

FAG



**Automatic Lubricators
»Compact« and »Champion« Motion Guard**

A Member of the
Schaeffler Group

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RELIABLE AND ECONOMIC LUBRICATION • ADVANTAGES

Reliable and economic lubrication for a long bearing life

Rolling bearings are reliable machine elements with a long service life. The most common cause of failure is insufficient or incorrect lubrication. About 90% of all bearings are lubricated with grease. A reliable supply of a suitable grease is therefore particularly important.

A sufficient amount of fresh grease is being constantly supplied to the contact areas of the rolling bearings by an automatic lubricator. The bearing service life is far longer as a result. The reliable and cost-effective devices extend lubrication and maintenance intervals and eliminate the risk of supplying too little or too much grease. The plant downtimes are shorter and maintenance costs less. The use of economical and environmentally friendly lubricants contributes towards greater operational efficiency.

The FAG lubricators, COMPACT and CHAMPION Motion Guard are individually adjusted to the bearing area and make costly central lubrication plants superfluous. They can be used everywhere: pumps, compressors and fans, conveyor plants, vehicles, etc. 8 and 14 Arcanol greases can be discharged with COMPACT and CHAMPION Motion Guard respectively (see page 11 for data).

Advantages

- Individual and precise supply to each bearing location immediately after setting into operation
 - Fully automatic, maintenance-free operation
 - Cuts staff costs in comparison to manual relubrication
 - 4 adjustable discharge periods (1, 3, 6 or 12 months)
 - No danger of mixing up lubricants
- Builds up pressure to 4 bar, (CHAMPION 5 bar) thus overcoming any hindrance
 - Extensive accessory programme

Each lubricator is delivered with detailed operating instructions.

The MOTION GUARD SELECT MANAGER software makes it easier to select a suitable design and lubricating greases (see also Publ. No. WL 81 116 for Arcanol greases).



MOTION GUARD SELECT MANAGER SOFTWARE

Selection software for lubricators

Taking the selected bearing type, its dimensions and the application conditions into consideration the MOTION GUARD SELECT MANAGER software allows the following with just a few mouse clicks:

- Selection of CHAMPION and COMPACT lubricators
- Determination of discharge periods / replenishment quantities
- Selection of suitable / preferred Arcanol lubricating greases
- Updated lubricating and maintenance plan

The program is available under www.fis-services.com from the Internet or it can be ordered directly from FAG as CD.

Bearings

Dimensions / Operating Conditions

Bearing Type
Deep Groove Ball Bearing

Bearing Dimensions
Inner Diameter d = 150 [mm]
Outer Diameter D = 225 [mm] into [mm] into [in]
Bearing Width B = 35 [mm]

Speed
n = 1000 [rpm]

Bearing Temperature
t = 50 [°C] into [°C] into [°F]

Ambient Temperature
T = 20 [°C] into [°C] into [°F]

Humidity / Dust
 None Low Moderate High Very High

Vibration
 None Moderate High

Load
 Low Moderate Heavy Very Heavy P/C = 0.10

Grease Selection Table:

Grease	Deep Temperature	High Temperature	Low Friction High Speed	High Load Low Speed	Vibration
MULTITOP	++	0	+	+	+
MULT12	+	0	0	0	0
MULT13	+	0	0	0	+
LOAD220	0	0	-	++	+
LOAD400	-	0	-	++	0
LOAD1000	0	0	--	++	+
TEMP90	++	+	0	0	0
TEMP110	++	++	+	0	0
TEMP120	+	++	-	++	0
TEMP200	++	++	--	+	-
SPEED2,6	++	0	++	--	-
V180	+	+	-	+	++
B102	+	+	0	0	+
FOOD2	-	+	0	0	0

Legend
 ++ extremely suitable
 + very suitable
 0 suitable
 - less suitable
 -- not suitable

Selected Lubricant

MOTION GUARD SELECT MANAGER Program

COMPACT MOTION GUARD

Features and Design

Features and design of COMPACT Motion Guard

The automatic FAG COMPACT motion guard lubricator is electro-chemically driven. Electrolyte is environmentally friendly citric acid.

The metal housing is filled with 120 cm³ FAG lubricating grease.

The device can build pressure up to 4 bar.

The automatic FAG COMPACT motion guard lubricator is suitable for the following FAG rolling bearing greases Arcanol:

MULTITOP*), MULTI2*), TEMP90, TEMP120, TEMP200, LOAD400, LOAD1000 and FOOD2.

*) only for discharge periods 1, 3 and 6 months

The suitable rolling bearing grease and the discharge period are selected with the MOTION GUARD SELECT MANAGER program (see page 2).

The discharge period is set with differently coloured activating screws:

- yellow = 1 month,
- green = 3 months,
- red = 6 months,
- grey = 12 months.

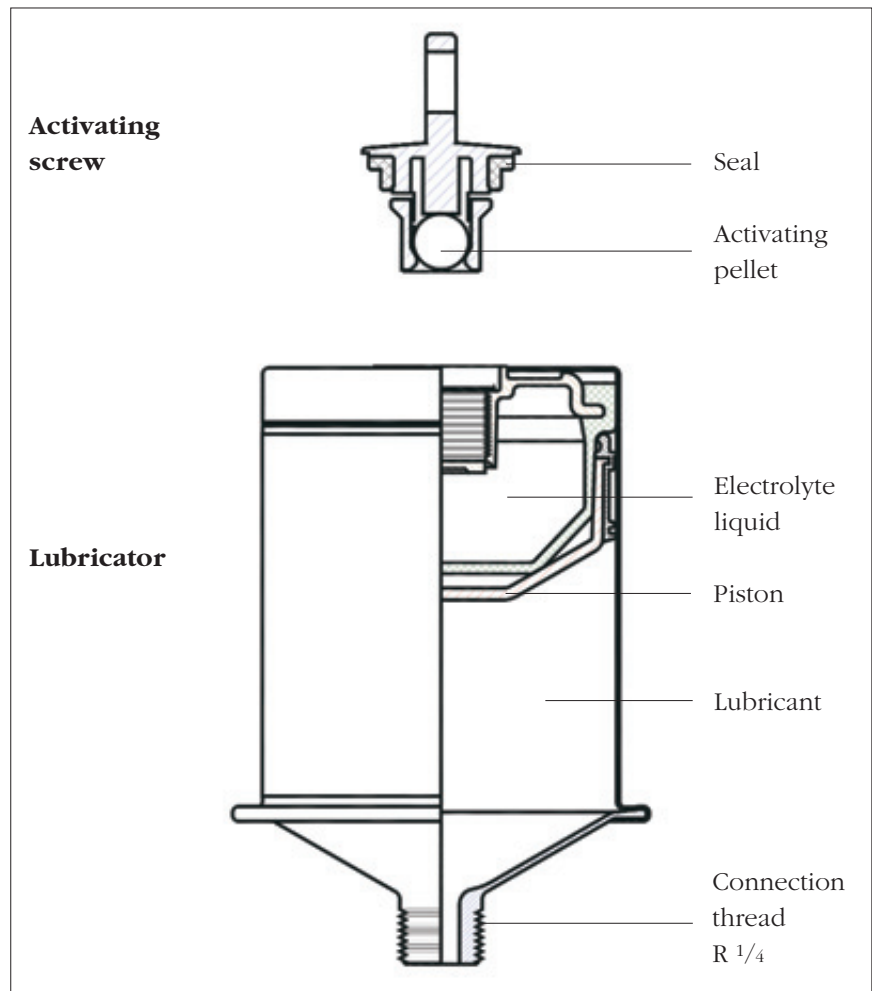
The chart, above right, shows the discharge periods and their volumes.

The empty units can be environmentally friendly disposed.

Discharge period (Screw colors)	Discharge volume cm ³ /day
1 month (yellow)	4
3 months (green)	1.33
6 months (red)	0.67
12 months (grey)	0.33



Discharge periods and volumes Activating screws



COMPACT MOTION GUARD

Order designations • Technical data

Lubricator Set

consists of:
 housing filled with 120 cm³ grease
 includes activating screw
 Mass: (ready-to-use): ca. 260 g

Ordering examples:

ARCA.LUB.TEMP90.1M

(Filled with TEMP90, activating screw for one month)

ARCA.LUB.TEMP120.3M

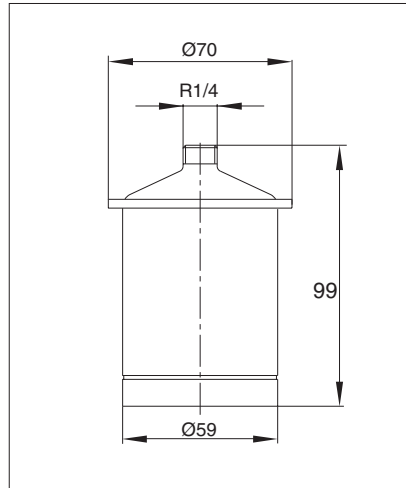
(Filled with TEMP120, activating screw for 3 months)

ARCA.LUB.TEMP200.6M

(Filled with TEMP200, activating screw for 6 months)

ARCA.LUB.LOAD400.12M

(Filled with LOAD400, activating screw for 12 months)



ARCA.LUB.TEMP200.6M

ARCA.LUB.LOAD1000.1M

(Filled with LOAD1000, activating screw for 1 month)

ARCA.LUB.FOOD2.3M

(Filled with FOOD2, activating screw for 3 months)

Activating screws

for 1 month (yellow)
 order designation:

ARCA.LUB.ACTIVE.1M

for 3 months (green)
 order designation:

ARCA.LUB.ACTIVE.3M

for 6 months (red)
 order designation:

ARCA.LUB.ACTIVE.6M

for 12 months (grey)
 order designation:

ARCA.LUB.ACTIVE.12M



Technical data

Discharge period: 1, 3, 6 or 12 months

Discharge volumes: 120 cm³

Lubricant: FAG rolling bearing greases

Arcanol:
 MULTITOP*), MULTI2*),

TEMP90, TEMP120, TEMP200,
 LOAD400, LOAD1000 or FOOD2

*) only for 1M, 3M and 6M

Operating pressure: max. 4 bar

Temp. of application: 0 to +40 °C

Explosion-proof

Connection thread R 1/4

Use within: 2 years after filling

Storage period: 1 year

CHAMPION MOTION GUARD

Features and Design

Features and Design of CHAMPION Motion Guard

The automatic FAG lubricator, CHAMPION Motion Guard is driven electromechanically. The robust electronically controlled back-gearred motor can be reused. The battery set can be exchanged but not recharged. The LC-unit (Lubricant Canister) screwed to the drive unit has a volume of 120 or 250 cm³. It can be delivered – like the complete sets – filled with FAG lubricating grease or a special grease or even empty, see ordering examples on page 6/7.

The device can build pressure up to 5 bar. After a few start up attempts the system automatically shuts off at this maximum pressure.

The CHAMPION Motion Guard lubricator is suitable for all the Arcanol lubricating greases listed on page 11.

The suitable rolling bearing grease and the discharge period are selected with the MOTION GUARD SELECT MANAGER program (see page 2).

The discharge period is set at 1, 3, 6 or 12 months at the operating end. The chart, above right, shows the discharge periods and their volumes.

The lubricator is attached to the lubrication point (connection thread G¹/₄) via an adapter (included in delivery).

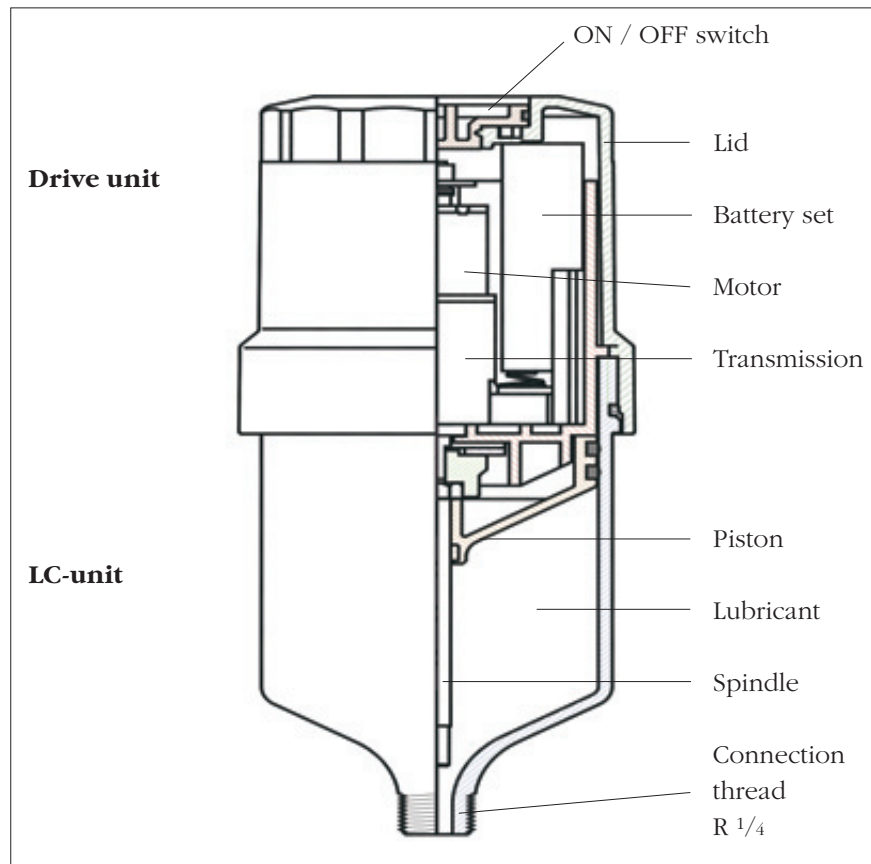
The empty LC-unit cannot be re-filled.

Function displays on the drive unit:

- Green flash (every 15 seconds): OK
- Red flash (every 8 seconds): Malfunction
- Green/red flash (every 3 seconds): LC-unit empty
- Permanently red: discharge process

Dis-charge period	Discharge volumes			
	LC-unit 120 cm ³		LC-unit 250 cm ³	
	cm ³ / day	cm ³ / week	cm ³ / day	cm ³ / week
1 month	4	28	8.33	58.33
3 months	1.33	9.33	2.78	19.44
6 months	0.67	4.67	1.39	9.72
12 months	0.33	2.33	0.69	4.86

Discharge periods and volumes



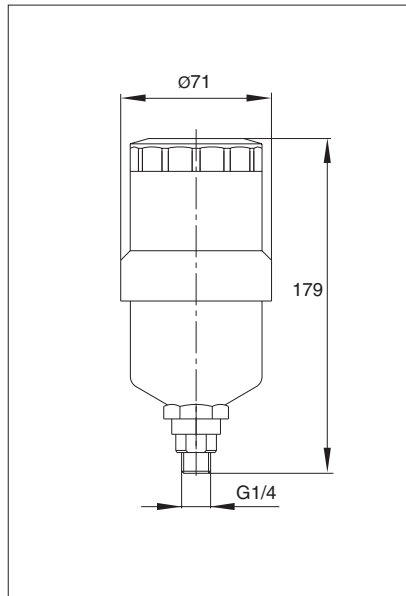
CHAMPION MOTION GUARD

Order designations • Technical data

Lubricator Set

consists of:
 LC-unit 120 cm³ with set of batteries
 Drive
 Supporting adapter
 Mass (ready-to-use):
 ca. 555 g

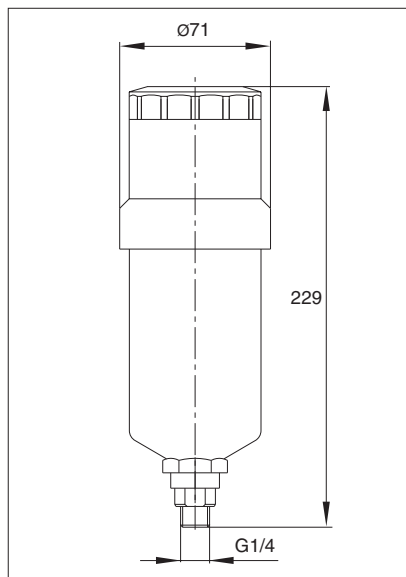
Ordering example:
ARCA.LUB.MULTITOP.LC120.SET
 (swop MULTITOP with appropriate designation when filling with another Arcanol grease;
 designation unfilled:
ARCA.LUB.EMPTY.LC120.SET)



Lubricator Set

consists of:
 LC-unit 250 cm³ with set of batteries
 Drive
 Supporting adapter
 Mass (ready-to-use):
 ca. 720 g

Ordering example:
ARCA.LUB.MULTITOP.LC250.SET
 (swop MULTITOP with appropriate designation when filling with another Arcanol grease;
 designation unfilled:
ARCA.LUB.EMPTY.LC250.SET)



Technical data

Discharge period: 1, 3, 6 or 12 months
 Discharge volumes: 120 or 250 cm³
 Lubricant: FAG rolling bearing greases
 Arcanol as listed on page 11
 Operating pressure: max. 5 bar

Application temperature: -10 to +50 °C
 Power supply: 3x1.5 V batteries (set)
 Protection class: IP 65
 Connection thread: R 1/4
 Use within: 2 years after filling the LC-unit
 Storage period: 1 year (LC-unit and batteries at +20 °C), Unlimited drive

CHAMPION MOTION GUARD

Spare Parts

LC-unit 120 cm³

with set of batteries

Mass (full): ca. 275 g

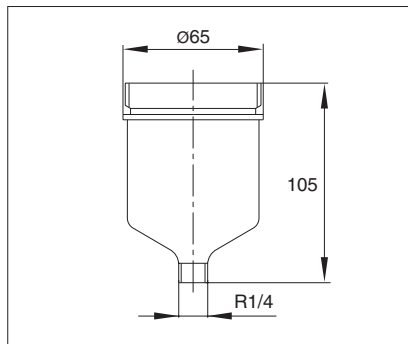
Ordering example:

ARCA.LUB.MULTITOP.LC120

(swop MULTITOP with appropriate designation when filling with another Arcanol grease;

designation unfilled:

ARCA.LUB.EMPTY.LC120)



LC-unit 250 cm³

with set of batteries

Mass (full): ca. 435 g

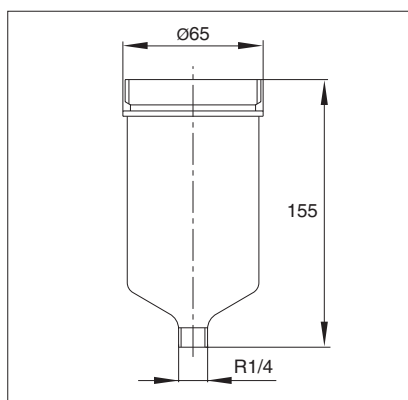
Ordering example:

ARCA.LUB.MULTITOP.LC250

(swop MULTITOP with appropriate designation when filling with another Arcanol grease;

designation unfilled:

ARCA.LUB.EMPTY.LC250)

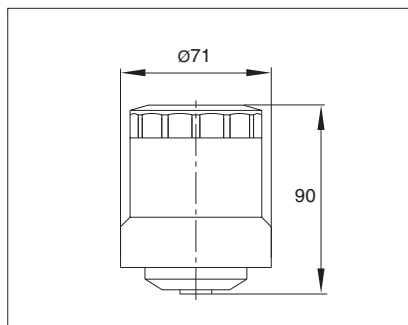


Drive unit

Mass: ca. 210 g

Order designation:

ARCA.LUB.DRIVE

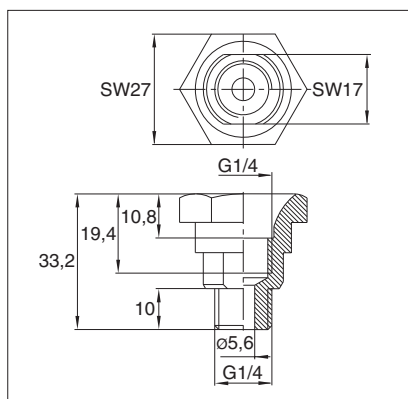


Supporting adapter

Mass: ca. 54 g

Order designation:

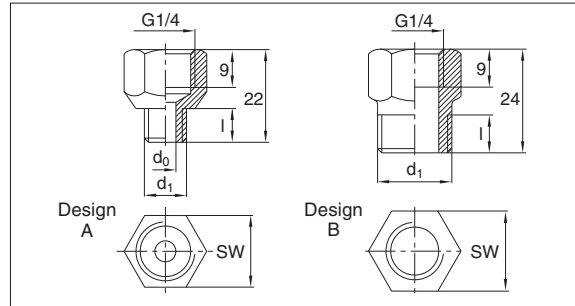
ARCA.LUB.ADAPTER



COMPACT AND CHAMPION MOTION GUARD

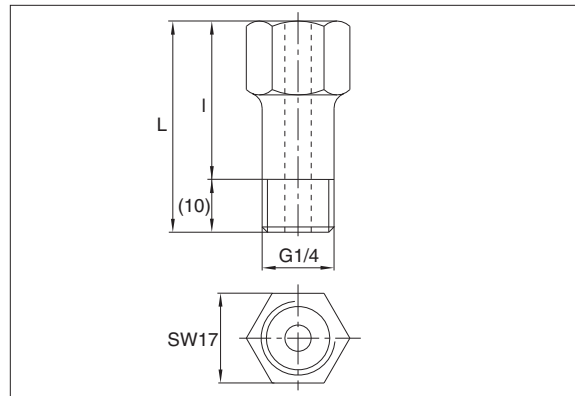
Accessories

Reduction pieces



Order designation	Design	Dimensions		l	SW	Mass ≈ g
		d ₁ mm	d ₀			
ARCA.LUB.NIPPLE.M6	A	M6	2.5	7	17	14
ARCA.LUB.NIPPLE.M8	A	M8	4	8	17	15
ARCA.LUB.NIPPLE.M8X1	A	M8x1	4	8	17	15
ARCA.LUB.NIPPLE.M10	A	M10	5	8	17	17
ARCA.LUB.NIPPLE.M10X1	A	M10x1	5	8	17	17
ARCA.LUB.NIPPLE.M12	A	M12	6	8	17	19
ARCA.LUB.NIPPLE.M12X1,5	A	M12x1.5	6	8	17	19
ARCA.LUB.NIPPLE.G ¹ / ₈	A	G ¹ / ₈	5	8	17	17
ARCA.LUB.NIPPLE.G ³ / ₈	B	G ³ / ₈	-	9	19	21
ARCA.LUB.NIPPLE.G ¹ / ₂	B	G ¹ / ₂	-	10	22	25

Extensions



Order designation	Dimensions		Mass
	l mm	L	≈ g
ARCA.LUB.PIPE.30	30	40	28
ARCA.LUB.PIPE.45	45	55	47
ARCA.LUB.PIPE.75	75	85	74
ARCA.LUB.PIPE.115	115	125	104

COMPACT AND CHAMPION MOTION GUARD

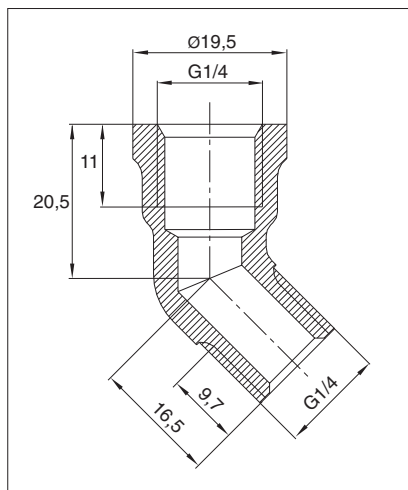
Accessories

Angle piece 45°

Mass: ca. 30 g

Order designation:

ARCA.LUB.ANGLE.45

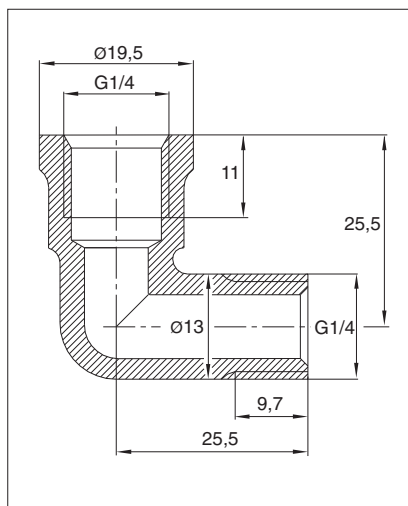


Angle piece 90°

Mass: ca. 35 g

Order designation:

ARCA.LUB. ANGLE.90

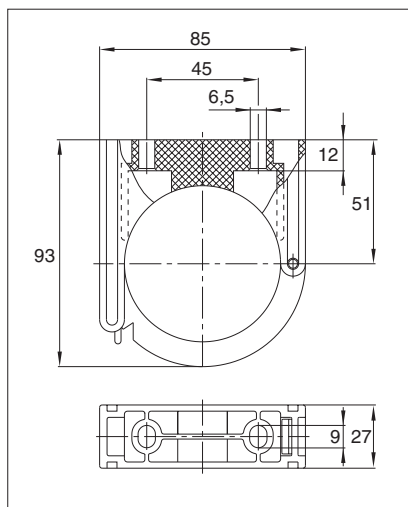


Holding clip

Mass: ca. 15 g

Order designation:

ARCA.LUB.CLIP



COMPACT AND CHAMPION MOTION GUARD

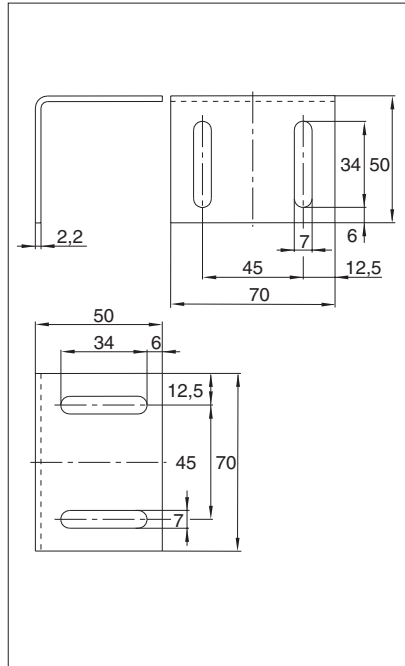
Accessories

Mounting angle

Mass: ca. 100 g

Order designation:

ARCA.LUB.MOUNTINGANGLE



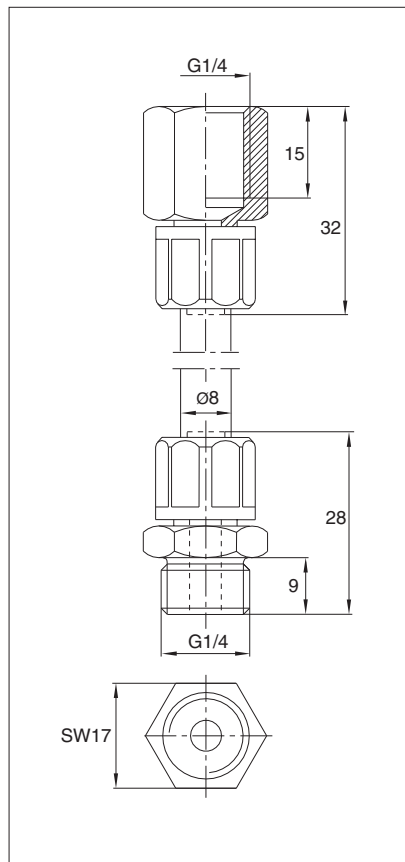
Tube with connections

3 m long, G 1/4

Mass: ca. 100 g

Order designation:

ARCA.LUB.TUBE



ARCANOL ROLLING BEARING GREASES

Arcanol (former designation)	Thickener Base oil	Viscosity of base oil at 40° C mm ² /s	Consistency NLGI class DIN 51818	Temp. range °C	Main characteristics Typical applications	Suitable for
MULTITOP (L135V)	Lithium soap with EP additives Mineral oil	85	2	-40...+150	Universal grease for ball and roller bearings, for high stress, increased speed, low and high temperatures Rolling mills, construction machinery, motor vehicles, spinning and grinding spindles	CHAMPION (COMPACT: 1M, 3M, 6M)
MULTI2 (L78V)	Lithium soap Mineral oil	ISO VG 100	2	-30...+140	Universal grease, especially for ball bearings with O. D. ≤ 62 mm Small electric motors, agricultural and construction machinery, household equipment	CHAMPION (COMPACT: 1M, 3M, 6M)
MULTI3 (L71V)	Lithium soap Mineral oil	80	3	-30...+140	Universal grease, especially for ball bearings with O. D. > 62 mm Large electric motors, agricultural and construction machinery, fans	CHAMPION
LOAD220 (L215V)	Lithium/calcium soap with EP additives Mineral oil	ISO VG 220	2	-20...+140	Special grease for ball and roller bearings, for high stress, large speed range, extremely moist conditions Rolling mill bearings, rail-bound vehicles	CHAMPION
LOAD400 (L186V)	Lithium/calcium soap with EP additives Mineral oil	400	2	-25...+140	Special grease for ball and roller bearings, for high stress, medium speed, medium temperatures Mining machines, construction machinery	CHAMPION COMPACT
LOAD1000 (L223V)	Lithium/calcium soap with EP additives Mineral oil	ISO VG 1000	2	-20...+140	Special grease for ball and roller bearings, for high stress, slow speed, medium temperatures Mining machines, construction machinery, preferably for impact load and large bearings	CHAMPION COMPACT
TEMP90 (L12V)	Calcium- polyurea with EP additives PAO	130	2	-40...+160	Special grease for ball and roller bearings, for high temperatures and high loads Couplings, electric motors, motor vehicles	CHAMPION COMPACT
TEMP110 (L30V)	Lithium- complex soap Ester oil	ISO VG 150	2	-40...+160	Special grease for ball and roller bearings, for high temperatures, high speed Electric machines, motor vehicles	CHAMPION
TEMP120 (L195V)	Polyurea with EP additives PAO/ester oil	ISO VG 460	2	-35...+180	Special grease for ball and roller bearings, for high temperatures, high load Continuous casting mills	CHAMPION COMPACT
TEMP200 (L79V)	PTFE Fluorinated polyether oil	400	2	-40...+260	Special grease for ball and roller bearings, for top temperatures, chemically aggressive environment Support rollers in baking machines, piston pins in compressors, furnace carriages, chemical plants	CHAMPION COMPACT
SPEED2,6 (L75)	Polyurea PAO/ester oil	ISO VG 22	2-3	-50...+120	Special grease for ball bearings, for top speeds, low temperatures Machine tools, instruments	CHAMPION
VIB3 (L166V)	Lithium- complex soap with EP additives Mineral oil	170	3	-30...+150	Special grease for ball and roller bearings for high temperatures, high stress, oscillating movements Rotor blade adjustment in wind power stations, packaging equipment	CHAMPION
BIO2	Lithium-/ calcium soap Ester oil	58	2	-30...+120	Special grease for ball and roller bearings in environmentally-dangerous applications	CHAMPION
FOOD2	Aluminium- complex soap White oil	192	2	-30...+120	Special grease for ball and roller bearings in applications with foodstuff contact, H1 according to USDA	CHAMPION COMPACT

FAG HOUSINGS WITH LUBRICATOR

FAG housings with lubricator

FAG housings are also available in complete with one of the two lubricators.

The LUB Technical Specification insures that the lubricator selected can be connected directly to the housing ordered without any extra work. An adapter is supplied with the set when the threads of the lubricating hole and the lubricator differ.

The escape of excess grease should be insured when relubricating.

LUB Technical Specification for Motion Guard CHAMPION and COMPACT

1st recognition letter	Grease type	Grease suitable for	
		CHAMPION	COMPACT
A	MULTITOP	+	+ ¹⁾
B	MULTI2	+	+ ¹⁾
C	MULTI3	+	-
D	LOAD220	+	-
E	LOAD400	+	+
F	LOAD1000	+	+
G	TEMP90	+	+
H	TEMP110	+	-
I	TEMP120	+	+
J	TEMP200	+	+
K	SPEED2,6	+	-
L	VIB3	+	-
M	BIO2	+	-
N	FOOD2	+	+
		+ ¹⁾ only for 1M, 3M, 6M	

2nd recognition letter

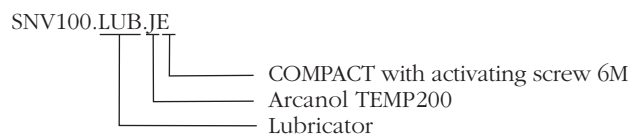
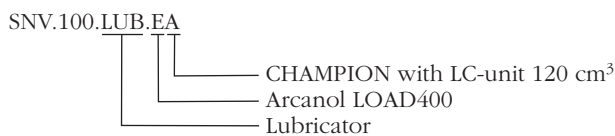
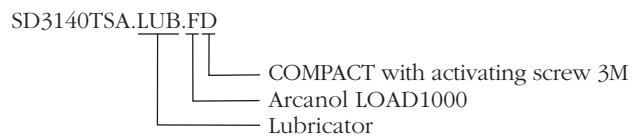
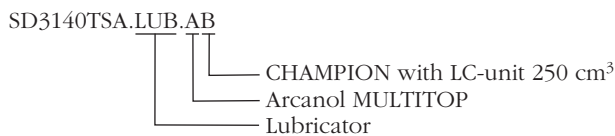
LC-unit (lubricant canister) filled with
120 or 250 cm³ for CHAMPION

Activating screw for 1, 3, 6 or 12 months for COMPACT

A	ARCA.LUB.Fett.LC120.SET	
B	ARCA.LUB.Fett.LC250.SET	
C		ARCA.LUB.Fett.1M
D		ARCA.LUB.Fett.3M
E		ARCA.LUB.Fett.6M
F		ARCA.LUB.Fett.12M

„Fett“ means one of the suitable greases (see 1st recognition letter).

Ordering examples for lubricators



FAG Kugelfischer AG
Business Unit Industrial
Bearings and Services

Postfach 1260

D-97419 Schweinfurt

Georg-Schäfer-Straße 30

D-97421 Schweinfurt

Service hotline:

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E-mail: support@fis-services.de

www.fis-services.com

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WL 81 122/3 EA