



Toolholding Systems

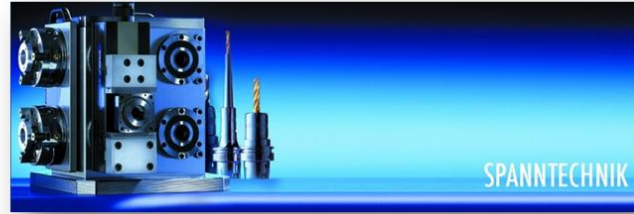
T|R|B|O|S[®]

TRIBOS Polygonal Clamping Technology

Superior Clamping and Gripping



Product overview



TRIBOS



TRIBOS Polygonal Clamping Technology

Optimal surfaces! Through excellent dynamic concentricity properties < 0.003 mm

- Constantly further-developed, patented TRIBOS Polygonal Clamping Technology Program with a versatile and extensive range of application
- From precision micromachining to powerful volume machining
- Excellent concentricity properties of < 0.003 mm lead to longer service lives and the best surfaces
- Suited to highspeed machining
- HSC-tauglich

Advantages

- Ultimate run-out accuracy < 0.003 mm
- Rotationally symmetric design
- No moving parts, making it maintenance-free
- Versatile clamping range due to intermediate sleeves
- Comprehensive range – from micromachining to volume machining
- Optimal vibration damping by virtue of the polygonal honeycomb structure

Technical highlights

- For over 10 years
- Has stand out through consistant run-out accuracy and outstanding vibration damping
- The TRIBOS SVP clamping devices enable the polygonal clamping diameter of the toolholder to run true, the tool shank can be easily inserted
- If the pressure on the clamping diameter eases off , then it will assume its polygonal shape again and clamps the inserted tool shank process reliably and with high repeat accuracy
- The polygonal clamping shape and especially, with TRIBOS-R, the additional vibration damping inserts in the hollow chambers lead to an optimal running smoothness for the tool
- The damping property in polygonal clamping technology prevents micro-blowouts on the cutting edge of the tool, thus increasing the service life of the tool and enhancing the performance of the spindle
- The machining process improved by the dampening is clearly demonstrated in the result of the excellent workpiece surfaces

Features



More efficiency through vibration damping

- Excellent vibration damping
- Guarantees best cutting actions
- Prevents micro-blowouts on the cutting edge of the tool
- Increases the tools' service life considerably
- Leads to a reduction in costs

Features



**Versatility through the clamping range from
0.3 – 32 mm**

- All tools with commercially available shank types in the 0.3 – 32 mm diameter range can be clamped
- Versatility in production
- Significant reduction in tool acquisition costs

Features



All commercially available tool shank types can be clamped

- Tools with both smooth cylindrical shanks in accordance with DIN 6535 Type HA up to \varnothing 32 mm and also those with recesses in accordance with:
DIN 1835 Form B, E
DIN 6535 Form HA, HB, HE
can be clamped directly and without the use of an intermediate sleeve

Features



Axial length adjustment

- The length can be adjusted in a 0.01 mm precision range – an essential advantage over thermal shrink fit holders
- Adjustment travel: 10 mm

Features



Optimal dynamic concentricity properties for excellent surface quality

- Excellent dynamic run-out properties < 0.003 mm
- Best results for:
 - Shape accuracy
 - Surface finish
 - Shape and positional tolerance

TRIBOS-R

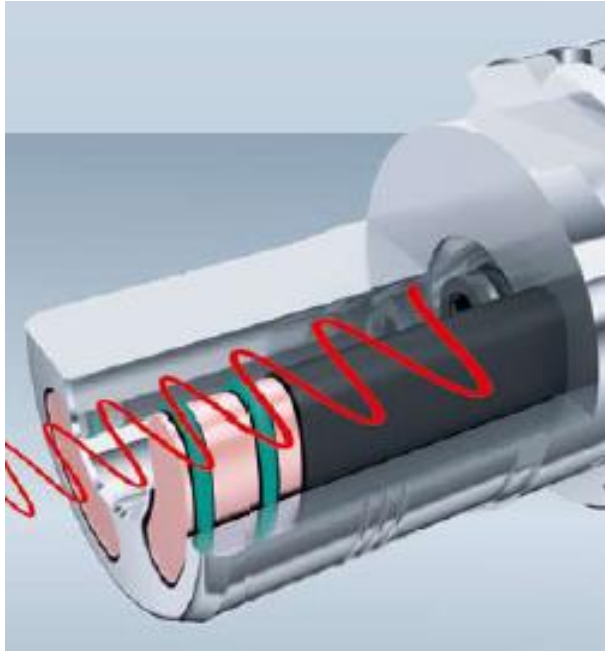


TRIBOS-R

Process reliable! Dampening and radial rigidity combined in one toolholder

- Offers through its unique polygonal honeycomb structure and increased outer diameter, an optimal ratio between radial rigidity and dampening
- Provides the best dynamic run-out properties
- Optimal running smoothness and excellent shape and positional tolerances
- For process reliable machining of the highest level
- Maximum radial rigidity
- Very good vibration damping
- Run-out accuracy and repeat accuracy < 0.003 mm
- Ultimate dynamic true run-out properties

TRIBOS-R



Unique! Honeycomb structure for stability

- Two technical features combined in one toolholder: vibration damping and radial rigidity
- Excellent vibration damping provides stability for the entire system: spindle – toolholder – cutting tool
- Optimal radial rigidity is achieved through the even distribution of forces from polygonal clamping
- Rigidity prevents lateral deflection during the cutting process
- Guarantees stable and precise machining

TRIBOS-RM



TRIBOS-RM

The small one! For powerful high-speed machining in micromachining up to over 80000 rpm

- Suitable for precise machining in high speed ranges to over 80000 rpm
- Run-out accuracy of < 0.003 mm
- Stability is gained from the honeycomb structure
- Extremely compact toolholder tapers
- Ensures precise and process-capable machining
- Sizes HSK-E 25, 32, 40 and HSK-F 32 are perfectly suitable for small, highly dynamic machining centers
- Small and compact design
- High radial rigidity

TRIBOS-RM

Stability through high radial rigidity

- The honeycomb structure allows TRIBOS-RM to remain stable during loads caused by high cutting forces
- The clamping forces suffice to reach the limits of the loads generated by high-speed machining centers
- High machining performance paves the way for quicker machining times and thus increases the productivity

TRIBOS-RM



Compact design for the highest demands in high-speed cutting

- Compact and short design makes speeds of over 80000 rpm possible
- Thanks to the rotation symmetry, the residual imbalance lies under 2 gmm
- Solution for extreme and diverse demands in high-speed machining
- E. g. in tool and mould making for high-speed HSK-E 40 spindles

TRIBOS-S



TRIBOS-S

Extremely slim design! Accurate in the tightest machining conditions

- Extremely slim design
- The optimal continuous run-out and repeat accuracy of < 0.003 mm ensures a more even cutting action and thus improves the tool service life by four times over
- High feed rate through the light design
- Speed range up to 85000 r pm (high-speed cutting)

TRIBOS-S



Unsurpassed slim design for narrow interference contours

- Through its unsurpassed slim design, offers TRIBOS-S ideal prerequisites for precision machining tasks in or on difficult-to-access workpiece areas

TRIBOS-S



Up to 85000 rpm – predestined for high-speed machining operations

- Owing to its rotationally symmetric and light design, the TRIBOS-S can be used in speed ranges up to 85000 rpm

TRIBOS SVL

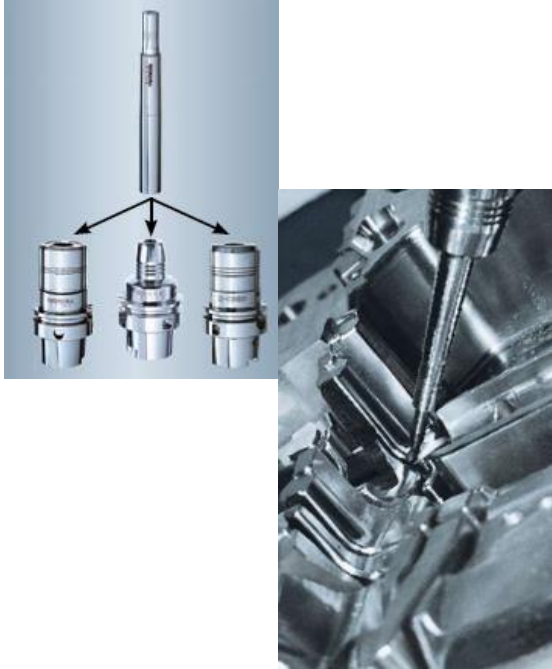


TRIBOS SVL

Universal! Super-slim tool extension

- The use of TRIBOS SVL extensions makes it possible to use standard machining tools instead of expensive special tools
- Extension with run-out accuracy of < 0.003 mm
- Particularly slim-design interfering contour
- Used in combination with various SCHUNK toolholders

TRIBOS SVL



Quickly combined – saves costs

- Can be combined with various toolholder systems

Modular design – the synergy effect

- The TRIBOS extensions complement each other in combination with our TENDO hydraulic expansion toolholders or the TRIBOS-R polygonal toolholders
- Both systems have a damping effect on the entire system and reduce vibration

TRIBOS-Mini

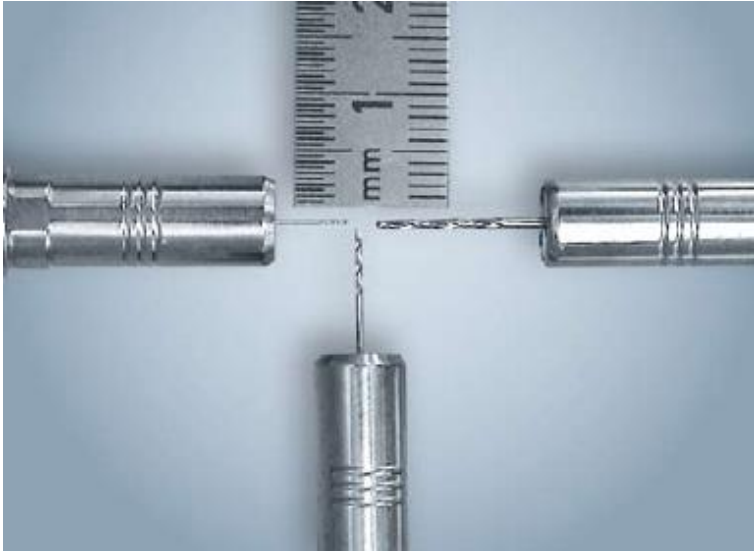


TRIBOS-Mini

SCHUNK: The Pioneer for micromachining, with the smallest shank diameter starting with a 0.3 mm

- Sets standards in micromachining
- Is used in filigree machining operations for housings, molds, electrodes, and engravings in medical technology and electrotechnology, as well as in the watch and clock making industry, or in the precision die construction industry
- Extremely small shanks can be clamped
- Timeconsuming and cost-intensive manufacture of special tools is no longer needed
- For the smallest diameters starting from 0.3 mm
- Economical for filigree machining operations without special tools
- Quick and easy tool changes

TRIBOS-Mini



Top performance with the smallest diameter

- All tool shanks with h6 tolerance can be clamped as from $\varnothing 0.3$ mm

TRIBOS SVP

Clamping device for a safe and quick tool change

- To clamp tools quickly and evenly

TRIBOS SVP-2



The clamping device with a hand pump

- Offers fast actuation for frequent tool changes
- The desired clamping pressure can be built up exactly and quickly with the hand pump and the fitted pressure gauge comes standard

TRIBOS SVP-3



The automatic clamping device

- Offers maximum ease of use and process reliability through an integrated hydraulic unit for applying pressure, a mount for a length measuring system for tool presetting, as well as an operator display*

* an opt. Data matrix code reader can be used to preset the clamping pressure accurately

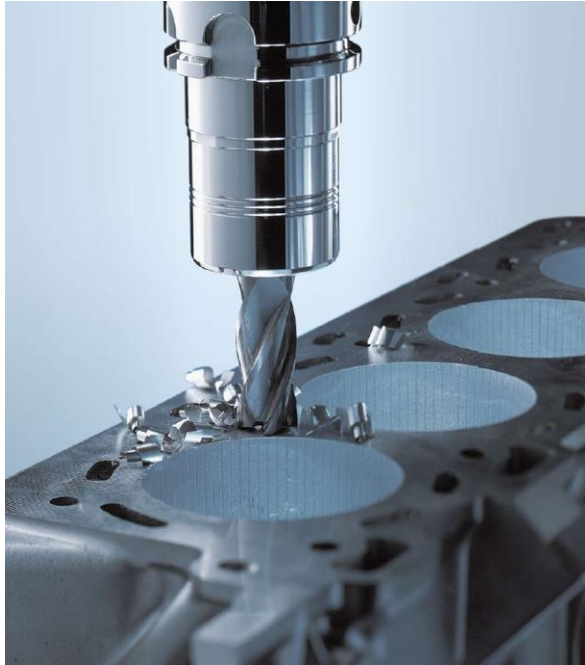
TRIBOS SVP-Mini and TRIBOS SVP-RM



Quick and easy tool changes reduce set-up times

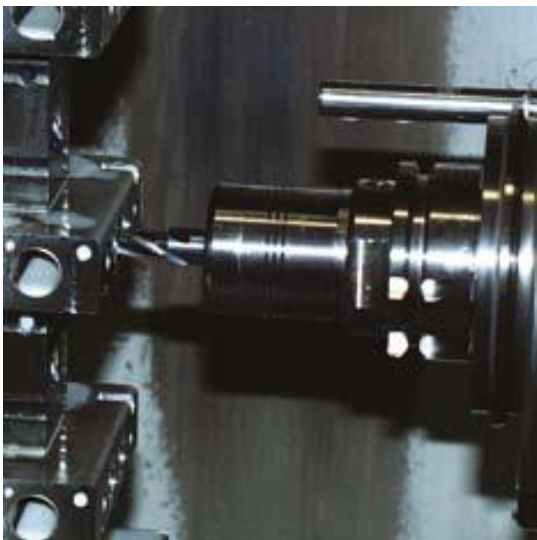
- Change tools in a matter of seconds
- Attach the clamping device to TRIBOS-Mini or TRIBOS-RM, insert the tool, clamp to dead stop – finished
- Thanks to the present pressure, the tool is clamped quickly and process-capably
- This saves time and significantly reduces set-up costs

Applications



Milling in the automotive industry with TRIBOS-R

Applications

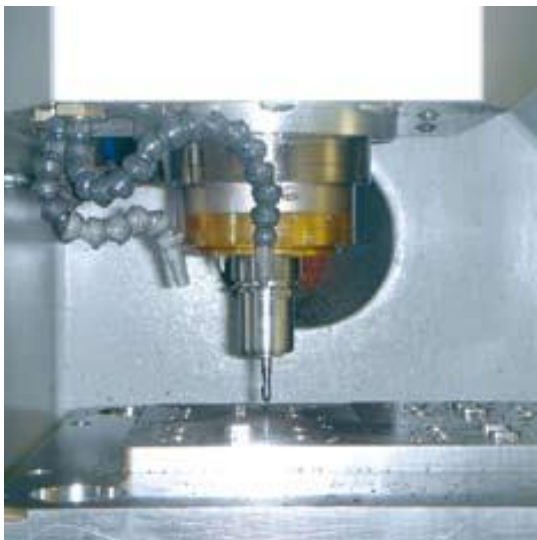


Thread-milling of mobile hydraulic valve bodies with TRIBOS-R



Milling for roughing of housing parts with TRIBOS-R

Applications



HSC circular milling of pockets in mould making with TRIBOS-RM



Drilling in tool making with TRIBOS-S

Applications

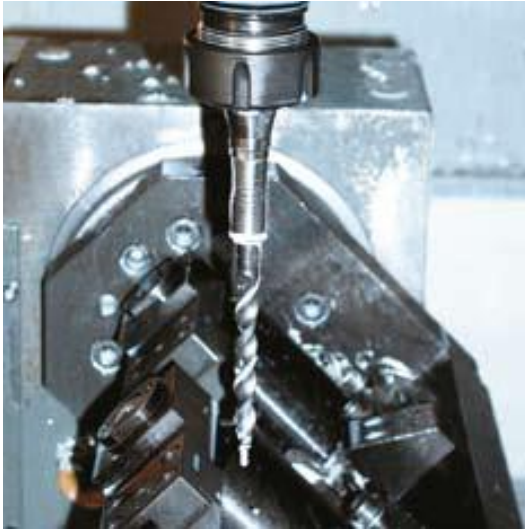


Lateral milling of kitchen countertops with TRIBOS-S (wood working)



Profile-cutting in finishing of hardened steel with TRIBOS SVL

Applications



Drilling of aluminium supports on hydraulic brake units for bicycles with TRIBOS SVL



Electrode-milling with small diameters with TRIBOS-Mini

Superior Clamping and Gripping



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