

## PRODUCT OVERVIEW

TOOLHOLDING AND WORKHOLDING

# Partner with Systematic Solutions

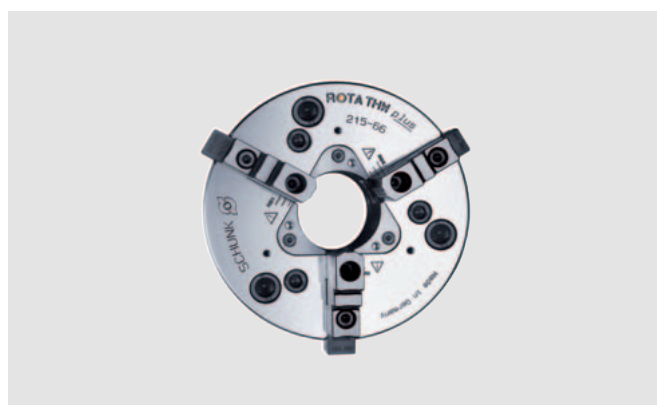
## Toolholding Systems

The TOTAL TOOLING program from SCHUNK: Precision toolholding systems, universal toolholders and balancing technology from one source. Your advantage: Here you will surely find the optimum toolholder for your application.



## Lathe Chucks

The complete range of lathe chuck technology from one supplier. With the lathe chuck program from SCHUNK you will benefit from world-renowned leading-edge technology.



## Stationary Clamping Systems

Whether pneumatic, hydraulic, mechanical or magnetic – SCHUNK supplies complete solutions, customized to your individual requirements and demands.



## Chuck Jaws

SCHUNK standard as well as customized chuck jaws are convincing. More than 1200 different types are available in the worldwide largest program of standard chuck jaws – from one source.



# Partner with Systematic Solutions

## Industry solutions

### We know your industry

SCHUNK the world's largest supplier and market-leader in toolholding and workholding technology and one of the most innovative suppliers of automation products has brought to the market numerous unique solutions during the last six decades. We are the technology partner of many different industries. Technical creativity, highest competence in finding solutions and well-funded experience are our key factors in engineering, manufacturing and service.

SCHUNK strives to maintain the closest relationships with industry and customers in delivering the needed cutting edge solutions. SCHUNK develops high-quality products and industry solutions – in toolholding, workholding and automation – using a unique combination of the consideration of customer benefits and our vast R&D experience.

We create technologies, dynamic processes and add value in all aspects of your industry. Worldwide.

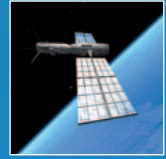
### Industry solutions – Workholding Technology

Toolholding systems, lathe chucks, stationary workholding and chuck jaws – at SCHUNK the customers profit from the complete product range and know-how of a market-leader. No matter which industry-specific demands are made to the workholding technology – our product variety and technical creativity always offers the best solution. For every industry.

### Industry solutions



Machine and Plant Engineering



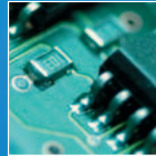
Aerospace Industry



Automotive



Metal Production and Machining



Electronics



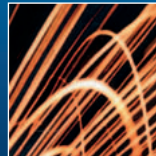
Energy



Medical and Pharmaceutical Industry



Wood Working



Casting, Forging, Welding



Tool-grinding



Tool-, Mold and Die Production



Watches/Jewelry



## SCHUNK Service

Competent and skilled personnel ensure optimum availability of your workholding and toolholding equipment and make sure that its value will be maintained. Our comprehensive service package – from initial consultation to after sales service – convinces with absolute reliability and technical know-how.

### Initial operation

Your benefit:

- Professional assembly and initial operation
- Fast and trouble-free production flow

### Maintenance

You can expect more:

- Regular maintenance carried out by skilled service engineers
- Increasing and ensuring the availability of your workholding and toolholding equipment
- Minimization of unplanned failures of workholding tools and equipment

### Inspection

Get a clear picture:

- Inspection is carried out by skilled service engineers
- Actual state of your workholding, toolholding and equipment
- Avoiding unplanned failures of workholding and toolholding equipment

### Repairs

Get things started again:

- Short down-times due to fast intervention of the SCHUNK service engineers
- Highest possible availability of the workholding and toolholding equipment as the repair is performed on-site
- Spare parts and accessories

Your advantage:

- Fast supply of original spare parts
- Reduction of down-times
- The complete spectrum of components from one source
- Quality and availability, that can only be guaranteed by the original manufacturer
- 12-months warranty

### Training

Know-how is most important:

- Fast and practical training
- Efficient use of your workholding and toolholding equipment by training of the operating personnel
- The basis for proper machining of your workpieces
- Ensures of a long service life of your workholding and toolholding equipment

### Individual service – for better results

- Hotline to our inside technical consultants weekdays from 7 a.m. to 6 p.m.
- Project-orientated, on-site technical advice at your location by our competent external consultants
- Detailed information about toolholders and clamping technology
- Training on innovations and SCHUNK-products – across the world in our local subsidiaries

### Online service – for a fast overview

All information in digital form, clearly structured and up-to-date on our website at [www.schunk.com](http://www.schunk.com)

- List of contact persons
- Online product search based on product designations
- Product news and trends
- Data sheets
- Order forms for easy and convenient ordering
- Free download area for pages from our product catalogs and technical data, for software and calculation programs for your gripping and rotary modules
- Free 2-D/3-D CAD design models, provided in a wide range of different CAD formats – for easy integration into your design!



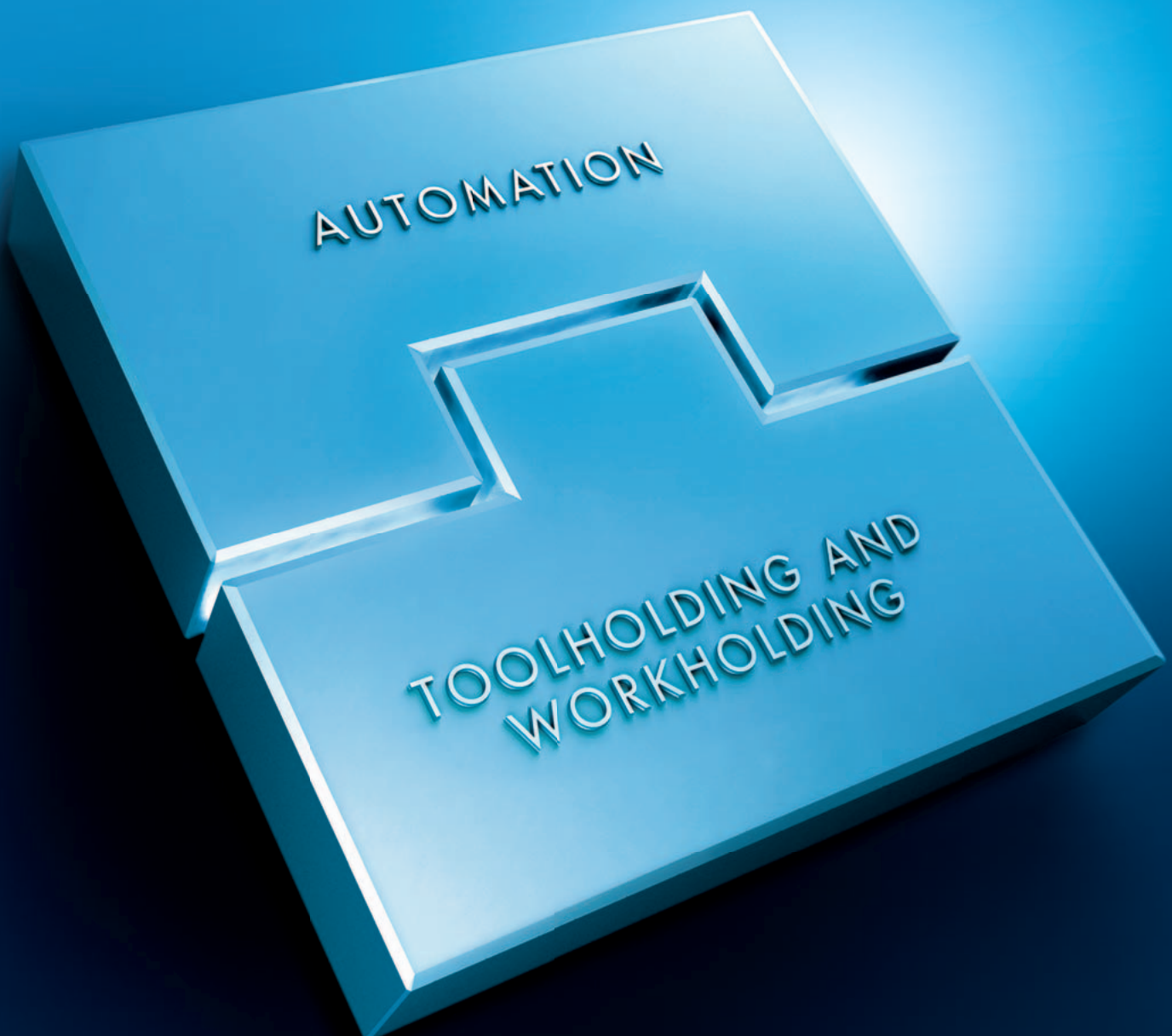
### Two core competencies from one source

As a long-standing components specialist for both technology areas, we offer what is probably the most comprehensive insight to the complex world of clamping and automation. We understand the demands and requirements as well as the interface problems in both areas. SCHUNK can provide you with worldwide leading technology. This is based on long-standing and ever-growing expertise for solutions – from the spindle all the way to robotics.


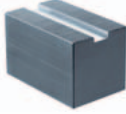


We call this the "SCHUNK SYNERGY". Get to know us as an attractive "All-in one-Partner" and benefit from

- Pioneering spirit – that has been a lead in toolholding, workholding and automation technology since decades.
- Appreciation – which we show for our customers
- Reliability – in product quality and order processing


# SCHUNK SYNERGY



# Chuck jaws

	Chuck Jaws			
				
	Soft top jaws	Jaw blanks	Full grip jaws	Monoblock jaws
<b>Applications with fine serration</b>				
Clamping of blanks				
Clamping of finished parts	■	■	■	
I.D. clamping	■	■	■	
O.D. clamping	■	■	■	
Compensation of form tolerances				
Adjustable clamping diameter via turning	■	■	■	
Low-deformation clamping			■	
<b>Applications with quick jaw change</b>				
Clamping of blanks				
Clamping of finished parts	■		■	■
I.D. clamping	■		■	■
O.D. clamping	■		■	■
Compensation of form tolerances				
Adjustable clamping diameter via turning	■		■	■
Low-deformation clamping			■	
<b>Characteristics</b>				
Jaw interface/type (standard design)	90° fine serration 60° fine serration or tongue and groove	90° fine serration 60° fine serration	90° fine serration 60° fine serration or tongue and groove	Straight and angled wedge-bar serration
Available for lathe chuck sizes (standard design)	80 – 1200 mm	160 – 800 mm	80 – 630 mm	140 – 800 mm
Material	Steel 16 MnCr5 suitable for case hardening or high-tensile aluminum	Steel 16 MnCr5 suitable for case hardening	Steel 16 MnCr5 suitable for case hardening or high-tensile aluminum	C 45, tempered, inductive hardenable
<b>Highlights</b>				
	<ul style="list-style-type: none"> <li>Depending on the version: ground groove and fine serration or fine-milled tongue and groove</li> <li>Can be turned to the required clamping diameter</li> </ul>	<ul style="list-style-type: none"> <li>Available with or without bore holes</li> <li>Ground groove and fine serration</li> <li>Can be turned to the required clamping diameter</li> </ul>	<ul style="list-style-type: none"> <li>The large locating surface evenly distributes the gripping forces around the workpiece, thereby the workpiece deformation is decreasing.</li> </ul>	<ul style="list-style-type: none"> <li>Inductive hardened serration and guides permit a longer tool service life of the lathe chuck.</li> <li>Available in various versions</li> </ul>

# Product Overview

Chuck Jaws				
				
Claw jaws	Stepped top jaws	Stepped block jaws	Pendulum jaws	Quentes fiberglass jaws
■	■		■	
				■
■	■			■
■	■		■	■
			■	
			■	■
			■	■
■	■	■	■	
			■	
			■	■
			■	■
90° fine serration 60° fine serration or tongue and groove	90° fine serration 60° fine serration or tongue and groove	Straight and angled wedge-bar serration	Available for quick-change chucks and power chucks	Available for quick-change chucks and power chucks
140 – 630 mm	110 – 1200 mm	160 – 630 mm	200 – 500 mm	160 – 315 mm
Steel 16 MnCr5 suitable for case hardening	Steel 16 MnCr5 suitable for case hardening	Steel 16 MnCr5 suitable for case hardening or steel 16MnCr5SK	Diamond-serrated clamping inserts made of 16 MnCr5	Glass-fiber-reinforced plastic
<ul style="list-style-type: none"> <li>The claw serration allows form-fit clamping, which also enables transmission of very high machining forces</li> <li>Available for O.D. clamping, I.D. clamping and bar clamping</li> </ul>	<ul style="list-style-type: none"> <li>The diamond serration enables first set-up, where the clamping teeth penetrate the workpiece only slightly</li> <li>May be used for O.D. clamping, I.D. clamping and bar clamping</li> <li>Used for covering large clamping ranges</li> </ul>	<ul style="list-style-type: none"> <li>May be used for O.D. clamping, I.D. clamping and bar clamping</li> <li>Used for covering large clamping ranges</li> </ul>	<ul style="list-style-type: none"> <li>For clamping thin-walled and deformation-sensitive workpieces</li> <li>Compensation of deviations in shape via pendulum motion</li> <li>Clamping inserts are available in hardened and unhardened versions</li> </ul>	<ul style="list-style-type: none"> <li>The light and stable design enables minimal loss of clamping force</li> <li>No clamping marks, making it ideal for clamping surfaces that are especially sensitive, already ground or even surface-treated</li> <li>Low-cost system due to quickly changeable clamping inserts</li> </ul>

### Special Jaws



More than 30 years of experience in the development and manufacturing of chuck jaws in special design make us a partner in high demand for specialized applications. Whether it be modified standard chuck jaws or sophisticated customized designs, our team of experts will develop the right solution for any application.








Challenge us, and we'll show you!







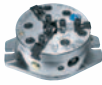





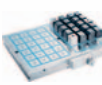



# Stationary Workholding

	SCHUNK UNILOCK Quick Change Pallet System		TANDEM Clamping Force Blocks pneumatic			TANDEM Clamping Force Blocks hydraulic	
	 NSE system	 NSA system	 TANDEM KSP	 TANDEM PGS	 TANDEM PZS/PZS-D	 TANDEM KSH	 TANDEM HZS
Actuation							
pneumatic	■	■	■	■	■		
hydraulic						■	■
mechanical	■						
electrical							
Characteristics							
Clamping force	Retention force 35000–75000 N 7870–16860 lbf	Retention force 75000 N 16860 lbf	2500 – 50000 N 562 – 11240 lbf	4200 – 18000 N 944 – 4045 lbf	5500 – 85000 N 1235 – 19110 lbf	12000 – 43000 N 2700 – 9670 lbf	28000 – 80000 N 6295 – 17985 lbf
Clamping width/stroke	Pull-down force 1500–25000 N 340–5620 lbf	Pull-down force 20000 N with turbo 4495 lbf with turbo	2.2 – 4 mm	6 – 15 mm	4.5 – 10 mm	2.5 – 15 mm	4.5 – 10 mm
Actuating pressure	6 bar 87 psi	6 bar 87 psi	6 bar / 9 bar 87 psi / 130 psi	6 bar 87 psi	9 bar 130 psi	60 bar 870 psi	120 bar 1740 psi
Sizes	5 sizes 90/120/138 176/196	1 size 125	4 sizes 64/100/160/250	3 sizes 100/160/250	each in 4 sizes 80/110/170/250	3 sizes 100/160/250	4 sizes 80/110/170/250
Highlights							
	<ul style="list-style-type: none"> <li>• Form-fit and self-locking system</li> <li>• No balls</li> <li>• Great retention and pull-down forces</li> <li>• One clamping pin size for 10 different modules</li> <li>• No jamming during insertion of the clamping bolt</li> </ul>	<ul style="list-style-type: none"> <li>• Form-fit and self-locking system</li> <li>• Very robust and chip-repellent design</li> <li>• Air purge for palette positioning confirmation</li> <li>• Pallet raising function</li> <li>• Air purge for clearing chips from contact surfaces</li> </ul>	<ul style="list-style-type: none"> <li>• Compact design</li> <li>• Wedge-hook principle for high power transmission and centric clamping</li> </ul>	<ul style="list-style-type: none"> <li>• Compact design</li> <li>• Wedge-hook principle for high power transmission and centric clamping</li> </ul>	<ul style="list-style-type: none"> <li>• With high clamping force and large stroke thanks to optimized wedge hook geometry</li> <li>• PZS-D with double pistons for higher clamping forces with the same jaw stroke</li> </ul>	<ul style="list-style-type: none"> <li>• Compact design and high clamping forces thanks to hydraulic actuation</li> </ul>	<ul style="list-style-type: none"> <li>• With high clamping force and large stroke thanks to optimized wedge hook geometry and up to 120 bar actuating pressure</li> </ul>












# Product Overview

ROTA Stationary Manual and Power Chucks				KONTEC Mechanical Clamping Systems				MAGNOS Magnetic Clamping Technology	
									
ROTA NCH	ROTA TPS	ROTA-S plus	ROTA 2 BS	KONTEC KSG/KSL/KSD	KONTEC MTC	KONTEC KSE	KONTEC KSM	MAGNOS MFR	MAGNOS MLH
	■			■ (KSG)					
■			■	■ (KSG)					
		■		■	■	■	■		■
								■	
30000 N 6745 lbf	22000 – 80000 N 4945 – 17985 lbf	60000 – 180000 N 13490 – 40465 lbf	26000 – 68000 N 5845 – 15285 lbf	20000 – 40000 N 4495 – 8990 lbf	15000 – 25000 N 3370 – 5620 lbf	15000 – 30000 N 3370 – 6745 lbf	up to 25000 N up to 5620 lbf	380 – 830 daN 855 – 1865 lbf	40 – 2000 kg 88 – 4410 lb
4 mm	3 – 5 mm	6.5 – 9.7 mm	10 – 18 mm	0 – 349 mm	40 – 70 mm	4.5 – 6.5 mm	4 mm	Pole size 50: 310 x 240 mm up to 990 x 600 mm Pole size 75: 425 x 239 mm up to 1029 x 591 mm	round ∅ 50 – 350 mm
60 bar 870 psi	6 bar 87 psi	–	Via hydraulic * underframe cylinder 80 bar 1160 psi	mechanical	mechanical	mechanical	mechanical	380 V / 50 Hz 400 V / 50 Hz 415 V / 60 Hz 460 V / 60 Hz	mechanical
2 sizes 140/2/3	6 sizes ∅ 125 – 315	4 sizes ∅ 160 – 315	5 sizes ∅ 125 – 315	each in 2 sizes KSG/KSD/KSL 100 – 125	3 sizes 60/80/100	5 sizes 21 – 50	2 sizes 65/90	MFR-1 MFR-2	5 sizes MLH 125 – 2000
<ul style="list-style-type: none"> <li>The chucks may be interconnected using a connector bar and actuated together</li> </ul>	<ul style="list-style-type: none"> <li>Available with adapter plate or cylindrical recess</li> <li>Large center bore</li> </ul>	<ul style="list-style-type: none"> <li>Available with adapter plate or cylindrical recess</li> <li>With Jaw Quick-Change System</li> </ul>	<ul style="list-style-type: none"> <li>Large jaw stroke</li> <li>Slim, chip-repelling design</li> </ul>	<ul style="list-style-type: none"> <li>May be actuated pneumatically/hydraulically</li> </ul>	<ul style="list-style-type: none"> <li>Expanded top jaw program using supporting jaws</li> </ul>	<ul style="list-style-type: none"> <li>Compatible with pull-down system type NZS</li> </ul>	<ul style="list-style-type: none"> <li>Multi clamping vise</li> <li>Jaws compatible with all rail sizes</li> </ul>	<ul style="list-style-type: none"> <li>No power used when clamping</li> <li>Deformation-free clamping</li> <li>5-sided machining</li> </ul>	<ul style="list-style-type: none"> <li>One-handed operation</li> <li>Maintenance-free</li> </ul>
			* purchased separately						






# Lathe Chucks

	Manual Chucks		Power Chucks with Quick-Jaw-Change System			Power Chucks with Through-hole	
							
	ROTA-S plus	ROTA-G	ROTA Classic	ROTA THW plus	ROTA THW	ROTA THWB	ROTA NCD
Areas of application							
Large spindle bore	■	■		■	■	■	■
High RPM	■	■		■	■		■
Modular center sleeve system				■			
Large jaw stroke	■	■	■	■			
Quick-jaw-change system	■	■		■	■	■	
High quick jaw change repeatability	■	■		■	■	■	
High repeat accuracy	■	■		■	■	■	■
Centrifugal force compensation							
Air or coolant feed-through				■			
Clamping of small workpieces	■		■	■			■
Bar machining				■	■		■
Overlap clamping			■				
Wedge-bar lathe chuck	■	■		■	■	■	■
Wedge-hook lathe chuck							
Fine serration inch 1/16" x 90° / 3/32" x 90°							■
Fine serration metric 1.5 mm x 60° / 3.0 mm x 60°							■
Tongue and groove	■	■	■	■	■	■	
Tube ends work							
Characteristics							
Size	160 – 1400	200 – 630	100 – 1600	165 – 315	400 – 1000	210 – 630	130 – 500
Type	Wedge-bar lathe chuck	Wedge-bar lathe chuck	Scroll chuck	Wedge-bar lathe chuck	Wedge-bar lathe chuck	Wedge-bar lathe chuck	Wedge-bar lathe chuck
Jaw interface	Base jaws with angled serration	Base jaws with straight serration	2/3/4-jaw chuck	Base jaws with straight serration	Base jaws with straight serration	Base jaws with straight serration	Jaw connection with metric and inch serration
Highlights							
<b>All lathe chucks can also be used as a stationary chuck!</b>	<ul style="list-style-type: none"> <li>• Quick-Jaw-Change System</li> <li>• Large chuck through hole</li> <li>• High accuracy</li> </ul>	<ul style="list-style-type: none"> <li>• Quick-Jaw-Change System</li> <li>• Very large through hole</li> <li>• High accuracy</li> </ul>	<ul style="list-style-type: none"> <li>• Version steel or cast iron</li> <li>• Large jaw stroke</li> <li>• Face plates up to 3000 mm</li> </ul>	<ul style="list-style-type: none"> <li>• Quick-Jaw-Change System</li> <li>• Large through hole</li> <li>• High accuracy</li> </ul>	<ul style="list-style-type: none"> <li>• Quick-Jaw-Change System</li> <li>• High quick jaw change repeatability</li> <li>• Compact design</li> </ul>	<ul style="list-style-type: none"> <li>• Quick-Jaw-Change System</li> <li>• Extra wide base jaws</li> <li>• For heavy milling applications</li> </ul>	<ul style="list-style-type: none"> <li>• Very large through hole</li> <li>• Patented collet jaw system</li> <li>• High accuracy</li> </ul>

# Product Overview







Power Chucks with Through-hole			Power Chucks without Through-hole			Pneumatic Chucks		
								
ROTA NCF plus	ROTA NC plus	ROTA NCK plus	ROTA NCO	ROTA 2B	ROTA NCR	ROTA TP	ROTA TB/TB-LH ROTA EP/EP-LH	ROTA P
■	■	■				■	■	
■	■							■
■	■							
			■	■	■		■	
								■
■	■	■	■		■			■
■					■			
■	■		■	■	■			■
								■
■	■	■				■	■	
			■	■			■	
■	■	■	■	■		■	■	■
■	■	■	■	■	■	■	■	
■	■	■						
			■	■	■			■
						■	■	
185 – 630	185 – 1000	165 – 315	165 – 1000	125 – 500	165 – 1200	125 – 350	400 – 1200	100 – 340
Wedge-hook lathe chuck	Wedge-hook lathe chuck	Wedge-hook lathe chuck	Wedge-hook lathe chuck	Wedge-hook lathe chuck	6-jaw pendulum-compensation power chuck with centric clamping	Wedge-hook lathe chuck	Wedge-hook lathe chuck	Precision chucks
Jaw connection with metric and inch serration	Jaw connection with metric and inch serration	Jaw connection with metric and inch serration	Jaw connection with inch serration or with tongue and groove	Jaw connection with inch serration or with tongue and groove	Jaw connection with inch serration or with tongue and groove	Jaw connection with inch serration	Jaw connection with inch serration	Jaw connection with precision tongue and groove
<ul style="list-style-type: none"> <li>• Integrated centrifugal force compensation</li> <li>• Base jaw with double guide</li> <li>• Modular center sleeve system</li> </ul>	<ul style="list-style-type: none"> <li>• Very large through hole</li> <li>• Base jaw with double guide</li> <li>• Modular center sleeve system</li> </ul>	<ul style="list-style-type: none"> <li>• Jaw connection in metric or inch version</li> <li>• Connection dimensions are 100% compatible with the Kitagawa B200 series</li> <li>• Integrated blank draw nut</li> </ul>	<ul style="list-style-type: none"> <li>• Very small chuck dimensions</li> <li>• Great clamping force and large jaw stroke</li> <li>• Additional sealing against contamination</li> </ul>	<ul style="list-style-type: none"> <li>• Very large jaw stroke</li> <li>• Weight reduced design</li> <li>• Fastening thread for workpiece stops</li> </ul>	<ul style="list-style-type: none"> <li>• Also available with centrifugal force compensation</li> <li>• Deformation sensitive clamping of thin-walled workpieces</li> <li>• Compensating or centric clamping</li> </ul>	<ul style="list-style-type: none"> <li>• With integrated pneumatic cylinder</li> <li>• Very large through-bore</li> <li>• Also for stationary applications</li> </ul>	<ul style="list-style-type: none"> <li>• With integrated pneumatic cylinder</li> <li>• Very large through-bore</li> <li>• With fast and clamping stroke (TB-LH/EP-LH)</li> </ul>	<ul style="list-style-type: none"> <li>• 3/6-jaw precision chuck</li> <li>• With central air supply via rotary distributor</li> <li>• Repeat accuracy appr. 0.003 mm</li> </ul>

# Toolholding Systems

	TENDO Hydraulic Expansion Toolholders			TRIBOS Polygonal Clamping Technology	
	 TENDO	 TENDO E	 TENDO LSS	 TRIBOS-R	 TRIBOS-RM
Areas of application					
Light milling	■	■	■	■	■
Medium milling	■	■		■	■
Rough milling					
HPC/HSC machining	■	■	■	■	■
Drilling	■	■	■	■	■
Reaming	■	■	■	■	■
Tapping	■	■	■		■
Thread milling	■	■		■	■
Characteristics					
Run-out accuracy [mm]	< 0.003	< 0.003	< 0.006	< 0.003	< 0.003
Max. speed [rpm]	50000	50000	50000	55000	60000
Torque [Nm]	min. 650 (∅ 32)	min. 360 (∅ 20)	min. 280 (∅ 20)	min. 350 (∅ 32)	min. 50 (∅ 16)
Tool change	Allen key	Allen key	Allen key	Clamping device SVP	Clamping device SVP
Clamping range*	6.0 – 32.0 mm 1/4" – 1 1/4"	20.0 mm (N/A)	6.0 – 20.0 mm (N/A)	6.0 – 32.0 mm 1/4" – 1 1/4"	3.0 – 16.0 mm (N/A)
Highlights					
	<ul style="list-style-type: none"> <li>Universally applicable precision toolholders</li> <li>For exact tolerances on the workpiece</li> </ul>	<ul style="list-style-type: none"> <li>TENDO Economic: Hydraulic Expansion Toolholder Technology at a competitive price</li> <li>Optimal for HPC-/ HSC machining</li> </ul>	<ul style="list-style-type: none"> <li>Slim design, less interfering contours – better for your applications</li> <li>Longest tool service lives thanks to vibration damping design</li> </ul>	<ul style="list-style-type: none"> <li>For powerful machining</li> <li>For many applications</li> </ul>	<ul style="list-style-type: none"> <li>For micro-cutting</li> </ul>

\* Smaller diameter clamping may be available with the use of intermediate sleeves

# Product Overview

TRIBOS Polygonal Clamping Technology			SINO Universal Toolholders		CELSIO Heat Shrinking Technology
					
TRIBOS-S	TRIBOS-SVL	TRIBOS-Mini	SINO-R	SINO-T	CELSIO
■	■	■	■	■	■
■			■	■	■
			■		
■		■	■	■	■
■	■	■	■	■	■
■	■	■	■	■	■
			■	■	■
			■	■	■
< 0.003	< 0.003	< 0.003	< 0.005**	< 0.005**	< 0.003**
60000	85000	125000	40000	40000	55000
min. 280 (∅ 32)	min. 150 (∅ 20)	min. 3.5 (∅ 5)	min. 850 (∅ 32)	min. 295 (∅ 20)	min. 750 (∅ 32)
Clamping device SVP	Clamping device SVP	Clamping device SVP	C-spanner Spanner wrench	C-spanner Spanner wrench	Inductive shrinking device
6.0 – 32.0 mm 1/4" – 1 1/4"	0.3 – 20.0 mm 1/8" – 3/4"	0.3 – 5.0 mm (N/A)	12.0 – 32.0 mm 1/2" – 1 1/4"	12.0 – 20.0 mm 1/2" – 3/4"	3.0 – 32.0 mm 1/8" – 1 1/4"
<ul style="list-style-type: none"> <li>Ideal for workpiece contours that are difficult to access</li> <li>Highest level of precision in electrode milling</li> </ul>	<ul style="list-style-type: none"> <li>Slim design for deep contours</li> <li>Flexible application options</li> </ul>	<ul style="list-style-type: none"> <li>For medical and watch-making industry</li> <li>For micro-tools from 0.3 mm</li> </ul>	<ul style="list-style-type: none"> <li>Best vibration dampening with a simultaneously high level of radial rigidity</li> <li>Maximum cutting volume</li> </ul>	<ul style="list-style-type: none"> <li>The competitively priced expansion toolholder</li> <li>Tool change in seconds</li> </ul>	<ul style="list-style-type: none"> <li>Frictionally engaged clamping</li> <li>Versatile thanks to extensions</li> </ul>

\*\* measured in the clamping bore

# Catalog Order

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**+49-7133-103-2779**

## Toolholding and Workholding



Toolholding Systems



Stationary Workholding



Lathe Chucks



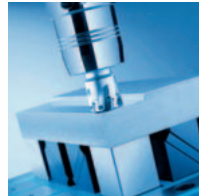
Chuck Jaws



Product Overview



Hydro-Expansion Technology  
Special Solutions



Highlights  
New Products

Complete program Toolholding and Workholding

## Automation



Gripping Modules



Rotary Modules



Linear Modules



Robot Accessories



Product Overview



Special Automation



Industry Solutions  
Food Industry



Industry Solutions  
Packaging Industry



Highlights  
New Products



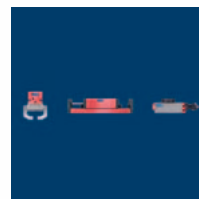
Modular Robotics



System GEMOTEC  
Modular Assembly Technology



System GEMOTEC  
Linear Modules with direct drives



System GEMOTEC  
Product Overview



CD-ROM Automation

Complete program Automation

Company \_\_\_\_\_

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Department \_\_\_\_\_

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