Machining of Aluminium
Bearbeitung von Aluminium

- Long tool life / Hohe Standzeit
- Reduction of manufacturing costs /Reduzierung der Fertigungskosten
- Excellent surface quality / Hervorragende Oberflächengüte

ZCC Cutting Tools Europe GmbH

-LC New chip breaker
Neuer Spanbrecher

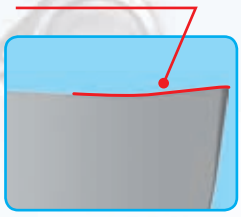
-LC New chip breaker
Neuer Spanbrecher

1. Unique chip breaker design, with sharp cutting edge and positive rake angle / Einzigartiges Spanbrecherdesign, mit scharfer Schneide und positivem Spanwinkel

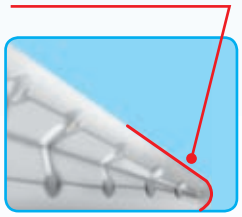
2. Special edge preparation and surface treatment for better chip control, less friction, less vibration and good surface quality / Spezielle Schneidkantenpräparation und Oberflächenbehandlung für besseren Spanbruch, weniger Reibung, weniger Vibrationen und bessere Oberflächengüten

3. G-Tolerance inserts for better repeatability / G-Toleranz Platten mit hoher Wiederholgenauigkeit

Special rake angle and edge preparation for better chip control / *Spanwinkel und Schneidkante für optimalen Spanfluß*



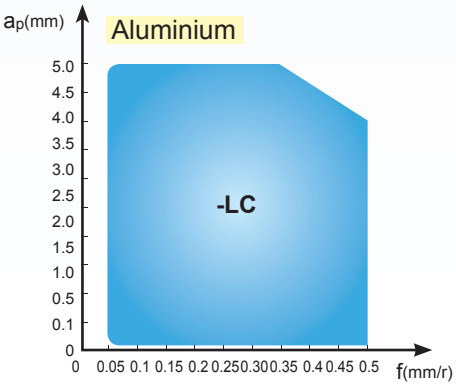
Optimised radius and edge geometry for better surface quality. Optimised chip breaker position / *Optimiert Radius, Noppenposition und Schneidkanten-geometrie für sehr gute Oberflächengüten*

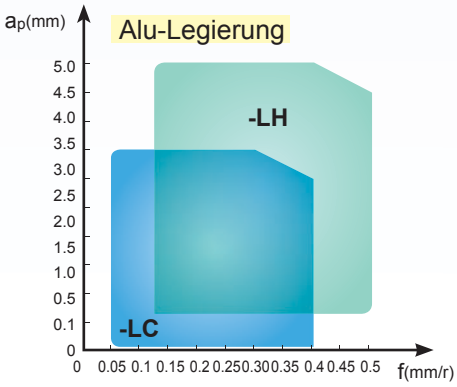


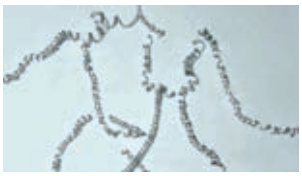
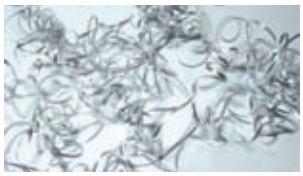
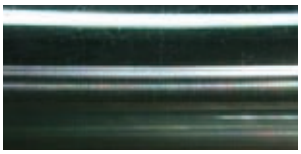
■ -LC(-LH)Comparison of chip breaker / *Vergleich des Spanbrechers*

-LC Best choice for machining pure aluminum / *Optimal für die Bearbeitung von reinem Aluminium*

-LC for machining aluminium alloys with smaller depth of cut and feed rate / *Bei der Bearbeitung von Aluminiumlegierungen mit kleineren Schnitttiefen und Vorschüben*

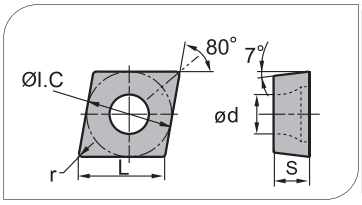




Workpiece / Werkstückstoff: Aluminium		
Cutting date Schnittdaten	v_c=350m/min a_p=0.2mm f=0.2mm/r	
Chip form Spanformen		
Surface qualität Oberflächengüte		
	-LC	Competitor / Wettbewerb
	■ -LH with big cutting depth and higher feed rate for alu alloy / *-LH bei größerer Schnitttiefe und höheren Vorschubwerten für Alu-Legierungen* ■ -LC with small cutting depth and lower feed rate for alu alloy / *-LC mit niedriger Schnitttiefe und geringeren Vorschubwerten für Alu-Legierungen*	

CC** Positive Insert/ Positive WSP

● Ideal Machining Condition / Gute Bearbeitungsbedingungen
✱ Normal Machining Condition / Normale Bearbeitungsbedingungen
✱ Unfavorable Machining Condition / Ungünstige Bearbeitungsbedingungen



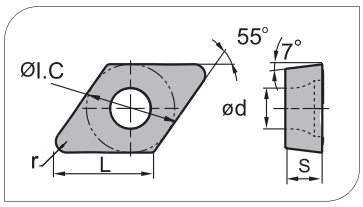
Workpiece Material / Werkstoffe		YBG102	YBG202	YD101	YD201
P	Steel / *Stahl*	●	✱	✱	
M	Stainless Steel / *Rostfreier Stahl*	●	✱	✱	
K	Cast iron / *Gusseisen*				
N	Non-ferrite material / *Ne Metalle*	✱		✱	✱
S	Heat-resistant steel / *Warmfester Stahl*	●	✱	✱	●

Insert Shape Schneid-plattenform	Type · Typ	Dimension (mm) Abmessung					Coated Carbide Beschichtetes Hartmetall		Cermet unbeschichtet	Cermet Coated beschicht. Cerm.	Uncoated Carbide unbeschicht. Hartmetall	
		L	I.C	S	d	r	YBG102	YBG202			YD101	YD201
LC	**CCGX060202-LC**	6.4	6.35	2.38	2.8	0.2					●	
	CCGX060204-LC	6.4	6.35	2.38	2.8	0.4					●	
	CCGX09T302-LC	9.7	9.525	3.97	4.4	0.2					●	
	CCGX09T304-LC	9.7	9.525	3.97	4.4	0.4					●	
	CCGX09T308-LC	9.7	9.525	3.97	4.4	0.8					●	
	CCGX120404-LC	12.9	12.7	4.76	5.5	0.4					●	
	CCGX120408-LC	12.9	12.7	4.76	5.5	0.8					●	
LH	**CCGX060202-LH**	6.4	6.35	2.38	2.8	0.2	●				●	
	CCGX060204-LH	6.4	6.35	2.38	2.8	0.4	●				●	
	CCGX060208-LH	6.4	6.35	2.38	2.8	0.8					●	
	CCGX09T302-LH	9.7	9.525	3.97	4.4	0.2	●				●	
	CCGX09T304-LH	9.7	9.525	3.97	4.4	0.4	●				●	
	CCGX09T308-LH	9.7	9.525	3.97	4.4	0.8	●				●	
	CCGX120402-LH	12.9	12.7	4.76	5.56	0.2	●				●	
	CCGX120404-LH	12.9	12.7	4.76	5.56	0.4	●				●	
	CCGX120408-LH	12.9	12.7	4.76	5.56	0.8	●	○			●	
	CCGX120412-LH	12.9	12.7	4.76	5.56	1.2	●				●	

● Ex Stock / ab Lager ○ On demand / auf Anfrage

DC** Positive Insert/ Positive WSP

Ideal Machining Condition / Gute Bearbeitungsbedingungen
Normal Machining Condition / Normale Bearbeitungsbedingungen
Unfavorable Machining Condition / Ungünstige Bearbeitungsbedingungen

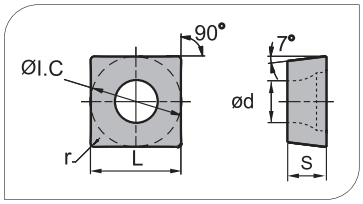


Workpiece Material / Werkstoffe		YBG102	YBG202	YD101	YD201
P	Steel / *Stahl*				
M	Stainless Steel / *Rostfreier Stahl*	●	◐		
K	Cast iron / *Gusseisen*				
N	Non-ferrite material / *Ne Metalle*	◐		◐	◐
S	Heat-resistant steel / *Warmfester Stahl*	○	◐	○	

Insert Shape Schneid-plattenform	Type · Typ	Dimension (mm) Abmessung L	I.C	S	d	r	Coated Carbide Beschichtetes Hartmetall YBG102	YBG202	Cermet unbeschichtet	Cermet Coated beschicht. Cerm.	Uncoated Carbide unbeschicht. Hartmetall YD101	YD201
LC	DCGX070201-LC	7.8	6.35	2.38	2.8	0.1					●	
	DCGX070202-LC	7.8	6.35	2.38	2.8	0.2					●	
	DCGX070204-LC	7.8	6.35	2.38	2.8	0.4					●	
	DCGX11T304-LC	11.6	9.525	3.97	4.4	0.4					●	
	DCGX11T308-LC	11.6	9.525	3.97	4.4	0.8					●	
LH	DCGX070202-LH	7.8	6.35	2.38	2.8	0.2	●	●			●	
	DCGX070204-LH	7.8	6.35	2.38	2.8	0.4	●	●			●	
	DCGX070208-LH	7.8	6.35	2.38	2.8	0.8	●	●			●	
	DCGX11T302-LH	11.6	9.525	3.97	4.4	0.2	●	●			●	
	DCGX11T304-LH	11.6	9.525	3.97	4.4	0.4	●	●			●	
	DCGX11T308-LH	11.6	9.525	3.97	4.4	0.8	●	●			●	

SC** Positive Insert/ Positive WSP

Ideal Machining Condition / Gute Bearbeitungsbedingungen
Normal Machining Condition / Normale Bearbeitungsbedingungen
Unfavorable Machining Condition / Ungünstige Bearbeitungsbedingungen



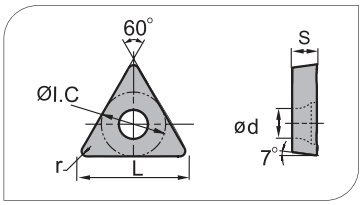
Workpiece Material / Werkstoffe		YD101	YD201
P	Steel / *Stahl*		
M	Stainless Steel / *Rostfreier Stahl*	◐	
K	Cast iron / *Gusseisen*		
N	Non-ferrite material / *Ne Metalle*	◐	◐
S	Heat-resistant steel / *Warmfester Stahl*	○	

insert shape Schneid-plattenform	Type · Typ	Dimension (mm) Abmessung L	I.C	S	d	r	Coated Carbide Beschichte Hartmetal	Cermet unbeschichtet	Cermet Coated beschicht. Cerm.	carbide Hartmetal YD101	YD201
LC	SCGX09T304-LC	9.525	9.525	3.97	4.4	0.4				●	
	SCGX09T308-LC	9.525	9.525	3.97	4.4	0.8				●	
	SCGX120408-LC	12.7	12.7	4.76	5.5	0.8				●	
LH	SCGX09T302-LH	9.525	9.525	3.97	4.4	0.2				●	
	SCGX09T304-LH	9.525	9.525	3.97	4.4	0.4				●	
	SCGX09T308-LH	9.525	9.525	3.97	4.4	0.8				●	
	SCGX120408-LH	12.7	12.7	4.76	5.56	0.8				●	

● Ex Stock / ab Lager ○ On demand / auf Anfrage

TC** Positive Insert/ Positive WSP

Ideal Machining Condition / Gute Bearbeitungsbedingungen
Normal Machining Condition / Normale Bearbeitungsbedingungen
Unfavorable Machining Condition / Ungünstige Bearbeitungsbedingungen

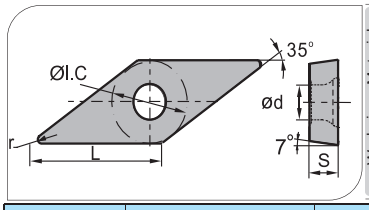


Workpiece Material / Werkstoffe		YBG102	YD101	YD201
P	Steel / *Stahl*			
M	Stainless Steel / *Rostfreier Stahl*	●	⊛	⊛
K	Cast iron / *Gusseisen*			
N	Non-ferrite material / *Ne Metalle*	⊛	⊛	⊛
S	Heat-resistant steel / *Warmfester Stahl*	●	⊛	⊛

Insert Shape Schneid-plattenform	Type · Typ	Dimension (mm) Abmessung					Coated Carbide Beschichtetes Hartmetall			Cermet unbeschichtet	Cermet Coated beschicht. Cerm.	Uncoated Carbide unbeschicht. Hartmetall	
		L	I.C	S	d	r	YBG102	YD101	YD201				
LC	TCGX090202-LC	9.6	5.56	2.38	2.5	0.2		●					
	TCGX090204-LC	9.6	5.56	2.38	2.5	0.4		●					
	TCGX110202-LC	11	6.35	2.38	2.8	0.2		●					
	TCGX110204-LC	11	6.35	2.38	2.8	0.4		●					
	TCGX110208-LC	11	6.35	2.38	2.8	0.8		●					
	TCGX16T304-LC	16.5	9.525	3.97	4.4	0.4		●					
	TCGX16T308-LC	16.5	9.525	3.97	4.4	0.8		●					
LH	TCGX090202-LH	9.6	5.56	2.38	2.5	0.2	●	●					
	TCGX090204-LH	9.6	5.56	2.38	2.5	0.4		●					
	TCGX110202-LH	11	6.35	2.38	2.8	0.2	●	●					
	TCGX110204-LH	11	6.35	2.38	2.8	0.4	●	●					
	TCGX16T302-LH	16.5	9.525	3.97	4.4	0.2	○	●					
	TCGX16T304-LH	16.5	9.525	3.97	4.4	0.4	●	●					
	TCGX16T308-LH	16.5	9.525	3.97	4.4	0.8	●	●					

VC** Positive Insert/ Positive WSP

Ideal Machining Condition / Gute Bearbeitungsbedingungen
Normal Machining Condition / Normale Bearbeitungsbedingungen
Unfavorable Machining Condition / Ungünstige Bearbeitungsbedingungen



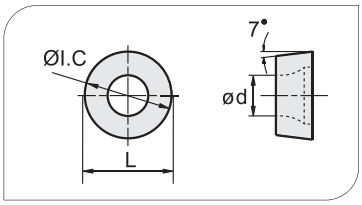
Workpiece Material / Werkstoffe		YBG102	YBG202	YD101	YD201
P	Steel / *Stahl*				
M	Stainless Steel / *Rostfreier Stahl*	●	⊛		
K	Cast iron / *Gusseisen*				
N	Non-ferrite material / *Ne Metalle*	⊛		⊛	⊛
S	Heat-resistant steel / *Warmfester Stahl*	●	⊛	●	

Insert Shape Schneid-plattenform	Type · Typ	Dimension (mm) Abmessung L	I.C	S	d	r	Coated Carbide Beschichtetes Hartmetall YBG102	YBG202	Cermet unbeschichtet	Cermet Coated beschicht. Cerm.	Uncoated Carbide unbeschicht. Hartmetall YD101	YD201
LC	VCGX110301-LC	11	6.35	3.18	2.8	0.1					●	
	VCGX110302-LC	11	6.35	3.18	2.8	0.2					●	
	VCGX110304-LC	11	6.35	3.18	2.8	0.4					●	
	VCGX110308-LC	11	6.35	3.18	2.8	0.8					●	
	VCGX160404-LC	16.6	9.525	4.76	4.4	0.4					●	
	VCGX160408-LC	16.6	9.525	4.76	4.4	0.8					●	
	VCGX160412-LC	16.6	9.525	4.76	4.4	1.2					●	
	VCGX220530-LC	22	12.7	5.56	5.5	3.0					●	
LH	VCGX110204-LH	11	6.35	2.38	2.8	0.4	●				●	
	VCGX110301-LH	11	6.35	3.18	2.8	0.1	○					○
	VCGX110302-LH	11	6.35	3.18	2.8	0.2	●	●			●	
	VCGX110304-LH	11	6.35	3.18	2.8	0.4	●	●			●	
	VCGX160402-LH	16.6	9.525	4.76	4.4	0.2	●	●			●	
	VCGX160404-LH	16.6	9.525	4.76	4.4	0.4	●	●			●	
	VCGX160408-LH	16.6	9.525	4.76	4.4	0.8	●	●			●	
	VCGX160412-LH	16.6	9.525	4.76	4.4	1.2	●				●	○
	VCGX220530-LH	22	12.7	5.56	5.5	3.0	○				●	○

● Ex Stock / ab Lager ○ On demand / auf Anfrage

RC** positive insert

Ideal Machining Condition / Gute Bearbeitungsbedingungen
Normal Machining Condition / Normale Bearbeitungsbedingungen
Unfavorable Machining Condition / Ungünstige Bearbeitungsbedingungen



Workpiece Material / Werkstoffe		YBC151	YBC251	YBC351	YBG102	YBG202	YBG205	YBG302	YBM151	YBM251	YBM351	YBD052	YBD102	YBD151	YBD152	YBD252	YNG151	YNG151C	YC10	YC40	YD051	YD101	YD201
P	Steel / *Stahl*																						
M	Stainless Steel / *Rostfreier Stahl*				●	⊛	⊛																
K	Cast iron / *Gusseisen*																						
N	Non-ferrite material / *Ne Metalle*				⊛																	⊛	⊛
S	Heat-resistant steel / *Warmfester Stahl*				●	⊛	⊛															●	

Insert Shape Schneid-plattenform	Type · Typ	Dimension (mm) Abmessung L	I.C	S	d	r	Coated Carbide Beschichtetes Hartmetall YBC151	YBC251	YBC351	YBG102	YBG202	YBG205	YBG302	YBM151	YBM251	YBM351	YBD052	YBD102	YBD151	YBD152	YBD252	Cermet YNG151	Coated Beschicht. YNG151C	Uncoated Carbide unbeschicht. Hartmetall YC10	YC40	YD051	YD101	YD201
LH	**RCGX0803MO-LH**	8.0	8.0	3.18	3.36	\																					●	

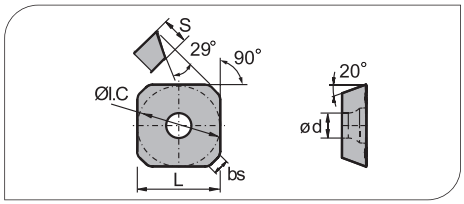
● Ex Stock / ab Lager ○ On demand / auf Anfrage

ISO	Workpiece Materials Werkstückstoff		Hardness Härte HB	PVD Coating · Beschichtung		Cemented carbide Hartmetall							
				YBG102		YD101							
				Feed rate · Vorschub (mm/rev)									
				0.05-0.15		0.05-0.35							
				Cutting speed · Schnittgeschwindigkeit (m/min)									
N	Al alloy Al Legierung	No heat treatment keine Wärmebeh.	60			1750-800							
		Heat treatment	100			510-250							
	Cast aluminum alloy Alu. leg.	No heat treatment keine Wärmebeh.	75			460-175							
		Heat treatment keine Wärmebeh.	90			300-110							
	Copper alloy Kupfer leg.	Lead alloy keine Wärmebeh.	110			610-205							
		Copper, pure copper	90			310-195							
		Copper, nonleaded Copper, electrolytic copper	100			225-115							

ISO	Materials		Hardness Brinell	← Wear Resistance / *Verschleißfestigkeit*								Toughness / *Zähigkeit* →
				YD101	YBG102	YBG202	YD201					
				Feed rate mm / rev.								
				0.1 - 0.2 - 0.3	0.1 - 0.3 - 0.5	0.1 - 0.3 - 0.5	0.1 - 0.3 - 0.5					
			HB	Cutting speed, v_c m / min.								
S	**Fe - base**	Annealed	200	80-70-50			75-60-50					
	Fe - base	Hardened	280	60-50-40			55-50-35					
	Ni - base	Annealed	250	50-40-30	90-60-30	75-60-30	45-40-28					
	Ni - base	Hardened	350	40-30-20			35-30-19					
	Co - base	Annealed	200	50-40-30	90-60-30	75-60-30	45-40-28					
	Co - base	Hardened	320	25-20-15			24-18-13					
	Titanium alloys			**YD101**			**YD201**					
				0.1 - 0.2 - 0.3			0.1 - 0.3 - 0.5					
		pure titanium	400	200-160-140			170-140-120					
		a+b alloys	1050	75-55-45			65-50-40					

Applicable inserts · Wendeschneidplatten

Ideal Machining Condition / Gute Bearbeitungsbedingungen
Normal Machining Condition / Normale Bearbeitungsbedingungen
Unfavorable Machining Condition / Ungünstige Bearbeitungsbedingungen



Workpiece Material / Werkstoffe		
P	Steel / *Stahl*	
M	Steinless Steel / *Rostfreier Stahl*	
K	Cast iron / *Gusseisen*	
N	Non-ferrite material / *Ne Metalle*	✱ ✱
S	Heat-resistant steel / *Warmfester Stahl*	

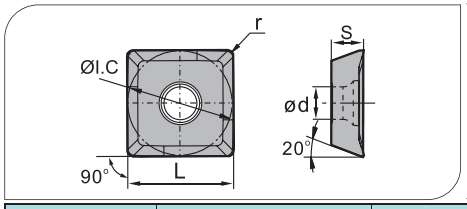
Insert shape Plattenform	Type · Typ	Dimension (mm) Abmessung						CVD Coating CVD Beschicht.	PVD Coating PVD Beschicht.	Cermet	Carbide uncoat. unbe. Hartmetall	
		L	I.C	S	d	bs	R				YD101	YD201
	SEET12T3-LH	13.4	13.4	3.97	4.1	2.55					●	●

Recommended cutting data · Empfohlene Schnittdaten

Workpiece material Werkstückstoff		Hardness HB Härte	Grade Sorte	Cutting data · Schnittdaten	
				V (m/min)	f (mm/z) -LH
N	Al alloy NE-Metalle	-	YD101	300	0.25 (0.1-0.4)
			YD201	300	

Applicable inserts · Wendeschneidplatten

Ideal Machining Condition / Gute Bearbeitungsbedingungen
Normal Machining Condition / Normale Bearbeitungsbedingungen
Unfavorable Machining Condition / Ungünstige Bearbeitungsbedingungen



Workpiece Material / Werkstoffe		
P	Steel / *Stahl*	
M	Steinless Steel / *Rostfreier Stahl*	
K	Cast iron / *Gusseisen*	
N	Non-ferrite material / *Ne Metalle*	✱ ✱
S	Heat-resistant steel / *Warmfester Stahl*	

Insert shape Plattenform	Type · Typ	Dimension (mm) Abmessung					CVD Coating CVD Beschicht.	PVD Coating PVD Beschicht.	Cermet	Carbide uncoat. unbe. Hartmetall	
		L	I.C	S	d	r		YBG102		YD101	YD201
	SEET120308-LH	13.308	13.308	4.04	4.1	0.8		●		●	

Recommended cutting data · Empfohlene Schnittdaten

Workpiece material Werkstück Material		Hardness HB Härte	Grade Sorte	Cutting data · Schnittdaten Square shoulder milling · Eckfräsen	
				V(m/min)	f(mm/z) -LH
N	Al alloy Al-Legierungen	----	YD101	300	0.2 (0.08-0.4)
			YD201	300	0.2 (0.08-0.4)

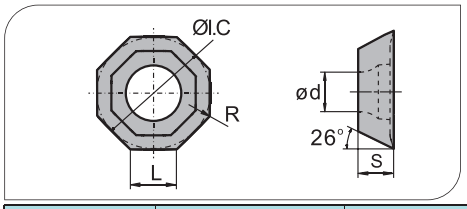
● Ex Stock / ab Lager ○ On demand / auf Anfrage

Applicable inserts · Wendeschneidplatten

Ideal Machining Condition
Gute Bearbeitungsbedingungen

Normal Machining Condition
Normale Bearbeitungsbedingungen

Unfavorable Machining Condition
Ungünstige Bearbeitungsbedingungen



Workpiece Material Werkstoffe		
P	Steel / *Stahl*	
M	Steinless Steel / *Rostfreier Stahl*	
K	Cast iron / *Gusseisen*	
N	Non-ferrite material / *Ne Metalle*	⊛ ⊛
S	Heat-resistant steel / *Warmfester Stahl*	

Insert shape Plattenform	Type · Typ	Dimension (mm) Abmessung					CVD Coating CVD Beschicht.	PVD Coating PVD Beschicht.	Cermet	Carbide uncoat. unbe. Hartmetall	
		L	I.C	S	d	R				YD101	YD201
	OFKT05T3-LH	5.26	12.7	3.97	4.4	0.5				●	

Recommended cutting data · Empfohlene Schnittdaten

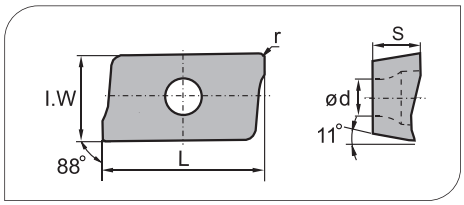
Workpiece material Werkstückstoff		Hardness HB Härte	Grade Sorte	Cutting data · Schnittdaten	
				V (m/min)	f (mm/z) -LH
N	Al alloy Alu-Legierungen	-	YD101	300	0.15 (0.05-0.3)

Applicable inserts · Wendeschneidplatten

Ideal Machining Condition
Gute Bearbeitungsbedingungen

Normal Machining Condition
Normale Bearbeitungsbedingungen

Unfavorable Machining Condition
Ungünstige Bearbeitungsbedingungen



Workpiece Material Werkstoffe		
P	Steel / *Stahl*	
M	Steinless Steel / *Rostfreier Stahl*	
K	Cast iron / *Gusseisen*	
N	Non-ferrite material / *Ne Metalle*	⊛ ⊛
S	Heat-resistant steel / *Warmfester Stahl*	

Insert shape Plattenform	Type · Typ	Dimensions (mm) · Abmessungen					CVD Coating CVD Beschicht.	PVD Coating PVD Beschicht.	Cermet	Carbide uncoat. unbe. Hartmetall	
		L	I.W	S	d	r				YD101	YD201
	APKT11T304-LH	12.24	6.5	3.6	2.8	0.4				●	●
	APKT11T308-LH	12.24	6.5	3.6	2.8	0.8				●	●
	APKT160408-LH	17.877	9.33	5.76	4.4	0.8				●	●

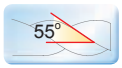
Recommended cutting data · Empfohlene Schnittdaten

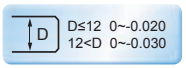
Workpiece material Werkstück Material		Hardness HB Härte	Grade Sorte	Cutting data · Schnittdaten	
				Square shoulder milling · Eckfräsen	
				V(m/min)	f(mm/z) -LH
N	Al alloy Alu-Legierungen	----	YD101	300	0.2 (0.08-0.4)
			YD201	300	0.2 (0.08-0.4)

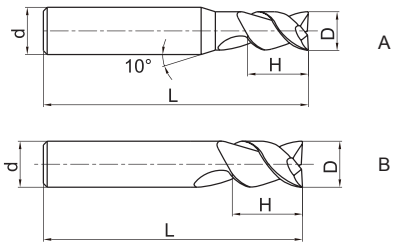
● Ex Stock / ab Lager ○ On demand / auf Anfrage

AL-2E series for machining aluminium · AL-2E Serie für die Bearbeitung von Aluminium

2-flute end mills with straight shank
2-Schneiden Schaftfräser mit Zylinderschaft



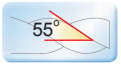


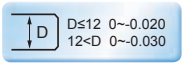


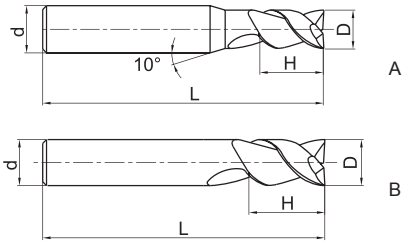
Type · Typ	Dimension (mm) Abmessungen				Teeth · Zähne Z	Geometry Ausführung	Grade · Sorte YK30F
	D	d	H	L			
AL-2E-D1.0	1.0	4	3	50	2	A	●
AL-2E-D1.5	1.5	4	4	50	2	A	●
AL-2E-D2.0	2.0	4	6	50	2	A	●
AL-2E-D2.5	2.5	4	7	50	2	A	●
AL-2E-D3.0	3.0	6	9	50	2	A	●
AL-2E-D4.0	4.0	6	12	50	2	A	●
AL-2E-D5.0	5.0	6	15	50	2	A	●
AL-2E-D6.0	6.0	6	18	60	2	B	●
AL-2E-D8.0	8.0	8	20	60	2	B	●
AL-2E-D10.0	10.0	10	30	75	2	B	●
AL-2E-D12.0	12.0	12	32	75	2	B	●
AL-2E-D16.0	16.0	16	45	100	2	B	●
AL-2E-D20.0	20.0	20	45	100	2	B	●

AL-2EL series for machining aluminium · AL-2EL Serie für die Bearbeitung von Aluminium

2-flute long cutting edge end mills with straight shank
2-Schneiden Schaftfräser mit langer Schneide und Zylinderschaft



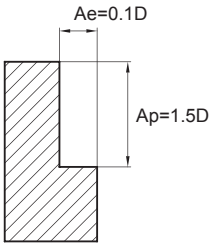




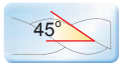
Type · Typ	Dimension (mm) Abmessungen				Teeth · Zähne Z	Geometry Ausführung	Grade · Sorte YK30F
	D	d	H	L			
AL-2EL-D3.0	3.0	6	12	60	2	A	●
AL-2EL-D4.0	4.0	6	16	60	2	A	●
AL-2EL-D5.0	5.0	6	20	60	2	A	●
AL-2EL-D6.0	6.0	6	25	75	2	B	●
AL-2EL-D8.0	8.0	8	32	75	2	B	●
AL-2EL-D10.0	10.0	10	45	100	2	B	●
AL-2EL-D12.0	12.0	12	45	100	2	B	●
AL-2EL-D16.0	16.0	16	65	150	2	B	●
AL-2EL-D20.0	20.0	20	75	150	2	B	●

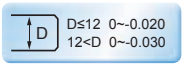
● Ex Stock / ab Lager ○ On demand / auf Anfrage

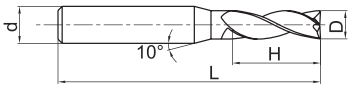
AL-2E | AL-2EL

Workpiece material Werkstückstoff	Aluminum alloy Alu-Legierungen		Silicon aluminium alloySi≤10% Silizium-Alu-Legierungen Si≤10%	
Diameter Ø (mm)	Rotating Drehzahl (min^{-1})	Feed Vorschub (mm/min)	Rotating Drehzahl (min^{-1})	Feed Vorschub (mm/min)
1	40000	650	40000	500
2	40000	950	32000	750
3	26500	1500	21000	1100
4	20000	1600	16000	1250
5	16000	1500	13000	1100
6	13000	1250	10600	1000
8	10000	1400	8000	1100
10	8000	1600	6500	1250
12	6600	1650	5300	1300
14	5700	1700	4600	1350
16	5000	1700	4000	1350
18	4400	1700	3500	1350
20	4000	1700	3200	1350
Max. cutting depth max. Schnitttiefe				

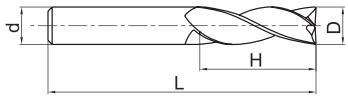
3-flute end mills with straight shank
3-Schneiden Schaftfräser mit Zylinderschaft







A



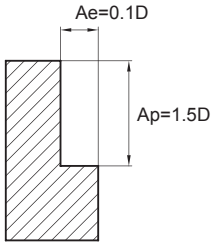
B

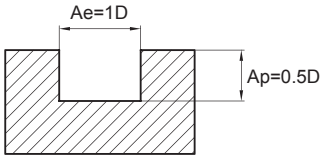
Type · Typ	Dimension (mm) Abmessungen				Teeth · Zähne Z	Geometry Ausführung	Grade · Sorte YK30F
	D	d	H	L			
AL-3E-D1.0	1.0	4	3	50	3	A	●
AL-3E-D1.5	1.5	4	4	50	3	A	●
AL-3E-D2.0	2.0	4	6	50	3	A	●
AL-3E-D2.5	2.5	4	7	50	3	A	●
AL-3E-D3.0	3.0	6	9	50	3	A	●
AL-3E-D4.0	4.0	6	12	50	3	A	●
AL-3E-D5.0	5.0	6	15	50	3	A	●
AL-3E-D6.0	6.0	6	18	60	3	B	●
AL-3E-D8.0	8.0	8	20	60	3	B	●
AL-3E-D10.0	10.0	10	30	75	3	B	●
AL-3E-D12.0	12.0	12	32	75	3	B	●
AL-3E-D16.0	16.0	16	45	100	3	B	●
AL-3E-D20.0	20.0	20	45	100	3	B	●

● Ex Stock / ab Lager ○ On demand / auf Anfrage

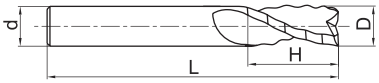
Workpiece material Werkstückstoff	Aluminum alloy Alu-Legierungen		Silicon aluminium alloySi≤10% Silizium-Alu-Legierungen Si≤10%	
Diameter Ø (mm)	Rotating Drehzahl (min^{-1})	Feed Vorschub (mm/min)	Rotating Drehzahl (min^{-1})	Feed Vorschub (mm/min)
1	40000	800	40000	600
2	40000	1200	32000	900
3	26500	1800	21000	1300
4	20000	2000	16000	1500
5	16000	1750	13000	1300
6	13000	1500	10600	1200
8	10000	1650	8000	1300
10	8000	1900	6500	1500
12	6600	1950	5300	1550
14	5700	2000	4600	1600
16	5000	2000	4000	1600
18	4400	2000	3500	1600
20	4000	2000	3200	1600

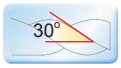
Max. cutting depth
max. Schnitttiefe





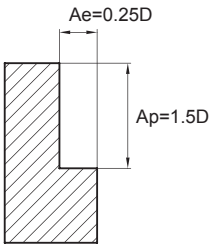
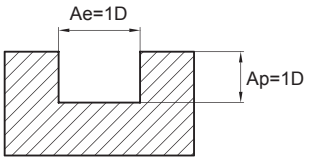
3-flute rough end mills with straight shank, rough pitch form
3-Schneiden Schruppfräser mit Zylinderschaft, grob verzahnt





Type · Typ	Dimension (mm) Abmessungen				Teeth · Zähne Z	Grade · Sorte YK30F
	D	d	H	L		
AL-3W-D6.0	6	6	16	50	3	●
AL-3W-D8.0	8	8	20	60	3	●
AL-3W-D10.0	10	10	25	75	3	●
AL-3W-D12.0	12	12	30	75	3	●
AL-3W-D16.0	16	16	45	100	3	●
AL-3W-D20.0	20	20	45	100	3	●

● Ex Stock / ab Lager ○ On demand / auf Anfrage

Workpiece material Werkstückstoff	Aluminum alloy Alu-Legierungen		Silicon aluminium alloySi≤10% Silizium-Alu-Legierungen Si≤10%	
Cutting speed Schnittgeschw.	250m/min		200m/min	
Diameter Ø (mm)	Rotating Drehzahl (min^{-1})	Feed Vorschub (mm/min)	Rotating Drehzahl (min^{-1})	Feed Vorschub (mm/min)
6	13000	3000	10600	1900
8	10000	3000	8000	1900
10	8000	2900	6500	1850
12	6600	2700	5300	1700
14	5700	2600	4600	1650
16	5000	2550	4000	1600
18	4400	2500	3500	1550
20	4000	2400	3200	1500
Max. cutting depth max. Schnitttiefe				

1.The above table shows the reference value of side milling. When milling slot, rotating speed is around 70% of standard value, Feed is around 50% of standard value.
2.Please select high rigid and precise machine and tool holder. Vibration and unusual noise may be generated if the machine rigidity and workpiece fixture stability is low, please reduce the rotating speed and feed stated above correspondingly.
3.It is possible to increase the rotating speed and feed correspondingly if the cutting depth is small.
4.Please use water-soluble cutting liquid.
5.Down milling is recommended in side milling.
6.Make overhang as short as possible if no interference.

1. Die obige Tabelle zeigt die Referenz-Schnittdaten für das Eckfräsen.
Für das Nutenfräsen die obigen Schnittdaten auf 70 % reduzieren.
2. Bitte präzise Maschinen und Werkzeughalter verwenden. Bei Vibrationen oder unüblichen Geräuschen reduzieren Sie die Schnittdaten (wie oben empfohlen) entsprechend.
3. Schnittdaten bei kleinen Schnitttiefen erhöhen.
4. Bitte wasserlösliche Kühlmittel verwenden.
5. Fräsmethode zum Eckfräsen: Gleichlauffräsen.
6. Die Werkzeugauskragung so kurz wie möglich wählen.

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