RT 395
Maintenance of valves and fittings and actuators

The illustration shows RT 395 with 3 of 4 fittings (segmented ball valve not shown).

Description

- **trainer for maintenance work on industrial valves and fittings**
- **comparison of 4 different actuators**

Various types of valves and fittings are used in industry. They are suitable for gaseous and liquid media.

A distinction is made between valves, plug valves, gates and butterfly valves. Plug valves isolate a pipeline quickly, acting transverse to the flow. A quarter revolution is sufficient for full actuation. Valves adjust the flow rate and require several turns of the spindle for full opening or closing. Gates are not intended to seal off the pipeline completely, but serve to restrict the flow. When one of these valves and fittings is combined with a driving mechanism, the resulting control device is known as an actuator.

RT 395 presents three various types of valves and fittings. The trainer investigates the operating response of a segmented ball valve, a butterfly valve, a pneumatic control valve and a pressure reducing valve. The switch cabinet allows the necessary electrical and pneumatic parameters to be set to test and calibrate the valves and fittings. Instruments indicate pneumatic pressures, voltage and current. There is a vice on the workbench for maintenance and assembly work. The workbench also incorporates the necessary tools, and small parts such as seals, for the carrying out of testing procedures.

Learning objectives/experiments

- function and mode of operation of various valves and fittings
  - pneumatic butterfly valve
  - pneumatic segmented ball valve
  - pneumatic control valve with electro-pneumatic
  - positioner
  - pressure reducing valve
- pneumatic connection
- electrical connection
- familiarisation with linear and equal-percentage valve characteristics
- planning, execution and assessment of maintenance and repair operations
- reading and understanding engineering drawings and operating instructions

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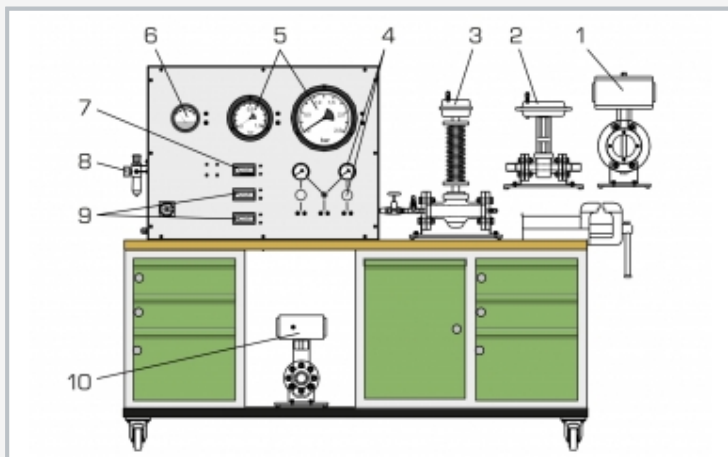
1 butterfly valve, 2 pneumatic control valve, 3 pressure reducing valve, 4 fine pressure regulator with manometer, 5 manometer, 6 differential pressure meter, 7 display of adjustable current source, 8 compressed air maintenance unit, 9 digital displays for voltage and current, 10 segmented ball valve

Segmented ball valve with single-action pneumatic swivel drive
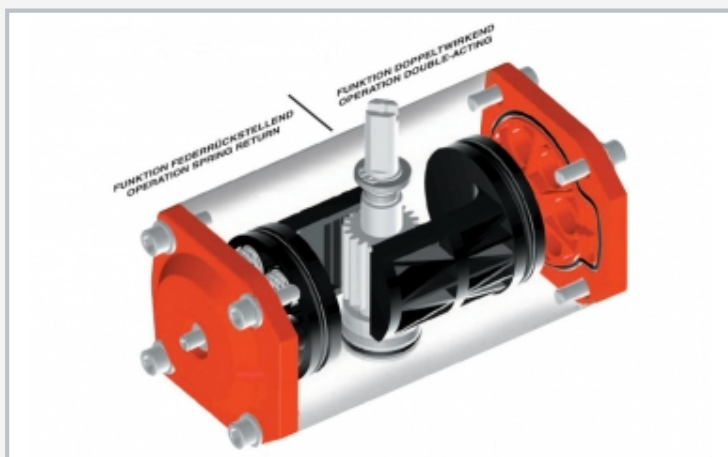
Principle of a swivel drive
left: spring-return; right: dual-action

Specification

[1] maintenance work on industrial valves and fittings
[2] pneumatic control valve with electro-pneumatic positioner DN25 / PN16
[3] butterfly valve with swivel drive DN100 / PN16
[4] pressure reducing valve DN15 / PN16
[5] segmented ball valve with swivel drive DN40 / PN16
[6] 2 compressed air ranges, adjustable by fine pressure regulator
[7] instrumentation: analogue pressure meter, digital ammeter and voltmeter
[8] electric signal transmitter for positioner in the form of an adjustable current source
[9] the trainer forms part of the GUNT assembly, maintenance and repair training line

Technical data

Pneumatic swivel drive
■ single-action with spring return

Measuring ranges
■ pressure (bourdon tube manometer)
  ▸ 0...1,0bar (D=160mm)
  ▸ 0...1,6bar (D=60mm, fine pressure regulator)
  ▸ 0...2,5bar (D=250mm)
  ▸ 0...6,0bar (D=60mm, fine pressure regulator)
■ differential pressure: 0...10kPa
■ current (digital display): 0...20mA
■ voltage (digital display): 0...20VDC

230V, 50Hz, 1 phase
230V, 60Hz, 1 phase
120V, 60Hz, 1 phase
UL/CSA optional
LxWxH: 2200x750x1660mm
Weight: approx. 321kg

Required for operation

Compressed air connection: 8bar

Scope of delivery

1 workshop trolley with cabinets under and switch cabinet
1 butterfly valve
1 pneumatic control valve
1 pressure reducing valve
1 segmented ball valve
1 manometer
1 set of cables
1 set of compressed air hoses
1 set of tools and small parts (bolts, seals etc.)
1 set of instructional material

G.U.N.T. Gerätebau GmbH, Hanskampring 15-17, D-22885 Barsbüttel, Telefon (040) 67 08 54-0, Fax (040) 67 08 54-42, Email sales@gunt.de, Web www.gunt.de
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