

Equipment set TP 230 – Advanced level

Vacuum technology



Vacuums in handling technology

Training package TP 230 continues the training content in TP 201, focusing on the topic of handling technology using a vacuum.

The use of suction grippers to handle workpieces has become an integral part of handling technology, as they offer advantages such as the ease of construction and the gentleness of the grippers. Suction grippers also enable rapid cycle times, and the investment required is comparatively low.

Training content

Low pressure generation and system design:

- Function and use of ejectors according the Venturi principle
- Effects of system pressure on the attainable low pressure and the evacuation time
- Sizing and setting up a vacuum system

Selecting suction grippers:

- Shape and materials
- The relevance of gripper types and workpiece shape
- How the holding force is affected by the workpiece surface and the diameter of the suction cup

Typical switching for a vacuum system:

- Using a vacuum security valve when some of the suction cups are not gripping
- Using a pressure switch to monitor the low pressure level
- Reducing the compressed air consumption in a vacuum system
- Controlled release and ejection of workpieces from the suction gripper

Components from the equipment set TP 201 are required to carry out the projects.

All the workpieces required to complete the tasks are included in the scope of delivery.

Complete equipment set TP 230 in equipment tray	573041
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The most important components at a glance:

1	1x Air pressure reservoir, 0.4 l	152912
2	1x Pressure switch, 0 – -1 bar	548624
3	1x Vacuum gauge	573042
4	1x Flow control valve	193972
5	1x Vacuum generator, type H	573258
6	1x Vacuum generator, type L	573259
7	1x Non-return valve	153462
8	1x Non-return valve, delockable	540715
9	1x Suction gripper 20 SN	573043
10	1x Suction gripper 30 SN	573044
11	1x Suction gripper 20 SS	573045
12	1x Suction gripper 30 SS	573046
13	2x Suction gripper 20 CS with vacuum security valve	573047
14	1x Suction gripper 4x20 ON	573257
Different materials and workpieces		

Necessary accessories, also order:

Aluminum profile plate → Page 39
Compressor → Page 136
Tabletop power supply unit → www.festo-didactic.com
Power supply unit for mounting frame → Page 159
4 mm Safety laboratory cables → Page 159

Also order:

Workbook



In addition to six comprehensive project tasks for step-by-step construction and testing of the vacuum system, the package also includes basic information on the following topics: **Introduction to vacuum technology** – basic concepts of vacuum technology, vacuum ranges, vacuum generation in handling technology, vacuum pumps, functional principle of displacement pumps, instructions on selecting pumps, ejectors, ejector units.

Vacuum elements in handling technology – valves for vacuums, measuring and storing a vacuum, suction grippers, vacuum generation.

The workbook contains:

- Sample solutions
- Training notes
- Multimedia CD ROM with graphics and photos of industrial applications
- Worksheets for students

Campus license (→ Page 19):

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Supplementary media

- Designing and simulating with FluidSIM®
- Measuring and controlling with FluidLab®
- WBT Pneumatics
- WBT Electropneumatics
- Textbook: Pneumatics/ electropneumatics
- Set of posters on pneumatics

