CY CARBIDE MFG. CO., LTD.

where your **innovation** BEGINS

CYCT

CY CARBIDE MFG. CO., LTD.

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24REV3

Precision Inserts Catalogue

CONTENTS

ABOUT CYC

CY CARBIDE MFG.CO.LTD., established in 2003, is a professional manufacturer and exporter of cemented carbide and cermet materials. CYC delivers globally high performance standard and non-standard products, that meet the most challenging demands from various applications including metalworking, mining, construction, oil & gas, die & mold, and woodworking.

Based on 20 years hard materials manufacturing experience, CYC set up a new brand “CYCT” for inserts R&D, and manufacturing. Our stable, effective and precision inserts are widely used for machining P, M, K, S, N and H workpiece. Specially designed grades and types are suitable for turning, milling and drilling. Products are extensively applied in the industry of molds, automotive accessories, general machine, clean energy, 3C, aerospace, shipping, railway transportation, and heavy equipment etc.

North of Kunshan - Headquarter

South of Kunshan - Hard materials factory

Fuzhou, Jiangxi - RTP factory

Changshu, Jiangsu - Inserts factory

ISO9001:2015

CYC is an ISO 9001:2015 (TUV), ISO 14001:2015, ISO 50001:2018 and ISO 45001:2018 certified business. High standard and strict requirement is our core value for quality. Consistent quality of products are guaranteed by a complete quality management system, strict control of raw material supply chain and 100% traceability in the entire production process.

CYC adheres to responsible and sustainable business practices, including conflict free raw materials sourcing, proactive health management to our employees, and concern about environment and energy sustainable development. Our open and transparent business philosophy allows our customers, employees, and external suppliers, to have confidence in our business, ways of working and our products.

TÜV Quality System Certificate

Enviromental System Certificate

Energy System Certificate

Occupational Health and Safety System Certificate

ENTERPRISE HISTORY

2003

1st
carbide factory
in Kunshan

2010

200+
Tons Output

2014

ISO9001
certified by TUV

2015

500+
Tons Output

2017

RTP
factory in Jiangxi

2018

2nd
carbide factory
in Kunshan

1000+
Tons Output

2019

Legal Entity:
CYC Japan

2021

Carbide Inserts
factory started
operation

1700+
Tons Output

2022

ISO 14001
Environmental
ISO 45001
Occupational Health & Safety
ISO 50001
Energy

2023

2000+
Tons Output

2024

EcoVadis
Silver Medal

R&D CENTER

R&D Team

We have a strong R&D team consisting of industry experts, senior engineers. We adhere to the principle of “development according to the market’s demands”, continuously improving product performance, and developing new products which meet the demands of the market and customers.

R&D Equipment

Our factory is well equipped with international advanced R&D facilities, which provide a solid foundation for new product development.

Cooperation with Universities

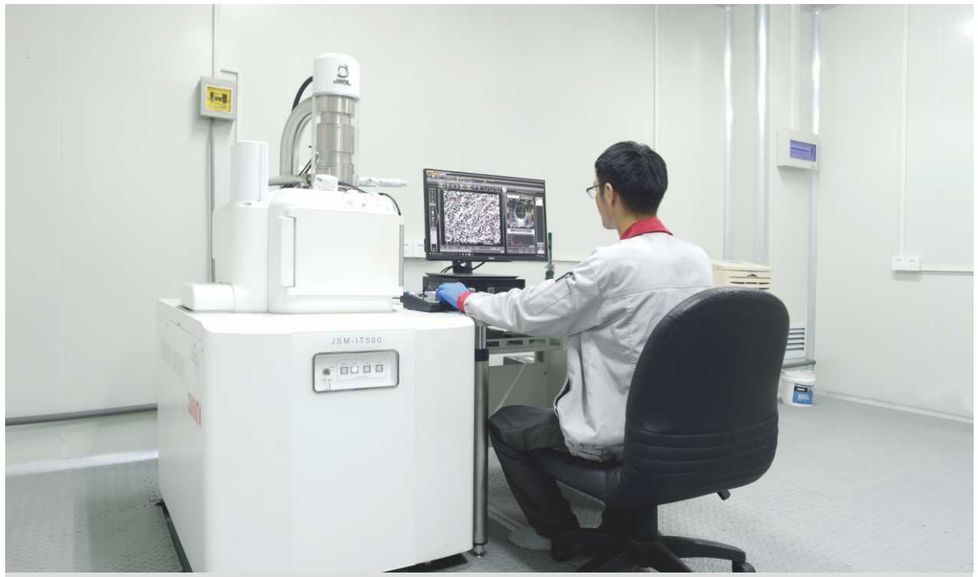
We always prioritize the cooperation between manufacturing and reserch, and have built up an innovation platform with universities, such as Central South University, Northest University, Hunan University of Technology and so on.

ANALYSIS AND TEST CENTER

We have all the test facilities for Tungsten Carbide Powder, RTP, chemical element composition of finished goods, and micro structure analysis, which provide an effective database for R&D and manufacturing (including Japan SEM tester, Germany Lecia metallographic microscope and micro structure analysis software, strength test machine, and three-coordinates measuring machine, etc.)

Innovatest Hardness Tester

Magnetometer



SEM tester (JEOL-Japan)

MOULD WORKSHOP

- Mold production and processing is strictly following ISO quality management.
- ZEISS three-coordinates measuring machine, Swiss+GF+EDM machine, Swiss+GF+WEDM, full set of high-precision processing equipment, and Swiss 3R fixture system.
- Mold stock available for various ISO specifications, also providing customization for key customers.

PRODUCTION EQUIPMENT

We have complete production lines from RTP, mold making, pressing, sintering HIP, grinding, coating and process after coating.

Spray drying powder advaced process ensures high performance of RTP.

Premium world class electrical pressing machines provide dimensional accuracy and quality stabiliy of product.

Multi-atmosphere sintering furnaces ensure indexable inserts' quality and appearance standard.

Fully-automatic grinders ensure product dimensional request.

Cutting-edge technology coating machines CVD coating (Ionbond) and PVD coating (Balzers).

Auto cleaning, auto passivation and advanced post process ensure high performance of our products.

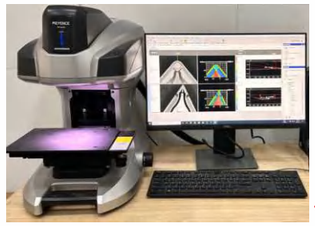
Mould Making

RTP Ball Milling Spray Drying

Pressing

Sintering

Measuring

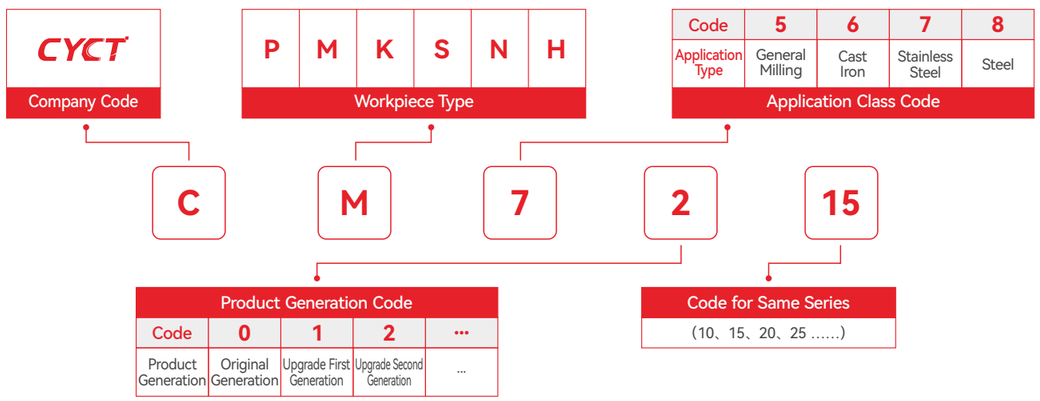


CVD Coating

PVD Coating

Grinding

GRADE KEY CODE



GRADE CHART

Turning

Application Classification	General Grade	Features	Application
Steel	CP8015S	Gradient substrate formed by special sintering process with thick fine grain Al_2O_3 and MT-TiCN coating, gives excellent wear resistant performance.	Suitable for finishing and semi-finishing of steel and alloy steel under stable cutting conditions.
	CP8025	High binder functional gradient substrate combined with columnar Al_2O_3 and MT-TiCN coating, gives toughnessand wear resistance at the same time.	Widely used for machining of steel and alloy steel under common cutting conditions.
	CP8025S	Ultrafine chemical coating and High binder functional gradient substrate give both wear resistance and toughness.	Wide application range, from medium to rough machining of steel parts, with excellent performance under unstable conditions.
	CP8035	Super thick cobalt-rich layer toughening technology gives high strength substrate, combined with denseultra-fine Al_2O_3 and MT-TiCN coating.	Suitable for semi-finishing and roughing of steel and alloy steel under interrupted cutting conditions.
Stainless Steel	CM7115A	Ultrafine grain cemented carbide substrate, combined with nano structure composite coating, gives high wear resistance and high temperature red hardness resistance.	Suitable for machining of stainless steel, heat-resistant alloy, titanium alloy and other difficult to machine materials under stable cutting conditions.
	CM7125A	Nanostructured AlTiN coating, combined with the substrate with high red hardness and plastic deformation resistance, gives excellent high-temperature oxidation resistance and adhesive wear resistance.	Suitable for general machining of steel and stainless steel at low and medium cuttingspeed.
	CM7215	Nano-gradient structured TiAlN/TiSiN coating, with excellent anti-build-up characteristics, heat resistance, and oxidation resistance. The micro-grain carbide substrate features high wear resistance and high impact resistance. The coating is tightly bonded to the substrate.	Suitable for stainless steel finishing to semi-finishing under stable conditions.

Cast Iron	CK6005	Higher wear resistant carbide substrate combined with thick MT-TiCN and Al_2O_3 coating, gives good wear resistance.	Suitable for high-speed machining of cast iron.
	CK6015	High wear resistant carbide substrate combined with thick MT-TiCN and Al_2O_3 coating, gives good wear resistance.	Suitable for general machining of gray cast iron under various cutting conditions.
	CK6015S	High toughness substrate combined with MT-TiCN and Al_2O_3 coating with columnar structure, gives excellent wear resistance and impact resistance.	Suitable for semi-finishing and roughing of gray cast iron and nodular cast iron under various interrupted cutting conditions.
High Hardness	CH3005	Nano-grain crystal alloy substrate combined with a PVD Al_2O_3 composite coating, offers excellent high-temperature performance. Maintains performance even in high-temperature environments, preventing deformation or failure due to heat. Provides a good surface finish, achieving grinding-like results through turning.	Suitable for finishing high-hardness materials with HRC 45-65 after heat treatment. It has wide applications, such as in the mold manufacturing industry for processing various high-hardness mold materials, the automotive industry for machining high-hardness components, as well as in the aerospace, energy, and medical device industries.

Milling

Application Classification	General Grade	Features	Application
High Hardness	CA5105	Ultrafine grain substrate, combined with high tempera-ture resistant coating, gives better wear resistance and collapse resistance than traditional material.	Focusing on materials with high hardness, suitable for roughing, finishing, and general machining under different working conditions. It is mainly used in the mold industry and is suitable for general processing of heat treated mold steel, high hardness materi-als, super alloys and cast iron.
General	CA5120	The nanostructure AlTiN coating, combined with high red hardness and plastic deformation resistance substrate, gives excellent high-temperature oxidation resistance and adhesive wear resistance.	Suitable for general milling of steel, stainless steel and other materials.
	CA5125	AlCrN coating gives excellent wear resistant performance.	Suitable for general milling and roughing of steel and alloy steel.
Cast Iron	CK6020	The special structure cemented carbide substrate combined with thick MT-TiCN and Al_2O_3 coating, gives excellent high-temperature oxidation resistance and adhesive wear resistance.	Suitable for milling of cast iron.

Drilling

Application Classification	General Grade	Features	Application
High Hardness	CA5105	Ultrafine grain substrate, combined with high tempera-ture resistant coating, gives better wear resistance and collapse resistance than traditional material.	Focusing on materials with high hardness, suitable for roughing, finishing, and general machining under different working conditions. It is mainly used in the mold industry and is suitable for general processing of heat treated mold steel, high hardness materi-als, super alloys and cast iron.
Stainless Steel	CA5110	Ultrafine grain cemented carbide substrate, combined with nano structure composite coating, gives high wear resistance and high temperature red hardness resistance.	Suitable for machining of stainless steel, heat-resistant alloy, titanium alloy and other difficult to machine materials under stable cutting conditions.
General	CA5120	The nanostructure AlTiN coating, combined with high red hardness and plastic deformation resistance substrate, gives excellent high-temperature oxidation resistance and adhesive wear resistance.	Suitable for general milling of steel, stainless steel and other materials.

Cermet

Application Classification	General Grade	Features	Application
Cermet	CMT55	High-titanium fine-grained material, featuring high hardness, high wear resistance, and good toughness. Suitable for high-speed, light intermittent machining, providing high surface finish and high cutting efficiency.	Applicable for continuous and light intermittent machining of steel and stainless steel, as well as cutting and grooving.
	CMT80A	High binder content fine-grained material, characterised by high toughness, impact resistance, good thermal stability, and wear resistance, offering good general cutting performance.	Suitable for continuous and light intermittent machining of steel and stainless steel, as well as cutting and grooving, particularly in bearing machining applications.
	CP80TM	TiAlN/TiN PVD coating on a high-toughness and good wear resistance substrate, offering excellent wear and oxidation resistance. Suitable for high-speed, light intermittent long-term stable machining, providing high surface finish and high cutting efficiency.	Applicable for continuous and light intermittent machining of steel and stainless steel, as well as cutting and grooving.

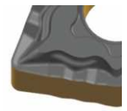
MAIN TURNING INSERTS CHIPBREAKER

Negative PM

Semi-finishing for Steel and Cast Iron. It has good chip holding, breaking and evacuation performance at high feed speed and deep cutting depth. Sharp cutting edge and low cutting force.

Negative PF

Large inclination and wavy side cutting edge, ensure a sharp cutting edge and have good chip breaking ability and low cutting resistance. Suitable for finishing of steel.

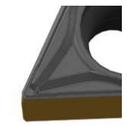


Negative PH

For heavy duty. Large rake angle meets the sharpness and strength requirements, wavy side cutting edge reduces the cutting resistance, Y-shaped protrusion on the tip improves the chip handling ability.

Positive PM

large rake angle and wide cutting edge, ensuring a sharp cutting edge while maintaining edge stability during deep cuts. The Y-shaped chip breaker point ensures smooth chip flow. Suitable for rough to semi-finish turning of steel inner bores.

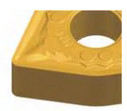


Positive HF

Large rake angle and large chipbreak, smooth chip removal rates. Suitable for semi-finishing to finishing of steel.

Negative MM

Semi-finishing Chipbreaker for Stainless Steel. With sharp and high toughness cutting edge, it has a wide processing range; Low cutting force and good chip evacuation performance.



Negative MF

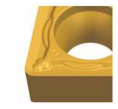
MF Suitable for semi finishing and finishing of stainless steel.

Negative MQ

Large rake angle side edge combined with a double rake angle design provides a sharp cutting edge. The points are positioned forward to ensure smooth chip breaking and reduced cutting resistance. Suitable for stainless steel finishing to semi-finishing.

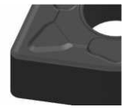
Positive MM

Finishing and Semi-finishing Chipbreaker for Common Steel, Alloy Steel and Stainless Steel. With sharp cutting edge, it has excellent machining performance at low cutting depth and feed.



Negative KM

Semi-finishing chipbreaker for cast iron, which also can beused for roughing of steel.

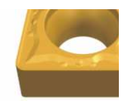


Negative CK

Chipbreaker for Grey Cast Iron, Nodular Cast Iron and Other Cast Iron.

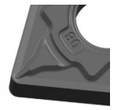
Positive KM

Semi-finishing for Cast Iron and Steel. Simple general chipbreaker can be used widely.



Negative MH

The sharp cutting edge combined with the forward chip breaker point ensures smooth chip flow during shallow cuts and small feeds, reducing chip wrapping around the workpiece and insert. Suitable for finishing quenched steel after heat treatment.



Parting & Grooving GM

Suitable for general machining for parting&grooving.

MAIN MILLING AND DRILLING INSERTS CHIPBREAKER

Milling CM

Suitable for general milling under semi-finishing cutting condition.

Milling CR

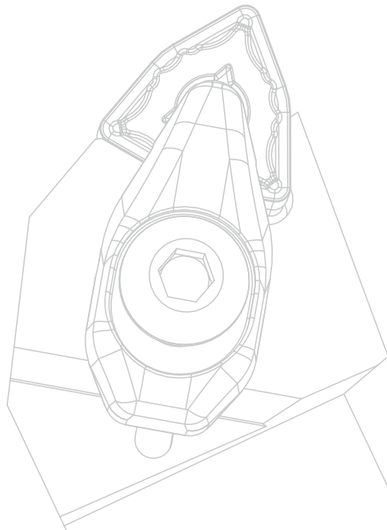
Suitable for general roughing under roughing cutting condition.

Drilling DG

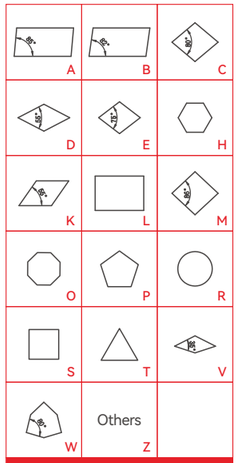
DG- suitable for general drilling under common cutting condition.

A

CEMENTED CARBIDE TURNING INSERTS



TURNING INSERTS KEY CODE



Shape Code

Code	Relief Angle
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Others

Relief Angle Code

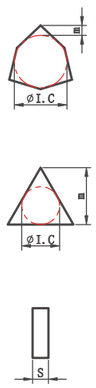
Code	Hole	Chipbreaker	Section Sketch
B	Y	N	
H	Y	Single Side	
C	Y	N	
J	Y	Double Side	
W	Y	N	
T	Y	Single Side	
Q	Y	N	
U	Y	Double Side	

Code	Hole	Chipbreaker	Section Sketch
N	N	N	
R	N	Single Side	
F	N	Double Side	
A	Y	N	
M	Y	Single Side	
G	Y	Double Side	
X	---	---	Special

Chipbreaker and Clamping System

C N M G

Tolerance



Code	Cutting Point Height (mm)	Inscribed Circle ΦTol.	Thickness Tol.(mm)
A	±0.005	±0.025	±0.025
F	±0.005	±0.013	±0.025
C	±0.013	±0.025	±0.025
H	±0.013	±0.013	±0.025
E	±0.025	±0.025	±0.025
G	±0.025	±0.025	±0.13
J	±0.005	±0.05~±0.13	±0.025
K	±0.013	±0.05~±0.13	±0.025
L	±0.025	±0.05~±0.13	±0.025
M	±0.08~±0.18	±0.05~±0.13	±0.13
N	±0.08~±0.18	±0.05~±0.13	±0.025
U	±0.13~±0.38	±0.08~±0.25	±0.13

• Cuttting Poing Height (mm) Tolerance

Inscribed Circle	Equilateral Triangle	Square	80° Rhomb	55° Rhomb	35° Rhomb	Round
6.35	±0.08	±0.08	±0.08	±0.11	±0.16	---
9.525	±0.08	±0.08	±0.08	±0.11	±0.16	---
12.7	±0.13	±0.13	±0.13	±0.15	---	---
15.875	±0.15	±0.15	±0.15	±0.18	---	---
19.05	±0.15	±0.15	±0.15	±0.18	---	---
25.4	---	±0.18	---	---	---	---

• Inscribed Circular ΦTolerance

Inscribed Circle	Equilateral Triangle	Square	80° Rhomb	55° Rhomb	35° Rhomb	Round
6.35	±0.05	±0.05	±0.05	±0.05	±0.05	---
9.525	±0.05	±0.05	±0.05	±0.05	±0.05	---
12.7	±0.08	±0.18	±0.08	±0.08	---	---
15.875	±0.10	±0.10	±0.10	±0.10	---	---
19.05	±0.10	±0.10	±0.10	±0.10	---	---
25.4	---	±0.13	---	---	---	---

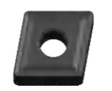
TURNING INSERTS KEY CODE

Inscribed Circle Diameter (mm)	Inserts Shape C	D	R	S	T	V	W	K
3.97					6			
5.5			5					
5.56					9			
6			6					
6.35	6	7			11	11		
8			8					
9.525	9	11	9	9	16	16	6	16
10			10					
12			12					
12.7	12	15	12	12	22	22	8	
15.875	16		15	15	27			
16		19	16					
19.05	19		19	19	33			
20		25	20					
25	25		25					
25.4			25	25	25			
31.75			31	32	32			
32			32					

Cutting Edge Length Code

Code	Thickness (mm)
0	0.79
T0	0.99
01	1.59
T1	1.98
02	2.38
T2	2.78
03	3.18
T3	3.97
04	4.76
T4	4.96
05	5.56
T5	5.95
06	6.35
T6	6.75
07	7.94
09	9.52
T9	9.72
10	11.11
12	12.70

Insert Thickness

PM	PH
	
MF	MQ
	
MM	CK
	

Chipbreaker Code

16 06 12 — MM (ISO)

5 4 3 (inch)

Inscribed Circle	
Code	Inscribed Circle Diameter (inch)
2	1/4
3	3/8
4	1/2
5	5/8
6	3/4
7	7/8
8	1

Thickness	
Code	Thickness (inch)
2	1/8
25	5/32
3	3/16
35	7/32
4	1/4
5	5/16
6	3/8

Nose Radius Code	
Code	Nose Radius (inch)
05	0.008
1	1/64
2	1/32
3	3/64
4	1/16
5	5/64
6	3/32

Nose Radius Code	
Code	Nose Radius (mm)
00	No Radius
02	0.2
04	0.4
08	0.8
12	1.2
16	1.6
20	2.0
24	2.4
32	3.2
X	Others
Insert Diameter Dimension MO (Metric)	Round Insert

NEGATIVE TURNING INSERTS FOR STEEL

Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	CVD CP8015	CP8025	CP8025S	CP8035
	CNMG120404-PM	12	12.7	4.76	5.16	0.4	○	●	●	○
	CNMG120408-PM	12	12.7	4.76	5.16	0.8	○	●	●	○
	CNMG120412-PM	12	12.7	4.76	5.16	1.2	○	●	●	○
	CNMG120416-PM	12	12.7	4.76	5.16	1.6	○	●	●	○
	CNMG160608-PM	16	15.875	6.35	6.35	0.8	○	●	●	○
	CNMG160612-PM	16	15.875	6.35	6.35	1.2	○	●	●	○
	CNMG160616-PM	16	15.875	6.35	6.35	1.6	○	●	●	○
	CNMG190608-PM	19	19.05	6.35	7.94	0.8	○	●	●	○
	CNMG190612-PM	19	19.05	6.35	7.94	1.2	○	●	●	○
	CNMG190616-PM	19	19.05	6.35	7.94	1.6	○	●	●	○
	CNMG190624-PM	19	19.05	6.35	7.94	2.4	○	●	●	○
	DNMG110404-PM	11	9.525	4.76	3.81	0.4	○	●	●	○
	DNMG110408-PM	11	9.525	4.76	3.81	0.8	○	●	●	○
	DNMG150404-PM	15	12.7	4.76	5.16	0.4	○	●	●	○
	DNMG150408-PM	15	12.7	4.76	5.16	0.8	○	●	●	○
	DNMG150604-PM	15	12.7	6.35	5.16	0.4	○	●	●	○
	DNMG150608-PM	15	12.7	6.35	5.16	0.8	○	●	●	○
	DNMG150612-PM	15	12.7	6.35	5.16	1.2	○	●	●	○
	SNMG120404-PM	12	12.7	4.76	5.16	0.4	○	●	●	○
	SNMG120408-PM	12	12.7	4.76	5.16	0.8	○	●	●	○
	SNMG120412-PM	12	12.7	4.76	5.16	1.2	○	●	●	○
	SNMG120416-PM	12	12.7	4.76	5.16	1.6	○	●	●	○
	SNMG150612-PM	15	15.875	6.35	6.35	1.2	○	●	●	○
	SNMG190612-PM	19	19.05	6.35	7.94	1.2	○	●	●	○
	SNMG190616-PM	19	19.05	6.35	7.94	1.6	○	●	●	○

● Running Stock ○ Make-to-order

NEGATIVE TURNING INSERTS FOR STEEL

Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	CVD CP8015	CP8025	CP8025S	CP8035
	TNMG160404-PM	16	9.525	4.76	3.81	0.4	○	●	●	○
	TNMG160408-PM	16	9.525	4.76	3.81	0.8	○	●	●	○
	TNMG160412-PM	16	9.525	4.76	3.81	1.2	○	●	●	○
	TNMG220408-PM	22	12.7	4.76	5.16	0.8	○	●	●	○
	TNMG220412-PM	22	12.7	4.76	5.16	1.2	○	●	●	○
	TNMG220416-PM	22	12.7	4.76	5.16	1.6	○	●	●	○
	VNMG110404-PM	11	6.35	4.76	2.26	0.4	○	●	●	○
	VNMG110408-PM	11	6.35	4.76	2.26	0.8	○	●	●	○
	VNMG160404-PM	16	9.525	4.76	3.81	0.4	○	●	●	○
	VNMG160408-PM	16	9.525	4.76	3.81	0.8	○	●	●	○
	VNMG160412-PM	16	9.525	4.76	3.81	1.2	○	●	●	○
	WNMG060408-PM	6	9.525	4.76	3.81	0.8	○	●	●	○
	WNMG080404-PM	8	12.7	4.76	5.16	0.4	○	●	●	○
	WNMG080408-PM	8	12.7	4.76	5.16	0.8	○	●	●	○
	WNMG080412-PM	8	12.7	4.76	5.16	1.2	○	●	●	○
	WNMG080416-PM	8	12.7	4.76	5.16	1.6	○	●	●	○

● Running Stock ○ Make-to-order

NEGATIVE TURNING INSERTS FOR STEEL

Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	CVD CP8015	CP8015S	CP8025S	CP8035
	CNMG120404-PF	12	12.7	4.76	5.16	0.4	○	●	●	○
	CNMG120408-PF	12	12.7	4.76	5.16	0.8	○	●	●	○
	CNMG120412-PF	12	12.7	4.76	5.16	1.2	○	●	●	○
	CNMG160608-PF	16	15.875	6.35	6.35	0.8	○	●	●	○
	CNMG160612-PF	16	15.875	6.35	6.35	1.2	○	●	●	○
	CNMG190608-PF	19	19.05	6.35	7.94	0.8	○	●	●	○
	CNMG190612-PF	19	19.05	6.35	7.94	1.2	○	●	●	○
	DNMG150404-PF	15	12.7	4.76	5.16	0.4	○	●	●	○
	DNMG150408-PF	15	12.7	4.76	5.16	0.8	○	●	●	○
	DNMG150412-PF	15	12.7	4.76	5.16	1.2	○	●	●	○
	DNMG150604-PF	15	12.7	6.35	5.16	0.4	○	●	●	○
	DNMG150608-PF	15	12.7	6.35	5.16	0.8	○	●	●	○
	DNMG150612-PF	15	12.7	6.35	5.16	1.2	○	●	●	○
	SNMG120404-PF	12	12.7	4.76	5.16	0.4	○	●	●	○
	SNMG120408-PF	12	12.7	4.76	5.16	0.8	○	●	●	○
	SNMG120412-PF	12	12.7	4.76	5.16	1.2	○	●	●	○
	SNMG150608-PF	15	15.875	6.35	6.35	0.8	○	●	●	○
	SNMG150612-PF	15	15.875	6.35	6.35	1.2	○	●	●	○
	SNMG190608-PF	19	19.05	6.35	7.94	0.8	○	●	●	○
	SNMG190612-PF	19	19.05	6.35	7.94	1.2	○	●	●	○

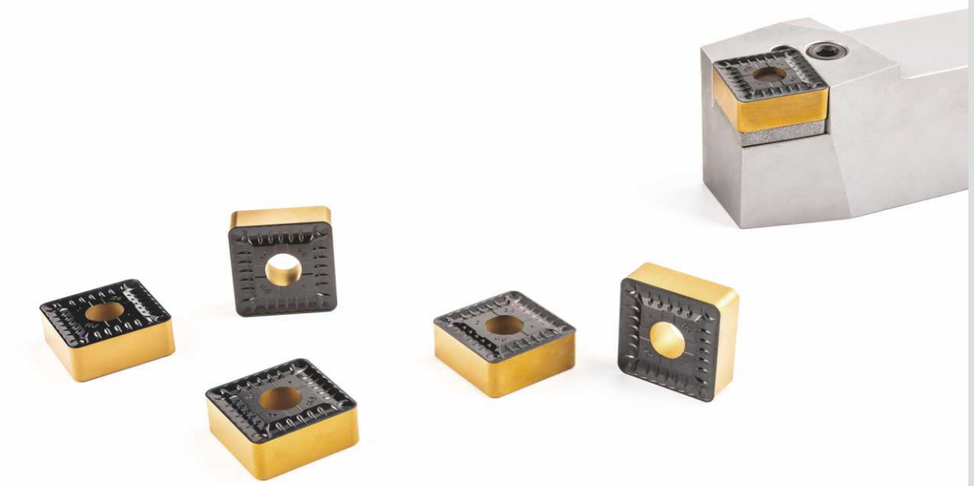
● Running Stock ○ Make-to-order

NEGATIVE TURNING INSERTS FOR STEEL

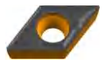
Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	CVD CP8015	CP8015S	CP8025S	CP8035
	TNMG160404-PF	16	9.525	4.76	3.81	0.4	○	●	●	○
	TNMG160408-PF	16	9.525	4.76	3.81	0.8	○	●	●	○
	TNMG160412-PF	16	9.525	4.76	3.81	1.2	○	●	●	○
	TNMG220408-PF	22	12.7	4.76	5.16	0.8	○	●	●	○
	TNMG220412-PF	22	12.7	4.76	5.16	1.2	○	●	●	○
	VNMG160404-PF	16	9.525	4.76	3.81	0.4	○	●	●	○
	VNMG160408-PF	16	9.525	4.76	3.81	0.8	○	●	●	○
	VNMG160412-PF	16	9.525	4.76	3.81	1.2	○	●	●	○
	WNMG080404-PF	8	12.7	4.76	5.16	0.4	○	●	●	○
	WNMG080408-PF	8	12.7	4.76	5.16	0.8	○	●	●	○
	WNMG080412-PF	8	12.7	4.76	5.16	1.2	○	●	●	○

Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	CVD Grade CP8025S	CP8025H
	SNMM250924-PH	25	25.4	9.52	9.12	2.4	●	●

● Running Stock ○ Make-to-order

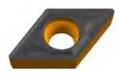


POSITIVE TURNING INSERTS FOR STEEL

Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	CVD CP8015	CP8015S	CP8025S	CP8035
	CCMT060204-PM	6	6.35	2.38	2.8	0.4	○	●	●	○
	CCMT060208-PM	6	6.35	2.38	2.8	0.8	○	●	●	○
	CCMT09T304-PM	9	9.525	3.97	4.4	0.4	○	●	●	○
	CCMT09T308-PM	9	9.525	3.97	4.4	0.8	○	●	●	○
	CCMT120404-PM	12	12.7	4.76	5.5	0.4	○	●	●	○
	CCMT120408-PM	12	12.7	4.76	5.5	0.8	○	●	●	○
	DCMT11T304-PM	11	9.525	3.97	4.4	0.4	○	●	●	○
	DCMT11T308-PM	11	9.525	3.97	4.4	0.8	○	●	●	○
	TCMT110204-PM	11	6.35	2.38	2.8	0.4	○	●	●	○
	TCMT110208-PM	11	6.35	2.38	2.8	0.8	○	●	●	○
	TCMT16T304-PM	16	9.525	3.97	4.4	0.4	○	●	●	○
	TCMT16T308-PM	16	9.525	3.97	4.4	0.8	○	●	●	○

● Running Stock ○ Make-to-order

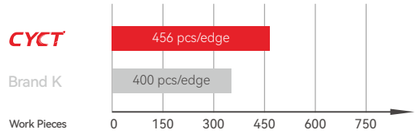
POSITIVE TURNING INSERTS FOR STEEL

Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	CVD CP8015	CP8015S	CP8025S	CP8035
	CCMT060204-HF	6	6.35	2.38	2.8	0.4	○	●	●	○
	CCMT060208-HF	6	6.35	2.38	2.8	0.8	○	●	●	○
	CCMT09T304-HF	9	9.525	3.97	4.4	0.4	○	●	●	○
	CCMT09T308-HF	9	9.525	3.97	4.4	0.8	○	●	●	○
	DCMT070204-HF	7	6.35	2.38	2.8	0.4	○	●	●	○
	DCMT070208-HF	7	6.35	2.38	2.8	0.8	○	●	●	○
	DCMT11T304-HF	11	9.525	3.97	4.4	0.4	○	●	●	○
	DCMT11T308-HF	11	9.525	3.97	4.4	0.8	○	●	●	○
	SCMT09T304-HF	9	9.525	3.97	4.4	0.4	○	●	●	○
	SCMT09T308-HF	9	9.525	3.97	4.4	0.8	○	●	●	○
	SCMT120404-HF	12	12.7	4.76	5.56	0.4	○	●	●	○
	SCMT120408-HF	12	12.7	4.76	5.56	0.8	○	●	●	○
	SCMT120412-HF	12	12.7	4.76	5.56	1.2	○	●	●	○
	TCMT110204-HF	11	6.35	2.38	2.8	0.4	○	●	●	○
	TCMT110208-HF	11	6.35	2.38	2.8	0.8	○	●	●	○
	TCMT16T304-HF	16	9.525	3.97	4.4	0.4	○	●	●	○
	TCMT16T308-HF	16	9.525	3.97	4.4	0.8	○	●	●	○

● Running Stock ○ Make-to-order

APPLICATION CASE

Workpiece Name: Pedestal
Workpiece Material: 42CrMo
Insert Type: VNMG160404-PF
Insert Grade: CP8015S
Cutting Parameter: Vc=220m/min Ap=0.3mm F=0.15mm/r
Lifetime Comparison:



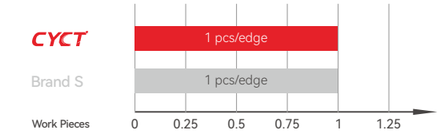
Compared with Brand K, CYCT CP8015S can extend lifetime to 114%.

Workpiece Name: Pinion Shaft
Workpiece Material: 20CrMo
Insert Type: WNMG080408-PM
Insert Grade: CP8025S
Cutting Parameter: Vc=251m/min Ap=1.5mm F=0.35mm/r
Lifetime Comparison:

Compared with brand P, CYCT CP8025S can extend lifetime to 142%.

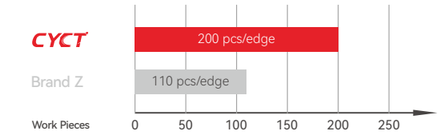
APPLICATION CASE

Workpiece Name: Main Shaft (Wind Power Components)
Workpiece Material: 42CrMoNi
Insert Type: SNMM250924-PH
Insert Grade: CP8025S
Cutting Parameter: Vc=90m/min Ap=15mm F=1.2mm/r
Lifetime Comparison:



Compared with Brand S, CYCT CP8025S lifetime is equivalent.

Workpiece Name: Upper Pin seat (D80)
Workpiece Material: Steel 20#
Insert Type: CNMG120408-PM
Insert Grade: CP8025S
Cutting Parameter: Vc=900m/min Ap=1mm F=0.22mm/r
Lifetime Comparison:



Compared with Brand Z, CYCT CP8025S can extend lifetime to 181%.

NEGATIVE TURNING INSERTS FOR STAINLESS STEEL

Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	PVD CM7115A	CM7125A	CM7215
	CNMG120404-MF	12	12.7	4.76	5.16	0.4	●	●	●
	CNMG120408-MF	12	12.7	4.76	5.16	0.8	●	●	●
	DNMG110404-MF	11	9.525	4.76	3.81	0.4	●	●	●
	DNMG110408-MF	11	9.525	4.76	3.81	0.8	●	●	●
	DNMG150404-MF	15	12.7	4.76	5.16	0.4	●	●	●
	DNMG150408-MF	15	12.7	4.76	5.16	0.8	●	●	●
	DNMG150604-MF	15	12.7	6.35	5.16	0.4	●	●	●
	DNMG150608-MF	15	12.7	6.35	5.16	0.8	●	●	●
	SNMG120404-MF	12	12.7	4.76	5.16	0.4	●	●	●
	SNMG120408-MF	12	12.7	4.76	5.16	0.8	●	●	●
	TNMG160404-MF	16	9.525	4.76	3.81	0.4	●	●	●
	TNMG160408-MF	16	9.525	4.76	3.81	0.8	●	●	●
	VNMG160404-MF	16	9.525	4.76	3.81	0.4	●	●	●
	VNMG160408-MF	16	9.525	4.76	3.81	0.8	●	●	●
	WNMG080404-MF	8	12.7	4.76	5.16	0.4	●	●	●
	WNMG080408-MF	8	12.7	4.76	5.16	0.8	●	●	●

● Running Stock ○ Make-to-order

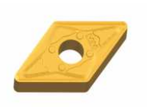
NEGATIVE TURNING INSERTS FOR STAINLESS STEEL

Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	PVD CM7115A	CM7125A	CM7215
	CNMG120404-MQ	12	12.7	4.76	5.16	0.4	●	●	●
	CNMG120408-MQ	12	12.7	4.76	5.16	0.8	●	●	●
	DNMG150404-MQ	15	12.7	4.76	5.16	0.4	●	●	●
	DNMG150408-MQ	15	12.7	4.76	5.16	0.8	●	●	●
	DNMG150604-MQ	15	12.7	6.35	5.16	0.4	●	●	●
	DNMG150608-MQ	15	12.7	6.35	5.16	0.8	●	●	●
	SNMG120404-MQ	12	12.7	4.76	5.16	0.4	●	●	●
	SNMG120408-MQ	12	12.7	4.76	5.16	0.8	●	●	●
	TNMG160404-MQ	16	9.525	4.76	3.81	0.4	●	●	●
	TNMG160408-MQ	16	9.525	4.76	3.81	0.8	●	●	●
	VNMG160404-MQ	16	9.525	4.76	3.81	0.4	●	●	●
	VNMG160408-MQ	16	9.525	4.76	3.81	0.8	●	●	●
	WNMG080404-MQ	8	12.7	4.76	5.16	0.4	●	●	●
	WNMG080408-MQ	8	12.7	4.76	5.16	0.8	●	●	●

● Running Stock ○ Make-to-order

A
CEMENTED CARBIDE TURNING INSERTS

NEGATIVE TURNING INSERTS FOR STAINLESS STEEL

Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	PVD CM7115A	CM7125A	CM7215
	CNMG120404-MM	12	12.7	4.76	5.16	0.4	●	●	●
	CNMG120408-MM	12	12.7	4.76	5.16	0.8	●	●	●
	CNMG120412-MM	12	12.7	4.76	5.16	1.2	●	●	●
	DNMG110404-MM	11	9.525	4.76	3.81	0.4	●	●	●
	DNMG110408-MM	11	9.525	4.76	3.81	0.8	●	●	●
	DNMG150404-MM	15	12.7	4.76	5.16	0.4	●	●	●
	DNMG150408-MM	15	12.7	4.76	5.16	0.8	●	●	●
	DNMG150412-MM	15	12.7	4.76	5.16	1.2	●	●	●
	DNMG150604-MM	15	12.7	6.35	5.16	0.4	●	●	●
	DNMG150608-MM	15	12.7	6.35	5.16	0.8	●	●	●
	SNMG120404-MM	12	12.7	4.76	5.16	0.4	●	●	●
	SNMG120408-MM	12	12.7	4.76	5.16	0.8	●	●	●
	SNMG120412-MM	12	12.7	4.76	5.16	1.2	●	●	●
	TNMG160404-MM	16	9.525	4.76	3.81	0.4	●	●	●
	TNMG160408-MM	16	9.525	4.76	3.81	0.8	●	●	●
	TNMG160412-MM	16	9.525	4.76	3.81	1.2	●	●	●
	VNMG160404-MM	16	9.525	4.76	3.81	0.4	●	●	●
	VNMG160408-MM	16	9.525	4.76	3.81	0.8	●	●	●
	VNMG160412-MM	16	9.525	4.76	3.81	1.2	●	●	●
	WNMG080404-MM	8	12.7	4.76	5.16	0.4	●	●	●
	WNMG080408-MM	8	12.7	4.76	5.16	0.8	●	●	●
	WNMG080412-MM	8	12.7	4.76	5.16	1.2	●	●	●

● Running Stock ○ Make-to-order

NEGATIVE TURNING INSERTS FOR STAINLESS STEEL

Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	PVD CM7115A	CM7125A	CM7215
	CNMG120404	12	12.7	4.76	5.16	0.4	●	●	●
	CNMG120408	12	12.7	4.76	5.16	0.8	●	●	●
	CNMG120412	12	12.7	4.76	5.16	1.2	●	●	●
	CNMG120416	12	12.7	4.76	5.16	1.6	●	●	●
	CNMG160608	16	15.875	6.35	6.35	0.8	●	●	●
	CNMG160612	16	15.875	6.35	6.35	1.2	●	●	●
	CNMG160616	16	15.875	6.35	6.35	1.6	●	●	●
	CNMG190608	19	19.05	6.35	7.94	0.8	●	●	●
	CNMG190612	19	19.05	6.35	7.94	1.2	●	●	●
	CNMG190616	19	19.05	6.35	7.94	1.6	●	●	●
	DNMG110404	11	9.525	4.76	3.81	0.4	●	●	●
	DNMG110408	11	9.525	4.76	3.81	0.8	●	●	●
	DNMG110412	11	9.525	4.76	3.81	1.2	●	●	●
	DNMG150404	15	12.7	4.76	5.16	0.4	●	●	●
	DNMG150408	15	12.7	4.76	5.16	0.8	●	●	●
	DNMG150412	15	12.7	4.76	5.16	1.2	●	●	●
	DNMG150604	15	12.7	6.35	5.16	0.4	●	●	●
	DNMG150608	15	12.7	6.35	5.16	0.8	●	●	●
	DNMG150612	15	12.7	6.35	5.16	1.2	●	●	●

● Running Stock ○ Make-to-order

A
CEMENTED CARBIDE TURNING INSERTS

NEGATIVE TURNING INSERTS FOR STAINLESS STEEL

Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	PVD CM7115A	CM7125A	CM7215
	SNMG090304	9	9.525	3.18	3.81	0.4	●	●	●
	SNMG090308	9	9.525	3.18	3.81	0.8	●	●	●
	SNMG120404	12	12.7	4.76	5.16	0.4	●	●	●
	SNMG120408	12	12.7	4.76	5.16	0.8	●	●	●
	SNMG120412	12	12.7	4.76	5.16	1.2	●	●	●
	SNMG120416	12	12.7	4.76	5.16	1.6	●	●	●
	SNMG150608	15	15.875	6.35	6.35	0.8	●	●	●
	SNMG150612	15	15.875	6.35	6.35	1.2	●	●	●
	SNMG150616	15	15.875	6.35	6.35	1.6	●	●	●
	SNMG190608	19	19.05	6.35	7.94	0.8	●	●	●
	SNMG190612	19	19.05	6.35	7.94	1.2	●	●	●
	SNMG190616	19	19.05	6.35	7.94	1.6	●	●	●
	TNMG160404	16	9.525	4.76	3.81	0.4	●	●	●
	TNMG160408	16	9.525	4.76	3.81	0.8	●	●	●
	TNMG160412	16	9.525	4.76	3.81	1.2	●	●	●
	TNMG220408	22	12.7	4.76	5.16	0.8	●	●	●
	TNMG220412	22	12.7	4.76	5.16	1.2	●	●	●
	TNMG220416	22	12.7	4.76	5.16	1.6	●	●	●
	VNMG160404	16	9.525	4.76	3.81	0.4	●	●	●
	VNMG160408	16	9.525	4.76	3.81	0.8	●	●	●
	WNMG06T304	6	9.525	3.97	3.81	0.4	●	●	●
	WNMG06T308	6	9.525	3.97	3.81	0.8	●	●	●
	WNMG06T312	6	9.525	3.97	3.81	1.2	●	●	●
	WNMG060404	6	9.525	4.76	3.81	0.4	●	●	●
	WNMG060408	6	9.525	4.76	3.81	0.8	●	●	●
	WNMG060412	6	9.525	4.76	3.81	1.2	●	●	●
	WNMG080404	8	12.7	4.76	5.16	0.4	●	●	●
	WNMG080408	8	12.7	4.76	5.16	0.8	●	●	●
	WNMG080412	8	12.7	4.76	5.16	1.2	●	●	●

● Running Stock ○ Make-to-order

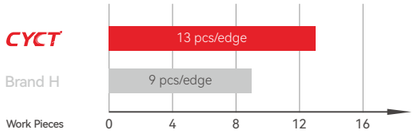
POSITIVE TURNING INSERTS FOR STAINLESS STEEL

Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	PVD CM7115A	CM7125A	CM7215
	CCMT060204-MM	6	6.35	2.38	2.8	0.4	●	●	●
	CCMT060208-MM	6	6.35	2.38	2.8	0.8	●	●	●
	CCMT09T304-MM	9	9.525	3.97	4.4	0.4	●	●	●
	CCMT09T308-MM	9	9.525	3.97	4.4	0.8	●	●	●
	CCMT120404-MM	12	12.7	4.76	5.16	0.4	●	●	●
	CCMT120408-MM	12	12.7	4.76	5.16	0.8	●	●	●
	CCMT120412-MM	12	12.7	4.76	5.16	1.2	●	●	●
	DCMT070204-MM	7	6.35	2.38	2.8	0.4	●	●	●
	DCMT070208-MM	7	6.35	2.38	2.8	0.8	●	●	●
	DCMT11T304-MM	11	9.525	3.97	4.4	0.4	●	●	●
	DCMT11T308-MM	11	9.525	3.97	4.4	0.8	●	●	●
	DCMT11T312-MM	11	9.525	3.97	4.4	1.2	●	●	●
	SCMT09T304-MM	9	9.525	3.97	4.4	0.4	●	●	●
	SCMT09T308-MM	9	9.525	3.97	4.4	0.8	●	●	●
	SCMT120404-MM	12	12.7	4.76	5.56	0.4	●	●	●
	SCMT120408-MM	12	12.7	4.76	5.56	0.8	●	●	●
	SCMT120412-MM	12	12.7	4.76	5.56	1.2	●	●	●
	TCMT110204-MM	11	6.35	2.38	2.8	0.4	●	●	●
	TCMT110208-MM	11	6.35	2.38	2.8	0.8	●	●	●
	TCMT16T304-MM	16	9.525	3.97	4.4	0.4	●	●	●
	TCMT16T308-MM	16	9.525	3.97	4.4	0.8	●	●	●
	VCMT110304-MM	11	6.35	3.18	2.8	0.4	●	●	●
	VCMT110308-MM	11	6.35	3.18	2.8	0.8	●	●	●
	VBMT160404-MM	16	9.525	4.76	4.4	0.4	●	●	●
	VBMT160408-MM	16	9.525	4.76	4.4	0.8	●	●	●
	VBMT160412-MM	16	9.525	4.76	4.4	1.2	●	●	●

● Running Stock ○ Make-to-order

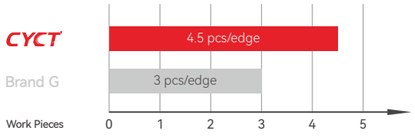
APPLICATION CASE

Workpiece Name: Flange Plate
Workpiece Material: Stainless Steel 304 (American Standard)
Work Process: External & End face Rough Turning
Insert Type: WNMG080408-MF
Insert Grade: CM7115A
Cutting Parameter: Vc=267m/min Ap=1.5mm F=0.06mm/r
Lifetime Comparison:



Compared with brand H, CYCT CM7115A can extend lifetime to 144%.

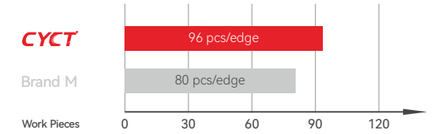
Workpiece Name: Accessories
Workpiece Material: Stainless Steel 207 Duplex
Work Process: External & End Face Rough Turning
Insert Type: WNMG080408-MF
Insert Grade: CM7115A
Cutting Parameter: Vc=273m/min Ap=1.5mm F=0.15mm/r
Lifetime Comparison:



Compared with brand G, CYCT CM7115A can extend lifetime to 150%.

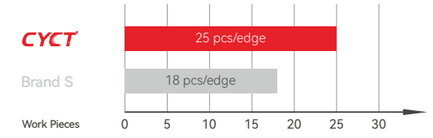
APPLICATION CASE

Workpiece Name: Flange
Workpiece Material: Stainless Steel 316
Insert Type: WNMG080408-MF
Insert Grade: CM7115A
Cutting Parameter: Vc=180m/min Ap=0.3mm F=0.1mm/r
Lifetime Comparison:



Compared with brand M, CYCT CM7115A can extend lifetime to 120%.

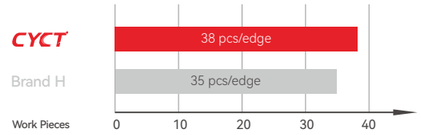
Workpiece Name: Nut
Workpiece Material: 304
Insert Type: WNMG080408-MM
Insert Grade: CM7125A
Cutting Parameter: Vc=120m/min Ap=1.5mm F=90mm/min
Lifetime Comparison:

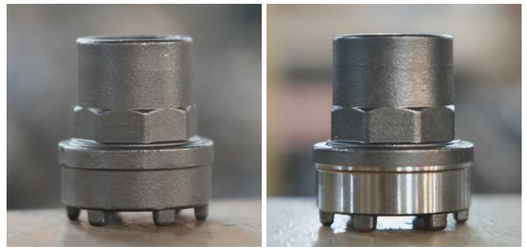


Compared with brand S, CYCT CM7125A can extend lifetime to 138%.

APPLICATION CASE

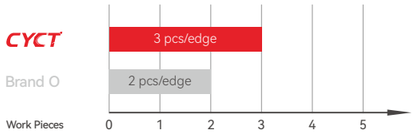
Workpiece Name: Valve Connector
Workpiece Material: Stainless Steel 304
Insert Type: TNMG160408-MQ
Insert Grade: CM7215
Cutting Parameter: Vc=94m/min Ap=1mm F=0.2mm/r
Lifetime Comparison:





Compared with brand H, CYCT CM7215 can extend lifetime to 108%.

Workpiece Name: Flange
Workpiece Material: Stainless Steel 304
Insert Type: WNMG080408-MQ
Insert Grade: CM7215
Cutting Parameter: Vc=110m/min Ap=2mm F=0.22mm/r
Lifetime Comparison:



Compared with brand O, CYCT Cm7215 can extend lifetime to 150%.

NEGATIVE TURNING INSERTS FOR CAST IRON

Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	CVD CK6005	CK6015	CK6015S
	CNMG120404-KM	12	12.7	4.76	5.16	0.4	●	●	○
	CNMG120408-KM	12	12.7	4.76	5.16	0.8	●	●	○
	CNMG120412-KM	12	12.7	4.76	5.16	1.2	●	●	○
	CNMG160608-KM	16	15.875	6.35	6.35	0.8	●	●	○
	CNMG160612-KM	16	15.875	6.35	6.35	1.2	●	●	○
	CNMG160616-KM	16	15.875	6.35	6.35	1.6	●	●	○
	CNMG190608-KM	19	19.05	6.35	7.94	0.8	●	●	○
	CNMG190612-KM	19	19.05	6.35	7.94	1.2	●	●	○
	CNMG190616-KM	19	19.05	6.35	7.94	1.6	●	●	○
	CNMG190624-KM	19	19.05	6.35	7.94	2.4	●	●	○
	DNMG110404-KM	11	9.525	4.76	3.81	0.4	●	●	○
	DNMG110408-KM	11	9.525	4.76	3.81	0.8	●	●	○
	DNMG150404-KM	15	12.7	4.76	5.16	0.4	●	●	○
	DNMG150408-KM	15	12.7	4.76	5.16	0.8	●	●	○
	DNMG150412-KM	15	12.7	4.76	5.16	1.2	●	●	○
	DNMG150604-KM	15	12.7	6.35	5.16	0.4	●	●	○
	DNMG150608-KM	15	12.7	6.35	5.16	0.8	●	●	○
	DNMG150612-KM	15	12.7	6.35	5.16	1.2	●	●	○

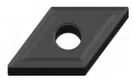
● Running Stock ○ Make-to-order

NEGATIVE TURNING INSERTS FOR CAST IRON

Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	CVD CK6005	CK6015	CK6015S
	SNMG120404-KM	12	12.7	4.76	5.16	0.4	●	●	○
	SNMG120408-KM	12	12.7	4.76	5.16	0.8	●	●	○
	SNMG120412-KM	12	12.7	4.76	5.16	1.2	●	●	○
	SNMG150608-KM	15	15.875	6.35	6.35	0.8	●	●	○
	SNMG150612-KM	15	15.875	6.35	6.35	1.2	●	●	○
	SNMG150616-KM	15	15.875	6.35	6.35	1.6	●	●	○
	SNMG190608-KM	19	19.05	6.35	7.94	0.8	●	●	○
	SNMG190612-KM	19	19.05	6.35	7.94	1.2	●	●	○
	SNMG190616-KM	19	19.05	6.35	7.94	1.6	●	●	○
	TNMG160404-KM	16	9.525	4.76	3.81	0.4	●	●	○
	TNMG160408-KM	16	9.525	4.76	3.81	0.8	●	●	○
	TNMG160412-KM	16	9.525	4.76	3.81	1.2	●	●	○
	TNMG220408-KM	22	12.7	4.76	5.16	0.8	●	●	○
	TNMG220412-KM	22	12.7	4.76	5.16	1.2	●	●	○
	TNMG220416-KM	22	12.7	4.76	5.16	1.6	●	●	○
	TNMG270412-KM	27	15.875	6.35	6.35	1.2	●	●	○
	TNMG270416-KM	27	15.875	6.35	6.35	1.6	●	●	○
	VNMG160404-KM	16	9.525	4.76	3.81	0.4	●	●	○
	VNMG160408-KM	16	9.525	4.76	3.81	0.8	●	●	○
	VNMG160412-KM	16	9.525	4.76	3.81	1.2	●	●	○
	WNMG080404-KM	8	12.7	4.76	5.16	0.4	●	●	○
	WNMG080408-KM	8	12.7	4.76	5.16	0.8	●	●	○
	WNMG080412-KM	8	12.7	4.76	5.16	1.2	●	●	○

● Running Stock ○ Make-to-order

NEGATIVE TURNING INSERTS FOR CAST IRON

Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	CVD CK6005	CK6015	CK6015S
	CNMG120404-CK	12	12.7	4.76	5.16	0.4	●	●	○
	CNMG120408-CK	12	12.7	4.76	5.16	0.8	●	●	○
	CNMG120412-CK	12	12.7	4.76	5.16	1.2	●	●	○
	CNMG160604-CK	16	15.875	6.35	6.35	0.4	●	●	○
	CNMG160608-CK	16	15.875	6.35	6.35	0.8	●	●	○
	CNMG160612-CK	16	15.875	6.35	6.35	1.2	●	●	○
	DNMG150404-CK	15	12.7	4.76	5.16	0.4	●	●	○
	DNMG150408-CK	15	12.7	4.76	5.16	0.8	●	●	○
	DNMG150412-CK	15	12.7	4.76	5.16	1.2	●	●	○
	SNMG120404-CK	12	12.7	4.76	5.16	0.4	●	●	○
	SNMG120408-CK	12	12.7	4.76	5.16	0.8	●	●	○
	SNMG120412-CK	12	12.7	4.76	5.16	1.2	●	●	○
	TNMG160404-CK	16	9.525	4.76	3.81	0.4	●	●	○
	TNMG160408-CK	16	9.525	4.76	3.81	0.8	●	●	○
	TNMG160412-CK	16	9.525	4.76	3.81	1.2	●	●	○
	VNMG160404-CK	16	9.525	4.76	3.81	0.4	●	●	○
	VNMG160408-CK	16	9.525	4.76	3.81	0.8	●	●	○
	VNMG160412-CK	16	9.525	4.76	3.81	1.2	●	●	○
	WNMG080404-CK	8	12.7	4.76	5.16	0.4	●	●	○
	WNMG080408-CK	8	12.7	4.76	5.16	0.8	●	●	○
	WNMG080412-CK	8	12.7	4.76	5.16	1.2	●	●	○

● Running Stock ○ Make-to-order

A
CEMENTED CARBIDE TURNING INSERTS

NEGATIVE TURNING INSERTS FOR CAST IRON

Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	CVD CK6005	CK6015
	CNMA120404	12	12.7	4.76	5.16	0.4	○	●
	CNMA120408	12	12.7	4.76	5.16	0.8	○	●
	CNMA120412	12	12.7	4.76	5.16	1.2	○	●
	CNMA160608	16	15.875	6.35	6.35	0.8	○	●
	CNMA160612	16	15.875	6.35	6.35	1.2	○	●
	CNMA160616	16	15.875	6.35	6.35	1.6	○	●
	CNMA190608	19	19.05	6.35	7.94	0.8	○	●
	CNMA190612	19	19.05	6.35	7.94	1.2	○	●
	CNMA190616	19	19.05	6.35	7.94	1.6	○	●
	DNMA150404	15	12.7	4.76	5.16	0.4	○	●
	DNMA150408	15	12.7	4.76	5.16	0.8	○	●
	DNMA150412	15	12.7	4.76	5.16	1.2	○	●
	SNMA120404	12	12.7	4.76	5.16	0.4	○	●
	SNMA120408	12	12.7	4.76	5.16	0.8	○	●
	SNMA120412	12	12.7	4.76	5.16	1.2	○	●
	SNMA150604	15	15.875	6.35	6.35	0.4	○	●
	SNMA150608	15	15.875	6.35	6.35	0.8	○	●
	SNMA150612	15	15.875	6.35	6.35	1.2	○	●
	SNMA190604	19	19.05	6.35	7.94	0.4	○	●
	SNMA190608	19	19.05	6.35	7.94	0.8	○	●
	SNMA190612	19	19.05	6.35	7.94	1.2	○	●
	SNMA190616	19	19.05	6.35	7.94	1.6	○	●

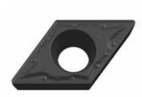
● Running Stock ○ Make-to-order

NEGATIVE TURNING INSERTS FOR CAST IRON

Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	CVD CK6005	CK6015
	TNMA160404	16	9.525	4.76	3.81	0.4	○	●
	TNMA160408	16	9.525	4.76	3.81	0.8	○	●
	TNMA160412	16	9.525	4.76	3.81	1.2	○	●
	TNMA220408	22	12.7	4.76	5.16	0.8	○	●
	TNMA220412	22	12.7	4.76	5.16	1.2	○	●
	TNMA220416	22	12.7	4.76	5.16	1.6	○	●
	VNMA160404	16	9.525	4.76	3.81	0.4	○	●
	VNMA160408	16	9.525	4.76	3.81	0.8	○	●
	VNMA160412	16	9.525	4.76	3.81	1.2	○	●
	WNMA080404	8	12.7	4.76	5.16	0.4	○	●
	WNMA080408	8	12.7	4.76	5.16	0.8	○	●
	WNMA080412	8	12.7	4.76	5.16	1.2	○	●

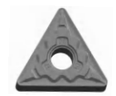
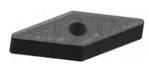
● Running Stock ○ Make-to-order

POSITIVE TURNING INSERTS FOR CAST IRON

Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	CVD CK6005	CK6015	CK6015S
	CCMT060204-KM	6	6.35	2.38	2.8	0.4	○	●	○
	CCMT060208-KM	6	6.35	2.38	2.8	0.8	○	●	○
	CCMT09T304-KM	9	9.525	3.97	4.4	0.4	○	●	○
	CCMT09T308-KM	9	9.525	3.97	4.4	0.8	○	●	○
	CCMT120404-KM	12	12.7	4.76	5.16	0.4	○	●	○
	CCMT120408-KM	12	12.7	4.76	5.16	0.8	○	●	○
	CCMT120412-KM	12	12.7	4.76	5.16	1.2	○	●	○
	DCMT070204-KM	7	6.35	2.38	2.8	0.4	○	●	○
	DCMT070208-KM	7	6.35	2.38	2.8	0.8	○	●	○
	DCMT11T304-KM	11	9.525	3.97	4.4	0.4	○	●	○
	DCMT11T308-KM	11	9.525	3.97	4.4	0.8	○	●	○
	DCMT11T312-KM	11	9.525	3.97	4.4	1.2	○	●	○
	SCMT09T304-KM	9	9.525	3.97	4.4	0.4	○	●	○
	SCMT09T308-KM	9	9.525	3.97	4.4	0.8	○	●	○
	SCMT120404-KM	12	12.7	4.76	5.56	0.4	○	●	○
	SCMT120408-KM	12	12.7	4.76	5.56	0.8	○	●	○
	SCMT120412-KM	12	12.7	4.76	5.56	1.2	○	●	○
	TCMT110204-KM	11	6.35	2.38	2.8	0.4	○	●	○
	TCMT110208-KM	11	6.35	2.38	2.8	0.8	○	●	○
	TCMT16T304-KM	16	9.525	3.97	4.4	0.4	○	●	○
	TCMT16T308-KM	16	9.525	3.97	4.4	0.8	○	●	○
	VCMT110304-KM	11	6.35	3.18	2.8	0.4	○	●	○
	VCMT110308-KM	11	6.35	3.18	2.8	0.8	○	●	○
	VBMT160404-KM	16	9.525	4.76	4.4	0.4	○	●	○
	VBMT160408-KM	16	9.525	4.76	4.4	0.8	○	●	○
	VBMT160412-KM	16	9.525	4.76	4.4	1.2	○	●	○

● Running Stock ○ Make-to-order

NEGATIVE TURNING INSERTS FOR HIGH HARDNESS MATERIALS

Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	PVD CH3005
	TNMG160404-MH	16	9.525	4.76	3.81	0.4	●
	TNMG160408-MH	16	9.525	4.76	3.81	0.8	●
	VNMG160404-MH	16	9.525	4.76	3.81	0.4	●
	VNMG160408-MH	16	9.525	4.76	3.81	0.8	●
	WNMG080404-MH	8	12.7	4.76	5.16	0.4	●
	WNMG080408-MH	8	12.7	4.76	5.16	0.8	●

● Running Stock ○ Make-to-order

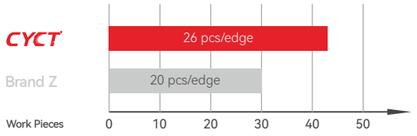
PARTING & GROOVING INSERTS

Shape	Type	Basic Dimension (mm) L	W	S	Re	PVD CA5120
	MGMN200-GM	16	2	3.5	0.2	●
	MGMN250-GM	18.5	2.5	3.5	0.2	●
	MGMN300-GM	21	3	4.8	0.4	●
	MGMN400-GM	21	4	4.8	0.4	●
	MGMN500-GM	26	5	5.8	0.4	●

● Running Stock ○ Make-to-order

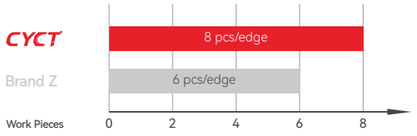
APPLICATION CASE

Workpiece Name: Brake Disc
Workpiece Material: Grey Cast Iron HT250
Insert Type: CNMG120408-CK
Insert Grade: CK6005
Cutting Parameter: Vc=280m/min Ap=0.2mm F=0.3mm/r
Lifetime Comparison:



Compared with brand Z, CYCT CK6005 can extend lifetime to 130%.

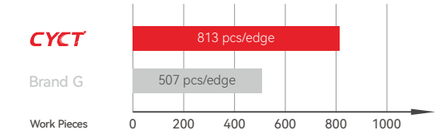
Workpiece Name: Motor Mount (D=364mm)
Workpiece Material: QT500
Insert Type: CNMG160612-CK
Insert Grade: CK6015
Cutting Parameter: Vc=308m/min Ap=2mm F=0.54mm/r
Lifetime Comparison:



Compared with brand Z, CYCT CK6015 can extend lifetime to 133%.

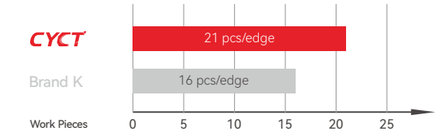
APPLICATION CASE

Workpiece Name: Flange Plate
Workpiece Material: Gray Cast Iron HT250
Work Process: Rough Turning External Circle & End face
Insert Type: WNMG080408-KM
Insert Grade: CK6015
Cutting Parameter: Vc=345m/min Ap=1.5mm F=0.3mm/r
Lifetime Comparison:



Compared with brand G, CYCT CK6015 can extend lifetime to 160%.

Workpiece Name: Connector
Workpiece Material: Stainless Steel 625
Insert Type: MGMN300-GM
Insert Grade: CA5120
Cutting Parameter: Vc=117m/min Ap=0.2mm F=40mm/r
Lifetime Comparison:



Compared with brand K, CYCT CA5120 can extend lifetime to 130%.

CYCT

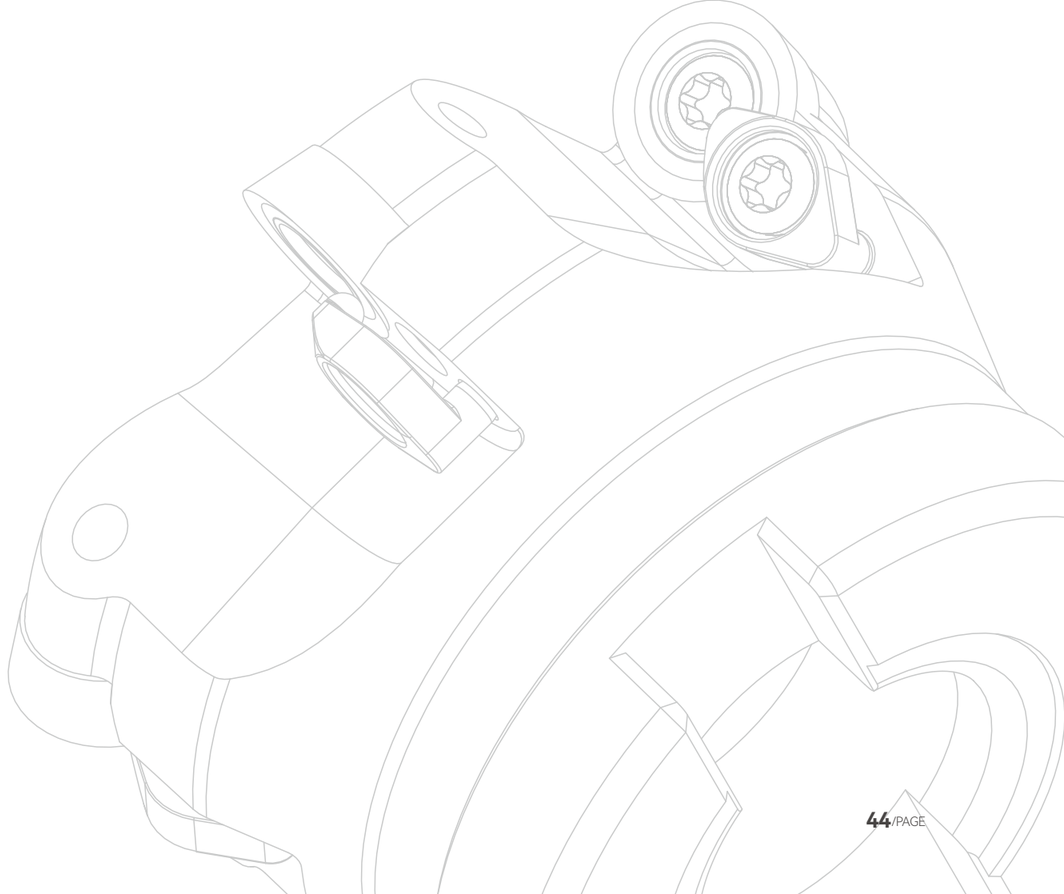
B

CEMENTED CARBIDE MILLING INSERTS

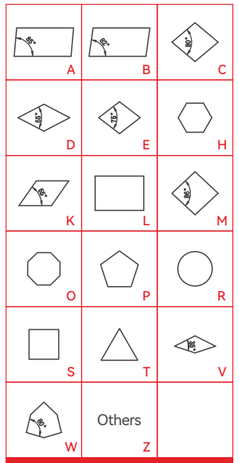
MILLING INSERTS FOR HIGH HARDNESS MATERIALS

GENERAL MILLING INSERTS

MILLING INSERTS FOR CAST IRON



MILLING INSERTS KEY CODE



Shape Code

Code	Relief Angle
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Others

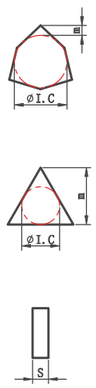
Relief Angle Code

Code	Hole	Chipbreaker	Section Sketch	Code	Hole	Chipbreaker	Section Sketch
B	Y	N	>55°	N	N	N	
H	Y	Single Side	>55°	R	N	Single Side	
C	Y	N	>55°	F	N	Double Side	
J	Y	Double Side	>55°	A	Y	N	
W	Y	N	≤55°	M	Y	Single Side	
T	Y	Single Side	≤55°	G	Y	Double Side	
Q	Y	N	≤55°	X	---	---	Special
U	Y	Double Side	≤55°				

Chipbreaker and Clamping System

A P M T

Tolerance



Code	Cutting Point Height (mm)	Inscribed Circle ΦTol.	Thickness Tol.(mm)
A	±0.005	±0.025	±0.025
F	±0.005	±0.013	±0.025
C	±0.013	±0.025	±0.025
H	±0.013	±0.013	±0.025
E	±0.025	±0.025	±0.025
G	±0.025	±0.025	±0.13
J	±0.005	±0.05~±0.13	±0.025
K	±0.013	±0.05~±0.13	±0.025
L	±0.025	±0.05~±0.13	±0.025
M	±0.08~±0.18	±0.05~±0.13	±0.13
N	±0.08~±0.18	±0.05~±0.13	±0.025
U	±0.13~±0.38	±0.08~±0.25	±0.13

• Cuttting Poing Height (mm) Tolerance

Inscribed Circle	Equilateral Triangle	Square	80° Rhomb	55° Rhomb	35° Rhomb	Round
6.35	±0.08	±0.08	±0.08	±0.11	±0.16	---
9.525	±0.08	±0.08	±0.08	±0.11	±0.16	---
12.7	±0.13	±0.13	±0.13	±0.15	---	---
15.875	±0.15	±0.15	±0.15	±0.18	---	---
19.05	±0.15	±0.15	±0.15	±0.18	---	---
25.4	---	±0.18	---	---	---	---

• Inscribed Circular ΦTolerance

Inscribed Circle	Equilateral Triangle	Square	80° Rhomb	55° Rhomb	35° Rhomb	Round
6.35	±0.05	±0.05	±0.05	±0.05	±0.05	---
9.525	±0.05	±0.05	±0.05	±0.05	±0.05	---
12.7	±0.08	±0.18	±0.08	±0.08	---	---
15.875	±0.10	±0.10	±0.10	±0.10	---	---
19.05	±0.10	±0.10	±0.10	±0.10	---	---
25.4	---	±0.13	---	---	---	---

MILLING INSERTS KEY CODE

Inscribed Circle Diameter (mm)	Inserts Shape C	D	R	S	T	V	W	K
3.97					6			
5.5			5					
5.56					9			
6			6					
6.35	6	7			11	11		
8			8					
9.525	9	11	9	9	16	16	6	16
10			10					
12			12					
12.7	12	15	12	12	22	22	8	
15.875	16		15	15	27			
16		19	16					
19.05	19		19	19	33			
20		25	20					
25	25		25					
25.4			25	25	25			
31.75			31	32	32			
32			32					

Cutting Edge Length Code

Code	Thickness (mm)
0	0.79
T0	0.99
01	1.59
T1	1.98
02	2.38
T2	2.78
03	3.18
T3	3.97
04	4.76
T4	4.96
05	5.56
T5	5.95
06	6.35
T6	6.75
07	7.94
09	9.52
T9	9.72
10	11.11
12	12.70

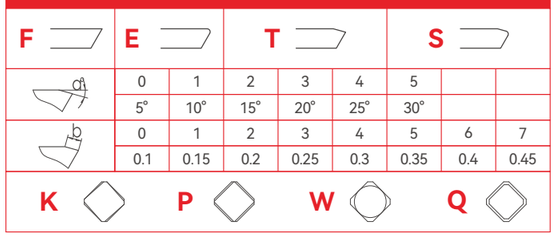
Insert Thickness

A	45°	A	3°
D	60°	B	5°
E	75°	C	7°
F	85°	D	15°
P	90°	E	20°
Z	Others	F	25°
		G	30°
		N	0°
		P	11°
		Z	Others

Wiper

16 05 PD E R — CM

Chamfering of Cutting Edge



Cutting Direction

Code	Direction
R	Right
L	Left
N	Neutral

Chipbreaker Code

CR	CM

MILLING INSERTS

Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	PVD CA5105	CA5120	CK6020
	APMT1135PDER-CM	11.25	6.26	3.5	2.8	0.8	●	●	●
	APMT1604PDER-CM	17.44	9.32	5.2	4.4	0.8	●	●	●
	RPMT1003MO-CM		10	3.18	4.6	5	●	●	●
	RPMT1204MO-CM		12	4.76	4.4	6	●	●	●
	RPMT10T3		10	3.97	4	5	●	●	●
	RPMT1204MO-CR		12	4.76	4.45	6	●	●	●
	RPMT1604MO-CM		16	4.76	5.6	8	●	●	●
	ROMX2006MOT		20	6.35	6.5	10	●	●	●

● Running Stock ○ Make-to-order

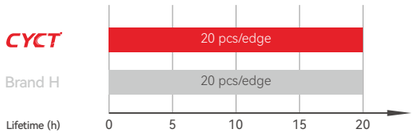
MILLING INSERTS

Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	PVD CA5105	CA5120	CK6020
	XNMU060508	6	13	5.56	4.32	0.8	●	●	●
	ONGU050403-CR	5	12.7	4.76	4.4	0.3	●	●	●
	ONMU060408-CR	6	15.875	4.9	4.35	0.8	●	●	●
	ONGU080508-CR	8	20.2	5.8	5.4	0.8	●	●	●
	ODMT0605ANN-CR	6	15.875	5.56	5.5	0.8	●	●	●
	ODMT050408-CR	5	12.7	4.76	4.4	0.8	●	●	●
	WNMU060408R-CM	6	10.15	4.36	4.2	0.8	●	●	●
	WNMU040304EN-CM	4	6.7	3.06	3.2	0.4	●	●	●
	SNMU1206ANN-CM	12	12.7	5.5	5.95	0.8	●	●	●
	SNMU120612-CM	12	12.7	5.56	6	1.2	●	●	●

● Running Stock ○ Make-to-order

APPLICATION CASE

Workpiece Name: Flange
Workpiece Material: Stainless Steel 304
Insert Type: APMT1135PDER-CM
Insert Grade: CA5105
Cutting Parameter: Vc=75m/min Ap=0.5mm F=2200mm/min
Lifetime Comparison:



Compared with brand H, CYCT CA5105 lifetime is equivalent.

Workpiece Name: Mould
Workpiece Material: 1.2343 Mould Steel (HRC50-52)
Work Process: Rough Milling Cavity
Insert Type: RPMT1204MO-CM
Insert Grade: CA5105
Cutting Parameter: N=2000RPM Ap=0.3mm F=1800mm/min
Ae=2.5mm
Lifetime Comparison:

Compared with brand H, CYCT CA5105 can extend lifetime to 120%.

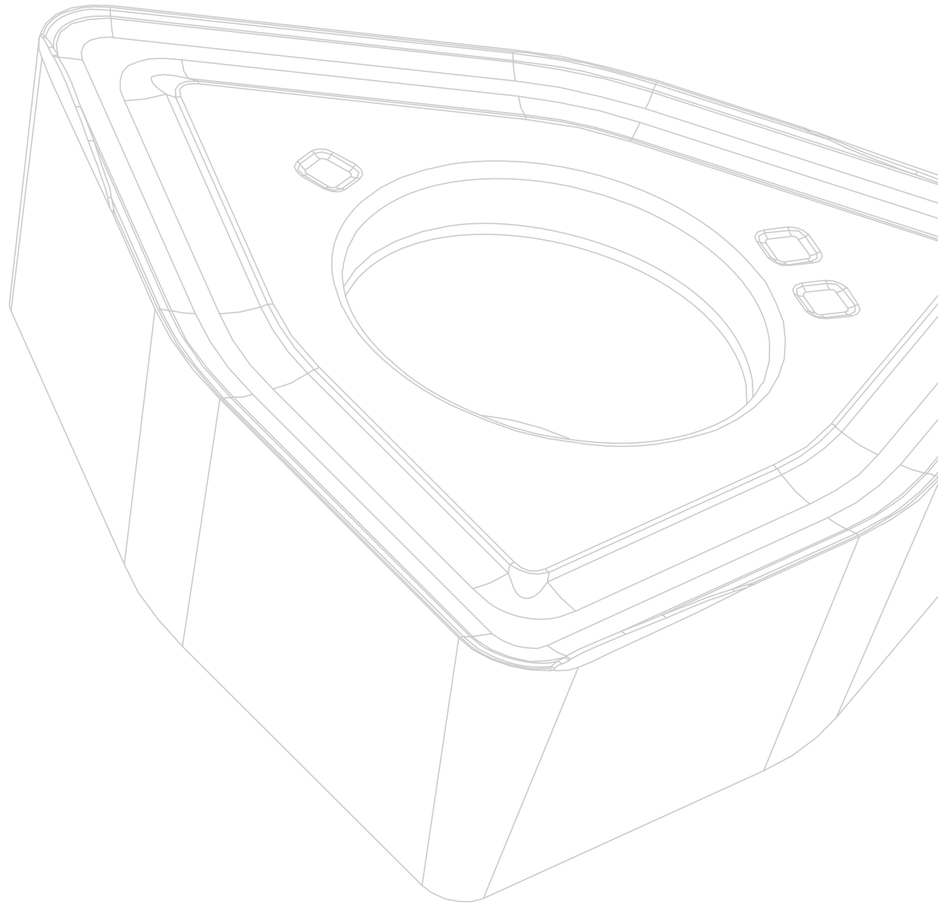
APPLICATION CASE

Workpiece Name: Mold Parts
Workpiece Material: P20Carbon Steel (HRC20)
Insert Type: RPMT1204MO-CM
Insert Grade: CA5120
Cutting Parameter: Vc=180m/min Ap=2mm F=0.35mm/z
Lifetime Comparison:

Compared with brand O, CYCT CA5120 can extend lifetime to 125%.

C

CEMENTED CARBIDE DRILLING INSERTS



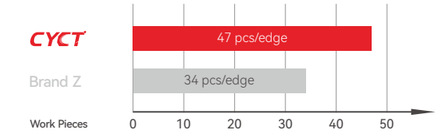
SHALLOW HOLE DRILLING INSERTS

Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	PVD CA5105	CA5110	CA5120
	SPMG050204-DG	5	5	2.38	2.2	0.4	●	●	●
	SPMG060204-DG	6	6	2.38	2.6	0.4	●	●	●
	SPMG07T308-DG	7.94	7.94	3.97	2.8	0.8	●	●	●
	SPMG090408-DG	9.8	9.8	4.3	4.2	0.8	●	●	●
	SPMG110408-DG	11.5	11.5	4.76	4.4	0.8	●	●	●
	SPMG140512-DG	14.3	14.3	5.2	5.75	1.2	●	●	●
	WCMX030208	3	5.56	2.38	2.8	0.8	●	●	●
	WCMX040208	4	6.35	2.38	3.1	0.8	●	●	●
	WCMX050308	5	7.94	3.18	3.2	0.8	●	●	●
	WCMX06T308	6	9.525	3.97	3.7	0.8	●	●	●
	WCMX080412	8	12.7	4.76	4.4	1.2	●	●	●

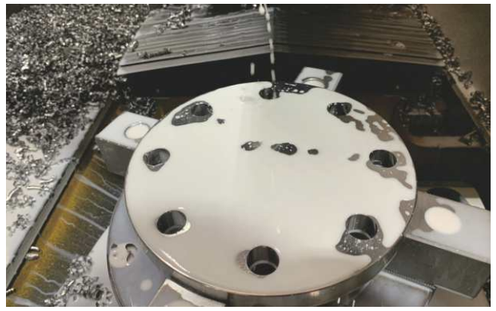
● Running Stock ○ Make-to-order

APPLICATION CASE

Workpiece Name: Flange
Workpiece Material: Stainless Steel 304
Insert Type: SPMG050204-DG
Insert Grade: CA5110
Cutting Parameter: Vr=90r/min Ap=2mm F=50mm/min
Lifetime Comparison:



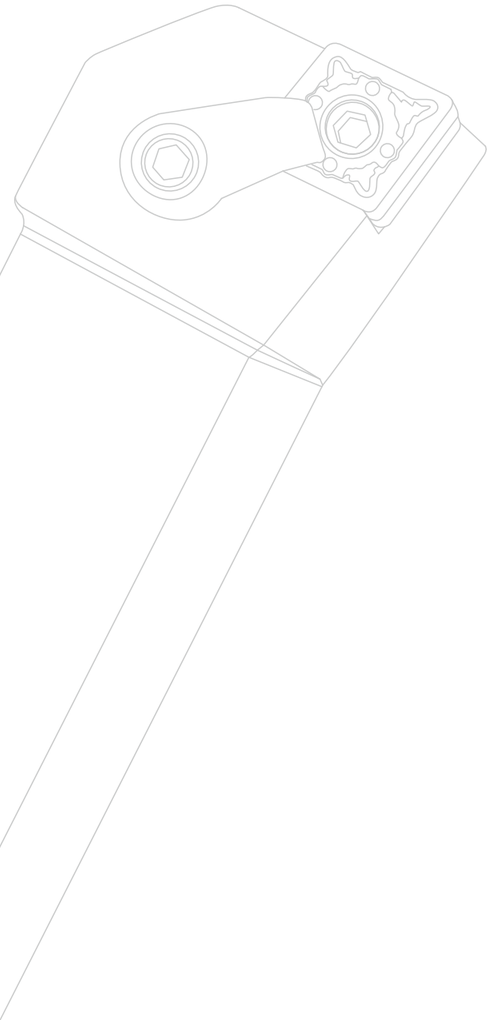
Compared with brand Z, CYCT CA5110 can extend lifetime to 138%.



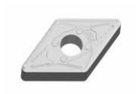
CYCT

D

CERMET INSERTS



NEGATIVE CERMET INSERTS

Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	PVD CMT55	CMT80A	CP80TM
	CNMG120404-MM	12	12.7	4.76	5.16	0.4	○	●	●
	CNMG120408-MM	12	12.7	4.76	5.16	0.8	○	●	●
	CNMG120412-MM	12	12.7	4.76	5.16	1.2	○	●	●
	DNMG110404-MM	11	9.525	4.76	3.81	0.4	○	●	●
	DNMG110408-MM	11	9.525	4.76	3.81	0.8	○	●	●
	DNMG150404-MM	15	12.7	4.76	5.16	0.4	○	●	●
	DNMG150408-MM	15	12.7	4.76	5.16	0.8	○	●	●
	DNMG150412-MM	15	12.7	4.76	5.16	1.2	○	●	●
	DNMG150604-MM	15	12.7	6.35	5.16	0.4	○	●	●
	DNMG150608-MM	15	12.7	6.35	5.16	0.8	○	●	●
	SNMG120404-MM	12	12.7	4.76	5.16	0.4	○	●	●
	SNMG120408-MM	12	12.7	4.76	5.16	0.8	○	●	●
	SNMG120412-MM	12	12.7	4.76	5.16	1.2	○	●	●
	TNMG160404-MM	16	9.525	4.76	3.81	0.4	○	●	●
	TNMG160408-MM	16	9.525	4.76	3.81	0.8	○	●	●
	TNMG160412-MM	16	9.525	4.76	3.81	1.2	○	●	●
	VNMG160404-MM	16	9.525	4.76	3.81	0.4	○	●	●
	VNMG160408-MM	16	9.525	4.76	3.81	0.8	○	●	●
	VNMG160412-MM	16	9.525	4.76	3.81	1.2	○	●	●
	WNMG080404-MM	8	12.7	4.76	5.16	0.4	○	●	●
	WNMG080408-MM	8	12.7	4.76	5.16	0.8	○	●	●
	WNMG080412-MM	8	12.7	4.76	5.16	1.2	○	●	●

● Running Stock ○ Make-to-order

POSITIVE CERMET INSERTS

Shape	Type	Basic Dimension (mm) L	IC	S	d	Re	PVD CMT55	CMT80A	CP80TM
	CCMT060204-MM	6	6.35	2.38	2.8	0.4	○	●	●
	CCMT060208-MM	6	6.35	2.38	2.8	0.8	○	●	●
	CCMT09T304-MM	9	9.525	3.97	4.4	0.4	○	●	●
	CCMT09T308-MM	9	9.525	3.97	4.4	0.8	○	●	●
	CCMT120404-MM	12	12.7	4.76	5.16	0.4	○	●	●
	CCMT120408-MM	12	12.7	4.76	5.16	0.8	○	●	●
	CCMT120412-MM	12	12.7	4.76	5.16	1.2	○	●	●
	DCMT070204-MM	7	6.35	2.38	2.8	0.4	○	●	●
	DCMT070208-MM	7	6.35	2.38	2.8	0.8	○	●	●
	DCMT11T304-MM	11	9.525	3.97	4.4	0.4	○	●	●
	DCMT11T308-MM	11	9.525	3.97	4.4	0.8	○	●	●
	DCMT11T312-MM	11	9.525	3.97	4.4	1.2	○	●	●
	SCMT09T304-MM	9	9.525	3.97	4.4	0.4	○	●	●
	SCMT09T308-MM	9	9.525	3.97	4.4	0.8	○	●	●
	SCMT120404-MM	12	12.7	4.76	5.56	0.4	○	●	●
	SCMT120408-MM	12	12.7	4.76	5.56	0.8	○	●	●
	SCMT120412-MM	12	12.7	4.76	5.56	1.2	○	●	●
	TCMT110204-MM	11	6.35	2.38	2.8	0.4	○	●	●
	TCMT110208-MM	11	6.35	2.38	2.8	0.8	○	●	●
	TCMT16T304-MM	16	9.525	3.97	4.4	0.4	○	●	●
	TCMT16T308-MM	16	9.525	3.97	4.4	0.8	○	●	●
	VCMT110304-MM	11	6.35	3.18	2.8	0.4	○	●	●
	VCMT110308-MM	11	6.35	3.18	2.8	0.8	○	●	●
	VBMT160404-MM	16	9.525	4.76	4.4	0.4	○	●	●
	VBMT160408-MM	16	9.525	4.76	4.4	0.8	○	●	●
	VBMT160412-MM	16	9.525	4.76	4.4	1.2	○	●	●

● Running Stock ○ Make-to-order

PARTING & GROOVING INSERTS

Shape	Type	Basic Dimension (mm)				PVD		
		L	W	S	Re	CMT55	CMT80A	CP80TM
	MGMN200-GM	16	2	3.5	0.2	○	●	●
	MGMN250-GM	18.5	2.5	3.5	0.2	○	●	●
	MGMN300-GM	21	3	4.8	0.4	○	●	●
	MGMN400-GM	21	4	4.8	0.4	○	●	●
	MGMN500-GM	26	5	5.8	0.4	○	●	●

● Running Stock ○ Make-to-order

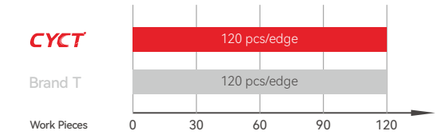
MILLING INSERTS

Shape	Type	Basic Dimension (mm)					PVD		
		L	IC	S	d	Re	CMT55	CMT80A	CP80TM
	APMT1135PDER-CM	11.25	6.26	3.5	2.8	0.8	○	●	●
	APMT1604PDER-CM	17.44	9.32	5.2	4.4	0.8	○	●	●
	RPMT1003MO-CM		10	3.18	4.6	5	○	●	●
	RPMT1204MO-CM		12	4.76	4.4	6	○	●	●

● Running Stock ○ Make-to-order

APPLICATION CASE

Workpiece Name: Engeering Parts Matrixs
Workpiece Material: 35Mn
Insert Type: CCMT09T304-MM
Insert Grade: CMT80A
Cutting Parameter: Vr=1712r/min Ap=0.7mm F=113mm/min
Lifetime Comparison:



Compared with Brand T, CYCT CMT80A lifetime is equivalent.

E

GENERAL TECHNICAL GUIDE

SELECTION METHOD OF CUTTING TOOLS

Selection of Turning Tools:

1. Understanding of workpiece material, machine model and process status.
2. Select the inserts configuration, cutting main deflection angle and clamping method.
3. Confirm the left and right directions and dimensions of the holder.
4. Determine the insert type.

Selection of Milling Tools:

1. Understanding of workpiece material, machine model and process status.
2. Confirm machining type. (face milling, square shoulder milling, profiling milling, slot milling.)
3. Determine to use solid end mill or indexable milling inserts.
4. Determine the interface and size of the milling tools.
5. Determine inserts type.

Selection of Drilling Tools:

1. Understanding of workpiece material, machine model and process status.
2. Determine the basic types of tools. (drilling, boring, reaming, threading, etc.)
3. Determine to use integrated drilling or indexable drilling tool.
4. Determine the interface and size of the tool.
5. Determine inserts type and grade.

CARBIDE PRODUCTS SAFETY STANDARD

Safety Responsibility

Before using products by CY Carbide MFG. CO., LTD., the operator shall have necessary safety training and read safety precautions on the product package carefully. The company will not take any legal responsibility for any loss caused by not using and operating according to relevant requirements.

Precautions for Use of Cemented Carbide Tools

1. Cemented carbide edge is sharp, material hardness is high, and it is relatively brittle. Large force can cause brittle fracture and damage.
2. Chips are inevitably generated in the cutting process. Operators must wear protective clothing, protective glasses and other labor protection articles.
3. The density of cemented carbide is high. The handling and storage shall be treated as heavy objects and handle with care.
4. Hard alloy tools shall be stored in a dry and non-corrosive atmosphere.
5. The thermal expansion coefficient of cemented carbide is different from that of steel. Welding shall be carried out at appropriate tempera-ture to avoid welding cracks caused by concentrated stress.
6. In order to improve the service life of the machine tool and cutting tool, please select the cooling mode correctly.
7. Do not continue to use the tool with cracks during processing and production.
8. Please recycle and keep the worn and replaced cemented carbide tools and fragments to avoid injury caused by others.

SAFETY PROBLEMS AND PROTECTIVE MEASURES

Possible safety issues	Protective Measures
When cutting, clothing, gloves, and long hair are easily entangled in to the high speed running machine.	Do not wear gloves to operate when rotary cutting. Please hide your long hair in the work cap. Always pay attention not to let clothes contact rotating parts.
Improper use of cutting tools can damage itself, accessories fly out and cause injuries.	Read the catalogue and safety standards before use. Please wear safety glasses and protective clothing.
Direct contact with the sharp edge of the tool may cause human body injuries.	Please wear gloves and other labor protection appliances when loading and unloading cutting tools.
Chips during cutting may cause scratches and scalds to human body.	Use cleaning instruments to remove chips in time. Please wear protective glasses, protective clothing and gloves.
The burr and other defects on the processed part are very sharp and easy to scratch the human body.	Do not touch the burr and other defects on the machined part. Please wear protective clothing, gloves and other labor protection appliances.
If the machined part is directly cut without clamping, it will cause damage to the tool andspatter of the machined part.	The machined part must be clamped. Please wear protective glasses, protective clothing and gloves.
If the insert or its accessories are not clamped properly, the cutting tool may fall off and fly out, causing injuries.	Before machining, make sure that the insert and other accessories have been fastened properly with proper tools.
During high-speed cutting, chips flying out at a high speed may cause injuries.	Use safety cover, protective screen, outer cover, etc. Please wear protective glasses, protective clothing and gloves.
When the insert or its accessories are at a high speed, they may fall off and fly out under the action of inertial centrifugal force, thus cause injuries.	Please use cutting tools according to the range recommendation. Please wear safety glasses and protective clothing.

SAFETY PROBLEMS AND PROTECTIVE MEASURES

Possible safety issues	Protective Measures
The edge of the milling cutting tools is sharp, and direct touch by hands may cause scratches.	When touching cutting tools, please wear gloves and other labor protection appliances.
Excessive wear and severe impact increase the cut-ting resistance, which may break the tool to splash, and lead injuries to the operator as a result.	Replace excessively worn cutting tools in time. Please wear safety glasses and protective clothing.
Sparks and high temperature chips generated during cutting may cause fire and explosion.	Remove flammable and explosive materials in the cutting area. Prepare fire-fighting equipment.
Poor balance of the fixtures will cause severe vibra-tion to running machines at a high speed, and as a result damage the cutting tools.	Before cutting, check looseness or abnormal sound of the equipment. Please wear safety glasses and protective clothing.
When the auxiliary tools such as bolt or pressing plate are over tightened,the insert or the tool may be damaged and splashed.	Do not over tighten by auxiliary tools such as sleeves.
The tools with eccentric rotation or poor balance may shake or vibrate during rotary processing, which may cause damage and scattering.	Please use the tool within the speed range allowance. Regularly check the balance performance of the machine.
When drilling with extremely small cutting tools, it is easy to break the tools, splash and failure to take out.	Reduce the vibration of the tool and process at a suitable running speed. Please wear protective glasses, protective clothing and gloves.
Violating the regulations to use the tool will increase wear of machine and cutting tools, and cause other hazards.	Please use according to the instructions and regulations.

Remark: The accident caused by tools or using it for other purposes without our permission shall be borne by yourselves.

INSERTS METRIC AND INCH COMPARISON TABLE

Negative C	ISO	Inch
	090304	321
	090308	322
	120404	431
	120408	432
	120412	433
	120416	434
	160608	542
	160612	543
	160616	544
	190608	642
	190612	643
	190616	644
	190624	646
	250724	856
	250732	858
	250924	866
	250932	868

Negative S	ISO	Inch
	090304	321
	090308	322
	090312	323
	120404	431
	120408	432
	120412	433
	120416	434
	160608	542
	160612	543
	160616	544
	190412	633
	190424	636
	190612	643
	190616	644
	250724	856
	250732	858
	250924	866
	250932	868

Negative D	ISO	Inch
	110404	331
	110408	332
	110412	333
	150404	431
	150408	432
	150412	433
	150604	441
	150608	442
	150612	443
	150616	444
	190608	542
	190612	543

Negative T	ISO	Inch
	110304	221
	110308	222
	160404	331
	160408	332
	160412	333
	220404	431
	220408	432
	220412	433
	220416	434
	270608	542
	270612	543
	270616	544

Negative R	ISO	Inch
	0903MO	32
	1204MO	43

Negative V	ISO	Inch
	160404	331
	160408	332
	160412	333

Negative W	ISO	Inch
	06T304	3(2.5)1
	06T308	3(2.5)2
	06T312	3(2.5)3
	060404	331
	060408	332
	060412	333
	080404	431
	080408	432
	080412	433

CYCT

INSERTS METRIC AND INCH COMPARISON TABLE

Positive C	ISO	Inch
	060202	2(1.5)0
	060204	2(1.5)1
	060208	2(1.5)2
	09T302	3(2.5)0
	09T304	3(2.5)1
	09T308	3(2.5)2
	120404	431
	120408	432
	120412	433

Positive D	ISO	Inch
	070202	2(1.5)0
	070204	2(1.5)1
	070208	2(1.5)2
	11T302	3(2.5)0
	11T304	3(2.5)1
	11T308	3(2.5)2
	11T312	3(2.5)3

Positive S	ISO	Inch
	060204	2(1.5)1
	09T302	3(2.5)0
	09T304	3(2.5)1
	09T308	3(2.5)2
	120404	431
	120408	432
	120412	433
	150404	531
	150408	532
	150412	533
	190408	632
	190412	633
	190416	634

Positive T	ISO	Inch
	06T102	1.2(1.2)0
	06T104	1.2(1.2)1
	06T108	1.2(1.2)2
	090202	1.8(1.5)0
	090204	1.8(1.5)1
	090208	1.8(1.5)2
	110202	2(1.5)0
	110204	2(1.5)1
	110208	2(1.5)2
	110302	220
	110304	221
	110308	222
	16T302	3(2.5)0
	16T304	3(2.5)1
	16T308	3(2.5)2
	16T312	3(2.5)3
	160400	330
	220408	432
	220412	433
	220416	434
	270408	532
	270412	533
	330612	643
	330616	644

Positive V	ISO	Inch
	110202	2(1.5)0
	110204	2(1.5)1
	110208	2(1.5)2
	110302	220
	110304	221
	110308	222
	160402	330
	160404	331
	160408	332
	160412	333

E
GENERAL TECHNICAL GUIDE

CHIPBREAKER COMPARISON TABLE

Negative Inserts

ISO	PROCESSING CATEGORY	CYCT	TaeguTec	KENNAMETAL	HITACHI	ZCCCT	SANDVIK	TUNGALOY	KYOCERA	KORLOY	SUMITOMO	MISTUBISHI
P	Finishing	PF	FG,FA	LF,FN	BE,CE,BH	DF	XF,PF,MF	TSF,ASNS,27	HQ,CQ,CJ, PQ,VF,GP	HF	SU,LU,SX, SP,FP,FA, FL,SE,STC	C,SA, SH,LP
	Finishing (WIPER)		WS,EA, WT,MG	FW,MW,RW		WG	WP,WF, WM,WMX	AFW,ASW	WP,WQ	HW	LUW,SEW, GUW	SW,MW
	Semi-Finishing	PM	ML,ET,MP, MC,SM,MT	MN,P,MG	AB,AY AR, AH,CT	DM,PM	PM,QM, SM,XM	TM,DM,ZM, NM,33,38,37, TH,32Y,32,37	CJ,GS,HK, PS,HS,PT,CS	HC,HM,HA	GU,UG,UX, GE,UA,UM	MV,MP,MZ, MA,MH
	Roughing	PH	RT,RH,HT	MR,RMn, RH,PR,MG	HX,HE,H	DR,HDR	QR,MR,PR, HR,23	57,65,TU31, 33,F-K THS	HX,PX,PH	HR,HH	MP,HG,HP, MC,MU, MX UZ	HZ,HX,HV,HZ, HXD,HA,HAS, HBS,HCS, HDS,HXD
M	Finishing	MF	FG,SF	K,FP	MP,SE	EF	MF	SS	GU,MQ	HA	SU	FS,SH, J,LM
	Semi-Finishing	MM,MQ, CM	ML,MP, EM,VF	P,MP	PV,DE,AH	EM	MM,K	SA,SMS,SF	SU,HU,MU, MS,ST,TK	HS	EX,UP,MU, HM,GU	MS,ES,MA, MJ,MH,GM, MM,ES,2G
	Roughing		TRH	UP,RP		ER	MR	TH,SH		GS,HM	MP,MU, HP,HG	GH,HZ,RM
K	Finishing		FG	FN	VA,AH	PM	KF	Y,CF		WITHOUT CHIPBREAKER	UZ	ALL-ROUND CHIPBREAKER, MA
	Semi-Finishing	CK	MC,MT,MG	ALL-ROUND CHIPBREAKER, P,UN,UM,RP	Y,V	PM	KM	ALL-ROUND CHIPBREAKER, CF,CM,33	ZS,C, ALL-ROUND CHIPBREAKE	ALL-ROUND CHIPBREAKER	UX,GZ, UX,UJ	ALL-ROUND CHIPBREAKER
	Roughing	KM	RH,RT	UN,MG		WITHOUT CHIPBREAKER	KR	CH	WITHOUT CHIPBREAKER GC	HR,GH,GR	WITHOUT CHIPBREAKER, UZ,MU,MM	WITHOUT CHIPBREAKER

Positive Inserts

ISO	PROCESSING CATEGORY	CYCT	TaeguTec	KENNAMETAL	HITACHI	ZCCCT	SANDVIK	TUNGALOY	KYOCERA	KORLOY	SUMITOMO	MISTUBISHI
P	Finishing	MF,PF	FA,FG	11,UF, GF,LF,FP	JQ	SF,HF	UF,PF	01,PF, FS,JS	GP,CK,XP,VF, CF,GQ,GF	HFP	FP,LU,FC, SU,SK,FK	FV,SV,FP, SQ,SMG
	Semi-Finishing	PM	MT,CMX	MF,MP	JE	HM	UM,WF,PM	PM,PS,PF, PSF,PSS, 23,24	HQ,XQ,GK	HMP,C25	MU,SC	MV,MQ,AM,MP, ALL-ROUND CHIPBREAKER
M	Finishing	MF	FA,FG	FW,MW,FP	MP	EF	MF	SS&	CF,CK,GQ, GF,DP	HFP	LU	SV,FV
	Semi-Finishing	MM,PM	MT,CMX	MP		EM	MM	PM	HQ,GK	HMP,C25		FM,MV,LM, ALL-ROUND CHIPBREAKER
K	Semi-Finishing	KM,PM	MT,CMX			WITHOUT CHIPBREAKER, HR,HM	KM,KR,KF	WITHOUT CHIPBREAKER, CM	WITHOUT CHIPBREAKER	HMP,C25	WITHOUT CHIPBREAKER	WITHOUT CHIPBREAKER
N	GENERAL CUTTING		FL	HP		LH	AL	PP,AL	A3,AH	TA,AK	AG,AW,FY	AZ

GRADE COMPARISON TABLE

Category	ISO Code	CYCT	TaeguTec	KENNAMETAL	HITACHI	ZCCCT	SANDVIK	TUNGALOY	KYOCERA	KORLOY	SUMITOMO
CVD	P01			KCP05 KC9105	HC5000 HG8010		GC4005 GC4205	T9005 T9105	CA5505		AC700G AC810P
	P10	CP8015	TT8115	KCP10 KCP25 KC9110	HG8010 HG8020 GM8015 GM10	YBC151 YBC152	GC4015 GC4215	T9005 T9105 T9115	CA5505 CA5515	NC3010 NC3015	AC810P AC820P
	P20	CP8025 CP8025S	TT5100 TT8125	KCP25 KC9125 KC9225	HG8025 GM8020 GM25	YBC251 YBC252	GC4015 GC4025 GC4225 GC2015	T9115 T9015 T9025 T9125	CA5515 CA5525 CA5025 CR9025	NC3020 NC3120	AC820P
	P30	CP8025 CP8035	TT8125 T5100	KCP30 KCP40 KC8050	GM8035 GM25	YBC252 YBC351	GC4025 GC4225 GC4035 GC2025 GC4235	T9025 T9035 T9135 T9125	CA5525 CA5535 CR9025	NC3030	AC630M AC830P
	P40	CP8035	TT8135 TT7100	KC9140 KC9040 KC9240 KX9245 TN7035 TPC35	GM8035 GX30	YBC151 YBC352	GC4035 GC235 GC4235	T9035 T9135	CA5535	NC500H	AC610M
	K01	CK6005	TT7005	KCK05	HX3505 HG3305 GM3005	YBD052	GC3205 GC3210	T5105 T5010	CA4010 CA4505	NC6015	AC405K AC410K
	K10	CK6015 CK6015S	TT7015	KCK15 KCK20 KC9315	HX3515 HG3315 HG8010 GM8015	YBD102 YBD152 YBD152C	GC3205 GC3210 GC3215	T5010 T1115 T5115	CA4515 CA4010 CA4115	N305K NC6010 NC6110	AC415K
	K20		TT7105 TT7310 TT1500	KCK20 KC9110 KC9320	HG8025 GM8020	YBD152	GC3215	T5115 T5125 T5020	CA4515 CA4115 CA4120	N315K NC5330 PC5300 NC6010	AC420K AC700G
	K30			KC9125 KC9325		YBD252		T5125 T9125			AC820P

GRADE COMPARISON TABLE

Category	ISO Code	CYCT	TaeguTec	KENNAMETAL	HITACHI	ZCCCT	SANDVIK	TUNGALOY	KYOCERA	KORLOY	SUMITOMO	MISTUBISHI
PVD	M10	CM7115A	TT5030	KC5010 KC5510 KC6005 KC6015	IP050S	YBG102 YBG105	GC1005 GC1025 GC1105 GC1125	AH710	PR915 PR1025 PR1215 PR1225		AC510U	VP10MF
	M20	CM7125A CM7215	TT9080	KC5025 KC730 KC5525 KC7020 KC7025	IP100S	YBG202	GC1020 GC1025 GC1125 GC4125	AH710 AH725 AH120 SH730 GH730 GH130 GH330 AH630	PR915 PR930 PR1025 PR1125 PR1215 PR1225	PC9030	AC520U	VP10RT VP20RT VP15TF VP20MF
	M30			KC7030 KC7225		YBG202 YBG205 YBG302	GC1020 GC1125 GC2035	AH120 GH330 AH645 SH730 GH730	PR1125	PC9030	AC520U AC530U	VP10RT VP20RT VP15TF VP20MF
	M40						GC2035 GC2145		PR905 PR1215		AC530U	MP7035
	P10	CA5105	TT8020	KC5010 KC5510 KU10T		YBG202 YBG205	GC1025 GC1525	AH710	PR915 PR1005 PR930 PR1025 PR1115 PR1225			VP10MF
	P20	CA5120	TT6080	KC5025 KC5525 KC7215 KC7315 KU25T	IP2000	YBG102 YBG105	GC1020 GC1025 GC1525 GC1125	Ah710 AH330 AH725 AH120 SH730 GH730 GH130	PR930 PR1025 PR1115 PR1225	PC230		VP10RT VP20RT VP15TF VP20MF
	P30	CA5125		KC7015 KC7020 KC7035 KU25T	IP3000	YBG202 YBG302	GC1025 GC4125 GC1125	AH710 AH330 AH725 AH120 SH730 GH730 GH130	PR930 PR1025 PR1115 PR1225	PC3535 PC3545	AC530U	VP10RT VP20RT VP15TF VP20MF
	P40		Tt8020	KC7030 KC7040 KC7140			GC1020 GC2145	AH740	PR630 PR660	PC240		VP15TF VP20MF

GRADE COMPARISON TABLE

Category	ISO Code	CYCT	TaeguTec	KENNAMETAL	HITACHI	ZCCCT	SANDVIK	TUNGALOY	KYOCERA	KORLOY	SUMITOMO	MITSUBISHI
PVD	M10	CA5110	TT5030	KC5010 KC5510 KC6005 KC6015	IP050S	YBG102 YBG105	GC1005 GC1025 GC1105 GC1125	AH710	PR915 PR1025 PR1215 PR1225		AC510U	VP10MF
	M20	CA5120	TT9080	KC5025 KCT30 KC5525 KC7020 KC7025	IP100S	YBG202	GC1020 GC1025 GC1125 GC4125	AH710 AH725 AH120 SH730 GH730 GH130 GH330 AH630	PR915 PR930 PR1025 PR1125 PR1215 PR1225	PC9030	AC520U	VP10RT VP20RT VP15TF VP20MF
	M30	CA5125		KC7030 KC7225		YBG202 YBG205 YBG302	GC1020 GC1125 GC2035	AH120 GH330 AH645 SH730 GH730	PR1125	PC9030	AC520U AC530U	VP10RT VP20RT VP15TF VP20MF
	M40		TT8020				GC2035 GC2145		PR905 PR1215		AC530U	MP7035
	K10			KC5010 KC7210		YBG102 YBG105		AH710 GH110 AH110	PR905 PR1215	PC205K		
	K20	CA5120		Kc7015 KC7020 KC7215 KC7315		YBG202	GC1020	AH110 AH710 AH725 AH120 GH110 GH730 GH130		PC215K	AC510U	VP10RT VP20RT VP15TF
	K30			KC7225			GC4125	GH730 GH130 AH725 AH120				VP10RT VP20RT VP15TF

Category	ISO Code	CYCT	TaeguTec	KENNAMETAL	HITACHI	ZCCCT	SANDVIK	TUNGALOY	KYOCERA	KORLOY	SUMITOMO	MITSUBISHI
Cermet	K10	CMT55	CT3000	KT325 KT125		YNG151 YNG151C	CT5015	NS520 GT530 GT730 NS730	TN60 TN6020 PV60 PV7020	CC115	T1200A T2000Z	AP25N NX2525
	K10	CMT80A	CT3000	KT325 KT125		YNG151 YNG151C	CT5015	NS520 GT530 GT730 NS730	TN60 TN6020 PV60 PV7020	CC115	T1200A T2000Z	AP25N NX2525
	K10	CP80TM	CT3000						PV720			

MATERIAL COMPARISON TABLE

Steel

ISO	Nations And Standard										
	CHN	GER		USA	GBR		IT	ES	SE	FR	JPN
	GB(P)	W-nr	DIN	AISI/SAE	BS	EN	UNI	UNE	SS	AFNOR	JIS
Carbon Steel	15	1.0401	C15	1015	080M15		C15C16	F.111	1350	CC12	
	20	1.0402	C22	1020	050A20	2C	C20C21	F.112	1450	CC20	
	35	1.0501	C35	1035	060A35		C35	F.113	1550	CC35	
	45	1.0503	C45	1045	080M40		C45	F.114	1650	CC45	
	55	1.0535	C55	1055	070M55		C55		1655		
	60	1.0601	C60	1060	080A62	43D	C60			CC55	
	Y15	1.7015	9SMN28	1213	230M07		CF9SMn28	11SMn28	1912	S250	SUM22
Manganese Steel	40Mn	1.1157	40Mn4	1039	150M36	15				35M5	
	25	1.1158	Ck25	1025	150M28						S25C
	35Mn2	1.1167	36Mn5	1335				36Mn5	2120	40Mn5	SMn438(H)
	30Mn	1.117	28Mn6	1330		14A	C28Mn			20M5	SCMn1
	35Mn	1.1183	Cf35	1035	060A35		C36		1572	XS38TS	S35C
		1.0718	9SMnPb28	12L13			CF9MnPb28	11SMnPb28	1914	S250Pb	SUM22L
		1.0722	10SPb20				CF10Pb20	10SPb		10PbF2	
		1.0726	35S20	1140	212M36	8M		F210G	1957	35MF4	
	Y13	1.0736	9SMn36	1215	240M07	1B	CF9SMn36	12SMn35		S300	
		1.0737	9SMnPb36	12L14			CF9SMnPb36	12SMnPb35	1926	S300Pb	
	55Si2Mn	1.0904	55Si9	9255	250A53	45	55Si8	56Si7	2085	55S7	
		1.0961	60SiCr7	9262			60SiCr8	60Sicr8		60SC7	
	15	1.1141	Ck15	1015	080M15	32C	C16	C15K	1370	XC12	S15C
	Ck45	1.1191	45	1045	080M46		C45	C45K	1672	XC42	S45C
	55	1.1203	Ck55	1055	070M55		C50	C55K		XC45	S55C
	50	1.1213	Cf53	1050	060A52		C53		1674	XC48TS	S50C
	60Mn	1.1221	Ck60	1060	080A62	43D	C60		1678	XC60	S68C
		1.1274	Ck101	1095	060A96				1870		SUP4
		1.3401	X120Mn12		Z120M12		XG120Mn12	X120Mn12		X120M12	SCMnH/1
	Gr15,45Gr	1.3505	100Cr6	52100	534A99	31	100Cr6	F.131	2258	100C6	SUJ2
		1.5415	15Mo3	ASTMA204Gr,A	1501-240		16Mo3KW	16Mo3	2912	15D3	
		1.5426	16Mo5	4520	1503-245-420		16Mo5	16Mo5			
		1.5622	14Ni6	ASTMA350LF5			14Ni6	15Ni6		16N6	
		1.5662	X8Ni9	ASTM A353	1501-509:510		X10Ni9	XBNi09			

MATERIAL COMPARISON TABLE

Steel

ISO	Nations And Standard										
	CHN	GER		USA	GBR		IT	ES	SE	FR	JPN
	GB(P)	W-nr	DIN	AISI/SAE	BS	EN	UNI	UNE	SS	AFNOR	JIS
Nickel Chromium Steel		1.5680	12Ni19	2515						Z18N5	
		1.5710	36NiCr6	3135	640A35	111A				35NC6	SNC236
		1.5732	14NiCr10	3415			16NiCr11	15NiCr11		14NC11	SNC415(H)
		1.5752	14NiCr14	3415,3310	655M13 655A12	36A				12NC15	SNC815(H)
Nickel Chromium Molybdenum Steel		1.6511	36CrNiMo4	9840	816M40	110	38CrNiMo4(KB)	35CrNiMo4		40NCD3	
		1.6523	21NiCrMo2	8620	850M20	362	20NiCrMo2	20NiCrMo2		20NCD2	SNCCM220(H)
		1.6546	40NiCrMo2	8740	311-Type7		40NiCrMo2(KB)	40NiCrMo2			SNC240
	40CrNiMoA	1.6582	34CrNiMo6	4340	817M40	24	35CrNiMo6(KB)		2503	35NCD6	
		1.6587	17CrNiMo6		820A16			14CrNiMo13		18NCD6	
Chromium Steel	15Cr	1.7015	15Cr3	5015	523M15				2541	12C3	SCr415(H)
	35Cr	1.7033	34Cr4	5132	530A32	18B	34Cr4(KB)	35Cr4		32C4	SCr430(H)
	40Cr	1.7035	41Cr4	5140	530M40	18	41Cr4	42Cr4		42C4	SCr440(H)
	40Cr	1.7045	42Cr4	5140				42Cr4	2245		SCr440
Manganese Steel	18CrMn	1.7131	16MnCr15	5155	527M20		16MnCr15	16MnCr15	2511	16MC5	
	20CrMn	1.7176	55Cr3	5115	527A60	48				55C3	SUP9(A)
	30CrMn	1.7218	25CrMo4	4130	1717CDS110		25CrMo4(KB)	55Cr3	2225	25CD4	SCM420 SCM430
	35CrMo	1.722	34CrMo4	4137,4135	708A37	19B	35CrMo4	34CrMo4	2234	35CD4	SCM432 SCRRM3
	40CrMoA	1.7223	41CrMo4	4140,4142	708M40	19A	41CrMo4	41CrMo4	2244	42CD4TS	SCM440
	42CrMo, 42CrMnMo	1.7225	42CrMo4	4140	708M40	19A	42CrMo4	42CrMo4	2244	42CD4	SCM440(H)
Chromium Steel		1.7262	15CrMo5					12CrMo4	2216	12CD4	SCM415(H)
		1.7335	13CrMo44	ASTM A182 F11 F12	1501-620Cr.27		14CrMo44	14CrMo45		15CD3.5 15CD4.5	
		1.7361	32CrMo12		722M24	40B	32CrMo12	F.124.A	2240	30CD12	
		1.738	10CrMo910	ASTM A182 F22	1501-622Cr.31;45		12CrMo9,10	TU.H	2218	12CD9;10	
		1.7715	14MoV63		1503-660-440			13MoCrV6			
	50CrVA	1.8159	50CrV4	6150	735A50	47	50CrV4	51CrV4	2230	50CV4	SUP10
		1.8509	41CrAlMo7		905M39	41B	41CrAlMo7	41CrAlMo7	2940	40CAD6,12	
		1.8523	39CrMoV139		897M39	40C	36CrMoV12				

MATERIAL COMPARISON TABLE

Steel

ISO	Nations And Standard										
	CHN	GER		USA	GBR		IT	ES	SE	FR	JPN
	GB(P)	W-nr	DIN	AISI/SAE	BS	EN	UNI	UNE	SS	AFNOR	JIS
Steel	T10	1.1545	C105w1	W.110			C80KU C100KU	F.515 F.516	1880	Y1105	
	T12A	1.1663	C125W	W.112			C120KU	(C120)		Y2120	SK2
	crv,9sicr	1.2067	100cr6	L3	BL3			100Cr6		Y100C6	
	Cr12	1.208	X210Cr12	D3	BD3		X210Cr13KU 250Cr12KU	X210Cr12		Z200Cr12	SKD1
	4Cr5MovSi	1.2344	X40CrMov51	H13	BH13			X40CrMoV5	2242	Z40CDV5	SKD61
	cr6wV	1.2363	X100CrMoV51	A2	BA2		X35CrMoV05KU X40CrMoV51KU	X100CrMoV5	2260	Z100CDV5	SKD12
	crWMo	1.2419	105wCr6				X100CrMoV51KU	105WCr5	2140	105WC13	SKS31 SKS2 SKS3
	cr12w	1.2436	X210CrW12				10WCr6 107WCr5KU	X210CrW12	2312		SKD2
	5CrNiMo	1.2542	45WCrv7	S1	BS1		X215CrW121KU	45WCrSi8	2710		
	3Cr2wBV	1.2581	X30WcrV93 X30WcrV93KU	H21	BH21		45WCrV8KU	X30WcrV9		Z30WCv9	SKD5
	Cr12Mov	1.2601	X165CrMov12				X28W09Ku X30WCrV93KU	X160CrMoV12	2310		SKD11
	5CrNiMo	1.2731	55NiCrMoV6	L6			X165CrMoW12KU	F.250.S		55NCDV7	SKT4S
	V	1.2833	100V1	W210	BW2					Y1105V	KS43
	W6Mo5Cr4V2Co5	1.3243	S6-5-2-5					HS6-5-2-5	2723	Z85WDKCV	SKH55
	W18Cr4VCo5	1.3255	S18-1-2-5	T4	BT4		HS6-5-2-5	HS18-1-1-5		Z80WKCV 10-05-04-1	SKH3
	w6Mo5Cr4V2	1.3343	S6-5-2S	M2	BM2		X78WCo1805KU	HS6-5-2	2722	Z85WDCV 06-05-04-02	SKH9
		1.3348	S2-9-2	M7		Z	X82WMo0605KU	HS-2-9-2	2782	Z100WCWV 09-02-04-02	
	w18Cr4v	1.3355	S18-0-1	T1	BT1		HS2-9-2	HS18-0-1		Z80WCV 18-04-01	SKH2
	W6Mo5Cr4v3		S6-5-3	M3			X75W18KU				SKH52
				M42	BM42						SKH59

MATERIAL COMPARISON TABLE

Steel

ISO	Nations And Standard					
	CHN	GER		JPN	JPN	USA
	GB(P)	W-nr	DIN	JIS	DAIDO	AISI/SAE
Die Steel	Plastic Molding Steel					
					PX5N	P20mod
					NAK55	
					NAK80	
	3Cr13			SUS420J2mod	S-STAR	420mod
	Cold Working Molding Steel					
				SKS93	YK30	2
	9CrWMn			SKS3mod	GOA	01mod
	Cr12MoV	X165CrMoV12		SKD11	DC11	D2
				SKD11mod	DC53	D2mod
	Hot Working Molding Steel					
	4Cr5MoSiV1	X40CrMoV51		SKD61	DHA1	H13
					DH21	
					DH31-S	
					DH2F	

MATERIAL COMPARISON TABLE

Stainless Steel

ISO	Nations And Standard										
	CHN	GER		USA	GBR		IT	ES	SE	FR	JPN
	GB(P)	W-nr	DIN	AISI/SAE	BS	EN	UNI	UNE	SS	AFNOR	JIS
Stainless Steel	0Cr13;1Cr12	1.4000	X6Cr13	403	403S17		X6Cr13	F.3110	2301	Z6C13	SUS403
		1.4001	X7Cr14					F.8401			
	1Cr13	1.4006	X10Cr13	410	410S21	56A60	X12Cr13	F.3401	2302	Z10C14	SUS410
	1Cr17	1.4016	X6Cr17	430	430S15	56B;56C	X8Cr17	F.3113	220	Z8C17	SUS430
	2Cr13	1.4021	X20Cr13	410	S62	56B	X20Cr13	F.3401		Z20C13	SUS410
		1.4027	G-X20Cr14		420C29	56D				Z20C13M	SCS2
	4Cr13	1.4034	X46Cr13		420S45	57	X40Cr14	F.3405	2304	Z40CM;Z38C13M	SUS420J2
	1Cr17Ni2	1.4057	X20CrNi172	431	431S29		X16CNi16	F.3427	2321	Z15CNi6.02	SUS431
	Y1Cr17	1.4104	X12CrMoS17	430F			X10CrS17	F.3117	2383	Z10CF17	SUS430F
	1Cr17Mo	1.4113	X6CrMo171	434	434S17		X8CrMo17		2325	Z8CD17.01	SUS434
		1.4313	X5CrNi134		425C11					Z4CND13.4M	SCS5
		1.4408	G-X6CrNiMo1810		316C16			F.8414			SCS14
	4Cr9Si2	1.4718	X45CrSi93	HW3	401S45	52	X45CrSi8	F.322		Z45CS9	SUH1
	0Cr13Al	1.4724	X10CrAl13	405	403S17		X10CrAl12	F.311		Z10C13	SUS405
	Cr17	1.4742	X10CrAl18	430	430S15	60	X8Cr17	F.3113		Z10CAS18	SUS430
	8Cr20Si2Ni	1.4757	X80CrNiSi20	HNV6	443S65	59	X80CrSiNi20	F.320V		Z80CSN20.02	SUH4
	2Cr25N	1.4762	X10CrAl24	446			X16Cr26		2332	Z10CAS24	SUH446
Stainless Steel	0Cr18Ni9	1.4301	X5CrNi1810	304	304S15	58E	X5CrNi1810	F.3551 F.354 F.3504	2332	Z6CN18.09	SUS304
	1Cr18Ni9MoZr	1.4305	X10CrNiS189	303	303S21	58M	X10CrNis18.09	F.3508	2346	Z10CNF18.09	SUS303
	0Cr19Ni10	1.4306	X2CrNi1911	304L	304S12		X2CrNi18.11	F.3503	2352	Z2CN18.10	SCS19
		1.4308	G-X6CrNi189		304C15					Z6CN18.10M	SCS13
	Cr17Ni7	1.4310	X12CrNi177	301			X12CrNi1707	F.3517	2331	Z12CN17.07	SUS301
		1.4311	X2CrNiN1810	304LN	304S62				2371	Z2CN18.10	SUS304LN
	0Cr19Ni9	1.4350	X5CrNi189	304	304S31	58E	X5CrNi1810			Z6CN18.09	SUS304
	0Cr17Ni11Mo2	1.4401	X5CrNiMo1712	316	316S16	Z6CND17.11	X5CrNiMo1712	F.3543	2347	1.4401	SUS316
	00Cr17Ni13Mo2	1.4429	X2CrNiMoN17133	316LN					2375	Z2CND17.13	SUS316LN
	oCr27Ni12Mo3	1.4435	X2CrNiMo18143	316L	316S12		X2CrNiMo1713		2353	Z2CDN17.13	SCS16
	00Cr19Ni13Mo3	1.4438	X2CrNiMo17133	317L	317S12		X2CrNiMo18.16		2367	Z2CND19.15	SUS317L
		1.4460	X8CrNiMo275	329L					2324		SUS329L,SCH11,SCS11
	1Cr18Ni9Ti	1.4541	X6CrNiTi1810	321	2337	321S12	X6CrNiTi1811	F3553	58B	Z6CNT18.10	SUS321
	1Cr18Ni11Nb	1.4550	X6CrNiNb1810	347	347S17	58F	X6CrNiTi1811	F.3552	2338	Z6CNNb18.1	SUS347
	Cr18Ni12Mo2Ti	1.4571	X6CrNiMoTi17122	316Ti	320S17	58J	X6CrNiMoTi17	F.3535	2350	Z6NDT17.12	
Stainless Steel		1.4581	G-X5CrNiMoNb1810		318C7		XG8CrNiMo18			Z4CNDNb1812M	
	Cr17Ni12Mo3Nb	1.4583	X10CrNiMoNb1812	318			X6CrNiMoTiNb17			Z6CNDNb1713B	SCS22
	1Cr23Ni13	1.4828	X15CrNiSi2012	309	309S24					Z15CNS20.1	SUH309
	0Cr25Ni20	1.4845	X12CrNi2521	310S	310S24		X6CrNi2520	F.331	2361	Z12CN2520	SUH310
	Cr15Ni36W3Ti	1.4864	X12NiCrSi3616	330						Z12CN35.1	SUH330
		1.4865	G-X40NiCrSi3818		330C11		XG50NiCr3919				SCH15
	5Cr2Mn9Ni4N	1.4871	X53CrMnNiN219	EV8	349S54,321S12	58B	X53CrMnNiN219			Z52CMN21.0	SUH35
	1Cr18Ni9Ti	1.4878	X12CrNiTi189	321	321S320	58C	X6CrNiTi1811	F.3523		Z6CNT18.12	Su321

MATERIAL COMPARISON TABLE

Cast Iron

ISO	Nations And Standard										
	CHN	GER		USA	GBR		IT	ES	SE	FR	JPN
	GB(P)	W-nr	DIN	AISI/SAE	BS	EN	UNI	UNE	SS	AFNOR	JIS
Nodular Iron	QT400-18	GGG40		60-40-18	400/17		GS370-17	FGE38-17	0717-02	FGS370-17	FCD400
	QT450-10			65-45-12	420/12		GS400-13	FGE42-12		FGS400-12	FCD450
	QT500-7	GGG50		70-50-05	500/7		GS500-7	FGE50-7	0727-02	FGS500-7	FCD500
	QT600-3	GGG60		80-60-03	600/7		GS600-2	FGE60-2	0732-03	FGS600-2	FCD600
	QT700-2	GGG70		100-70-03	700/2		GS700-2	FGE70-2	0737-01	FGS700-2	FCD700
	QT800-2	GGG80		120-90-02	800/2		GS800-2	FGE80-2	0864-03	FGS800-2	FCD800
	QT900-2				900/2						
Grey Cast Iron		GG40		NO.60					0140	FGL400	FC350
	HT350	GG35		NO.50	350		G35	FG35	0135	FGL350	FC300
	HT300	GG30		NO.45	300		G30	FG30	0130	FGL300	FC250
	HT250	GG25		NO.35	250		G25	FG25	0125	FGL250	FC200
	HT200	GG20		NO.30	200		G20	FG20	0120	FGL200	FC150
	HT150	GG15		NO.20	150		G15	FG15	0115	FGL150	FC100
	HT100				100		G10		0110		

HARDNESS COMPARISON TABLE

Hardness				Tensile Strength
Rockwell Hardness (RH)		Vickers Hardness (VH)	Brinell Hardness (BH)	
HRC	HRA	HV	HB	
70.0	86.6	1037		
69.5	86.3	1017		
69.0	86.1	997		
68.5	85.8	978		
68.0	85.5	959		
67.5	85.2	941		
67.0	85.0	923		
66.5	84.7	906		
66.0	84.4	889		
65.5	84.1	872		
65.0	83.9	856		
64.5	83.6	840		
64.0	83.3	825		
63.5	83.1	810		
63.0	82.8	795		
62.5	82.5	780		
62.0	82.2	766		
61.5	82.0	752		
61.0	81.7	739		
60.5	81.4	726		
60.0	81.2	713		2555
59.5	80.9	700		2500
59.0	80.6	688		2450
58.5	80.3	676		2395
58.0	80.1	664		2345
57.5	79.8	653		2295
57.0	79.5	642		2250
56.5	79.3	631		2205
56.0	79.0	620		2160
55.5	78.7	609		2115
55.0	78.5	599		2075
54.5	78.2	589		2035
54.0	77.9	579		1995
53.5	77.7	570		1955
53.0	77.4	561		1920
52.5	77.1	551		1885
52.0	76.9	543		1850
51.5	76.6	534		1815

Hardness				Tensile Strength
Rockwell Hardness (RH)		Vickers Hardness (VH)	Brinell Hardness (BH)	
HRC	HRA	HV	HB	
51.0	76.3	501		1780
50.5	76.1	494		1750
50.0	75.8	488		1720
49.5	75.5	481		1690
49.0	75.3	474		1660
48.5	75.0	468		1630
48.0	74.7	461		1605
47.5	74.5	455		1575
47.0	74.2	449		1550
46.5	73.9	442		1525
46.0	73.7	436		1500
45.5	73.4	430		1475
45.0	73.2	424		1450
44.5	72.9	418		1430
44.0	72.6	413		1405
43.5	72.4	407		1385
43.0	72.1	401		1360
42.5	71.8	396		1340
42.0	71.6	391		1320
41.5	71.3	385		1300
41.0	71.1	380		1280
40.5	70.8	375		1260
40.0	70.5	370		1245
39.5	70.3	365		1225
39.0	70.0	360		1210
38.5		355		1190
38.0		350		1175
37.5		345		1160
37.0		341		1140
36.5		336		1125
36.0		332		1110
35.5		327		1095
35.0		323		1080
34.5		318		1065
34,.0		314		1050
33.5		310		1035
33.0		306		1020
32.5		302		1010

HARDNESS COMPARISON TABLE

Hardness				Tensile Strength
Rockwell Hardness (RH)		Vickers Hardness (VH)	Brinell Hardness (BH)	
HRC	HRA	HV	HB	
32.0		304	298	995
31.5		300	294	980
31.0		296	291	970
30.5		292	287	960
30.0		289	283	950
29.5		285	280	935
29.0		281	276	920
28.5		278	273	910
28.0		274	269	900
27.5		271	266	890
27.0		268	263	880
26.5		264	260	870
26.0		261	257	860
25.5		258	254	850
25.0		255	251	835
24.5		252	248	830

Hardness				Tensile Strength
Rockwell Hardness (RH)		Vickers Hardness (VH)	Brinell Hardness (BH)	
HRC	HRA	HV	HB	
24.0		249	245	820
23.5		246	242	810
23.0		243	240	800
22.5		240	237	790
22.0		237	234	785
21.5		234	232	775
21.0		231	229	765
20.5		229	227	760
20.0		226	225	750
19.5		223	222	745
19.0		221	220	735
18.5		218	218	730
18.0		216	216	725
17.5		214	214	715
17.0		211	211	710

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