

HOW TO READ THE STANDARD OF EXTERNAL TURNING TOOLS

● How this section page is organized

- ① Organized according to turning insert shape.
(Refer to the index on the next page.)

TYPE OF TOOL HOLDER indicates the first four letters of the order number, as well as cutting applications.

TITLE OF PRODUCT BY INSERT TYPE

PRODUCT SECTION

FIGURE SHOWING THE TOOLING APPLICATION uses illustrations and arrows to depict the available machining applications such as external turning, copying, facing, and chamfering together with cutting edge lead angles.

GEOMETRY

CHIP BREAKER BY CUTTING APPLICATION

EXTERNAL TURNING TOOLS

VN INSERTS TOOL HOLDERS

DVPN Facing, Copying **DOUBLE CLAMP type**

Order Number	Stock	Insert Number	Dimensions (mm)							Shim	Shim Pin	Clamp	Spring	Clamp Screw	Wrench
			H1	B	L1	L2	H2	F1	F2						
DVPNRL2020K16	●●	VNMG 1604	20	20	125	32	20	25	DC3WN2	LLP13	DCX13	DCS2	DC020T	TKY15F	
2525M16	●●	VNMG 1604	25	25	150	32	25	25	DC3WN2	LLP13	DCX13	DCS2	DC020T	TKY15F	

* Clamp Torque (N·m) : DC020T-3.5

WN INSERTS TOOL HOLDERS

PWLN External turning, Facing **LL type**

Order Number	Stock	Insert Number	Dimensions (mm)							Shim	Shim Pin	Clamp	Spring	Clamp Screw	Wrench
			H1	B	L1	L2	H2	F1	F2						
PWLNRL1616H06	●●	WNMG 06T3	16	16	100	22	16	20	LLSWN21	LLP13	LLCL13	LLCS106	HKY25R		
2525M06	●●	WNMG 06T3	20	20	125	22	20	25	LLSWN21	LLP13	LLCL13	LLCS106	HKY25R		
	●●	WNMG 06T3	25	25	150	25	25	25	LLSWN21	LLP13	LLCL13	LLCS106	HKY25R		

*1 Clamp Torque (N·m) : LLC3106-2.2
*2 Please use shim no. LLSWN32 with 4.76mm thick inserts. When using 4.76mm thick inserts, shim should be ordered separately.

PVPN Facing, Copying **MP type**

Order Number	Stock	Insert Number	Dimensions (mm)							Shim	Lock Pin	Lock Screw	Stop Ring	Wrench
			H1	B	L1	L2	H2	F1	F2					
PVPNRL2020K16	●●	VNMG 1604	20	20	125	32	20	25	PV321	P11S	HSP05008C	E03	HKY25R	
2525M16	●●	VNMG 1604	25	25	150	32	25	25	PV322	P11S	HSP05008C	E03	HKY25R	

* Clamp Torque (N·m) : HSP05008C-2.5

DWLN External turning, Facing **DOUBLE CLAMP type**

Order Number	Stock	Insert Number	Dimensions (mm)							Shim	Shim Pin	Clamp	Spring	Clamp Screw	Wrench
			H1	B	L1	L2	H2	F1	F2						
DWLNRL1616H06	●●	06T3	16	16	100	25	16	20	LLSWN21	LLP20	DCX211	DCS2	DC020T	TKY15F	
2020K06	●●	WNMG 06T3	20	20	125	25	20	25	LLSWN21	LLP20	DCX211	DCS2	DC020T	TKY15F	
2525M06	●●	06T3	25	25	150	25	25	25	LLSWN21	LLP20	DCX211	DCS2	DC020T	TKY15F	
2020K08	●●	0804	20	20	125	31	20	25	LLSWN42	LLP14	DCX213	DCS1	DC021T	TKY20F	
2525M08	●●	WNMG 0804	25	25	150	31	25	32	LLSWN42	LLP14	DCX213	DCS1	DC021T	TKY20F	
3225P08	●●	0804	32	25	170	31	32	32	LLSWN42	LLP14	DCX213	DCS1	DC021T	TKY20F	

*1 Clamp Torque (N·m) : DC020T-3.5, DC021T-6.0
*2 Please use shim no. LLSWN32 with 4.76mm thick inserts. When using 4.76mm thick inserts, shim should be ordered separately.

● Inventory maintained in Japan

DVPN type inserts > A888 - A890
PVPN type inserts > A888 - A890

Legend for stock status mark is shown on the left hand page of each double-page spread.

REFERENCE PAGE FOR APPLICABLE INSERTS indicates reference pages giving details of inserts that are applicable to the product.

● PWLN type inserts > A891 - A893
DWLN type inserts > A891 - A894
CBN inserts > B031

RECOMMENDED CUTTING CONDITIONS > C036
SPARE PARTS > P 001
TECHNICAL DATA > D001

(Note) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

LEGEND FOR STOCK STATUS MARK is shown on the left hand page of each double-page spread.

REFERENCE PAGE FOR APPLICABLE INSERTS indicates reference pages giving details of inserts that are applicable to the product.

PAGE REFERENCE - SPARE PARTS - TECHNICAL DATA indicates reference pages, including the above, on the right hand page of each double-page spread.

PRODUCT STANDARDS indicates order numbers, stock status (per right/left hand), applicable inserts, dimensions, and spare parts.

● To Order : Please specify
① order number and hand of tool (right/left).

TURNING TOOLS

EXTERNAL TURNING TOOLS

CLASSIFICATION..... C002

IDENTIFICATION C006

METHOD OF HOLDING C007

STANDARD HOLDERS

CN○○○INSERTS TOOL HOLDERS..... C008

DN○○○INSERTS TOOL HOLDERS..... C010

SN○○○INSERTS TOOL HOLDERS..... C012

TN○○○INSERTS TOOL HOLDERS..... C016

VN○○○INSERTS TOOL HOLDERS..... C018

WN○○○INSERTS TOOL HOLDERS..... C021

CC○○○INSERTS TOOL HOLDERS..... C022

DC○○○INSERTS TOOL HOLDERS..... C023

RC○○○INSERTS TOOL HOLDERS..... C024

SC○○○INSERTS TOOL HOLDERS..... C026

TC○○○INSERTS TOOL HOLDERS..... C027

VC○○○INSERTS TOOL HOLDERS..... C028

XC○○○INSERTS TOOL HOLDERS..... C030

TL HOLDER C035

●AL HOLDER

DE○○○INSERTS TOOL HOLDERS C032

TE○○○INSERTS TOOL HOLDERS C033


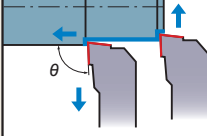
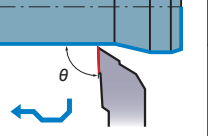
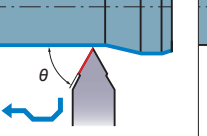
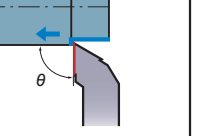

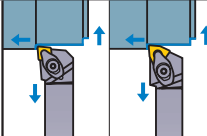
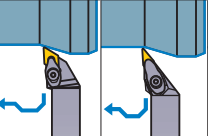
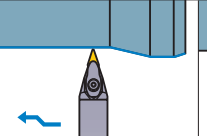
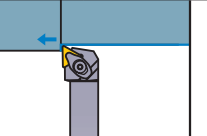

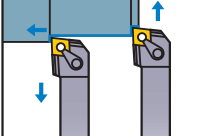

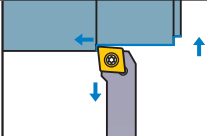
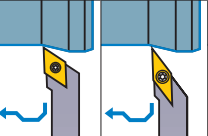
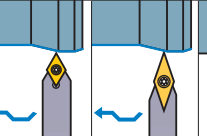
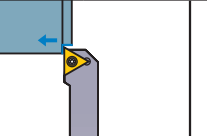
VD○○○INSERTS TOOL HOLDERS C034

*Arranged by Alphabetical order

C008 DCLN	C016 PTGN
C010 DDJN	C018 PVJN
C016 DTGN	C020 PVPN
C018 DVJN	C019 PVVN
C020 DVPN	C021 PWLN
C019 DVVN	C022 SCLC
C021 DWLN	C023 SDJC
C009 MCLN	C032 SDJE
C012 MSBN	C023 SDNC
C014 MSSN	C032 SDNE
C017 MTJN	C025 SRDC
C009 PCBN	C025 SRGC
C008 PCLN	C026 SSSC
C011 PDHN	C027 STFC
C010 PDJN	C033 STFE
C024 PRDC	C027 STGC
C024 PRGC	C033 STGE
C012 PSBN	C028 SVJC
C014 PSDN	C034 SVJD
C015 PSKN	C029 SVPC
C013 PSSN	C028 SVVC
C013 PSTN	C030 SXZC
C017 PTFN	C035 TLHR

CLASSIFICATION

EXTERNAL TURNING





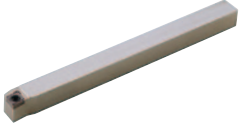

Tool Holder	Features Shank Size (H x W x L)	External Turning Facing		External Turning Copying			External Turning
		$\theta=95^\circ$	$\theta=93^\circ$	$\theta=63^\circ30'$ $72^\circ30'$	$\theta=90^\circ$		
LL Holder  <ul style="list-style-type: none"> ● Lever lock type. ● ISO standard. ● Various holder shapes. ● Suitable for light to heavy cutting. ● Economical negative insert. <p>10 x 10 x 70 25 x 25 x 150 12 x 12 x 80 32 x 25 x 170 16 x 16 x 100 32 x 32 x 170 20 x 20 x 125</p>	   	PCLN ⇨ C008	PWLN ⇨ C021	PDJN ⇨ C010	PTGN ⇨ C016		
DOUBLE CLAMP Holder  <ul style="list-style-type: none"> ● New double clamp type. ● Holds inserts securely. ● Excellent cutting edge tolerance. ● Economical negative insert. ● Small insert series. <p>16 x 16 x 100 25 x 25 x 150 20 x 20 x 125 32 x 25 x 170</p>	   	DCLN ⇨ C008	DWLN ⇨ C021	DDJN ⇨ C010	DVJN ⇨ C018	DVVN ⇨ C019	DTGN ⇨ C017
DOUBLE CLAMP Holder (For heavy cutting)  <ul style="list-style-type: none"> ● Double clamp holder type. ● Holds inserts securely. ● Suitable for heavy cutting. ● Negative insert. <p>32 x 32 x 170 40 x 40 x 200</p>		MCLN ⇨ C009					
SP Holder  <ul style="list-style-type: none"> ● Screw-on type. ● Miniature holder with 7° positive insert. <p>8 x 8 x 60 10 x 10 x 70 12 x 12 x 80 16 x 16 x 100 20 x 20 x 125 25 x 25 x 150</p>	   	SCLC ⇨ C022	SDJC ⇨ C023	SVJC ⇨ C028	SDNC ⇨ C023	SVVC ⇨ C028	STGC ⇨ C027

	External Turning	External Turning, Chamfering			External Turning, Facing, Chamfering	Facing		Facing, Copying	External Turning, Copying	Selection Standard			
	$\theta=75^\circ$	$\theta=60^\circ$	$\theta=45^\circ$	$\theta=45^\circ$	$\theta=15^\circ$	$\theta=0^\circ - 1^\circ$	$\theta=10^\circ -$	Special Design	Economical	Low Cutting Resistance (Sharpness)	Clamp Rigidity	Operation Efficiency	Specialised
									○				
	PCBN ↔ C009	PSBN ↔ C012	PSTN ↔ C013	PSDN ↔ C014	PSSN ↔ C013	PSKN ↔ C015	PTFN ↔ C017	PDHN ↔ C011	PRGC ↔ C024	PRDC ↔ C024			
								DVPN ↔ C020					
	MSBN ↔ C012			MSSN ↔ C014									
				SSSC ↔ C026		STFC ↔ C027	SVPC ↔ C029	SRGC ↔ C025	SRDC ↔ C025				

(Note) ◎ : 1st recommendation. ○ : 2nd recommendation.

CLASSIFICATION

EXTERNAL TURNING

Tool Holder	Features Shank Size (H x W x L)	External Turning, Facing	External Turning, Copying		External Turning
		$\theta=99^\circ-95^\circ$	$\theta=93^\circ$	$\theta=62^\circ30'$ $72^\circ30'$	$\theta=90^\circ$
Profile Holder 	<ul style="list-style-type: none"> Screw-on type. 25° rhombic shape insert. Possible to machine a face relief with up to 60° inclination. 16 x 16 x 100 20 x 20 x 125 25 x 25 x 150				
MP Holder 	<ul style="list-style-type: none"> Pin lock type. 35° rhombic shape insert. Suitable for recessing. 20 x 20 x 125 25 x 25 x 150				
AL Holder 	<ul style="list-style-type: none"> Screw-on type. 20° positive insert. (35° rhombic shape insert is 15°) High rake and good sharpness. 16 x 16 x 100 20 x 20 x 125 25 x 25 x 150				
TL Holder 	<ul style="list-style-type: none"> Taper lock type Excellent finished surface with round shape insert. 20 x 20 x 125 25 x 25 x 150 32 x 25 x 170				
SMALL TOOLS (Tools for front turning) 	<ul style="list-style-type: none"> Screw-on type. Tools to be equipped on gang type tool posts. Miniature holder with 7° positive insert. 8 x 8 x 125 10 x 10 x 125 12 x 12 x 150 16 x 16 x 150				
SMALL TOOLS (Tools for back turning) 	<ul style="list-style-type: none"> Screw-on type. Tools to be equipped on gang type tool posts. High rigidity due to designing of vertical insert. (BTA/CTB type) Back machining. (BTA/CTB type) 8 x 10 x 120 10 x 10 x 120 12 x 12 x 120 16 x 16 x 120				
			PVJN ↻ C018	PVVN ↻ C019	
			SDJE ↻ C032	SVJD ↻ C034	SDNE ↻ C032
					STGE ↻ C033
			SCLC-SM ↻ D008	SDJC-SM ↻ D009	SVJB-SM ↻ D010
				SDNC-SM ↻ D009	SVVB-SM ↻ D011
					SCAC-SM ↻ D008

IDENTIFICATION

■ LL Type, Double Clamp Type,
SP Type, Profile Holder, AL Type

EXTERNAL TURNING

P **C** **L** **N** **R** **25** **25** **M** **12**

①Clamp Structure

D	Double Clamp Type
M	Wedge Lock Type Multiple Clamp Type
P	Lever Lock Type
S	Screw-on Type

②Insert Shape

C	Rhombic 80°
D	Rhombic 55°
R	Round
S	Square
T	Triangular
V	Rhombic 35°
W	Trigon
X	Special Design

③Cutting Angle

A	90°Without Offset
B	75°
D	45°Neutral
E	60°
F	90°
G	90°With Offset
H	107°30'
J	93°
K	75°
L	95°
N	62°30'
P	117°30'
Q	105°
S	45°
T	60°
V	72°30'
Z	Special

④Insert Clearance

C	7°Positive
N	Negative
E	20°Positive

⑤Hand of Tool

R	Right Hand
L	Left Hand
N	Neutral

⑥Tool Size (mm)
(Height and Width)

8	8
10	10
12	12
16	16
20	20
25	25
32	32

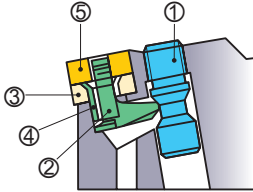
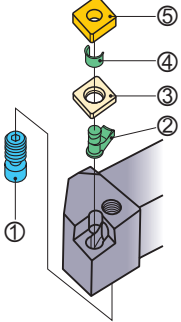
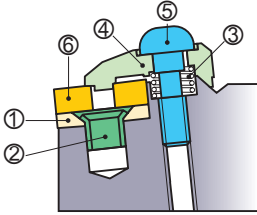
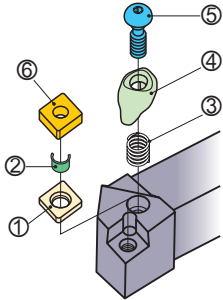
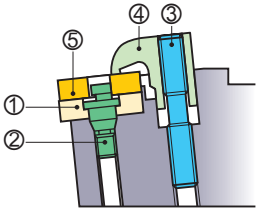
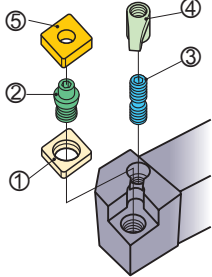
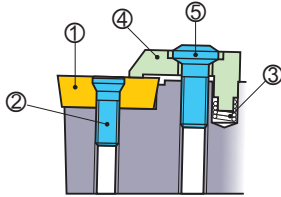
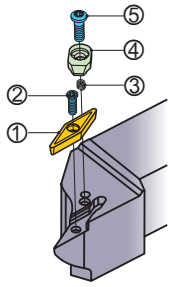
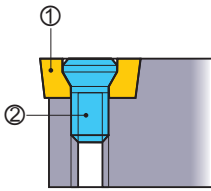
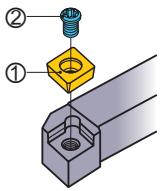
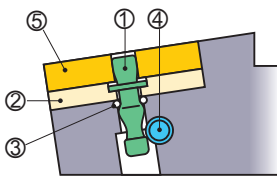
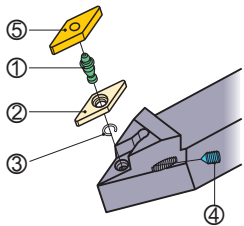
⑦Tool Length (mm)

D	60
E	70
F	80
H	100
K	125
M	150
P	170
Q	180
R	200

⑧Cutting Edge Length (mm)

Inscribed Circle	Insert Shape					
	Square	Triangular	Round	Rhombic 80°	Rhombic 55°	Rhombic 35°
6.00	-	-	06	-	-	-
6.35	-	11	-	06	07	11
7.94	-	13	-	-	-	-
8.00	-	-	08	-	-	-
9.525	09	16	-	09	11	16
10.00	-	-	10	-	-	-
12.00	-	-	12	-	-	-
12.70	12	22	-	12	15	-
15.875	15	27	-	16	-	-
16.00	-	-	16	-	-	-
19.05	19	-	-	19	-	-
20.00	-	-	20	-	-	-
25.00	-	-	25	-	-	-
25.40	25	-	-	-	-	-
32.00	-	-	32	-	-	-

METHOD OF HOLDING

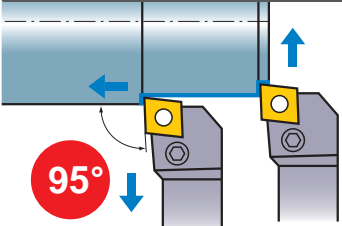
Type (Holder)	Structure	
Lever Lock (LL HOLDER)		<ul style="list-style-type: none"> ① Clamp Screw ② Lever ③ Shim ④ Shim Pin ⑤ Insert 
Double Clamp (DOUBLE CLAMP) HOLDER		<ul style="list-style-type: none"> ① Shim ② Shim Pin ③ Spring ④ Clamp Bridge ⑤ Clamp Screw ⑥ Insert 
Multiple Clamp (DOUBLE CLAMP) HOLDER (For heavy cutting)		<ul style="list-style-type: none"> ① Shim ② Shim Pin ③ Clamp Screw ④ Clamp Bridge ⑤ Insert 
Two action double clamp (PROFILE HOLDER)		<ul style="list-style-type: none"> ① Insert ② Clamp Screw (1) ③ Spring ④ Clamp Bridge ⑤ Clamp Screw (2) 
Screw-on (SP HOLDER) (AL HOLDER)		<ul style="list-style-type: none"> ① Insert ② Clamp Screw 
Pin lock (MP HOLDER)		<ul style="list-style-type: none"> ① Lock Pin ② Shim ③ Stop Ring ④ Lock Screw ⑤ Insert 

EXTERNAL TURNING TOOLS

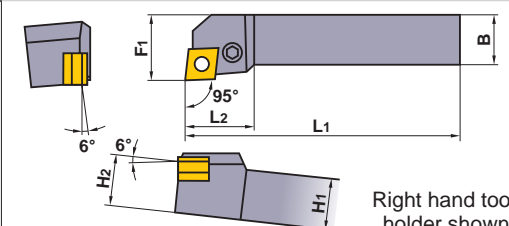
CN^{OO}INSERTS TOOL HOLDERS

EXTERNAL TURNING









PCLN








External turning, Facing **LL type**



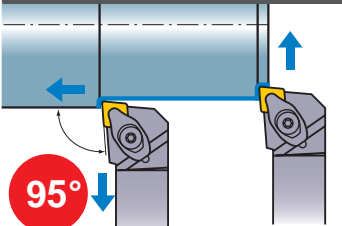
Right hand tool holder shown.

Finish	Light	Medium	Medium
FH  (12)	LP  (12)	MP  (12,16,19)	MH  (12,16,19)
Medium	Medium to Rough	Stainless	CBN
Standard  (09,12,16,19)	RP  (12)	MM  (12,16,19)	 (12)

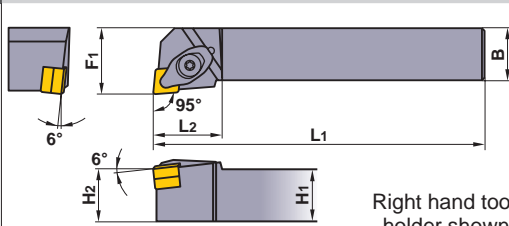
Order Number	Stock		Insert Number	Dimensions (mm)											
	R	L		H1	B	L1	L2	H2	F1	Shim	Shim Pin	Clamp Lever	Clamp Screw	Wrench	
PCLNR/L1616H09	●	●	CNMG	09T3	16	16	100	22	16	20	LLSCN3T3	LLP13	LLCL13	LLCS106	HKY25R
2020K09	●	●		09T3	20	20	125	22	20	25	LLSCN3T3	LLP13	LLCL13	LLCS106	HKY25R
2525M09	●	●		09T3	25	25	150	22	25	32	LLSCN3T3	LLP13	LLCL13	LLCS106	HKY25R
2020K12	●	●	CNMA CNMG CNMM CNGG	1204	20	20	125	28	20	25	LLSCN42	LLP14	LLCL14	LLCS108	HKY30R
2525M12	●	●		1204	25	25	150	28	25	32	LLSCN42	LLP14	LLCL14	LLCS108	HKY30R
3225P12	●	●		1204	32	25	170	28	32	32	LLSCN42	LLP14	LLCL14	LLCS108	HKY30R
3232P16	●	●		1606	32	32	170	32	32	40	LLSCN53	LLP15	LLCL25	LLCS508	HKY30R
3232P19	●	●		1906	32	32	170	40	32	40	LLSCN63	LLP16	LLCL16	LLCS310	HKY40R

* Clamp Torque (N · m) : LLCS106=2.2, LLCS108=3.3, LLCS508=3.3, LLCS310=7.0









DCLN









External turning, Facing **DOUBLE CLAMP type**



Right hand tool holder shown.

Finish	Light	Medium	Medium
FH  (12)	LP  (12)	MP  (12)	MH  (12)
Medium	Medium to Rough	Stainless	CBN
Standard  (09,12)	RP  (12)	MM  (12)	 (12)

Order Number	Stock		Insert Number	Dimensions (mm)												
	R	L		H1	B	L1	L2	H2	F1	Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw	Wrench	
DCLNR/L1616H09	●	●	CNMG	09T3	16	16	100	25	16	20	LLSCN3T3 (LLSCN33)	LLP23	DCK2211	DCS2	DC0520T	TKY15F
2020K09	●	●		09T3	20	20	125	25	20	25	LLSCN3T3 (LLSCN33)	LLP23	DCK2211	DCS2	DC0520T	TKY15F
2525M09	●	●		09T3	25	25	150	25	25	32	LLSCN3T3 (LLSCN33)	LLP23	DCK2211	DCS2	DC0520T	TKY15F
2020K12	●	●	CNMA CNMG CNMM CNGG	1204	20	20	125	29	20	25	LLSCN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
2525M12	●	●		1204	25	25	150	29	25	32	LLSCN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
3225P12	●	●		1204	32	25	170	29	32	32	LLSCN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
3232P16	●	●		1606	32	32	170	32	32	40	LLSCN53	LLP15	DCK2613	DCS1	DC0621T	TKY20F

*1 Clamp Torque (N · m) : DC0520T=3.5, DC0621T=5.0

*2 Please use shim no. LLSCN33 with 3.18mm thick inserts. When using 3.18mm thick inserts, shim should be ordered separately.

(Note) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

● : Inventory maintained in Japan.

PCLN type inserts > A066—A070
DCLN type inserts > A066—A070

CBN & PCD inserts > B022—B024, B052
RECOMMENDED CUTTING CONDITIONS > C036

Order Number		Stock	Insert Number	Dimensions (mm)						Accessories					
				H1	B	L1	L2	H2	F1	Shim	Shim Pin	Clamp Bridge	Clamp Screw *	Wrench	
MCLNR3232P19		●	CNMG	1906	32	32	170	36	32	40	MSCN63	MP6	CKW6	LS25	HKY40R
4040R19		●	CNMM CNMA	1906	40	40	200	36	40	50	MSCN63	MP6	CKW6	LS25	HKY40R

* Clamp Torque (N • m) : LS25=8.2

Order Number		Stock	Insert Number	Dimensions (mm)						Accessories					
				H1	B	L1	L2	H2	F1	Shim	Shim Pin	Clamp Lever	Clamp Screw *	Wrench	
PCBNR/L2020K12		●●	CNMA	1204	20	20	125	28	20	17	LLSCN42	LLP14	LLCL14	LLCS108	HKY30R
2525M12		●●	CNMG CNMM CNGG	1204	25	25	150	25	25	22	LLSCN42	LLP14	LLCL14	LLCS108	HKY30R

* Clamp Torque (N • m) : LLCS108=3.3

MCLN type inserts	> A068 – A070
PCBN type inserts	> A066 – A070
CBN & PCD inserts	> B022 – B024, B052

RECOMMENDED CUTTING CONDITIONS	> C036
SPARE PARTS	> P001
TECHNICAL DATA	> Q001

EXTERNAL TURNING TOOLS

DN^{OO} INSERTS TOOL HOLDERS

EXTERNAL TURNING

Order Number		Stock		Insert Number	Dimensions (mm)						*2					
		R	L		H1	B	L1	L2	H2	F1	Shim	Shim Pin	Clamp Lever	Clamp Screw	Wrench	
PDJNR/L2020K15		●	●	DNMA DNMG DNMM DNMX DNGA DNGG	1504	20	20	125	35	20	25	LLSDN43 (LLSDN42)	LLP14	LLCL24	LLCS108	HKY30R
2525M15		●	●		1504	25	25	150	35	25	32	LLSDN43 (LLSDN42)	LLP14	LLCL24	LLCS108	HKY30R
3225P15		●	●		1504	32	25	170	35	32	32	LLSDN43 (LLSDN42)	LLP14	LLCL24	LLCS108	HKY30R

*1 Clamp Torque (N · m) : LLCS108=3.3

*2 Please use shim no. LLSDN42 with 6.35mm thick inserts. When using 6.35mm thick inserts, shim should be ordered separately.

Order Number		Stock		Insert Number	Dimensions (mm)						*2						
		R	L		H1	B	L1	L2	H2	F1	Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw	Wrench	
DDJNR/L1616H11		●	●	DNMG	1104	16	16	100	28	16	20	LLSDN32	LLP23	DCK2211	DCS2	DC0520T	TKY15F
2020K11		●	●		1104	20	20	125	28	20	25	LLSDN32	LLP23	DCK2211	DCS2	DC0520T	TKY15F
2525M11		●	●		1104	25	25	150	28	25	32	LLSDN32	LLP23	DCK2211	DCS2	DC0520T	TKY15F
3225P11		●	●		1104	32	25	170	28	32	32	LLSDN32	LLP23	DCK2211	DCS2	DC0520T	TKY15F
2020K15		●	●	DNMA DNMG DNMM DNMX DNGA DNGG	1504	20	20	125	37	20	25	LLSDN43 (LLSDN42)	LLP24	DCK2613	DCS1	DC0621T	TKY20F
2525M15		●	●		1504	25	25	150	37	25	32	LLSDN43 (LLSDN42)	LLP24	DCK2613	DCS1	DC0621T	TKY20F
3225P15		●	●		1504	32	25	170	37	32	32	LLSDN43 (LLSDN42)	LLP24	DCK2613	DCS1	DC0621T	TKY20F

*1 Clamp Torque (N · m) : DC0520T=3.5, DC0621T=5.0

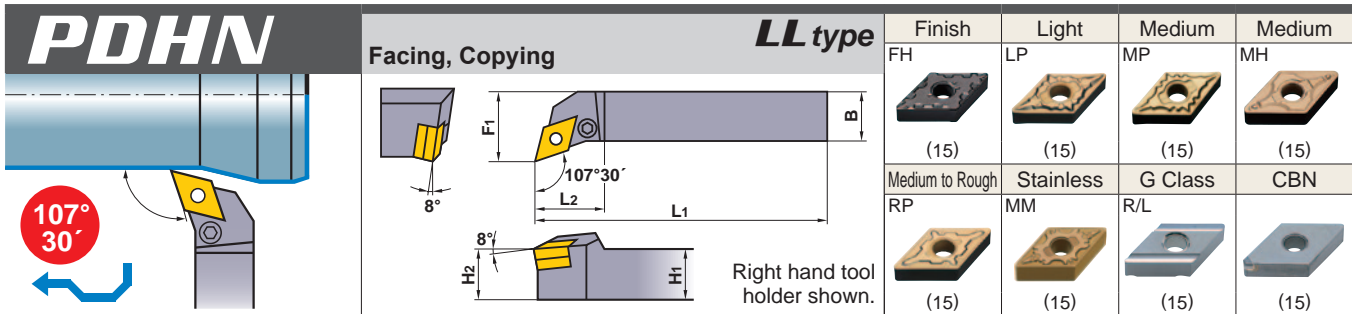
*2 Please use shim no. LLSDN42 with 6.35mm thick inserts. When using 6.35mm thick inserts, shim should be ordered separately.

(Note) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

● : Inventory maintained in Japan.

PDJN type inserts > A071-A075
DDJN type inserts > A071-A075

CBN & PCD inserts > B025, B026, B052
RECOMMENDED CUTTING CONDITIONS > C036



Order Number	Stock		Insert Number	Dimensions (mm)											
	R	L		H1	B	L1	L2	H2	F1	Shim	Shim Pin	Clamp Lever	Clamp Screw	Wrench	
PDHNR/L2020K15	●	●	DNMA DNMG	1504	20	20	125	34	20	25	LLSDN43 (LLSDN42)	LLP14	LLCL24	LLCS108	HKY30R
2525M15	●	●	DNMM DNGA	1504	25	25	150	34	25	32	LLSDN43 (LLSDN42)	LLP14	LLCL24	LLCS108	HKY30R
3225P15	●	●	DNGG	1504	32	25	170	34	32	32	LLSDN43 (LLSDN42)	LLP14	LLCL24	LLCS108	HKY30R

*1 Clamp Torque (N • m) : LLCS108=3.3

*2 Please use shim no. LLSDN42 with 6.35mm thick inserts. When using 6.35mm thick inserts, shim should be ordered separately.

EXTERNAL TURNING

PDHN type inserts	> A071 – A075
CBN & PCD inserts	> B025, B026, B052
RECOMMENDED CUTTING CONDITIONS	> C036

SPARE PARTS	> P001
TECHNICAL DATA	> Q001

EXTERNAL TURNING TOOLS

SN INSERTS TOOL HOLDERS

EXTERNAL TURNING

75°

PSBN

External turning

LL type

Right hand tool holder shown.

Finish	Light	Medium	Medium
FH (09,12)	LP (12)	MP (12,15,19)	MH (12)
Medium to Rough RP (12)	Stainless MM (12,15,19)	G Class R/L (09,12)	CBN (12)

Order Number	Stock		Insert Number	Dimensions (mm)						Accessories						
	R	L		H1	B	L1	L2	H2	F1	Shim	Shim Pin	Lever Spring	Clamp Lever	Clamp Screw*	Wrench	
PSBNR/L1212F09	●	●	SNMA SNMG SNGA SNMM SNGG	0903	12	12	80	20	12	13	—	—	HLS2	LLCL13S	LLCS105	HKY20R
1616H09	●	●		0903	16	16	100	22	16	13	LLSSN33	LLP23	—	LLCL13	LLCS106	HKY25R
2020K12	●	●		1204	20	20	125	28	20	17	LLSSN42	LLP14	—	LLCL14	LLCS108	HKY30R
2525M12	●	●		1204	25	25	150	25	25	22	LLSSN42	LLP14	—	LLCL14	LLCS108	HKY30R
2525M15	●	●		1506	25	25	150	33	25	22	LLSSN53	LLP15	—	LLCL25	LLCS508	HKY30R
3232P19	●	●		1906	32	32	170	40	32	27	LLSSN63	LLP16	—	LLCL16	LLCS310	HKY40R

* Clamp Torque (N · m) : LLCS105=1.5, LLCS106=2.2, LLCS108=3.3, LLCS508=3.3, LLCS310=7.0

75°

MSBN

External turning

DOUBLE CLAMP type
For heavy cutting

Right hand tool holder only.

Medium	Medium	Medium	Medium to Rough
MH (19)	Standard (19)	MM (19)	GH (19)
Heavy HZ (19)	Heavy HX (19)	Heavy HV (19)	M Class (19)

Order Number	Stock		Insert Number	Dimensions (mm)						Accessories					
	R	L		H1	B	L1	L2	H2	F1	Shim	Shim Pin	Clamp Bridge	Clamp Screw*	Wrench	
MSBNR3232P19	●	●	SNMG SNMM SNMA	1906	32	32	170	41	32	27	MSSN63	MP6	CKW6	LS25	HKY40R
4040R19	●	●		1906	40	40	200	41	40	35	MSSN63	MP6	CKW6	LS25	HKY40R

* Clamp Torque (N · m) : LS25=8.2

(Note) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

● : Inventory maintained in Japan.

PSBN type inserts > A077—A081
MSBN type inserts > A078—A081

CBN & PCD inserts > B027, B053
RECOMMENDED CUTTING CONDITIONS > C036

Order Number		Stock		Insert Number		Dimensions (mm)						Tools				
		R	L			H1	B	L1	L2	H2	F1	Shim	Shim Pin	Clamp Lever	Clamp Screw*	Wrench
PSTNR/L1616H09		●	●	SNMA SNMG SNMM SNGA SNGG	0903	16	16	100	20	16	13	LLSSN33	LLP23	LLCL13	LLCS106	HKY25R
2020K12		●	●		1204	20	20	125	25	20	17	LLSSN42	LLP14	LLCL14	LLCS108	HKY30R
2525M12		●	●		1204	25	25	150	25	25	22	LLSSN42	LLP14	LLCL14	LLCS108	HKY30R

* Clamp Torque (N · m) : LLCS106=2.2, LLCS108=3.3

Order Number		Stock		Insert Number		Dimensions (mm)						Tools					
		R	L			H1	B	L1	L2	H2	F1	F2	Shim	Shim Pin	Clamp Lever	Clamp Screw*	Wrench
PSSNR/L1616H09		●	●	SNMA SNMG SNMM SNGA SNGG	0903	16	16	100	22	16	20	(14)	LLSSN33	LLP23	LLCL13	LLCS106	HKY25R
2020K12		●	●		1204	20	20	125	31	20	25	(17)	LLSSN42	LLP14	LLCL14	LLCS108	HKY30R
2525M12		●	●		1204	25	25	150	31	25	32	(24)	LLSSN42	LLP14	LLCL14	LLCS108	HKY30R
3232P15		●	●		1506	32	32	170	34	32	40	(29)	LLSSN53	LLP15	LLCL25	LLCS508	HKY30R
3232P19		●	●		1906	32	32	170	40	32	40	(27)	LLSSN63	LLP16	LLCL16	LLCS310	HKY40R

(Note) When facing or chamfering only and using insert with right or left hand breaker, please use left hand insert for right hand holder and right hand insert for left hand holder.

* Clamp Torque (N · m) : LLCS106=2.2, LLCS108=3.3, LLCS508=3.3, LLCS310=7.0

PSTN type inserts > A077 – A081
 PSSN type inserts > A077 – A081
 CBN & PCD inserts > B027, B053

RECOMMENDED CUTTING CONDITIONS > C036
 SPARE PARTS > P001
 TECHNICAL DATA > Q001

EXTERNAL TURNING TOOLS

SN INSERTS TOOL HOLDERS

EXTERNAL TURNING

Order Number		Stock	Insert Number	Dimensions (mm)					Tools							
				H1	B	L1	L2	H2	F1	F2	Shim	Shim Pin	Clamp Bridge	Clamp Screw*	Wrench	
MSSNR3232P19	●		SNMG SNMM SNMA	1906	32	32	170	44	32	40	27	MSSN63	MP6	CKW6	LS25	HKY40R
4040R19	●		SNMG SNMM SNMA	1906	40	40	200	44	40	50	37	MSSN63	MP6	CKW6	LS25	HKY40R

* Clamp Torque (N · m) : LS25=8.2

Order Number		Stock	Insert Number	Dimensions (mm)					Tools							
				H1	B	L1	L2	H2	F1	Shim	Shim Pin	Lever Spring	Clamp Lever	Clamp Screw*	Wrench	
PSDNN1212F09	●		SNMA SNMG SNMM SNGA SNGG	0903	12	12	80	20	12	6.0	—	—	HLS2	LLCL13S	LLCS105	HKY20R
1616H09	●		SNMA SNMG SNMM SNGA SNGG	0903	16	16	100	22	16	8.0	LLSSN33	LLP23	—	LLCL13	LLCS106	HKY25R
2020K12	●		SNMA SNMG SNMM SNGA SNGG	1204	20	20	125	28	20	10.0	LLSSN42	LLP14	—	LLCL14	LLCS108	HKY30R
2525M12	●		SNMA SNMG SNMM SNGA SNGG	1204	25	25	150	28	25	12.5	LLSSN42	LLP14	—	LLCL14	LLCS108	HKY30R
3225P12	●		SNMA SNMG SNMM SNGA SNGG	1204	32	25	170	28	32	12.5	LLSSN42	LLP14	—	LLCL14	LLCS108	HKY30R

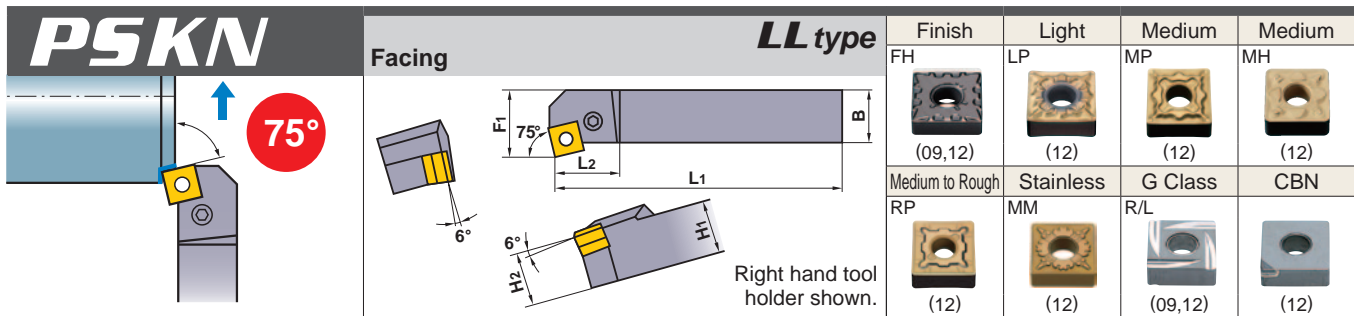
* Clamp Torque (N · m) : LLCS105=1.5, LLCS106=2.2, LLCS108=3.3

(Note) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

● : Inventory maintained in Japan.

MSSN type inserts > A078—A081
PSDN type inserts > A077—A081

CBN & PCD inserts > B027, B053
RECOMMENDED CUTTING CONDITIONS > C036



Order Number	Stock		Insert Number	Dimensions (mm)						Accessories					
	R	L		H1	B	L1	L2	H2	F1	Shim	Shim Pin	Clamp Lever	Clamp Screw*	Wrench	
PSKNR/L1616H09	●	●	SNMA SNMG	0903	16	16	100	20	16	20	LLSSN33	LLP23	LLCL13	LLCS106	HKY25R
2020K12	●	●	SNMM SNGA	1204	20	20	125	25	20	25	LLSSN42	LLP14	LLCL14	LLCS108	HKY30R
2525M12	●	●	SNGG	1204	25	25	150	25	25	32	LLSSN42	LLP14	LLCL14	LLCS108	HKY30R

(Note) When using insert with right or left hand breaker, please use left hand insert for right hand holder and right hand insert for left hand holder.

* Clamp Torque (N · m) : LLCS106=2.2, LLCS108=3.3

EXTERNAL TURNING

PSKN type inserts > A077 – A081
 CBN & PCD inserts > B027, B053
 RECOMMENDED CUTTING CONDITIONS > C036

SPARE PARTS > P001
 TECHNICAL DATA > Q001

EXTERNAL TURNING TOOLS

TN INSERTS TOOL HOLDERS

EXTERNAL TURNING

Order Number		Stock		Insert Number	Dimensions (mm)							*2		*1				
		R	L		H1	B	L1	L2	H2	F1	Shim	Shim Pin	Lever Spring	Clamp Lever	Clamp Screw	Wrench		
PTGNR/L1010E11		●	●	TNMA TNMG TNMM TNGA TNGG	1103	10	10	70	17	10	12	—	—	HLS1	LLCL12S	LLCS105	HKY20R	
1212F11		●	●		1103	12	12	80	17	12	16	—	—	HLS1	LLCL12S	LLCS105	HKY20R	
1616H16		●	●		1604	16	16	100	22	16	20	LLSTN32 (LLSTN33)	LLP13 (LLP23)	HLS1	LLCL13	LLCS106	HKY25R	
2020K16		●	●		1604	20	20	125	22	20	25	LLSTN32 (LLSTN33)	LLP13 (LLP23)	—	LLCL13	LLCS106	HKY25R	
2525M16		●	●		1604	25	25	150	22	25	32	LLSTN32 (LLSTN33)	LLP13 (LLP23)	—	LLCL13	LLCS206	HKY25R	
2525M22		●	●		2204	25	25	150	28	25	32	LLSTN42	LLP14	—	LLCL14	LLCS108	HKY30R	
3225P22		●	●		2204	32	25	170	28	32	32	LLSTN42	LLP14	—	LLCL14	LLCS108	HKY30R	
3232P27		●	●		2706	32	32	170	35	32	40	LLSTN53	LLP15	—	LLCL25	LLCS508	HKY30R	

*1 Clamp Torque (N · m) : LLCS105=1.5, LLCS106=2.2, LLCS206=2.2, LLCS108=3.3, LLCS508=3.3

*2 Please use shim no. LLSTN33 and shim pin no. LLP23 with 3.18mm thick inserts. When using 3.18mm thick inserts, shim and shim pin should be ordered separately.

Order Number		Stock		Insert Number	Dimensions (mm)							*2		*1				
		R	L		H1	B	L1	L2	H2	F1	Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw	Wrench		
DTGNR/L1616H16		●	●	TNMA TNMG TNMM TNGA TNGG	1604	16	16	100	25	16	20	LLSTN32 (LLSTN33)	LLP23	DCK2211	DCS2	DC0520T	TKY15F	
2020K16		●	●		1604	20	20	125	25	20	25	LLSTN32 (LLSTN33)	LLP23	DCK2211	DCS2	DC0520T	TKY15F	
2525M16		●	●		1604	25	25	150	25	25	32	LLSTN32 (LLSTN33)	LLP23	DCK2211	DCS2	DC0520T	TKY15F	

*1 Clamp Torque (N · m) : DC0520T=3.5

*2 Please use shim no. LLSTN33 with 3.18mm thick inserts. When using 3.18mm thick inserts, shim should be ordered separately.

(Note) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

● : Inventory maintained in Japan.

PTGN type inserts > A082—A087

DTGN type inserts > A082—A087

CBN & PCD inserts > B028, B029, B053

RECOMMENDED CUTTING CONDITIONS > C036

Order Number		Stock		Insert Number	Dimensions (mm)					*2		*1				
		R	L		H1	B	L1	L2	H2	F1	Shim	Shim Pin	Clamp Lever	Clamp Screw	Wrench	
PTFNR/L1616H16		●	●	TNMA TNMG TNMM TNGA TNGG	1604	16	16	100	22	16	20	LLSTN32 (LLSTN33)	LLP13 (LLP23)	LLCL13	LLCS106	HKY25R
2020K16		●	●		1604	20	20	125	22	20	25	LLSTN32 (LLSTN33)	LLP13 (LLP23)	LLCL13	LLCS106	HKY25R
2525M16		●	●		1604	25	25	150	22	25	32	LLSTN32 (LLSTN33)	LLP13 (LLP23)	LLCL13	LLCS206	HKY25R
2525M22		●	●		2204	25	25	150	28	25	32	LLSTN42	LLP14	LLCL14	LLCS108	HKY30R

(Note) When using insert with right or left hand breaker, please use left hand insert for right hand holder and right hand insert for left hand holder.

*1 Clamp Torque (N • m) : LLCS106=2.2, LLCS206=2.2, LLCS108=3.3

*2 Please use shim no. LLSTN33 and shim pin no. LLP23 with 3.18mm thick inserts. When using 3.18mm thick inserts, shim should be ordered separately.

Order Number		Stock		Insert Number	Dimensions (mm)					*2		*1						
		R	L		H1	B	L1	L2	H2	F1	Shim	Shim Pin	Clamp Bridge	Side Lock Plate	Spring	Clamp Screw	Wrench	
MTJNR/L2020K16N		●	●	TNMA TNMG TNMM TNGA TNGG	1604	20	20	125	31	20	25	WPSTN33	CCP33	CCK13	CPT13	MES2	SLCS105	HKY25R HKY40R
2525M16N		●	●		1604	25	25	150	31	25	32	WPSTN33	CCP33	CCK13	CPT13	MES2	SLCS105	HKY25R HKY40R
2525M22N		●	●		2204	25	25	150	38	25	32	WPSTN43	CCP34	CCK14	CPT14	MES3	SLCS106	HKY30R HKY40R

* Clamp Torque (N • m) : SLCS105=7.0, SLCS106=7.0






MTJN type inserts	> A082 – A087
PTFN type inserts	> A082 – A087
CBN & PCD inserts	> B028, B029, B053
RECOMMENDED CUTTING CONDITIONS	> C036

SPARE PARTS	> P001
TECHNICAL DATA	> Q001







EXTERNAL TURNING TOOLS

VN⁰⁰INSERTS TOOL HOLDERS

EXTERNAL TURNING

Order Number		Stock		Insert Number		Dimensions (mm)						    				
		R	L			H1	B	L1	L2	H2	F1	Shim	Lock Pin	Lock Screw	Stop Ring	Wrench
PVJNR/L2020K16		●	●	VNMG VNGA VNGG	1604	20	20	125	32	20	25	PV321	P11S	HSP05008C	E03	HKY25R
2525M16		●	●		1604	25	25	150	38	25	32	PV322 PV323	P11S	HSP05008C	E03	HKY25R

* Clamp Torque (N · m) : HSP05008C=2.5

Order Number		Stock		Insert Number		Dimensions (mm)						     					
		R	L			H1	B	L1	L2	H2	F1	Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw	Wrench
DVJNR/L2020K16		●	●	VNMG VNGA VNGG	1604	20	20	125	41	20	25	DCSVN32	LLP13	DCK3113	DCS2	DC0520T	TKY15F
2525M16		●	●		1604	25	25	150	41	25	32	DCSVN32	LLP13	DCK3113	DCS2	DC0520T	TKY15F

* Clamp Torque (N · m) : DC0520T=3.5

(Note) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

● : Inventory maintained in Japan.

PVJN type inserts > A088—A090
DVJN type inserts > A088—A090

CBN & PCD inserts > B030, B054
RECOMMENDED CUTTING CONDITIONS > C036

DVVN		External turning, <i>DOUBLE CLAMP</i> type Copying							Finish						
									Light	Medium	Medium	Medium			
									FH (16)	LP (16)	MP (16)	MH (16)			
									Medium Standard (16)	Stainless MM (16)	G Class R/L (16)	CBN (16)			
Order Number	Stock	Insert Number	Dimensions (mm)												
			H1	B	L1	L2	H2	F1	Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw	Wrench	
DVVNN2020K16	●	VNMA VNMG VNGA VNNG	1604	20	20	125	44	20	10	DCSVN32	LLP13	DCK3113	DCS2	DC0520T	TKY15F
2525M16	●	VNMA VNMG VNGA VNNG	1604	25	25	150	44	25	12.5	DCSVN32	LLP13	DCK3113	DCS2	DC0520T	TKY15F

* Clamp Torque (N · m) : DC0520T=3.5

PVVN		External turning, <i>MP</i> type Copying							Finish					
									Light	Medium	Medium	Medium		
									FH (16)	LP (16)	MP (16)	MH (16)		
									Medium Standard (16)	Stainless MM (16)	G Class R/L (16)	CBN (16)		
Order Number	Stock	Insert Number	Dimensions (mm)											
			H1	B	L1	L2	H2	F1	Shim	Lock Pin	Lock Screw	Stop Ring	Wrench	
PVVNN2020K16	●	VNMA VNMG VNGA VNNG	1604	20	20	125	38	20	10	PV321 PV322 PV323	P11S	HSP05008C	E03	HKY25R
2525M16	●	VNMA VNMG VNGA VNNG	1604	25	25	150	38	25	12.5	PV321 PV322 PV323	P11S	HSP05008C	E03	HKY25R

* Clamp Torque (N · m) : HSP05008C=2.5

DVVN type inserts > A088 – A090
 PVVN type inserts > A088 – A090
 CBN & PCD inserts > B030, B054

RECOMMENDED CUTTING CONDITIONS > C036
 SPARE PARTS > P001
 TECHNICAL DATA > Q001

EXTERNAL TURNING TOOLS

VN⁰⁰INSERTS TOOL HOLDERS

EXTERNAL TURNING

Order Number		Stock		Insert Number		Dimensions (mm)						Accessories					
		R	L			H1	B	L1	L2	H2	F1	Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw *	Wrench
DVPNR/L2020K16		●	●	VNMG VNGA VNGG	1604	20	20	125	32	20	25	DCSVN32	LLP13	DCK3113	DCS2	DC0520T	TKY15F
2525M16		●	●		1604	25	25	150	32	25	32	DCSVN32	LLP13	DCK3113	DCS2	DC0520T	TKY15F

* Clamp Torque (N · m) : DC0520T=3.5

Order Number		Stock		Insert Number		Dimensions (mm)						Accessories				
		R	L			H1	B	L1	L2	H2	F1	Shim	Lock Pin	Lock Screw *	Stop Ring	Wrench
PVPNR/L2020K16		●	●	VNMG VNGA VNGG	1604	20	20	125	32	20	25	PV321 PV322 PV323	P11S	HSP05008C	E03	HKY25R
2525M16		●	●		1604	25	25	150	32	25	32	P11S	HSP05008C	E03	HKY25R	

* Clamp Torque (N · m) : HSP05008C=2.5

(Note) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

● : Inventory maintained in Japan.

DVPN type inserts > A088—A090
PVPN type inserts > A088—A090

CBN & PCD inserts > B030, B054
RECOMMENDED CUTTING CONDITIONS > C036

WNO INSERTS TOOL HOLDERS

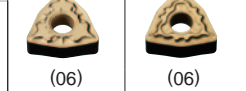
PWLN

External turning,
Facing

LL type

Light Medium

SH MP



(06) (06)

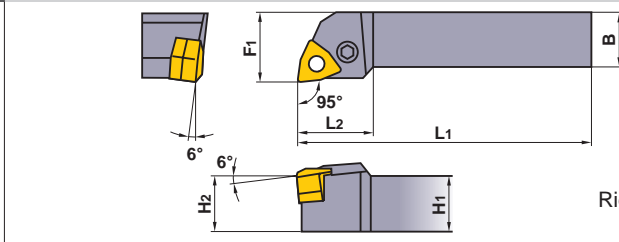
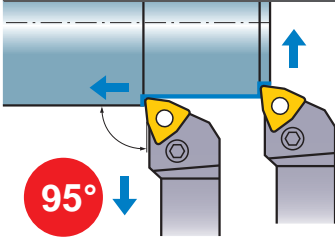
Stainless

MM



(06)

Right hand tool holder shown.



Order Number	Stock		Insert Number	Dimensions (mm)						Tools					
	R	L		H1	B	L1	L2	H2	F1	Shim	Shim Pin	Clamp Lever	Clamp Screw	Wrench	
PWLN/L1616H06	●	●	WNMG	06T3	16	16	100	22	16	20	LLSWN3T3 (LLSWN32)	LLP13	LLCL13	LLCS106	HKY25R
2020K06	●	●		06T3	20	20	125	22	20	25	LLSWN3T3 (LLSWN32)	LLP13	LLCL13	LLCS106	HKY25R
2525M06	●	●		06T3	25	25	150	25	25	32	LLSWN3T3 (LLSWN32)	LLP13	LLCL13	LLCS106	HKY25R

*1 Clamp Torque (N · m) : LLCS106=2.2

*2 Please use shim no. LLSWN32 with 4.76mm thick inserts. When using 4.76mm thick inserts, shim should be ordered separately.

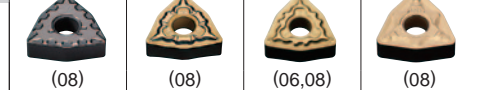
EXTERNAL TURNING

DWLN

External turning, **DOUBLE CLAMP type**
Facing

Finish Light Medium Medium

FH LP MP MH



(08) (08) (06,08) (08)

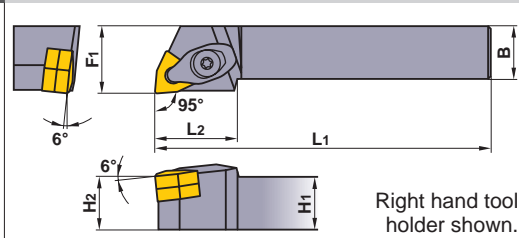
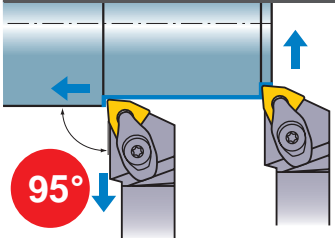
Medium Medium to Rough Stainless CBN

Standard RP MM



(08) (08) (06,08)

Right hand tool holder shown.



Order Number	Stock		Insert Number	Dimensions (mm)						Tools						
	R	L		H1	B	L1	L2	H2	F1	Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw	Wrench	
DWLN/L1616H06	●	●	WNMG	06T3	16	16	100	25	16	20	LLSWN3T3 (LLSWN32)	LLP23	DCK2211	DCS2	DC0520T	TKY15F
2020K06	●	●		06T3	20	20	125	25	20	25	LLSWN3T3 (LLSWN32)	LLP23	DCK2211	DCS2	DC0520T	TKY15F
2525M06	●	●		06T3	25	25	150	25	25	32	LLSWN3T3 (LLSWN32)	LLP23	DCK2211	DCS2	DC0520T	TKY15F
2020K08	●	●	WNMA WNMG	0804	20	20	125	31	20	25	LLSWN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
2525M08	●	●		0804	25	25	150	31	25	32	LLSWN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
3225P08	●	●		0804	32	25	170	31	32	32	LLSWN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F

*1 Clamp Torque (N · m) : DC0520T=3.5, DC0621T=5.0

*2 Please use shim no. LLSWN32 with 4.76mm thick inserts. When using 4.76mm thick inserts, shim should be ordered separately.

PWLN type inserts > A091 – A093
DWLN type inserts > A091 – A094
CBN inserts > B031

RECOMMENDED CUTTING CONDITIONS > C036
SPARE PARTS > P001
TECHNICAL DATA > Q001

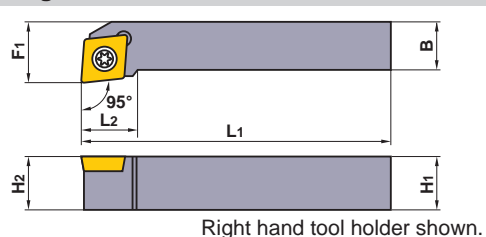
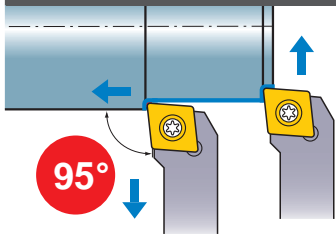
EXTERNAL TURNING TOOLS

CC INSERTS TOOL HOLDERS

SCLC

External turning, Facing

SP type



Right hand tool holder shown.

Finish	Finish	Light	Light
FP (06,09)	FM (06,09)	LP (06,09)	LM (06,09)
Medium	Medium	Flat top	PCD/CBN
MP (06,09,12)	MM (06,09,12)	 (06,09,12)	 (06,09,12)

EXTERNAL TURNING

Order Number	Stock		Insert Number	Dimensions (mm)						*		
	R	L		H1	B	L1	L2	H2	F1	Clamp Screw	Wrench	
SCLCR/L0808D06	●	●	CCET	0602	8	8	60	8.9	8	10	TS25	TKY08F
1010E06	●	●	CCGT	0602	10	10	70	8.9	10	12	TS25	TKY08F
1212F09	●	●	CCMW	09T3	12	12	80	13.6	12	16	TS43	TKY15F
1616H12	●	●	CCGT	1204	16	16	100	16.7	16	20	TS5	TKY25F

* Clamp Torque (N • m) : TS25=1.0, TS43=3.5, TS5=7.5

(Note) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

● : Inventory maintained in Japan.

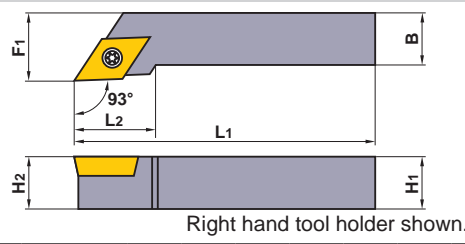
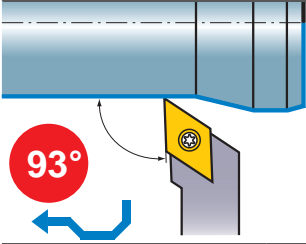
SCLC type inserts	> A097 – A101
CBN & PCD inserts	> B036 – B038, B056
RECOMMENDED CUTTING CONDITIONS	> C036

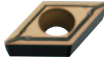
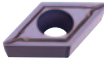
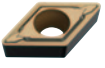
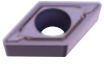
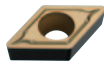
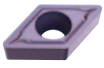
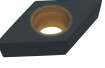
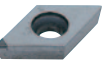
DC INSERTS TOOL HOLDERS



SDJC

External turning,
Copying

SP type



Finish	Finish	Light	Light
FP	FM	LP	LM
 (07,11)	 (07,11)	 (07,11)	 (07,11)
Medium	Medium	Flat top	PCD/CBN
MP	MM		
 (07,11)	 (07,11)	 (07,11)	 (07,11)

Order Number	Stock		Insert Number	Dimensions (mm)					* 			
	R	L		H1	B	L1	L2	H2	F1	Clamp Screw	Wrench	
SDJCR/L1010E07	●	●	DCET DCGT	0702	10	10	70	12	10	12	TS25	TKY08F
1212F11	●	●	DCMW DCMT	11T3	12	12	80	18	12	16	TS43	TKY15F
1616H11	●	●	DCGW	11T3	16	16	100	18	16	20	TS43	TKY15F

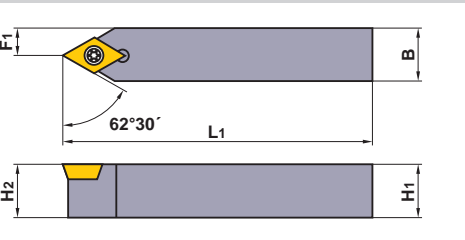
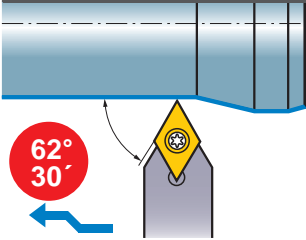
* Clamp Torque (N · m) : TS25=1.0, TS43=3.5

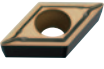
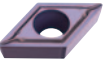
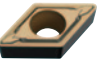
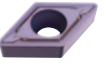
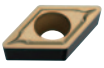
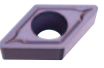
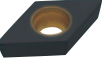
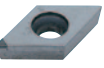
EXTERNAL TURNING



SDNC

External turning,
Copying

SP type



Finish	Finish	Light	Light
FP	FM	LP	LM
 (07,11)	 (07,11)	 (07,11)	 (07,11)
Medium	Medium	Flat top	PCD/CBN
MP	MM		
 (07,11)	 (07,11)	 (07,11)	 (07,11)

Order Number	Stock		Insert Number	Dimensions (mm)					* 			
	R	L		H1	B	L1	H2	F1	Clamp Screw	Wrench		
SDNCN0808D07	●	●	DCET DCGT	0702	8	8	60	8	4	TS25	TKY08F	
1010E07	●	●	DCMW DCMT	0702	10	10	70	10	5	TS25	TKY08F	
1212F11	●	●	DCMW DCMT	11T3	12	12	80	12	6	TS43	TKY15F	
1616H11	●	●	DCGW	11T3	16	16	100	16	8	TS43	TKY15F	

* Clamp Torque (N · m) : TS25=1.0, TS43=3.5

SDJC type inserts > A103–A107
 SDNC type inserts > A103–A107
 CBN & PCD inserts > B040, B041, B057

RECOMMENDED CUTTING CONDITIONS > C036
 SPARE PARTS > P001
 TECHNICAL DATA > Q001

EXTERNAL TURNING TOOLS

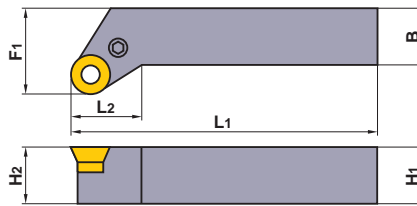
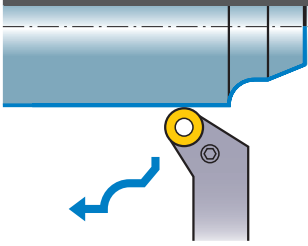
RC INSERTS TOOL HOLDERS

PRGC

External turning,
Facing, Copying

LL type

Medium



Right hand tool holder shown.



EXTERNAL TURNING

Order Number	Stock		Insert Number	Dimensions (mm)						Shim	Shim Pin	Clamp Lever	Clamp Screw	Wrench	
	R	L		H1	B	L1	L2	H2	F1						
PRGCR/L2525M10	●	●	RCMX	1003M0	25	25	150	16.7	25	32	LLSRN103	LLP13	LLCL110	LLCS205	HKY20R
2525M12	●	●		1204M0	25	25	150	17.5	25	32	LLSRN123	LLP13	LLCL112	LLCS106	HKY25R
2525M16	●	●		1606M0	25	25	150	19.9	25	32	LLSRN164	LLP24	LLCL116	LLCS306	HKY25R
3232P20	●	●		2006M0	32	32	170	23.8	32	40	LLSRN204	LLP15	LLCL120	LLCS508	HKY30R

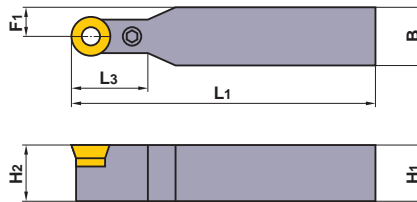
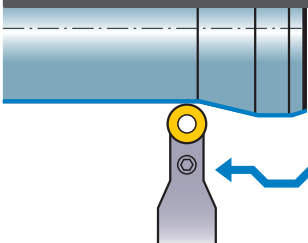
* Clamp Torque (N · m) : LLCS205=1.5, LLCS106=2.2, LLCS306=2.2, LLCS508=3.3

PRDC

External turning,
Copying

LL type

Medium



Order Number	Stock		Insert Number	Dimensions (mm)						Shim	Shim Pin	Clamp Lever	Clamp Screw	Wrench	
	R	L		H1	B	L1	L3	H2	F1						
PRDCN2020K10	●	●	RCMX	1003M0	20	20	125	23	20	10.0	LLSRN103	LLP13	LLCL110	LLCS205	HKY20R
2525M12	●	●		1204M0	25	25	150	24	25	12.5	LLSRN123	LLP13	LLCL112	LLCS106	HKY25R
3225P12	●	●		1204M0	32	25	170	24	32	12.5	LLSRN123	LLP13	LLCL112	LLCS106	HKY25R
3225P16	●	●		1606M0	32	25	170	28	32	12.5	LLSRN164	LLP24	LLCL116	LLCS306	HKY25R
3232P20	●	●		2006M0	32	32	170	33	32	16.0	LLSRN204	LLP15	LLCL120	LLCS508	HKY30R

* Clamp Torque (N · m) : LLCS205=1.5, LLCS106=2.2, LLCS306=2.2, LLCS508=3.3

(Note) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

● : Inventory maintained in Japan.

PRGC type inserts > A109
PRDC type inserts > A109
RECOMMENDED CUTTING CONDITIONS > C036

SRGC		External turning, Facing, Copying								SP type		Medium Standard
										Right hand tool holder shown.		
Order Number	Stock		Insert Number		Dimensions (mm)					*		
	R	L			H1	B	L1	L2	H2	F1	Clamp Screw	Wrench
SRGCR/L1616H06	●	●	RCMT	0602	16	16	100	10	16	20	TS25	TKY08F
1616H08	●	●		0803	16	16	100	14.5	16	22	TS3	TKY08F

* Clamp Torque (N · m) : TS25=1.0, TS3=1.0

EXTERNAL TURNING

SRDC		External turning, Copying								SP type		Medium Standard
Order Number	Stock		Insert Number		Dimensions (mm)					*		
	R	L			H1	B	L1	L3	H2	F1	Clamp Screw	Wrench
SRDCN1616H06	●	●	RCMT	0602	16	16	100	12	16	8	TS25	TKY08F
1616H08	●	●		0803	16	16	100	16	16	8	TS3	TKY08F

* Clamp Torque (N · m) : TS25=1.0, TS3=1.0

SRGC type inserts > A109
 SRDC type inserts > A109
 RECOMMENDED CUTTING CONDITIONS > C036

SPARE PARTS > P001
 TECHNICAL DATA > Q001

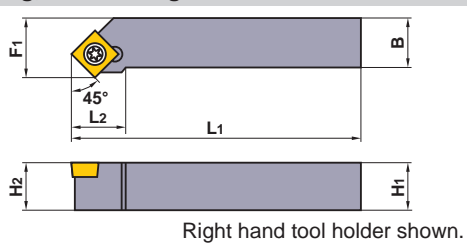
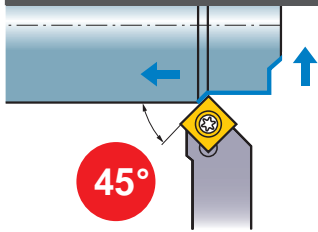
EXTERNAL TURNING TOOLS

SC INSERTS TOOL HOLDERS

SSSC


External turning,
Facing, Chamfering

SP type



Finish	Finish	Light	Light
FP (09)	FM (09)	LP (09)	LM (09)
Medium	Medium	Medium	Flat top
MP (09)	MM (09)	Standard (09)	(09)

EXTERNAL TURNING

Order Number	Stock		Insert Number	Dimensions (mm)						* 		
	R	L		H1	B	L1	L2	H2	F1	Clamp Screw	Wrench	
SSSCR/L1212F09	●	●	SCMW SCMT	09T3	12	12	80	15.2	12	13	TS43	TKY15F
1616H09	●	●		09T3	16	16	100	15.2	16	17	TS43	TKY15F

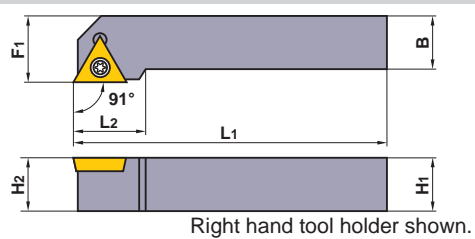
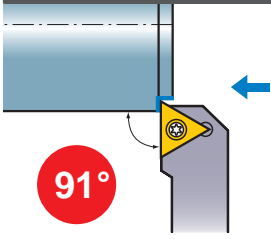
* Clamp Torque (N · m) : TS43=3.5

(Note) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

TC INSERTS TOOL HOLDERS



STGC

External turning *SP type*



Finish	Finish	Light	Light
FP	FM	LP	LM
 (11,16)	 (11,16)	 (11,16)	 (11,16)
Medium	Medium	Flat top	PCD/CBN
MP	MM		
 (11,16)	 (11,16)	 (11,16)	 (11,13)

Right hand tool holder shown.

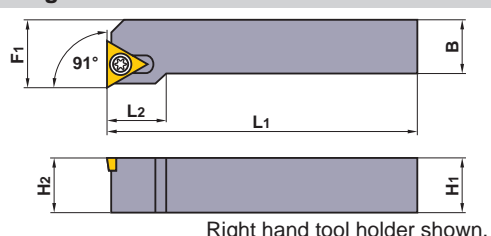
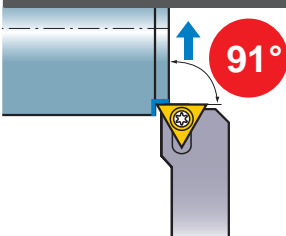
Order Number	Stock		Insert Number	Dimensions (mm)						* 		
	R	L		H1	B	L1	L2	H2	F1	Clamp Screw	Wrench 	
STGCR/L1010E11	●	●	TCGT TCMW TCMT	1102	10	10	70	13.5	10	12	TS25	TKY08F
1212F13	●	●		1303	12	12	80	17.6	12	16	TS3	TKY08F
1616H16	●	●		16T3	16	16	100	20.7	16	20	TS43	TKY15F

* Clamp Torque (N · m) : TS25=1.0, TS3=1.0, TS43=3.5

EXTERNAL TURNING



STFC

Facing *SP type*



Finish	Finish	Light	Light
FP	FM	LP	LM
 (11,16)	 (11,16)	 (11,16)	 (11,16)
Medium	Medium	Flat top	PCD/CBN
MP	MM		
 (11,16)	 (11,16)	 (11,16)	 (11,13)

Right hand tool holder shown.

Order Number	Stock		Insert Number	Dimensions (mm)						* 		
	R	L		H1	B	L1	L2	H2	F1	Clamp Screw	Wrench 	
STFCR/L1010E11	▲	▲	TCGT TCMW TCMT	1102	10	10	70	12.5	10	12	TS25	TKY08F
1212F13	▲	▲		1303	12	12	80	14.5	12	16	TS3	TKY08F
1616H13	▲	▲		1303	16	16	100	14.5	16	20	TS3	TKY08F

(Note) When using insert with right or left hand breaker, please use left hand insert for right hand holder and right hand insert for left hand holder.

* Clamp Torque (N · m) : TS25=1.0, TS3=1.0

STGC type inserts > A113, A114
 STFC type inserts > A113, A114
 CBN & PCD inserts > B042, B058

RECOMMENDED CUTTING CONDITIONS > C036
 SPARE PARTS > P001
 TECHNICAL DATA > Q001

EXTERNAL TURNING TOOLS

VC INSERTS TOOL HOLDERS

EXTERNAL TURNING

SVJC External turning, Copying **SP type**

Finish	Finish	Light	Light
FP	FM	LP	LM
(11,16)	(11,16)	(11,16)	(11,16)
Medium	Medium	Medium	Flat top
MP	MM	Standard	
(16)	(16)	(11,16)	(11,16)

Order Number	Stock		Insert Number	Dimensions (mm)										
	R	L		H1	B	L1	L2	H2	F1					Shim
SVJCR/L1010E11	●	●	VCMT VCMW	1103	10	10	70	17	10	12	—	—	TS25	①TKY08F
1616H16	●	●		1604	16	16	100	25	16	20	—	—	TS43	①TKY15F
2020K16	●	●		1604	20	20	125	40	20	25	SPSVN32	BCP141	TS44	②TKY15R
2525M16	●	●		1604	25	25	150	40	25	32	SPSVN32	BCP141	TS44	②TKY15R

* Clamp Torque (N · m) : TS25=1.0, TS43=3.5, TS44=3.5

SVVC External turning, Copying **SP type**

Finish	Finish	Light	Light
FP	FM	LP	LM
(16)	(16)	(16)	(16)
Medium	Medium	Medium	Flat top
MP	MM	Standard	
(16)	(16)	(16)	(16)

Order Number	Stock		Insert Number	Dimensions (mm)									
	R	L		H1	B	L1	H2	F1					Shim
SVVCN1616H16	●	●	VCMT VCMW	1604	16	16	100	16	8	—	—	TS43	①TKY15F
2020K16	●	●		1604	20	20	125	20	10	SPSVN32	BCP141	TS44	②TKY15R
2525M16	●	●		1604	25	25	150	25	12.5	SPSVN32	BCP141	TS44	②TKY15R

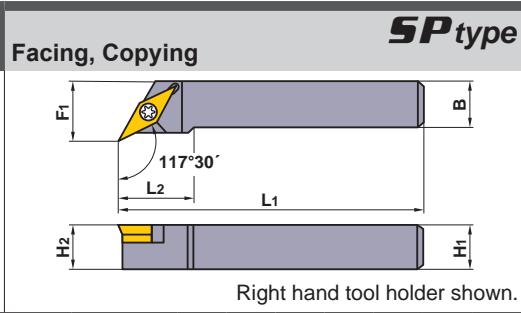
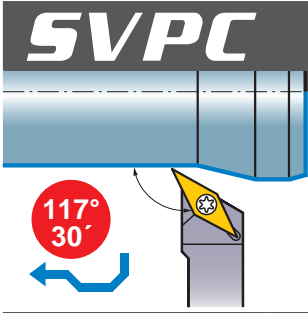
* Clamp Torque (N · m) : TS43=3.5, TS44=3.5

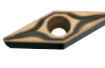


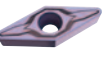

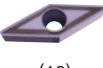


(Note) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.





● : Inventory maintained in Japan.

SVJC type inserts > A122, A123
SVVC type inserts > A122, A123

CBN & PCD inserts > B046, B061
RECOMMENDED CUTTING CONDITIONS > C036



Finish	Finish	Light	Light
FP  (16)	FM  (16)	LP  (16)	LM  (16)
Medium	Medium	Medium	Flat top
MP  (16)	MM  (16)	Standard  (16)	 (16)

Order Number	Stock		Insert Number	Dimensions (mm)										
	R	L		H1	B	L1	L2	H2	F1	Shim	Shim Pin	Clamp Screw *	Wrench	
SVPCR/L2020K16	●	●	VCGT VCMT VCMW	1604	20	20	125	30	20	25	SPSVN32	BCP141	TS44	TKY15R
2525M16	●	●	VCMT VCMW	1604	25	25	150	30	25	32	SPSVN32	BCP141	TS44	TKY15R

* Clamp Torque (N · m) : TS44=3.5

EXTERNAL TURNING

SVPC type inserts > A122, A123
 CBN inserts > B046
 RECOMMENDED CUTTING CONDITIONS > C036

SPARE PARTS > P001
 TECHNICAL DATA > Q001

EXTERNAL TURNING TOOLS

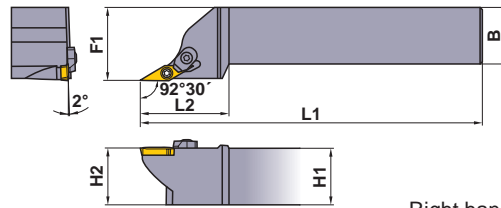
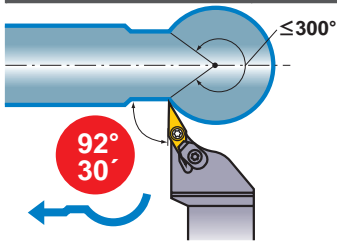
XC INSERTS TOOL HOLDERS

SXZC

External turning,
Copying

Profile Holder

Finish
SVX



Right hand tool holder shown.

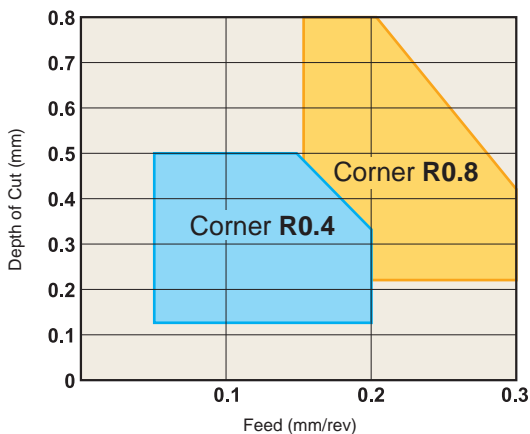


EXTERNAL TURNING

Order Number	Stock		Insert Number	Dimensions (mm)						* Clamp Screw		* Clamp Bridge		Spring	Insert Wrench	Wrench for clamp bridge
	R	L		H1	B	L1	L2	H2	F1	Clamp Screw	Clamp Bridge					
SXZCR/L1616H15	●	●	XCMT	1503	16	16	100	35	16	20	TS255	AMS3	AJS3010T10	ASS2	TKY08F	TKY10F
2020K15	●	●		1503	20	20	125	35	20	25	TS255	AMS3	AJS3010T10	ASS2	TKY08F	TKY10F
2525M15	●	●		1503	25	25	150	40	25	32	TS255	AMS3	AJS3010T10	ASS2	TKF08F	TKF10F

* Clamp Torque (N · m) : TS255=1.0, AJS3010T10=2.5

Applicable range



RECOMMENDED CUTTING CONDITIONS

Work Material	Hardness	Grade	Cutting Speed (m/min)
P Mild Steel	≤180HB	UE6020	150—350
Carbon Steel, Alloy Steel	150HB—250HB	UE6020	100—250

(Note) The above cutting conditions are general guidelines.

Adjustments may be necessary depending on machine rigidity, workpiece geometry and clamping.

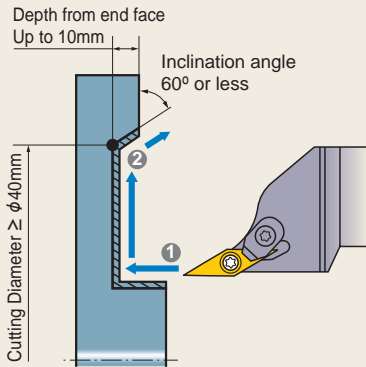
(Note) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

● : Inventory maintained in Japan.

NOTE

Notes when end face copying

Pay special attention to the following when face copying.



●Machining of an outer diameter (Step ①)

- To prevent burr formation, the depth of cut should be below half the nose radius.

●Machining of an inclination (Step ②)

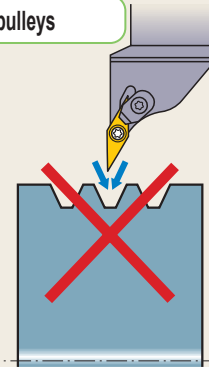
- To reduce the contact length of chips, the depth of cut should be below half the nose radius.
- To prevent interference between the tool and the workpiece, the cutting diameter should be 40mm or larger, inclination angle 60° or less and depth from the end face up to 10mm.

●When changing inserts

- When indexing the inserts, it is recommended to preset the cutting edge position to maintain machining accuracy.

Not possible

Machining of V-pulleys



When machining V-pulleys, use a VNMG insert.

EXTERNAL TURNING TOOLS [FOR ALUMINIUM]

DE INSERTS TOOL HOLDERS

EXTERNAL TURNING

SDJE		External turning, Copying							AL type		Finish	Medium
									Right hand tool holder shown.		R/L-F (15)	R/L (15)
Order Number	Stock R L	Insert Number	Dimensions (mm)						* 		PCD	
			H1	B	L1	L2	H2	F1			Clamp Screw	Wrench
SDJER/L1616H15	● ●	DEGX	1504	16	16	100	27	16	20	CS451190T	TKY20F	
2020K15	● ●		1504	20	20	125	35	20	25	CS451190T	TKY20F	
2525M15	● ●		1504	25	25	150	35	25	32	CS451190T	TKY20F	

* Clamp Torque (N · m) : CS451190T=5.0

SDNE		External turning, Copying							AL type		Finish	Medium
									Right hand tool holder shown.		R/L-F (15)	R/L (15)
Order Number	Stock R L	Insert Number	Dimensions (mm)						* 		PCD	
			H1	B	L1	H2	F1	Clamp Screw			Wrench	
SDNEN1616H15	●	DEGX	1504	16	16	100	16	8	CS451190T	TKY20F		
2020K15	●		1504	20	20	125	20	10	CS451190T	TKY20F		
2525M15	●		1504	25	25	150	25	12.5	CS451190T	TKY20F		

* Clamp Torque (N · m) : CS451190T=5.0

RECOMMENDED CUTTING CONDITIONS

Work Material	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
N Aluminium Alloy	HTi10	400	0.05-0.3	0.2-3.0
	MD220	800	0.05-0.3	0.2-0.5

(Note) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

● : Inventory maintained in Japan.




SDJE type inserts > A108
SDNE type inserts > A108
PCD inserts > B063

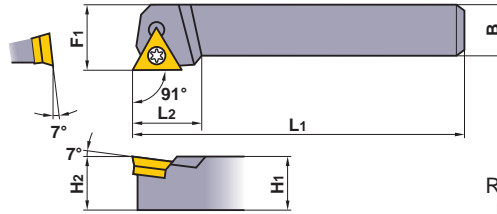
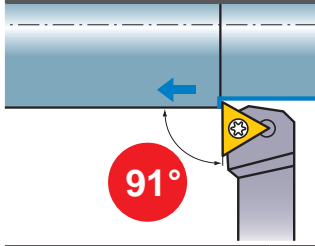
TE INSERTS TOOL HOLDERS

STGE



External turning

AL type

Medium	PCD
R/L  (16)	R/L  (16)
PCD  (16)	



Right hand tool holder shown.




Order Number	Stock		Insert Number	Dimensions (mm)						* 		
	R	L		H1	B	L1	L2	H2	F1			Clamp Screw
STGER/L1616H16	●	●	TEGX	1603	16	16	100	22	16	20	FC400890T	TKY10F
2020K16	●	●		1603	20	20	125	22	20	25	FC400890T	TKY10F
2525M16	●	●		1603	25	25	150	22	25	32	FC400890T	TKY10F

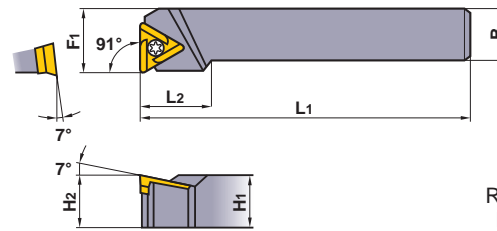
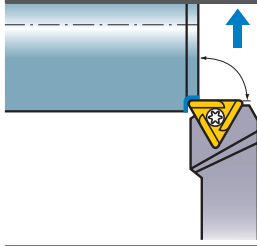
* Clamp Torque (N · m) : FC400890T=2.5

STFE



Facing

AL type

Medium	PCD
R/L  (16)	R/L  (16)
PCD  (16)	



Right hand tool holder shown.

Order Number	Stock		Insert Number	Dimensions (mm)						* 		
	R	L		H1	B	L1	L2	H2	F1			Clamp Screw
STFER/L1616H16	●	●	TEGX	1603	16	16	100	22	16	20	FC400890T	TKY10F
2020K16	●	●		1603	20	20	125	22	20	25	FC400890T	TKY10F
2525M16	●	●		1603	25	25	150	22	25	32	FC400890T	TKY10F

(Note) When using insert with right or left hand breaker, please use left hand insert for right hand holder and right hand insert for left hand holder.

* Clamp Torque (N · m) : FC400890T=2.5

RECOMMENDED CUTTING CONDITIONS

Work Material	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
N Aluminium Alloy	HTi10	400	0.05-0.3	0.2-3.0
	MD220	800	0.05-0.3	0.2-0.5

STGE type inserts > A115
STFE type inserts > A115
PCD inserts > B063

SPARE PARTS > P001
TECHNICAL DATA > Q001

EXTERNAL TURNING TOOLS [FOR ALUMINIUM]

VD⁰⁰ INSERTS TOOL HOLDERS

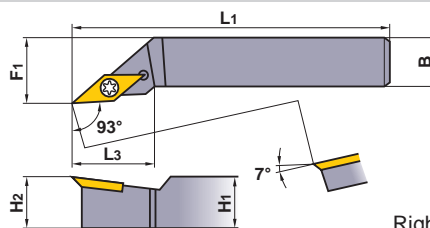
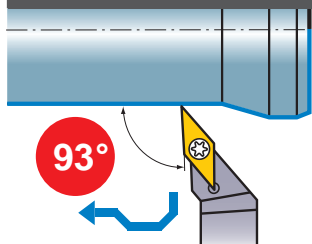
SVJD

External turning,
Copying

AL type

Finish

R/L



Right hand tool holder shown.



(16)

PCD

R/L-F



(16)

EXTERNAL TURNING

Order Number	Stock		Insert Number	Dimensions (mm)						* 		
	R	L		H1	B	L1	L3	H2	F1			Clamp Screw
SVJDR/L1616H16	●	●	VDGX	1603 ⁰⁰	16	16	100	30	16	20	FC400890T	TKY10F
2020K16	●	●		1603 ⁰⁰	20	20	125	30	20	25	FC400890T	TKY10F
2525M16	●	●		1603 ⁰⁰	25	25	150	30	25	32	FC400890T	TKY10F

* Clamp Torque (N · m) : FC400890T=2.5

RECOMMENDED CUTTING CONDITIONS

Work Material	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
N Aluminium Alloy	HTi10	400	0.05—0.3	0.2—3.0
	MD220	800	0.05—0.3	0.2—0.5

(Note) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

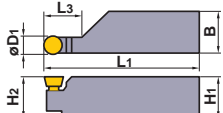
● : Inventory maintained in Japan.

SVJD type inserts > A124

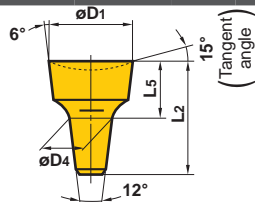
PCD inserts > B064

TL HOLDER

HOLDER

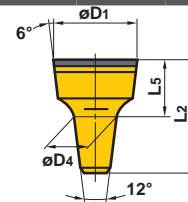
Geometry	Revised order number	Conventional order number	Stock	Insert Number	Dimensions (mm)					
					D1	H1	B	H2	L1	L3
TLHR (External turning, Copying) 	TLHR2020K5	TLHR2020K5	●	RTG05A	5	20	20	20	125	16
	2020K6	2020K6	●	06A	6	20	20	20	125	16
	2525M7	2525M7	●	07A	7	25	25	25	150	20
	3225P10	54P10	●	10A	10	32	25	32	170	25

INSERTS



Order Number	Stock Carbide		Dimensions (mm)			
	UTi20T	HTi10	D1	L2	D4	L5
	RTG05A	●	●	5	7.5	2.5
06A	●	●	6	7.5	3.5	3.5
07A	●		7	11	3.5	5
08A	●	●	8	11	4.5	5
10A	●	●	10	14	5.5	6.5

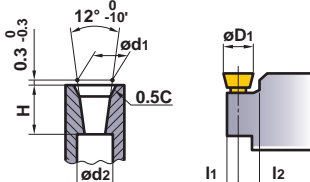
INSERTS (CBN)



Order Number	Stock CBN	Dimensions (mm)			
	MB825	D1	L2	D4	L5
	RTG05A	●	5	7.5	2.5
06A	●	6	7.5	3.5	3.5
07A	●	7	11	3.5	5
08A	●	8	11	4.5	5
10A	●	10	14	5.5	6.5

INSERT SEAT LOCATION

When manufacturing a special tool holder, please machine insert seat in accordance to the drawing.

Insert Seat Dimensions	Insert Diameter D1	Dimensions (mm)					Taper Diameter
		H	d1	d2	l1	l2	
	5	4	2.5	1.9	1.85	3.2	1.5
	6	4	3.5	2.9	2.35	3.7	2.5
	7	6	3.5	2.5	2.75	4.3	2.1
	8	6	4.5	3.5	3.25	4.8	3.1
	10	7.5	5.5	4.2	4.15	5.9	3.8
	12	7.5	7.5	6.2	5.15	6.9	5.8

RECOMMENDED CUTTING CONDITIONS

NEGATIVE INSERTS

Breker : Std : Standard Flat : Flat Top

EXTERNAL TURNING

Work Material	Hardness	Cutting Mode	Priority	Breker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	Work Material	Hardness	Cutting Mode	Priority	Breker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)		
P									P										
Mild Steel (SS400, S10C)	≤180HB	●	F	1	FY	VP25N	285-445	0.09-0.23	0.20-0.80	Carbon Steel • Alloy Steel (S45C, SCM440)	180 280HB	●	H	1	HX	UE6020	155-250	0.50-1.26	3.00-11.00
		●	F	2	FS	NX2525	270-385	0.09-0.23	0.20-0.70			●	H	2	HV	UE6020	125-205	0.70-1.30	4.00-12.00
		●	L	1	SY	VP25N	260-405	0.16-0.33	0.50-1.20			●	H	3	HZ	UE6110	160-275	0.40-1.20	2.00-10.00
		●	F	1	FY	MP3025	275-420	0.09-0.23	0.20-0.80			✦	F	1	FH	UE6110	230-390	0.08-0.20	0.20-1.00
		●	F	2	FY	NX3035	260-370	0.09-0.23	0.20-0.80			✦	F	2	FH	UE6020	215-355	0.08-0.20	0.20-1.00
		●	F	3	FS	NX2525	270-385	0.09-0.23	0.20-0.70			✦	L	1	LP	MC6025	210-340	0.10-0.40	0.30-2.00
		●	L	1	SY	MP3025	250-385	0.16-0.33	0.50-1.20			✦	L	2	SH	UE6020	200-325	0.10-0.40	0.30-2.00
		●	L	2	SY	NX3035	235-335	0.16-0.33	0.50-1.20			✦	L	3	SA	UE6020	200-325	0.10-0.40	0.30-2.00
		✦	F	1	FY	UE6020	285-460	0.09-0.23	0.20-0.80			✦	M	1	MP	MC6025	190-310	0.16-0.50	0.30-4.00
		✦	F	2	FS	UE6020	285-460	0.09-0.23	0.20-0.70			✦	M	2	MA	MC6025	190-310	0.20-0.50	0.30-4.00
✦	L	1	SY	UE6020	260-420	0.16-0.33	0.50-1.20	✦	M	3	MP	UE6020	180-295	0.16-0.50	0.30-4.00				
Carbon Steel • Alloy Steel (S45C, SCM440)	180 280HB	●	F	1	FH	AP25N	215-340	0.08-0.20	0.20-1.00	✦	M	4	MA	UE6020	180-295	0.20-0.50	0.30-4.00		
		●	F	2	FH	NX2525	205-295	0.08-0.20	0.20-1.00	✦	M	5	MA	UE6035	170-235	0.20-0.50	0.30-4.00		
		●	F	3	R/L-F	MP3025	210-325	0.05-0.15	0.10-0.50	✦	M	6	MH	UE6020	180-295	0.20-0.55	1.00-4.00		
		●	F	4	PK	NX2525	195-280	0.10-0.30	0.20-1.00	✦	M	7	MH	UE6035	170-235	0.20-0.55	1.00-4.00		
		●	L	1	LP	UE6105	220-405	0.10-0.40	0.30-2.00	✦	M	8	Std	UE6020	180-295	0.25-0.60	1.50-5.00		
		●	L	2	SH	UE6105	220-405	0.10-0.40	0.30-2.00	✦	M	9	Std	UE6035	170-235	0.25-0.60	1.50-5.00		
		●	L	3	LP	MP3025	195-295	0.10-0.40	0.30-2.00	✦	M	10	MW	MC6025	190-310	0.20-0.60	0.90-4.00		
		●	L	4	SH	AP25N	200-315	0.10-0.40	0.30-2.00	✦	M	11	MW	UE6020	180-295	0.20-0.60	0.90-4.00		
		●	L	5	SH	NX2525	190-270	0.10-0.40	0.30-2.00	✦	R	1	RP	MC6025	180-295	0.25-0.60	1.50-6.00		
		●	L	6	SA	UE6105	220-405	0.10-0.40	0.30-2.00	✦	R	2	GH	UE6020	170-280	0.25-0.60	1.50-6.00		
		●	L	7	SW	UE6105	220-405	0.10-0.50	0.30-2.50	✦	H	1	HX	UH6400	135-195	0.50-1.26	3.00-11.00		
		●	L	8	SW	MP3025	195-295	0.10-0.50	0.30-2.50	✦	H	2	HV	UH6400	110-160	0.70-1.30	4.00-12.00		
		●	L	9	SW	NX2525	190-270	0.10-0.50	0.30-2.50	✦	H	3	HZ	UH6400	135-195	0.40-1.20	2.00-10.00		
		●	L	10	R/L-K	MP3025	195-295	0.08-0.20	0.30-1.20	✦	H	4	HZ	UE6020	155-250	0.40-1.20	2.00-10.00		
		●	M	1	MP	UE6105	200-370	0.16-0.50	0.30-4.00		M								
		●	M	2	MP	MP3025	175-270	0.16-0.50	0.30-4.00		●	L	1	LM	MC7015	180-285	0.10-0.30	0.30-2.00	
		●	M	3	MA	UE6105	200-370	0.20-0.50	0.30-4.00		●	L	2	SH	US735	95-185	0.10-0.40	0.30-2.00	
		●	M	4	MH	UE6105	200-370	0.20-0.55	1.00-4.00		●	L	3	SH	NX2525	65-135	0.10-0.40	0.30-2.00	
		●	M	5	Std	UE6105	200-370	0.25-0.60	1.50-5.00		●	L	4	SW	US7020	105-270	0.10-0.50	0.30-2.50	
		●	M	6	Std	MP3025	175-270	0.25-0.60	1.50-5.00		●	M	1	MM	MC7015	160-255	0.15-0.45	0.70-5.00	
		●	M	7	Std	NX2525	170-245	0.25-0.60	1.50-5.00		●	M	2	GM	MC7015	160-255	0.16-0.50	0.50-4.00	
		●	M	8	Std	UTi20T	85-125	0.25-0.60	1.50-5.00		●	M	3	MS	US7020	95-245	0.16-0.50	0.50-4.00	
		●	M	9	MW	UE6105	200-370	0.20-0.60	0.90-4.00		●	M	4	MA	US7020	95-245	0.20-0.50	0.30-4.00	
		●	M	10	R/L	MP3025	175-270	0.15-0.32	0.40-2.00		●	M	5	MH	US7020	95-245	0.20-0.55	1.00-4.00	
		●	R	1	RP	UE6105	190-350	0.25-0.60	1.50-6.00		●	M	6	MW	US7020	95-245	0.20-0.60	0.90-4.00	
		●	R	2	GH	UE6105	190-350	0.25-0.60	1.50-6.00		●	R	1	RM	MC7015	155-245	0.25-0.55	1.50-6.00	
		●	H	1	HX	UE6110	160-275	0.50-1.26	3.00-11.00		●	R	2	GH	US7020	90-235	0.25-0.60	1.50-6.00	
		●	H	2	HV	UE6110	135-225	0.70-1.30	4.00-12.00		●	L	1	LM	MC7025	160-215	0.10-0.30	0.30-2.00	
		●	F	1	FH	MP3025	210-325	0.08-0.20	0.20-1.00		●	L	2	SH	US735	95-185	0.10-0.40	0.30-2.00	
		●	F	2	FH	NX3035	200-285	0.08-0.20	0.20-1.00		●	M	1	MM	MC7025	145-195	0.15-0.45	0.70-5.00	
●	F	3	FH	UE6110	230-390	0.08-0.20	0.20-1.00		●	M	2	GM	MC7025	145-195	0.16-0.50	0.50-4.00			
●	L	1	LP	UE6110	210-355	0.10-0.40	0.30-2.00		●	M	3	MA	MC7025	145-195	0.20-0.50	0.30-4.00			
●	L	2	SH	UE6110	210-355	0.10-0.40	0.30-2.00		●	M	4	MS	US735	85-165	0.16-0.50	0.50-4.00			
●	L	3	SA	UE6110	210-355	0.10-0.40	0.30-2.00		●	M	5	MA	US735	85-165	0.20-0.50	0.30-4.00			
●	L	4	LP	MP3025	195-295	0.10-0.40	0.30-2.00		●	R	1	RM	MC7025	140-185	0.25-0.55	1.50-6.00			
●	L	5	SH	NX3035	185-260	0.10-0.40	0.30-2.00		●	R	2	GH	US735	85-160	0.25-0.60	1.50-6.00			
●	L	6	SA	NX3035	185-260	0.10-0.40	0.30-2.00		✦	L	1	LM	MP7035	95-155	0.10-0.30	0.30-2.00			
●	L	7	SW	UE6110	210-355	0.10-0.50	0.30-2.50		✦	L	2	SH	US735	95-185	0.10-0.40	0.30-2.00			
●	L	8	SW	NX3035	185-260	0.10-0.50	0.30-2.50		✦	M	1	MM	MP7035	85-140	0.15-0.45	0.70-5.00			
●	M	1	MP	UE6110	190-325	0.16-0.50	0.30-4.00		✦	M	2	GM	MP7035	85-140	0.16-0.50	0.50-4.00			
●	M	2	MA	UE6110	190-325	0.20-0.50	0.30-4.00		✦	M	3	MA	MP7035	85-140	0.20-0.50	0.30-4.00			
●	M	3	MA	NX3035	165-235	0.20-0.50	0.30-4.00		✦	M	4	MS	US735	85-165	0.16-0.50	0.50-4.00			
●	M	4	MH	UE6110	190-325	0.20-0.55	1.00-4.00		✦	M	5	MS	VP15TF	75-130	0.16-0.50	0.50-4.00			
●	M	5	Std	UE6110	190-325	0.25-0.60	1.50-5.00		✦	M	6	MS	UP20M	95-145	0.16-0.50	0.50-4.00			
●	M	6	Std	NX3035	165-235	0.25-0.60	1.50-5.00		✦	M	7	MS	UTi20T	75-110	0.16-0.50	0.50-4.00			
●	M	7	MW	UE6110	190-325	0.20-0.60	0.90-4.00		✦	M	8	MA	VP15TF	75-130	0.20-0.50	0.30-4.00			
●	R	1	RP	UE6110	180-310	0.25-0.60	1.50-6.00												
●	R	2	GH	UE6110	180-310	0.25-0.60	1.50-6.00												

CUTTING CONDITIONS : ● : Stable Cutting ● : General Cutting ✦ : Unstable Cutting
 CUTTING AREA : F : Finish Cutting L : Light Cutting M : Medium Cutting R : Rough Cutting H : Heavy Cutting

Work Material	Hardness	Cutting Mode	Priority	Breker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)		
M										
Austenitic Stainless Steel (SUS304, SUS316)	≤200HB	✚	M	9	Std	VP15TF	75-130	0.25-0.60	1.50-5.00	
		✚	R	1	RM	MP7035	85-135	0.25-0.55	1.50-6.00	
		✚	R	2	GH	US735	85-160	0.25-0.60	1.50-6.00	
Austenitic Stainless Steel (SUS304LN, SUS316LN)	>200HB	●	L	1	LM	MC7015	150-240	0.10-0.30	0.30-2.00	
		●	L	2	SH	US735	80-155	0.10-0.40	0.30-2.00	
		●	L	3	SH	NX2525	55-115	0.10-0.40	0.30-2.00	
		●	L	4	SW	US7020	90-230	0.10-0.50	0.30-2.50	
		●	M	1	MM	MC7015	135-215	0.15-0.45	0.70-5.00	
		●	M	2	GM	MC7015	135-215	0.16-0.50	0.50-4.00	
		●	M	3	MS	US7020	80-205	0.16-0.50	0.50-4.00	
		●	M	4	MA	US7020	80-205	0.20-0.50	0.30-4.00	
		●	M	5	MH	US7020	80-205	0.20-0.55	1.00-4.00	
		●	M	6	MW	US7020	80-205	0.20-0.60	0.90-4.00	
		●	R	1	RM	MC7015	130-205	0.25-0.55	1.50-6.00	
		●	R	2	GH	US7020	75-195	0.25-0.60	1.50-6.00	
		●	L	1	LM	MC7025	135-180	0.10-0.30	0.30-2.00	
		●	L	2	SH	US735	80-155	0.10-0.40	0.30-2.00	
		●	M	1	MM	MC7025	125-165	0.15-0.45	0.70-5.00	
		●	M	2	GM	MC7025	125-165	0.16-0.50	0.50-4.00	
		●	M	3	MA	MC7025	125-165	0.20-0.50	0.30-4.00	
		>200HB	●	M	4	MS	US735	75-140	0.16-0.50	0.50-4.00
			●	M	5	MA	US735	75-140	0.20-0.50	0.30-4.00
			●	R	1	RM	MC7025	115-155	0.25-0.55	1.50-6.00
●	R		2	GH	US735	70-135	0.25-0.60	1.50-6.00		
✚	L		1	LM	MP7035	80-130	0.10-0.30	0.30-2.00		
✚	L		2	SH	US735	80-155	0.10-0.40	0.30-2.00		
✚	M		1	MM	MP7035	75-120	0.15-0.45	0.70-5.00		
✚	M		2	GM	MP7035	75-120	0.16-0.50	0.50-4.00		
✚	M		3	MA	MP7035	75-120	0.20-0.50	0.30-4.00		
✚	M		4	MS	US735	75-140	0.16-0.50	0.50-4.00		
✚	M		5	MS	VP15TF	65-110	0.16-0.50	0.50-4.00		
✚	M		6	MS	UP20M	80-125	0.16-0.50	0.50-4.00		
✚	M		7	MS	UTi20T	65-95	0.16-0.50	0.50-4.00		
✚	M		8	MA	VP15TF	65-110	0.20-0.50	0.30-4.00		
✚	M		9	Std	VP15TF	65-110	0.25-0.60	1.50-5.00		
✚	R	1	RM	MP7035	70-115	0.25-0.55	1.50-6.00			
✚	R	2	GH	US735	70-135	0.25-0.60	1.50-6.00			
Two-phase Stainless Steel (SUS329J1)	≤280HB	●	L	1	LM	MC7015	120-195	0.10-0.30	0.30-2.00	
		●	L	2	SH	US735	65-125	0.10-0.40	0.30-2.00	
		●	L	3	SH	NX2525	45-90	0.10-0.40	0.30-2.00	
		●	L	4	SW	US7020	75-185	0.10-0.50	0.30-2.50	
		●	M	1	MM	MC7015	110-175	0.15-0.45	0.70-5.00	
		●	M	2	GM	MC7015	110-175	0.16-0.50	0.50-4.00	
		●	M	3	MS	US7020	65-170	0.16-0.50	0.50-4.00	
		●	M	4	MA	US7020	65-170	0.20-0.50	0.30-4.00	
		●	M	5	MH	US7020	65-170	0.20-0.55	1.00-4.00	
		●	M	6	MW	US7020	65-170	0.20-0.60	0.90-4.00	
		●	R	1	RM	MC7015	105-165	0.25-0.55	1.50-6.00	
		●	R	2	GH	US7020	60-160	0.25-0.60	1.50-6.00	
		●	L	1	LM	MC7025	110-150	0.10-0.30	0.30-2.00	
		●	L	2	SH	US735	65-125	0.10-0.40	0.30-2.00	
		●	M	1	MM	MC7025	100-135	0.15-0.45	0.70-5.00	
		●	M	2	GM	MC7025	100-135	0.16-0.50	0.50-4.00	
		●	M	3	MA	MC7025	100-135	0.20-0.50	0.30-4.00	
		●	M	4	MS	US735	60-115	0.16-0.50	0.50-4.00	
		●	M	5	MA	US735	60-115	0.20-0.50	0.30-4.00	
		●	R	1	RM	MC7025	95-125	0.25-0.55	1.50-6.00	
●	R	2	GH	US735	55-110	0.25-0.60	1.50-6.00			
✚	L	1	LM	MP7035	65-105	0.10-0.30	0.30-2.00			

Work Material	Hardness	Cutting Mode	Priority	Breker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	
M									
Two-phase Stainless Steel (SUS329J1)	≤280HB	✚	L	2	SH	US735	65-125	0.10-0.40	0.30-2.00
		✚	M	1	MM	MP7035	60-95	0.15-0.45	0.70-5.00
		✚	M	2	GM	MP7035	60-95	0.16-0.50	0.50-4.00
		✚	M	3	MA	MP7035	60-95	0.20-0.50	0.30-4.00
		✚	M	4	MS	US735	60-115	0.16-0.50	0.50-4.00
		✚	M	5	MS	VP15TF	50-90	0.16-0.50	0.50-4.00
		✚	M	6	MS	UP20M	65-100	0.16-0.50	0.50-4.00
		✚	M	7	MS	UTi20T	50-75	0.16-0.50	0.50-4.00
		✚	M	8	MA	VP15TF	50-90	0.20-0.50	0.30-4.00
		✚	M	9	Std	VP15TF	50-90	0.25-0.60	1.50-5.00
		✚	R	1	RM	MP7035	55-90	0.25-0.55	1.50-6.00
		✚	R	2	GH	US735	55-110	0.25-0.60	1.50-6.00
Ferritic and Martensitic Stainless Steel (SUS410, SUS430)	≤200HB	●	L	1	LM	MC7015	180-285	0.10-0.30	0.30-2.00
		●	L	2	SH	US735	95-185	0.10-0.40	0.30-2.00
		●	L	3	SH	NX2525	65-135	0.10-0.40	0.30-2.00
		●	L	4	SW	US7020	105-270	0.10-0.50	0.30-2.50
		●	M	1	MM	MC7015	160-255	0.15-0.45	0.70-5.00
		●	M	2	GM	MC7015	160-255	0.16-0.50	0.50-4.00
		●	M	3	MS	US7020	95-245	0.16-0.50	0.50-4.00
		●	M	4	MA	US7020	95-245	0.20-0.50	0.30-4.00
		●	M	5	MH	US7020	95-245	0.20-0.55	1.00-4.00
		●	M	6	MW	US7020	95-245	0.20-0.60	0.90-4.00
		●	R	1	RM	MC7015	155-245	0.25-0.55	1.50-6.00
		●	R	2	GH	US7020	90-235	0.25-0.60	1.50-6.00
		●	L	1	LM	MC7025	160-215	0.10-0.30	0.30-2.00
		●	L	2	SH	US735	95-185	0.10-0.40	0.30-2.00
		●	M	1	MM	MC7025	145-195	0.15-0.45	0.70-5.00
		●	M	2	GM	MC7025	145-195	0.16-0.50	0.50-4.00
		●	M	3	MA	MC7025	145-195	0.20-0.50	0.30-4.00
		●	M	2	MS	US735	85-165	0.16-0.50	0.50-4.00
		●	M	4	MA	US735	85-165	0.20-0.50	0.30-4.00
		●	R	1	RM	MC7025	140-185	0.25-0.55	1.50-6.00
●	R	2	GH	US735	85-160	0.25-0.60	1.50-6.00		
✚	L	1	LM	MP7035	95-155	0.10-0.30	0.30-2.00		
✚	L	2	SH	US735	95-185	0.10-0.40	0.30-2.00		
✚	M	1	MM	MP7035	85-140	0.15-0.45	0.70-5.00		
✚	M	2	GM	MP7035	85-140	0.16-0.50	0.50-4.00		
✚	M	3	MA	MP7035	85-140	0.20-0.50	0.30-4.00		
✚	M	4	MS	US735	85-165	0.16-0.50	0.50-4.00		
✚	M	5	MS	VP15TF	75-130	0.16-0.50	0.50-4.00		
✚	M	6	MS	UP20M	95-145	0.16-0.50	0.50-4.00		
✚	M	7	MS	UTi20T	75-110	0.16-0.50	0.50-4.00		
✚	M	8	MA	VP15TF	75-130	0.20-0.50	0.30-4.00		
✚	M	9	Std	VP15TF	75-130	0.25-0.60	1.50-5.00		
✚	R	1	RM	MP7035	85-135	0.25-0.55	1.50-6.00		
✚	R	2	GH	US735	85-160	0.25-0.60	1.50-6.00		
Ferritic and Martensitic Stainless Steel (SUS431, SUS420J2)	>200HB	●	L	1	LM	MC7015	150-240	0.10-0.30	0.30-2.00
		●	L	2	SH	US735	80-155	0.10-0.40	0.30-2.00
		●	L	3	SH	NX2525	55-115	0.10-0.40	0.30-2.00
		●	L	4	SW	US7020	90-230	0.10-0.50	0.30-2.50
		●	M	1	MM	MC7015	135-215	0.15-0.45	0.70-5.00
		●	M	2	GM	MC7015	135-215	0.16-0.50	0.50-4.00
		●	M	3	MS	US7020	80-205	0.16-0.50	0.50-4.00
		●	M	4	MA	US7020	80-205	0.20-0.50	0.30-4.00
		●	M	5	MH	US7020	80-205	0.20-0.55	1.00-4.00
		●	M	6	MW	US7020	80-205	0.20-0.60	0.90-4.00
		●	R	1	RM	MC7015	130-205	0.25-0.55	1.50-6.00
		●	R	2	GH	US7020	75-195	0.25-0.60	1.50-6.00
●	L	1	LM	MC7025	135-180	0.10-0.30	0.30-2.00		

RECOMMENDED CUTTING CONDITIONS

NEGATIVE INSERTS

Breker : Std : Standard Flat : Flat Top

EXTERNAL TURNING

M									K										
Work Material	Hardness	Cutting Mode	Priority	Breker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	Work Material	Hardness	Cutting Mode	Priority	Breker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)		
Ferritic and Martensitic Stainless Steel (SUS431, SUS420J2)	>200HB	●	L	2	SH	US735	80-155	0.10-0.40	0.30-2.00	Gray Cast Iron (FC300)	≤350MPa	●	M	3	MW	UC5105	170-315	0.20-0.60	0.90-4.00
		●	M	1	MM	MC7025	125-165	0.15-0.45	0.70-5.00			●	R	1	GH	UC5105	165-300	0.25-0.60	1.50-6.00
		●	M	2	MS	MC7025	125-165	0.16-0.50	0.50-4.00			●	R	2	Flat	UC5105	165-300	0.20-0.60	2.50-6.00
	≤200HB	●	M	3	MA	MC7025	125-165	0.20-0.50	0.30-4.00			●	R	3	Flat	HTI10	100-145	0.20-0.60	2.50-6.00
		●	M	3	MS	US735	75-140	0.16-0.50	0.50-4.00			●	R	4	Flat	HTI05T	110-185	0.20-0.60	2.50-6.00
		●	M	4	MA	US735	75-140	0.20-0.50	0.30-4.00			●	H	1	Flat	UC5105	165-300	0.20-0.60	2.50-6.00
		●	R	1	RM	MC7025	115-155	0.25-0.55	1.50-6.00			●	L	1	MA	UC5115	165-305	0.20-0.50	0.30-4.00
		●	R	2	GH	US735	70-135	0.25-0.60	1.50-6.00			●	L	2	MP	UC5115	165-305	0.16-0.50	0.30-4.00
		✦	L	1	LM	MP7035	80-130	0.10-0.30	0.30-2.00			●	L	3	SW	UC5115	185-335	0.10-0.50	0.30-2.50
		✦	L	2	SH	US735	80-155	0.10-0.40	0.30-2.00			●	M	1	Std	UC5115	165-305	0.25-0.60	1.50-5.00
		✦	M	1	MM	MP7035	75-120	0.15-0.45	0.70-5.00			●	M	2	Std	HTI10	105-150	0.25-0.60	1.50-5.00
		✦	M	2	GM	MP7035	75-120	0.16-0.50	0.50-4.00			●	M	3	MH	UC5115	165-305	0.20-0.55	1.00-4.00
		✦	M	3	MA	MP7035	75-120	0.20-0.50	0.30-4.00			●	M	4	MW	UC5115	165-305	0.20-0.60	0.90-4.00
		✦	M	4	MS	US735	75-140	0.16-0.50	0.50-4.00			●	R	1	GH	UC5115	160-290	0.25-0.60	1.50-6.00
		✦	M	5	MS	VP15TF	65-110	0.16-0.50	0.50-4.00			●	R	2	Flat	UC5115	160-290	0.20-0.60	2.50-6.00
		✦	M	6	MS	UP20M	80-125	0.16-0.50	0.50-4.00			●	H	1	Flat	UC5115	160-290	0.20-0.60	2.50-6.00
		✦	M	7	MS	UTI20T	65-95	0.16-0.50	0.50-4.00			✦	L	1	MA	UC5115	165-305	0.20-0.50	0.30-4.00
		✦	M	8	MA	VP15TF	65-110	0.20-0.50	0.30-4.00			✦	M	1	Std	UC5115	165-305	0.25-0.60	1.50-5.00
		✦	M	9	Std	VP15TF	65-110	0.25-0.60	1.50-5.00			✦	M	2	Std	UTI20T	85-120	0.25-0.60	1.50-5.00
		✦	R	1	RM	MP7035	70-115	0.25-0.55	1.50-6.00			✦	R	1	GH	UC5115	160-290	0.25-0.60	1.50-6.00
✦	R	2	GH	US735	70-135	0.25-0.60	1.50-6.00	✦	R	2	Flat	UC5115	160-290	0.20-0.60	2.50-6.00				
Hardened Stainless Steel (SUS630, SUS631)	<450HB	●	L	1	LM	MC7015	100-160	0.10-0.30	0.30-2.00	Ductile Cast Iron (FCD450)	≤450MPa	●	L	1	MA	UC5105	160-295	0.20-0.50	0.30-4.00
		●	L	2	SH	US735	55-105	0.10-0.40	0.30-2.00			●	M	1	Std	UC5105	160-295	0.25-0.60	1.50-5.00
		●	L	3	SH	NX2525	35-75	0.10-0.40	0.30-2.00			●	M	2	Std	NX2525	145-200	0.25-0.60	1.50-5.00
		●	L	4	SW	US7020	60-155	0.10-0.50	0.30-2.50			●	R	1	GH	UC5105	155-280	0.25-0.60	1.50-6.00
		●	M	1	MM	MC7015	90-145	0.15-0.45	0.70-5.00			●	R	2	Flat	UC5105	155-280	0.20-0.60	2.50-6.00
		●	M	2	GM	MC7015	90-145	0.16-0.50	0.50-4.00			●	R	3	Flat	HTI10	95-135	0.20-0.60	2.50-6.00
		●	M	3	MS	US7020	55-140	0.16-0.50	0.50-4.00			●	R	4	Flat	HTI05T	105-175	0.20-0.60	2.50-6.00
		●	M	4	MA	US7020	55-140	0.20-0.50	0.30-4.00			●	H	1	Flat	UC5105	155-280	0.20-0.60	2.50-6.00
		●	M	5	MH	US7020	55-140	0.20-0.55	1.00-4.00			●	L	1	MA	UC5115	155-285	0.20-0.50	0.30-4.00
		●	M	6	MW	US7020	55-140	0.20-0.60	0.90-4.00			●	L	2	MP	UC5115	155-285	0.16-0.50	0.30-4.00
		●	R	1	RM	MC7015	85-135	0.25-0.55	1.50-6.00			●	L	3	SW	UC5115	175-315	0.10-0.50	0.30-2.50
		●	R	2	GH	US7020	50-130	0.25-0.60	1.50-6.00			●	M	1	Std	UC5115	155-285	0.25-0.60	1.50-5.00
		●	L	1	LM	MC7025	90-120	0.10-0.30	0.30-2.00			●	M	2	Std	HTI10	100-140	0.25-0.60	1.50-5.00
		●	L	2	SH	US735	55-105	0.10-0.40	0.30-2.00			●	R	1	GH	UC5115	150-275	0.25-0.60	1.50-6.00
		●	M	1	MM	MC7025	80-110	0.15-0.45	0.70-5.00			●	R	2	Flat	UC5115	150-275	0.20-0.60	2.50-6.00
		●	M	2	GM	MC7025	80-110	0.16-0.50	0.50-4.00			●	R	3	Flat	UTI20T	75-110	0.20-0.60	2.50-6.00
		●	M	3	MA	MC7025	80-110	0.20-0.50	0.30-4.00			●	H	1	Flat	UC5115	150-275	0.20-0.60	2.50-6.00
		●	M	3	MS	US735	50-95	0.16-0.50	0.50-4.00			✦	L	1	MA	UC5115	155-285	0.20-0.50	0.30-4.00
		●	M	4	MA	US735	50-95	0.20-0.50	0.30-4.00			✦	M	1	Std	UC5115	155-285	0.25-0.60	1.50-5.00
		●	R	1	RM	MC7025	80-105	0.25-0.55	1.50-6.00			✦	M	2	Std	UTI20T	80-115	0.25-0.60	1.50-5.00
●	R	2	GH	US735	45-90	0.25-0.60	1.50-6.00	✦	R	1	GH	UC5115	150-275	0.25-0.60	1.50-6.00				
✦	L	1	LM	MP7035	55-85	0.10-0.30	0.30-2.00	✦	R	2	Flat	UC5115	150-275	0.20-0.60	2.50-6.00				
✦	L	2	SH	US735	55-105	0.10-0.40	0.30-2.00	✦	R	3	Flat	UTI20T	75-110	0.20-0.60	2.50-6.00				
✦	M	1	MM	MP7035	50-80	0.15-0.45	0.70-5.00	✦	H	1	Flat	UC5115	150-275	0.20-0.60	2.50-6.00				
✦	M	2	GM	MP7035	50-80	0.16-0.50	0.50-4.00	Ductile Cast Iron (FCD700)	≤800MPa	●	L	1	MA	UC5105	145-265	0.20-0.50	0.30-4.00		
✦	M	3	MA	MP7035	50-80	0.20-0.50	0.30-4.00			●	M	1	Std	UC5105	145-265	0.25-0.60	1.50-5.00		
✦	M	4	MS	US735	50-95	0.16-0.50	0.50-4.00			●	M	2	Std	NX2525	130-175	0.25-0.60	1.50-5.00		
✦	M	5	MS	VP15TF	45-75	0.16-0.50	0.50-4.00			●	R	1	GH	UC5105	135-250	0.25-0.60	1.50-6.00		
✦	M	6	MS	UP20M	55-80	0.16-0.50	0.50-4.00			●	R	2	Flat	UC5105	135-250	0.20-0.60	2.50-6.00		
✦	M	7	MS	UTI20T	45-60	0.16-0.50	0.50-4.00			●	R	3	Flat	HTI10	85-120	0.20-0.60	2.50-6.00		
✦	M	8	MA	VP15TF	45-75	0.20-0.50	0.30-4.00			●	R	4	Flat	HTI05T	90-155	0.20-0.60	2.50-6.00		
✦	M	9	Std	VP15TF	45-75	0.25-0.60	1.50-5.00			●	H	1	Flat	UC5105	135-250	0.20-0.60	2.50-6.00		
✦	R	1	RM	MP7035	45-75	0.25-0.55	1.50-6.00			●	L	1	MA	UC5115	140-255	0.20-0.50	0.30-4.00		
✦	R	2	GH	US735	45-90	0.25-0.60	1.50-6.00			●	L	2	MP	UC5115	140-255	0.16-0.50	0.30-4.00		
Gray Cast Iron (FC300)	≤350MPa	●	L	1	MA	UC5105	170-315			0.20-0.50	0.30-4.00	●	L	3	SW	UC5115	155-280	0.10-0.50	0.30-2.50
		●	M	1	Std	UC5105	170-315			0.25-0.60	1.50-5.00	●	M	1	Std	UC5115	140-255	0.25-0.60	1.50-5.00
		●	M	2	Std	NX2525	155-210			0.25-0.60	1.50-5.00	●	M	2	Std	HTI10	85-125	0.25-0.60	1.50-5.00

CUTTING CONDITIONS : ● : Stable Cutting ● : General Cutting ✦ : Unstable Cutting
 CUTTING AREA : F : Finish Cutting L : Light Cutting M : Medium Cutting R : Rough Cutting H : Heavy Cutting

Work Material	Hardness	Cutting Mode	Priority	Breker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	
K									
Ductile Cast Iron (FCD700)	≤800MPa	●	R	1	GH	UC5115	130–240	0.25–0.60	1.50–6.00
		●	R	2	Flat	UC5115	130–240	0.20–0.60	2.50–6.00
		●	H	1	Flat	UC5115	130–240	0.20–0.60	2.50–6.00
		⊕	L	1	MA	UC5115	140–255	0.20–0.50	0.30–4.00
		⊕	M	1	Std	UC5115	140–255	0.25–0.60	1.50–5.00
		⊕	M	2	Std	UTi20T	70–100	0.25–0.60	1.50–5.00
		⊕	R	1	GH	UC5115	130–240	0.25–0.60	1.50–6.00
		⊕	R	2	Flat	UC5115	130–240	0.20–0.60	2.50–6.00
		⊕	R	3	Flat	UTi20T	65–95	0.20–0.60	2.50–6.00
		⊕	H	1	Flat	UC5115	130–240	0.20–0.60	2.50–6.00
S									
Ligas de Titânio (Ti-6Al-4V)		●	F	1	FJ	RT9010	45–95	0.07–0.20	0.10–1.00
		●	L	1	MJ(M)	RT9010	40–80	0.07–0.25	0.40–1.50
		●	M	1	MS	RT9010	40–80	0.10–0.25	0.50–4.00
		●	R	1	GJ	RT9010	35–75	0.16–0.35	1.00–3.00
		●	F	1	FJ	RT9010	45–95	0.07–0.20	0.10–1.00
		●	L	1	MJ(M)	RT9010	40–80	0.07–0.25	0.40–1.50
		●	L	2	MJ(G)	RT9010	40–80	0.07–0.25	0.40–1.50
		●	M	1	MS	RT9010	40–80	0.10–0.25	0.50–4.00
		●	R	1	GJ	RT9010	35–75	0.16–0.35	1.00–3.00
		⊕	F	1	FJ	RT9010	45–95	0.07–0.20	0.10–1.00
		⊕	L	1	MJ(M)	RT9010	40–80	0.07–0.25	0.40–1.50
		⊕	L	2	MJ(G)	RT9010	40–80	0.07–0.25	0.40–1.50
		⊕	M	1	MS	RT9010	40–80	0.10–0.25	0.50–4.00
		⊕	R	1	GJ	RT9010	35–75	0.16–0.35	1.00–3.00
		S							
Ligas Resistentes ao Calor (Inconel718)		●	F	1	FJ	VP10RT	30–60	0.07–0.20	0.10–1.00
		●	L	1	MJ(M)	VP05RT	30–60	0.07–0.25	0.40–1.50
		●	L	2	MJ(M)	US905	50–100	0.07–0.25	0.40–1.50
		●	L	3	MJ(G)	VP10RT	25–50	0.07–0.25	0.40–1.50
		●	M	1	MS	VP05RT	30–60	0.10–0.25	0.50–4.00
		●	M	2	MS	US905	50–100	0.10–0.25	0.50–4.00
		●	R	1	GJ	VP10RT	20–45	0.16–0.35	1.00–3.00
		●	R	2	GJ	US905	45–95	0.16–0.35	1.00–3.00
		●	F	1	FJ	VP10RT	30–60	0.07–0.20	0.10–1.00
		●	L	1	MJ(M)	VP10RT	25–50	0.07–0.25	0.40–1.50
		●	M	1	MS	VP10RT	25–50	0.10–0.25	0.50–4.00
		●	R	1	GJ	VP10RT	20–45	0.16–0.35	1.00–3.00
		⊕	F	1	FJ	VP15TF	20–40	0.07–0.20	0.10–1.00
		⊕	L	1	MJ(M)	VP15TF	20–35	0.07–0.25	0.40–1.50
		⊕	L	2	MJ(G)	VP15TF	20–35	0.07–0.25	0.40–1.50
		⊕	M	1	MS	VP15TF	20–35	0.10–0.25	0.50–4.00
		⊕	R	1	GJ	VP15TF	15–30	0.16–0.35	1.00–3.00

RECOMMENDED CUTTING CONDITIONS

7° POSITIVE INSERT TYPE

Breker : Std : Standard Flat : Flat Top

EXTERNAL TURNING

Work Material	Hardness	Cutting Mode	Priority	Breker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)			
P											
Mild Steel (SS400, S10C)	≤180HB	●	F	1	FP	NX2525	225-320	0.04-0.20	0.20-0.90		
		●	F	2	FV	NX2525	225-320	0.04-0.20	0.20-0.90		
		●	F	3	R/L-F	MP3025	230-350	0.05-0.12	0.10-0.50		
		●	L	1	LP	NX2525	225-320	0.06-0.25	0.20-1.00		
		●	L	2	Std	UE6110	205-350	0.08-0.30	0.30-2.00		
		●	L	3	MV	MP3025	190-295	0.08-0.30	0.30-2.00		
		●	L	4	Std	MP3025	190-295	0.08-0.30	0.30-2.00		
		●	M	1	MP	NX2525	185-265	0.08-0.30	0.30-2.00		
		●	F	1	FP	UE6110	250-425	0.04-0.20	0.20-0.90		
		●	F	2	FP	MP3025	230-350	0.04-0.20	0.20-0.90		
		●	F	3	FV	MP3025	230-350	0.04-0.20	0.20-0.90		
		●	F	4	FV	NX3035	215-305	0.04-0.20	0.20-0.90		
		●	L	1	LP	UE6110	250-425	0.06-0.25	0.20-1.00		
		●	L	2	LP	MP3025	230-350	0.06-0.25	0.20-1.00		
		●	L	3	Std	UE6110	205-350	0.08-0.30	0.30-2.00		
		●	M	1	MP	UE6110	205-350	0.08-0.30	0.30-2.00		
		●	M	2	MP	MP3025	190-295	0.08-0.30	0.30-2.00		
		✦	F	1	FP	MC6025	250-405	0.04-0.20	0.20-0.90		
		✦	F	2	FV	UE6020	235-385	0.04-0.20	0.20-0.90		
		✦	L	1	LP	MC6025	250-405	0.06-0.25	0.20-1.00		
		✦	L	2	Std	UE6020	195-320	0.08-0.30	0.30-2.00		
		✦	M	1	MP	MC6025	205-335	0.08-0.30	0.30-2.00		
		Carbon Steel • Alloy Steel (S45C, SCM440)	180 280HB	●	F	1	FP	NX2525	165-235	0.04-0.20	0.20-0.90
				●	F	2	FV	NX2525	165-235	0.04-0.20	0.20-0.90
●	F			3	R/L-F	MP3025	170-260	0.05-0.12	0.10-0.50		
●	L			1	LP	NX2525	165-235	0.06-0.25	0.20-1.00		
●	L			2	Std	UE6110	150-260	0.08-0.30	0.30-2.00		
●	L			3	MV	MP3025	140-215	0.08-0.30	0.30-2.00		
●	L			4	Std	MP3025	140-215	0.08-0.30	0.30-2.00		
●	L			5	SV	MP3025	170-260	0.06-0.25	0.20-1.00		
●	L			6	MW	MP3025	140-215	0.10-0.35	0.80-2.50		
●	M			1	MP	NX2525	135-195	0.08-0.30	0.30-2.00		
●	F			1	FP	UE6110	185-310	0.04-0.20	0.20-0.90		
●	F			2	FP	MP3025	170-260	0.04-0.20	0.20-0.90		
●	F			3	FV	MP3025	170-260	0.04-0.20	0.20-0.90		
●	F			4	FV	NX3035	160-225	0.04-0.20	0.20-0.90		
●	F			5	SW	MP3025	170-260	0.06-0.24	0.20-1.50		
●	L			1	LP	UE6110	185-310	0.06-0.25	0.20-1.00		
●	L			2	LP	MP3025	170-260	0.06-0.25	0.20-1.00		
●	L			3	Std	UE6110	150-260	0.08-0.30	0.30-2.00		
●	M			1	MP	UE6110	150-260	0.08-0.30	0.30-2.00		
●	M			2	MP	MP3025	140-215	0.08-0.30	0.30-2.00		
✦	F			1	FP	MC6025	185-295	0.04-0.20	0.20-0.90		
✦	F			2	FV	UE6020	175-285	0.04-0.20	0.20-0.90		
✦	L			1	LP	MC6025	185-295	0.06-0.25	0.20-1.00		
✦	L			2	Std	UE6020	145-235	0.08-0.30	0.30-2.00		
✦	M	1	MP	MC6025	150-245	0.08-0.30	0.30-2.00				
Carbon Steel • Alloy Steel (SNCM439)	280 350HB	●	M	1	MP	NX2525	95-140	0.08-0.30	0.30-2.00		
		●	M	1	MP	UE6110	110-185	0.08-0.30	0.30-2.00		
		●	M	2	MP	MP3025	100-155	0.08-0.30	0.30-2.00		
		✦	M	1	MP	MC6025	110-175	0.08-0.30	0.30-2.00		
M											
Austenitic Stainless Steel (SUS304, SUS316)	≤200HB	●	F	1	FM	VP15TF	75-125	0.04-0.20	0.20-0.90		
		●	F	2	Std	US735	70-135	0.08-0.30	0.30-2.00		
		●	S	1	LM	MC7025	140-190	0.06-0.25	0.20-1.00		
		●	S	2	Std	US735	70-135	0.08-0.30	0.30-2.00		
		●	M	1	MM	MC7025	115-155	0.08-0.30	0.30-2.00		
		●	F	1	FM	VP15TF	75-125	0.04-0.20	0.20-0.90		
		●	F	2	Std	US735	70-135	0.08-0.30	0.30-2.00		
		●	S	1	LM	MP7035	85-135	0.06-0.25	0.20-1.00		
		●	S	2	Std	US735	70-135	0.08-0.30	0.30-2.00		
		●	M	1	MM	MC7025	115-155	0.08-0.30	0.30-2.00		
Austenitic Stainless Steel (SUS304LN, SUS316LN)	>200HB	●	F	1	FM	VP15TF	60-105	0.04-0.20	0.20-0.90		
		●	F	2	Std	US735	60-110	0.08-0.30	0.30-2.00		
		●	S	1	LM	MC7025	120-160	0.06-0.25	0.20-1.00		
		●	S	2	Std	US735	60-110	0.08-0.30	0.30-2.00		
		●	M	1	MM	MC7025	100-130	0.08-0.30	0.30-2.00		
		●	F	1	FM	VP15TF	60-105	0.04-0.20	0.20-0.90		
		●	F	2	Std	US735	60-110	0.08-0.30	0.30-2.00		
		●	S	1	LM	MC7025	120-160	0.06-0.25	0.20-1.00		
		●	S	2	Std	US735	60-110	0.08-0.30	0.30-2.00		
		●	M	1	MM	MC7025	100-130	0.08-0.30	0.30-2.00		
Two-phase Stainless Steel (SUS329J1)	≤280HB	●	F	1	FM	VP15TF	50-85	0.04-0.20	0.20-0.90		
		●	F	2	Std	US735	45-90	0.08-0.30	0.30-2.00		
		●	S	1	LM	MC7025	95-130	0.06-0.25	0.20-1.00		
		●	S	2	Std	US735	45-90	0.08-0.30	0.30-2.00		
		●	M	1	MM	MC7025	80-105	0.08-0.30	0.30-2.00		
		●	F	1	FM	VP15TF	50-85	0.04-0.20	0.20-0.90		
		●	F	2	Std	US735	45-90	0.08-0.30	0.30-2.00		
		●	S	1	LM	MP7035	55-95	0.06-0.25	0.20-1.00		
		●	S	2	LM	VP15TF	50-85	0.06-0.25	0.20-1.00		
		●	S	3	Std	US735	45-90	0.08-0.30	0.30-2.00		
Ferritic and Martensitic Stainless Steel (SUS410, SUS430)	≤200HB	●	F	1	FM	VP15TF	75-125	0.04-0.20	0.20-0.90		
		●	F	2	Std	US735	70-135	0.08-0.30	0.30-2.00		
		●	S	1	LM	MC7025	140-190	0.06-0.25	0.20-1.00		
		●	S	2	Std	US735	70-135	0.08-0.30	0.30-2.00		
		●	M	1	MM	MC7025	115-155	0.08-0.30	0.30-2.00		
		●	F	1	FM	VP15TF	75-125	0.04-0.20	0.20-0.90		
		●	F	2	Std	US735	70-135	0.08-0.30	0.30-2.00		
		●	S	1	LM	MC7025	140-190	0.06-0.25	0.20-1.00		
		●	S	2	Std	US735	70-135	0.08-0.30	0.30-2.00		
		●	M	1	MM	MC7025	115-155	0.08-0.30	0.30-2.00		

CUTTING CONDITIONS : ● : Stable Cutting ● : General Cutting ✦ : Unstable Cutting

CUTTING AREA : F : Finish Cutting L : Light Cutting M : Medium Cutting R : Rough Cutting H : Heavy Cutting

Work Material	Hardness	Cutting Mode	Priority	Breker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)			
M											
Ferritic and Martensitic Stainless Steel (SUS410, SUS430)	≤200HB	✚	S	2	LM	VP15TF	75-125	0.06-0.25	0.20-1.00		
		✚	S	3	Std	US735	70-135	0.08-0.30	0.30-2.00		
		✚	M	1	MM	MP7035	70-115	0.08-0.30	0.30-2.00		
		✚	M	2	MM	VP15TF	60-105	0.08-0.30	0.30-2.00		
Ferritic and Martensitic Stainless Steel (SUS431, SUS420J2)	>200HB	●	F	1	FM	VP15TF	60-105	0.04-0.20	0.20-0.90		
		●	F	2	Std	US735	60-110	0.08-0.30	0.30-2.00		
		●	S	1	LM	MC7025	120-160	0.06-0.25	0.20-1.00		
		●	S	2	Std	US735	60-110	0.08-0.30	0.30-2.00		
		●	M	1	MM	MC7025	100-130	0.08-0.30	0.30-2.00		
		●	F	1	FM	VP15TF	60-105	0.04-0.20	0.20-0.90		
		●	F	2	Std	US735	60-110	0.08-0.30	0.30-2.00		
		●	S	1	LM	MC7025	120-160	0.06-0.25	0.20-1.00		
		●	S	2	Std	US735	60-110	0.08-0.30	0.30-2.00		
		●	M	1	MM	MC7025	100-130	0.08-0.30	0.30-2.00		
		✚	F	1	FM	VP15TF	60-105	0.04-0.20	0.20-0.90		
		✚	F	2	Std	US735	60-110	0.08-0.30	0.30-2.00		
		✚	S	1	LM	MP7035	70-115	0.06-0.25	0.20-1.00		
		✚	S	2	LM	VP15TF	60-105	0.06-0.25	0.20-1.00		
		✚	S	3	Std	US735	60-110	0.08-0.30	0.30-2.00		
		✚	M	1	MM	MP7035	60-95	0.08-0.30	0.30-2.00		
		✚	M	2	MM	VP15TF	50-90	0.08-0.30	0.30-2.00		
		Hardened Stainless Steel (SUS630, SUS631)	<450HB	●	F	1	FM	VP15TF	40-70	0.04-0.20	0.20-0.90
				●	F	2	Std	US735	40-75	0.08-0.30	0.30-2.00
				●	S	1	LM	MC7025	80-105	0.06-0.25	0.20-1.00
●	S			2	Std	US735	40-75	0.08-0.30	0.30-2.00		
●	M			1	MM	MC7025	65-90	0.08-0.30	0.30-2.00		
●	F			1	FM	VP15TF	40-70	0.04-0.20	0.20-0.90		
●	F			2	Std	US735	40-75	0.08-0.30	0.30-2.00		
●	S			1	LM	MC7025	80-105	0.06-0.25	0.20-1.00		
●	S			2	Std	US735	40-75	0.08-0.30	0.30-2.00		
●	M			1	MM	MC7025	65-90	0.08-0.30	0.30-2.00		
✚	F			1	FM	VP15TF	40-70	0.04-0.20	0.20-0.90		
✚	F			2	Std	US735	40-75	0.08-0.30	0.30-2.00		
✚	S			1	LM	MP7035	45-75	0.06-0.25	0.20-1.00		
✚	S			2	LM	VP15TF	40-70	0.06-0.25	0.20-1.00		
✚	S			3	Std	US735	40-75	0.08-0.30	0.30-2.00		
✚	M			1	MM	MP7035	40-65	0.08-0.30	0.30-2.00		
✚	M			2	MM	VP15TF	35-60	0.08-0.30	0.30-2.00		
K											
Gray Cast Iron (FC300)	≤350MPa			●	F	1	Std	UC5115	130-245	0.08-0.30	0.30-2.00
				●	S	1	Std	UC5115	130-245	0.08-0.30	0.30-2.00
		●	M	1	Flat	UC5115	130-245	0.08-0.30	0.30-2.00		
		●	F	1	Std	UC5115	130-245	0.08-0.30	0.30-2.00		
		●	S	1	Std	UC5115	130-245	0.08-0.30	0.30-2.00		
		●	M	1	Flat	UC5115	130-245	0.08-0.30	0.30-2.00		
		✚	F	1	Std	UC5115	130-245	0.08-0.30	0.30-2.00		
		✚	S	1	Std	UC5115	130-245	0.08-0.30	0.30-2.00		
		✚	M	1	Flat	UC5115	130-245	0.08-0.30	0.30-2.00		
		Ductile Cast Iron (FCD450)	≤450MPa	●	F	1	Std	UC5115	125-230	0.08-0.30	0.30-2.00
●	S			1	Std	UC5115	125-230	0.08-0.30	0.30-2.00		
●	M			1	Flat	UC5115	125-230	0.08-0.30	0.30-2.00		
●	F			1	Std	UC5115	125-230	0.08-0.30	0.30-2.00		
●	S			1	Std	UC5115	125-230	0.08-0.30	0.30-2.00		
●	M			1	Flat	UC5115	125-230	0.08-0.30	0.30-2.00		
✚	F			1	Std	UC5115	125-230	0.08-0.30	0.30-2.00		
✚	S			1	Std	UC5115	125-230	0.08-0.30	0.30-2.00		
✚	M			1	Flat	UC5115	125-230	0.08-0.30	0.30-2.00		

Work Material	Hardness	Cutting Mode	Priority	Breker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	
K									
Ductile Cast Iron (FCD700)	≤800MPa	●	F	1	Std	UC5115	110-205	0.08-0.30	0.30-2.00
		●	S	1	Std	UC5115	110-205	0.08-0.30	0.30-2.00
		●	M	1	Flat	UC5115	110-205	0.08-0.30	0.30-2.00
		●	F	1	Std	UC5115	110-205	0.08-0.30	0.30-2.00
		●	S	1	Std	UC5115	110-205	0.08-0.30	0.30-2.00
		●	M	1	Flat	UC5115	110-205	0.08-0.30	0.30-2.00
		✚	F	1	Std	UC5115	110-205	0.08-0.30	0.30-2.00
		✚	S	1	Std	UC5115	110-205	0.08-0.30	0.30-2.00
		✚	M	1	Flat	UC5115	110-205	0.08-0.30	0.30-2.00
		N							
Aluminium Alloy (A6061, A7075)	Si<5%	●	F	1	AZ	HTi10	300-700	0.10-0.40	0.20-3.00
		●	F	1	AZ	HTi10	300-700	0.10-0.40	0.20-3.00
		✚	F	1	AZ	HTi10	300-700	0.10-0.40	0.20-3.00
Aluminium Alloy (AC4B)	5%≤Si≤10%	●	F	1	AZ	HTi10	300-700	0.10-0.40	0.20-3.00
		●	F	1	AZ	HTi10	300-700	0.10-0.40	0.20-3.00
		✚	F	1	AZ	HTi10	300-700	0.10-0.40	0.20-3.00
Aluminium Alloy (ADC12, A390)	Si>10%	●	F	1	AZ	HTi10	300-700	0.10-0.40	0.20-3.00
		●	F	1	AZ	HTi10	300-700	0.10-0.40	0.20-3.00
		✚	F	1	AZ	HTi10	300-700	0.10-0.40	0.20-3.00
S									
Titanium Alloy (Ti-6Al-4V)	Si>10%	●	F	1	FJ	RT9010	35-75	0.04-0.12	0.20-1.40
		●	F	1	FJ	RT9010	35-75	0.04-0.12	0.20-1.40
		✚	F	1	FJ	RT9010	35-75	0.04-0.12	0.20-1.40
S									
Heat Resistant Alloy (Inconel718)	Si>10%	●	F	1	FJ	VP10RT	20-45	0.04-0.12	0.20-1.40
		●	F	1	FJ	VP10RT	20-45	0.04-0.12	0.20-1.40
		✚	F	1	FJ	VP10RT	20-45	0.04-0.12	0.20-1.40

EXTERNAL TURNING

RECOMMENDED CUTTING CONDITIONS

11° POSITIVE INSERT TYPE

Breker : Std : Standard Flat : Flat Top

EXTERNAL TURNING

Work Material	Hardness	Cutting Mode	Priority	Breker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)			
P											
Mild Steel (SS400, S10C)	≤180HB	●	F	1	R-R/L	NX2525	225-320	0.05-0.12	0.20-0.60		
		●	L	1	R-Std	NX2525	185-265	0.08-0.30	0.30-2.00		
		●	M	1	R-Std	NX2525	185-265	0.08-0.30	0.30-2.00		
		●	F	1	R-R/L	NX2525	225-320	0.05-0.12	0.20-0.60		
		●	L	1	R-Std	UE6110	205-350	0.08-0.30	0.30-2.00		
		●	L	2	R-Std	MP3025	190-295	0.08-0.30	0.30-2.00		
		●	L	3	R-Std	NX3035	180-255	0.08-0.30	0.30-2.00		
		●	M	1	R-Std	UE6110	205-350	0.08-0.30	0.30-2.00		
		●	M	2	R-Std	MP3025	190-295	0.08-0.30	0.30-2.00		
		●	M	3	R-Std	NX3035	180-255	0.08-0.30	0.30-2.00		
		✚	F	1	R-R/L	UTI20T	115-165	0.05-0.12	0.20-0.60		
		✚	L	1	R-Std	UE6020	195-320	0.08-0.30	0.30-2.00		
		✚	L	2	N-Flat	UE6020	195-320	0.08-0.30	0.30-2.00		
		✚	L	3	N-Flat	UP20M	105-160	0.08-0.30	0.30-2.00		
		✚	M	1	R-Std	UE6020	195-320	0.08-0.30	0.30-2.00		
		✚	M	2	N-Flat	UE6020	195-320	0.08-0.30	0.30-2.00		
		✚	M	3	N-Flat	UP20M	105-160	0.08-0.30	0.30-2.00		
		Carbon Steel • Alloy Steel (S45C, SCM440)	180 280HB	●	F	1	R-R/L	NX2525	165-235	0.05-0.12	0.20-0.60
				●	L	1	R-Std	NX2525	135-195	0.08-0.30	0.30-2.00
				●	M	1	R-Std	NX2525	135-195	0.08-0.30	0.30-2.00
●	F			1	R-R/L	NX2525	165-235	0.05-0.12	0.20-0.60		
●	L			1	R-Std	UE6110	150-260	0.08-0.30	0.30-2.00		
●	L			2	R-Std	MP3025	140-215	0.08-0.30	0.30-2.00		
●	L			3	R-Std	NX3035	130-190	0.08-0.30	0.30-2.00		
●	M			1	R-Std	UE6110	150-260	0.08-0.30	0.30-2.00		
●	M			2	R-Std	MP3025	140-215	0.08-0.30	0.30-2.00		
●	M			3	R-Std	NX3035	130-190	0.08-0.30	0.30-2.00		
✚	F			1	R-R/L	UTI20T	85-120	0.05-0.12	0.20-0.60		
✚	L			1	R-Std	UE6020	145-235	0.08-0.30	0.30-2.00		
✚	L			2	N-Flat	UE6020	145-235	0.08-0.30	0.30-2.00		
✚	L			3	N-Flat	UP20M	75-115	0.08-0.30	0.30-2.00		
✚	M			1	R-Std	UE6020	145-235	0.08-0.30	0.30-2.00		
✚	M			2	N-Flat	UE6020	145-235	0.08-0.30	0.30-2.00		
✚	M			3	N-Flat	UP20M	75-115	0.08-0.30	0.30-2.00		
K											
Gray Cast Iron (FC300)	≤350MPa			●	F	1	R-R/L	NX2525	150-205	0.05-0.12	0.20-0.60
				●	L	1	N-Flat	UC5105	135-250	0.08-0.30	0.30-2.00
		●	L	2	N-Flat	NX2525	125-170	0.08-0.30	0.30-2.00		
		●	L	3	R-Std	NX2525	125-170	0.08-0.30	0.30-2.00		
		●	M	1	N-Flat	UC5105	135-250	0.08-0.30	0.30-2.00		
		●	M	2	N-Flat	NX2525	125-170	0.08-0.30	0.30-2.00		
		●	M	3	R-Std	NX2525	125-170	0.08-0.30	0.30-2.00		
		●	F	1	R-R/L	NX2525	150-205	0.05-0.12	0.20-0.60		
		●	F	2	R-R/L	HTI10	100-145	0.05-0.12	0.20-0.60		
		●	L	1	N-Flat	UC5115	130-245	0.08-0.30	0.30-2.00		
		●	L	2	N-Flat	UE6110	130-200	0.08-0.30	0.30-2.00		
		●	M	1	N-Flat	UC5115	130-245	0.08-0.30	0.30-2.00		
		●	M	2	N-Flat	UE6110	130-200	0.08-0.30	0.30-2.00		
		✚	F	1	R-R/L	UTI20T	80-115	0.05-0.12	0.20-0.60		
		✚	L	1	N-Flat	VP15TF	115-160	0.08-0.30	0.30-2.00		
✚	M	1	N-Flat	VP15TF	115-160	0.08-0.30	0.30-2.00				
Ductile Cast Iron (FCD450)	≤450MPa	●	F	1	R-R/L	NX2525	140-190	0.05-0.12	0.20-0.60		
		●	L	1	N-Flat	UC5105	130-235	0.08-0.30	0.30-2.00		
		●	L	2	N-Flat	NX2525	115-160	0.08-0.30	0.30-2.00		
		●	L	3	R-Std	NX2525	115-160	0.08-0.30	0.30-2.00		
		●	M	1	N-Flat	UC5105	130-235	0.08-0.30	0.30-2.00		
		●	M	2	N-Flat	NX2525	115-160	0.08-0.30	0.30-2.00		
		●	M	3	R-Std	NX2525	115-160	0.08-0.30	0.30-2.00		
		●	F	1	R-R/L	NX2525	140-190	0.05-0.12	0.20-0.60		

Work Material	Hardness	Cutting Mode	Priority	Breker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)			
K											
Ductile Cast Iron (FCD450)	≤450MPa	●	F	2	R-R/L	HTI10	95-135	0.05-0.12	0.20-0.60		
		●	L	1	N-Flat	UC5115	125-230	0.08-0.30	0.30-2.00		
		●	L	2	N-Flat	UE6110	120-190	0.08-0.30	0.30-2.00		
		●	M	1	N-Flat	UC5115	125-230	0.08-0.30	0.30-2.00		
		●	M	2	N-Flat	UE6110	120-190	0.08-0.30	0.30-2.00		
		✚	F	1	R-R/L	UTI20T	75-110	0.05-0.12	0.20-0.60		
		✚	L	1	N-Flat	VP15TF	110-150	0.08-0.30	0.30-2.00		
		✚	M	1	N-Flat	VP15TF	110-150	0.08-0.30	0.30-2.00		
		Ductile Cast Iron (FCD700)	≤800MPa	●	F	1	R-R/L	NX2525	125-170	0.05-0.12	0.20-0.60
				●	L	1	N-Flat	UC5105	115-210	0.08-0.30	0.30-2.00
				●	L	2	N-Flat	NX2525	105-140	0.08-0.30	0.30-2.00
				●	L	3	R-Std	NX2525	105-140	0.08-0.30	0.30-2.00
●	M			1	N-Flat	UC5105	115-210	0.08-0.30	0.30-2.00		
●	M			2	N-Flat	NX2525	105-140	0.08-0.30	0.30-2.00		
●	M			3	R-Std	NX2525	105-140	0.08-0.30	0.30-2.00		
●	F			1	R-R/L	NX2525	125-170	0.05-0.12	0.20-0.60		
●	F			2	R-R/L	HTI10	85-120	0.05-0.12	0.20-0.60		
●	L			1	N-Flat	UC5115	110-205	0.08-0.30	0.30-2.00		
●	L			2	N-Flat	UE6110	105-170	0.08-0.30	0.30-2.00		
●	M			1	N-Flat	UC5115	110-205	0.08-0.30	0.30-2.00		
●	M			2	N-Flat	UE6110	105-170	0.08-0.30	0.30-2.00		
✚	F			1	R-R/L	UTI20T	65-95	0.05-0.12	0.20-0.60		
✚	L			1	N-Flat	VP15TF	95-135	0.08-0.30	0.30-2.00		
✚	M			1	N-Flat	VP15TF	95-135	0.08-0.30	0.30-2.00		

CUTTING CONDITIONS : ● : Stable Cutting ● : General Cutting ✚ : Unstable Cutting

CUTTING AREA : F : Finish Cutting L : Light Cutting M : Medium Cutting R : Rough Cutting H : Heavy Cutting

