



Technical Webinar

ROTA-S plus 2.0

Categorie Lathe Chucks

1945 – 2015

70

Jahre

Superior Clamping and Gripping

SCHUNK ®

ROTA-S plus 2.0

Wedge bar – manual chuck with jaw quick change system

Grinding of hard jaws

ROTA-S plus 2.0

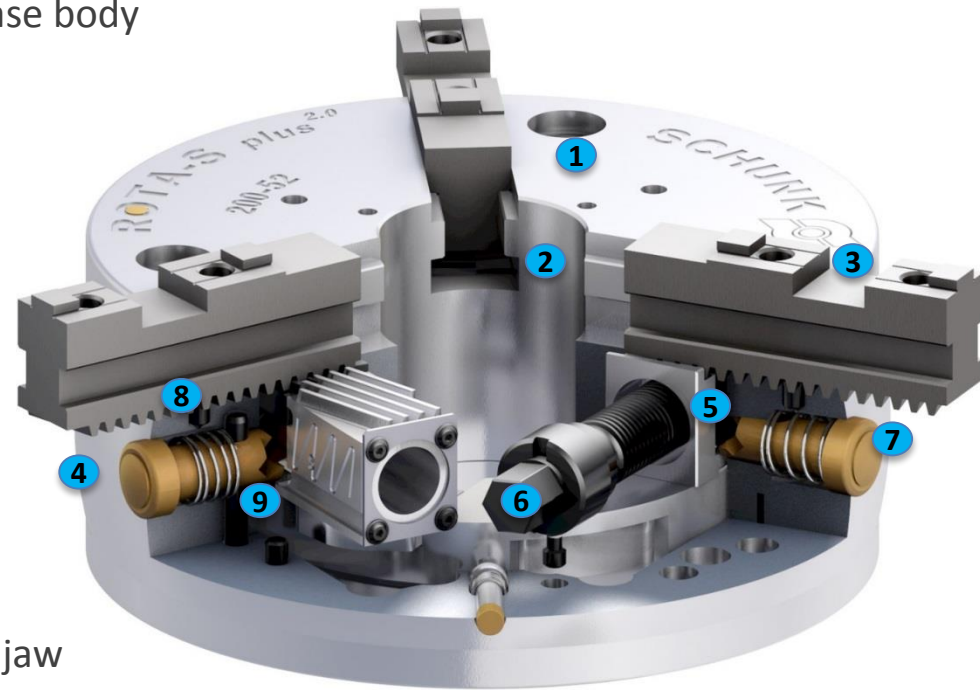


- [thus: ROTA-S *plus* two point zero]
- Manual wedge bar chuck
- Quick-change jaw system
- Actuation type: wedge bars / drive ring
- Perfect suitable for conventional lathes and cycle lathes
- Stationary application in machining center
- Chuck sizes are available from 160 up to 315 (size 400 mm up to 1000 mm still „old“ version)
- SCHUNK standard jaws „angled serrated“ (System Forkardt)
- Polished chuck body till dimension 315 mm
- Actuating key with ejector pin

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Schnittbild

- ❶ Hardened, extremely rigid and polished base body
- ❷ Large through-hole
- ❸ Base jaws with angled serration
- ❹ Special shape with edge profile
- ❺ Optimized wedge bar drive
- ❻ Operation via hexagon connection
- ❼ Push-button for jaw changing
- ❽ Jaw protection
- ❾ Plunger-pin for prepositioning of the base jaw



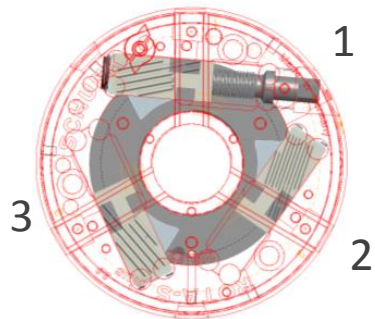
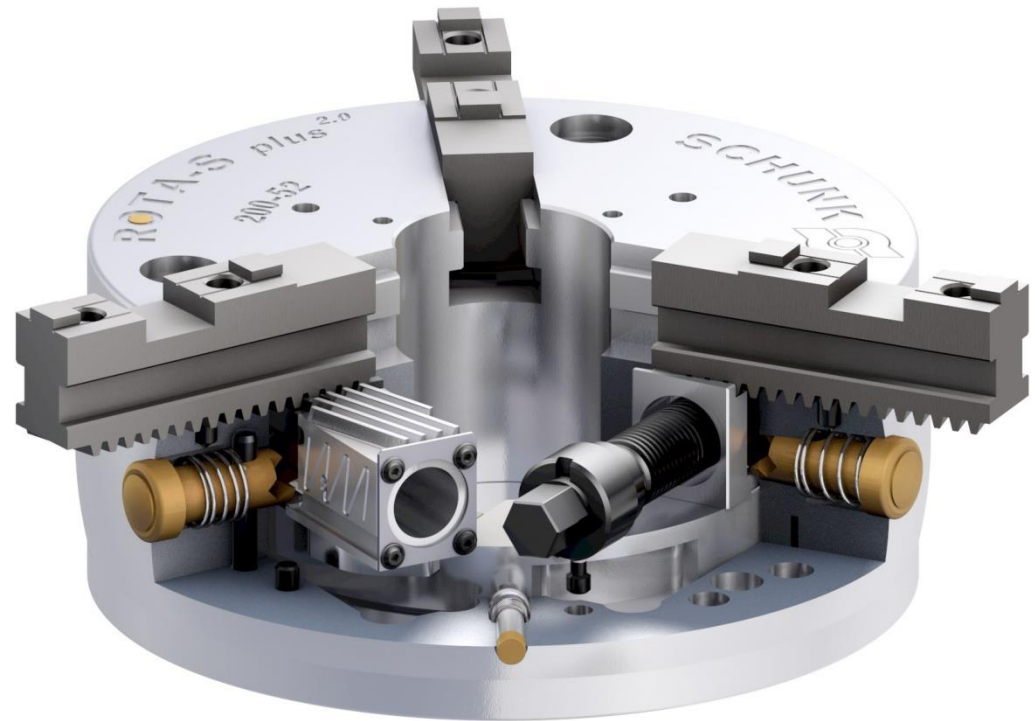
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Basic function of wedge bar – manual lathe chuck

Translation of the spindle turns to wedge bar no. 1

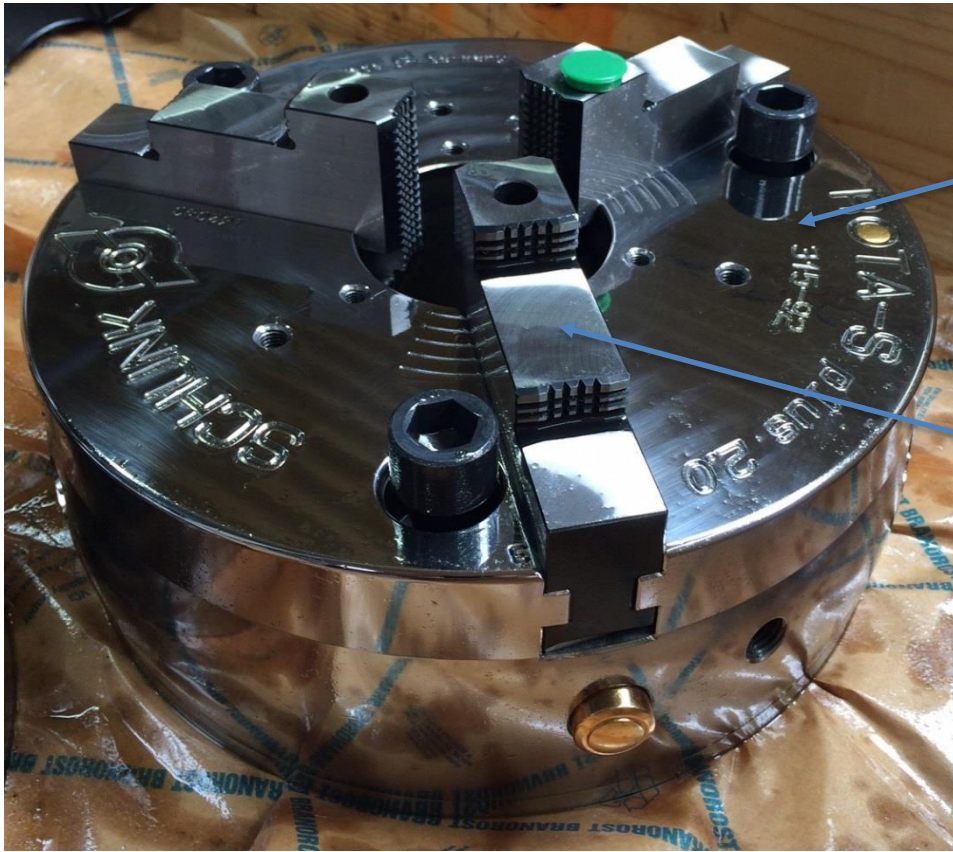
Power transmission by the drive ring synchronous to wedge bar no. 2 + 3

Jaw movement through the two serrations



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Special Offer Package 1

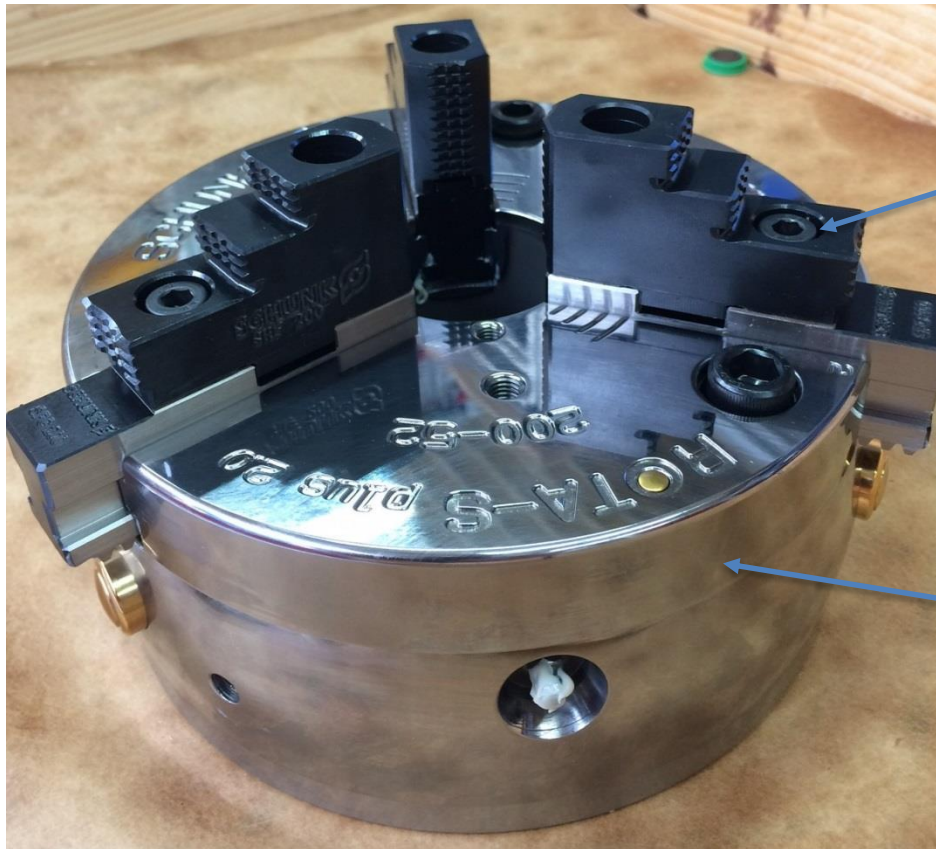


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STF ground

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Special Offer Package 2



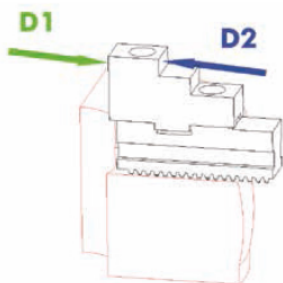
GBK + SHF,
prepared for
grinding

ROTA-S plus 2.0

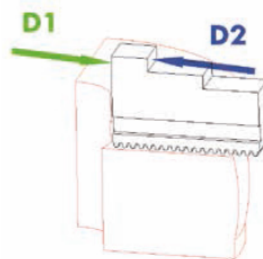
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Ausschleifdurchmesser ROTA-S plus,
ROTA-S plus 2.0 und ROTA-G

Finished Ground Diameter ROTA-S plus,
ROTA-S plus 2.0 and ROTA-G



SHF



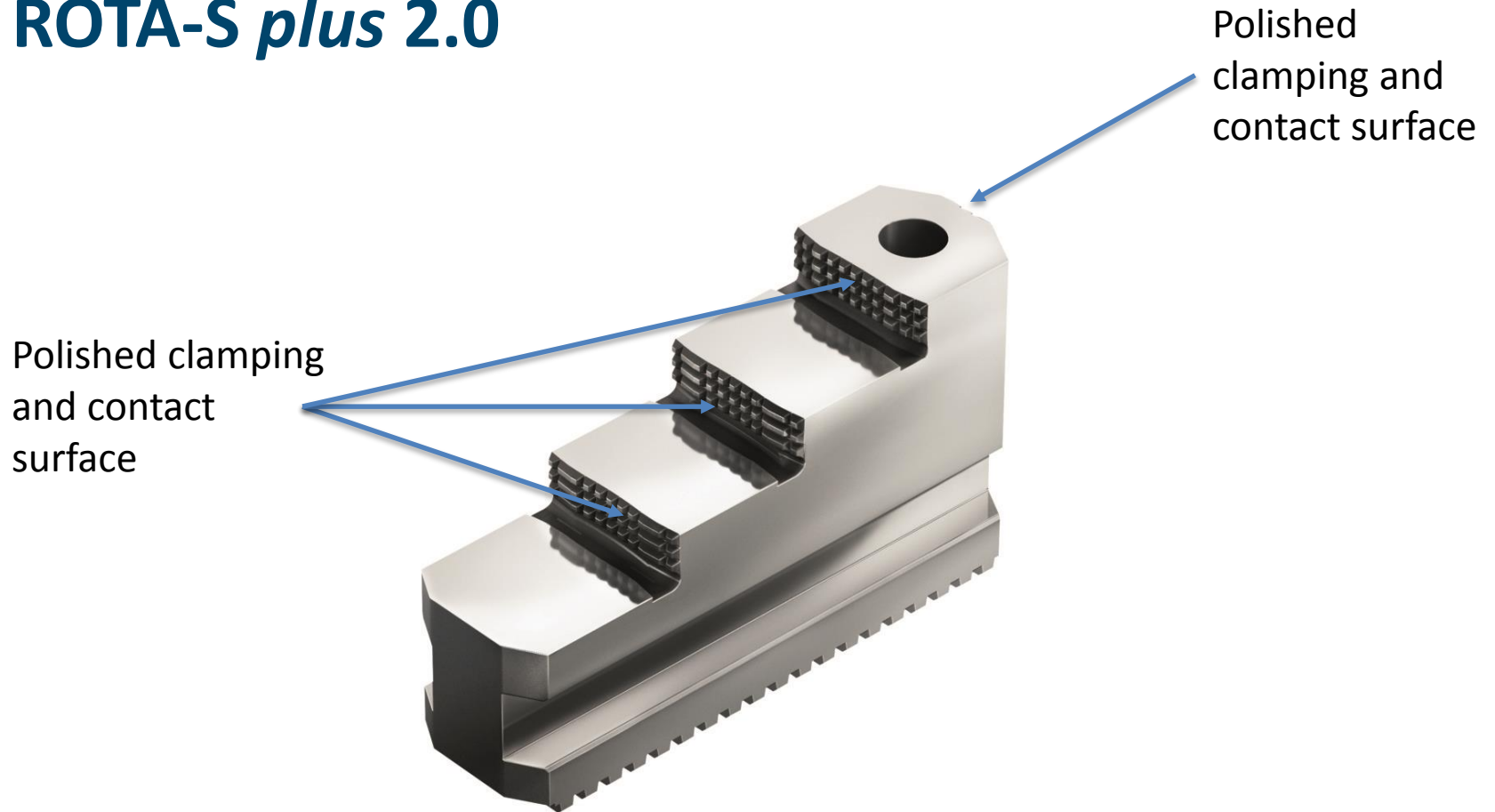
GST + STF

Futtertyp Lathe chuck		Durchmesser auf Backentyp Diameter per jaw type		Durchmesser auf Backentyp Diameter per jaw type		Anzugsmoment Tightening torque	Genauigkeit Accuracy
ROTA-S plus 2.0/ROTA-S plus	ROTA-G	SHF D ₁	SHF D ₂	GST + STF D ₁	GST + STF D ₂	D ₁ + D ₂	[mm]
	200	41	140	50	160	70	≤ 0.03
	250	41	210	50	212	80	≤ 0.03
	500	41	210	89	278	90	≤ 0.04
160		34	140	34	140	40	≤ 0.03
200		41	140	41	160	70	≤ 0.03
250		41	210	50	210	80	≤ 0.03
315		55	243	63	243	90	≤ 0.04
400		119	234	103	313	100	≤ 0.04
500		119	234	103	313	100	≤ 0.05
630		120	243			100	≤ 0.05
800		120	243			100	≤ 0.05
1000		120	243			100	≤ 0.06

① Die genannten Durchmesser werden geschliffen und geprüft. Die anderen Durchmesser werden nur saubergeschliffen.

① The mentioned diameters were ground and inspected. The other diameters are just chamfered.

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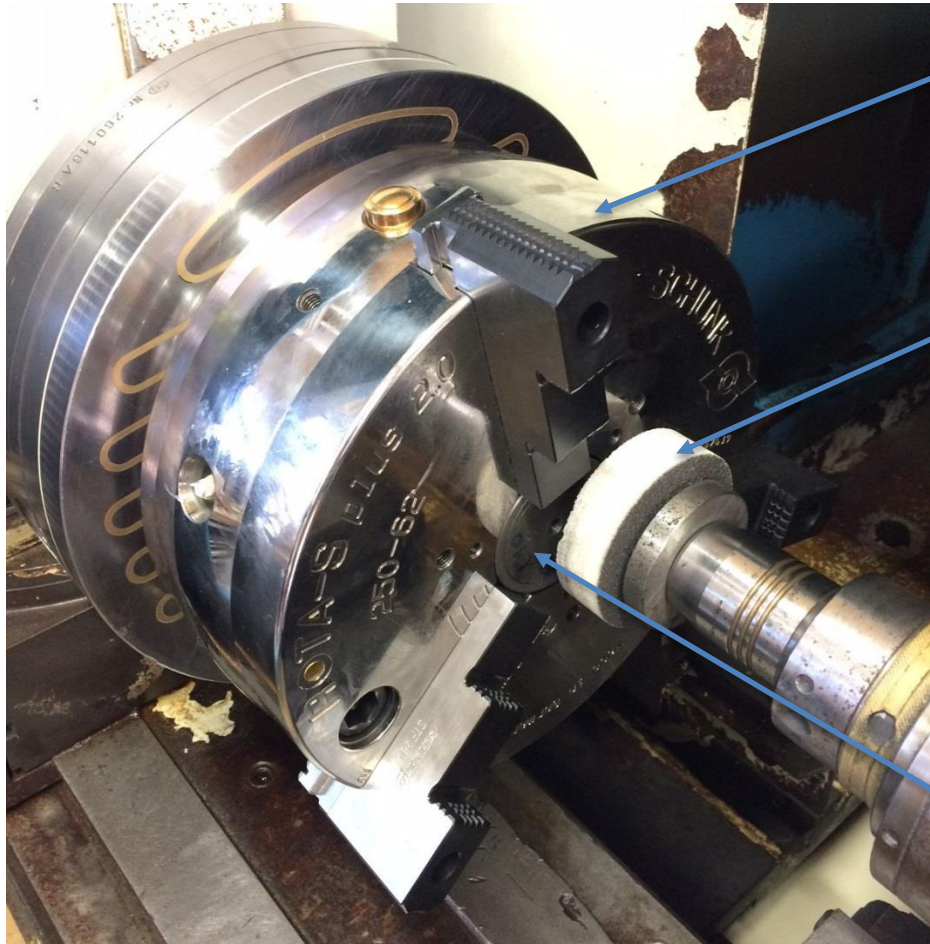


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Measurement of radial run-out:



ROTA-S plus 2.0



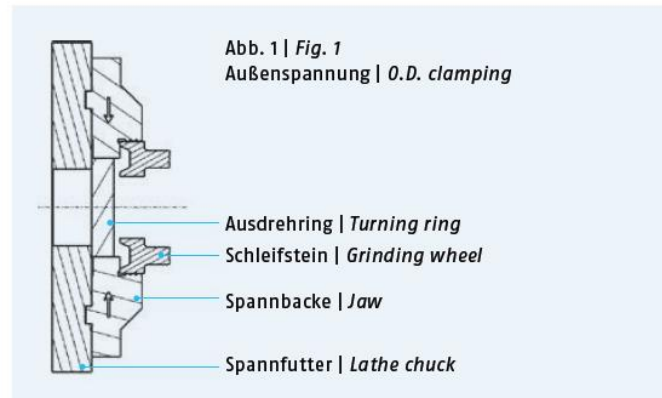
ROTA-S plus 2.0 250, VP1

Grinding wheel

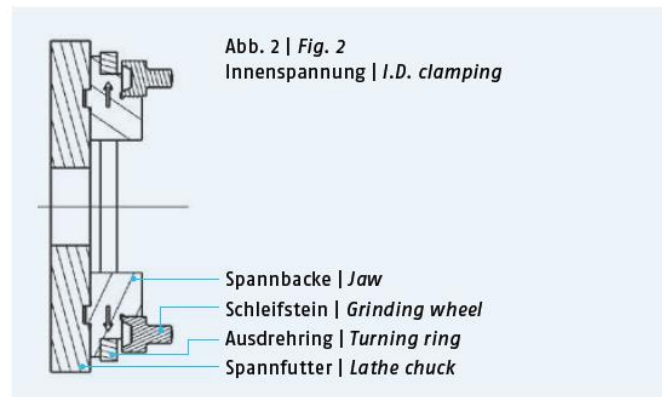
Turning ring

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Außenspannung | *O.D. clamping*



Innenspannung | *I.D. clamping*



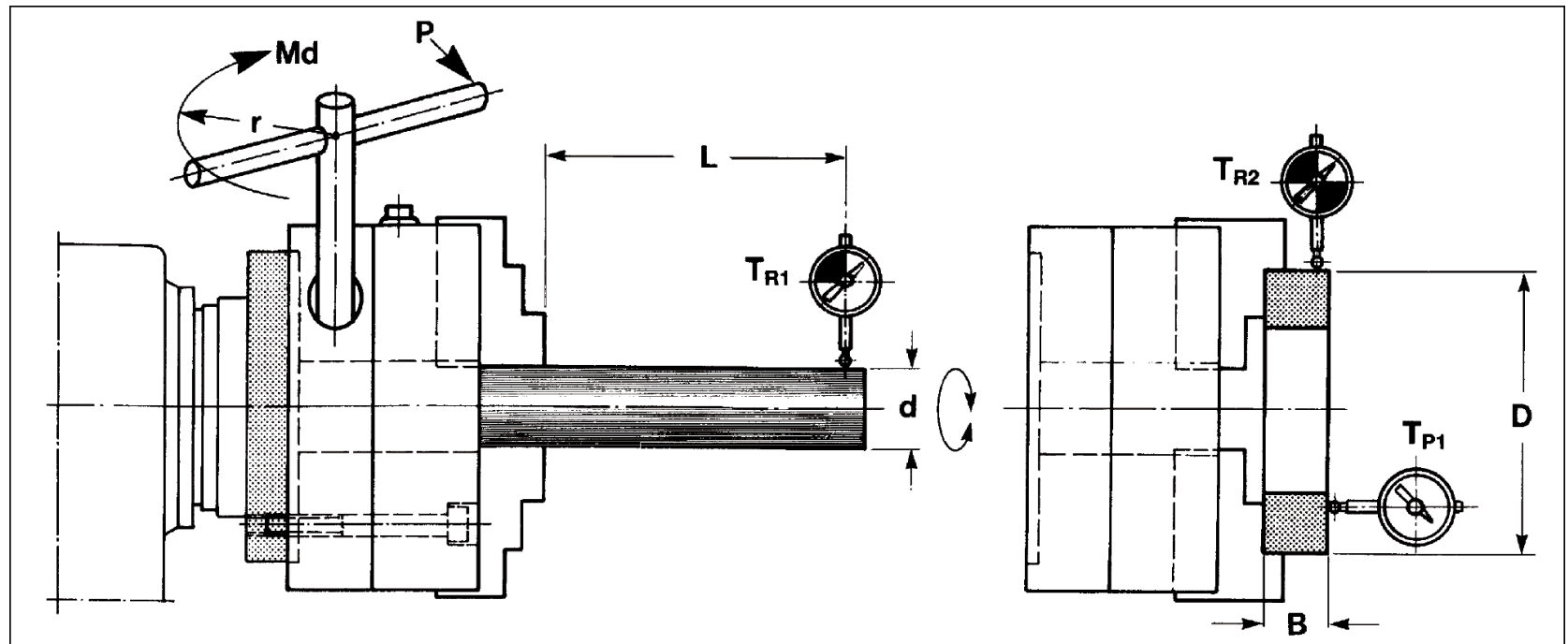
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Grinding of jaws:



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Measurement of radial and axial run-out



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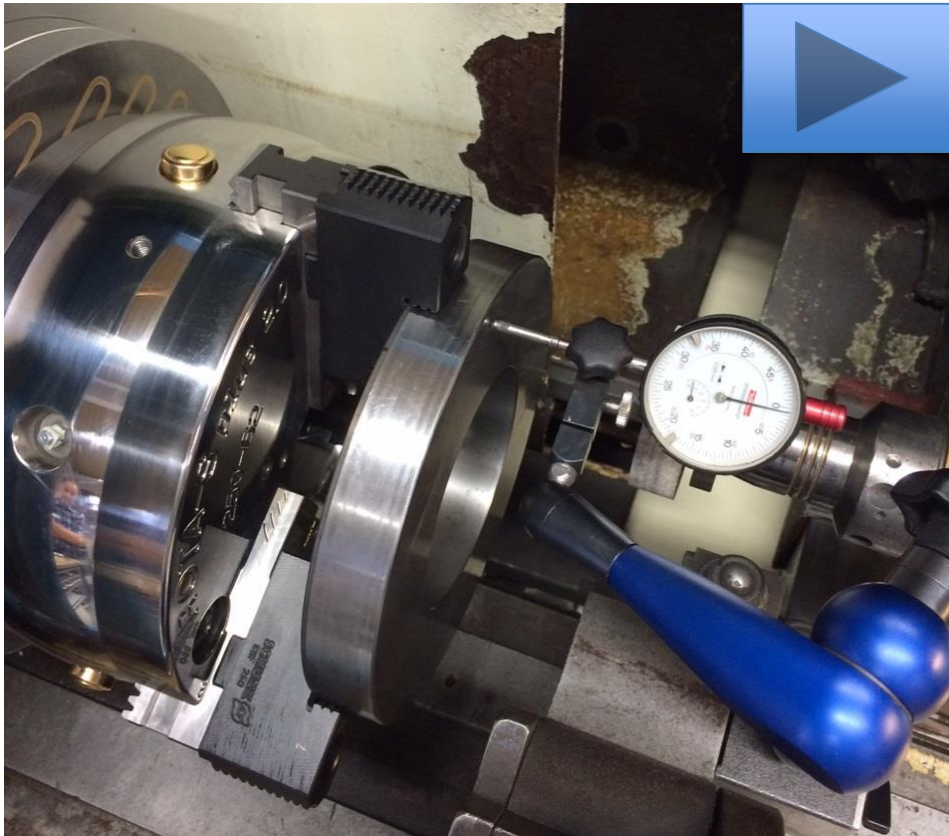
Measurement of radial and axial run-out

Tabelle der max. zulässigen Rund- und Planlauffehler beim ROTA-S plus 2.0 Futter mit STF- bzw. SHF-Backen

Futtergröße	160-42	200-52	250-62	315-92
Backentyp	STF-160	STF-200	STF-250	STF-315
	SHF-160	SHF-200	SHF-250	SHF-315
Md [Nm]	40	70	80	90
L [mm]	60	80	80	120
d (STF) [mm]	Ø 34	Ø 41	Ø 41	Ø 55
d (SHF) [mm]	Ø 34	Ø 41	Ø 41	Ø 55
T _{R1} max [mm]	0.03	0.03	0.03	0.04
D (STF) [mm]	Ø 140	Ø 160	Ø 210	Ø 243
D (SHF) [mm]	Ø 140	Ø 140	Ø 210	Ø 243
B [mm]	20	25	25	35
T _{P1} max [mm]	0.02	0.02	0.02	0.03

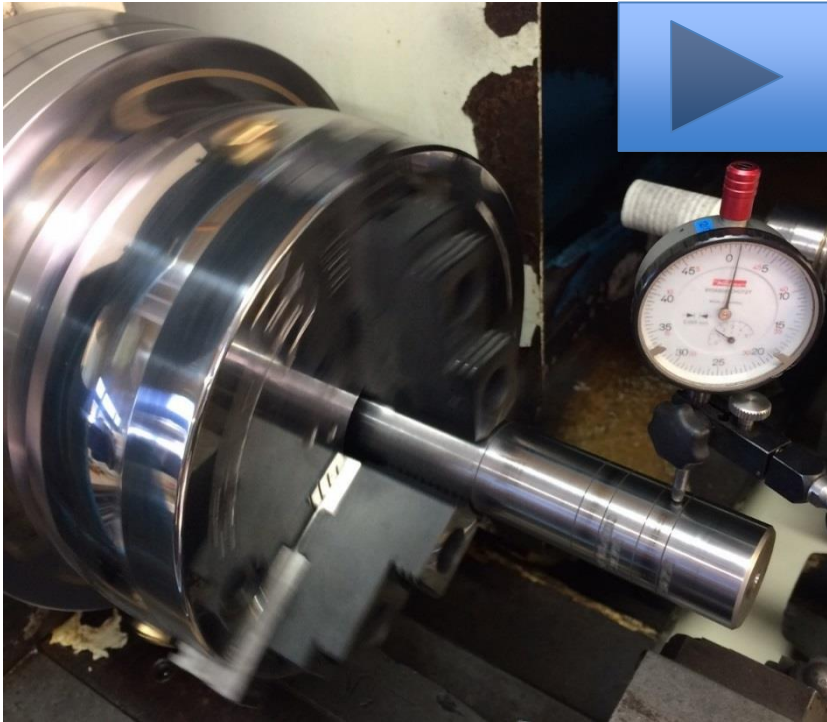
ROTA-S plus 2.0

Measurement of radial and axial run-out – Ring clamping



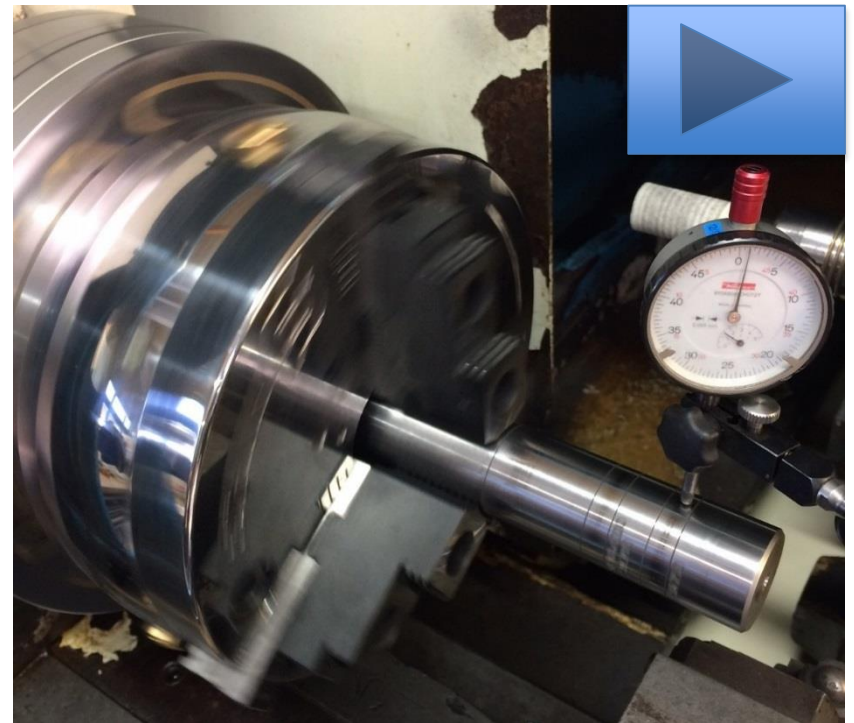
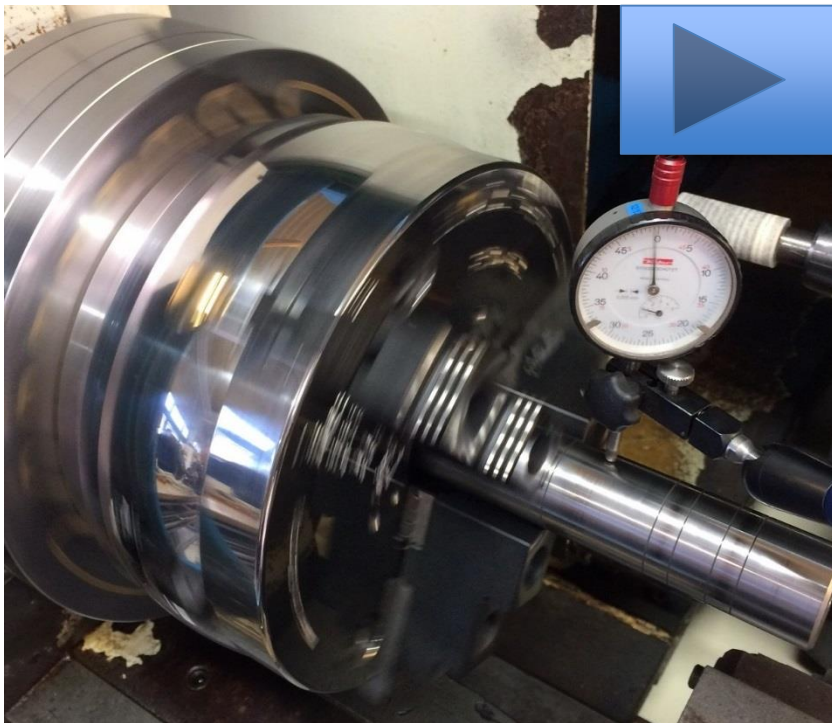
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Measurement of radial and axial run-out – Shaft clamping
Clamping jaws not ground



ROTA-S plus 2.0

Measurement of radial and axial run-out – Shaft clamping



ROTA-S plus 2.0

Documentation:

PP- Nr. 8.10.0011		Qualitätsmanagement Prüfprotokoll		SCHUNK®	
Änderungsstand - 02 Seite 4 von 4		ROTA S plus 2.0 250 - 62 / 3 Backen		Geltungsbereich: Montage Spannfutter	
Aufnahme : Mounting		Identnummer: ID-Nr.		Seriennummer: Serial-No.	
Z		0819103		164027	
Auftragsnummer: Order number		149135-0600			
Prüfmerkmal (Test records)		Sollwert des Prüfmerkmals (Nominal data of test records)		Istwert des Prüfmerkmals (Actual data of test records)	
Rundlauf Futterkörper zu Kurzkegel oder Z-Rand (Run-out tolerance chuck body to short taper / straight recess-mount)		≤ 0.025 mm		0.015	
Planlauf (Face run-out tolerance)		≤ 0.025 mm		0.02	
Hub pro Backe in [mm] (Stroke per jaw in [mm])		7.7 ± 0.3		7.9	
Max. Drehmoment in [Nm] (Max. torque in [Nm])		210		210	
Spannkraft in [daN] max. Drehmoment (Futter frisch abgeschmiert) (Clamping force in [daN] at max. torque; newly greased)		≥ 16000		23100	
Rundlauf Welle Ø50-STF / Ø41-SHF mit Drehmoment * (Run-out accuracy of gauge Ø50-STF / Ø41-SHF with torque*)		≤ 0.03 mm / 80 Nm *		0.015 Meyer	
Rundlauf Scheibe Ø210-STF mit Drehmoment * (Run-out accuracy of disc Ø210-STF with torque*)		≤ 0.03 mm / 80 Nm *		0.01	
Planlauf Scheibe Ø210-STF mit Drehmoment * (Face run-out accuracy of disc Ø210-STF with torque*)		≤ 0.02 mm / 80 Nm *		0.01	
Max. Unwucht in [gmm] (nach DIN ISO 1940 Teil 1 Q 6.3) (Max. unbalance in [gmm]; per VDI 2060 Q 6.3)		≤ 560		Geprüft / Checked Ja/Yes <input type="checkbox"/> Nein/No <input checked="" type="checkbox"/>	
Sicherungsmechanismus „Backe“ (Safety mechanism „JAW“)		Geprüft / Checked		Ja/Yes <input checked="" type="checkbox"/> Nein/No <input type="checkbox"/>	
Patronenmechanismus (Jaw release cartridge mechanism)		Geprüft / Checked		Ja/Yes <input checked="" type="checkbox"/> Nein/No <input type="checkbox"/>	
Backenleichtgängigkeit (Laws moving easily)		Geprüft / Checked		Ja/Yes <input checked="" type="checkbox"/> Nein/No <input type="checkbox"/>	
Spannfutter entmagnetisiert (Lathe chuck demagnetized)		Geprüft / Checked		Ja/Yes <input checked="" type="checkbox"/> Nein/No <input type="checkbox"/>	
Futterbeschriftung bzw. Futterdesign (Lathe chuck engraving / lathe chuck design)		Geprüft / Checked		Ja/Yes <input checked="" type="checkbox"/> Nein/No <input type="checkbox"/>	
Spannfutter abgefettet (Lathe chuck completely greased)		Geprüft / Checked		Ja/Yes <input checked="" type="checkbox"/> Nein/No <input type="checkbox"/>	
Bemerkungen: (Comments):					
Datum / Name - Unterschrift des Prüfers: Date / Name - Signature of Inspector:		19.7.17 Stöfel			

* wenn vom Kunde gefordert (if required by the customer)

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Shapes of contact between jaws and workpiece

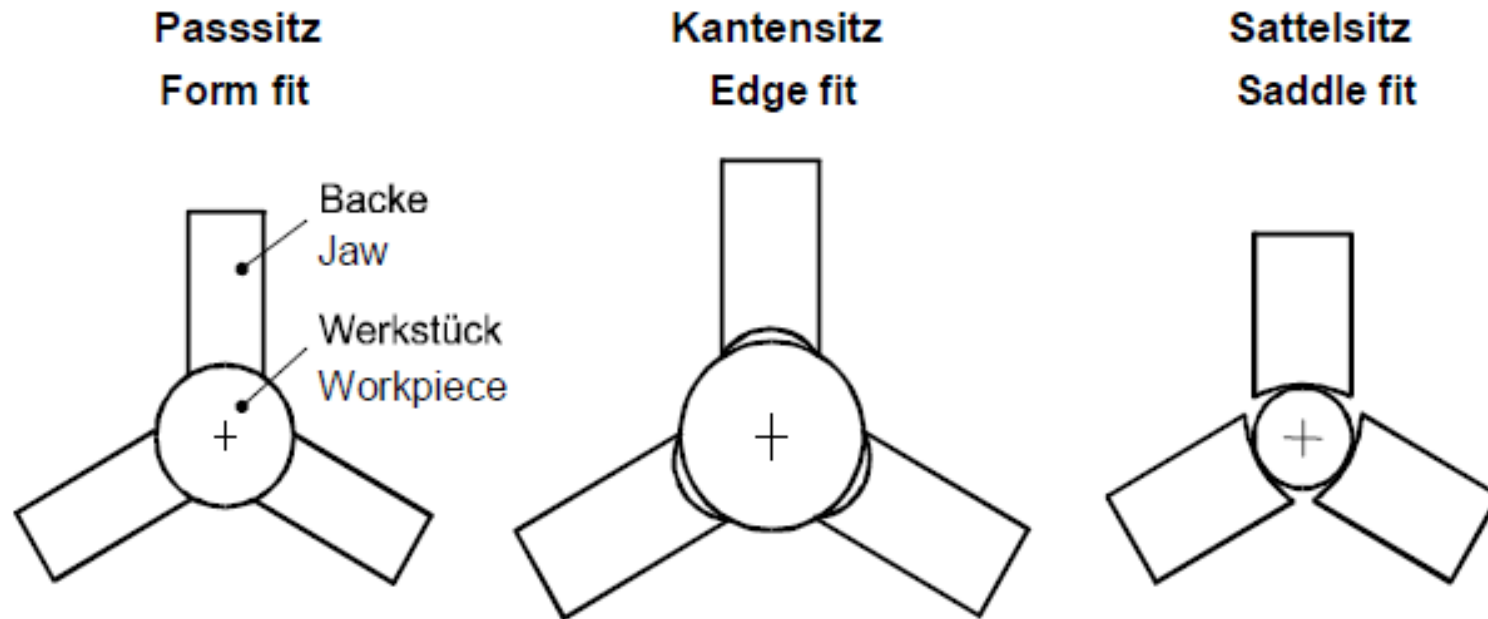


Bild 2. Berührungsformen zwischen glatten Aufsatzbacken und Werkstück
Fig. 2. Shapes of contact surfaces between smooth top jaws and workpieces

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Comparison: Values of radial runout

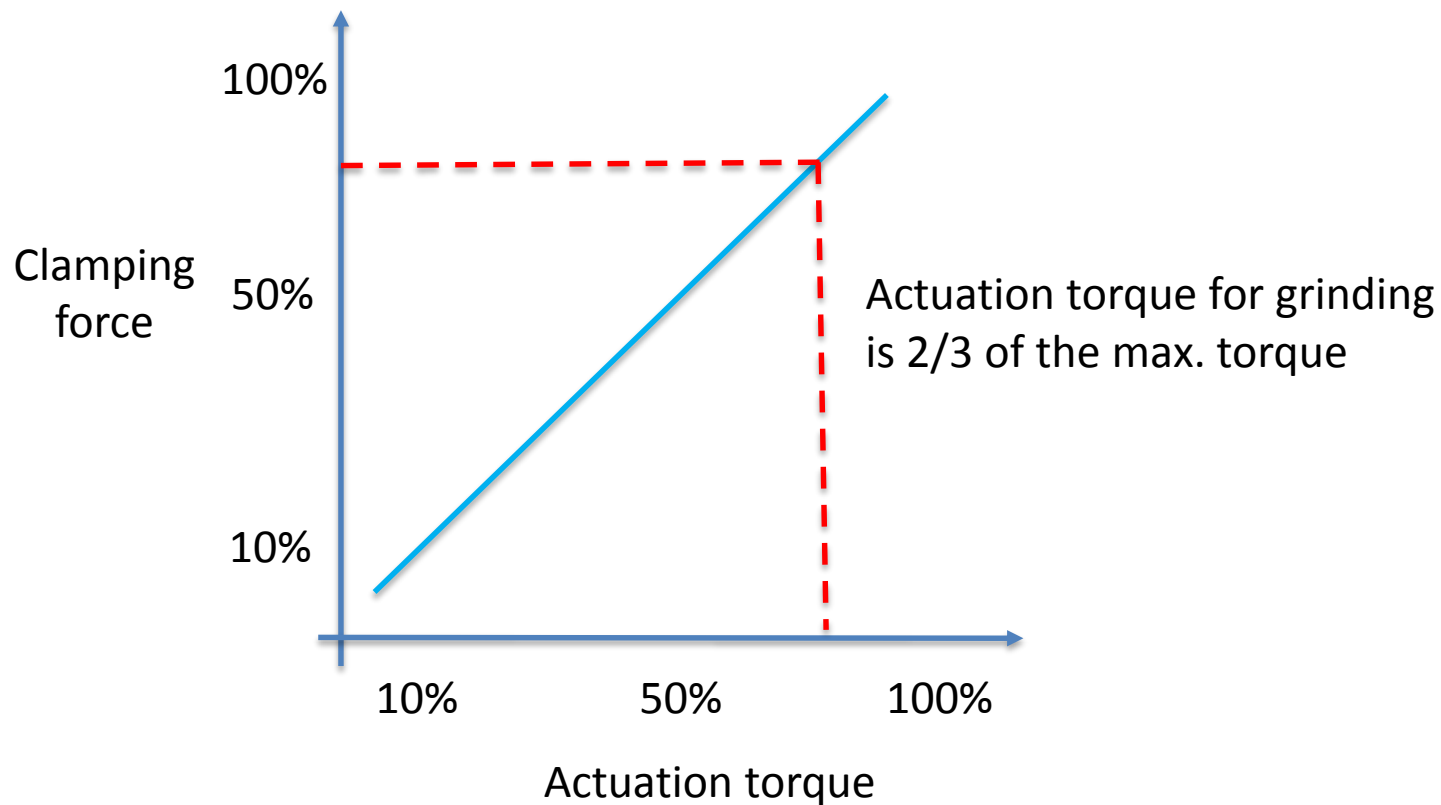
Dependent on shape of contact and grinding:

- Form fit, ground jaws
- Saddle fit, ground jaws
- Edge fit, ground jaws
- Not ground hard jaws
- Claw jaws



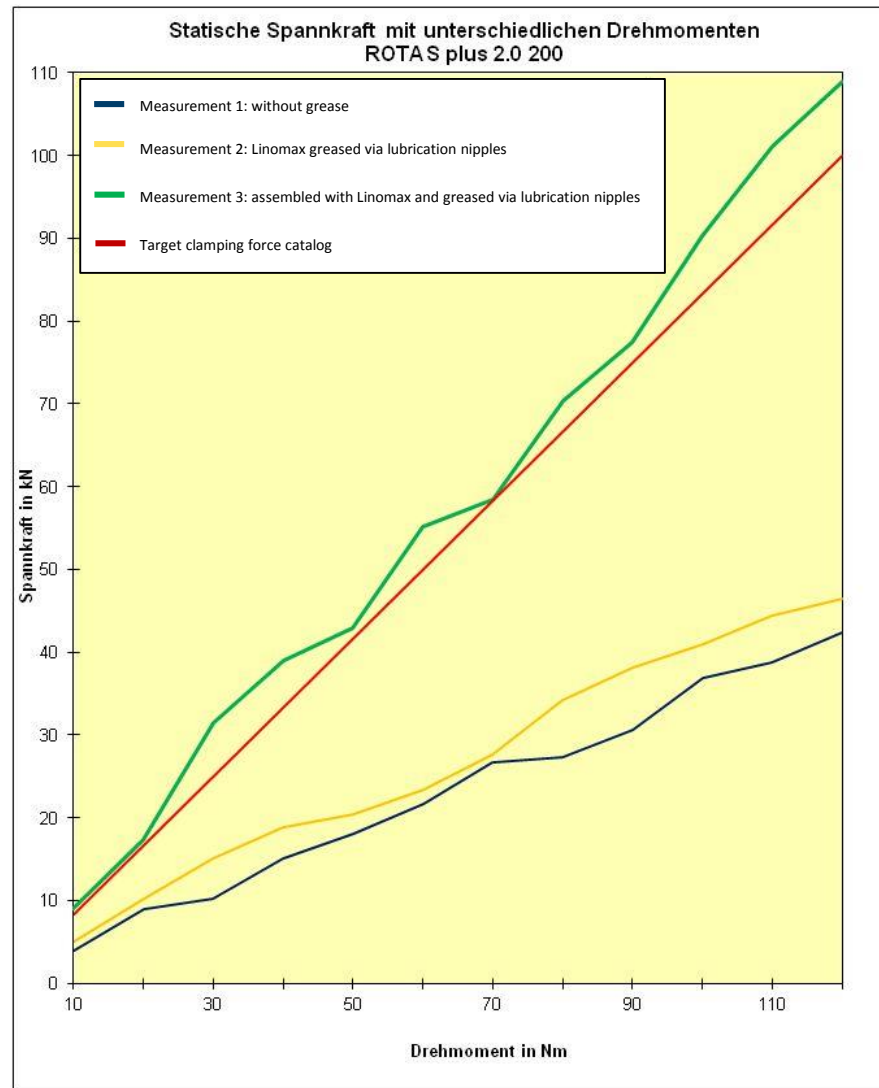
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Actuation torque – Clamping force



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Actuation torque – Clamping force

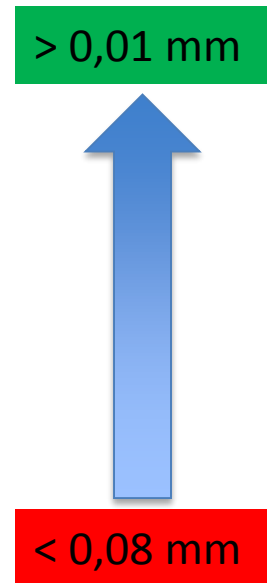


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Comparison: Values of radial runout

Dependent on actuation torque:
(with ground jaws)

- Clamping = Reboring / turn out
- Clamping > Reboring / turn out
- Clamping < Reboring / turn out



Lubrication of Lathe Chucks

A regular maintenance and lubrication of the chuck is important:

- to achieve constant clamping forces
- to ensure consistent workpiece quality
- for the safety of the operator and the machine
- for the operating life of the chuck

The operating status can vary up to 50% according to the condition of lubrication and maintenance.

grease



grease

The choice of the grease has very high influence on the operating status of the lathe chuck.

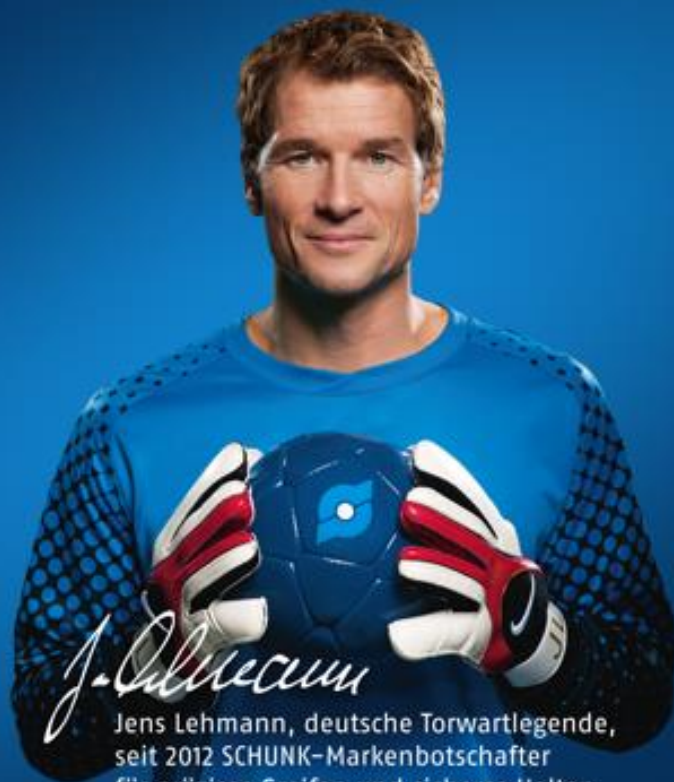
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What has a positive influence on the values of radial run-out?

- Grinding of top jaws / stepped jaws
- Axial end stop for workpiece in clamping jaws (don't clamp in flight)
- Do not separate the combination of base and top jaws
- Actuation torque of operation = Actuation torque turn out
- Clamping diameter = turn out diameter
- Condition of maintenance and lubrication of the chuck
- Use of Lino Max

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SCHUNK ®



J. Lehmann

Jens Lehmann, deutsche Torwartlegende,
seit 2012 SCHUNK-Markenbotschafter
für präzises Greifen und sicheres Halten.
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