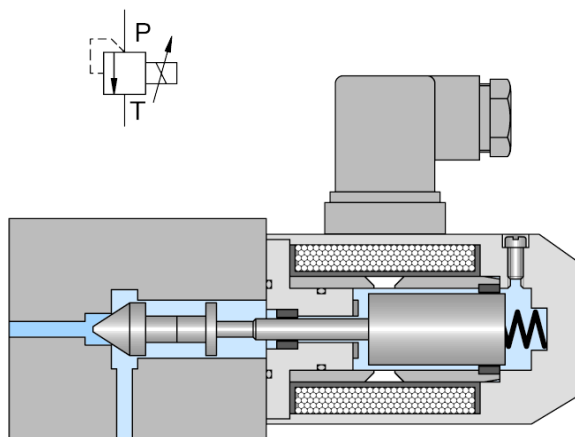
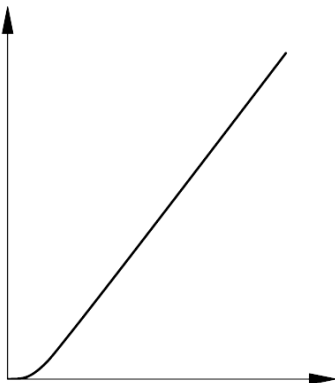


FESTO

**Proportional
hydraulics**

Collection of
Transparencies



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Author:	Dr. Frank Ebel
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Internet: www.festo.com/didactic

e-mail: did@festo.com

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Foreword

This set of overhead transparencies has been designed for the basic level technology package TP700. The set of overhead transparencies and the technology package form part of the Learning System for Automation and Technology from Festo Didactic GmbH & Co.

The 28 overhead transparencies which comprise this set have been designed in accordance with didactic and methodological principles. Each transparency is accompanied by a short explanatory text, which gives the instructor a brief overview of the training content covered by the transparency.

Training contents

- Fundamentals of proportional hydraulics
- Function and use of proportional hydraulic components
- Electronic components for the actuation of proportional valves
- Comparison with electro-hydraulic control systems

The text sheet includes a full illustration of the transparency, partly supplemented by additional explanations and designations, which can be added to the transparency by the instructor in the course of training.

The advantages of this concept are:

- The instructor can expand the transparencies step by step in the course of training
- Lessons become more interesting
- The available explanatory texts reduce the amount of preparation required by the instructor

New!

Electronic presentation

The enclosed CD-ROM contains the entire overhead transparencies and accompanying text of this edition in an electronically presentable form in the files „Prophydraulics_transparencies.pdf“ and „Prophydraulics_text.pdf“. In addition to the screen presentation, which can be made in any order, the contents can be printed out and text and graphics can be used for your own training preparations, insofar as the functionality of the required Adobe® Acrobat® Reader permits this. This freely distributable software is available on the CD-ROM in the currently valid English Windows version for installation in the directory „Acrobat_Reader“. Please start the file „*.exe“ and follow the subsequent dialogue.

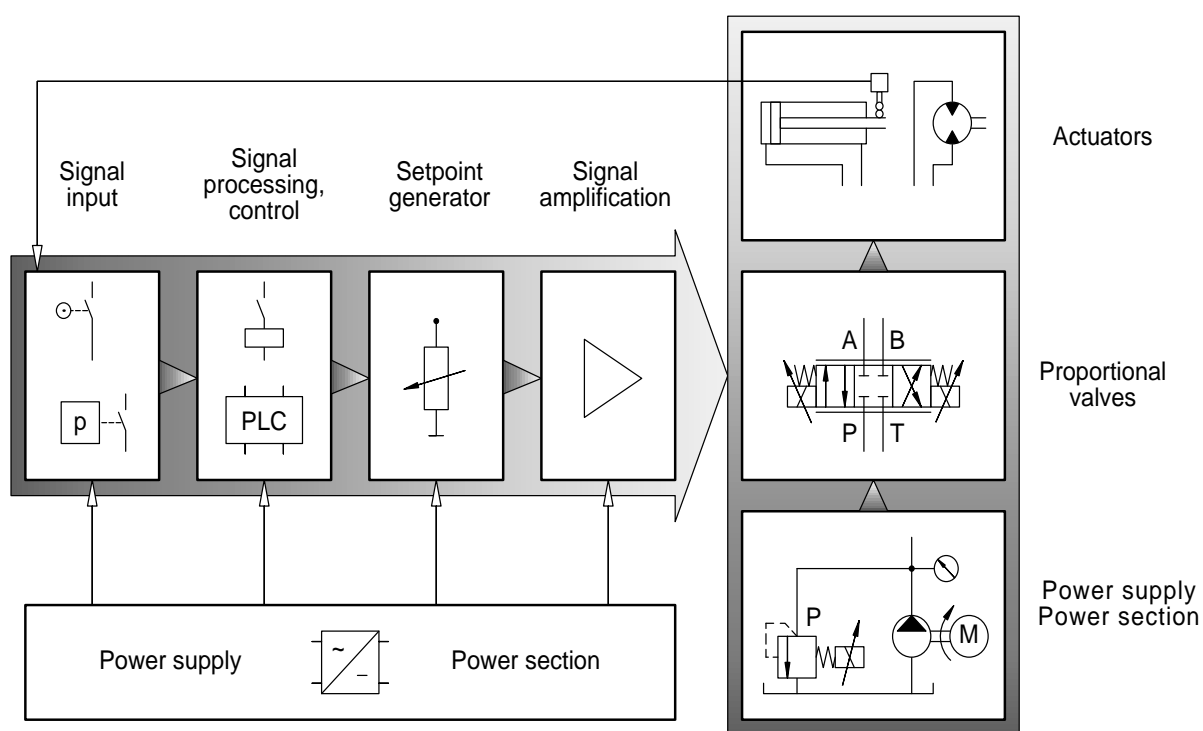
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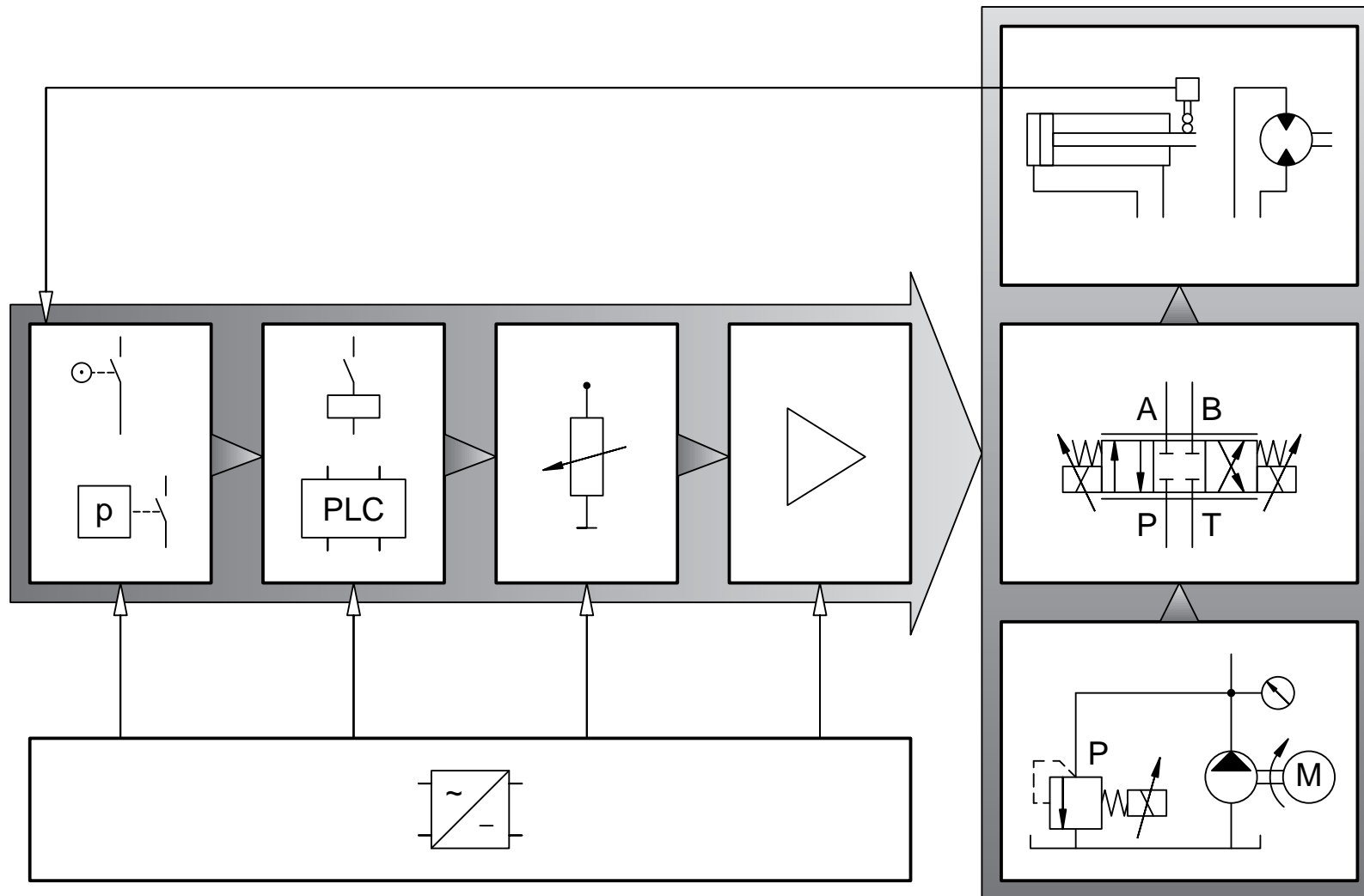
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Title Proportional hydraulic system

Guide

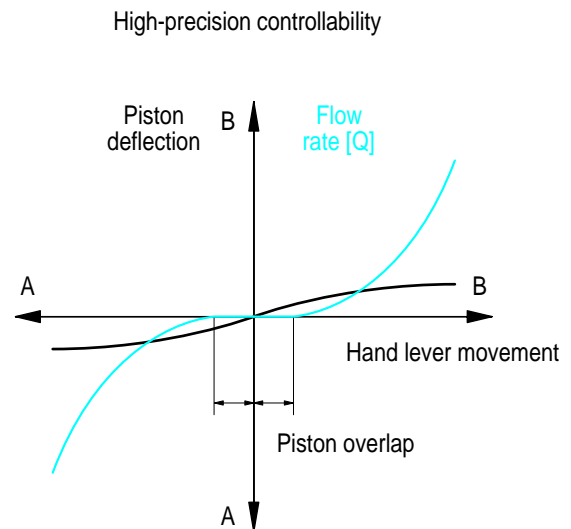
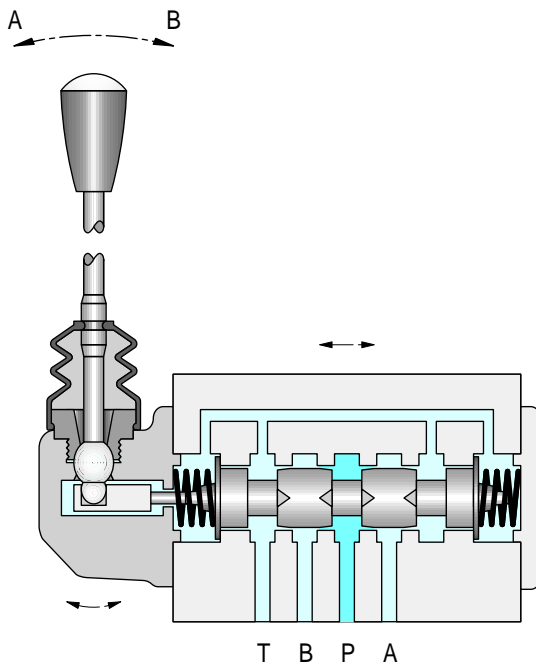
- Classification into signal control section and power section.
- Signal processing has been further enhanced by the provision of setpoint value and current signal conversion.
- The multiple function of proportional valves reduces the number of hydraulic components to a minimum.
- Proportional solenoids form the interface between the signal control section and the power section.

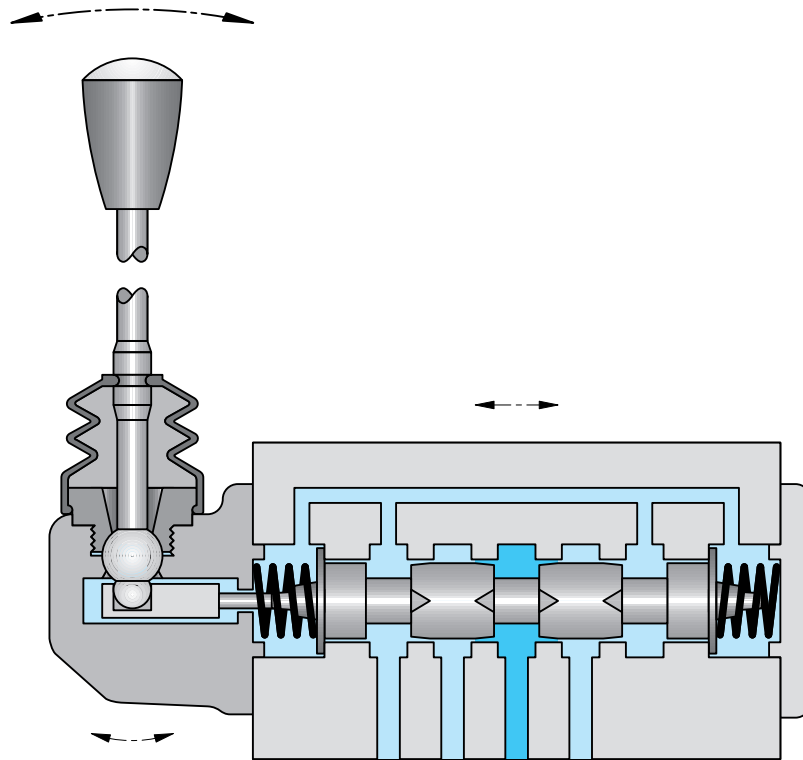


**Proportional hydraulic system**

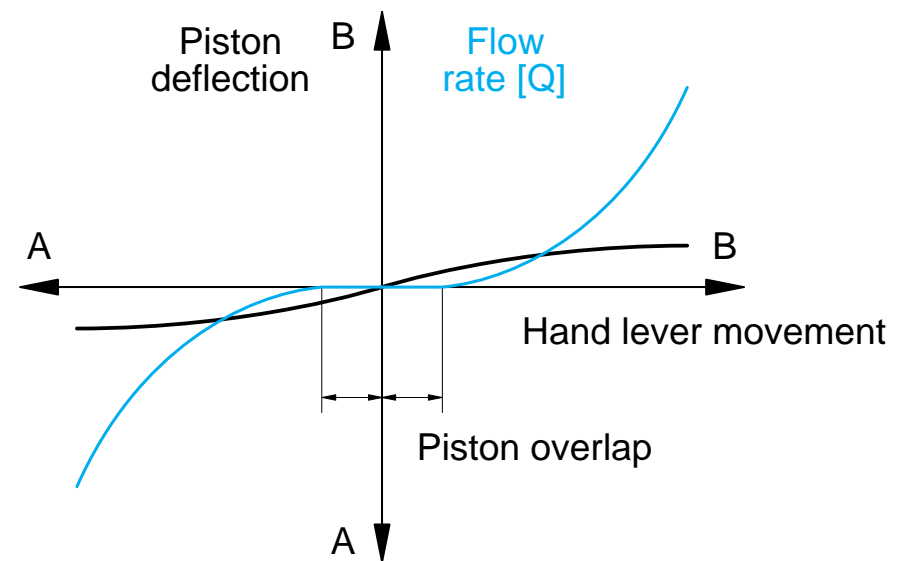
Title**Mobile hydraulics****Guide**

- Origins of mobile hydraulics. Long hose connections between control valves and hydraulic drive components.
- Ratio of hand lever movement to piston deflection is approximately proportional.
- Control pattern: High-precision controllability at start of hand lever displacement, large flow rate change during hand lever movements at end deflection.
- In this instance, flow is not released until end deflection due to the positive piston overlap.





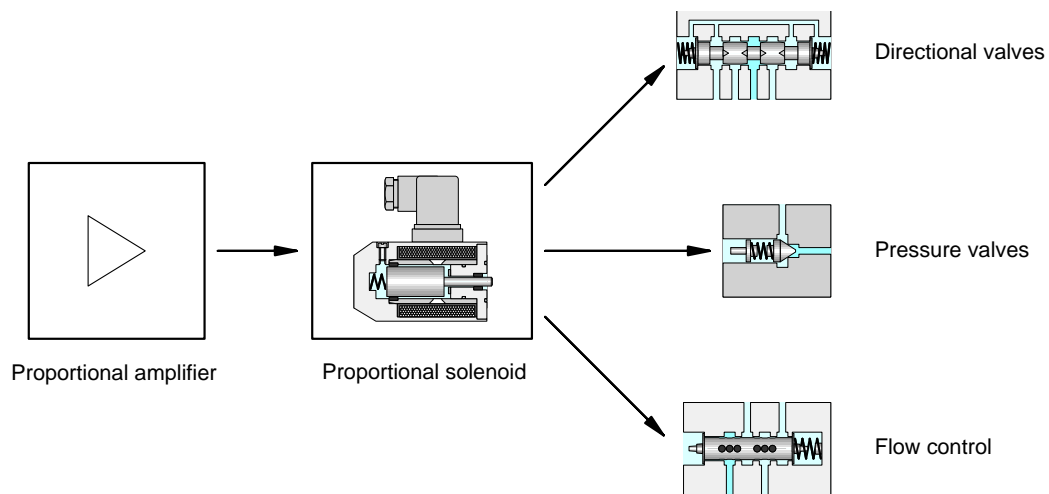
High-precision controllability

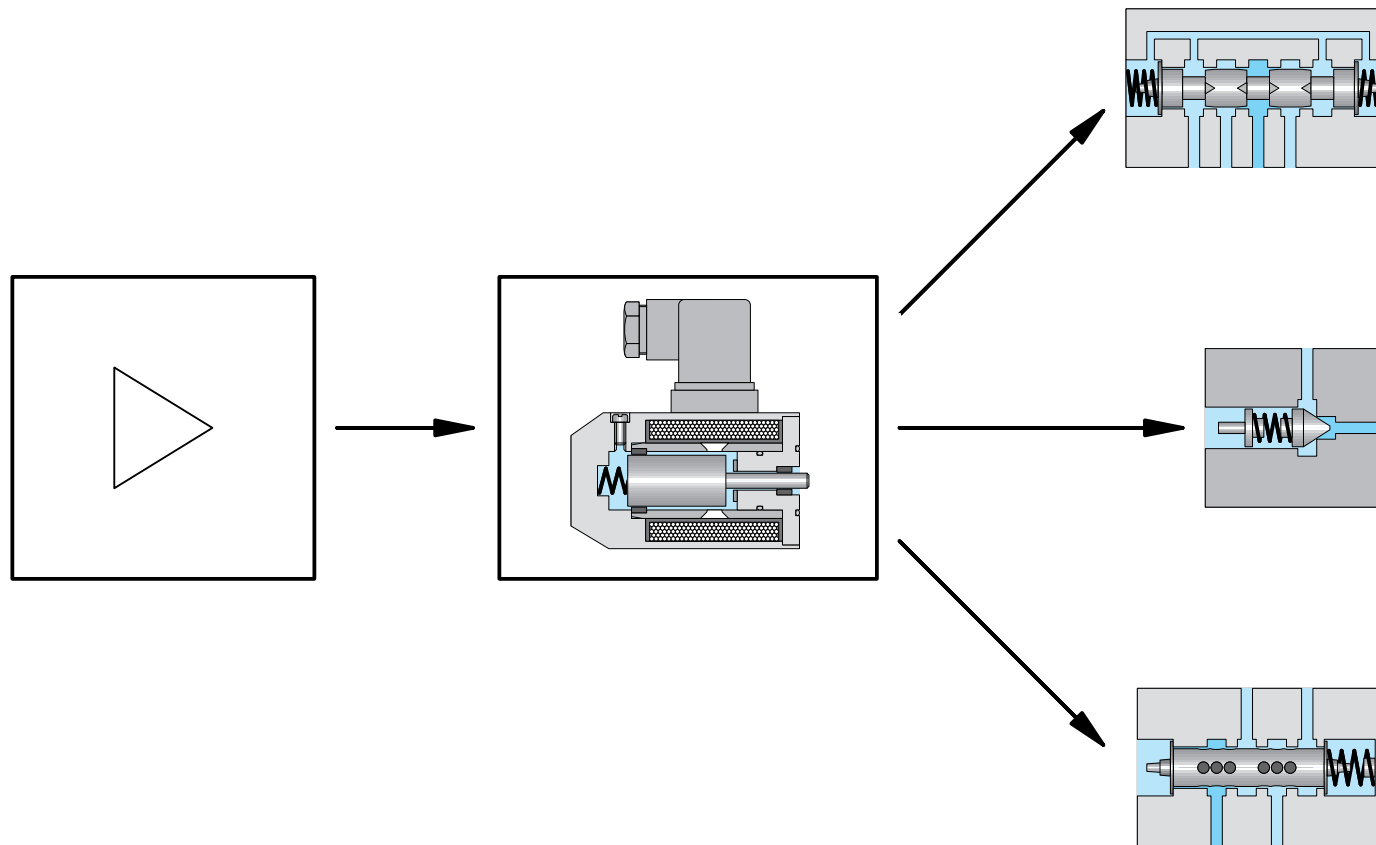


Mobile hydraulics

Title**Proportional valve activation****Guide**

- Setpoint values are converted into magnetic flux and amplified.
- By means of the proportional solenoid, magnetic flux is converted into piston deflection within the hydraulic valve.
- Actuation of proportional directional, pressure and flow control valves.

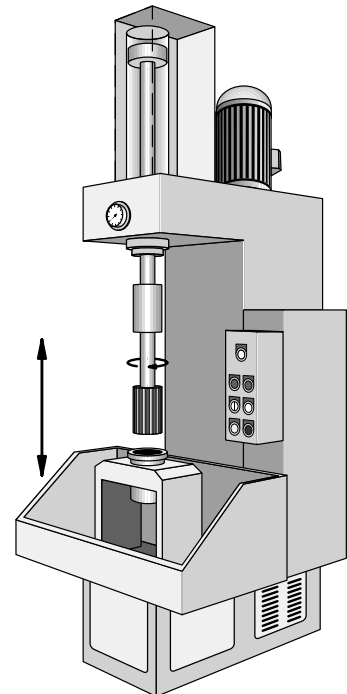
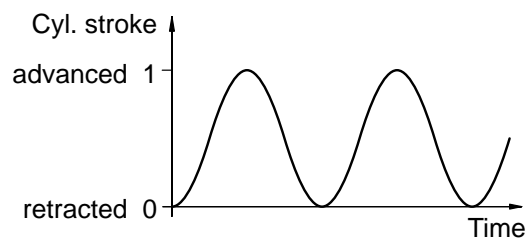


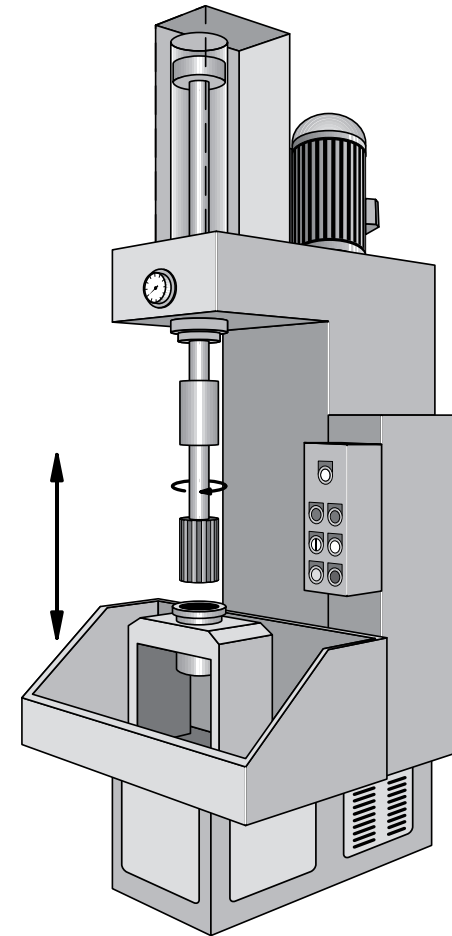
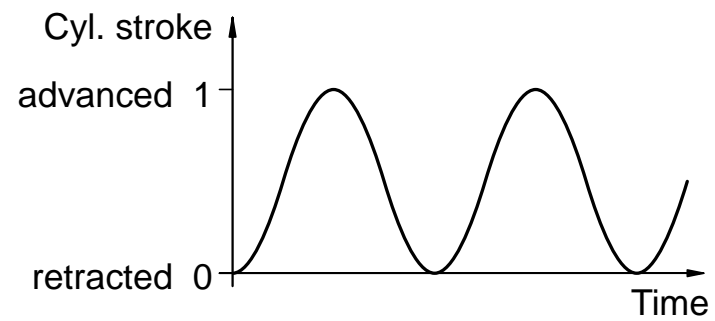


Proportional valve activation

Title**Honing machine****Guide**

- Typical machine tool employing a proportional hydraulic control system.
- Continuous path control on machine tools: Controlling of path, speed and acceleration.
- Smooth transition of upward and downward stroke of honing machine in accordance with time function.





Honing machine