

# 用户指南

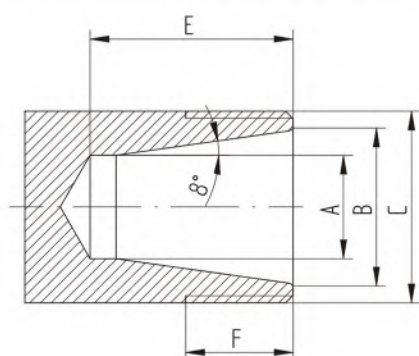
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弹性夹头

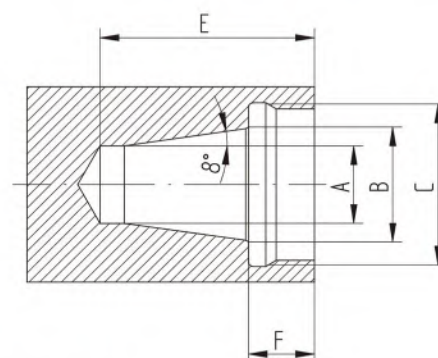
HN2020-01

## 机床主轴和配套螺帽内的ER弹簧夹头型腔尺寸

| ER | 夹持直径     | 尺寸 [mm] |     |     |      |     |      |      |       |    |     |      |    |             |      |      |
|----|----------|---------|-----|-----|------|-----|------|------|-------|----|-----|------|----|-------------|------|------|
| 型号 | [mm]     | ER      | ERC | ERB | ERBC | ERM | ERMC | ERMx | ERMxC | AX | AXC | A    | B  | C           | E    | F    |
| 11 | 0.5–7.0  | •       | •   | –   | –    | –   | –    | –    | –     | –  | –   | 7.5  | 11 | M 14 x 0.75 | 17   | 10   |
| 16 | 0.5–10.0 | •       | •   | •   | •    | –   | –    | –    | –     | –  | –   | 10.5 | 16 | M 22 x 1.5  | 22   | 13   |
| 20 | 0.5–13.0 | •       | •   | •   | •    | –   | –    | –    | –     | –  | –   | 13.5 | 20 | M 24 x 1.5  | 26.5 | 13.5 |
| 25 | 0.5–17.0 | •       | •   | •   | •    | –   | –    | –    | –     | –  | –   | 18.0 | 25 | M 32 x 1.5  | 29   | 14   |
| 32 | 1.0–22.0 | •       | •   | •   | •    | –   | –    | –    | –     | –  | –   | 23.5 | 32 | M 40 x 1.5  | 34   | 16   |
| 40 | 2.0–30.0 | •       | •   | •   | •    | –   | –    | –    | –     | –  | –   | 30.5 | 40 | M 50 x 1.5  | 38   | 17   |
| 50 | 4.0–36.0 | •       | •   | •   | •    | –   | –    | –    | –     | –  | –   | 38   | 50 | M 64 x 2    | 48   | 24   |
| 8  | 0.5–5.0  | –       | –   | –   | –    | •   | –    | •    | –     | –  | –   | 5.2  | 8  | M 10 x 0.75 | 13   | 8    |
| 11 | 0.5–7.0  | –       | –   | –   | –    | •   | •    | •    | •     | –  | –   | 7.5  | 11 | M 13 x 0.75 | 17   | 8.5  |
| 16 | 0.5–10.0 | –       | –   | –   | –    | •   | •    | •    | •     | –  | –   | 10.5 | 16 | M 19 x 1    | 22   | 13   |
| 20 | 0.5–13.0 | –       | –   | –   | –    | •   | •    | •    | •     | –  | –   | 13.5 | 20 | M 28 x 1.5  | 26.5 | 13.5 |
| 25 | 0.5–17.0 | –       | –   | –   | –    | •   | •    | •    | •     | –  | –   | 18   | 25 | M 30 x 1    | 29   | 14   |
| 11 | 0.5–7.0  | –       | –   | –   | –    | –   | –    | –    | –     | •  | –   | 7.5  | 11 | M 18 x 1    | 23   | 7    |
| 16 | 0.5–10.0 | –       | –   | –   | –    | –   | –    | –    | –     | •  | •   | 10.5 | 16 | M 24 x 1    | 32   | 10   |
| 20 | 0.5–13.0 | –       | –   | –   | –    | –   | –    | –    | –     | •  | •   | 13.5 | 20 | M 28 x 1.5  | 37.5 | 11   |
| 25 | 0.5–17.0 | –       | –   | –   | –    | –   | –    | –    | –     | •  | •   | 18   | 25 | M 32 x 1.5  | 41   | 12   |
| 32 | 1.0–22.0 | –       | –   | –   | –    | –   | –    | –    | –     | •  | •   | 23.5 | 32 | M 40 x 1.5  | 48   | 12   |
| 40 | 2.0–30.0 | –       | –   | –   | –    | –   | –    | –    | –     | •  | •   | 30.5 | 40 | M 50 x 1.5  | 54   | 16   |



标准 ER 型腔



ER AX 和 ER AXC 型腔



## ER 弹簧夹头尺寸

| 型号 [mm] |           | 尺寸 [mm] |    |      |     |      |      |     |     |    | 图纸 |
|---------|-----------|---------|----|------|-----|------|------|-----|-----|----|----|
| D2      | d         | D1      | D2 | D3   | D4  | L    | L1** | L2  | L3  | L4 |    |
| ER 8    | 1.0-2.5   | 8.5     | 8  | 6.5  | 4   | 13.6 | 2.98 | 1.2 | 1.5 | 6. | 1  |
| ER 8    | 3.0-5.0   | 8.5     | 8  | 6.5  | -   | 13.6 | 2.98 | 1.2 | 1.5 | -  | 2  |
| ER 11   | 1.0-2.5   | 11.5    | 11 | 9.5  | 5   | 18   | 3.8  | 2   | 2.5 | 9  | 3  |
| ER 11   | 3.0-7.0   | 11.5    | 11 | 9.5  | -   | 18   | 3.8  | 2   | 2.5 | -  | 4  |
| ER 16   | 1.0-1.59  | 17      | 16 | 13.8 | 7.5 | 27.5 | 6.26 | 2.7 | 4   | 13 | 3  |
| ER 16   | 2.0-4.76  | 17      | 16 | 13.8 | 7.5 | 27.5 | 6.26 | 2.7 | 4   | 10 | 3  |
| ER 16   | 5.0-10.0  | 17      | 16 | 13.8 | -   | 27.5 | 6.26 | 2.7 | 4   | -  | 4  |
| ER 16   | 9.5-10.0  | 17      | 16 | 13.8 | -   | 26*  | 6.26 | 2.7 | 4   | -  | 4  |
| ER 20   | 1.0-1.59  | 21      | 20 | 17.4 | 9   | 31.5 | 6.36 | 2.8 | 4.8 | 16 | 3  |
| ER 20   | 2.0-6.50  | 21      | 20 | 17.4 | 9   | 31.5 | 6.36 | 2.8 | 4.8 | 13 | 3  |
| ER 20   | 7.0-13.0  | 21      | 20 | 17.4 | -   | 31.5 | 6.36 | 2.8 | 4.8 | -  | 4  |
| ER 25   | 1.0-1.59  | 26      | 25 | 22   | 12  | 34   | 6.66 | 3.1 | 5   | 18 | 3  |
| ER 25   | 2.0-7.50  | 26      | 25 | 22   | 12  | 34   | 6.66 | 3.1 | 5   | 15 | 3  |
| ER 25   | 8.0-17.0  | 26      | 25 | 22   | -   | 34   | 6.66 | 3.1 | 5   | -  | 4  |
| ER 32   | 2.0-4.76  | 33      | 32 | 29.2 | 15  | 40   | 7.16 | 3.6 | 5.5 | 20 | 3  |
| ER 32   | 5.0-7.5   | 33      | 32 | 29.2 | 15  | 40   | 7.16 | 3.6 | 5.5 | 15 | 3  |
| ER 32   | 8.0-22.0  | 33      | 32 | 29.2 | -   | 40   | 7.16 | 3.6 | 5.5 | -  | 4  |
| ER 40   | 3.0-4.76  | 41      | 40 | 36.2 | 20  | 46   | 7.66 | 4.1 | 7   | 24 | 3  |
| ER 40   | 5.0-8.5   | 41      | 40 | 36.2 | 20  | 46   | 7.66 | 4.1 | 7   | 18 | 3  |
| ER 40   | 9.0-30.0  | 41      | 40 | 36.2 | -   | 46   | 7.66 | 4.1 | 7   | -  | 4  |
| ER 50   | 6.0-10.0  | 52      | 50 | 46   | 20  | 60   | 12.6 | 5.5 | 8.5 | 32 | 3  |
| ER 50   | 12.0-36.0 | 52      | 50 | 46   | -   | 60   | 12.6 | 5.5 | 8.5 | -  | 4  |

\*最大可至直径27.5，取决于订购数量

\*\*L1指露在刀柄外的夹头长度

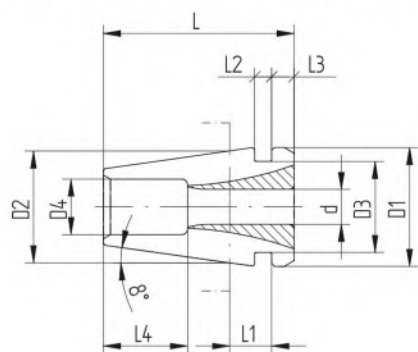


图 1

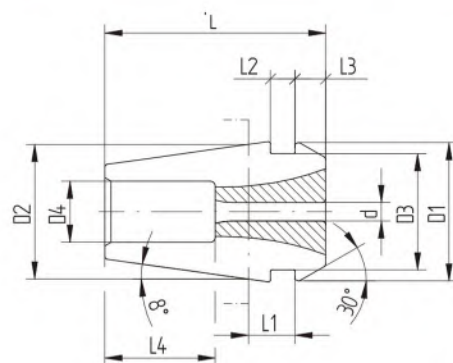


图 3

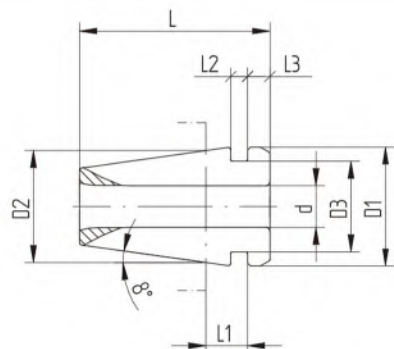


图 2

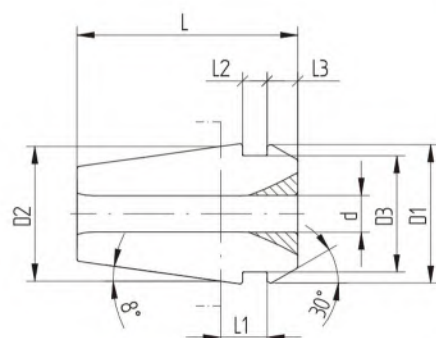


图 4

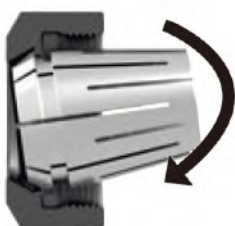
## 延长弹簧夹头和刀具的使用寿命

通过降低加工中的振动，  
来提升表面粗糙度和延长刀具使用寿命。

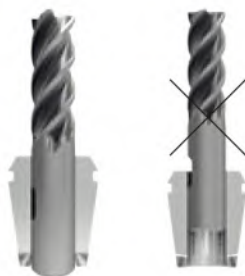
### 正确安装

首先,按照箭头指示方向将弹簧夹头推入直至听到咔哒声响。其次, 刀具塞入长度不要少于弹簧夹头夹持长度的  $\frac{2}{3}$ 。

1.



2.



### 听到咔哒声

当你听到咔哒声后, 无需再拧紧扭矩扳手。



了解更多HN-NC信息, 请参见官网。

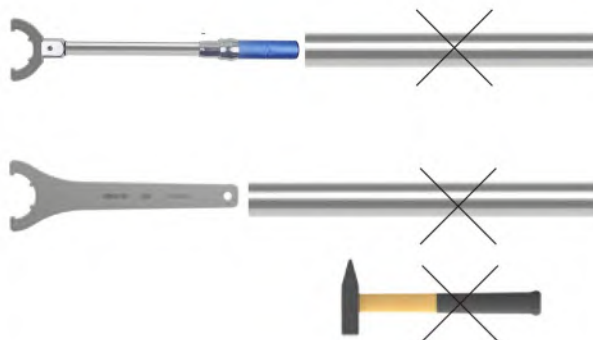
### 请使用HN-NC扳手

安装夹头请使用以下这些特制扳手。  
推荐使用扭矩扳手, 在使用时可以看到扭矩力值。



可以使用常规扳手。请注意, 目前只有扭矩扳手会显示使用的扭矩力值, 其便于操作使用。

### 不要使用任何类型的延长杆或锤子



## 推荐 ER 螺帽锁紧扭矩

|          |          |              | ER/ERC    |       | ERB/ERBC |       | ERM/ERMC |       | ERMx/ERMxC |       | ERAX/ERAXC |       | ER MS     |
|----------|----------|--------------|-----------|-------|----------|-------|----------|-------|------------|-------|------------|-------|-----------|
|          |          |              | 弹簧夹头 [Nm] |       |          |       |          |       |            |       |            |       | 弹簧夹头 [Nm] |
| 弹簧夹头型号   | Ø [mm]   | Ø [inch]     | ER*       | ER-GB | ER*      | ER-GB | ER*      | ER-GB | ER*        | ER-GB | ER*        | ER-GB | ER*       |
| ER 8 MB  | 0.2–0.9  | 0.0078–0.035 | –         | –     | –        | –     | 6        | –     | 6          | –     | –          | –     | 6         |
| ER 8     | 1.0–5.0  | 0.039–0.196  | –         | –     | –        | –     | 6        | –     | 6          | –     | –          | –     | 6         |
| ER 11 MB | 0.2–0.9  | 0.0078–0.035 | 8         | –     | –        | –     | 8        | –     | 8          | –     | 8          | –     | 8         |
| ER 11    | 1.0–2.9  | 0.039–0.098  | 8         | 8     | –        | –     | 8        | 8     | 8          | 8     | 8          | 8     | 10        |
|          | 3.0–7.0  | 0.118–0.256  | 24        | 16    | –        | –     | 16       | 13    | 16         | 13    | 24         | 21    | 10        |
| ER 16 MB | 0.2–0.9  | 0.0078–0.035 | 8         | –     | –        | –     | 8        | –     | 8          | –     | 8          | –     | 12        |
| ER 16    | 1.0      | 0.039        | 8         | –     | 6.4      | –     | 8        | –     | 8          | –     | 8          | –     | 12        |
|          | 1.5–3.5  | 0.059–0.138  | 20        | –     | 16       | –     | 20       | –     | 20         | –     | 20         | –     | 20        |
|          | 4.0–4.5  | 0.157–0.177  | 40        | 40    | 32       | 32    | 24       | –     | 24         | –     | 40         | 40    | 20        |
|          | 5.0–10.0 | 0.197–0.394  | 56        | 44    | 56       | 44    | 24       | –     | 24         | –     | 40         | 40    | –         |
| ER 20    | 1.0      | 0.039        | 16        | –     | 12       | –     | 16       | –     | 16         | –     | 16         | –     | 12        |
|          | 1.5–6.5  | 0.059–0.256  | 32        | 32    | 24       | 24    | 28       | 28    | 28         | 28    | 52         | 35    | 18.4      |
|          | 7.0–13.0 | 0.276–0.512  | 80        | 35    | 80       | 24    | 28       | 28    | 28         | 28    | 52         | 35    | 18.4      |
|          |          |              |           |       |          |       |          |       |            |       |            |       |           |
| ER 25    | 1.0–3.5  | 0.059–0.138  | 24        | –     | 20       | –     | 24       | –     | 24         | –     | 24         | –     | –         |
|          | 4.0–4.5  | 0.157–0.177  | 56        | 56    | 48       | 48    | 32       | 32    | 32         | 32    | 56         | 56    | –         |
|          | 5.0–7.5  | 0.196–0.295  | 80        | 80    | 72       | 72    | 32       | 32    | 32         | 32    | 80         | 80    | –         |
|          | 8.0–17.0 | 0.315–0.669  | 104       | 80    | 104      | 79    | 32       | 32    | 32         | 32    | 80         | 80    | –         |
| ER 32    | 2.0–2.5  | 0.078–0.098  | 24        | 24    | 20       | –     | –        | –     | –          | –     | 24         | –     | –         |
|          | 3.0–7.5  | 0.118–0.291  | 136       | 136   | 128      | 90    | –        | –     | –          | –     | 104        | 90    | –         |
|          | 8.0–22.0 | 0.315–0.787  | 136       | 136   | 136      | 90    | –        | –     | –          | –     | 104        | 90    | –         |
| ER 40    | 3.0–26.0 | 0.118–1.023  | 176       | 176   | 176      | 176   | –        | –     | –          | –     | 128        | 128   | –         |
| ER 50    | 6.0–36.0 | 0.236–1.417  | 240       | 300   | 240      | 300   | –        | –     | –          | –     | –          | –     | –         |



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