

hard material matters



Tools and inserts for turning

US





CERATIZIT Latrobe Pennsylvania



CERATIZIT USA

North American Headquarters,
Latrobe Pennsylvania

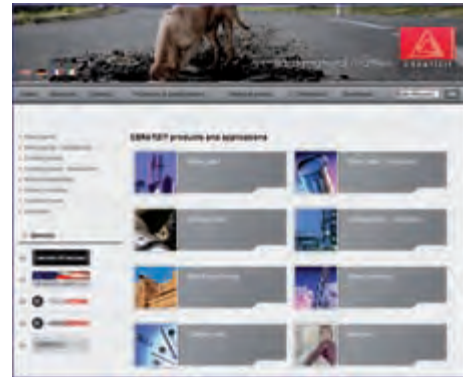
Production, Warren Michigan



CERATIZIT Warren Michigan



Contact



Applications



News

One mouse-click will provide you with:

- > News from the world of hard materials
- > Extensive information about the CERATIZIT product range
- > Standard and special solutions in the field of metal working
- > Clear explanations concerning application and materials
- > Retrievable product and tooling catalogues
- > Possibility of direct contact via e-mail worldwide
- > Tips for application and information about training courses



Products



Service



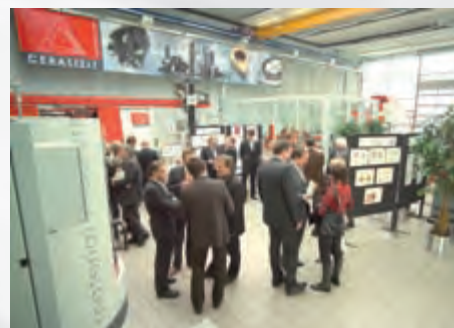
Our facilities and production methods represent state-of-the-art technology

We have more than 80 years of experience in the field of powder metallurgy



Engineering know-how and on site application advice

We promote intensive dialogue with our business partners



Our quality management systems meet the highest standards



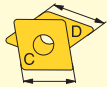
Contents



Introduction



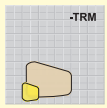
A8-A9



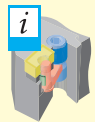
A10-A15



A16-A41



A42-A55

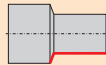


A56-A57

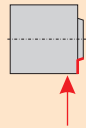


A58-A61

Application



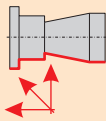
B4-B7



B8-B9



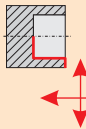
B10-B13



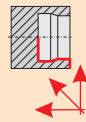
B14-B17



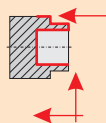
B18-B19



B20-B21



B22-B23



B24-B25



B26-B27

Inserts



Maxilock D



Maxilock N

C4-C19



Maxilock S

C20-C38



Maxilock P

C39-C40



Simplex N

C41-C48



Simplex P

C49-C53



EcoCut

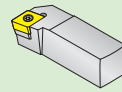
C55-C57



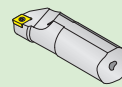
Profile Master

C58

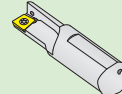
Tools



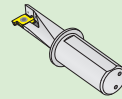
D2-D39



D40-D54

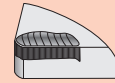


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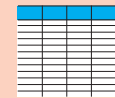


D61

Technical information



E2-E9



E10-E23



E24-E35



E36-E37

Easy Choice

Selection has never been so easy!

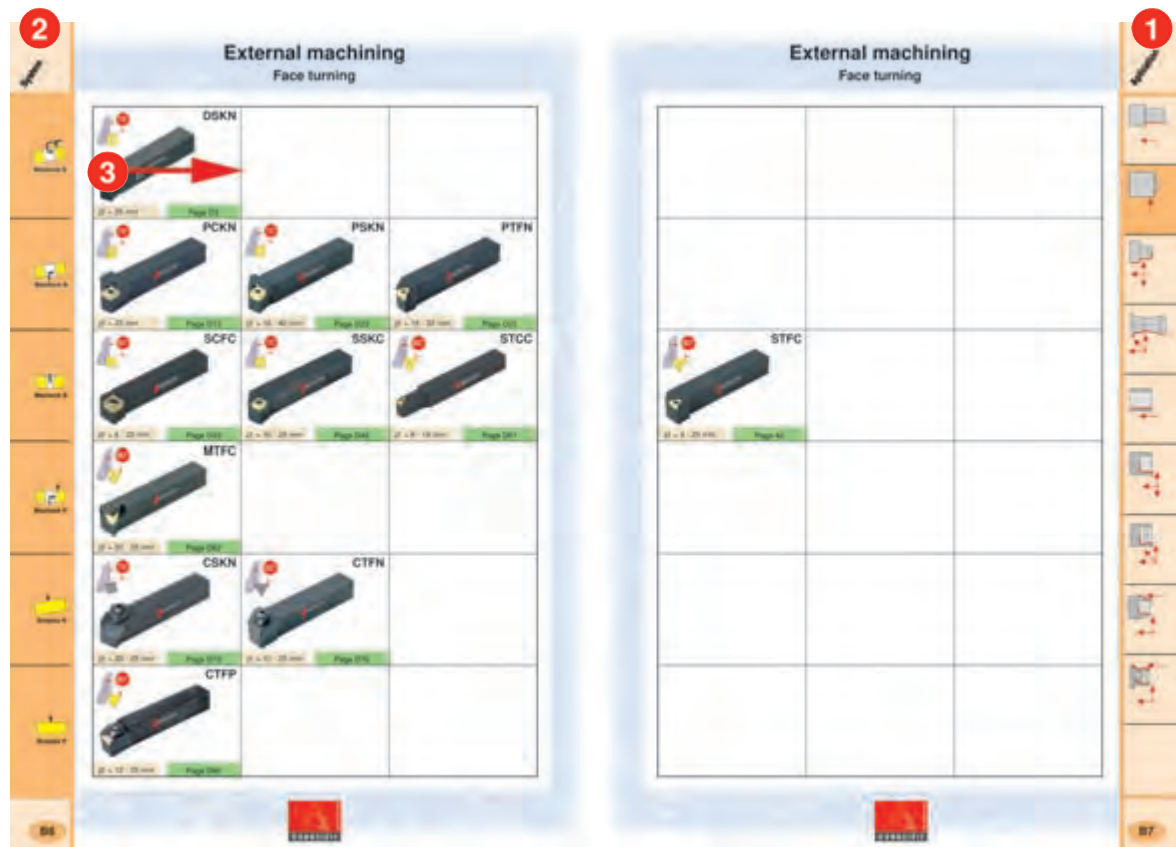


The turning catalogue has been divided into 5 chapters.

The different colours of the navigation bars on the right-hand side of the catalogue make a first quick selection guide to the various chapters.
(See illustration on right-hand side)



Tool selection via the chapter 'Application'



- 1 Look for the machining method of your choice using the right navigation bar.
- 2 Here you can choose the applicable clamping system for the inserts.
- 3 In horizontal direction you will find the available tools listed according to the insert forms and the approach angle for the chosen application and the requested clamping system. The shank diameters and a cross-reference to the page containing detailed tool data complete the information.

Easy Choice

Selection has never been so easy!



Chapter 'Inserts'

- 1 Information about the application of the tools and inserts.
- 2 Reference to the appropriate inserts and tools.
- 3 Cutting materials, colour codes:
 - Uncoated carbide
 - Coated carbide
 - Cermets
 - CBN, PCD, Si₃N₄, ceramic

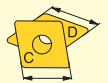
Chapter 'Tools'

Chapter 'Technical information'

Type of problem	Type of problem						Corrective measures
	Feed rate	Spindle speed	Tool geometry	Workpiece	Tool holder	Tool wear	
Feed rate	+	-	-	-	-	-	Cutting speed
Spindle speed	-	+	-	-	-	-	
Tool geometry	-	-	+	-	-	-	Feed rate
Workpiece	-	-	-	+	-	-	
Tool holder	-	-	-	-	+	-	Chip geometry
Tool wear	-	-	-	-	-	+	
Feed rate	-	-	-	-	-	-	Cutting speed
Spindle speed	-	+	-	-	-	-	
Tool geometry	-	-	+	-	-	-	Feed rate
Workpiece	-	-	-	+	-	-	
Tool holder	-	-	-	-	+	-	Chip geometry
Tool wear	-	-	-	-	-	+	
Feed rate	-	-	-	-	-	-	Cutting speed
Spindle speed	-	+	-	-	-	-	
Tool geometry	-	-	+	-	-	-	Feed rate
Workpiece	-	-	-	+	-	-	
Tool holder	-	-	-	-	+	-	Chip geometry
Tool wear	-	-	-	-	-	+	



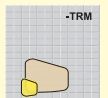
A8-A9



A10-A15



A16-A41



A42-A55



A56-A57



A58-A61

CERATIZIT designation system

Tool holders



ISO tool holders

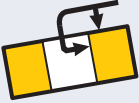




A10-A11

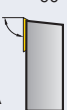

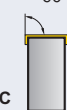


















ISO boring bars

A12-A13

ISO inserts









A14-A15

D  Retained from above and via bore	S  Retained via centre screw	Style	Cutting direction
M  Retained from above and via bore	P  Retained via the bore		
C  Retained from above			
X Special version			

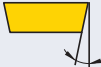
A 	B 	C 	D 	E 
F 	G 	H 	J 	K 
L 	M 	N 	P 	R 
S 	T 	U 	V 	W 
				Y 

S | 1 | C | 2 | L | 3 | C | 4 | R | 5

Insert shape

Included angle rhombus 	35°	V				
	55°	D				
	75°	E				
	80°	C				
	86°	M				
Included angler rhomboid 	55°	K				
	82°	B				
	85°	A				
Other shapes	90°	L		-		R
	108°	P		90°		S
	120°	H		60°		T
	135°	O		80°		W

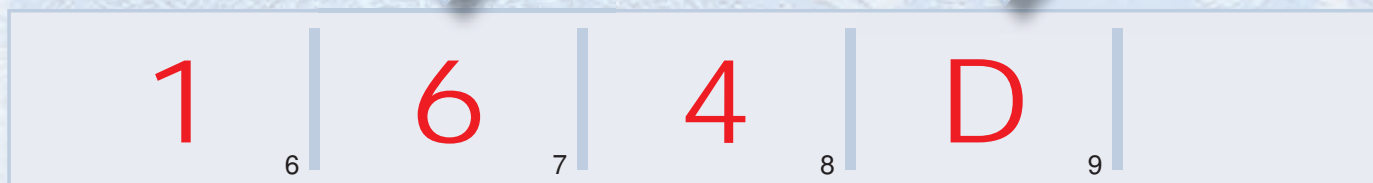
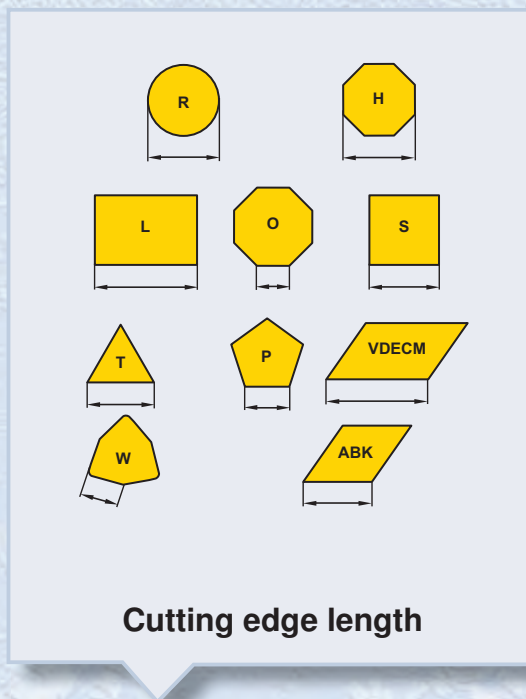
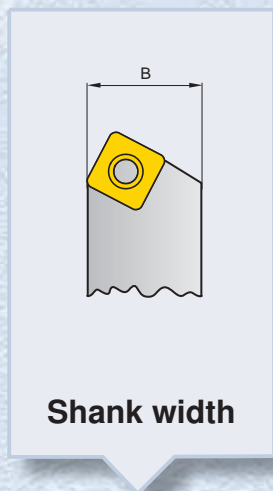
Clearance angle

	3°	A	25°	F
	5°	B	30°	G
	7°	C	0°	N
	15°	D	11°	P
	20°	E		

Clearance angles not included within the standard for which particular information is necessary } O

CERATIZIT designation system

Tool holders



Shank height

Tool holder

Cartridge

Round shank

00

Cartridge

1st position:
C = cartridge

2nd position:
A = ISO 5611

Tool length

l_1 inch		l_1 inch	
4.000	A	4.500	N
4.500	B	5.000	P
5.000	C	–	Q
6.000	D	6.000	R
7.000	E	7.000	S
8.000	F	8.000	T
5.500	G	5.500	U
5.625	H	3.500	V
5.300	J	3.500	W
14.000	K	3.750	Y
6.800	L	Special	X
4.400	M		

Special tolerances

Qualified high-precision tools

Q

F

B



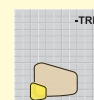
A8-A9



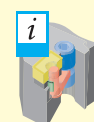
A10-A15



A16-A41



A42-A55



A56-A57



A58-A61

CERATIZIT designation system

Boring bars



ISO tool holders

A10-A11

ISO boring bars

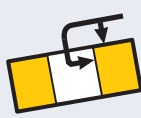

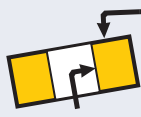
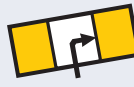

A12-A13

ISO inserts

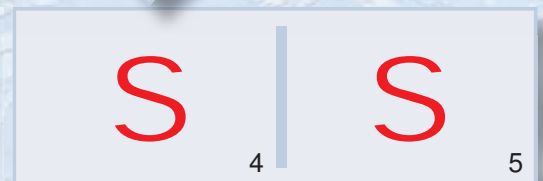
A14-A15

S Steel shank	E As C with coolant hole
A Steel shank with coolant hole	F As C with anti-vibration system
B Steel shank with anti-vibration system	G As C with coolant hole and anti-vibration system
D Steel shank with coolant hole and anti-vibration system	H Heavy metal
C Carbide shank with steel head	J Heavy metal with coolant hole

Shank version

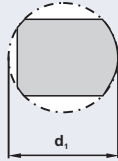
D  Retained from above and via bore	S  Retained via centre screw
M  Retained from above and via bore	P  Retained via the bore
C  Retained from above	

Clamping method



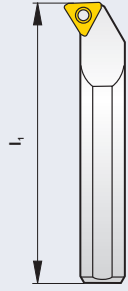
Shank Ø

A two-digit number which indicates the bar diameter in 1/16-inch increments.



Tool length

l ₁ inch	
3	F
3,5	G
4	H
4,5	J
5	K
5,5	L
6	M
6,5	N
6,75	P
7	Q
8	R
10	S
12	T
14	U
16	V
18	W
20	Y
Special length	X



Insert shape

Included angle Rhombus	35°	V				
	55°	D				
	75°	E				
	80°	C				
	86°	M				
Included angle Rhomboid	55°	K				
	82°	B				
	85°	A				
Other shapes	90°	L	—	●	R	
	108°	P	●	90°	■	S
	120°	H	●	60°		T
	135°	O	●	80°		W

CERATIZIT designation system

Boring bars



Style

*) CERATIZIT factory standard

Cutting direction

Cutting edge length

K | **C** | **R** | **3**

6 | 7 | 8 | 9

Clearance angle

3°	A	25°	F
5°	B	30°	G
7°	C	0°	N
15°	D	11°	P
20°	E		

Clearance angles not included within the standard for which particular information is necessary } 0



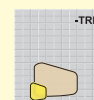
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A10-A15



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A56-A57



A58-A61

CERATIZIT designation system

Inserts



ISO tool holders

A10-A11

ISO boring bars

A12-A13

ISO inserts

A14-A15

Included angle rhombus	35°	V
	55°	D
	75°	E
	80°	C
	86°	M
Included angle rhomboid	55°	K
	82°	B
	85°	A
Other shapes	90°	L
	108°	P
	120°	H
	135°	O
	-	R
	90°	S
	60°	T
	80°	W

Insert shape

3°	A	25°	F
5°	B	30°	G
7°	C	0°	N
15°	D	11°	P
20°	E		

Clearance angles not included within the standard for which particular information is necessary } O

Clearance angles

	d ±	m ±	s ±
A	0,025	0,005	0,025
F	0,013	0,005	0,025
C	0,025	0,013	0,025
H	0,013	0,013	0,025
E	0,025	0,025	0,025
G	0,025	0,025	0,13
J	0,05-0,15*	0,005	0,025
K	0,05-0,15*	0,013	0,025
L	0,05-0,15*	0,025	0,025
M	0,05-0,15*	0,08-0,20	0,13
N	0,05-0,15*	0,08-0,20	0,025
U	0,08-0,25*	0,13-0,38	0,13

Tolerances

N	
R	
F	
A	
M, P	
G, P	
W	
T	
Q	
U	
B	
H	
C	
J	
X	Special version

Form of top surface

T | **P** | **U** | **N**

1 | 2 | 3 | 4

Tolerances in inches

	d ±	m ±	s ±		d ±	m ±	s ±
A	0,0010	0,0002	0,001	J	0,002-0,006*	0,0002	0,001
F	0,0005	0,0002	0,001	K	0,002-0,006*	0,0005	0,001
C	0,0010	0,0005	0,001	L	0,002-0,006*	0,0010	0,001
H	0,0005	0,0005	0,001	M	0,002-0,006*	0,003-0,008*	0,005
E	0,0010	0,0010	0,001	N	0,002-0,006*	0,003-0,008*	0,001
G	0,0010	0,0010	0,005	U	0,003-0,010*	0,005-0,015*	0,005

* Depends on insert size

Form of top surface

Symbols as above. Changes at inscribed circle IK < 1/4"

IK > 1/4"	IK < 1/4"
N / R / F	E
A / M / G	D
X	X

ASA and BHMA deviation with regard to ISO
X = special version not according to ISO

CERATIZIT designation system

Inserts



A8-A9



A10-A15



A16-A41



A42-A55



A56-A57



A58-A61

A15

Cutting edge length

d mm			
	06	16	
	08	20	
	10	25	
	12	32	

mm	Inches	mm	mm
06	5/32	3,96	03
09	7/32	5,56	05
11	1/4	6,35	06
16	3/8	9,52	09
22	1/2	12,7	12
27	5/8	15,8	15
33	3/4	19,0	19
44	1	25,4	25

Insert thickness

Inches	mm	Index
1/16	1,59	01
3/32	2,38	02
1/8	3,18	03
5/32	3,97	T3
3/16	4,76	04
7/32	5,56	05
1/4	6,35	06
5/16	7,94	07
3/8	9,52	09

Corner radius

Code	Corner radius mm
00	≤ 0,05
01	0,1
02	0,2
04	0,4
08	0,8
12	1,2
16	1,6
24	2,4
32	3,2

RN 00
RC MO

Cutting edge

- F Sharp
- E Honed
- T Chamfered
- S Chamfered and honed
- K Double chamfered
- P Double chamfered & honed

Cutting direction

- R
- L
- N

22	04	12	
4	3	3	025B

Cutting edge length

Code	Inches
2	1/4
3	3/8
4	1/2
5	5/8
6	3/4
8	1

Insert thickness

Code	Inches
1	1/16
2	1/8
3	3/16
4	1/4
5	5/16
6	3/8

Corner radius

Code	Corner radius inches
X0	.0015
0	.004
.5	.008
1	1/64
2	1/32
3	3/64
4	1/16
5	5/64
6	3/32
7	7/64
8	1/8

RN 00
RC MO

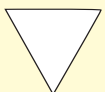
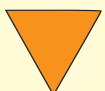
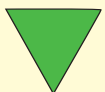
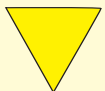
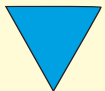
Chamfer type

T/S	K/P 1)
015	0,15 mm A 05°
020	0,20 mm B 10°
025	0,25 mm C 15°
050	0,50 mm D 20°
075	0,75 mm E 25°
100	1,00 mm F 30°

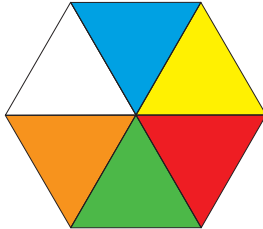
1) For double chamfered cutting edges two letters are used.

for example:

BE = BE = chamfer angle 1 = 10°
chamfer angle 2 = 25°



Material



Based on VDI 3323 CERATIZIT's MasterGuide divides materials into six main groups. Each is given a colour, according to the system partly adopted in ISO 513.

Blue: Steel

Machining, cementation, tempered and constructional steels

Yellow: Stainless steel

Ferritic Cr-steels, austenitic CrNi-steels, martensitic Cr-steels, duplex steels

Red: Cast iron

Cast iron, grey cast iron, tempered iron, spheroidal cast iron, CGI, sintered iron

Green: Non ferrous metals and non metals

Al wrought and Al cast alloys, copper, copper alloys, non metal materials

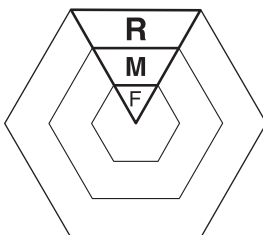
Orange: Heat resistant alloys / titanium

Ni/Co-base alloys, Ti alloys

White: Hard materials

Hardened steels (≥ 45 HRC), chilled castings, hard cast irons

Machining application type



Each coloured segment is divided into three sections, and each section indicates the relevant machining application type:

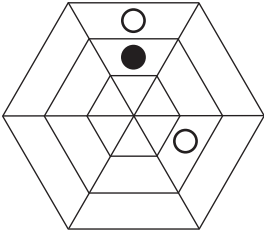
R = rough machining

M = medium machining

F = fine machining



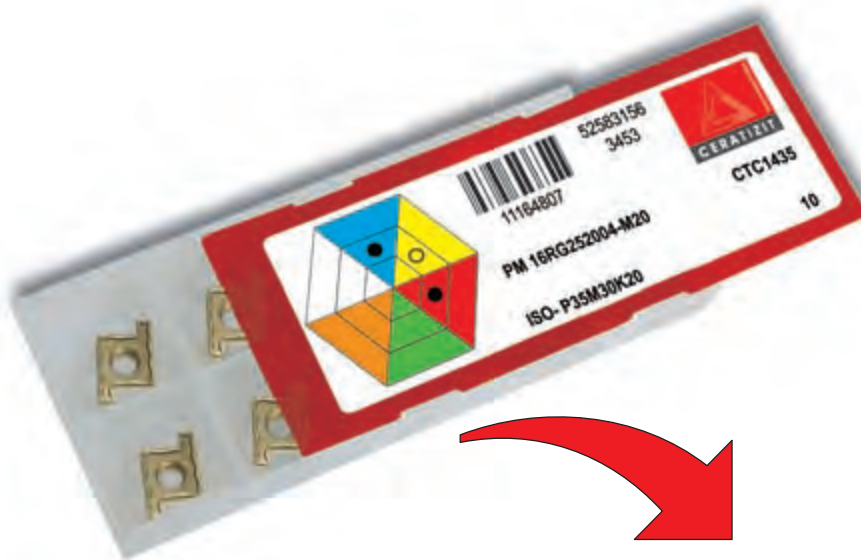
Application



The ideal application area for the insert is indicated by a black circle. Extended applications are indicated by an open circle. The CERATIZIT MasterGuide provides you with an easily understandable structure for choosing a product and enables you to reduce grade and geometry stocks.

- **Main application**
- **Extended application**

The right indexable insert at a glance

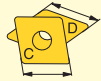


Main application:
Medium machining of steel and cast iron

Extended application:
Medium machining of stainless steel



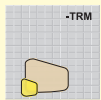
A8-A9



A10-A15



A16-A41



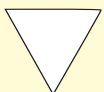
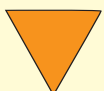
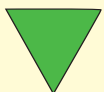
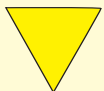
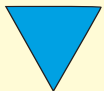
A42-A55



A56-A57



A58-A61



CTC P125

Manufacturer: CERATIZIT

Cutting material

- W Uncoated carbide
- C CVD coated carbide
- P PVD coated carbide
- T Uncoated cermet
- E Coated cermet
- N Uncoated silicon nitride
- M Coated silicon nitride
- S Mixed ceramic
- I Sialon
- D PCD
- B CBN
- L CBN coated
- H Sintered HSS

ISO 513

Application range

- For example:
- 05 ISO K05/P05
 - 10
 - 15
 - 25

Main application (material)

Variant 1: number

- 1 Steel
- 2 Stainless steel
- 3 Cast iron
- 4 Light and non ferrous metals, non metals
- 5 Heat resistant alloys, titanium
- 6 Hard materials
- 7 Universal grade for a variety of applications

Main application (machining method)

- 1 Turning
- 2 Milling
- 3 Parting and grooving
- 4 Drilling
- 5 Threading
- 6 Others
- 7 Universal grade for a variety of applications

Main application (material)

Variant 2: ISO letter

- P Steel
- M Stainless steel
- K Cast iron
- N Light and non ferrous metals, non metals
- S Heat resistant alloys, titanium
- H Hard materials
- X Universal grade for a variety of applications

Grade overview



Grade designation	Standard designation	Cutting material	Application range							A	R	F	N	S	H				
			01	05	10	15	20	25	30	35	40	45	50	Steel	Stainless	Cast iron	Non ferrous metals	Heat resistant	Hard materials
AMZ	HC-K10	P			■								○	○	●	●	○		
CM45	HC-P45	P										■	■	■	■	■	○		
	HC-M40	P										■	■	■	○	○			
	HC-K25	P										■	■	■	○	○			
CTC1110	HC-P10	C			■	■	■						○	○	○	○			
	HC-M10	C			■	■	■						○	○	○	○			
	HC-K15	C			■	■	■						○	○	○	○			
CTC1115	HC-P15	C			■	■	■						○	○	○	○			
	HC-M15	C			■	■	■						○	○	○	○			
	HC-K15	C			■	■	■						○	○	○	○			
CTC1125	HC-P25	C				■	■	■					○	○	○	○			
	HC-M25	C				■	■	■					○	○	○	○			
	HC-K20	C				■	■	■					○	○	○	○			
CTC1130	HC-P30	C					■	■	■				○	○	○	○			
	HC-M20	C					■	■	■				○	○	○	○			
	HC-K20	C					■	■	■				○	○	○	○			
CTC1135	HC-P35	C						■	■	■			○	○	○	○			
	HC-M25	C						■	■	■			○	○	○	○			
CTC1425	HC-P25	C						■	■	■			○	○	○	○			
	HC-M20	C						■	■	■			○	○	○	○			
	HC-K15	C						■	■	■			○	○	○	○			
CTC1435	HC-P35	C							■	■	■			○	○	○	○		
	HC-M30	C							■	■	■			○	○	○	○		
	HC-K20	C							■	■	■			○	○	○	○		
CTC2135	HC-P35	C								■	■	■			○	○	○		
	HC-M30	C								■	■	■			○	○	○		
CTC3110	HC-P10	C			■	■	■						○	○	○	○			
	HC-K10	C			■	■	■						○	○	○	○			

*Type of cutting material



01 05 10 15 20 25 30 35 40 45 50

● Main application

○ Extended application



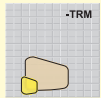
A8-A9



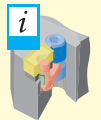
A10-A15



A16-A41



A42-A55



A56-A57



A58-A61

Grade overview

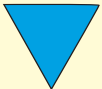


MasterGuide

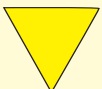
A16-A17

Grade over-
view

A18-A23



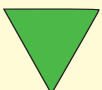
A24-A28



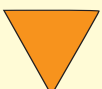
A29-A30



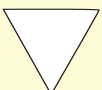
A31-A35



A36-A38



A39



A40-A41

Grade designation	Standard designation	Cutting material	Application range							A	R	F	N	S	H					
			01	05	10	15	20	25	30	35	40	45	50	Steel	Stainless	Cast iron	Non ferrous metals	Heat resistant	Hard materials	
CTCP125	HC-P25	C																		
	HC-M20	C																		
	HC-K25	C																		
CTP2120	HC-M20	P																		
	HC-K20	P																		
CTP2440	HC-P40	P																		
	HC-M35	P																		
	HC-K25	P																		
CTP4115	HC-K15	P																		
CTP5110	HC-M15	P																		
	HC-S15	P																		
CTP5115	HC-M15	P																		
	HC-S15	P																		
CTW7120	HW-M20	W																		
	HW-K20	W																		
H10T	HW-K15	W																		
H210T	HW-M10	W																		
	HW-K10	W																		
H216T	HW-K15	W																		
S26T	HW-P20	W																		
S40T	HW-P40	W																		
	HW-M40	W																		
SM80	PM-HSS	H																		
TCC410	HC-P10	E																		
	HC-M10	E																		
	HC-K05	E																		

● Main application
○ Extended application

*Type of cutting material

A18

Grade overview



Grade designation	Standard designation	Cutting material	Application range							A	R	F	N	S	H					
			01	05	10	15	20	25	30	35	40	45	50	Steel	Stainless	Cast iron	Non ferrous metals	Heat resistant	Hard materials	
TCM10	HT-P15	T											●	●	●	●	●			
	HT-M10	T											●	●	●	●	●			
	HT-K10	T													○	●	●			
TCM407	HT-P10	T											●	●	●	●	●			
	HT-M05	T											○	●	●	●	●			
	HT-K05	T													○	●	●			
TSM20	HW-K15	W													●	●	●			
TSM30	HW-K30	W													○	●	○			
U17T	HW-M15	W														○	○			
	HW-K15	W														●	○			
			01	05	10	15	20	25	30	35	40	45	50	● Main application	○ Extended application					

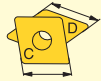
*Type of cutting material



A18



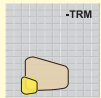
A8-A9



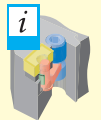
A10-A15



A16-A41



A42-A55



A56-A57



A58-A61

A21

Grade overview

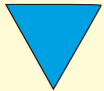


MasterGuide

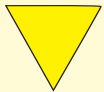
A16-A17

Grade over-
view

A18-A23



A24-A28



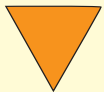
A29-A30



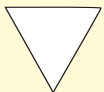
A31-A35



A36-A38



A39



A40-A41

Grade designation	Standard designation	Cutting material	Application range					A	R	F	N	S	H		
			0	05	10	15	20	25	Steel	Stainless	Cast iron	Non ferrous metals	Heat resistant	Hard materials	
CTD4110	DP-K05	D			■	■					●	■			
CTD4125	DP-K01	D	■	■							●	■			
CTI3105	CN-K05	I		■	■	■				●	■	○			
CTM3110	CC-K10	M			■	■	■			●	■	■			
CTN3105	CN-K05	N		■	■	■	■			●	■	■			
CTN3110	CN-K10	N			■	■	■			●	■	■			
CTS3105	CM-K05	S		■	■	■				●	■	■	●		
TA100	BN-K03	B		■	■	■				●	■	■	●		
TA120	BN-K05	B		■	■					○	■	■	●		
TA201	BN-K10	B			■	■				○	■	○	●		
			0	05	10	15	20	25	●	Main application					
									○	Extended application					

*Type of cutting material



A18

Carbide

Reference	Carbide group
HW	Uncoated carbide, consisting mainly of tungsten carbide (WC)
HT ¹⁾	Uncoated carbide, consisting mainly of titanium carbide (TiC) or titanium nitride (TiN) or both
HC	Carbides as above, but coated

¹⁾ These carbides are also called 'cermets'.

Ceramic

Reference	Ceramic group
CA	Oxide ceramic, consisting mainly of aluminium oxide (Al ₂ O ₃)
CM	Mixed ceramic, based on aluminium oxide (Al ₂ O ₃), but with different oxide components
CN	Nitride ceramic, consisting mainly of silicon nitride (Si ₃ N ₄)
CC	Ceramics as above, but uncoated

Diamond

Reference	Diamond group
DP	Polycrystalline diamond ¹⁾

¹⁾ Polycrystalline diamond and polycrystalline boron nitride are also called ultra-hard cutting materials.

Boron nitride

Reference	Boron nitride group
BN	Cubic crystalline boron nitride (polycrystalline boron nitride) ¹⁾

¹⁾ Cubic crystalline boron nitride (polycrystalline boron nitride) and polycrystalline diamond are also called ultra-hard cutting materials.



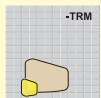
A8-A9



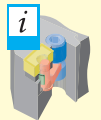
A10-A15



A16-A41



A42-A55



A56-A57



A58-A61

Grade description

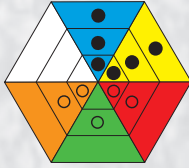
Steel



MasterGuide

CM45

HC-P45
HC-M40
HC-K25



Composition:

Co 10,0%; WC rest

Grain size:

0,7 μm (submicron grade)

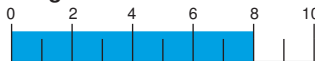
Hardness:

HV 1600

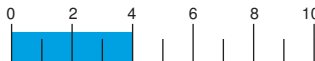
Coating specification:

PVD
TiAlN; 2 - 4 μm

Toughness



Wear resistance



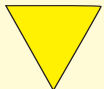
A16-A17

Grade over-
view

A18-A23



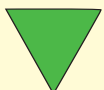
A24-A28



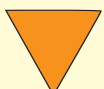
A29-A30



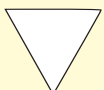
A31-A35



A36-A38



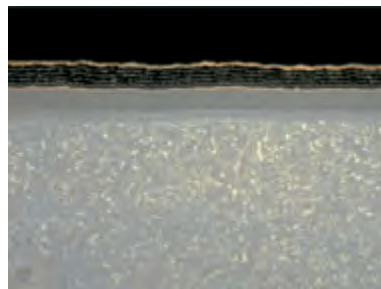
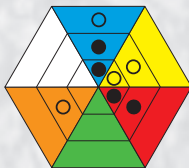
A39



A40-A41

CTC1110

HC-P10
HC-M10
HC-K15



Composition:

Co 6.0%; composite carbides 6.4%; WC rest;
grade with peripheral zone

Grain size:

1 - 2 μm

Hardness:

HV 1550

Coating specification:

CVD; Ti (C,N) + Ti (C,N) + Ti (N,B) + Al₂O₃ + top
layer 18 μm

Toughness



Wear resistance



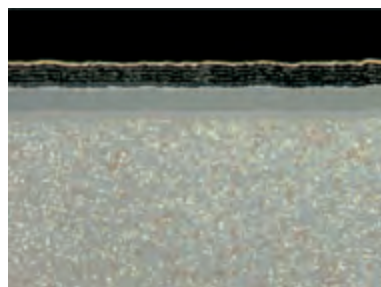
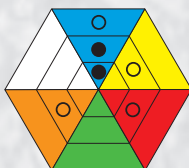
For high-performance
turning

Properties, application:

- Excellent heat resistance

CTC1115

HC-P15
HC-M15
HC-K15



Composition:

Co 5.8%; composite carbides 6.4%; WC rest

Grain size:

1 - 2 μm

Hardness:

HV 1480

Coating specification:

CVD
Ti (C,N) + Ti (C,N) + Ti (N,B) + Al₂O₃ + top layer
18 μm

Toughness



Wear resistance



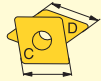
A24

Grade description

Steel



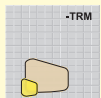
A8-A9



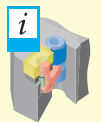
A10-A15



A16-A41



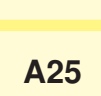
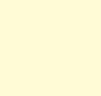
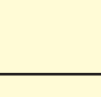
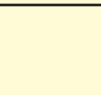
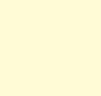
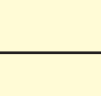
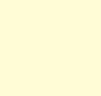
A42-A55



A56-A57



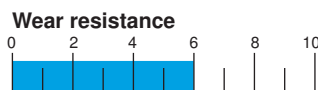
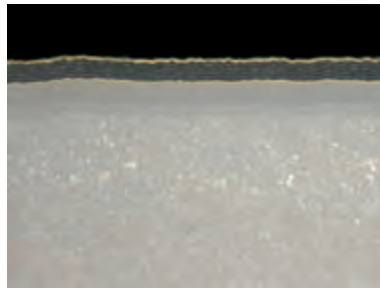
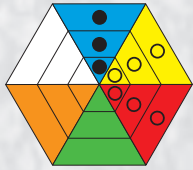
A58-A61



A25

CTC1125

HC-P25
HC-M25
HC-K20



Composition:

Co 7.0%; composite carbides 8.0%; WC rest

Grain size:

1 - 2 μm

Hardness:

HV 1450

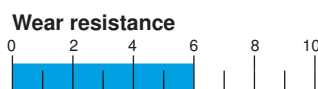
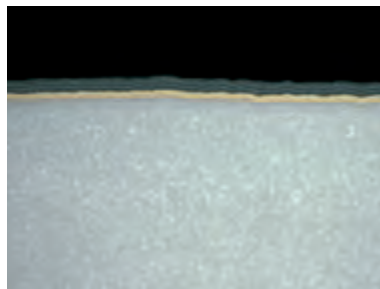
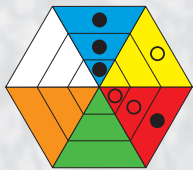
Coating specification:

CVD

Ti (C,N) + Ti (C,N) + Ti (N,B) + Al_2O_3 + top layer
18 μm

CTC1130

HC-P30
HC-M20
HC-K20



Composition:

Co 7.0%; composite carbides 8.0%; WC rest

Grain size:

Medium, 1 - 2 μm

Hardness:

HV 1450

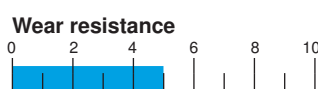
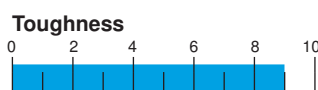
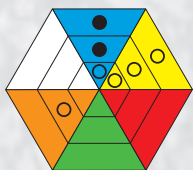
Coating specification:

CVD

Ti (C,N) + Ti (C,N) + TiN + Al_2O_3 ; 12 μm

CTC1135

HC-P35
HC-M25



Composition:

Co 9.5%; composite carbides 6.5%; WC rest

Grain size:

1 - 2 μm

Hardness:

HV 1400

Coating specification:

CVD

Ti (C,N) + Ti (C,N) + TiN + Ti (N,B) + Ti (C,N) +
TiN; 12 μm

Grade description

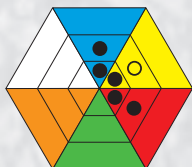
Steel



MasterGuide

CTC1425

HC-P25
HC-M20
HC-K15



Composition:

Co 7.0%; composite carbides 8.0%; WC rest

Grain size:

1 - 2 μm

Hardness:

HV 1450

Coating specification:

CVD

TiN + Ti (C,N) + Ti (N,B) + Al₂O₃ + Ti (C,N,B); 6 μm

Toughness



Wear resistance



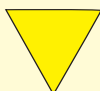
A16-A17

Grade over-view

A18-A23



A24-A28



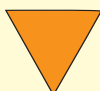
A29-A30



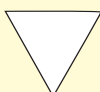
A31-A35



A36-A38



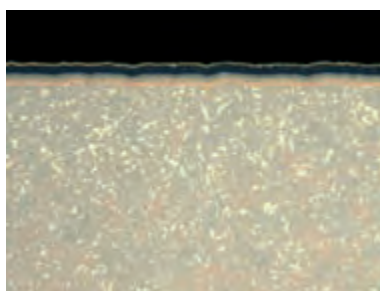
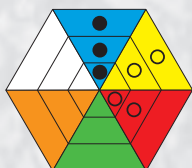
A39



A40-A41

CTC1435

HC-P35
HC-M30
HC-K20



Composition:

Co 9.5%; composite carbides 6.5%; WC rest

Grain size:

1 - 2 μm

Hardness:

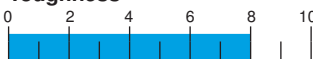
HV 1400

Coating specification:

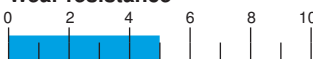
CVD

TiN + Ti (C,N) + Ti (N,B) + Al₂O₃ + Ti (C,N,B); 6 μm

Toughness

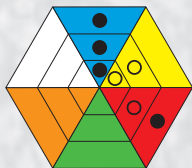


Wear resistance



CTCP125

HC-P25
HC-M20
HC-K25



Composition:

Co 7.0%; composite carbides 8.0%; WC rest

Grain size:

1 - 2 μm

Hardness:

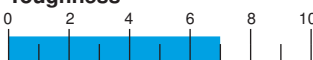
HV 1450

Coating specification:

CVD

Ti (C,N) + Al₂O₃; 15 μm

Toughness



Wear resistance



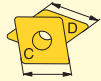
A26

Grade description

Steel



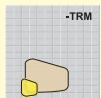
A8-A9



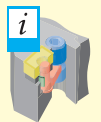
A10-A15



A16-A41



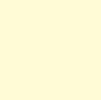
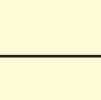
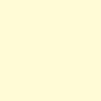
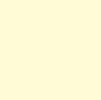
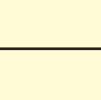
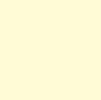
A42-A55



A56-A57



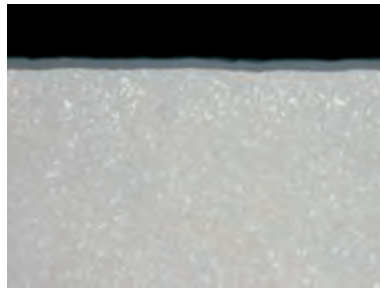
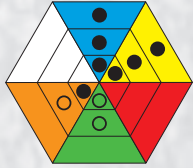
A58-A61



A27

CTP2440

HC-P40
HC-M35
HC-K25



Composition:

Co 9.5%; composite carbides 6.5%; WC rest

Grain size:

1 - 2 μm

Hardness:

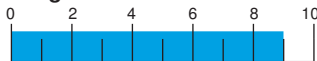
HV 1400

Coating specification:

PVD

TiAlN; 3 - 5 μm

Toughness

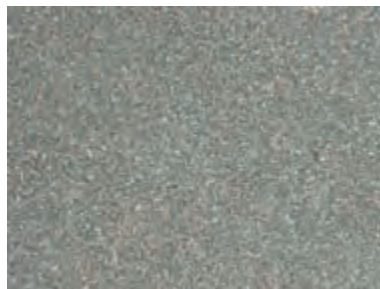
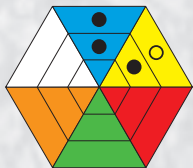


Wear resistance



S40T

HW-P40
HW-M40



Composition:

Co 11.0%; composite carbides 12.0%; WC rest

Grain size:

1 - 2 μm

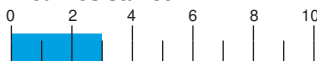
Hardness:

HV 1420

Toughness



Wear resistance

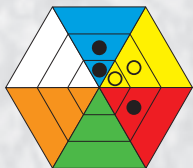


Properties, application:

- High toughness
- Medium to low cutting speeds
- For universal application on steels

TCC410

HC-P10
HC-M10
HC-K05



Composition: cermet

Co/Ni 12.2%; WC 15.0%; TaNbC 10.0%; TiCN rest

Hardness:

HV 1620

Coating specification:

CVD

TiN + Ti (C,N) + Ti (C,N) + Al₂O₃ + Ti (C,N,B); 6 μm

Toughness



Wear resistance



Properties, application:

- Excellent resistance to oxidation

Grade description

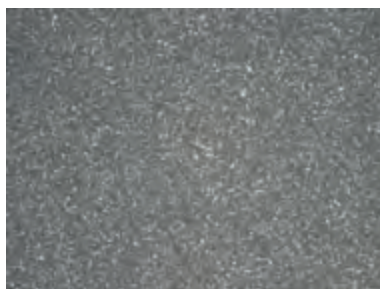
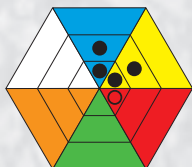
Steel



MasterGuide

TCM10

HT-P15
HT-M10
HT-K10



Composition: cermet

Co/Ni 12.2%; WC 15.0%; TaNbC 10.0%; TiCN rest

Hardness:

HV 1620

Toughness



Wear resistance



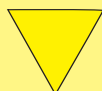
A16-A17

Grade over-view

A18-A23



A24-A28



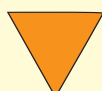
A29-A30



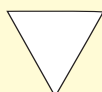
A31-A35



A36-A38



A39



A40-A41

TCM407

HT-P10
HT-M05
HT-K05



Composition: cermet

Co/Ni 8.0%; WC 16.0%; TaNbC 10.0%; TiCN rest

Hardness:

HV 1780

Toughness



Wear resistance



Properties, application:

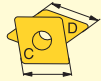
- For very high cutting speeds
- Ideal for finishing

Grade description

Stainless steel



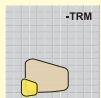
A8-A9



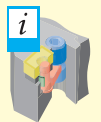
A10-A15



A16-A41



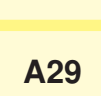
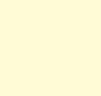
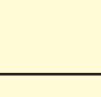
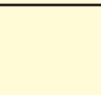
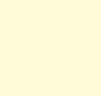
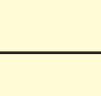
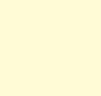
A42-A55



A56-A57



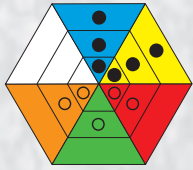
A58-A61



A29

CM45

HC-P45
HC-M40
HC-K25

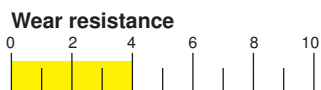
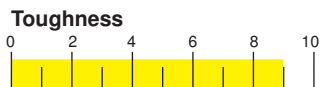


Composition:
Co 10,0%; WC rest

Grain size:
0,7 μm (submicron grade)

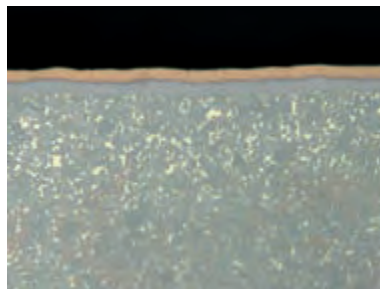
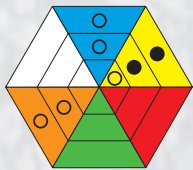
Hardness:
HV 1600

Coating specification:
PVD
TiAlN; 2 - 4 μm



CTC2135

HC-P35
HC-M30

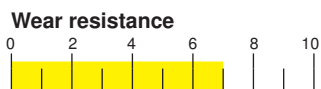
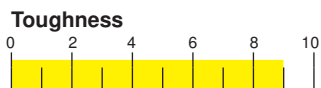


Composition:
Co 9.5%; composite carbides 6.5%; WC rest

Grain size:
1 - 2 μm

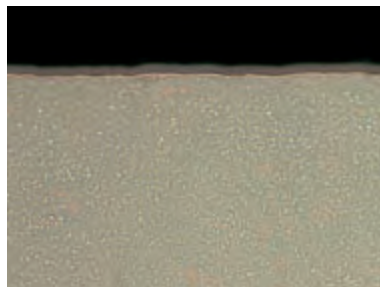
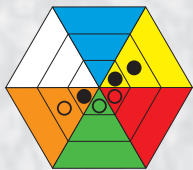
Hardness:
HV 1400

Coating specification:
CVD; Ti (C,N) + Ti (C,N) + TiN + Ti (N,B) + Ti (C,N) + TiN; 6 μm



CTP2120

HC-M20
HC-K20

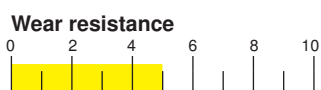


Composition:
Co 10.0%; composite carbides 2.0%; WC rest

Grain size:
1 μm

Hardness:
HV 1560

Coating specification:
PVD
TiAlN; 2 - 5 μm



Grade description

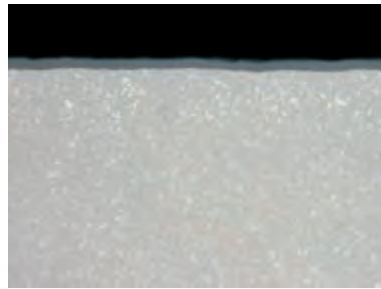
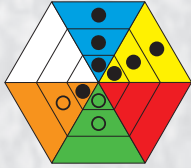
Stainless steel



MasterGuide

CTP2440

HC-P40
HC-M35
HC-K25



Composition:

Co 9.5%; composite carbides 6.5%; WC rest

Grain size:

1 - 2 μm

Hardness:

HV 1400

Coating specification:

PVD

TiAlN; 3 - 5 μm

Toughness



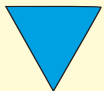
Wear resistance



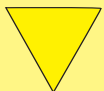
A16-A17

Grade over-view

A18-A23



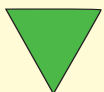
A24-A28



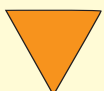
A29-A30



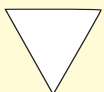
A31-A35



A36-A38



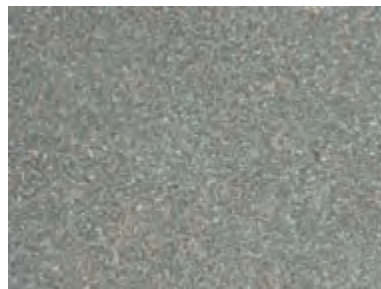
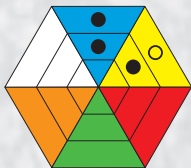
A39



A40-A41

S40T

HW-P40
HW-M40



Composition:

Co 11.0%; composite carbides 12.0%; WC rest

Grain size:

1 - 2 μm

Hardness:

HV 1420

Toughness



Wear resistance

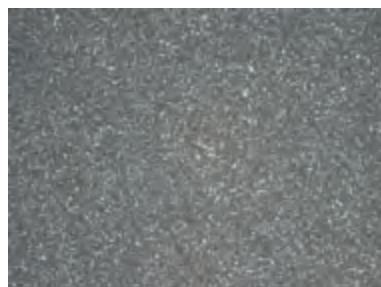
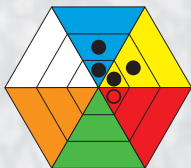


Properties, application:

- High toughness
- Medium to low cutting speeds
- For universal application on steels

TCM10

HT-P15
HT-M10
HT-K10



Composition: cermet

Co/Ni 12.2%; WC 15.0%; TaNbC 10.0%; TiCN rest

Hardness:

HV 1620

Toughness



Wear resistance



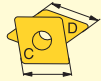
A30

Grade description

Cast iron



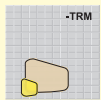
A8-A9



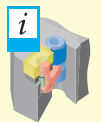
A10-A15



A16-A41



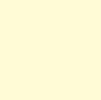
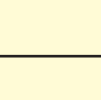
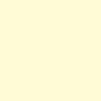
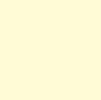
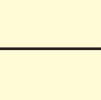
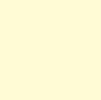
A42-A55



A56-A57



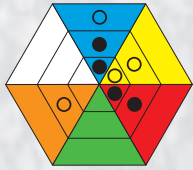
A58-A61



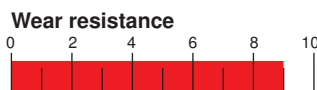
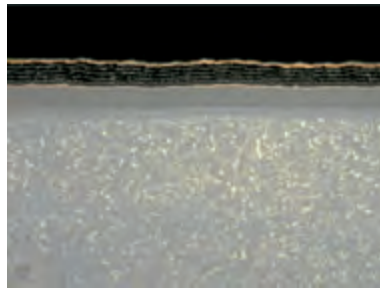
A31

CTC1110

HC-P10
HC-M10
HC-K15



For high-performance turning



Composition:

Co 6.0%; composite carbides 6.4%; WC rest; grade with peripheral zone

Grain size:

1 - 2 μm

Hardness:

HV 1550

Coating specification:

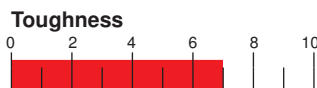
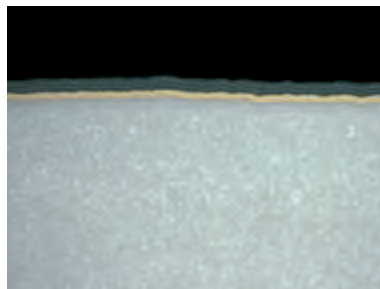
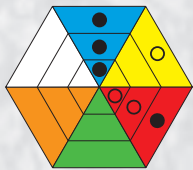
CVD; Ti (C,N) + Ti (C,N) + Ti (N,B) + Al_2O_3 + top layer 18 μm

Properties, application:

- Excellent heat resistance

CTC1130

HC-P30
HC-M20
HC-K20



Composition:

Co 7.0%; composite carbides 8.0%; WC rest

Grain size:

Medium, 1 - 2 μm

Hardness:

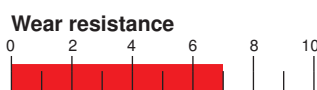
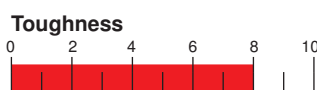
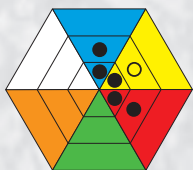
HV 1450

Coating specification:

CVD
Ti (C,N) + Ti (C,N) + TiN + Al_2O_3 ; 12 μm

CTC1425

HC-P25
HC-M20
HC-K15



Composition:

Co 7.0%; composite carbides 8.0%; WC rest

Grain size:

1 - 2 μm

Hardness:

HV 1450

Coating specification:

CVD
TiN + Ti (C,N) + Ti (N,B) + Al_2O_3 + Ti (C,N,B); 6 μm

Grade description

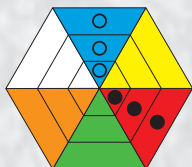
Cast iron



MasterGuide

CTC3110

HC-P10
HC-K10



Composition:

Co 6.0%; TaC 2.0%; WC rest

Grain size:

1 μm

Hardness:

HV 1650

Coating specification:

CVD

Ti (C,N) Ti (C,N) Ti (C,N,B) + Al_2O_3 ; 16 μm

Toughness



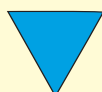
Wear resistance



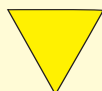
A16-A17

Grade over-
view

A18-A23



A24-A28



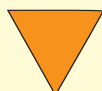
A29-A30



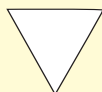
A31-A35



A36-A38



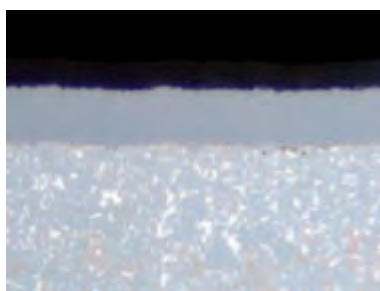
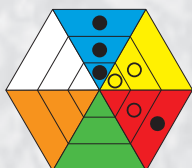
A39



A40-A41

CTCP125

HC-P25
HC-M20
HC-K25



Composition:

Co 7.0%; composite carbides 8.0%; WC rest

Grain size:

1 - 2 μm

Hardness:

HV 1450

Coating specification:

CVD

Ti (C,N) + Al_2O_3 ; 15 μm

Toughness

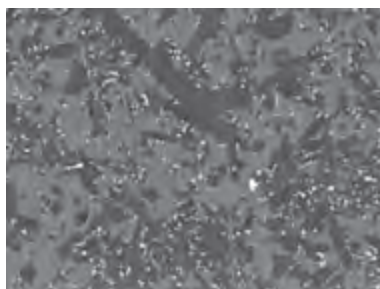
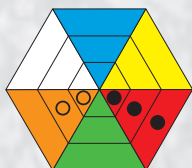


Wear resistance



CTI3105

CN-K05



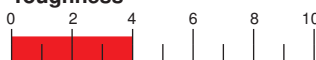
Composition:

α , β - Sialon

Hardness:

HV10 1900

Toughness



Wear resistance



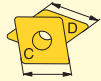
A32

Grade description

Cast iron



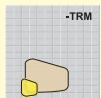
A8-A9



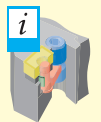
A10-A15



A16-A41



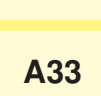
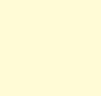
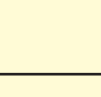
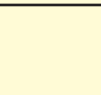
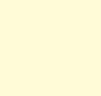
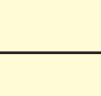
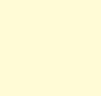
A42-A55



A56-A57



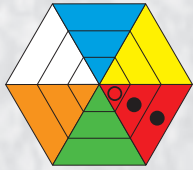
A58-A61



A33

CTM3110

CN-K10



Composition:

Si_3N_4 ;

Grain size:

$> 2 \mu\text{m}$

Hardness:

HV 1550

Coating specification:

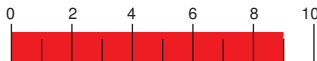
CVD

Ti (C,N) + TiN; $> 2\mu\text{m}$

Toughness



Wear resistance

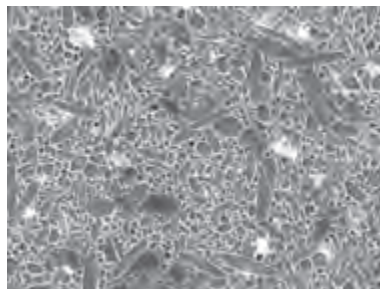
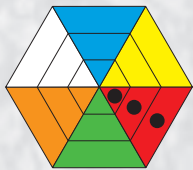


Properties, application:

- For chromium cast alloys

CTN3105

CN-K05



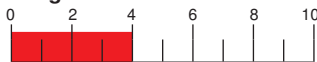
Composition:

$\beta - \text{Si}_3\text{N}_4$

Hardness:

HV10 1620

Toughness



Wear resistance

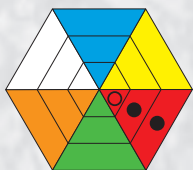


Properties, applications:

- Turning and milling of grey cast and spheroidal cast iron at high cutting speeds

CTN3110

CN-K10



Composition:

Si_3N_4

Grain size:

$> 2 \mu\text{m}$

Hardness:

HV10 1500

Toughness



Wear resistance



Properties, application:

- For roughing

Grade description

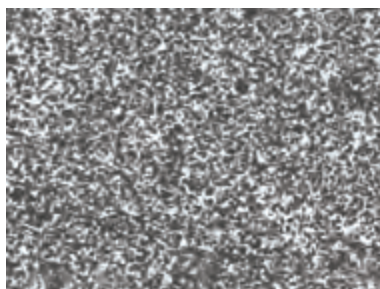
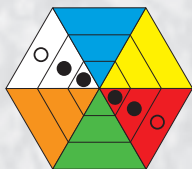
Cast iron



MasterGuide

CTS3105

CM-K05



Composition:

Al₂O₃;

Grain size:

> 1 μm

Hardness:

HV 2100

Toughness



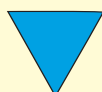
Wear resistance



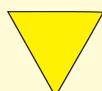
A16-A17

Grade over-view

A18-A23



A24-A28



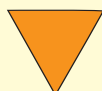
A29-A30



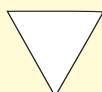
A31-A35



A36-A38



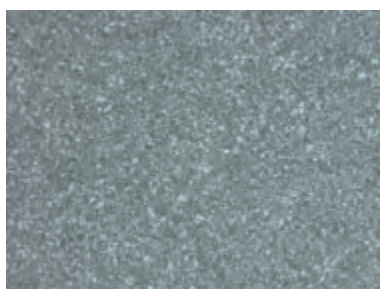
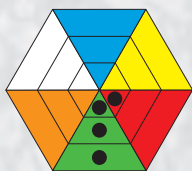
A39



A40-A41

H10T

HW-K15



Composition:

Co 6.0%; WC rest

Grain size:

1 μm

Hardness:

HV 1630

Toughness



Wear resistance

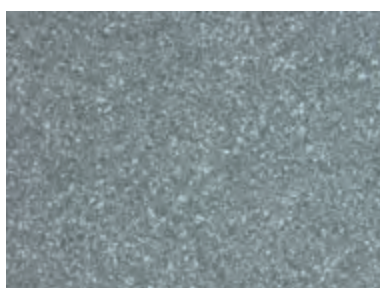
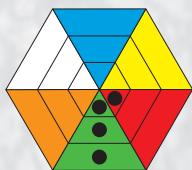


Properties, application:

- Optimally suitable for aluminium
- High wear resistance
- High heat resistance
- Low tendency to adhesion

H216T

HW-K15



Composition:

Co 6.0%; WC rest

Grain size:

1 μm

Hardness:

HV 1630

Toughness



Wear resistance



Properties, application:

- Optimally suitable for aluminium
- High wear resistance
- High heat resistance
- Low tendency to adhesion

A34

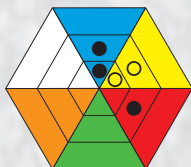
Grade description

Cast iron



TCC410

HC-P10
HC-M10
HC-K05



Composition: cermet

Co/Ni 12.2%; WC 15.0%; TaNbC 10.0%; TiCN rest

Hardness:

HV 1620

Coating specification:

CVD

TiN + Ti (C,N) + Ti (C,N) + Al₂O₃ + Ti (C,N,B); 6 μm

Toughness



Wear resistance



Properties, application:

- Excellent resistance to oxidation



A8-A9



A10-A15



A16-A41



A42-A55



A56-A57



A58-A61

A35

Grade description

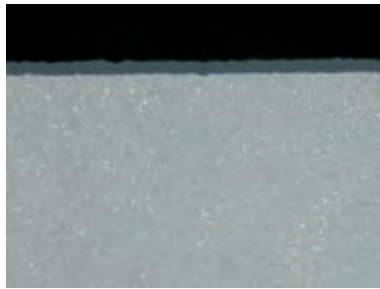
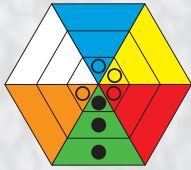
Non ferrous metals and non metals



MasterGuide

AMZ

HC-K10



Composition:

Co 6.0%; WC rest

Grain size:

1 μm

Hardness:

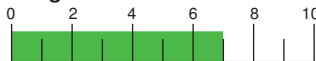
HV 1630

Coating specification:

PVD

TiAlN; 2 - 4 μm

Toughness



Wear resistance



Properties, application:

- Optimally suitable for aluminium and cast iron
- Low tendency to adhesion

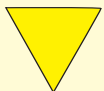
A16-A17

Grade over-view

A18-A23



A24-A28



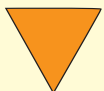
A29-A30



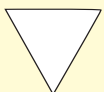
A31-A35



A36-A38



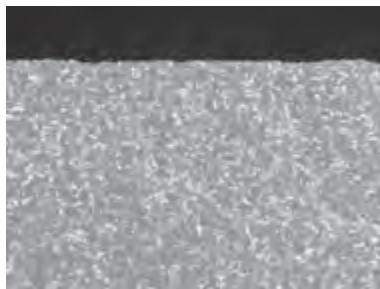
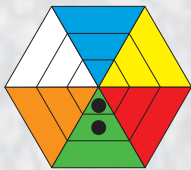
A39



A40-A41

CTD4110

DP-K05



Composition:

Polycrystalline diamond (PCD)

Polycrystalline diamond:

~ 5 μm

Toughness



Wear resistance



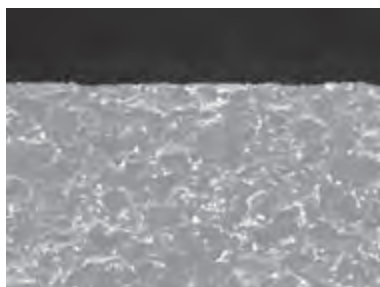
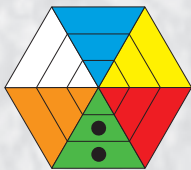
Properties, application:

- Maximum wear resistance and hardness
- Low toughness

For abrasive non ferrous metals, plastic, graphite

CTD4125

DP-K01



Composition:

Polycrystalline diamond (PCD)

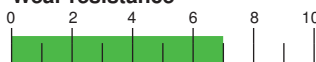
Grain size:

~ 25 μm

Toughness



Wear resistance



Properties, application:

- High wear resistance
- Good toughness
- Suitable for interrupted cut

For non ferrous metals, plastic

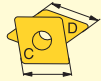
A36

Grade description

Non ferrous metals and non metals



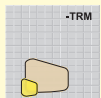
A8-A9



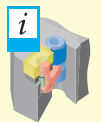
A10-A15



A16-A41



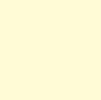
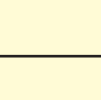
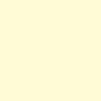
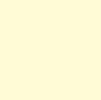
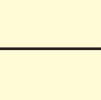
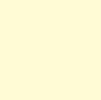
A42-A55



A56-A57



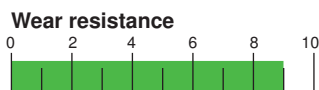
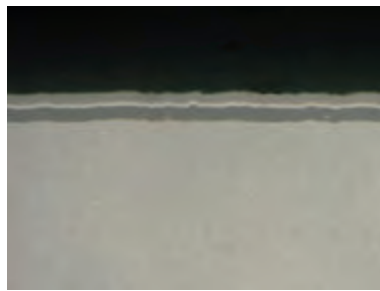
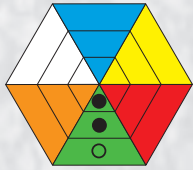
A58-A61



A37

CTP4115

HC-K15



Composition:

Co 6.0%; WC rest

Grain size:

0.8 μm

Hardness:

HV 1820

Coating specification:

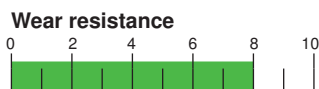
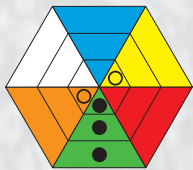
PVD

(Ti,Al)N; 5 μm

CTW7120

HW-M20

HW-K20



Composition:

Co 10.0%; WC rest

Grain size:

0.7 μm (submicron grade)

Hardness:

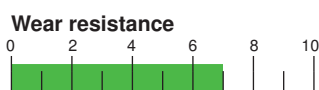
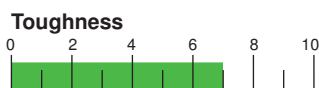
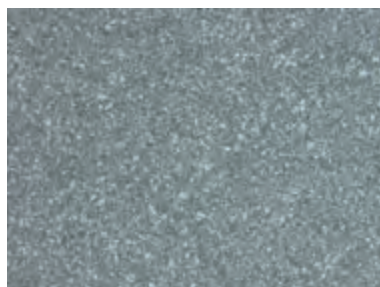
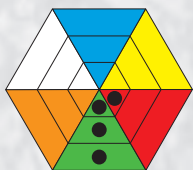
HV 1550

Properties, application:

- Ideal for non ferrous metals
- Substrate for PVD coatings

H10T

HW-K15



Composition:

Co 6.0%; WC rest

Grain size:

1 μm

Hardness:

HV 1630

Properties, application:

- Optimally suitable for aluminium
- High wear resistance
- High heat resistance
- Low tendency to adhesion

Grade description

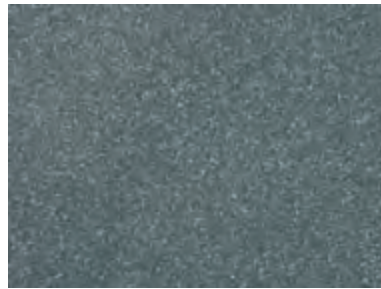
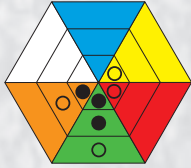
Non ferrous metals and non metals



MasterGuide

H210T

HW-M10
HW-K10



Composition:

Co 6.0%; WC rest

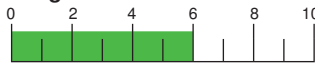
Grain size:

0.8 μm (submicron grade)

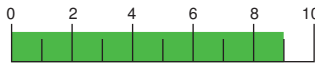
Hardness:

HV 1850

Toughness



Wear resistance



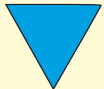
Properties, application:

- Ideal for heat resistant alloys, titanium, refractory metals (W, Mo), aluminium and glass & carbon fibre reinforced plastics
- Low tendency to adhesion

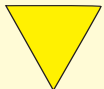
A16-A17

Grade over-view

A18-A23



A24-A28



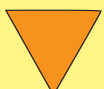
A29-A30



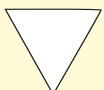
A31-A35



A36-A38



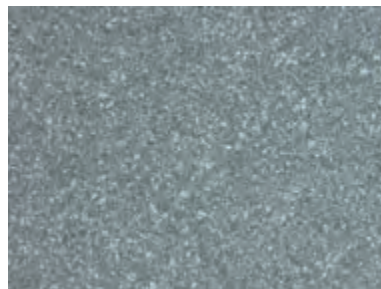
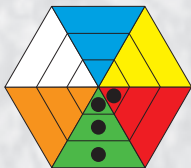
A39



A40-A41

H216T

HW-K15



Composition:

Co 6.0%; WC rest

Grain size:

1 μm

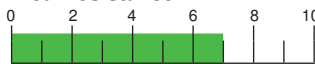
Hardness:

HV 1630

Toughness



Wear resistance



Properties, application:

- Optimally suitable for aluminium
- High wear resistance
- High heat resistance
- Low tendency to adhesion

Grade description

Heat resistant alloys / titanium



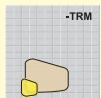
A8-A9



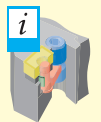
A10-A15



A16-A41



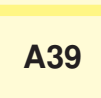
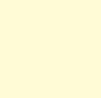
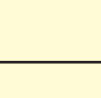
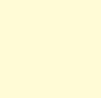
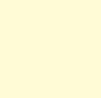
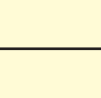
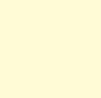
A42-A55



A56-A57



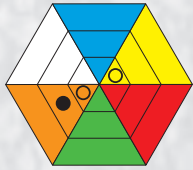
A58-A61



A39

CTP5110

HC-M15
HC-S15

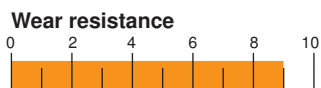
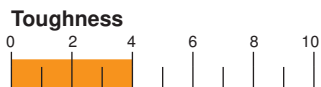


Composition:
Co 6.0%; WC rest

Grain size:
0.8 μm

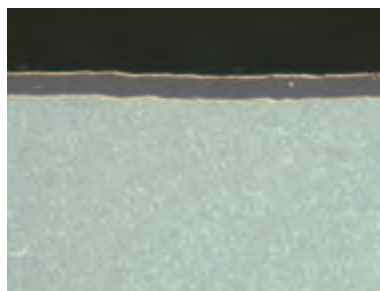
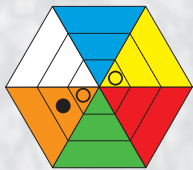
Hardness:
HV 1820

Coating specification:
PVD
(Ti,Al)N; 4 μm



CTP5115

HC-M15
HC-S15

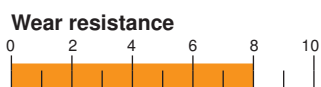
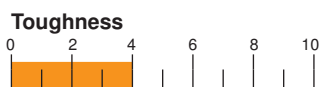


Composition:
Co 6.0%; WC rest

Grain size:
0.8 μm

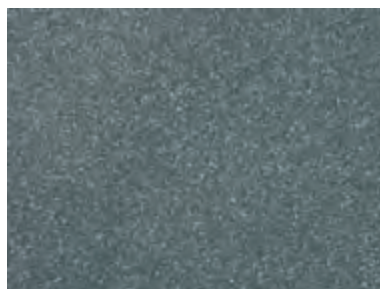
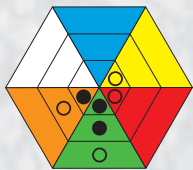
Hardness:
HV 1820

Coating specification:
PVD
TiN + (Ti,Al)N + TiN; 4 μm



H210T

HW-M10
HW-K10



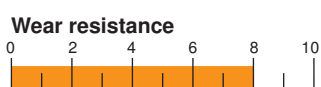
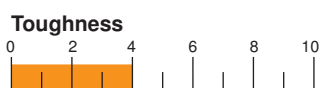
Composition:
Co 6.0%; WC rest

Grain size:
0.8 μm (submicron grade)

Hardness:
HV 1850

Properties, application:

- Ideal for heat resistant alloys, titanium, refractory metals (W, Mo), aluminium and glass & carbon fibre reinforced plastics
- Low tendency to adhesion



Grade description

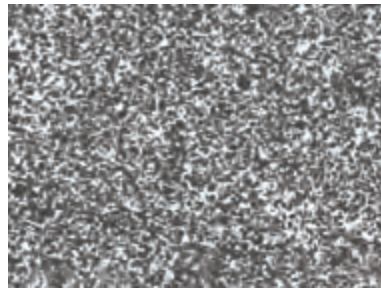
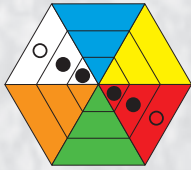
Hard materials



MasterGuide

CTS3105

CM-K05



Composition:

Al_2O_3 ;

Grain size:

> 1 μm

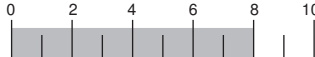
Hardness:

HV 2100

Toughness



Wear resistance



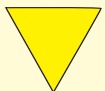
A16-A17

Grade over-view

A18-A23



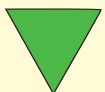
A24-A28



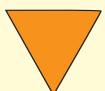
A29-A30



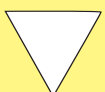
A31-A35



A36-A38



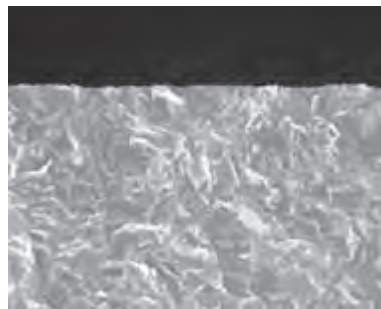
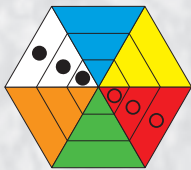
A39



A40-A41

TA100

BN-K03



Composition:

Cubic boron nitride (CBN), 90 vol.% + binder (Al-Si)

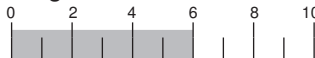
Grain size:

~ 20 μm

Insert form:

Solid CBN

Toughness



Wear resistance



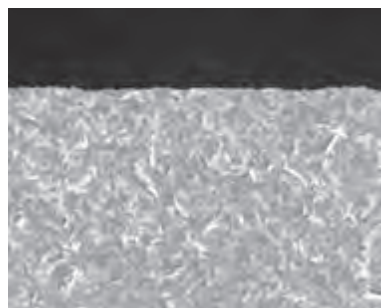
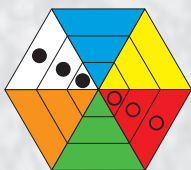
All tempered materials, sintered metals

Properties, application:

- Very high hardness
- Very good suitability for dry machining

TA120

BN-K05



Composition:

Cubic boron nitride (CBN), 80 vol.% + binder (ceramic)

Grain size:

~ 15 μm

Toughness



Wear resistance



Particularly suitable for chilled castings

Properties, application:

- Very good suitability for dry machining

A40

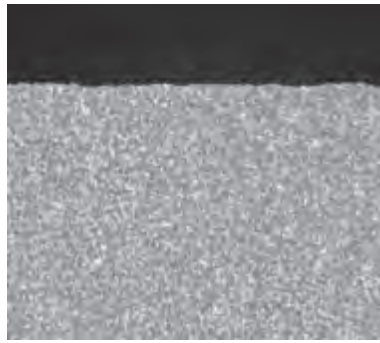
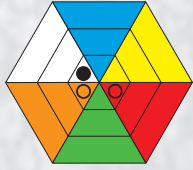
Grade description

Hard materials



TA201

BN-K10



Composition:

Cubic boron nitride (CBN), 65 vol.% + binder (TiN)

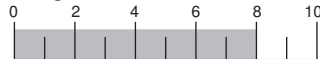
Grain size:

~ 2 μm

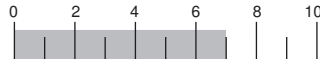
Insert type:

Brazed segment

Toughness



Wear resistance



Particularly suitable for tempered steels

Properties, application:

- Very good suitability for dry machining
- For finishing



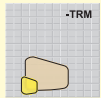
A8-A9



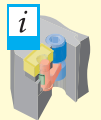
A10-A15



A16-A41



A42-A55



A56-A57



A58-A61

A41

The easy way to success

Inserts for the MaxiLock D / N system

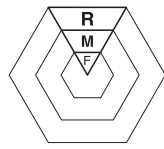


The easy way to success

A42-A45

Chip grooves

A46-A55



Chip groove

Machining type

Material

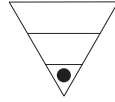
Consistent cutting depth

Inconsistent cutting depth

Interrupted cutting depth



-CF

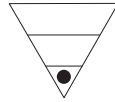


TCC410
TCM10
TCC410
-
-

-
-
-
-
-

-
-
-
-
-

-F32

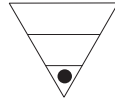


-
CTP2120
CTP2120
CTP2120
CTP2120

-
CTP2120
-
CTP2120
-

-
-
-
-
-

-TF

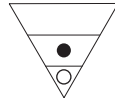
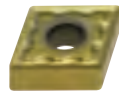


CTC1115
CTC1125
CTC1115
-
CTC1125

CTC1130
CTC1135
CTC1130
-
CTC1135

CTC1135
CTC1135
CTC1130
-
-

-M34

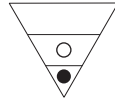


-
CTP5110/CTP5115
-
-
CTP5110/CTP5115

-
CTP5115
-
-
CTP5110/CTP5115

-
-
-
-
-

-TFQ

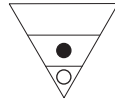
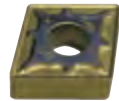


TCC410
TCC410
TCC410
-
-

CTC1110
CTC1125
-
-
-

-
-
-
-
-

-TMQ

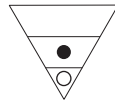


CTC1110
CTC1110
CTC1110
-
-

CTC1125
CTC1125
CTC1125
-
-

-
-
-
-
-

-TMF

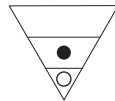


CTC1115/CTC1110
CTC1125
-
-
CTC1135

CTC1130
CTC1135
-
-
-

CTC1135
CTC1135
-
-
-

-TMM

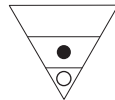


CTC1110
CTC1110
-
-
-

CTC1110
-
-
-
-

-
-
-
-
-

-M42



-
CTP2120
-
-
-

-
CTP2135
-
-
-

-
CTP2135
-
-
-

The easy way to success

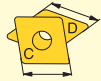
Inserts for the MaxiLock D / N system



Chip groove	Machining type	Material	Consistent cutting depth	Inconsistent cutting depth	Interrupted cutting depth
-TM			CTC1115/CTC1110	CTC1125/CTC1130	CTC1135
			CTC1125	CTP1135	CTP2135
			-	-	-
			-	-	-
			CTC2135	CTP2135	-
-M52			-	-	-
			CTP2120	CTP2120	-
			CTP2120	CTP2120	CTP2120
			-	-	-
			CTP2120	-	-
-M50			CTCP125	CTCP125	CTCP125
			CTCP125	CTCP125	-
			-	CTCP125	CTCP125
			-	-	-
			-	-	-
-TRM			CTC1115/CTC1110	CTC1130	CTC1135
			CTC1125	CTC1135	CTC1135
			-	-	-
			-	-	-
			CTC1125	CTC1135	-
-TMR			CTC1115/CTC1110	CTC1125	CTC1135
			CTC1125	CTC2135	CTC2135
			CTC3110/CTC1110	CTC3110	CTC1130
			-	-	-
			CTC1125	CTC2135	-
-TRR			CTC1125/CTC1110	CTC1135	CTC1135
			CTC1125	CTC1135	CTC1135
			-	-	-
			-	-	-
			CTC1125	CTC1135	-
-TR			CTC1125/CTC1110	CTC1130	CTC1135
			CTC1125	CTC1135	CTC2135
			CTC1115/CTC1110	CTC1130	-
			-	-	-
			CTC1135	CTC2135	-
-R80			CTC1130	CTC1130	CTC1130
			CTC1125	CTC1125	CTC1125
			-	-	-
			-	-	-
			-	-	-
Q-RM Double Edge			CTC1115	CTC1115/CTC1125	CTC1125
			CTC1115	CTC1115/CTC1125	CTC1125
			CTC1115	CTC1115/CTC1125	CTC1125
			CTC1115	-	-
			CTC1115	CTC1115/CTC1125	CTC1125



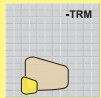
A8-A9



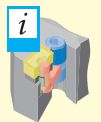
A10-A15



A16-A41



A42-A55



A56-A57



A58-A61

The easy way to success

Inserts for the MaxiLock S system



The easy way to success

A42-A45

Chip grooves

A46-A55

Chip groove	Machining type	Material	Consistent cutting depth	Inconsistent cutting depth	Interrupted cutting depth
			SM80	SM80	SM80
			SM80	SM80	SM80
			-	-	-
			SM80	SM80	SM80
			SM80	SM80	SM80
			-	-	-
			CTP2120	CTP2120	-
			CTP2120	-	-
			CTP2120	-	-
			CTP2120	-	-
			TCM407	TCM10	CTC1135
			CTC1125	CTC2135	CTC2135
			TCM410	CTC1130	CTC1130
			-	-	-
			CTC1125	CTC2135	-
			TCC410/CTC1110	CTC1135	CTC1135
			CTC1125	CTC1135	CTC1135
			TCC410/CTC1110	-	-
			-	-	-
			-	-	-
			-	-	-
			CTC2135	CTC2135	CTC2135
			-	-	-
			-	-	-
			-	-	-
			CTC1115	CTC1125/CTC1130	CTC1135
			CTC1125	CTC2135	CTC2135
			CTC3110	CTC3110	CTC3110
			-	-	-
			CTC1125	CTC2135	-
			CTC1110	CTC1125	-
			CTC1110	CTC1125	-
			CTC1110	CTC1125	-
			-	-	-
			-	-	-
			-	-	-

The easy way to success

Inserts for the MaxiLock S system



Chip groove	Machining type	Material	Consistent cutting depth	Inconsistent cutting depth	Interrupted cutting depth	
-23P				-	-	-
				-	-	-
				-	-	-
				H216T	-	-
				-	-	-
-25Q				H210T	-	-
				H210T	H210T	-
				H210T	H210T	-
				H210T	H210T	H210T
				H210T	H210T	-
-25P				AMZ	AMZ	-
				AMZ	AMZ	-
				AMZ	AMZ	-
				H210T	H210T	H210T
				AMZ	AMZ	-
-27				AMZ	AMZ	-
				AMZ	AMZ	-
				AMZ	AMZ	H10T
				H10T	H10T	H10T
				-	-	-
-29				AMZ	AMZ	-
				AMZ	AMZ	-
				AMZ	AMZ	-
				H216T	H216T	H216T
				AMZ	AMZ	-



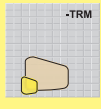
A8-A9



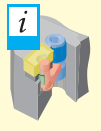
A10-A15



A16-A41



A42-A55



A56-A57



A58-A61

Chip grooves

-CF / -F32 / -TF / -M34

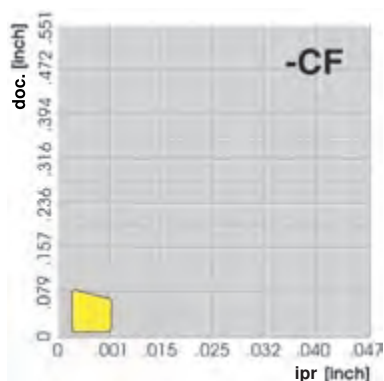
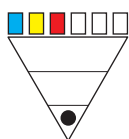


The easy way to success

A42-A45

Chip grooves

A46-A55

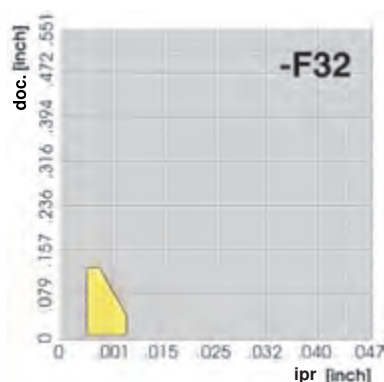
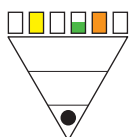


Application range:

CNMG 43..EN-CF
 doc.: .002 - .079 inch
 fpr: .002 - .008 inch

- Steel in general
- Stainless steels
- Spheroidal cast iron (GGG)

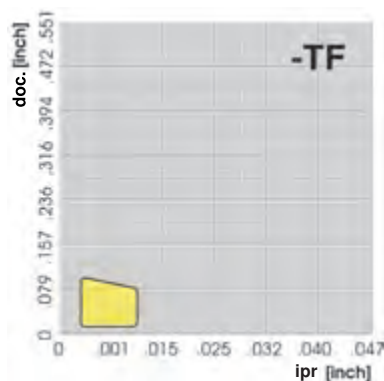
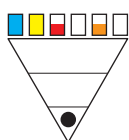
For cermet only



Application range:

CNGP 43..FN-F32
 doc.: .004 - .157 inch
 fpr: .004 - .010 inch

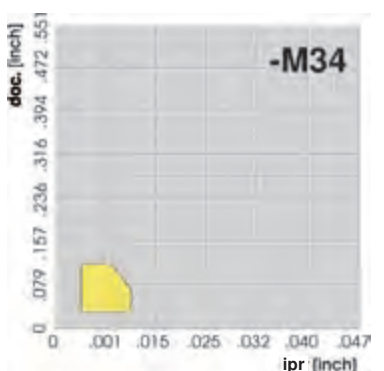
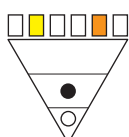
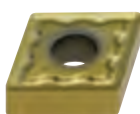
- Stainless steels
- Super alloys
- Titanium
- Non ferrous metals



Application range:

CNMG 43..EN-TF
 doc.: .008 - .098 inch
 fpr: .003 - .012 inch

- Steel in general
- Cementation steels
- Stainless steels
- Cast iron
- Super alloys



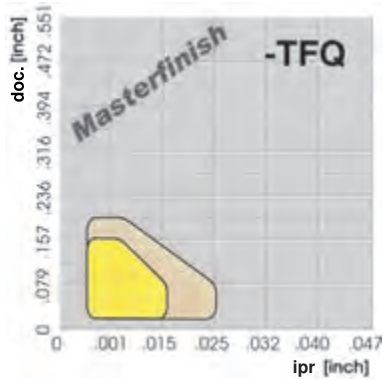
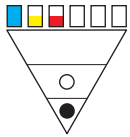
Application range:

CNMG 120408
 doc.: .031 - .118 inch
 fpr: .004 - .012 inch

- Stainless steels
- Super alloys
- Titanium

Chip grooves

-TFQ / -TMQ / -TMF / -TMM



Application range:

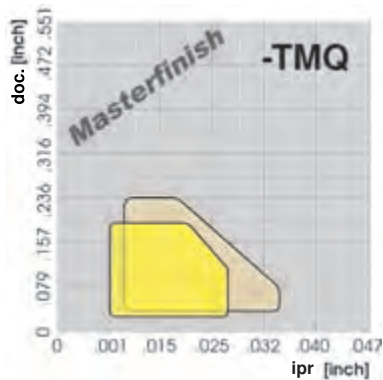
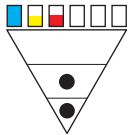
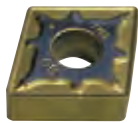
CNMG 43..EN-TFQ
 doc.: .020 - .157 inch
 fpr: .004 - .016 inch

- Steel in general
- Stainless steel
- Grey cast iron (GG)

CNMG 43..EN-TFQ
 doc.: .020 - .197 inch
 fpr: .004 - .024 inch



More detailed information on **MASTERFINISH** see chapter E.



Application range:

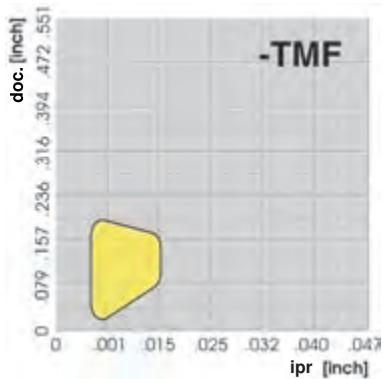
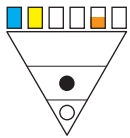
CNMG 120408EN-TMQ
 doc.: .003 - .200 inch
 fpr: .008 - .026 inch

- Steel in general
- Stainless steel
- Grey cast iron (GG)

CNMG 120412EN-TMQ
 doc.: .040 - .236 inch
 fpr: .010 - .033 inch



More detailed information on **MASTERFINISH** see chapter E.



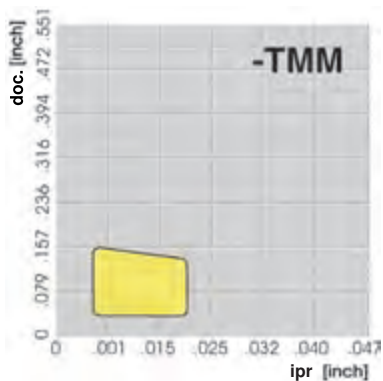
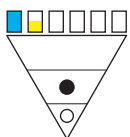
Application range:

CNMG 43..EN-TMF
 doc.: .020 - .197 inch
 fpr: .005 - .016 inch

- Cementation steels
- Carbon steels
- Steels with low to medium strength (up to approx. 700 N/mm²)
- Stainless steels
- Super alloys



For cementation steels



Application range:

CNMG 43..EN-TMM
 doc.: .039 - .157 inch
 fpr: .006 - .020 inch

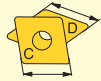
- Steel in general
- Low alloyed steels (up to 900 N/mm²)
- Stainless steels



For profile boring



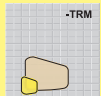
A8-A9



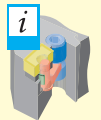
A10-A15



A16-A41



A42-A55



A56-A57



A58-A61

A47

Chip grooves

-M42 / -M52 / -M50 / -TM

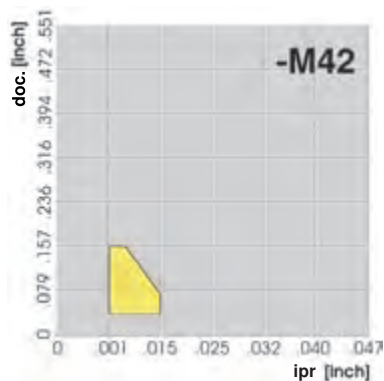
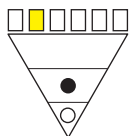


The easy way to success

A42-A45

Chip grooves

A46-A55



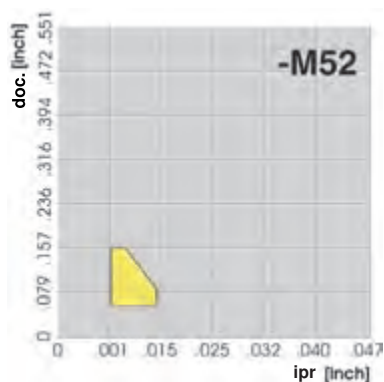
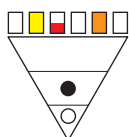
Application range:

CNMG 43..EN-M42
doc.: .039 - .157 inch
fpr: .008 - .016 inch

- Stainless steels



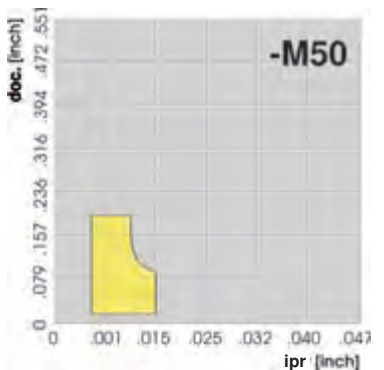
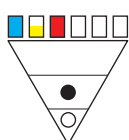
For stainless steels



Application range:

CNMG 53..EN-M52
doc.: .059 - .157 inch
fpr: .008 - .015 inch

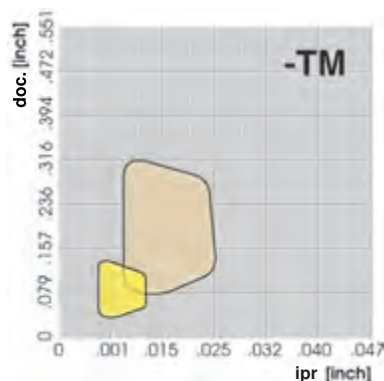
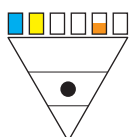
- Stainless steels
- Super alloys
- Spheroidal cast iron (GGG)



Application range:

CNMG 120408
doc.: .020 - .197 inch
fpr: .006 - .016 inch

- Steel in general
- Stainless steels
- GGG



Application range:

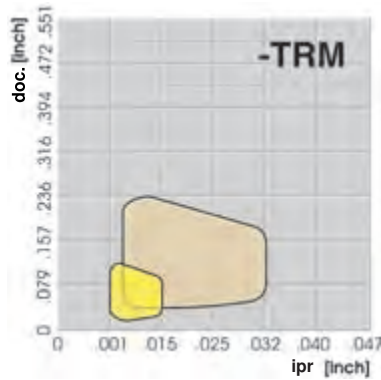
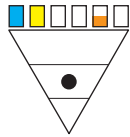
CNMG 43..EN-TM
doc.: .039 - .138 inch
fpr: .006 - .014 inch

- Steel in general
- Stainless steels
- Super alloys

CNMG 190616EN-TM
doc.: .079 - .315 inch
fpr: .010 - .024 inch

Chip grooves

-TRM / -TMR / -TRR / -TR



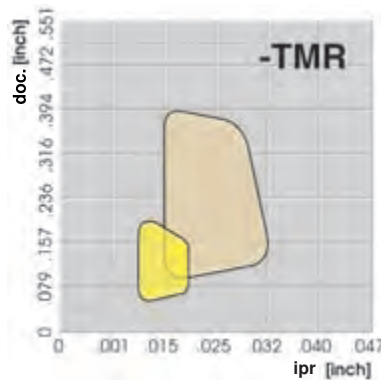
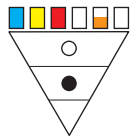
Application range:

CNMG 43..EN-TRM
 doc.: .020 - .118 inch
 fpr: .008 - .016 inch

- Bearing steel
- Steel in general
- Stainless steels
- Super alloys

CNMG 54..EN-TRM
 doc.: .039 - .236 inch
 fpr: .010 - .032 inch

For roller bearing steels



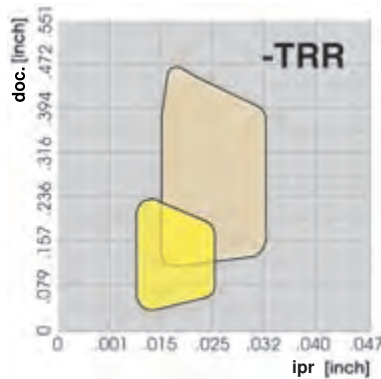
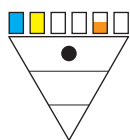
Application range:

CNMG 43..EN-TMR
 doc.: .059 - .197 inch
 fpr: .012 - .020 inch

- Steel in general
- Bearing steel
- Stainless steels
- Cast iron
- Super alloys

CNMG 54..EN-TMR
 doc.: .100 - .394 inch
 fpr: .156 - .032 inch

For steel and cast iron



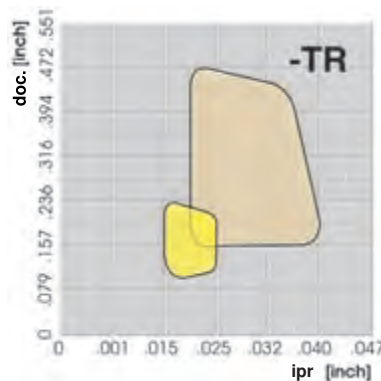
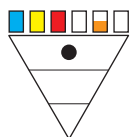
Application range:

CNMM 43..SN-TRR
 doc.: .039 - .236 inch
 fpr: .012 - .024 inch

- Steels with low to medium strength
 300-800 N/mm²
- Stainless steels
- Super alloys

CNMM 64..SN-TRR
 doc.: .118 - .472 inch
 fpr: .016 - .031 inch

For forged parts



Application range:

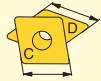
CNMM 43..EN-TR
 doc.: .098 - .236 inch
 fpr: .016 - .024 inch

- Steel in general
- Stainless steels
- Spheroidal cast iron (GGG)
- Super alloys

CNMM 64..EN-TR
 doc.: .157 - .472 inch
 fpr: .020 - .039 inch



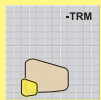
A8-A9



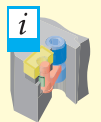
A10-A15



A16-A41



A42-A55



A56-A57



A58-A61

Chip grooves

-R80 / -Q-RM / -FN / F23

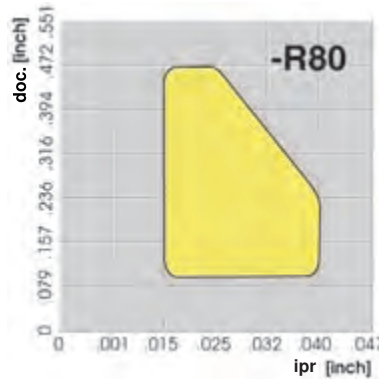
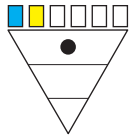


The easy way to success

A42-A45

Chip grooves

A46-A55

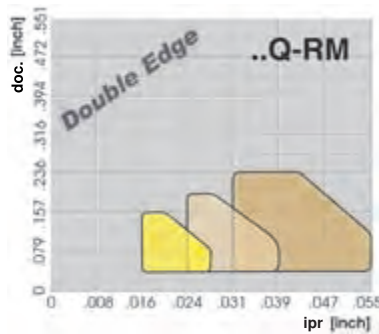
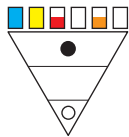


Application range:

CNMM 190624SN-R80
 doc.: .098 - .472 inch
 fpr: .016 - .031 inch

- Bearing steel
- Stainless steels

⚠ For stainless steels



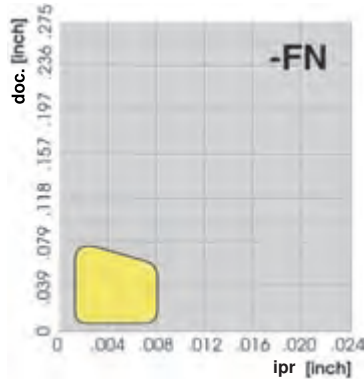
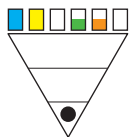
Application range:

DE-TNMG 54..Q-RM
 doc.: .039 - .1587 inch
 fpr: .156 - .027 inch

- Steel in general
- Stainless steels
- Cast iron
- Super alloys

DE-TNMG 43.54Q-RM
 doc.: .039 - .197 inch
 fpr: .024 - .039 inch

DE-TNMG 270616Q-RM
 doc.: .039 - .236 inch
 fpr: .031 - .055 inch

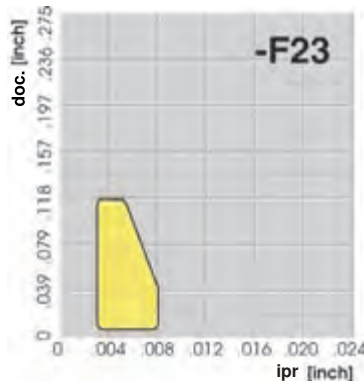
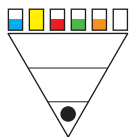


Application range:

CCGT 1204..FN
 doc.: .002 - .079 inch
 fpr: .001 - .008 inch

- Steels with low strength
- Stainless steels
- Non ferrous metals
- Super alloys

⚠ Sintered HSS for low cutting speeds



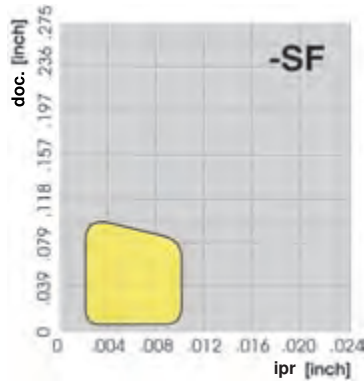
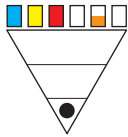
Application range:

CCGT 09T3..FN-F23
 doc.: .004 - .079 inch
 fpr: .002 - .005 inch

- Stainless steels
- Steel
- Cast iron
- Super alloys
- Non ferrous metals

Chip grooves

-SF / -SMF / -F43 / -SM



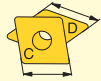
Application range:

CCMT 1204..EN-SF
 doc.: .002 - .100 inch
 fpr: .002 - .010 inch

- Steel in general
- Stainless steels
- Spheroidal cast iron (GGG)
- Super alloys



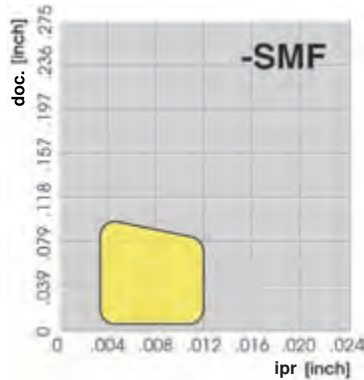
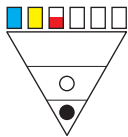
A8-A9



A10-A15



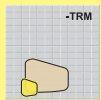
A16-A41



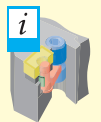
Application range:

CCMT 1204..EN-SMF
 doc.: .004 - .100 inch
 fpr: .003 - .012 inch

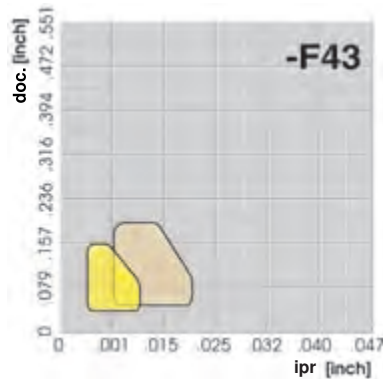
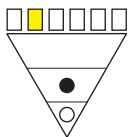
- Steel in general
- Stainless steels
- Cast iron



A42-A55



A56-A57



Application range:

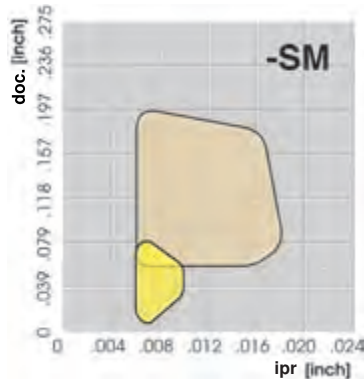
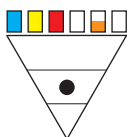
CCMT 09T304EN-F43
 doc.: .020 - .079 inch
 fpr: .002 - .006 inch

- Stainless steels

CCMT 09T308EN-F43
 doc.: .026 - .100 inch
 fpr: .004 - .010 inch



A58-A61



Application range:

CCMT 060204EN-SM
 doc.: .002 - .079 inch
 fpr: .006 - .010 inch

- Steel in general
- Stainless steels
- Cast iron
- Super alloys

CCMT 120412EN-SM
 doc.: .060 - .197 inch
 fpr: .006 - .018 inch

A51

Chip grooves -SMQ

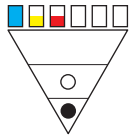


The easy way
to success

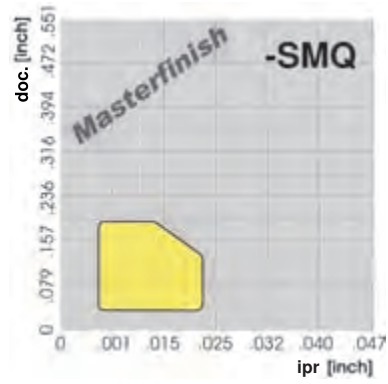


A42-A45

Chip grooves



A46-A55



Application range:

CCMT 432EN-SMQ
doc.: .040 - .197 inch
fpr: .006 - .022 inch

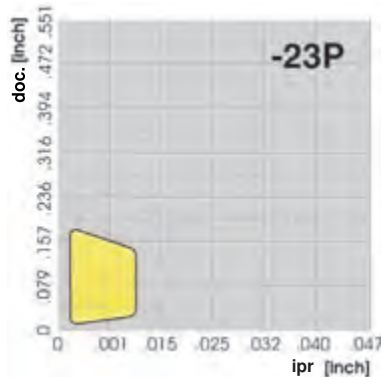
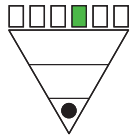
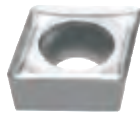
- Steel in general
- Stainless steel
- Grey cast iron (GG)



More detailed information on **MASTERFINISH**
see chapter E.

Chip grooves

-23P / -25Q / -25P / -27



Application range:

CCGT 09T308FN-23P
 doc.: .020 - .177 inch
 fpr: .002 - .012 inch

- **Soft aluminium wrought alloys (AlMn / AlMg)**



Particularly suitable for extrusion molded work pieces



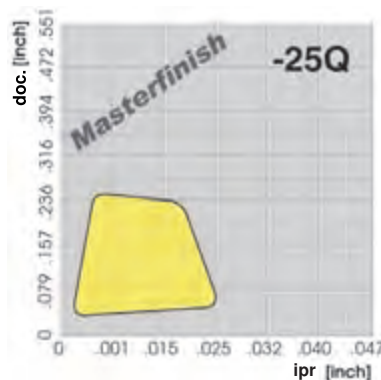
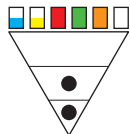
A8-A9



A10-A15



A16-A41



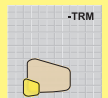
Application range:

CCGT 120408FN-25Q
 doc.: .039 - .256 inch
 fpr: .002 - .024 inch

- **Aluminium cast and wrought alloys, also with a low content of Si (G-AlSi₂, AlMgSi)**
- **Cast iron**
- Super alloys
- Steel
- Stainless steel



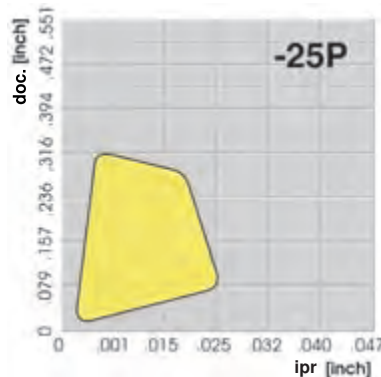
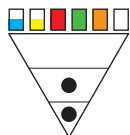
More detailed information on **MASTERFINISH** see chapter E.



A42-A55



A56-A57



Application range:

CCGT 120408FN-25P
 doc.: .020 - .315 inch
 fpr: .002 - .024 inch

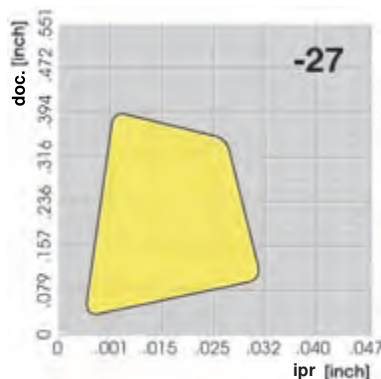
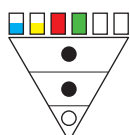
- **Aluminium cast and wrought alloys, also with a low content of Si (G-AlSi₂, AlMgSi)**
- **Cast iron**
- Super alloys
- Steel
- Stainless steel



Well-suited for profile boring



A58-A61



Application range:

CCGT 1204..FN-27
 doc.: .039 - .394 inch
 fpr: .004 - .030 inch

- **Aluminium cast and wrought alloys in general**
- **Non ferrous metals**
- **Cast iron**
- Steel
- Stainless steel



For universal application

Chip grooves -29

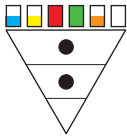


The easy way
to success

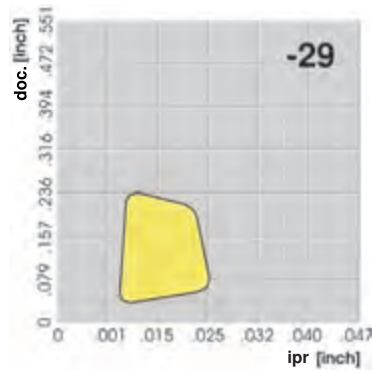


A42-A45

Chip grooves



A46-A55



Application range:

CCMT 09T308EN-29
doc.: .039 - .236 inch
fpr: .010 - .024 inch

- Aluminium cast and wrought alloys, also with a low content of Si (G- $AlSi_2$, AlMgSi)
- Cast iron
- Super alloys
- Steel
- Stainless steel

Additional chip grooves



-11			Application range: <ul style="list-style-type: none"> • Profile boring • Small feed rates
-12			Application range <ul style="list-style-type: none"> • Profile boring • Medium feed rates
-42			Application range: <ul style="list-style-type: none"> • Super alloys • Titanium • Aluminium • Stainless steels
-57			Application range: <ul style="list-style-type: none"> • Steel and cast iron in general
-ER/-EL			Application range: <ul style="list-style-type: none"> • Steel • Stainless steels
-EN			Application range: <ul style="list-style-type: none"> • Steel in general
-M36			Application range: <ul style="list-style-type: none"> • Steel in general



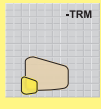
A8-A9



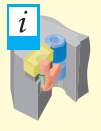
A10-A15



A16-A41



A42-A55



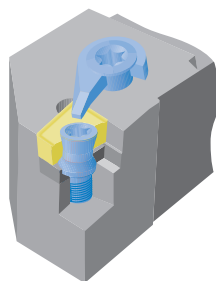
A56-A57



A58-A61

MaxiLock M

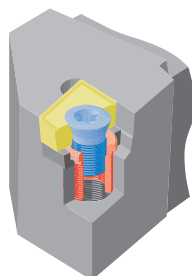
The double lock system offers good rigidity in negative inserts clamping. During high feed or heavily interrupted machining it holds the insert securely clamped.



- Clamping screw and clamping claw
- Insert
- Shim

MaxiLock S


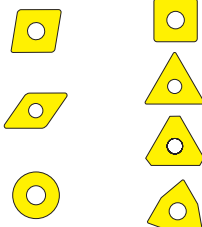
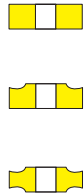

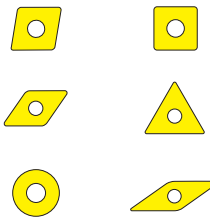

The form lock screw guarantees a safe connection of the insert and the tool holder. Chip evacuation is not hindered by obstructive clamping elements. Due to the neutral insert position the effective rake angle is identical to that of the insert form and geometry.



- Clamping screw
- Insert
- Shim
- Threaded shim screw

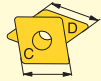
Selection of the correct clamping system



Clamping system	Cutting depth / feed rate (mm)						Insert shape	Insert - form of top surface		
	a_p		f		a_p				f	
	0,3 - 2,0	0,08 - 0,25	2,0 - 6,0	0,2 - 0,6	5,0 - 15,0	0,5 - 1,5				
MaxiLock M 	✓	✓	✓							
MaxiLock S 	✓	✓								



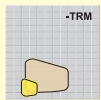
A8-A9



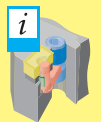
A10-A15



A16-A41



A42-A55



A56-A57



A58-A61



Automotive



Programme see special catalogue 'OvalFlex - the oval allrounder for aluminium wheel machining', no. 391



Programme see special catalogue 'HPC machining with PCD - MaxiMill HPC12 and HSV22', no. 283



Programme see special catalogue 'Break disc machining', no. 508



Mechanical engineering



Programme see special catalogue 'CombiEdge', no. 406



Programme see special catalogue 'Tools and indexable inserts for bar peeling', no. 174 'Roll machining made easy with one source for all your tooling needs', no. 274



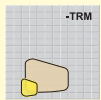
A8-A9



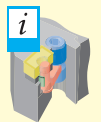
A10-A15



A16-A41



A42-A55



A56-A57



A58-A61



Energy and transport



Programme see special catalogue 'HSC-11 milling tools for aluminium machining', no. 229 or 'HSC High Performance', no. 170

AirFoil



Turbine machining



Programme see special catalogue 'Wheel set machining', no. 152

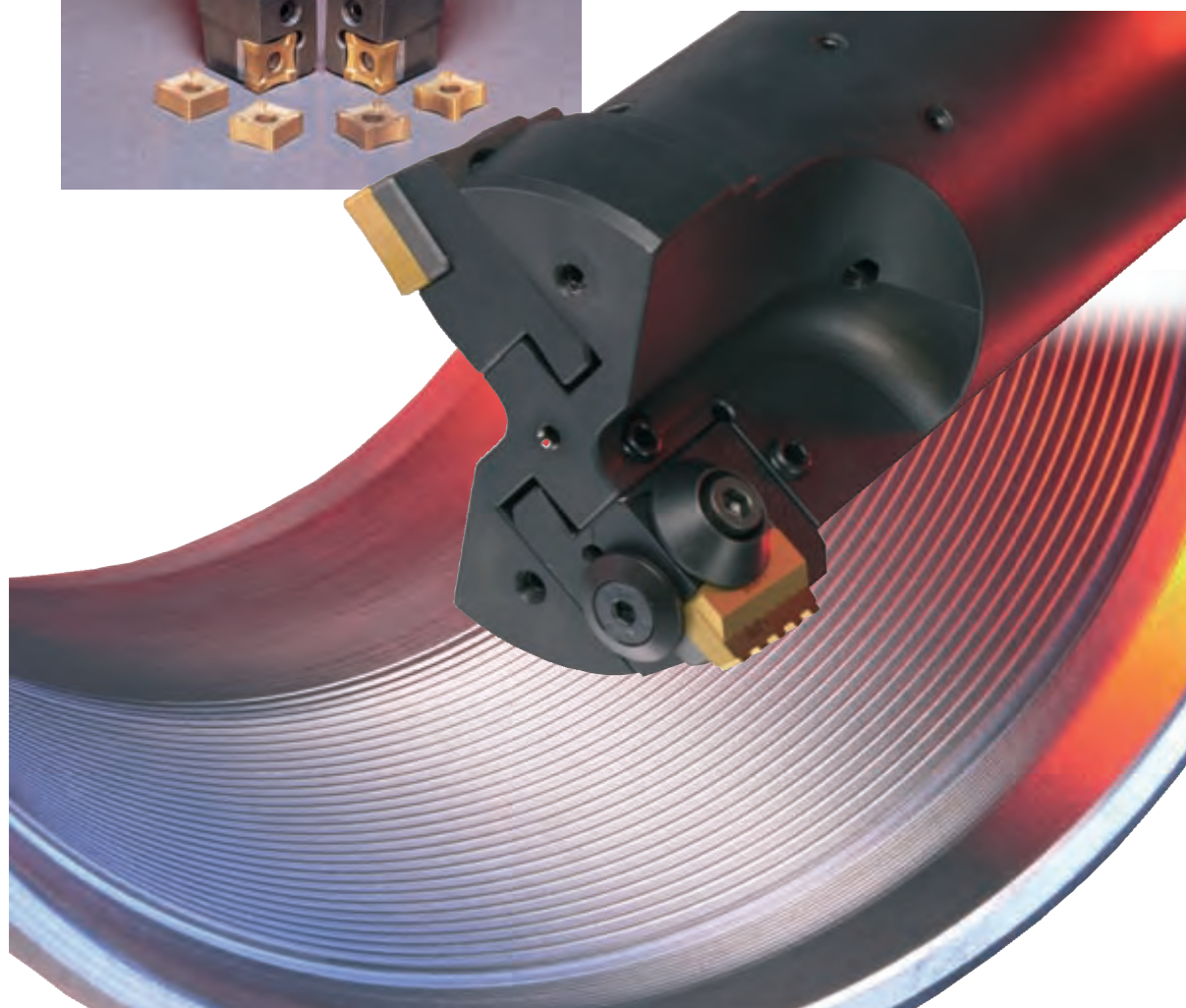




Oil industry



Programme see special catalogue
'Oil field - threading inserts', no. 296



A8-A9



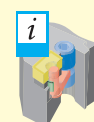
A10-A15



A16-A41



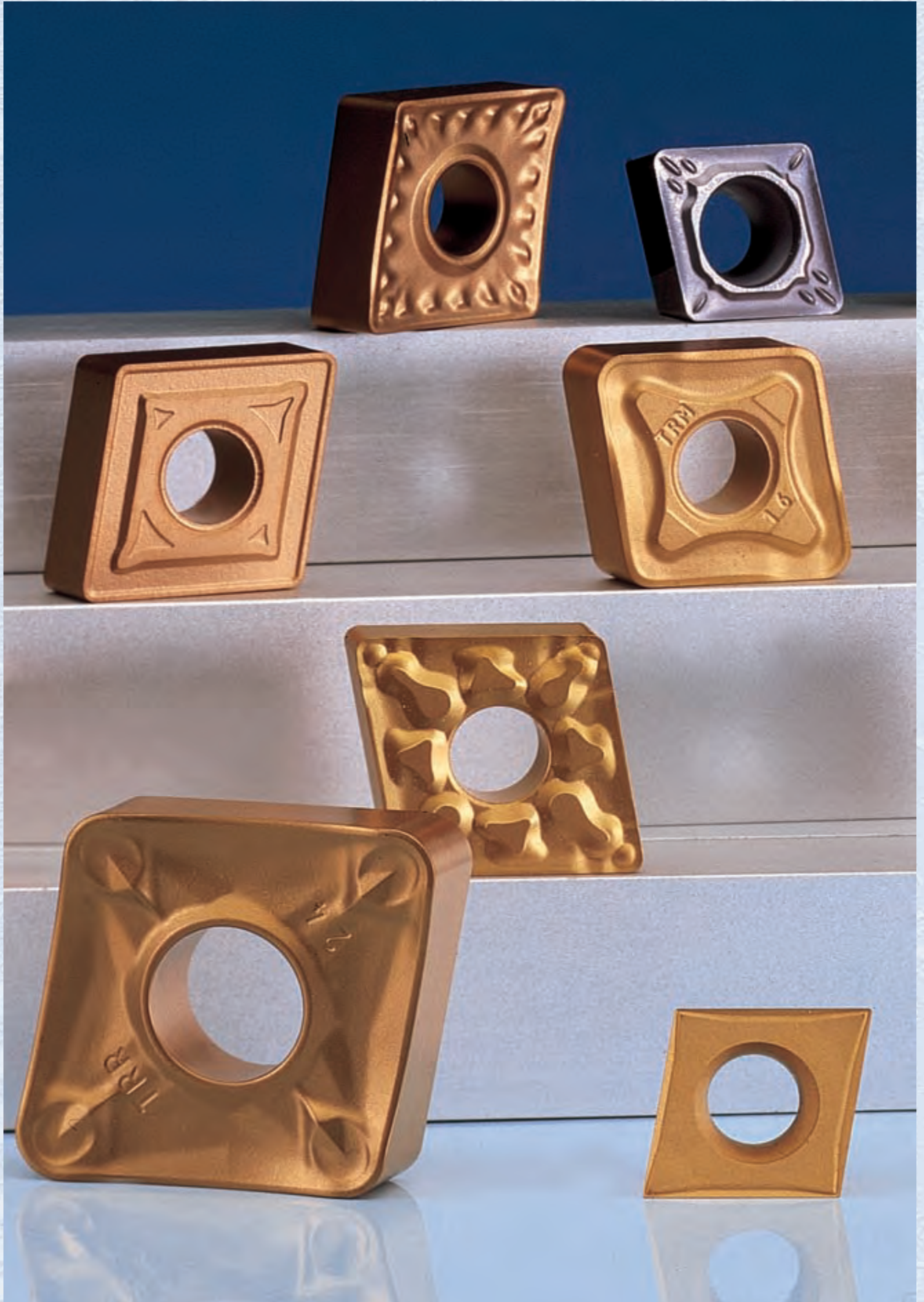
A42-A55



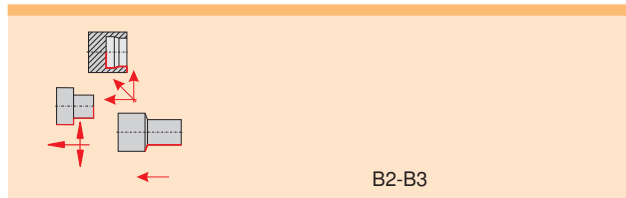
A56-A57



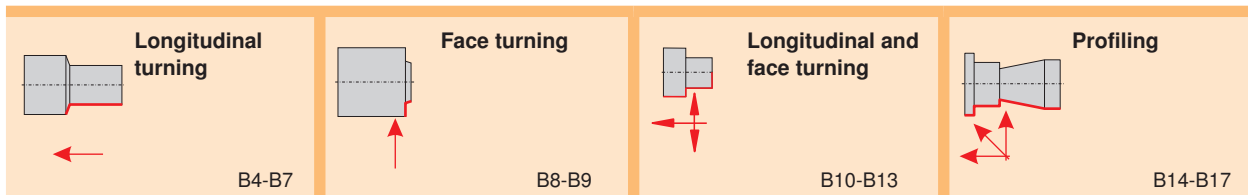
A58-A61



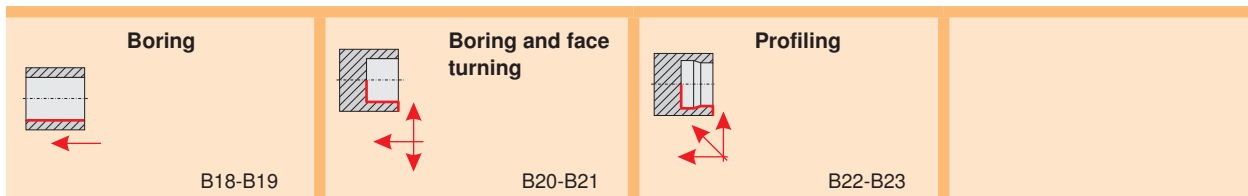
Overview of machining operations



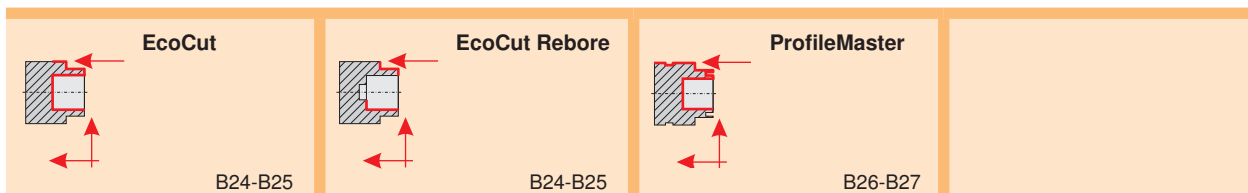
External machining CERATIZIT MaxiLock & Simplex



Internal machining CERATIZIT MaxiLock & Simplex

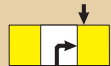




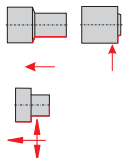










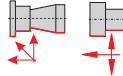


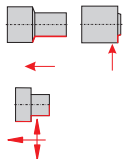




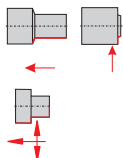
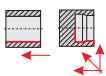
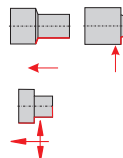




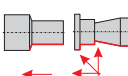







Drilling, external and internal machining with CERATIZIT multi-function tools





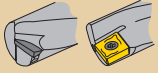













Overview of machining operations



	Maxilock M		Maxilock S			
						
						
						
						
						
						
						
						
						

Overview of machining operations




	 EcoCut		 Profile Master				
							
							
							
							
							
							
							
							
							

External machining

Longitudinal turning





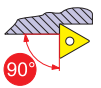



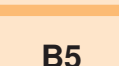
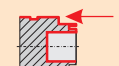
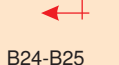
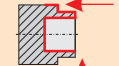
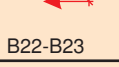
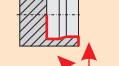
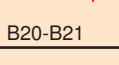
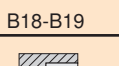
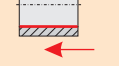
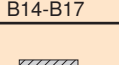
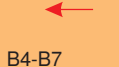
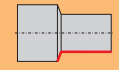
 <p>MCGN...</p> 	 <p>MCRN...</p> 	 <p>MCMN...</p> 
<p>∅ = .750 - 1.500 inch D3</p>	<p>∅ = .750 - 1.500 inch D7</p>	<p>∅ = .750 - 1.500 inch D6</p>
 <p>SSDC...</p> 	 <p>STGC...</p> 	
<p>∅ = .500 - .750 inch D32</p>	<p>∅ = .375 - 1.000 inch D35</p>	

External machining

Longitudinal turning

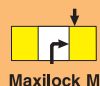


 MSDN... 	 MSRN... 	 MTAN... 
$\varnothing = .750 - 1.500$ inch D11	$\varnothing = 1.000 - 1.500$ inch D13	$\varnothing = .750 - 1.500$ inch D15



External machining





Longitudinal turning



Maxilock M



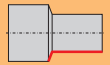
Maxilock S

 MTEN... 	 MTGN... 	
$\varnothing = .750 - 1.250$ inch D16	$\varnothing = .750 - 1.500$ inch D18	

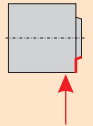
External machining

Longitudinal turning

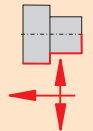




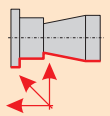
B4-B7



B8-B9



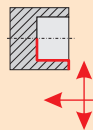
B10-B13



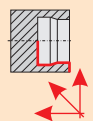
B14-B17



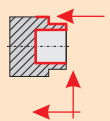
B18-B19



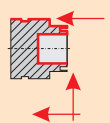
B20-B21



B22-B23



B24-B25



B26-B27

External machining




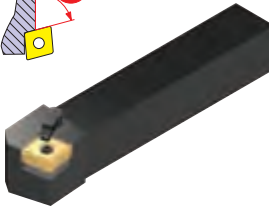




Face turning



Maxilock M



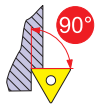
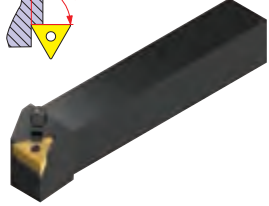
Maxilock S

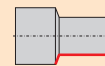
 MCFN... 	 MCKN... 	 MSKN... 
$\varnothing = .750 - 1.500$ inch D2	$\varnothing = .750 - 1.500$ inch D4	$\varnothing = .750 - 1.500$ inch D12
 STFC... 		
$\varnothing = .375 - 1.000$ inch D34		

External machining

Face turning



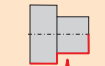
 <p>MTFN...</p>  <p>∅ = .750 - 1.500 inch D17</p>		



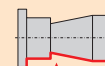
B4-B7



B8-B9



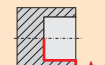
B10-B13



B14-B17



B18-B19



B20-B21



B22-B23



B24-B25



B26-B27

External machining

Longitudinal and face turning



 MCLN... $\varnothing = .750 - 1.500$ inch D5	 MRGN... $\varnothing = .750 - 1.500$ inch D10	 MSSN... $\varnothing = .750 - 1.500$ inch D14
 SCLC... $\varnothing = .375 - 1.250$ inch D26	 SRGC... $\varnothing = .750 - 1.250$ inch D30	 STDC... $\varnothing = .375 - 1.000$ inch D33

External machining



Longitudinal and face turning



Maxilock M



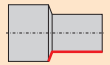
Maxilock S

 <p>MWLN...</p>  <p>∅ = .750 - 1.500 inch D24</p>		

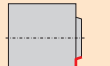
External machining

Longitudinal and face turning





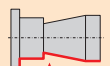
B4-B7



B8-B9



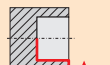
B10-B13



B14-B17



B18-B19



B20-B21



B22-B23



B24-B25



B26-B27

External machining



Profiling



Maxilock M



Maxilock S

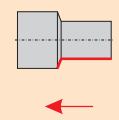
 <p>MDJN...</p> 	 <p>MDPN...</p> 	 <p>MVJN...</p> 
<p>∅ = .750 - 1.500 inch D8</p>	<p>∅ = .750 - 1.500 inch D9</p>	<p>∅ = .750 - 1.500 inch D22</p>
 <p>SDJC...</p> 	 <p>SDPC...</p> 	 <p>SRDC...</p> 
<p>∅ = .375 - 1.000 inch D27</p>	<p>∅ = .375 - 1.000 inch D28</p>	<p>∅ = .500 - 1.250 inch D29</p>

External machining

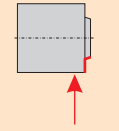
Profiling



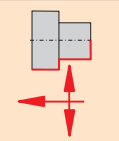
 <p>MVVN...</p>  <p>$\varnothing = .750 - 1.500$ inch D23</p>		
 <p>SRSC...</p>  <p>$\varnothing = .750 - 1.250$ inch D31</p>	 <p>SVHC...</p>  <p>$\varnothing = .750 - 1.000$ inch D37</p>	 <p>SVJC...</p>  <p>$\varnothing = .750 - 1.250$ inch D38</p>



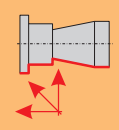
B4-B7



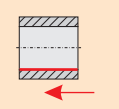
B8-B9



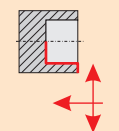
B10-B13



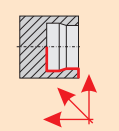
B14-B17



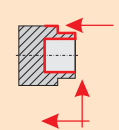
B18-B19



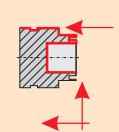
B20-B21



B22-B23



B24-B25



B26-B27

External machining



Profiling



Maxilock M



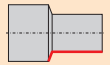
Maxilock S

 <p>SVVC...</p> 		
$\varnothing = .750 - 1.250$ inch	D39	

External machining

Profiling

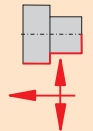




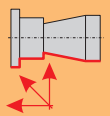
B4-B7



B8-B9



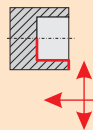
B10-B13



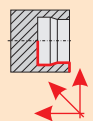
B14-B17



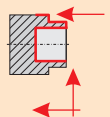
B18-B19



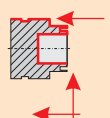
B20-B21



B22-B23



B24-B25



B26-B27

B17

Internal machining

Boring



Maxilock M



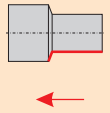
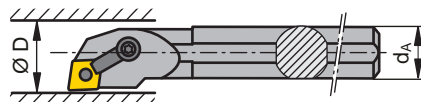
Maxilock S

 <p>MSKN...</p>  <p>$\varnothing d_A = 1.250 - 2.500$ inch $\varnothing D \geq 1.530$ inch</p> <p>D43</p>	 <p>MTFN...</p>  <p>$\varnothing d_A = 1.000 - 2.500$ inch $\varnothing D \geq 1.280$ inch</p> <p>D44</p>	
 <p>SSKC...</p>  <p>$\varnothing d_A = .625 - 1.000$ inch $\varnothing D \geq .812$ inch</p> <p>D51</p>	 <p>STFC...</p>  <p>$\varnothing d_A = .375 - 1.500$ inch $\varnothing D \geq .500$ inch</p> <p>D52</p>	

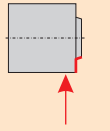
Internal machining

Boring

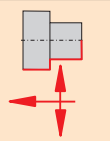




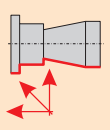
B4-B7



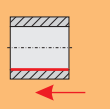
B8-B9



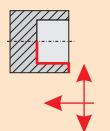
B10-B13



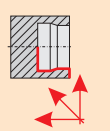
B14-B17



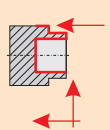
B18-B19



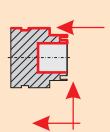
B20-B21



B22-B23



B24-B25



B26-B27

Internal machining


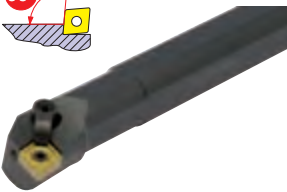

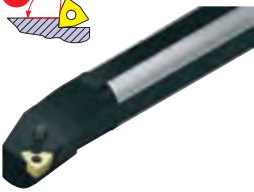

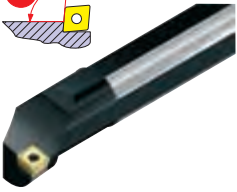
Boring and face turning



Maxilock M



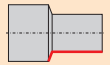
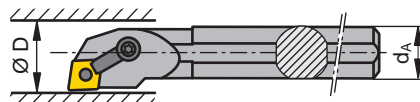
Maxilock S

 <p>MCLN...</p>  <p>$\varnothing d_A = 1.000 - 2.500$ inch $\varnothing D \geq 1.280$ inch</p> <p>D40</p>	 <p>MWLN...</p>  <p>$\varnothing d_A = 1.000 - 1.500$ inch $\varnothing D \geq 1.280$ inch</p> <p>D47</p>	
 <p>SCLC...</p>  <p>$\varnothing d_A = .375 - 1.500$ inch $\varnothing D \geq .500$ inch</p> <p>D48</p>		

Internal machining

Boring and face turning





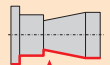
B4-B7



B8-B9



B10-B13



B14-B17



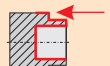
B18-B19



B20-B21



B22-B23

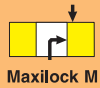


B24-B25



B26-B27

Internal machining Profiling



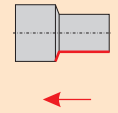
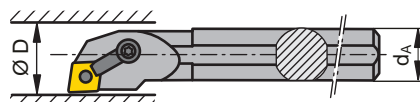
 <p>MDUN...</p>  <p>$\varnothing d_A = 1.000 - 2.500 \text{ inch}$ $\varnothing D \geq 1.750 \text{ inch}$</p> <p>D41</p>	 <p>MRGN...</p>  <p>$\varnothing d_A = 1.250 - 2.000 \text{ inch}$ $\varnothing D \geq 1.530 \text{ inch}$</p> <p>D42</p>	 <p>MTUN...</p>  <p>$\varnothing d_A = 1.000 - 1.500 \text{ inch}$ $\varnothing D \geq 1.280 \text{ inch}$</p> <p>D45</p>
 <p>SDUC...</p>  <p>$\varnothing d_A = .375 - 1.250 \text{ inch}$ $\varnothing D \geq .750 \text{ inch}$</p> <p>D49</p>	 <p>SDUC...-EX</p>  <p>$\varnothing d_A = .750 - 1.250 \text{ inch}$ $\varnothing D \geq 1.250 \text{ inch}$</p> <p>D50</p>	 <p>SVQC...</p>  <p>$\varnothing d_A = 1.000 - 1.500 \text{ inch}$ $\varnothing D \geq 1.375 \text{ inch}$</p> <p>D53</p>

Internal machining

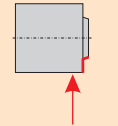
Profiling



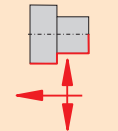
 <p>MVUN...</p>  <p>$\varnothing d_A = 1.000 - 2.500$ inch $\varnothing D \geq 2.000$ inch</p> <p style="background-color: #90EE90; display: inline-block; padding: 2px;">D46</p>		
 <p>SVUC...</p>  <p>$\varnothing d_A = 1.000 - 2.000$ inch $\varnothing D \geq 1.300$ inch</p> <p style="background-color: #90EE90; display: inline-block; padding: 2px;">D54</p>		



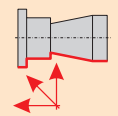
B4-B7



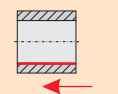
B8-B9



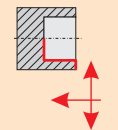
B10-B13



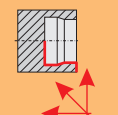
B14-B17



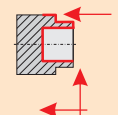
B18-B19



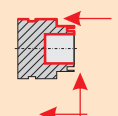
B20-B21



B22-B23



B24-B25



B26-B27

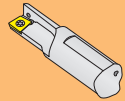
Drilling, internal & external machining

CERATIZIT EcoCut





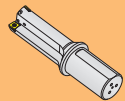
Mini

  <p>EC...</p> <p>$\varnothing d_A = .157 - .315$ inch $\varnothing D \geq .157$ inch</p> <p>D55-D56</p>		
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



Classic

  <p>EC...</p> <p>$\varnothing d_A = .500 - 1.500$ inch $\varnothing D \geq .315 - 1.260$ inch</p> <p>D58-D59</p>		
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Rebore

  <p>ECR...</p> <p>$\varnothing d_A = 1.575$ inch $\varnothing D \geq 1.575 - 2.362$ inch</p> <p>D60</p>		
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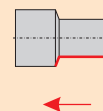
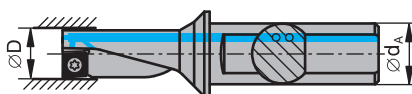
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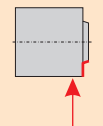
Drilling, internal & external machining

CERATIZIT EcoCut

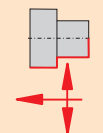




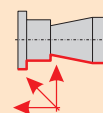
B4-B7



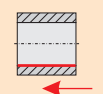
B8-B9



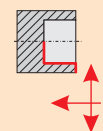
B10-B13



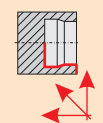
B14-B17



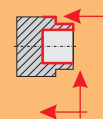
B18-B19



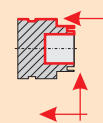
B20-B21



B22-B23



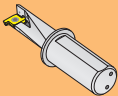
B24-B25



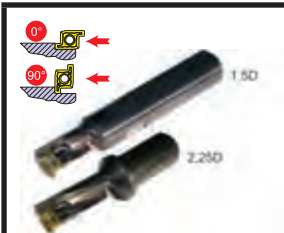
B26-B27

Drilling, internal & external machining

CERATIZIT ProfileMaster



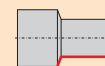
ProfileMaster

 <p>PM...</p> <p>Ø D = .394 - 1.260 inch</p> <p>D61</p>		

Drilling, internal & external machining

CERATIZIT ProfileMaster

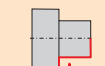




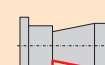
B4-B7



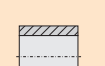
B8-B9



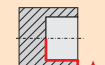
B10-B13



B14-B17



B18-B19



B20-B21



B22-B23



B24-B25



B26-B27





Inserts Overview



MaxiLock N	MaxiLock S	MaxiLock P	Simplex N	Simplex P	EcoCut	ProfileMaster
						
80°	80°	80°	80°	55°	88°	90°
						
C4-C7	C20-C25	C39	C41	C49	C55-C57	C58
55°	55°	90°	55°	0°		
						
C8-C10	C26-C30	C39	C43	C51		
90°	0°	60°	75°	90°		
						
C11-C12	C31	C40	C44	C52		
60°	90°		90°	60°		
						
C14-C16	C32		C44	C53		
35°	60°		0°			
						
C17	C33-C34		C45			
80°	35°		90°			
						
C18-C19	C35-C38		C46-C47			
			60°			
						
			C48			

MaxiLock D/N

CN.. 3-4



80°
C4-C7

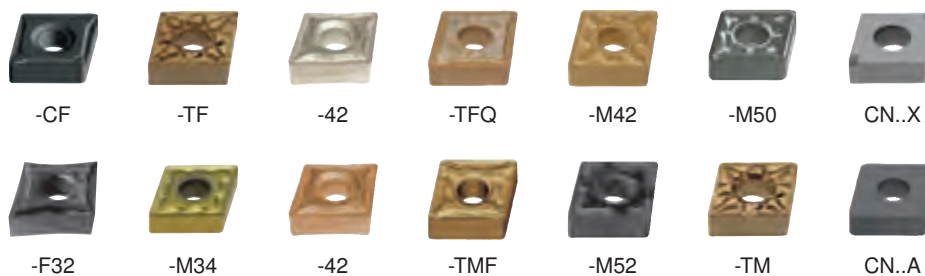
55°
C8-C10

90°
C11-C12

60°
C14-C16

35°
C17

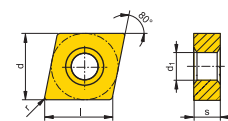
80°
C18-C19



r [inch]	Type, description	LNR	Material											l [inch]	d [inch]	s [inch]	d ₁ [inch]					
			TSM20	CTP5110	CTC3110	CTC1110	CTP5115	CTC1115	CTP2120	CTC1125	CTCP125	CTC1130	CTC1135					CTC2135	TCC410	TCM10	TA201	CTS3105
0.016	CNMG 321EN-TF	N						●										0.382	0.375	0.125	0.150	
0.031	CNMG 322EN-TM									●	●								0.382	0.375	0.125	0.150
0.008	CNGP 43.5FN-F32								●										0.508	0.500	0.187	0.203
0.016	CNMA 431EN				●														0.508	0.500	0.187	0.203
	CNMX 431SN															●			0.508	0.500	0.187	0.203
	CNGG 431EN-CF															●	●		0.508	0.500	0.187	0.203
	CNMG 431EN-CF															●	●		0.508	0.500	0.187	0.203
	CNGP 431FN-F32										●								0.508	0.500	0.187	0.203
	CNMG 431EN-TF									●						●			0.508	0.500	0.187	0.203
	CNMG 431EN-42		●																0.508	0.500	0.187	0.203
	CNMG 431EN-TFQ					●					●	●							0.508	0.500	0.187	0.203
	CNMG 431EN-TMF					●					●	●	●	●					0.508	0.500	0.187	0.203
	CNMG 431EN-M42										●					●			0.508	0.500	0.187	0.203
	CNMG 431EN-M52										●								0.508	0.500	0.187	0.203
	CNMG 431EN-M34			●															0.508	0.500	0.187	0.203
CNMG 431EN-M50				●		●												0.508	0.500	0.187	0.203	
CNMG 432EN-TM											●				●			0.508	0.500	0.187	0.203	
CNGA 432SN-025C																	●	0.508	0.500	0.187	0.203	
CNGA 432TN-020D																	●	0.508	0.500	0.187	0.203	
CNGP 432FN-F32											●							0.508	0.500	0.187	0.203	
CNMA 432EN					●													0.508	0.500	0.187	0.203	
0.031	CNMG 432EN-42		●															0.508	0.500	0.187	0.203	
	CNMG 432EN-CF															●	●		0.508	0.500	0.187	0.203
	CNMG 432EN-M34			●														0.508	0.500	0.187	0.203	
	CNMG 432EN-M42										●							0.508	0.500	0.187	0.203	
	CNMG 432EN-M50											●						0.508	0.500	0.187	0.203	
	CNMG 432EN-M52										●							0.508	0.500	0.187	0.203	
	CNMG 432EN-TF										●	●	●	●				0.508	0.500	0.187	0.203	
																			0.508	0.500	0.187	0.203



Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Cast iron	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Non ferrous metals	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Heat resistant	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Hard materials	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces CNMG 321EN-TF CTC1115

A46-A54

B2-B3

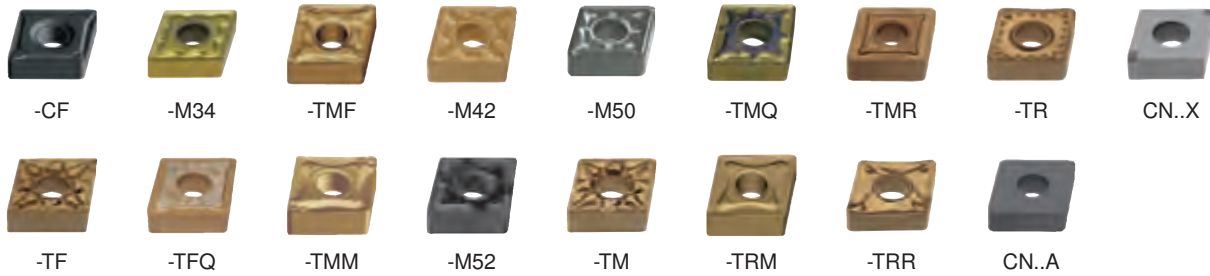
E24-E35

D2-D7

D40

MaxiLock D/N

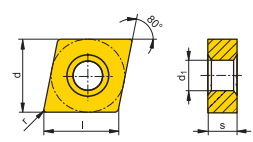
CN.. 4



r [inch]	Type, description	LNR 	Material												l [inch]	d [inch]	s [inch]	d ₁ [inch]				
			CTP5110	CTC3110	CTC1110	CTP5115	CTC1115	CTP2120	CTCP125	CTC1125	CTC1130	CTC1135	CTC2135	TCC410					TA100	TA201	CTN3105	CTN3110
0.031	CNMG 432EN-TFQ	N		●				●	●					●				0.508	0.500	0.187	0.203	
	CNMG 432EN-M34		●		●														0.508	0.500	0.187	0.203
	CNMG 432EN-M50							●											0.508	0.500	0.187	0.203
	CNMG 432EN-TM				●		●		●	●	●	●	●						0.508	0.500	0.187	0.203
	CNMG 432EN-TMF				●		●		●	●	●	●	●						0.508	0.500	0.187	0.203
	CNMG 432EN-TMM				●		●		●	●	●	●	●						0.508	0.500	0.187	0.203
	CNMG 432EN-TMQ				●				●	●									0.508	0.500	0.187	0.203
	CNMG 432EN-TMR				●		●		●	●	●	●	●	●					0.508	0.500	0.187	0.203
	CNMG 432EN-TRM				●		●		●	●	●	●	●	●					0.508	0.500	0.187	0.203
	CNMM 432EN-TR							●		●	●	●	●						0.508	0.500	0.187	0.203
	CNMM 432SN-TRR								●	●									0.508	0.500	0.187	0.203
CNMX 432EN																●		0.508	0.500	0.187	0.203	
CNMX 432SN																●		0.508	0.500	0.187	0.203	
0.047	CNGA 433SN-020D																●		0.508	0.500	0.187	0.203
	CNGA 433SN-025C																●		0.508	0.500	0.187	0.203
	CNMA 433EN			●	●														0.508	0.500	0.187	0.203
	CNMA 433FN														●				0.508	0.500	0.187	0.203
	CNMA 433TN-020D														●				0.508	0.500	0.187	0.203
	CNMG 433EN-CF														●				0.508	0.500	0.187	0.203
	CNMG 433EN-M34			●		●													0.508	0.500	0.187	0.203
	CNMG 433EN-M42														●				0.508	0.500	0.187	0.203
	CNMG 433EN-M50								●									0.508	0.500	0.187	0.203	
	CNMG 433EN-M52							●										0.508	0.500	0.187	0.203	
	CNMG 433EN-TF								●									0.508	0.500	0.187	0.203	
	CNMG 433EN-TFQ				●				●	●				●				0.508	0.500	0.187	0.203	
	CNMG 433EN-TM				●		●		●	●	●	●	●					0.508	0.500	0.187	0.203	
	CNMG 433EN-TMF					●			●									0.508	0.500	0.187	0.203	
	CNMG 433EN-TMM				●				●	●								0.508	0.500	0.187	0.203	
CNMG 433EN-TMQ				●				●	●								0.508	0.500	0.187	0.203		
CNMG 433EN-TMR				●		●		●	●	●	●	●					0.508	0.500	0.187	0.203		

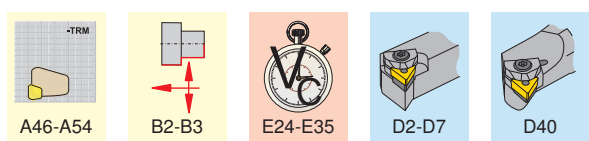


Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Heat resistant	●	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Hard materials																	●	●			



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces CNMG 432EN-TFQ CTC1110



C4-C19



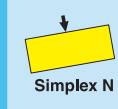
C4-C19



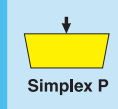
C20-C38



C39-C40



C41-C48



C49-C53



C55-C57



C58

MaxiLock D/N

CN.. 4-5



80°



C4-C7

55°



C8-C10

90°



C11-C12

60°



C14-C16

35°

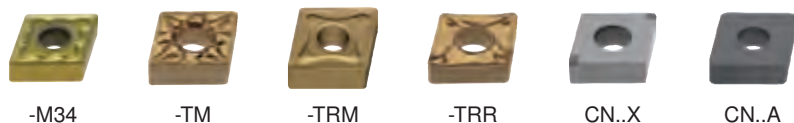


C17

80°



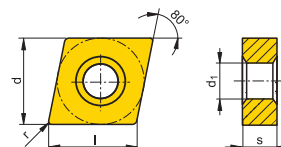
C18-C19



r [inch]	Type, description	L N R	CTC							TA				l [inch]	d [inch]	s [inch]	d ₁ [inch]		
			CTC3110	CTC1110	CTP5115	CTC1115	CTCP125	CTC1125	CTC1130	CTC1135	CTC2135	TA100	TA201					CTI3105	CTN3105
0.047	CNMG 433EN-TMM	N	●												0.508	0.500	0.187	0.203	
	CNMG 433EN-TMQ		●				●	●								0.508	0.500	0.187	0.203
	CNMG 433EN-TMR		●	●		●	●	●	●	●	●					0.508	0.500	0.187	0.203
	CNMG 433EN-TRM		●	●		●	●	●	●	●	●					0.508	0.500	0.187	0.203
	CNMM 433EN-TR						●	●	●	●						0.508	0.500	0.187	0.203
	CNMM 433SN-TRR						●	●								0.508	0.500	0.187	0.203
	CNMX 433SN											●		●	●	0.508	0.500	0.187	0.203
CNGX 453TN-020D												●	●		0.508	0.500	0.313		
0.063	CNMA 434EN		●									●			0.508	0.500	0.187	0.203	
	CNMA 434FN										●				0.508	0.500	0.187	0.203	
	CNMA 434TN-020D										●				0.508	0.500	0.187	0.203	
	CNMG 434EN-M34				●										0.508	0.500	0.187	0.203	
	CNMG 434EN-TM													●	0.508	0.500	0.187	0.203	
	CNMG 434EN-TMR		●				●	●	●	●					0.508	0.500	0.187	0.203	
	CNMG 434EN-TRM		●	●		●	●	●	●						0.508	0.500	0.187	0.203	
0.031	CNGX 454TN-020D												●	●	0.508	0.500	0.313		
	CNNX 454TN-020D											●	●		0.508	0.500	0.313		
	CNGA 542SN-028C													●	0.634	0.625	0.250	0.250	
	CNMA 542EN		●												0.634	0.625	0.250	0.250	
	CNMG 542EN-TM							●	●		●				0.634	0.625	0.250	0.250	
	CNMA 543EN	●												0.634	0.625	0.250	0.250		
	CNMG 543EN-TM						●	●		●				0.634	0.625	0.250	0.250		
0.047	CNMG 543EN-TMR	●		●	●	●	●	●		●				0.634	0.625	0.250	0.250		
	CNMG 543EN-TRM	●	●		●	●	●							0.634	0.625	0.250	0.250		
	CNMM 543EN-TR				●	●	●							0.634	0.625	0.250	0.250		
	CNMM 543SN-TRR				●	●								0.634	0.625	0.250	0.250		
														0.634	0.625	0.250	0.250		



- Steel
- Stainless
- Cast iron
- Non ferrous metals
- Heat resistant
- Hard materials



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces CNMG 433EN-TMM CTC1110



A46-A54



B2-B3



E24-E35



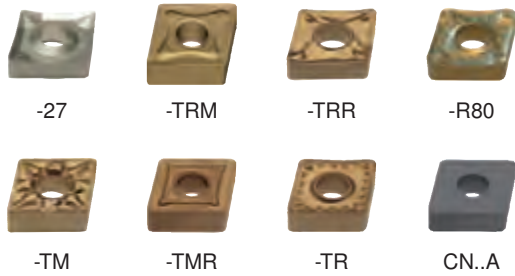
D2-D7



D40

MaxiLock D/N

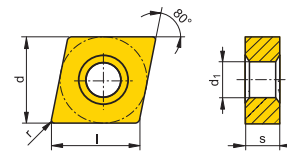
CN.. 5-6



r [inch]	Type, description	L N R	H10T	CTC3110	CTC1110	CTC1115	CTCP125	CTC1125	CTC1130	CTC1135	CTC2135	CTS3105	CTN3110				l [inch]	d [inch]	s [inch]	d ₁ [inch]
0.063	CNGA 544TN-020D											●					0.634	0.625	0.250	0.250
	CNGA 544SN-028C												●				0.634	0.625	0.250	0.250
	CNMA 544EN			●													0.634	0.625	0.250	0.250
	CNMG 544EN-TMR			●			●	●									0.634	0.625	0.250	0.250
	CNMG 544EN-TRM				●		●	●	●								0.634	0.625	0.250	0.250
	CNMM 544EN-TR						●	●	●								0.634	0.625	0.250	0.250
0.047	CNMG 544SN-TRR						●	●									0.634	0.625	0.250	0.250
	CNGM 643FN-27		●														0.760	0.750	0.250	0.313
	CNMA 643EN			●													0.760	0.750	0.250	0.313
	CNMG 643EN-TM						●	●									0.760	0.750	0.250	0.313
	CNMG 643EN-TMR					●		●	●	●	●						0.760	0.750	0.250	0.313
	CNMG 643EN-TRM					●		●	●	●	●						0.760	0.750	0.250	0.313
0.063	CNMM 643EN-TR					●											0.760	0.750	0.250	0.313
	CNMM 643SN-TRR																0.760	0.750	0.250	0.313
	CNMA 644EN			●													0.760	0.750	0.250	0.313
	CNMG 644EN-TM						●										0.760	0.750	0.250	0.313
	CNMG 644EN-TMR						●	●	●	●		●					0.760	0.750	0.250	0.313
	CNMM 644EN-TR						●	●									0.760	0.750	0.250	0.313
0.094	CNMM 644SN-R80						●	●	●		●						0.760	0.750	0.250	0.313
	CNMM 646SN-R80						●	●	●		●						0.760	0.750	0.250	0.313

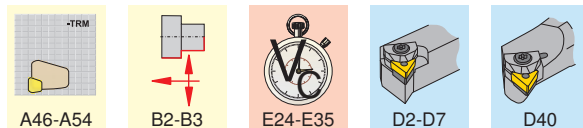


Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non ferrous metals	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Hard materials												●								



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces CNGA 544TN-020D CTS3105



C4-C19



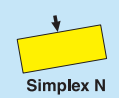
C4-C19



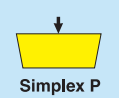
C20-C38



C39-C40



C41-C48



C49-C53



C55-C57



C58

MaxiLock D/N

DN.. 3-4



80°



C4-C7

55°



C8-C10

90°



C11-C12

60°



C14-C16

35°



C17

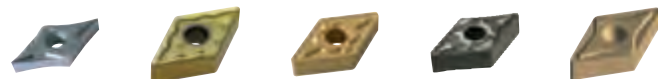
80°



C18-C19



-CF -TF -TMF -M52 -TM -TMR

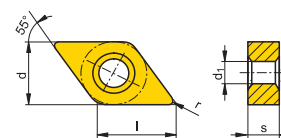


-F32 -M34 -M42 -M50 -TRM

r [inch]	Type, description	LNR 											l [inch]	d [inch]	s [inch]	d ₁ [inch]		
			CTP5110	CTC1110	CTP5115	CTC1115	CTP2120	CTCP125	CTC1125	CTC1130	CTC1135	CTC2135					TCC410	TCM10
0.016	DNMG 331EN-CF	N													0.457	0.375	0.187	0.150
	DNMG 331EN-M42											●			0.457	0.375	0.187	0.150
	DNMG 331EN-M50							●							0.457	0.375	0.187	0.150
	DNMG 331EN-TF					●		●	●	●					0.457	0.375	0.187	0.150
	DNMG 331EN-TMF			●				●	●	●					0.457	0.375	0.187	0.150
0.031	DNMG 332EN-CF												●		0.457	0.375	0.187	0.150
	DNMG 332EN-M42														0.457	0.375	0.187	0.150
	DNMG 332EN-M50								●						0.457	0.375	0.187	0.150
	DNMG 332EN-TF					●		●	●	●					0.457	0.375	0.187	0.150
	DNMG 332EN-TM					●		●	●	●					0.457	0.375	0.187	0.150
0.047	DNMG 332EN-TMF			●		●						●			0.457	0.375	0.187	0.150
	DNMG 332EN-TMR											●			0.457	0.375	0.187	0.150
	DNMG 332EN-TRM								●						0.457	0.375	0.187	0.150
	DNMG 333EN-CF												●		0.457	0.375	0.187	0.150
	DNMG 333EN-TMF			●											0.457	0.375	0.187	0.150
0.008	DNMG 333EN-TMR														0.457	0.375	0.187	0.150
	DNMG 333EN-TRM								●						0.457	0.375	0.187	0.150
	DNMG 333EN-TMR									●					0.457	0.375	0.187	0.150
	DNMG 333EN-TRM			●							●				0.457	0.375	0.187	0.150
	DNMG 333EN-TMR													0.457	0.375	0.187	0.150	
0.016	DNGP 43.5FN-F32							●						0.610	0.500	0.187	0.203	
	DNMG 431EN-F32							●						0.610	0.500	0.187	0.203	
	DNMG 431EN-M42							●				●		0.610	0.500	0.187	0.203	
	DNMG 431EN-M52							●						0.610	0.500	0.187	0.203	
	DNMG 431EN-M50		●	●				●						0.610	0.500	0.187	0.203	
0.031	DNMG 431EN-M50							●						0.610	0.500	0.187	0.203	
	DNGP 432FN-F32							●						0.610	0.500	0.187	0.203	
	DNMG 432EN-M34		●	●										0.610	0.500	0.187	0.203	
	DNMG 432EN-M42							●				●		0.610	0.500	0.187	0.203	
	DNMG 432EN-M50								●					0.610	0.500	0.187	0.203	
0.031	DNMG 432EN-M52							●						0.610	0.500	0.187	0.203	
	DNMG 432EN-M50								●					0.610	0.500	0.187	0.203	
	DNMG 432EN-M52									●				0.610	0.500	0.187	0.203	
	DNMG 432EN-M50													0.610	0.500	0.187	0.203	
	DNMG 432EN-M52													0.610	0.500	0.187	0.203	

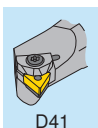
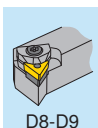
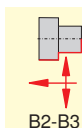
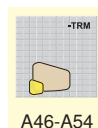


Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Heat resistant	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hard materials	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



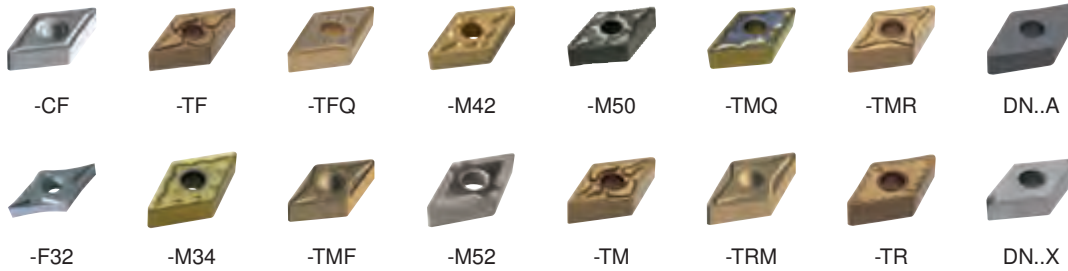
- Main application
- Extended application
- Stock item

Ordering example: 10 pieces DNMG 331EN-CF TCC410



MaxiLock D/N

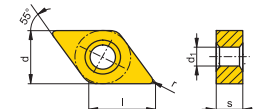
DN.. 4



r [inch]	Type, description	LNR	Material												l [inch]	d [inch]	s [inch]	d ₁ [inch]				
			CTP5110	CTC3110	CTC1110	CTP5115	CTC1115	CTP2120	CTC1125	CTCP125	CTC1130	CTC1135	CTC2135	TCC410					TCM10	TA201	CTS3105	
0.047	DNMG 433EN-M34	N	●			●												0.610	0.500	0.187	0.203	
	DNMG 433EN-M50									●									0.610	0.500	0.187	0.203
DNMG 433EN-TRM								●	●	●								0.610	0.500	0.187	0.203	
0.008	DNGP 44.5FN-F32							●											0.610	0.500	0.250	0.203
	DNGA 441TN-020D									●							●		0.610	0.500	0.250	0.203
0.016	DNGP 441FN-F32								●										0.610	0.500	0.250	0.203
	DNMG 441EN-CF													●	●				0.610	0.500	0.250	0.203
	DNMG 441EN-M42								●						●				0.610	0.500	0.250	0.203
	DNMG 441EN-M50														●				0.610	0.500	0.250	0.203
	DNMG 441EN-M52								●										0.610	0.500	0.250	0.203
	DNMG 441EN-TF								●										0.610	0.500	0.250	0.203
	DNMG 441EN-TFQ									●							●		0.610	0.500	0.250	0.203
	DNMG 441EN-TMF									●									0.610	0.500	0.250	0.203
	DNMG 441EN-TMQ																		0.610	0.500	0.250	0.203
	DNMG 441EN-TMR																		0.610	0.500	0.250	0.203
0.031	DNGA 442TN-020D																●		0.610	0.500	0.250	0.203
	DNGP 442FN-F32								●									0.610	0.500	0.250	0.203	
	DNMA 442EN			●														0.610	0.500	0.250	0.203	
	DNMG 442EN-CF															●		0.610	0.500	0.250	0.203	
	DNMG 442EN-M34								●									0.610	0.500	0.250	0.203	
	DNMG 442EN-M42									●								0.610	0.500	0.250	0.203	
	DNMG 442EN-M50															●		0.610	0.500	0.250	0.203	
	DNMG 442EN-M52									●								0.610	0.500	0.250	0.203	
	DNMG 442EN-TF									●								0.610	0.500	0.250	0.203	
	DNMG 442EN-TFQ										●						●	0.610	0.500	0.250	0.203	
	DNMG 442EN-TM									●								0.610	0.500	0.250	0.203	
	DNMG 442EN-TMF										●							0.610	0.500	0.250	0.203	
DNMG 442EN-TMQ																	0.610	0.500	0.250	0.203		
DNMG 442EN-TMR																	0.610	0.500	0.250	0.203		
DNMG 442EN-TRM																	0.610	0.500	0.250	0.203		
DNMM 442EN-TR																	0.610	0.500	0.250	0.203		
DNMX 442SN																●	0.610	0.500	0.250	0.203		

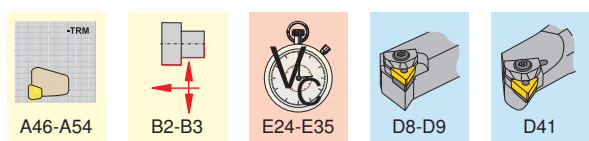


Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Heat resistant	●	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Hard materials																				●	●



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces DNMG 433EN-M34 CTP5110



C4-C19



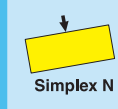
C4-C19



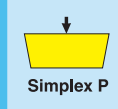
C20-C38



C39-C40



C41-C48



C49-C53



C55-C57



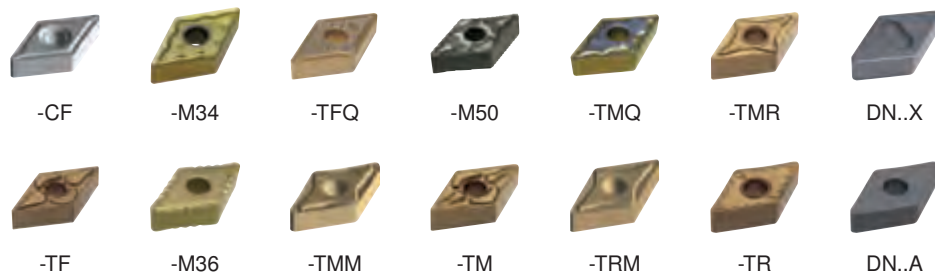
C58

MaxiLock D/N

DN.. 4

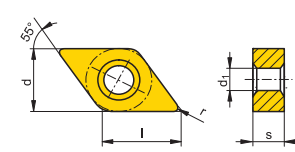


- 80°
C4-C7
- 55°
C8-C10
- 90°
C11-C12
- 60°
C14-C16
- 35°
C17
- 80°
C18-C19



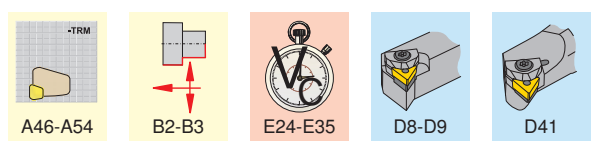
r [inch]	Type, description	L N R	CTP5115 CTP5110 CTC3110 CTC1110 CTC1115 CTC1125 CTC125 CTC1130 CTC1135							TCC410	CTS3105 CTN3105		I [inch]	d [inch]	s [inch]	d ₁ [inch]
			CTP5115	CTP5110	CTC3110	CTC1110	CTC1115	CTC1125	CTC125		CTC1130	CTC1135				
0.047	DNGA 443TN-020D	N									●		0.610	0.500	0.250	0.203
	DNMA 443EN			●									0.610	0.500	0.250	0.203
	DNMG 443EN-CF										●		0.610	0.500	0.250	0.203
	DNMG 443EN-M34		●	●									0.610	0.500	0.250	0.203
	DNMG 433EN-M36							●					0.610	0.500	0.250	0.203
	DNMG 443EN-M50								●				0.610	0.500	0.250	0.203
	DNMG 443EN-TF						●						0.610	0.500	0.250	0.203
	DNMG 443EN-TFQ					●	●						0.610	0.500	0.250	0.203
	DNMG 443EN-TM					●	●	●	●	●			0.610	0.500	0.250	0.203
	DNMG 443EN-TMM					●							0.610	0.500	0.250	0.203
	DNMG 443EN-TMQ					●	●	●	●	●			0.610	0.500	0.250	0.203
	DNMG 443EN-TMR				●	●	●	●	●	●			0.610	0.500	0.250	0.203
	DNMM 443EN-TR					●	●	●	●	●	●		0.610	0.500	0.250	0.203
	DNMG 443EN-TRM					●	●	●	●				0.610	0.500	0.250	0.203
0.063	DNGA 444TN-020D										●		0.610	0.500	0.250	0.203
	DNMG 444EN-TM						●			●		0.610	0.500	0.250	0.203	
	DNMG 444EN-TMM				●							0.610	0.500	0.250	0.203	
	DNMG 444EN-TMR					●						0.610	0.500	0.250	0.203	
0.047	DNGX 453TN-020D										●		0.610	0.500	0.313	
	DNGX 454TN-020D										●		0.610	0.500	0.313	

Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Heat resistant	●	●	○	○						○						
Hard materials											●					



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces DNGA 443TN-020D CTS3105



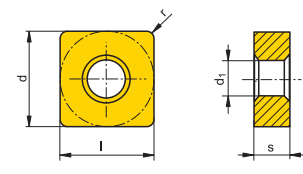
MaxiLock D/N

SN.. 3-4



r [inch]	Type, description	L N R	CTP5110 CTP3110 CTP5115 CTC1115 CTP2120 CTC125 CTC1125 CTC1130 CTC1135 CTC2135 TA100 CTN3105 CTM3110										l [inch]	d [inch]	s [inch]	d ₁ [inch]					
			CTP5110	CTP3110	CTP5115	CTC1115	CTP2120	CTC125	CTC1125	CTC1130	CTC1135	CTC2135					TA100	CTN3105	CTM3110		
0.031	SNMG 322EN																0.375	0.375	0.125	0.150	
0.016	SNMG 431EN-TF																	0.500	0.500	0.187	0.203
0.031	SNGA 432SN-025C																	0.500	0.500	0.187	0.203
	SNMA 432EN																	0.500	0.500	0.187	0.203
	SNMG 432EN-M34																	0.500	0.500	0.187	0.203
	SNMG 432EN-M42																	0.500	0.500	0.187	0.203
	SNMG 432EN-M50																	0.500	0.500	0.187	0.203
	SNMG 432EN-M52																	0.500	0.500	0.187	0.203
	SNMG 432EN-TM																	0.500	0.500	0.187	0.203
	SNMG 432EN-TMF																	0.500	0.500	0.187	0.203
	SNMG 432EN-TMR																	0.500	0.500	0.187	0.203
	SNMM 432EN-TR																	0.500	0.500	0.187	0.203
0.047	SNGA 433SN-025C																	0.500	0.500	0.187	0.203
	SNGA 433TN-020D																	0.500	0.500	0.187	0.203
	SNMA 433EN																	0.500	0.500	0.187	0.203
	SNMA 433FN																	0.500	0.500	0.187	0.203
	SNMA 433TN-020D																	0.500	0.500	0.187	0.203
	SNMG 433EN-M34																	0.500	0.500	0.187	0.203
	SNMG 433EN-M42																	0.500	0.500	0.187	0.203
	SNMG 433EN-M50																	0.500	0.500	0.187	0.203
	SNMG 433EN-TM																	0.500	0.500	0.187	0.203
	SNMG 433EN-TMF																	0.500	0.500	0.187	0.203
0.063	SNMG 433EN-TMR																	0.500	0.500	0.187	0.203
	SNMG 433EN-TRM																	0.500	0.500	0.187	0.203
	SNMM 433EN-TR																	0.500	0.500	0.187	0.203
	SNMA 434EN																	0.500	0.500	0.187	0.203
	SNMG 434EN-TM																	0.500	0.500	0.187	0.203
	SNMG 434EN-TMR																	0.500	0.500	0.187	0.203
	SNMG 434EN-TRM																	0.500	0.500	0.187	0.203
																		0.500	0.500	0.187	0.203
																		0.500	0.500	0.187	0.203
																		0.500	0.500	0.187	0.203

Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Heat resistant	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hard materials	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces SNMG 322EN CTC1125



C4-C19



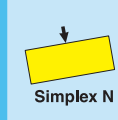
C4-C19



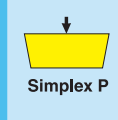
C20-C38



C39-C40



C41-C48



C49-C53



C55-C57



C58

MaxiLock D/N

SN.. 4-8



80°



C4-C7

55°



C8-C10

90°



C11-C12

60°



C14-C16

35°



C17

80°



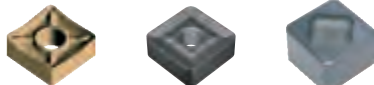
C18-C19



-TMR

-TR

SN..A



-TRR

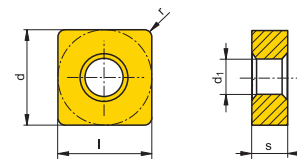
-R88

SN..X

r [inch]	Type, description	LNR 	CTC								l [inch]	d [inch]	s [inch]	d ₁ [inch]			
			CTC3110	CTC1115	CTC1125	CTCP125	CTC1130	CTC1135	CTC2135	CTI3105					CTN3105		
0.047	SNGX 453TN-020D	N									●	●	0.500	0.500	0.313		
	SNGX 454TN-020D											●	●	0.500	0.500	0.313	
0.063	SNNX 454TN-020D											●	●	0.500	0.500	0.313	
	SNMX 454TN-020D											●		0.500	0.500	0.313	
0.047	SNMG 543EN-TMR				●	●	●							0.625	0.625	0.250	0.250
	SNMM 543EN-TR				●	●								0.625	0.625	0.250	0.250
0.063	SNMA 544EN			●										0.625	0.625	0.250	0.250
	SNMG 544EN-TMR			●		●	●	●						0.625	0.625	0.250	0.250
0.047	SNMG 643EN-TMR				●	●	●	●	●					0.750	0.750	0.250	0.313
	SNMA 644EN			●										0.750	0.750	0.250	0.313
0.063	SNMG 644EN-TMR				●	●	●			●				0.750	0.750	0.250	0.313
	SNMM 644EN-TR				●	●	●	●	●					0.750	0.750	0.250	0.313
	SNMM 644SN-TRR				●	●	●			●				0.750	0.750	0.250	0.313
0.094	SNMM 856EN-TR				●	●	●			●				1.000	1.000	0.313	0.359
	SNMM 856SN-TRR				●	●	●			●				1.000	1.000	0.313	0.359
0.126	SNMM 858SN-R88					●								1.000	1.000	0.313	0.359
	SNMM 868SN-R88					●								1.000	1.000	0.375	0.359



Material	CTC3110	CTC1115	CTC1125	CTCP125	CTC1130	CTC1135	CTC2135	CTI3105	CTN3105
Steel	●	●	●	●	●	●	●	●	●
Stainless	○	○	○	○	○	○	○	○	○
Cast iron	●	●	●	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○	○	○	○
Heat resistant	○	○	○	○	○	○	○	○	○
Hard materials									



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces SNGX 453TN-020D CTN3105



A46-A54



B2-B3



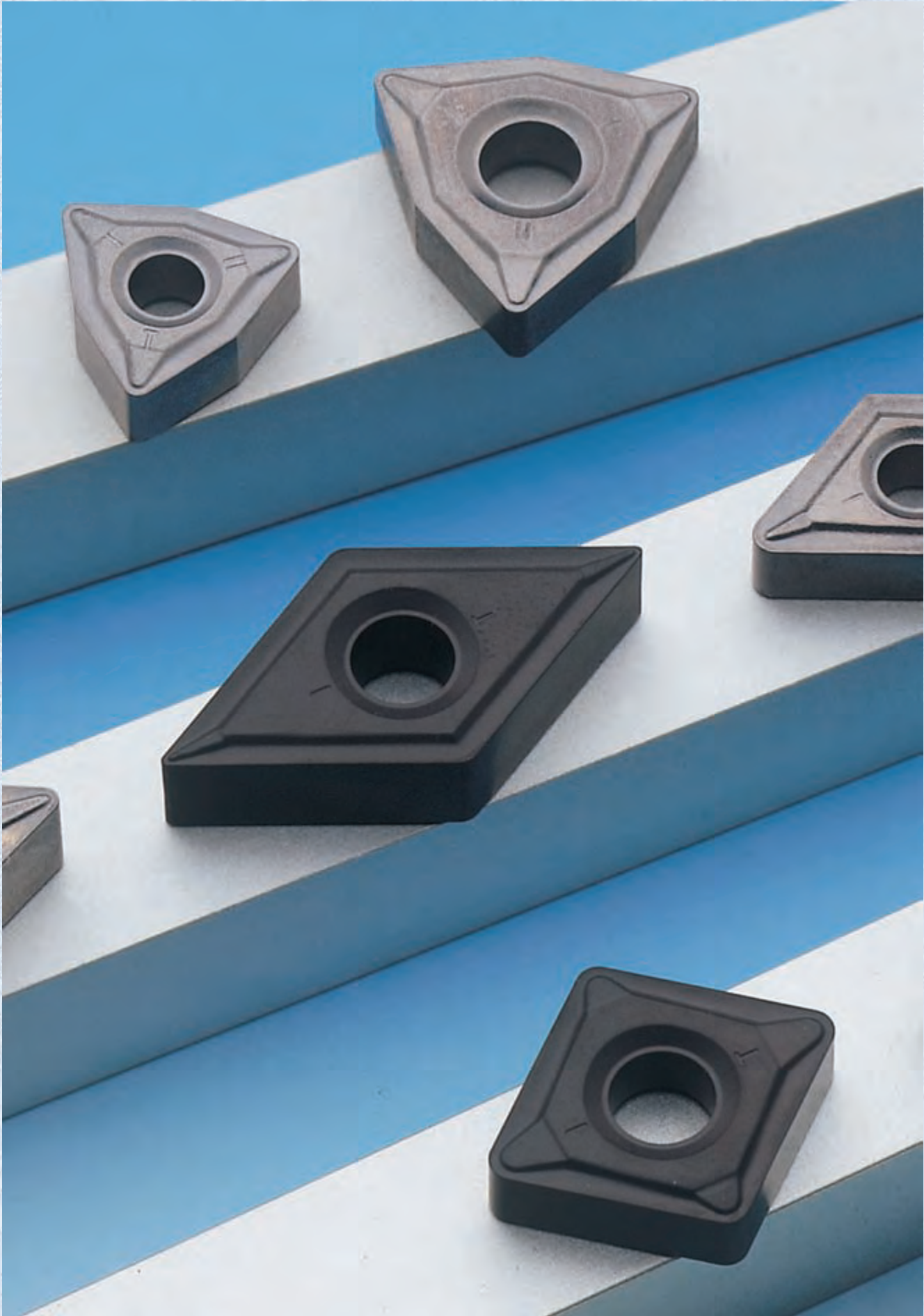
E24-E35



D11-D14



D43



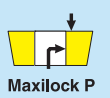
C4-C19



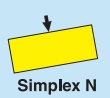
C4-C19



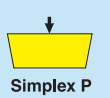
C20-C38



C39-C40



C41-C48



C49-C53



C55-C57



C58

MaxiLock D/N

TN.. 2-3



80°
C4-C7

55°
C8-C10

90°
C11-C12

60°
C14-C16

35°
C17

80°
C18-C19

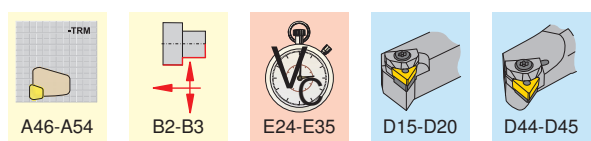
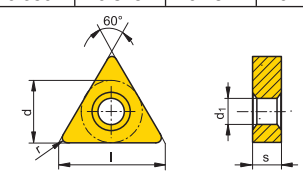


r [inch]	Type, description	L N R	CTC									TCC-410	TA201	CTS3105	I [inch]	d [inch]	s [inch]	d ₁ [inch]
			CTC3110	CTP5115	CTC1115	CTP2120	CTCP125	CTC1125	CTC1130	CTC1135	CTC2135							
0.008	TNMG 22.5EN														0.433	0.250	0.125	0.089
	TNMG 221EN-TF	N		●		●	●								0.433	0.250	0.125	0.089
0.016	TNMG 331ER	R				●	●			●					0.650	0.375	0.187	0.150
	TNMG 331EN-CF										●				0.650	0.375	0.187	0.150
	TNMG 331EN-M42					●						●			0.650	0.375	0.187	0.150
	TNMG 331EN-M50					●									0.650	0.375	0.187	0.150
	TNMG 331EN-M52					●									0.650	0.375	0.187	0.150
	TNMG 331EN-TF	N		●		●	●	●	●	●					0.650	0.375	0.187	0.150
	TNMG 331EN-TMF			●		●	●	●	●	●					0.650	0.375	0.187	0.150
	TNMG 332ER	R					●	●	●	●					0.650	0.375	0.187	0.150
	TNMG 332EL	L					●	●							0.650	0.375	0.187	0.150
	TNMG 332EN			●											0.650	0.375	0.187	0.150
	TNMG 332EN-CF				●							●			0.650	0.375	0.187	0.150
	TNMG 332EN-M34						●								0.650	0.375	0.187	0.150
	TNMG 332EN-M42						●						●		0.650	0.375	0.187	0.150
	TNMG 332EN-M50						●								0.650	0.375	0.187	0.150
TNMG 332EN-M52						●								0.650	0.375	0.187	0.150	
0.031	TNMG 332EN-TF	N		●		●	●	●	●	●					0.650	0.375	0.187	0.150
	TNMG 332EN-TM			●		●	●	●	●	●	●				0.650	0.375	0.187	0.150
	TNMG 332EN-TMF			●		●	●	●	●	●	●				0.650	0.375	0.187	0.150
	TNMG 332EN-TMR		●		●						●				0.650	0.375	0.187	0.150
	TNMG 332EN-TRM					●	●	●	●						0.650	0.375	0.187	0.150
	TNMG 332EN-TR					●									0.650	0.375	0.187	0.150
	TNMM 332EN-TRR						●	●							0.650	0.375	0.187	0.150
	TNMX 332SN												●		0.650	0.375	0.187	0.150

Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Heat resistant	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hard materials																		

- Main application
- Extended application
- Stock item

Ordering example: 10 pieces TNMG 22.5EN CTC1135



MaxiLock D/N

DE-TN.. 3-5 - DoubleEdge



80°



C4-C7



-RM

55°



C8-C10



Q-RM

90°

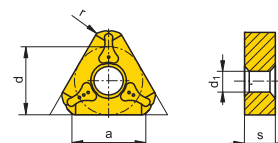


C11-C12

r [inch]	Type, description	LNR											d [inch]	a [inch]	s [inch]	d ₁ [inch]		
			CTC1115	CTC1125														
0.031	DE-TNMG 332-RM	N	●	●										0.375	0.390	0.187	0.150	
	DE-TNMG 332Q-RM		●	●											0.375	0.390	0.187	0.150
0.047	DE-TNMG 433-RM		●	●											0.500	0.472	0.187	0.203
	DE-TNMG 433Q-RM		●	●											0.500	0.472	0.187	0.203
0.063	DE-TNMG 544Q-RM		●	●											0.625	0.547	0.250	0.250



Steel	●	●															
Stainless	○	○															
Cast iron	○	○															
Non ferrous metals	○	○															
Heat resistant	○	○															
Hard materials																	



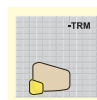
- Main application
- Extended application
- Stock item

Ordering example: 10 pieces DE-TNMG 332-RM CTC1115

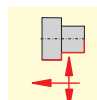
80°



C18-C19



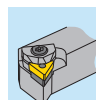
A46-A54



B2-B3



E24-E35

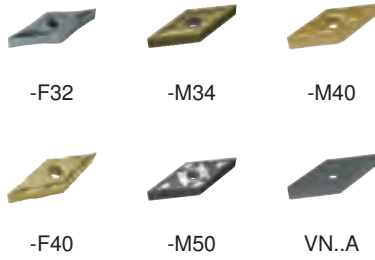


D21

C16

MaxiLock D/N

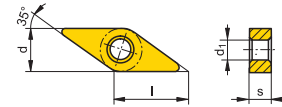
VN.. 3



r [inch]	Type, description	L N R	CTP5115	CTP5110	CTP2120	CTC1125	CTCP125	CTS3105					l [inch]	d [inch]	s [inch]	d ₁ [inch]	
0.008	VNGP 33.5FN-F32	N			●								0.654	0.375	0.187	0.150	
	VNGP 331FN-F32				●									0.654	0.375	0.187	0.150
0.016	VNMG 331EN-F40					●	●							0.654	0.375	0.187	0.150
	VNMG 331EN-M34		●	●										0.654	0.375	0.187	0.150
	VNMG 331EN-M40					●	●							0.654	0.375	0.187	0.150
	VNMG 331EN-M50						●	●						0.654	0.375	0.187	0.150
0.031	VNGA 332TN-020D								●					0.654	0.375	0.187	0.150
	VNMG 332EN-F40					●	●							0.654	0.375	0.187	0.150
	VNMG 332EN-M34		●	●										0.654	0.375	0.187	0.150
	VNMG 332EN-M40					●	●							0.654	0.375	0.187	0.150
0.047	VNMG 332EN-M50						●	●						0.654	0.375	0.187	0.150
	VNGA 333TN-020D								●					0.654	0.375	0.187	0.150
	VNMG 333EN-M34		●	●										0.654	0.375	0.187	0.150
	VNMG 333EN-M50								●					0.654	0.375	0.187	0.150

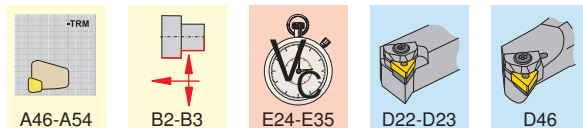


Steel				●	●											
Stainless	○	○	○	○	○											
Cast iron	●	●	●	●	●	●	●									
Non ferrous metals			○													
Heat resistant	●	●	○													
Hard materials								●								



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces VNGP 33.5FN-F32 CTP2120



C4-C19



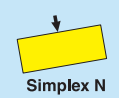
C4-C19



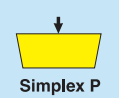
C20-C38



C39-C40



C41-C48



C49-C53



C55-C57



C58

C17

MaxiLock D/N

WNMG 3-4



80°
C4-C7

55°
C8-C10

90°
C11-C12

60°
C14-C16

35°
C17

80°
C18-C19

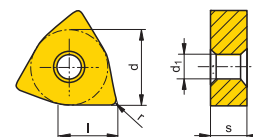


r [inch]	Type, description	LNR											l [inch]	d [inch]	s [inch]	d ₁ [inch]		
			CTP5110	CTC1110	CTP5115	CTC1115	CTP2120	CTCP125	CTC1125	CTC1130	CTC1135	CTC2135					TCC410	
0.016	WNMG 331EN-CF	N													0.256	0.375	0.187	0.150
	WNMG 331EN-M42														0.256	0.375	0.187	0.150
	WNMG 331EN-M52														0.256	0.375	0.187	0.150
	WNMG 331EN-TF														0.256	0.375	0.187	0.150
	WNMG 331EN-TFQ														0.256	0.375	0.187	0.150
WNMG 331EN-TMF														0.256	0.375	0.187	0.150	
WNMG 332EN-CF														0.256	0.375	0.187	0.150	
WNMG 332EN-M42														0.256	0.375	0.187	0.150	
WNMG 332EN-M50														0.256	0.375	0.187	0.150	
WNMG 332EN-M52														0.256	0.375	0.187	0.150	
WNMG 332EN-TFQ														0.256	0.375	0.187	0.150	
WNMG 332EN-TM														0.256	0.375	0.187	0.150	
WNMG 332EN-TMF														0.256	0.375	0.187	0.150	
WNMG 332EN-TMM														0.256	0.375	0.187	0.150	
WNMG 332EN-TRM														0.256	0.375	0.187	0.150	
WNMG 333EN-M50														0.256	0.375	0.187	0.150	
WNMG 333EN-TMF														0.256	0.375	0.187	0.150	
WNMG 333EN-TRM														0.256	0.375	0.187	0.150	
0.016	WNMG 431EN-M42														0.342	0.500	0.187	0.203
	WNMG 431EN-M52													0.342	0.500	0.187	0.203	
	WNMG 431EN-TF													0.342	0.500	0.187	0.203	
	WNMG 431EN-TFQ													0.342	0.500	0.187	0.203	
	WNMG 431EN-TMF													0.342	0.500	0.187	0.203	
0.031	WNMG 432EN-CF													0.342	0.500	0.187	0.203	
	WNMG 432EN-M34													0.342	0.500	0.187	0.203	
	WNMG 432EN-M42													0.342	0.500	0.187	0.203	
	WNMG 432EN-M50													0.342	0.500	0.187	0.203	
	WNMG 432EN-M52													0.342	0.500	0.187	0.203	
	WNMG 432EN-TF													0.342	0.500	0.187	0.203	
	WNMG 432EN-TFQ													0.342	0.500	0.187	0.203	
	WNMG 432EN-TM													0.342	0.500	0.187	0.203	
	WNMG 432EN-TMF													0.342	0.500	0.187	0.203	
	WNMG 432EN-TMM													0.342	0.500	0.187	0.203	

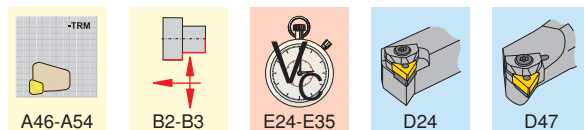


Steel
Stainless
Cast iron
Non ferrous metals
Heat resistant
Hard materials

- Main application
- Extended application
- Stock item

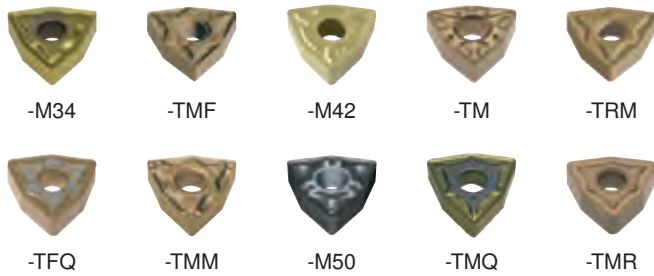


Ordering example: 10 pieces WNMG 331EN-CF TCC410



MaxiLock D/N

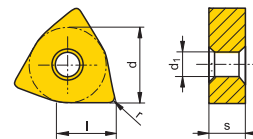
WNMG 4



r [inch]	Type, description	L N R										l [inch]	d [inch]	s [inch]	d ₁ [inch]		
			CTP5110	CTC3110	CTC1110	CTP5115	CTC1115	CTCP125	CTC1125	CTC1130	CTC1135					CTC2135	
0.031	WNMG 432EN-TMM	N			●									0.342	0.500	0.187	0.203
	WNMG 432EN-TMQ				●			●	●					0.342	0.500	0.187	0.203
	WNMG 432EN-TMR			●				●	●	●	●	●		0.342	0.500	0.187	0.203
	WNMG 432EN-TRM						●	●		●				0.342	0.500	0.187	0.203
0.047	WNMG 433EN-M34		●			●								0.342	0.500	0.187	0.203
	WNMG 433EN-M42												●	0.342	0.500	0.187	0.203
	WNMG 433EN-M50									●				0.342	0.500	0.187	0.203
	WNMG 433EN-TFQ				●			●	●					0.342	0.500	0.187	0.203
	WNMG 433EN-TM						●	●	●	●		●		0.342	0.500	0.187	0.203
	WNMG 433EN-TMF							●						0.342	0.500	0.187	0.203
	WNMG 433EN-TMM					●								0.342	0.500	0.187	0.203
	WNMG 433EN-TMQ				●			●	●					0.342	0.500	0.187	0.203
	WNMG 433EN-TMR				●			●	●	●	●			0.342	0.500	0.187	0.203
	WNMG 433EN-TRM				●			●	●	●	●			0.342	0.500	0.187	0.203
	0.063		WNMG 434EN-TMR		●			●	●	●	●			0.342	0.500	0.187	0.203
			WNMG 434EN-TRM			●			●	●	●	●		0.342	0.500	0.187	0.203

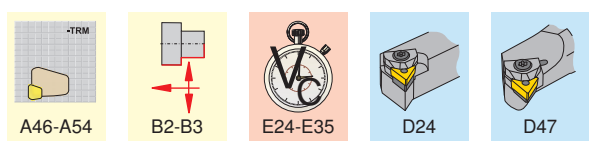


Steel	●	●	●	●	●	●	●	●	●	●
Stainless	○	○	○	○	○	○	○	○	○	○
Cast iron	●	●	●	●	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○	○	○	○	○
Heat resistant	●	○	●	○	○	○	○	○	○	○
Hard materials										



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces WNMG 432EN-TMM CTC1110



C4-C19



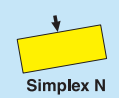
C4-C19



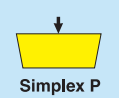
C20-C38



C39-C40



C41-C48



C49-C53



C55-C57



C58

MaxiLock S

CC.. 2



80°



C20-C25

55°



C26-C30

0°



C31

90°



C32

60°



C33-C34

35°



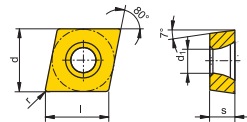
C35-C38



r [inch]	Type, description	L N R	Material								Dimensions												
			H210T	H10T	H216T	CTW7120	AMZ	CTC1115	CTP2120	CTCP125	CTC1125	CTC1130	CTC1135	CTC2135	TCC410	TCM407	TCM10	SM80	l [inch]	d [inch]	s [inch]	d ₁ [inch]	
0.000	CCGT 21.5X0FN-F23	N																	0.252	0.250	0.094	0.110	
	CCGT 21.50FN																			0.252	0.250	0.094	0.110
0.004	CCGT 21.50FN-F23																			0.252	0.250	0.094	0.110
	CCGT 21.5.5FN																			0.252	0.250	0.094	0.110
0.008	CCGT 21.5.5FN-23P																			0.252	0.250	0.094	0.110
	CCGT 21.5.5FN-25P																			0.252	0.250	0.094	0.110
	CCGT 21.5.5FN-27																			0.252	0.250	0.094	0.110
	CCGT 21.5.5EN-SF																			0.252	0.250	0.094	0.110
	CCGT 21.5.5EN-SM																			0.252	0.250	0.094	0.110
	CCGW 21.5.5FN																			0.252	0.250	0.094	0.110
	CCGT 21.51EN-SF																			0.252	0.250	0.094	0.110
0.016	CCGT 21.51FN																			0.252	0.250	0.094	0.110
	CCGT 21.51FN-23P																			0.252	0.250	0.094	0.110
	CCGT 21.51FN-25P																		0.252	0.250	0.094	0.110	
	CCGT 21.51FN-25Q																		0.252	0.250	0.094	0.110	
	CCGT 21.51FN-27																		0.252	0.250	0.094	0.110	
	CCMT 21.51EN-29																		0.252	0.250	0.094	0.110	
	CCMT 21.51EN-SF																		0.252	0.250	0.094	0.110	
CCGW 21.51FN																		0.252	0.250	0.094	0.110		



Steel																		
Stainless																		
Cast iron																		
Non ferrous metals																		
Heat resistant																		
Hard materials																		



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces CCGT 21.5X0FN-F23 CTP2120



A46-A54



B2-B3



E24-E35



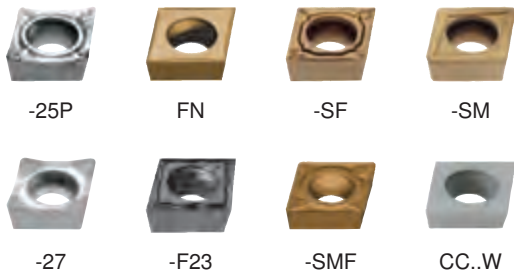
D26



D48

MaxiLock S

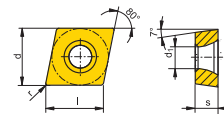
CC.. 2-3



r [inch]	Type, description	L N R											l [inch]	d [inch]	s [inch]	d ₁ [inch]						
			H210T	H10T	CTW7120	S40T	AMZ	CTC3110	CTC1115	CTP2120	CTC1125	CTCP125					CTC1130	CTC1135	CTC2135	TCC410	TCM407	TCM10
0.016	CCMT 21.51EN-SM	N				●		●			●	●	●	●	●			0.252	0.250	0.094	0.110	
	CCMT 21.51EN-SMF											●	●	●	●	●	●		0.252	0.250	0.094	0.110
0.031	CCMT 21.52EN-SM								●	●									0.252	0.250	0.094	0.110
	CCMT 21.52EN-SMF											●	●	●					0.252	0.250	0.094	0.110
0.000	CCGT 32.5X0FN-F23											●							0.382	0.375	0.156	0.173
	CCGT 32.50FN												●					●	0.382	0.375	0.156	0.173
0.004	CCGT 32.50FN-F23												●						0.382	0.375	0.156	0.173
	CCGW 32.50FN				●														0.382	0.375	0.156	0.173
0.008	CCGT 32.5.5EN-SF															●	●	●	0.382	0.375	0.156	0.173
	CCGT 32.5.5FN																●		0.382	0.375	0.156	0.173
	CCGT 32.50.5FN-25P										●								0.382	0.375	0.156	0.173
	CCGT 32.5.5FN-25P			●															0.382	0.375	0.156	0.173
	CCGT 32.5.5FN-27			●					●										0.382	0.375	0.156	0.173



Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Heat resistant	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Hard materials																					



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces CCMT 21.51EN-SM CTC1115



C4-C19



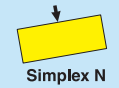
C4-C19



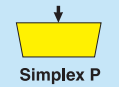
C20-C38



C39-C40



C41-C48



C49-C53



C55-C57



C58

C21

MaxiLock S

CC.. 3



80°



C20-C25



-23P

-25Q

-29

-SF

-SM

55°



C26-C30



-25P

-27

FN

-F43

CC..W

0°



C31

90°



C32

60°



C33-C34

35°

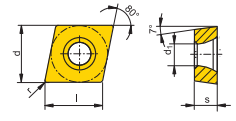


C35-C38

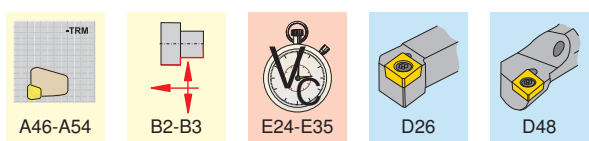
r [inch]	Type, description	L N R 	H210T					CTC3110					TCC410			SM80			l [inch]	d [inch]	s [inch]	d ₁ [inch]		
			H10T	H216T	CTW7120	S40T	AMZ	CTC1115	CTCP125	CTC1125	CTC1130	CTC1135	CTC2135	TCM407	TCM10	TCM10	TCM10							
0.016	CCGT 32.51EN-SF	N																		0.382	0.375	0.156	0.173	
	CCGT 32.51FN																				0.382	0.375	0.156	0.173
	CCGT 32.51FN-23P				●																0.382	0.375	0.156	0.173
	CCGT 32.51FN-25P		●						●												0.382	0.375	0.156	0.173
	CCGT 32.51FN-25Q		●																		0.382	0.375	0.156	0.173
	CCGT 32.51FN-27			●					●												0.382	0.375	0.156	0.173
	CCGW 32.51FN					●															0.382	0.375	0.156	0.173
	CCMT 32.51EN-29					●				●											0.382	0.375	0.156	0.173
	CCMT 32.51EN-SF										●	●	●	●	●	●	●				0.382	0.375	0.156	0.173
	CCMT 32.51EN-SM									●	●	●	●	●	●	●	●				0.382	0.375	0.156	0.173
CCMT 32.51EN-F43															●				0.382	0.375	0.156	0.173		

	Steel	Stainless	Cast iron	Non ferrous metals	Heat resistant	Hard materials
Steel	●	○	○	○	○	○
Stainless	○	●	○	○	○	○
Cast iron	○	○	●	○	○	○
Non ferrous metals	○	○	○	●	○	○
Heat resistant	○	○	○	○	●	○
Hard materials	○	○	○	○	○	○

- Main application
- Extended application
- Stock item

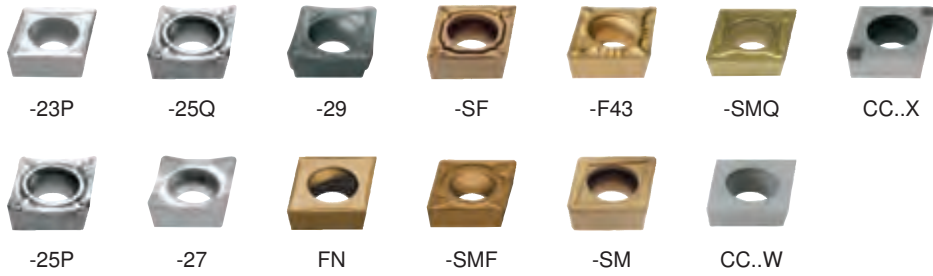


Ordering example: 10 pieces CCGT 32.51EN-SF TCC410



MaxiLock S

CC.. 3-4



r [inch]	Type, description	LNR	Material											l [inch]	d [inch]	s [inch]	d ₁ [inch]						
			H210T	H10T	H216T	CTW7120	AMZ	CTC3110	CTC1110	CTC1115	CTCP125	CTC1125	CTC1130					CTC1135	CTC2135	TCC410	TCM10	TA201	SM80
0.016	CCMT 32.51EN-SMF	N																	0.382	0.375	0.156	0.173	
	CCMT 32.51EN-SMQ																			0.382	0.375	0.156	0.173
	CCMX 32.51SN																			0.382	0.375	0.156	0.173
CCGT 32.52FN																			0.382	0.375	0.156	0.173	
CCGT 32.52FN-23P																			0.382	0.375	0.156	0.173	
CCGT 32.52FN-25P																			0.382	0.375	0.156	0.173	
CCGT 32.52FN-25Q																			0.382	0.375	0.156	0.173	
CCGT 32.52FN-27																			0.382	0.375	0.156	0.173	
CCGT 32.52EN-SF																			0.382	0.375	0.156	0.173	
CCGW 32.52FN																			0.382	0.375	0.156	0.173	
CCMT 32.52EN-29																			0.382	0.375	0.156	0.173	
CCMT 32.52EN-F43																			0.382	0.375	0.156	0.173	
CCMT 32.52EN-SF																			0.382	0.375	0.156	0.173	
CCMT 32.52EN-SM																			0.382	0.375	0.156	0.173	
CCMT 32.52EN-SMF																			0.382	0.375	0.156	0.173	
CCMT 32.52EN-SMQ																		0.382	0.375	0.156	0.173		
CCMX 32.52SN																		0.382	0.375	0.156	0.173		
0.008	CCGT 43.5FN-25P																	0.508	0.500	0.187	0.217		
	CCGT 43.5FN-27																	0.508	0.500	0.187	0.217		
	CCGT 431EN-SF																	0.508	0.500	0.187	0.217		
0.016	CCGT 431FN																	0.508	0.500	0.187	0.217		
	CCGT 431FN-25P																	0.508	0.500	0.187	0.217		
	CCGT 431FN-25Q																	0.508	0.500	0.187	0.217		
	CCGT 431FN-27																	0.508	0.500	0.187	0.217		
	CCMT 431EN-SF																	0.508	0.500	0.187	0.217		
	CCMT 431EN-SM																	0.508	0.500	0.187	0.217		
	CCMT 431EN-SMF																	0.508	0.500	0.187	0.217		
	CCMT 431EN-SMQ																	0.508	0.500	0.187	0.217		



Steel																						
Stainless																						
Cast iron																						
Non ferrous metals																						
Heat resistant																						
Hard materials																						

- Main application
- Extended application
- Stock item

Ordering example: 10 pieces CCMT 32.51EN-SMF CTC1110



A46-A54



B2-B3



E24-E35



D26



D48



C4-C19



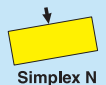
C4-C19



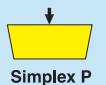
C20-C38



C39-C40



C41-C48



C49-C53



C55-C57



C58

80°



C20-C25

55°



C26-C30

0°



C31

90°



C32

60°



C33-C34

35°

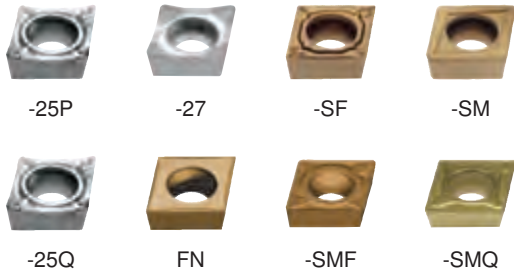


C35-C38



MaxiLock S

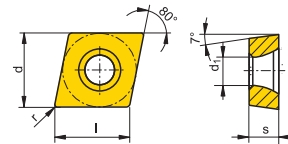
CC.. 4



r [inch]	Type, description	L N R	Material										SM80	l [inch]	d [inch]	s [inch]	d ₁ [inch]			
			H210T	H10T	H216T	AMZ	CTC3110	CTC1110	CTC1115	CTC1125	CTCP125	CTC1130						CTC1135	CTC2135	
0.031	CCGT 432FN	N														0.508	0.500	0.187	0.217	
	CCGT 432FN-25P		●			●											0.508	0.500	0.187	0.217
	CCGT 432FN-25Q		●		●												0.508	0.500	0.187	0.217
	CCGT 432FN-27			●		●											0.508	0.500	0.187	0.217
	CCMT 432EN-SF								●	●	●	●	●				0.508	0.500	0.187	0.217
	CCMT 432EN-SM								●	●	●	●	●	●			0.508	0.500	0.187	0.217
	CCMT 432EN-SMF									●	●	●	●	●	●		0.508	0.500	0.187	0.217
	CCMT 432EN-SMQ									●	●	●	●	●	●		0.508	0.500	0.187	0.217
0.047	CCMT 433EN-SM								●	●	●	●	●		0.508	0.500	0.187	0.217		



Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Heat resistant	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Hard materials																			



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces CCGT 432FN SM80



C4-C19



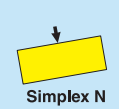
C4-C19



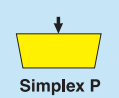
C20-C38



C39-C40



C41-C48



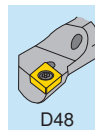
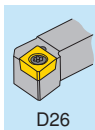
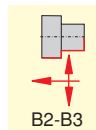
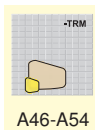
C49-C53



C55-C57



C58



C25

MaxiLock S

DC.. 2



80°



C20-C25

55°



C26-C30

0°



C31

90°



C32

60°



C33-C34

35°



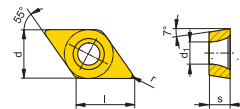
C35-C38



r [inch]	Type, description	L N R	H210T	H10T	H216T	CTW7120	AMZ	CTC1115	CTP2120	CTC1125	CTCP125	CTC1130	CTC1135	CTC2135	TCC410	TCM407	TCM10	SM80	l [inch]	d [inch]	s [inch]	d ₁ [inch]
			0.000	DCGT 21.5X0FN-F23								●										0.305
0.004	DCGT 21.50FN-F23								●										0.305	0.250	0.094	0.110
	DCGT 21.50EN-SF																●		0.305	0.250	0.094	0.110
0.008	DCGT 21.50FN																	●	0.305	0.250	0.094	0.110
	DCGT 21.5.5FN																	●	0.305	0.250	0.094	0.110
	DCGT 21.5.5FN-25P		●				●												0.305	0.250	0.094	0.110
	DCGT 21.5.5FN-27			●			●												0.305	0.250	0.094	0.110
	DCMT 21.5.5EN-F43																		0.305	0.250	0.094	0.110
	DCGT 21.5.5EN-SF								●	●					●	●	●	●	0.305	0.250	0.094	0.110
	DCGT 21.5.5EN-SM								●	●									0.305	0.250	0.094	0.110
	DCMT 21.5.5EN-SMF												●						0.305	0.250	0.094	0.110
0.016	DCGT 21.51EN-SF																	●	0.305	0.250	0.094	0.110
	DCGT 21.51FN																	●	0.305	0.250	0.094	0.110
	DCGT 21.51FN-23P																		0.305	0.250	0.094	0.110
	DCGT 21.51FN-25P		●																0.305	0.250	0.094	0.110
	DCGT 21.51FN-27			●				●											0.305	0.250	0.094	0.110
	DCGW 21.51FN						●												0.305	0.250	0.094	0.110
	DCMT 21.51EN-29							●											0.305	0.250	0.094	0.110
	DCMT 21.51EN-F43																		0.305	0.250	0.094	0.110
DCMT 21.51EN-SF																		0.305	0.250	0.094	0.110	

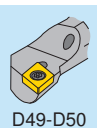
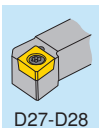
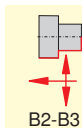
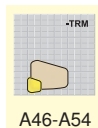


Material	H210T	H10T	H216T	CTW7120	AMZ	CTC1115	CTP2120	CTC1125	CTCP125	CTC1130	CTC1135	CTC2135	TCC410	TCM407	TCM10	SM80
Steel					●	●	●	●	●	●	●	●	●	●	●	●
Stainless	●			●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non ferrous metals	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant	●			●	●	●	●	●	●	●	●	●	●	●	●	●
Hard materials																



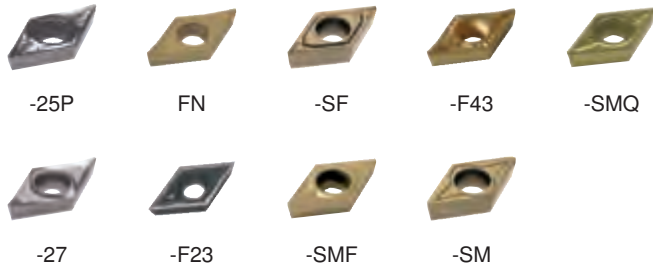
- Main application
- Extended application
- Stock item

Ordering example: 10 pieces DCGT 21.5X0FN-F23 CTP2120



MaxiLock S

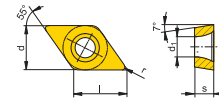
DC.. 2-3



r [inch]	Type, description	L N R	Material									TCC410	TCM407	TCM10	SM80	l [inch]	d [inch]	s [inch]	d ₁ [inch]					
			H210T	H10T	S40T	AMZ	CTC3110	CTC1110	CTC1115	CTP2120	CTCP125									CTC1125	CTC1130	CTC1135	CTC2135	
0.016	DCMT 21.51EN-SM	N			●		●			●	●	●	●	●					0.305	0.250	0.094	0.110		
	DCMT 21.51EN-SMF										●							●		0.305	0.250	0.094	0.110	
	DCMT 21.51EN-SMQ										●									0.305	0.250	0.094	0.110	
0.031	DCMT 21.52EN-SM											●	●	●	●					0.305	0.250	0.094	0.110	
	DCMT 21.52EN-SMF											●								0.305	0.250	0.094	0.110	
0.000	DCGT 32.5X0FN-F23																			0.457	0.375	0.156	0.173	
0.004	DCGT 32.50FN-F23																			0.457	0.375	0.156	0.173	
0.008	DCGT 32.5.5EN-SF																	●	●		0.457	0.375	0.156	0.173
	DCGT 32.5.5FN																		●		0.457	0.375	0.156	0.173
	DCGT 32.5.5FN-25P			●				●													0.457	0.375	0.156	0.173
	DCGT 32.5.5FN-27				●			●													0.457	0.375	0.156	0.173
	DCMT 32.5.5EN-F43																	●			0.457	0.375	0.156	0.173



Material	H210T	H10T	S40T	AMZ	CTC3110	CTC1110	CTC1115	CTP2120	CTCP125	CTC1125	CTC1130	CTC1135	CTC2135	TCC410	TCM407	TCM10	SM80
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Cast iron	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Non ferrous metals	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Heat resistant	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Hard materials	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces DCMT 21.51EN-SM CTC1115



C4-C19



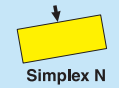
C4-C19



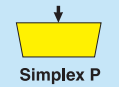
C20-C38



C39-C40



C41-C48



C49-C53



C55-C57



C58

MaxiLock S

DC.. 3



80°



C20-C25

55°



C26-C30

0°



C31

90°



C32

60°

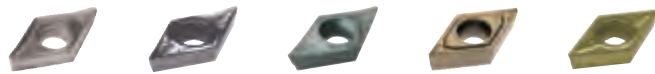


C33-C34

35°



C35-C38



-23P -25Q -29 -SF -SMQ

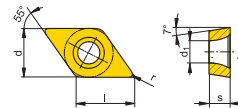


-25P -27 FN -F43 DC..W

r [inch]	Type, description	L N R	H210T	H10T	H216T	CTW7120	AMZ	CTC1110	CTC1115	CTC1125	CTCP125	CTC1130	CTC1135	CTC2135	TCC410	TCM407	TCM10	SM80	l [inch]	d [inch]	s [inch]	d ₁ [inch]	
0.016	DCGT 32.51FN-23P	N			●															0.457	0.375	0.156	0.173
	DCGT 32.51FN-25Q	N	●																	0.457	0.375	0.156	0.173
	DCGT 32.51FR-25Q	R	●																	0.457	0.375	0.156	0.173
	DCGT 32.51FL-25Q	L	●																	0.457	0.375	0.156	0.173
	DCGT 32.51FN-25P	N	●				●													0.457	0.375	0.156	0.173
	DCGT 32.51FN-27	N		●			●													0.457	0.375	0.156	0.173
	DCGW 32.51FN	N				●														0.457	0.375	0.156	0.173
	DCGT 32.51FN	N																	●	0.457	0.375	0.156	0.173
	DCGT 32.51EN-SF	N													●	●	●			0.457	0.375	0.156	0.173
	DCMT 32.51EL-SMQ	L					●		●	●										0.457	0.375	0.156	0.173
	DCMT 32.51EN-29	N			●		●													0.457	0.375	0.156	0.173
	DCMT 32.51EN-F43	N													●					0.457	0.375	0.156	0.173
	DCMT 32.51EN-SF	N							●	●	●	●	●	●	●					0.457	0.375	0.156	0.173



Steel																							
Stainless	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non ferrous metals	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hard materials																							



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces DCGT 32.51FN-23P H216T



A46-A54



B2-B3



E24-E35



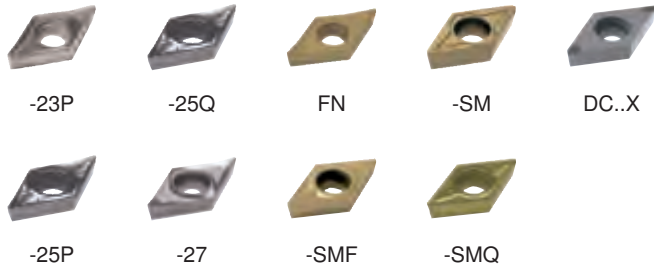
D27-D28



D49-D50

MaxiLock S

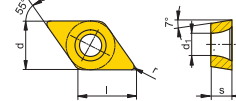
DC.. 3



r [inch]	Type, description	LNR	H210T H10T H216T S40T				AMZ	CTC3110	CTC1110	CTC1115	CTC1125	CTCP125	CTC1130	CTC1135	CTC2135	TCM10	TA201	SM80	l [inch]	d [inch]	s [inch]	d ₁ [inch]	
0.016	DCMT 32.51EN-SM	N				●	●		●	●	●	●	●	●	●				0.457	0.375	0.156	0.173	
	DCMT 32.51EN-SMF								●	●	●	●	●	●	●	●				0.457	0.375	0.156	0.173
	DCMT 32.51EN-SMQ								●	●	●	●	●	●	●	●				0.457	0.375	0.156	0.173
	DCMT 32.51ER-SMQ		R							●	●	●								0.457	0.375	0.156	0.173
	DCMX 32.51SN	N														●			0.457	0.375	0.156	0.173	
0.031	DCGT 32.52FN-23P	L		●															0.457	0.375	0.156	0.173	
	DCGT 32.52FL-25Q		●																0.457	0.375	0.156	0.173	
	DCGT 32.52FR-25Q	R	●																0.457	0.375	0.156	0.173	
	DCGT 32.52FN-25P	N	●				●												0.457	0.375	0.156	0.173	
	DCGT 32.52FN-25Q		●																0.457	0.375	0.156	0.173	
	DCGT 32.52FN-27		●		●		●												0.457	0.375	0.156	0.173	
	DCGT 32.52FN																	●	0.457	0.375	0.156	0.173	



Material	H210T	H10T	H216T	S40T	AMZ	CTC3110	CTC1110	CTC1115	CTC1125	CTCP125	CTC1130	CTC1135	CTC2135	TCM10	TA201	SM80
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Cast iron	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Non ferrous metals	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Heat resistant	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Hard materials															●	



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces DCMT 32.51EN-SM CTC1115



C4-C19



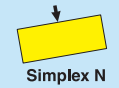
C4-C19



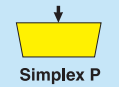
C20-C38



C39-C40



C41-C48



C49-C53



C55-C57



C58

MaxiLock S

DC.. 3



80°



C20-C25



55°



C26-C30



0°



C31

90°



C32

60°



C33-C34

35°

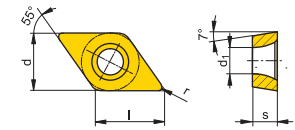


C35-C38

r [inch]	Type, description	L N R											l [inch]	d [inch]	s [inch]	d _i [inch]			
			H216T	AMZ	CTC3110	CTC1110	CTC1115	CTCP125	CTC1125	CTC1130	CTC1135	CTC2135					TCM10	TA201	
0.031	DCMT 32.52EN-29	N	●	●												0.457	0.375	0.156	0.173
	DCMT 32.52EN-F43											●				0.457	0.375	0.156	0.173
	DCMT 32.52EN-SF					●	●	●	●	●	●					0.457	0.375	0.156	0.173
	DCMT 32.52EN-SM			●		●	●	●	●	●	●					0.457	0.375	0.156	0.173
	DCMT 32.52EN-SMF				●		●	●	●	●	●	●		●		0.457	0.375	0.156	0.173
	DCMT 32.52EN-SMQ				●		●	●	●							0.457	0.375	0.156	0.173
0.047	DCMX 32.52SN												●		0.457	0.375	0.156	0.173	
	DCMT 32.53EN-SM						●	●	●						0.457	0.375	0.156	0.173	

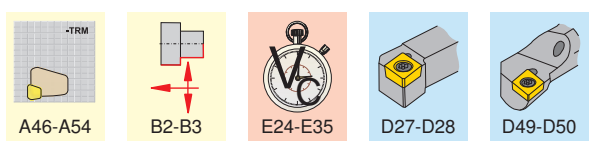


	Steel	Stainless	Cast iron	Non ferrous metals	Heat resistant	Hard materials
Steel	●	●	●	●	●	●
Stainless	○	○	○	○	○	○
Cast iron	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○
Heat resistant	○	○	○	○	○	○
Hard materials						●



- Main application
- Extended application
- Stock item

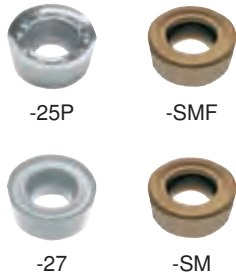
Ordering example: 10 pieces DCMT 32.52EN-29 AMZ



C30

MaxiLock S

RC.. .6-3



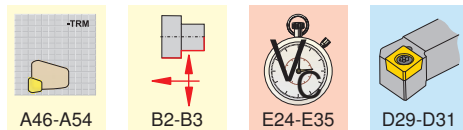
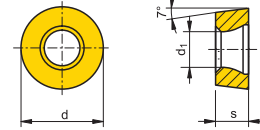
d [inch]	Type, description	L N R	Material							s [inch]	d _i [inch]				
			H210T	H10T	S40T	AMZ	CTC3110	CTC1115	CTC1125					CTCP125	CTC1130
0.236	RCGT 0602MOFN-27	N		●								0.094	0.110	-	-
0.236	RCGT 0602MOEN-SM								●	●	●	0.094	0.110	-	-
0.315	RCMT 0803MOEN-25			●								0.125	0.134	-	-
0.315	RCGT 0803MOFN-25P			●								0.125	0.134	-	-
0.315	RCGT 0803MOFN-27				●							0.125	0.134	-	-
0.315	RCGT 0803MOEN-SM								●	●	●	0.125	0.134	-	-
0.394	RCGT 1003MOFN-27				●							0.125	0.157	-	-
0.394	RCMT 1003MOSN-SM								●	●	●	0.125	0.157	-	-
0.472	RCMT 1204MOSN-SM								●	●	●	0.187	0.193	-	-
0.630	RCMT 1606MOSN-SM					●			●	●	●	0.250	0.209	-	-
0.630	RCMT 1606MOEN-SMF							●				0.250	0.209	-	-
0.787	RCMT 2006MOSN-SM								●	●	●	0.250	0.256	-	-
0.984	RCMT 2507MOSN-SM								●	●	●	0.313	0.283	-	-
1.260	RCMT 3209MOSN-SM								●	●	●	0.375	0.374	-	-



Steel		●	○	○	○	○	○	○	○	○	○	○	○	○	○
Stainless	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Cast iron	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Non ferrous metals	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Heat resistant	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Hard materials															

- Main application
- Extended application
- Stock item

Ordering example: 10 pieces RCGT 0602MOFN-27 H10T



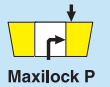
C4-C19



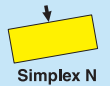
C4-C19



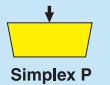
C20-C38



C39-C40



C41-C48



C49-C53



C55-C57



C58

C31

MaxiLock S

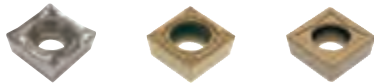
SC.. 3-4



80°



C20-C25



-25P

-SF

-SM

55°



C26-C30



-27P

-SMF

0°



C31

90°



C32

60°



C33-C34

35°

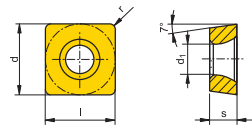


C35-C38

r [inch]	Type, description	L N R	Material										l [inch]	d [inch]	s [inch]	d ₁ [inch]					
			H210T	H10T	S40T	AMZ	CTC3110	CTC1110	CTC1115	CTC1125	CTCP125	CTC1130					CTC1135	CTC2135	TCC410	TCM407	TCM10
0.016	SCGT 32.51FN-27		●															0.375	0.375	0.156	0.173
	SCGT 32.51EN-SF												●	●	●			0.375	0.375	0.156	0.173
	SCMT 32.51EN-SF								●	●								0.375	0.375	0.156	0.173
	SCMT 32.51EN-SM								●	●	●	●	●					0.375	0.375	0.156	0.173
	SCMT 32.51EN-SMF								●					●				0.375	0.375	0.156	0.173
0.031	SCGT 32.52FN-27		●		●													0.375	0.375	0.156	0.173
	SCGT 32.52FN-27P		●															0.375	0.375	0.156	0.173
	SCGT 32.52EN-SF												●	●	●			0.375	0.375	0.156	0.173
	SCMT 32.52EN-SF								●	●	●	●	●	●	●			0.375	0.375	0.156	0.173
	SCMT 32.52EN-SM				●				●	●	●	●	●	●	●			0.375	0.375	0.156	0.173
	SCMT 32.52EN-SMF								●					●				0.375	0.375	0.156	0.173
	SCGT 432FN-25P		●		●													0.500	0.500	0.187	0.217
	SCGT 432FN-27		●															0.500	0.500	0.187	0.217
	SCMT 432EN-SF									●	●	●	●	●	●			0.500	0.500	0.187	0.209
	SCMT 432EN-SM								●	●	●	●	●	●	●			0.500	0.500	0.187	0.209
0.047	SCMT 433EN-SM				●				●	●								0.500	0.500	0.187	0.209



	Steel	Stainless	Cast iron	Non ferrous metals	Heat resistant	Hard materials
Steel	●	○	○	○	○	○
Stainless	○	●	○	○	○	○
Cast iron	○	○	●	○	○	○
Non ferrous metals	○	○	○	●	○	○
Heat resistant	○	○	○	○	●	○
Hard materials	○	○	○	○	○	●



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces SCGT 32.51FN-27 H10T



A46-A54



B2-B3



E24-E35



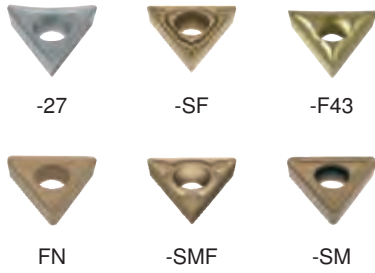
D32



D51

MaxiLock S

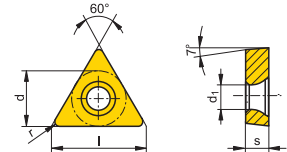
TC.. 1.8-2



r [inch]	Type, description	L N R	H10T	AMZ	CTC3110	CTC1110	CTC1115	CTCP125	CTC1125	CTC1130	CTC1135	CTC2135	TCC410	TCM407	TCM10	SM80	l [inch]	d [inch]	s [inch]	d ₁ [inch]	
0.008	TCGT 1.81.5.5FN																●	0.378	0.219	0.094	0.098
0.016	TCGT 1.81.51FN																●	0.378	0.219	0.094	0.098
	TCMT 1.81.51EN-SM							●	●	●	●	●						0.378	0.219	0.094	0.098
0.008	TCGT 21.5.5FN-27		●															0.433	0.250	0.094	0.110
	TCGT 21.5.5EN-SF																	0.433	0.250	0.094	0.110
0.016	TCGT 21.51EN-SF												●	●	●			0.433	0.250	0.094	0.110
	TCGT 21.51FN																●	0.433	0.250	0.094	0.110
0.016	TCGT 21.51FN-27		●	●														0.433	0.250	0.094	0.110
	TCMT 21.51EN-F43							●	●	●		●						0.433	0.250	0.094	0.110
0.031	TCMT 21.51EN-SF																	0.433	0.250	0.094	0.110
	TCMT 21.51EN-SM				●	●		●	●	●	●	●						0.433	0.250	0.094	0.110
0.031	TCMT 21.52EN-SF													●				0.433	0.250	0.094	0.110
	TCMT 21.52FN																●	0.433	0.250	0.094	0.110
0.031	TCMT 21.52EN-SF							●	●	●								0.433	0.250	0.094	0.110
	TCMT 21.52EN-SM																	0.433	0.250	0.094	0.110
0.031	TCMT 21.52EN-SM																	0.433	0.250	0.094	0.110
	TCMT 21.52EN-SM																	0.433	0.250	0.094	0.110



Material	Steel	Stainless	Cast iron	Non ferrous metals	Heat resistant	Hard materials
Steel	●	●	●	●	●	●
Stainless	○	●	●	●	●	●
Cast iron	●	●	●	●	●	●
Non ferrous metals	●	●	●	●	●	○
Heat resistant	○	○	○	○	○	○
Hard materials						



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces TCGT 1.81.5.5FN SM80



C4-C19



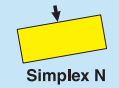
C4-C19



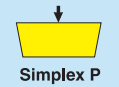
C20-C38



C39-C40



C41-C48



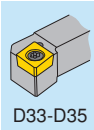
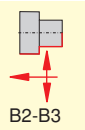
C49-C53



C55-C57



C58



MaxiLock S

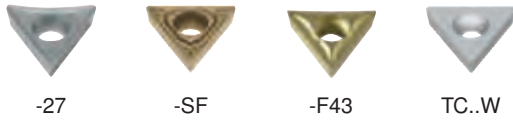
TC.. 3-4



80°



C20-C25



55°



C26-C30



0°



C31

90°



C32

60°



C33-C34

35°

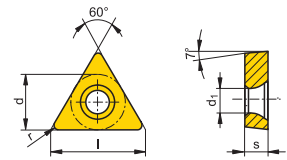


C35-C38

r [inch]	Type, description	L N R	Material										TCM10	SM80	l [inch]	d [inch]	s [inch]	d ₁ [inch]	
			H10T	U17T	S40T	AMZ	CTC3110	CTC1110	CTC1115	CTC1125	CTCP125	CTC1130							CTC1135
0.008	TCGT 32.55FN-27	N	●													0.650	0.375	0.156	0.173
	TCGT 32.51EN-SF													●		0.650	0.375	0.156	0.173
	TCGT 32.51FN													●		0.650	0.375	0.156	0.173
	TCGT 32.51FN-27		●													0.650	0.375	0.156	0.173
0.016	TCMT 32.51EN-F43													●		0.650	0.375	0.156	0.173
	TCMT 32.51EN-SF															0.650	0.375	0.156	0.173
	TCMT 32.51EN-SM															0.650	0.375	0.156	0.173
	TCMT 32.51EN-SMF															0.650	0.375	0.156	0.173
	TCMW 32.51FN			●												0.650	0.375	0.156	0.173
	TCGT 32.52EN-SF														●	0.650	0.375	0.156	0.173
0.031	TCGT 32.52FN														●	0.650	0.375	0.156	0.173
	TCGT 32.52FN-27		●			●										0.650	0.375	0.156	0.173
	TCMT 32.52EN-F43												●		0.650	0.375	0.156	0.173	
	TCMT 32.52EN-SF														0.650	0.375	0.156	0.173	
	TCMT 32.52EN-SM														0.650	0.375	0.156	0.173	
	TCMT 32.52EN-SMF														0.650	0.375	0.156	0.173	
	TCMT 432EN-SM													●	0.650	0.375	0.156	0.173	
	TCMT 432EN-SM													●	0.866	0.500	0.187	0.209	



Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Cast iron	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Non ferrous metals	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Heat resistant	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Hard materials																			



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces TCGT 32.5FN-27 H10T



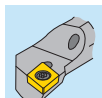
A46-A54



B2-B3



E24-E35



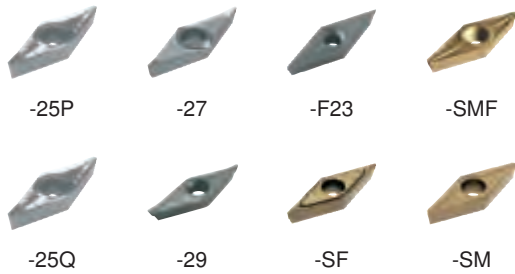
D52



D33-D36

MaxiLock S

VC.. 2-3



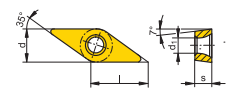
r [inch]	Type, description	LNR	Material										l [inch]	d [inch]	s [inch]	d ₁ [inch]						
			H210T	H10T	H216T	AMZ	CTP4115	CTC3110	CTC1110	CTC1115	CTP2120	CTC1125					CTCP125	CTC1130	CTC1135	CTC2135	TCC410	TCM407
0.000	VCGT 22X0FN-F23	N																0.437	0.250	0.125	0.110	
0.004	VCGT 220FN-F23																		0.437	0.250	0.125	0.110
	VCGT 220EN-SF																		0.437	0.250	0.125	0.110
0.008	VCGT 22.5FN-25P			●			●												0.437	0.250	0.125	0.114
	VCGT 22.5FN-27				●		●												0.437	0.250	0.125	0.114
	VCGT 22.5EN-SF									●		●	●	●	●	●	●	●	0.437	0.250	0.125	0.110
0.016	VCGT 22.5EN-SMF																		0.437	0.250	0.125	0.110
	VCGT 221FN-25P			●			●												0.437	0.250	0.125	0.114
	VCGT 221FL-25Q		L	●															0.437	0.250	0.125	0.114
	VCGT 221FR-25Q		R	●															0.437	0.250	0.125	0.114
	VCGT 221FN-27				●		●												0.437	0.250	0.125	0.114
	VCGT 221EN-SF									●		●	●	●	●	●	●	●	0.437	0.250	0.125	0.114
0.031	VCMT 221EN-SMF									●	●	●	●	●		●	●	0.437	0.250	0.125	0.114	
	VCGT 222EN-SF									●		●	●	●	●			0.437	0.250	0.125	0.114	
0.016	VCGT 222FN-27			●														0.437	0.250	0.125	0.114	
	VCGT 330FN-F23	N																0.654	0.375	0.187	0.173	
	VCGT 331EN-SF															●	●	●	0.654	0.375	0.187	0.173
	VCGT 331FN-25P			●			●	●											0.654	0.375	0.187	0.173
	VCGT 331FN-27				●		●												0.654	0.375	0.187	0.173
	VCMT 331EN-29					●	●												0.654	0.375	0.187	0.173
	VCMT 331EN-SF										●		●	●	●	●			0.654	0.375	0.187	0.173
	VCMT 331EN-SM										●		●	●	●	●			0.654	0.375	0.187	0.173
VCMT 331EN-SMF											●	●	●	●	●	●	●	0.654	0.375	0.187	0.173	



Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Cast iron	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Non ferrous metals	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Heat resistant	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Hard materials																					

- Main application
- Extended application
- Stock item

Ordering example: 10 pieces VCGT 22X0FN-F23 CTP2120



C4-C19



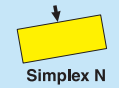
C4-C19



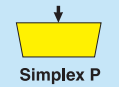
C20-C38



C39-C40



C41-C48



C49-C53



C55-C57



C58

MaxiLock S

VC.. 3



80°



C20-C25

55°



C26-C30

0°



C31

90°



C32

60°



C33-C34

35°



C35-C38



-25P

-29

-SM

VC..W



-27

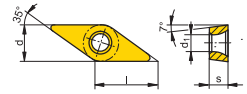
-SF

FN

r [inch]	Type, description	L N R																				
			H210T	H10T	H216T	U17T	AMZ	CTP4115	CTC1115	CTCP125	CTC1125	CTC1130	TCC410	TCM407	TCM10	CTD4110	CTD4125	l [inch]	d [inch]	s [inch]	d ₁ [inch]	
0.016	VCUW 331FL	L																	0.654	0.375	0.187	0.173
	VCUW 331FN	N																	0.654	0.375	0.187	0.173
	VCUW 331FR	R																	0.654	0.375	0.187	0.173
	VCMW 331FN																		0.654	0.375	0.187	0.173
0.024	VCMT 331.5EN-SM																		0.654	0.375	0.187	0.173
	VCGT 332FN-25P																		0.654	0.375	0.187	0.173
0.031	VCGT 332FN-27	N																	0.654	0.375	0.187	0.173
	VCGT 332EN-SF																		0.654	0.375	0.187	0.173
	VCMT 332EN-29																		0.654	0.375	0.187	0.173
	VCMT 332EN-SF																		0.654	0.375	0.187	0.173



Steel																						
Stainless	●																					
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non ferrous metals	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant	●																					
Hard materials																						



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces VCUW 331FL CTD4125



A46-A54



B2-B3



E24-E35



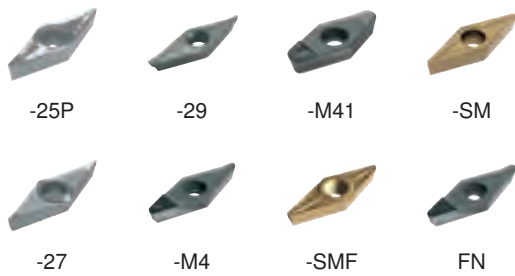
D37-D39



D53-D54

MaxiLock S

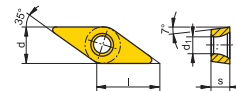
VC.. 3



r [inch]	Type, description	LNR	Material											l [inch]	d [inch]	s [inch]	d ₁ [inch]					
			H210T	H10T	H216T	AMZ	CTP415	CTC3110	CTC1110	CTC1115	CTC1125	CTCP125	CTC1130					CTC1135	CTC2135	TCM10	CTD4110	CTD4125
0.031	VCMT 332EN-SM	N						●										0.654	0.375	0.187	0.173	
	VCMT 332EN-SMF									●									0.654	0.375	0.187	0.173
	VCUT 332TN-M41										●								0.654	0.375	0.187	0.173
	VCUT 332FN-M41																		0.654	0.375	0.187	0.173
	VCUW 332FL	L																0.654	0.375	0.187	0.173	
	VCUW 332FN	N																0.654	0.375	0.187	0.173	
	VCUW 332FR	R																0.654	0.375	0.187	0.173	
0.047	VCUW 332FN-M4	N																0.654	0.375	0.187	0.173	
	VCGT 333FN-25P			●			●	●										0.654	0.375	0.187	0.173	
	VCMT 333EN-25			●														0.654	0.375	0.187	0.173	
	VCGT 333FN-27				●													0.654	0.375	0.187	0.173	
	VCMT 333EN-29					●	●											0.654	0.375	0.187	0.173	
	VCMT 333EN-SM										●							0.654	0.375	0.187	0.173	
	VCUT 333FN-M41																	0.654	0.375	0.187	0.173	
	VCUW 333FN																0.654	0.375	0.187	0.173		
	VCUW 333FN-M4																0.654	0.375	0.187	0.173		
	VCUW 333TN-M4																0.654	0.375	0.187	0.173		
	VCUT 333TN-M41																0.654	0.375	0.187	0.173		
	VCUT 333FN-M41																0.654	0.375	0.187	0.173		
	0.063	VCUW 334FN																0.654	0.375	0.187	0.173	



Steel					●			●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless	●				●			●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non ferrous metals	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant	●				●			●	●								●	●			
Hard materials																					



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces VCMT 332EN-SM CTC1115



C4-C19



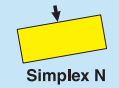
C4-C19



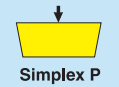
C20-C38



C39-C40



C41-C48



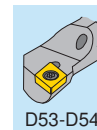
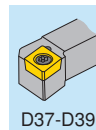
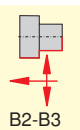
C49-C53



C55-C57



C58



MaxiLock S

VP.. 4 / VC.. 4



80°



C20-C25

55°



C26-C30

0°



C31

90°



C32

60°



C33-C34

35°



C35-C38

80°



C39

90°



C39



-25P

-M4

FN



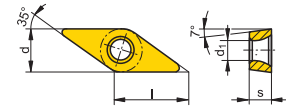
-27

-M41

r [inch]	Type, description	LNR 	H210T	H10T	AMZ	CTP4115	CTD4110				
			[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]
0.063	VPGT 43.54FN-25P	N	●			●		0.870	0.500	0.219	0.217
	VPGT 43.54FN-27		●				0.870	0.500	0.219	0.217	
	VPMT 43.54EN-25		●				0.870	0.500	0.219	0.217	
	VPUT 43.54FN-M41						●	0.870	0.500	0.219	0.217
	VPUT 43.54TN-M41						●	0.870	0.500	0.219	0.217
	VPUW 43.54FN-M4						●	0.870	0.500	0.219	0.217
0.118	VPUW 43.54TN-M4						●	0.870	0.500	0.219	0.217
	VCGT 43.57.5FN-25P		●		●	●		0.870	0.500	0.219	0.217
	VCGT 43.57.5FN-27			●				0.870	0.500	0.219	0.217
	VCGT 43.57.5EN-25		●					0.870	0.500	0.219	0.217
	VCUT 43.57.5FN-M41						●	0.870	0.500	0.219	0.217
	VCUT 43.57.5TN-M41						●	0.870	0.500	0.219	0.217
	VCUW 43.57.5FN					●	0.870	0.500	0.219	0.217	
	VCUW 43.57.5FN-M4					●	0.870	0.500	0.219	0.217	
	VCUW 43.57.5TN-M4					●	0.870	0.500	0.219	0.217	
	VCUW 43.57.5TN-M4					●	0.870	0.500	0.219	0.217	



Steel				○							
Stainless	○			○							
Cast iron	●	●	●	●	●	●	●	●	●	●	●
Non ferrous metals	●	●	●	●	●	●	●	●	●	●	●
Heat resistant	●		○								
Hard materials											



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces VPGT 43.54FN-25P CTP4115



A46-A54



B2-B3



E24-E35

Tool upon request

MaxiLock P

CC.. 4 / SC.. 4-6



CC..X



SC..X

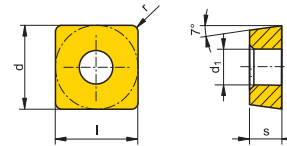
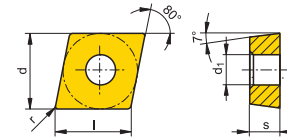
r [inch]	Type, description	L N R	CTC1115	CTC1125	CTC1135																	
																		l [inch]	d [inch]	s [inch]	d ₁ [inch]	
0.031	CCMX 432EN	N		●														0.508	0.500	0.187	0.203	
0.031	SCMX 432EN	N	●	●	●													0.500	0.500	0.187	0.203	
0.047	SCMX 433EN		●																0.500	0.500	0.187	0.203
	SCMX 643EN		●																0.750	0.750	0.250	0.312
0.063	SCMX 644EN			●															0.750	0.750	0.250	0.312



Steel	●	●	●														
Stainless	○	○	○														
Cast iron	○	○	○														
Non ferrous metals																	
Heat resistant	○		○														
Hard materials																	

- Main application
- Extended application
- Stock item

Ordering example: 10 pieces CCMX 432EN CTC1125



MaxiLock D

C4-C19



MaxiLock N

C4-C19



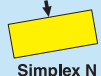
MaxiLock S

C20-C38



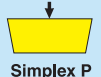
MaxiLock P

C39-C40



Simplex N

C41-C48



Simplex P

C49-C53



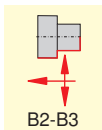
EcoCut

C55-C57



Profile Master

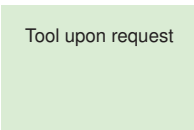
C58



B2-B3



E24-E35



Tool upon request

MaxiLock P

TC.. 3-4



60°



C40

80°



C41

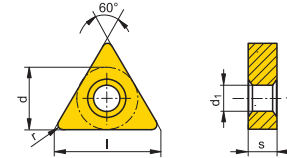


TC..X

r [inch]	Type, description	LNR 											l [inch]	d [inch]	s [inch]	d ₁ [inch]	
			CTC1115	CTC1125	CTC1135												
0.016	TCMX 331EN	N	●	●	●								0.650	0.375	0.187	0.150	
0.031	TCMX 332EN		●	●	●									0.650	0.375	0.187	0.150
0.047	TCMX 333EN			●										0.650	0.375	0.187	0.150
0.016	TCMX 431EN				●									0.866	0.500	0.187	0.203
0.031	TCMX 432EN					●								0.866	0.500	0.187	0.203
0.047	TCMX 433EN				●									0.866	0.500	0.187	0.203
		Steel	●	●	●												
		Stainless	○	○	○												
		Cast iron	○	○													
		Non ferrous metals															
		Heat resistant	○		○												
		Hard materials															

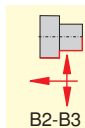


Steel
Stainless
Cast iron
Non ferrous metals
Heat resistant
Hard materials



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces TCMX 331EN CTC1115



B2-B3



E24-E35

Tool upon request

Simplex N

CN.. 3-5

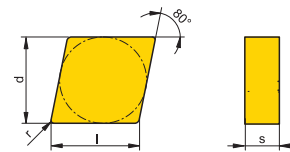


CN..N

r [inch]	Type, description	LNR 					l [inch]	d [inch]	s [inch]	
			TA100	TA120	CTS3105	CTN3110				
0.031	CNMN 322FN	N	●				0.382	0.375	0.125	-
	CNMN 322TN-020D		●	●			0.382	0.375	0.125	-
0.047	CNMN 323TN-020D		●	●			0.382	0.375	0.125	-
0.063	CNMN 324TN-020D		●	●			0.382	0.375	0.125	-
0.016	CNGN 431TN-020D				●		0.508	0.500	0.187	-
0.031	CNGN 432TN-020D				●		0.508	0.500	0.187	-
	CNMN 433FN		●				0.508	0.500	0.187	-
0.047	CNMN 433TN-020D		●				0.508	0.500	0.187	-
	CNGN 453PN-100CF				●		0.508	0.500	0.313	-
	CNGN 453SN-025C					●	0.508	0.500	0.313	-
0.063	CNMN 434FN		●				0.508	0.500	0.187	-
	CNMN 434TN-020D		●				0.508	0.500	0.187	-
	CNGN 454SN-025C					●	0.508	0.500	0.313	-
	CNGN 454PN-100CF				●		0.508	0.500	0.313	-
	CNGN 454PN-150CF					●	0.508	0.500	0.313	-
	CNGN 554SN-025C					●	0.634	0.625	0.313	-
	CNGN 554SN-200C				●		0.634	0.625	0.313	-

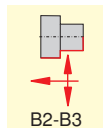


Steel	●									
Stainless	●									
Cast iron	●	●	●	●	●	●	●	●	●	●
Non ferrous metals	●									
Heat resistant	●									
Hard materials	●	○	●							



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces CNMN 322FN TA100



Tool upon request



C4-C19



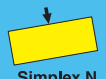
C4-C19



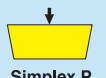
C20-C38



C39-C40



C41-C48



C49-C53



C55-C57



C58

C41

80°



C41

55°



C43

75°



C44

90°



C44

0°



C45

90°



C46-C47

60°



C48



Simplex N

DN.. 4

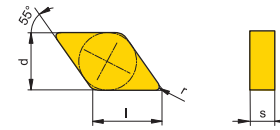


DN..N

r [inch]	Type, description	LNR	CTS3105											l [inch]	d [inch]	s [inch]	
0.016	DNGN 451TN-020D	N	●											0.610	0.500	0.313	-
0.031	DNGN 452TN-020D		●											0.610	0.500	0.313	-
0.047	DNGN 453SN-200C		●											0.610	0.500	0.313	-
	DNGN 453TN-020D		●											0.610	0.500	0.313	-
0.063	DNGN 454PN-100CF		●											0.610	0.500	0.313	-
	DNGN 454SN-200C		●											0.610	0.500	0.313	-
	DNGN 454TN-020D		●											0.610	0.500	0.313	-

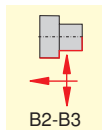


Steel	●																	
Stainless	○																	
Cast iron	●																	
Non ferrous metals	○																	
Heat resistant	○																	
Hard materials	●																	



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces DNGN 451TN-020D CTS3105



Tool upon request



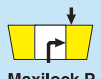
C4-C19



C4-C19



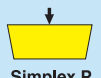
C20-C38



C39-C40



C41-C48



C49-C53



C55-C57



C58

Simplex N

EN.. 4 / LN.. 6



80°



C41



EN..N

55°



C43



LN..N

75°



C44

90°



C44

0°



C45

90°



C46-C47

60°



C48

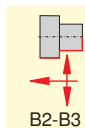
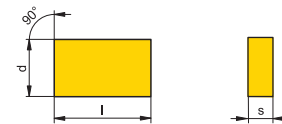
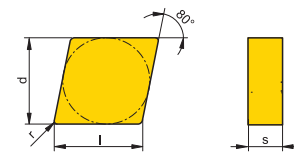
r [inch]	Type, description	LNR 	Material			l [inch]	d [inch]	s [inch]	
			CTS3105	CTN3110	CTM3110				
0.016	ENGN 451TN-020D	N	●			0.520	0.500	0.313	-
0.031	ENGN 452TN-020D		●			0.520	0.500	0.313	-
0.047	ENGN 453TN-020D		●			0.520	0.500	0.313	-
	ENGN 453SN-025E		●			0.520	0.500	0.313	-
0.063	ENGN 454SN-025E		●	●		0.520	0.500	0.313	-
	ENGN 454SN-200C		●			0.520	0.500	0.313	-
0.126	ENGN 458TN-020D		●			0.520	0.500	0.313	-
0.063	LNMN 6688PN-150CE	N	●	●	●	1.500	0.748	0.500	-
	LNMN 6688PN-200CE		●			1.500	0.748	0.500	-



Steel																				
Stainless																				
Cast iron	●	●	●																	
Non ferrous metals																				
Heat resistant																				
Hard materials	●																			

- Main application
- Extended application
- Stock item

Ordering example: 10 pieces ENGN 451TN-020D CTS3105



B2-B3



E24-E35

Tool upon request

Simplex N

RN.. 2-10

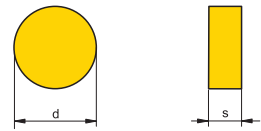


RN..N

d [inch]	Type, description	LNR 	Material						s [inch]	Application			
			TA100	TA120	CTN3105	CTS3105	CTN3110	CTM3110					
0.250	RNGN 23TN-020D	N				●				0.187	-	-	-
0.375	RNMN 32FN		●	●						0.125	-	-	-
0.375	RNMN 32TN-020D		●	●						0.125	-	-	-
0.375	RNGN 33TN-020D					●				0.187	-	-	-
0.500	RNMN 42TN-020D		●	●						0.125	-	-	-
0.500	RNMN 42TN-035D			●						0.125	-	-	-
0.500	RNGN 43PN-150CF						●	●		0.187	-	-	-
0.500	RNMN 43FN		●							0.187	-	-	-
0.500	RNMN 43TN-020D		●							0.187	-	-	-
0.500	RNGN 45PN-100CF					●				0.313	-	-	-
0.500	RNGN 45PN-150CF						●			0.313	-	-	-
0.500	RNGN 45SN-020D				●					0.313	-	-	-
0.500	RNGN 45SN-200C					●				0.313	-	-	-
0.500	RNGN 45TN-020D					●				0.313	-	-	-
0.622	RNGN 55SN-200C					●				0.313	-	-	-
0.622	RNGN 55PN-150CE						●			0.313	-	-	-
0.748	RNGN 65PN-100CF					●				0.313	-	-	-
0.748	RNGN 65TN-020D					●				0.313	-	-	-
1.000	RNMN 83TN-050D		●							0.187	-	-	-
1.000	RNMN 84TN-050D		●							0.250	-	-	-
1.000	RNGN 85PN-100CF				●				0.313	-	-	-	
1.000	RNGN 85PN-200CE					●	●		0.313	-	-	-	
1.000	RNGN 85TN-020D				●				0.313	-	-	-	
1.250	RNGN 106PN-100CF				●				0.375	-	-	-	

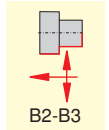


Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non ferrous metals	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hard materials	●	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces RNGN 23TN-020D CTS3105



Tool upon request



C4-C19



C4-C19



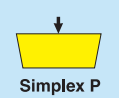
C20-C38



C39-C40



C41-C48



C49-C53



C55-C57



C58

Simplex N

SN.. 3-4



80°



C41



SNUN

55°



C43



SN..N

75°



C44

r [inch]	Type, description	LNR 						l [inch]	d [inch]	s [inch]		
			S40T	CTC3110	TA100	TA120	CTS3105					CTN3110
0.031	SNGN 322SN-025C	N						0.375	0.375	0.125	-	
	SNMN 322FN				●			0.375	0.375	0.125	-	
	SNMN 322TN-020D				●	●			0.375	0.375	0.125	-
0.047	SNMN 323FN					●			0.375	0.375	0.125	-
	SNMN 323TN-020D					●			0.375	0.375	0.125	-
0.063	SNMN 324FN					●			0.375	0.375	0.125	-
	SNMN 324TN-020D					●			0.375	0.375	0.125	-
0.047	SNMN 423FN					●			0.500	0.500	0.125	-
	SNMN 423TN-020D					●			0.500	0.500	0.125	-
0.031	SNGN 432TN-020D						●		0.500	0.500	0.187	-
	SNGN 432SN-015D							●	0.500	0.500	0.187	-
0.016	SNGN 451TN-020D						●		0.500	0.500	0.187	-
	SNGN 433SN-015D							●	0.500	0.500	0.187	-
0.047	SNGN 433TN-020D						●		0.500	0.500	0.187	-
	SNMN 433FN				●				0.500	0.500	0.187	-
	SNMN 433TN-020D				●				0.500	0.500	0.187	-
	SNUN 433EN		●	●					0.500	0.500	0.187	-
0.063	SNGN 433PN-150CF							●	0.500	0.500	0.187	-
	SNGN 454PN-100CF						●		0.500	0.500	0.313	-
	SNGN 454SN-025C							●	0.500	0.500	0.313	-
	SNGN 454SN-200C					●		0.500	0.500	0.313	-	
	SNGN 454TN-020D					●		0.500	0.500	0.313	-	
	SNMN 424FN			●	●			0.500	0.500	0.125	-	
	SNMN 424TN-020D			●	●			0.500	0.500	0.125	-	
	SNMN 434FN			●				0.500	0.500	0.187	-	
	SNMN 434TN-020D			●				0.500	0.500	0.187	-	
	SNUN 434EN			●				0.500	0.500	0.187	-	

90°



C44

0°



C45

90°



C46-C47

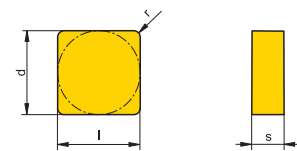
60°



C48

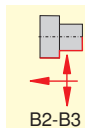


Steel	●	○									
Stainless	●										
Cast iron	●	●	●	●	●	●					
Non ferrous metals	○										
Heat resistant	○										
Hard materials			●	○	●						



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces SNGN 322SN-025C CTN3110



B2-B3



E24-E35

Tool upon request

Simplex N

SNGN 4-8



SN..N



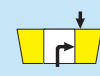
C4-C19



C4-C19



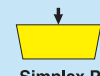
C20-C38



C39-C40



C41-C48



C49-C53



C55-C57

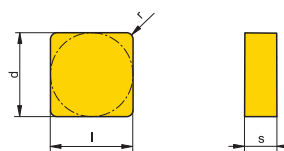


C58

r [inch]	Type, description	L N R	Material								l [inch]	d [inch]	s [inch]	
			CTS3105	CTN3110										
0.063	SNGN 454PN-100CF	N	●								0.500	0.500	0.313	-
	SNGN 454SN-025C		●								0.500	0.500	0.313	-
	SNGN 454SN-200C		●								0.500	0.500	0.313	-
	SNGN 454TN-020D		●								0.500	0.500	0.313	-
0.079	SNGN 455PN-100CF		●								0.500	0.500	0.313	-
	SNGN 455PN-150CF		●								0.500	0.500	0.313	-
	SNGN 455SN-200C		●								0.500	0.500	0.313	-
0.118	SNGN 457.5PN-028C		●								0.500	0.500	0.313	-
0.047	SNGN 553TN-020D		●								0.622	0.622	0.313	-
0.063	SNGN 554PN-150CF		●								0.622	0.622	0.313	-
0.079	SNGN 555SN-200C		●								0.622	0.622	0.313	-
0.063	SNGN 654SN-025E		●								0.748	0.748	0.313	-
	SNGN 654TN-020D		●								0.748	0.748	0.313	-
	SNGN 654PN-150CF		●								0.748	0.748	0.313	-
	SNGN 655PN-100CF		●								0.748	0.748	0.313	-
0.079	SNGN 655SN-200C		●								0.748	0.748	0.313	-
	SNGN 655TN-020D		●								0.748	0.748	0.313	-
	SNGN 856PN-100CF		●								1.000	1.000	0.313	-
0.094	SNGN 856PN-150CE		●								1.000	1.000	0.313	-
	SNGN 856PN-200CE	●								1.000	1.000	0.313	-	
	SNGN 856SN-050C	●								1.000	1.000	0.313	-	
	SNGN 856SN-200C	●								1.000	1.000	0.313	-	
	SNGN 866PN-100CF	●								1.000	1.000	0.375	-	
	SNGN 866SN-200C	●								1.000	1.000	0.375	-	
	SNGN 866TN-020D	●								1.000	1.000	0.375	-	
	SNGN 866PN-150CE	●								1.000	1.000	0.375	-	
	SNGN 866SN-030E	●								1.000	1.000	0.375	-	

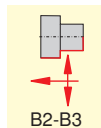


Steel									
Stainless									
Cast iron	●	●							
Non ferrous metals									
Heat resistant									
Hard materials	●								



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces SNGN 454PN-100CF CTS3105



Tool upon request

C47

Simplex N

TN.. 2-4



80°



C41



TNUN

55°



C43



TN..N

75°



C44

r [inch]	Type, description	LNR 	CTC3110				CTC3105				l [inch]	d [inch]	s [inch]	
			TA100	TA120	CTS3105									
0.016	TNMN 221FN	N	●							0.433	0.250	0.125	-	
	TNMN 221TN-020D		●	●						0.433	0.250	0.125	-	
0.031	TNGN 222TN-020D					●				0.433	0.250	0.125	-	
	TNMN 222FN		●	●						0.433	0.250	0.125	-	
0.047	TNMN 223TN-020D			●						0.433	0.250	0.125	-	
	TNGN 332TN-020D					●				0.650	0.375	0.187	-	
0.047	TNUN 333EN		●							0.650	0.375	0.187	-	
0.063	TNUN 334EN		●							0.650	0.375	0.187	-	
0.031	TNGN 432TN-020D					●				0.866	0.500	0.187	-	

90°



C44

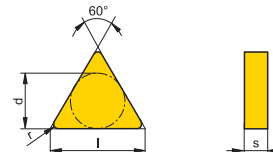


0°



C45

Steel	○												
Stainless													
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●
Non ferrous metals													
Heat resistant													
Hard materials		●	○	●									



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces TNMN 221FN TA100

60°

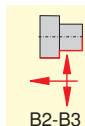


C48

55°



C49



B2-B3



E24-E35

Tool upon request

Simplex P KNUX 16



-11

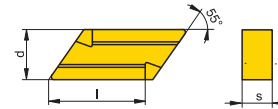


-12

r [inch]	Type, description	L N R	S40T	CTC3110	CTC1125	CTC1135					l [inch]	d [inch]	s [inch]		
0.020	KNUX 160405ER-11	R	●	●	●	●						0.630	0.375	0.187	-
	KNUX 160405ER-12					●							0.630	0.375	0.187
	KNUX 160405EL-11	L		●	●	●						0.630	0.375	0.187	-
	KNUX 160405EL-12					●							0.630	0.375	0.187
0.039	KNUX 160410ER-11	R			●	●						0.630	0.375	0.187	-
	KNUX 160410ER-12					●							0.630	0.375	0.187
	KNUX 160410EL-11	L				●						0.630	0.375	0.187	-
	KNUX 160410EL-12					●							0.630	0.375	0.187

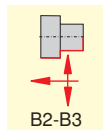


Steel	●	○	●	●											
Stainless	●		○	○											
Cast iron		●	○												
Non ferrous metals	○														
Heat resistant	○			○											
Hard materials															



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces KNUX 160405ER-11 CTC1125



Tool upon request



C4-C19



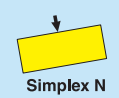
C4-C19



C20-C38



C39-C40



C41-C48



C49-C53



C55-C57



C58

55°



C49

0°



C51

90°



C52

60°



C53



C50

Simplex P

RCGX 0.7-25

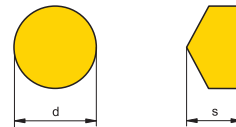


RC..X

d [inch]	Type, description	L N R	CTS3105	CTN3110								s [inch]			
0.276	RCGX 070400SN-050C		●									0.187	-	-	-
0.375	RCGX 090700PN-075CF			●								0.315	-	-	-
0.375	RCGX 090700PN-100CF		●									0.315	-	-	-
0.375	RCGX 090700SN-200C		●									0.315	-	-	-
0.375	RCGX 090700TN-020D		●									0.315	-	-	-
0.500	RCGX 120700PN-100CF			●								0.315	-	-	-
0.500	RCGX 120700PN-150CF			●								0.315	-	-	-
0.500	RCGX 120700SN-200C		●									0.315	-	-	-
0.500	RCGX 120700TN-020D		●									0.315	-	-	-
0.622	RCGX 151000PN-100CF	N	●									0.394	-	-	-
0.622	RCGX 151000PN-150CF			●								0.394	-	-	-
0.622	RCGX 151000SN-200C		●									0.394	-	-	-
0.750	RCGX 191000PN-100CF		●									0.394	-	-	-
0.750	RCGX 191000SN-200C		●									0.394	-	-	-
0.750	RCGX 191000PN-200CF			●								0.394	-	-	-
1.000	RCGX 251200PN-100CF		●									0.472	-	-	-
1.000	RCGX 251200PN-200CE		●									0.472	-	-	-
1.000	RCGX 251200PN-200CF			●								0.472	-	-	-
1.000	RCGX 251200SN-200C		●									0.472	-	-	-

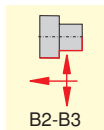


Steel															
Stainless															
Cast iron	●	●													
Non ferrous metals															
Heat resistant															
Hard materials	●														



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces RCGX 070400SN-050C CTS3105



Tool upon request



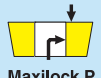
C4-C19



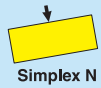
C4-C19



C20-C38



C39-C40



C41-C48



C49-C53



C55-C57



C58

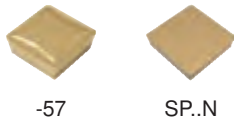
C51

Simplex P

SP.. 3-4



55°



C49

0°



C51

90°



C52

60°

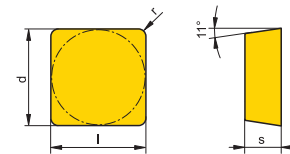


C53

r [inch]	Type, description	LNR 						I [inch]	d [inch]	s [inch]	
			H10T	S40T	CTC3110	CTC1125	CTC1135				
0.016	SPMR 321EN	N					●	0.375	0.375	0.125	-
0.031	SPMR 322EN-57						●	0.375	0.375	0.125	-
0.016	SPMR 421EN						●	0.500	0.500	0.125	-
0.031	SPMR 422EN	R			●	●		0.500	0.500	0.125	-
	SPMR 422ER					●		0.500	0.500	0.125	-
	SPUN 422FN		N	●					0.500	0.500	0.125
SPUN 422EN		●			●		0.500	0.500	0.125	-	
0.047	SPUN 423EN		●					0.500	0.500	0.125	-



	Steel	Stainless	Cast iron	Non ferrous metals	Heat resistant	Hard materials
Steel	●	○	○	○	○	○
Stainless	○	○	○	○	○	○
Cast iron	○	○	○	○	○	○
Non ferrous metals	○	○	○	○	○	○
Heat resistant	○	○	○	○	○	○
Hard materials	○	○	○	○	○	○



- Main application
- Extended application
- Stock item

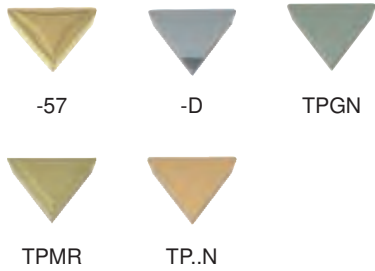
Ordering example: 10 pieces SPMR 321EN CTC1135



Tool upon request

Simplex P

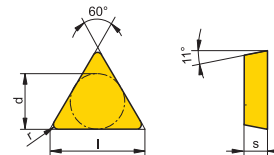
TP.. 2-4



r [inch]	Type, description	L N R	Material							l [inch]	d [inch]	s [inch]	
			H10T	S26T	S40T	CTC3110	CTC1125	CTC1135	CTD4110				
0.016	TPMR 221ER	R								0.433	0.250	0.125	-
	TPMR 221EN						●	●		0.433	0.250	0.125	-
	TPUN 221EN	N						●		0.433	0.250	0.125	-
	TPUN 221FN		●							0.433	0.250	0.125	-
0.031	TPMR 221EL	L						●		0.433	0.250	0.125	-
	TPMR 222EN	N					●		●	0.433	0.250	0.125	-
0.016	TPMR 321ER	R							●	0.650	0.375	0.125	-
	TPGN 321TN-020D									0.650	0.375	0.125	-
	TPMR 321EN	N					●	●		0.650	0.375	0.125	-
	TPUN 321FN		●							0.650	0.375	0.125	-
0.031	TPMR 321EL	L			●			●		0.650	0.375	0.125	-
	TPMR 322EL						●	●	●	0.650	0.375	0.125	-
	TPMR 322EN	N					●	●	●	0.650	0.375	0.125	-
	TPMR 322EN-57								●	0.650	0.375	0.125	-
0.047	TPMR 322ER	R							●	0.650	0.375	0.125	-
	TPUN 322EN			●	●		●	●		0.650	0.375	0.125	-
	TPUN 322FN		●							0.650	0.375	0.125	-
0.031	TPUN 323EN	N							●	0.650	0.375	0.125	-
0.047	TPUN 432EN								●	0.866	0.500	0.187	-
0.047	TPUN 433EN								●	0.866	0.500	0.187	-

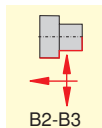


	Steel	Stainless	Cast iron	Non ferrous metals	Heat resistant	Hard materials
Steel	●	●	●	●	●	●
Stainless	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●
Non ferrous metals	●	●	●	●	●	●
Heat resistant	●	●	●	●	●	●
Hard materials						●



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces TPMR 221ER CTC1135



Tool upon request



C4-C19



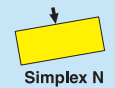
C4-C19



C20-C38



C39-C40



C41-C48



C49-C53



C55-C57



C58

88°



C55-C57



C54

EcoCut XCET 4



-27P



ER-EL



-27Q



-M50Q

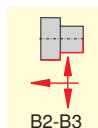
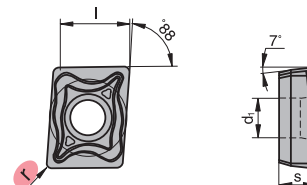
r [inch]	Type, description	L N R						l [inch]	d [inch]	s [inch]	d ₁ [inch]
			H210T	H216T	CTC-1425	CTC-1435	CTP2440				
0.008	XCET 040102FR-27P	R		●				0.157	0.177	0.071	0.083
	XCET 040102FR-27Q		●				0.157	0.177	0.071	0.083	
	XCNT 040102ER				●	●	●	0.157	0.177	0.071	0.083
	XCET 040102FL-27P	L		●				0.157	0.177	0.071	0.083
	XCET 040102FL-27Q		●				0.157	0.177	0.071	0.083	
	XCNT 040102EL				●	●	●	0.157	0.177	0.071	0.083
0.016	XCET 040104FR-27P	R		●				0.157	0.177	0.071	0.083
	XCET 040104FR-27Q		●				0.157	0.177	0.071	0.083	
	XCNT 040104ER				●	●	●	0.157	0.177	0.071	0.083
	XCNT 040104ER-M50Q					●		0.157	0.177	0.071	0.083
	XCET 040104FL-27P	L		●				0.157	0.177	0.071	0.083
	XCET 040104FL-27Q		●				0.157	0.177	0.071	0.083	
	XCNT 040104EL				●	●	●	0.157	0.177	0.071	0.083
	XCNT 040104EL-M50Q					●		0.157	0.177	0.071	0.083



Steel			●	●	●						
Stainless	○		○	○	○						
Cast iron	●	●	●	●	●						
Non ferrous metals	●	●	●	●	○						
Heat resistant	●				○						
Hard materials											

- Main application
- Extended application
- Stock item

Ordering example: 10 pieces XCET 040102FR-27P H216T



C4-C19



C4-C19



C20-C38



C39-C40



C41-C48



C49-C53



C55-C57



C58

C55

EcoCut XCET 5-8



88°



C55-C57



-27P



EN



-27Q

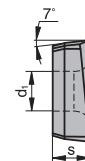
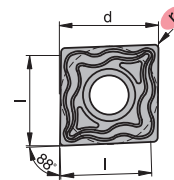


-M50Q

r [inch]	Type, description	LNR 						l [inch]	d [inch]	s [inch]	d ₁ [inch]	
			H210T	H216T	CTC1425	CTC1435	CTP2440					
0.016	XCET 050204FN-27P	N	●					0.197	0.228	0.083	0.089	
	XCET 050204FN-27Q		●					0.197	0.228	0.083	0.089	
	XCNT 050204EN				●	●	●		0.197	0.228	0.083	0.089
	XCNT 050204EN-M50Q					●			0.197	0.228	0.083	0.089
0.008	XCET 060202FN-27P			●					0.236	0.256	0.094	0.098
	XCET 060202FN-27Q		●						0.236	0.256	0.094	0.098
	XCNT 060202EN				●	●	●		0.236	0.256	0.094	0.098
0.016	XCET 060204FN-27P			●					0.236	0.256	0.094	0.098
	XCET 060204FN-27Q		●						0.236	0.256	0.094	0.098
	XCNT 060204EN				●	●	●		0.236	0.256	0.094	0.098
	XCNT 060204EN-M50Q					●			0.236	0.256	0.094	0.098
	XCET 070304FN-27P			●					0.276	0.299	0.125	0.110
	XCET 070304FN-27Q		●						0.276	0.299	0.125	0.110
	XCNT 070304EN				●	●	●		0.276	0.299	0.125	0.110
	XCNT 070304EN-M50Q					●			0.276	0.299	0.125	0.110
	XCET 080304FN-27P			●					0.315	0.335	0.125	0.134
	XCET 080304FN-27Q		●						0.315	0.335	0.125	0.134
	XCNT 080304EN				●	●	●		0.315	0.335	0.125	0.134
XCNT 080304EN-M50Q					●			0.315	0.335	0.125	0.134	

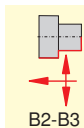


	Steel	Stainless	Cast iron	Non ferrous metals	Heat resistant	Hard materials
Steel	●	●	●	●	●	●
Stainless	○	○	○	○	○	○
Cast iron	○	○	○	○	○	○
Non ferrous metals	○	○	○	○	○	○
Heat resistant	○	○	○	○	○	○
Hard materials	○	○	○	○	○	○



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces XCET 050204FN-27P H216T



B2-B3



E24-E35



D58

EcoCut

XCET 9-17



-27P



EN



-27Q

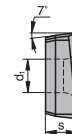
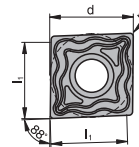


-M50Q

r [inch]	Type, description	LNR						l [inch]	d [inch]	s [inch]	d ₁ [inch]
			H210T	H216T	CTC-1425	CTC-1435	CTP2440				
0.016	XCET 09T304FN-27P	N		●				0.354	0.378	0.156	0.134
	XCET 09T304FN-27Q		●				0.354	0.378	0.156	0.134	
	XCNT 09T304EN				●	●	●	0.354	0.378	0.156	0.134
	XCET 10T304FN-27P		●					0.394	0.417	0.156	0.173
	XCET 10T304FN-27Q		●					0.394	0.417	0.156	0.173
	XCNT 10T304EN				●	●	●	0.394	0.417	0.156	0.173
XCNT 10T304EN-M50Q				●			0.394	0.417	0.156	0.173	
0.031	XCET 10T308FN-27P		●					0.394	0.417	0.156	0.173
	XCET 10T308FN-27Q		●					0.394	0.417	0.156	0.173
	XCNT 10T308EN				●	●	●	0.394	0.417	0.156	0.173
	XCNT 10T308EN-M50Q				●			0.394	0.417	0.156	0.173
0.016	XCET 130404FN-27P		●					0.492	0.531	0.187	0.209
	XCET 130404FN-27Q		●					0.492	0.531	0.187	0.209
	XCNT 130404EN				●	●	●	0.492	0.531	0.187	0.209
0.031	XCNT 130404EN-M50Q				●			0.492	0.531	0.187	0.209
	XCET 130408FN-27P		●					0.492	0.531	0.187	0.209
	XCET 130408FN-27Q		●					0.492	0.531	0.187	0.209
	XCNT 130408EN				●	●	●	0.492	0.531	0.187	0.209
	XCNT 130408EN-M50Q			●			0.492	0.531	0.187	0.209	
	XCET 170508FN-27P	●					0.630	0.689	0.219	0.209	
XCET 170508FN-27Q	●					0.630	0.689	0.219	0.209		
0.031	XCNT 170508EN			●	●	●	0.630	0.689	0.219	0.209	
	XCNT 170508EN-M50Q			●			0.630	0.689	0.219	0.209	



Steel	●	●	●	●	●	●	●	●	●	●	●
Stainless	○	○	○	○	○	○	○	○	○	○	○
Cast iron	●	●	●	●	●	●	●	●	●	●	●
Non ferrous metals	●	●	○	○	○	○	○	○	○	○	○
Heat resistant	●	●	○	○	○	○	○	○	○	○	○
Hard materials	○	○	○	○	○	○	○	○	○	○	○



- Main application
- Extended application
- Stock item

Ordering example: 10 pieces XCET 09T304FN-27P H216T



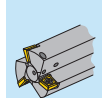
B2-B3



E24-E35



D59



D60



Maxilock D

C4-C19



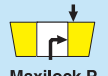
Maxilock N

C4-C19



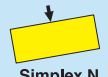
Maxilock S

C20-C38



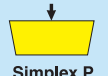
Maxilock P

C39-C40



Simplex N

C41-C48



Simplex P

C49-C53



EcoCut

C55-C57



Profile Master

C58

C57

ProfileMaster

PM 10-32



90°



C58



-M20

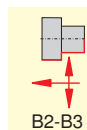
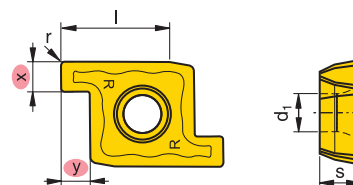
Size	Type, description	L N R	CTC1435	CTP2440			x	y	l	s	d ₁	r
							[inch]	[inch]	[inch]	[inch]	[inch]	[inch]
0.394	PM 10RG 201504-M20	R	●	●			0.079	0.059	0.197	0.083	0.083	0.016
0.394	PM 10LG 201504-M20	L	●	●			0.079	0.059	0.197	0.083	0.083	0.016
0.472	PM 12RG 201804-M20	R	●	●			0.079	0.071	0.236	0.091	0.098	0.016
0.472	PM 12LG 201804-M20	L	●	●			0.079	0.071	0.236	0.091	0.098	0.016
0.630	PM 16RG 252004-M20	R	●	●			0.098	0.079	0.315	0.110	0.134	0.016
0.630	PM 16LG 252004-M20	L	●	●			0.098	0.079	0.315	0.110	0.134	0.016
0.787	PM 20RG 302504-M20	R	●	●			0.118	0.098	0.394	0.150	0.161	0.016
0.787	PM 20LG 302504-M20	L	●	●			0.118	0.098	0.394	0.150	0.161	0.016
0.984	PM 25RG 353004-M20	R	●	●			0.138	0.118	0.492	0.177	0.173	0.016
0.984	PM 25LG 353004-M20	L	●	●			0.138	0.118	0.492	0.177	0.173	0.016
1.260	PM 32RG 404004-M20	R	●	●			0.157	0.157	0.630	0.217	0.236	0.016
1.260	PM 32LG 404004-M20	L	●	●			0.157	0.157	0.630	0.217	0.236	0.016

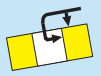


Steel	●	●	●	●
Stainless	○	●	●	●
Cast iron	○	○	○	○
Non ferrous metals	○	○	○	○
Heat resistant	○	○	○	○
Hard materials	○	○	○	○

- Main application
- Extended application
- Stock item

Ordering example: 10 pieces PM 10RG 201504-M20 CTP2440





Maxilock D

C4-C19



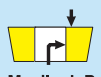
Maxilock N

C4-C19



Maxilock S

C20-C38



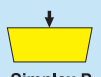
Maxilock P

C39-C40



Simplex N

C41-C48



Simplex P

C49-C53



EcoCut

C55-C57



Profile Master

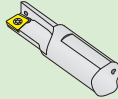

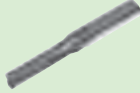
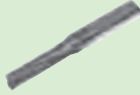

C58

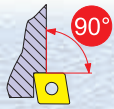
C59



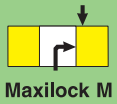
Tools Overview



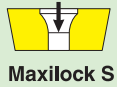
 External machining	 Innternal machining	 EcoCut Mini	 EcoCut	 ProfileMaster
 Maxilock M D2-D24	 Maxilock M D40-D47	$\varnothing .157 - .236$  D55	$EC \varnothing .315 - .630$  D58	$\varnothing .394 - 1.260$  D61
 Maxilock S D26-D39	 Maxilock S D48-D54	$\varnothing .276 - .315$  D56	$EC \varnothing .709 - 1.260$  D59	
			$ECR \varnothing 1.574 - 2.362$  D60	



MaxiLock M - external MCFNR/L

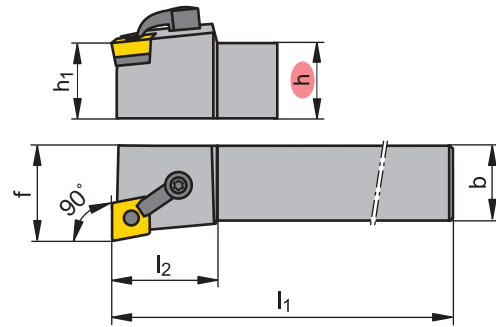
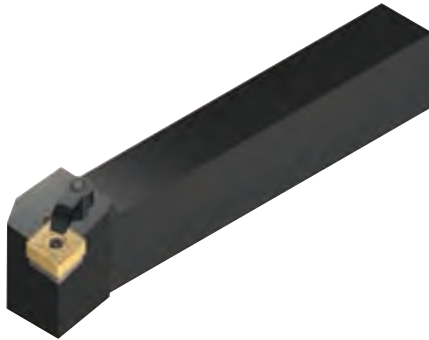


D2-D24



D26-D39

MCFN...

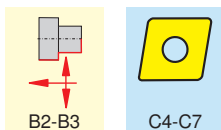


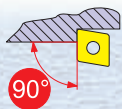
Picture shows right-hand version

h [inch]	Type, description	L N R 	h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]		
0.750	MCFNR-12-4B	R	0.750	0.750	4.5	1.120	1.000	CN.. 4..	
	MCFNR 16-4D		1.000	1.000	6.0	1.120	1.250	CN.. 4..	
1.000	MCFNR 16-5D		1.000	1.000	6.0	1.250	1.250	CN.. 5..	
	MCFNR 16-6D		1.000	1.000	6.0	1.310	1.250	CN.. 6..	
1.250	MCFNR 85-4D		1.250	1.000	6.0	1.120	1.250	CN.. 4..	
	MCFNR 20-4D		1.250	1.250	6.0	1.120	1.500	CN.. 4..	
	MCFNR 20-5D		1.250	1.250	6.0	1.250	1.500	CN.. 5..	
1.500	MCFNR 20-6D		1.250	1.250	6.0	1.310	1.500	CN.. 6..	
	MCFNR 24-5D		1.500	1.500	6.0	1.250	2.000	CN.. 5..	
0.750	MCFNL 12-4B		L	0.750	0.750	4.5	1.120	1.000	CN.. 4..
	MCFNL 16-4D			1.000	1.000	6.0	1.120	1.250	CN.. 4..
1.000	MCFNL 16-5D			1.000	1.000	6.0	1.250	1.250	CN.. 5..
	MCFNL 16-6D	1.000		1.000	6.0	1.310	1.250	CN.. 6..	
1.250	MCFNL 85-4D	1.250		1.000	6.0	1.120	1.250	CN.. 4..	
	MCFNL 20-4D	1.250		1.250	6.0	1.120	1.500	CN.. 4..	
	MCFNL 20-5D	1.250		1.250	6.0	1.250	1.500	CN.. 5..	
1.500	MCFNL 20-6D	1.250		1.250	6.0	1.310	1.500	CN.. 6..	
	MCFNL 24-5D	1.500		1.500	6.0	1.250	2.000	CN.. 5..	
0.750	MCFNL 24-6D	1.500		1.500	6.0	1.250	2.000	CN.. 6..	

Ordering example: 1 piece MCFNR-12-4B

	h [inch]							
CN.. 4..	0.750 - 1.250	ICSN-432	NL-46	CL-20	XNS-48	S-46	5124	5103
CN.. 5..	1.000 - 1.500	ICSN-533	NL-58	CL-12	XNS-510	S-58	5104	5103
CN.. 6..	1.000 - 1.500	ICSN-633	NL-68	CL-12	XNS-510	S-68	5104	5135

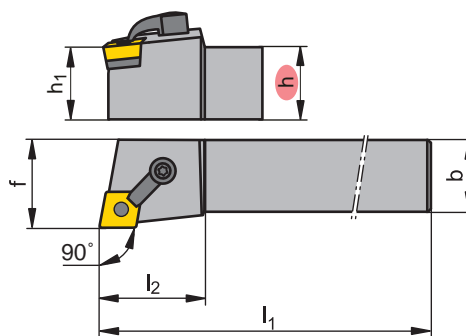
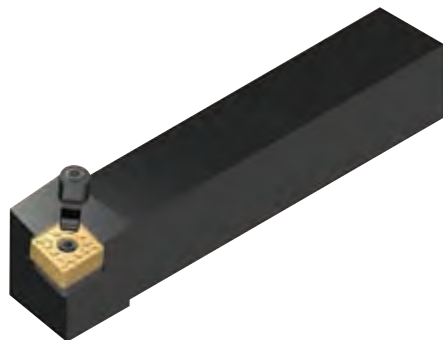




MaxiLock M - external MCGNR/L



MCGN...

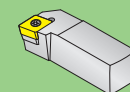
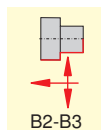


Picture shows right-hand version

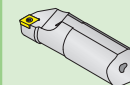
h [inch]	Type, description	LNR 							
			h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]		
0.750	MCGNR 12-4B	R	0.750	0.750	4.5	1.120	1.000	CN.. 4..	
1.000	MCGNR 16-4D		1.000	1.000	6.0	1.120	1.250	CN.. 4..	
	MCGNR 16-5D		1.000	1.000	6.0	1.500	1.250	CN.. 5..	
1.250	MCGNR 85-4D		1.250	1.000	6.0	1.250	1.250	CN.. 4..	
	MCGNR 20-4D		1.250	1.250	6.0	1.120	1.500	CN.. 4..	
	MCGNR 20-5D		1.250	1.250	6.0	1.500	1.500	CN.. 5..	
	MCGNR 20-6D		1.250	1.250	6.0	1.650	1.500	CN.. 6..	
1.500	MCGNR 24-4D		1.500	1.500	6.0	1.250	2.000	CN.. 4..	
	MCGNR 24-5D		1.500	1.500	6.0	1.500	2.000	CN.. 5..	
	MCGNR 24-6D		1.500	1.500	6.0	1.650	2.000	CN.. 6..	
1.250	MCGNL 20-5D		L	1.250	1.250	6.0	1.500	1.500	CN.. 5..
0.750	MCGNL 12-4B			0.750	0.750	4.5	1.120	1.000	CN.. 4..
1.000	MCGNL 16-4D			1.000	1.000	6.0	1.120	1.250	CN.. 4..
1.250	MCGNL 85-4D			1.250	1.000	6.0	1.250	1.250	CN.. 4..
1.500	MCGNL 24-5D			1.500	1.500	6.0	1.500	2.000	CN.. 5..
	MCGNL 24-4D			1.500	1.500	6.0	1.250	2.000	CN.. 4..
1.000	MCGNL 16-5D			1.000	1.000	6.0	1.500	1.250	CN.. 5..
1.250	MCGNL 20-6D			1.250	1.250	6.0	1.650	1.500	CN.. 6..
1.500	MCGNL 24-6D	1.500		1.500	6.0	1.650	2.000	CN.. 6..	
1.250	MCGNL 20-4D	1.250		1.250	6.0	1.120	1.500	CN.. 4..	

Ordering example: 1 piece MCGNR 12-4B

	h [inch]								
CN.. 4..	0.750 - 1.500	ICSN-432	NL-46	CL-20	XNS-48	S-46	5124	5103	
CN.. 5..	1.000 - 1.500	ICSN-533	NL-58	CL-12	XNS-510	S-58	5104	5103	
CN.. 6..	1.250 - 1.500	ICSN-633	NL-68	CL-12	XNS-510	S-68	5104	5135	

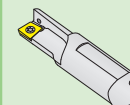


D2-D39



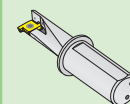
D40-D54

EcoCut

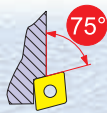


D55-D60

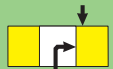
ProfileMaster



D61

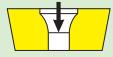


MaxiLock M - external MCKNR/L



Maxilock M

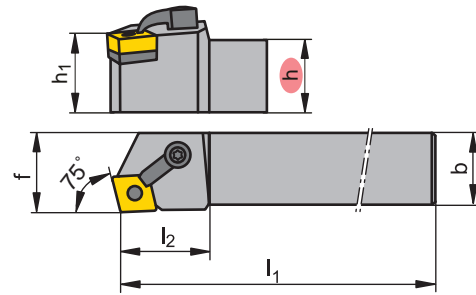
D2-D24



Maxilock S

D26-D39

MCKN...

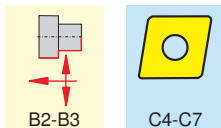


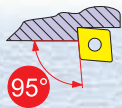
Picture shows right-hand version

h [inch]	Type, description	L N R 	h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]		
0.750	MCKNR 12-4B	R	0.750	0.750	4.5	1.200	1.000	CN.. 4..	
	MCKNR 16-4D		1.000	1.000	6.0	1.200	1.250	CN.. 4..	
1.000	MCKNR 16-5D		1.000	1.000	6.0	1.350	1.250	CN.. 5..	
	MCKNR 16-6D		1.000	1.000	6.0	1.470	1.250	CN.. 6..	
1.250	MCKNR 20-4D		1.250	1.250	6.0	1.200	1.500	CN.. 4..	
	MCKNR 20-5D		1.250	1.250	6.0	1.350	1.500	CN.. 5..	
1.500	MCKNR 20-6D		1.250	1.250	6.0	1.470	1.500	CN.. 6..	
	MCKNR 24-6D		1.500	1.500	6.0	1.470	2.000	CN.. 6..	
0.750	MCKNL 12-4B		L	0.750	0.750	4.5	1.200	1.000	CN.. 4..
	MCKNL 16-4D			1.000	1.000	6.0	1.200	1.250	CN.. 4..
1.000	MCKNL 16-5D			1.000	1.000	6.0	1.350	1.250	CN.. 5..
	MCKNL 16-6D			1.000	1.000	6.0	1.470	1.250	CN.. 6..
1.250	MCKNL 20-4D	1.250		1.250	6.0	1.200	1.500	CN.. 4..	
	MCKNL 20-5D	1.250		1.250	6.0	1.350	1.500	CN.. 5..	
1.500	MCKNL 20-6D	1.250		1.250	6.0	1.470	1.500	CN.. 6..	
	MCKNL 24-6D	1.500		1.500	6.0	1.470	2.000	CN.. 6..	

Ordering example: 1 piece MCKNR 12-4B

	h [inch]								
CN.. 4..	0.750 - 1.250	ICSN-432	NL-46	CL-20	XNS-48	S-46	5124	5103	
CN.. 5..	1.000 - 1.250	ICSN-533	NL-58	CL-12	XNS-510	S-58	5104	5103	
CN.. 6..	1.000 - 1.500	ICSN-633	NL-68	CL-12	XNS-510	S-68	5104	5135	

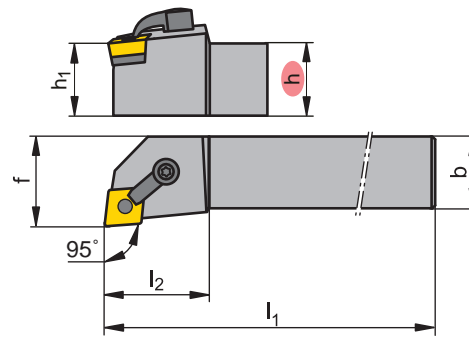




MaxiLock M - external MCLNR/L



MCLN...

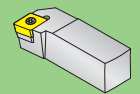
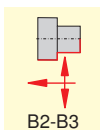


Picture shows right-hand version

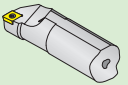
h [inch]	Type, description	LNR 							
			h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]		
0.750	MCLNR 12-4B	R	0.750	0.750	4.5	1.130	1.000	CN.. 4..	
	MCLNR 16-4D		1.000	1.000	6.0	1.130	1.250	CN.. 4..	
1.000	MCLNR 16-5D		1.000	1.000	6.0	1.470	1.250	CN.. 5..	
	MCLNR 16-6D		1.000	1.000	6.0	1.510	1.250	CN.. 6..	
1.250	MCLNR 85-4D		1.250	1.000	6.0	1.130	1.250	CN.. 4..	
	MCLNR 20-4D		1.250	1.250	6.0	1.130	1.500	CN.. 4..	
	MCLNR 20-5D		1.250	1.250	6.0	1.470	1.500	CN.. 5..	
	MCLNR 20-6D		1.250	1.250	6.0	1.510	1.500	CN.. 6..	
1.500	MCLNR 85-6D		1.250	1.000	6.0	1.510	1.250	CN.. 6..	
	MCLNR 24-5D		1.500	1.500	6.0	1.470	2.000	CN.. 5..	
1.500	MCLNR 24-6D		1.500	1.500	6.0	1.510	2.000	CN.. 6..	
	MCLNR 86-6E		1.500	1.000	7.0	1.510	1.250	CN.. 6..	
0.750	MCLNL 12-4B		L	0.750	0.750	4.5	1.130	1.000	CN.. 4..
1.000	MCLNL 16-4D			1.000	1.000	6.0	1.130	1.250	CN.. 4..
	MCLNL 16-5D			1.000	1.000	6.0	1.470	1.250	CN.. 5..
	MCLNL 16-6D			1.000	1.000	6.0	1.510	1.250	CN.. 6..
1.250	MCLNL 85-4D	1.250		1.000	6.0	1.130	1.250	CN.. 4..	
	MCLNL 20-4D	1.250		1.250	6.0	1.130	1.500	CN.. 4..	
	MCLNL 20-5D	1.250		1.250	6.0	1.470	1.500	CN.. 5..	
	MCLNL 20-6D	1.250		1.250	6.0	1.510	1.500	CN.. 6..	
1.500	MCLNL 85-6D	1.250		1.000	6.0	1.510	1.250	CN.. 6..	
	MCLNL 24-5D	1.500		1.250	6.0	1.470	2.000	CN.. 5..	
1.500	MCLNL 24-6D	1.500		1.500	6.0	1.510	2.000	CN.. 6..	
	MCLNL 86-6E	1.500		1.000	7.0	1.510	1.250	CN.. 6..	

Ordering example: 1 piece MCLNR 12-4B

	h [inch]								
CN.. 4..	0.750 - 1.250	ICSN-432	NL-46	CL-20	XNS-48	S-46	5124	5103	
CN.. 5..	1.000 - 1.500	ICSN-533	NL-58	CL-12	XNS-510	S-58	5104	5103	
CN.. 6..	1.000 - 1.500	ICSN-633	NL-68	CL-12	XNS-510	S-68	5104	5135	

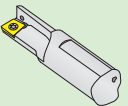


D2-D39



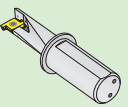
D40-D54

EcoCut



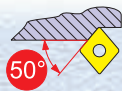
D55-D60

ProfileMaster

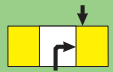


D61

D5

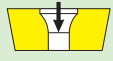


MaxiLock M - external MCMNN



Maxilock M

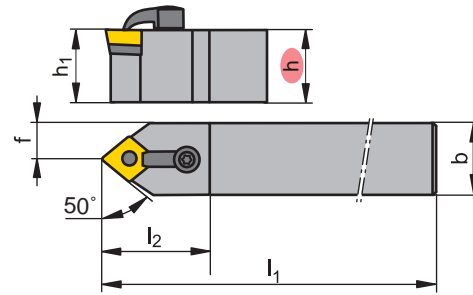
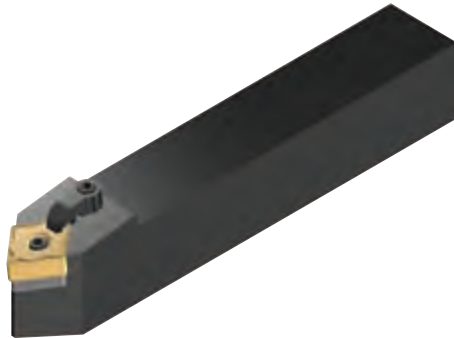
D2-D24



Maxilock S

D26-D39

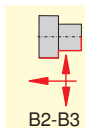
MCMN...



h [inch]	Type, description	LNR 	h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.750	MCMNN 12-4B	N	0.750	0.750	4.5	1.280	0.375	CN.. 4..
1.000	MCMNN 16-4D		1.000	1.000	6.0	1.280	0.500	CN.. 4..
	MCMNN 16-5C		1.000	1.000	5.0	1.610	0.500	CN.. 5..
1.250	MCMNN 85-4D		1.250	1.000	6.0	1.280	0.625	CN.. 4..
	MCMNN 20-4D		1.250	1.250	6.0	1.390	0.625	CN.. 4..
	MCMNN 20-5D		1.250	1.250	6.0	1.610	0.625	CN.. 5..
1.500	MCMNN 24-5D		1.500	1.500	6.0	1.610	0.750	CN.. 5..
	MCMNN 24-6D		1.500	1.500	6.0	1.670	0.750	CN.. 6..

Ordering example: 1 piece MCMNN 12-4B

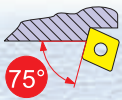
	h [inch]								
CN.. 4..	0.750 - 1.250	ICSN-432	NL-46	CL-20	XNS-48	S-46	5124	5103	
CN.. 5..	1.000 - 1.500	ICSN-533	NL-58	CL-12	XNS-510	S-58	5104	5103	
CN.. 6..	1.500	ICSN-633	NL-68	CL-12	XNS-510	S-68	5104	5135	



B2-B3



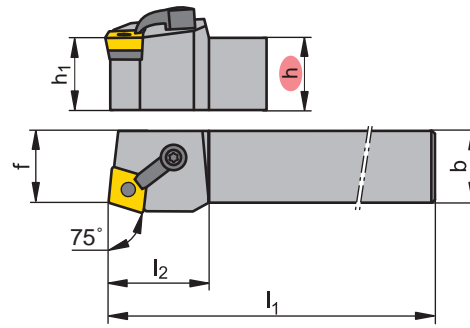
C4-C7



MaxiLock M - external MCRNR/L



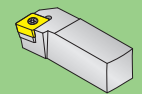
MCRN...



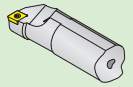
Picture shows right-hand version

h [inch]	Type, description	LNR 						
			h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.750	MCRNR 12-4B	R	0.750	0.750	4.5	1.180	0.878	CN.. 4..
1.000	MCRNR 16-4D		1.000	1.000	6.0	1.180	1.128	CN.. 4..
	MCRNR 16-5D		1.000	1.000	6.0	1.101	1.101	CN.. 5..
1.250	MCRNR 20-4D		1.250	1.250	6.0	1.180	1.318	CN.. 4..
	MCRNR 20-5D		1.250	1.250	6.0	1.351	1.351	CN.. 5..
1.500	MCRNR 20-6D		1.250	1.250	6.0	1.318	1.318	CN.. 6..
1.500	MCRNR 24-6D	1.500	1.500	6.0	1.818	1.818	CN.. 6..	
0.750	MCRNL 12-4B	L	0.750	0.750	4.5	1.180	0.878	CN.. 4..
1.000	MCRNL 16-4D		1.000	1.000	6.0	1.180	1.128	CN.. 4..
	MCRNL 16-5D		1.000	1.000	6.0	1.101	1.101	CN.. 5..
1.250	MCRNL 20-4D		1.250	1.250	6.0	1.180	1.318	CN.. 4..
	MCRNL 20-5D		1.250	1.250	6.0	1.351	1.351	CN.. 5..
1.500	MCRNL 20-6D		1.250	1.250	6.0	1.318	1.318	CN.. 6..
1.500	MCRNL 24-6D	1.500	1.500	6.0	1.818	1.818	CN.. 6..	

Ordering example: 1 piece MCRNR 12-4B

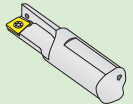


D2-D39



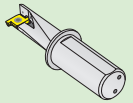
D40-D54

EcoCut



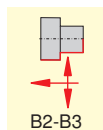
D55-D60

ProfileMaster

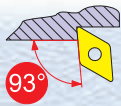


D61

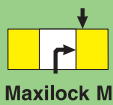
	h [inch]							
CN.. 4..	0.750 - 1.250	ICSN-432	NL-46	CL-20	XNS-48	S-46	5124	5103
CN.. 5..	1.000 - 1.250	ICSN-533	NL-58	CL-12	XNS-510	S-58	5104	5103
CN.. 6..	1.250 - 1.500	ICSN-633	NL-68	CL-12	XNS-510	S-68	5104	5135



D7



MaxiLock M - external MDJNR/L

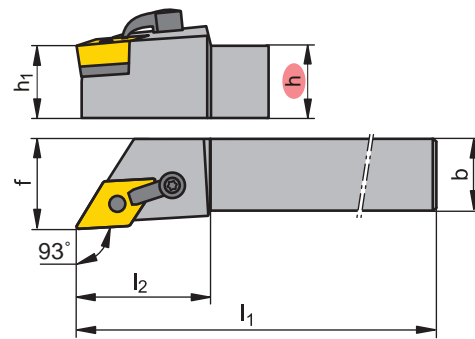


D2-D24



D26-D39

MDJN...

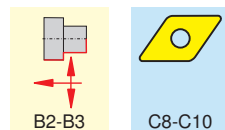


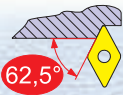
Picture shows right-hand version

h [inch]	Type, description	L N R 							
			h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]		
0.750	MDJNR 12-4B	R	0.750	0.750	4.5	1.500	1.000	DN.. 4..	
1.000	MDJNR 16-4D		1.000	1.000	6.0	1.500	1.250	DN.. 4..	
	MDJNR 16-5D		1.000	1.000	6.0	1.440	1.250	DN.. 5..	
1.250	MDJNR 85-4D		1.250	1.000	6.0	1.500	1.250	DN.. 4..	
	MDJNR 20-4D		1.250	1.250	6.0	1.500	1.500	DN.. 4..	
	MDJNR 20-5D		1.250	1.250	6.0	1.440	1.500	DN.. 5..	
1.500	MDJNR 85-5D		1.250	1.000	6.0	1.440	1.250	DN.. 5..	
	MDJNR 24-4D		1.500	1.500	6.0	1.500	2.000	DN.. 4..	
0.750	MDJNR 24-5D		1.500	1.500	6.0	1.440	2.000	DN.. 5..	
	MDJNL 12-4B		L	0.750	0.750	4.5	1.500	1.000	DN.. 4..
1.000	MDJNL 16-4D			1.000	1.000	6.0	1.500	1.250	DN.. 4..
	MDJNL 16-5D			1.000	1.000	6.0	1.440	1.250	DN.. 5..
1.250	MDJNL 85-4D	1.250		1.000	6.0	1.500	1.250	DN.. 4..	
	MDJNL 20-4D	1.250		1.250	6.0	1.500	1.500	DN.. 4..	
	MDJNL 20-5D	1.250		1.250	6.0	1.440	1.500	DN.. 5..	
1.500	MDJNL 85-5D	1.250		1.000	6.0	1.440	1.250	DN.. 5..	
	MDJNL 24-4D	1.500		1.500	6.0	1.500	2.000	DN.. 4..	
1.500	MDJNL 24-5D	1.500		1.500	6.0	1.440	2.000	DN.. 5..	

Ordering example: 1 piece MDJNR 12-4B

	h [inch]								
DN.. 4..	0.750 - 1.500	IDSN-432	NL-46	CL-20	XNS-48	S-46	5124	5103	
DN.. 5..	1.000 - 1.500	IDSN-533	NL-58	CL-12	XNS-510	S-58	5104	5103	

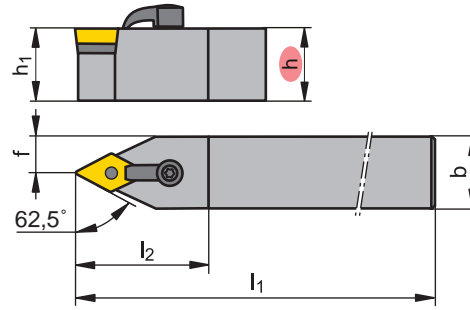




MaxiLock M - external MDPNN

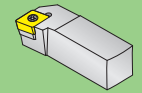


MDPN...

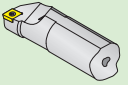


h [inch]	Type, description	LNR 						
			h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.750	MDPNN 12-4B	N	0.750	0.750	4.5	1.620	0.375	DN.. 4..
1.000	MDPNN 16-4D		1.000	1.000	6.0	1.620	0.500	DN.. 4..
	MDPNN 16-5D		1.000	1.000	6.0	1.880	0.500	DN.. 5..
1.250	MDPNN 20-4D		1.250	1.250	6.0	1.620	0.625	DN.. 4..
	MDPNN 20-5D		1.250	1.250	6.0	1.880	0.625	DN.. 5..
	MDPNN 85-5D		1.250	1.000	6.0	1.880	0.625	DN.. 5..
1.500	MDPNN 24-5E		1.500	1.500	7.0	1.880	0.750	DN.. 5..
	MDPNN 86-5D		1.500	1.000	6.0	1.880	0.750	DN.. 5..

Ordering example: 1 piece MDPNN 12-4B

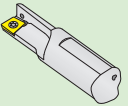


D2-D39



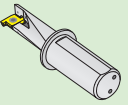
D40-D54

EcoCut



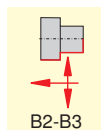
D55-D60

ProfileMaster

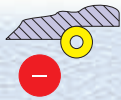


D61

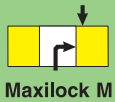
	h [inch]								
DN.. 4..	0.750	IDSN-432	NL-46	CL-22	XNS-48	S-46	5124	5103	
DN.. 4..	1.000 - 1.250	IDSN-432	NL-46	CL-20	XNS-48	S-46	5124	5103	
DN.. 5..	1.000 - 1.500	IDSN-533	NL-58	CL-12	XNS-510	S-58	5104	5103	



D9



MaxiLock M - external MRGNR/L

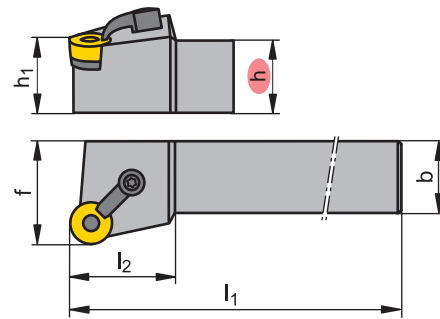


D2-D24



D26-D39

MRGN...

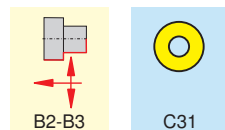


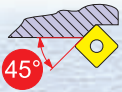
Picture shows right-hand version

h [inch]	Type, description	L N R 	h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.750	MRGNR 12-3B	R	0.750	0.750	4.5	0.810	1.000	RN.. 3..
	MRGNR 12-4B		0.750	0.750	4.5	1.060	1.000	RN.. 4..
1.000	MRGNR 16-4D		1.000	1.000	6.0	1.060	1.250	RN.. 4..
	MRGNR 16-5D		1.000	1.000	6.0	1.250	1.250	RN.. 5..
1.250	MRGNR 16-6D		1.000	1.000	6.0	1.380	1.250	RN.. 6..
	MRGNR 85-4D		1.250	1.000	6.0	1.060	1.250	RN.. 4..
	MRGNR 20-4D		1.250	1.250	6.0	1.060	1.500	RN.. 4..
	MRGNR 20-5D		1.250	1.250	6.0	1.250	1.500	RN.. 5..
1.500	MRGNR 20-6D		1.250	1.250	6.0	1.380	1.500	RN.. 6..
	MRGNR 86-4D		1.500	1.000	6.0	1.060	1.250	RN.. 4..
	MRGNR 24-6D		1.500	1.500	6.0	1.380	2.000	RN.. 6..
0.750	MRGNR 24-8E		1.500	1.500	7.0	1.440	2.000	RN.. 8..
	MRGNL 12-3B	L	0.750	0.750	4.5	0.810	1.000	RN.. 3..
MRGNL 12-4B	0.750		0.750	4.5	1.060	1.000	RN.. 4..	
1.000	MRGNL 16-4D		1.000	1.000	6.0	1.060	1.250	RN.. 4..
	MRGNL 16-5D		1.000	1.000	6.0	1.250	1.250	RN.. 5..
1.250	MRGNL 16-6D		1.000	1.000	6.0	1.380	1.250	RN.. 6..
	MRGNL 85-4D		1.250	1.000	6.0	1.060	1.250	RN.. 4..
	MRGNL 20-4D		1.250	1.250	6.0	1.060	1.500	RN.. 4..
	MRGNL 20-5D		1.250	1.250	6.0	1.250	1.500	RN.. 5..
1.500	MRGNL 20-6D		1.250	1.250	6.0	1.380	1.500	RN.. 6..
	MRGNL 86-4D		1.500	1.000	6.0	1.060	1.250	RN.. 4..
	MRGNL 24-6D		1.500	1.500	6.0	1.380	2.000	RN.. 6..
1.500	MRGNL 24-8E		1.500	1.500	7.0	1.440	2.000	RN.. 8..

Ordering example: 1 piece MRGNR 12-3B

	h [inch]							
RN.. 3..	0.750		NL-33	CL-20	XNS-48		5102	5103
RN.. 4..	0.750 - 1.500	IRSN-43	NL-46	CL-20	XNS-48	S-46	5124	5103
RN.. 5..	1.000 - 1.250	IRSN-53	NL-58	CL-12	XNS-510		5104	5103
RN.. 6..	1.000 - 1.500	IRSN-63	NL-68	CL-12	XNS-510		5104	5135
RN.. 8..	1.500	IRSN-84	NL-810	CL-30	XNS-510		5104	

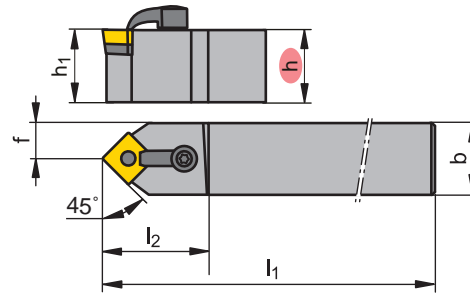




MaxiLock M - external MSDNN



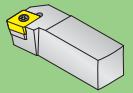
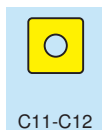
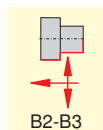
MSDN...



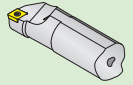
h [inch]	Type, description	LNR 						
			h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.750	MSDNN 12-4B	N 	0.750	0.750	4.5	1.300	0.375	SN.. 4..
	MSDNN 16-4D		1.000	1.000	6.0	1.300	0.500	SN.. 4..
1.000	MSDNN 16-5D		1.000	1.000	6.0	1.500	0.500	SN.. 5..
	MSDNN 16-6D		1.000	1.000	6.0	1.730	0.500	SN.. 6..
1.250	MSDNN 85-4D		1.250	1.000	6.0	1.300	0.625	SN.. 4..
	MSDNN 20-5D		1.250	1.250	6.0	1.500	0.625	SN.. 5..
	MSDNN 85-5D		1.250	1.000	6.0	1.500	0.625	SN.. 5..
	MSDNN 20-6D		1.250	1.250	6.0	1.750	0.625	SN.. 6..
1.500	MSDNN 85-6D		1.250	1.000	6.0	1.750	0.625	SN.. 6..
	MSDNN 24-6E		1.500	1.500	7.0	1.750	0.750	SN.. 6..

Ordering example: 1 piece MSDNN 12-4B

	h [inch]							
SN.. 4..	0.750 - 1.250	ISSN-432	NL-46	CL-20	XNS-48	S-46	5124	5103
SN.. 5..	1.000 - 1.250	ISSN-533	NL-58	CL-12	XNS-510	S-58	5104	5103
SN.. 6..	1.000 - 1.500	ISSN-633	NL-68	CL-12	XNS-510	S-68	5104	5135

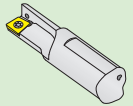


D2-D39



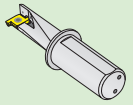
D40-D54

EcoCut



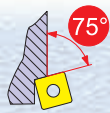
D55-D60

ProfileMaster

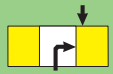


D61

D11

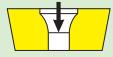


MaxiLock M - external MSKNR/L



Maxilock M

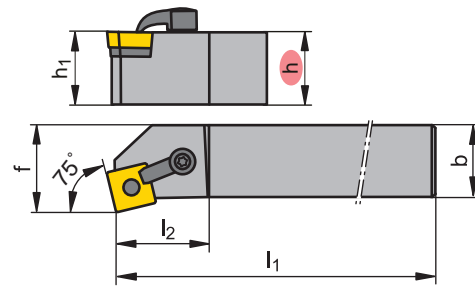
D2-D24



Maxilock S

D26-D39

MSKN...

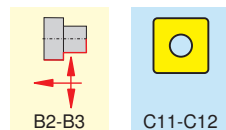


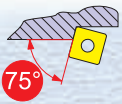
Picture shows right-hand version

h [inch]	Type, description	L N R 	h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.750	MSKNR 12-4B	R	0.750	0.750	4.5	1.220	1.000	SN.. 4..
1.000	MSKNR 16-4D		1.000	1.000	6.0	1.220	1.250	SN.. 4..
	MSKNR 16-5D		1.000	1.000	6.0	1.410	1.250	SN.. 5..
1.250	MSKNR 85-5D		1.250	1.000	6.0	1.410	1.250	SN.. 5..
	MSKNR 20-5D		1.250	1.250	6.0	1.410	1.500	SN.. 5..
	MSKNR 20-6D		1.250	1.250	6.0	1.500	1.500	SN.. 6..
1.500	MSKNR 24-6E	1.500	1.500	7.0	1.500	2.000	SN.. 6..	
0.750	MSKNL 12-4B	L	0.750	0.750	4.5	1.220	1.000	SN.. 4..
1.000	MSKNL 16-4D		1.000	1.000	6.0	1.220	1.250	SN.. 4..
	MSKNL 16-5D		1.000	1.000	6.0	1.410	1.250	SN.. 5..
1.250	MSKNL 85-5D		1.250	1.000	6.0	1.410	1.250	SN.. 5..
	MSKNL 20-5D		1.250	1.250	6.0	1.410	1.500	SN.. 5..
	MSKNL 20-6D		1.250	1.250	6.0	1.500	1.500	SN.. 6..
1.500	MSKNL 24-6E	1.500	1.500	7.0	1.500	2.000	SN.. 6..	

Ordering example: 1 piece MSKNR 12-4B

	h [inch]							
SN.. 4..	0.750 - 1.000	ISSN-432	NL-46	CL-20	XNS-48	S-46	5124	5103
SN.. 5..	1.000 - 1.250	ISSN-533	NL-58	CL-12	XNS-510	S-58	5104	5103
SN.. 6..	1.250 - 1.500	ISSN-633	NL-68	CL-12	XNS-510	S-68	5104	5135

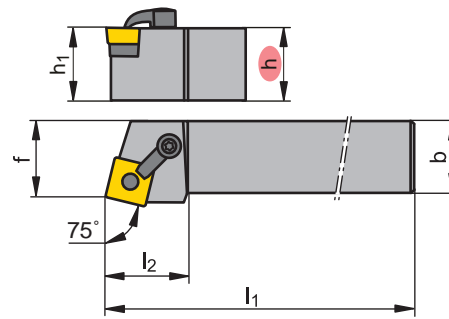




MaxiLock M - external MSRNR/L



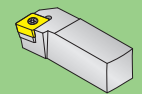
MSRN...



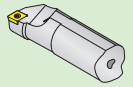
Picture shows right-hand version

h [inch]	Type, description	LNR 						
			h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
1.000	MSRNR 16-4D	R	1.000	1.000	6.0	1.250	1.130	SN.. 4..
	MSRNR 16-5D		1.000	1.000	6.0	1.500	1.103	SN.. 5..
1.250	MSRNR 20-5D		1.250	1.250	6.0	1.500	1.353	SN.. 5..
	MSRNR 20-6D		1.250	1.250	6.0	1.590	1.321	SN.. 6..
1.500	MSRNR 24-6E		1.500	1.500	7.0	1.590	1.821	SN.. 6..
1.000	MSRNL 16-4D		L	1.000	1.000	6.0	1.250	1.130
	MSRNL 16-5D	1.000		1.000	6.0	1.500	1.103	SN.. 5..
1.250	MSRNL 20-5D	1.250		1.250	6.0	1.500	1.353	SN.. 5..
	MSRNL 20-6D	1.250		1.250	6.0	1.590	1.321	SN.. 6..
1.500	MSRNL 24-6E	1.500		1.500	7.0	1.590	1.821	SN.. 6..

Ordering example: 1 piece MSRNR 16-4D

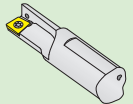


D2-D39



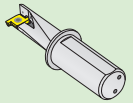
D40-D54

EcoCut



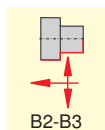
D55-D60

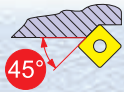
ProfileMaster



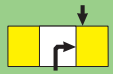
D61

	h [inch]							
SN.. 4..	1.000	ISSN-432	NL-46	CL-20	XNS-48	S-46	5124	5103
SN.. 5..	1.000 - 1.250	ISSN-533	NL-58	CL-12	XNS-510	S-58	5104	5103
SN.. 6..	1.250 - 1.500	ISSN-633	NL-68	CL-12	XNS-510	S-68	5104	5135



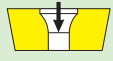


MaxiLock M - external MSSNR/L



Maxilock M

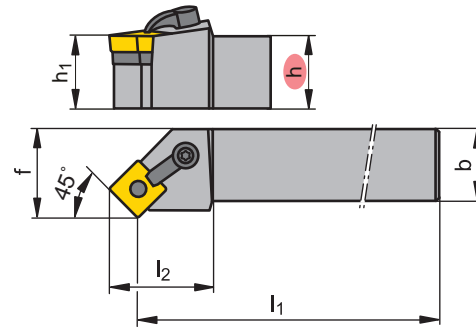
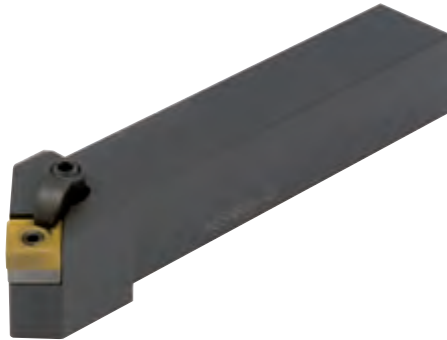
D2-D24



Maxilock S

D26-D39

MSSN...

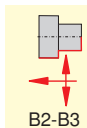


Picture shows right-hand version

h [inch]	Type, description	L N R 	h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.750	MSSNR 12-4B	R	0.750	0.750	4.5	1.230	0.675	SN.. 4..
1.000	MSSNR 16-4D		1.000	1.000	6.0	1.230	0.925	SN.. 4..
	MSSNR 16-5D		1.000	1.000	6.0	1.380	0.847	SN.. 5..
1.250	MSSNR 20-5D		1.250	1.250	6.0	1.380	1.097	SN.. 5..
	MSSNR 20-6D		1.250	1.250	6.0	1.470	1.010	SN.. 6..
1.500	MSSNR 24-6E		1.500	1.500	7.0	1.470	1.511	SN.. 6..
	MSSNR 86-6E	1.500	1.000	7.0	1.470	0.761	SN.. 6..	
0.750	MSSNL 12-4B	L	0.750	0.750	4.5	1.230	0.675	SN.. 4..
1.000	MSSNL 16-4D		1.000	1.000	6.0	1.230	0.925	SN.. 4..
	MSSNL 16-5D		1.000	1.000	6.0	1.380	0.847	SN.. 5..
1.250	MSSNL 20-5D		1.250	1.250	6.0	1.380	1.097	SN.. 5..
	MSSNL 20-6D		1.250	1.250	6.0	1.470	1.010	SN.. 6..
1.500	MSSNL 24-6E		1.500	1.500	7.0	1.470	1.511	SN.. 6..
	MSSNL 86-6E	1.500	1.000	7.0	1.470	0.761	SN.. 6..	

Ordering example: 1 piece MSSNR 12-4B

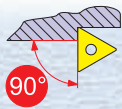
	h [inch]							
SN.. 4..	0.750 - 1.000	ISSN-432	NL-46	CL-20	XNS-48	S-46	5124	5103
SN.. 5..	1.000 - 1.250	ISSN-533	NL-58	CL-12	XNS-510	S-58	5104	5103
SN.. 6..	1.250 - 1.500	ISSN-633	NL-68	CL-12	XNS-510	S-68	5104	5135
SN.. 6..	1.500	ISSN-633	NL-68	CL-12	XNS-510		5104	5135



B2-B3



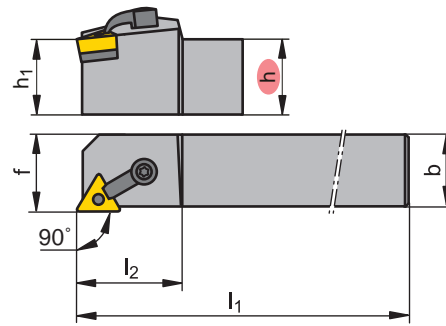
C11-C12



MaxiLock M - external MTANR/L



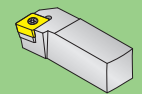
MTAN...



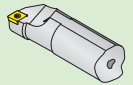
Picture shows right-hand version

h [inch]	Type, description	LNR		h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
		L	R						
0.750	MTANR 12-3B	R		0.750	0.750	4.5	1.060	0.750	TN.. 3..
1.000	MTANR 16-3D			1.000	1.000	6.0	1.060	1.000	TN.. 3..
	MTANR 16-4D			1.000	1.000	6.0	1.220	1.000	TN.. 4..
1.250	MTANR 20-5D			1.250	1.250	6.0	1.430	1.250	TN.. 5..
1.500	MTANR 24-5D		1.500	1.500	6.0	1.430	1.500	TN.. 5..	
0.750	MTANL 12-3B	L		0.750	0.750	4.5	1.060	0.750	TN.. 3..
1.000	MTANL 16-3D			1.000	1.000	6.0	1.060	1.000	TN.. 3..
	MTANL 16-4D			1.000	1.000	6.0	1.220	1.000	TN.. 4..
1.250	MTANL 20-5D			1.250	1.250	6.0	1.430	1.250	TN.. 5..
1.500	MTANL 24-5D		1.500	1.500	6.0	1.430	1.500	TN.. 5..	

Ordering example: 1 piece MTANR 12-3B

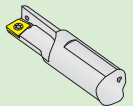


D2-D39



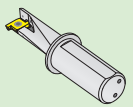
D40-D54

EcoCut



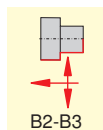
D55-D60

ProfileMaster

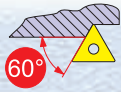


D61

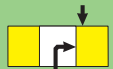
	h [inch]							
TN.. 3..	0.750 - 1.000	ITSN-322	NL-34L	CL-20	XNS-48	S-34	5102	5103
TN.. 4..	1.000	ITSN-432	NL-46	CL-20	XNS-48	S-46	5124	5103
TN.. 5..	1.250 - 1.500	ITSN-533	NL-58	CL-12	XNS-510	S-58	5104	5103



D15

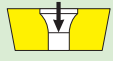


MaxiLock M - external MTENNS



Maxilock M

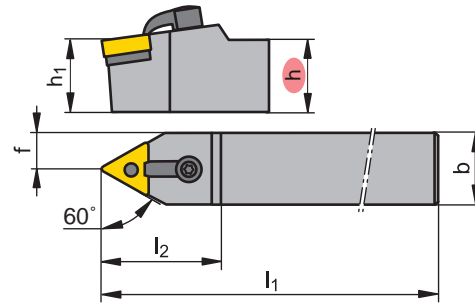
D2-D24



Maxilock S

D26-D39

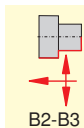
MTEN...



h [inch]	Type, description	LNR 	h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.750	MTENNS 12-3B	N	0.750	0.750	4.5	1.300	0.375	TN.. 3..
1.000	MTENNS 16-3D		1.000	1.000	6.0	1.300	0.500	TN.. 3..
	MTENNS 16-4D		1.000	1.000	6.0	1.500	0.500	TN.. 4..
1.250	MTENNS 20-5D		1.250	1.250	6.0	1.732	0.625	TN.. 5..

Ordering example: 1 piece MTENNS 12-3B

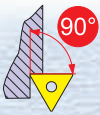
	h [inch]							
TN.. 3..	0.750 - 1.000	ITSN-322	NL-34L	CL-20	XNS-48	S-34	5102	5103
TN.. 4..	1.000	ITSN-432	NL-46	CL-20	XNS-48	S-46	5124	5103
TN.. 5..	1.250	ITSN-533	NL-58	CL-12	XNS-510	S-58	5104	5103



B2-B3



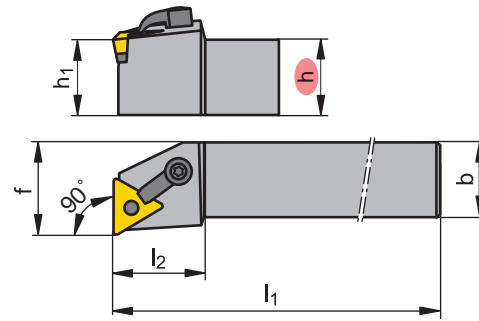
C14-C15



MaxiLock M - external MTFNR/L



MTFN...

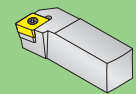
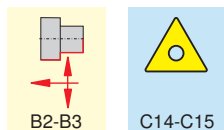


Picture shows right-hand version

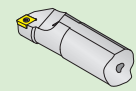
h [inch]	Type, description	LNR 						
			h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.750	MTFNR 12-3B	R	0.750	0.750	4.5	1.000	1.000	TN.. 3..
	MTFNR 16-3D		1.000	1.000	6.0	1.250	1.250	TN.. 3..
	MTFNR 16-4D		1.000	1.000	6.0	1.250	1.250	TN.. 4..
1.000	MTFNR 16-5D		1.000	1.000	6.0	1.250	1.250	TN.. 5..
	MTFNR 85-4D		1.250	1.000	6.0	1.250	1.250	TN.. 4..
	MTFNR 20-4D		1.250	1.250	6.0	1.500	1.500	TN.. 4..
1.250	MTFNR 20-5D		1.250	1.250	6.0	1.500	1.500	TN.. 5..
	MTFNR 85-5D		1.250	1.000	6.0	1.250	1.250	TN.. 5..
	MTFNR 86-4D		1.500	1.000	6.0	1.250	1.250	TN.. 4..
1.500	MTFNR 24-5E		1.500	1.500	7.0	2.000	2.000	TN.. 5..
	MTFNR 86-5D		1.500	1.000	6.0	1.250	1.250	TN.. 5..
	MTFNL 12-3B		L	0.750	0.750	4.5	1.000	1.000
MTFNL 16-3D	1.000	1.000		6.0	1.250	1.250	TN.. 3..	
MTFNL 16-4D	1.000	1.000		6.0	1.250	1.250	TN.. 4..	
MTFNL 16-5D	1.000	1.000		6.0	1.250	1.250	TN.. 5..	
1.250	MTFNL 85-4D	1.250		1.000	6.0	1.250	1.250	TN.. 4..
	MTFNL 20-4D	1.250		1.250	6.0	1.500	1.500	TN.. 4..
	MTFNL 20-5D	1.250		1.250	6.0	1.500	1.500	TN.. 5..
1.500	MTFNL 85-5D	1.250		1.000	6.0	1.250	1.250	TN.. 5..
	MTFNL 86-4D	1.500		1.000	6.0	1.250	1.250	TN.. 4..
	MTFNL 24-5E	1.500		1.500	7.0	2.000	2.000	TN.. 5..
1.500	MTFNL 86-5D	1.500		1.000	6.0	1.250	1.250	TN.. 5..

Ordering example: 1 piece MTFNR 12-3B

	h [inch]							
TN.. 3..	0.750 - 1.000	ITSN-322	NL-34L	CL-20	XNS-48	S-34	5102	5103
TN.. 4..	1.000 - 1.500	ITSN-432	NL-46	CL-20	XNS-48	S-46	5124	5103
TN.. 5..	1.000 - 1.500	ITSN-533	NL-58	CL-12	XNS-510	S-58	5104	5103

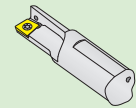


D2-D39



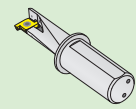
D40-D54

EcoCut



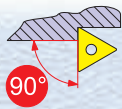
D55-D60

ProfileMaster

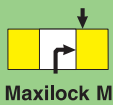


D61

D17



MaxiLock M - external MTGNR/L

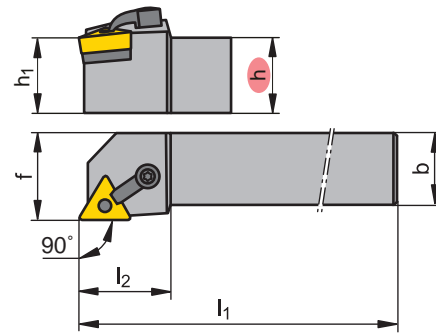


D2-D24



D26-D39

MTGN...

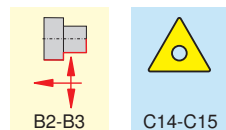


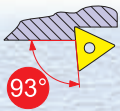
Picture shows right-hand version

h [inch]	Type, description	L N R 						
			h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.750	MTGNR 12-3B	R	0.750	0.750	4.5	1.060	1.000	TN.. 3..
	MTGNR 16-3D		1.000	1.000	6.0	1.060	1.250	TN.. 3..
1.000	MTGNR 16-4D		1.000	1.000	6.0	1.220	1.250	TN.. 4..
	MTGNR 16-5D		1.000	1.000	6.0	1.440	1.250	TN.. 5..
1.250	MTGNR 85-4D		1.250	1.000	6.0	1.220	1.250	TN.. 4..
	MTGNR 20-4D		1.250	1.250	6.0	1.220	1.500	TN.. 4..
	MTGNR 20-5D		1.250	1.250	6.0	1.440	1.500	TN.. 5..
1.500	MTGNR 85-5D		1.250	1.000	6.0	1.440	1.250	TN.. 5..
	MTGNR 86-4D		1.500	1.000	6.0	1.220	1.250	TN.. 4..
	MTGNR 24-5E		1.500	1.500	7.0	1.440	2.000	TN.. 5..
	MTGNR 86-5D		1.500	1.000	6.0	1.440	1.250	TN.. 5..
0.750	MTGNR 24-6E		1.500	1.500	7.0	1.500	2.000	TN.. 6..
	MTGNL 12-3B	L	0.750	0.750	4.5	1.060	1.000	TN.. 3..
1.000	MTGNL 16-3D		1.000	1.000	6.0	1.060	1.250	TN.. 3..
	MTGNL 16-4D		1.000	1.000	6.0	1.220	1.250	TN.. 4..
1.250	MTGNL 16-5D		1.000	1.000	6.0	1.440	1.250	TN.. 5..
	MTGNL 85-4D		1.250	1.000	6.0	1.220	1.250	TN.. 4..
	MTGNL 20-4D		1.250	1.250	6.0	1.220	1.500	TN.. 4..
1.500	MTGNL 20-5D		1.250	1.250	6.0	1.440	1.500	TN.. 5..
	MTGNL 85-5D		1.250	1.000	6.0	1.440	1.250	TN.. 5..
	MTGNL 86-4D		1.500	1.000	6.0	1.220	1.250	TN.. 4..
	MTGNL 24-5E		1.500	1.500	7.0	1.440	2.000	TN.. 5..
0.750	MTGNL 86-5D		1.500	1.000	6.0	1.440	1.250	TN.. 5..
	MTGNL 24-6E		1.500	1.500	7.0	1.500	2.000	TN.. 6..

Ordering example: 1 piece MTGNR 12-3B

	h [inch]							
TN.. 3..	0.750 - 1.000	ITSN-322	NL-34L	CL-20	XNS-48	S-34	5102	5103
TN.. 4..	1.000 - 1.500	ITSN-432	NL-46	CL-20	XNS-48	S-46	5124	5103
TN.. 5..	1.000 - 1.500	ITSN-533	NL-58	CL-12	XNS-510	S-58	5104	5103
TN.. 6..	1.500	ITSN-637	NL-68L	CL-12	XNS-510	S-68	5104	5135

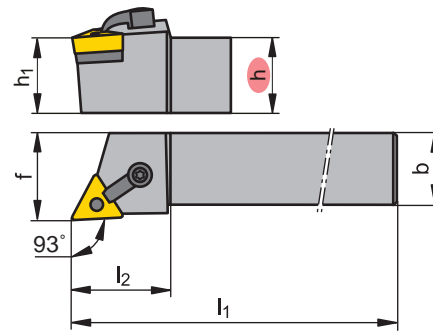
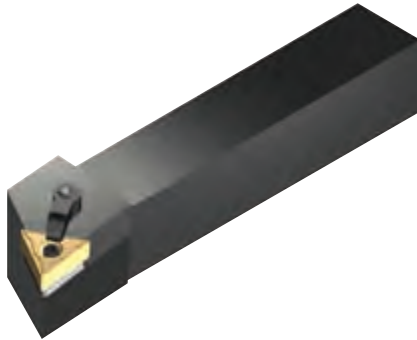




MaxiLock M - external MTJNR/L



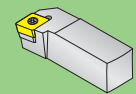
MTJN...



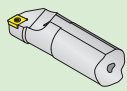
Picture shows right-hand version

h [inch]	Type, description	LNR 						
			h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.750	MTJNR 12-3B	R	0.750	0.750	4.5	1.030	1.000	TN.. 3..
1.000	MTJNR 16-3D		1.000	1.000	6.0	1.030	1.250	TN.. 3..
	MTJNR 16-4D		1.000	1.000	6.0	1.250	1.250	TN.. 4..
1.250	MTJNR 20-4D		1.250	1.250	6.0	1.250	1.500	TN.. 4..
	MTJNR 20-5D		1.250	1.250	6.0	1.440	1.500	TN.. 5..
0.750	MTJNL 12-3B		L	0.750	0.750	4.5	1.030	1.000
1.000	MTJNL 16-3D	1.000		1.000	6.0	1.030	1.250	TN.. 3..
	MTJNL 16-4D	1.000		1.000	6.0	1.250	1.250	TN.. 4..
1.250	MTJNL 20-4D	1.250		1.250	6.0	1.250	1.500	TN.. 4..
	MTJNL 20-5D	1.250		1.250	6.0	1.440	1.500	TN.. 5..

Ordering example: 1 piece MTJNR 12-3B

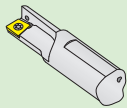


D2-D39



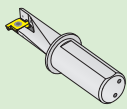
D40-D54

EcoCut



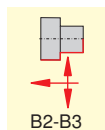
D55-D60

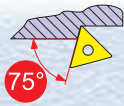
ProfileMaster



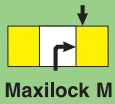
D61

	h [inch]							
TN.. 3..	0.750 - 1.000	ITSN-322	NL-34L	CL-20	XNS-48	S-34	5102	5103
TN.. 4..	1.000 - 1.250	ITSN-432	NL-46	CL-20	XNS-48	S-46	5124	5103
TN.. 5..	1.250	ITSN-533	NL-58	CL-12	XNS-510	S-58	5104	5103





MaxiLock M - external MTRNR/L

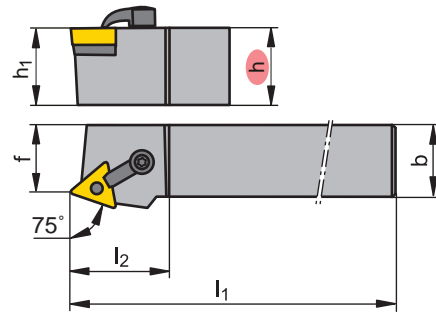


D2-D24



D26-D39

MTRN...

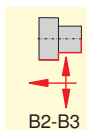


Picture shows right-hand version

h [inch]	Type, description	L N R 						
			h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.750	MTRNR 12-3B	R	0.750	0.750	4.5	1.160	0.855	TN.. 3..
1.000	MTRNR 16-3D		1.000	1.000	6.0	1.160	1.105	TN.. 3..
	MTRNR 16-4D		1.000	1.000	6.0	1.380	1.048	TN.. 4..
1.250	MTRNR 20-4D		1.250	1.250	6.0	1.380	1.298	TN.. 4..
	MTRNR 20-5D		1.250	1.250	6.0	1.560	1.252	TN.. 5..
1.500	MTRNR 24-5E	1.500	1.500	7.0	1.560	1.752	TN.. 5..	
0.750	MTRNL 12-3B	L	0.750	0.750	4.5	1.160	0.855	TN.. 3..
1.000	MTRNL 16-3D		1.000	1.000	6.0	1.160	1.105	TN.. 3..
	MTRNL 16-4D		1.000	1.000	6.0	1.380	1.048	TN.. 4..
1.250	MTRNL 20-4D		1.250	1.250	6.0	1.380	1.298	TN.. 4..
	MTRNL 20-5D		1.250	1.250	6.0	1.560	1.252	TN.. 5..
1.500	MTRNL 24-5E	1.500	1.500	7.0	1.560	1.752	TN.. 5..	

Ordering example: 1 piece MTRNR 12-3B

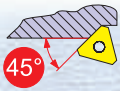
	h [inch]							
TN.. 3..	0.750 - 1.000	ITSN-322	NL-34L	CL-20	XNS-48	S-34	5102	5103
TN.. 4..	1.000 - 1.250	ITSN-432	NL-46	CL-20	XNS-48	S-46	5124	5103
TN.. 5..	1.250 - 1.500	ITSN-533	NL-58	CL-12	XNS-510	S-58	5104	5103



B2-B3



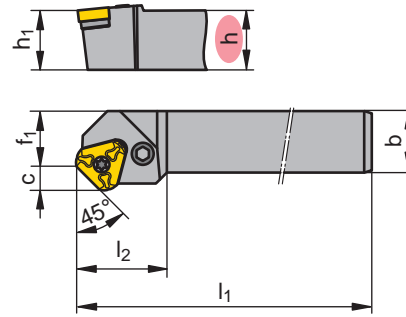
C14-C15



MaxiLock P - external DE-PTSNR/L



DE-PTSN...

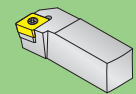
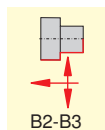


Picture shows right-hand version

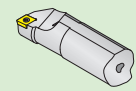
h [inch]	Type, description	LNR 								
			h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f ₁ [inch]	c [inch]		
0.750	DE-PTSNR 123-E	R	0.750	0.750	5.0	0.900	0.711	0.229	DE-TN.. 3..	
	DE-PTSNR 163-E		1.000	1.000	6.0	1.000	0.659	0.229	DE-TN.. 3..	
1.000	DE-PTSNR 164-E		1.000	1.000	6.0	1.250	0.951	0.285	DE-TN.. 4..	
	DE-PTSNR 165-E		1.000	1.000	6.0	1.500	0.876	0.348	DE-TN.. 5..	
1.500	DE-PTSNR 245-E		1.500	1.500	8.0	1.500	0.794	0.348	DE-TN.. 5..	
1.250	DE-PTSNR 854-E		1.250	1.000	7.0	1.250	1.544	0.285	DE-TN.. 4..	
	DE-PTSNR 855-E	1.250	1.000	7.0	1.500	0.876	0.348	DE-TN.. 5..		
0.750	DE-PTSNL 123-E	L	0.750	0.750	5.0	0.900	0.711	0.229	DE-TN.. 3..	
1.000	DE-PTSNL 163-E		1.000	1.000	6.0	1.000	0.659	0.229	DE-TN.. 3..	
	DE-PTSNL 164-E		1.000	1.000	6.0	1.250	0.951	0.285	DE-TN.. 4..	
1.500	DE-PTSNL 245-E		1.500	1.500	8.0	1.500	0.794	0.348	DE-TN.. 5..	
	DE-PTSNL 854-E		1.250	1.000	7.0	1.250	1.544	0.285	DE-TN.. 4..	
1.250	DE-PTSNL 855-E		1.250	1.000	7.0	1.500	0.876	0.348	DE-TN.. 5..	

Ordering example: 1 piece DE-PTSNR 123-E

	h	1	2	3	4	5	Set 1-4
DE-TN.. 3..	0.750 - 1.000	DE-TN16/HM-U	H 018440/H	S 018420/S ISK 2,5MM	R 018463/R	M 018470/MO	DE-TN16/SORT
DE-TN.. 4..	1.000 - 1.250	DE-TN22/HM-U	H 023441/H	S 023421/S ISK 3MM	R 023461/R	M 018471/MO	DE-TN22/SORT
DE-TN.. 5..	1.000 - 1.500	DE-TN27/HM-U	H 028443/H	S 000425/S ISK 3MM	R 025464/R	M 022473/MO	DE-TN27/SORT

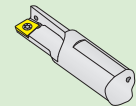


D2-D39



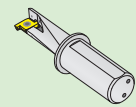
D40-D54

EcoCut

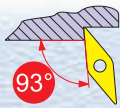


D55-D60

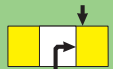
ProfileMaster



D61

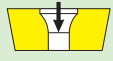


MaxiLock M - external MVJNR/L



Maxilock M

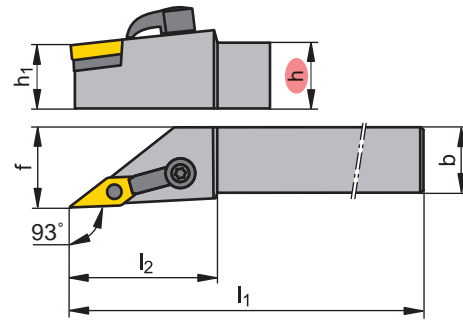
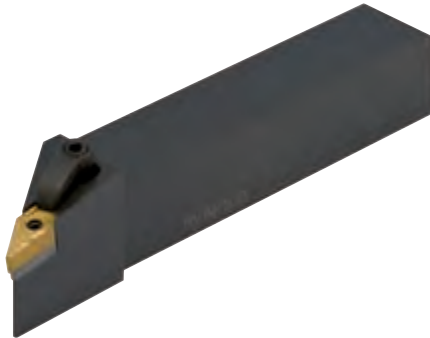
D2-D24



Maxilock S

D26-D39

MVJN...

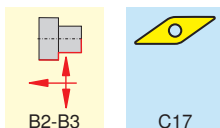


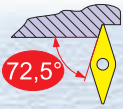
Picture shows right-hand version

h [inch]	Type, description	L N R		h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.750	MVJNR 12-3B	R		0.750	0.750	4.5	1.620	1.000	VN.. 3..
1.000	MVJNR 16-3D			1.000	1.000	6.0	1.620	1.250	VN.. 3..
	MVJNR 16-4D			1.000	1.000	6.0	1.880	1.250	VN.. 4..
1.250	MVJNR 20-3D			1.250	1.250	6.0	1.620	1.500	VN.. 3..
	MVJNR 85-4D			1.250	1.000	6.0	1.880	1.250	VN.. 4..
	MVJNR 20-4D			1.250	1.250	6.0	1.880	1.500	VN.. 4..
1.500	MVJNR 24-4E		1.500	1.500	7.0	1.880	2.000	VN.. 4..	
	MVJNR 86-4D		1.500	1.000	6.0	1.880	1.250	VN.. 4..	
0.750	MVJNL 12-3B	L		0.750	0.750	4.5	1.620	1.000	VN.. 3..
1.000	MVJNL 16-4D			1.000	1.000	6.0	1.880	1.250	VN.. 4..
	MVJNL 20-3D			1.250	1.250	6.0	1.620	1.500	VN.. 3..
1.250	MVJNL 85-4D			1.250	1.000	6.0	1.880	1.250	VN.. 4..
	MVJNL 20-4D			1.250	1.250	6.0	1.880	1.500	VN.. 4..
	MVJNL 24-4E			1.500	1.500	7.0	1.880	2.000	VN.. 4..
1.500	MVJNL 86-4D			1.500	1.000	6.0	1.880	1.250	VN.. 4..
	MVJNL 16-3D			1.000	1.000	6.0	1.620	1.250	VN.. 3..

Ordering example: 1 piece MVJNR 12-3B

	h [inch]								
VN.. 3..	0.750 - 1.250	IVSN-322	NL-34L	CL-22	XNS-48	S-34	5102	5103	
VN.. 4..	1.000 - 1.500	IVSN-433	NL-46	CL-30	XNS-510	S-46	5124	5104	

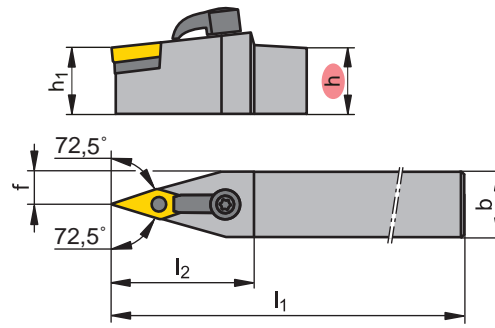
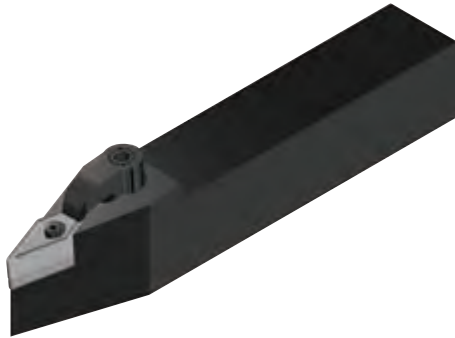




MaxiLock M - external MVVN



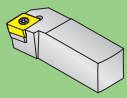
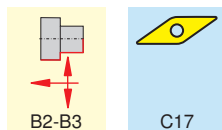
MVVN...



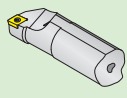
h [inch]	Type, description	LNR 	h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.750	MVVNN 12-3B	N	0.750	0.750	4.5	1.620	0.375	VN.. 3..
1.000	MVVNN 16-3B		1.000	1.000	4.5	1.620	0.500	VN.. 3..
	MVVNN 16-4D		1.000	1.000	6.0	2.060	0.500	VN.. 4..
1.250	MVVNN 20-3D		1.250	1.250	6.0	1.620	0.625	VN.. 3..
	MVVNN 20-4D		1.250	1.250	6.0	2.060	0.625	VN.. 4..
1.500	MVVNN 24-3E		1.500	1.500	7.0	1.620	0.750	VN.. 3..
	MVVNN 24-4E		1.500	1.500	7.0	2.060	0.750	VN.. 4..

Ordering example: 1 piece MVVNN 12-3B

	h [inch]							
VN.. 3..	0.750 - 1.500	IVSN-322	NL-34L	CL-22	XNS-48	S-34	5103	5102
VN.. 4..	1.000 - 1.500	IVSN-433	NL-46	CL-30	XNS-510	S-46	5104	5124

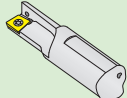


D2-D39



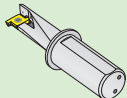
D40-D54

EcoCut



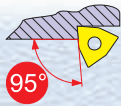
D55-D60

ProfileMaster

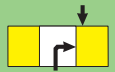


D61

D23

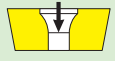


MaxiLock M - external MWLNR/L



Maxilock M

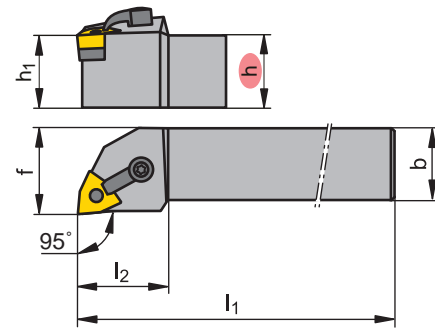
D2-D24



Maxilock S

D26-D39

MWLN...

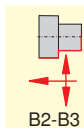


Picture shows right-hand version

h [inch]	Type, description	LNR 						
			h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.750	MWLNR 12-4B	R	0.750	0.750	4.5	1.070	1.000	WN.. 4..
1.000	MWLNR 16-4D		1.000	1.000	6.0	1.070	1.250	WN.. 4..
1.250	MWLNR 20-4D		1.250	1.250	6.0	1.070	1.500	WN.. 4..
1.500	MWLNR 24-4E		1.500	1.500	7.0	1.070	2.000	WN.. 4..
0.750	MWLN L 12-4B	L	0.750	0.750	4.5	1.070	1.000	WN.. 4..
1.000	MWLN L 16-4D		1.000	1.000	6.0	1.070	1.250	WN.. 4..
1.250	MWLN L 20-4D		1.250	1.250	6.0	1.070	1.500	WN.. 4..
1.500	MWLN L 24-4E		1.500	1.500	7.0	1.070	2.000	WN.. 4..

Ordering example: 1 piece MWLNR 12-4B

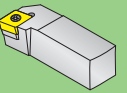
	h [inch]							
WN.. 4..	0.750 - 1.500	IWSN-433	NL-46	CL-20	XNS-48	S-46	5124	5103



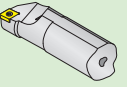
B2-B3



C18-C19

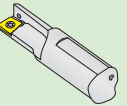


D2-D39



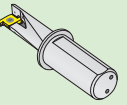
D40-D54

EcoCut

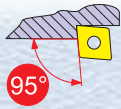


D55-D60

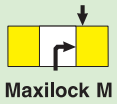
ProfileMaster



D61



MaxiLock S - external SCLCR/L

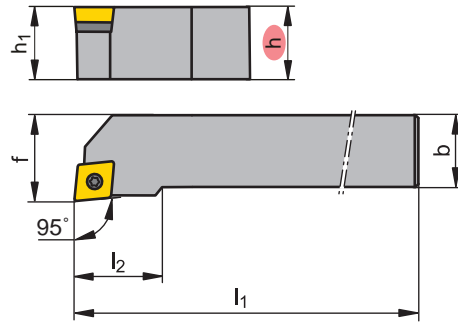
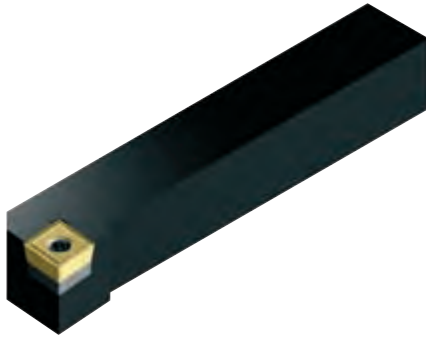


D2-D24



D26-D39

SCLC...

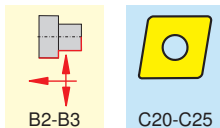


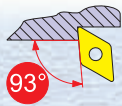
Picture shows right-hand version

h [inch]	Type, description	L N R 	h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.375	SCLCR 06-2	R	0.375	0.375	2.5	0.390	0.500	CC.. 2..
0.500	SCLCR 08-3		0.500	0.500	3.5	0.630	0.625	CC.. 3..
0.625	SCLCR 10-3		0.625	0.625	4.0	0.630	0.750	CC.. 3..
0.750	SCLCR 12-3B		0.750	0.750	4.5	0.630	1.000	CC.. 3..
	SCLCR 12-4B		0.750	0.750	4.5	1.000	1.000	CC.. 4..
1.000	SCLCR 16-3D		1.000	1.000	6.0	0.630	1.250	CC.. 3..
	SCLCR 16-4D	1.000	1.000	6.0	1.000	1.250	CC.. 4..	
1.250	SCLCR 20-4D	1.250	1.250	6.0	1.000	1.500	CC.. 4..	
0.375	SCLCL 06-2	L	0.375	0.375	2.5	0.390	0.500	CC.. 2..
0.500	SCLCL 08-3		0.500	0.500	3.5	0.630	0.625	CC.. 3..
0.625	SCLCL 10-3		0.625	0.625	4.0	0.630	0.750	CC.. 3..
0.750	SCLCL 12-3B		0.750	0.750	4.5	0.630	1.000	CC.. 3..
	SCLCL 12-4B		0.750	0.750	4.5	1.000	1.000	CC.. 4..
1.000	SCLCL 16-3D		1.000	1.000	6.0	0.630	1.250	CC.. 3..
	SCLCL 16-4D	1.000	1.000	6.0	1.000	1.250	CC.. 4..	
1.250	SCLCL 20-4D	1.250	1.250	6.0	1.000	1.500	CC.. 4..	

Ordering example: 1 piece SCLCR 06-2

	h [inch]				
CC.. 2..	0.375	1225	5507		
CC.. 3..	0.500	1440	5515		
CC.. 3..	0.625 - 1.000	1240	5515		
CC.. 4..	0.750 - 1.250	1540	5517	3614	1760

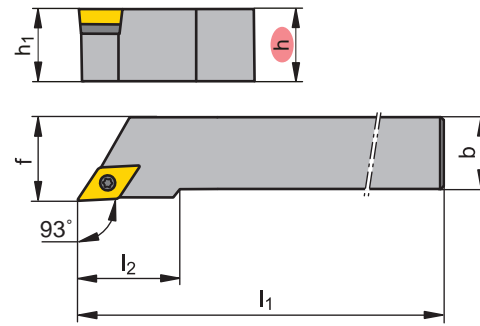




MaxiLock S - external SDJCR/L



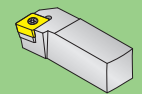
SDJC...



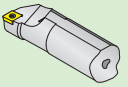
Picture shows right-hand version

h [inch]	Type, description	LNR 						
			h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.375	SDJCR 06-2	R	0.375	0.375	2.5	0.590	0.500	DC.. 2..
0.500	SDJCR 08-2		0.500	0.500	3.5	0.670	0.625	DC.. 2..
0.625	SDJCR 10-2		0.625	0.625	4.0	0.670	0.750	DC.. 2..
0.750	SDJCR 12-2B		0.750	0.750	4.5	0.708	1.000	DC.. 2..
	SDJCR 12-3B		0.750	0.750	4.5	1.000	1.000	DC.. 3..
1.000	SDJCR 16-3D		1.000	1.000	6.0	1.100	1.250	DC.. 3..
0.375	SDJCL 06-2	L	0.375	0.375	2.5	0.590	0.500	DC.. 2..
0.500	SDJCL 08-2		0.500	0.500	3.5	0.670	0.625	DC.. 2..
0.625	SDJCL 10-2		0.625	0.625	4.0	0.670	0.750	DC.. 2..
0.750	SDJCL 12-2B		0.750	0.750	4.5	0.708	1.000	DC.. 2..
	SDJCL 12-3B		0.750	0.750	4.5	1.000	1.000	DC.. 3..
1.000	SDJCL 16-3D		1.000	1.000	6.0	1.100	1.250	DC.. 3..

Ordering example: 1 piece SDJCR 06-2

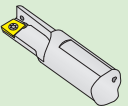


D2-D39



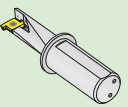
D40-D54

EcoCut



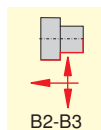
D55-D60

ProfileMaster

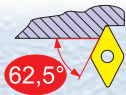


D61

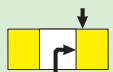
	h [inch]				
DC.. 2..	0.375 - 0.750	1225	5507		
DC.. 3..	0.750 - 1.000	1335	5516	3714	1750



D27



MaxiLock S - external SDPCN



Maxilock M

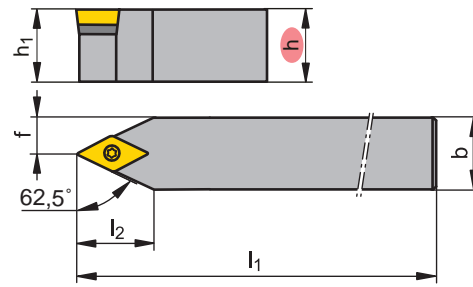
D2-D24



Maxilock S

D26-D39

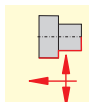
SDPC...



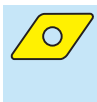
h [inch]	Type, description	LNR 						
			h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.375	SDPCN 06-2	N	0.375	0.375	2.5	0.370	0.197	DC.. 2..
0.500	SDPCN 08-2		0.500	0.500	3.5	0.492	0.260	DC.. 2..
0.625	SDPCN 10-3		0.625	0.625	4.0	0.630	0.232	DC.. 3..
0.750	SDPCN 12-3B		0.750	0.750	4.5	0.744	0.382	DC.. 3..
1.000	SDPCN 16-3D		1.000	1.000	6.0	0.984	0.520	DC.. 3..

Ordering example: 1 piece SDPCN 06-2

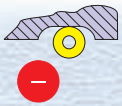
	h [inch]				
DC.. 2..	0.375 - 0.500	1225	5507		
DC.. 3..	0.625 - 1.000	1335	5516	3714	1750



B2-B3



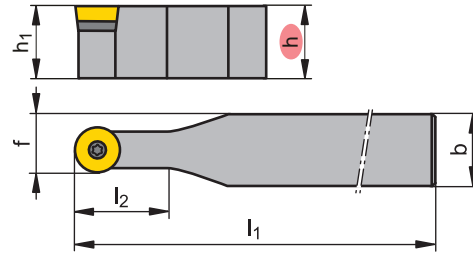
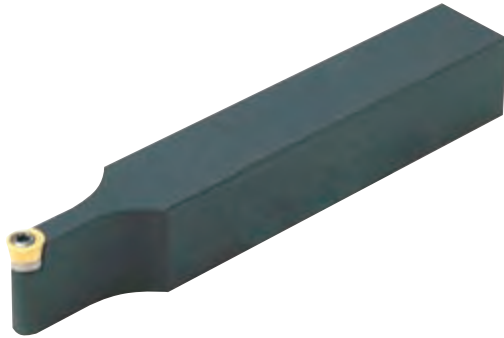
C26-C30



MaxiLock S - external SRDCN



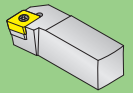
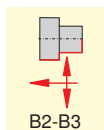
SRDC...



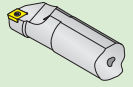
h [inch]	Type, description	LNR 						
			h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.500	SRDCN 08-2	N	0.500	0.500	3.5	0.500	0.407	RC.. 2..
0.625	SRDCN 10-3		0.625	0.625	4.0	0.630	0.510	RC.. 3..
0.750	SRDCN 12-3B		0.750	0.750	4.5	1.000	0.570	RC.. 3..
1.000	SRDCN 16-4D		1.000	1.000	6.0	1.000	0.756	RC.. 4..
1.250	SRDCN 20-4D		1.250	1.250	6.0	1.000	0.861	RC.. 4..

Ordering example: 1 piece SRDCN 08-2

	h [inch]				
RC.. 2..	0.500	1230	5508		
RC.. 3..	0.625 - 0.750	1335	5516	3811	1750
RC.. 4..	1.000 - 1.250	1335	5516	3814	1750

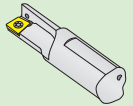


D2-D39



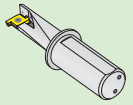
D40-D54

EcoCut



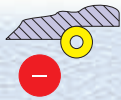
D55-D60

ProfileMaster

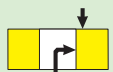


D61

D29



MaxiLock S - external SRGCR



MaxiLock M

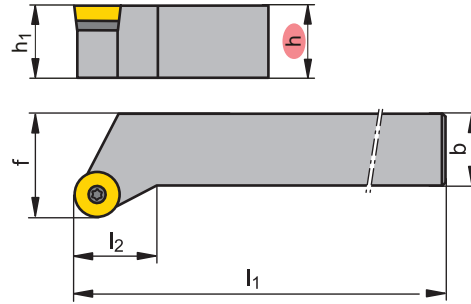
D2-D24



MaxiLock S

D26-D39

SRGC...

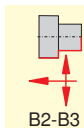


Picture shows right-hand version

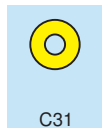
h [inch]	Type, description	L N R 					
			h ₁ [inch]	b [inch]	l ₁ [inch]	f [inch]	
0.750	SRGCR 12-3B	R	0.750	0.750	4.5	1.000	RC.. 3..
1.000	SRGCR 16-3D		1.000	1.000	6.0	1.250	RC.. 3..
	SRGCR 16-4D		1.000	1.000	6.0	1.250	RC.. 4..
1.250	SRGCR 20-4D		1.250	1.250	6.0	1.500	RC.. 4..
	SRGCR 85-4D	1.250	1.000	6.0	1.250	RC.. 4..	
0.750	SRGCL 12-3B	L	0.750	0.750	4.5	1.000	RC.. 3..
1.000	SRGCL 16-3D		1.000	1.000	6.0	1.250	RC.. 3..
	SRGCL 16-4D		1.000	1.000	6.0	1.250	RC.. 4..
1.250	SRGCL 20-4D		1.250	1.250	6.0	1.500	RC.. 4..
	SRGCL 85-4D		1.250	1.000	6.0	1.250	RC.. 4..

Ordering example: 1 piece SRGCR 12-3B

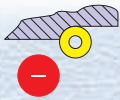
	h [inch]				
RC.. 3..	0.750 - 1.000	1335	5516	3811	1750
RC.. 4..	1.000 - 1.250	1335	5516	3814	1750



B2-B3



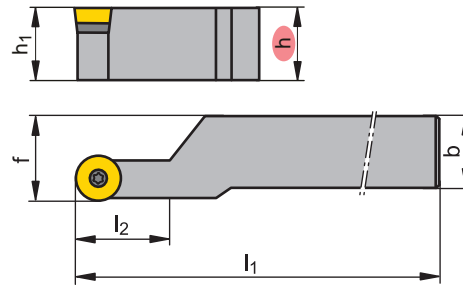
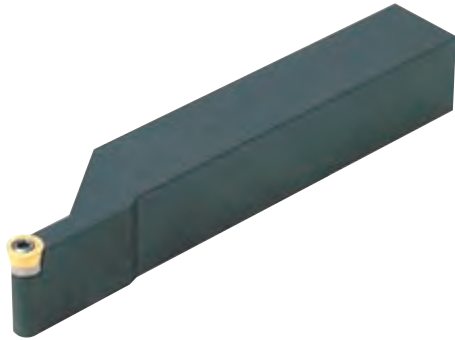
C31



MaxiLock S - external SRSCR/L



SRSC...

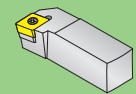
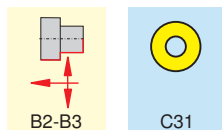


Picture shows right-hand version

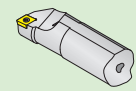
h [inch]	Type, description	LNR 					
			h_1 [inch]	b [inch]	l_1 [inch]	f [inch]	
0.750	SRSCR 12-4B	R	0.750	0.750	4.5	1.000	RC.. 4..
1.000	SRSCR 16-3D		1.000	1.000	6.0	1.250	RC.. 3..
	SRSCR 16-4D		1.000	1.000	6.0	1.250	RC.. 4..
1.250	SRSCR 20-3D		1.250	1.250	6.0	1.500	RC.. 3..
	SRSCR 20-4D	1.250	1.250	6.0	1.500	RC.. 4..	
0.750	SRSC L 12-4B	L	0.750	0.750	4.5	1.000	RC.. 4..
1.000	SRSC L 16-3D		1.000	1.000	6.0	1.250	RC.. 3..
	SRSC L 16-4D		1.000	1.000	6.0	1.250	RC.. 4..
1.250	SRSC L 20-3D		1.250	1.250	6.0	1.500	RC.. 3..
	SRSC L 20-4D	1.250	1.250	6.0	1.500	RC.. 4..	

Ordering example: 1 piece SRSCR 12-4B

	h [inch]				
RC.. 3..	1.000 - 1.250	1335	5516	3811	1750
RC.. 4..	0.750 - 1.250	1335	5516	3814	1750

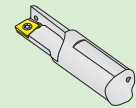


D2-D39



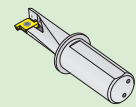
D40-D54

EcoCut



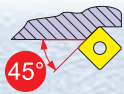
D55-D60

ProfileMaster

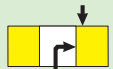


D61

D31



MaxiLock S - external SSDCN



Maxilock M

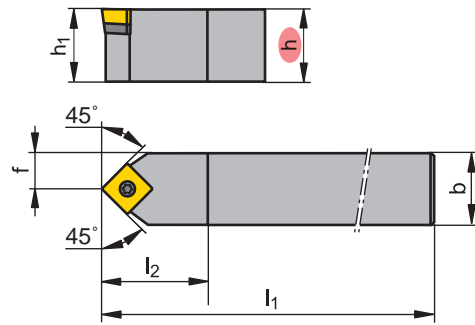
D2-D24



Maxilock S

D26-D39

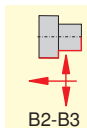
SSDC...



h [inch]	Type, description	LNR	h ₁ [inch]	b [inch]	l ₁ [inch]	f [inch]	
0.500	SSDCN 08-3	N	0.500	0.500	3.5	0.263	SC.. 3..
0.625	SSDCN 10-3		0.625	0.625	4.0	0.325	SC.. 3..
0.750	SSDCN 12-4B		0.750	0.750	4.5	0.388	SC.. 4..

Ordering example: 1 piece SSDCN 08-3

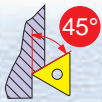
	h [inch]				
SC.. 3..	0.500 - 0.625	1240	5515		
SC.. 4..	0.750	1540	5517	3514	1760



B2-B3



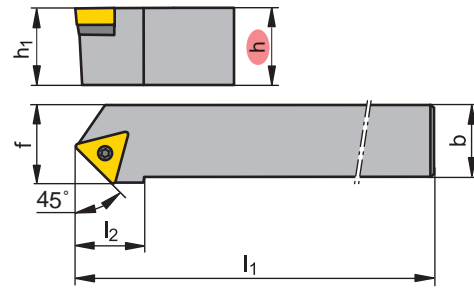
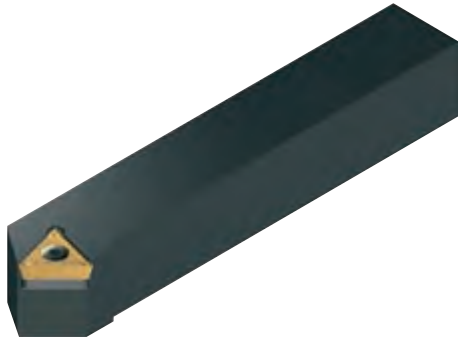
C32



MaxiLock S - external STDCR/L



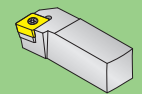
STDC...



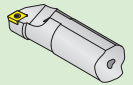
Picture shows right-hand version

h [inch]	Type, description	LNR 						
			h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.375	STDCR 06-2	R	0.375	0.375	2.5	0.410	0.433	TC.. 2..
0.500	STDCR 08-2		0.500	0.500	3.5	0.570	0.512	TC.. 2..
0.625	STDCR 10-3		0.625	0.625	4.0	1.000	0.669	TC.. 3..
0.750	STDCR 12-3B		0.750	0.750	4.5	1.000	0.866	TC.. 3..
1.000	STDCR 16-3D		1.000	1.000	6.0	1.000	1.063	TC.. 3..
0.375	STDCL 06-2	L	0.375	0.375	2.5	0.410	0.433	TC.. 2..
0.500	STDCL 08-2		0.500	0.500	3.5	0.570	0.512	TC.. 2..
0.625	STDCL 10-3		0.625	0.625	4.0	1.000	0.669	TC.. 3..
0.750	STDCL 12-3B		0.750	0.750	4.5	1.000	0.866	TC.. 3..
1.000	STDCL 16-3D		1.000	1.000	6.0	1.000	1.063	TC.. 3..

Ordering example: 1 piece STDCR 06-2

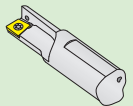


D2-D39



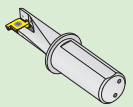
D40-D54

EcoCut



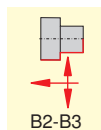
D55-D60

ProfileMaster



D61

	h [inch]				
TC.. 2..	0.375 - 0.500	1225	5507		
TC.. 3..	0.625 - 1.000	1335	5516	3414	1750

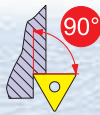


B2-B3

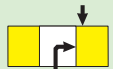


C33-C34

D33



MaxiLock S - external STFCR/L



Maxilock M

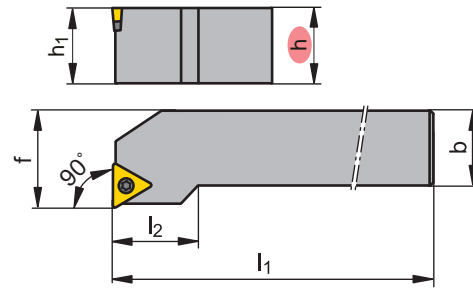
D2-D24



Maxilock S

D26-D39

STFC...

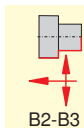


Picture shows right-hand version

h [inch]	Type, description	LNR 	h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.375	STFCR 06-2	R	0.375	0.375	2.5	0.400	0.500	TC.. 2..
0.500	STFCR 08-2		0.500	0.500	3.5	0.689	0.625	TC.. 2..
0.625	STFCR 10-3		0.625	0.625	4.0	1.000	0.750	TC.. 3..
0.750	STFCR 12-3B		0.750	0.750	4.5	1.000	1.000	TC.. 3..
1.000	STFCR 16-3D		1.000	1.000	6.0	1.000	1.250	TC.. 3..
0.375	STFCL 06-2	L	0.375	0.375	2.5	0.400	0.500	TC.. 2..
0.500	STFCL 08-2		0.500	0.500	3.5	0.689	0.625	TC.. 2..
0.625	STFCL 10-3		0.625	0.625	4.0	1.000	0.750	TC.. 3..
0.750	STFCL 12-3B		0.750	0.750	4.5	1.000	1.000	TC.. 3..
1.000	STFCL 16-3D		1.000	1.000	6.0	1.000	1.250	TC.. 3..

Ordering example: 1 piece STFCR 06-2

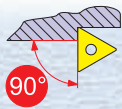
	h [inch]				
TC.. 2..	0.375 - 0.500	1225	5507		
TC.. 3..	0.625 - 1.000	1335	5516	3414	1750



B2-B3



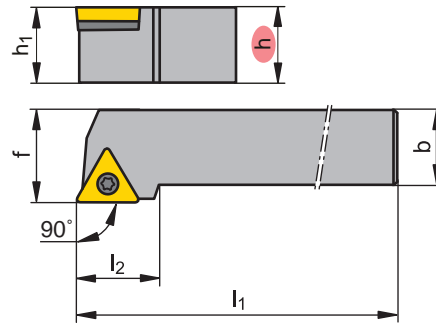
C33-C34



MaxiLock S - external STGCR/L



STGC...

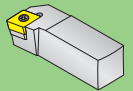
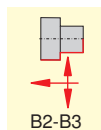


Picture shows right-hand version

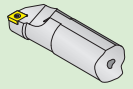
h [inch]	Type, description	LNR 						
			h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.375	STGCR 06-2	R	0.375	0.375	2.5	0.500	0.500	TC.. 2..
0.500	STGCR 08-2		0.500	0.500	3.5	0.560	0.625	TC.. 2..
0.625	STGCR 10-3		0.625	0.625	4.0	1.000	0.750	TC.. 3..
0.750	STGCR 12-3B		0.750	0.750	4.5	1.000	1.000	TC.. 3..
1.000	STGCR 16-3D		1.000	1.000	6.0	1.000	1.250	TC.. 3..
0.375	STGCL 06-2	L	0.375	0.375	2.5	0.500	0.500	TC.. 2..
0.500	STGCL 08-2		0.500	0.500	3.5	0.560	0.625	TC.. 2..
0.625	STGCL 10-3		0.625	0.625	4.0	1.000	0.750	TC.. 3..
0.750	STGCL 12-3B		0.750	0.750	4.5	1.000	1.000	TC.. 3..
1.000	STGCL 16-3D		1.000	1.000	6.0	1.000	1.250	TC.. 3..

Ordering example: 1 piece STGCR 06-2

	h [inch]				
TC.. 2..	0.375 - 0.500	1225	5507		
TC.. 3..	0.625 - 1.000	1335	5516	3414	1750

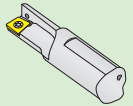


D2-D39



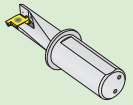
D40-D54

EcoCut



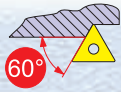
D55-D60

ProfileMaster

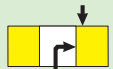


D61

D35



MaxiLock S - external STTCR/L



Maxilock M

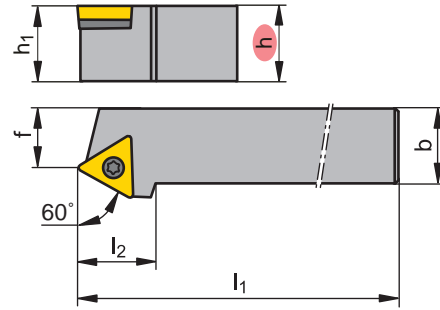
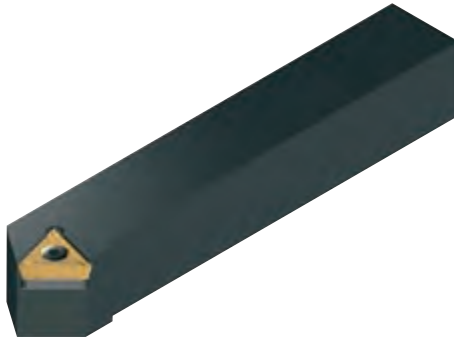
D2-D24



Maxilock S

D26-D39

STTC...

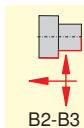


Picture shows right-hand version

h [inch]	Type, description	LNR 						
			h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.750	STTCR 12-3B	R	0.750	0.750	4.5	1.000	0.718	TC.. 3..
1.000	STTCR 16-3D		1.000	1.000	6.0	1.000	0.860	TC.. 3..
0.750	STTCL 12-3B	L	0.750	0.750	4.5	1.000	0.718	TC.. 3..
1.000	STTCL 16-3D		1.000	1.000	6.0	1.000	0.860	TC.. 3..

Ordering example: 1 piece STTCR 12-3B

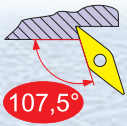
	h [inch]				
TC.. 3..	0.750 - 1.000	1335	5516	3414	1750



B2-B3



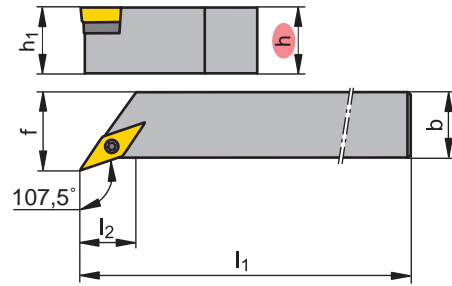
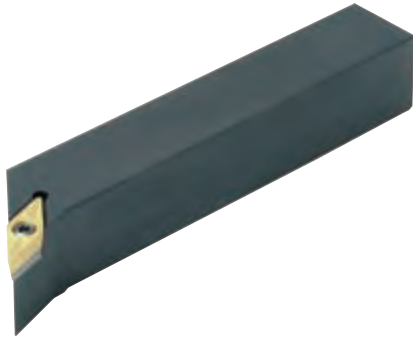
C34



MaxiLock S - external SVHCR



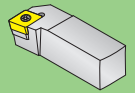
SVHC...



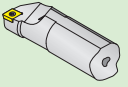
Picture shows right-hand version

h [inch]	Type, description	LNR 	h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.750	SVHCR 12-3B	R	0.750	0.750	4.5	0.740	1.000	VC.. 3..
1.000	SVHCR 16-3D		1.000	1.000	6.0	0.756	1.250	VC.. 3..
0.750	SVHCL 12-3B	L	0.750	0.750	4.5	0.740	1.000	VC.. 3..
1.000	SVHCL 16-3D		1.000	1.000	6.0	0.756	1.250	VC.. 3..

Ordering example: 1 piece SVHCR 12-3B

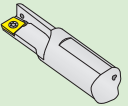


D2-D39



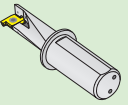
D40-D54

EcoCut



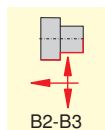
D55-D60

ProfileMaster

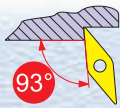


D61

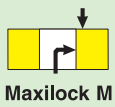
	h [inch]				
VC.. 3..	0.750 - 1.000	1335	5516	3718	1750



D37



MaxiLock S - external SVJCR/L

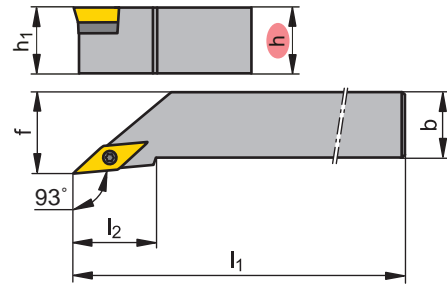
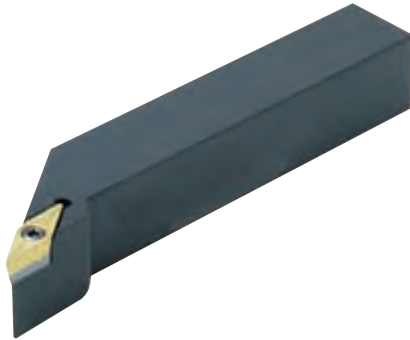


D2-D24



D26-D39

SVJC...

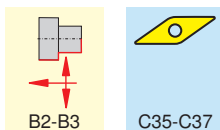


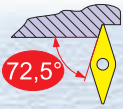
Picture shows right-hand version

h [inch]	Type, description	LNR 						
			h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.750	SVJCR 12-3B	R	0.750	0.750	4.5	1.614	1.000	VC.. 3..
1.000	SVJCR 16-3D		1.000	1.000	6.0	1.614	1.250	VC.. 3..
1.250	SVJCR 20-3D		1.250	1.250	6.0	1.614	1.500	VC.. 3..
0.750	SVJCL 12-3B	L	0.750	0.750	4.5	1.614	1.000	VC.. 3..
1.000	SVJCL-16-3D		1.000	1.000	6.0	1.614	1.250	VC.. 3..
1.250	SVJCL 20-3D		1.250	1.250	6.0	1.614	1.500	VC.. 3..

Ordering example: 1 piece SVJCR 12-3B

	h [inch]				
VC.. 3..	0.750 - 1.250	1335	5516	3718	1750

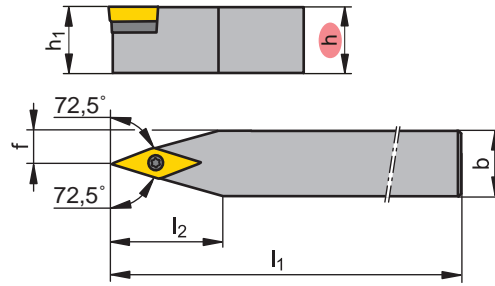
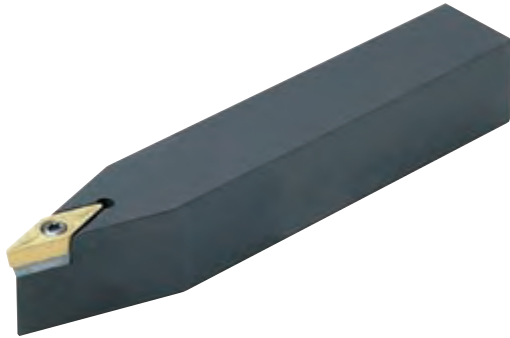




MaxiLock S - external SVVCN



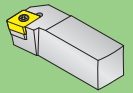
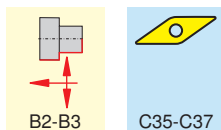
SVVC...



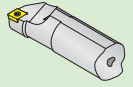
h [inch]	Type, description	LNR 	h ₁ [inch]	b [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	
0.750	SVVCN 12-3B	N	0.750	0.750	4.5	1.212	0.398	VC.. 3..
1.000	SVVCN 16-3D		1.000	1.000	6.0	1.610	0.523	VC.. 3..
1.250	SVVCN 20-3D		1.250	1.250	6.0	2.008	0.648	VC.. 3..

Ordering example: 1 piece SVVCN 12-3B

	h [inch]				
VC.. 3..	0.750 - 1.250	1335	5516	3718	1750

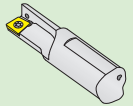


D2-D39



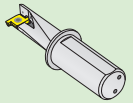
D40-D54

EcoCut



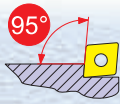
D55-D60

ProfileMaster

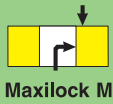


D61

D39



MaxiLock M - internal MCLNR/L

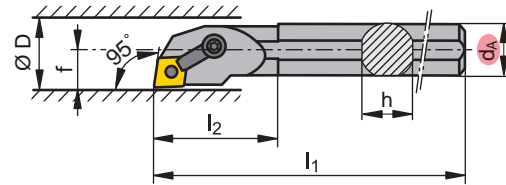


D40-D47



D48-D54

MCLN...

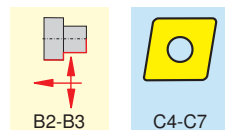


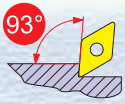
Picture shows right-hand version

d _A [inch]	Type, description	L N R 	h [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	D [inch]	
1.000	S16T MCLNR 3	R	0.900	12.0	2.5	0.640	1.280	CN.. 3..
	S16T MCLNR 4			12.0	2.5	0.640	1.280	CN.. 4..
1.250	S20U MCLNR 3		1.118	14.0	3.0	0.765	1.530	CN.. 3..
	S20U MCLNR 4			14.0	3.0	0.765	1.530	CN.. 4..
1.500	S24U MCLNR 4		1.370	14.0	3.0	0.890	1.780	CN.. 4..
1.750	S28U MCLNR 4		1.630	14.0	4.0	1.015	2.030	CN.. 4..
2.000	S32V MCLNR 4		1.870	16.0	4.0	1.281	2.562	CN.. 4..
	S32V MCLNR 5			16.0	4.0	1.281	2.562	CN.. 5..
	S32V MCLNR 6			16.0	4.0	1.281	2.562	CN.. 6..
2.500	S40V MCLNR 4		2.380	16.0	4.0	1.531	3.062	CN.. 4..
	S40V MCLNR 5			16.0	4.0	1.531	3.062	CN.. 5..
	S40V MCLNR 6			16.0	4.0	1.531	3.062	CN.. 6..
1.000	S16T MCLNL 3	L	0.900	12.0	2.5	0.640	1.280	CN.. 3..
	S16T MCLNL 4			12.0	2.5	0.640	1.280	CN.. 4..
1.250	S20U MCLNL 3		1.118	14.0	3.0	0.765	1.530	CN.. 3..
	S20U MCLNL 4			14.0	3.0	0.765	1.530	CN.. 4..
1.500	S24U MCLNL 4		1.370	14.0	3.0	0.890	1.780	CN.. 4..
1.750	S28U MCLNL 4		1.630	14.0	4.0	1.015	2.030	CN.. 4..
2.000	S32V MCLNL 4		1.870	16.0	4.0	1.281	2.562	CN.. 4..
	S32V MCLNL 5			16.0	4.0	1.281	2.562	CN.. 5..
	S32V MCLNL 6			16.0	4.0	1.281	2.562	CN.. 6..
2.500	S40V MCLNL 4		2.380	16.0	4.0	1.531	3.062	CN.. 4..
	S40V MCLNL 5			16.0	4.0	1.531	3.062	CN.. 5..
	S40V MCLNL 6			16.0	4.0	1.531	3.062	CN.. 6..

Ordering example: 1 piece S16T MCLNR 3

	d _A [inch]							
CN.. 3..	1.000 - 1.250		NL-33	CL-6	XNS-36		5124	
CN.. 4..	1.000		NL-44	CL-20	XNS-47		5124	5103
CN.. 4..	1.250 - 2.500	ICSN-432	NL-46	CL-20	XNS-48	S-46	5124	5103
CN.. 5..	2.000 - 2.500	ICSN-533	NL-58	CL-12	XNS-510	S-58	5104	5103
CN.. 6..	2.000 - 2.500	ICSN-633	NL-68	CL-12	XNS-510	S-68	5104	5135

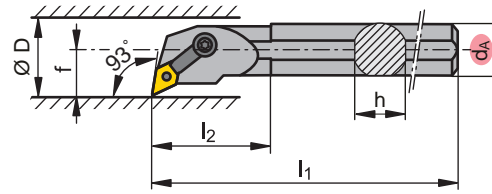




MDUNR/L



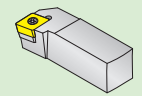
MDUN...



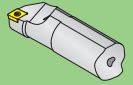
Picture shows right-hand version

d _A [inch]	Type, description	LNR		h [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	D [inch]	
		L	R						
1.000	S16T MDUNR 4	R		0.900	12.0	2.5	0.875	1.750	DN.. 4..
1.250	S20U MDUNR 4			1.118	14.0	3.0	1.000	2.000	DN.. 4..
1.500	S24U MDUNR 4			1.370	14.0	3.0	1.125	2.250	DN.. 4..
2.000	S32V MDUNR 4			1.870	16.0	4.0	1.500	3.000	DN.. 4..
	S32V MDUNR 5				16.0	4.0	1.500	3.000	DN.. 5..
2.500	S40V MDUNR 5			2.380	16.0	4.0	1.750	3.500	DN.. 5..
1.000	S16T MDUNL 4	L		0.900	12.0	2.5	0.875	1.750	DN.. 4..
1.250	S20U MDUNL 4			1.118	14.0	3.0	1.000	2.000	DN.. 4..
1.500	S24U MDUNL 4			1.370	14.0	3.0	1.125	2.250	DN.. 4..
2.000	S32V MDUNL 4			1.870	16.0	4.0	1.500	3.000	DN.. 4..
	S32V MDUNL 5				16.0	4.0	1.500	3.000	DN.. 5..
2.500	S40V MDUNL 5			2.380	16.0	4.0	1.750	3.500	DN.. 5..

Ordering example: 1 piece S16T MDUNR 4

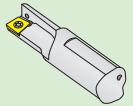


D2-D39



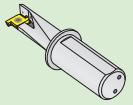
D40-D54

EcoCut



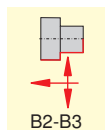
D55-D60

ProfileMaster



D61

	d _A [inch]								
DN.. 4..	1.000		NL-44	CL-20	XNS-47			5124	5103
DN.. 4..	1.250 - 2.000	IDSN-432	NL-46	CL-20	XNS-48	S-46		5124	5103
DN.. 5..	2.000 - 2.500	IDSN-533	NL-58	CL-12	XNS-510	S-58		5104	5103

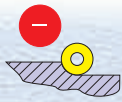


B2-B3

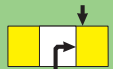


C8-C10

D41

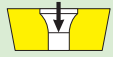


MRGNR/L



Maxilock M

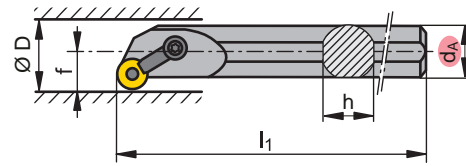
D40-D47



Maxilock S

D48-D54

MRGN...

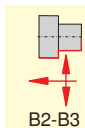


Picture shows right-hand version

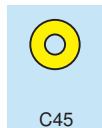
d _A [inch]	Type, description	L N R 						
			h [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	D [inch]	
1.250	S20U MRGNR 3	R	1.118	14.0	3.0	0.765	1.530	RN.. 3..
1.500	S24U MRGNR 3		1.370	14.0	3.0	0.890	1.780	RN.. 3..
2.000	S32V MRGNR 4		1.870	16.0	4.0	1.281	2.562	RN.. 4..
1.250	S20U MRGNL 3	L	1.118	14.0	3.0	0.765	1.530	RN.. 3..
1.500	S24U MRGNL 3		1.370	14.0	3.0	0.890	1.780	RN.. 3..
2.000	S32V MRGNL 4		1.870	16.0	4.0	1.281	2.562	RN.. 4..

Ordering example: 1 piece S20U MRGNR 3

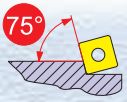
	d _A [inch]							
RN.. 3..	1.250 - 1.500		NL-33	CL-20	XNS-48		5102	5103
RN.. 4..	2.000	IRSN-43	NL-46	CL-20	XNS-48	S-46	5124	5103



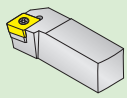
B2-B3



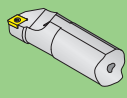
C45



MSKNR/L

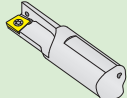


D2-D39



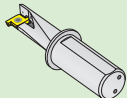
D40-D54

EcoCut

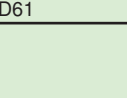


D55-D60

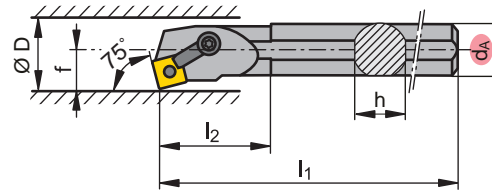
ProfileMaster



D61



MSKN...

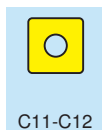
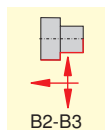


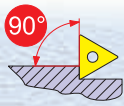
Picture shows right-hand version

d _A [inch]	Type, description	LNR 	h [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	D [inch]	
1.250	S20U MSKNR 4	R	1.180	14.0	3.0	0.765	1.530	SN.. 4..
1.500	S24U MSKNR 4		1.370	14.0	3.0	0.890	1.780	SN.. 4..
2.000	S32V MSKNR 5		1.870	16.0	4.0	1.281	2.562	SN.. 5..
	S32V MSKNR 6		16.0	4.0	1.281	2.562	SN.. 6..	
2.500	S40V MSKNR 6		2.380	16.0	4.0	1.531	3.062	SN.. 6..
1.250	S20U MSKNL 4		L	1.180	14.0	3.0	0.765	1.530
1.500	S24U MSKNL 4	1.370		14.0	3.0	0.890	1.780	SN.. 4..
2.000	S32V MSKNL 5	1.870		16.0	4.0	1.281	2.562	SN.. 5..
	S32V MSKNL 6	16.0		4.0	1.281	2.562	SN.. 6..	
2.500	S40V MSKNL 6	2.380		16.0	4.0	1.531	3.062	SN.. 6..

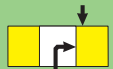
Ordering example: 1 piece S20U MSKNR 4

	d _A [inch]							
SN.. 4..	1.250 - 1.500	ISSN-432	NL-46	CL-20	XNS-48	S-46	5124	5103
SN.. 5..	2.000	ISSN-533	NL-58	CL-12	XNS-510	S-58	5104	5103
SN.. 6..	2.000 - 2.500	ISSN-633	NL-68	CL-12	XNS-510	S-68	5104	5135



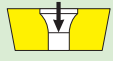


MTFNR/L



Maxilock M

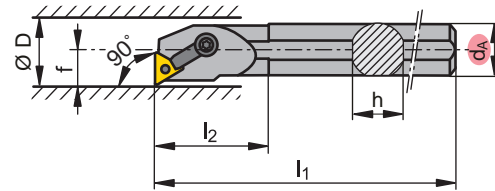
D40-D47



Maxilock S

D48-D54

MTFN...

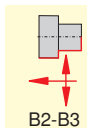


Picture shows right-hand version

d _A [inch]	Type, description	L N R 	h [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	D [inch]	
1.000	S16T MTFNR 3	R	0.900	12.0	2.5	0.640	1.280	TN.. 3..
1.250	S20U MTFNR 3		1.180	14.0	3.0	0.765	1.530	TN.. 3..
	S20U MTFNR 4		14.0	3.0	0.765	1.530	TN.. 4..	
1.500	S24U MTFNR 3		1.370	14.0	3.0	0.890	1.780	TN.. 3..
	S24U MTFNR 4		14.0	3.0	0.890	1.780	TN.. 4..	
1.750	S28U MTFNR 4		1.630	14.0	4.0	1.015	2.030	TN.. 4..
2.000	S32V MTFNR 4		1.870	16.0	4.0	1.281	2.562	TN.. 4..
	S32V MTFNR 5		16.0	4.0	1.281	2.562	TN.. 5..	
2.500	S40V MTFNR 4		2.380	16.0	4.0	1.531	3.062	TN.. 4..
1.000	S16T MTFNL 3		L	0.900	12.0	2.5	0.640	1.280
1.250	S20U MTFNL 3	1.180		14.0	3.0	0.765	1.530	TN.. 3..
	S20U MTFNL 4	14.0		3.0	0.765	1.530	TN.. 4..	
1.500	S24U MTFNL 3	1.370		14.0	3.0	0.890	1.780	TN.. 3..
	S24U MTFNL 4	14.0		3.0	0.890	1.780	TN.. 4..	
1.750	S28U MTFNL 4	1.630		14.0	4.0	1.015	2.030	TN.. 4..
2.000	S32V MTFNL 4	1.870		16.0	4.0	1.281	2.562	TN.. 4..
	S32V MTFNL 5	16.0		4.0	1.281	2.562	TN.. 5..	
2.500	S40V MTFNL 4	2.380		16.0	4.0	1.531	3.062	TN.. 4..

Ordering example: 1 piece S16T MTFNR 3

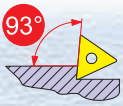
	d _A [inch]							
TN.. 3..	1.000		NL-33L	CL-20	XNS-47		5102	5103
TN.. 3..	1.250 - 1.500	ITSN-322	NL-34L	CL-20	XNS-48		5102	5103
TN.. 4..	1.250 - 2.500	ITSN-432	NL-46	CL-20	XNS-48	S-46	5124	5103
TN.. 5..	2.000	ITSN-533	NL-58	CL-12	XNS-510	S-58	5104	5103



B2-B3



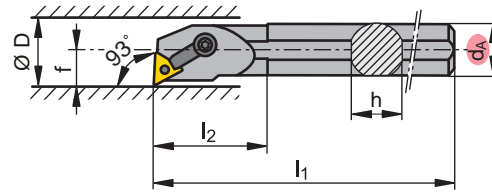
C14-C15



MTUNR/L



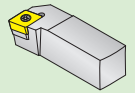
MTUN...



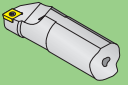
Picture shows right-hand version

d _A [inch]	Type, description	LNR 	h [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	D [inch]	
1.000	S16T MTUNR 3	R	0.900	12.0	2.5	0.640	1.280	TN.. 3..
1.500	S24U MTUNR 4		1.370	14.0	3.0	0.890	1.780	TN.. 4..
1.000	S16T MTUNL 3	L	0.900	12.0	2.5	0.640	1.280	TN.. 3..
1.500	S24U MTUNL 4		1.370	14.0	3.0	0.890	1.780	TN.. 4..

Ordering example: 1 piece S16T MTUNR 3

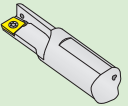


D2-D39



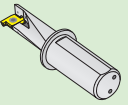
D40-D54

EcoCut



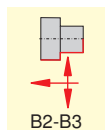
D55-D60

ProfileMaster

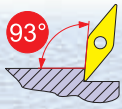


D61

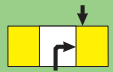
	d _A [inch]							
TN.. 3..	1.000		NL-33L	CL-20	XNS-47		5102	5103
TN.. 4..	1.500	ITSN-432	NL-46	CL-20	XNS-48	S-46	5124	5103



D45

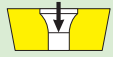


MVUNR/L



Maxilock M

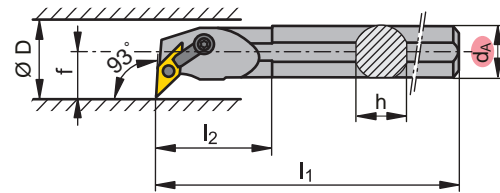
D40-D47



Maxilock S

D48-D54

MVUN...

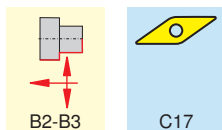


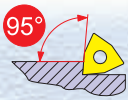
Picture shows right-hand version

d _A [inch]	Type, description	L N R		h [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	D [inch]	
1.000	S16T MVUNR 3	R		0.900	12.0	2.5	1.000	2.000	VN.. 3..
1.250	S20U MVUNR 3			1.180	14.0	3.0	1.125	2.250	VN.. 3..
1.500	S24U MVUNR 3			1.370	14.0	3.0	1.250	2.500	VN.. 3..
2.000	S32V MVUNR 4			1.870	16.0	4.0	1.500	3.250	VN.. 4..
2.500	S40V MVUNR 4			2.380	16.0	4.0	1.750	3.750	VN.. 4..
1.000	S16T MVUNL 3	L		0.900	12.0	2.5	1.000	2.000	VN.. 3..
1.250	S20U MVUNL 3			1.180	14.0	3.0	1.125	2.250	VN.. 3..
1.500	S24U MVUNL 3			1.370	14.0	3.0	1.250	2.500	VN.. 3..
2.000	S32V MVUNL 4			1.870	16.0	4.0	1.500	3.250	VN.. 4..
2.500	S40V MVUNL 4			2.380	16.0	4.0	1.750	3.750	VN.. 4..

Ordering example: 1 piece S16T MVUNR 3

	d _A [inch]								
VN.. 3..	1.000	IVSN-322	NL-34L	CL-22	XNS-47	S-34	5102	5103	
VN.. 3..	1.250 - 1.500	IVSN-322	NL-34L	CL-22	XNS-48	S-34	5102	5103	
VN.. 4..	2.000 - 2.500	IVSN-433	NL-46	CL-12	XNS-510	S-46	5124	5104	

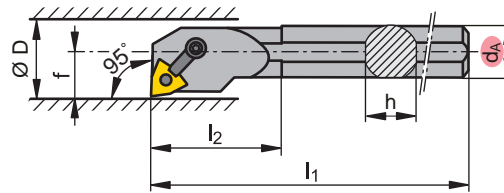




MWLNR/L



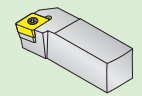
MWLN...



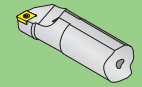
Picture shows right-hand version

d _A [inch]	Type, description	LNR		h [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	D [inch]	
1.000	S16T MWLNR 4	R		0.900	12.0	2.5	0.640	1.280	WN.. 4..
1.250	S20U MWLNR 4			1.180	14.0	3.0	0.765	1.530	WN.. 4..
1.500	S24U MWLNR 4			1.370	14.0	3.0	0.890	1.780	WN.. 4..
1.000	S16T MWLNL 4	L		0.900	12.0	2.5	0.640	1.280	WN.. 4..
1.250	S20U MWLNL 4			1.180	14.0	3.0	0.765	1.530	WN.. 4..
1.500	S24U MWLNL 4			1.370	14.0	3.0	0.890	1.780	WN.. 4..

Ordering example: 1 piece S16T MWLNR 4

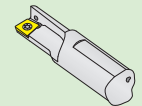


D2-D39



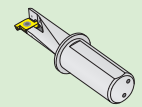
D40-D54

EcoCut



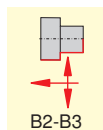
D55-D60

ProfileMaster

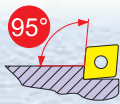


D61

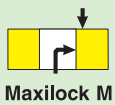
	d _A [inch]								
WN.. 4..	1.000		NL-44	CL-20	XNS-47	S-46	5124	5103	
WN.. 4..	1.250 - 1.500	IWSN-433	NL-46	CL-20	XNS-48	S-46	5124	5103	



D47



MaxiLock S - internal SCLCR/L

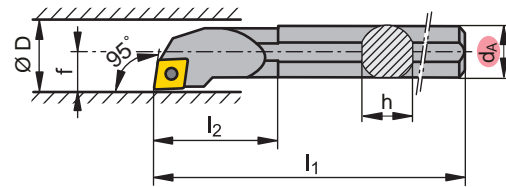


D40-D47



D48-D54

SCLC...

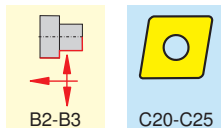


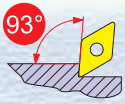
Picture shows right-hand version

d _A [inch]	Type, description	L N R 	h [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	D [inch]		
0.375	S06M SCLCR 2	R	0.340	6.0	0.830	0.250	0.500	CC.. 2..	
0.500	S08M SCLCR 2		0.460	6.0	0.910	0.312	0.625	CC.. 2..	
0.625	S10R SCLCR 2		0.580	8.0	1.060	0.406	0.812	CC.. 2..	
	S10R SCLCR 3		0.580	8.0	1.060	0.406	0.812	CC.. 3..	
0.750	S12S SCLCR 3M		0.710	10.0	1.580	0.500	1.000	CC.. 3..	
1.000	S16T SCLCR 3M		0.900	12.0	1.810	0.640	1.280	CC.. 3..	
	S16T SCLCR 4		0.900	12.0	3.000	0.640	1.280	CC.. 4..	
1.500	S24V SCLCR 4		1.370	15.7	3.000	0.890	1.780	CC.. 4..	
0.375	S06M SCLCL 2		L	0.340	6.0	0.830	0.250	0.500	CC.. 2..
	0.625			S10R SCLCL 2	0.580	8.0	1.060	0.406	0.812
		S10R SCLCL 3		0.580	8.0	1.060	0.406	0.812	CC.. 3..
	0.750	S12S SCLCL 3M		0.710	10.0	1.580	0.500	1.000	CC.. 3..
	1.000	S16T SCLCL 3M		0.900	12.0	1.810	0.640	1.280	CC.. 3..
		S16T SCLCL 4		0.900	12.0	3.000	0.640	1.280	CC.. 4..
	1.500	S24V SCLCL 4		1.370	15.7	3.000	0.890	1.780	CC.. 4..

Ordering example: 1 piece S06M SCLCR 2

	d _A [inch]				
CC.. 2..	0.375 - 0.625	1425	5507		
CC.. 3..	0.625 - 1.000	1440	5515		
CC.. 4..	1.000	1250	5520		
CC.. 4..	1.500	1540	5517	3614	1760

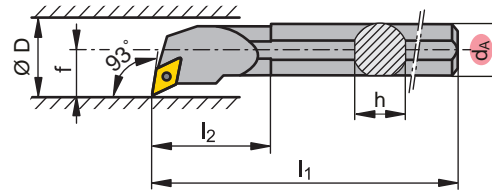




MaxiLock S - internal SDUCR/L



SDUC...

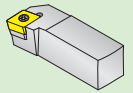
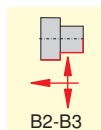


Picture shows right-hand version

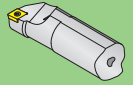
d _A [inch]	Type, description	LNR 						
			h [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	D [inch]	
0.375	S06M SDUCR 2	R	0.340	6.0	0.830	0.375	0.750	DC.. 2..
0.500	S08M SDUCR 2		0.460	6.0	0.910	0.438	0.875	DC.. 2..
0.625	S10R SDUCR 2		0.580	8.0	1.060	0.500	1.000	DC.. 2..
0.750	S12S SDUCR 3M		0.710	10.0	1.580	0.625	1.250	DC.. 3..
1.000	S16T SDUCR 3M		0.910	12.0	1.810	0.750	1.500	DC.. 3..
1.250	S20U SDUCR 3M		1.180	14.0	1.890	0.875	1.750	DC.. 3..
0.375	S06M SDUCL 2	L	0.340	6.0	0.830	0.375	0.750	DC.. 2..
0.500	S08M SDUCL 2		0.460	6.0	0.910	0.438	0.875	DC.. 2..
0.625	S10R SDUCL 2		0.580	8.0	1.060	0.500	1.000	DC.. 2..
0.750	S12S SDUCL 3M		0.710	10.0	1.580	0.625	1.250	DC.. 3..
1.000	S16T SDUCL 3M		0.910	12.0	1.810	0.750	1.500	DC.. 3..
1.250	S20U SDUCL 3M		1.180	14.0	1.890	0.875	1.750	DC.. 3..

Ordering example: 1 piece S06M SDUCR 2

	d _A [inch]				
DC.. 2..	0.375	1425	5507		
DC.. 2..	0.500 - 0.625	1225	5507		
DC.. 3..	0.750 - 1.000	1240	5515		
DC.. 3..	1.250	1335	5516	3714	1750

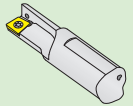


D2-D39



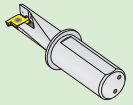
D40-D54

EcoCut



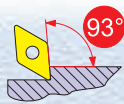
D55-D60

ProfileMaster

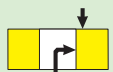


D61

D49



MaxiLock S - internal SDUCR/L -EX



Maxilock M

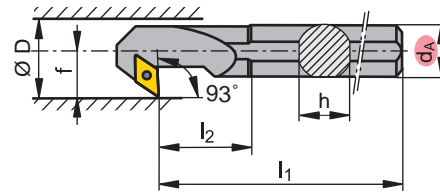
D40-D47



Maxilock S

D48-D54

SDUC...-EX

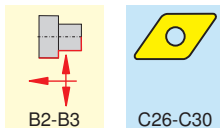


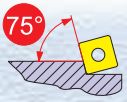
Picture shows right-hand version

d _A [inch]	Type, description	LNR 	h [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	D [inch]	
0.750	S12S SDUCR 2EX	R	0.710	10.0	0.760	0.625	1.250	DC.. 2..
1.000	S16T SDUCR 2DX		0.900	12.0	1.000	0.750	1.500	DC.. 2..
1.250	S20U SDUCR 3X		1.180	12.0	1.270	0.765	1.750	DC.. 3..
0.750	S12S SDUCL 2EX	L	0.710	10.0	0.760	0.625	1.250	DC.. 2..
1.000	S16T SDUCL 2DX		0.900	12.0	1.000	0.750	1.500	DC.. 2..
1.250	S20U SDUCL 3X		1.180	12.0	1.270	0.765	1.750	DC.. 3..

Ordering example: 1 piece S12S SDUCR 2EX

	d _A [inch]				
DC.. 2..	0.750 - 1.000	1225	5507		
DC.. 3..	1.250	1335	5516	3714	1750

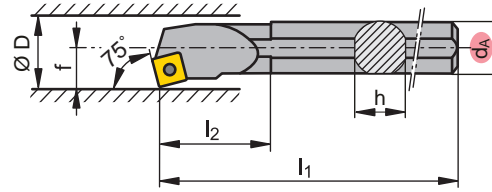




MaxiLock S - internal SSKCR/L



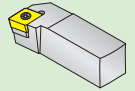
SSKC...



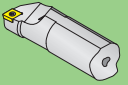
Picture shows right-hand version

d _A [inch]	Type, description	LNR 	h [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	D [inch]	
0.625	S10R SSKCR 3	R	0.580	8.0	1.060	0.406	0.812	SC.. 3..
0.750	S12S SSKCR 3		0.710	10.0	1.580	0.500	1.000	SC.. 3..
1.000	S16T SSKCR 3		0.900	12.0	1.810	0.640	1.280	SC.. 3..
0.625	S10R SSKCL 3	L	0.580	8.0	1.060	0.406	0.812	SC.. 3..
0.750	S12S SSKCL 3		0.710	10.0	1.580	0.500	1.000	SC.. 3..
1.000	S16T SSKCL 3		0.900	12.0	1.810	0.640	1.280	SC.. 3..

Ordering example: 1 piece S10R SSKCR 3

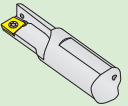


D2-D39



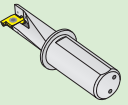
D40-D54

EcoCut



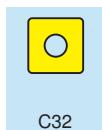
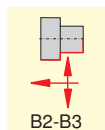
D55-D60

ProfileMaster

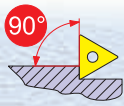


D61

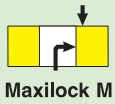
	d _A [inch]				
SC.. 3..	0.625	1440	5515		
SC.. 3..	0.750 - 1.000	1240	5515		



D51



MaxiLock S - internal STFCR/L

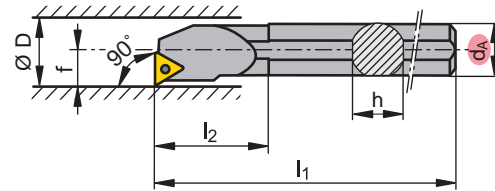


D40-D47



D48-D54

STFC...

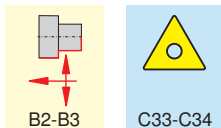


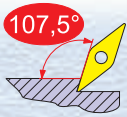
Picture shows right-hand version

d _A [inch]	Type, description	LNR 	h [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	D [inch]	
0.375	S06M STFCR 2	R	0.340	6.0	0.850	0.250	0.500	TC.. 2..
0.500	S08M STFCR 2		0.460	6.0	0.800	0.312	0.625	TC.. 2..
0.625	S10R STFCR 2		0.580	8.0	0.960	0.406	0.812	TC.. 2..
0.750	S12S STFCR 2		0.710	10.0	1.420	0.500	1.000	TC.. 2..
1.250	S20U STFCR 3		1.180	14.0	1.970	0.765	1.530	TC.. 3..
1.500	S24V STFCR 3		1.370	15.7	2.360	0.890	1.780	TC.. 3..
0.375	S06M STFCL 2	L	0.340	6.0	0.850	0.250	0.500	TC.. 2..
0.500	S08M STFCL 2		0.460	6.0	0.800	0.312	0.625	TC.. 2..
0.625	S10R STFCL 2		0.580	8.0	0.960	0.406	0.812	TC.. 2..
0.750	S12S STFCL 2		0.710	10.0	1.420	0.500	1.000	TC.. 2..
1.000	S16T STFCL 3		0.900	12.0	1.930	0.640	1.280	TC.. 3..
1.250	S20U STFCL 3		1.180	14.0	1.970	0.765	1.530	TC.. 3..
1.500	S24V STFCL 3		1.370	15.7	2.360	0.890	1.780	TC.. 3..

Ordering example: 1 piece S06M STFCR 2

	d _A [inch]				
TC.. 2..	0.375 - 0.500	1425	5507		
TC.. 2..	0.625 - 0.750	1225	5507		
TC.. 3..	1.000	1240	5515		
TC.. 3..	1.250 - 1.500	1335	5516	3414	1750

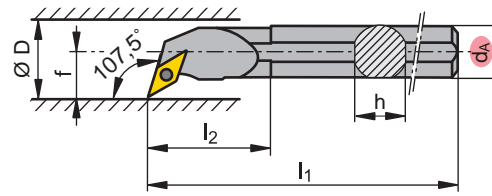




MaxiLock S - internal SVQCR/L



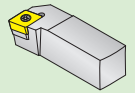
SVQC...



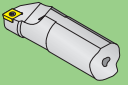
Picture shows right-hand version

d _A [inch]	Type, description	LNR 	h [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	D [inch]	
1.000	S16T SVQCR 3	R	0.900	12.0	0.910	0.750	1.375	VC.. 3..
1.250	S20U SVQCR 3		1.180	14.0	1.060	0.875	1.625	VC.. 3..
1.500	S24V SVQCR 3		1.370	15.7	1.370	1.063	2.000	VC.. 3..
1.000	S16T SVQCL 3	L	0.900	12.0	0.910	0.750	1.375	VC.. 3..
1.250	S20U SVQCL 3		1.180	14.0	1.060	0.875	1.625	VC.. 3..
1.500	S24V SVQCL 3		1.370	15.7	1.370	1.063	2.000	VC.. 3..

Ordering example: 1 piece S16T SVQCR 3

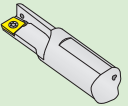


D2-D39



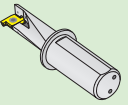
D40-D54

EcoCut



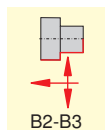
D55-D60

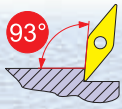
ProfileMaster



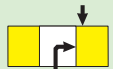
D61

	d _A [inch]				
VC.. 3..	1.000	1240	5515		
VC.. 3..	1.250 - 1.500	1335	5516	3718	1750





MaxiLock S - internal SVUCR/L



Maxilock M

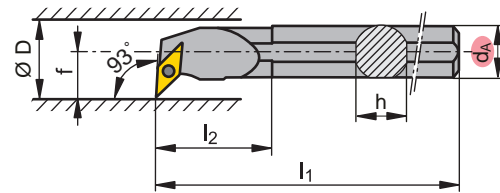
D40-D47



Maxilock S

D48-D54

SVUC...

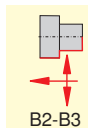


Picture shows right-hand version

d _A [inch]	Type, description	L N R 						
			h [inch]	l ₁ [inch]	l ₂ [inch]	f [inch]	D [inch]	
1.000	S16T SVUCR 2D	R	0.900	12.0	1.810	0.750	1.300	VC.. 2..
1.250	S20U SVUCR 3		1.180	14.0	3.000	1.000	2.000	VC.. 3..
1.500	S24V SVUCR 3		1.370	15.7	3.000	1.250	2.250	VC.. 3..
2.000	S32W SVUCR 3	L	1.870	17.7	4.000	1.375	2.750	VC.. 3..
1.000	S16T SVUCL 2D		0.900	12.0	1.810	0.750	1.300	VC.. 2..
1.250	S20U SVUCL 3		1.180	14.0	3.000	1.000	2.000	VC.. 3..
1.500	S24V SVUCL 3		1.370	15.7	3.000	1.250	2.250	VC.. 3..
2.000	S32W SVUCL 3		1.870	17.7	4.000	1.375	2.750	VC.. 3..

Ordering example: 1 piece S16T SVUCR 2D

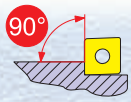
	d _A [inch]				
VC.. 2..	1.000	1225	5507		
VC.. 3..	1.250 - 2.000	1335	5516	3718	1750



B2-B3



C35-C37

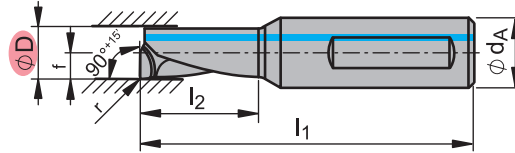
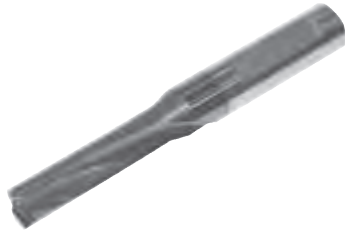


EcoCut Mini

ECM Ø .157 - .236 inch



EC...



Picture shows right-hand version

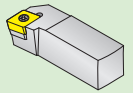
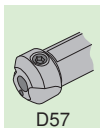
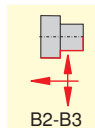
D [inch]	Type, description	L R	Uncoated		Coated		d_A [inch]	l_1 [inch]	l_2 [inch]	r [inch]	f [inch]
			TSM30		CM45						
0.157	EC 04R-2.25D	R			●		0.236	1.378	0.354	0.008	0.079
0.157	EC 04R-2.25D-27	R	●				0.236	1.378	0.354	0.008	0.079
0.157	EC 04R-4.00D	R			●		0.236	1.614	0.630	0.008	0.079
0.157	EC 04R-4.00D-27	R	●				0.236	1.614	0.630	0.008	0.079
0.157	EC 04L-2.25D	L			●		0.236	1.378	0.354	0.008	0.079
0.157	EC 04L-2.25D-27	L	●				0.236	1.378	0.354	0.008	0.079
0.157	EC 04L-4.00D	L			●		0.236	1.614	0.630	0.008	0.079
0.157	EC 04L-4.00D-27	L	●				0.236	1.614	0.630	0.008	0.079
0.197	EC 05R-2.25D	R			●		0.236	1.457	0.443	0.008	0.098
0.197	EC 05R-2.25D-27	R	●				0.236	1.457	0.443	0.008	0.098
0.197	EC 05R-4.00D	R			●		0.236	1.772	0.787	0.008	0.098
0.197	EC 05R-4.00D-27	R	●				0.236	1.772	0.787	0.008	0.098
0.197	EC 05L-2.25D	L			●		0.236	1.457	0.443	0.008	0.098
0.197	EC 05L-2.25D-27	L	●				0.236	1.457	0.443	0.008	0.098
0.197	EC 05L-4.00D	L			●		0.236	1.772	0.787	0.008	0.098
0.197	EC 05L-4.00D-27	L	●				0.236	1.772	0.787	0.008	0.098
0.236	EC 06R-2.25D	R			●		0.315	1.496	0.531	0.008	0.118
0.236	EC 06R-2.25D-27	R	●				0.315	1.496	0.531	0.008	0.118
0.236	EC 06R-4.00D	R			●		0.315	1.929	0.945	0.008	0.118
0.236	EC 06R-4.00D-27	R	●				0.315	1.929	0.945	0.008	0.118
0.236	EC 06L-2.25D	L			●		0.315	1.496	0.531	0.008	0.118
0.236	EC 06L-2.25D-27	L	●				0.315	1.496	0.531	0.008	0.118
0.236	EC 06L-4.00D	L			●		0.315	1.929	0.945	0.008	0.118
0.236	EC 06L-4.00D-27	L	●				0.315	1.929	0.945	0.008	0.118



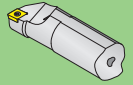
Steel	●	●	●	●
Stainless	●	●	●	●
Cast iron	○	○	○	○
Non ferrous metals	●	●	●	●
Heat resistant	○	○	○	○
Hard materials				

- Main application
- Extended application
- Stock item

Ordering example: 10 pieces EC 04R-2.25D CM45

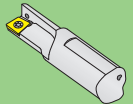


D2-D39



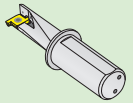
D40-D54

EcoCut



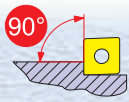
D55-D60

ProfileMaster



D61

D55

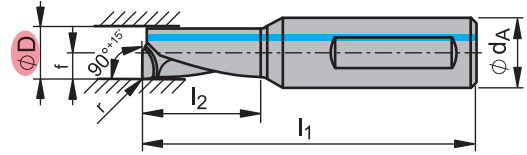


EcoCut Mini

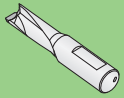
ECM Ø .276 - .315 inch



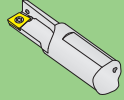
EC...



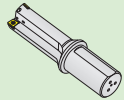
Picture shows right-hand version



D55-D56



D58-D59



D60

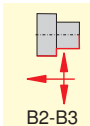
D [inch]	Type, description	L R	Uncoated		Coated		d_A [inch]	l_1 [inch]	l_2 [inch]	f [inch]	r [inch]
			TSM80	CM45							
0.276	EC 07R-2.25D	R		●			0.315	1.654	0.620	0.138	0.008
0.276	EC 07R-2.25D-27	R	●				0.315	1.654	0.620	0.138	0.008
0.276	EC 07R-4.00D	R		●			0.315	2.087	1.102	0.138	0.008
0.276	EC 07R-4.00D-27	R	●				0.315	2.087	1.102	0.138	0.008
0.276	EC 07L-2.25D	L		●			0.315	1.654	0.620	0.138	0.008
0.276	EC 07L-2.25D-27	L	●				0.315	1.654	0.620	0.138	0.008
0.276	EC 07L-4.00D	L		●			0.315	2.087	1.102	0.138	0.008
0.276	EC 07L-4.00D-27	L	●				0.315	2.087	1.102	0.138	0.008
0.315	EC 08R-2.25D	R		●			0.315	1.772	0.709	0.157	0.008
0.315	EC 08R-2.25D-27	R	●				0.315	1.772	0.709	0.157	0.008
0.315	EC 08R-4.00D	R		●			0.315	2.244	1.260	0.157	0.008
0.315	EC 08R-4.00D-27	R	●				0.315	2.244	1.260	0.157	0.008
0.315	EC 08L-2.25D	L		●			0.315	1.772	0.709	0.157	0.008
0.315	EC 08L-2.25D-27	L	●				0.315	1.772	0.709	0.157	0.008
0.315	EC 08L-4.00D	L		●			0.315	2.244	1.260	0.157	0.008
0.315	EC 08L-4.00D-27	L	●				0.315	2.244	1.260	0.157	0.008



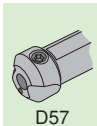
Steel	●	●	●	●	●	●
Stainless	●	●	●	●	●	●
Cast iron	○	○	○	○	○	○
Non ferrous metals	○	○	○	○	○	○
Heat resistant	○	○	○	○	○	○
Hard materials						

- Main application
- Extended application
- Stock item

Ordering example: 10 pieces EC 07R-2.25D CM45

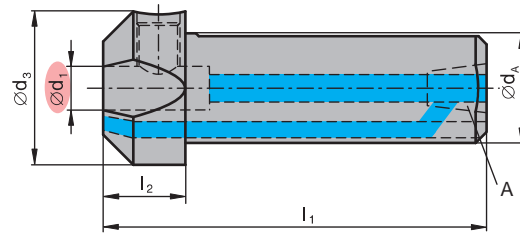


B2-B3




D57

EcoCut Mini



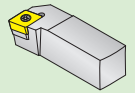
d_1 [inch]	Type, description	d_A [inch]	d_3 [inch]	l_1 [inch]	l_2 [inch]
0.236	EC-ADX12-06-E	0.750	0.984	2.500	0.550
0.315	EC-ADX12-08-E	0.750	0.984	2.500	0.550

Ordering example: 1 piece EC-ADX12-06-E

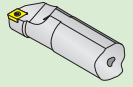
d_1 [inch]	 1 piece
0.236	7897990/M8X1X8 DIN913
0.315	7897990/M8X1X8 DIN913



D55-D56

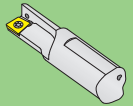


D2-D39



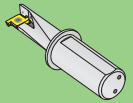
D40-D54

EcoCut



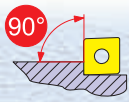
D55-D60

ProfileMaster



D61

D57

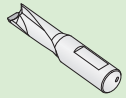


EcoCut Classic

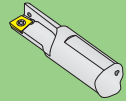
EC Ø .315 - .630 inch



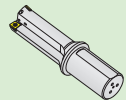
EC...



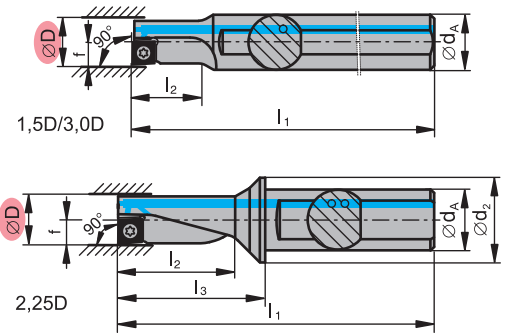
D55-D56



D58-D59



D60

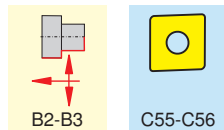


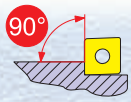
Picture shows right-hand version

D [inch]	Type, description	L R	d _A [inch]	d ₂ [inch]	l ₁ [inch]	l ₂ [inch]	l ₃ [inch]	f [inch]	
0.315	EC 08R-1.5D 04-E	R	0.500		3.1	0.47		0.157	XC.. 0401..
0.315	EC 08R-2.25D 04-E		0.375	0.472	2.3	0.71	0.870	0.157	XC.. 0401..
0.315	EC 08R-3.0D 04 H-E		0.500		3.1	0.94		0.157	XC.. 0401..
0.315	EC 08L-1.5D 04-E	L	0.500		3.1	0.47		0.157	XC.. 0401..
0.315	EC 08L-2.25D 04-E		0.375	0.472	2.3	0.71	0.870	0.157	XC.. 0401..
0.315	EC 08L-3.0D 04 H-E		0.500		3.1	0.94		0.157	XC.. 0401..
0.394	EC 10R-1.5D 05-E	R	0.500		3.5	0.59		0.197	XC.. 0502..
0.394	EC 10R-2.25D 05-E			0.630	2.7	0.89	1.085	0.197	XC.. 0502..
0.394	EC 10R-3.0D 05 H-E			0.630	3.3	1.18		0.197	XC.. 0502..
0.394	EC 10L-1.5D 05-E	L	0.500		3.5	0.59		0.197	XC.. 0502..
0.394	EC 10L-2.25D 05-E			0.630	2.7	0.89	1.085	0.197	XC.. 0502..
0.394	EC 10L-3.0D 05 H-E			0.630	3.3	1.18		0.197	XC.. 0502..
0.472	EC 12R-1.5D 06-E	R	0.625		3.9	0.71		0.236	XC.. 0602..
0.472	EC 12R-2.25D 06-E			0.787	3.0	1.06	1.300	0.236	XC.. 0602..
0.472	EC 12R-3.0D 06 H-E			0.787	3.7	1.42		0.236	XC.. 0602..
0.472	EC 12L-1.5D 06-E	L	0.625		3.9	0.71		0.236	XC.. 0602..
0.472	EC 12L-2.25D 06-E			0.787	3.0	1.06	1.300	0.236	XC.. 0602..
0.472	EC 12L-3.0D 06 H-E			0.787	3.7	1.42		0.236	XC.. 0602..
0.551	EC 14R-1.5D 07-E	R	0.625		4.3	0.83		0.276	XC.. 0703..
0.551	EC 14R-2.25D 07-E			0.787	3.2	1.24	1.520	0.276	XC.. 0703..
0.551	EC 14R-3.0D 07 H-E			0.787	3.9	1.65		0.276	XC.. 0703..
0.551	EC 14L-1.5D 07-E	L	0.625		4.3	0.83		0.276	XC.. 0703..
0.551	EC 14L-2.25D 07-E			0.787	3.2	1.24	1.520	0.276	XC.. 0703..
0.551	EC 14L-3.0D 07 H-E			0.787	3.9	1.65		0.276	XC.. 0703..
0.630	EC 16R-1.5D 08-E	R	0.750		4.9	0.94		0.315	XC.. 0803..
0.630	EC 16R-2.25D 08-E			0.984	3.7	1.42	1.730	0.315	XC.. 0803..
0.630	EC 16R-3.0D 08 H-E			0.984	4.3	1.89		0.315	XC.. 0803..
0.630	EC 16L-1.5D 08-E	L	0.750		4.9	0.94		0.315	XC.. 0803..
0.630	EC 16L-2.25D 08-E			0.984	3.7	1.42	1.730	0.315	XC.. 0803..
0.630	EC 16L-3.0D 08 H-E			0.984	4.3	1.89		0.315	XC.. 0803..

Ordering example: 1 piece EC 08R-1.5D 04-E

	D [inch]		
XC.. 0401..	0.315	7815108/M1,8X3,4/T06	7883305/TORX T06
XC.. 0502..	0.394	7815110/M2,0X4,0/T06	7883305/TORX T06
XC.. 0602..	0.472	7722113/M2,2X5/T07	7724105/TORX T07
XC.. 0703..	0.551	7815101/M2,5X6,0/T08	7724106/TORX T08
XC.. 0803..	0.630	7883203/M3,0X7,3/T08	7724106/TORX T08



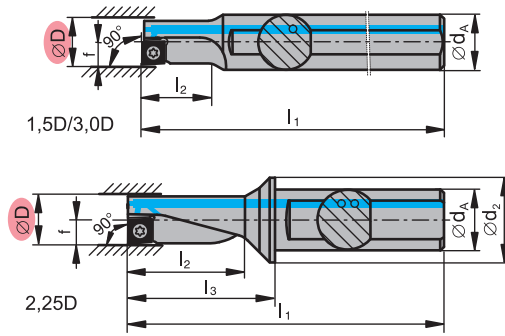


EcoCut Classic

EC Ø .709 - 1.260 inch



EC...

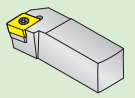
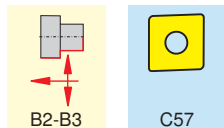


Picture shows right-hand version

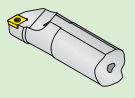
D [inch]	Type, description	L R	d _A [inch]	d ₂ [inch]	l ₁ [inch]	l ₂ [inch]	l ₃ [inch]	f [inch]				
0.709	EC 18R-1.5D 09-E	R	1.000	1.260	5.3	1.06	2.110	0.354	XC.. 09T3..			
0.709	EC 18R-2.25D 09-E				4.3	1.59		0.354	XC.. 09T3..			
0.709	EC 18R-3.0D 09 H-E				5.0	2.12		0.354	XC.. 09T3..			
0.709	EC 18L-1.5D 09-E	L		1.000	1.260	5.3	1.06	2.110	0.354	XC.. 09T3..		
0.709	EC 18L-2.25D 09-E					4.3	1.59		0.354	XC.. 09T3..		
0.709	EC 18L-3.0D 09 H-E					5.0	2.12		0.354	XC.. 09T3..		
0.787	EC 20R-1.5D 10-E	R			1.250	1.260	5.9	1.18	2.170	0.394	XC.. 10T3..	
0.787	EC 20R-2.25D 10-E						4.4	1.77		0.394	XC.. 10T3..	
0.787	EC 20R-3.0D 10 H-E						5.1	2.36		0.394	XC.. 10T3..	
0.787	EC 20L-1.5D 10-E	L				1.250	1.260	5.9	1.18	2.170	0.394	XC.. 10T3..
0.787	EC 20L-2.25D 10-E							4.4	1.77		0.394	XC.. 10T3..
0.787	EC 20L-3.0D 10 H-E							5.1	2.36		0.394	XC.. 10T3..
0.984	EC 25R-1.5D 13-E	R	1.500				1.969	7.0	1.48	3.460	0.492	XC.. 1304..
0.984	EC 25R-2.25D 13-E							5.0	2.22		0.492	XC.. 1304..
0.984	EC 25R-3.0D 13 H-E							5.9	2.95		0.492	XC.. 1304..
0.984	EC 25L-1.5D 13-E	L		1.500			1.969	7.0	1.48	3.460	0.492	XC.. 1304..
0.984	EC 25L-2.25D 13-E							5.0	2.22		0.492	XC.. 1304..
0.984	EC 25L-3.0D 13 H-E							5.9	2.95		0.492	XC.. 1304..
1.260	EC 32R-1.5D 17-E	R			1.500		1.260	7.8	1.89	3.460	0.630	XC.. 1705..
1.260	EC 32R-2.25D 17-E							6.2	2.83		0.630	XC.. 1705..
1.260	EC 32R-3.0D 17 H-E							7.2	3.78		0.630	XC.. 1705..
1.260	EC 32L-1.5D 17-E	L				1.500	1.260	7.8	1.89	3.460	0.630	XC.. 1705..
1.260	EC 32L-2.25D 17-E							6.2	2.83		0.630	XC.. 1705..
1.260	EC 32L-3.0D 17 H-E							7.2	3.78		0.630	XC.. 1705..

Ordering example: 1 piece EC 18R-1.5D 09-E

	D [inch]		
XC.. 09T3..	0.709	7724106/TORX T08	7883203/M3,0X7,3/T08
XC.. 10T3..	0.787	7724103/TORX T15	7883209/M3,5X8,6/T15
XC.. 1304..	0.984	7724104/TORX T20	7822114/M4,5X10,5/T20
XC.. 1705..	1.260	7724104/TORX T20	7822114/M4,5X10,5/T20

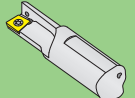


D2-D39



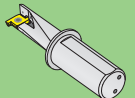
D40-D54

EcoCut

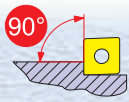


D55-D60

ProfileMaster



D61

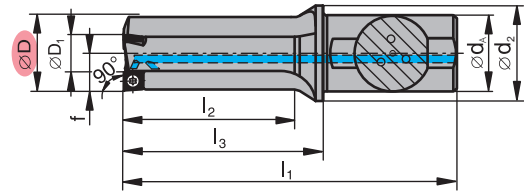


EcoCut Rebore


ECR Ø 1.575 - 2.362 inch






ECR...

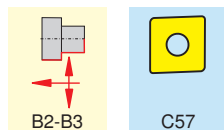


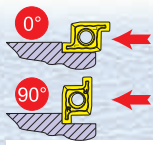
Picture shows right-hand version

D [inch]	Type, description	L R	D ₁ [inch]	d _A [inch]	d ₂ [inch]	l ₁ [mm]	l ₂ [inch]	l ₃ [inch]	f [inch]	
1.575	ECR 4020R03-2.25D 10	R	0.787	1.575	1.969	175.0	3.543	4.134	0.787	XC.. 10T3..
1.575	ECR 4020L03-2.25D 10	L	0.787		1.969	175.0	3.543	4.134	0.787	XC.. 10T3..
2.362	ECR 6032R03-2.25D 17	R	1.260		2.756	232.0	5.314	6.378	1.181	XC.. 1705..
2.362	ECR 6032L03-2.25D 17	L	1.260		2.756	232.0	5.314	6.378	1.181	XC.. 1705..

Ordering example: 1 piece ECR 4020R03-2.25D 10

	D [inch]		
XC.. 10T3..	1.575	7883209/M3,5X8,6/T15	7724103/TORX T15
XC.. 1705..	2.362	7822114/M4,5X10,5/T20	7724104/TORX T20



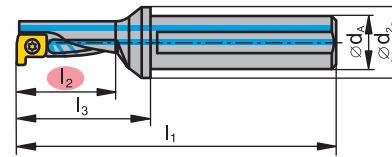
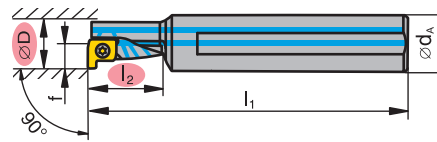


ProfileMaster

PM Ø .394 - 1.260 inch



PM...

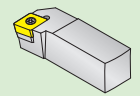
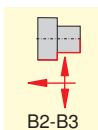


Picture shows right-hand version

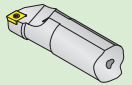
D [inch]	Type, description	L N R								
			d _A [inch]	d ₂ [inch]	l ₁ [inch]	l ₂ [inch]	l ₃ [inch]	f [inch]		
0.394	PM 10R-1.5D-E	R	0.500		3.150	0.590			0.197	PM 10..
0.394	PM 10R-2.25D-E			0.630	2.821	0.886		1.197	0.197	PM 10..
0.394	PM 10L-2.25D-E	L		0.630	2.821	0.886		1.197	0.197	PM 10..
0.394	PM 10L-1.5D-E				3.150	0.590			0.197	PM 10..
0.472	PM 12R-1.5D-E	R	0.625		3.543	0.709			0.236	PM 12..
0.472	PM 12R-2.25D-E			0.787	3.049	1.063		1.299	0.236	PM 12..
0.472	PM 12L-1.5D-E	L				3.543	0.709		0.236	PM 12..
0.472	PM 12L-2.25D-E		0.787	3.049	1.063		1.299	0.236	PM 12..	
0.630	PM 16R-1.5D-E	R	0.750		4.921	0.945			0.315	PM 16..
0.630	PM 16R-2.25D-E			0.984	3.832	1.417		1.831	0.315	PM 16..
0.630	PM 16L-2.25D-E	L		0.984	3.832	1.417		1.831	0.315	PM 16..
0.630	PM 16L-1.5D-E				4.921	0.945			0.315	PM 16..
0.787	PM 20R-1.5D-E	R	1.000		5.906	1.181			0.394	PM 20..
0.787	PM 20R-2.25D-E			1.260	4.415	1.772		2.165	0.394	PM 20..
0.787	PM 20L-1.5D-E	L				5.906	1.181		0.394	PM 20..
0.787	PM 20L-2.25D-E		1.260	4.415	1.772		2.165	0.394	PM 20..	
0.984	PM 25R-1.5D-E	R	1.250		7.087	1.476			0.492	PM 25..
0.984	PM 25R-2.25D-E			1.575	5.233	2.217		2.858	0.492	PM 25..
0.984	PM 25L-1.5D-E	L				7.087	1.476		0.492	PM 25..
0.984	PM 25L-2.25D-E		1.575	5.233	2.217		2.858	0.492	PM 25..	
1.260	PM 32R-1.5D-E	R	1.500		7.874	1.890			0.630	PM 32..
1.260	PM 32R-2.25D-E			1.969	6.215	2.835		3.465	0.630	PM 32..
1.260	PM 32L-1.5D-E	L				7.874	1.890		0.630	PM 32..
1.260	PM 32L-2.25D-E			1.969	6.215	2.835		3.465	0.630	PM 32..

Ordering example: 1 piece PM 10R-1.5D-E

	d _A [inch]			
PM 10..	0.500	10001230/M1,8X3,8/T06	7883305/TORX T06	
PM 12..	0.625	7883215/M2,2X4,0/T07	7724105/TORX T07	
PM 16..	0.750	7883214/M3,0X5,7/T08	7724106/TORX T08	
PM 20..	1.000	7722111/M3,5X7,2/T15	7724103/TORX T15	
PM 25..	1.250	7883209/M3,5X8,6/T15	7724103/TORX T15	
PM 32..	1.500	10001785/M5,0X10,8/T20	7724104/TORX T20	

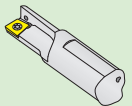


D2-D39



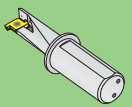
D40-D54

EcoCut



D55-D60

ProfileMaster



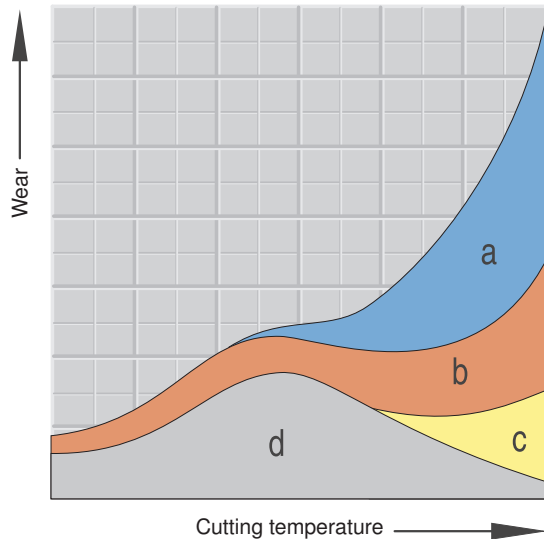
D61

D61

Wear is caused through simultaneous mechanical and thermal stress of the cutting edge.

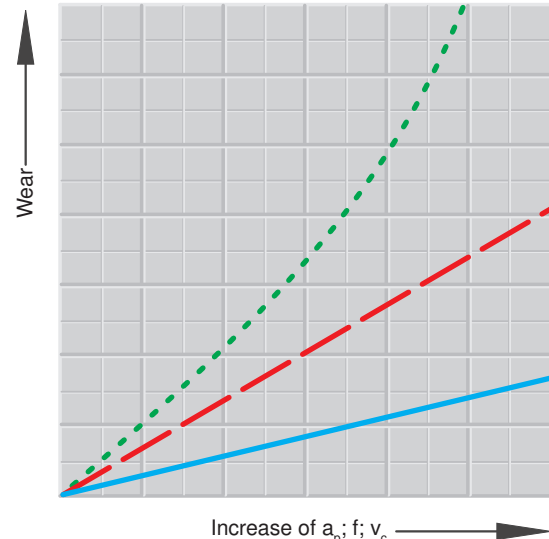
The most common causes are:

- > Mechanical abrasion
- > Damage due to built-up edge (BUE)
- > Oxidation processes
- > Diffusion



- a = diffusion
- b = mechanical abrasion
- c = oxidation
- d = damage due to built-up edge (BUE)

With increasing cutting temperature the thermally caused wear types of oxidation and diffusion prevail.



- Cutting speed
- Feed rate
- Cutting depth

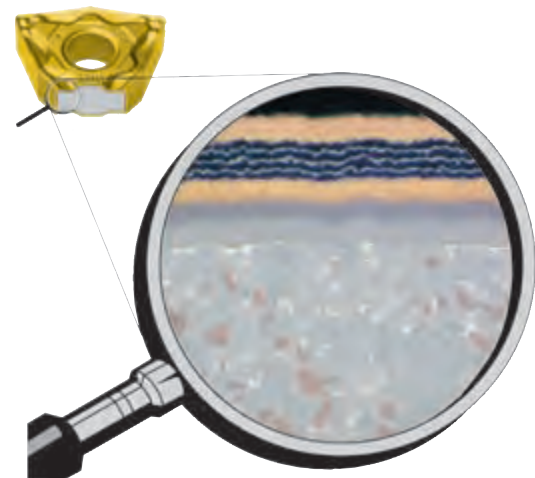
Cutting temperature and wear depend decisively upon the machining conditions.

Benefits of hard material coatings

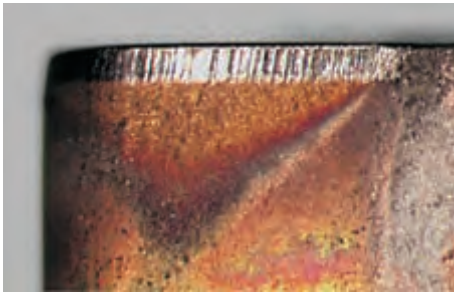
Depositing hard material layers on carbide tools positively influences wear characteristics.

The advantages of hard material layers consist in the reduction of:

- > Friction
- > Temperature changes
- > Oxidation
- > Diffusion



Flank wear



Abrasion on flank, normal wear after a certain machining time.

Reasons:

- > Cutting speed too high
- > Carbide grade with insufficient wear resistance
- > Incorrect feed rate

Remedies:

- > Reduce cutting speed
- > Select more wear resistant carbide grade
- > Adapt feed rate to cutting speed and cutting depth (increase feed rate)

Edge chipping



Through excessive mechanical stress at the cutting edge fracture and chipping can occur.

Reasons:

- > Grade with too high wear resistance
- > Vibration
- > Feed rate too high or excessive cutting depth
- > Interrupted cut
- > Swarf damage

Remedies:

- > Use tougher grade
- > Use negative cutting edge geometry with chip groove
- > Increase stability (tool, work piece)

Cratering



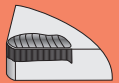
The hot chip which is being evacuated causes cratering at the rake face of the cutting edge.

Reasons:

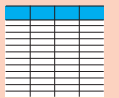
- > Cutting speed and / or feed rate too high
- > Rake angle too shallow
- > Grade with low wear resistance
- > Insufficient coolant supply

Remedies:

- > Reduce cutting speed and / or feed rate
- > Increase coolant quantity and / or pressure, optimise coolant supply
- > Use grade with higher resistance to cratering



E2-E9



E10-E22



E24-E35



E36-E37

Plastic deformation



Reasons:

- > Too high machining temperature, resulting in softening of substrate
- > Damaged coatings

Remedies:

- > Reduce cutting speed
- > Choose carbide grade with higher wear resistance
- > Provide cooling

High machining temperature and simultaneous mechanical stress can lead to plastic deformation.

Built-up edge



Reasons:

- > Too low cutting speed
- > Too small rake angle
- > Wrong cutting material
- > Lack of cooling / lubrication

Remedies:

- > Increase cutting speed
- > Enlarge rake angle
- > Apply TiN-coating
- > Use emulsion with higher concentration

Built-up edge occurs when the chip is not evacuated properly due to insufficient cutting temperature.

Insert breakage



Reasons:

- > Excessive stress of cutting material
- > Lack of stability
- > Corner angle too small
- > Excessive notching

Remedies:

- > Use tougher cutting material
- > Use protective edge chamfer
- > Increase honing of edge
- > Use more stable geometry

Excessive stress of the insert causes breakage.

Corrective measures for turning problems



Type of problem											Corrective measures				
Type of wear					Workpiece problems				Swarf control				Cutting values	Selection of inserts	General criteria
Flank wear	Cratering	Edge chipping	Plastic deformation	Insert breakage	Built-up edge	Vibration	Formation of pits and burrs	Chattered surface	Surface quality	Chip too long (tangled swarf)					
↓	↓		↓		↑	↓			↑	↓		Cutting speed	Cutting values		
~		↓	↓	↓		↑		↓	↓	↑	↓	Feed rate			
	↓	↓					↓	↓	↓			Feed - centre area			
		↑	~		↓	~	↓	↓	↓	↓	↑	Chip groove	Selection of inserts	↓ -R -M -F ↑	
↑	↑	↑				↓	↓	↓	↑			Corner radius		larger ↑↓ smaller	
↑	↑	↓	↑	↓								Cutting material		wear resistance ↑↓ toughness	
		~		~		~		~	~			Clamping of tool	General criteria		
		~		~		~		~	~			Clamping of work piece			
		~		~		~			↓			Overhang			
~		~				~	~		~			Tip height			
●	~		●		●		●		●	●		Cooling lubricant			

↑ raise, increase, large influence

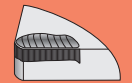
↓ avoid, reduce large influence

~ check, optimize

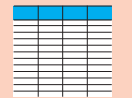
↑ raise, increase low influence

↓ avoid, reduce low influence

● use



E2-E9



E10-E22

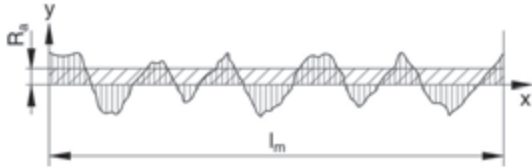


E24-E35



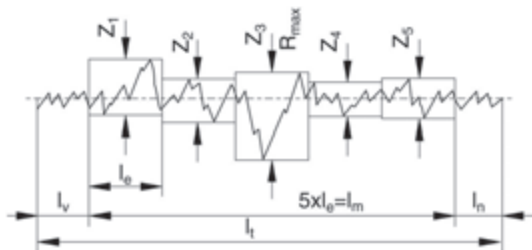
E36-E37

ISO-DIN measured surface roughness



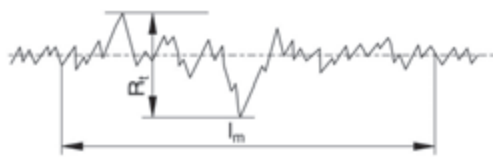
Average roughness value R_a (DIN 4768)

This is defined as the arithmetical mean of the absolute sums of the roughness profile R within the entire measured length l_m .



Average roughness depth R_z (DIN 4768)

This is defined as the average value resulting from the single roughness depths of five successive single measured lengths l_e .



Single surface roughness depth $Z_1 \dots Z_5$

This is the vertical distance between the highest and the lowest point of the roughness profile R within a single measured length l_e .

Maximum surface roughness depth R_t (DIN 4768/1)

This is the distance between the elevation and depression of the line within the measured length (reference distance) of profile filtered according to DIN 4768 sheet 1.

Surface quality according to manufacturing method

Surface symbol according to ISO 1302	new	0,025	0,05	0,1	0,2	0,4	0,8	1,6	3,2	6,3	12,5	25	50
Surface symbol according to ISO 3141	until now	▽▽▽▽					▽▽▽		▽▽		▽		
Roughness index		N 1	N 2	N 3	N 4	N 5	N 6	N 7	N 8	N 9	N 10	N 11	N 12
Arithmetic mean value	R_a [μm]	0,025	0,05	0,1	0,2	0,4	0,8	1,6	3,2	6,3	12,5	25	50
Surface roughness depth	R_z [μm]	0,25	0,63	1	1,6	2,5	4-6,3	10	16-25	40	63	100	160
Longitudinal turning Face turning													
Longitudinal turning Face turning	<i>Machining</i>												
Longitudinal grinding Surface grinding													

☐ ≙ Surface roughness (produced through special methods)

☐ ≙ Surface roughness (produced through normal workshop methods)

☐ ≙ Surface roughness (produced through rough machining methods)

Surface and roughness

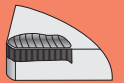
Table for the comparison of the measuring systems (metric compared to inch)
of surface roughness

R_{max} [μm]	CLA/ R_a [μm]	CLA [μ'']	RMS [μm]	RMS [μ'']
0,06	0,02	0,75	0,02	0,8
0,1	0,03	1,2	0,04	13
0,2	0,06	2,5	0,08	2,8
0,3	0,09	3,7	0,1	4,2
0,4	0,13	5,0	0,14	5,6
0,5	0,16	6,7	0,18	6,9
0,6	0,19	7,5	0,21	8,3
0,7	0,22	8,7	0,25	9,7
0,8	0,25	10,0	0,28	11,1
0,9	0,28	11,2	0,32	12,5
1,0	0,31	12,5	0,35	14,0
1,2	0,38	15,8	0,42	16,7
1,5	0,47	18,8	0,53	20,9
1,8	0,57	22,6	0,64	25,5
2,0	0,64	25,1	0,78	27,9
2,4	0,73	30,1	0,85	33,4
2,8	0,89	35,2	0,99	39,0
3,0	0,95	37,6	1,06	41,9
3,5	1,11	43,9	1,24	48,8
4,0	1,27	50,2	1,41	55,8
5,0	1,59	62,7	1,77	69,7
6,0	1,91	75,5	2,12	83,6
7,0	2,22	87,5	2,48	92,6
8,0	2,54	100,0	2,83	111,7
10,0	3,18	125,5	3,54	140,0
20,0	6,64	251,5	7,8	279,0
40,0	12,7	502,0	14,1	558,0
60,0	19,1	755,0	21,2	836,0
125,0	39,5	1560,0	43,5	1750,0
200,0	64,0	2510,0	78,0	2790,0

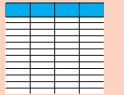
$1 \mu\text{m} = 0,001 \text{ mm} = 39,37 \mu''$
 $1 \mu'' = 0,000001 \text{ mm} = 0,0000254 \text{ mm}$

CLA (centre line average)

RMS (root mean square)



E2-E9



E10-E22



E24-E35



E36-E37

Surface quality metric



Causes of wear

E2

Types of wear

E3-E4

Solutions

E5

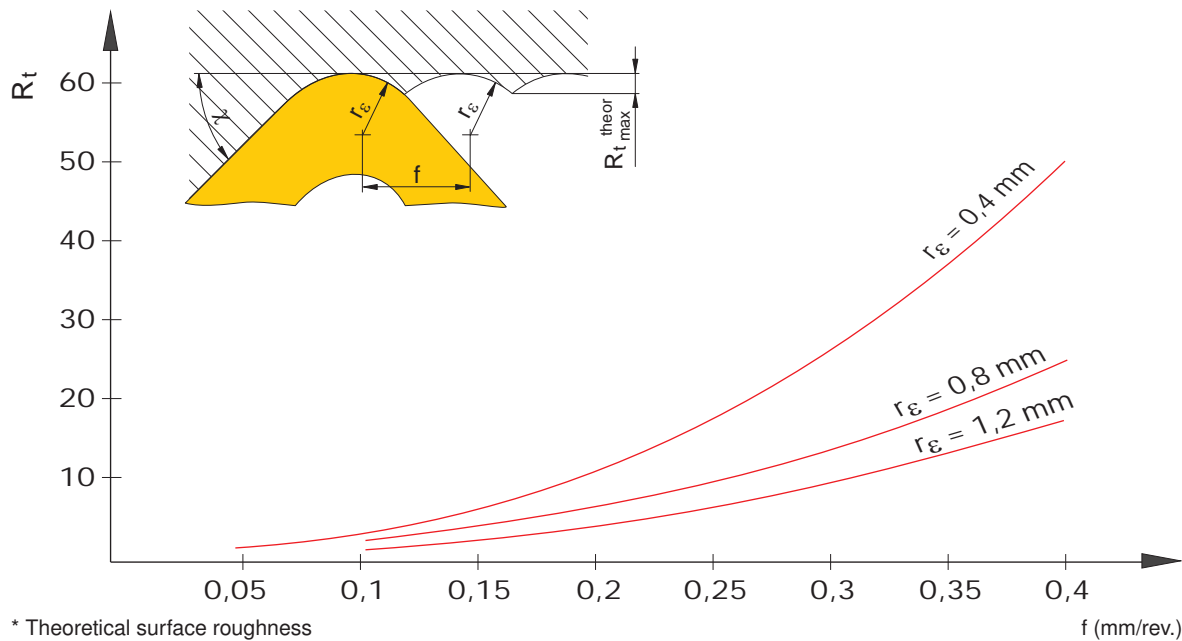
Surface quality

E6-E9

Theoretical surface finish

The maximum theoretical surface roughness with turning, $R_{t\text{ theor.}}$ is the combination of feed rate and corner radius.

$$R_{t\text{ theor.}} = \left(r_{\epsilon} - \sqrt{r_{\epsilon}^2 - \frac{f^2}{4}} \right) \cdot 1000 \quad \text{or approximately} \quad R_{t\text{ theor.}} = \frac{125 \cdot f^2}{r_{\epsilon}}$$



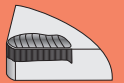
Cutting data for feed rate

Roughness range R_z in μm	$R_{t\text{ max}}$	corresponds to R_a -value	Roughness index	ISO 1302	Corner radius r_{ϵ} (mm) and feed rate f (mm/rev.)			
					$r_{\epsilon} = 0,4$	$r_{\epsilon} = 0,8$	$r_{\epsilon} = 1,2$	$r_{\epsilon} = 1,6$
63 - 100	$\sqrt{R_t 100}$	12,5 - 25	N 11	25 $\sqrt{\text{ }}$	–	0,51	0,69	0,18
40 - 63	$\sqrt{R_t 63}$	6,3 - 25	N 10	12,5 $\sqrt{\text{ }}$	0,27	0,43	0,56	0,68
31,5 - 40	$\sqrt{R_t 40}$	4,9 - 6,3	N 9	6,3 $\sqrt{\text{ }}$	0,25	0,37	0,49	0,57
25 - 31,5	$\sqrt{R_t 31,5}$	4,0 - 4,9			0,22	0,32	0,41	0,47
16 - 25	$\sqrt{R_t 25}$	2,5 - 4,0	N 8	3,2 $\sqrt{\text{ }}$	0,20	0,28	0,36	0,39
10 - 16	$\sqrt{R_t 16}$	1,6 - 2,5			0,15	0,22	0,29	0,31
6,3 - 10	$\sqrt{R_t 10}$	1,0 - 1,6	N 7	1,6 $\sqrt{\text{ }}$	0,10	0,13	0,18	0,20

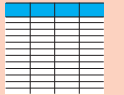
Masterfinish metric



Operating principle / benefit



E2-E9



E10-E22



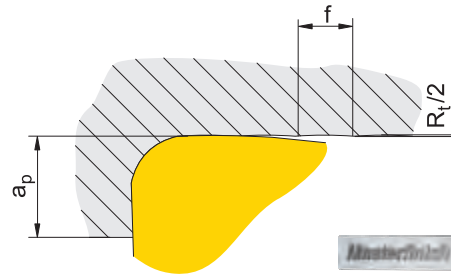
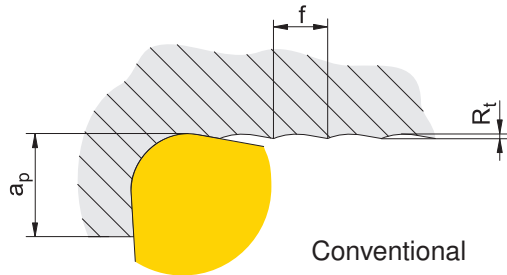
E24-E35



E36-E37

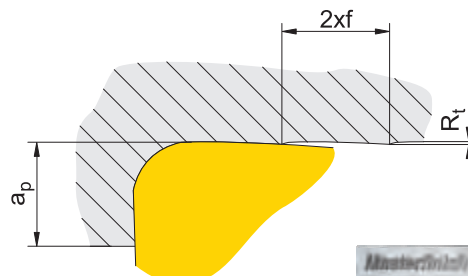
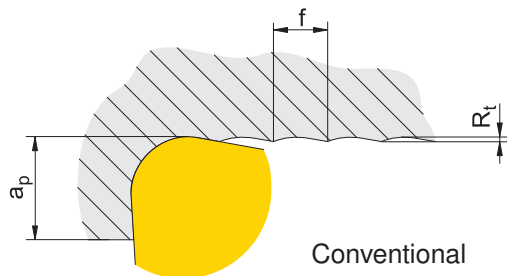
Improved surface finish

With the same feed rate an insert with 'Masterfinish' cutting edge reaches a roughness value R_a which is many times higher than the one of a conventional insert.



Shorter machining time

If you want to reach the same R_a -value as with a standard insert, a twice as high feed rate can be applied for the insert with 'Masterfinish' cutting edge (= shorter production time per component!)

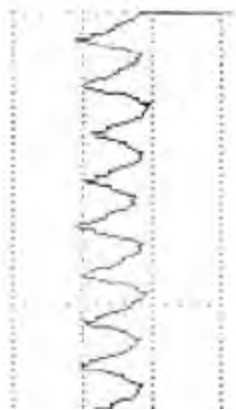


LT	15	MM
RA	5.63	UM
RZ	24.76	UM
RMAX	26.24	UM
RPM	14.68	UM

Insert:

WNMG 080408EN-TMR
 v_c : 200 m/min
 a_p : 1,0 mm
 f : 0,4 mm

VER	25	MM
HOR	LC 2.5	MM



LT	15	MM
RA	1.02	UM
RZ	6.16	UM
RMAX	7.36	UM
RPM	3.80	UM

Insert:

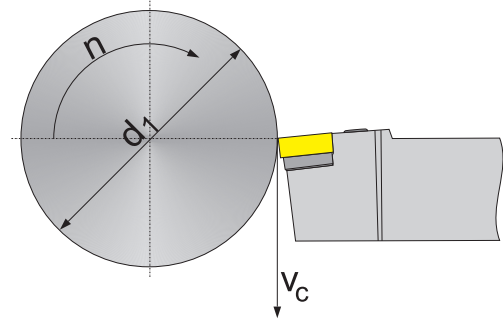
WNMG 080408EN-TFQ
 v_c : 200 m/min
 a_p : 1,0 mm
 f : 0,4 mm

VER	25	MM
HOR	LC 2.5	MM



Cutting speed (v_c) sfpm

$$v_c = \frac{d_1 \cdot n}{12} \quad [\text{sfpm}]$$



E10

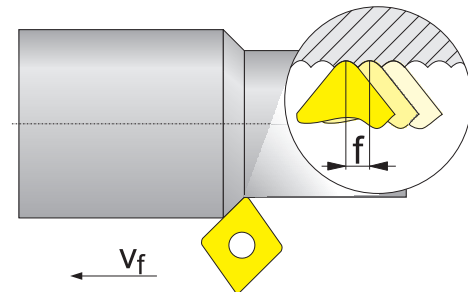
Hardness values

E11

Comparison of materials

Revolutions per minute (n) rpm

$$n = \frac{v_c \cdot 12}{d_1} \quad [\text{rev./min}]$$



E12-E14

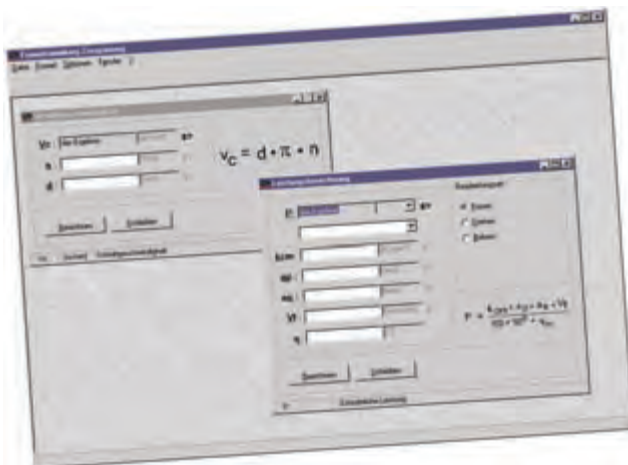
ISO / ANSI

E15-E22

Feed rate (v_f) ipr

$$v_f = f \cdot n \quad [\text{inch/min}]$$

The CERATIZIT formula collection CT-CALC



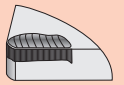
- > PC - aided calculation of machining parameters:
 - Cutting speed
 - Chip removal rate
 - Power consumption
 - Medium chip thickness
- > Languages: DE; GB; FR; IT; ES; DK
- > Free of charge download from www.ceratizit.com

Hardness values Comparison table

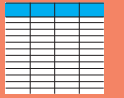


Tensile strength N/mm ²	Vickers HV	Brinell HB	Rockwell HRC	Shore C
575	180	171		
595	185	176		
610	190	181		
625	195	185		
640	200	190	12,0	
660	205	195	13,0	
675	210	199	14,0	
690	215	204	15,0	
705	220	209	15,5	28
720	225	214	16,0	
740	230	219	17,0	29
755	235	223	18,0	
770	240	228	20,3	30
785	245	233	21,3	
800	250	238	22,2	31
820	255	242	23,1	32
835	260	247	24,0	33
850	265	252	24,8	
865	270	257	25,6	
880	275	261	26,4	34
900	280	268	27,1	
915	285	271	27,8	35
930	290	276	28,5	
950	295	280	29,2	36
965	300	285	29,8	37
995	310	295	31,0	38
1030	320	304	32,2	39
1060	330	314	33,3	40
1095	340	323	34,3	41
1125	350	333	35,5	42
1155	360	342	36,6	43
1190	370	352	37,7	44
1220	380	361	38,8	45
1255	390	371	39,8	46
1290	400	380	40,8	47
1320	410	390	41,8	48
1350	420	399	42,7	
1385	430	409	43,6	49
1420	440	418	44,5	
1455	450	428	45,3	51
1485	460	437	46,1	52
1520	470	447	46,9	53
1555	480	465	47,7	54
1595	490	466	48,4	
1630	500	475	49,1	57
1665	510	485	49,8	58
1700	520	494	50,5	59
1740	530	504	51,1	60

Tensile strength N/mm ²	Vickers HV	Brinell HB	Rockwell HRC	Shore C
1775	540	513	51,7	61
1810	550	523	52,3	62
1845	560	532	53,0	63
1880	570	542	53,6	64
1920	580	551	54,1	65
1955	590	561	54,7	66
1995	600	570	55,2	67
2030	610	580	55,7	68
2070	620	589	56,3	69
2105	630	599	56,8	70
2145	640	608	57,3	71
2180	650	618	57,8	72
2210	660	628	58,3	73
2240	665	633	58,8	74
2280	670	638	59,3	
2310	675	643	59,8	75
2350	680	648	60,3	76
2380	685	653	61,1	77
2410	690	658	61,3	78
2450	695	663	61,7	79
2480	710	668	62,2	80
2520	720	678	62,6	81
2550	730	683	63,1	82
2590	740	693	63,5	
2630	750	703	63,9	83
2660	760	708	64,3	84
2700	770	718	64,7	85
2730	780	723	65,1	
2770	790	733	65,5	86
2800	800	738	65,9	
2840	810	748	66,3	87
2870	820	753	66,7	88
2910	830	763	67,0	
2940	840	768	67,4	89
2980	850		67,7	
3010	860		68,1	90
3050	870		68,4	
3080	880		68,7	91
3120	890		69,0	
3150	900		69,3	92
3190	910		69,6	
3220	920		69,9	
3260	930		70,1	



E2-E9



E10-E22



E24-E35



E36-E37

Comparison of materials



General formula

E10

Hardness values

E11

Comparison of materials

E12-E14

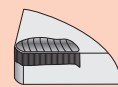
ISO / ANSI

E15-E22

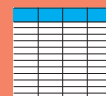
Germany DIN	Mat. no.	United Kingdom BS	France AFNOR	Sweden SS	USA AISI	Japan JIS	$K_{ct,1}$	m_c	VDI 3323 group
10 SPb 20	1.0722		10 PbF 2		11 L 08		1350	0,21	1
100 Cr 6	1.2067	BL 3	Y 100 C 6		L 3	SUJ2	1775	0,24	6/9
105 WCr 6	1.2419		105 WC 13			SKS31	1775	0,24	6/9
12 CrMo 9 10	1.7380	1501-622 Gr. 31; 45	10 CD 9.10	2218	A 182-F22	SPVA,SCMV4	1675	0,24	6/7
12 Ni 19	1.5680		Z 18 N 5		2515		2450	0,23	10/11
13 CrMo 4 4	1.7335	1501-620 Gr. 27	15 CD 3.5	2216	A 182-F11; F12	SPVAF12	1675	0,24	6/7
14 MoV 6 3	1.7715	1503-660-440					1675	0,24	6/7
14 Ni 6	1.5622		16 N 6		A 350-LF 5		1675	0,24	6/7
14 NiCr 10	1.5732		14 NC 11		3415	SNC415(H)	1675	0,24	6/7
14 NiCr 14	1.5752	655 M 13	12 NC 15		3310; 9314	SNC815(H)	1675	0,24	6/7
14 NiCrMo 13 4	1.6657						1675	0,24	6/7
15 Cr 3	1.7015	523 M 15	12 C 3		5015		1675	0,24	6/7
15 CrMo 5	1.7262		12 CD 4			SCM415(H)	1675	0,24	6/7
15 Mo 3	1.5415	1501-240	15 D 3	2912	A 204 Gr. A		1675	0,24	6/7
16 MnCr 5	1.7131	527 M 17	16 MC 5	2511	5115	SCR415	1675	0,24	6/7
16 Mo 5	1.5423	1503-245-420			4520	SB450M	1675	0,24	6/7
17 CrNiMo 6	1.6587	820 A 16	18 NCD 6				1675	0,24	6/7
21 NiCrMo 2	1.6523	805 M 20	20 NCD 2	2506	8620	SNCM220(H)	1725	0,24	6/8
25 CrMo 4	1.7218	1717 CDS 110	25 CD 4 S	2225	4130	SM420;SCM430	1725	0,24	6/8
28 Mn 6	1.1170	150 M 28	20 M 5		1330		1500	0,22	2
32 CrMo 12	1.7361	722 M 24	30 CD 12	2240			1775	0,24	6/9
34 Cr 4	1.7033	530 A 32	32 C 4		5132	SCR430(H)	1725	0,24	6/8
34 CrMo 4	1.7220	708 A 37	35 CD 4	2234	4135; 4137	SCM432;SCCRM3	1775	0,24	6/9
34 CrNiMo 6	1.6582	817 M 40	35 NCD 6	2541	4340	SNCM447	1775	0,24	6/9
35 S 20	1.0726	212 M 36	35 MF 4	1957	1140		1525	0,22	2/3
36 CrNiMo 4	1.6511	816 M 40	40 NCD 3		9840	SNCM447	1775	0,24	6/9
36 Mn 5	1.1167						1525	0,22	2/3
36 NiCr 6	1.5710	640 A 35	35 NC 6		3135	SNC236	1800	0,24	3/9
38 MnSi 4	1.5120						1800	0,24	3/9
39 CrMoV 13 9	1.8523	897 M 39					1775	0,24	6/9
40 Mn 4	1.1157	150 M 36	35 M 5		1039		1525	0,22	2/3
40 NiCrMo 2 2	1.6546	311-Type 7	40 NCD 2		8740	SNCM240	1775	0,24	6/9
41 Cr 4	1.7035	530 M 40	42 C 4		5140	SCR440(H)	1775	0,24	6/9
41 CrAlMo 7	1.8509	905 M 39	40 CAD 6.12	2940	A 355 Cl. A	SACM645	1775	0,24	6/9
41 CrMo 4	1.7223	708 M 40	42 CD 4 TS	2244	4142; 4140	SCM440	1775	0,24	6/9
42 Cr 4	1.7045	530 A 40	42 C 4 TS	2245	5140	SCR440	1775	0,24	6/9
42 CrMo 4	1.7225	708 M 40	42 CD 4	2244	4142; 4140	SCM440(H)	1775	0,24	6/9
45 WCrV 7	1.2542	BS 1		2710	S 1		1775	0,24	6/9
50 CrV 4	1.8159	735 A 50	50 CV 4	2230	6150	SUP10	1775	0,24	6/9
55 Cr 3	1.7176	527 A 60	55 C 3	2253	5155	SUP9(A)	1775	0,24	6/9
55 NiCrMoV 6	1.2713		55 NCDV 7		L 6	SKH1;SKT4	1775	0,24	6/9
55 Si 7	1.0904	250 A 53	55 S 7	2085; 2090	9255		1775	0,24	6/9
58 CrV 4	1.8161						1775	0,24	6/9
60 SiCr 7	1.0961		60 SC 7		9262		1775	0,24	6/9
9 SMn 28	1.0715	230 M 07	S 250	1912	1213	SUM22	1350	0,21	1
9 SMn 36	1.0736	240 M 07	S 300		1215		1350	0,21	1
9 SMnPb 28	1.0718		S 250 Pb	1914	12 L 13	SUM22L	1350	0,21	1
9 SMnPb 36	1.0737		S 300 Pb	1926	12 L 14		1350	0,21	1
Al99	3.0205						700	0,25	21
AlCuMg1	3.1325						700	0,25	22

E12

Comparison of materials



E2-E9



E10-E22



E24-E35



E36-E37



E13



E13



E13



E13



E13



E13



E13

E13

E13

Germany DIN	Mat. no.	United Kingdom BS	France AFNOR	Sweden SS	USA AISI	Japan JIS	K _{ct1}	m _c	VDI 3323 group
AlMg1	3.3315						700	0,25	21
AlMgSi1	3.2315						700	0,25	22
C 105 W1	1.1545		Y1 105	1880	W 110	SK3	1675	0,24	3
C 125 W	1.1663		Y2 120		W 112		1675	0,24	3
C 15	1.0401	080 M 15	AF3 7 C 12; XC 18	1350	1015	S15C	1350	0,21	1
C 22	1.0402	050 A 20	AF 42 C 20	1450	1020	S20C, S22C	1350	0,21	1
C 35	1.0501	060 A 35	AF 55 C 35	1550	1035	S35C	1525	0,22	2/3
C 45	1.0503	080 M 46	AF 65 C 45	1650	1045	S45C	1525	0,22	2/3
C 55	1.0535	070 M 55		1655	1055	S55C	1675	0,24	3
C 60	1.0601	080 A 62	CC 55		1060	S60C	1675	0,24	3
Cf 35	1.1183					S35C	1525	0,22	2/3
Cf 53	1.1213					S50C	1525	0,22	2/3
Ck 101	1.1274	060 A 96		1870	1095		1675	0,24	3
Ck 15	1.1141	080 M 15	XC 15; XC 18	1370	1015	S15C	1350	0,21	1
Ck 55	1.1203	070 M 55	XC 55		1055	S55C	1675	0,24	3
Ck 60	1.1221	080 A 62	XC 60	1665; 1678	1060	S58C	1675	0,24	3
CoCr20W15Ni	2.4764						3300	0,24	35
CuZn15	2.0240						700	0,27	27
CuZn36Pb3	2.0375						700	0,27	26
E-Cu57	2.0060						700	0,27	28
G-AlSi10Mg	3.2381						700	0,25	24
G-AlSi12	3.2581						700	0,25	23
G-AlSi9Cu3	3.2163						700	0,25	23
G-CuSn5ZnPb	2.1096						700	0,27	26
G-CuZn40Fe	2.0590						700	0,27	28
G-X 120 Mn 12	1.3401	Z 120 M 12	Z 120 M 12		A 128 (A)		3300	0,24	35
G-X 20 Cr 14	1.4027	420 C 29	Z 20 C 13 M			SCS2	1875	0,21	12/13
G-X 40 NiCrSi 38 18	1.4865	330 C 40					2600	0,24	31
G-X 45 CrSi 9 3	1.4718	401 S 45	Z 45 CS 9		HNV 3		2450	0,23	10/11
G-X 5 CrNi 13 4	1.4313	425 C 11	Z 5 CN 13.4	2385	CA 6-NM		1875	0,21	12/13
G-X 5 CrNiMoNb 18 10	1.4581	318 C 17	Z 4 CNDNb 18.12 M				2150	0,2	14
G-X 6 CrNi 18 9	1.4308	304 C 15	Z 6 CN 18.10 M	2333	CF-8		2150	0,2	14
G-X 6 CrNiMo 18 10	1.4408						2150	0,2	14
G-X 7 Cr 13	1.4001						1875	0,21	12/13
GG-10	0.6010		Ft 10 D	01 10-00	A48-20 B	FC100	1150	0,2	15
GG-15	0.6015	Grade 150	Ft 15 D	01 15-00	A48-25 B	FC150	1150	0,2	15
GG-20	0.6020	Grade 220	Ft 20 D	01 20-00	A48-30 B	FC200	1150	0,2	15
GG-25	0.6025	Grade 260	Ft 25 D	01 25-00	A48-40 B	FC250	1250	0,24	15/16
GG-30	0.6030	Grade 300	Ft 30 D	01 30-00	A48-45 B	FC300	1350	0,28	16
GG-35	0.6035	Grade 350	Ft 35 D	01 35-00	A48-50 B	FC350	1350	0,28	16
GG-40	0.6040	Grade 400	Ft 40 D	01 40-00	A48-60 B	FC400	1350	0,28	16
GGG-35.3	0.7033					FCD350	1225	0,25	17
GGG-40	0.7040	SNG 420/12	FGS 400-12	0717-02	60-40-18	FCD400	1225	0,25	17
GGG-40.3	0.7043	SNG 370/17	FGS 370-17	0717-15		FCD400	1225	0,25	17
GGG-50	0.7050	SNG 500/7	FGS 500-7	0727-02	65-45-12	FCD500	1350	0,28	18
GGG-60	0.7060	SNG 600/3	FGS 600-3	0732-03	80-55-06	FCD600	1350	0,28	18
GGG-70	0.7070	SNG 700/2	FGS 700-2	0737-01	100-70-03	FCD700	1350	0,28	18
GGG-NiCr 20 2	0.7660	S-NiCr 20 2	S-NC 20 2		A 439 Type D-2		1350	0,28	18
GGG-NiMn 13 7	0.7652	S-NiMn 13 7	S-NM 13 7				1350	0,28	18
GS-Ck 45	1.1191	080 M 46	XC 42	1672	1045	S45C	1525	0,22	2/3

E13

Comparison of materials



General formula

E10

Hardness values

E11

Comparison of materials

E12-E14

ISO / ANSI

E15-E22

E14

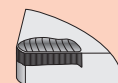
Germany DIN	Mat. no.	United Kingdom BS	France AFNOR	Sweden SS	USA AISI	Japan JIS	$K_{ct.1}$	m_c	VDI 3323 group
GTS-35-10	0.8135	B 340/12	MN 35-10				1225	0,25	19
GTS-45-06	0.8145	P 440/7					1420	0,3	20
GTS-55-04	0.8155	P 510/4	MP 50-5				1420	0,3	20
GTS-65-02	0.8165	P 570/3	MP 60-3				1420	0,3	20
GTS-70-02	0.8170	P 690/2	IP 70-2				1420	0,3	20
NiCr20TiAl	2.4631	HR 401; 601	Nimonic 80 A				3300	0,24	33
NiCr22Mo9Nb	2.4856		Inconel 625				3300	0,24	33
NiCu30Al	2.4375		Monel K 500				3300	0,24	34
NiFe25Cr20NbTi	2.4955						3300	0,24	34
S 18-0-1	1.3355	BT 1	Z 80 WCV 18-04-01		T 1		2450	0,23	10/11
S 18-1-2-5	1.3255	BT 4	Z 80 WCV 18-05-04-0		T 4		2450	0,23	10/11
S 2-9-2	1.3348		Z 100 DCWV 09-04-02-	2782	M 7		2450	0,23	10/11
S 6-5-2	1.3343	BM 2	Z 85 WDCV 06-05-04-0	2722	M 2	SKH9; SKH51	2450	0,23	10/11
S 6-5-2-5	1.3243		Z 85 WDKCV 06-05-05-	2723		SKH55	2450	0,23	10/11
TiAl6V4	3.7165	TA 10 bis TA 13	T-A 6 V				2110	0,22	37
X 10 Cr 13	1.4006	410 S 21	Z 12 C 13	2302	410; CA-15	SUS410	1875	0,21	12/13
X 10 CrNiMoNb 18 12	1.4583				318		2150	0,2	14
X 10 CrNiS 18 9	1.4305	303 S 21	Z 10 CNF 18.09	2346	303		2150	0,2	14
X 100 CrMoV 5 1	1.2363	BA 2	Z 100 CDV 5	2260	A 2		2450	0,23	10/11
X 12 CrMoS 17	1.4104		Z 10 CF 17	2383	430 F	SUS430F	1875	0,21	12/13
X 12 CrNi 17 7	1.4310	301 S 21	Z 12 CN 17.07		301		2150	0,2	14
X 12 CrNi 22 12	1.4829					SUS301	1350	0,28	16
X 12 CrNi 25 21	1.4845	310 S24	Z 12 CN 25.20	2361	310 S	SUH310; SUS310S	2150	0,2	14
X 12 CrNiTi 18 9	1.4878	321 S 20	Z 6 CNT 18.12 (B)	2337	321		2150	0,2	14
X 12 NiCrSi 36 16	1.4864	NA 17	Z 12 NCS 37.18		330	SUH330	2600	0,24	31
X 15 CrNiSi 20 12	1.4828	309 S 24	Z 15 CNS 20.12		309	SUH309	1350	0,28	16
X 165 CrMoV 12	1.2601			2310			2450	0,23	10/11
X 2 CrNiMo 18 13	1.4440						2150	0,2	14
X 2 CrNiMoN 17 13 3	1.4429	316 S 62	Z 2 CND 17.13 Az	2375	316 LN	SUS316LN	2150	0,2	14
X 2 CrNiN 18 10	1.4311	304 S 62	Z 2 CN 18 .10	2371	304 LN	SUS304LN	2150	0,2	14
X 20 CrNi 17 2	1.4057	431 S 29	Z 15 CN 16.02	2321	431	SUS431	1875	0,21	12/13
X 210 Cr 12	1.2080	BD 3	Z 200 C 12		D 3		2450	0,23	10/11
X 210 CrW 12	1.2436			2312			2450	0,23	10/11
X 30 WCrV 9 3	1.2581	BH 21	Z 30 WCV 9		H 21	SKD5	2450	0,23	10/11
X 40 CrMoV 5 1	1.2344	BH 13	Z 40 CDV 5	2242	H 13	SKD61	2450	0,23	10/11
X 46 Cr 13	1.4034	420 S 45	Z 40 C 14				1875	0,21	12/13
X 5 CrNi 18 9	1.4301	304 S 15	Z 6 CN 18.09	2332; 2333	304; 304 H	SUS304	2150	0,2	14
X 5 CrNiMo 17 13 3	1.4436	316 S 16	Z 6 CND 17.12	2343	316	SUS316	2150	0,2	14
X 5 CrNiMo 18 10	1.4401	316 S 16	Z 6 CND 17.11	2347	316	SUS316	2150	0,2	14
X 53 CrMnNiN 21 9	1.4871	349 S 54	Z 52 CMN 21.09		EV 8		1875	0,21	12/13
X 6 Cr 13	1.4000	403 S 17	Z 6 C 13	2301	403	SUS403	1875	0,21	12/13
X 6 Cr 17	1.4016	430 S 15	Z 8 C 17	2320	430	SUS430	1875	0,21	12/13
X 6 CrMo 17	1.4113	434 S 17	Z 8 CD 17.01	2325	434	SUS434	1875	0,21	12/13
X 6 CrNiMoTi 17 12 2	1.4571	320 S 31	Z 6 CNT 17.12	2350	316 Ti		2150	0,2	14
X 6 CrNiNb 18 10	1.4550	347 S 17	Z 6 CNNb 18.10	2338	347		2150	0,2	14
X 6 CrNiTi 18 10	1.4541	321 S 12	Z 6 CNT 18.10	2337	321		2150	0,2	14
X2 CrNi 18-8	1.4317						2150	0,2	14

Designation ISO - ANSI

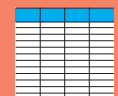


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CCGT 060201FN	CCGT 21.50FN
CCGT 060201FN-F23	CCGT 21.50FN-F23
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CCGT 060202EN-SM	CCGT 21.5.5EN-SM
CCGT 060202FN	CCGT 21.5.5FN
CCGT 060202FN-23P	CCGT 21.5.5FN-23P
CCGT 060202FN-25P	CCGT 21.5.5FN-25P
CCGT 060202FN-27	CCGT 21.5.5FN-27
CCGT 060204EN-SF	CCGT 21.51EN-SF
CCGT 060204FN	CCGT 21.51FN
CCGT 060204FN-23P	CCGT 21.51FN-23P
CCGT 060204FN-25P	CCGT 21.51FN-25P
CCGT 060204FN-25Q	CCGT 21.51FN-25Q
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CCGT 09T300FN-F23	CCGT 32.5X0FN-F23
CCGT 09T301FN	CCGT 32.50FN
CCGT 09T301FN-F23	CCGT 32.50FN-F23
CCGT 09T302EN-SF	CCGT 32.5.5EN-SF
CCGT 09T302FN	CCGT 32.5.5FN
CCGT 09T302FN-25P	CCGT 32.5.5FN-25P
CCGT 09T302FN-27	CCGT 32.5.5FN-27
CCGT 09T304EN-SF	CCGT 32.51EN-SF
CCGT 09T304FN	CCGT 32.51FN
CCGT 09T304FN-23P	CCGT 32.51FN-23P
CCGT 09T304FN-25P	CCGT 32.51FN-25P
CCGT 09T304FN-25Q	CCGT 32.51FN-25Q
CCGT 09T304FN-27	CCGT 32.51FN-27
CCGT 09T308EN-SF	CCGT 32.52EN-SF
CCGT 09T308FN	CCGT 32.52FN
CCGT 09T308FN-23P	CCGT 32.52FN-23P
CCGT 09T308FN-25P	CCGT 32.52FN-25P
CCGT 09T308FN-25Q	CCGT 32.52FN-25Q
CCGT 09T308FN-27	CCGT 32.52FN-27
CCGT 120402FN-25P	CCGT 43.5FN-25P
CCGT 120402FN-27	CCGT 43.5FN-27
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CCGT 120404FN	CCGT 431FN
CCGT 120404FN-25P	CCGT 431FN-25P
CCGT 120404FN-25Q	CCGT 431FN-25Q
CCGT 120404FN-27	CCGT 431FN-27
CCGT 120408FN	CCGT 432FN
CCGT 120408FN-25P	CCGT 432FN-25P
CCGT 120408FN-25Q	CCGT 432FN-25Q
CCGT 120408FN-27	CCGT 432FN-27
CCGW 060202FN	CCGW 21.5.5FN
CCGW 060204FN	CCGW 21.51FN
CCGW 09T301FN	CCGW 32.50FN
CCGW 09T302FN	CCGW 32.5.5FN
CCGW 09T304FN	CCGW 32.51FN
CCGW 09T308FN	CCGW 32.52FN
CCMT 060204EN-29	CCMT 21.51EN-29

ISO	ANSI
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CCMT 060204EN-SM	CCMT 21.51EN-SM
CCMT 060204EN-SMF	CCMT 21.51EN-SMF
CCMT 060208EN-SM	CCMT 21.52EN-SM
CCMT 060208EN-SMF	CCMT 21.52EN-SMF
CCMT 09T304EN-29	CCMT 32.51EN-29
CCMT 09T304EN-F43	CCMT 32.51EN-F43
CCMT 09T304EN-SF	CCMT 32.51EN-SF
CCMT 09T304EN-SM	CCMT 32.51EN-SM
CCMT 09T304EN-SMF	CCMT 32.51EN-SMF
CCMT 09T304EN-SMQ	CCMT 32.51EN-SMQ
CCMT 09T308EN-29	CCMT 32.52EN-29
CCMT 09T308EN-F43	CCMT 32.52EN-F43
CCMT 09T308EN-SF	CCMT 32.52EN-SF
CCMT 09T308EN-SM	CCMT 32.52EN-SM
CCMT 09T308EN-SMF	CCMT 32.52EN-SMF
CCMT 09T308EN-SMQ	CCMT 32.52EN-SMQ
CCMT 120404EN-SF	CCMT 431EN-SF
CCMT 120404EN-SM	CCMT 431EN-SM
CCMT 120404EN-SMF	CCMT 431EN-SMF
CCMT 120404EN-SMQ	CCMT 431EN-SMQ
CCMT 120408EN-SF	CCMT 432EN-SF
CCMT 120408EN-SM	CCMT 432EN-SM
CCMT 120408EN-SMF	CCMT 432EN-SMF
CCMT 120408EN-SMQ	CCMT 432EN-SMQ
CCMT 120412EN-SM	CCMT 433EN-SM
CCMX 09T304SN	CCMX 32.51SN
CCMX 09T308SN	CCMX 32.52SN
CCMX 120408EN	CCMX 432EN
CNGA 120408SN-025C	CNGA 432SN-025C
CNGA 120408TN-020D	CNGA 432TN-020D
CNGA 120412SN-020D	CNGA 433SN-020D
CNGA 120412SN-025C	CNGA 433SN-025C
CNGA 160608SN-028C	CNGA 542SN-028C
CNGA 160616SN-028C	CNGA 544SN-028C
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CNGN 160716SN-025C	CNGN 554SN-025C
CNGN 160716SN-200C	CNGN 554SN-200C
CNGP 120402FN-F32	CNGP 43.5FN-F32
CNGP 120408FN-F32	CNGP 432FN-F32



E2-E9



E10-E22



E24-E35



E36-E37

Designation ISO - ANSI



General
formula

E10

Hardness
values

E11

Comparison
of materials

E12-E14

ISO / ANSI

E15-E22

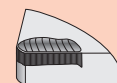
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CNMA 120412EN	CNMA 433EN	CNMM 120412EN-TR	CNMM 433EN-TR
CNMA 120412FN	CNMA 433FN	CNMM 120412SN-TRR	CNMM 433SN-TRR
CNMA 120412TN-020D	CNMA 433TN-020D	CNMM 160612EN-TR	CNMM 543EN-TR
CNMA 120416EN	CNMA 434EN	CNMM 160612SN-TRR	CNMM 543SN-TRR
CNMA 120416FN	CNMA 434FN	CNMM 160616EN-TR	CNMM 544EN-TR
CNMA 120416TN-020D	CNMA 434TN-020D	CNMM 160616SN-TRR	CNMM 544SN-TRR
CNMA 160608EN	CNMA 542EN	CNMM 190612EN-TR	CNMM 643EN-TR
CNMA 160612EN	CNMA 543EN	CNMM 190612SN-TRR	CNMM 643SN-TRR
CNMA 160616EN	CNMA 544EN	CNMM 190616EN-TR	CNMM 644EN-TR
CNMA 190612EN	CNMA 643EN	CNMM 190616SN-R80	CNMM 644SN-R80
CNMA 190616EN	CNMA 644EN	CNMM 190616SN-TRR	CNMM 644SN-TRR
CNMG CNMG 090304EN-TF	CNMG 321EN-TF	CNMM 190624SN-R80	CNMM 646SN-R80
CNMG 090308EN-TM	CNMG 322EN-TM	CNMN CNMN 090308FN	CNMN 322FN
CNMG 120404EN-42	CNMG 431EN-42	CNMN 090308TN-020D	CNMN 322TN-020D
CNMG 120404EN-CF	CNMG 431EN-CF	CNMN 090312TN-020D	CNMN 323TN-020D
CNMG 120404EN-M42	CNMG 431EN-M42	CNMN 090316TN-020D	CNMN 324TN-020D
CNMG 120404EN-M52	CNMG 431EN-M52	CNMN 120412FN	CNMN 433FN
CNMG 120404EN-TF	CNMG 431EN-TF	CNMN 120412TN-020D	CNMN 433TN-020D
CNMG 120404EN-TFQ	CNMG 431EN-TFQ	CNMN 120416FN	CNMN 434FN
CNMG 120404EN-TMF	CNMG 431EN-TMF	CNMN 120416TN-020D	CNMN 434TN-020D
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CNMG 120408EN-TFQ	CNMG 432EN-TFQ	CNMX 120716SN-020D	CNMX 454SN-020D
CNMG 120408EN-TM	CNMG 432EN-TM	CNMX 190740SN	CNMX 65XSN-020D
CNMG 120408EN-TMF	CNMG 432EN-TMF	DCGT DCGT 070200FN-F23	DCGT 21.5X0FN-F23
CNMG 120408EN-TMM	CNMG 432EN-TMM	DCGT 070201EN-SF	DCGT 21.50EN-SF
CNMG 120408EN-TMQ	CNMG 432EN-TMQ	DCGT 070201FN	DCGT 21.50FN
CNMG 120408EN-TMR	CNMG 432EN-TMR	DCGT 070201FN-F23	DCGT 21.50FN-F23
CNMG 120412EN-CF	CNMG 433EN-CF	DCGT 070202EN-SF	DCGT 21.5EN-SF
CNMG 120412EN-M42	CNMG 433EN-M42	DCGT 070202EN-SM	DCGT 21.5EN-SM
CNMG 120412EN-M52	CNMG 433EN-M52	DCGT 070202FN	DCGT 21.5FN
CNMG 120412EN-TF	CNMG 433EN-TF	DCGT 070202FN-25P	DCGT 21.5FN-25P
CNMG 120412EN-TFQ	CNMG 433EN-TFQ	DCGT 070202FN-27	DCGT 21.5FN-27
CNMG 120412EN-TM	CNMG 433EN-TM	DCGT 070204EN-SF	DCGT 21.51EN-SF
CNMG 120412EN-TMF	CNMG 433EN-TMF	DCGT 070204FN	DCGT 21.51FN
CNMG 120412EN-TMM	CNMG 433EN-TMM	DCGT 070204FN-23P	DCGT 21.51FN-23P
CNMG 120412EN-TMQ	CNMG 433EN-TMQ	DCGT 070204FN-25P	DCGT 21.51FN-25P
CNMG 120412EN-TRM	CNMG 433EN-TRM	DCGT 070204FN-27	DCGT 21.51FN-27
CNMG 120416EN-TM	CNMG 434EN-TM	DCGT 11T300FN-F23	DCGT 32.5X0FN-F23
CNMG 120416EN-TRM	CNMG 434EN-TRM	DCGT 11T302EN-SF	DCGT 32.5EN-SF
CNMG 160608EN-TM	CNMG 542EN-TM	DCGT 11T302FN	DCGT 32.5FN
CNMG 160612EN-TM	CNMG 543EN-TM	DCGT 11T302FN-25P	DCGT 32.5FN-25P
CNMG 160612EN-TMR	CNMG 543EN-TMR	DCGT 11T302FN-27	DCGT 32.5FN-27
CNMG 160616EN-TRM	CNMG 544EN-TRM	DCGT 11T304EN-SF	DCGT 32.51EN-SF
CNMG 190612EN-TM	CNMG 643EN-TM	DCGT 11T304FL-25Q	DCGT 32.51FL-25Q
CNMG 190612EN-TMR	CNMG 643EN-TMR	DCGT 11T304FN	DCGT 32.51FN
CNMG 190616EN-TMR	CNMG 644EN-TMR		

Designation ISO - ANSI

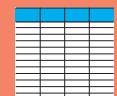


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DCGT 11T304FN-25Q	DCGT 32.51FN-25Q
DCGT 11T304FN-27	DCGT 32.51FN-27
DCGT 11T304FR-25Q	DCGT 32.51FR-25Q
DCGT 11T308EN-SF	DCGT 32.52EN-SF
DCGT 11T308FL-25Q	DCGT 32.52FL-25Q
DCGT 11T308FN	DCGT 32.52FN
DCGT 11T308FN-23P	DCGT 32.52FN-23P
DCGT 11T308FN-25P	DCGT 32.52FN-25P
DCGT 11T308FN-25Q	DCGT 32.52FN-25Q
DCGT 11T308FN-27	DCGT 32.52FN-27
DCGT 11T308FR-25Q	DCGT 32.52FR-25Q
DCGW DCGW 070201FN	DCGW 21.50FN
DCGW 070202FN	DCGW 21.5.5FN
DCGW 070204FN	DCGW 21.51FN
DCGW 11T301FN	DCGW 32.50FN
DCGW 11T302FN	DCGW 32.5.5FN
DCGW 11T304FN	DCGW 32.51FN
DCGW 11T308FN	DCGW 32.52FN
DCMT DCMT 070202EN-F43	DCMT 21.5.5EN-F43
DCMT 070202EN-SMF	DCMT 21.5.5EN-SMF
DCMT 070204EN-29	DCMT 21.51EN-29
DCMT 070204EN-F43	DCMT 21.51EN-F43
DCMT 070204EN-SF	DCMT 21.51EN-SF
DCMT 070204EN-SM	DCMT 21.51EN-SM
DCMT 070204EN-SMF	DCMT 21.51EN-SMF
DCMT 070204EN-SMQ	DCMT 21.51EN-SMQ
DCMT 070208EN-SM	DCMT 21.52EN-SM
DCMT 070208EN-SMF	DCMT 21.52EN-SMF
DCMT 11T302EN-F43	DCMT 32.5.5EN-F43
DCMT 11T304EL-29	DCMT 32.51EL-29
DCMT 11T304EL-SMQ	DCMT 32.51EL-SMQ
DCMT 11T304EL-SMQ	DCMT 32.51EL-SMQ
DCMT 11T304EN-F43	DCMT 32.51EN-F43
DCMT 11T304EN-SF	DCMT 32.51EN-SF
DCMT 11T304EN-SF	DCMT 32.51EN-SF
DCMT 11T304EN-SM	DCMT 32.51EN-SM
DCMT 11T304EN-SMF	DCMT 32.51EN-SMF
DCMT 11T304EN-SMQ	DCMT 32.51EN-SMQ
DCMT 11T308EN-29	DCMT 32.52EN-29
DCMT 11T308EN-F43	DCMT 32.52EN-F43
DCMT 11T308EN-SF	DCMT 32.52EN-SF
DCMT 11T308EN-SM	DCMT 32.52EN-SM
DCMT 11T308EN-SMF	DCMT 32.52EN-SMF
DCMT 11T308EN-SMQ	DCMT 32.52EN-SMQ
DCMT 11T312EN-SM	DCMT 32.53EN-SM
DCMX DCMX 11T304SN	DCMX 32.51SN
DCMX 11T308SN	DCMX 32.52SN
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DE-TNMG 160408-RM	
DE-TNMG 220412Q-RM	

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DNGA 150608TN-020D	DNGA 442TN-020D
DNGA 150612TN-020D	DNGA 443TN-020D
DNGA 150616TN-020D	DNGA 444TN-020D
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DNGN 150708TN-020D	DNGN 452TN-020D
DNGN 150712SN-200C	DNGN 453SN-200C
DNGN 150712TN-020D	DNGN 453TN-020D
DNGN 150716PN-100CF	DNGN 454PN-100CF
DNGN 150716SN-200C	DNGN 454SN-200C
DNGN 150716TN-020D	DNGN 454TN-020D
DNGP DNGP 150402FN-F32	DNGP 43.5FN-F32
DNGP 150404FN-F32	DNGP 431FN-F32
DNGP 150408FN-F32	DNGP 432FN-F32
DNGP 150602FN-F32	DNGP 44.5FN-F32
DNGP 150604FN-F32	DNGP 441FN-F32
DNGP 150608FN-F32	DNGP 442FN-F32
DNMA DNMA 150608EN	DNMA 442EN
DNMA 150612EN	DNMA 443EN
DNMG DNMG 110404EN-CF	DNMG 331EN-CF
DNMG 110404EN-M42	DNMG 331EN-M42
DNMG 110404EN-TF	DNMG 331EN-TF
DNMG 110404EN-TMF	DNMG 331EN-TMF
DNMG 110408EN-CF	DNMG 332EN-CF
DNMG 110408EN-M42	DNMG 332EN-M42
DNMG 110408EN-TF	DNMG 332EN-TF
DNMG 110408EN-TM	DNMG 332EN-TM
DNMG 110408EN-TMF	DNMG 332EN-TMF
DNMG 110408EN-TRM	DNMG 332EN-TRM
DNMG 110412EN-CF	DNMG 333EN-CF
DNMG 110412EN-TMF	DNMG 333EN-TMF
DNMG 110412EN-TMR	DNMG 333EN-TMR
DNMG 150404EN-M42	DNMG 431EN-M42
DNMG 150404EN-M52	DNMG 431EN-M52
DNMG 150408EN-M42	DNMG 432EN-M42
DNMG 150408EN-M52	DNMG 432EN-M52
DNMG 150412EN-TRM	DNMG 433EN-TRM
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DNMG 150604EN-M42	DNMG 441EN-M42
DNMG 150604EN-M52	DNMG 441EN-M52
DNMG 150604EN-TF	DNMG 441EN-TF
DNMG 150604EN-TFQ	DNMG 441EN-TFQ
DNMG 150604EN-TMF	DNMG 441EN-TMF
DNMG 150608EN-CF	DNMG 442EN-CF
DNMG 150608EN-M42	DNMG 442EN-M42
DNMG 150608EN-M52	DNMG 442EN-M52
DNMG 150608EN-TF	DNMG 442EN-TF
DNMG 150608EN-TFQ	DNMG 442EN-TFQ
DNMG 150608EN-TM	DNMG 442EN-TM



E2-E9



E10-E22



E24-E35



E36-E37

Designation ISO - ANSI



General
formula

E10

Hardness
values

E11

Comparison
of materials

E12-E14

ISO / ANSI

E15-E22

ISO	ANSI
DNMG 150608EN-TMF	DNMG 442EN-TMF
DNMG 150608EN-TMR	DNMG 442EN-TMR
DNMG 150612EN-CF	DNMG 443EN-CF
DNMG 150612EN-TF	DNMG 443EN-TF
DNMG 150612EN-TFQ	DNMG 443EN-TFQ
DNMG 150612EN-TM	DNMG 443EN-TM
DNMG 150612EN-TM	DNMG 443EN-TM
DNMG 150612EN-TMM	DNMG 443EN-TMM
DNMG 150612EN-TMQ	DNMG 443EN-TMQ
DNMG 150612EN-TMR	DNMG 443EN-TMR
DNMG 150616EN-TM	DNMG 444EN-TM
DNMG 150616EN-TMM	DNMG 444EN-TMM
DNMG 150616EN-TMR	DNMG 444EN-TMR
DNMG 150616EN-TRM	DNMG 444EN-TRM
DNMM DNMM 150608EN-TR	DNMM 442EN-TR
DNMM DNMM 150612EN-TR	DNMM 443EN-TR
DNMX DNMX 150608SN	DNMX 442SN
DNMX DNMX 150708SN-020D	DNMX 452SN-020D
DNMX DNMX 150712SN-020D	DNMX 453SN-020D
DNMX DNMX 150716SN-020D	DNMX 454SN-020D
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ENGN ENGN 130708TN-020D	ENGN 452TN-020D
ENGN ENGN 130712SN-025E	ENGN 453TN-025D
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ENGN ENGN 130716SN-200C	ENGN 454TN-200C
ENGN ENGN 130732TN-020D	ENGN 458TN-020D
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RCGT RCGT 0803MOFN-27	
RCGT RCGT 1003MOFN-27	
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RCGX RCGX 090700SN-200C	RCGX 35SN-200C
RCGX RCGX 090700TN-020D	RCGX 35TN-020D
RCGX RCGX 120700PN-100CF	RCGX 45PN-100CF
RCGX RCGX 120700PN-150CF	RCGX 45PN-150CF
RCGX RCGX 120700SN-200C	RCGX 45SN-200C
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RCGX RCGX 151000PN-100CF	RCGX 5(6.3)PN-100CF

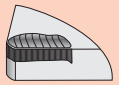
ISO	ANSI
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RCGX 151000SN-200C	RCGX 5(6.3)SN-200C
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RCGX 191000PN-200CF	RCGX 6(6.3)PN-200CF
RCGX 191000SN-200C	RCGX 6(6.3)SN-200C
RCGX 251200PN-100CF	RCGX 88PN-100CF
RCGX 251200PN-200CF	RCGX 88PN-200CF
RCGX 251200SN-200C	RCGX 88SN-200C
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RCMT RCMT 2006MOSN-SM	
RCMT RCMT 2507MOSN-SM	
RCMT RCMT 3209MOSN-SM	
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RNGN RNGN 120400PN-150CF	RNGN 43PN-150CF
RNGN RNGN 120700PN-150CF	RNGN 45PN-150CF
RNGN RNGN 120700SN-020D	RNGN 45SN-020D
RNGN RNGN 120700SN-200C	RNGN 45SN-200C
RNGN RNGN 120700TN-020D	RNGN 45TN-020D
RNGN RNGN 150700PN-150CE	RNGN 55PN-150CE
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RNGN RNGN 190700SN-200C	RNGN 65SN-200C
RNGN RNGN 190700TN-020D	RNGN 65TN-020D
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RNGN RNGN 250700PN-200CE	RNGN 85PN-200CE
RNGN RNGN 250700TN-020D	RNGN 85TN-020D
RNGN RNGN 310900PN-100CF	RNGN 106PN-100CF
RNGN RNGN 310900PN-215CF	RNGN 106PN-215CF
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RNMN RNMN 090300TN-020D	RNMN 32TN-020D
RNMN RNMN 120300TN-020D	RNMN 42TN-020D
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RNMN RNMN 250600TN-050D	RNMN 84TN-050D
SCGT SCGT 09T304EN-SF	SCGT 32.51EN-SF
SCGT SCGT 09T308FN-27P	SCGT 32.52FN-27P
SCGT SCGT 120408FN-25P	SCGT 432FN-25P
SCGT SCGT 120408FN-27	SCGT 432FN-27
SCMT SCMT 09T304EN-SF	SCMT 32.51EN-SF
SCMT SCMT 09T304EN-SM	SCMT 32.51EN-SM
SCMT SCMT 09T304EN-SMF	SCMT 32.51EN-SMF
SCMT SCMT 09T308EN-SF	SCMT 32.52EN-SF
SCMT SCMT 09T308EN-SM	SCMT 32.52EN-SM
SCMT SCMT 09T308EN-SMF	SCMT 32.52EN-SMF
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SCMT SCMT 120408EN-SM	SCMT 432EN-SM

Designation ISO - ANSI

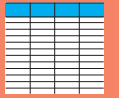


ISO	ANSI
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SCMT 120412EN-SM	SCMT 433EN-SM
SCMX 120408EN	SCMX 432EN
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SCMX 190616EN	SCMX 644EN
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SNGA 120412SN-025C	SNGA 433SN-025C
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SNGN 120720PN-100CF	SNGN 455PN-100CF
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SNGN 120730PN-028C	SNGN 457.5PN-028C
SNGN 150712TN-020D	SNGN 553TN-020D
SNGN 150716PN-150CF	SNGN 554PN-150CF
SNGN 150720SN-200C	SNGN 555SN-200C
SNGN 190716PN-150CF	SNGN 654PN-150CF
SNGN 190716SN-025E	SNGN 654SN-025E
SNGN 190716TN-020D	SNGN 654TN-020D
SNGN 190720PN-100CF	SNGN 655PN-100CF
SNGN 190720SN-200C	SNGN 655SN-200C
SNGN 190720TN-020D	SNGN 655TN-020D
SNGN 250724PN-100CF	SNGN 856PN-100CF
SNGN 250724PN-150CE	SNGN 856PN-150CE
SNGN 250724SN-050C	SNGN 856SN-050C
SNGN 250724SN-200C	SNGN 856SN-200C
SNGN 250924PN-100CF	SNGN 866PN-100CF
SNGN 250924PN-150CE	SNGN 866PN-150CE
SNGN 250924SN-030E	SNGN 866SN-030E
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SNGN 250924TN-020D	SNGN 866TN-020D
SNMA 120408EN	SNMA 432EN
SNMA 120412TN-020D	SNMA 433TN-020D
SNMA 120416EN	SNMA 434EN
SNMA 150616EN	SNMA 544EN
SNMA 190616EN	SNMA 644EN
SNMG 090308EN	SNMG 322EN
SNMG 120404EN-TF	SNMG 431EN-TF
SNMG 120408EN-M42	SNMG 432EN-M42
SNMG 120408EN-M52	SNMG 432EN-M52
SNMG 120408EN-TM	SNMG 432EN-TM
SNMG 120408EN-TMF	SNMG 432EN-TMF
SNMG 120412EN-M42	SNMG 433EN-M42

ISO	ANSI
SNMG 120412EN-TM	SNMG 433EN-TM
SNMG 120412EN-TMF	SNMG 433EN-TMF
SNMG 120412EN-TMR	SNMG 433EN-TMR
SNMG 120412EN-TRM	SNMG 433EN-TRM
SNMG 120416EN-TM	SNMG 434EN-TM
SNMG 120416EN-TMR	SNMG 434EN-TMR
SNMG 150612EN-TMR	SNMG 543EN-TMR
SNMG 150616EN-TMR	SNMG 544EN-TMR
SNMG 190612EN-TMR	SNMG 643EN-TMR
SNMG 190616EN-TMR	SNMG 644EN-TMR
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SNMX 120716SN-020D	SNMX 454SN-020D
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TCGT 090204FN	TCGT 1.81.51FN
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TCGT 110202EN-SM	TCGT 21.5.5EN-SM
TCGT 110202FN-27	TCGT 21.5.5FN-27
TCGT 110204EN-SF	TCGT 21.51EN-SF
TCGT 110204FN	TCGT 21.51FN



E2-E9



E10-E22



E24-E35



E36-E37

Designation ISO - ANSI



General
formula

E10

Hardness
values

E11

Comparison
of materials

E12-E14

ISO / ANSI

E15-E22

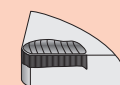
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TCGT 110208FN	TCGT 21.52FN	TNMG 160408EN-M52	TNMG 332EN-M52
TCGT 16T302FN-27	TCGT 32.5.5FN-27	TNMG 160408EN-TF	TNMG 332EN-TF
TCGT 16T304EN-SF	TCGT 32.51EN-SF	TNMG 160408EN-TM	TNMG 332EN-TM
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TCGT 16T308EN-SF	TCGT 32.52EN-SF	TNMG 160408ER	TNMG 332ER
TCGT 16T308FN	TCGT 32.52FN	TNMG 160412EN-CF	TNMG 333EN-CF
TCGT 16T308FN-27	TCGT 32.52FN-27	TNMG 160412EN-TF	TNMG 333EN-TF
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TCMT 110204EN-F43	TCMT 21.51EN-F43	TNMG 160412EN-TMF	TNMG 333EN-TMF
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TCMT 110208EN-SMF	TCMT 21.52EN-SMF	TNMG 220412EN-TM	TNMG 433EN-TM
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TCMT 16T308EN-SM	TCMT 32.52EN-SM	TNMM 160408SN-TRR	TNMM 332SN-TRR
TCMT 16T308EN-SMF	TCMT 32.52EN-SMF	TNMM 160412EN-TR	TNMM 333EN-TR
TCMT 220408EN-SM	TCMT 432EN-SM	TNMM 220408EN-TR	TNMM 432EN-TR
TCMW TCMW 16T304FN	TCMW 32.51FN	TNMM 220412EN-TR	TNMM 433EN-TR
TCMX TCMX 160404EN	TCMX 331EN	TNMM 220412SN-TRR	TNMM 433SN-TRR
TCMX 160408EN	TCMX 332EN	TNMM 220416EN-TR	TNMM 434EN-TR
TCMX 160412EN	TCMX 333EN	TNMM 270612EN-TUB	TNMM 543EN-TUB
TCMX 220404EN	TCMX 431EN	TNMM 270616EN-TR	TNMM 544EN-TR
TCMX 220408EN	TCMX 432EN	TNMM 110304FN	TNMM 221FN
TCMX 220412EN	TCMX 433EN	TNMM 110304TN-020D	TNMM 221TN-020D
TNGA TNGA 160408TN-020D	TNGA 332TN-020D	TNMM 110308FN	TNMM 222FN
TNGN TNGN 110308TN-020D	TNGN 222TN-020D	TNMM 110308TN-020D	TNMM 222TN-020D
TNGN 160408TN-020D	TNGN 332TN-020D	TNMM 110312TN-020D	TNMM 223TN-020D
TNGN 220408TN-020D	TNGN 432TN-020D	TNMX TNMX 160408SN	TNMX 332SN
TNMA TNMA 160408EN	TNMA 332EN	TNUN TNUN 160308EN	TNUN 322EN
TNMA 160412EN	TNMA 333EN	TNUN 160412EN	TNUN 333EN
TNMA 220408EN	TNMA 432EN	TNUN 160416EN	TNUN 334EN
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Designation ISO - ANSI

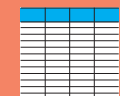


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	TPUN 160304EN	TPUN 321EN
	TPUN 160304FN	TPUN 321FN
	TPUN 160308EN	TPUN 322EN
	TPUN 160308FN	TPUN 322FN
	TPUN 160312EN	TPUN 323EN
	TPUN 220408EN	TPUN 432EN
	TPUN 220412EN	TPUN 433EN
VCGT	VCGT 110300FN-F23	VCGT 22X0FN-F23
	VCGT 110301EN-SF	VCGT 220EN-SF
	VCGT 110301FN-F23	VCGT 220FN-F23
	VCGT 110302EN-SF	VCGT 220.5EN-SF
	VCGT 110302EN-SMF	VCGT 22.5EN-SMF
	VCGT 110302FN-25P	VCGT 220.5FN-25P
	VCGT 110302FN-27	VCGT 22.5FN-27
	VCGT 110304EN-SF	VCGT 221EN-SF
	VCGT 110304FL-25Q	VCGT 221FL-25Q
	VCGT 110304FN-25P	VCGT 221FN-25P
	VCGT 110304FN-27	VCGT 221FN-27
	VCGT 110304FR-25Q	VCGT 221FR-25Q
	VCGT 110308EN-SF	VCGT 222EN-SF
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	VCGT 160400FN-F23	VCGT 33X0FN-F23
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	VCGT 160404FN-27	VCGT 331FN-27
	VCGT 160408EN-SF	VCGT 332EN-SF
	VCGT 160408FN-25P	VCGT 332FN-25P
	VCGT 160408FN-27	VCGT 332FN-27
	VCGT 160412FN-25P	VCGT 333FN-25P
	VCGT 160412FN-27	VCGT 333FN-27
	VCGT 220530FN-25P	VCGT 43.57.5FN-25P
	VCGT 220530FN-27	VCGT 43.57.5FN-27
VCMT	VCMT 110304EN-SMF	VCMT 221EN-SMF
	VCMT 160404EN-29	VCMT 331EN-29
	VCMT 160404EN-SF	VCMT 331EN-SF
	VCMT 160404EN-SM	VCMT 331EN-SM
	VCMT 160404EN-SMF	VCMT 331EN-SMF
	VCMT 160406EN-SM	
	VCMT 160408EN-29	VCMT 332EN-29
	VCMT 160408EN-SF	VCMT 332EN-SF
	VCMT 160408EN-SM	VCMT 332EN-SM
	VCMT 160408EN-SMF	VCMT 332EN-SMF
	VCMT 160412EN-25	VCMT 333EN-25
	VCMT 160412EN-29	VCMT 333EN-29
	VCMT 160412EN-SM	VCMT 333EN-SM
	VCMT 220530EN-25	VCMT 447EN-25
VCMW	VCMW 160404FN	VCMW 331FN

	ISO	ANSI
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	VCUW 160404FN	VCUW 331FN
	VCUW 160404FR	VCUW 331FR
	VCUW 160408FL	VCUW 332FL
	VCUW 160408FN	VCUW 332FN
	VCUW 160408FN-F3	VCUW 332FN-F3
	VCUW 160408FN-M4	VCUW 332FN-M4
	VCUW 160408FR	VCUW 332FR
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	VCUW 160412FN-F3	VCUW 333FN-F3
	VCUW 160412FN-M4	VCUW 333FN-M4
	VCUW 160412TN-M4	VCUW 333TN-M4
	VCUW 160416FN	VCUW 334FN
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VNGA	VNGA 160408TN-020D	VNGA 332TN-020D
	VNGA 160412TN-020D	VNGA 333TN-020D
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	VNGP 160404FN-F32	VNGP 331FN-F32
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	VNMG 160404EN-M40	VNMG 331EN-M40
	VNMG 160408EN-F40	VNMG 332EN-F40
	VNMG 160408EN-M40	VNMG 332EN-M40
VPGT	VPGT 220516FN-25P	VPGT 444FN-25P
	VPGT 220516FN-27	VPGT 43.54FN-27
VPMT	VPMT 220516EN-25	VPMT 43.54EN-25
VPUW	VPUW 220516FN-F3	VPUW 43.54FN-F3
	VPUW 220516FN-M4	VPUW 43.54FN-M4
	VPUW 220612FN-F3	VPUW443FN-F3
WNMG	WNMG 060404EN-CF	WNMG 231EN-CF
	WNMG 060404EN-M42	WNMG 231EN-M42
	WNMG 060404EN-M52	WNMG 231EN-M52
	WNMG 060404EN-TF	WNMG 231EN-TF
	WNMG 060404EN-TFQ	WNMG 331EN-TFQ
	WNMG 060404EN-TMF	WNMG 231EN-TMF
	WNMG 060408EN-CF	WNMG 232EN-CF
	WNMG 060408EN-M42	WNMG 232EN-M42
	WNMG 060408EN-M52	WNMG 232EN-M52
	WNMG 060408EN-TFQ	WNMG 332EN-TFQ
	WNMG 060408EN-TM	WNMG 232EN-TM
	WNMG 060408EN-TMF	WNMG 232EN-TMF
	WNMG 060408EN-TMM	WNMG 232EN-TMM
	WNMG 060408EN-TRM	WNMG 232EN-TRM
	WNMG 060412EN-TMF	WNMG 233EN-TMF
	WNMG 060412EN-TRM	WNMG 233EN-TRM
	WNMG 080404EN-M42	WNMG 431EN-M42
	WNMG 080404EN-M52	WNMG 431EN-M52
	WNMG 080404EN-TF	WNMG 431EN-TF
	WNMG 080404EN-TFQ	WNMG 431EN-TFQ
	WNMG 080404EN-TMF	WNMG 431EN-TMF
	WNMG 080408EN-CF	WNMG 432EN-CF



E2-E9



E10-E22



E24-E35



E36-E37

Designation ISO - ANSI



General
formula

E10

Hardness
values

E11

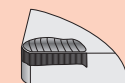
Comparison
of materials

E12-E14

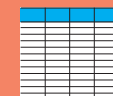
ISO / ANSI

E15-E22

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WNMG 080408EN-TM	WNMG 432EN-TM	XCNT 040104EL	
WNMG 080408EN-TMF	WNMG 432EN-TMF	XCNT 040104ER	
WNMG 080408EN-TMM	WNMG 432EN-TMM	XCNT 050202EN	
WNMG 080408EN-TMQ	WNMG 432EN-TMQ	XCNT 050204EN	
WNMG 080408EN-TMR	WNMG 432EN-TMR	XCNT 060202EN	
WNMG 080408EN-TMR	WNMG 432EN-TMR	XCNT 060204EN	
WNMG 080412EN-CF	WNMG 433EN-CF	XCNT 070304EN	
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WNMG 080412EN-TMM	WNMG 433EN-TMM	XCNT 10T304EN	
WNMG 080412EN-TMQ	WNMG 433EN-TMQ	XCNT 10T304EN-M50Q	
WNMG 080412EN-TMR	WNMG 433EN-TMR	XCNT 10T308EN	
WNMG 080412EN-TRM	WNMG 433EN-TRM	XCNT 10T308EN-M50Q	
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XCET 040102FR-27P		XCNT 170508EN	
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XCET 040104FR-27P			
XCET 040104FR-27Q			
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XCET 050202FN-27Q			
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XCET 080304FN-27Q			
XCET 09T304FN-27P			
XCET 09T304FN-27Q			
XCET 10T304FN-27P			
XCET 10T304FN-27Q			
XCET 10T308FN-27P			
XCET 10T308FN-27Q			
XCET 130404FN-27P			
XCET 130404FN-27Q			
XCET 130408FN-27P			
XCET 130408FN-27Q			
XCET 170508FN-27P			



E2-E9



E10-E22



E24-E35



E36-E37

Cutting data



Cutting data

E24-E35

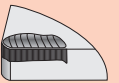
Work piece material		Type of treatment / alloy		VDI 3323 group	Hardness HB
A	Non alloyed steel	annealed	≤ 0,15% C	1	125
		annealed	0,15% - 0,45% C	2	150 - 250
		tempered	≥ 0,45% C	3	300
	Low alloyed steel	annealed		6	180
		tempered		7 / 8	250 - 300
		tempered		9	350
	High alloyed steel	annealed		10	200
		tempered		11	350
Corrosion resistant steel	annealed	ferritic	12	200	
	tempered	martensitic	13	325	
R	Stainless steel	annealed	ferritic / martensitic	14	200
		quenched	austenitic	14	180
		quenched	duplex	14	230 - 260
		hardened	martensitic / austenitic	14	330
F	Grey cast iron		pearlitic / ferritic	15	180
			pearlitic / martensitic	16	260
	Spheroidal cast iron		ferritic	17	160
			pearlitic	18	-
	Malleable cast iron		ferritic	19	130
			pearlitic	20	230
N	Aluminium wrought alloys	non hardened		21	60
		hardened		22	100
	Aluminium cast alloys	non hardened	< 12% Si	23	80
		hardened	< 12% Si	24	90
		non hardened	> 12% Si	25	130
	Copper and copper alloys (bronze, brass)		machining alloy stock (1% Pb)	26	-
			brass, red bronze	27	90
			bronze	28	100
			lead-free copper and electrolytic copper	29	100
	Non-metallic materials		thermosetting plastics	29	-
		fibre-reinforced plastics	29	-	
		hard rubber	30	-	
S	Heat resistant alloys	annealed	Fe-base	31	200
		hardened	Fe-base	32	280
		annealed	Ni or Co-base	33	250
		hardened	Ni or Co-base 30 - 58 HRC	34	-
		cast	Ni or Co-base 1500 - 2200 N/mm ²	35	-
	Titanium alloys		pure titanium	36	R _m 440*
		alpha + beta alloys	37	R _m 1050*	
H	Tempered steel	hardened and tempered		38	55 HRC
		hardened and tempered		39	60 HRC
	Chilled castings	cast		40	400
	Tempered cast iron	hardened and tempered		40	55 HRC

* R_m = ultimate tensile strength, measured in MPa

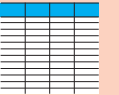
Cutting data



Uncoated carbide		
H210T	H216T	CTW7120
v_c [sfpm]	v_c [sfpm]	v_c [sfpm]
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
455 - 656	394 - 525	-
328 - 525	294 - 458	-
522 - 656	425 - 558	-
361 - 492	294 - 425	-
525 - 722	458 - 656	-
458 - 589	394 - 525	-
984 - 9840	984 - 11480	328 - 1640
656 - 8200	656 - 6560	328 - 984
1312 - 6560	1312 - 4920	328 - 1640
1312 - 5904	1312 - 4920	328 - 984
656 - 3280	656 - 2624	328 - 984
820 - 2624	820 - 1968	328 - 1640
656 - 2624	656 - 1968	328 - 1640
492 - 1968	492 - 1312	328 - 984
492 - 1312	492 - 984	328 - 984
328 - 7216	261 - 589	261 - 589
263 - 656	197 - 492	197 - 492
328 - 656	328 - 820	328 - 820
115 - 164	-	-
82 - 130	-	-
82 - 130	-	-
66 - 97	-	-
48 - 82	-	-
261 - 458	-	164 - 394
130 - 328	-	97 - 164
-	-	-
-	-	-
-	-	-
-	-	-



E2-E9



E10-E22



E24-E35



E36-E37

E25

Cutting data



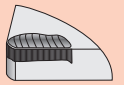
Cutting data

E24-E35

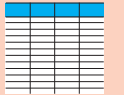
Work piece material		Type of treatment / alloy		VDI 3323 group	Hardness HB
A	Non alloyed steel	annealed	≤ 0,15% C	1	125
		annealed	0,15% - 0,45% C	2	150 - 250
		tempered	≥ 0,45% C	3	300
	Low alloyed steel	annealed		6	180
		tempered		7 / 8	250 - 300
		tempered		9	350
	High alloyed steel	annealed		10	200
		tempered		11	350
Corrosion resistant steel	annealed	ferritic	12	200	
	tempered	martensitic	13	325	
R	Stainless steel	annealed	ferritic / martensitic	14	200
		quenched	austenitic	14	180
		hardened	duplex	14	230 - 260
		hardened	martensitic / austenitic	14	330
F	Grey cast iron		pearlitic / ferritic	15	180
			pearlitic / martensitic	16	260
	Spheroidal cast iron		ferritic	17	160
			pearlitic	18	-
	Malleable cast iron		ferritic	19	130
			pearlitic	20	230
N	Aluminium wrought alloys	non hardened		21	60
		hardened		22	100
	Aluminium cast alloys	non hardened	< 12% Si	23	80
		hardened	< 12% Si	24	90
		non hardened	> 12% Si	25	130
	Copper and copper alloys (bronze, brass)		machining alloy stock (1% Pb)	26	-
			brass, red bronze	27	90
			bronze	28	100
			lead-free copper and electrolytic copper	29	100
	Non-metallic materials		thermosetting plastics	29	-
		fibre-reinforced plastics	29	-	
		hard rubber	30	-	
S	Heat resistant alloys	annealed	Fe-base	31	200
		hardened	Fe-base	32	280
		annealed	Ni or Co-base	33	250
		hardened	Ni or Co-base 30 - 58 HRC	34	-
		cast	Ni or Co-base 1500 - 2200 N/mm ²	35	-
	Titanium alloys		pure titanium	36	R _m 440*
		alpha + beta alloys	37	R _m 1050*	
H	Tempered steel	hardened and tempered		38	55 HRC
		hardened and tempered		39	60 HRC
	Chilled castings	cast		40	400
	Tempered cast iron	hardened and tempered		40	55 HRC

* R_m = ultimate tensile strength, measured in MPa

Cutting data



E2-E9



E10-E22



E24-E35



E36-E37

Coated carbide.								
AMZ	CTP4115	CTP5110	CTC3110	CTC1110	CTP5115	CTC1115	CTP2120	CTC1125
v_c [sfpm]	v_c [sfpm]	v_c [sfpm]	v_c [sfpm]	v_c [sfpm]	v_c [sfpm]	v_c [sfpm]	v_c [sfpm]	v_c [sfpm]
361 - 525	–	–	–	820 - 1476	–	820 - 984	–	621 - 786
294 - 458	–	–	–	722 - 1027	–	722 - 820	–	556 - 565
261 - 394	–	–	–	589 - 917	–	589 - 722	–	425 - 525
294 - 425	–	–	–	820 - 1181	–	820 - 917	–	558 - 656
261 - 394	–	–	–	558 - 917	–	558 - 722	–	328 - 525
230 - 291	–	–	–	492 - 820	–	492 - 656	–	261 - 458
294 - 361	–	–	–	558 - 984	–	558 - 722	–	425 - 558
230 - 294	–	–	–	394 - 820	–	394 - 589	–	261 - 425
525 - 722	–	–	–	656 - 984	–	394 - 589	–	425 - 589
230 - 361	–	–	–	492 - 820	–	492 - 753	–	361 - 525
–	–	488 - 748	–	492 - 820	423 - 715	492 - 753	492 - 656	494 - 589
294 - 458	–	455 - 618	–	–	390 - 585	–	394 - 656	32 - 558
–	–	195 - 325	–	–	163 - 293	–	294 - 525	–
–	–	–	–	–	–	–	197 - 263	–
589 - 722	–	–	820 - 1476	492 - 1247	–	492 - 753	394 - 525	–
458 - 589	–	–	722 - 1138	425 - 917	–	425 - 753	294 - 425	–
525 - 722	–	–	722 - 1235	656 - 1378	–	656 - 1181	394 - 525	–
394 - 589	–	–	650 - 4138	525 - 917	–	525 - 722	394 - 589	–
589 - 786	–	–	650 - 1312	722 - 1640	–	589 - 1148	458 - 722	–
525 - 656	–	–	589 - 1040	589 - 1027	–	525 - 853	361 - 525	–
984 - 1050	975 - 11375	–	–	–	–	–	328 - 1968	–
656 - 9184	650 - 9100	–	–	–	–	–	328 - 1312	–
1312 - 6560	1300 - 9750	–	–	–	–	–	328 - 1968	–
1312 - 6560	1300 - 9700	–	–	–	–	–	328 - 1312	–
656 - 3936	650 - 6500	–	–	–	–	–	328 - 1312	–
82 - 3280	813 - 3250	–	–	–	–	–	328 - 1968	–
656 - 3280	650 - 3250	–	–	–	–	–	328 - 1968	–
492 - 2624	488 - 2600	–	–	–	–	–	328 - 1312	–
492 - 1640	488 - 1625	–	–	–	–	–	328 - 1312	–
261 - 656	260 - 650	–	–	–	–	–	–	–
261 - 722	260 - 715	–	–	–	–	–	–	–
328 - 1050	325 - 1040	–	–	–	–	–	–	–
97 - 164	–	260 - 390	–	–	260 - 390	–	66 - 164	–
66 - 130	–	195 - 325	–	–	195 - 325	–	66 - 164	–
57 - 130	–	114 - 293	–	–	114 - 293	–	48 - 130	–
58 - 97	–	98 - 163	–	–	98 - 163	–	66 - 115	–
48 - 82	–	98 - 146	–	–	98 - 146	–	33 - 82	–
261 - 458	–	228 - 390	–	–	228 - 390	–	261 - 455	–
130 - 328	–	130 - 228	–	–	130 - 228	–	82 - 145	–
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–

Cutting data



Cutting data

E24-E35

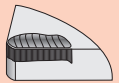
Work piece material		Type of treatment / alloy		VDI 3323 group	Hardness HB
A	Non alloyed steel	annealed	≤ 0,15% C	1	125
		annealed	0,15% - 0,45% C	2	150 - 250
		tempered	≥ 0,45% C	3	300
	Low alloyed steel	annealed		6	180
		tempered		7 / 8	250 - 300
		tempered		9	350
	High alloyed steel	annealed		10	200
		tempered		11	350
	Corrosion resistant steel	annealed	ferritic	12	200
		tempered	martensitic	13	325
R	Stainless steel	annealed	ferritic / martensitic	14	200
		quenched	austenitic	14	180
		hardened	duplex	14	230 - 260
		hardened	martensitic / austenitic	14	330
F	Grey cast iron		pearlitic / ferritic	15	180
			pearlitic / martensitic	16	260
	Spheroidal cast iron		ferritic	17	160
			pearlitic	18	-
	Malleable cast iron		ferritic	19	130
			pearlitic	20	230
N	Aluminium wrought alloys	non hardened		21	60
		hardened		22	100
	Aluminium cast alloys	non hardened	< 12% Si	23	80
		hardened	< 12% Si	24	90
		non hardened	> 12% Si	25	130
	Copper and copper alloys (bronze, brass)		machining alloy stock (1% Pb)	26	-
			brass, red bronze	27	90
			bronze	28	100
			lead-free copper and electrolytic copper	29	100
	Non-metallic materials		thermosetting plastics	29	-
		fibre-reinforced plastics	29	-	
		hard rubber	30	-	
S	Heat resistant alloys	annealed	Fe-base	31	200
		hardened	Fe-base	32	280
		annealed	Ni or Co-base	33	250
		hardened	Ni or Co-base 30 - 58 HRC	34	-
		cast	Ni or Co-base 1500 - 2200 N/mm ²	35	-
	Titanium alloys		pure titanium	36	R _m 440*
			alpha + beta alloys	37	R _m 1050*
H	Tempered steel	hardened and tempered		38	55 HRC
		hardened and tempered		39	60 HRC
	Chilled castings	cast		40	400
	Tempered cast iron	hardened and tempered		40	55 HRC

* R_m = ultimate tensile strength, measured in MPa

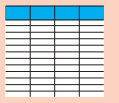
Cutting data



Coated carbide.			
CTCP125	CTC1130	CTC1135	CTC2135
v_c [sfpm]	v_c [sfpm]	v_c [sfpm]	v_c [sfpm]
618 - 943	618 - 780	585 - 748	585 - 748
553 - 780	553 - 650	553 - 618	553 - 618
423 - 650	423 - 520	423 - 488	423 - 488
553 - 813	553 - 650	553 - 618	553 - 618
325 - 618	325 - 520	293 - 488	293 - 488
260 - 553	260 - 455	228 - 423	228 - 423
423 - 683	423 - 553	390 - 650	390 - 650
260 - 520	260 - 423	163 - 325	163 - 325
423 - 715	423 - 585	455 - 585	455 - 585
358 - 618	358 - 520	358 - 520	358 - 520
455 - 683	455 - 585	455 - 650	455 - 650
325 - 683	325 - 553	358 - 618	358 - 618
-	-	260 - 488	260 - 488
228 - 325	-	179 - 244	179 - 244
423 - 683	423 - 650	-	-
390 - 650	390 - 585	-	-
390 - 780	390 - 553	-	-
390 - 650	390 - 618	-	-
488 - 813	488 - 748	-	-
390 - 650	390 - 553	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	65 - 130
-	-	-	49 - 114
-	-	-	26 - 82
-	-	-	13 - 49
-	-	-	13 - 49
-	-	-	260 - 423
-	-	-	49 - 114
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-



E2-E9



E10-E22



E24-E35



E36-E37

Cutting data



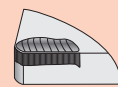
Cutting data

E24-E35

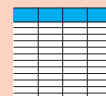
Work piece material		Type of treatment / alloy		VDI 3323 group	Hardness HB
A	Non alloyed steel	annealed	≤ 0,15% C	1	125
		annealed	0,15% - 0,45% C	2	150 - 250
		tempered	≥ 0,45% C	3	300
	Low alloyed steel	annealed		6	180
		tempered		7 / 8	250 - 300
		tempered		9	350
	High alloyed steel	annealed		10	200
		tempered		11	350
	Corrosion resistant steel	annealed	ferritic	12	200
		tempered	martensitic	13	325
R	Stainless steel	annealed	ferritic / martensitic	14	200
		quenched	austenitic	14	180
		hardened	duplex	14	230 - 260
		hardened	martensitic / austenitic	14	330
F	Grey cast iron		pearlitic / ferritic	15	180
			pearlitic / martensitic	16	260
	Spheroidal cast iron		ferritic	17	160
			pearlitic	18	-
	Malleable cast iron		ferritic	19	130
			pearlitic	20	230
N	Aluminium wrought alloys	non hardened		21	60
		hardened		22	100
	Aluminium cast alloys	non hardened	< 12% Si	23	80
		hardened	< 12% Si	24	90
		non hardened	> 12% Si	25	130
	Copper and copper alloys (bronze, brass)		machining alloy stock (1% Pb)	26	-
			brass, red bronze	27	90
			bronze	28	100
			lead-free copper and electrolytic copper	29	100
	Non-metallic materials		thermosetting plastics	29	-
		fibre-reinforced plastics	29	-	
		hard rubber	30	-	
S	Heat resistant alloys	annealed	Fe-base	31	200
		hardened	Fe-base	32	280
		annealed	Ni or Co-base	33	250
		hardened	Ni or Co-base 30 - 58 HRC	34	-
		cast	Ni or Co-base 1500 - 2200 N/mm ²	35	-
	Titanium alloys		pure titanium	36	R _m 440*
			alpha + beta alloys	37	R _m 1050*
H	Tempered steel	hardened and tempered		38	55 HRC
		hardened and tempered		39	60 HRC
	Chilled castings	cast		40	400
	Tempered cast iron	hardened and tempered		40	55 HRC

* R_m = ultimate tensile strength, measured in MPa

Cutting data



E2-E9



E10-E22



E24-E35



E36-E37



E36-E37



E36-E37



E36-E37



E36-E37



E36-E37



E36-E37



E36-E37



E36-E37



E36-E37

E31

Cermet			CBN			PCD	
TCC410	TCM407	TCM10	TA100	TA120	TA201	CTD4110	CTD4125
v_c [sfpm]	v_c [sfpm]	v_c [sfpm]	v_c [sfpm]	v_c [sfpm]	v_c [sfpm]	v_c [sfpm]	v_c [sfpm]
1312 - 1706	1114-1409	917 - 1148	-	-	-	-	-
1148 - 1312	950 - 1114	753 - 886	-	-	-	-	-
984 - 1148	786 - 950	622 - 786	-	-	-	-	-
1312 - 1440	1050 - 1181	853 - 984	-	-	-	-	-
984 - 1180	753 - 917	589 - 753	-	-	-	-	-
820 - 984	656 - 820	458 - 722	-	-	-	-	-
1017 - 1245	820 - 1017	525 - 656	-	-	-	-	-
917 - 1312	753 - 1081	525 - 656	-	-	-	-	-
1148 - 1312	917 - 1114	753 - 886	-	-	-	-	-
851 - 1017	689 - 820	558 - 820	-	-	-	-	-
820 - 1050	656 - 853	556 - 786	-	-	-	-	-
984 - 1148	820 - 917	656 - 786	-	-	-	-	-
-	-	-	-	-	-	-	-
689 - 820	525 - 656	425 - 525	-	-	-	-	-
1114 - 1573	-	-	-	-	-	-	-
853 - 1180	-	-	1640 - 4920	1640 - 4920	-	-	-
1181 - 1706	917 - 1398	722 - 984	-	-	-	-	-
984 - 1312	820 - 1245	589 - 820	**656 - 2296	**656 - 2296	**656 - 2296	-	-
1081 - 1640	820 - 1312	820 - 1148	-	-	-	-	-
589 - 1050	589 - 1050	525 - 820	-	-	-	-	-
-	-	-	-	-	-	984 - 13120	984 - 13120
-	-	-	-	-	-	984 - 4920	984 - 4920
-	-	-	-	-	-	984 - 13120	984 - 13120
-	-	-	-	-	-	984 - 6560	984 - 6560
-	-	-	-	-	-	656 - 2296	656 - 2296
-	-	-	-	-	-	-	-
-	-	-	-	-	-	328 - 2296	328 - 2296
-	-	-	-	-	-	328 - 4920	328 - 4920
-	-	-	-	-	-	984 - 9840	984 - 9840
-	-	-	-	-	-	261 - 984	261 - 984
-	-	-	-	-	-	261 - 984	261 - 984
-	-	-	-	-	-	164 - 656	164 - 656
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	328 - 820	-	-
-	-	-	-	-	328 - 820	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	230 - 820	-	-
-	-	-	-	-	230 - 820	-	-
-	-	-	-	-	-	-	-
-	-	-	130 - 394	130 - 394	-	-	-

** From cast iron GGG60 onwards

Cutting data



Cutting data

E24-E35

Work piece material		Type of treatment / alloy		VDI 3323 group	Hardness HB
A	Non alloyed steel	annealed	≤ 0,15% C	1	125
		annealed	0,15% - 0,45% C	2	150 - 250
		tempered	≥ 0,45% C	3	300
	Low alloyed steel	annealed		6	180
		tempered		7 / 8	250 - 300
		tempered		9	350
	High alloyed steel	annealed		10	200
		tempered		11	350
Corrosion resistant steel	annealed	ferritic	12	200	
	tempered	martensitic	13	325	
R	Stainless steel	annealed	ferritic / martensitic	14	200
		quenched	austenitic	14	180
		hardened	duplex	14	230 - 260
		hardened	martensitic / austenitic	14	330
F	Grey cast iron		pearlitic / ferritic	15	180
			pearlitic / martensitic	16	260
	Spheroidal cast iron		ferritic	17	160
			pearlitic	18	-
	Malleable cast iron		ferritic	19	130
			pearlitic	20	230
N	Aluminium wrought alloys	non hardened		21	60
		hardened		22	100
	Aluminium cast alloys	non hardened	< 12% Si	23	80
		hardened	< 12% Si	24	90
		non hardened	> 12% Si	25	130
	Copper and copper alloys (bronze, brass)		machining alloy stock (1% Pb)	26	-
			brass, red bronze	27	90
			bronze	28	100
			lead-free copper and electrolytic copper	29	100
	Non-metallic materials		thermosetting plastics	29	-
		fibre-reinforced plastics	29	-	
		hard rubber	30	-	
S	Heat resistant alloys	annealed	Fe-base	31	200
		hardened	Fe-base	32	280
		annealed	Ni or Co-base	33	250
		hardened	Ni or Co-base 30 - 58 HRC	34	-
		cast	Ni or Co-base 1500 - 2200 N/mm ²	35	-
	Titanium alloys		pure titanium	36	R _m 440*
		alpha + beta alloys	37	R _m 1050*	
H	Tempered steel	hardened and tempered		38	55 HRC
		hardened and tempered		39	60 HRC
	Chilled castings	cast		40	400
	Tempered cast iron	hardened and tempered		40	55 HRC

* R_m = ultimate tensile strength, measured in MPa

Cutting data

EcoCut / ProfileMaster



Cutting data

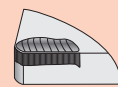
E24-E35

Work piece material		Type of treatment / alloy		VDI 3323 group	Hardness HB
A	Non alloyed steel	annealed	≤ 0,15% C	1	125
		annealed	0,15% - 0,45% C	2	150 - 250
		tempered	≥ 0,45% C	3	300
	Low alloyed steel	annealed		6	180
		tempered		7 / 8	250 - 300
		tempered		9	350
	High alloyed steel	annealed		10	200
		tempered		11	350
Corrosion resistant steel	annealed	ferritic	12	200	
	tempered	martensitic	13	325	
R	Stainless steel	annealed	ferritic / martensitic	14	200
		quenched	austenitic	14	180
		hardened	duplex	14	230 - 260
		hardened	martensitic / austenitic	14	330
F	Grey cast iron		pearlitic / ferritic	15	180
			pearlitic / martensitic	16	260
	Spheroidal cast iron		ferritic	17	160
			pearlitic	18	-
	Malleable cast iron		ferritic	19	130
			pearlitic	20	230
N	Aluminium wrought alloys	non hardened		21	60
		hardened		22	100
	Aluminium cast alloys	non hardened	< 12% Si	23	80
		hardened	< 12% Si	24	90
		non hardened	> 12% Si	25	130
	Copper and copper alloys (bronze, brass)		machining alloy stock (1% Pb)	26	-
			brass, red bronze	27	90
			bronze	28	100
			lead-free copper and electrolytic copper	29	100
	Non-metallic materials		thermosetting plastics	29	-
		fibre-reinforced plastics	29	-	
		hard rubber	30	-	
S	Heat resistant alloys	annealed	Fe-base	31	200
		hardened	Fe-base	32	280
		annealed	Ni or Co-base	33	250
		hardened	Ni or Co-base 30 - 58 HRC	34	-
		cast	Ni or Co-base 1500 - 2200 N/mm ²	35	-
	Titanium alloys		pure titanium	36	R _m 440*
		alpha + beta alloys	37	R _m 1050*	
H	Tempered steel	hardened and tempered		38	55 HRC
		hardened and tempered		39	60 HRC
	Chilled castings	cast		40	400
	Tempered cast iron	hardened and tempered		40	55 HRC

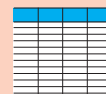
* R_m = ultimate tensile strength, measured in MPa

Cutting data

EcoCut / ProfileMaster



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E36-E37

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Uncoated carbide			Coated carbide			
H210T	H216T/H10T	TSM30	CTC1425	CTC1435	CTP2440	CM45
v_c [sfpm]	v_c [sfpm]	v_c [sfpm]	v_c [sfpm]	v_c [sfpm]	v_c [sfpm]	v_c [sfpm]
–	–	–	488 - 975	458 - 917	397 - 820	195 - 748
–	–	–	390 - 715	33 - 656	261 - 589	195 - 520
–	–	–	325 - 650	261 - 589	197 - 492	163 - 423
–	–	–	390 - 715	328 - 656	261 - 589	195 - 520
–	–	–	325 - 585	261 - 589	197 - 492	163 - 423
–	–	–	260 - 488	230 - 458	197 - 394	163 - 325
–	–	–	358 - 618	328 - 589	261 - 525	195 - 455
–	–	–	228 - 488	197 - 458	164 - 394	130 - 325
–	–	–	358 - 715	328 - 656	164 - 656	130 - 650
–	–	–	325 - 585	261 - 820	164 - 492	130 - 488
–	–	–	390 - 715	328 - 656	164 - 656	130 - 650
–	–	–	325 - 650	328 - 589	164 - 589	130 - 585
–	–	–	–	–	164 - 328	130 - 325
–	–	–	–	–	164 - 261	130 - 260
455 - 650	328 - 492	328 - 492	423 - 910	394 - 820	–	325 - 585
325 - 520	328 - 492	328 - 4925	423 - 910	394 - 820	–	260 - 520
520 - 650	328 - 458	328 - 458	390 - 910	361 - 820	–	325 - 585
358 - 488	328 - 458	328 - 458	390 - 910	361 - 820	–	260 - 520
520 - 715	328 - 525	328 - 525	358 - 910	328 - 820	–	325 - 650
455 - 585	328 - 525	328 - 525	358 - 910	328 - 820	–	293 - 520
390 - 9750	328 - 1640	328 - 1640	–	–	328 - 1640	260 - 6500
390 - 8125	328 - 984	328 - 984	–	–	328 - 984	260 - 4875
390 - 6500	328 - 1640	328 - 1640	–	–	328 - 1640	260 - 4875
390 - 5850	328 - 984	328 - 984	–	–	328 - 984	260 - 4225
390 - 3250	328 - 984	328 - 984	–	–	328 - 656	260 - 1950
390 - 2600	328 - 1640	328 - 1640	–	–	328 - 1640	260 - 1300
390 - 2600	328 - 1640	328 - 1640	–	–	32/8 - 1640	260 - 1300
390 - 1950	328 - 984	328 - 984	–	–	328 - 984	260 - 975
390 - 1300	328 - 984	328 - 984	–	–	328 - 984	260 - 650
293 - 715	261 - 589	261 - 589	–	–	261 - 589	195 - 520
260 - 650	197 - 492	197 - 492	–	–	197 - 492	163 - 455
390 - 975	328 - 820	328 - 820	–	–	328 - 820	260 - 650
114 - 163	66 - 130	66 - 130	–	–	66 - 164	65 - 163
82 - 130	48 - 97	48 - 97	–	–	66 - 130	65 - 130
82 - 130	33 - 66	33 - 66	–	–	48 - 82	49 - 65
65 - 98	33 - 66	33 - 66	–	–	33 - 66	33 - 65
49 - 82	33 - 66	33 - 66	–	–	33 - 66	33 - 65
260 - 455	164 - 394	164 - 394	–	–	164 - 394	163 - 390
130 - 325	97 - 164	97 - 164	–	–	97 - 164	98 - 163
–	–	–	–	–	–	–
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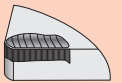
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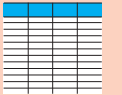


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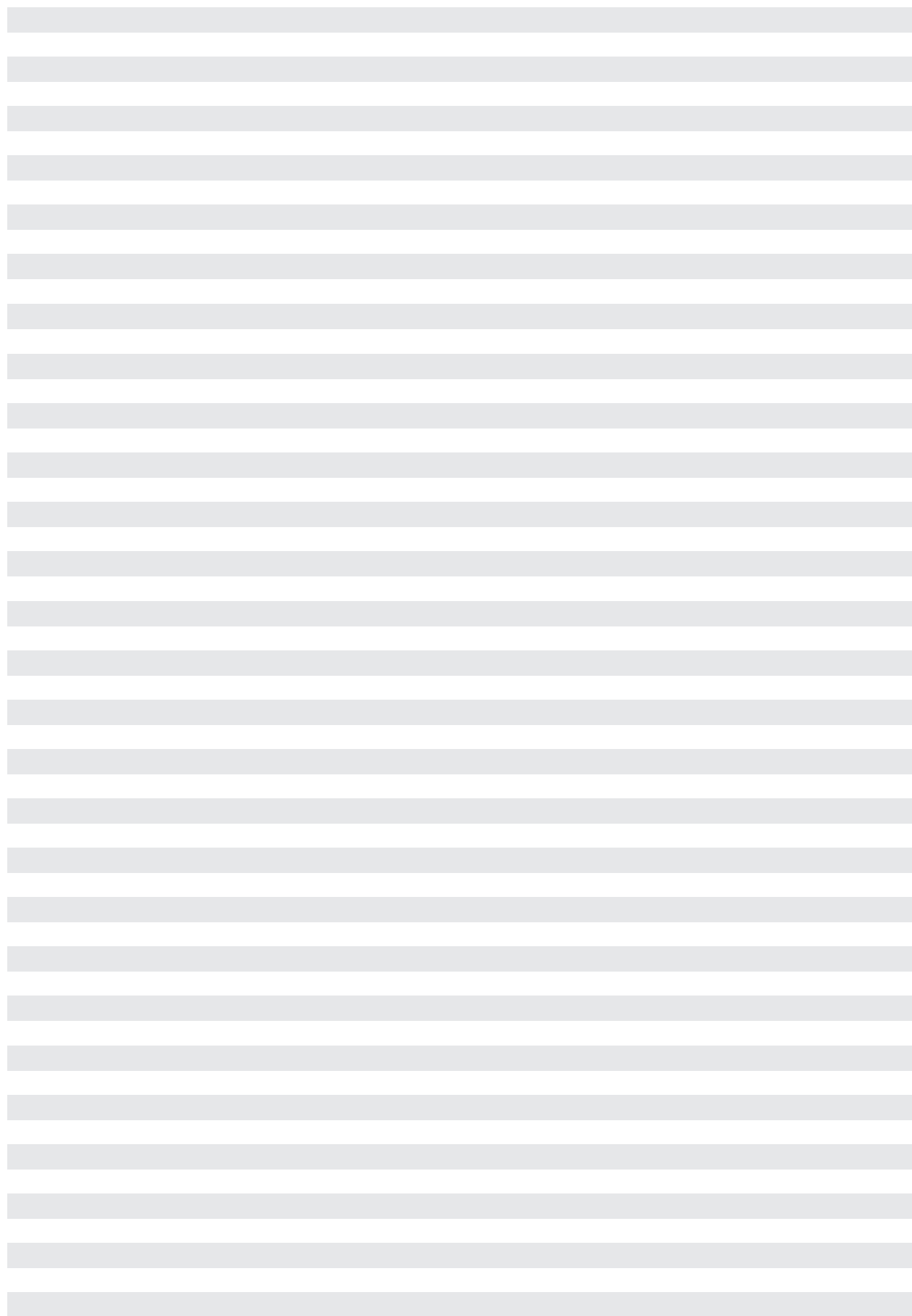
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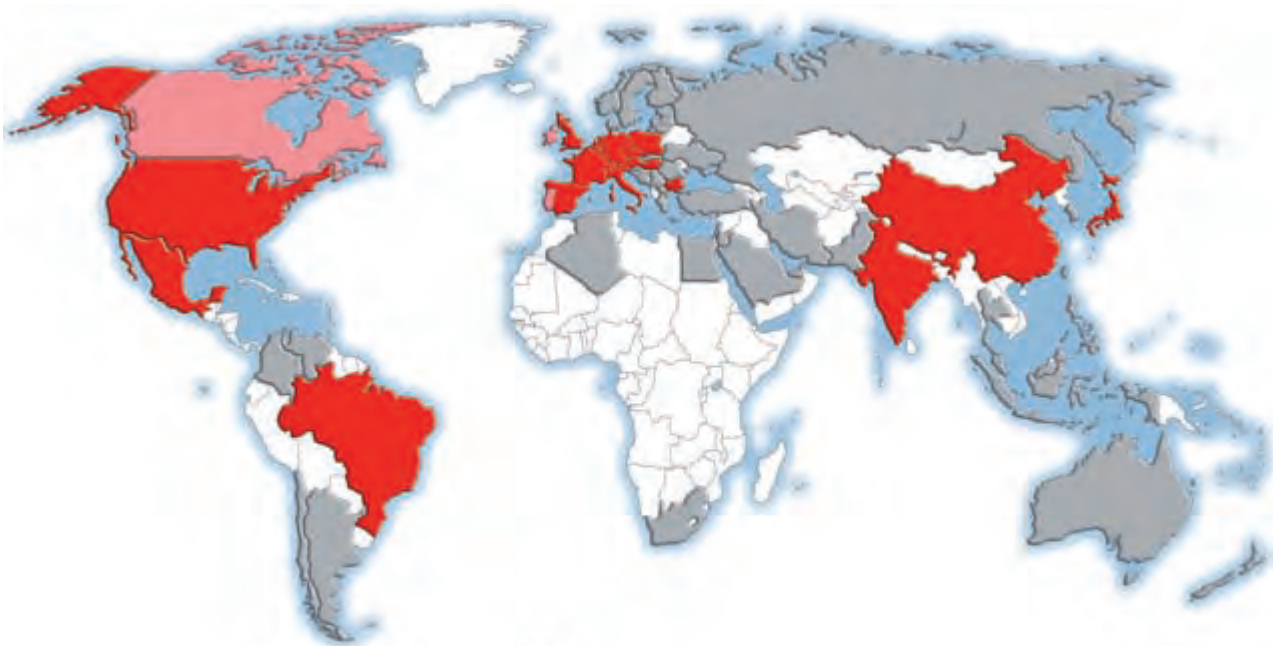


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