

CARBIDE COMPARISON

CARBIDE GRADE INFORMATION/COMPARISON

GRADE	mitsubishi	SANDVIK	SECO	KENAMETAL	VALENITE	KORLOY	WALTER	TaeguTec
XAB849	UE6005/UE6010	GC4015	TX110	KC9110/KC935			WTL41/WTA33	
XAB848	F7010	GC4215	TX110	KC9010/KC910	SV305	NC310	WTA21	TT1500
XAB749	UC6010/EU6020	GC4020	TP200	KC725M/KC9125	SV410		WTA31/WXK15/WQM25/WTL82	TT3500
XAB748	UC6025/F620	GC4025	T250M/T25M	KC9040/KC625M	SV325	NC310	WAP20/WTN43	
XAB699	UP20M/AP20M	GC4030/GC4035	CP20TP200	KC850/CM4KC7025/KC7215	SV935	NC320/NC330	WXM15/WTA41	TT7200
XAB649	UE6035	GC4125	CP30	CD4/KC7020	SV330	NC320	WXP25/WTA61/WTL71/WTL14	
XAB599	UE6035	GC1120	TP40	CS3(KC7030)	SM245	NC330	WQM35/WTP30	TT8020
XAC849	UC6010/EU6020	GC3015/GC3115	TP100	KC625M/KC631M	SV305		WAK15	
XAF799	UP10H	GC1020/GC1120	TX150	KC992M/KC7215/KC9315/KC7225	SV415	NC315K	WAK20/WTA43/WTA33/WTA/41	
XAF798	AP20M	GC3040	F25M	KC9025/KC631M		NCM325	WXP20/WTP20	
XAF797								
XAF960	AP15TF	GC3040		CS3(KC7030)	SV515		WAP35	TT8020
XAL849		GC2015		KC510M			WAM10/WAP10	TT9030
XAL749	F620	GC2025	CP50	KC9225/KC7020	SV415	NC325S	WAM20/WTA43	TT5100
XAL748	F620	GC2025	CP50	KC9225/KC7020	SV415	NC325S	WAM20/WTA43	TT5100
XAL649	F730	GC2035	CP50	KC9040/KC7020		NCM335	WTP35/WTA51	TT8020
XB970R								
XMF849								

CHIP-BREAKER INFORMATION

Characteristics	Description
-DF	Recommended for finishing steel materials. With a satisfactory flow of chips and an excellent surface quality.
-DM	Recommended for semi-finishing steel materials. With a light cutting force and a wide range of chipping, it can achieve better results in machining alloyed steel with a high adhesiveness.
-DR	Recommended for quasi-roughing steel materials. It is the first option for roughing operations under general working conditions. It can achieve a high rate of metal removal and economy.
-EF	Recommended for finishing materials heat-resistant steel. A specially designed rake angle and an inclined edge angle aimed at machining highly adhesive and plastic material hard to machine, like stainless steel. The edges are sharp making the cutting light and smooth, getting a good control of the chips and obtaining an excellent surface quality, which makes it most suitable for ultra fine and fine machining of such materials.
-EM	Recommended for 300 series stainless steels. Impact resistance of the cutting edge is strengthened for interrupted cutting. The sharp cutting edges function to shear low machinability rated metals while resisting edge-build-up.
-HF	Recommended for finishing of universal applications. Suitable for finishing internal and peripheric operations in machining steel and cast iron. Fine finishing of surface can be achieved with a slow feed rate.
-HM	Recommended for semi-finishing of universal applications. With sharp wave cutting edges to reduce cutting force. Suitable for semi-finishing internal and peripheric operations of steel and cast iron. It is the first choice for semi-finishing of internal holes and allows chips to flow smoothly.
-HR	Recommended for roughing operations. With tough cutting edge. Suitable for internal and peripheric machining of steel, stainless steel and cast iron with irregular surface.
-LH	Recommended for aluminum alloy. Suitable machining aluminum alloy with larger cutting depth and higher feed rate.
-PF	Recommended for finishing steel materials. Suitable for finishing operations under unstable cutting conditions with a light cutting force.
-PM	Recommended for semi-finishing steel materials. With a stronger edge than -DM. Suitable for semi-finishing operations under unstable cutting conditions and for machining cast iron as well with a light cutting force.
-PR	Recommended for roughing of steel. With a high safety of cutting edges. It can achieve a high rate of metal removal with a low cutting force under working conditions of deep cuts and fast feed rates.

GRADE COMPARISON

C-2

General purpose-for cast iron and non-ferrous materials. For cast iron and general purpose

C-5

For heavy roughing to semi finishing of all steels. for all steel and general purpose

C-6

Designed for heavy roughing to semi finishing of steels.

BPG253-CVD

CVD coated universal grade, suitable for steel and cast steel continuous cutting and interrupted cutting finishing to roughing. With a wide range of application, Stainless steel continuous cutting and interrupted cutting.

BPG20B-PVD

PVD coated micro-grain carbide, use for a variety of stainless steel finishing at medium to low cutting speed. When need excellent edge strength and high surface quality, provide the perfect ride cutting. A high thermal shock resistance. Suitable for light interrupted cuts.

TIN Coated

For turning and milling carbon and alloy steels, tool steel and stainless steel, provides longer life than uncoated grades. for high heat & wear resistance on alloys, stainless steel & ductile iron

XAB599

CVD all round coated cemented carbide. Optimized for medium rough steel milling, but also a good solution for nodular cast iron.

XAB649

Is a secure all round CVD coated grade for high productive P30 applications. It is tough enough for the most difficult steel machining. Use in dry and wet machining, and interruptions. A grade you can rely on when the going gets tough.

XAB698

Possesses an excellent thermal and chemical stability with a optimized combination of high performance Nano coating and a highly tough substrate of ultra fine grains aimed at materials hard to machine, such as stainless steel, heat resistant alloys, titanium alloys, high temperature alloys, etc. It is especially suitable for the finish and semi-finish.

XAB699

CVD all round coated cemented carbide. Optimized for steel milling, but also a good solution for nodular cast iron. This grade provides good economy in medium to long series production.

XAB748

Comprising of thick TiCN and Al₂O₃ coating has high anti-plastic yield and cutting edge strength and is preferred universal grade from steel finishing to roughing. It behaves steady in the wicked cutting condition and can realizes environmental dry-cutting. The cutting speed can increase more than 25% at the same cutting condition and the life will be improved more than 30% at the same cutting speed.

XAB749

The cutting edge has special strength and toughness, in an optimal combination with MT-TiCN, thick layer Al₂O₃TiN coating. It is a suitable grade for a wide application. It is good for the finishing, semi-finishing and light roughing of steel, cast steel, stainless steel and cast iron.

XAB848

Comprised of thick TiCN and Al₂O₃ coatings makes it suitable for finishing and semi-finishing at high speed. It upgrades abrasive resistance greatly on the premise of increasing toughness. The cutting speed can increase more than 25% and the life will be improved more than 30% at the same cutting speed.

XAB849

Substrate with excellent wear-resistance, in combination with MT-TiCN, thick layer Al₂O₃TiN coating. It is an ideal grade for the finishing steel, cast steel and stainless steel under high speed and dry machining.

XAC849

CVD all round coated cemented carbide. Optimized for steel milling, but also a good solution for nodular cast iron. This grade provides good economy in medium to long series production.

XAC898

CVD coated grade, which is the combination of hard substrate and coating(thick Al₂O₃ + thick TiCN), shows excellent wear resistance and impact resistance when machining nodular cast iron at high speed.

XAF795

Unique grade material with near perfect wear resistance and high temperature resistance. The nc-TiAlN coating, ultrafine grain substrate, and unique surface treatment make this grade suitable for high precision cutting of "difficult to machine" materials, such as stainless steel, etc..

XAF798

A combination of 2-4 um nc-TiAlN coating and ultrafine grain carbide substrate with high strength and toughness. Suitable for light to medium milling, and boring of all kinds of materials. Recommended for finish and semi-finish turning of stainless steel and roughing turning of high-temperature alloys of steel from finishing to roughing. Under the same cutting conditions, the cutting speed can be increased by more than 25%, while the tool life can be 30% longer under the same cutting speed.

XAF799

PVD TiN coated carbide grade with good toughness and wear resistance. It is good for threading and drilling (both peripheral and central inserts) low carbon of steel, stainless steel heat resistance steel and cast irons.

XAL649

Substrate with good toughness and strength, in combination with Ti(CN), thin layer Al₂O₃, TiN coating. It is a premium grade for semi-finishing to light roughing milling of stainless steel at continuous and intermittent milling conditions.

XAL749

A very all around CVD coated cemented carbide grade optimized for medium machining to roughing of stainless steel in both continuous and interrupted cuts. The grade has an excellent resistance to both thermal and mechanical shock.

XC899

With fine size grain. Good for fine and semi-finishing machining of cast iron and nonferrous metal. Particularly for machining of Aluminum.

XMF849

TiCN based cermet, with fine resistant thermoplastic transmutation and resistant built-up. It is suitable for semi-finishing and finishing of steel, stainless steel and cast iron.

INSERT DESIGNATION - ANSI

SHAPE

A= K= R=
 B= L= S=
 C= M= T=
 D= O= V=
 E= P= W=
 H=

CLEARANCE

N= D=
 A= E=
 B= F=
 C= G=
 P=

I.C.

Number of 1/16's on inserts less than 1/4" L.C.

Number of 1/8's on inserts 1/4" L.C. and over

Rectangle and parallelogram inserts require two digits:
 -1st, Number of 1/8's in width
 -2nd, Number of 1/4's in length

2= 1/4" 5= 5/8"
 3= 3/8" 6= 3/4"
 4= 1/2" 8= 1"

CORNER

0= Sharp Corner 4= 1/16" radius
 1= 1/64" radius 6= 3/32" radius
 2= 1/32" radius 8= 1/8" radius
 3= 3/64" radius 12= 3/16" radius

A= Square w/45° chamfer
 D= Square w/30° chamfer
 E= Square w/15° chamfer
 K= Square w/15° double chamfer
 N= Truncated triangle insert
 P= Flattened corner triangle

C N M G . 4 3 2

TOLERANCE

d	m	t
A= ± .0010	± .0002	± .001
F= ± .0005	± .0002	± .001
C= ± .0010	± .0005	± .001
H= ± .0005	± .0005	± .001
E= ± .0010	± .0010	± .001
G= ± .0010	± .0010	± .005
**J= ± .002 to ± .008	± .0002	± .001
**K= ± .002 to ± .006	± .0005	± .001
**L= ± .002 to ± .006	± .0010	± .001
**M= ± .002 to ± .008	± .003 to ± .008	± .005
**N= ± .002 to ± .006	± .003 to ± .008	± .001
**U= ± .003 to ± .010	± .005 to ± .015	± .005

GEOMETRY

A= H= Q=
 B= J= R=
 C= *K= T=
 *D= *L= U=
 *E= M= W=
 F= N= X= Special Design
 G=

THICKNESS

Number of 1/32's on inserts less than 1/4" IC

Number of 1/16's on inserts 1/4" IC and over

1= 1/16" 4= 1/4"
 2= 1/8" 5= 5/16"
 3= 3/16" 6= 3/8"

* Smaller than 1/4" I.C.
 ** Exact tolerance is determined by the size of the insert.

Geometry:
 B, C, H, J - countersink is between 70-90 degrees.
 Q, T, U, W - countersink is between 40-60 degrees.

INSERT DESIGNATION - ISO

SHAPE

A= K= R=
 B= L= S=
 C= M= T=
 D= O= V=
 E= P= W=
 H=

CLEARANCE

N= D=
 A= E=
 B= F=
 C= G=
 P=

LENGTH OF CUTTING EDGE

If less than 10 use 0 in first place.
 Example: 9.525 = 09

CORNER

00= Round Insert 12= 1.2mm
 00= Sharp Corner 16= 1.6mm
 02= 0.2mm 24= 2.4mm
 04= 0.4mm 32= 3.2mm
 08= 0.8mm 40= 4.0mm

A= Square w/45° chamfer
 D= Square w/30° chamfer
 E= Square w/15° chamfer
 K= Square w/15° double chamfer
 N= Truncated triangle insert
 P= Flattened corner triangle

C N M G . 12 04 08

TOLERANCE

d	m	t
A= ± 0.025	± 0.005	± 0.025
F= ± 0.013	± 0.005	± 0.025
C= ± 0.025	± 0.013	± 0.025
H= ± 0.013	± 0.013	± 0.025
E= ± 0.025	± 0.025	± 0.025
G= ± 0.025	± 0.025	± 0.130
*J= ± 0.05 to ± 0.15	± 0.005	± 0.025
*K= ± 0.05 to ± 0.15	± 0.013	± 0.025
*L= ± 0.05 to ± 0.15	± 0.025	± 0.025
*M= ± 0.05 to ± 0.15	± 0.08 to ± 0.20	± 0.130
*N= ± 0.05 to ± 0.15	± 0.08 to ± 0.20	± 0.025
*U= ± 0.08 to ± 0.25	± 0.13 to ± 0.38	± 0.130

GEOMETRY

A= H= R=
 B= J= T=
 C= M= U=
 F= N= W=
 G= Q= X= Special Design

THICKNESS

If less than 10 use 0 in first place.
 Example: 3.18 = 03

* Exact tolerance is determined by the size of the insert.

Geometry:
 B, C, H, J - countersink is between 70-90 degrees.
 Q, T, U, W - countersink is between 40-60 degrees.