GLÖTZL Baumeßtechnik

ELECTRONIC PRESSURE CONTROL DEVICE

applicable for high-salinary liquids

Type: EDRA
Art. No.: 201.00

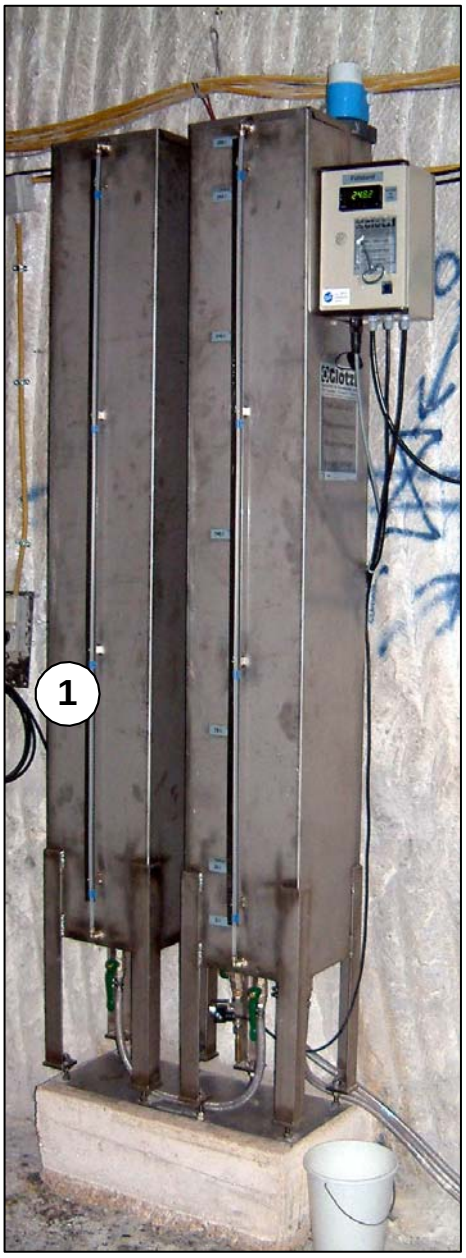
Function:

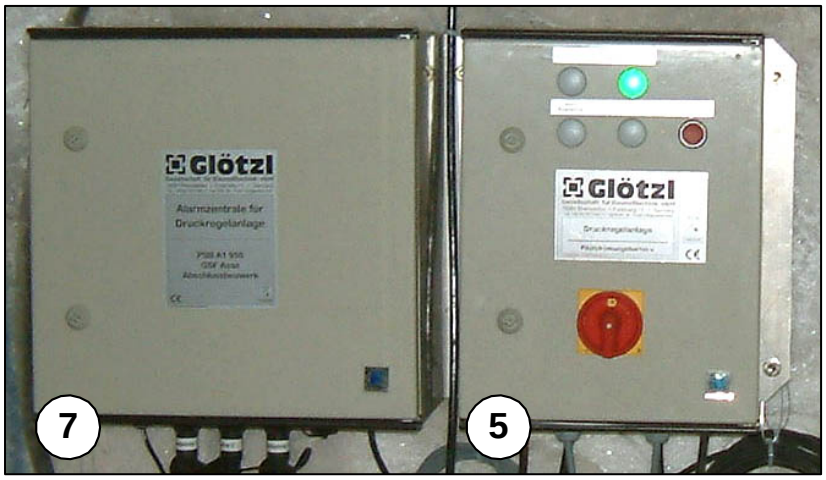
With the electronic pressure control device, solid materials (e.g. rock- or concrete bodies) and cavities (e.g. pressure chambers or borings) are submitted to a hydrostatic pressure. By this, a liquid is pressed from the storage vessel into the corresponding test length by pumps.

The pumping cycles are running automatically, dependent on the required control parameters nominal value, control limit, pressure increasing rate, and time interval. At the same time, the filling levels are recorded at storage vessel (inflow), and collecting vessel (outflow).

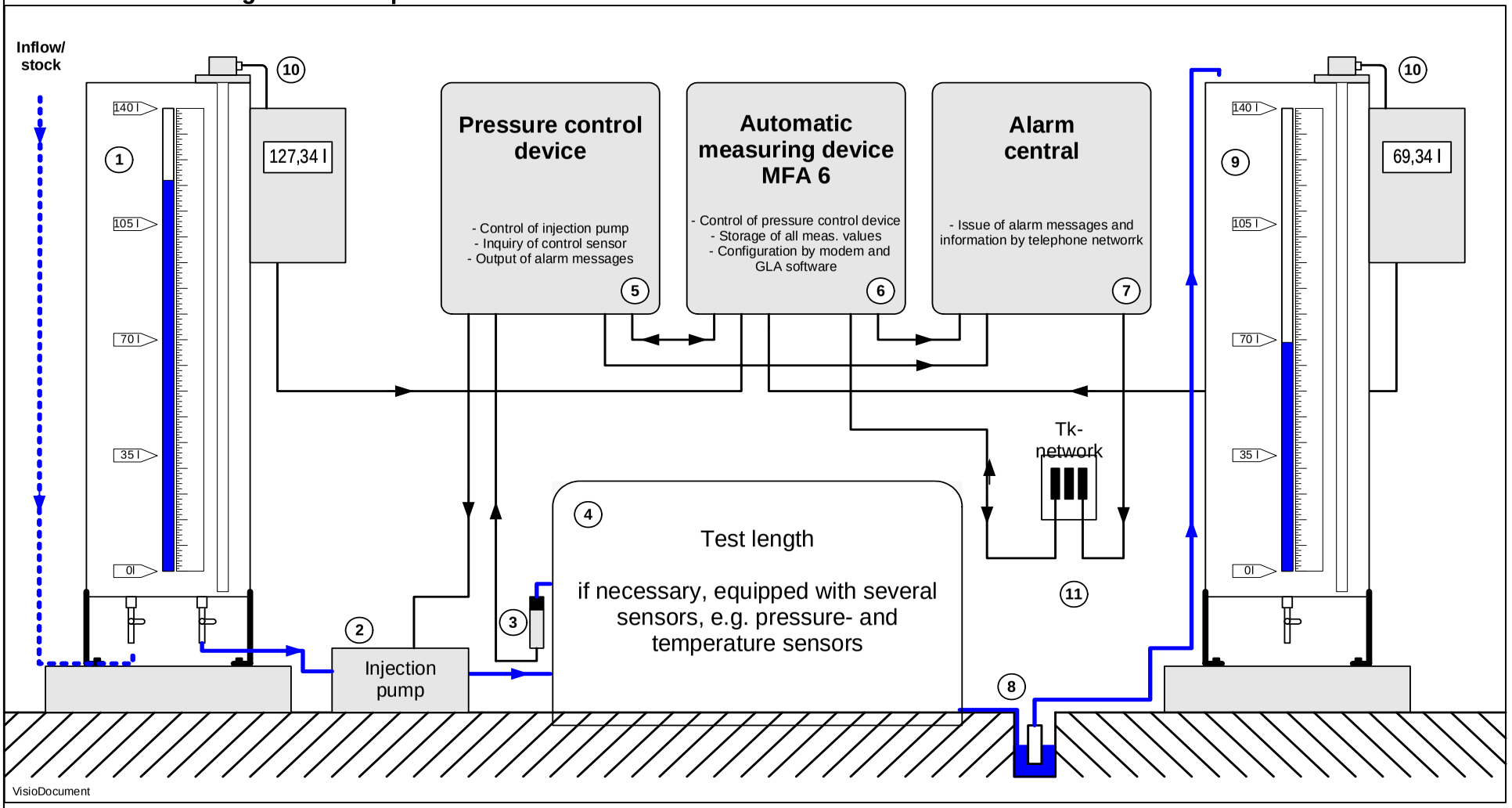
By the collected measuring data of pressed in volume at inflow and flown out quantity at outflow , conclusions can be drawn about the permeability of the test length in reference to the adjusted pressure.

The single components of the control device at inflow:





Schematic assemblage electronic pressure control device

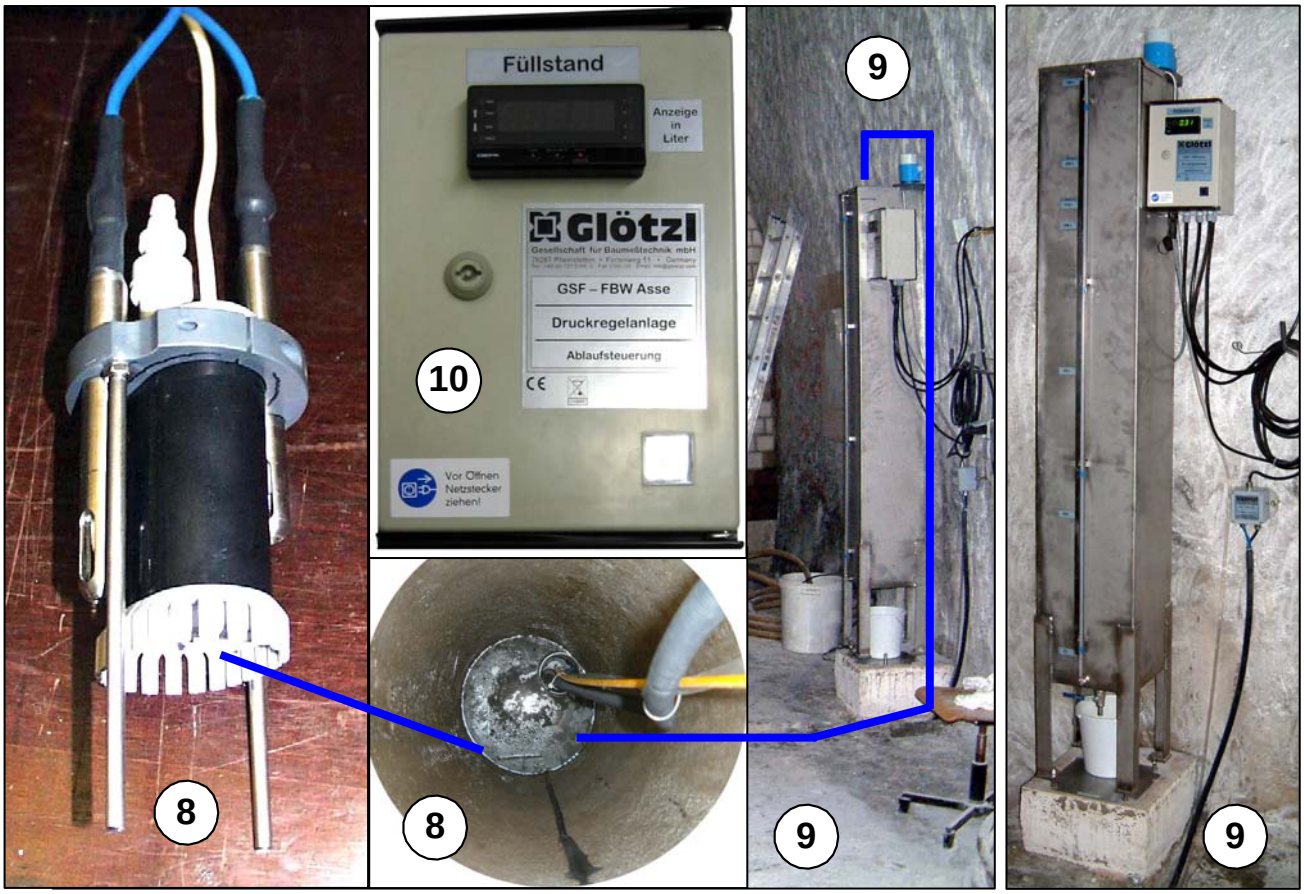


(1) = Filling level vessel at inflow (2) = Injection pump (3) = Press. sensor (real value cell) (4) = Test length (5) = Press. control device

(6) = Automatic measuring device (7) = Alarm central (8) = Outflow pump (9) = Filling level vessel at outflow (10) = Filling level indicatio (11) = Tk-netw.

Developed and produced by order of the GSF-research centre /research mine Asse

The single components of the electric pressure control device:



(1) Filling level vessel of stainless steel at the inflow of test length: The vessels have a volume of 140 l injection liquid each. If required, several vessels can parallely be connected to enlarge the volume. If the liquid level is dropping below a freely adjustable level, then the storage vessels are automatically refilled. The latest filling level is indicated directly beside the vessel and continuously recorded by the automatic measuring device (6) by capacitive filling level sensors.

(2) Injection pumps, which are pumping the liquid from the storage vessels into the test length (4): The pumps are fully automatically controlled by the pressure control device (5). If required, the injection pump can abundantly be designed.

(3) Pressure sensor (actual value cell of control) for pressure measurement in the area of test length: Measuring range up to max. 400 bars.

(4) Test length: The measured values of the sensors, being installed inside and outside of the test length, are continuously recorded by the automatic measuring device (6).

(5) Electronic pressure control device: Is controlling the pumps, dependent on the adjusted control parameters.

(6) Automatic measuring device MFA6: The measuring device is controlling the pressure control device and recording all measured values of the connected sensors.

(7) (7) Alarm central: Is output an alarm in case of disturbances or violation of the control limits by the Tk-network (language messages).

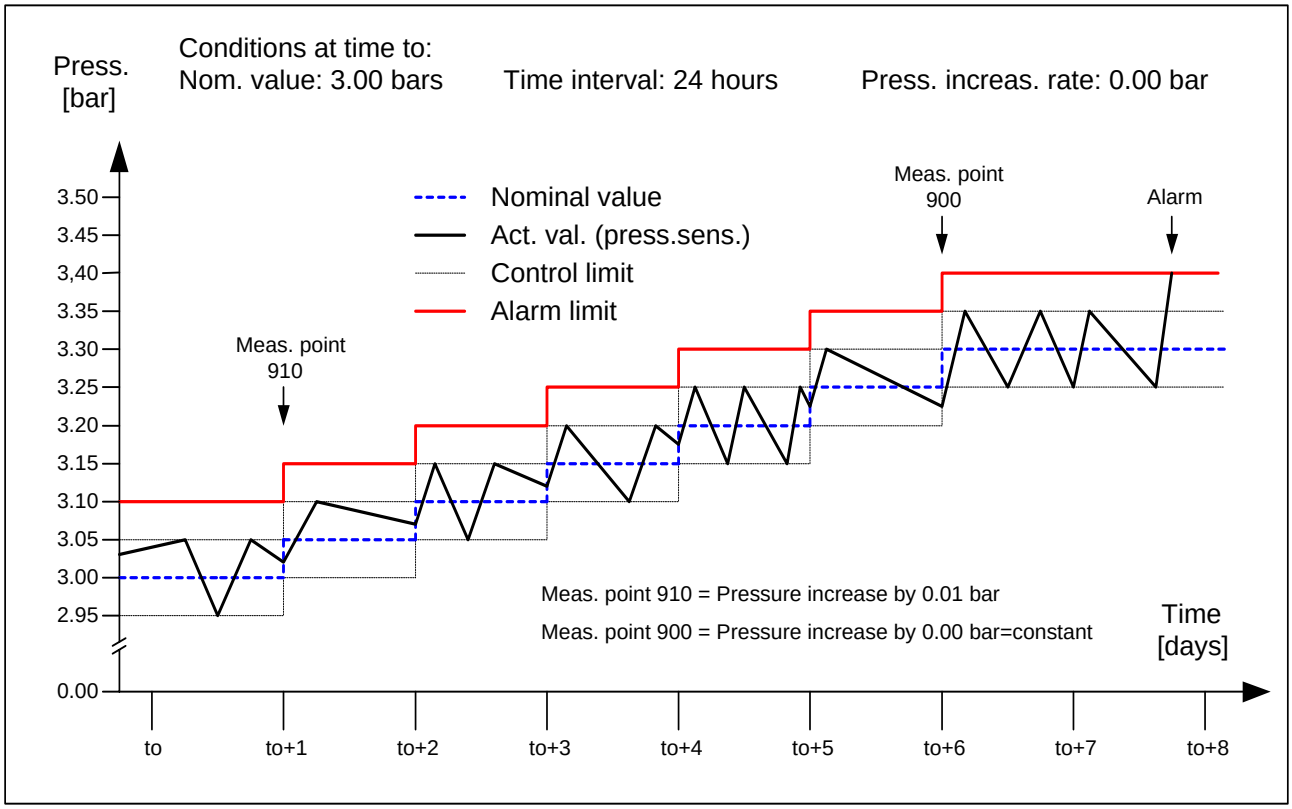
(8) Outflow pump: The liquid, flowing out at the other end of the test length, is gathered in the pump sump and continuously pumped into the outflow vessel by the outflow pump.

(9) Filling level vessel of stainless steel at outflow of test length: Acquisition of measured values is done in an analog matter to that at inflow. If the filling level vessel is nearly filled at the outflow, the user is automatically informed about this by the alarm central (7).

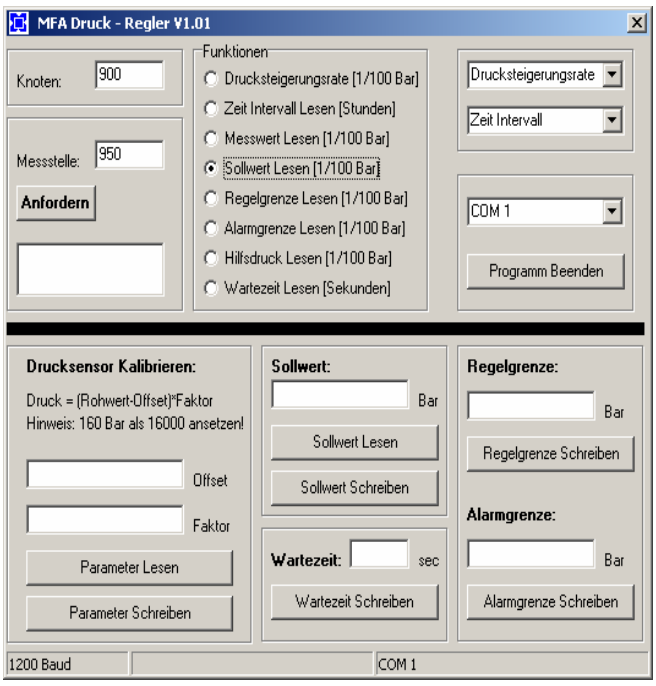
(10) Filling level indications: The filling level is directly indicated each time at the filling level vessels.

(11) Connection at the Tk-network: The automatic measuring device can completely be controlled by the Glötzl GLA program via modem operation, e.g. setting of parameters / administration of measured values a.s.o. Also the pressure control device is indirectly configurated by the automatic measuring device. Thus, also a remote maintenance of the pressure control device can be done.

Schematic example of control



The above figure shows the schematic course of a control with the pressure control device.
The nominal value (blue curve) is automatically formed by the pressure control device by the control parameters pressure increase rate and time interval. If the pressure increase rate is adjusted to 0, the control is done on a constant level.
If the lower control limit is undercut by a pressure drop in the test length, a pumping cycle is automatically started till reaching the upper control limit.



Parametering software for adjustment of control parameters of the electronic pressure control device

Technical data:

General:
- Suitable for high-salinary liquids
- Designed for pressures up to max. 400 bars
- Volume streams up to 3.0 l/min

Filling level measurement:
- Volume of filling level vessels: 140 liters
- Resolution of display 0.01 liter

Pressure control:
- Connection to customary 230-V network
- Two outputs for injection pumps
- Control variants adjustable; either constant or by increase rates for each time interval
- Automatic switching to second injection pump in case of failure of first pump
- Adjustable control- and alarm limits
- Control of nominal value (pressure) every 500 ms
- Output to alarm central

Alarm central:
Is sending language-oriented messages if the control limits are violated or in case of network failure

Price on request

Subject to technical alterations

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