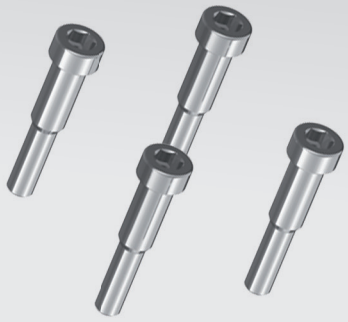
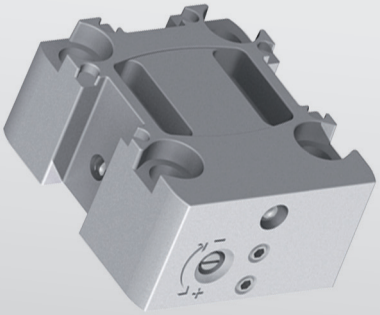
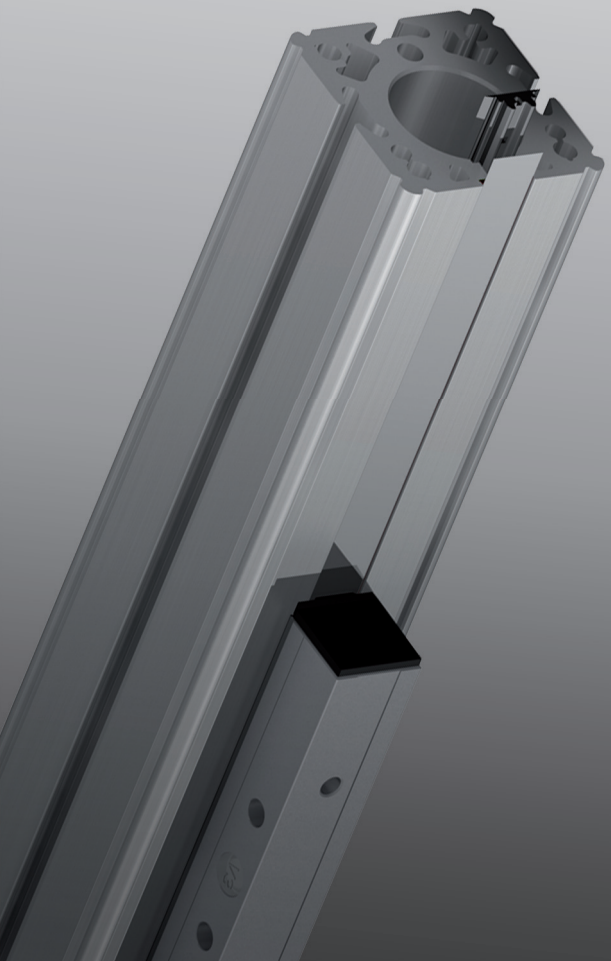
Linear drive

DGC-K-...-

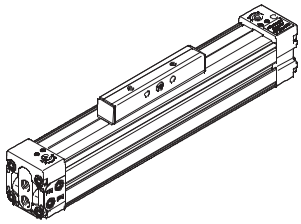






FESTO

Repair instructions (en)



7DGC-Kb_en

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Foreword

These repair instructions are valid for the linear drives listed on the title page to the exclusion of any liability claims.

The descriptions in these repair instructions may deviate depending on the design and/or modification status of the specific linear drive. The user must check this prior to carrying out the repair and take the deviations into consideration if necessary.

These repair instructions have been prepared with care.

Festo AG & Co. KG does not, however, accept liability for any errors in these repair instructions or their consequences. Likewise no liability is accepted for direct or consequential damage resulting from incorrect use of the products.

More detailed information on this can be found in Chapter 8 “Liability”.

The relevant regulations on occupational safety, safety engineering and interference suppression as well as the stipulations contained in these repair instructions must be observed when working on the products.

FESTO

Table of contents

1 Important information

1.1 About these repair instructions

This document contains important information about the professional repair of the linear drive type DGC-K.

The DGC-K linear drive is largely repairable.

However, the costs of carrying out a repair must be considered in the case of larger defects.

Before carrying out a repair, the relevant chapter in these instructions must be read in full and followed consistently.

For reasons of clarity, these repair instructions do not contain complete detailed information. The following documents should therefore also be available while doing repair work on the linear drive:

- **Operating instructions**

  Contain information about the operating elements and connections for the linear drive, as well as information about function, construction, application, installation, commissioning, care and maintenance, etc. These can be found on the Festo website (www.festo.com).

- **Spare parts documentation**

  Contains an overview of the spare and wearing parts as well as information on their installation. Can be found in the online spare parts catalogue on the Festo website (http://spareparts.festo.com).

- **Assembly aids**

  Contains an overview of available assembly aids such as lubricating greases, locking agents, maintenance tools, etc. (aids for assembly and maintenance). This can be found in the online spare parts catalogue on the Festo website (http://spareparts.festo.com/xdki/data/SPC/0/PDF_SAFE/Hilfsmittel.pdf).

1.2 Pictograms used in these repair instructions

Caution

... means that non-observance may result in personal injury and damage to property.

Note

... means that non-observance may result in damage to property.

Marking special information

The following pictograms mark passages in the text which contain special information.

Information:

Recommendations, tips and references to other sources of information.

Environment:

Information on the environmentally-friendly use of Festo products.

1.3 General safety instructions

Caution

The linear drive must only be repaired by authorised and trained persons in accordance with the specifications in the technical documentation and using original spare parts.

Installation and repair by unauthorised and untrained persons, repairs using non-original spare parts or without the technical documentation required for installation and/or repair are dangerous and therefore not permitted.

Repairs must only be carried out in conjunction with these repair instructions and the device-specific operating instructions.

Instead of carrying out the repair yourself, your local Festo sales office offers the option of having the repair carried out by Festo.

Environment

Components and equipment replaced as part of a repair must be disposed of in accordance with the locally valid environmental protection regulations.

2 General product description

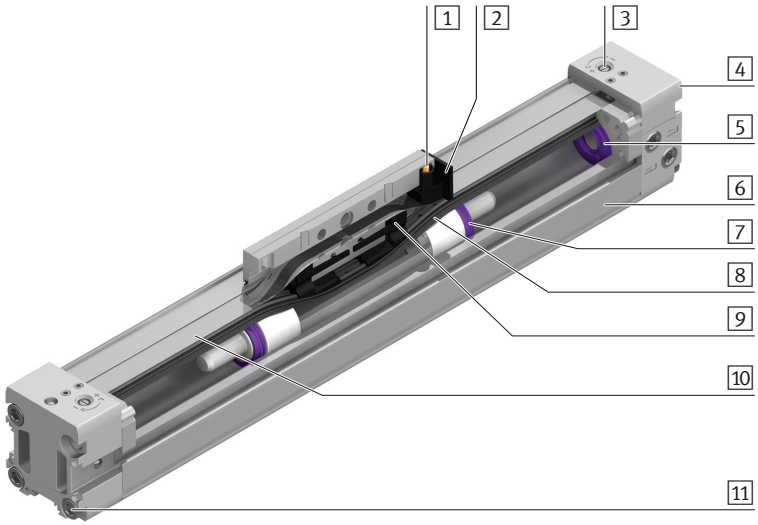
2.1 Functional description

The DGC-K is a linear drive with the functional principle of a double-acting piston for power transmission.

This piston is designed so that it has an internal part and an external part – the mechanical customer interface. These parts are rigidly connected with one another, making them one-piece. When compressed air is applied to the ports alternately, the piston moves backwards and forwards in the slotted base profile. The slot is provided as a guide and is covered by a sealing band system (with the exception of DGC-K-18) to seal off the internal part of the piston from the external part.

The DGC-K, when used properly, is used for transporting loads in a space-saving manner and is suitable for slide operation.

This illustration provides you with an overview of the construction of the linear drive using the DGC-K-25 as an example.



1 Spring
2 Wiper seal
3 Regulating screw for end-position cushioning
4 End cap assembly
5 Cushioning disc
6 Cylinder barrel
7 Sealing ring
8 Sealing band
9 Sealing band guide
10 Cover strip
11 Flange screws

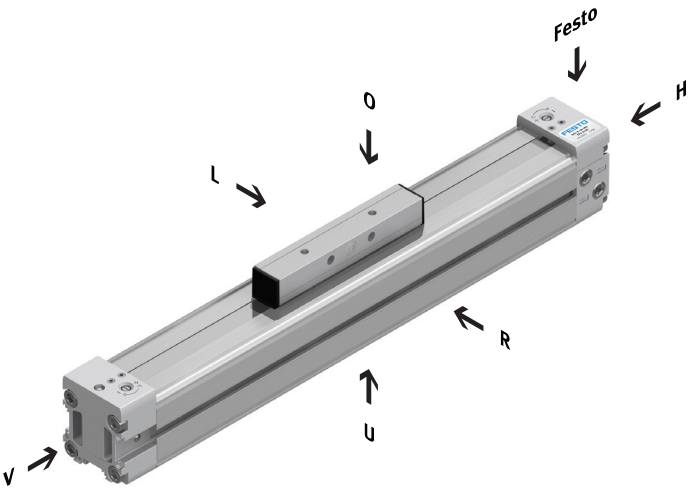
2.2 Types and part numbers

Type	Part number
DGC-K-18-...	1312500
DGC-K-25-...	1312501
DGC-K-32-...	1312502
DGC-K-40-...	1312503
DGC-K-50-...	1312504
DGC-K-63-...	1312505
DGC-K-80-...	1312506

The complete overview of features, accessories, type codes, technical data and dimensions for the DGC-K-... linear drives can be found in the product catalogue or on the Festo website (www.festo.com).

2.3 Mounting directions

This illustration gives an overview of the orientation designation of the linear drive using the DGC-K-25 as an example.



Festo = Rating plate as reference

O = Top
U = Underneath
R = Right
L = Left
V = Front
H = Rear

2.4 Type codes (identifying the features of a linear drive)

The precise features of a linear drive can be identified with the help of the rating plate on the linear drive. The type designation is located directly beneath the Festo logo and describes the linear drive's features separated by a hyphen (-).

Example:

1 Type designation
2 Serial number
3 Part number

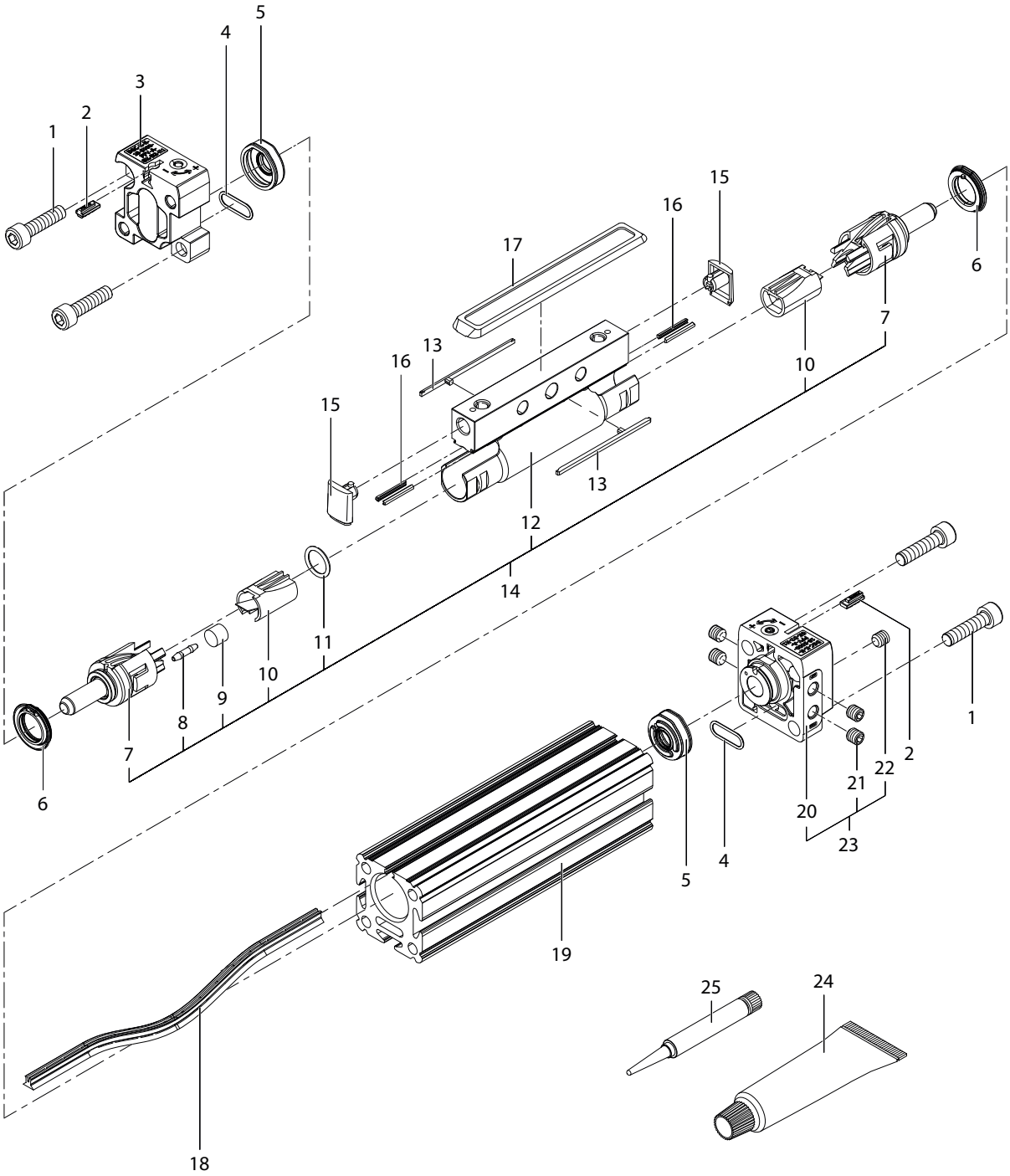
The type designation on this rating plate provides the following information:

DGC-K	Linear drive type DGC-K with double-acting pistons
25	Piston diameter 25 mm
400	Stroke 400 mm
PPV	End-position cushioning adjustable at both ends
A	Position sensing by magnetic piston
GV	Lengthened piston
D2	Supply port on both sides

A list and description of all possible equipment features of the linear drive can be found in the data sheet, which is available on the Festo website (www.festo.com).

3 Components list

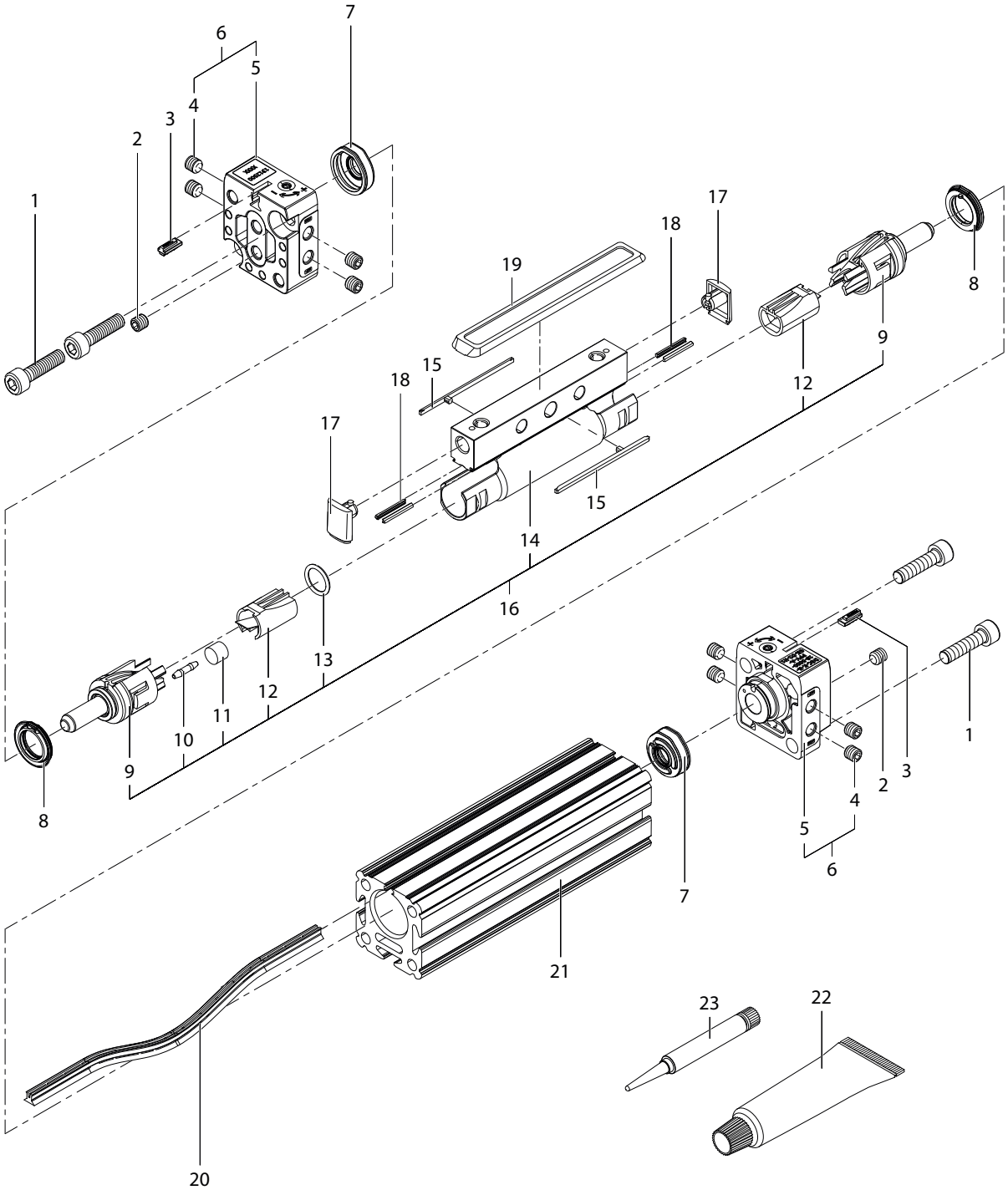
3.1 DGC-K-18-...-GK



This diagram is intended only to provide an overview of the individual components. To order spare and wearing parts, please use the online spare parts catalogue on the Festo website (http://spareparts.festo.com).

Linear drive		DGC-K-18-...-GK
No.	Designation	Type
1	Self-tapping screw	M5×20-10.9
2	Clamping component	
3	End cap module	
4	O-ring	B-11×1-N-NBR70
5	Seal	
6	Piston seal	
7	Piston cap	
8	Cushioning boss	
9	Magnet	
10	Diverter	
11	O-ring	B-9.5×1.5-N-NBR70
12	Piston	
13	Plain bearing	
14	Piston module	
15	Cover	
16	Pressure support	
17	Wiper seal	
18	Sealing band	
19	Cylinder barrel	
20	Connection cap	
21	Threaded pin	DIN 913-M5×5-45H
22	Threaded pin	DIN 913-M5×5-45H
23	End cap module	
24	Lubricating grease	LUB-KC1, silicone-free
25	Screw locking agent	LOCTITE 243

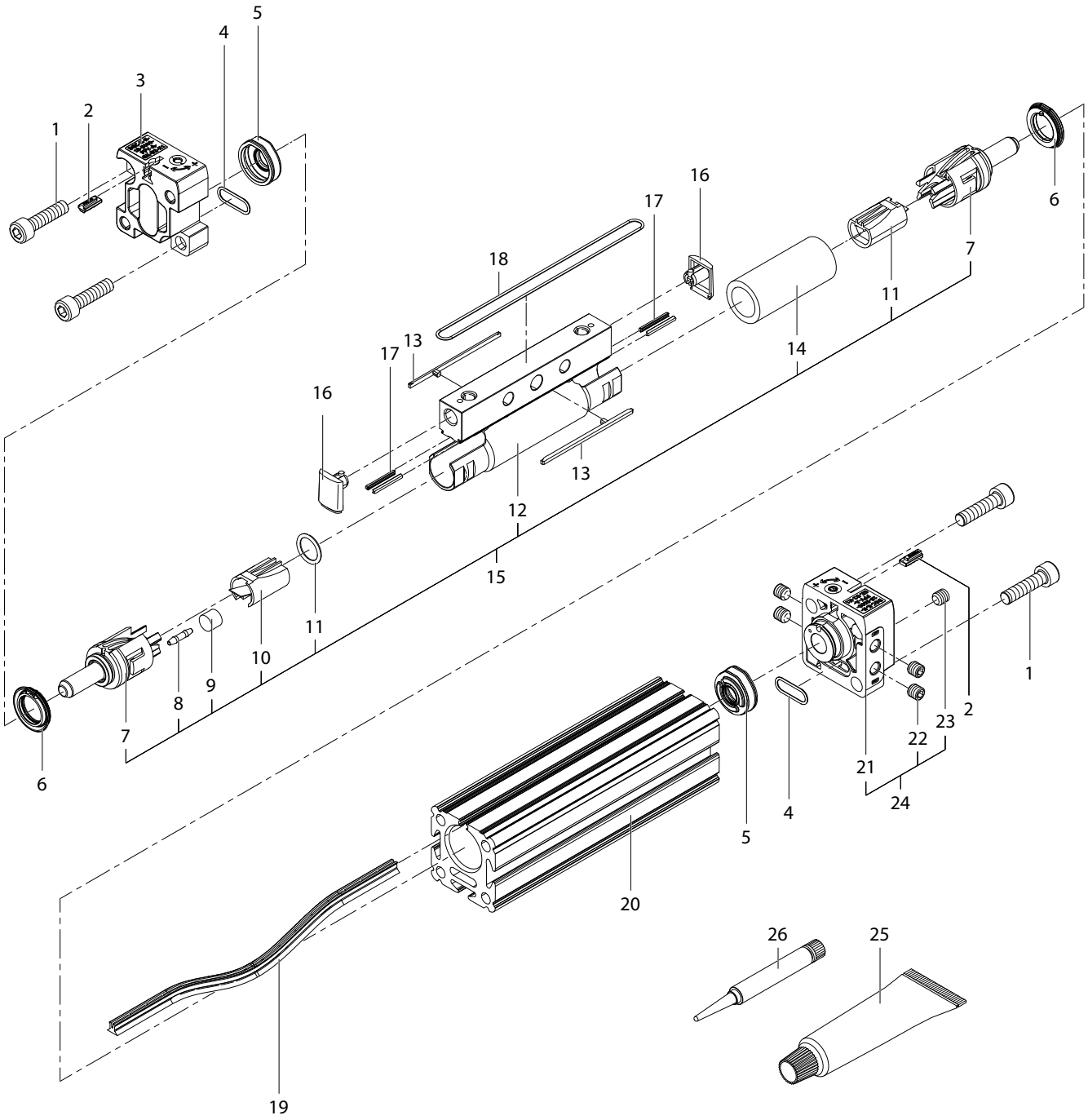
3.2 DGC-K-18-...-GK-D2



This diagram is intended only to provide an overview of the individual components. To order spare and wearing parts, please use the online spare parts catalogue on the Festo website (http://spareparts.festo.com).

Linear drive		DGC-K-18-...-GK-D2
No.	Designation	Type
1	Self-tapping screw	M5×20-10.9
2	Threaded pin	DIN 913-M5×5-45H
3	Clamping component	
4	Threaded pin	DIN 913-M5×5-45H
5	Connection cap	
6	End cap module	
7	Seal	
8	Piston seal	
9	Piston cap	
10	Cushioning boss	
11	Magnet	
12	Diverter	
13	O-ring	B-9.5×1.5-N-NBR70
14	Piston	
15	Plain bearing	
16	Piston module	
17	Cover	
18	Pressure support	
19	Wiper seal	
20	Sealing band	
21	Cylinder barrel	
22	Lubricating grease	LUB-KC1, silicone-free
23	Screw locking agent	LOCTITE 243

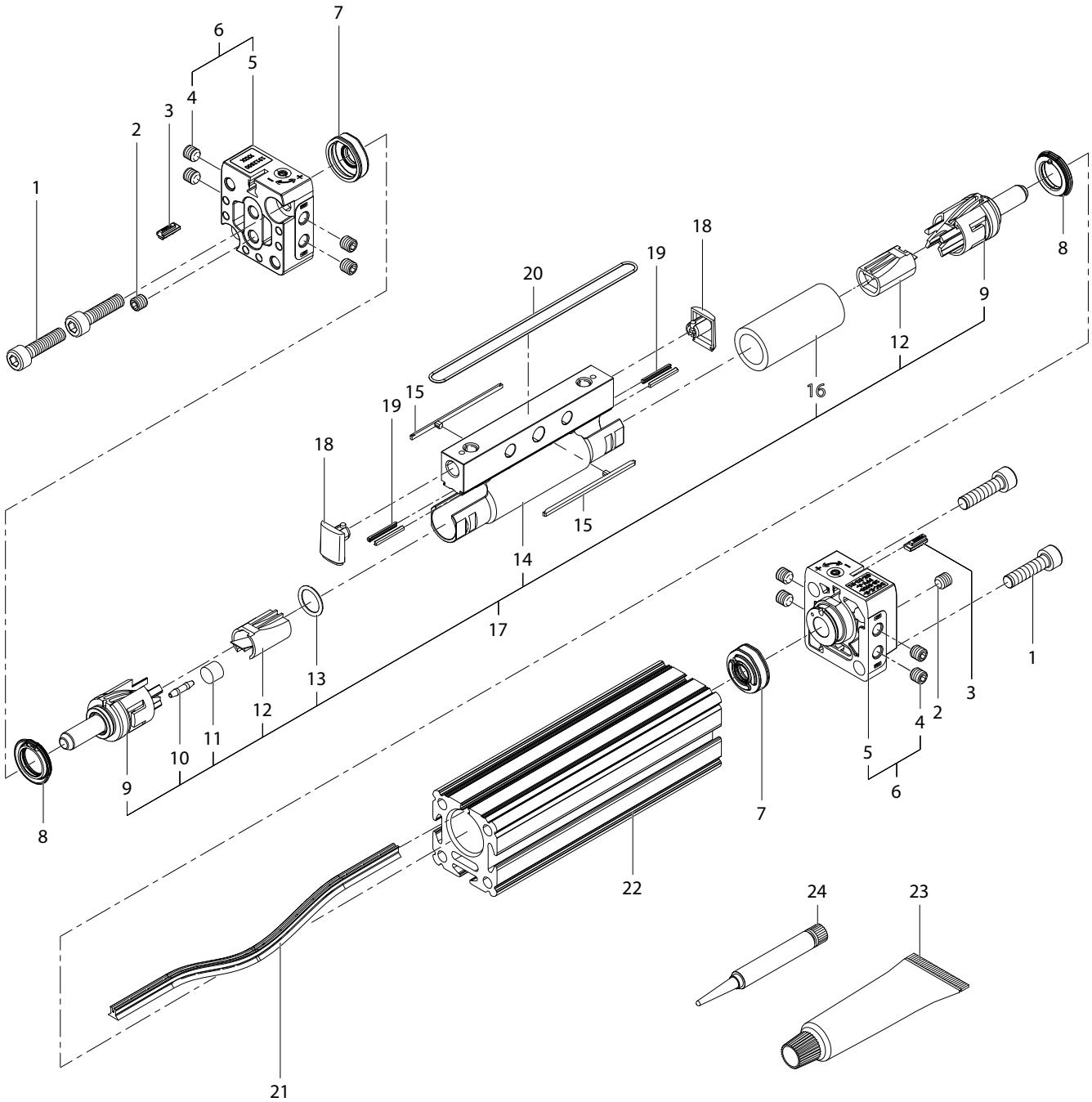
3.3 DGC-K-18-...-GV



This diagram is intended only to provide an overview of the individual components. To order spare and wearing parts, please use the online spare parts catalogue on the Festo website (http://spareparts.festo.com).

Linear drive		DGC-K-18-...-GV
No.	Designation	Type
1	Self-tapping screw	M5×20-10.9
2	Clamping component	
3	End cap module	
4	O-ring	B-11×1-N-NBR70
5	Seal	
6	Piston seal	
7	Piston cap	
8	Cushioning boss	
9	Magnet	
10	Diverter	
11	O-ring	B-9.5×1.5-N-NBR70
12	Piston	
13	Plain bearing	
14	Distance sleeve	
15	Piston module	
16	Cover	
17	Pressure support	
18	O-ring	B-100×1.5-N-NBR70
19	Sealing band	
20	Cylinder barrel	
21	Connection cap	
22	Threaded pin	DIN 913-M5×5-45H
23	Threaded pin	DIN 913-M5×5-45H
24	End cap module	
25	Lubricating grease	LUB-KC1, silicone-free
26	Screw locking agent	LOCTITE 243

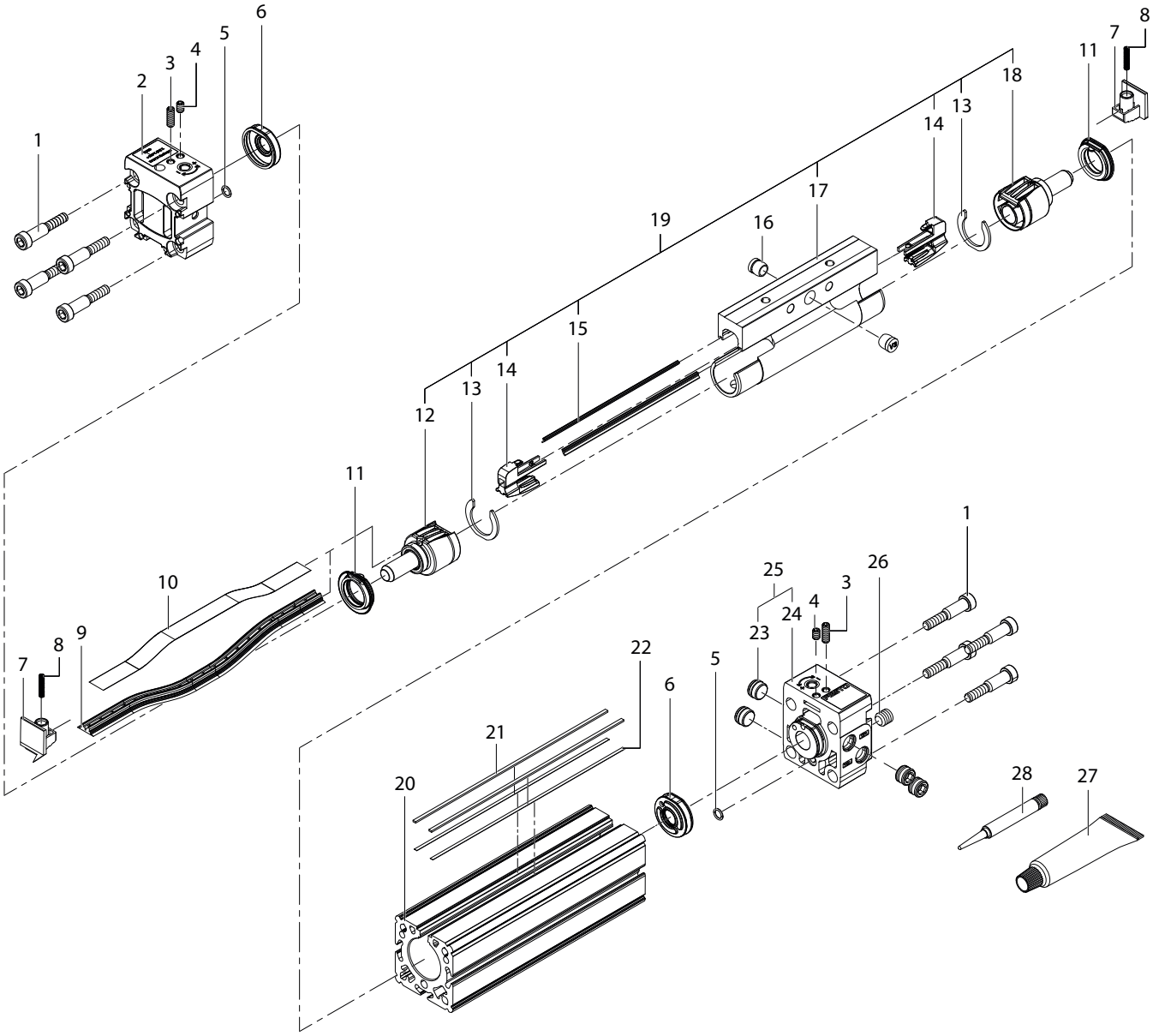
3.4 DGC-K-18-...-GV-D2



This diagram is intended only to provide an overview of the individual components. To order spare and wearing parts, please use the online spare parts catalogue on the Festo website (http://spareparts.festo.com).

Linear drive		DGC-K-18-...-GV-D2
No.	Designation	Type
1	Self-tapping screw	M5×20-10.9
2	Threaded pin	DIN 913-M5×5-45H
3	Clamping component	
4	Threaded pin	DIN 913-M5×5-45H
5	Connection cap	
6	End cap module	
7	Seal	
8	Piston seal	
9	Piston cap	
10	Cushioning boss	
11	Magnet	
12	Diverter	
13	O-ring	B-9.5×1.5-N-NBR70
14	Piston	
15	Plain bearing	
16	Distance sleeve	
17	Piston module	
18	Cover	
19	Pressure support	
20	O-ring	B-100×1.5-N-NBR70
21	Sealing band	
22	Cylinder barrel	
23	Lubricating grease	LUB-KC1, silicone-free
24	Screw locking agent	LOCTITE 243

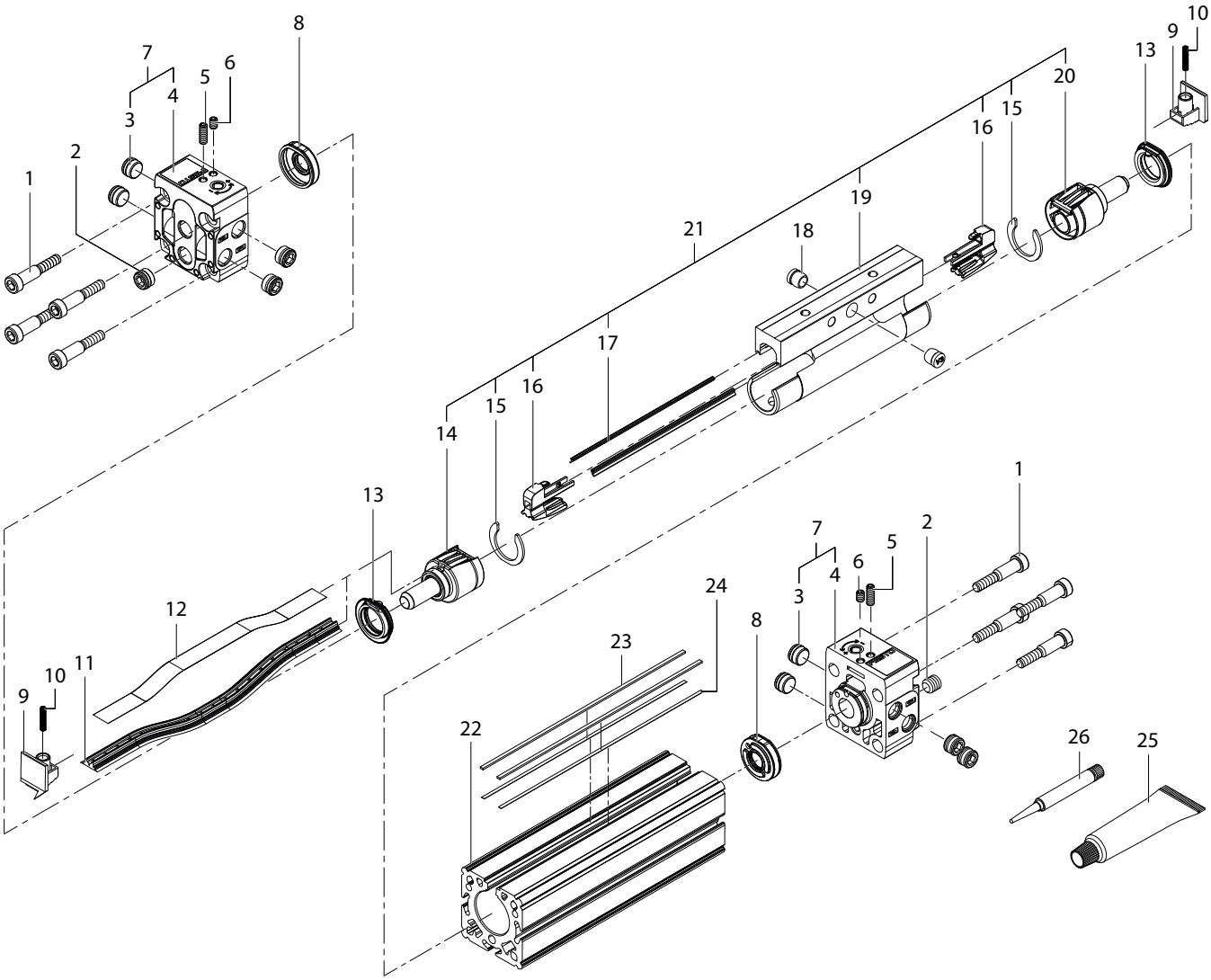
3.5 DGC-K-25 / 32 / 40-...-GK



This diagram is intended only to provide an overview of the individual components. To order spare and wearing parts, please use the online spare parts catalogue on the Festo website (http://spareparts.festo.com).

Linear drive		DGC-K-25-...-GK	DGC-K-32-...-GK	DGC-K-40-...-GK
No.	Designation	Type	Type	Type
1	Flange screw	M3×35	M6×50 DZH-40	M6×50 DZH-40
2	End cap module			
3	Threaded pin	DIN 913-M4×12-45H	DIN 913-M4×14-45H	DIN 913-M4×14-45H
4	Threaded pin	DIN 913-M4×6-45H	DIN 915-M4×8-45H	DIN 915-M4×8-45H
5	O-ring			
6	Seal			
7	Wiper seal			
8	Compression spring			
9	Sealing band			
10	Cover strip			
11	Piston seal			
12	Piston cap module			
13	Washer	**Component not present**		
14	Belt diverter			
15	Wiper seal			
16	Blanking plug			**Component not present**
17	Piston			
18	Piston cap			
19	Piston module			
20	Cylinder barrel			
21	Magnetic strip			
22	Adhesive tape			
23	Plug screw	G1⁄8"	G1⁄8"	G1⁄4"
24	Connection cap			
25	End cap module			
26	Plug screw	G1⁄8"	G1⁄8"	G1⁄4"
27	End cap module			
28	Lubricating grease	LUB-KC1, silicone-free	LUB-KC1, silicone-free	LUB-KC1, silicone-free
29	Adhesive locking agent	LOCTITE 243	LOCTITE 243	LOCTITE 243

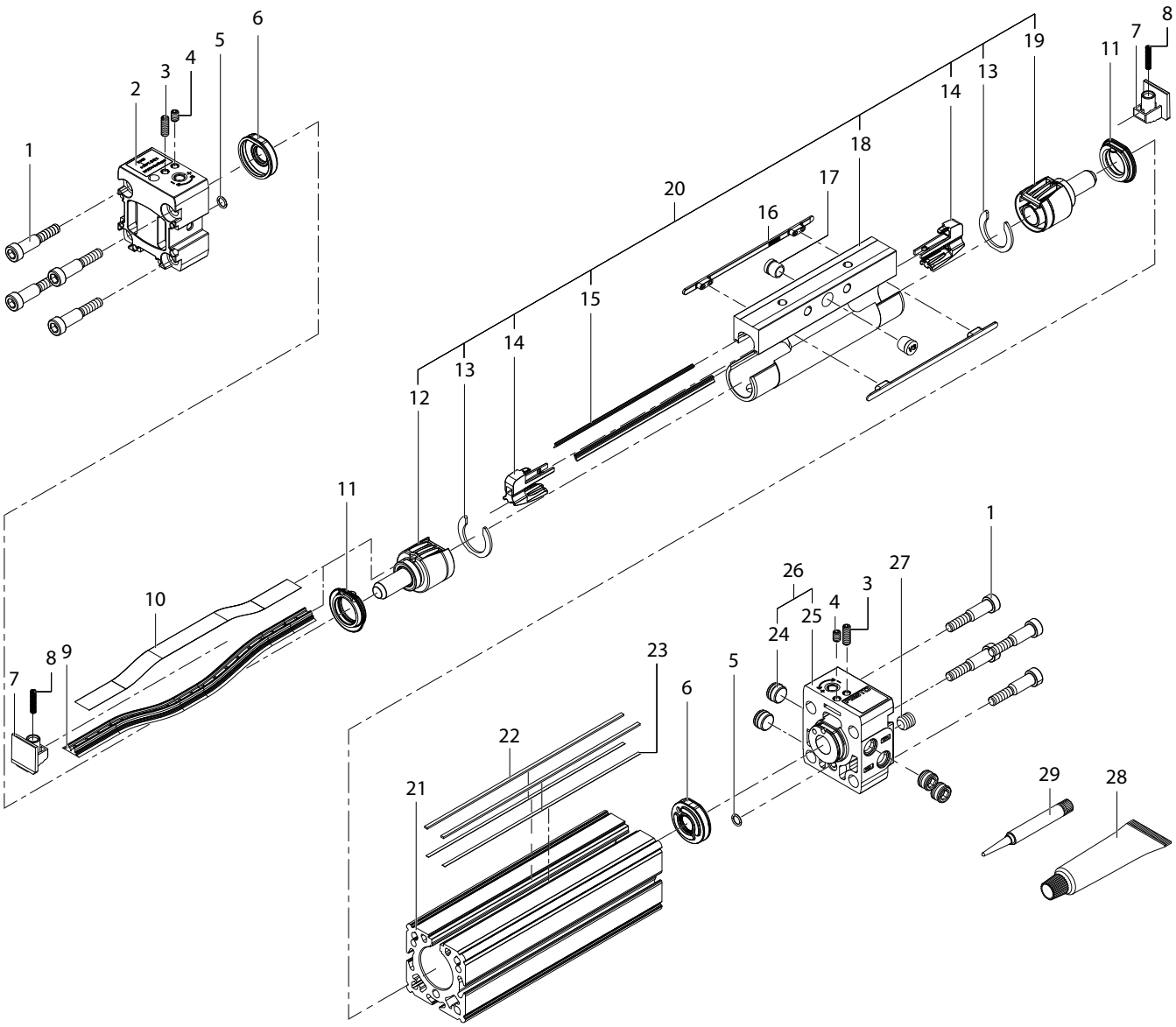
3.6 DGC-K-25 / 32 / 40-...-GK-D2



This diagram is intended only to provide an overview of the individual components. To order spare and wearing parts, please use the online spare parts catalogue on the Festo website (http://spareparts.festo.com).

Linear drive		DGC-K-25-...-GK-D2	DGC-K-32-...-GK-D2	DGC-K-40-...-GK-D2
No.	Designation	Type	Type	Type
1	Flange screw	M3×35	M6×50 DZH-40	M6×50 DZH-40
2	Plug screw	G1⁄8"	G1⁄8"	G1⁄4"
3	Plug screw	G1⁄8"	G1⁄8"	G1⁄4"
4	Connection cap			
5	Threaded pin	DIN 913-M4×12-45H	DIN 913-M4×14-45H	DIN 913-M4×14-45H
6	Threaded pin	DIN 913 -M4×6-45H	DIN 915-M4×8-45H	DIN 915-M4×8-45H
7	End cap module			
8	Seal			
9	Wiper seal			
10	Compression spring			
11	Sealing band			
12	Cover strip			
13	Piston seal			
14	Piston cap module			
15	Washer	**Component not present**		
16	Belt diverter			
17	Wiper seal			
18	Blanking plug			**Component not present**
19	Piston			
20	Piston cap			
21	Piston module			
22	Cylinder barrel			
23	Magnetic strip			
24	Adhesive tape			
25	Lubricating grease	LUB-KC1, silicone-free	LUB-KC1, silicone-free	LUB-KC1, silicone-free
26	Screw locking agent	LOCTITE 243	LOCTITE 243	LOCTITE 243

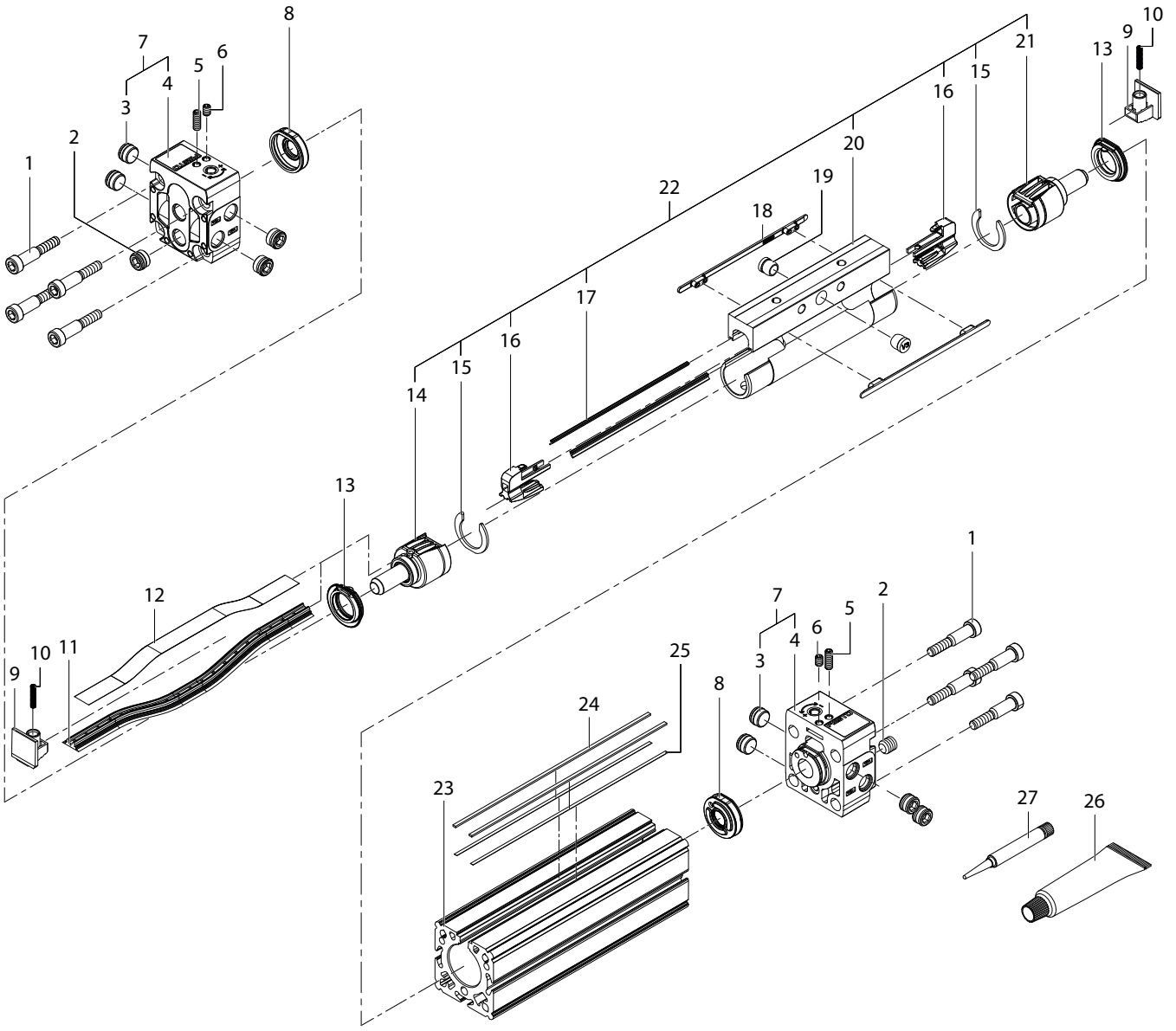
3.7 DGC-K-25 / 32 / 40-...-GV



This diagram is intended only to provide an overview of the individual components. To order spare and wearing parts, please use the online spare parts catalogue on the Festo website (http://spareparts.festo.com).

Linear drive		DGC-K-25-...-GV	DGC-K-32-...-GV	DGC-K-40-...-GV
No.	Designation	Type	Type	Type
1	Flange screw	M3×35	M6×50 DZH-40	M6×50 DZH-40
2	End cap module			
3	Threaded pin	DIN 913-M4×12-45H	DIN 913-M4×14-45H	DIN 913-M4×14-45H
4	Threaded pin	DIN 913-M4×6-45H	DIN 915-M4×8-45H	DIN 915-M4×8-45H
5	O-ring			
6	Seal			
7	Wiper seal			
8	Compression spring			
9	Sealing band			
10	Cover strip			
11	Piston seal			
12	Piston cap module			
13	Washer	**Component not present**		
14	Belt diverter			
15	Wiper seal			
16	Slide element			
17	Blanking plug			**Component not present**
18	Piston			
19	Piston cap			
20	Piston module			
21	Cylinder barrel			
22	Magnetic strip			
23	Adhesive tape			
24	Plug screw	G⅛"	G⅛"	G¼"
25	Connection cap			
26	End cap module			
27	Plug screw	G⅛"	G⅛"	G¼"
28	Lubricating grease	LUB-KC1, silicone-free	LUB-KC1, silicone-free	LUB-KC1, silicone-free
29	Adhesive locking agent	LOCTITE 243	LOCTITE 243	LOCTITE 243

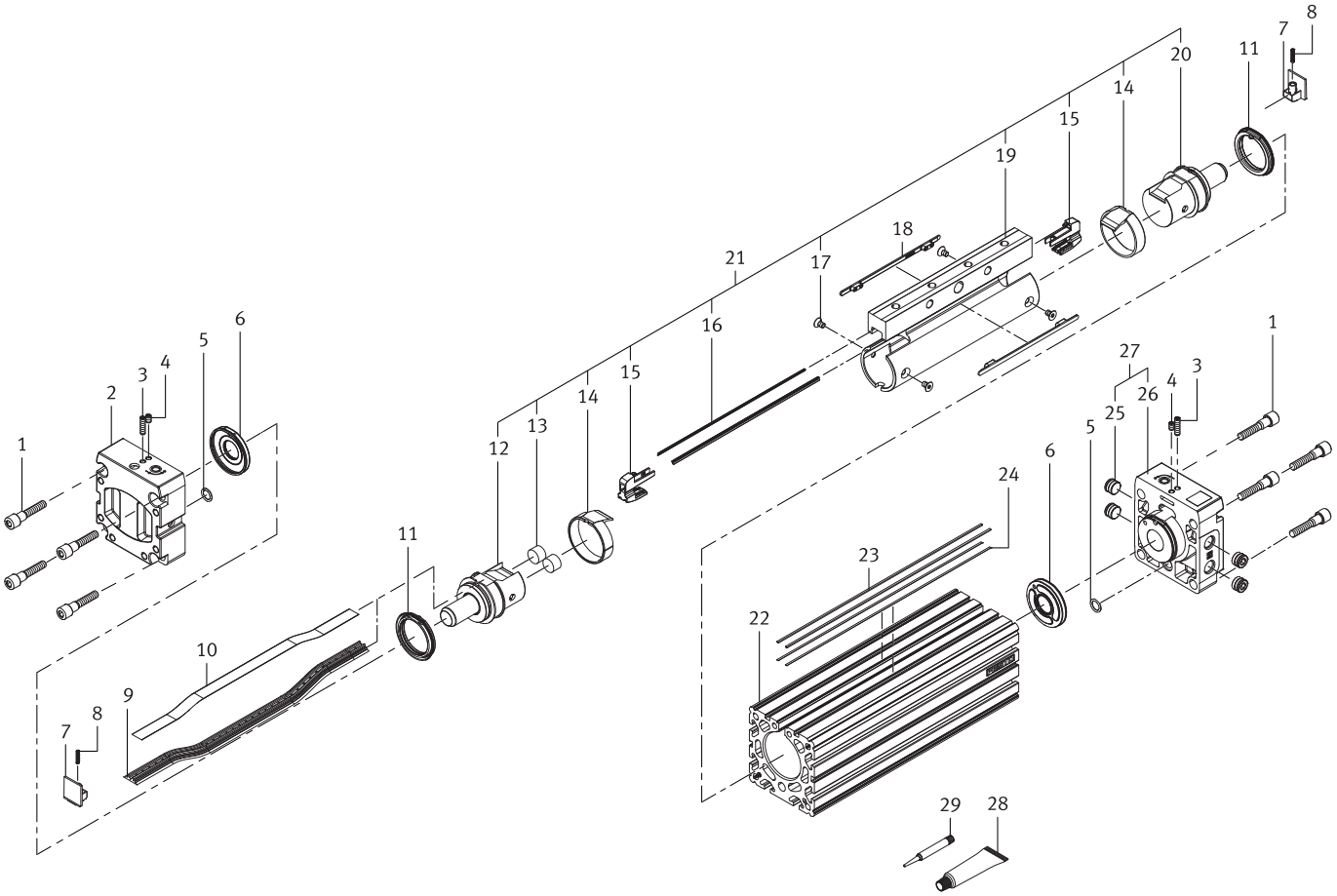
3.8 DGC-K-25 / 32 / 40-...-GV-D2



This diagram is intended only to provide an overview of the individual components. To order spare and wearing parts, please use the online spare parts catalogue on the Festo website (http://spareparts.festo.com).

Linear drive		DGC-K-25-...-GV-D2	DGC-K-32-...-GV-D2	DGC-K-40-...-GV-D2
No.	Designation	Type	Type	Type
1	Flange screw	M3×35	M6×50 DZH-40	M6×50 DZH-40
2	Plug screw	G1⁄8"	G1⁄8"	G1⁄4"
3	Plug screw	G1⁄8"	G1⁄8"	G1⁄4"
4	Connection cap			
5	Threaded pin	DIN 913-M4×12-45H	DIN 913-M4×14-45H	DIN 913-M4×14-45H
6	Threaded pin	DIN 913-M4×6-45H	DIN 915-M4×8-45H	DIN 915-M4×8-45H
7	End cap module			
8	Seal			
9	Wiper seal			
10	Compression spring			
11	Sealing band			
12	Cover strip			
13	Piston seal			
14	Piston cap module			
15	Washer	**Component not present**		
16	Belt diverter			
17	Wiper seal			
18	Slide element			
19	Blanking plug			**Component not present**
20	Piston			
21	Piston cap			
22	Piston module			
23	Cylinder barrel			
24	Magnetic strip			
25	Adhesive tape			
26	Lubricating grease	LUB-KC1, silicone-free	LUB-KC1, silicone-free	LUB-KC1, silicone-free
27	Screw locking agent	LOCTITE 243	LOCTITE 243	LOCTITE 243

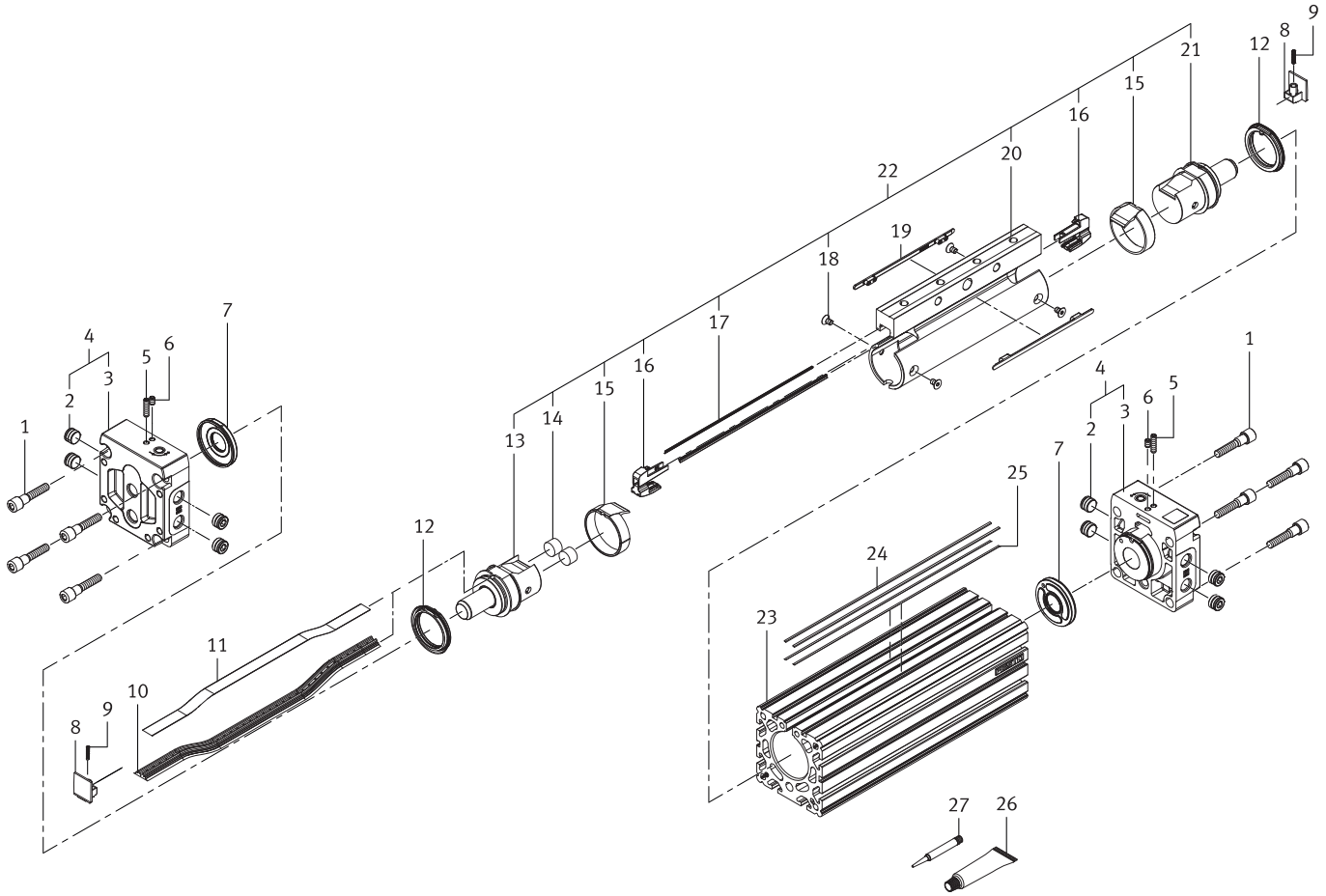
3.9 DGC-K-50 / 63-...-GK / GV



This diagram is intended only to provide an overview of the individual components. To order spare and wearing parts, please use the online spare parts catalogue on the Festo website (http://spareparts.festo.com).

Linear drive		DGC-K-50-...-GK	DGC-K-50-...-GV	DGC-K-63-...-GK	DGC-K-63-...-GV
No.	Designation	Type	Type	Type	Type
1	Flange screw	M7×48.5 DZH – 50	M7×48.5 DZH – 50	M8×50	M8×50
2	End cap module				
3	Threaded pin	DIN 913-M5×20-A2-70	DIN 913-M5×20-A2-70	DIN 913-M5×20-A2-70	DIN 913-M5×20-A2-70
4	Threaded pin	DIN 913-M5×8-45H	DIN 913-M5×8-45H	DIN 913-M5×8-45H	DIN 913-M5×8-45H
5	O-ring				
6	Seal				
7	Wiper seal				
8	Compression spring				
9	Sealing band				
10	Cover strip				
11	Piston seal				
12	Piston end cap module				
13	Magnet				
14	Guiding band				
15	Belt diverter				
16	Wiper seal				
17	Countersunk screw	F-M5×8-A2-70	F-M5×8-A2-70	F-M5×8-A2-70	F-M5×8-A2-70
18	Slide element	**Component not present**		**Component not present**	
19	Piston				
20	Piston cap				
21	Piston module				
22	Cylinder barrel				
23	Magnetic strip				
24	Adhesive tape				
25	Plug screw	G¼"	G¼"	G⅜"	G⅜"
26	Connection cap				
27	End cap module				
28	Lubricating grease	LUB-KC1, silicone-free	LUB-KC1, silicone-free	LUB-KC1, silicone-free	LUB-KC1, silicone-free
29	Adhesive locking agent	LOCTITE 243	LOCTITE 243	LOCTITE 243	LOCTITE 243

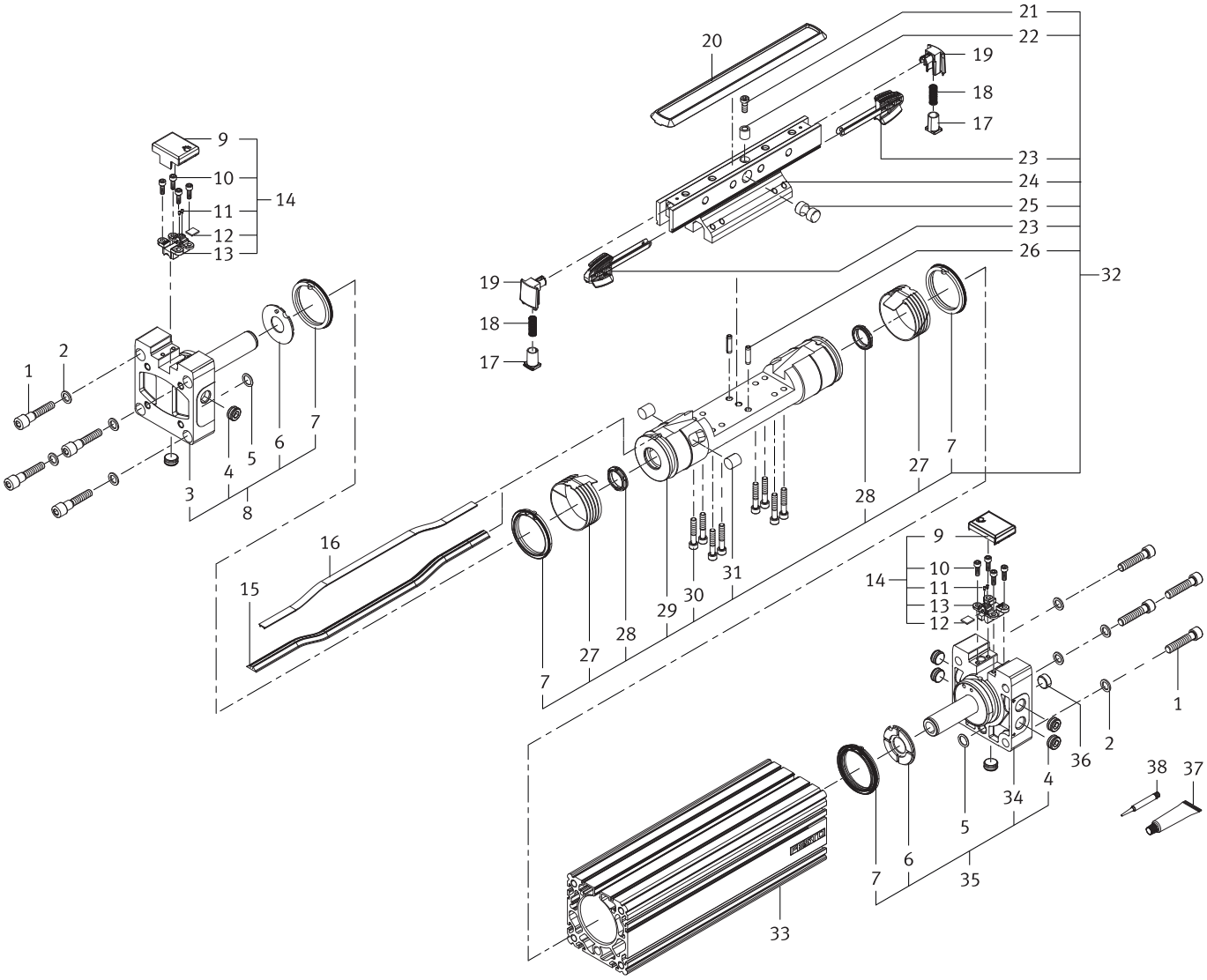
3.10 DGC-K-50 / 63-...-GK / GV-D2



This diagram is intended only to provide an overview of the individual components. To order spare and wearing parts, please use the online spare parts catalogue on the Festo website (http://spareparts.festo.com).

Linear drive		DGC-K-50-...-GK-D2	DGC-K-50-...-GV-D2	DGC-K-63-...-GK-D2	DGC-K-63-...-GV-D2
No.	Designation	Type	Type	Type	Type
1	Flange screw	M7×48.5 DZH – 50	M7×48.5 DZH – 50	M8×50	M8×50
2	Plug screw	G¼"	G¼"	G⅜"	G⅜"
3	Connection cap				
4	End cap module				
5	Threaded pin	DIN 913-M5×20-A2-70	DIN 913-M5×20-A2-70	DIN 913-M5×20-A2-70	DIN 913-M5×20-A2-70
6	Threaded pin	DIN 913-M5×8-45H	DIN 913-M5×8-45H	DIN 913-M5×8-45H	DIN 913-M5×8-45H
7	Seal				
8	Wiper seal				
9	Compression spring				
10	Sealing band				
11	Cover strip				
12	Piston seal				
13	Piston end cap module				
14	Magnet				
15	Guiding band				
16	Belt diverter				
17	Wiper seal				
18	Countersunk screw	F-M5×8-A2-70	F-M5×8-A2-70	F-M5×8-A2-70	F-M5×8-A2-70
19	Slide element	**Component not present**		**Component not present**	
20	Piston				
21	Piston cap				
22	Piston module				
23	Cylinder barrel				
24	Magnetic strip				
25	Adhesive tape				
26	Lubricating grease	LUB-KC1, silicone-free	LUB-KC1, silicone-free	LUB-KC1, silicone-free	LUB-KC1, silicone-free
27	Adhesive locking agent	LOCTITE 243	LOCTITE 243	LOCTITE 243	LOCTITE 243

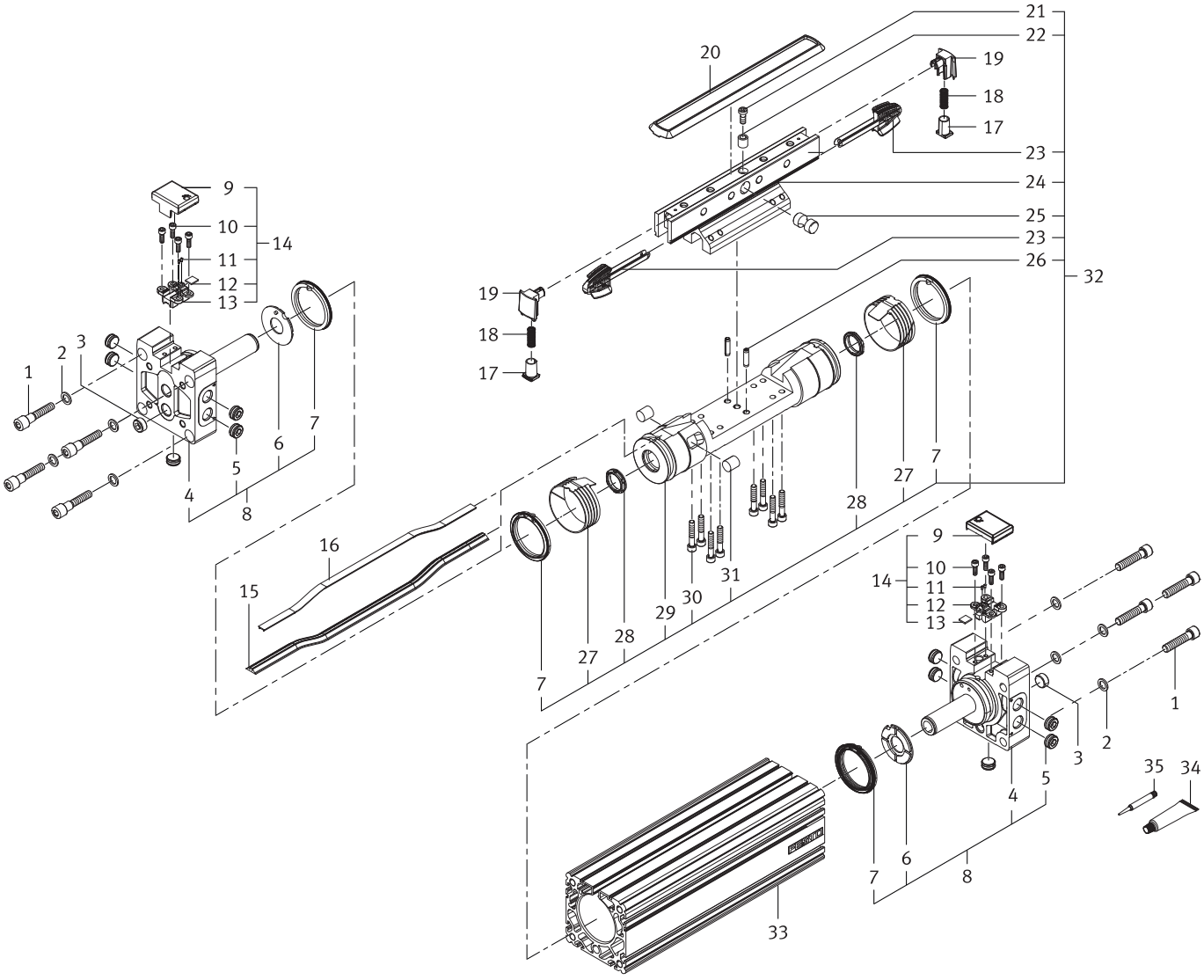
3.11 DGC-K-80-...-GK



This diagram is intended only to provide an overview of the individual components. To order spare and wearing parts, please use the online spare parts catalogue on the Festo website (http://spareparts.festo.com).

Linear drive		DGC-K-80-...-GK
No.	Designation	Type
1	Socket head screw	DIN 912-M12×55-8.8
2	Washer	
3	End cap	
4	Plug screw	
5	O-ring ISO3601	B-15×2-N-NBR70
6	Cushioning ring	
7	Piston seal	
8	End cap module	
9	Cover	
10	Socket head screw	DIN 912-M6×18-10.9
11	Threaded pin	DIN 915-M3×6-45H
12	Plate	
13	Clamping component	
14	Mounting kit	
15	Sealing band	
16	Cover strip	
17	Thrust piece	
18	Compression spring	
19	Cover	
20	Wiper seal	
21	Socket head screw	DIN 6912-M8×20-A2-70
22	Sleeve	
23	Diverter	
24	Piston	
25	Pin	
26	Spring pin	
27	Guiding band	
28	Cushioning seal	
29	Piston body	
30	Socket head screw	DIN 912-M8×45-A2-70
31	Magnet	
32	Piston module	
33	Cylinder barrel	
34	Connection cap	
35	End cap module	
36	Plug screw	
37	Lubricating grease	LUB-KC1, silicone-free
38	Screw locking agent	LOCTITE 243

3.12 DGC-K-80-...-GK-D2



This diagram is intended only to provide an overview of the individual components. To order spare and wearing parts, please use the online spare parts catalogue on the Festo website (http://spareparts.festo.com).

Linear drive		DGC-K-80-...-GK-D2
No.	Designation	Type
1	Socket head screw	DIN 912-M12×55-8.8
2	Washer	
3	Plug screw	G½"
4	Connection cap	
5	Plug screw	G½"
6	Cushioning ring	
7	Piston seal	
8	End cap module	
9	Cover	
10	Socket head screw	DIN 912-M6×18-10.9
11	Threaded pin	DIN 915-M3×6-45H
12	Plate	
13	Clamping component	
14	Mounting kit	
15	Sealing band	
16	Cover strip	
17	Thrust piece	
18	Compression spring	
19	Cover	
20	Wiper seal	
21	Socket head screw	DIN 6912-M8×20-A2-70
22	Sleeve	
23	Diverter	
24	Piston	
25	Pin	
26	Spring pin	
27	Guiding band	
28	Cushioning seal	
29	Piston body	
30	Socket head screw	DIN 912-M8×45-A2-70
31	Magnet	
32	Piston module	
33	Cylinder barrel	
34	Lubricating grease	LUB-KC1, silicone-free
35	Screw locking agent	LOCTITE 243

4 Repair steps

4.1 Preparation

Before starting the repair, remove any attachments in accordance with the instructions in the accompanying operating instructions.

Keep your working environment tidy.

Only use the spare parts and assembly aids (grease, locking agent, etc.) provided in the components list, see Chapter 3 “Component overwiev”.

Caution

Ensure that the connection cap or cover module cannot suddenly fly off.

- Remove the non-return valves and tubing connection from the linear drive and depressurise the linear drive completely so that any pressure present is not suddenly released when the cylinder is opened.

Note

To prevent damage to sealing rims or guide surfaces, do not use pointed or sharp-edged assembly aids.

4.2 Visual inspection

Check the linear drive for visible damage that might impair its function, such as deposits and scoring. The entire linear drive must be replaced if the cylinder barrel shows signs of significant damage.

4.3 Repairing the linear drive

The linear drive can be divided into two groups for the repair, and these differ from one another in the repair steps. The size is the only determining factor for the repair.

Linear drive	Other features	Repair description starts on page
DGC-K-18-...	GK, GV, D2	33
DGC-K-25 / 32 / 40 / 50 / 63-...	GK, GV, D2	38
DGC-K- 80-...	GK, D2	43

Note

The repair should preferably be carried out on a stable and flat work surface with storage for small parts.

Before dismantling the linear drive, it is imperative that the cause of the failure is investigated to prevent, for example, repeated and premature failure. A linear drive which has been used as intended will not normally exhibit any premature signs of failure.

This investigation is not necessary in the case of non-premature failure (fatigue time). However, the condition of the piston module (e.g. piston seals, plain bearings, etc.) should also always be assessed. Likewise, any faulty sliding performance or increased sliding noises should be observed. The sealing band and cover strip must be checked during each repair.

In case of uncertainty, it is recommended to replace all the components mentioned so as to rule out reciprocal effects during later operation.

If the linear drive suffers premature failure, the operating conditions should be examined more closely.

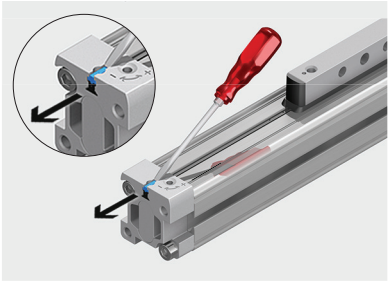
The following possibilities should be considered among others:

- **Overloading**
  In case of overloading the application parameters (load, speed, operating pressure, operating medium) should be adjusted accordingly.
- **Ambient conditions/material resistance**
  Check whether the ambient temperature is within the permissible range.
  Check the chemical and physical ambient conditions for hazardous substances such as dust, abrasive particles, cooling lubricants, solvents, ozone, radiation, water-soluble substances and oils, etc.

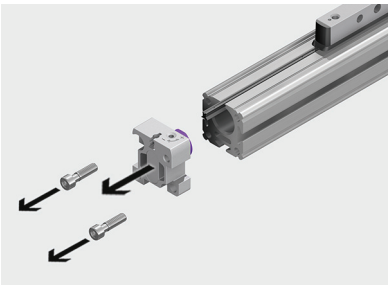
4.3.1 Linear drive DGC-K-18

Dismantling the linear drive

1. Using a screwdriver, carefully push out the clamping components of the sealing band at the front and rear end cap module.



2. Unscrew the self-tapping screws on the front and rear end cap module.
3. Remove both end cap modules from the cylinder barrel.

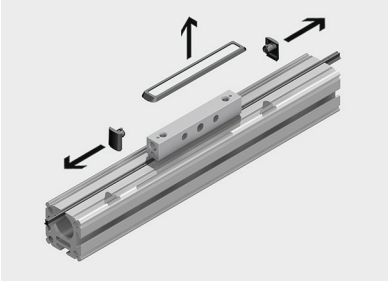


For variant GK:

1. Remove the wiper seal from the piston module/connection and the two covers.
2. Remove the two covers from the front sides of the piston module.

For variant GV:

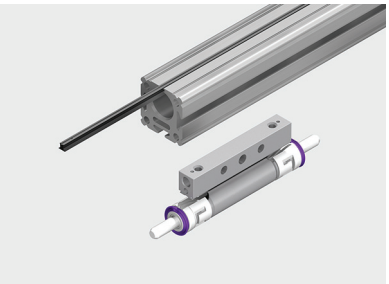
1. Remove the O-ring from the piston module.
2. Remove the two covers from the front sides of the piston module.



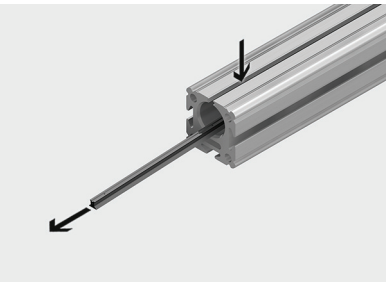
There are four pressure supports between the cylinder barrel and the sealing band, two on each side. They could fall out when pushing out the piston module or when removing the sealing band.

There are plain bearings at the side of the piston module, and these could fall out when pulling out the piston module.

4. Carefully push the piston module out of the cylinder barrel.

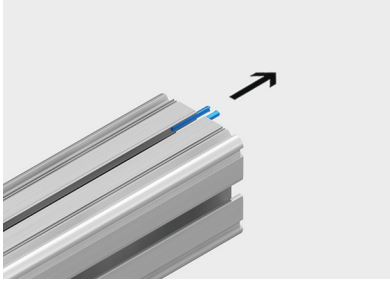


5. Press the sealing band out of the guide downwards into the cylinder barrel.
6. Pull the sealing band out of the cylinder barrel.



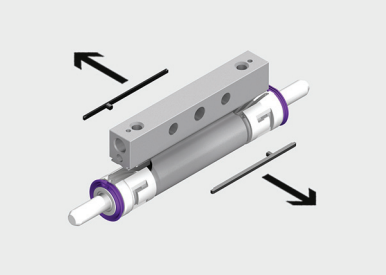
Pay attention to the four pressure supports if they have not yet been removed.

7. Remove all four pressure supports.



The standard linear drives (DGC-K-18-...-GK) have **two** plain bearings on the side of the piston module. The linear drives with extended piston module (DGC-K-18-...-**GV**) have **four** plain bearings at the side of the piston module.

Take note of the alignment of the plain bearings.

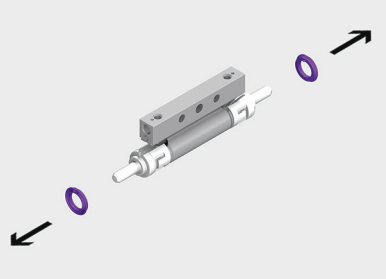


8. Remove the plain bearings from the piston module and check for wear.

9. Remove the seal from both end cap modules.
10. Remove the O-ring from both end cape modules.

The **D2** variant does not have an O-ring.

11. Remove the two piston seals from the piston caps.



Assembling the linear drive

When assembling the linear drive, wearing parts such as the sealing band, seals, covers and the entire piston module can be replaced.

The wearing parts are ordered from the online spare parts catalogue (http://spareparts.festo.com) quoting the appropriate part number (dependent on the size of the linear drive).

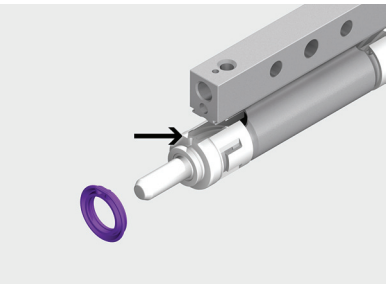
Lubricating during assembly

1. Clean the cylinder barrel and all components, see Chapter 5 “Cleaning”.
2. Grease the following components as described.

Component	Lubricant	Greasing instructions
Cylinder barrel	Festo LUB-KC1[1)]	Apply a layer of grease to the slot and all around and along the entire length of the cylinder bore.
Sealing band	Festo LUB-KC1[1)]	Apply a layer of grease all around and along the entire length.
Piston	Festo LUB-KC1[1)]	Grease all around.
Piston seal	Festo LUB-KC1[1)]	Grease all around.
Clip slot on piston cap	Festo LUB-KC1[1)]	Fill with grease.
Cushioning boss	Festo LUB-KC1[1)]	Grease all around.
Groove base on piston cap	Festo LUB-KC1[1)]	Grease all around.
O-ring on connection cap	Festo LUB-KC1[1)]	Grease for simpler assembly.
Plain bearing (slide element)	Festo LUB-KC1[1)]	Grease all around.

[1)] Further information on the lubricant is included in the information brochure **“Accessories, equipment and tools”**. This can be found in the online spare parts catalogue on the Festo website (http://spareparts.festo.com/xdki/data/SPC/0/PDF_SAFE/Hilfsmittel.pdf).

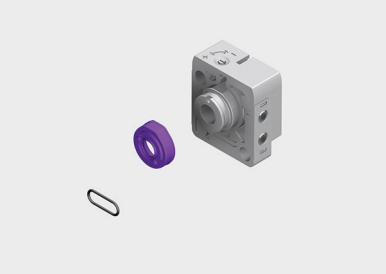
1. Clip the two piston seals on to the piston cap.



Note

Ensure that the trunnion in the piston seal is correctly aligned with the slot in the piston cap. Note the mounting direction: the smooth side of the piston seal faces the piston cap.

2. Push the seals onto the front and rear end cap module.



Note

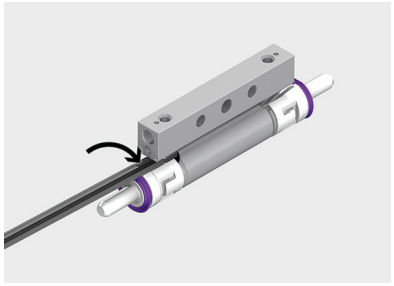
Ensure that the trunnion in the seal is correctly aligned with the slot in the end cap module. The flattened side of the seal faces upwards.

3. Insert the O-ring into the front and rear end cap module.

The **D2** variant does not have an O-ring.

Note

Do not bend the sealing band as this may damage or tear it and reduce its service life.

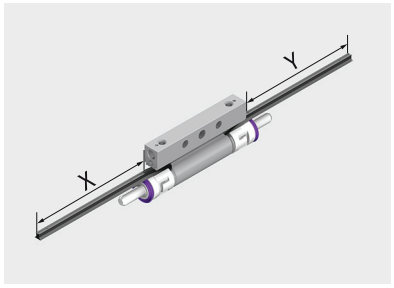


4. Grease the sealing band, as described on page 35.
5. At a slant from above, insert the sealing band through the piston cap into the piston module.

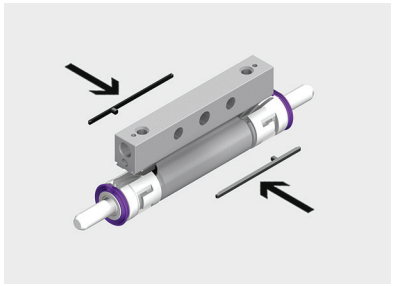
Note

Ensure that the sealing band is inserted correctly into the piston cap. The smooth side faces the cylinder barrel.

6. Push the sealing band through the piston module until the sealing band protrudes equally out of the piston cap at both ends of the piston module (X = Y).



The standard linear drives (DGC-K-18-...-GK) have **two** plain bearings on the side of the piston module. The linear drives with extended piston module (DGC-K-18-...-**GV**) have **four** plain bearings at the side of the piston module.



Standard linear drives (DGC-K-18-...-GK)

- Insert the two plain bearings into the piston module.

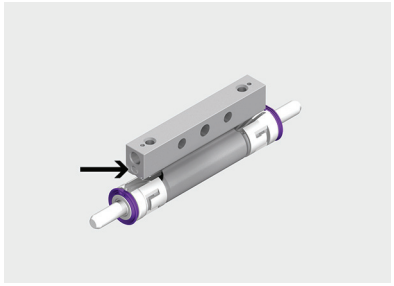
Linear drives with an extended piston module (DGC-K-18-...-GV)

- Insert the four plain bearings into the piston module.

7. Lubricate the piston module and the cylinder barrel on the inside, as described on page 35.

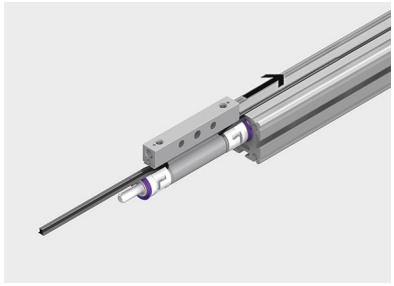
Note

Observe the mounting direction of the piston module. The magnet is located on the side of the piston module that has a circular mark on the front. The magnet faces the front connection cap, i.e. the connection cap that is **not** beside the Festo logo.

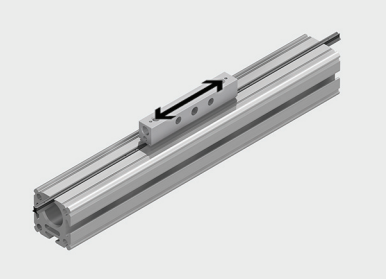


8. Insert the piston module with sealing band into the cylinder barrel.

Once the piston module has been inserted, align the sealing band so that it protrudes equally on both sides of the cylinder barrel. The sealing band is pulled into the cylinder barrel by the draw of the piston. If necessary, move the sealing band using pliers.



9. Move the piston module backwards and forwards so that the sealing band in the slot is pressed upwards and fixed into place.

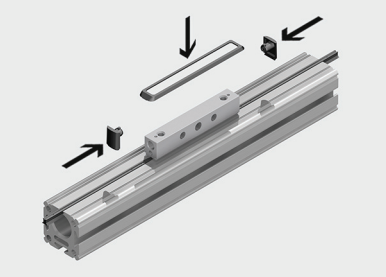


Standard linear drives (DGC-K-18-...-GK)

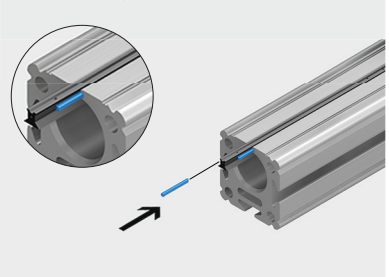
1. Press the two covers into the front sides of the piston module.
2. Stretch the wiper seal over the two covers of the piston module.

Linear drives with an extended piston module (DGC-K-18-...-GV)

1. Press the two covers into the front sides of the piston module.
2. Stretch the O-ring over the two covers of the piston module.



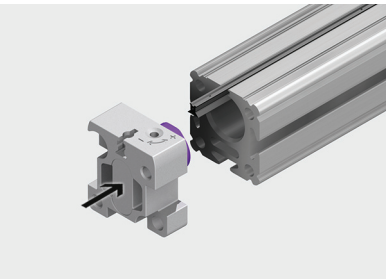
10. Insert all four pressure supports between the cylinder barrel and the sealing band.



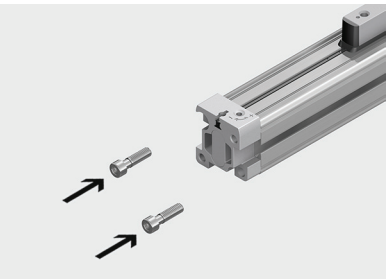
11. Push the end cap module into the cylinder barrel while pushing the sealing band through the slots in both end cap modules.

Note

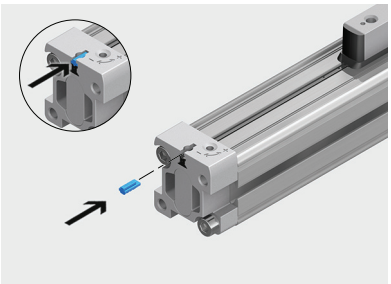
The sealing band should be flush with the end cap modules, otherwise it cannot be correctly attached to the clamping components.



12. Apply LOCTITE 243 to the self-tapping screws.
13. Tighten the self-tapping screws of the end cap module to a tightening torque of 7 Nm _10%.



14. Insert the clamping component with the print facing upwards into the slot in the end cap module over the sealing band until it stops.
15. Repeat the assembly steps for the other end cap module.



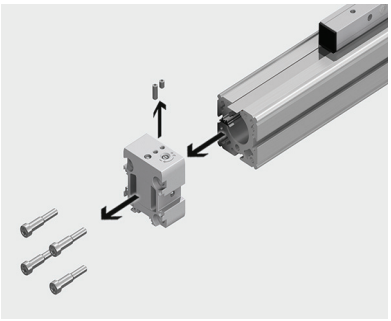
16. Carry out a functional test on the repaired linear drive or commission it as per the user manual included.

The user manual can also be viewed and downloaded on the Festo website (www.festo.com).

4.3.2 Linear drive DGC-K-25 / 32 / 40 / 50 / 63

Dismantling the linear drive

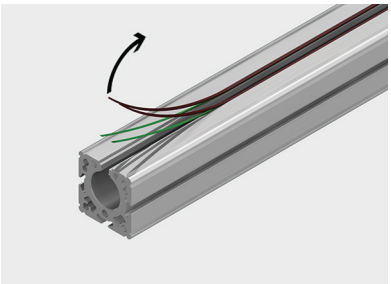
1. Unscrew the threaded pins for the sealing band and cover strip on the front and rear cover.
2. Unscrew the flange screws from the front and rear end cap module.
3. Remove the end cap module from the cylinder barrel.
4. Repeat the steps for the other end cap module.



5. Push the piston module out of the cylinder barrel.
6. Remove the cover strip from the cylinder barrel.
7. Press the sealing band out of the guide downwards into the cylinder barrel.
8. Pull the sealing band out of the cylinder barrel.

Only perform the following steps if the magnet and adhesive tapes are being replaced:

1. Remove both magnetic and adhesive tapes from the guide.
2. Remove any adhesive residues from the slot in the cylinder barrel, see Chapter 5 „Cleaning“.
3. Cut the new adhesive tapes to the exact length of the cylinder barrel and attach them correctly to the guide.
4. Cut the new magnetic tapes to the exact length of the cylinder barrel and attach them correctly to the adhesive tapes.

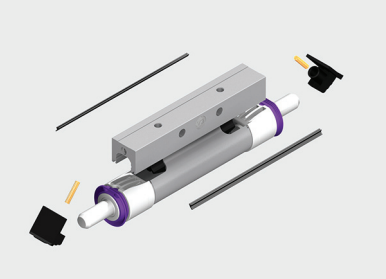


9. Remove the cushioning discs and O-rings from the front and rear end cap module.

The **D2** variant does not have an O-ring.

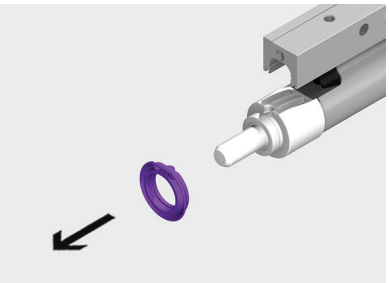
Note

The wiper seals and springs are only slotted in. They could fall out when pulling out the piston module.



10. Remove the wiper seals and springs from the piston module.
11. Remove both sealing lips from the piston module.

12. Remove both piston seals from the piston cap modules.



Assembling the linear drive

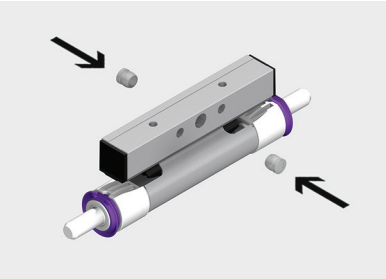
When assembling a linear drive, wearing parts such as the sealing band, cover strip, magnetic strip, seals, covers and the entire piston module can be replaced.

The wearing parts are ordered from the online spare parts catalogue (http://spareparts.festo.com) quoting the appropriate part number (dependent on the size of the linear drive).

Note

Do not bend the sealing band as this may damage or tear it and reduce its service life.

When replacing the piston module, ensure that the blanking plugs are mounted in the connection.



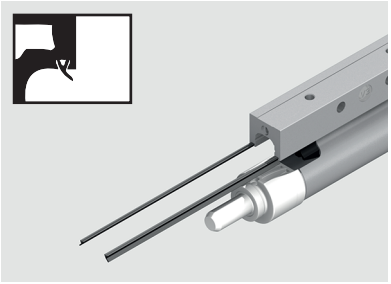
Lubricating during assembly

1. Clean the cylinder barrel and all components, see Chapter 5 “Cleaning”.
2. Grease the following components as described.

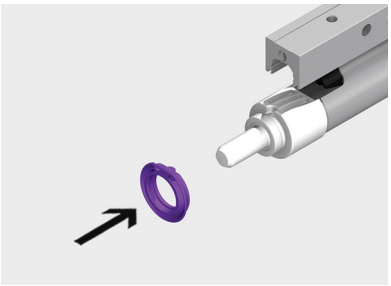
Component	Lubricant	Greasing instructions
Cylinder barrel	Festo LUB-KC1[1)]	Apply a layer of grease to the slot and all around and along the entire length of the cylinder bore.
Sealing band	Festo LUB-KC1[1)]	Apply a layer of grease all around and along the entire length.
Piston	Festo LUB-KC1[1)]	Grease all around.
Piston seal	Festo LUB-KC1[1)]	Grease all around.
Seal (from DGC-K-32-...)	Festo LUB-KC1[1)]	Grease all around.
Clip slot on piston cap	Festo LUB-KC1[1)]	Fill with grease.
Groove base on piston cap	Festo LUB-KC1[1)]	Grease all around.
Belt diverter	Festo LUB-KC1[1)]	Grease in the deflection area.
O-ring on connection cap	Festo LUB-KC1[1)]	Grease for simpler assembly.
Plain bearing (slide element)	Festo LUB-KC1[1)]	Grease all around.

[1)] Further information on the lubricant is included in the information brochure **“Accessories, equipment and tools”**. This can be found in the online spare parts catalogue on the Festo website (http://spareparts.festo.com/xdki/data/SPC/0/PDF_SAFE/Hilfsmittel.pdf).

1. Remove the sealing lips.
2. Insert both sealing lips, as described in the detail drawing on the top left, into the guides of the piston module.
3. Clip the sealing band guides to the piston module with the guide side facing downwards.



4. Slide the piston seals on to the piston cap module.



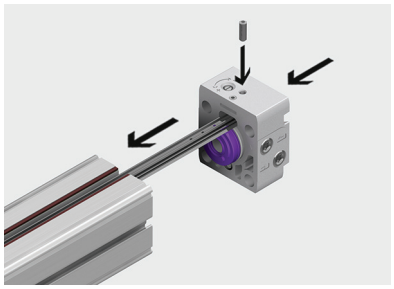
Note

Ensure that the trunnion in the piston seal is correctly aligned with the slot in the piston cap.

5. Push the cushioning discs onto the front and rear end cap module.
6. Insert the O-rings into the front and rear end cap module.

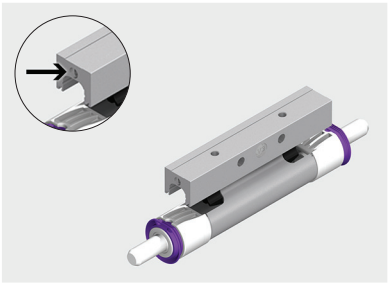
The **D2** variant does not have an O-ring.

7. Using the threaded pin, attach the sealing band with the flat side facing downwards to the rear end cap module.
8. Loosely guide the sealing band through the cylinder barrel and push the end cap module onto the cylinder barrel.



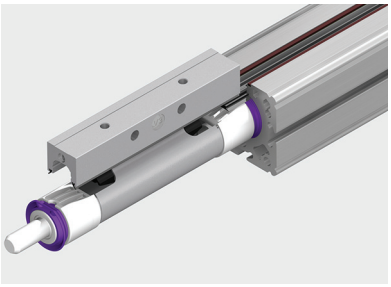
Note

Observe the mounting direction of the piston module. The magnet is located on the side of the piston module that has a circular mark on the front. The magnet faces the front connection cap, i.e. the connection cap **without** the Festo logo.



9. Thread the sealing band into the piston module.
10. Insert the piston module into the cylinder barrel.

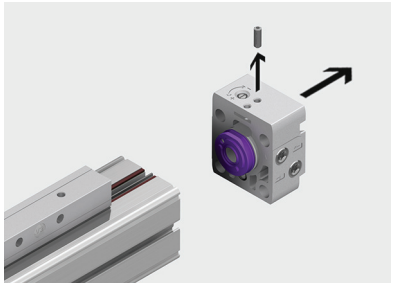
Ensure that the sealing band is completely threaded through the piston.



11. Move the piston module to the other end of the cylinder barrel once in order to secure the sealing band back in the guide.

The sealing band is pulled into the cylinder barrel by the draw of the piston. Make sure that the sealing band protrudes evenly from the cylinder barrel on both sides. If necessary, push the sealing band out of the guide using pliers and move it accordingly.

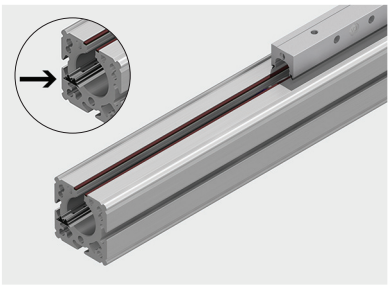
12. Loosen the threaded pin in the rear end cap module again.
13. Remove the rear end cap module.



Aligning the sealing band

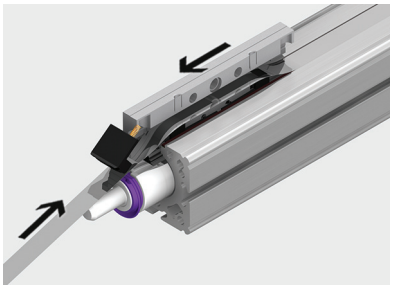
Note

The sealing band must protrude evenly from the cylinder barrel on both sides. Otherwise the end cap module cannot form an air-tight seal and may have an adverse effect on the function of the linear drive.

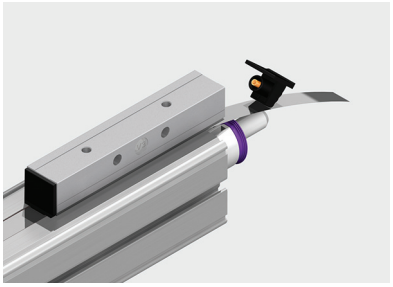


1. Press the sealing band downwards and remove it from the guide of the cylinder barrel.
2. Pull the sealing band into the correct position using pliers.

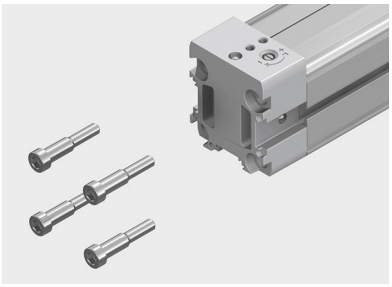
14. Push the piston module forwards out of the cylinder barrel until the entire piston cap module sticks out.
15. Thread the cover strip through the piston module and leave half of it protruding from the cylinder barrel at the front.
16. Insert the front spring and wiper seal into the piston module.
17. Insert the piston module back into the centre of the cylinder barrel.



18. Pull half of the cover strip backwards out of the cylinder barrel.
19. Push the piston module backwards out of the cylinder barrel until the entire piston cap module sticks out.
20. Insert the rear spring and wiper seal into the connection.
21. Insert the piston module back into the centre of the cylinder barrel.
22. Align the cover strip so that it protrudes equally on both sides of the cylinder barrel.



23. Push the front and rear end cap module onto the cylinder barrel.



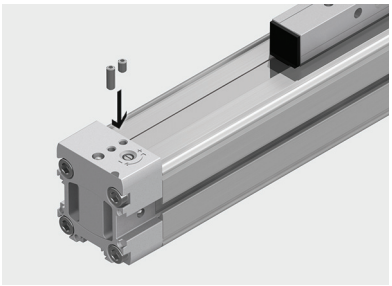
Note

Ensure that the sealing band and cover strip are correctly inserted in the end cap module. Do not bend or compress the sealing band as this may damage or tear it and reduce its service life.

24. Remove the screw locking agent from the flange screws.
25. Apply LOCTITE 243 to the flange screws.
26. Screw the flange screws into the front and rear end cap module and tighten the screws to the appropriate torque (see table).

Type	Tightening torque
DGC-K-25-...	5 Nm ±10%
DGC-K-32-...	11 Nm ±20%
DGC-K-40-...	11 Nm ±20%
DGC-K-50-...	15 Nm ±20%
DGC-K-63-...	15 Nm ±20%

27. Screw the threaded pins for the sealing band and cover strip into the front and rear end cap module and tighten them to the appropriate torque (see table).



Type	Tightening torque
DGC-K-25-...	0.7 Nm ±20%
DGC-K-32-...	0.7 Nm ±20%
DGC-K-40-...	0.7 Nm ±20%
DGC-K-50-...	0.7 Nm ±20%
DGC-K-63-...	0.7 Nm ±20%

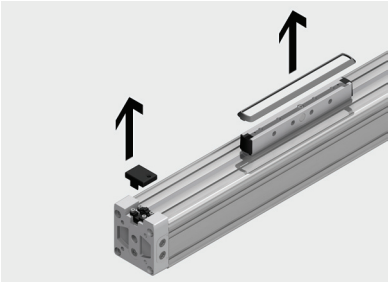
28. Carry out a functional test on the repaired linear drive or commission it as per the user manual included.

The user manual can also be viewed and downloaded on the Festo website (www.festo.com).

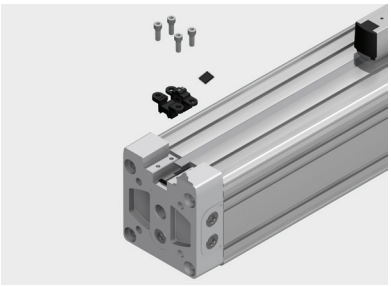
4.3.3 Linear drive DGC-K-80

Dismantling the linear drive

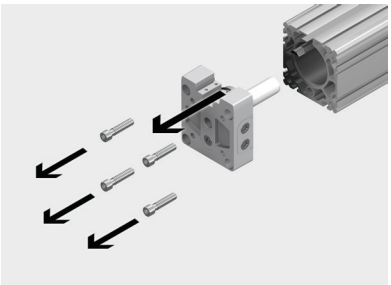
1. Using a screwdriver, carefully push out the cover on the end cap module.
2. Pull the wiper seal out of the piston.



3. Unscrew the threaded pins on the cover strip clamp.
4. Unscrew the socket head screws on the clamping component.
5. Remove the end clamp from the end clamp module.



6. Unscrew the socket head screws on the end clamp module.
7. Carefully remove the end cap module from the cylinder barrel.

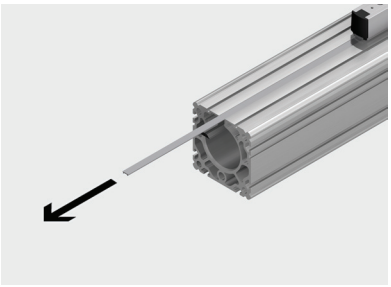


For easier disassembly, a blunt, unpointed object can be used to lift the end cap module from the cylinder barrel. The mounting surfaces of the two components must under no circumstances be damaged during this process, otherwise there will no longer be a clean support surface and air may escape.

8. Repeat the steps for the other end cap module.

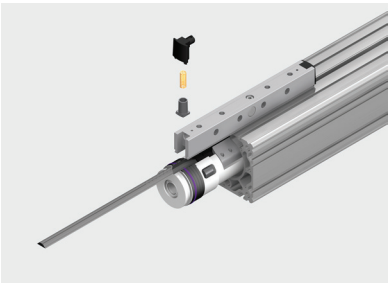
Note

The end cap and thrust piece are only slotted into the pistons. When the cover strip is pulled out of the cylinder barrel, the spring force causes the thrust piece and spring to pop out downwards.

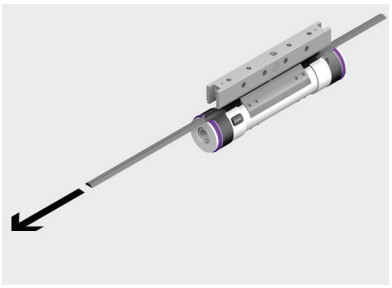


9. Pull the cover strip out of the piston module.

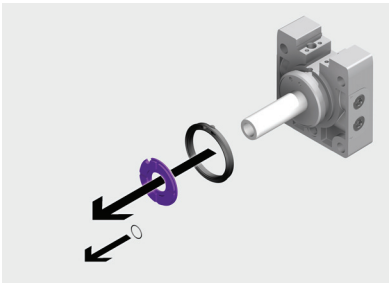
10. Carefully push the piston module out of the cylinder barrel and remove the spring and thrust piece.
11. Remove the end cap from the piston module.



12. Remove the sealing band from the piston module.

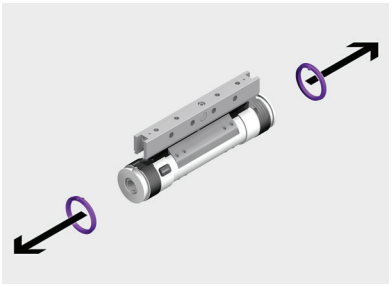


13. Remove the cushioning ring, piston seal and O-ring from the front and rear end cap module.

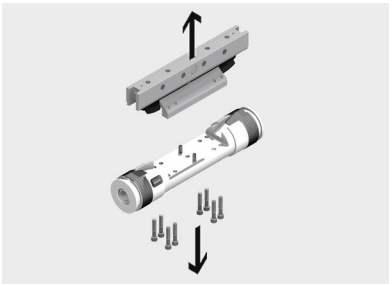


The **D2** variant does not have an O-ring.

14. Remove both piston seals from the piston body.

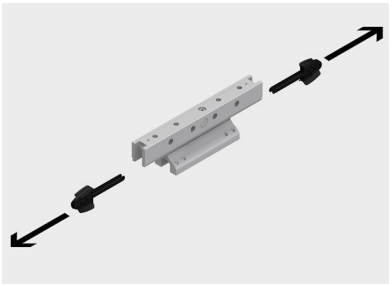


15. Unscrew the socket head screws from the piston body.
16. Carefully remove the piston from the piston body.



Some force is required to remove the piston from the piston body because the two components are positioned in relation to each other with clamping sleeves. For easier disassembly, a blunt, unpointed object can be used. The mounting surfaces of the two components must under no circumstances be damaged, otherwise there will no longer be a clean support surface.

17. Remove both diverters from the piston.



Assembling the linear drive

When assembling the linear drive, wearing parts such as the sealing band, cover strip, seals, covers, as well as the piston module and the end cap module can be replaced.

The wearing parts are ordered from the online spare parts catalogue (http://spareparts.festo.com) quoting the appropriate part number (dependent on the size of the linear drive).

Lubricating during assembly

1. Clean the cylinder barrel and all components, see Chapter 5 “Cleaning”.
2. Grease the following components as described.

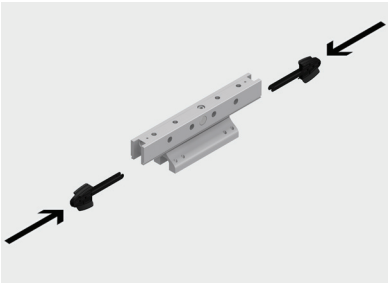
Note

Do not bend the sealing band as this may damage or tear it and reduce its service life.

Component	Lubricant	Greasing instructions
Cylinder barrel	Festo LUB-KC1[1)]	Apply a layer of grease to the slot and all around and along the entire length of the cylinder bore.
Sealing band	Festo LUB-KC1[1)]	Apply a layer of grease all around and along the entire length.
Piston	Festo LUB-KC1[1)]	Grease all around.
Piston seal	Festo LUB-KC1[1)]	Grease all around.
Seal	Festo LUB-KC1[1)]	Grease all around.
Clip slot on piston cap	Festo LUB-KC1[1)]	Fill with grease.
Groove base on piston cap	Festo LUB-KC1[1)]	Grease all around.
Diverter	Festo LUB-KC1[1)]	Grease in the deflection area.
Wiper seal	Festo LUB-KC1[1)]	Grease in the deflection area.
O-ring on connection cap	Festo LUB-KC1[1)]	Grease all around for simpler assembly.

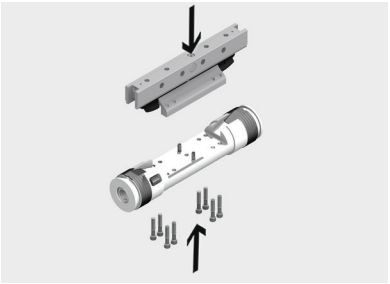
[1)] Further information on the lubricant is included in the information brochure **“Accessories, equipment and tools”**. This can be found in the online spare parts catalogue on the Festo website (http://spareparts.festo.com/xdki/data/SPC/0/PDF_SAFE/Hilfsmittel.pdf).

1. Snap both diverters into the piston.



Note

When pushing the piston onto the piston body, ensure that they do not tilt.

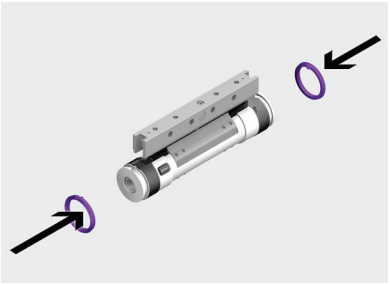


2. Push the piston onto the piston body.

Some force is required to push the piston onto the piston body because the two components are positioned in relation to each other with clamping sleeves.

3. Screw in the socket head screws and tighten them with a tightening torque of 9 Nm.

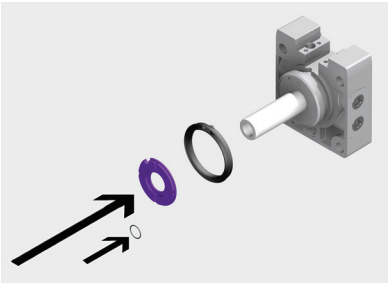
4. Push both piston seals onto the piston body.



Note

Ensure that the trunnion in the piston seal is correctly seated in the slot in the piston body.

5. Insert the cushioning ring, piston seal and O-ring into the front and rear end cap module.



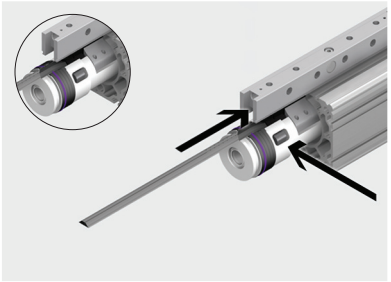
The **D2** variant does not have an O-ring.

Note

Do not bend or compress the sealing band during assembly as this may damage or tear it and reduce its service life. The sealing band must be inserted into the piston underneath the diverter.

6. Insert the sealing band into the piston module with the wider side of the sealing band facing downwards.

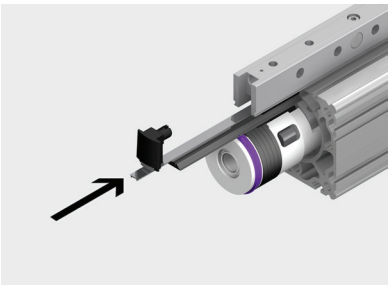
The overhang of the sealing band should be about the same on both sides of the piston.



Note

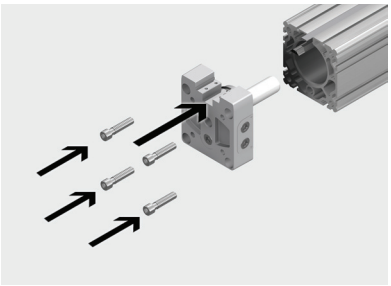
Observe the mounting direction of the piston module. The magnets face the front connection cap, i.e. the connection cap **without** the Festo logo.

7. Insert the piston module into the cylinder barrel.

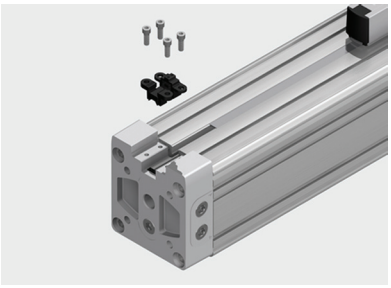


8. Insert the cover strip into the piston module with the two rounded edges facing downward toward the sealing band.
9. Pull the cover strip to the left until the thrust piece, spring and end cap can be installed.
10. Repeat this assembly step on the other end of the piston module.

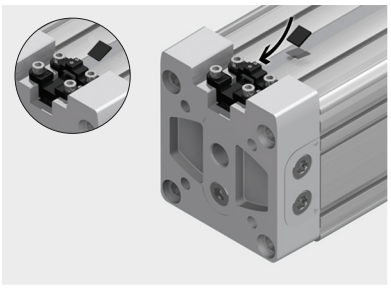
11. Push both end cap modules onto the cylinder barrel.
12. Remove the screw locking agent from the socket head screws.
13. Apply LOCTITE 243 to the socket head screws on the end cap module.
14. Screw in the socket head screws on the end cap module and tighten them with a tightening torque of 50 Nm ±20%.



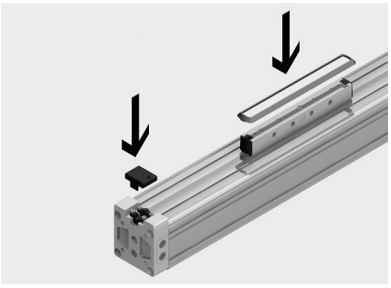
15. Place the sealing band on the end cap module and place the clamping component on the end cap module so that the sealing band is clamped between the end cap module and the clamping component.
16. Screw in the socket screws on the clamping component and tighten them to a tightening torque of 8 Nm ±20%.
17. Repeat the steps on the other end of the linear drive.



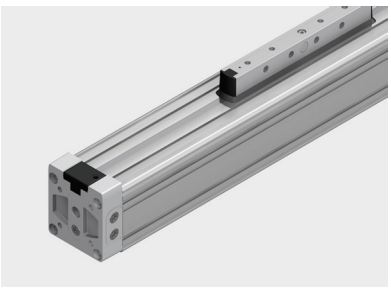
18. Position the cover strip by pulling the ends so that the overhang is approximately the same on both sides of the piston.
19. Insert the cover strip into the recess in the clamping component.
20. Place the plate onto the cover strip so that the rear side of the clamping component is flush with the plate.
21. Tighten the threaded pins to a torque of 2 Nm ±20%.



22. Place the wiper seals on the piston module.
23. Clip the cover onto the end cap module.



24. Carry out a functional test on the repaired linear drive or commission it as per the user manual included.



The user manual can also be viewed and downloaded on the Festo website (www.festo.com).

5 Cleaning

The cylinder and all components must be thoroughly cleaned of all foreign particles, machining residues and old lubricants before it is greased.

Note

Festo recommends LOCTITE 7061 or another suitable cleaning agent.

When using other cleaning agents, make sure that they do not corrode the non-metal parts of the linear drive. In case of doubt, check the resistance of the non-metal parts using the data on the Festo website (www.festo.com).

6 Maintenance

The DGC-K-... has a life-time lubrication, i.e. relubrication is not necessary.

6.1 Maintenance of the band system

- Clean the band system if required with a soft cloth.

Note

Avoid cleaning agents which will damage the belt system, which is made of PU. Excessive rubbing or the use of grease-solvent cleaning agents (e.g. soap suds) will damage the layer of grease.

7 Tools

This chapter provides an overview of the tools and aids required to repair and maintain the linear drive DGC-K in its various sizes.

7.1 Required tools

– Internal hex screwdriver
– Torque wrench
– Screwdriver, flat
– Flat pliers

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The latter applies particularly to extracts of the documents for the user’s own documentation. The guarantee and liability for separately available/supplied portable data storage media, i.e. with the exception of Electronic Documentation provided on the Internet/intranet, are limited exclusively to proper duplication of the software, whereby Festo guarantees that, in each case, the relevant portable data storage medium or software contains the latest status of the documentation. In respect of the electronic documentation available on the Internet/Intranet, there is no guarantee that it will have the same version status as the last printed edition.

2. Furthermore, Festo cannot be held liable for the lack of economic success or for damage or claims by third parties resulting from the use of the documentation by the user, with the exception of claims arising from infringement of the patent rights of third parties concerning the use of the electronic documentation.

3. The limitations on liability as per paragraphs 1 and 2 do not apply if, in cases of intent or gross negligence or lack of warranted quality, a compulsory liability exists. In such a case, Festo's liability is limited to the damage discernable by Festo when the concrete circumstances are made known.

V. Safety guidelines/documentation

Warranty and liability claims in conformity with the aforementioned regulations (points III. and IV) may be raised only if the user has observed the safety guidelines of the documentation in conjunction with the use of the machine and its safety guidelines. The user himself is responsible for ensuring that the electronic documentation, when not supplied with the product, matches the product actually used by the user.