



Worksheet HV11 & Training Record Proportional Valve Basics

Hydraulic Components

Email:

Course:

Provider:

Learning Objectives/Expected Outcomes: (30-60 mins)

1. To understand what functions hydraulic proportional control valves perform.
2. To understand how hydraulic proportional control valves work
3. To recognise the different types of proportional valve and where they are used.
4. To recognise and understand their symbols.

Previous Knowledge Required:

Students should have completed worksheet HV03 'Directional control valve basics' and shall have completed HFX sections 'formulas and fundamentals'.

Terminology:

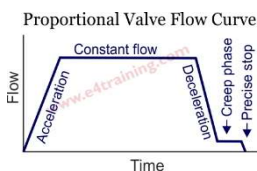
Proportional control valve, variable restrictor, pressure compensation, notched spool.

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



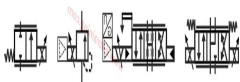
Study the detailed information and instructional video at www.e4training.com/hydraulic_valves/proportional1.php & [proportional2.php](http://www.e4training.com/hydraulic_valves/proportional2.php)

Key points include:

- Different ways proportional control regulate proportional.
- Different valve performances.
- Format types used in different markets.

Dates & durations:

Complete



Recognise proportional control valve symbols and appreciate what effect the different features have:

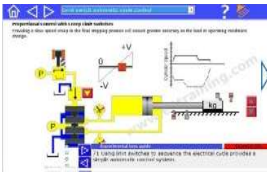
www.e4training.com/hyd_princip/hydraulic_symbols7.php

Dates & durations:

Complete



Virtual test rig experiment



Experiment with the valve fundamentals simulation at www.e4training.com/hydraulic_valves/proportional3.php:

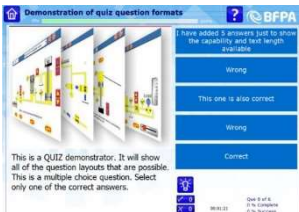
- Follow the suggested exercises and observations list below the simulation.
- Run the experiments, answer the questions, and click the buttons to check the answers.

Explore how the proportional valves control the speed of movement of the cylinder.

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 2

Post result when complete.

Quiz name, date, score:

Tick when posted

Key questions / Plenary

- Can you explain the difference between directional and proportional control valves?
- Do you understand the difference between cylinder acceleration and speed?
- Can you explain how proportional valves control acceleration and how they control speed?
- Can you name 3 types of proportional control valve?

Repeat above if the answer is no, or tick if yes

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:

- HV15 – Counterbalance valve operation, use, types (Introductory)
- or HV14 - Servo and proportional control valve features, tips, specification (Advanced).

Or refer to your individual lesson plan or search the worksheet lists at www.e4training.com/hydraulic_courses/worksheets1.php or [courses1.php](http://www.e4training.com/hydraulic_courses/courses1.php)

Notes