

TAC Inserts

-AL Chipbreaker

Machining of Aluminium



for Aluminium alloys and Non-ferrous metals

Features

Tungaloy's most recent development in the field of high performance cutting grades for machining of aluminium, aluminium alloys and other non-ferrous metals is KSO5F. With a grain size of only 0.8 μm it is best suited for the application on modern machining centres. In combination with the extremely positive -AL geometry this cutting tool programme meets the most exacting requirements, especially as to surface quality and precision. Main application fields are:

Aerospace industry, food stuff industry, medical industry, machine tool industry,

motor industry, wheel manufacturing etc. Due to the polished surface, chip adhesion is reduced to a minimum and tool life is thus drastically increased.

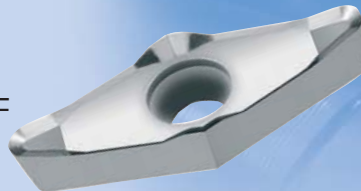
The new substrate allows for the application of highest cutting parameter.

High wear resistance and excellent toughness, which enables machining in interrupted cut, are the most stunning features of the new KSO5F fine grain substrate. The wide range of radii (0.20 to 3.00 mm) is another positive factor.

Superb chip forming is guaranteed by the faceted design of the face and thus gives

way for a vast field of applications. Cutting depth is up to $a_p = 5.0$ mm and feed rate up to $f = 0.60$ mm/rev at a 30% lower power consumption than with competitive products.

- Extremely sharp cutting edges
- Polished surfaces
- Excellent chip forming
- Wide range of radii
- Low power consumption
- New wear resistant grade KSO5F
- Fine grain substrate guarantees for high wear resistance and excellent tensile strength



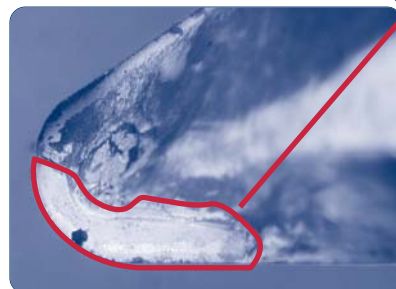
Advantage of polished surfaces

Minimum adhesion

Insert: VCGT160404-AL
Work material: G-AISI6Cu4
(Si: 6.5 % ~ 7.5 %)
Cutting speed: $V_c = 800$ m/min
Feed: $f = 0.15$ mm/rev
Cutting depth: $a_p = 1.0$ mm
Coolant: Emulsion



After 5 min. machining time



-AL

Adhesion



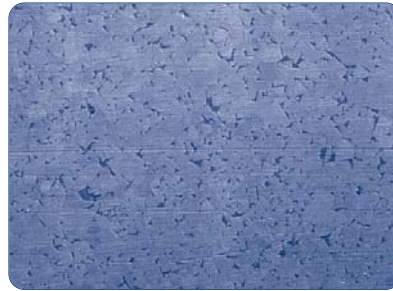
Competitor (not polished)

Grade

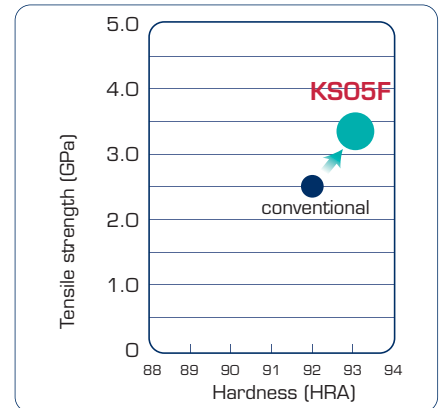


KS05F (NO5)

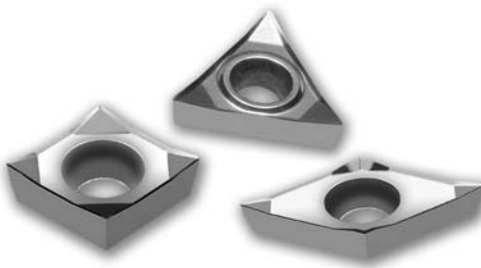
Highly wear resistant, uncoated fine grain carbide (0.8 μm) for high cutting speeds. Also suited for interrupted cut
Extremely sharp cutting edges for excellent surface qualities



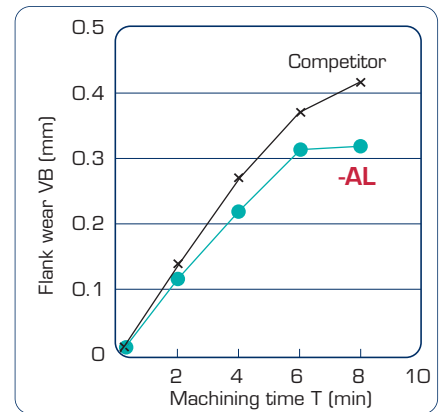
KS05F



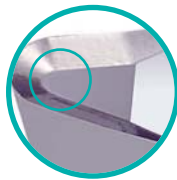
KS05F: High wear resistance



Inserts: RCGT0803MO-AL
Work material: G-AISI6Cu4 (Si: 6.5 % ~ 7.5 %)
Cutting speed: $V_c = 1500 \text{ m/min}$
Feed: $f = 0.4 \text{ mm/rev}$
Cutting depth: $a_p = 2.0 \text{ mm}$
Coolant: Emulsion

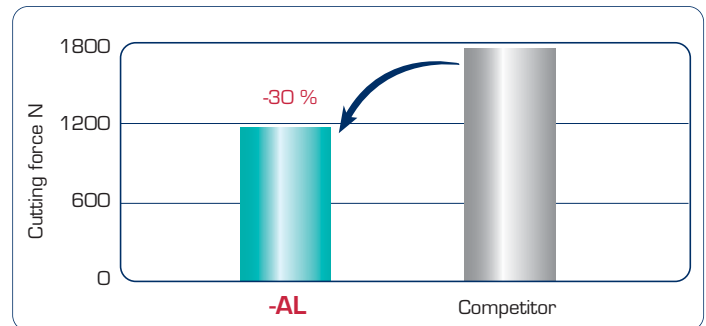


Chipbreaker



-AL:
30 % reduced cutting force

Inserts: VCGT220520-AL
Work material: G-AISI6Cu4 (Si: 6.5 % ~ 7.5 %)
Cutting speed: $V_c = 800 \text{ m/min}$
Feed: $f = 0.4 \text{ mm/rev}$
Cutting depth: $a_p = 4.0 \text{ mm}$
Coolant: Emulsion



Toolholder

Profiling SVHC R/L														
Item code	Stock		Insert	Dimensions (mm)						Clamping screw	Shim	Screw for shim	Wrench	
	R	L		h	b	l1	l2	h1	f				T-15F	P-4.5
SVHCR/L2525M22	●	●	VCG*2205**	25	25	150	33.8	25	32	CSTB-4.5L110P	SSV42	DTS6-4.5	T-15F	P-4.5

Right hand (R) shown

Note: Other toolholder S**** and JS**** type in the general catalogue

Specifications

● Standard stock in Europe

Design	Application range	Item code	Grade KS05F	Dimensions (mm)			
				ød	s	ød1	r _ε
		CCGT060202-AL	●	6.35	2.38	2.8	0.2
		CCGT060204-AL	●				0.4
		CCGT09T302-AL	●	9.525	3.97	4.4	0.2
		CCGT09T304-AL	●				0.4
		CCGT09T308-AL	●				0.8
		CCGT120402-AL	●	12.70	4.76	5.5	0.2
		CCGT120404-AL	●				0.4
CCGT120408-AL	●	0.8					
		DCGT070202-AL	●	6.35	2.38	2.8	0.2
		DCGT070204-AL	●				0.4
		DCGT11T302-AL	●	9.525	3.97	4.4	0.2
		DCGT11T304-AL	●				0.4
		DCGT11T308-AL	●				0.8
		RCGT0602M0-AL	●	6.00	2.38	2.8	-
		RCGT0803M0-AL	●	8.00	3.18	3.4	-
		RCGT1003M0-AL	●	10.00	3.18	4.0	-
		TCGT110202-AL	●	6.35	2.38	2.8	0.2
		TCGT110204-AL	●				0.4
		TCGT16T302-AL	●	9.525	3.97	4.4	0.2
		TCGT16T304-AL	●				0.4
		TCGT16T308-AL	●				0.8
		VCGT160404-AL	●	9.525	4.76	4.4	0.4
		VCGT160408-AL	●				0.8
		VCGT160412-AL	●				1.2
		VCGT220520-AL	●	12.70	5.56	5.5	2.0
		VCGT220530-AL	●				3.0

Cutting data

Work material	Cutting speed V _c (m/min)	Cutting depth a _p (mm)	Feed f (mm/rev)
Aluminium alloys Si < 12 %	200 ~ 1500	1.0 ~ 3.0	0.1 ~ 0.6
Aluminium alloys Si: 13 % ~ 17 %	200 ~ 500	0.5 ~ 1.5	0.1 ~ 0.4
Copper and Brass	300 ~ 800	0.2 ~ 1.5	0.1 ~ 0.6
Bronze	150 ~ 400		

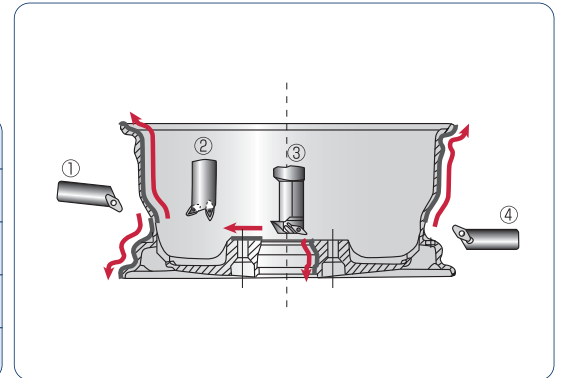
Note: We recommended coolant is emulsion.

Practical examples

“Wheel machining”

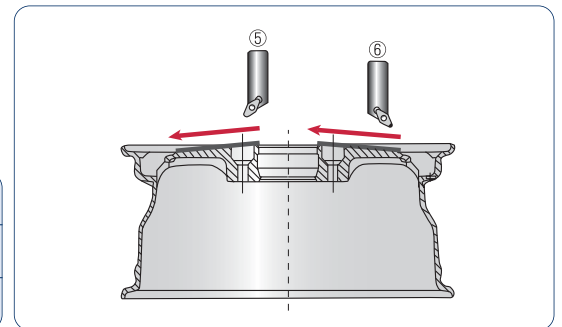
Cutting speed: $V_c = 250 \sim 1500$ m/min
 No. of revolutions: $n = 1250$ rpm
 Cutting depth: $a_p = 2$ mm

Tool No.	Machining	Toolholder	Inserts KS05F	Feed f (mm/rev)
1	External turning	SVHCR2525M22	VCGT220530-AL	0.6
2	Facing Internal turning	Special toolholder	VCGT220530-AL	0.6
3	Internal turning	Special toolholder	VCGT220530-AL DCGT11T308-AL	0.3
4	Facing External turning	SVHCL2525M22	VCGT220530-AL	0.6



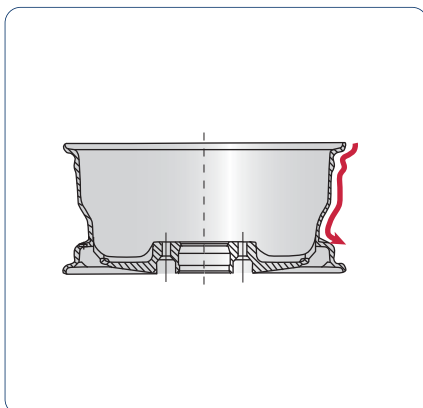
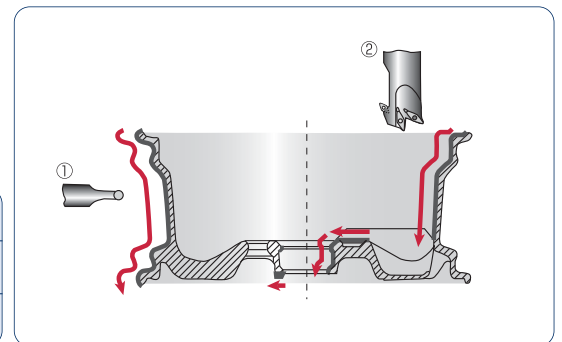
Cutting speed: $V_c = 300 \sim 1200$ m/min
 No. of revolutions: $n = 1250$ rpm
 Cutting depth: $a_p = 1$ mm

Tool No.	Machining	Toolholder	Inserts	Feed f (mm/rev)
5	Facing (Roughing)	SVHCR2525M22	VCGT220530-AL KS05F	0.6
6	Facing (Finishing)	SVHCR2525M22	VCGW220530-DIA DX140	0.15



Cutting speed: $V_c = 320 \sim 1500$ m/min
 No. of revolutions: $n = 1800$ rpm
 Cutting depth: $a_p = 2$ mm

Tool No.	Machining	Toolholder	Inserts KS05F	Feed f (mm/rev)
1	External turning	SRDCN2525M06	RCGT0602M0-AL	0.45
2	Facing Internal turning	Special toolholder	VCGT160412-AL DCGT070204-AL	0.2 ~ 0.3



Insert: VCGT220520-AL
 Work material: A356 (T6)
 Cutting speed: $V_c = 220 \sim 1630$ m/min
 Feed: $f = 0.45 \sim 0.50$ mm/rev
 Cutting depth: $a_p = 2 \sim 6$ mm
 Coolant: Emulsion

2.5 times higher tool life than the competitor

