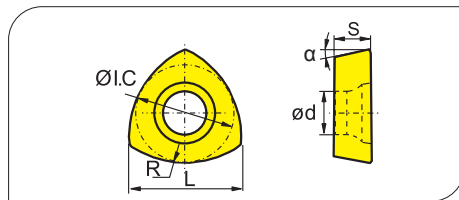


Milling · Fräsen

Indexable Milling Tools · Wendepaltenfräser

Applicable inserts · Wendeschneidplatten

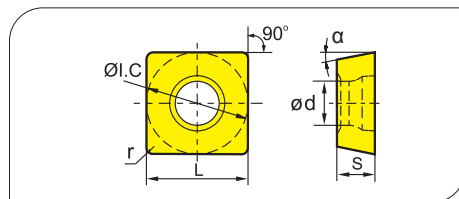


- Ideal Machining Condition
 Gute Bearbeitungsbedingungen
 ● Normal Machining Condition
 Normale Bearbeitungsbedingungen
 ● Unfavorable Machining Condition
 Ungünstige Bearbeitungsbedingungen

Workpiece Material Werkstoff	P	M	K	N	S	Steel / Stahl	Stainless Steel / Rostfreier Stahl	Cast iron / Gusseisen	Non-ferrite material / Ne Metalle	Heat-resistant steel / Warmfester Stahl
YBC301	●	●	●	●	●	●	●	●	●	●
YBC401	●	●	●	●	●	●	●	●	●	●
YBM251	●	●	●	●	●	●	●	●	●	●
YBM351	●	●	●	●	●	●	●	●	●	●
YBD152	●	●	●	●	●	●	●	●	●	●
YBD252	●	●	●	●	●	●	●	●	●	●
YBG102	●	●	●	●	●	●	●	●	●	●
YBG202	●	●	●	●	●	●	●	●	●	●
YBG205	●	●	●	●	●	●	●	●	●	●
YBG302	●	●	●	●	●	●	●	●	●	●
YBG152	●	●	●	●	●	●	●	●	●	●
YBG252	●	●	●	●	●	●	●	●	●	●
YNG151	●	●	●	●	●	●	●	●	●	●
YNG151C	●	●	●	●	●	●	●	●	●	●
YC30S	●	●	●	●	●	●	●	●	●	●
YD051	●	●	●	●	●	●	●	●	●	●
YD101	●	●	●	●	●	●	●	●	●	●
YD201	●	●	●	●	●	●	●	●	●	●

Insert WSP	Type · Typ	Dimensions (mm) · Abmessungen						CVD Coating CVD Beschicht.				PVD Coating PVD Beschicht.				Cermet		Carbide uncoat. unbe. Hartmetall							
		R	L	I.C	S	d	α	YBC301	YBC401	YBM251	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YBG302	YBG152	YBG252	YNG151	YNG151C	YC30S	YD051	YD101	YD201
	ZDET08T2CYR10	10	8.4	6.75	2.78	2.8	14°			●															
	ZDET1103CYR12.5	12.5	10.6	8.5	3.18	2.8	14°			●															
	ZDET13T3CYR16	16	13.2	10.5	3.97	4.4	14°			○															
	ZPNT2204CY(R20)	20	16.1	12.7	4.76	5.56	11°			○															
	ZPNT2204CY(R25)	25	16.9	12.7	4.76	5.56	11°			○															
	ZPNT2204CY(R31)	31.5	17.6	12.7	4.76	5.56	11°			○															

Applicable inserts · Wendeschneidplatten



- Ideal Machining Condition
 Gute Bearbeitungsbedingungen
 ● Normal Machining Condition
 Normale Bearbeitungsbedingungen
 ● Unfavorable Machining Condition
 Ungünstige Bearbeitungsbedingungen

Workpiece Material Werkstoff	P	M	K	N	S	Steel / Stahl	Stainless Steel / Rostfreier Stahl	Cast iron / Gusseisen	Non-ferrite material / Ne Metalle	Heat-resistant steel / Warmfester Stahl
YBC301	●	●	●	●	●	●	●	●	●	●
YBC401	●	●	●	●	●	●	●	●	●	●
YBM251	●	●	●	●	●	●	●	●	●	●
YBM351	●	●	●	●	●	●	●	●	●	●
YBD152	●	●	●	●	●	●	●	●	●	●
YBD252	●	●	●	●	●	●	●	●	●	●
YBG102	●	●	●	●	●	●	●	●	●	●
YBG202	●	●	●	●	●	●	●	●	●	●
YBG205	●	●	●	●	●	●	●	●	●	●
YBG302	●	●	●	●	●	●	●	●	●	●
YBG152	●	●	●	●	●	●	●	●	●	●
YBG252	●	●	●	●	●	●	●	●	●	●
YNG151	●	●	●	●	●	●	●	●	●	●
YNG151C	●	●	●	●	●	●	●	●	●	●
YC30S	●	●	●	●	●	●	●	●	●	●
YD051	●	●	●	●	●	●	●	●	●	●
YD101	●	●	●	●	●	●	●	●	●	●
YD201	●	●	●	●	●	●	●	●	●	●

Insert WSP	Type · Typ	Dimensions (mm) · Abmessungen						CVD Coating CVD Beschicht.						PVD Coating PVD Beschicht.						Cermet		Carbide uncoat. unbe. Hartmetall			
		r	L	I.C	S	d	α	YBC301	YBC401	YBM251	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YBG302	YBG152	YBG252	YNG151	YNG151C	YC30S	YD051	YD101	YD201
	SPMT060304	0.4	6.35	6.35	3.18	2.8	11°	○		●															
	SDMT090308	0.8	9.525	9.525	3.18	4.4	15°			●															
	SPMT120408	0.8	12.7	12.70	4.76	5.5	11°	●	○	●							○								

Recommended Cutting data · Schnittdaten

Workpiece material Werkstück- stoff		Hardness HB Härte	Grade Sorte	Cutting data · Schnittdaten	
				V(m/min)	f(mm/z)
P	Low-carbon steel Soft steel Niedrig legierter Kohlenstoffstahl Baustahl	≤180	YBM251 YBC301	180(120-220)	0.25(0.1-0.4)
			YBG302 YBC401	160(120-220)	0.25(0.1-0.4)
	High-carbon steel Alloy steel Hoch Leg. Kohlenstoffstahl Leg. Stahl	180-280	YBM251 YBC301	150(100-200)	0.2(0.1-0.4)
			YBG302 YBC401	120(100-200)	0.2(0.1-0.4)
M	Alloy tool steel Leg. Werkzeugstahl	280-350	YBM251 YBC301	100(80-150)	0.2(0.1-0.3)
			YBG302	100(80-150)	0.2(0.1-0.3)
K	Stainless steel Rostfreier Stahl	≤270	YBM251	100(80-150)	0.2(0.1-0.3)
			YBG302 YBC401	100(80-150)	0.2(0.1-0.3)
	Cast iron Gusseisen	180-250	YBM251	150(100-180)	0.3(0.2-0.5)

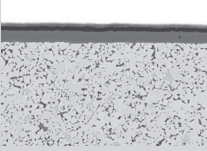
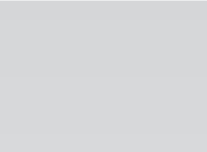
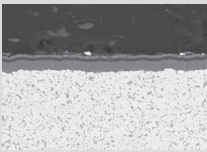
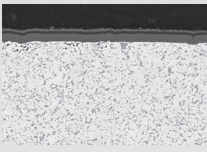
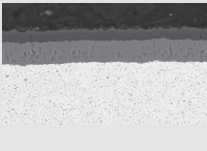
Milling · Fräsen

General Technical Information · Allgemeine Technische Informationen

Comparison table for milling Insert - Grades
Fräswendeplatten Übersichtstabelle - Sorten

Workpiece material Material	ISO	Coated carbide · Beschichtetes Hartmetall		Cermets	Uncoated carbide unbeschichtetes Hartmetall	PCBN & PCD PCBN & PKD
		CVD	PVD			
P Steel · Stahl	P01					
	P10		YBG202	YNG151		
	P20	YBC301	YBG252	YNG151C		
	P30	YBM251			YC30S	
	P40	YBM253	YBG302			
M Stainless Steel Rostfreier Stahl	M01					
	M10		YBG202	YNG151		
	M20	YBM251	YBG205	YNG151C		
	M30	YBM253	YBG252		YC30S	
	M40	YBM351	YBG302			
K Cast iron · Grauguss	K01					
	K10	YBD152	YBG102	YNG151		
	K20		YBG252	YNG151C	YD201	
	K30	YBD252	YBG152			
	K40					
N Hardened material Gehärtete Werkstoffe	N01					
	N10				YD101	
	N20				YD201	
	N30					
S Heat-resistant steel Wärmefester Stahl	S01					
	S10		YBG202			
	S20					
	S30					
H Non-ferrous materials Nichtmetalle	H01					
	H10					
	H20					
	H30					

Coated Cemented Carbide CVD Beschichtetes Hartmetall CVD

Grade · Sorte	Coating · Beschicht.	Micro-Structure	ISO	Application Anwendung
YBC301	Substrate with high strength, in combination with MT-Ti(CN), thin layer Al ₂ O ₃ and TiN Coating. Beschichtetes Hartmetall mit hoher Schneidkantensicherheit. In Kombination mit TiCN Al ₂ O ₃ , und TiN.		P15~35	Suitable for light and midium milling of low alloy steel and non alloy steel, even under unfavorable condition. Gut geeignet für leichte bis mittlere Fräsbearbeitung von niedriglegierten Stählen unter schwierigen Bedingungen.
YBC401	Substrate with excellent toughness, in combination with Ti(CN), thin layer Al ₂ O ₃ , TiN. CVD beschichtetes Hartmetall mit einer guter Wärmeleitfähigkeit.		P25~50 M20~40	It is suitable for medium to heavy milling steels and stainless steel. Zum Fräsen von Stahl und rostfreiem Stahl
YBM251	Substrate with good toughness and strength, in combination with Ti(CN), thin layer Al ₂ O ₃ , TiN. Universal einsetzbare CVD-beschichtete Hartmetallsorte aus TiN +MT-TiCN + dünner Al ₂ O ₃ + TiN mit guter Zähigkeit und Verschleißfestigkeit.		P15~40 M10~30	Good performance in milling of alloy steel and stainless steel. Gute Eigenschaft zum Fräsen von legiertem und rostfreiem Stahl.
YBM351	MT-TiCN+Al ₂ O ₃ coated carbide grade with very good strength and impact resistance. Beschichtete Hartmetallsorte MT-TiCN+Al ₂ O ₃ mit ausgezeichneter Widerstandsfähigkeit und Schneidkantensicherheit.		P25~40 M20~40	It is for milling of steel, alloy steel and stainless steel. Zum Fräsen von Stahl, legiertem und rostfreiem Stahl
YBD152	Hard medium fine corn Substrate in combination with TiCN, thick Al ₂ O ₃ coating. Hartes mittel-feinkörniges Subtrat mit TiCN, dicker Al ₂ O ₃ Beschichtung.		K05~25	It is suitable for machinig of gray cast iron and nodular cast iron under normal cutting conditions from low to moderate cutting speeds. Bearbeitung von Guss und Kugelgraphitguss mit niedrigen bis mittleren Schnittgeschwindigkeiten.
YBD252	Tough subtrate in combination with TiN, TiCN, thick Al ₂ O ₃ coating. For milling of cast iron and alloy steel. Zähes Subtrat mit TiCN, dicke Al ₂ O ₃ Beschichtung.		K15~35	For milling of cast iron and alloy steel. Zum Fräsen von Grauguss und legiertem Stahl.

Coated Cemented Carbide PVD Beschichtetes Hartmetall PVD

Grade · Sorte	Coating · Beschicht.	ISO	Application Anwendung
YBG102	PVD nano-TiAlN coated fine grain hard carbide grade. Nano-TiAlN PVD-beschichtete, feinkörnige Hartmetallsorte.	K05~K20	For light milling of cast iron, hard steel. Zum Schlichtfräsen von Guss und gehärtetem Stahl.
YBG202	PVD nano-TiAlN coated fine grain hard carbide grade. Good performance in combination of toughness and wear resistance. Nano-TiAlN PVD-beschichtete, feinkörnige Hartmetallsorte. Hervorragende Kombination von Zähigkeit und Verschleißfestigkeit.	P10~30	Milling of steel, finishing and semi-finishing of stainless steel, and hightemperature alloys . Zum Fräsen von Stahl, rostfreiem Stahl, und warmfesten Superlegierungen bei leichter und mittlerer Bearbeitung.
		M10~30	
		S05~20	
YBG205	Special PVD nano-TiAlN coated fine grain hard carbide grade. Good performance in combination of toughness and wear resistance. Sonder Nano-TiAlN PVD-beschichtete, feinkörnige Hartmetallsorte. Hervorragende Kombination von Zähigkeit und Verschleißfestigkeit.		Milling of steel, finishing and semi-finishing of stainless steel. Zum Fräsen von rostfreiem Stahl bei leichter und mittlere Bearbeitung
		M10~30	
YBG302	Substrate with reasonable hardness and strength + Nano-TiAlN PVD coating Substrate mit einer guten Härte und Festigkeit + Nano-TiAlN PVD Beschichtung.	P25~P40	For rough and semi-finish milling of steel and stainless steel. Anwendung für mittlere- und Schruppbearbeitung von Stahl, und rostfreiem Stahl .
		M25~40	
YBG152	Substrate with medium hardness and strength + Nano-TiAlN PVD coating Substrate mit mittlerer Härte und Festigkeit + Nano-TiAlN PVD Beschichtung	K 20~35	Applicable for rough and semi-finish milling of cast iron. Anwendung für Schrupp- und mittlerer Bearbeitung. von Guss.
YBG252	Ultra fine carbide substrate plus nano-TiAlN PVD coating with high strength, toughness and wear resistance. Ultra-feinkorn-Hartmetall plus Nano-TiAlN PVD-Beschichtung mit guter Zähigkeit und Verschleißfestigkeit, .	P05~20	Special for finishing of alloy steel, stainless steel and cast iron. Speziell zum schlichten von legiertem Stahl, rostfreiem Stahl und Guss.
		M05~20	
		K05~K20	