# UD and UC Gear pump unit

for SKF CircOil or hydraulic lubrication systems





#### General Information

The UC and UD gear pump units are vertically or horizontally arranged units that are used in hydraulic or circulating-oil lubrication systems. All off-the-shelf lubricants and hydraulic oils in the viscosity range of between 20 and 800 mm<sup>2</sup>/s are conveyed.

## **Advantages**

UC and UD type gear pump units:

- Highly robust
- Virtually wear- and maintenancefree operation
- Well-scaleable delivery rate range
- The pressure port for the UC pumps is located above the reservoir cover
- Optional pressure regulating valves can be installed without any additional pipework
- The pressure regulating valves installed in series 3 are easily accessible due to their mounting position above the reservoir cover
- Vibration proof model available optionally for instance for the naval industry



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## **Application**

The gear pump units are manufactured in 3 assemblies: Series 1 is approved for very high viscosities up to 1.000 mm²/s. They are characterized by their simple and small design, and are accordingly inexpensive. They are particularly suited for small hydraulic and lubrication systems that require volumetric flows between 0.06 l/min and 3 l/min and operating pressures between 25 bar and 60 bar. Series 2 and series 3 meet high requirements in terms of volumetric flow, operating pressure and efficiency. While Series 2 has been designed for volumetric flows of between 1 l/min and 10.8 l/min, series 3 covers the range between 3.8 l/min and 36 l/min. Within the series, the permissible operating pressure is greater as the nominal volumetric flow gets smaller. Due to the overlapping volumetric flow ranges, it is possible, for instance, to convey 9 l/min using a series 2 pump in the low-pressure range, whereas a corresponding series 3 pump can

achieve this volumetric flow in the high-pressure range for the same efficiency. The respective ranges of each series are shown in a simple form in Fig. 1. There are no restrictions with regard to the mounting position of all the units. When UC units are to be mounted lower than the maximum liquid level (oil reservoir), additional sealing of the flange face is required, which must be provided by the customer (refer to version key shown on pump unit).

#### Note

Please do not hesitate to contact our engineers for any questions relating to special designs (such as designs with increased flow pressure), ATEX guidelines, foreign regulations, or protection class or rated voltage.

## Design and mode of operation

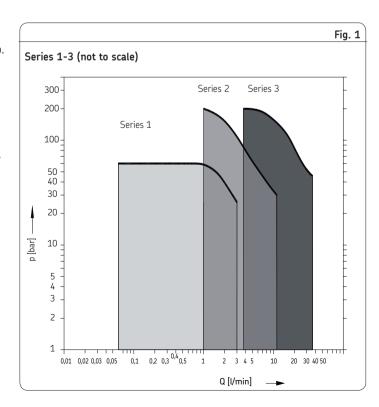
The gear pump units consist of motor, coupling, flange and gear pump. Electronic motors of performance class 0.18 kW are exclusively used for series 1. The flange size is 116x116 mm for vertical pump units (UC) and 80x120 mm for horizontal pump units (UD).

In series 2, different motor classes are used (0.18; 0.37; 0.55 and 0.75 kW). By combination with gear pump units of different sizes (1.2 cm³/U to 8 cm³/U), a wide spectrum of volumetric flow and operating pressure is achieved. This means that this series begins with a pump for 1 l/min at 200 bar and extends to a pump for 10.8 l/min at 30 bar. The flange size is 150x150 mm for vertical pump units (UC) and 120x150 mm for horizontal pump units (UD).

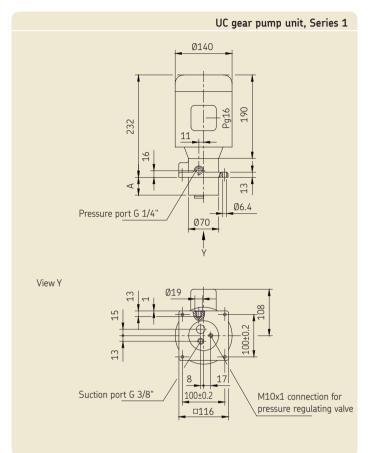
In series 3, electronic motors which provide up to a nominal output of between 0.75 and 4 kW are used. The gear pumps have a pump constant of between 4.5 cm<sup>3</sup>/U and 26 cm<sup>3</sup>/U. Series 3 begins with a pump of

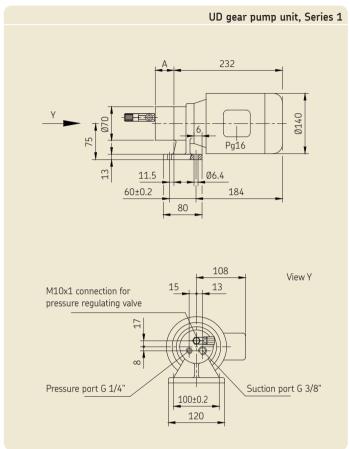
3.8 l/min at 200 bar and extends to the biggest pump, which delivers 36 l/min at 45 bar.

The flange size is 205x205 mm for vertical pump units (UC) and 180x220 mm for horizontal pump units (UD).



# Series 1: $Q_{nominal}$ up to 3 l/min





				Technical Data
Nominal volumetric flow p=0 [l/min]	Operating pressure p <sub>max</sub> [bar]	Dim. A [mm]	UC Weight [kg]	UD Weight [kg]
0.06				
0.12		37	7.9	6.5
0.18	60	37	7.7	0.5
0.25				
0.50		40	8	6.6
0.75		45	8.2	6.8
1.00		43	0.2	0.8
1.50	50		8.3	6.9
2.00	35	47	8.4	7.0
2.5	30		8.5	7.1
3.00	25	51	8.6	7.2

### Note

Dimensions for the motor may vary, depending on the motor manufacturer. There may be dimensional deviations, in particular with regard to explosion protection.

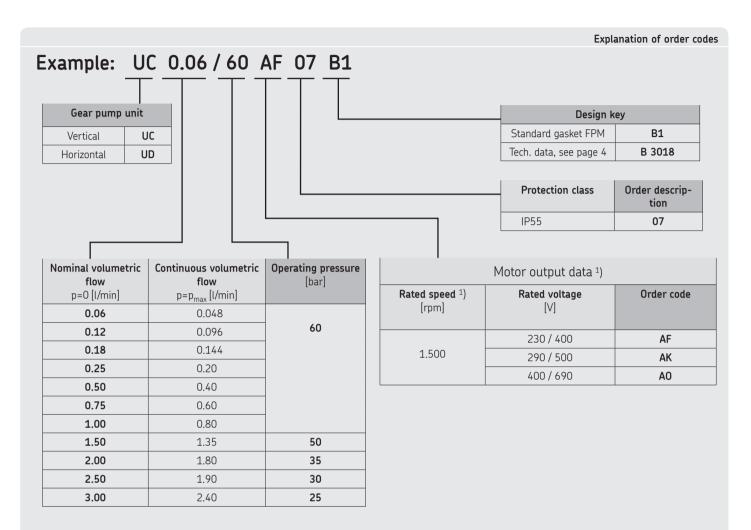
See important product usage information on the back cover.

# Series 1: $Q_{nominal}$ up to 3 l/min

Technical Data	a
Units	
Mounting position: discretionary (where UC units are installed lower than the maximum oil level, the customer must seal flange/machine)	
Ambient temperature: 15 to + 40 °C (At higher ambient temperatures, note that there is a reduction in performance of approx. 1% per Kelvin)	
Pump	
Nominal volumetric flow: see page 5  Type: gear pump	
Design: B 1 standard gasket FPMB 3018 Pump with standard sealing for outlet under lubricant level (only for UC)	
Operating pressure: Inlet max. 2 bar (overpressure)	
Outlet p <sub>max</sub> see page 4  Lubricant mineral oils, synthetic and environ- mentally friendly oils with an operating viscosity between 20 and 1.000 mm²/s	
Suction height max. 700 mm (for max. tube Ø)	
Motor	
Rated power:0.18 kW Rated current at 400 V0.65 A	
Frequency	
Type:	
(motor can be shifted by 90°) Size:	
Type of voltage:3-phase AC voltage	
Rated speed	
Rated currentsee rating plate (motor)	
Protection class:IP 55	
Temperature class:	
1) The motors are suited for a frequency of 50 or 60 Hz. For connection with a frequency of 60 Hz, the speed and the volumetric flow are increased by 20 % (compared to the table specifications, basis 50 Hz).	

		Accessories
Designation		Order no.
Suction port:		
GE screw connection	G 3/8" - Ø 12	412-403W
GE screw connection	G 3/8" - Ø 12	412-433W
Sealing ring	G 3/8"	DIN7603-A17x21-Cu
Pressure port:		
GE screw connection	G 1/4" - Ø 6	406-413W
GE screw connection	G 1/4" - Ø 8	408-403W
GE screw connection	G 1/4" - Ø 10	410-403W
GE screw connection	G 1/4" - Ø 12	412-423W
Sealing ring	G 1/4"	DIN7603-A14x18-Cu
Fastening screw	M6x20 DIN 912	DIN912-M6x20-8.8
Sealing ring for pressure regulating valve	A10x13.5	95-1021-7603

# Order reference Series 1: $Q_{nominal}$ up to 3 l/min

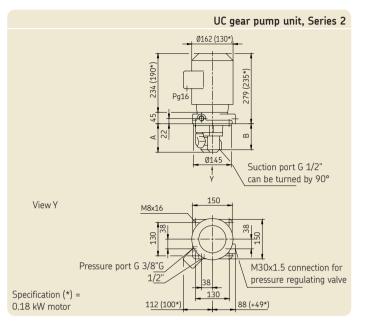


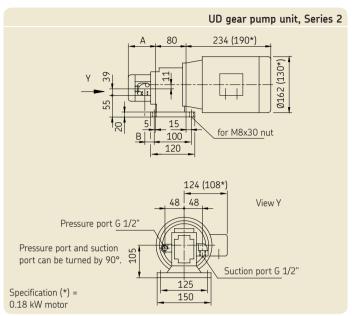
This motor data refers to three-phase motors from VEM. There may be differences with motors from other manufacturers.
 Other specifications available on request.

#### Order example:

A gear pump unit of the UC series (UC) with a nominal volumetric flow of 0.06 l/min (0.06), an operating pressure of 60 bar (60), a rated speed of 1500 min<sup>-1</sup> (rated power 0.18 kW, rated current 0.65 A, frequency 50 Hz) for a rated voltage of 230/400 V (AF) in protection class IP55 (07) and version key B1 (B1) results in the following order number: UC 0.06 /60 AF 07 B1

# Series 2: $Q_{nominal}$ up to 10.8 l/min





UD technical data, Series 2

			UC techi	nical data,	Series 2
Nominal volumetric flow <sup>1</sup> )	Operating pressure $\mathbf{p}_{max}$	Flange	Dim. A	Dim. B	Weight
p=0 [l/min]	[bar]		[mm]	[mm]	[kg]
1.0	140	80C120	116.5	90.5	10.0
	200	000120	110.0	, 0.0	11.2
1.6	45	63C120			7.5
1.0	180	80C120			13.5
	30	63C120	4405	04.5	7.5
2.3	100	80C120	118.5	91.5	11.5
	130	800120			13.5
3.5	20	63C120	122	93	7.5
	65	80C120			11.5
	90	800120			13.5
	15	63C120		95.5	7.5
4.8	45	80C120	126		11.5
	65	800120			13.5
	10	63C120			7.6
7	30	80C120	132.5	98.5	11.6
	45	000120			13.6
	8	63C120			7.6
9	25	80C120	137.5	101	11.6
	35	000120			13.6
	7	63C120			7.7
10.8	20	80C120	143	104	11.7
	30	000120			13.7

			OD tecinical data, Series 2				
Nominal volumetric flow	Operating pressure pmax	Flange	Dim. A	Dim. B	Weight		
p=0 [l/min]	[bar]		[mm]	[mm]	[kg]		
1.0	140	80C120	82.5	33.5	10.0		
1.0	200	000120	02.5	33.3	11.2		
1.6	45	63C120			7.5		
1.0	180	80C120			13.5		
	30	63C120			7.5		
2.3	100	80C120	84.5	34.5	11.5		
	130	800120			13.5		
	20	63C120			7.5		
3.5	65	80C120	88	36	11.5		
	90	800120			13.5		
	15	63C120	92		7.5		
4.8	45	80C120		38.5	11.5		
	65	000120			13.5		
	10	63C120			7.6		
7	30	80C120	98.5	41.5	11.6		
	45	800120			13.6		
	8	63C120			7.6		
9	25	80C120	103.5	44	11.6		
	35	800120			13.6		
	7	63C120			7.7		
10.8	20	80C120	109	47	11.7		
	30	000120			13.7		
10.8	20	63C120 80C120	109	47	11.7		

<sup>1) 30%</sup> decrease of volumetric flow must be expected for a service viscosity < 100 mm<sup>2</sup>/s and max. operating pressure.

# Series 2: $Q_{nominal}$ up to 10.8 l/min

		Technical Data				
Units						
Mounting position:	one than the maxim	um oil level, the cus-				
Ambient temperature:	15 to + 40 °C (At higher ambient temperatures, note that there is a reduction in performance of approx. 1% per Kelvin					
Pump	perrermance or appre	,,, 1,, per rietini				
Nominal volumetric flow: .	. see page 8					
Type: Design:	. gear pump					
В1	•					
3018	. pump with standard s under lubricant level (					
Operating pressure:						
Inlet		sure)				
Outlet p <sub>max</sub>						
Lubricant	friendlyoils with an or					
	between 20 and 1.00	,				
Suction height						
Rated motor power 1)	0.18	0.37 / 0.55 / 0.75				
	[kW]	[kW]				
Туре	IM V18 or IMB14Motor can be shifted by 90°	IM V18 or IMB14				
Size	63C90	80C120				
Type of voltage	3-phase A	AC voltage				
Frequency <sup>2</sup> )	50	Hz				
Voltage, rated speed	see table page 8					
Rated current	see rating p	late (motor)				
Protection class	see t	table				
Temperature class						

	shifted by 90°				
Size	63C90	80C120			
Type of voltage	3-phase AC voltage				
Frequency <sup>2</sup> )	50 Hz				
Voltage, rated speed	see table	e page 8			
Rated current	see rating p	late (motor)			
Protection class	see t	able			
Temperature class	F	:			
1) This motor data refers to the	ee-nhase motors from VFN	1 There may he differences			

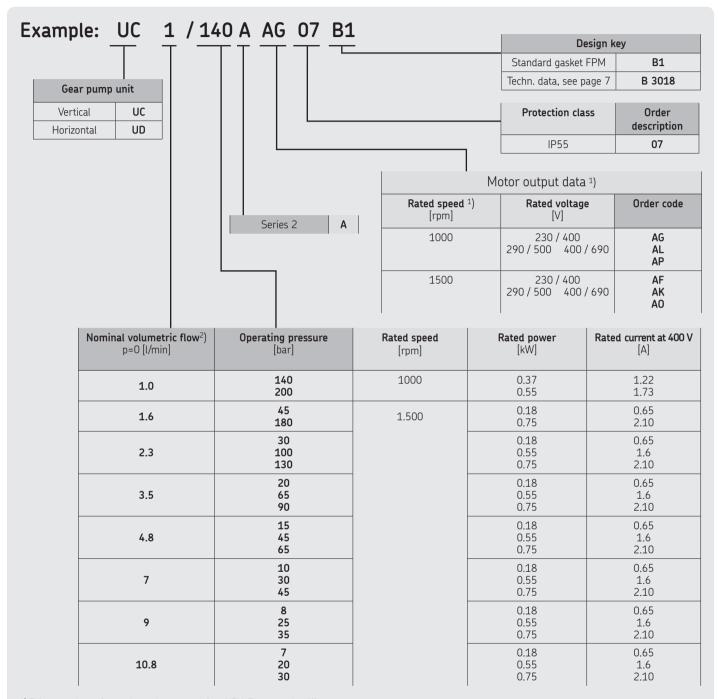
Dimensions for the motor may vary, depending on the motor manufacturer. There may be dimensional deviations, in particular with regard to ex-protection.

		Accessories
Designation		Order no.
Suction port:		
GE screw connection	G 1/2" - Ø 18	96-0218-0058
Sealing ring	G 1/2"	DIN7603-A21x26-Cu
Pressure port:		
GE screw connection	G 1/2" - Ø 12	412-453W
GE screw connection	G 1/2" - Ø 15	96-0215-0058
GE screw connection	G 1/2" - Ø 18	96-0218-0058
GE screw connection	G 3/8" - Ø 12	412-403W
E screw connection	G 3/8" - Ø 15	415-433W
GE screw connection	G 3/8" - Ø 18	96-0220-0058
astening screw	M8x16 DIN 912	DIN912-M6x16-8.8
astening screw	M8x30 DIN 912	DIN912-M8x30-8.8
Screw plug for unused	pressure port:	
Screw plug	G 1/2"	95-0012-0908
Sealing ring		DIN7603-A21x26-Cu
Screw plug	G 3/8"	95-0038-0908
Sealing ring		DIN7603-A17x21-Cu

This motor data refers to three-phase motors from VEM. There may be airrere with motors from other manufacturers.
 The motors are suited for a frequency of 50 or 60 Hz. For connection with a frequency of 60 Hz, the speed and the volumetric flow are increased by 20 % (compared to the table specifications, basis 50 Hz).

## Order reference

Series 2: Q<sub>nominal</sub> up to 10.8 l/min



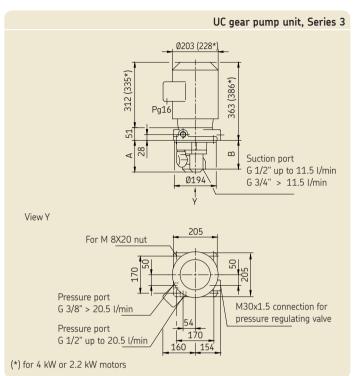
<sup>1)</sup> This motor data refers to three-phase motors from VEM. There may be differences

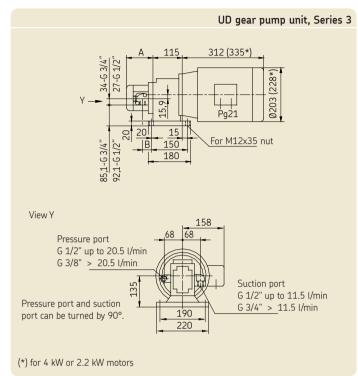
### Order example

A gear pump unit of the UC series (UC) with a nominal volumetric flow of 11/min (1), an operating pressure of 140 bar (140), of series 2 (A), a rated speed of 1.000 min<sup>-1</sup> (rated power 0.37 kW, rated current 1.22A, frequency of 50 Hz) for a rated voltage of 230/400 V (AG) in protection class IP55 (07) and a version key B1 (B1) results in the following order number: UC 1 /140 A AG 07 B1

with motors from other manufacturers.
2) A by 30% decreased volumetric flow must be expected for a service viscosity < 100 mm²/s and max. operating pressure.

# Series 3: Q<sub>nominal</sub> up to 36 l/min





							UC/UD technica	al data. Series 3															
Nominal volumetric	Operating pressure	Flange		UC		UD																	
flow p=0 [l/min]	flow p <sub>max</sub>		Dim. A [mm]	Dim. B [mm]	Weight [kg]	Dim. A [mm]	Dim. B [mm]	<b>Weight</b> [kg]															
	80	90C200	153		15.5			14.5															
3.8	120	900200		153	123.8	16.5	88	20.3	15.5														
3.6	160	100C200		125.0	18.5	00	20.3	17.5															
	200	112C200				20			19														
	75	90C200								16.5			15.5										
6.0	100	700200							18.5			17.5											
0.0	150	100C200			20			19															
	200	1000200												26			25						
	50	900200													90C200			~200		16.5			15.5
	70	700200															18.5			17.5			
8.5	100	100C200											20			19							
	140	1000200											26			25							
	180	112C200			31			30															
	40	90C200			17			16															
	50	700200			19			18															
11.5	80	110C200			20.5			19.5															
	100	100C200					26.5			25.5													
	140	112C200			31.5			30.5															

Continued on next page >

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# Series 3: $Q_{nominal}$ up to 36 l/min

lominal volu- metric flow	Operating-	Flange				UD							
metric flow pressure p=0 [l/min] pressure pmax [bar]		Dim. A [mm]	Dim. B [mm]	<b>Weight</b> [kg]	Dim. A [mm]	Dim. B [mm]	<b>Weigh</b> [kg]						
	20	90C200			16			15					
13.7	35	900200	169	149.3	17	104	28.3	16					
13.7	40	110C200			19			16.8					
	70	112C200			20.5			19.5					
	30	90C200			17			16					
	40	900200			19			18					
15.0	60	100C200			20.5			19.5					
	80	1000200			26.5			25.5					
	110	112C200			31.5			30.5					
	20	90C200				17			16				
	30	700200								19			18
20.5	40	100C200						20.5			19.5		
	60						J		26.5			25.5	
	80	112C200			31.5			30.5					
	17	90C200	4=-	455.0	17.5	44.	0.1.5	16.5					
	22	900200	179 155.	1//	155.3	19.5	114	34.3	18.5				
26	35	100C200				21			20				
	45	1000200					27			26			
	60	112C200			32			31					
	15	90C200			17.5	445	04 ==	16.5					
	20	700200	183	157.3	19.5	118	36.55	18.5					
30	30	100C200	100	107.0	21			20					
	40	1000200			27			26					
	50	112C200			32			31					
	12	000000			17.7			16.7					
	17	90C200			19.7			18.7					
36	25	1000300			21.2			20.2					
	25	100C200			27.2			26.2					
	45	112C200			32.2			31.2					

# Series 3: $Q_{nominal}$ up to 36 l/min

	Technical Da
Units	
	discretionary (where UC units are installed lower than the maximum oil level, the customer must seal flange/machine)
Ambient temperature:	- 15 to + 40 °C (At higher ambient tem peratures, note that there is a reduction in performance of approx. 1% per Kelvir
Pump	in performance of approx. 1% per netvin
Nominal volumetric flow:	' -
В1	standard gasket FPMB pump with standard sealing for outlet under lubricant level (only for UC)
Operating pressure: Inlet Outlet p <sub>max</sub>	
Lubricant	mineral oils, synthetic and environ- mentally friendly oils with an operating viscosity between 20 and 1.000 mm²/s
Suction height	max. 1.200 mm (for max. tube Ø)
Motor	
Nominal output	page 12 V18/B14 (motor can be shifted by 90°)
Type of voltage:	3-phase AC voltage
Rated speed	
Rated current	see rating plate (motor)
Protection class:	IP 55
1) The motors are suited for a freat	uency of 50 or 60 Hz. For connection with a and the volumetric flow are increased by 20 %

# Order reference Series 3: $Q_{nominal}$ up to 36 l/min

Example	e: UC 3.8 / 8	30 B AG 07 B1	<u>.</u>					
							esign ke	<b>е</b> у
						Standard gasket	FPM	B1
Gear	pump unit					Techn. data, see	page	B 3018
Vertica						Protection cla	ss	Order description
Horizon	tal UD					IP55		07
				ı	Мс	otor output data	2)	
		Series 3 B	┙╽	Rated speed [rpm]	1)	Rated voltage	2	Order code
				1.000		230 / 400 290 / 500 / 400 /	690	AG AL AP
				1.500		230 / 400 290 / 500 / 400 /	690	AF AK AO
	Nominal volumetric flow <sup>2)</sup> p=0 [l/min]	Operating pressure [bar]	R	ated speed <sup>1</sup> ) [rpm]	R	ated power 1) [kW]	Rate	d current at 400V [A]
	3.8	80 120 140 200		1000		0.75 1.1 1.5 2.2		2.43 3.15 3.40 5.35
	6.0	75 100 150 200		1500		1.1 1.5 2.2 3		2.62 3.40 5.15 6.70
	8.5	50 70 100 140 180				1.1 1.5 2.2 3 4		2.62 3.40 5.15 6.70 8.80
	11.5	40 50 80 100 140	-			1.1 1.5 2.2 3 4		2.62 3.40 5.15 6.70 8.80
	13.7	20 35 40 70		1000		0.75 1.1 1.5 2.2		2.43 3.15 3.40 5.35
	15.0	30 40 60 80 110		1500		1.1 1.5 2.2 3 4		2.62 3.40 5.15 6.70 8.80
	20.5	20 30 40 60 80				1.1 1.5 2.2 3 4		2.62 3.40 5.15 6.70 8.80

Continued on next page

# Order reference

Series 3: Q<sub>nominal</sub> up to 36 l/min

Individual parameters, series 3, continued from page 12



Nominal volumetric flow <sup>2</sup> ) p=0 [l/min]	Operating pressure [bar]	Rated speed <sup>1</sup> ) [rpm]	Rated power <sup>1</sup> ) [kW]	Rated current at 400V [A]
26.0	17 22 35 45 60	1.500	1.1 1.5 2.2 3 4	2.62 3.40 5.15 6.70 8.80
30	15 20 30 40 50		1.1 1.5 2.2 3 4	2.62 3.40 5.15 6.70 8.80
36	12 17 25 35 45		1.1 1.5 2.2 3 4	2.62 3.40 5.15 6.70 8.80

This motor data refers to three-phase motors from VEM.
 There may be differences with motors from other manufacturers.
 Other specifications available on request.

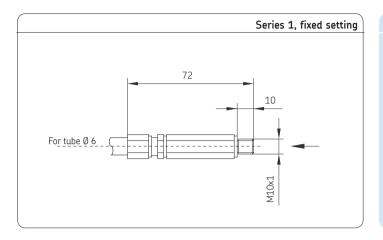
### Order example:

A gear pump unit of the UC series (UC) with a nominal volumetric flow of 3.8 l/min (3.8), an operating pressure of 80 bar (80), of the series up to 36 l/min (B), a rated speed of 1.000 min<sup>-1</sup>, a rated power of 0.75 kW, a rated current of 2.43 A, frequency of 50 Hz, a rated current of 400 V (**AG**) in protection class IP55 (**07**) and version key B1 (**B1**) results in the following order number: **UC 3.8 /80 B AG 07B1** 

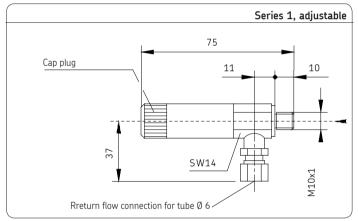
			Accessories (ordered separately)
Designation	Dimension	Size [l/min]	Order No.
Suction port:			
GE screw connection	G 1/2" - Ø 22	UC/UD: 6; 8; 11.5	96-0223-0058
GE screw connection	G 3/4" - Ø 28	UC/UD: 13.7 to 36	96-0229-0058
Pressure port:			
GE screw connection	G 1/2" - Ø 12	UD: 6 to 20.5	412-453W
GE screw connection	G 1/2" - Ø 15	UC: 3.8 to 36	96-0215-0058
GE screw connection	G 1/2" - Ø 18		96-0218- 0058
GE screw connection	G 3/4" - Ø 12	UD: 26; 30; 36	412-463W
GE screw connection	G 3/4" - Ø 15		96-0246-0058
GE screw connection	G 3/4" - Ø 18		412-413W
GE screw connection	G 3/4" - Ø 22		96-0222-0058
Fastening screw	M 10 x 30 DIN 912		95-1030-0912
Fastening screw	M 12 x 35 DIN 912		DIN912-M12x35-8.8
Screw plug for unused pressure port			
Screw plug	G 1/2"		95-0012-0908
Sealing ring			DIN7603-A21x26-Cu
Screw plug	G 3/4"		95-0034-0908
Sealing ring			DIN7603-A27x32-Cu

# Accessories

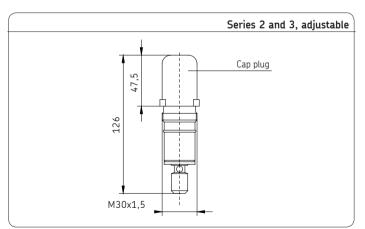
# Pressure regulating valves (ordered separately)



	Pressure regulating valve, S	Series 1, fixed setting
Application	Cracking pressure	Order no.
UC/UD	10 bar	24-2103-2382
	15 bar	24-2103-2383
	25 bar	24-2103-2384
	30 bar	24-2103-2384
	35 bar	24-2103-2385
	50 bar	24-2103-2386
	60 bar	24-2103-2401
Sealing ring		95-1021-7603



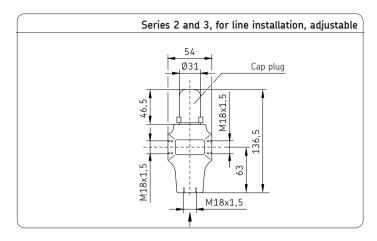
	Pressure regulating valve, Series 1, adjustable			
Application	Operating pressure	Order no.		
UC/UD	0 - 20 bar	24-2103-2121		
	20 - 60 bar	24-2103-2122		



	Pressure regulating valve, Series 2 and 3, adjustable			
Application	Operating pressure	Order no.		
UC	3 - 10 bar	24-2103-3076		
	10 - 15 bar	24-2103-3077		
FPM gasket	15 - 50 bar	24-2103-3078		
	40 - 100 bar	24-2103-3079		
	70 - 180 bar	24-2103-3080		
	100 - 250 bar	24-2103-3081		

# **Accessories**

# Pressure regulating valves, sealing sets (ordered separately)



Pressure regul	ating valve, Series 2 a	nd 3, for line installation
Application	Operating pressure	Order no.
UC	3 - 10 bar	24-2103-3088
	10 - 15 bar	24-2103-3089
FPM gasket	15 - 50 bar	24-2103-3090
	40 - 100 bar	24-2103-3091
	70 - 180 bar	24-2103-3092
	100 - 250 bar	24-2103-3093
Screw unions	Dimension	Order no.
GE screw connection	M 18 x 1.5 (Ø 12)	412-433
GE screw connection	M 18 x 1.5 (Ø 15)	96-0315-0058
Sealing ring	A 18 x 22	DIN7603-A18x22-Cu
Screw	M 18 x 1.5	95-1518-0908

### Caution

When the pressure regulating valve is used for line installation, to avoid injuries caused by accident the pump-side mounting hole (M30x1.5) must be closed with a plug, order number 44-1821-2194.

## Maintenance

Under normal operating conditions, gear pump units do not require special

However, observe the following points when mounting or  $\operatorname{re}$  mounting the units

- Observe the arrow indicator on the unit and connect the motor according to the values on the rating plate
- Dust deposits on the motor will impair cooling
- The air inlet at the fan blade may not be covered

FPM pump gasket sets				
Series	Type	Size	Order No.	
1	UC/UD	0.06 3 l/min	24-0404-2294	
	UC/UD	1.5; 2.0; 2.5 and 3 l/min	24-0404-2299 <sup>1</sup> )	
2	UC	1 10.8 l/min	24-0404-2334	
	UD	1 10.8 l/min	24-0404-2337	
3	UC	3.8 11.5 l/min	24-0404-2320	
	UC	13.7 20.5 l/min	24-0404-2321	
	UC	26 36 l/min	24-0404-2322	
	UD	3.8 11.5 l/min	24-0404-2328	
	UD	13.7 20.5 l/min	24-0404-2329	
	UD	26 36 l/min	24-0404-2330	
1) Only app	licable to pump	os with keys 2847 B to 2850 B		

#### Order No. 1-3019-EN

Subject to change without notice! (07/2014-3)

#### Important product usage information

All products from SKF may be used only for their intended purpose as described in this brochure and in any instructions. If operating instructions are supplied with the products, they must be read and followed.

Not all lubricants are suitable for use in centralized lubrication systems. SKF does offer an inspection service to test customer supplied lubricant to determine if it can be used in a centralized system. SKF lubrication systems or their components are not approved for use with gases, liquefied gases, pressurized gases in solution and fluids with a vapor pressure exceeding normal atmospheric pressure (1013 mbars) by more than 0.5 bar at their maximum permissible temperature.

Hazardous materials of any kind, especially the materials classified as hazardous by European Community Directive EC 67/548/EEC, Article 2, Par. 2, may only be used to fill SKF centralized lubrication systems and components and delivered and/or distributed with the same after consulting with and receiving written approval from SKF.

### SKF Lubrication Systems Germany GmbH

2. Industriestrasse 4 · 68766 Hockenheim · Germany Tel. +49 (0)62 05 27-0 · Fax +49 (0)62 05 27-101 www.skf.com/lubrication

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