

GUHRING

The Tool Company

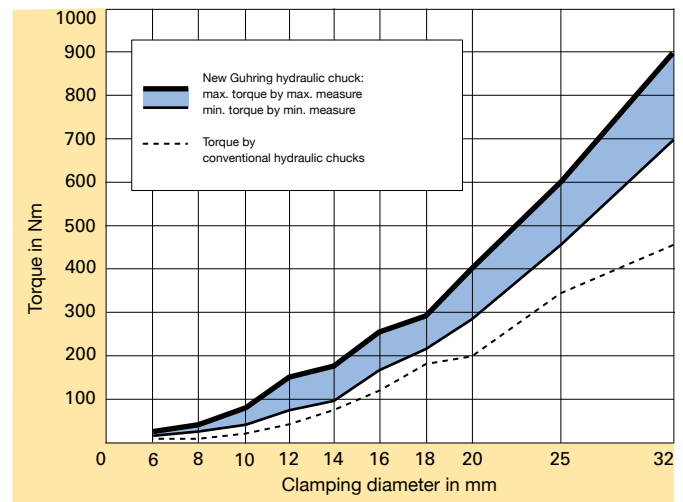
CAT TAPER SHRINK FIT AND HYDRAULIC TOOL HOLDERS



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 ₆ |
| Ø 8 | 50 000 | 26 | 27 | 10 | 370 | 20 - 50 | 80 | 8 h ₆ |
| Ø 10 | 50 000 | 50 | 31 | 10 | 540 | 20 - 50 | 80 | 10 h ₆ |
| Ø 12 | 50 000 | 82 | 36 | 10 | 650 | 20 - 50 | 80 | 12 h ₆ |
| Ø 14 | 50 000 | 125 | 36 | 10 | 900 | 20 - 50 | 80 | 14 h ₆ |
| Ø 16 | 50 000 | 190 | 39 | 10 | 1410 | 20 - 50 | 80 | 16 h ₆ |
| Ø 18 | 50 000 | 275 | 39 | 10 | 1580 | 20 - 50 | 80 | 18 h ₆ |
| Ø 20 | 50 000 | 310 | 41 | 10 | 1860 | 20 - 50 | 80 | 20 h ₆ |
| Ø 25 | 25 000 | 520 | 47 | 10 | 4400 | 20 - 50 | 80 | 25 h ₆ |
| Ø 32 | 25 000 | 770 | 51 | 10 | 6500 | 20 - 50 | 80 | 32 h ₆ |

Clamping standard tool shanks to DIN 6535 in hydraulic chucks

Direct clamping of tool preferred
run-out ≤ 0.003 mm

Form HA Ø 6 ... 20 mm



Form HA Ø 25 ... 32 mm

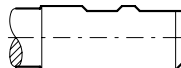


Form HB Ø 6 ... 20 mm

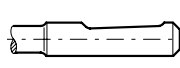


Clamping of tool shank only with reduction sleeves
run-out ≤ 0.005 mm

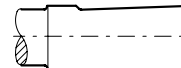
Form HB Ø 25 ... 32 mm



Form HE Ø 6 ... 20 mm



Form HE Ø 25 ... 32 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** and search for the GM300 catalog.



CAT HYDRAULIC HOLDER

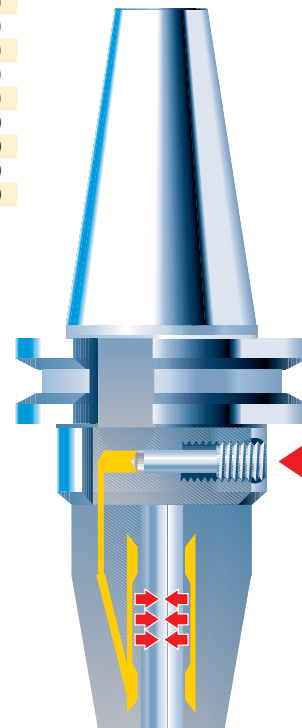
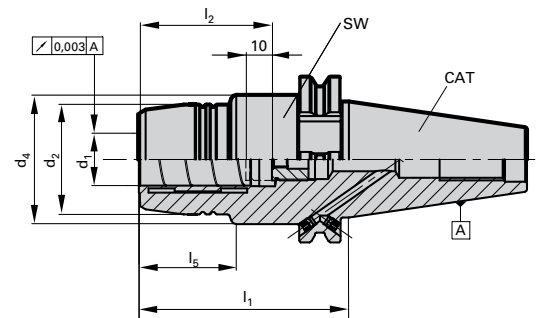
Product information

- 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

| Series Number | | | | | | | 4216 |
|---------------|---------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|---------------|
| CAT | for clamping dia. d1 in h6 inch | d ₂ mm | d ₄ mm | l ₁ mm | l ₂ mm | l ₅ mm | EDP Numbers |
| 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 |



Convenient operation: the hydraulic fluid is compressed via an actuating screw and ensures safe positioning of the tool with a positive stop.

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

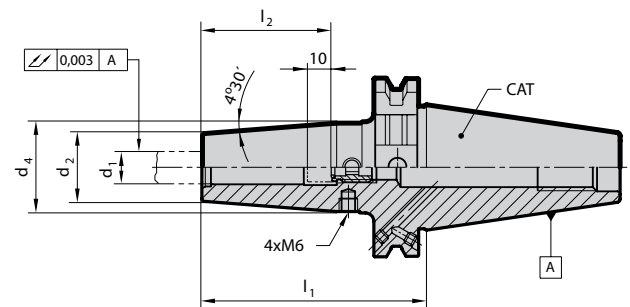
- Balancing quality G6.3 / 15.000rev./min.
- Including balancing threads 4x M6 / 6xM6
- Taper according to ANSI/ASME B 5.50
- Coolant through center and also through flange (plugged with threaded pins when supplied)
- CAT 40 - 5/8 x 11 retention knob thread
- CAT 50 - 1" x 8 retention knob thread

Scope of delivery

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



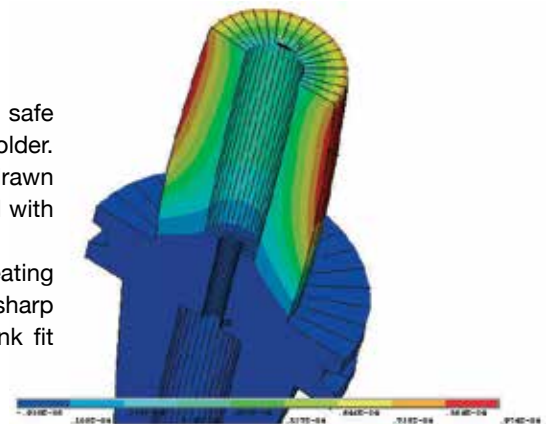
| Series Number | | | | | | 4764 |
|---------------|-----------------------------------|----------------------|----------------------|----------------------|----------------------|---------------|
| CAT | clamping dia. d1 in h6 inch | d ₂ mm | d ₄ mm | l ₁ mm | l ₂ mm | EDP Numbers |
| 40 | Ø1/4" ID (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 | Ø1/2" 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 | Ø1/4" 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 | Ø1/2" 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

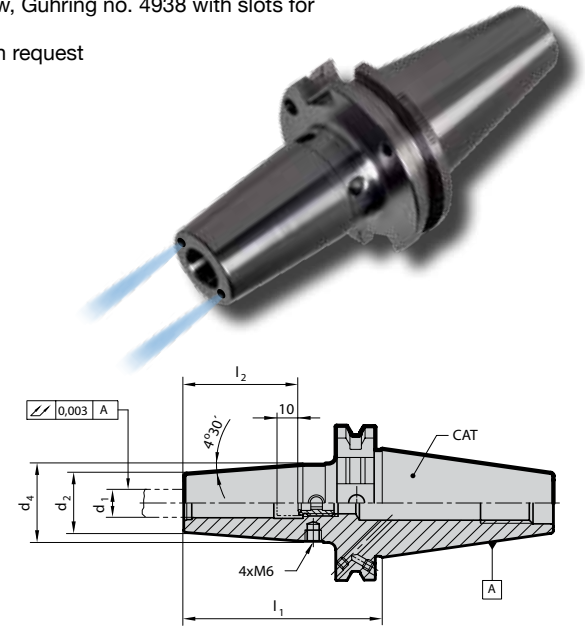
Product information

- 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. d1 in h6 inch | d ₂ mm | d ₄ mm | l ₁ mm | l ₂ 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 |



Guhring 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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Brookfield, WI 53045

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