225**
4.5	Valve plate	**87213**
4.6	Clamp	**87214**
5	Insert	**87206**
6.1	O-ring NBR 70-26 x 2	**87223**
6.2	Compression spring	**87215**
6.3	Sleeve	**87209**
6.4	Shift lever	**87210**
7	Pressure cylinder	**03268**
8	O-ring NBR 70-81 x 1,5	**03316**
9	Nut DIN 985-M10	**03311**
10	Washer	**87116**
11	Piston unit NBR 70-80 x 22,5	**03324**
12.1	O-ring NBR 70-8 x 1	**03262**
12.2	Piston rod	**87352**
13	Levelling washer	**03250**
14	Gefu self-tapping screw M4 x 12	**87221**
15	Washer	**87212**
16	O-ring NBR 90-12 x 2	**02380**
17	O-ring NBR 70-8 x 1	**03262**
18	Controller housing	**87211**
19	Cylinder screw M5 x 80	**87222**
20	O-ring NBR 70-35 x 1,5	**87226**
21.1	Connecting flange 50:1	**87216**
21.2	Slide bearing	**03307**
21.3	O-ring NBR 90-12 x 2	**02380**
21.4	Washer	**87262**
21.5	Support washer	**03292**
21.6	Lip seal PU 93 20 x 12 x 5,7 mm	**03387**
21.7	Locking ring DIN 984-20 x 1	**03264**
22	Slotted spring pin ISO 8752	**03260**
23	Filter element	**87228**
24	Reducer	**20122**
25	Pressure reducing valve	**04698**
26	Piston rod	**87518**
27	Slotted spring pin	**03260**
28	Steel ball, D = 6 mm	**03304**
29	Plunger	**82481**
30	Nut DIN 934	**00808**
31	Threaded rod	**87509**
32	O-ring 26.7x1.78 PU 90	**87521**
33	High-pressure tube	**87513**
34	Adapter for grease pump	**82480**
35	Rod seal-PU 90	**03317**
36	Pressure cylinder	**82479**
37	Locking ring	**03501**
38	Lip seal PU93	**00152**
39	Valve cone	**03477**
40	Valve body	**82482**
41	Grease feeder	**87528**
42	Nut DIN 985	**01085**
43	Suction fitting	**87504**

REPAIR KITS

Seal kit	**72074**
Piston rod	**87352**
Shift lever	**72090**
Distributor	**87351**

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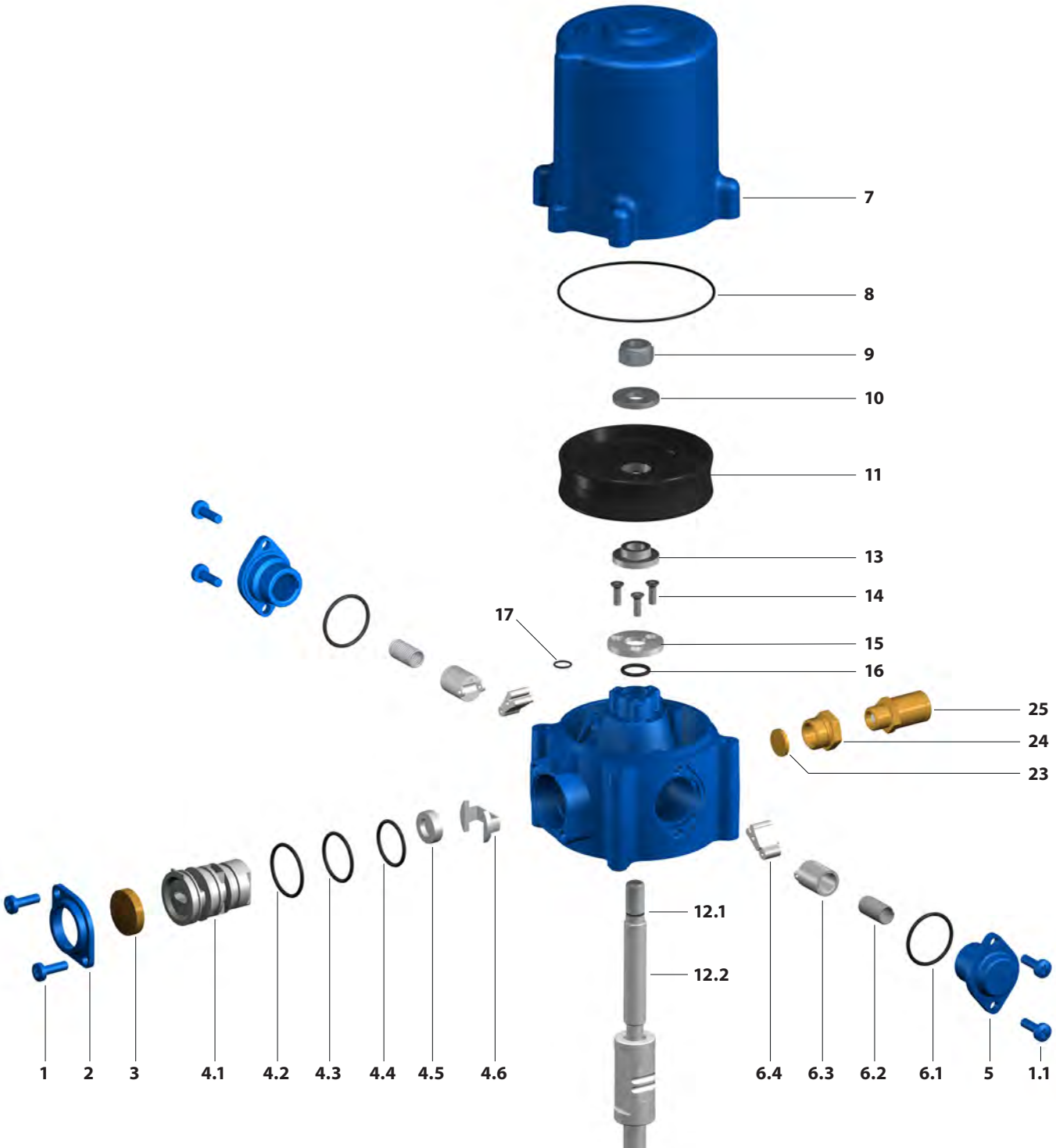
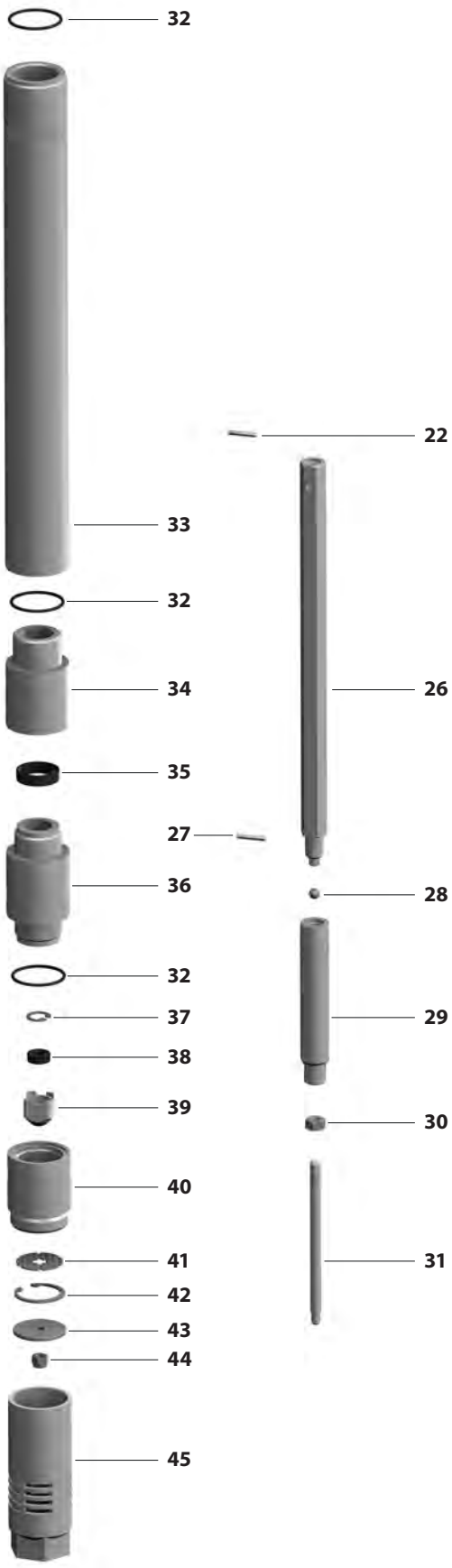
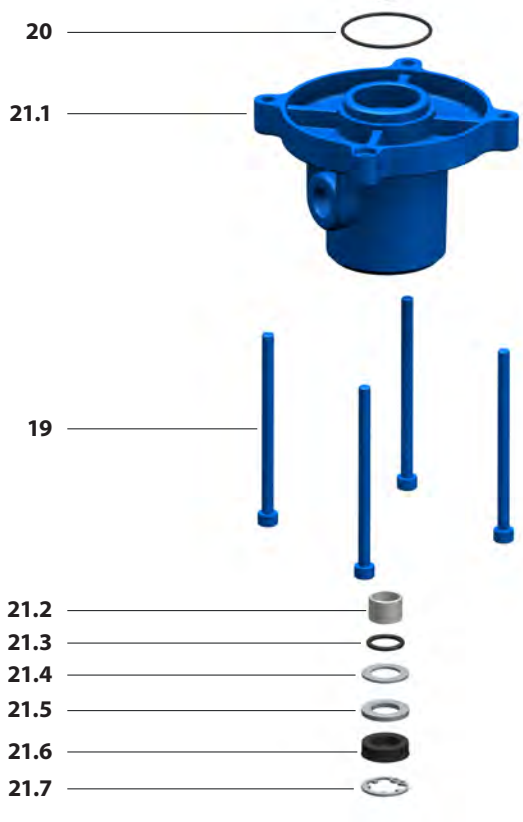
PNEUMATIC GREASE PUMP 50:1







SPARE PARTS LIST

1	Gefu self-tapping screw M 5x16	**87220**
1.1	Gefu self-tapping screw M 5x16	**87220**
2	Cage	**87207**
3	Silencer	**87227**
4.1	Distributor	**87204**
4.2	O-ring NBR 70-26 x 2	**87223**
4.3	O-ring NBR 70-24 x 2	**87224**
4.4	O-ring NBR 70-22 x 2	**87225**
4.5	Valve plate	**87213**
4.6	Clamp	**87214**
5	Insert	**87206**
6.1	O-ring NBR 70-26 x 2	**87223**
6.2	Compression spring	**87215**
6.3	Sleeve	**87209**
6.4	Shift lever	**87210**
7	Pressure cylinder	**03268**
8	O-ring NBR 70-81 x 1,5	**03316**
9	Nut DIN 985-M10	**03311**
10	Washer	**87116**
11	Piston unit NBR 70-80 x 22,5	**03324**
12.1	O-ring NBR 70-8 x 1	**03262**
12.2	Piston rod	**87352**
13	Levelling washer	**03250**
14	Gefu self-tapping screw M4 x 12	**87221**
15	Washer	**87212**
16	O-ring NBR 90-12 x 2	**02380**
17	O-ring NBR 70-8 x 1	**03262**
18	Controller housing	**87211**
19	Cylinder screw M5 x 80	**87222**
20	O-ring NBR 70-35 x 1,5	**87226**
21.1	Connecting flange 50:1	**87216**
21.2	Slide bearing	**03307**
21.3	O-ring NBR 90-12 x 2	**02380**
21.4	Washer	**87262**
21.5	Support washer	**03292**
21.6	Lip seal PU 93 20 x 12 x 5,7 mm	**03387**
21.7	Locking ring DIN 984-20 x 1	**03264**
22	Slotted spring pin ISO 8752	**03260**
23	Filter element	**87228**
24	Reducer	**20122**
25	Pressure reducing valve	**04698**
26	Piston rod	**87516**
27	Slotted spring pin ISO 8752	**03260**
28	Steel ball, D = 6 mm	**03304**
29	Plunger	**87508**
30	Nut DIN 934	**00808**
31	Threaded rod	**87509**
32	O-ring 26.7 x 1.78 PU 90	**87521**
33	High-pressure tube	**87511**
34	Adapter	**87507**
35	Rod seal-24 x 16 x 5,7-PU93	**87522**
36	Pressure cylinder	**87506**
37	Locking ring 13 x 1	**03501**
38	Lip seal PU93	**00152**
39	Valve cone	**03477**
40	Valve body	**87505**
41	Strainer	**03503**
42	Locking ring	**03328**
43	Grease feeder	**87528**
44	Nut DIN 985	**01085**
45	Suction fitting	**87504**

REPAIR KITS

Seal kit	**72075**
Piston rod	**87352**
Shift lever	**72090**
Distributor	**87351**

PRESSOL