

Building Blocks For Life

**fischertechnik** 

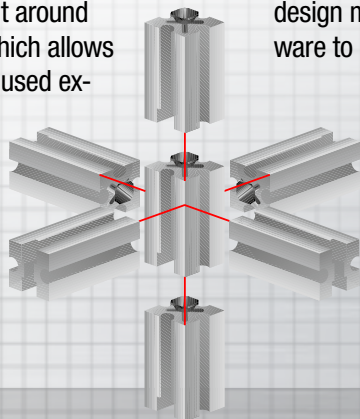


English

## ➤ FISCHERTECHNIK—THE BUILDING BLOCKS TO AN ENGAGING STEM EDUCATION PROGRAM

These days it seems everywhere you turn, leading educators are stressing the importance of STEM (Science, Technology, Engineering and Mathematics) Education, and the reason for this is simple. Demand for scientists and engineers is expected to grow at a rate far exceeding any other occupational field. At the same time fewer and fewer students are pursuing careers in these areas. When they are, they are often not performing at a sufficient level of academic achievement to be successful. While most schools do address the areas of Science and Math to varying degrees, the two aspects of the STEM education equation that are most often overlooked are the “T” and the “E”—technology and engineering. To help close this gap, you need materials that allow you to provide an engaging, hands-on introduction to technology and essential STEM related concepts. You need fischertechnik.

**What is fischertechnik?** fischertechnik is the flexible and innovative construction system built around the unique fischertechnik building block, which allows attachment to all six sides. fischertechnik is used extensively in high schools and universities around the globe to explore STEM concepts such as:



Mechanics • Statics • Pneumatics • Renewable Energies • Electronics • Robotics. fischertechnik is also widely used in industry for vocational training, as well as simulation purposes.

### STEM related topics addressed by fischertechnik:

With fischertechnik in your classroom, here are just some of the topics you can explore with your students:

- **Mechanics**—gears, pulleys, and electrical motors
- **Statics**—stability, struts and braces
- **Pneumatics**—making things move with air, the relationship between force and pressure
- **Renewable Energies**—the production, storage and use of electrical energy and the regenerative energies from wind, water and the sun
- **Electrical Technology**—electrical circuits and electro-mechanical controls; circuit, series and parallel connection
- **Robotics** (aka *Mechatronics and Computer Science*)—design machines and robot models, then use graphic software to program and control their actions.

### JUNIOR



### PROFI

Various Technology Sets primarily for Elementary and Middle Schools



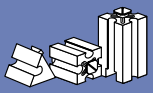
### ROBOTICS

Ideal Robotics Sets from Elementary up to University level



### BASIC + ADVANCED



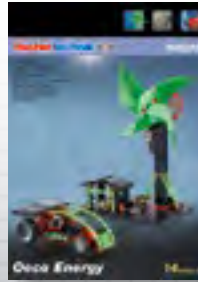


# The fun and creative way to explore technology

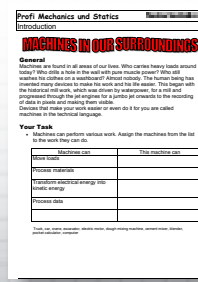
## TEACHING MATERIAL

How does a gear box work? What is a planetary gear? How is the movement of a windshield wiper produced? How do you design a stable bridge? These questions are answered in the instructional activity booklets in the PROFI and ROBOTICS construction sets with illustrations and easy-to-understand information.

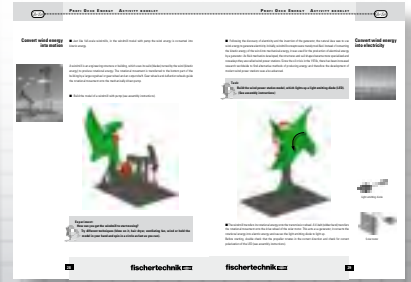
Assembly instructions



Worksheets



Activity Booklet



## WELL-THOUGHT-OUT STORAGE

Every fischertechnik building block has its place in the very practical and systematic storage system, which is available as a separate item.



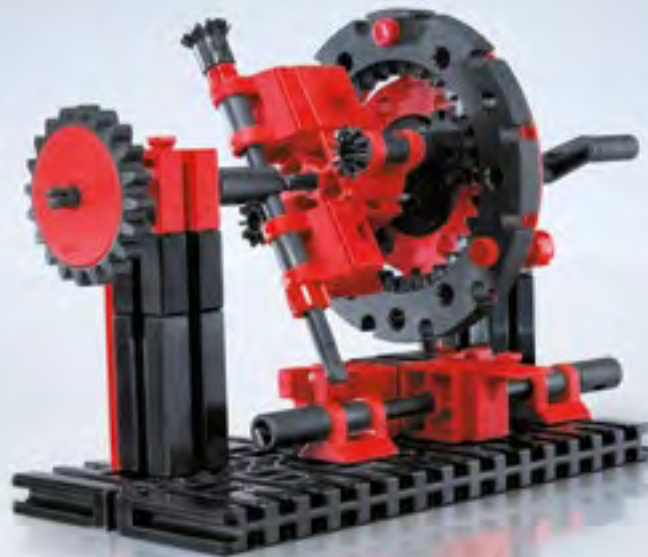
## LABS

Project-based STEM Labs with extensive STEM Tutorials for Middle and High Schools

## TRAINING MODELS

For College, University, Post-Secondary and Industrial Simulation purposes





> Incl. didactic activity booklet

## DA VINCI MACHINES

|                   |               |                       |            |
|-------------------|---------------|-----------------------|------------|
| <b>Components</b> | 260           | <b>Dimension (mm)</b> | 465x80x320 |
| <b>Item No.:</b>  | 500 882       | <b>Vol (m³)</b>       | 0,0119     |
| <b>EAN</b>        | 4048962003284 | <b>Weight (g)</b>     | 1580       |



This construction set combines several mechanical models, whose origin goes back to designs from Leonardo da Vinci: file cutting machine, pivoting bridge and chariot. An activity booklet with numerous illustrations and descriptions for the original designs from Leonardo da Vinci provides information, which is worth learning. History you can touch!



> Incl. XS motor and battery tray for 9V block (battery not included)  
> Incl. didactic activity booklet

## TECHNICAL REVOLUTIONS

|                   |               |                       |            |
|-------------------|---------------|-----------------------|------------|
| <b>Components</b> | 270           | <b>Dimension (mm)</b> | 465x80x320 |
| <b>Item No.:</b>  | 508 776       | <b>Vol (m³)</b>       | 0,0119     |
| <b>EAN</b>        | 4048962095654 | <b>Weight (g)</b>     | 1495       |



On the trail of James Watt, Michael Faraday and other famous inventors. The construction set brings new life to important moments of technology history. Important technological inventions can be reproduced as functional models, for example, an electric motor, cardan shaft, a Morse telegraph and a generator. The didactic activity booklet provides additional background information. For little creative tinkerers and inventors starting with nine years old.



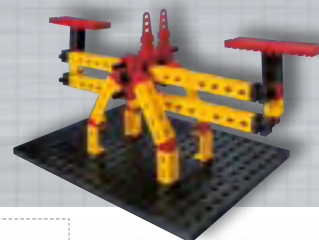
> Incl. Mini Motor and battery tray for 9V block (battery not included)  
> Incl. didactic activity booklet

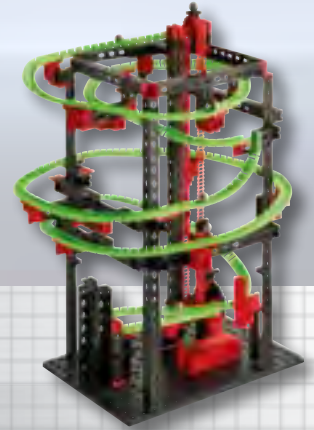
## MECHANIC+STATIC

|                   |               |                       |            |
|-------------------|---------------|-----------------------|------------|
| <b>Components</b> | 500           | <b>Dimension (mm)</b> | 465x80x320 |
| <b>Item No.:</b>  | 93 291        | <b>Vol (m³)</b>       | 0,0119     |
| <b>EAN</b>        | 4006209932919 | <b>Weight (g)</b>     | 2150       |



The ultimate technology construction set for all future mechanical engineers, technicians and engineers: How does a gear box work? What is a planetary gear? How is the movement of a windshield wiper produced? How do you design a stable bridge? The answers to these and other elementary questions from the subject areas of mechanics and statics are found in this construction set with 30 different models.





- > Incl. XS motor and battery tray for 9V block (battery not included)
- > Incl. didactic activity booklet

## DYNAMIC

|                   |               |                       |            |
|-------------------|---------------|-----------------------|------------|
| <b>Components</b> | 690           | <b>Dimension (mm)</b> | 465x80x390 |
| <b>Item No.:</b>  | 511 932       | <b>Vol (m³)</b>       | 0,0145     |
| <b>EAN</b>        | 4048962111293 | <b>Weight (g)</b>     | 2655       |



Fun with physics - Balls race on the unique flex-rails through various obstacle courses They accelerate, decelerate, cause chain reactions, shoot through the loop and run through obstacles such as teeter-totters and switches. An elevator powered by an XS motor conveys the balls to the top. The effects are based on various physical phenomena (acceleration, inertia of mass, centrifugal force, law of conservation of energy, principle of linear momentum, laws of motion). These are explained in the activity booklet and can be demonstrated clearly using various experimental set-ups. Shows how entertaining physics can be!



- > Incl. friction motor
- > Incl. didactic activity booklet
- > Ideal additions: Motor Set XM, Control Set, Sound+Lights, Accu Set

## CARS & DRIVES

|                   |               |                       |            |
|-------------------|---------------|-----------------------|------------|
| <b>Components</b> | 280           | <b>Dimension (mm)</b> | 465x80x320 |
| <b>Item No.:</b>  | 516 184       | <b>Vol (m³)</b>       | 0,0119     |
| <b>EAN</b>        | 4048962136821 | <b>Weight (g)</b>     | 1600       |



How does a balloon drive or a bending rod drive work? What is the difference between a friction drive and a rubber-band drive. How can wind be used as a drive? This set provides a glimpse into how different types of drives work. The brawny offroad vehicle with functioning steering and suspension can also be combined perfectly with the Motor Set XM and Control Set for remote control. The instructional activity booklet provides a great deal of interesting information. For young engineers from age 8!



- > Incl. compressor, 4x pneumatic cylinder, 4x 4/3-way manual valve, battery holder for 9V block battery (battery not included)
- > Incl. didactic activity booklet
- > Ideal additions: Accu Set

## PNEUMATIC 3

|                   |               |                       |            |
|-------------------|---------------|-----------------------|------------|
| <b>Components</b> | 440           | <b>Dimension (mm)</b> | 465x80x320 |
| <b>Item No.:</b>  | 516 185       | <b>Vol (m³)</b>       | 0,0119     |
| <b>EAN</b>        | 4048962136838 | <b>Weight (g)</b>     | 1930       |



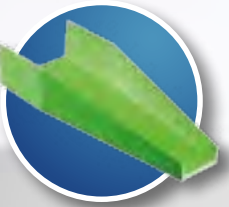
This play-and-learn construction set helps children learn the principles of pneumatics and uses realistic models to demonstrate how compressors, pneumatic valves and cylinders work. The powerful and compact compressor guarantees a reliable supply of compressed air to the models. In addition to vehicles such as front loaders, hay bale pickers and tree trunk grips, other educational models provide young inventors with background knowledge on the subject of pneumatics in combination with the instructional activity booklet.



cross-over



90° curve



catch funnel



## NEW



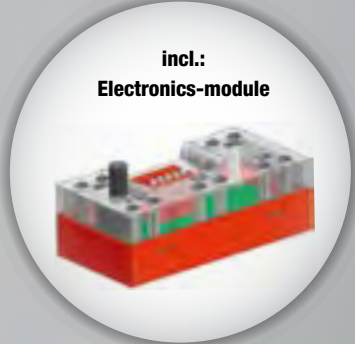
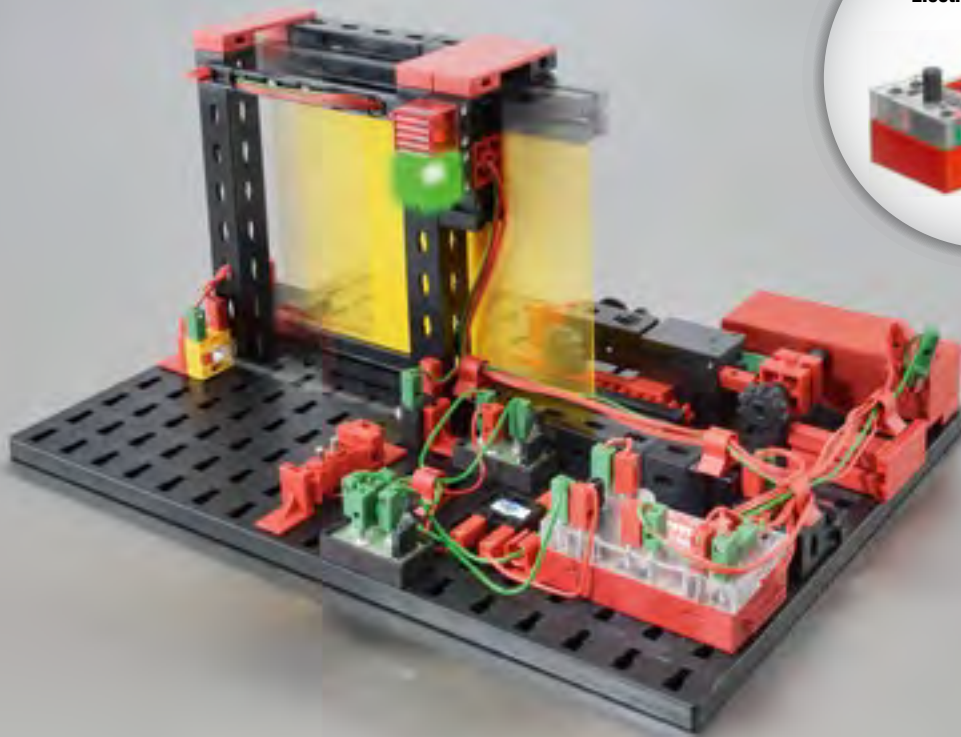
- > Incl. Mini motor, 2x rainbow LED, 31x track unit, 12x steel ball, 5x 90° curve, cross-over, catch funnel and battery tray for 9V block (battery not included)
- > Incl. didactic activity booklet

### DYNAMIC XL

|            |               |                |            |
|------------|---------------|----------------|------------|
| Components | 1000          | Dimension (mm) | 465x80x390 |
| Item No.:  | 524 327       | Vol (m³)       | 0,0145     |
| EAN        | 4048962196108 | Weight (g)     | 3500       |



More action, much faster and much larger! With new special parts such as 90° curves, cross-overs and jumps with catch funnel, the balls race through tight curves and chutes and shoot through different tracks. Discover new, fascinating conveying techniques: With our new mega model the balls are transported back up by a motor-driven conveying wheel. Then even higher by the innovative stage conveyor, which transports the balls one by one all the way to the top in a zig-zag pattern. Once there the balls shoot along their own path downward through the loop, quarterpipe and jumping loop. More ingenious models such as a launching pad, stair step conveyor and chain lift make the subject of conveying technology inspiring. Combines perfectly with the Rolling Action or Dynamic Construction Sets.



incl:  
Electronics-module



capacitor



transistor



resistor

## NEW



- > Incl. Electronic-module, XS motor, 2x transistor, 2x capacitor, 3x resistor, 2x mini-switch, phototransistor, temperature sensor, lens tip lamp, 2x LED, battery tray for 9V block (battery not included)
- > Incl. didactic activity booklet

## ELECTRONICS

|            |               |                       |            |
|------------|---------------|-----------------------|------------|
| Components | 260           | Dimension (mm)        | 465x80x320 |
| Item No.:  | 524 326       | Vol (m <sup>3</sup> ) | 0,0119     |
| EAN        | 4048962196092 | Weight (g)            | 1750       |



Simple circuits, series and parallel connections, electronic circuits with transistors, capacitors, resistors and LED's. Step by step, this construction set teaches the basic principles of electronics. The Electronic-module, a control with 8 fixed programs, has 2 motor outputs, 3 analog inputs for sensors and potentiometers for controlling the speed of the motor. Many fascinating as well as functional models can be built with this construction set, from a simple flash light to ship see-saw, alternating flasher and controllable ventilating fan.



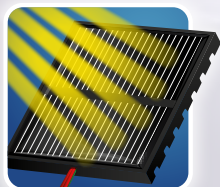
- > Incl. didactic activity booklet
- > Incl. 3x optical lenses (two focal lengths), Rainbow-LED, mirror, optical fiber, 2x lens tip lamp
- > Ideal additions: Power Set or Accu Set

## OPTICS

|            |               |                       |            |
|------------|---------------|-----------------------|------------|
| Components | 270           | Dimension (mm)        | 465x80x320 |
| Item No.:  | 520 399       | Vol (m <sup>3</sup> ) | 0,0119     |
| EAN        | 4048962168655 | Weight (g)            | 1710       |



Investigate optical phenomena and experiment with light! The planetary model clearly demonstrates why the moon has phases or why solar and lunar eclipses occur. Optical lenses with various focal lengths, mirror, lens tip lamps and a variety of other parts allow construction of a microscope, magnifier, telescope and periscope. With the periscope you can look around corners and the microscope makes tiny objects really big! With the sun dial you can determine the time of day, and the model with optical fiber demonstrates what total reflection is and how data can be transferred using light. This construction set gives young scientists a glimpse into the world of optics.



- > Incl. solar motor (2V), 2x solar modules (1V; 400 mA), Gold Cap power storage device, LED, ON/OFF switch
- > Incl. didactic activity booklet
- > Ideal addition: Fuel Cell Kit (Item No.: 520401)

## ➤ OECO ENERGY

|                   |               |                       |            |
|-------------------|---------------|-----------------------|------------|
| <b>Components</b> | 370           | <b>Dimension (mm)</b> | 465x80x320 |
| <b>Item No.:</b>  | 520 400       | <b>Vol (m³)</b>       | 0,0119     |
| <b>EAN</b>        | 4048962168662 | <b>Weight (g)</b>     | 1900       |



How can ecological electric power be produced? "Renewable energies" will become our most important suppliers of energy in the future. Production, storage and use of electricity from natural energy sources such as water, wind and the sun are graphically illustrated using various models and numerous experiments. These two new solar modules not only guarantee more power; the many new attachment possibilities ensure flexible use in the models. The Gold Cap included for power storage can release the stored power at a slower rate. This helps children understand energy forms of the future. The "Fuel Cell Kit" (Item No.: 520401) offers an ideal addition. With this expansion construction set, you can build other models and operate them with a fuel cell.

- > Incl. reversible fuel cell with integrated hydrogen storage unit, solar module (1V; 400 mA)
- > Incl. didactic activity booklet
- > Absolutely necessary: Oeco Energy or Oeco Tech

## ➤ FUEL CELL KIT

|                   |               |                       |            |
|-------------------|---------------|-----------------------|------------|
| <b>Components</b> | 20            | <b>Dimension (mm)</b> | 225x65x150 |
| <b>Item No.:</b>  | 520 401       | <b>Vol (m³)</b>       | 0,0022     |
| <b>EAN</b>        | 4048962168679 | <b>Weight (g)</b>     | 400        |



How does a fuel cell work and how does it generate hydrogen? The Fuel Cell Kit brings this technology of the future directly into the child's play room and provides answers to these and other questions! With the fuel cell and the additional solar module, interesting additional models can be built in connection with the "Oeco Energy" construction set. The instructional activity booklet offers assistance. **(CAUTION: Absolutely necessary for operation is Oeco Energy - Item No.: 520 400 or Oeco Tech - Item No.: 505 284)**





Including:



Software  
ROBO Pro Light



ROBO  
LT Controller



**NEW**



- > Incl. ROBO LT Controller (USB interface/USB power supply)
- > Incl. Software ROBO PRO Light
- > Incl. XS motor, 2x light, lens tip lamp, phototransistor and 2x switch
- > Incl. didactic activity booklet



## ROBOTICS LT BEGINNER SET

|            |               |                |            |
|------------|---------------|----------------|------------|
| Components | 200           | Dimension (mm) | 465x80x320 |
| Item No.:  | 524 370       | Vol (m³)       | 0,0119     |
| EAN        | 4048962196382 | Weight (g)     | 1720       |



Complete beginner's package for children age 8 and older. With over 200 components and the aid of sensors (phototransistor, mini-switches) and actuators (XS motor, indicator lights), children can construct 12 easy-to-understand models such as a hand dryer, stamping machine, lighthouse with blinking light, merry-go-round or automatic sliding door. The »ROBO LT Controller« with 3 inputs for sensors and 2 outputs for motors or indicator lights has a USB interface for simultaneous power supply. The ROBO Pro Light software makes quick programming easy as pie. The detailed didactic activity booklet supports the learning process for children making programming easy to understand. For tomorrow's engineers.



Dual Processor  
**500 MHz**

Memory  
**128 MB RAM**  
**64 MB FLASH**



**TOUCH DISPLAY**

**NEW**



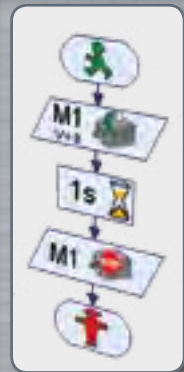
> Additionally required is Accu Set or Power Set

## ROBOTICS TXT CONTROLLER

|                   |         |                       |            |                   |               |
|-------------------|---------|-----------------------|------------|-------------------|---------------|
| <b>Components</b> | /       | <b>Dimension (mm)</b> | 225x65x150 | <b>EAN</b>        | 4048962179828 |
| <b>Item No.:</b>  | 522 429 | <b>Vol (m³)</b>       | 0,0022     | <b>Weight (g)</b> | 450           |

The compact ROBOTICS TXT Controller (90x90x25mm) can be controlled easily with the color 2.4" touch display. The combined Bluetooth/WiFi RF module provides the perfect, wireless interface for numerous applications. The numerous interfaces also include a USB host port for USB sticks and other components such as the fischertechnik USB camera. The integrated Micro SD card slot allows expansion of the memory capacity. Controllers can be coupled.

- > Processor: Dual core, main processor ARM Cortex A8 (32bit/500MHz) + Cortex M3
- > Memory capacity: 128 MB DDR3 RAM, 64 MB Flash
- > Memory expansion Micro SD card slot
- > Display: Color 2.4" touch display (320x240 pixels)
- > 8 Universal inputs: Digital/analog 0-9VDC, analog 0-5 kΩ
- > 4 high speed numerical inputs: Digital, frequency up to 1kHz
- > 4 Motor outputs 9V/250mA (max: 800 mA): speed infinitely controllable, short-circuit proof, alternative 8 single outputs for components such as lights, etc.
- > Combined Bluetooth/WiFi RF module: BT 2.1 EDR+ 4.0, WLAN 802.11 b/g/n
- > Infrared receiver diode: for fischertechnik Control Set transmitter
- > USB 2.0 Client: Mini USB port for connection to PC
- > USB Host interface: USB A port for fischertechnik USB camera, USB sticks, etc.
- > Camera interface: over USB Host, Linux camera driver integrated into operating system
- > 10-pin male connector for additional inputs and outputs as well as I²C interface
- > Integrated loud speaker
- > Integrated real time clock with exchangeable buffer battery: for capturing measured values within a defined period of time
- > Linux-based open source operating system
- > Programming possible with ROBO Pro, C-Compiler, PC-Library, and many others.
- > Link to smartphones/tablet PC's via Bluetooth or WLAN, allowing them to be used as terminals for the controller. Programming using ROBO-Pro software.
- > Dimensions: 90x90x25 mm
- > Power supply: 9V DC 3.45 mm socket, or 2.5 mm fischertechnik sockets (for Accu Pack)



## ROBO PRO SOFTWARE



|                  |                          |                       |            |                   |               |
|------------------|--------------------------|-----------------------|------------|-------------------|---------------|
| <b>System</b>    | Windows® XP, Vista, 7, 8 | <b>Dimension (mm)</b> | 210x25x150 | <b>EAN</b>        | 4006209932964 |
| <b>Item No.:</b> | 93 296                   | <b>Vol (m³)</b>       | 0,0008     | <b>Weight (g)</b> | 85            |

Simple entry for beginners through programming of flow charts consisting of various software building blocks. The exchange of the data between the software building blocks and the subprograms can be done through variables and graphical connections as well. This allows the program functions to be shown in an understandable manner. There are no problems with the preparation of teach-in programs or data exchange with other Windows® software.



Including:



Cámara USB



RGB

Dual Processor  
**500 MHZ**

Memory  
**128 MB RAM**  
**64 MB FLASH**

TXT Controller



TOUCH DISPLAY

CARD Slot

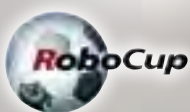
USB Host

Speaker

WiFi

Bluetooth®

APP



**NEW**



- > Incl. ROBOTICS TXT Controller, Software ROBO Pro, USB camera (1 MP), 2x encoder motor, XS motor, 2x LED, 2x switch, phototransistor, NTC resistor
- > Required: Accu Set



## ROBOTICS TXT DISCOVERY SET

|            |               |                |            |
|------------|---------------|----------------|------------|
| Components | 310           | Dimension (mm) | 465x80x320 |
| Item No.:  | 524 328       | Vol (m³)       | 0,0119     |
| EAN        | 4048962196115 | Weight (g)     | 2000       |

310

11 Models

Complete Robotics Set with 310 parts, new ROBOTICS TXT Controller and extended ROBO Pro software for control of mobile and stationary robot models. A camera allows images to be transferred via USB or WiFi, color recognition, line tracking and motion recognition. The controller has the following features: Color 2.4" touch display, combined WLAN/Bluetooth module, Micro SD card slot for additional memory space, IR receiver diode, integrated loud speaker, 4 motor outputs, 8 digital/analog inputs for sensors and 4 high speed numerical inputs. With the aid of the ROBO Pro software it is possible to program your own apps for controlling the models with your smartphone/tablet PC (presently for android). Additional sensors and actuators such as encoder motors, XS motor, mini-switches, NTC resistors, phototransistors and LED's allow construction of mobile rover vehicle, surveillance stations, alarm centers, etc.! Preprogrammed modules are also provided for beginners. This set is compatible with other COMPUTING construction sets. Including didactic information material for support of construction and programming.



- > Incl. 2x Encoder motor, 3x indicator light, buzzer, NTC resistor, photoresistor, ultrasonic distance sensor, optical color sensor and an IR trail sensor
- > Incl. didactic activity booklet
- > Additionally required is ROBOTICS TXT Controller, Software ROBO Pro, Accu Set

## ROBO TX EXPLORER



|                   |               |                            |            |
|-------------------|---------------|----------------------------|------------|
| <b>Components</b> | 400           | <b>Dimension (mm)</b>      | 465x80x320 |
| <b>Item No.:</b>  | 508 778       | <b>Vol (m<sup>3</sup>)</b> | 0,0119     |
| <b>EAN</b>        | 4048962095678 | <b>Weight (g)</b>          | 1590       |

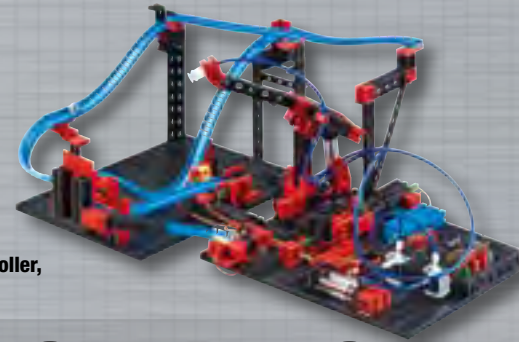


Explore unknown areas, measure distances, follow trails, show driving directions by means of blinking signals, recognize colors, measure temperatures, avoid obstacles without touching them, recognize day and night, turn headlights on and off automatically and trigger an alarm etc. The ROBO TX Explorer sensors can do all of this and lots more: The NTC resistor, the photoresistor, the ultrasonic distance sensor, the infrared color sensor and the specially developed trail sensor. Thanks to two encoder motors, the tracks can be controlled precisely and steered synchronically. With the rescue robot, which is contained as a model, the construction set provides the ideal basis for participation in the RoboCup.



- > Incl. compressor, Mini motor, 2x solenoid valve, optical color sensor, vacuum exhauster, 3x cylinder with spring, 2x photo transistor, 2x lens tip lamp, 11 flex-rail
- > Incl. related didactic material on CD
- > Additionally required is ROBOTICS TXT Controller, Software ROBO Pro, Accu Set or Power Set

## ROBO TX ELECTROPNEUMATIC



|                   |               |                            |            |
|-------------------|---------------|----------------------------|------------|
| <b>Components</b> | 440           | <b>Dimension (mm)</b>      | 465x80x320 |
| <b>Item No.:</b>  | 516 186       | <b>Vol (m<sup>3</sup>)</b> | 0,0119     |
| <b>EAN</b>        | 4048962136845 | <b>Weight (g)</b>          | 2105       |

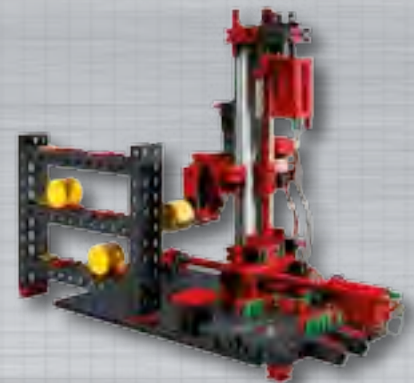


The subjects of electro-pneumatics and vacuum technology are demonstrated clearly with the aid of fascinating models such as the pneumatic motor, color sorting robot for colored parts, ball obstacle course and pinball machine. The new, powerful and compact compressor guarantees a reliable supply of compressed air to the models. The electro-magnetic valves included allow remote control of the models with a PC.



- > Incl. 2x Encoder motor, 2x XS motor, 6x switch
- > Incl. related didactic material on CD
- > Additionally required is ROBOTICS TXT Controller, Software ROBO Pro, Accu Set or Power Set

## ROBO TX AUTOMATION ROBOTS



|                   |               |                            |            |
|-------------------|---------------|----------------------------|------------|
| <b>Components</b> | 510           | <b>Dimension (mm)</b>      | 465x80x320 |
| <b>Item No.:</b>  | 511 933       | <b>Vol (m<sup>3</sup>)</b> | 0,0119     |
| <b>EAN</b>        | 4048962111309 | <b>Weight (g)</b>          | 2270       |



Four reality-based and fully functional industrial robots: High-rack storage, 3-axis robot and 2 other grappler robots. Sturdy fischertechnik aluminum channels used in all models. The instructional activity booklet provides support in the form of background information, projects and programming tips. For programmers and designers from age 10.

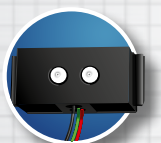
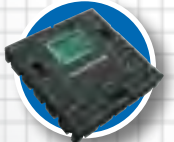


## ROBOTICS COMPETITION LAB

Including:



Functions:



The fischertechnik Robotics Competition Lab was designed for schools, universities and other educational institutions that want to develop or enhance current mobile robotics competitions for their students. This Robotics Competition Lab kit includes robotics models of online followers, maze, explorers, junior category RoboCup and various other competitions around the world. The fischertechnik Robotics Competition Lab will help your students explore Robotics and key STEM education principles through project-based learning. The fischertechnik Robotics Competition Lab includes 565 pieces, among which are structural

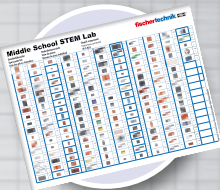
components gears, pulleys, endless, DC motors, motors with integrated encoders, gearboxes, and whole family of fischertechnik sensors such as ultrasonic, the phototransistor (light), the photoresistor, NTC resistor, the color sensor, the infrared sensor track follower, the sensor magnetic (reed) and the powerful ROBO TX Controller interface, rechargeable battery (Accu Set) and ROBO Pro software, exclusive line of fischertechnik, offering 5 levels programming, from the beginner level to the Pro level programming involving objects, subroutines, variables, and user-defined commands. Various Competition Scopes and Outlines are also included.

|                   |               |                            |             |
|-------------------|---------------|----------------------------|-------------|
| <b>Components</b> | 565           | <b>Dimension (mm)</b>      | 440x315x150 |
| <b>Item No.:</b>  | 519 143       | <b>Vol (m<sup>3</sup>)</b> | 0,0208      |
| <b>EAN</b>        | 4048962159356 | <b>Weight (g)</b>          | 3600        |





## MIDDLE SCHOOL STEM LAB



Including:



Software ROBO Pro +  
STEM Tutorials (Teacher/  
Student Edition)



ROBO TX  
Controller

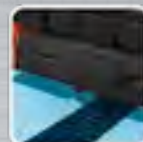


NiMH  
rechargeable battery  
8.4V/1500mAh



Charger for NiMH  
rechargeable battery

Functions:



### Energy • Power • Robotics

- Project-Based Learning
- Focused on Standards

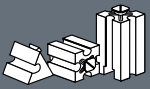
“The fischertechnik STEM program meets Common Core Standards for Math, Reading and Writing as well as the National Science Education Standards, and standards of ISTE, ITEEA. This program can easily fill six months of class time and engage students in the study of Applied Physics with a systems approach to Electronics, Control and Sensing.”

*Tom White, Program Creator*

### Project Themes:

- Sketching and Documentation
- Introducing to Energy and Power
- Energy Conversion Systems
- Conversion and Storage of Energy
- Simple Machines
- Mechanisms
- Basic Electricity
- Introduction to Control Systems
- Human/Machine Collaboration
- Introduction to Sensors
- Mobile Robotics
- Robotics Competition

|                   |               |                       |             |
|-------------------|---------------|-----------------------|-------------|
| <b>Components</b> | 1315          | <b>Dimension (mm)</b> | 440x315x230 |
| <b>Item No.:</b>  | 519 340       | <b>Vol (m³)</b>       | 0,0319      |
| <b>EAN</b>        | 4048962160864 | <b>Weight (g)</b>     | 5500        |



## ▶ HIGH SCHOOL STEM LAB

Including:



Including:



Software ROBO Pro + STEM Tutorials (Teacher/Student Edition)



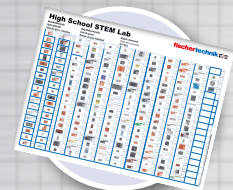
ROBO TX Controller



NiMH rechargeable battery 8.4V/1500mAh



Charger for NiMH rechargeable battery



Functions:



### Mechatronics

- Project-Based Learning
- Focused on Standards

“The fischertechnik STEM program meets Common Core Standards for Math, Reading and Writing as well as the National Science Education Standards, and standards of ISTE, ITEEA. This program can easily fill six months of class time and engage students in the study of Applied Physics with a systems approach to Electronics, Control and Sensing.”

*Tom White, Program Creator*

### Project Themes:

- Sketching and Documentation
- Structures
- Mechanical Systems
- Control Systems
- Sensor Systems
- Motors and other Actuators
- Automation
- Fundamentals of Robotics
- Mobile Robotics
- Robotics Competition

|                   |               |                            |             |
|-------------------|---------------|----------------------------|-------------|
| <b>Components</b> | 1645          | <b>Dimension (mm)</b>      | 440x315x230 |
| <b>Item No.:</b>  | 519 341       | <b>Vol (m<sup>3</sup>)</b> | 0,0319      |
| <b>EAN</b>        | 4048962160871 | <b>Weight (g)</b>          | 6600        |



# TRAINING MODELS

## CONVEYOR BELT

Item No. **50 463**

(training model conveyor belt 9V ... with ROBO TX Controller)

Item No. **50 464**

(training model conveyor belt 24V ... without PLC)

Length 275 mm, transports workpieces with a diameter of up to 29 mm. Several conveyor belts can be connected to each other to form a conveyor belt of any length.

Scope of Delivery:

- 1 DC motor, 1 sensing device

(potential-free), choice as pulse counter, can be used for distance traveled or as an activation button; 2 light barriers consisting of phototransistor and lens tip bulb, which can be connected together to an output for the control or directly to the power supply

- 1 workpiece diameter 29 mm, h=25 mm
- Model is mounted on stable wooden board, carton packaging
- 3 digital inputs
- 1 output, 9V .../24V ... (1 motor for drive for conveyor belt)

Port: PCB with relays to reverse polarity of motor, multi pin connector (26 pins, grid 2,54mm) and in addition PCB terminals with push in connection for all I/O



|                | Item No.: | EAN           | Dimension (mm)    | 345x240x100 |
|----------------|-----------|---------------|-------------------|-------------|
| <b>9V ...</b>  | 50 463    | 4006209504635 | <b>Weight (g)</b> | 1500        |
| <b>24V ...</b> | 50 464    | 4006209504642 | <b>Weight (g)</b> | 1200        |

## PUNCHING MACHINE WITH CONVEYOR BELT

Item No. **51 663**

(training model punching machine 9V ... with ROBO TX Controller)

Item No. **96 785**

(training model punching machine 24V ... without PLC)

Conveyor belt with two light barriers, one machining station and one workpiece.

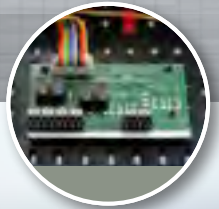
Scope of Delivery:

- 2 DC motors, 2 limit switches (potential free), 2 light barriers consisting of phototransistor and

lens tip bulb

- Model is mounted on stable wooden board, carton packaging
- 4 digital inputs
- 4 output, 9V .../24V ... (2 motors counter-clockwise, clockwise rotation)
- Ribbon cable, 14-pin and color coded with 14-pin pin connector, only for 24V ...
- Model can be ideally combined with 3-D Robot

Port: PCB with relays to reverse polarity of motor, multi pin connector (26 pins, grid 2,54mm) and in addition PCB terminals with push in connection for all I/O



|                | Item No.: | EAN           | Dimension (mm)    | 375x290x190 |
|----------------|-----------|---------------|-------------------|-------------|
| <b>9V ...</b>  | 51 663    | 4006209516638 | <b>Weight (g)</b> | 1900        |
| <b>24V ...</b> | 96 785    | 4006209967850 | <b>Weight (g)</b> | 1500        |

## 3-D-ROBOT TX

Item No. **511 937**

(training model 3-D-Robot TX 9V ... with ROBO TX Controller)

Item No. **511 938**

(training model 3-D-Robot TX 24V ... without PLC)

3-axis robot with gripping device  
Degrees of freedom:  
Shaft 1: Rotation 180°  
Shaft 2: Forward/back 90 mm  
Shaft 3: Up/down 150 mm

Scope of Delivery:

- 4 DC motors, including 2 with integrated magnetic encoder (max. pulse frequency: 1 kHz)
- 4 Limit switches, 2 pulse sensors for path measurement
- 8 Digital inputs
- 8 Outputs, 9V .../24V ... (4 motors

clockwise/counterclockwise rotation, 24V version includes relay board for motor polarity reversal)

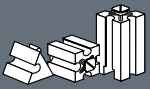
- Model mounted on stable wooden board, carton packaging
- Model can be ideally combined with conveyor belt, punch press and intermittent assembly line

Port: PCB with relays to reverse polarity of motor, multi pin connector (26 pins, grid 2,54mm) and in addition PCB terminals with push in connection for all I/O



|                | Item No.: | EAN           | Dimension (mm)    | 480x400x220 |
|----------------|-----------|---------------|-------------------|-------------|
| <b>9V ...</b>  | 511 937   | 4048962111705 | <b>Weight (g)</b> | 3200        |
| <b>24V ...</b> | 511 938   | 4048962111316 | <b>Weight (g)</b> | 2900        |





# TRAINING MODELS

## INDEXED LINE WITH TWO MACHINING STATIONS

Item No. **51 664**

(training model indexed line 9V ... with ROBO TX Controller)

Item No. **96 790**

(training model indexed line 24V ... without PLC)

Conveyor belt, arranged in U-shape, for intermittent transport and for the machining of several workpieces.

### Scope of Delivery:

- 2 machining stations, 4 conveyor belts, 8 DC motors, 4 limit switches (potential free), 5 light barriers consisting of phototransistor and lens tip bulb
- Model is mounted on a stable wooden board, carton packaging
- 9 digital inputs
- 10 outputs, 9V .../24V ... (6 motors with one direction of rotation, 2 motors counter-clockwise, clockwise rotation)

Port: PCB with relays to reverse polarity of motor, multi pin connector (26 pins, grid 2,54mm) and in addition PCB terminals with push in connection for all I/O



|                | Item No.: | EAN           | Dimension (mm)    | 475x450x270 |
|----------------|-----------|---------------|-------------------|-------------|
| <b>9V ...</b>  | 51 664    | 4006209516645 | <b>Weight (g)</b> | 5700        |
| <b>24V ...</b> | 96 790    | 4006209967904 | <b>Weight (g)</b> | 5100        |

## PNEUMATIC PROCESSING CENTER

Item No. **524 064**

(training model pneumatic center 9V ... with ROBO TX Controller)

Item No. **520 529**

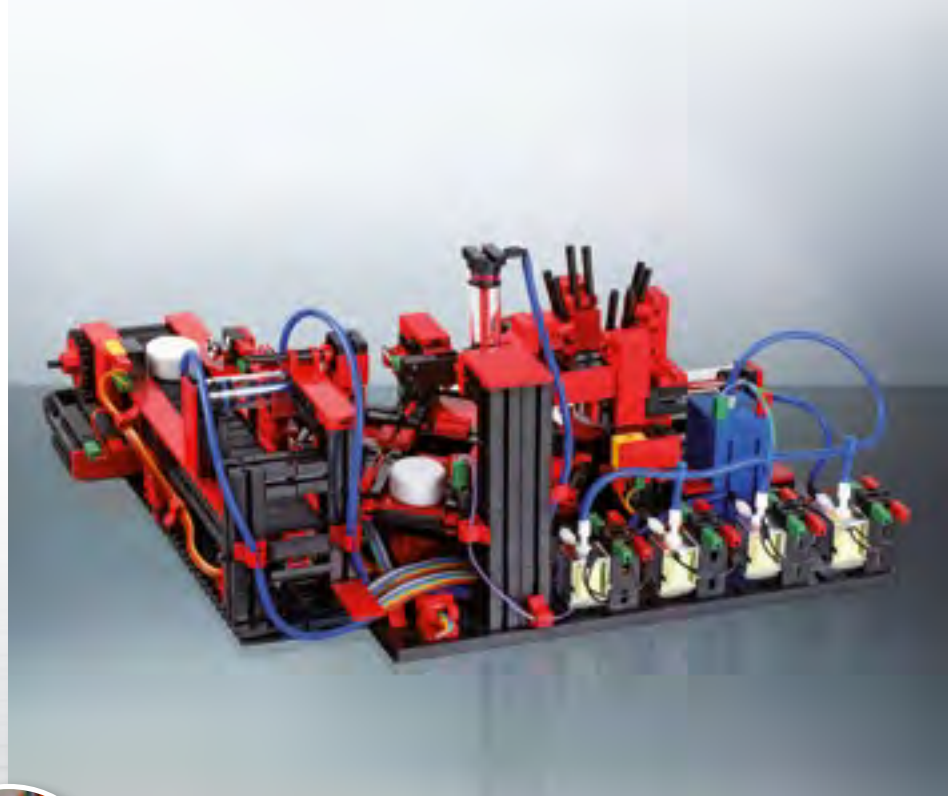
(training model pneumatic center 24V ... without PLC)

Machining center with bin for workpieces, turntable, machining station, compressor and conveyor belt for the transport of workpieces.

### Scope of Delivery:

- one double-action and two single-action pneumatic cylinders, four 3/2 way magnetic valves, 1 DC motor, 4 switches (potential free), 2 light barriers consisting of phototransistor and lens tip bulb
- Model is mounted on a stable wooden board, carton packaging.
- 6 digital inputs
- 6 outputs, 9V .../24V ...

Port: PCB with relays to reverse polarity of motor, multi pin connector (26 pins, grid 2,54mm) and in addition PCB terminals with push in connection for all I/O



|                | Item No.: | EAN           | Dimension (mm)    | 475x450x270 |
|----------------|-----------|---------------|-------------------|-------------|
| <b>9V ...</b>  | 524 064   | 4048962193909 | <b>Weight (g)</b> | 5100        |
| <b>24V ...</b> | 520 529   | 4048962169119 | <b>Weight (g)</b> | 4700        |



# JUNIOR



## LITTLE STARTER

|                   |               |                       |            |
|-------------------|---------------|-----------------------|------------|
| <b>Components</b> | 60            | <b>Dimension (mm)</b> | 280x65x180 |
| <b>Item No.:</b>  | 511 929       | <b>Vol (m³)</b>       | 0,0033     |
| <b>EAN</b>        | 4048962111262 | <b>Weight (g)</b>     | 355        |



## JUMBO STARTER

|                   |               |                       |            |
|-------------------|---------------|-----------------------|------------|
| <b>Components</b> | 135           | <b>Dimension (mm)</b> | 465x80x320 |
| <b>Item No.:</b>  | 511 930       | <b>Vol (m³)</b>       | 0,0119     |
| <b>EAN</b>        | 4048962111279 | <b>Weight (g)</b>     | 1185       |



# BASIC



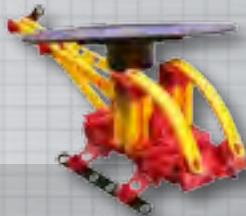
## BIKES

|                   |               |                       |            |
|-------------------|---------------|-----------------------|------------|
| <b>Components</b> | 80            | <b>Dimension (mm)</b> | 225x65x150 |
| <b>Item No.:</b>  | 505 278       | <b>Vol (m³)</b>       | 0,0022     |
| <b>EAN</b>        | 4048962069396 | <b>Weight (g)</b>     | 210        |



## CARTS

|                   |               |                       |            |
|-------------------|---------------|-----------------------|------------|
| <b>Components</b> | 50            | <b>Dimension (mm)</b> | 225x65x150 |
| <b>Item No.:</b>  | 505 279       | <b>Vol (m³)</b>       | 0,0022     |
| <b>EAN</b>        | 4048962069402 | <b>Weight (g)</b>     | 220        |



## SOLAR

|                   |               |                       |            |
|-------------------|---------------|-----------------------|------------|
| <b>Components</b> | 60            | <b>Dimension (mm)</b> | 280x65x180 |
| <b>Item No.:</b>  | 520 396       | <b>Vol (m³)</b>       | 0,0033     |
| <b>EAN</b>        | 4048962168624 | <b>Weight (g)</b>     | 250        |



## BULLDOZER

|                   |               |                       |            |
|-------------------|---------------|-----------------------|------------|
| <b>Components</b> | 85            | <b>Dimension (mm)</b> | 280x65x180 |
| <b>Item No.:</b>  | 520 395       | <b>Vol (m³)</b>       | 0,0033     |
| <b>EAN</b>        | 4048962168617 | <b>Weight (g)</b>     | 300        |

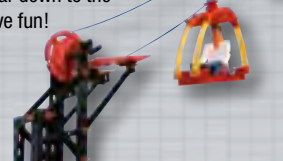


## TRACTORS

|                   |               |                       |            |
|-------------------|---------------|-----------------------|------------|
| <b>Components</b> | 130           | <b>Dimension (mm)</b> | 280x65x180 |
| <b>Item No.:</b>  | 520 397       | <b>Vol (m³)</b>       | 0,0033     |
| <b>EAN</b>        | 4048962168631 | <b>Weight (g)</b>     | 350        |



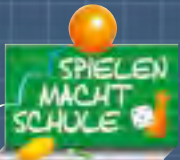
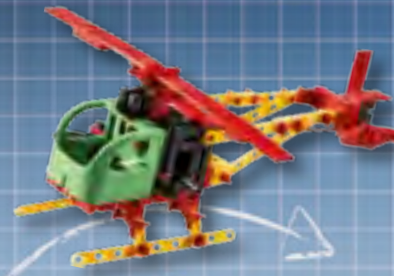
Glide down the slope on a 6-meter long cable with the gondola clear up at the top and then with the freight elevator clear down to the bottom. Have fun!



## CABLE CARS

|                   |               |                       |            |
|-------------------|---------------|-----------------------|------------|
| <b>Components</b> | 130           | <b>Dimension (mm)</b> | 330x80x235 |
| <b>Item No.:</b>  | 41 859        | <b>Vol (m³)</b>       | 0,0062     |
| <b>EAN</b>        | 4006209418598 | <b>Weight (g)</b>     | 605        |





> Ideal additions: Motor Set XS, Motor Set XM, Sound+Lights, Power Set

## UNIVERSAL 3

|                   |               |                       |            |
|-------------------|---------------|-----------------------|------------|
| <b>Components</b> | 500           | <b>Dimension (mm)</b> | 465x80x320 |
| <b>Item No.:</b>  | 511 931       | <b>Vol (m³)</b>       | 0,0119     |
| <b>EAN</b>        | 4048962111286 | <b>Weight (g)</b>     | 1815       |

40 models, such as vehicles with steering, bulldozer with tracks, crane with cable winch, windmill with reduction gear, allow children a fascinating glimpse into the world of technology while playing. The construction site and fair grounds play worlds with a number of models which can be built simultaneously guarantee a great deal of fun building and playing. The large number of parts leaves maximum leeway for creativity. A MUST for all fischer-technicians For children from age 7.



> Incl. 11 flex-rails and 4 balls

## ROLLING ACTION

|                   |               |                       |            |
|-------------------|---------------|-----------------------|------------|
| <b>Components</b> | 270           | <b>Dimension (mm)</b> | 465x80x320 |
| <b>Item No.:</b>  | 516 183       | <b>Vol (m³)</b>       | 0,0119     |
| <b>EAN</b>        | 4048962136814 | <b>Weight (g)</b>     | 1695       |



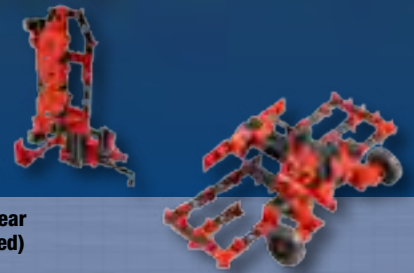
Balls race on the unique flex-rails through various obstacle courses. They can be accelerated and decelerated by a launching lever or the pretensioned catapult, cause chain reactions, shoot through loops and run over seesaws or are moved back up by an elevator with counter weight. The Rolling Action Set can be combined perfectly with the PROFI Dynamic Set.



## NEW



- > Including IR remote control, receiver, servo-steering, gear motor and battery tray for 9V block (battery not included)
- > Ideal additions: Motor Set XS, Sound+Lights, Accu Set



## ▶ TRACTOR SET IR CONTROL

|                   |               |                       |            |
|-------------------|---------------|-----------------------|------------|
| <b>Components</b> | 540           | <b>Dimension (mm)</b> | 465x80x390 |
| <b>Item No.:</b>  | 524 325       | <b>Vol (m³)</b>       | 0,0145     |
| <b>EAN</b>        | 4048962196085 | <b>Weight (g)</b>     | 1800       |

540

8  
Models

Complete set with proportional 4-channel infrared remote control, servo-steering, powerful gear motor and battery tray. Over 540 parts allow construction of a tractor with 7 working attachments. The rotary mower, double rotary windrower and hay turner are driven by a rotating power take-off. A harrow, two-way plow, cable winch and pusher plate offer further features for more fun. The speed of the gear motor, the angle of the servo-steering and two additional motors (not included) are all designed for infinite control. Incl. play figure!



IR remote control



Receiver



Servo



Motor



Safety battery tray





> Ideal additions: Motor Set XS, Motor Set XM, Control Set, Sound+Lights, Accu Set



## XL BULLDOZER

|                   |               |                       |            |
|-------------------|---------------|-----------------------|------------|
| <b>Components</b> | 740           | <b>Dimension (mm)</b> | 465x80x320 |
| <b>Item No.:</b>  | 505 280       | <b>Vol (m³)</b>       | 0,0119     |
| <b>EAN</b>        | 4048962069419 | <b>Weight (g)</b>     | 1490       |



Blocky tracked vehicles are cleaning up! This construction set offers four bulldozer types, which remain stable during play, with realistic details such as cable winch, dozer blade that can be raised and lowered and nonskid tracks. Mount up, let's go!



> Incl. XS motor and battery tray for 9V block (battery not included)  
> Ideal additions: Sound+Lights, Power Set



## SUPER FUN PARK

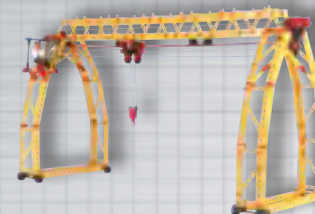
|                   |               |                       |            |
|-------------------|---------------|-----------------------|------------|
| <b>Components</b> | 660           | <b>Dimension (mm)</b> | 465x80x390 |
| <b>Item No.:</b>  | 508 775       | <b>Vol (m³)</b>       | 0,0145     |
| <b>EAN</b>        | 4048962095647 | <b>Weight (g)</b>     | 1900       |



Complete construction set with motor and battery tray. With over 660 components, you can build a motorized Ferris wheel or a merry-go-round. The Ferris wheel has a diameter of over 50 cm and is equipped with six gondolas — a model that creates a real fair atmosphere.



> Ideal additions: Motor Set XS, Motor Set XM, Control Set, Sound+Lights, Power Set



## SUPER CRANES

|                   |               |                       |            |
|-------------------|---------------|-----------------------|------------|
| <b>Components</b> | 780           | <b>Dimension (mm)</b> | 465x80x390 |
| <b>Item No.:</b>  | 41 862        | <b>Vol (m³)</b>       | 0,0145     |
| <b>EAN</b>        | 4006209418628 | <b>Weight (g)</b>     | 2665       |



Caution: Giants at work! More than one meter high and the boom is over a meter long, turns at the top or bottom and is built for really big loads! With traveling carriage and lifting tackle, mobile or stationary.



- > Incl. XS motor, 6x bucket, 6x caterpillar track, 2x conveyor belt
- > Ideal additions: Motor Set XS, Motor Set XM, Sound+Lights, Control Set, Power Set, Accu Set

## Power Machines

|                   |               |                       |             |
|-------------------|---------------|-----------------------|-------------|
| <b>Components</b> | 1500          | <b>Dimension (mm)</b> | 465x160x390 |
| <b>Item No.:</b>  | 520 398       | <b>Vol (m³)</b>       | 0,0290      |
| <b>EAN</b>        | 4048962168648 | <b>Weight (g)</b>     | 5200        |



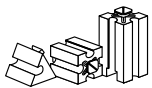
< 1,70m >

< 0,80m >

< 1,40m >



Gigantic: Nearly 1.40 m long, almost 80 cm high with 1,500 parts this construction kit sets new standards! This breath-taking bucket wheel excavator offers a variety of realistic features. The bucket wheel deposits the excavated material directly onto the conveyor belt for disposal. The excavator arm can be lifted and lowered. The entire excavator can be swiveled on the chassis platform with three crawler track units. A second crane model can also be built. Both models can be motorized with the PLUS sets, equipped with sound and lights as well as remote control.



# PLUS



## CREATIVE BOX 1000

|                   |        |                       |            |                   |               |
|-------------------|--------|-----------------------|------------|-------------------|---------------|
| <b>Components</b> | 720    | <b>Dimension (mm)</b> | 390x95x270 | <b>EAN</b>        | 4006209910825 |
| <b>Item No.:</b>  | 91 082 | <b>Vol (m³)</b>       | 0,0100     | <b>Weight (g)</b> | 2750          |



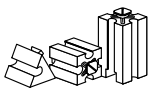
More than 700 components from the current fischertechnik assortment. Packed in BOX 1000 with building board 390 x 270 mm as cover.



## BOX 1000

|                   |        |                       |            |                   |               |
|-------------------|--------|-----------------------|------------|-------------------|---------------|
| <b>Components</b> | /      | <b>Dimension (mm)</b> | 390x95x270 | <b>EAN</b>        | 4006209303832 |
| <b>Item No.:</b>  | 30 383 | <b>Vol (m³)</b>       | 0,0100     | <b>Weight (g)</b> | 1860          |

Practical storage box with eight sorting boxes and 32 sorting partitions. The cover also serves as the big building board 390 x 270 mm.



> Performance data: Voltage 9V..., max. output 1.0 W at 6000 RPM.

## MOTOR SET XS

|                   |         |                       |            |                   |               |
|-------------------|---------|-----------------------|------------|-------------------|---------------|
| <b>Components</b> | 45      | <b>Dimension (mm)</b> | 225x65x150 | <b>EAN</b>        | 4048962069426 |
| <b>Item No.:</b>  | 505 281 | <b>Vol (m³)</b>       | 0,0022     | <b>Weight (g)</b> | 200           |



Thanks to the compact measurements, this motor can be installed almost anyplace. In addition to the building blocks, gearbox parts and toothed gears, the set also contains a safety battery tray with integrated pole-reversing switch for 9V block batteries (battery not included).



> Performance data: Voltage 9V..., max. output 3.0 W about 340 RPM



> Additionally required is Accu Set or Power Set

## MOTOR SET XM

|                   |         |                       |            |                   |               |
|-------------------|---------|-----------------------|------------|-------------------|---------------|
| <b>Components</b> | 40      | <b>Dimension (mm)</b> | 225x65x150 | <b>EAN</b>        | 4048962069433 |
| <b>Item No.:</b>  | 505 282 | <b>Vol (m³)</b>       | 0,0022     | <b>Weight (g)</b> | 275           |



High performance geared motor in compact plastic casing with numerous possibilities for attachments. With many toothed gears, axles and gearbox parts.



> Only Windows® compatible

## SOUND+LIGHTS

|                   |         |                       |            |                   |               |
|-------------------|---------|-----------------------|------------|-------------------|---------------|
| <b>Components</b> | 30      | <b>Dimension (mm)</b> | 225x65x150 | <b>EAN</b>        | 4048962003260 |
| <b>Item No.:</b>  | 500 880 | <b>Vol (m³)</b>       | 0,0022     | <b>Weight (g)</b> | 270           |



If you want to breathe still more „life“ into the fischertechnik models using sounds and lights then the „Sound+Lights Set“ is the ideal solution! Up to three different sounds, which can be activated with push-buttons or automatically with digital inputs, can be placed on the sound module. Depending on the requirement, the sounds can be replaced very simply per USB. The blink connection, which is also included, allows the operation of up to eight indicator lights as blinking lights. The set contains a sound module with blink electronics, a USB cable, two indicator lights with various colored luminous caps and a battery tray for a 9V block (battery not included).



> Additionally required is Accu Set

## CONTROL SET

|                   |                      |                       |            |                   |               |
|-------------------|----------------------|-----------------------|------------|-------------------|---------------|
| <b>Components</b> | Controller, receiver | <b>Dimension (mm)</b> | 225x65x150 | <b>EAN</b>        | 4048962003277 |
| <b>Item No.:</b>  | 500 881              | <b>Vol (m³)</b>       | 0,0022     | <b>Weight (g)</b> | 370           |

The four channel infrared remote control allows you to control fischertechnik models from a distance as well. Up to three motors and one servo can be controlled proportionally. This means an infinitely variable turning angle of the steering wheel and infinitely variable speed control. Up to four receivers can be operated with the remote control, which allows numerous applications.



## ACCU SET

|                   |                               |                       |            |                   |               |
|-------------------|-------------------------------|-----------------------|------------|-------------------|---------------|
| <b>Components</b> | Charger + battery pack in one | <b>Dimension (mm)</b> | 225x65x150 | <b>EAN</b>        | 4006209349694 |
| <b>Item No.:</b>  | 34 969                        | <b>Vol (m³)</b>       | 0,0022     | <b>Weight (g)</b> | 490           |



Charger, which is controlled by a microcontroller and provides reliable protection against overcharging. Very short charging time, max. two hours, powerful NiMH rechargeable battery pack with fuse for protection against a short circuit, 8.4V, 1500mAh.

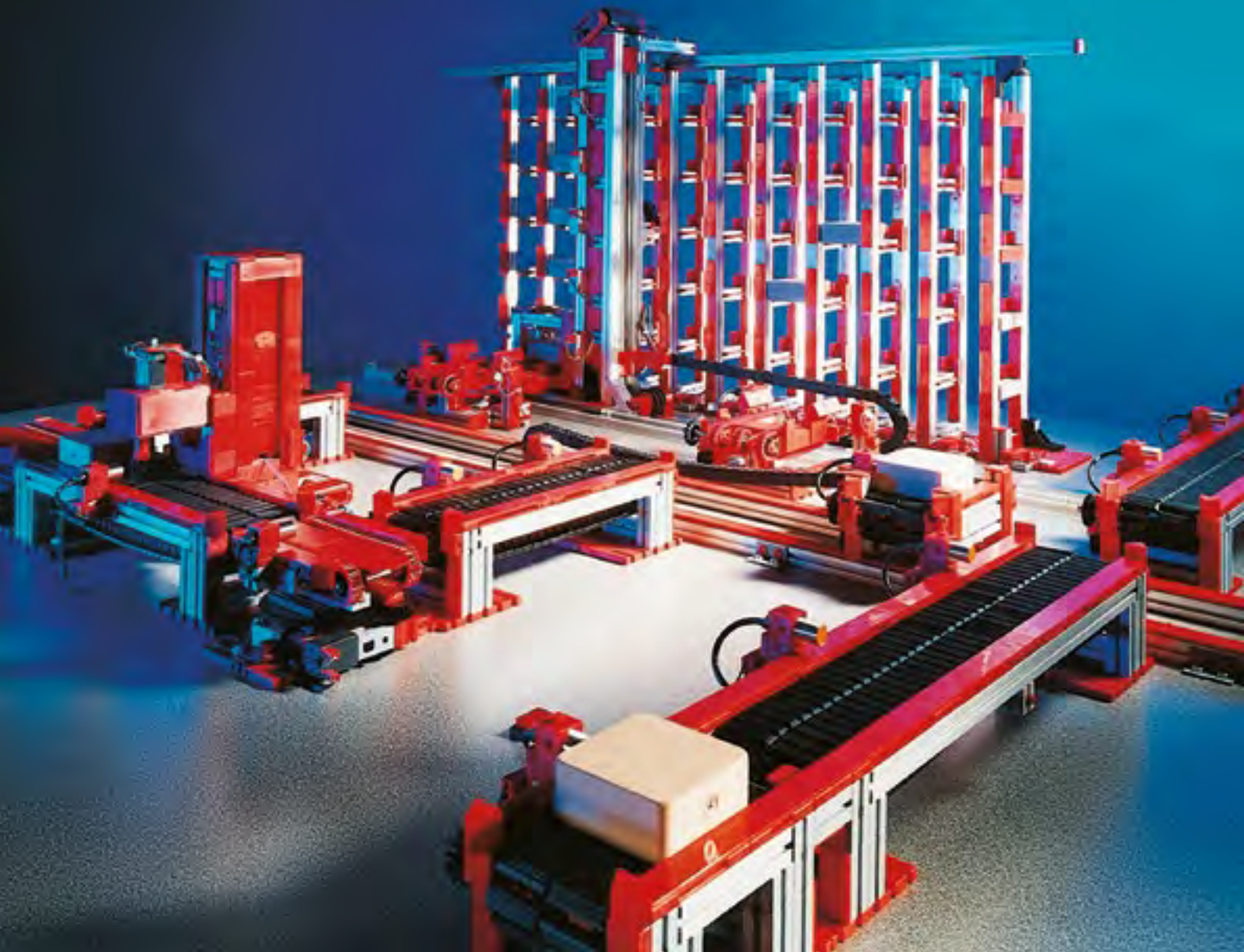
> Power Pack Performance Data: Voltage 9V.../2,5 A. > Power Controller Performance Data: Regulated output 1A max., additional output with 9V.../1 A max. (not regulated), both outputs short circuit-proof with overload protection.



## POWER SET

|                   |                                  |                       |            |                   |               |
|-------------------|----------------------------------|-----------------------|------------|-------------------|---------------|
| <b>Components</b> | Power unit + control unit in one | <b>Dimension (mm)</b> | 225x65x150 | <b>EAN</b>        | 4048962069440 |
| <b>Item No.:</b>  | 505 283                          | <b>Vol (m³)</b>       | 0,0022     | <b>Weight (g)</b> | 430           |

Power pack and infinite Power Controller. The power supply from the electrical socket for all fischertechnik models.



# fischertechnik

**fischertechnik GmbH**  
**Weinhalde 14-18, D-72178 Waldachtal**  
**Tel. +49 74 43/12-42 61, Fax +49 74 43/12-45 91**  
**E-Mail: [info@fischertechnik.de](mailto:info@fischertechnik.de)**  
**[www.fischertechnik.de](http://www.fischertechnik.de)**

The right to errors and technical and assortment changes is reserved. Liability for printing errors and deficiencies is excluded. Catalogue not valid for the USA.



**fischer**   
*innovative solutions*

## World of fischer

Befestigungssysteme  
 Automotive Systems  
 Prozessberatung  
 fischertechnik

**fischerTip**   
 creativ

Scan me!

