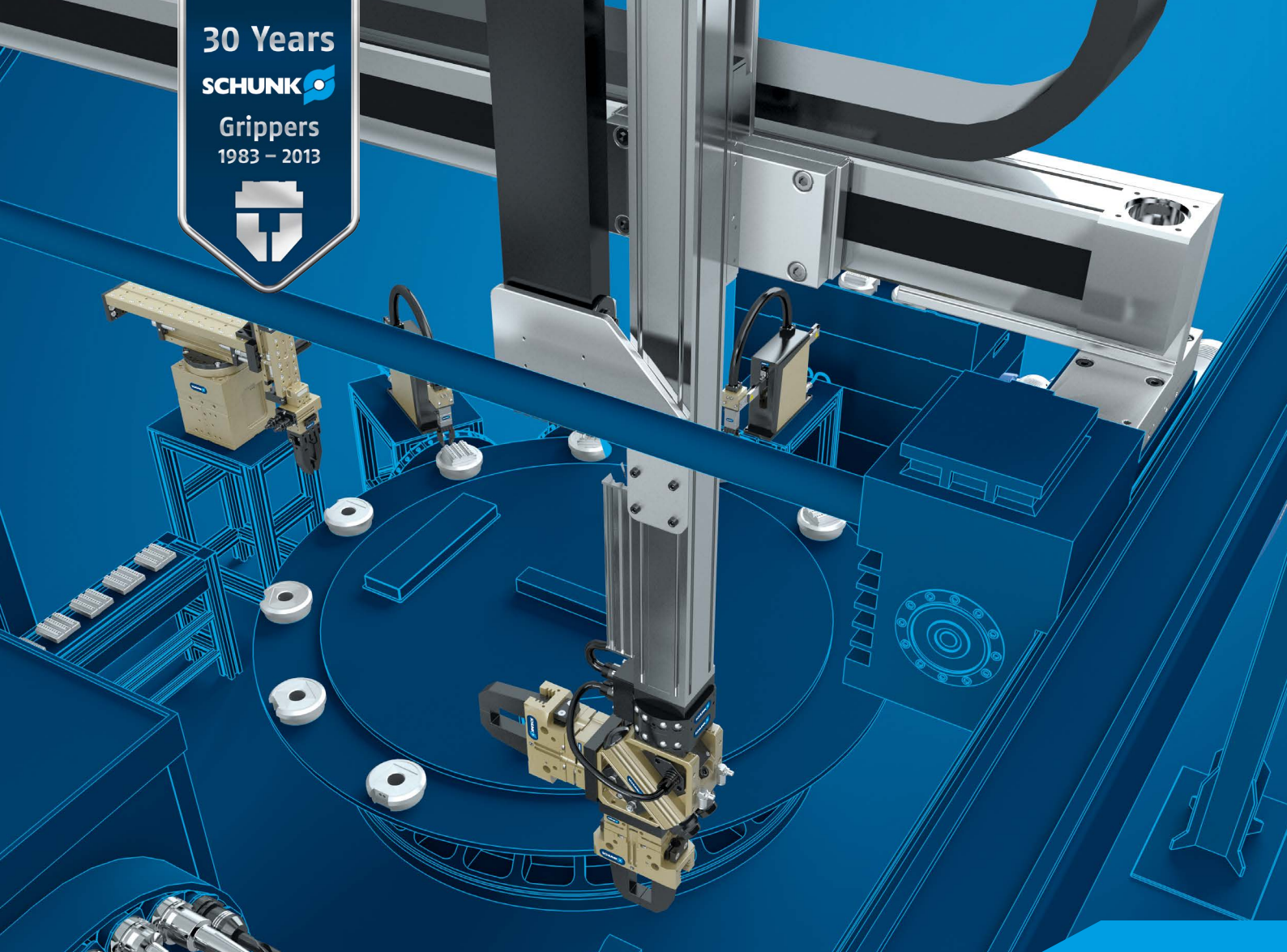


30 Years

SCHUNK 

Grippers  
1983 – 2013



Superior Clamping and Gripping



## Product Overview

Linear Modules



## Superior Clamping and Gripping

Jens Lehmann stands for precise gripping, and concentrated safe holding. As a brand ambassador of the SCHUNK team, the No. 1 goalkeeper communicates our global competence leadership for clamping technology and gripping systems. The top performance of SCHUNK and Jens Lehmann are characterized by dynamics, precision, and reliability.

For more information visit our website:  
[www.gb.schunk.com/Lehmann](http://www.gb.schunk.com/Lehmann)

*J. Lehmann*  
Jens Lehmann





Henrik A. Schunk Kristina I. Schunk, brand ambassador Jens Lehmann, and Heinz-Dieter Schunk

## Top Performance in the Team

SCHUNK is the world's No. 1 for clamping technology and gripping systems – from the smallest parallel gripper to the largest chuck jaw program.

In order to boost efficiency, SCHUNK customers have bought more than 2,000,000 precision toolholders, 1,000,000 gripping modules, and 100,000 lathe chucks and stationary workholding systems so far.

This makes us proud and motivates us to attain new top performances.

As a competence leader, we recognize and develop standards with a large potential for the future, which will drive the rapid progress in many industries.

Our customers profit from the expert knowledge, the experience and the team spirit of 2,000 employees in our innovative family-owned company.

The Schunk family wishes you improved end results with our quality products



Heinz-Dieter Schunk



Henrik A. Schunk



Kristina I. Schunk



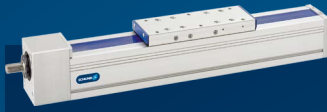
# SCHUNK Linear Modules



## Pneumatic Linear Modules

The precise modules cover around 85% of all handling requirements in assembly automation.

Page 6



## Electric Linear Axes

Useable for high-precision handling tasks. Experience rapid speed, maximum accuracy, highest flexibility, short cycle times, and highest repeat accuracy.

Page 8



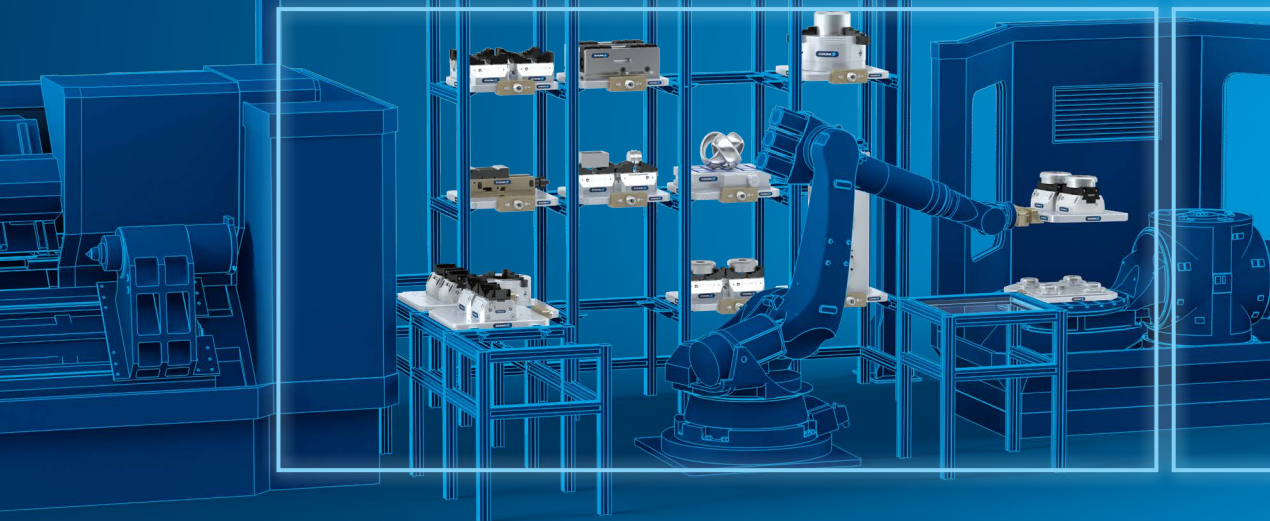
## Gantry Solutions from modular Components

Rapidly available, ready for assembly and oriented to shopfloor reality. The modular components system covers a wide range of automation requirements.

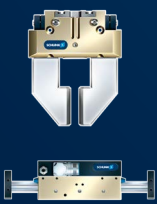
Page 14

... for your Automated Machine Loading

... in y



From standard modules for customized combinations to the complete



## Convincing modular variety from SCHUNK

Efficient customer solutions with gripping modules, swivel units, robot accessories, and linear modules from one source.





### Pick & Place Units

The perfect impulse generator from 45 to 110 picks per minute, for the most demanding requirements with respect to precision, and with maximum economy in assembly automation.

Page 12



### SCHUNK Modular System

With modular systems, whether pneumatic or electrical, all units can be configured with one another freely, simply and precisely.

Page 16

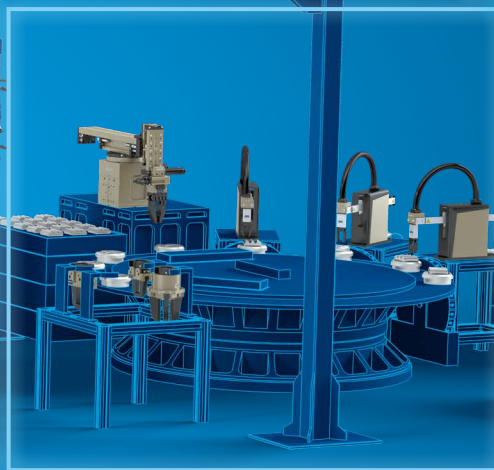
... in your Automated Handling System



our Machining Center



... in your Automated Assembly



... in your Service Robotics Application



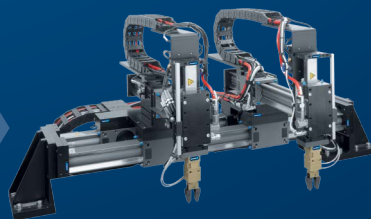
## It's time to make use of your machine's full potential!

With superior components, find potentials where you would never expect to find them. In your machine. SCHUNK SYNERGY – the perfectly harmonized interplay of clamping technology and gripping systems turns our customers into productivity champions.

an installation ready solution. SCHUNK offers more.

### Customer-specific Solutions from SCHUNK

Individuality counts. SCHUNK opens up new perspectives as a development partner for cost and benefit-optimized automated solutions.






### Functional Modules from SCHUNK

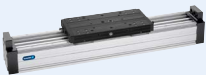

The most challenging complete solutions for every industry. From the standard component to the individual system.

# Pneumatic Components

Reliable, durable, precise – pneumatic SCHUNK Linear Modules

Pneumatic Components				
	Linear Module LM	Mini-Slide CLM	Linear Module KLM	Stroke Module HLM
				
				
<b>Drive type</b>				
Piston rod cylinder	●	●	●	●
Rodless cylinder				
<b>Technical data</b>				
Number of sizes	5	6	4	4
Number of pistons	1	1	1	1
Repeat accuracy [mm]	± 0.01	± 0.01	± 0.01	± 0.01
Useful stroke [mm]	0 – 450	0 – 150	0 – 300	0 – 150
Max. driving force [N]	753	485	753	485
Horizontal stroke [mm]	–	–	–	–
Vertical stroke [mm]	–	–	–	–
Max. useful load [kg]	–	–	–	–
Max. dead weight [kg]	15.81	5.32	13.10	5.64
Adjustable end positions	Yes	Yes	Yes	Yes
Max. end positions adjustment per side [mm]	25	25	25	25
Guidance type	Cross roller guide	Cross roller guide	Linear rod guide	Cross roller guide
Installation position	Any	Any	Any	Any
Required maintenance	Hydraulic shock absorbers, lubrication of the guide, replacement of seals	Hydraulic shock absorbers, lubrication of the guide, replacement of seals	Hydraulic shock absorbers, lubrication of the guide, replacement of seals	Hydraulic shock absorbers, lubrication of the guide, replacement of seals
Remark	Optionally available with up to two intermediate positions and with rod lock	Optionally available with rod lock	Optionally available with up to two intermediate positions, rod lock and dustproof version	Optionally available with rod lock
Actuation	Commercially available pneumatic valves	Commercially available pneumatic valves	Commercially available pneumatic valves	Commercially available pneumatic valves
<b>Field of application</b>				
	<ul style="list-style-type: none"> <li>• For universal use</li> <li>• For demanding requirements with respect to precision, flexibility and rigidity</li> </ul>	<ul style="list-style-type: none"> <li>• For universal use</li> <li>• Optimum for short-stroke applications</li> <li>• For demanding requirements with respect to precision</li> </ul>	<ul style="list-style-type: none"> <li>• Simple stroke module</li> <li>• Optimum use as Z axis in handling modules</li> <li>• For demanding requirements with respect to flexibility</li> </ul>	<ul style="list-style-type: none"> <li>• Compact</li> <li>• Optimum for lifting workpieces</li> <li>• Ideal for space-optimized applications</li> </ul>
<b>Ambient conditions</b>				
clean	●	●	●	●
slightly dirty			●	

\*For 145 mm horizontal stroke, 45 mm vertical stroke, 1 kg payload

Pneumatic systems	
Linear Module PMP	Pick & Place Unit PPU-P
	
<b>2700 mm stroke</b>	Additional Pick & Place Units can be found on Page 12
2	2
1	2
± 0.02	± 0.01
0 – 2700	–
250	–
–	145      210
–	45      60
–	1      3
–	4.50      15.50
Yes	Yes
50	15/12      20/18
(Double) profiled rail guide	Cross roller guide
Horizontal	Horizontal
Hydraulic shock absorbers, lubrication of the guide, replacement of seals	Hydraulic shock absorbers, lubrication of the guide, replacement of seals
Optionally available with bellow, several intermediate positions and cable track	Max. 95 picks per minute*, optionally available with rod lock
Commercially available pneumatic valves	VCU (Valve Control Unit) or commercially available pneumatic valves
• Robust and precise gantry systems • For long stroke range	• Extremely compact 2-axis unit • Rapid performance of typical Pick & Place movements • For rapid and precise transferring of workpieces in high-speed assembly

## Pneumatic Linear Modules

Pneumatic linear modules from SCHUNK are characterized by long life span and reliability. The use of junction roller guides convinces with respect to accuracy, rigidity and low friction. And also in terms of minimal space requirements, the linear modules score points with their very compact design, even when two guide rails running in parallel are used.

### LM Linear Module



### Your benefits:

- **5 sizes** with a total of **52 stroke variants**
- **95%** available **in stock**
- More than **20 years of experience** with cross roller guides
- Up to **38 mounting threads** at one side
- **90%** of applications in assembly automation **can be implemented**
- **0% additional interfering contour** caused by shock absorbers or sensors
- **Smallest module with 35 x 32 mm diameter**

### ZZA, intermediate Stops for LM and KLM pneumatic Linear Modules

Up to two ZZA intermediate stops can be used per linear module. This means that up to four positions are available per linear unit. With the ZZA intermediate stops on a linear unit, it is possible for example to eject NOK parts (not-OK parts) at an assembly station.



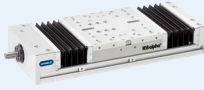

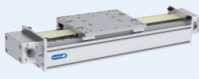
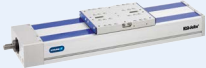
### Your benefits:

- Up to **two intermediate positions** possible
- Intermediate position with **pneumatic cylinder**
- **No oscillation** in the intermediate position
- All **movement sequences permissible**



# Electric Components

Precise Pacemaker for perfect Handling – electric SCHUNK Linear Axes

Electric Components					
	Linear Axis Alpha	Linear Axis Beta	Linear Axis Gamma	Linear Axis Delta	
					
		<b>12</b> profile sizes	more than <b>100</b> kg payload horizontal		
<b>Drive type</b>					
Spindle drive	●	●		●	
Toothed belt drive		●	●	●	
Rack and pinion drive		●	●		
Direct drive (linear motor)					
<b>Technical data</b>					
Number of sizes	4	12	4	5	
Repeat accuracy [mm]	0.03	0.03 or 0.08***	0.03 or 0.08***	0.03 or 0.08***	
Max. useful stroke [mm]	2540	7770	11520	7340	
Max. driving force [N]	18000	18000***	10000***	12000***	
Horizontal stroke [mm]	–	–	–	–	
Vertical stroke [mm]	–	–	–	–	
Max. useful load [kg]	–	–	–	–	
Max. speed [m/s]	2	5	5	5	
Max. acceleration [m/s <sup>2</sup> ]	20	60	60	60	
Measuring system type	Motor-dependent	Motor-dependent	Motor-dependent	Motor-dependent	
Guidance type	Double-profiled rail guide	Double-profiled rail guide	Double-profiled rail guide	Double-profiled rail guide	
Required maintenance	Lubrication of the guide and the spindle	Lubrication of the guide and (if necessary) the spindle, replacement of the cover strip	Lubrication of the guide and (if necessary) the gear rack	Lubrication of the guide and (if necessary) the spindle, replacement of the cover strip	
Remark	Freely programmable, optionally available with customer-specific motor, limit switch and reference switch	Freely programmable, optionally available with customer-specific motor, limit switch and reference switch	Freely programmable, optionally available with customer-specific motor, limit switch and reference switch	Freely programmable, optionally available with customer-specific motor, limit switch and reference switch	
<b>Motor &amp; Controller</b>					
Motor	Adaptable*	Adaptable*	Adaptable*	Adaptable*	
Drive controller	Motor-dependent	Motor-dependent	Motor-dependent	Motor-dependent	
Interfaces	Controller-dependent	Controller-dependent	Controller-dependent	Controller-dependent	
<b>Field of application</b>					
	<ul style="list-style-type: none"> <li>• Exceptionally flat design for table assembly</li> <li>• For demanding requirements with respect to precision and driving force</li> </ul>	<ul style="list-style-type: none"> <li>• For universal use</li> <li>• Spindle drive for demanding requirements with respect to precision and driving force</li> <li>• Toothed belt drive for high dynamic requirements with long stroke</li> </ul>	<ul style="list-style-type: none"> <li>• With closed profile for high requirements with respect to rigidity</li> <li>• With rack and pinion drive for precise applications and long strokes</li> <li>• Toothed belt drive for dynamic applications</li> </ul>	<ul style="list-style-type: none"> <li>• Flat design for high loads</li> <li>• For universal use</li> <li>• Spindle drive for demanding requirements with respect to precision with high driving force</li> <li>• Toothed belt drive for high dynamic requirements with long stroke</li> </ul>	
<b>Ambient conditions</b>					
clean	●	●	●	●	
slightly dirty	●	●	●	●	






\* \* Preferred motors: Bosch-Rexroth, Siemens, SCHUNK

\*\* More on request

\*\*\* Depending on drive type



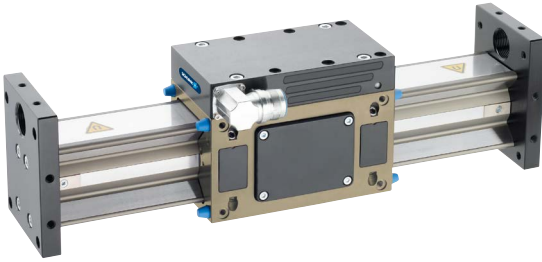
Linear Axis LDN	Linear Axis LDM	Linear Axis LDT	Linear Axis LDF	Stroke Module LDK
				
max. <b>25</b> kg payload horizontal	max. <b>40</b> kg payload horizontal	max. <b>50</b> kg payload horizontal	max. <b>66</b> mm high	
●	●	●	●	●
2	2	2	2	2
0.01	0.01	0.01	0.01	0.01
2800	2800	2800	3,800	400
500	1000	1500	500	500
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
4	4	4	4	4
40	40	40	40	40
Incremental or absolute	Incremental or absolute	Incremental or absolute	Incremental or absolute	Incremental or absolute
Roller guide	Roller guide	Roller guide	Roller guide	Roller guide
Cleaning the magnetic tracks	Cleaning the magnetic tracks	Cleaning the magnetic tracks	Cleaning the magnetic tracks	Cleaning the magnetic tracks
Freely programmable, optionally available with brake, limit switch, reference switch, cable track, supported profile	Freely programmable, optionally available with brake, limit switch, reference switch, cable track, supported profile	Freely programmable, optionally available with brake, limit switch, reference switch, cable track, supported profile	Freely programmable, optionally available with brake, limit switch, reference switch, cable track, supported profile	Freely programmable, optionally available with brake, limit switch, reference switch, cable track, supported profile
Integrated	Integrated	Integrated	Integrated	Integrated
Bosch-Rexroth**	Bosch-Rexroth**	Bosch-Rexroth**	Bosch-Rexroth**	Bosch-Rexroth**
Sercos III, Multi-Ethernet (Sercos III, Profinet I/O, EtherNet/IP, EtherCat), Profibus	Sercos III, Multi-Ethernet (Sercos III, Profinet I/O, EtherNet/IP, EtherCat), Profibus	Sercos III, Multi-Ethernet (Sercos III, Profinet I/O, EtherNet/IP, EtherCat), Profibus	Sercos III, Multi-Ethernet (Sercos III, Profinet I/O, EtherNet/IP, EtherCat), Profibus	Sercos III, Multi-Ethernet (Sercos III, Profinet I/O, EtherNet/IP, EtherCat), Profibus
<ul style="list-style-type: none"> <li>• For universal use</li> <li>• Linear motor axis with simple X-profile</li> <li>• For applications with high requirements with respect to dynamism</li> <li>• For rapid and precise movement or controlled pressing-in of workpieces in high-speed assembly</li> </ul>	<ul style="list-style-type: none"> <li>• For universal use</li> <li>• Linear motor axis with couple X-profile</li> <li>• For medium loads with very high dynamic and precise requirements</li> <li>• For rapid and precise movement or controlled pressing-in of workpieces in high-speed assembly</li> </ul>	<ul style="list-style-type: none"> <li>• For universal use</li> <li>• Linear motor axis with triple X-profile</li> <li>• For heavy loads with very high dynamic and precise requirements</li> <li>• For rapid and precise movement or controlled pressing-in of workpieces in high-speed assembly</li> </ul>	<ul style="list-style-type: none"> <li>• Flat linear motor axis</li> <li>• For applications with very high dynamic and precise requirements</li> <li>• For rapid and precise movement or controlled pressing-in of workpieces in high-speed assembly</li> </ul>	<ul style="list-style-type: none"> <li>• Compact, lightweight short-stroke module</li> <li>• For small loads</li> <li>• For exceptionally dynamic positionings</li> </ul>
●	●	●	●	●
●	●	●	●	●

				Electric Systems		
Stroke Module LDH	Linear Axis ELS	Linear Axis ELM	Linear Axis EPM	Pick & Place Unit PPU-E		
						
				For further Pick & Place Units see page 12		
	●					
●		●	●			●
1	2	2	2	2		
0.01	0.03	0.05	0.2	0.01		
200	260	260	1380	–		
100	150	160	580	–		
–	–	–	–	150	270	280
–	–	–	–	60	100	150
–	–	–	–	1.5	3	5
4	1	1.5	2.3	4		
40	25	40	40	100		
Incremental or absolute	Motor-dependent	Hall-effect sensor	Hall-effect sensor	Incremental		
Roller guide	Profiled rail guide	Double-profiled rail guide	Double-profiled rail guide	Profiled rail guide		
Cleaning the magnetic tracks	Lubrication of the guide and the spindle	Cleaning of the magnetic tracks, lubrication of the guide	Cleaning of the magnetic tracks, lubrication of the guide	Cleaning of the magnetic tracks, lubrication of the guide		
Freely programmable, optionally available with brake, limit switch, reference switch, cable track, supported profile	Freely programmable, also available standard-equipped with Bosch-Rexroth motor	Freely programmable, optionally available with rod lock	Freely programmable, optionally available with rod lock, cable track	Freely programmable, optionally available with rod lock or spring-loaded compensation, with flat hybrid cable		
Integrated	Adaptable*	Integrated	Integrated	Integrated		
Bosch-Rexroth**	Motor-dependent	Linmot	Linmot	Bosch-Rexroth, Siemens**		
Sercos III, Multi-Ethernet (Sercos III, Profinet IO, EtherNet/IP, EtherCat), Profibus	Controller-dependent	Sercos III, EtherNet/IP, EtherCAT, ProfiNet, Profibus DP, PowerLink, CANopen	Sercos III, EtherNet/IP, EtherCAT, ProfiNet, Profibus DP, PowerLink, CANopen	Sercos III, Multi-Ethernet (Sercos III, Profinet IO, EtherNet/IP, EtherCat), Profibus		
<ul style="list-style-type: none"> <li>• Compact, lightweight short-stroke module</li> <li>• For small loads</li> <li>• For exceptionally dynamic movements in the Z axis</li> </ul>	<ul style="list-style-type: none"> <li>• Cantilever axis</li> <li>• For short strokes</li> <li>• For demanding requirements with respect to precision and driving force</li> </ul>	<ul style="list-style-type: none"> <li>• Very compact, simple short-stroke module</li> <li>• For small loads</li> <li>• For exceptionally dynamic positionings</li> </ul>	<ul style="list-style-type: none"> <li>• For average requirements with respect to dynamism and precision</li> </ul>	<ul style="list-style-type: none"> <li>• Extremely compact 2-axis unit</li> <li>• For rapid, flexible travel along curves in the plane of any sort</li> <li>• For rapid and precise transferring or controlled pressing-in of workpieces in high-speed assembly</li> </ul>		
●	●	●	●			●
●	●	●	●			●

## LDx Linear Axes with Servo Motor

For high-precision high-speed applications. A high nominal force can be achieved with powerful servo motors, even with smaller modules. As an alternative, greater masses can be moved with vertical applications. The basis for this are the three LDN, LDM and LDT universal linear modules, the LDK and LDH short stroke modules and the LDF flat linear module.

### LDN Linear Module



#### Your benefits:

- **6 profiles** with 11 power variants
- **< 0.01 mm repeat accuracy**
- **100% closed slides** for max. rigidity
- **0 costs for maintenance** through simple cleaning of the magnetic tracks
- **0 s referencing** through absolute-value transducers
- **> 1,000 positions** can be actuated, because freely programmable
- **0 s per programming** of limit and reference switches
- **80% less wear** (in comparison with belt drives) through direct drive

## Linear Axes with adaptive Drive

The range includes 12 sizes. Depending on use, it is possible to choose between roller guide and profiled rail guide. The Beta series is outstanding for its economical axis applications with high requirements with respect to dynamics and smooth running. Even long stroke lengths can be implemented with this drive system.

### Beta Linear Module



#### Your benefits:

- **12 profile sizes**
- **3 drive systems** (spindle / belt / gear rack)
- **2 guide systems**
- **100% modular** design for high availability
- **20 years of experience** with linear systems
- **100% flexible actuation** through adaptable motors

## Accessories for spindle, belt and rack and pinion driven linear modules

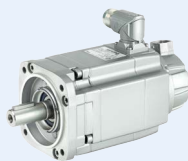
### Servo motors

With the Alpha, Beta, Gamma, Delta and ELS linear axes with adaptable drive, you receive from SCHUNK on request an already completed configuration with servo motors that is designed in accordance with your specific application and technical requirements. We recommend using servo motors from Bosch Rexroth, Siemens or SCHUNK.

We will be happy to supply you with the required IndraDrive series controller from Bosch-Rexroth or the SINAMICS series from Siemens – depending on the servo motors used – along with your shipment. Of course, you have the option of attaching any other servo motor yourself to the linear axes listed.



Bosch-Rexroth AC servo motor





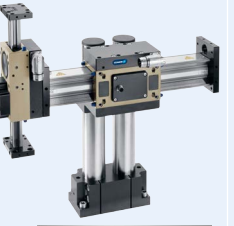

Siemens compact servo motor



Compact SCHUNK servo drive Type PDU with precision gears and integrated controller

# Pick & Place Units

Five Systems from 45 to 110 picks per Minute

	Modular pneumatic	Modular electric		
	Modular Pick & Place Unit	Modular Pick & Place Unit	Modular Pick & Place Unit	DRL Lift / Swivel Unit
	 <b>45</b> picks per minute*	 <b>70</b> picks per minute*	 <b>85</b> picks per minute*	 <b>75</b> picks per minute*
<b>Series</b>	LM/CLM	ELM/ELM	LDN/LDK	DRL
<b>Drive type</b>				
Pneumatic	●			●
Direct drive (linear motor)		●	●	
<b>Technical data</b>				
Number of sizes	Versatile	Versatile	Versatile	1
Repeat accuracy per axis [mm]	± 0.01	0.05	0.01	0.01
Horizontal stroke [mm]	Max. 450	Max. 260	Max. 500	–
Rotating angle [°]	–	–	–	90 / 180
Vertical stroke [mm]	Max. 450	Max. 260	Max. 400	40
Max. useful load [kg]	15	5	6	3
Max. permissible mass moment of inertia [kgm <sup>2</sup> ]	–	–	–	0.03
Max. picks per minute*	45*	70*	85*	75****
Max. speed [m/s]	–	1.5	4	–
Max. acceleration [m/s <sup>2</sup> ]	–	40	40	–
Measuring system type	Inductive limit switches	Hall-effect sensor	Incremental or absolute	Inductive limit switches
Guidance type	Cross roller guide	Profiled rail guide	Roller guide	Guidance / deep groove ball bearing
Required maintenance	Hydraulic shock absorbers, lubrication of the guide, replacement of seals	Cleaning of the magnetic tracks, lubrication of the guide	Cleaning the magnetic tracks	Hydraulic shock absorbers, lubrication of the guide, replacement of seals, replacement of roller
Remark	Optionally available with up to two intermediate positions, rod lock	Freely programmable, optionally available with rod lock	Freely programmable, optionally available with brake	Optionally available with rod lock
<b>Actuation</b>				
	Commercially available pneumatic valves	Drive controllers: Linmot interfaces: Sercos III, EtherNet/IP, EtherCAT, ProfiNet, Profibus DP, PowerLink, CANopen	Drive controller: Bosch-Rexroth*** Interfaces: Sercos III, Multi-Ethernet (Sercos III, Profinet IO, EtherNet/IP, EtherCat), Profibus	VCU (Valve Control Unit) or commercially available pneumatic valves
<b>Modular system</b>				
	Combination of two pneumatic individual components from the SCHUNK modular assembly components	Combination of two electronic individual components from the SCHUNK modular assembly components	Combination of two electronic individual components from the SCHUNK modular assembly components	Fully integrated in the SCHUNK modular system.
<b>Field of application</b>				
	• Ideal for point-to-point handling tasks with identical mounting and placing height or for the assembly of unchangingly identical parts	• Very compact • For applications with high requirements with respect to flexibility and dynamics	• For applications with very high requirements with respect to precision, flexibility and dynamics	• Very compact lift/swivel unit for carrying out typical, guided pick & place movements • For faster and precise positioning and turning of workpieces in the high-speed assembly
<b>Ambient conditions</b>				
clean	●	●	●	●
slightly dirty		●	●	

\* For 145 mm horizontal stroke, 45 mm vertical stroke, 1 kg payload, with 2 x 50 ms gripping time

\*\* For 210 mm horizontal stroke, 60 mm vertical stroke, 3 kg payload, with 2 x 50 ms gripping time

\*\*\* More on request

\*\*\*\* For 180° rotating angle, 40 mm vertical stroke, 0.015 kgm<sup>2</sup> mounted mass moment of inertia, with 2 x 50 ms gripping time



Compact pneumatic		Compact electric		
Pick & Place Unit PPU-P		Pick & Place Unit PPU-E		
				
95 picks per minute*		110 picks per minute*		
PPU-P		PPU-E		
	●		●	
2		2		
± 0.01		0.01		
145	210	150	270	280
-	-	-	-	-
45	60	60	100	150
1	3	1.5	3	5
-	-	-	-	-
95*	75**	100*	110*	80**
-		4		
-		100		
Inductive limit switches		Incremental		
Cross roller guide		Profiled rail guide		
Hydraulic shock absorbers, lubrication of the guide, replacement of seals		Cleaning of the magnetic tracks, lubrication of the guide		
Optionally available with rod lock		Freely programmable, optionally available with rod lock or spring-loaded compensation, with flat hybrid cable		
VCU (Valve Control Unit) or commercially available pneumatic valves		Controllers: Bosch-Rexroth, Siemens*** Interfaces: Sercos III, Multi-Ethernet (Sercos III, Profinet IO, EtherNet/IP, EtherCat), Profibus		
Fully integrated in the SCHUNK modular assembly components.		Fully integrated in the SCHUNK modular assembly components.		
<ul style="list-style-type: none"> <li>Extremely compact 2-axis unit for performance of one typical Pick &amp; Place movement</li> <li>For rapid and precise transferring of workpieces in high-speed assembly</li> </ul>		<ul style="list-style-type: none"> <li>Extremely compact 2-axis unit</li> <li>Flexible travel along curves in the plane of any sort</li> <li>For rapid and precise transferring</li> <li>For controlled pressing-in of workpieces in high-speed assembly</li> </ul>		
	●		●	

## Pick & Place Units

Cycle times, repeat accuracy and process reliability – these three factors are decisive for the automated assembly of small and medium-sized parts. SCHUNK Pick & Place units are specialized precisely to this area.

The modular-design solutions from SCHUNK individually meet every imaginable requirement. The compact Pick & Place units particularly show their strength in high-speed applications.




### Your benefits:

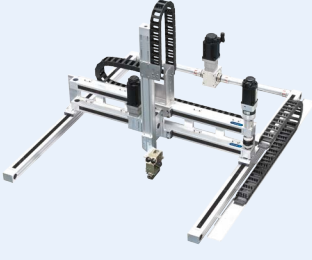
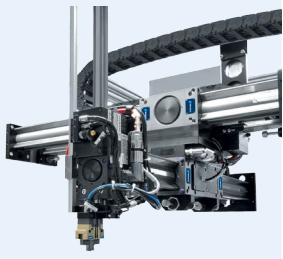
- **Up to 110 picks** per minute possible
- Up to **50% shorter cycles** possible, due to the forced guidance via cam roller with the PPU-P Pick & Place unit
- **100% compatibility** with modules from the SCHUNK modular assembly automation components
- Up to **100% fewer broken cables** with the PPU-E Pick & Place unit due to the absence of moving motor cables
- Repeat accuracy **up to 0.01 mm** for maximum precision
- **Five solutions** for all weight classes – Handling ranges from a few grams to several kilograms

# Gantry Solutions from the modular System

Minimal planning, design and commissioning work coupled with maximum flexibility

	Standard Gantry		
	Line Gantry LPP	Line Gantry LPE	Room Gantry RPE
			
<b>Drive type</b>			
Pneumatic	●		
Spindle drive		●	●
Toothed belt drive		●	●
Direct drive (linear motor)			
<b>Technical data</b>			
Number of sizes	1	2	2
Max. horizontal stroke [mm]	1500	1500	1500 x 1500
Max. vertical stroke [mm]	225	500	500
Max. useful load [kg]	5	10      20	10      20
Max. speed (horizontal / vertical) [m/s]	–	1/0.25	1/0.25
Max. acceleration (horizontal / vertical) [m/s <sup>2</sup> ]	–	5/2	5/2
Adjustable end positions	Yes	Freely programmable	Freely programmable
Max. end positions adjustment per side (horizontal / vertical) [mm]	50/25	–	–
Guidance type (horizontal / vertical)	Profiled rail guide / Cross roller guide	Profiled rail guide / Profiled rail guide	Profiled rail guide / Profiled rail guide
Required maintenance	Hydraulic shock absorbers, lubrication of the guidance replacement of seals	Lubrication of the guide and (if necessary) the spindle, replacement of the cover tape	Lubrication of the guide and (if necessary) the spindle, replacement of the cover tape
Remark	Incl. cable track, completely mounted, optionally available with pillar assembly system	Freely programmable, with cable track, completely mounted, alternately without drive or with Bosch-Rexroth drives, optionally available with pillar assembly system	Freely programmable, with cable track, completely mounted, optionally available without drive or with Bosch-Rexroth drives
<b>Actuation</b>			
	Commercially available pneumatic valves	Drive controllers: Bosch-Rexroth* Interfaces: Sercos III, Multi-Ethernet (Sercos III, Profinet IO, EtherNet/IP, EtherCat), Profibus	Drive controllers: Bosch-Rexroth* Interfaces: Sercos III, Multi-Ethernet (Sercos III, Profinet IO, EtherNet/IP, EtherCat), Profibus
<b>Modular system / Special solutions</b>			
	Combination of two individual components from the SCHUNK modular assembly components	Combination of three individual components from the SCHUNK modular assembly components	Combination of four individual components from the SCHUNK modular assembly components
<b>Field of application</b>			
	<ul style="list-style-type: none"> <li>• Optimum impulse generator with low investment</li> <li>• Ideal for point-to-point handling tasks with identical mounting and placing height</li> <li>• Simple handling tasks</li> </ul>	<ul style="list-style-type: none"> <li>• For simple applications</li> <li>• For approaching any number of points in the plane</li> <li>• Optimum for applications with standard requirements with respect to dynamics</li> </ul>	<ul style="list-style-type: none"> <li>• For simple applications</li> <li>• For approaching any number of points in space</li> <li>• Optimum for applications with standard requirements with respect to dynamics</li> </ul>
<b>Ambient conditions</b>			
clean	●	●	●
slightly dirty	●	●	●
extremely dirty			

\* Depending on the motor, the servo motor is used according to customer specifications (preferable motors: Bosch-Rexroth, Siemens, SCHUNK)

Customer-specific Solution	
3-axis Gantry	3-axis Gantry
	
●	●
–	–
1800 x 1300	195 x 515
800	100
25	2
3/3	4/9
10/15	23/55
Freely programmable	Freely programmable
–	–
Profiled rail guide / Profiled rail guide	Roller guide / Roller guide
Lubrication of the guide and (if necessary) the spindle, replacement of the cover tape	Cleaning the magnetic tracks
Freely programmable, with cable track, drives and control units, specific gripping systems in accordance with customer specifications, completely mounted	Freely programmable, with cable track, assembly system, control units, grippers and change system, completely mounted, total cycle time 1.1 s
Drive controllers: Bosch-Rexroth* Interfaces: Sercos III, Multi-Ethernet (Sercos III, Profinet IO, EtherNet/IP, EtherCat), Profibus	Drive controllers: Bosch-Rexroth* Interfaces: Sercos III, Multi-Ethernet (Sercos III, Profinet IO, EtherNet/IP, EtherCat), Profibus
Customer-specific axis solution, combined using various modular assembly components	Special axis solution, combined using various standard components and modified standard components, e.g. carbon fiber axis (RCC)
<ul style="list-style-type: none"> <li>• Very rigid design</li> <li>• For high accelerations and process speeds</li> <li>• Space-saving arrangement above the machine</li> </ul>	<ul style="list-style-type: none"> <li>• Extremely lightweight construction</li> <li>• For very high accelerations and high precision</li> <li>• Optimized for high-speed applications</li> </ul>
●	●
●	●
●	●

### Standard Range of Gantries

The SCHUNK range of gantries uses standardization for optimum coverage of the most common handling and assembly tasks. You can assemble the gantry you desire easily and securely on the basis of your predefined parameters or process specifications.



### Your benefits:

- More than **500 combination possibilities** within the SCHUNK standard range of gantries
- Up to **50% lower investment costs** with standard gantries through reduced project planning, assembly and commissioning times
- Up to **30% less project planning and engineering costs**
- **100% convenient project planning** using CAD data
- Up to **80% of the usual handling and assembly tasks** can be implemented through the use of SCHUNK standard gantries
- Maximum precision thanks to **repeat accuracy of < 0.1 mm** per axis

# Modular Components from SCHUNK

## Modular assembly automation – individual, multi-axis, versatile

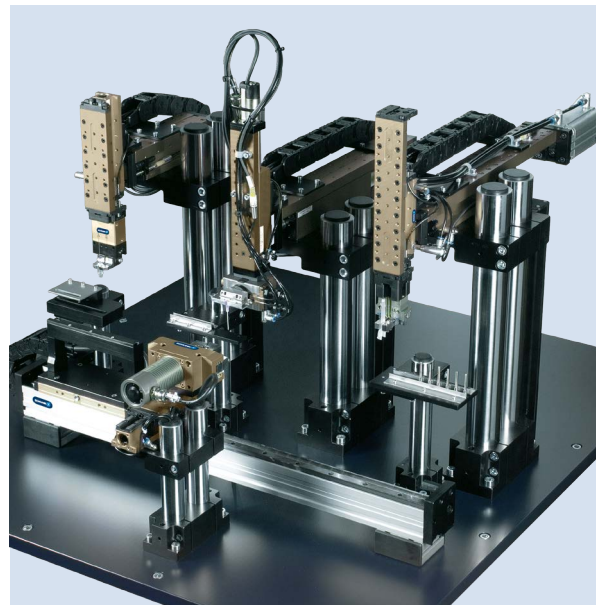
From individual, multi-axis assembly solutions all the way to complete functional modules – with the SCHUNK modular system, we offer a technically high-quality, comprehensive handling system from the modular components.

With pneumatically and electrically driven linear axes in combination with rotation and gripping modules, the modular components system offers individual handling solutions in various versions and sizes. An enormous variety of automated systems can be made out of modular components by using a few standard modules – fast, simple and professional.



## Your benefits:

- Around **85% of all handling processes** in the area of assembly, small parts and precision production can be covered with the SCHUNK modular components
- **30% less planning costs** for system integrators, machine builders and users
- Almost **10,000 combination options** between two modules from the modular components can be configured with the Kombibox software
- **Simple dimensioning** of linear and rotary modules are possible online with the Toolbox software
- **95%** of the components are **available from stock**



## Modular and simple

The modular components system has a convincingly simple modular assembly. All modules can be freely fit together and combined using adapter plates, assembly elements and centering parts. This coordinated range of accessories enables multiple-axis handling units to be completely configured from modular components.



## 10,000 application variants – discover individual possibilities

Maximum freedom of design, economy, flexibility with minimum planning, construction and commissioning costs. System integrators, machine builders and users profit from the comprehensive modular program from SCHUNK in assembly automation and in automated handling.

This wide variety of modules enables the implementation of high-efficiency Pick & Place units, cross slides, rotary gripping units, gantry systems, functional modules and even multi-axis systems. Whether its gripping, rotating, translation movements, or robot accessories – SCHUNK covers the complete product range of handling and assembly through modularity. Depending on the application, either pneumatically or electrically powered components can be utilized.

Linear Modules	Robot Accessories	Rotary Modules	Gripping Modules
LM	TCU	ERS	PGN-plus
CLM		RM	MPG-plus
KLM	SWS		EGP
PMP		SRU-plus	
Delta			MPZ
Beta	AGE-F	SRU-plus	GAP
LDN		RP	
LDF	AGE-S-XYZ	ERD	SWG
Pick & Place Modules			
PPU-P			
PPU-E			
DRL			



## Special Solutions from SCHUNK – Inspiring know-how

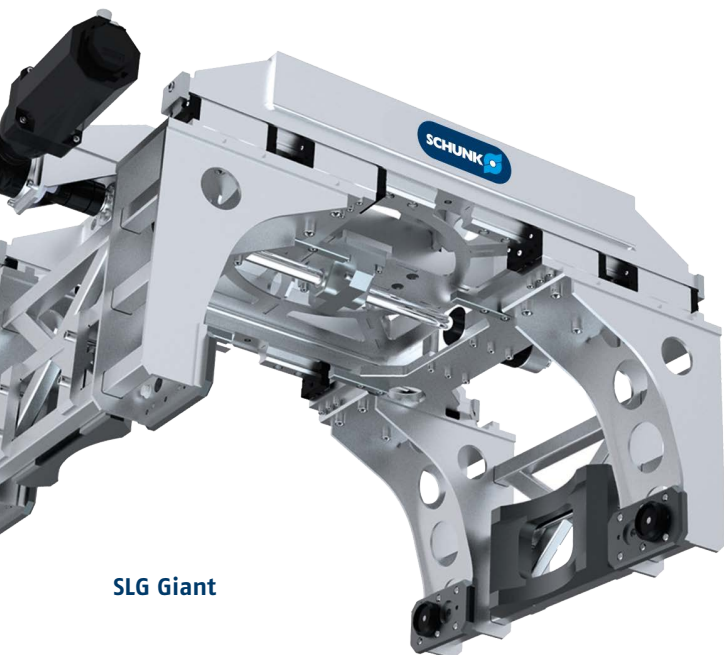
With a comprehensive components program of high-quality gripping systems, robot accessories, linear systems and accessory parts, SCHUNK is the competence leader in automation. We use this enormous innovation and technology potential as a basis and pool of experience for our customer-specific solutions to special automation applications.

You too can discover new prospects through the interaction of technological creativity, consummate development expertise and absolute first-class product quality. Expect more from SCHUNK.

### Tailored, individual components

With development competence and the objective of solving individual requirements efficiently and with process optimization, SCHUNK is setting a new standard in high-quality products and industry solutions.

From individual gripping systems to complex functional modules, our teams of specialists develop components tailored to your production. We have the innovation and technology potential for the ideal application and have been contributing pioneering work in a number of industries for many years. Put your trust in our experience with handling solutions from 1 g to 700 kg. Contact us.

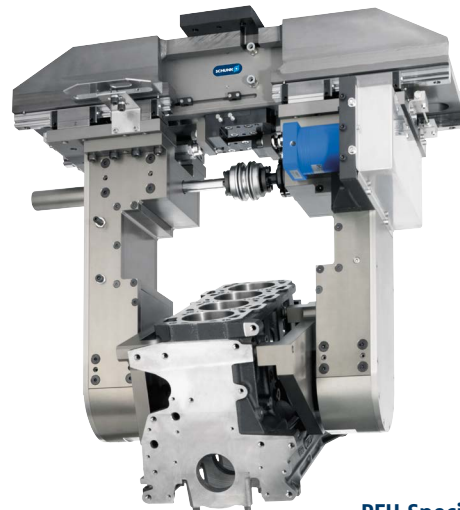


SLG Giant

SCHUNK offers the entire spectrum for cost and benefit-optimized automation solutions – from semi-standards to individually developed concepts.

### Your benefits

- Individually modified gripping and automation technology
- Automation components ready for operation
- Complex axis combinations
- Automation modules developed to individual customer specifications



PFH Special Gripper

### Heavy-load Gripper

Safe and versatile handling of components up to 700 kg and maximum safety through gripping force maintenance mechanism. The servo-driven heavy-load gripper from SCHUNK implements a wide variety of strokes at a maximum gripping force of 23,000 N. And we also have the suitable accessories for particularly heavy loads: the SWS heavy-load changer, which allows a payload of up to 1,310 kg.

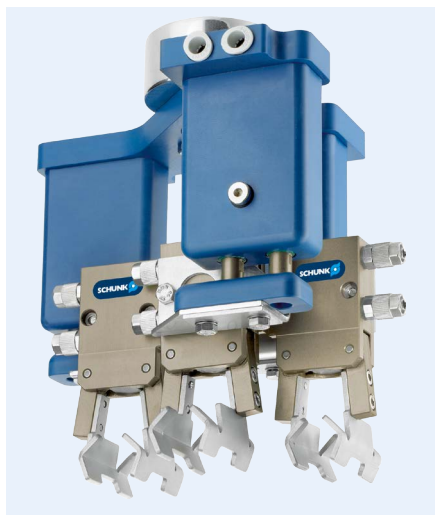
## Handling of Rims

Double gripper unit with pneumatic adjustment with recirculating ball-bearing guides for transferring aluminum rims in the paint shop from a roller conveyor to a spindle conveyor. It must be possible to adjust the rims' gauge from 800 mm to 600 mm while doing so. The placing height on the spindle conveyor is subject to large tolerances. Clamping marks are not permissible. Workpiece range: 14 – 19" rims. The gripper is designed with pneumatic cylinders as the drive, recirculating ball-bearing guides with clamping and rack and pinion synchronization.



## High-flexibility Packaging Gripper

Form-specific gripper units in lightweight design in accordance with hygienic design fulfill customer requirements with respect to high speed, flexibility and hygiene. In the packaging industry, it is imperative that statutory, hygienic and production technology specifications be met, in addition to taking into account the product, packaging material and packaging design properties.



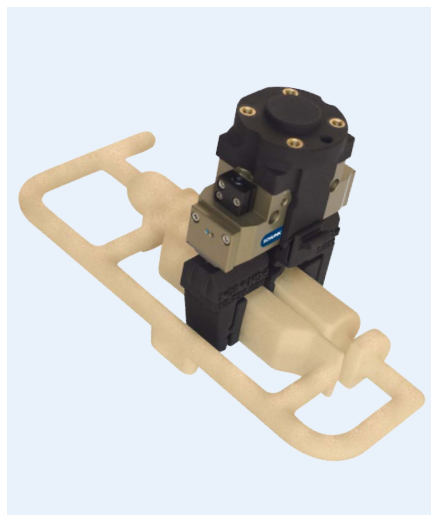
## Handling of Wafer Disks

Wafer grippers suitable for clean rooms made of laser-forming material with three integrated, pneumatic single grippers, each of which functions with a single finger. This makes it possible to grip the round wafers around their edges at three points with high process reliability.



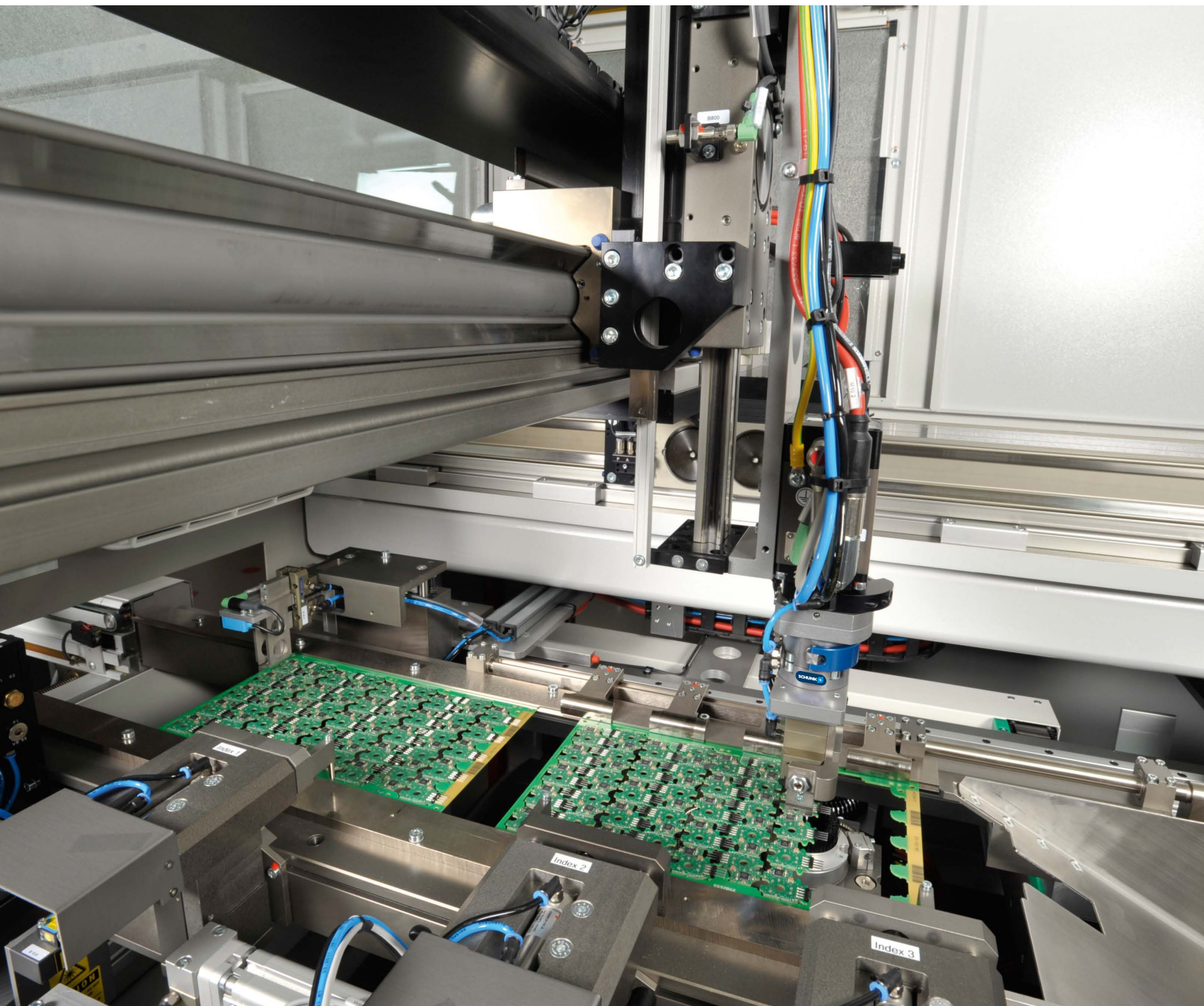
## Flexible Sand Core Handling

Due to its multi-tooth guidance, the PGN plus 80 parallel gripper is extremely robust and resilient. The dust-protection version was selected and the gripper was connected with air purge for the process-reliable loading and unloading of the sand cores from extremely porous molding sand. Laser-formed gripping fingers (molded jaws) of polyamide are used for gripping the fragile sand cores. The jaws are custom-designed in accordance with the respective sand core's specific geometry.





## Depaneling electronic Boards at high Speed and with maximum Precision



### Depaneling Cutters

Standard grippers with product-specific gripper fingers grip into the circuit boards from above. A single board is separated out with an end milling cutter from below. An efficient extraction system, adapted using a brush, prevents dust deposits on the products. The separated circuit board is then placed in a pallet or a downstream system.

Electrical linear modules from SCHUNK with powerful servo motors offer the optimum solution for these high-precision on high-speed applications.



## Fast assembly Applications With the SCHUNK modular system

Cycle time, process reliability and quality are the decisive factors for success in assembly automation. SCHUNK offers in this context one of the world's most comprehensive module programs for Pick & Place applications. For example, for a manufacturer of electromagnetic components for vehicle and industrial technology. The high-performance assembly plant processes a total of three million parts per year.

The blanks come directly out of a rotary transfer machine in which they have been turned and processed out of rod material. The correctness of their position and the absence of burrs is checked by camera in the assembly plant, then a rubber seal brought forward, visually inspected and fastened in the component at a rolling station.

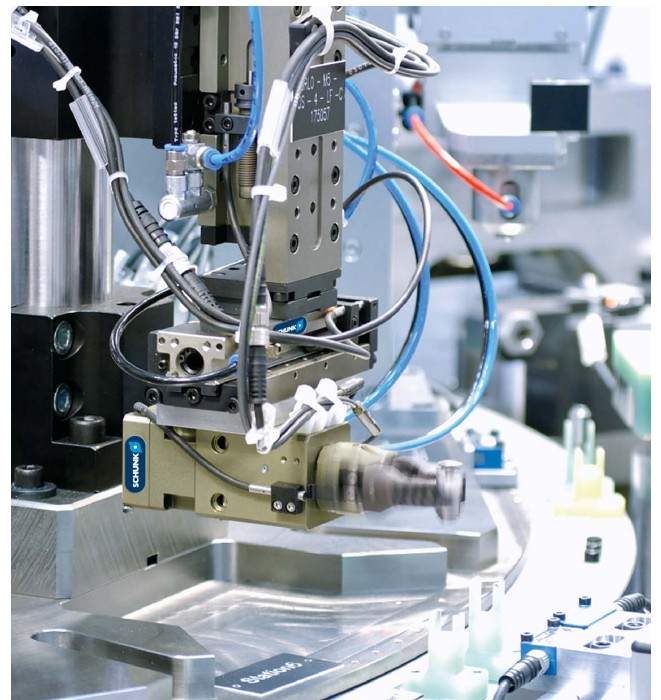
Following another inspection, the component is rotated by 180° and a second rubber seal is applied to its rear side in an identical series of steps.

This example demonstrates how the SCHUNK system modular components can be used efficiently for a wide variety of applications. After all, the SCHUNK system modular components – with over 7,000 possible combinations for high-performance assembly – can be used to implement innumerable applications for small parts handling and assembly automation.



### Pick & Place Units

Handling concept for assembling components on a rotary table with cycle times of 5 seconds. The PPU-E Pick & Place unit offers fast cycle times, excellent repeat accuracy and a maximum of precision in high-speed assembly. The cycle time is only 0.58 seconds, including switching and gripping times at a vertical stroke of 40 mm, a horizontal stroke of 120 mm and a moved mass of 2 kg.



### Rotary Table

Rapid and secure workpiece orientation on a rotary table assembly system. The majority of the components used are from the SCHUNK system modular components. A modular Pick & Place system made of CLM axes combined with a GSM-P module, including comprehensive sensor technology for gripping and swiveling, optimizes the cycle time and makes the process extremely reliable.

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*J. Lehmann*

Jens Lehmann,  
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