


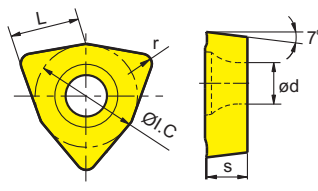






















WCMX	L	I.C	S	d
03 02	3.8	5.56	2.38	2.8
04 02	4.3	6.35	2.38	3.1
05 03	5.4	7.94	3.18	3.2
06 T3	6.5	9.525	3.97	3.7
08 04	8.7	12.7	4.76	4.3

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

Drilling inserts

WC** drilling insert			HC ¹ (CVD)	HC ¹ (PVD)	HW
	P			   	
	M			    	
	K				
	N				
	S			   	
	H				
ISO	r	YB6338 YBD252		YBG105 YBG202 YBS203 YBG205 YB9320 YBG212	YD201
	WCMX030208R-53	0.8	●	○	
	WCMX040208R-53	0.8	●	○	
	WCMX050308R-53	0.8	●	○	
	WCMX06T308R-53	0.8	●	○	○
	WCMX080412R-53	1.2	●	○	
	WCMX06T308-D	0.8	○		
	WCMX080412-D	1.2	●		
	WCMX030208R-PG	0.8		○	
	WCMX040208R-PG	0.8		○	
	WCMX050308R-PG	0.8	○	○	○
	WCMX06T308R-PG	0.8		○	
	WCMX080412R-PG	1.2		○	

● Ex stock ○ On demand

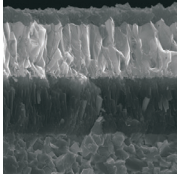

HC¹ Coated carbide
HW Uncoated carbide



A

Turning

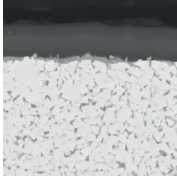
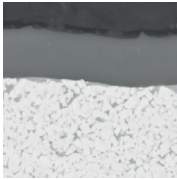
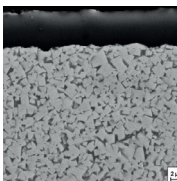
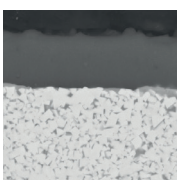
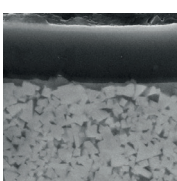
Coated cemented carbide CVD

Grade	ISO	Micro structure	Grade description
YB6338	P20 - P40 K20 - K40		CVD coated P20–P40/K20–K40 carbide substrate for operation with higher cutting speed and feed rate in steel and cast iron.
YBD252	K20 - K35		CVD coated K20–K35 carbide substrate. Optimized for medium to roughing operation of cast iron and Steel. Good wear resistance and toughness at higher cutting speed.

B

Milling

Coated cemented carbide PVD

Grade	ISO	Micro structure	Grade description
YBG105	S05 - S20		PVD multilayer coated S05–S20 carbide substrate for finishing to medium application of super alloy material but also stainless steel. Good wear resistance and thermal stability in a wide application field.
YBG202	P10 - P30 M10 - M25		PVD coated M10–M25/P10–P30 carbide substrate for finishing to medium application of stainless steel and steel (milling). Good wear resistance in a wide application field.
YBS203	S15 - S25		For processing heat-resistant materials. A special carbon substrate and the latest PVD coating technology enable a very good wear behaviour, high fracture toughness and high thermal stability.
YBG205	P10 - P30 M20 - M40 S15-S25		PVD multilayer coated P10–P30/M20–M40/S15–S25 carbide substrate for finishing to medium machining of stainless steel, super alloys and steel (milling). Excellent wear resistance and thermal stability in a wide range of applications.
YB9320	P10 - P30 M10 - M25		PVD multilayer coated P10–P30/M10–M25 carbide substrate for finishing to medium machining of stainless steel, super alloys and steel (grooving/milling). Optimised coating stability for higher wear resistance and thermal stability in a wide range of applic

C

Drilling

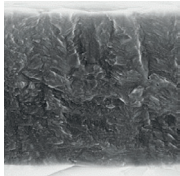
D

Technical Information

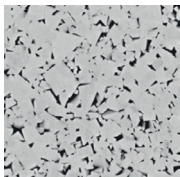
E

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Coated cemented carbide PVD

Grade	ISO	Micro structure	Grade description
YBG212	P25 - P35 M25-M40		PVD coated M25–M40/P25–P35 carbide substrate for steel and stainless steel. Especially for inner insert at drilling operation.

Uncoated cemented carbide

Grade	ISO	Micro structure	Grade description
YD201	K10 - K30 N10 - N30		Uncoated N10–N30/K10–K30 carbide substrate for medium application in aluminum and other material.

A

Turning

B

Milling

C

Drilling

DTechnical
Information**E**

Index

Application fields of grades – indexable drills

	ISO	HC ¹ (CVD)	HC ¹ (PVD)	HT	HW	PCBN & PCD
A Turning	P01					
	P10					
	P20	YBD252	YBG202			
	P30	YB6338	YBG205			
	P40		YBG212			
B Milling	M01					
	M10		YBG202			
	M20		YB9320			
	M30		YBG205			
	M40		YBS203			
C Drilling	K01					
	K10	YBD252	YBG202			
	K20	YB6338	YBG205			
	K30					
	K40					
D Technical Information	N01					
	N10					
	N20				YD201	
	N30					
E Index	S01		YBG202			
	S10		YB9320			
	S20		YBG205			
	S30		YBS203			
Index	H01					
	H10					
	H20					
	H30					

P	Steel
M	Stainless steel
K	Cast iron

N	Non-ferrous alloys
S	Heat-resistant alloys
H	Hardened materials

HC¹ Coated cemented carbide
 HT Uncoated cermet
 HW Uncoated cemented carbide

Indexable drills

	Material group	Composition / structure / heat treatment		HB	Machining group	ZSD*		ZSD*		
						SPMX04		SPMX05/06		
						v _c [m/min]	f [mm]	v _c [m/min]	f [mm]	
A Turning	P Unalloyed steel	approx. 0,15 % C	annealed	125	1	200-300	0,05-0,08	200-300	0,05-0,10	
		approx. 0,45 % C	annealed	190	2	200-300	0,05-0,08	200-300	0,05-0,10	
		approx. 0,45 % C	tempered	250	3	200-300	0,05-0,08	200-300	0,05-0,10	
		approx. 0,75 % C	annealed	270	4	200-300	0,05-0,08	200-300	0,05-0,10	
		approx. 0,75 % C	tempered	300	5	200-300	0,05-0,08	200-300	0,05-0,10	
	P Low-alloyed steel			annealed	180	6	140-220	0,05-0,08	140-220	0,05-0,10
				tempered	275	7	140-220	0,05-0,08	140-220	0,05-0,10
				tempered	300	8	140-220	0,05-0,08	140-220	0,05-0,10
				tempered	350	9	140-220	0,05-0,08	140-220	0,05-0,10
		High-alloyed steel and high-alloyed tool steel		annealed	200	10	120-180	0,05-0,08	120-180	0,05-0,10
	hardened and tempered		325	11	120-180	0,05-0,08	120-180	0,05-0,10		
M Milling	Stainless steel	ferritic/martensitic	annealed	200	12	110-230	0,05-0,08	110-230	0,05-0,10	
		martensitic	tempered	240	13	110-230	0,05-0,08	110-230	0,05-0,10	
		austenitic	quench hardened	180	14	110-230	0,05-0,08	110-230	0,05-0,10	
		austenitic-ferritic		230	15	110-230	0,05-0,08	110-230	0,05-0,10	
		Grey cast iron	perlitic/ferritic		180	16	170-240	0,05-0,08	170-240	0,05-0,10
K Cast iron with spheroidal graphite		perlitic (martensitic)		260	17	170-240	0,05-0,08	170-240	0,05-0,10	
		ferritic		160	18	130-200	0,05-0,08	130-200	0,05-0,10	
		perlitic		250	19	130-200	0,05-0,08	130-200	0,05-0,10	
	Malleable cast iron		ferritic		130	20	120-220	0,05-0,08	120-220	0,05-0,10
		perlitic		230	21	120-220	0,05-0,08	120-220	0,05-0,10	
C Drilling	Aluminium wrought alloys	cannot be hardened		60	22					
		hardenable	hardened	100	23					
	N Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	24					
		≤ 12 % Si, hardenable	hardened	90	25					
		> 12 % Si, cannot be hardened		130	26					
	Copper and copper alloys (bronze/brass)	machining steel, PB > 1%		110	27					
		CuZn, CuSnZn		90	28					
		CuSn, Pb-free copper, electrolytic copper		100	29					
D Technical Information	S Heat-resistant alloys	Fe-based alloys	annealed	200	30					
			hardened	280	31					
		Ni or Co base	annealed	250	32					
			hardened	350	33					
			cast	320	34					
	Titanium alloys	pure titanium		R _m 400	35					
	α and β alloys	hardened		R _m 1050	36					
H Hardened steel			hardened and tempered	55 HRC	37					
			hardened and tempered	60 HRC	38					
	Hard cast iron		cast	400	39					
	Hardened cast iron		hardened and tempered	55 HRC	40					
E Index	X Non-metallic materials	Thermoplasts			41					
		Thermosetting plastics			42					
		Plastic, glass-fibre reinforced GFRP			43					
		Plastic, carbon fibre reinforced CFRP			44					
		Graphite			45					
		Wood			46					

Note: The given cutting values are guide values, which were determined under ideal conditions.
 The values have to be adapted in individual cases.
 With hole depths of 5xD adjust the cutting data accordingly to the application.
 For examples of material for cutting tool groups view page D11.

ZSD*		ZSD*		ZTD*		ZTD*		ZTD*		ZD03		ZD03		
SPMX07/09		SPMX11/14		SPGT05/06		SPGT07/09		SPGT11/14		WCMX03-05		WCMX06-08		
v_c [m/min]	f [mm]	v_c [m/min]	f [mm]	v_c [m/min]	f [mm]	v_c [m/min]	f [mm]	v_c [m/min]	f [mm]	v_c [m/min]	f [mm]	v_c [m/min]	f [mm]	
200-300	0,06-0,14	200-300	0,08-0,17	200-300	0,05-0,08	200-300	0,06-0,11	200-300	0,08-0,14	200-300	0,05-0,08	200-300	0,06-0,11	
200-300	0,06-0,14	200-300	0,08-0,17	200-300	0,05-0,08	200-300	0,06-0,11	200-300	0,08-0,14	200-300	0,05-0,08	200-300	0,06-0,11	
200-300	0,06-0,14	200-300	0,08-0,17	200-300	0,05-0,08	200-300	0,06-0,11	200-300	0,08-0,14	200-300	0,05-0,08	200-300	0,06-0,11	
200-300	0,06-0,14	200-300	0,08-0,17	200-300	0,05-0,08	200-300	0,06-0,11	200-300	0,08-0,14	200-300	0,05-0,08	200-300	0,06-0,11	
140-220	0,06-0,14	140-220	0,09-0,19	140-220	0,05-0,08	140-220	0,07-0,12	140-220	0,09-0,16	140-220	0,05-0,08	140-220	0,07-0,12	
140-220	0,06-0,14	140-220	0,09-0,19	140-220	0,05-0,08	140-220	0,07-0,12	140-220	0,09-0,16	140-220	0,05-0,08	140-220	0,07-0,12	
140-220	0,06-0,14	140-220	0,09-0,19	140-220	0,05-0,08	140-220	0,07-0,12	140-220	0,09-0,16	140-220	0,05-0,08	140-220	0,07-0,12	
140-220	0,06-0,14	140-220	0,09-0,19	140-220	0,05-0,08	140-220	0,07-0,12	140-220	0,09-0,16	140-220	0,05-0,08	140-220	0,07-0,12	
120-180	0,06-0,14	120-180	0,09-0,19	120-180	0,05-0,08	120-180	0,07-0,12	120-180	0,09-0,16	120-180	0,05-0,08	120-180	0,07-0,12	
120-180	0,06-0,14	120-180	0,09-0,19	120-180	0,05-0,08	120-180	0,07-0,12	120-180	0,09-0,16	120-180	0,05-0,08	120-180	0,07-0,12	
110-230	0,06-0,14	110-230	0,08-0,17	110-230	0,05-0,08	110-230	0,06-0,11	110-230	0,08-0,14	110-230	0,05-0,08	110-230	0,06-0,11	
110-230	0,06-0,14	110-230	0,08-0,17	110-230	0,05-0,08	110-230	0,06-0,11	110-230	0,08-0,14	110-230	0,05-0,08	110-230	0,06-0,11	
110-230	0,06-0,14	110-230	0,08-0,17	110-230	0,05-0,08	110-230	0,06-0,11	110-230	0,08-0,14	110-230	0,05-0,08	110-230	0,06-0,11	
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170-240	0,08-0,16	170-240	0,12-0,24	170-240	0,05-0,08	170-240	0,08-0,14	170-240	0,12-0,21	170-240	0,05-0,08	170-240	0,08-0,14	
170-240	0,08-0,16	170-240	0,12-0,24	170-240	0,05-0,08	170-240	0,08-0,14	170-240	0,12-0,21	170-240	0,05-0,08	170-240	0,08-0,14	
130-200	0,08-0,16	130-200	0,12-0,24	130-200	0,05-0,08	130-200	0,08-0,14	130-200	0,12-0,21	130-200	0,05-0,08	130-200	0,08-0,14	
130-200	0,08-0,16	130-200	0,12-0,24	130-200	0,05-0,08	130-200	0,08-0,14	130-200	0,12-0,21	130-200	0,05-0,08	130-200	0,08-0,14	
120-220	0,08-0,16	120-220	0,12-0,24	120-220	0,05-0,08	120-220	0,08-0,14	120-220	0,12-0,21	120-220	0,05-0,08	120-220	0,08-0,14	
120-220	0,08-0,16	120-220	0,12-0,24	120-220	0,05-0,08	120-220	0,08-0,14	120-220	0,12-0,21	120-220	0,05-0,08	120-220	0,08-0,14	

A

Turning

B

Milling

C

Drilling

D

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W C M X 08 04 12 R – PG



1 2 3 4 5 6 7 8 9

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

Turning

Insert shape	
W	
S	

1

Clearance angle	
C	
P	


2

Tolerance class			
			
Code	I.C [mm]	m [mm]	S [mm]
G	±0,025	±0,025	±0,130
M	±0,05-0,13	±0,08-0,18	±0,130



3

B

Milling

Fastening features (metric)	
Insert shape	
T	
X	Special

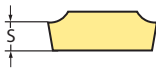
4

Cutting edge length l [mm]		
I.C [mm]	Insert shape	
		
	S	W
3,8		03
4,3		04
5,4		05
6,35	06	
6,5		06
8,0		08
8,7	08	
9,252	09	
12,7	12	

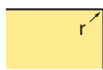
5

C

Drilling

Insert thickness S [mm]			
			
Code	S	Code	S
00	0,79	05	5,56
T0	0,99	T5	5,95
01	1,59	06	6,35
T1	1,98	T6	6,75
02	2,38	07	7,94
T2	2,58	09	9,52
03	3,18	T9	9,72
T3	3,97	11	11,11
04	4,76	12	12,70
T4	4,96		

6

Nose radius r [mm]	
	
Code	r
04	0,4
08	0,8
12	1,2

7

Rotation direction	
Code	Description
R	Right
L	Left

8

E

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Chip breaker overview (on page C3)

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