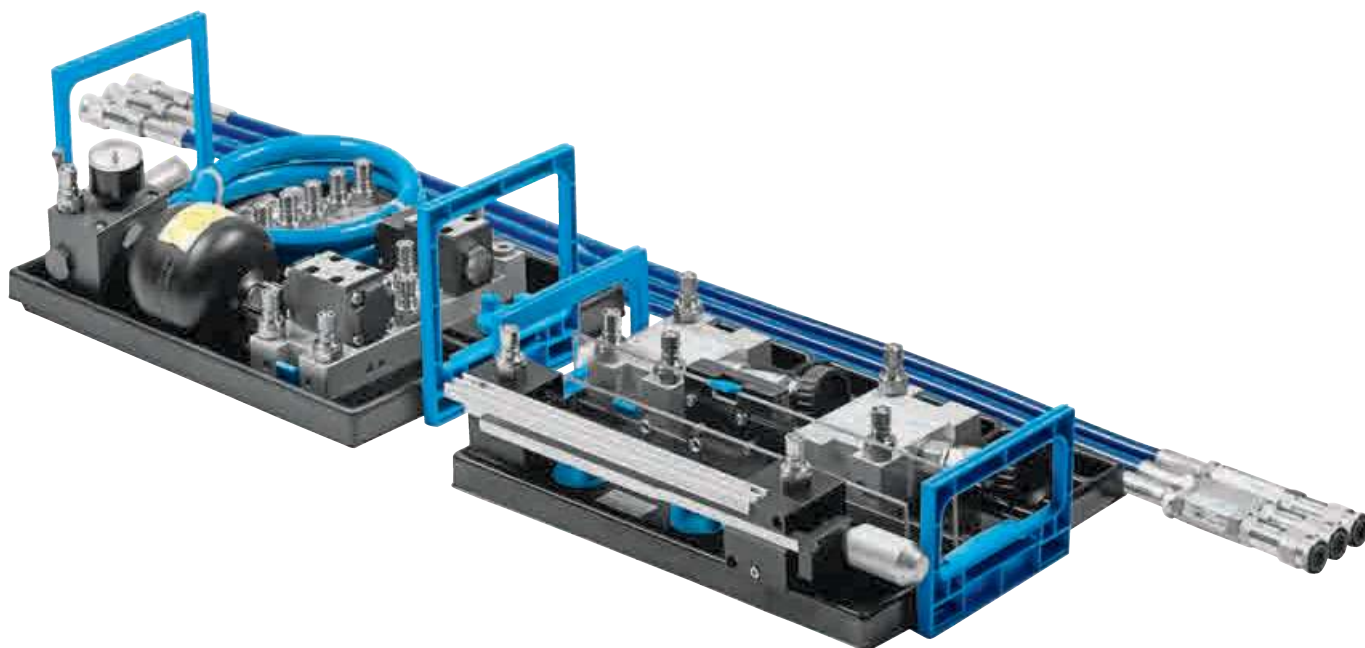


# Equipment set TP 502 – Advanced Level

## Hydraulics for advanced users



### The new advanced level

The training package TP 502 builds on the material covered in training package TP 501 – Basic Level, and adds 15 new projects to it.

The course expands students' knowledge about the basic physical principles of hydraulics and the function and use of further hydraulic components.

In order to carry out the projects, users require the components and the necessary accessories from equipment set TP 501.

### Hydraulics plus!

The new components provide added training value, and relevant project tasks form the basis for advanced training in fundamental principles.

Delivered in practical, Systainer-compatible equipment trays, which in turn, fit exactly into the drawers in Learnline workstations.

### Training content

Power packs and components:

- Design and function of a hydraulic motor
- Setting the direction and rotation speed of a hydraulic motor
- Design, function, and use of a flow divider
- Using a hydraulic reservoir as a volume and pressure accumulator
- Design, function and use of a pressure regulator
- Specifying the cylinder pressure
- Difference between pressure-relief valves and pressure regulators

Measurements and calculations:

- Calculating performance ratios of hydraulic circuits from measured values
- Calculating forces on the cylinder
- Creating procedure descriptions

Hydraulic circuits:

- Implementing bypass circuits
- Ensuring synchronized forward and return strokes
- Getting to know the bypass circuit
- Getting to know the rapid traverse feed circuit
- Advancing and retracting of a cylinder after the pump from the reservoir is switched off
- Use of a hydraulic reservoir for a rapid traverse circuit
- Getting to know the rectifier circuit
- Configuration and description of a sequence control with two cylinders
- Getting to know the pressure sequence and pressure stage circuit
- Getting to know the fuse protection for tensile loads

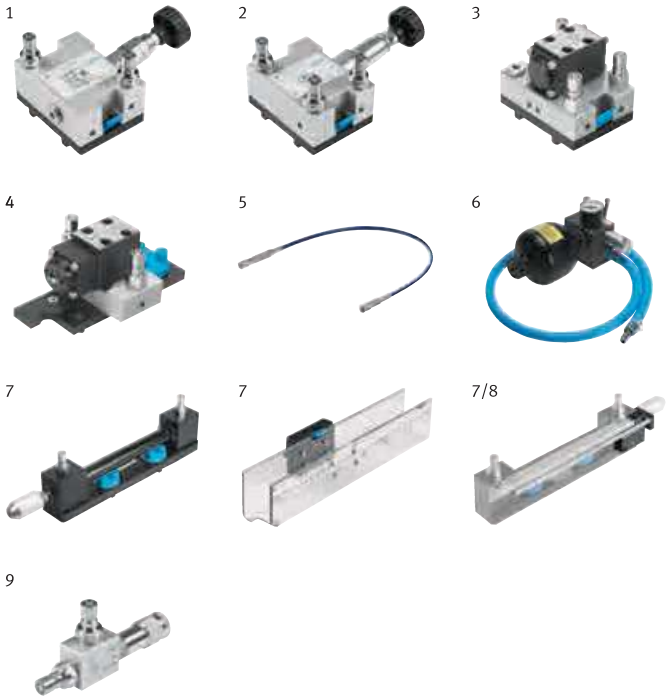
Complete equipment set TP 502 in equipment tray
573036

The most important components at a glance:

1	1x Pressure relief valve, compensated	567237
2	1x 3-way pressure reducing valve	544337
3	1x Flow dividing valve	544340
4	1x 2/2-way stem actuated valve, convertible	544353
5	3x Non-return valve, 0.6 MPa opening pressure	548618
6	1x Diaphragm accumulator with shut-off block	152859
7	1x Differential cylinder 16/10/200 with cover	572746
8	1x Mounting kit for cylinders	544371
9	5x T-distributor	152847

Necessary accessories, also order:

7x	Hose line with quick release couplings, 600 mm	152960
4x	Hose line with quick release couplings, 1000 mm	152970
2x	Hose line with quick release couplings, 1500 mm	159386
	4 mm Safety laboratory cables → Page 155	
	Digital multimeter	8040005
	Aluminum profile plate → Page 39	
	Hydraulic power pack → Pages 148 – 149	
	Protective cover for weight, 9 kg → Page 143	
	Power supply unit for mounting frame → Page 155	



Also order:

Workbook



The tasks demonstrate advanced hydraulic circuits. The equipment set of package TP 501 – Hydraulics Basic Level and TP 502 – Advanced Level equipment set are needed to carry out the tasks.

The workbook contains:

- Sample solutions
- Training notes
- Multimedia CD-ROM with graphics, photos of industrial applications, animations, and FluidSIM® circuit diagrams
- Worksheets for students

Campus license (→ Page 19):

de	550142
en	551147
es	551148
fr	551149

Supplementary media

- Designing and simulating with FluidSIM®
- Measuring and controlling with FluidLab®
- WBT Hydraulics
- Textbook: Basic principles of Hydraulics and Electrohydraulics
- Hydraulics poster set