



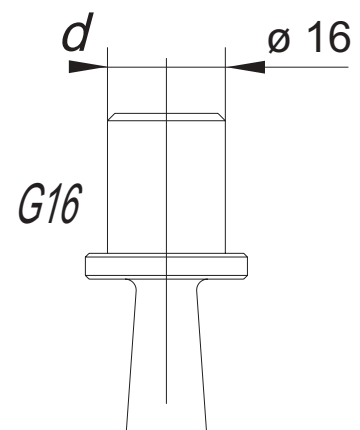
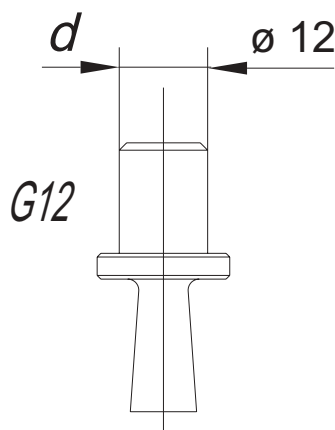
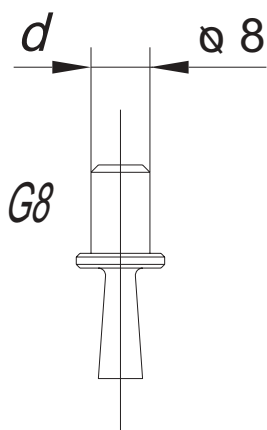
BROCCIA PER CAVE POLIGONALI

BROACH FOR POLYGONAL HOLES



I La BROCCIA per cave poligonali è un utensile opportunamente sagomato che, da un lato, viene fissata al mandrino del Brocciatore e dall'altra estremità riporta il profilo della cava da eseguire. Le Brocche di questa famiglia sono realizzate con acciai speciali HSS opportunamente trattati per poter lavorare anche materiali tenaci. Le Brocche sono costruite in tre serie di grandezze, contraddistinte dal diametro del gambo di accoppiamento con il brocciatore.

GB The BROACH for polygonal holes is a specially shaped tool that is fixed to the boring bar of the broacher on one end, while the other end bears the shape of the hole to be formed. The broaches making up this family are manufactured from special HSS steel, duly treated so that they can also be used to machine hard materials. The broaches are available in three size ranges, classified according to the diameter of the shank coupling the broach to the broacher.



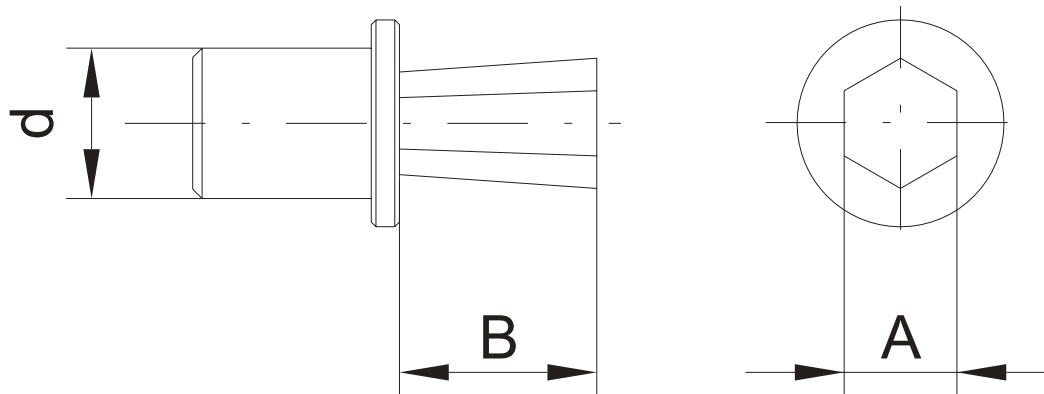
I **IMPORTANTE:** Prima di eseguire la brocciatura praticare al pezzo un preforo leggermente maggiorato (da 0,1 a 0,3 mm) rispetto alla cava e più profondo in fori ciechi per consentire lo sfogo del truciolo. Si consiglia l'utilizzo di olio da taglio durante la lavorazione.

GB **IMPORTANT:** Before proceeding with the broaching operation, drill the workpiece to obtain a pre-broach hole slightly larger (from 0.1 to 0.3 mm) than the finished hole and deeper in the case of blind holes, so as to leave room for the discharge of chips. It is recommended to use cutting fluid during machining.



BROCCIA PER CAVE POLIGONALI IN ACCIAIO HSS

HSS STEEL BROACH FOR POLYGONAL HOLES



SEZIONE ESAGONALE / HEXAGONAL SECTION

SERIE STANDARD
STANDARD SERIES

| COD. ART | d | A | B |
|------------|---|-----|----|
| G08-E-01 | 8 | 1 | 2 |
| G08-E-01,5 | 8 | 1,5 | 3 |
| G08-E-02 | 8 | 2 | 5 |
| G08-E-02,5 | 8 | 2,5 | 6 |
| G08-E-03 | 8 | 3 | 7 |
| G08-E-03,5 | 8 | 3,5 | 8 |
| G08-E-04 | 8 | 4 | 9 |
| G08-E-04,5 | 8 | 4,5 | 9 |
| G08-E-05 | 8 | 5 | 11 |
| G08-E-05,5 | 8 | 5,5 | 11 |
| G08-E-06 | 8 | 6 | 13 |
| G08-E-07 | 8 | 7 | 15 |
| G08-E-08 | 8 | 8 | 15 |

| | | | |
|------------|----|-----|----|
| G12-E-01 | 12 | 1 | 2 |
| G12-E-01,5 | 12 | 1,5 | 3 |
| G12-E-02 | 12 | 2 | 5 |
| G12-E-02,5 | 12 | 2,5 | 6 |
| G12-E-03 | 12 | 3 | 7 |
| G12-E-03,5 | 12 | 3,5 | 8 |
| G12-E-04 | 12 | 4 | 9 |
| G12-E-04,5 | 12 | 4,5 | 9 |
| G12-E-05 | 12 | 5 | 11 |
| G12-E-05,5 | 12 | 5,5 | 11 |
| G12-E-06 | 12 | 6 | 13 |
| G12-E-07 | 12 | 7 | 15 |
| G12-E-08 | 12 | 8 | 17 |
| G12-E-09 | 12 | 9 | 19 |
| G12-E-10 | 12 | 10 | 21 |
| G12-E-11 | 12 | 11 | 21 |
| G12-E-12 | 12 | 12 | 21 |
| G12-E-13 | 12 | 13 | 21 |
| G12-E-14 | 12 | 14 | 21 |

SERIE STANDARD
STANDARD SERIES

| COD. ART | d | A | B |
|------------|----|-----|----|
| G16-E-01 | 16 | 1 | 2 |
| G16-E-01,5 | 16 | 1,5 | 3 |
| G16-E-02 | 16 | 2 | 5 |
| G16-E-02,5 | 16 | 2,5 | 6 |
| G16-E-03 | 16 | 3 | 7 |
| G16-E-03,5 | 16 | 3,5 | 8 |
| G16-E-04 | 16 | 4 | 9 |
| G16-E-04,5 | 16 | 4,5 | 9 |
| G16-E-05 | 16 | 5 | 11 |
| G16-E-05,5 | 16 | 5,5 | 11 |
| G16-E-06 | 16 | 6 | 13 |
| G16-E-07 | 16 | 7 | 15 |
| G16-E-08 | 16 | 8 | 17 |
| G16-E-09 | 16 | 9 | 19 |
| G16-E-10 | 16 | 10 | 21 |
| G16-E-11 | 16 | 11 | 21 |
| G16-E-12 | 16 | 12 | 21 |
| G16-E-13 | 16 | 13 | 21 |
| G16-E-14 | 16 | 14 | 21 |
| G16-E-15 | 16 | 15 | 21 |
| G16-E-16 | 16 | 16 | 21 |
| G16-E-17 | 16 | 17 | 21 |
| G16-E-18 | 16 | 18 | 21 |
| G16-E-19 | 16 | 19 | 21 |
| G16-E-20 | 16 | 20 | 21 |
| G16-E-21 | 16 | 21 | 21 |
| G16-E-22 | 16 | 22 | 21 |
| G16-E-23 | 16 | 23 | 21 |
| G16-E-24 | 16 | 24 | 21 |
| G16-E-25 | 16 | 25 | 21 |

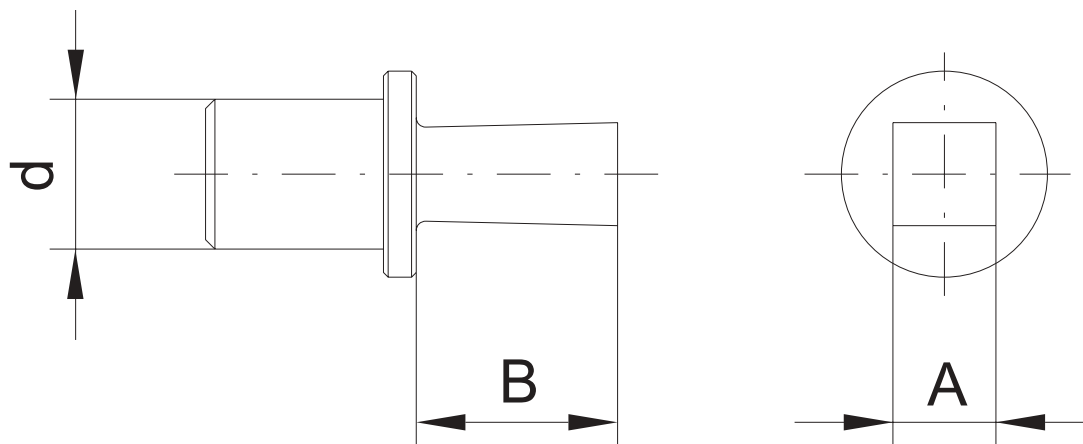
SERIE LUNGHE
LONG SERIES

| COD. ART | d | A | B |
|-------------|----|-----|----|
| GL16-E-05 | 16 | 5 | 40 |
| GL16-E-05,5 | 16 | 5,5 | 40 |
| GL16-E-06 | 16 | 6 | 40 |
| GL16-E-07 | 16 | 7 | 40 |
| GL16-E-08 | 16 | 8 | 40 |
| GL16-E-09 | 16 | 9 | 40 |
| GL16-E-10 | 16 | 10 | 40 |
| GL16-E-11 | 16 | 11 | 40 |
| GL16-E-12 | 16 | 12 | 40 |
| GL16-E-13 | 16 | 13 | 40 |
| GL16-E-14 | 16 | 14 | 40 |
| GL16-E-15 | 16 | 15 | 40 |
| GL16-E-16 | 16 | 16 | 40 |
| GL16-E-17 | 16 | 17 | 40 |
| GL16-E-18 | 16 | 18 | 40 |
| GL16-E-19 | 16 | 19 | 40 |
| GL16-E-20 | 16 | 20 | 40 |
| GL16-E-21 | 16 | 21 | 40 |
| GL16-E-22 | 16 | 22 | 40 |
| GL16-E-23 | 16 | 23 | 40 |
| GL16-E-24 | 16 | 24 | 40 |
| GL16-E-25 | 16 | 25 | 40 |



BROCCIA PER CAVE POLIGONALI IN ACCIAIO HSS

HSS STEEL BROACH FOR POLYGONAL HOLES



SEZIONE QUADRA / SQUARE SECTION

SERIE STANDARD
STANDARD SERIES

| COD. ART | d | A | B |
|------------|---|-----|----|
| G08-Q-01 | 8 | 1 | 2 |
| G08-Q-01,5 | 8 | 1,5 | 3 |
| G08-Q-02 | 8 | 2 | 5 |
| G08-Q-02,5 | 8 | 2,5 | 6 |
| G08-Q-03 | 8 | 3 | 7 |
| G08-Q-03,5 | 8 | 3,5 | 8 |
| G08-Q-04 | 8 | 4 | 9 |
| G08-Q-04,5 | 8 | 4,5 | 9 |
| G08-Q-05 | 8 | 5 | 11 |
| G08-Q-05,5 | 8 | 5,5 | 11 |
| G08-Q-06 | 8 | 6 | 13 |
| G08-Q-07 | 8 | 7 | 15 |
| G08-Q-08 | 8 | 8 | 15 |

| | | | |
|------------|----|-----|----|
| G12-Q-01 | 12 | 1 | 2 |
| G12-Q-01,5 | 12 | 1,5 | 3 |
| G12-Q-02 | 12 | 2 | 5 |
| G12-Q-02,5 | 12 | 2,5 | 6 |
| G12-Q-03 | 12 | 3 | 7 |
| G12-Q-03,5 | 12 | 3,5 | 8 |
| G12-Q-04 | 12 | 4 | 9 |
| G12-Q-04,5 | 12 | 4,5 | 9 |
| G12-Q-05 | 12 | 5 | 11 |
| G12-Q-05,5 | 12 | 5,5 | 11 |
| G12-Q-06 | 12 | 6 | 13 |
| G12-Q-07 | 12 | 7 | 15 |
| G12-Q-08 | 12 | 8 | 17 |
| G12-Q-09 | 12 | 9 | 19 |
| G12-Q-10 | 12 | 10 | 21 |
| G12-Q-11 | 12 | 11 | 21 |
| G12-Q-12 | 12 | 12 | 21 |
| G12-Q-13 | 12 | 13 | 21 |
| G12-Q-14 | 12 | 14 | 21 |

SERIE STANDARD
STANDARD SERIES

| COD. ART | d | A | B |
|------------|----|-----|----|
| G16-Q-02 | 16 | 1 | 2 |
| G16-Q-01,5 | 16 | 1,5 | 3 |
| G16-Q-02 | 16 | 2 | 5 |
| G16-Q-02,5 | 16 | 2,5 | 6 |
| G16-Q-03 | 16 | 3 | 7 |
| G16-Q-03,5 | 16 | 3,5 | 8 |
| G16-Q-04 | 16 | 4 | 9 |
| G16-Q-04,5 | 16 | 4,5 | 9 |
| G16-Q-05 | 16 | 5 | 11 |
| G16-Q-05,5 | 16 | 5,5 | 11 |
| G16-Q-06 | 16 | 6 | 13 |
| G16-Q-07 | 16 | 7 | 15 |
| G16-Q-08 | 16 | 8 | 17 |
| G16-Q-09 | 16 | 9 | 19 |
| G16-Q-10 | 16 | 10 | 21 |
| G16-Q-11 | 16 | 11 | 21 |
| G16-Q-12 | 16 | 12 | 21 |
| G16-Q-13 | 16 | 13 | 21 |
| G16-Q-14 | 16 | 14 | 21 |
| G16-Q-15 | 16 | 15 | 21 |
| G16-Q-16 | 16 | 16 | 21 |
| G16-Q-17 | 16 | 17 | 21 |
| G16-Q-18 | 16 | 18 | 21 |
| G16-Q-19 | 16 | 19 | 21 |
| G16-Q-20 | 16 | 20 | 21 |
| G16-Q-21 | 16 | 21 | 21 |
| G16-Q-22 | 16 | 22 | 21 |
| G16-Q-23 | 16 | 23 | 21 |
| G16-Q-24 | 16 | 24 | 21 |
| G16-Q-25 | 16 | 25 | 21 |

SERIE LUNGHE
LONG SERIES

| COD. ART | d | A | B |
|-------------|----|-----|----|
| GL16-Q-05 | 16 | 5 | 40 |
| GL16-Q-05,5 | 16 | 5,5 | 40 |
| GL16-Q-06 | 16 | 6 | 40 |
| GL16-Q-07 | 16 | 7 | 40 |
| GL16-Q-08 | 16 | 8 | 40 |
| GL16-Q-09 | 16 | 9 | 40 |
| GL16-Q-10 | 16 | 10 | 40 |
| GL16-Q-11 | 16 | 11 | 40 |
| GL16-Q-12 | 16 | 12 | 40 |
| GL16-Q-13 | 16 | 13 | 40 |
| GL16-Q-14 | 16 | 14 | 40 |
| GL16-Q-15 | 16 | 15 | 40 |
| GL16-Q-16 | 16 | 16 | 40 |
| GL16-Q-17 | 16 | 17 | 40 |
| GL16-Q-18 | 16 | 18 | 40 |
| GL16-Q-19 | 16 | 19 | 40 |
| GL16-Q-20 | 16 | 20 | 40 |
| GL16-Q-21 | 16 | 21 | 40 |
| GL16-Q-22 | 16 | 22 | 40 |
| GL16-Q-23 | 16 | 23 | 40 |
| GL16-Q-24 | 16 | 24 | 40 |
| GL16-Q-25 | 16 | 25 | 40 |



BROCCIA PER CAVE POLIGONALI IN ACCIAIO HSS

HSS STEEL BROACH FOR POLYGONAL HOLES

MISURE IN POLLICI

SIZES IN INCHES

ESAGONALE HEXAGONAL

| COD. ART | d | A | B |
|--------------|---|------|----|
| GP08-E-3/32" | 8 | 2,38 | 5 |
| GP08-E-1/8" | 8 | 3,17 | 6 |
| GP08-E-5/32" | 8 | 3,96 | 8 |
| GP08-E-3/16" | 8 | 4,76 | 9 |
| GP08-E-7/32" | 8 | 5,55 | 11 |
| GP08-E-1/4" | 8 | 6,35 | 13 |

| | | | |
|--------------|----|-------|----|
| GP12-E-3/32" | 12 | 2,38 | 5 |
| GP12-E-1/8" | 12 | 3,17 | 6 |
| GP12-E-5/32" | 12 | 3,96 | 8 |
| GP12-E-3/16" | 12 | 4,76 | 9 |
| GP12-E-7/32" | 12 | 5,55 | 11 |
| GP12-E-1/4" | 12 | 6,35 | 13 |
| GP12-E-5/16" | 12 | 7,93 | 16 |
| GP12-E-3/8" | 12 | 9,52 | 18 |
| GP12-E-1/2" | 12 | 12,70 | 21 |

| | | | |
|--------------|----|-------|----|
| GP16-E-3/32" | 16 | 2,38" | 5 |
| GP16-E-1/8" | 16 | 3,17 | 6 |
| GP16-E-5/32" | 16 | 3,96 | 8 |
| GP16-E-3/16" | 16 | 4,76 | 9 |
| GP16-E-7/32" | 16 | 5,55 | 11 |
| GP16-E-1/4" | 16 | 6,35 | 13 |
| GP16-E-5/16" | 16 | 7,93 | 16 |
| GP16-E-3/8" | 16 | 9,52 | 18 |
| GP16-E-1/2" | 16 | 12,70 | 21 |
| GP16-E-9/16" | 16 | 14,28 | 21 |
| GP16-E-5/8" | 16 | 15,87 | 21 |
| GP16-E-3/4" | 16 | 19,05 | 21 |
| GP16-E-1" | 16 | 25,40 | 21 |

QUADRATA SQUARE

| COD. ART | d | A | B |
|--------------|---|------|----|
| GP08-Q-3/32" | 8 | 2,38 | 5 |
| GP08-Q-1/8" | 8 | 3,17 | 6 |
| GP08-Q-5/32" | 8 | 3,96 | 8 |
| GP08-Q-3/16" | 8 | 4,76 | 9 |
| GP08-Q-7/32" | 8 | 5,55 | 11 |
| GP08-Q-1/4" | 8 | 6,35 | 13 |

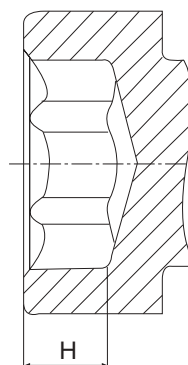
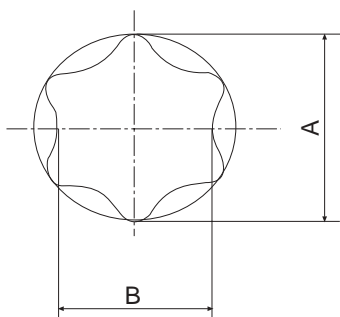
| | | | |
|--------------|----|-------|----|
| GP12-Q-3/32" | 12 | 2,38 | 5 |
| GP12-Q-1/8" | 12 | 3,17 | 6 |
| GP12-Q-5/32" | 12 | 3,96 | 8 |
| GP12-Q-3/16" | 12 | 4,76 | 9 |
| GP12-Q-7/32" | 12 | 5,55 | 11 |
| GP12-Q-1/4" | 12 | 6,35 | 13 |
| GP12-Q-5/16" | 12 | 7,93 | 16 |
| GP12-Q-3/8" | 12 | 9,52 | 18 |
| GP12-Q-1/2" | 12 | 12,70 | 21 |

| | | | |
|--------------|----|-------|----|
| GP16-Q-3/32" | 16 | 2,38" | 5 |
| GP16-Q-1/8" | 16 | 3,17 | 6 |
| GP16-Q-5/32" | 16 | 3,96 | 8 |
| GP16-Q-3/16" | 16 | 4,76 | 9 |
| GP16-Q-7/32" | 16 | 5,55 | 11 |
| GP16-Q-1/4" | 16 | 6,35 | 13 |
| GP16-Q-5/16" | 16 | 7,93 | 16 |
| GP16-Q-3/8" | 16 | 9,52 | 18 |
| GP16-Q-1/2" | 16 | 12,70 | 21 |
| GP16-Q-9/16" | 16 | 14,28 | 21 |
| GP16-Q-5/8" | 16 | 15,87 | 21 |
| GP16-Q-3/4" | 16 | 19,05 | 21 |
| GP16-Q-1" | 16 | 25,40 | 21 |



BROCCIA PER CHIAVI TORX® IN ACCIAIO HSS

HSS STEEL BROACH FOR TORX® WRENCHES



IMPRONTA: TORX® / IMPRESSION: TORX®

| COD. ART | TORX | A | B | H |
|-----------|------|------|------|-----------|
| GT08 -T06 | 6 | 1,80 | 1,29 | 0,50~0,70 |
| GT08 -T08 | 8 | 2,45 | 1,80 | 0,70~0,90 |
| GT08 -T10 | 10 | 2,85 | 2,07 | 1,00~1,30 |
| GT08 -T15 | 15 | 3,38 | 2,44 | 1,30~1,50 |
| GT08 -T20 | 20 | 3,96 | 2,86 | 1,50~1,60 |
| GT08 -T25 | 25 | 4,55 | 3,28 | 1,60~2,00 |
| GT08 -T27 | 27 | 5,10 | 3,65 | 2,00~2,40 |
| GT08 -T30 | 30 | 5,65 | 4,07 | 2,60~3,00 |

| COD. ART | TORX | A | B | H |
|-----------|------|------|------|-----------|
| GT12 -T06 | 6 | 1,80 | 1,29 | 0,50~0,70 |
| GT12 -T08 | 8 | 2,45 | 1,80 | 0,70~0,90 |
| GT12 -T10 | 10 | 2,85 | 2,07 | 1,00~1,30 |
| GT12 -T15 | 15 | 3,38 | 2,44 | 1,30~1,50 |
| GT12 -T20 | 20 | 3,96 | 2,86 | 1,50~1,60 |
| GT12 -T25 | 25 | 4,55 | 3,28 | 1,60~2,00 |
| GT12 -T27 | 27 | 5,10 | 3,65 | 2,00~2,40 |
| GT12 -T30 | 30 | 5,65 | 4,07 | 2,60~3,00 |
| GT12 -T40 | 40 | 6,80 | 4,88 | 3,00~3,30 |
| GT12 -T45 | 45 | 7,97 | 5,68 | 3,50~4,00 |
| GT12 -T50 | 50 | 8,99 | 6,50 | 4,00~4,50 |

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 very high torque, despite the limited dimensions, without damaging the hole.

Torx®: marchio registrato dalla Textron inc. Providence (Usa).

Torx®: trade mark registered by Textron inc. Providence (Usa).



BROCCIA PER PROFILI ESTERNI IN ACCIAIO HSS

HSS STEEL SURFACE BROACHES



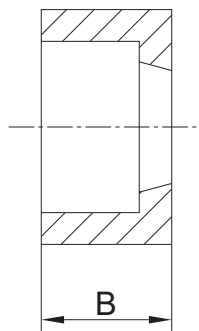
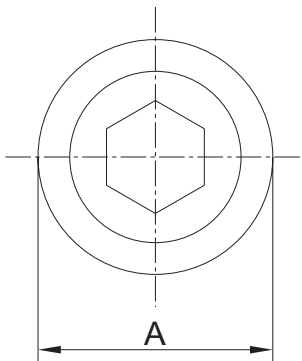
I Sono costituite da dischi in acciaio di robusta costituzione che riportano al centro il foro con il profilo da ottenere. Vengono applicate al brocciatore per mezzo di uno speciale adattatore.

Il profilo del foro **eseguito SOLO su disegno del cliente.**

GB They consist of sturdy steel disks with a hole at the centre, duly shaped according to the profile to be obtained. They are fitted to the broacher using an adaptor.

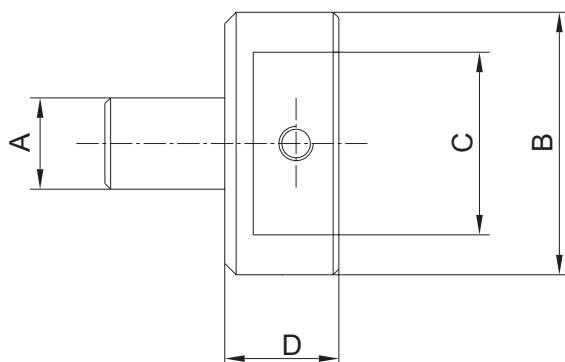
The hole' shape is **executed ONLY on customer's drawing.**

BROCCIA / BROACH



| | A | B |
|--------------|----|----|
| G 12 - ESTER | 32 | 20 |
| G 16 - ESTER | 36 | 20 |

ADATTATORE / ADAPTOR

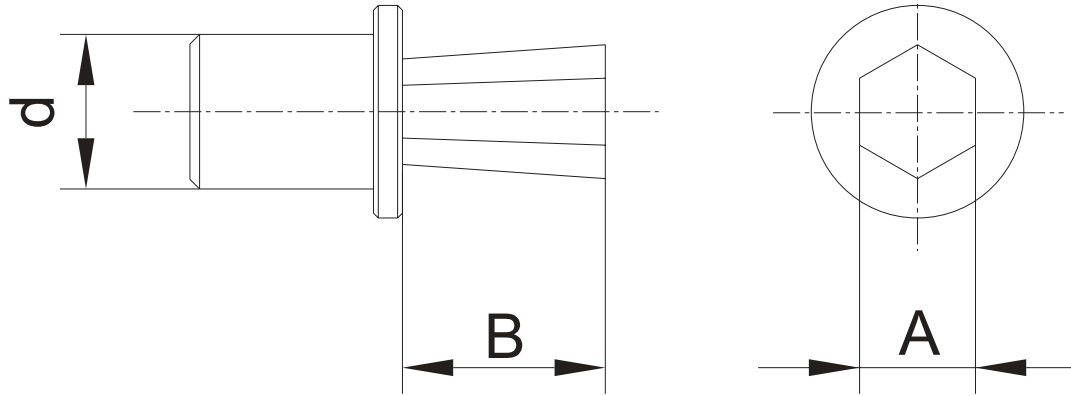


| | A | B | C | D |
|--------|----|----|----|----|
| A - 12 | 12 | 42 | 32 | 20 |
| A - 16 | 16 | 46 | 36 | 20 |



BROCCIA PER CAVE POLIGONALI IN METALLO DURO

HARD METAL BROACH FOR POLYGONAL HOLES



SEZIONE ESAGONALE / HEXAGONAL SECTION

| COD. ART | d | A | B |
|-----------|---|---|----|
| G8-E-3 MD | 8 | 3 | 6 |
| G8-E-4 MD | 8 | 4 | 8 |
| G8-E-5 MD | 8 | 5 | 11 |
| G8-E-6 MD | 8 | 6 | 13 |

| COD. ART | d | A | B |
|------------|----|---|----|
| G12-E-3 MD | 12 | 3 | 6 |
| G12-E-4 MD | 12 | 4 | 8 |
| G12-E-5 MD | 12 | 5 | 11 |
| G12-E-6 MD | 12 | 6 | 13 |
| G12-E-8 MD | 12 | 8 | 17 |

| COD. ART | d | A | B |
|------------|----|---|----|
| G16-E-3 MD | 16 | 3 | 6 |
| G16-E-4 MD | 16 | 4 | 8 |
| G16-E-5 MD | 16 | 5 | 11 |
| G16-E-6 MD | 16 | 6 | 13 |
| G16-E-8 MD | 16 | 8 | 17 |

RIVESTIMENTI

COATINGS

I Si possono eseguire i seguenti tipi di rivestimenti:

- TiCN
- TiN
- TiN₂
- CrN
- TiAlN

GB The following coatings may be applied:

- TiCN
- TiN
- TiN₂
- CrN
- TiAlN

