

NEWS

Focus: With automated machine tending to the Healthy Factory

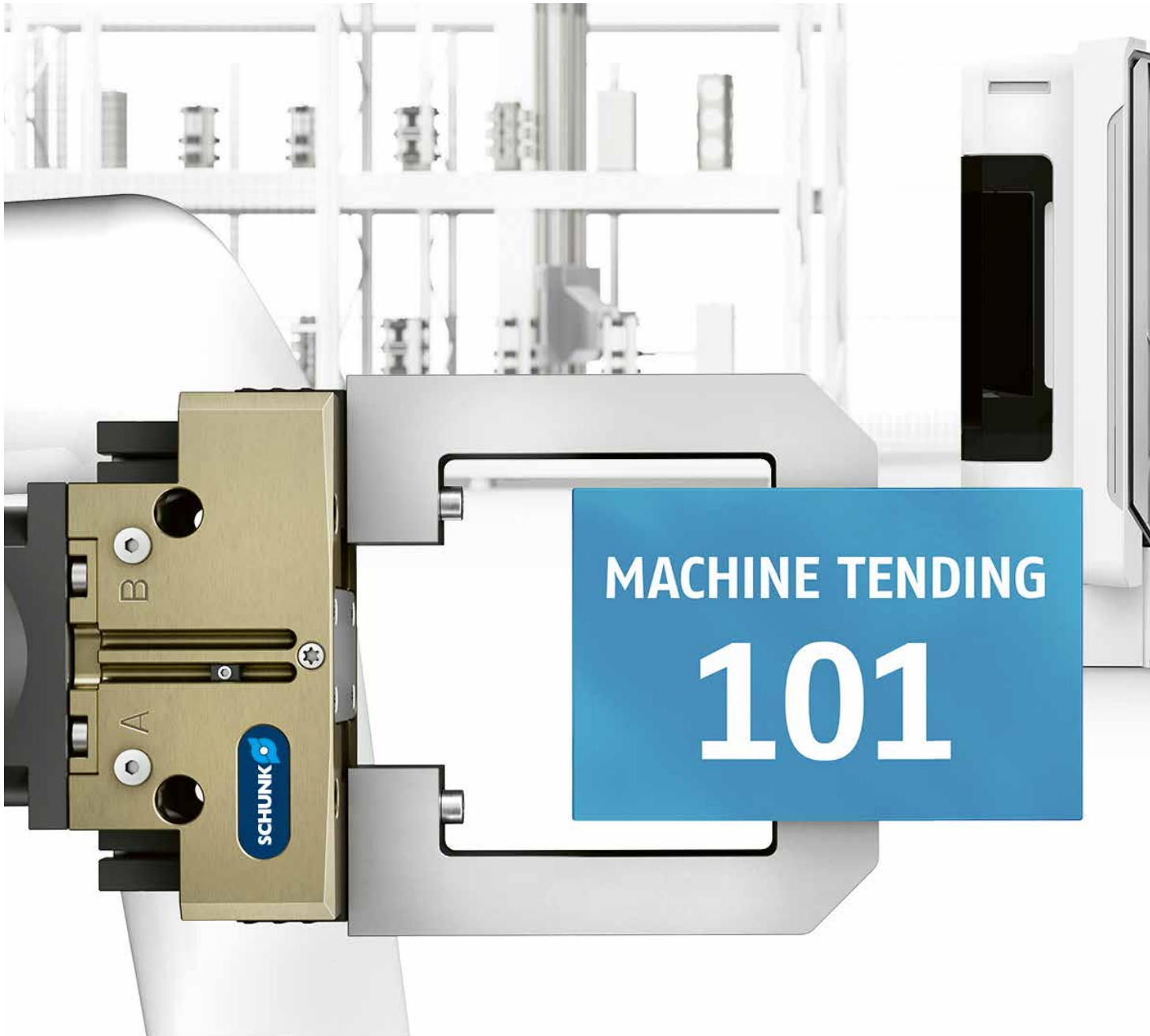




Content

	Page
Automated machine tending	8
Toolholding technology	10
Workholding technology	16
Gripping technology	28
Automation technology	36
Depaneling technology	42
Digital Services	46

Automated machine tending: efficient, productive and competitive





At a time when efficiency and maximum autonomous machine running times are becoming increasingly important, automated machine tending offers significant benefits for companies of all sizes. Global competitive pressure is increasing, while skilled workers are in short supply everywhere. Increasing variance, ever smaller batch sizes and fluctuating demand also call for optimized processes using the latest technologies. Automated loading and unloading of machine tools are important steps towards a "Healthy Factory" – a healthy company that makes processes more productive and at the same time reduces the burden on people and the environment. SCHUNK will be happy to accompany you on this journey.

Your entry to automated machine tending

We support you right from the beginning and ensure that you understand the Machine Tending 101 and can use it in the best possible way. What options are there? Which solution suits your manufacturing process? And what are the advantages of each approach? Together, we will find the right type of automation for your process.

The right automation type for your process

Depending on the workpiece, batch size, manufacturing process and machine, there are five automation types to choose from:

- Lean automation
- Workpiece automation
- Pallet automation
- Workpiece & pallet automation
- Flexible manufacturing system



Find out more about
automated machine tending

schunk.com/machine-tending



Healthy factories for a healthy tomorrow

Companies that act in an economically, ecologically, and ergonomically responsible manner have a positive impact in many areas and make processes and industries "healthier". And therefore more successful. At SCHUNK, we are convinced that even seemingly contradictory factors such as increasing productivity while simultaneously reducing one's ecological footprint can be reconciled. We see the solution in efficient automation and machining processes. This makes growth more stable, reduces the burden on the environment and employees benefit from more ergonomic and safer working conditions. We firmly believe in the power of healthy factories. For enhanced sustainability and a better future for all.

"It is very important to us that our products and systems contribute to an efficient and responsible industry. Especially in future-oriented industries, companies can achieve a lot through automation."

Johannes Ketterer, COO/CSO



With automation to the Healthy Factory

With **automated machine tending**, you benefit from clear economic advantages:

On the one hand, you counter the shortage of skilled workers and, on the other, you optimize your production costs, minimize errors and maximize resource efficiency. These economic improvements help to ensure that your manufacturing and the company as a whole can grow sustainably and profitably in order to prevail in the face of global competition.

The introduction of automated machine tending also has a positive impact on the environment. More efficient production processes reduce energy consumption, optimize the use of materials and reduce waste.

These ecological advantages help to reduce the environmental impact and conserve resources.

Automation technologies, especially for loading and unloading machine tools, simplify and relieve work processes. They reduce physically strenuous and repetitive tasks for production employees. This leads to a safer and healthier working environment in which skilled workers can concentrate on value-adding activities. This minimizes the risk of accidents, increases occupational safety and health protection and creates a more attractive working environment.

Your neutral partner for automated machine tending

At SCHUNK, we specialize in gripping technology, automation technology, and workholding and toolholding technology. Sophisticated high-quality components that are used in your machine tool environment. Thanks to this experience, we know what is important when it comes to automated machine tending. Regardless of robot types and machine tools, we can provide you with neutral advice and select the right type of automation for your application together with you. If you do not implement the planning and commissioning yourself, a system integrator or machine manufacturer can be called in.



Discover innovative products for automated machine tending

From grippers and jaw quick-change systems to customized automation solutions: Our expertise and our comprehensive product portfolio for **automated machine tending** make us a reliable partner on your path to automated, healthy and sustainable production. Because each of our products is designed to maximize the efficiency of your processes while protecting people and the environment.



iTENDO² magnetic holder

With an intelligent real-time sensor system for flexible use and full compatibility with iTENDO² systems.

Page 12



TANDEM BWA clamping force block

Automated, toolfree jaw quick-change – ideal for flexible clamping of small batch sizes.

Page 21



VERO-S NSR3 138 robot module

High-performance robot module with increased pull-down force for reliable pallet handling and quick changeover.

Page 25



PGL-plus-P universal gripper

Pneumatic gripper with secure gripping force maintenance and integrated sensor system.

Page 30



EGU universal gripper

Flexible loading and unloading of machine tools and handling of different workpiece sizes.

Page 32



BSWS-R automatic jaw quick-change system

Fast, tool-free changing of robot gripper fingers: maximum flexibility, minimum changeover times.

Page 35



Toolholding technology



The complete program for all applications from the technology leader: At SCHUNK, toolholding technology stands for precision and reliability. We focus on your particular application and will always find the optimal toolholding system for your task. Discover the wide range of technologies from SCHUNK, from mechanical toolholders to our intelligent iTENDO solution for Industry 4.0 applications.

As a specialist in gripping technology, automation technology and toolholding technology, we offer high-quality components for machine tools. Our experience enables us to provide you with impartial advice and find the right automation solution for your requirements. Rely on SCHUNK for efficient and innovative clamping technologies.

Highlights of toolholding technology from SCHUNK:

- + High precision and reliability for optimal machining results
- + Versatile range of options for any application
- + Innovative technologies such as TRIBOS and TENDO for efficient processes
- + Consulting for customized solutions

Magnetic holders

With intelligent real-time sensor system

NEW

The iTENDO² magnetic holder makes testing and process optimization even easier. The magnetic holder can be attached magnetically or with screws to static components in the machine room very quickly and without time-consuming clarification. Stability values can be recorded and visualized immediately on the proven iTENDO² pad system. In this way, cutting data can be optimized, stable process windows can be determined or different tools, clamping devices, etc. can be compared with each other. However, it is also possible to compare machine states. In combination with iTENDO² easy connect or easy monitor, the iTENDO² magnetic holder can also be connected to the machine for process monitoring.

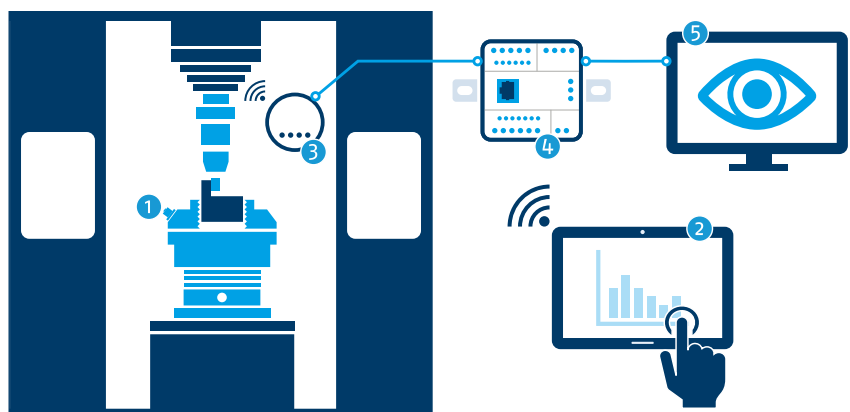


- + iTENDO² technology**
For simple use in tests and process optimization
- + High flexibility**
For magnetic or screw fastening to static parts in the workspace
- + 100% compatibility**
With all iTENDO² packages:
prerequisite is iTENDO² pad or easy connect



schunk.com/itendo

- 1 iTENDO² magnetic holder
- 2 iTENDO² pad
- 3 Wireless receiver
- 4 Connect Box
- 5 Connection to existing process monitoring system



T|E|N|D|O® Silver Hydraulic expansion toolholders

NEW

For a price-attractive entry into hydraulic expansion technology



- + High flexibility**
Clamping of different diameters, flexible by means of direct clamping $\varnothing 6 - \varnothing 32$ and $1/4 - 1 1/4$, or combined with slotted or coolant-proof intermediate sleeves
- + Fine balanced as standard**
Suitable for high speeds with a balancing grade of G2.5 at 25,000 RPM
- + Micron-precise tool changes within seconds and without requiring peripheral equipment**
Time saving through reduction of set-up time and no investment and energy costs due to additional clamping devices

- 1 Clamping screw**
The clamping screw is used to actuate the clamping piston
- 2 Clamping piston**
The clamping piston compresses the hydraulic medium into the oil chamber
- 3 Sealing element**
Special sealing for leakage-free clamping
- 4 Expansion sleeve**
The expansion sleeve evenly expands against the tool shank
- 5 Oil chamber**
It has a damping effect on the clamped tool
- 6 Base body**
With machine interface
- 7 Tool**
Maximum run-out and repeat accuracy < 0.003 mm



Interfaces

CAT 40
CAT 50
HSK-A 63
HSK-A 100
SK 40
SK 50
JIS-BT 30
JIS-BT 40
JIS-BT 50



Run-out accuracy
 $\leq 3 \mu\text{m}$
at 2.5 x D



Min. torque
16 .. 650 Nm



Max. rotational speed
25000 .. 50000 RPM



schunk.com/tendosilver

Technical data

Description	Clamping diameter [mm/inch]	Run-out accuracy	Min. torque [Nm]	Bore hole for data carriers
TENDO Silver CAT 40	6 .. 20 / 1/4" .. 3/4"	< 0.003 mm at 2.5 x D	16 .. 330	Standard
TENDO Silver CAT 50	12 .. 32 / 1/2" .. 1 1/4"	< 0.003 mm at 2.5 x D	90 .. 650	Standard
TENDO Silver HSK-A 63	6 .. 32	< 0.003 mm at 2.5 x D	16 .. 650	Standard
TENDO Silver HSK-A 100	6 .. 32	< 0.003 mm at 2.5 x D	16 .. 650	Standard
TENDO Silver SK 40	6 .. 32	< 0.003 mm at 2.5 x D	23 .. 650	Standard
TENDO Silver SK 50	12 .. 32	< 0.003 mm at 2.5 x D	90 .. 650	Standard
TENDO Silver JIS-BT 30	6 .. 20	< 0.003 mm at 2.5 x D	16 .. 330	Standard
TENDO Silver JIS-BT 40	6 .. 32	< 0.003 mm at 2.5 x D	16 .. 650	Standard
TENDO Silver JIS-BT 50	12 .. 32	< 0.003 mm at 2.5 x D	90 .. 650	Standard

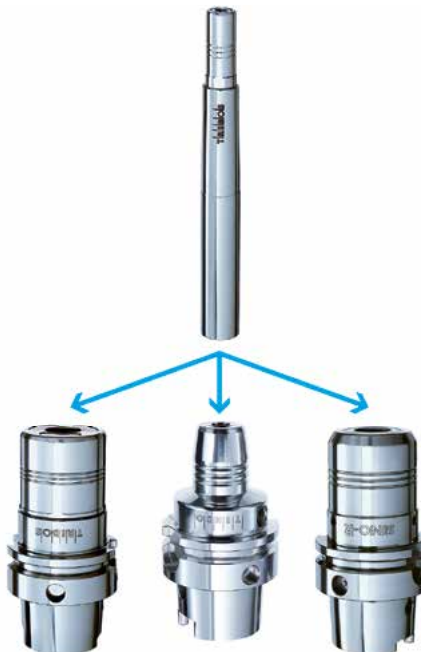
TRIBOS®-Mini SVL coolant-proof polygonal extension

Optimized interfering contours and super-slim tool extension



- + Optimized interfering contour**
Ideal for bores on low-lying areas, such as in fixture construction
- + Now also coolant-proof**
For the use of tools with internal coolant supply with a pressure of up to 120 bar
- + Compatible with all conventional clamping systems**
No matter whether in hydraulic expansion or heat shrinking toolholders, collet chucks, power or polygonal toolholders

- + Clamping diameter from 0.5 mm to 6 mm**
- + For peripheral cooling or -new- as a coolant-proof version**
- + Completely rotationally symmetric**





Coolant-proof



Run-out accuracy
≤ 3 μm
at 2.5 x D



Min. torque
1.5 .. 4.5 Nm



Max. rotational speed
52000 RPM



Diameters
3 .. 6 mm
1/8"



schunk.com/tribos-svl

Technical data

Description	Clamping diameter [mm or inch]	Run-out accuracy	Min. torque [Nm]	Max. speed of rotation [RPM]
TRIBOS-Mini SVL-12 Ø3x100 KD	3 mm	≤ 0.003 mm at 2.5 x D	1.5	52000
TRIBOS-Mini SVL-12 Ø4x100 KD	4 mm	≤ 0.003 mm at 2.5 x D	2.5	52000
TRIBOS-Mini SVL-12 Ø5x100 KD	5 mm	≤ 0.003 mm at 2.5 x D	3.5	52000
TRIBOS-Mini SVL-12 Ø6x100 KD	6 mm	≤ 0.005 mm at 2.5 x D	4.5	52000
TRIBOS-Mini SVL-12 Ø3.175x100 KD	1/8"	≤ 0.003 mm at 2.5 x D	1.5	52000

TRIBOS® -Mini & RM SVP Manual clamping devices

Clamping device for faster and easier tool change
for reduced set-up times in no time at all

- + **No energy consumption**
With integrated hydraulic system
- + **Easy handling**
Due to preset pressure
- + **Ready for immediate use**
No additional reduction inserts
are required



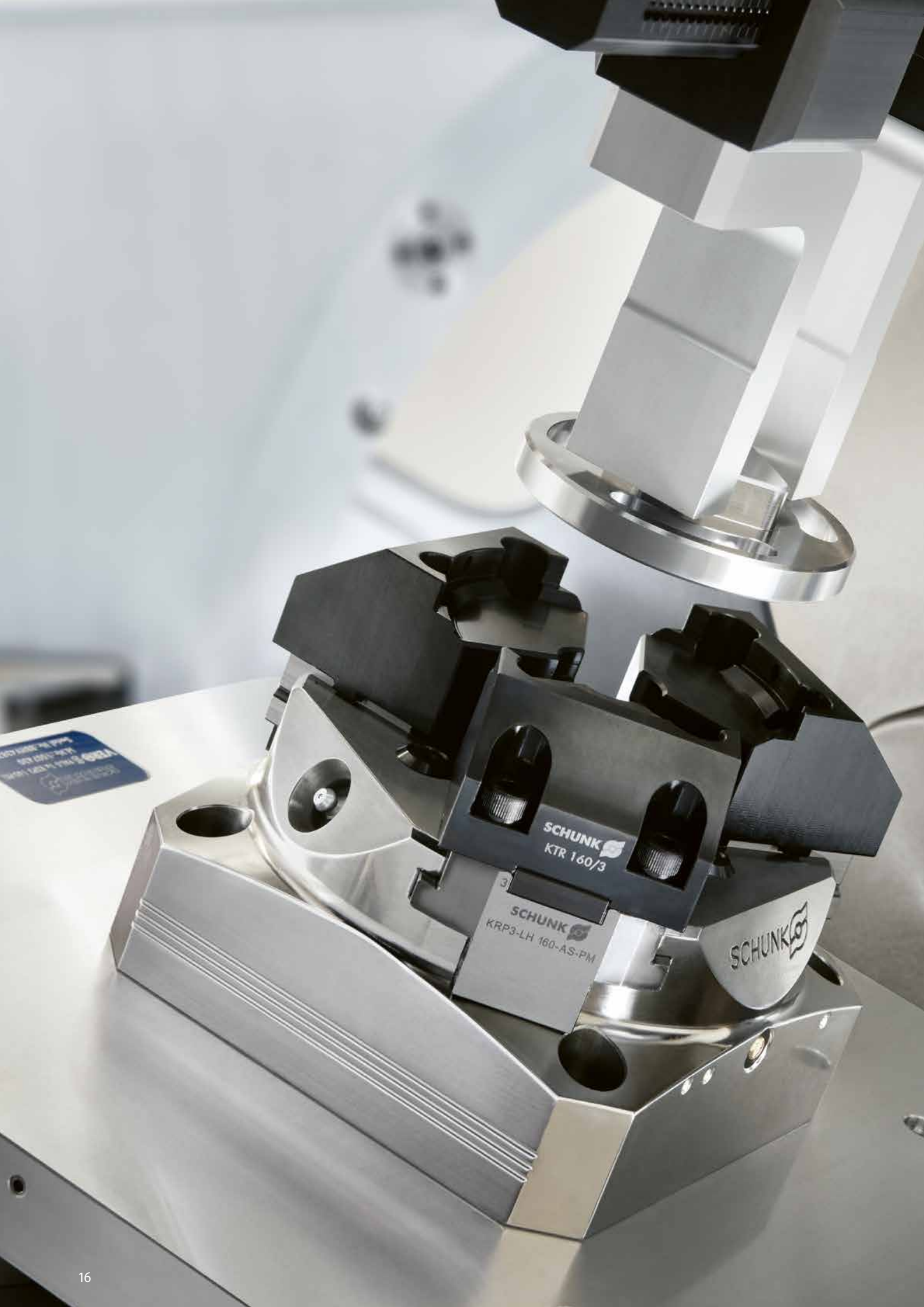
- + **Cost-effective entry into the TRIBOS system**
- + **Space-saving on or in the workbench**
- + **Actuation by screws tightened to dead stop**



schunk.com/tribos-svp

Technical data

Description	Weight [kg]
TRIBOS-Mini SVP Ø6.65	0.7
TRIBOS-Mini SVP Ø9	0.7
TRIBOS-RM SVP Ø14	5.6
TRIBOS-RM SVP Ø18	5.6
TRIBOS-RM SVP Ø20	5.6



SCHUNK
KTR 160/3

SCHUNK
KRP3-LH 160-AS-PM

SCHUNK

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Workholding technology



Innovative clamping technology – systematic set-up: SCHUNK offers flexible and diverse options for machining different workpiece geometries – with a clear focus on precision, cost-effectiveness, process reliability and efficiency.

From manual set-up to automated machine tending: Our highly standardized modular system increases the efficiency of your manufacturing process. With over 50 years of expertise, a highly standardized product range and customized special solutions, we supply the complete range of clamping technology from a single source. Rely on SCHUNK for efficient and innovative clamping technologies.

Highlights of toolholding technology from SCHUNK:

- + High precision and reliability for optimal machining results
- + Versatile range of options for any application
- + Innovative technologies such as TRIBOS and TENDO for efficient processes
- + Independent, needs-oriented advice for customized solutions

ROTA-ML *flex* 2+2 Manual lathe chucks

NEW

Lower! Lighter! Better! Even more flexibility for mill-turn machines thanks to the new generation of the all-rounder ROTA-ML flex 2+2



- 1 **Sealed drive kinematics**
due to innovative sealing concept
- 2 **Visual jaw monitoring per jaw pair**
as an indicator for the area in which secure clamping can be ensured
- 3 **Base plate with versatile mounting options**
prepared for 22.5°, 30° and 45° star groove tables
- 4 **Can also be used as a 2-jaw chuck**
by simply exchanging the locking cover

- + **Optimized chuck heights and weights for the new ROTA-ML flex 2+2 versions from \varnothing 500 mm**
Machining of larger and heavier workpieces possible
- + **Flexible clamping system**
Centrically compensating workpiece or console clamping of any workpiece geometry
- + **Proven drive concept**
Independent installation of the jaw pairs with subsequent centrally compensating workpiece clamping

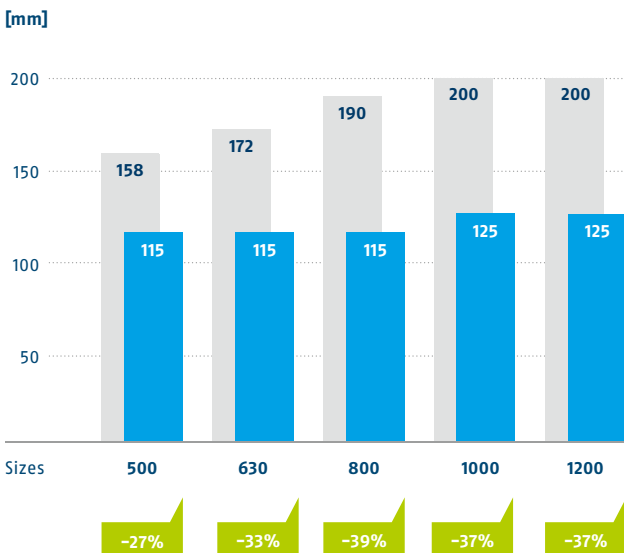


- 
Sizes
500 .. 1200 mm
- 
Max. clamping force
180 kN
- 
Stroke per jaw
17.3 mm
- 
Compensating stroke per jaw
12 mm
- 
Max. rotational speed
750 .. 1500 RPM

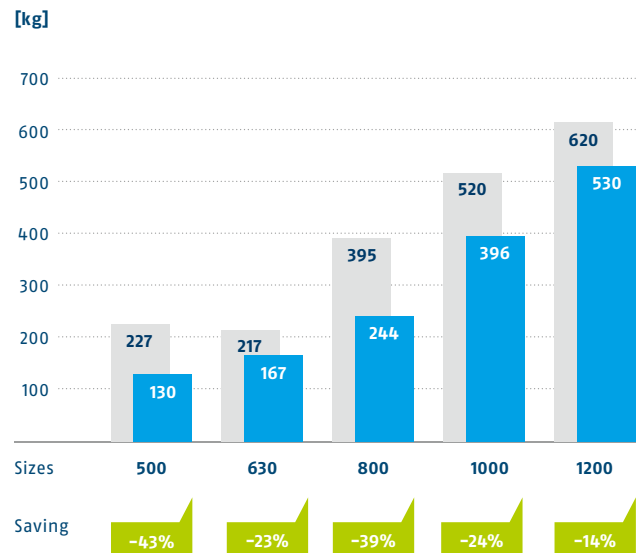


schunk.com/rota-ml-flex-2-2

Height comparison



Weight comparison



ROTA THW3

Jaw quick-change chuck

Completely sealed jaw quick-change chuck with permanent lubrication for constantly high clamping forces



- +** **Jaw quick-change system**
For a jaw change in less than 60 seconds
- +** **Sealed power lathe chuck**
For up to 20 times longer maintenance intervals and optimal protection of the chuck kinematics
- +** **Consistently high clamping force**
Due to permanent grease lubrication

- 1 High process reliability**
thanks to consistently high clamping forces and minimal maintenance effort
- 2 High run-out accuracies**
thanks to wedge hook drive in ring piston design
- 3 Shortest changeover times**
due to individual unlocking of the jaws
- 4 Base and top jaws 100% compatible with ROTA THW plus and ROTA THW**
jaws can continue to be used without any effort






Sizes
200 .. 630 mm



Max. clamping force
64 .. 240 kN



Stroke per jaw
6.7 .. 10.5 mm



Max. rotational speed
1700 .. 6000 RPM



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Technical data

Description	Max. rotational speed [RPM]	Max. clamping force [kN]	Max. actuating force [kN]	Stroke/jaw [mm]	Piston stroke [mm]	Through-hole [mm]
ROTA THW3 200-52	6000	64	38	6.7	17.5	52
ROTA THW3 225-66	5400	82	41	7.4	21	66
ROTA THW3 265-81	4000	115	59	8.2	24	81
ROTA THW3 315-104	3600	150	80	8.6	25	104
ROTA THW3 400-128	3000	240	128	8.6	25	128
ROTA THW3 500-165	2200	240	128	10.5	30	165
ROTA THW3 630-165	1700	240	128	10.5	30	165

RAPIDO-A2 Jaw quick-change system

Now configurable at
schunk.com/easyjaw

Lathe chucks with jaw quick-change –
toolfree and fully automatable




- +** **One system. Many options.**
Manual or fully automated for selected SCHUNK power lathe chucks
- +** **Fully incorporated or as a retrofit kit**
Factory-fitted lathe chuck with RAPIDO base jaw or as a supporting jaw for fine-serrated chucks
- +** **Completely toolfree jaw change in less than 60 seconds**
Competitiveness through maximum flexibility and shortest response times




Sizes
210 .. 400 mm



Max. clamping force
85 .. 187.5 kN

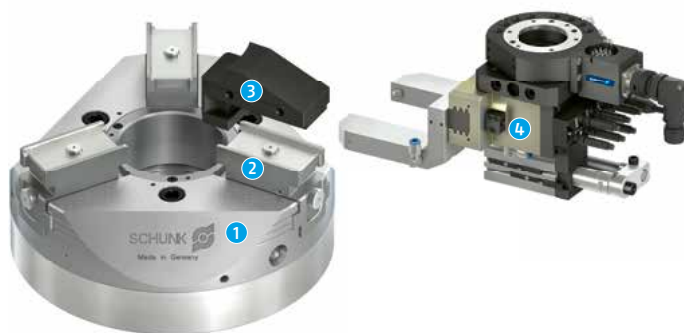


Max. rotational speed
1700 .. 4000 RPM



Stroke per jaw
5.3 .. 15 mm

- 1 SCHUNK lathe chuck**
equipped with RAPIDO interface
- 2 Base jaw RAPIDO-A2 for manual or fully automated jaw change**
directly integrated in the base body
- 3 RAPIDO interchangeable insert**
is placed on the base jaw
- 4 Gripper unit RAPIDO-A2**
Gripper for automated jaw change



schunk.com/rapido-a2

Technical data

Description	Max. rotational speed [RPM]	Max. clamping force [kN]	Max. actuating force [kN]	Max. clamping range (outside) [mm]	Max. clamping range (inside) [mm]	Piston stroke [mm]	Through-hole [mm]
ROTA NCF plus 2 215	4000	85	35.5	60 - 200	110 - 220	20	66
ROTA NCF plus 2 260	3500	110	47	70 - 240	130 - 270	20	86
ROTA NCF plus 2 315	3000	130	58	80 - 285	170 - 330	20	104
ROTA NCF plus 2 400	2500	187.5	77	130 - 380	200 - 420	30	120
ROTA NCO 210	3000	85	37.5	60 - 200	110 - 220	27	
ROTA NCO 260	2800	110	45	70 - 240	130 - 270	30	
ROTA NCO 315	2300	130	62	80 - 285	170 - 330	40	
ROTA NCO 400	1700	185	83	130 - 380	200 - 420	45	

Jaw quick-change system

TANDEM jaw change – toolfree and fully automatable



- +** **Jaw quick-change system**
For faster and easier jaw change both manually and automated
- +** **Workpiece contact control in the top jaw**
Enables automated loading of the clamping force block
- +** **Patented monitoring of the base jaw position via dynamic pressure**
Know whether the vise is open or closed

- 
Sizes
100 .. 250 mm
- 
Number of versions
100
- 
Clamping force
8 .. 75 kN
- 
Stroke per jaw
2 .. 15 mm

- 1 Time and cost-saving**
due to maximum flexibility and shortest response times
- 2 Quick teach-in of the robot**
via teach markings on the clamping force block and jaw
- 3 High process reliability**
thanks to integrated monitoring and air-purge bore holes
- 4 High repeat accuracy**
due to wide and form-fit stop surfaces



schunk.com/tandem3-bwa

Technical data


Series	Actuation	Sizes	Clamping force amplification for O.D. clamping, optional	Workpiece contact control/air purge	Inductive jaw monitoring (optional)
KSP3-BWA	Pneumatic	100, 140, 160, 250	yes	yes	yes
KSH3-BWA	Hydraulic	100, 140, 160, 250	no	yes	yes
KRP3-BWA	Pneumatic	160, 250	yes	yes	no
KRH3-BWA	Hydraulic	160, 250	no	yes	no

TANDEM® KRP3/KRH3/KRF3 3-jaw clamping force blocks

The art of engineering from SCHUNK. Extension of the modular system by 3-jaw clamping force blocks



- + 3-jaw clamping force blocks**
Optimal clamping of cylindrical workpieces
- + Workpiece contact control by the base jaw**
Enables automated loading of the clamping force block
- + Patented monitoring of the base jaw position via dynamic pressure**
Know whether the vise is open or closed

- 
Sizes
100 .. 250 mm
- 
Number of versions
124
- 
Clamping force
3 .. 70 kN
- 
Stroke per jaw
2 .. 15 mm

- 1 Highest flexibility**
in the largest and most powerful modular system for clamping force blocks
- 2 High process reliability**
due to integrated monitoring and high clamping forces
- 3 Deformation-free clamping of cylindrical workpieces**
thanks to better force distribution over three jaws
- 4 Flexible control of the vise**
through side and bottom-sided connections



schunk.com/tandem3-krp

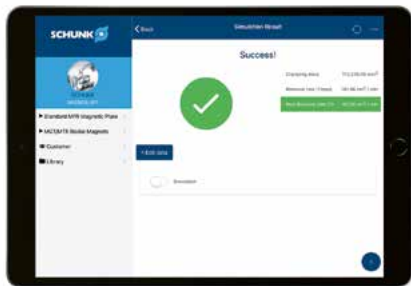
Technical data

Series	Actuation	Clamping force amplification for O.D. clamping, optional	Workpiece contact control/air purge
KRP3	Pneumatic	yes	yes
KRH3	Hydraulic	no	yes
KRF3	Spring-loaded	no	yes

MAGNOS ePaper status display Magnetic clamping technology

NEW

Safety first! The new ePaper status display in perfect interaction with the MAGNOS app



+ Digital status display
Visual display of the clamping status for reliable clamping and maximum process reliability

+ Simulation of the machining in the app
Validation of the holding forces and process parameters based on the size and material of the workpiece

+ Perfect team player
No more doubts as to whether the workpiece is clamped and held securely

Series
3

Number of versions
65

- 1 Knowing whether clamped or not**
thanks to visual ePaper status display for "MAG ON" and "MAG OFF"
- 2 Energy-efficient and reliable clamping of the workpieces**
thanks to latest electropermanent technology
- 3 Simple handling**
due to quick connection on the side



schunk.com/magnos

Technical data

Series	Technology	Field of application	Digital status display	Pole quick-change system
MFRS2	Square pole technology	Large workpieces	yes	yes
MFPS2	Parallel pole technology	Narrow and thin workpieces	yes	no
MFRS2-DM	Square pole technology	XXL modular system	yes	yes

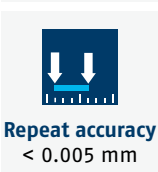
VERO-S NSA3

Quick-change pallet systems

Enhancing the tried-and-tested: Optimized for the modern requirements in pallet handling



- +** **Integrated monitoring and lifting function**
Maximum process reliability even with rough machining
- +** **Extremely flat design**
For maximum use of the machine room
- +** **Corrosion-free and completely sealed modules**
Long service life and maximum process reliability



- 1 High process reliability**
no tilting of heavy pallets thanks to pallet lift-off function
- 2 High repeat accuracy**
due to high-precision short taper centering
- 3 Process monitoring**
thanks to integrated monitoring and air-purge bore holes
- 4 Absolutely maintenance-free**
due to the completely sealed system



schunk.com/nsa3

Technical data

Description	Pull-down force [kN]	Pull-down force with turbo [kN]	Repeat accuracy [mm]
NSA3 120	3	10	< 0.005
NSA3 160	5	16	< 0.005

VERO-S NSR3 138 Robot module

Very high transferable moments for reliable pallet handling or use as a quick-change unit for your robot



+ Form-fit, self-retained locking

The full pull-down force is maintained even in the event of a pressure drop

+ Sensor monitoring (optional)

Monitoring option for the clamping slide position and pallet presence via AFS3-R IOL 138

+ Maintenance-free

Robust and sealed housing made of stainless steel



Sizes
138 mm



Pull-down force
8 .. 28 kN



Repeat accuracy
< 0.02 mm

1 Reliable pallet handling even with high weights

thanks to high strength of the robot module

2 Process monitoring

of clamping slide positions and pallet presence via AFS3-R IOL

3 High process reliability

due to air purge film on all contact and functional surfaces

4 Simple commissioning and fast integration

into all common fieldbus systems thanks to IO-Link interface



schunk.com/nsr3

Technical data

Description	Pull-down force [kN]	Pull-down force with turbo [kN]	Max. moment M_{xy} [Nm]	Max. moment M_z [Nm]	Repeat accuracy [mm]
NSR 138	8	28	1500	1600	< 0.02

KONTEC KS-H-LH Hydraulic long-stroke vise

NEW

Flexible direct loading with the compact hydraulic long-stroke vise with integrated path measurement



- + Perfectly suited for automation**
Thanks to hydraulic actuation and integrated path measurement
- + Largest hydraulic clamping stroke on the market**
High flexibility in terms of workpiece size
- + Powerhouse with 40 kN clamping force per jaw**
For vibration-proof clamping in a reliable process, even with minimal clamping surfaces



Sizes
125 mm



Component lengths
360 mm



Max. clamping force
40 kN

- 1 Process monitoring**
via sensory path measuring system and pneumatic dynamic pressure monitoring integrated in the system jaws
- 2 Maximum flexibility in the range of system and top jaws**
thanks to a unique portfolio on the market
- 3 Flexible control of the long-stroke vise**
through side and bottom-sided connections
- 4 Simple commissioning and quick integration**
in all common fieldbus systems thanks to the IO-Link interface



schunk.com/ks-h-lh

Technical data

Description	Sensory path measurement	Pneumatic dynamic pressure monitoring	IO-Link interface	Max. clamping force	Clamping range
				[kN]	[mm]
KS-H-LH 125-360 IOL	yes	yes	Spring contact	40	20 - 345
KS-H-LH 125-360-CI IOL	yes	yes	Hard-wired	40	20 - 345
KS-H-LH 125-360	no	no	no	40	20 - 345

KONTEC KSX-E

Electromechanical 5-axis vise

NEW

100% electrically driven 5-axis vise with continuously programmable clamping stroke



+ Continuously programmable clamping force

Maximum flexibility in terms of workpiece size and workpiece material



Sizes
125 mm

+ Continuously programmable clamping stroke and expandable clamping range

Clamping ranges can be individually adapted to the workpiece



Component lengths
430 mm

+ Monitoring of the jaw position and the programmed clamping force

For maximum process reliability



Max. clamping force
40 kN

1 5-axis accessibility thanks to high jaws

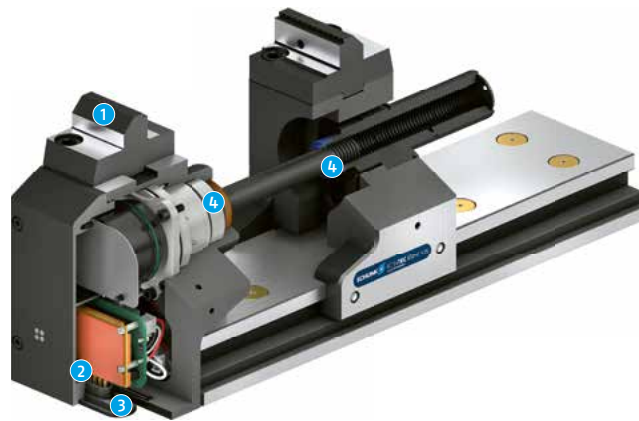
allows workpiece machining from five sides

2 Simple commissioning and quick integration

in all common fieldbus systems thanks to the IO-Link interface

3 Flexible control of the 5-axis vise via spring contacts or wired connection

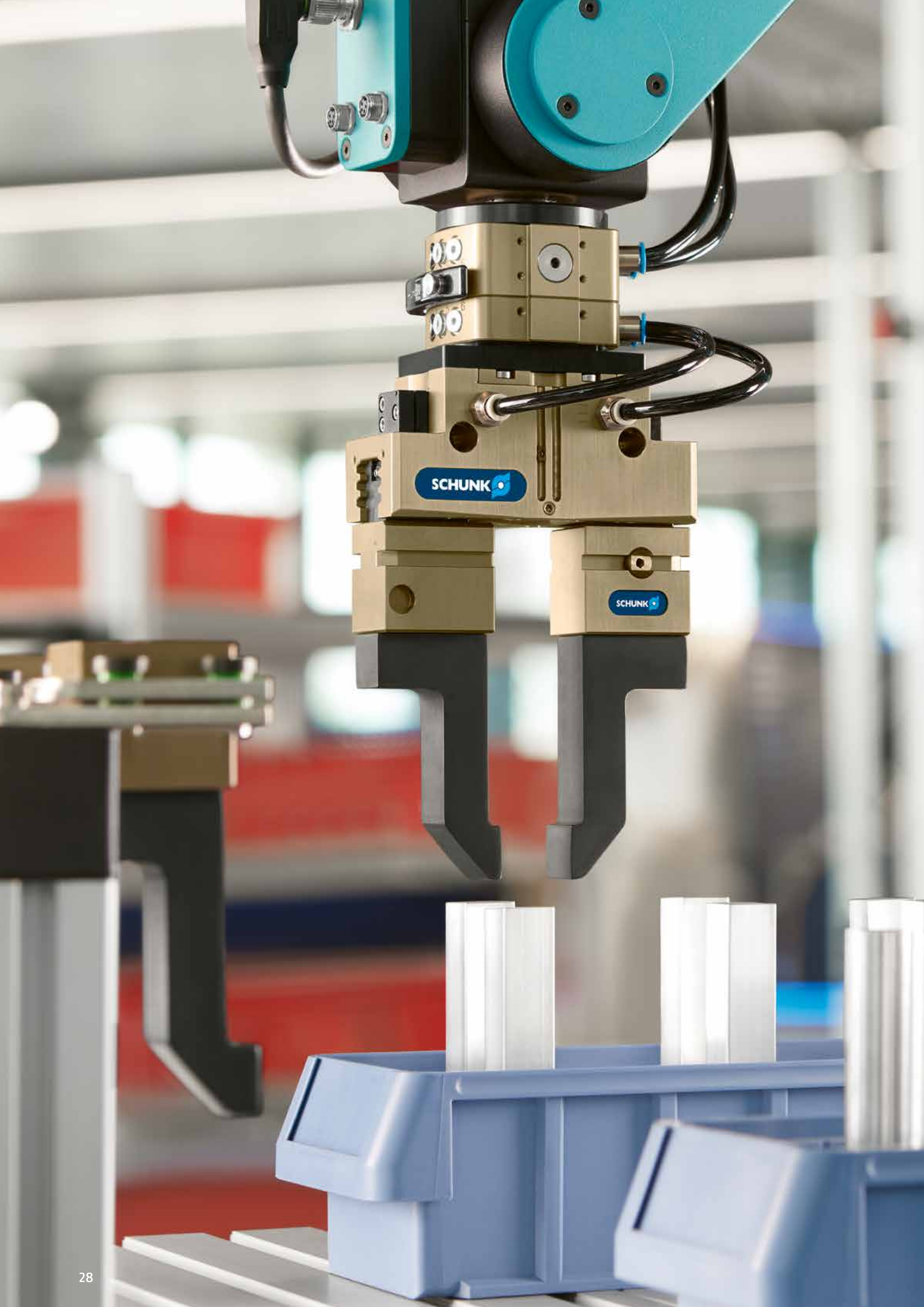
4 Completely sealed and encapsulated offers optimal protection against coolant and chips



schunk.com/ksx-e

Technical data

Description	Programmable clamping force	Programmable clamping stroke	Jaw pre-positioning	IO-Link interface	Max. clamping force	Clamping range
					[kN]	[mm]
KSX-E 125-430 IOL	yes	yes	yes	Spring contact	40	4 - 420
KSX-E 125-430-CI IOL	yes	yes	yes	Hard-wired	40	4 - 420



Gripping technology



High quality and reliability for your manufacturing: SCHUNK offers a broad portfolio of gripping technology solutions that meet the individual requirements of various industries. Our range includes pneumatic grippers, mechatronic grippers, magnetic grippers, adhesion grippers and special grippers.

With over 4,800 variants and more than 12,000 implemented solutions, we support your manufacturing with maximum precision, productivity and investment security. Our gripping technology stands for high quality and reliability and enables you to achieve flexible and efficient production processes. So put your trust in SCHUNK – together we will take your manufacturing to the next level.

Highlights of gripping technology from SCHUNK:

- + Maximum flexibility thanks to a wide range of variants
- + Comprehensive expertise for every gripping requirement
- + Maximum precision and productivity
- + Investment security through innovative technologies

PGL-plus-P

Pneumatic universal gripper

The world's first pneumatic gripper with secure and certified gripping force maintenance



- + Secure, certified gripping force maintenance GripGuard**
holds the gripped workpiece safely, and ensures a permanent gripping force of at least 80% even in the event of a pressure drop. It also ensures that no dangerous, spontaneous jaw movements can occur in the event of a pressure drop
- + Integrated sensor system**
for precise and process-reliable monitoring of the complete gripper stroke via IO-Link
- + Long jaw stroke**
allows flexible handling of a large range of parts



Sizes
10 .. 25



Weight
0.46 .. 7.9 kg



Gripping force
145 .. 1900 N



Stroke per jaw
10 .. 25 mm



Workpiece weight
0.72 .. 7 kg

1 Base jaw

with standardized screw connection diagram for the adaption of the workpiece-specific gripper fingers. The centering sleeves are attached so that they cannot be lost during exchange of fingers.

2 Multi-tooth guidance

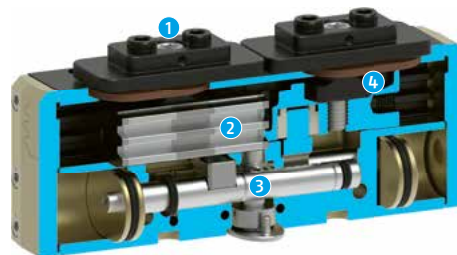
maximum service life due to lubricant pockets in the robust multi-tooth guidance, and absorption of high forces and torques by means of the large guidance support.

3 Pneumactical drive piston and kinematics

maximum power generation through two oval pneumatic pistons. The gear rack-and-pinion kinematics ensure synchronization of the base jaws and centric clamping.

4 Dust cover

The entire circumference of the gripper is encapsulated with metal and additionally sealed with a lip seal at the base jaws so that it is suitable for universal use, even in dirty environments.



schunk.com/pgl-plus-p

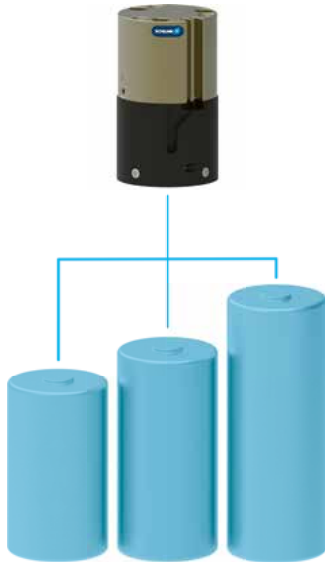
Technical data

Sizes	Stroke per jaw [mm]	Closing force [N]	Opening force [N]	Recommended workpiece weight [kg]	Weight [kg]	Max. permissible finger length [mm]
10	10	145 .. 295	145 .. 295	0.72 .. 1.1	0.46 .. 0.75	100
13	13	230 .. 475	230 .. 480	1.2 .. 1.8	0.8 .. 1.3	130
16	16	365 .. 750	365 .. 740	1.8 .. 2.8	1.4 .. 2.2	160
20	20	585 .. 1170	585 .. 1170	2.9 .. 4.4	2.7 .. 4.2	210
25	25	930 .. 1900	930 .. 1900	7	5.1 .. 7.9	260

RCG Round cell gripper

Flexible gripping unit with minimal interfering contour for maximum packing density


NEW



- + Compact external dimensions**
of the single gripper enable maximum packing density of battery cells
- + Maximum process safety**
thanks to sensory workpiece and status detection
- + Avoidance of workpiece loss**
thanks to the integrated gripping force maintenance, even in the event of energy loss


Number of sizes
1


Magnetic holding force
≥ 70 N


Weight
0.25 kg

The RCG can securely handle all common formats of \varnothing 46 mm round cells.

- 1 Pneumatic drive**
with C-slot for piston stroke monitoring
- 2 Electrically decoupled contact surface**
to protect the charged battery cell that is in flat contact
- 3 Centerings**
The centerings in versions -2 and -4 are used to compensate for placement tolerances when picking up the battery cells



schunk.com/rcg

From the round cell to the battery pack

SCHUNK handles everything from the individual battery cell to the finished battery pack from a single source. The combination of RCG round cell grippers and other SCHUNK components such as sensors, compensation units, cell spacing units and linear direct axes enables precise and dynamic processes. The RCG is tailor-made for your application and is individually scalable.



EGU and EZU

Mechatronic universal grippers

For flexible workpiece handling

- + Versatile**
Flexible loading and unloading of machine tools and handling of shafts and gears in the production and assembly process of powertrains in automotive manufacturing
- + Flexible workpiece handling**
Cubic and cylindrical workpieces of different sizes can be handled efficiently thanks to the extensively adjustable, freely programmable jaw stroke
- + Highly robust**
The sealed design with the proven sliding guide makes the gripper resistant to harsh operating conditions
- + Particularly reliable**
The risk of workpiece loss is minimized thanks to the integrated gripping force maintenance with loss detection



Sizes
50 .. 80

Parallel gripper EGU





Centric gripper EZU





Sizes
30 .. 40



Weight
1.49 .. 7.72 kg



schunk.com/egu



schunk.com/ezu



Weight
2.3 .. 7.5 kg



Gripping force
150 .. 4000 N



Gripping force
175 .. 3600 N



Stroke per jaw
51 .. 80 mm



Stroke per jaw
30 .. 40 mm

Technical data

Series	Sizes	Stroke per jaw	Min. gripping force	Max. gripping force	Max. permissible finger length	Weight
		[mm]	[N]	[N]		
EGU	50	51	150	600	80	1.49
EGU	60	60	325	1300	125	2.9
EGU	70	70	650	1950	160	4.52
EGU	80	80	1000	4000	200	7.72
EZU	30	30	175	700	80	2.3
EZU	35	35	390	1560	125	4.5
EZU	40	40	900	3600	160	7.5

EGK Mechatronic gripper for small components

For maximum process reliability



- + Reliable and sensitive**
Particularly suitable for the requirements of laboratory automation and electronics production due to the sealed design and smooth-running profiled rail guide
- + Minimum integration effort**
Due to a wide range of communication interfaces, as well as PLC function modules and robot plug-ins compatible with the leading manufacturers on the market
- + Versatile and productive**
Due to the long and freely programmable jaw stroke with continuous gripping force adjustment for flexible workpiece handling

Sizes
25 .. 50

m
Weight
0.62 .. 1.63 kg

F
Gripping force
20 .. 300 N

S
Stroke per jaw
26.5 .. 51.5 mm



schunk.com/egk

- 1 Smooth-running profiled rail guide**
with stainless steel face seal and food-compliant lubrication
- 2 Fully integrated and sealed control and power electronics**
with status LEDs and connectors for power supply and communication
- 3 High-resolution output-side absolute encoder**
for precise positioning of the gripper jaws with permanent absolute position feedback
- 4 Sealed powertrain with BLDC flat motor, spur gear unit and rack and pinion principle**
for a constantly acting gripping force over the entire length of the finger with no minimum start-up distance, with additional mechanism for gripping force and position maintenance



Technical data

Sizes	Stroke per jaw [mm]	Min. gripping force [N]	Max. gripping force [N]	Max. permissible finger length [mm]	Weight [kg]
25	26.5	20	50	70	0.62
40	41.5	55	150	100	1.02
50	51.5	150	300	130	1.63

PPD

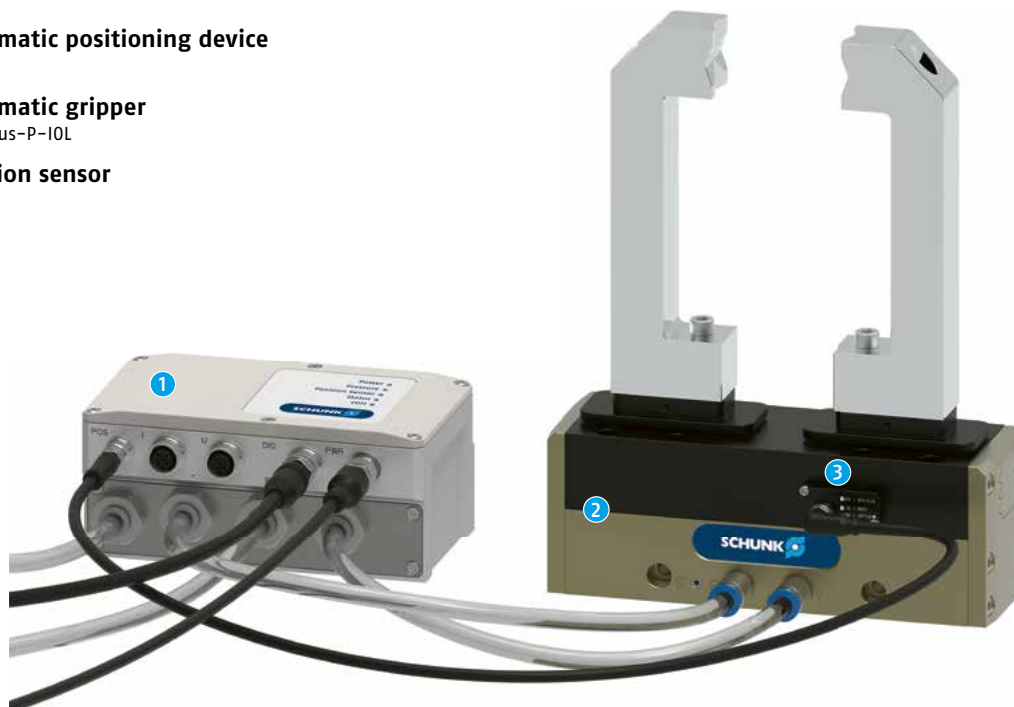
Pneumatic positioning device

Positioning unit for flexible control of pneumatic grippers



- +** **Free positioning of a pneumatic gripper**
Enables cycle-time optimization or collision avoidance due to pre-positioning of the gripper fingers
- +** **Gripping force adjustability by adjusting the output pressure**
For gripping differently sensitive workpieces
- +** **Adjustability of the gripper jaw speed**
For workpiece-friendly gripping based on the reduction of the gripping impulse

- 1 Pneumatic positioning device**
PPD
- 2 Pneumatic gripper**
PGL-plus-P-IOL
- 3 Position sensor**



schunk.com/ppd

The pneumatic positioning device is an accessory for pneumatic grippers. Together with a position sensor, any position of the gripper fingers can be approached in addition to the end positions (gripper open and gripper closed). Four integrated high-speed 2/2 valves together with the integrated electronics ensure a closed control loop. Communication takes place via IO-Link.

BSWS-R

Automatic jaw quick-change system

Quick and easy exchange, operated solely by the movement of the robot

NEW



- + Maximum flexibility**
Thanks to the BSWS product family, one single gripper can be used universally in various applications
- + Time saving when converting applications**
Due to gripper finger change, various workpieces can be handled.
- + PGN-plus-P finger print**
Enables universal use and retrofitting for a variety of gripper series.

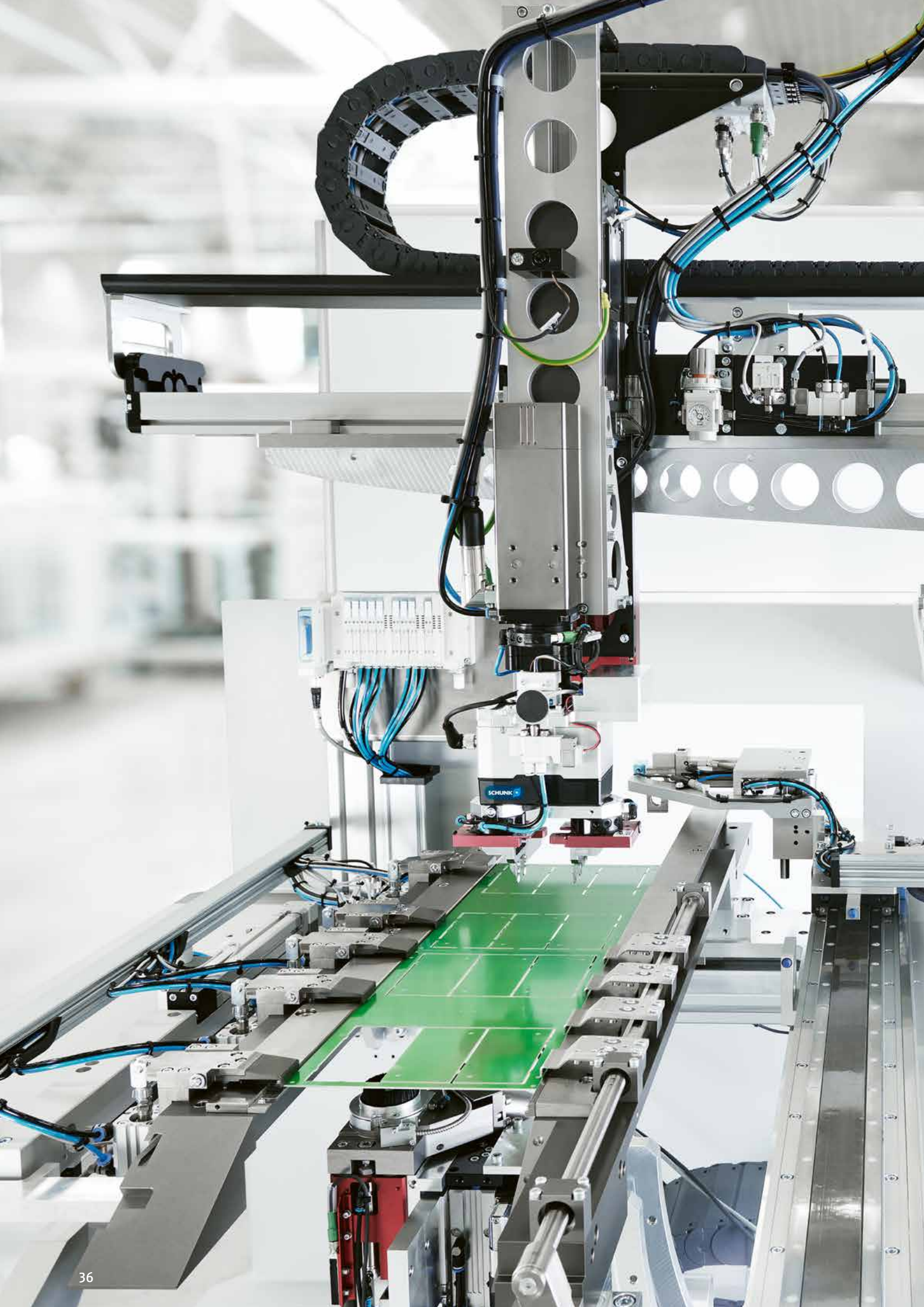
- 1 Basic jaw quick-change system BSWS-BR
- 2 Fastening of the workpiece-specific gripper finger
- 3 Adapter pin BSWS-AR for fastening to the gripper base jaw
- 4 Spring preloaded locking pin



schunk.com/bsws-r

Technical data

Finger screw connection diagram	Jaw quick-change adapter pin	Basic jaw quick-change system	Deposit station	Attachment kit inductive monitoring
PGN-plus-P 50	BSWS-AR 50	BSWS-BR 50	BSWS-SR 50	AS-IN40-BSWS-SR 50/64
PGN-plus-P 64	BSWS-AR 64	BSWS-BR 64	BSWS-SR 64	
PGN-plus-P 80	BSWS-AR 80	BSWS-BR 80	BSWS-SR 80	AS-IN40-BSWS-SR 80/100
PGN-plus-P 100	BSWS-AR 100	BSWS-BR 100	BSWS-SR 100	
PGN-plus-P 125	BSWS-AR 125	BSWS-BR 125	BSWS-SR 125	AS-IN80-BSWS-SR 125/160
PGN-plus-P 160	BSWS-AR 160	BSWS-BR 160	BSWS-SR 160	
PGN-plus-P 200	BSWS-AR 200	BSWS-BR 200	BSWS-SR 200	AS-IN80-BSWS-SR 200
PGN-plus-P 240	BSWS-AR 240	BSWS-BR 240	BSWS-SR 240	AS-IN80-BSWS-SR 240/300
PGN-plus-P 300	BSWS-AR 300	BSWS-BR 300	BSWS-SR 300	



Automation technology



High dynamics and productivity for your application: With our comprehensive portfolio of automation solutions, we enable the efficient handling of workpieces. From linear modules and multi-axis systems to swivel units and innovative application kits – we are your full-service provider of automated handling processes.

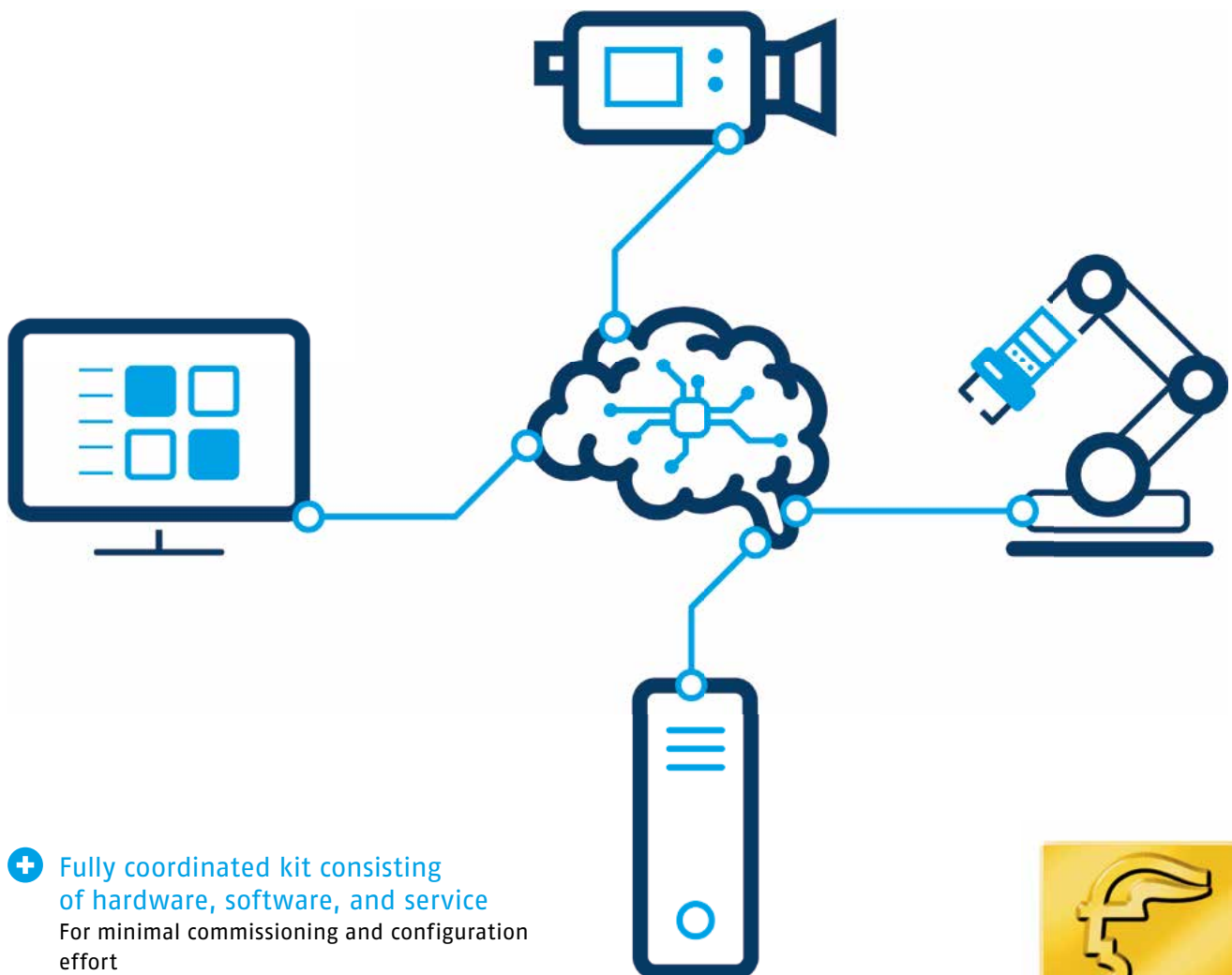
With almost 4,000 variants, we meet the high demands of high-speed assembly automation. Our high-quality and sophisticated components are not only used in this environment and ensure maximum precision and reliability. Independent advice and customized automation solutions that make your manufacturing more sustainable and ergonomic – with SCHUNK you are well-equipped.

Highlights of automation technology from SCHUNK:

- + Comprehensive portfolio of automation solutions
- + Almost 4,000 variants for high-speed assembly automation
- + Maximum precision and reliability
- + Sustainable and ergonomic manufacturing solutions

2D Grasping Kit Application kit

Intelligent application kit for vision-based gripping



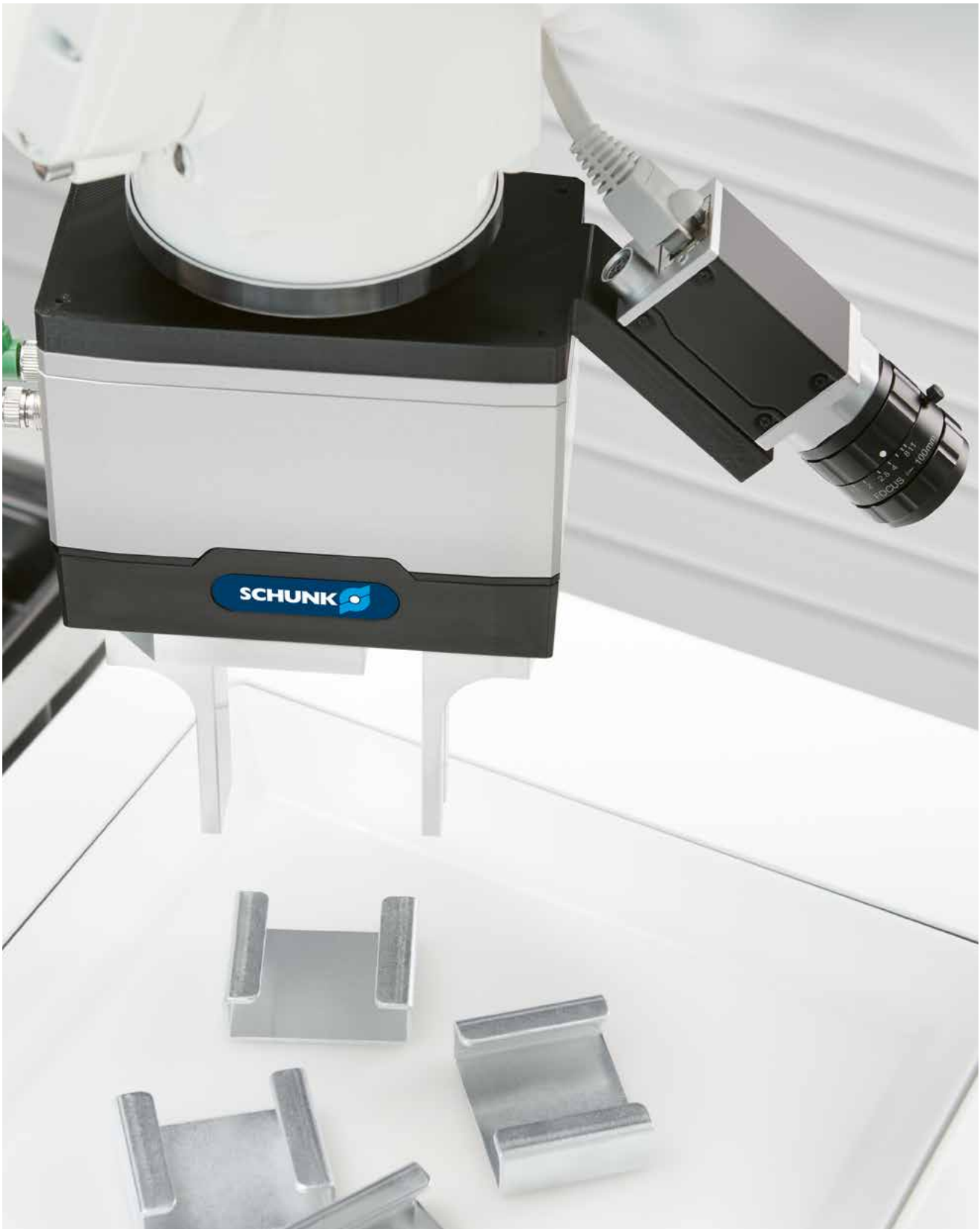
- + **Fully coordinated kit consisting of hardware, software, and service**
For minimal commissioning and configuration effort
- + **Intelligent software**
Software adapts itself and works even under "less than optimal" ambient conditions
- + **Intuitive user software interface**
For easy configuration of the application without the need for prior knowledge



HERMES
A W A R D
2 0 2 4



schunk.com/vision

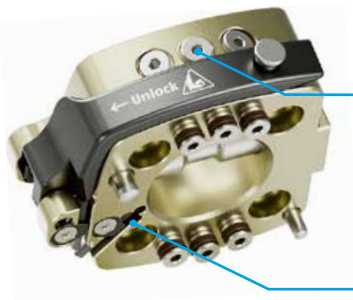


2D Grasping Kit

With the 2D Grasping Kit, users from many industries implement pick & place applications of randomly arranged parts on one level – for example from a vibrating table, assembly line, or load carrier. The metalworking industry, the automotive sector, companies in production engineering and logistics as well as from the life-science sector gain reliability, process precision and benefit from increasing their output using the kit – manual, error-prone handling thus becomes a thing of the past.

CMS Manual change system

User-friendly manual change system
with extensive complementary portfolio



**Now: All air feed-throughs
can be applied radially**

Before: head side only
50% applicable radially

**Now: Locking and tool presence
monitoring integrated in all sizes**

Before: only integrated
from size 100 onwards



**Now: Direct screw connection for
electrical, pneumatic and fluid modules**

Before: adapter plate required



schunk.com/cms

Your added value:

- + ISO flange pattern**
For simple assembly on most types of robots without additional adapter plates
- + Locking lever**
Proven (push lever) technology for manual actuation without additional tools
- + High module diversity**
For diverse media transmission options
- + Available as basic variant**
Without integrated air feed-throughs for simple applications

Accurately interchangeable

For existing customers, SCHUNK offers the CMS manual change system as a 1:1 replacement for the predecessor model. The same overall height as well as identical screw connection diagrams on the robot and tool side allow for easy and quick retrofitting of existing systems.



SLD

Linear direct axis

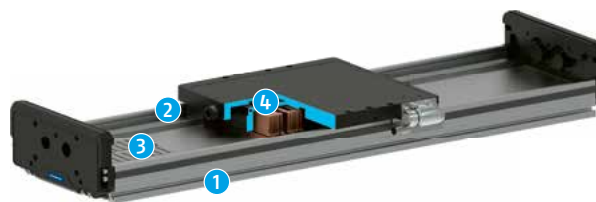
The dynamic axis all-rounder – perfectly tailored to your application.



- + Almost no wearing parts**
For long service life and reliability of the system
- + No mechanical play between the drive elements**
For fast response and high positioning accuracy
- + High load ratings**
For high load capacity and long service life

The SLD series is a new generation of SCHUNK linear direct axes. The dynamic, heavy-duty axes with electric linear direct drive ensure short cycle times and more productivity in high-speed assembly and handling processes. Due to the high drive forces up to a maximum of 2.4 kN, and a load rating of up to 106 kN, as well as the long service life, the axis is ideally suited for any industry – even for demanding cell production in a dry room.

- 1 Extruded aluminum profile**
flat and weight-optimized
- 2 Pre-loaded profiled rail guide with recirculating ball-bearing guides**
for optimal guidance properties and speeds
- 3 Integrated secondary parts**
with high power magnets
- 4 Compact primary part slide**
with mounting surfaces, guidance adjusted without play and integrated measuring system



Sizes
1 .. 2



Max. stroke
5190 .. 5500
mm



Max. driving
force
300 .. 2400 N



Repeat
accuracy
0.01 mm



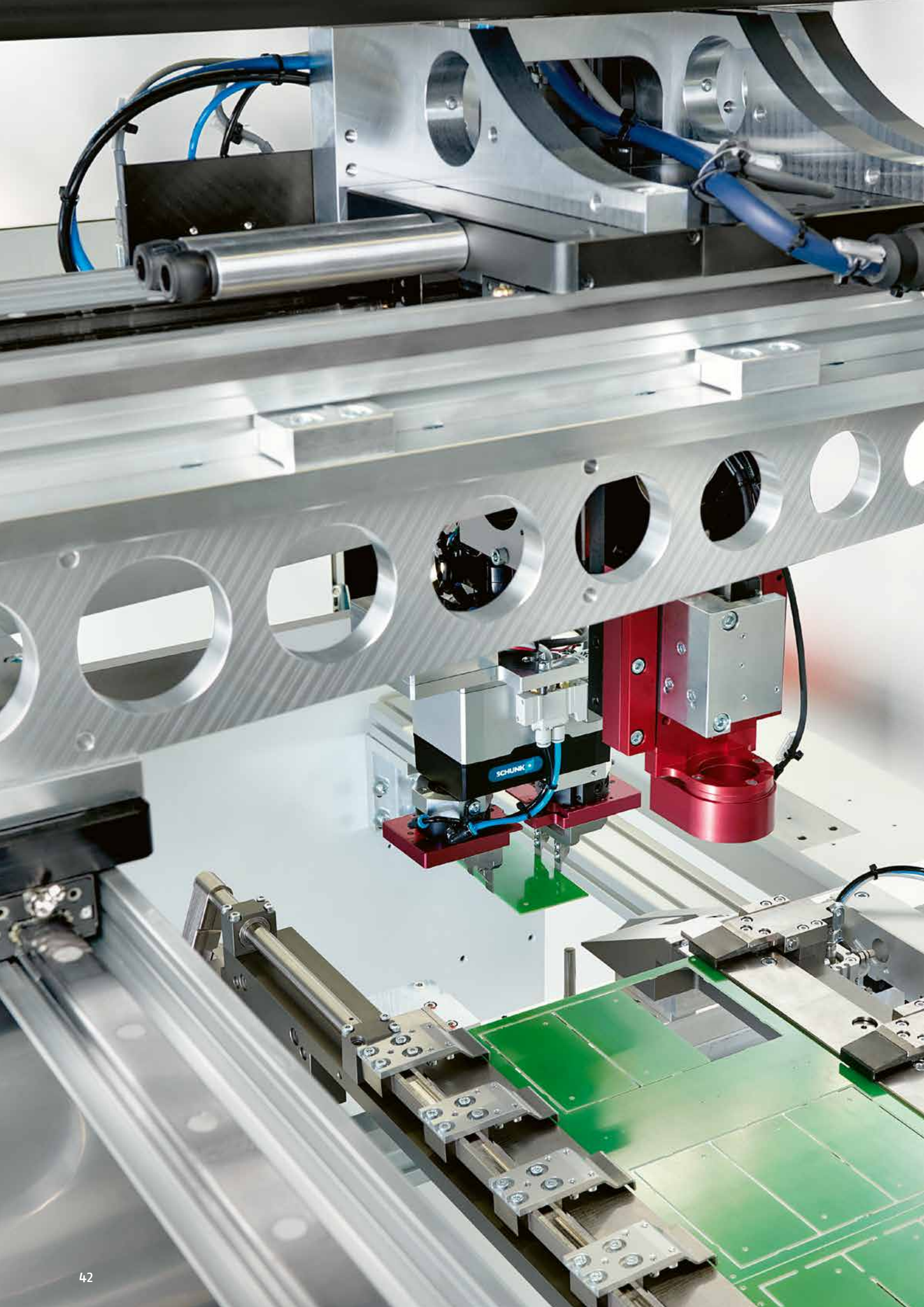
Max. speed
5 m/s



schunk.com/sld

Technical data

Sizes	Drive concept	Max. nominal stroke H [mm]	Max. driving force [N]	Max. speed [m/s]	Max. acceleration [m/s ²]
1	Linear direct drive	5190 .. 5500	300 .. 1200	5	100
2	Linear direct drive	5190 .. 5470	600 .. 2400	5	100



Depaneling technology



SCHUNK Electronic Solutions offers comprehensive solutions for the entire depaneling spectrum, from product selection to workpiece holder solutions and optimization of milling parameters to commissioning. Our high-performance machines separate printed circuit boards from the panel quickly, precisely and with low stress.

They are therefore ideal for modern electronic assembly manufacturing processes. Whether stand-alone or inline depaneling machines – our solutions ensure maximum productivity and the best separation quality. With a technical availability of over 98%, we rely on expert advice and comprehensive service to provide optimal support for your manufacturing lines.

Highlights of depaneling technology from SCHUNK:

- + Fast and precise depaneling machine
- + Comprehensive solutions from a single source
- + Flexible integration into production lines
- + High technical availability

Inline depaneling machine ILR-Performance

NEW



- + Economical and cost-effective**
Due to low investment and high productivity
- + Versatile and productive**
Due to the modular design and standard accessories
- + Robust, reliable and precise**
In large-scale production due to a high milling accuracy and availability
- + Dust Reduce Booster**
Patented technology to reduce fine dust deposits on the circuit board by 70% compared to conventional dust extraction systems, or even completely



Axis speed
up to 2000
mm/s



Milling area
460 x 364 mm



Repeat and
positioning
accuracy
±0.02 mm



Milling
accuracy
±0.1 mm



schunk.com/nutzentrenner

Technical data

Length/width/ height [mm]	Operator height [mm]	X-, Y-linear motor axes [mm/s]	Z-axis linear motor axis [mm/s]	Repeat accuracy/ positioning accuracy [mm]	Milling accuracy without vision system [mm]	Milling accuracy with vision system [mm]	Max. panel size X- and Y-direction [mm]
1900/2115/2285	950	2000	1000	±0.02/±0.02	±0.13	±0.1	460 x 364

Stand-alone laser depaneling machine SAL-1300

NEW



- + Optimized process times**
Up to 80% faster laser cutting processes than conventional applications
- + Precise cutting results**
As the optimal alignment of the laser to the workpiece is ensured
- + High flexibility**
Thanks to the modular design and the option of combining laser processing and milling technology



Axis speed up to 1000 mm/s



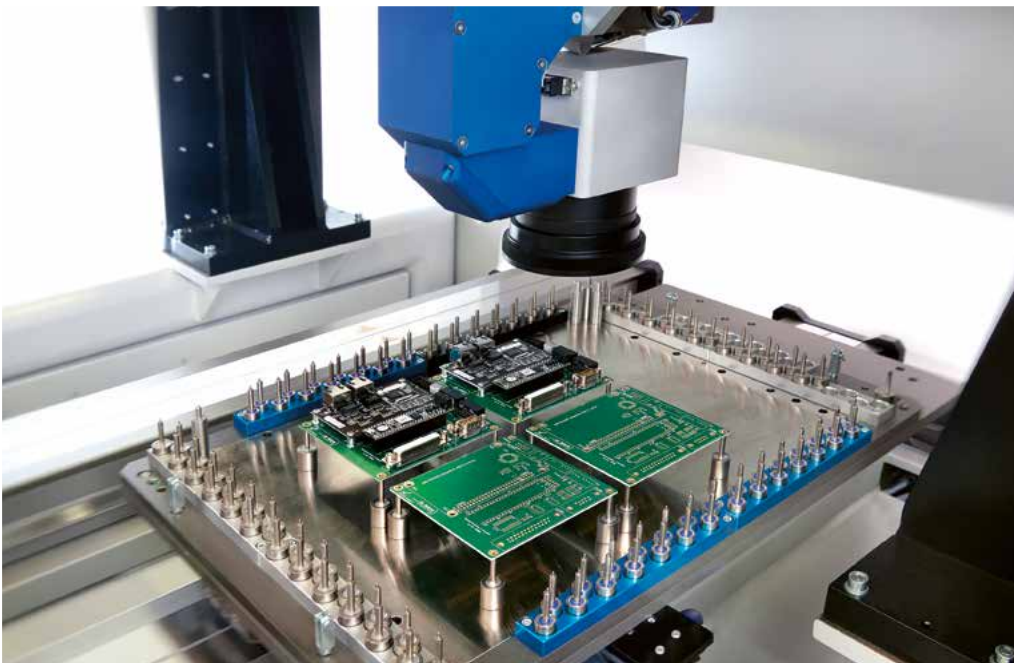
Milling area 430 x 350 mm



Repeat and positioning accuracy ± 0.02 mm



Milling accuracy ± 0.2 mm



Technical data

Length/width/height [mm]	Operator height [mm]	X-, Y-linear motor axes [mm/s]	Z-axis linear motor axis [mm/s]	Repeat accuracy/positioning accuracy [mm]	Milling accuracy without vision system [mm]	Milling accuracy with vision system [mm]	Max. panel size X- and Y-direction [mm]
1320/2500/2280	894	1000	1000	$\pm 0.02/\pm 0.02$	± 0.2	± 0.15	430 x 350



SCHUNK

Hand in hand for tomorrow

Products

Applications

Services

Latest news

Toolholder selection

Product group

TENDO Hydraulic Expansion Toolholders

Series

TENDO Flatium

Interface

HSE-A

Interface size

40

Clamping diameter (D1)

Digital Services



Into the digital future with SCHUNK: In addition to our toolholding and workholding, gripping technology and automation technology products, our digital services offer tools that ensure efficient support and assistance throughout the entire product life cycle.

Starting with the planning phase, our 3D online configurators and online design tools and sizing assistants enable fast and error-free generation of individual products through to gripper swivel units and pick & place variants. With the new commissioning app for mechatronic grippers, we provide extensive diagnostic and customization functions. Digital innovations support efficient and future-proof manufacturing.

Highlights of SCHUNK's Digital Services:

- + Fast, error-free configurations with the 3D online configurator
- + Extensive online design tools and sizing assistants
- + Intuitive app for mechatronic grippers



App for mechatronic grippers in the SCHUNK Control Center

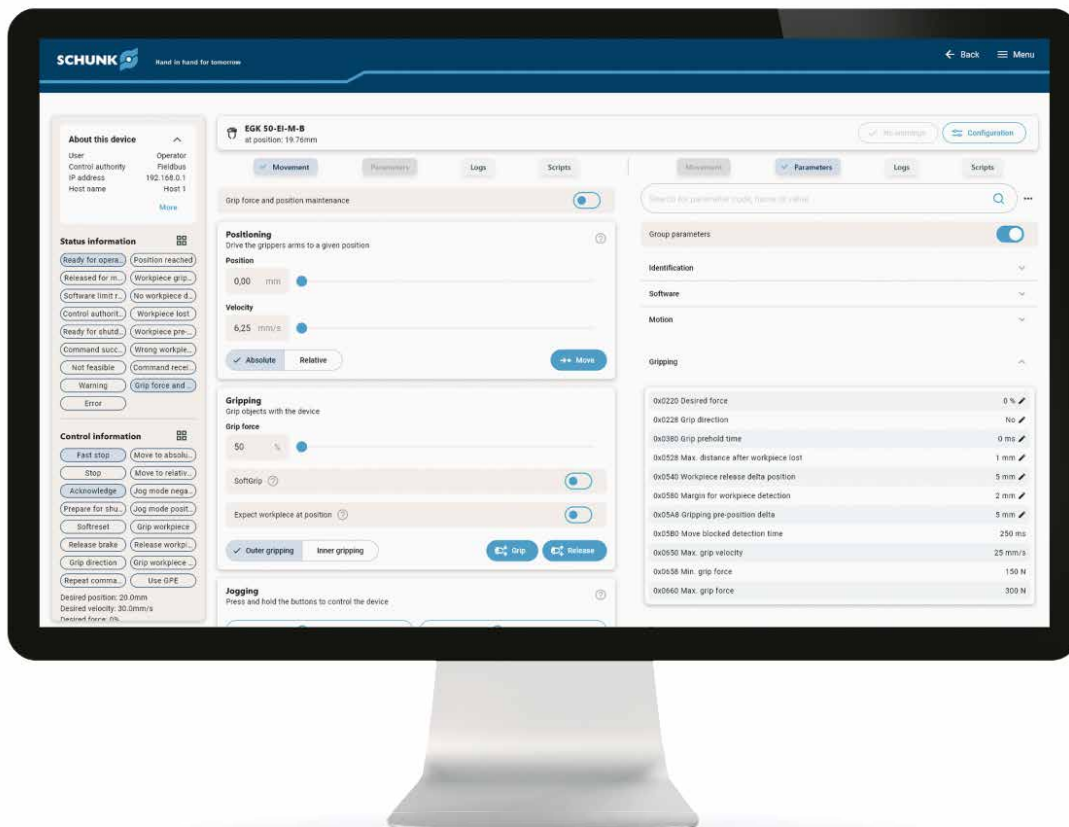
Shortened commissioning thanks to quick and easy application validation

NEW

The SCHUNK Control Center is a higher-level software platform and acts as a central management tool for specific SCHUNK apps. The mechatronic grippers app simplifies commissioning, operation, diagnostics and service due to its extensive catalog of functions. The functions include network configuration, firmware updates, parameter adjustments and backups as well as comprehensive diagnostic options.

Your advantages:

- + **Fast application validation**
100% of gripper functions accessible via the app
- + **Shortened commissioning**
Carry out network configuration and optimize parameters to suit the application
- + **Convenient monitoring and diagnostics**
The status and current messages of the gripper can be monitored during operation
- + **Intuitive user interface**
With highlighting of preferred apps and individual customization of display and language settings



schunk.com/mechatronik

Configurable products

Configure the right solution for your specific application.



Why configuration?

With our configurable standard products, we reduce complexity in system planning and offer a large number of individual adaptation options. With just a few clicks, grippers, gripper fingers, linear modules, chuck jaws and toolholders can be adapted to individual requirements in less than 10 minutes, opening up an even wider range of applications.

- + Risk reduction**
Through SCHUNK expertise and exclusion of faulty designs
- + Resource-saving**
No development knowledge required
- + Seamless contact**
Enables a dialog directly from the tool – without having to spend time searching for contact
- + Possibility to download CAD data**
After completing the configuration
- + International**
Multilingual, available worldwide in 13 languages

Fast. Online. Customized.



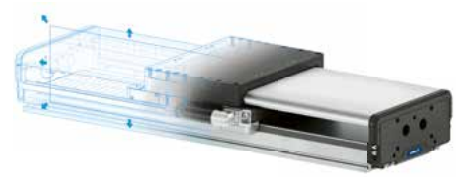
easy Toolholder
Configurator for toolholders

schunk.com/easytoolholder



ELG
Configurable long-stroke gripper

schunk.com/elg



Linear module
configurator

schunk.com/konfigurator-linearmodule



easyJAW
Configurator for chuck jaws

schunk.com/easyjaw



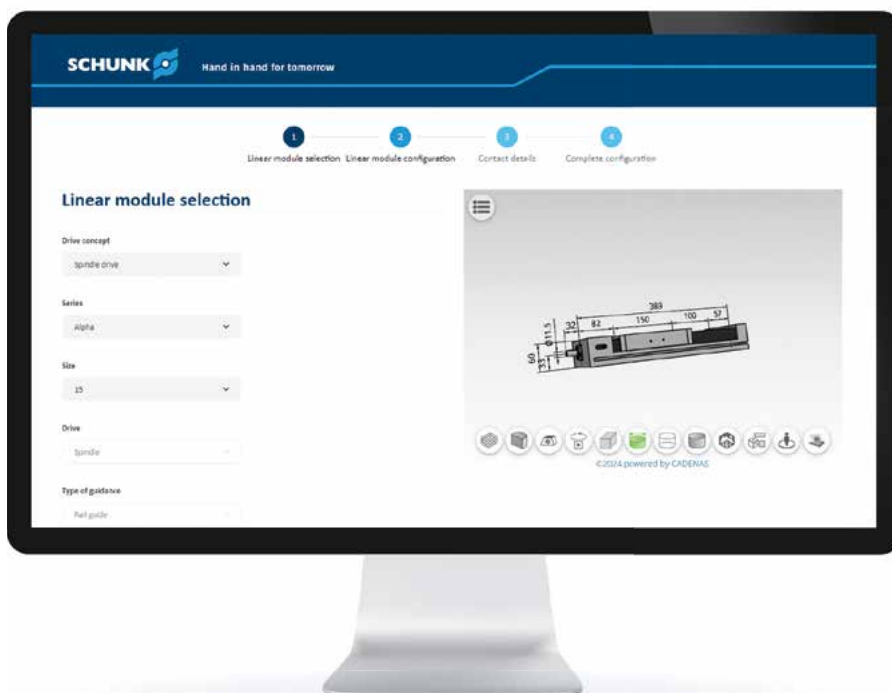
KONTEC
Configurator for clamping systems

schunk.com/kontec-konfigurator



Chuck jaw
quickfinder

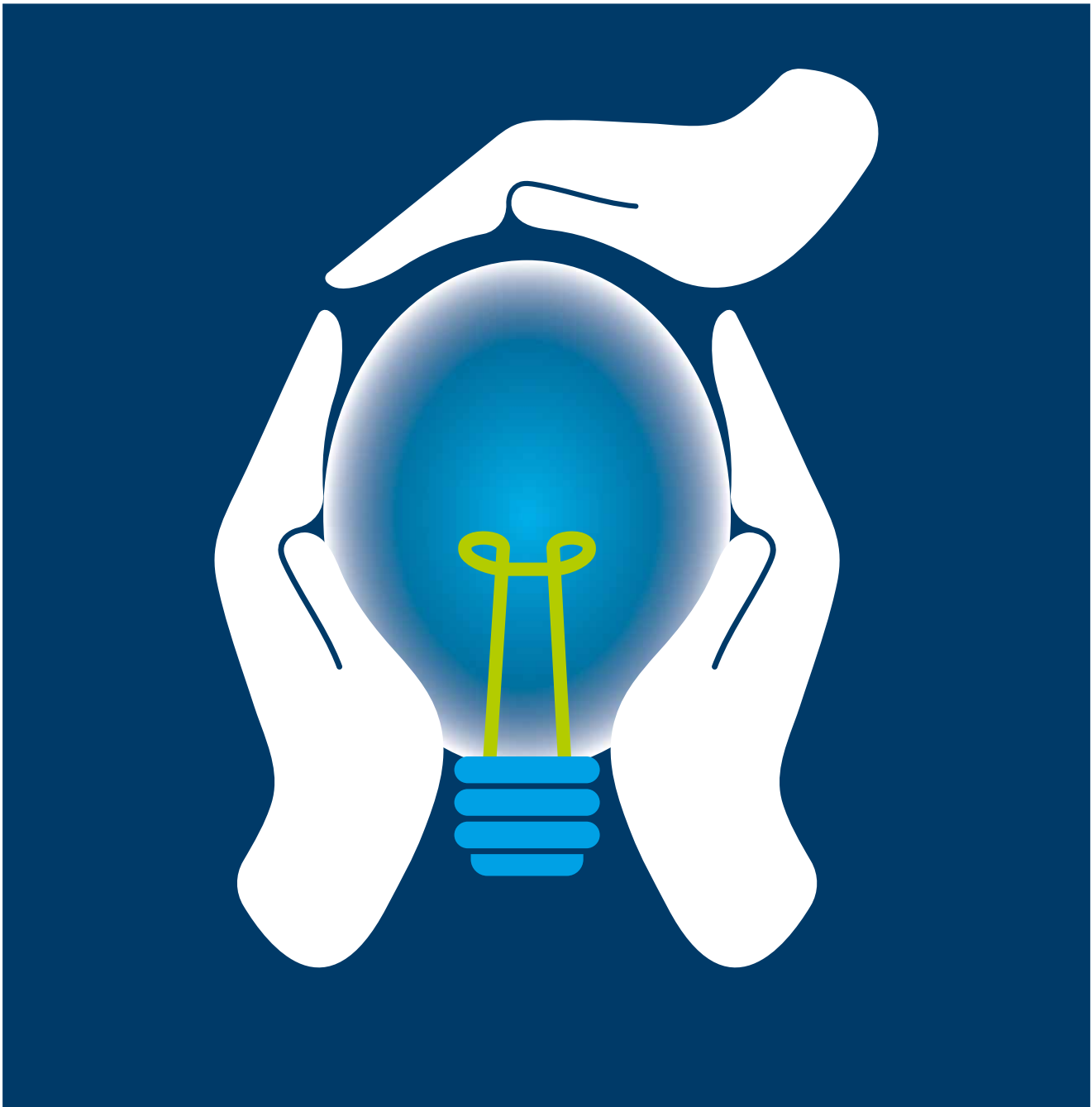
schunk.com/spannbacken-quickfinder



Configure it online now:



schunk.com/konfiguration



Innovation through collaboration: partnership as the key to the future

At SCHUNK, we firmly believe that groundbreaking innovations can only be created through collaboration. Collaboration is the driving force behind our forward-looking developments. Through intensive exchange with customers, partners, employees, scientists and other experts, we create a dynamic platform for knowledge transfer and creative ideas.

Network of the curious – working together to find new solutions

An internal and external network of curious, inquisitive and tech-savvy people is at the heart of the innovation process at SCHUNK. Through close cooperation, we integrate diverse perspectives and develop customized solutions. In the SCHUNK CoLabs, we promote innovation, while partnerships with universities and research institutes combine academic findings with practical applications.

Experts support experts – knowledge exchange as fuel

We are convinced that experts from different technical disciplines continuously improve each other. Regular Expert Days and other networking events promote interdisciplinary cooperation. Our open source thinking and active participation in innovation ecosystems such as the Innovation Park Artificial Intelligence (IPAI) in Heilbronn intensify the exchange of knowledge and collaboration in projects relating to AI and machine learning.

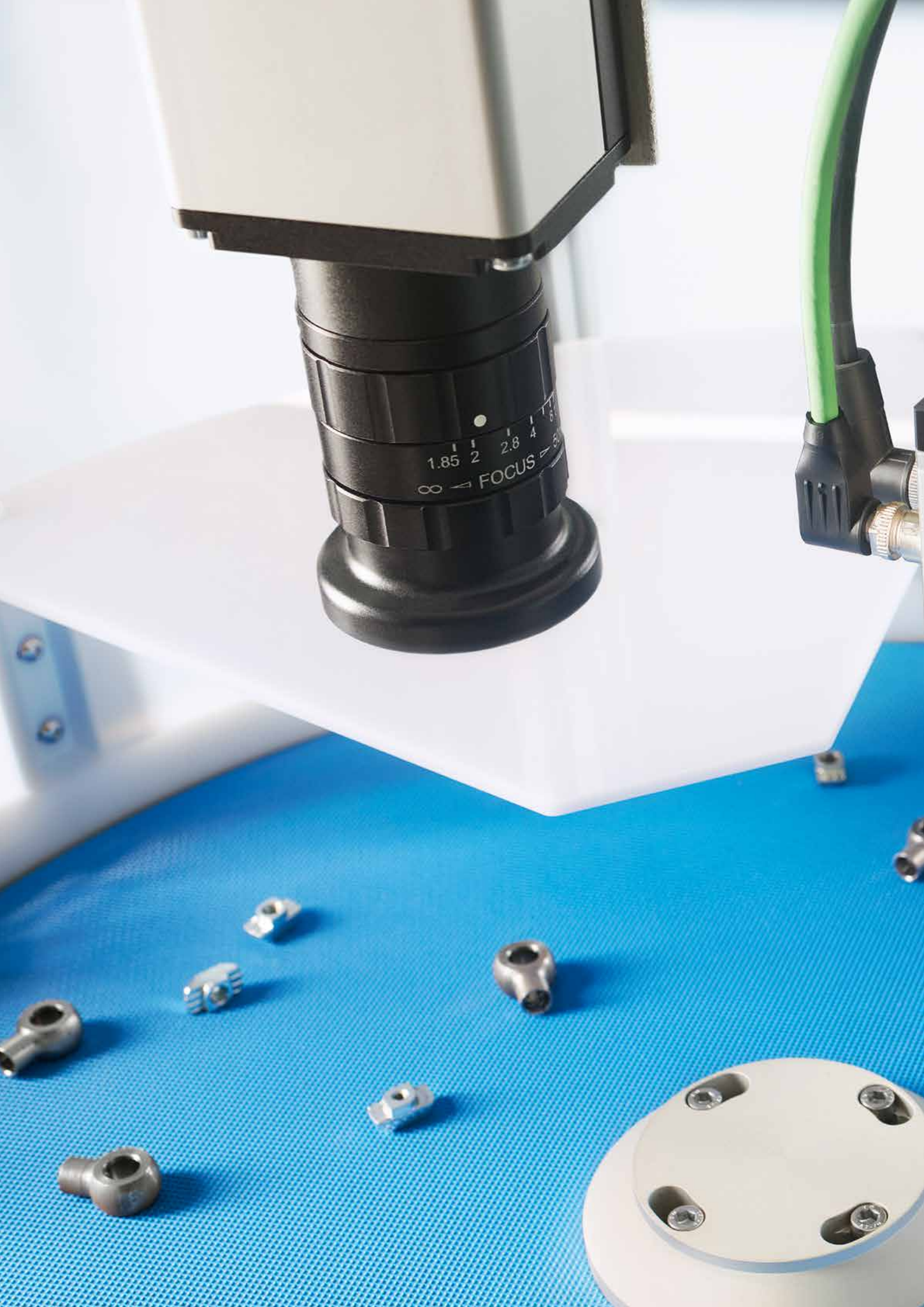
Achieving relevant breakthroughs – with creativity and flexibility

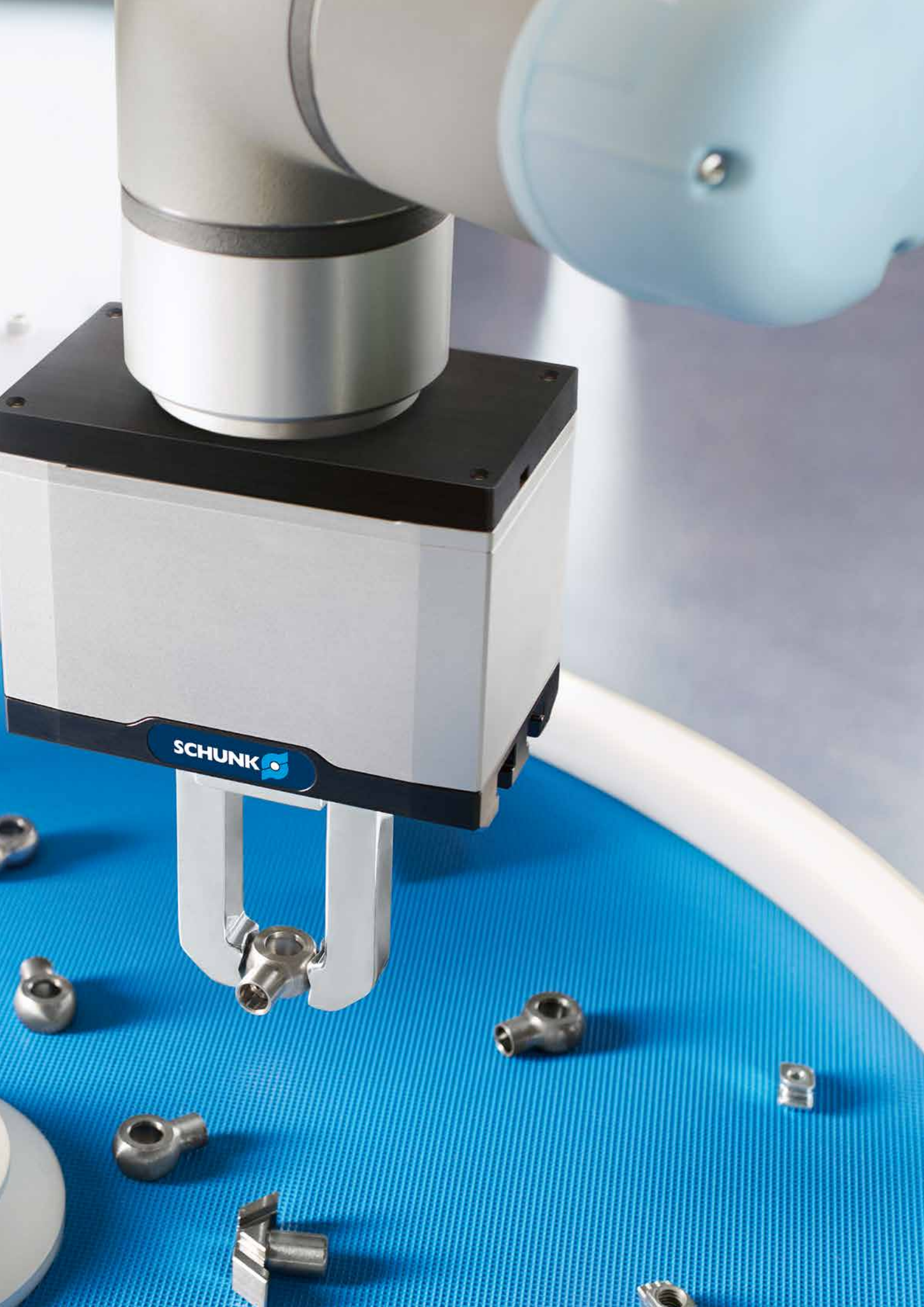
A pioneering spirit and mutual appreciation characterize our corporate culture. Ongoing team development and individual training promote a culture of learning and innovation. Our flexible organizational structures facilitate collaboration and the exchange of ideas. Together we develop outstanding ideas, breakthroughs and innovations.

"The open and inquisitive exchange with one another opens doors to outstanding ideas and enables the targeted implementation of innovations. This is a great strength that helps our partners and us to remain competitive in the long term."

Timo Gessmann, CTO







SCHUNK



SCHUNK SE & Co. KG
Spanntechnik
Greiftechnik
Automatisierungstechnik

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