



CILINDRICAL
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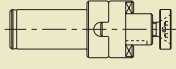
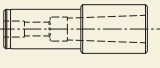
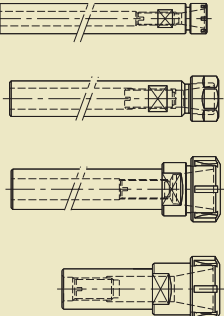
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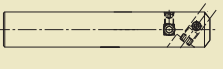
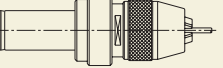
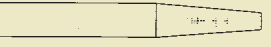



| D h6 | | | | | |
|------|----|----|----|----|----|
| 16 | 20 | 25 | 32 | 40 | 50 |

Material:
Case-hardening alloy steel.
Case-hardened and tempered.
Minimum strength in core 880 N/mm².
Surface hardness Rc 57 ÷ 60

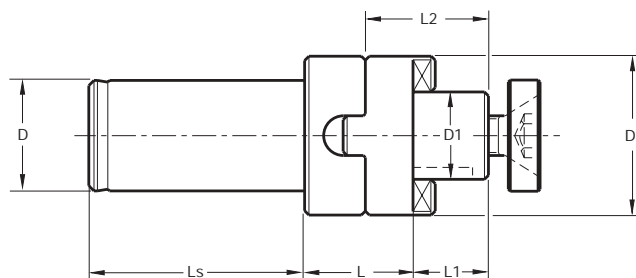
Material:
Acero aleado de cementación.
Cementado y templado.
Resistencia mínima en el núcleo 880 N/mm².
Dureza superficial Rc 57 ÷ 60

| DESCRIPTION DENOMINACION | Image | Page Pag. |
|--|---|--------------|
| UNIVERSAL ARBORS PORTAFRESAS COMBINADO |  | 10/3 |
| REDUCING ADAPTERS For tapered Morse taper tools DIN 228-B or Morse taper tools with thread DIN 228-A REDUCTORES A MORSE Para herramientas con lengüeta o rosca |  | 10/3 |
| EXTENSION COLLET CHUCKS ER TYPE (DIN 6499) PORTAPINZAS DE MANGO CILÍNDRICO DIN 6499 (TIPO ER) |  | 10/4 |

| DESCRIPTION DENOMINACION | Image | Page Pag. |
|--|---|--------------|
| BORING BARS PORTACUCHILLAS |  | 10/5 |
| SHORT DRILL CHUCKS PORTABROCAS INTEGRAL |  | 10/5 |
| SHRINK FIT EXTENSIONS PROLONGADORES DE CONTRACCIÓN TÉRMICA |  | 10/6 |
| FRONT CONTACT CYLINDRICAL EXTENSIONS FOR SCREW IN- TOOLS PROLONGADORES PARA MANGOS ROSCADOS CON APOYO FRONTAL |  | 10/7 |

| Ø | TOOL Ø HERRAMIENTA | LENGTH LONGITUD |
|----|--------------------|-----------------|
| 32 | 16 - 32 | M |

For milling cutters with longitudinal or tenon drive DIN 138
Para fresas con chavetero longitudinal o transversal DIN 138

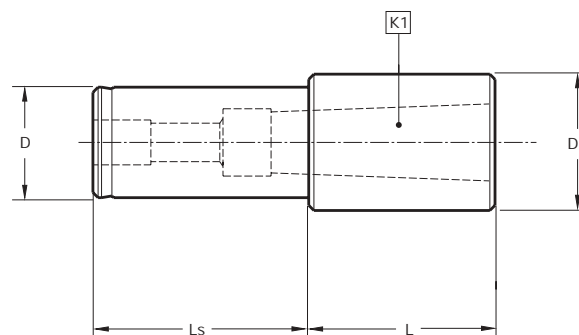


Accessories, see pages 16/3 - 16/11
Accesorios ver págs. 16/3 - 16/11

| D h5 | D ₁ h6 | LENGTH - LONGITUD L | L ₁ | L ₂ | L _s | D ₂ | COD. |
|------|-------------------|------------------------|----------------|----------------|----------------|----------------|-----------------|
| 32 | 16 | 25 | 17 | 27 | 60 | 32 | 001 50 02 06 30 |
| 32 | 22 | 25 | 19 | 31 | 60 | 40 | 001 50 02 06 40 |
| 32 | 27 | 28 | 21 | 33 | 60 | 48 | 001 50 02 06 50 |
| 32 | 32 | 30 | 24 | 38 | 60 | 58 | 001 50 02 06 60 |

| Ø | TIPE TIPO | LENGTH LONGITUD |
|---------|-----------|-----------------|
| 20 - 32 | M1 - M33 | M |

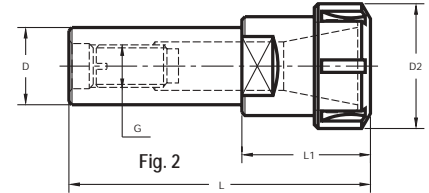
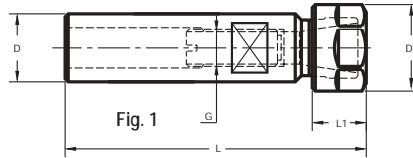
For tapered Morse taper tools DIN 228-B or Morse taper tools with thread DIN 228-A
Para herramientas con lengüeta DIN 228-B o rosca de tiro DIN 228-A



| D h5 | D ₁ | K ₁ | LENGTH - LONGITUD L | L _s | COD. |
|------|----------------|----------------|------------------------|----------------|-----------------|
| 20 | 25 | 1 | 10 | 50 | 003 50 12 04 20 |
| 20 | 25 | 2 | 22 | 50 | 003 50 12 04 30 |
| 32 | 37 | 1 | 3 | 57 | 003 50 12 06 20 |
| 32 | 37 | 2 | 10 | 62 | 003 50 12 06 30 |
| 32 | 37 | 3 | 29 | 62 | 003 50 12 06 40 |

| | | |
|----------------|--|-----------------|
| \emptyset | \emptyset TOOL \emptyset HERRAMIENTA | LENGTH LONGITUD |
| 16-20-25-32-40 | ER11 - ER40 | M L |

COLLET DIN 6499 (LONG)
PORTAPINZAS DIN 6499 (LARGO)



Maximum circular deviation between shank and collet housing $\leq 0,003$
Desviación circular máxima entre D y el cono interior $\leq 0,003$

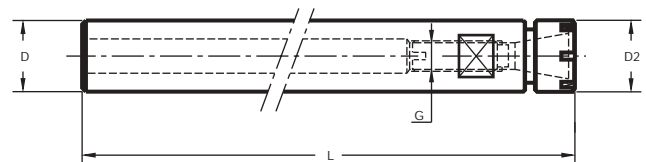
Collets see pages 14/5 - 14/7
Pinzas, ver págs 14/5 - 14/7

| FIG. | D | SIZE TAMAÑO | LENGTH - LONGITUD | | D ₁ | D ₂ | L ₁ | G | COD. | |
|------|----|-------------|-------------------|-----|----------------|----------------|----------------|------|-----------------|-----------------|
| | | | L | M | | | | | | |
| 1 | 16 | (ER11) | | 160 | 0,5 - 7 | 19 | — | M-8 | 004 50 06 12 02 | 301 01 02 08 30 |
| 1 | 20 | (ER16) | 80 | | 0,5 - 10 | 28 | — | M-12 | 004 50 06 03 03 | 301 01 02 12 30 |
| 2 | 20 | (ER25) | 100 | | 1 - 16 | 42 | 50 | M-12 | 004 50 06 03 05 | 301 01 02 12 30 |
| 2 | 25 | (ER25) | 106 | | 1 - 16 | 42 | 50 | M-16 | 004 50 06 05 05 | 301 01 02 16 30 |
| 2 | 25 | (ER32) | 111 | | 2 - 20 | 50 | 55 | M-16 | 004 50 06 05 06 | 301 01 02 16 30 |
| 1 | 25 | (ER16) | | 180 | 0,5 - 10 | 28 | 17 | M-12 | 004 50 06 15 03 | 301 01 02 12 30 |
| 2 | 25 | (ER25) | | 200 | 1 - 16 | 42 | 50 | M-12 | 004 50 06 15 05 | 301 01 02 12 30 |
| 2 | 32 | (ER32) | 115 | | 2 - 20 | 50 | 55 | M-16 | 004 50 06 06 06 | 301 01 02 16 40 |
| 2 | 32 | (ER40) | 123 | | 3 - 26 | 63 | 63 | M-16 | 004 50 06 06 07 | 301 01 02 16 40 |
| 2 | 40 | (ER32) | 115 | | 2 - 20 | 50 | 55 | M-16 | 004 50 06 07 06 | 301 01 02 16 40 |
| 2 | 40 | (ER40) | 123 | | 3 - 26 | 63 | 63 | M-16 | 004 50 06 07 07 | 301 01 02 16 40 |

Other dimension on request.
Otras medidas bajo pedido.

| SIZE/TAMAÑO | BALANCED NUT TUERCA EQUILIBRADA (STANDARD - ESTÁNDAR) | BEARING NUT TUERCA GIRATORIA (OPTIONAL - OPCIONAL) | BALANCED NUT TUERCA EQUILIBRADA (STANDARD - ESTÁNDAR) | BEARING NUT TUERCA GIRATORIA (OPTIONAL - OPCIONAL) | WRENCH LLAVE (OPTIONAL - OPCIONAL) | WRENCH LLAVE (OPTIONAL - OPCIONAL) |
|-------------|---|--|---|--|--|--|
| | (ER-11) | 004 99 01 08 02 | — | — | — | 020 99 01 01 02 |
| (ER-16) | 004 99 01 08 03 | 004 99 01 04 03 | — | — | 004 99 04 06 25 | — |
| (ER-25) | — | — | 004 99 01 03 05 | 004 99 01 04 05 | — | 004 99 04 03 05 |
| (ER-32) | — | — | 004 99 01 03 06 | 004 99 01 04 06 | — | 004 99 04 03 06 |
| (ER-40) | — | — | 004 99 01 03 07 | 004 99 01 04 07 | — | 004 99 04 03 07 |

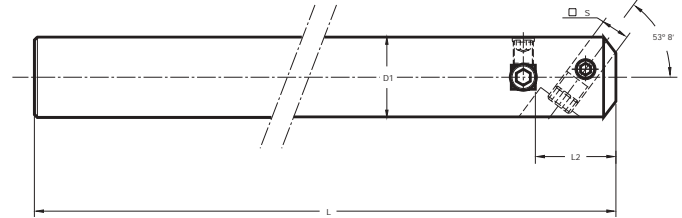
COLLET DIN 6499 LONG (MINI)
PORTAPINZAS DIN 6499 LARGO (MINI)






Maximum circular deviation between shank and collet housing $\leq 0,003$
Desviación circular máxima entre D y el cono interior $\leq 0,003$

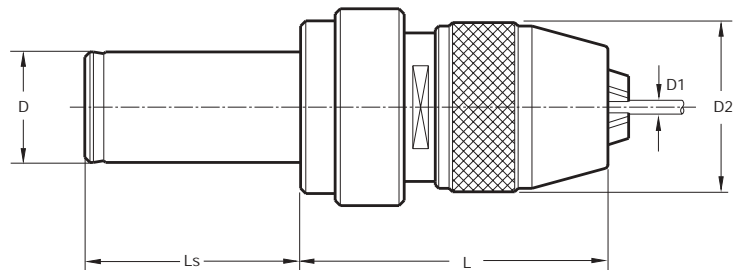
| D | SIZE TAMAÑO | LENGTH - LONGITUD L | D ₁ | D ₂ | G | COD. | | | |
|----|-------------|---------------------|----------------|----------------|------|-----------------|-----------------|-----------------|-----------------|
| 16 | (ER11) | 160 | 0,5 - 7 | 16 | M-8 | 004 50 06 12 12 | 301 01 02 08 30 | 004 99 01 06 02 | 004 99 04 05 02 |
| 20 | (ER16) | 175 | 0,5 - 10 | 22 | M-12 | 004 50 06 13 13 | 301 01 02 12 30 | 004 99 01 06 03 | 004 99 04 05 03 |

| Ø | TIPE TIPO (S) | LENGTH LONGITUD |
|-------|---------------|-----------------|
| 16-50 | 5 - 16 | M |



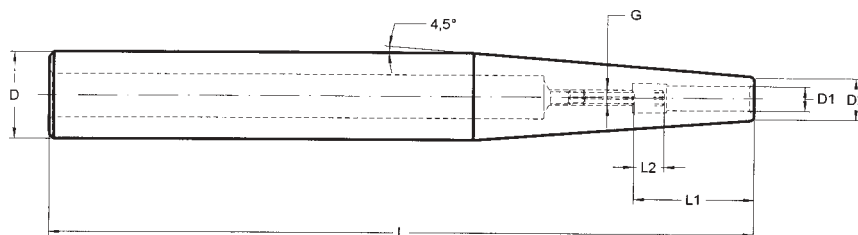
| D ₁ g6 | LENGTH - LONGITUD L | L ₂ | S | COD. |  90° |  53° 8' |  |
|-------------------|------------------------|----------------|----|-----------------|--|--|---|
| 16 | 225 | 17 | 5 | 005 50 01 00 43 | 005 99 01 01 01 | 005 99 01 02 01 | 301 01 03 04 05 |
| 20 | 250 | 26 | 8 | 005 50 01 00 44 | 005 99 01 01 02 | 005 99 01 02 02 | 301 01 03 06 06 |
| 25 | 315 | 28 | 8 | 005 50 01 00 45 | 005 99 01 01 02 | 005 99 01 02 02 | 301 01 03 06 06 |
| 32 | 315 | 34 | 10 | 005 50 01 00 46 | 005 99 01 01 03 | 005 99 01 02 03 | 301 01 03 08 08 |
| 40 | 400 | 40 | 12 | 005 50 01 00 47 | 005 99 01 01 04 | 005 99 01 02 04 | 301 01 03 10 10 |
| 50 | 400 | 50 | 16 | 005 50 01 00 48 | 005 99 01 01 05 | 005 99 01 02 05 | 301 01 03 12 12 |

| Ø | TOOL Ø HERRAMIENTA | LENGTH LONGITUD |
|----|--------------------|-----------------|
| 32 | 1 - 13 | M |




| D h5 | D ₁ | D ₂ | LENGTH - LONGITUD L | L _s | COD. |
|------|----------------|----------------|------------------------|----------------|-----------------|
| 32 | 1-13 | 48 | 89 | 60 | 012 50 09 16 13 |

| ∅ | ∅ | LENGTH | LONGITUD |
|------------|--------|--------|----------|
| 12, 20, 32 | 3 - 20 | | M |



Maximum circular deviation between D and D₁ ≤ 0,003
Desviación circular máxima entre D y D₁ ≤ 0,003

| D h6 | D ₁ | D ₂ | LENGTH - LONGITUD L | L ₁ | L ₂ | G | COD. |  |
|------|----------------|----------------|------------------------|----------------|----------------|------|-----------------|---|
| 12 | 3 | 8 | 160 | 20 | 5 | — | 012 50 12 32 03 | |
| 12 | 4 | 9 | 160 | 20 | 5 | — | 012 50 12 32 04 | |
| 12 | 5 | 10 | 160 | 25 | 5 | — | 012 50 12 32 05 | |
| *20 | 3 | 8 | 160 | 20 | 5 | M-5 | 012 50 12 34 03 | |
| *20 | 4 | 9 | 160 | 20 | 5 | M-5 | 012 50 12 34 04 | |
| *20 | 5 | 10 | 160 | 25 | 5 | M-5 | 012 50 12 34 05 | |
| *20 | 6 | 12 | 160 | 36 | 10 | M-5 | 012 50 12 34 06 | 301 02 33 05 01 |
| *20 | 8 | 14 | 160 | 36 | 10 | M-6 | 012 50 12 34 08 | 301 02 33 06 01 |
| *20 | 10 | 16 | 160 | 42 | 10 | M-8 | 012 50 12 34 10 | 301 02 33 08 01 |
| *20 | 12 | 18 | 160 | 47 | 10 | M-10 | 012 50 12 34 12 | 301 02 33 10 01 |
| 32 | 12 | 18 | 200 | 47 | 10 | M-10 | 012 50 12 56 12 | 301 02 33 10 01 |
| 32 | 14 | 20 | 200 | 50 | 10 | M-10 | 012 50 12 56 14 | 301 02 33 10 01 |
| 32 | 16 | 22 | 200 | 50 | 10 | M-12 | 012 50 12 56 16 | 301 02 33 12 01 |
| 32 | 18 | 24 | 200 | 52 | 10 | M-12 | 012 50 12 56 18 | 301 02 33 12 01 |
| 32 | 20 | 26 | 200 | 52 | 10 | M-16 | 012 50 12 56 20 | 301 02 33 16 01 |

*Other sizes and profiles

*Otras formas y dimensiones

Design:

- Tool shank tolerance h6
- For Carbide, Cermet and HSS tool shanks according to DIN 6535 form HA and DIN 1835-1 form A.

Delivery:

- With built-in bored through stop screw.
- Other sizes and profiles on request.

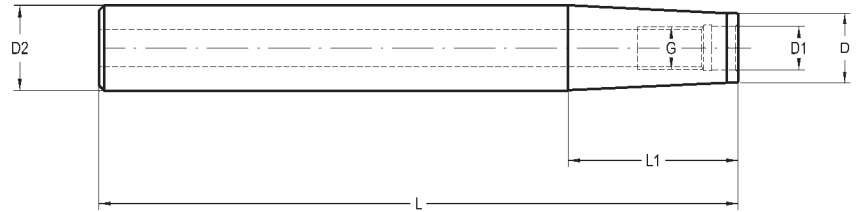
Ejecución

- Mangos de herramientas con tolerancia h6.
- Para herramientas de Metal duro, Cermet y HSS con mango DIN 6535 forma HA y DIN 1835-1 forma A.

Suministro

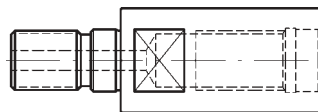
- Con tornillo de regulación con orificio para paso refrigerante.
- Otras formas y tamaños no indicados en esta tabla, bajo demanda expresa.

| | | |
|----------------|-----------|-----------------|
| Ø | TYPE TIPO | LENGTH LONGITUD |
| 12-16-20-52-32 | M6 - M16 | M |

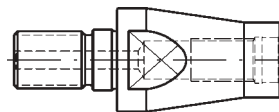


Maximum circular deviation between D_2 and $D_1 \leq 0,003$
 Desviación circular máxima entre D_2 y $D_1 \leq 0,003$

| D_2 h6 | G | D | D_1 | LENGTH - LONGITUD L | L_1 | COD. |
|----------|------|------|-------|------------------------|-------|-----------------|
| 12 | M-6 | 9,8 | 6,5 | 160 | 40 | 012 50 57 32 01 |
| 16 | M-8 | 12,8 | 8,5 | 160 | 45 | 012 50 57 33 02 |
| 20 | M-10 | 17,8 | 10,5 | 160 | 50 | 012 50 57 34 03 |
| 25 | M-12 | 20,8 | 12,5 | 160 | 55 | 012 50 57 35 04 |
| 32 | M-16 | 28,8 | 17 | 160 | 60 | 012 50 57 36 05 |



Extensions (see page 9/9)
 Prolongadores (ver pág. 9/9)



Reducers (see page 9/9)
 Reductores (ver pág. 9/9)