



SKF MonoFlex prelubrication distributor VR

Masthead

The component lifecycle manual has been prepared in accordance with the established standards and rules for technical documentation VDI 4500 and EN 292.

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Table of contents

SKF MonoFlex prelubrication distributor VR	1				
Service	2				
Explanation of symbols and signs	4				
1. Safety instructions	5	4. Assembly	12	7. Shutdown/disposal	24
1.1 Intended use	5	4.1 Installation information	12	7.1 Temporary shutdown	24
1.2 Authorized personnel	5	4.2 Assembly holes	13		
1.3 System pressure hazard	6	4.3 Assembly drawings with minimum installation dimensions	14	8. Maintenance	25
1.4 Existing residual risks	7	4.4 Assembling the prelubrication distributor VR	16	9. Malfunction	26
2. Lubricants	8	4.5 Assembly of the lubrication lines with push-to-connect fittings	16	9.1 Malfunctions/lubrication system malfunctions	27
2.1 General information	8	4.6 Metering setting on VR distributor with adjustable metering volume	18	10. Technical data	28
2.2 Selection of lubricants	8	4.6.1 Changing the metered quantity	18	10.1 Order code	29
2.3 Approved lubricants	9	5. Functional description	20	11. Accessories	31
3. Transport, delivery, and storage	10	5.1 General information	20	11.1 SKF pipe cutter	31
3.1 Lubrication units	11	5.2 Single-line distributor operation	21	11.2 Outlet screw unions	32
3.2 Electronic and electrical devices	11	6. Commissioning	23	12. Spare parts	33
3.3 General notes	11	6.1 Commissioning	23		
3.4 Disclaimer of liability	11	6.2 Recommissioning	23		

Explanation of symbols and signs

You will find these symbols, which warn of specific dangers to persons, material assets, or the environment, next to all safety instructions in this manual.

Please heed these instructions and proceed with special care in such cases. Please forward all safety instructions to other users.

Instructions placed directly on the machines/ grease lubrication pump units, such as:

- Arrow indicators
 - Labels for fluid connections
- must be followed and kept in fully legible condition.



You are responsible!

Please read the component lifecycle manual thoroughly and follow the safety instructions.

Hazard symbols



General hazard
DIN 4844-2-W000



Electrical voltage/current
DIN 4844-2-W008



Hot surface
DIN 4844-2-W026



Danger of being drawn into machinery
BGV 8A



Slipping hazard
DIN 4844-2-W028

Safety signal words and their meaning

Signal word	Meaning
Danger!	Danger of bodily injury
Warning!	Danger of damage to property and the environment
Note!	Provides additional information

Informational symbols



Note

- Prompts an action
- Used for itemizing
- ➔ Refers to other facts, causes or consequences
- ☞ Provides additional information
-  Environmentally sound disposal

1. Safety instructions

The described component is manufactured in accordance with the generally accepted rules and standards of industry practice and with occupational safety and accident prevention regulations. Risks may, however, arise from its usage and may result in physical harm to persons or damage to other material assets. Therefore the component may only be used in proper technical condition and in observance of the “component lifecycle manual.” In particular, any malfunctions which may affect safety must be remedied immediately.



In addition to the manual, statutory regulations and other general regulations for accident prevention and environmental protection must be observed and applied.

1.1 Intended use

The SKF MonoFlex prelubrication distributor of product series VR is designed for positively driven distribution of lubricants (greases and fluid greases up to NLGI grade 2) in a single-line centralized lubrication system. The maximum permissible operating pressure of the VR distributor is 315 bar. The relief pressure can be chosen as either 30 or 70 bar. The inlet and outlet screw unions and their connecting lines must be designed for these parameters. The temperature range of the VR prelubrication distributor is - 25°C to +80°C. The lubricant used must be suitable for elastomers (FKM/FPM).

The technical requirements for the installation of the VR prelubrication distributor are set out in chapter 4, “Assembly.” These requirements must be complied with. The same applies to the technical specifications for the VR prelubrication distributor in chapter 10, “Technical data.” Any other or additional usage of the VR prelubrication distributor is deemed non-compliant with the intended use.

1.2 Authorized personnel

Only qualified technical personnel may install, operate, maintain, and repair the component described in this manual. Qualified technical personnel are persons who have been trained, assigned and instructed by the operator of the final product into which the described component is incorporated. Such persons are familiar with the relevant standards, rules, accident prevention regulations, and assembly conditions as a result of their training, experience, and instruction. They are authorized to identify and perform necessary actions while avoiding any risks which may arise. The definition of qualified personnel and the prohibition against employing non-qualified personnel are laid down in DIN VDE 0105 and IEC 364.

1.3 System pressure hazard



Lubrication systems are pressurized during operation. Centralized lubrication systems must therefore be depressurized before starting assembly, maintenance or repair work, or any system modifications or system repairs.

1.4 Existing residual risks

Residual risk	Remedy
Life cycle: Assembly	
Risk of slipping due to contamination by leaked lubricant	<ul style="list-style-type: none"> • Promptly apply suitable binding agents and remove the leaked or spilled lubricant • Follow statutory and company regulations for the handling of lubricants
Tearing/damage to supply and lubricant lines when installed on moving machine components.	<ul style="list-style-type: none"> • If possible, do not install on moving machine components. If it is necessary to do so, use flexible supply and lubricant lines
Life cycle: Commissioning/operation	
Lubricant spraying out due to faulty fitting of threaded connections on lubricant lines	<ul style="list-style-type: none"> • Tighten all threaded connections to the appropriate torques (where specified). Use threaded connections and lubricant lines suitable for the indicated operating pressures. Check all threaded connections and lubricant lines for correct connection and damage before putting into operation
Risk of slipping due to contamination of floor by leaked lubricant	<ul style="list-style-type: none"> • Promptly apply suitable binding agents and remove the leaked lubricant • Follow statutory and company regulations for the handling of lubricants
Life cycle: Setup, retrofit Life cycle: Malfunctions, fault-finding Life cycle: Maintenance, repair Life cycle: Decommissioning, disposal	
Risk of slipping due to contamination of floor by leaked lubricant	<ul style="list-style-type: none"> • Promptly apply suitable binding agents and remove the leaked or spilled lubricant • Follow statutory and company regulations for the handling of lubricants

2. Lubricants

2.1 General information



All components from SKF Lubrication Systems Germany GmbH may be used only for their intended purpose and in accordance with the information in this manual.

Intended use is the use of the components for the purpose of providing centralized lubrication/lubrication of bearings and friction points or volumetric flow control in hydraulic systems, within the physical usage limits which can be found in the documentation for the device, e.g. assembly instructions/operating instructions and the product descriptions, e.g. technical drawings and catalogs.

Particular attention is called 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 such systems and components after consulting with and obtaining written approval from SKF Lubrication Systems Germany

GmbH. No components manufactured by SKF Lubrication Systems Germany GmbH are approved for use in conjunction with gases, liquefied gases, pressurized gases in solution, vapors, or such fluids whose vapor pressure exceeds normal atmospheric pressure (1013 mbar) by more than 0.5 bar at their maximum permissible temperature.

Other media which are neither lubricant nor hazardous substance may only be fed after consultation with and written approval from SKF Lubrication Systems Germany GmbH. SKF Lubrication Systems Germany GmbH considers lubricants to be a component of the system design and must be factored into the selection of components and the design of centralized lubrication systems. The lubricating properties of the lubricants are critically important in making these selections.

2.2 Selection of lubricants



Observe the instructions from the machine manufacturer regarding the lubricants that are to be used.



Warning!

The amount of lubricant required at a lubrication point is specified by the bearing or machine manufacturer. It must be ensured that the required quantity of lubricant is provided to the lubrication point. The lubrication point may otherwise not receive adequate lubrication, which can lead to damage and failure of the bearing.

The selection of a lubricant suitable for the lubrication task is made by the machine/system manufacturer and/or the operator of the machine/system in cooperation with the lubricant supplier.

When selecting a lubricant, the type of bearing/friction point, their expected load during operation, and the anticipated ambient conditions must be taken into account. All economic and environmental aspects must also be considered.

 SKF Lubrication Systems Germany GmbH supports customers in the selection of suitable components for feeding the selected lubricant and in the planning and design of a centralized lubrication system.

Please contact SKF Lubrication Systems Germany GmbH if you have further questions regarding lubricants. Lubricants can be tested in the company's laboratory for their suitability for pumping (e.g. bleeding characteristics) and for use in centralized lubrication systems.

You can request an overview of the lubricant tests offered by SKF Lubrication Systems Germany GmbH from the company's Service department.

2.3 Approved lubricants



Only lubricants approved for the component may be used. Unsuitable lubricants can lead to failure of the components and damage to property.



Different lubricants must not be mixed, as mixing may result in damage and necessitate costly and complicated cleaning of the components/lubrication system. It is recommended that an indication of the lubricant in use be attached to the lubricant reservoir in order to prevent accidental mixing of lubricants.

The described components can be operated using lubricants that meet the specifications in the technical data. Depending on the component design, these lubricants may be oils, fluid greases, or greases.

Oils and base oils may be mineral, synthetic and/or rapidly biodegradable.

Consistency agents and additives may be added depending on the operating conditions. Note that in rare cases, there may be lubricants whose properties are within the permissible limits values but whose other characteristics render them unsuitable for use in centralized lubrication systems. For example, synthetic lubricants may be incompatible with elastomers.

2.4 Lubricants and the environment



Lubricants can contaminate soil and bodies of water. Lubricants must be properly used and disposed of. Observe the local regulations and laws regarding the disposal of lubricants.

It is important to note that lubricants are environmentally hazardous, flammable substances which require special precautionary measures during transport, storage, and processing. Consult the safety data sheet from the lubricant manufacturer for information regarding transport, storage, processing, and environmental hazards of the lubricant that will be used.

The safety data sheet for a lubricant can be requested from the lubricant manufacturer.

2.5 Lubricant hazards



Centralized lubrication systems must always be free of leaks. Leaking lubricant is hazardous due to the risk of slipping and injury. Be mindful of any lubricant leaking out during assembly, operation, maintenance, and repair of centralized lubrication systems. Leaks must be sealed off without delay.

Lubricant leaking from centralized lubrication systems is a serious hazard. Leaking lubricant can create risks that may result in physical harm to persons or damage to other material assets.



Follow the safety instructions on the lubricant's safety data sheet.

Lubricants are a hazardous substance. Follow the safety instructions on the lubricant's safety data sheet. The safety data sheet for a lubricant can be requested from the lubricant manufacturer.

3. Transport, delivery, and storage

SKF Lubrication Systems Germany GmbH components are packaged in accordance with standard commercial practice according to the regulations of the recipient's country and DIN ISO 9001. During transport, safe handling must be ensured; the components must be protected from mechanical effects such as impacts. The transport packaging must be marked "Do not drop!"



Warning!

Do not drop the component.

There are no restrictions for land, air, or sea transport.

After receipt of the shipment, the component(s) must be inspected for damage and for completeness according to the shipping documents. The packaging material must be preserved until any discrepancies are resolved.

SKF Lubrication Systems Germany GmbH components are subject to the following storage conditions:

3.1 Lubrication units

- Ambient conditions: dry and dust-free surroundings, storage in well ventilated dry area
- Storage time: max. 24 months
- Permissible humidity: < 65%
- Storage temperature: 10 - 40°C
- Light: avoid direct sun or UV exposure and shield nearby sources of heat

3.2 Electronic and electrical devices

- Ambient conditions: dry and dust-free surroundings, storage in well ventilated dry area
- Storage time: max. 24 months
- Permissible humidity: < 65%
- Storage temperature: 10 - 40°C
- Light: avoid direct sun or UV exposure and shield nearby sources of heat

3.3 General notes

- The product(s) can be enveloped in plastic film to provide low-dust storage.
- Protect against ground moisture by storing on a shelf or wooden pallet.
- Bright-finished metallic surfaces, especially wearing parts and assembly surfaces, must be protected using long-term anti-corrosive agents before storage.
- At approx. 6-month intervals: Check for corrosion. If there are signs of corrosion, reapply anti-corrosive agents.
- Drives must be protected from mechanical damage.

3.4 Disclaimer of liability

SKF Lubrication Systems Germany GmbH shall not be held liable for damages:

- Caused by contaminated or unsuitable lubricants
- Caused by the installation of non-original SKF components or SKF spare parts
- Caused by inappropriate usage
- Resulting from improper assembly, configuration or filling
- Resulting from improper response to malfunctions
- Caused by independent modification of system components
- Only media approved for these components may be used. Unsuitable media may result in component failure and potentially severe bodily injury or death and property damage.

4. Assembly

4.1 Installation information

The SKF MonoFlex prelubrication distributor of product series VR is designed for positively driven distribution of lubricants (greases and fluid greases up to NLGI grade 2) in a centralized lubrication system. The VR distributor can be used in the context of the technical specifications given in the “Technical data” chapter. It can be mounted in any alignment. The prelubrication distributor is available in a version with non-adjustable metering volume and a version with adjustable metering volume. The metering nipples have a mark indicating the metered quantity. All metering nipples are equipped standard with an indicator pin that allows visual monitoring of the metering function. Conversion at a later date is not possible. For technical reasons, it is likewise not possible to retrofit unused metering points or to switch metered quantities to yield different metered quantities.

To prevent flow resistance, ensure that both the customer’s supply line and the output lines are sufficiently large.

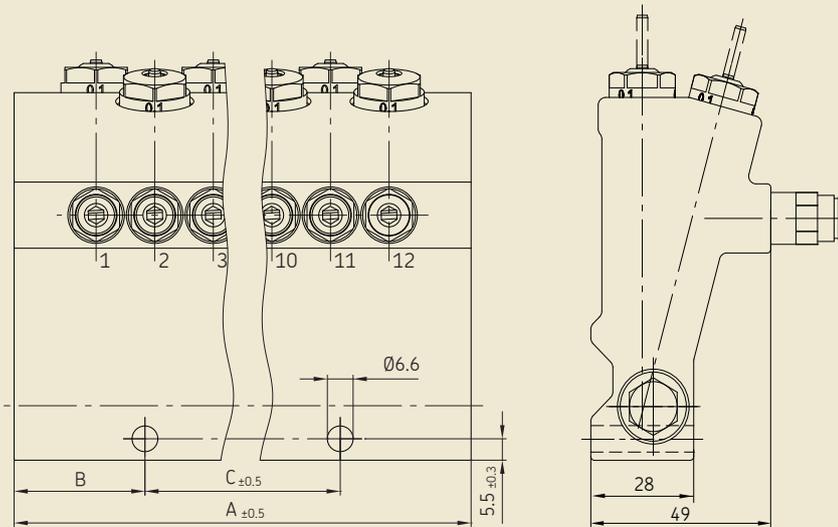
The VR should be protected from humidity and vibration and should be installed in an easily accessible position. The minimum installation dimensions (section 4.3) should be adhered to so that all other components can be connected later without problems. During assembly and during any drilling work, always pay attention to the following:

- Before installing the VR, ensure that all holes, push-to-connect fittings, and connecting lines in contact with the VR are clean and free of metal chips.
- Existing supply lines must not be damaged by assembly work.
- The installation work must not damage other units.
- The VR prelubrication distributor must not be installed within range of moving parts.

- The VR prelubrication distributor must be installed at an adequate distance from sources of heat.
- Maintain safety clearances and comply with local regulations for assembly and accident prevention.

4.2 Assembly holes

Assembly holes for prelubrication distributor of series VR, Fig. 1

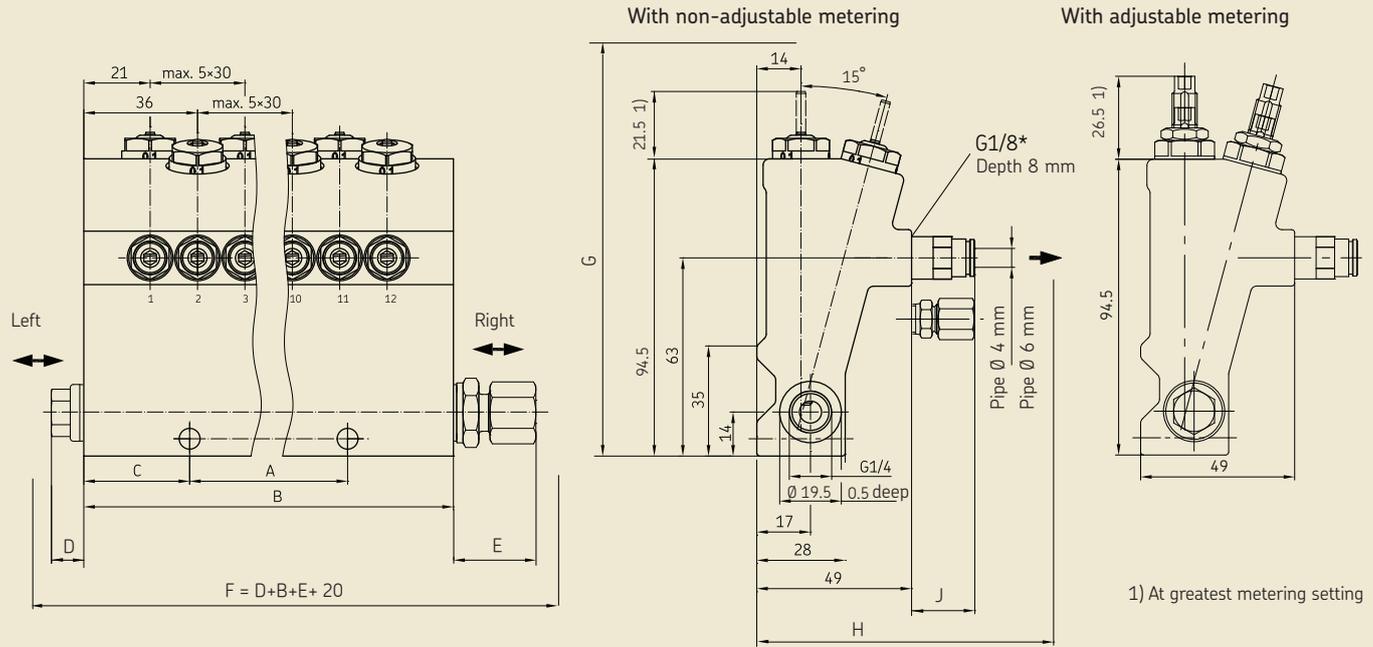


Key to Fig. 1

Number of modules	Dim. A [mm]	Dim. B [mm]	Dim. C [mm]
1	42	21	
2	57	28.5	
3	72	20	32
4	87	18.5	50
5	102	26	50
6	117	33.5	50
7	132	41	50
8	147	48.5	50
9	162	56	50
10	177	63.5	50
11	192	71	50
12	207	78.5	50

4.3 Assembly drawings with minimum installation dimensions

Assembly drawings with minimum installation dimensions, Fig. 2



Dimensions for Fig. 2

Number of outlets	1	2	3	4	5	6	7	8	9	10	11	12
Dimension A [mm]	Central	Central	32	50								
Dimension B [mm]	42	57	72	87	102	117	132	147	162	177	192	207
Dimension C [mm]	21	28.5	20	20	26	33.5	41	48.5	56	63.5	71	78.5

Minimum mounting dimensions

Dim.	[mm]
F	$F = \text{dim. D} + B + E + 20$
G	Approx. 130
H	$(49 + J) =$
	Push-to-connect fitting VS, Ø4 66
	Push-to-connect fitting VS, Ø6 69
	Compression fitting 70
	Screw plug 54

Connection dimensions

Fitting for main line connection	Dim. D Dim. E [mm]
E02 union, Ø 8 mm	25
E02 union, Ø 10 mm	26
Compression fitting, Ø 8 mm	26
Compression fitting, Ø 10 mm	27
Screw plug	10

Torques

Item	[Nm]
Metered quantity	
Metering nipple, non-adj.	9
Metering nipple, adjustable	9
Screw plug	9
Lubrication point	
Push-to-connect fitting VS	3.5
Compression fitting, tapered thread	-
Screw plug	8
Main line	
Inlet	9
Outlet	9

4.4 Assembling the prelubrication distributor VR

- See section 4.2, Figure 1
- See section 4.3, Figure 2

- Check the parallelism of the surface on which the component is to be installed. Stress-free installation of the component must be guaranteed.
- Check for any fouling on the threaded holes for distributor installation and on the surface on which the component is to be installed, and clean if needed
- Place the prelubrication distributor VR on the installation surface and screw finger-tight with hexagon socket head cap screws to EN ISO 4762, M6x35-8.8 (recommendation)
- Align the prelubrication distributor VR
- Tighten the hexagon socket head cap screws with a torque of 9 Nm

4.5 Assembly of the lubrication lines with push-to-connect fittings



Danger – high pressure!

If the lubrication system is under pressure, it must first be depressurized completely.

The SKF push-to-connect fittings are available in versions for metal or plastic pipes. With the version for metal pipes, there is a further choice available between pipe versions with and without claw groove. The claw groove securely fastens the pipe in the fitting, which prevents the metal pipe from slipping out of the SKF push-to-connect fitting. The claw groove does not need to be used if appropriate fastening hardware (e.g., mounting clips) is used to prevent the pipe from slipping out of the SKF push-to-connect fitting.

Both versions, for metal and plastic pipes, have a locking claw. The locking claw of the collet secures the pipe in the SKF push-to-connect fitting, which prevents the pipe from

accidentally slipping out, at least in the case of the version for plastic pipes.

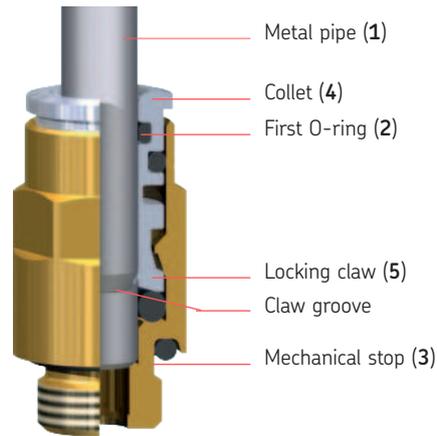
- Cut the connecting pipe **(1)** to the right length with a pipe cutter (see Accessories)
- ☞ In the following installation of the pipe, a noticeable resistance must be overcome when passing through the first O-ring **(2)**, the locking claw **(5)** of the collet **(4)**. If a claw groove is not used, fix the pipe using appropriate fastening hardware (e.g., mounting clips) to prevent the pipe from slipping out of the SKF push-to-connect fitting.
- Manually insert the pipe **(1)** fully into the collet **(4)** of the SKF push-to-connect fitting until it clears the first O-ring **(2)** and the locking claw **(5)** of the collet **(4)** and reaches the mechanical stop **(3)**.

☞ To remove the metal pipe (1), press the collet (4) inward into the SKF push-to-connect fitting. The metal pipe (1) can now be pulled out of the collet (4) of the SKF push-to-connect fitting.

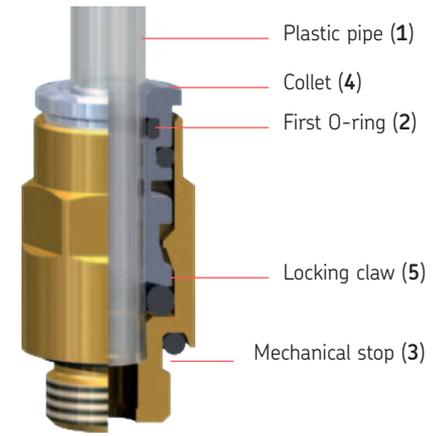
To remove the plastic pipe (1), press the collet (4) inward into the SKF push-to-connect fitting. To do this, press the plastic pipe (1) inward into the SKF push-to-connect fitting, which releases the collet (4) from the plastic pipe (1). The plastic pipe (1) can now be pulled out of the collet (4) of the SKF push-to-connect fitting.

Before reassembling, shorten the end of the plastic pipe by at least 7 mm to ensure that the locking claw (5) of the collet (4) functions properly.

SKF push-to-connect fittings for metal pipes,
Fig. 3



SKF push-to-connect fittings for plastic pipes,
Fig. 4



4.6 Metering setting on VR distributor with adjustable metering volume

☞ see Figure 5



Warning!

The setting screw must not be screwed in more than 10 turns from its upper end stop (metered quantity is then 0.1cm³).

If the setting screw is screwed in further, the precise metering of the VR distributor can no longer be guaranteed in technical terms.

The maximum torque applied to the setting screw should not exceed 5 Nm. Otherwise the metering unit can be damaged, especially at the end stops.

4.6.1 Changing the metered quantity

☞ See Figure 5

VR distributors with adjustable metering are supplied from the factory set to the largest metered quantity setting (1.1 cm³, setting screw at its upper end stop).

Reducing the metered quantity:

Screw the setting screw (2) into the distributor (clockwise) to set a smaller metered quantity. One full turn of this screw equals a metered quantity of 0.1cm³.

Increasing the metered quantity:

To set the metered quantity with maximum certainty, it is recommended to set the setting screw to the highest metered quantity (1.1cm³) by unscrewing it up to its end stop (counter-clockwise).

Starting from that position, you can then set the desired metering by turning the setting screw clockwise.

To set a relatively small metered quantity, the following steps should be followed:

- Release the locknut (1)
- ☞ Every full clockwise turn of the setting screw (2) equals a reduction of the metered quantity by 0.1cm³
- Use a hexagon socket screw key (size 4 mm) to set the setting screw (2) to the right metered quantity (clockwise).
- Tighten the locknut (1) (to approx. 6 Nm)

☞ See Table 1

The set metered quantity can be checked by using a caliper gauge to check the free length (L) of the setting screw.

Metering setting, Fig. 5

Hexagon socket screw key, size 4 mm

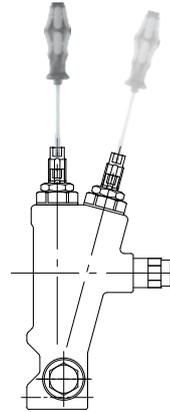
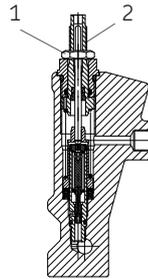
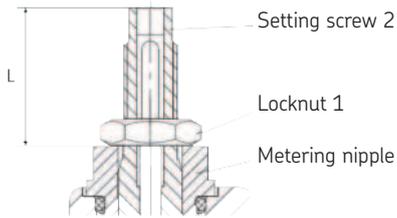
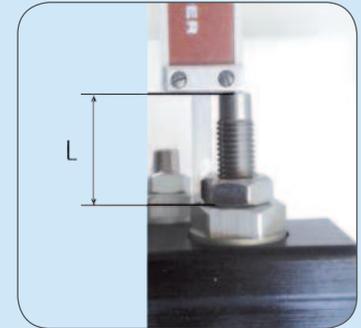


Table 1

Determining the set metered quantity

Quantity [cm ³]	Free length (L) of setting screw [approx. mm]
0.1	10
0.2	11
0.4	13
0.6	15
0.8	17
1.0	19
1.1	20



5. Functional description

5.1 General information

SKF MonoFlex single-line distributors in the product series VR are 1- to 12-port prelubrication distributors. They are used in MonoFlex single-line centralized lubrication systems to supply fluid greases and greases up to NLGI Grade 2.

With high pressure resistance of up to 315 bar, selectable relief pressures of 30 or 70 bar, and a low ambient temperature range to -25°C , this single-line distributor has a wide range of application.

SKF MonoFlex single-line distributors of product series VR are designed for corrosivity category C3 per DIN EN ISO 12944 and are certified by Germanischer Lloyd (GL Wind).

The VR single-line distributor comes with a non-adjustable output or, optionally, with adjustable output. For non-adjustable distributors, the possible metering quantities range from 0.1 to 1.3 cm³ per stroke, and for adjustable distributors, from 0.1 to 1.1 cm³ per stroke.

A marking is shown on the housing. This indicates the current metering setting, which can be read on the figure on the metering nipple (see Figure 5).

All metering nipples are equipped standard with an indicator pin that allows visual monitoring of the metering function.

The lubrication point line is connected to the single-line distributor using SKF push-to-connect fitting. If SKF push-to-connect fittings are not used, there is a threaded connector of size G 1/8 available (see Accessories, section 11.2). If not all metering points will be used, there is the option of ordering individual metering points without metering on a single-line distributor.

Retrofitting of unused metering points is not possible.

The components made of elastomers inside the single-line distributor are made of FKM (FPM). The distributor body is made from aluminum, with its surface anodized for permanent protection from corrosion.

The main line connection on the distributor body has an G 1/4 thread.

SKF MonoFlex single-line distributors of product series VR can be equipped with fittings for the main line connection.

Compression fittings (DIN 2353) for pipe diameters 8 mm or 10 mm or screw plugs are available, compatible with the thread size on the main line connection (see Accessories catalog 1-0103-EN and Push-to-connect fitting catalog 1-0103-1-EN).

5.2 Single-line distributor operation

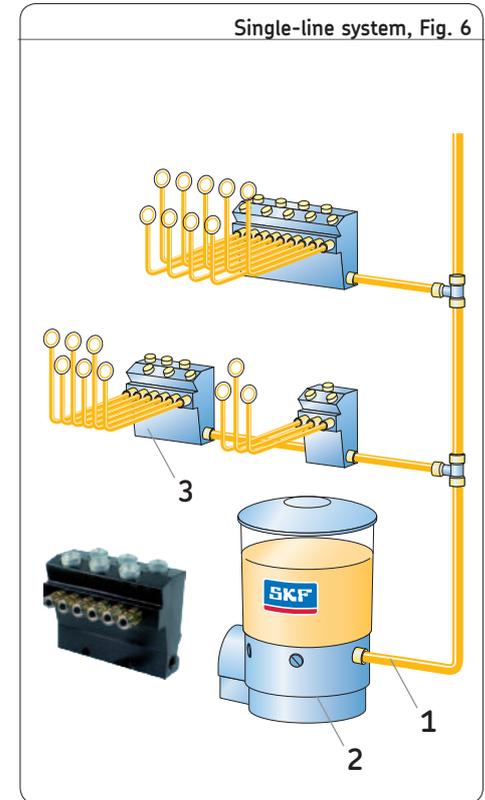
-See Figures 6 to 9

On prelubrication distributors of product series VR, the quantity of lubricant is fed to the lubrication point while pressure is built up in the main line (1), i.e., during the run time of the lubricant pump (2).

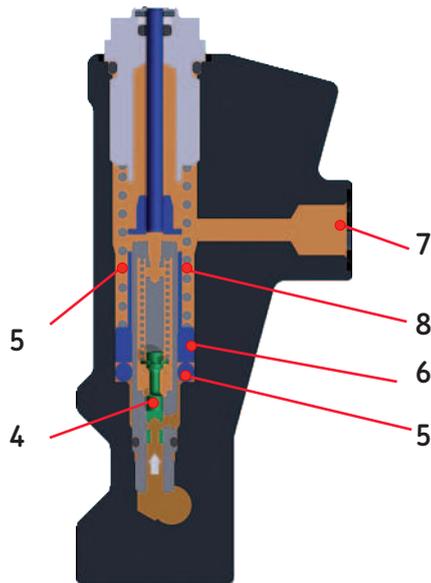
On a VR prelubrication distributor (3), the expelling pressure can be set approximately equal to the maximum permissible pressure of the pressure regulating valve on the lubrication unit.

When the lubricant pump is switched on, the lubricant is drawn out of the lubricant reservoir and fed through the main line to the prelubrication distributor via the pressure relief valve and the pressure regulating valve. The pressure built up in the centralized lubrication system raises the control piston (4) and lubricant flows into the lower metering chamber (5). The lubricant flowing into the lower metering chamber lifts the metering piston (6) with the lubricant above it toward the outlet

(7). The lubricant above the metering piston is pushed out of the upper metering chamber (8) through the outlet, flowing through the secondary lubrication line to the lubrication point. When the lubrication unit is turned off, the pressure in the centralized lubrication system is relieved, which relieves pressure in the main line. In this process, spring tension causes the metering piston (6) to return to its normal position. At the same time, the lubricant is moved out of the spring chamber over the control piston (4) and into the upper metering chamber (8). The VR prelubrication distributor is now ready for the next lubrication cycle.

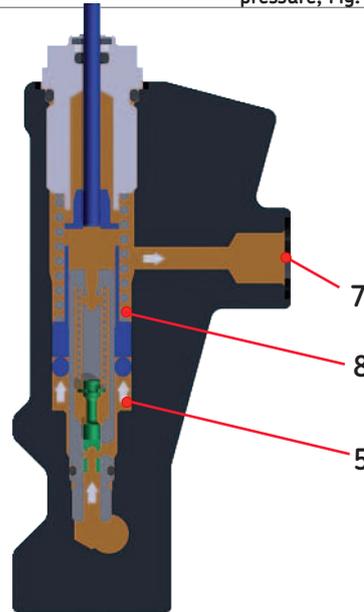


VR distributor pressure build-up, Fig. 7



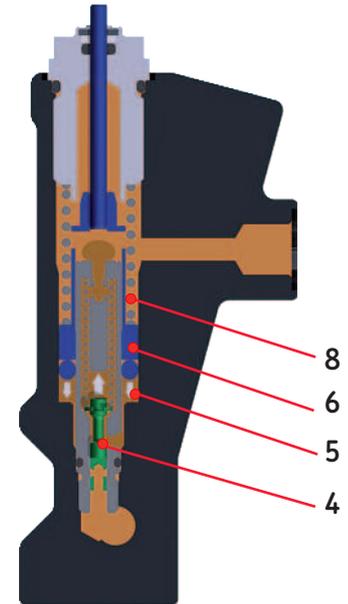
The control piston (4) opens the inlet to the lower metering chamber (5).

VR distributor, pressure build-up up to max. pressure, Fig. 8



Filling of the lower metering chamber (5) and expulsion of the metered volume through the upper metering chamber (8) to the outlet (7).

VR distributor, pressure relief, Fig. 9



The control piston (4) returns to its normal position and connects the lower metering chamber (5) with the upper metering chamber (8). The metering piston (6) pushes lubricant from the lower metering chamber (5) into the upper metering chamber (8).

6. Commissioning



Observe the instructions from the machine manufacturer regarding the lubricants that are to be used.



Warning!

Only fill using clean lubricant. Contaminated lubricants can result in severe system malfunction.

6.1 Commissioning

The prelubrication distributor of product series VR is delivered in an operational state and can be used immediately following proper installation. Ensure that the distributor and its connections are properly sealed.

6.2 Recommissioning

When recommissioning the machine/system after a long period of downtime with the prelubrication distributor removed, proceed as follows:

- Before installing the prelubrication distributor, anti-corrosion agents must be cleaned from bare metal surfaces, especially assembly surfaces.
- Install the prelubrication distributor of product series VR as instructed in section 4.4

7. Shutdown/disposal

7.1 Temporary shutdown

The VR prelubrication distributor can be temporarily shut down only by shutting down the single-line system in which the VR is installed.

Be sure to follow the safety instructions in chapter 1 and those of the single-line system in which the prelubrication distributor is installed.

If the prelubrication distributor is to be shut down for an extended period of time, follow the instructions in Chapter 3, "Transport, delivery, and storage," in this manual, especially the section on long-term corrosion protection.

7.2 Permanent shutdown

If the prelubrication distributor is to be shut down permanently, the local regulations and laws regarding the disposal of contaminated equipment must be observed.

Lubricants can contaminate soil and bodies of water.



Warning!



Lubricants must be properly used and disposed of. Observe the local regulations and laws regarding the disposal of lubricants.

The component can also be returned to SKF Lubrication Systems Germany GmbH for disposal, in which case the customer is responsible for reimbursing the costs incurred.

The parts are recyclable.

8. Maintenance

The prelubrication distributor of product series VR operates without maintenance. though the following points must be observed:



Warning!

Performing work on a pressurized component may result in serious injury or death. Assembly, maintenance, and repair work may only be performed on a component that has been depressurized by qualified technical personnel.

However, to ensure proper function and to prevent hazards from arising, the VR should be visually inspected regularly for proper seating and for leaks.

If necessary, the outside of the VR can be cleaned using mild cleaning agents that are compatible with the materials used (non-alkaline, non-soap).

Do not allow any cleaning agent to enter the interior of the component during cleaning. It is not necessary to clean the interior of the component if the component is operated normally and intercompatible lubricants are used. The interior of the component must be cleaned if contaminated lubricant is accidentally filled into the component. If this occurs, contact the Service department of SKF Lubrication Systems Germany GmbH for assistance.

SKF Lubrication Systems Germany GmbH shall not be held liable for damages resulting from improperly performed assembly, maintenance or repair work on the component.

9. Malfunction

The following tables provide an overview of possible malfunctions and their causes. Contact the Service department of SKF Lubrication Systems Germany GmbH if you cannot remedy the malfunction.



Only original spare parts from SKF Lubrication Systems Germany GmbH may be used. The use of non-original spare parts and accessories is not permitted.



Warning!

Performing work on pressurized components may result in serious injury or death. Assembly, maintenance, and repair work may only be performed on components that have been depressurized by qualified technical personnel.



Warning!

Lubrication systems are pressurized during operation. Lubrication systems must therefore be depressurized before starting assembly, maintenance or repair work, or any system modifications or system repairs.

9.1 Malfunctions/lubrication system malfunctions

Malfunctions table

Malfunction	Cause	Remedy
No lubricant supply	○ Insufficient system pressure at distributor inlet	● Check the system pressure at the distributor inlet, increase system pressure if necessary
	○ Distributor blockage ○ Contamination	<p>● Trigger interim lubrication and release the outlet screw unions of the affected distributor piston. The distributor is working correctly if lubricant can be clearly seen discharging.</p> <p>On the distributor:</p> <p>If enough lubricant is discharged: - Check downstream lubrication lines for clogging, pinching, hardened grease, or twisting of the bearing shell.</p> <p>If not enough lubricant is discharged: - Check the feed rate</p> <p>If no lubricant is discharged: - Switch off the single-line distributor and relieve pressure. Replace the VR distributor if necessary.</p>

10. Technical data

Technical data

Lubricant..... greases based on mineral oil;
 environmentally friendly and synthetic greases

Worked penetration $\geq 265 \times 0.1$ mm (up to NLGI Grade 2)

Other conditions relating to the use of lubricants, such as lubricant requirements regarding pumpability, are defined in the leaflet 1-9201-EN.

This leaflet can be downloaded from www.skf.com/lubrication.

Pressures, media, and temperatures

Operating pressuremin. 100 bar,
max. 315 bar

Relief pressure ¹⁾ selectable.....max. 30 bar
 ormax. 70 bar

Lubricant.....fluid greases and greases
up to NLGI Grade 2

Operating temperature..... -25 to + 80 °C

Materials

Distributor body.....anodized aluminum
 Metering nippleanodized aluminum
 Indicator pinstainless steel (1.4401)
 Setting screwstainless steel (1.4305)
 Locknutgalvanized steel
 ElastomersFKM (FPM)

Lub. points	Weights	
	Non-adjustable metering [g]	Adjustable metering [g]
1	520	530
2	685	705
3	841	871
4	1010	1050
5	1174	1224
6	1338	8398
7	1503	1573
8	1668	1748
9	1832	1922
10	1996	2096
11	2160	2270
12	2325	2445

Note:

The weight specifications for the distributor versions are for distributors filled with grease. Actual weights may differ depending on the type of grease and level of filling.

VR metering

With non-adjustable metering

Metering [cm ³]	Marking
0.1	0.1
0.2	0.2
0.4	0.4
0.6	0.6
0.8	0.8
1.0	1.0
1.1	1.1
1.3	1.3

With adjustable metering

Quantity [cm ³]	Free length (L) of setting screw [approx. mm]
0.1	10
0.2	11
0.4	13
0.6	15
0.8	17
1.0	19
1.1	20

1) The 30-bar relief pressure should be selected in case of low flow pressure and low operating temperature of the lubricant, or when using a short main line or a large main line diameter. The 70-bar relief pressure should be selected in case of high flow pressure and low operating temperature of the lubricant, and when using a long main line or a small main line diameter.

10.1 Order code

VR

Product series

Number of lubrication points

Code	Lubrication points	Code	Lubrication points
03	3-port	06	6-port
09	9-port	12	12-port

Metering starts from the left; see distributor diagram on the following page

Design for fluid grease and grease ¹⁾

Code letter	A	B	C	D	E	F
Relief pressure, max. [bar]	30	70	30	70	30	70
Secondary line connection	G1/8	G1/8	VS	VS	VS	VS
Secondary line ø [mm]	-	-	4	4	6	6

1) Designed for corrosivity category C3 to DIN EN ISO 12944, certified by Germanischer Lloyd Wind

Metering with indicator pin

Code letter	A	B	D	F	H	J	M	R ²⁾	X ³⁾	0
Metering [cm ³]	0.1	0.2	0.4	0.6	0.8	1.0	1.3	1.1	Closed	Not present (placeholder)

2) R= adjustable metering element, set to max. metering when delivered.

3) A closed metering point (X) cannot be opened and closed again, because a dummy element is glued in at the factory in place of a metering element.

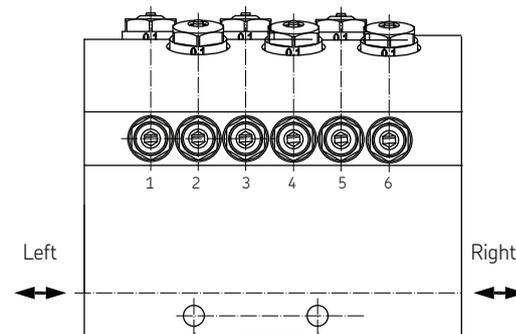
Fittings for main line connection

Code letter	Left fitting	Right fitting	ø Main line [mm]
A	Compression fitting ¹⁾	Compression fitting ¹⁾	8
G			10
B	Compression fitting ¹⁾	Closed	8
H			10
C	Closed	Compression fitting ¹⁾	8
J			10
D	E0-2 screw union	E0-2 screw union	8
K			10
E	E0-2 screw union	Closed	8
L			10
F	Closed	E0-2 screw union	8
M			10
Z	G 1/4	G 1/4	-

Order example:

VR06B FFFFFF 000000 Z

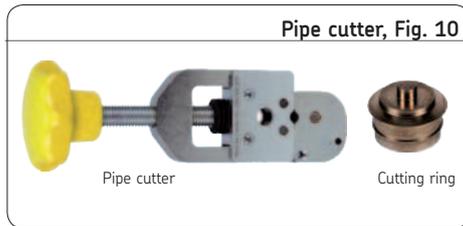
VR	Single-line distributor
06	6-port
B	Relief pressure max. 70 bar Secondary line connection G 1/8
FFFFFF	Metering points 1 – 6 = 0.6 cm ³
000000	Placeholders for metering points not present
Z	Without fitting for main line connection (thread G 1/4)



11. Accessories

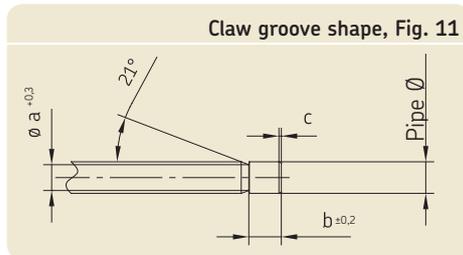
11.1 SKF pipe cutter

A pipe cutter can be used to cut the metal pipe to length in one step and to produce the exact geometric shape of the claw groove. The pipe cutters available from SKF are listed below by pipe diameter.



Pipe cutters, Table 1

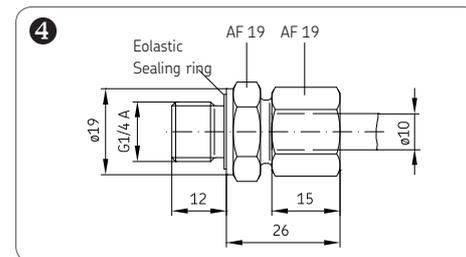
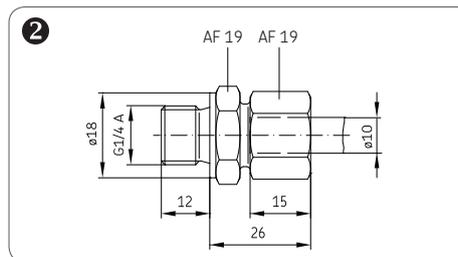
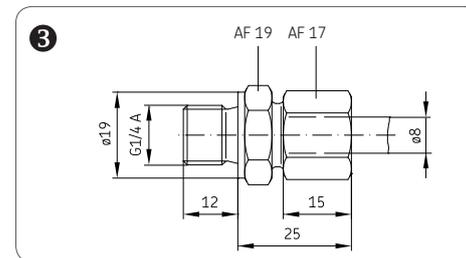
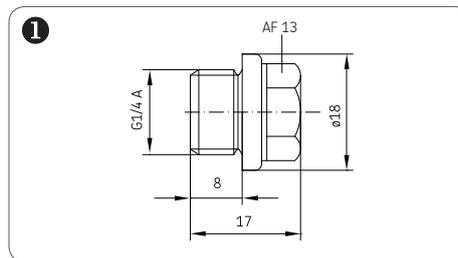
Pipe diameter [mm]	Order number, pipe cutter	Order number, cutting ring
4	169-000-336	844-330-006
6	169-000-337	844-330-007
8	169-000-338	844-330-007



Claw groove dimensions, Table 2

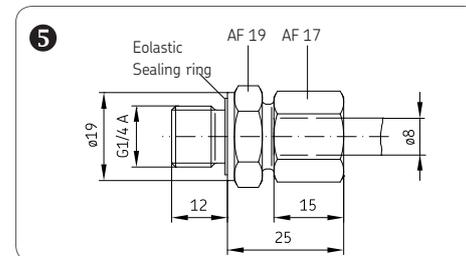
Pipe diameter [mm]	4	6	8
a	3.1	4.9	6.9
b	5.0	6.2	6.2
c	0.3 – 0.7	0.4 – 0.9	0.5 – 0.9

11.2 Outlet screw unions



Outlet screw unions, Table 3

Item	Outlet screw union	Order No.
1	Screw plug	DIN 910
2	Compression fitting, pipe diameter 10 mm	410-403W.u1
3	Compression fitting, pipe diameter 8 mm	408-403W.u1
4	E02 screw union, pipe diameter 10 mm	471-010-161
5	E02 screw union, pipe diameter 8 mm	471-008-161



12. Spare parts

Adjustable metering unit for VR distributors with adjustable metering elements

The assembly group "Adjustable metering unit", comprising a metering nipple, setting screw, and locknut, can be ordered from SKF as a spare parts kit.

Order No. **VR.U60**

951-230-007-EN

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All SKF products may be used only for their intended purpose as described in these assembly instructions with associated operating instructions. If assembly/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 suitability of the lubricant selected by the user for pumping 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 (1013 mbar) by more than 0.5 bar at their maximum permissible temperature.

Particular attention is called 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.

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