



Progressive lubrication systems

Product catalogue



Content

Two leading brands	6	Overview of oil and fluid grease pumps	69
Classification of lubricants	7	QLS 311.....	70
Progressive lubrication systems for oil, fluid grease and grease8		MCLP.....	72
Overview of grease pumps and pump units	11	Overview of metering devices	75
P 203	14	SSVM	76
KFG	16	SSVD	78
KFA.....	18	SSVDL	80
QLS 301 SSV	20	SPVS	82
QLS 401 SSV	22	VPB	84
QLS 401 SSVDV.....	24	SSV	86
QLS 421.....	26	SSVL	88
P 502.....	28	VPK	90
P 223/P 233	30	VP	92
P 603 M	32	MC ² -HP	94
ZPU 01/02.....	34	PSG1	96
EDL1	36	PSG2	98
PPU-5/PPU-35.....	38	PSG3	100
87214	40	UV	102
87200/87216/130179	42	XL	104
PP/PPG.....	44	Overview of control units	107
PFP-23-2/PFP-23-22.....	46	LMC 101	108
EPB	48	LMC 2	109
87212	50	LMC 301	110
87202	52	EOT-2	111
PHU-5/PHU-35	54	IG 502-2-E+	112
PFH-23-2/PFH-23-22.....	56	LC 502	113
HP/HPG.....	58	EXZT/IGZ51.....	114
HP-500W/HP-500W-SSV.....	60	ST-102	116
PF-VPBM/169-000-146	62	ST-1240-GRAPH-4.....	117
HJ 2.....	64	ST-1340 and ST-1440.....	118
PF-23-2/PF-23-22	66	Overview of monitoring devices	121
		HCC	122
		SmartPlug lubrication control	124
		Universal piston detector	125
		SP/SFE30.....	126
		800030	127
		Index of order numbers	128

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This catalogue contains the global range of SKF lubrication systems products. Please contact your local country sales or customer service organization for availability in your area.

Navigation

Oil and fluid grease

Pumps and pump units	68
Metering devices	74



Oil and fluid grease

Grease

Pumps and pump units	10
Metering devices	74



Grease

System accessories

Control units	106
Monitoring devices	120



Accessories

SKF – the knowledge engineering company

From one simple but inspired solution to a misalignment problem in a textile mill in Sweden, and fifteen employees in 1907, SKF has grown to become a global industrial knowledge leader.



Over the years we have built on our expertise in bearings, extending it to seals, mechatronics, services and lubrication systems. Our knowledge network includes 46 000 employees, 15 000 distributor partners, offices in more than 130 countries, and a growing number of SKF Solution Factory sites around the world.

Research and development

We have hands-on experience in over forty industries, based on our employees' knowledge of real life conditions. In addition our world-leading experts and university partners who pioneer advanced theoretical research and development in areas including tribology, condition monitoring, asset management and bearing life theory. Our ongoing commitment to research and development helps us keep our customers at the forefront of their industries.

Meeting the toughest challenges

Our network of knowledge and experience along with our understanding of how our core technologies can be combined helps us create innovative solutions that meet the toughest of challenges. We work closely with our customers throughout the asset life cycle, helping them to profitably and responsibly grow their businesses.

Working for a sustainable future

Since 2005, SKF has worked to reduce the negative environmental impact from our own operations and those of our suppliers. Our continuing technology development introduced the SKF BeyondZero portfolio of products and services which improve efficiency and reduce energy losses, as well as enable new technologies harnessing wind, solar and ocean power. This combined approach helps reduce the environmental impact both in our own operations and in our customers'.

SKF Solution Factory makes SKF knowledge and manufacturing expertise available locally, to provide unique solutions and services to our customers.

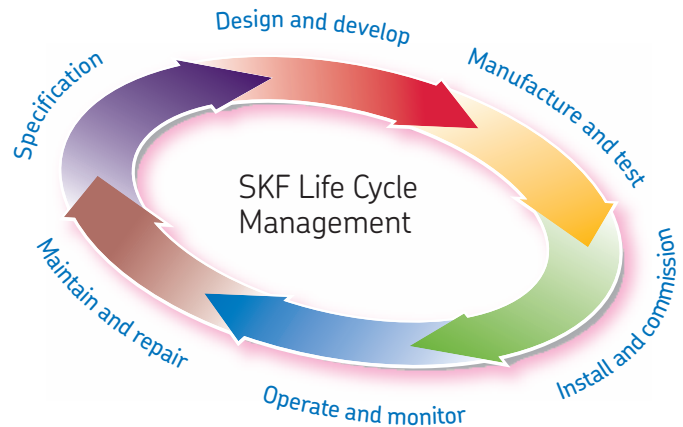


Working with SKF IT and logistics systems and application experts, SKF Authorized Distributors deliver a valuable mix of product and application knowledge to customers worldwide.



Our knowledge – your success

SKF Life Cycle Management is how we combine our technology platforms and advanced services, and apply them at each stage of the asset life cycle, to help our customers to be more successful, sustainable and profitable.



Working closely with you

Our objective is to help our customers improve productivity, minimize maintenance, achieve higher energy and resource efficiency, and optimize designs for long service life and reliability.



Bearings

SKF is the world leader in the design, development and manufacture of high performance rolling bearings, plain bearings, bearing units and housings.

Innovative solutions

Whether the application is linear or rotary or a combination of the two, SKF engineers can work with you at each stage of the asset life cycle to improve machine performance by looking at the entire application. This approach doesn't just focus on individual components like bearings or seals. It looks at the whole application to see how each component interacts with the next.



Machinery maintenance

Condition monitoring technologies and maintenance services from SKF can help minimize unplanned downtime, improve operational efficiency and reduce maintenance costs.

Design optimization and verification

SKF can work with you to optimize current or new designs with proprietary 3-D modeling software that can also be used as a virtual test rig to confirm the integrity of the design.



Sealing solutions

SKF offers standard seals and custom engineered sealing solutions to increase uptime, improve machine reliability, reduce friction and power losses, and extend lubricant life.



Mechatronics

SKF fly-by-wire systems for aircraft and drive-by-wire systems for off-road, agricultural and forklift applications replace heavy, grease or oil consuming mechanical and hydraulic systems.



Lubrication solutions

From specialized lubricants to state-of-the-art lubrication systems and lubrication management services, lubrication solutions from SKF can help to reduce lubrication related downtime and lubricant consumption.



Actuation and motion control

With a wide assortment of products – from actuators and ball screws to profile rail guides – SKF can work with you to solve your most pressing linear system challenges.

Two leading brands



SKF®



LINCOLN®

Oil and fluid grease

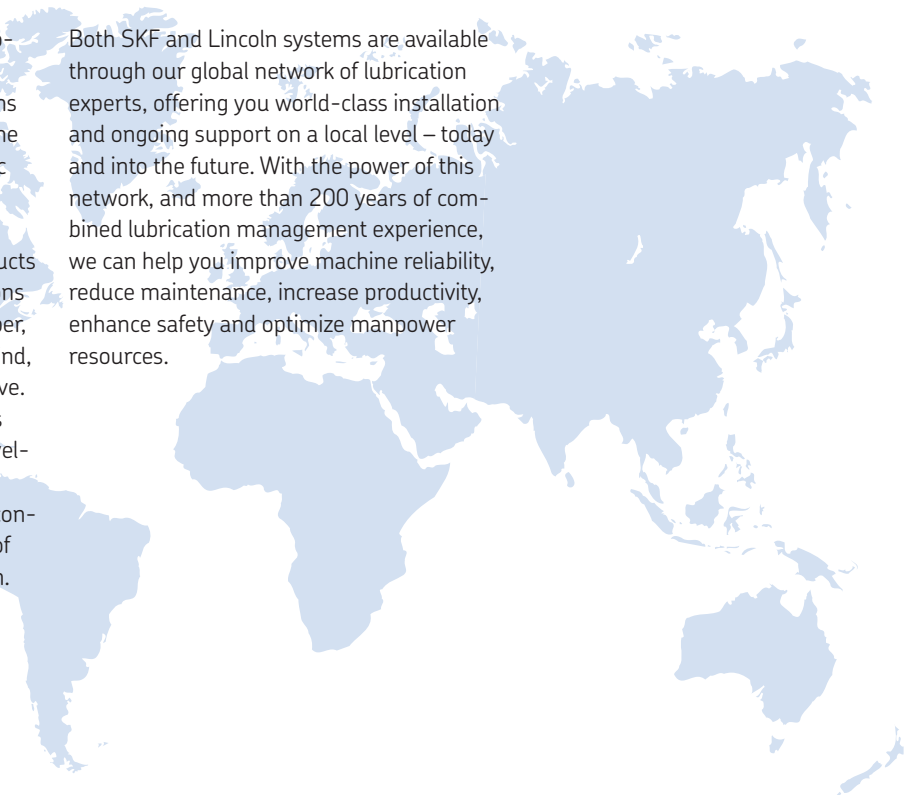
Grease

One global leader

SKF and Lincoln have joined forces to provide you with the world's most complete portfolio of innovative lubrication solutions – from manual lubricators and tools, to the most advanced centralized and automatic lubrication systems available.

In addition to traditional lubrication products and systems, we offer customized solutions for many industries such as pulp and paper, steel, mining, agriculture, marine, rail, wind, construction, machine tool and automotive. SKF engineering and technical specialists partner with OEMs and end-users to develop system solutions based on customer requirements. We also offer a variety of control and monitoring equipment for ease of use and to help ensure proper lubrication.

Both SKF and Lincoln systems are available through our global network of lubrication experts, offering you world-class installation and ongoing support on a local level – today and into the future. With the power of this network, and more than 200 years of combined lubrication management experience, we can help you improve machine reliability, reduce maintenance, increase productivity, enhance safety and optimize manpower resources.



Classification of lubricants



Oil and fluid grease

The viscosity is an expression of a fluid's internal friction. Oils are classified in ISO VG viscosity classes from 2 to 3 200. NLGI grade 000, 00 and 0 greases are called fluid greases.

Different types of oils are available, including mineral oils, organic oils and synthetic oils. A compatibility check is recommended prior to using any oil with SKF lubrication systems.



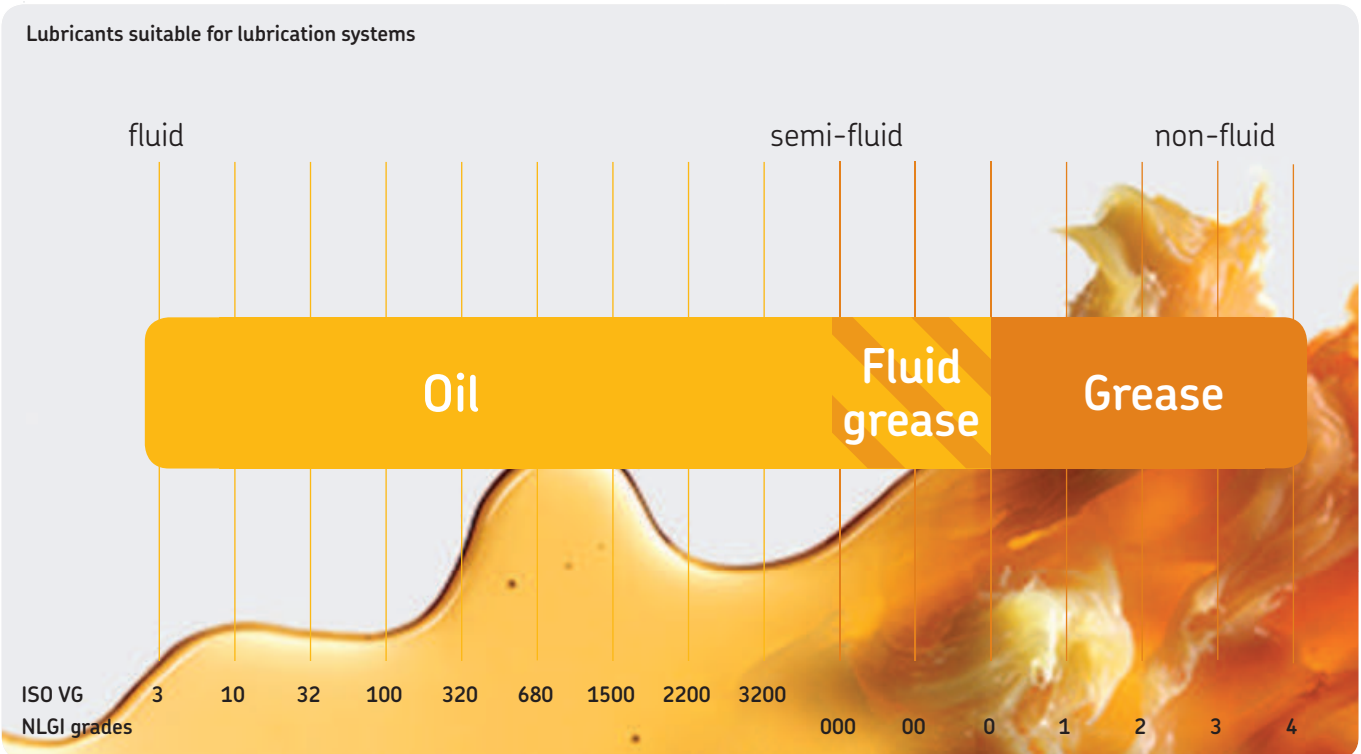
Grease

Greases are consistent lubricants (NLGI grade 1–6). They are soft to hard, triple-component mixtures of a base oil as the lubricating fluid, a thickening agent and additives.

In most instances, greases of NLGI grade 1 up to 3 are suitable for use in a lubrication system. A compatibility check should be made prior to using any grease with SKF lubrication systems.

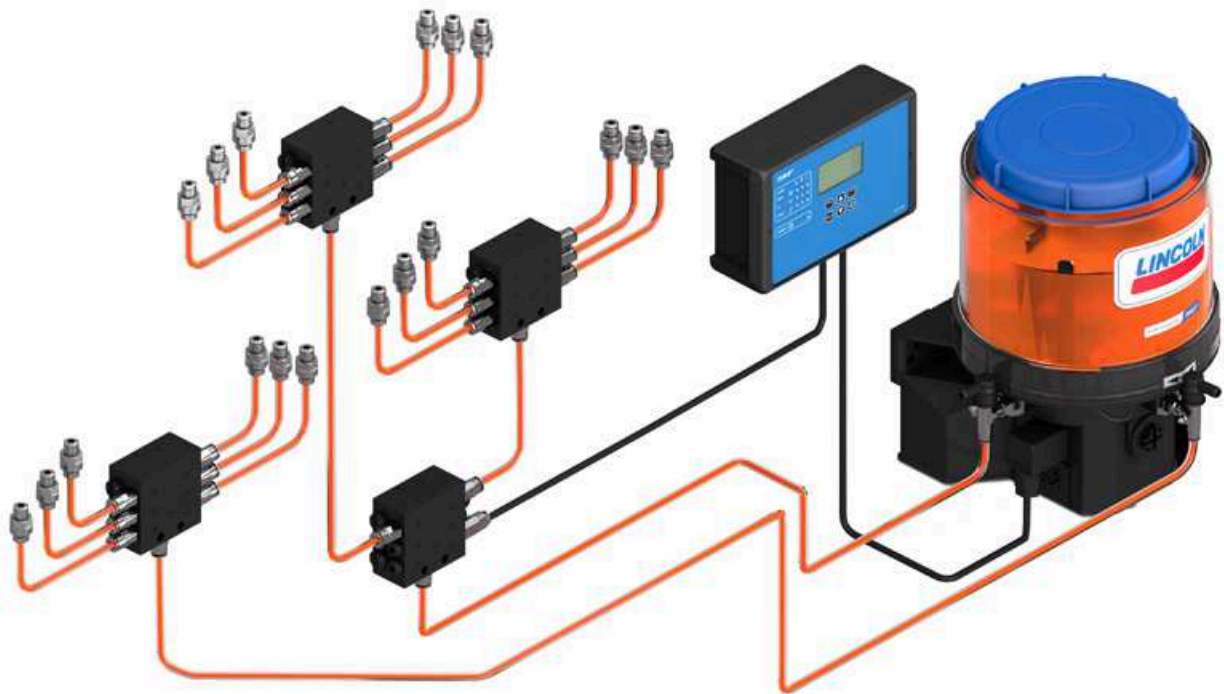
Oil and fluid grease

Grease



PUB LS/P1 16964 EN

Progressive lubrication systems for oil, fluid grease and grease



Oil and fluid grease

Grease

System description

SKF progressive systems, SKF ProFlex and Lincoln Quicklub, can be used on small- to medium sized machines with dispersed lubrication points that require varying lubrication quantities.

Progressive systems consist of a pump connected to at least one primary metering device. If needed, second level metering devices can be connected to the outlets of the primary metering device to increase the number of lubricated points, depending on operating pressure of the pump. The outlets of the primary and second level metering devices are connected via branch lines to the lubrication points of the machine. A third level of metering devices is not recommended. The pump supplies lubricant to the metering devices with pressure up to 550 bar (8 000 psi), depending on the pump model.

The metering devices split the lubricant into even or predefined amounts of lubricant, depending on metering device, that are positively displaced to the lubrication points or to the inlet of a connected second-

ary metering device. The lubricant amount provided by each outlet of the metering device depends on the type of metering device being used. SKF offers progressive systems that can dispense a precise, metered amount of lubricant to up to 150 lubrication points over distances of approximately 15 m (16 yd), depending on case values. For oil applications, even in connection with flow limiters we can cover distances over 100 m (110 yd), see also our portfolio brochure Oil Circulation Systems. SKF progressive systems provide continuous lubrication as long as the pump is in operation. Once the pump stops, the pistons of the progressive metering device will stop in their current positions. When the pump starts supplying lubricant again, the pistons will carry on where they left. Therefore, the progressive circuit of one outlet of the pump will stop when only one lubrication point is blocked. The blockage serves as a means of control and forces personnel to service the system. Only one outlet of a primary or a secondary

metering device of one pump outlet can be monitored visually or electrically, depending on the chosen metering device.

For planning a lubrication system, conditions the system will be used in need to be determined first. The number of lube points, back pressures at the lube points, operating temperature range, lubricant, the feed pump's drive energy, control and monitoring etc. need to be defined correctly. Attention to information on bearing or lube point information need to be paid too. The sum of all the quantities metered out by the system's metering devices needs to be completed by safety margin and expansion and compressibility loss. SKF application engineers as well as SKF sales partners and distributors are experts in systems laying out lubrication according to all these specifications. A lubrication system laid out by SKF and partners ensures the supply of the correct amount of lubricant at the best time to lubricate. This reduces wear and it avoids pollution caused by over-lubrication.

Systems and applications

Applications

The systems are suitable for a variety of applications including: construction machines (concrete pumps, mortar pumps, loaders, excavators, trenchers); on-road trucks (snow removal, waste press); buses; agricultural machines (harvesters, balers, manure spreaders, sugar cane loaders); wood reclaimers; and material handling (reach stackers, crane carts). In addition, progressive lubrication systems are suitable for use in asphalt mixing plants, wind turbine generators and food and beverage facilities (fillers, washing machines), reciprocating compressors in the Oil & Gas industry, among many others.

SKF progressive systems are reliable and operate effectively in harsh conditions (inclusive ATEX) with potentially high lubrication-point back pressure, dirty, wet or humid environments and low temperatures.



Progressive lubrication systems



Grease

Pumps and pump units



Overview of grease pumps and pump units

Electrically operated pumps and pump units ¹⁾

Product	Metering quantity per pump element		Reservoir		Operation pressure max.		Page
	cm ³ /min	in ³ /min	l	gal	bar	psi	
P 203	0,7–4,0	0.042–0.244	2–15	0.53–4.0	350	5 075	14
KFG	0,8–5,0	0.049–0.305	2–20	0.53–5.28	300	4 350	16
KFA	1,0–2,0	0.061–0.122	1	0.26	300	4 350	18
QLS 301 SSV	1,0	0.06	1	0.26	205	3 000	20
QLS 401 SSV	1,0	0.06	1–2	0.26–0.53	205	3 000	22
QLS 401 SSV DV	1,0	0.06	1–2	0.26–0.53	205	3 000	24
QLS 421	1,0	0.06	1–2	0.26–0.53	205	3 000	27
P 502	1,0–2,4	0.06–0.15	1	0.26	270	4 000	28
P 223 / P 233	0,7–4,0	0.042–0.244	2–15	0.53–4.0	350	5 075	30
P 603M	4,0–12,0	0.24–0.73	4–20	1.05–5.28	350	5 075	32
ZPU 01/02	13,3–53,3	0.83–3.25	10–30	2–8	350	5 075	34

¹⁾ These pumps are recommended by SKF for the use in grease progressive lubrication systems but can be used in many cases also with oil progressive lubrication systems. For further details please see the technical data information shown on the specific product pages.

Electrically operated pressure booster pumps ¹⁾

Product	Metering quantity per pump element		Reservoir		Operation pressure max.		Page
	cm ³ /min	in ³ /min	l	gal	bar	psi	
EDL1	0,5–1,0	0.03–0.06	–	–	280	4 015	36

¹⁾ These pumps are recommended by SKF for the use in grease progressive lubrication systems but can be used in many cases also with oil progressive lubrication systems. For further details please see the technical data information shown on the specific product pages.

Air-operated pumps and pump units ¹⁾

Product	Metering quantity		Reservoir		Operation pressure		Page
	cm ³ /stroke	in ³ /stroke	l	gal	bar	psi	
PPU-5	0,10–0,50	0.006–0.030	2,5; 5,0	0.66; 1.32	160	2 320	38
PPU-35	0,70–3,50	0.042–0.210	2,5; 5,0	0.66; 1.32	160	2 320	38
87214	0,164–0,98	0.01–0.06	–	–	4–14	60–200	40
87216	0,01–0,05	0.01–0.05	–	–	–	–	42
87200	0,41–0,164	0.025–0.10	–	–	–	–	42
PPG	0,2	0.012	0,4; 1,5	0.1; 0.4	250–300	3 630–4 350	44
PP	2,6	0.16	1,5	0.4	250–300	3 630–4 350	44
PFP-23-22	1,25 /port	0.076 /port	1,5	0.4	190	2 755	46
PFP-23-2	2,50 /port	0.150 /port	1,5	0.4	190	2 755	46
130179	4,10–16,39	0.25–1.0	–	–	–	–	42
	cm ³ /cycle	in ³ /cycle	kg	lbs	bar	psi	
EPB	6,10	0.37	18; 50; 180	40; 110; 400	390	5 655	48

¹⁾ These pumps are recommended by SKF for the use in grease progressive lubrication systems but can be used in many cases also with oil progressive lubrication systems. For further details please see the technical data information shown on the specific product pages.

Progressive lubrication systems

87212



87202



PHU-35



PFH-23-2 / -22



HP/HPG



HP-500W/HP-500-SSV



PF-VPBM/169-000-146



HJ 2



PF-23-2



Grease

Overview of grease pumps and pump units

Hydraulically operated pumps and pump units ¹⁾

Product	Metering quantity		Reservoir		Operation pressure max.		Page
	cm ³ /stroke/..	in ³ /stroke/..	l	gal	bar	psi	
87212	0,164–0,98	0.01–0.06	–	–	14–68	200–1 000	50
87202	0,41–1,64	0.025–0.10	–	–	20–138	275–2 000	52
PHU-5	0,1–0,5	0.006–0.030	2,5; 5,0	0.66; 1.32	160	2 320	54
PHU-35	0,7–3,5	0.042–0.210	2,5; 5,0	0.66; 1.32	160	2 320	54
PFH-23-22	1,25 /port	0.076 /port	1,5	0.4	190	2 755	56
PFH-23-2	2,50 /port	0.150 /port	1,5	0.4	190	2 755	56

¹⁾ These pumps are recommended by SKF for the use in grease progressive lubrication systems but can be used in many cases also with oil progressive lubrication systems. For further details please see the technical data information shown on the specific product pages.

Manually operated pumps and pumps units ¹⁾

Product	Metering quantity		Reservoir		Operation pressure max.		Page
	cm ³ /stroke	in ³ /stroke			bar	psi	
HP / HPG	0,2; 1,6 /SSV outlet	0.012; 0.098 /SSV outlet	0,4–1,5 l	0.11–0.4 gal	250–400	3 625–5 800	58
HP-500-SSV	0,2 /SSV outlet	0.012 /SSV outlet	0,4–0,5 l	0.11–0.13 gal	400	5 800	60
HP-500W	1,5	0.09	0,4–0,5 l	0.11–0.13 gal	400	5 800	60
169-000-146	0,2; 2,0 /VPBM outlet	0.012; 0.12 /VPBM outlet	450 cm ³	27.46 in ³	400	5 800	62
PF-VPBM	2,0	0.12	450 cm ³	27.46 in ³	400	5 800	62
HJ 2	1–2	0.06–0.12	3 l	0.79 gal	300	4 350	64
PF-23-22	1,25	0.076	1,5 l	0.4 gal	100	1 450	66
PF-23-2	2,5	0.15	1,5 l	0.4 gal	100	1 450	66

¹⁾ These pumps are recommended by SKF for the use in grease progressive lubrication systems but can be used in many cases also with oil progressive lubrication systems. For further details please see the technical data information shown on the specific product pages.

Pump unit

P 203



Grease

Product description

The P 203 lubrication pump is versatile, compact and economical and can supply up to 150 lubrication points, depending on the line length. It consists of a housing with integrated motor, reservoir with stirring paddle, pump element with pressure-relief valve, filling nipple and electrical connection parts. This powerful pump can drive up to three pump elements and can be equipped with a low-level control (with or without control board).

Features and benefits

- Optional control printed circuit boards with different operating settings
- Range of reservoir types offered
- For DC or AC applications
- Variety of pumping elements for different output available

Applications

- Mobile applications
- Wheel loaders
- Excavators
- Small- and medium-sized machinery
- General industries
- Combines, balers, forage harvesters



Technical data

Function principle	electrical piston pump
Operating temperature	V DC version: -40 to +70 °C; -40 to +158 °F V AC version: -25 to +70 °C; -13 to +158 °F
Operating pressure	350 bar; 5 075 psi
Lubricant	grease: up to NLGI 2 oil: with min. 40 mm ² /s
Outlets	up to 3
Metering quantity	depending on pump element: 0,7-4,0 cm ³ /min per outlet 0.042-0.244 in ³ /min per outlet
Reservoir	2; 4; 8 and 15 l 0.53, 1.05, 2.11 and 3.96 gal
Connection main line	G ¹ / ₄
Operating voltage	12/24 V DC, 110-260 V AC; 50/60 Hz
Dimensions	min. 211 × 224 × 287 mm min. 8.31 × 8.82 × 11.29 in max. 211 × 250 × 774 mm max. 8.31 × 9.84 × 30.47 in
Protection class	IP6K9K
Mounting position	upright, with follower plate any

! NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication:
12401 EN

Pump unit

P 203

Order number configurator

P203 - [] - [] - [] - [] - [] - [] - [] - [] - []

Product series
P 203 = with 1-3 outlets and V DC motor

Reservoir size
2 = 2 l; 0.52 gal **8** = 8 l; 2.11 gal
4 = 4 l; 1.06 gal **15** = 15 l; 3.96 gal

Reservoir type ¹⁾
XN = closed, 2, 4 or 8 l; 0.52; 1.06, 2.11 gal
XNFL = flat, 2 l; 0.52 gal
XNBO = with lid, 2, 4, 8 or 15 l; 0.52; 1.06, 2.11 or 3.96 gal
XL = low-level control, 2, 4 or 8 l; 0.52; 1.06, 2.11 gal
XBF = high-/low-level control, follower plate, 4; 8 or 15 l; 1.06, 2.11 or 3.96 gal
XLBO = low-level control, with lid; 2, 4, 8 or 15 l; 0.52; 1.06, 2.11 or 3.96 gal
YLBO = for oil, low-level control, with lid; 4 or 8 l; 1.06 or 2.11 gal
YNBO = for oil, with lid, 4, 8 or 15 l; 1.06, 2.11 or 3.96 gal

Pump elements 1-3 (choose codes for max. 3 pump elements)
 . = no pump element
1K5 = 2,0 cm³/min; 0.12 in³/min; piston ø5 mm
1K6 = 2,8 cm³/min; 0.17 in³/min; piston ø6 mm
1K7 = 4,0 cm³/min; 0.24 in³/min; piston ø7 mm, with bypass bore
1KR = adjustable 0,7-3,0 cm³/min, 0.042-0.18 in³/min, piston ø7 mm
1B7 = 2,0 cm³/min; 0.12 in³/min; piston ø7 mm, with bypass-check valve
1C7 = 4,0 cm³/min; 0.24 in³/min; piston ø7 mm ²⁾

Operating voltage
12 = 12 V DC, with square plug, bayonet plug or M12 plug
24 = 24 V DC, with square plug, bayonet plug or M12 plug
AC = 110-260 V AC, ±10%, 50/60 Hz ±5%, with square plug ³⁾

Number of possible connections
1A = 1 connection, supply voltage V DC, V AC ³⁾
 1A: power supply V AC, square plug only, left bottom
 1A: power supply V DC, left up
2A = 2 connections ⁴⁾
 1A: power supply V AC, square plug only, bottom left, V DC
 2A: illuminated pushbutton, low-level control or piston detector, see below piston detector
3A = 3 connections ³⁾
 1A: power supply V AC, square plug only, bottom left, V AC ³⁾
 2A: illuminated pushbutton, low-level control bayonett plug, left top
 3A: piston detector, bayonet plug, right top

Type of connection
1 = square plug, power supply, DIN 43650 **6** = bayonet plug 7/5 pole design, M08-M23
2 = M12 plug **7** = bayonet plug 7/6 pole design, V10-V13, V20-V23
5 = bayonet plug, 4/3 pole design, DIN 72585-1 **8** = PG cable gland

Connection outside of pump
01 = without socket, without cable **14** = bayonet socket with cable (10 m; 33 ft), 4/3-core
10 = connection socket, with cable (10 m; 33 ft) **15** = bayonet socket with cable (10 m; 33 ft), 7/5-core
11 = connection socket, ADR cable (10 m; 33 ft) **16** = bayonet socket with cable (10 m; 33 ft), 7/6-core
13 = bayonet socket with cable (10 m; 33 ft), 7/5-core, M08-M23

Control P.C.B. (keep field empty if not applicable)
V10 - V13 = with variably adjustable pause and lubricating time, (V20-V23 for US market)
V10 - V13-ADR = with variably adjustable pause and lubricating time ⁵⁾
M08 - M23 = with microprocessor control (different setting variants, monitored systems)
H = for trailers and semi-trailers
H-ADR = for trailers and semi-trailers ⁵⁾

Grease

PUB LS/P1 16964 EN

¹⁾ the high-/low-level control can not be combined with the integrated control P.C.B.
²⁾ designation for pump elements for supplying of paste for chisel (c=chisel)
³⁾ equipment described in separate documentation
⁴⁾ no connection provided for low-level control for oil and 2A: with illuminated pushbutton only
⁵⁾ for transport of hazard materials

Pump unit

KFG



Grease

Product description

The electrically operated KFG pump includes a drive shaft with an eccentric that drives up to three pump elements. It is comprised of four main components: housing with pump elements, reservoir with fill-level monitoring, internal control units and attachments. The pump is available in eight sizes and two variants for stationary use or with grease follower plate technology for utilization in any position. A variety of attachments permit reservoir filling, protect the pump (pressure-limitation valve) or enable the uncomplicated connection of the pump to a centralized lubrication system.

Features and benefits

- Durable and reliable components designed for extreme conditions (with positively driven pump elements)
- Versatile; can be used with single-line and progressive systems
- Fill-level and lubrication system monitoring
- Pin code protection of control unit available

Applications

- On- and off-road vehicles
- Renewable energy
- Industrial applications



NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication: **12649 EN; 951-170-211; 951-170-212; 951-170-213**

3D data and product configuration:
skf-lubrication.partcommunity.com/3d-cad-models/

Technical data

Function principle	electrically operated piston pump
Operating temperature	-30 to +70 °C; -22 to +158 °F depending on type of pump element
Operating pressure	200 to 300 bar; 2 900 to 4 350 psi depending on type and size of pump element
Lubricant	grease NLGI 000 to 2, compatible with plastics, NBR elastomers, copper and copper alloys
Outlets	up to 3
Metering quantity	per pump element: 0,8; 1,3; 1,8; 2,5; 5,0 cm ³ /min 0,049, 0,079, 0,11, 0,15, 0,31 in ³ /min
Reservoir	2; 4; 6; 8; 10; 12; 15 and 20 kg 4.4, 8.8, 13.2, 17.6, 22, 26.5, 33 and 44 lbs
Material	
pump housing	aluminum-silicon cast alloy
reservoir	2; 6 kg; 4.4, 13.2 lbs: Polyamide PA 6I 4; 8; 10; 12; 15; 20 kg; 8.8, 17.6, 22, 26.5, 33, 44 lbs: PMMA
Connection	outlet pump element: M 14×1,5 female thread
Power supply	12 V DC, 24 V DC, 230 or or 90 to 264 V AC; (± 10%)
Dimensions	min. 266×208×229 mm min. 10.47×8.19×9.01 in max. 268×227×1,170 mm max. 10.55×8.93×46.06 in
Protection class	IP56
Mounting position	
with follower plate	any, installation possible also in rotating machines, e.g. wind turbines
without follower plate	upright

PUB LS/P1 16964 EN

Pump unit

KFG

Order number configurator

KFG

+

Product series

1 2 3

Integrated control unit

X = no control unit **S** = IG502-2-I
L = LC502 **C** = CAN bus

Reservoir

1 = 2 kg, 4.4 lbs ¹⁾ **3** = 6 kg, 13.2 lbs
2 = 4 kg, 8.8 lbs ²⁾ **4** = 8 kg, 17.6 lbs ²⁾

Range of application

R = rotary application
M = industry application
F = vehicle application

Filling

X = without lubricant, not available for rotary application version
A = grease NLGI 2 for vehicles, not for capacitive fill level monitor
F = customized grease

Fill level monitor

X = without fill level monitor
1 = mechanical level monitor ¹⁾
2 = mechanical level monitor with signal smoothing (only available for KFGX) ¹⁾
3 = capacitive level monitor, only available for industry version with 2 and 6 kg reservoir and NLGI ≤ 2
4 = cylinder switch level monitor ²⁾

Pump element or filler socket

Spring return piston pump ³⁾ X = no pump element D = 0,8 cm ³ /min; 0,05 in ³ /min C = 1,3 cm ³ /min; 0,08 in ³ /min B = 1,8 cm ³ /min; 0,10 in ³ /min A = 2,5 cm ³ /min; 0,15 in ³ /min E = 5,0 cm ³ /min; 0,30 in ³ /min W = socket for filling cylinder ¹⁾	Positively driven piston pump ⁴⁾ Y = no pump element J = 1,3 cm ³ /min; 0,08 in ³ /min H = 1,8 cm ³ /min; 0,10 in ³ /min G = 2,5 cm ³ /min; 0,15 in ³ /min L = 5,0 cm ³ /min; 0,30 in ³ /min V = socket for filling cylinder ¹⁾
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Fitting for main line connection and valves

X = without attachments (with M 14 × 1,5 mm female thread)
B = without attachments (with G 1/4 female thread)
C = solderless pipe union for ø 6 mm tubes
D = solderless pipe union for ø 8 mm tubes
E = solderless pipe union for ø 10 mm tubes
F - P = with pressure relief valve
F = 300 bar; 4 850 psi, with SKF Quick Connector for ø 6 mm tubes ⁵⁾
G = 300 bar; 4 850 psi, with solderless pipe union for ø G 1/4 tubes ⁵⁾
H = 300 bar; 4 850 psi, with solderless pipe union ø 6 mm tubes ⁵⁾
J = 300 bar; 4 850 psi, with solderless pipe union ø 8 mm tubes ⁵⁾
K = 300 bar; 4 850 psi, with solderless pipe union ø 10 mm tubes ⁵⁾
L = 300 bar; 4 850 psi, with SKF Quick Connector for ø 8 mm tubes ⁵⁾
M = 200 bar; 2 900 psi, with solderless pipe union for ø 8 mm tubes
N = 200 bar; 2 900 psi, with solderless pipe union for ø 10 mm tubes
O = 200 bar; 2 900 psi, with solderless pipe union for ø 12 mm tubes
P = 200 bar; 2 900 psi, with SKF Quick Connector for ø 8 mm tubes

Pump cycle/interval time

99 = none **EB/EO** = 4 min. runtime / 1 h interval time (IG502-2-I/LC502) ⁶⁾

Operating voltage

912 = 12 V DC, only available for vehicle application version **486** = 90–264 V AC, not available for vehicle application version
924 = 24 V DC

¹⁾ not available for rotary application version
²⁾ only available for rotary application version
³⁾ operating pressure 300 bar for spring return pump (200 bar for pump element E)

⁴⁾ operating pressure 350 bar for positively driven pump (250 bar for pump element L)
⁵⁾ F,G,H,J,K,L: not for pump element E and L
⁶⁾ factory setting, other settings available

Grease

Pump unit

KFA



Grease

Product description

KFA series pumps include a maximum of two outlet ports to connect two independent lubrication circuits. A separate pump element is required for each outlet. Three pump elements with different delivery rates are available so that the volume of grease can be adjusted to individual circuit needs. This ensures that every lubrication point is supplied with an adequate amount of grease in each lubrication cycle. Model KFAS has an integrated IG502-2-1 control and monitoring unit that operates in a time- or load- (pulse) dependent mode, with or without monitoring.

Features and benefits

Integrated control system provides:

- Non-volatile memory with PIN-code protection
- Storage of residual interval, lubricating cycle and faults signals
- Saved data in event of a power failure
- Connection for external pushbutton and inductive cycle switch
- Interval and contact times can be set independently
- Fits in tight/small places

Applications

- Commercial vehicles
- 230 V AC models for industrial applications
- Machine tools
- Printing industry



Technical data

Function principle	electrically operated piston pump
Operating temperature	-25 to +75 °C -13 to +167 °F
Operating pressure	300 bar; 4 350 psi
Lubricant	grease up to NLGI 2
Outlets	1 to 2
Metering quantity	1,0; 1,5; 2,0 cm ³ /min 0.061; 0.092; 0.122 in ³ /min
Reservoir	1 l; 0.26 gal
Connection main line	M 14×1.5
Operating voltage	12 and 24 V DC; 115 and 230 V AC; (± 10%)
Protection class	IP 6K9K
Dimensions	216 × 150 × 234,5 mm 8.1 × 5.9 × 9.2 in
Mounting position	upright

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication:
951-170-008, 1-9430-EN

PUB LS/P1 16964 EN

Pump unit

KFA

KFA pump unit

Order number	Designation applications	Monitoring level monitoring	cycle switch	Control unit		12 V DC	24 V DC	115 V AC	230 V AC
				extern	integrated				
KFA1 912	vehicles	–	–	•	–	•	–	–	–
KFA1 924	vehicles	–	–	•	–	–	•	–	–
KFA1-W 912	vehicles	•	–	•	–	•	–	–	–
KFA1-W 924	vehicles	•	–	•	–	–	•	–	–
KFAS1 912	vehicles	–	–	–	•	•	–	–	–
KFAS1 924	vehicles	–	–	–	•	–	•	–	–
KFAS1-W 912	vehicles	•	–	–	•	•	–	–	–
KFAS1-W 924	vehicles	•	–	–	•	–	•	–	–
KFA1-M 924	industry	–	–	•	–	–	–	–	–
KFA1-M-W 924	industry	•	–	•	–	–	•	–	–
KFAS1-M 924	industry	–	–	–	•	–	•	–	–
KFAS1-M-Z 924	industry	–	•	–	•	–	•	–	–
KFAS1-M-W 924	industry	•	–	–	•	–	•	–	–
KFAS1-M-W-Z 924	industry	•	•	–	•	–	•	–	–
KFA10 263	industry	–	–	•	–	–	–	–	•
KFA10-W 263	industry	•	–	•	–	–	–	–	•
KFAS10 485	industry	–	–	–	•	–	–	•	–
KFAS10-W 485	industry	•	–	–	•	–	–	•	–

¹⁾ only pump; pump elements need to be ordered separately

Grease

Accessories

Cable kits, pump elements

Cable kits

Order number	Designation
997-000-820	cable kit for pump KFA1, square type
997-000-630	cable kit bayonet for pump KFAS1 and KFAS1-W, 7-pins, (12 m, 39 ft)
997-000-650	cable kit bayonet for pump KFAS1 and KFAS1-W, 7-pins, (16 m, 52 ft)

KFA1.U1



KFA pump elements

Order number	Designation	Metering quantity	
		cm ³ /min	in ³ /min
KFA1.U1	pump element	2,00	0.122
KFA1.U2	pump element	1,50	0.092
KFA1.U3	pump element	1,00	0.061

Pump unit

QLS 301 SSV



Grease

Product description

The Quicklub QLS 301 is a compact lubrication system designed to supply grease. The system package includes all necessary monitoring and control functions, as well as low-level control and a pressure-relief valve. Outlet connections and standard-pressure plastic tubing must be ordered separately. Up to 18 lubrication points can be supplied and monitored directly from the pump, and its reservoir features a follower plate, enabling rotating applications. The unit's integrated, all-in-one system concept reduces installation time and costs.

Features and benefits

- Back- or bottom-mounted progressive metering devices
- Internal lubricant return possible
- Integrated pressure-relief valve
- External programming via keypad
- System monitoring with display of faults
- Follower plate

Applications

- Machine tools
- Material handling
- Automotive industry
- Food processing
- Printing industry
- Renewable energies
- Farm machinery
- Construction

Technical data

Function principle	electrically operated piston pump with follower plate
Operating temperature	-25 to +70 °C; -13 to +158 °F
Operating pressure	205 bar; 2 975 psi
Lubricant	grease: NLGI 2 fluid grease: NLGI 00, 000
Outlets	up to 18
Metering quantity ¹⁾	1,0 cm ³ /min; 0.06 in ³ /min
Reservoir	1 l; 0.26 gal
Connection main line	via SSV: see information for SSV via connection block: G 1/8
Operating voltage	12/24 V DC; 120 and 230 V AC (± 10%)
Protection class	IP 6K9K, NEMA 4
Dimensions	min. 237 × 215 × 230 mm min. 9.33 × 8.46 × 9.05 in max. 237 × 235 × 270 mm max. 9.33 × 9.25 × 10.63 in
Mounting position	any

¹⁾ before metering devices

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication:
951-171-003 EN

Pump unit

QLS 301 SSV

Order number configurator

P301

1

Product series

Metering devices SVV...

- 0 = external SSV 6-KNQLS, SSV 8-KNQLS
- 1 = external SSV 12-KNQLS, SSV 18-KNQLS
- 3 = SSV 6, rear-mounted
- 4 = SSV 8, rear-mounted
- 6 = SSV 12, rear- or bottom-mounted
- 9 = SSV 18, rear- or bottom-mounted

Assignment of metering device outlets

- 0 = no metering device
- 1 = vertical metering device outlets, V, rear mounted
- 2 = horizontal metering device outlets, H, bottom-mounted ¹⁾

Supply voltage

- 2 = 12 V DC, available with or without control P.C.B.
- 4 = 24 V DC, available with or without control P.C.B.
- 6 = 120 V AC, available with control P.C.B. only
- 8 = 230 V AC, available with control P.C.B. only

Reservoir

- 1 = 1XL, 1 l; 0.26 gal, with low-level indication

Connections

- 0 = 1 connection left side:
power supply (V DC / V AC) 1A, square plug. For industrial applications
- 2 = 1 connection left side:
power supply (V DC) 1A, low-level or fault indication, bayonet plug. For vehicles only
- 1 = 2 connections:
1 × left side for power supply (V DC / V AC) 2A;
1 × right side for external low-level or fault indication, square plug. For industrial applications

Connection socket design

- 1 = square plug design A. For industrial applications ²⁾
- 5 = bayonet plug 4-pole design. For vehicles ³⁾

Electrical connector types

- 1 = with connection socket, without cable ²⁾
- 5 = with connection socket and cable (10 m; 33 ft) ²⁾
- 6 = with connection socket and ADR cable (10 m; 33 ft) ²⁾
- 7 = with connection socket, bayonet and cable (10 m; 33 ft) ³⁾
- 8 = with connection socket, bayonet and ADR cable (10 m; 33 ft) ³⁾

Control printed circuit board (P.C.B.)

- 0 = without
- 4 = control P.C.B. S4; NC and NO contacts programmable 1-5 cycles; only for V DC application
- 4 = control P.C.B. S4; NC and NO contacts programmable; 1-3 cycles, SSV 6/ SSV 8; 1 cycle, SSV 12/ SSV 18; only for V AC application

Grease

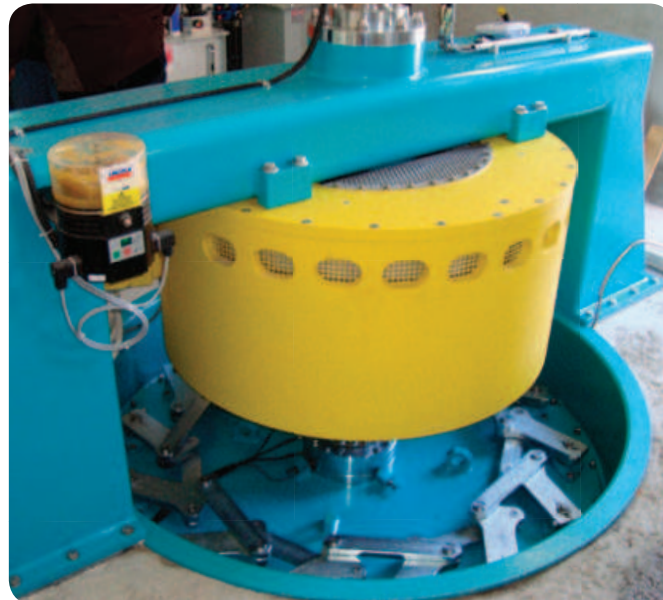
¹⁾ Not for use in areas with impact loads or vehicles

²⁾ Connection types 1, 5, 6 can be combined with square plug version (1) only

³⁾ Connection types 7, 8 can be combined with bayonet plug version (5) only

Pump unit

QLS 401 SSV



Grease

Product description

The Quicklub QLS 401 SSV is a complete lubrication system that includes all necessary monitoring and control functions, as well as a pressure-relief valve and an enhanced reservoir-stirring paddle that prevents grease separation. Outlet connections and standard-pressure plastic tubing must be ordered separately. Up to 18 lubrication points can be supplied via an SSV metering device with fixed output amount and can be monitored directly from the pump. The unit's integrated, all-in-one system concept reduces installation time and costs.

Features and benefits

- Back- or bottom-mounted metering devices
- Internal lubricant return possible
- Integrated pressure-relief valve
- External programming via keypad
- System monitoring with display of faults

Applications

- Industrial and mobile applications
- Food processing
- Farm machinery
- Machine tools

Technical data

Function principle	electrically operated piston pump with stirring paddle
Operating temperature	-25 to +70 °C -13 to +158 °F
Operating pressure	205 bar 2 975 psi
Lubricant	grease: up to NLGI 2 fluid grease: NLGI 00, 000
Outlets	up to 18
Metering quantity ¹⁾	1,0 cm ³ /min 0,06 in ³ /min
Reservoir	1 and 2 l 0,26 and 0,53 gal
Connection main line	via SSV: see information for SSV, p. 86 via connection block: G ¹ / ₈
Operating voltage	12/24 V DC; 120 and 230 V AC (± 10%)
Protection class	IP 6K9K, NEMA 4
Dimensions	min. 237 × 215 × 230 mm min. 9.33 × 8.46 × 9.05 in max. 237 × 235 × 353 mm max. 9.33 × 9.25 × 13.89 in
Mounting position	upright

¹⁾ before metering devices

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication:
951-171-003 EN, 12667 EN

Pump unit

QLS 401 SSV

Order number configurator

P401

Product series

Metering devices

- 0 = external metering device SSV 6-KNQLS, SSV 8-KNQLS
- 1 = external metering device SSV 12-KNQLS, SSV 18-KNQLS
- 3 = SSV 6, rear-mounted
- 4 = SSV 8, rear-mounted
- 6 = SSV 12, rear- or bottom-mounted
- 9 = SSV 18, rear- or bottom-mounted

Assignment of metering device outlets

- 0 = no metering device
- 1 = vertical metering device outlets V, back mounted
- 2 = horizontal metering device outlets H, bottom-mounted ¹⁾

Supply voltage

- 2 = 12 V DC, available with or without control P.C.B.
- 4 = 24 V DC, available with or without control P.C.B.
- 6 = 120 V AC, available with control P.C.B. only
- 8 = 230 V AC, available with control P.C.B. only

Reservoir

- 0 = 1XN, 1 l; 0.26 gal, without low-level indication
- 1 = 1XL, 1 l; 0.26 gal, with low-level indication
- 2 = 2XN, 2 l; 0.53 gal, without low-level indication
- 3 = 2XL 2 l; 0.53 gal, with low-level indication

Number of possible connections

- 0 = 1 connection left side, power supply (V DC/V AC) 1A, square plug. For industrial applications
- 2 = 1 connection left side, power supply (V DC) 1A, low-level or fault indication, bayonet plug. For vehicles only
- 1 = 2 connections:
 - 1 × left side for power supply (V DC/V AC) 2A
 - 1 × right side for external low-level or fault indication, square plug. For industrial applications

Connection socket design

- 1 = square plug design A. For industrial applications ²⁾
- 5 = bayonet plug 4-pole design. for vehicles ³⁾

Type of electrical connectors

- 1 = with connection socket, without cable ¹⁾
- 5 = with connection socket and cable (10 m; 33 ft) ¹⁾
- 6 = with connection socket and ADR cable (10 m; 33 ft) ¹⁾
- 7 = with connection socket, bayonet and cable (10 m; 33 ft) ²⁾
- 8 = with connection socket, bayonet and ADR cable (10 m; 33 ft) ²⁾

Control printed circuit board (P.C.B.)

- 0 = without
- 4 = control P.C.B. S4 for 12/ 24 V DC; NC and NO contacts programmable 1-5 cycles
- 4 = control P.C.B. S4 for 120/ 230 V AC; NC and NO contacts programmable; 1-3 cycles (SSV 6/ SSV 8), 1 cycle (SSV 12/ SSV 18)
- 5 = control P.C.B. S4 for 12/ 24 V DC; NO contact signal ⁴⁾
- 5 = control P.C.B. S5 for 120/ 230 V AC; NO contact signal; 1-3 cycles, (SSV 6/ SSV 8), 1 cycle (SSV 12/ SSV 18) ⁴⁾
- 6 = control P.C.B. S6 for 12/ 24 V DC; NC contact signal ⁴⁾
- 6 = control P.C.B. S6 for 120/ 230 V AC; NC contact signal; 1-3 cycles (SSV 6/ SSV 8) 1 cycle (SSV 12/ SSV 18) ⁴⁾

Grease

¹⁾ Not for use in areas with impact loads or vehicles

²⁾ Connection types 1, 5, 6 can be combined with square plug version (1) only

³⁾ Connection types 7, 8 can be combined with bayonet plug version (5) only

⁴⁾ Control P.C.B. can be combined with XN reservoir versions only

Pump unit

QLS 401 SSVDV



Grease

Product description

The Quicklub QLS 401 SSVDV is a complete lubrication system that includes all necessary monitoring and control functions, as well as a pressure-relief valve and an enhanced reservoir-stirring paddle that prevents grease separation. Outlet connections and standard-pressure plastic tubing must be ordered separately. Up to 16 lubrication points can be supplied via an SSVDV metering device with adjustable output amount (using metering screws) and can be monitored directly from the pump. The unit's integrated, all-in-one system concept reduces installation time and costs.

Features and benefits

- Back- or bottom-mounted metering devices
- Internal lubricant return possible
- Integrated pressure-relief valve
- External programming via keypad
- System monitoring with display of faults

Applications

- Industrial and mobile applications
- Food processing
- Farm machinery
- Machine tools



Technical data

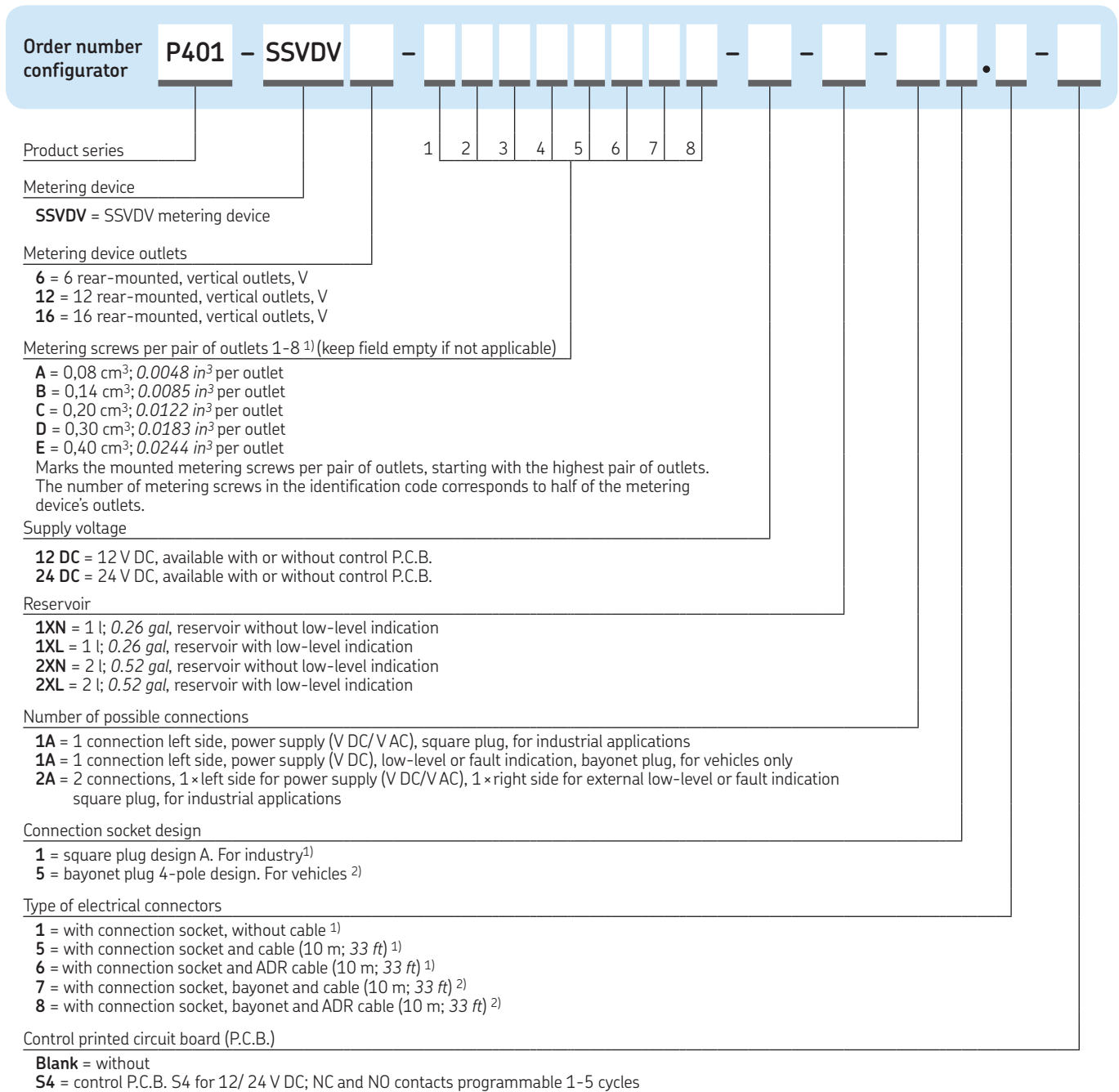
Function principle	electrically operated piston pump with stirring paddle
Operating temperature	-25 to +70 °C -13 to +158 °F
Operating pressure	205 bar 2 975 psi
Lubricant	grease: up to NLGI 2 fluid grease: NLGI 00, 000
Outlets	max. 16
Metering quantity	depending on metering screw 0,08-0,40 cm ³ per outlet 0,0048 - 0,0244 in ³ per outlet
Reservoir	1 and 2 l 0,26 and 0,53 gal
Main line connection	via SSV: see information for SSVD, see p. 78 via connection block: G 3/8
Operating voltage	12/24 V DC; (± 10%)
Protection class	IP 6K9K, NEMA 4
Dimensions	min. 237 × 215 × 230 mm min. 9.33 × 8.46 × 9.05 in max. 237 × 235 × 353 mm max. 9.33 × 9.25 × 13.89 in
Mounting position	upright

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publications available online at SKF.com/lubrication:
951-171-003 EN, 12667 EN

Pump unit

QLS 401 SSV DV



Grease

¹⁾ Connection types 1, 5, 6 can be combined with square plug version (1) only
²⁾ Connection types 7, 8 can be combined with bayonet plug version (5) only

Pump unit

QLS 421



Grease



Product description

Designed for lubricating truck trailers and semi-trailers, the Quicklub QLS 421 is a complete lubrication system with an integrated metering device and controller, as well as a pressure-relief valve. The pump features a back-mounted SSV metering device and supplies grease only. Outlet connections and standard-pressure plastic tubing must be ordered separately. Up to 18 lubrication points can be supplied directly from the pump.

Features and benefits

- Compact progressive system
- Designed to supply grease
- Uses brake light as power supply via capacitor
- Lubricates at each braking until reaching set lubrication time

Applications

- Vehicles
- Trailers, semi-trailers
- Farm machinery
- Construction

Technical data

Function principle	electrically operated piston pump
Operating temperature	-25 to +70 °C -13 to +158 °F
Operating pressure	205 bar 2 975 psi
Lubricant	grease: up to NLGI 2 fluid grease: NLGI 00, 000
Outlets	up to 18
Metering quantity	1,0 cm ³ /min 0,06 in ³ /min
Reservoir	1; 2 l 0,26; 0,53 gal
Connection main line	via SSV: see information for SSV, p. 84 via connection block: G ¹ / ₈
Operating voltage	12 / 24 V DC
Protection class	IP 6K 9K, NEMA 4
Dimensions	min. 237 × 215 × 230 mm min. 9.33 × 8.46 × 9.05 in max. 237 × 235 × 353 mm max. 9.33 × 9.25 × 13.89 in
Mounting position	upright

Pump unit

QLS 421

Order number configurator

P421

1

2

5

1

Product series

Metering devices

- 3 = SSV 6
- 6 = SSV 12
- 9 = SSV 18

Metering device position

- 1 = rear-mounted

Operating voltage

- 2 = 12 V DC
- 4 = 24 V DC

Reservoir / low-level control

- 0 = 1 l; 0.26 gal; without low-level control
- 2 = 2 l; 0.53 gal; without low-level control

Number of possible connections

- 2 = 1A5 - 1 connection, power supply, bayonet plug, left

Connection socket design

- 5 = bayonet plug according to DIN 72858-1

Type of electrical connectors

- 3 = with socket and cable (10 m; 33 ft)
- 4 = with socket and cable ADR (10 m; 33 ft)

Control printed circuit board (P.C.B.)

- 1 = with variable pause and lubrication time

Grease

Pump unit

P 502



Grease

Product description

The P 502 is a simple, economical, electrically operated lubrication pump unit. It can provide directly a maximum of two individual lubrication points with lubricant or be connected to progressive metering devices. An integrated control board is available to set pause and lubrication time. Developed for fluid grease and grease, the P 502 features an optimized housing shape and reservoir suitable for food processing applications.

Features and benefits

- Economical operation
- Fits in tight/small places
- Flexible design for 12 and 24 V DC voltage supply
- Optional pressure-release valve
- Optimised housing design for splash zones in food processing

Applications

- Commercial vehicles
- Farm machinery
- Small construction machines
- Food and beverage industry

Technical data

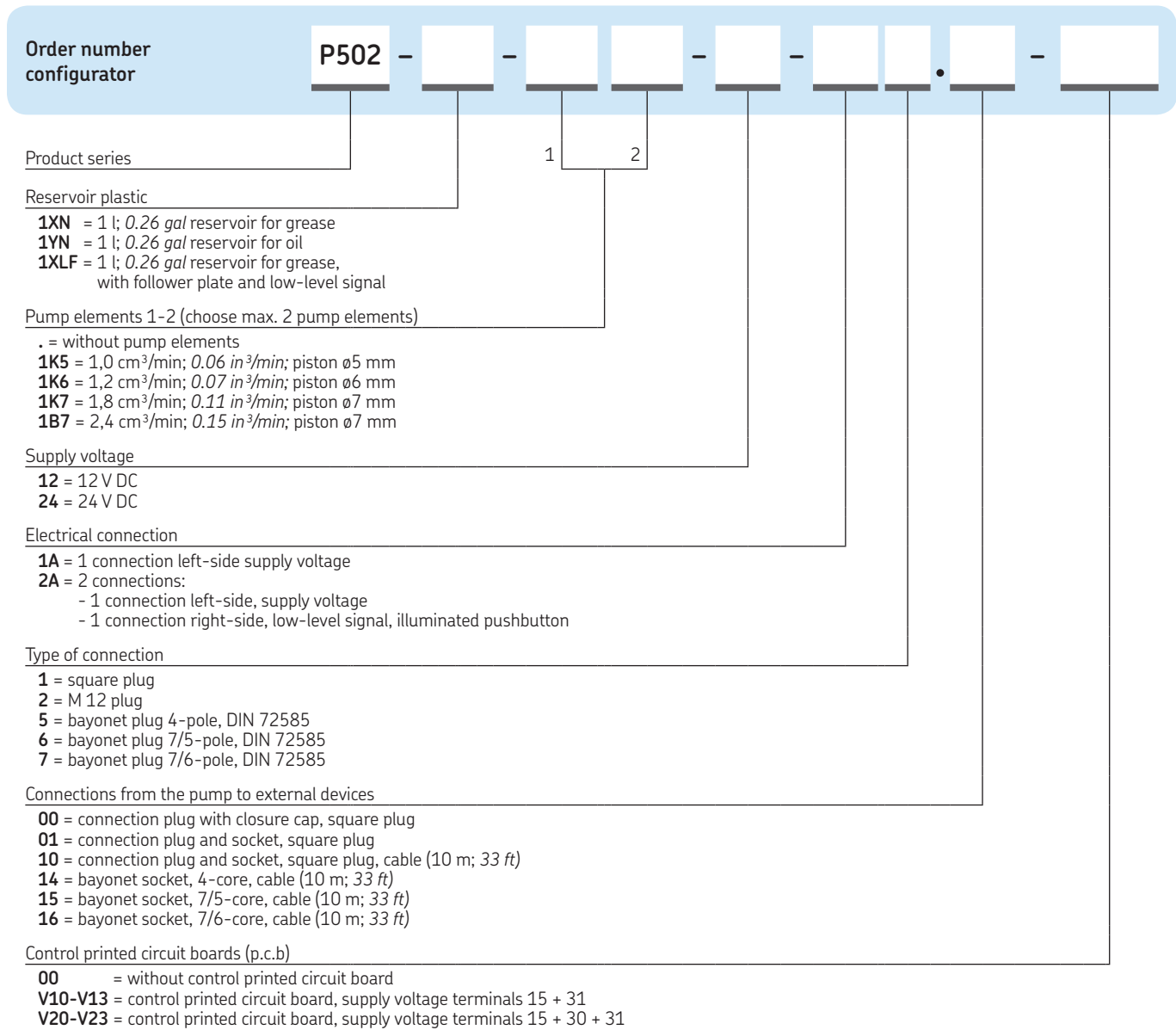
Function principle	electrically operated piston pump
Operating temperature	-25 to +70 °C -13 to +158 °F
Operating pressure	270 bar; 3 915 psi
Lubricant	grease up to NLGI 2
Outlets	1-2
Metering quantity	depending on pump element: 1,0-2,4 cm ³ /min per outlet 0.06-0.15 in ³ /min per outlet
Reservoir	1 l; 0.26 gal
Connection main line	G 1/4
Operating voltage	12/24 V DC
Protection class	IP6K9K, IP65, IP67 depending on type of electrical connection
Dimensions	250 × 150 × 270 mm 9.84 × 5.91 × 10.63 in
Mounting position	
with follower plate	any
without follower plate	upright

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication:
12737 EN

Pump unit

P 502



Grease

Pump unit

P 223/P 233



Grease

Product description

Similar to the P 203 series, the P 223/233 pumps feature an integrated control printed circuit board (P.C.B.) with metering device monitoring and can drive up to three pump elements. The P 233 provides supplementary Datalogger function for data transfer to Quickdata 2.0 diagnostic software. Versatile, compact and economical, the P 233 pump is enhanced with low-level control, printed circuit board MDF01 with attached Datalogger module and a keypad with display.

Features and benefits

- Datalogger P 233 shows system settings and events including general data, pumping times, programming, operating times, malfunction and low-level indication
- Using Quickdata 2.0 diagnostic software, data can be read out via laptop and infrared interface

Applications

- Mobile applications
- Track tamping machines
- Stationary systems
- Vehicles and construction machines

Technical data

Function principle	electrically operated piston pump
Operating temperature	-25 to +70 °C -13 to +158 °F
Operating pressure	350 bar 5 075 psi
Lubricant	greases up to NLGI 2 oil: with min. 40 mm ² /s
Outlets	up to 3
Metering quantity	depending on pump element: 0,7-4,0 cm ³ /min per outlet 0,042-0,24 in ³ /min per outlet
Reservoir	2, 4, 8, and 15 l 0,53, 1,05, 2,11 and 3,96 gal
Operating voltage	12/24 V DC; 100/260 V AC; 50/60 Hz
Connection main line	G 1/4
Protection class	IP 6K 9K
Dimensions	min. 230 × 224 × 367 mm min. 9.06 × 8.82 × 14.45 in max. 230 × 250 × 729 mm max. 9.06 × 9.84 × 28.70 in
Mounting position	
with follower plate	any
without follower plate	upright

Pump unit

P 223/P 233

Order number configurator

Product series
 for grease with 1-3 outlets and V DC motor
P 223 = pump with Datalogger
P 233 = pump without Datalogger

Reservoir size
2 = 2 l; 0.52 gal
4 = 4 l; 1.06 gal
8 = 8 l; 2.11 gal
15 = 15 l; 3.96 gal

Reservoir type ¹⁾
XN = closed, 2 l; 0.52 gal
XNFL = flat, 2 l; 0.52 gal
XNBO = with lid, 2, 4, 8 or 15 l; 0.52; 1.06, 2.11 or 3.96 gal
XL = low-level control, 2, 4 or 8 l; 0.52; 1.06, 2.11 gal
XLBO = low-level control, with lid; 2, 4, 8 or 15 l; 0.52; 1.06, 2.11 or 3.96 gal
YNBO = for oil, with lid, 4, 8 or 15 l; 1.06, 2.11 or 3.96 gal
YLBO = for oil, low-level control, with lid; 4 or 8 l; 1.06 or 2.11 gal

Pump elements 1-3 (choose codes for max. 3 pump elements)
 . = no pump element
1K5 = 2,0 cm³/min; 0.12 in³/min; piston ø 5 mm
1K6 = 2,8 cm³/min; 0.17 in³/min; piston ø 6 mm
1K7 = 4,0 cm³/min; 0.24 in³/min; piston ø 7 mm, with bypass bore
1KR = 0,7-3,0 cm³/min, 0.042-0.18 in³/min adjustable, piston ø 7 mm
1B7 = 2,0 cm³/min; 0.12 in³/min; piston ø 7 mm, with bypass check valve
1C7 = 4,0 cm³/min; 0.24 in³/min; piston ø 7 mm ²⁾

Operating voltage
12 = 12 V DC
24 = 24 V DC

Number of possible connections
2A = 2 connections:
 on the left top power supply, illuminated pushbutton (operational test & additional lubrication) and fault indication ³⁾⁴⁾
 on the right top piston detector, divider monitoring, bayonet plug 4/2
3A = 3 connections:
 on the left bottom power supply, square-type plug
 on the left top illuminated pushbutton and fault indication ³⁾⁴⁾
 on the right top piston detector, divider monitoring, bayonet plug 4/2-pole

Type of connection ⁵⁾
1 = square plug, power supply, DIN 43650
5 = bayonet plug, 4 pole design, DIN 72585-1, for MF01/MDF01 ³⁾
6 = bayonet plug 7/5 pole design, MF02/MDF02 ⁴⁾

Connection outside pump
15 = without socket, without cable
14 = bayonet socket with cable (10 m; 33 ft), 4-core; only with type of connection 2A5 / 3A5
15 = bayonet socket with cable (10 m; 33 ft), 7/5-core; only with type of connection 2A6 / 3A6

Control printed circuit boards 12/24 V DC
MF01 = with microprocessor and membrane keypad, contact 15/30 bridged
MF02 = with microprocessor and membrane keypad, contact 15/30 not bridged; only with type of connection 2A6
MDF01 = with microprocessor and membrane keypad and Datalogger, contact 15/30 bridged
MDF02 = with microprocessor and membrane keypad and Datalogger, contact 15/30 bridged; only with type of connection 2A6

Grease

¹⁾ high-/low-level control can not be combined with the integrated control unit P.C.B.
²⁾ designation for pump elements for supplying of paste for chisel (c=chisel)
³⁾ for MF01/MDF01
⁴⁾ for MF02/MDF02
⁵⁾ other types of connection on request possible

Pump unit

P603M



Grease

Product description

The compact P 603M automatic lubrication pump consists of a housing with integrated motor, reservoir with stirring paddle, pump element with pressure-relief valve, filling nipple and electrical connection parts. It can drive up to three pump elements and operates according to a customer-supplied, external control unit (pause and lubrication times).

Versatile and economical, this pump can be enhanced with low-level control that enables control of lubrication cycles. The P 603M can supply up to 100 lubrication points, depending on line length.

Features and benefits

- Reservoir size up to 20 l (5.28 gal) available
- Powerful and robust pump
- Drives up to three pump elements
- C5M corrosion protection available
- Pump elements could be internally combined to one outlet

Applications

- Wind energy systems
- Construction
- Renewable energies



Technical data

Function principle	electrically operated piston pump
Operating temperature	-40 to +70 °C; -40 to +158 °F
Operating pressure	350 bar; 5 075 psi
Lubricant	grease up to NLGI 2
Outlets	up to 3 pump elements
Metering quantity	per pump element: 4 cm ³ /min; 0.24 in ³ /min
Maximum lubricant output ¹⁾	12 cm ³ /min; 0.73 in ³ /min
Reservoir	4, 8, 10, 15, and 20 l 1.05, 2.11, 2.64, 3.96 and 5.28 gal
Main line connection	G 1/4
Voltage	100-240 V AC, 50/60 Hz
Protection class	IP 6K 9K
Dimensions	min. 240 × 235 × 415 mm min. 9.45 × 9.25 × 16.34 in max. 240 × 235 × 591 mm max. 9.45 × 9.25 × 23.27 in

Mounting position
with stirring paddle reservoir upside up
with follower plate any

¹⁾ with internally combined three pump elements to one outlet

Pump unit

P603M

Order number configurator

P603M - [] - [] - [] - [] - [] - [] - [] - [] - []

Product series

Reservoir size

- 4 = plastic, transparent, 4 l; 1.05 gal
- 8 = plastic transparent, 8 l; 2.11 gal
- 10 = plastic, transparent, 10 l; 2.64 gal
- 15 = plastic, transparent, 15 l; 3.96 gal
- 20 = plastic, transparent, 20 l; 5.28 gal

Reservoir type

- XLBO = for grease, with low-level control and stirring paddle, filling from top
- XLF = for grease, with low-level control and follower plate, filling from bottom ¹⁾

Pump elements 1-3 (choose codes for max. 3 pump elements)

- . = no pump element
- 1K7 = 4 cm³/min; 0.24 in³/min; piston ø 7 mm
- 3Z7 = 12 cm³/min; 0.73 in³/min; piston ø 7 mm, internally combined to 1 outlet

Supply voltage

- 12 = 12 V DC
- 24 = 24 V DC
- AC = 100-240 V AC, 50/60 Hz, with 24 V DC direct current motor

Number of electric connecting possibilities

- 1A = AC: square-type plug for power supply, grounding equipment conductor 1
- 1A = DC: bayonet plug, 7/4-pole for power supply, low-level control, protective conductor
- 2A = AC: square-type plug for power supply, bayonet plug, 4-pole for low-level control or relay

Type of connection

- 1 = square-type plug
- 5 = bayonet plug 7/4-pole

Connection outside of the pump

- 01 = with connecting socket, without cable
- 14 = bayonet socket with 10 m; 33 ft cable, 7/7-core
- 20 = bayonet socket with 20 m; 66 ft cable, 7/7-core

Grease

¹⁾ Electrical signal should be taken from top of lid

Pump unit

ZPU 01/02



Grease

Product description

The ZPU 01/02 high-pressure, high-volume pumps can be used as a supply pump for small to midsize dual-line systems or for progressive systems.

Depending on the system layout, these electric pumps can supply lubricant within a 50 m (54 yd) radius at a maximum pressure of 400 bar (5 800 psi). Available with 10 or 30 l (2.6 or 8 gal) reservoirs, these units are compatible with oil and grease up to NLGI 2 (NLGI 3 upon request). Featuring one or two elements, the ZPU 01/02 pumps work effectively in a broad temperature range thanks to the integrated stirring device.

Features and benefits

- Reliable
- Versatile
- Ultrasonic low- and high-level control options
- Free shaft end for use with other motors

Applications

- Light to medium industrial applications
- Mixing machines
- Power plants
- Reclaimers
- Stackers



Technical data

Function principle	electrically operated piston pump
Operating temperature	-20 to +70 °C; -4 to +158 °F
Operating pressure	M 100, M490: max. 350 bar; 5 075 psi M049: max. 400 bar; 5 800 psi
Lubricant	grease: up to NLGI 2, NLGI 3 on request oil: with a viscosity of min. 20 mm ² /s at operating temperature
Metering quantity ¹⁾	ZPU 01: 13,33 cm ³ /min; 0.813 in ³ /min ZPU 02: 26,67 cm ³ /min; 1.63 in ³ /min ZPU 02-M049: 53,33 cm ³ /min; 3.25 in ³ /min
Reservoir	10 or 30 l; 2.6 or 8 gal
Connection main line ²⁾	model V: for tube 10 mm model E: G 1/4
Operating voltage	380-420 V AC/50 Hz, 440-480 V AC/60 Hz; (± 10%)
Protection class	IP 65
Dimensions	min. 514 × 379 × 317 mm min. 20.25 × 15.00 × 12.50 in max. 754 × 431 × 337 mm max. 29.75 × 17.00 × 15.00 in
Dimensions low-level sensor	30 × 125 × 65 mm 1.2 × 5.0 × 2.75 in
Mounting position	upright

¹⁾ output increase by 20% for 60 Hz applications

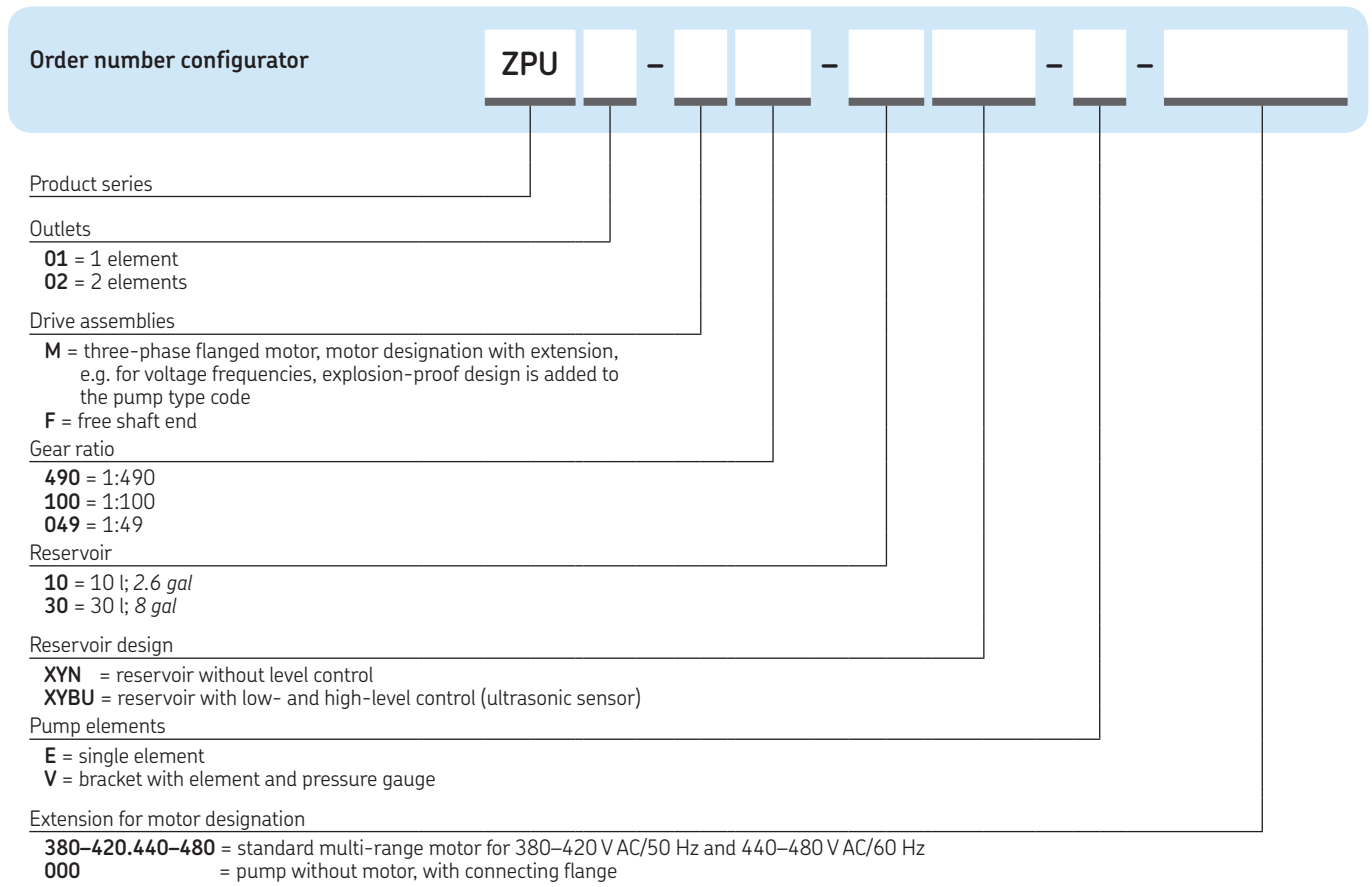
NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication:
951-171-016 EN

3D data and product configuration:
skf-lubrication.partcommunity.com/3d-cad-models/

Pump unit

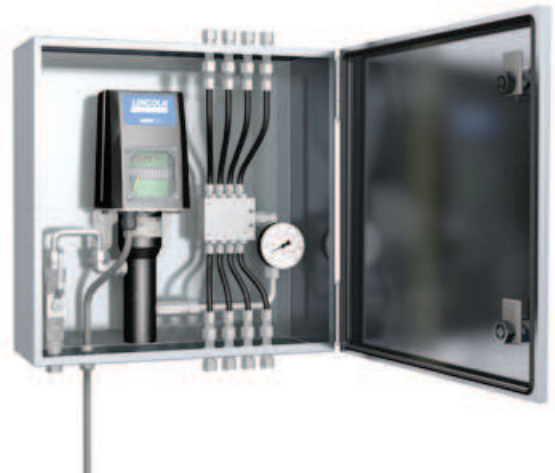
ZPU 01/02



Grease

Pump

EDL1



Grease

Product description

The EDL1 is an easy-to-use, electrical pressure booster for sectional lubrication systems. High output pressure enables provision of lubricant from a single source to progressive metering devices and distant lubrication points with different lubricant requirements. Low input pressure of 2 bar (29 psi), allows for retrofit installations in existing systems. For operation of EDL1 an additional feeder pump is required.

Features and benefits

- Cost-effective solution
- Environmentally friendly; no need for pressurized air; can be driven by solar panels
- Virtually maintenance free
- User-friendly design and operation
- Flexible inlet and outlet positions
- Sends fault messages remotely
- Optional pressure switch available

Applications

- Food and beverage
- Wayside lubrication in rail applications
- Cement industry
- Other heavy industries

Technical data

Function principle	electronically driven lubricator
Operating temperature	-25 to +70 °C -13 to +158 °F
Operating pressure	max. 280 bar max. 4 015 psi
Inlet pressure	min. 2 bar, max. 270 bar min. 30 psi; max. 3920 psi
Lubricant	grease: NLGI 1 and 2
Outlets	1
Metering quantity	full stroke: 1 cm ³ /min; 0.06 in ³ /min half stroke: 0,5 cm ³ /min; 0.03 in ³ /min
Operating voltage	24 V DC ± 10%
Connection main line	GE-L X10 (others on request)
Protection class	IP 65
Dimensions	116 × 114 × 350 mm 4.56 × 4.48 × 13.78 in
Mounting position	any

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publications available online at skf.com/edl1:
951-171-010 EN, 16144 EN

3D data and product configuration:
skf-lubrication.partcommunity.com/3d-cad-models/

Pump

EDL1

Order number configurator

EDL1 - - - - + 924

Product series

Material corrosion protection; inlet/outlet position

- 1 = (standard) metal parts/piston based on C3 I/O: left/right
- 2 = metal parts/piston based on C3 I/O: right/right
- 3 = metal parts/piston based on C3 I/O: right/left
- 4 = metal parts/piston based on C3 I/O: left/left

Inlet connection ¹⁾

- 0 = without connection
- 5 = GE-L ø 10 mm

Outlet or outlet connection at check valve ¹⁾

- 0 = without connection
- 5 = GE-L ø 10 mm
- E = GE-L ø 10 mm with pressure switch 300 bar; 4 350 psi and cable
- M = GE-L ø 10 mm with pressure switch 100 bar; 1 450 psi and cable

Controlling and timing

- 01 = start-stop operation settings: volume = 1 cm³; 0.155 in³; full stroke
- 11 = automatic mode; machine contact; settings: volume = 1 cm³; 0.155 in³; full stroke
- 61 = pulse mode; settings: open

Electric connection

- 00 = 3 x blind plug
- 01 = 2 x blind plug; with 1 x M 16 cable screw connection
- 11 = 1 x blind plug; with 2 x M 16 cable screw connection
- 31 = power supply; with 2 x M 16 cable screw connection

Power supply

- 924 = 24 V DC

Grease

¹⁾ composition defined by Material: corrosion protection

Pump unit

PPU-5/PPU-35



Grease

Product description

PPU-5 and PPU-35 are air-operated piston pumps designed to supply either oil or grease. They feature a spring-loaded piston that can be activated either by a 3/2-way or 4/2-way valve connection, which must be ordered separately. A reservoir (for grease only) can be connected to the pump via an intermediate plate or directly to the machine for a remote reservoir connection. Output can be modified via the adjusting screw.

Features and benefits

- Compact pump for either grease and oil within progressive system
- Adjustable output via stroke setting screw
- Direct connect reservoir or remote connect reservoir possible
- Optional low-level control available, only with integrated reservoir
- Hydraulically operated version of pump available, see under hydraulic pumps

Applications

- Small progressive systems
- Engine building
- Tube bending machines



Technical data

Function principle	air-operated piston pump
Lubricant	oil and grease up to NLGI 2
Outlets	1
Metering quantity per stroke	
PPU-5	0,1–0,5 cm ³ 0,006–0,03 in ³
PPU-35	0,7–3,5 cm ³ 0,043–0,21 in ³
Operating pressure ¹⁾	160 bar 2 320 psi
Air pressure	adjustable: 4,5–10 bar; 65–145 psi
Priming pressure	30 bar 435 psi
Reservoir	2,5 and 5 l 0,66 and 1,32 gal
Connection main line	tube ø 10 mm
Dimensions	min. 247 × 40 × 120 mm min. 9,72 × 1,57 × 4,72 in max. 270 × 83 × 126 mm max. 10,63 × 3,27 × 4,96 in
Mounting position	any

¹⁾ rupture disc, other pressures available

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication:
951-170-012 EN

PUB LS/P1 16964 EN

Pump unit

PPU-5/PPU-35

PPU-5...

Order number	Reservoir integrated		Low-level control integrated
	l	gal	
PPU-5	no	no	no
PPU-5-2.5	2,50	0.66	no
PPU-5-2.5W	2,50	0.66	yes
PPU-5-5	5	1.32	no
PPU-5-5W	5	1.32	yes

PPU-35...

Order number	Reservoir integrated		Low-level control integrated
	l	gal	
PPU-35	no	no	no
PPU-35-2.5	2,50	0.66	no
PPU-35-2.5W	2,50	0.66	yes
PPU-35-5	5	1.32	no
PPU-35-5W	5	1.32	yes

Grease

Accessories

Rupture discs

PPU- BS...



Rupture discs

Order number	Colour	Burst pressure		Thickness	
		bar	psi	mm	in
PPU-BS60	black	60	870	0,152	0.006
PPU-BS80	green	80	1 160	0,203	0.008
PPU-BS100	yellow	100	1 450	0,254	0.010
PPU-BS120	red	120	1 740	0,305	0.012
PPU-BS140	orange	140	2 030	0,356	0.014
PPU-BS160	silver	160	2 320	0,406	0.016
PPU-BS180	pink	180	2,610	0.457	0.018

Pump

87214



Grease



Product description

The model 87214 pump is an air-operated, single-acting pump requiring a timer and three-way valve to control the cycles. Air pressure powers the piston on the delivery stroke, and a spring returns it to priming position. Depending on the type of reservoir used, the pump is suitable for both grease and oil applications.

The 87214 pump requires a specially designed reservoir that must be ordered separately.

Features and benefits

- Pump can be removed from reservoir without disturbing existing piping
- Inlet shut-off valve in reservoir base allows removal of pump without draining reservoir

Applications

- Heavy-duty machinery
- Printing industry
- Metal cutting
- Metal forming
- Wood working and processing

Technical data

Function principle	air-operated single acting pump ^{1) 2)}
Operating pressure	min. 4 bar, max. 14 bar <i>min. 60 psi, max. 200 psi</i>
Lubricant	oil and grease NLGI 0 to 2
Outlets	1
Metering quantity ³⁾	oil: max. 30 strokes/min grease: max. 22 strokes/min 0,164-0,98 cm ³ /stroke 0.01-0.06 in ³ /stroke
Reservoir	see accessories
Ratio	18:1
Connection main line	3/4 NPTF
Dimensions pump	162 × 44,5 × 44,5 mm 6.38 × 1.75 × 1.75 in
Mounting position	upright

¹⁾ Needs to connect special reservoir to pump, see accessories

²⁾ Pump includes NBR O-rings

³⁾ Output adjustable by steps of one turn of adjustment screw equal to 0,049 cm³; 0.003 in³

Pump

87214

87214

Order number	Designation
87214	air-operated single acting pump, ratio 18:1, pump includes NBR O-rings

Accessories

Reservoirs

87402



Product description

These reservoirs made of acryl are designed to be mounted directly onto the pump. They include all connections for air (or hydraulic oil, see hydraulically driven pump 87212, see p. 68) and lubricant outlet. They include a gauge 200 bar; 3 000 psi and an atmospheric indicator 62 bar; 900 psi.

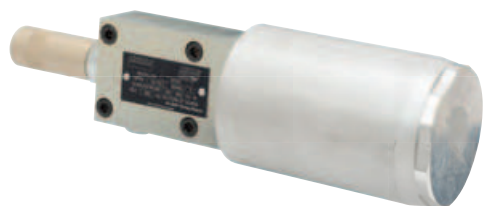
Modular reservoirs

Order number	Lubricant	Capacity		Connection ¹⁾ NPSM(F)	Dimensions	
		l	gal		mm	in
87402	grease	1,475	0.389	1/8	295×172.2×179.6	11.6×6.78×7.06
87403	grease	2,450	0.647	1/8	371×172.2×179.6	14.6×6.78×7.06
87405	oil	2,365	0.624	1/8	262×172.2×179.6	10.3×6.78×7.06

¹⁾ for air supply and lubricant outlet

Pump

87200/87216/130179



Grease

Product description

SKF's modular pumps are designed to efficiently supply either grease or oil in automatic systems using progressive metering devices. Models 87200, 87216 and 130179 are air-operated pumps that must be equipped with an appropriate baseplate and reservoir to make up a pump assembly.

Baseplates contain all inlet and outlet connections for the pump and lubrication system and allow for quick pump removal without disturbing any existing piping. Removal of the pump does not require draining of the reservoir due to an integral check valve in the baseplate. Pump cycles will be controlled by a timer in conjunction with a three-way valve (supplied separately).

Features and benefits

- No dismantling of piping when removing pump
- No draining required due to integral check valve in baseplate
- Precise adjustability of output

Applications

- Small progressive systems
- Printing industry
- Material handling
- Metal processing

Technical data

Function principle	air-operated single acting pump ¹⁾
Outlet	1
Lubricant	oil and grease NLGI 0 to 2
Metering quantity ²⁾	
87200	0,41 to 0,164 cm ³ /stroke 0,025 to 0,10 in ³ /stroke
87216	0,164 to 0,82 cm ³ /stroke 0,01 to 0,05 in ³ /stroke
130179	4,1 to 16,39 cm ³ /stroke 0,25 to 1,0 in ³ /stroke
Strokes per minute, oil	
87200; 87216	max. 30 strokes/min
130179	max. 25 strokes/min
Strokes per minute, grease	
87200; 87216	max. 22 strokes/min
130179	max. 10 strokes/min
Inlet pressure, air	
87200; 87216	min. 2.8 bar; 40 psi max. 10 bar; 150 psi
130179	min. 4,5 bar; 65 psi max. 10 bar; 150 psi
Pressure ratio	
87200; 130179	25:1
87216	50:1
Connection mainline	1/4 NPTF (F)
Dimensions pump only	87200, 87216: 251 × 70 × 70 mm 9,88 × 2,75 × 2,75 in 130179: 114 × 291 × 140 mm 4,50 × 11,38 × 5,50 in
Mounting position	with reservoir upside up

¹⁾ needs for operation modular baseplate and reservoir, see accessories
²⁾ output adjustable by steps of one turn of adjustment screw

PUB LS/P1 16964 EN

Pump

87200/87216/130179

87200/87216/130179

Order number	Ratio	Baseplates		
		87218 ¹⁾	87204 ²⁾	130095 ²⁾
87200	25:1	•	•	–
87216	50:1	•	•	–
130179 ³⁾	25:1	–	–	•

- ¹⁾ for use with Modular Lube reservoirs
- ²⁾ for machine mount, use with remote reservoir customer's supply
- ³⁾ with valved piston uses Modular Lube reservoirs or pressurized (max. 140 bar; 2 000 psi) lubrication supply

Accessories

Baseplates and reservoirs

Grease

87218



Baseplates ¹⁾

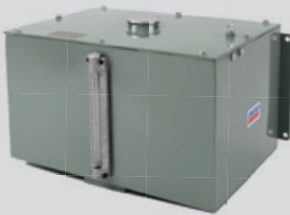
Order number	Air NPTF (F) inlet	Lubricant NPTF (F)	
		inlet	outlet
87218 ²⁾	1/8		1/4
87204 ³⁾	1/4	3/8	1/4
130095 ³⁾	1/4	1/4	1/4

- ¹⁾ all baseplates use atmospheric indicator 100 bar; 1450 psi
- ²⁾ for use with Modular Lube reservoirs
- ³⁾ for machine mount, use with remote reservoir customer's supply

Product designation

Baseplates can be intermediate (for use with Modular Lube reservoirs) or machine mount (for use with remote reservoirs). They have all main connections for hydraulic oil and lubricant included. They include FKM O-rings.

87417



Modular reservoir for oil systems ¹⁾

Order number	Designation	Capacity		Lubricant outlet NPTF (F)	Dimensions	
		l	gal		mm	in
87400	cylindrical, acrylic	2,40	0.63	1/2	400×153×135	15.7×6.0×5.3
87413	cylindrical, acrylic	4,70	1.25	1/2	450×168×199	17.7×7.3×7.47
87417	tank, steel	18,90	5	3/8	258×445×319	10.1×17.5×12.6
87418	tank, steel	11,30	3	3/8	258×343×294	10.1×13.5×11.6
87419	tank, steel	5,70	1.50	3/8	258 267×192	10.1×10.5×7.6

- ¹⁾ use filler fitting 632004

Product description

All reservoirs accept 87218 intermediate baseplate and are for direct mount.

Modular reservoir for grease systems ^{1) 2)}

Order number	Designation	Capacity		Dimensions	
		l	gal	mm	in
87406	acrylic	4,90	1.30	450×186×190	17.7×7.3×7.5
87416	acrylic	7,35	1.94	641×186×190	25.2×7.3×7.5
87421 ³⁾	steel	4,90	1.30	450×186×188	17.7×7.3×7.4
87423 ³⁾	steel	7,35	1.94	641×186×188	25.7×7.3×7.4

- ¹⁾ use filler fitting 632004
- ²⁾ reservoirs include 1/2 NPTF (F) outlet
- ³⁾ includes visual level indicator rod

Pump unit

PP/PPG



Product description

PP pumps are air-operated, single-stroke pumps that require a 3/2-way air valve to activate the air cylinder. Designed to supply grease through one outlet, the pumps are equipped with a spring-loaded follower plate and an indicator rod for level control purposes. Suitable for indoor/outdoor applications, PP pumps can be used with a primary progressive metering device or with a secondary-level metering device.

Similar to the PP pumps, PPG devices include an integrated metering device with eight outlets, enabling their use as small, air-operated progressive systems.

Features and benefits

- Compact, air-operated units for up to 100 lubrication points
- Indicator rod for level control available
- Unique port arrangements possible (PPG)
- Internal return of grease into reservoir (PPG)
- Simple refilling from grease pail

Applications

- Spinning machines
- Die-cutting machines
- Beverage processing
- Small presses
- Machine tools
- Handling equipment

Technical data

Function principle	air-operated single-stroke piston pump
Operating temperature	0 to +60 °C +32 to 140 °F
Operating pressure	PP: 300 bar; 4 350 psi PPG: 250 bar; 3 626 psi
Air inlet pressure	min. 4 bar; 58 psi max. 10 bar; 145 psi
Air pressure ratio	40:1
Lubricant	grease up to NLGI 2
Outlets	PP: 1 outlet PPG: 8 outlets
Metering quantity per stroke	PP: 2,6 cm ³ ; 0,16 in ³ PPG ¹⁾ : 0,2 cm ³ ; 0,012 in ³
Reservoir	0,4 or 1,5 l; 0,1 or 0,4 gal
Connection main line	PP: for tube ø 6mm PPG ²⁾ : M 10×1
Connection inlet air	G 1/8
Dimensions	PP: 115 × 122 × 550 mm; 4.53 × 4.80 × 21.65 in PPG ³⁾ : 115 × 112 × 725 mm; 4.53 × 4.41 × 28.54 in
Mounting position	upright

¹⁾ average output/outlet for one pump stroke: 0,3cm³/stroke; 0,018 in³/stroke
²⁾ need to use special SKF outlet fittings
³⁾ level indicator fully extended

Pump unit

PP/PPG

PP/PPG

Order number	Designation	Outlets	Reservoir	
			l	gal
604-25105-2	PP-15	1	1,5	0,4
604-29968-1	PPG-4	8	0,4	0,1
604-29969-1	PPG-4-K ¹⁾	8	0,4	0,1
604-25111-3	PPG-15	8	1,5	0,4
604-25130-3	PPG-15-K ¹⁾	8	1,5	0,4

¹⁾ K = with optical pin indicator

Grease

Accessories

Outlet fittings and closure plugs

303-17499-3



PP/PPG outlet fittings

Order number	Designation
504-30344-4	special outlet fitting for tube \varnothing 6mm
504-30345-2	special outlet fitting for tube \varnothing 4mm
303-17499-3	closure plug

Pump unit

PFP-23-2/PFP-23-22



Product description

PFP-23-2 and PFP-23-22 are air-operated grease pump units that include a reservoir and follower plate under atmospheric pressure. These pumps are made for small-sized progressive systems or for use as multi-line pumps. The output of one lever stroke is divided by two when using two outlets. A return line to the reservoir is available. Also the pump is equipped with a filling coupler to refill the pump.

Features and benefits

- Small, compact, air-operated pump
- Up to 190 bar (2 755 psi) operating pressure
- Port for return line is available on pump
- Refill by grease coupling avoids contamination of grease
- Available with one or two outlets

Applications

- Small- and medium-sized machines
- For all applications with air-operated power supply
- Especially for indoor applications
- Blow molding machines
- Food and beverage machines

Technical data

Function principle	air-operated piston pump
Operating pressure ¹⁾	190 bar 2 755 psi
Operating temperature ²⁾	+10 to 60 °C +50 to 140 °F
Air inlet pressure	6 to 10 bar; 87 to 145 psi
Lubricant	grease up to NLGI 2
Outlets	PFP-23-2: 1 PFP-23-22: 2
Metering quantity per stroke	PFP-23-2, one outlet closed: 2,5 cm ³ /port 0,15 in ³ /port PFP-23-22, both outlets used: 1,25 cm ³ /port 0,076 in ³ /port
Ratio	20:1
Reservoir ³⁾	1,5 l 0,4 gal
Material	reservoir: acryl glass
Connection main line	outlets: tube ø 10mm return line: G 1/4
Dimensions	132 × 132 × 410 mm 5,20 × 5,20 × 16,14 in
Mounting position	upright

¹⁾ depending on air inlet pressure

²⁾ for temperature below 10°C/ 50°F special version with follower piston pressurized with compressed air available, see further publication

³⁾ use filling connection order number: 995-001-500 to refill reservoir

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publications available online at SKF.com/lubrication:
951-170-012 EN, 1-0107-4 EN

Pump unit

PFP-23-2/PFP-23-22

PFP-23-2/PFP-23-22

Order number	Designation	Outlets	Metering quantity per stroke/port	
			cm ³	in ³
PFP-23-2 ¹⁾	air-operated grease pump	1	2,50	0.15
PFP-23-22	air-operated grease pump one outlet closed by plug	2	1,25	0.076

¹⁾ one outlet closed by plug

Grease

Accessories

Refill coupling

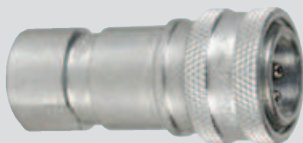
24-9909-0244



Filler socket

Order number	Designation
24-9909-0244	filler socket with sealing ring

995-001-500



Coupling socket

Order number	Designation
995-001-500	coupling socket for reservoir refilling

857-760-...



Hose socket

Order number	Designation
857-760-007	hose socket; ø 13 mm
857-760-002	hose socket; ø 16 mm

Pump unit

EPB



Grease

Product description

Designed to feed lubricant into a centralized system, the SKF EPB pump unit is an electro-air-operated barrel pump in which the traditional mechanical air motor valve has been replaced with a solenoid valve. With the proper equipment, it is possible to use the EPB pump with bag-like lubricant containers. Suitable for 18, 50 and 180 kg (40, 120 and 400 lb) lubricant barrels, the EPB is available in two versions – ECO and STA. The ECO version is intended for use with ECO lids sets, and the STA version works with STA, LG and OS lid sets.

Features and benefits

- Lubrication-free, electronically controlled air motor enables accurate control of pump output
- Fewer mechanical components extend air motor's service life
- Includes self-diagnosing system
- Operates effectively in wide range of temperatures
- IP 65 protection rating

Applications

- Paper industry
- Steel industry



Technical data

Function principle	electro-air-operated piston pump unit for barrels
Operating temperature	-10 to +50 °C, +14 to 122 °F
Operating pressure	max. 300 bar, 4 350 psi
Pressure ratio	1:65
Pressure air supply	3,5 to 4,5 bar, 51 to 65 psi
Air consumption	300 l/min; 80 gal/min
Lubricant	grease: ECO: NLGI 1 or 2 STA: NLGI 0, 1 or 2 oil: 5 000 mm ² /s
Metering quantity ¹⁾	6,1 cm ³ /cycle; 0.37 in ³ /cycle
Electrical connections	20–32 V DC
Barrel capacity	18, 50 and 180 kg, 40, 120 or 400 lb barrel not included
Protection class	IP 65
Dimensions	depending on the model min. 650×130×130 mm max. 920×130×130 mm min. 25.6×5.11×5.11 in max. 36.22×5.11×5.11 in
Mounting position	upright

¹⁾ generally approx. 50 cycles/min are assumed

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication:
06414/2 EN

Pump unit

EPB

Order number configurator

SKF-EPB-PUMP - -

Product series

SKF-EPB-PUMP = Electro-air-operated barrel pump

Drum capacity

1/8 = lubricant barrel capacity: 18 kg, 40 lb

1/4 = lubricant barrel capacity: 50 kg, 120 lb

1/1 = lubricant barrel capacity: 180 kg, 400 lb

Lid set

ECO = pumping unit is connected to a follower plate placed inside the lubricant barrel, allowing the pump to follow the lubricant level, for use with greases NLGI 2

STA = lid set for use with greases NLGI 1 and 2

LG = lid set for use with greases NLGI 000-0

OS = lid set for use with oils

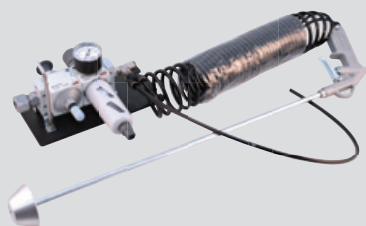
Accessories

Installation kits, maintenance unit and power supply unit



Installation kits EPBP

Order number	Designation
INSTALLATION KIT-ECO EPBP	VGBV 12381354
INSTALLATION KIT-STA EPBP	VGBV 2381353



Maintenance unit for easy exchange of barrels

Order number	Designation
MAXILUBE-SET-ECO-EPBP	VGBV 12382677
MAXILUBE-SET-STA-EPBP	VGBV 12382678



Power supply unit

Order number	Designation
EPBP-UNIPOWER 24V 0.63A 100-240V	VGBV 12381505

Pump

87212

Grease



Product description

The model 87212 pump is a hydraulically operated, single-acting pump with a double-acting, hydraulic cylinder that requires a four-way valve and timer for operation. Hydraulic pressure powers the piston on the delivery stroke and returns it to priming position. Depending on the type of reservoir used, the pump is suitable for both grease and oil applications. The 87212 pump requires a specially designed reservoir that must be ordered separately.

Features and benefits

- Pump can be removed from reservoir without disturbing existing piping
- Inlet shut-off valve in reservoir base allows removal of pump without draining reservoir

Applications

- Small progressive systems
- Foundry machinery
- Material handling
- Metal cutting



Technical data

Function principle	hydraulically operated single acting pump ^{1) 3)}
Operating pressure	14–40 bar 200–600 psi
Lubricant	oil and grease
Outlets	1
Metering quantity ²⁾	0,164–0,98 cm ³ /stroke 0,01–0,06 in ³ /stroke oil: max. 30 strokes/min grease: max. 22 strokes/min
Reservoirs	see accessories ⁴⁾
Pressure ratio	5:1
Connection main line	1/4 NPTF
Dimensions pump	162 × 44,5 × 44,5 mm 6,38 × 1,75 × 1,75 in
Mounting position	with reservoir upward

¹⁾ needs to connect special reservoir to pump, see accessories

²⁾ output adjustable by steps of one turn of adjustment screw equal to 0.049 cm³; 0.003 in³

³⁾ pump includes NBR O-rings

87212

Order number	Designation	Ratio
87212	hydraulically operated single acting pump includes NBR O-rings	5:1

PUB LS/P1 16964 EN

Pump

Accessories

87402



Product description

These reservoirs made of acryl are designed to be mounted directly onto the pump. They include all connections for hydraulic oil (air: see air-operated pump 87214, p. 58) and lubricant outlet. They include a gauge 200 bar; 3 000 *psi* and an atmospheric indicator 62 bar; 900 *psi*.

Modular reservoirs

Order number	Lubricant	Capacity		Connections ¹⁾ NPSM(F)	Dimensions	
		l	gal		mm	in
87402	grease	1,475	0.389	1/8	295×172.2×179.6	11.6×6.78×7.06
87403	grease	2,450	0.647	1/8	371×172.2×179.6	14.6×6.78×7.06
87405	oil	2,365	0.624	1/8	262×172.2×179.6	10.3×6.78×7.06

¹⁾ for air supply and lubricant outlet

Pump

87202

Grease



Product description

87202 modular pumps are designed to efficiently supply grease or oil in automatic systems using metering valve metering devices. These hydraulically operated pumps must be equipped with an appropriate baseplate and reservoir to make up a pump assembly. Baseplates contain all inlet and outlet connections for the pump and lubrication system. Pump cycles will be controlled by a timer in conjunction with a four-way valve (supplied separately).

Features and benefits

- No dismantling of piping when removing pump
- No draining required due to integral check valve in baseplate
- Precise adjustability of output

Applications

- Small progressive systems
- Metal forming
- Metal cutting

Technical data

Function principle hydraulically operated pump
 Operating pressure 20–138 bar
 275–2 000 psi
 Lubricant oil and grease
 Outlets 1
 Metering quantity 0,41–1,64 cm³/stroke
 0.025–0.10 in³/stroke
 Connection main line 1/4 NPTF
 Dimensions 241,3×47,7×54,1 mm
 9,5×1.88×2.13 in
 Mounting position with reservoir upward

87202 hydraulically operated pump

Order number	Ratio	Baseplate 87218 ¹⁾	87204 ²⁾
87202	7:1	•	•

¹⁾ for use with Modular Lube reservoirs
²⁾ for machine mount, use with remote reservoir customer's supply

Baseplates and reservoirs



Baseplate ¹⁾

Order number	Hydraulic	Lubricant	
	NPTF (F) inlet	NPTF (F) inlet	NPTF (F) outlet
87218 ²⁾	1/8	3/8	1/4
87204 ³⁾	1/4	3/8	1/4

¹⁾ all baseplates uses atmospheric indicator 100 bar; 1450 psi
²⁾ for use with Modular Lube reservoirs
³⁾ for machine mount, use with remote reservoir customer's supply

Product description

Baseplates can be intermediate (for use with Modular Lube reservoirs) or machine mount (for use with remote reservoirs). They have all main connections for hydraulic oil and lubricant included. They also include FKM O-rings.



Modular reservoir for oil systems ¹⁾

Order number	Designation	Capacity		Lubricant outlet	Dimensions		
		l	gal		NPTF (F)	mm	in
87400	cylindrical, acrylic	2,40	0.625	1/2	400×153×135	15.7×6.0×5.3	
87413	cylindrical, acrylic	4,70	1.25	1/2	450×168×199	17.7×7.3×7.47	
87417	tank, steel	18,90	5	3/8	258×445×319	10.1×17.5×12.6	
87418	tank, steel	11,30	3	3/8	258×343×294	10.1×13.5×11.6	
87419	tank, steel	5,70	1.5	3/8	258 267×192	10.1×10.5×7.6	

¹⁾ Use filler fitting 632004

Product description

All reservoirs accept 87218 intermediate baseplate and are for direct mount.

Modular reservoir for grease systems ^{1) 2)}

Order number	Designation	Capacity		Dimensions	
		l	gal	mm	in
87406	acrylic	4,90	1.30	450×186×190	17.7×7.3×7.5
87416	acrylic	7,35	1.94	641×186×190	25.2×7.3×7.5
87421 ³⁾	steel	4,90	1.30	450×186×188	17.7×7.3×7.4
87423 ³⁾	steel	7,35	1.94	641×186×188	25.7×7.3×7.4

¹⁾ use filler fitting 632004
²⁾ reservoirs include 1/2 NPTF (F) outlet
³⁾ includes visual level indicator rod

Grease

Pump unit

PHU-5/PHU-35



Grease

Product description

PHU-5 and PHU-35 are hydraulically operated piston pumps for progressive systems. They are designed to supply either oil or grease. The pumps feature a spring-loaded piston that can be activated either by a 3/2-way or 4/2-way valve connection, which must be ordered separately. A reservoir can be connected to the pump via an intermediate plate or directly to the machine for a remote reservoir connection. Pump output can be modified via the adjusting screw.

Features and benefits

- Compact pump for either grease or oil
- Adjustable output via setting screw
- Direct-connect or remote-connect reservoir option
- Optional low-level control available with integrated reservoir
- Air-operated pump version available

Applications

- Small progressive systems
- Small presses

Technical data

Function principle	hydraulically operated piston pump
Lubricant	oil, grease up to NLGI 2
Outlet	1
Metering quantity per stroke	
PHU-5	adjustable: 0,1–0,5 cm ³ 0.006–0.03 in ³
PHU-35	adjustable: 0,7–3,5 cm ³ 0.043–0.21 in ³
Actuating pressure	adjustable: 4.5 to 10 bar 65.3 to 145 psi
Priming pressure	30 bar; 435 psi
Operating pressure	160 bar; 2 320 psi
Reservoir	2.5 and 5 l; 0.66 and 1.32 gal
Connection main line	M 10 × 1 or tube ø 10 mm
Dimensions	min. 251 × 40 × 120 mm min. 9.88 × 1.57 × 4.72 in max. 270 × 83 × 126 mm max. 10.63 × 3.27 × 4.96 in
Mounting position	any



NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication:
1-0107-5 EN; 951-170-012 EN

Pump unit

PHU-..

PHU-5...	Reservoir integrated		Low-level control integrated
	l	gal	
PHU-5	no	no	no
PHU-5-2.5	2,50	0,66	no
PHU-5-2.5W	2,50	0,66	yes
PHU-5-5	5	1,32	no
PHU-5-5W	5	1,32	yes

PHU-35...	Reservoir integrated		Low-level control integrated
	l	gal	
PHU-35	no	no	no
PHU-35-2.5	2,50	0,66	no
PHU-35-2.5W	2,50	0,66	yes
PHU-35-5	5	1,32	no
PHU-35-5W	5	1,32	yes

Grease

Accessories

Rupture discs



Rupture discs	Order number	Colour	Burst pressure		Thickness	
			bar	psi	mm	in
PPU-BS60	black	60	870	0,152	0.006	
PPU-BS80	green	80	1 160	0,203	0.008	
PPU-BS100	yellow	100	1 450	0,254	0.010	
PPU-BS120	red	120	1 740	0,305	0.012	
PPU-BS140	orange	140	2 030	0,356	0.014	
PPU-BS160	silver	160	2 320	0,406	0.016	
PPU-BS180	pink	180	2 610	0,457	0.018	

Pump unit

PFH-23-2/PFH-23-22



Grease

Product description

PFH-23-2 and PFH-23-22 are hydraulically operated grease pump units that include a reservoir and follower plate under atmospheric pressure. These pumps are suitable for small-sized progressive systems or for use as multi-line pumps. When using two outlets, the output of one lever stroke is divided by two.

Features and benefits

- Small, compact, hydraulically operated pump
- Up to 200 bar (2 900 psi) operating pressure
- Pump port for return line is available
- Refilling via grease coupling avoids grease contamination
- Available with one or two outlets

Applications

- Small- and medium-sized machines
- Applications with hydraulic power supply
- Especially for indoor applications
- Die-cutting machines
- Small presses

Technical data

Function principle	hydraulically operated grease pump
Operating temperature	+10 to 60 °C; +50 to 140 °F
Operating pressure ¹⁾	200 bar 2 900 psi
Air inlet pressure	6 to 30 bar 87 to 435 psi
Lubricant	grease up to NLGI 2
Outlets	PFH-23-2: 1 PFH-23-22: 2
Metering quantity	
PFH-23-2	1 outlet closed: 2,5 cm ³ /port/stroke 0,15 in ³ /port/stroke
PFH-23-22	both outlets used: 1,25 cm ³ /port/stroke 0,076 in ³ /port/stroke
Pressure ratio	7:1
Reservoir ²⁾	1,5 l; 0,4 gal
Material	reservoir: acryl glass
Connection main line	tube ø 10 mm for outlets G ¹ / ₄ for return line
Dimensions	132 × 132 × 458 mm 5,20 × 5,20 × 18,03 in
Mounting position	upright

¹⁾ depending on hydraulic inlet pressure

²⁾ use filling connection order no. 995-001-500 to refill reservoir

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication:
1-0107-4 EN; 951-170-012 EN

Pump unit

PFH-23-2/PFH-23-22

PFH-23-2/PFH-23-22 pump units

Order number	Outlets	Metering quantity per outlet/stroke	
		cm ³	in ³
PFH-23-2 ¹⁾	1	2,5	0.15
PFH-23-22	2	1,25	0.076

¹⁾ 1 outlet closed by plug

Accessories

Refill coupling

24-9909-0244



Filler socket

Order number	Designation
24-9909-0244	filler socket with sealing ring

995-001-500



Coupling socket

Order number	Designation
995-001-500	coupling socket for reservoir refilling

857-760-...



Hose socket

Order number	Designation
857-760-007	hose socket; ø 13 mm
857-760-002	hose socket; ø 16 mm

Pump unit

HP/HPG



Grease

Product description

The manually operated single-stroke lever pump HP is designed for use in progressive systems to supply grease through one outlet. They are equipped with a spring-loaded follower plate and an indicator rod for level control purposes. The pumps can be used with a primary progressive metering device only or also with a secondary-level metering device.

Similar to HP pumps, HPG pumps include a special integrated progressive metering device with eight outlets. Therefore, the HPG are suitable for small manually operated progressive systems.

Features and benefits

- No power supply necessary
- Ease of use
- HPG with integrated progressive metering device, serving up to 8 lubrication points
- HPG 15 pumps refillable via filling nipple
- Level control via indicator rod

Applications

- Applications without power supply
- Indoor use
- Excenter presses
- Slurry centrifuges

Technical data

Function principle	manually operated single-stroke piston pump
Operating temperature	-25 to +70 °C -13 to +158 °F
Operating pressure	HP 4: 250 bar; 3 625 psi HP 15: 250 bar; 3 625 psi
Lubricant	greases up to NLGI 2
Outlets	1 to 8
Metering quantity per stroke	HP 4: 1,6 cm ³ ; 0.10 in ³ HP 15: 1,6 cm ³ ; 0.10 in ³
Main line connection	for tube ø 6 mm; M 10 × 1 ¹⁾
Reservoir	
HP 4/HPG 4	0,4 l; 0.11 gal
HP 15/HPG 15	1,5 l; 0.4 gal
Dimensions ²⁾	min. 73 × 140 × 350 mm min. 2.87 × 5.15 × 13.78 in max. 107 × 180 × 455 mm max. 4.21 × 7.09 × 19.91 in
Mounting position	upright

¹⁾ need to use special outlet fittings

²⁾ add approx. 153 mm for depth and 85 mm for height for full extension of lever and level rod

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication: **951-231-000-EN**

Pump unit

HP/HPG

HP/HPG pumps

Order number	Designation	Outlet	Operating pressure	
			bar	psi
604-25102-1	HP 4	1	250	3 625
604-25103-1	HP 15	8	250	3 625
604-25108-2	HPG 4	8	200	2 900
604-25109-2	HPG 15	8	200	2 900
604-25128-2	HPG 15-K, with visual indicator pin	8	200	2 900

Grease

Accessories

Outlet fittings

303-17499-3



HP/HPG Accessories

Order number	Designation	Tube
		ø mm
504-30344-4	special outlet fitting	6
504-30345-2	special outlet fitting	4
303-17499-3	closure plug to reduce number of outlets	–

Outlet fitting

HP pump type is delivered with outlet fittings for tube ø 6 mm. Special outlet connection fittings need to be used for pump model HPG. The closure plugs allow it to adapt the number of outlets. The output is then a multiple of 0,2 cm³; 0.012 in³.

Pump unit

HP-500W/HP-500W-SSV

Grease



Product description

The manually operated, single-stroke HP-500W pump is designed to be affixed vertically on a wall. The pump can supply grease directly to lubrication points or can be connected to progressive metering devices for an even supply of lubricant.

The HP 500W-SSV version of the pump features an integrated metering device with various outlet numbers. Both models may be used with bulk grease or with standard 400 g (0.88 lb) cartridges.

Features and benefits

- Uses standard cartridges
- No electrical power supply necessary
- Refillable bulk reservoir
- Easy to use
- Available with or without integrated metering device

Applications

- Applications without power supply
- Indoor use
- Printing industry
- Punching machines
- Planing machines

Technical data

Function principle	manually operated single stroke pump
Operating temperature	-25 to +70 °C; -13 to +158 °F
Operating pressure	HP-500W: 400 bar; 5 800 psi HP-500W SSV: 350 bar; 3 625 psi
Lubricant	grease up to NLGI 2
Outlets	HP-500W: 1 HP-500W SSV: 6, 8, 10, 12
Metering quantity	HP-500W, per stroke: 1,5 cm ³ ; 0.09 in ³ HP-500W, per SSV outlet: 0,2 cm ³ ; 0.012 in ³
Reservoir:	
with cartridge	0.4 l; 0.11 gal
without cartridge	0.5 l; 0.13 gal
Connection mainline ¹⁾	M 10 x 1
Dimensions ²⁾	
Mounting position:	
HP-500W	95 × 165 × 380 mm 3.74 × 6.50 × 14.96 in
HP-500W SSV	95 × 165 × 405 mm 3.74 × 6.50 × 15.94 in
Mounting position	upright

¹⁾ need to use special outlet fittings

²⁾ add approx. 195 mm for depth and 210 mm for height for full extension of lever and level rod

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication:
951-231-000-EN

Pump unit

HP-500W/HP-500W-SSV

HP-500 W / HP-500W-SSV

Order number	Designation	Metering device	Outlets
244-14164-1	HP-500 W	–	1
604-28766-1	HP-500W-SSV 6	•	6
604-28767-1	HP-500W-SSV 8	•	8
604-28768-1	HP-500W-SSV 10	•	10
604-28769-1	HP-500W-SSV 12	•	12

Grease

Accessories

Outlet fittings

303-17499-3



HP-500 W / HP-500W-SSV Accessories

Order number	Designation	Tube ø mm
504-30344-4	special outlet fitting	6
504-30345-2	special outlet fitting	4
303-17499-3	closure plug to reduce number of outlets	–

Outlet fitting

HP 500 W pumps need special outlet connection fittings. The closure plugs allow it to adapt the number of outlets. The output is then a multiple of 0,2 cm³; 0.012 in³.

Pump unit

PF-VPBM/169-000-146

Grease



Product description

The manually operated PF-VPBM pump was developed to supply lubricant from a grease cartridge. Equipped with an integrated metering device, the easy-to-use pump is suitable for applications requiring a compact progressive system. Its size can vary from six to 12 outlets that supply even amounts of lubricant.

Features and benefits

- Reliable, user-friendly pump
- Utilizes grease cartridges for convenience
- Varying number of outlets available

Applications

- Farm machinery
- Small stackers
- Construction machinery
- Motor vehicle superstructures

Technical data

Function principle	manually operated piston pump
Operating temperature	-25 to +80 °C -13 °F to +176 °F
Operating pressure	400 bar; 5 800 psi
Lubricant	grease up to NLGI 2
Outlets ¹⁾	6 to 12
Metering quantity	per lever stroke without metering device: 2 cm ³ ; 0.12 in ³ per outlet/stroke: 0,2 cm ³ ; 0.012 in ³
Reservoir	450 cm ³ in 400 g cartridge 27.46 in ³ in 0.88 lbs cartridge
Connection main line	outlet fitting: M 10 × 1
Dimensions ²⁾	min. 140 × 156 × 396 mm min. 5.51 × 6.14 × 15.59 in max. 140 × 156 × 506 mm max. 5.51 × 6.14 × 19.92 in
Mounting position	any

¹⁾ pump available with one outlet, without block metering device

²⁾ add approx. 244 mm, 9.6 in for depth and 415 mm, 16.3 in for height for full extension of lever and level rod

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication:
1-9430-EN, 951-230-008-EN

Pump unit

PF-VPBM/169-000-146

PF-VPBM

Order number	Metering device	Outlets
169-000-146	–	1
PF-VPBM-3-2	•	6
PF-VPBM-4-2	•	8
PF-VPBM-5-2	•	10
PF-VPBM-6-2	•	12

Accessories

Outlet fittings

VPKM-RV-S4



PF-VPBM accessories

Order number	Designation
VPKM-RV-S4	outlet fitting with check valve for tube \varnothing 6 mm
VPKM-RV-VS	push-in fitting for tube \varnothing 6 mm
917-006-101	closure plug

Pump unit

HJ 2



Grease

Product description

The manually operated HJ 2 pump unit was developed to provide lubricant to points that do not require continuous lubrication. Comprised of two supply pistons and a 3 liter (0.8 gal) reservoir with an integrated stirring device, this robust pump unit operates effectively, even at low temperatures. Operating pressure is 300 bar (4 350 psi).

Features and benefits

- Suitable for use with dual-line or progressive systems
- Dispenses greases up to NLGI 3
- Available with left- or right-hand lever

Applications

- Metal forming
- Roll straighteners
- Tire heating presses
- Harbor cranes

Technical data

Function principle	manually operated double stroke piston pump
Operating temperature	-20 to +70 °C, -4 to +160 °F
Operating pressure	max. 300 bar, 4 350 psi
Lubricant	grease: up to NLGI 3, depending on operating temperature oil: with a viscosity minimum 150 mm ² /s at operating temperature
Outlets	up to 2
Metering quantity per double stroke	HJ 2: 2 cm ³ , 0.122 in ³ HJ 2A: 2x 1 cm ³ , 0.061 in ³
Hand force at max. pressure	300 N
Reservoir	3 l; 0.8 gal
Connection outlet	G 1/4
Dimensions	410 × 135 × 393 mm 16.1 × 5.5 × 15.5 in
Mounting position	upright

Pump unit

HJ 2

HJ 2			
Order number	Designation	Position hand lever	Outlet
603-41200-1	HJ 2 R-3 XYN	right	1
603-41200-2	HJ 2 L-3 XYN	left	1
603-41200-3	HJ2AR- 3XYN	right	2
603-41200-4	HJ2AL- 3XYN	left	2

Grease

Accessories

Outlet fittings



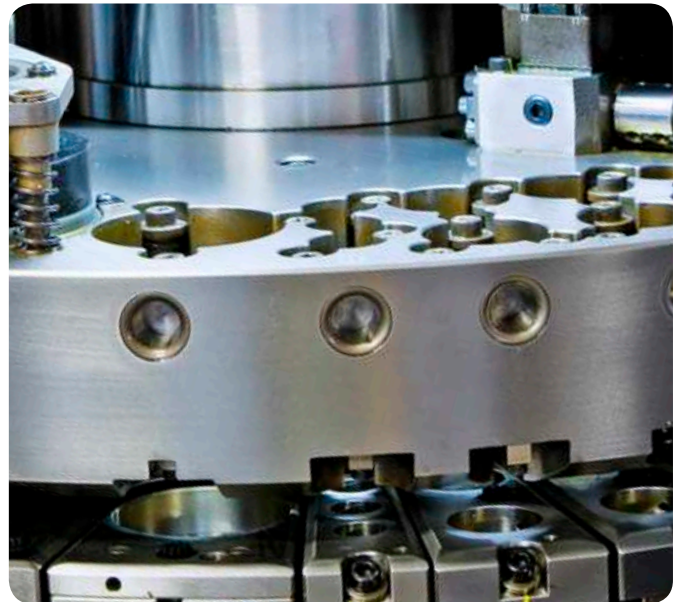
Outlet fitting with integrated check valve

Order number	Designation	Tube
		ø mm
223-13052-1	GERV 6-S G 1/4 AVCF	6
223-13052-2	GERV 8-L G 1/4 AVCF	8
223-13052-3	GERV 10-L G 1/4 AVCF	10

Note: must be ordered with pump

Pump unit

PF-23-2/PF-23-22



Grease

Product description

PF-23-2 and PF-23-22 are manually operated grease pump units that include a reservoir and follower plate under atmospheric pressure. These pumps are made for small-sized progressive systems or for use as multi-line pumps. When using two outlets, the output of one lever stroke is divided by two. A return line to the reservoir is available. Also, these pumps are equipped with a filling coupler for replenishing the reservoir.

Features and benefits

- Small, compact, manually operated pump
- Up to 100 bar operating pressure
- Pump inlet for return line is available
- Refilling via grease coupler avoids grease contamination
- Available with one or two outlets

Applications

- Small- and medium-sized machines
- Applications where no power supply is available
- Especially for indoor applications
- Excenter presses
- Punching machines

Technical data

Function principle	manually operated single stroke pump
Operating temperature	+10 to +60 °C +50 to +140 °F
Operating pressure	at 200 N manual force: 100 bar; 1 450 psi
Lubricant	grease up to NLGI 2
Outlets	PF-23-2: 1 PF-23-22: 2
Metering quantity	PF-23-2: one outlet closed: 2,5 cm ³ /stroke; 0.15 in ³ /stroke; PF-23-22: both outlets used: 1,25 cm ³ /stroke; 0.076 in ³ /stroke
Reservoir	1,5 l; 0.4 gal
Material	reservoir: acryl glass
Connection main line	outlets: tube ø 10 mm return line: G 1/4
Dimensions	185 × 130 × 397 mm 7.28 × 5.12 × 15.63 in
Mounting position	upright

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication:
951-170-012 EN, 1-0107-4-EN

Pump unit

PF-23-2/PF-23-22

PF-23-2/PF-23-22

Order number	Outlets	Metering quantity	
		cm ³ /stroke	in ³ /stroke
PF-23-2 ¹⁾	1	2,5	0.150
PF-23-22	2	1,25	0.076

¹⁾ one outlet closed by plug

Grease

Accessories

Refill coupling

24-9909-0244



Filler socket

Order number	Designation
24-9909-0244	filler socket with sealing ring

995-001-500



Coupling socket

Order number	Designation
995-001-500	coupling socket for reservoir refilling

857-760-...



Hose socket

Order number	Designation
857-760-007	hose socket; ø 13 mm
857-760-002	hose socket; ø 16 mm

Pumps and pump units

QLS 311



MCLP



Overview of oil and fluid grease pumps

Electrically operated pump unit ¹⁾

Product	Function type	Metering quantity		Reservoir		Operating pressure max.		Page
		cm ³ /min	in ³ /min	l	gal	bar	psi	
QLS 311	piston pump	1,0–150	0.03–0.50	1; 2	0.26; 0.53	80	1 200	70

Free shaft-end pump ¹⁾

Product	Function type	Pump head	Metering quantity		Operating pressure max.		Page
		mm	cm ³ /min	in ³ /min	bar	psi	
MCLP ¹⁾	piston pump	7	0,44–216	0.027–13.19	555	8 000	72
		10	0,95–440	0.058–26.91	240	3 500	72

¹⁾ To connect with electrical motor or to machine. For oil only, fluid grease is not allowed

See additional oil pumps with higher flow rates and special flow limiting devices in our oil circulation systems catalog. The multi-line lubrication systems catalog shows further solutions for oil, fluid grease and grease.

Pump unit

QLS 311

Oil and fluid grease



Product description

The QLS 311 pump is a monitored lubrication system with low-level control for a maximum of 18 lubrication points. Designed for use with standard high-pressure plastic tubing, the QLS family includes pumps with or without mounted SSV metering devices. An optional integrated controller for pause and lubrication times is available.

Features and benefits

- Internal lubricant return possible
- Integrated pressure-relief valves
- External programming via keypad
- System monitoring with display of faults
- Standard low-level control
- Suitable for V AC and V DC versions
- Protection: IP 6K9K, NEMA 4

Applications

- Machine tools
- Metal processing
- Chain lubrication
- Material handling
- Automotive industry
- Food processing
- Printing industry
- Farm machinery

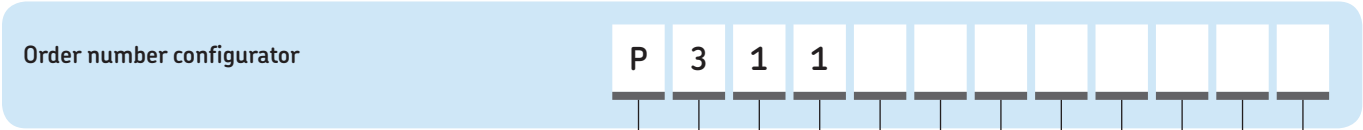
Technical data

Function principle	electrically operated piston pump
Operating temperature	-25 °C to +70 °C -13 °F to +158 °F
Operating pressure	80 bar 1 200 psi
Lubricant	Oil of at least 40 mm ² /s
Outlets	up to 18
Metering quantity	1,0 cm ³ /min 0,06 in ³ /min
Reservoir	1; 2 l 0,26; 0,53 gal
Main line connection	via SSV (see information for SSV on page 86) via connection block G 1/8
Operating voltage	12 and 24 V DC 120 and 230 V AC (± 10%)
Protection	IP 6K9K
Dimensions	min. 237 × 215 × 230 mm min. 9.33 × 8.46 × 9.05 in max. 237 × 235 × 353 mm max. 9.33 × 9.25 × 13.89 in
Mounting position	upright

Pump unit

QLS 311

Oil and fluid grease



Product series

SSV metering device

- 0 = external, SSV 6, SSV 8 ¹⁾
- 1 = external, SSV 12, SSV 18 ¹⁾
- 3 = SSV 6, rear only
- 4 = SSV 8, bottom only
- 6 = SSV 12
- 9 = SSV 18

SSV metering device position

- 0 = without external metering device
- 1 = back, vertical order of lines
- 2 = bottom, horizontal order of lines ²⁾

Operating voltage

- 2 = 12 V DC
- 4 = 24 V DC
- 6 = 120 V AC, only with control P.C.B.
- 8 = 230 V AC, only with control P.C.B.

Reservoir with low-level control

- 1 = 1 l; 0.26 gal
- 3 = 2 l; 0.53 gal

Connections

- 0 = 1A – 1 connector, square-type plug, left, power supply
- 1 = 2A – 2 connectors, square-type plug, 1 connector left, power supply, 1 connector right, fault indication
- 2 = 1A – 1 connector, bayonet, left, power supply, fault indication, only for V DC application

Connection socket design

- 1 = square plug, design. For industrial applications *
- 5 = bayonet plug 4-pole design, only V DC application. For vehicles **

Type of electrical connector

- 1 = with socket, without cable *
- 5 = with socket, with cable (10 m, 33 ft) *
- 7 = with socket, with cable (10 m, 33 ft), only for V DC application **

Control printed circuit board (P.C.B.)

- 0 = none, only terminal board without time control, only for V DC application
- 4 = control P.C.B. S4:
NC contact or NO contact, programmable: 1-5 cycles, only for V DC application
- 4 = control P.C.B. S4:
NC contact or NO contact, programmable: 1 cycle with SSV 12, SSV 18; 1 to 3 cycles with SSV 6, SSV 8, only for V AC application

¹⁾ For external metering devices application only use the specific metering devices SSV...KNQLS

²⁾ Do not use QLS 301 with SSV metering device in bottom-mounting position for mobile applications. Do not install the pump in areas exposed to shock.

Pump

MCLP

Oil and fluid grease



Product description

MCLP pumps are designed to supply oil under high pressure to a distribution circuit of progressive metering devices connected downstream. They include two main parts – the MCLP gearbox containing the lubrication oil and the MCLP pump heads. The gearbox can hold up to two pump heads. By the action of a cam in the gearbox, the pump plunger is pushed upward on the delivery stroke and returned to priming position by the plunger return spring. The cam can be actuated by an electrical motor or by connection to a machine. The cam of all pump models has a single lobe for pump head actuation.

Features and benefits

- Two sizes of pump heads available
- Fully adjustable output
- Driven by machine or electric motor (supplied separately)
- Various gear ratios available

Applications

- Applications with high pressure
- Natural gas engines
- Refineries
- Compressors



Technical data

Function principle	free shaft-end piston pump
Lubricant	oil
Outlets	1 to 2
Metering quantity	
pump head 7 mm	0,033-0,24 cm ³ /stroke 0,002-0,015 in ³ /stroke
pump head 10 mm	0,07-0,49 cm ³ /stroke 0,004-0,03 in ³ /stroke
Operating temperature	-18 to 94 °C 0 to 200 °F
Operating pressure	pump head 7 mm: max. 550 bar; 8 000 psi pump head 10 mm: max. 240 bar; 3 500 psi
Relief pressure	pump head 7 mm: 375 bar; 5 500 psi pump head 10 mm: 220 bar; 3 250 psi
Inlet pressure	max. 3,5 bar; 50 psi
Drive speed	12 to 75 rpm
Internal gear ratio	2:1, 4:1, 8:1, 21,5:1
Connection main line	inlet: 3/8 NPTF (F) outlet: 1/4 NPTF (F)
Dimensions	258 × 206 × 343 mm 10.188 × 8.125 × 13.5 in
Mounting position	upside up

Pump

MCLP

MCLP			
Order number	Drive position	Gear ratio	Pump head
130201BCC	right, long shaft	2:1	2, including two pump heads, model number 130335 -, to be orderd separatly -, to be orderd separatly -, to be orderd separatly
130200GEE	right	8:1	
130200DEE	right	4:1	
130300GEE	left	8:1	

Accessories

Pump heads, filters and valves



MCLP Pump heads

MCLP Pump heads are fitted to the MCLP gear box. Up to two pump heads can be used.

MCLP Pump heads	
Order number	Piston ø mm
130332	7
130335	10



MCLP Pump inlet filter

This filter serves two pump heads. It filters the oil, from the header tank, before entering the pump heads with filter size 10 µm.

MCLP Pump inlet filter			
Order number	Inlet NPTF(F)	Inlet pressure max.	
		bar	psi
130067	1	3.5	50



In-line filter

Filter used at the outlet of the pump heads to remove solid contaminants before delivering lubricants to the supply line. Uses filtering element size 10 µm. Has a hexbody size 1 1/4 in and includes FKM seal.

In-line filter			
Order number	Inlet NPTF(F)	Inlet pressure max.	
		bar	psi
84239	1/4	414	6 000



No-flow valve

The no-flow valve monitors by sensing the flow of lubricant, eliminating the need for explosion-proof electrical components when used in hazardous locations. This valve actuates a three-way valve that diverts or exhausts the air supply to provide an air-operated signal or engine shutdown.

No-flow valve				
Order number	Operating pressure max.		Air supply max.	
	bar	psi	bar	psi
87862	414	6 000	10	150

Metering devices



Overview of metering devices

Oil and fluid grease

Grease

Block metering device

Product	Lubricant Oil/ fluid grease	Grease	Metering quantity		Outlets ¹⁾	Operating pressure max.		Page
			cm ³ /outlet	in ³ /outlet		bar	psi	
SSVM	•	•	0,07	0.004	6 to 12	200	2 900	76
SSVD	•	•	0,08–1,80	0.001–0.11	6 to 22	350	5 075	78
SSVDL	•	•	0,08–1,80	0.001–0.11	6 to 14	350	5 075	80
SPVS	•	•	0,16–0,32	0.010–0.02	2 to 4	100	1 450	82
VPB	•	•	0,2	0.01	6 to 20	300	4 350	84
SSV	•	•	0,2	0.01	6 to 22	350	5 075	86
SSVL	•	•	0,2	0.01	6 to 14	350	5 075	88

¹⁾ by crossporting or closing outlets possible to reduce outlet number below given minimum

Sectional metering device

Product	Lubricant Oil/ fluid grease	Grease	Metering quantity		Outlets	Operation pressure max.		Page
			cm ³ /outlet	in ³ /outlet		bar	psi	
VPK	•	•	0,050–0,600	0.003–0.037	6 to 20	300	4 350	90
VP	•	•	0,100–1,200	0.006–0.073	6 to 20	300	4 350	92
MC ² -HP	•	•	0,196–0,393	0.012–0.024	6 to 16	510	7 425	94

Segment metering device

Product	Lubricant Oil/ fluid grease	Grease	Metering quantity		Outlets	Operation pressure max.		Page
			cm ³ /outlet	in ³ /outlet		bar	psi	
PSG1	•	•	0,050–0,250	0.003–0.015	6 to 20	200	2 900	96
PSG2	•	•	0,060–0,840	0.003–0.051	6 to 20	200	2 900	98
PSG3	•	•	0,800–3,200	0.049–0.195	6 to 20	200	2 900	100
UV	•	•	0,164–0,656	0.010–0.040	6 to 16	240	3 480	102
XL	•	•	0,983–2,460	0.060–0.150	6 to 12	170	2 495	104

Metering devices

SSVM

Oil and fluid grease

Grease



Product description

SSVM type metering device is a compact single block progressive piston-type metering device. For direct mount of fittings with no need of any sealing in-between. Specially designed for small output needs, small spaces due to its small dimensions and short distances. Available with pin indicator for visual system monitoring.

Features and benefits

- Small and compact size for applications where space is restricted
- Internal combining of outlets
- Exact lubricant metering
- Available with visual pin indicator

Applications

- Printing industry
- Wood processing machines
- Material handling machines

Technical data

Function principle	block metering device
Outlets ¹⁾	6 to 12
Lubricant	grease: up to NLGI 2 oil: at least 40 mm ² /s
Metering quantity	per cycle and outlet 0,07 cm ³ ; 0,004 in ³
Connection inlet	G 1/8 or 1/8 NPTF
Connection outlet ²⁾	M 8 x 1
Operating temperature	-25 to +70 °C -13 to +158 °F
Operating pressure	max. 200 bar; 2 900 psi
Material	black chromated steel
Dimensions	min. 48,50 x 50 x 25 mm 1.91 x 1.97 x 0.98 in max. 83 x 50 x 25 mm 3.27 x 1.97 x 0.98 in
Mounting position	any

¹⁾ by crossporting or closing outlets possible to reduce outlet number below given minimum. Outlet #1 and #2 should never be closed

²⁾ use special SSVM outlet fittings

Metering devices

SSVM

SSVM				
Order number Inlet connection thread BSP	Inlet connection thread NPTF	Outlets	Visual pin indicator K	Material black chromated steel
619-26761-1	619-26764-1	6	–	•
619-37044-1	619-26650-1	8	–	•
619-26846-1	619-26848-1	10	–	•
619-37049-1	619-26653-1	12	–	•
619-26762-3	619-26765-3	6	•	•
619-37045-3	619-26651-3	8	•	•
619-26847-2	619-26849-3	10	•	•
619-37050-3	619-26654-3	12	•	•

Oil and fluid grease

Grease

Accessories

Outlet fittings

Accessories	
Order number	Designation
303-16284-1	outlet closure screw with sealing edge
226-14091-5	outlet push-in fitting with clamping ring and check valve for pressure plastic tube \varnothing 4 mm
519-31661-1	screw-in fitting with clamping ring and -check valve for steel tube \varnothing 4 mm

Metering devices

SSVD

Oil and fluid grease

Grease



Product description

SSVD type metering device is a compact single block progressive metering device with adjustable output by means of different metering screw sizes. The screw meters the output for a pair of outlets (opposite outlets). For direct mount of fittings with no need of any sealing in-between. It is a versatile metering device available in many variants regarding type of monitoring or surface treatment.

Features and benefits

- Ten different metering screw sizes available
- Optionally visual or electrical monitoring
- Nickel plated surface treatment for corrosive environment available
- Ideal for use as primary metering device

Applications

- Construction and mining
- Farm machinery
- Industrial equipment



Technical data

Function principle	block metering device
Outlets ¹⁾	6 to 22
Lubricant	grease up to NLGI 2 or oil of at least 40 mm ² /s
Metering quantity ²⁾	per cycle and outlet min. 0,08 cm ³ ; 0.001 in ³ max. 1,80 cm ³ ; 0.110 in ³
Operating temperature	-25 to +70 °C -13 to +158 °F
Operating pressure	max. 350 bar; 5 075 psi
Material	black chromated steel or nickel plated
Connection inlet	G 1/8 or 1/8 NPTF
Connection outlet ³⁾	M 10 × 1
Dimensions	min. 70 × 60 × 40 mm min. 2.75 × 2.36 × 1.57 in max. 190 × 60 × 40 mm max. 7.48 × 2.36 × 1.57 in
Mounting position	any

¹⁾ by crossporting or closing outlets possible to reduce outlet number below given minimum. Outlet #1 and #2 should never be closed

²⁾ depending on metering screw valid for a pair of opposite outlets

³⁾ use special SSVD outlet fittings

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication: **12401 EN**

SSVD

SSVD¹⁾

Outlets	Order number Standard	Visual pin K	Emergency nipple E	Piston detector, cable (3 m, 9.8 ft) no plug N	Indicator pin, proximity switch, cable (2 m, 6.6 ft), no plug KN	Piston detector, with connection M 12, 3 wire NP
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SSVD BSPP, black chromated

6	649-29485-1	649-29505-1	649-77397-1	649-29495-1	649-29515-1	649-29525-1
8	649-29486-1	649-29506-1	649-77395-1	649-29496-1	649-29516-1	649-29526-1
10	649-29487-1	649-29507-1	649-77396-1	649-29497-1	649-29517-1	649-29527-1
12	649-29488-1	649-29508-1	649-77397-1	649-29498-1	649-29518-1	649-29528-1
14	649-29489-1	649-29509-1	649-77398-1	649-29499-1	649-29519-1	649-29529-1
16	649-29587-1	649-29595-1	649-77399-1	649-29611-1	649-29603-1	649-29619-1
18	649-29588-1	649-29596-1	649-77400-1	649-29612-1	649-29604-1	649-29620-1
20	649-29589-1	649-29597-1	649-77401-1	649-29613-1	649-29605-1	649-29621-1
22	649-29590-1	649-29598-1	649-77402-1	649-29614-1	649-29606-1	649-29622-1

SSVD NPTF, black chromated

6	649-29535-1	649-29545-1	-	649-29565-1	649-29555-1	649-29575-1
8	649-29536-1	649-29546-1	-	649-29566-1	649-29556-1	649-29576-1
10	649-29537-1	649-29547-1	-	649-29567-1	649-29557-1	649-29577-1
12	649-29538-1	649-29548-1	-	649-29568-1	649-29558-1	649-29578-1
14	649-29539-1	649-29549-1	-	649-29569-1	649-29559-1	649-29579-1
16	649-29627-1	649-29635-1	-	649-29651-1	649-29643-1	649-29659-1
18	649-29628-1	649-29636-1	-	649-29652-1	649-29644-1	649-29660-1
20	649-29629-1	649-29637-1	-	649-29653-1	649-29645-1	649-29661-1
22	649-29630-1	649-29638-1	-	649-29654-1	649-29646-1	649-29662-1

SSV BSPP, nickel plated

6	649-77180-1	649-77853-1	-	-	-	-
8	649-77181-1	649-77854-1	-	-	-	-
10	649-77182-1	649-77855-1	-	-	-	-
12	649-77183-1	649-77856-1	-	-	-	-
14	649-77184-1	649-77857-1	-	-	-	-
16	649-77185-1	649-77858-1	-	-	-	-
18	649-77186-1	649-77859-1	-	-	-	-
20	649-77187-1	649-77852-1	-	-	-	-
22	649-77188-1	649-77860-1	-	-	-	-

¹⁾ SSVD also with emergency lubrication nipple available

Oil and fluid grease
Grease

Accessories

Outlet fittings

Outlets and devices

Order number	Description
303-17499-3	Outlet closure plug, with sealing edge, steel
303-19346-2	Outlet closure plug, with sealing edge, stainless steel
226-10328-5	Outlet push-in fitting, with clamping ring and check valve for tube or plastic tube with stud for \varnothing 6 mm
504-30344-4	Outlet screw-in fitting, with clamping ring and check valve for tube \varnothing 6 mm
219-13798-3	O-ring for stainless steel closure plug if after tightening with 18 Nm not sealed
519-318 26-1	Device for external gathering of SSV outputs from outlet #1 and #2

Metering screws¹⁾

Order number	Description
549-34254-1	metering screw 0,08 cm ³ , 12 pieces
549-34254-2	metering screw 0,14 cm ³ , 12 pieces
549-34254-3	metering screw 0,20 cm ³ , 12 pieces
549-34254-4	metering screw 0,30 cm ³ , 12 pieces
549-34254-5	metering screw 0,40 cm ³ , 12 pieces
549-34254-6	metering screw 0,60 cm ³ , 12 pieces
549-34254-7	metering screw 0,80 cm ³ , 12 pieces
549-34254-8	metering screw 1,00 cm ³ , 12 pieces
549-34254-9	metering screw 1,40 cm ³ , 12 pieces
549-34255-1	metering screw 1,80 cm ³ , 12 pieces
549-34255-2	metering screws from 0,08 to 1,80 cm ³ , 2 pieces

¹⁾ for black chromated SSVD; for nickel plated SSVD ask for metering screws in stainless steel

SSVDL

Oil and fluid grease

Grease



Product description

SSVDL type metering device is a single block progressive metering device with larger tube diameters especially for heavy industry applications. Available with pin indicator for visual system monitoring or with piston detector for electrical system monitoring. Outlet combining elements for 2, 3, 4 and 5 outlets available.

Features and benefits

- Similar to SSVD but with larger distances between the outlets for larger tube diameters
- Sizes 6 to 14 outlets
- High operating pressure
- Exact lubricant metering
- Optionally equipped with visual monitoring pin or with electrically monitored piston detector

Applications

- Heavy industry

Technical data

Function principle	block metering device
Outlets ¹⁾	6 to 14
Lubricant	grease up to NLGI 2, or oil of at least 40 mm ² /s
Metering quantity	per cycle and outlet min. 0,08 cm ³ ; 0.001 in ³ max. 1,80 cm ³ ; 0.110 in ³
Operating temperature	-25 to +75 °C -13 to 167 °F
Operating pressure	max. 350 bar max. 5 075 psi
Material	black-chromated steel
Connection inlet	R 1/4
Connection outlet	8, 10 or 12 mm
Dimensions	min. 110×60×50 mm min. 4.33×2.36×1.97 in max. 230×60×50 mm max. 9,05×2,36×1,97 in
Mounting position	any

¹⁾ to ensure metering device operation outlet 1 and 2 should never be closed by a closure plug

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication: **12401 EN**

Metering devices

SSVDL

Order numbers

Outlets	Standard	with visual pin	with bypass bore
6	649-77167-1	649-77474-1	649-77464-1
8	649-77168-1	649-77475-1	649-77466-1
10	649-77169-1	649-77476-1	649-77468-1
12	649-77170-1	649-77477-1	649-77470-1
14	649-77171-1	649-77478-1	649-77472-1

Oil and fluid grease

Grease

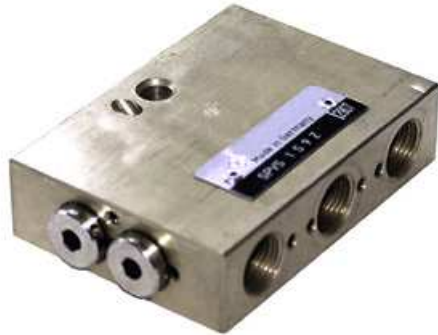
Accessories

Fittings

Outlet combinations

Order number	Designation
519-34643-1	double, assembly (incl. pos. 2x3, 1x5)
519-34643-2	triple, assembly (incl. pos. 3x3, 2x5)
519-34643-3	quadruple, assembly (incl. pos. 4x3, 3x5)
519-34643-4	quintuple, assembly (incl. po s. 5x3, 4x5)

SPVS



Oil and fluid grease

Grease

Product description

Block type metering devices of the SPVS series are used to either increase the number of outlets of a lubricating pump or to portion the volume flow and deliver it to the lube points, without any influence on the operating system pressure.

Features and benefits

- Compact design
- Compact two piston version with mechanical interlock, prevents selfblockage
- Universally usable for oil and grease
- Central function monitoring with electrical stroke monitoring device possible
- Accurate lubricant distribution due to fitted pistons

Applications

- Metal forming machines
- Small machinery
- Packaging machines

Technical data

Function principle	block metering device
Outlets	2 or 4
Lubricant	grease up to NLGI 2 oil with minimum viscosity of 12 mm ² /s
Metering quantity	per cycle and outlets: 4 outlets: 0,16 cm ³ ; 0,01 in ³ 2 outlets: 0,32 cm ³ ; 0,02 in ³
Inlet volume flow	max. 45 cm ³ /min; 2,75 in ³ /min
Operating temperature ²⁾	-10 to +100 °C; -14 to +212 °F
Operating pressure ¹⁾	max. 100 bar; 1 450 psi
Material	with M 12 × 1: brass with G 3/8: steel with electrical monitoring: cast iron
Connection inlet/outlet	M 12 × 1 or G 3/8
Electrical monitoring	one electrical cycle/pulse corresponds to 0,64 cm ³ , 0,04 in ³
Electrical connection	plug according DIN 43650
Voltage rated U _i	30 V DC
Current load I _i	0,02 A
Output function	normally open
Switching element	reed contact
Protection class ³⁾	IP 65
Dimensions	max. 55 x 168,5 x 31 mm max. 2.16 x 6.63 x 1.22 in
Mounting position	any

¹⁾ max. Differential pressure with oil 20 bar (290 psi), with grease 30 bar (435 psi)
²⁾ for basic design without electric monitoring
³⁾ available in ATEX design upon request

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication: **1-3029-EN**

Metering devices

SPVS

SPVS					
Order number	Outlets	Thread G 1/8	M 12 × 1	Monitoring electrical	Material
44-2578-6321	2	•	–	–	steel
44-2578-6323	4	•	–	–	steel
44-2578-6110	2	–	•	–	brass
44-2578-6201	4	–	•	–	brass
44-2578-6360	2	•	–	•	cast iron
44-2578-6350	4	•	–	•	cast iron

Oil and fluid grease

Grease

Metering devices

VPB



Oil and fluid grease

Grease

Product description

VPB type metering devices are compact single-block progressive metering. Available with pin indicator for visual system monitoring or with piston detector for electrical system monitoring.

Features and benefits

- Robust and cost-efficient
- Available in metric and inch design
- Optional visual or electric monitoring
- Internal crossporting possibility, use of standard tube fittings
- Variety of material as zinc coated or stainless steel available

Applications

- Metal forming machines
- Vehicles
- Production machines of automotive industry
- Packaging machines
- Printing industry
- Farm machinery
- Construction and mining

Technical data

Function principle	block metering device
Outlets	6 to 20
Lubricant	grease up to NLGI 2 oil with minimum viscosity of 12 mm ² /s
Metering quantity	per stroke and outlet: 0,2 cm ³ ; 0.01 in ³
Operating temperature	-25 to +110 °C -13 to +230 °F
Operating pressure	oil: max. 200 bar; 2 900 psi grease: max. 300 bar; 4 350 psi
Material	stainless steel, tinned/nitrile
Connection inlet	VPBM; M 10×1 VPBG; G 1/8
Connection outlet	VPBM; M 10×1 VPBG; G 1/8
Dimensions	min. 60×60×30 mm min. 2.36×2.36×1.18 in max. 165×60×30 mm max. 6.48×2.36×1.18 in
Mounting position:	
on machines without vibration	any
on machines with vibration	piston position should be 90° to machine movements direction

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication:
1-3017-EN, 951-230-008-EN

Metering devices

VPB

Order number configurator

VPB										A
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Progressive block metering device

Thread inlet and outlet screw connection
M = M 10×1
G = G 1/8

Metering device sections (a section consists of 2 opposing outlets)
3 = for 3 sections (max. 6 outlets) **7** = for 7 sections (max. 14 outlets)
4 = for 4 sections (max. 8 outlets) **8** = for 8 sections (max. 16 outlets)
5 = for 5 sections (max. 10 outlets) **9** = for 9 sections (max. 18 outlets)
6 = for 6 sections (max. 12 outlets) **10** = for 10 sections (max. 20 outlets)

Outlets
6 = 6 outlets open ... **20** = 20 outlets open

Monitoring type
00 = without
P2 = piston detector, 2-pin connection
P3 = piston detector, 3-pin connection
ZY = cycle indicator (use with check valve only)

Installation position of the monitoring system
-1R = right-hand side on the 1st section ...
-1L = left-hand side on the 1st section **-0R** = right-hand side on the 10th section
-2R = right-hand side on the 2nd section **-0L** = left-hand side on the 10th section

Attachments
00 = without attachments
15 = with (grease) 2/2-directional solenoid valve. When de-energized, continuity to metering device closed

Version
A = change version

Material
1 = basic design
3 = stainless steel design, monitoring on stainless steel version only with cycle switch (ZY) possible

Oil and fluid grease

Grease

Accessories

Fittings

Inlet fittings	
Order number	Designation
406-423	M10×1 for tube ø 6 mm
441-008-511	M10×1 for tube ø 8 mm
410-443	M10×1 for tube ø 10 mm
406-403W	G ¹ / ₈ for tube ø 6 mm
408-423W	G ¹ / ₈ for tube ø 8 mm
410-443W	G ¹ / ₈ for tube ø 10 mm

Outlet fittings	
Order number	Designation
404-403	M10×1 for tube ø 4 mm
406-403	M10×1 for tube ø 6 mm
441-008-511	M10×1 for tube ø 8 mm
451-006-518-VS	M10×1 SKF Quick Connector tube ø 6 mm
404-403W	G ¹ / ₈ for tube ø 4 mm
406-403W	G ¹ / ₈ for tube ø 6 mm
408-403W	G ¹ / ₈ for tube ø 8 mm
451-006-518W VS	G ¹ / ₈ SKF Quick Connector tube ø 6 mm
466-431-001	M10×1 closure plug
466-419-001	G ¹ / ₈ closure plug

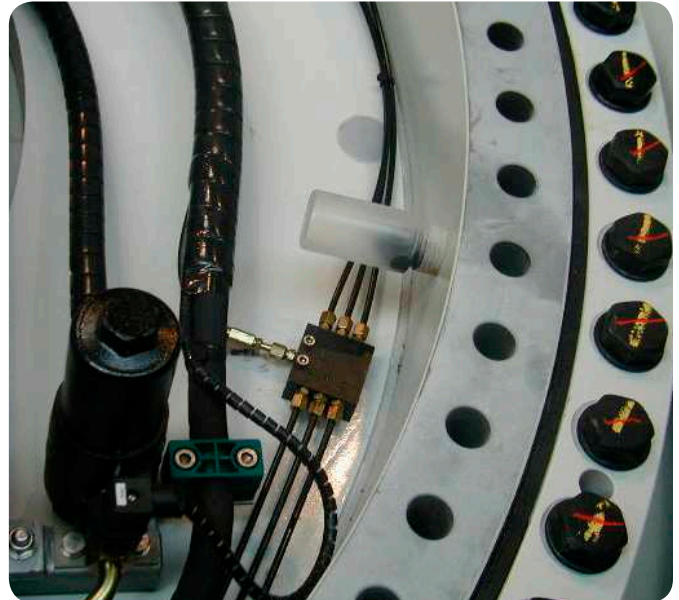
PUB LS/P1 16964 EN

Metering devices

SSV

Oil and fluid grease

Grease



Product description

SSV type metering device is a compact single block progressive metering device. For direct mount of fittings with no need of any sealing inbetween. Available with pin indicator for visual system monitoring or with piston detector for electrical system monitoring. Metering device has to be ordered in single parts, see chart.

Features and benefits

- Sizes up to 22 outlets
- High operating pressure
- Available in different materials
- Exact lubricant metering
- Unique internal crossporting technology
- Optionally equipped with visual monitoring pin or with electrically monitored piston detector

Applications

- Construction and mining
- Farm machinery
- Industrial equipment
- Renewable energies

Technical data

Function principle	block metering device
Outlets ¹⁾	6 to 22
Lubricant	grease up to NLGI 2, oil at least 40 mm ² /s
Metering quantity	per cycle and outlet: 0,2 cm ³ ; 0,01 in ³
Operating temperature	-40 to +200 °C -40 to +390 °F
Operating pressure	max. 350 bar; max. 5 075 psi
Material	black chromated steel stainless steel
Connection inlet	G 1/8 or 1/8 NPTF
Connection outlet ²⁾	M 10×1
Dimensions	min. 60×60×30 mm min. 2.37×2.37×1.18 in max. 180×60×30 mm max. 7.087×2.63×1.18 in
Mounting position	any

¹⁾ by crossporting or closing outlets possible to reduce outlet number below given minimum.
Outlet #1 and #2 should never be closed

²⁾ use special SSV outlet fittings

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication:
12401-EN

Metering devices

SSV

Order numbers

Outlets	Standard	Visual pin	Emergency nipple	Piston detector, cable (3 m, 9.8 ft) no plug	Indicator pin, proximity switch, cable (2 m, 6.6 ft), no plug	Piston detector, with connection
		K	E	N	KN	M 12, w3 wire NP

SSV BSPP black chromated

6	619-26473-1	619-26474-3	619-77345-1	619-28257-1	619-27613-1	619-29050-1
8	619-25730-2	619-25754-4	619-77346-1	619-28258-1	619-27614-1	619-29051-1
10	619-26841-1	619-26842-2	619-77347-1	619-28259-1	619-27615-1	619-29052-1
12	619-25731-2	619-25755-4	619-77348-1	619-28260-1	619-27616-1	619-29674-1
14	619-28862-1	619-28871-1	619-77349-1	619-28890-1	619-29028-1	619-29387-1
16	619-28863-1	619-28872-1	619-77350-1	619-28907-1	619-28905-1	619-29951-1
18	619-28864-1	619-28873-1	619-77351-1	619-28957-1	619-28959-1	619-29139-1
20	619-28865-1	619-28874-1	619-77352-1	619-28935-1	619-28934-1	619-77301-1
22	619-28866-1	619-28875-1	619-77353-1	619-29015-1	619-77461-1	619-29973-1

SSV BSPP, stainless steel 1.4305/303

6	619-27471-1	619-27472-1	619-77680-1	-	-	619-29929-1
8	619-27473-1	619-27474-1	619-77681-1	-	-	619-29322-1
10	619-27475-1	619-27476-1	619-77682-1	-	-	619-29970-1
12	619-27477-1	619-27478-1	619-77683-1	-	-	619-29971-1
14	619-29063-1	619-29067-1	619-77684-1	-	-	619-29993-1
16	619-29064-1	619-29068-1	619-77685-1	-	-	619-29994-1
18	619-29065-1	619-29069-1	619-77686-1	-	-	619-77178-1
20	619-29066-1	619-29074-1	619-77687-1	-	-	-
22	619-29775-1	619-77910-1	619-77688-1	-	-	619-77179-1

SSV BSPP, stainless steel 1.4571/316 Ti

6	619-27824-1	-	-	-	-	-
8	619-27825-1	-	-	-	-	-
10	619-27889-1	-	-	-	-	-
12	619-27900-1	-	-	-	-	-

SSV NPT, black chromated

6	619-27121-1	619-27122-1	-	-	-	-
8	619-26396-2	619-26646-2	-	-	-	-
10	619-26844-1	619-26845-2	-	-	-	-
12	619-26398-2	619-26648-2	-	-	-	-
14	619-29400-1	619-28899-1	-	-	-	-
16	619-29401-1	619-28900-1	-	-	-	-
18	619-77828-1	619-28901-1	-	-	-	-
20	619-77829-1	619-28902-1	-	-	-	-
22	-	619-77254-1	-	-	-	-

SSV NPT, stainless steel 1.4305/303

6	619-27792-1	619-27793-1	-	-	-	-
8	619-27796-1	619-27797-1	-	-	-	-
10	619-27800-1	619-27801-1	-	-	-	-
12	619-27804-1	619-27805-1	-	-	-	-
14	-	619-77101-1	-	-	-	-

Accessories

Order number	Designation
303-17499-3	Outlet closure plug with sealing edge, steel
303-19346-2	Outlet closure plug with sealing edge, stainless steel
219-13798-3	O-ring for stainless steel closure plug if after tightening with 18 Nm not sealed
226-10328-5	Outlet push-in fitting with clamping ring and check valve for tube or plastic tube with stud for \varnothing 6 mm
504-30344-4	Outlet screw-in fitting with clamping ring and check valve for tube \varnothing 6 m
519-318 26-1	Device for external gathering of SSV outputs from outlet #1 and #2

Metering devices

SSVL



Oil and fluid grease

Grease



Product description

SSVL type metering device is a single block progressive metering device with larger tube diameters especially for heavy industry applications. Available with pin indicator for visual system monitoring or with piston detector for electrical system monitoring. Outlet combining elements for 2, 3, 4 and 5 outlets available.

Features and benefits

- Similar to SSV but with larger distances between the outlets for larger tube diameters
- Sizes 6 to 14 outlets
- High operating pressure
- Exact lubricant metering
- Optionally equipped with visual monitoring pin or with electrically monitored piston detector

Applications

- Heavy industry

Technical data

Function principle	block metering device
Outlets ¹⁾	6 to 14
Lubricant	grease up to NLGI 2, or oil of at least 40 mm ² /s
Metering quantity	per cycle and outlet 0,2 cm ³ ; 0,12 in ³
Operating temperature	-25 to +75 °C -13 to 167 °F
Operating pressure	350 bar 5 075 psi
Material	black-chromated steel
Connection inlet	R 1/4
Connection outlet	8, 10 or 12 mm
Dimensions	min. 90×60×40 mm min. 3.54×2.36×1.57 in max. 210×60×40 mm max. 8.26×2.36×1.57 in
Mounting position	any

¹⁾ to ensure metering device operation outlet 1 and 2 should never be closed by a closure plug

Metering devices

SSVL

Order numbers

Outlets	Standard	with visual pin	with bypass bore
6	619-77162-1	619-77231-1	619-77311-1
8	619-77163-1	619-77232-1	619-77312-1
10	619-77164-1	619-77233-1	619-77313-1
12	619-77165-1	619-77234-1	619-77314-1
14	619-77166-1	619-77235-1	619-77315-1

Oil and fluid grease

Grease

Accessories

Fittings

Outlet combinations

Order number	Designation
519-34643-1	double, assembly (incl. pos. 2x3, 1x5)
519-34643-2	triple, assembly (incl. pos. 3x3, 2x5)
519-34643-3	quadruple, assembly (incl. pos. 4x3, 3x5)
519-34643-4	quintuple, assembly (incl. po s. 5x3, 4x5)

Metering devices

VPK

Oil and fluid grease

Grease



Product description

The VPK type metering device is a sectional metering device. Its metering sections cover a metering volume per outlet and cycle of 0,05 cm³ (T-section = 2 outlets) to 0,6 cm³ (S-section = 1 outlet). All sections (inlet, intermediate, end) are tightened via tie rods. The delivery ducts are sealed by porting plates in-between the segments. A minimum of three intermediate sections is necessary.

Features and benefits

- Volumetric flow of up to 0,05 cm³/min
- Universal use in continuous or intermittent operation
- Metering sections with variable metering amount
- Internal consolidation of outlets
- Visual or electrical monitoring optional
- Safe sealing concept with porting plates

Applications

- Metal forming machines
- Vehicles
- Production machines of automotive industry
- Packaging machines
- Printing industry
- Construction and mining
- Farm machinery

Technical data

Function principle	sectional metering device
Outlets	6 to 20
Lubricant	grease up to NLGI 2 oil with minimum viscosity of 12 mm ² /s
Metering quantity	per cycle and outlet: 0,05–0,6 cm ³ ; 0,003–0,037 in ³
Operating temperature	–25 to +90 °C –13 to +194 °F
Operating pressure	oil: 200 bar; 2 900 psi grease: 300 bar; 4 350 psi
Material	Inlet plate, intermediate plate and end plate: steel, galvanized/NBR Sections/piston plates: steel, galvanized
Connection inlet	VPKM: M 10×1 VPKG: G 1/8
Connection outlet	VPKM: M 10×1 VPKG: G 1/8
Dimensions	min. 81,9×65×34 mm min. 3.22×2.56×1.34 in max. 195,3×65×34 mm max. 7.69×2.56×1.34 in
Mounting position:	
on machines without vibration	any
on machines with vibration	piston position should be 90° to machine movements direction

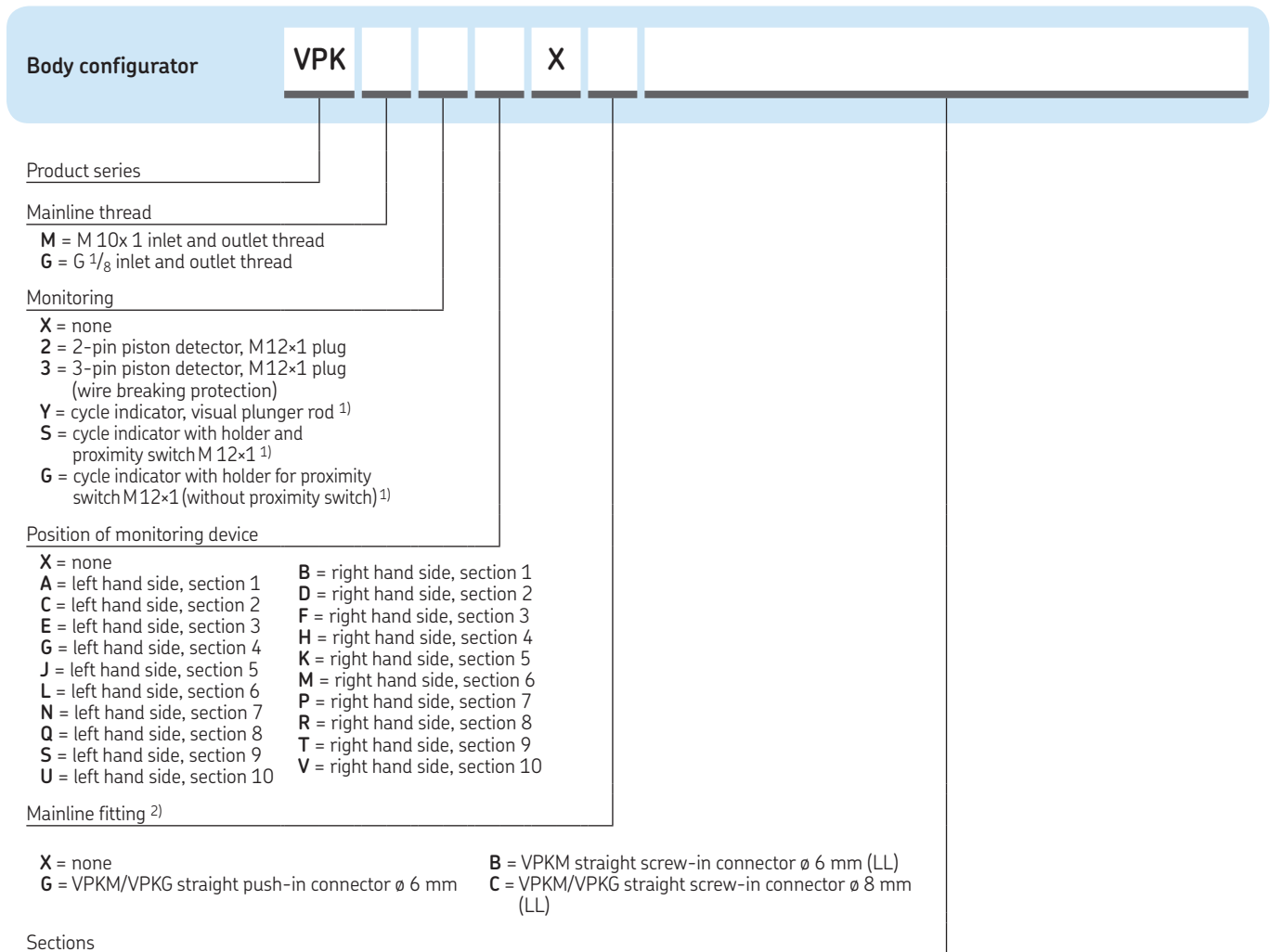
NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication:
1-3015-EN, 951-230-008-EN

3D data and product configuration:
skf-lubrication.partcommunity.com/3d-cad-models/

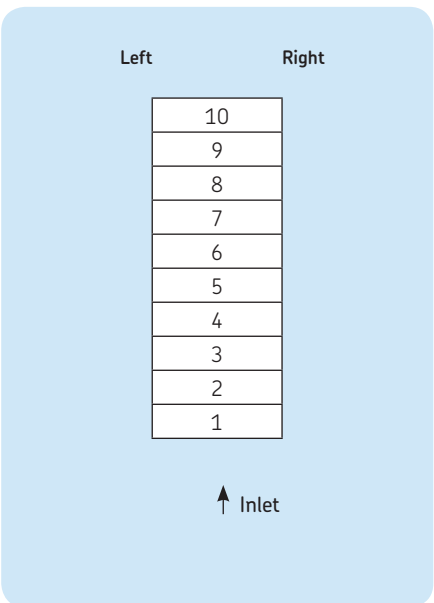
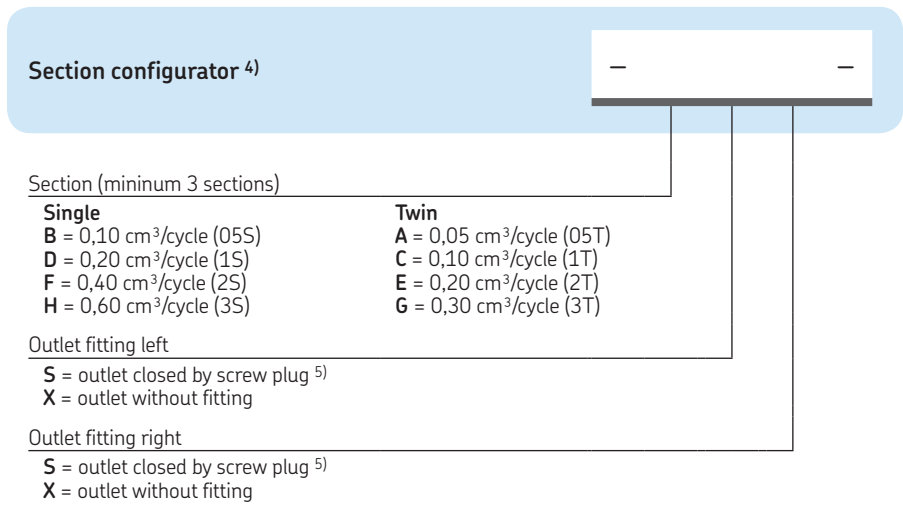
Metering devices

VPK



Oil and fluid grease

Grease



¹⁾ The installation of the cycle indicator is **only** possible from metering device section 2T and 2S, respectively!
²⁾ Solderless pipe unions with cutting sleeve acc. to DIN 2353, but for G
³⁾ LL-series = extra light version, L-series = light version, S-series = heavy duty version
⁴⁾ Repeat this entry according number of selected sections (1 to 10)
⁵⁾ Metering device only operates with one side (left or right) outlet closed per section

PUB LS/P1 16964 EN

Metering devices

VP



Oil and fluid grease

Grease

Product description

The VP type metering device is a sectional metering device. Its metering sections cover a metering volume per outlet and cycle of 0,1 cm³ (T-section = 2 outlets) to 1,2 cm³ (S-section = 1 outlet). All sections (inlet, intermediate, end) are tightened via tie rods. The delivery ducts are sealed by porting plates inbetween the segments. A minimum of three intermediate sections is necessary.

Features and benefits

- Volumetric flow of up to 1 000 cm³/min (61 in³/min)
- Universal use in continuous or intermittent operation
- Metering sections with variable metering amount
- Internal and external consolidation of outlets
- Visual or electrical monitoring optional
- Ideal as main metering device
- All outlets with build-in non-return valves

Applications

- Preferred master metering device
- Metal forming machines
- Vehicles, trucks
- Construction and mining
- Packaging machines
- General industry
- Farm machinery

Technical data

Function principle	sectional metering device
Outlets	6 to 20
Lubricant	oil: with minimum viscosity of 12 mm ² /s grease: up to NLGI 2
Metering quantity	per cycle and outlet 0,1 to 1,2 cm ³ ; 0.006 to 0.073 in ³
Operating pressure	oil: 200 bar; 2 900 psi grease: 300 bar; 4 350 psi
Operating temperature	-25 to +90 °C -13 to +194 °F
Material	Inlet plate, separator plate and end plate: steel, galvanized/NBR sections/piston plates: steel, galvanized
Connection inlet	VPM: M 14 × 1,5 VPG: G 1/4
Connection outlet	VPM: M 10 × 1 VPG: G 1/8
Dimensions	min. 98 × 82,5 × 41 mm min. 3.86 × 3.25 × 1.61 in max. 238 × 82,5 × 41 mm max. 9.37 × 3.25 × 1.61 in
Mounting position:	on machines without vibration . . . any on machines with vibration . . . piston position should 90° to machine movements direction

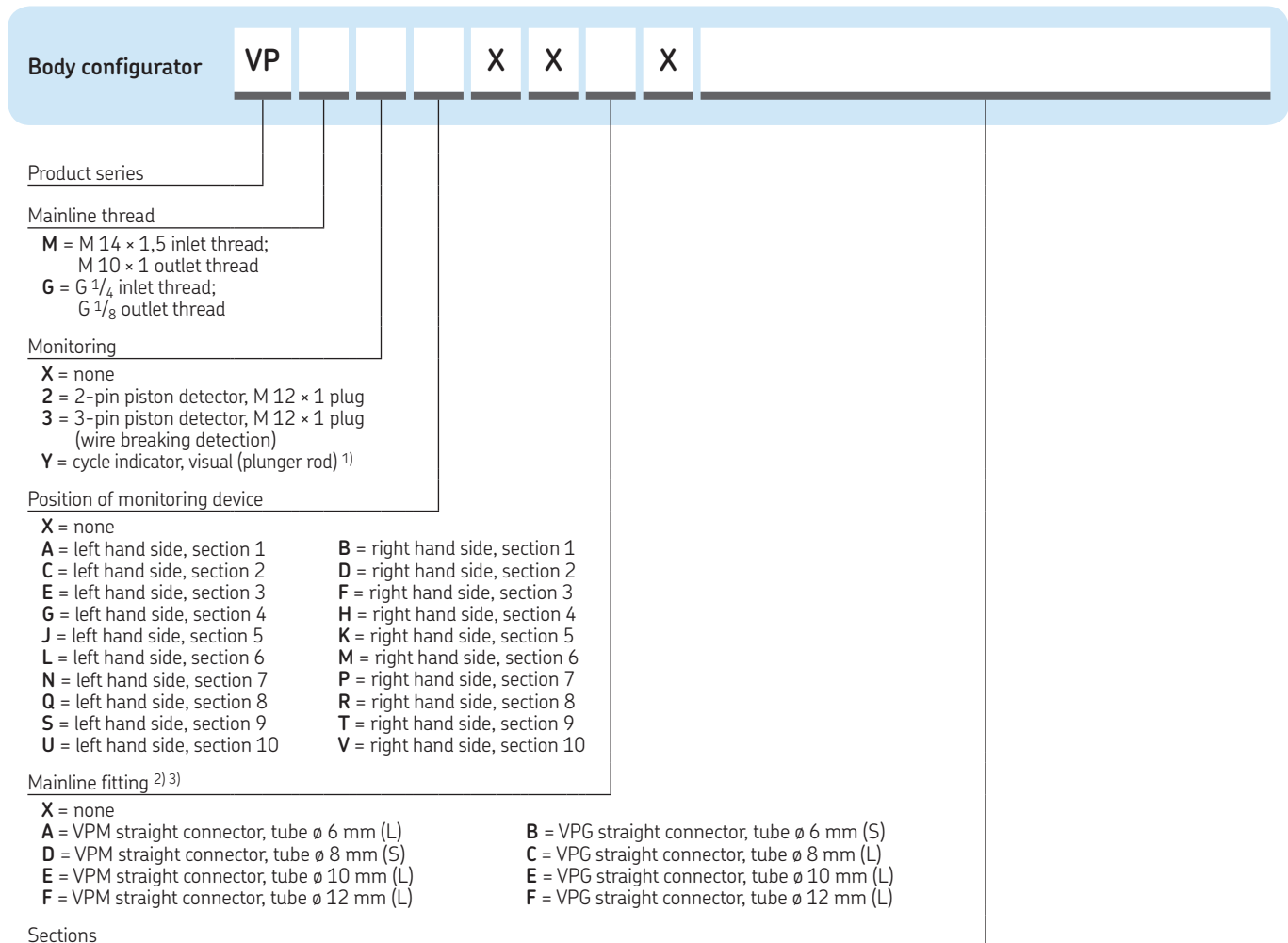
NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication:
15400 EN, 951-230-008 EN

3D data and product configuration:
skf-lubrication.partcommunity.com/3d-cad-models/

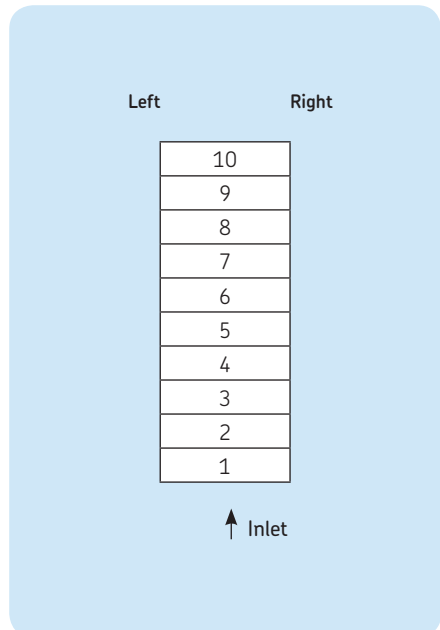
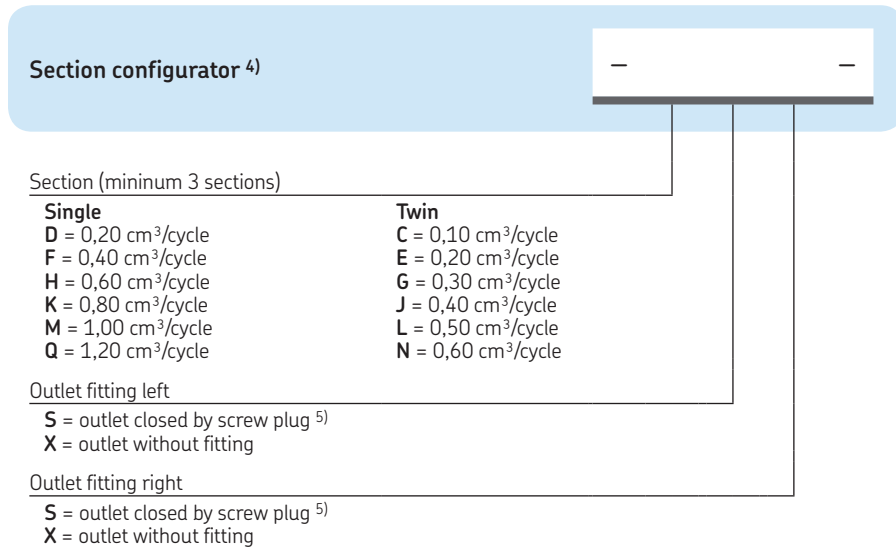
Metering devices

VP



Oil and fluid grease

Grease



¹⁾ The installation of the cycle indicator is only possible from metering device section 2T and 2S, respectively!
²⁾ Solderless pipe unions with cutting sleeve acc. to DIN 2353
³⁾ LL-series = extra light version, L-series = light version, S-series = heavy duty version
⁴⁾ Repeat this entry according number of selected sections (1 to 10)
⁵⁾ Metering device only operates with one side (left or right) outlet closed per section

Metering devices

MC²-HP

Oil and fluid grease

Grease



Product description

MC²-HP metering devices are modular type metering devices consisting of a baseplate part containing all inlet and outlet connections and a metering sections part containing alternate outlet ports for installation of performance indicators. The baseplate part has one inlet, three to eight intermediate and one end section hold via three tie rods. The metering sections part consists of three to eight metering sections (depending on number of outlets needed) which are fixed on the baseplate part. All parts have FKM O-ring seals in-between. There must be a minimum of three metering sections. The metering sections will have either single or twin outlets. Whenever a single metering segment or crossport plate is used, the unused outlet must be plugged. Metering device has to be ordered in single parts, see chart.

Features and benefits

- Alternate outlet ports for performance indicators
- For mineral oil based or synthetic lubricants
- Optional metering sections with visual cycle indicator
- Optional by-pass metering segment for addition or deletion of lubrication points

Applications

- Gas engines
- Compressors
- For applications with high system back pressure

Technical data

Function principle	sectional metering device
Outlets ¹⁾	6 to 16
Lubricant	mineral or synthetic oil or grease NLGI 0 to 2
Metering quantity	per cycle and outlet min. 0,098 cm ³ ; 0,006 in ³ max. 0,787 cm ³ ; 0,048 in ³
Operating temperature	-26 to +200 °C -15 °F to 400 °F
Operating pressure	max. 510 bar; 7 500 psi
Connection inlet	1/4 NPSF (F)
Connection outlet	1/8 NPSF (F)
Material	housing: black chromate plated steel seals: FKM
Dimensions	min. 129×86×48 mm min. 5.09×3.38×1.87 in max. 245×86×48 mm max. 9.63×3.38×1.87 in
Mounting position	any

¹⁾ It is possible to reduce the number of outlets below the given minimum by crossporting or closing outlets.

Metering devices

MC²-HP

MC²-HP modular design

Number of outlets	Inlet section order number	End section order number	Tie rod order number	Tie rod quantity required	Intermediate section order number	Intermediate section quantity required	Metering valves quantity required
6	87955	87956	236640	3	87957	3	3
8	87955	87956	236641	3	87957	4	4
10	87955	87956	236642	3	87957	5	5
12	87955	87956	236644	3	87957	6	6
14	87955	87956	236645	3	87957	7	7
16	87955	87956	236646	3	87957	8	8

Note: use 68645 closure plug (1/8 NPT) to plug non-working outlets. Each 87956 end section contains 3 tie rod nuts

MC²-HP Metering valves single outlet

Order number Standard	W/right side cycle indicator	Designation	Metering quantity	
			cm ³	in
876061	•	06S	0,196	0.196
876091	•	09S	0,295	0.295
876121	876123	12S	0,393	0.393
876181	876183	18S	0,590	0.590
876241	876243	24S	0,787	0.787

MC²-HP Metering valves twin outlet

Order number Standard	W/right side cycle indicator	Designation	Metering quantity	
			cm ³	in
876062	•	06T	0,98	0.098
876092	•	09T	0,147	0.147
876122	876124	12T	0,197	0.197
876182	876184	18T	0,295	0.295
876242	876244	24T	0,393	0.393

Accessories

Plugs and indicators

Plug and crossporting

Order number	Designation
68645	closure plug
87905	single and crossport kit

Performance indicators

Order number	Type	Disc colour	Pressure rating	
			bar	psi
87895	pin	yellow	110	1 450
87896	pin	red	120	1 750
87897	pin	orange	140	2 050
87885	reset	green	70	1 000
87886	reset	yellow	100	1 500
87887	reset	red	140	2 000
87888	reset	orange	170	2 500
87889	reset	blue	205	3 000

Product description

Closure plug to plug non-working outlets. External crossport kit connects alternate outlet ports to combine the volume of two metering segments through a single outlet.

Product description

Pin type performance indicators where high pressure ruptures internal disc and extends indicator. Reset-type indicator where high pressure extends indicator and resets after pressure is relieved. O-rings are FKM for both types.

PSG1



Oil and fluid grease

Grease

Product description

The PSG1 is a progressive metering device made of a baseplate and metering sections which can be removed without loosening the tubing as all inlets and outlets are positioned in the common baseplate. By unscrewing the internal setscrew two opposite outlets can be consolidated internally. Externally a maximum of three outlets can be consolidated via a crossporting bridge. A minimum of three metering sections need to be used.

Features and benefits

- Easy servicing as outlets are located on baseplate
- Flexible due to exchangeable metering segments
- Visual or electrical monitoring possible
- Dummy segments with no output available
- Adjustable by consolidating outlets internally or externally
- Most compact modular metering device

Applications

- Tunnel boring machines
- Paper machines
- Presses

Technical data

Function principle	segment metering device
Outlets	6 to 20
Lubricant	grease up to NLGI 2 oil with minimum viscosity of 12 mm ² /s
Metering quantity	per cycle and outlet min. 0,05 cm ³ , 0.003 in ³ max. 0,25 cm ³ , 0.015 in ³
Operating temperature	-15 to +110 °C +5 to 230 °F
Operating pressure ¹⁾	max. 200 bar; 2 900 psi
Material	baseplate: aluminum alloy sections: steel, galvanized
Connection inlet	G 1/8
Connection outlet	G 1/8
Dimensions	min. 90 × 55 × 41 mm min. 3.54 × 2.17 × 1.61 in max. 244 × 55 × 41 mm max. 9.61 × 2.17 × 1.61 in
Mounting position	without vibration: any with vibration: piston position should 90° to machine movements direction

¹⁾ operating pressure may be lower depending on design with monitoring or attachments

PSG1 Accessories

Order number	Designation
466-419-001	Closure plug for baseplate outlet incl. washer
24-2151-3760	Crossporting bridge, 2 outlets ¹⁾
24-2151-3762	Crossporting bridge, 2 outlets, with outlet port ¹⁾
24-2151-3764	Crossporting bridge, 2 outlets, with outlet port and check valve ¹⁾

¹⁾ bridges are approved for a maximum operating pressure of 100 bar; 1 450 psi
crossporting bridge also available for 3 outlets, see brochure 1-3010-EN

NOTE
For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication:
951-230-013, 1-3010-EN

3D data and product configuration:
skf-lubrication.partcommunity.com/3d-cad-models/

Metering devices

PSG1

Body configurator

PSG1 X X X

Product series

Monitoring

X = none
 3 = 3-pin piston detector, M 12 × 1 plug
 Y = cycle indicator, visual (plunger rod)^{1) 2)}
 S = cycle indicator with bracket and proximity switch^{1) 2)}
 G = cycle indicator with bracket for proximity switch (without proximity switch)^{1) 2)}

Position of monitoring device²⁾

X = none
 A = left hand side, section 1 B = right hand side, section 1
 C = left hand side, section 2 D = right hand side, section 2
 E = left hand side, section 3 F = right hand side, section 3
 G = left hand side, section 4 H = right hand side, section 4
 J = left hand side, section 5 K = right hand side, section 5
 L = left hand side, section 6 M = right hand side, section 6
 N = left hand side, section 7 P = right hand side, section 7
 Q = left hand side, section 8 R = right hand side, section 8
 S = left hand side, section 9 T = right hand side, section 9
 U = left hand side, section 10 V = right hand side, section 10

Baseplate inlet screw union³⁾

X = none B = tube ø 8 mm
 A = tube ø 6 mm C = tube ø 10 mm

Sections

... = to be configured in the section configurator

Section configurator

— —

Section (minimum 3 sections)⁴⁾

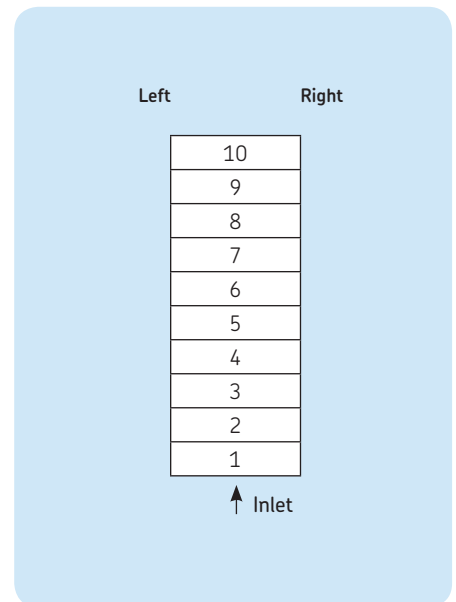
x = dummy section
 A = 0,05 cm³/cycle⁵⁾ B = 0,10 cm³/cycle
 C = 0,15 cm³/cycle D = 0,20 cm³/cycle
 E = 0,25 cm³/cycle

Outlet fitting left

S = outlet closed by screw plug⁶⁾
 X = outlet without fitting

Outlet fitting right

S = outlet closed by screw plug⁶⁾
 X = outlet without fitting

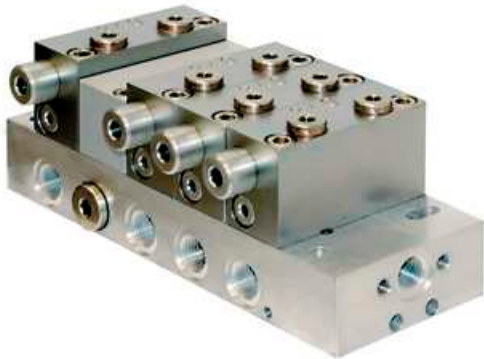


Oil and fluid grease

Grease

¹⁾ Only on 200 and 250 mm³ section sizes
²⁾ Installation on first or last section is not recommended
³⁾ Solderless pipe union with cutting sleeve per DIN 2353
⁴⁾ The volume per section is equal on both sides
⁵⁾ If possible, do not place in first position when designing metering device
⁶⁾ Metering device only operates with one side (left or right) outlet closed per section

PSG2



Oil and fluid grease

Grease

Product description

The PSG2 is a progressive metering device made of a baseplate and metering sections which can be removed without loosening the tubing as all inlets and outlets are positioned in the common baseplate. By unscrewing the internal setscrew two opposite outlets can be consolidated internally. Externally a maximum of three outlets can be consolidated via a crossporting bridge. A minimum of three metering sections need to be used.

Features and benefits

- Easy servicing as outlets are located on baseplate
- Flexible with exchangeable metering segments
- Visual or electrical monitoring available
- Increased corrosion resistance material available
- Dummy segments without output available
- Adjustable output by consolidating outlets internally or externally

Applications

- Presses
- Tunnel boring machines
- Paper machines
- Automotive industry

Technical data

Function principle	segment metering device
Outlets	3 to 20
Lubricant	oil: with min. viscosity of 12 mm ² /s grease: up to NLGI 2
Metering quantity	per cycle and outlet, depends on metering section used min. 0,06 cm ³ ; 0.0037 in ³ max. 0,84 cm ³ ; 0.051 in ³
Operating temperature	-15 to +110 °C +5 to 230 °F
Operating pressure	max. 200 bar; 2 900 psi
Connection inlet	G 1/4
Connection outlet	G 1/4
Material	baseplate: aluminum alloy or anodized sections: steel or nickel plated
Dimensions	min. 131 × 86 × 71 mm min. 5.16 × 3.39 × 2.80 in max. 327 × 86 × 71 mm max. 12.87 × 3.39 × 2.80 in
Mounting position	without vibration: any with vibration: piston position should be 90° to machine movements direction
Options	flow limiter

¹⁾ operating pressure may be lower depending on design with monitoring or attachments

PSG2 Accessories

Order number	Designation
466-419-001	Closure plug for baseplate outlet incl. washer
24-2151-3760	Crossporting bridge, 2 outlets ¹⁾
24-2151-3762	Crossporting bridge, 2 outlets, with outlet port ¹⁾
24-2151-3764	Crossporting bridge, 2 outlets, with outlet port and check valve ¹⁾

¹⁾ bridges are approved for a maximum operating pressure of 100 bar; crossporting bridge also available for 3 outlets, see brochure

NOTE
For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication:
951-230-013, 14389 EN

3D data and product configuration:
skf-lubrication.partcommunity.com/3d-cad-models/

Metering devices

PSG2

Body configurator

PSG2

X

X

X

Product series

Monitoring

X = none
 3 = 3-pin piston detector, M 12 × 1 plug
 Y = cycle indicator, visual (plunger rod) ^{1) 2)}
 S = cycle indicator with bracket and proximity switch ^{1) 2)}
 G = cycle indicator with bracket for proximity switch (without proximity switch) ^{1) 2)}

Position of monitoring device ²⁾

X = none
 A = left hand side, section 1 B = right hand side, section 1
 C = left hand side, section 2 D = right hand side, section 2
 E = left hand side, section 3 F = right hand side, section 3
 G = left hand side, section 4 H = right hand side, section 4
 J = left hand side, section 5 K = right hand side, section 5
 L = left hand side, section 6 M = right hand side, section 6
 N = left hand side, section 7 P = right hand side, section 7
 Q = left hand side, section 8 R = right hand side, section 8
 S = left hand side, section 9 T = right hand side, section 9
 U = left hand side, section 10 V = right hand side, section 10

Baseplate inlet screw union ³⁾

X = none
 A = tube ø 6 mm C = tube ø 10 mm
 B = tube ø 8 mm D = tube ø 12 mm

Sections

... = to be configured in the section configurator

Oil and fluid grease

Grease

Section configurator

-

-

Section (minimum 3 sections) ⁴⁾

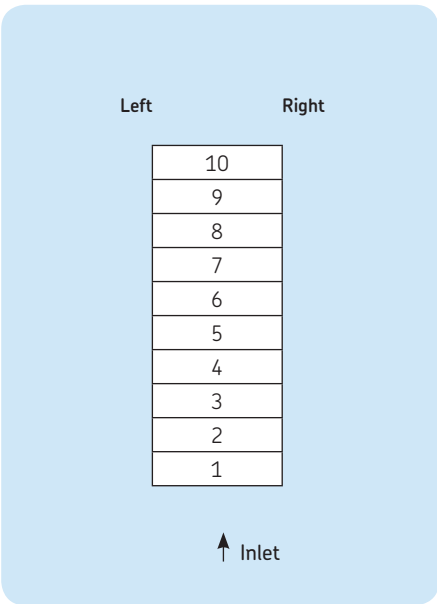
X = dummy section
 F = 0,06 cm³/cycle ⁵⁾ K = 0,48 cm³/cycle
 G = 0,12 cm³/cycle L = 0,60 cm³/cycle
 H = 0,24 cm³/cycle M = 0,72 cm³/cycle
 J = 0,36 cm³/cycle N = 0,84 cm³/cycle

Outlet fitting left

S = outlet closed by screw plug ⁶⁾
 X = outlet without fitting

Outlet fitting right

S = outlet closed by screw plug ⁶⁾
 X = outlet without fitting



PUB LS/P1 16964 EN

¹⁾ Not for 60 mm³ section size
²⁾ Installation on first or last section is not recommended
³⁾ Solderless pipe union with cutting sleeve per DIN 2353
⁴⁾ The volume per section is equal on both sides
⁵⁾ If possible, do not place in first position when designing metering device
⁶⁾ Metering device only operates with one side (left or right) outlet closed per section

Metering devices

PSG3



Oil and fluid grease

Grease

Product description

The PSG3 is a progressive metering device made of a baseplate and metering sections which can be removed without loosening the tubing as all inlets and outlets are positioned in the common baseplate. By unscrewing the internal setscrew two opposite outlets can be consolidated internally. Externally a maximum of three outlets can be consolidated via a crossporting bridge. A minimum of three metering sections need to be used.

Features and benefits

- Easy servicing as outlets are located on baseplate
- Flexible with exchangeable metering segments
- Visual or electrical monitoring available
- Increased corrosion resistance material available
- Dummy segments without output available
- Adjustable output by consolidating outlets internally or externally
- Main metering device in oil circulation systems

Applications

- Presses
- Paper machines
- Automotive industry

Technical data

Function principle	segment metering device
Outlets	6 to 20
Lubricant	oil with min. viscosity of 12 mm ² /s grease up to NLGI 2
Metering quantity	per cycle and outlet min. 0,80 cm ³ ; 0.049 in ³ max. 3,20 cm ³ ; 0.195 in ³
Operating temperature	-15 to +110 °C +5 to 230 °F
Operating pressure	max. 200 bar; 2 900 psi
Connection inlet	G 3/8
Connection outlet	G 1/4
Material	baseplate: aluminium alloy sections: steel galvanized or nickel plated
Dimensions	min. 165 × 108 × 88 mm min. 6.50 × 4.25 × 3.46 in max. 466 × 108 × 88 mm max. 18.35 × 4.25 × 3.46 in
Mounting position	without vibration: any with vibration: piston position should be 90° to machine movements direction
Options	flow limiter

¹⁾ operating pressure may be lower depending on design with monitoring or attachments

PSG3 Accessories

Order number	Designation
DIN908-R1-4-5.8	Closure plug for baseplate outlet
508-108	Washer for closure plug
24-2151-3734	Crossporting bridge, 2 outlets ¹⁾
24-2151-3736	Crossporting bridge, 2 outlets with outlet ports ¹⁾

¹⁾ bridges are approved for a maximum operating pressure of 100 bar; crossporting bridge also available for 3 outlets, see brochure

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication: **951-230-013, 14389 EN**

3D data and product configuration:
skf-lubrication.partcommunity.com/3d-cad-models/

Metering devices

PSG3

Body configurator

PSG3 X X X

Product series

Monitoring

X = none
 3 = 3-pin piston detector, M 12 × 1 plug
 Y = cycle indicator, visual (plunger rod)¹⁾
 S = cycle indicator with bracket and proximity switch¹⁾
 G = cycle indicator with bracket for proximity switch (without proximity switch)¹⁾

Position of monitoring device¹⁾

X = none
 A = left hand side, section 1 B = right hand side, section 1
 C = left hand side, section 2 D = right hand side, section 2
 E = left hand side, section 3 F = right hand side, section 3
 G = left hand side, section 4 H = right hand side, section 4
 J = left hand side, section 5 K = right hand side, section 5
 L = left hand side, section 6 M = right hand side, section 6
 N = left hand side, section 7 P = right hand side, section 7
 Q = left hand side, section 8 R = right hand side, section 8
 S = left hand side, section 9 T = right hand side, section 9
 U = left hand side, section 10 V = right hand side, section 10

Baseplate inlet screw union²⁾

X = none
 B = tube ø 8 mm C = tube ø 10 mm
 D = tube ø 12 mm E = tube ø 15 mm
 F = tube ø 16 mm

Sections

... = to be configured in the section configurator

Oil and fluid grease

Grease

Section configurator

— —

Section (minimum 3 sections)³⁾

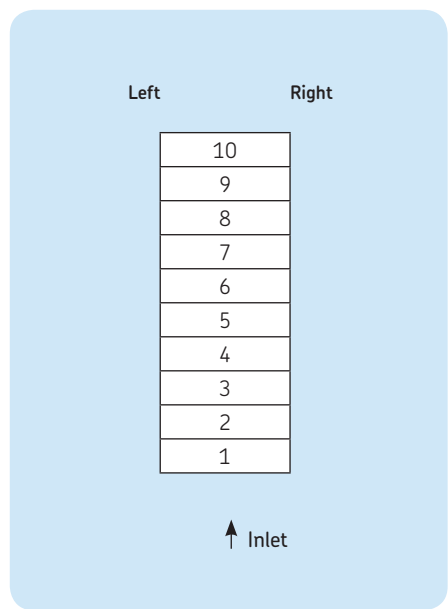
X = dummy section
 P = 0,80 cm³/cycle⁴⁾ Q = 1,20 cm³/cycle
 R = 1,60 cm³/cycle S = 2,40 cm³/cycle
 T = 3,20 cm³/cycle

Outlet fitting left

S = outlet closed by screw plug⁵⁾
 X = outlet without fitting

Outlet fitting right

S = outlet closed by screw plug⁵⁾
 X = outlet without fitting



¹⁾ Installation on first or last section is not recommended
²⁾ Solderless pipe union with cutting sleeve per DIN 2353
³⁾ The volume per section is equal on both sides
⁴⁾ If possible, do not place in first position when designing metering device
⁵⁾ Metering device only operates with one side (left or right) outlet closed per section

Metering devices

UV



Oil and fluid grease

Grease

Product description

UV metering devices are modular type metering devices. They consist of a baseplate part and a metering sections part. The baseplate has one inlet, three to eight intermediate, one end section held via three tie rods. The metering sections part consists of three to eight metering sections (depending on number of outlets needed) which are fixed on the baseplate part. All parts have FKM O-ring seals in-between. There must be a minimum of three metering sections. The metering sections will have either single or twin outlets. Whenever a single metering segment or crossport plate is used, the unused outlet must be plugged. Metering device has to be ordered in single parts, see chart.

Features and benefits

- Alternate outlet ports for performance indicators
- Optional metering sections with visual cycle indicator
- Optional by-pass metering segment for addition or deletion of lubrication points

Applications

- Industrial machinery
- Metal forming machines
- Material handling machines



Technical data

Function principle	segment metering device
Outlets ¹⁾	6 to 16
Lubricant	oil or grease NLGI 0 to 2
Metering quantity	per cycle and outlet min. 0,082 cm ³ ; 0,005 in ³ max. 1,311 cm ³ ; 0,08 in ³
Operating temperature	-26 to +200 °C -15 °F to 400 °F
Operating pressure	max. 240 bar; 3 500 psi
Connection inlet	3/4 NPSF (F)
Connection outlet	1/8 NPSF (F)
Material	housing: zinc plated steel sealing: FKM
Dimensions	min. 115 × 76 × 57 mm min. 4.52 × 3 × 2.25 in max. 232 × 76 × 57 mm max. 9.13 × 3 × 2.25 in
Mounting position	any

¹⁾ It is possible to reduce the number of outlets below the given minimum by crossporting or closing outlets.

Metering devices

UV

Oil and fluid grease

Grease

UV baseplate and tie rod specifications ¹⁾

Outlets max.	Order number Inlet section	End section	Tie rod ¹⁾	Intermediate section	Intermediate section quantity required	Metering valves
6	87918	87920	250290	87919	3	3
8	87918	87920	250291	87919	4	4
10	87918	87920	250292	87919	5	5
12	87918	87920	250293	87919	6	6
14	87918	87920	250294	87919	7	7
16	87918	87920	250295	87919	8	8

¹⁾ each tie rod model no. includes three tie rods and three fastening nuts

UV metering valve specification- single outlet S

Order number Standard	Right side cycle indicator	Designation	Metering quantity per outlet	
			cm ³	in ³
882051	–	05S	0,164	0.010
882101	–	10S	0,328	0.020
882151	–	15S	0,492	0.030
882201	882203	20S	0,656	0.040
882251	882253	25S	0,820	0.050
882301	882303	30S	0,983	0.060
882351	882353	35S	1,147	0.070
882401	882403	40S	1,311	0.080

Model 882000 UV by-pass block:
optional by-pass block permits addition or deletion of lubrication points without disturbing existing installations. Includes mounting screws and NBR seals.

UV metering valve specifications - twin outlet T

Order number Standard	Right side cycle indicator	Designation	Metering quantity per outlet	
			cm ³	in ³
882052	–	05T	0,082	0.05
882102	–	10T	0,164	0.10
882152	–	15T	0,246	0.15
882202	882204	20T	0,328	0.20
882252	882254	25T	0,410	0.25
882302	882304	30T	0,492	0.30
882352	882354	35T	0,574	0.35
882402	882404	40T	0,656	0.40

Model 882000 UV by pass block optional:
by-pass block permits addition or deletion of lubrication points without disturbing existing installations. Includes mounting screws and NBR seals.

Plug and crossporting

Order number	Designation
68645	closure plug
87905	single and crossport kit

Product description

Closure plug To plug non-working outlets. External crossport kit connects alternate outlet ports to combine the volume of two metering segments through a single outlet.

Relief and performance indicators

Order number	Type	Disc colour	Pressure rating	
			bar	psi
87934	atmospheric relief	yellow	100	1 450
87935	atmospheric relief	red	120	1 750
87936	atmospheric relief	purple	225	3 250
87937	atmospheric relief	yellow/natural	255	3 700
87938	reset-type	–	35	500
87939	reset-type	–	70	1 000
87940	reset-type	–	10	1 500
87941	reset-type	–	140	2 000
87942	reset-type	–	205	3 000

Product description

Atmospheric safety relief indicators. High pressure rupture disc, pressure and lubricant vents to the atmosphere.

Reset-type Performance Indicators. High pressure extends indicator. Reset indicator after pressure is relieved. All with thread 1/8 NPTF (M).

Metering devices

XL

Oil and fluid grease

Grease



Product description

XL metering devices are modular type metering devices. They consist of a baseplate as one piece and a modular metering sections part. The baseplate contains all inlet and outlet connections.

The metering sections part consists of three to six metering sections (depending on number of outlets needed) which are fixed on the baseplate part. All parts have NBR-ring seals in-between. There must be a minimum of three metering sections. The metering sections will have either single or twin outlets. Whenever a single metering segment or a crossport or a singling plate is used, the unused outlet must be plugged. Metering device has to be ordered in single parts, see chart.

Features and benefits

- Several sizes and outputs
- Can be used as primary metering device in conjunction with UV type
- Baseplate as one single piece

Applications

- Metal cutting machines
- Metal forming machines
- Wood-working machines
- Material handling machinery

Technical data

Function principle	segment metering device
Outlets ¹⁾	6 to 12
Lubricant	oil or grease NLGI 0 to 2
Metering quantity	per cycle and outlet min. 0,492 cm ³ ; 0.03 in ³ max. 4,92 cm ³ ; 0.3 in ³
Operating temperature	0 to +120 °C 35 °F to 250 °F
Operating pressure	max. 170 bar; max. 2 500 psi
Connection inlet	³ / ₈ NPTF (F)
Connection outlet	¹ / ₄ NPTF (F)
Material	housing: zinc plated steel sealing: NBR
Dimensions	min. 136 × 127 × 70 mm min. 5.34 × 5 × 2.75 in max. 238 × 127 × 70 mm max. 9.38 × 5 × 2.75 in
Mounting position	any

¹⁾ It is possible to reduce the number of outlets below the given minimum by crossporting or closing outlets.

Metering devices

XL

XL Metering valve specifications - single outlet S

Order number	Designation	Metering quantity	
		cm ³	in ³
87026-03S	30S	0,983	0.60
87026-05S	50S	1,64	0.100
87026-08S	80S	2,62	0.160
87026-10S	100S	3,28	0.200
87026-12S	120S	3,93	0.240
87026-15S	150S	4,92	0.300

Note: Model 87028 XL by-pass block: optional by-pass block permits addition or deletion of lubrication points without disturbing existing installations. Includes mounting screws and FKM seals.

XL metering valve specifications - twin outlet T

Order number	Designation	Metering quantity	
		cm ³	in ³
87026-03T	30T	0,492	0.030
87026-05T	50T	0,820	0.050
87026-08T	80T	1,31	0.080
87026-10T	100T	1,64	0.100
87026-12T	120T	1,97	0.120
87026-15T	150T	2,46	0.150

Note: Model 87028 XL by-pass block: optional by-pass block permits addition or deletion of lubrication points without disturbing existing installations. Includes mounting screws and FKM seals.

XL baseplate specifications

Order number	Outlets max.	Metering devices
87030-3	6	3
87030-4	8	4
87030-6	12	6

Note: Use No. 67359 closure plug (1/4 NPT) to plug non-working outlets.

Accessories

Plugs and indicators

Plug and crossporting

Order number	Designation
67359	Closure plug
87823	Crossport kit
87824	Singling kit

Relief and performance indicators

Order number	Type	Disc colour	Pressure rating	
			bar	psi
87934	atmospheric relief	yellow	100	1 450
87935	atmospheric relief	red	120	1 750
87936	atmospheric relief	purple	225	3 250
87937	atmospheric relief	yellow/natural	255	3 700
87938	reset-type	-	35	500
87939	reset-type	-	70	1 000
87940	reset-type	-	10	1 500
87941	reset-type	-	140	2 000
87942	reset-type	-	205	3 000

Product description

Closure plug to plug non-working outlets.

External crossport kit connects alternate outlet ports to combine the volume of two metering segments through a single outlet.

Product description

Atmospheric safety relief indicators. High pressure rupture disc, pressure and lubricant vents to the atmosphere.

Reset-type performance indicators. High pressure extends indicator. Reset indicator after pressure is relieved. All with thread 1/8 NPTF(M)

Progressive lubrication systems

LMC 101



LMC 2



LMC 301



EOT 2



IG502



LC502



Accessories

Control units

EXZT/IGZ50-20



ST 102



ST 1240



ST 1440



Overview of control units

Product finder

Product	Function type	Designation	Voltage		Lubrication channels	Temperature		Page
			V DC	V AC		°C	°F	
LMC 101	Universal control and monitoring device	Universal control and monitoring device for progressive systems	12, 24	–	1	–40 to +65	–40 to +150	108
LMC 2	Electronic controller	Programmable for all kind of lubrication systems: time- or cycle- dependent lubrication	24	230	2	–10 to +70	+14 to 158	109
LMC 301	Lubrication monitor controller	Can handle up to 3 pumps and various types of lubrication systems. Function keys with menu display	24	90-264	3	–40 to +70	–40 to +158	110
EOT 2	Control and monitoring device	Easy time controller for lubrication pumps in progressive systems	12, 24	–	1	–25 to +70	–13 to +158	111
IG 502	Universal electronic controller	Programmable for progressive lubrication systems: time- or cycle- dependent lubrication, with timer, counter or monitoring function for pressure or cycle switches	12, 24	–	1	–25 to +75	–13 to +167	112
LC502	Controller	Controller programmable for single-, dual-line and progressive lubrication systems	24	230; 400	3 three-phase	0 to +60	+32 to 140	113
EXZT IGZ51	Universal electronic controller and monitoring device	Universal control and monitoring device for stationary industrial application installed in a switching cabinet	–	100–240	1	0 to +60 0 to +60	+32 to 140 +32 to 140	114 114
ST-102	Lubrication control center	Can be used within single-, dual-line or progressive lubrication systems. Includes a user interface for monitoring and controlling the lubrication system	12, 24	–	1	–40 to +80	–40 to +176	116
ST-1240-Graph-4	Lubrication control center	Can handle four channels, single-, dual-line or progressive lubrication systems. Configuration can be set in the field by the alphanumeric touchscreen display. Pressure switches, pressure transmitters or piston detectors can be used in both channels	–	93–132, 186–264	4	0 to +50	+32 to +122	117
ST-1340	Lubrication control center (modular)	It is modular and therefore could handle 1 to 4 channels, single-, dual-line or progressive lubrication systems. Configuration can be set with the user interface that includes alphanumeric keypad and display.	–	93–132, 186–264	1–4	0 to +60	+32 to +140	118
ST-1440	Lubrication control center (modular)	Similar to ST-1340 but could handle 1 to 14 channels, single-, dual-line or progressive lubrication systems	–	93–132, 186–264	1–14	0 to +60	+32 to +140	118

Control units

LMC 101



Product description

The LMC 101 is a universal control and monitoring device suitable for single-line and progressive lubrication systems. Designed for off-road and mobile equipment only in drivers cabin use or industrial indoor use, this controller also can be utilized for any low-voltage lubrication application. Time or controller mode can be set for both systems. The LMC 101 must be programmed via USB connection to a PC.

In timer mode, the lubrication cycle ends when the pre-assigned time has expired. In controller mode, the lubrication cycle ends when the pressure switch, pressure transducer or piston detector actuates. The system allows pressure to dissipate to the end of the supply line once pressure at the pump is reached.

Features and benefits

- For 12 and 24 V DC systems
- Time or controller mode
- Various alarm condition settings
- Programming, data logging, and reporting
- Controller must be programmed via USB connection to PC
- Manual lubrication pushbutton.

Applications

- Off-road equipment
- Mobile equipment
- Indoor industrial machinery
- Food and beverage industry
- Single-line and progressive systems

Function principle	control and monitoring device
Operating temperature	-40 to +66 °C, -40 to +150 °F
Input	12 and 24 V DC, -20% / +30%
Pump relay contact	20 A at 30 V DC
Vent relay contact	2 A at 30 V DC
Alarm relay contact	2 A at 30 V DC
Enclosure rating	NEMA 12
Off time (adjustable)	15 seconds to 99 hours
On time (adjustable)	15 seconds to 99 hours
Protection class	IP 52
Dimensions	186 × 120 × 59 mm 7.3 × 4.7 × 2.3 in
Mounting position	any

LMC 101

Order number	Designation
86535	Single line and progressive lubrication controller
86505	LMC USB cable kit

NOTE For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication: **15556 EN, 15625 EN**

Control units

LMC 2



Product description

The LMC 2 is a controller for the electronic management and monitoring of lubrication systems. It combines the advantages of a specially developed printed circuit board (PCB) and a PLC in an economical compact unit. For dual-line systems, it controls the pump unit, change-over valve and end-of-line devices.

Features and benefits

- Integrated, flexible lubrication programmes
- 8 inputs / 5 outputs – suitable for complex lubrication systems
- Time- or cycle-dependent control of lubrication intervals
- Can be interfaced with common field bus systems

Applications

- Railway lubrication and spray lubrication systems
- Food and beverage
- Chain lubrication systems like Lincoln Cobra and PMA
- Single-line, dual-line, multi-line and progressive systems

Technical data

Function principle	control and monitoring device
Operating temperature	-10 to +70 °C, +14 to 158 °F
Inputs	max. 8 digital inputs
Outputs	4 relay outputs, 1 electronic
Operating voltage	depending on model 230 V AC, 24 V DC; (± 10%)
Standard	CE
Protection class	IP 54
Dimensions	200 × 120 × 90 mm 7.9 × 4.7 × 3.5 in
Mounting position	any

LMC2

Order number	Designation
236-10567-6	LMC2 230 AC (230 V AC)
236-10567-5	LMC2 24 DC (24 V DC)

For use with electric driven 3-phase pump; need to order motor starter separately.

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication: **14004 EN**

Control units

LMC 301



Product description

The LMC 301 is a compact, modularly expandable control and monitoring device. The device is equipped with an LCD display and 6 functional keys for programming, parameter setting and signalization. The user is guided through the setting menu. Additionally, there is a simple-to-use PC software for parameter setting and diagnostics available.

Features and benefits

- Integrated, flexible lubrication programs
- Main device with 10 digital inputs, of which two can be used analog inputs and eight outputs
- Can be used with up to seven I/O boards, 10 inputs and 8 outputs each
- Three lubrication pumps can be controlled and monitored, each of which provides up to three lubrication circuits
- Can connect the digital grease flow detectors 800030 or the universal piston detectors

Applications

- Cement industry
- Steel industry
- Mining – stationary and mobile excavators
- Food and beverage
- Single-line, dual-line, multi-line and progressive systems

Technical data

Function principle control and monitoring device
 Operating temperature VAC:
 -10 to +50 °C, +14 to 122 °F
 V DC:
 -40 to +70 °C, -40 to +158 °F
 Inputs quantity 10, short-circuit-proof,
 2 of them analog
 Outputs 8 count, relay outputs NO-contact 8 A,
 2 of which up to 20 A
 Operating voltage depending on model 90-264 V AC,
 24 V DC ±10%
 Standard CE; UL; CSA
 Protection class IP 65
 Dimensions 270×170×90 mm; 10.7×6.7×3.5 in
 Mounting position upright

LMC 301

Order number	Designation
086500	LMC301 24 V DC
086501	LMC301 100-240 V AC
086502	LMC301 24 V DC I/O board
086503	LMC301 100-240 AC I/O board

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication: **15967 EN, 951-150-029 EN**

Control units

EOT-2



Product description

The EOT-2 controller is designed to control lubrication pumps during interval operation in progressive systems. Rotary switches on the printed circuit board may be used to adjust lubrication time in seconds or minutes and pause time in minutes or hours.

The EOT-2 is suitable for retrofit installation and often is used when a lubrication pump has no integrated control unit. Additional lubrication cycles can be triggered via a pushbutton.

Features and benefits

- Easy-to-use controller for installation in and outdoor
- Suitable for retrofit
- Easy time setting and function control

Applications

- Lubrication pumps without integrated controller
- Agricultural machinery
- Chain lubrication systems
- Simple lubrication systems in machines

Technical data

Function principle	control and monitoring device
Operating temperature	-25 to +70 °C, -13 to +158 °F
Supply voltage	12 or 24 V DC
Current draw	max. ≤ 7 A
Outputs	transistor/ N.O.
Pause time	min. 4 min max. 15 h
Running time	min. 8 sec max. 30 min
Protection class	IP 65
Dimensions	122 × 118 × 56 mm 4.80 × 4.65 × 2.00 in
Mounting position	any

EOT 2

Order number	Designation
664-34135-7	EOT-2

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication: **951-181-005 EN**

Control units

IG 502-2-E+ ...



Product description

The IG 502-2-E ... is a universal control and monitoring device for vehicles and is suitable for centralized lubrication in progressive and single-line systems. The compact device is equipped with a display panel for parameter settings and function monitoring. Different operating modes, such as timer, counter and monitoring functions for pressure and cycle switches, are programmable. The device has its own data memory to be independent of supply voltage. To avoid environmental influences, it is advisable to install the device inside a cabinet.

Features and benefits

- Universal control and monitoring device
- Compact design
- Easy to operate
- Different operating modes, such as timer, counter and monitoring functions
- Red LED failure indicator also shows failure cause
- Integrated counters for permanent operation, failed hours and working-hour meter show system life cycle
- PIN lockout feature to prevent unauthorized programming changes

Applications

- Commercial vehicles
- Construction machines
- Farm machinery

Technical data

Function principle	controller
Max control voltage	12 or 24 V DC
Contact load connector M	5 A at 12 or 24 V DC
SL-output	4 W
Operating temperature	-25 °C to +75 °C, -13 °F to +167 °F
Storage temperature	-40 °C to +75 °C, -40 °F to +167 °F
Fuse protection	max. 5 A
Pause time	adjustable, 0,1 h to 99,9 h
Pump running time	adjustable, 0,1 min to 99,9 min
Pulse time	adjustable, 1 to 999
Operation hours storage	0 to 99999,9 h
Operation- failed hours storage	0 to 99999,9 h
Protection class	IP 20 DIN 40050, plug IP 00
Dimensions	138 × 65 × 40 mm 5.43 × 2.56 × 1.57 in

IG 502-2-E+...

Order number	Designation
IG 502-2-E+912	Controller 12 V DC
IG 502-2-E+924	Controller 24 V DC
997-000-185	Wire set

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication:
1-1700-2-EN, 951-180-002-EN

Control units

LC 502



Product description

The compact LC 502 is an all-purpose controller suitable for single-line, progressive and dual-line systems. Supplied as a separate unit or already integrated in the pump, this versatile controller includes a basic power switch, motor circuit breaker (230/400 V AC types) start button and fault indicator light. The unit's user-friendly display enables input of customer-specific settings in up to seven languages (optional). Integration of the LC 502, configuration of technical ratings and characteristics depend on the customer's specific application

Features and benefits

- Easy-to-operate, programmable controller
- System monitoring and error detection/failure remedy
- Integrated temperature-overload safety device
- Up to three lubrication circuits can be controlled or monitored separately

Applications

- General industry
- Cement and steel plants
- Food and beverage industry
- Machine tools

Technical data

Function principle	controller
Operating temperature	0 to +60 °C; +32 to 140 °F
Operating voltage	
24 V DC	0,16-0,25 kW
230 V AC	0,15-0,85 kW
400 V AC, 3-phase	0,15-0,85 kW
Operating voltage frequency	50 to 60 Hz
Electrical input connectors	4
Electrical output connectors	4
Input voltage	12 or 24 V DC
Off time	cycle : 8 h
On time	pumping: 1 h
Fuse F1: 400/230 V AC	5 × 20 mm 4 A
Fuse F2: 400/230 V AC, 24 V DC	5 × 20 mm 2 A
Cycle setting	depend on: time, machine pulse, pump revolutions
Possible low-level controls: W1	wipe /dynamic
Possible low-level controls: W2	wipe /capacitive/ static analog
Lubrication circuits	max. 2
Rotation	10 corresponds to 10 agitator rotations
Protection class	IP 54
Dimensions control cubicle	400 × 400 × 600 mm 15.75 × 15.75 × 23.62 in
Mounting position	upright, cable terminals pointing downwards

LC502

Order number	Designation
24-1074-2200	400 V AC; 0,55 kW; also for dual-line systems
24-1074-2210	400 V AC; 0,55 kW; also for single-line systems
24-1074-2220	400 V AC; 0,55 kW
24-1074-2260	24 V DC; 0,55 kW; also for dual-line systems
24-1074-2270	24 V DC; 0,55 kW; also for single-line systems
24-1074-2280	24 V DC; 0,55 kW

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available on SKF.com/lubrication: **1-0361-EN, 951-170-215 EN, 951-180-005 EN**

Control units

EXZT/IGZ51



Product description

EXZT and IGZ51 universal electronic control and monitoring devices are used in single-line and progressive lubrication systems and are available in two voltage versions. Developed for stationary industrial applications, these devices may be installed in a switching cabinet or internally in a compact lubrication unit. They can be used as time-dependent or pulse-dependent controllers to initiate a lubrication cycle. The EXZT and IGZ51 devices monitor the piston strokes in the metering devices and run the pump during the lubrication time in clogged operation. All devices have custom-built functions integrated and can be set to meet system requirements.

Features and benefits

- One universal control and monitoring device
- Easy installation by top hat rail mounting
- Adjustable operating modes
- Time operation or machine-clogged operation
- Low-level control and EEPROM included

Applications

- Stationary industrial applications in single-line and progressive lubrication systems
- Installation in switching cabinet of stationary general industry machines

Technical data

Function principle	universal electronic control and monitoring device
Operating temperature	0 to +60 °C; +32 to 140 °F
Output voltage	24 V DC +10%/-15%
Connector for class	II
Protection class	IP 30, clamps IP 20
Dimensions	70×75×110 mm 2.7×3.0×4.3 in

Version + 471

Input voltage	100 – 120 V AC; 200 – 240 V AC; (± 10%)
Input current	70 mA / 35 mA
Power input	8 W
Frequency	50 – 60 Hz
Fuse	max. 6.3 A
Switching current	max. 5 A
Input voltage sensors	24 V DC

Version + 472

Input voltage	20 to 24 V DC; 20 to 24 V AC; (± 10%)
Input current rated	75 mA at max. fan-out of 250 mA
Power input	5 W
Frequency rated	DC or 50 – 60 Hz
Fuse	max. 6,3 A
Switching current	max. 5 A
Input voltage rated	24 V DC
Mounting position	any

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication:
1-1700-2-EN, 951-180-001

Control units

EXZT/IGZ51

EXZT... and IGZ 51-...

All models are with lubricant level monitoring, pulse generator; pump runtime limitation, adjustable interval and monitoring time

Order number	V DC	V AC; 50-60 Hz	pump delay time adjustable	pulse monitoring (interval time)	prelubrication	power failure memory
EXZT2A03-E+471	–	100-120; 200-240	•	–	–	–
EXZT2A03-E+472	20-24	–	•	–	–	–
EXZT2A06-E+471	–	100-120; 200-240	•	•	–	–
EXZT2A06-E+472	20-24	–	•	•	–	–
IGZ 51-20-E+471	–	100-120; 200-240	–	–	–	–
IGZ 51-20-E+472	20-24	–	–	–	–	–
IGZ 51-20-S2-E+471	–	100-120; 200-240	–	–	–	•
IGZ 51-20-S2-E+472	20-24	–	–	–	–	•
IGZ 51-20-S7-E+471	–	100-120; 200-240	–	–	–	•
IGZ 51-20-S7-E+472	20-24	–	–	–	–	•
IGZ 51-20-S8-E+471	–	100-120; 200-240	–	–	•	•
IGZ 51-20-S8-E+472	20-24	–	–	–	•	•

Control units

ST-102



Product description

The ST-102 controller is designed for the control and monitoring of lubrication systems in vehicles with a 12 or 24 V DC power supply. It is a one-channel lubrication control center for systems with air-operated or electrical pumps. The ST-102 is suitable for environments with temperatures ranging from -40 to $+80$ °C (-40 to $+176$ °F) and features an IP 40 protection class. All lubrication configurations can be set in the field by the user.

Features and benefits

- Available for 12 or 24 V DC
- Suitable for operational environments in extreme temperatures
- One-button user interface

Applications

- Vehicles
- Construction machinery
- Agricultural machinery
- Dual-line, progressive and single-line lubrication systems

Technical data

Function principle	control and monitoring device
Operating temperature	-40 to $+80$ °C; -40 to $+176$ °F
Power supply	12 and 24 V DC
Input	4 digital
Output	4 digital
Interface	none
Protection class	IP 40
Dimensions	$26 \times 60 \times 160$ mm $1.02 \times 2.36 \times 6.3$ in

ST-102

Order number	Designation
11500607	V1 for progressive and single-line systems
11500610	V2 for progressive, dual- and single-line systems

NOTE For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication: **6408 EN, 13615 EN**

Control units

ST-1240-GRAPH-4



Product description

The ST-1240-GRAPH-4 is a four-channel lubrication control centre that supports any combination of single-line, dual-line and progressive lubrication systems. The lubrication channels can be zones, separated by shut-off valves, or complete lubrication systems with separate pumping centres and varying lubricants. The ST-1240 control centre enables configuration in the field via an alphanumeric touchscreen display.

Features and benefits

- Automatic pump change (Dualset)
- Grease spraying control with air monitoring
- IP 65 protection rating
- Compatible with SKF Doser monitor
- Works with SKF Online 1440 control software

Applications

- Stationary machines
- General industry
- Wood processing
- Steel industry
- Progressive and dual-line lubrication systems

Technical data

Function principle	control center
Operating temperature	0 to +50 °C, +32 to 122 °F
Lubricant	oil and grease
lubrication circuits	4
Operating voltage	93 to 132 V AC, 186 to 264 V AC; (± 10%)
Operating voltage frequency	47 to 63 Hz
Operating current	5,4 A/115 V AC, 2,2 A/230 V AC
Control voltage	24 V DC, ± 10%
Overload protection	automatic fuse, 6 A
Cable connection	screw connections for 25 mm ² wires
Interface	alphanumeric touchscreen display RS-422 Modbus port
Protection class	IP 65
Dimensions without cable glands	380×300×210 mm 14.9×11.8×8.3 in

ST-1240-GRAPH

Order number	Designation
VGEV 12380210	ST-1240 GRAPH-4 control centre



NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication:
12404 EN, 13615 EN

Control units

ST-1340 and ST-1440



Accessories

Product description

ST-1340 and ST-1440 lubrication control centres are suitable for use in dual-line lubrication systems, as well as single-line and progressive systems. Featuring an alphanumeric keypad and display, the two units are identical with the exception of case size and maximum number of lubrication channels served. The ST-1340 controls up to four separate lubrication channels, while the ST-1440 controls up to 14 channels, each having independent lubrication parameters and/or lubricants. The lubrication system is expandable by installing new channel modules, and configuration is determined in the field by the user. Pressure switches and transmitters or piston detectors can be used in all channels.

Features and benefits

- Versatile and durable
- Modular units provide easy system modification
- Automatic pump change (Dualset)
- Grease spraying control with air monitoring
- Compatible with SKF Doser monitor
- Works with SKF Online 1440 control software with SMS control

Applications

- Stationary machines
- Progressive, dual-line and single-line systems

Technical data

Function principle	control centre
Operating temperature	0 to +60 °C, +32 to 140 °F
Lubricant	oil and grease
Lubricant channels	ST-1340: up to 4 ST-1440: up to 14
Operating voltage	93 to 132 V AC, 186 to 264 V AC (± 10%)
Operating voltage frequency	47 to 63 Hz
Operating current	5,4 A/115 V AC, 2,2 A/ 230 V AC
Control voltage	24 V DC, ± 10%
Overload protection	automatic fuse, 6 A
Cable connection	screw terminals for 2,5 mm ² wires
Interface	alphanumeric keypad and display, 4 × 20 characters, RS-422 Modbus port
Protection class	IP 65
Dimensions without cable glands	ST-1340: 600 × 380 × 210 mm 23.6 × 14.9 × 8.3 in ST-1440: 600 × 600 × 210 mm 23.6 × 23.6 × 8.3 in

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication: **13166 EN**

Control units

ST-1340 and ST-1440

ST-1340 and ST-1440

Order number	Designation	Lubrication channels
VGEV 12380695 VGEV 12380700	ST-1340 control center ST-1440 control center	up to 4 up to 14
VGEV 12501254	ST1440 / ST1340 channel module	–

Progressive lubrication systems

HCC



Smartplug lubrication control



Universal piston detector



Accessories

Monitoring devices

SP/SFE30



800030



Overview of monitoring devices

Product finder

Product	Function type	Designation	Voltage			Page
			V DC	°C	°F	
HCC	Control and monitor device for hose connections	Additional control and monitoring system for progressive systems to identify failures in hose connections	12, 24	-50 to +70	-58 to +158	122
Smart Plug lubrication control	Monitoring and control device	Direct adaption between sensor and connecting cable. Configurable by PC via IR interface converter	10 to 30	0 to +60	+32 to 140	124
Universal piston detector	New type piston detector	Allround magnetic sensor for all SKF metering devices in progressive systems	10 to 30	-40 to +85	-40 to +185	125
SP / SFE30	Pulse monitoring oil/grease	To monitor oil and grease volumetric flow rates	0 to 30	+15 to 70	+5 to 158	126
800030	Digital grease flow detector	To generate confirmation signal to verify lubrication events; oval gear flow detector	12 to 30	-35 to +60	-30 to +140	127

Monitoring devices

HCC



Product description

The hose connection control (HCC) is intended to monitor electrically conductive, high-pressure lubrication hoses for line breakage. If there is a fault in the main line or feed lines, the unit alerts the machine operator immediately. Operation of the HCC is not affected by line lengths, ambient temperature, pressure differential or pressure losses. Utilizing non-conductive lubricants or hydraulic fluids, this monitoring system has an operating pressure of up to 300 bar (4 350 psi) and can be used in temperatures ranging from -40 to +70 °C (-40 to +158 °F).

Features and benefits

- Immediately detects hose ruptures
- Expandable at any time
- Easy retrofit in existing lubrication systems
- Monitors difficult-to-access hoses to lubrication points
- Common LED signal of all connected hoses on the display

Applications

- Construction and mining machines; cranes
- Wood-handling machines
- Forklifts, reach stackers and machines with movable units or accessories
- Agriculture

Technical data

Function principle	control and monitoring device for hose connections
Operating temperature	Isolator: -50 to +70 °C; -58 to +158 °F Controller: -25 to +70 °C; -13 to +158 °F Controller storage: -40 to +70 °C; -40 to +158 °F
Power supply	12/24 V DC
Monitored hose per monitoring unit	max. 15 pieces at 12 V DC max. 24 pieces at 24 V DC
Positive ok signal	12/24 V PNP
Signal cable to one cut-off connector	20 m; 65 ft
Signal cable at cut-off	approx. 150 mm; 5.90 in
Protection class	IP 65
Dimensions	100 × 85 × 40 mm 3.93 × 3.34 × 1.57 in

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication: **13615 EN**

Monitoring devices

HCC

532-37731-1



HCC Hose connection control

Order number	Designation
236-10986-1	HCC, evaluation unit
236-10153-3	HCC, with cable 20 m
532-34839-2	HCC, endlink HCC DN 8-10L-E
532-37731-1	basic kit consisting of above three parts
532-34839-6	HCC, endlink HCC DN 4-6L-E
532-34839-3	HCC, interlink HCC DN 8-10L-I
532-34839-5	HCC, interlink HCC DN 4-6L-I

Accessories

Hoses

HCC accessories

Order number	Designation
111-35409-1	hose TBF 204 CU DN4, sold by the meter
226-11169-1	hose stud D6/NW4 C straight

Monitoring devices

SmartPlug lubrication control



Accessories

Product description

The SmartPlug lubrication control is a simple, multifunction switching device that can be used as a timer or pulse counter when no standard timer is available. Operation with on-delay or signal-inverter functions also is possible. Suitable for retrofitting, the SmartPlug can be installed easily in an existing electrical system. Its complimentary programming timer can be adapted directly between a sensor and the connecting cable.

Features and benefits

- Simple, cost-effective, multifunction switching device
- Acts as timer or pulse counter
- Easy installation in electrical systems
- Suitable for retrofitting in existing systems
- Free programming timer

Applications

- Progressive systems where additional monitoring of separate lubrication circuits is required
- Counter for chain lubrication systems
- Forklifts
- Chain lubrication

Technical data

Function principle monitoring and control device
 Operating temperature 0 to +60 °C; +32 to 140 °F
 Operating voltage U_B 10 – 30 V DC
 Residual ripple within U_B max. 10%
 Power consumption. < 10 mA, no load
 Current consumption own. < 10 mA
 Input resistance. >10 kOhm
 Input frequency. max. 10 kHz, at ppp 1:1
 Switching input PNP/NPN adjustable
 Output current. max. 400 mA

Drop-out delay

Teachable time min. 1 ms; max. 65 535 ms

Counter

Counting time min. 1 pulse; max. 65 535 pulses

Periodic monitoring

Teachable time min. 10 sec; max. 655 350 sec

Short-circuit protection. yes

Standard CE

Protection class. IP 67

Dimensions $\varnothing 20, l=60$ mm
 $\varnothing 0.79, l=2.36$ in

234-10151-8 Smart Plug

Order number	Designation
234-10151-8	Smart Plug MFU 12 P4-X01 output PNP
234-10151-9	IR Interface converter for configuration by PC

PUB LS/P1 16964 EN

Universal piston detector



Product description

The universal piston detector is suitable for all types of metering devices used in progressive lubrication systems. Featuring patented technology, this screw-in type device can be flush mounted into metering devices for complete system monitoring. By identifying iron-metals, it detects the movement of pistons inside the metering device in both directions. The universal piston detector works with 2- and 3-wire techniques and PNP and NPN switching. Usable with PLC control or with control units like LMC 301.

Features and benefits

- Provides accurate measurement
- Timer setting on external controller detects operational function signal
- Counter setting is used as cycle switch with an external controller

Applications

- All progressive lubrication systems
- Commercial vehicles
- Construction and mining
- Agricultural machinery
- Wind energy industry

Technical data

Order number	234-13163-9
Function principle	piston detector
Operating temperature	-40 to +85 °C; -40 to +185 °F
Electrical connection	3 wire DC PNP; 2 wire PNP/NPN
Operating voltage	10 to 36 V DC
Current draw	5 mA, only in 3 contact operation
Connector for class	III
Reverse voltage protection	yes
Current rating	100 mA
Overload proofed	yes
Switching frequency	10 Hz
Standard	CE, UL, CSA, E1
Protection class	IP65; IP68; IP69 K
Dimensions without socket	∅ 12 mm, l = 52 mm, ∅ 0.47 in; l = 2.052 in

Piston detector adapter

Order number	Designation
44-0159-2507	Adapter; VPB
44-0159-2508	Adapter; VPK+PSG1
44-0159-2509	Adapter; VP+PSG2
44-0159-2510	Adapter; PSG3
419-74031-1	Adapter; SSV/SSVD V419.0550/6

Monitoring devices

SP/SFE30



Product description

SP/SFE30 pulse generators are designed to monitor oil and grease volumetric flow rates. The switching pulses are generated at a rate proportional to the volumetric flow, and the pulses from the pulse generator are evaluated by a downstream control unit. SP/SFE30/6GL pulse generators have been approved by Germanischer Lloyd for use on ships.

Features and benefits

- For oil and grease NLGI 1
- Operating pressure of up to 600 bar (8 700 psi)
- Germanischer Lloyd-approved device available

Applications

- Progressive lubrication systems
- General stationary industry machines
- Ships
- Wind energy systems
- Glass industry

Technical data

Order number:	
SP/SFE/ 30/5	24-2583-2516
SP/SFE 30/6 GL with cable set	24-2583-2517
SP/SFE 30/3003 Atex	24-2583-2526
Function principle	pulse monitoring oil/grease
Operating temperature	-15 to +70 °C; +5 to 158 °F
Operating pressure	4 to 600 bar; 58 to 8 700 psi
Lubricant	oil min. viscosity 12 mm ² /s grease NLGI 1
Volumetric flow range	0,1 to 50 cm ³ /min 0.006 in ³ to 3.051 in ³ /min
Volume/pulse	0,34 cm ³ ; 0.021 in ³
Contact type	reed contact
Connection	SP/SFE 30/5: plug DIN43650 SP/SFE 30/6 GL: cable
Switching voltage	0 to 30 V DC
Switching capacity	10 W with V AC/V DC
Protection class	IP 65
Dimensions	65 × 170 × 35 mm 2.56 × 6.69 × 1.37 in

SP/SFE30 Accessories

Order number	Designation
406-411	straight connector G 1/4 for ø 6 mm tube
96-1108-0058	straight connector G 1/4 for ø 8 mm tube

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available online at SKF.com/lubrication:
1-3009 EN, 1-3018 -EN, 951-230-012 EN

Monitoring devices

800030



Product description

The digital grease flow detector has been designed to generate a confirmation signal to verify lubrication events. Installed between the metering device and the bearing, the model 800030 is a positive-displacement flow detector consisting of oval gears. Signals are communicated to a control unit or PLC, detecting both small $0,016 \text{ cm}^3$ (0.001 in^3) and large $8,19 \text{ cm}^3$ (0.5 in^3) grease flow. Also, in the case of lubrication failure, the sensor signals the controller so that appropriate action can be taken. Usable with PLC control or with control units like LMC 301.

Features and benefits

- Verifies receipt of lubricant
- Helps prevent bearing failures to reduce unplanned downtime
- Signals controller in case of lubrication failure
- Blinking LED indicates processed signals
- For power supply 12 to 30 V DC

Applications

- Steel mills
- Paper mills
- Glass plants
- Heavy industries

Technical data

Function principle	digital grease flow detector
Operating temperature	-34 to +60 °C; -30 to +140 °F
Operating pressure	205 bar; 3 000 psi
Lubricant	grease NLGI 0 to 2
Connection inlet/outlet	$\frac{1}{8}$ NPTF
Power supply	12 to 30 V DC
Polarity protection	12 to 30 V DC
Output signal	max. 30 mA
Sensitivity	per signal generated: -17 to +60 °C; 0 to +140 °F 32 to 8 195 mm ³ ; 0.002 to 0.5 in ³ -35 to -17 °C; -30 to 0 °F 82 to 8 195 mm ³ ; 0.005 to 0.5 in ³
Protection class	IP 67
Dimensions	51 × 42 × 48 mm 2.0 × 1.6 × 1.9 in

800030

Order number	Designation
800030	digital grease flow detector
280137-3	cable; 3 m, 10 ft
280137-15	cable; 15 m, 49 ft
280137-30	cable; 30 m, 98 ft
280137-45	cable; 45 m, 148 ft

Index of order numbers

24-2151-3734.....	100	406-403W.....	85	603-41200-3.....	65
24-2151-3736.....	100	406-411.....	126	603-41200-4.....	65
24-2151-3760.....	96	406-423.....	85	604-25102-1.....	59
24-2151-3760.....	98	408-403W.....	85	604-25103-1.....	59
24-2151-3762.....	96	408-423W.....	85	604-25105-2.....	45
24-2151-3762.....	98	410-443.....	85	604-25108-2.....	59
24-2151-3764.....	96	410-443W.....	85	604-25109-2.....	59
24-2151-3764.....	98	441-008-511.....	85	604-25111-3.....	45
24-2583-2516.....	126	441-008-511.....	85	604-25128-2.....	59
24-2583-2517.....	126	451-006-518-VS.....	85	604-25130-3.....	45
24-9909-0244.....	47	451-006-518W VS.....	85	604-28766-1.....	61
24-9909-0244.....	57	466-419-001.....	85	604-28767-1.....	61
24-9909-0244.....	67	466-419-001.....	96	604-28768-1.....	61
44-0159-2507.....	125	466-419-001.....	98	604-28769-1.....	61
44-0159-2508.....	125	466-431-001.....	85	604-29968-1.....	45
44-0159-2509.....	125	504-30344-4.....	45	604-29969-1.....	45
44-0159-2510.....	125	504-30344-4.....	59	619-25730-2.....	87
44-2578-6110.....	83	504-30344-4.....	61	619-25731-2.....	87
44-2578-6201.....	83	504-30344-4.....	79	619-25754-4.....	87
44-2578-6321.....	83	504-30344-4.....	87	619-25755-4.....	87
44-2578-6323.....	83	504-30345-2.....	45	619-26396-2.....	87
44-2578-6350.....	83	504-30345-2.....	59	619-26398-2.....	87
44-2578-6360.....	83	504-30345-2.....	61	619-26473-1.....	87
96-1108-0058.....	126	508-108.....	100	619-26474-3.....	87
111-35409-1.....	123	519-318 26-1.....	79	619-26646-2.....	87
169-000-146.....	13	519-318 26-1.....	87	619-26648-2.....	87
219-13798-3.....	79	519-31661-1.....	77	619-26650-1.....	77
219-13798-3.....	87	519-34643-1.....	81	619-26651-3.....	77
223-13052-1.....	65	519-34643-1.....	89	619-26653-1.....	77
223-13052-2.....	65	519-34643-2.....	81	619-26654-3.....	77
223-13052-3.....	65	519-34643-2.....	89	619-26761-1.....	77
226-10328-5.....	79	519-34643-3.....	81	619-26762-3.....	77
226-10328-5.....	87	519-34643-3.....	89	619-26764-1.....	77
226-11169-1.....	123	519-34643-4.....	81	619-26765-3.....	77
226-14091-5.....	77	519-34643-4.....	89	619-26841-1.....	87
234-10151-8.....	124	532-34839-2.....	123	619-26842-2.....	87
234-10151-9.....	124	532-34839-3.....	123	619-26844-1.....	87
236-10153-3.....	123	532-34839-5.....	123	619-26845-2.....	87
236-10567-5.....	109	532-34839-6.....	123	619-26846-1.....	77
236-10567-6.....	109	532-37731-1.....	123	619-26847-2.....	77
236-10986-1.....	123	532-37731-1.....	123	619-26848-1.....	77
244-14164-1.....	61	549-34254-1.....	79	619-26849-3.....	77
303-16284-1.....	77	549-34254-2.....	79	619-27121-1.....	87
303-17499-3.....	45	549-34254-3.....	79	619-27122-1.....	87
303-17499-3.....	59	549-34254-4.....	79	619-27471-1.....	87
303-17499-3.....	61	549-34254-5.....	79	619-27472-1.....	87
303-17499-3.....	79	549-34254-6.....	79	619-27473-1.....	87
303-17499-3.....	87	549-34254-7.....	79	619-27474-1.....	87
303-19346-2.....	79	549-34254-8.....	79	619-27475-1.....	87
303-19346-2.....	87	549-34254-9.....	79	619-27476-1.....	87
404-403.....	85	549-34255-1.....	79	619-27477-1.....	87
404-403W.....	85	549-34255-2.....	79	619-27478-1.....	87
406-403.....	85	603-41200-1.....	65	619-27613-1.....	87
406-403W.....	85	603-41200-2.....	65	619-27614-1.....	87

Index of order numbers

619-27615-1.....	87	619-29387-1.....	87	619-77828-1.....	87
619-27616-1.....	87	619-29400-1.....	87	619-77829-1.....	87
619-27792-1.....	87	619-29401-1.....	87	619-77910-1.....	87
619-27793-1.....	87	619-29674-1.....	87	649-29485-1.....	79
619-27796-1.....	87	619-29775-1.....	87	649-29486-1.....	79
619-27797-1.....	87	619-29929-1.....	87	649-29487-1.....	79
619-27800-1.....	87	619-29951-1.....	87	649-29488-1.....	79
619-27801-1.....	87	619-29970-1.....	87	649-29489-1.....	79
619-27804-1.....	87	619-29971-1.....	87	649-29495-1.....	79
619-27805-1.....	87	619-29973-1.....	87	649-29496-1.....	79
619-27824-1.....	87	619-29993-1.....	87	649-29497-1.....	79
619-27825-1.....	87	619-29994-1.....	87	649-29498-1.....	79
619-27889-1.....	87	619-37044-1.....	77	649-29499-1.....	79
619-27900-1.....	87	619-37045-3.....	77	649-29505-1.....	79
619-28257-1.....	87	619-37049-1.....	77	649-29506-1.....	79
619-28258-1.....	87	619-37050-3.....	77	649-29507-1.....	79
619-28259-1.....	87	619-77101-1.....	87	649-29508-1.....	79
619-28260-1.....	87	619-77162-1.....	89	649-29509-1.....	79
619-28862-1.....	87	619-77163-1.....	89	649-29515-1.....	79
619-28863-1.....	87	619-77164-1.....	89	649-29516-1.....	79
619-28864-1.....	87	619-77165-1.....	89	649-29517-1.....	79
619-28865-1.....	87	619-77166-1.....	89	649-29518-1.....	79
619-28866-1.....	87	619-77178-1.....	87	649-29519-1.....	79
619-28871-1.....	87	619-77179-1.....	87	649-29525-1.....	79
619-28872-1.....	87	619-77231-1.....	89	649-29526-1.....	79
619-28873-1.....	87	619-77232-1.....	89	649-29527-1.....	79
619-28874-1.....	87	619-77233-1.....	89	649-29528-1.....	79
619-28875-1.....	87	619-77234-1.....	89	649-29529-1.....	79
619-28890-1.....	87	619-77235-1.....	89	649-29535-1.....	79
619-28899-1.....	87	619-77301-1.....	87	649-29536-1.....	79
619-28900-1.....	87	619-77311-1.....	89	649-29537-1.....	79
619-28901-1.....	87	619-77312-1.....	89	649-29538-1.....	79
619-28902-1.....	87	619-77313-1.....	89	649-29539-1.....	79
619-28905-1.....	87	619-77314-1.....	89	649-29545-1.....	79
619-28907-1.....	87	619-77315-1.....	89	649-29546-1.....	79
619-28934-1.....	87	619-77345-1.....	87	649-29547-1.....	79
619-28935-1.....	87	619-77346-1.....	87	649-29548-1.....	79
619-28957-1.....	87	619-77347-1.....	87	649-29549-1.....	79
619-28959-1.....	87	619-77348-1.....	87	649-29555-1.....	79
619-29015-1.....	87	619-77349-1.....	87	649-29556-1.....	79
619-29028-1.....	87	619-77350-1.....	87	649-29557-1.....	79
619-29050-1.....	87	619-77351-1.....	87	649-29558-1.....	79
619-29051-1.....	87	619-77352-1.....	87	649-29559-1.....	79
619-29052-1.....	87	619-77353-1.....	87	649-29565-1.....	79
619-29063-1.....	87	619-77461-1.....	87	649-29566-1.....	79
619-29064-1.....	87	619-77680-1.....	87	649-29567-1.....	79
619-29065-1.....	87	619-77681-1.....	87	649-29568-1.....	79
619-29066-1.....	87	619-77682-1.....	87	649-29569-1.....	79
619-29067-1.....	87	619-77683-1.....	87	649-29575-1.....	79
619-29068-1.....	87	619-77684-1.....	87	649-29576-1.....	79
619-29069-1.....	87	619-77685-1.....	87	649-29577-1.....	79
619-29074-1.....	87	619-77686-1.....	87	649-29578-1.....	79
619-29139-1.....	87	619-77687-1.....	87	649-29579-1.....	79
619-29322-1.....	87	619-77688-1.....	87	649-29587-1.....	79

Index of order numbers

649-29588-1.....	79	649-77396-1.....	79	87026-10T.....	105
649-29589-1.....	79	649-77397-1.....	79	87026-12S.....	105
649-29590-1.....	79	649-77397-1.....	79	87026-12T.....	105
649-29595-1.....	79	649-77398-1.....	79	87026-15S.....	105
649-29596-1.....	79	649-77399-1.....	79	87026-15T.....	105
649-29597-1.....	79	649-77400-1.....	79	87030-3.....	105
649-29598-1.....	79	649-77401-1.....	79	87030-4.....	105
649-29603-1.....	79	649-77402-1.....	79	87030-6.....	105
649-29604-1.....	79	649-77464-1.....	81	87200.....	11
649-29605-1.....	79	649-77466-1.....	81	87200.....	43
649-29606-1.....	79	649-77468-1.....	81	87202.....	13
649-29611-1.....	79	649-77470-1.....	81	87202.....	52
649-29612-1.....	79	649-77472-1.....	81	87204.....	53
649-29613-1.....	79	649-77474-1.....	81	87212.....	13
649-29614-1.....	79	649-77475-1.....	81	87212.....	50
649-29619-1.....	79	649-77476-1.....	81	87214.....	11
649-29620-1.....	79	649-77477-1.....	81	87214.....	41
649-29621-1.....	79	649-77478-1.....	81	87216.....	11
649-29622-1.....	79	649-77852-1.....	79	87216.....	43
649-29627-1.....	79	649-77853-1.....	79	87218.....	53
649-29628-1.....	79	649-77854-1.....	79	87400.....	43
649-29629-1.....	79	649-77855-1.....	79	87400.....	53
649-29630-1.....	79	649-77856-1.....	79	87402.....	41
649-29635-1.....	79	649-77857-1.....	79	87402.....	51
649-29636-1.....	79	649-77858-1.....	79	87403.....	41
649-29637-1.....	79	649-77859-1.....	79	87403.....	51
649-29638-1.....	79	649-77860-1.....	79	87405.....	41
649-29643-1.....	79	664-34135-7.....	111	87405.....	51
649-29644-1.....	79	857-760-002.....	47	87406.....	43
649-29645-1.....	79	857-760-002.....	57	87406.....	53
649-29646-1.....	79	857-760-002.....	67	87413.....	43
649-29651-1.....	79	857-760-007.....	47	87413.....	53
649-29652-1.....	79	857-760-007.....	57	87416.....	43
649-29653-1.....	79	857-760-007.....	67	87416.....	53
649-29654-1.....	79	995-001-500.....	47	87417.....	43
649-29659-1.....	79	995-001-500.....	57	87417.....	53
649-29660-1.....	79	995-001-500.....	67	87418.....	43
649-29661-1.....	79	67359.....	105	87418.....	53
649-29662-1.....	79	68645.....	95	87419.....	43
649-77167-1.....	81	68645.....	103	87419.....	53
649-77168-1.....	81	84239.....	73	87421.....	43
649-77169-1.....	81	086500.....	110	87421.....	53
649-77170-1.....	81	086501.....	110	87423.....	43
649-77171-1.....	81	086502.....	110	87423.....	53
649-77180-1.....	79	086503.....	110	87823.....	105
649-77181-1.....	79	86505.....	108	87824.....	105
649-77182-1.....	79	86535.....	108	87862.....	73
649-77183-1.....	79	87026-03S.....	105	87885.....	95
649-77184-1.....	79	87026-03T.....	105	87886.....	95
649-77185-1.....	79	87026-05S.....	105	87887.....	95
649-77186-1.....	79	87026-05T.....	105	87888.....	95
649-77187-1.....	79	87026-08S.....	105	87889.....	95
649-77188-1.....	79	87026-08T.....	105	87895.....	95
649-77395-1.....	79	87026-10S.....	105	87896.....	95

Index of order numbers

87897	95	87957	95	882203	103
87905	95	87957	95	882204	103
87905	103	87957	95	882251	103
87918	103	130067	73	882252	103
87918	103	130179	11	882253	103
87918	103	130179	43	882254	103
87918	103	130200DEE	73	882301	103
87918	103	130200GEE	73	882302	103
87918	103	130201BCC	73	882303	103
87919	103	130300GEE	73	882304	103
87919	103	130332	73	882351	103
87919	103	130335	73	882352	103
87919	103	236640	95	882353	103
87919	103	236641	95	882354	103
87919	103	236642	95	882401	103
87920	103	236644	95	882402	103
87920	103	236645	95	882403	103
87920	103	236646	95	882404	103
87920	103	250290	103	11500607	116
87920	103	250291	103	11500610	116
87920	103	250292	103	DIN908-R1-4-5.8	100
87920	103	250293	103	EDL1	11
87934	103	250294	103	EOT 2	107
87934	105	250295	103	EPB	11
87935	103	280137-3	127	EXZT	107
87935	105	280137-15	127	EXZT2A03-E+471	115
87936	103	280137-30	127	EXZT2A03-E+472	115
87936	105	280137-45	127	EXZT2A06-E+471	115
87937	103	800030	121	EXZT2A06-E+472	115
87937	105	800030	127	HCC	121
87938	103	876061	95	HJ 2	13
87938	105	876062	95	HP-500-SSV	13
87939	103	876091	95	HP-500W	13
87939	105	876092	95	HP / HPG	13
87940	103	876121	95	IG 502	107
87940	105	876122	95	IG 502-2-E+912	112
87941	103	876123	95	IG 502-2-E+924	112
87941	105	876124	95	IGZ51	107
87942	103	876181	95	IGZ 51-20-E+471	115
87942	105	876182	95	IGZ 51-20-E+472	115
87955	95	876183	95	IGZ 51-20-S2-E+471	115
87955	95	876184	95	IGZ 51-20-S2-E+472	115
87955	95	876241	95	IGZ 51-20-S7-E+471	115
87955	95	876242	95	IGZ 51-20-S7-E+472	115
87955	95	876243	95	IGZ 51-20-S8-E+471	115
87955	95	876244	95	IGZ 51-20-S8-E+472	115
87956	95	882051	103	INSTALLATION KIT-ECO EPBP	49
87956	95	882052	103	INSTALLATION KIT-STA EPBP	49
87956	95	882101	103	KFA	11
87956	95	882102	103	KFA1 912	19
87956	95	882151	103	KFA1 924	19
87956	95	882152	103	KFA1-M 924	19
87957	95	882201	103	KFA1-M-W 924	19
87957	95	882202	103	KFA1-W 912	19

Index of order numbers

KFA1-W 924	19	PPU-BS60	39
KFA10 263	19	PPU-BS60	55
KFA10-W 263	19	PPU-BS80	39
KFAS1 912	19	PPU-BS80	55
KFAS1 924	19	PPU-BS100	39
KFAS1-M 924	19	PPU-BS100	55
KFAS1-M-W 924	19	PPU-BS120	39
KFAS1-M-W-Z 924	19	PPU-BS120	55
KFAS1-M-Z 924	19	PPU-BS140	39
KFAS1-W 912	19	PPU-BS140	55
KFAS1-W 924	19	PPU-BS160	39
KFAS10 485	19	PPU-BS160	55
KFAS10-W 485	19	PPU-BS180	39
KFG	11	PPU-BS180	55
LC502	107	PSG1	75
LMC 2	107	PSG2	75
LMC 101	107	PSG3	75
LMC 301	107	QLS 301 SSV	11
MAXILUBE-SET-ECO-EPBP	49	QLS 401 SSV	11
MAXILUBE-SET-STA-EPBP	49	QLS 401 SSV DV	11
MC ² -HP	75	QLS 421	11
P 203	11	Smart Plug	
P 223/P 233	11	lubrication control	121
P 502	11	SP / SFE30	121
P 603M	11	SPVS	75
PF-23-2	13	SSV	75
PF-23-2	67	SSVD	75
PF-23-22	13	SSVDL	75
PF-23-22	67	SSVL	75
PFH-23-2	13	SSVM	75
PFH-23-2	57	ST-102	107
PFH-23-22	13	ST-1240-	
PFH-23-22	57	Graph-4	107
PFP-23-2	11	ST-1340	107
PFP-23-2	47	ST-1440	107
PFP-23-22	11	Universal	
PFP-23-22	47	piston detector	121
PF-VPBM	13	UV	75
PHU-5	13	VGEV 12380210	117
PHU-5	55	VGEV 12380695	119
PHU-5-2.5	55	VGEV 12380700	119
PHU-5-2.5W	55	VGEV 12501254	119
PHU-5-5	55	VP	75
PHU-5-5W	55	VPB	75
PHU-35	13	VPK	75
PHU-35	55	XL	75
PHU-35-2.5	55	ZPU 01/02	11
PHU-35-2.5W	55		
PHU-35-5	55		
PHU-35-5W	55		
PP	11		
PPG	11		
PPU-5	11		
PPU-35	11		



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