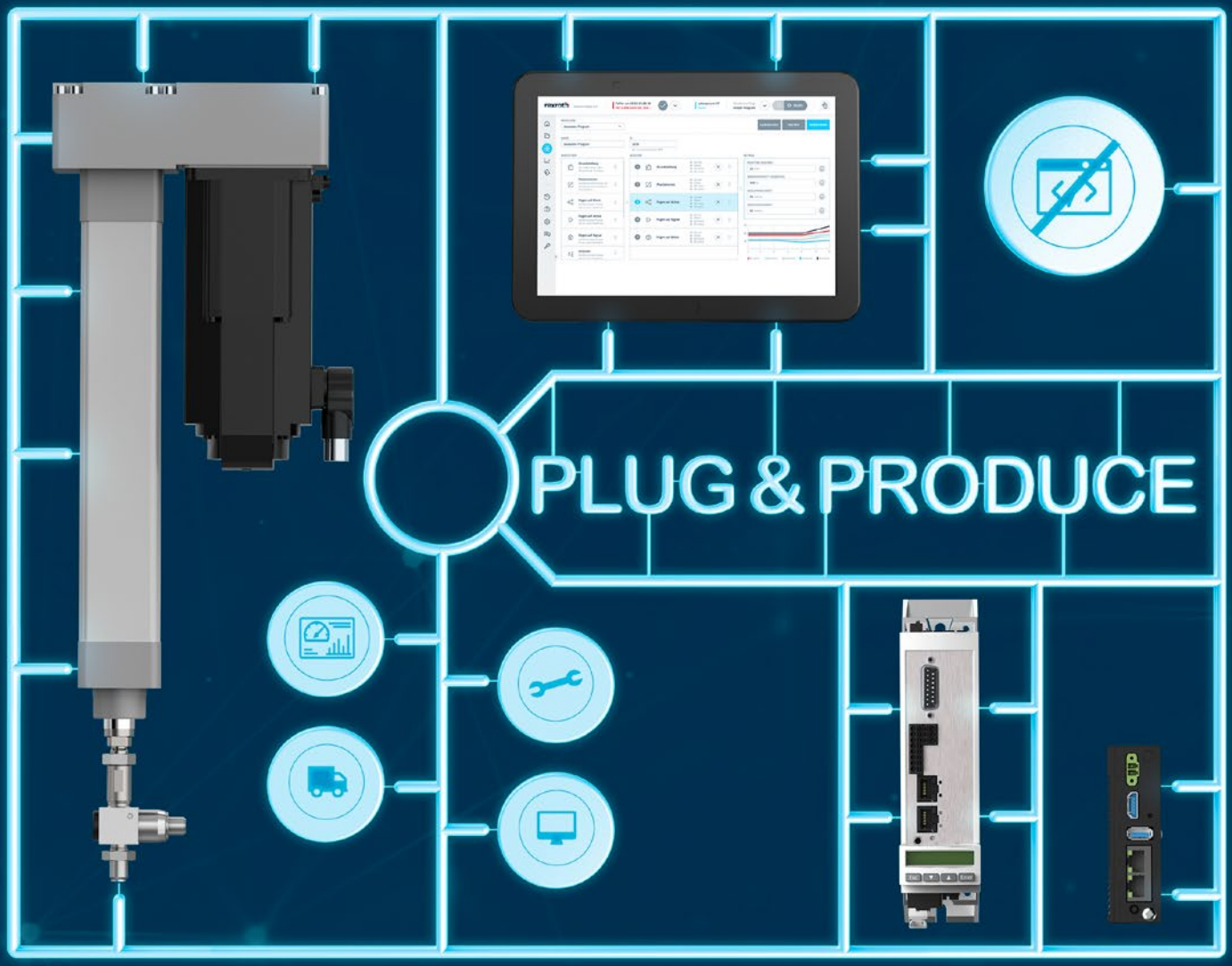
rexroth
A Bosch Company

PLUG & PRODUCE: WITH THE NEW SMART PRESS KIT



FASTER, MORE PRODUCTIVE AND SMARTER PRESSING. THE NEW SMART PRESS KIT.

Times are changing, and so are Industry requirements and processes. The trend is shifting away from individual products to complete system kits that make it possible to create easy and fast solutions with greater independence. The same applies to all pressing and joining processes in the Factory of the Future.

The new Smart Press Kit from Bosch Rexroth accurately meets the industry requirements for machine and plant manufacturers. It is a fast, efficient and comprehensive solution for applications with pressing and joining processes.

It functions according to the Plug & Produce principle and works with proven Rexroth components as well as state-of-the-art software and user interface based on HTML 5 for all types of devices.

The time spent on engineering can be reduced by up to 95% thanks to simple product selection, as well as fast commissioning and process configuration.

SMART FACTS

The new software with an intuitive, modern design is I4.0 capable thanks to a connection via OPC-UA.

- All mechanical and electrical hardware from Rexroth
- Easy, fast commissioning with auto configuration and parameterization of the servo drive. The integrated motion control minimizes the number of interfaces
- Support for error handling through plain text error messages in the software

ONE SYSTEM SOLUTION MANY BENEFITS

Easy product selection

- Preselected mechanical, electrical and software components are combined in various kits for forces from 2 to 30 kN
- All components from a single supplier – with proven Rexroth quality

Plug & Produce

- Delivered in a single package, including preinstalled operating software
- Auto parameterization of the servo drive
- Small number of interfaces (servo drive with integrated motion control)

Zero programming

- No programming knowledge required
- Easy and logical configuration of the process and the evaluation elements
- Browser-based web HMI, can be used on various devices
- Modern and intuitive design

The modular Smart Press Kit consists of:

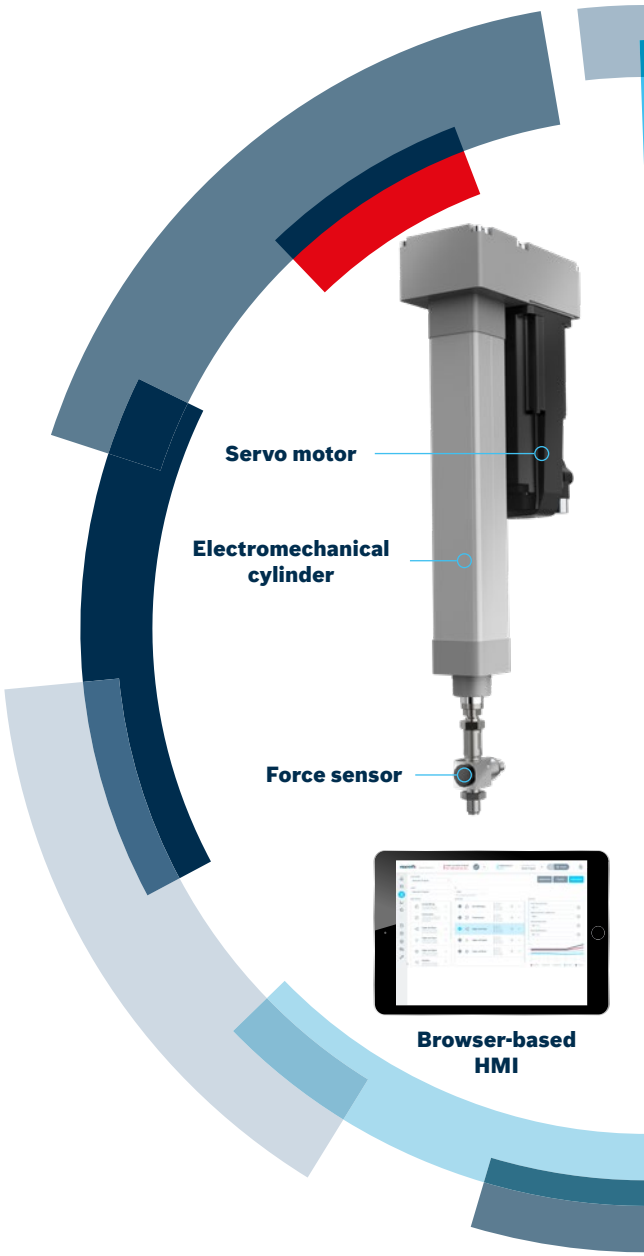
- Mechanics (electromechanical cylinder and force sensor)
- Electric (motor, servo drive and motion control)
- Software (commissioning, operation and process analysis)

The Smart Press Kit can be used for the following applications: assembly and joining processes, forming technology as well as test applications.

And all of this with a single point of contact, one selection tool as well as one single order and delivery.

FIVE STEPS TO THE FACTORY OF THE FUTURE WITH THE SMART PRESS KIT

Bosch Rexroth is a pioneer in the digitalization of Linear Motion Technology and in pressing and joining processes. Proven Rexroth technology as well as innovative products and solutions are delivered along the entire process chain. Initial solutions on the road to the Factory of the Future – such as the Smart Press Kit – are already available, and more are set to follow.



5. SERVICE & MAINTENANCE

- All current system parameters at a glance: Status report and quality statistics
- Error handling with error messages displayed as plain text in the software
- Predictive maintenance functions and maintenance support are in the pipeline

4. ONGOING OPERATION & DIAGNOSIS

- Visualization of process and status information
- Live display of the force-displacement curve with subsequent analysis
- Visualization of the process result (OK/NOK)
- Storing of all process data with quality evaluation in an internal database
- Data export of the process results via web HMI
- IoT connection via OPC-UA

SMART PRESS KIT

1. EASY PRODUCT SELECTION AND CONFIGURATION

- Preselected kits for forces from 2 to 30 kN
- Fast selection and sizing with the LinSelect tool
- Just five clicks in the configurator to the final product

2. FAST ORDERING & DELIVERY

- Online ordering 24/7 in the Rexroth eShop
- All components from a single supplier
- Everything in a single package and a single delivery

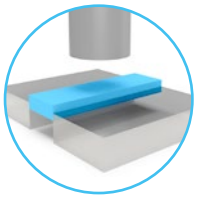
3. INTUITIVE COMMISSIONING & PROCESS CONFIGURATION

- Preinstalled operating software with auto parameterization of the servo drive
- Only a small number of interfaces thanks to an integrated motion control
- Guided commissioning via a set-up wizard
- No programming knowledge required

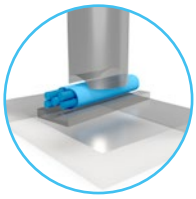
SMART PRESS KIT – THE APPLICATIONS

Whether it's for assembly and joining, or forming, or testing, the Smart Press Kit ensures shorter time-to-market and maximum productivity in the production process.

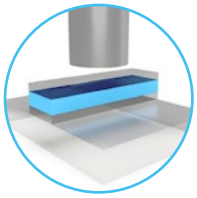
MOUNTING AND JOINING



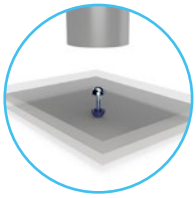
PRESS-FITTING
Example: Stator packages for electric motors



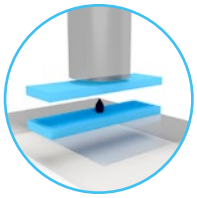
CRIMPING
Examples: Hoses, cables and plastic parts in the automotive industry



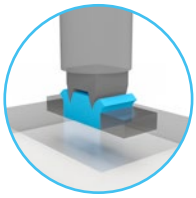
PRESSING
Examples: Sintering or powder press applications



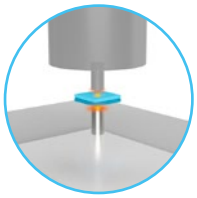
RIVETING
Example: Economical joining of sheet metal parts



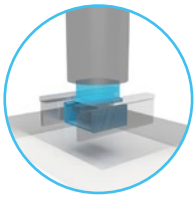
BONDING
Example: Bonding of plastic and composite materials



CAULKING
Examples: Integration of magnets in lamination stacks in electric motor production



WELDING
Example: Hot plate welding



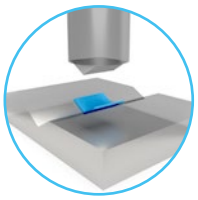
CLIPPING
Example: Connector contacts in connector housing

WIDE RANGE OF APPLICATIONS

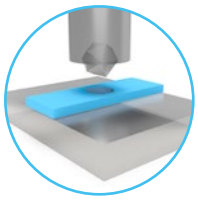
The Smart Press Kit is suitable for a wide range of pressing and joining applications. It is a flexible, compact, future-proof system solution.

- Efficient assembly and joining processes in many different industrial sectors
- Forming processes in the metal and plastics industries as well as packaging technology
- Testing tasks in development, quality assurance and test laboratories

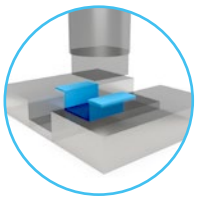
FORMING



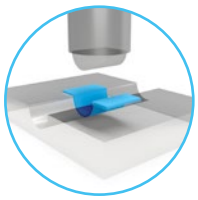
BENDING
Example: Pipes in the metal industry



EMBOSSING
Example: Logos in plastic film in the plastics or packaging industries

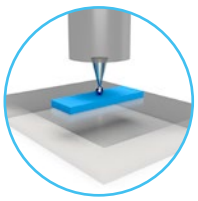


DEEP DRAWING
Examples: Production of yogurt cups and other packaging

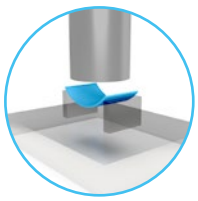


SHAPING
Example: Boxes in the packaging industry

TESTING



TESTING / MEASUREMENT
Example:
Material test stands



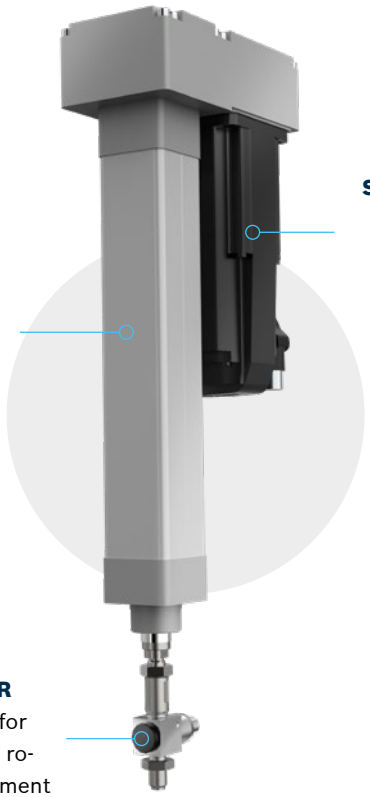
TESTING
Examples: Test setups, e.g. for dampers, springs, brake pedals

FROM INDIVIDUAL COMPONENTS TO A SYSTEM SOLUTION

With the new Smart Press Kit, Bosch Rexroth delivers – for the very first time – a ready-to-use system of proven Rexroth components for joining processes, including an easy, web-based software solution.

The Smart Press Kit consists of perfectly matching hardware and software components. It can be used either as a standalone solution or integrated in higher-level systems via field bus.

HARDWARE



ELECTRO-MECHANICAL CYLINDER EMC
with freely configurable stroke up to 400 mm. Parallel or axial motor attachment

SERVO MOTOR MS2N
Latest generation of motors with absolute encoder and brake

FORCE SENSOR
DMS technology for cost-effective and robust force measurement

I4.0 READY
Connection via OPC-UA
Data access via ReST programming interface

INDUSTRIAL PC PR21
with integrated web server

INDRADRIVE HCS01 SERVO DRIVE
with integrated PLC IndraMotion MLD and safety function STO

FIELD BUS CONNECTION
to higher-level motion control

Power and encoder cable (5m or 10m) and cable for force sensor (15m) are included.

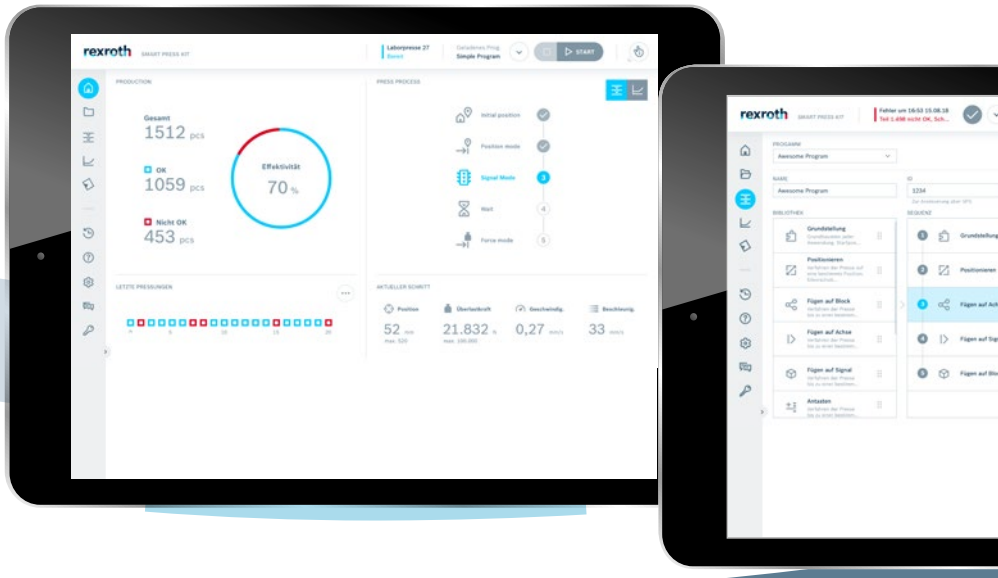
READY FOR INDUSTRY 4.0

SOFTWARE

Tablet not included
in scope of delivery.

INTUITIVE SOFTWARE – NO PROGRAMMING KNOWLEDGE REQUIRED

Thanks to the modern, intuitive web HMI with modular drag and drop process configuration, the software is ready for immediate use with no previous knowledge required. The graphical creation of all required evaluation and analysis elements is virtually self-explanatory. It couldn't be any simpler or clearer.



COMMISSIONING WITH AUTO CONFIGURATION (PLUG & PRODUCE)

- Preinstalled software
- Wizard for easy, fast commissioning
- Automatic loading of the hardware configuration
- Auto parameterization of the servo drive
- Support for commissioning with homing and jog mode

Benefits:

- Time savings thanks to Plug & Produce
- Fewer errors and increased productivity
- Significantly reduced complexity

SIMPLE PROGRAMMING AND OPERATION

- Modular process configuration with drag and drop
- Logic check of input data
- Easy graphical creation of evaluation and analysis elements
- Visualization of process and status information in the dashboard

Benefits:

- High level of user friendliness – no programming knowledge required
- Error reduction and avoidance

ANALYSIS AND DIAGNOSIS VIA DASHBOARD

- Analysis of force-displacement curves
- Visualization of the process result (OK/NOK)
- Storing of process data for quality assurance in an internal database
- Press history with filter and export function
- Diagnostic functions: system parameters as well as status reports and statistics
- Log book with plain text error messages integrated in the software
- Data access via ReST programming interface

Benefits:

- Always up-to-date with current process data such as position, force and speed
- Short reaction times in case of deviations

SMART SELECTION – EASY CONFIGURATION

Combine mechanical and electrical components to create a customized Smart Press Kit in just five clicks. It couldn't be any faster or easier.

1. SIZE
Depending on nominal force

- 002 2 kN
- 004 4 kN
- 007 7 kN
- 012 12 kN
- 019 19 kN
- 030 30 kN

2. STROKE
Depending on size

- 002 35 – 400 mm
- 004 40 – 400 mm
- 007 65 – 400 mm
- 012 80 – 400 mm
- 019 70 – 400 mm
- 030 90 – 400 mm

3. MOTOR ATTACHMENT

- Axial MF01
- Parallel RV01

4. FORCE SENSOR

- Without force sensor
- With force sensor

5. CABLE LENGTH

- 5 m
- 10 m

LinSelect and Online Configurator

For design and configuration, Rexroth uses engineering tools and configurators based on decades of application experience. These represent the first step on the road to the digitalization of Linear Motion Technology.

Selection of the right product with the LinSelect selection and sizing tool is followed by an easy, final configuration in the Online Configurator. Users can then download the CAD files and order the desired configuration in the Rexroth eShop. Thus, it is possible to create and order a customized Smart Press Kit from any location at any time.

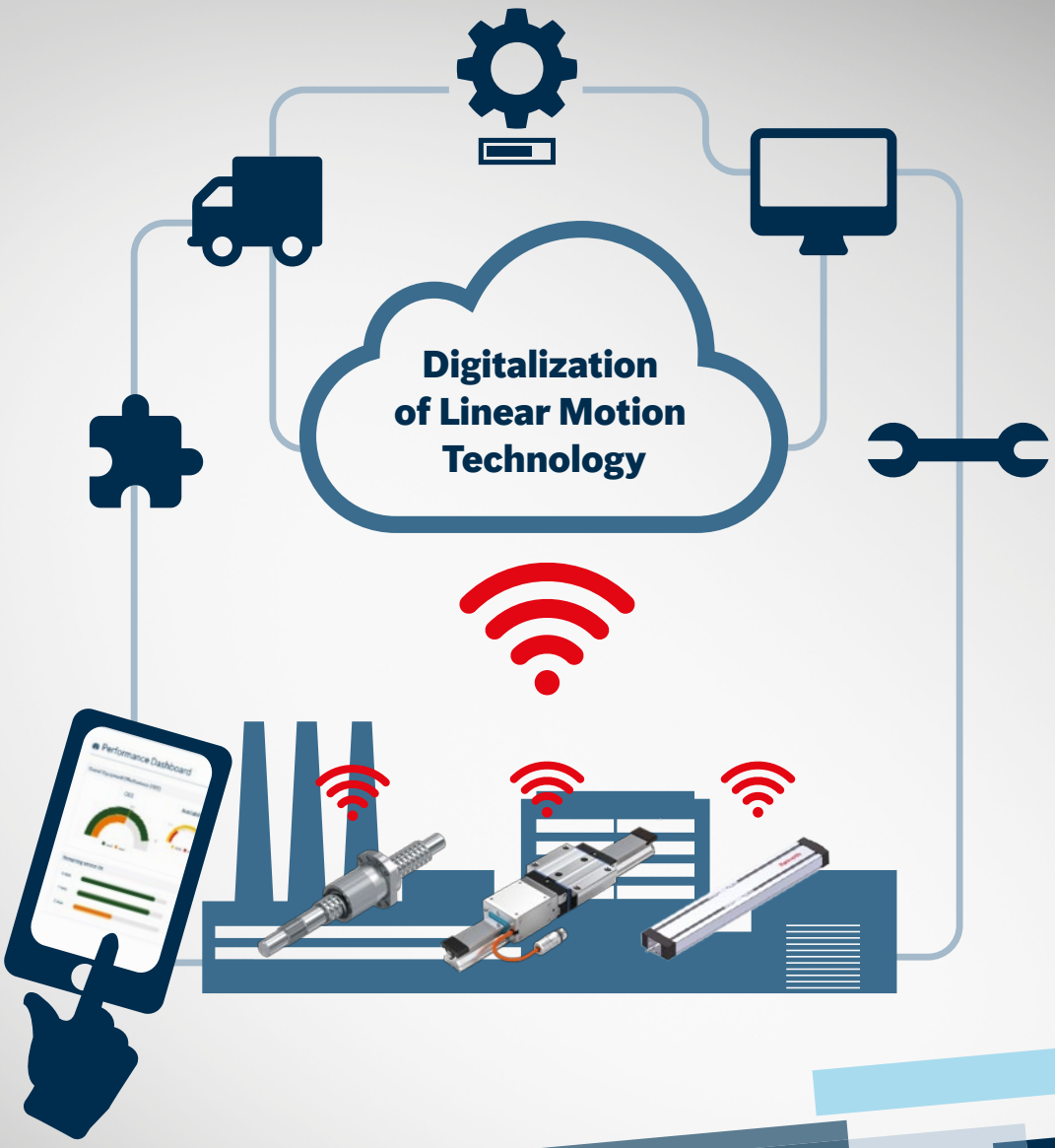
LinSelect

Online Configurator

NOW. NEXT. BEYOND.
THE NEW SMART PRESS KIT IS ONLY THE FIRST STEP.

THE FUTURE STARTS HERE

The innovative Smart Press Kit from Bosch Rexroth represents another milestone on the road to the Factory of the Future. Comprehensive systems expertise, including software, is paving the way towards Industry 4.0 for pressing and joining applications. Many functions and services are already available along with proven Rexroth Linear Motion Technology components. Further offerings such as predictive maintenance solutions, for example, will be available in the near future. Bosch Rexroth is a competent, experienced partner for innovative digital Linear Motion Technology solutions. We are ready – now and in future.



THE SMART PRESS KIT IN FACTS & FIGURES

Technical information at a glance:

Size	002	004	007	012	019	030	
Stroke [mm]	35...400	40...400	65...400	80...400	70...400	90...400	
Nominal force [kN]	2	4	7	12	19	30	
Maximum force [kN]	3	6	10	15	20	40	
Max. velocity [m/s]	0.38	0.32	0.55	0.5	0.37	0.5	
Force sensor/measurement							
Measurement technology	Strain gauge						
Measuring range [kN]	-0.3 ... +3	-0.6 ... +6	-1 ... +10	-1 ... +15	-1 ... +20	-1 ... +40	
Sampling rate [Hz]	1000						
Resolution [bit]	14						
Accuracy (linearity) [% FS]	+/- 0.3						
Servo drive (with integrated motion control)							
Power supply [V]	1 x AC 110...230 3 x AC 110...230	1 x AC 110...230 3 x AC 110...230	3 x AC 200...500	3 x AC 200...500	3 x AC 200...500	3 x AC 200...500	3 x AC 200...500
Safety function acc. to EN 61800-5-2	Safe Torque Off (STO)[1]						
Fieldbus interface	Profinet, Ethernet/IP, EtherCAT, Sercos III						
Software functions							
Max. number of programs	99						
Number of program steps per program	500						
Number of digital inputs/outputs	6 inputs + 1 output or 7 inputs						
Force measurement	Unlimited without resolution reduction						
Evaluation elements	Windows, envelopes, thresholds						
Ambient conditions							
Ambient temperature (operation) [°C]	0–50 °C (loss of performance at temperatures exceeding 40°C)						
IP protection class	Mechanics: Standard IP54 (up to IP65 possible) Control cabinet hardware: IP20						

[1] Category 4, Performance Level e according to EN ISO 13849-1 and SIL 3 according to EN 62061

ACCESSORIES FOR THE SMART PRESS KIT

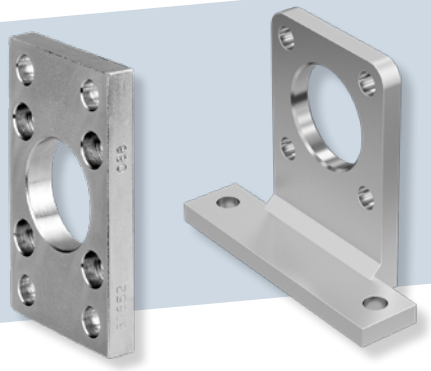
Everything you could possibly need.

Bosch Rexroth also provides matching accessories for the Smart Press Kit – from fastening elements to electrical components.

MOUNTING ELEMENTS

Flange mount

Foot mount



ELECTRICAL ACCESSORIES

Uninterruptible power supply
VAU

Mains filter
NFE/NFD

Power supply unit
VAP01

Panel PC
VR

Ethernet cable, 5 m
RKB

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