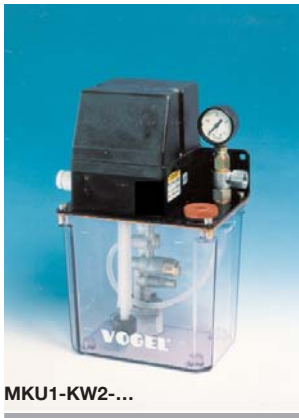


Compact Units for Oil

1-1203-US

Group MKU – 0.1, 0.2 or 0.5 l/min



These **MKU** compact units were developed to supply intermittently operated single-line central lubrication systems with lubricant. The basic model contains a gear pump with drive motor as well as the set of valves required for pressure relief and limitation (safety valve). The lubricant reservoir material is metal or plastic.

The units are controlled depending on their design

- by hand (unit with a pushbutton DK),
- by an external control system,
- by a built-in electronic control and monitoring unit timer or counter with adjustable interval and monitoring time,
- by a built-in electronic control unit with adjustable interval time and fixed pump running time.

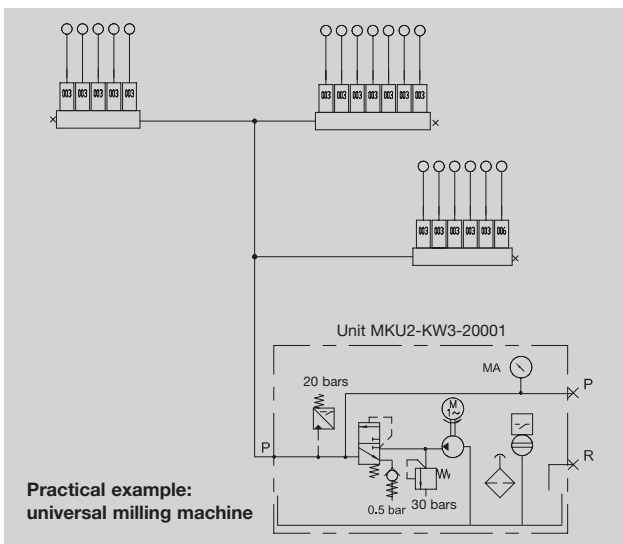
The control and monitoring unit is either a **timer for time-dependent control** or a **counter for load-dependent control**.

Special features:

- preliminary lubrication (lubrication after the supply voltage is turned on)
- pump delay time
- pressure dependent cut-off
- monitoring of pressure build-up
- monitoring of pump running time

Possible monitoring elements:

- **Pressure switch (DS)**
monitors the automatic pressure build-up.
- **Level indicator (WS)**
- **Pressure gauge (MA)**
displays the pressure response in the main line.
- **Monitoring contact (d2)**
turns off machine if pressure fails to build up.
- **Indicator light, green (SL1)**
shows that pump is running
- **Indicator light, red (SL2)**
indicates a fault if pressure fails to build up or if there is a low level of lubricant in the reservoir (only with built-in level indicator).



Order No.	Delivery rate [l/min]	Reservoir capacity [l]	Reservoir material *)	manual/external	Control			Components				Hydraulic layout	Wiring diagram	Drawing
					IG12	IG38-30	IZ38-30	DK	DS	WS	MA			
MKU1-K2-10000	0.1	1.8	K	external								1	1	1
MKU1-K2-10003	0.1	1.8	K	external							●	1	1	1
MKU1-KW2-10000	0.1	1.8	K	external						●		1	1	1
MKU1-KW2-10001	0.1	1.8	K	external					●	●		1	1	1
MKU1-KW2-10003	0.1	1.8	K	external						●	●	1	1	1
MKU1-KW2-10004	0.1	1.8	K	external					●	●	●	1	1	1
MKU2-K3-20000	0.2	3	K	●				●	●			2	2	2
MKU2-K3-22005	0.2	3	K			●		●	●			2	3	3
MKU5-K3-22005	0.5	3	K			●		●	●		●	2	3	3
MKU2-KW3-20001	0.2	3	K	●				●	●	●		2	2	2
MKU2-KW3-20003	0.2	3	K	●				●	●	●	●	2	2	2
MKU2-KW3-20004	0.2	3	K	●				●		●	●	2	2	2
MKU2-KW3-20005	0.2	3	K	●				●		●		2	2	2
MKU2-KW3-21003	0.2	3	K		●			●	●	●	●	2	4	3
MKU2-KW3-21005	0.2	3	K		●			●		●		2	4	3
MKU2-KW3-22001	0.2	3	K			●		●	●	●		2	3	3
MKU2-KW3-22003	0.2	3	K			●		●	●	●	●	2	3	3
MKU2-KW3-22011	0.2	3	K				●	●	●	●		2	3	3
MKU2-KW3-22013	0.2	3	K				●	●	●	●	●	2	3	3
MKU5-KW3-20001	0.5	3	K	●				●	●	●		2	2	2
MKU5-KW3-20003	0.5	3	K	●				●	●	●	●	2	2	2
MKU5-KW3-22003	0.5	3	K			●		●	●	●	●	2	3	3
MKU2-KW6-20001	0.2	6	K	●				●	●	●		2	2	4
MKU2-KW6-20003	0.2	6	K	●				●	●	●	●	2	2	4
MKU2-KW6-22003	0.2	6	K			●		●	●	●	●	2	3	5
MKU5-K6-22005	0.5	6	K			●		●	●			2	3	5
MKU5-KW6-20001	0.5	6	K	●				●	●	●		2	2	4
MKU5-KW6-22001	0.5	6	K			●		●	●	●		2	3	5
MKU5-KW6-22003	0.5	6	K			●		●	●	●	●	2	3	5
MKU2-BW3-20001	0.2	3	B	●				●	●	●		2	2	6
MKU2-BW3-20003	0.2	3	B	●				●	●	●	●	2	2	6
MKU2-BW3-20005	0.2	3	B	●				●		●		2	2	6
MKU2-BW3-21003	0.2	3	B		●			●	●	●	●	2	4	7
MKU2-BW3-22001	0.2	3	B			●		●	●	●		2	3	7
MKU2-BW3-22003	0.2	3	B			●		●	●	●	●	2	3	7
MKU2-BW3-22011	0.2	3	B				●	●	●	●		2	3	7
MKU2-BW3-22013	0.2	3	B				●	●	●	●	●	2	3	7
MKU5-BW3-21003	0.5	3	B		●			●	●	●	●	2	4	7

*) Reservoir material: **K = plastic**, **B = metal**

● = components contained in the unit. **DK** = pushbutton / **DS** = pressure switch / **WS** = level indicator / **MA** = pressure gauge

Notice!

All products from Willy Vogel AG may be used only for their intended purpose and in accordance with the information contained in the operating instructions belonging to the respective equipment.

In particular, we call your attention to the fact that hazardous materials of any kind, especially the materials classified as hazardous by

EC Directive 67/548/EEC, Article 2, Par. 2, may only be filled into VOGEL central lubrication systems and components and delivered and/or distributed with the same after consultation with and written approval from Willy Vogel AG.

See operating instruction 951-130-172.

Technical data

Gear pump unit

Flow rate at 50 Hz 0.1; 0.2 or 0.5 l/min
 at 60 Hz 0.12; 0.24 or 0.6 l/min
 in relation to a service viscosity of 140 mm²/s,
 at a back pressure of p = 5 bars
 Operating pressure 30 ±½ bars
 corresponds to actual value of built-in safety valve
 Operating temperature. +10 to +40 °C
 Medium oil on a petroleum or
 synthetic basis
 compatible with plastics, NBR elastomers,
 copper, copper alloys
 Service viscosity
 MKU1 units: 20 - 750 mm²/s
 MKU2, MKU5 units: 20 - 1500 mm²/s
 Reservoir capacity nominal 1.8, 3 or 6 l
 Reservoir material plastic or metal
 Type of enclosure. IP 54
 Frequency/voltage 50/60 Hz, 115 V AC or
 50/60 Hz, 230 V AC
 please indicate when ordering

Motor with built-in thermostatic switch

Mode of operation S3, 20% (1.25 to 25 min)
 duty cycle 1)
 Power consumption approx. 50 Hz: 115 W; 60 Hz: 140 W
 Speed 50 Hz: 2700 rpm;
 60 Hz: 3300 rpm

Level indicator

Function. opens in event of
 low lubricant
 Max. switching voltage 42 V AC
 Max. switching current 0.7 A
 (ohmic load)
 Max. contact rating 50 VA ²⁾

Pressure switch

Type of contacts closes when pressure builds up
 Max. switching voltage 42 V AC
 Max. switching current 2.5 A
 (ohmic load)
 Max. contact rating 30 VA ²⁾
 Switching pressure 20 bars

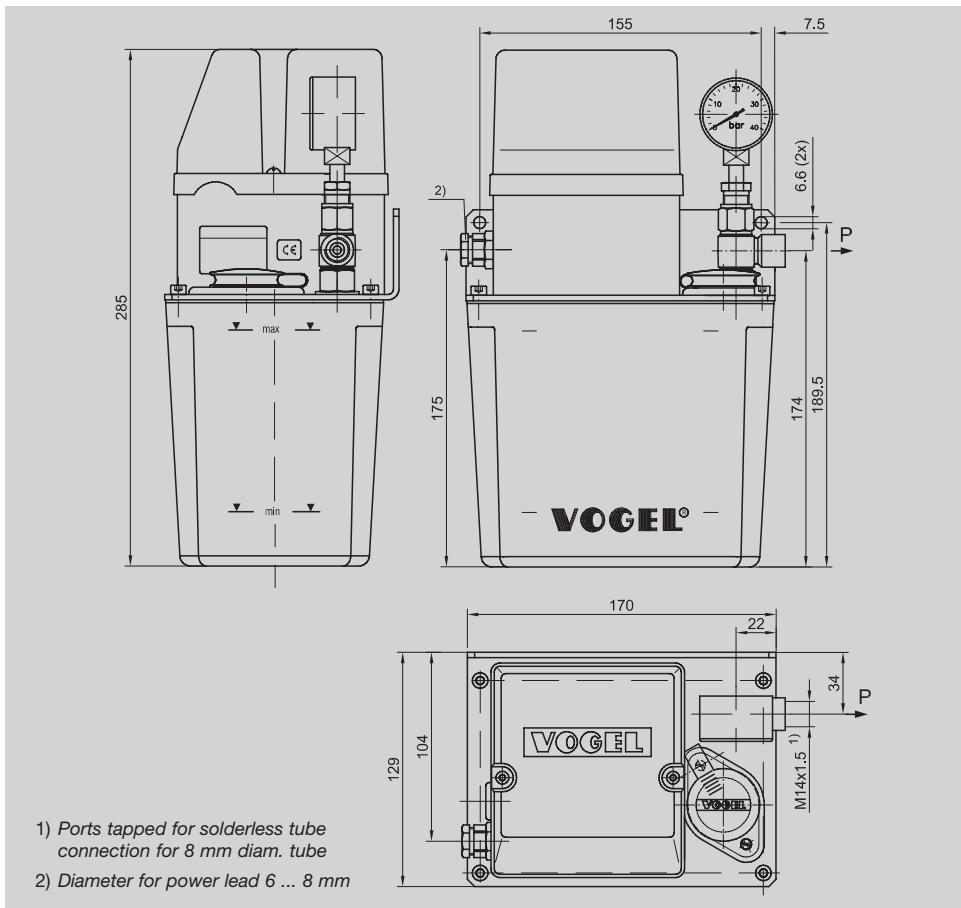
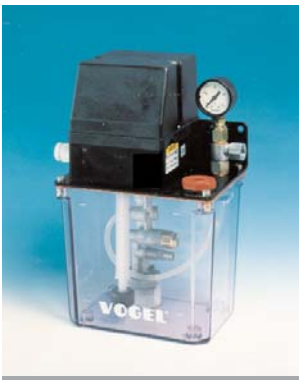
1) The 20% duty cycle is the ratio of the pump running time to the subsequent idle time

Example:

1 minute of pump running time requires at least 5 minutes of idle time.
 The maximum permissible pump running time amounts to 3 minutes.
 That results in a necessary idle time of 15 minutes.

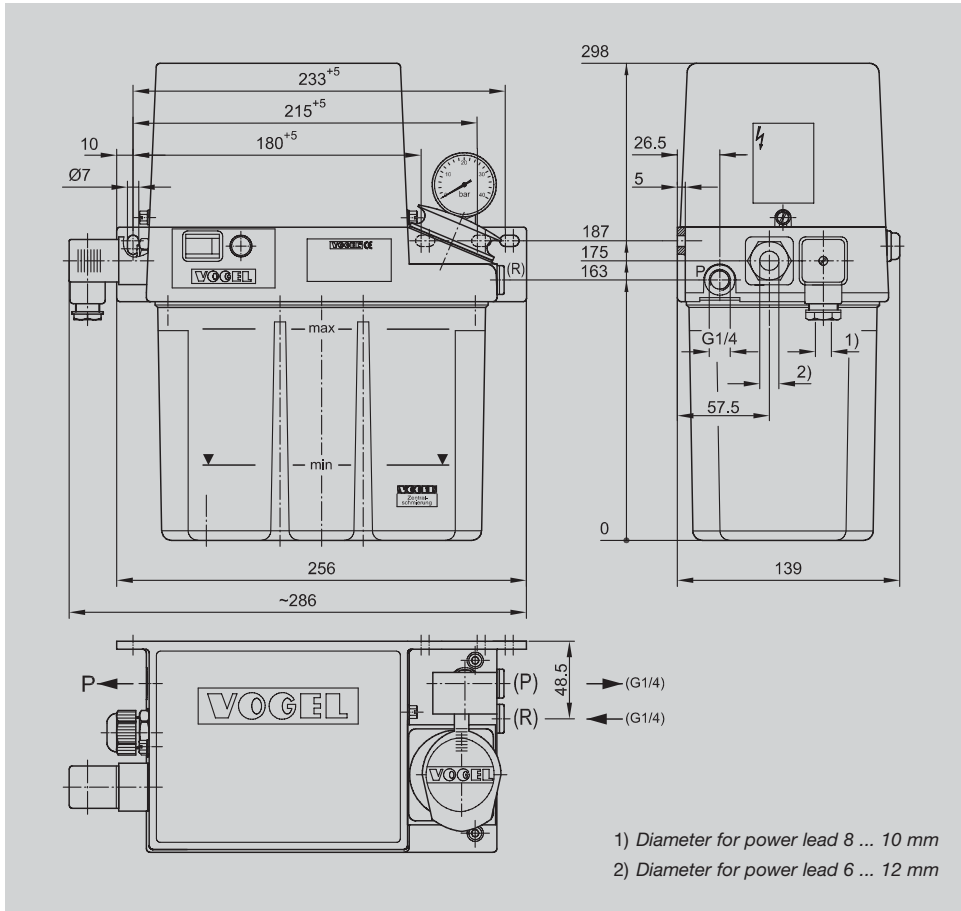
2) Take appropriate measures to protect contacts when switching inductive loads.

MKU1-K(W)2-10...



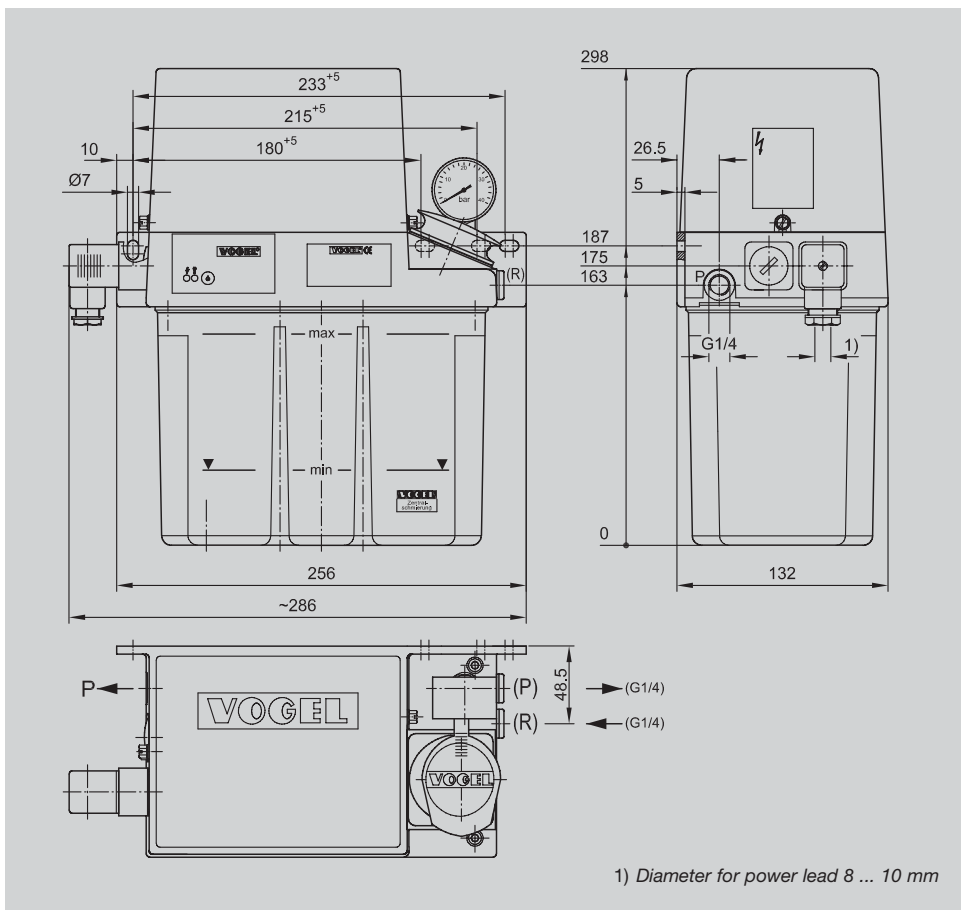
Drawing 1

MKU2-K(W)3-20...



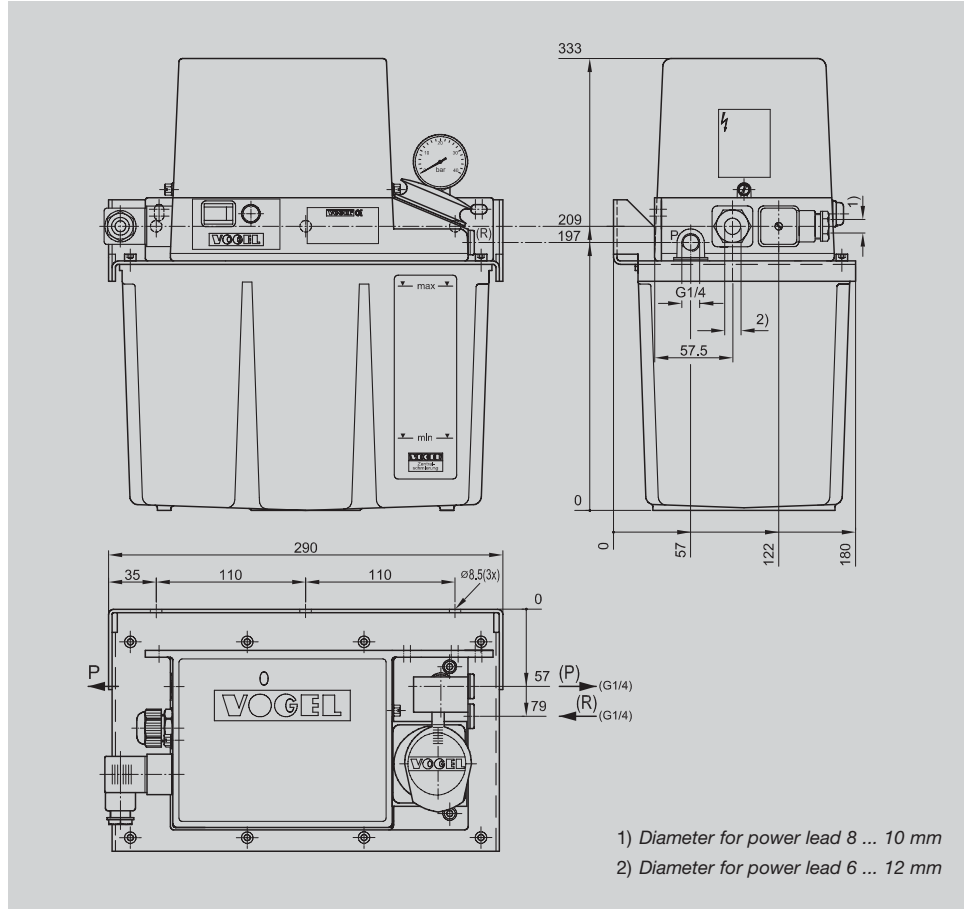
Drawing 2

MKU2-K(W)3-22...



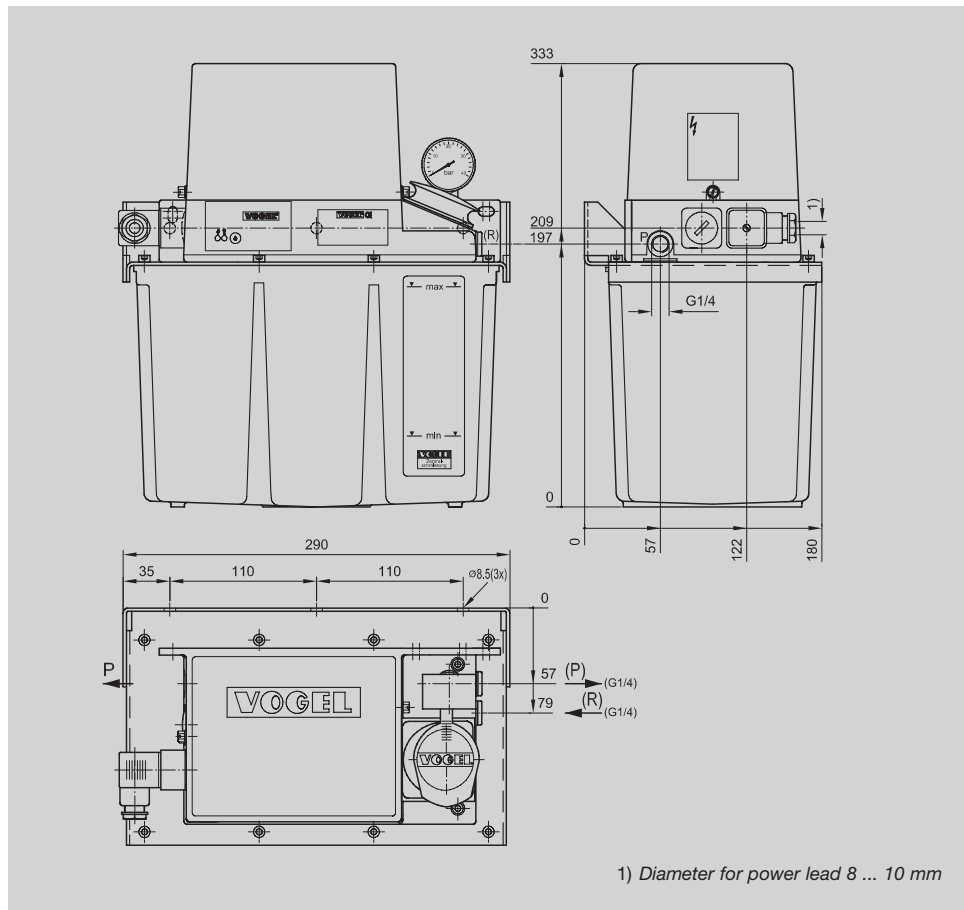
Drawing 3

MKU2-KW6-20...



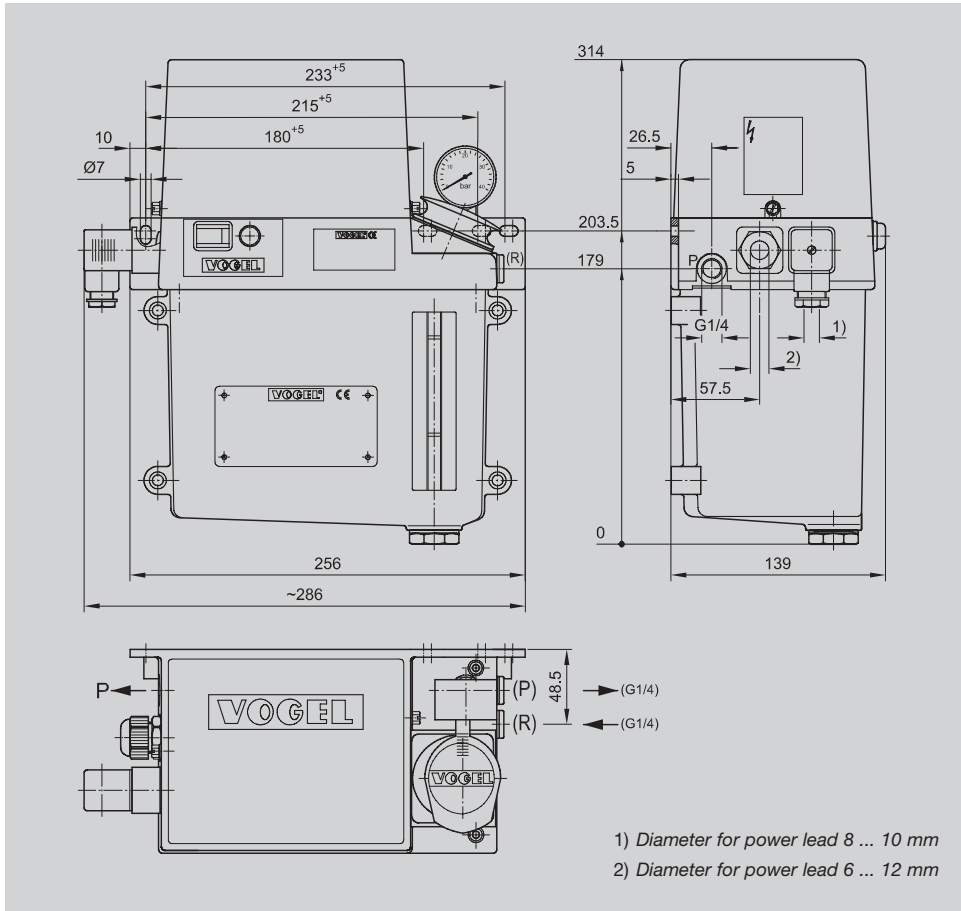
Drawing 4

MKU2-KW6-22...



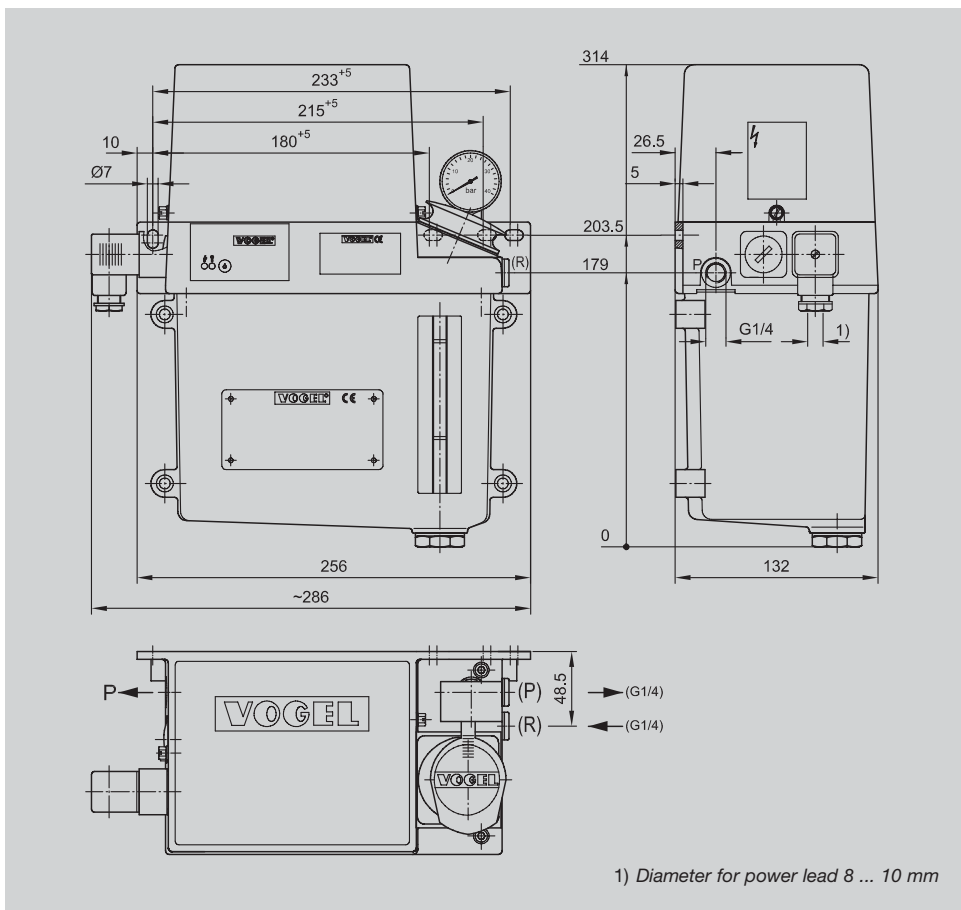
Drawing 5

MKU2-BW3-20...



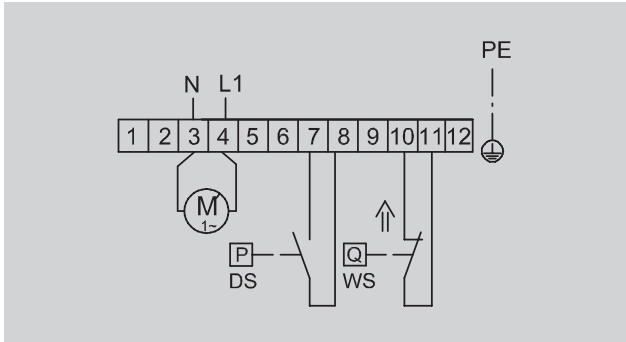
Drawing 6

MKU2-BW3-22...



Drawing 7

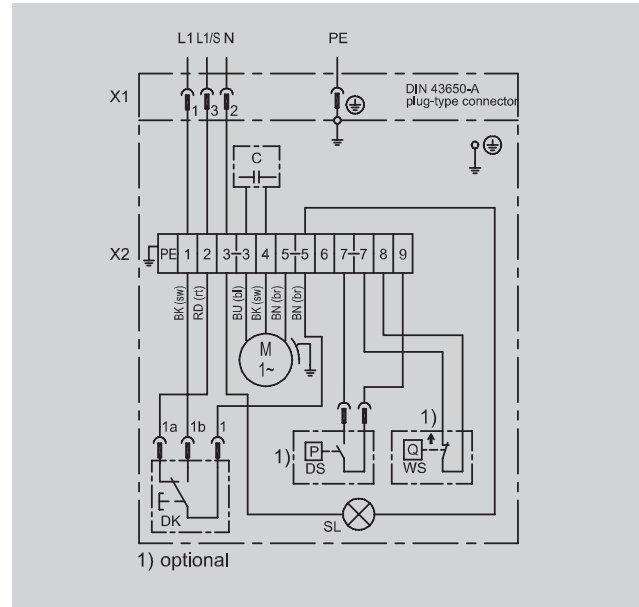
Wiring diagram 1



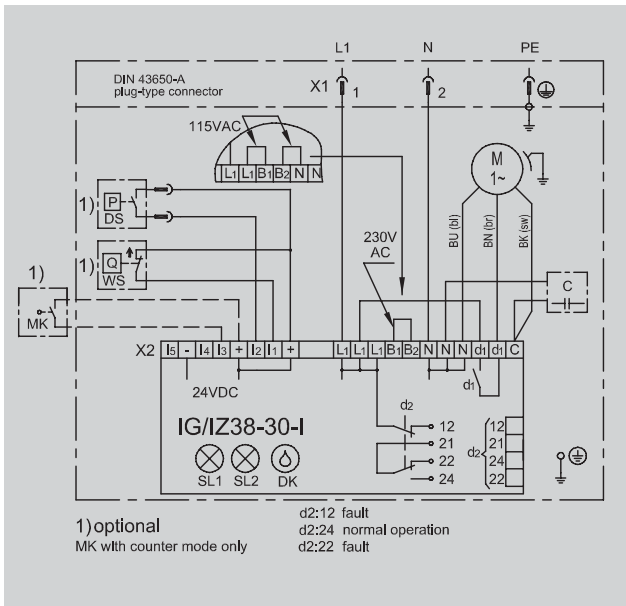
Legend (wiring diagrams 1-4)

- L1/N** terminal for operating voltage
- DK** pushbutton for intermediate lubrication
- DS** pressure switch
- WS** level indicator, contact illustration: full reservoir
- M** pump motor
- C** capacitor
- SL1** indicator light (green) for "PUMP ON"
- SL2** indicator light (red) for "FAULT"

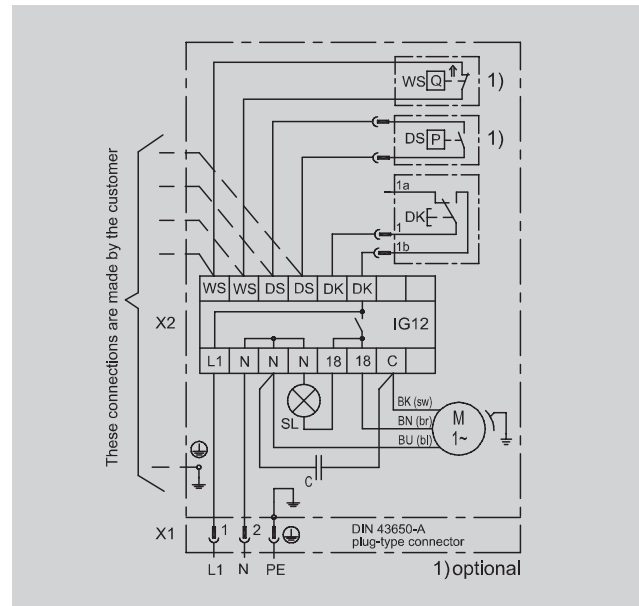
Wiring diagram 2



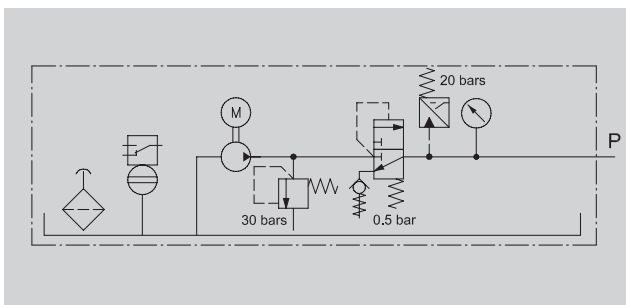
Wiring diagram 3



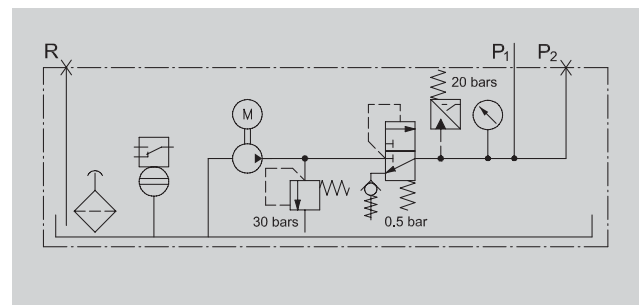
Wiring diagram 4



Hydraulic layout 1



Hydraulic layout 2



Dimensions in mm

The compact units with 3- or 6-liter reservoirs may be equipped with an electronic control unit for intermittently operated single-line central lubrication systems. Optionally with

- **IG38-30-I for time-dependent control**
- **IZ38-30-I for load-dependent control**
- **IG12 for time-dependent control** (without monitoring functions)

The units conform to the following directives: Electromagnetic compatibility 89/336/EWG; 91/31/EWG
 Low voltage directive 73/23/EWG; 93/68/EWG

IG38-30-I control and monitoring unit with pre-lubrication, time-dependent or IZ38-30-I, load-dependent

Functions

- **IG38-30-I: timer** mode (time-dependent)
- **IZ38-30-I: counter** mode (load-dependent)
- Preliminary lubrication (lubrication after the supply voltage is switched on)
- Pump delay time
- Monitoring of pressure build-up
- Monitoring of pump runtime limitation
- Monitoring of lubricant level with wire-break detection (level indicator opens if lubricant level is critical)

Technical data

Interval duration preselectable in 12 stages:
 IG38-30-I (min) { 1; 2; 4; 8; 16; 32; 64; 128;
 IZ38-30-I (pulses) { 256; 512; 1024; 2048
 Pump delay time, nonadjustable 15 s
 Pump runtime limitation, nonadjustable 60 s
 Rated voltage 115 or 230 V AC
 Rated frequency 50/60 Hz
 Design board-mounted

IG12 control unit without pre-lubrication, time-dependent, without monitoring functions

Functions

- Timer with adjustable interval time and constant lubrication time
- Operation always begins with an interval when the supply voltage is switched on
- Intermediate lubrication via pushbutton DK is possible at any time during an interval

Technical data

Rated voltage 115 or 230 V AC
 Rated frequency 50/60 Hz
 Interval time (min)
 preselectable in 10 stages: 1.5; 3; 6; 12; 24; 48; 96; 192; 384; 768
 As-delivered setting interval time set for 1.5 min
 Contact time, fixed 20 s
 Design plastic housing
 Terminal bloc for level indicator (WS) and pressure switch (DS)

Leaflet information

1-0016-US Compact units for grease
 1-1700-1-US Control units



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