

# MT 101

## Assembly exercise: pneumatically driven control valve



The illustration shows the assembled control valve and the GUNT Media Center on a tablet (not included)

### Description

- **broad scope of learning with interdisciplinary problems**
- **part of the GUNT Practice Line for assembly, maintenance and repair**
- **multimedia instructional materials on USB flash drive and online in GUNT Media Center: 3D PDF, DXF files, STEP files, videos**

The MT 101 unit is a control valve with electro-pneumatic positioner. Control valves are key components of process engineering systems. They are generally used for regulating flows of gases or liquids. The electro-pneumatic control valve is set to the safe "closed" position when no auxiliary power is applied.

The MT 101 kit is part of the GUNT Practice Line for assembly, maintenance and repair, which has been designed for technical colleges and company training centres. The close link between theory and practice-based learning content is evident. The assembly and disassembly processes can be completed easily within standard lesson times. Only basic tools are required for assembly, all of which are supplied with the kit. A vice and compressed air supply are required for the assembly. A current signal generator is supplied for the functional test of the assembled control valve.

The contemporary multimedia instructional materials provide extensive technical information as base for lesson design. The core element of the teaching materials is a complete set of drawings as files with lists of parts, single-part drawings, exploded views, assembly drawings and 3D drawings. All drawings are to standard and are dimensioned in accordance with production requirements. The set of drawings consists of DXF files, STEP files and PDF files. Assembly videos are also useful features. The files are also available free of charge online in the GUNT Media Center.

The disassembled control valve with a set of spare parts and tools are delivered in a storage system with foam inlay. The transport roller MT 120.02 or the trolley MT 120.01 are suitable for convenient transport of the kit.

### Learning objectives/experiments

- **function and design of a pneumatically driven control valve**
- **planning and presentation of the assembly process**
- **assembly and disassembly, including for the purposes of maintenance and repair**
- **read and understand engineering drawings (PDF files, DXF files, STEP files)**
- **generation of programs for 3D print and CNC machining**
- **functional test of the assembled control valve**

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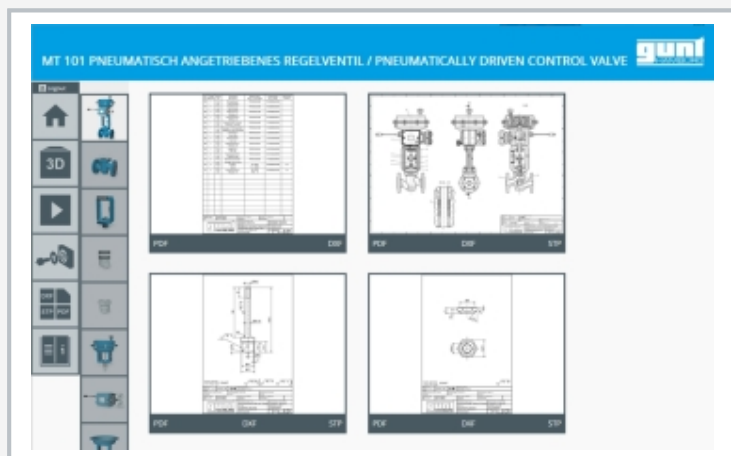
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Transparent sectional view of the assembled gear (screenshot from assembly video)



Storage system with foam inlay: all components have their place, the foam is labeled



Screenshot of the GUNT Media Center

### Specification

- [1] kit of a pneumatically driven control valve with electro-pneumatic positioner
- [2] part of the GUNT Practice Line for assembly, maintenance and repair
- [3] disassembled control valve with set of spare parts and tools, housed in a storage system with foam inlay
- [4] control valve comprising valve housing, valve bonnet, pneumatic actuator and positioner
- [5] current signal generator for functional test of the assembled control valve
- [6] multimedia instructional materials: PDF, CAD files, STEP files, videos
- [7] online access to the GUNT Media Center
- [8] vice and compressed air supply required for assembly

### Technical data

#### Control valve

- LxWxH: 220x220x500mm
- DN 25
- PN 16
- nominal stroke: 15mm
- $K_{vs}$  value: 6,3

#### Pneumatic actuator

- diaphragm area: 175cm<sup>2</sup>
- stroke: max. 19mm
- nominal signal range: 0,5...2,5bar
- electro-pneumatic positioner
  - ▶ input signal: 4...20mA

#### Current signal generator

- 0...24mA

LxWxH: 600x400x980mm (storage system)

Weight: approx. 38kg

### Required for operation

vice  
 compressed air: max. 6bar  
 PC or online access recommended

### Scope of delivery

- 1 kit
- 1 set of tools
- 1 set of accessories
- 1 set of spare parts
- 5x storage system with foam inlay
- 1 set of instructional material, consisting of technical description of system, complete set of drawings with lists of parts (PDF, DXF, STEP), description of assembly and disassembly sequences, assembly videos, online access to the GUNT Media Center

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Optional accessories

051.12001	MT 120.01	Trolley
051.12002	MT 120.02	Transport roller