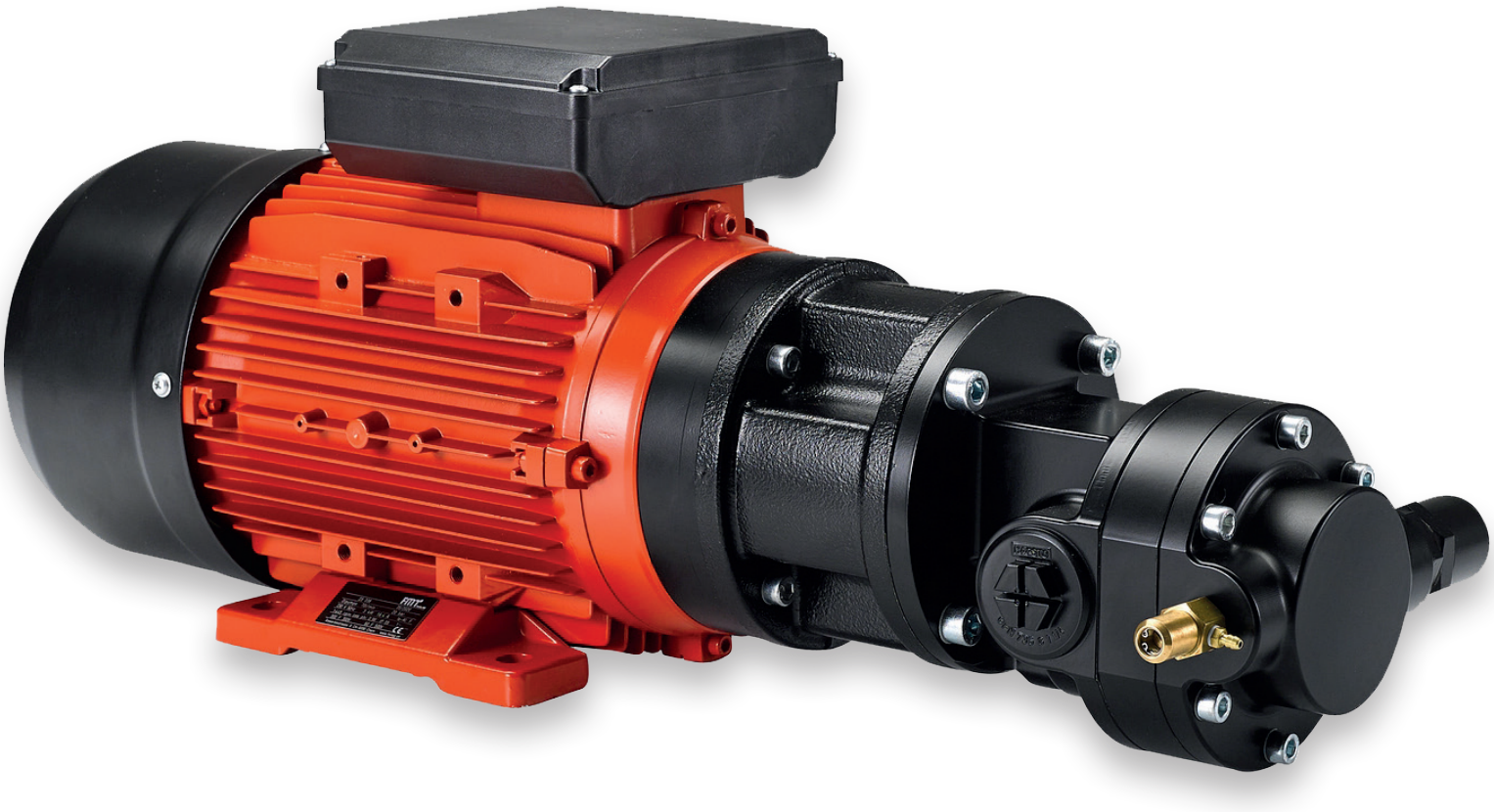
OPERATING INSTRUCTIONS AND SAFETY NOTES

Oil pumps

Item number **23 338** 230 V 1~AC · 50 l/min
Item number **23 339** 400 V 3~AC · 50 l/min
Item number **23 340** 400 V 3~AC · 70 l/min



FMT Swiss AG

92 222 932 A801 GB

FMT Swiss AG

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Without our written consent, the content of this documentation (textes, figures, drawings, charts, diagrams etc.), must not be duplicated or distributed, neither in full or in part, utilized for the purpose of competition or passed on/made availabe to third parties.

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Operating instructions translation

Date of issue: 09/2021

We reserve the right to make design and product modifications, which serve to improve the product.

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1. Introduction

1.1 Preface

Please carefully read these operating instructions and observe in particular all safety notes!

Our staff will be pleased to provide support if you have any questions about the product.

Yours sincerely, FMT Swiss AG

1.2 Obligations of the personnel

Before they start to work, all persons who are entrusted to work on the oil pump, are obliged:

- to follow all applicable regulations on occupational safety and accident prevention.
- to read and to comply with all safety instructions and warning notes contained in these operating instructions.

Please observe the following instructions in the interest of all concerned:

- Refrain from any unsafe working methods!
- Adhere to all hazard and warning notes contained in this manual!
- In addition to this documentation, keep to all generally accepted safety rules, legal provisions as well as all other binding rules regarding occupational safety, accident prevention and environmental protection!
- Wear appropriate protective clothing in accordance with the work to be done!
- Perform only work for which you have been sufficiently trained and instructed!
- Only genuine spare parts as well as original tools and auxiliaries of the manufacturer are allowed to be used in order to ensure the functional safety and maintain the warranty coverage.

1.3 Symbols in this manual

1.3.1 Structure of the safety notes

The safety notes have the following structure:



SIGNAL WORD

Type and source of the hazard

- Consquences of non-compliance with the notes
- Measures to avoid that risk

Depending on the danger level, different signal words are used:

Signal word	Danger level	Consequences of non-compliance
DANGER	Imminent threat of danger	Death or serious bodily injury
WARNING	Possible threat of danger	Death or serious bodily injury
CAUTION	Possibly dangerous situation	Minor bodily injury
ATTENTION	Possibly dangerous situation	Damage to material property



NOTE

Indicates further information or tips which facilitate work.

1.3.2 Hazard symbols

Symbol	Meaning
	General hazard symbol. The warning note marked in this way contains supple-mentary information on the type of hazard.
	This symbol warns of dangerous electrical voltages.
	This symbol warns of a hazardous explosive atmosphere.

1.3.3 General symbols

Symbol	Meaning
■	A small black square indicates the work you have to perform.
–	The dash denotes lists.
⇨	The arrow identifies cross-references. If cross-references to other chapters are required within the text, the expression is shortened for reasons of clarity. Example: ⇨ a Chapter 2 Safety notes This means: please refer to chapter 2 for the safety instructions

2. Safety notes

Various dangers may occur if the oil pump is improperly handled during installation, commissioning and daily operation.



WARNING

Risk of injury and damage to material property because of improper handling!

- Hold the manual at the disposal of the operating staff at the usage site of the unit.
- Country-specific safety measures and accident prevention regulations must be observed.

2.1 Authorized personnel

Only qualified and authorized persons are allowed to operate and to work on the oil pump.

Persons are qualified if they are, due to their training, experience, instruction and knowledge of the relevant standards, able to assess assigned tasks and to identify potentially hazardous situations.

These persons must have been authorized by the person responsible for the safety of the unit and must be able to identify and to avoid potential dangers.

All persons charged with installation, operation, maintenance and repair work, must have read and understood this operation manual.

A copy of this operating manual must be stored permanently and ready at hand at the place of usage of the unit.

2.2 Notes on maintenance, cleaning and repair

Only qualified technical personnel is allowed to carry out repair work on the electrical system.



WARNING

Risk of injury and damage to material property because of improper maintenance and repair.

- **Maintenance work is only allowed when the pump is currentless.**
- **Only qualified personnel is allowed to perform maintenance work.**
- **Allow the pump to cool down prior to maintenance and service work.**
- Should unusual noises occur, immediately stop the diesel pump. Immediately identify and eliminate the cause in order to avoid consequential damages.

2.3 Intended conditions of use

The oil pumps may only be used for the delivery of lubricating oils up to SAE 140 and may only be connected to a suitable power source (see nameplate).

Proper use also includes compliance with the operating instructions, which must be read in full before commissioning.

During repairs to any electrical components, the appropriate safety and test requirements are to be observed.

Only genuine replacement parts are to be used for any repairs, because otherwise the warranty will be invalidated.

2.4 Reasonably foreseeable misuse



DANGER

Risk of injury and material damage from explosive vapors

- **Never use the pump to deliver oily or explosive fluids such as petrol or other fluids with similar flashpoints!**



DANGER

Risk of explosions

- Since the motor and the switch of the gear pump are **not** explosion-protected, the pump must **not** be operated in an explosion risk area.
- Smoking and naked flames are prohibited in the vicinity of the pump.
- Do **NOT** use the pump to deliver fuels of danger classification AI, AII and B.

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 use in the food industry is forbidden.

Pumping caustic or other hazardous chemical or biological substances is forbidden.

The user is liable for any damage resulting from non-intended use.

2.5 Dangers when handling the oil pump



DANGER

Risk of injury and material damage because of improper installation, electric current or contaminated media.

Never work on a pump that is running!

- Mount or remove attachments and accessories only when the pump is switched off.
- For your own safety, disconnect the pump in addition from the power supply.

Do not pump contaminated fluids!

- Take special care to ensure that there are no contaminants in the fluid to be pumped.
- Install a strainer on the suction pipe.

Risk of stumbling because of power cable and hoses!

- Lay the supply cable so that it will not cause any risk of stumbling.
- Provide oil hoses of sufficient length and lay them so that they will not cause any risk of stumbling.

Damaged attachments and accessories can lead to personal injury and material damage.

- Attachments and accessories must be checked for wear, splits or other damage throughout their period of use.
- Damaged accessories and attachments must be replaced immediately.
- Only use genuine switches and power cables as replacement parts.
- With reference to the period of use, please note the details in ZH 1/A45.4.2 or DIN 20066 Part 5.3.2.

2.6 Risks when handling lubricating oils

If improperly handled, lubricating oils can cause risks to human health or to the environment.

Escaping lubricating oils can cause environmental harm. Do not allow to enter sewage or ground water. Local and country rules and regulations relating to domestic water supplies and oil storage must be obeyed.



DANGER

Use of lubricating oils

- Lubricating oils may cause lung damage if swallowed.



NOTE

- Observe the safety information for lubricating oils!

3. Transport and temporary storage

Prior to any transport, check to ensure that there are no liquids (residues of lubricating oils) left in the pump. All additional attachments must be removed from the pump.

Do not use the cable to transport the pump!

Storage and transport conditions:

- Weather-protected storage with temperature control, protection against frost, moisture and rain. Maximum relative humidity: 80 %.
- Storage temperature range from 0 °C to +40 °C.

4. Design and functional description

The gear pump is designed for stationary use.

It can be fitted with a variety of FMT accessories. The oil pump consists of the electrically driven gear pump with bypass and a manually operated venting valve.

The oil pump is available in the following variants:

- **Oil pump 50 l/min 230 V-1~AC-50 Hz-EUS**
- **Oil pump 50 l/min 400 V-3~AC-50 Hz-EUS**
- **Oil pump 70 l/min 400 V-3~AC-50 Hz-EUS**

The pumping effect of a gear pump is achieved by means of the counter- rotation of two gear wheels in a housing. Each gear wheel is fixed on a shaft. The shafts run on bearings in the pump housing and in the pump cover. A coupling connects the helical gear wheel and the motor shaft, so that the helical gear wheel is driven. The mating gear wheel is driven by the gears' meshing.

When the gears un-mesh, a negative pressure is created between the teeth, so that fluid is sucked into the pump chamber and conveyed between the tooth spaces and the housing wall. In the area where the teeth begin to mesh again, the fluid is forced out of the tooth spaces into the discharge outlet. Fluids can thus be conveyed under pressure even through long pipes.

The rugged pump design, consisting of only three housing parts, ensures an easy, quick and economical maintenance and servicing. The cover is fixed on the housing by means of four screws and two pins, in between there is one each O-ring for sealing. The gear wheels pressed on the shafts are axially and radially supported by bearings in the housing and in the cover. The torque is transmitted from the motor shaft to the helical gear wheel and then to the mating gear wheel.

4.1 Area of application

The oil pump is only suitable for lubricating oils up to SAE 140.

The temperature of the delivery fluids must be between 10 °C and 40 °C. The temperatures must not be above or below these limit values.



NOTE

- In addition to this documentation, all generally accepted safety rules, legal provisions as well as all other binding rules regarding occupational safety, accident prevention and environmental protection must be observed.

4.2 Requirements for the installation location

Facilities for filling and transferring must be constructed, installed, positioned, maintained and operated in such a way so as to ensure that no water pollution or other undesirable alterations of water properties occur.

According to the national laws, the operator of such an installation is responsible for continuously monitoring the compliance with the above stated requirements at the place of installation.

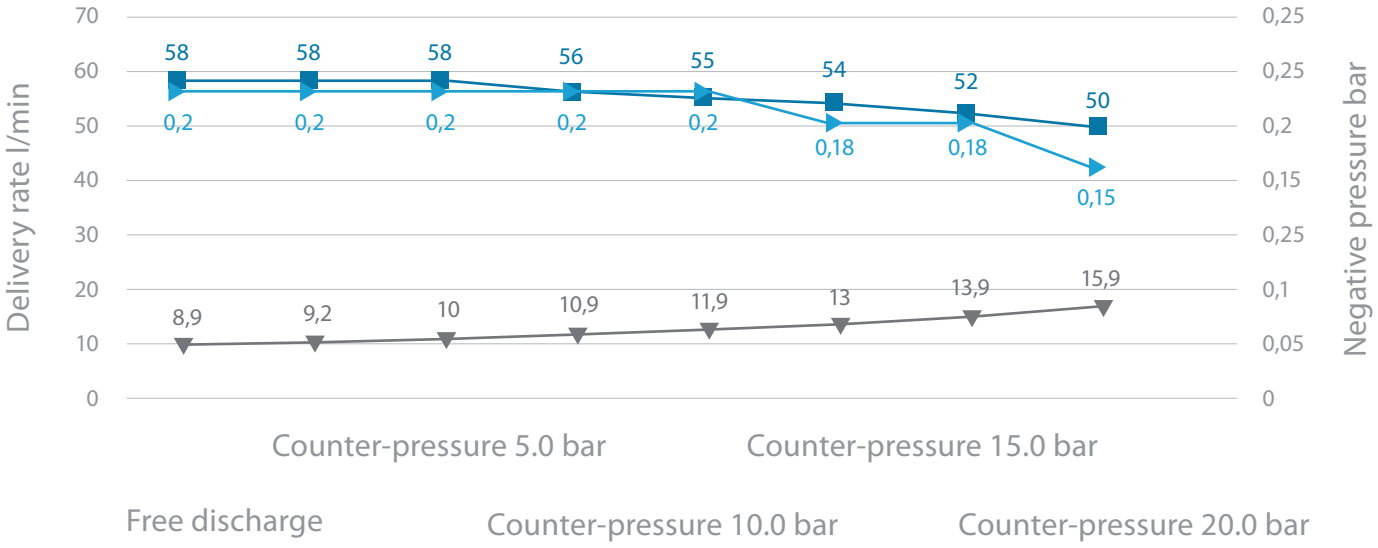
The oil pump has been designed for indoor operation. Choose a mounting location where proper operation is possible.

5. Technical data

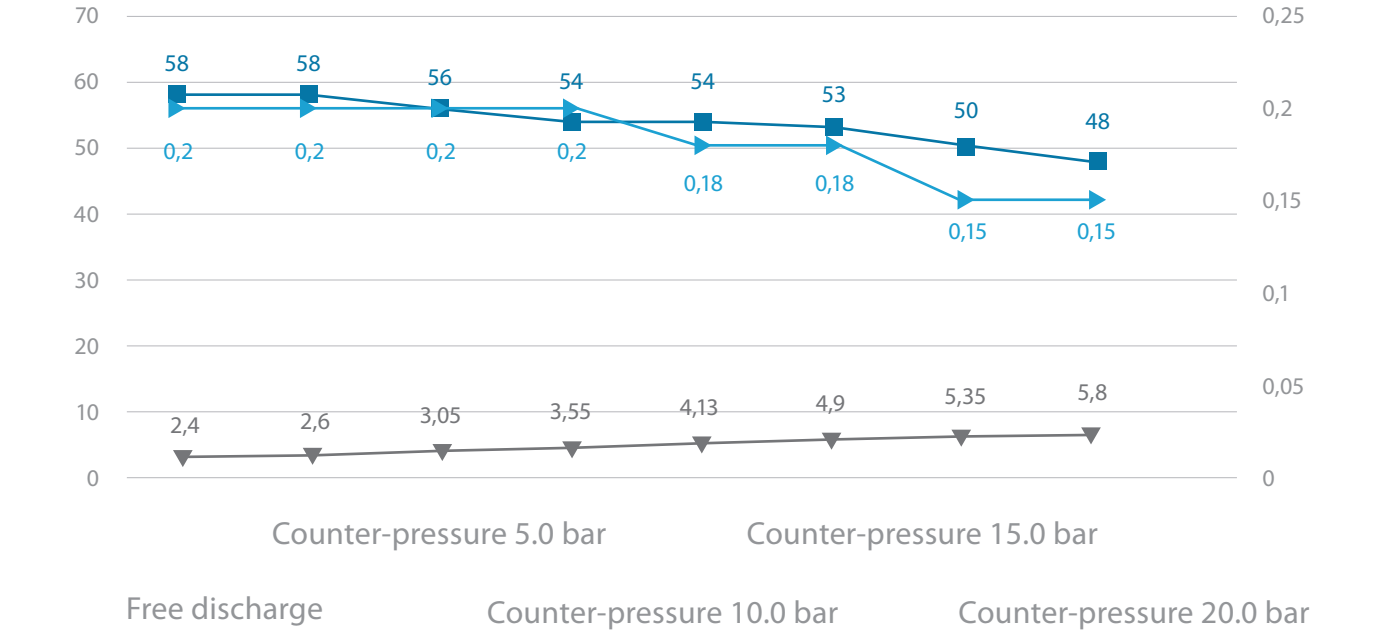
Indication		Oil pump 50 l/min 230 V-1~AC 23 338	Oil pump 50 l/min 400 V-3~AC 23 339	Oil pump 70 l/min 400 V-3~AC 23 340
Pump design		External gear pump, self-priming		
Connection suction side		G 1 1/4“ female		
Connection discharge side		G 1 1/4“ female		
Input pressure	mbar	500		
Permitted pump input pressure	bar	-0,5 ... 0,5		
Nominal operating point	bar	5	5	10
Maximum operating point	bar	16	16	20
Delivery rate under free discharge	l/min	50	50	70
Max. suction height (depending on the oil‘s temperature and viscosity)	m	5		
Direction of rotation		right		
Pumping media		lubricating oils up to SAE 140		
Operating temperature area	°C	+10 / +40		
Motor data				
Power consumption	A	16,37	5,9	7,9
Power	kW	3	3	4
Voltage	V	230	400	400
Frequency	Hz	50		
Nominal speed	rpm	1445	1460	1460
Torque	Nm	20,66	19,6	26
Safety class		IP 55		
Type of construction		IMB 3		
Running capacitor		60µf / 450V	-	-
Starting capacitor		300µf / 300V	-	-
Materials of parts in contact with liquid				
Seal		PDFE		
Pump housing		cast iron GG25 – 06025		
Shaft		40CrMnMoS8-6 - 1.2312		
Slide bearing		CuSn8 - 2.1030		
Gearwheel		34CrAlNi7 – 1.8550		
Weight	kg	46,4	52,3	57,5
Dimensions LxWxH	mm	611 x 220 x 252	658 x 220,75 x 266	663,5 x 233,8 x 289

5.1 Pump characteristics

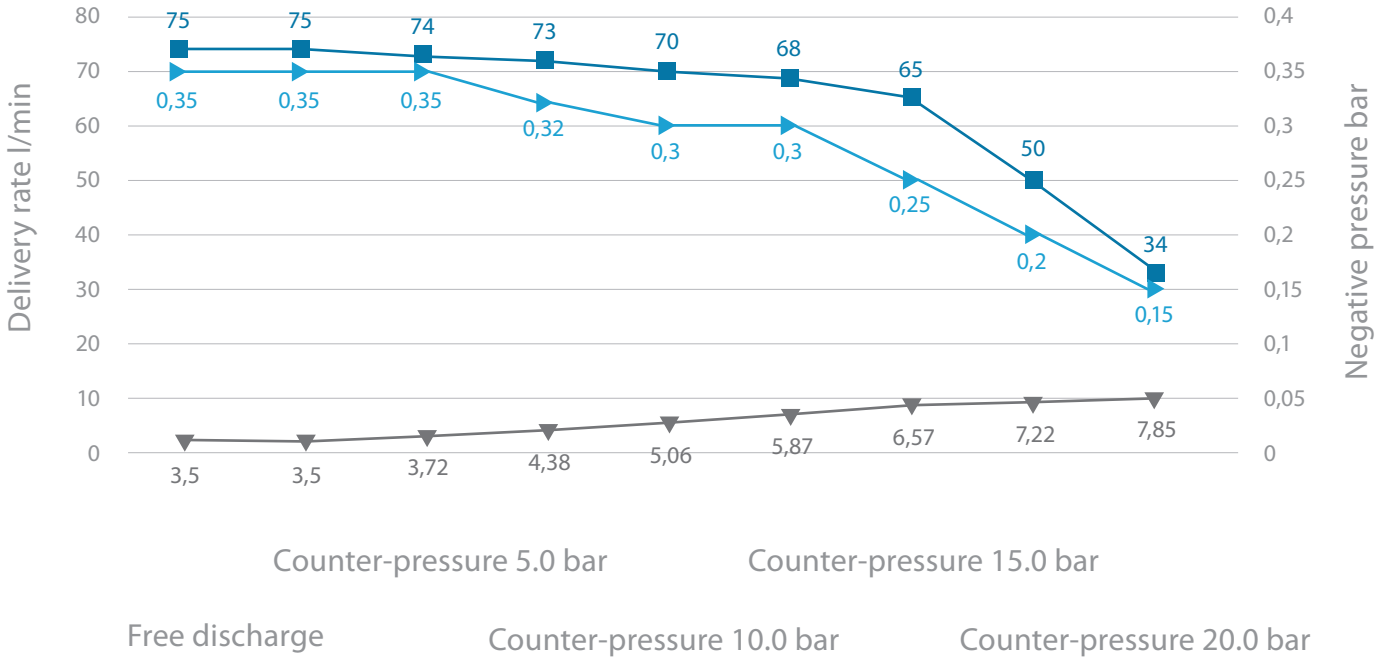
Pump **23 338**

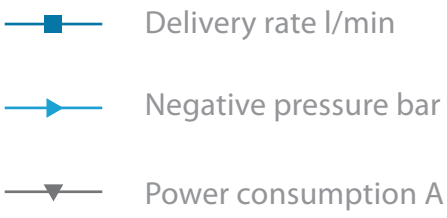


Pump **23 339**



Pump **23 340**


Delivery rate l/min
Negative pressure bar
80
70
60
50
40
30
20
10
0
0,4
0,35
0,3
0,25
0,2
0,15
0,1
0,05
0
75
75
74
73
70
68
65
50
34
0,35
0,35
0,35
0,32
0,3
0,3
0,25
0,2
0,15
3,5
3,5
3,72
4,38
5,06
5,87
6,57
7,22
7,85
Counter-pressure 5.0 bar
Counter-pressure 15.0 bar
Free discharge
Counter-pressure 10.0 bar
Counter-pressure 20.0 bar


Delivery rate l/min
Negative pressure bar
Power consumption A

6. Assembly

Four M10 bolts (not included in the scope of delivery) are required for the stationary installation of the oil pump at its operating location.

When installing the pump, ensure that it is mounted on a stable surface. Select a secure location (protected from splash water, damage and theft).

No stress or torque shall be exerted on the pump from the suction and pressure pipes, possibly it may be necessary to support the pipes in front of and behind the pump.

The pipes must be sufficiently dimensioned. They shall not be smaller than the nominal size of the pump connections.

In order to prevent foreign particles from being sucked in, a suction strainer must be used in order to protect the pump from damage. Due to its inner resistance, the suction strainer must be sufficiently dimensioned, because it affects the suction capability of the pump.

Elbows and bends which may be necessary in the pipe system should be chosen as large as possible. The suction line should have a continuous rise to the pump.

When fitting the pipes, check to ensure that the pipes are free from swarfs or similar impurities.

Gear pumps are not allowed to be operated against a closed valve or a system closed at the pressure side, because otherwise an excessively high overpressure may build up. Here, we recommend to use a pump with an integrated pressure relief valve or with a pressure switch (as accessories).



DANGER

Danger of contact with energized components

- Before connecting the pump to the voltage source, check to ensure that the pump is switched off!
- Only authorized persons are allowed to work on the electric system of the pump.



ATTENTION

Risk of product damage

- The power source must be of the correct voltage for the pump type.



ATTENTION

Risk of product damage

- In order to prevent dirt from entering the pump chamber, it is absolutely necessary to install a strainer with a pre-cleaner in the suction line, because otherwise the warranty may be invalidated.



NOTE

- Ensure cleanliness during installation, and that all accessories/attachments are correctly connected and sealed.

6.1 Before commissioning

After the complete assembly, the pump and the pipe system must be checked once again on the basis of the following questions:

- Is it possible to turn the pump by hand?
- Are the connections correctly fitted at the suction side and at the delivery side?
- Does the motor's direction of rotation correspond to the pump's direction of rotation?
- Has the system been checked for leaks in the pipe system?
- Is there enough fluid/oil in the tank?

7. Commissioning and operation



CAUTION

Risk of injury because of uncontrolled pump movement

- The pump may only be operated when it is fixed at the intended position close to the storage container.
- The pump is only allowed to be operated if it is firmly screwed down, so that it cannot carry out any uncontrolled movements.
- The pump may only be operated if the storage container, to which the pump is connected, stands on a firm and level surface.

- Prior to work, check to ensure that the oil pump and the fitted accessories are complete and free from any damage. Replace any damaged components immediately. Never use the pump if damaged.



CAUTION

Risk of minor personal injury

- The pump may only be operated if the formation of electrostatic charges is avoided by a suitable potential equalization (grounding cable)!

- After initial start-up, check the pump and the connections for tightness.



NOTE

In order to prevent dirt from entering the pump chamber, it is absolutely necessary to install a strainer with a pre-cleaner in the suction line, because otherwise the warranty may be invalidated.



ATTENTION

Risk of product damage

- Never operate the pump for longer than 2 minutes without a fluid. The pump may be damaged by running dry.

Venting the pump and the system

Pump

- Start the gear pump.
- Put the venting hose into a suitable collection receptacle.
- Use a screwdriver to slowly open the venting screw by one or, at the most, two turns.
- Wait until all air has escaped and only oil comes out of the venting hose.
- Close the venting screw again.

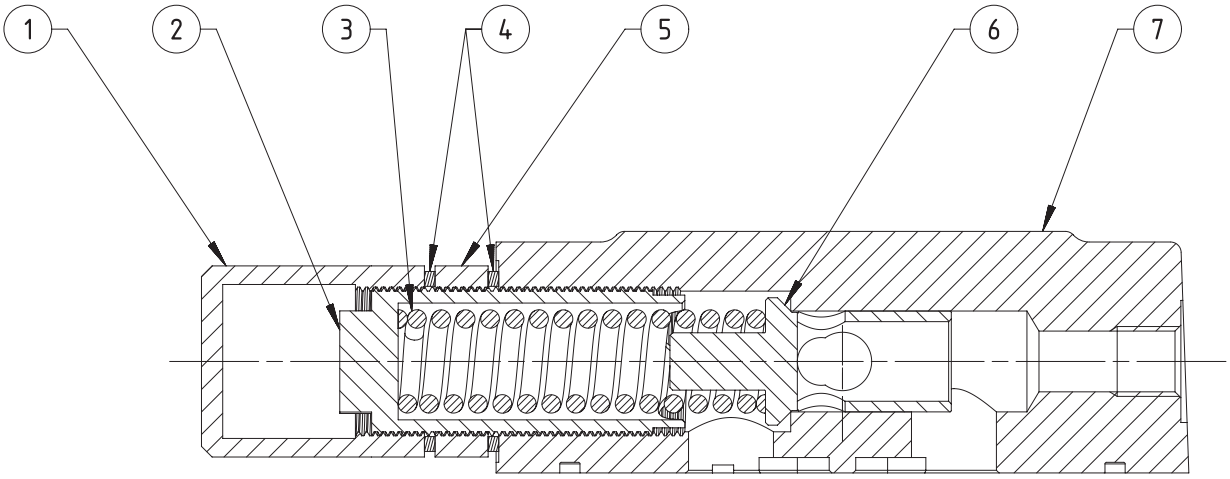
Facility / System

- Open the nozzle at the furthest dispenser in the system, over a suitable collection receptacle until oil emerges free of bubbles.
- Repeat this process for each dispenser.

Adjusting the bypass

The bypass is checked for its proper function during the pump tests in the factory.
The bypass is adjusted while the pump is running. Check to ensure that the proper conditions are given (future operating conditions) when adjusting the bypass:

- Fluid
- Temperature
- System pressure



Item	Item number	Description
1	88662	Cap nut
2	88665	Set screw
3	88654	Spiral spring
4	88664	Fiber gasket
5	88663	Counternut
6	88666	Valve
7	88653	Bypass housing

1. Undo the cap nut [1].
2. Loosen the counternut [5].
3. Set the valve to the desired pressure by turning the set screw [2] with a wrench, size 17:

– Turn to the right (clockwise): increase of opening pressure.
– Turn to the left (counterclockwise): reduction of the opening pressure.
– A value of approx. 10 % to 20 % above the system's working pressure has proven to be a useful guideline value for the pressure adjustment.



ATTENTION

- Do not completely turn out the set screw when the pump is running or when the system is pressurized. Fluid may spurt out.

4. After finishing the adjustment, fix again the position of the set screw [2] by means of the counternut [5].
5. Screw down the cap nut [1].
6. Attention! The sealing rings [4] must be properly positioned again.



ATTENTION

- When the cap [1] is screwed off, small amounts of fluid may escape.

8. Preventive maintenance

In general, the oil pump only requires very little care or maintenance.
Maintenance work has always to be done by qualified technical personal.



DANGER

Danger of contact with energized components

- When working on the electrical system of the pump, disconnect the pump also from the power supply and protect it against restarting!



CAUTION

- Regularly check the hoses and their seals. Replace any damaged parts immediately.

In order to avoid environmental or equipment damage or personal injury, the following parts must be regularly checked and replaced if necessary:

- Pump housing
- Delivery valve
  - Hoses
  - Pipes

9. Maintenance

Maintenance must be done by qualified technical personnel. External impact may cause a loss of performance, constitute a risk of damage to persons and/or property and void the guarantee.

Observe the following recommendations for operating the pump:



DANGER

Danger of contact with energized components

- When working on the electrical system of the pump, disconnect the pump in addition from the power supply and protect it against restarting!
- Before performing any maintenance work, disconnect the oil pump from all electric and hydraulic supply sources.

- Wear personal protective equipment when carrying out maintenance.
- If there is danger of freezing, the pump and the circuit must be emptied and stored at a location with a temperature not lower than 0°C.
- Check to ensure that the labels and decals have not become illegible and have not come loose in the course of time.
- Check at regular intervals that the line connections have not worked loose in order to avoid that liquid escapes.
- Regularly check and clean the suction line filter.
- From time to time, check the pump housing and remove any dirt.
- Check to ensure that the power cables are in perfect working order.

10. Recommended accessories for oil pumps

Item number	Description Accessories	For variant
89548	Pressure switch assembly 230 V 20 bar – 3 kW – 17 A	Item No. 23338 oil pump 50 l/min 230 V
91395	Pressure switch assembly 400 V 20 bar – 3 kW – 6 A	Item No. 23339 oil pump 50 l/min 400 V
89547	Pressure switch assembly 400 V 40 bar – 4 kW – 8 A	Item No. 23400 oil pump 70 l/min 400 V

11. Troubleshooting

11.1 Variant without pressure switch

Malfunction	Cause	Solution
The pump is running, but does not deliver oil	The oil container is empty	Change the barrel or fill up the tank
The oil pump does not suck in	There is air in the suction line	Check the suction line for tightness
		Vent the system by means of the venting valve (refer to chapter 7)
The delivery rate is too low	The fluid temperature is too low	Store the barrel in a heated room
	The bypass is dirty	Check/clean the bypass
	The bypass is set too low	Adjust the bypass correctly (refer to chapter 7)
	Suction line too long or suction height too high	Suction line resistance too high
	Voltage too low	Check the voltage
The oil pump does not run	The power supply is interrupted	Check the connection cable and the fuses

11.2 Variant with pressure switch (accessory)

Malfunction	Cause	Solution
The pump continuously switches on	The check valve is defective (refer to manual for the pressure switch)	Replace the check valve by a genuine FMT spare part
	The switch-on pressure is too high	Adapt the switch-on pressure in the configuration of the pressure switch
The pump continuously switches on and off when pumping	The pump output is too high	Slightly turn out the set screw of the bypass until the pump runs continuously (refer to chapter 7)
The pump does no switch off or the switch-off pressure is not reached	The pressure switch is set too high, thus, the pump output is too low	Correct the switch-off pressure in the configuration of the pressure switch
	The bypass is set too low	Slightly turn in the set screw of the bypass until the pump switches off (refer to chapter 7)

12. Repair / Service

The oil pumps have been developed and produced according to the highest quality standards.

Should a problem develop, despite of all quality controls, please contact our customer service:

FMT Swiss AG
Tel +49 9462 17-246
Fax +49 9462 1063
service@fmtag.ch

13. Disposal

The operating company is responsible for the proper disposal of the pump.

Hereby, the industry-specific and local regulations must be observed when disposing the different materials.

Only qualified personnel is authorized to disassemble and dispose of the oil pump.

14. EC Declaration of Conformity

CE

Manufacturer:

FMT Swiss AG
Fluid Management Technologies Swiss AG
Gewerbestraße 6
6330 Cham / Switzerland

declares under his sole responsibility that the machine:

Model	Item number **23 338** 230 V 1~AC · 50 l/min Item number **23 339** 400 V 3~AC · 50 l/min Item number **23 340** 400 V 3~AC · 70 l/min
Motor voltage	230 V / 400 V
Function	Gear pumps
complies with all relevant provisions of the following directive:	
EC directives	2006/42/EC Machinery Directive 2014/35/EU Low Voltage Directive
Applicable standards	EN 60204-1:2018; EN 809:1998+A1:2009+AC:2010; EN ISO 12100:2010-11; EN ISO 19353:2019; EN 60335-1/A14:1998-07

Authorized representative for the compilation of the technical documentation:

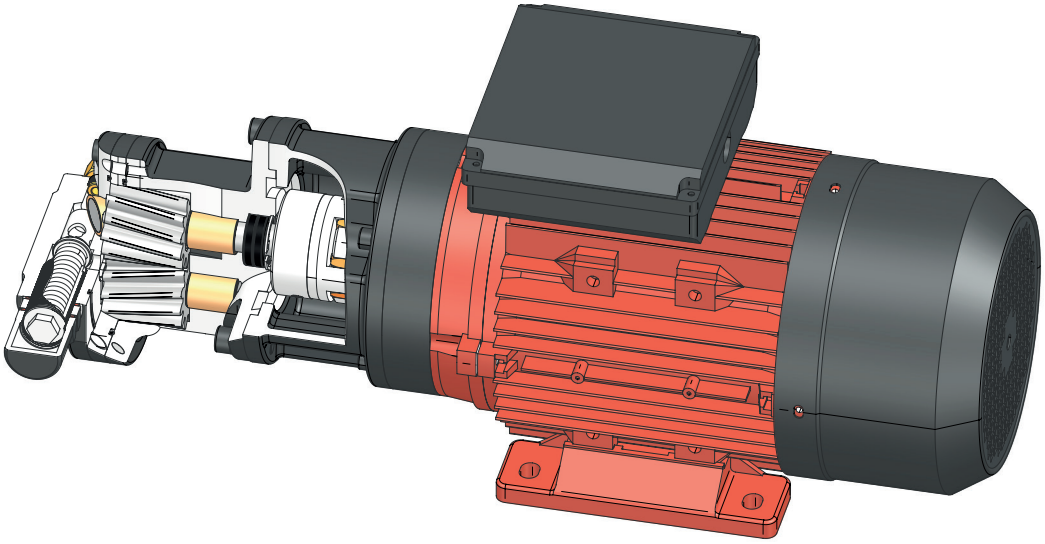
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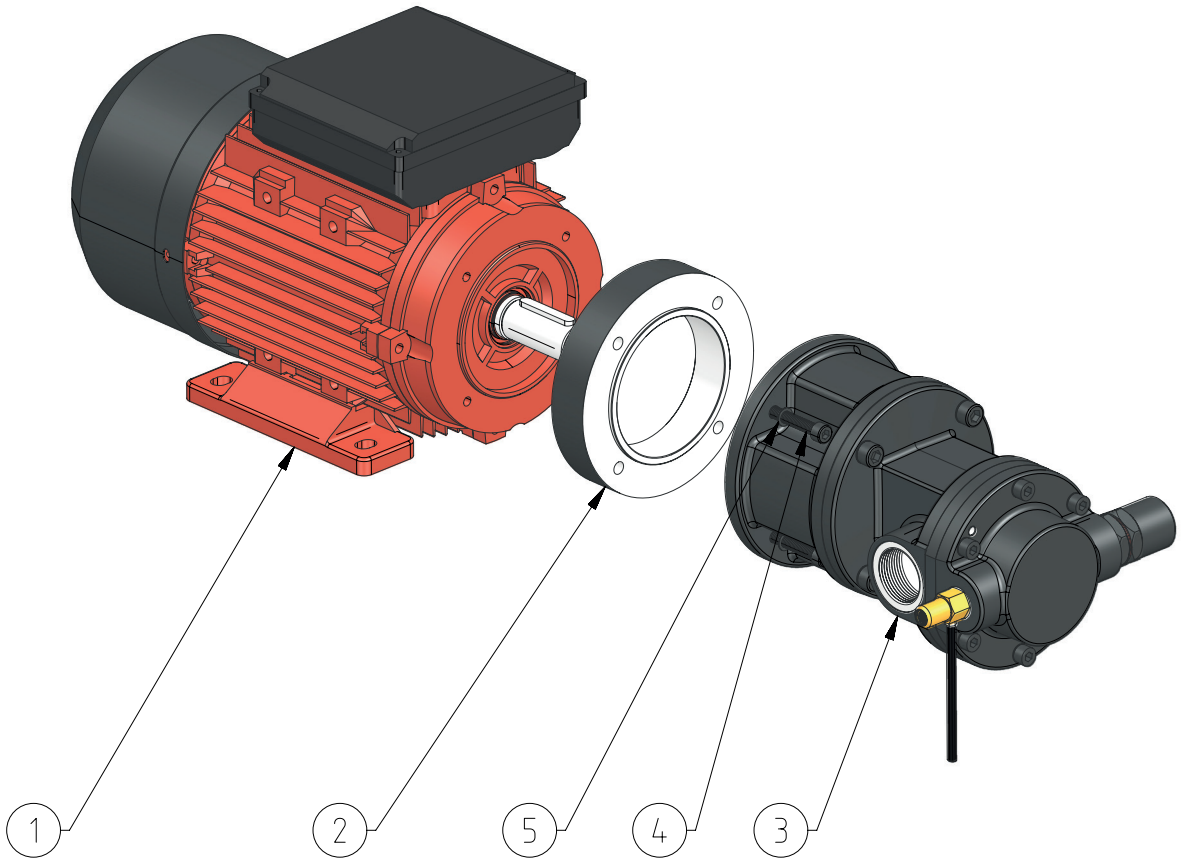
FMT Swiss AG
Cham, 28.01.2022

Dipl.-Ing. Rudolf Schlenker
(Managing Director)

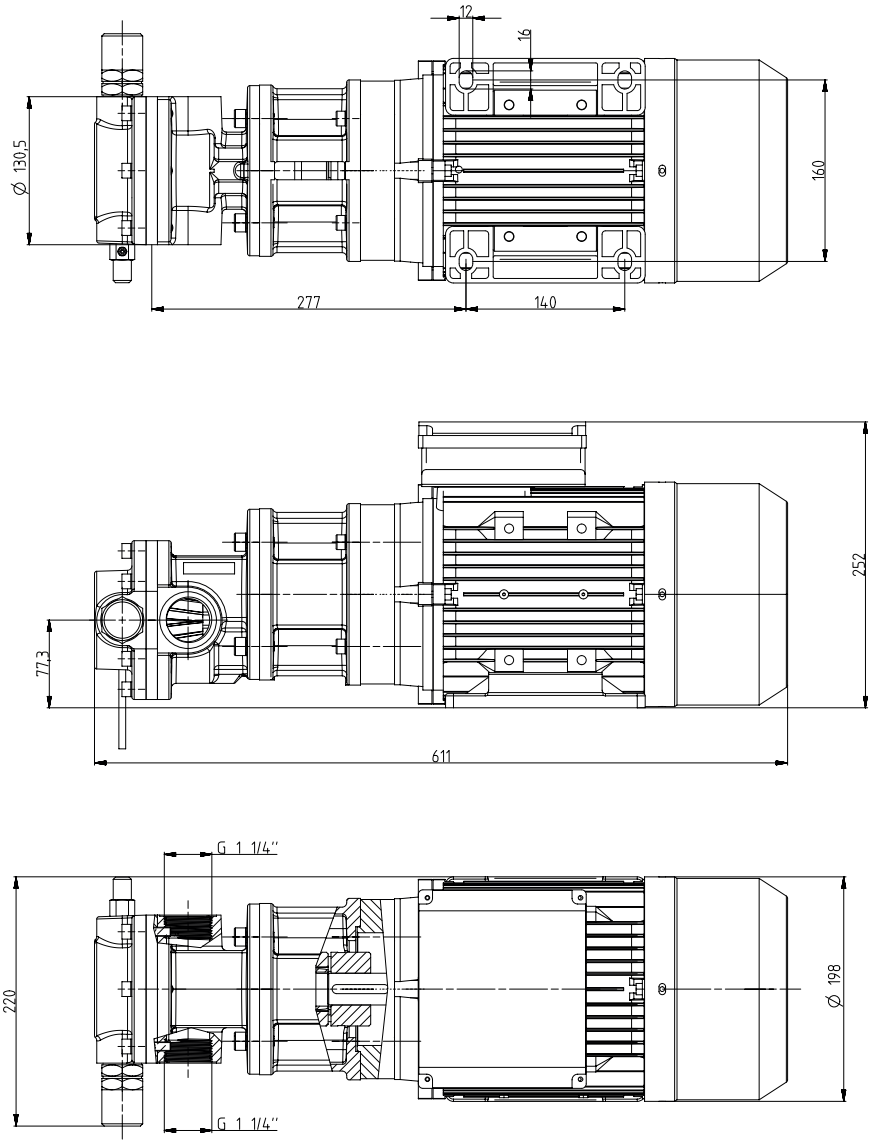
15. Oil pump 50 l/min 230 V-1~AC-50 Hz

Item No. **23 338**



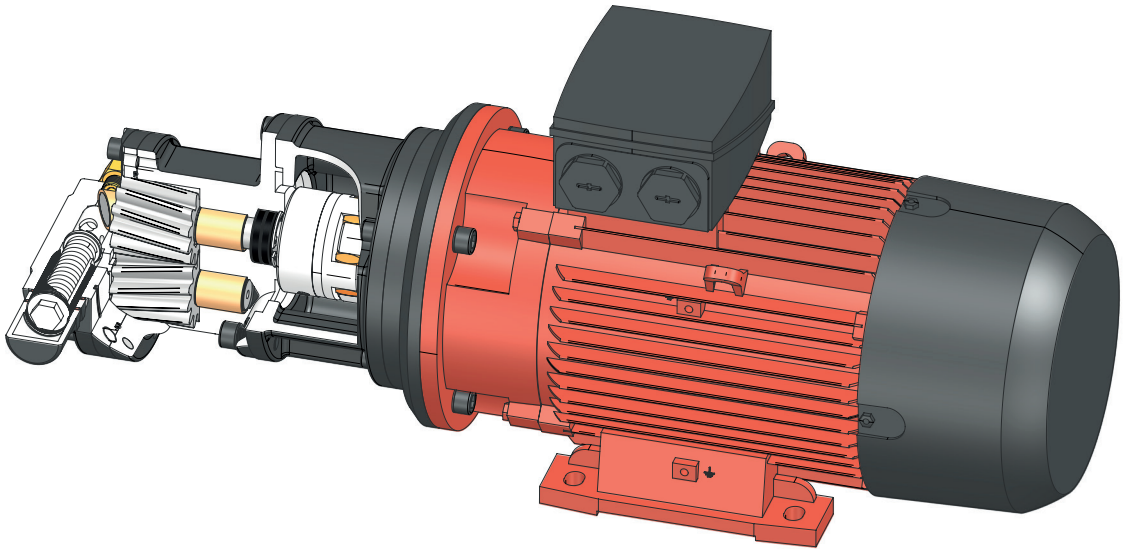


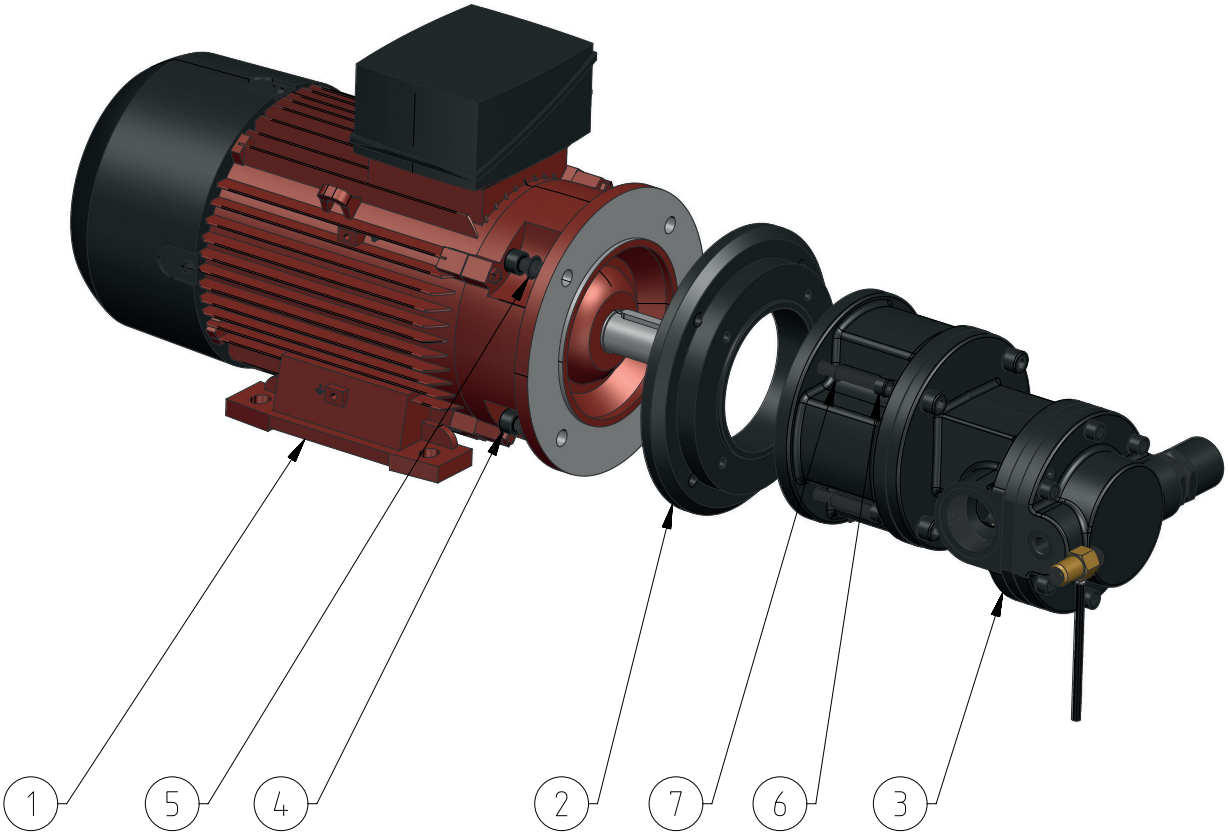
Item	Quantity	Item number	Designation
1	1	88646	Three-phase squirrel cage motor 400 V-3~AC-50 Hz-3 kW
2	1	88650	Motor adapter flange
3	1	91494	Pump complete without motor 50 l
4	4	91979	Socket head cap screw M10 x 55
5	4	88680	Lock washer S8



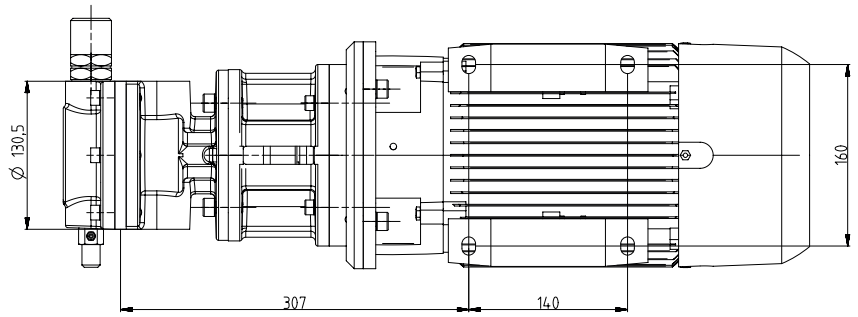
16. Oil pump 50 l/min 400 V-3~AC-50 Hz

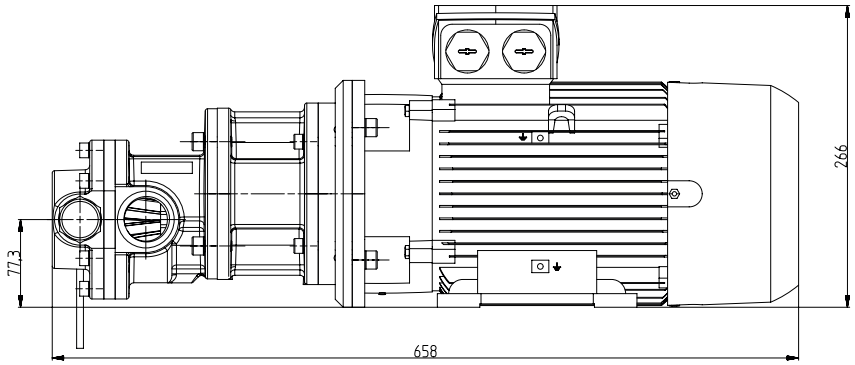
Item No. **23 339**

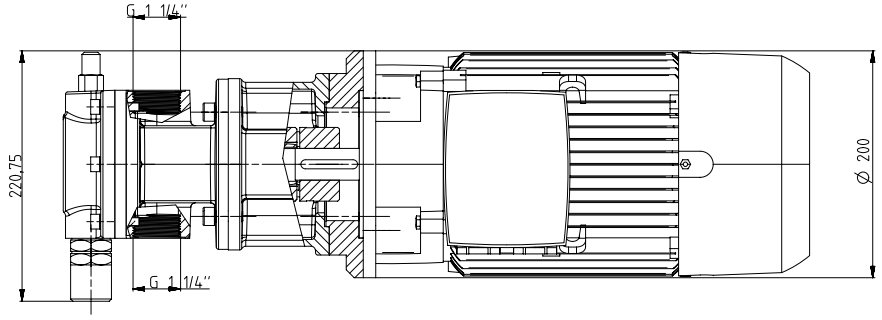




Item	Quantity	Item No.	Designation
1	1	88647	Three-phase squirrel cage motor 400 V-3~AC-50 Hz-3 kW
2	1	89583	Motor adapter flange
3	1	91494	Pump complete without motor 50 l
4	4	88678	Socket head cap screw M10 x 55
5	4	88679	Lock washer S10
6	4	00249	Socket head cap screw M8 x 25
7	4	88680	Lock washer S8

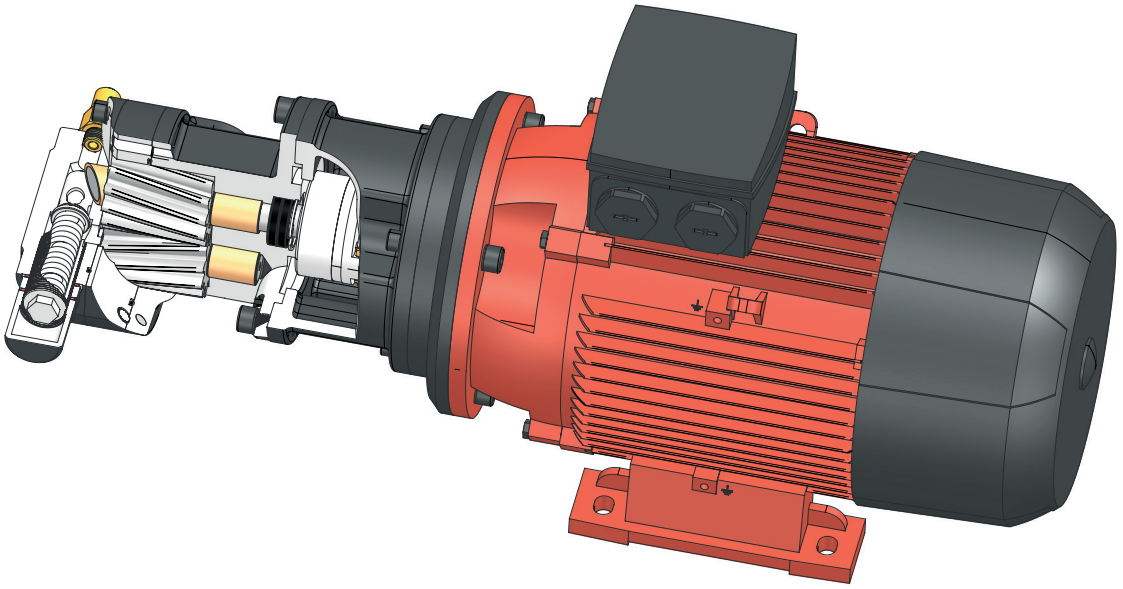


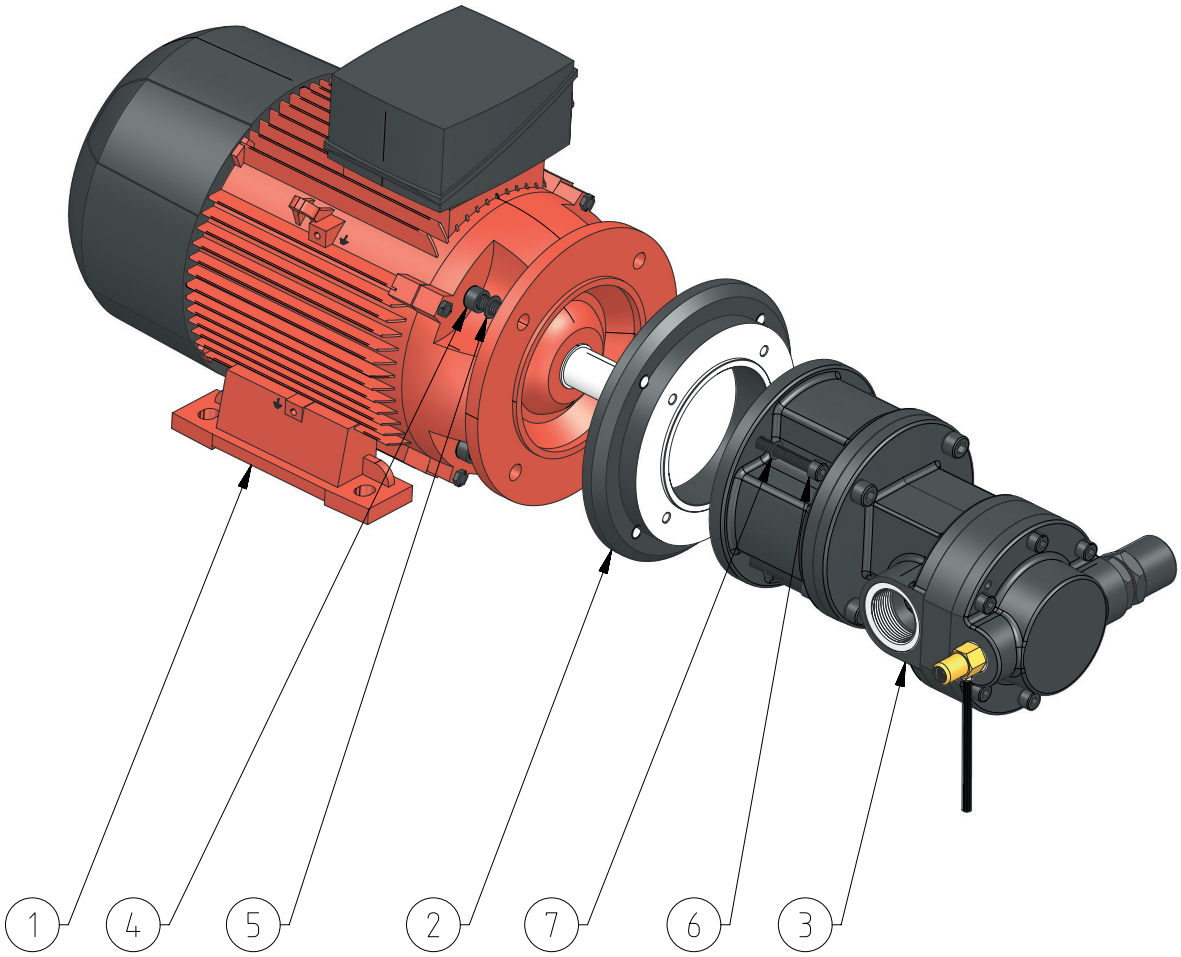




17. Oil pump 70 l/min 400 V-3~AC-50 Hz

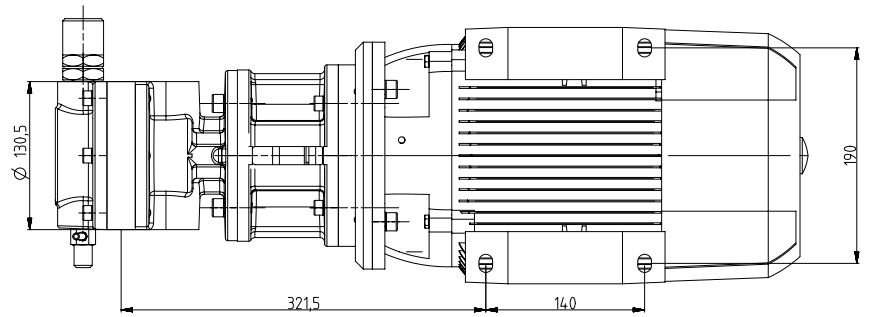
Item No. **23 340**

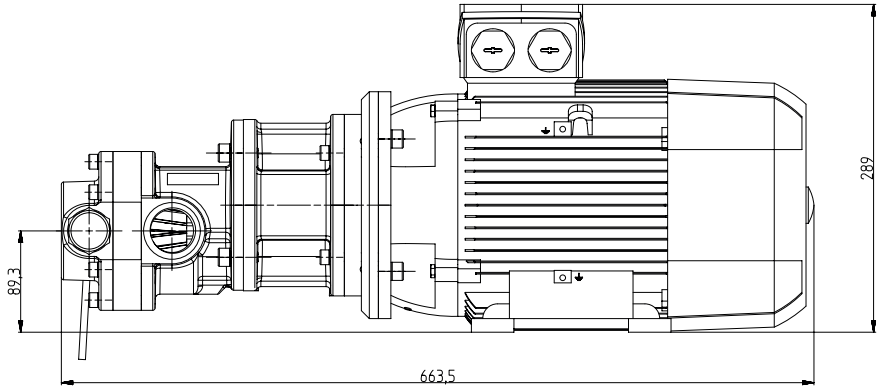


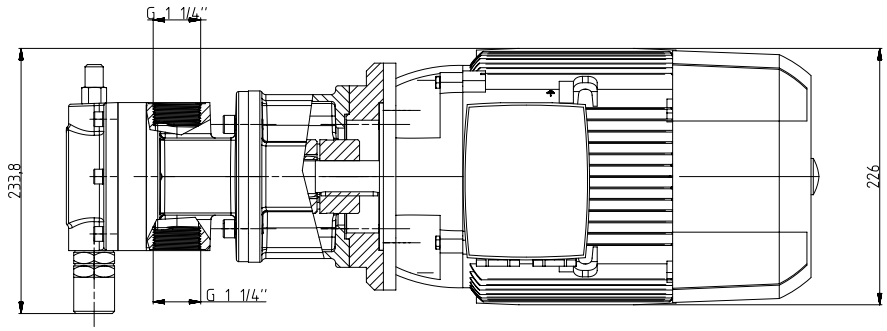


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Item	Quantity	Item No.	Designation
1	1	91393	Squirrel cage motor 1LE1003-1BB23-4JA4-Z-P02 400 V-3~AC-50 Hz-4 kW
2	1	89583	Motor adapter flange
3	1	88648	Pump complete without motor 70 l
4	4	88678	Socket head cap screw M10 x 25
5	4	88679	Lock washer S10
6	4	00249	Socket head cap screw M8 x 25
7	4	88680	Lock washer S8

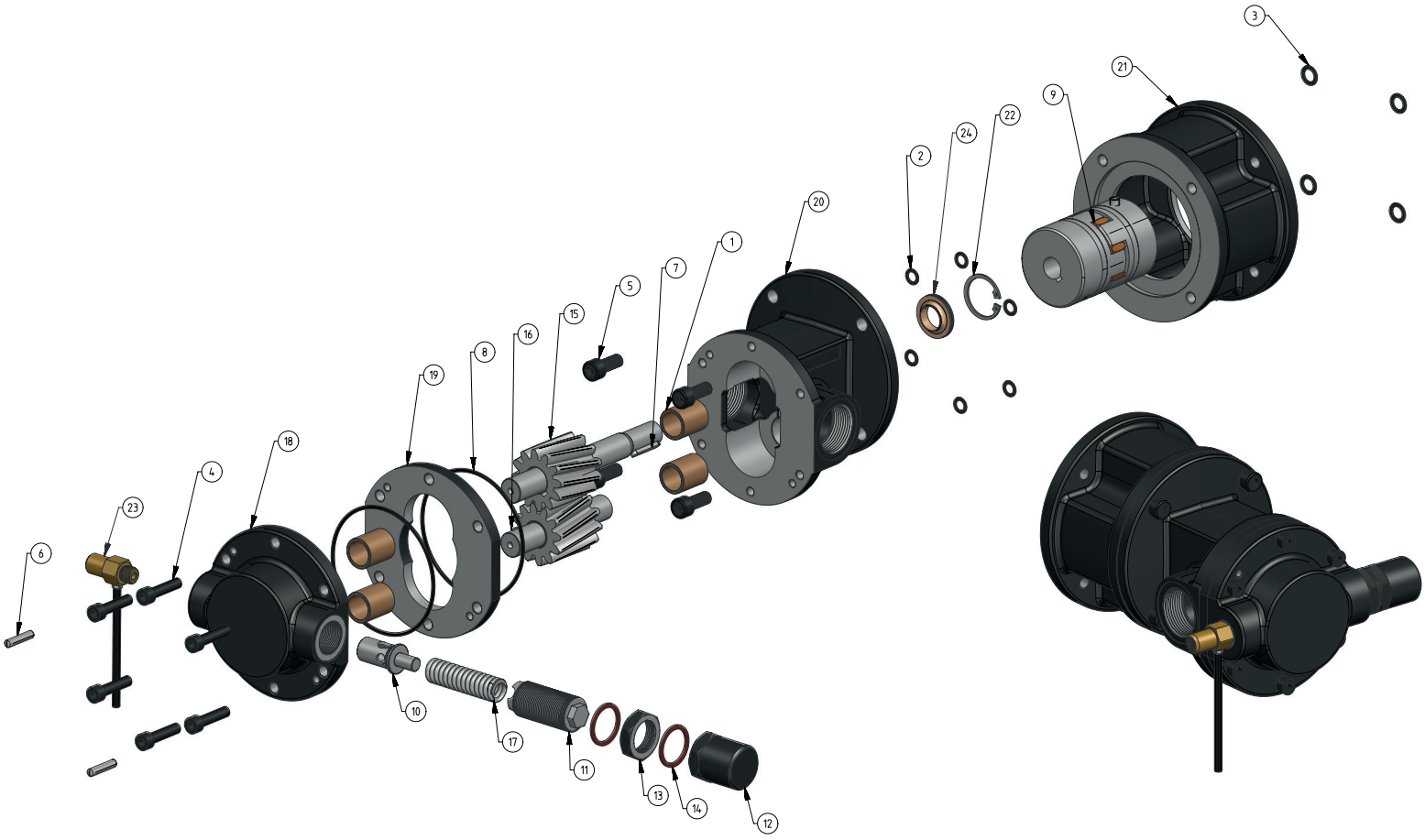






18. 50 l pump without motor

Item No. **91 494**

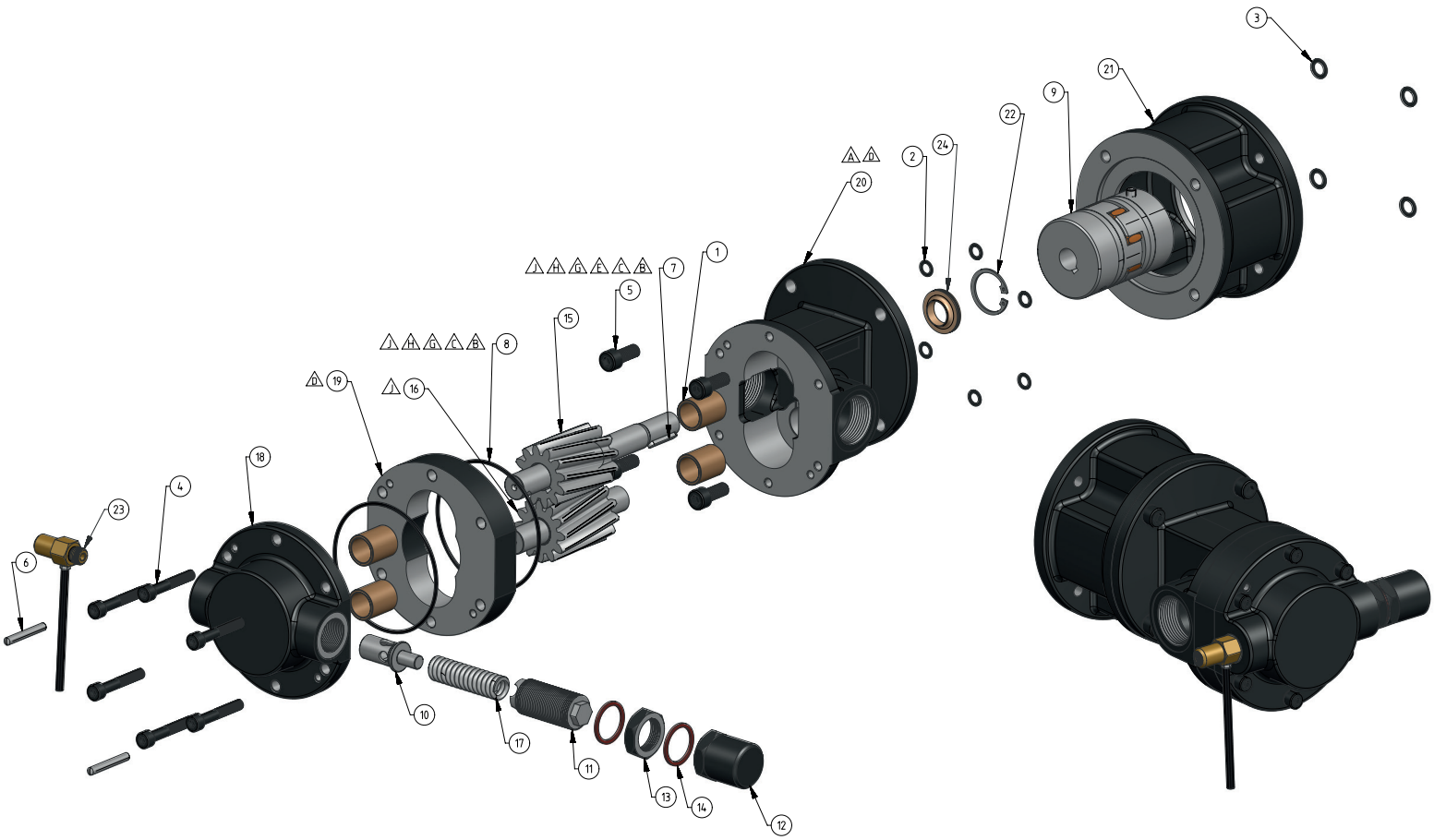


FMT Swiss AG

Item	Quantity	Item No.	Designation
1	4	88681	Slide bearing DIN 4379 form C
2	6	88680	Lock washer S8
3	4	88679	Lock washer S10
4	6	83935	Socket head cap screw M8 x 35
5	4	88678	Socket head cap screw M10 x 25
6	2	91415	Parallel pin DIN 7 Ø 6 x 30
7	1	88674	Feather key DIN 6885-A-6 x 6 x 32
8	2	88672	O-ring-NBR 70-101,27 x 2,62
9	1	88667	ROTEX shaft coupling type 001-28 1a
10	1	88666	Valve
11	1	88665	Set screw
12	1	88662	Counternut
13	1	88663	Screw nut M28 x 1.5
14	2	88664	Fiber gasket DIN 7603 form A Ø 28 x Ø 34 x 2,0
15	1	91496	Helical gear wheel assy. 50 l
16	1	91495	Mating gear wheel assy. 50 l
17	1	88654	Spiral spring
18	1	88653	Bypass housing
19	1	91410	Pump flange 50 l
20	1	88651	Pump body
21	1	88649	Coupling housing
22	1	89103	Lock washer DIN 472 35 x 1.5
23	1	85006	Venting valve compl.
24	1	92259	Prelon ring IV/P 20/35x4/8 PTFE-9 1.4571

19. 70 l pump without motor

Item No. **88 648**



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Item	Quantity	Item No.	Designation
1	4	88681	Slide bearing DIN 4379 form C
2	6	88680	Lock washer S8
3	4	88679	Lock washer S10
4	6	88676	Socket head cap screw M8 x 50
5	4	88678	Socket head cap screw M10 x 25
6	2	88675	Parallel pin DIN 7 Ø 6 x 45
7	1	88674	Feather key DIN 6885-A-6 x 6 x 32
8	2	88672	O-ring-NBR 70-101,27 x 2,62
9	1	88667	ROTEX shaft coupling type 001-28 1a
10	1	88666	Valve
11	1	88665	Set screw
12	1	88662	Counternut
13	1	88663	Screw nut M28 x 1.5
14	2	88664	Fiber gasket DIN 7603 form A Ø 28 x Ø 34 x 2,0
15	1	88658	Helical gear wheel assy. 70 l
16	1	88655	Mating gear wheel assy. 70 l
17	1	88654	Spiral spring
18	1	88653	Bypass housing
19	1	88652	Pump flange 70 l
20	1	88651	Pump body
21	1	88649	Coupling housing
22	1	89103	Locking ring DIN 472 35 x 1.5
23	1	85006	Venting valve compl.
24	1	92259	Prelon ring IV/P 20/35x4/8 PTFE-9 1.4571

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