

Self-Study Worksheet HV01 Check Valve Basics

Hydraulic Components

Email:

Course:

Provider:

Learning Objectives/Expected Outcomes: (30 mins)

1. To understand what hydraulic check valves do.
2. To know where hydraulic check valves are used.
3. To understand how hydraulic check valves work.
4. Able to recognise typical components and their symbols.

Previous Knowledge Required:

Students should have completed worksheet HI01 'Introduction to hydraulics' or have a good knowledge of where hydraulic equipment is use and what it does.

Terminology:

Check valve, non-return valve, bypass valve, one way valve, and shuttle valve.

Record of Achievement:



Click the email button (that will appear within each app) to post your results, once training is complete. Enter your training provider or your own email address. Also record progress, times, scores etc. on this training record sheet and keep together with any additional written work or sample calculations.

Coursework investigations



Study the detailed information and watch the instructional videos at www.e4training.com/hydraulic_valves/check1.php & [check2.php](http://www.e4training.com/hydraulic_valves/check2.php)
Key points:

- Only allow flow in one direction.
- With springs, check valves maintain or relieve pressure.
- Can be piloted open or shut.
- Check valves are used for many different functions.

Dates & durations:

Complete



Learn to recognise the many different types of check valve:
www.e4training.com/hydraulic_valves/check1.php

Dates & durations:

Complete

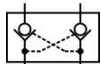


Recognise the check valve symbols and appreciate what the different features do:

www.e4training.com/hyd_princip/hydraulic_symbols3.php

Dates & durations:

Complete





Virtual test rig experiment



Experiment with the valve fundamentals simulation at www.e4training.com/hydraulic_valves/check3.php:

- Follow the suggested exercises and observations list below the simulation.
- Run the experiments, answer the questions, and click the buttons to see the answers.

Explore how check valves only allow flow in one direction and how they can be used as simple relief or pressure maintaining valves.

Date, score & time:

Tick when posted

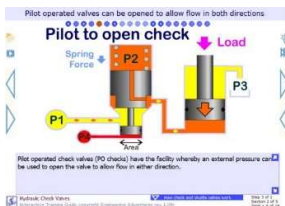
Practical Activities



Experiment with a check valve in a hydraulic car jack. Raise the jack with load on and record how long it takes to lower (1 min, 1 hour, overnight?). Make sure the load is safe to leave raised. Consider the safety implications of leaving loads supported only by hydraulic valves. It's not acceptable!

Completed

Further work

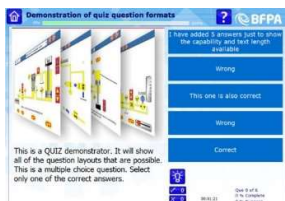


Complete the 'check valve training' tutorial at www.e4training.com/hydraulic_courses/microtutor1.php?wtvalvescheck
Complete quick quiz at end and post results.

Date, score & time:

Tick when posted

Interactive quiz to check and reinforce learning



Complete the 'hydraulic valve questions' at [www.e4training.com/hydraulic_test2.php?Quiz - Hydraulics part 1](http://www.e4training.com/hydraulic_test2.php?Quiz-Hydraulics%20part%201)
Post result when complete.

Quiz name, date, score:

Tick when posted



Key questions / Plenary

Can you explain what check valves do?
Can you describe 3 different applications where check valves are used and explain why?
Can you explain why a pilot operated check valve might be needed?
Can you draw a check valve symbol?

Repeat above if the answer is no

And Finally:

Complete this worksheet and keep for your records. Submit any written coursework etc. to your training course provider.

Follow-on Course Worksheets:

Potential follow-on worksheets include:

HV03 – Directional valve operation, use, types (Introductory)
or HV02 - Check valve features, tips, specification (Advanced).

For specialist course worksheets visit www.e4training.com/hydraulic_courses/worksheets1.php