

Pumps units for grease



SKF



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LINCOLN

Overview of multi-line grease pumps

Pump units for grease

Hydraulically operated pump units												
Product	Lubricant grease NLGI				Outlets	Reservoir ⁶⁾		Metering quantity per outlet		Operating pressure max.		Page
	0	1	2	3		kg	lb	cm³/min	in³/min	bar	psi	
PFHM-ATEX	•	•	•	–	1–6	6	12	0,80-5,00	0.048-0.305	250	3 625	32

Mechanically operated pump units													
Product	Lubricant grease NLGI				Outlets	Reservoir ⁶⁾		Metering quantity per outlet		Operating pressure max.		ATEX ³⁾	Page
	0	1	2	3		kg	lb	cm ³ /min	in ³ /min	bar	psi		
RA20/45	•	•	•	–	1–12	2–5	4.4–10	0,07–6,00	0.004–0.366	60	870	• ⁴⁾	34
P 205	•	•	•	–	1–5	4–30	8.8–66	0,08–4,20	0.005–0.256	350	5 075	• ⁵⁾	36
FF	•	•	•	•	1–12	4–10	8.8–22	0,04–6,90	0.002–0.421	350	5 075	• ⁴⁾	38
P 215 ²⁾	•	•	•	–	1–15	4–100	8.8–220	0,55–3,15	0.033–0.192	350	5 075	• ⁵⁾	42
FB	•	•	•	•	1–24	6–30	13–66	0,04–7,70	0.002–0.469	350	5 075	• ⁴⁾	44
P 230	•	•	•	–	1–30	30–100	66–220	0,55–3,15	0.033–0.192	350	5 075	•	48

Electrically operated pump units ¹⁾													
Product	Lubricant grease NLGI				Outlets	Reservoir ⁶⁾		Metering quantity per outlet		Operating pressure max.		ATEX ³⁾	Page
	0	1	2	3		kg	lb	cm ³ /min	in ³ /min	bar	psi		
RA 20/45	•	•	•	–	1–12	2–5	4.4–10	0,07–6,00	0.004–0.366	60	870	• ⁴⁾	34
P 205	•	•	•	–	1–5	4–30	8.8–66	0,08–4,20	0.005–0.256	350	5 075	• ⁵⁾	36
FF	•	•	•	•	1–12	4–10	8.8–22	0,04–6,00	0.002–0.366	350	5 075	• ⁴⁾	38
P 212 ²⁾	•	•	•	–	1–12	30	66	2,50–25,0	0.152–1.525	350	5 075	•	40
P 215 ²⁾	•	•	•	–	1–15	4–100	8.8–220	0,55–3,15	0.033–0.192	350	5 075	• ⁵⁾	42
FB	•	•	•	•	1–24	6–30	13–66	0,04–7,70	0.002–0.469	350	5 075	• ⁴⁾	44
FB-XL	•	•	•	•	1–16	30	66	0,04–35,0	0.002–2.135	350	5 075	• ⁴⁾	44
P 230	•	•	•	–	1–30	30–100	66–220	0,55–3,15	0.033–0.192	350	5 075	•	48

1) all data based on 50 Hz operation for connection with a frequency of 60 Hz, the speed and volumetric flow are increased by 20%
2) NLGI 3 on request
3) on request
4) for gas: II 2G c IICT 4 Gb; for dust: II 2D c IIIC T 125°C Db
5) for gas: II 2G c IICT 4 Gb; for dust: II 2D c IIIC T 120°C Db
6) valid for p=1 kg/dm³



Pump unit

PFHM-ATEX



Product description

The PFHM-ATEX is a hydraulically operated, high-pressure multi-line pump. Its one to six pumping elements are available in five sizes from 0,04 to 0,25 cm³/stroke (0.0024 to 0.0152 in³/stroke) or camshaft revolution. The ratio between the hydraulic motor and camshaft is generally 1:1.

The PFHM-ATEX's sturdy steel housing and reservoir with air breather enable use in dusty areas. When utilized in combination with downstream-located progressive divider valves, it can handle up to approximately 50 lubrication points. The reservoir with stirrer is suitable for both grease and oil and is designed for instead with a locking device.

Features and benefits

- Sturdy design with standard, spring-return pumping elements and ATEX classifications
- Designed for 24/7 operation in harsh environments
- Varying speed and stroke volumes enable economical lubricant settings, hydraulic drive without electrics
- Modular design available in corrosiveness class C3 as standard or C5-M according to DIN EN ISO 12944
- Atex classification for gas, dust and mining application as standard

Applications

- Mining, including underground
- Hydraulically operated machinery
- Screens and crushers in quarries
- Chemical industry, offshore

Technical data

Function principle	hydraulically operated radial piston pump in an ATEX design
Metering quantity per stroke	KFG1.U0: 0,250 cm ³ ; 0.0152 in ³ KFG1.U1: 0,125 cm ³ ; 0.0076 in ³ KFG1.U2: 0,090 cm ³ ; 0.0054 in ³ KFG1.U3: 0,065 cm ³ ; 0.0039 in ³ KFG1.U4: 0,040 cm ³ ; 0.0024 in ³
Metering quantity per outlet	0,8–5,0 cm ³ /min; 0.048–0.305 in ³ /min
Outlets	1 to 6
Lubricant	oil and grease: up to NLGI 2
Operating pressure	max. 250 bar; 3 625 psi
Operating temperature	–20 to +40 °C; –14 to +104 °F
Reservoir ¹⁾	6 kg, 12 lb
Internal ratio	1:1
Drive speed	main shaft 4–30 min ⁻¹
Hydraulic drive oil requirements	51,5 cm ³ per revolution, max. 175 bar, 2 540 psi
Outlet connection lubricant	M 14 × 1,5; tube Ø 6, 8, 10 mm
In/outlet hydraulic connection	M 22 × 1,5
Dimensions	580 × 230 × 230 mm 22.8 × 9.1 × 9.1 in
Mounting position	vertical
Options	C5-M

¹⁾ valid for p=1 kg/dm³



NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available on SKF.com/lubrication.

Pump unit

PFHM-ATEX

Pump units for grease

Order information ¹⁾

Order number	Description
PFHM-6-B6-C3-ATEX	standard pump including hydraulic drive, without pumping element version C3 6 kg, 12.6 lbs reservoir; included ATEX approval: gas: II 2G Ex h IIC T6...T5 Gb dust: II 2D Ex h IIIC T85°C...T100°C Db mining: I M2
PFHM-6-B6-C5-ATEX	same as above, with an improved corrosion standard C5-M included ATEX approval: gas: II 2G Ex h IIB T6...T5 Gb dust: II 2D Ex h IIIC T85°C...T100°C Db mining: I M2

¹⁾ Please order pump elements separately



PFHM-ATEX accessories - pump elements, spring return

Order number C3 version	C5 version	Description	Metering quantity ¹⁾			
			cm ³ /stroke	in ³ /stroke	cm ³ /min	in ³ /min
KFG1.U0	KFG1.U0-C5M	pump element	0,250	0.0152	5,0	0.305
KFG1.U1	KFG1.U1-C5M	pump element	0,125	0.0076	2,5	0.152
KFG1.U2	KFG1.U2-C5M	pump element	0,090	0.0054	1,8	0.109
KFG1.U3	KFG1.U3-C5M	pump element	0,065	0.0039	1,3	0.079
KFG1.U4	KFG1.U4-C5M	pump element	0,040	0.0024	0,8	0.048

¹⁾ The values given are design values of the pump elements and are valid at 20 rpm, a temperature of 20 °C, a back pressure of 50 bar and when using NLGI grade 2 greases.



Pressure regulating valves

Order number C3 version	C5 version	Description	Pipe Ø	Opening pressure ¹⁾	
			mm	bar	psi
161-210-075	161-210-079	pressure regulating valve	6	250	3 626
161-210-076	161-210-080	pressure regulating valve	8	250	3 626
161-210-077	161-210-081	pressure regulating valve	10	250	3 626

¹⁾ These valves have opening tolerances of ±20%.

Pump unit

RA 20/45



Product description

The RA 20/45 radial piston pump features a modular design that enables use of up to three stackable pump elements, and outlet reduction or extension can be achieved easily.

The displacement of all outlets from a pump element is adjustable by a common setting device with a range of 33 to 100%. The grease reservoir contains a stirrer and screw conveyor to pressurize the grease into the suction chamber. This feature, in combination with a wide range of different selectable gear ratios, enables a small and continuous lubricant flow without the use of extra on/off timers.

Features and benefits

- Modular, pump-to-point solution for 1 to 12 lubrication points
- Suitable for standard NLGI 2 greases
- Grease reservoir for 2 or 4.5 kg (4.4 to 10 lb), optional level switch
- Covers feed rates of droplets up to 10 cm³/min (0.6 in³/min)
- Simple system design with adjustable outputs
- Economical, multi-line grease pump

Applications

- Compact machinery
- Conveyor systems
- Water pumps

Technical data

Function principle	radial piston pump with stackable pumping elements, rotary or electrically operated
Metering quantity per outlet	0,007–0,02 cm ³ /revolution 0.0004–0.0012 in ³ /revolution
Outlets	1 to 12 (max. 3 elements with 1, 2 or 4 outlets)
Lubricant	grease: up to NLGI 2
Operating peak pressure	max. 63 bar, 913 psi
Operating temperature	–15 to +40 °C, +5 to 104 °F
Protection class	IP 55
Reservoir ¹⁾	2,0 or 4,5 kg, 4.4 or 10 lb
Internal ratio	5:1, 10,5:1, 15:1, 25:1, 75:1, 125:1
Drive speed	10 to 245 min ⁻¹
E-motor drive	with 3-phase motor
Outlet connection	G 1/8
Dimensions	depending on the model min. 353 × 180 × 180 mm max. 660 × 325 × 180 mm min. 13.9 × 7.1 × 7.1 in max. 26 × 12.8 × 7.1 in
Mounting position	vertical
Options	with level switch

¹⁾ Valid for ρ=1 kg/dm³



NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available on SKF.com/lubrication:
11103 EN, 951-170-230 EN

Pump unit

RA20/45 grease

Identification code	RA											07
Product series												
Reservoir												
Fill-level switch												
Drive												
Step-down ratio												
Drive position												
Pump elements, max. 3 elements												
Design												
Motor 2)												
Protection class												

Pump units for grease

1) further models on request

RA pump elements and tie rods	
Order number	Description
24-1557-3520	pump element for 1 outlet pump element for 2 outlets pump element for 4 outlets
24-1557-3521	
24-1557-3522	
44-0717-2070	tie rod 1) for 1 pump element tie rod 1) for 2 pump elements tie rod 1) for 3 pump elements
44-0717-2071	
44-0717-2072	
DIN125-B6.4-ST	washer, 6.4 DIN125 1)
DIN934-M6-8	

1) Two required per pump

Reservoirs	
Order number	Description
24-0254-2312	reservoir 2 kg, without fill-level switch reservoir 2 kg, with fill-level switch E reservoir 2 kg, with fill-level switch F
24-0254-2334	
24-0254-2330	
24-0254-2310	reservoir 4,5 kg, without fill-level switch reservoir 4,5 kg, with fill-level switch E reservoir 4,5 kg, with fill-level switch F
24-0254-2335	
24-0254-2331	



Pump unit

P 205



Product description

The P 205 high-pressure, multi-line pump can supply lubricant directly to lubrication points or can be used as a centralized lubrication pump in large-sized progressive systems. It can drive up to five elements, which are available in varying sizes for optimum adjustability. The pump's drive and eccentric shaft design, high-efficiency worm gear, minimal number of parts and multi-range motor provide several advantages. P 205 pumps are available with a three-phase flange mount and multi-range motor or with a free shaft end for use with other motors. Various gear ratios and reservoir sizes with or without level control are offered.

Features and benefits

- Durable, versatile and reliable pump series
- Suitable for grease or oil
- Designed for continual lubrication of machines and systems operating in harsh environments
- Broad range of output options
- Modular design and easy maintenance

Applications

- Stationary machines with a high lubricant consumption
- Turbines in hydro-electric power plants
- Needling machines
- Screens and crushers in quarries
- Material handling equipment

Technical data

Function principle	electrically operated, multi-piston pump
Metering quantity per stroke	0,04–0,23 cm ³ 0.002–0.014 in ³
Output per outlet	0,08–4,20 cm ³ /min, 0.005–0.256 in ³ /min
Outlets	1 to 5
Lubricant	oil: viscosity from 40 mm ² /s grease: up to NLGI 2
Operating pressure	max. 350 bar, 5 075 psi
Operating temperature	–20 to +40 °C, –4 to +104 °F
Protection class	IP 55
Materials	steel plate or plastic, depending on reservoir
Reservoir 1)	plastic: 4 and 8 kg, 8.8 and 17.6 lb steel: 5, 10 and 30 kg, 11; 22 and 66 lb
Line connection	G 1/4
Drive speed main shaft	grease: < 25 min ⁻¹ , oil: < 25 min ⁻¹
Electrical connections	380–420 VAC/50 Hz, 440–480 VAC/60 Hz 500 VAC/50Hz
Dimensions	depending on the model min. 406 × 280 × 230 mm max. 507 × 365 × 300 mm min. 160 × 110 × 91 in max. 200 × 144 × 118 in
Mounting position	vertical
Options	several different level switches; ATEX versions

1) valid for p=1 kg/dm³



NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available on SKF.com/lubrication: **13651 EN**

Pump unit

P 205

Identification code

P

205

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Product series

Drive

M = AC flange gear motor

F = free shaft end

Gear ratio

280 = 280:1

700 = 700:1

070 = 70:1

Reservoir

4 = plastic, 4 l, 1.05 gal

8 = plastic, 8 l, 2.11 gal

5 = steel plate, 5 l, 1.32 gal

10 = steel plate, 10 l, 2.64 gal

30 = steel plate, 30 l, 7.93 gal

Reservoir design

N = without level control

XY = for grease and oil

XL = for grease with low level control

BU = with level control (ultrasonic sensor for two switching points, low- and high-level)

Pump elements; define max. 5 elements (f.i. 4 elements K6 = 4K6, ...)

K 5 = piston Ø 5 mm, output per stroke: 0,11 cm³, 0.006 in³

K 6 = piston Ø 6 mm, output per stroke: 0,16 cm³, 0.009 in³

K 7 = piston Ø 6 mm, output per stroke: 0,23 cm³, 0.014 in³

KR = adjustable output, piston Ø 7 mm, output per stroke: 0,04-0,18 cm³, 0.002-0.010 in³

Supplements to motor designation

320 - 420, 440 - 480 = multi-range motor for nominal supply voltage, 380-420 V AC/50 Hz, 440-480 V AC/60 Hz

500 = single-range motor for nominal supply voltage, 500 V/50 Hz

000 = pump without motor, with coupling flange

Pump units for grease

P205 pump elements			
Order number	Description	Metering quantity per stroke	
		cm³	in³
600-26875-2	pump element piston K 5	0,11	0.006
600-26876-2	pump element piston K 6	0,16	0.009
600-26877-2	pump element piston K 7	0,23	0.014
655-28716-1	pump element adjustable KR (7)	0,04-0,18	0.002-0.010
303-19285-1	closing screw ¹⁾	—	—
¹⁾ for outlet port instead of a pump element			

Pressure-relief valve and filling connectors	
Order number	Description
624-29056-1	pressure-relief valve, 350 bar, G 1/4 D 6 for tube Ø6 mm OD
624-29054-1	pressure-relief valve, 350 bar, G 1/4 D 8 for tube Ø8 mm OD
304-17571-1	filling connector G 1/4 female ¹⁾
304-17574-1	filling connector G 1/2 female ¹⁾
¹⁾ filling connector fits for vacant outlet ports	

Pump unit

FF



Product description

The multi-line pump unit of the FF series is suitable for small- and medium-sized systems due to its flow rate and reservoir. The lubricant can be fed to the lubrication points directly or via a progressive feeder. Designed for use with oil and stiff grease, the FF is a sturdy, vibration-resistant pump that withstands harsh environments and continuous operation.

Features and benefits

- Designed for small- and medium-sized systems
- Sturdy and vibration resistant
- Suitable for oils and very stiff greases
- Withstands harsh operating conditions and continuous operation

Applications

- Automotive industry and wind energy systems
- Construction materials machinery
- Tunnel-driving machinery, mining and conveyor systems
- Paper and boxing machinery
- Steel and heavy industry; annealing machines

Technical data

Function principle	radial piston pump with stirrer, electrically operated
Operating temperature	-15 to +40 °C, +5 to 104 °F
Operating pressure	125 to 350 bar, 1800 to 5075 psi
Lubricant	oil: mineral- and synthetic-based; viscosity from 50 mm²/s grease: up to NLGI 3
Reservoir 1)	4 and 10 kg, 8.8 and 22 lbs
Metering quantity per stroke	KR 6: 0,027–0,08 cm³, 0.0016–0.0048 in³ KR 8: 0,05–0,15 cm³, 0.003–0.009 in³ KR 10: 0,077–0,23 cm³, 0.005–0.014 in³
Internal ratio	33:1, 80:1, 150:1, 300:1, 600:1
Outlet connection	1/4 NPTF, tube Ø 6, 8, 10 mm OD
E-motor drive	with 3-phase motor
Drive speed main shaft	< 32 min⁻¹
Dimensions	min. 450 × 370 × 230 mm max. 656 × 370 × 230 mm min. 17.7 × 14.6 × 9 in max. 25.8 × 14.6 × 9 in
Protection class	IP 55
Mounting position	vertical
Options	several different reservoir designs for oil and grease, level switches, ATEX versions, pressure-limiting valves

1) valid for ρ=1 kg/dm³



NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available on SKF.com/lubrication:
14129; 951-170-201; 951-180-076

Pump unit

FF

Identification code	FF									A	0001		07
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Product series

FF

Reservoir

04 = 4 kg, 8.81 lb
10 = 10 kg, 22 lb

Level indicator

X = reservoir without fill-level control/fill-level switch

for grease:
G = optical fill-level control (dip stick)
E = fill-level switch, 1 switching point (min.)
F = fill-level switch, 2 switching points (min., max.)
H = fill-level switch, 3 switching points (min., min. pre-warning, max.)
A = fill-level switch, 3 switching points (min., min. pre-warning, max.)

for oil:
S = optical fill-level control, sight glass
W = read contact, 1 switching point (min.)

for grease and oil:
U2 = ultrasonic sensor with 2 switching points (min., max.)

Pump type

1M = motor drive with double gear reduction
2M = motor drive with single gear reduction

Drive type

1M: 08 = 80:1, 15 = 150:1, 30 = 300:1, 60 = 600:1
2M: 06 = 33:1

Pump element KR 6 (define in total KR 6, KR 8, KR 120 max. 12 elements)

00–12 = number of pump elements, KR 6 piston Ø 6 mm, p_{max} = 350 bar; 5 075 psi

Pump element KR 8 (define in total KR 6, KR 8, KR 120 max. 12 elements)

00–12 = number of pump elements, KR 8 piston Ø 8 mm, p_{max} = 200 bar; 2 900 psi

Pump element KR 10 (define in total KR 6, KR 8, KR 120 max. 12 elements)

00–12 = number of pump elements, KR 10 piston Ø 10 mm; p_{max} = 125 bar; 1 800 psi

Connection tube Ø OD

A = 6 mm B = 8 mm
C = 10 mm D = 1/4 NPT– internal thread

Modification index

A

Design key

0001 = basic design with adjustable pump elements

Motor code 1) 2)

AH = 750 min⁻¹, for 230–400 V AC/50 Hz AG = 1 000 min⁻¹, for 230–400 V AC/50 Hz
AM = 750 min⁻¹, for 290–500 V AC/50 Hz AL = 1 000 min⁻¹, for 290–500 V AC/50 Hz
AQ = 1 500 min⁻¹, for 400–690 V AC/50 Hz AP = 1 000 min⁻¹, for 400–690 V AC/50 Hz
AK = 1 500 min⁻¹, for 290–500 V AC/50 Hz
AF = 1 500 min⁻¹, for 230–400 V AC/50 Hz

Protection class 1)

07 = IP 55, ATEX on request

Pump units for grease

Pump unit

P 212



Product description

The P 212 is a high-pressure, multi-line pump that can drive up to 12 elements. It is capable of handling direct supply of lubrication points in multi-line systems or can be used as a centralized lubrication pump in large-sized progressive systems. The drive and eccentric shaft design, high-efficiency worm gear and minimal number of parts provide the pump with several advantages. P 212 pumps are available with a powerful, three-phase, multi-range motor. Suitable for both grease and oil, the reservoir is offered with or without level control.

Features and benefits

- High output per pump element
- High pressure even with difficult lubricants
- Due to the high element output, no element crossporting necessary
- Sturdy and durable pump series that operates in harsh environments
- Modular design
- Easy maintenance

Applications

- Machines with a high lubricant consumption
- Tunnel boring machines
- Mining
- Rubber-mixing machines as a pump for plasticizer liquid

Technical data

Function principle	radial piston pump with stirrer, electrically operated
Outlets	1 to 12
Operating temperature	-20 to +40 °C, -4 to +104 °F
Lubricant	mineral and synthetic oil and grease oil: viscosity from 40 mm ² /s grease: up to NLGI 2
Operating pressure	max. 350 bar, 5 075 psi
Metering quantity per stroke	Piston KR 7: 0,11–0,39 cm ³ ; 0.0067–0.024 in ³ Piston KR 12: 0,33–1,12 cm ³ ; 0.02–0.07 in ³
Reservoir 1)	30 kg, 66 lb
Outlet connection	G 3/8
Internal ratio	67:1
Output per outlet	2,5–25 cm ³ /min, 0.15–1.5 in ³ /min
Drive speed main shaft	< 22 min ⁻¹
E-motor drive	with 3-phase motor
Dimensions	880 × 510 × 350 mm 34.65 × 20.08 × 13.78 in
Protection class	IP 55
Mounting position	vertical



NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available on SKF.com/lubrication: **15301**

Pump unit

P 212

Identification code

P212-MG067-30- -380-480

Product series

Drive

MG = AC flange motor

Gear ratio

067 = 67:1

Reservoir

30 = steel plate, 30 l, 7.92 gal

Reservoir design

XY = for grease and oil
N = without level control
BU = with level control (ultrasonic sensor for two switching points, low- and high-level)

Pump elements; define max. 12 elements (f.i. 4 elements KR 12 = 4KR 12, ...)

KR 7 = adjustable; piston Ø 7 mm; output per stroke: 0,11–0,39 cm³; 0.0067–0.024 in³
KR 12 = adjustable; piston Ø 12 mm; output per stroke: 0,33–1,12 cm³; 0.02–0.07 in³

Motor designation, supplements

380–480 = multi-range motor for 380–420 V AC/50 Hz, 440–480 V AC/60 Hz

Pump units for grease



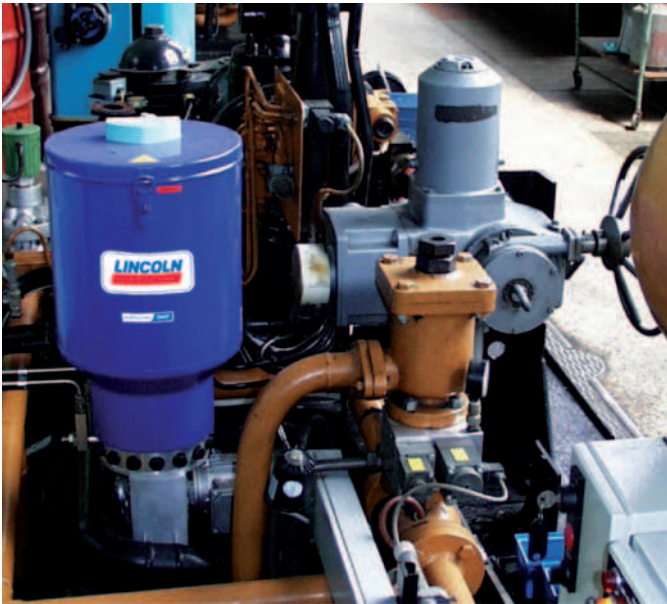
P 212 pump elements and pressure-relief valves

Order number	Description	Connection	Operating pressure max.	
			bar	psi
660-77835-1	pump element KR 7	G 3/8	–	–
660-77619-1	pump element KR 12	G 3/8	–	–
303-17431-1	closing screw ¹⁾	M 27 × 1,5	–	–
624-25483-1	pressure-relief valve ²⁾	tube stud Ø10 mm	350	5 075
624-28362-1	pressure-relief valve ²⁾	tube stud Ø12 mm	350	5 075

¹⁾ for outlet port instead of a pump element
²⁾ to use via T-piece

Pump unit

P 215



Product description

The P 215 is a high-pressure, multi-line pump that can drive up to 15 pump elements. Different sizes of adjustable elements are available. It is capable of handling direct supply of lubrication points or can be used as a centralized lubrication pump in large-sized progressive systems.

P 215 pumps are available with a three-phase, multi-range motor, with a single-range motor, with a free shaft end for use with other motors, or with an oscillating drive. Various gear ratios and reservoirs of different sizes and materials are available. The reservoirs are suitable for both grease and oil and are offered with or without level control.

Features and benefits

- Sturdy and durable pump series
- Continual lubrication of machines and systems that operate in harsh environments
- Versatile pump regarding reservoir and drive types
- Broad range of output possibilities due to high number of outlets and different sizes of pump elements
- Modular design and easy maintenance

Applications

- Stationary machines with a high lubricant consumption
- Screens and crushers in quarries
- Material handling equipment
- Roller coasters

Technical data

Function principle	radial piston pump with stirrer; rotary, oscillating or electrically operated
Outlets	1 to 15
Operating temperature	-20 to +40 °C, -4 to +104 °F
Operating pressure	350 bar, 5 075 psi
Lubricant	mineral and synthetic oil and grease oil: viscosity from 20 mm²/s grease: up to NLGI 2
Metering quantity per stroke	min. 0,11 cm³, 0.0067 in³ max. 0,23 cm³, 0.014 in³
Reservoir 1)	plastic: 4 and 8 kg, 8.8 and 17.6 lb steel: 10, 30 and 100 kg, 22; 67 and 220 lb
Internal ratio	7:1, 49:1, 100:1, 490:1
Output per Outlet	0,13 to 3,5 cm³/min, 0.008 to 0.21 in³/min
Outlet connection	G 1/4
E-motor drive	with 3-phase motor
Drive speed	< 28 min⁻¹
Dimensions	min. 438 × 453 × 326 mm max. 1 225 × 600 × 550 mm min. 17.24 × 17.84 × 12.84 in max. 48.23 × 23.26 × 21.65 in
Protection class	IP 55
Mounting position	vertical
Options	hydraulic driven; 24 V DC motor
1) valid for ρ=1 kg/dm³	



NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available on SKF.com/lubrication:
13651 EN

Pump unit

P 215

Identification code

P215- - - - -

Product series

Drive

M = AC flange motor
F = free shaft end
P = oscillating drive

Gear ratio

490 = 490:1
100 = 100:1
049 = 49:1 (for oil only)
007 = 7:1 (for P and F drive assemblies only)

Reservoir

4 = plastic, 4 l, 1.05 gal 30 = steel plate, 30 l, 7.92 gal
8 = plastic, 8 l, 2.11 gal 100 = steel plate, 100 l, 26.42 gal
10 = steel plate, 10 l, 2.64 gal

Reservoir design

YL = for oil with floating-switch, low-level
XY = for grease and oil
N = without level control
BU = with level control (ultrasonic sensor for two switching points, low- and high-level)

Pump elements, define max. 15 elements (f.i. 11 elements K 7 = 11K7, ...)

1-15 = number of pump elements, adjustable
K 5 = piston Ø 5 mm, max. adjustable output per stroke: 0,11 cm³, 0.0067 in³
K 6 = piston Ø 6 mm, max. adjustable output per stroke: 0,16 cm³, 0.0098 in³
K 7 = piston Ø 7 mm, max. adjustable output per stroke: 0,23 cm³, 0.014 in³

Motor designation, supplements

320-420, 440-480 = multi-range motor for nominal supply voltages, 380-420 V AC/50 Hz, 440-480 V AC/60 Hz
500 = single-range motor for nominal supply voltages, 500 V/50 Hz
000 = pump without motor, with coupling flange



P215 pump elements and pressure-relief valves

Order number	Description	Connection	Operating pressure max.	
			bar	psi
600-27464-2	pump element K 5	G 1/4	–	–
600-25046-3	pump element K 6	G 1/4	–	–
600-25047-3	pump element K 7	G 1/4	–	–
303-19285-1	closing screw ¹⁾	M 22×1,5	–	–
624-25478-1	pressure-relief valve ²⁾	tube stud Ø 6 mm	200	2 900
624-25479-1	pressure-relief valve ²⁾	tube stud Ø 6 mm	350	5 075
624-25480-1	pressure-relief valve ²⁾	tube stud Ø 8 mm	200	2 900
624-25481-1	pressure-relief valve ²⁾	tube stud Ø 8 mm	350	5 075
624-25482-1	pressure-relief valve ²⁾	tube stud Ø 10 mm	200	2 900
624-25483-1	pressure-relief valve ²⁾	tube stud Ø 10 mm	350	5 075
304-17571-1	filler fitting ¹⁾	G 1/4 female, M 22×1,5	–	–

¹⁾ for outlet port instead of a pump element
²⁾ filling connector fits for vacant outlet ports

Pump unit
FB / FB - XL



Product description

The FB multi-line pump unit is equipped standard with a motor enclosure of protection class IP 55 or better. The pump is available in a design for explosive atmospheres (ATEX) on request. There are also different fill-level switches for various applications and lubricants. We recommend the U2 ultrasonic design as the standard fill-level switch.

When the FB pump is used as an oil lubrication pump, the reservoir can be equipped with an oil-level monitor and fill-level switch “W”. The oil-level monitor is designed and fitted in accordance with the customer’s specific requirements as stated when ordering. Additionally, a specialized filling device and a visual fill-level indicator can be installed.

Features and benefits

- Sturdy, vibration-resistant multi-line pump
- Suitable for oil and very stiff greases
- Withstands harsh operating conditions and continuous operation
- Suitable for large systems
- Lubricant can be fed directly to lubrication points or via progressive feeder system

Applications

- Automotive industry and wind energy systems
- Construction materials machinery
- Tunnel-boring and mining, conveyor systems
- Paper and packaging machinery
- Steel and heavy industry



Technical data

Function principle	radial piston pump with stirrer
Operating temperature	-15 to +40 °C, +5 to 104 °F
Operating pressure	125 to 350 bar, 1 800 to 5 075 psi
Outlets	1-24
Lubricant	oil: viscosity from 40 mm³/s grease: up to NLGI 3
Metering quantity per stroke	
KR 6:	0,027-0,08 cm³, 0.0016-0.0048 in³
KR 8:	0,050-0,15 cm³, 0.0030-0.0091 in³
KR 10:	0,077-0,23 cm³, 0.0047-0.0140 in³
for FB-XL lower level KR 7:	0,11 - 0,39 cm³, 0.0067-0.0237 in³
for FB-XL lower level KR 12:	0,33-1,12 cm³, 0.020-0.068 in³
Reservoir 1)	6, 15, 30 kg, 13.2, 33, 66 lb
Outlet connection	1/4 NPTF, tube Ø 6, 8, 10 mm OD
Internal ratio	45:1, 105:1, 288:1, 720:1
Output per outlet	0,04-7,7 cm³/min 0.0024-0.47 in³/min
Drive speed main shaft	< 32 min⁻¹
E-motor drive	with 3-phase motor
Dimensions	min. 420 × 533 × 290 mm max. 660 × 533 × 290 mm min. 16.5 × 26 × 11.4 in max. 26 × 26 × 11.4 in
Protection class	IP 55
Mounting position	vertical
Options	ATEX versions, safety valves

1) valid for ρ=1 kg/dm³

NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see the following publication available on SKF.com/lubrication:
**1-3026; 951-170-21; 951-170-201;
951-170-227; 951-180-076**

Pump unit

FB

Identification code	FB											D	0001		07
Product series															
FB															
Reservoir															
06 = 6 kg, 13 lb															
15 = 15 kg, 33 lb															
30 = 30 kg, 66 lb															
Level indicator															
X = without for grease:															
G = visual indicator for grease (dip stick)															
E = min. level, 1 switching point, 230 VAC/DC															
F = min./max. level, 2 switching points, 42 VAC/DC															
H = min., pre-warning min., max. level, 3 switching points, 30 V DC															
A = min., pre-warning min., max. level, 3 switching points, 250 VAC/DC															
J = min./max. level and pre-warning, 4 switching points, 30 V DC for oil:															
S = visual indicator for oil (sight glass)															
W = float switch for oil, min. level, 1 switching point, 250 VAC/DC for grease and oil:															
U2 = ultrasonic sensor for oil/grease, min./max. level, 2 switching points, 30 VAC/DC															
Drive type															
1M = motor drive with double gear reduction															
2M = motor drive with single gear reduction															
Ratio internal															
1M drive :	2M drive:														
06 = 105:1	04 = 45:1														
07 = 288:1															
08 = 720:1															
Drive position															
1M drive:	2M drive:														
B = reservoir: 6, 15 and 30 kg; 13, 33, 66 lb	H = reservoir:														
E = reservoir: only 6 and 15 kg; 13, 33 lb	6, 15 and 30 kg; 13, 33, 66 lb														
Pump elements Ø 6 mm (define in total max. 24)															
00-24 = number of pump elements, piston Ø 6 mm; p _{max} = 350 bar; 5 075 psi															
Pump elements Ø 8 mm (define in total max. 24)															
00-24 = number of pump elements, piston Ø 8 mm; p _{max} = 200 bar, 2 900 psi															
Pump elements Ø 10 mm (define in total max. 24)															
00-24 = number of pump elements, piston Ø 10 mm; p _{max} = 125 bar; 1 800 psi															
Connection tube Ø OD															
A = 6 mm	C = 10 mm	B = 8 mm	D = 1/4 NPT- internal thread												
Modification index															
D = actual version															
Design key															
0001 = standard															
Motor code 1)															
AG = 1 000 min ⁻¹ , for 230-400 VAC/50 Hz	AF = 1 500 min ⁻¹ , for 230-400 VAC/50 Hz														
AL = 1 000 min ⁻¹ , for 290-500 VAC/50 Hz	AK = 1 500 min ⁻¹ , for 290-500 VAC/50 Hz														
AP = 1 000 min ⁻¹ , for 400-690 VAC/50 Hz	AO = 1 500 min ⁻¹ , for 400-690 VAC/50 Hz														
Protection class 1)															
07 = IP 55, ATEX on request															

Pump units for grease

Pump unit

FB - XL

Identification code	FB	30		2M	04	H						D	4145	AF	07
Product series	FB														
Reservoir	30 = 30 kg, 66 lb														
Level indicator	X = without J = min/max level and pre-warning, 4 switching points, 30 V DC														
Drive	2M = motor drive with single gear reduction														
Drive speed	04 = 45:1														
Drive position	H = 2M														
Pump elements, upper level Ø 6 mm (define max. 8 elements)	0-8 = number of pump elements, piston Ø 6 mm; p _{max} = 350 bar; 5 075 psi														
Pump elements, upper level Ø 8 mm (define max. 8 elements)	0-8 = number of pump elements, piston Ø 8 mm; p _{max} = 200 bar, 2 900 psi														
Pump elements, upper level Ø 10 mm (define max. 8 elements)	0-8 = number of pump elements, piston Ø 10 mm; p _{max} = 125 bar; 1 800 psi														
Pump elements large, lower level Ø 7 mm (define max. 8 elements)	0-8 = number of large pump elements, piston Ø 7 mm; p _{max} = 350 bar; 5 075 psi														
Pump elements large, lower level Ø 12 mm (define max. 8 elements)	0-8 = number of large pump elements, piston Ø 12 mm; p _{max} = 350 bar; 5 075 psi														
Connection tube Ø OD	A = 6 mm B = 8 mm	C = 10 mm D = 1/4 NPT-internal thread													
Modification index	D = standard														
Design	4145 = FB-XL standard version, with E-motor 0,55 kW, upper level for small pump elements, lower level for large pump elements														
Motor code ¹⁾	AG = 1 000 min ⁻¹ , for 230-400 V AC/50 Hz AL = 1 000 min ⁻¹ , for 290-500 V AC/50 Hz AP = 1 000 min ⁻¹ , for 400-690 V AC/50 Hz	AF = 1 500 min ⁻¹ , for 230-400 V AC/50 Hz AK = 1 500 min ⁻¹ , for 290-500 V AC/50 Hz AO = 1 500 min ⁻¹ , for 400-690 V AC/50 Hz													
Protection class ¹⁾	07 = IP 55, ATEX on request														

¹⁾ Other models on request

Pump unit

FB / FB - XL / FF Accessories



Pump units for grease

Pump elements for oil and grease FF, FB and FB-XL upper level

Order number	Piston
	Ø mm
24-1557-3680	6
24-1557-3681	8
24-1557-3683	10

Pump element for oil and grease, FB-XL lower level, P 212 ¹⁾

Order number	Piston
	Ø mm
660-77835-1	7
660-77619-1	12

Pressure-limiting valves for grease pump elements FF, FB and FB-XL upper level ¹⁾

Order number	Pressure	
	bar	psi
24-2103-2273	50	725
24-2103-2344	100	1 450
24-2103-2345	125	1 815
24-2103-2342	150	2 175
24-2103-2272	175	2 540
24-2103-2346	200	2 900
24-2103-2271	350	5 075

Outlet stud

Order number	Tube
	Ø mm
24-2255-2003	6
24-2255-2004	8
24-2255-2005	10

¹⁾ pressure-limiting valve see chapter valves

¹⁾ for direct assembly for each pump element (instead of the closure plug)

Pump unit

P 230



Product description

A derivative of the P 215 pump, the P 230 is a high-pressure, multi-line pump that can drive up to 30 adjustable pump elements. It is used within a multi-line system to directly supply lubrication points or within large-sized progressive systems. Due to the increased number of possible pump elements compared to the P 215, a powerful 0,25 kW motor is used.

P 230 pumps are available with a three-phase, multi-range motor or a single-range motor, and various gear ratios are offered. Suitable for grease or oil, reservoirs are available in different sizes with or without level control.

Features and benefits

- Sturdy and durable pump series
- Continual lubrication of machines and systems that operate in harsh environments
- Broad range of output options due to increased number of outlets and varying sizes of adjustable pump elements
- Modular design and easy maintenance

Applications

- Stationary machines with high lubricant consumption
- Rubber- and plastic-mixing machines
- Conveyors
- Cranes
- Eccentric presses
- Forging machines

Technical data

Function principle	radial piston pump with stirrer, rotary, oscillating or electrically operated
Outlets	1 to 30
Operating temperature	-20 to +40 °C, -4 to +104 °F
Lubricant	mineral and synthetic oil and grease oil: viscosity from 20 mm²/s grease: up to NLGI 2
Operating pressure	max. 350 bar, 5 075 psi
Metreing quntity per stroke	min. 0,11 cm³, 0.0067 in³ max. 0,23 cm³, 0.014 in³
Reservoir 1)	30 and 100 kg, 66 and 220 lb
Internal ratio	49:1, 100:1, 490:1
Output per outlet	0,13–6,4 cm³/min, 0.008–0.39 in³/min
Outlet connection	G 1/4
E-motor drive	with 3-phase motor
Drive speed	< 28 min⁻¹
Dimensions	min. 840 × 463 × 330 mm max. 1300 × 463 × 550 mm min. 33.07 × 18.23 × 12.99 in max. 51.18 × 18.23 × 21.65 in
Options	hydraulic drive; 24 V DC motor

1) valid for ρ=1 kg/dm³



NOTE

For further technical information, technical drawings, accessories, spare parts or product function descriptions, see SKF.com/lubrication.

Pump unit

P 230

Identification code

P230- - - - -

Product series

Drive

MG = AC flange gear motor
F = free shaft end

Gear ratio

490 = 490:1
100 = 100:1
049 = 49:1 (for oil only)

Reservoir

30 = steel plate, 30 l, 7.92 gal
100 = steel plate, 100 l, 26.42 gal

Reservoir design

YL = for oil with floating-switch low level
XY = for grease and oil
N = without level control
BU = with level control (ultrasonic sensor for two switching points, low- and high-level)

Pump elements, adjustable, define max. 30 elements (f.i. 25 elements K6 = 25K6, ...)

1-30 = number of pump elements
K 5 = piston Ø 5 mm, max. adjustable output per stroke: 0,11 cm³, 0.0067 in³
K 6 = piston Ø 6 mm, 0.236 in, max. adjustable output per stroke: 0,16 cm³, 0.0098 in³
K 7 = piston Ø 7 mm, 0.275 in, max. adjustable output per stroke: 0,23 cm³, 0.014 in³

Supplements to motor designation

320-420, 440-480 = multi-range motor for nominal supply voltages, 380-420 V AC/50 Hz, 440-480 V AC/60 Hz
500 = single-range motor for nominal supply voltages, 500 V AC/50 Hz
000 = pump without motor, with coupling flange

Pump units for grease



P 230 pump elements and pressure-relief valves				
Order number	Description	Connection	Pressure max	
			bar	psi
600-27464-2	pump element K 5	G 1/4	—	—
600-25047-3	pump element K 7	G 1/4	—	—
600-25046-3	pump element K 6	G 1/4	—	—
303-19285-1	closing screw ¹⁾	M 27 × 1,5	—	—
624-25478-1	pressure-relief valve	tube stud Ø 6 mm	200	2 900
624-25479-1	pressure-relief valve	tube stud Ø 6 mm	350	5 075
624-25480-1	pressure-relief valve	tube stud Ø 8 mm	200	2 900
624-25481-1	pressure-relief valve	tube stud Ø 8 mm	350	5 075
624-25482-1	pressure-relief valve	tube stud Ø 10 mm	200	2 900
624-25483-1	pressure-relief valve	tube stud Ø 10 mm	350	5 075
304-17571-1	filler adapter	G 1/4 female ²⁾	—	—
304-17574-1	filler adapter	G 1/2 female ²⁾	—	—

¹⁾ for outlet port instead of a pump element

²⁾ for connection to vacant outlet ports