

### 1. General

The chlorine gas flow is rarely controlled by hand in state-of-the-art chlorination installations according to DIN 19606. In the majority of cases, the concentration of free chlorine in the water is monitored by an electronic controller which sets the required chlorine gas quantity by means of an electrically operated valve.

The control valve C7700 has been developed for this purpose. It is a plastic valve for chlorination installations based on the vacuum principle and therefore must not be used with excess pressure.

### 2. Functional description

A servomotor with 90° bevel actuates the adjusting eccentric (1). It converts the rotary motion into the stroke movement of the valve spindle (2). Contact between the valve spindle and eccentric is ensured by a spring (3).

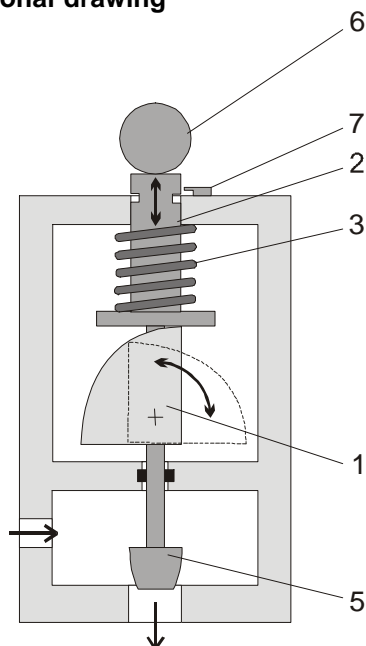
The actual control element is located at the lower end of the valve spindle. Up to 2500 g Cl<sub>2</sub>/h, the control element is designed as an air jet in the form of a helically slotted cylindrical shaft (4); for larger quantities, it takes the form of a control cone (5). Both control elements are shaped so that the cross-sectional flow area changes in proportion to the position of the servomotor. The valve has a linear characteristic.



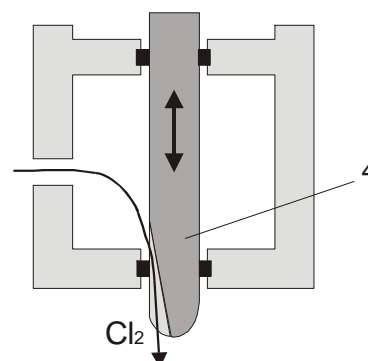
For manual chlorination, the valve spindle can be lifted completely upwards by pulling the hand knob (6) and locked in position by means of the slide (7). The chlorine gas flow is then adjusted at the needle valve of the flow meter.

The housing of the control valve consists of two chambers, the valve chamber and the eccentric chamber. The chambers are separated from one another by a seal to prevent contact between the mechanical drive and the chlorine gas.

### Functional drawing



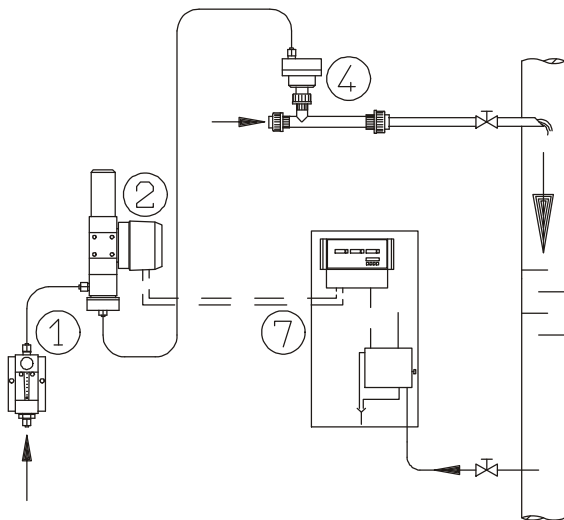
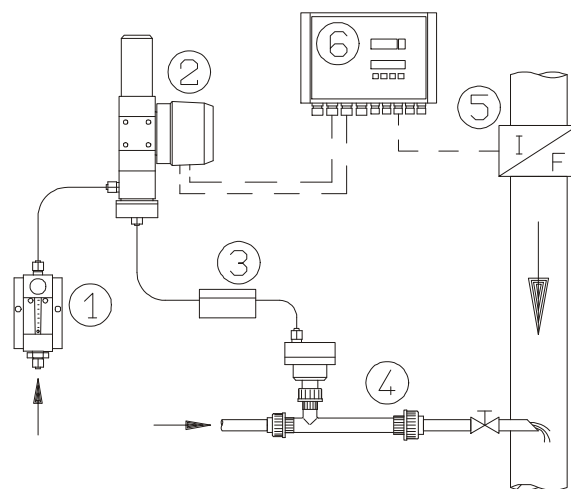
### Air jet



**Installation types**

The control valve operates on the basis of changes in the free cross-sectional flow area. The volumetric chlorine gas flow, however, also depends on a pressure gradient. This ensures that fluctuations in the intake pressure of the injector have little effect on the metered quantity.

The influence is insignificant in a closed control loop with measurement of the free chlorine, since the control valve is adjusted by the process controller. Such fluctuations in intake pressure must be excluded, however, in systems with flow-proportional metering. A back pressure regulator in accordance with DIN 19606 is required in such cases.

**Closed control loop**

**Proportional metering**


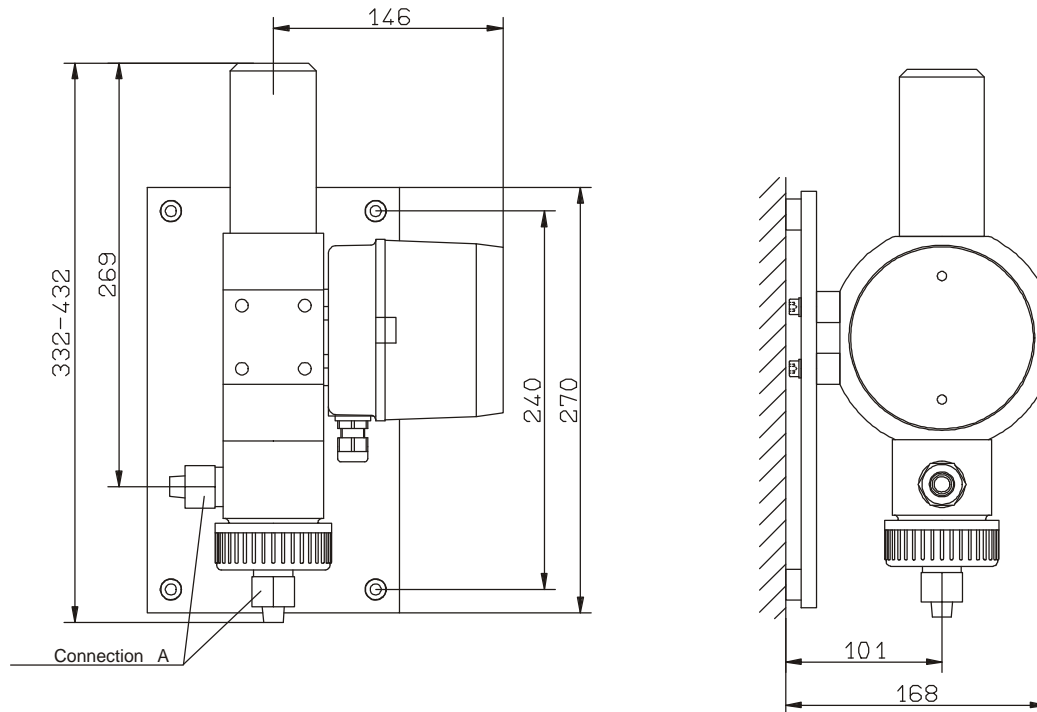
1. Quantity meter with manual adjusting valve
2. Chlorine control valve C 7700
3. Back pressure regulator
4. Injector with non-return valve
5. Flow meter
6. Ratio controller
7. Measurement and control station for free chlorine

**Technical data**

|  |                            |                            |
|--|----------------------------|----------------------------|
| Power supply<br>(depending on version) | 230 V 50/60 Hz             | 24 V 50/60 Hz              |
| Power consumption                      | Approx. 10 W               |                            |
| Type of protection                     | IP 55                      |                            |
| Control signal                         | 3-point step               | (0)4...20mA or (0)2...10 V |
| Position feedback                      | Potentiometer 0...1000 ohm | 0...10 V or 0...620mV      |
| Regulating time for 90° C              | 120 seconds                |                            |
| Torque                                 | 15 Nm                      |                            |
| Ambient temperature                    | 0...50° C                  |                            |
| Spindle stroke                         | 10 mm                      |                            |
| Weight                                 | Approx. 4 kg               |                            |

**Dimensional drawing**

C 7700 without measurement glass

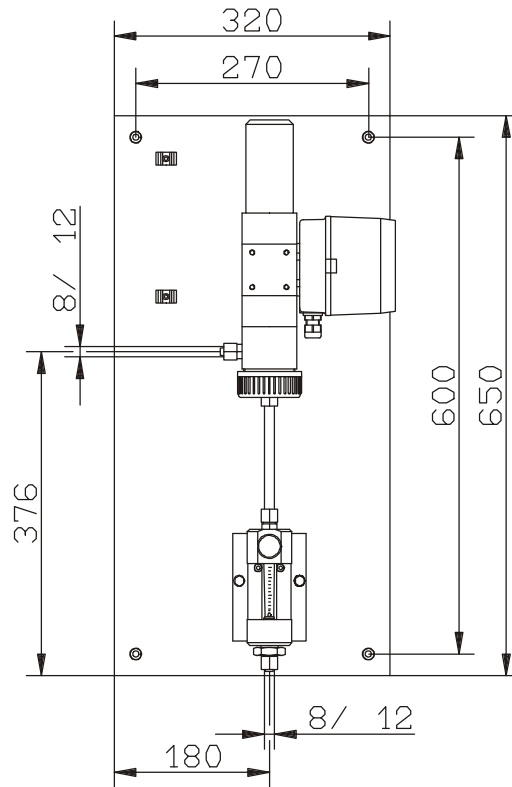

**Selection table**

| Throughput     | Part No.            |                 | Connection A<br>Connection for<br>PE tubing<br>d 8/12 |
|----------------|---------------------|-----------------|---|
|                | 230 V, 3-point step | 24 V, 4...20 mA |   |
| up to 80 g/h   | 20729281            | 20700013        | Connection A<br>Connection for<br>PE tubing<br>d 8/12 |
| up to 200 g/h  | 20729305            | 20700014        |   |
| up to 500 g/h  | 20729306            | 20700015        |   |
| up to 1000 g/h | 20729307            | 20700016        |   |
| up to 2000 g/h | 20729308            | 20700017        |   |
| up to 2500 g/h | 20729309            | 20700018        |   |
| up to 4000 g/h | 20732296            | 20700058        |   |
| up to 80 g/h   | 20700050            |                 | G 1/4 i   |
| up to 200 g/h  | 20700051            |                 |   |
| up to 500 g/h  | 20700052            |                 |   |
| up to 1000 g/h | 20700053            |                 |   |
| up to 2000 g/h | 20700054            |                 |   |
| up to 2500 g/h | 20700055            |                 |   |
| up to 4000 g/h | 20700056            |                 |   |
| up to 5 kg/h   | 20729318            | 20732319        | Connection for<br>PE tubing<br>d 12/16                |
| up to 10 kg/h  | 20729319            | 20700035        |   |
| up to 15 kg/h  | 20729320            | 20700034        |   |
| up to 25 kg/h  | 20729313            |                 | PVC gland   |
| up to 40 kg/h  | 20729314            |                 |   |
| up to 60 kg/h  | 20729315            |                 |   |
| up to 100 kg/h | 20729316            |                 |   |
| up to 200 kg/h | 20729317            |                 |   |
|                |                     |                 | DN 40 / d 50  |

Other chlorine connections on request, e.g. PVC glands

**Dimensional drawing**

C 7700 with measuring glass



**Selection table**

| Throughput     | Connection for PE tubing d8/12 |                |
|----------------|--------------------------------|----------------|
|                | 230 V, 3-point step            | 24 V, 4...20mA |
| up to 80 g/h   | 20700001                       | 20700021       |
| up to 200 g/h  | 20700002                       | 20700022       |
| up to 500 g/h  | 20700003                       | 20700023       |
| up to 1000 g/h | 20700004                       | 20700024       |
| up to 2000 g/h | 20700005                       | 20700025       |
| up to 2500 g/h | 20700006                       | 20700026       |
| up to 4000 g/h | 20700007                       | 20700027       |

Other chlorine connections on request, e.g. screw connections or PVC glands.