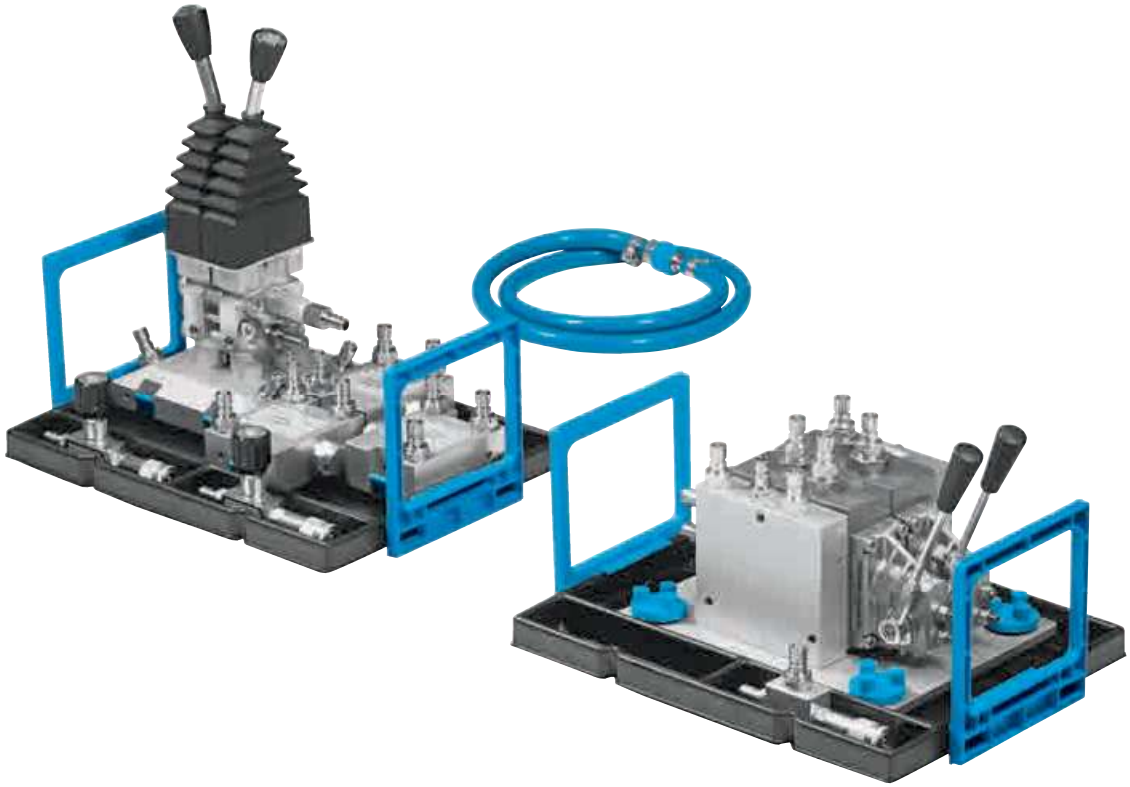
Equipment set TP 803 – Advanced level

Mobile hydraulics – Working hydraulics 2



Working hydraulics 2

The challenge for the efficient operation of machines is how to handle frequently changing loads and fluctuating speeds during the operation cycle.

Constant displacement pump systems generally have a very poor degree of efficiency in such cases, as they are always designed for the highest, most likely pressure and flow rate.

Load-sensing systems are different. Both the pressure and the flow rate are adapted to the actual needs. This requires a variable displacement pump with a load-sensing (LS) controller, as well as valves with the right type of control paths for load feedback to the pump controller.

System behavior under load

In practical applications, the challenge is to handle continuously changing large loads reliably and efficiently. To reflect this challenge properly in the training system, we have developed a cylinder load simulator which allows an extremely wide range of load types, even with the TP 801 set.

An active or passive hydraulic counteracting force is applied to a combination of two differential or through-rod cylinders.

By doing away with large working loads and integrating an overload safeguard, the cylinder load simulator is not just highly flexible, but also safe to use and extremely manageable.

TP 803 – Working hydraulics advanced level training content

The advanced level focuses on the load-sensing system with variable displacement pump, control block, pilot control, and up to two loads.

Components and accessories from the equipment sets TP 801 and TP 802 are required to carry out the projects.

The content:

- Design, mode of operation, and setting of a variable displacement pump with load sensing controller and control block.
- Comparing and assessing the energy usage of flow control, open center load sensing and closed center load sensing with a variable displacement pump.
- Remote control and hydraulic pilot control of control blocks.
- Characteristics of load sensing systems with upstream and downstream pressure balances (flow distribution independent of load pressures).

Complete equipment set TP 803 in equipment tray			**574163**

The most important components at a glance:

1	1x	Pilot valves (Joystick), 2x2-channel	572147
2	1x	Mobile valve block, Load sensing	572144
3	1x	Pressure compensator, upstream (pre)	573023
4	2x	Pressure compensator, downstream (post)	572741
5	2x	Flow control valve	152842
6	1x	T-distributor	152847
7	1x	Tubing line for unpressuriZed return	573024

Necessary accessories, also order:

10x	Hose line with quick release couplings, 600 mm	152960
6x	Hose line with quick release couplings, 1000 mm	152970
3x	Hose line with quick release couplings, 1500 mm	159386
2x	Digital multimeter	8040005
	4 mm Safety laboratory cables ➔ Page 155	
	Hydraulic power pack ➔ Pages 148 – 149	
	Power supply unit for mounting frame ➔ Page 155	

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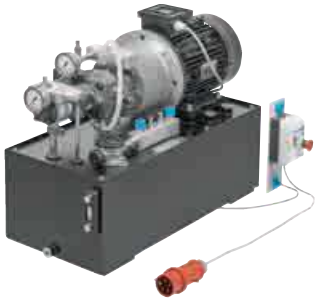
The hydraulic power unit
The power unit used for the mobile hydraulics training packages is a variable and constant displacement pump combination. The constant displacement pump is ideal both for the basic principles of hydraulics and electrohydraulics and for the mobile hydraulics sets TP 801 and TP 802. With TP 803, the focus shifts to the variable displacement pump with LS controller, with the function of the constant-displacement pump now being applied to active hydraulic loads on the cylinder load simulator.



The media on offer for TP 803
– Workbook for mobile hydraulics TP 800
– Diagnostic system TP 810 with FluidLab®-M
– Designing and simulating with FluidSIM®
– WBT Hydraulics
– WBT Electrohydraulics
– Hydraulics poster set