Pressure control Unit (Gas-Air)
Model MGC400-400 + DG-300

User's – manual

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Chapter I

Scope of application and functional principle of the system

I - 1 Scope of application

The pressure control unit model MGC400 is designed for application with pressure medium „ gas “
The pressure control unit can be ordered for pressure ranges up to max.1000 bar.
The pressure control unit is tested at higher pressure than delivered pressure range.

I - 2 Functional principle

The unit is equipped with a gas/pressure inlet valve, a variable volume (displacement pump) and a gas/pressure outlet valve. The pressure control unit allows a continuous adjustment of the pressure up to a maximum nominal pressure.

The MGC400 needs pressure source, and if needed a vacuum pump for negative pressures.

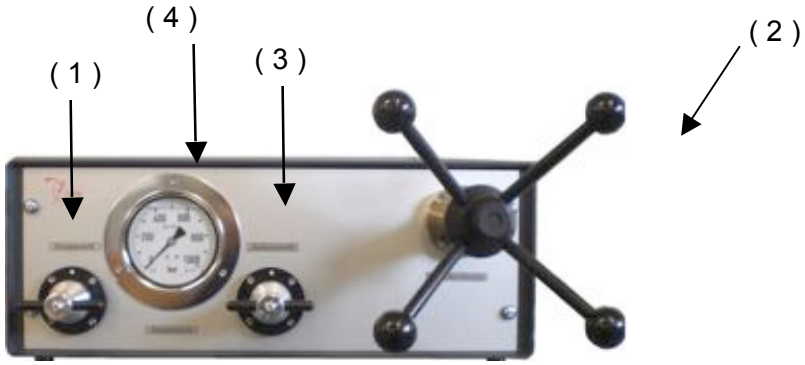
Chapter II

Description of the Control Unit

II - 1 Equipment

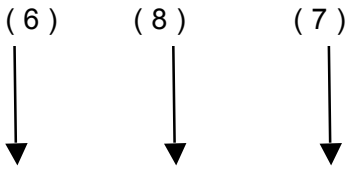
Model MGC400 is delivered as one unit. All components are incorporated in a 19“-rack.

II - 2 Localization of components



Front panel:

(1) Gas inlet valve
(2) Variable volume (displacement pump)
(3) Gas outlet valve
(4) pressure gauge for operating pressure



Rear panel:

(6) Gas supply port 1/4“ BSP Internal thread
(7) Gas outlet port 1/4“ BSP Internal thread
(8) Pressure port 1/4“ BSP Internal thread

Inside case:

Connecting tubes and adapters

The shut-off valve (inlet and/or outlet)

Function

Separates two parts of the pressure measurement circuit.

Description

The shut-off valve is operated with a handwheel which shows two characters (A = open and Z = closed). The valve is opened if the display shows „A“, it is closed, if the display shows „Z“. Inside the valve a spring is pressing the precision sealing towards the valve which is now closed.

You need more power to open the valve as the internal spring must be compressed
The valve opening is progressive. The precision sealing does not move. The hand handle can only be rotated half. The valve is opened by turning the handle from left to right.

The variable volume (displacement pump)

Function

Allows fine control within the pressure circuit (from negative to max. pressure).

Description

Variable volume consists of a cylinder with a mobile piston inside The position of the piston is changed by a four-armed capstan which is on the front panel of the device. It allows a precision adjustment of the required pressure. One turn of the capstan causes a volume change of 0.35 cm³. The total stroke of the displacement pump causes a volume change of total 15 cm³.

Chapter III

Installation and Commissioning

III-1 Condition upon delivery

The pressure control unit is delivered in the following condition:

- Both valves are closed.
- The variable volume is tightly screwed up to the internal stop.

III-2 Installation

Modell MGC400 should be placed on a flat firm ground
(Weight of pressure regulator unit: abt.13 kg)

III-3 Commissioning

The following instructions must be observed upon each commissioning:

1. Close both valves.
2. Connect plug-in of gas source with the gas inlet port.
3. Connect plug-in to calibration circuit (port 8).
4. Variable volume must be unscrewed half way.
5. Open slowly inlet valve up to desired pressure (little lower).
6. Apply the variable volume for fine adjustment.
7. Repeat instruction under item 4 and 5 to adjust any pressure point desired.
8. In case of declining pressure points, open the outlet valve until the desired pressure is achieved. For fine adjustment please operate variable volume.

Chapter IV

DG Operating Instruction

DG has two operating keys. The left key (SELECT) serves to select the functions and the pressure units. The right key (ENTER) activates the selected function or pressure unit. The right key is also used to switch between the Min and Max pressure value.

Pressing the SELECT key turns the DGS on. The instrument first displays the full-scale pressure range (top display) and the software version(year/week). The DG is then ready for use and indicates the actual pressure (top display) and the last measured Max pressure value (bottom display)

The DG has the following functions:

RESET
Min./Max. values are set to the actual pressure
OFF
Turns the DG off
MANO
Releases the following function:

ZERO SET
Sets a new zero reference pressure
ZERO RES
Sets the zero reference pressure to the factory setting
CONT on/off
Deactivates/Activates the automatic turn-off function (the DS turns off 15 min after the last operation).

Available engineering units:
bar, mbar, hPA, kPa, MPa, PSI, kp/cm^3

General Safety Instruction:
When installing and operating the DG, attention should be paid to the corresponding safety regulations.
On DG with pressure range ≥ 61 bar, the pressure connections could show residual hydraulic oil, determined by production flow.

Battery Change / Battery Life
When the battery starts weakening a low battery warning (BAT LOW) will appear on the display.
Please turn off the DG before changing the battery. Open the instrument by turning the display ring beyond the limit stop. Change the weak battery whit a new one (CR2430) end close the DG. When reassembling make sure that the O-ring remains imbedded in the cover.

Installation
Only minimal tightness is needed to seal up to 700 bar. Process pressure connection G ¼" male. The swivel adapter can be tightened with max 50 Nm.