KORLOY Product Catalog - English EN

Cutting Tools

2020▸21

Aerospace Industry

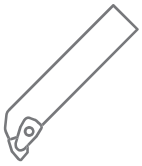
Automotive Industry

Medical Industry

Railway Industry

KORLOY

2020 ▸ 2021
KORLOY CUTTING TOOLS



Turning

Milling

Holemaking

Endmilling

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GRADES & CHIP BREAKERS

TURNING

MULTI FUNCTIONAL TOOLS

THREADING

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MILLING

ENDMILLS

ENDMILLS

DRILL

BRAZED TOOLS

TOOLING SYSTEM

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SAFETY GUIDE OF CARBIDE PRODUCTS

KORLOY Inc. is continuously trying to develop safer and higher quality products
Please be aware of the safety guidelines below prior to using KORLOY Inc. products

- It is generally accepted that the proper handling of cemented carbide tools requires awareness of safety as noted above. For more information, please contact us.
- KORLOY does not accept any responsibility for any accident caused by inappropriate use, abuse of tools, or changes to the products.

1. PL (Product Liability)

In accordance with the PL (Product Liability) law, we have attached a WARNING label on the case of KORLOY products.
There is no warning on the surface of the tools. Please read this safety guidelines before using carbide tools and provide safety education to all users.

2. Basic characteristics of CEMENTED CARBIDE tools

Cemented carbide tools are made of carbides, nitrides, carbonitrides, oxides of Tungsten (W), Titanium (Ti), Alluninyum (Al), Silicon (Si), Tantalum (Ta), Boron (B) etc and metal omponent like Cobalt (Co), Nickel (Ni), Chrom (Cr), Molybdenum (Mo) as binder. Cemented carbides tools have high hardness and specific gravity.
Generally there's no smell but according to usage and treatment, appreance and color could be changed

3. Precaution for CEMENTED CARBIDE tools

1) Cemented carbides are extremely hard and brittle at the same time. Impact shock or excessive clamping power could cause fracture or breaking of the tool.
2) Cemented carbides have large sepcific gravity, thus they require special attention as a heavy material when you handle big sizes or large quantities.
3) Cemented carbides have different thermal expansion coefficient with steel and ferrous materials. Shrink fit or swell fit products may cause trouble if they are used at undesirable conditions like extremly high or low temperatures.
4) There are several cemented carbide products having sharp cutting edges.Be careful not to handle the tools with bare hands which may cause cuts or injury, especially when removing the tools from the case, do not touch the cutting edge and be careful not to drop it.
5) Storing carbide tools in a corrosive atmosphere may cause erosion which can reduce toughness.
6) Please refer to the catalouge safety guidance prior to handling the tools.
7) Do not absue tools under inappropriate conditions.

4. Precaution for machining (grinding, welding, EDM) of CEMENTED CARBIDE tools

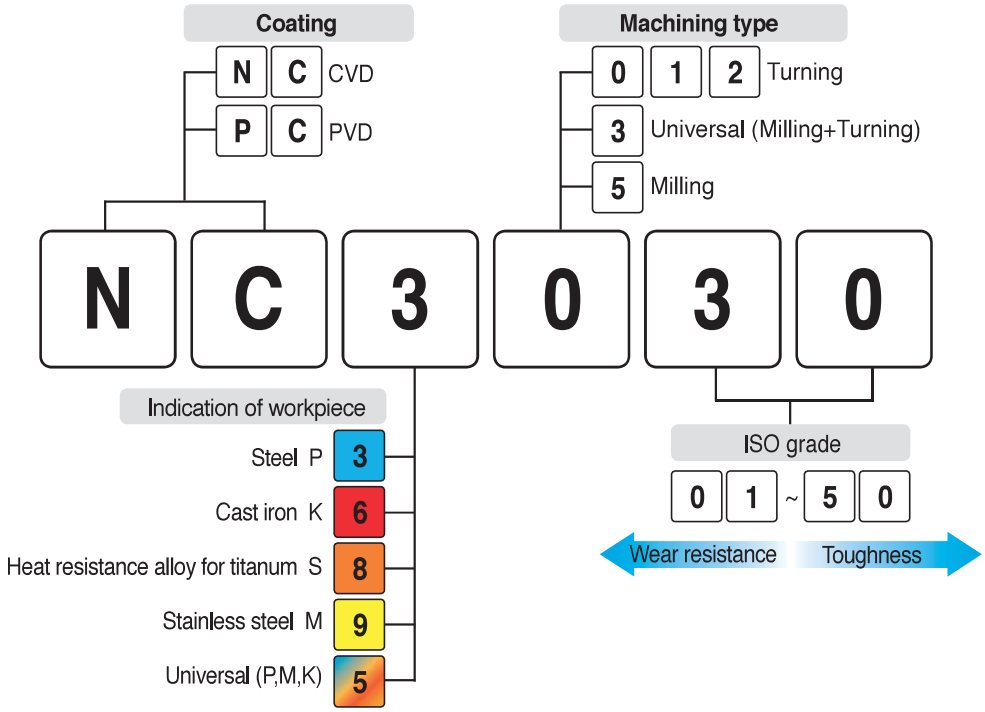
1) Surface condition can affect the toughness of the tool, so it is recommended to use a diamond grinding wheel.
2) Grinding of cemented carbide creates mist and dust. It contains harmful compositions like Cobalt (Co), thus it is recommended to use a mask, mist collection, and other protective facilities. If the dust gets in your skin or eye, rinse immeditely with continously running water.
3) In case of grinding with coolant, coolant contains harmful metal components which cause environmental problems. Handle the coolant according to the manufacturer's recommendations.
4) Check for cracks after re-grinding carbide tool and reuse.
5) Marking with laser or electric pen may cause cracks on the carbide tool. The crack can shortened tool life.
6) EDM of carbide may cause residual cracks on the carbide tool, so if necessary , remove the crack with a grinding process.
7) Brazing of carbide tools at extremly high or low temperatures compare with the melting point of brazing materials may cause loosening or breakage.
8) Overheating a oil base coolant may cause a fire or flames, thus be prepared for fire prevention.

5. METALCUTTING SAFETY

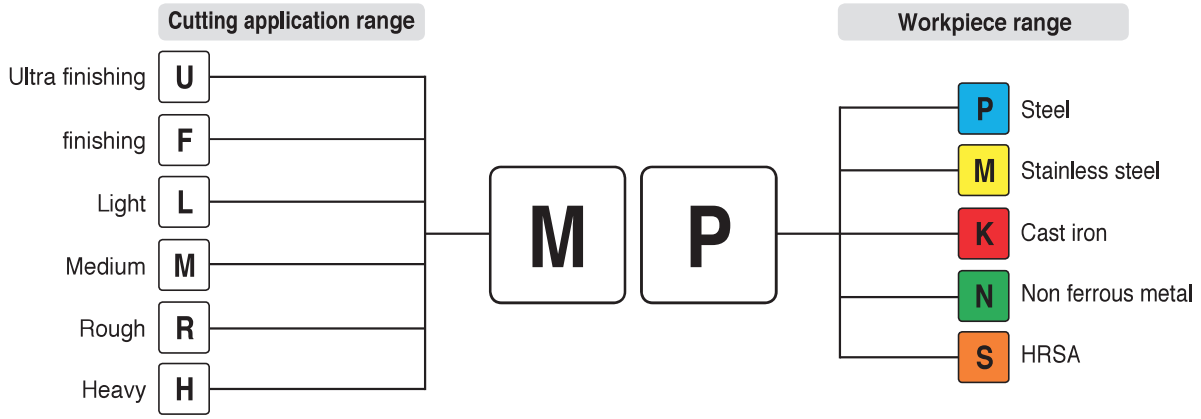
	DANGEROUS FACTOR	SAFETY COUNTERPLAN
Cutting tools	· Sharp cutting edge of cutting tools may cut your bare-hand	· Use gloves when pulling out the insert from the case or mounting it on the machine
	· Inappropriate conditions or usage may cause fragmentation and expel parts of tools which may cause injury	· Use glasses or safety cover for your safety · Use the tools within the recommended range · Please refer to catalogue and safety guidelines first
	· Severe load on tool and premature wear of cutting edge may bring excessive cutting force on tool, causing fracture of the tool and may cause injury	· Use glasses or safety cover for your safety · Change the tool as required before excessive wear or fracture
	· Chips evacuated during cutting are hot and sharp and maycause burns and cuts	· Use glasses or safety cover for your safety · Stop machining and put safety glove on and use a hook tool to remove chips
	· Touching the workpiece immediately after cutting may cause burns	· Use gloves or safety cover for your safety
	· Be aware of sparks, fire, or explosion of hot chips generated during the cutting operation	· Do not use at the place where having explosive materials · Prepare for fire extinguishments
	· In case of high RPM machining, vibration and chattering may occur due to the improper balance of the machine	· Use glasses or safety cover for your safety · Check first if there's any chattering, vibration or strange noises prior to your main cutting operation
	· Touching a burr remaining on the workpiece with a bare-hand may cause a cut	· Do not touch the burr with bare-hand · Use gloves or safety cover for your safety
	· Loose clamping of the workpiece may cause the tool to fracture and result in damage to the cutter body and possible injury	· Clamp the workpiece tightly
	· Tools are operated to right-hand direction normally · Left-hand direction operation can cause fracture of tool and body damage	· Do not use left-hand direction without notice · Check the package of product to check the availability of left-hand operation
Indexable tools	· Loose clamping of inserts and parts may result in ejection of the tool during cutting and may cause serious injury	· Check the clamping of inserts and parts prior to machining,and use original parts only
	· Over loaded clamping of inserts by a lever (such as a pipe) may cause dangerous fracturing of parts and inserts	· Do not use lever inappropriately
	· In case of high speed machining, parts and inserts can be forced out by centrifugal force	· Use within recommended condition · Use glasses or safety cover for your safety
Rotating tools	· Since cutter has sharp cutting edges touching with a bare-hand may cause a cut	· Use gloves or safety cover for your safety
	· It is dangerous to use glove with rotating machine · Contact with body or clothes is dangerous with rotating parts	· Do not wear gloves when you work with rotating machine · Keep your body and clothes away from rotating machine
	· Vibration generated by balancing trouble may cause a fracture and ejection of the tool which may cause serious injury	· RPM should be controled within recommended condition · Check the balance of rotating part periodically
	· In case of drilling, the uncut bottom core can fly out of the part with high speed and cause serious injury	· Use gloves or safety cover for your safety
	· The edges of small diameter drill are sharp and easy to break	· Use gloves or safety cover for your safety
Brazed tools	· Fragmentation and ejection of brazed carbide tip may cause injury	· Check the brazed tip before using · Do not use at high temperature cutting condition
ETC	· There's a possibility of breaking the carbide tip after several brazing	· Do not use brazing a tip that has been brazed several times
	· Abusing may cause fragmentation of tool and is very dangerous	· Stick to safety regulations and guidelines

KORLOY Inc. Code System

Grade name for coated carbide



Chip breaker



The same chip breaker code is used for both negative type and positive type.

Terminology of tool formula

TERM	CODE	UNIT
Tool diameter	D	mm
Cutting speed	vc	m/min
Revolution per minute	n	min^{-1}
Feed per minute	vf	mm/min
Feed per revolution	fn	mm/rev
Feed per tooth	fz	mm/t
Tooth	z	
Axial depth of cut	ap	mm
Radial depth of cut	ae	mm
Peak feed	pf	mm

TERM	CODE	UNIT
Horse power requirement	Pc	kW
Specific cutting resistance	kc	MPa
Torque	Mc	N.m
Thrust	Tc	N
Cycle time	tc	min
Tool life	T	min
Flank wear	V_B	mm
Crater wear	Kt	mm
Nose radius	r	mm

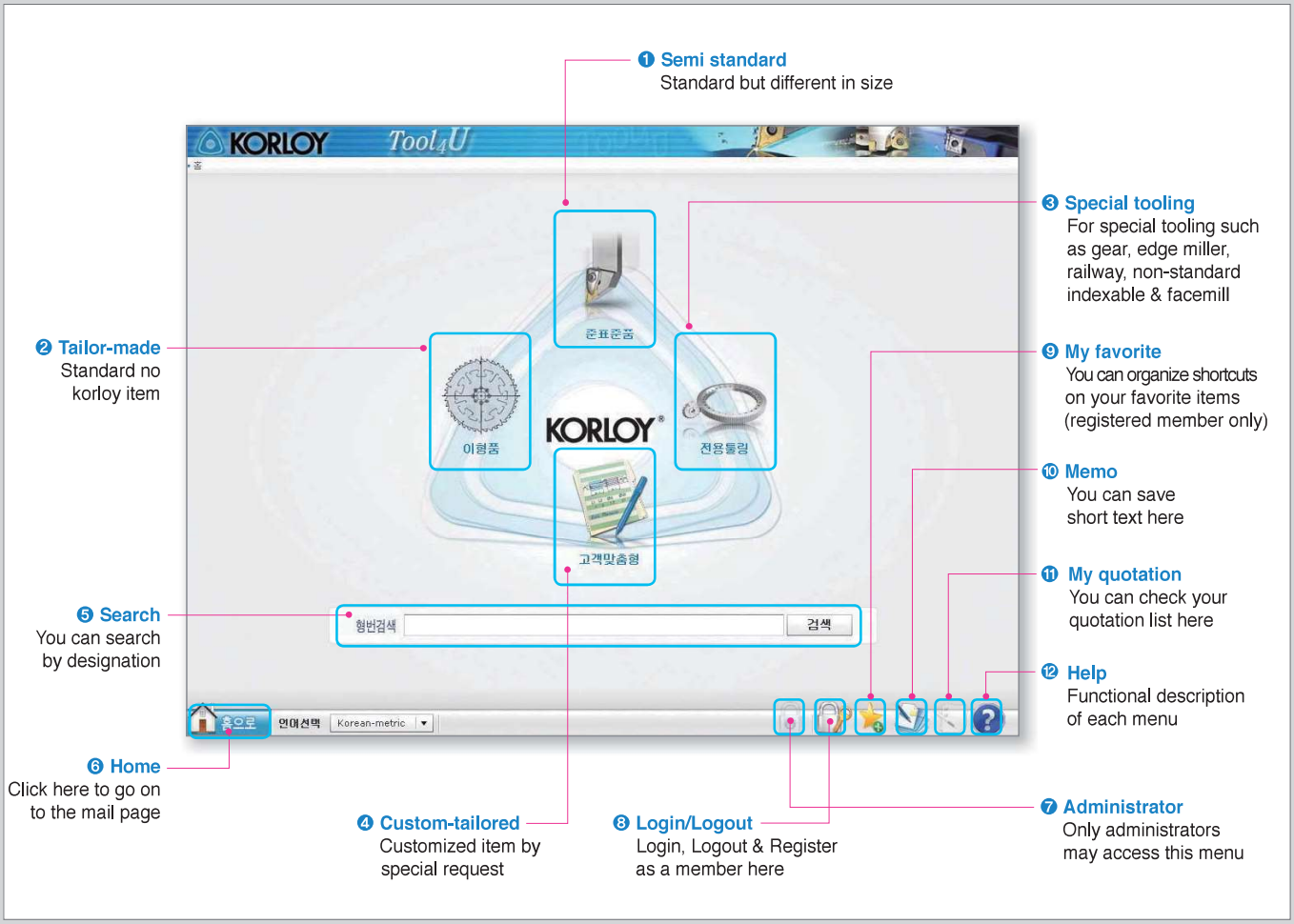
How to use Tool4U (Web quotation requirement)

1. Contact with Korloy Homepage

http://www.korloy.com (Korloy Homepage)

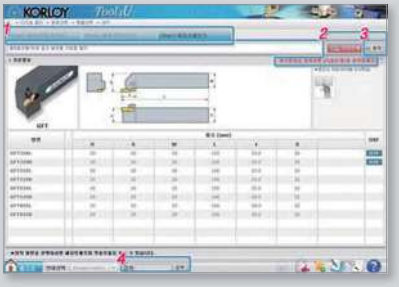
2. Click Tool4U banner-icon on the web site

3. Main page



4. Screen shot

Screen shot 1: Step3. Product detail



1. **Step**: Select category, product and check product detail
2. **Next step**: Open new window for changing dimension
3. **Print**: Print current page
4. **Search**: Search product by designation

Screen shot 2: Size input page

Enter essential information needed to quote and click “Quote” button to send e-mail