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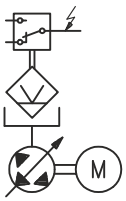
Lubrication Experts since 1922

Illustration shows example

Pump unit

GMA

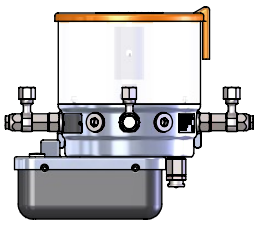
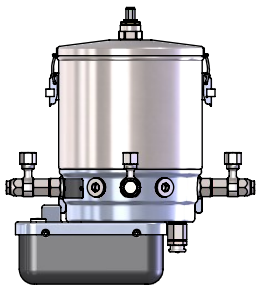
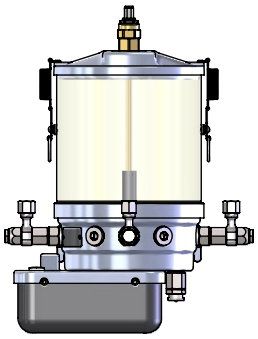
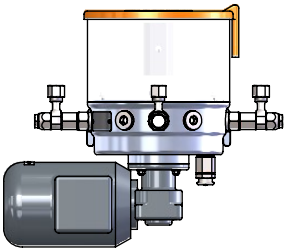
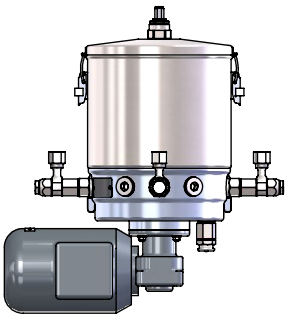
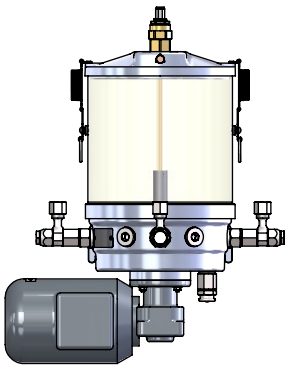


Application:

Pump unit in centralized lubrication systems

- **adjustable delivery volumes**
- **with level monitoring**
- **with up to 4 pump elements**
- **usable for delivery of oil, semi-fluid grease or grease**

- Subject to modifications -

Reservoir size / **Reservoir**	**2 or 4 l transparent**	**4 or 7 l stainless steel**	**5 or 10 l Polyester**
Pump unit **GMA-B** Drive by means of 24 V direct current motor			
Reservoir size / **Reservoir**	**2 or 4 l transparent**	**4, 7 or 25 l stainless steel**	**5, 10 or 30 l Polyester**
Pump unit **GMA-C** Drive by means of three-phase current motor			
electr. level monitoring (optional)	for grease NLGI class 1 and 2 (intermittently signal) for oil (float switch)	for grease NLGI class 1 and 2 (intermittently signal) for oil (float switch)	for grease NLGI class 1 and 2 (static signal) for oil (float switch)

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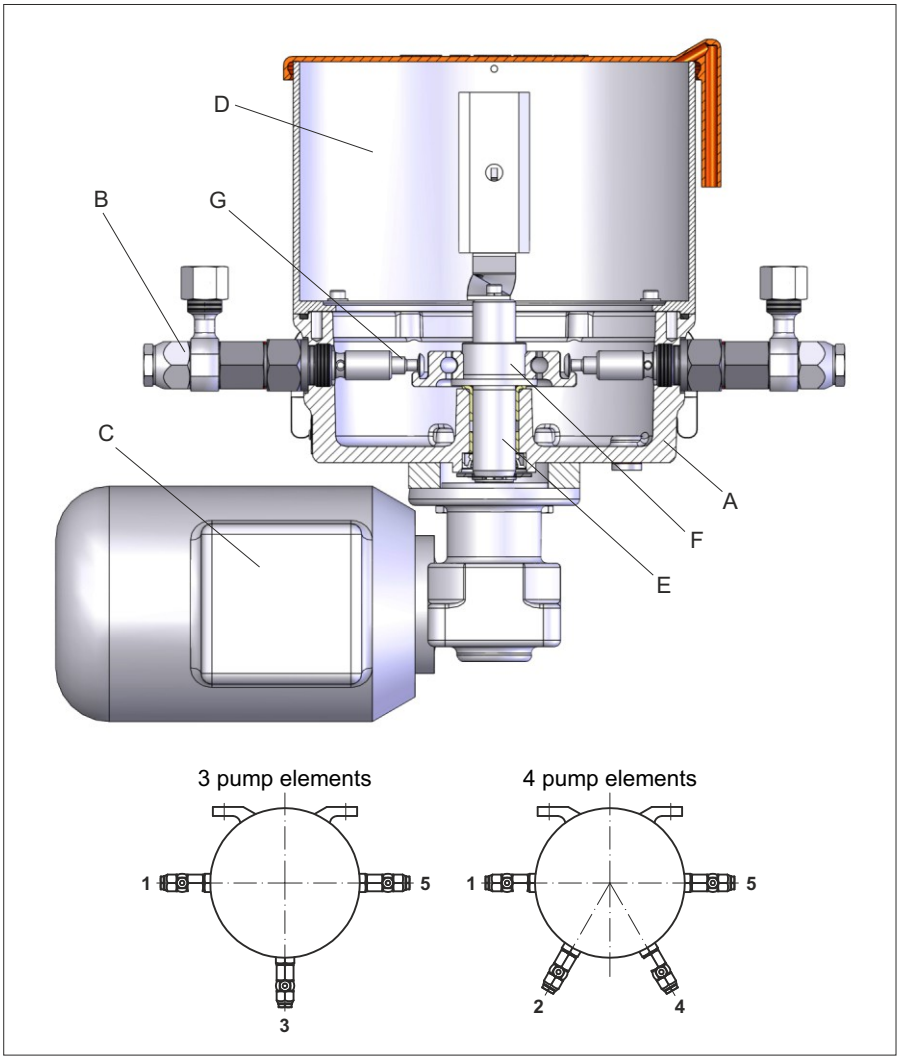
Data sheet **P0301.08.23 EN**
Replaces P0301.07.23 EN



Technical data general:

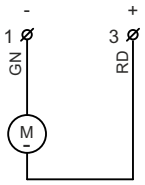
adm. delivery pressure: max. 250 bar
Number of pump elements: 1 ... 3
Installation at place 1, 3, 5
Number of pump elements: 1 ... 4
Installation at place 1, 2, 4, 5
Delivery capacity per stroke and element
in case of pump element ø6: 0,08 cm³
in case of pump element ø8: 0,15 cm³
Special pump element: 0,22 cm³
(on request)
Temperature range
GMA-B: -20 ... +60 °C
GMA-C: -20 ... +40 °C
In case of low temperatures the grease penetration shall be regarded.
Inserting position: vertically
Material
Housing: Aluminium
Pump element: Steel, galvanized
Gaskets: NBR
Medium: Oil and grease up to NLGI class 2
(Mind the using conditions applicable to the reservoir and level monitoring utility!)

GMA-B
Electrical data (motor):

Connecting voltage: 24 VDC
Current: max. 2,5 A
Number of rotations (depending on load)
Connecting voltage 24 V
when connected to 1 and 3: appr. 27 min^{-1}

(Depending on type, the direct current gear motor may be operated in pulse mode only.)

Connection scheme:



GMA-C
Electrical data (motor):

Connecting voltage: 230/400 V (Δ/人)
Mains frequency: 50 Hz
Protection class: DIN EN 60529 IP55
Insulation class: F
Special voltage upon request

Rotations at the pump shaft	Rated power	Rated current 230/400 V
(1) n = 1 min^{-1}	45 W	0,38/0,22 A
(4,5) n = 4,5 min^{-1}	45 W	0,38/0,22 A
(25) (25E) n = 25 min^{-1}	90 W	0,74/0,43 A

Description:

Actuation:
The pump unit GMA is actuated by a three-phase A.C. motor or a D.C. motor (C), which is flanged to the pump casing (A) from the bottom.

Pump:
At the radial piston pump there are up to four pump elements (B) arranged radially around an eccentric (F), which is surrounded by a rolling bearing. On rotation of the actuator or the eccentric shaft (E) respectively the pump piston (G) of each pump element designs a suction or a delivery stroke per revolution and thus delivers the lubricant out of the reservoir (D) to the lubricating points. The delivery volume can be adjusted at each pump element individually. Depending on the operation (lubricant, lubricant supply etc.) the pump unit can be equipped with different pump elements, reservoir and monitoring units.

Operating instructions:

For the lubrication pumps only clean oil or grease from original containers may be used. If, before putting into operation, the lubricant is not filled through the filling nipple, the pump must be filled up to the vane with gear oil during initial filling to ensure good venting. The lubricant lines must be clean and free from obstructions. Do not connect them to the lubrication points before the lubricant emerging from the lines is free from air bubbles. Check all connections of the pressure lines for leakages.
Lubricant: The intended lubricant must be suitable for use with centralized lubrication equipment.

Mode of operation and assembly of pump elements see data sheets P0386 and P0912.

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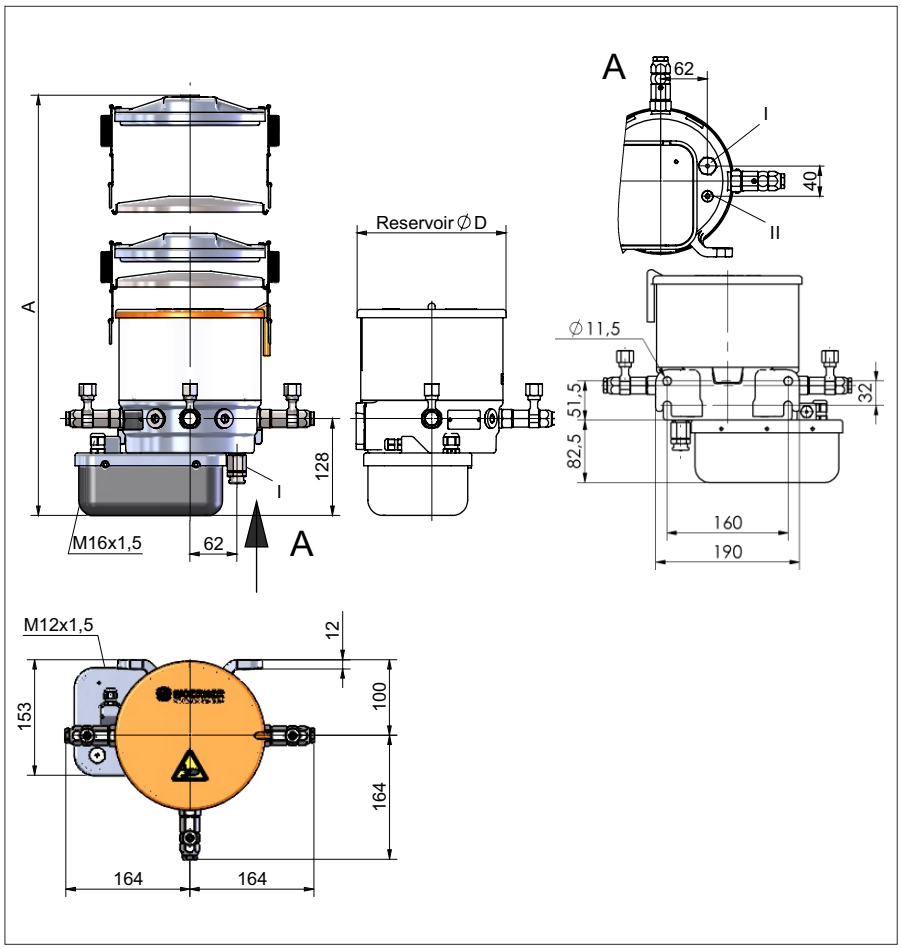

Type	A mm	øD	Weight kg
GMA-B/2	273	197	approx. 6
GMA-B/4V	323	193	approx. 7
GMA-B/4P	320	197	approx. 6,1
GMA-B/7V	422	193	approx. 7,3
GMA-B/5	376	199	approx. 7,1
GMA-B/10	556	199	approx. 7,7

Reservoir / level monitoring GMA:

Reservoir size		Level monitoring options	
2 l	2	Float: Min./max. (2 l) Min./pre-warning/max. level	K/0
4 l	4P 4V	Proximity switch: Signal intermittently Min. level	C/0
7 l	7V	Float: Min./pre-warning/ max. level	K/0
25 l	25V	Proximity switch: Signal intermittently Min. level	C1/0 C2/0
5 l	5	Float: Min./pre-warning/ max. level	K/0
10 l	10		
30 l	30	Follow-up piston: Min./pre-warning/ max. level	K/K

Reservoir size		Reservoir material
2 l 4 l	2 4P	Reservoir: Polyamide transparent Cover: Polypropylene
4 l 7 l 25 l	4V 7V 25V	stainless steel
5 l 10 l 30 l	5 10 30	Reservoir: Polyester fibreglass reinforced / aluminium Cover: Aluminium Follow-up piston (optional): Aluminium

Level monitoring		suitable for delivery of
without level monitoring	0/0	Oil from 22 mm²/s Grease up to NLGI cl. 2
Float	K/0	Oil from 22 mm²/s
Proximity switch	C1/0 C2/0	Grease NLGI cl. 1 and 2
Follow-up piston	K/K	Grease NLGI cl. 1 and 2

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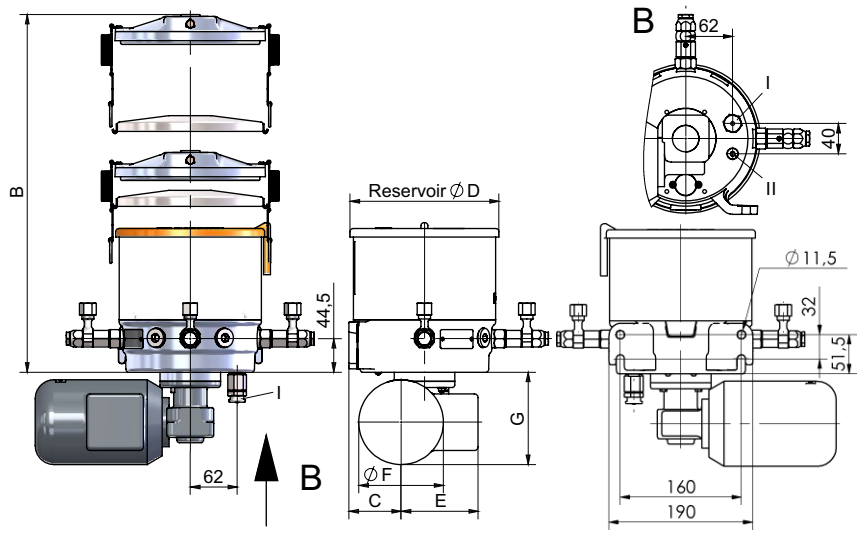

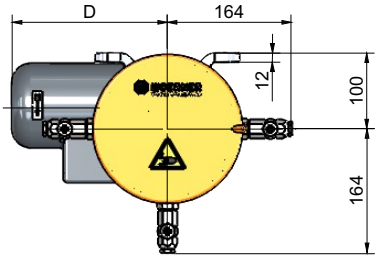

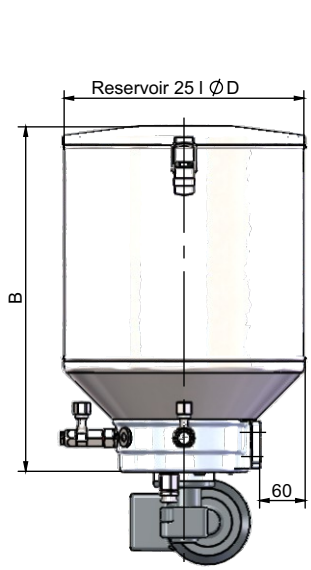

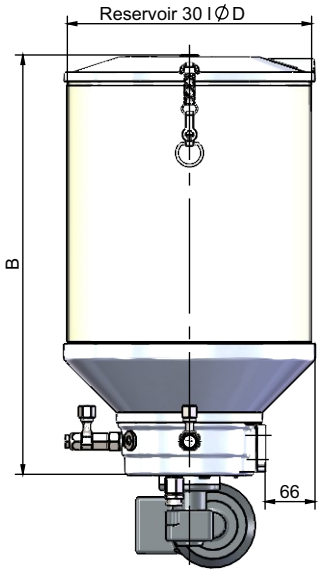

Type	B mm	øD	Weight kg
GMA-C/2	187	197	appr. 4,1
GMA-C/4V	241	193	appr. 5,2
GMA-C/4P	238	197	appr. 4,2
GMA-C/7V	340	193	appr. 6,9
GMA-C/25V	456	317	appr. 9,0
GMA-C/5	293	199	appr. 5,2
GMA-C/10	473	199	appr. 5,8
GMA-C/30	555	323	appr. 7,9

without motor

Motor speed	1 / 4,5	25
C mm	79	69
D mm	248	205
E mm	108	102
F mm	125	112
G mm	145	122
Weight kg	appr. 5,5	appr. 4,5

If a follow-up piston "K" is inserted, the usable reservoir volume is reduced by:
"5" and "10" by approx. 2,5 l
"30" by approx. 6 l

Remark on the dimensional drawings:
I = Filling connector
(Connection thread G 3/8)
II = Return connector G 1/8

- Subject to modifications -

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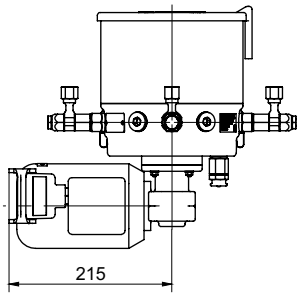
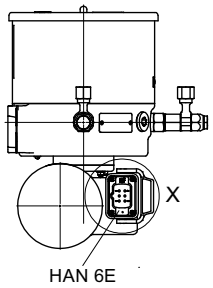
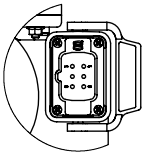
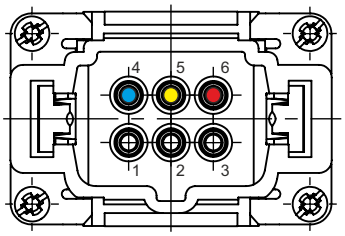
Motor deviations for

HAN 6E (25E)







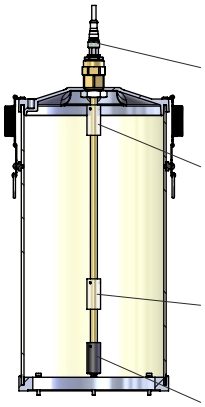


Male series: HAN 6E
Contact arrangement view connection side
Pin assignment of the pin contacts:

			1
			2
			3
L2 =	blue	=	4
L1 =	yellow	=	5
L3 =	red	=	6
PE		=	⏚

Oil-level monitoring
KFA-A01 for plastic reservoirs
and stainless steel reservoirs

Ⓚ/0



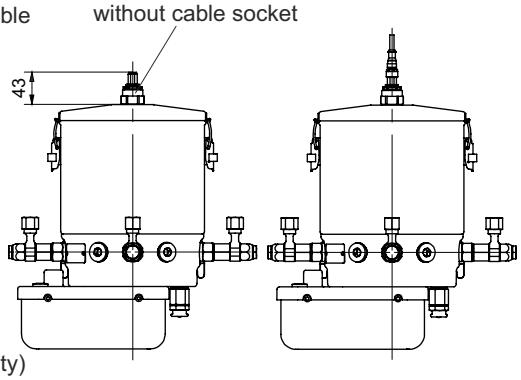
Connecting cable
M12 / 0°

Float
above
(reservoir full)

Float
almost below
(pre-warning
at 25%)

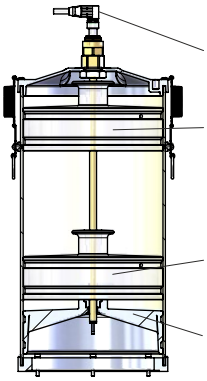
Float
below
(reservoir empty)

Level switch 2, 4P, 4V, 7V, 25V
without cable socket



Level monitoring
for grease NLGI class 1 and 2
KFA-A01 for polyester reservoirs

Ⓚ/Ⓚ



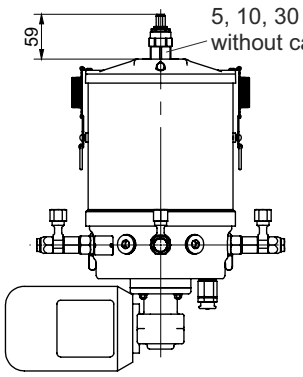
Connecting cable
M12 / 90°

Follow-up piston above
(reservoir full)

Follow-up piston
almost below
(pre-warning
at 25%)

Follow-up piston below
(reservoir empty)

Level switch
5, 10, 30
without cable socket



Electr. data level monitoring Ⓚ
Switching data:

Switching voltage:	max. 30 VDC
Switching current:	max. 0,5 A
Switching capacity:	max. 30 W/VA
Protection class:	DIN EN 60529 IP65
Connection type:	Male M12x1, 5-pin

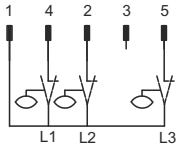
For inductive and capacitive loads protective circuits have to be provided for.
(Diode, RC-member, varistor)

Cable socket and connecting cable see accessories

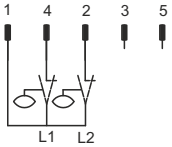
Connection scheme level monitoring Ⓚ

Reservoir size:

4 l, 5 l, 7 l, 10 l, 25 l, 30 l
3 switching points



2 l
2 switching points



L1 = NC contact
L2 = NC contact
L3 = NO contact

see data sheet P0496

Also available with KFA-V01 completely in stainless steel on request.

see data sheet P0520

- Subject to modifications -

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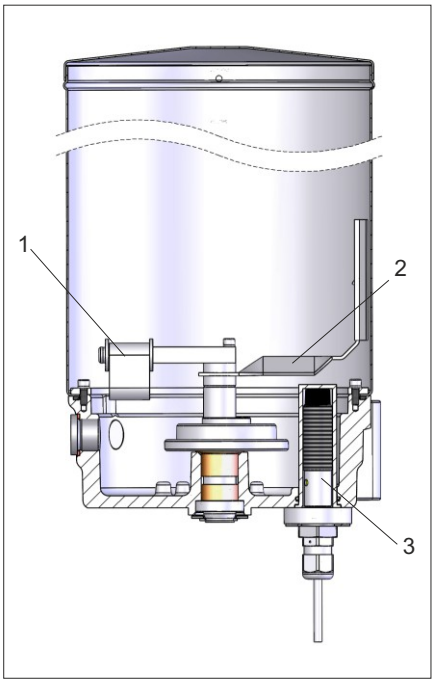
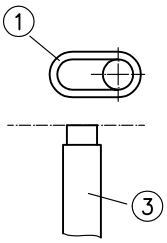
Grease-level monitoring via proximity switch (C1) (C2)



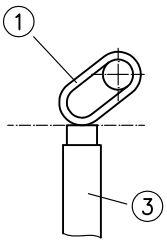
Remark on functional principle:

1 Actuating flap
2 Agitator blade
3 Proximity switch

The grease inside the reservoir causes to lift up the actuating flap (1) upon rotation of the pump driving shaft. No signal will be given.



In case of an empty reservoir and a rotating pump driving shaft the actuating flap (1) will intermittently attenuate the proximity switch (3).



In case of full reservoir, the actuating flap, depending on grease penetration, may fall during standstill and attenuate the proximity switch (3).
Therefore, when evaluating the proximity switch signal, it should be ensured that the proximity switch signal is evaluated delayed (by approx. 10 s).

Electrical data level monitoring

by proximity switch with cable (C1)
by proximity switch with plug (C2)

Operating voltage:	10 ... 30 VDC
Residual ripple:	≤10%
Switching current:	max. 200 mA
Inherent power consumption:	approx. 7,5 mA
Potential drop:	~0,8 V

The "empty" signal will be intermittently.

The function of monitoring "C" has been tested with mineral oil-based lubricants successfully. In case of special lubricants, suitability needs to be tested.

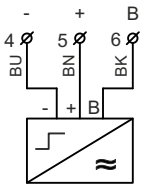
Connection type:

(C1)	GMA-B:	Terminal strip
	GMA-C:	Cable 3 m
(C2)	GMA-B:	(not possible)
	GMA-C:	Male M12x1, 4-pin

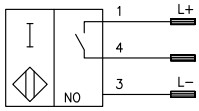
(for matching connecting cable see accessories)

Connection scheme: Proximity switch

with cable (C1)



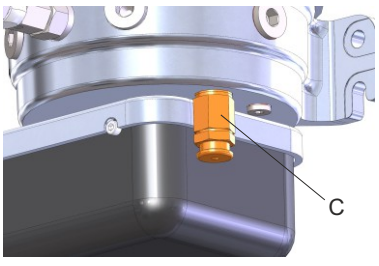
with male (C2)



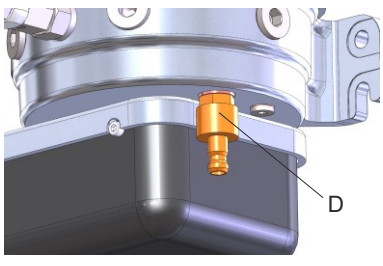
Filling connection:

The filling connection is located under the pump housing.

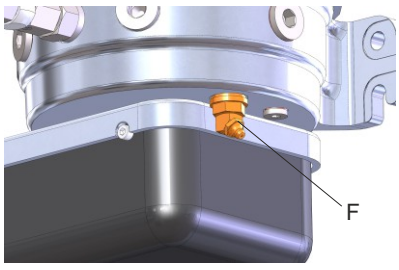
Filling connection "C" [1)]
Flat lubrication nipple AM16x1,5



Filling connection "D"
Quick release coupling
G 3/8 - VN-L-8 (DN6)



Filling connection "F" [1)]
Cone lubrication nipple "F" M10x1



[1)] not suitable for oil

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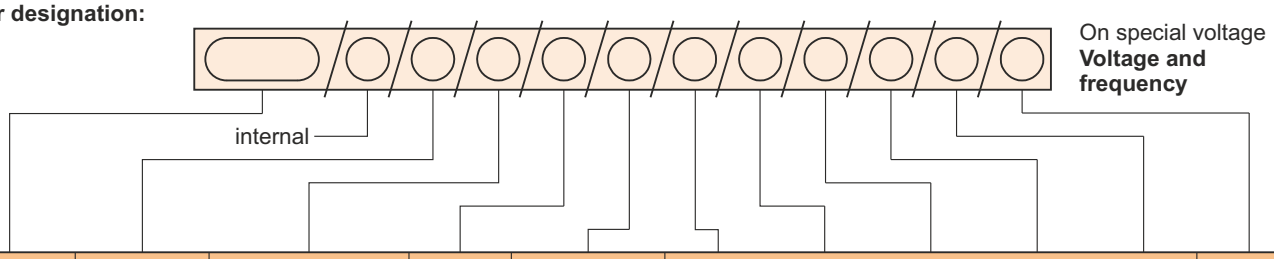
Order designation:



Drive	Reservoir size	Level monitoring	Follow-up piston	Filling connection	Pump element [3) 5)] Position 1	Position 2	Position 3	Position 4	Position 5	Speed at the pump shaft [2)]
Direct current 24 V **GMA-B02**	Polyamide 2 l (2)	without monitoring (0)	without (0)	without (0)	Pump element **6** with pipe connection					**GMA-B:** no sign
	4 l (4P)	**For oil:** [8)] Min./max./monit. at reservoir 2			ø6 (66)	ø6 (66)	ø6 (66)	ø6 (66)	ø6 (66)	
	stainless steel 4 l (4V)	Min./pre-warning max. monitoring at reservoir 4P 4V 7V 25V 5 10 30			ø8 (68)	ø8 (68)	ø8 (68)	ø8 (68)	ø8 (68)	
	7 l (7V)	without stirrer blade (K)		Flat lubrication nipple [4)] AM16x1,5 DIN 3404 (C)	ø10 (610)	ø10 (610)	ø10 (610)	ø10 (610)	ø10 (610)	**GMA-C:**
	25 l (25V) [6)]	with stirrer blade (K1) [7)]			Pump element **8** with pipe connection					
		For grease: Intermittent min. monitoring for all reservoirs (C1) (C2) [1)]			ø6 (86)	ø6 (86)	ø6 (86)	ø6 (86)	ø6 (86)	1 min^{-1} (1)
					ø8 (88)	ø8 (88)	ø8 (88)	ø8 (88)	ø8 (88)	
Three-phase current 400 V / 50 Hz or special voltage **GMA-C02**	Polyester 5 l (5)	**For grease:** [8)] Min./pre-warning/ max. monitoring at reservoir 5 10 30	with (K)	Nipple for snap (counterpart see accessories) (D)	ø10 (810)	ø10 (810)	ø10 (810)	ø10 (810)	ø10 (810)	4,5 min^{-1} (4,5)
	10 l (10)				without pump element, place of installation closed					25 min^{-1} (25)
	30 l (30) [6)]	with (K)			(0)	(0)	(0)	(0)	(0)	
		without (0)		Cone lubrication nipple [4)] (F)						25 min^{-1} HAN 6E (25E)
	Adapter KX (KX) [6)]	Min. (1)	without (0)		without pump element, place of installation not closed (open treaded bore)					
		Min. + pre-warning (2)			(L)	(L)	(L)	(L)	(L)	
		without (0)								

[1)] Level monitoring "C2" only possible with GMA-C

[2)] Speed of GMA-B motor see technical data

[3)] Pump element with larger delivery volume on request:
0,22 cm³/stroke
Order no. **110.990-65**

[4)] Not suitable for oil

[5)] When attaching pump elements at the locations 2 and 4, never mount another pump element at location 3, then.

[6)] Reservoir versions only for GMA-C

[7)] not possible with reservoir version "2"

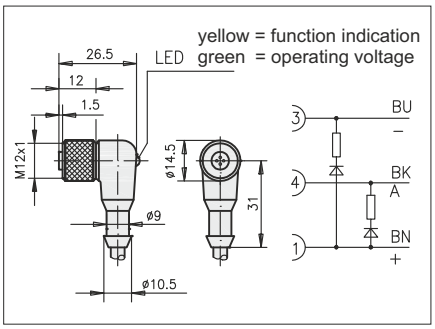
[8)] Also available in stainless steel on request
see data sheet P0520

Order example:
Pump unit GMA-C02 with reservoir size 2 l and level monitoring for oil, filling connection "D", pump element 8 with pipe connection ø8 at position 1 and pump element 6 with pipe connection ø8 at position 5, motor speed 4,5.

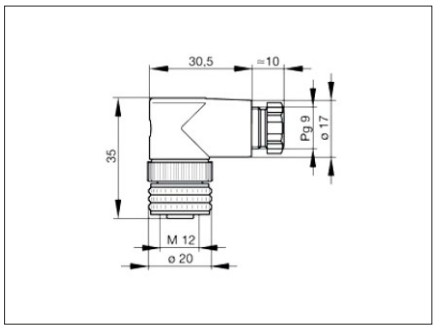
Order designation:
GMA-C02 / 00 / 2 / K / 0 / D / 88 / 0 / 0 / 0 / 68 / 4,5

Accessories: (please order separately)

Connecting cable
for level monitoring "C2"
with LED, with cable 5 m / 90°
Order no. **913.404-19**



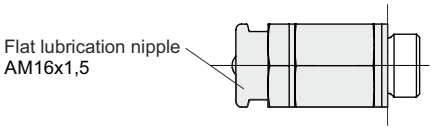
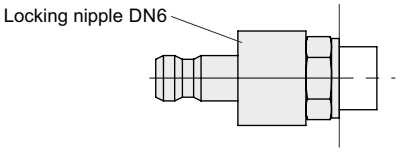
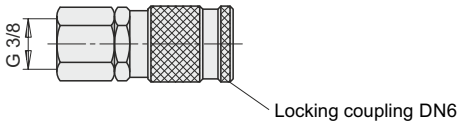
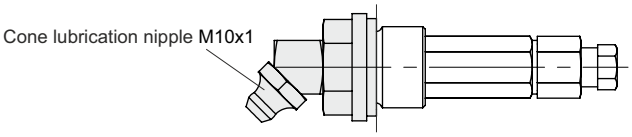
Cable socket
for level monitoring "C2" and "K"
without LED, unmounted / 90° / 5-pin
Order no. **913.404-67**



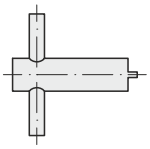
Cable cross section:	3x0,34 mm²
Operating voltage:	10 ... 30 VDC
Protection class:	DIN EN 60529 IP68
Ambient temperature:	-40 ... +90 °C

Connection type:	Screws
Connection cross section:	0,75 mm²
Cable diameter:	max. 6 ... 8 mm
Cable gland:	Pg9
Protection class:	DIN EN 60529 IP67
Ambient temperature:	-25 ... +90 °C

Filling connection reservoir:

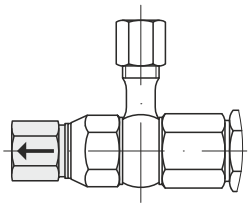
Order no.	Depiction	Mounting place
"C" **112.254-65K**		Under the pump housing.
"D" **112.255-65K**		Under the pump housing.
Counterpart for "D" **110.135-65K**		The locking coupling establishes a connection between the locking nipple and the hose.
"F" **112.030-65K**		Under the pump housing.

Adjustment spanner:

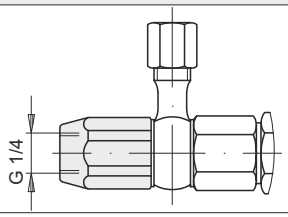
Order no.	Depiction	Use
110.004-65		After removing the screw plug on the pump element, the delivery volume of the pump element can be adjusted with the adjustment spanner (included in delivery = 1 piece per pump)

- Subject to modifications -

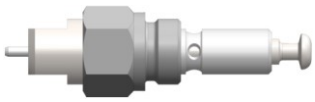
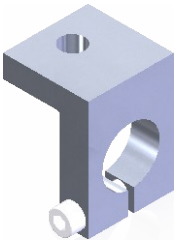
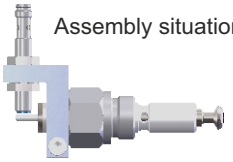
Pressure control valve:

Order no.	Opening pressure	Depiction	Mounting place	Use
110.566-64	70 bar		After removing the screw plug on the pump element the pressure control valve can be screwed in.	To limit max. operating pressure. The opening pressure is fixed and cannot be changed subsequently.
110.569-64	80 bar			
110.565-64	100 bar			
110.564-64	150 bar			
110.563-64	250 bar			
110.568-65	set according to customer specification: from 50 ... 160 bar			
110.562-65	from 160 ... 450 bar			

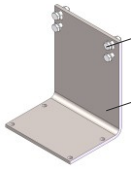
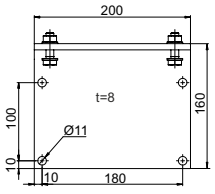
Manometer connector:

Order no.	Depiction	Mounting place	Use
110.068-65K		After removal of the locking cap at the pump element, the manometer connector can be screwed in.	To connect a manometer with G 1/4" male thread.

Function indication:

Order no.	Depiction	Mounting place	Use
752.528-69		Instead of a pump element	Optical function control Function see data sheet P0809
Bracket for proximity switch **752.528-73** M8x1 **752.528-74** M12x1	 Assembly situation 	To the function indication	Electrical operating control

Mounting bracket for floor mounting:

Order no.	Depiction	Mounting place
112.757-64	 Mounting parts M10 for pump Mounting bracket 250x160x200 	On the pump housing and at the mounting holes for wall mounting

Technical documents also valid for this product:

B0301 EN Operating instruction GMA-B, -C
E0301 EN Spare parts GMA-B, -C

Important information about this data sheet

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