

# BR-G8A

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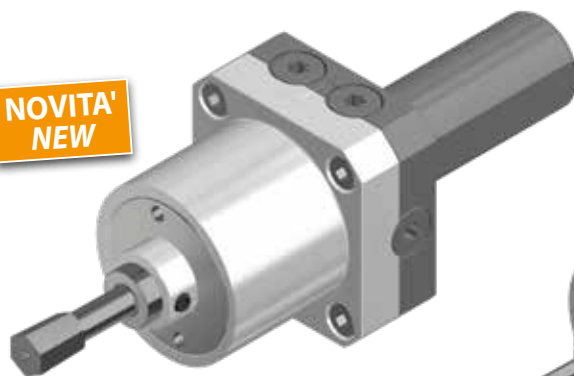


## BM-260

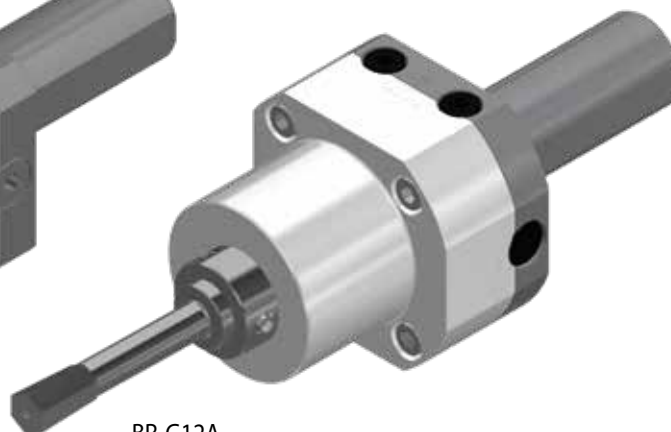
## BRIGHETTI MECCANICA



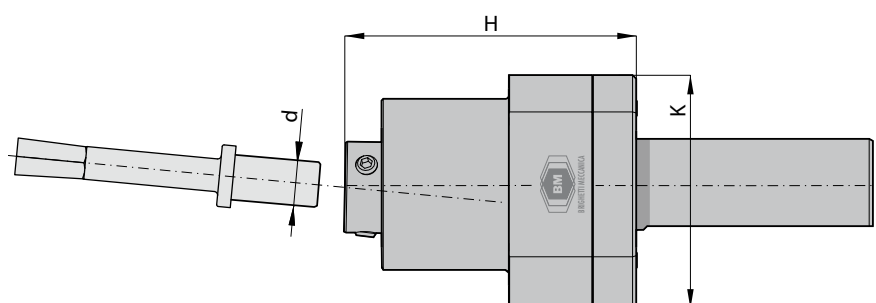
**NOVITA'  
NEW**



BR-G8A



BR-G12A



| CARATTERISTICHE /<br>FEATURES                         | dim. | BROCCIATORE<br>BROACHING HEAD (BR) |        |         |
|-------------------------------------------------------|------|------------------------------------|--------|---------|
|                                                       |      |                                    | BR-G8A | BR-G12A |
| GAMBO DELLA BROCCIA<br>SHANK OF THE BROACH            | d    | mm                                 | Ø8     | Ø12     |
| CAPACITA' CAVE ESAGONALI<br>HEXAGONAL SLOT CAPACITY   |      | mm                                 | 1÷10   | 4÷15    |
| CAPACITA' CAVE QUADRE<br>SQUARE SLOT CAPACITY         |      | mm                                 | 1÷8    | 4÷12    |
| CAPACITA' CAVE TORX®<br>TORX® SLOT CAPACITY           |      | T                                  | 3÷40 * | 3÷60 ** |
| CAPACITA' CAVE TORX® PLUS<br>TORX® PLUS SLOT CAPACITY |      | IP                                 | 6÷40 * | 6÷60 ** |
| PROFONDITA' MAX DI LAVORO<br>MAXIMUM WORKING DEPTH    |      | mm                                 | 18÷30  | 21÷55   |
| DIMENSIONE CORPO<br>BODY DIMENSIONS                   | H    | mm                                 | 57     | 80      |
| DIMENSIONE CORPO<br>BODY DIMENSIONS                   | K    | mm                                 | 45     | 64      |
| PESO (indicativo)<br>WEIGHT (indicative)              |      | gr.                                | 700    | 1625    |

Sul brocciatore **BR-G8A**

montare le brocche:

- metriche **G8A** > vedi pag. 22

- in pollici **GP8A** > vedi pag. 38

Broaching head **BR-G8A** can be used:

- metric broaches **G8A** > see page 22

- inches broaches **GP8A** > see page 38



Sul brocciatore **BR-G12A**

montare le brocche:

- metriche **G12A** > vedi pag. 25

- in pollici **GP12A** > vedi pag. 40

Broaching head **BR-G12A** can be used:

- metric broaches **G12A** > see page 25

- inches broaches **GP12A** > see page 40



| TIPO DI ATTACCO /<br>CONNECTIONS                                             | BROCCIATORE /<br>BROACHING HEAD (BR) |                                      |
|------------------------------------------------------------------------------|--------------------------------------|--------------------------------------|
|                                                                              | BR-G8A                               | BR-G12A                              |
| CODOLO CILINDRICO<br>CYLINDRICAL CONNECTION                                  | Ø 16                                 | 19,05                                |
|                                                                              | Ø 19,05                              | 20                                   |
|                                                                              | Ø 20                                 | 22                                   |
|                                                                              | Ø 22                                 | 25                                   |
|                                                                              | Ø 25                                 | 25,40                                |
|                                                                              | Ø 25,40                              | 32                                   |
| CODOLO CONO MORSE "CM"<br>"CM" MORSE TAPER CONNECTION                        |                                      | 3                                    |
| CODOLO "ISO - DIN 69871 / DIN 2080"<br>"ISO-DIN 69871 / DIN 2080" CONNECTION |                                      | 30 - 40<br>a richiesta<br>on request |
| CODOLO "VDI"<br>"VDI" CONNECTION                                             |                                      | 30 - 40<br>a richiesta<br>on request |
| CODOLO "CAPTO ISO-26623"<br>"CAPTO ISO-26623" CONNECTION                     |                                      | a richiesta<br>on request            |



\* Brocche standard: L = 18 / 25 / 30

\* Standard broaches: L = 18 / 25 / 30

\*\* Brocche standard: L = 25 / 50 / 60

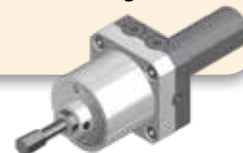
\*\* Standard broaches: L = 25 / 50 / 60


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## BROCCHE G8A - DIAMETRO "d" DEL GAMBO: 8 mm

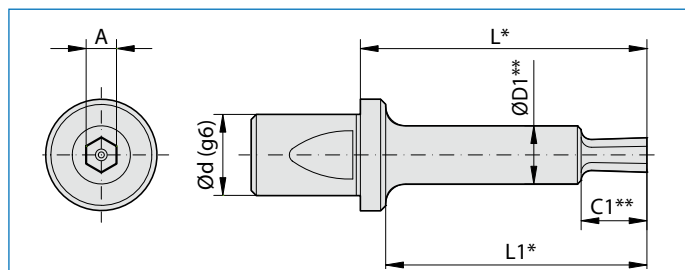
### G8A BROACHES - 8 mm SHANK DIAMETER ("d")

Per Brocciatori REGISTRABILI /  
For ADJUSTABLE Broaching Heads  
**BR-G8A**

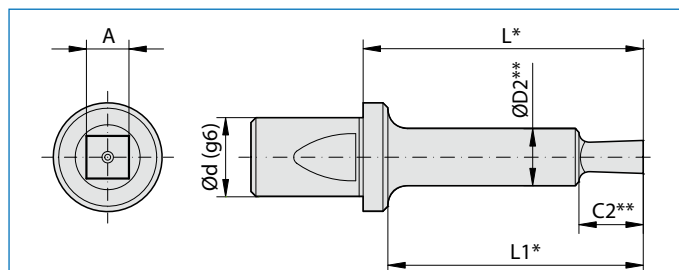


#### Sezione ESAGONALE standard (E) Standard HEXAGONAL section (E)

#### Sezione QUADRA standard (Q) Standard SQUARE section (Q)



"G8A" - "G8AK" STANDARD  
"G8A" - "G8AK" STANDARD

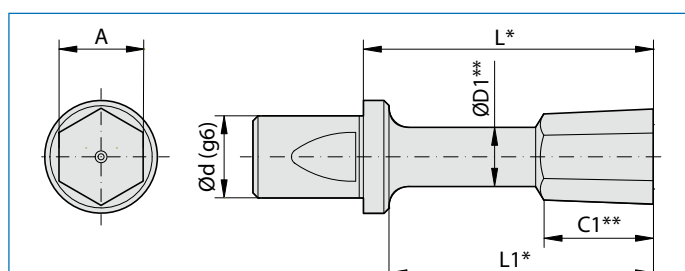


"G8A" - "G8AK" STANDARD  
"G8A" - "G8AK" STANDARD

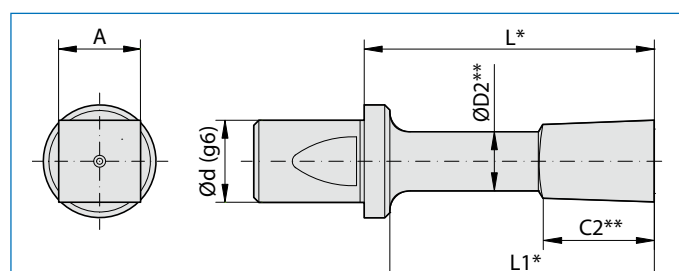
| ESAGONALE / HEXAGONAL                   |                          |
|-----------------------------------------|--------------------------|
| ARTICOLO (materiale)<br>ITEM (material) |                          |
| HSS                                     | SINTERIZZATO<br>SINTERED |
| Standard                                | Standard                 |
| G8A-E-3                                 | G8AK-E-3                 |
| G8A-E-3,5                               | G8AK-E-3,5               |
| G8A-E-4                                 | G8AK-E-4                 |
| G8A-E-4,5                               | G8AK-E-4,5               |
| G8A-E-5                                 | G8AK-E-5                 |
| G8A-E-5,5                               | G8AK-E-5,5               |
| G8A-E-6                                 | G8AK-E-6                 |
| G8A-E-7                                 | G8AK-E-7                 |

| QUADRA / SQUARE                         |                          |
|-----------------------------------------|--------------------------|
| ARTICOLO (materiale)<br>ITEM (material) |                          |
| HSS                                     | SINTERIZZATO<br>SINTERED |
| Standard                                | Standard                 |
| G8A-Q-3                                 | G8AK-Q-3                 |
| G8A-Q-3,5                               | G8AK-Q-3,5               |
| G8A-Q-4                                 | G8AK-Q-4                 |
| G8A-Q-4,5                               | G8AK-Q-4,5               |
| G8A-Q-5                                 | G8AK-Q-5                 |
| G8A-Q-5,5                               | G8AK-Q-5,5               |
| G8A-Q-6                                 | G8AK-Q-6                 |
| G8A-Q-7                                 | G8AK-Q-7                 |

| DIMENSIONI - DIMENSIONS |                 |     |    |      |      |      |      |                    | Utilizzo su<br>Brocciatori/<br>Use on<br>Broaching heads |
|-------------------------|-----------------|-----|----|------|------|------|------|--------------------|----------------------------------------------------------|
| d                       | A               | L1* | L* | C1** | C2** | D1** | D2** |                    |                                                          |
| 8                       | 3 +0,06 +0,08   | 26  | 30 | 7    | 7    | 6,5  | 6,5  | Standard<br>BR-G8A |                                                          |
| 8                       | 3,5 +0,06 +0,08 | 26  | 30 | 9    | 9    | 6,5  | 7,5  |                    |                                                          |
| 8                       | 4 +0,07 +0,09   | 26  | 30 | 9    | 9    | 6,5  | 7,5  |                    |                                                          |
| 8                       | 4,5 +0,07 +0,09 | 26  | 30 | 11   | 11   | 7,5  | 8,5  |                    |                                                          |
| 8                       | 5 +0,08 +0,10   | 26  | 30 | 11   | 11   | 7,5  | 8,5  |                    |                                                          |
| 8                       | 5,5 +0,08 +0,10 | 26  | 30 | 13   | 13   | 8,5  | 9,5  |                    |                                                          |
| 8                       | 6 +0,08 +0,10   | 26  | 30 | 13   | 13   | 8,5  | 9,5  |                    |                                                          |
| 8                       | 7 +0,08 +0,10   | 26  | 30 | 13   | 13   | 9,5  | 9    |                    |                                                          |



"G8A" - "G8AK" STANDARD  
"G8A" - "G8AK" STANDARD



"G8A" - "G8AK" STANDARD  
"G8A" - "G8AK" STANDARD

|          |           |
|----------|-----------|
| G8A-E-8  | G8AK-E-8  |
| G8A-E-9  | G8AK-E-9  |
| G8A-E-10 | G8AK-E-10 |

|         |          |
|---------|----------|
| G8A-Q-8 | G8AK-Q-8 |
| /       | /        |

|   |                |    |    |      |      |   |   |                    |  |
|---|----------------|----|----|------|------|---|---|--------------------|--|
| 8 | 8 +0,08 +0,10  | 26 | 30 | 11,5 | 11,5 | 6 | 6 | Standard<br>BR-G8A |  |
| 8 | 9 +0,09 +0,11  | 26 | 30 | 11,5 | /    | 7 | / |                    |  |
| 8 | 10 +0,10 +0,12 | 26 | 30 | 11,5 | /    | 8 | / |                    |  |

C = Profondità utile di brocciatura / C = Depth of the shape  
L1 = Profondità max. di lavoro / L1 = Maximum broaching depth

\* le quote L e L1 indicate in tabella sono le misure standard, ma a richiesta sono fornibili anche con misure inferiori: L = 18 o 25mm / L1 = 14 o 21mm.  
the dimensions L and L1 show in the table is the standard sizes, but, on request, it can it also supplied with small sizes: L = 18 or 25mm / L1 = 14 or 21mm.

\*\* le quote C1, C2, D1 e D2 possono essere modificate a seconda delle necessità del cliente. Contattare la Brighetti Meccanica.  
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In questi articoli possiamo eseguire i seguenti rivestimenti: **WONDER, TiN, INOX PLUS e ZIRINOS** > vedi pag.18  
Available coatings for the up above mentioned items: **WONDER, TiN, INOX PLUS and ZIRINOS** > see page 18





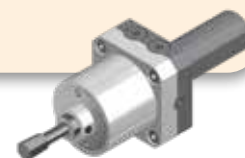
# BROCCE GP8A - DIAMETRO "d" DEL GAMBO: 8 mm MISURE IN POLLICI

GP8A BROACHES - 8 mm SHANK DIAMETER ("d")  
SIZES IN INCHES

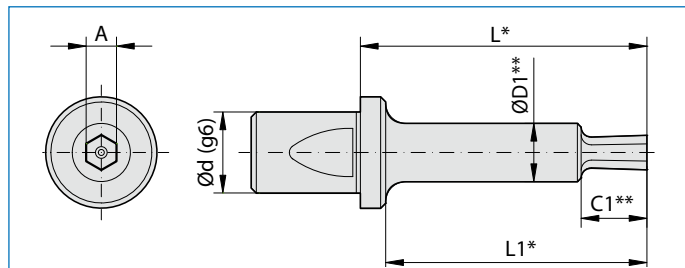
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Per Brocciatori REGISTRABILI /  
For ADJUSTABLE Broaching Heads

BR-G8A

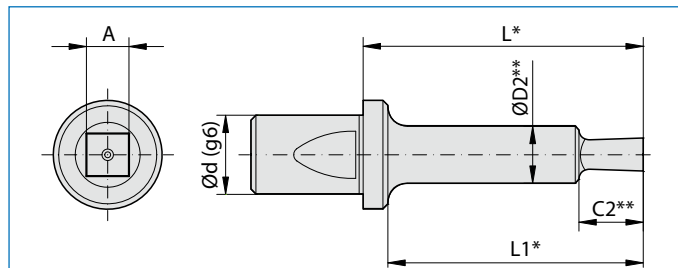


## Sezione ESAGONALE standard (E) Standard HEXAGONAL section (E)



"GP8A" - "GP8AK" STANDARD  
"GP8A" - "GP8AK" STANDARD

## Sezione QUADRA standard (Q) Standard SQUARE section (Q)

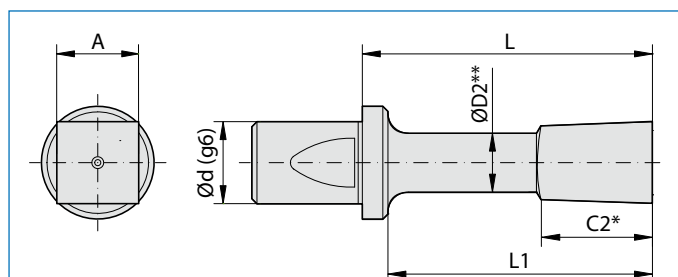


"GP8A" - "GP8AK" STANDARD  
"GP8A" - "GP8AK" STANDARD

| ESAGONALE / HEXAGONAL                   |                          |
|-----------------------------------------|--------------------------|
| ARTICOLO (materiale)<br>ITEM (material) |                          |
| HSS                                     | SINTERIZZATO<br>SINTERED |
| Standard                                | Standard                 |
| GP8A-E-3/32"                            | GP8AK-E-3/32"            |
| GP8A-E-1/8"                             | GP8AK-E-1/8"             |
| GP8A-E-5/32"                            | GP8AK-E-5/32"            |
| GP8A-E-3/16"                            | GP8AK-E-3/16"            |
| GP8A-E-7/32"                            | GP8AK-E-7/32"            |
| GP8A-E-1/4"                             | GP8AK-E-1/4"             |

| QUADRA / SQUARE                         |                          |
|-----------------------------------------|--------------------------|
| ARTICOLO (materiale)<br>ITEM (material) |                          |
| HSS                                     | SINTERIZZATO<br>SINTERED |
| Standard                                | Standard                 |
| GP8A-Q-3/32"                            | GP8AK-Q-3/32"            |
| GP8A-Q-1/8"                             | GP8AK-Q-1/8"             |
| GP8A-Q-5/32"                            | GP8AK-Q-5/32"            |
| GP8A-Q-3/16"                            | GP8AK-Q-3/16"            |
| GP8A-Q-7/32"                            | GP8AK-Q-7/32"            |
| /                                       | /                        |

| DIMENSIONI - DIMENSIONS |                  |     |    |      |      |      |      | Utilizzo su<br>Brocciatori/<br>Use on<br>Broaching heads |
|-------------------------|------------------|-----|----|------|------|------|------|----------------------------------------------------------|
| d                       | A                | L1* | L* | C1** | C2** | D1** | D2** |                                                          |
| 8                       | 2,38 +0,06 +0,08 | 26  | 30 | 7    | 7    | 6,5  | 6,5  | Standard<br>BR-G8A                                       |
| 8                       | 3,17 +0,07 +0,09 | 26  | 30 | 7    | 7    | 6,5  | 6,5  |                                                          |
| 8                       | 3,97 +0,08 +0,10 | 26  | 30 | 9    | 9    | 6,5  | 7,5  |                                                          |
| 8                       | 4,76 +0,08 +0,10 | 26  | 30 | 11   | 11   | 7,5  | 8,5  |                                                          |
| 8                       | 5,55 +0,08 +0,10 | 26  | 30 | 13   | 13   | 8,5  | 9,5  |                                                          |
| 8                       | 6,35 +0,08 +0,10 | 26  | 30 | 13   | /    | 8,5  | /    |                                                          |



"GP8A" - "GP8AK" STANDARD  
"GP8A" - "GP8AK" STANDARD

|             |              |
|-------------|--------------|
| GP8A-Q-1/4" | GP8AK-Q-1/4" |
|             |              |
|             |              |

|   |                  |    |    |   |    |   |   |                    |
|---|------------------|----|----|---|----|---|---|--------------------|
| 8 | 6,35 +0,08 +0,10 | 26 | 30 | / | 13 | / | 6 | Standard<br>BR-G8A |
|   |                  |    |    |   |    |   |   |                    |
|   |                  |    |    |   |    |   |   |                    |

C = Profondità utile di brocciatura / C = Depth of the shape  
L1 = Profondità max. di lavoro / L1 = Maximum broaching depth

\* le quote L e L1 indicate in tabella sono le misure standard, ma a richiesta sono fornibili anche con misure inferiori: L = 18 o 25mm / L1 = 14 o 21mm.  
the dimensions L and L1 show in the table is the standard sizes, but, on request, it can it also supplied with small sizes: L = 18 or 25mm / L1 = 14 or 21mm.

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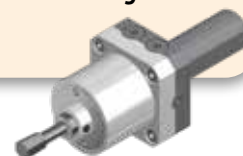
Available coatings for the up above mentioned items: **WONDER, TiN, INOX PLUS and ZIRINOS** > see page 18




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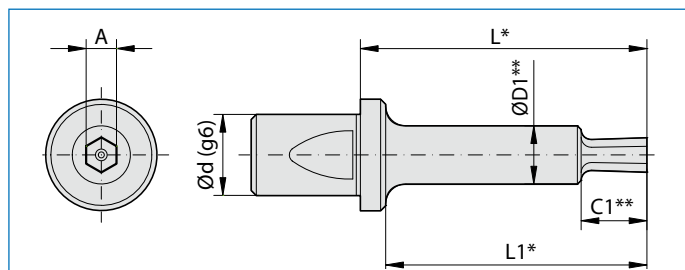
# **BROCCE G8A - DIAMETRO "d" DEL GAMBO: 8 mm** **G8A BROACHES - 8 mm SHANK DIAMETER ("d")**

**Per Brocciatori REGISTRABILI /**  
**For ADJUSTABLE Broaching Heads**  
**BR-G8A**

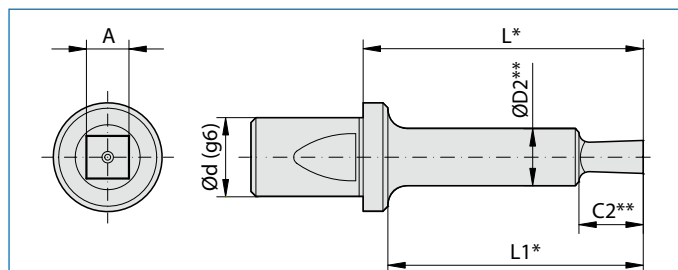


## **Sezione ESAGONALE standard (E)** **Standard HEXAGONAL section (E)**

## **Sezione QUADRA standard (Q)** **Standard SQUARE section (Q)**



"G8A" - "G8AK" STANDARD  
"G8A" - "G8AK" STANDARD

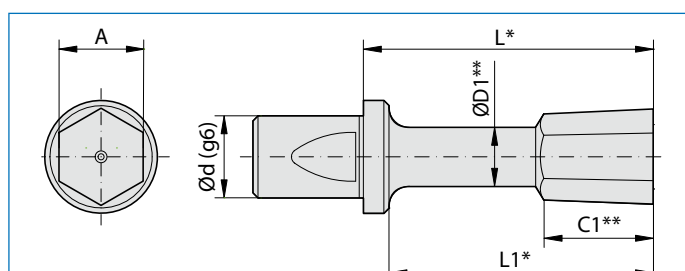


"G8A" - "G8AK" STANDARD  
"G8A" - "G8AK" STANDARD

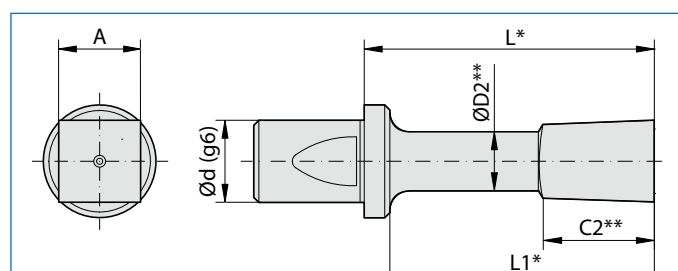
| ESAGONALE / HEXAGONAL                   |                          |
|-----------------------------------------|--------------------------|
| ARTICOLO (materiale)<br>ITEM (material) |                          |
| HSS                                     | SINTERIZZATO<br>SINTERED |
| Standard                                | Standard                 |
| G8A-E-3                                 | G8AK-E-3                 |
| G8A-E-3,5                               | G8AK-E-3,5               |
| G8A-E-4                                 | G8AK-E-4                 |
| G8A-E-4,5                               | G8AK-E-4,5               |
| G8A-E-5                                 | G8AK-E-5                 |
| G8A-E-5,5                               | G8AK-E-5,5               |
| G8A-E-6                                 | G8AK-E-6                 |
| G8A-E-7                                 | G8AK-E-7                 |

| QUADRA / SQUARE                         |                          |
|-----------------------------------------|--------------------------|
| ARTICOLO (materiale)<br>ITEM (material) |                          |
| HSS                                     | SINTERIZZATO<br>SINTERED |
| Standard                                | Standard                 |
| G8A-Q-3                                 | G8AK-Q-3                 |
| G8A-Q-3,5                               | G8AK-Q-3,5               |
| G8A-Q-4                                 | G8AK-Q-4                 |
| G8A-Q-4,5                               | G8AK-Q-4,5               |
| G8A-Q-5                                 | G8AK-Q-5                 |
| G8A-Q-5,5                               | G8AK-Q-5,5               |
| G8A-Q-6                                 | G8AK-Q-6                 |
| G8A-Q-7                                 | G8AK-Q-7                 |

| DIMENSIONI - DIMENSIONS |                 |     |    |      |      |      |      |                    | Utilizzo su<br>Brocciatori/<br>Use on<br>Broaching heads |
|-------------------------|-----------------|-----|----|------|------|------|------|--------------------|----------------------------------------------------------|
| d                       | A               | L1* | L* | C1** | C2** | D1** | D2** |                    |                                                          |
| 8                       | 3 +0,06 +0,08   | 26  | 30 | 7    | 7    | 6,5  | 6,5  | Standard<br>BR-G8A |                                                          |
| 8                       | 3,5 +0,06 +0,08 | 26  | 30 | 9    | 9    | 6,5  | 7,5  |                    |                                                          |
| 8                       | 4 +0,07 +0,09   | 26  | 30 | 9    | 9    | 6,5  | 7,5  |                    |                                                          |
| 8                       | 4,5 +0,07 +0,09 | 26  | 30 | 11   | 11   | 7,5  | 8,5  |                    |                                                          |
| 8                       | 5 +0,08 +0,10   | 26  | 30 | 11   | 11   | 7,5  | 8,5  |                    |                                                          |
| 8                       | 5,5 +0,08 +0,10 | 26  | 30 | 13   | 13   | 8,5  | 9,5  |                    |                                                          |
| 8                       | 6 +0,08 +0,10   | 26  | 30 | 13   | 13   | 8,5  | 9,5  |                    |                                                          |
| 8                       | 7 +0,08 +0,10   | 26  | 30 | 13   | 13   | 9,5  | 9    |                    |                                                          |



"G8A" - "G8AK" STANDARD  
"G8A" - "G8AK" STANDARD



"G8A" - "G8AK" STANDARD  
"G8A" - "G8AK" STANDARD

|          |           |
|----------|-----------|
| G8A-E-8  | G8AK-E-8  |
| G8A-E-9  | G8AK-E-9  |
| G8A-E-10 | G8AK-E-10 |

|         |          |
|---------|----------|
| G8A-Q-8 | G8AK-Q-8 |
| /       | /        |

|   |                |    |    |      |      |   |   |                    |
|---|----------------|----|----|------|------|---|---|--------------------|
| 8 | 8 +0,08 +0,10  | 26 | 30 | 11,5 | 11,5 | 6 | 6 | Standard<br>BR-G8A |
| 8 | 9 +0,09 +0,11  | 26 | 30 | 11,5 | /    | 7 | / |                    |
| 8 | 10 +0,10 +0,12 | 26 | 30 | 11,5 | /    | 8 | / |                    |

C = Profondità utile di brocciatura / C = Depth of the shape  
L1 = Profondità max. di lavoro / L1 = Maximum broaching depth

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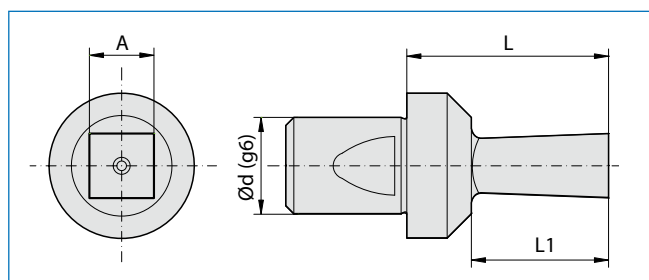


## BROCCE G8 E G8C - DIAMETRO "d" DEL GAMBO: 8 mm

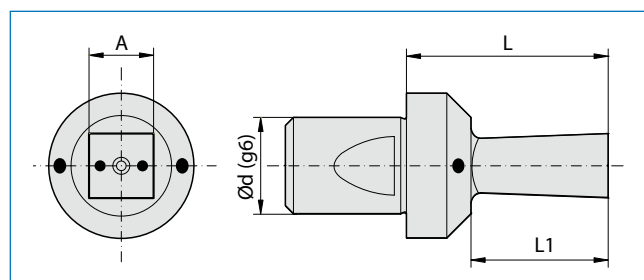
### G8 AND G8C BROACHES - 8 mm SHANK DIAMETER ("d")

#### Sezione QUADRA (Q)

#### SQUARE section (Q)



"G8" - "G8K" STANDARD  
"G8" - "G8K" STANDARD



"G8C" - "G8KC" CON PASSAGGIO REFRIGERANTE INTERNO  
"G8C" - "G8KC" WITH INTERNAL FLOW OF COOLANT

| ARTICOLO (materiale) - ITEM (material) |              |                         |              | DIMENSIONI - DIMENSIONS |                 |    |    | Utilizzo su<br>Brocciatori/<br>Use on<br>Broaching heads |
|----------------------------------------|--------------|-------------------------|--------------|-------------------------|-----------------|----|----|----------------------------------------------------------|
| HSS                                    |              | SINTERIZZATO / SINTERED |              | d                       | A               | L1 | L  |                                                          |
| Standard                               | Ref. / Cool. | Standard                | Ref. / Cool. |                         |                 |    |    |                                                          |
| G8-Q-1                                 | /            | G8K-Q-1                 | /            | 8                       | 1 +0,04 +0,06   | 2  | 18 | Standard<br>BR-G8S<br>BR-G8M<br>BR-G8<br>BR-G8A          |
| G8-Q-1,5                               |              | G8K-Q-1,5               |              | 8                       | 1,5 +0,05 +0,07 | 3  | 18 |                                                          |
| G8-Q-2                                 |              | G8K-Q-2                 |              | 8                       | 2 +0,05 +0,07   | 5  | 18 |                                                          |
| G8-Q-2,5                               |              | G8K-Q-2,5               |              | 8                       | 2,5 +0,06 +0,08 | 6  | 18 |                                                          |
| G8-Q-3                                 | G8C-Q-3      | G8K-Q-3                 | G8KC-Q-3     | 8                       | 3 +0,06 +0,08   | 7  | 18 | Refrig. / Cool.<br>BRC-G8M<br>BRC-G8<br>BRC-G8HP         |
| G8-Q-3,5                               | G8C-Q-3,5    | G8K-Q-3,5               | G8KC-Q-3,5   | 8                       | 3,5 +0,06 +0,08 | 8  | 18 |                                                          |
| G8-Q-4                                 | G8C-Q-4      | G8K-Q-4                 | G8KC-Q-4     | 8                       | 4 +0,07 +0,09   | 9  | 18 |                                                          |
| G8-Q-4,5                               | G8C-Q-4,5    | G8K-Q-4,5               | G8KC-Q-4,5   | 8                       | 4,5 +0,07 +0,09 | 9  | 18 |                                                          |
| G8-Q-5                                 | G8C-Q-5      | G8K-Q-5                 | G8KC-Q-5     | 8                       | 5 +0,08 +0,10   | 11 | 18 |                                                          |
| G8-Q-5,5                               | G8C-Q-5,5    | G8K-Q-5,5               | G8KC-Q-5,5   | 8                       | 5,5 +0,08 +0,10 | 11 | 18 |                                                          |
| G8-Q-6                                 | G8C-Q-6      | G8K-Q-6                 | G8KC-Q-6     | 8                       | 6 +0,08 +0,10   | 13 | 18 |                                                          |
| G8-Q-7                                 | G8C-Q-7      | G8K-Q-7                 | G8KC-Q-7     | 8                       | 7 +0,08 +0,10   | 13 | 18 |                                                          |
| G8-Q-8                                 | G8C-Q-8      | G8K-Q-8                 | G8KC-Q-8     | 8                       | 8 +0,08 +0,10   | 13 | 18 |                                                          |

In questi articoli possiamo eseguire i seguenti rivestimenti: **WONDER, TiN, INOX PLUS e ZIRINOS** > vedi pag.18

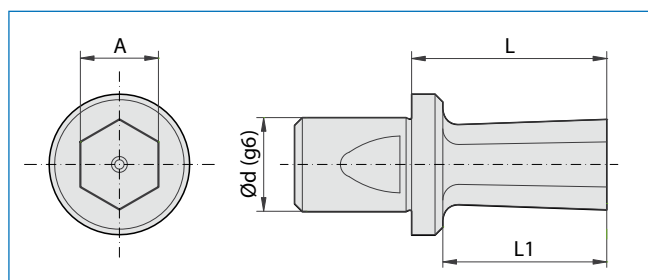
Available coatings for the up above mentioned items: **WONDER, TiN, INOX PLUS and ZIRINOS** > see page 18



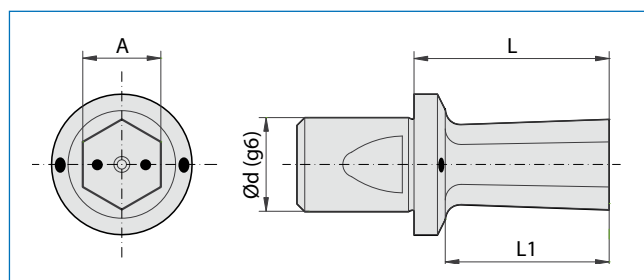


**BROCCE G8 E G8C - DIAMETRO "d" DEL GAMBO: 8 mm**  
**G8 AND G8C BROACHES - 8 mm SHANK DIAMETER ("d")**

**Sezione ESAGONALE (E)**  
**HEXAGONAL section (E)**



"G8" - "G8K" STANDARD  
 "G8" - "G8K" STANDARD



"G8C" - "G8KC" CON PASSAGGIO REFRIGERANTE INTERNO  
 "G8C" - "G8KC" WITH INTERNAL FLOW OF COOLANT

| ARTICOLO (materiale) - ITEM (material)                                                     |                                                                                                |                                                                                            |                                                                                                | DIMENSIONI - DIMENSIONS |                 |    |    | Utilizzo su<br>Brocciatori/<br>Use on<br>Broaching heads |                                                  |
|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-------------------------|-----------------|----|----|----------------------------------------------------------|--------------------------------------------------|
| HSS                                                                                        |                                                                                                | SINTERIZZATO / SINTERED                                                                    |                                                                                                |                         |                 |    |    |                                                          |                                                  |
| Standard  | Ref. / Cool.  | Standard  | Ref. / Cool.  | d                       | A               | L1 | L  |                                                          |                                                  |
| G8-E-1                                                                                     | /                                                                                              | G8K-E-1                                                                                    | /                                                                                              | 8                       | 1 +0,04 +0,06   | 2  | 18 | Standard<br>BR-G8S<br>BR-G8M<br>BR-G8<br>BR-G8A          |                                                  |
| G8-E-1,5                                                                                   |                                                                                                | G8K-E-1,5                                                                                  |                                                                                                | 8                       | 1,5 +0,05 +0,07 | 3  | 18 |                                                          |                                                  |
| G8-E-2                                                                                     |                                                                                                | G8K-E-2                                                                                    |                                                                                                | 8                       | 2 +0,05 +0,07   | 5  | 18 |                                                          |                                                  |
| G8-E-2,5                                                                                   |                                                                                                | G8K-E-2,5                                                                                  |                                                                                                | 8                       | 2,5 +0,05 +0,07 | 6  | 18 |                                                          |                                                  |
| G8-E-3                                                                                     | G8C-E-3                                                                                        | G8K-E-3                                                                                    | G8KC-E-3                                                                                       | 8                       | 3 +0,06 +0,08   | 7  | 18 |                                                          | Refrig. / Cool.<br>BRC-G8M<br>BRC-G8<br>BRC-G8HP |
| G8-E-3,5                                                                                   | G8C-E-3,5                                                                                      | G8K-E-3,5                                                                                  | G8KC-E-3,5                                                                                     | 8                       | 3,5 +0,06 +0,08 | 8  | 18 |                                                          |                                                  |
| G8-E-4                                                                                     | G8C-E-4                                                                                        | G8K-E-4                                                                                    | G8KC-E-4                                                                                       | 8                       | 4 +0,07 +0,09   | 9  | 18 |                                                          |                                                  |
| G8-E-4,5                                                                                   | G8C-E-4,5                                                                                      | G8K-E-4,5                                                                                  | G8KC-E-4,5                                                                                     | 8                       | 4,5 +0,07 +0,09 | 9  | 18 |                                                          |                                                  |
| G8-E-5                                                                                     | G8C-E-5                                                                                        | G8K-E-5                                                                                    | G8KC-E-5                                                                                       | 8                       | 5 +0,08 +0,10   | 11 | 18 |                                                          |                                                  |
| G8-E-5,5                                                                                   | G8C-E-5,5                                                                                      | G8K-E-5,5                                                                                  | G8KC-E-5,5                                                                                     | 8                       | 5,5 +0,08 +0,10 | 11 | 18 |                                                          |                                                  |
| G8-E-6                                                                                     | G8C-E-6                                                                                        | G8K-E-6                                                                                    | G8KC-E-6                                                                                       | 8                       | 6 +0,08 +0,10   | 13 | 18 |                                                          |                                                  |
| G8-E-7                                                                                     | G8C-E-7                                                                                        | G8K-E-7                                                                                    | G8KC-E-7                                                                                       | 8                       | 7 +0,08 +0,10   | 13 | 18 |                                                          |                                                  |
| G8-E-8                                                                                     | G8C-E-8                                                                                        | G8K-E-8                                                                                    | G8KC-E-8                                                                                       | 8                       | 8 +0,08 +0,10   | 13 | 18 |                                                          |                                                  |
| G8-E-9                                                                                     | G8C-E-9                                                                                        | G8K-E-9                                                                                    | G8KC-E-9                                                                                       | 8                       | 9 +0,09 +0,11   | 13 | 18 |                                                          |                                                  |
| G8-E-10                                                                                    | G8C-E-10                                                                                       | G8K-E-10                                                                                   | G8KC-E-10                                                                                      | 8                       | 10 +0,10 +0,12  | 13 | 18 |                                                          |                                                  |

In questi articoli possiamo eseguire i seguenti rivestimenti: **WONDER, TiN, INOX PLUS e ZIRINOS** > vedi pag.18

Available coatings for the up above mentioned items: **WONDER, TiN, INOX PLUS and ZIRINOS** > see page 18





# Smussi per brocciatura profili esagonali, quadri, Torx® e Torx® Plus

## Chamfer broaching: exagonal, square, Torx® and Torx® Plus

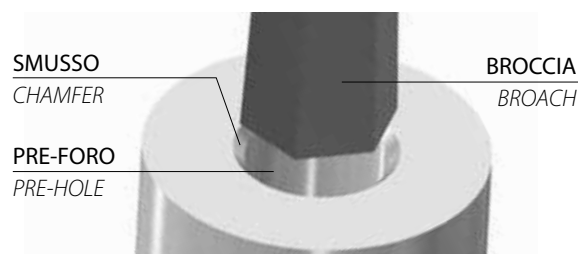
**I** Per effettuare una corretta brocciatura, è necessario realizzare uno smusso in testa al pre-foro. Questo smusso, ha la funzione di accompagnare la broccia verso il pre-foro evitando che si scheggi prima che essa cominci il lavoro di compressione del materiale. E' fondamentale appoggiare la broccia allo smusso a macchina ferma.

**GB** To carry out correct broaching, it is necessary to create a chamfer at the head of the pre-hole. This chamfer has the function of accompanying the broach towards the pre-hole, preventing it from chipping before it begins the work of compressing the material. It is essential to rest the broach on the chamfer with the machine stopped.



### ESAGONI METRICI / METRIC HEXAGONS

| dimens. | SMUSSO / CHAMFER | dimens. | SMUSSO / CHAMFER |
|---------|------------------|---------|------------------|
| 1       | Ø 1,25           | 19      | Ø 22,15          |
| 1,5     | Ø 1,90           | 20      | Ø 23,30          |
| 2       | Ø 2,40           | 21      | Ø 24,50          |
| 2,5     | Ø 3,00           | 22      | Ø 25,60          |
| 3       | Ø 3,60           | 23      | Ø 26,80          |
| 3,5     | Ø 4,15           | 24      | Ø 28,00          |
| 4       | Ø 4,75           | 25      | Ø 29,10          |
| 4,5     | Ø 5,35           | 26      | Ø 30,25          |
| 5       | Ø 5,90           | 27      | Ø 31,45          |
| 5,5     | Ø 6,50           | 28      | Ø 32,60          |
| 6       | Ø 7,05           | 29      | Ø 33,75          |
| 7       | Ø 8,20           | 30      | Ø 34,90          |
| 8       | Ø 9,35           | 31      | Ø 36,10          |
| 9       | Ø 10,50          | 32      | Ø 37,20          |
| 10      | Ø 11,67          | 33      | Ø 38,40          |
| 11      | Ø 12,85          | 34      | Ø 39,55          |
| 12      | Ø 14,00          | 35      | Ø 40,70          |
| 13      | Ø 15,15          | 36      | Ø 41,90          |
| 14      | Ø 16,30          | 37      | Ø 42,95          |
| 15      | Ø 17,50          | 38      | Ø 44,10          |
| 16      | Ø 18,65          | 39      | Ø 45,26          |
| 17      | Ø 19,80          | 40      | Ø 46,45          |
| 18      | Ø 21,00          |         |                  |



### QUADRI METRICI / METRIC SQUARE

| dimens. | SMUSSO / CHAMFER | dimens. | SMUSSO / CHAMFER |
|---------|------------------|---------|------------------|
| 1       | Ø 1,50           | 11      | Ø 15,70          |
| 1,5     | Ø 2,25           | 12      | Ø 17,10          |
| 2       | Ø 3,00           | 13      | Ø 18,55          |
| 2,5     | Ø 3,80           | 14      | Ø 19,95          |
| 3       | Ø 4,35           | 15      | Ø 21,35          |
| 3,5     | Ø 5,10           | 16      | Ø 22,80          |
| 4       | Ø 5,80           | 17      | Ø 24,20          |
| 4,5     | Ø 6,50           | 18      | Ø 25,65          |
| 5       | Ø 7,20           | 19      | Ø 27,05          |
| 5,5     | Ø 8,00           | 20      | Ø 28,50          |
| 6       | Ø 8,60           | 21      | Ø 29,90          |
| 7       | Ø 10,00          | 22      | Ø 31,35          |
| 8       | Ø 11,45          | 23      | Ø 32,75          |
| 9       | Ø 12,85          | 24      | Ø 34,15          |
| 10      | Ø 14,30          | 25      | Ø 35,60          |



### ESAGONI IN POLLICI / HEXAGONS IN INCHES

| dimens. | SMUSSO / CHAMFER | dimens. | SMUSSO / CHAMFER |
|---------|------------------|---------|------------------|
| 3/32"   | Ø 2,95           | 3/8"    | Ø 11,15          |
| 1/8"    | Ø 3,75           | 7/16"   | Ø 12,95          |
| 5/32"   | Ø 4,70           | 1/2"    | Ø 14,85          |
| 3/16"   | Ø 5,60           | 9/16"   | Ø 16,70          |
| 7/32"   | Ø 6,55           | 5/8"    | Ø 18,50          |
| 1/4"    | Ø 7,45           | 3/4"    | Ø 22,20          |
| 9/32"   | Ø 8,90           | 7/8"    | Ø 25,90          |
| 5/16"   | Ø 9,30           | 1"      | Ø 29,55          |



### QUADRI IN POLLICI / SQUARE IN INCHES

| dimens. | SMUSSO / CHAMFER | dimens. | SMUSSO / CHAMFER |
|---------|------------------|---------|------------------|
| 3/32"   | Ø 3,50           | 3/8"    | Ø 13,80          |
| 1/8"    | Ø 4,75           | 7/16"   | Ø 16,00          |
| 5/32"   | Ø 5,80           | 1/2"    | Ø 18,30          |
| 3/16"   | Ø 7,00           | 9/16"   | Ø 20,50          |
| 7/32"   | Ø 8,10           | 5/8"    | Ø 22,80          |
| 1/4"    | Ø 9,20           | 3/4"    | Ø 27,40          |
| 9/32"   | Ø 10,30          | 7/8"    | Ø 32,00          |
| 5/16"   | Ø 11,50          | 1"      | Ø 36,50          |



### TORX / TORX

| dimens. | SMUSSO / CHAMFER | dimens. | SMUSSO / CHAMFER |
|---------|------------------|---------|------------------|
| T3      | Ø 1,25           | T25     | Ø 4,60           |
| T4      | Ø 1,40           | T27     | Ø 5,15           |
| T5      | Ø 1,60           | T30     | Ø 5,65           |
| T6      | Ø 1,80           | T40     | Ø 6,85           |
| T7      | Ø 2,10           | T45     | Ø 8,00           |
| T8      | Ø 2,45           | T50     | Ø 9,00           |
| T9      | Ø 2,60           | T55     | Ø 11,40          |
| T10     | Ø 2,85           | T60     | Ø 13,50          |
| T15     | Ø 3,40           | T70     | Ø 15,80          |
| T20     | Ø 4,00           |         |                  |



### BROCCE TORX PLUS / TORX PLUS BROACHES

| dimens. | SMUSSO / CHAMFER | dimens. | SMUSSO / CHAMFER |
|---------|------------------|---------|------------------|
| IP6     | Ø 1,80           | IP27    | Ø 5,30           |
| IP7     | Ø 2,20           | IP30    | Ø 5,70           |
| IP8     | Ø 2,50           | IP40    | Ø 7,00           |
| IP9     | Ø 2,70           | IP45    | Ø 8,20           |
| IP10    | Ø 3,00           | IP50    | Ø 9,20           |
| IP15    | Ø 3,50           | IP55    | Ø 11,50          |
| IP20    | Ø 4,10           | IP60    | Ø 13,60          |
| IP25    | Ø 4,70           | IP70    | Ø 16,00          |



# Pre-foro per brocciatura profili esagonali, quadri, Torx® e Torx® Plus

## Pre-hole broaching: exagonal, square, Torx® and Torx® Plus

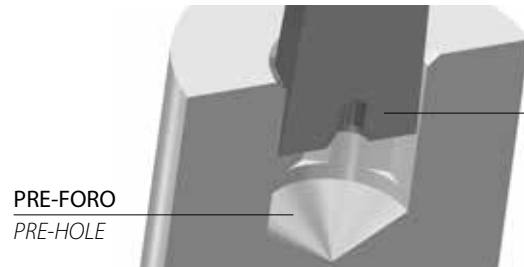
**I** Prima della procedura di brocciatura è fondamentale generare uno smusso in testa al pre foro. La profondità del pre-foro si incrementa del 20%-40% rispetto al profilo utile da eseguire. La soluzione ottimale, comunque, sarebbe quella di eseguire una gola di scarico alla fine del foro, per agevolare ulteriormente lo scarico del truciolo.

**GB** Before the broaching procedure it is essential to create a chamfer on the pre-hole. The depth of the pre-hole is increased by: 20% -40% compared to the profile to be obtained; the best solution, however, it's to get a chip discharge groove, at the end of the profile, to facilitate the chip evacuation.



### BROCCE ESAGONALI / EXAGONAL BROACHES

| dimens. | PRE FORO / PRE-HOLE | dimens. | PRE FORO / PRE-HOLE |
|---------|---------------------|---------|---------------------|
| 1       | Ø 1,05 +0,10/0      | 19      | Ø 20,60 +0,20/0     |
| 1,5     | Ø 1,55 +0,10/0      | 20      | Ø 19,55 +0,20/0     |
| 2       | Ø 2,10 +0,10/0      | 21      | Ø 21,60 +0,20/0     |
| 2,5     | Ø 2,60 +0,10/0      | 22      | Ø 22,65 +0,20/0     |
| 3       | Ø 3,10 +0,10/0      | 23      | Ø 23,65 +0,20/0     |
| 3,5     | Ø 3,60 +0,10/0      | 24      | Ø 24,70 +0,20/0     |
| 4       | Ø 4,15 +0,10/0      | 25      | Ø 25,75 +0,30/0     |
| 4,5     | Ø 4,60 +0,10/0      | 26      | Ø 26,80 +0,30/0     |
| 5       | Ø 5,15 +0,10/0      | 27      | Ø 27,80 +0,30/0     |
| 5,5     | Ø 5,75 +0,10/0      | 28      | Ø 28,85 +0,30/0     |
| 6       | Ø 6,20 +0,10/0      | 29      | Ø 29,90 +0,30/0     |
| 7       | Ø 7,20 +0,15/0      | 30      | Ø 30,90 +0,30/0     |
| 8       | Ø 8,25 +0,15/0      | 31      | Ø 32,00 +0,30/0     |
| 9       | Ø 9,25 +0,15/0      | 32      | Ø 33,20 +0,30/0     |
| 10      | Ø 10,30 +0,15/0     | 33      | Ø 34,30 +0,30/0     |
| 11      | Ø 11,30 +0,15/0     | 34      | Ø 35,35 +0,30/0     |
| 12      | Ø 12,35 +0,15/0     | 35      | Ø 36,40 +0,40/0     |
| 13      | Ø 13,40 +0,15/0     | 36      | Ø 37,45 +0,40/0     |
| 14      | Ø 14,40 +0,15/0     | 37      | Ø 38,50 +0,40/0     |
| 15      | Ø 15,45 +0,20/0     | 38      | Ø 39,50 +0,40/0     |
| 16      | Ø 16,45 +0,20/0     | 39      | Ø 40,65 +0,45/0     |
| 17      | Ø 17,50 +0,20/0     | 40      | Ø 42,00 +0,45/0     |
| 18      | Ø 18,55 +0,20/0     |         |                     |



BROCCIA  
BROACH

PRE-FORO  
PRE-HOLE



### BROCCE QUADRE / SQUARE BROACHES

| dimens. | PRE FORO / PRE-HOLE | dimens. | PRE FORO / PRE-HOLE |
|---------|---------------------|---------|---------------------|
| 1       | Ø 1,15 +0,05/0      | 11      | Ø 12,90 +0,15/0     |
| 1,5     | Ø 1,75 +0,05/0      | 12      | Ø 14,20 +0,15/0     |
| 2       | Ø 2,40 +0,05/0      | 13      | Ø 15,50 +0,15/0     |
| 2,5     | Ø 2,85 +0,05/0      | 14      | Ø 16,90 +0,15/0     |
| 3       | Ø 3,40 +0,05/0      | 15      | Ø 18,20 +0,20/0     |
| 3,5     | Ø 3,95 +0,05/0      | 16      | Ø 19,50 +0,20/0     |
| 4       | Ø 4,50 +0,05/0      | 17      | Ø 20,60 +0,20/0     |
| 4,5     | Ø 5,20 +0,05/0      | 18      | Ø 21,70 +0,20/0     |
| 5       | Ø 5,70 +0,10/0      | 19      | Ø 23,00 +0,20/0     |
| 5,5     | Ø 6,40 +0,10/0      | 20      | Ø 24,10 +0,20/0     |
| 6       | Ø 6,80 +0,10/0      | 21      | Ø 25,30 +0,20/0     |
| 7       | Ø 8,00 +0,10/0      | 22      | Ø 26,50 +0,20/0     |
| 8       | Ø 9,00 +0,10/0      | 23      | Ø 27,70 +0,20/0     |
| 9       | Ø 10,30 +0,10/0     | 24      | Ø 28,90 +0,20/0     |
| 10      | Ø 11,50 +0,15/0     | 25      | Ø 30,00 +0,20/0     |



### BROCCE ESAGONALI IN POLLICI / EXAGONAL INCHES BROACHES

| dimens. | PRE FORO / PRE-HOLE | dimens. | PRE FORO / PRE-HOLE |
|---------|---------------------|---------|---------------------|
| 3/32"   | Ø 2,45 +0,10/0      | 3/8"    | Ø 9,80 +0,15/0      |
| 1/8"    | Ø 3,25 +0,10/0      | 7/16"   | Ø 11,50 +0,15/0     |
| 5/32"   | Ø 4,10 +0,10/0      | 1/2"    | Ø 13,10 +0,15/0     |
| 3/16"   | Ø 4,90 +0,10/0      | 9/16"   | Ø 14,70 +0,15/0     |
| 7/32"   | Ø 5,70 +0,10/0      | 5/8"    | Ø 16,35 +0,20/0     |
| 1/4"    | Ø 6,55 +0,10/0      | 3/4"    | Ø 19,60 +0,20/0     |
| 9/32"   | Ø 7,35 +0,15/0      | 7/8"    | Ø 22,90 +0,20/0     |
| 5/16"   | Ø 8,15 +0,15/0      | 1"      | Ø 26,30 +0,30/0     |



### BROCCE QUADRE IN POLLICI / SQUARE INCHES BROACHES

| dimens. | PRE FORO / PRE-HOLE | dimens. | PRE FORO / PRE-HOLE |
|---------|---------------------|---------|---------------------|
| 3/32"   | Ø 2,80 +0,05/0      | 3/8"    | Ø 11,10 +0,15/0     |
| 1/8"    | Ø 3,80 +0,05/0      | 7/16"   | Ø 13,10 +0,15/0     |
| 5/32"   | Ø 4,50 +0,05/0      | 1/2"    | Ø 15,30 +0,15/0     |
| 3/16"   | Ø 5,50 +0,10/0      | 9/16"   | Ø 17,40 +0,20/0     |
| 7/32"   | Ø 6,40 +0,10/0      | 5/8"    | Ø 19,50 +0,20/0     |
| 1/4"    | Ø 7,25 +0,10/0      | 3/4"    | Ø 23,00 +0,25/0     |
| 9/32"   | Ø 8,00 +0,10/0      | 7/8"    | Ø 27,10 +0,25/0     |
| 5/16"   | Ø 9,00 +0,10/0      | 1"      | Ø 31,00 +0,25/0     |



### BROCCE TORX / TORX BROACHES

| dimens. | PRE FORO / PRE-HOLE | dimens. | PRE FORO / PRE-HOLE |
|---------|---------------------|---------|---------------------|
| T3      | Ø 0,95 +0,05/0      | T25     | Ø 3,40 +0,10/0      |
| T4      | Ø 1,05 +0,05/0      | T27     | Ø 3,80 +0,10/0      |
| T5      | Ø 1,20 +0,05/0      | T30     | Ø 4,15 +0,10/0      |
| T6      | Ø 1,40 +0,10/0      | T40     | Ø 5,10 +0,15/0      |
| T7      | Ø 1,60 +0,10/0      | T45     | Ø 6,00 +0,15/0      |
| T8      | Ø 1,90 +0,10/0      | T50     | Ø 6,85 +0,20/0      |
| T9      | Ø 1,95 +0,10/0      | T55     | Ø 9,10 +0,20/0      |
| T10     | Ø 2,20 +0,10/0      | T60     | Ø 11,10 +0,20/0     |
| T15     | Ø 2,60 +0,10/0      | T70     | Ø 13,40 +0,20/0     |
| T20     | Ø 3,00 +0,10/0      |         |                     |



### BROCCE TORX PLUS / TORX PLUS BROACHES

| dimens. | PRE FORO / PRE-HOLE | dimens. | PRE FORO / PRE-HOLE |
|---------|---------------------|---------|---------------------|
| IP6     | Ø 1,45 +0,10/0      | IP27    | Ø 4,15 +0,10/0      |
| IP7     | Ø 1,80 +0,10/0      | IP30    | Ø 4,60 +0,10/0      |
| IP8     | Ø 1,95 +0,10/0      | IP40    | Ø 5,50 +0,10/0      |
| IP9     | Ø 2,10 +0,10/0      | IP45    | Ø 6,55 +0,10/0      |
| IP10    | Ø 2,30 +0,10/0      | IP50    | Ø 7,30 +0,15/0      |
| IP15    | Ø 2,75 +0,10/0      | IP55    | Ø 9,50 +0,15/0      |
| IP20    | Ø 3,25 +0,10/0      | IP60    | Ø 11,10 +0,20/0     |
| IP25    | Ø 3,65 +0,10/0      | IP70    | Ø 13,40 +0,20/0     |



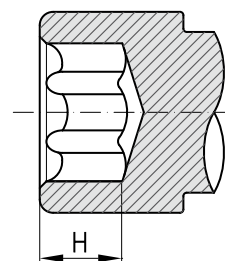
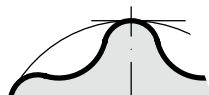
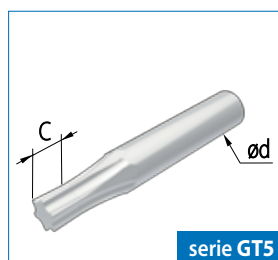
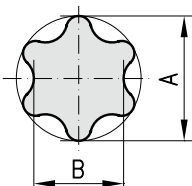
Brocche Standard e con passaggio refrigerante per chiavi TORX®  
*Standard Broaches and with internal flow of coolant for TORX® wrenches*

per Brocciatori Standard serie "BR"  
for "BR" Standard Broaching Heads series



**I** L'originale disegno delle cave per chiavi TORX® consente, in dimensioni contenute, di esercitare una coppia di serraggio molto elevata senza compromettere l'integrità della cava.

**GB** *The original design of the holes for TORX® wrenches makes it possible to exert a very high torque, despite the limited dimensions, without damaging the hole.*

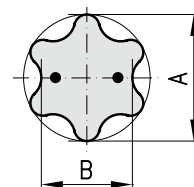


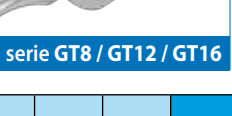
per Brocciatori serie "BRC"  
*for Broaching Heads "BRC" series*



**I** Brocche per realizzazione di cave per chiavi TORX® per utilizzo su brocciatori serie "BRC" con passaggio refrigerante interno per poter avere una maggiore durata della broccia, una minore rugosità e poter lavorare materiali molto tenaci.

**GB** Broaches for TORX profiles suitable for broaching heads BRC series with internal flow of coolant. The flow of coolant increases the broach productivity, assures a minor roughness on the work-piece and helps to machine harder materials.



|                                                                                     |       |     |              |       |                                             |           |                                                                 |              |                         |              |
|-------------------------------------------------------------------------------------|-------|-----|--------------|-------|---------------------------------------------|-----------|-----------------------------------------------------------------|--------------|-------------------------|--------------|
|  |       |     |              |       | per broccatori serie<br>for broaching heads |           | per broccatori serie<br>for broaching heads                     |              |                         |              |
| serie GT8 / GT12 / GT16                                                             |       |     |              |       | BR-G5                                       |           | BR-G85 / BR-G8M / BR-G8 / BR-G8A<br>BRC-G8M / BRC-G8 / BRC-G8HP |              |                         |              |
|                                                                                     |       |     |              |       | ød = 5                                      |           | ød = 8 / L = 18                                                 |              |                         |              |
|                                                                                     |       |     |              |       | ARTICOLO (materiale)<br>ITEM (material)     |           | ARTICOLO (materiale)<br>ITEM (material)                         |              |                         |              |
|                                                                                     |       |     |              |       | HSS                                         | SINTERIZ. | HSS                                                             |              | SINTERIZZATO / SINTERED |              |
|                                                                                     |       |     |              |       | Standard                                    | Standard  | Standard                                                        | Ref. / Cool. | Standard                | Ref. / Cool. |
| A                                                                                   | B     | C   | H max<br>(*) | TORX® |                                             |           |                                                                 |              |                         |              |
| 1,214                                                                               | 0,884 | 1,2 | 0,40         | 3     | GT5-T3                                      | GT5K-T3   | GT8-T3                                                          | /            | GT8K-T3                 | /            |
| 1,374                                                                               | 0,996 | 1,2 | 0,50         | 4     | GT5-T4                                      | GT5K-T4   | GT8-T4                                                          |              | GT8K-T4                 |              |
| 1,499                                                                               | 1,097 | 1,5 | 1,00         | 5     | GT5-T5                                      | GT5K-T5   | GT8-T5                                                          |              | GT8K-T5                 |              |
| 1,778                                                                               | 1,293 | 1,7 | 1,20         | 6     | GT5-T6                                      | GT5K-T6   | GT8-T6                                                          |              | GT8K-T6                 |              |
| 2,095                                                                               | 1,521 | 1,7 | 1,50         | 7     | GT5-T7                                      | GT5K-T7   | GT8-T7                                                          |              | GT8K-T7                 |              |
| 2,418                                                                               | 1,756 | 2,0 | 1,70         | 8     | GT5-T8                                      | GT5K-T8   | GT8-T8                                                          | GT8C-T8      | GT8K-T8                 | GT8KC-T8     |
| 2,603                                                                               | 1,889 | 2,0 | 1,70         | 9     | GT5-T9                                      | GT5K-T9   | GT8-T9                                                          | GT8C-T9      | GT8K-T9                 | GT8KC-T9     |
| 2,844                                                                               | 2,057 | 2,0 | 2,00         | 10    | GT5-T10                                     | GT5K-T10  | GT8-T10                                                         | GT8C-T10     | GT8K-T10                | GT8KC-T10    |
| 3,378                                                                               | 2,438 | 3,0 | 3,00         | 15    | GT5-T15                                     | GT5K-T15  | GT8-T15                                                         | GT8C-T15     | GT8K-T15                | GT8KC-T15    |
| 3,962                                                                               | 2,857 | 3,5 | 3,00         | 20    | GT5-T20                                     | GT5K-T20  | GT8-T20                                                         | GT8C-T20     | GT8K-T20                | GT8KC-T20    |
| 4,559                                                                               | 3,276 | 4,0 | 3,50         | 25    | GT5-T25                                     | GT5K-T25  | GT8-T25                                                         | GT8C-T25     | GT8K-T25                | GT8KC-T25    |
| 5,118                                                                               | 3,672 | 4,0 | 3,50         | 27    | /                                           | /         | GT8-T27                                                         | GT8C-T27     | GT8K-T27                | GT8KC-T27    |
| 5,651                                                                               | 4,064 | 4,5 | 3,50         | 30    |                                             |           | GT8-T30                                                         | GT8C-T30     | GT8K-T30                | GT8KC-T30    |
| 6,807                                                                               | 4,889 | 5,0 | 4,00         | 40    |                                             |           | GT8-T40                                                         | GT8C-T40     | GT8K-T40                | GT8KC-T40    |



# Brocche Standard e con passaggio refrigerante per chiavi TORX® PLUS Standard Broaches and with internal flow of coolant for TORX® PLUS wrenches

per Brocciatori Standard serie "BR"  
for "BR" Standard Broaching Heads series

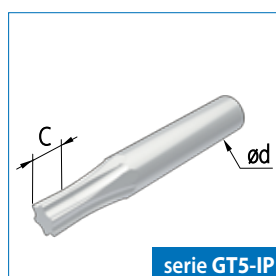
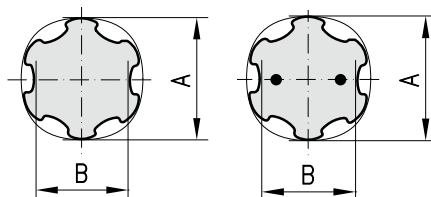


per Brocciatori serie "BRC"  
for Broaching Heads "BRC" series



**I** Il profilo TORX® PLUS è un'evoluzione della precedente impronta TORX®. La variante TORX® PLUS consente una maggiore forza di presa sul pezzo e conseguentemente una elevata tenuta della coppia di serraggio. Ciò significa che l'impronta esalobata richiede una profondità della cava relativamente inferiore rispetto alla versione TORX® e nello stesso tempo garantisce più a lungo l'integrità della figura stessa. La geometria ellittica del profilo TORX® PLUS amplia la superficie di contatto consentendo un migliore e più efficace accoppiamento della chiave con la cava esalobata. In questo modo si garantisce una riduzione dello stress di torsione e di conseguenza una vita più lunga dell'utensile. Anche per il profilo TORX e TORX PLUS esiste la versione per brocciatori serie "BRC" che consente di poter lavorare materiali molto tenaci e avere una maggiore durata della broccia e una minore rugosità della cava.

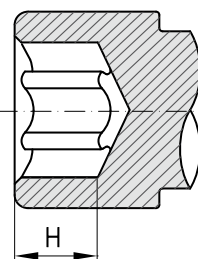
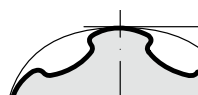
**GB** TORX® PLUS profile is an enhancement of the older TORX® shape. TORX® PLUS drive system maximizes engagement between driver and fastener and optimizes torque transmission. This means the depth of the profile can be shorter than TORX® old version, even if at the same time TORX® PLUS assures a much longer life of the tools. The elliptically based geometry of the TORX® PLUS profile broadens contact surface guaranteeing a better engagement between driver and fastener than old TORX® shape. This feature virtually eliminates radial stresses and increase tool life. Broaches suitable for broaching heads with internal flow of coolant BRC series are available with TORX PLUS profiles too. The internal flow of coolant helps to machine harder materials and assures a higher broach productivity and a minor roughness on the work-piece.



serie GT5-IP



serie GT8-IP / GT12-IP / GT16-IP



per brocciatori serie  
for broaching heads

BR-G5

ød = 5

ARTICOLO (materiale)  
ITEM (material)

HSS SINTERIZ.  
Standard Standard

per brocciatori serie  
for broaching heads

BR-G8S / BR-G8M / BR-G8 / BR-G8A  
BRC-G8M / BRC-G8 / BRC-G8HP

ød = 8 / L = 18

ARTICOLO (materiale)  
ITEM (material)

HSS SINTERIZZATO / SINTERED  
Ref. / Cool. Standard Ref. / Cool.

| A     | B     | C   | H max<br>(*) | TORX® | GT5-IP6  | GT5K-IP6  | GT8-IP6  | GT8C-IP6  | GT8K-IP6  | GT8KC-IP6  |
|-------|-------|-----|--------------|-------|----------|-----------|----------|-----------|-----------|------------|
| 1,778 | 1,381 | 1,7 | 1,20         | 6     | GT5-IP6  | GT5K-IP6  | GT8-IP6  | /         | GT8K-IP6  | /          |
| 2,095 | 1,606 | 1,7 | 1,50         | 7     | GT5-IP7  | GT5K-IP7  | GT8-IP7  | /         | GT8K-IP7  | /          |
| 2,418 | 1,860 | 2,0 | 1,70         | 8     | GT5-IP8  | GT5K-IP8  | GT8-IP8  | GT8C-IP8  | GT8K-IP8  | GT8KC-IP8  |
| 2,603 | 2,014 | 2,0 | 1,70         | 9     | GT5-IP9  | GT5K-IP9  | GT8-IP9  | GT8C-IP9  | GT8K-IP9  | GT8KC-IP9  |
| 2,844 | 2,174 | 2,0 | 2,00         | 10    | GT5-IP10 | GT5K-IP10 | GT8-IP10 | GT8C-IP10 | GT8K-IP10 | GT8KC-IP10 |
| 3,378 | 2,606 | 3,0 | 3,00         | 15    | GT5-IP15 | GT5K-IP15 | GT8-IP15 | GT8C-IP15 | GT8K-IP15 | GT8KC-IP15 |
| 3,962 | 3,088 | 3,5 | 3,00         | 20    | GT5-IP20 | GT5K-IP20 | GT8-IP20 | GT8C-IP20 | GT8K-IP20 | GT8KC-IP20 |
| 4,559 | 3,492 | 4,0 | 3,50         | 25    | GT5-IP25 | GT5K-IP25 | GT8-IP25 | GT8C-IP25 | GT8K-IP25 | GT8KC-IP25 |
| 5,651 | 4,391 | 4,5 | 3,50         | 30    | /        | /         | GT8-IP30 | GT8C-IP30 | GT8K-IP30 | GT8KC-IP30 |
| 6,807 | 5,283 | 5,0 | 4,00         | 40    | /        | /         | GT8-IP40 | GT8C-IP40 | GT8K-IP40 | GT8KC-IP40 |



# Parametri di utilizzo per lavorazioni con brocche in HSS e Sinterizzato

## Working parameters for broach machining made of HSS and sintered material

**I** La scelta se utilizzare brocche in ACCIAIO HSS o SINTERIZZATO può dipendere da alcuni aspetti:

**GB** The choice whether to use HSS STEEL or SINTERED broaches may depend on some aspects:

**VANTAGGI**  
ADVANTAGES

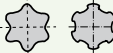
**SVANTAGGI**  
DISADVANTAGES

| ACCIAIO HSS / HSS STEEL                                                                                                                                                                                                                                                                                                                  | SINTERIZZATO / SINTERED                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Massima flessibilità per tutti i materiali. Acciaio da utensili (super rapido) indicato per qualsiasi tipo di lavorazione. <b>Rivestimenti</b> consigliati vedi pag. 18.<br><i>Maximum flexibility for all types of steel and alloys. Super high speed steel suitable for any type of processing. Recommended coatings see page. 18.</i> | Altissima tenacità e durezza adatta per la lavorazione del titanio e acciai fino a MAX 32-33 HRC. <b>Rivestimenti</b> consigliati vedi pag. 18.<br><i>Very high toughness and hardness suitable to work titanium and steels till MAX 32-33 HRC. Recommended coatings see page. 18.</i> |
| Non idoneo a lavorare il Titanio e acciai fino a MAX 28-29 HRC.<br><i>Not suitable for working titanium and steels till to MAX 28-29 HRC.</i>                                                                                                                                                                                            | Estrema fragilità agli urti e vibrazioni, non consigliato a lavorare acciai Inox e acciai semplici.<br><i>Extreme fragility to shocks and vibrations, not recommended to stainless steels and simple steels.</i>                                                                       |

### BROCCE IN ACCIAIO HSS

#### HSS STEEL BROACHES

ROTAZIONE MANDRINO: M3, M4  
SPINDLE ROTATION: M3, M4

| BROCCHE IN ACCIAIO<br>HSS<br>HSS STEEL BROACHES                                                                    |                                  |                                                  | MATERIALE DA LAVORARE / MATERIAL TO WORK |                                                            |                                                                |                                                                |                                    |                                       |                                    |                     |                     |                                    |                             |                |                                     |                                    |      |              |      |              |  |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------|--------------------------------------------------|------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------|------------------------------------|---------------------------------------|------------------------------------|---------------------|---------------------|------------------------------------|-----------------------------|----------------|-------------------------------------|------------------------------------|------|--------------|------|--------------|--|
| ROTAZIONE MANDRINO: M3, M4<br>SPINDLE ROTATION: M3, M4                                                             |                                  |                                                  | ALLUMINIO<br>ALUMINUM                    | ACCIAI / STEELS                                            |                                                                |                                                                |                                    | ACCIAI INOX<br>STAINLESS STEELS       |                                    |                     |                     | GHISA<br>CAST IRON                 | TITANIO (*)<br>TITANIUM (*) | RAME<br>COPPER | OTTONE/<br>BRONZO<br>BRASS / BRONZE |                                    |      |              |      |              |  |
|                                                                                                                    |                                  |                                                  | Vc m/min=55<br>Rm ≤ 350<br>(N/mm²)       | TENERO<br>MILD STEEL<br>Vc m/min=40<br>Rm ≤ 510<br>(N/mm²) | COMUNE<br>COMMON STEEL<br>Vc m/min=38<br>Rm 510÷680<br>(N/mm²) | LEGATO<br>ALLOY STEEL<br>Vc m/min=30<br>Rm 680÷1050<br>(N/mm²) | Vc m/min=25<br>Rm ≤ 520<br>(N/mm²) | Vc m/min=20<br>Rm 520÷1050<br>(N/mm²) | Vc m/min=30<br>Rm ≤ 400<br>(N/mm²) | Rm ≤ 350<br>(N/mm²) | Rm ≤ 200<br>(N/mm²) | Vc m/min=40<br>Rm ≤ 350<br>(N/mm²) |                             |                |                                     |                                    |      |              |      |              |  |
| PROFILO<br>PROFILE                                                                                                 | dimensioni<br>dimensions<br>(mm) | LUBRIFICAZIONE NECESSARIA / LUBRICATION REQUIRED |                                          |                                                            |                                                                |                                                                |                                    |                                       |                                    |                     |                     |                                    |                             |                |                                     |                                    |      |              |      |              |  |
|                                                                                                                    |                                  | f                                                | S                                        | f                                                          | S                                                              | f                                                              | S                                  | f                                     | S                                  | f                   | S                   | f                                  | S                           | f              | S                                   |                                    | f    | S            | f    | S            |  |
| <br>ESAGONALE<br>HEXAGONAL        | 1 - 12,9                         | 0,11                                             | 1800/<br>900                             | 0,10                                                       | 1500/<br>850                                                   | 0,08                                                           | 1450/<br>800                       | 0,05                                  | 1400/<br>750                       | 0,07                | 1450/<br>750        | 0,04                               | 1200/<br>700                | 0,07           | 1600/<br>700                        | NON CONSIGLIATO<br>NOT RECOMMENDED | 0,09 | 1600/<br>950 | 0,10 | 1700/<br>950 |  |
|                                                                                                                    | 13 - 23,9                        | 0,08                                             | 900/<br>550                              | 0,08                                                       | 850/<br>500                                                    | 0,06                                                           | 800/<br>400                        | 0,02                                  | 750/<br>400                        | 0,06                | 750/<br>500         | 0,03                               | 700/<br>450                 | 0,05           | 700/<br>500                         |                                    | 0,07 | 950/<br>600  | 0,07 | 950/<br>700  |  |
|                                                                                                                    | 24 - 40                          | 0,05                                             | 550/<br>350                              | 0,04                                                       | 500/<br>300                                                    | 0,03                                                           | 400/<br>300                        | 0,01                                  | 400/<br>300                        | 0,03                | 500/<br>400         | 0,02                               | 450/<br>350                 | 0,03           | 500/<br>350                         |                                    | 0,04 | 600/<br>450  | 0,03 | 700/<br>450  |  |
| <br>QUADRATO<br>SQUARE          | 1 - 10,9                         | 0,10                                             | 1800/<br>900                             | 0,06                                                       | 1500/<br>850                                                   | 0,05                                                           | 1450/<br>800                       | 0,02                                  | 1400/<br>750                       | 0,05                | 1450/<br>750        | 0,03                               | 1200/<br>700                | 0,07           | 1600/<br>700                        |                                    | 0,10 | 1600/<br>950 | 0,08 | 1700/<br>950 |  |
|                                                                                                                    | 11 - 20,9                        | 0,06                                             | 900/<br>550                              | 0,04                                                       | 850/<br>500                                                    | 0,03                                                           | 800/<br>400                        | 0,02                                  | 750/<br>400                        | 0,04                | 750/<br>500         | 0,02                               | 700/<br>450                 | 0,05           | 700/<br>500                         |                                    | 0,08 | 950/<br>600  | 0,06 | 950/<br>700  |  |
|                                                                                                                    | 21 - 25                          | 0,03                                             | 550/<br>350                              | 0,02                                                       | 500/<br>300                                                    | 0,02                                                           | 400/<br>300                        | 0,01                                  | 400/<br>300                        | 0,02                | 500/<br>400         | 0,01                               | 450/<br>350                 | 0,03           | 500/<br>350                         |                                    | 0,06 | 600/<br>450  | 0,04 | 700/<br>450  |  |
| <br>TORX® (T)<br>TORX® PLUS (IP) | T3 - T6                          | 0,12                                             | 1800/<br>900                             | 0,10                                                       | 1500/<br>850                                                   | 0,08                                                           | 1450/<br>800                       | 0,05                                  | 1400/<br>750                       | 0,08                | 1450/<br>750        | 0,045                              | 1200/<br>700                | 0,09           | 1600/<br>700                        |                                    | 0,12 | 1600/<br>950 | 0,10 | 1700/<br>950 |  |
|                                                                                                                    | T7 - T27<br>IP6 - IP27           | 0,10                                             | 900/<br>550                              | 0,09                                                       | 850/<br>500                                                    | 0,07                                                           | 800/<br>400                        | 0,04                                  | 750/<br>400                        | 0,07                | 750/<br>500         | 0,04                               | 700/<br>450                 | 0,08           | 700/<br>500                         |                                    | 0,11 | 950/<br>600  | 0,09 | 950/<br>700  |  |
|                                                                                                                    | T30 - T70<br>IP30 - IP70         | 0,08                                             | 550/<br>350                              | 0,07                                                       | 500/<br>300                                                    | 0,05                                                           | 400/<br>300                        | 0,03                                  | 400/<br>300                        | 0,06                | 500/<br>400         | 0,03                               | 450/<br>350                 | 0,06           | 500/<br>350                         |                                    | 0,09 | 600/<br>450  | 0,06 | 700/<br>450  |  |

f = avanzamento (mm/giro) / advancement (mm/round)

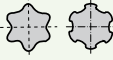
Legenda / Legend: S = velocità (giri/min) / RPM (rounds/minute)

Vc = velocità di taglio (m/min) / cutting speed (meters/minute)

### BROCCE IN ACCIAIO SINTERIZZATO

#### SINTERED STEEL BROACHES

ROTAZIONE MANDRINO: M3, M4  
SPINDLE ROTATION: M3, M4

| BROCCHE IN ACCIAIO<br>SINTERIZZATO                                                                                 |                                  | MATERIALE DA LAVORARE / MATERIAL TO WORK         |               |                      |              |                        |              |                                 |              |                     |              |                        |              |                                |               |                     |              |                     |              |                             |               |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------|--------------------------------------------------|---------------|----------------------|--------------|------------------------|--------------|---------------------------------|--------------|---------------------|--------------|------------------------|--------------|--------------------------------|---------------|---------------------|--------------|---------------------|--------------|-----------------------------|---------------|
| SINTERED STEEL BROACHES                                                                                            |                                  | ALLUMINIO<br>ALUMINUM                            |               | ACCIAI / STEELS      |              |                        |              | ACCIAI INOX<br>STAINLESS STEELS |              |                     |              | GHISA<br>CAST IRON     |              | PARTICOLARMENTE<br>CONSIGLIATO |               | RAME<br>COPPER      |              | OTTONE<br>BRASS     |              |                             |               |
| ROTAZIONE MANDRINO: M3, M4<br>SPINDLE ROTATION: M3, M4                                                             |                                  |                                                  |               | TENERO<br>MILD STEEL |              | COMUNE<br>COMMON STEEL |              |                                 |              |                     |              |                        |              | LEGATO<br>ALLOY STEEL          |               |                     |              |                     |              | TITANIO (*)<br>TITANIUM (*) |               |
|                                                                                                                    |                                  | Rm ≤ 350<br>(N/mm²)                              |               | Rm ≤ 510<br>(N/mm²)  |              | Rm 510÷680<br>(N/mm²)  |              | Rm 680÷1050<br>(N/mm²)          |              | Rm ≤ 520<br>(N/mm²) |              | Rm 520÷1050<br>(N/mm²) |              | Rm ≤ 400<br>(N/mm²)            |               | Rm ≤ 350<br>(N/mm²) |              | Rm ≤ 200<br>(N/mm²) |              | Rm ≤ 350<br>(N/mm²)         |               |
| PROFILO<br>PROFILE                                                                                                 | dimensioni<br>dimensions<br>(mm) | LUBRIFICAZIONE NECESSARIA / LUBRICATION REQUIRED |               |                      |              |                        |              |                                 |              |                     |              |                        |              |                                |               |                     |              |                     |              |                             |               |
|                                                                                                                    |                                  | f                                                | S             | f                    | S            | f                      | S            | f                               | S            | f                   | S            | f                      | S            | f                              | S             | f                   | S            | f                   | S            | f                           | S             |
| <br>ESAGONALE<br>HEXAGONAL      | 1 - 12,9                         | 0,14                                             | 2000/<br>1000 | 0,12                 | 1600/<br>950 | 0,10                   | 1600/<br>900 | 0,07                            | 1400/<br>850 | 0,09                | 1600/<br>850 | 0,055                  | 1200/<br>800 | 0,12                           | 1700/<br>1000 | 0,05                | 1000/<br>750 | 0,16                | 1800/<br>900 | 0,12                        | 1800/<br>1000 |
|                                                                                                                    | 13 - 23,9                        | 0,11                                             | 1000/<br>700  | 0,10                 | 950/<br>650  | 0,08                   | 900/<br>700  | 0,04                            | 850/<br>550  | 0,07                | 850/<br>600  | 0,045                  | 800/<br>550  | 0,08                           | 1000/<br>650  | 0,04                | 750/<br>550  | 0,12                | 900/<br>750  | 0,09                        | 1000/<br>600  |
|                                                                                                                    | 24 - 40                          | 0,08                                             | 700/<br>500   | 0,07                 | 650/<br>450  | 0,05                   | 700/<br>400  | 0,015                           | 550/<br>400  | 0,05                | 600/<br>450  | 0,025                  | 550/<br>350  | 0,05                           | 650/<br>350   | 0,02                | 550/<br>400  | 0,08                | 750/<br>500  | 0,06                        | 600/<br>400   |
| <br>QUADRATO<br>SQUARE          | 1 - 10,9                         | 0,11                                             | 2000/<br>1000 | 0,08                 | 1600/<br>950 | 0,07                   | 1600/<br>900 | 0,05                            | 1400/<br>850 | 0,07                | 1600/<br>850 | 0,045                  | 1200/<br>800 | 0,10                           | 1700/<br>1000 | 0,04                | 1000/<br>750 | 0,12                | 1800/<br>900 | 0,09                        | 1800/<br>1000 |
|                                                                                                                    | 11 - 20,9                        | 0,08                                             | 1000/<br>700  | 0,06                 | 950/<br>650  | 0,06                   | 900/<br>700  | 0,04                            | 850/<br>550  | 0,06                | 850/<br>600  | 0,035                  | 800/<br>550  | 0,07                           | 1000/<br>650  | 0,04                | 750/<br>550  | 0,10                | 900/<br>750  | 0,07                        | 1000/<br>600  |
|                                                                                                                    | 21 - 25                          | 0,06                                             | 700/<br>500   | 0,04                 | 650/<br>450  | 0,04                   | 700/<br>400  | 0,02                            | 550/<br>400  | 0,04                | 600/<br>450  | 0,015                  | 550/<br>350  | 0,04                           | 650/<br>350   | 0,02                | 550/<br>400  | 0,07                | 750/<br>500  | 0,04                        | 600/<br>400   |
| <br>TORX® (T)<br>TORX® PLUS (IP) | T3 - T6                          | 0,16                                             | 2000/<br>1000 | 0,12                 | 1600/<br>950 | 0,10                   | 1600/<br>900 | 0,07                            | 1400/<br>850 | 0,09                | 1600/<br>850 | 0,06                   | 1200/<br>800 | 0,12                           | 1700/<br>1000 | 0,05                | 1000/<br>750 | 0,16                | 1800/<br>900 | 0,13                        | 1800/<br>1000 |
|                                                                                                                    | T7 - T27<br>IP6 - IP27           | 0,13                                             | 1000/<br>700  | 0,11                 | 950/<br>650  | 0,09                   | 900/<br>700  | 0,06                            | 850/<br>550  | 0,08                | 850/<br>600  | 0,045                  | 800/<br>550  | 0,10                           | 1000/<br>650  | 0,045               | 750/<br>550  | 0,15                | 900/<br>750  | 0,11                        | 1000/<br>600  |
|                                                                                                                    | T30 - T70<br>IP30 - IP70         | 0,11                                             | 700/<br>500   | 0,10                 | 650/<br>450  | 0,08                   | 700/<br>400  | 0,05                            | 550/<br>400  | 0,07                | 600/<br>450  | 0,04                   | 550/<br>350  | 0,09                           | 650/<br>350   | 0,04                | 550/<br>400  | 0,12                | 750/<br>500  | 0,09                        | 600/<br>400   |

(\*) adatto fino a classe 3, poco consigliato su classe 4, sconsigliato per classi 5 e 6 / suitable up to class 3, not recommended for class 4, not recommended for classes 5 and 6



# Rivestimenti per brocche

## Coatings for broaches

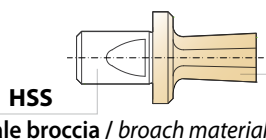


**I** A seconda della tipologia di materiale da lavorare, sulle brocche possono essere applicati rivestimenti per migliorarne la durata in termini di numero di pezzi prodotti, come **WONDER (TiAlN\*)**, **TiN**, **INOX PLUS** e **ZIRINOS**. Di seguito alcuni esempi di materiali da lavorare con i grafici che ne evidenziano la differenza fra l'utensile realizzato in HSS o SINTERIZZATO normale rispetto all'utensile rivestito.

**GB** Depending on the type of material to be machined, coatings can be applied to the broaches to improve their durability in terms of number of work-pieces produced, such as **WONDER (TiAlN\*)**, **TiN**, **INOX PLUS** and **ZIRINOS**. Here are some examples of materials to be machined with the graphs highlighting the difference between the tool made of normal HSS or SINTERED and the coated tool.

| Materiale broccia<br>Broach material | Materiale da lavorare<br>Machined material |                     |     |                    |              |         |
|--------------------------------------|--------------------------------------------|---------------------|-----|--------------------|--------------|---------|
|                                      |                                            |                     | TiN | WONDER/<br>TiAlN * | INOX<br>PLUS | ZIRINOS |
| HSS                                  | <b>ALLUMINIO / ALUMINUM</b>                | Rm ≤ 350 (N/mm²)    |     |                    |              | ✓       |
| HSS                                  | <b>ACCIAIO TENERO / MILD STEEL</b>         | Rm ≤ 510 (N/mm²)    | ✓   |                    |              |         |
| HSS                                  | <b>ACCIAIO COMUNE / COMMON STEEL</b>       | Rm 510÷680 (N/mm²)  | ✓   |                    |              |         |
| HSS                                  | <b>ACCIAIO LEGATO / ALLOY STEEL</b>        | Rm 680÷1050 (N/mm²) |     | ✓                  |              |         |
| HSS                                  | <b>ACCIAI INOX / STAINLESS STEELS</b>      | Rm ≤ 520 (N/mm²)    |     |                    | ✓            |         |
| HSS                                  |                                            | Rm 520÷1050 (N/mm²) |     |                    | ✓            |         |
| HSS                                  | <b>GHISA / CAST IRON</b>                   | Rm ≤ 400 (N/mm²)    | ✓   |                    |              |         |
| SINTERIZZATO                         | <b>TITANIO / TITANIUM</b>                  | Rm ≤ 350 (N/mm²)    |     |                    |              | ✓       |
| HSS                                  | <b>OTTONE-BRONZO / BRASS - BRONZE</b>      | Rm ≤ 350 (N/mm²)    |     |                    |              | ✓       |

materiale da lavorare: **ALLUMINIO - OTTONE - BRONZO**  
machined material: **ALUMINUM - BRASS - BRONZE**



**ZIRINOS**

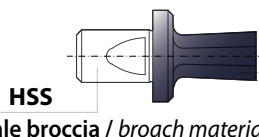
rivestimento applicato / applied coating

n°pz brocciati senza rivestimento  
n°pcs broached without broached coating

n°pz brocciati con rivestimento  
n°pcs broached coating

**+36%** rivest./coat.  
**ZIRINOS**

materiale da lavorare: **ACCIAIO BONIFICATI**  
machined material: **HARDENED STEEL**



**WONDER (TiAlN\*)**

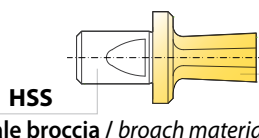
rivestimento applicato / applied coating

n°pz brocciati senza rivestimento  
n°pcs broached without broached coating

n°pz brocciati con rivestimento  
n°pcs broached coating

**+25%** rivest./coat.  
**WONDER (TiAlN\*)**

materiale da lavorare: **ACCIAIO TENERO/COMUNE - GHISA**  
machined material: **MILD/COMMON STEEL - CAST IRON**



**TiN**

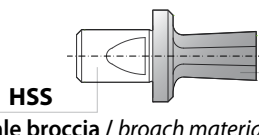
rivestimento applicato / applied coating

n°pz brocciati senza rivestimento  
n°pcs broached without broached coating

n°pz brocciati con rivestimento  
n°pcs broached coating

**+28%** rivest./coat.  
**TiN**

materiale da lavorare: **ACCIAI INOX**  
machined material: **STAINLESS STEELS**



**INOX PLUS**

rivestimento applicato / applied coating

n°pz brocciati senza rivestimento  
n°pcs broached without broached coating

n°pz brocciati con rivestimento  
n°pcs broached coating

**+36%** rivest./coat.  
**INOX PLUS**

materiale da lavorare: **TITANIO**  
machined material: **TITANIUM**



**ZIRINOS**

rivestimento applicato / applied coating

n°pz brocciati senza rivestimento  
n°pcs broached without broached coating

n°pz brocciati con rivestimento  
n°pcs broached coating

**+36%** rivest./coat.  
**ZIRINOS**

Per acciai e/o materiali non indicati in tabella, chiedere informazioni al nostro ufficio tecnico

(\*) TiAlN solo a richiesta, sostituito dal WONDER



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