

# GUHRING

The Tool Company

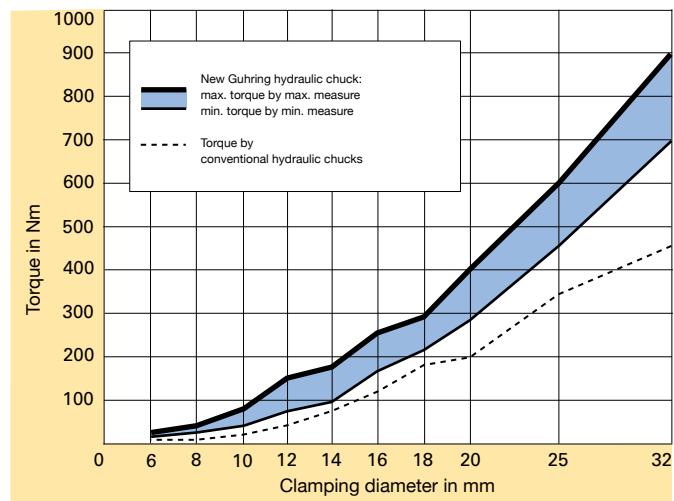
## CAT TAPER SHRINK FIT AND HYDRAULIC TOOL HOLDERS



# Guhring Hydraulic chucks with increased clamping force

Hydraulic chucks are suitable for clamping rotary symmetrical tools or workpieces. Straight shank tools without drive flats may be clamped up to Ø 32 mm, but also shanks according to DIN 6535 form HA and HB up to Ø 20 mm without reduction sleeves. The given values in the table below are not to be exceeded. If the inserted length is less than the given minimum insertion depth or other tool shanks than specified below are applied, lower accuracy and breakage may occur.

Combined with precise concentricity (max. 3 µm deviation from concentricity), a very fast and simple tool change as well as the vibration cushioning effect of the pressure chamber, the new hydraulic chuck can tackle the most demanding of machining tasks. The result is optimal tool life and excellent surface qualities and dimensional accuracy of the workpiece respectively.



Considerably higher:  
The clamping force of Guhring's new hydraulic chuck in comparison to conventional chucks.

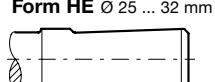
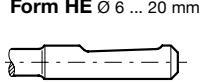
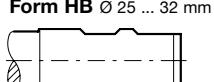
Clamping Ø	max. r.p.m.	max. transferable torque in Nm	Min. insertion depth in mm	max. adjustment $l_3$ mm	max. rad. force F on chuck with 50 mm from the nose in N	Operating-temperature in °C	max. coolant pressure in bar	Shank-Ø in mm
Ø 6	50 000	16	27	10	225	20 - 50	80	6 h <sub>6</sub>
Ø 8	50 000	26	27	10	370	20 - 50	80	8 h <sub>6</sub>
Ø 10	50 000	50	31	10	540	20 - 50	80	10 h <sub>6</sub>
Ø 12	50 000	82	36	10	650	20 - 50	80	12 h <sub>6</sub>
Ø 14	50 000	125	36	10	900	20 - 50	80	14 h <sub>6</sub>
Ø 16	50 000	190	39	10	1410	20 - 50	80	16 h <sub>6</sub>
Ø 18	50 000	275	39	10	1580	20 - 50	80	18 h <sub>6</sub>
Ø 20	50 000	310	41	10	1860	20 - 50	80	20 h <sub>6</sub>
Ø 25	25 000	520	47	10	4400	20 - 50	80	25 h <sub>6</sub>
Ø 32	25 000	770	51	10	6500	20 - 50	80	32 h <sub>6</sub>

## Clamping standard tool shanks to DIN 6535 in hydraulic chucks

Direct clamping of tool preferred run-out  $\leq 0.003$  mm



Clamping of tool shank only with reduction sleeves run-out  $\leq 0.005$  mm



### General notes:

Our hydraulic chucks must not be operated with motor-driven tools (impulse screwdrivers or similar). The hexagonal key should not exceed the key size over its entire length, this largely prevents excessive torque being transferred. We recommend the hexagon clamping key, Guhring no. 4912. A tightening torque of 10 Nm must not be exceeded.

Guhring has a full line of reduction sleeves for hydraulic chucks. To see the full line, complete with sizes, go to [www.guhring.com](http://www.guhring.com) and search for the GM300 catalog.



## CAT HYDRAULIC HOLDER

### Product information

- Balancing quality G6.3 / 15.000rev./min.
- Taper according to ANSI/ASME B 5.50
- Coolant through center and also through flange (plugged with set screws when supplied)
- Axial length setting
- CAT 40 - 5/8" x 11 retention knob thread
- CAT 50 - 1" x 8 retention knob thread

### Scope of delivery

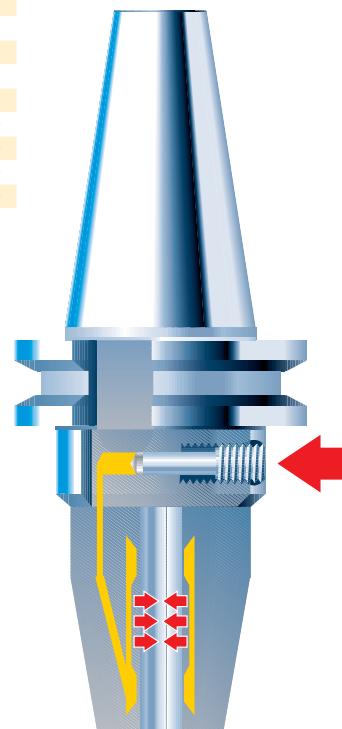
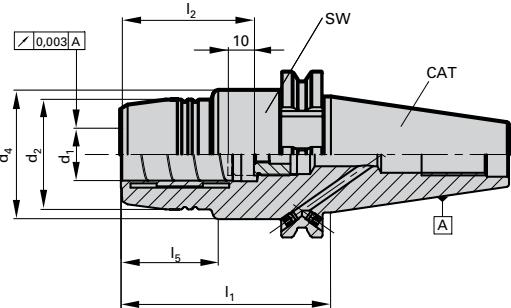
- Including setting screw, Guhring no. 4900
- Including hex wrench, Guhring no. 4912
- Special dimensions on request

CAT	for clamping dia. d1 in h6 inch	Series Number					EDP Numbers
		d <sub>2</sub> mm	d <sub>4</sub> mm	l <sub>1</sub> mm	l <sub>2</sub> mm	l <sub>5</sub> mm	
40	1/4" ID (Ø 6,350)	26.0	44.5	64.0	37.0	29.5	9042161060400
40	3/8" ID (Ø 9,525)	30.0	44.5	64.0	41.0	31.0	9042161090400
40	1/2" ID (Ø 12,700)	32.0	44.5	64.0	46.0	31.5	9042161120400
40	5/8" ID (Ø 15,875)	38.0	44.5	64.0	49.0	33.0	9042161150400
40	3/4" ID (Ø 19,050)	40.0	44.5	64.0	49.0	33.0	9042161190400
40	1" ID (Ø 25,400)	49.5	44.5	81.0	57.0	40.0	9042161250400
40	1 1/4" ID (Ø 31,750)	63.0	80.0	81.0	61.0	25.5	9042161310400
50	1/4" ID (Ø 6,350)	26.0	69.9	81.0	37.0	29.5	9042161060500
50	3/8" ID (Ø 9,525)	30.0	69.9	81.0	41.0	31.0	9042161090500
50	1/2" ID (Ø 12,700)	32.0	69.9	81.0	46.0	31.5	9042161120500
50	5/8" ID (Ø 15,875)	38.0	69.9	81.0	49.0	33.0	9042161150500
50	3/4" ID (Ø 19,050)	40.0	69.9	81.0	49.0	33.0	9042161190500
50	1" ID (Ø 25,400)	57.0	69.9	81.0	57.0	40.0	9042161250500
50	1 1/4" ID (Ø 31,750)	63.0	69.9	81.0	61.0	45.0	9042161310500
40	6.0MM ID	26.0	44.5	64.0	37.0	29.5	9042160060400
40	8.0MM ID	28.0	44.5	64.0	37.0	30.0	9042160080400
40	10.0MM ID	30.0	44.5	64.0	41.0	31.0	9042160100400
40	12.0MM ID	32.0	44.5	64.0	46.0	31.5	9042160120400
40	14.0MM ID	34.0	44.5	64.0	46.0	31.5	9042160140400
40	16.0MM ID	38.0	44.5	64.0	49.0	33.0	9042160160400
40	18.0MM ID	40.0	44.5	64.0	49.0	33.0	9042160180400
40	20.0MM ID	42.0	44.5	64.0	51.0	34.0	9042160200400
40	25.0MM ID	49.5	44.5	81.0	57.0	40.0	9042160250400
40	32.0MM ID	63.0	80.0	81.0	61.0	25.5	9042160320400
50	6.0MM ID	26.0	69.9	81.0	37.0	29.5	9042160060500
50	8.0MM ID	28.0	69.9	81.0	37.0	30.0	9042160080500
50	10.0MM ID	30.0	69.9	81.0	41.0	31.0	9042160100500
50	12.0MM ID	32.0	69.9	81.0	46.0	31.5	9042160120500
50	14.0MM ID	34.0	69.9	81.0	46.0	31.5	9042160140500
50	16.0MM ID	38.0	69.9	81.0	49.0	33.0	9042160160500
50	18.0MM ID	40.0	69.9	81.0	49.0	33.0	9042160180500
50	20.0MM ID	42.0	69.9	81.0	51.0	34.0	9042160200500
50	25.0MM ID	57.0	69.9	81.0	57.0	40.0	9042160250500
50	32.0MM ID	63.0	69.9	81.0	61.0	45.0	9042160320500

Modern machining processes place heavy demands on tool holding. Hydraulic chucks provide excellent clamping characteristics combined with precise concentricity.

Furthermore, they enable a simple and fast tool change, with the assistance of a special extraction key.

Turning the pressure screw generates sufficient pressure in the pressure chamber resulting in an elastic deformation of the clamping sleeve, providing powerful tool clamping and precise concentricity. A safe and powerful fit is guaranteed. If reduction sleeves are applied that are able to hold varying tool diameters, the tool application may be extended without issue. If such sleeves are not applied, it is essential to observe the minimum clamping length.



# CAT SHRINK FIT HOLDER

## Product information

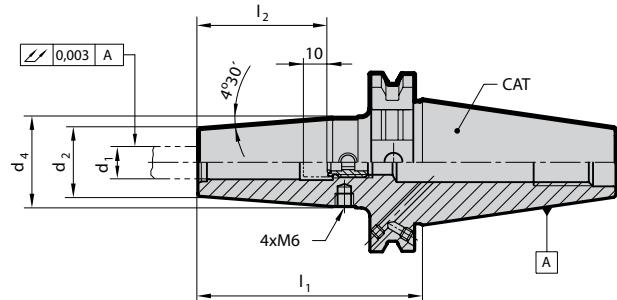
- Balancing quality G6.3 / 15.000rev./min.
- Including balancing threads 4x M6 / 6xM6
- Taper according to ANSI/ASME B 5.50
- Coolant through center and also through flange (plugged with threaded pins when supplied)
- CAT 40 - 5/8" x 11 retention knob thread
- CAT 50 - 1" x 8 retention knob thread

## Scope of delivery

- Including setting screw, Guhring no. 4977 with axial force dampening for perfect runout accuracy
- Special dimensions on request



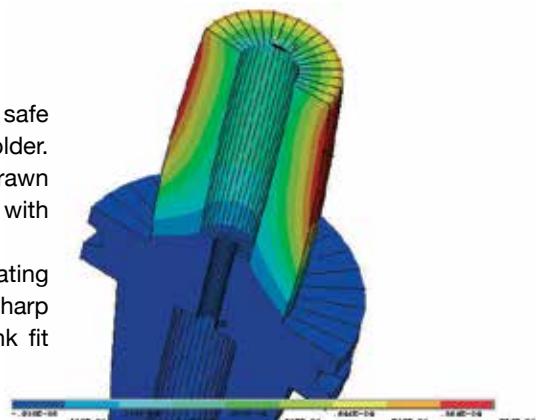
CAT	clamping dia. d1 in h6 inch	Series Number				EDP Numbers
		d <sub>2</sub> mm	d <sub>4</sub> mm	l <sub>1</sub> mm	l <sub>2</sub> mm	
40	Ø 1/4" ID (Ø 6,350)	21.00	27.00	80.00	36.00	9047641060400
40	Ø 3/8" ID (Ø 9,525)	24.00	32.00	80.00	41.00	9047641090400
40	Ø 1/2" ID (Ø 12,700)	24.00	32.00	80.00	46.00	9047641120400
40	Ø 5/8" ID (Ø 15,875)	27.00	34.00	80.00	49.00	9047641150400
40	Ø 3/4" ID (Ø 19,050)	33.00	42.00	80.00	49.00	9047641190400
40	Ø 1" ID (Ø 25,400)	44.00	53.00	100.00	57.00	9047641250400
40	Ø 1 1/4" ID (Ø 31,750)	44.00	53.00	100.00	61.00	9047641310400
40	6.0MM ID	21.00	27.00	80.00	36.00	9047640060400
40	8.0MM ID	21.00	27.00	80.00	36.00	9047640080400
40	10.0MM ID	24.00	32.00	80.00	41.00	9047640100400
40	12.0MM ID	24.00	32.00	80.00	46.00	9047640120400
40	14.0MM ID	27.00	34.00	80.00	46.00	9047640140400
40	16.0MM ID	27.00	34.00	80.00	49.00	9047640160400
40	18.0MM ID	33.00	42.00	80.00	49.00	9047640180400
40	20.0MM ID	33.00	42.00	80.00	51.00	9047640200400
40	25.0MM ID	44.00	53.00	100.00	57.00	9047640250400
40	32.0MM ID	44.00	53.00	100.00	61.00	9047640320400
50	Ø 1/4" ID (Ø 6,350)	21.00	27.00	80.00	36.00	9047641060500
50	Ø 3/8" ID (Ø 9,525)	24.00	32.00	80.00	41.00	9047641090500
50	Ø 1/2" ID (Ø 12,700)	24.00	32.00	80.00	46.00	9047641120500
50	Ø 5/8" ID (Ø 15,875)	27.00	34.00	80.00	49.00	9047641150500
50	Ø 3/4" ID (Ø 19,050)	33.00	42.00	80.00	49.00	9047641190500
50	Ø 1" ID (Ø 25,400)	44.00	53.00	100.00	57.00	9047641250500
50	Ø 1 1/4" ID (Ø 31,750)	44.00	53.00	100.00	61.00	9047641310500
50	6.0MM ID	21.00	27.00	80.00	36.00	9047640060500
50	8.0MM ID	21.00	27.00	80.00	36.00	9047640080500
50	10.0MM ID	24.00	32.00	80.00	41.00	9047640100500
50	12.0MM ID	24.00	32.00	80.00	46.00	9047640120500
50	14.0MM ID	27.00	34.00	80.00	46.00	9047640140500
50	16.0MM ID	27.00	34.00	80.00	49.00	9047640160500
50	18.0MM ID	33.00	42.00	80.00	49.00	9047640180500
50	20.0MM ID	33.00	42.00	80.00	51.00	9047640200500
50	25.0MM ID	44.00	53.00	100.00	57.00	9047640250500
50	32.0MM ID	44.00	53.00	100.00	61.00	9047640320500



## A gripping principle

When shrink fitting tools into shrink fit chucks, the decisive factors for ensuring the safe clamping of the tool in the tool holder are solely the heating and cooling of the tool holder. The heating process expands the shrink fit chuck enabling a tool to be inserted or withdrawn respectively. During the cooling process it contracts again and clamps the inserted tool with maximum clamping force.

Because the shrink fit chucks can become extremely hot in localized areas during the heating process and the tools shrink fitted for insertion or withdrawal respectively possess very sharp cutting edges, it is important that the operator wears Kevlar® gloves during the shrink fit operation to prevent burns and cuts to the hands.



## CAT GUHROJET SHRINK FIT HOLDER

### Product information

- Optimized cooling for tools without internal coolant ducts
- Good chip evacuation and increased process reliability
- Balancing quality G6.3 / 15.000rev./min.
- Including balancing threads 4x M6 / 6xM6
- Taper according to ANSI/ASME B 5.50
- Coolant through center and also through flange (plugged with threaded pins when supplied)
- CAT 40 - 5/8" x 11 retention knob thread
- CAT 50 - 1" x 8 retention knob thread

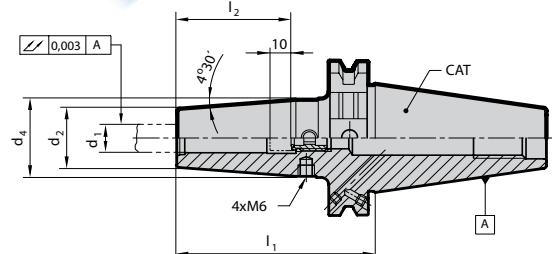
### Scope of delivery

- Including setting screw, Guhring no. 4938 with slots for coolant supply
- Special dimensions on request



Series Number **4765**

CAT	for clamping dia. d <sub>1</sub> in h6 inch	d <sub>2</sub> mm	d <sub>4</sub> mm	l <sub>1</sub> mm	l <sub>2</sub> mm	EDP Numbers
40	1/4" ID (Ø 6,350)	21.00	27.00	80.00	36.00	9047651060400
40	3/8" ID (Ø 9,525)	24.00	32.00	80.00	41.00	9047651090400
40	1/2" ID (Ø 12,700)	24.00	32.00	80.00	46.00	9047651120400
40	5/8" ID (Ø 15,875)	27.00	34.00	80.00	49.00	9047651150400
40	3/4" ID (Ø 19,050)	33.00	42.00	80.00	49.00	9047651190400
50	3/8" ID (Ø 9,525)	24.00	32.00	80.00	41.00	9047651090500
50	1/2" ID (Ø 12,700)	24.00	32.00	80.00	46.00	9047651120500
50	3/4" ID (Ø 19,050)	33.00	42.00	80.00	49.00	9047651190500
50	1" ID (Ø 25,400)	44.00	53.00	100.00	57.00	9047651250500



## Gühring offers repair service!

### Inspection and repair prove profitable!

Insufficient clamping force of hydraulic chucks can have disastrous consequences: poor cutting rates and tool life of the clamped tools, reduced surface quality of the machined workpiece and breakage of tool, holder and workpiece. Our test measurements show one in 10 chucks display a loss in clamping force.

Regular hydraulic chuck clamping force inspections can protect against such unwelcome and expensive consequences. Therefore, we provide a new service to ensure optimal performance of your hydraulic chucks - from any manufacturer:

#### 1. Professional clamping force inspection

The measurement is taken quickly, without exertion of force and in the machine or equipment at your premises with Guhring's SENSO 3000 clamping force measuring instrument.

#### 2. Our repair service

If the existing clamping force is insufficient, we check the cause of the reduction in clamping force, replace the necessary components, refill the hydraulic system and carry out a final inspection.

#### 3. New hydraulic chucks

If the hydraulic chuck is unsalvageable, we will offer you a new hydraulic chuck from our current Guhring GM 300 program.

For further information regarding Guhring's hydraulic chuck repair service please contact your regional Guhring representative.



# GUHRING

The Tool Company

DRILLING

TAPPING/THREAD-MILLING/FLUTELESS TAPPING

MILLING

REAMING

PCD/PCBN



SPECIAL TOOLING  
SOLUTIONS

COUNTERSINKING/  
DE-BURRING

MODULAR TOOLING  
SYSTEMS

TOOL RECONDITIONING SERVICE

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Huntington Beach, CA 92649

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Bloomfield, CT 06002

**Manufacturing and Reconditioning Facility**  
29550 W.K. Smith Rd. Suite B  
New Hudson, MI 48165

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