

BR-G12A

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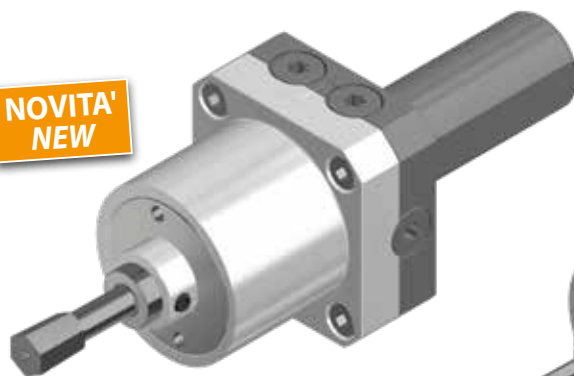


BM-260

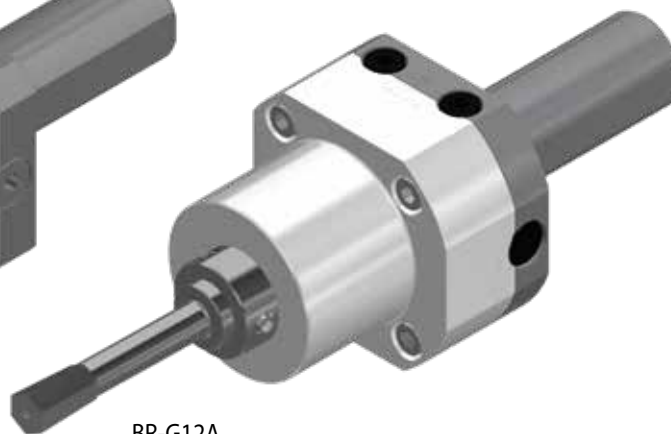
BRIGHETTI MECCANICA



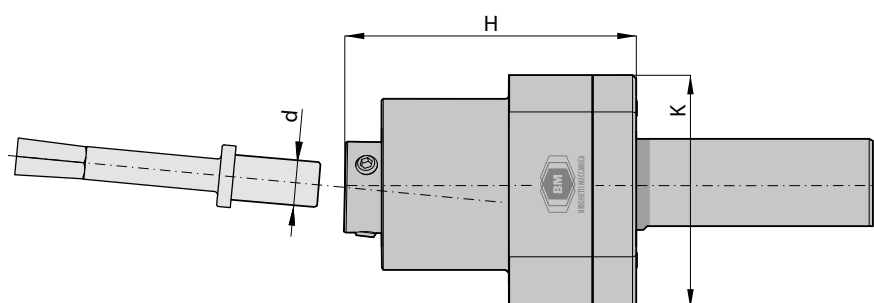
**NOVITA'
NEW**



BR-G8A



BR-G12A



CARATTERISTICHE / FEATURES	dim.	BROCCIATORE BROACHING HEAD (BR)		
			BR-G8A	BR-G12A
GAMBO DELLA BROCCIA SHANK OF THE BROACH	d	mm	Ø8	Ø12
CAPACITA' CAVE ESAGONALI HEXAGONAL SLOT CAPACITY		mm	1÷10	4÷15
CAPACITA' CAVE QUADRE SQUARE SLOT CAPACITY		mm	1÷8	4÷12
CAPACITA' CAVE TORX® TORX® SLOT CAPACITY		T	3÷40 *	3÷60 **
CAPACITA' CAVE TORX® PLUS TORX® PLUS SLOT CAPACITY		IP	6÷40 *	6÷60 **
PROFONDITA' MAX DI LAVORO MAXIMUM WORKING DEPTH		mm	18÷30	21÷55
DIMENSIONE CORPO BODY DIMENSIONS	H	mm	57	80
DIMENSIONE CORPO BODY DIMENSIONS	K	mm	45	64
PESO (indicativo) 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 / CONNECTIONS	BROCCIATORE / BROACHING HEAD (BR)	
	BR-G8A	BR-G12A
CODOLO CILINDRICO 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" "CM" MORSE TAPER CONNECTION		3
CODOLO "ISO - DIN 69871 / DIN 2080" "ISO-DIN 69871 / DIN 2080" CONNECTION		30 - 40 a richiesta on request
CODOLO "VDI" "VDI" CONNECTION		30 - 40 a richiesta on request
CODOLO "CAPTO ISO-26623" "CAPTO ISO-26623" CONNECTION		a richiesta on request



* Brocche standard: L = 18 / 25 / 30

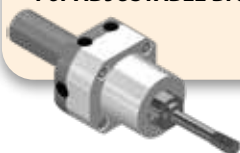
* Standard broaches: L = 18 / 25 / 30

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

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

Per Brocciatori REGISTRABILI /
For ADJUSTABLE Broaching Heads

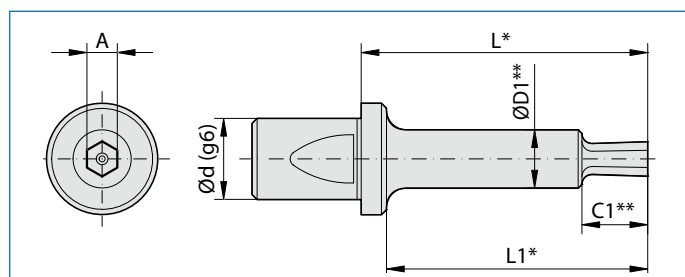
BR-G12A



BROCCIE G12A - DIAMETRO "d" DEL GAMBO: 12 mm
G12A BROACHES - 12 mm SHANK DIAMETER ("d")

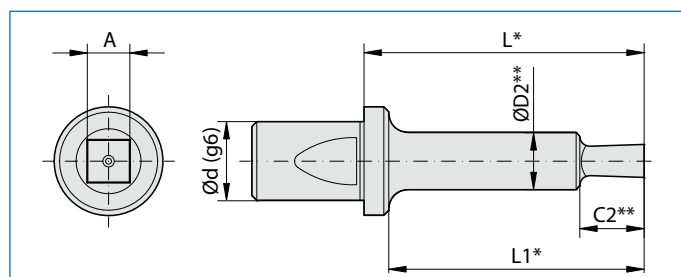


Sezione ESAGONALE standard (E)
Standard HEXAGONAL section (E)



"G12A" - "G12AK" STANDARD
 "G12A" - "G12AK" STANDARD

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

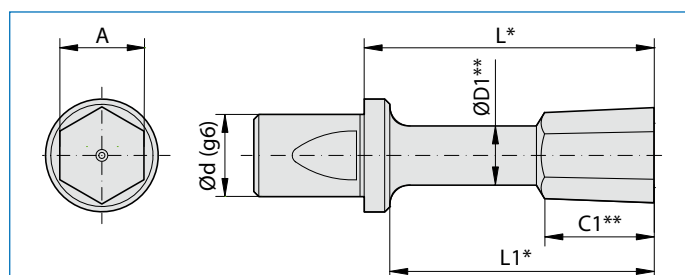


"G12A" - "G12AK" STANDARD
 "G12A" - "G12AK" STANDARD

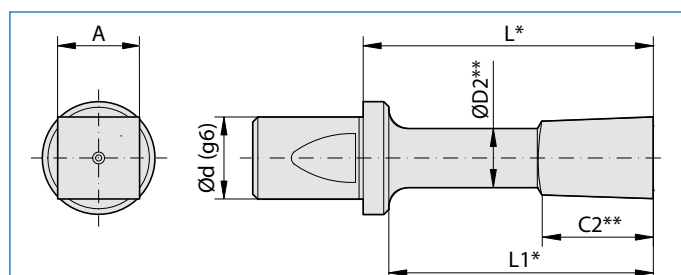
ESAGONALE / HEXAGONAL	
ARTICOLO (materiale) ITEM (material)	
HSS	SINTERIZZATO SINTERED
Standard	Standard
G12A-E-4	G12AK-E-4
G12A-E-4,5	G12AK-E-4,5
G12A-E-5	G12AK-E-5
G12A-E-5,5	G12AK-E-5,5
G12A-E-6	G12AK-E-6

QUADRA / SQUARE	
ARTICOLO (materiale) ITEM (material)	
HSS	SINTERIZZATO SINTERED
Standard	Standard
G12A-Q-4	G12AK-Q-4
G12A-Q-4,5	G12AK-Q-4,5
G12A-Q-5	G12AK-Q-5
/	/

DIMENSIONI - DIMENSIONS									Utilizzo su Brocciatori/ Use on Broaching heads
d	A		L1*	L*	C1**	C2**	D1**	D2**	
12	4	+0,07 +0,09	55	60	9	9	10	8	Standard BR-G12A
12	4,5	+0,07 +0,09	55	60	11	11	10	8	
12	5	+0,08 +0,10	55	60	11	11	10	8	
12	5,5	+0,08 +0,10	55	60	11	/	10	/	
12	6	+0,08 +0,10	55	60	13	/	10	/	



"G12A" - "G12AK" STANDARD
 "G12A" - "G12AK" STANDARD



"G12A" - "G12AK" STANDARD
 "G12A" - "G12AK" STANDARD

/	/
G12A-E-7	G12AK-E-7
G12A-E-8	G12AK-E-8
G12A-E-9	G12AK-E-9
G12A-E-10	G12AK-E-10
G12A-E-11	G12AK-E-11
G12A-E-12	G12AK-E-12
G12A-E-13	G12AK-E-13
G12A-E-14	G12AK-E-14
G12A-E-15	G12AK-E-15

G12A-Q-5,5	G12AK-Q-5,5
G12A-Q-6	G12AK-Q-6
G12A-Q-7	G12AK-Q-7
G12A-Q-8	G12AK-Q-8
G12A-Q-9	G12AK-Q-9
G12A-Q-10	G12AK-Q-10
G12A-Q-11	G12AK-Q-11
G12A-Q-12	G12AK-Q-12
/	/

12	5,5 +0,08 +0,10	55	60	/	17	/	8	Standard BR-G12A
12	6 +0,08 +0,10	55	60	/	17	/	8	
12	7 +0,08 +0,10	55	60	15	19	6	8	
12	8 +0,08 +0,10	55	60	17	19	6,5	8	
12	9 +0,09 +0,11	55	60	19	21	7,7	8	
12	10 +0,10 +0,12	55	60	21	21	8,6	8	
12	11 +0,10 +0,12	55	60	21	21	9	9	
12	12 +0,11 +0,13	55	60	21	21	10	10	
12	13 +0,11 +0,13	55	60	21	/	11	/	
12	14 +0,12 +0,14	55	60	21	/	11,5	/	
12	15 +0,13 +0,15	55	60	21	/	12,5	/	

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 = 25 o 50mm / L1 = 21 o 46mm.
 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 = 25 or 50mm / L1 = 21 or 46mm.

** le quote C1, C2, D1 e D2 possono essere modificate a seconda delle necessità del cliente. Contattare la Brighetti Meccanica.
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Available coatings for the up above mentioned items: **WONDER, TiN, INOX PLUS and ZIRINOS** > see page 18



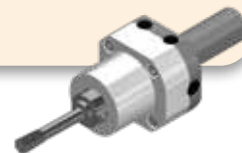


BROCCE GP12A - DIAMETRO "d" DEL GAMBO: 12 mm MISURE IN POLLICI

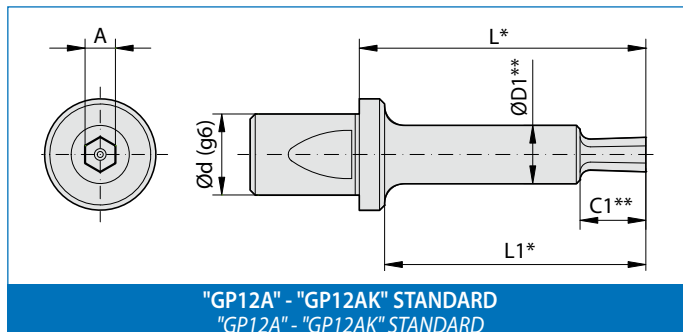
GP12A BROACHES - 12 mm SHANK DIAMETER ("d")
SIZES IN INCHES

Per Brocciatori REGISTRABILI /
For ADJUSTABLE Broaching Heads

BR-G12A

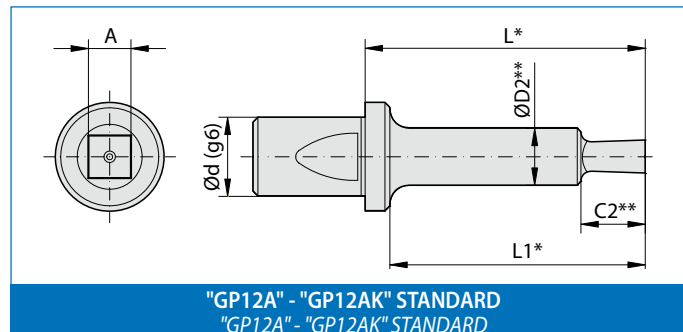


Sezione ESAGONALE standard (E) Standard HEXAGONAL section (E)



"GP12A" - "GP12AK" STANDARD
"GP12A" - "GP12AK" STANDARD

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

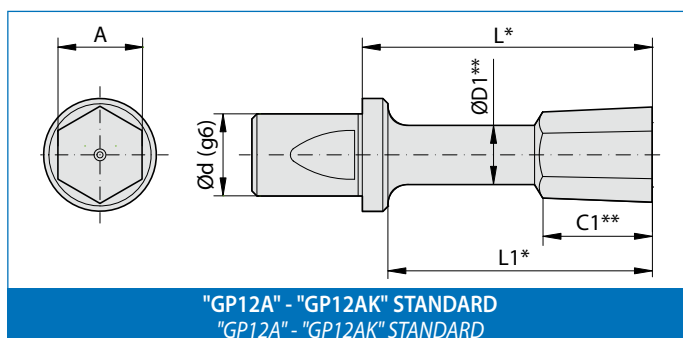


"GP12A" - "GP12AK" STANDARD
"GP12A" - "GP12AK" STANDARD

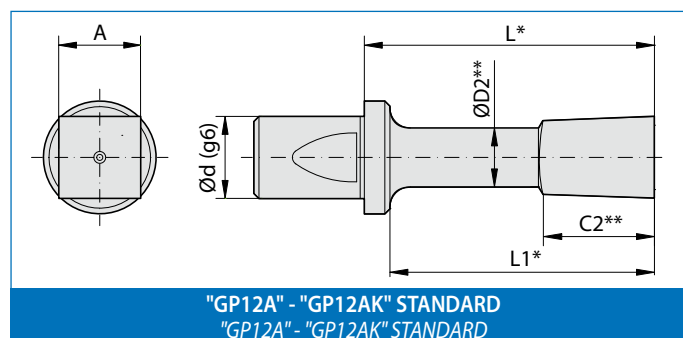
ESAGONALE / HEXAGONAL	
ARTICOLO (materiale) ITEM (material)	
HSS	SINTERIZZATO SINTERED
Standard	Standard
GP12A-E-1/8"	GP12AK-E-1/8"
GP12A-E-5/32"	GP12AK-E-5/32"
GP12A-E-3/16"	GP12AK-E-3/16"
GP12A-E-7/32"	GP12AK-E-7/32"
GP12A-E-1/4"	GP12AK-E-1/4"

QUADRA / SQUARE	
ARTICOLO (materiale) ITEM (material)	
HSS	SINTERIZZATO SINTERED
Standard	Standard
GP12A-Q-1/8"	GP12AK-Q-1/8"
GP12A-Q-5/32"	GP12AK-Q-5/32"
GP12A-Q-3/16"	GP12AK-Q-3/16"
GP12A-Q-7/32"	GP12AK-Q-7/32"
/	/

DIMENSIONI - DIMENSIONS									Utilizzo su Brocciatori/ Use on Broaching heads
d	A	L1*	L*	C1**	C2**	D1**	D2**		
12	3,17 +0,07+0,09	55	60	9	9	10	8	Standard BR-G12A	
12	3,97 +0,08+0,10	55	60	9	9	10	8		
12	4,76 +0,08+0,10	55	60	11	11	10	8		
12	5,55 +0,08+0,10	55	60	11	11	10	8		
12	6,35 +0,08+0,10	55	60	17	/	10	/		



"GP12A" - "GP12AK" STANDARD
"GP12A" - "GP12AK" STANDARD



"GP12A" - "GP12AK" STANDARD
"GP12A" - "GP12AK" STANDARD

/	/
GP12A-E-9/32"	GP12AK-E-9/32"
GP12A-E-5/16"	GP12AK-E-5/16"
GP12A-E-3/8"	GP12AK-E-3/8"
GP12A-E-1/2"	GP12AK-E-1/2"

GP12A-Q-1/4"	GP12AK-Q-1/4"
GP12A-Q-9/32"	GP12AK-Q-9/32"
GP12A-Q-5/16"	GP12AK-Q-5/16"
GP12A-Q-3/8"	GP12AK-Q-3/8"
GP12A-Q-1/2"	GP12AK-Q-1/2"

12	6,35 +0,08+0,10	55	60	/	19	/	8	Standard BR-G12A	
12	7,14 +0,09+0,11	55	60	17	19	6	8		
12	7,93 +0,09+0,11	55	60	17	19	6,5	8		
12	9,52 +0,10+0,12	55	60	21	21	8,6	8		
12	12,70 +0,12+0,14	55	60	21	21	11	10		

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

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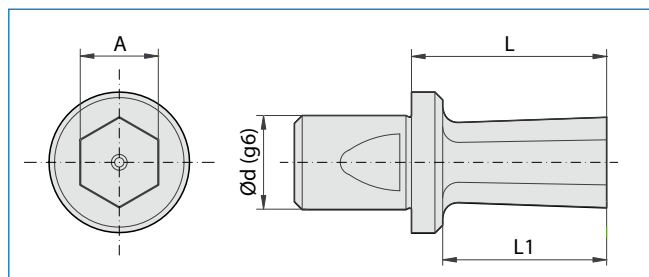


BROCCE G12 E G12C - DIAMETRO "d" DEL GAMBO: 12 mm

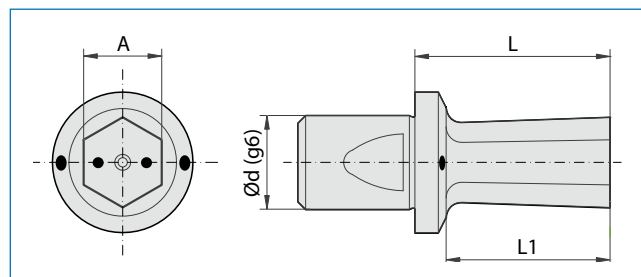
G12 AND G12C BROACHES - 12 mm SHANK DIAMETER ("d")

Sezione ESAGONALE (E)

HEXAGONAL section (E)



"G12" - "G12K" STANDARD
"G12" - "G12K" STANDARD



"G12C" - "G12KC" CON PASSAGGIO REFRIGERANTE INTERNO
"G12C" - "G12KC" WITH INTERNAL FLOW OF COOLANT

ARTICOLO (materiale) - ITEM (material)				DIMENSIONI - DIMENSIONS				Utilizzo su Brocciatori/ Use on Broaching heads
HSS		SINTERIZZATO / SINTERED						
Standard 	Ref. / Cool. 	Standard 	Ref. / Cool. 	d	A	L1	L	
G12-E-1	/	G12K-E-1	/	12	1 +0,04 +0,06	2	25	
G12-E-1,5		G12K-E-1,5		12	1,5 +0,05 +0,07	3	25	
G12-E-2		G12K-E-2		12	2 +0,05 +0,07	5	25	
G12-E-2,5		G12K-E-2,5		12	2,5 +0,05 +0,07	6	25	
G12-E-3	G12C-E-3	G12K-E-3	G12KC-E-3	12	3 +0,06 +0,08	7	25	
G12-E-3,5	G12C-E-3,5	G12K-E-3,5	G12KC-E-3,5	12	3,5 +0,06 +0,08	8	25	
G12-E-4	G12C-E-4	G12K-E-4	G12KC-E-4	12	4 +0,07 +0,09	9	25	
G12-E-4,5	G12C-E-4,5	G12K-E-4,5	G12KC-E-4,5	12	4,5 +0,07 +0,09	9	25	
G12-E-5	G12C-E-5	G12K-E-5	G12KC-E-5	12	5 +0,08 +0,10	11	25	
G12-E-5,5	G12C-E-5,5	G12K-E-5,5	G12KC-E-5,5	12	5,5 +0,08 +0,10	11	25	
G12-E-6	G12C-E-6	G12K-E-6	G12KC-E-6	12	6 +0,08 +0,10	13	25	
G12-E-7	G12C-E-7	G12K-E-7	G12KC-E-7	12	7 +0,08 +0,10	15	25	
G12-E-8	G12C-E-8	G12K-E-8	G12KC-E-8	12	8 +0,08 +0,10	17	25	
G12-E-9	G12C-E-9	G12K-E-9	G12KC-E-9	12	9 +0,09 +0,11	19	25	
G12-E-10	G12C-E-10	G12K-E-10	G12KC-E-10	12	10 +0,10 +0,12	21	25	
G12-E-11	G12C-E-11	G12K-E-11	G12KC-E-11	12	11 +0,10 +0,12	21	25	
G12-E-12	G12C-E-12	G12K-E-12	G12KC-E-12	12	12 +0,11 +0,13	21	25	
G12-E-13	G12C-E-13	G12K-E-13	G12KC-E-13	12	13 +0,11 +0,13	21	25	
G12-E-14	G12C-E-14	G12K-E-14	G12KC-E-14	12	14 +0,12 +0,14	21	25	
G12-E-15	G12C-E-15	G12K-E-15	G12KC-E-15	12	15 +0,13 +0,15	21	25	

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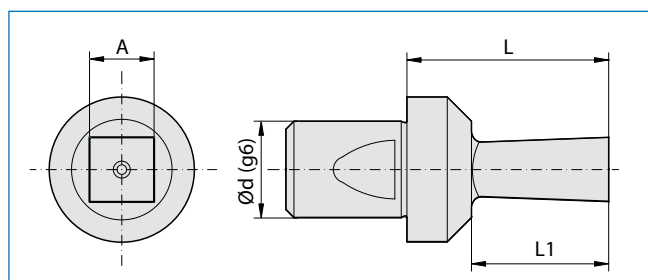


BROCCHE G12 E G12C - DIAMETRO "d" DEL GAMBO: 12 mm

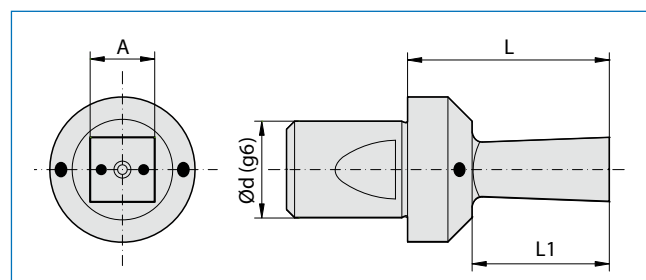
G12 AND G12C BROACHES - 12 mm SHANK DIAMETER ("d")

Sezione QUADRA (Q)

SQUARE section (Q)



"G12" - "G12K" STANDARD
"G12" - "G12K" STANDARD



"G12C" - "G12KC" CON PASSAGGIO REFRIGERANTE INTERNO
"G12C" - "G12KC" WITH INTERNAL FLOW OF COOLANT

ARTICOLO (materiale) - ITEM (material)				DIMENSIONI - DIMENSIONS					Utilizzo su Brocciatori/ Use on Broaching head
HSS		SINTERIZZATO / SINTERED							
Standard 	Ref. / Cool. 	Standard 	Ref. / Cool. 	d	A	L1	L		
G12-Q-1	/	G12K-Q-1	/	12	1 +0,04 +0,06	2	25	Standard BR-G12B BR-G12 BR-G12A	
G12-Q-1,5		G12K-Q-1,5		12	1,5 +0,05 +0,07	3	25		
G12-Q-2		G12K-Q-2		12	2 +0,05 +0,07	5	25		
G12-Q-2,5		G12K-Q-2,5		12	2,5 +0,05 +0,07	6	25		
G12-Q-3	G12C-Q-3	G12K-Q-3	G12KC-Q-3	12	3 +0,06 +0,08	7	25		Refrig. / Cool. BRC-G12B BRC-G12
G12-Q-3,5	G12C-Q-3,5	G12K-Q-3,5	G12KC-Q-3,5	12	3,5 +0,06 +0,08	8	25		
G12-Q-4	G12C-Q-4	G12K-Q-4	G12KC-Q-4	12	4 +0,07 +0,09	9	25		
G12-Q-4,5	G12C-Q-4,5	G12K-Q-4,5	G12KC-Q-4,5	12	4,5 +0,07 +0,09	9	25		
G12-Q-5	G12C-Q-5	G12K-Q-5	G12KC-Q-5	12	5 +0,08 +0,10	11	25		
G12-Q-5,5	G12C-Q-5,5	G12K-Q-5,5	G12KC-Q-5,5	12	5,5 +0,08 +0,10	11	25		
G12-Q-6	G12C-Q-6	G12K-Q-6	G12KC-Q-6	12	6 +0,08 +0,10	13	25		
G12-Q-7	G12C-Q-7	G12K-Q-7	G12KC-Q-7	12	7 +0,08 +0,10	15	25		
G12-Q-8	G12C-Q-8	G12K-Q-8	G12KC-Q-8	12	8 +0,08 +0,10	17	25		
G12-Q-9	G12C-Q-9	G12K-Q-9	G12KC-Q-9	12	9 +0,09 +0,11	19	25		
G12-Q-10	G12C-Q-10	G12K-Q-10	G12KC-Q-10	12	10 +0,10 +0,12	21	25		
G12-Q-11	G12C-Q-11	G12K-Q-11	G12KC-Q-11	12	11 +0,10 +0,12	21	25		
G12-Q-12	G12C-Q-12	G12K-Q-12	G12KC-Q-12	12	12 +0,11 +0,13	21	25		

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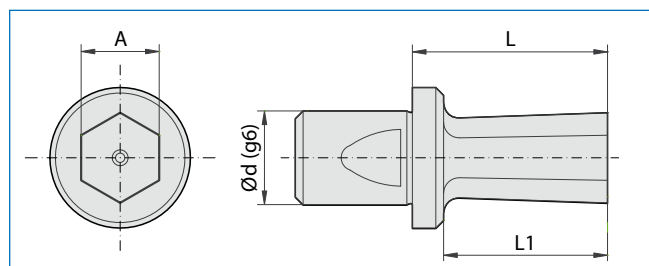
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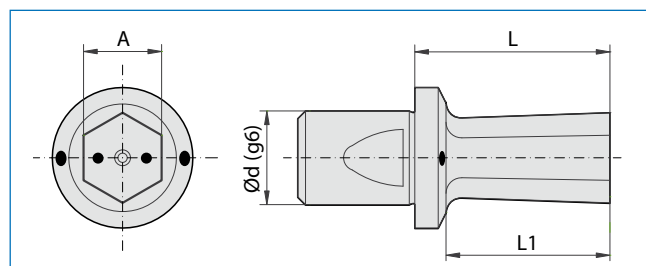


BROCCHE GP12 E GP12C - DIAMETRO "d" DEL GAMBO: 12 mm - MISURE IN POLLICI GP12 E GP12C BROACHES - 12 mm SHANK DIAMETER ("d") - SIZES IN INCHES

Sezione ESAGONALE (E) / HEXAGONAL section (E)



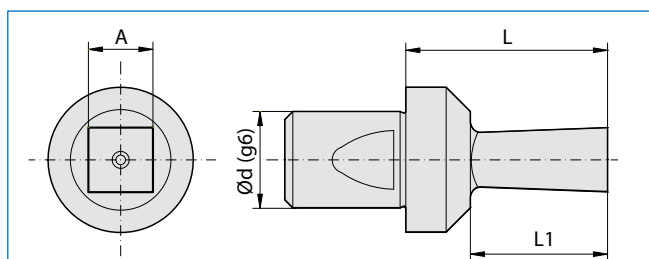
"GP12" - "GP12K" STANDARD
"GP12" - "GP12K" STANDARD



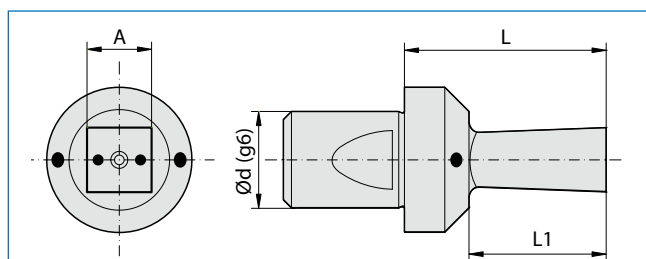
"GP12C" - "GP12KC" CON PASSAGGIO REFRIGERANTE INTERNO
"GP12C" - "GP12KC" WITH INTERNAL FLOW OF COOLANT

ARTICOLO (materiale) - ITEM (material)				DIMENSIONI - DIMENSIONS					Utilizzo su Brocciatori/ Use on Broaching heads
HSS		SINTERIZZATO / SINTERED							
Standard 	Ref. / Cool. 	Standard 	Ref. / Cool. 	d	A	L1	L		
GP12-E-3/32"	/	GP12K-E-3/32"	/	12	2,38 +0,06 +0,08	5	25	Standard BR-G12B BR-G12 BR-G12A	
GP12-E-1/8"	GP12C-E-1/8"	GP12K-E-1/8"	GP12KC-E-1/8"	12	3,17 +0,07 +0,09	6	25		
GP12-E-5/32"	GP12C-E-5/32"	GP12K-E-5/32"	GP12KC-E-5/32"	12	3,97 +0,08 +0,10	8	25		
GP12-E-3/16"	GP12C-E-3/16"	GP12K-E-3/16"	GP12KC-E-3/16"	12	4,76 +0,08 +0,10	9	25		
GP12-E-7/32"	GP12C-E-7/32"	GP12K-E-7/32"	GP12KC-E-7/32"	12	5,55 +0,08 +0,10	11	25		
GP12-E-1/4"	GP12C-E-1/4"	GP12K-E-1/4"	GP12KC-E-1/4"	12	6,35 +0,08 +0,10	13	25		
GP12-E-9/32"	GP12C-E-9/32"	GP12K-E-9/32"	GP12KC-E-9/32"	12	7,14 +0,09 +0,11	16	25		
GP12-E-5/16"	GP12C-E-5/16"	GP12K-E-5/16"	GP12KC-E-5/16"	12	7,93 +0,09 +0,11	16	25		
GP12-E-3/8"	GP12C-E-3/8"	GP12K-E-3/8"	GP12KC-E-3/8"	12	9,52 +0,10 +0,12	18	25		
GP12-E-7/16"	GP12C-E-7/16"	GP12K-E-7/16"	GP12KC-E-7/16"	12	11,11 +0,11 +0,13	21	25		
GP12-E-1/2"	GP12C-E-1/2"	GP12K-E-1/2"	GP12KC-E-1/2"	12	12,70 +0,12 +0,14	21	25	Refrig. / Cool. BRC-G12B BRC-G12	
GP12-E-9/16"	GP12C-E-9/16"	GP12K-E-9/16"	GP12KC-E-9/16"	12	14,28 +0,12 +0,14	21	25		

Sezione QUADRA (Q) / SQUARE section (Q)



"GP12" - "GP12K" STANDARD
"GP12" - "GP12K" STANDARD



"GP12C" - "GP12KC" CON PASSAGGIO REFRIGERANTE INTERNO
"GP12C" - "GP12KC" WITH INTERNAL FLOW OF COOLANT

ARTICOLO (materiale) - ITEM (material)				DIMENSIONI - DIMENSIONS					Utilizzo su Brocciatori/ Use on Broaching heads
HSS		SINTERIZZATO / SINTERED							
Standard 	Ref. / Cool. 	Standard 	Ref. / Cool. 	d	A		L1	L	
GP12-Q-3/32"	/	GP12K-Q-3/32"	/	12	2,38	+0,06 +0,08	5	25	Standard BR-G12B BR-G12 BR-G12A
GP12-Q-1/8"	GP12C-Q-1/8"	GP12K-Q-1/8"	GP12KC-Q-1/8"	12	3,17	+0,07 +0,09	6	25	
GP12-Q-5/32"	GP12C-Q-5/32"	GP12K-Q-5/32"	GP12KC-Q-5/32"	12	3,97	+0,08 +0,10	8	25	
GP12-Q-3/16"	GP12C-Q-3/16"	GP12K-Q-3/16"	GP12KC-Q-3/16"	12	4,76	+0,08 +0,10	9	25	
GP12-Q-7/32"	GP12C-Q-7/32"	GP12K-Q-7/32"	GP12KC-Q-7/32"	12	5,55	+0,08 +0,10	11	25	
GP12-Q-1/4"	GP12C-Q-1/4"	GP12K-Q-1/4"	GP12KC-Q-1/4"	12	6,35	+0,08 +0,10	15	25	
GP12-Q-9/32"	GP12C-Q-9/32"	GP12K-Q-9/32"	GP12KC-Q-9/32"	12	7,14	+0,09 +0,11	16	25	Refrig. / Cool. BRC-G12B BRC-G12
GP12-Q-5/16"	GP12C-Q-5/16"	GP12K-Q-5/16"	GP12KC-Q-5/16"	12	7,93	+0,09 +0,11	16	25	
GP12-Q-3/8"	GP12C-Q-3/8"	GP12K-Q-3/8"	GP12KC-Q-3/8"	12	9,52	+0,10 +0,12	18	25	
GP12-Q-7/16"	GP12C-Q-7/16"	GP12K-Q-7/16"	GP12KC-Q-7/16"	12	11,11	+0,11 +0,13	21	25	
GP12-Q-1/2"	GP12C-Q-1/2"	GP12K-Q-1/2"	GP12KC-Q-1/2"	12	12,70	+0,12 +0,14	21	25	

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

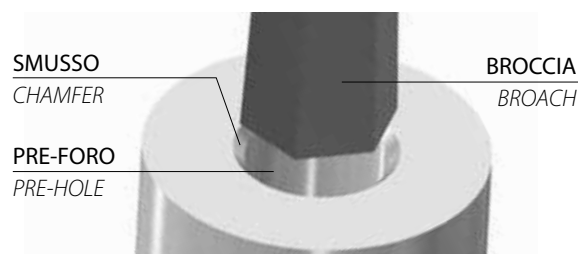
I Per effettuare una corretta brocciatura, è necessario realizzare uno smusso in testa al pre-foro. Questo smusso, ha la funzione di accompagnare la broccia verso il pre-foro evitando che si scheggi prima che essa cominci il lavoro di compressione del materiale. E' fondamentale appoggiare la broccia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

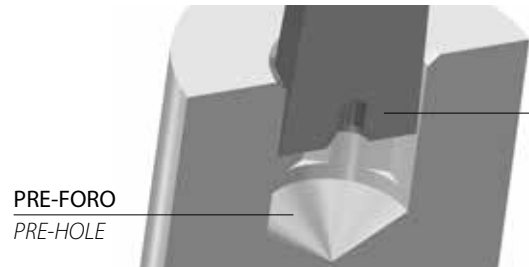
I Prima della procedura di brocciatura è fondamentale generare uno smusso in testa al pre foro. La profondità del pre-foro si incrementa del 20%-40% rispetto al profilo utile da eseguire. La soluzione ottimale, comunque, sarebbe quella di eseguire una gola di scarico alla fine del foro, per agevolare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



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



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

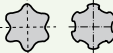
SVANTAGGI
DISADVANTAGES

ACCIAIO HSS / HSS STEEL	SINTERIZZATO / SINTERED
Massima flessibilità per tutti i materiali. Acciaio da utensili (super rapido) indicato per qualsiasi tipo di lavorazione. Rivestimenti consigliati vedi pag. 18. <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. Rivestimenti consigliati vedi pag. 18. <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. <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. <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 HSS HSS STEEL BROACHES			MATERIALE DA LAVORARE / MATERIAL TO WORK																			
ROTAZIONE MANDRINO: M3, M4 SPINDLE ROTATION: M3, M4			ALLUMINIO ALUMINUM		ACCIAI / STEELS				ACCIAI INOX STAINLESS STEELS				GHISA CAST IRON		TITANIO (*) TITANIUM (*)		RAME COPPER		OTTONE/ BRONZO BRASS / BRONZE			
			Vc m/min=55 Rm ≤ 350 (N/mm²)	TENERO MILD STEEL Vc m/min=40 Rm ≤ 510 (N/mm²)	COMUNE COMMON STEEL Vc m/min=38 Rm 510÷680 (N/mm²)	LEGATO ALLOY STEEL Vc m/min=30 Rm 680÷1050 (N/mm²)	Vc m/min=25 Rm ≤ 520 (N/mm²)		Vc m/min=20 Rm 520÷1050 (N/mm²)		Vc m/min=30 Rm ≤ 400 (N/mm²)		Rm ≤ 350 (N/mm²)		Rm ≤ 200 (N/mm²)		Vc m/min=40 Rm ≤ 350 (N/mm²)					
PROFILO PROFILE	dimensioni dimensions (mm)	LUBRIFICAZIONE NECESSARIA / LUBRICATION REQUIRED																				
		f	S	f	S	f	S	f	S	f	S	f	S	f	S		f	S	f	S		
 ESAGONALE HEXAGONAL	1 - 12,9	0,11	1800/ 900	0,10	1500/ 850	0,08	1450/ 800	0,05	1400/ 750	0,07	1450/ 750	0,04	1200/ 700	0,07	1600/ 700	NON CONSIGLIATO NOT RECOMMENDED	0,09	1600/ 950	0,10	1700/ 950		
	13 - 23,9	0,08	900/ 550	0,08	850/ 500	0,06	800/ 400	0,02	750/ 400	0,06	750/ 500	0,03	700/ 450	0,05	700/ 500		0,07	950/ 600	0,07	950/ 700		
	24 - 40	0,05	550/ 350	0,04	500/ 300	0,03	400/ 300	0,01	400/ 300	0,03	500/ 400	0,02	450/ 350	0,03	500/ 350		0,04	600/ 450	0,03	700/ 450		
 QUADRATO SQUARE	1 - 10,9	0,10	1800/ 900	0,06	1500/ 850	0,05	1450/ 800	0,02	1400/ 750	0,05	1450/ 750	0,03	1200/ 700	0,07	1600/ 700		0,10	1600/ 950	0,08	1700/ 950		
	11 - 20,9	0,06	900/ 550	0,04	850/ 500	0,03	800/ 400	0,02	750/ 400	0,04	750/ 500	0,02	700/ 450	0,05	700/ 500		0,08	950/ 600	0,06	950/ 700		
	21 - 25	0,03	550/ 350	0,02	500/ 300	0,02	400/ 300	0,01	400/ 300	0,02	500/ 400	0,01	450/ 350	0,03	500/ 350		0,06	600/ 450	0,04	700/ 450		
 TORX® (T) TORX® PLUS (IP)	T3 - T6	0,12	1800/ 900	0,10	1500/ 850	0,08	1450/ 800	0,05	1400/ 750	0,08	1450/ 750	0,045	1200/ 700	0,09	1600/ 700		0,12	1600/ 950	0,10	1700/ 950		
	T7 - T27 IP6 - IP27	0,10	900/ 550	0,09	850/ 500	0,07	800/ 400	0,04	750/ 400	0,07	750/ 500	0,04	700/ 450	0,08	700/ 500		0,11	950/ 600	0,09	950/ 700		
	T30 - T70 IP30 - IP70	0,08	550/ 350	0,07	500/ 300	0,05	400/ 300	0,03	400/ 300	0,06	500/ 400	0,03	450/ 350	0,06	500/ 350		0,09	600/ 450	0,06	700/ 450		

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

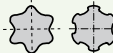
Legenda / Legend: S = velocità (giri/min) / RPM (rounds/minute)

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

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

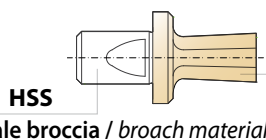


I A seconda della tipologia di materiale da lavorare, sulle brocche possono essere applicati rivestimenti per migliorarne la durata in termini di numero di pezzi prodotti, come **WONDER (TiAlN*)**, **TiN**, **INOX PLUS** e **ZIRINOS**. Di seguito alcuni esempi di materiali da lavorare con i grafici che 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 Broach material	Materiale da lavorare Machined material					
			TiN	WONDER/ TiAlN *	INOX PLUS	ZIRINOS
HSS	ALLUMINIO / ALUMINUM	Rm ≤ 350 (N/mm²)				✓
HSS	ACCIAIO TENERO / MILD STEEL	Rm ≤ 510 (N/mm²)	✓			
HSS	ACCIAIO COMUNE / COMMON STEEL	Rm 510÷680 (N/mm²)	✓			
HSS	ACCIAIO LEGATO / ALLOY STEEL	Rm 680÷1050 (N/mm²)		✓		
HSS	ACCIAI INOX / STAINLESS STEELS	Rm ≤ 520 (N/mm²)			✓	
HSS		Rm 520÷1050 (N/mm²)			✓	
HSS	GHISA / CAST IRON	Rm ≤ 400 (N/mm²)	✓			
SINTERIZZATO	TITANIO / TITANIUM	Rm ≤ 350 (N/mm²)				✓
HSS	OTTONE-BRONZO / BRASS - BRONZE	Rm ≤ 350 (N/mm²)				✓

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



ZIRINOS

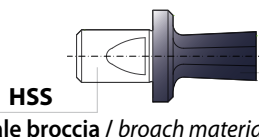
rivestimento applicato / applied coating

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*)

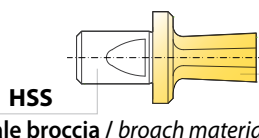
rivestimento applicato / applied coating

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

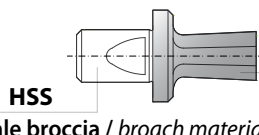
rivestimento applicato / applied coating

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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