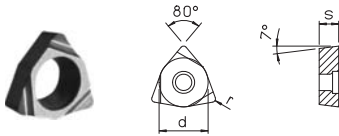


- INSERTS
- BCTABKI
- KOŃCÓWKI
- VLOŽKY
- EK PARÇALAR

WCGT ○○○○○○ L

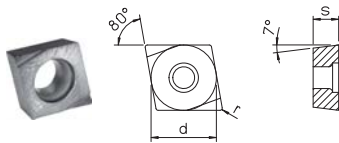


REF.	d	s	r	T	S	CARBIDE		CERMET	COATED CERMET
						DP300	DK100	DC100	DC100T
WCGT 020102 L	3.97	1.59	0.2	TS 21*-TS 211*	TORX T06	•	•	•	•
WCGT 020104 L			0.4			•	•	•	•

* TS21 : B...06

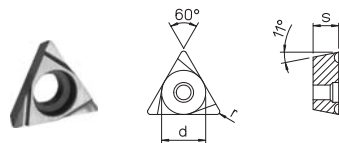
* TS211 : B...08

CCGT ○○○○○○ L



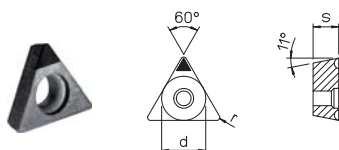
REF.	d	s	r	T	S	CARBIDE		CERMET	COATED CERMET
						DP300	DK100	DC100	DC100T
CCGT 060200 L10°	6.35	2.38	0	TS 25	TORX T08	•	•	•	•
CCGT 060202 L			0.2			•	•	•	•
CCGT 060204 L			0.4			•	•	•	•
CCGT 09T302 L	9.525	3.97	0.2	TS 4	TORX T15	•	•	•	•
CCGT 09T304 L			0.4			•	•	•	•

TPGX ○○○○○○ L



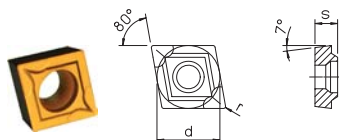
REF.	d	s	r	T	S	CARBIDE		CERMET	COATED CERMET
						DP300	DK100	DC100	DC100T
TPGX 090200 L10°	5.56	2.38	0	CS250T	TORX T08	•	•	•	•
TPGX 090202 L			0.2			•	•	•	•
TPGX 090204 L			0.4			•	•	•	•
TPGX 110300 L10°	6.35	3.18	0	CS300890T	TORX T08	•	•	•	•
TPGX 110302 L			0.2			•	•	•	•
TPGX 110304 L			0.4			•	•	•	•

TPGX ○○○○○○



REF.	d	s	r	T	S	SINTERED DIAMOND	CUBIC BORON NITRIDE	
						D20 MDC	D20 CBN	D25 CBN
TPGX 090202	5.56	2.38	0.2	CS250T	TORX T08	•	•	•
TPGX 090204			0.4			•	•	•
TPGX 110302	6.35	3.18	0.2	CS300890T	TORX T08	•	-	•
TPGX 110304			0.4			•	•	•

CCMT ○○○○○○



REF.	d	s	r	T	S	CARBIDE	CVD COATED CARBIDE
						DP300	DP100 R
CCMT 060202	6.35	2.38	0.2	TS 25	TORX T08	•	•
CCMT 060204			0.4			•	•
CCMT 09T304	9.525	3.97	0.4	TS 4	TORX T15	•	•
CCMT 09T308			0.8			•	•
CCMT 120404			0.4			•	•
CCMT 120408	12.7	4.76	0.8	TS 5	TORX T25	•	•



- BORING GRADE
- ПАСТОЧКА
- JAKOŚĆ WYTACZANIA
- STUPEŇ VYVRTÁVÁNÍ
- DELİK AÇMA SINIFI

ISO	CARBIDE ИЗ ТВЕРДОСПЛАВНОГО МЕТАЛЛА TWARDY METAL KARBID METALLI SERAMİK	CERMET	COATED CERMET МЕТАЛЛО-КЕРАМИЧЕСКАЯ С ПОКРЫТИЕМ CERMET POWLEKANY POTAHOVANÝ CERMET KAPLAMALI METALLI SERAMİK	CVD COATED CARBIDE ИЗ ТВЕРДОСПЛАВНОГО МЕТАЛЛА С ПОКРЫТИЕМ CVD TWARDY METAL POWLEKANY CVD CVD POTAHOVANÝ KARBID CVD KAPLI KARBÜR
P01				
P10		DC100	DC100T	DP100R
P20				
P30	DP300			
P40				
K01				
K10	DK100	DC100	DC100T	DP100R
K20	DP300			
K30				

DP300

- Roughing and finishing. Low carbon steel - stainless steels
- Черновая и чистовая обработка. Низкоуглеродистая сталь – нержавеющая сталь
- Obróbka zgrubna i wykończenie. Stale o niskiej zawartości węgla – stale nierdzewne
- Hrubování a dokončování. Nízkouhlíková ocel - nerezové oceli
- Kaba işleme ve bitirme. Düşük karbonlu çelik - paslanmaz çelikler

DK100

- Roughing and finishing. Aluminium alloy Cast iron
- Черновая и чистовая обработка. Алюминиевый сплав, чугун
- Obróbka zgrubna i wykończenie. Stopy aluminium i żeliwa
- Hrubování a dokončování. Hliníková slitina. Litina
- Kaba işleme ve bitirme. Alüminyum alaşım Dökme demir

DP100R

- Roughing. Steels, alloy steels and cast iron
- Черновая обработка. Сталь, легированная сталь и чугун
- Obróbka zgrubna. Stale, stale stopowe i żeliwa
- Hrubování. Oceli, slitinové oceli a litina
- Kaba işleme. Çelikler, alaşımlı çelikler ve dökme demir

DC100

- Finishing. Alloy steels and cast iron
- Чистовая обработка. Легированная сталь в целом и сфероидальный чугун
- Wykończenie. Stale stopowe i żeliwa sferoidalne
- Dokončování. Slitinové oceli a litina
- Bitirme. Alaşımlı çelikler ve dökme demir

DC100T

- Finishing. Alloy steels, stainless steels and cast iron
- Чистовая обработка. Легированная сталь в целом и сфероидальный чугун
- Wykończenie. Stale stopowe, stale nierdzewne i żeliwa sferoidalne
- Dokončování. Slitinové oceli, nerezové oceli a litina
- Bitirme. Alaşımlı çelikler, paslanmaz çelikler ve dökme demir

D20MDC

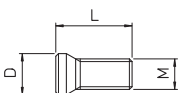
- Finishing. Aluminium alloys, non-ferrous materials and non-metals
- Чистовая обработка. Алюминиевые сплавы, цветные металлы и неметаллы
- Wykończenie. Stopy aluminium, materiały nieżelazne i niemetale
- Dokončování. Hliníkové slitiny, neželezné materiály a nekovy
- Bitirme. Alüminyum alaşımlar, demir içermeyen malzemeler ve metal olmayan malzemeler

D20CBN

- Finishing. High hardness steels (over 50 HRC) (it may replace the grinding)
- Чистовая обработка. Стали с высокой твердостью - по Роквеллу более 50 ед. по шкале С (может заменить шлифование)
- Wykończenie. Stale o dużej twardości przekraczającej 50 HRC (może zastępować szlifowanie)
- Dokončování. Oceli o vysoké tvrdosti (nad 50 HRC) (může nahradit broušení)
- Bitirme. Yüksek sertlikte (>50 HRC) çelikler (taşlamanın yerini alabilir)

D25CBN

- Finishing. High hardness steel (over 50 HRC) and interrupted cutting (it may replace the grinding)
- Чистовая обработка. Стали с высокой твердостью - по Роквеллу более 50 ед. по шкале С и прерывание резания (может заменить шлифование)
- Wykończenie. Stale o dużej twardości przekraczającej 50 HRC i skrawaniu przerywanym (może zastępować szlifowanie)
- Dokončování. Ocel o vysoké tvrdosti (nad 50 HRC) a přerušované frézování (může nahradit broušení)
- Bitirme. Yüksek sertlikte (>50 HRC) çelik ve fasıllı kesme (taşlamanın yerini alabilir)

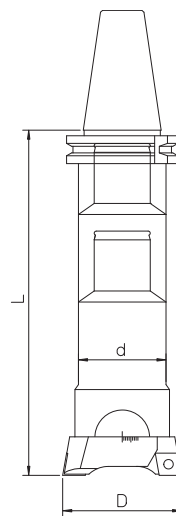


TORX

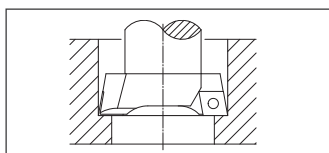
REF.	CODE	M	L	D	REF.	CODE
TS 21	494010002034	M 2x0.4	3.7	2.7	TORX T06	10 150 09 0 0600
TS 211	494010002040		4			
CS 250 T	494010002565	M 2.5x0.45	6	3.7	TORX T08	10 150 09 0 0800
CS 300890 T	494010003008	M 3x0.5	8	4.1		
TS 25	494010002555	M 2.5x0.45	5.7	3.45	TORX T15	10 150 09 0 1500
TS 4	494010004008	M 4x0.7	10	5.5		
TS 5	494010005009	M 5x0.8	11.5	7	TORX T25	10 150 09 0 2500
DMC US63	494210035070	M 3.5x0.6	10	5.2	TORX T15	10 150 09 0 1500

RECOMMENDED CUTTING CONDITIONS FOR ROUGHING OPERATIONS WITH DOUBLE-BIT HEADS TS
DATI DI TAGLIO CONSIGLIATI PER SGROSSATURA DI FORI CON TESTINE BITAGLIENTI TS

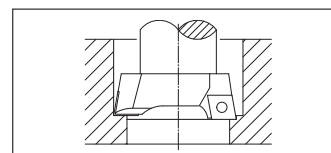
material materiale	boring bar dimensions dimensioni bareno	working conditions condizioni di lavoro	cutting speed $V_c = m/min.$ velocità di taglio $V_c = m/min.$			feed $f_n = mm/rev$ (twin cutters) avanzamento $f = mm/giro$ (due taglienti)		
			D < 38	diameter diametro		R = 0.2	insert radius raggio inserto	
				D = 38-120	D > 120		R = 0.4	R = 0.8
carbon steel acciaio al carbonio HB ≤ 200	L / d = 2.5	good / buona	120 - 180	140 - 200	160 - 250	-	0.2 - 0.4	0.3 - 0.5
	L / d = 4	normal / normale	100 - 160	120 - 180	140 - 200	-	0.2 - 0.4	0.3 - 0.5
	L / d = 6.3	difficult / difficile	70 - 100	70 - 100	70 - 100	0.15 - 0.3	0.2 - 0.4	-
carbon steel acciaio al carbonio HB > 200	L / d = 2.5	good / buona	100 - 160	120 - 180	140 - 200	-	0.2 - 0.4	0.3 - 0.5
	L / d = 4	normal / normale	80 - 140	100 - 160	120 - 180	-	0.2 - 0.4	0.3 - 0.5
	L / d = 6.3	difficult / difficile	60 - 90	70 - 100	70 - 100	0.15 - 0.3	0.2 - 0.4	-
stainless steel acciaio inox AISI 304 - 316	L / d = 2.5	good / buona	80 - 110	90 - 120	100 - 140	-	0.2 - 0.4	0.3 - 0.5
	L / d = 4	normal / normale	70 - 100	80 - 110	90 - 120	-	0.2 - 0.4	0.3 - 0.5
	L / d = 6.3	difficult / difficile	60 - 90	60 - 90	60 - 90	0.15 - 0.3	0.2 - 0.4	-
cast iron ghisa	L / d = 2.5	good / buona	90 - 120	100 - 140	120 - 160	-	0.2 - 0.4	0.3 - 0.5
	L / d = 4	normal / normale	70 - 100	90 - 120	100 - 140	-	0.2 - 0.4	0.3 - 0.5
	L / d = 6.3	difficult / difficile	60 - 90	60 - 90	60 - 90	0.15 - 0.3	0.2 - 0.4	-
aluminium alluminio	L / d = 2.5	good / buona	160 - 250	200 - 300	250 - 350	-	0.3 - 0.5	0.4 - 0.6
	L / d = 4	normal / normale	140 - 200	160 - 250	200 - 300	-	0.3 - 0.5	0.4 - 0.6
	L / d = 6.3	difficult / difficile	100 - 150	100 - 150	100 - 150	0.2 - 0.4	0.3 - 0.5	-



cutting depth profondità di passata ap = mm	working range campo di lavoro Ø = mm	max. cutting depth max. profondità di passata	
		steel acciaio	cast iron, aluminium ghisa, alluminio
	18 - 28	1.5 - 2	2 - 2.5
	28 - 50	2 - 3	2.5 - 3.5
	50 - 68	3 - 4	3.5 - 5
	68 - 200	4 - 5	5 - 7
	200 - 500	5 - 6	6 - 8



- Twin cutters at the same cutting diameter
- Due taglienti sullo stesso diametro



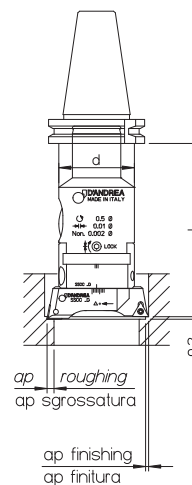
- Twin cutters at different cutting diameters
- Due taglienti su diametri diversi

- It's advisable to start with B hole ≥ the boring bar diameter d.
- È consigliabile che il preforo B sia ≥ al diametro del bareno d.

- **ATTENTION:** For boring operations at different diameters, reduce to a half the feed indicated on the above table.
- **ATTENZIONE:** Per lavorare con un solo tagliente o con differenti diametri di taglio, dimezzare l'avanzamento indicato in tabella.

RECOMMENDED CUTTING CONDITIONS FOR BORING OPERATIONS WITH DOUBLE-BIT TESTAROSSA TRD
DATI DI TAGLIO CONSIGLIATI PER ALESATURA CON TESTAROSSA BITAGLIENTE TRD

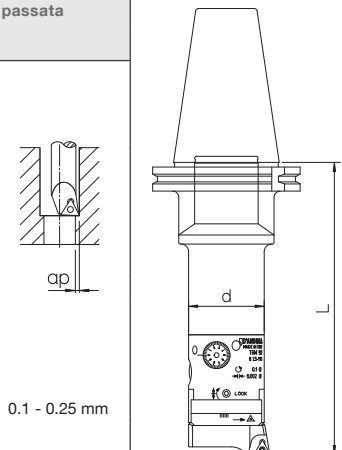
material materiale	boring bar dimensions dimensioni bareno	working conditions condizioni di lavoro	cutting speed $V_c = m/min.$ velocità di taglio $V_c = m/min.$	feed $f_n = mm/rev$ avanzamento $f_n = mm/giro$		quality insert qualità inserto		cutting depth profondità di passata			
				insert radius raggio inserto		roughing sgrossatura	finishing finitura	roughing sgrossatura			
				R = 0.2	R = 0.4			ø28 ø46	ø46 ø75	ø75 ø160	
carbon steel acciaio al carbonio HB ≤ 200	L / d = 2.5	good / buona	160 - 250	0.1 - 0.2	0.1 - 0.2	DC100 DP300	DP300 DP100R	0.15 - 0.3	1.5	2	2.5
	L / d = 4	normal / normale	120 - 180	0.1 - 0.2	0.1 - 0.2						
	L / d = 6.3	difficult / difficile	70 - 100	*0.1 - 0.15	0.1 - 0.2						
carbon steel acciaio al carbonio HB > 200	L / d = 2.5	good / buona	140 - 200	0.1 - 0.2	0.1 - 0.2	DC100	DP300 DP100R	0.15 - 0.3	1.5	2	2.5
	L / d = 4	normal / normale	100 - 160	0.1 - 0.2	0.1 - 0.2						
	L / d = 6.3	difficult / difficile	70 - 100	*0.1 - 0.15	0.1 - 0.2						
stainless steel acciaio inox AISI 304 - 316	L / d = 2.5	good / buona	100 - 140	0.1 - 0.2	0.1 - 0.2	DP300	DP300	0.15 - 0.3	1.5	2	2.5
	L / d = 4	normal / normale	80 - 110	0.1 - 0.2	0.1 - 0.2						
	L / d = 6.3	difficult / difficile	60 - 90	*0.1 - 0.15	0.1 - 0.2						
cast iron ghisa	L / d = 2.5	good / buona	120 - 160	0.1 - 0.2	0.1 - 0.2	DK100 DC300	DP100R	0.15 - 0.3	2	2.5	3
	L / d = 4	normal / normale	90 - 120	0.1 - 0.2	0.1 - 0.2						
	L / d = 6.3	difficult / difficile	60 - 90	*0.1 - 0.15	0.1 - 0.2						
aluminium alluminio	L / d = 2.5	good / buona	250 - 350	0.1 - 0.2	0.1 - 0.2	DK100	DK100	0.15 - 0.3	2	2.5	3
	L / d = 4	normal / normale	160 - 250	0.1 - 0.2	0.1 - 0.2						
	L / d = 6.3	difficult / difficile	100 - 150	*0.1 - 0.15	0.1 - 0.2						



* Only for finishing inserts
 * Solo per inserti di finitura



- RECOMMENDED CUTTING CONDITIONS FOR BORING OPERATIONS WITH TESTAROSSA TR-E / TRM / TRC / TR-PSC
- DATI DI TAGLIO CONSIGLIATI PER L'ALESATURA CON TESTAROSSA TR-E / TRM / TRC / TR-PSC

material materiale	boring bar dimensions dimensioni bareno	working conditions condizioni di lavoro	cutting speed $V_c = m/min.$ velocità di taglio $V_c = m/min.$	feed $f_n = mm/rev$ avanzamento $f_n = mm/giro$			quality insert qualità inserto	cutting depth profondità di passata	
				insert radius raggio inserto					
				R = 0.0	R = 0.2	R = 0.4			
carbon steel acciaio al carbonio $HB \leq 200$	L / d = 2.5	good / buona	200 - 300	-	0.05 - 0.08	0.07 - 0.1	DC100 DP300		
	L / d = 4	normal / normale	160 - 250	-	0.05 - 0.08	0.07 - 0.1			
	L / d = 6.3	difficult / difficile	70 - 100	0.05 - 0.08	0.05 - 0.08	-			
carbon steel acciaio al carbonio $HB > 200$	L / d = 2.5	good / buona	160 - 250	-	0.05 - 0.08	0.07 - 0.1	DC100		
	L / d = 4	normal / normale	150 - 200	-	0.05 - 0.08	0.07 - 0.1			
	L / d = 6.3	difficult / difficile	70 - 100	0.05 - 0.08	0.05 - 0.08	-			
stainless steel acciaio inox AISI 304 - 316	L / d = 2.5	good / buona	120 - 160	-	0.05 - 0.08	0.07 - 0.1	DP300		
	L / d = 4	normal / normale	100 - 140	-	0.05 - 0.08	0.07 - 0.1			
cast iron ghisa	L / d = 2.5	good / buona	120 - 160	-	0.05 - 0.08	0.07 - 0.1	DK100 DC100		
	L / d = 4	normal / normale	100 - 140	-	0.05 - 0.08	0.07 - 0.1			
	L / d = 6.3	difficult / difficile	70 - 100	0.05 - 0.08	0.05 - 0.08	-			
aluminium alluminio	L / d = 2.5	good / buona	300 - 400	-	0.05 - 0.08	0.07 - 0.1	DK100		
	L / d = 4	normal / normale	250 - 350	-	0.05 - 0.08	0.07 - 0.1			
	L / d = 6.3	difficult / difficile	100 - 150	0.05 - 0.08	0.05 - 0.08	-			
steel acciaio $HB \leq 200$	L / d = 2.5	good / buona	80 - 100	-	0.04 - 0.06	0.05 - 0.07	D20CBN		
	L / d = 4	normal / normale	80 - 100	-	0.04 - 0.06	0.05 - 0.07			

- CALCULATION FORMULAS FOR BORING
- FORMULA DI CALCOLO PER ALESATURA

V_c

- cutting speed (m/min.)
- velocità di taglio (m/min.)

$$V_c = \frac{\pi \cdot D \cdot n}{1000}$$

D

- diameter of workpiece (mm)
- diametro del pezzo da lavorare (mm)

$$n = \frac{V_c \cdot 1000}{\pi \cdot D}$$

n

- number of revolutions / min' (rev./min)
- numero di giri al minuto (giri/min.)

V_f

- feed rate (mm/min.)
- velocità avanzamento (mm/min.)

$$V_f = n \cdot f_n$$

f_n

- feed / rev. (mm/rev)
- avanzamento al giro (mm/giro)

π

- 3.14