

Gear pump unit

Product series KFB

For high-viscosity oils and fluid grease of NLGI grades 000, 00
For use in SKF MonoFlex single-line centralized lubrication systems



SKF gear pump units of the KFB product series are used to supply lubricant to SKF MonoFlex single-line systems. They are designed for use on commercial vehicles, systems, and machines. The commercial vehicle version has type approval pursuant to ECE-R 10.

SKF gear pump units of the KFB product series are designed for the supply of fluid grease of NLGI grades 000 and 00. They include a pressure-relief valve and a pressure-limiting valve for the operation of intermittently operated MonoFlex single-line systems. The distribution and metering of the lubricant to the lubrication point can be accomplished using SKF MonoFlex single-line distributors.

The gear pump units are designed for supply voltages of 12 V DC and 24 V DC. They are controlled either by a built-in electronic control unit or externally, via the machine control system. An optional fill level switch can be selected to monitor the fill level. Depending on the design, the gear pump units are filled via a filler socket or an attached filler coupling.

Their compact design makes gear pump units of the KFB product series the ideal solution for the assembly of small centralized lubrication systems on commercial vehicles and machines with few lubrication points.



Product series KFB

Product overview

KFB1



KFBS1 with integrated control



KFBS1-6-S1 with VN relubrication distributor



KFB1-M-W



KFBS1-M-W with integrated control



KFB1-M-W-S1



SKF gear pump units of the KFB product series differ principally in their options for electrical connection and in control and function monitoring.

The pump casing contains the mounting flange, the mounting plate for the hydraulic connections, the electrical connection, and in the case of controlled models, also the display screen of the electronic control unit built into the pump casing.

Gear pump units of the KFB1 group are not controlled and therefore do not contain a built-in control unit. Gear pump units of the KFBS1 group contain an integrated electronic control unit that can be programmed via the display screen on the front of the pump casing. The electronic control unit regulates the functions of the gear pump unit and monitors the fill level. If available,

an external pressure switch can also be integrated into the monitoring system.

The mounting plate for the hydraulic connections includes the pressure-limiting valve, the pressure-relief valve, and the lubrication line connection. For models with a follower piston, there is always a filler coupling fitted on the mounting plate for filling the lubricant reservoir. With models without a follower piston, the lubricant reservoir can also be filled directly through a filler socket on the reservoir surface.

The lubricant reservoir is mounted on the pump casing and is made of transparent plastic with markings for visual monitoring of the fill level. Models with automatic fill level monitoring contain a fill level switch as well, which is either separate in the lubricant reservoir or acts together with the follower

piston to issue a signal when the lubricant level is too low.

Gear pump units in the KFB1 group are fitted with a pushbutton on the pump casing for triggering interim lubrication. On gear pump units of the KFBS1 group (controlled), interim lubrication is triggered via the electronic control unit's display screen.

Product series KFB

Product selection table

Vehicle application¹⁾ for 12 or 24 V DC

Order No.	Lubricant		Control unit	Fill level switch	Electrical connections		Design	Page
	Fluid grease NLGI grade 000, 00				Circular connector AMP, 4-pin	Circular connector AMP, 7-pin		
KFB1 ²⁾	•		–	–	•		Basic version	4
KFB1-W ²⁾	•		–	•		•	Basic version	4
KFBS1 ²⁾	•		•	–		•	Basic version	4
KFBS1-W ²⁾	•		•	•		•	Basic version	4
KFB1-4-S1 ²⁾	•		–	–	•		VN distributor 4-port	4
KFBS1-4-S1 ²⁾	•		•	–		•		
KFB1-6-S1 ²⁾	•		–	–	•		VN distributor 6-port	4
KFBS1-6-S1 ²⁾	•		•	–		•		
KFB1-W-4-S1 ²⁾	•		–	•		•	VN distributor 4-port	4
KFBS1-W-4-S1 ²⁾	•		•	•		•		
KFB1-W-6-S1 ²⁾	•		–	•		•	VN distributor 6-port	4
KFBS1-W-6-S1 ²⁾	•		•	•		•		

1) All units for vehicle applications have type approval pursuant to ECE-R 10.

2) When ordering, quote the code for voltage to be used
12 V DC: Order code **+912**
24 V DC: Order code **+924**

Industrial application for 24 V DC

Order No.	Lubricant		Control unit	Fill level switch	Electrical connections		Design	Page
	Oil Viscosity 50–50000 mm ² /s	Fluid grease NLGI grade 000, 00			Square connector 3-pin +PE	Circular connector M12×1, 4-pin		
KFB1-M+924		•	–	–	•		Basic version	6
KFBS1-M+924		•	•	–	•	•	Basic version	6
KFB1-M-W+924		•	–	•	•	•	Basic version	6
KFBS1-M-W+924		•	•	•	•	•	Basic version	6
KFB1-M-W-S1+924	•		–	•	•		Basic version	8

CAUTION

The important information on product usage located on the back cover applies to all systems described in this brochure.

Product series KFB(S)1

Commercial vehicle applications



Technical data

Units KFB(S)1, KFB(S)1-W, KFB(S)1-4-S1, KFB(S)1-W-4-S1, KFB(S)1-6-S1, KFB(S)1-W-6-S1

Reservoir capacity KFB(S)1-W	1 liter
Reservoir capacity KFB(S)1	1.4 liters
Delivery rate ¹⁾	50 cm ³ /min
Max. operating pressure	38 bar
Operating temperature	-25 to +75 °C
Protection class according to DIN 40050 T9	IP6K6K / IP6K9K
Number of outlets	1
Lubricant	Fluid grease of NLGI grade 000 or 00
Connected load	See diagram 1
Main line	∅ 10×1.5; max. 16 m see diagram

DC motor

Rated voltage	12 V	24 V
Rated current	3.8 A	1.7 A
Rated output	46 W	41 W

Operating mode acc. to DIN EN 60034-1 (VDE 0530-1)²⁾ . . . S3, 2.5% (10 to 120 min)

¹⁾ At back pressure of 10 bar and a temperature of +25 °C.

²⁾ The operating mode S3 (periodic duty) describes the ratio of pump run time to subsequent down time. If the relative ON-time is 2.5% and the duty cycle time is 10 to 120 min., then the limit values are as follows: Min. duty cycle time: 10 min×0.025 = **0.25 min.**, pump run time with subsequent down time of **9.75 min.** Max. duty cycle time: 120 min×0.025 = **3 min.**, pump run time with subsequent down time of **117 min.**

³⁾ When switching inductive loads, take appropriate measures to protect contacts.

Fill level switch (for KFB(S)1-W) (opens when fill level too low)

Switching voltage range	10 to 36 V DC
Switching current (resistive load) ³⁾	≤0.5 A
Switching capacity (resistive load) ³⁾	≤12 W

Relubrication distributor VN (KFB(S)1(-W)4-S1, KFB(S)1(-W)-6-S1)

Lubrication point connection	Push-to-connect fitting for tube ∅4
Metered quantity	0.1; 0.2; 0.4 cm ³
Feeder body	Die-cast zinc, black corrosion protection

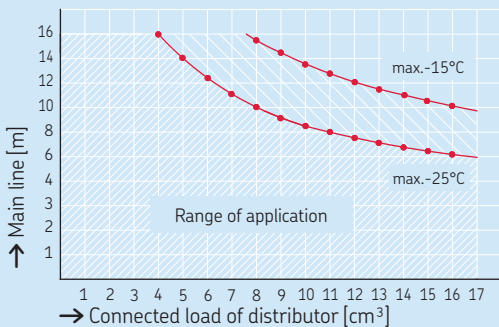
Control unit IG502-2-I (KFB(S)1)

Interval, adjustable	0.1 ... 99.9 h
Pump run time, adjustable	0.1 ... 99.9 min
Max. pump run time	3.0 min ²⁾
Elapsed-hours counter	0 ... 99999.9 h
Fault-hours counter	0 ... 99999.9 h

Additional input power for units with control unit (without output load) 4 W

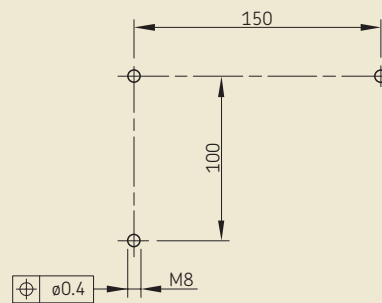
Diagram 1

Max. connected load / max. main line length for fluid grease of NLGI grades 000, 00



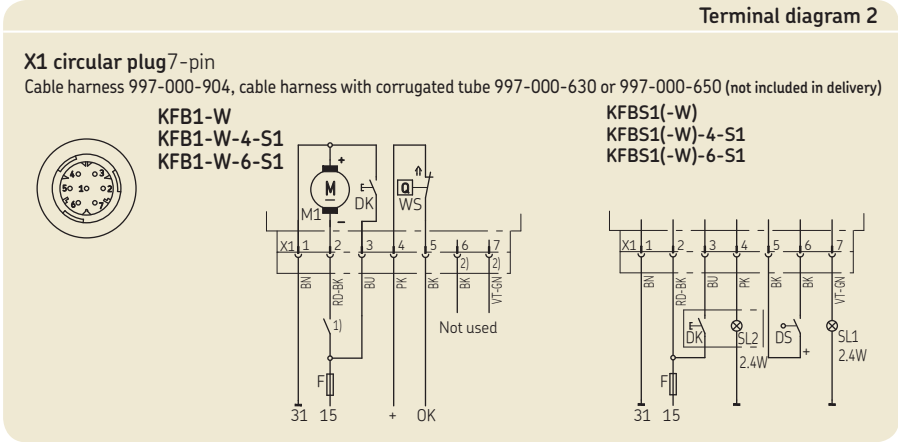
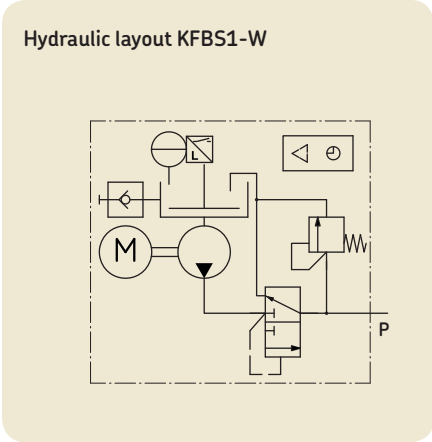
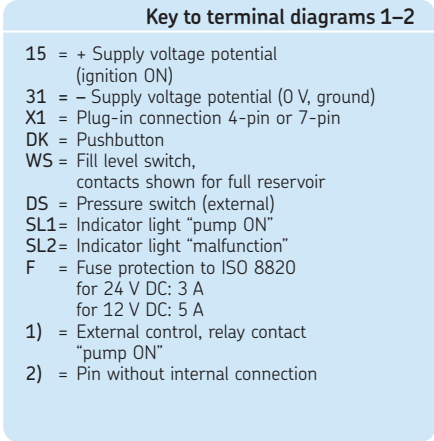
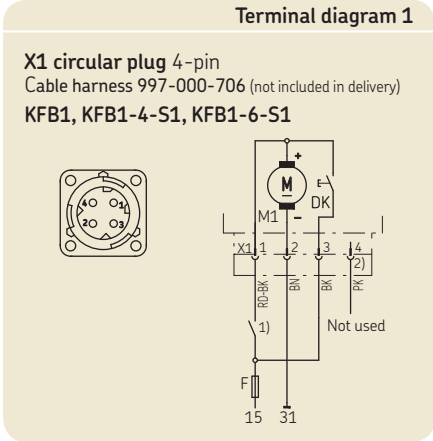
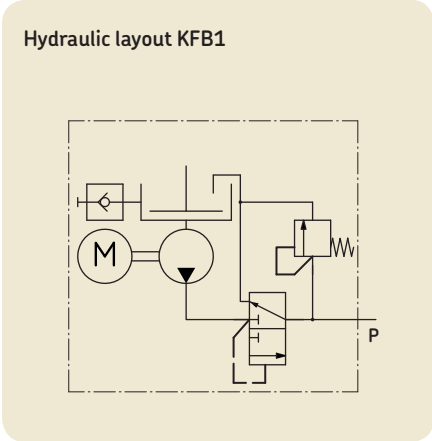
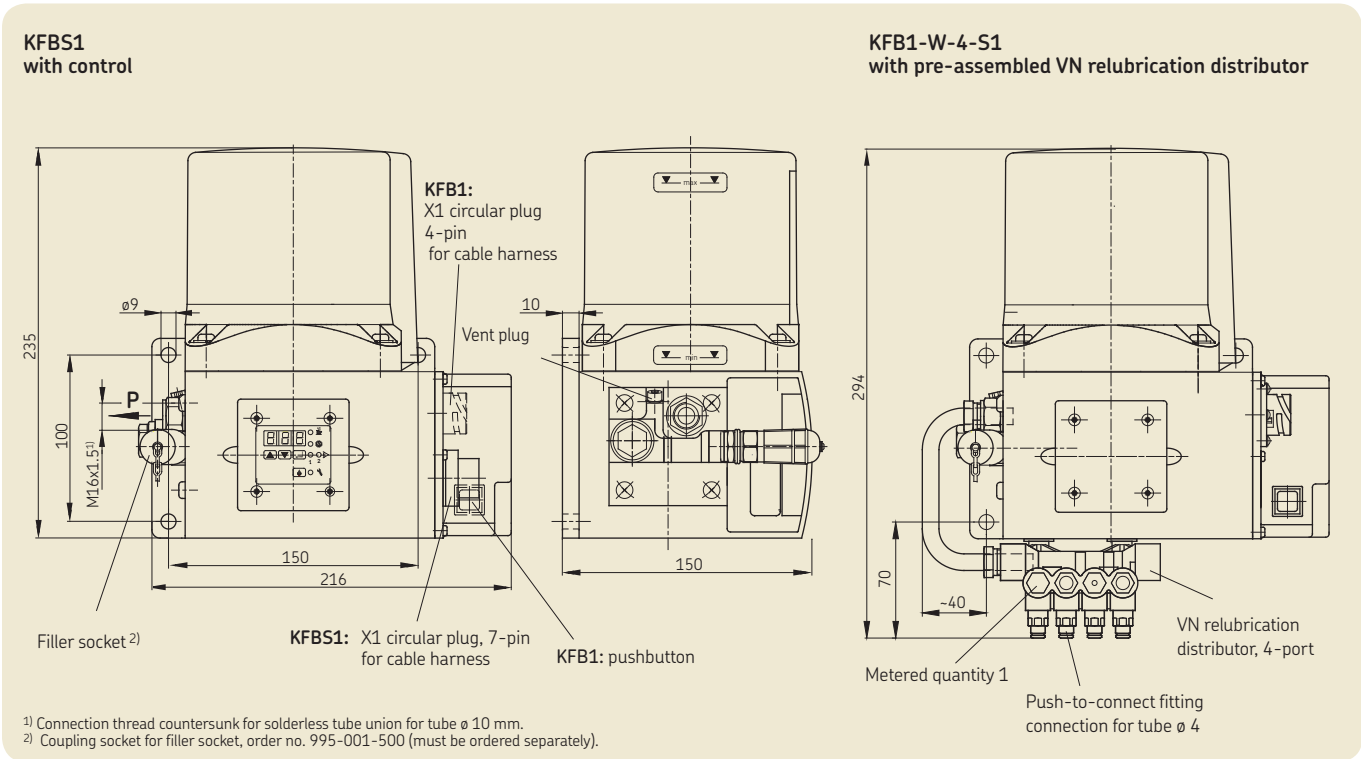
Fixing diagram

Drilling template



Product series KFB(S)1

Assembly drawing



PUB_LS/P2_12658 EN - 1-1206-EN

Product series KFB(S)1-M (-W)

Industrial applications

KFB1-M-W



KFBS1-M-W



Technical data

Units KFB1-M, KFB1-M-W, KFBS1-M, KFBS1-M-W

Reservoir capacity KFB1-M	1.4 liters
Reservoir capacity KFB(S)1-M(-W)	1 liter
Delivery rate ¹⁾	50 cm ³ /min
Max. operating pressure	38 bar
Operating temperature	0 to +60 °C
Protection class according to DIN EN 60529 (VDE 0470-1)	IP65
Operating mode acc. to DIN EN 60034-1 (VDE 0530-1) ²⁾	S3, 4% (6.25 to 60 min)

Number of outlets	1
Lubricant	Fluid grease of NLGI grade 000 or 00
Main line	∅ 8×1.25; max. 16 m

DC motor

Rated voltage	24 V DC ³⁾
Rated current	1.7 A
Rated output	41 W

Fill level switch (KFB1-M-W) (changeover contact)

Switching voltage range	24 V DC ³⁾
Switching current (resistive load) ⁴⁾	≤0.5 A
Switching capacity (resistive load) ⁴⁾	≤12 W

Control unit IG502-2-I (KFBS1)

Interval, adjustable	0.1 ... 99.9 h
Pump run time, adjustable	0.1 ... 99.9 min
Max. pump run time	2.4 min
Elapsed-hours counter	0 ... 99999.9 h
Fault-hours counter	0 ... 99999.9 h

Additional input power for units with control unit (without output load)	4 W
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¹⁾ At back pressure of 10 bar and a temperature of +25 °C.

²⁾ The operating mode S3 (periodic duty) describes the ratio of pump run time to subsequent down time. If the relative ON-time is 4% and the duty cycle time is 6.25 to 60 min., then the limit values are as follows:

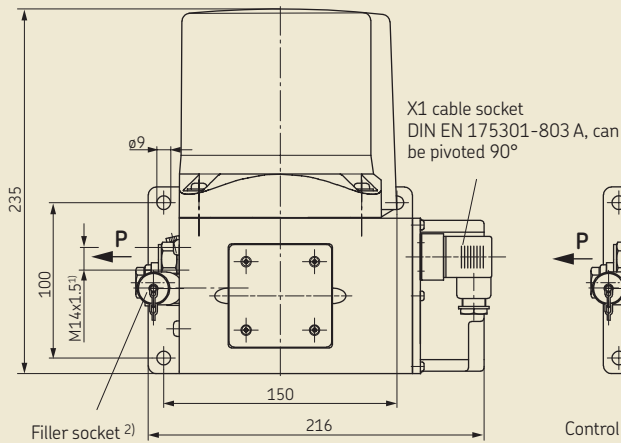
Min. duty cycle time: 6.25 min×0.04 = **0.25 min.** pump run time with subsequent down time of **6 min.**
Max. duty cycle time: 60 min×0.04 = **2.4 min.** pump run time with subsequent down time of **57.6 min.**

³⁾ Safety measures to be applied for correct operation: "Protective extra-low voltage" (PELV), standards:
EN 60204-1/IEC 60204-1; HD 60364-4-41/DIN EN 0100-410/IEC 60364-4-41.

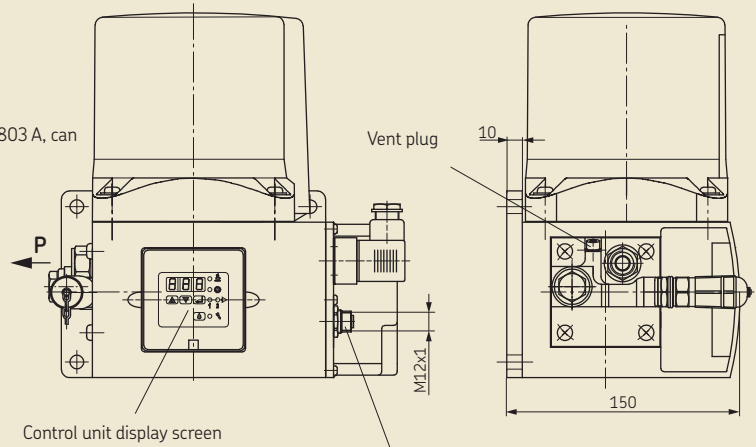
⁴⁾ When switching inductive loads, take appropriate measures to protect contacts.

Product series KFB(S)1-M (-W)

KFB1 without control



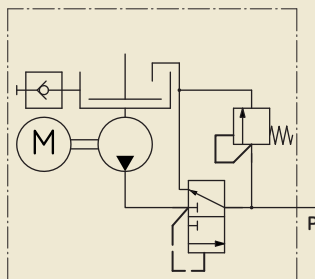
KFBS1 with control



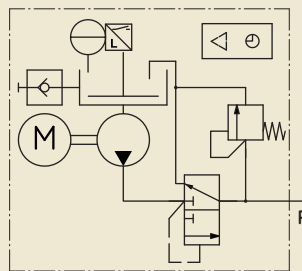
KFBS1-M(-W): X2 circular plug for pressure switch
KFB1-M-W: X2 circular plug for fill level switch

1) Connection thread countersunk for solderless tube union for tube \varnothing 8 mm.
 2) Coupling socket for filler socket, order no. 995-001-500 (must be ordered separately).
 For corresponding fixing diagram, see [page 4](#).

KFB1-M



KFBS1-M-W



Key to terminal diagrams 3-4

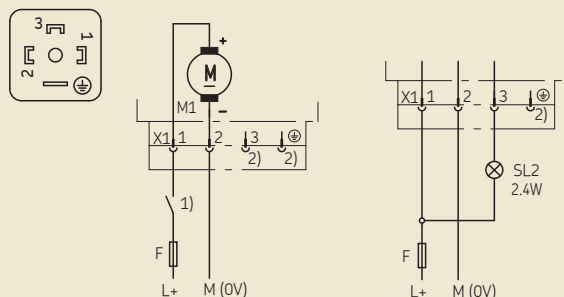
- L+ = Supply voltage potential (machine switch ON)
- M = Supply voltage potential (0 V)
- X1 = Supply voltage plug-in connection
- X2 = Plug-in connection for pressure switch fill level switch
- M1 = Pump motor
- WS = Fill level switch, contacts shown for full reservoir
- DS = Pressure switch
- SL2 = Indicator light "malfunction"
- F = Fuse protection to DIN EN 60127-2 (VDE 0820-2) standard sheet 3 for 24 V DC: T 2.5 A
- 1) = External control, relay contact "pump ON"
- 2) = Pin without internal connection

Terminal diagram 3

X1 square connector 3-pin +PE to DIN EN 175301-803 A

KFB1-M, KFB1-M-W

KFBS1-M, KFBS1-M-W

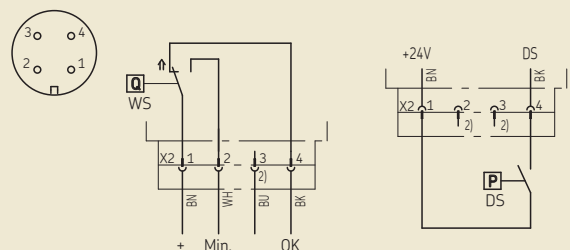


Terminal diagram 4

X2 circular plug M12x1, 4-pin

KFB1-M-W

KFBS1-M, KFBS1-M-W



Product series KFB1-M-W-S1

Industrial applications

KFB1-M-W-S1



Technical data

KFB1-M-W-S1 unit

Reservoir capacity	1.4 liters
Delivery rate ¹⁾	1.6 cm ³ /min.
Max. operating pressure	38 bar
Operating temperature	0 to +60 °C
Protection class according to DIN EN 60529	IP65
(VDE 0470-1).	
Operating mode acc. to DIN EN 60034-1	S3, 20% (1.25 to 50 min.)
(VDE 0530-1) ²⁾	
Number of outlets	1
Lubricant	Oils $\nu = 50-50\,000 \text{ mm}^2/\text{s}$ (cSt)

Fill level switch (opens when fill level too low)

Switching voltage range	10 to 36 V DC ³⁾
Switching current (resistive load) ⁴⁾	$\leq 0.5 \text{ A}$
Switching capacity (resistive load) ⁴⁾	$\leq 12 \text{ W}$

DC motor

Rated voltage	24 V DC ³⁾
Rated current	$\leq 0.45 \text{ A}$
Starting current	$\leq 1.4 \text{ A}$
Rated output	11 W

¹⁾ At back pressure of 10 bar and a temperature of +25 °C.

²⁾ The operating mode S3 (periodic duty) describes the ratio of pump run time to subsequent down time. If the relative ON-time is 20% and the duty cycle time is 1.25 to 50 min., then the limit values are as follows:
Min. duty cycle time: $1.25 \text{ min.} \times 0.2 = 0.25 \text{ min.}$ pump run time with subsequent down time of **1 min.**
Max. duty cycle time: $50 \text{ min.} \times 0.2 = 10 \text{ min.}$ pump run time with subsequent down time of **40 min.**

³⁾ Safety measures to be applied for correct operation:
"Protective extra-low voltage" (PELV), standards: EN 60204-1/IEC 60204-1; HD 60364-4-41/DIN EN 0100-410/IEC 60364-4-41.

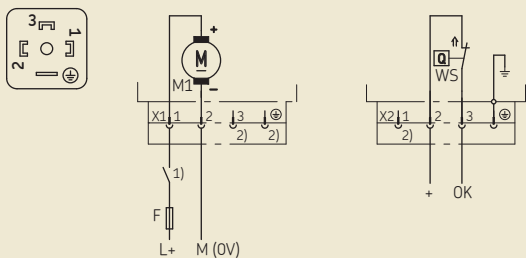
⁴⁾ When switching inductive loads, take appropriate measures to protect contacts.

Terminal diagram 5

Square connector, 3-pin +PE to DIN EN 175301-803 A

X1 supply voltage

X2 fill level monitoring

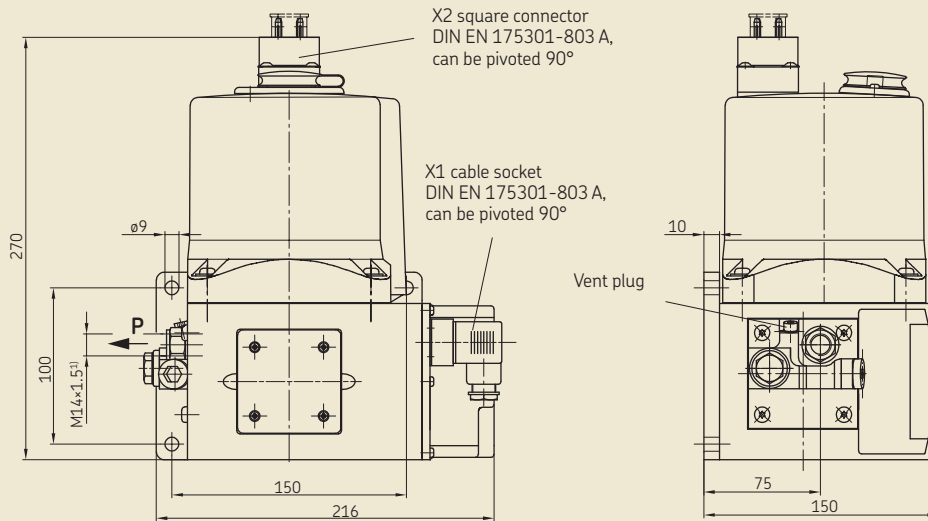


Key to terminal diagram 5

- L+ = Supply voltage potential (machine switch ON)
- M = Supply voltage potential (0 V, GND)
- X1 = Supply voltage plug-in connection
- X2 = Fill level monitoring plug-in connection
- WS = Fill level switch: contacts shown for full reservoir
- F = Fuse protection to DIN EN 60127-2 (VDE 0820-2) standard sheet 3 for 24 V DC: T 0.63 A
- 1) = External control, relay contact "pump ON"
- 2) = Pin without internal connection

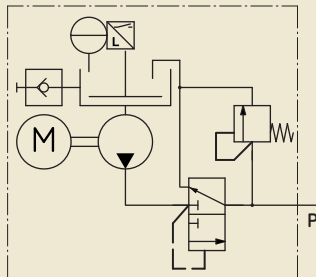
Product series KFB1-M-W-S1

KFB1-M-W-S1



¹ Connection thread countersunk for solderless tube union for tube \varnothing 8 mm.
For corresponding fixing diagram, see [page 4](#).

KFB1-M-W-S1



Accessories

Electrical plug-in connections

Cable socket, 3-pin +PE
DIN EN 175301-803-A

A



Cable socket
M12×1, 4-pin

B



C



D



E



Topping-up pump for fluid grease



Electrical plug-in connections

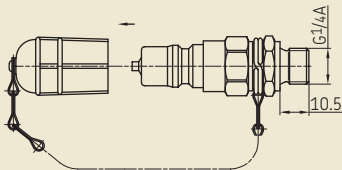
Fig.	Description	Order No.
A	Cable socket, cable diameter 6–10 mm, 3-pin +PE; max. 1.5 mm ²	179-990-033
B	Cable socket M12×1 straight, cable diameter 4–6 mm, 4-pin, max. 0.75 mm ²	179-990-371
C	Cable socket M12×1 straight, 4-pin with integrally extruded cable; 5 m, 4×0.25 mm ²	179-990-600
D	Cable socket M12×1 angled, cable diameter 4–6 mm, 4-pin, max. 0.75 mm ²	179-990-372
E	Cable socket M12×1 angled, with integrally extruded cable, 5 m, 4×0.25 mm ²	179-990-601

See also leaflet 1-1730-EN

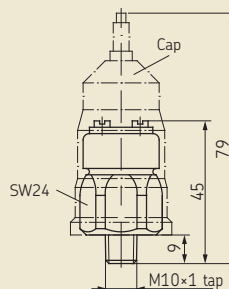
Topping-up pump

Description	Order No.
With moving gear	
For 25 kg drum	169-000-042
For 50 kg drum	169-000-054
Without moving gear	
For 25 kg drum	169-000-342
Associated filler socket	995-000-705
Capacity: ~40 cm ³ /stroke	

Filler



Pressure switch



Filler

Description	Order No.
Filler socket	995-000-705
Sealing ring	DIN 7603-A14x18-CU
Coupling socket	995-001-500
Hose socket:	
ø13 mm	857-760-007
ø16 mm	857-870-002

See also leaflet 1-0103-EN

Pressure switch

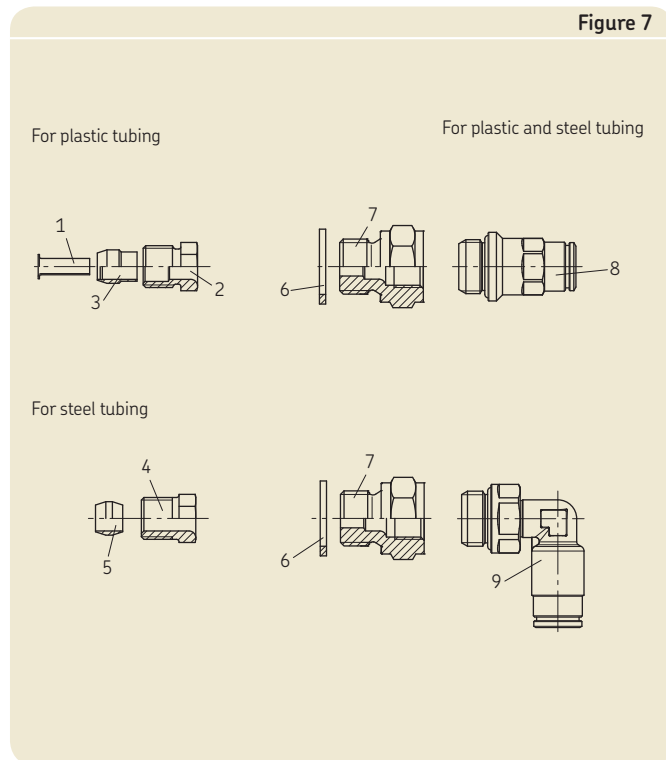
Description	Order No.
Pressure switch 20 bar, DSD1-A0200N-NOA11 NO-contact	
Cap	898-420-001

See also leaflet 1-1701-EN

Accessories

Main line connections

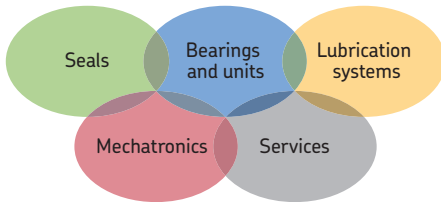
Figure 7



Main line connections

Item	Description	Order No.
1	Reinforcing socket, tube $\varnothing 6$	406-603
	Reinforcing socket, tube $\varnothing 8$	408-603
	Reinforcing socket, tube $\varnothing 10$	410-603
2	Socket union, tube $\varnothing 6$	406-612
	Socket union, tube $\varnothing 8$	408-612
	Socket union, tube $\varnothing 10$	410-612
3	Tapered sleeve, tube $\varnothing 6$	406-611
	Tapered sleeve, tube $\varnothing 8$	408-611
	Tapered sleeve, tube $\varnothing 10$	410-611
4	Socket union, tube $\varnothing 6$	406-002
	Socket union, tube $\varnothing 8$	408-202
	Socket union, tube $\varnothing 10$	410-002
5	Double tapered ring, tube $\varnothing 6$	406-001
	Double tapered ring, tube $\varnothing 8$	408-001
	Double tapered ring, tube $\varnothing 10$	410-001
6	Sealing ring	DIN7603-A14x18-CU
7	Adapter, tube $\varnothing 6$	301-005
	Adapter, tube $\varnothing 8$	301-001
	Adapter, tube $\varnothing 10$	410-164
8	Push-to-connect fitting, tube $\varnothing 6$, straight	406-004-VS
9	Push-to-connect fitting, tube $\varnothing 6$, pivoted	506-140-VS

See also leaflet 1-0103-EN



The Power of Knowledge Engineering

Drawing on five areas of competence and application-specific expertise amassed over more than 100 years, SKF brings innovative solutions to OEMs and production facilities in every major industry worldwide. These five competence areas include bearings and units, seals, lubrication systems, mechatronics (combining mechanics and electronics into intelligent systems), and a wide range of services, from 3-D computer modelling to advanced condition monitoring and reliability and asset management systems. A global presence provides SKF customers uniform quality standards and worldwide product availability.

Important information on product usage

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

Not all lubricants can be fed using centralized lubrication systems. SKF can, on request, inspect the feedability of the lubricant selected by the user in centralized lubrication systems. Lubrication systems and their components manufactured by SKF are not approved for use in conjunction with gases, liquefied gases, pressurized gases in solution, vapors or such fluids whose vapor pressure exceeds normal atmospheric pressure (1 013 mbar) by more than 0,5 bar at their maximum permissible temperature.

In particular, we call your attention to the fact that hazardous materials of any kind, especially the materials classified as hazardous by EC Directive 67/548/EEC, Article 2, Para. 2, may only be filled into SKF centralized lubrication systems and components and delivered and/or distributed with the same after consultation with and written approval from SKF.

Further brochures:

1-0103-EN	<i>Fittings and accessories</i>
1-1701-EN	<i>Pressure switches, product series DSA, DSB, DSC, DSD</i>
1-9201-EN	<i>Feeding lubricants with centralized lubrication systems</i>
1-9420-EN	<i>Single-line systems for commercial vehicles</i>

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