

Gear pump units

# Product series MKx

For oil and fluid grease

For use in SKF MonoFlex single-line systems and centralized oil+air lubrication systems



The units in the MKx product series are used in SKF MonoFlex single-line systems and include a pre-installed pressure regulating valve and pressure relief valve.

The units in the MKx product series can be supplied with an optional pressure gauge for visual monitoring of pressure changes in the main line. Electrical pressure monitoring can be carried out by an integrated pressure switch. Fill level monitoring is also possible if required.

The units are controlled externally via the machine control system or via an integrated control unit. Furthermore, units can be supplied with a pushbutton allowing interim lubrication to be activated manually at any time.

All important functions are integrated into the lid. A plastic cap protects the electrical components from environmental influences such as dirt and dust.

The modular structure of the units of the MKx product series makes them attractive to machine manufacturers as well as to end users and dealers.





CAD models for products shown in this brochure can be downloaded at: [skf-lubrication.partcommunity.com](http://skf-lubrication.partcommunity.com)

#### **!** Important information on product usage

All products from SKF may be used only for their intended purpose as described in this brochure and in any instructions. If operating instructions are supplied with the products, they must be read and followed.

Not all lubricants are suitable for use in centralized lubrication systems. SKF does offer an inspection service to test customer supplied lubricant to determine if it can be used in a centralized system. SKF lubrication systems or their components are not approved for use with gases, liquefied gases, pressurized gases in solution and fluids with a vapor pressure exceeding normal atmospheric pressure (1 013 mbar) by more than 0,5 bar at their maximum permissible temperature.

Hazardous materials of any kind, especially the materials classified as hazardous by European Community Directive EC 67/548/EEC, Article 2, Par. 2, may only be used to fill SKF centralized lubrication systems and components and delivered and/or distributed with the same after consulting with and receiving written approval from SKF.

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# Description of the models

## Gear pump unit MKU

Units from the MKU product series are suitable for pumping oil with a viscosity range of 20 to 1500 mm<sup>2</sup>/s.

**The units are available in the following reservoir designs:**

- 2 liter plastic reservoir
- 3 liter plastic reservoir
- 3 liter metal reservoir
- 6 liter plastic reservoir

The units can be fitted with an optional pressure switch and/or fill level switch. Electrical connections are made using DIN built-in connectors or cable fittings.

Units with reservoir capacity of 3 or 6 liters can be supplied with an optional integrated control unit.



## Gear pump unit MKF

Units of the MKF product series are suitable for pumping fluid grease of NLGI Grades 000, 00.

**The units are available in the following reservoir designs:**

- 2 liter plastic reservoir
- 3 liter plastic reservoir
- 6 liter plastic reservoir

The units can be fitted with an optional pressure switch and/or fill level switch. Electrical connections are made using DIN built-in connectors or cable fittings.

Units with reservoir capacity of 3 or 6 liters can be supplied with an optional integrated control unit.



## Gear pump unit MKL

Units from the MKL product series are suitable for pumping oil with a viscosity range of 20 to 1500 mm<sup>2</sup>/s.

**The units are available in the following reservoir designs:**

- 3 liter plastic reservoir
- 3 liter metal reservoir
- 6 liter plastic reservoir

The units come fitted with a pressure switch and fill level switch. The signals of these switches are processed by an integrated control unit.

The control unit also provides the option of processing the signals of an external air pressure switch to monitor the oil+air system.

Electrical connections are made using DIN built-in connectors or cable fittings.



# SKF MonoFlex system structure

## Prelubrication, relubrication, and oil+air distributor system

SKF MonoFlex single-line centralized lubrication systems with single-line distributors generally consist of a lubrication unit, the single-line distributors, and the lubrication lines. The pressure regulating valve and pressure relief valve required for the single-line centralized lubrication system's operation are integrated into the lubrication unit.

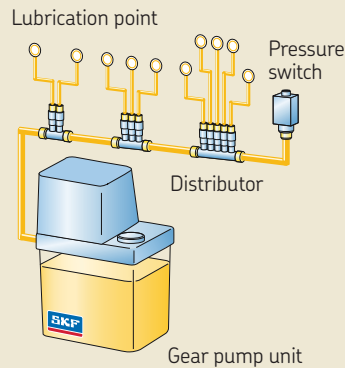
If pressure losses of greater than 10 bar are expected in the single-line centralized lubrication system, for example due to a wide expansion of the system or due to the viscosity of the lubricant (depending on the ambient temperature), a pressure switch should be mounted to monitor the system at the end of the main line, if possible. If such a switch is mounted in this location, there is no need for a pressure switch in the unit.

The pressure switch monitors the required pressure build-up during the lubrication cycle.

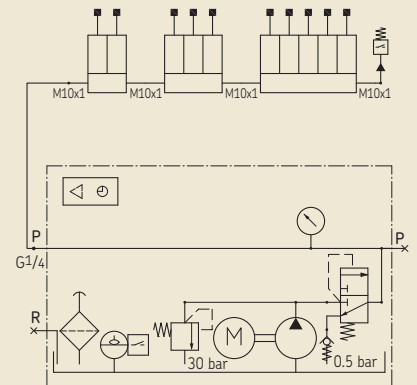
The lubrication unit run time specified by the control unit or machine control system ensures pressure build-up in the single-line centralized lubrication system. Pressure in the main line must be relieved after the lubrication unit is switched off in order to ensure proper functioning of the single-line distributors. This is performed by the pressure relief valve integrated into the lubrication unit.

See the following illustrations for examples of single-line centralized lubrication systems with prelubrication and relubrication distributors.

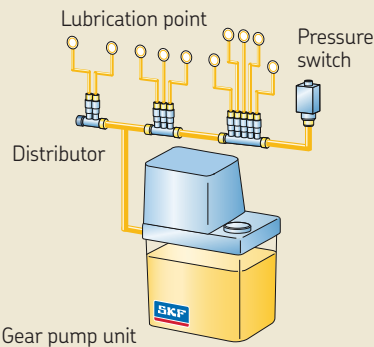
**Prelubrication distributor system**



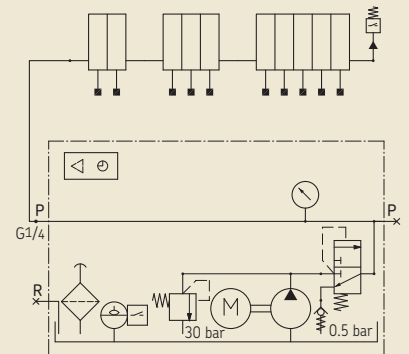
**Hydraulic layout 1**



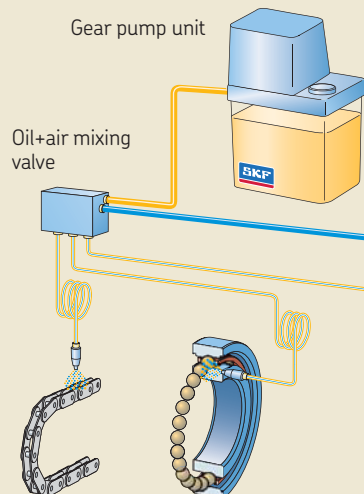
**Relubrication distributor system**



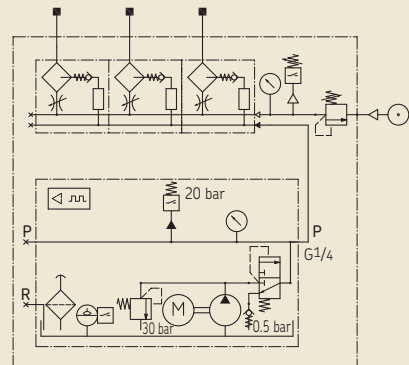
**Hydraulic layout 2**



**Oil+air system**




**Hydraulic layout 3**




# SKF MonoFlex gear pump unit

Diagram of the various combination options for the MKU product series

Connector types  
Rectangular connector as per DIN 175301-803A




Circular connector M12x1



Cable fittings / plugs



Gear pumps



Delivery rate  
0.1 l/min    0.2 l/min    0.5 l/min

Control units



Unit with 2 liter plastic reservoir



Unit with 3 liter plastic reservoir



Unit with 3 liter metal reservoir



Unit with 6 liter plastic reservoir



Pressure gauge




Pressure switch



Fill level switch for min. oil level



Terminal strip



# Gear pump unit, product series MKU

## Configurator

**Order code** **M K U** - **1** **0 0 0** +

Product series **MKx**  
**U** = oil lubricant

**Delivery rate**

<b>1</b> = 0.1 l/min	•	•	•	-
<b>2</b> = 0.2 l/min	-	•	•	•
<b>5</b> = 0.5 l/min	-	•	•	•

**Lubricant reservoir, control**

Lubricant reservoir	1	2	3	4
	2 liters, plastic	3 liters, plastic	3 liters, metal	6 liters, plastic
<b>Control</b>				
<b>A</b> = no control, with terminal strip	•	•	•	•
<b>B</b> = no control, with terminal strip and pushbutton	•	•	•	•
<b>C</b> = IG38-30-I <sup>1)</sup>	-	•	•	•
<b>D</b> = IZ38-30-I <sup>1)</sup>	-	•	•	•
<b>E</b> = IGZ36-20-S6-I <sup>1)2)</sup>	-	•	•	•

<sup>1)</sup> If control C, D, or E is selected, monitoring C must be selected.  
<sup>2)</sup> If control E is selected, electrical connection 1 must be selected.  
 For description of control units, see page 16-17.

**Monitoring**

	X	A	B	C	D	E
<b>Fill level switch</b>						
Without fill level switch	•	•	-	-	-	-
NC contact (detection of wire breakage)	-	-	•	•	-	-
NO contact (no detection of wire breakage)	-	-	-	-	•	•
<b>Pressure switch 20 bar</b>						
Without pressure switch	•	-	•	-	•	-
NO contact	-	•	-	•	-	•

**Voltage key**

	Voltage	Frequency	Control
<b>924</b> <sup>3)</sup>	24 V DC	-	A, B, E
<b>428</b>	230 V AC	50/60 Hz	A, B, C, D, E
<b>429</b>	115 V AC	50/60 Hz	A, B, C, D, E

<sup>3)</sup> Only possible with delivery rates 0.1 and 0.2 l/min

**Electrical connection**

Control	A, B	A, B	C, D	E	C	C
<b>Monitoring</b>	X	A	B	C	D	E
<b>Electrical connection</b>						
<b>0</b> = 2 cable fittings	-	•	•	•	•	-
<b>1</b> = 1 cable fitting; 1 rectangular connector	-	•	•	•	•	•
<b>2</b> = 1 circular connector M12x1; 1 rectangular connector <sup>4)</sup>	-	•	•	•	•	-
<b>3</b> = 1 sealing plug; 1 cable fitting	•	-	-	-	-	-
<b>4</b> = 1 sealing plug; 1 rectangular connector	•	-	-	-	-	-

<sup>4)</sup> Only for design without control.

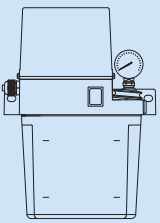
**Pressure gauge**

**0** = without pressure gauge  
**1** = with pressure gauge

**Order example**

**MKU1-11AC10000+924**

- Gear pump unit for oil
- Delivery rate 0.1 l/min
- 1st generation
- 2 liter plastic reservoir
- No control, with terminal strip
- NC fill level switch, NO pressure switch
- With pressure gauge
- 2 cable fittings
- Voltage 24 V DC



# SKF MonoFlex gear pump unit

## Diagram of the various combination options for the MKF product series





# Gear pump unit, product series MKF

## Configurator

**Order code**      M   K   F   -   1   [ ]   [ ]   [ ]   [ ]   [ ]   [ ]   [ ]   [ ]   [ ]   [ ]   [ ]   0   0   0   +   [ ]   [ ]   [ ]   [ ]

Product series **MKx**

F = fluid grease lubricant

**Delivery rate**

1 = 0.1 l/min	.	.	-
2 = 0.2 l/min	-	.	.

Code number for delivery rate

**Lubricant reservoir, control**

Lubricant reservoir	1	2	4
	2 liters, plastic	3 liters, plastic	6 liters, plastic
Control			
<b>A</b> = no control, with terminal strip	.	.	.
<b>B</b> = no control, with terminal strip and pushbutton	.	.	.
<b>C</b> = IG38-30-I <sup>1)</sup>	-	.	.
<b>D</b> = IZ38-30-I <sup>1)</sup>	-	.	.
<b>E</b> = IGZ36-20-S6-I <sup>1)2)</sup>	-	.	.

<sup>1)</sup> If control C, D, or E is selected, monitoring C must be selected.  
<sup>2)</sup> If control E is selected, electrical connection 1 must be selected.  
 For description of control units, see page 16–17.

**Monitoring**

	X	A	B	C
Fill level switch				
Without fill level switch	.	.	-	-
NC contact (detection of wire breakage)	-	-	.	.
NO contact (no detection of wire breakage)	-	-	-	-
Pressure switch 20 bar				
Without pressure switch	.	-	.	-
NO contact	-	.	-	.

**Electrical connection**

Control	A, B	A, B	C, D	E
Monitoring	X	A	B	C
Electrical connection				
<b>0</b> = 2 cable fittings	-	.	.	.
<b>1</b> = 1 cable fitting; 1 rectangular connector	-	.	.	.
<b>2</b> = 1 circular connector M12x1; 1 rectangular connector <sup>4)</sup>	-	.	.	-
<b>3</b> = 1 sealing plug; 1 cable fitting	.	-	-	-
<b>4</b> = 1 sealing plug; 1 rectangular connector	.	-	-	-

<sup>4)</sup> Only for design without control.

**Voltage key**

	Voltage	Frequency	Control
<b>924</b>	24 V DC	-	A, B, E
<b>428</b>	230 V AC	50/60 Hz	A, B, C, D, E
<b>429</b>	115 V AC		

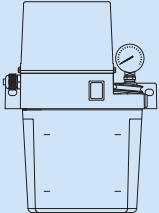
**Pressure gauge**

**0** = without pressure gauge  
**1** = with pressure gauge

**Order example**

**MKF1-11AC10000+924**

- Gear pump unit for fluid grease
- Delivery rate 0.1 l/min
- 1st generation
- 2 liter plastic reservoir
- No control, with terminal strip
- NC fill level switch, NO pressure switch
- With pressure gauge
- 2 cable fittings
- Voltage 24 V DC



Selected code number for lubricant reservoir  
 Selected code letter for control  
 Selected code letter for monitoring  
 Selected code number for pressure gauge  
 Selected code number for electrical connection

PUB LS/P2.12133 EN - 1-1203-EN

# SKF MonoFlex gear pump unit

Diagram of the various combination options for the MKL product series



# Gear pump unit, product series MKL

## Configurator

**Order code**      **M** **K** **L**      -      **1**      **F** **C**      **1** **0** **0** **0** +      [ ] [ ] [ ]

Product series **MKx**  
L = oil+air

Code number for delivery rate

Code number for lubricant reservoir

Code letter for control

Code letter for monitoring

Selected code number for pressure gauge

Code number for electrical connection

**Delivery rate**

<b>1</b> = 0.1 l/min	•	•	-
<b>2</b> = 0.2 l/min	•	•	•
<b>5</b> = 0.5 l/min	•	•	•

**Lubricant reservoir, control, monitoring, pressure gauge, electrical connection**

<b>Lubricant reservoir</b>	<b>2</b>	<b>3</b>	<b>4</b>
	3 liters, plastic	3 liters, metal	6 liters, plastic

**F** = control unit IG54-20-S4-1<sup>1)</sup>

**C** = monitoring with fill level switch (NC contact) and pressure switch 20 bar (NO contact)

**Pressure gauge**  
**0** = without pressure gauge  
**1** = with pressure gauge

**Electrical connection**  
**1** = 1 cable fitting; 1 rectangular connector

<sup>1)</sup> For description of the control unit, see page 17.

**Voltage key**

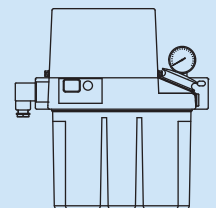
	Voltage	Frequency
<b>924</b> <sup>2)</sup>	24 V DC	-
<b>428</b>	230 V AC	50/60 Hz
<b>429</b>	115 V AC	

<sup>2)</sup> Only possible with delivery rates 0.1 und 0.2 l/min

### Bestellbeispiel

#### MKL2-12FC11000+428

- Gear pump unit for oil+air
- Delivery rate 0.2 l/min
- 1st generation
- 3 liter plastic reservoir
- With control
- NC fill level switch, NO pressure switch
- With pressure gauge
- 1 cable fitting; 1 rectangular connector
- Voltage 230 V AC



# SKF MonoFlex gear pump unit

## Technical Data

Reservoir capacity . . . . . 2, 3, and 6 liters

### Dry weight

Unit with 2 liter plastic reservoir . . . . . 3.4 kg  
 Unit with 3 liter plastic reservoir . . . . . 4.2 kg  
 Unit with 3 liter metal reservoir . . . . . 5 kg  
 Unit with 6 liter plastic reservoir . . . . . 5.6 kg

### Delivery rate<sup>1)</sup>

MKU, MKL . . . . . 0.1; 0.2; 0.5 l/min  
 MKF . . . . . 0.1; 0.2 l/min

Max. operating pressure . . . . . 30 bar  
 Operating temperature . . . . . +10 to 40 °C  
 Protection class per DIN EN 60529  
 (VDE 0470-1) . . . . . IP 54

### Pumped media

MKU, MKL . . . . . Mineral oil or  
 synthetic oil  
 Operating viscosity . . . . . 20–1500 mm<sup>2</sup>/s  
 MKF . . . . . Fluid grease NLGI Grade 000  
 or 00

Compatible with plastics, NBR  
 elastomers, copper and  
 copper alloys

### AC motor

Rated frequency . . . . .	50 Hz	60 Hz
Rated voltage . . . . .	115/230 V	115/230 V
Rated current . . . . .	1,06/0,53 A	1,36/0,68 A
Rated output . . . . .	60 W	75 W

Duty type as defined by DIN EN 60034-1  
 VDE 0530-1<sup>2)</sup> . . . . . S3, 20% (1.25 to 25 min)  
 With integrated temperature switch

Recommended fuse protection (line protection)  
 according to DIN EN 60898 . . . . . B 6A

### DC motor

Rated voltage . . . . . 24 V DC  
 Rated current . . . . . 1,6 A  
 Starting current . . . . . 4 A  
 Rated output . . . . . 39 W  
 Duty type as defined by DIN EN 60034-1  
 (VDE 0530)<sup>2)</sup> . . . . . S3, 20% (1.25 bis 25 min)  
 Integrated fuse for motor  
 Cartridge fuse link (5×20 mm)  
 according to DIN EN 60127-2  
 (VDE 0820-2) standard sheet 3 . . . . . T2 A<sup>4)</sup>  
 Recommended fuse protection (line protection)  
 according to DIN EN 60898 . . . . . B 6A or C 4A

### Fill level switch for oil (contact opens when level is too low)

Switched voltage range . . . . . 10 to 36 V DC/10 to 25 V AC  
 Switching current (resistive load)<sup>3)</sup> . . . . . ≤0.25 A  
 Switching capacity (resistive load) . . . . . ≤3 W/VA

### Fill level switch for oil (contact closes when level is too low)

Switched voltage range . . . . . 10 to 36 V DC/10 to 25 V AC  
 Switching current (resistive load)<sup>3)</sup> . . . . . ≤0.25 A  
 Switching capacity (resistive load) . . . . . ≤3 W/VA

### Fill level switch for fluid grease (contact opens when level is too low)

Operating voltage range . . . . . 10 to 36 V DC  
 Output current (resistive load)<sup>3)</sup> . . . . . ≤0.25 A  
 Power consumption without output load . . . . . < 10 mA (24 V), < 15 mA (36 V)  
 Short circuit and polarity reversal protection . . . . . Yes

### Pressure switch (NO contact)

Rated pressure . . . . . 20 bar  
 Switched voltage range . . . . . 10 to 36 V DC/10 to 25 V AC  
 Switching current (resistive load)<sup>3)</sup> . . . . . ≤1 A  
 Switching capacity (resistive load) . . . . . ≤10 W/VA

### Additional input power on units with control unit

IG38-30 / IZ38-30 . . . . . 4 W  
 IG54-20 / IGZ36-20 . . . . . 8 W

<sup>1)</sup> Based on an operating viscosity of 140 mm<sup>2</sup>/s (cSt) at a back pressure of p = 5 bar.

<sup>2)</sup> Mode S3 (periodic intermittent operation) describes the ratio between the pump cycle and the subsequent down time. The following limit values result from a relative ON-time of 20% and a cycle time of 1.25 to 25 min:

Min. cycle time: 1.25 min×0.2 = **0.25 min**. Pump cycle with subsequent down time of **1 min**.  
 Max. cycle time: 25 min×0.2 = **5 min**. Pump cycle with subsequent down time of **20 min**.

<sup>3)</sup> When switching inductive loads, take suitable measures to protect the contacts.

<sup>4)</sup> Minimum short-circuit current of 6A must be ensured.

# SKF MonoFlex gear pump unit

## Product series MKx



With 2 liter plastic reservoir

### Minimum mounting dimensions (2 liter reservoir)

- A = width 350 mm
- B = height 380 mm
- C = depth 140 mm

### Recommended fastening hardware

- Hexagon head bolts (2x) acc. to ISO 4017-M8x25-8.8
  - Washers (4x) acc. to ISO 7090-8-200-HV
  - Hexagon nuts (2x) acc. to ISO 4032-M8-8
- Tightening torque 25 Nm



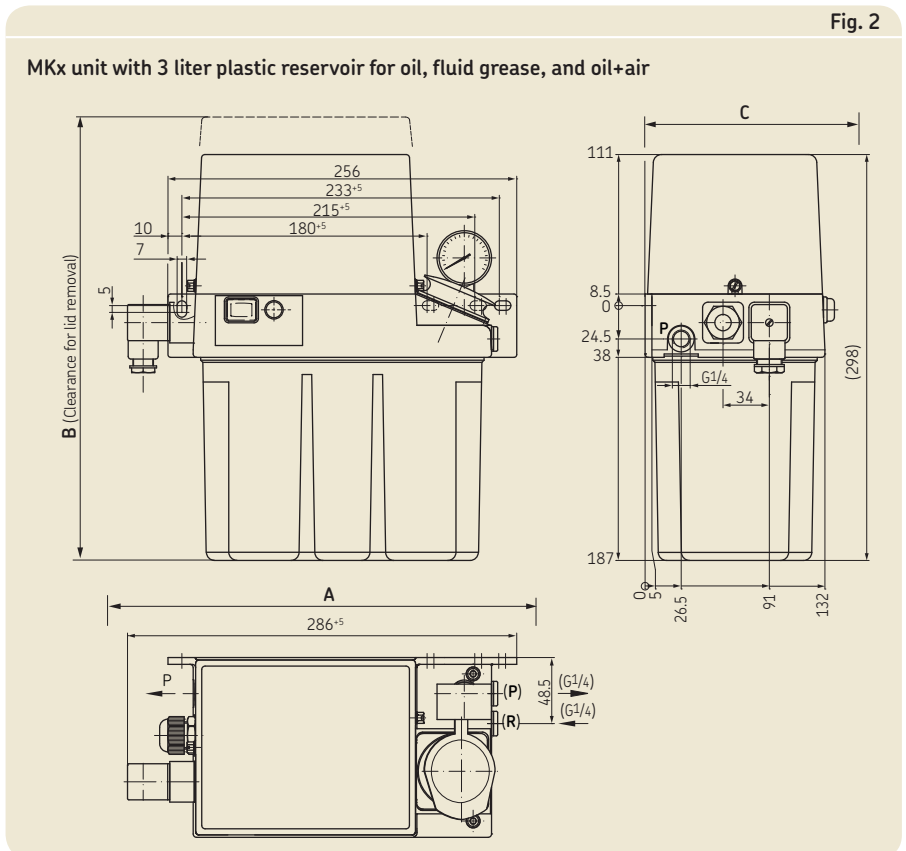
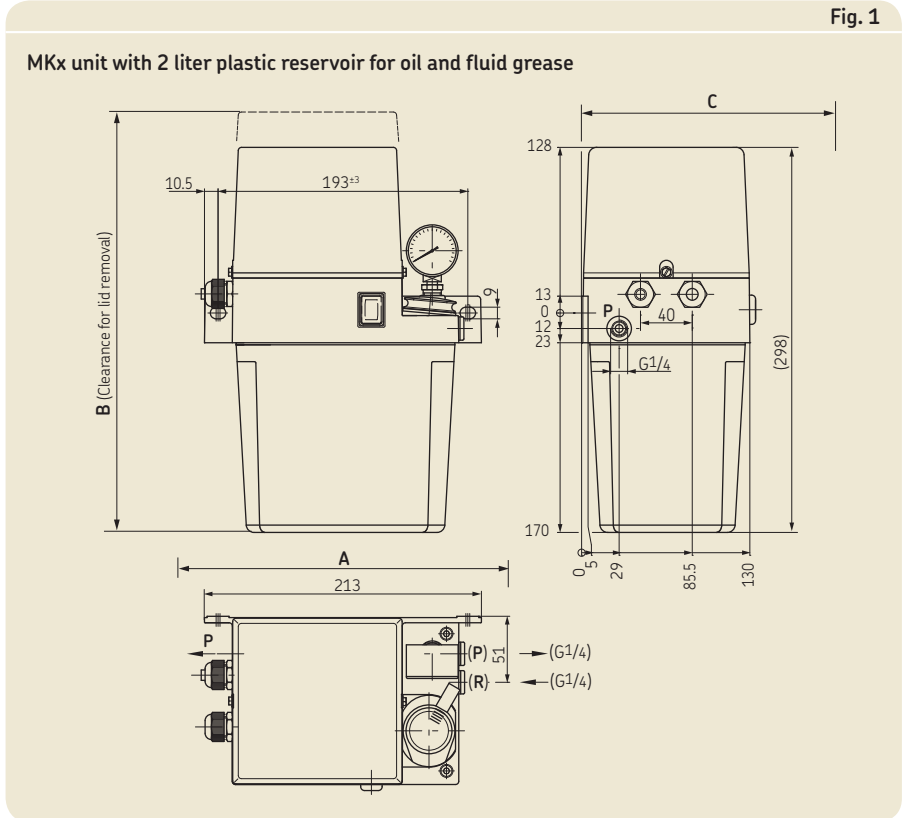
With 3 liter plastic reservoir

### Minimum mounting dimensions (3 liter reservoir)

- A = width 390 mm
- B = height 400 mm
- C = depth 140 mm

### Recommended fastening hardware

- Hexagon head bolts (2x) acc. to ISO 4017-M6x25-8.8
  - Washers (4x) acc. to ISO 7090-6-200-HV
  - Hexagon nuts (2x) acc. to ISO 4032-M6-8
- Tightening torque 10 Nm



# SKF MonoFlex gear pump unit

## Product series MKx



With 3 liter metal reservoir

### Minimum mounting dimensions (3 liter reservoir)

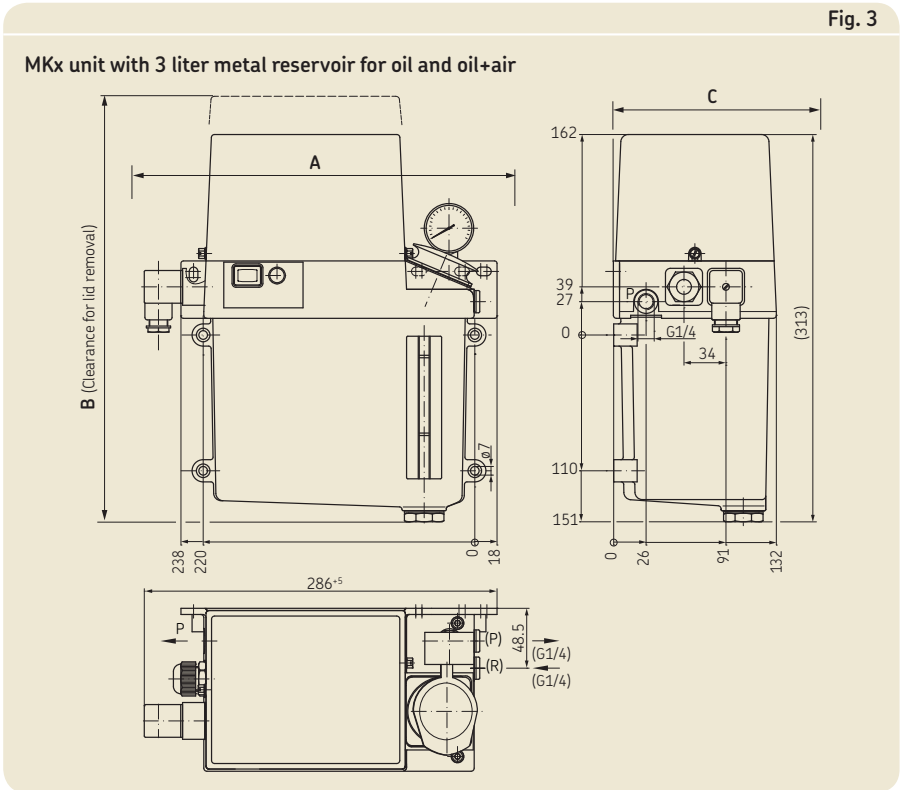
A = width 390 mm

B = height 400 mm

C = depth 140 mm

### Recommended fastening hardware

- Hexagon head bolts (2x) acc. to ISO 4017-M6×25-8.8
  - Washers (4x) acc. to ISO 7090-6-200-HV
  - Hexagon nuts (2x) acc. to ISO 4032-M6-8
- Tightening torque 25 Nm



With 6 liter plastic reservoir

### Minimum mounting dimensions (6 liter reservoir)

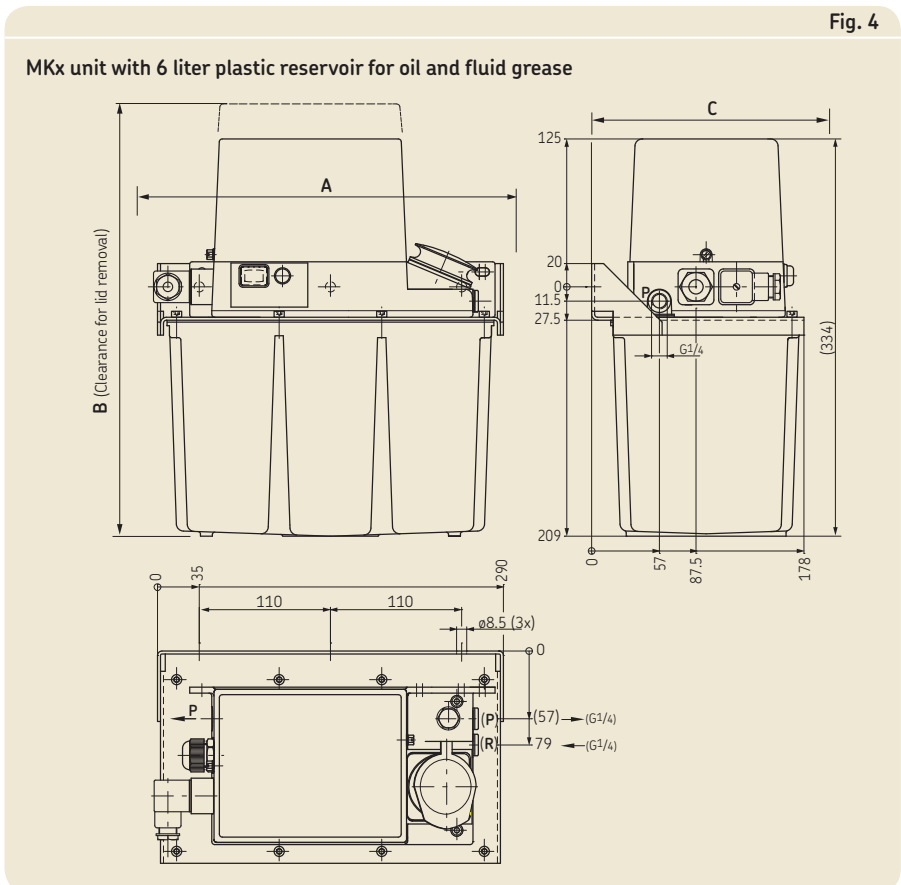
A = width 390 mm

B = height 440 mm

C = depth 190 mm

### Recommended fastening hardware

- Hexagon head bolts (2x) acc. to ISO 4017-M8×25-8.8
  - Washers (4x) acc. to ISO 7090-8-200-HV
  - Hexagon nuts (2x) acc. to ISO 4032-M8-8
- Tightening torque 25 Nm

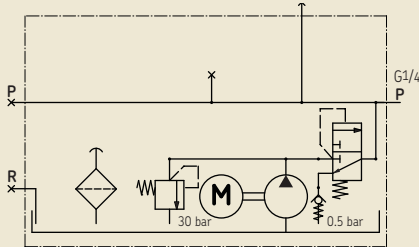


# SKF MonoFlex gear pump unit

## Example hydraulic layout of product series MKU

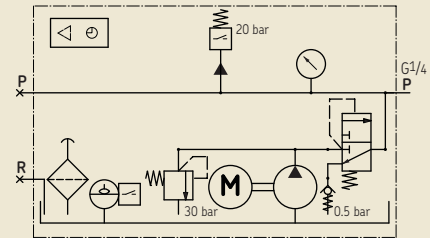
Hydraulic layout 4

MKU unit without pressure gauge, without fill level switch and pressure switch, no control (MKUx-1xAX0x000+xxx)



Hydraulic layout 5

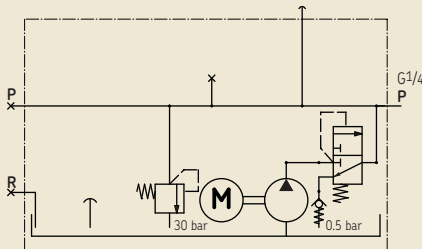
MKU unit with pressure gauge, with fill level switch and pressure switch, control E (MKUx-1xEC1x000+xxx)



## Example hydraulic layout of product series MKF

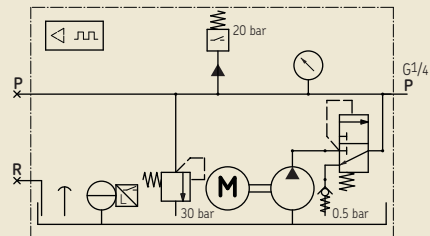
Hydraulic layout 6

MKF unit without pressure gauge, without fill level switch and pressure switch, no control (MKFx-1AX0x000+xxx)



Hydraulic layout 7

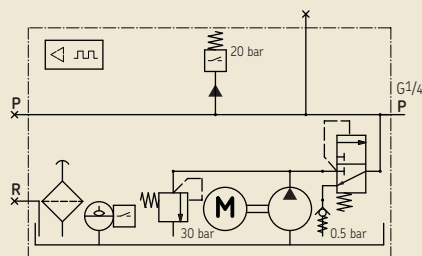
MKF unit with pressure gauge, with fill level switch and pressure switch, control C (MKFx-1xCC1x000+xxx)



## Example hydraulic layout of product series MKL

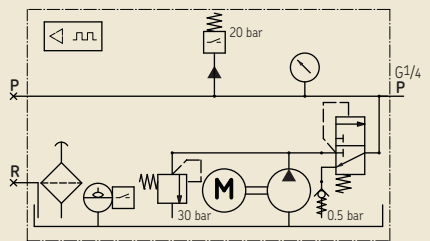
Hydraulic layout 8

MKL unit without pressure gauge, with fill level switch and pressure switch, control F (MKLx-1xFC01000+xxx)



Hydraulic layout 9

MKL unit with pressure gauge, with fill level switch and pressure switch, control F (MKLx-1xFC11000+xxx)



# Electrical connection / control

## Types A + B with and without monitoring

The pump units of types A + B come equipped with a pressure switch and/or fill level switch, as desired.

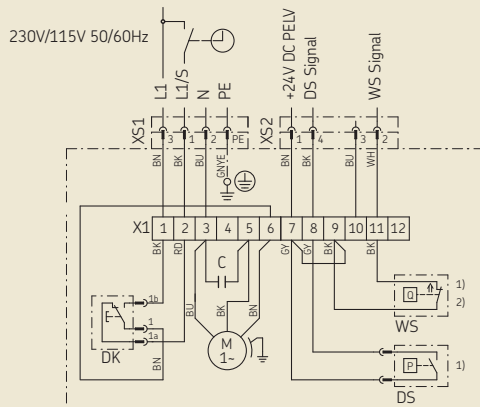
The pump units are controlled by the machine control system, which also processes the signals from the monitoring functions (for pressure build-up and lubricant fill level). Electrical connections are made using DIN built-in connectors or cable fittings.

If cable fittings are used, the power cables are connected directly to the terminal strip located under the cover cap, as shown on the applicable terminal diagram.

### Key to wiring diagrams 1-7

M	= pump motor
C	= capacitor
L1/S/N	= connection for operating voltage
PE	= protective earth connection
WS	= lubricant level switch
DS	= pressure switch
DK	= pressure switch for interim lubrication
SL	= indicator lamp (green) "Operation"
SL1	= indicator lamp (green) "Operation"
SL2	= indicator lamp (red) "Fault"
XS1	= plug connector as per DIN EN 175301-803 A
XS2	= plug connector M12x1
X1	= terminal strip
MK	= machine contact
DL	= compressed-air circuit-breaker
Y1	= compressed air valve

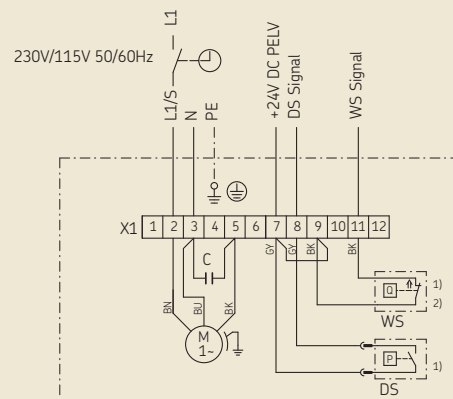
Wiring diagram 1



Example: MKU1.. no control, with pushbutton DK, 2 plug connectors, fill level switch opens at min.

- <sup>1)</sup> Optional
- <sup>2)</sup> Optional, contact closes at min. fill level

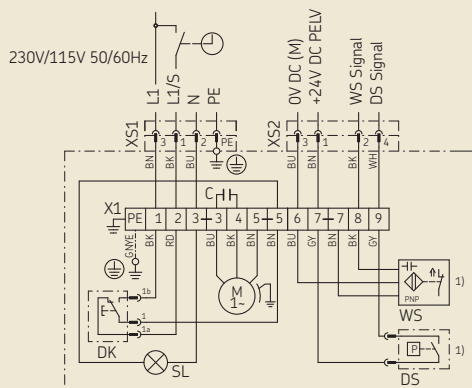
Wiring diagram 2



Example: MKU1.. no control, 2 cable fittings, fill level switch opens at min.

- <sup>1)</sup> Optional
- <sup>2)</sup> Optional, contact closes at min. fill level

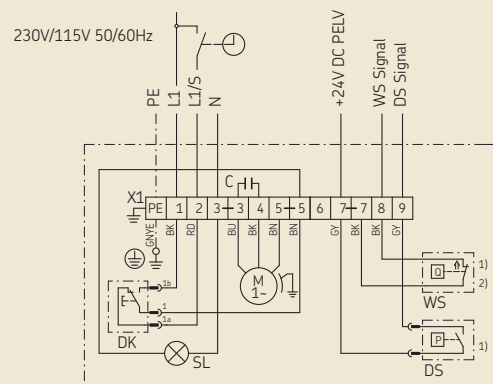
Wiring diagram 3



Example: MKF2.. no control, with pushbutton DK, 2 plug connectors, fill level switch opens at min.

- <sup>1)</sup> Optional

Wiring diagram 4



Example: MKU2.. no control, with pushbutton DK, 2 cable fittings, fill level switch opens at min.

- <sup>1)</sup> Optional
- <sup>2)</sup> Optional, contact closes at min. fill level



# Electrical connection / control

## Types C + D with control unit IG/IZ38-30-I

### Description

For control of intermittently operated single-line centralized lubrication systems, the compact pump units with 3 or 6 liter reservoirs can be fitted with an electronic control unit.

### Either:

- IG38-30-I, **timer** operation for time-dependent control<sup>1)</sup>
- IZ38-30-I, **counter** operation for load-dependent control<sup>2)</sup>

### Functions

- Adjustable interval duration
- Non-adjustable pump dwell time
- Non-adjustable pressure build-up monitoring time
- Pump run time limitation
- Prelubrication (lubrication when the supply voltage is switched on)
- Fill level monitoring with detection of wire breakage (WS switch contact opens when level is too low)
- Operation with 3-wire proximity switch possible

### Preset parameters

#### IG38-30-I

- Interval time 1 minute (for time-dependent control)
- Monitoring time 60 seconds
- Pump dwell time 15 seconds

#### IZ38-30-I

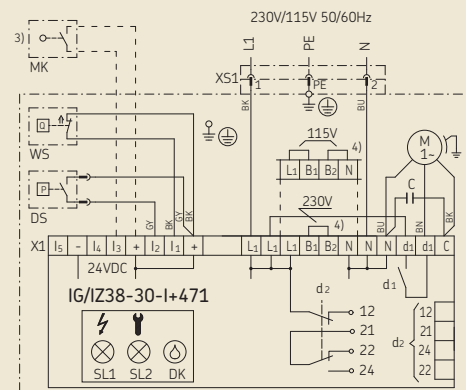
- Interval time 1 pulse (for load-dependent control)
- Monitoring time 60 seconds
- Pump dwell time 15 seconds

Fig. 5



Wiring diagram 5

### Terminal diagram IG/IZ38-30-I



<sup>3)</sup> Machine contact MK only required with counter operation (IZ38-30-I).

<sup>4)</sup> Control unit can be set to either 230 V AC or 115 V AC. The pump motor's voltage setting cannot be changed.

d2: 12 malfunction  
d2: 24 normal operation  
d2: 22 malfunction

# Electrical connection / control

## Type E with control unit IGZ36-20-S6-I

### Modes of operation

The control unit IGZ36-20-S6-I can be utilized as a pulse generator<sup>1)</sup> or pulse counter<sup>2)</sup>.

### Functions

- Adjustable interval duration
- Adjustable pump dwell time
- Adjustable pressure build-up monitoring time
- Pump run time limitation
- Prelubrication (lubrication when the supply voltage is switched on)
- Fill level monitoring with detection of wire breakage (WS switch contact opens when level is too low)
- Operation with 3-wire proximity switch possible

### Preset parameters

- Mode of operation B (time-dependent control)
- Interval time 10 minutes
- Monitoring time 60 seconds
- Pump dwell time 15 seconds

### Lubrication interval duration

<sup>1)</sup> In minutes

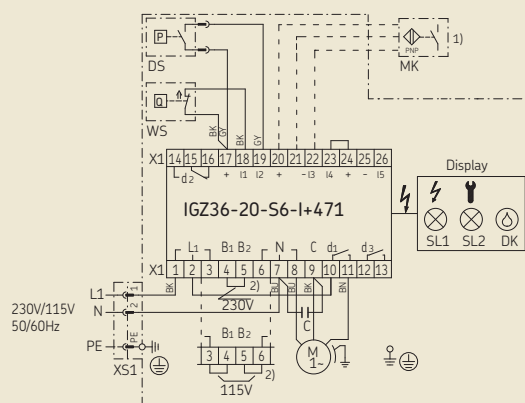
<sup>2)</sup> In number of pulses of the external machine contact MK

Fig. 6



Wiring diagram 6

### Terminal diagram IGZ36-20-S6-I



- <sup>1)</sup> Machine contact MK only required with counter operation (mode of operation D).
- <sup>2)</sup> Control unit can be set to either 230 V AC or 115 V AC. The pump motor's voltage setting cannot be changed.

X1: 16 malfunction  
X1: 14 normal operation

# Electrical connection / control

## Type F with control unit IG54-20-S4-I

### Modes of operation

The control unit IG54-20-S4 can only be utilized as a pulse generator<sup>1)</sup>.

### Functions

- Adjustable interval time
- Adjustable number of prelubrication cycles
- Adjustable pump dwell time
- Non-adjustable monitoring time for oil pressure build-up
- Pump run time limitation
- Compressed air monitoring
- Non-volatile memory (EEPROM) for operation without prelubrication cycles
- Fill level monitoring (NC contact)
- Additional output d3 for compressed-air valve Y1

### Preset parameters

- Mode of operation B (time-dependent control)
- Interval time 10 minutes
- Monitoring time 60 seconds
- Pump dwell time 5 seconds
- Number of prelubrication cycles 10

### Lubrication interval duration

<sup>1)</sup> In minutes

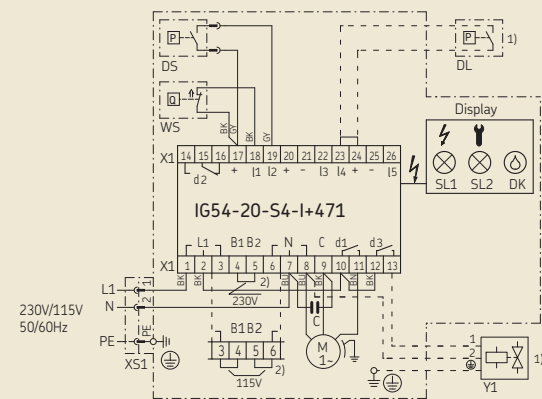
<sup>2)</sup> In number of pulses of the external machine contact MK

Fig. 7



Wiring diagram 7

### Terminal diagram IG54-20-S4-I



- <sup>1)</sup> Can be connected by the customer: compressed air switch DL / compressed air valve Y1.  
<sup>2)</sup> Control unit can be set to either 230 V AC or 115 V AC. The pump motor's voltage setting cannot be changed.

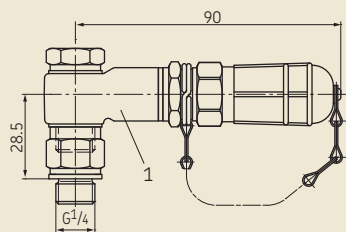
X1: 16 malfunction  
 X1: 14 normal operation

# Accessories

## Filling device

Fig. 8

Filling device complete with banjo fitting

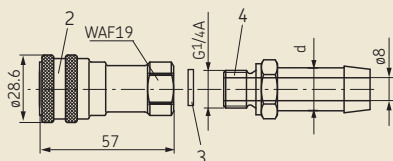


### Filling device

Item	Description	Order No.
1	Filling device, complete with banjo fitting (Fig. 8)	995-000-800
2	Coupling socket (for topping-up connection)	995-001-500
3	Sealing ring	DIN 7603-A14x18-CU
4	Hose socket for connection to coupling socket	
	d $\varnothing$ 13	857-760-007
	d $\varnothing$ 16	857-870-002

Fig. 9

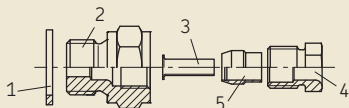
Filling device with quick-action coupling



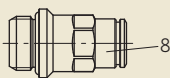
## Main line connections

Fig. 10

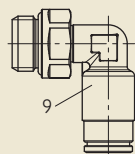
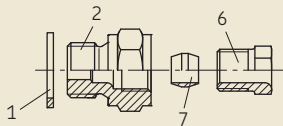
For plastic tubing



For plastic and steel tubing



For steel tubing



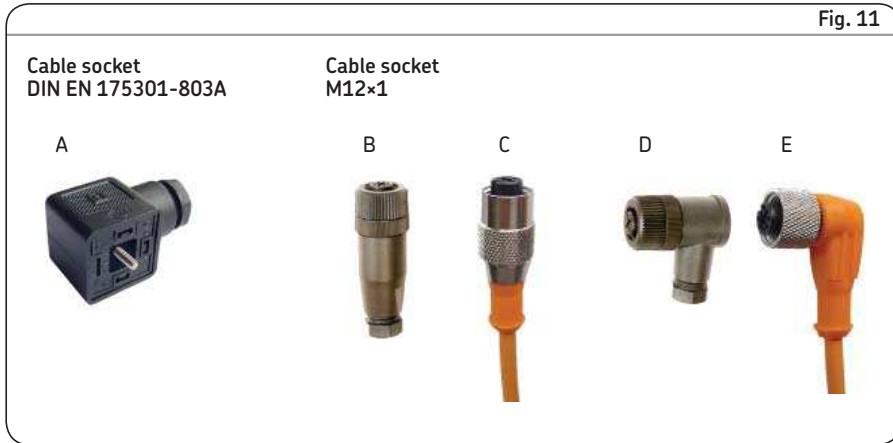
### Main line connections for pipe $\varnothing$ 6

Item	Description	Order No.
1	Sealing ring	508-108
2	Adapter	406-054
3	Reinforcing socket	406-603
4	Socket union	406-612
5	Tapered sleeve	406-611
6	Socket union	406-002
7	Double tapered ring	406-001
8	Plug connector, straight	406-054-VS
9	Plug connector, pivoted	506-143-VS

See also brochure fittings and accessories 1-0103-EN

# Accessories

## Electrical plug-in connections



**Electrical plug-in connections**

Fig.	Description	Order No.
A	Cable socket, cable diameters 6-10 mm	179-990-033
A	Cable socket, cable diameters 4,5-7 mm	179-990-147
B	Cable socket M12x1, straight	179-990-371
C	Cable socket M12x1, straight, with molded cable (5 m, 4x0.25 mm <sup>2</sup> )	179-990-600
D	Cable socket M12x1, angled	179-990-372
E	Cable socket M12x1, angled, with molded cable (5 m, 4x0.25 mm <sup>2</sup> )	179-990-601

See also brochure electrical plug-in connections 1-1730-EN

## Topping-up pump for fluid grease

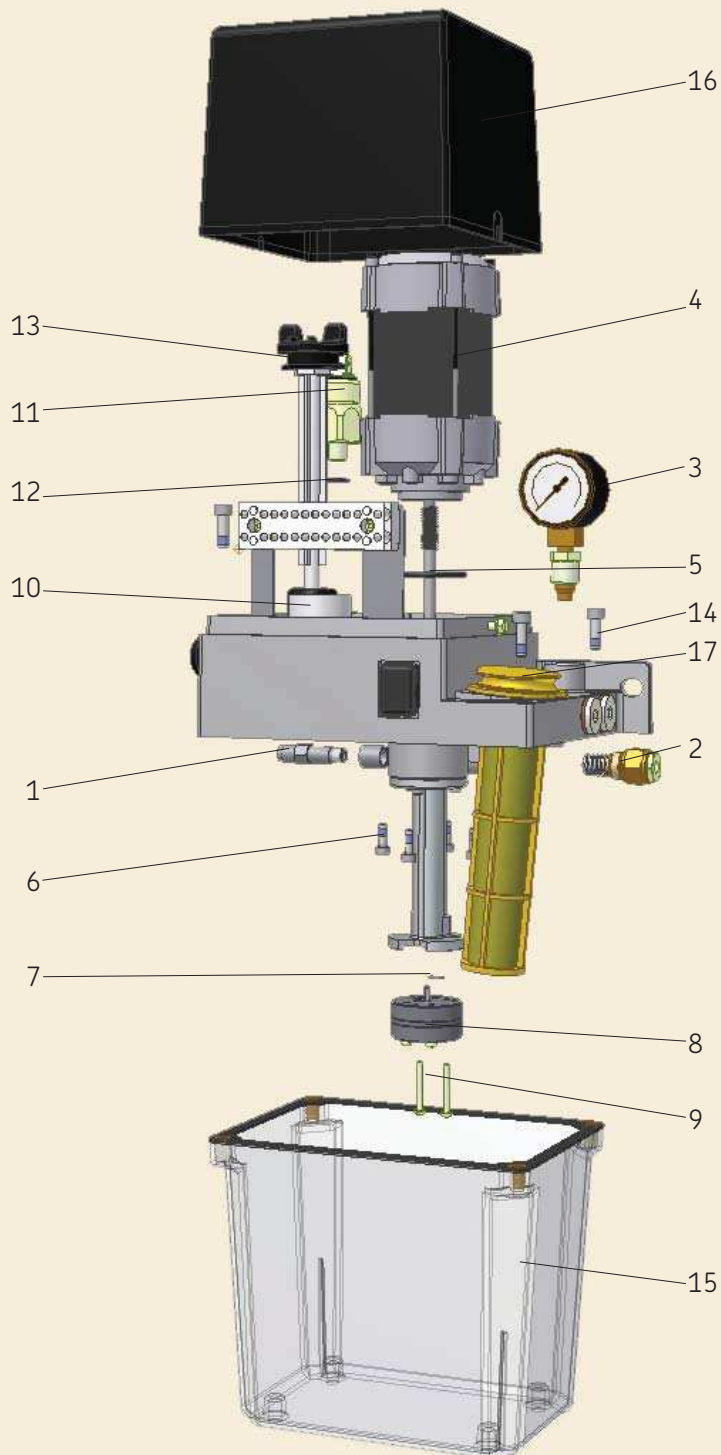


**Topping-up pump**

Description	Order No.
<b>With truck</b>	
For 25 kg drum	169-000-042
For 50 kg drum	169-000-054
<b>Without truck</b>	
For 25 kg drum	169-000-342
Matching filler socket	995-000-705
Delivery rate . . . . .	~40 cm <sup>3</sup> /stroke

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# Exploded drawing



**!** Only original spare parts from SKF Lubrication Systems Germany GmbH may be used.

Unauthorized alterations to products and the use of non-original spare parts and accessories are not permitted.

**!** Dismantling of the product or individual parts within the statutory warranty period is not permitted and voids any claims.

**!** Repair work must be performed only by the Service department of SKF Lubrication Systems Germany GmbH. For inquiries concerning assembly or maintenance, contact SKF Lubrication Systems Germany GmbH or an authorized SKF dealer or Service Partner.

# Spare parts table

Item	Units	Material number	Description	Description
1	1	996-000-947	Pressure regulating valve 32 bar	For oil
	1	996-002-197	Pressure regulating valve 30 bar	For fluid grease
2	1	MKF.U012	Pressure relief, compl., for fluid grease	For fluid grease
	1	MKU.U012	Pressure relief, compl., for oil	For oil
3	1	MKF.U013	Pressure gauge for fluid grease	For fluid grease (without throttle)
	1	MKU.U013	Pressure gauge for oil	For oil (with throttle)
4	1	MKF1.U5+924	Motor with shaft	24 V DC for 2 and 3 liter fluid grease units
	1	MKF2.U1+XXX <sup>1)</sup>	Motor with shaft	for 2 and 3 liter fluid grease units
	1	MKF2.U2+XXX <sup>1)</sup>	Motor with shaft	for 6 liter fluid grease units
	1	MKF2.U5+924	Motor with shaft	24 V DC for 6 liter fluid grease units
	1	MKU1.U5+924	Motor with shaft	24 V DC for 2 and 3 liter oil units
	1	MKU2.U2+XXX <sup>1)</sup>	Motor with shaft	for 2 and 3 liter oil units
	1	MKU2.U3+XXX <sup>1)</sup>	Motor with shaft	for 6 liter oil units
	1	MKU2.U5+924	Motor with shaft	24 V DC for 6 liter oil units
5	1	WVN501-32.2x3	O-ring	Seal between motor and lid
6	4	911-204-122	Cheese-head screw	Motor fastening
7	1	WVN501-5.28x1.78	O-ring	Seal between pump and flange pipe
8	1	ZP110-2	Gear pump	Delivery rate 0.1 l/min.
	1	ZP120-2	Gear pump	Delivery rate 0.2 l/min.; 0.1 l/min. at 24 V DC
	1	ZP150-2	Gear pump	Delivery rate 0.5 l/min.; 0.2 l/min. at 24 V DC
9	2	834-240-018	Screw M3×25 Tx10	Fastening for ZP110-2 and ZP120-2
	2	834-250-034	Screw M3×30	Fastening for ZP150-2
10	1	179-340-090	Capacitor 4 UF/450 V	Capacitor for 230 V AC (+428)
	1	179-340-091	Capacitor 16 UF/220 V	Capacitor for 115 V AC (+429)
11	1	176-112-020	Pressure switch 20 bar	NO-contact function
12	1	WVN501-10.5x1.5	O-ring	Seal for pressure switch
13	1	MKF.U016	Level switch, compl.	For fluid grease in 2 and 3 liter units (NC contact)
	1	MKF.U116	Level switch, compl.	For fluid grease in 6 liter units (NC contact)
	1	MKU.U015	Fill level switch, compl.	For oil in 2 and 3 liter units (NO contact)
	1	MKU.U016	Fill level switch, compl.	For oil in 2 and 3 liter units (NC contact)
	1	MKU.U115	Fill level switch, compl.	For oil in 6 liter units (NO contact)
	1	MKU.U116	Fill level switch, compl.	For oil in 6 liter units (NC contact)
14	4	911-205-161	Cheese-head screw	Reservoir fastening for 2 liter
	6	911-205-181	Cheese-head screw Z1	Reservoir fastening for 3 and 6 liter
15	1	993-000-169	Reservoir, compl.	2 liter plastic reservoir with seal
	1	B3.U180	Reservoir, 3 liter	3 liter metal reservoir with seal
	1	BK3.U147	Reservoir, 3 liter	3 liter plastic reservoir with seal
	1	BK6.U180	Reservoir, 6 liter	6 liter plastic reservoir with seal
16	1	898-660-056	Cap	Cap for 2 liter unit
	1	898-660-052	Cap	Cap for 3 and 6 liter units
17	1	MKU.U009	Filler socket compl.	for oil (with strainer)
	1	MKU.U019	Filler socket compl.	for oil (with strainer), 3 liter lid
	1	MKF.U009	Filler socket compl.	for fluid grease (without strainer)
	1	MKF.U019	Filler socket compl.	for fluid grease (without strainer), 3 liter lid
18 *	1	IG38-30-I+XXX <sup>2)</sup>	Control unit	For time-dependent control (for 3 and 6 liter units only)
	1	IZ38-30-I+XXX <sup>2)</sup>	Control unit	For load-dependent control (for 3 and 6 liter units only)
	1	IGZ36-20-S6-I+XXX <sup>2)</sup>	Control unit	Pulse generator/pulse counter (for 3 and 6 liter units only)
	1	IG54-20-S4-I+XXX <sup>2)</sup>	Control unit	Pulse generator (for MKL units only)
19 *	1	179-990-033	Cable socket	
20 *	1	179-990-206	Fuse	for 24 V DC units

<sup>1)</sup> Not shown

<sup>1)</sup> Add the voltage key to the part number when ordering. 230 V AC (+428); 115 V AC (+429)

<sup>2)</sup> Add the voltage key to the part number when ordering. 230/115 V AC (+471); 24 V DC (+472)

## The Power of Knowledge Engineering

Combining products, people, and application-specific knowledge, SKF delivers innovative solutions to equipment manufacturers and production facilities in every major industry worldwide. Having expertise in multiple competence areas supports SKF Life Cycle Management, a proven approach to improving equipment reliability, optimizing operational and energy efficiency and reducing total cost of ownership.

These competence areas include bearings and units, seals, lubrication systems, mechatronics, and a wide range of services, from 3-D computer modelling to cloud-based condition monitoring and asset management services.

SKF's global footprint provides SKF customers with uniform quality standards and worldwide product availability. Our local presence provides direct access to the experience, knowledge and ingenuity of SKF people.

### Important information on product usage

SKF and Lincoln lubrication systems or their components are not approved for use with gases, liquefied gases, pressurized gases in solution and fluids with a vapor pressure exceeding normal atmospheric pressure (1 013 mbar) by more than 0,5 bar at their maximum permissible temperature.

### Additional brochures:

<i>1-0103-EN</i>	<i>Fittings and Accessories</i>
<i>1-1700-3-EN</i>	<i>Control Units for Oil+Air Lubrication</i>
<i>1-1700-4-EN</i>	<i>Control Units for Single-Line Systems</i>
<i>1-1730-EN</i>	<i>Electrical Plug-In Connections</i>
<i>1-9201-EN</i>	<i>Transport of Lubricants in Centralized Lubrication Systems</i>
<i>951-170-223-EN</i>	<i>Assembly instructions product series MKx</i>

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