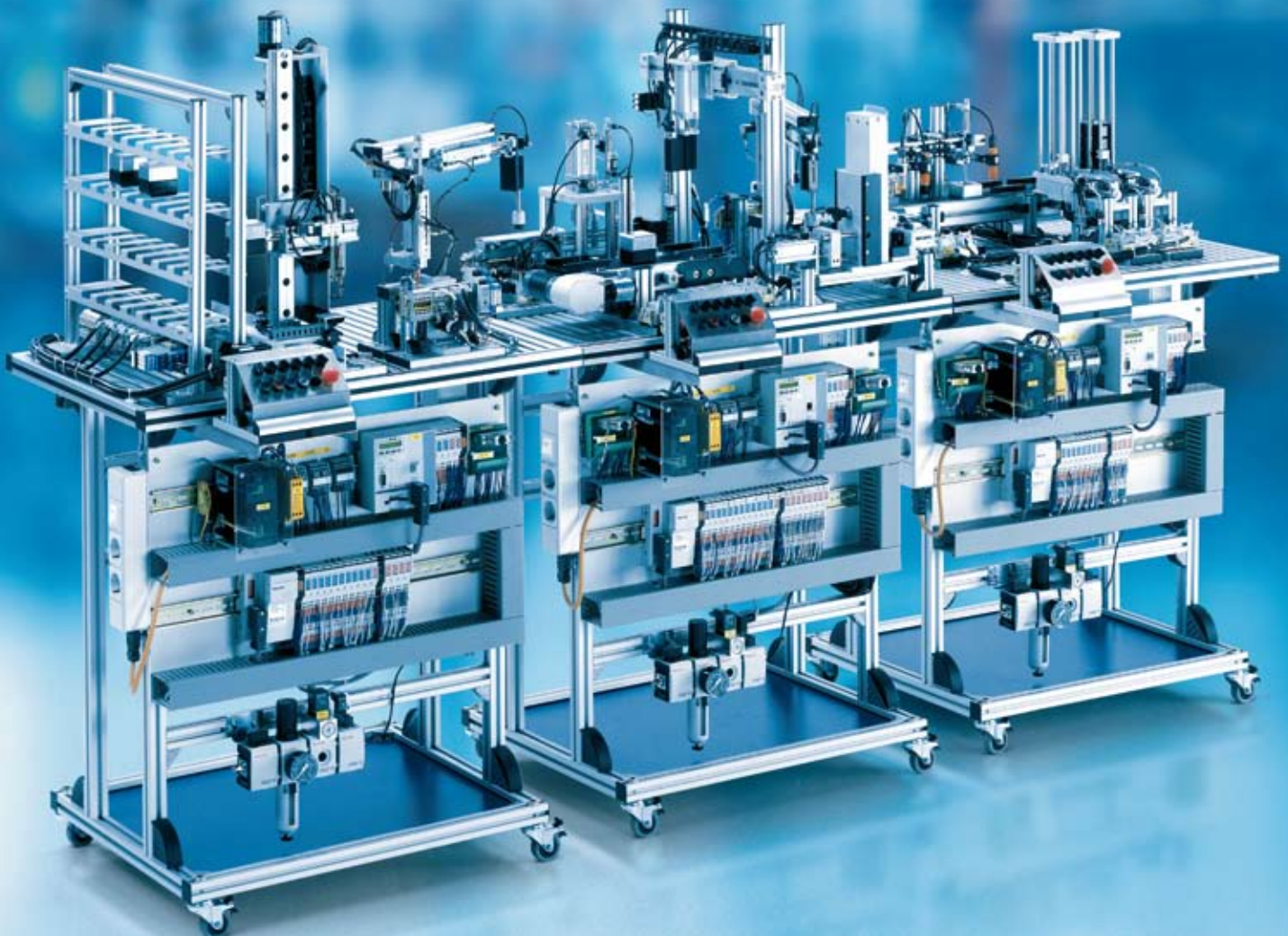


The Modular Mechatronic System from Rexroth



Practise-orientated, efficient, ready to use



Learning as in “Real Life”

Just as the tempo of innovations cycles is constantly increasing, so do the demands on the contents of technical training courses, both basic and advanced. Since the restructuring of careers in the metal-processing, electrical and electronics industries in 2004 there has been a demand for an even more practice-related approach, a more pronounced orientation towards the tasks confronting us in our everyday working life: efficient commissioning, smooth process sequences and swift rectification of faults.

The ready-to-use modular mechatronic training system from Rexroth for automation technology and mechatronics guarantees an emphasis on effective, interesting and lively training in state-of-the-art technology.



Practising for Real

The Mechatronic System enables training exercises to be carried out in the following technologies:

- Pneumatics
- Drive technology
- Control technology
- Hydraulics
- Sensor technology
- Electro technology
- Linear technology
- PLC-Programming
- Profibus DP
- Circuitry

As single-source supplier of all drive, control and motion technologies Rexroth also offers competence in the development of products and services in the field of training, pursuing a common goal – maximum benefit to the user.

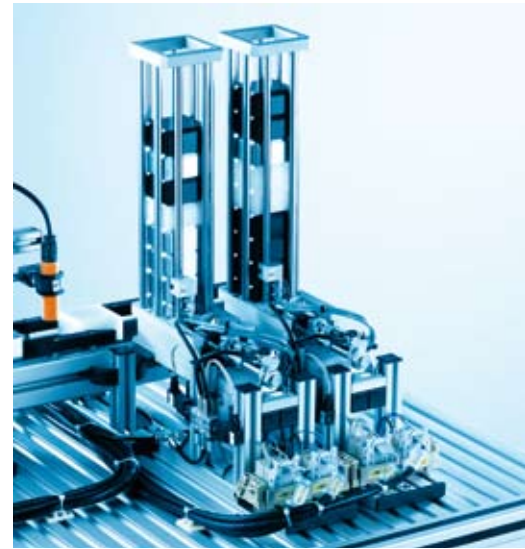
The complete mechatronic system, together with its individual stations, is supplied ready assembled, installed and programmed. The “Plug & Play Principle” reduces commissioning times to a minimum. The training system can therefore be put immediately into practice. Naturally the whole system is also designed in accordance with the latest safety regulations.

The system is based on a cube assembly and is divided into three stations:

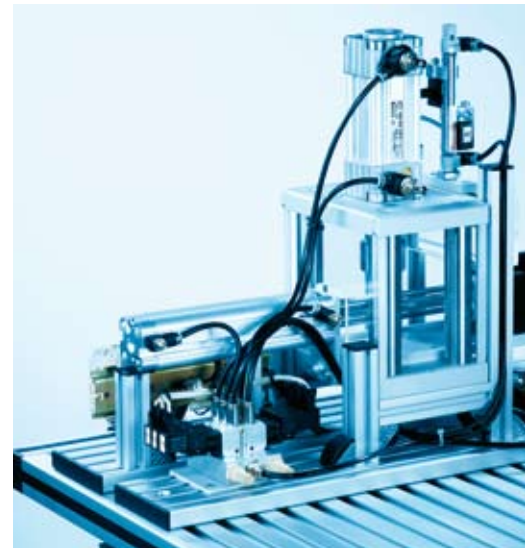
- Magazine
- Processing with pneumatic or hydraulic presses
- Storage

All actuator and sensor signals brought together and serially conveyed via Profibus DP to a PLC. The modular design permits the incorporation of further sub-assemblies into the system at any time.

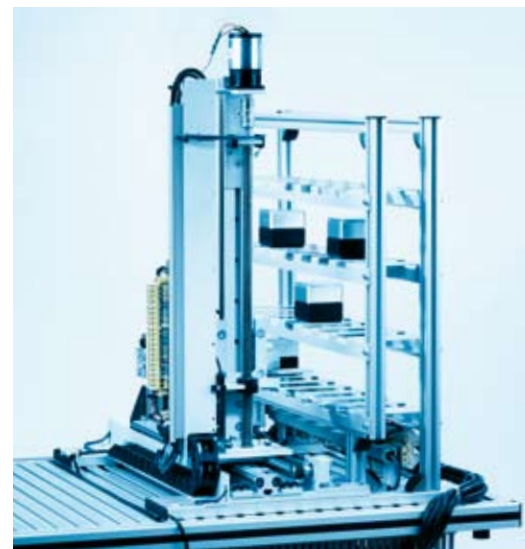
The exercises accompanying the practice-orientated Teachware are put together using industrial solution methods. At each station these exercises are carried out in the form of project work with groups of up to three trainees. This means that there are up to nine persons involved simultaneously in the learning process of putting the system into operation.



Press



Cartesian robot



More than Just the Sum of its Components: The Teaching Content

Developments in automation technology for machine and system construction demonstrate the clear increase in the demands being placed on employees with respect to productivity, flexibility and quality.

Although it is necessary to understand the components used, it is understanding the possibilities of how they can be linked, combined with the resulting information and energy flows, that actually bring about an acceptable level of competence.



All subassemblies, stations and devices making up the mechatronic system are based on original industrial components from Rexroth currently in use. They guarantee a reliable and robust training system for everyday use.

The trainees are directed through the various stages, starting with individual subassemblies and gradually building up to being able to master the complete system functionality. This means that motivation is sustained as the trainees accomplish continual successes at each stage.

The wide range of topic areas enables the system to be considered not only as a training tool, but also as a useful instrument towards the qualification of your employees. These multi-benefits help you to achieve continual utilization of your system.

The training methods and material used at industrial level result in successes that can immediately be implemented on an everyday basis in your company.

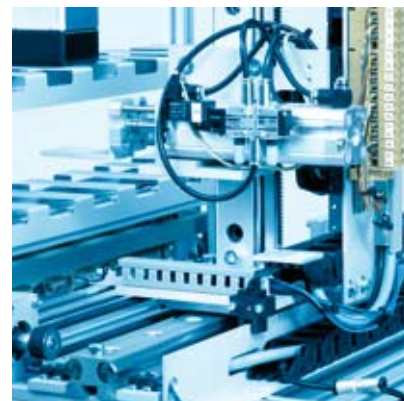
The topic areas in automation technology are as follows:

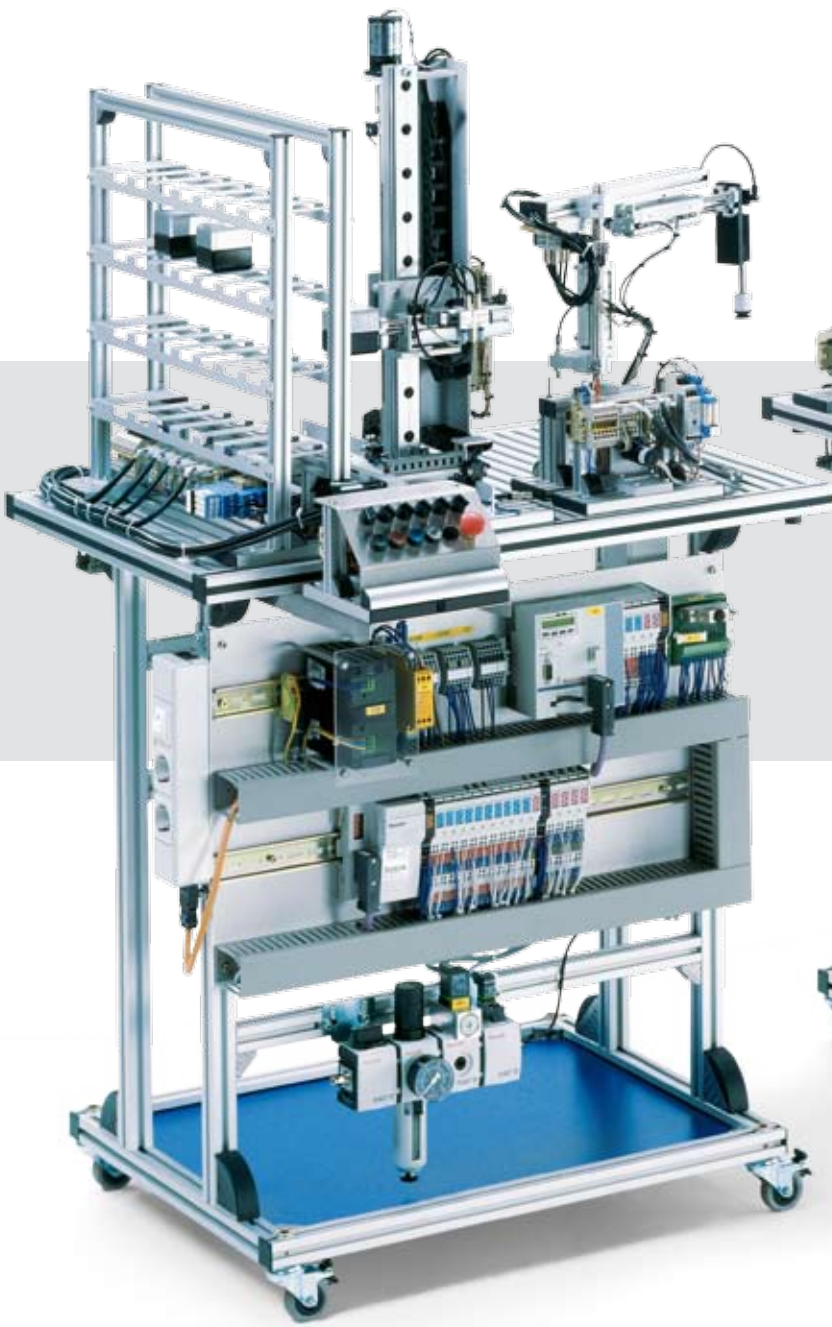
- Automatic, manual and set-up operation
- Emergency stop
- Troubleshooting and rectification
- Mains voltage drop
- Power supply failure
- Assembly and alignment tasks
- Commissioning
- Optimization of sequences
- Safety functions
- Logic control design
- Bus systems (Profibus DP)

Testing unit

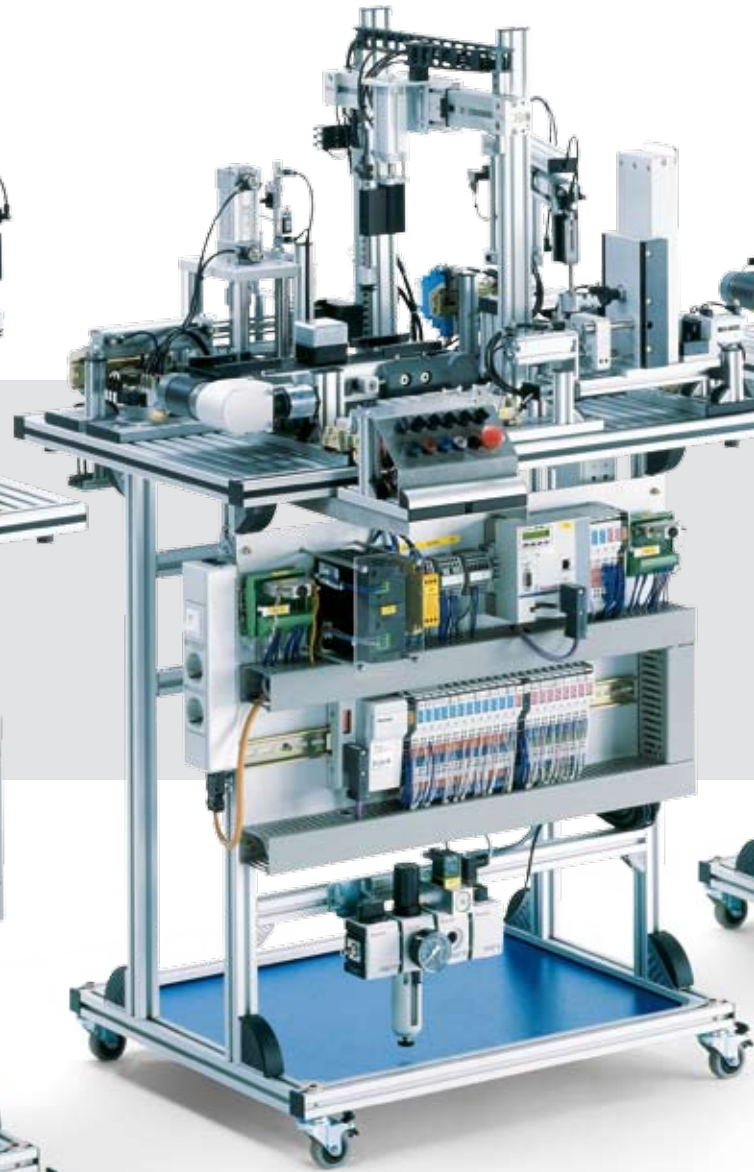


Cartesian robot





Sensor inquiry

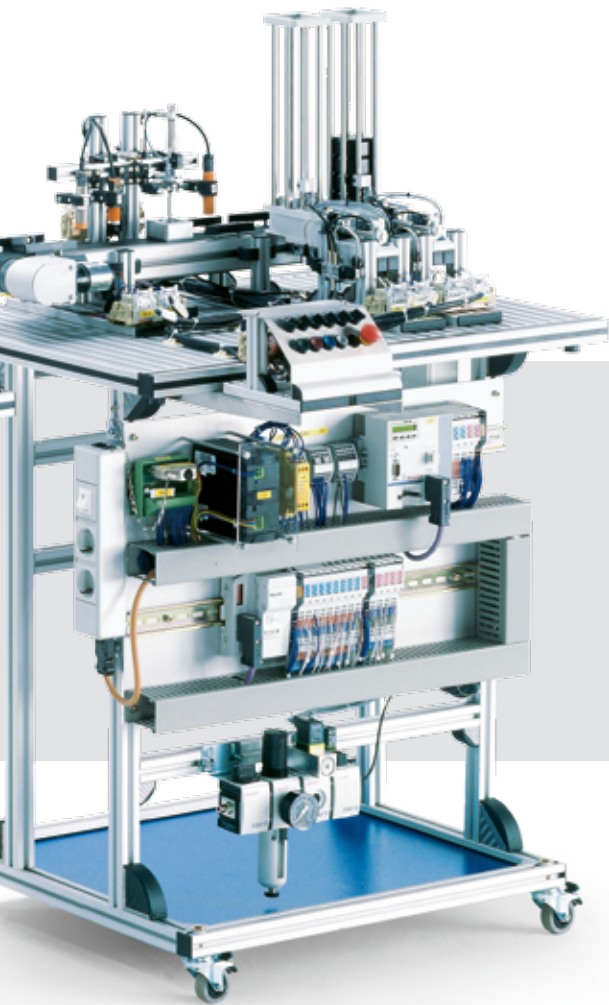


Turning unit



Portal





Information Flow as “for Real”: The Control System

IndraLogic L20, the proven Rexroth original industrial control system with communication via Profibus DP is used as master control system. Each station is equipped with a complete logic control system and can therefore be operated as an autonomous system.

For the final commissioning the three stations are coupled together by mechanical, pneumatic and electrical means using an open control system and via defined interfaces, thus providing a complete “cube assembly system”.

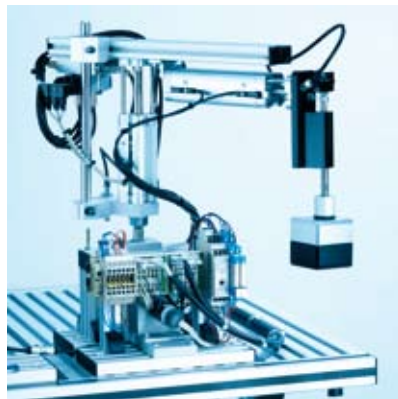
The performance characteristics of the IndraLogic L20 are as follows:

- On-Board digital I/Os
- I/O connection via Profibus DP
- Exchangeable Compact Flash Card for user memory and firmware
- Parameter input via possible via convenient display
- Programming and project design by means of IndraWorks software tool
- Communications interfaces:
 - Ethernet (RJ45 10/1000 Base-T)
 - Serial RS232
 - Profibus DP Master/Slave
- Working memory 16 MB DRAM and min. 64 KB NyRAM
- Processor: ST Microelectronics St40 with min. 192 MHz

Handling device in front of the high bay racking



Handling device



Control panel





The Drive & Control Company
 Rexroth is unique. No other brand on the world market can offer all drive and control technologies, both on a specialized and integrated basis. With approximately 28,000 employees in more than 80 countries around the world, Rexroth has an infrastructure designed with partnership and customer proximity in mind. Over 500,000 customers worldwide utilize the know-how of the technology leader.

Electric Drives and Controls
 Hydraulics
 Linear Motion and Assembly Technologies
 Pneumatics
 Service

Benefits for basic and advanced training:

- All programming languages to IEC 61131-3 available
 1. Ladder Diagram (LD)
 2. Instruction List (IL)
 3. Function Block Diagram (FBD)
 4. Structured Text (ST)
 5. Sequential Function Chart (SFC)
- Manufacture-independent programming to IEC 61131-3 and PLCopen
- Transfer of program code to external systems (offline programming, Soft PLC)
- Clear program structure thanks to use of POU (Program organizational units)
- Forms basis of building up system-independent user libraries
- Individual influencing of program running times through multitasking properties
- Online troubleshooting and monitoring



Intelligent Hydraulics in New Dimensions

Whether it's a case of raising or lowering loads smoothly, undertaking linear or rotational movements, achieving even acceleration or accurate positioning, maintaining preset speeds, transmitting power or linking motion sequences – in fact, wherever economical power is required, this is where hydraulics comes into its own.

Using hydraulic drive and control technology from Rexroth will help you become more competitive than ever.

Profibus-coupler



Control cabinet



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