

Tightening and Welding

brand: **Bosch** Production Tools



Bosch EXACT Production Cordless Screwdrivers:

- ▶ Torque range 0.2 – 60Nm
- ▶ High quality mechanical shut-off clutch (Cmk > 1.67 with $\pm 10\%$)
- ▶ EXACT ION – new EC-brushless motors and Li-ion batteries, capable of Multi-step Tightening Processes programmed via USB

brand: **Bosch Rexroth**



Tightening spindles and handheld nutrunners:

- ▶ Torque range 0.6 – 1 000 Nm
- ▶ Maintenance free for 1 million full load cycles
- ▶ Handheld nutrunners: Torque range 1 – 220 Nm with Ergonomic design and angle compensation

Compact and Modular Control systems:

- ▶ Reliable and easy to use single-channel controllers
- ▶ Space-saving and economical multi-channel controller supporting up to six tightening channels

Nexo – intelligent cordless nutrunner:

- ▶ High-precision torque and rotary angle measurement system
- ▶ No external controller and with large display
- ▶ Data transfer via 2.4 and 5GHz WiFi or mini USB
- ▶ Torque range 1.8 – 65 Nm, max. speed 880 rpm
- ▶ Optionally available with barcode scanner

Resistance Welding systems

Welding controllers:

- ▶ Medium-frequency (1000 Hz) modular resistance welding controllers
- ▶ Maximum quality when welding all combinations of sheet thicknesses from steel to aluminum.
- ▶ Currents up to 360kA, air cooled/water cooled
- ▶ Adaptive current/voltage control algorithms for consistent weld quality and reduced expulsion
- ▶ Tools and user interfaces provide process monitoring and overview for weld control and quality monitoring
- ▶ Maximum flexibility in the I/O and network with plug-in modules such as PROFIBUS, PROFINET IO, DeviceNet and EtherNet/IP.

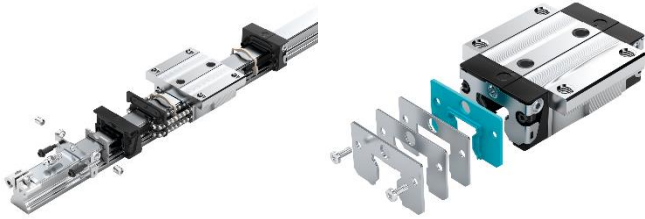
Powerful compact medium frequency transformers:

- ▶ Integrated temperature monitoring of the winding package and the rectifier unit, current sensor and safety resistor
- ▶ Process monitoring by integrated current measuring coil
- ▶ Output up to 250 kVA (20% ED)



Linear Motion Components

brand: **Bosch Rexroth**



Ball and Roller Rail Systems:

- ▶ High load capacities with limitless interchangeability, highest level of system rigidity thanks to preloaded 0-configuration
- ▶ 14 types of runner blocks, 6 accuracy and 4 preload classes
- ▶ Sizes 15/20/25/30/35/45/55/65 and 85/100/125
- ▶ Load ratings Cdyn: 3900 N to 1000 kN
- ▶ Steel, aluminum, corrosion-resistant steel, matte silver or black hard chrome-plated, high speed, self alignment capabilities, etc.
- ▶ Guide rails: mounting from above/below, corrosion-resistant versions, cover strips, plastic and steel hole plugs, bellows etc.
- ▶ Maximum rail length 6000 mm one-piece, composite guide rails



Miniature Ball Rail Systems:

- ▶ High dynamic ratings: up to $v = 5 \text{ m/s}$, $a = 250 \text{ m/s}^2$
- ▶ All steel parts of the runner block and the guide rail are made of rust and acid resistant material
- ▶ Sizes 7 / 9 / 12 / 15 / 20 and available wide sizes 9, 12, 15
- ▶ 4 types of runner blocks, 3 accuracy and 2 preload classes
- ▶ Low friction seal
- ▶ Clean room certificate Class 10
- ▶ Maximum rail length 2000 mm one-piece, composite guide rails available

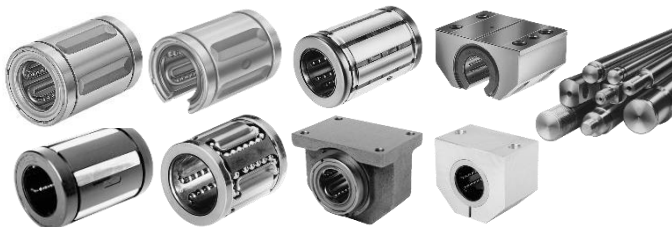


Ball Screw Assembly (BSA)/ Planetary Screw (PLSA):

- ▶ Numerous nut types in DIN, JIS and Rexroth layout
- ▶ Economic Solution due to precision-rolled screw
- ▶ Especially smooth running due to optimized ball pickup and recirculation
- ▶ Single Nut w/o axial play possible, no reduction ratings (PLSA)
- ▶ Diameter: 6 - 80 mm, Lead: 1 - 64 mm
- ▶ Accuracy: T3, T5, T7, T9 acc. to ISO 3408
- ▶ Load ratings up to: C = 900 kN (dynamic) CO = 3000 kN (static)
- ▶ Length: up to 13 000 mm (5 000 mm for PLSA)
- ▶ D x n value: 150 000 for all nuts

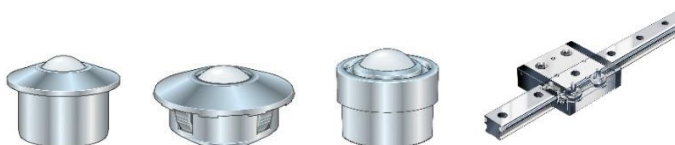
Linear Bushing and Precision Steel Shafts:

- ▶ Numerous types for $\varnothing d 3 - 80 \text{ mm}$: self-alignment, closed/open, heavy load, rugged design, linear sets, corrosion-resistant etc.
- ▶ Excellent low friction, compensation of misalignments
- ▶ Precision shafts sizes $\varnothing d 3-110 \text{ mm}$, shafts with shaft support rail, heat-treated steel/corrosion-resistant, hard chrome plated



Ball Transfer Units

- ▶ Conveying speed up to 2 m/s, Size 8(130N) to 120 (40 000N), different types in corrosion-resistant version available



Cam Roller Guides

- ▶ Dynamic ($v = 10 \text{ m/s}$), various formats, zero clearance adjustment

Linear Motion Systems

brand: **Bosch Rexroth**



Compact Modules CKK/CKR:

- ▶ **Extremely high rigidity** due to two integrated zero-clearance ball rail systems
- ▶ **Compact and low aluminum profile**, various connecting elements
- ▶ **Online-configurator and creation of 3D-CAD models**
- ▶ **Sizes:** 70, 90, 110, 145, 200
- ▶ **Drive:** Precision Ball screw T7(CKK), Toothed belt drive (CKR)
- ▶ **Length:** freely configurable up to 5 500 mm (CKK), 10 000 mm (CKR)
- ▶ **Travel speed:** up to 2.53 m/s (CKK), 5.0 m/s (CKR)
- ▶ **Repeatability:** up to ± 0.005 mm (CKK), ± 0.05 mm (CKR)



Linear Modules MKK/MKR/MLR:

- ▶ **Integrated zero-clearance ball rail systems (M KK/MKR)**, and with cam roller guide (MLR); two carriage length available
- ▶ **Online-configurator and creation of 3D-CAD models**
- ▶ **Motor flange/coupling or timing belt side drive**, gear unit
- ▶ **Sizes:** 40, 65, 80, 110, 145 (two rails), 165
- ▶ **Drive:** Precision ball screw (MKK), Toothed belt drive (MKR/MLR)
- ▶ **Optionally:** hard chrome plated, integrated IMS-A, T5 grade
- ▶ **Length:** MKK up to 5 400 mm (MKK), 12 000 mm (MKR/MLR)
- ▶ **Speed:** up to 2.5 m/s (MKK), 5.0 m/s (MKR), 10.0 m/s (MLR)
- ▶ **Repeatability:** up to ± 0.005 mm (MKK), ± 0.05 mm (MKR/MLR)



Electromechanical Cylinders EMC, Heavy Duty EMC-HD:

- ▶ **Precision rolled Ball Screw (T7)** with preload or Planetary Screw
- ▶ **Compatibility with pneumatic products** according to ISO 15552
- ▶ **12 sizes:** 32, 40, 50, 63, 80, 100, 100XC; 085, 105, 125, 150, 180
- ▶ **Protection class:** IP54, IP65 or hygienic design (optional)
- ▶ **Stroke:** 30 — 1700 mm (variable in 1 mm intervals)
- ▶ **Axial force:** up to 290 kN, Dyn. Load rating: up to 470 kN
- ▶ **Travel speed:** up to 1,6 m/s
- ▶ **Repeatability:** $\pm 0,005$ mm BSA (up to $\pm 0,01$ mm for PLSA)
- ▶ **Mounting elements, force sensor and other accessories**
- ▶ **Online-configurator and creation of 3D-CAD models**

Aluminum Profile & Accessories

brand: **Bosch Rexroth**



Aluminum Profile System:

- ▶ Most comprehensive Modular system as the basis for a wide range of industry
- ▶ Over 100 different strut profile cross sections
- ▶ Highly durable standard profiles, largest slot retention force
- ▶ Innovative special profiles, profiles with closed slots
- ▶ Finely graduated profile size range (20, 30, 40, 45, 50, 60, 80, 90, 100 mm)
- ▶ 3 slot systems: 6, 8, 10 mm with groove independent connectors
- ▶ Slot retention forces up to 24 000 N
- ▶ Patented special profile
- ▶ Integrated air duct
- ▶ Guaranteed performance data, highest stability criteria
- ▶ Customized finishes without drawings — Quick & Easy

Accessories

- ▶ Comprehensive range of accessories with more than 1300 individual parts
- ▶ Specific solutions as well as basic element for manual workstation and transfer systems
- ▶ Reliable and secure connectors with extensive accessories
- ▶ 25 types of connectors in more than 280 variants

Electric Drives and Controls

brand: **Bosch Rexroth**



Electric drives IndraDrive - unique scalable platform:

- ▶ Common platform for power range: 100W - 4 MW
- ▶ Different types: compact converters, modular inverters/power supply, single- and double-axis inverters, distributed cabinet-free drive technology with motor-integrated and near motor drives
- ▶ Multi connectivity: Ethernet-based multi-protocols (SERCOS, PROFINET IO, Ethernet/IP, EtherCAT, Powerlink), ProfiBus, CANopen, DeviceNet, Analog and Parallel interfaces
- ▶ Intelligence: advanced firmware functions, integrated motion logic and PLC (MLD) with a wide range of libraries including ready-to-use technology functions, free programmability (IEC 61131-3), integrated safety technology, etc.

IndraControl - complete and universal automation:

- ▶ Scalable platform for all system solutions from Bosch Rexroth
- ▶ Extensive range from IndraControl L25 to L85
New family IndraControl XM from XM21
- ▶ Open connectivity: RS232, Ethernet TCP/IP/UDP, PROFIBUS (Master/Slave), SERCOS, PROFINET RT, EtherNet/IP, EtherCAT
- ▶ I/O extension modules: IP20/IP67, local and distributed, digital/analogue I/Os, temperature, technology, communication, safety.

Kistler – Angle/Torque Analyser



INSPECTpro:

- ▶ **Mobile measuring and evaluation unit for process inspection and quality monitoring**
- ▶ **Portable and lithium-ion battery-operated**
- ▶ **7.7-inch TFT color display and Touchscreen**
- ▶ **Connectivity for a range of sensors (with optional adapter cable, depending on type)**
- ▶ **Optional two measuring channels:**
Analog / incremental sensor
- ▶ **Optional software modules for extended function**
- ▶ **Optional connection of external power supply for Continuous operation**

Amada Miyachi – Weld Tester



Weld Tester MM-315:

- ▶ **Portable, Multi-Function Monitor for Resistance Spot Welders**
- ▶ **Measures Weld Current, Weld Time**
- ▶ **Measures Conduction Angle**
- ▶ **Automation Power-Off Feature**
- ▶ **Large, easy-to-see LCD**
- ▶ **Memory function for easy recall of settings**
- ▶ **Cover panel with dust and oil endurance**
- ▶ **Complies with RoHS**
- ▶ **Toroidal coil MB-500-15 (Optional)**

Spotron – Weld Force Gauge



Weld Force Gauge:

- ▶ **For general resistance weld**
- ▶ **Compact, lightweight, easy-to-use**
- ▶ **Seven types of variations fitted to the weld force**
- ▶ **Unit of gauge by N (Newton)**
- ▶ **Insulated body to protect from weld current**
- ▶ **“Maximum Value Pointer” to hold at the maximum point**
- ▶ **SP-241N has a flexible neck bendable to U-form.**
- ▶ **Carrying case is furnished for easy handling and storage**

SCS Concept – Angle/Torque Wrench



Freedom4:

- ▶ Advance solution for production from 0 to 1200 Nm
- ▶ Light, robust and accurate
- ▶ Automation obstacle detection & incorrect hand position
- ▶ Tightening strategy and full quality check strategy
- ▶ Self-diagnostic solution
- ▶ End-fitting tool recognition
- ▶ High memory capacity
- ▶ Barcode reader in option
- ▶ Wireless charger
- ▶ Wireless communication and USB connection for data traceability
- ▶ Large screen, 7 LEDs, vibration and buzzer to communicate with the operator



– Adjustable Cartridge Heater



Adjustable Cartridge Heaters:

- ▶ Adjustable Cartridge Heater up to 160°C.
- ▶ Cartridge heater for 2 cartridges with temperatures adjustable from 20°C to 160°C

Features:

- ▶ Precise adjustable $\pm 1^\circ\text{C}$
- ▶ Digital display with desired and current temperature
- ▶ Temperature sensor is located between the two barrels at the top
- ▶ Automated correction between sensor and temperature in the middle of cartridge
- ▶ Made in Germany with CE marking
- ▶ Compact device - less than 3.0kg in weight

– Heated Cartridge Dispenser, ELECTRAFLOW



ELECTRAFLOW 18V, 20-228°C:

- ▶ Cordless cartridge applicator, ELECTRAFLOW 18V with in-built heating technology.
- ▶ The temperature can be set as required up to 228°C and is shown in the digital display.

Features:

- ▶ The only heated dispensing tool on the market in this power ranges
- ▶ The only can be used with 310ml & 400ml cartridge
- ▶ High compressive force up to 350kg

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Excellence**

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