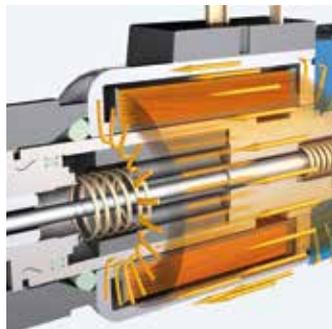


Media

Drive & Control Academy



Foreword

Expand your knowledge and strengthen your skills with media from the Drive & Control Academy.

It is important to promote an extensive knowledge base, as it is the key to success in all sectors of the technology industry.

This catalog contains a comprehensive offer for both the next generation of technical talent and already successful professionals.

The large selection of teaching and learning material for the areas of electrical drive and control technology, hydraulics, pneumatics and linear and assembly technology offers cross-technology insights and enables a comparison of the different drive technologies.

The media on offer is suitable both for self-study and as companion material for teaching.

We are committed to the continuous enhancement of our existing media as well as developing new content.

We would be happy to consider your suggestions and ask you to provide feedback.

Bosch Rexroth AG
Drive & Control Academy

Contents

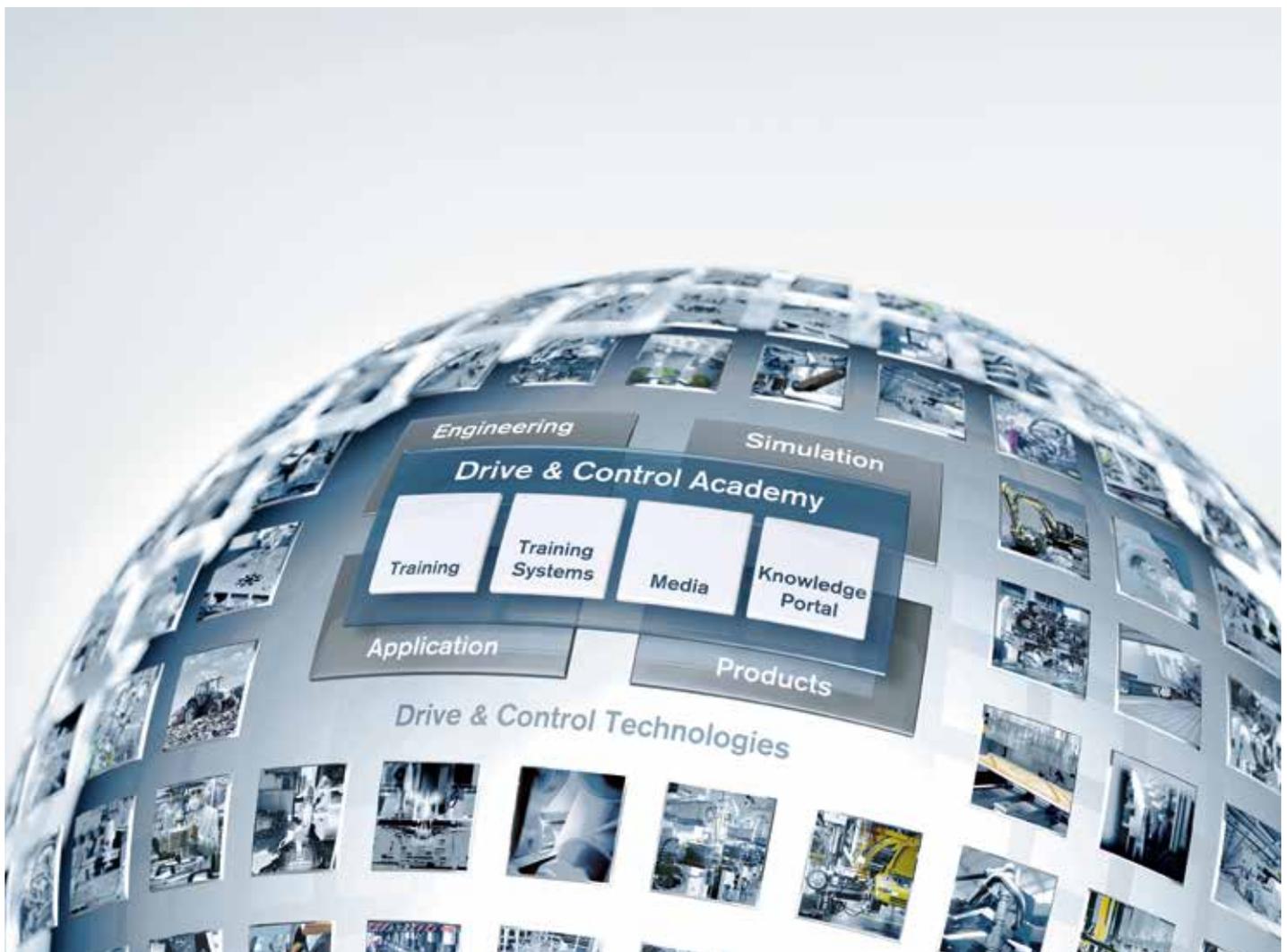


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Drive & Control Academy – General information

Knowledge – the decisive competitive advantage

www.boschrexroth.com/academy



Bosch Rexroth is one of the globally leading specialists in drive and control technology and has unique technological know-how. The Drive & Control Academy passes this knowledge on and supports the customized training and further development as well as the qualification of technical experts.

Knowledge is everything

Expert knowledge and competence of the employees provide a company with the decisive advantage in global competition. Under the roof of the Drive & Control Academy, Rexroth offers an extensive portfolio of knowledge products in the area of drive and control technologies, which is consistently based on industrial practice.

The Drive & Control Academy sets standards particularly in the didactic presentation of specialized and integrated know-how for customers, employees and institutions for training and further education.

Our offers have been compiled according to the following principles:

- ▶ Practice-oriented, state-of-the-art equipment
- ▶ Target group-specific training offers
- ▶ The latest training methods

Training systems

The training systems impart inexperienced and experienced users practice-oriented knowledge in the areas hydraulics, pneumatics, electric drive and control technology, mechatronics and automation. They comprise industrial serial components and have internationally standardized programming languages and open interfaces.



Media

Rexroth's software-based training and learning media distinguish themselves by high practical relevance and are adapted exactly to the training courses and training systems.

They contain eLearning modules, technology and application trainers, animations of components and systems as well as simulation-based learning units. Apart from that there are dictionaries, technical books, manuals for trainers and trainees as well as working equipment.

Knowledge Portal

The Knowledge Portal will become the multimedia contact point for all drive, control and movement technology topics in industrial and academic further education and training as well as qualification.

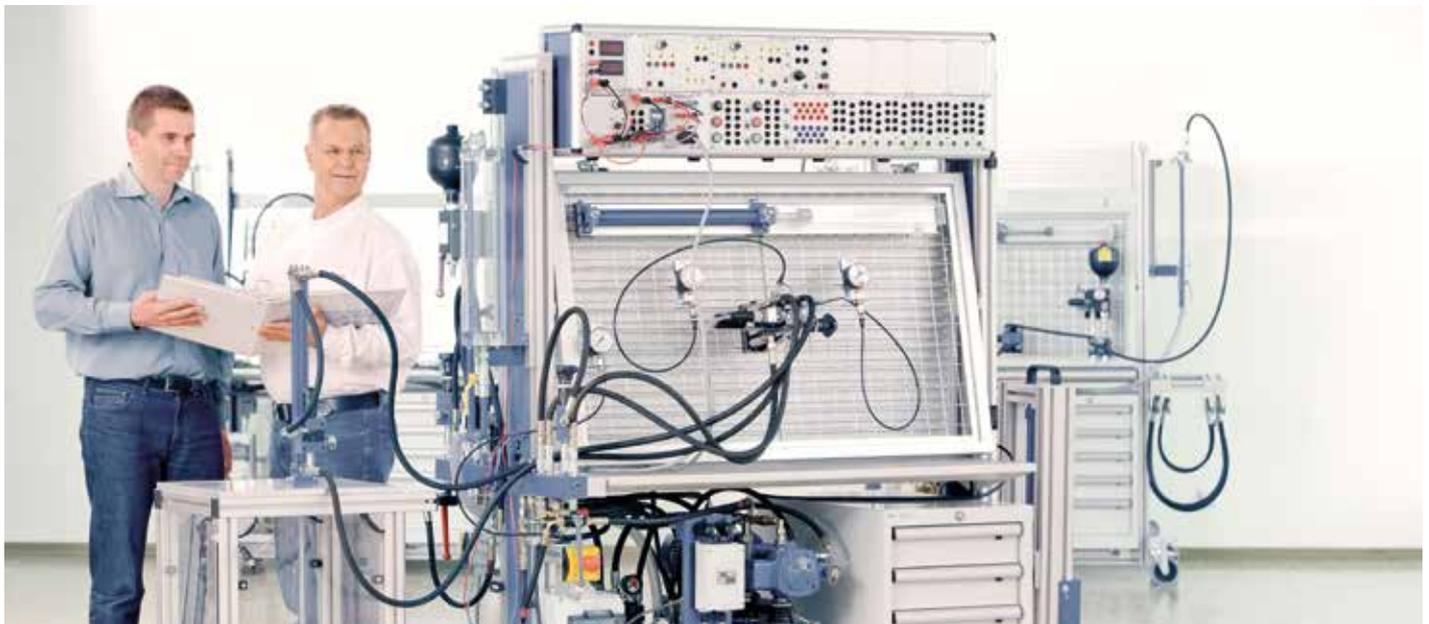
This unique contact point on the Internet will offer the user access to high-quality information and structured exchange of knowledge and experience.

Training

New training courses and the continuous further development of the training methods guarantee that knowledge transfer is always state-of-the-art. The method repertoire includes face-to-face training, eLearning, practical training, and Blended Learning, combining the advantages of face-to-face training sessions and eLearning. The principle of proximity to our customers is of utmost importance in our training sessions.

Training systems

www.boschrexroth.com/trainingsystems



Rexroth's technical know-how and the solution competence in the area of industrial applications are seamlessly integrated into our modularly structured training systems. In this way, they exactly meet the qualification levels required by the industry and educational institutions.

Practical exercises with device sets for certain learning content, adjusted training and learning media as well as special training sessions impart the necessary expert knowledge and competencies to the employees and trainees. The components used are standard components from an industrial environment. This enables trainees to gain knowledge by working with components that are also used later on in professional practice.

Training systems from Bosch Rexroth are available for the fields of hydraulics, pneumatics and automation.



Hydraulics

The Bosch Rexroth hydraulic training systems clearly illustrate the operating behavior of modern, hydraulic circuits and perfectly prepare trainees for work in the company, as industrial standard components are used. Exercises and device sets are available for different practical applications, e.g. for on/off hydraulics, proportional technology, control technology or mobile applications. The exercise manuals contain examples for all learners, beginners and professionals.

Pneumatics

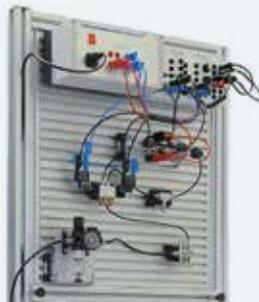
In the field of pneumatics, Bosch Rexroth offers exercises and device sets for standard pneumatics, electro-pneumatics, and control technology. The patented component mounting system offers flexibility and secure mounting of components at the same time. The industrial standard components used in the exercises provide direct reference to practical application. The exercises are derived from practice and offer examples for inexperienced and experienced users in all thematic areas mentioned.

Automation

The training systems for automation technology integrate control and drive technologies in one system. Hydraulic, pneumatic, and electric drives as well as linear motion technology are used in drive technology. With the help of control technology (sensors and PLC), drives are combined in a complete system. The exercises in the field of automation help to understand the complex concept of automation and offer the perfect basis for comprehensive understanding of the system.



WS200 work station:
Hydraulic equipment with
"Basic" device set



WS200 work station:
With grooved plate and
"Pneumatics" device set



WS501 work station:
Scara robots with control system,
drives and safety technology
from Rexroth

Media

www.boschrexroth.com/trainingmedia



Rexroth's extensive training and learning media provide knowledge and are tailor-made to training and training systems for control and drive specialists. In this connection, digital media are becoming more and more important as both information and learning media.



References

Despite the increasing spread of digital media, printing products still continue to be important. For this reason dictionaries, technical books, manuals for trainers and trainees as well as training and working equipment in printed form will also round off the training and learning media portfolio in the future.



Software

Software, software-based training, and learning media and apps complement our product offer and competent transfer of knowledge.



Videos and animations

Videos and interactive 2D and 3D animations illustrate complex motion sequences and explain complicated technical concepts.



Knowledge Portal

The Drive & Control Academy's newly developed Knowledge Portal will establish itself as the multimedia benchmark in industrial and academic education and further training. It includes all essential topics and aspects of drive, control and motion technology and illustrates secure knowledge at first hand.

The Knowledge Portal of the Drive & Control Academy for people who ...

... use technology

By means of comprehensive and practice-oriented online transfer of knowledge, users anywhere and at any time have the possibility to make efficient use of technology and open up new fields of application, discover malfunctions as well as plan and carry out repairs and maintenance.



... learn technology

Learning with the Drive & Control Academy means learning from the best. The extensive learning offer covers all requirements of professional and academic education and further training and qualification. Contents didactically prepared with the help of multimedia, illustrations, animations and videos exemplify complex facts and make them quickly understandable.



... teach technology

Teaching using Rexroth's tried-and-tested innovative teaching and learning material. Trainers, lecturers and teachers benefit from the innovative educational concepts. Decades of experience of Rexroth training experts have been incorporated directly into the design and development of the Knowledge Portal. This way, training on a technically high level can be realized without any problems.



Training

www.boschrexroth.com/training



Rexroth has long established itself in the market as a competent partner for further training for numerous companies and institutions. The Training Program 2014 comprises customized offers for almost any educational requirement. The training courses impart the necessary knowledge in a practice-oriented form to participants in a way suitable for the relevant target group.

New training courses and the continuous further development of existing training courses as well as experienced and highly qualified trainers moreover guarantee that the qualification is always up-to-date.

The combination of conventional and digitalized teaching and learning methods stands for customized realization of employee qualification.



Methods

Face-to-face and practical training with personal contact, direct communication and particularly "touching" the components consolidate the theoretical knowledge. That is why the majority of the Rexroth training courses comprise practical exercises. With the support of their trainers, the participants set up exercises at practical training systems. The interaction of eLearning and face-to-face courses – be it during the preparation, during and/or after the training – or even eLearning alone, considerably extend(s) the set of methods with numerous advantages.



Bosch trainer qualification

Bosch's modular and certified trainer education guarantees high-quality, sustainable, and refreshing training for trainers regarding soft skills and technical topics.

Even very experienced trainers hit the books again in order to be on the pulse of the times – so that knowledge can be smoothly transferred from trainers to participants.



Topic areas

Rexroth is one of the globally leading specialists in drive and control technology and has unique technological know-how with regard to products and their application as well as solutions. The company passes this knowledge on and supports customized education and further training as well as qualification of technical experts via the Drive & Control Academy.

The huge portfolio of knowledge of technology available to Rexroth offers perfect preconditions for the transfer of technical knowledge. The extensive scope of electric drive and control solutions, hydraulics, pneumatics as well as linear motion and assembly technology allows for cross-technology insights and comparative representations.



Industrial Hydraulics



Mobile Hydraulics



Electric Drives and Controls



Pneumatics



Mechatronics



Linear Motion and Assembly Technology



Safety Technology



Energy Efficiency



Application

Rexroth LearnWorld

www.boschrexroth.com/learnworld



Training

In your registration confirmation, you receive the access data for the Rexroth LearnWorld



Tablet PC



Documentation for participants in electronic form



The Drive & Control Academy makes use of tablet PCs in numerous trainings of the LearnWorld. All participants receive the documentation of the booked training in digital form on a tablet PC. The device replaces the printed documentation.

The tablet is included in the training fee and belongs to the customer.*

The following documentation packages can be found on your tablet PC:

- ▶ Training document for the booked training
- ▶ Bosch and Bosch Rexroth: Information and apps
- ▶ Various software and configuration tools
- ▶ Useful apps

Trainings from the LearnWorld  in which the tablet PC is used are marked with  !

We hope you enjoy learning on your tablet PC!

* On request, participants can also receive printed documents instead of a tablet PC.

eDrive & Control Academy

In the eDrive & Control Academy (eDCA), Rexroth offers you electronic sequences transferring knowledge. Often available irrespective of time and place, in different languages and 24 hours a day. Use the offer as alternative learning method, as amendment and preparation for the classical face-to-face / practical training or also as straightforward knowledge transfer variant for autodidactic qualification.



eLearning

Today independent learning at a computer is an integral part of knowledge transfer.

We offer you qualified and certified training with maximum flexibility.

The eLearning offer of the Drive & Control Academy includes all Drive & Control Technologies.



eTraining

We all know it – YouTube, learning videos, online seminars, WebEx, online news and much more: Today digital knowledge and transfer of knowledge is an inherent part of qualification.

Simply and concisely, a trainer informs you on exciting topics around technical education and further training in a Rexroth eTraining (live or recorded).



eBook

Technical literature:
Comfortable operation, individually adjustable font size, uncomplicated selection of chapters, didactically prepared graphics, no physical space requirement.
eBooks – a clever addition to further autodidactic training and a useful reference.
Rexroth eBooks can be found in our LearnWorld.



Certifications

We satisfy the requirements and are certified according to:



► DIN EN ISO 9001:2008



► Training provider acc. to AZAV

Icons

We use the following icons for orientation in this media catalog:

General information



Drive & Control Academy



Information

Drive & Control Academy media products



Media



Literature



eLearning



Working material



Posters/cutaway models



Multimedia



Animations



Software

Literature



Despite the increasing spread of digital media, print products continue to be important. That's why printed specialist books, dictionaries, and manuals will continue to be part of our teaching and learning media portfolio in the future.

Read an extract from our specialist books as an eBook with our free guest access:

www.boschrexroth.com/literature



Compact knowledge

Hydraulics – Basic principles



Contents

- ▶ General
- ▶ Basic physical principles
- ▶ Components
- ▶ Basic circuits
- ▶ Systems

Product description

This book offers an overview of basic hydraulic principles and components, such as on/off valves, hydraulic pumps, hydraulic motors, or hydraulic cylinders. These topics are illustrated using graphics and circuit diagrams. It can be used as a reference text, as a supplement to a Bosch Rexroth training course, or for self-study.

192 pages, A5 format

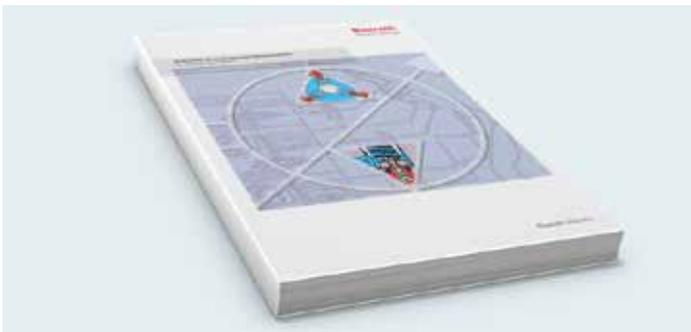
ISBN 978-3-9814879-6-1 (German)

ISBN 978-3-9816219-0-7 (English)

Material number	Language	Price plus VAT
R961008906	DE	€24.90
R961009449	EN	€24.90

The hydraulic trainer, volume 1

Hydraulics. Basic principles and components



Contents

- ▶ Graphic symbols according to DIN ISO 1219
- ▶ Hydraulic fluids
- ▶ Hydraulic pumps
- ▶ Hydraulic motors
- ▶ Hydraulic cylinders
- ▶ Swivel drives
- ▶ Hydraulic accumulators and their application
- ▶ Isolater valves
- ▶ Directional control valves
- ▶ Pressure control valves
- ▶ Flow control valves
- ▶ Filters and filtration technologies
- ▶ Accessories
- ▶ Connection technologies
- ▶ Hydraulic power units

Product description

The book explains the basic principles and functions of hydraulics, mainly using cross sections of industrial components, thus providing practice-relevant material. This makes the book an excellent reference text at the workstation or during training or further education.

325 pages, A4 format

ISBN 978-3-9814879-0-9 (German)

ISBN 978-3-9814879-3-0 (English)

Material number	Language	Price plus VAT
R900018613	DE	€46.00
R900018614	EN	€46.00
R900018617	ES	€46.00

Images, drawings, circuit diagrams, and graphics are available on the “HY1graphics” CD (R961000799) for €59.00.

The hydraulic trainer, volume 2

Proportional and servo valve technology



Contents

- ▶ Proportional valves and system technology
- ▶ Load compensation using pressure scale
- ▶ Control electronics for proportional valves
- ▶ Criteria for designing a control with proportional valves
- ▶ Getting started with servo valve technology
- ▶ Servo valves and device technology
- ▶ From the control to the control loop
- ▶ Filtration for hydraulic systems with servo and proportional valves
- ▶ Examples of existing systems with servo and proportional valves

Product description

This book contains a functional description of hydraulic and electronic components for proportional and servo valve technology, with their interaction described using real application examples. A comprehensive chapter is dedicated to the calculation and control of proportional valve technology.

Using clear illustrations of existing systems, this book provides comprehensive and practical information on using proportional valve technology from the control system to the control loop.

286 pages, A4 format

ISBN 978-3-9814879-4-7 (German)

ISBN 978-3-9816219-3-8 (English)

Material number	Language	Price plus VAT
R900018625	DE	€60.00
R900018626	EN	€60.00
R900018629	ES	€60.00

The hydraulic trainer, volume 3

Planning and design of hydraulic power systems



Contents

- ▶ Planning hydraulic power systems
- ▶ Hydraulic fluids
- ▶ Heat balance in hydraulic systems
- ▶ Hydraulic accumulators
- ▶ Safety regulations and arrangement of hydraulic accumulators
- ▶ Steel structure design for hydraulic power units
- ▶ Measures for noise reduction
- ▶ Calculation and dimensioning of tubing in hydraulic systems
- ▶ Interior preservation of hydraulic devices and hydraulic power units
- ▶ Corrosion protection on external surfaces using coating substances
- ▶ Packaging and transport
- ▶ Commissioning and maintenance of hydraulic systems

Product description

This book addresses the interaction of components in hydraulic systems. The authors explain what needs to be observed when planning, configuring, constructing, and implementing hydraulic systems. Numerous selection guides, diagrams, and figures clarify the functional correlations and mutual dependencies; these are useful working aids for daily practice as well as in training and further education.

Practical calculated examples and a list of important standards round off each chapter.

376 pages, A4 format

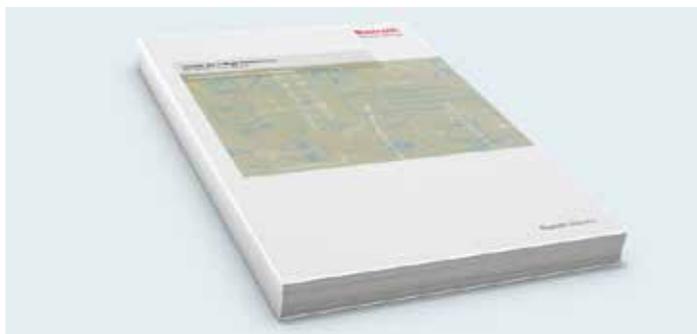
ISBN 978-3-9814879-5-4 (German)

ISBN 978-3-9816219-4-5 (English)

Material number	Language	Price plus VAT
R900018538	DE	€80.00
R900018547	EN	€80.00
R900018549	ES	€80.00

The hydraulic trainer, volume 4

Logic element technology



Contents

- ▶ Getting started with the two-port slip-in cartridge valve ("logic element") technology
- ▶ Directional functions (versions and usage notes)
- ▶ Pressure and flow control functions
- ▶ Design of a control with two-port slip-in cartridge valves
- ▶ Examples of existing controls with two-port slip-in cartridge valves

Product description

In this book, the reader learns what to be aware of when planning, configuring, and implementing hydraulic systems that use two-port slip-in cartridge valve technology. Numerous selection tables, diagrams, and figures illustrate the wide variety of functions in which these valves can be used.

A separate chapter is dedicated to the design of a control with two-port slip-in cartridge valves, including examples of existing controls.

These two chapters in particular are an excellent working aid for the user and those in training and further education when dealing with this technology.

146 pages, A4 format

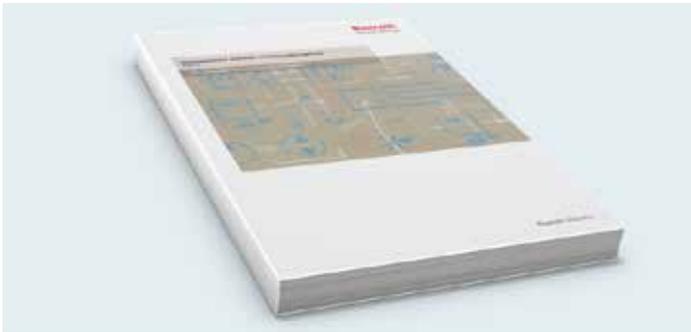
ISBN 978-3-9816219-5-2 (German)

ISBN 978-3-9816219-6-9 (English)

Material number	Language	Price plus VAT
R900018537	DE	€38.00
R900018543	EN	€38.00
R900018546	ES	€38.00

The hydraulic trainer, volume 6

Hydrostatic drives with secondary control



Contents

- ▶ Basic principles of secondary control
- ▶ Axial piston machines with secondary control
- ▶ Comparison of different variable-speed motor types
- ▶ Illustration of basic control principles
- ▶ Application examples for secondary-controlled drives
- ▶ Efficient cylinder control
- ▶ Speed-variable electrical drive
- ▶ Information on project design of secondary controlled drives

Product description

The book “Hydrostatic drives with secondary control” conveys basic knowledge to the reader interested in working with this drive concept. Using descriptions of existing applications, it clearly portrays the wide range of applications for secondary control.

196 pages, A4 format

ISBN 978-3-9816219-7-6 (German)

ISBN 978-3-9816219-8-3 (English)

Material number	Language	Price plus VAT
R900826886	DE	€86.00
R900826887	EN	€86.00

Hydraulics in mobile equipment



Contents

- ▶ Introduction to hydraulics
- ▶ Pumps and hydraulic motors in general
- ▶ Gear pumps and gear motors
- ▶ Electrohydraulic pumps
- ▶ Compact assemblies
- ▶ Check valves
- ▶ Pressure valves
- ▶ Flow control valves
- ▶ Directional valves
- ▶ Basic circuits for mobile hydraulics
- ▶ Mobile directional control valve blocks
- ▶ Applications
- ▶ Electrohydraulic hitch control for tractors (EHR)
- ▶ Hydrostatic fan drives in vehicles
- ▶ CAN-BUS in mobile hydraulics
- ▶ Fluids

Product description

This book presents hydraulic components for vehicle hydraulics and explains the basic principles of mobile hydraulic circuit technology. Key topics are the applications for agricultural tractors and forklifts. Additionally, an overview of applications with CAN-BUS is given.

The book provides clear, basic knowledge about the functions of the components used and their combination in systems to readers from the areas of manufacturing, service, and development.

The book is methodically divided into sections about individual components, circuit technology, and applications. It supports both training and self-study in the area of mobile hydraulics.

202 pages, A4 format

ISBN 978-3-9816219-9-0 (German)

ISBN 978-3-9816398-0-3 (English)

Material number	Language	Price plus VAT
R961000790	DE	€61.00
R961000791	EN	€61.00

Knowledge in detail

Hydraulics in tractors



Contents

- ▶ General introduction to hydraulics
- ▶ Hydraulic and electronic components
- ▶ Hydraulic systems
 - Steering
 - Traction and power take-off drives
 - Braking systems
 - Suspension systems
 - Electrohydraulic hitch control (EHC)
 - Fan drives
 - Controlling attached equipment

Product description

The book “Hydraulic in tractors” gives an overview of the most important hydraulic functions for agricultural tractors. In 13 chapters it describes the tractor components and systems, which are also used in other mobile equipment in application-specific variants.

The reader should have a basic command of hydraulics and know the symbols used in hydraulic circuit technology.

199 pages, A4 format

ISBN 978-3-9814879-8-5 (German)

ISBN 978-3-9814879-9-2 (English)

Material number	Language	Price plus VAT
R961009448	DE	€45.90
R961009447	EN	€45.90

Pneumatics. Theory and applications



Contents

- ▶ Introduction to pneumatics
- ▶ Functional device description
- ▶ Control technology

Product description

The book describes and illustrates, in a compact form, the range of pneumatic and electropneumatic components (without proportional and control components), as well as their functions and areas of application.

166 pages, A4 format

ISBN 978-3-9816398-1-0 (German)

ISBN 978-3-9816398-2-7 (English)

Material number	Language	Price plus VAT
R961000783	DE	€37.00
R927001146	EN	€37.00
R927001001	ES	€37.00

Drawings, circuit diagrams, and graphics are available on the “PNgraphics” CD (900701018) for €46.00.

Mechatronics. Theory and applications



Contents

- ▶ Components of mechatronic systems
- ▶ Energy generation and transport
- ▶ Pneumatic, hydraulic, and electric drive technology
- ▶ Sensor system and control technology
- ▶ Programming and documentation
- ▶ Safety technology and directives
- ▶ Systematic commissioning and error diagnosis

Product description

The book provides the required knowledge for planning, commissioning, and diagnosis of mechatronic systems.

318 pages, A4 format

ISBN 978-3-9816398-3-4 (German)

ISBN 978-3-9816398-4-1 (English)

Material number	Language	Price plus VAT
R961000788	DE	€59.00
R927001083	EN	€59.00
R961000786	ES	€59.00

Handbook

Linear motion technology



Contents

- ▶ Basic principles
- ▶ Profiled rail systems
- ▶ Linear bushings and shafts
- ▶ Ball screw assemblies
- ▶ Linear motion systems

Product description

The “Handbook Linear motion technology” contains basic knowledge as well as hints and advice for linear motion technology and its application. The publication is aimed at design engineers, developers, and professional buyers, as well as students and lecturers at technical colleges or universities.

The first section of the handbook gives readers insights into the fundamental physical principles involved in linear motion technology. Subsequent chapters describe the structural design and technical characteristics of linear bushings and shafts, profiled rail systems, ball screw assemblies, and Bosch Rexroth AG’s ready-to-install linear motion systems. Guide and drive elements are also an essential part of this handbook.

340 pages, A4 format

ISBN 978-3-9816398-5-8 (German)

ISBN 978-3-9816398-6-5 (English)

Material number	Language	Price plus VAT
R310DE2017	DE	€35.90
R310EN2017	EN	€35.90

Textbook

Sensors in theory and practice



Contents

- ▶ Introduction
- ▶ Inductive sensors
- ▶ Capacitive sensors
- ▶ Ultrasound sensors
- ▶ Optoelectronic sensors
- ▶ Magnetic field sensors

Product description

This book imparts the required knowledge concerning fundamental physical principles, functionalities, execution, and areas of application for sensors in automation technology.

The manual is suitable both as support for training and further education programs as well as for self-study.

127 pages, A4 format

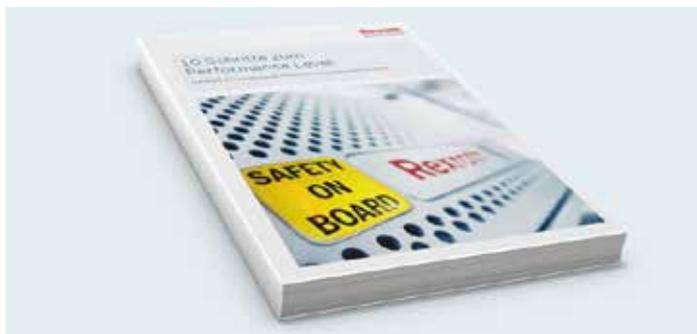
ISBN 978-3-9816219-1-4 (German)

ISBN 978-3-9816219-2-1 (English)

Material number	Language	Price plus VAT
R961004456	DE	€38.00
R961004461	EN	€38.00

Safety technology handbook

10 steps to performance level



Contents

- ▶ Basic principles of machine safety
- ▶ 10 steps to performance level
- ▶ Application examples
- ▶ Appendix (A tutorial on reliability parameters $MTTF_d$ and B_{10} for functional safety)

Product description

The handbook is a practical aid for safe machine design and helps to significantly reduce expenditure when designing safe machine control systems. Practical experience and the most up-to-date knowledge from our active participation in many standards committees and industry associations have been incorporated into the book. The current standards for functional safety take into consideration the advances in integrated automation technologies and thus demand standardized procedures across technological boundaries. The handbook explains fundamental principles and standards for machine safety. Readers are introduced to a system that helps them design machines in line with functional safety requirements. The system's implementation is then explained clearly using different application examples.

264 pages, international format

ISBN 978-3-9814879-1-6 (German)

ISBN 978-3-9814879-2-3 (English)

Material number	Language	Price plus VAT
R961006998	DE	€49.90
R961006999	EN	€49.90
R901393176	IT	€49.90

Dictionary of fluid technology



Contents

- ▶ German – English
- ▶ English – German

Product description

The dictionary is a convenient reference text for on-site use as a supplement to commercially available dictionaries. It contains technical terms from the areas of hydraulics, pneumatics, electrical engineering, and mechanical engineering.

266 pages, A6 format

ISBN 978-3-9816398-7-2 (German/English)

Material number	Language	Price plus VAT
R961007112	DE/EN	€6.50



The dictionary is available as an app for iPhone (and soon Android) in the App Store (www.apple.com/itunes) to the specified conditions and prices (price at the time of catalog publication: 0,99 €).

Available Languages:

German <> English (US), French, Spanish, Italian, Portuguese (BR), Russian, Polish, Czech and English (US) <> Chinese

Rexroth

Oil cleanliness booklet



Contents

- ▶ Need for hydraulic filtration
- ▶ Types, origins, and examples of contamination
- ▶ Fitting tolerance for hydraulic components
- ▶ Damage caused by contaminated hydraulic fluid
- ▶ Classic analysis of hydraulic fluid
- ▶ Mobile particle counter MPC 4614
- ▶ Filtration grade – particle sizes
- ▶ Recommended cleanliness of hydraulic fluids
- ▶ Achievable cleanliness in accordance with ISO 4406
- ▶ Oil cleanliness codes in accordance with ISO 4406
- ▶ Overview of key filter properties
- ▶ Fluid and product service

Product description

The hydraulic fluid (usually mineral oil) is the central component of any hydraulic system. If a system fails, the cause is usually excessive contamination of the hydraulic fluid.

This convenient booklet explains the basic principles for controlling and ensuring cleanliness of hydraulic fluids and serves as a reference and comparison text for this important area of hydraulics.

44 pages, A6 format

Material number	Language	Price plus VAT
R999000239	DE	€5.00
R999000240	EN	€5.00

eLearning



Today, independent learning at the computer is an integral part of the knowledge transfer because it enables learning at any time and at any location.

We offer you qualified and certified training that provides you with maximum flexibility. eLearning courses from the Drive & Control Academy cover all Drive & Control technologies.

Test our eLearning courses with a free guest access:

www.boschrexroth.com/eLearning



eHTG – Basic knowledge of hydraulics



- Flexible time management
- Individual pace of learning
- Unlimited repeatability
- Final test + personalized Rexroth certificate (per license)

Contents

- ▶ Hydraulic systems in general (properties)
- ▶ Design and function of a hydraulic system
- ▶ Basic physical principles and their meaning in hydraulics
- ▶ Symbols according to DIN ISO 1219
- ▶ Hydraulic fluids
- ▶ Hydraulic pumps, motors, and cylinders
- ▶ Control technology (check, directional, pressure, and flow control valves)
- ▶ Create and read simple circuit diagrams

Scope and duration of learning

- ▶ 13 learning modules, 600 training pages, 120 test questions
- ▶ Course duration approx. 25 to 32 hours
- ▶ Languages: German, English, Italian, French, Chinese, Russian, Hungarian, and others

Prerequisites

- ▶ PC with Internet access, Flash Player 10 or higher (<http://get.adobe.com/flashplayer/>), using a web browser with Flash support if necessary
- ▶ Deactivated pop-up blocker
- ▶ E-mail address for personal login

Free guest access:

www.boschrexroth.com/eLearning

Product description

From the function and properties of selected components through to the design of hydraulic circuit diagrams – all the basic principles that hydraulics engineers need are offered in the “eHTG – Basic Knowledge of Hydraulics” eLearning.

License durations

The eLearning is available around the clock within the license duration (12 months after activation).

Licenses for industrial companies

Material number	License	Price plus VAT
R961006626	Single license	€940/year
R961006637	6 licenses	€2,217/year
R961006638	12 licenses	€3,089/year
R961006639	24 licenses	€4,305/year

Licenses for educational institutions/schools/colleges

Material number	License	Price plus VAT
R961006643	Single license	€313/year
R961006644	12 licenses	€1,030/year
R961006645	24 licenses	€1,435/year

See the ordering information section for further license models.

eEATG – Basic knowledge of electric drive technology



- Flexible time management
- Individual pace of learning
- Unlimited repeatability
- Final test + personalized Rexroth certificate (per license)

Contents

- ▶ Basic introduction to electric drive technology
- ▶ Operating principles and properties of electric motors
- ▶ Basics of encoder systems

Scope and duration of learning

- ▶ 5 learning modules, 175 training pages, 50 test questions
- ▶ Course duration approx. 10 to 15 hours
- ▶ Languages: German and English

Prerequisites

- ▶ PC with Internet access, Flash Player 10 or higher (<http://get.adobe.com/flashplayer/>), using a web browser with Flash support if necessary
- ▶ Deactivated pop-up blocker
- ▶ E-mail address for personal login

Free guest access:

www.boschrexroth.com/eLearning

Product description

This eLearning covers the functions and properties of selected drive components. The eLearning is recommended for all those who want to take part in further advanced training courses. The participants become acquainted with the connections of the electrical drive systems and receive an overview of industrial automation technology.

License durations

The eLearning is available around the clock within the license duration (12 months after activation).

Licenses for industrial companies

Material number	License	Price plus VAT
R961009230	Single license	€376/year
R961009231	6 licenses	€887/year
R961009232	12 licenses	€1,236/year
R961009233	24 licenses	€1,722/year

Licenses for educational institutions/schools/colleges

Material number	License	Price plus VAT
R961009237	Single license	€125/year
R961009238	12 licenses	€412/year
R961009239	24 licenses	€574/year

See the ordering information section for further license models.

eESTG – Basic knowledge of electric control technology



- Flexible time management
- Individual pace of learning
- Unlimited repeatability
- Final test + personalized Rexroth certificate (per license)

Contents

- ▶ Basic Introduction to Electric Control Technology
- ▶ Programmable Logic Controllers (PLC)
- ▶ Numerical Control Systems (CNC)
- ▶ Motion Control Systems (MC)
- ▶ Robot Control Systems (RC)
- ▶ Application and programming examples
- ▶ Interfaces

Scope and duration of learning

- ▶ 6 learning modules, approx. 100 training pages, 34 test questions
- ▶ Course duration approx. 3 to 4 hours
- ▶ Languages: German and English

Prerequisites

- ▶ PC with Internet access, Flash Player 10 or higher (<http://get.adobe.com/flashplayer/>), using a web browser with Flash support if necessary
- ▶ Deactivated pop-up blocker
- ▶ E-mail address for personal login

Free guest access:

www.boschrexroth.com/eLearning

Product description

This eLearning provides the basics of electric control technology. Various types of controls will be introduced step by step, differences demonstrated, application areas are explained and the programming discussed. Furthermore, the interfaces between human and control system respectively control system and machine will be presented in the modular eLearning. The eLearning is recommended for those who need a basic understanding of control technology or want attend further advanced training courses.

License durations

The eLearning is available around the clock within the license duration (12 months after activation).

Licenses for industrial companies

Material number	License	Price plus VAT
R901414926	Single license	€198/year
R901414935	6 licenses	€467/year
R901414937	12 licenses	€651/year
R901414940	24 licenses	€907/year

Licenses for educational institutions/schools/colleges

Material number	License	Price plus VAT
R901414952	Single license	€66/year
R901414953	12 licenses	€217/year
R901414955	24 licenses	€302/year

See the ordering information section for further license models.

ePTG – Basic knowledge of pneumatics



- Flexible time management
- Individual pace of learning
- Unlimited repeatability
- Final test + personalized Rexroth certificate (per license)

Contents

- ▶ Introduction to pneumatics
- ▶ Basic physical principles of pneumatics
- ▶ Compressed air generation, compressor types, procedure for drying compressed air
- ▶ Maintenance units for conditioning, compressed air networks
- ▶ Directional, flow control, pressure, and check valves
- ▶ Pneumatic drives
- ▶ Graphic symbols and circuit diagrams according to ISO 1219
- ▶ Basic principles for designing components
- ▶ Basic pneumatic circuitry

Scope and duration of learning

- ▶ 9 learning modules, 330 training pages, 56 test questions
- ▶ Course duration approx. 10 to 15 hours
- ▶ Languages: German, English, French, and others

Prerequisites

- ▶ PC with Internet access, Flash Player 10 or higher (<http://get.adobe.com/flashplayer/>), using a web browser with Flash support if necessary
- ▶ Deactivated pop-up blocker
- ▶ E-mail address for personal login

Free guest access:

www.boschrexroth.com/eLearning

Product description

From the function and properties of selected components through to the design of pneumatic circuit diagrams – all the basic principles that pneumatic professionals need are offered in the “ePTG – Basic Knowledge of Pneumatics” eLearning.

License durations

The eLearning is available around the clock within the license duration (12 months after activation).

Licenses for industrial companies

Material number	License	Price plus VAT
R961007056	Single license	€555/year
R961007082	6 licenses	€1,309/year
R961007060	12 licenses	€1,824/year
R961007059	24 licenses	€2,542/year

Licenses for educational institutions/schools/colleges

Material number	License	Price plus VAT
R961007066	Single license	€185/year
R961007065	12 licenses	€608/year
R961007064	24 licenses	€847/year

See the ordering information section for further license models.

eLTG – Basic knowledge of linear motion technology



- Flexible time management
- Individual pace of learning
- Unlimited repeatability
- Final test + personalized Rexroth certificate (per license)

Contents

- ▶ Introduction to linear motion technology
- ▶ Design, function, and areas of application for profiled rail systems
- ▶ Design, function, and areas of application for linear bushings and shafts
- ▶ Design, function, and areas of application for screw drives
- ▶ Design of linear motion systems
- ▶ Overview of all ready-to-install linear motion systems

Scope and duration of learning

- ▶ 7 learning modules, 400 training pages, 56 test questions
- ▶ Course duration approx. 12 to 18 hours
- ▶ Languages: German, English, and others

Prerequisites

- ▶ PC with Internet access, Flash Player 10 or higher (<http://get.adobe.com/flashplayer/>), using a web browser with Flash support if necessary
- ▶ Deactivated pop-up blocker
- ▶ E-mail address for personal login

Free guest access:

www.boschrexroth.com/eLearning

Product description

From the physical principles, products, the applications and basic knowledge of design. The eLearning is recommended for all those who want to take part in further advanced training courses.

License durations

The eLearning is available around the clock within the license duration (12 months after activation).

Licenses for industrial companies

Material number	License	Price plus VAT
R961006682	Single license	€649/year
R961006683	6 licenses	€1,530/year
R961006714	12 licenses	€2,133/year
R961006684	24 licenses	€2,972/year

Licenses for educational institutions/schools/colleges

Material number	License	Price plus VAT
R961006688	Single license	€216/year
R961006689	12 licenses	€711/year
R961006690	24 licenses	€991/year

See the ordering information section for further license models.

eFSI – Basics of functional safety



- Flexible time management
- Individual pace of learning
- Unlimited repeatability
- Final test + personalized Rexroth certificate (per license)

Contents

- ▶ Basic principles of machine safety
- ▶ Machinery Directive, legislation, standards
- ▶ 10 steps to performance level

Scope and duration of learning

- ▶ 2 learning modules, 80 training pages, 20 test questions
- ▶ Course duration approx. 2 to 3 hours
- ▶ German or English (other languages on request)

Prerequisites

- ▶ PC with Internet access, Flash Player 10 or higher (<http://get.adobe.com/flashplayer/>), using a web browser with Flash support if necessary
- ▶ Deactivated pop-up blocker
- ▶ E-mail address for personal login

Free guest access:

www.boschrexroth.com/eLearning

Product description

In the eFSI “Basics of functional safety” eLearning we provide you with multimedia learning content on the topics “Basic principles of machine safety” and “10 steps to performance level”, prepared according to the latest didactic findings.

License durations

The eLearning is available around the clock within the license duration (12 months after activation).

Licenses for industrial companies

Material number	License	Price plus VAT
R961007035	Single license	€198/year
R961007036	6 licenses	€467/year
R961007037	12 licenses	€651/year
R961007038	24 licenses	€907/year

Licenses for educational institutions/schools/colleges

Material number	License	Price plus VAT
R961007042	Single license	€66/year
R961007043	12 licenses	€217/year
R961007044	24 licenses	€302/year

See the ordering information section for further license models.

e4EE – Basics of energy efficiency



- Flexible time management
- Individual pace of learning
- Unlimited repeatability
- Final test + personalized Rexroth certificate (per license)

Contents

- ▶ Energy – a scarce resource
- ▶ Definition of energy efficiency
- ▶ General conditions
- ▶ Energy efficiency in companies
- ▶ Rexroth 4EE system
- ▶ Useful information about energy efficiency

Scope and duration of learning

- ▶ 1 learning module, 43 training pages, 15 test questions
- ▶ Course duration approx. 1 to 2 hours
- ▶ German and English

Prerequisites

- ▶ PC with Internet access, Flash Player 10 or higher (<http://get.adobe.com/flashplayer/>), using a web browser with Flash support if necessary
- ▶ Deactivated pop-up blocker
- ▶ E-mail address for personal login
- ▶ Interest in the topic of energy efficiency

License durations

The eLearning course is available around the clock within the license duration (12 months after activation).

Free guest access:

www.boschrexroth.com/eLearning

Product description

Energy is becoming more scarce and expensive all the time. At the same time, demand is on the rise. The focus today is therefore on technologies that help to resolve the problem. Intelligent automation solutions make an essential contribution, provided that people are sensitized to the topic of energy efficiency, work to optimize the way energy is used and select the right technological tools. In this eLearning we convey the basic information you need to know about energy efficiency.

Licenses for industrial companies

Material number	License	Price plus VAT
R961006661	Single license	€69/year
R961006662	6 licenses	€163/year
R961006663	12 licenses	€227/year
R961006904	24 licenses	€316/year

Licenses for educational institutions/schools/colleges

Material number	License	Price plus VAT
R961006670	Single license	€23/year
R961006675	12 licenses	€76/year
R961006680	24 licenses	€105/year

See the ordering information section for further license models.

e4EE – Sytronix

Energy-efficient variable-speed pump drives



- Flexible time management
- Individual pace of learning
- Unlimited repeatability
- Final test + personalized Rexroth certificate (per license)

Contents

- ▶ Basic energy efficiency knowledge
- ▶ Valve and displacement control
- ▶ On-demand control
- ▶ Components of variable-speed pump drives
- ▶ Parameters for selecting such a drive
- ▶ Circuit examples
- ▶ System comparison

Scope and duration of learning

- ▶ 2 learning modules, 110 training pages, 30 test questions
- ▶ Course duration approx. 3 to 4 hours
- ▶ German and English

Prerequisites

- ▶ PC with Internet access, Flash Player 10 or higher (<http://get.adobe.com/flashplayer/>), using a web browser with Flash support if necessary
- ▶ Deactivated pop-up blocker
- ▶ E-mail address for personal login
- ▶ Participation in the HTG/eHTG, EATG-1, and HTTPu training courses, or comparable knowledge

Free guest access:

www.boschrexroth.com/eLearning

Product description

The reliability of high-performance hydraulics, as well as energy efficiency and dynamics of compact electronics, go hand in hand with the Sytronix variable-speed pump drives from Rexroth.

In the “e4EE Sytronix” eLearning, we provide you with the necessary basic knowledge and technical background.

License durations

The eLearning is available around the clock within the license duration (12 months after activation).

Licenses for industrial companies

Material number	License	Price plus VAT
R961006677	Single license	€198/year
R961006931	6 licenses	€467/year
R961006668	12 licenses	€651/year
R961006932	24 licenses	€907/year

Licenses for educational institutions/schools/colleges

Material number	License	Price plus VAT
R961006934	Single license	€66/year
R961006669	12 licenses	€217/year
R961006935	24 licenses	€302/year

See the ordering information section for further license models.

eSER

sercos – The automation bus



- Flexible time management
- Individual pace of learning
- Unlimited repeatability
- Final test + personalized Rexroth certificate (per license)
- Free

Contents

- ▶ Overview of sercos the automation bus
- ▶ Applications of sercos in industrial automation
- ▶ Technical details of sercos
- ▶ Features of sercos and their benefits

Prerequisites

- ▶ PC with Internet access, Flash Player 10 or higher (<http://get.adobe.com/flashplayer/>), using a web browser with Flash support if necessary
- ▶ Deactivated pop-up blocker
- ▶ E-mail address for personal login

Product description

Today, independent learning at the computer is an integral part of the knowledge transfer.

The freedom to choose time and place, unlimited repeatability, individual speed of learning and interactive learning contents make this method an indispensable studying tool.

From the basics of sercos to technical details and application examples- Many basics that a user of control systems, electrical and hydraulic actuators, valves and I / O needs.

License durations

The eLearning is available around the clock.

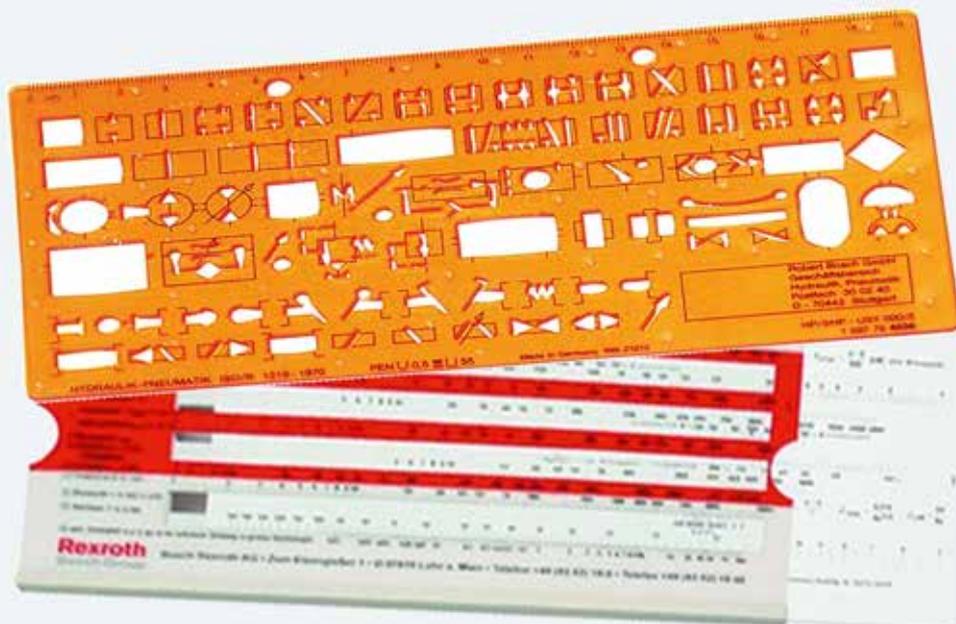
Free guest access:

www.boschrexroth.com/eLearning

Working material



Working materials from the Drive & Control Academy simplify the realization of hydraulic diagrams and their interpretation.



Symbol stencil

Slide Rule – Hydraulics

Slide Rule – Pneumatics



Symbol stencil

The symbol stencil for fluid technology makes it easier to create graphic symbols and circuit diagrams.

Suitable for pens up to 0.5 mm thickness

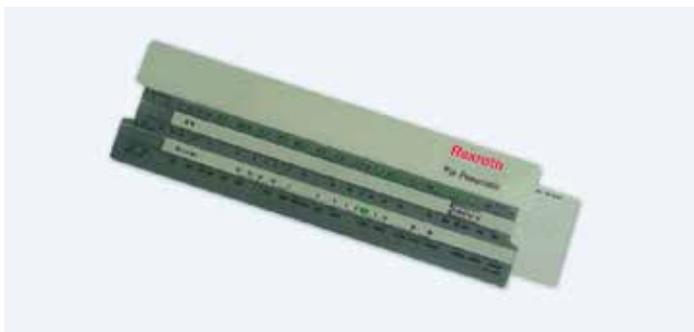
Material number	Price plus VAT
R900018486	€10.80



Slide rule – Hydraulics

The hydraulics slide rule is an analog aid for performing basic hydraulics calculations.

Material number	Language	Price plus VAT
R900018482	DE	€12.00
R900018483	EN	€12.00
R900018485	ES	€12.00



Slide rule – Pneumatics

The pneumatics slide rule is an analog aid for performing basic pneumatics calculations.

Material number	Language	Price plus VAT
R961000803	DE + EN	€19.20

Magnetic symbol case



Magnetic symbol case

Large, magnetic symbols for designing and explaining circuit diagrams for pneumatics, electro-pneumatics and hydraulics come in a plastic case with clearly arranged internal compartments and a list of contents.

The magnetic symbols are suitable for use on whiteboards and in conjunction with whiteboard markers.

They can be easily placed and moved for quick use at workstations without computers.

Topics of the magnetic symbols:

Double-acting cylinder; single-acting cylinder; pneumatic motor; swivel drive; hydraulic motor; shut-off valve; 2/2 directional valve; 3/2 directional valve closed in normal position; 3/2 directional valve, closed in normal position and flow possible in both directions; 3/2 directional valve through normal position; 4/2 directional valve; 4/3 directional valve closed center; 4/3 directional valve pressurized center; 4/3 directional valve exhausted center; 4/3 directional valve connected in center position; 5/2 directional valve with flow possible in both directions; 5/2 directional valve with flow possible from one direction; 5/3 directional valve closed center; 5/3 directional valve pressurized center; 5/3 directional valve exhausted center; adjustable throttle/non-return valve; adjustable throttle; non-return valve; dual pressure valve (AND function); shuttle valve; quick exhaust valve; pressure relief valve; pressure reducing valve; 2-way flow control valve; 3-way flow control valve; maintenance unit; detailed maintenance unit; hydraulic power unit; hydraulic pump; relay; solenoid; sensor; LED.

Material number	Price plus VAT
1827003030	€686.00

Posters/Cutaway models



The functional principles of the different technology and knowledge areas are displayed concisely and clearly on the Drive & Control Academy posters.

The design and operating principle of components can be illustrated in detail using cutaway models.



Posters – Hydraulics package 1



Contents

- ▶ Vane pumps (PV7 series)
- ▶ Servo directional control valves (Type 4WS.2E)
- ▶ Graphic symbols (valves)
- ▶ Graphic symbols
(pumps, motors, cylinders, and equipment)
- ▶ Variable piston pumps
(with pressure and flow control)
- ▶ Basic principles of physics

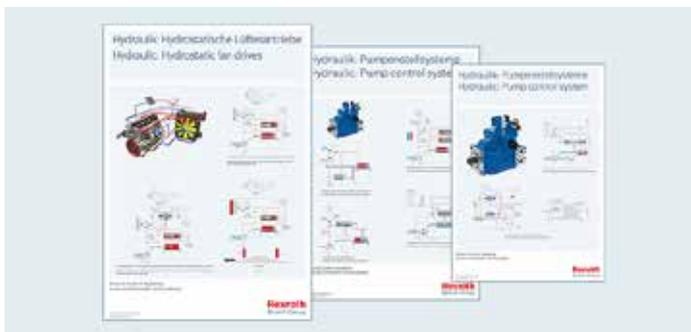
Product description

The posters clearly illustrate the design, circuit symbols, and functional elements of hydraulic components, or give an overview of graphic symbols according to DIN ISO 1219.

DIN A1 format (841 x 594 mm)

Material number	Language	Price plus VAT
R961008961	DE + EN	€42.00

Posters – Hydraulics package 2



Contents

- ▶ Hydrostatic fan drives 1
(with constant pump and motor, variable displacement pump with thermal pressure relief valve, variable displacement pump with pressure relief valve)
- ▶ Hydrostatic fan drives 2
(with variable displacement pump with pressure relief valve)
- ▶ Pump regulating systems 1
(with pressure and flow control, pilot pressure operated, power control, electro-proportional EO control)
- ▶ Pump regulating systems 2
(with EP control, speed-dependent control)

Product description

The posters clearly illustrate the design and circuit symbols of hydrostatic fan drives and pump regulating systems.

DIN A1 format (841 x 594 mm)

Material number	Language	Price plus VAT
R961008962	DE + EN	€26.00

Posters – Hydraulics package 3 Valves



Contents

- ▶ Pressure reducing valve
- ▶ On/off directional control valve
- ▶ Servo directional control valve
- ▶ Pressure relief valve
- ▶ Non-return valve

Product description

The posters clearly illustrate the design, circuit symbols, and functional elements of hydraulic valves.

DIN A1 format (841 x 594 mm)

Material number	Language	Price plus VAT
R961009636	DE + EN	€32.50

Posters – Pneumatics package 1



Contents

- ▶ Directional control valves (LS04AF series)
- ▶ Directional control valves (LS04XS series)
- ▶ Maintenance units (AS series)
- ▶ Pneumatic cylinders (OCT1 series)

Product description

The posters clearly illustrate the design, circuit symbols, and functional elements of pneumatic components.

DIN A1 format (841 x 594 mm)

Material number	Language	Price plus VAT
R961008963	DE + EN	€26.00

Cutaway models



Product description

Cutaway models provide an interesting insight into the inner workings and function of components. All the models originate from industrial products that are used in the field.

The moving elements, as well as the housing, cover, and plugs, all match the original. The different sections of a component are cut away expertly to reveal the parts that are relevant to a particular function. Because mechanical functions continue to work, the moving parts can be actuated, which supports explanation of the components' functions.

Additional coloration of the channels, holes, and chambers in the cutaway model creates an easily recognizable and effective illustration of the processes in a unit.

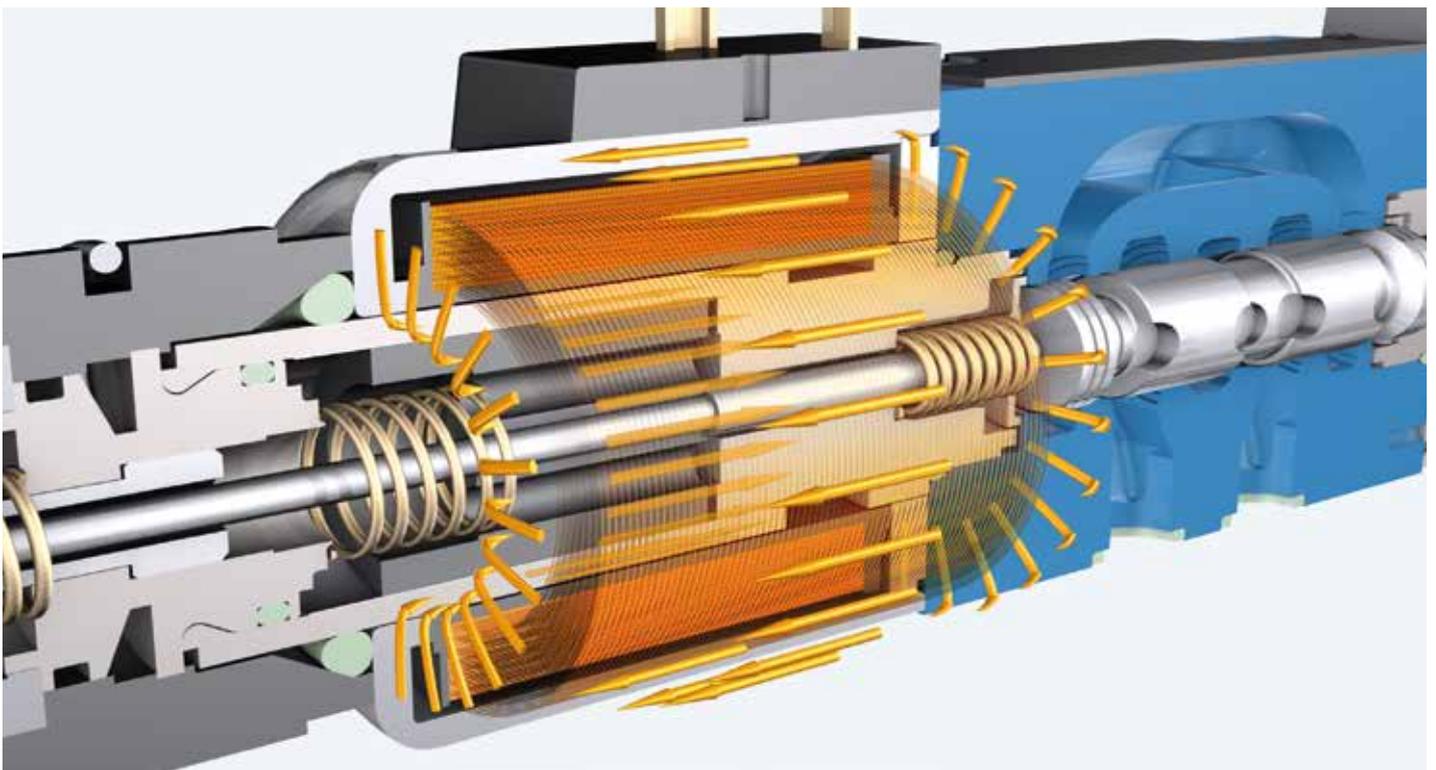
Designation	Material number	Price plus VAT
Pressure relief valve	R900018206	€1,170.00
Pressure reducing valve	R900018212	€623.00
Pressure reducing valve, pilot-operated	R900018213	€964.00
Twin throttle/non-return valve	R900018224	€474.00
Vane pump	R900018226	€2,246.00
Proportional pressure reducing valve	R900018228	€2,066.00
Non-return valve	R900018232	€250.00
Non-return valve with leakage oil return	R900018238	€748.00
Non-return valve 2	R900018240	€607.00
Directional control poppet valve	R900018245	€1,533.00
Directional control spool valve	R901389252	€996.00

Multimedia



Videos, interactive 2D and 3D animations and apps illustrate complex motion sequences and clarify difficult technical contexts.

Test our animations with a free guest access:
www.boschrexroth.com/animation



Animations

Hydraulics – Basic principles



- Flexible time management
- Individual pace of learning
- Unlimited repeatability

Contents

- ▶ Basic circuits
 - Pressure- and force-dependent controls
 - Hydrostatic drives
 - Valve controls
- ▶ Components
 - Pressure medium, displacement, curves
 - Hydraulic motors
 - Hydraulic pumps
 - Hydraulic valves
 - Hydraulic cylinders
 - Accessories
- ▶ Fundamental physical principles
 - Fluid viscosity

Prerequisites

- ▶ PC with Internet access, Flash Player 10 or higher (<http://get.adobe.com/flashplayer/>), using a web browser with Flash support if necessary
- ▶ Deactivated pop-up blocker
- ▶ E-mail address for personal login
- ▶ Basic knowledge of hydraulics (recommendation: HTG or eHTG training course)

Product description

The “Hydraulics – Basic principles” animation package contains 50 animations and addresses such topics as basic circuits, components, and basic physical principles. The animations are language-neutral and any necessary captions are in English.

License durations

The animations are available around the clock within the license duration (12 months after activation).

Licenses for industrial companies

Material number	License	Price plus VAT
R961006928	Single license	€98/year

Licenses for educational institutions/schools/colleges

Material number	License	Price plus VAT
R961006929	Single license	€65/year

Free guest access:

www.boschrexroth.com/animation

Animations

Fan control systems



- Flexible time management
- Individual pace of learning
- Unlimited repeatability

Contents

- ▶ Constant pump and motor
- ▶ Variable displacement pump with:
 - Thermal pressure relief valve
 - Proportional pressure relief valve with falling characteristic curve
 - Proportional pressure relief valve with falling characteristic curve; cable break
 - Proportional pressure relief valve; reversing drive
 - Interforst fan (film)
 - Shutter
 - Rising characteristic curve

Prerequisites

- ▶ PC with Internet access, Flash Player 10 or higher (<http://get.adobe.com/flashplayer/>), using a web browser with Flash support if necessary
- ▶ Deactivated pop-up blocker
- ▶ E-mail address for personal login
- ▶ Basic knowledge of hydraulics (recommendation: HTG or eHTG training course)

Product description

The “Fan control systems” animation package contains 7 animations with detailed descriptions and a film. The animations are language-neutral and any necessary captions are in English.

License durations

The animations are available around the clock within the license duration (12 months after activation).

Licenses for industrial companies

Material number	License	Price plus VAT
R961006920	Single license	€45/year

Licenses for educational institutions/schools/colleges

Material number	License	Price plus VAT
R961006921	Single license	€29/year

Free guest access:

www.boschrexroth.com/animation

Animations

Throttle control



- Flexible time management
- Individual pace of learning
- Unlimited repeatability

Contents

- ▶ Principle of throttle control
- ▶ Load dependency
- ▶ Speed dependency
- ▶ Pilot valve
- ▶ Controlling directional control valves

Prerequisites

- ▶ PC with Internet access, Flash Player 10 or higher (<http://get.adobe.com/flashplayer/>), using a web browser with Flash support if necessary
- ▶ Deactivated pop-up blocker
- ▶ E-mail address for personal login
- ▶ Basic knowledge of hydraulics (recommendation: HTG or eHTG training course)

Product description

The “Throttle control” animation package contains 5 animations with detailed descriptions.

License durations

The animations are available around the clock within the license duration (12 months after activation).

Licenses for industrial companies

Material number	License	Price plus VAT
R961009776	Single license	€45/year

Licenses for educational institutions/schools/colleges

Material number	License	Price plus VAT
R961009777	Single license	€29/year

Free guest access:

www.boschrexroth.com/animation

Animations

Sytronix



- Flexible time management
- Individual pace of learning
- Unlimited repeatability

Contents

- ▶ Variable-speed drives
 - Open circuit, pump – motor
 - Closed circuit
 - One direction of rotation of the pump, reversing motor via directional control valve
 - One direction of rotation of the pump, cylinder motion reversal via directional control valve
 - Two directions of rotation of the pump (reversal), pressure control
 - Two directions of rotation of the pump (reversal), position control
- ▶ DFE
 - Motor, open circuit
 - Motor, open-loop circuit with directional valve
 - Cylinder, open-loop circuit with directional valve
 - Pressure and position control

Prerequisites

- ▶ PC with Internet access, Flash Player 10 or higher (<http://get.adobe.com/flashplayer/>), using a web browser with Flash support if necessary
- ▶ Deactivated pop-up blocker
- ▶ E-mail address for personal login
- ▶ Basic knowledge of hydraulics (recommendation: HTG or eHTG and e4EE training courses)

Product description

The “Sytronix” animation package contains 10 animations with detailed descriptions.

The animations are language-neutral and any necessary captions are in English.

License durations

The animations are available around the clock within the license duration (12 months after activation).

Licenses for industrial companies

Material number	License	Price plus VAT
R961006922	Single license	€59/year

Licenses for educational institutions/schools/colleges

Material number	License	Price plus VAT
R961006923	Single license	€39/year

Free guest access:

www.boschrexroth.com/animation

Animations

Pneumatics – Basic principles



- Flexible time management
- Individual pace of learning
- Unlimited repeatability

Contents

- ▶ Basic physical principles
- ▶ Compressed air generation
- ▶ Maintenance units
- ▶ Pneumatic drives
- ▶ Directional control valves
- ▶ Isolator, flow control and pressure control valves
- ▶ Other pneumatic components
- ▶ Basic pneumatic circuits

Prerequisites

- ▶ PC with Internet access, Flash Player 10 or higher (<http://get.adobe.com/flashplayer/>), using a web browser with Flash support if necessary
- ▶ Deactivated pop-up blocker
- ▶ E-mail address for personal login
- ▶ Basic knowledge of pneumatics (recommendation: PTG or ePTG training course)

Product description

The “Pneumatics – Basic principles” animation package contains almost 50 animations and addresses topics such as basic physical principles, directional valves, and basic pneumatic circuits.

The animations are language-neutral and any necessary captions are in English.

License durations

The animations are available around the clock within the license duration (12 months after activation).

Licenses for industrial companies

Material number	License	Price plus VAT
R961006676	Single license	€98/year

Licenses for educational institutions/schools/colleges

Material number	License	Price plus VAT
R961006681	Single license	€65/year

Free guest access:

www.boschrexroth.com/animation

Animations

Pump regulating system



- Flexible time management
- Individual pace of learning
- Unlimited repeatability

Contents

- ▶ Pressure difference(Δp)-setting (DFRDEITAP)
- ▶ Pressure cut-off (DFRPRTAP)
- ▶ Electro-proportional (EP) control
- ▶ EP control, Master-Slave
- ▶ Electro-proportional control with electrical feedback and position control (EO)
- ▶ Speed-dependent control (DA), principle
- ▶ DA control, load simulation
- ▶ DA control, simulation parallel consumers

Prerequisites

- ▶ PC with Internet access, Flash Player 10 or higher (<http://get.adobe.com/flashplayer/>), using a web browser with Flash support if necessary
- ▶ Deactivated pop-up blocker
- ▶ E-mail address for personal login
- ▶ Basic knowledge of hydraulics (recommendation: HTG or eHTG training course)

Product description

The animation package "Pump regulating system" contains 8 animations. The animations are language-neutral, necessary descriptions are done in English.

License durations

The animations are available around the clock within the license duration (12 months after activation).

Licenses for industrial companies

Material number	License	Price plus VAT
R961006926	Single license	€69/year

Licenses for educational institutions/schools/colleges

Material number	License	Price plus VAT
R961006927	Single license	€49/year

Free guest access:

www.boschrexroth.com/animation

Animations – Load-Sensing & Load pressure-independent flow distribution



- Flexible time management
- Individual pace of learning
- Unlimited repeatability

Contents

- ▶ Characteristic curves (programmable, progressive)
- ▶ Characteristic curves (programmable, linear)
- ▶ Two valves, individual operation
- ▶ Two valves, parallel operation
- ▶ Two valves, load simulation
- ▶ Two valves, load indication (shuttle valve line)
- ▶ Two valves, travel drive open circuit with characteristic curve
- ▶ Two valves, travel drive open circuit without characteristic curve
- ▶ Two valves, anti jamming function
- ▶ Functional principle (M7-based)
- ▶ Simulation parallel operation (M7-basis)

Prerequisites

- ▶ PC with Internet access, Flash Player 10 or higher (<http://get.adobe.com/flashplayer/>), using a web browser with Flash support if necessary
- ▶ Deactivated pop-up blocker
- ▶ E-mail address for personal login
- ▶ Basic knowledge of hydraulics (recommendation: HTG or eHTG training course)

Product description

The animation package "Load-Sensing & Load pressure-independent flow distribution" contains 11 animations. The animations are language-neutral, necessary descriptions are done in English.

License durations

The animations are available around the clock within the license duration (12 months after activation).

Licenses for industrial companies

Material number	License	Price plus VAT
R961415662	Single license	€59/year

Licenses for educational institutions/schools/colleges

Material number	License	Price plus VAT
R961415663	Single license	€39/year

Free guest access:

www.boschrexroth.com/animation

Animations – 2-way proportional valve



- Flexible time management
- Individual pace of learning
- Unlimited repeatability

Contents

- ▶ 2-way proportional valve, function principle, flow direction P-A
- ▶ 2-way proportional valve, function principle, flow direction A-P
- ▶ Proportional directional control valve, (4x 2/2) separate control P-A, A-T, P-B, B-T
- ▶ Proportional directional control valve, separate control, representation/diagram floating position (manual cylinder actuation)
- ▶ Proportional directional control valve, separate control, representation/diagram floating position, wheel loader application
- ▶ Proportional directional control valve, separate control, representation/diagram non-floating position, wheel loader application
- ▶ Proportional directional control valve, separate control, same retraction and extension speeds

Prerequisites

- ▶ PC with Internet access, Flash Player 10 or higher (<http://get.adobe.com/flashplayer/>), using a web browser with Flash support if necessary
- ▶ Deactivated pop-up blocker
- ▶ E-mail address for personal login
- ▶ Basic knowledge of hydraulics (recommendation: HTG or eHTG training course)

Product description

The animation package "2-way proportional valve" contains 7 animations. The animations are language-neutral, necessary descriptions are done in English.

License durations

The animations are available around the clock within the license duration (12 months after activation).

Licenses for industrial companies

Material number	License	Price plus VAT
R901415657	Single license	€45/year

Licenses for educational institutions/schools/colleges

Material number	License	Price plus VAT
R901415660	Single license	€29/year

Free guest access:

www.boschrexroth.com/animation

Animations

Solenoid current control for proportional valves



- Flexible time management
- Individual pace of learning
- Unlimited repeatability

Contents

- ▶ Basics principles
- ▶ Supply voltage simulation
- ▶ Influence of the length of wiring
- ▶ Influence of temperature
- ▶ Valve basic circuit with electronics
- ▶ Principle of pulse width modulation - Influence of power supply
- ▶ Principle of current regulation - Change in command value / Command value deviation
- ▶ Influence of frequency on the hysteresis
- ▶ Influence of frequency on the stability

Prerequisites

- ▶ PC with Internet access, Flash Player 10 or higher (<http://get.adobe.com/flashplayer/>), using a web browser with Flash support if necessary
- ▶ Deactivated pop-up blocker
- ▶ E-mail address for personal login
- ▶ Basic knowledge of hydraulics (recommendation: HTG or eHTG training course)

Product description

The animation package "Solenoid current control for proportional valves" contains 9 animations. The animations are language-neutral, necessary descriptions are done in English.

License durations

The animations are available around the clock within the license duration (12 months after activation).

Licenses for industrial companies

Material number	License	Price plus VAT
R901415665	Single license	€45/year

Licenses for educational institutions/schools/colleges

Material number	License	Price plus VAT
R901415667	Single license	€29/year

Free guest access:

www.boschrexroth.com/animation

Animations

3-way and 2-way proportional flow control valve



- Flexible time management
- Individual pace of learning
- Unlimited repeatability

Contents

- ▶ 3-way proportional flow control valve, functional representation
- ▶ 3-way proportional flow control valve, functional representation and characteristic
- ▶ 2-way proportional flow control valve, functional representation, influence of metering orifice
- ▶ 2-way proportional flow control valve, functional representation, influence of metering orifice
- ▶ Spreader

Prerequisites

- ▶ PC with Internet access, Flash Player 10 or higher (<http://get.adobe.com/flashplayer/>), using a web browser with Flash support if necessary
- ▶ Deactivated pop-up blocker
- ▶ E-mail address for personal login
- ▶ Basic knowledge of hydraulics (recommendation: HTG or eHTG training course)

Product description

The animation package "3-way and 2-way proportional flow control valve" contains 5 animations.

The animations are language-neutral, necessary descriptions are done in English.

License durations

The animations are available around the clock within the license duration (12 months after activation).

Licenses for industrial companies

Material number	License	Price plus VAT
R901415668	Single license	€45/year

Licenses for educational institutions/schools/colleges

Material number	License	Price plus VAT
R901415669	Single license	€29/year

Free guest access:

www.boschrexroth.com/animation

Web-based app

Hydraulic calculations



- Flexible time management
- Individual pace of learning
- Unlimited repeatability
- Free

Contents

Calculation of

- ▶ Flow (pump)
- ▶ Displacement volume per rotation (pump)
- ▶ Speed and torque for hydraulic motors
- ▶ Speed and force for hydraulic cylinders

Prerequisites

- ▶ PC with Internet access, Flash Player 10 or higher (<http://get.adobe.com/flashplayer/>), using a web browser with Flash support if necessary
- ▶ Deactivated pop-up blocker
- ▶ E-mail address for personal login

Product description

The “Hydraulic calculations” free web-based app explains the physical aspects of hydraulics.

The app can determine flow and displacement volume per pump rotation. The calculation is made using a selection of set parameters for drive motor, power and pressure level.

The result can then be used to determine key data for hydraulic drives, such as speed and torque for hydraulic motors and force for hydraulic cylinders.

Free guest access:

www.boschrexroth.com/animation

Film series

Technology in motion



Inhalt

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2 50 Years Rexroth Hydraulics	14 Servo Valve
3 Trailer Industrial 2006	15 FIVA Valve
4 Evolution in Motion	16 HRB Truck
5 Printing Machine	17 HRB Forklifter
6 Papermill	18 Drive & Control Academy
7 Harvester	19 Food and Packaging
8 Sawmill	20 Active Heave Compensation
9 Woodworking	21 Injection Moulding Machine
10 Extrusion Press	22 E2C – Easy to combine
11 Powder Metal Press	23 Wind Energy
12 Continuous Casting	24 Solar Energy

Voraussetzungen

- ▶ PC with Internet access
- ▶ Deactivated pop-up blocker
- ▶ E-mail address for personal login

- Flexible time management
- Unlimited repeatability
- Free

Product description

24 sophisticated high quality animations illustrate actual and interesting drive solutions out of various application areas. This movie series contains image videos, fair presentations and sales oriented technology information. They are an excellent support tool for both events and presentations as well as a complementary item in training.

Note:

The movies are available with a free guest access: www.boschrexroth.com/animation or for free on youtube.

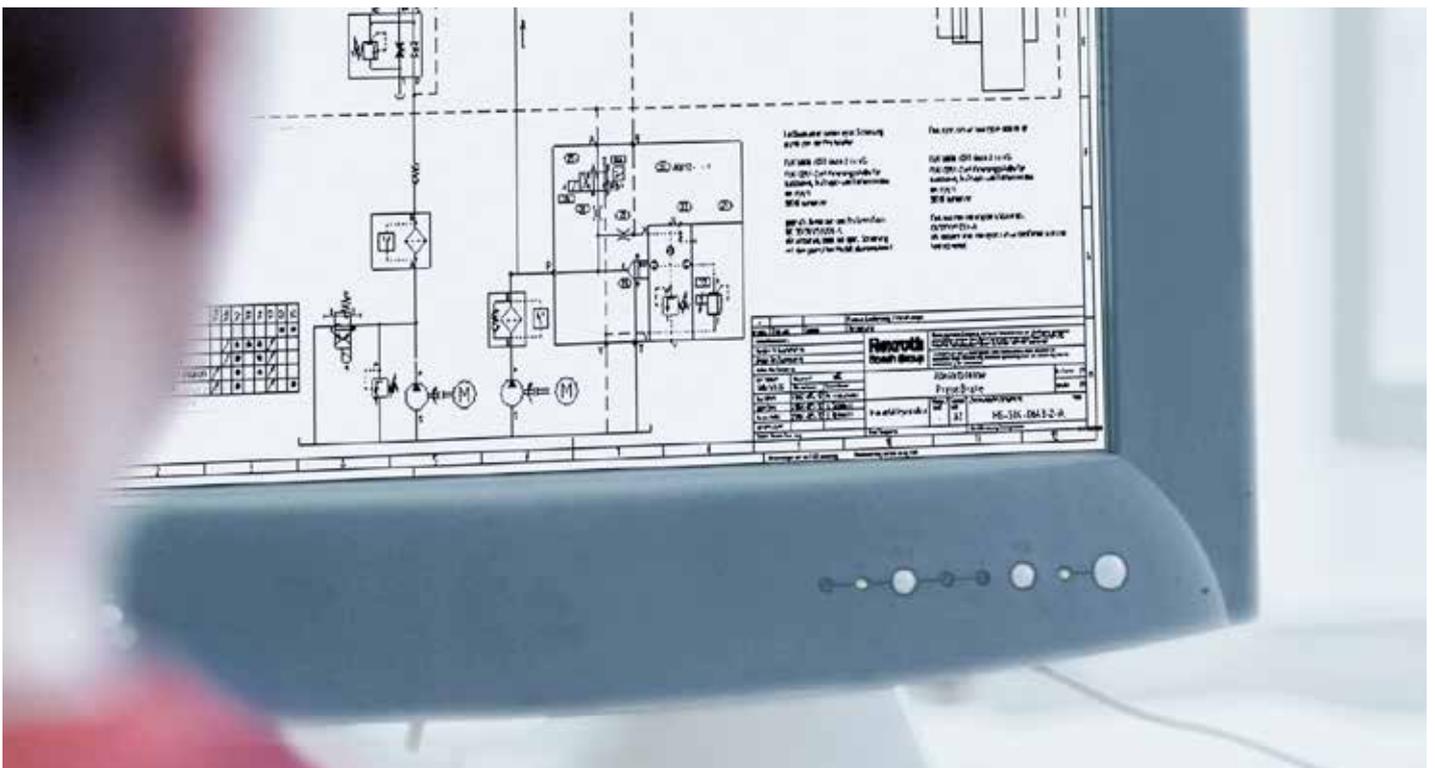
Software



Software, software-based teaching & learning media, and apps supplement our range of products and are essential components of competent knowledge transfer.

Test our software courses with a free guest access:

www.boschrexroth.com/software



Automation Studio Education™



- Simple and intuitive operating menus
- Clear dialog boxes for configuration
- Numerous parameter options
- Licenses for pneumatics, hydraulics, or fluid technology

Contents

- ▶ Simulation of pneumatics, hydraulics, electrical, and electronics circuits
- ▶ Clear illustration and animation of systems and control panels
- ▶ Cross-technology simulations illustrate, for example, the interaction between pneumatics, electrics, electronics, PLC, and GRAFCET; control and simulate using SoftPLC or GRAFCET

Prerequisites

- ▶ Windows 7 (32-/64-bit), Windows Vista, Windows XP SP2, Windows 2000 SP4, or Windows
- ▶ Server 2003 and Internet Explorer from v5.01
- ▶ 800 MB free hard disk space
- ▶ 1 GB RAM, 2 GB recommended
- ▶ Free USB port for the license dongle

Licenses for industrial companies

Material number	License	Price plus VAT
R901403226	Pneumatics, single license	€1,610
R901403228	Hydraulics, single license	€1,610
R901403229	Fluid technology, single license	€2,351

Other license models can be found under the ordering information.

Product description

From designing systems to simulating and animating components, Automation Studio™ offers a wide range of tools to support you in teaching the subjects of hydraulics, pneumatics, electrical engineering and control technology. With Automation Studio™, you can create content-rich and flexible learning material to illustrate basic theoretical principles during the lesson with the help of simulations and animations.

A comprehensive library of components from all subject areas is available to help you accomplish this. The educational version of Automation Studio™ makes it easier to learn quickly when developing, testing and analyzing projects for design, application and maintenance in a virtual and safe environment.

Licenses for educational institutions/schools/colleges

Material number	License	Price plus VAT
R901402731	Pneumatics, single license	€686
R901391025	Hydraulics, single license	€686
R901391033	Fluid technology, single license	€873

Note:

Attend the corresponding face-to-face training course: DC-AS: Automation Studio™ – Fluid Technology Training
You can find the current training offer online at: www.boschrexroth.de/training

HYVOS 7.0

Simulation software for valve-controlled cylinder drives



- Convenient user interface
- Simple operation
- Practice-oriented
- Minimize work and reduce development time
- Illustrative documentation and presentations

Contents

Simulations in the areas of

- ▶ Valves
- ▶ Cylinders
- ▶ Pressure supply
- ▶ Controller
- ▶ Command values
- ▶ Counterforces
- ▶ Functions

Prerequisites

- ▶ Operating system: Microsoft Windows 98/NT 4.0 SP4/ME/2000/XP/Vista/Win 7
- ▶ CD drive

Product description

Simulate valve-controlled cylinder drives in open- or closed-loop circuits. Hundreds of parameters allow complex structures to be modeled and virtually any motion sequences and loads to be simulated. This software tool helps you minimize effort in testing and significantly reduce development times.

Licenses for industrial companies

Material number	License	Price plus VAT
R961005099	Single license	€615

Licenses for educational institutions/schools/colleges

Material number	License	Price plus VAT
R961005100	Single license	€137

Notes:

Free test version available.

Use the free guest access for more detailed information:
www.boschrexroth.com/software

Attend the corresponding face-to-face training course:
 Simulation with HYV-1 - HYVOS 7.0

You can find the current training offer online at:
www.boschrexroth.de/training

Hydrostatic calculations with Excel



- Pump power
- Pipe
- Hydraulic accumulator
- Orifice
- Compressibility

Contents

Linear drives

- ▶ Velocity diagram
- ▶ Single rod cylinders
- ▶ Double rod cylinders
- ▶ Cylinders in regenerative circuits
- ▶ Natural frequency of the single rod cylinder
- ▶ Natural frequency of the double rod cylinder
- ▶ Natural frequency of the plunger cylinder

Rotary drives

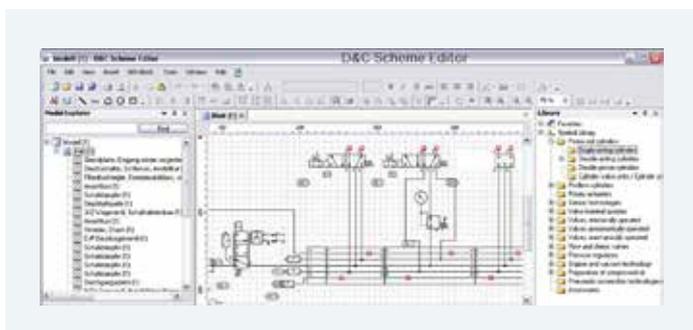
- ▶ Speed diagram
- ▶ Travel diagram
- ▶ Hydraulic motor, fixed displacement
- ▶ Hydraulic motor, variable displacement
- ▶ Natural frequency of the hydraulic motor
- ▶ Mass moment of inertia

Product description

This software is a collection of individual, unlinked spreadsheets containing calculation formulas.

Material number	Language	Price plus VAT
R900854114	DE/EN	€45.00

D&C Scheme Editor



- Comprehensive software for creating standards-compliant pneumatic circuit diagrams
- Intuitive operation
- Creation of your own symbols and modules
- Free

Contents

- ▶ Possible to work with multiple models and worksheets using drag and drop
- ▶ Select a product in the online catalog and take it over to the D&C Scheme Editor
- ▶ Symbols can be selected in the library and used in the digital worksheet or directly in the model explorer
- ▶ Using multiple selection, several components can be added at once
- ▶ Components can be integrated from the library and connected to form a complete circuit diagram in just a few clicks
- ▶ Languages: DE, EN

Prerequisites

- ▶ Operating system: Microsoft Windows 7/8/XP/Vista

Product description

D&C Scheme Editor is a simple, free circuit diagram software for communicating with the customer. The program makes it possible to work with multiple models and worksheets. The elements can be selected from the symbol library, or directly from the products in the online catalog, and used in the digital worksheet. Pneumatic connections are created in just a few clicks of the mouse, and a parts list with the components used is automatically generated. Selected components can be summarized in an individual user library.

Download:

www.boschrexroth.com/dnc-scheme-editor

IndraMotion MTX micro Trainer



- Compact and powerful
- Minimal commissioning effort
- Free

Contents

- ▶ Turning, milling, drilling, grinding, nibbling
- ▶ Different axis controls
- ▶ Interpolation and feed functions
- ▶ Shifts and compensations
- ▶ Tool management
- ▶ CNC programming
- ▶ PLC programming

Product description

IndraMotion MTX micro is the compact, powerful, and inexpensive CNC solution from Rexroth for standard turning and milling machines. All of the functions required in small CNC machines are available. Up to 6 axes can be controlled in 2 CNC channels with minimal commissioning effort.

Download:

www.boschrexroth.com/mtxtrainer

MTpro light



- Simple and fast operation
- Individual classroom planning in 3D area
- Training models in 1:1 ratio
- Free (MTpro light)

Contents

- ▶ Importing CAD and 3D models
 - Changing the perspectives
 - Unlimited number of models
 - Moving all parts in the space
 - Possible to import CAD building plans
- ▶ Training systems as 3D models
 - Component carriers
 - DS4 training system for hydraulics
 - DS3 training system for pneumatics
 - Mechatronic station
- ▶ Additional parts for WS290
 - Small and large tubing storage
 - Measuring glass 2.5 L
 - Load simulator 15 kg, swiveling
 - Vertical load unit 80 kg

Prerequisites

- ▶ Windows XP, Windows Vista, Windows 7 (32-bit/64-bit)
- ▶ DVD-ROM drive
- ▶ OpenGL-capable graphics card
- ▶ Adobe Reader version 6.0 or higher
- ▶ For full installation, at least 2.5 GB free hard disk space
- ▶ Internet access for automatic updates

Product description

MTpro is software available in two versions for individual classroom planning:

- ▶ MTpro light, with no license fees, is limited to the Layout Designer and is available as a free download.
- ▶ The full version of MTpro is available on a DVD and offers a wide range of functions. The software is free but after 60 days of use a license fee is payable.

Detailed information

www.boschrexroth.com/mtpro

100% free

Test some of our products for free:
www.boschrexroth.com/guestlogin



Here you will find free eLearning modules from all the Drive & Control technologies, animations and videos for viewing, and samples of our technical books as eBooks.



eLearning/eTraining



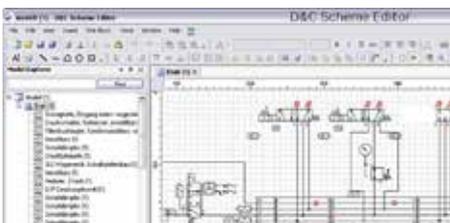
Animations/apps



eBooks

In addition, you will find information about our training courses and systems, as well as other media.

The free software application downloads complete our offering.



D&C Scheme Editor – Simple circuit diagram software



IndraMotion MTX micro Trainer



MTpro light – Individual classroom planning

Ordering Information



On the following pages you will find the available products with a description, material number, and prices (prices are subject to change and exclude VAT).

Please send orders, specifying the desired material number and billing address, to your sales partner or to media@boschrexroth.de.

You can also order quickly and easily online via our eShop:
www.boschrexroth.com/eshop



Please also visit our Amazon retailer store:



Literature

Page	Material number	Description		Price (in €, plus VAT)
Compact knowledge – Hydraulics – Basic principles				
18	R961008906	Wissen kompakt – Hydraulik – Grundlagen	DE	24,90
	R961009449	Compact knowledge – Hydraulics basic	EN	24,90
The hydraulics trainer, volume 1 – Basic principles and components				
19	R900018613	Hydraulik. Grundlagen und Komponenten	DE	46,00
	R900018614	Hydraulics. Basic principles and components	EN	46,00
	R900018617	Hidráulica. Principios básicos y componentes	ES	46,00
	R961000799	CD “HY1graphics”		59,00
The hydraulics trainer, volume 2 – Proportional and servo valve technology				
20	R900018625	Proportional- und Servoventiltechnik	DE	60,00
	R900018626	Proportional and servo valve technology	EN	60,00
	R900018629	Válvula proporcional y servo tecnología	ES	60,00
The hydraulics trainer, volume 3 – Planning and design of hydraulic power systems				
21	R900018538	Projektierung und Konstruktion von Hydroanlagen	DE	80,00
	R900018547	Planning and design of hydraulic power systems	EN	80,00
	R900018549	Planificación y diseño de sistemas de potencia hidráulica	ES	80,00
The hydraulics trainer, volume 4 – Logic element technology				
22	R900018537	Technik der 2-Wege-Einbauventile	DE	38,00
	R900018543	Logic element technology	EN	38,00
	R900018546	Técnica de las válvulas insertables de 2 vías	ES	38,00
The hydraulics trainer, volume 6 – Hydrostatic drives with secondary control				
23	R900826886	Hydrostatische Antriebe mit Sekundärregelung	DE	86,00
	R900826887	Hydrostatic drives with secondary control	EN	86,00
Hydraulics in mobile equipment				
24	R961000790	Hydraulik in mobilen Arbeitsmaschinen	DE	61,00
	R961000791	Hydraulics in mobile equipment	EN	61,00
Knowledge in detail – Hydraulics in tractors				
25	R961009448	Wissen ausführlich – Hydraulik für Traktoren	DE	45,90
	R961009447	Knowledge in detail – Hydraulics in tractors	EN	45,90
Pneumatics. Theory and applications				
26	R961000783	Pneumatik in Theorie und Praxis	DE	37,00
	R927001146	Pneumatics. Theory and applications	EN	37,00
	R927001001	Neumática, teoría y práctica	ES	37,00
	R900701018	CD „PNgraphics”		46,00
Mechatronics. Theory and applications				
27	R961000788	Mechatronik in Theorie und Praxis	DE	59,00
	R927001083	Mechatronics. Theory and applications	EN	59,00
	R961000786	Mecatrónica, en teoría y práctica	ES	59,00
Handbook Linear motion technology				
28	R310DE2017	Handbuch Lineartechnik	DE	35,90
	R310EN2017	Handbook Linear motion technology	EN	35,90
Textbook – Sensors in theory and practice				
29	R961004456	Sensorik in Theorie und Praxis	DE	38,00
	R961004461	Sensors in theory and practice	EN	38,00

Page	Material number	Description		Price (in €, plus VAT)
Safety Technology Handbook – 10 steps to performance level				
30	R961006998	10 Schritte zum Performance Level – Handbuch zur Umsetzung der Funktionalen Sicherheit nach ISO 13849	DE	49,90
	R961006999	10 steps to performance level – Handbook for the implementation of functional safety according to ISO 13849	EN	49,90
	R901393176	Raggiungere il Performance Level in 10 fasi - Guida all'applicazione della sicurezza funzionale secondo EN ISO 13849	IT	49,90
Dictionary of fluid technology				
31	R961007112	Wörterbuch der Fluidtechnik	DE/EN	6,50
Rexroth Oil cleanliness booklet				
32	R999000239	Ölreinheitsfibel	DE	5,00
	R999000240	Oil cleanliness booklet	EN	5,00

eLearning

Page	Material number	Description		Price (in €, plus VAT)
eHTG – Basic knowledge of hydraulics				
34	R961006626	EL HTG (1 license/12 months) – industry		940.00
	R961006637	EL HTG (6 licenses/12 months) – industry		2,217.00
	R961006638	EL HTG (12 licenses/12 months) – industry		3,089.00
	R961006639	EL HTG (24 licenses/12 months) – industry		4,305.00
	R961006641	EL HTG (48 licenses/12 months) – industry		5,999.00
	R961006640	EL HTG (100 licenses/12 months) – industry		8,526.00
	R961006642	EL HTG (500 licenses/12 months) – industry		18,424.00
	R961006643	EL HTG (1 license/12 months) – educational institution		313.00
	R961006644	EL HTG (12 licenses/12 months) – educational institution		1,030.00
	R961006645	EL HTG (24 licenses/12 months) – educational institution		1,435.00
	R961006646	EL HTG (48 licenses/12 months) – educational institution		2,000.00
	R961006647	EL HTG (100 licenses/12 months) – educational institution		2,842.00
	R961006648	EL HTG (500 licenses/12 months) – educational institution		6,141.00
eEATG – Basic knowledge of electric drive technology				
35	R961009230	EL EATG (1 license/12 months) – industry		376.00
	R961009231	EL EATG (6 licenses/12 months) – industry		887.00
	R961009232	EL EATG (12 licenses/12 months) – industry		1,236.00
	R961009233	EL EATG (24 licenses/12 months) – industry		1,722.00
	R961009234	EL EATG (48 licenses/12 months) – industry		2,400.00
	R961009235	EL EATG (100 licenses/12 months) – industry		3,410.00
	R961009236	EL EATG (500 licenses/12 months) – industry		7,370.00
	R961009237	EL EATG (1 license/12 months) – educational institution		125.00
	R961009238	EL EATG (12 licenses/12 months) – educational institution		412.00
	R961009239	EL EATG (24 licenses/12 months) – educational institution		574.00
	R961009240	EL EATG (48 licenses/12 months) – educational institution		800.00
	R961009241	EL EATG (100 licenses/12 months) – educational institution		1,137.00
	R961009242	EL EATG (500 licenses/12 months) – educational institution		2,457.00

Page	Material number	Description	Price (in €, plus VAT)
eESTG – Basic knowledge of electric control technology			
36	R901414926	EL ESTG (1 license/12 months) – industry	198,00
	R901414935	EL ESTG (6 licenses/12 months) – industry	467,00
	R901414937	EL ESTG (12 licenses/12 months) – industry	651,00
	R901414940	EL ESTG (24 licenses/12 months) – industry	907,00
	R901414948	EL ESTG (48 licenses/12 months) – industry	1.264,00
	R901414949	EL ESTG (100 licenses/12 months) – industry	1.796,00
	R901414950	EL ESTG (500 licenses/12 months) – industry	3.881,00
	R901414952	EL ESTG (1 license/12 months) – educational institution	66,00
	R901414953	EL ESTG (12 licenses/12 months) – educational institution	217,00
	R901414955	EL ESTG (24 licenses/12 months) – educational institution	302,00
	R901414960	EL ESTG (48 licenses/12 months) – educational institution	421,00
	R901414965	EL ESTG (100 licenses/12 months) – educational institution	599,00
	R901414970	EL ESTG (500 licenses/12 months) – educational institution	1.294,00
ePTG – Basic knowledge of pneumatics			
37	R961007056	EL PTG (1 license/12 months) – industry	555,00
	R961007082	EL PTG (6 licenses/12 months) – industry	1,309,00
	R961007060	EL PTG (12 licenses/12 months) – industry	1,824,00
	R961007059	EL PTG (24 licenses/12 months) – industry	2,542,00
	R961007063	EL PTG (48 licenses/12 months) – industry	3,542,00
	R961007062	EL PTG (100 licenses/12 months) – industry	5,034,00
	R961007061	EL PTG (500 licenses/12 months) – industry	10,878,00
	R961007066	EL PTG (1 license/12 months) – educational institution	185,00
	R961007065	EL PTG (12 licenses/12 months) – educational institution	608,00
	R961007064	EL PTG (24 licenses/12 months) – educational institution	847,00
	R961007069	EL PTG (48 licenses/12 months) – educational institution	1,181,00
	R961007068	EL PTG (100 licenses/12 months) – educational institution	1,678,00
	R961007067	EL PTG (500 licenses/12 months) – educational institution	3,626,00
eLTG – Basic knowledge of linear motion technology			
38	R961006682	EL LTG (1 license/12 months) – industry	649,00
	R961006683	EL LTG (6 licenses/12 months) – industry	1,530,00
	R961006714	EL LTG (12 licenses/12 months) – industry	2,133,00
	R961006684	EL LTG (24 licenses/12 months) – industry	2,972,00
	R961006685	EL LTG (48 licenses/12 months) – industry	4,142,00
	R961006686	EL LTG (100 licenses/12 months) – industry	5,886,00
	R961006687	EL LTG (500 licenses/12 months) – industry	12,721,00
	R961006688	EL LTG (1 license/12 months) – educational institution	216,00
	R961006689	EL LTG (12 licenses/12 months) – educational institution	711,00
	R961006690	EL LTG (24 licenses/12 months) – educational institution	991,00
	R961006691	EL LTG (48 licenses/12 months) – educational institution	1,381,00
	R961006692	EL LTG (100 licenses/12 months) – educational institution	1,962,00

Page	Material number	Description	Price (in €, plus VAT)
eFSI – Basics of functional safety			
39	R961007035	EL FSI (1 license/12 months) – industry	198.00
	R961007036	EL FSI (6 licenses/12 months) – industry	467.00
	R961007037	EL FSI (12 licenses/12 months) – industry	651.00
	R961007038	EL FSI (24 licenses/12 months) – industry	907.00
	R961007039	EL FSI (48 licenses/12 months) – industry	1,264.00
	R961007040	EL FSI (100 licenses/12 months) – industry	1,796.00
	R961007041	EL FSI (500 licenses/12 months) – industry	3,881.00
	R961007042	EL FSI (1 license/12 months) – educational institution	66.00
	R961007043	EL FSI (12 licenses/12 months) – educational institution	217.00
	R961007044	EL FSI (24 licenses/12 months) – educational institution	302.00
	R961007045	EL FSI (48 licenses/12 months) – educational institution	421.00
	R961007046	EL FSI (100 licenses/12 months) – educational institution	599.00
	R961007047	EL FSI (500 licenses/12 months) – educational institution	1,294.00
e4EE – Basics of energy efficiency			
40	R961006661	EL 4EE (1 license/12 months) – industry	69.00
	R961006662	EL 4EE (6 licenses/12 months) – industry	163.00
	R961006663	EL 4EE (12 licenses/12 months) – industry	227.00
	R961006904	EL 4EE (24 licenses/12 months) – industry	316.00
	R961006665	EL 4EE (48 licenses/12 months) – industry	440.00
	R961006660	EL 4EE (100 licenses/12 months) – industry	626.00
	R961006666	EL 4EE (500 licenses/12 months) – industry	1,352.00
	R961006670	EL 4EE (1 license/12 months) – educational institution	23.00
	R961006675	EL 4EE (12 licenses/12 months) – educational institution	76.00
	R961006680	EL 4EE (24 licenses/12 months) – educational institution	105.00
	R961006667	EL 4EE (48 licenses/12 months) – educational institution	147.00
	R961006672	EL 4EE (100 licenses/12 months) – educational institution	209.00
	R961006930	EL 4EE (500 licenses/12 months) – educational institution	451.00
e4EE Sytronix – Energy-efficient variable-speed pump drives			
41	R961006677	EL 4EE (1 license/12 months) – industry	198.00
	R961006931	EL 4EE (6 licenses/12 months) – industry	467.00
	R961006668	EL 4EE (12 licenses/12 months) – industry	651.00
	R961006932	EL 4EE (24 licenses/12 months) – industry	907.00
	R961006673	EL 4EE (48 licenses/12 months) – industry	1,264.00
	R961006933	EL 4EE (100 licenses/12 months) – industry	1,796.00
	R961006678	EL 4EE (500 licenses/12 months) – industry	3,881.00
	R961006934	EL 4EE (1 license/12 months) – educational institution	66.00
	R961006669	EL 4EE (12 licenses/12 months) – educational institution	217.00
	R961006935	EL 4EE (24 licenses/12 months) – educational institution	302.00
	R961006674	EL 4EE (48 licenses/12 months) – educational institution	421.00
	R961006936	EL 4EE (100 licenses/12 months) – educational institution	599.00
	R961006679	EL 4EE (500 licenses/12 months) – educational institution	1,294.00
eSER sercos – Der Automatisierungsbus			
42		License	Free

Working material

Page	Material number	Description	Price (in €, plus VAT)
Symbol stencil			
44	R900018486	Symbol stencil	10,80
Slide rule – Hydraulics			
44	R900018482	HY Rechenschieber	DE 12,00
	R900018483	HY Slide rule	EN 12,00
	R900018485	HY Regla de cálculo	ES 12,00
Slide rule – Pneumatics			
44	R961000803	Pneumatics slide rule	DE, EN 19.20
Magnetic symbol case			
45	1827003030	Magnetic symbol case	686.00

Posters/Cutaway models

Page	Material number	Description	Price (in €, plus VAT)
Posters – Hydraulics package 1			
48	R961008961	Hydraulics package 1	DE, EN 42,00
Posters – Hydraulics package 2			
49	R961008962	Hydraulics package 2	DE, EN 26,00
Posters – Hydraulics package 3 – Valves			
50	R961009636	Valves package	DE, EN 32,50
Posters – Pneumatics package 1			
51	R961008963	Pneumatics package 1	DE, EN 26,00
Cutaway models			
52	R900018206	Pressure relief valve	1,170.00
	R900018212	Pressure reducing valve	623.00
	R900018213	Piloted pressure reducing valve	964.00
	R900018224	Twin check-choke valve	474.00
	R900018226	Rotary vane pump	2,246.00
	R900018228	Proportional pressure reducing valve	2,066.00
	R900018232	Non-return valve	250.00
	R900018238	Non-return valve with leakage oil return	748.00
	R900018240	Non-return valve 2	607.00
	R900018245	Directional poppet valve	1,533.00
	R901389252	Directional spool valve	996.00

Multimedia

Page	Material number	Description	Price (in €, plus VAT)
Animations – Hydraulics – Basic principles			
54	R961006928	Yearly license for industrial companies	98.00
	R961006929	Yearly license for educational institutions	65.00
Animations – Fan control systems			
55	R961006920	Yearly license for industrial companies	45.00
	R961006921	Yearly license for educational institutions	29.00
Animations – Throttle control			
56	R961009776	Yearly license for industrial companies	45.00
	R961009777	Yearly license for educational institutions	29.00
Animations – Sytronix			
57	R961006922	Yearly license for industrial companies	59.00
	R961006923	Yearly license for educational institutions	39.00
Animations – Pneumatics – Basic principles			
58	R961006676	Yearly license for industrial companies	98.00
	R961006929	Yearly license for educational institutions	65.00
Animations – Pump regulating system			
59	R961006926	Yearly license for industrial companies	69,00
	R961006927	Yearly license for educational institutions	49,00
Animations – Load-Sensing & Load pressure-independent flow distribution			
60	R901415662	Yearly license for industrial companies	59,00
	R901415663	Yearly license for educational institutions	39,00
Animations – 2-way proportional valve			
61	R901415657	Yearly license for industrial companies	45,00
	R901415660	Yearly license for educational institutions	29,00
Animations – Solenoid current control for proportional valves			
62	R901415665	Yearly license for industrial companies	45,00
	R901415667	Yearly license for educational institutions	29,00
Animations – 3-way and 2-way proportional flow control valve			
63	R901415668	Yearly license for industrial companies	45,00
	R901415669	Yearly license for educational institutions	29,00
Web-based app Hydraulic calculations			
64		“Hydraulic calculations” web app	DE/EN Free
DVD series – Technology in motion			
65		DVD series – Technology in motion	DE/EN Free

Software

Page	Material number	Description		Price (in €, plus VAT)
Automation Studio Education				
68	R901402731	Pneumatics, single license for educational institutions	DE/EN	686.00
	R901403226	Pneumatics, single license for industrial companies	DE/EN	1,060.00
	R901391025	Hydraulics, single license for educational institutions	DE/EN	686.00
	R901403228	Hydraulics, single license for industrial companies	DE/EN	1,060.00
	R901391033	Fluid technology, single license for educational institutions	DE/EN	873.00
	R901403229	Fluid technology, single license for industrial companies	DE/EN	2,351.00
	R901402742	Pneumatics, 6 network licenses for educational institutions	DE/EN	1,808.00
	R901403231	Pneumatics, 6 network licenses for industrial companies	DE/EN	7,670.00
	R901402745	Hydraulics, 6 network licenses for educational institutions	DE/EN	1,808.00
	R901403232	Hydraulics, 6 network licenses for industrial companies	DE/EN	7,670.00
	R901402747	Fluid technology, 6 network licenses for educational institutions	DE/EN	2,369.00
	R901403233	Fluid technology, 6 network licenses for industrial companies	DE/EN	11,448.00
	R901402748	Pneumatics, 12 network licenses for educational institutions	DE/EN	3,087.00
	R901403234	Pneumatics, 12 network licenses for industrial companies	DE/EN	14,319.00
	R901402751	Hydraulics, 12 network licenses for educational institutions	DE/EN	3,087.00
	R901403236	Hydraulics, 12 network licenses for industrial companies	DE/EN	14,319.00
	R901404193	Fluid technology, 12 network licenses for educational institutions	DE/EN	4,074.00
	R901403237	Fluid technology, 12 network licenses for industrial companies	DE/EN	21.430.00
HYVOS 7.0 – Simulation software for valve-controlled cylinder drives				
69	R961005099	License for industrial companies	DE/EN	615.00
	R961005100	License for educational institutions	DE/EN	137.00
Hydrostatic calculations with Excel				
70	R900854114	Hydrostatic calculations with Excel	DE/EN	45,00
D&C Scheme Editor				
71		D&C Scheme Editor – Simple circuit diagram software	DE/EN	Free
IndraMotion MTX micro Trainer				
72		IndraMotion MTX micro Trainer	DE/EN	Free
MTpro light				
73		MTpro light – Planning assembly systems	DE/EN	Free

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