



ROTA TB2

**Pneumatic power lathe
chucks for bar and pipe
machining**

Pneumatic power lathe chucks with extremely large through-hole and high clamping forces

The pneumatic power lathe chuck ROTA TB2 sets a new standard in machining of bars and pipes for the oil industry as well as the mining and construction sectors. Despite the compact outer dimensions, for example, the ROTA TB2 has an extremely large through-hole of up to 560 mm. Very high clamping forces up to 280 kN can be achieved with an air pressure of only 6 bar.



Advantages – Your benefits

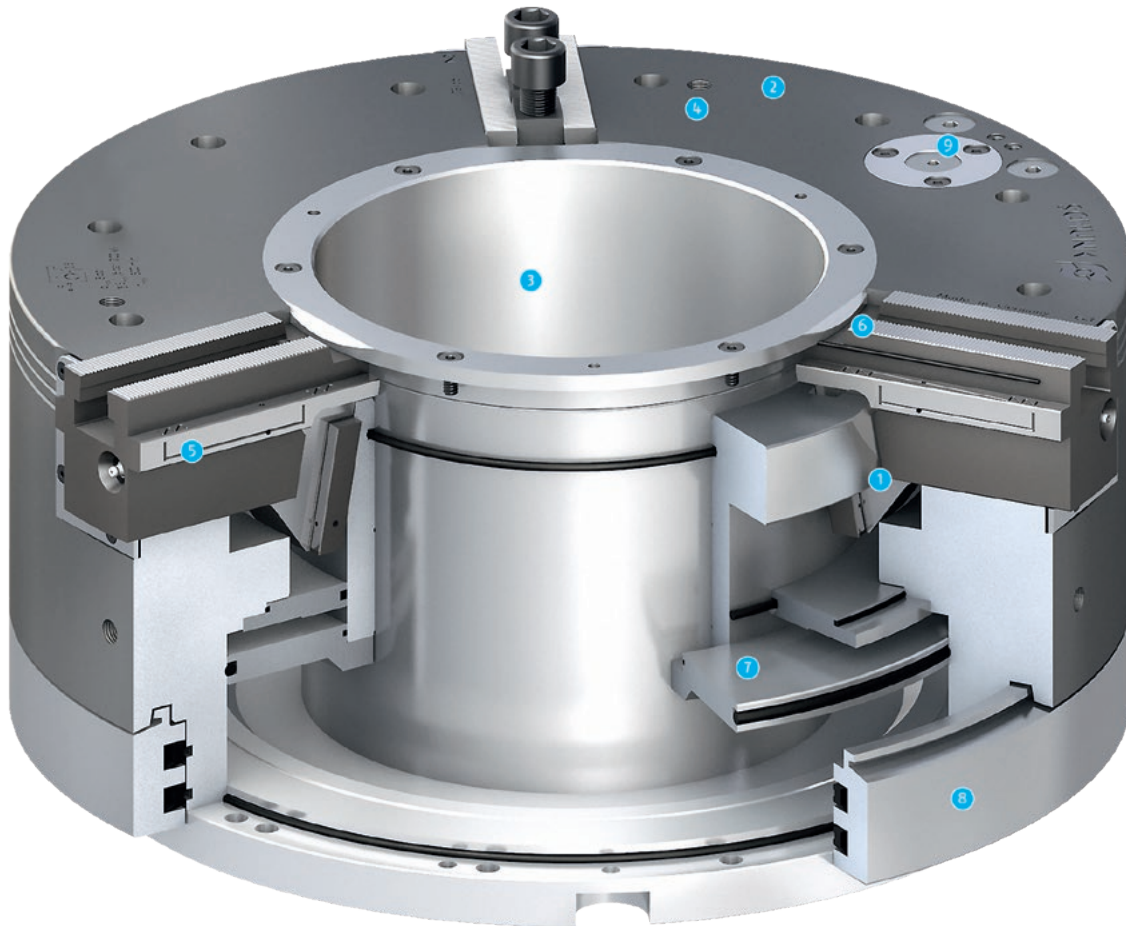
- + Precision wedge hook pneumatic chuck for top quality demands**
Allows excellent machining results
- + Very large through-hole**
Machining all standard pipe diameters
- + High efficiency of the wedge hook system**
Process-reliable clamping due to high clamping forces
- + Optimized lubrication system**
Consistently high clamping forces ensured
- + Monitoring of the opening and closing process**
Process reliable operation of the lathe chuck
- + Fast ventilation of the pressure chambers**
Shorter process times
- + Pneumatic cylinder integrated in the chuck**
Especially suited to lathes without a hydraulic cylinder
- + Sealed guideways**
Optimum protection against coolant and chips
- + Air supply via a distributor ring**
Very simple control of the chuck
- + High clamping forces at system pressure**
Ensure process reliability during machining
- + Low noise generation**
Increased health protection
- + All sides of the functional parts are hardened and ground**
Ensures a long service life

Technical data

Description	Max. rotational speed [min ⁻¹]	Max. clamping force (at 6 bar) [kN]	Stroke/jaw [mm]	Through-hole [mm]
ROTA TB2 470-185	1700	115	7	185
ROTA TB2 520-191	1300	115	14.6	191
ROTA TB2 570-230	1300	220	11.7	230
ROTA TB2 600-275	1300	200	11.7	275
ROTA TB2 685-325	1000	280	10	325
ROTA TB2 850-375	750	240	11.8	375
ROTA TB2 1000-560	500	240	12.8	560

Function of ROTA TB2

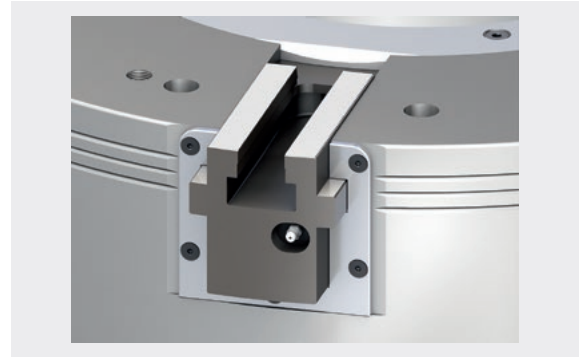
The piston integrated in the chuck is supplied during down-time with compressed air from the distributor ring and thus axially shifted. The wedge hook system converts this axial movement of the chuck piston into a radial movement of the base jaws, synchronous to the rotating axis. The double check valve prevents that after removal of the system pressure the compressed air can again escape.



- | | |
|---|---|
| <ul style="list-style-type: none"> 1 Wedge hook drive
Offers constantly high clamping forces in operation 2 Hardened and extremely rigid base body
Therefore a longer service life at highest precision. Even with maximum clamping force 3 Very large through-hole
For machining of all standard raw material diameters 4 Mounting thread
For workpiece stops 5 Optimized lubrication system
Consistently high clamping forces ensured | <ul style="list-style-type: none"> 6 Seal of the base jaw guidance
For sealing against coolants and chips 7 Pneumatic cylinder integrated in the chuck
For direct control of the lathe chuck without an additional cylinder 8 Static distributor ring
For air supply of the lathe chuck 9 Pressure maintenance valve
Provides for enduring clamping force during rotation |
|---|---|

Base jaw guidance

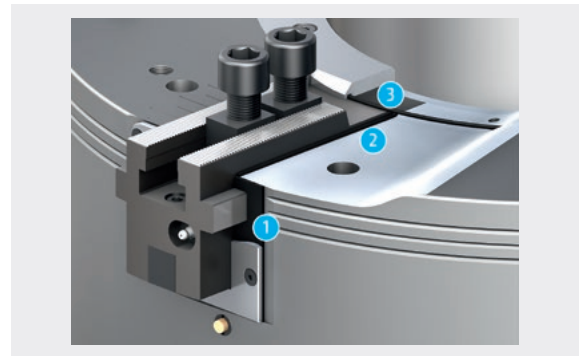
Compared with its predecessor ROTA TB, the ROTA TB2 has an optimized base jaw geometry. Now the flat guidance is located closer to the chuck face, and ensures a better support of the top jaws. Moreover, the guideways were extended for increasing their durability and wear-resistance.



Seal of the base jaw guidance

To protect the ROTA TB2 against dirt and coolant, the base jaw was equipped with an additional 3-way sealing.

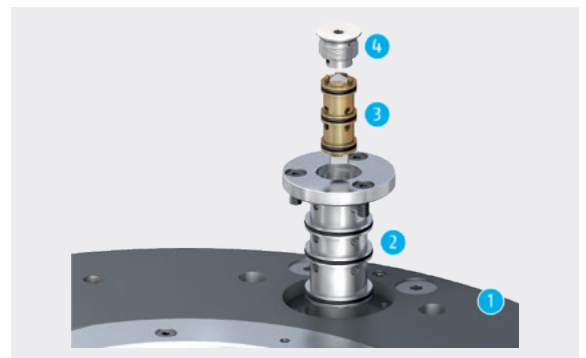
- ❶ **Front-end profile sealing element**
Between the chuck body and base jaw with additional cover plate for the mounting
- ❷ **Sealing element**
For protection of the base jaw guidance
- ❸ **O-ring**
Between base jaw and center sleeve



Exchangeable valve

In the new ROTA TB2 chuck generation, as of size 570, the pressure maintenance valve is located in an exchangeable valve insert. This allows fast and inexpensive replacement not only of the pressure maintenance valve when needed, but also the valve insert. This ensures prolonged and reliable functioning even of older chucks.

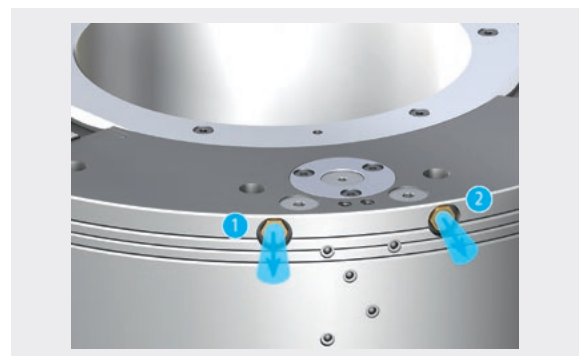
- ❶ **Chuck body**
- ❷ **Valve insert**
- ❸ **Pressure maintenance valve**
- ❹ **Sealing cap**



Fast ventilation

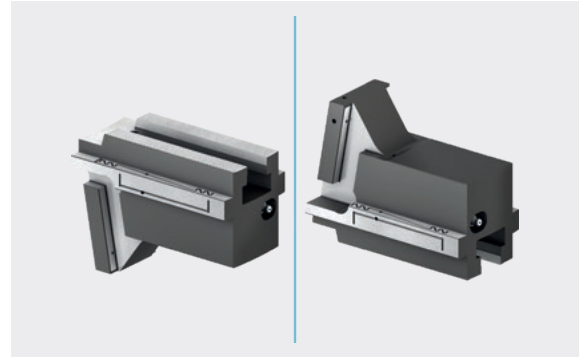
To remove the air from the cylinder via the shortest path, the ROTA TB2 features one integrated air duct for opening and one for closing. The escaping air then no longer has to exit via the air seal ring, but instead is released via the shortest path.

- ❶ **Escaping air**
During opening of the chuck
- ❷ **Escaping air**
During closing of the chuck



Optimized lubrication system

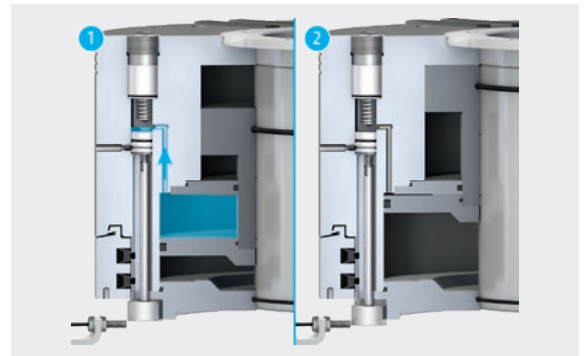
Each base jaw is optimally supplied with grease via a lubrication nipple on the front. An intelligent distribution system ensures even distribution of the grease on all sliding planes of the base jaw for consistently high clamping forces.



Pressure monitoring via sensor (optional)

During machining the pneumatic pressure in the lathe chuck is monitored by a spring-loaded switch element. If the pressure drops, the spring pushes the control cam backwards. The inductive proximity switch detects the position and reports it to the machine control system. The corresponding mounting kit and sensors must be ordered separately for this purpose (see Accessories).

- 1 **Operating pressure**
Sufficiently available
- 2 **Pressure loss**
Is detected by proximity switch





- 6

Technical data

Spindle size	ID	Max. rotational speed	Max. clamping force (at 6 bar)	Actuation pressure	Moment of inertia	Weight
		[min ⁻¹]	[kN]	[bar]	[kgm ²]	[kg]
Z310	0818302	1700	115	3 – 8	6	185

Scope of delivery

Chuck, T-nuts with screws, chuck mounting bolts, elbow-unions G 3/8 on the distributor ring, couplings for connection to the electric compressed air control unit, eye bolt, operating manual; without distributor ring mounting bracket, without top jaws

Note

Min. actuation pressure

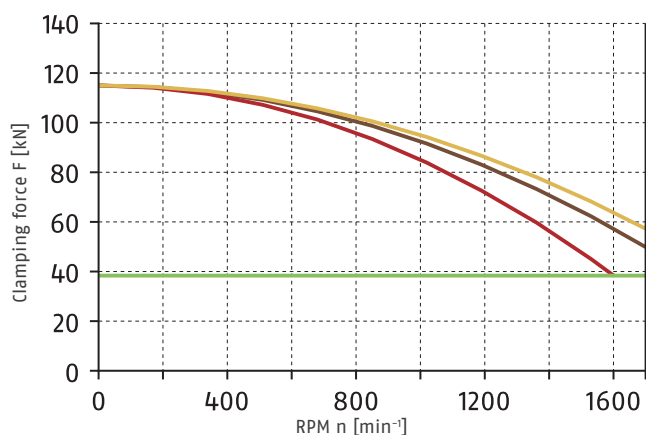
The minimum actuation pressure is $P_{\min} = 3$ bar.

For lower clamping forces, a clamping force reduction can be offered as an option.

Further technical data

Chuck type	Through-hole	Stroke/jaw	Air consumption/jaw stroke at 6 bar	Center jaw height
	[mm]	[mm]	[l]	[mm]
ROTA TB2 470-185	185	7	15.1	101

Clamping force-RPM-diagram

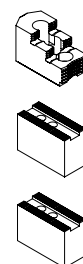


Required minimum clamping force $F_{\text{spmin}} 33\%$

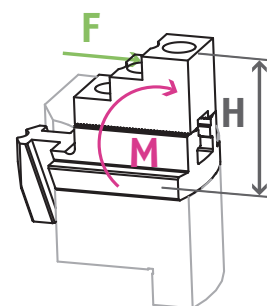
SHB 400
7.8 kg

SWB 400
16 kg

SWB-AL 400
6.4 kg



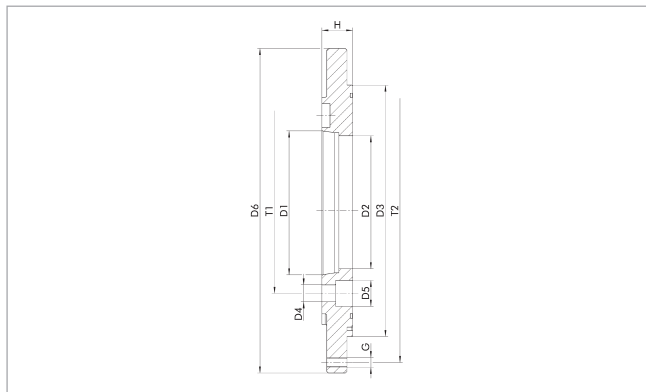
Load of base jaw guidance



$M_{\max} = 3872 \text{ Nm}$

Adapter plates

Z-mount on short taper ISO 702-1



Technical data

Description	ID	Suitable for	D1	D2 [mm]	D3	D4 [mm]	D5 [mm]	D6 [mm]	G	H [mm]	T1 [mm]	T2 [mm]
FFV Z310-A11-2	0836052	ROTA TB2 470-185	Nr. 11	185	Z310	21 (6x60°)	32	400	M12 (9 x 40°)	38	235	374
FFV Z310-A15-2	0836057	ROTA TB2 470-185	Nr. 15	185	Z310	23 (6x60°)	35	400	M12 (9 x 40°)	50.5	330.2	374

Reduction adapter plates

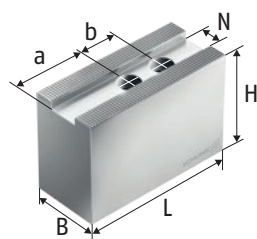
All flanges on the pneumatic power chuck are designed as reducing flanges.

These are used if the mounting bolt circle of the spindle is smaller than the one of the lathe chuck mounting bolt circle.

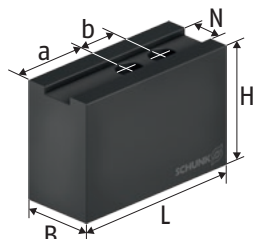
The adapter plate is first mounted on the spindle and then the lathe chuck is mounted on the adapter plate.

Soft top jaws

with fine serration 90°



SWB-AL
Soft top jaws



SWB
Soft top jaws

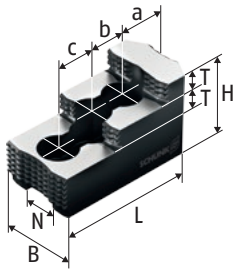
Technical data

Chuck type	Description	ID	N [mm]	B [mm]	H [mm]	L [mm]	a [mm]	b [mm]	Screws	m/SET [kg]
ROTA TB2 470-185	SWB-AL 400	0168103	25.5	60	100	155	90	35	M20	6.4
ROTA TB2 470-185	SWB 400	0120107	25.5	60	90	155	90	35	M20	16.0
ROTA TB2 470-185	SP-WB 400	0124105	25.5	60	100	155	80	40	M18	18.6
ROTA TB2 470-185	SP-WB 500	0124106	25.5	60	100	195	118	40	M18	24.0
ROTA TB2 470-185	CWB 400	0100008	25.5	60	80	140	75	35	M20	12.6

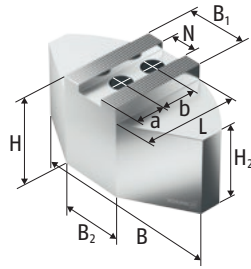
Our complete range of chuck jaws can be found online in our Chuck Jaw Quickfinder and on [schunk.com](https://www.schunk.com)

Hard stepped top jaws, Full grip jaws

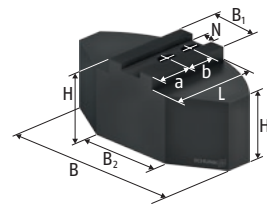
with fine serration 90°



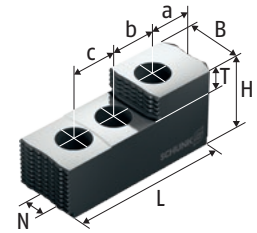
SHB
Hard stepped top jaws



SWB-SA
Full grip jaws



SWB-SM
Full grip jaws



SP-HB
Hard stepped top jaws

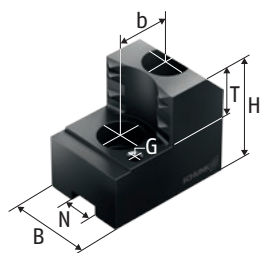
Technical data

Chuck type	Description	ID	N [mm]	B [mm]	B1 [mm]	H [mm]	H2 [mm]	L [mm]	T [mm]	a [mm]	b [mm]	c [mm]	Screws	m/SET [kg]
ROTA TB2 470-185	SWB-SA 400	0170105	25.5	330	150	98	68	160		84.5	35		M20	24.4
ROTA TB2 470-185	SWB-SM 400	0169105	25.5	330	60	85	55	155		83.5	35		M20	53.8
ROTA TB2 470-185	SHB 400	0121107	25.5	60		75		140	18	53	31	31	M20	7.8
ROTA TB2 470-185	SP-HB 400-500	0125105	25.5	57.5		73		160	22	43.1	42	42	M18	9.8

Our complete range of chuck jaws can be found online in our Chuck Jaw Quickfinder and on schunk.com

Claw jaws

with fine serration 90°



SZA
Claw jaws

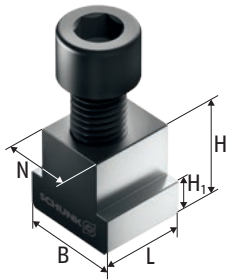
Technical data

Chuck type	Clamping range ØD	Swing diameter SDmax	Description	ID	N	B	H	L	T	G	b	Screws	m/SET
	[mm]	[mm]			[mm]	[mm]	[mm]	[mm]	[mm]		[mm]		[kg]
ROTA TB2 470-185	164 - 247	514	SZA 40-11	0138300	25.5	60	78	149.3	33	M8	35	M20	8.0
ROTA TB2 470-185	140 - 222	567	SZA 40-12	0138301	25.5	60	78	188.3	33	M8	35	M20	11.5
ROTA TB2 470-185	239 - 322	552	SZA 40-13	0138302	25.5	60	78	131	33	M8	35	M20	8.0
ROTA TB2 470-185	324 - 406	531	SZA 40-14	0138303	25.5	60	78	131	33	M8	35	M20	8.0
ROTA TB2 470-185	395 - 477	573	SZA 40-15	0138304	25.5	60	78	150	33	M8	35	M20	9.3
ROTA TB2 470-185	474 - 557	658	SZA 40-16	0138305	25.5	60	78	178.6	33	M8	35	M20	11.0

Our complete range of chuck jaws can be found online in our Chuck Jaw Quickfinder and on schunk.com

T-nut

with fine serration 90°



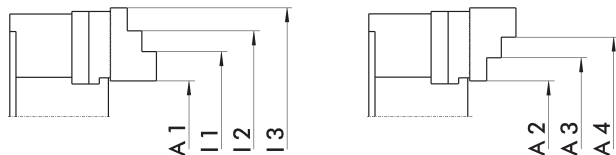
NS
T-nut

Chuck type	Description	ID	N	B	H	H1	L	Cyl.-screw	Max. adm. tightening torque
			[mm]	[mm]	[mm]	[mm]	[mm]		[Nm]
ROTA TB2 470-185	NS 181	0143105	25.5	35.8	34.5	14.5	30.8	M18 x 55	220
ROTA TB2 470-185	NS 205	0140123	25.5	36	34.5	14.5	31	M20 x 45	240

Our complete range of chuck jaws can be found online in our Chuck Jaw Quickfinder and on [schunk.com](https://www.schunk.com)

Hard stepped top jaws

with fine serration 90°



Jaw position I

Jaw position II

O.D. clamping

Chuck type	Description	ID	A1 [mm]	A2 [mm]	A3 [mm]	A4 [mm]
ROTA TB2 470-185	SHB 400	0121107	116 - 296	169 - 280	271 - 382	373 - 470

I.D. clamping

Chuck type	Description	ID	I1 [mm]	I2 [mm]	I3 [mm]
ROTA TB2 470-185	SHB 400	0121107	191 - 302	293 - 403	394 - 540

Accessories

Clamping force tester

For measuring the jaw clamping force of 2, 3 and 6-jaw chucks up to 6,000 RPM.



Suitable for	Description	ID
ROTA TB2 470-185	IFT Set	1404235

Extension set for large chucks

For use as an extension of the IFT measuring head for measuring the jaw clamping force of large chucks of Ø 400 mm and more.



Suitable for	Description	ID
ROTA TB2 470-185	IFT adapter set	1498512

Maintenance unit

For processing the required compressed air.



Suitable for	Description	ID
ROTA TB2 470-185	WEH 1/4"	0890021

Pressure measuring unit

For checking pressure tightness.



Suitable for	Description	ID
ROTA TB2 470-185	DMG Ø24-NPT1/4"	8702680

Pressure monitoring retrofit kit

Retrofit kit for monitoring pneumatic pressure during machining, consisting of control cam, compression spring and other accessories.

An inductive proximity switch is also required.



Suitable for	Description	ID
ROTA TB2 470-185	NRS-PM	0818205

Inductive proximity switches

For pneumatic power lathe chucks for permanent pressure and/or path monitoring during processing in two versions.

Opener (ID 9987327) and closer (ID 9986713).



Suitable for	Description	ID
ROTA TB2 470-185	BES M12MI-POC40B-S04G	9987327
ROTA TB2 470-185	BES M12MI-PSC40B-S04G	9986713

Grease

LINOMAX plus

High-performance grease as standard for regularly lubricating SCHUNK manual and power lathe chucks and steady rests.



Bundle	Description	ID
Cartridge	LINOMAX plus cartridge	1342585
Can	LINOMAX plus can	1342586
Bucket	LINOMAX plus bucket	1342587

Grease gun

Auxiliary tools for lubrication of all kinds of SCHUNK products. The grease gun can be used for cartridges of all types of SCHUNK grease.



Bundle	Description	ID
Cartridge	Grease gun	9900543



**H.-D. SCHUNK GmbH & Co.
Spanntechnik KG**

Lothringer Str. 23
D-88512 Mengen
Tel. +49-7572-7614-1300
Fax +49-7572-7614-1039
CMM@de.schunk.com
schunk.com