

GÜHRING

PRECISION IS ALL IN THE SET-UP

comprehensive programme
for each machining operation



Tool holders Overview and selection guide

GÜHRING – YOUR WORLDWIDE PARTNER



GÜHRING TOOL HOLDERS

In modern machine tools, tool holders serve as the most important interface between machine and tool. The specific properties and condition of the tool holders have a considerable influence on the performance and service life of the cutting tools. Likewise, quality, dimensional accuracy and surface quality can only be achieved with correctly inserted and high-quality tool holders. All these parameters are optimally fulfilled with the Gühring range of tool holders.

CONCENTRICITY

The concentricity of the tool holder plays an important role with regard to the achievable tool life. Tool holders from Gühring such as hydraulic expansion chucks, shrink fit chucks or HPC chucks deliver high repeat accuracy of $< 3 \mu\text{m}$ in terms of concentricity.

BALANCING QUALITY

An imbalance in the rotating spindle generates centrifugal forces that disturb the smooth running of the tool and thus influence the machining process and the service life of the machine spindle. Gühring tool holders are balanced as standard to a balancing quality of G 2.5 at 25,000rpm or U $< 1 \text{ gmm}$ and thus contribute to a smooth machining process.

COMPREHENSIVE PROGRAMME

Gühring offers the right tool holder for each application: from collet chuck holders, through cylindrical shanks, shrink fit or hydraulic expansion, whether for wet applications or MQL. We also offer a wide range of manual HSK clamping technology, measuring equipment for machine spindles and tool holding interfaces as well as the appropriate accessories.



APPLICATION-SPECIFIC SELECTION OF TOOL HOLDERS

Shrink fit chucks/ shrink fit extensions



Hydraulic chucks/ HMC 3000/reduction bushes



GÜHROSYNC Hydraulic synchro tapping chucks



	Shrink fit chucks/ shrink fit extensions	Hydraulic chucks/ HMC 3000/reduction bushes	GÜHROSYNC Hydraulic synchro tapping chucks
Main feature	For applications requiring slim interference contours and precision with good clamping force and rigidity at a moderate price.	Easy handling when stiffness and damping are required.	Combines the advantages of hydraulic expansion and synchro-clamping technology compensates deviations of the machine optimally.
Main application	HSC – universal Drilling, countersinking, milling, reaming	Reaming and drilling Countersinking, HSC application, light milling	Synchronized thread cutting and thread forming
Characteristics	<ul style="list-style-type: none"> highest concentricity accuracy thanks to patented damping screw high stiffness and clamping force modularly extendable 	<ul style="list-style-type: none"> high damping with high concentricity accuracy simple handling flexible use thanks to reducing bushes also with GÜHROJET 	<ul style="list-style-type: none"> perfect combination of hydraulic expansion chuck and synchro tapping chuck simple handling flexible use thanks to reducing bushes also with GÜHROJET long-lasting axial and radial balancing
Interfaces			
Clamping diameter range	3 - 32 mm	3 - 32 mm	Holder Ø 12: M2 - M12 (Mt max.: 26 Nm) Holder Ø 20: M4.5 - M20 (Mt max.: 90 Nm)
Concentricity	< 3 µm	< 3 µm	< 50 µm
Balance quality	G 2.5 with 25,000 1/min or U < 1gmm	G 2.5 with 25,000 1/min or U < 1gmm	G 6.3 with 15,000 1/min
Concentricity with 5xD	< 5 µm	< 5 µm	-
Clamping force	very high	very high	very high
Rigidity	very high	high	medium
Dampening	low	very high	very high
Interference contour	small/minimal	medium	medium
Handling	good	very good/very flexible	very good/very flexible
Actuation	Shrink fit device e.g. GSS 2000 article no. 4742	Hexagon key e.g. article no. 4912	Hexagon key e.g. article no. 4912

HPC precision power chucks / clamping sleeves	Collet chucks ER	Straight shank holders “Weldon” / “Whistle-Notch”
		
Provides extreme clamping force and rigidity to compensate lateral forces acting on the tool during HPC milling.	All-rounder for universal use in the low accuracy range.	Simple handling with safe clamping for applications involving large machining volumes.
HPC milling heavy HPC and fast accurate HSC milling, drilling, universal application	Flexible - universal light machining, centering, chamfering, drilling, threading; intermediate shank dimensions	Roughing Milling, drilling
<ul style="list-style-type: none"> extreme clamping force and stability thanks to mechanical clamping transmission high precision and balancing quality flexible use thanks to reducing bushes also with GÜHROJET 	<ul style="list-style-type: none"> flexible chuck for various shank dimensions and tolerances for conventional machining operations 	<ul style="list-style-type: none"> robust, low cost chuck for heavy machining in the lower speed and accuracy range
    	    	   
3 - 32 mm 1 - 6 mm (HPC extensions)	ER 11: 0.5 - 7.0 mm ER 16: 0.5 - 10.0 mm ER 20: 0.5 - 13.0 mm ER 25: 0.5 - 16.0 mm ER 32: 1.0 - 20.0 mm ER 40: 3.0 - 26.0 mm	6 - 40 mm
< 3 µm	< 10 µm	< 10 µm
G 2.5 with 20,000 1/min or U < 1.2 gmm	G 2.5 with 25,000 1/min or U < 1 gmm	G 6.3 with 15,000 1/min
< 8 µm	< 20 µm	< 25 µm
extremely high	medium	very safe thanks to threaded pin
extremely high	medium	very high
high	high	low
medium	large	large
very good / very flexible	good	good
Hexagon key / torque wrench e.g. article no. 4987 + 4916 type D	Hook spanner max. torque: information at GM 300 catalogue at clamping screw article no. 4903	Hook spanner max. torque: information at GM 300 catalogue at clamping screw article no. 4903

ANYTHING TO DO **WITH CLAMPING** – GÜHRING THE ONE STOP SHOP

CLAMPING FORCE TESTING AND REPAIR SERVICE

Does the clamping force of your hydraulic chuck work perfectly? Our technical field service regularly carries out a professional clamping force test on site at the customer.

If the clamping force is not sufficient send your hydraulic chuck for repair at the Gühring service centre. Here Gühring checks the causes for the loss of clamping force, renews the necessary components if necessary, refills the hydraulic system and carries out a final test.



MQL

As one of the pioneers in MQL technology, we stand for many years of know-how in minimum quantity lubrication. Gühring MQL chucks are available as ready-to-use MQL solutions for single and dual duct systems.



MQL
BY GÜHRING



MEASURING TOOLS AND CALIBRATION SERVICE

As a complete supplier, Gühring not only offers tool holders, but also the accompanying measuring equipment for the HSK interface and the machine spindle. As the inventor of the HSK interface, we take over the associated calibration service for our customers. Furthermore, there is a range of special test equipment for quality assurance of our hydraulic expansion chucks, for checking the flow rate of the cooling lubricant or the coolant quality.

SHRINK FIT TECHNOLOGY

Excellent radial concentricity, reliable force and torque transmission as well as simple and fast tool change: Shrink fit chucks contribute to high precision and thus good surface quality of the workpieces during machining. In combination with shrink units, Gühring offers an optimal complete solution from a single source for economical tool clamping.





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