








INSERT THE SOLUTION



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S E H T

12 04 af S N

1

2

3

4

5

6

7

8

9

1 INSERT SHApE

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

2 LaTERaL cLEaRaNcE

A	B	C
D	E	F
G	N	P

3 TOLERaNCES

	m	s	d	3,175	4,76	6,35	9,525	12,7	15,875	19,05	25,4	31,75	38,1
A	0,005	0,025	0,025	•	•	•	•	•	•	•	•	•	•
E	0,025	0,025	0,025	•	•	•	•	•	•	•	•	•	•
F	0,005	0,025	0,013	•	•	•	•	•	•	•	•	•	•
G	0,025	0,13	0,025	•	•	•	•	•	•	•	•	•	•
H	0,013	0,025	0,013	•	•	•	•	•	•	•	•	•	•
J	0,005	0,025	0,05	•	•	•	•						
	0,005	0,025	0,08					•					
	0,005	0,025	0,10						•	•			
	0,005	0,025	0,13								•		
K	0,013	0,025	0,05	•	•	•	•						
	0,013	0,025	0,08					•					
	0,013	0,025	0,10						•	•			
	0,013	0,025	0,13								•		
M	0,013	0,025	0,15									•	•
	0,08	0,13	0,05	•	•	•	•						
	0,13	0,13	0,08					•					
	0,15	0,13	0,10						•	•			
U	0,018	0,13	0,13								•		
	0,20	0,13	0,15									•	•
	0,13	0,13	0,08	•	•	•	•						
	0,20	0,13	0,13					•					
U	0,27	0,13	0,18						•	•			
	0,38	0,13	0,25								•	•	•

3 TOLERaNCES

d	m	s
---	---	---

4 cHIp-bREaKER Type

A	F	G
M	N	Q
R	T	U
W	X = Special	

5 LENGTH Of THE cUTTING EdGE

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

6 THICKNESS

01	1,59 mm	04	4,76
T1	1,98 mm	05	5,56
02	2,38 mm	06	6,35
03	3,18 mm	07	7,94
T3	3,97 mm	08	8,00
		09	9,52

7 INSERTS WITH cHAMFER OR WITH cORNER RADIUS

A	45°		
	60°		
	75°		
	85°		
	90°		
	Speciale		
	Z		
A	3°	F	25°
B	5°	G	30°
C	7°	N	0°
D	15°	P	11°
E	20°		
Z	Speciale		
M0	Insero tondo		
00	Spigolo vivo		
01	0,1		
02	0,2		
04	0,4		
08	0,8		
12	1,2		
ecc...			

8 SHApE Of THE cUTTING EdGE

F	E
T	S

9 cUTTING dIREcTION

R - RIGHT ROTATION
L - LEFT ROTATION
N - NEUTRAL (RIGHT AND LEFT ROTATION)



MaTERiaLS aNd ISO cLaSS

ISO p STEEL
Lead and carburizing steel,tempered and construction steels

ISO M STaINLESS STEEL
cR ferritic steels,austenitic steels,cR martensitic steels, duplex steels

ISO k caST IRON
Grey cast iron, tempered cast iron,cGI cast iron, spheroidal cast iron, sintered iron

ISO N NON FERROUS
Molten and extruded aluminum alloys, copper alloys, non-metallic materials

ISO H TEMPEREd
Tempered steels, Tempered cast-iron, Hardened melted steels

ISO S SUpERaLLOyS
NI/cO based alloys

T cLaSS TITaNIUM
Titanium alloys




New

SyMbOL kEy

●	Main application
○	Secondary application

①	Suggested insert and immediate availability
X	Delivery in 10 Working days
○	Delivery to be defined when ordering

P	●	●	●	●	●	○	○							○	○	○		
M		○	○	○	○	●	●								○	○		
k	○							●	●									
N										●								
H	○													●				
S															●	●	○	○
T																●	●	

NK		APHR 1003PD R-NK			X	X	①	X	X	①							X	○		
M		APKT 1003PD R-M			X	X	①	X	X	①										
S		APKT 1003PD R-S	X			①		○			X	①		X						
			DP10M	WP20M	DP20M	WP30M	DP30M	CM30M	CM40M	CK10M	CK20M	NN10M	DH10M	CS30M	CS40M	WT30M	WT40M			

Introduction

Introduction

MILLING

MILLING

EXAMPLE OF READING



ExaMpLE: apkT 1604pd R-M dp20M

d

d	Coated insert Use without coolant	
w	Coated insert Use with coolant	
c	Coated insert Use with or without coolant	
N	Uncoated insert Use with or without coolant	

p

p	Steel
M	Stainless steel
k	Cast iron
N	Non ferrous
H	Tempered
S	Superalloys
T	Titanium

20

p	01	10	20	30	40	50	Steel
M	01	10	20	30	40	50	Stainless steel
k	01	10	20	30	40	50	Cast iron
N	01	10	20	30	40	50	Non ferrous
H	01	10	20	30	40	50	Tempered
S	01	10	20	30	40	50	Superalloys
T	01	10	20	30	40	50	Titanium

M

M	Milling
T	Turning
p	Parting

STEP 1

MaTERIaL
IdENTIfIcaTION

STEP 2

wORKING
cONdITIONS

STEP 4

SOLUTION

STEP 3

cOOLaNT
cONdITIONS

SIMULaTION

ISO	dEScRiPTION	kc*	cONdITION	MILLING GRadES	
P1	Soft carbon steels Ferritic steels	1350	Stable	 WP10M	 DP10M
	Free-cutting steels	1500			

kc* = Tearout force



ISO	dEScRiPTION	kc	cONdITION	MILLING GRAdES	
P1	Soft carbon steels. Ferritic steels.	1350	Stable		
	Free-cutting steels.	1500			
P2	Construction steels, carbon steels with low-medium carbon percentage (C <0,5%).	1500	Normal		
	Medium-high percentage carbon steels (C >0,5%) medium hard steels for heat treatment, weakly alloyed steels, ferritic and martensitic stainless steels.	1700			
P3	Tools steels. Hard steels for heat treatment. Martensitic stainless steels.	1900	Unstable		
	Tools steels of difficult workability high hardness steels. Martensitic stainless steels.	2000			
M4	Stainless steels of easy workability. Free-cutting stainless steels. Stainless steels treated with calcium.	1750	Stable		
	Stainless steels of medium workability. Austenitic and duplex stainless steels.	1900	Normal		
M5	Stainless steels of medium workability. Austenitic and duplex stainless steels.	2050	Unstable		
	Stainless steels of very hard workability. Austenitic and duplex stainless steels.	2150			
K6	Medium hardness cast iron. Grey cast iron.	1150	Stable		
	Weakly alloyed cast iron. Malleable cast iron. Nodular cast iron.	1225	Normal		
K7	Medium alloyed cast iron. Malleable cast iron of medium workability. Nodular cast iron.	1350	Unstable		
	Highly alloyed cast iron of difficult workability. Malleable cast iron of difficult workability, nodular cast iron.	1470			

ISO	dEScRiPTION	kc	cONdITION	MILLING GRAdES	
N8	Alluminium alloys.		Stable		
			Normal		
N9	Copper alloys.		Unstable		
H10	High-strength steels of difficult workability (42-56 HRC). Martensitic stainless steels.	2900	Stable		
			Normal		
			Unstable		
S11	Iron based super alloys		Stable		
S12	Cobalt based super alloys		Normal		
S13	Nichel based super alloys	3300	Unstable		
T14	Titanium alloys	1450	Stable		
			Normal		
			Unstable		

Quality

Quality

MILLING

MILLING



QUaLITy	ISO										p	M	k	N	H	S	T
	05	10	15	20	25	30	35	40	45	50							
dp10M		■									●	○	○				
wp20M				■							●	○					
dp20M				■							●	○					
wp30M						■					●	○					
dp30M						■					●	○					
cM30M						■					○	●					
cM40M								■			○	●					
ck10M		■											●				
ck20M				■									●				
NN10M		■										○	●				
dH10M		■									○			●			
cS30M									■		○	○			●		
cS40M									■		○	○			●		
wT30M										■					○	●	
wT40M															○	●	

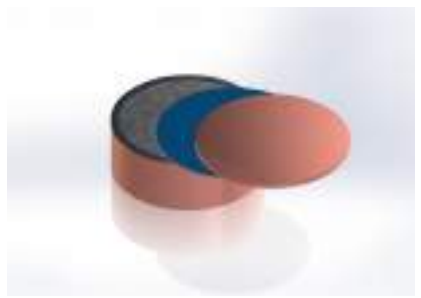


Quality



MILLING



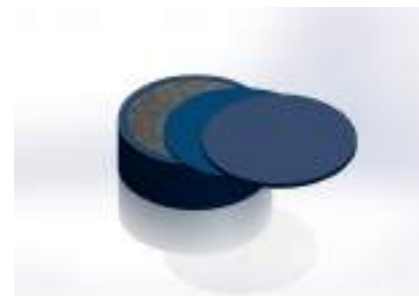
dp10M				
P	●	⚙️	⚙️	
M	○			
K	○	⚙️	⚙️	
N				
H	○		⚙️	
S				
T				




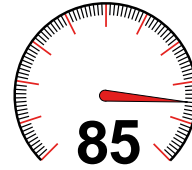
wc dimension	Max 0.8 μm
coating	pvd (red)

wear resistance	Toughness
	


wp30M				
P	●	⚙️		
M	○	⚙️	⚙️	
K				
N				
H				
S				
T				




wc dimension	Max 3.0 μm
coating	pvd (blue)

wear resistance	Toughness
	

wp20M				
P	●	⚙️		
M	○	⚙️	⚙️	
K				
N				
H				
S				
T				



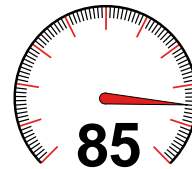
wc dimension	Max 1.2 μm
coating	pvd (blue)

wear resistance	Toughness
	

dp30M				
P	●	⚙️		
M	○	⚙️	⚙️	
K				
N				
H				
S				
T				



wc dimension	Max 3.0 μm
coating	pvd (red)

wear resistance	Toughness
	

dp20M				
P	●		⚙️	
M	○	⚙️	⚙️	
K				
N				
H				
S				
T				



wc dimension	Max 1.2 μm
coating	pvd (red)

wear resistance	Toughness
	

cM30M				
P	●		⚙️	
M	○	⚙️	⚙️	
K				
N				
H				
S				
T				



wc dimension	Max 3.0 μm
coating	pvd (red)

wear resistance	Toughness
	



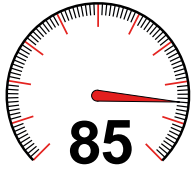
Quality




Quality


MILLING

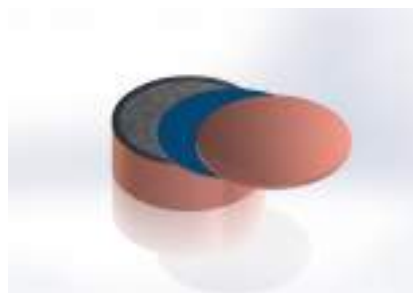
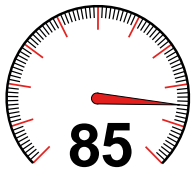

MILLING




cM40M					wc dimension	Max 3.0 μm																											
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P	●		⚡																														
M	○	⚡	⚡																														
K																																	
N																																	
H																																	
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T																																	
				wear resistance	Toughness																												
																																	

NN10M					wc dimension	Max 0.8 μm																											
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K																																	
N	●	⚡	⚡																														
H																																	
S																																	
T																																	
				wear resistance	Toughness																												
																																	

ck10M					wc dimension	Max 0.8 μm																											
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dH10M					wc dimension	Max 0.8 μm																											
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P	○		⚡																														
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				wear resistance	Toughness																												
																																	

ck20M					wc dimension	Max 1.2 μm																											
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				wear resistance	Toughness																												
																																	

cS30M					wc dimension	Max 3.0 μm																											
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P	○		⚡																														
M	○	⚡	⚡																														
K																																	
N																																	
H																																	
S	●	⚡	⚡																														
T																																	
				wear resistance	Toughness																												
																																	

Quality

Quality

MILLING

MILLING



cS40M					wc dimension	Max 3.0 µm
P	○				coating	pvd (red)
M	○	⚙️	⚙️	wear resistance		Toughness
k						
N						
H						
S	●	⚙️	⚙️			
T						

wT30M					wc dimension	Max 3.0 µm
P					coating	pvd (ivory)
M				wear resistance		Toughness
k						
N						
H						
S	○	⚙️	⚙️			
T	●	⚙️				







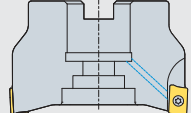





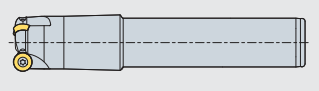
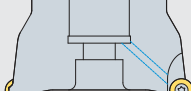
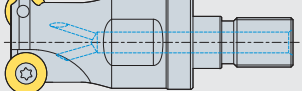



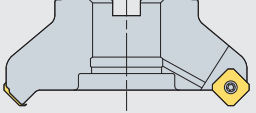



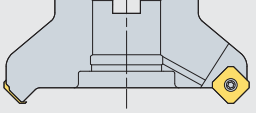

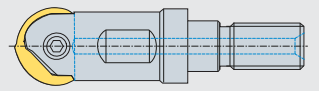


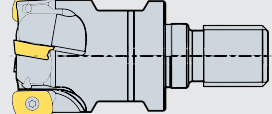






wT40M					wc dimension	Max 3.0 µm
P					coating	pvd (Ivory)
M				wear resistance		Toughness
k						
N						
H						
S	○	⚙️	⚙️			
T	●	⚙️				



Quality

MILLING



a						Pag.	22			Pag.	23	
	apHR -Nk	apkT -M	apkT -S	apHT -aLU	apHT -aLU		24			MILL ap...c	MILL ap...M	
R						Pag.	26				Pag.	27
	RpHx -E1	RpHx -S1	RpHx -TM	RpHw -S	RpHx -aLU		28				MILL RpHx...c	MILL RpHx...M
S						Pag.	30				Pag.	31
	SEHT SN-Rc	SEHT -aLU	SEHx -SN						MILL SE...M			
S						Pag.	32				Pag.	33
	SNMx -N	SNHx -EN	ONMx -N						MILL SN...M			
W						Pag.	34				Pag.	35
	waR -N								TwIST waR			
X						Pag.	36				Pag.	37
	xpT -TN	xpw -TN							TwIST xp			
X							Pag.	38			Pag.	39
	xNEx -ax	xNEx -M	xNEx -S	xNEx -aLU				40			MILL xNEx...c	MILL xNEx...M

General overview

General overview

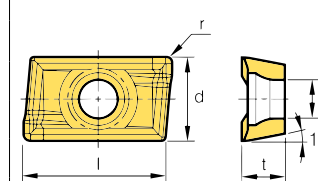
MILLING

MILLING



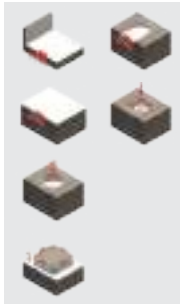
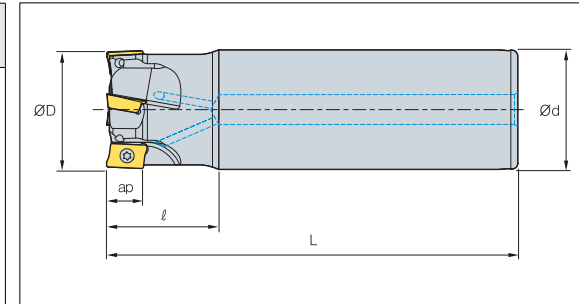
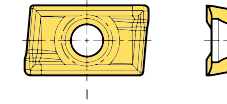
- Main application
 - Secondary application
-
- ① Suggested insert and immediate availability
 - X Delivery in 10 Working days
 - O Delivery to be defined when ordering

			DP10M	WP20M	DP20M	WP30M	DP30M	CM30M	CM40M	CK10M	CK20M	NN10M	DH10M	CS30M	CS40M	WT30M	WT40M
NK		APHR 1003PD R-NK		X	X	①	X	X	①					X		O	
M		APKT 1003PD R-M		X	X	①	X	X	①								
S		APKT 1003PD R-S	X		①		O			X	①		X				
ALU		APHT 100302PD R-ALU											①				
		APHT 100305PD R-ALU											①				



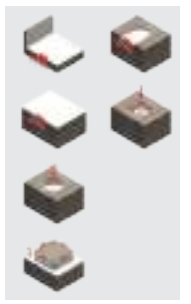
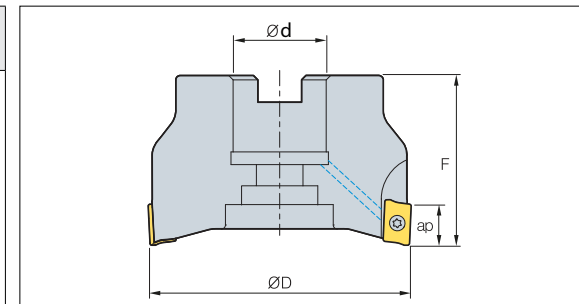
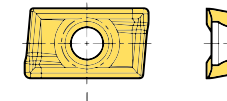
ISO							
Description	Dim.	d (mm)	l (mm)	t (mm)	r (mm)	d1 (mm)	
APHR 1003PD R-NK	10	6,70	10,00	3,49	0,50	3,20	
APKT 1003PD R-M	10	6,70	10,00	3,49	0,50	3,20	
APKT 1003PD R-S	10	6,70	10,00	3,49	0,50	3,20	
APHT 100302PD R-ALU	10	6,70	10,00	3,49	0,20	3,20	
APHT 100305PD R-ALU	10	6,70	10,00	3,49	0,50	3,20	

MILL ap 10 c



dEScRipTION	dIMENSIONS						SpareS	SVT001
	Z	Ød	Ød	l	L	ap max		
MILL AP 10 D16-C16-L130-Z2	2	16	16	35	130	4,80		TXB
MILL AP 10 D20-C20-L150-Z2	2	20	20	50	150	4,80		
MILL AP 10 D25-C20-L170-Z3	3	25	20	50	170	4,80		
MILL AP 10 D32-C25-L195-Z4	4	32	25	50	195	4,80		

MILL ap 10 M



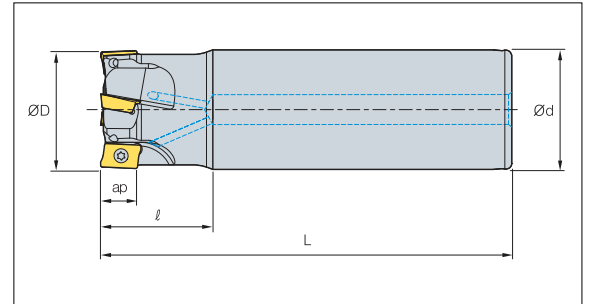
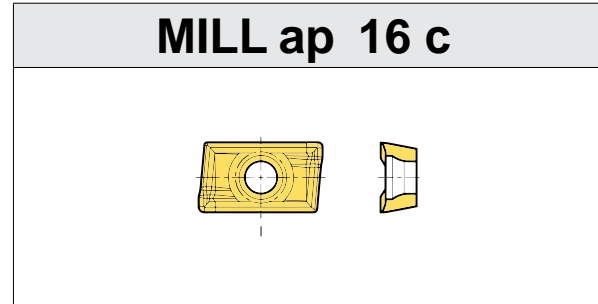
dEScRipTION	dIMENSIONS					SpareS	SVT001
	Z	Ød	Ød	f	ap max		
MILL AP 10 D40-M-Z6	6	40	16	40	4,80		TXB
MILL AP 10 D50-M-Z7	7	50	22	40	4,80		



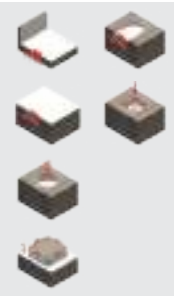
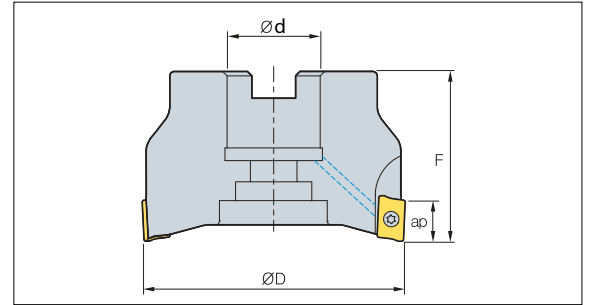
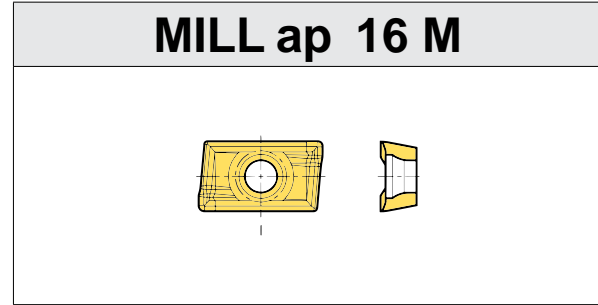
- Main application
 - Secondary application
-
- 1** Suggested insert and immediate availability
 - X Delivery in 10 Working days
 - O Delivery to be defined when ordering

P	●	●	●	●	●	○	○						○	○	○		
M	○	○	○	○	○	●	●							○	○		
K	○							●	●								
N										●							
H	○											●					
S													●	●	○	○	
T															●	●	

		DP10M	WP20M	DP20M	WP30M	DP30M	CM30M	CM40M	CK10M	CK20M	NN10M	DH10M	CS30M	CS40M	WT30M	WT40M
M	APKT 1604PD R-M		X	X	1	X	X	1								
S	APKT 1604PD R-S	1		X					1	X		1				
ALU	APKT 1604PD R-ALU										1					

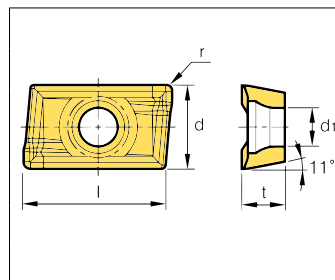


dEScRiPTION	dIMENSIONS						SpareS	SVT002
	Z	Ød	ØD	l	L	ap max		
MILL AP 16 D25-C20-L200-Z2	2	25	20	60	200	8	SpareS	SVT002
MILL AP 16 D32-C25-L200-Z3	3	32	25	60	200	8		TXD



dEScRiPTION	dIMENSIONS					SpareS	SVT002
	Z	Ød	ØD	f	ap max		
MILL AP 16 D40-M-Z4	4	40	16	40	8	SpareS	SVT002
MILL AP 16 D50-M-Z5	5	50	22	40	8		TXD
MILL AP 16 D63-M-Z6	6	63	22	40	8		

ISO							
Description	Dim.	d (mm)	l (mm)	t (mm)	r (mm)	d1 (mm)	
APKT 1604PD R-M	16	9,50	16,30	5,26	0,90	4,40	
APKT 1604PD R-S	16	9,50	16,30	5,26	0,90	4,40	
APKT 1604PD R-ALU	16	9,50	16,30	5,26	0,90	4,40	



Inserts- Tools

Inserts- Tools

MILLING

MILLING

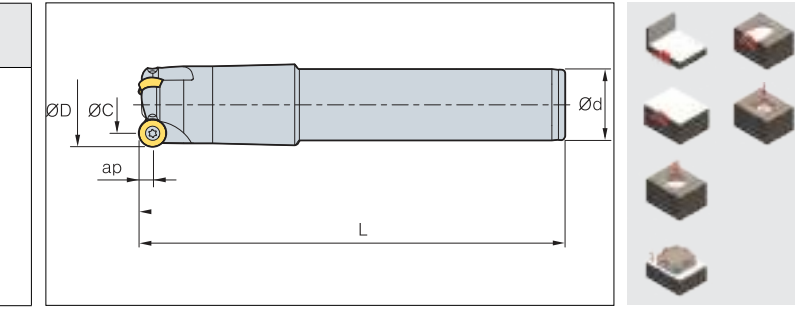
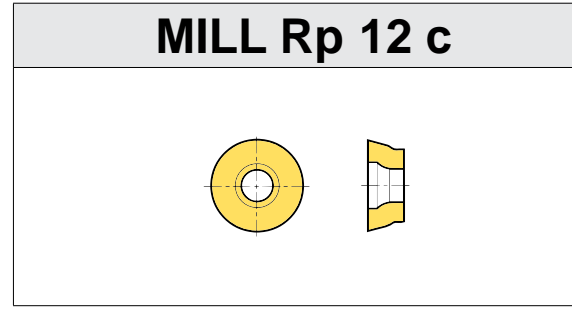


- Main application
- Secondary application

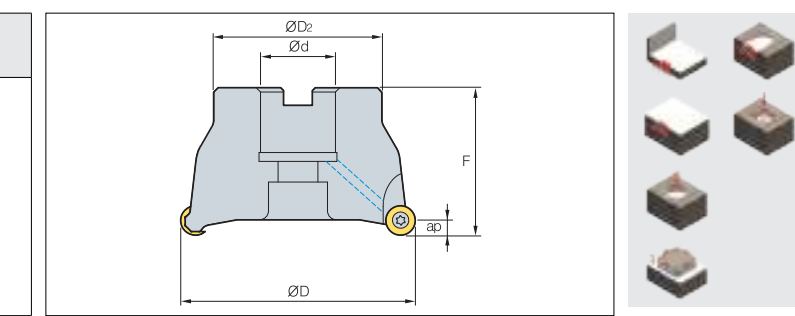
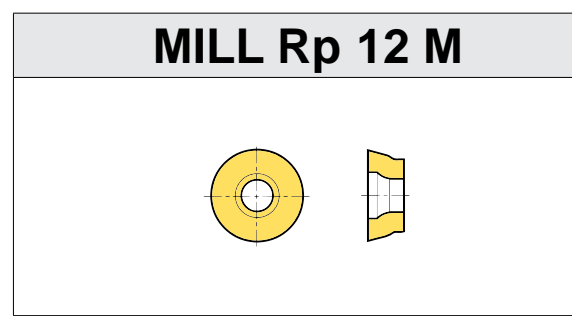
- Suggested insert and immediate availability
- Delivery in 10 Working days
- Delivery to be defined when ordering

p	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○
M	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
k	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
N	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
T	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

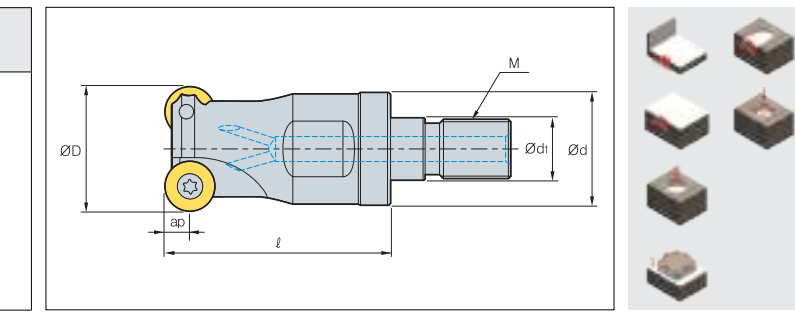
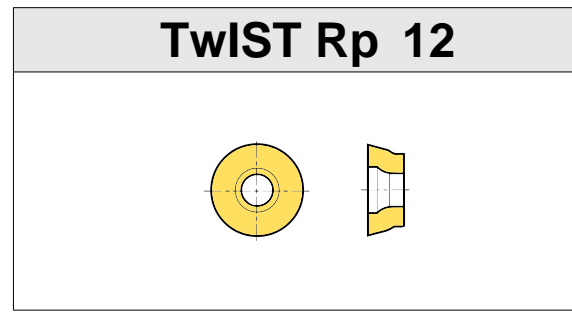
			dIMENSIONS															
			DP10M	WP20M	DP20M	WP30M	DP30M	CM30M	CM40M	CK10M	CK20M	NN10M	DH10M	CS30M	CS40M	WT30M	WT40M	
E1	RPHX 1204MO-E1		○	●				X	●	X						X	●	
S1	RPHX 1204MO-S1		●	X	X				X	●			X	●				
TM	RPHX 1204MO-TM		X	●			X		X	X				X	○	●		
FLAT	RPHW 1204MO S		●	X					●	X		●						
ALU	RPHX 1204MO-ALU									●								



dEScRipTION	dIMENSIONS						SpareS	
	Z	Ød	Ød2	L	ap max 8 index	ap max 4 index		
MILL RP 12 D35-C32-L150-Z3	3	35	32	150	3	6	SpareS	SVT003
								TXD



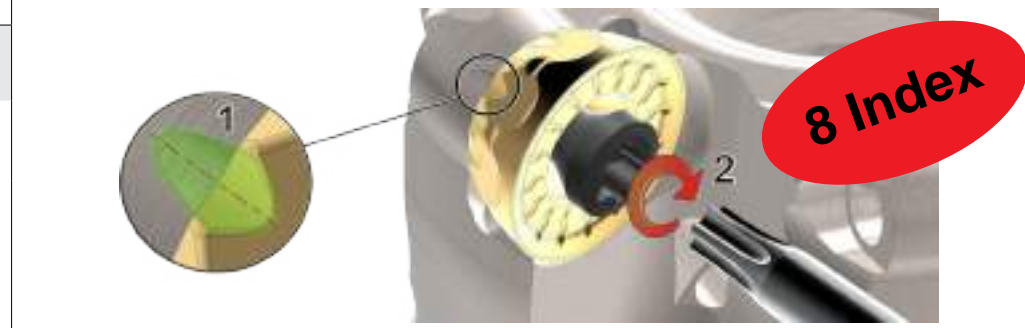
dEScRipTION	dIMENSIONS							SpareS	
	Z	Ød	Ød2	Ød	f	ap max 8 index	ap max 4 index		
MILL RP 12 D40-M-Z4	4	40	38	16	40	3	6	SpareS	SVT003
MILL RP 12 D50-M-Z5	5	50	40	22	40	3	6		TXD
MILL RP 12 D52-M-Z5	5	52	43	22	40	3	6		
MILL RP 12 D63-M-Z6	6	63	48	22	40	3	6		
MILL RP 12 D66-M-Z7	7	66	48	22	40	3	6		
MILL RP 12 D80-M-Z7	7	80	58	27	50	3	6		
MILL RP 12 D100-M-Z10	10	100	78	32	50	3	6		



dEScRipTION	dIMENSIONS								SpareS	
	Z	Ød	Ød	Ød1	l	M	ap max 8 index	ap max 4 index		
TwIST RP 12 D32-M16-Z3	3	32	28,7	17	42	16	3	6	SpareS	SVT003
TwIST RP 12 D42-M16-Z4	4	42	28,7	17	42	16	3	6		TXD

ISO					
Description	Dim.	d (mm)	t (mm)	d1 (mm)	
RPHX 1204MO-E1	12	12	4,76	4,40	
RPHX 1204MO-S1	12	12	4,76	4,40	
RPHX 1204MO-TM	12	12	4,76	4,40	
RPHW 1204MO S	12	12	4,76	4,40	
RPHX 1204MO-ALU	12	12	4,76	4,40	

- #### MOUNTING INSTRUCTIONS
1. Adjust the inserts by using the reference point highlighted on the milling cutter body.
 2. Clamp the screw with a tightening torque of 3,2 Nm.



Inserts- Tools


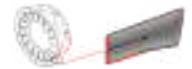

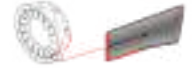


Inserts- Tools

MILLING

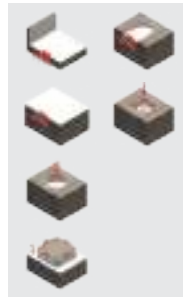
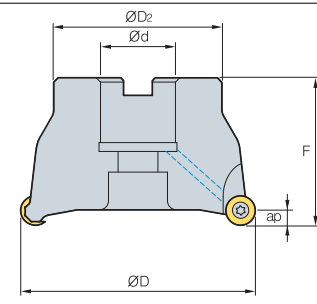
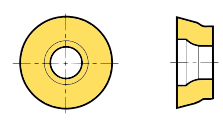
MILLING





- Main application
 - Secondary application
-
- ① Suggested insert and immediate availability
 - X Delivery in 10 Working days
 - O Delivery to be defined when ordering

		p	●	●	●	●	○	○				○	○	○						
		M	○	○	○	○	○	●	●					○	○					
		k	○						●	●										
		N										●								
		H	○										●							
		S												●	●	○	○			
		T														●	●			
			DP10M	WP20M	DP20M	WP30M	DP30M	CM30M	CM40M	CK10M	CK20M	NN10M	DH10M	CS30M	CS40M	WT30M	WT40M			
E1	 RPHX 1605MO-E1 	○			①		X	①	X					X	①					
S1	 RPHX 1605MO-S1 	①	X	X			X	①						X	①					
FLAT	 RPHW 1605MO S 	①		X						①	X		①							

MILL Rp 16 M



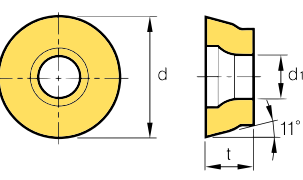
dEScRipTION	dIMENSIONS								SpaRES	Part No.
	Z	$\varnothing d$	$\varnothing d_2$	$\varnothing d$	f	ap max 8 index	ap max 4 index			
MILL RP 16 D63-M-Z5	5	63	48	22	40	4	8	 SVT004  TXE		
MILL RP 16 D80-M-Z6	6	80	58	27	50	4	8			
MILL RP 16 D100-M-Z7	7	100	78	32	50	4	8			

Inserts- Tools

Inserts- Tools

MILLING


MILLING



ISO				
Description	Dim.	d (mm)	t (mm)	d1 (mm)
RPHX 1605MO-E1	16	16	5,56	5,50
RPHX 1605MO-S1	16	16	5,56	5,50
RPHW 1605MO S	16	16	5,56	5,50

MOUNTING INSTRUCTIONS

- Adjust the inserts by using the reference point highlighted on the milling cutter body.
- Clamp the screw with a tightening torque of 3,2 Nm.





● Main application		○ Secondary application	
① Suggested insert and immediate availability		X Delivery in 10 Working days	
O Delivery to be defined when ordering			

	DP10M	WP20M	DP20M	WP30M	DP30M	CM30M	CM40M	CK10M	CK20M	NN10M	DH10M	CS30M	CS40M	WT30M	WT40M
p	●	●	●	●	●	○	○				○	○	○		
M		○	○	○	○	●	●					○	○		
k	○							●	●						
N										●					
H	○										●				
S												●	●	○	○
T														●	●

	DP10M	WP20M	DP20M	WP30M	DP30M	CM30M	CM40M	CK10M	CK20M	NN10M	DH10M	CS30M	CS40M	WT30M	WT40M
SN-RC			①		X	①	X						①		①
SN	①		O					①	O		①				
ALU										①					

MILL SE 12 M

dEScRiPTION	dIMENSIONS					
	Z	Ød	Øde	Ød	f	ap max
MILL SE 12 D40-M-Z4	4	40	53	16	40	3,50
MILL SE 12 D50-M-Z5	5	50	63	22	40	3,50
MILL SE 12 D63-M-Z6	6	63	75	22	40	3,50

SpaRES	SVT005	
SpaRES	TXE	

ISO							
Description	Dim.	d (mm)	a (mm)	t (mm)	r (mm)	d1 (mm)	
SEHT 1204AF SN-RC	12,00	12,70	1,80	4,76	-	5,50	
SEHX 1204AF SN	12,00	12,70	1,80	4,76	-	5,50	
SEHT 1204AF-ALU	12,00	12,70	2,50	4,76	-	5,50	

Inserts- Tools




Inserts- Tools

MILLING

MILLING

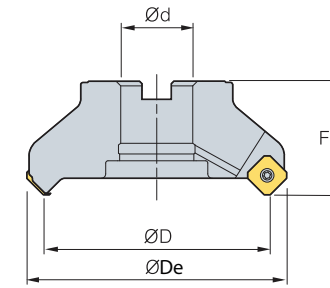
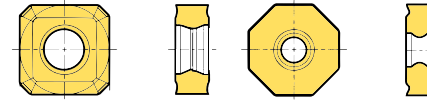


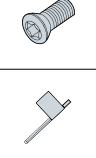
●	Main application
○	Secondary application
①	Suggested insert and immediate availability
X	Delivery in 10 Working days
O	Delivery to be defined when ordering

		p	●	●	●	●	●	○	○												
		M	○	○	○	○	○	●	●												
		k	○							●	●										
		N								●											
		H	○																		
		S													●	●	○	○			
		T																●	●		
			DP10M	WP20M	DP20M	WP30M	DP30M	CM30M	CM40M	CK10M	CK20M	NN10M	DH10M	CS30M	CS40M	WT30M	WT40M				
N		SNMX 1205 AN N		X	①		X			①	X										
EN		SNHX 1205AN EN	O		①		X	X	①					X	①	X	①				
N		ONMX 1205AN N			①		X	X	①					X	①	X	①				

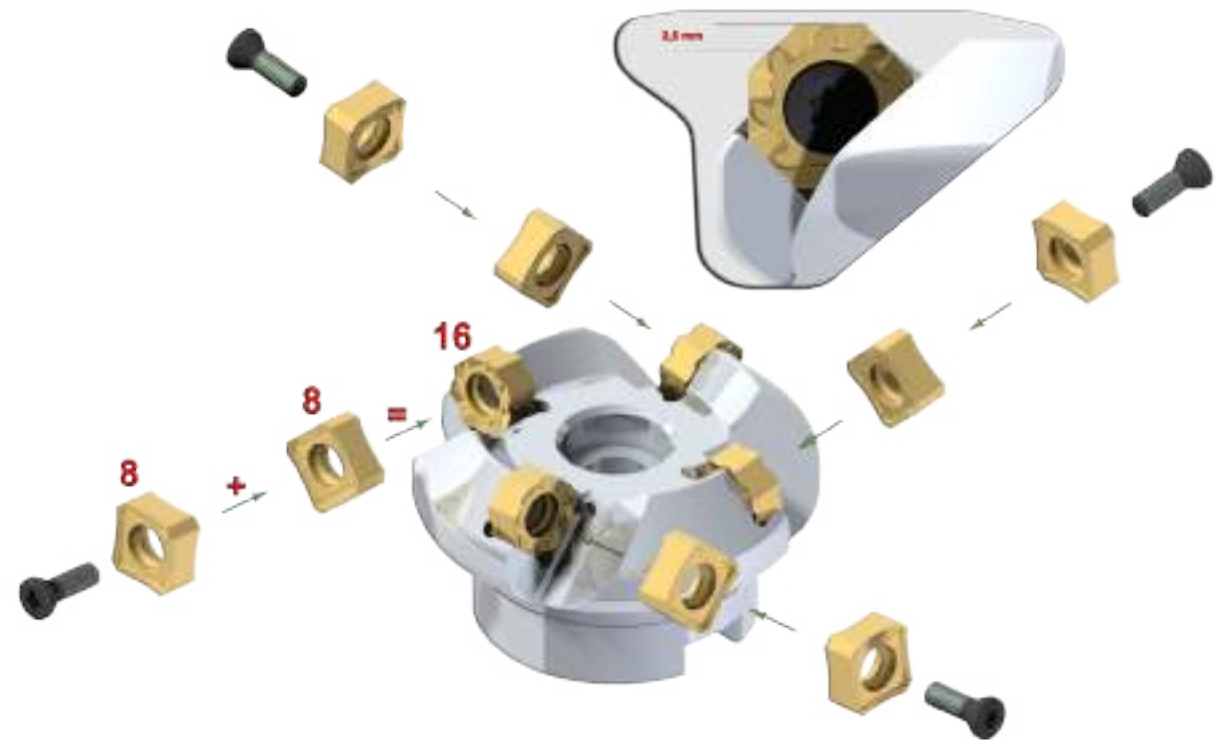
Description	Dim.	ISO					
		d (mm)	a (mm)	t (mm)	r (mm)	d1 (mm)	
SNMX 1205 AN N	12	12,70	1,80	5,49	-	6,00	
SNHX 1205AN EN	12	12,70	1,50	5,49	-	6,00	
ONMX 1205AN N	05	12,70	1,50	5,49	-	6,00	

MILL SN 12 M



dEScRiPTION	dIMENSIONS						SpareS	Code
	Z	Ød	Øde	Ød	f	ap max		
MILL SN 12 D50-M-Z4	4	50	63	22	40	3,50*		SVT006
MILL SN 12 D63-M-Z6	6	63	76	22	40	3,50*		TXD
MILL SN 12 D80-M-Z7	7	80	93	27	50	3,50*		
MILL SN 12 D100-M-Z8	8	100	113	32	63	3,50*		

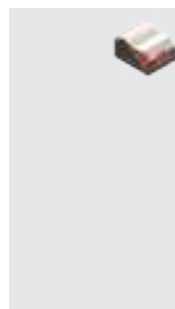
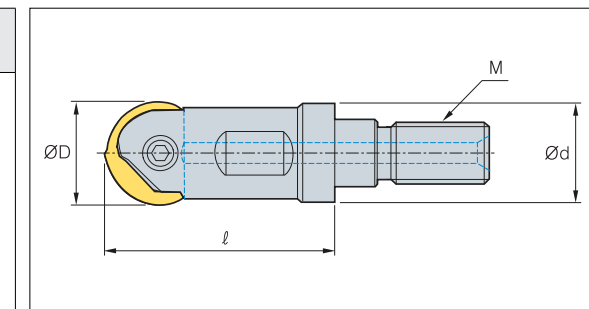
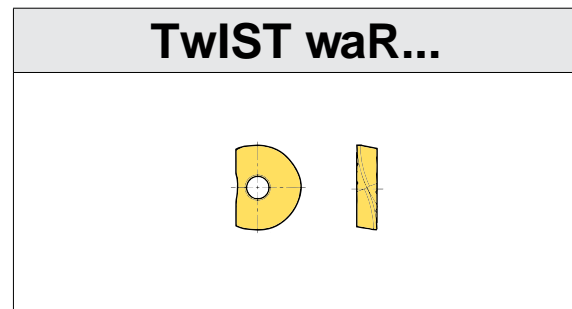
*ap max ONMx 2,5 mm



- Main application
- Secondary application

- ① Suggested insert and immediate availability
- X Delivery in 10 Working days
- O Delivery to be defined when ordering

	p	●	●	●	●	○	○												
M	●	○	○	○	○	○	○	●	●										
k	○							●	●										
N										●									
H	○										●								
S												●	●	○	○				
T															●	●			
	DP10M	WP20M	DP20M	WP30M	DP30M	CM30M	CM40M	CK10M	CK20M	NN10M	DH10M	CS30M	CS40M	WT30M	WT40M				
Z	WAR 08 N										①								
	WAR 10 N										①								
	WAR 12 N										①								
	WAR 16 N										①								
	WAR 20 N										①								
	WAR 25 N										①								
	WAR 32 N										①								



dEScRipTION	dIMENSIONS					SpaRES	
	Ød	Ød	l	M	ap max		
TWIST WAR 08 D08-M6	08	9,7	23	6	D/20	SVT007	TXA
TWIST WAR 10 D10-M6	10	9,7	23	6	D/20	SVT008	TXB
TWIST WAR 12 D12-M6	12	9,7	23	6	D/20	SVT009	TXC
TWIST WAR 16 D16-M8	16	13,5	28	8	D/20	SVT010	TXD
TWIST WAR 20 D20-M10	20	18,5	28	10	D/20	SVT011	TXE
TWIST WAR 25 D25-M12	25	21	35	12	D/20	SVT012	TXF
TWIST WAR 32 D32-M16	32	28,7	43	16	D/20	SVT013	TXG

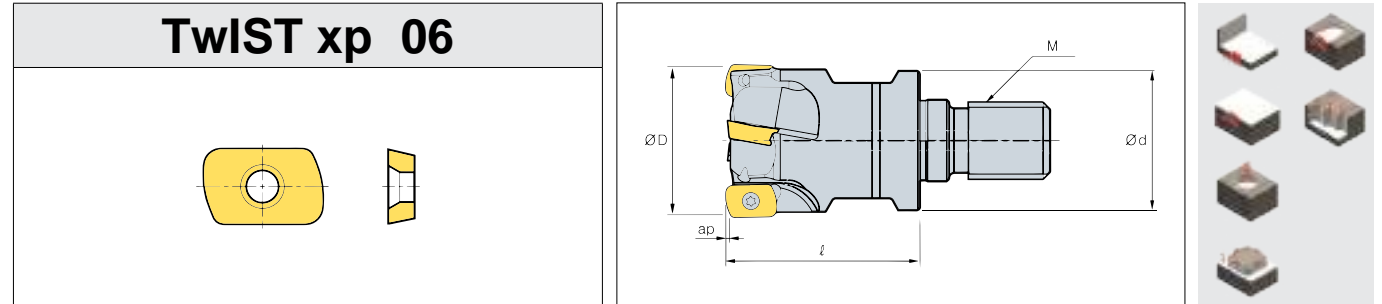
Description	ISO			
	Dim.	d (mm)	l (mm)	t (mm)
WAR 08 N	08	8,00	7,00	2,40
WAR 10 N	10	10,00	8,50	2,60
WAR 12 N	12	12,00	10,00	3,00
WAR 16 N	16	16,00	12,00	4,00
WAR 20 N	20	20,00	15,00	5,00
WAR 25 N	25	25,00	18,50	6,00
WAR 32 N	32	32,00	23,50	7,00




- Main application
 - Secondary application
-
- ① Suggested insert and immediate availability
 - X Delivery in 10 Working days
 - Delivery to be defined when ordering

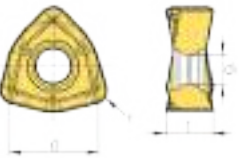
		p	●	●	●	●	○	○										
		M	○	○	○	○	●	●										
		k	○						●	●								
		N								●								
		H	○								●							
		S										●	●	○	○			
		T														●	●	
			DP10M	WP20M	DP20M	WP30M	DP30M	CM30M	CM40M	CK10M	CK20M	NN10M	DH10M	CS30M	CS40M	WT30M	WT40M	
TN		XPT 0603TN			①			①	X									
TN		XPW 0603TN	X		①			①				X	①					

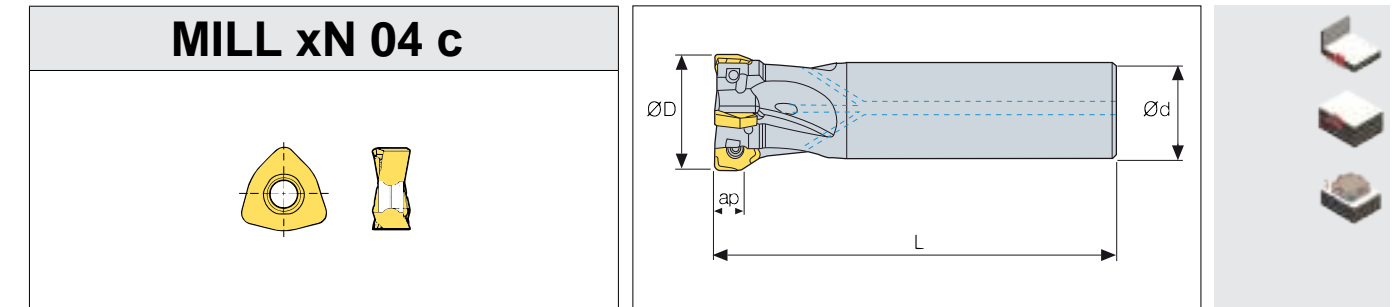
		ISO						
		Description	Dim.	d (mm)	l (mm)	t (mm)	r (mm)	d1 (mm)
		XPT 0603TN	06	6,35	10,00	3,18	8,00	2,75
		XPW 0603TN	06	6,35	10,00	3,18	8,00	2,75



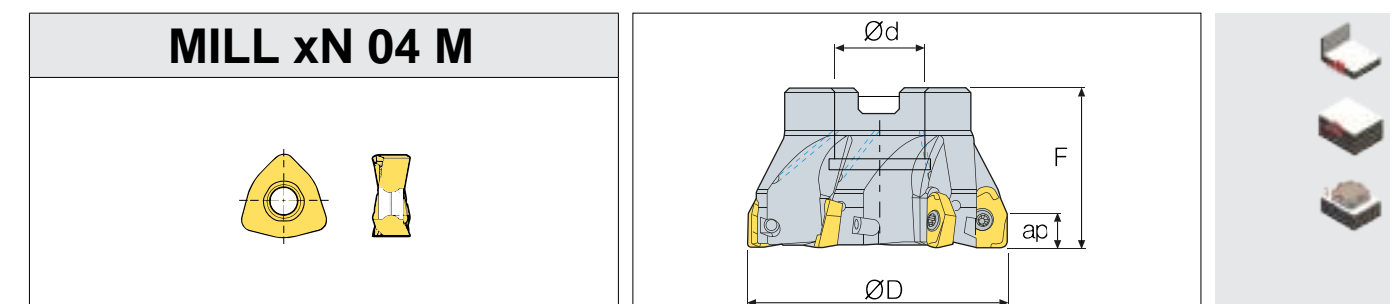
dEScRiPTION	dIMENSIONS							SpareS	SVT014 TXB
	Z	Ød	Ød	l	cam radius	M	ap max		
TWIST XP 06 D16-M8-Z2	2	16	13	25	2	8	0,80		
TWIST XP 06 D20-M10-Z3	3	20	18	30	2	10	0,80		
TWIST XP 06 D25-M12-Z4	4	25	21	35	2	12	0,80		
TWIST XP 06 D32-M16-Z5	5	32	29	40	2	16	0,80		

● Main application				p	●	●	●	●	●	○	○	○	○	○	○	○	○	○	
○ Secondary application				M	○	○	○	○	○	●	●	○	○	○	○	○	○	○	
				k	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
				N	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
① Suggested insert and immediate availability				H	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
X Delivery in 10 Working days				S	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
O Delivery to be defined when ordering				T	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
					DP10M	WP20M	DP20M	WP30M	DP30M	CM30M	CM40M	CK10M	CK20M	NN10M	DH10M	CS30M	CS40M	WT30M	WT40M
M		XNEX 040304-M					①		X	X	①		X			X	①	X	①

		ISO						
	Description	Dim.	d (mm)	l (mm)	t (mm)	r (mm)	d1 (mm)	
	XNEX 040304-M	04	6,73	4,41	3,31	0,40	3,13	



dEScRipTION	dIMENSIONS					SpareS	SVT015
	Z	Ød	Ød	L	ap max		
MILL XN 04 D20-C20-L150-Z3	3	20	20	150	4	TXA	
MILL XN 04 D25-C25-L170-Z4	4	25	25	170	4		
MILL XN 04 D32-C32-L195-Z5	5	32	32	195	4		



dEScRipTION	dIMENSIONS					SpareS	SVT015
	Z	Ød	Ød	f	ap max		
MILL XN 04 D40-M-Z6	6	40	16	40	4	TXA	
MILL XN 04 D50-M-Z8	8	50	22	40	4		

Inserts- Tools

Inserts- Tools

MILLING

MILLING



● Main application				p ● ● ● ● ● ○ ○																													
○ Secondary application				M ○ ○ ○ ○ ● ●																													
① Suggested insert and immediate availability				k ○																													
X Delivery in 10 Working days				N																													
O Delivery to be defined when ordering				H ○																													
				S																													
				T																													
				DP10M		WP20M		DP20M		WP30M		DP30M		CM30M		CM40M		CK10M		CK20M		NN10M		DH10M		CS30M		CS40M		WT30M		WT40M	
AX		XNEX 080608-AX						①		X	X	①													X	①			X				
		XNEX 080612-AX				①		X	X	①																X	①			X			
M		XNEX 080604-M			○	①		X	X	①																							
		XNEX 080608-M			X	①		X																									
		XNEX 080612-M			○	①		X																									
S		XNEX 080608-S			①		X					①	X											①									
		XNEX 080612-S			①		X						①	X											①								
ALU		XNEX 080608-ALU																						①									

MILL xN 08 M

dEScription	dIMENSIONS				
	Z	Ød	Ød	f	ap max
MILL XN 08 D50-M-Z4	4	50	22	40	7,5
MILL XN 08 D50-M-Z5	5	50	22	40	7,5
MILL XN 08 D63-M-Z6	6	63	27	40	7,5
MILL XN 08 D80-M-Z7	7	80	27	50	7,5
MILL XN 08 D100-M-Z8	8	100	32	50	7,5
MILL XN 08 D125-M-Z11	11	125	40	63	7,5

SpaRES		SVT016
		TXD

ISO							
Description	Dim.	d (mm)	l (mm)	t (mm)	r (mm)	d1 (mm)	
XNEX 080604	08	12,50	7,50	6,56	0,40	4,5	
XNEX 080608	08	12,50	7,50	6,56	0,80	4,5	
XNEX 080612	08	12,50	7,50	6,56	1,20	4,5	

Inserts- Tools

Inserts- Tools

MILLING

MILLING

caUSES Of wEaR

The wear is caused by a simultaneous mechanical and heating stimulation on the cutting edge. The main causes are attributed to:

- MECHANICAL ABRASION
- MATERIAL REMOVAL
- OXIDATION PROCESSES
- CHEMICAL DIFFUSION



pRObLEMS aNd SOLUTIONS
pLaSTic dEfORMaTION
cRaTERIZaTION
cOMpLETE bREakaGE
cHippING
bUILT Up EdGE

2.pLaSTic dEfORMaTION	caUSES	REMEdIES
	<ul style="list-style-type: none"> • excessive cutting speed 	<ul style="list-style-type: none"> • Decrease the cutting conditions

3. wEaR fOR cRaTERIZaTION	caUSES	REMEdIES
	<ul style="list-style-type: none"> • excessive cutting speed 	<ul style="list-style-type: none"> • Decrease the cutting conditions

4.cOMpLETE bREakaGE	caUSES	REMEdIES
	<ul style="list-style-type: none"> • Excessive feed • Insufficient rigidity of the system 	<ul style="list-style-type: none"> • Decrease the feed

5.cHippING	caUSES	REMEdIES
	<ul style="list-style-type: none"> • Excessive feed • Insufficient rigidity of the system 	<ul style="list-style-type: none"> • Select a tougher grade • Decrease the feed

6.bUILT Up EdGE	caUSES	REMEdIES
	<ul style="list-style-type: none"> • Excessive feed • Materials of difficult workability 	<ul style="list-style-type: none"> • Increase the cutting speed • Select a tougher grade

Technical information

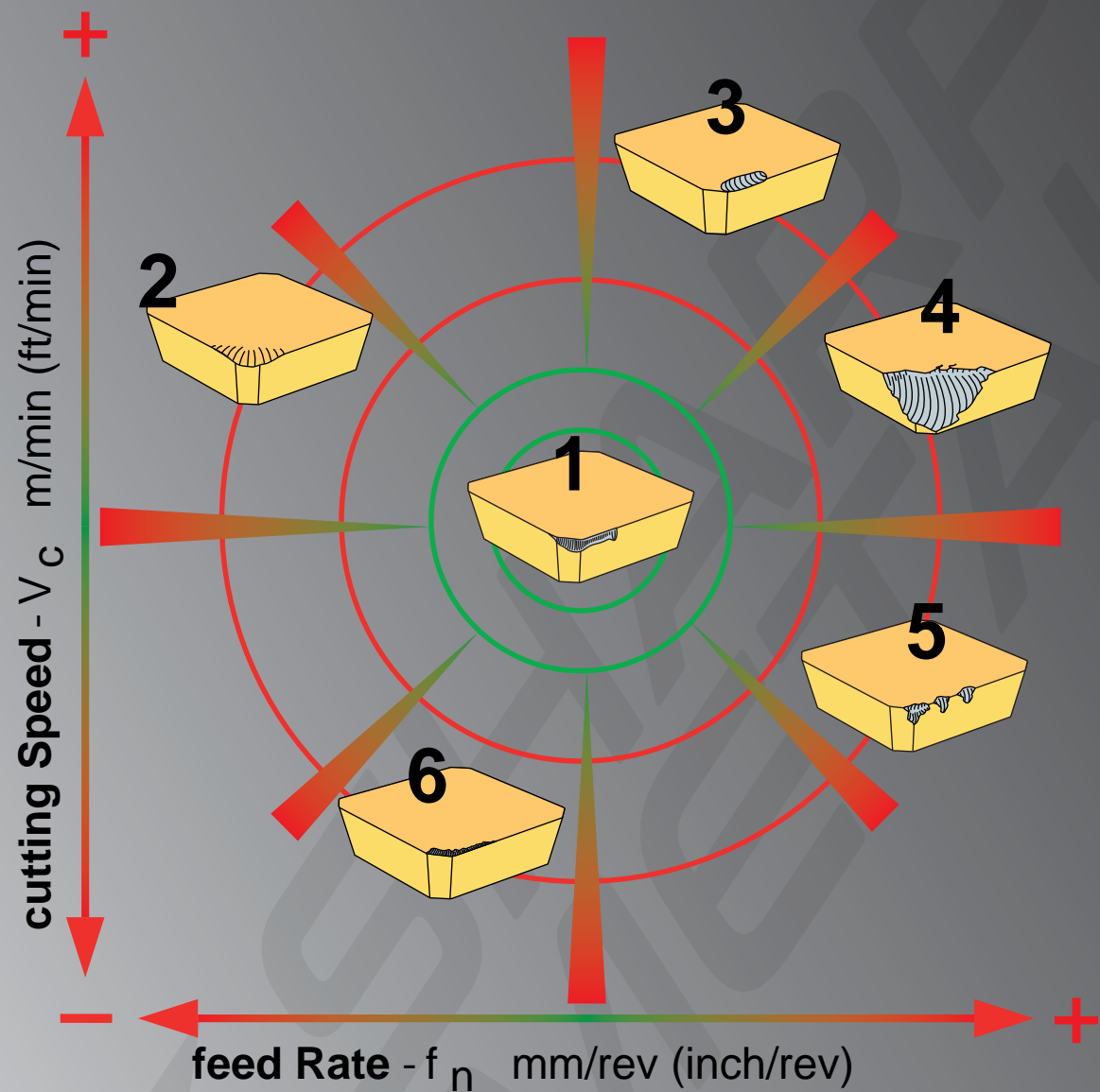
Technical information

MILLING

MILLING



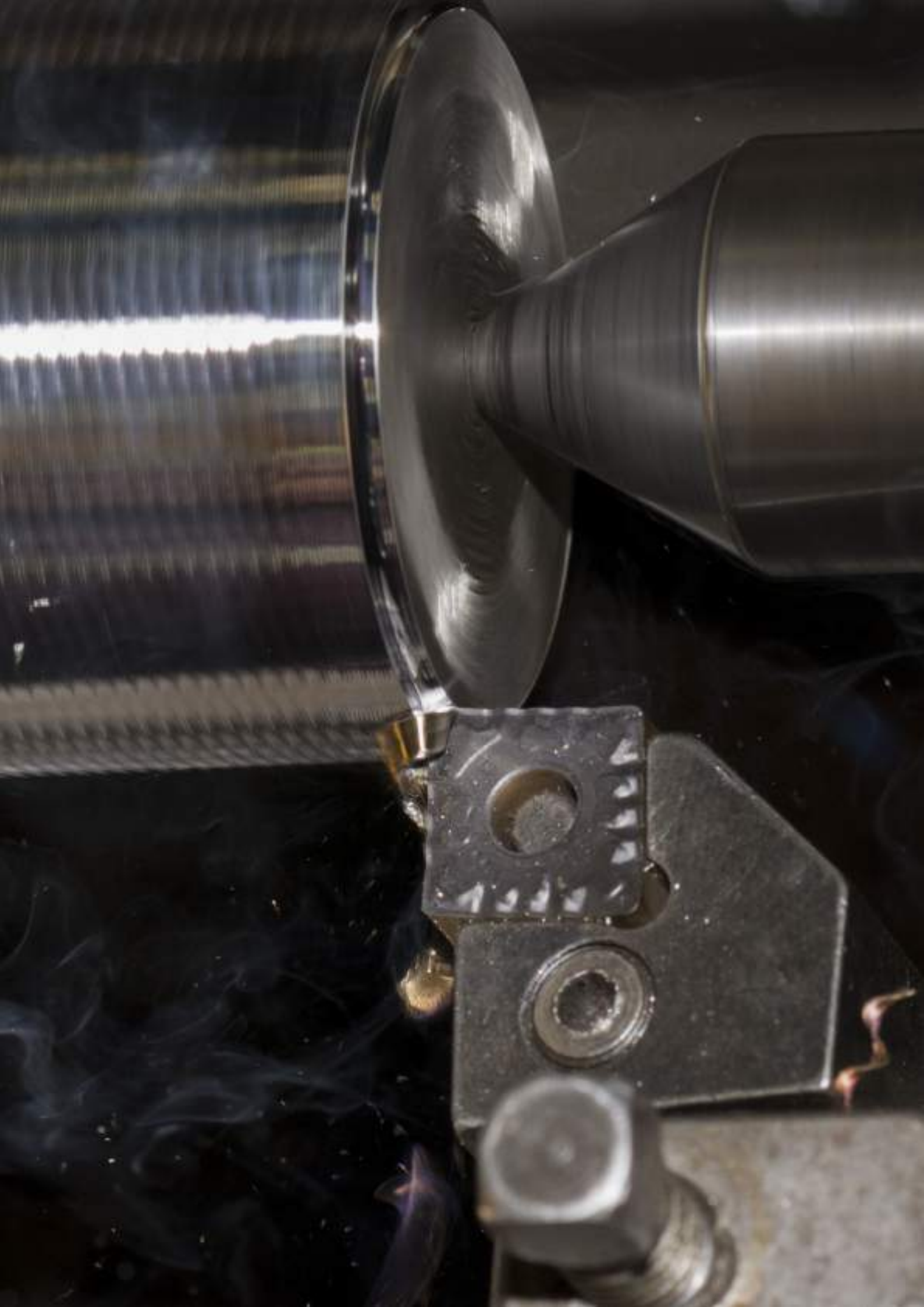
wear Optimization



1. flank wear (abrasive)
2. plastic deformation (impression)
3. crater wear
4. complete break
5. chipping
6. built-up Edge

Preferable wear for predictable tool life





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	QUaLITy	Pag. 54.....64
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	GENERaL OvERvIEW	Pag. 68.....71
	INSERTS- TOOLS	Pag. 72.....109
	GEOMETRIES TEST REpORT	Pag. 110....113
	TECHNIca L INfORMa TION	Pag. 114....116

C N M G

12 04 08 ax

1

2

3

4

5

6

7

8

1 INSERT SHaPe

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

2 LaTERaL cLEaRaNcE

A	B	C
D	E	F
G	N	P

3 TOLERaNcES

				3,175	4,76	6,35	9,525	12,7	15,875	19,05	25,4	31,75	38,1
	m	s	d										
A	0,005	0,025	0,025	•	•	•	•	•	•	•	•	•	•
E	0,025	0,025	0,025	•	•	•	•	•	•	•	•	•	•
F	0,005	0,025	0,013	•	•	•	•	•	•	•	•	•	•
G	0,025	0,13	0,025	•	•	•	•	•	•	•	•	•	•
H	0,013	0,025	0,013	•	•	•	•	•	•	•	•	•	•
J	0,005	0,025	0,05	•	•	•	•						
	0,005	0,025	0,08					•					
	0,005	0,025	0,10						•	•			
	0,005	0,025	0,13								•		
K	0,013	0,025	0,05	•	•	•	•						
	0,013	0,025	0,08					•					
	0,013	0,025	0,10						•	•			
	0,013	0,025	0,13								•		
M	0,08	0,13	0,05	•	•	•	•						
	0,13	0,13	0,08					•					
	0,15	0,13	0,10						•	•			
	0,018	0,13	0,13								•		
U	0,13	0,13	0,08	•	•	•	•						
	0,20	0,13	0,13					•					
	0,27	0,13	0,18						•	•			
	0,38	0,13	0,25								•	•	•

3 TOLERaNcES

d	m	s
---	---	---

4 cHIp-bREaKER TypE

A	F	G
M	N	Q
R	T	U
W	X = Special	

5 LENGTH Of THE cUTTING EdGE

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

6 THICKNESS

01	1,59 mm	04	4,76
T1	1,98 mm	05	5,56
02	2,38 mm	06	6,35
03	3,18 mm	07	7,94
T3	3,97 mm	08	8,00
		09	9,52

7 INSERTS wITH cHAMFER OR wITH cORNER RADIUSt

M0	Insert round
00	Sharp edge
01	0,1
02	0,2
04	0,4
08	0,8
12	1,2
ecc...	

8 GEOMETRy

F	M
S	AX
ALU	MP
FP	

Introduction

Introduction

TURNING

TURNING



S C L C R

25 25 M 12



1 cLaMpING SySTEM

Bloccaggio a staffa
Bloccaggio a staffa
Bloccaggio a staffa
Bloccaggio a leva
Bloccaggio a vite

C	D	M
P	S	W

2 INSERT SHapE

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

3 pROcESSING cORNER

B - 75°	D - 45°	E - 60°	F - 90°	G - 90°	J - 93°
K - 75°	L - 95°	N - 63°	R - 75°	S - 45°	T - 60°
V - 72.5°	Y - 85°				

4 LaTERaL cLEaRaNcE

A	B	C
D	E	F
G	N	P

5 pERfORMaNcE Type

L	N	R
L	N	R

6 STEaM HEIGHT

7 STEaM wIdTH

8 STEaM HEIGHT

A-32	H-100	Q-180	X-SPECIAL
B-40	J-110	R-200	
C-50	K-125	S-250	
D-60	L-140	T-300	
E-70	M-150	U-350	
F-80	N-160	V-400	
G-90	P-170	W-450	

9 cUTTING EdGE LENGTH

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

Introduction

Introduction

TURNING

TURNING

MaTERiaLS aNd ISO cLaSS

ISO p STEEL
Lead and carburizing steel,tempered and construction steels

ISO M STaINLESS STEEL
cR ferritic steels,austenitic steels,cR martensitic steels, duplex steels

ISO k caST IRON
Grey cast iron, tempered cast iron,cGI cast iron, spheroidal cast iron, sintered iron

ISO N NON FERROUS
Molten and extruded aluminum alloys, copper alloys, non-metallic materials

ISO H TEMPEREd
Tempered steels, Tempered cast-iron, Hardened melted steels

ISO S SUpERaLLOyS
Ni/cO based alloys

T cLaSS TITaNIUM
Titanium alloys


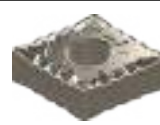

New

SyMbOL kEy

●	Main application
○	Secondary application

①	Suggested insert and immediate availability
X	Delivery in 10 Working days
○	Delivery to be defined when ordering

P	●	●	●	○	○	○	○																
M				●	●	●	●																
k	○							●	●														
N										●													
H	○																						
S																							
T																							

		CNMA 120408																						
		CNMA 120412																						
		CNMA 120416																						
F		CNMG 120404-F	①	X	X	X	①	X																
		CNMG 120408-F	①	X	X	X	①	X																
M		CNMG 120404-M	①	①	X	X	①	X																
		CNMG 120408-M	①	①	X	X	①	X																
		CNMG 120412-M	①	①	X	X	①	X																

Introduction

Introduction

TURNING

TURNING



ExaMpLE: cNMG 120404-M cp15T

C

d	Coated insert Use without coolant	
w	Coated insert Use with coolant	
c	Coated insert Use with or without coolant	
N	Uncoated insert Use with or without coolant	

p

P	Steel
M	Stainless steel
k	Cast iron
N	Non ferrous
H	Tempered
S	Superalloys
T	Titanium

15

p	05	15	25	35	45	Steel
M	05	15	25	35	45	Stainless steel
k	05	15	25	35	45	Cast iron
N	05	15	25	35	45	Non ferrous
H	05	15	25	35	45	Tempered
S	05	15	25	35	45	Superalloys
T	05	15	25	35	45	Titanium

T

M	Milling
T	Turning
p	Parting

STEP 1

MaTERIaL
IdENTIfIcaTION

STEP 2

wORKING
cONdITIONS

STEP 4

SOLUTION

STEP 3

cOOLaNT
cONdITIONS

SIMULaTION

ISO	dEScRIPtION	kc*	cONdITION	TURNING GRadES	
P1	Soft carbon steels Ferritic steels	1350	Stable	 WM25T	 DM25T
	Free-cutting steels	1500			

kc* = Tearout force

Quality

Quality

TURNING

TURNING



ISO	dEScRiPTION	kc	cONdITION	TURNING GRAdES	
P1	Soft carbon steels. Ferritic steels.	1350	Stable		
	Free-cutting steels.	1500			
P2	Construction steels, carbon steels with low-medium carbon percentage (C <0,5%).	1500	Normal		
	Medium-high percentage carbon steels (C >0,5%) medium hard steels for heat treatment, weakly alloyed steels, ferritic and martensitic stainless steels.	1700			
P3	Tools steels. Hard steels for heat treatment. Martensitic stainless steels.	1900	Unstable		
	Tools steels of difficult workability high hardness steels. Martensitic stainless steels.	2000			
M4	Stainless steels of easy workability. Free-cutting stainless steels. Stainless steels treated with calcium.	1750	Stable		
	Stainless steels of medium workability. Austenitic and duplex stainless steels.	1900			
M5	Stainless steels of medium workability. Austenitic and duplex stainless steels.	2050	Unstable		
	Stainless steels of very hard workability. Austenitic and duplex stainless steels.	2150			
K6	Medium hardness cast iron. Grey cast iron.	1150	Stable		
	Weakly alloyed cast iron. Malleable cast iron. Nodular cast iron.	1225			
K7	Medium alloyed cast iron. Malleable cast iron of medium workability. Nodular cast iron.	1350	Unstable		
	Highly alloyed cast iron of difficult workability. Malleable cast iron of difficult workability, nodular cast iron.	1470			

ISO	dEScRiPTION	kc	cONdITION	TURNING GRAdES	
N8	Alluminium alloys.		Stable		
			Normal		
N9	Copper alloys.		Unstable		
H10	High-strength steels of difficult workability (42-56 HRC). Martensitic stainless steels.	2900	Stable		
			Normal		
			Unstable		
S11	Iron based super alloys		Stable		
S12	Cobalt based super alloys		Normal		
S13	Nichel based super alloys	3300	Unstable		
T14	Titanium alloys	1450	Stable		
			Normal		
			Unstable		

Quality

Quality

TURNING

TURNING



QUaLITy	ISO										p	M	k	N	H	S	T
	05	10	15	20	25	30	35	40	45	50							
cp15T			■								●		○		○		
cp25T					■						●						
cp35T							■				●						
wM25T					■						○	●					
dM25T					■						○	●					
wM35T							■				○	●					
dM35T							■				○	●					
ck05T	■												●				
ck15T			■										●				
NN10T		■										○		●			
dH15T			■								○			●			
wS25T					■						○	○				●	
wS35T							■				○	○				●	
wT25T						■										○	●
wT35T							■									○	●



Quality

TURNING



cp15T					wc dimension	Max 0.8 μm																											
<table border="1"> <tr><td>P</td><td>●</td><td>⚙️</td><td>⚙️</td></tr> <tr><td>M</td><td></td><td></td><td></td></tr> <tr><td>K</td><td>○</td><td>⚙️</td><td>⚙️</td></tr> <tr><td>N</td><td></td><td></td><td></td></tr> <tr><td>H</td><td>○</td><td></td><td>⚙️</td></tr> <tr><td>S</td><td></td><td></td><td></td></tr> <tr><td>T</td><td></td><td></td><td></td></tr> </table>					P	●	⚙️	⚙️	M				K	○	⚙️	⚙️	N				H	○		⚙️	S				T				coating
P	●	⚙️	⚙️																														
M																																	
K	○	⚙️	⚙️																														
N																																	
H	○		⚙️																														
S																																	
T																																	
				wear resistance	Toughness																												

wM25T					wc dimension	Max 3.0 μm																											
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P	●	⚙️																															
M	○	⚙️																															
K																																	
N																																	
H																																	
S																																	
T																																	
				wear resistance	Toughness																												

cp25T					wc dimension	Max 1.2 μm																											
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P	●	⚙️	⚙️																														
M																																	
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H																																	
S																																	
T																																	
				wear resistance	Toughness																												

dM25T					wc dimension	Max 3.0 μm																											
<table border="1"> <tr><td>P</td><td>●</td><td></td><td>⚙️</td></tr> <tr><td>M</td><td>○</td><td></td><td>⚙️</td></tr> <tr><td>K</td><td></td><td></td><td></td></tr> <tr><td>N</td><td></td><td></td><td></td></tr> <tr><td>H</td><td></td><td></td><td></td></tr> <tr><td>S</td><td></td><td></td><td></td></tr> <tr><td>T</td><td></td><td></td><td></td></tr> </table>					P	●		⚙️	M	○		⚙️	K				N				H				S				T				coating
P	●		⚙️																														
M	○		⚙️																														
K																																	
N																																	
H																																	
S																																	
T																																	
				wear resistance	Toughness																												

cp35T					wc dimension	Max 1.2 μm																											
<table border="1"> <tr><td>P</td><td>●</td><td>⚙️</td><td>⚙️</td></tr> <tr><td>M</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td></td></tr> <tr><td>N</td><td></td><td></td><td></td></tr> <tr><td>H</td><td></td><td></td><td></td></tr> <tr><td>S</td><td></td><td></td><td></td></tr> <tr><td>T</td><td></td><td></td><td></td></tr> </table>					P	●	⚙️	⚙️	M				K				N				H				S				T				coating
P	●	⚙️	⚙️																														
M																																	
K																																	
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				wear resistance	Toughness																												

wM35T					wc dimension	Max 3.0 μm																											
<table border="1"> <tr><td>P</td><td>●</td><td>⚙️</td><td></td></tr> <tr><td>M</td><td>○</td><td>⚙️</td><td></td></tr> <tr><td>K</td><td></td><td></td><td></td></tr> <tr><td>N</td><td></td><td></td><td></td></tr> <tr><td>H</td><td></td><td></td><td></td></tr> <tr><td>S</td><td></td><td></td><td></td></tr> <tr><td>T</td><td></td><td></td><td></td></tr> </table>					P	●	⚙️		M	○	⚙️		K				N				H				S				T				coating
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M	○	⚙️																															
K																																	
N																																	
H																																	
S																																	
T																																	
				wear resistance	Toughness																												

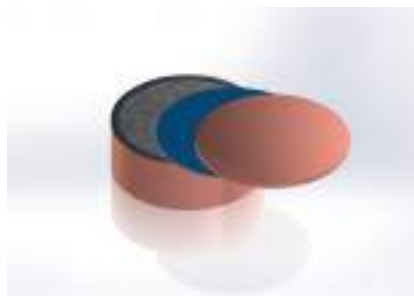




Quality











Quality

TURNING

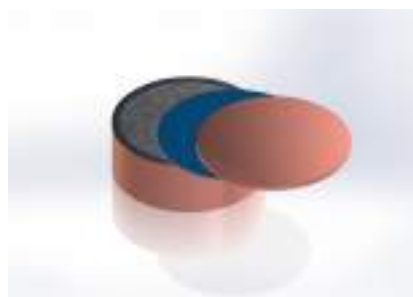








TURNING







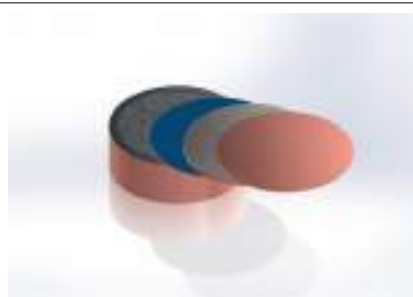














dM35T					wc dimension	Max 3.0 μm																											
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P	●																																
M	○																																
K																																	
N																																	
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S																																	
T																																	
				wear resistance	Toughness																												
																																	

NN10T					wc dimension	Max 0.8 μm																											
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M	○																																
K																																	
N	●																																
H																																	
S																																	
T																																	
				wear resistance	Toughness																												
																																	

ck05T					wc dimension	Max 0.8 μm																											
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K	●																																
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				wear resistance	Toughness																												
																																	

dH15T					wc dimension	Max 0.8 μm																											
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				wear resistance	Toughness																												
																																	

ck15T					wc dimension	Max 1.2 μm																											
<table border="1"> <tr><td>P</td><td></td><td></td><td></td></tr> <tr><td>M</td><td></td><td></td><td></td></tr> <tr><td>K</td><td>●</td><td></td><td></td></tr> <tr><td>N</td><td></td><td></td><td></td></tr> <tr><td>H</td><td></td><td></td><td></td></tr> <tr><td>S</td><td></td><td></td><td></td></tr> <tr><td>T</td><td></td><td></td><td></td></tr> </table>					P				M				K	●			N				H				S				T				coating
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S																																	
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				wear resistance	Toughness																												
																																	

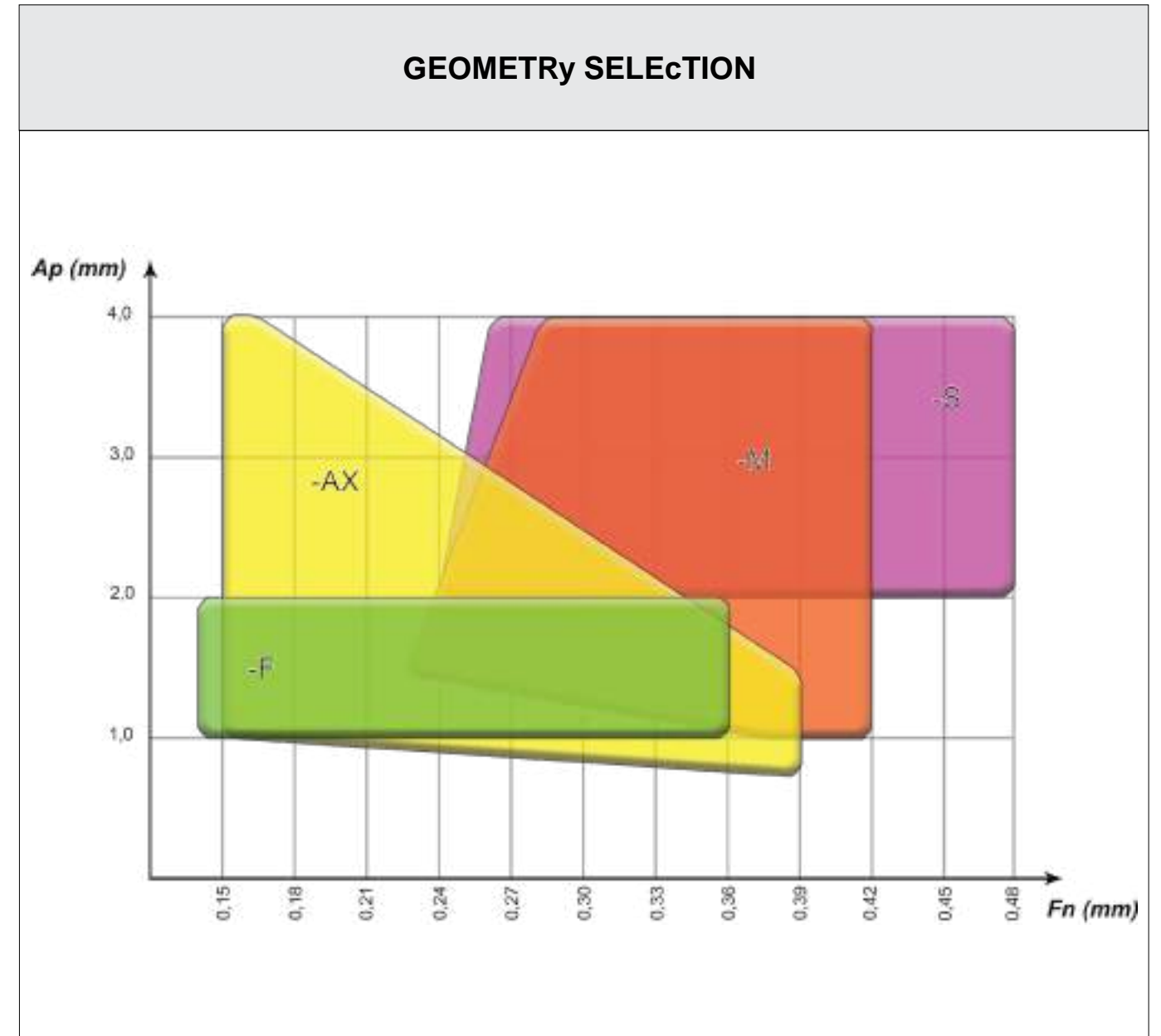
wS25T					wc dimension	Max 3.0 μm																											
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P	○																																
M	○																																
K																																	
N																																	
H																																	
S	●																																
T																																	
				wear resistance	Toughness																												
																																	



wS35T					wc dimension	Max 3.0 μ m
P	○		⊗		Rivestimento	pvd (red)
M	○	⊗	⊗	Resistenza all'usura		Toughness
k						
N						
H						
S	●	⊗	⊗			
T						

wT25T					wc dimension	Max 3.0 μ m
P					Rivestimento	pvd (ivory)
M				Resistenza all'usura		Toughness
k						
N						
H						
S	○	⊗	⊗			
T	●	⊗				

wT35T					wc dimension	Max 3.0 μ m
P					Rivestimento	pvd (ivory)
M				Resistenza all'usura		Toughness
k						
N						
H						
S	○	⊗	⊗			
T	●	⊗				



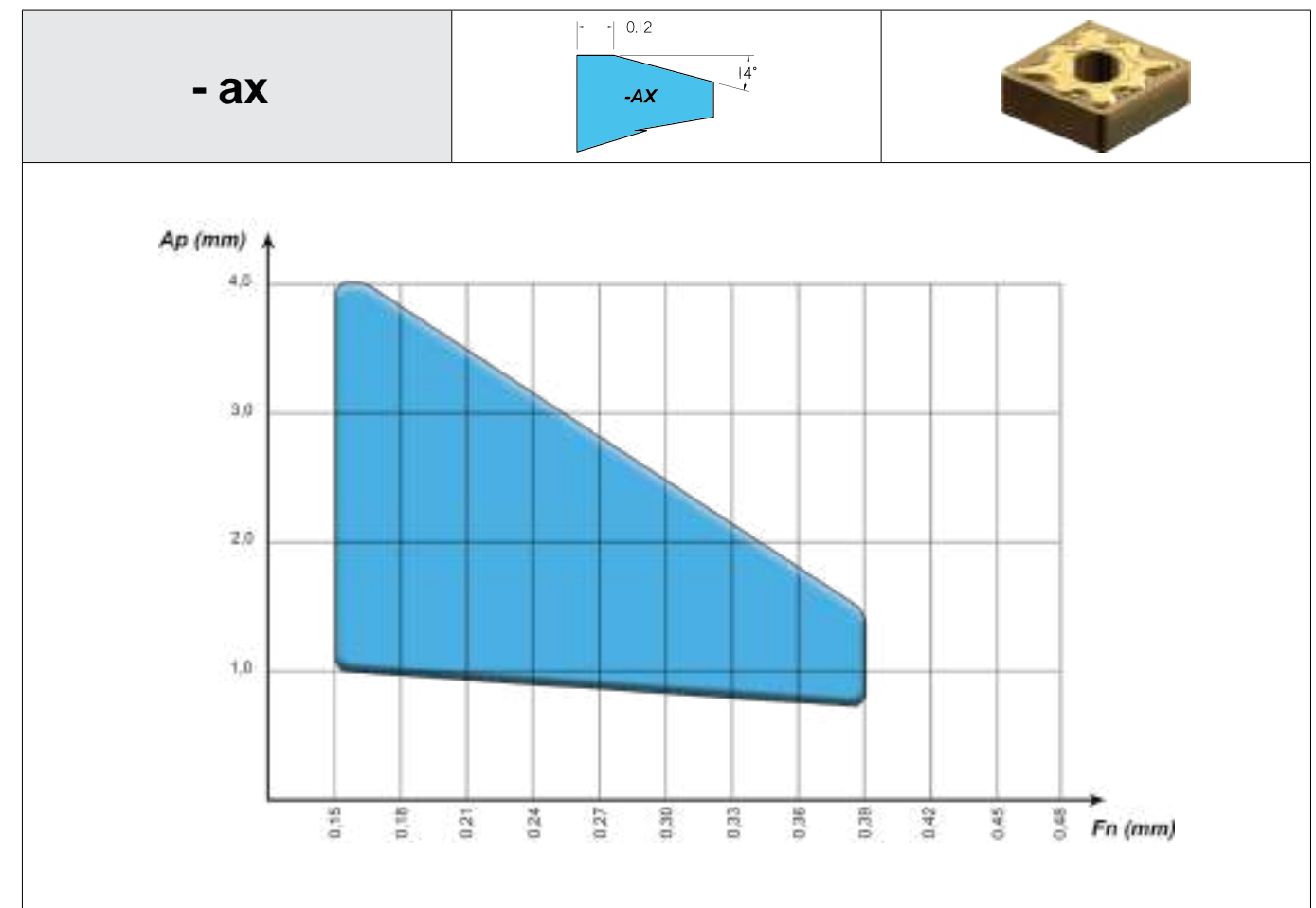
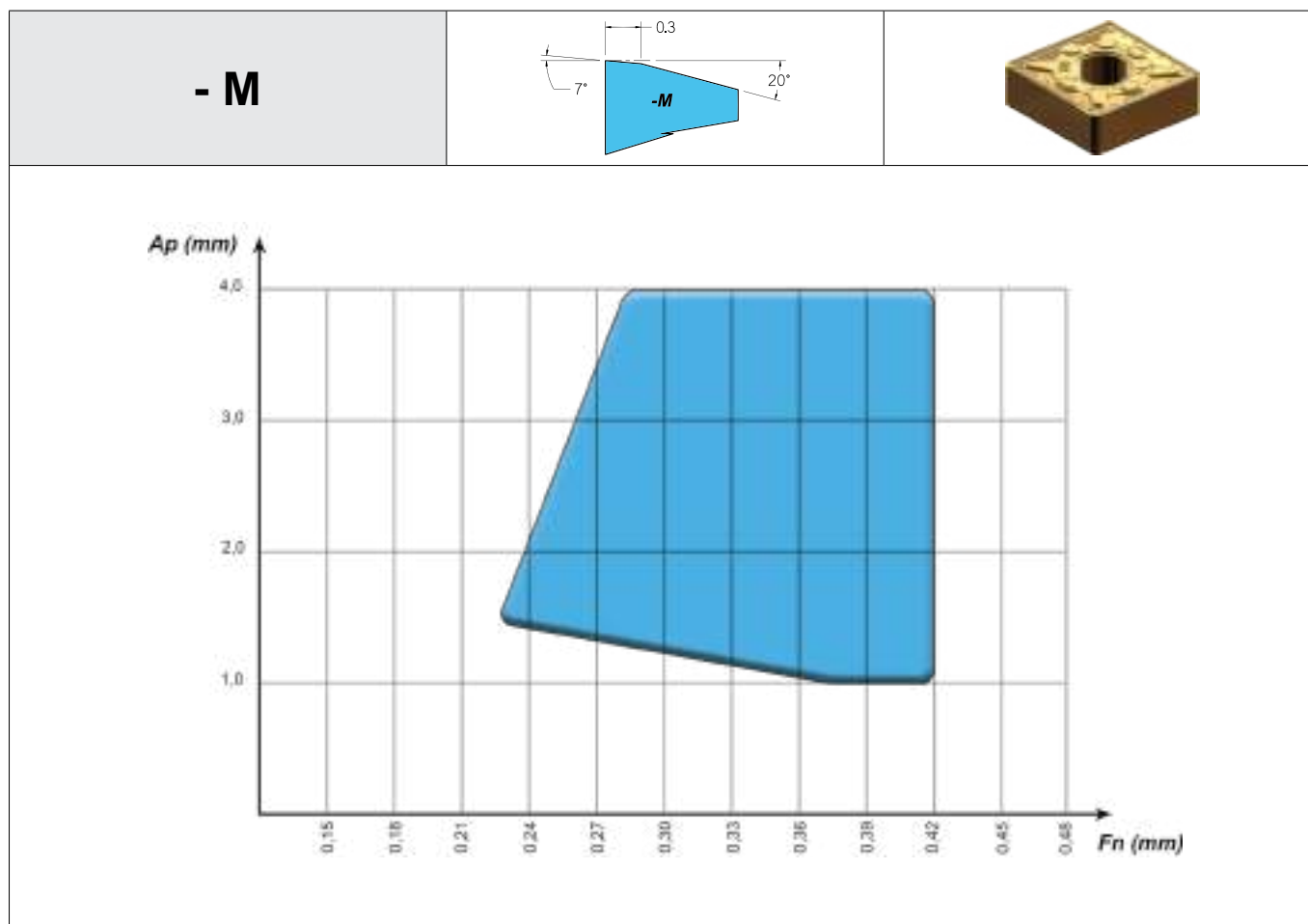
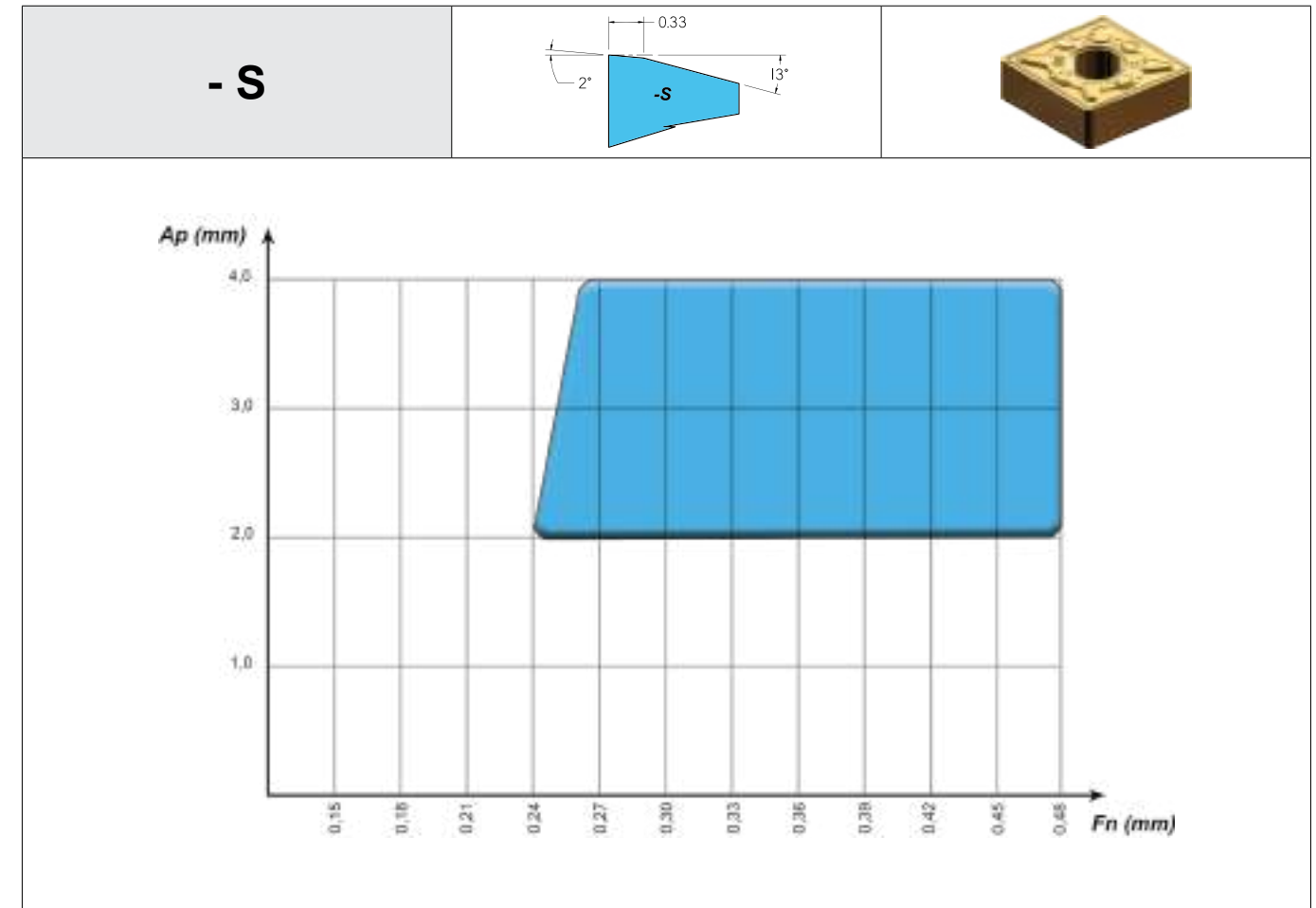
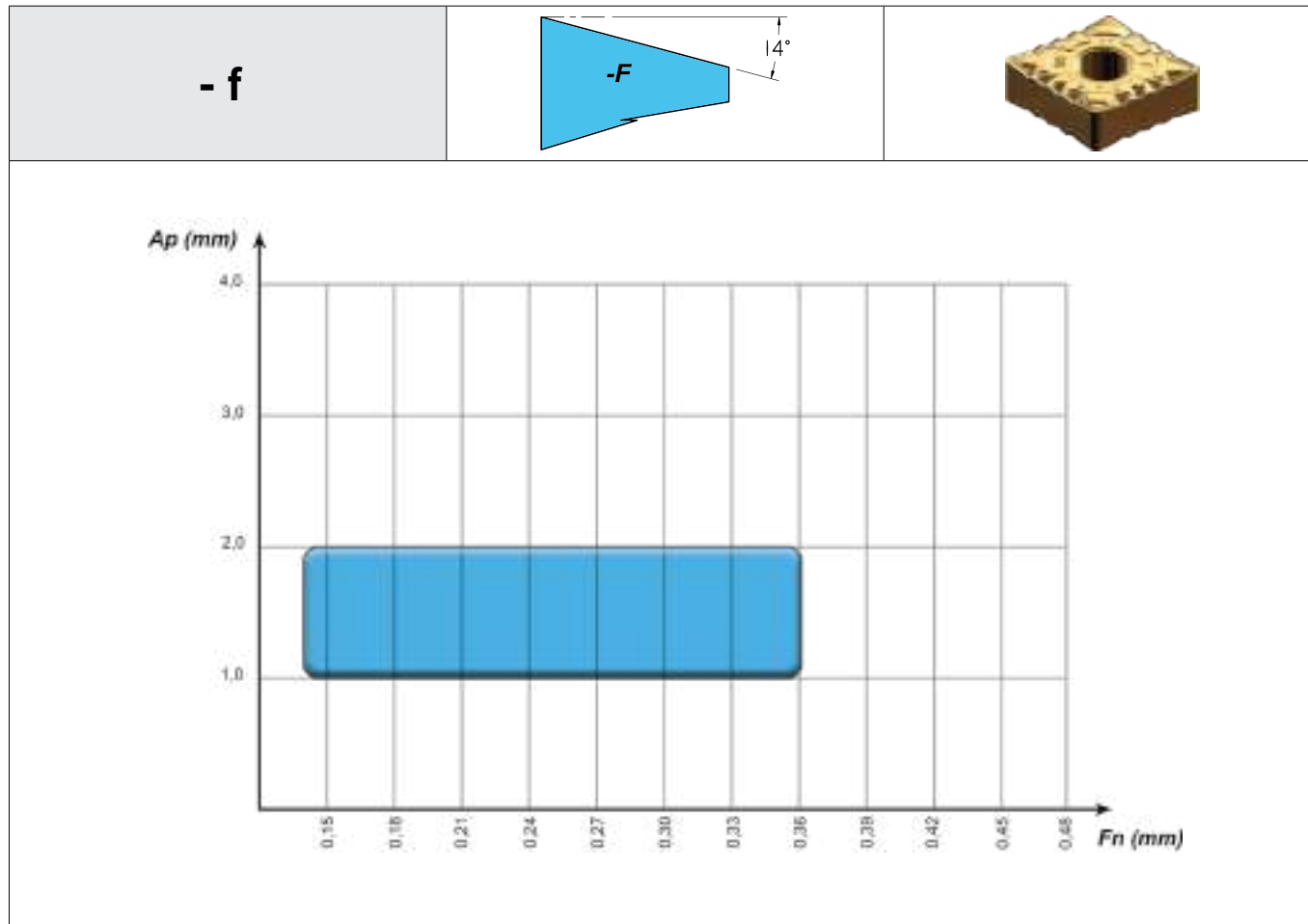
Quality

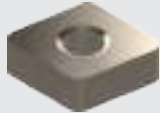





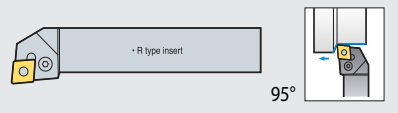


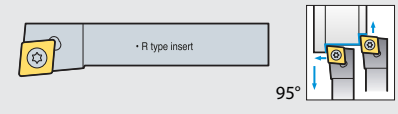
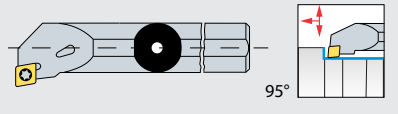
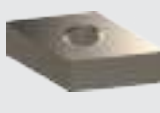



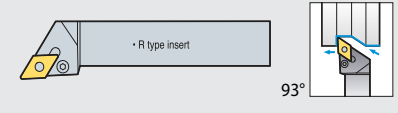


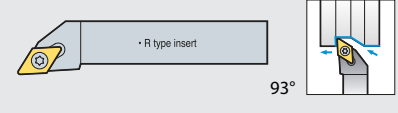
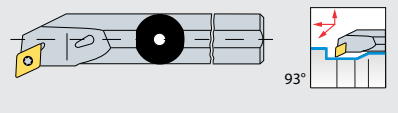


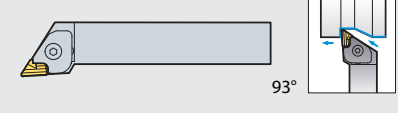
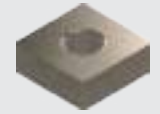


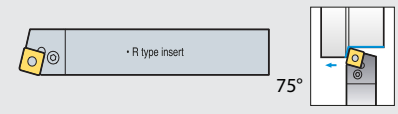
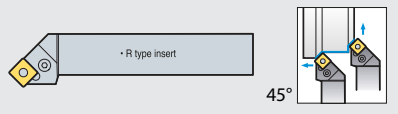
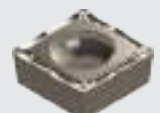


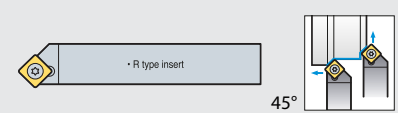
TURNING

Geometries

TURNING





C						Pag. 72			Pag. 73	
	cNMa	cNMG -f	cNMG -M	cNMG -S	cNMG -ax		pcbN(R/L)	pcLN(R/L)		
C						Pag. 86 88 90			Pag. 87 89 91	
	ccMT -Mp	ccGT					ScLc(R/L)	a...ScLc(R/L)		
d								Pag. 74		Pag. 75
	dNMa	dNMG -M	dNMx R-M	dNMx L-M				pdJN(R/L)		
d						Pag. 92 94			Pag. 93 95	
	dcGT	dcMT -Mp					SdJc(R/L)	a...SdUc(R/L)		
k						Pag. 76				
	kNUx -R	kNUx -L					ckJN(R/L)			
S							Pag. 78			Pag. 79
	SNMa	SNMG - f	SNMG - M					pSbN(R/L)	pSSN(R/L)	
S							Pag. 96 98		Pag. 97 99	
	ScMT -fp	ScMT -Mp	ScGT					SSSc(R/L)		


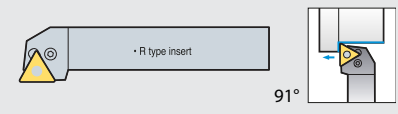

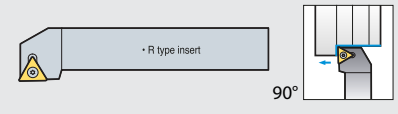

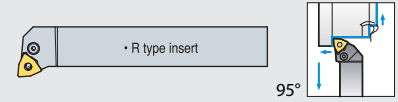

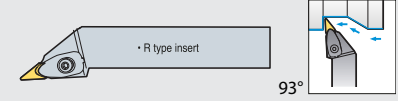

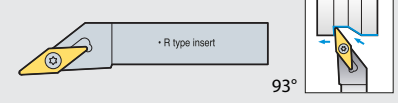

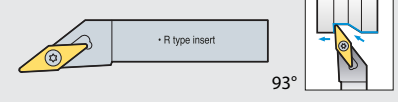
General overview

TURNING

General overview

TURNING








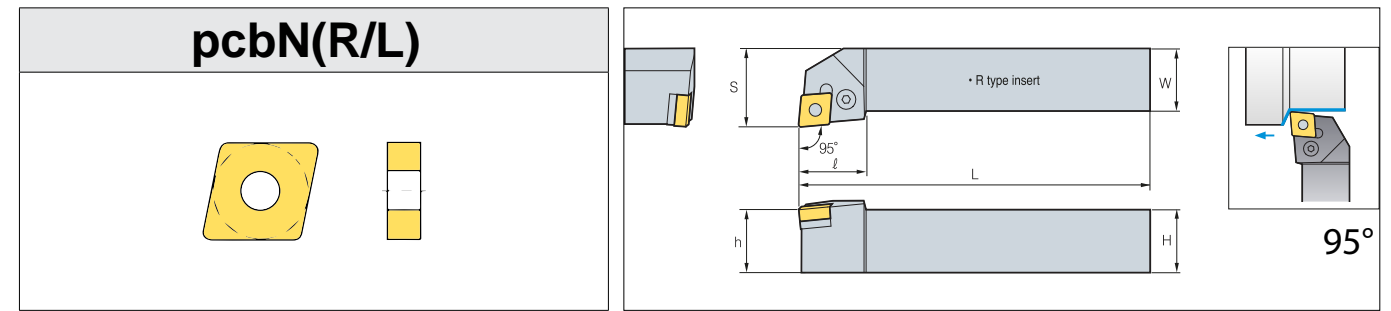
TURNING	T	 <p>TNMG -f TNMG -M TNMG -S TNMx -L TNMx -R</p>	Pag. 80	 <p>pTGN(R/L)</p>	Pag. 81
	T	 <p>TcMT -Mp TcMT -fp TcGT</p>	Pag. 100 102	 <p>STGc(R/L)</p>	Pag. 101 103
	W	 <p>vNMG -M</p>	Pag. 82	 <p>pwLN(R/L)</p>	Pag. 83
	V	 <p>vNMG -f vNMG -M</p>	Pag. 84	 <p>dvJN(R/L)</p>	Pag. 85
	V	 <p>vcGT</p>	Pag. 104 106	 <p>SvJc(R/L)</p>	Pag. 105 107
V	 <p>vbMT -M</p>	Pag. 108	 <p>SvJb(R/L)</p>	Pag. 109	







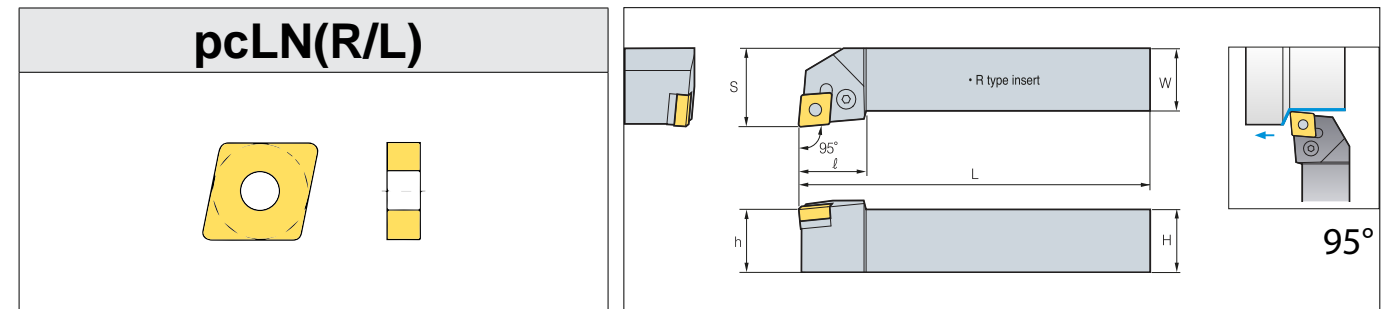
- Main application
- Secondary application





- ① Suggested insert and immediate availability
- X Delivery in 10 Working days
- O Delivery to be defined when ordering

		p	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○
		M			●	●	●	●							○	○	
		k	○						●	●							
		N									●						
		H	○								●						
		S											●	●	○	○	
		T													●	●	
			CP15T	CP25T	CP35T	WM25T	DM25T	WM35T	DM35T	CK05T	CK15T	NN10T	DH15T	WS25T	WS35T	WT25T	WT35T
F		CNMA 120408								①			X				
		CNMA 120412								①			X				
		CNMA 120416								①			X				
F		CNMG 120404-F	①	X		X	X	①	X					①	X	①	X
		CNMG 120408-F	①	X		X	X	①	X					①	X	①	X
M		CNMG 120404-M	①	①		X	X	①	X								
		CNMG 120408-M	①	①		X	X	①	X								
		CNMG 120412-M	①	①		X	X	①	X								
S		CNMG 120408-S	X	①	X					①	X						
		CNMG 120412-S	X	①	X					①	X						
AX		CNMG 120408-AX	①	①		X	X	①	①					X	①	X	①
		CNMG 120412-AX	①	①		X	X	①	①					X	①	X	①



dEScRipTION	DIMENSIONS						SpaRES				
	H	w	L	S	h	l					
PCBN(R/L) 2020-K12	20	20	125	17	20	27	D1	-	B1	A1	C1
PCBN(R/L) 2525-M12	25	25	150	22	25	27					



dEScRipTION	DIMENSIONS						SpaRES				
	H	w	L	S	h	l					
PCLN(R/L) 2020-K12	20	20	125	25	20	28	D1	-	B1	A1	C1
PCLN(R/L) 2525-K12	25	25	125	32	25	28					

Description	Dim.	ISO						
		d (mm)	l (mm)	t (mm)	r (mm)	a°	d1 (mm)	
CNMA 120408	12	12,70	12,90	4,76	0,80	-	5,16	
CNMA 120412	12	12,70	12,90	4,76	1,20	-	5,16	
CNMA 120416	12	12,70	12,90	4,76	1,60	-	5,16	
CNMG 120404	12	12,70	12,90	4,76	0,40	-	5,16	
CNMG 120408	12	12,70	12,90	4,76	0,80	-	5,16	
CNMG 120412	12	12,70	12,90	4,76	1,20	-	5,16	

*Other measures available on request



●	Main application
○	Secondary application
①	Suggested insert and immediate availability
X	Delivery in 10 Working days
O	Delivery to be defined when ordering

	p	M	k	N	H	S	T	CP15T	CP25T	CP35T	WM25T	DM25T	WM35T	DM35T	CK05T	CK15T	NN10T	DH15T	WS25T	WS35T	WT25T	WT35T
	●	●	●	○	○	○	○											○	○	○		
				●	●	●	●														○	○
																					●	●

pdJN(R/L)

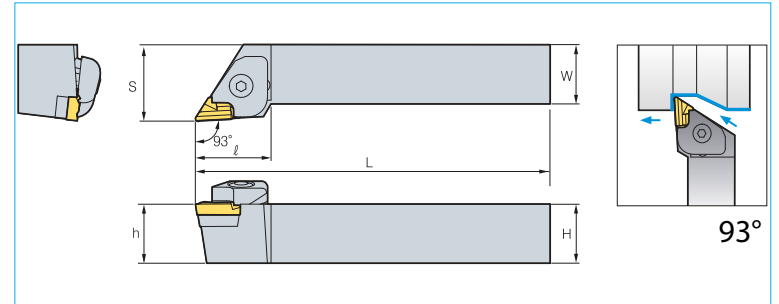
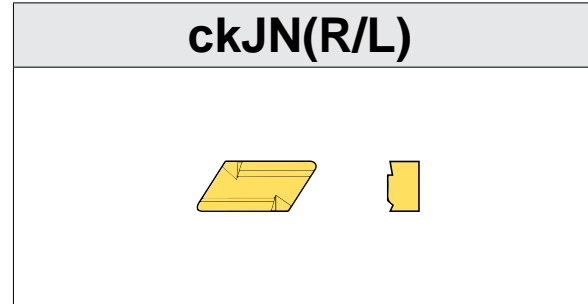
dEScRiption	dIMENSIONS						SpaRES				
	H	w	L	S	h	l					
PDJN(R/L) 2020-K15	20	20	125	25	20	35	D1	-	B3	A3	R1
PDJN(R/L) 2525-M15	25	25	150	32	25	35					

Description	ISO							
	Dim.	d (mm)	l (mm)	t (mm)	r (mm)	a°	d1 (mm)	
DNMA 150608	15	12,70	15,50	6,35	0,80	-	5,20	
DNMA 150612	15	12,70	15,50	6,35	1,20	-	5,20	
DNMA 150616	15	12,70	15,50	6,35	1,60	-	5,20	
DNMG 150608	15	12,70	15,50	6,35	0,80	-	5,20	
DNMG 150612	15	12,70	15,50	6,35	1,20	-	5,20	
DNMX 150604	15	12,70	15,50	6,35	0,40	-	5,20	
DNMX 150608	15	12,70	15,50	6,35	0,80	-	5,20	

*Other measures available on request

- Main application
 - Secondary application
-
- ① Suggested insert and immediate availability
 - X Delivery in 10 Working days
 - Delivery to be defined when ordering

		<table border="1"> <tr><td>p</td><td>●</td><td>●</td><td>●</td><td>○</td><td>○</td><td>○</td><td>○</td><td></td><td></td><td></td><td></td><td>○</td><td>○</td><td>○</td></tr> <tr><td>M</td><td></td><td></td><td></td><td>●</td><td>●</td><td>●</td><td>●</td><td></td><td></td><td></td><td></td><td></td><td>○</td><td>○</td></tr> <tr><td>k</td><td>○</td><td></td><td></td><td></td><td></td><td></td><td></td><td>●</td><td>●</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>N</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>●</td><td></td><td></td><td></td><td></td></tr> <tr><td>H</td><td>○</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>●</td><td></td><td></td><td></td></tr> <tr><td>S</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>●</td><td>●</td><td>○</td><td>○</td></tr> <tr><td>T</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>●</td><td>●</td></tr> </table>														p	●	●	●	○	○	○	○					○	○	○	M				●	●	●	●						○	○	k	○							●	●						N										●					H	○										●				S												●	●	○	○	T														●	●
p	●	●	●	○	○	○	○					○	○	○																																																																																																												
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T														●	●																																																																																																											
		CP15T	CP25T	CP35T	WM25T	DM25T	WM35T	DM35T	CK05T	CK15T	NN10T	DH15T	WS25T	WS35T	WT25T	WT35T																																																																																																										
L	KNUX 160405 L11	①	○																																																																																																																							
	KNUX 160405 L12	①	○																																																																																																																							
	KNUX 160410 L11	○	①																																																																																																																							
	KNUX 160410 L12	○	①																																																																																																																							
R	KNUX 160405 R11	①	○																																																																																																																							
	KNUX 160405 R12	①	○																																																																																																																							
	KNUX 160410 R11	○	①																																																																																																																							
	KNUX 160410 R12	○	①																																																																																																																							



dEScRiPTION	dIMENSIONS						SpaRES						
	H	w	L	S	h	l							
CKJN(R/L) 2020-K16	20	20	125	25	20	32	-	08	F1	G11	A10	C4	-
CKJN(R/L) 2525-K16	25	25	125	32	25	32							

Description	ISO							d1 (mm)
	Dim.	d (mm)	l (mm)	t (mm)	r (mm)	a°		
KNUX 160405	16	9,52	19,72	4,76	0,50	-	-	
KNUX 160410	16	9,52	19,72	4,76	1,00	-	-	

*Other measures available on request

Inserts- Tools

Inserts- Tools

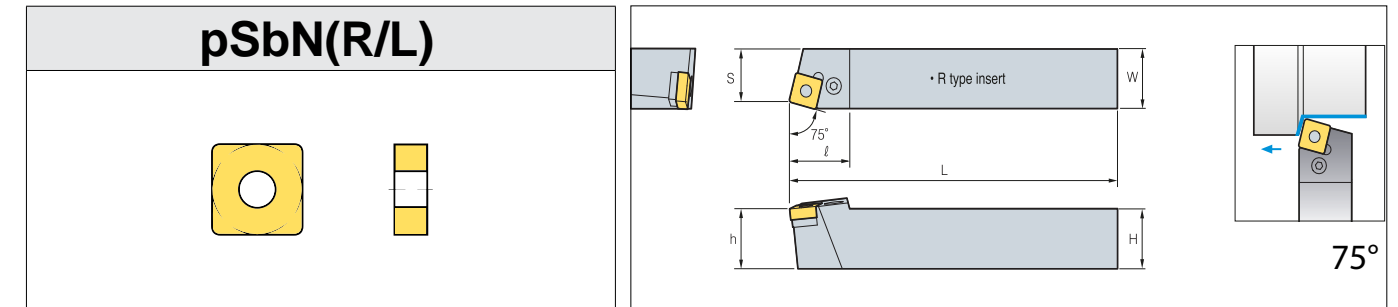
TURNING

TURNING

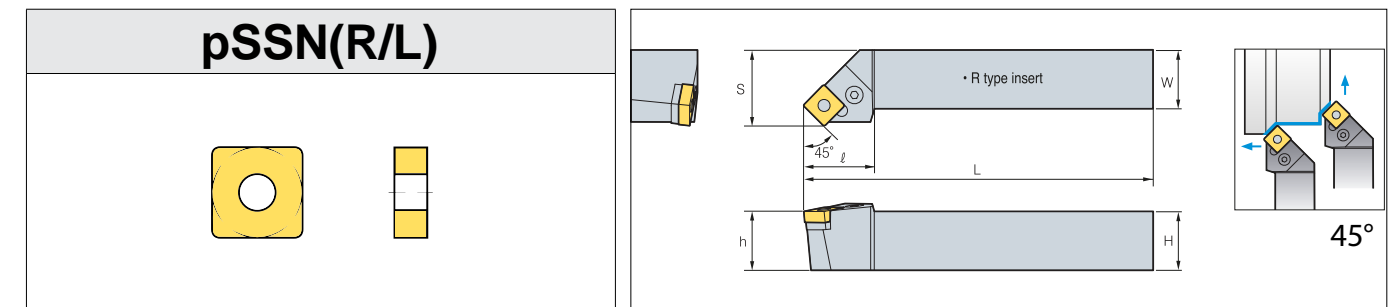


- Main application
 - Secondary application
-
- ① Suggested insert and immediate availability
 - X Delivery in 10 Working days
 - O Delivery to be defined when ordering

		p	●	●	○	○	○	○										
		M			●	●	●	●										
		k	○						●	●								
		N									●							
		H	○								●							
		S										●	●	○	○			
		T												●	●			
			CP15T	CP25T	CP35T	WM25T	DM25T	WM35T	DM35T	CK05T	CK15T	NN10T	DH15T	WS25T	WS35T	WT25T	WT35T	
F		SNMA 120408								①			X					
		SNMA 120412								①			X					
		SNMA 120416								①			X					
F		SNMG 120404-F	①	X		○	X	①	X					①	X	①	X	
		SNMG 120408-F	①	X		○	X	①	X					①	X	①	X	
M		SNMG 120408-M	①	①		○	X	①	X				X	①	X	①	①	
		SNMG 120412-M	①	①		○	X	①	X				X	①	X	①	①	



dEScRiPTION	dIMENSIONS						SpaRES				
	H	w	L	S	h	l					
PSBN(R/L) 2020-K12	20	20	125	17	20	28	D1	-	B1	A4	C1
PSBN(R/L) 2525-K12	25	25	125	22	25	28					



dEScRiPTION	dIMENSIONS						SpaRES				
	H	w	L	S	h	l					
PSSN(R/L) 2020-K12	20	20	125	25	20	30	D1	-	B1	A4	C1
PSSN(R/L) 2525-K12	25	25	125	32	25	36					

Description	ISO							
	Dim.	d (mm)	l (mm)	t (mm)	r (mm)	a°	d1 (mm)	
SNMA 120408	12	12,70	12,70	4,76	0,80	-	5,16	
SNMA 120412	12	12,70	12,70	4,76	1,20	-	5,16	
SNMA 120416	12	12,70	12,70	4,76	1,60	-	5,16	
SNMG 120404	12	12,70	12,70	4,76	0,40	-	5,16	
SNMG 120408	12	12,70	12,70	4,76	0,80	-	5,16	
SNMG 120412	12	12,70	12,70	4,76	1,20	-	5,16	

*Other measures available on request



Inserts- Tools


Inserts- Tools

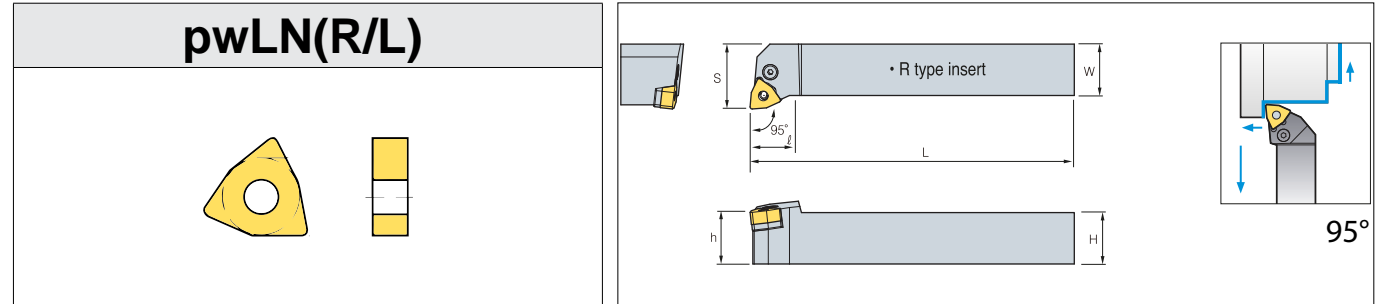
TURNING






TURNING

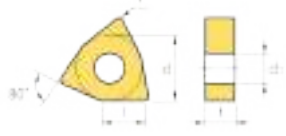
- Main application
- Secondary application

- ① Suggested insert and immediate availability
- X Delivery in 10 Working days
- O Delivery to be defined when ordering

		p	●	●	○	○	○	○				○	○	○			
		M			●	●	●	●					○	○			
		k	○						●	●							
		N									●						
		H	○									●					
		S											●	●	○	○	
		T													●	●	
			CP15T	CP25T	CP35T	WM25T	DM25T	WM35T	DM35T	CK05T	CK15T	NN10T	DH15T	WS25T	WS35T	WT25T	WT35T
M	 WNMG 080404-M		①	①		○	X	①	X					X	①	X	①
	WNMG 080408-M		①	①		○	X	①	X					X	①	X	①
	WNMG 080412-M		①	①	○									X	①	X	①



dEScRiPTION	dIMENSIONS						SpaRES				
	H	w	L	S	h	l					
PWLN(R/L) 2020-K08	20	20	125	25	20	20	D3	-	B4	A13	C3
PWLN(R/L) 2525-M08	25	25	150	32	25	20					

		ISO							
		Description	Dim.	d (mm)	l (mm)	t (mm)	r (mm)	a°	d1 (mm)
	WNMG 080404	08	12,70	8,70	4,76	0,40	-	-	5,10
	WNMG 080408	08	12,70	8,70	4,76	0,80	-	-	5,10
	WNMG 080412	08	12,70	8,70	4,76	1,20	-	-	5,10

*Other measures available on request



Inserts- Tools

Inserts- Tools

TURNING

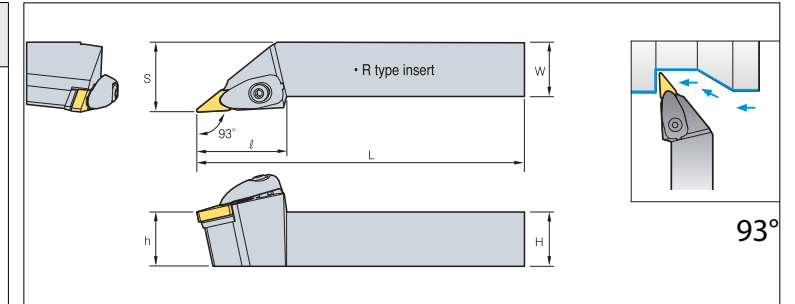
TURNING







- Main application
 - Secondary application
-
- ① Suggested insert and immediate availability
 - X Delivery in 10 Working days
 - O Delivery to be defined when ordering

		p	●	●	○	○	○	○									
		M			●	●	●							○	○		
		k	○						●	●							
		N									●						
		H	○									●					
		S											●	●	○	○	
		T														●	●
			CP15T	CP25T	CP35T	WM25T	DM25T	WM35T	DM35T	CK05T	CK15T	NN10T	DH15T	WS25T	WS35T	WT25T	WT35T
F		VNMG 160404-F	①	X		○	X	①	X					X		X	
		VNMG 160408-F	①	X		○	X	①	X					X		X	
M		VNMG 160404-M	①	①		○	X	①	X						X		X
		VNMG 160408-M	①	①	○										X		X
		VNMG 160412-M	①	①	○												

Description	ISO							
	Dim.	d (mm)	l (mm)	t (mm)	r (mm)	a°	d1 (mm)	
VNMG 160404	16	9,52	14	4,76	0,40	-	3,81	
VNMG 160408	16	9,52	14	4,76	0,80	-	3,81	
VNMG 160412	16	9,52	14	4,76	1,20	-	3,81	



dvJN(R/L)

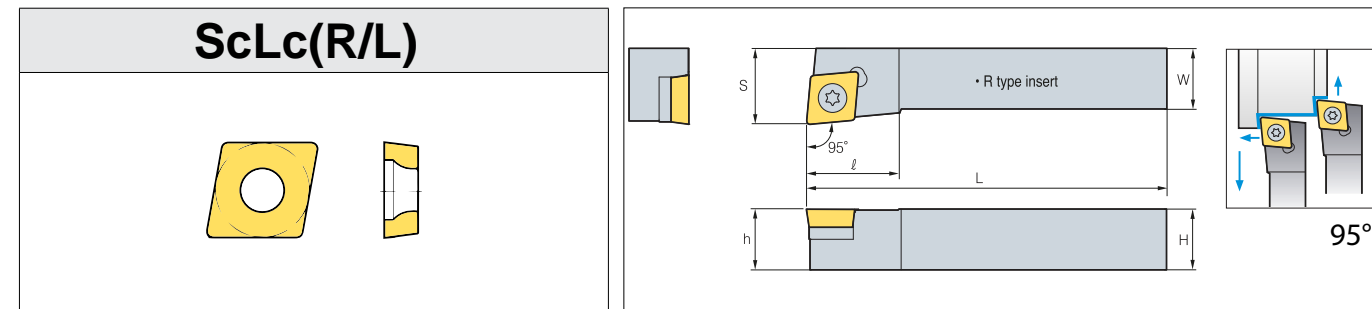






dEScRipTION	dIMENSIONS						SpaRES					
	H	w	L	S	h	l						
DVJN(R/L) 2020-K16	20	20	125	25	20	41.5	CT15	SD12L	-	DV16	-	VD12
DVJN(R/L) 2525-K16	25	25	125	32	25	41.5						

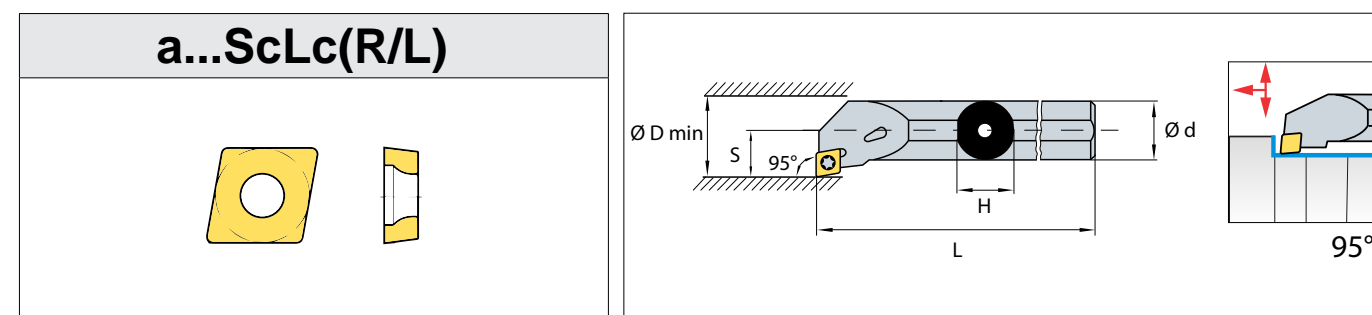
*Other measures available on request







● Main application																				
○ Secondary application																				
① Suggested insert and immediate availability																				
X Delivery in 10 Working days																				
○ Delivery to be defined when ordering																				
		P	●	●	●	○	○	○	○					○	○	○				
		M				●	●	●	●						○	○				
		k	○										●	●						
		N												●						
		H	○												●					
		S														●	●	○	○	
		T																●	●	
			CP15T	CP25T	CP35T	WM25T	DM25T	WM35T	DM35T	CK05T	CK15T	NN10T	DH15T	WS25T	WS35T	WT25T	WT35T			
MP		CCMT 060202-MP	○	①	○		①	○	○					○	○					
		CCMT 060204-MP	○	①	○		①	○	○					○	○					
		CCMT 060208-MP	○	①	○		①	○	○					○	○					
ALU		CCGT 060202-ALU										①								
		CCGT 060204-ALU										①								



dEScRiPTION	dIMENSIONS						SpaRES			
	H	w	L	S	h	l				
SCLC(R/L) 0808-D06	08	08	60	10	08	10	TXA	-	-	V25
SCLC(R/L) 1010-E06	10	10	70	16	10	10				



dEScRiPTION	dIMENSIONS					SpaRES			
	d	S	H	L	d				
A12K-SCLC(R/L) 06	16	9	11.50	125	12	TXA	-	-	V25

Description	Dim.	ISO						d1 (mm)
		d (mm)	l (mm)	t (mm)	r (mm)	a°		
CCMT 060202	06	6,35	6,30	2,38	0,20	7	2,80	
CCMT 060204	06	6,35	6,30	2,38	0,40	7	2,80	
CCMT 060208	06	6,35	6,30	2,38	0,80	7	2,80	

*Other measures available on request

Inserts-Tools

Inserts-Tools

TURNING

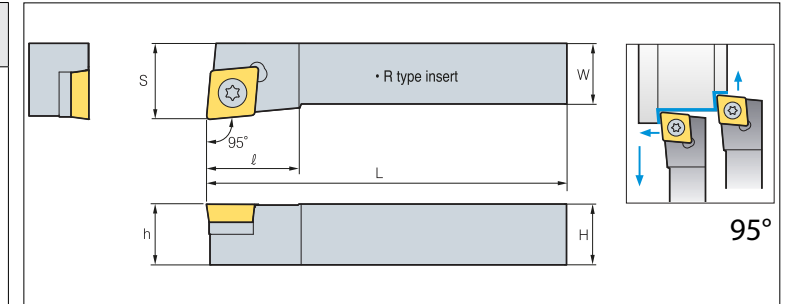
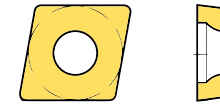
TURNING



- Main application
 - Secondary application
-
- ① Suggested insert and immediate availability
 - X Delivery in 10 Working days
 - O Delivery to be defined when ordering

			p	M	k	N	H	S	T	CP15T	CP25T	CP35T	WM25T	DM25T	WM35T	DM35T	CK05T	CK15T	NN10T	DH15T	WS25T	WS35T	WT25T	WT35T	
MP		CCMT 120404-MP	○	①						○	①			①	○	○					○	○			
		CCMT 120408-MP	○	①							○	①			①	○	○					○	○		
ALU		CCGT 120402-ALU																		①					
		CCGT 120404-ALU																			①				
		CCGT 120408-ALU																			①				

ScLc(R/L)



dEScRipTION	dIMENSIONS						SpaRES			
	H	w	L	S	h	l				
SCLC(R/L) 2020-K12	20	20	125	25	20	25	TXD	W5	X02	V40
SCLC(R/L) 2525-M12	25	25	150	32	25	26				

Inserts- Tools

Inserts- Tools

TURNING

TURNING

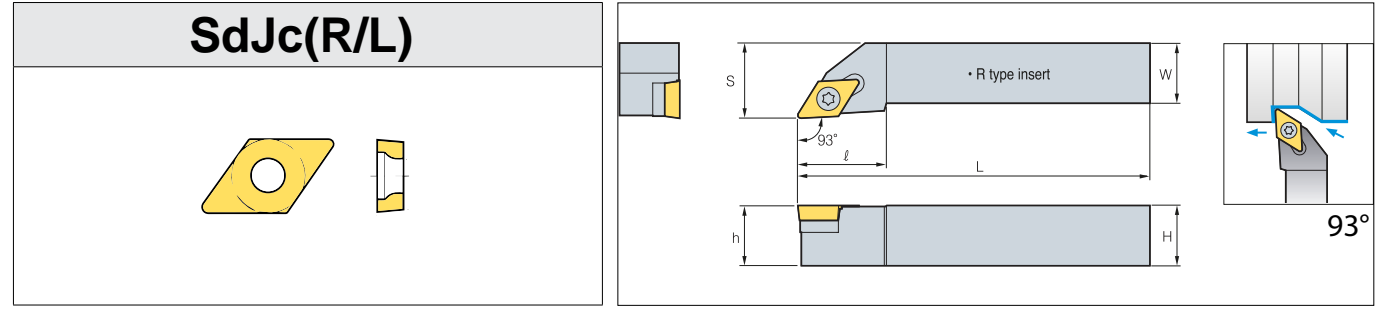
Description	ISO							
	Dim.	d (mm)	l (mm)	t (mm)	r (mm)	a°	d1 (mm)	
CCMT 120404	12	12,70	12,90	4,76	0,40	7	5,50	
CCMT 120408	12	12,70	12,90	4,76	0,80	7	5,50	
CCGT 120402	12	12,70	12,90	4,76	0,20	7	5,50	
CCGT 120404	12	12,70	12,90	4,76	0,40	7	5,50	
CCGT 120408	12	12,70	12,90	4,76	0,80	7	5,50	

*Other measures available on request

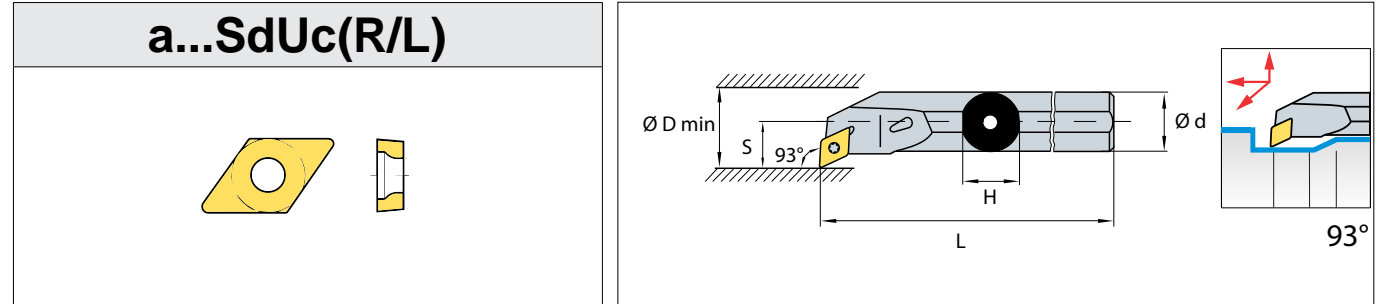


●	Main application
○	Secondary application
①	Suggested insert and immediate availability
X	Delivery in 10 Working days
O	Delivery to be defined when ordering

			Material														
			CP15T	CP25T	CP35T	WM25T	DM25T	WM35T	DM35T	CK05T	CK15T	NN10T	DH15T	WS25T	WS35T	WT25T	WT35T
MP		DCMT 11T304-MP	①	①			①	○	○					○	○		
		DCMT 11T308-MP	①	①			①	○	○					○	○		
ALU		DCGT 11T302-ALU															①
		DCGT 11T304-ALU															①
		DCGT 11T308-ALU															①



dEScRiPTION	dIMENSIONS						SpaRES			
	H	w	L	S	h	l				
SDJC(R/L) 1616-H11	16	16	100	20	16	24	TXD	W2	X01	V4C
SDJC(R/L) 2020-K11	20	20	125	25	20	24				
SDJC(R/L) 2525-M11	25	25	150	32	25	29				






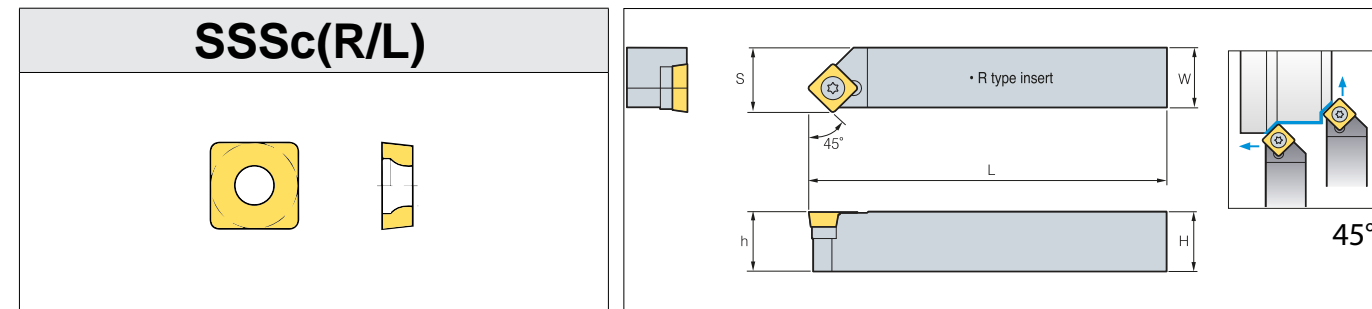
dEScRiPTION	dIMENSIONS					SpaRES			
	d	S	H	L	d				
A20Q-SDUC(R/L) 11	25	13	19	180	20	TXA	-	-	V25





ISO							
Description	Dim.	d (mm)	l (mm)	t (mm)	r (mm)	a°	d1 (mm)
DCMT 11T304	11	9,52	11,60	3,97	0,40	7	2,20
DCMT 11T308	11	9,52	11,60	3,97	0,80	7	2,20
DCGT 11T302	11	9,52	11,60	3,97	0,20	7	2,20
DCGT 11T304	11	9,52	11,60	3,97	0,40	7	2,20
DCGT 11T308	11	9,52	11,60	3,97	0,80	7	2,20

*Other measures available on request



● Main application																				
○ Secondary application																				
① Suggested insert and immediate availability																				
X Delivery in 10 Working days																				
O Delivery to be defined when ordering																				
		P	●	●	●	○	○	○	○					○	○	○				
		M				●	●	●	●						○	○				
		K	○											●	●					
		N																		
		H	○												●					
		S														●	●	○	○	
		T																●	●	
			CP15T	CP25T	CP35T	WM25T	DM25T	WM35T	DM35T	CK05T	CK15T	NN10T	DH15T	WS25T	WS35T	WT25T	WT35T			
MP		SCMT 120408-MP	○	①																
		SCMT 120412-MP	○	①																
FP		SCMT 120408-FP	①	○			①	○	○					○	○					
		SCMT 120412-FP	①	○			①	○	○					○	○					
ALU		SCGT 120404-ALU										①								
		SCGT 120412-ALU										①								






dEScRiPTION	dIMENSIONS						SpaRES			
	H	w	L	S	h	l				
SSSc(R/L) 2020-K12	20	20	125	21	20	-	TXD	-	-	V4C

Description	Dim.	ISO						
		d (mm)	l (mm)	t (mm)	r (mm)	a°	d1 (mm)	
SCMT 120408	12	12,70	12,70	4,76	0,80	7	5,50	
SCMT 120412	12	12,70	12,70	4,76	1,20	7	5,50	
SCGT 120404	12	12,70	12,70	4,76	0,40	7	5,50	
SCGT 120412	12	12,70	12,70	4,76	1,20	7	5,50	

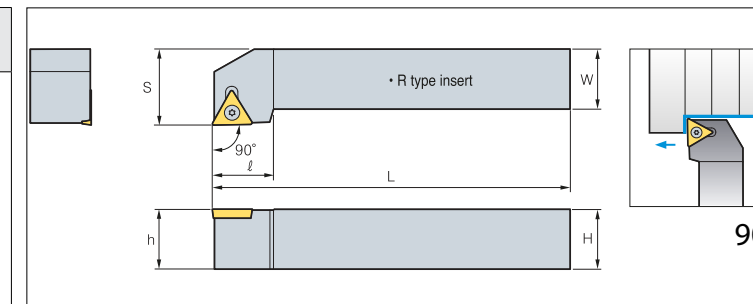
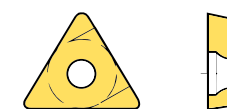
*Other measures available on request







●	Main application
○	Secondary application
①	Suggested insert and immediate availability
X	Delivery in 10 Working days
O	Delivery to be defined when ordering

		p	M	k	N	H	S	T	CP15T	CP25T	CP35T	WM25T	DM25T	WM35T	DM35T	CK05T	CK15T	NN10T	DH15T	WS25T	WS35T	WT25T	WT35T	
MP		●	●	○	○	○	○	○	○	①			①	○	○					○	○			
	TCMT 110208-MP								○	①			①	○	○					○	○			
FP									①	○			①	○	○					○	○			
	TCMT 110204-FP																							
ALU																		①						
	TCGT 110204-ALU																	①						

STGc(R/L)






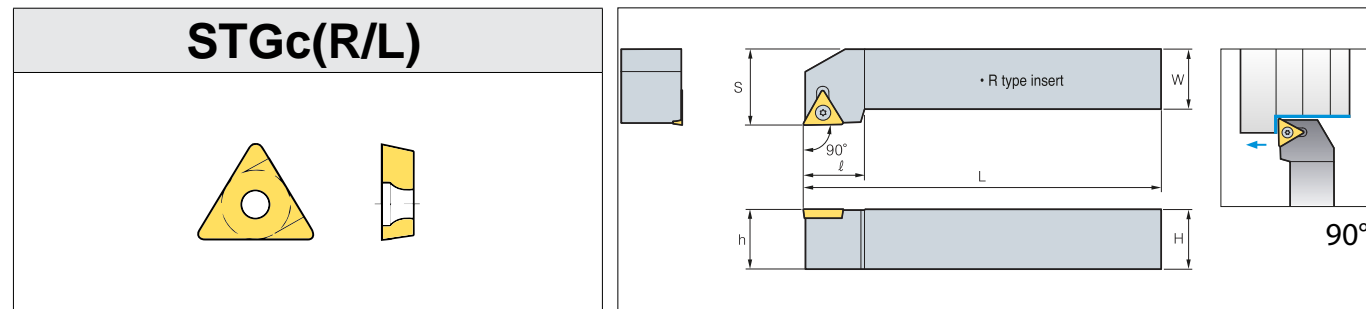
dEScRiPTION	dIMENSIONS						SpaRES			
	H	w	L	S	h	l				
STGC(R/L) 1212-F11	12	12	80	16	12	14	TXA	-	-	V35
STGC(R/L) 1616-H11	16	16	100	20	16	16				





Description	Dim.	ISO						d1 (mm)
		d (mm)	l (mm)	t (mm)	r (mm)	a°		
TCMT 110204	11	6,35	11,00	2,38	0,40	7	2,80	
TCMT 110208	11	6,35	11,00	2,38	0,80	7	2,80	
TCGT 110202	11	6,35	11,00	2,38	0,20	7	2,80	
TCGT 110204	11	6,35	11,00	2,38	0,40	7	2,80	

*Other measures available on request



● Main application				p ● ● ● ○ ○ ○ ○															
○ Secondary application				M ● ● ● ● ● ● ● ●															
① Suggested insert and immediate availability				k ○ ○ ○ ○ ○ ○ ○ ○ ○ ○															
X Delivery in 10 Working days				N ● ● ● ● ● ● ● ● ● ●															
○ Delivery to be defined when ordering				H ○ ○ ○ ○ ○ ○ ○ ○ ○ ○															
				S ● ● ● ● ● ● ● ● ● ●															
				T ● ● ● ● ● ● ● ● ● ●															
		CP15T	CP25T	CP35T	WM25T	DM25T	WM35T	DM35T	CK05T	CK15T	NN10T	DH15T	WS25T	WS35T	WT25T	WT35T			
MP		TCMT 16T304-MP	○	①															
		TCMT 16T308-MP	○	①															
FP		TCMT 16T304-FP	①	○		①	○	○					○	○					
		TCMT 16T308-FP	①	○		①	○	○					○	○					
ALU		TCGT 16T304-ALU									①								



dEScRiPTION	dIMENSIONS						SpaRES			
	H	w	L	s	h	l				
STGC(R/L) 1616-H16	16	16	100	20	16	21	TXD	W3	X01	V35
STGC(R/L) 2020-K16	20	20	125	25	20	21				
STGC(R/L) 2525-M16	25	25	150	32	25	21				

Description	Dim.	ISO						
		d (mm)	l (mm)	t (mm)	r (mm)	a°	d1 (mm)	
TCMT 16T304	16	9,52	16,50	3,97	0,40	7	4,40	
TCMT 16T308	16	9,52	16,50	3,97	0,80	7	4,40	
TCGT 16T304	16	9,52	16,50	3,97	0,40	7	4,40	

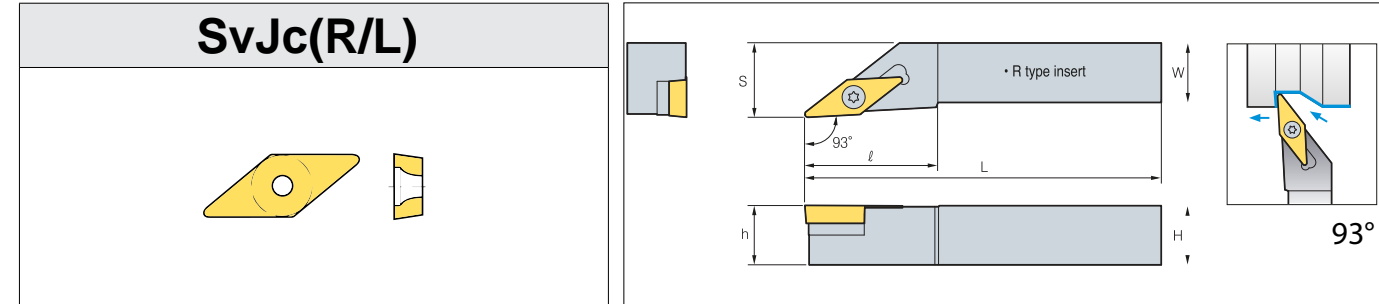
*Other measures available on request



- Main application
 - Secondary application
-
- ① Suggested insert and immediate availability
 - X Delivery in 10 Working days
 - O Delivery to be defined when ordering

P	●	●	●	○	○	○	○					○	○	○		
M				●	●	●	●						○	○		
K	○							●	●							
N										●						
H	○										●					
S												●	●	○	○	
T														●	●	

		CP15T	CP25T	CP35T	WM25T	DM25T	WM35T	DM35T	CK05T	CK15T	NN10T	DH15T	WS25T	WS35T	WT25T	WT35T
ALU	VCGT 110301-ALU										①					
	VCGT 110302-ALU										①					
	VCGT 110304-ALU										①					



dEScRiPTION	dIMENSIONS						SpaRES			
	H	w	L	S	h	l				
SVJC(R/L) 2020-H11	20	20	100	25	20	25	TXD	W1	X01	V35


Description	ISO							
	Dim.	d (mm)	l (mm)	t (mm)	r (mm)	a°	d1 (mm)	
VCGT 110301	11	6,35	10,00	3,18	0,10	7	2,80	
VCGT 110302	11	6,35	10,00	3,18	0,20	7	2,80	
VCGT 110304	11	6,35	10,00	3,18	0,40	7	2,80	

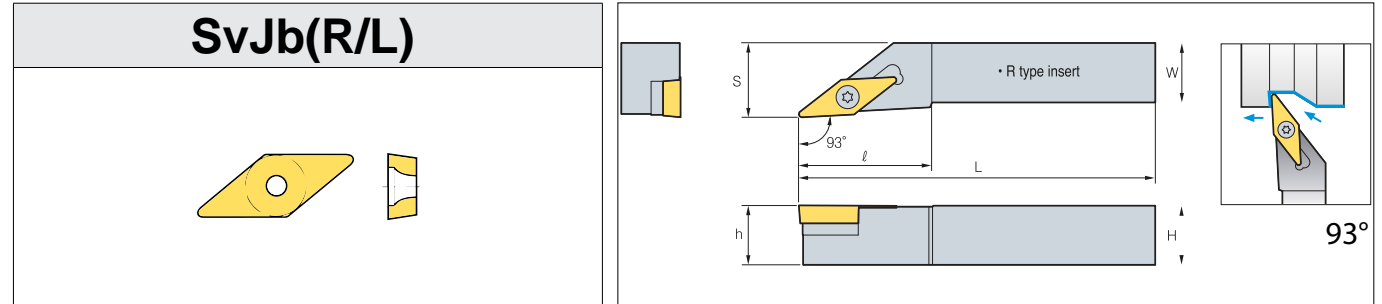
*Other measures available on request







- Main application
- Secondary application

- 1** Suggested insert and immediate availability
- X Delivery in 10 Working days
- O Delivery to be defined when ordering

		p	k	N	H	S	T																
		M	N	H	S	T		CP15T	CP25T	CP35T	WM25T	DM25T	WM35T	DM35T	CK05T	CK15T	NN10T	DH15T	WS25T	WS35T	WT25T	WT35T	
M		VBMT 160404-M	●	●	○	○	○	●	○	○									○	○			
		VBMT 160408-M	●	●	○	○	○	○	○	○										○	○		

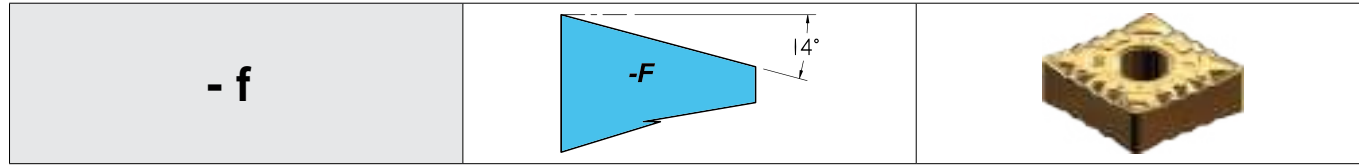


dEScRipTION	dIMENSIONS						SpaRES			
	H	w	L	S	h	l				
SVJB(R/L) 2020-K16	20	20	125	25	20	40	TXD	W1	X01	V35

Description	ISO							d1 (mm)
	Dim.	d (mm)	l (mm)	t (mm)	r (mm)	a°		
VBMT 160404	16	9,52	16,60	4,76	0,40	5	4,40	
VBMT 160408	16	9,52	16,60	4,76	0,80	5	4,40	

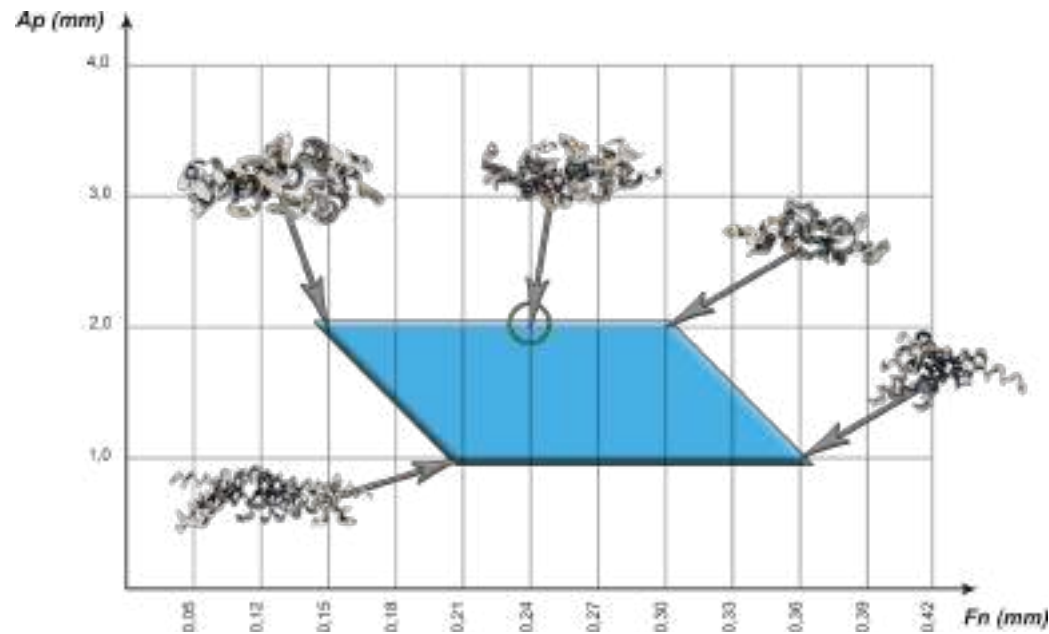
*Other measures available on request





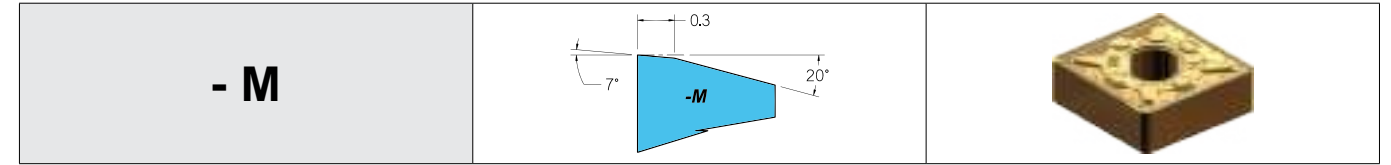
- f

TEST Made ON Ma TERiAL Of dlfflcULT cHIp fORMa TION (vc 200 M/MIN)



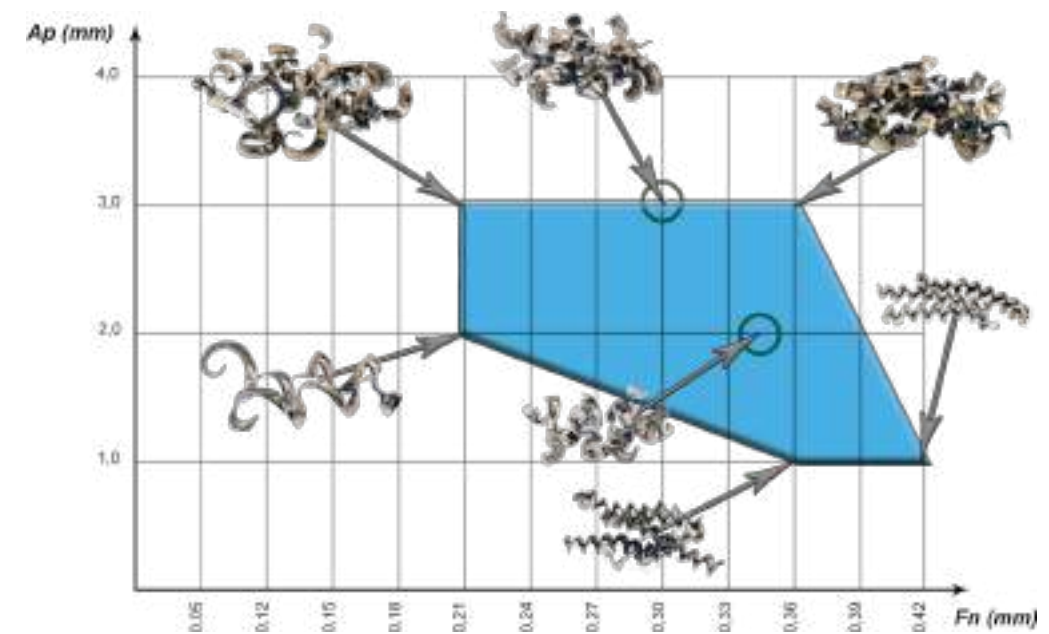
cHIp MaCHINING ExaMPLe ON HIGH-aLLOy STEEL

Test parameters:	Test parameters:	Test parameters:
Material 39 NiCrMo4	Material 39 NiCrMo4	Material 39 NiCrMo4
vc 200 m/min	vc 200 m/min	vc 200 m/min
ap 2,00 mm	ap 2,00 mm	ap 2,00 mm
fn 0,18 mm/rev	fn 0,24 mm/rev	fn 0,33 mm/rev



- M

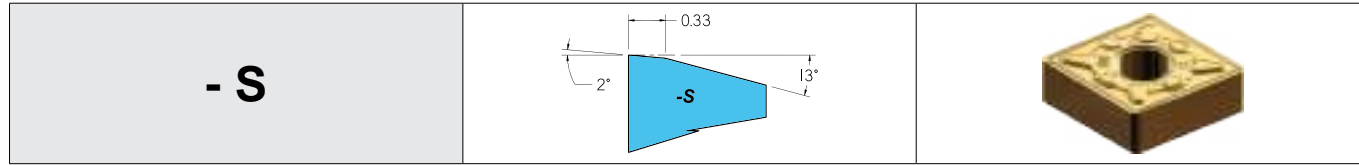
TEST Made ON Ma TERiAL Of dlfflcULT cHIp fORMa TION (vc 200 M/MIN)



cHIp MaCHINING ExaMPLe ON HIGH-aLLOy STEEL

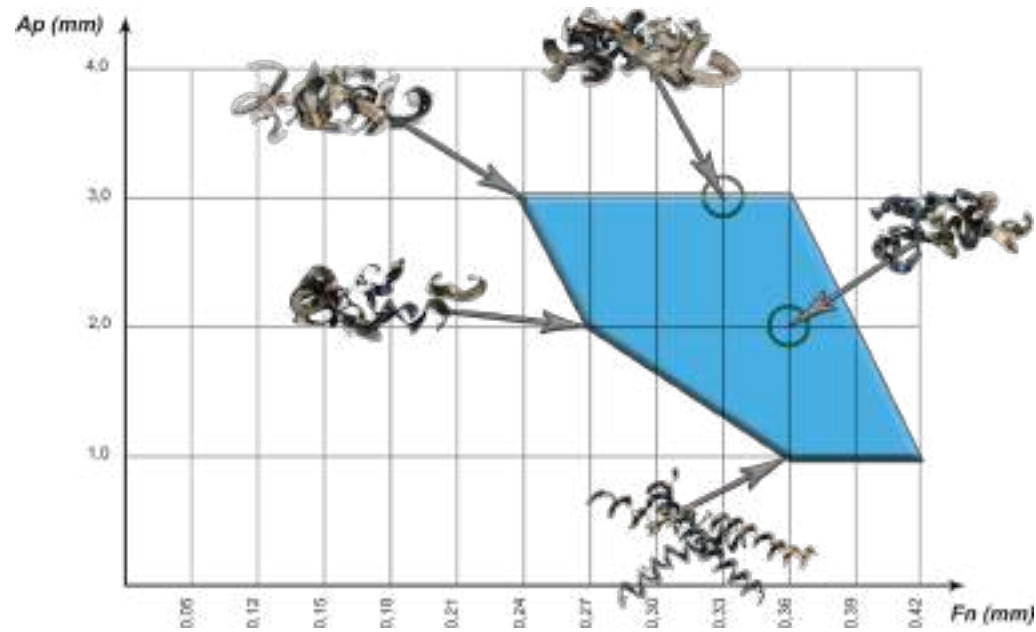
Test parameters:	Test parameters:	Test parameters:
Material 39 NiCrMo4	Material 39 NiCrMo4	Material 39 NiCrMo4
vc 200 m/min	vc 200 m/min	vc 200 m/min
ap 2,00 mm	ap 2,00 mm	ap 3,00 mm
fn 0,20 mm/rev	fn 0,24 mm/rev	fn 0,27 mm/rev





- S

TEST Made ON Ma TERiAL Of dIfflCULT cHIp fORMa TION (vc 200 M/MIN)

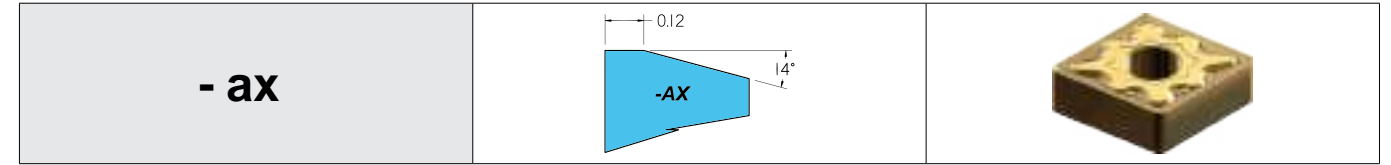


cHIp MaCHINING ExaMpLE ON HIGH-aLLOy STEEL



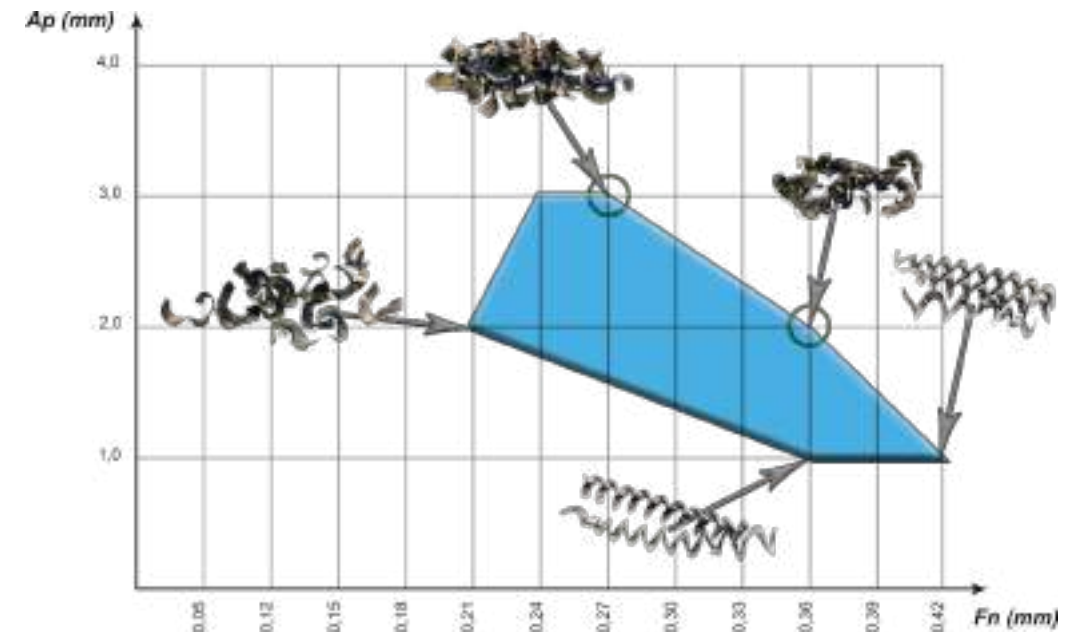
Test parameters:

Material	39 NiCrMo4
vc	200 m/min
ap	2,00 mm
fn	0,39 mm/rev



- ax

TEST Made ON Ma TERiAL Of dIfflCULT cHIp fORMa TION (vc 200 M/MIN)



cHIp MaCHINING ExaMpLE ON HIGH-aLLOy STEEL



Test parameters:

Material	39 NiCrMo4	Material	39 NiCrMo4	Material	39 NiCrMo4
vc	200 m/min	vc	200 m/min	vc	200 m/min
ap	2,00 mm	ap	3,00 mm	ap	2,00 mm
fn	0,20 mm/rev	fn	0,30 mm/rev	fn	0,33 mm/rev



caUSES Of wEaR

The wear is caused by a simultaneous mechanical and heating stimulation on the cutting edge. The main causes are attributed to:

- MECHANICAL ABRASION
- MATERIAL REMOVAL
- OXIDATION PROCESSES
- CHEMICAL DIFFUSION



pRObLEMS aNd SOLUTIONS
pLaSTic dEfORMaTION
cRaTERIZaTION
cOMpLETE bREakaGE
cHippING
bUILT Up EdGE

2.pLaSTic dEfORMaTION	caUSES	REMEdIES
	<ul style="list-style-type: none"> • excessive cutting speed 	<ul style="list-style-type: none"> • Decrease the cutting conditions

3. wEaR fOR cRaTERIZaTION	caUSES	REMEdIES
	<ul style="list-style-type: none"> • excessive cutting speed 	<ul style="list-style-type: none"> • Decrease the cutting conditions

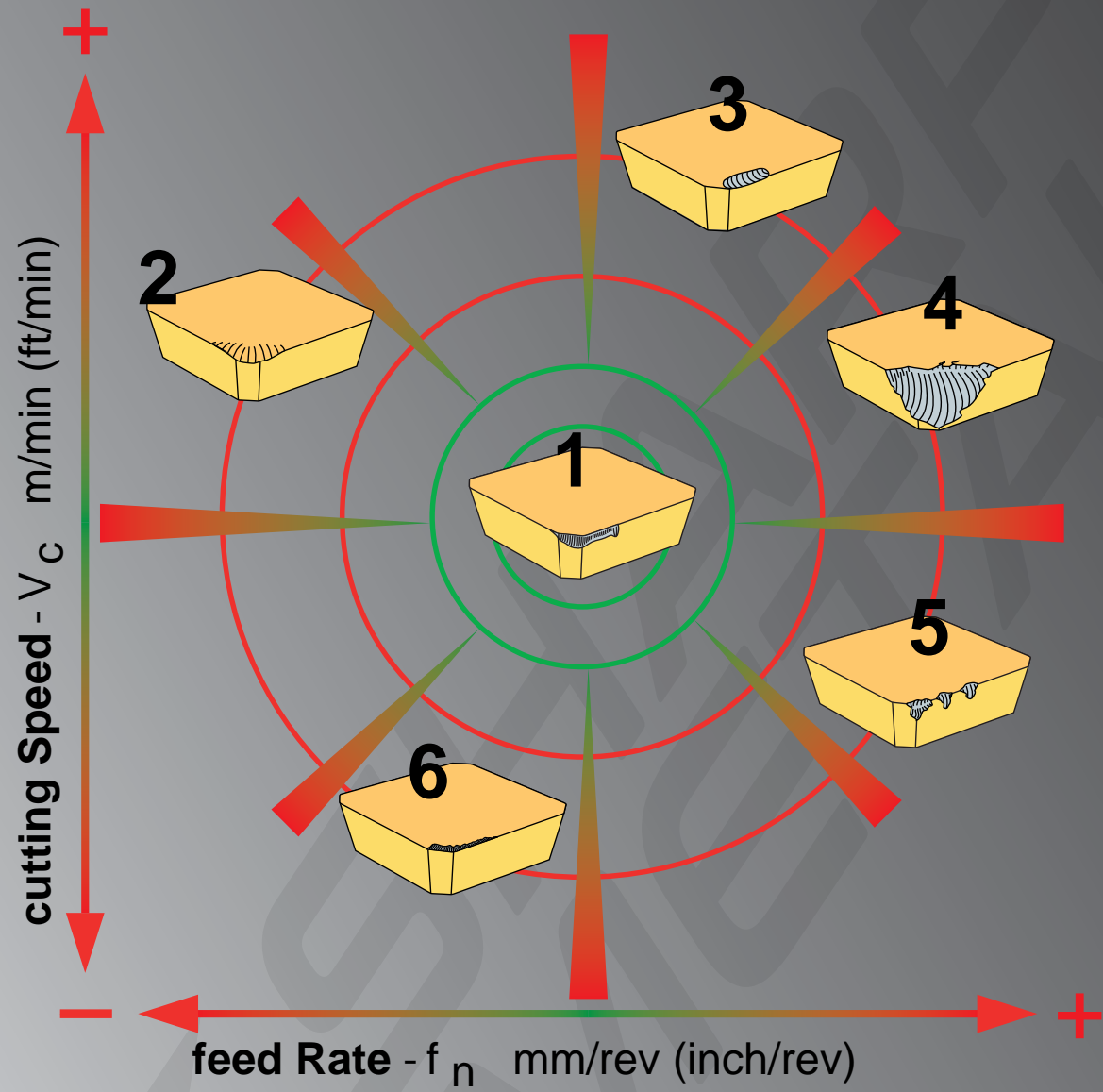
4.cOMpLETE bREakaGE	caUSES	REMEdIES
	<ul style="list-style-type: none"> • Excessive feed • Insufficient rigidity of the system 	<ul style="list-style-type: none"> • Decrease the feed

5.cHippING	caUSES	REMEdIES
	<ul style="list-style-type: none"> • Excessive feed • Insufficient rigidity of the system 	<ul style="list-style-type: none"> • Select a tougher grade • Decrease the feed

6.bUILT Up EdGE	caUSES	REMEdIES
	<ul style="list-style-type: none"> • Excessive feed • Materials of difficult workability 	<ul style="list-style-type: none"> • Increase the cutting speed • Select a tougher grade

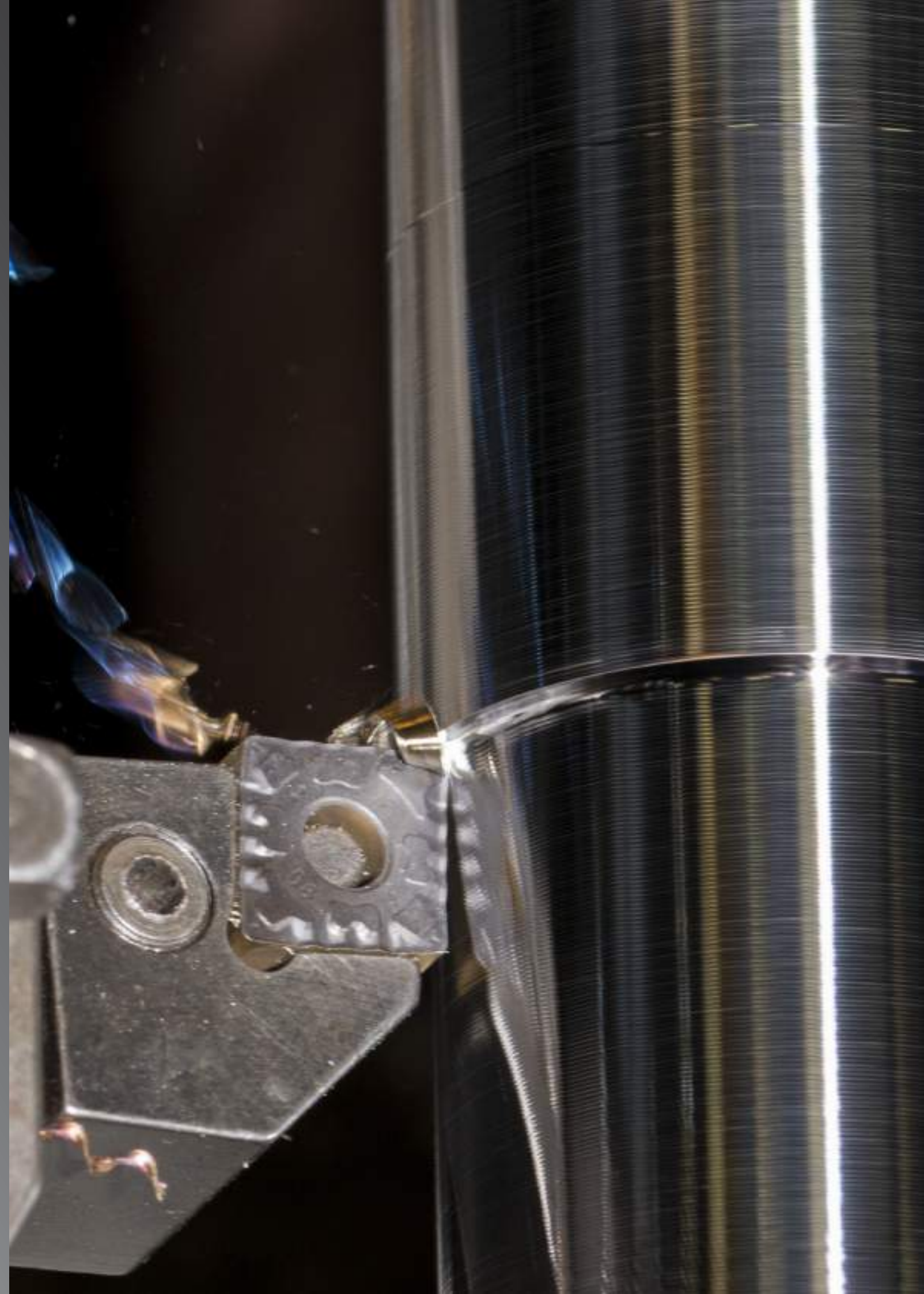


wear Optimization







1. flank wear (abrasive)
2. plastic deformation (impression)
3. crater wear
4. complete break
5. chipping
6. built-up Edge

Preferable wear for predictable tool life





	INTROdUcTION	Pag. 120....121
	QUaLITy	Pag. 122....130
	GENERaL OvERvIEW	Pag. 132....133
	INSERTS- TOOLS	Pag. 134....137

MaTERiaLS aNd ISO cLaSS

ISO p STEEL
Lead and carburizing steel,tempered and construction steels

ISO M STaINLESS STEEL
cR ferritic steels,austenitic steels,cR martensitic steels, duplex steels

ISO k caST IRON
Grey cast iron, tempered cast iron,cGI cast iron, spheroidal cast iron, sintered iron

ISO N NON FERROUS
Molten and extruded aluminum alloys, copper alloys, non-metallic materials

ISO H TEMPEREd
Tempered steels, Tempered cast-iron, Hardened melted steels

ISO S SUpERaLLOyS
Ni/cO based alloys

T cLaSS TITaNIUM
Titanium alloys


New

SyMbOL kEy

●	Main application
○	Secondary application

①	Suggested insert and immediate availability
X	Delivery in 10 Working days
○	Delivery to be defined when ordering

P	●	●	●	○	○	○	○						○	○	○		
M				●	●	●	●							○	○		
k	○							●	●								
N										●							
H	○												●				
S														●	●	○	○
T																●	●

EN		GCMX 20EN			①	○	X			○									
		GCMX 24EN			①	○	X			○									
		GCMX 30EN				①	○	X			○								
		GCMX 40EN				①	○	X			○								
		GCMX 50EN				①	○	X			○								
		GCMX 60EN				①	○	X			○								
		GCMX 80EN				①	○	X			○								
		GCMX 90EN				①	○	X			○								

Introduction

Introduction

paRTING

paRTING



ExaMpLE: GcxM 30EN cp25p

C

d	Coated insert Use without coolant	
w	Coated insert Use with coolant	
c	Coated insert Use with or without coolant	
N	Uncoated insert Use with or without coolant	

p

P	Steel
M	Stainless steel
k	Cast iron
N	Non ferrous
H	Tempered
S	Superalloys
T	Titanium

25

p	05	15	25	35	45	Steel
M	05	15	25	35	45	Stainless steel
k	05	15	25	35	45	Cast iron
N	05	15	25	35	45	Non ferrous
H	05	15	25	35	45	Tempered
S	05	15	25	35	45	Superalloys
T	05	15	25	35	45	Titanium

p

M	Milling
T	Turning
p	Parting

STEp 1

**MaTERIaL
IdENTIfIcaTION**

STEp 2

**wORKING
cONdITIONS**

STEp 4

SOLuTION

STEp 3

**cOOLaNT
cONdITIONS**

SIMULaTION

ISO	dEScRIPtION	kc*	cONdITION	paRTING GRadES
P1	Soft carbon steels Ferritic steels	1350	Stable	 CP25P
	Free-cutting steels	1500		

kc* = Tearout force

Quality

Quality

paRTING

paRTING



ISO	dEScRiPTION	kc	cONdITION		paRTING GRadES	
P1	Soft carbon steels. Ferritic steels.	1350	Stable		 CP25P	
	Free-cutting steels.	1500				
P2	Construction steels, carbon steels with low-medium carbon percentage (C <0,5%).	1500	Normal			
	Medium-high percentage carbon steels (C >0,5%) medium hard steels for heat treatment, weakly alloyed steels, ferritic and martensitic stainless steels.	1700				
P3	Tools steels. Hard steels for heat treatment. Martensitic stainless steels.	1900	Unstable		 CP35P	
	Tools steels of difficult workability high hardness steels. Martensitic stainless steels..	2000				
M4	Stainless steels of easy workability. Free-cutting stainless steels. Stainless steels treated with calcium.	1750	Stable		 WM25P DM25P	
	Stainless steels of medium workability. Austenitic and duplex stainless steels.	1900	Normal			
Stainless steels of medium workability. Austenitic and duplex stainless steels.	2050					
M5	Stainless steels of medium workability. Austenitic and duplex stainless steels.	2050	Unstable			
	Stainless steels of very hard workability. Austenitic and duplex stainless steels.	2150				

ISO	dEScRiPTION	kc	cONdITION		paRTING GRadES	
S11	Iron based super alloys		Stable		 WS25P	
S12	Cobalt based super alloys		Normal			
S13	Nichel based super alloys	3300	Unstable		 WS35P	
T14	Titanium alloys	1450	Stable		 WT25P	
			Normal			
			Unstable		 WT35P	

Quality

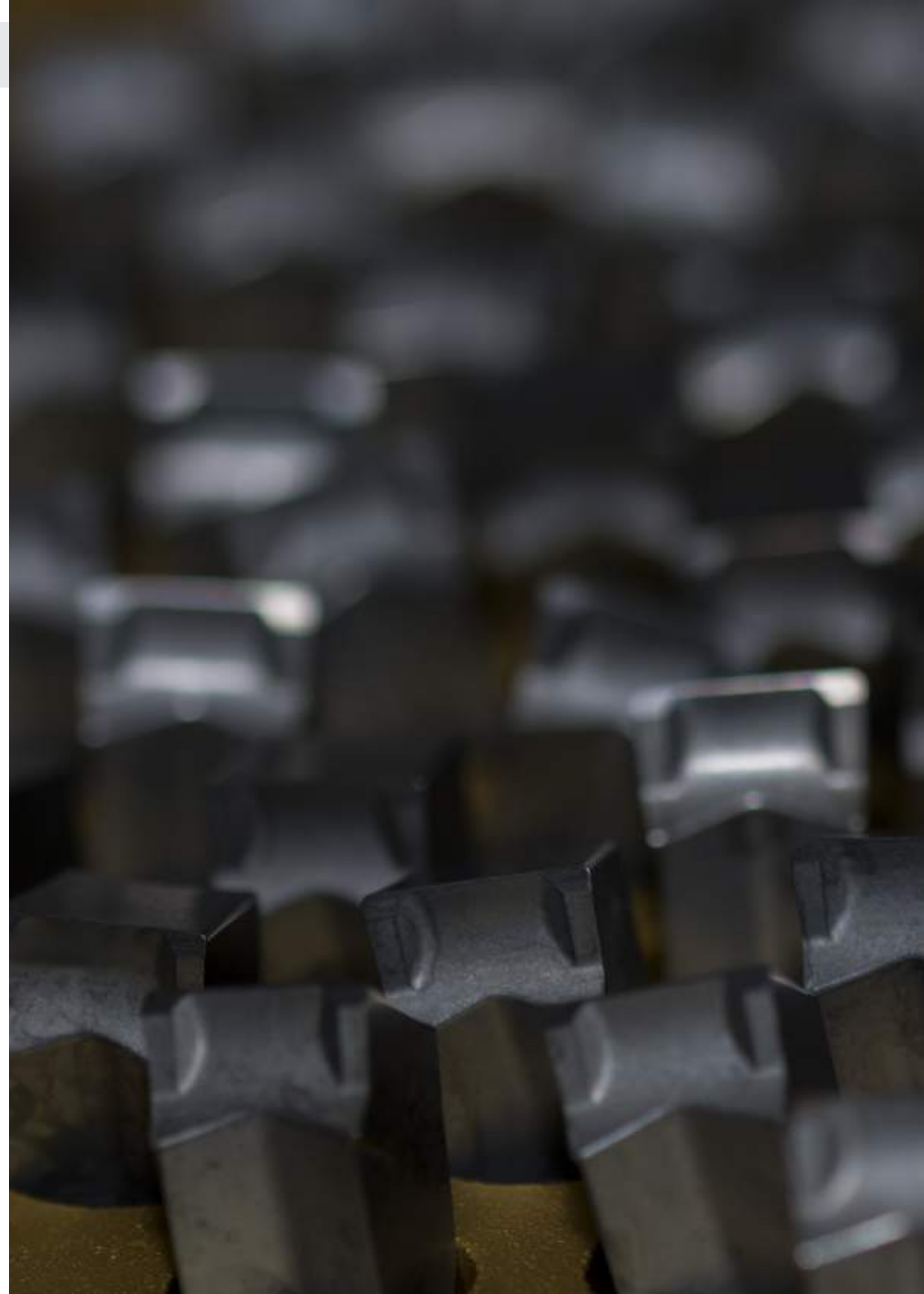
Quality

paRTING

paRTING



QUaLITy	ISO										p	M	k	N	H	S	T
	05	10	15	20	25	30	35	40	45	50							
cp25p					■						●						
cp35p							■				●						
wM25p					■						○	●					
dM35p							■				○	●					
wS25p					■						○	○				●	
wS35p							■				○	○				●	
wT25p						■										○	●
wT35p							■									○	●



cp25p					wc dimension	Max 1.2 µm	
P	●	⚙️	⚙️		coating	cvd (yellow)	
M				wear resistance		Toughness	
k							
N							
H							
S							
T							

dM35p					wc dimension	Max 3.0 µm	
p	○		⚙️		coating	pvd (red)	
M	●		⚙️	wear resistance		Toughness	
k							
N							
H							
S							
T							

cp35p					wc dimension	Max 1.2 µm	
P	●	⚙️	⚙️		coating	cvd (yellow)	
M				wear resistance		Toughness	
k							
N							
H							
S							
T							

wS25p					wc dimension	Max 3.0 µm	
p	○		⚙️		coating	pvd (red)	
M	○	⚙️	⚙️	wear resistance		Toughness	
k							
N							
H							
S	●	⚙️	⚙️				
T							

wM25p					wc dimension	Max 3.0 µm	
P	○	⚙️			coating	pvd (blue)	
M	●	⚙️		wear resistance		Toughness	
k							
N							
H							
S							
T							

wS35p					wc dimension	Max 3.0 µm	
p	○		⚙️		coating	pvd (red)	
M	○	⚙️	⚙️	wear resistance		Toughness	
k							
N							
H							
S	●	⚙️	⚙️				
T							

Quality

Quality

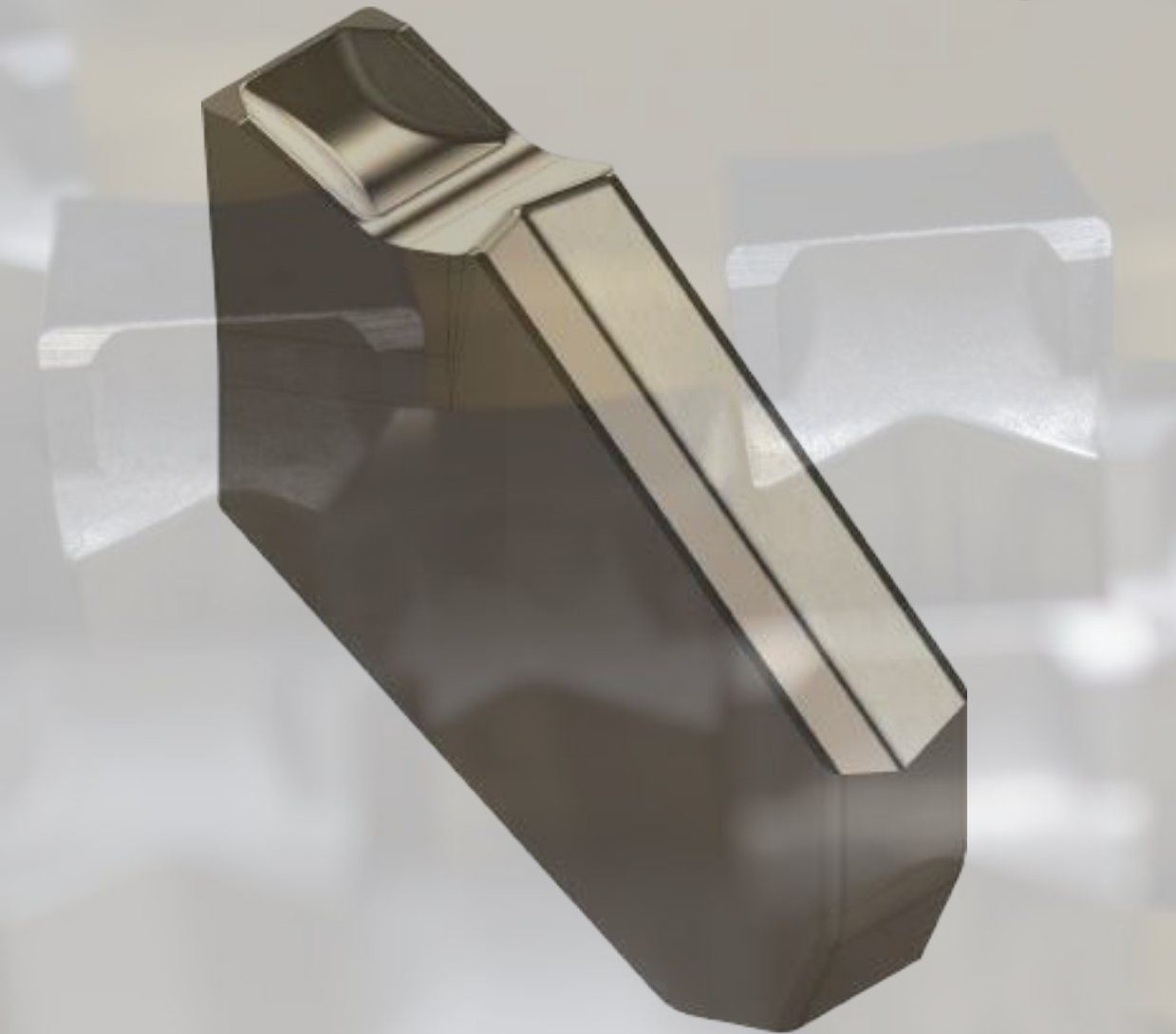
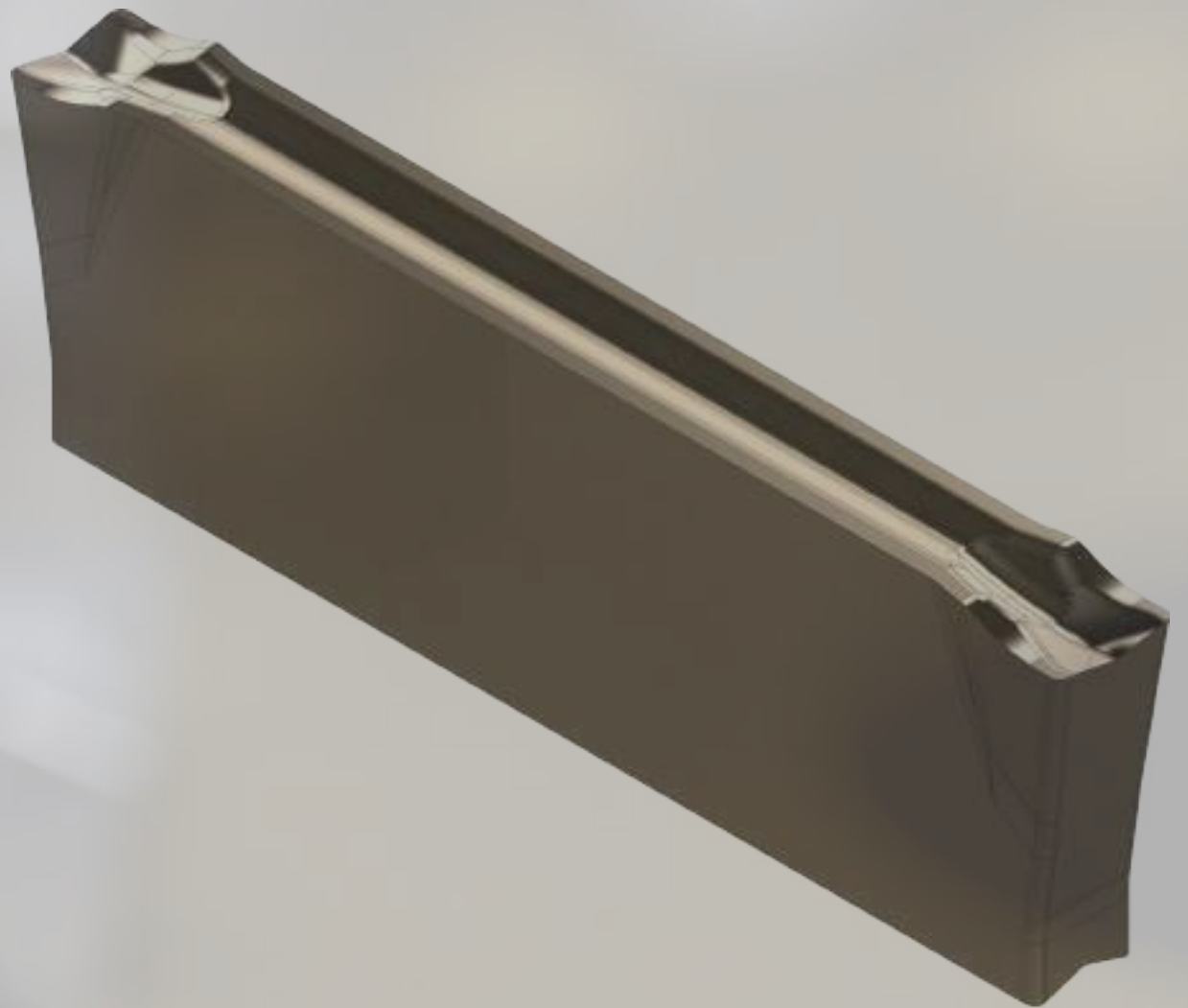
paRTING

paRTING



wT25p						wc dimension	Max 3.0 μm	
P						Rivestimento	pvd (ivory)	
M					wear resistance		Toughness	
k								
N								
H								
S	○	⚙️	⚙️					
T	●	⚙️						


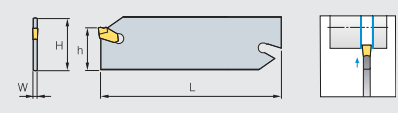

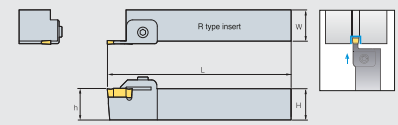
wT35p						wc dimension	Max 3.0 μm	
P						Rivestimento	pvd (ivory)	
M					wear resistance		Toughness	
k								
N								
H								
S	○	⚙️	⚙️					
T	●	⚙️						



Quality

paRTING



C	 GcMx	Pag. 134	 cUT GcMx	Pag. 135
V	 dcT -G dcT -L	Pag. 136	 cUT dcT	Pag. 137

General overview

General overview






paRTING

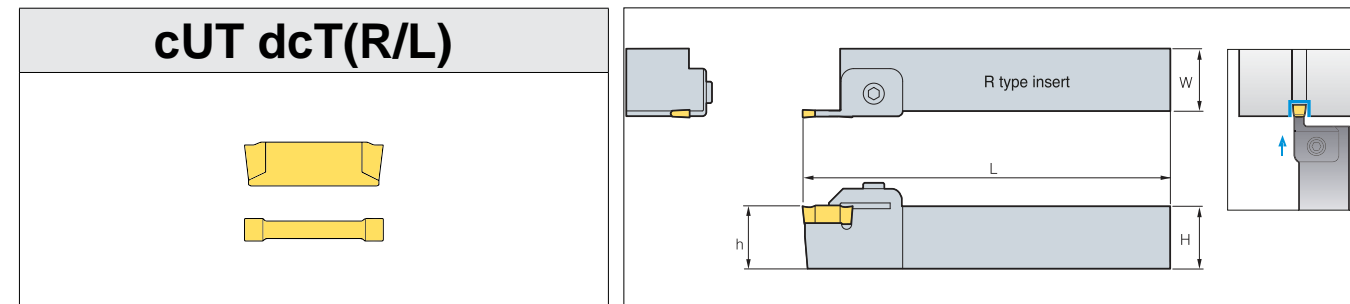
paRTING



- Main application
 - Secondary application
-
- ① Suggested insert and immediate availability
 - X Delivery in 10 Working days
 - O Delivery to be defined when ordering

P	●	●	○	○	○	○	○	○	○
M	●	●	○	○	○	○	○	○	○
k	○	○	○	○	○	○	○	○	○
N	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○	○	○
T	○	○	○	○	○	○	○	○	○

		CP25P	CP35P	WM25P	DM35P	WS25P	WS35P	WT25P	WT35P
G	 DCT22 -G	①	O	X		X	O	X	O
	 DCT31 -G	①	O	X		X	O	X	O
	 DCT40 -G	①	O	X		X	O	X	O
L	 DCT22 -L	①	O	X		X	O	X	O
	 DCT31 -L	①	O	X		X	O	X	O



dEScRiPTION	dIMENSIONS						SpaRES
	H	w	L	h	T max	d max	
CUT DCT(R/L) 1616-K22	16	16	125	16	17.5	35	-
CUT DCT(R/L) 2020-K22	20	20	125	20	17.5	35	
CUT DCT(R/L) 1616-K31	16	16	125	16	20	40	
CUT DCT(R/L) 2020-K31	20	20	125	20	20	40	
CUT DCT(R/L) 2020-L40	20	20	140	20	25	50	
CUT DCT(R/L) 2525-L40	25	25	140	25	25	50	

Description	ISO		
	d (mm)	l (mm)	r (mm)
DCT22 -G	2,20	19,80	0,20
DCT31 -G	3,10	20,00	0,20
DCT40 -G	4,00	18,90	0,30
DCT22 -L	2,20	19,80	0,20
DCT31 -L	3,10	20,00	0,20

*Other measures available on request





USE Of THE ca TaLOG

- This catalog was created in 2017.
- The products in this catalog are continually updated. The products are therefore subject to change in the future and therefore could be different from those shown in the catalog.
- For catalog products it is indicated stock status. However, we inform you that in the future catalog products can be replaced by new grades and by new products.

