hard material matters

CERATIZIT

hard material matters

Tools and inserts for milling

CERATIZIT – a global partner for advanced hard material

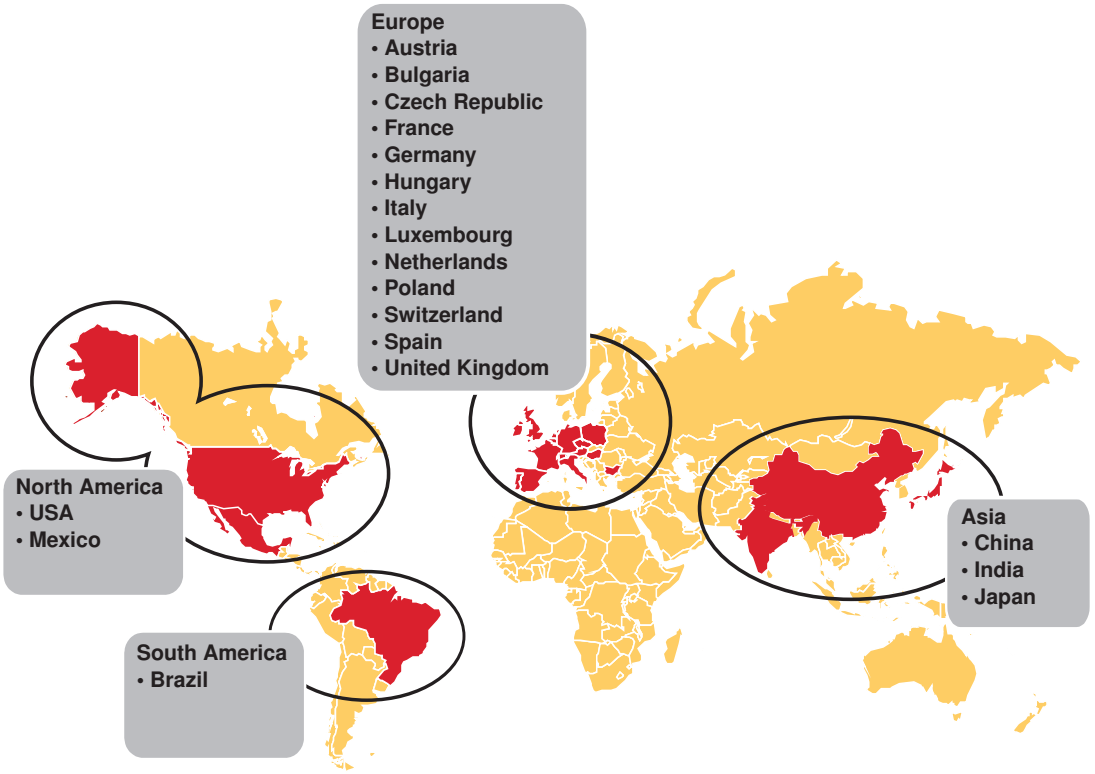
Headquarters and main site
Mamer / Luxembourg

Main site Reutte / Austria

Hard material matters – it is the core of our business. Through in-depth knowledge and highly flexible production facilities we strive to provide our business partners with direct competitive advantages in the field of hard materials for tooling solutions and wear parts. Our dedication to hard material matters creates intelligent solutions for tomorrow and time to come.

Production plants in the three main economic areas and a worldwide sales network of subsidiaries and distribution partners ensure a quick response to customer needs. In-house training courses and seminars guarantee that both business partners and employees share the latest information on our product range.

We promote intensive dialogue with our customers and strive for long-term business relations on a partnership basis.
The CERATIZIT corporate value 'The focus and point of view of our business partners matters' is a guiding principle for all CERATIZIT employees worldwide.



Direct sales and distribution partners

CERATIZIT USA North American Headquarters and CERATIZIT South Carolina production.

CERATIZIT USA

North American Headquarters, South Carolina production

- *Production focus: Wood working,*
- *Writing Instruments and Standard Rod*

Production, Warren Michigan

- *Production focus: Metal working pre-forms,*
- *wear parts, directpressing and hand shaping*

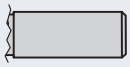
CERATIZIT Production, Warren Michigan.

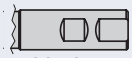
The CERATIZIT Team - Dedicated to provide you with an excellent service.

CERATIZIT designation system
Milling Tools

Metric measuring system

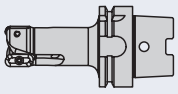
C = with shank





G = with thread

M = monobloc



A = with hole

Connection/ interface

270 = Face milling cutters
272 = Chamfering cutters
251 = Button insert cutters
2000 = Rough milling cutters

260 = Cassette cutters

210 = Shoulder/slot cutters
141 = Shoulder/slot cutters
241 = Shoulder/slot cutters
490 = Shoulder/slot cutters
280 = Shoulder/slot cutters

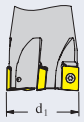
BF = Drill and slot cutters
212 = Drill and slot cutters
244 = Long edge cutters

HSC = High speed cutters
HPC = High-performance cutters

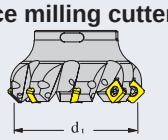
KF = Ball nosed cutters
NF = T-slot cutters
ZF = Circlip groove cutters

System

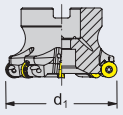
Shoulder/slot cutters



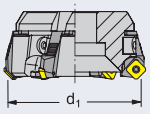
Face milling cutters



Button insert cutters

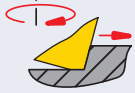


Cassette cutters

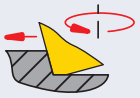


Diameter

R



L



N

Cutting direction

CHSC . 25 . R .

US measuring system

Diameter

d_1 = inch

063 = 5/8"

100 = 1"

125 = 1 1/4"

250 = 2 1/2"

350 = 3 1/2"

500 = 5"

1000 = 10"

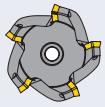
CERATIZIT designation system
Milling Tools

CERATIZIT

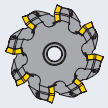
INTRODUCTION

Effective number of edges

01
02
03
04
05
06
07
08
10
11
12
14
17
18
22



(05)



(08)

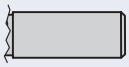
Cutting edge length

d[mm]	A	T/V	C/S	H	L	R	W	O
5,00	-	-	-	-	-	05	-	-
5,56	-	09	05	-	08	-	03	-
6,00	-	-	-	-	-	06	-	-
6,35	-	11	06	03	10	-	04	02
6,65	10	-	-	-	-	-	-	-
7,94	-	-	07	-	-	-	-	-
8,00	-	-	-	-	-	08	-	-
9,00	-	-	-	-	12	-	-	-
9,52	-	16	09	05	15	-	06	04
9,57	15	-	-	-	-	-	-	-
10,00	-	-	-	-	-	10	-	-
12,00	-	-	-	-	-	12	-	-
12,70		22	12	07	20		08	05
15,87		27	15	09			10	06
16,00						16		
16,74			16					
19,05		33	19	11			13	07
20,00						20		

Cutting edge length

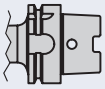
Details Connection / interface

A



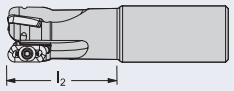
B

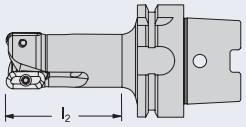
H63A



Working length

l_2 [mm]





02 - 19 - A - 63

Cutting edge length

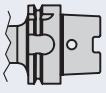
d[inch]	A	T/V	C/S	H	L	R	W	O
.197	-	-	-	-	-	05	-	-
7/32	-	09	05	-	08	-	03	-
.236	-	-	-	-	-	06	-	-
1/4	-	11	06	03	10	-	04	02
.262	10	-	-	-	-	-	-	-
5/16	-	-	07	-	-	-	-	-
.315	-	-	-	-	-	08	-	-
.354	-	-	-	-	12	-	-	-
3/8	-	16	09	05	15	-	06	04
.377	15	-	-	-	-	-	-	-
.394	-	-	-	-	-	10	-	-
.472	-	-	-	-	-	12	-	-
1/2		22	12	07	20		08	05
5/8		27	15	09			10	06
.630						16		
.659			16					
3/4		33	19	11			13	07
.787						20		

Connection / interface

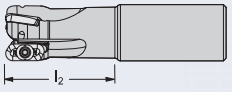
A100
d_A = 1"

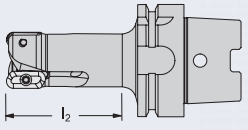
A125
d_A = 1 1/4"

H63A



Working length

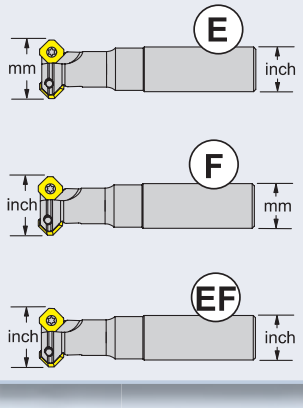




l_2 = inch

100 = 1"
125 = 1 1/4"
150 = 1 1/2"
200 = 2''
250 = 2 1/2"
350 = 3 1/2"
400 = 4"

Combination metric-inch



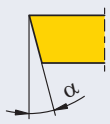
ISO designation system
Inserts

INTRODUCTION

Metric measuring system

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

Insert shape



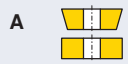
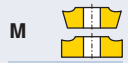
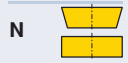
	α
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Special version

Clearance angle

	d [±mm]	m [±mm]	s [±mm]	d=6,35/9,52	d=12,7	d=15,8/19,05
A	0,025	0,005	0,025	●	●	●
C	0,025	0,013	0,025	●	●	●
E	0,025	0,025	0,025	●	●	●
F	0,013	0,005	0,025	●	●	●
G	0,025	0,025	0,13	●	●	●
H	0,013	0,013	0,025	●	●	●
J	0,05	0,005	0,025	●		
	0,08	0,005	0,025		●	
	0,10	0,005	0,025			●
K	0,05	0,013	0,025	●		
	0,08	0,013	0,025		●	
	0,10	0,013	0,025			●

	d [±mm]	m [±mm]	s [±mm]	d=6,35/9,52	d=12,7	d=15,8/19,05
M	0,05	0,08	0,13	●		
	0,08	0,13	0,13		●	
	0,10	0,15	0,13			●
N	0,05	0,08	0,025	●		
	0,08	0,13	0,025		●	
	0,10	0,15	0,025			●
U	0,08	0,13	0,13	●		
	0,13	0,20	0,13		●	
	0,18	0,27	0,13			●

Tolerances

A	
F	
G	
M	
N	
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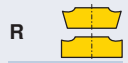
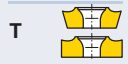
R	
T	
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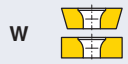
W	

X Special shapes

Charac-teristic

	A	T/V	C/S	H	L	R	W	O
								

Insert shape

d[mm]	A	T/V	C/S	H	L	R	W	O
5,00	-	-	-	-	-	05	-	-
5,56	-	09	05	-	08	-	03	-
6,00	-	-	-	-	-	06	-	-
6,35	-	11	06	03	10	-	04	02
6,65	10	-	-	-	-	-	-	-
7,94	-	-	07	-	-	-	-	-
8,00	-	-	-	-	-	08	-	-
9,00	-	-	-	-	12	-	-	-
9,52	-	16	09	05	15	-	06	04
9,57	15	-	-	-	-	-	-	-
10,00	-	-	-	-	-	10	-	-
12,00	-	-	-	-	-	12	-	-
12,70		22	12	07	20		08	05
15,87		27	15	09			10	06
16,00						16		
16,74			16					
19,05		33	19	11			13	07
20,00						20		

Cutting edge length

S D N T 09

US measuring system

Tolerances

	d [±inch]	m [±inch]	s [±inch]	d=1/4,3/8	d=1/2	d=5/8, 3/4
A	0,0010	0,0002	0,001	●	●	●
C	0,0010	0,0005	0,001	●	●	●
E	0,0010	0,0010	0,001	●	●	●
F	0,0005	0,0002	0,001	●	●	●
G	0,0010	0,0010	0,005	●	●	●
H	0,0005	0,0005	0,001	●	●	●
J*	0,002 - 0,006	0,0002	0,001	●	●	●
K*	0,002 - 0,006	0,0005	0,001	●	●	●
L*	0,002 - 0,006	0,0010	0,001	●	●	●

	d [±inch]	m [±inch]	s [±inch]	d=1/4,3/8	d=1/2	d=5/8, 3/4
M*	0,002 - 0,006	0,003 - 0,008	0,005	●	●	●
N*	0,002 - 0,006	0,003 - 0,008	0,001	●	●	●
U*	0,003 - 0,010	0,005 - 0,015	0,005	●	●	●

* According to size

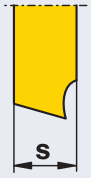
Cutting edge length

A	T/V	C/S	H	L	R	W	O
							

Insert shape

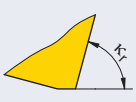
d[inch]	A	T/V	C/S	H	L	R	W	O
.197	-	-	-	-	-	05	-	-
7/32	-	09	05	-	08	-	03	-
.236	-	-	-	-	-	06	-	-
1/4	-	11	06	03	10	-	04	02
.262	10	-	-	-	-	-	-	-
.313	-	-	07	-	-	-	-	-
.315	-	-	-	-	-	08	-	-
.354	-	-	-	-	12	-	-	-
3/8	-	16	09	05	15	-	06	04
.377	15	-	-	-	-	-	-	-
.394	-	-	-	-	-	10	-	-
.472	-	-	-	-	-	12	-	-
1/2		22	12	07	20		08	05
5/8		27	15	09			10	06
.630						16		
.659			16					
3/4		33	19	11			13	07
.787						20		

ISO designation system
Inserts



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

Insert thickness



1st sign

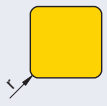
	κ_r
A	45°
D	60°
E	75°
F	85°
P	90°
Z	Others

2nd sign

	α'_n
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
Z	Others

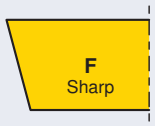
Radius

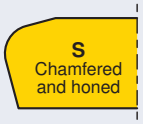
	r (mm)
M0*	
02	0,2
04	0,4
08	0,8
12	1,2
etc.	

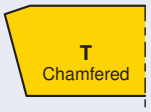


* Shape "R" only

Facet / corner radius







Cutting edge

Cutting direction

Manufacturer specific detail

particularly for:

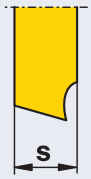
-27	Non ferrous metals
-29	Steel
-31	Cast iron
-33	Stainless steels

P	Polished ("microfinish")
R	Rough
M	Medium
F	Fine

Chip groove

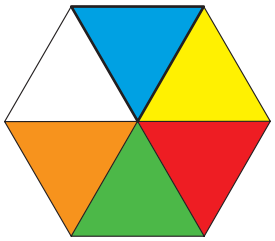
03 AE SN -29

Insert thickness



	s [inch]
01	1/16
T1	5/64
02	3/32
03	1/8
T3	5/32
04	3/16
05	7/32
06	1/4
07	5/16
09	3/8

Materials



Based on VDI 3323 *CERATIZIT*'s MasterGuide divides materials into six main groups.
Each is given a colour.

Blue: steel
machining, cementation, tempered and constructional steels

Yellow: stainless steel
ferritic Cr-steels, austenitic CrNi-steels, martensitic Cr-steels, duplex steels

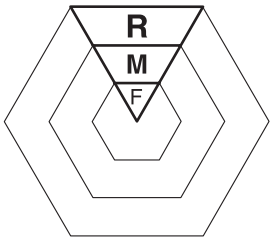
Red: cast iron
grey cast iron, tempered iron, spheroidal cast iron, sintered iron

Green: non ferrous metals and non metals
Al wrought and Al cast alloys, copper, copper alloys, non metal materials

Orange: heat resistant alloys/titanium
Ni-/Co-base-alloys, Ti-alloys

White: hard materials
hardened steels (≥45 HRC), chilled castings, hard cast irons

Machining application type



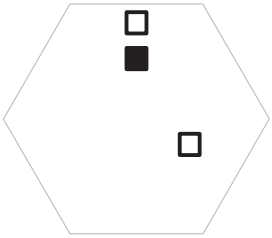
Each coloured segment is divided into three sections, and each section indicates the relevant machining application type:

R = Rough machining

M = Medium machining

F = Fine machining

Application

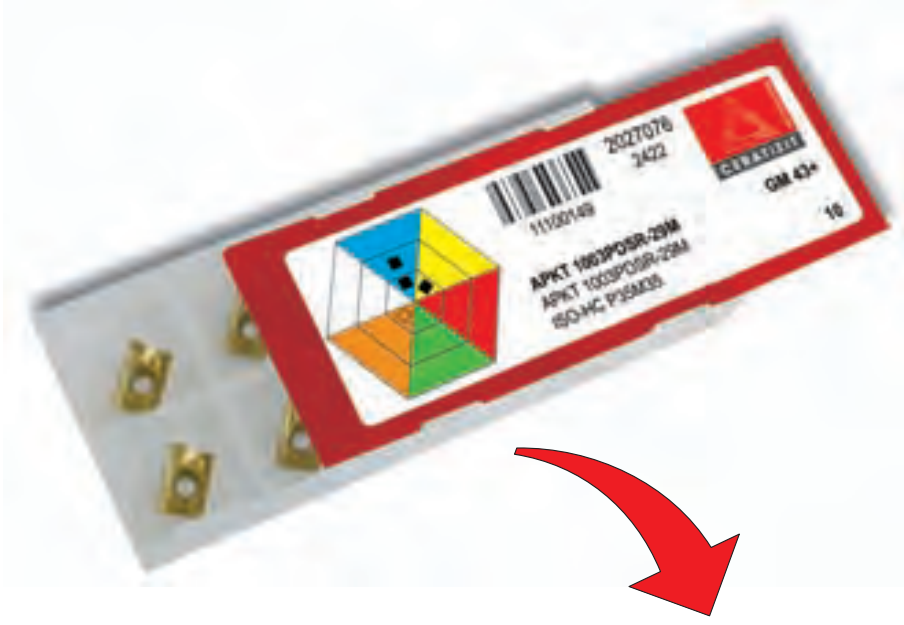


The ideal application area for each insert is indicated by a black square. Extended applications are indicated by an open square. The *CERATIZIT* MasterGuide provides you with an easily understandable structure for choosing a product and enables you to reduce grade and geometry inventory.

■ **Main application**

□ **Extended application**

The right indexable insert at a glance

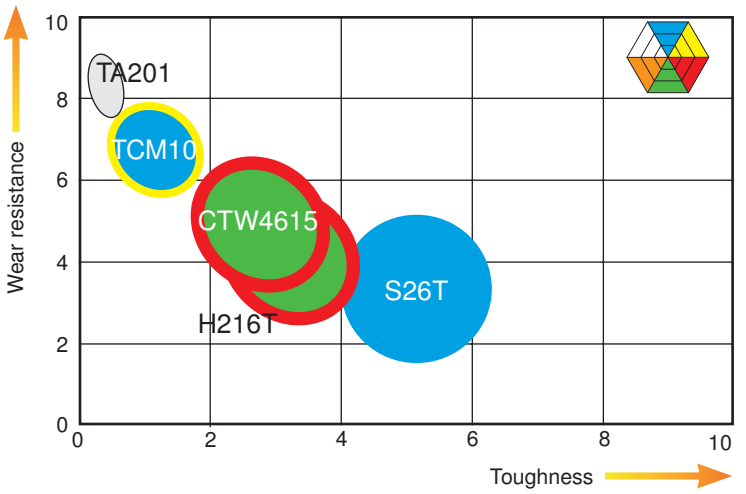


Main application:
Medium and finish machining
of steel, finish machining of stainless steel

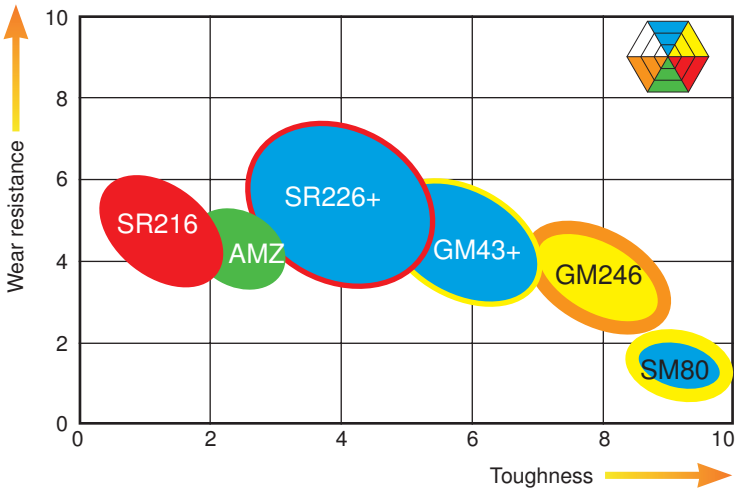
Extended application:
Finish machining of heat resistant alloys

Grade overview

Main grades for milling (uncoated)

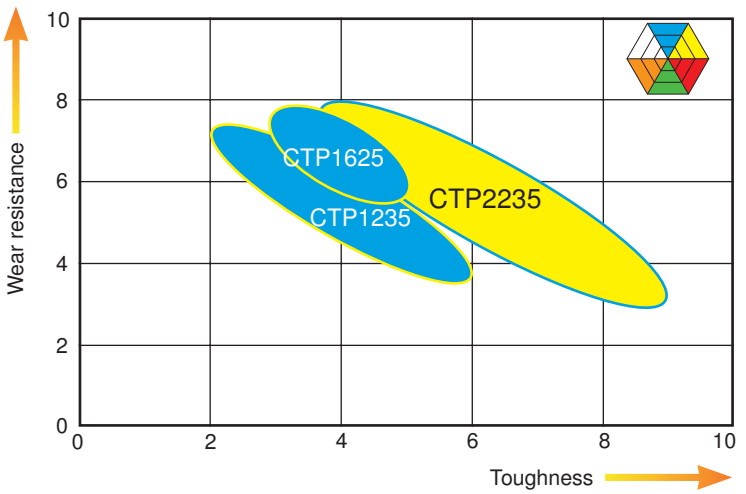


Main grades for milling (coated)



Main grades for milling (coated)

HYPERCOAT



Grade overview

Grade designation	Standard designation	Cutting material*	Application range	Material group A Steel	R Stainless	F Cast iron	N Non ferrous metals	S Heat resistant	H Hard materials
AMZ	HC-K10	P		○	○	○	●	○	
CTP1235	HC-P35	P		●					
	HC-M30	P			○			○	
CTP1625	HC-P25	P		●					
	HC-M25	P			○			○	
CTP2235	HC-P40	P		○					
	HC-M40	P			●			○	
CTW4615	HW-K15	W				●	●		
GM246	HC-P40	C		○					
	HC-M40	C			●			●	
GM43+	HC-P35	C		●					
	HC-M35	C			○			○	
H216T	HW-K15	W				●	●		
SM80	PM-HSS	H		●	●		○	○	
SR216	HC-K10	C				●			
SR226+	HC-P25	C		●					
	HC-M25	C			○				
	HC-K20	C				●			
S26T	HW-P20	W		●	○				
TA201	BN-K10	B				○		○	●
TCM10	HT-P15	T		●					
	HT-M10	T			●				
	HT-K10	T				○			

Application range: 01 05 10 15 20 25 30 35 40 45 50

● Main application

○ Extended application

INTRODUCTION

Grade description
"Steel"

CTP1235
(P35, M30)

Composition:
Co 9%; mixed carbides 4%; WC rest

Grain size: medium, 1 - 1.5 µm

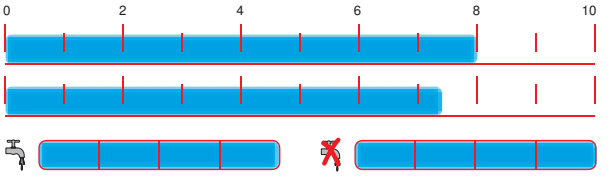
Hardness: HV 1510

Coating specification: PVD, TiAlN, 3 - 4 µm

Toughness:

Wear resistance:

Wet / dry:



SR226+
(P25, M25, K20)

Composition:
Co 9%; composite carbides 4%; WC rest

Grain size: medium; 1-1.5 µm

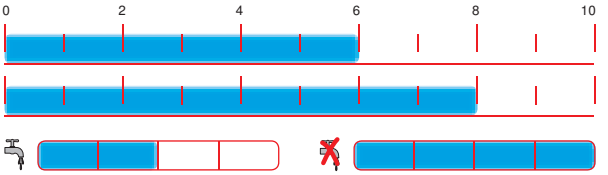
Hardness: HV 1510

Coating specification: Al_2O_3 - TiN - Ti(C,N); 5,5 µm

Toughness:

Wear resistance:

Wet / dry:



GM43+
(P35, M35)

Composition:
Co 9%; composite carbides 4%; WC rest

Grain size: medium; 1-1.5 µm

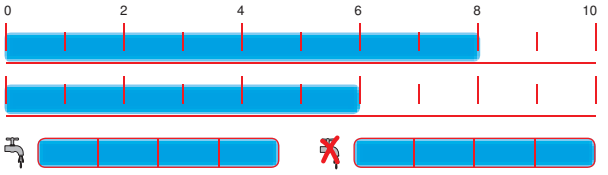
Hardness: HV 1510

Coating specification: TiN - Ti(C,N) - TiC; 3 µm

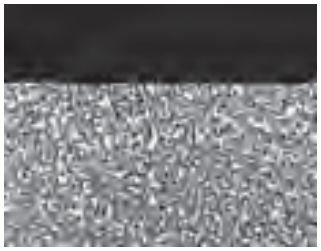
Toughness:

Wear resistance:

Wet / dry:



TCM10
(P15, M10, K10)



Composition: cermet
Co/Ni 12.2%; WC 15%; TaNbC 10%; TiCN rest

Grain size: medium; 1.5 µm

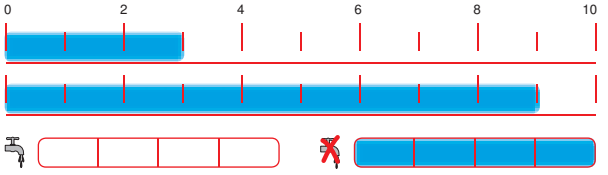
Hardness: HV 1620

Coating specification: uncoated

Toughness:

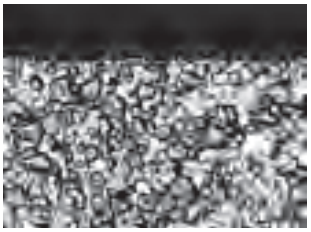
Wear resistance:

Wet / dry:



Grade description
“Steel“

S26T
(P20)



Composition:
Co 9.5%; composite carbides 20.6%; WC rest

Grain size: medium; 1.5 µm

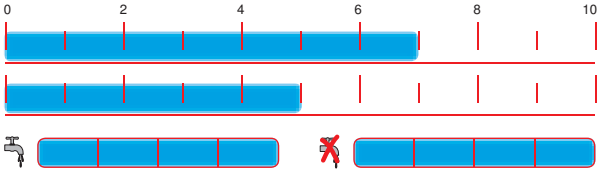
Hardness: HV 1550

Coating specification: uncoated

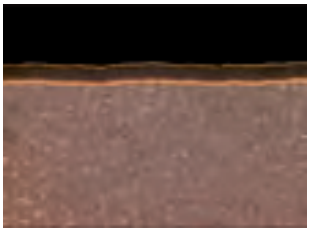
Toughness:

Wear resistance:

Wet / dry:



CTP1625
(P25, M25)



Composition:
Co 9.5%; composite carbides 4%; WC rest

Grain size: medium, 1 - 1.5 µm

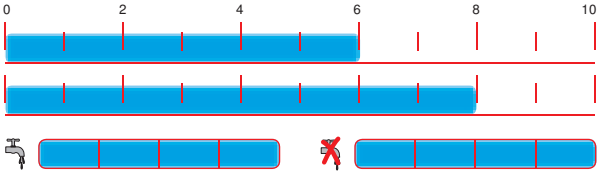
Hardness: HV 1550

Coating specification: PVD, Nanolayer
TiN - TiAlN - TiN, 3 - 4 µm

Toughness:

Wear resistance:

Wet / dry:



SM80
(PM-HSS)

Composition:
Sintered HSS

Grain size: coarse; 5 µm

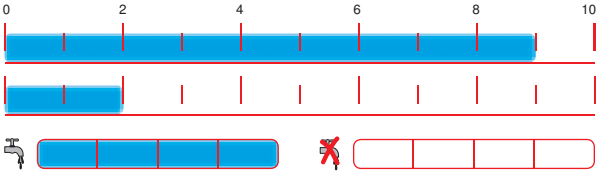
Hardness: HV 800

Coating specification: TiN; 5.5 µm

Toughness:

Wear resistance:

Wet / dry:



Grade description
"Stainless steel"

CERATIZIT

CTP2235
(P40, M40)

Composition:
Co 12.5%; mixed carbides 2%; WC rest

Grain size: fine, 1 µm

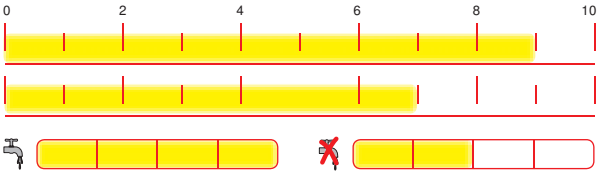
Hardness: HV 1380

Coating specification: PVD, TiAlN, 3 - 4 µm

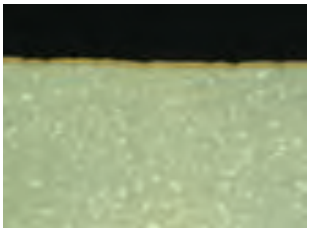
Toughness:

Wear resistance:

Wet / dry:



GM246
(P40, M40)



Composition:
Co 8%; WC rest

Grain size: medium; 2 µm

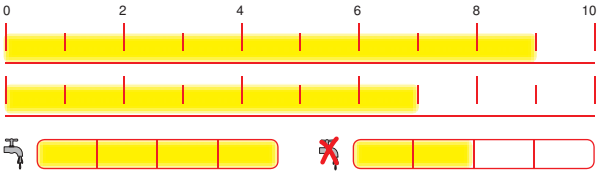
Hardness: HV 1280

Coating specification: TiN - Ti(C,N) - TiC; 3 µm

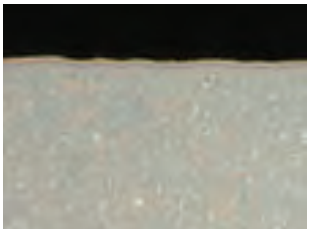
Toughness:

Wear resistance:

Wet / dry:



GM43+
(P35, M35)



Composition:
Co 9%; composite carbides 4%; WC rest

Grain size: medium; 1-1.5 µm

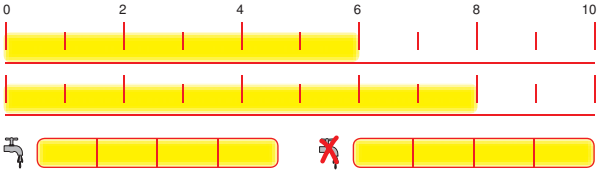
Hardness: HV 1510

Coating specification: TiN - Ti(C,N) - TiC; 3 µm

Toughness:

Wear resistance:

Wet / dry:



SM80
(PM-HSS)

Composition:
Sintered HSS

Grain size: coarse; 5 µm

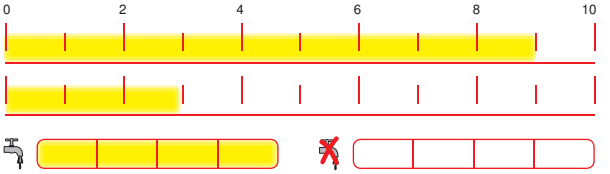
Hardness: HV 800

Coating specification: TiN; 5.5 µm

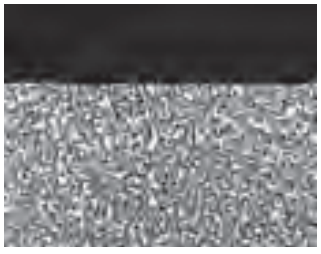
Toughness:

Wear resistance:

Wet / dry:



TCM10
(P15, M10, K10)

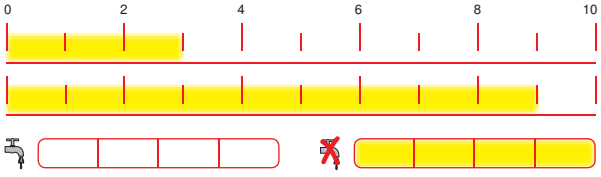


Composition: cermet
Co/Ni 12.2%; WC 15%; TaNbC 10%; TiCN rest

Grain size: medium; 1.5 µm

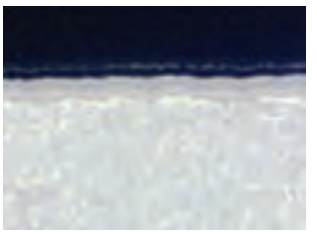
Hardness: HV 1620

Coating specification: uncoated



Grade description
"Cast iron"

SR216
(K10)

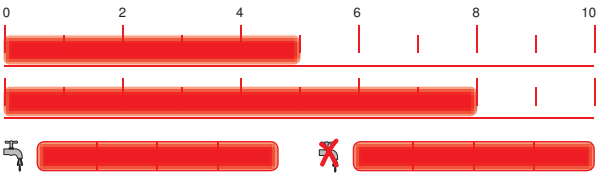


Composition:
Co 6%; WC rest

Grain size: fine; 1 µm

Hardness: HV 1630

Coating specification: Al_2O_3 - Ti(C,N) - Ti(C,N); 5.5 µm

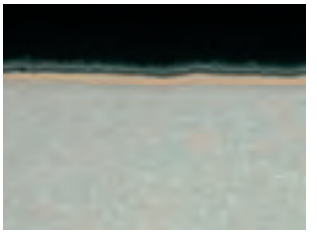


Toughness:

Wear resistance:

Wet / dry:

SR226+
(P25, M25, K20)

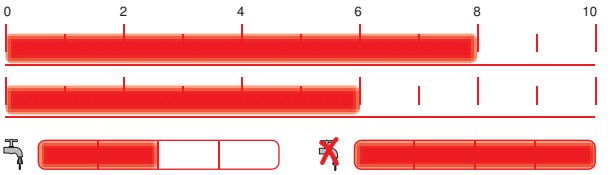


Composition:
Co 9%; composite carbides 4%; WC rest

Grain size: medium; 1-1.5 µm

Hardness: HV 1510

Coating specification: Al_2O_3 - TiN - Ti(C,N); 5.5 µm

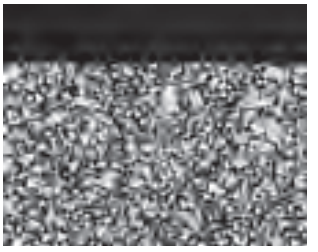


Toughness:

Wear resistance:

Wet / dry:

H216T
(K15)

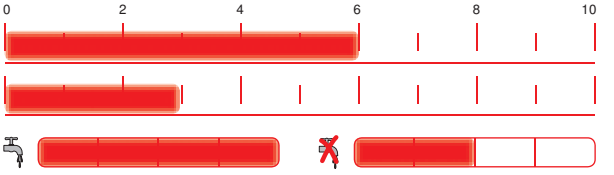


Composition:
Co 6%; WC rest

Grain size: fine; 1 µm

Hardness: HV 1630

Coating specification: uncoated

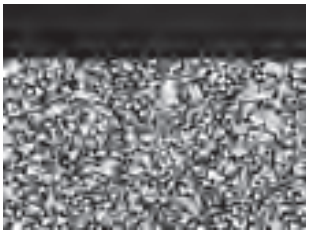


Toughness:

Wear resistance:

Wet / dry:

CTW4615
(K15)

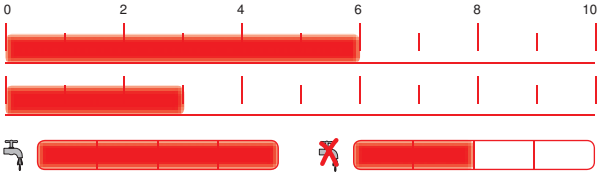


Composition:
Co 6%; WC rest

Grain size: fine; 1 µm

Hardness: HV 1630

Coating specification: uncoated



Toughness:

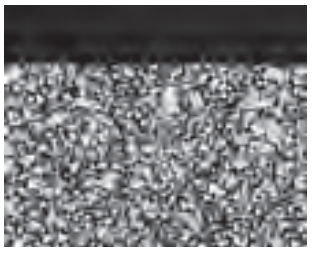
Wear resistance:

Wet / dry:

Grade description
“Non ferrous metals and non metals“

CERATIZIT

H216T
(K15)



Composition:
Co 6%; WC rest

Grain size: fine; 1 µm

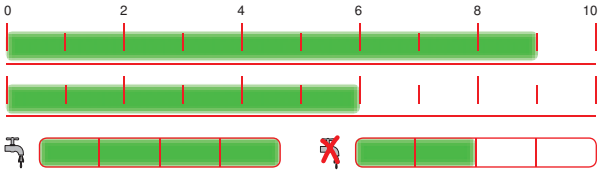
Hardness: HV 1630

Coating specification: uncoated

Toughness:

Wear resistance:

Wet / dry:



CTW4615
(K15)

Composition:
Co 6%; WC rest

Grain size: fine; 1 µm

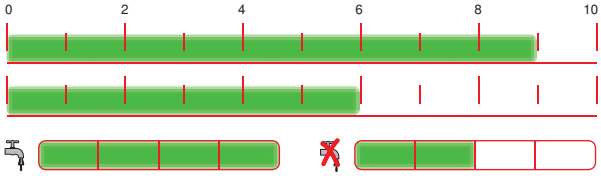
Hardness: HV 1630

Coating specification: uncoated

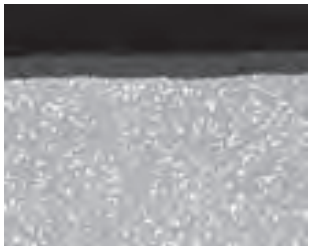
Toughness:

Wear resistance:

Wet / dry:



AMZ
(K10)



Composition:
Co 6%; WC rest

Grain size: fine; 1 µm

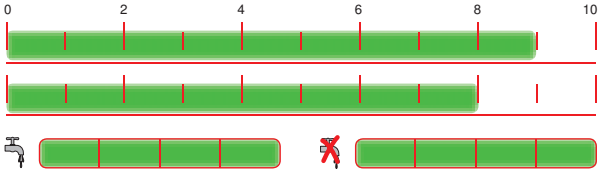
Hardness: HV 1630

Coating specification: PVD -TiAlN; 2-4 µm

Toughness:

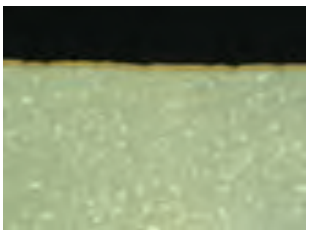
Wear resistance:

Wet / dry:



Grade description
“Heat resistant alloys/titanium“

GM246
(P40, M40)



Composition:
Co 8%; WC rest

Grain size: medium; 2 µm

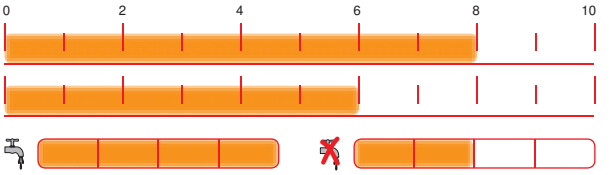
Hardness: HV 1280

Coating specification: TiN - Ti(C,N) - TiC; 3 µm

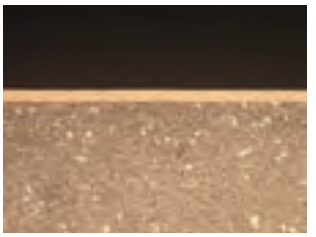
Toughness:

Wear resistance:

Wet / dry:



SM80
(PM-HSS)



Composition:
Sintered HSS

Grain size: coarse; 5 µm

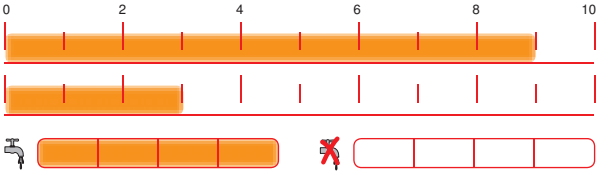
Hardness: HV 800

Coating specification: TiN

Toughness:

Wear resistance:

Wet / dry:



Grade description
“Hard materials“

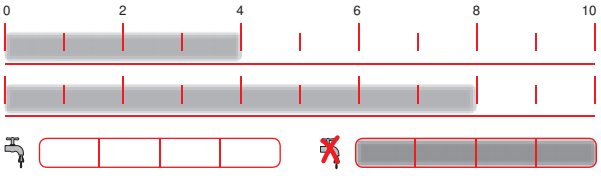
CERATIZIT

TA201
(BN-K10)

Composition:
CBN 65%; binder TiN

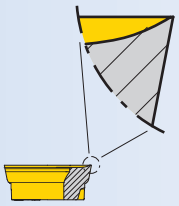
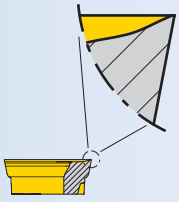
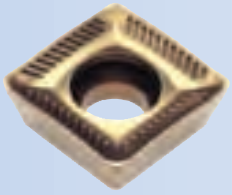
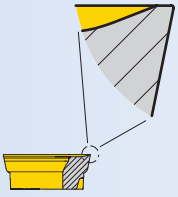
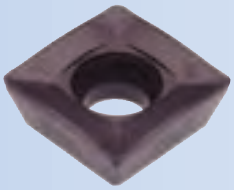
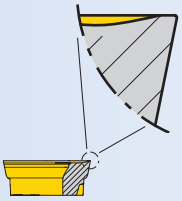
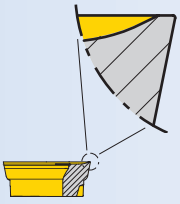
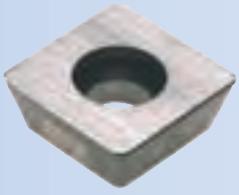
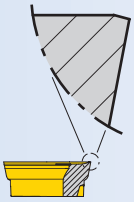
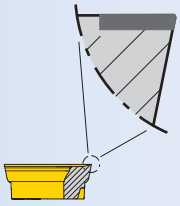
Grain size: medium; 2 µm

Coating specification: uncoated



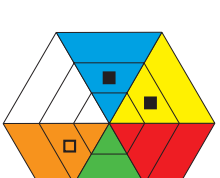
INTRODUCTION

Chip grooves

	..FN		Rake angle +30°	Steel Stainless
	-27		Rake angle +25°	Aluminium
	-29		Rake angle +20°	Steel
	-31		Rake angle +9°	Cast iron
	-33		Rake angle +27°	Stainless
	..EN ..FN ..SN		Rake angle 0°	Universal
	..TR		Rake angle 0°	Hard materials

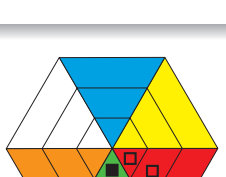
Chip grooves and grades

- Steels, stainless steels, super alloys, titanium alloys
- Low cutting speeds, materials with low strength
- Positive cutting geometry, low cutting forces



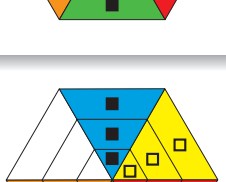
SM80 HSS

- Aluminium, magnesium, ferrous metals, plastic, wood
- Suitable for finishing of cast iron, high cutting speeds and chip removal rates
- Sharp cutting edge geometry, very good surface finish of the workpiece



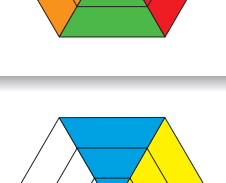
H216T

- Steel materials
- High cutting speeds when machining without lubricant
- Stable cutting edges, fast milling without problems



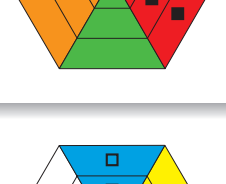
S26T
TCM10 Cermet
GM43+
SR226+

- Grey cast iron, spheroidal cast iron, tempered iron
- V_c > 350 m/min possible with dry and wet machining
- Chip groove with very good chip evacuation, long tool life



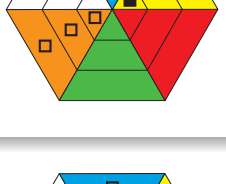
SR216

- Stainless steels, heat resistant and titanium alloys
- Ideal for application with coolants
- Resistant to notching, long tool life



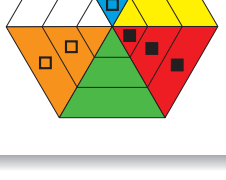
GM246

- Steel, stainless, cast iron, non ferrous metal, heat resistant materials
- Wide application range. For finishing with cermet inserts
- Robust construction, universal application



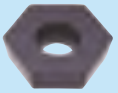
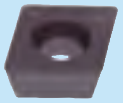
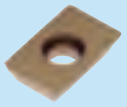
All grades

- Finishing of hard materials
- Dry milling
- Chamfered cutting edge geometry without chip groove, long tool life

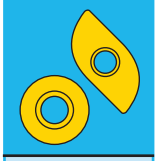
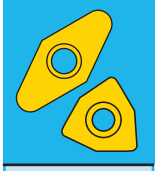
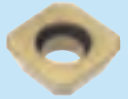
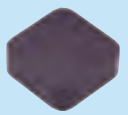
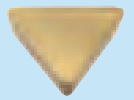
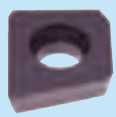


TA201 CBN

Inserts

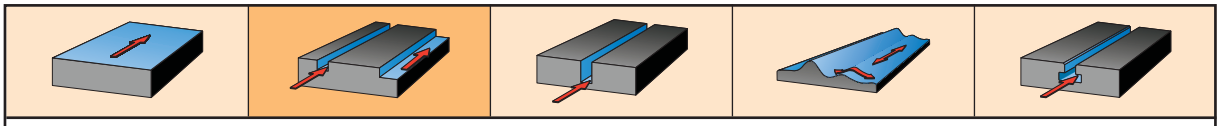
	A	C	H	L	O
CERATIZIT **systems**	**AD..**  C5	**CN..**  C6	**HP..**  C7	**LD..**  C8-C9	
	AP..  C5	**CP..**  C6		**LE..**  C8-C9	
				LN..  C10	
				LP..  C10	
Other systems	**AP..**  C38			**LD..**  C38	**OF..**  C23
Finishing					**OD..**  C20

Inserts

R	S	T	V/W	X
				
RD..  C11	**SD..**  C13-C15	**TC..**  C16	**VC..**  C17	**XD..**  C18-C19
RP..  C11-C12	**SE..**  C15		**WP..**  C17	
R..  C11-C12	**SP...**  C15			
	S..  C23-C24	**TN..**  C25		
	SP..  C23-C24	**TP..**  C25		
	SP..  C20			**XD..**  C21

Inserts

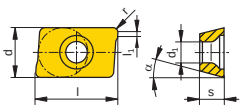
Shape A



-27P -29M -31 -33 APHW

r inch	Type description	AMZ	CTP1235	GM246	GM43+	H216T	S26T	SM80	SR216	SR226+	TA201	TCM10		d inch	d_1 inch	l inch	l_1 inch	s inch	α Grad	
.0315	ADKT 1505PDSR-29		●		●		●			●				.377	.173	.598	.049	.222	15	
.0079	APHT 100302FR-27P	●				●								.262	.110	.386	.067	.138	11	
.0157	APHT 100304FR-27P	●				●								.262	.110	.386	.067	.138	11	
.0315	APHT 100308FR							●						.262	.110	.386	.067	.138	11	
.0315	APHT 100308FR-27P	●				●								.262	.110	.386	.067	.138	11	
.0315	APHT 100308SR-33			●										.262	.110	.386	.094	.138	11	
.0315	APHT 100308SR-33P			●										.262	.110	.386	.094	.138	11	
.047	APHT 100312SR-33			●										.262	.110	.386	.079	.138	11	
.079	APHT 100320SR-33			●										.262	.110	.386	.039	.138	11	
.126	APHT 100332SR-33			●										.262	.110	.386		.138	11	
.0079	APHW 100302TR										●			.262	.110	.398		.138	11	
.0315	APHW 100308SR											●		.262	.110	.398	.039	.138	11	
.0197	APKT 1003PDSR-29		●		●		●			●				.262	.110	.386	.039	.138	11	
.0197	APKT 1003PDSR-29M		●		●					●				.262	.110	.391	.039	.150	11	
.0197	APKT 1003PDSR-31								●					.262	.110	.386	.039	.138	11	

	AMZ	CTP1235	GM246	GM43+	H216T	S26T	SM80	SR216	SR226+	TA201	TCM10	
Steel		●		●		●	●		●		●	
Stainless		○	●	●			●		○		●	
Cast iron	○							●			○	
Non ferrous metals	●				●							
Heat resistant		○		○			○		○			
Hard materials										●		



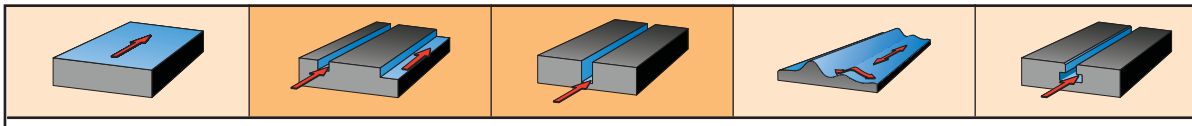
● Main application
○ Extended application
● International CERATIZIT range, for present availability see price list

Ordering example: 10 pieces ADKT 1505PDSR-29 GM43+

	C/A210	C212	C/A244	A260/042	A260/040
					
	D3/D8	*	*	D15	D15

* See metric catalog for additional tools

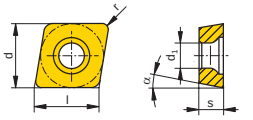
Inserts
Shape C



CNHT CNHW CPMT CPMW

r inch	Type description	GM43+	H216T	S26T	SR216	CTP1625		d inch	l inch	s inch	d_1 inch	α Grad
.0197**	CNHT 1005		●			●		.394	.400	.213	.185	0
.0197**	CNHT 1205		●			●		.394	.508	.213	.185	0
.0197**	CNHW 1005		●			●		.394	.400	.213	.185	0
.0197**	CNHW 1205		●			●		.394	.508	.213	.185	0
.0157	CPMT 060304EN	●		●				.250	.252	.125	.110	11
.0157	CPMW 060304EN				●			.250	.252	.125	.110	11
.0315	CPMT 09T308SN	●		●				.375	.382	.156	.173	11
.0315	CPMW 09T308EN		●		●			.375	.382	.156	.173	11

	GM43+	H216T	S26T	SR216	CTP1625	
Steel	●		●		●	●
Stainless	●				○	
Cast iron				●		
Non ferrous metals		●				
Heat resistant	○				○	
Hard materials						



● Main application
○ Extended application
• International CERATIZIT range, for present availability see price list

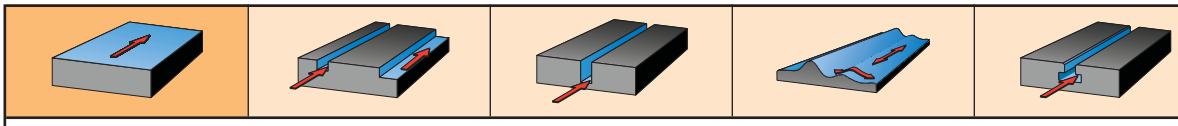
Ordering example: 10 pieces CNHT 1005 T25PU

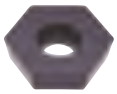
** Chamfer 45°

	CN.. S90CN	CP.. C NF			
	 *	 *			

* See metric catalog for additional tools

Inserts
Shape H

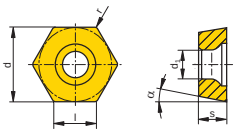




HPEW

r inch	Type description	H216T	SR216					d inch	l inch	s inch	d_1 inch	α Grad
.0315	HPEW 090408EN	●	●					.625	.361	.187	.216	11

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

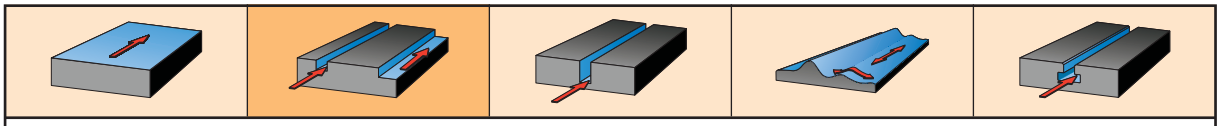


● Main application
○ Extended application
● International CERATIZIT range, for present availability see price list

Ordering example: 10 pieces HPEW 090408EN H216T

	A260/023  **D15**				

Inserts
Shape L

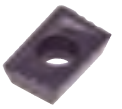



LDFT -27P


LDFT -29


LDFT -33

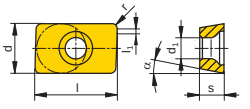

LDMT


LDFW


LDHT -29

r inch	Type description	AMZ	CTP1235	CTP2235	GM246	GM43+	H216T	SR216	SR226+	inch	d_1 inch	l inch	l_1 inch	s inch	α Grad
.0197	LDFT 150405FR-27P	●									.375	.173	.591	.047	4,76
.0315	LDFT 150408ER										.375	.173	.591	.047	4,76
.0315	LDFT 150408FR-27P						●				.375	.173	.591	.047	4,76
.0315	LDFT 150408FR-P						●				.375	.173	.591	.047	4,76
.063	LDFT 150416SR-33				●						.375	.173	.591	.051	4,76
.079	LDFT 150420SR-33				●						.375	.173	.591	.0354	4,76
.079	LDFT 150420SR-33P				●						.375	.173	.591	.0354	4,76
.126	LDFT 150432SR-33				●						.375	.173	.591		4,76
.157	LDFT 150440SR-33				●						.375	.173	.591		4,76
.0315	LDFT 1504PDSR-29		●			●			●		.375	.173	.591	.079	4,76
.0315	LDFT 1504PDSR-33			●	●						.375	.173	.591	.079	4,76
.0315	LDFW 1504PDSR							●	●		.375	.173	.591	.047	4,76
.0315	LDMT 1504PDSR-29					●			●		.375	.173	.591	.047	4,76
.0157	LDHT 100204ER-29					●					.250	.110	.394		2,38
.0157	LEHT 08T104ER-29					●					.219	.098	.315		1,98
.0157	LEHW 08T104ER					●					.219	.098	.315		1,98

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



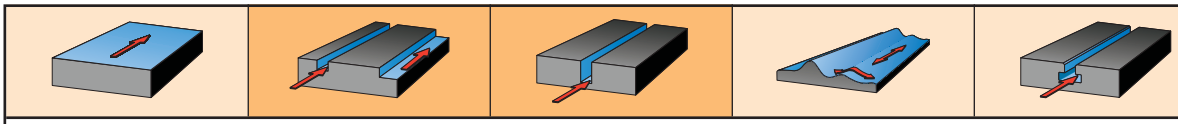
● Main application
○ Extended application
● International CERATIZIT range, for present availability see price list

Ordering example: 10 pieces LDFT 150405FR-27P AMZ

	C141	A241	C BF	A260/051	
					
	D2	D9	*	D15	

* See metric catalog for additional tools

Inserts
Shape L




LDHT -27P

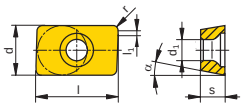

LDMT -29


LDHT -29


LDHW

r inch	Type description	GM43+	H216T	SR226+					inch	d_1 inch	l inch	l_1 inch	s inch	α Grad
.0315	LDHT 120404FR-27P		●						.354	.134	.441	.043	.157	15
.0315	LDHT 120408FR-27P		●						.354	.134	.441	.059	.157	15
.098	LDHT 120425FR-27P		●						.354	.134	.441		.157	15
.157	LDHT 120440FR-27P		●						.354	.134	.441		.157	15
.0315	LDMT 1504PDSR-29	●		●					.375	.173	.591	.047	.187	15
.0157	LEHT 08T104ER-29	●							.219	.098	.315		.078	20
.0157	LEHW 08T104ER	●							.219	.098	.315		.078	20

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



● Main application
○ Extended application
● International CERATIZIT range, for present availability see price list

Ordering example: 10 pieces LDHT 120404FR-27P H216T

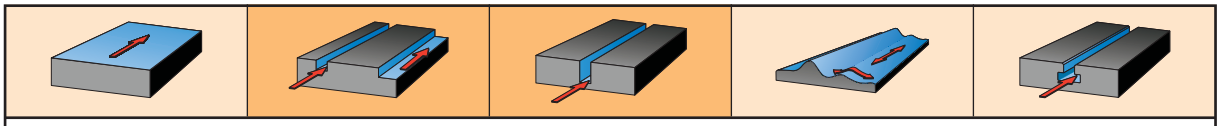
C BF

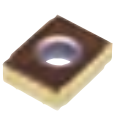
*

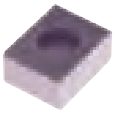
260/036

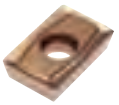
D15

Inserts
Shape L




LNET

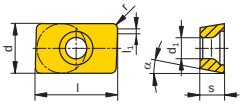

LNEW


LPHT -29


LPHW

r inch	Type description	GM43+	H216T	S26T	H216T	CTP1625	inch	d_1 inch	l inch	s inch	α Grad
.0118**	LNET 1235				●		.500	.161	.138	.375	0
.0118**	LNET 1240				●	●	.500	.161	.157	.375	0
.0157**	LNET 1245				●	●	.500	.161	.177	.375	0
.0157**	LNET 1250				●		.500	.161	.197	.375	0
.0157**	LNET 1255				●	●	.500	.161	.217	.375	0
.0118**	LNEW 1235				●	●	.500	.161	.138	.375	0
.0118**	LNEW 1240				●	●	.500	.161	.157	.375	0
.0157**	LNEW 1245				●	●	.500	.161	.177	.375	0
.0157**	LNEW 1250				●	●	.500	.161	.197	.375	0
.0157**	LNEW 1255				●	●	.500	.161	.217	.375	0
.0315	LPHT 200408ER-29	●					.500	.217	.787	.187	11
.0315	LPHW 200408ER		●				.500	.217	.787	.187	11
.0315	LPHW 200408SR	●		●			.500	.217	.787	.187	11

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



● Main application

○ Extended application

• International CERATIZIT range, for present availability see price list

Ordering example: 10 pieces LNET 1235 T15KU

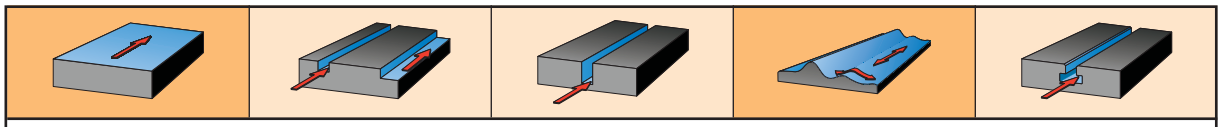
** Chamfer 45°

	S90LN	A260/026			
					
	*	D15			

* See metric catalog for additional tools

Inserts

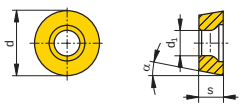
Shape R



RPHX -27P | RPHX -29 | RDHX -33 | RPHX -33 | RDHX | RDHX | RPHX

r inch	Type description	CTP1235	CTP2235	GM246	GM43+	H216T	SR226+	TCM10		d inch	d_1 inch	s inch	α Grad		
.098	RDHX 0501MOFN					●				.197	.098	.063	15		
.098	RDHX 0501MOSN				●		●			.197	.098	.063	15		
.157	RDHX 0802MOFN					●				.315	.110	.094	15		
.157	RDHX 0802MOSN	●			●		●	●		.315	.110	.094	15		
.157	RDHX 0802MOEN-33			●						.315	.110	.094	15		
.197	RPHX 10T3MOEN-33		●	●						.394	.134	.156	11		
.197	RPHX 10T3MOFN-27P					●				.394	.134	.156	11		
.197	RPHX 10T3MOSN	●			●		●	●		.394	.134	.156	11		
.197	RPNX 10T3MOSN-29				●		●			.394	.134	.156	11		
.236	RPHX 1204MOEN-33		●	●						.472	.173	.187	11		
.236	RPHX 1204MOFN-27P					●				.472	.173	.187	11		
.236	RPHX 1204MOSN	●			●		●	●		.472	.173	.187	11		
.236	RPHX 1204MOSN-M30									.472	.173	.187	11		
.236	RPNX 1204MOSN				●		●			.472	.173	.187	11		
.236	RPNX 1204MOSN-29				●		●			.472	.173	.187	11		

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



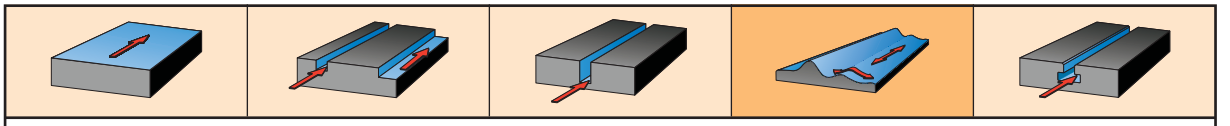
● Main application
○ Extended application
● International CERATIZIT range, for present availability see price list

Ordering example: 10 pieces RDHX 0501MOFN H216T

	C251-05	C/G251-08	C/A251-10	G251-10	A251-12
					
	D4	D4/D16	D4/D10	D16	D10

* See metric catalog for additional tools

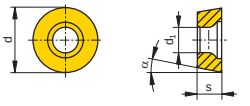
Inserts
Shape R



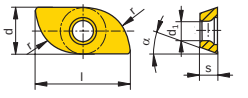
RPHX -27P RPHX -29 RPHX -33 RPHX RPNX RPHX

r inch	Type description	CTP1235	CTP2235	GM246	CTP1235	H216T	SR226+	d inch	d_1 inch	s inch	α Grad		
.315	RPHX 1605MOEN-33		●	●				.630	.217	.219	11		
.315	RPHX 1605MOFN-27P					●		.630	.217	.219	11		
.315	RPHX 1605MOSN	●			●		●	.630	.217	.219	11		
.315	RPNX 1605MOSN				●		●	.630	.217	.219	11		
.315	RPNX 1605MOSN-29				●		●	.630	.217	.219	11		
.394	RPHX 2006MOSN-33M			●				.787	.236	.250	11		
.394	RPNX 2006MOSN-33R			●				.787	.236	.250	11		
.236	R06E 0602ZZER				●			.250	.110	.094	20		
.315	R08E 0803ZZSR				●			.328	.134	.125	20		
.394	R10D 0602ZZER				●			.250	.110	.094	15		
.492	R12D 0803ZZSR				●			.315	.134	.125	15		
.630	R16D 10T3ZZER				●			.394	.173	.156	15		

	CTP1235	CTP2235	GM246	CTP1235	H216T	SR226+
Steel	●	○		●		●
Stainless	○	●	●	●		○
Cast iron						
Non ferrous metals					●	
Heat resistant	○	○		○		○
Hard materials						



● Main application
○ Extended application
● International CERATIZIT range, for present availability see price list

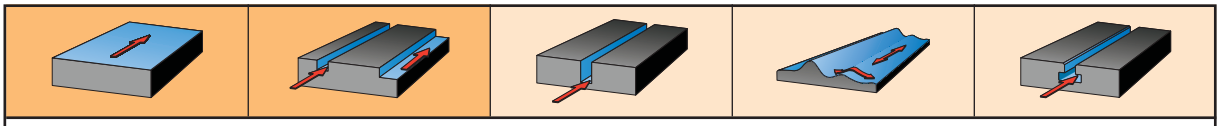


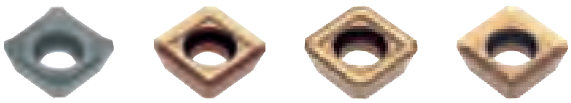
Ordering example: 10 pieces RPHX 1605MOEN-33 CTP2235

	A251-16	A251-20	C KF		
					
	D10	D10	*		

* See metric catalog for additional tools

Inserts
Shape S

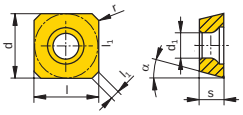




SDHT -27P SDNT -29 SDHT -33 SDHT

r inch	Type description	AMZ	CTP1235	CTP2235	GM246	GM43+	H216T	SM80	SR216	SR226+	TCM10	d inch	d_1 inch	l inch	s inch	α Grad		
.0079	SDHT 0903AEFN							●				.375	.134	.375	.125	15		
.039	SDHT 0903AEFN-27P	●					●					.375	.134	.375	.125	15		
.039	SDHT 0903AESN-33			●	●							.375	.134	.375	.125	15		
.039	SDHT 0903AESN-33P				●							.375	.134	.375	.125	15		
.039	SDHW 0903AESN										●	.375	.134	.375	.125	15		
.039	SDNT 0903AESN-29		●			●				●		.375	.134	.375	.125	15		
.039	SDNT 0903AESN-31								●			.375	.134	.375	.125	15		
.0315	SDNT 09T308ER		●									.375	.134	.375	.156	15		
.0315	SDHT 09T308FR-27P	●					●					.375	.134	.375	.156	15		
.0315	SDHT 09T308SR										●	.375	.134	.375	.156	15		
.0315	SDNT 09T308SR-29		●			●				●		.375	.134	.375	.156	15		
.0315	SDNT 09T308SR-31								●			.375	.134	.375	.156	15		
.0315	SDNT 09T308SR-33			●	●							.375	.134	.375	.156	15		
.0315	SDNT 09T308SR-29																	

	AMZ	CTP1235	CTP2235	GM246	GM43+	H216T	SM80	SR216	SR226+	TCM10
Steel		●	○		●		●		●	●
Stainless		○	●	●	●		●		○	●
Cast iron	○							●		○
Non ferrous metals	●					●				
Heat resistant		○	○		○		○		○	
Hard materials										



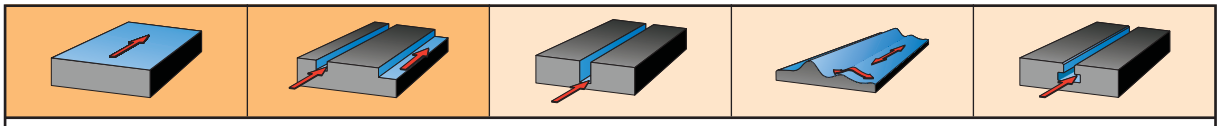
● Main application
○ Extended application
● International CERATIZIT range, for present availability see price list

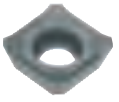
Ordering example: 10 pieces SCKN 1906AESN SR226+

	A260/041	A/C270-09	C272-09	C/A/G/490-09	
					
	D15	*	*	D5/D12/D17	

* See metric catalog for additional tools

Inserts
Shape S




SDNT -27P


SDHT -29

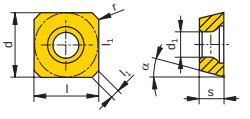

SDMT -33


SDHT


SDHW

r inch	Type description	AMZ	CTP1235	CTP2235	GM246	GM43+	H216T	S26T	SM80	SR216	SR226+	TCM10		d inch	d_1 inch	l inch	s inch	α Grad		
.0079	SDHT 1204AEFN-27						●							.500	.217	.500	.187	15		
.0079	SDHT 1204AEFN-27P						●							.500	.217	.500	.187	15		
.0079	SDHT 1204AESN							●				●		.500	.217	.500	.187	15		
.039	SDHT 1204AEFN-R								●					.500	.217	.500	.187	15		
.039	SDHT 1204AESN-33			●	●									.500	.217	.500	.187	15		
.039	SDHT 1204AESN-R					●					●			.500	.217	.500	.187	15		
.0079	SDHW 1204AEEN						●							.500	.217	.500	.187	15		
.0079	SDHW 1204AEFN						●							.500	.217	.500	.187	15		
.039	SDHW 1204AEEN-R									●				.500	.217	.500	.187	15		
.039	SDHW 1204AESN-R					●					●	●		.500	.217	.500	.187	15		
.039	SDMT 1204AEEN-31									●				.500	.217	.500	.187	15		
.039	SDMT 1204AESN-29R		●			●					●			.500	.217	.500	.187	15		
.0315	SDHT 120508FR-27P	●					●							.500	.197	.500	.197	15		
.047	SDHT 120512SR-33			●	●									.500	.197	.500	.197	15		
.079	SDHT 120520SR-33				●									.500	.197	.500	.197	15		
.098	SDHT 120525FR-27P						●							.500	.197	.500	.197	15		
.0315	SDHW 120508SR											●		.500	.197	.500	.197	15		

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



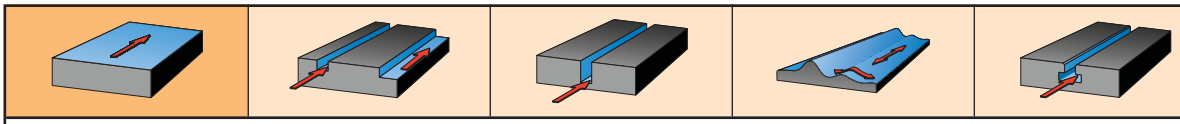
● Main application
○ Extended application
● International CERATIZIT range, for present availability see price list

Ordering example: 10 pieces SDHT 1204AEFN-27 H216T

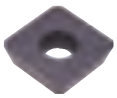
	A270-12	A260/03	A490-09	A260/039	
					
	D11	D15	D12	D15	

* See metric catalog for additional tools

Inserts
Shape S

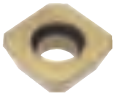



SDHT -27

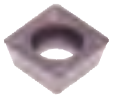

SDHW


SEHT -27


SEHT -33

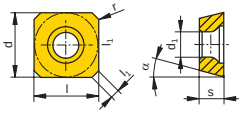

SEHW


SEKW


SPGW

r inch	Type description	GM246	GM43+	H216T	S26T	SR216	SR226+	d inch	d_1 inch	l inch	s inch	α Grad	
.0079	SDHT 1504AEFN-27			●				.625	.217	.625	.187	15	
.0079	SDHT 1504AESN		●					.625	.217	.625	.187	15	
.0079	SDHW 1504AEEN			●				.625	.217	.625	.187	15	
.0079	SDHW 1504AESN						●	.625	.217	.625	.187	15	
.0079	SEHT 1204AEFN-27			●				.500	.217	.500	.187	20	
.0079	SEHT 1204AEFN-27P			●				.500	.217	.500	.187	20	
.0079	SEHT 1204AFSN		●					.500	.217	.500	.187	20	
.047	SEHT 1204AFSN-33	●						.500	.217	.500	.187	20	
.0118	SEHW 1204AFEN			●				.500	.217	.500	.187	20	
.0118	SEHW 1204AFSN		●			●		.500	.217	.500	.187	20	
.094	SEKW 1204AFSN		●			●	●	.500	.217	.500	.187	20	
.0315	SPEW 120408EN			●		●		.500	.217	.500	.187	11	
.0098	SPKT 1204EDSR-29						●	.500	.217	.500	.187	11	
.0098	SPKW 1204EDER					●		.500	.217	.500	.187	11	
.0098	SPKW 1204EDSR		●					.500	.217	.500	.187	11	
.0157	SPGW 050204EN				●			.219	.110	.219	.094	11	

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



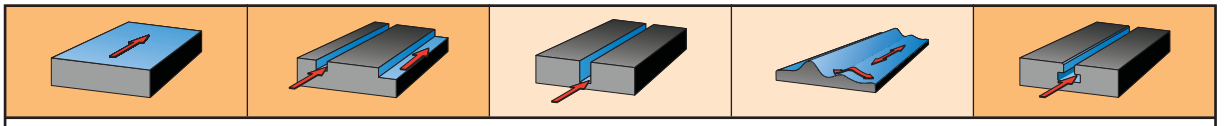
● Main application
○ Extended application
● International CERATIZIT range, for present availability see price list

Ordering example: 10 pieces SDHT 1504AEFN-27 H216T

	A270-15	A260/032	A260/029	A260/018	SP.. C NF
					
	*	D15	D15	D15	*

* See metric catalog for additional tools

Inserts
Shape T

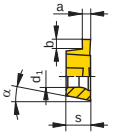


TC 1103

TC 16T3

r inch	Type description	GM43+	S26T					d inch	d_1 inch	s inch	H inch	α Grad	
	TC 1103ER160	●						.250	.110	.125	.055	7	
	TC 1103ER185	●						.250	.110	.125	.067	7	
	TC 1103ER215	●						.250	.110	.125	.079	7	
	TC 1103ER265	●						.250	.110	.125	.087	7	
	TC 1103R160		●					.250	.110	.125	.055	7	
	TC 1103R185		●					.250	.110	.125	.067	7	
	TC 1103R215		●					.250	.110	.125	.079	7	
	TC 1103R265		●					.250	.110	.125	.087	7	
	TC 16T3ER110	●						.375	.165	.125	.0354	7	
	TC 16T3ER130	●						.375	.165	.125	.051	7	
	TC 16T3ER160	●						.375	.165	.125	.055	7	
	TC 16T3R110		●					.375	.165	.125	.0354	7	
	TC 16T3R130		●					.375	.165	.125	.051	7	
	TC 16T3R160		●					.375	.165	.125	.055	7	

	GM43+	S26T				
Steel	●	●				
Stainless	○					
Cast iron						
Non ferrous metals						
Heat resistant	○					
Hard materials						



● Main application
○ Extended application
● International CERATIZIT range, for present availability see price list

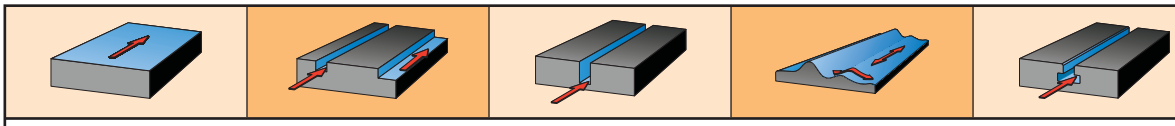
Ordering example: 10 pieces TC 1103ER160 GM43

	TC.. C ZF				
	 *				

*** See metric catalog for additional tools**

Inserts

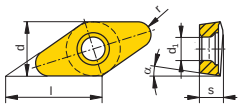
Shape V / W

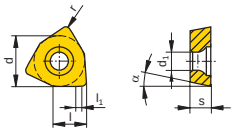


VCGT WPHT -29 WPHT -31 WPHT -33 WPMT -29

r inch	Type description	GM246	GM43+	H216T	SR216	SR226+	TCM10	d inch	d_1 inch	l inch	l_1 inch	s inch	α Grad
.118	VCGT 220530FN-27MP			●				.500	.217	.870		.219	8
.118	VCGX 220530FN-27MP			●				.500	.217	.870		.219	7
.0315	WPHT 0603PDSR-29		●			●	●	.375	.134	.236	.079	.125	11
.0315	WPHT 0603PDSR-31			●	●			.375	.134	.236	.079	.125	11
.0315	WPHT 0603PDSR-33	●						.375	.134	.236	.079	.125	11
.0315	WPMT 0603PDSR-29					●		.375	.134	.236	.079	.125	11

	GM246	GM43+	H216T	SR216	SR226+	TCM10
Steel		●			●	●
Stainless	●	●			○	●
Cast iron				●		○
Non ferrous metals			●			
Heat resistant		○			○	
Hard materials						





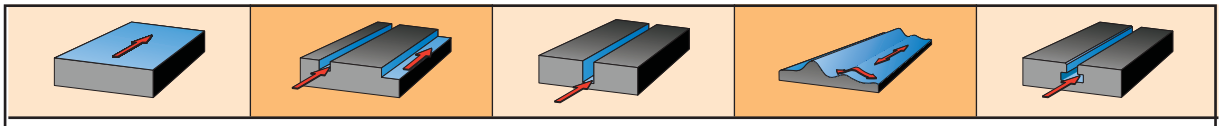
● Main application
○ Extended application
● International CERATIZIT range, for present availability see price list

Ordering example: 10 pieces WPHT 0603PDSR-29 GM43+

	A260/037  **D15**	**V-Platten** **nicht für CERATIZIT-Systeme**		

Inserts

Shape X

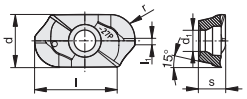


-27P

-F20

r inch	Type description	CTP1235	CTP2235	CTW4615	GM246	GM43+	H216T	SR226+	d inch	d_1 inch	l inch	l_1 inch	s inch	α Grad
.0079	XDHT 11T302FR-27P						●		.268	.110	.433	.079	.138	15
.0157	XDHT 11T304FR-27P						●		.268	.110	.433	.071	.138	15
.0315	XDHT 11T308FR-27P						●		.268	.110	.433	.055	.138	15
.047	XDHT 11T312FR-27P						●		.268	.110	.433	.055	.138	15
.063	XDHT 11T316FR-27P						●		.268	.110	.433	.055	.138	15
.079	XDHT 11T320FR-27P						●		.268	.110	.433	.055	.138	15
.098	XDHT 11T325FR-27P						●		.268	.110	.433	.055	.138	15
.126	XDHT 11T332FR-27P						●		.268	.110	.433	.0315	.138	15
.157	XDHT 11T340FR-27P						●		.268	.110	.433		.138	15
.197	XDHT 11T350FR-27P						●		.268	.110	.433		.138	15
.0079	XDKT 11T302FR-F20			●					.268	.110	.433	.079	.138	15
.0157	XDKT 11T304FR-F20			●					.268	.110	.433	.071	.138	15
.0315	XDKT 11T308FR-F20			●					.268	.110	.433	.055	.138	15
.079	XDKT 11T320FR-F20			●					.268	.110	.433	.055	.138	15
.098	XDKT 11T325FR-F20			●					.268	.110	.433	.055	.138	15

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



● Main application

○ Extended application

● International CERATIZIT range, for present availability see price list

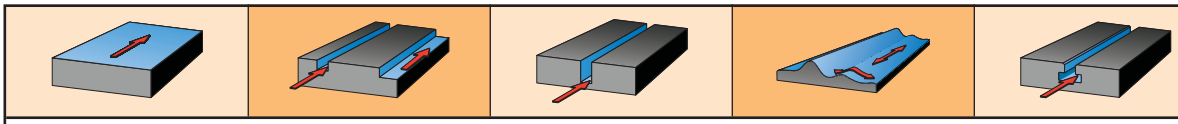
Ordering example: 10 pieces XDHT 11T302FR-27P H216T

	CHSC-11	GHSC-11	MHSC-11	AHSC-11	
					
	D6	*	D20	*	

* See metric catalog for additional tools

Inserts

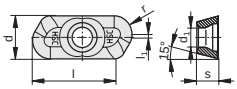
Shape X



-27P

r inch	Type description	H216T						d inch	d_1 inch	l inch	l_1 inch	s inch	α Grad
.0079	XDHT 190402FR-27P	●						.383	.183	.748	.079	.187	15
.0157	XDHT 190404FR-27P	●						.383	.183	.748	.079	.187	15
.0315	XDHT 190408FR-27P	●						.383	.183	.748	.079	.187	15
.047	XDHT 190412FR-27P	●						.383	.183	.748	.079	.187	15
.063	XDHT 190416FR-27P	●						.383	.183	.748	.079	.187	15
.079	XDHT 190420FR-27P	●						.383	.183	.748	.079	.187	15
.098	XDHT 190425FR-27P	●						.383	.183	.748	.055	.187	15
.126	XDHT 190432FR-27P	●						.383	.183	.748	.039	.187	15
.157	XDHT 190440FR-27P	●						.383	.183	.748	.039	.187	15
.197	XDHT 190450FR-27P	●						.383	.183	.748		.187	15

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



● Main application

○ Extended application

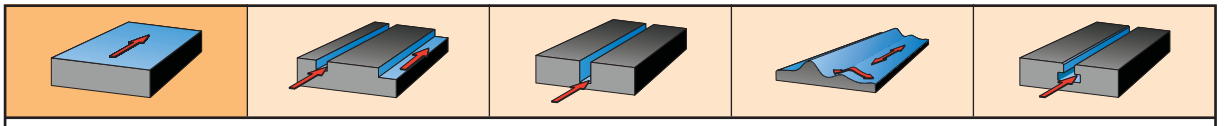
● International CERATIZIT range, for present availability see price list

Ordering example: 10 pieces XDHT 190402FR-27P H216T

	CHSC-19	GHSC-19	MHSC-19	AHSC-19	
					
	*	*	*	*	

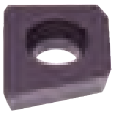
* See metric catalog for additional tools

Inserts
Other systems



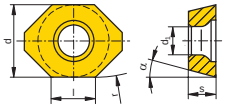

ODGX


SPEX-1

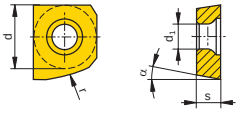

SPEX

r inch	Type description	H216T	SR216	SR226+				d inch	d_1 inch	l inch	l_1 inch	s inch	α Grad
15.748	ODGX 1204ADEN		●					.500	.217	.282	.282	.187	15
15.748	ODGX 1204ADSN			●				.500	.217	.282	.282	.187	15
19.685	SPEX 1203EDER-1		●					.500	.217	.472		.125	11
15.748	SPEX 1204EETR	●						.500	.217	.472		.187	11

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



● Main application
○ Extended application
● International CERATIZIT range, for present availability see price list

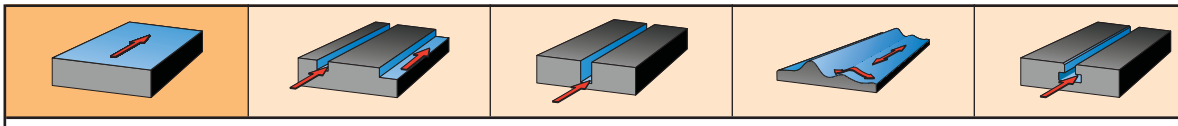


Ordering example: 10 pieces ODGX 1204ADEN SR216

	OD..7818035  D15	SP.. A260/018  D15			

Inserts

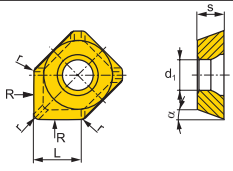
Other systems



XDHW

r inch	Type description	GM43+	H216T	SR216	SR226+	TCM10		d inch	d_1 inch	l_1 inch	s inch	α Grad	
.039	XDHW 0903AEEN			●				.375	.134	.217	.125	15	
.039	XDHW 0903AEFN		●					.375	.134	.217	.125	15	
.039	XDHW 0903AESN	●			●	●		.375	.134	.217	.125	15	
.039	XDHW 1204AEEN			●				.500	.217	.295	.187	15	
.039	XDHW 1204AEFN		●					.500	.217	.295	.187	15	
.039	XDHW 1204AESN	●			●	●		.500	.217	.295	.187	15	

	GM43+	H216T	SR216	SR226+	TCM10	
Steel	●			●	●	
Stainless	●			○	●	
Cast iron			●		○	
Non ferrous metals		●				
Heat resistant	○			○		
Hard materials						



● Main application

○ Extended application

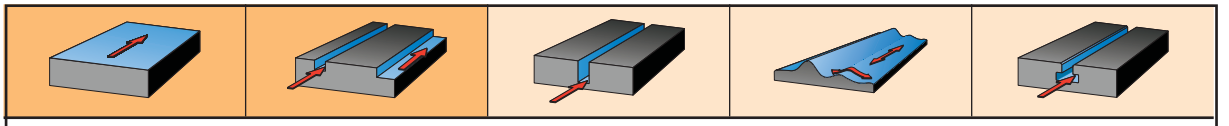
● International CERATIZIT range, for present availability see price list

Ordering example: 10 pieces XDHW 0903AEEN SR216

	XD.. A270-09	XD.. A270-12	XD.. A260/031	XD.. A260/041	
					
	*	D11	D15	D15	

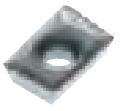
* See metric catalog for additional tools

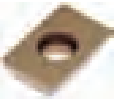
Inserts
Other systems




APFT -29


APKT -29

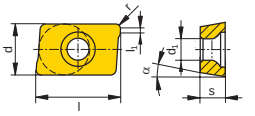

LDHT -29

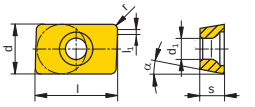

LDHW

r inch	Type description	GM43+	H216T	S26T	SM80	SR216	TCM10	SR226+		l inch	d_1 inch	d inch	l_1 inch	s inch	α Grad
.0315	APFT 1604PDSR-29	●						●		.630	.173	.375	.047	.187	11
.0315	APKT 1604PDSR-29	●		●				●		.645	.173	.374	.056	.207	11
.0315	LDHT 15T308FR		●							.591	.173	.375		.156	15
.0315	LDHT 15T308FR-29		●							.591	.173	.375		.156	15
.0315	LDHT 15T308SR			●						.591	.173	.375		.156	15
	LDHT 15T3PDFR				●					.591	.173	.375		.156	15
.0315	LDHT 15T3PDSR-29	●		●				●		.591	.173	.375		.156	15
.0315	LDHW 15T308ER		●			●				.591	.173	.375		.156	15
.0315	LDHW 15T308SR	●		●			●	●		.591	.173	.375		.156	15

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

● Main application
○ Extended application
● International CERATIZIT range, for present availability see price list



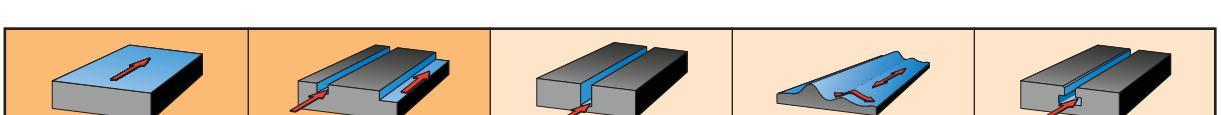


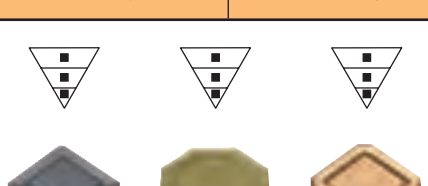
Ordering example: 10 pieces APFT 1604PDSR-29 GM43+

Inserts not suitable for CERATIZIT systems!

Inserts

Other systems

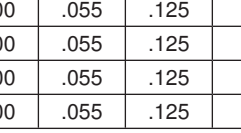




SBEX -31 OFHR -33 SEHR -33

r inch	Type description	GM246	GM43+	H216T	S26T	SR216	SR226+	TCM10		l inch	d_1 inch	d inch	l_1 inch	s inch	α Grad
.039	OFHR 070410FN-27P			●						.276		.716		.196	25
.039	OFHR 070410SN-33	●								.276		.716		.196	25
.0079	SDMT 0703ADTN		●							.313	.134	.316	.0276	.125	15
.0197	SBEX 1203ZZEN-31					●				.498		.498	.039	.125	5
.047	SEHR 1203AFSN-33	●								.500		.500	.054	.125	20
.094	SEKN 1203AFEN	●	●	●						.500		.500	.071	.125	20
.094	SEKN 1203AFSN		●		●	●	●	●		.500		.500	.071	.125	20
.094	SEKR 1203AFSN-29		●				●			.500		.500	.073	.125	20
.094	SEKR 1203AFSN-29R		●				●			.500		.500	.073	.125	20
7.087	SFAN 1203EFFR			●						.500		.500		.125	25
	SPKN 1203EDER			●		●				.500		.500	.055	.125	11
	SPKN 1203EDEL					●				.500		.500	.055	.125	11
	SPKN 1203EDSR		●		●		●			.500		.500	.055	.125	11
	SPKR 1203EDFR			●						.500		.500	.055	.125	11
.0118	SPKR 1203EDSR-29		●				●			.500		.500	.055	.125	11

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



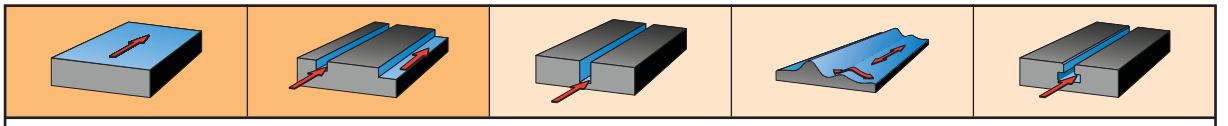
● Main application
○ Extended application
● International CERATIZIT range, for present availability see price list

Ordering example: 10 pieces OFHR 070410FN-27P H216T

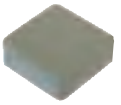
Inserts not suitable for CERATIZIT systems!

Inserts

Other systems







SPMT -33 SNKN

r inch	Type description	GM246	GM43+	H216T	S26T	SR216	SR226+			l inch	d_1 inch	d inch	l_1 inch	s inch	α Grad
.0315	SPMT 090308SN		●							.375	.134	.375		.125	11
.0315	SPMT 070308SN-33	●								.313	.110	.313		.125	11
	SNKN 1204ENEN					●				.500		.500	.055	.187	0
	SNKN 1204ZZSN-020D									.500		.500		.187	0
	SPKN 1204EDER					●				.500		.500	.055	.187	11
.094	SEKN 1204AFEN	●								.500		.500	.071	.187	20
.094	SEKN 1204AFSN		●				●			.500		.500	.071	.187	20
.0315	SPMT 120408EN			●		●				.500	.217	.500		.187	11
.0315	SPMT 120408SN		●							.500	.217	.500		.187	11
.0315	SPMT 120408SN-33	●								.500	.217	.500		.187	11
.047	SPMW 120412EN					●				.500	.217	.500		.187	11
.094	SEKN 1504AFSN		●			●	●			.625		.625	.067	.187	20
	SPKN 1504EDEL					●				.625		.625	.055	.187	11
	SPKN 1504EDER			●		●				.625		.625	.055	.187	11
	SPKN 1504EDSR		●		●		●			.625		.625	.055	.187	11

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

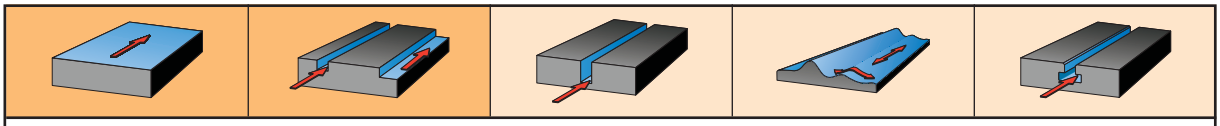
● Main application
○ Extended application
● International CERATIZIT range, for present availability see price list

Ordering example: 10 pieces SPMT 090308SN GM43+

Inserts not suitable for CERATIZIT systems!

Inserts

Other systems



TNHF -31M

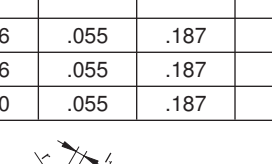
TPAN

TPKR -29

TPKW

r inch	Type description	GM43+	H216T	S26T	SR216	SR226+		d inch	d_1 inch	l inch	l_1 inch	s inch	α Grad
	TNHF 1204ANEN-31				●			.500		.744	.102	.187	0
	TNHF 1204ANEN-31M				●			.500		.744	.102	.187	0
	TNHF 1204ANSN-31				●			.500		.744	.102	.187	0
	TPAN 1603PPEN		●					.375		.568	.047	.125	11
.0433	TPKN 1603PPER				●			.375		.610	.055	.125	11
.0433	TPKN 1603PPSR	●		●		●		.375		.610	.055	.125	11
.0433	TPKR 1603PPSR-29	●				●		.375		.570	.047	.125	11
.0433	TPKN 1603PPSR												
.047	TPKW 16T3PPSR	●		●				.375	.173	.610	.055	.156	11
	TPKN 2204PDER		●		●			.500		.866	.055	.187	11
	TPKN 2204PDSR	●		●		●		.500		.866	.055	.187	11
	TPKR 2204PDSR-29	●		●		●		.500		.780	.055	.187	11

	GM43+	H216T	S26T	SR216	SR226+	
Steel	●		●		●	
Stainless	●				○	
Cast iron		●		●		
Non ferrous metals		●				
Heat resistant	○				○	
Hard materials						



● Main application

○ Extended application

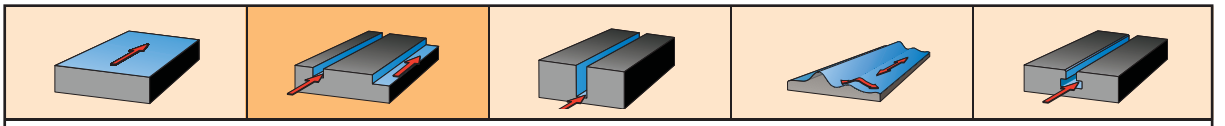
● International CERATIZIT range, for present availability see price list

Ordering example: 10 pieces TNHF 1204ANEN-31 SR216

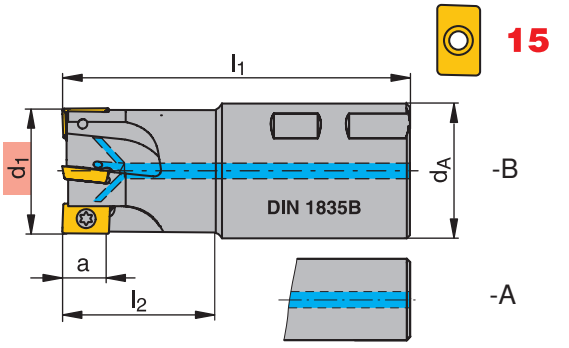
Inserts not suitable for CERATIZIT systems!

Tools

Shoulder and slot milling cutters



C141



Drawing: C141.150.R.04-B-125-EF

Type, description	inch d_1	d_2	l_1	l_2	d_A	a	z	
C141.0625.R.01-B-100-EF	.625		3.250	1.00	.625	.551	1	LD.. 1504..
C141.0750.R.01-B-125-EF	.750		3.500	1.25	.750	.551	1	LD.. 1504..
C141.100.R.02-B-125-EF	1.000		3.500	1.25	1.000	.551	2	LD.. 1504..
C141.125.R.03-B-125-EF	1.250		3.750	1.25	1.000	.551	3	LD.. 1504..
C141.150.R.04-B-125-EF	1.500		4.000	1.25	1.250	.551	4	LD.. 1504..
C141.0625.R.01-A-100-EF-600	.625		6.000	1.00	.625	.551	1	LD.. 1504..
C141.0750.R.01-A-125-EF-800	.750		8.000	1.25	.750	.551	1	LD.. 1504..
C141.100.R.02-A-125-EF-800	1.000		8.000	1.25	1.000	.551	2	LD.. 1504..
C141.125.R.03-A-125-EF-800	1.250		10.000	1.25	1.000	.551	3	LD.. 1504..
C141.150.R.04-A-125-EF-1000	1.500		10.000	1.25	1.250	.551	4	LD.. 1504..

Insert radius ≥ .126 inch: Modify basic body!

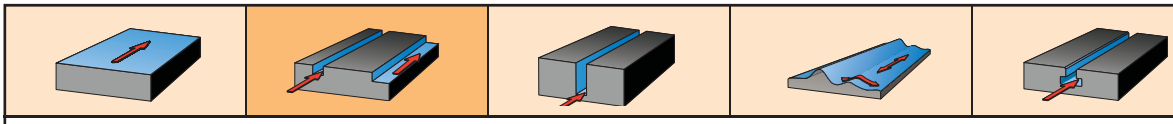
Supply details: Basic body fitted with clamping screws, without inserts

Ordering example: 3 pieces C141.0625.R.01-B-100-EF

➲ E16-E21

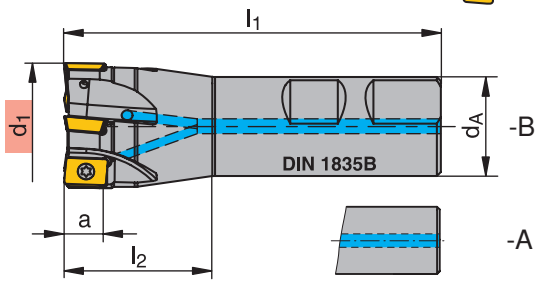
	d_1		
LD.. 1504..	**.625**	7801177/M3,5x6,7	7724103/T15
LD.. 1504..	**.750-1.500**	7722111/M3,5x7,2	7724103/T15

	LDFT 1504..	LDMT 1504..	LDFW 1504..		
	C8	C8	C8		



C210

10



Drawing: C210.150.R.06-B-125-EF

Type, description	inch d_1	d_2	l_1	l_2	d_A	a	z	
C210.0375.R.01-B-080-EF	0.375		3.000	.800	.500	.315	1	AP.. 1003..
C210.0437.R.01-B-100-EF	0.437		3.250	1.00	.625	.315	1	AP.. 1003..
C210.0500.R.01-B-100-EF	0.500		3.250	1.00	.625	.315	1	AP.. 1003..
C210.0625.R.02-B-100-EF	0.625		3.250	1.00	.625	.315	2	AP.. 1003..
C210.0750.R.03-B-125-EF	0.750		3.500	1.25	.750	.315	3	AP.. 1003..
C210.100.R.04-B-125-EF	1.000		3.500	1.25	1.000	.315	4	AP.. 1003..
C210.125.R.05-B-125-EF	1.250		3.750	1.25	1.000	.315	5	AP.. 1003..
C210.150.R.06-B-125-EF	1.500		4.000	1.25	1.250	.315	6	AP.. 1003..
C210.0375.R.01-A-080-EF-600	0.375		6.000	.800	.500	.315	1	AP.. 1003..
C210.0437.R.01-A-100-EF-600	0.437		6.000	1.00	.625	.315	1	AP.. 1003..
C210.0500.R.01-A-100-EF-600	0.500		6.000	1.00	.625	.315	1	AP.. 1003..
C210.0625.R.02-A-100-EF-600	0.625		6.000	1.00	.625	.315	2	AP.. 1003..
C210.0750.R.03-A-125-EF-800	0.750		8.000	1.25	.750	.315	3	AP.. 1003..
C210.100.R.04-A-125-EF-800	1.000		8.000	1.25	1.000	.315	4	AP.. 1003..
C210.125.R.05-A-125-EF-1000	1.250		10.000	1.25	1.000	.315	5	AP.. 1003..
C210.150.R.06-A-125-EF-1000	1.500		10.000	1.25	1.250	.315	6	AP.. 1003..

Insert radius ≥ .079 inch: Modify basic body!

Supply details: Basic body fitted with clamping screws, without inserts

Ordering example: 3 pieces C210.0625.R.02-B-100-EF

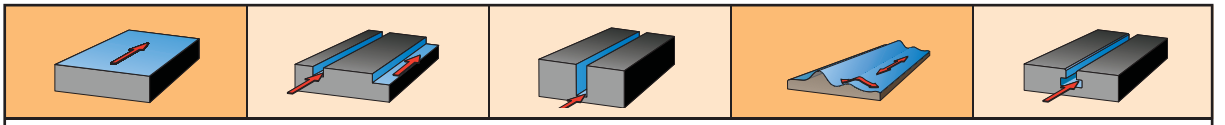
➲ E16-E21

	d_1		
AP.. 1003..	**.350-.750**	7883204/M2,5x5,0	7724106/T08
AP.. 1003..	**1.000-1.500**	7815101/M2,5x6,0	7724106/T08

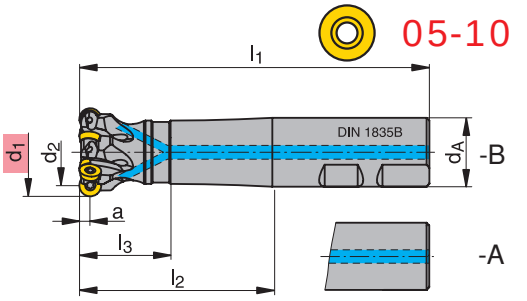
	APHT 1003..	APKT 1003..	APHW 1003..		
	C5	C5	C5		

Tools

Button insert milling cutters



C251



Drawing: C251-32-R-06-08

Type, description	inch d_1	d_2	l_1	l_2	l_3	a	d_A	z	
C251.0500.R.03-05-A-100-EF-600	.500	.303	6.000	1.000	.669	.098	.625	3	RDHX 0501..
C251.0500.R.03-05-B-100-EF	.500	.303	3.250	1.000	.669	.098	.625	3	RDHX 0501..
C251.0625.R.04-05-A-100-EF-600	.625	.428	6.000	1.000	.709	.098	.625	4	RDHX 0501..
C251.0625.R.04-05-B-100-EF	.625	.428	3.250	1.000	.709	.098	.625	4	RDHX 0501..
C251.0750.R.05-05-A-125-EF-800	.750	.553	8.000	1.250	.787	.098	.750	5	RDHX 0501..
C251.0750.R.05-05-B-125-EF	.750	.553	3.500	1.250	.787	.098	.750	5	RDHX 0501..
C251.0750.R.03-08-A-200-EF-800	.750	.435	8.000	2.000	1.409	.157	.750	3	RDHX 0802..
C251.0750.R.03-08-A-200-EF	.750	.435	4.250	2.000	1.409	.157	.750	3	RDHX 0802..
C251.100.R.04-08-A-300-EF-800	1.000	.685	8.000	3.000	2.134	.157	1.000	4	RDHX 0802..
C251.100.R.04-08-B-225-EF	1.000	.685	4.500	2.250	1.384	.157	1.000	4	RDHX 0802..
C251.125.R.06-08-A-325-EF-1000	1.250	.935	10.000	3.250	1.797	.157	1.000	6	RDHX 0802..
C251.125.R.06-08-B-275-EF	1.250	.935	5.250	2.750	1.297	.157	1.000	6	RDHX 0802..
C251.100.R.03-10-A-300-EF-800	1.000	.606	8.000	3.000	2.134	.197	1.000	3	RP.. 10T3..
C251.100.R.03-10-B-225-EF	1.000	.606	4.500	2.250	1.384	.197	1.000	3	RP.. 10T3..
C251.125.R.04-10-A-325-EF-1000	1.250	.856	10.000	3.250	1.911	.197	1.000	4	RP.. 10T3..
C251.125.R.04-10-B-275-EF	1.250	.856	5.250	2.750	1.411	.197	1.000	4	RP.. 10T3..
C251.150.R.05-10-A-375-EF-1000	1.500	1.106	10.000	3.750	2.175	.197	1.250	5	RP.. 10T3..
C251.150.R.05-10-B-325-EF	1.500	1.106	10.000	3.750	2.175	.197	1.250	5	RP.. 10T3..

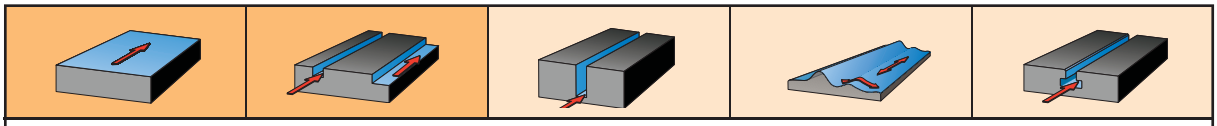
Supply details: Basic body fitted with clamping screws, without inserts

Ordering example: 3 pieces C251.0500.R.03-05-A-100-EF-600

➲ E16-E21

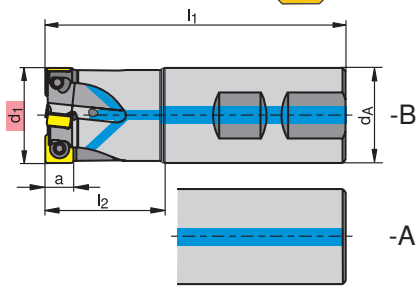
	d_1		
RDHX 0501..	**.500-.750**	7801175/M2,0x3,3/T06	7883305/TORX/T06
RDHX 0802..	**.750-1.250**	7883204/M2,5x5,0/T08	7724106/TORX/T08
RP.. 10T3..	**1.000-1.500**	7883203/M3,0x7,3/T08	7724106/TORX/T08

	RDHX 0501..	RDHX 0802..	RPHX 10T3..	RPNX 10T3..	
	C11	C11	C11	C11	



C490-09

09



Drawing: C490.32.R.04-09-B-40

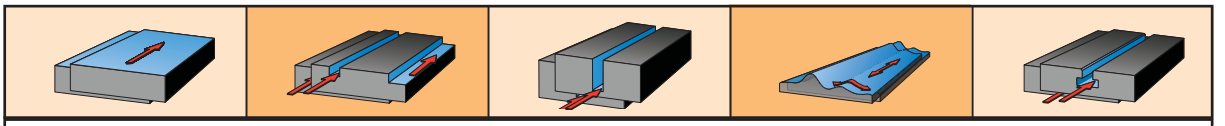
Type, description	inch d_1	a	l_1	l_2	d_A	min^{-1} n_{max}	z	
C490.100.R.02-09-A-150-EF-800	1.000	.314	8.000	1.500	1.000	23700	2	SD.. 09T3..
C490.125.R.04-09-A-150-EF-1000	1.250	.314	10.000	2.000	1.250	19700	3	SD.. 09T3..
C490.125.R.04-09-B-150-EF	1.250	.314	3.750	1.500	1.250	19700	4	SD.. 09T3..
C490.100.R.03-09-B-125-EF	1.000	.314	3.500	1.250	1.000	23700	3	SD.. 09T3..

Supply details: Basic body fitted with clamping screws, without inserts
Ordering example: 3 pieces C490.100.R.02-09-A-150-EF-800

➲ E16-E21

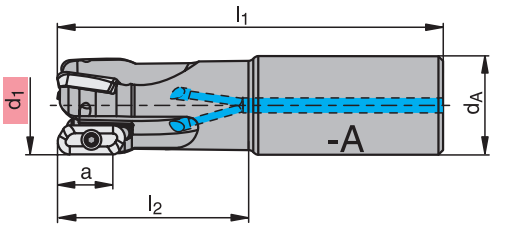
	d_1			
SD.. 09T3..	**1.00-1.250**	7722111/M3,5x7,2/T15	7724103/TORX/T15	7730102/MOLYKOTE

	SDHT-27P	SDHT	SDNT	SDNT-29	SDNT-33	SDNT-31
	C13	C13	C13	C13	C13	C13



CHSC-11

11



-A = round shank

metric tooling

Drawing: CHSC.32.R.03-11-A-50

Type, description	[mm] d_1	l_1	l_2	d_A	a	z	
CHSC.16.R.02-11-A-25	16	75	25	16	10	2	XDHT 11T3..
CHSC.16.R.02-11-A-32	16	165	32	16	10	2	XDHT 11T3..
CHSC.18.R.02-11-A-25	18	78	25	18	10	2	XDHT 11T3..
CHSC.18.R.02-11-A-32	18	165	32	18	10	2	XDHT 11T3..
CHSC.19.R.02-11-A-25	19	78	25	19	10	2	XDHT 11T3..
CHSC.19.R.02-11-A-32	19	165	32	19	10	2	XDHT 11T3..
CHSC.20.R.02-11-A-32	20	84	32	20	10	2	XDHT 11T3..
CHSC.20.R.02-11-A-40	20	165	40	20	10	2	XDHT 11T3..
CHSC.22.R.02-11-A-32	22	91	32	25	10	2	XDHT 11T3..
CHSC.22.R.02-11-A-40	22	165	40	25	10	2	XDHT 11T3..
CHSC.25.R.02-11-A-40	25	98	40	25	10	2	XDHT 11T3..
CHSC.25.R.02-11-A-50	25	165	50	25	10	2	XDHT 11T3..
CHSC.25.R.03-11-A-40	25	98	40	25	10	3	XDHT 11T3..
CHSC.25.R.03-11-A-50	25	165	50	25	10	3	XDHT 11T3..
CHSC.32.R.03-11-A-50	32	112	50	32	10	3	XDHT 11T3..
CHSC.32.R.03-11-A-63	32	165	63	32	10	3	XDHT 11T3..

Insert radius > 3.2 mm: Modify basic body

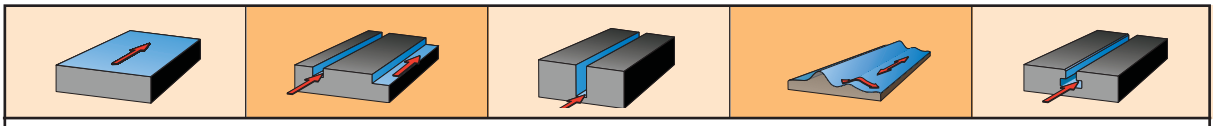
Supply details: Basic body fitted with clamping screws, without inserts

Ordering example: 3 pieces CHSC.25.R.02-11-A-50

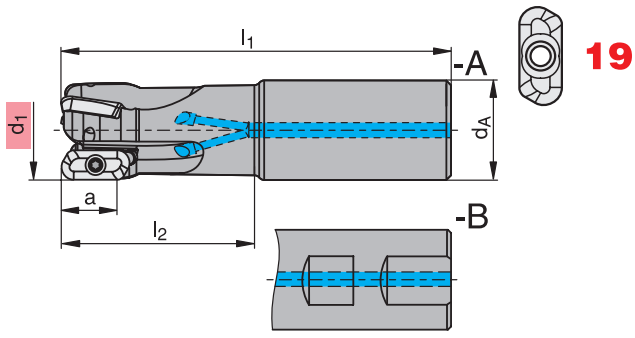
➲ E16-E21

	d_1		
XDHT 11T3..	**16-25**	10000126-0/M2,5x5,5/8IP	DMSD 1,8NM
XDHT 11T3..	**32**	10000125-0/M2,5x7,3/8IP	DMSD 1,8NM

	XDHT 11T3..  **C18**				



CHPC-19



19

Drawing: CHPC.150.R.03-19-A125-400-EF

Type, description	d_1 [inches]	l_1 [inches]	l_2 [inches]	d_A [inches]	a [inches]	z	
CHPC.100.R.02-19-A100-200-EF	1.000	4.500	2.000	1.000	0.700	2	XDHX 1904..
CHPC.100.R.02-19-A100-250-EF	1.000	6.500	2.500	1.000	0.700	2	XDHX 1904..
CHPC.125.R.02-19-A125-250-EF	1.250	5.000	2.500	1.250	0.700	2	XDHX 1904..
CHPC.125.R.02-19-A125-325-EF	1.250	6.500	3.250	1.250	0.700	2	XDHX 1904..
CHPC.125.R.03-19-A125-250-EF	1.250	5.000	2.500	1.250	0.700	3	XDHX 1904..
CHPC.125.R.03-19-A125-325-EF	1.250	6.500	3.250	1.250	0.700	3	XDHX 1904..
CHPC.150.R.02-19-A125-325-EF	1.500	5.750	3.250	1.250	0.700	2	XDHX 1904..
CHPC.150.R.02-19-A125-400-EF	1.500	6.500	4.000	1.250	0.700	2	XDHX 1904..
CHPC.150.R.03-19-A125-325-EF	1.500	5.750	3.250	1.250	0.700	3	XDHX 1904..
CHPC.150.R.03-19-A125-400-EF	1.500	6.500	4.000	1.250	0.700	3	XDHX 1904..
CHPC.150.R.02-19-B150-325-EF	1.500	6.000	3.250	1.500	0.700	2	XDHX 1904..
CHPC.150.R.02-19-B150-400-EF	1.500	6.750	4.000	1.500	0.700	2	XDHX 1904..
CHPC.150.R.03-19-B150-325-EF	1.500	6.000	3.250	1.500	0.700	3	XDHX 1904..
CHPC.150.R.03-19-B150-400-EF	1.500	6.750	4.000	1.500	0.700	3	XDHX 1904..

Insert radius > 0.160 inches: Modify basic body

Supply details: Basic body fitted with clamping screws, without inserts

Ordering example: 3 pieces CHPC.150.R.02-19-B150-400-EF

Programme see special catalogue
'HSC-HPC Tools for High Speed / Performance Cutting',
No. 151 USA

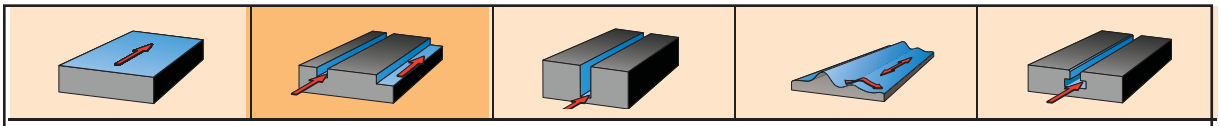
➲ E16-E21

	d_1			Nm 5.0 44.3 in.lbs	
XDHX 1904..	**1.000**	7818430/M4,0x7,0/T15	7724103/TORX/T15	DMSD5.0NM	
XDHX 1904..	**1.250-1.500**	7818428/M4,0x8,5/T15			

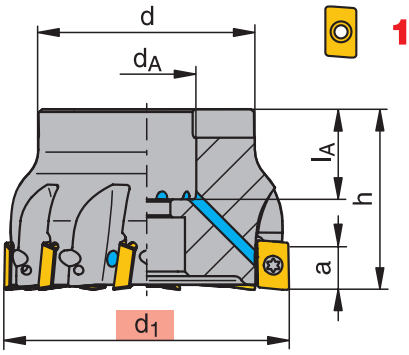
	XDHX 1904..  **C19**				

Tools

Shoulder and slot milling cutters



A210



10

Drawing: A210.300.R.07-A100-200-EF

Type, description	inch d_1	h	a	d	d_A	l_A		z	
A210.150.R.04-A050-175-EF	1.500	1.750	.315	1.420	.500	.635		4	AP.. 1003..
A210.200.R.05-A075-175-EF	2.000	1.750	.315	1.750	.750	.750		5	AP.. 1003..
A210.250.R.06-A100-200-EF	2.500	2.000	.315	2.250	1.000	.750		6	AP.. 1003..
A210.300.R.07-A100-200-EF	3.000	2.000	.315	2.250	1.000	.750		7	AP.. 1003..
A210.150.R.06-A050-175-EF	1.500	1.750	.315	1.420	.500	.635		6	AP.. 1003..
A210.200.R.08-A075-175-EF	2.000	1.750	.315	1.750	.750	.750		8	AP.. 1003..
A210.250.R.10-A100-200-EF	2.500	2.000	.315	2.250	1.000	.750		10	AP.. 1003..
A210.300.R.12-A100-200-EF	3.000	2.000	.315	2.250	1.000	.750		12	AP.. 1003..

☐ Normal pitch

▩ Close pitch

⚠ Insert radius ≥ .079 inch: Modify basic body!

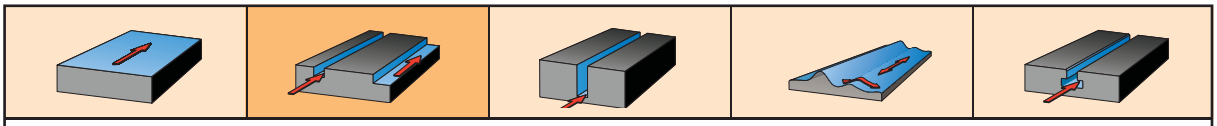
Supply details: Basic body fitted with clamping screws, without inserts

Ordering example: 3 pieces A210.150.R.06-A075-175-EF

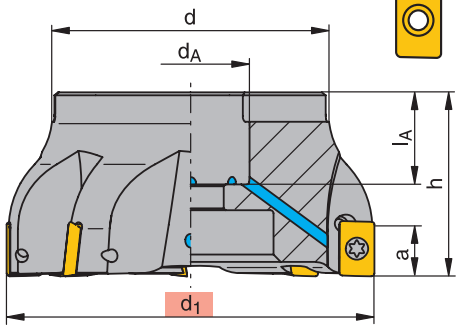
➲ E16-E21

	d_1		
AP.. 1003..	**1.500-3.000**	7815101/M2,5x6,0/T08	7724106/TORX/T08

	APHT 1003..	APKT 1003..	APHW 1003..		
	C5	C5	C5		



A241



15

Drawing: A241.300.R.07-A100-200-EF

Type, description	inch d_1	h	a	d	d_A	l_A	z	
A241.150.R.04-A050-175-EF	1.500	1.750	.551	1.420	.500	.625	4	LD.. 1504..
A241.200.R.05-A075-175-EF	2.000	1.750	.551	1.7503	.750	.750	5	LD.. 1504..
A241.250.R.06-A100-200-EF	2.500	2.000	.551	2.250	1.000	.750	6	LD.. 1504..
A241.300.R.07-A100-200-EF	3.000	2.000	.551	2.250	1.000	.750	7	LD.. 1504..
A241.400.R.08-B125-200-EF	4.000	2.000	.551	2.750	1.250	.880	8	LD.. 1504..
A241.500.R.08-B150-200-EF	5.000	2.000	.551	3.750	1.500	1.120	8	LD.. 1504..
A241.600.R.10-B150-200-EF	6.000	2.000	.551	3.750	1.500	1.120	10	LD.. 1504..

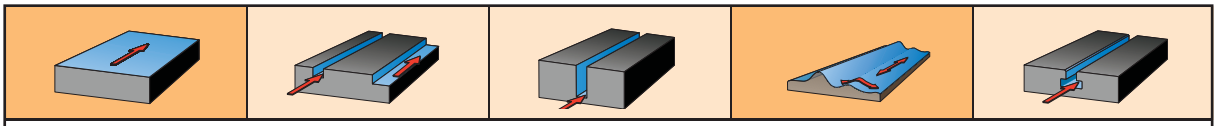
Supply details: Basic body fitted with clamping screws, without inserts
Ordering example: 3 pieces A241.400.R.08-B125-200-EF

➲ E16-E21

	d_1		
LD.. 1504..	**1.500 - 6.000**	7883209/M3,5x8,6/T15	7724103/TORX/T15

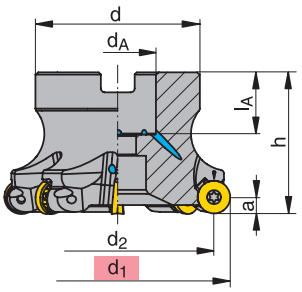
	LDFT 1504..	LDMT 1504..	LDFW 1504..		
	C8	C8	C8		

Tools
Button insert milling cutters



A251

10-20



Drawing: A251.80.R.08-12

Type, description	inch								
	d_1	d_2	h	a	d	d_A	l_A	z	
A251.150.R.04-10-A050-175-EF	1.500	1.106	1.750	.197	1.496	.500	.625	4	RP.. 10T3..
A251.200.R.06-10-A075-175-EF	2.000	1.606	1.750	.197	1.693	.750	.750	6	RP.. 10T3..
A251.200.R.05-12-A075-175-EF	2.000	1.528	1.750	.236	1.693	.750	.750	5	RP.. 1204..
A251.250.R.06-12-A100-200-EF	2.500	2.028	2.000	.236	1.890	1.000	.750	6	RP.. 1204..
A251.300.R.07-12-A100-200-EF	3.000	2.528	2.000	.236	2.283	1.000	.750	7	RP.. 1204..
A251.200.R.04-16-A075-175-EF	2.000	1.370	1.750	.315	1.693	.750	.750	4	RP.. 1605..
A251.200.R.05-16-A100-200-EF	2.500	1.870	2.000	.315	1.890	1.000	.750	5	RP.. 1605..
A251.300.R.06-16-A100-200-EF	3.000	2.370	2.000	.315	2.283	1.000	.750	6	RP.. 1605..
A251.300.R.05-20-A100-200-EF	3.000	2.213	2.000	.394	2.283	1.000	.750	5	RP.. 2006..
A251.400.R.06-20-A125-200-EF	4.000	3.213	2.000	.394	3.071	1.250	.880	6	RP.. 2006..
A251.400.R.10-12-B125-200-EF	4.000	3.528	2.000	.236	3.071	1.250	.880	10	RP.. 1204..
A251.400.R.07-16-B125-200-EF	4.000	3.370	2.000	.315	3.071	1.250	.880	7	RP.. 1605..
A251.500.R.08-16-B150-200-EF	5.000	4.370	2.000	.315	3.465	1.500	1.120	8	RP.. 1605..
A251.500.R.06-20-B150-200-EF	5.000	4.213	2.000	.394	3.456	1.500	1.120	6	RP.. 2006..

Normal pitch

Close pitch

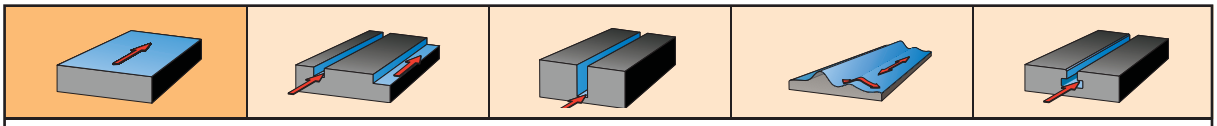
Supply details: Basic body fitted with clamping screws, without inserts

Ordering example: 3 pieces A251.150.R.04-10-A050-175-EF

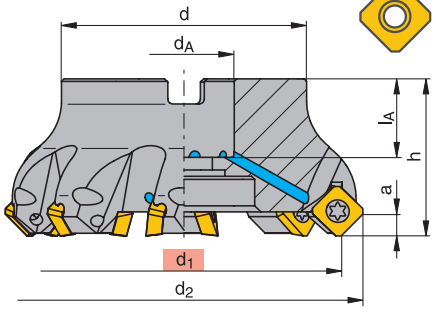
➲ E16-E21

	d_1		
RP.. 10T3..	**1.500-2.000**	7883203/M3,0X7,3/T08	7724106/TORX/T08
RP.. 1204..	**2.000-4.000**	7883209/M3,5x8,6/T15	7724103/TORX/T15
RP.. 1605..	**2.000-5.000**	7822114/M4,5x10,5/T20	7724104/TORX/T20
RP.. 2006..	**3.000-5.000**	10000155-0/M5,0x14,0/T20	7724104/TORX/T20

	RP.. 10T3..	RP.. 1204..	RP.. 1605..	RP.. 2006..	
					
	C11	C11	C12	C12	



A270-12



12

Drawing: A270.400.R.06-12-B125-200-EF

Type, description	inch d_1	d_2	h	a	d	d_A	l_A	z	
A270.200.R.04-12-A075-175-EF	2.000	2.300	1.750	.236	1.750	.750	.750	4	SD.. 1204..
A270.250.R.05-12-A100-200-EF	2.500	2.550	2.000	.236	2.250	1.000	.750	5	SD.. 1204..
A270.300.R.06-12-A100-200-EF	3.000	2.550	2.000	.236	2.250	1.000	.750	6	SD.. 1204..
A270.400.R.06-12-B125-200-EF	4.000	2.550	2.000	.236	2.750	1.250	.880	6	SD.. 1204..
A270.500.R.07-12-B150-200-EF	5.000	2.550	2.000	.236	3.750	1.500	2.120	7	SD.. 1204..
A270.600.R.08-12-B150-200-EF	6.000	2.550	2.000	.236	3.750	1.500	2.120	8	SD.. 1204..

Supply details: Basic body fitted with clamping screws, without inserts

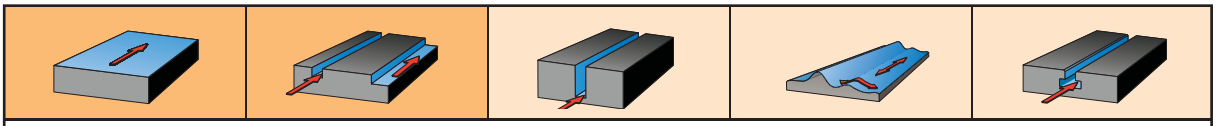
Ordering example: 3 pieces A270.250.R.05-12-A100-200-EF

➲ E16-E21

	d_1			
SD.. 1204..	**2.000**	7822114/M4,5x10,5	7724104/TORX/T20	
SD.. 1204..	**2.500-6.000**			

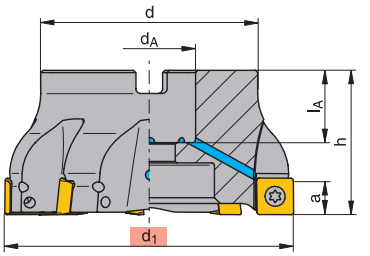
	SDHT 1204..	SDMT 1204..	XDHW 1204..		
	C14	C14	C21		

Tools
Shoulder and slot milling cutters



A490-09

09



Drawing: A490.50.R.06-09

Type, description	inch d_1	d	h	a	d_A	l_A	z	
A490.150.R.05-09-A050-175-EF	1.500	1.250	1.750	.3137	.500	.625	5	SD.. 09T3..
A490.200.R.06-09-A075-175-EF	2.000	1.650	1.750	.3137	.750	.750	6	SD.. 09T3..
A490.250.R.07-09-A100-200-EF	2.500	1.968	2.000	.3137	1.000	.750	7	SD.. 09T3..
A490.300.R.09-09-A100-200-EF	3.000	2.125	2.000	.3137	1.000	.750	9	SD.. 09T3..
A490.400.R.10-09-B125-200-EF	4.000	2.874	2.000	.3137	1.250	.875	10	SD.. 09T3..

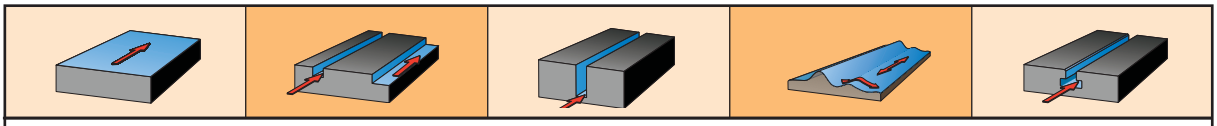
Supply details: Basic body fitted with clamping screws, without inserts

Ordering example: 3 pieces A490.150.R.05-09-A050-175-EF

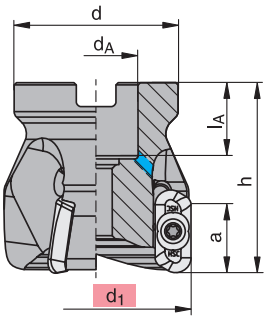
➲ E16-E21

	d_1			
SD.. 09T3..	**1.500-2.000**	7822114/M4,5x10,5	7724104/TORX/T20	
SD.. 09T3..	**2.500-4.000**			

	SDHT-27P	SDHT	SDNT	SDNT-29	SDNT-33	SDNT-31
	C13	C13	C13	C13	C13	C13



AHPC-19



19

Drawing: AHPC.250.R.04-19-A100-200-EF

Type, description	d_1 [inches]	d_A [inches]	a [inches]	d [inches]	l_A [inches]	h [inches]	z	
AHPC.200.R.03-19-A075-175-EF	2.000	0.750	0.700	1.750	0.750	1.750	3	XDHX 1904..
AHPC.250.R.03-19-A100-200-EF	2.500	1.000	0.700	2.250	0.750	2.000	3	XDHX 1904..
AHPC.250.R.04-19-A100-200-EF	2.500	1.000	0.700	2.250	0.750	2.000	4	XDHX 1904..
AHPC.300.R.04-19-A100-200-EF	3.000	1.000	0.700	2.250	0.750	2.000	4	XDHX 1904..
AHPC.300.R.05-19-A100-200-EF	3.000	1.000	0.700	2.250	0.750	2.000	5	XDHX 1904..
AHPC.400.R.04-19-B125-200-EF	4.000	1.250	0.700	2.750	0.750	2.000	4	XDHX 1904..
AHPC.400.R.05-19-B125-200-EF	4.000	1.250	0.700	2.750	0.750	2.000	5	XDHX 1904..
AHPC.500.R.05-19-B150-200-EF	5.000	1.500	0.700	3.750	1.120	2.000	5	XDHX 1904..
AHPC.500.R.06-19-B150-200-EF	5.000	1.500	0.700	3.750	1.120	2.000	6	XDHX 1904..
AHPC.600.R.05-19-B150-200-EF	6.000	1.500	0.700	3.750	1.120	2.000	5	XDHX 1904..
AHPC.600.R.06-19-B150-200-EF	6.000	1.500	0.700	3.750	1.120	2.000	6	XDHX 1904..
AHPC.600.R.05-19-B200-200-EF	6.000	2.000	0.700	3.750	1.120	2.000	5	XDHX 1904..
AHPC.600.R.06-19-B200-200-EF	6.000	2.000	0.700	3.750	1.120	2.000	6	XDHX 1904..

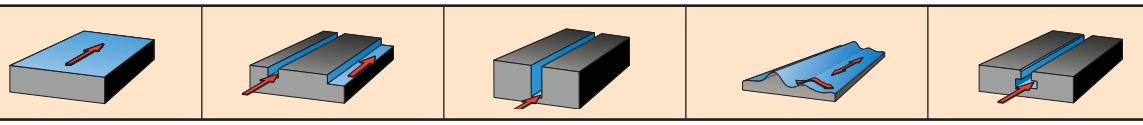
Insert radius > 0.160 inches: Modify basic body

Supply details: Basic body fitted with clamping screws, without inserts
Ordering example: 3 pieces AHPC.250.R.04-19-A100-200-EF

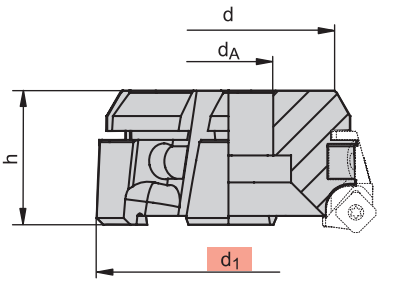
➲ E16-E21

	d_1			Nm 5.0 44.3 in.lbs	
XDHX 1904..	**2.000-6.000**	7818429/M4,0X11/T15	7724103/TORX/T15	DMSD5.0NM	

	XDHX 1904..  **C19**				



Cutter bodies



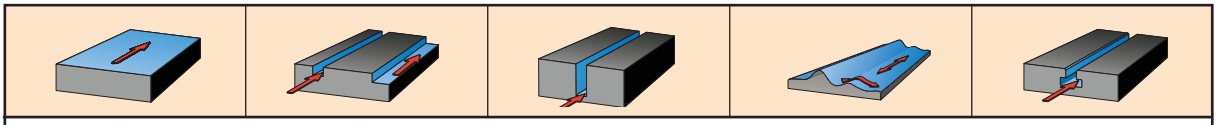
Drawing: A260.10.R.06

Type, description	inch d_1	d	h	d_A	kg
A260.300.R.05-EF	3.000	2.449	1.882	1.000	.650
A260.400.R.06-EF	3.921	3.386	1.882	1.250	1.400
A260.500.R.07-EF	4.843	3.780	2.382	1.500	3.100
A260.600.R.10-EF	5.843	4.882	2.382	1.500	4.850
A260.800.R.12-EF	7.843	6.772	2.382	2.500	8.770
A260.1000.R.14-EF	9.843	8.898	2.382	2.500	16.300

Supply details: Cutter bodies, wedges, clamping screw, S4 key, eccentric key.
Without inserts and cartridges.

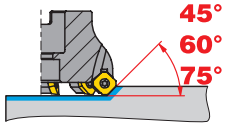
Ordering example: 3 pieces A 260.20.R.12

d_1				
3.000-9.843	7818044/M8x21 R/L	S4/SW4	7818043	7818048/EXZ5

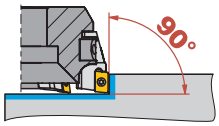


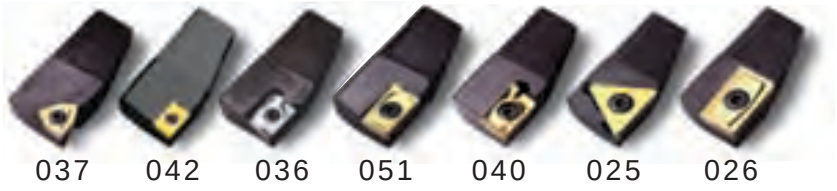
Cassettes – system 260

Cartridges for face milling

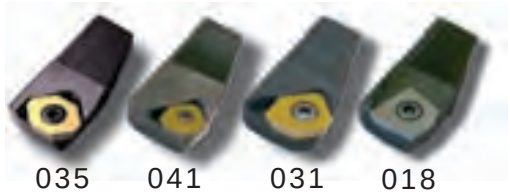


Cartridges for shoulder milling



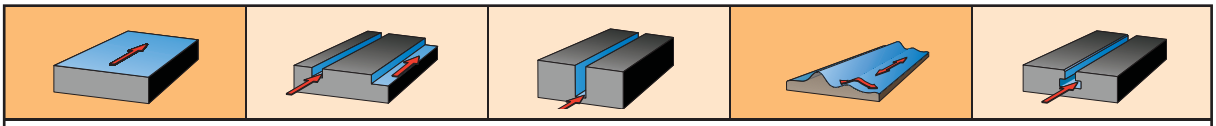


Cartridges for finishing



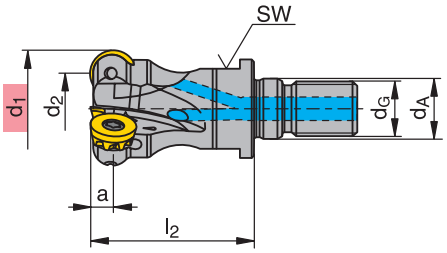
Type, description	Assembled cutter	Diameter range	
7818041/KA	A270-09	80-398	SD.. 0903..
7818031/KA	A270-12	80-398	SD.. 1204..
7818029/KA	A270-12	80-398	SEH.. 1204..
7818032/KA	A270-15	75-393	SDH.. 1504..
7818023/KA	X	82-400	HPEW 0904..
7818018/KA	X	82-400	SPE.. 1204..
7818052/KA	A251-12	80-398	RP.. 1204..
7818053/KA	A251-16	76-394	RP.. 1605..
7818035/KA	A260/029/052	X	ODGX 1204....
7818037/KA	A280-06	89-407	WP.. 0603..
7818042/KA	A210-10	89-407	AP.. 1003..
7818036/KA	AHSC-12	88-406	LDHT 1204..
7818051/KA	A241-15	89-407	LD.. 1504..
7818040/KA	X	89-407	ADKT 1505..
7818025/KA	X	89-407	TPKW 2204..
7818026/KA	X	89-407	LPH.. 2004..

Tools
Button inserts milling cutters



G251

08-10



Drawing: G251.16.R.02-08

Type, description	inch d_1	d_2	l_2	a	d_A mm	z	
G251.0625.R.02-08-0984-F	.625	.310	.984	.157	8,5	2	RDHX 0802..
G251.0750.R.02-08-118-F	.750	.435	1.180	.157	10,5	2	RDHX 0802..
G251.100.R.03-10-125-F	1.000	.606	1.250	.197	12,5	3	RP.. 10T3..
G251.125.R.04-10-150-F	1.250	.856	1.500	.197	17,0	4	RP.. 10T3..
G251.150.R.05-10-175-F	1.500	1.106	1.750	.197	17,0	5	RP.. 10T3..

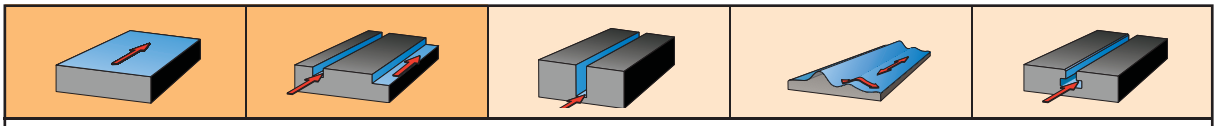
Supply details: Basic body fitted with clamping screws, without inserts

Ordering example: 3 pieces G251.0625.R.02-08-0984-F

➲ E16-E21

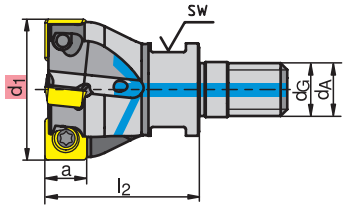
	d_1			
RDHX 0802..	**.625-.750**	7883204/M2,5x5,0/T08	7724106/TORX/T08	
RP.. 10T3..	**1.000-1.500**	7883203/M3,0x7,3/T08	7724106/TORX/T08	

	RDHX 0802..	**RPNX 10T3..**				
	 **C11**	 **C11**				



G490-09

09



Drawing: G490.32.R.04-09

Type, description	inch d_1	a	l_2	d_G	d_A mm	SW	z	
G490.100.R.03-09-125-F	1.000	.314	1.250	M12	12,5	17	3	SD.. 09T3..
G490.125.R.04-09-150-F	1.250	.314	1.500	M16	17,0	24	4	SD.. 09T3..

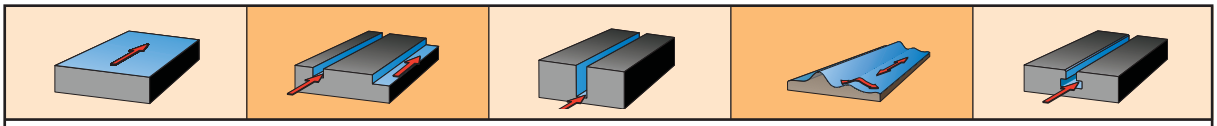
Supply details: Basic body fitted with clamping screws, without inserts

Ordering example: 3 pieces G490.100.R.03-09-125-F

➲ E16-E21

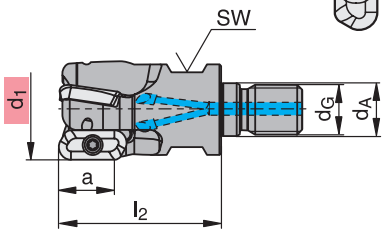
	d_1			
SD.. 09T3..	**1.000-1.250**	7722111/M3,5x7,2/T15	7724103/TORX/T15	7730102/MOLYKOTE

	SDHT-27P	SDHT	SDNT	SDNT-29	SDNT-33	SDNT-31
	C13	C13	C13	C13	C13	C13



GHPC-19

19



Drawing: GHPC.125.R.03-19-F

Type, description	d_1 [inches]	d_A [mm]	l_2 [inches]	d_G [mm]	a [inches]	SW [inches]	z	
GHPC.100.R.02-19-F	1.000	12.50	1.750	M12	0.700	0.687	2	XDHX 1904..
GHPC.125.R.02-19-F	1.250	17.00	2.000	M16	0.700	1.000	2	XDHX 1904..
GHPC.125.R.03-19-F	1.250	17.00	2.000	M16	0.700	1.000	3	XDHX 1904..
GHPC.150.R.02-19-F	1.500	17.00	2.000	M16	0.700	1.000	2	XDHX 1904..
GHPC.150.R.03-19-F	1.500	17.00	2.000	M16	0.700	1.000	3	XDHX 1904..

dimensions in mm

Insert radius > 0.160 inches: Modify basic body

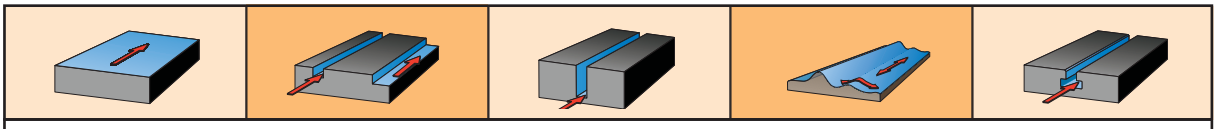
Supply details: Basic body fitted with clamping screws, without inserts
Ordering example: 3 pieces GHPC.125.R.03-19-F

➲ E16-E21

	d_1			Nm 5.0 44.3 in.lbs	
XDHX 1904..	**1.000**	7818430/M4,0x7,0/T15	7724103/TORX/T15	DMSD5.0NM	
XDHX 1904..	**1.250-1.500**	7818428/M4,0x8,5/T15			

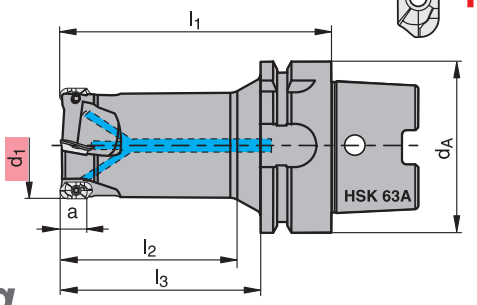
	XDHX 1904..  **C19**				

HSC



MHSC-11

11



metric tooling

Drawing: MHSC.40.R.04-11-H63A-63

Type, description	[mm] d_1	d_A	l_1	l_2	l_3	a	z	
MHSC.25.R.03-11-H63A-50	25	63	90	50	64	10	3	XDHT 11T3..
MHSC.25.R.03-11-H63A-63	25	63	100	63	74	10	3	XDHT 11T3..
MHSC.32.R.03-11-H63A-63	32	63	100	63	74	10	3	XDHT 11T3..
MHSC.32.R.03-11-H63A-80	32	63	120	80	94	10	3	XDHT 11T3..
MHSC.40.R.04-11-H63A-63	40	63	100	63	74	10	4	XDHT 11T3..
MHSC.40.R.04-11-H63A-80	40	63	120	80	94	10	4	XDHT 11T3..
MHSC.50.R.04-11-H63A-63	50	63	100	63	74	10	4	XDHT 11T3..
MHSC.50.R.04-11-H63A-100	50	63	140	100	114	10	4	XDHT 11T3..

Insert radius > 3.2 mm: Modify basic body

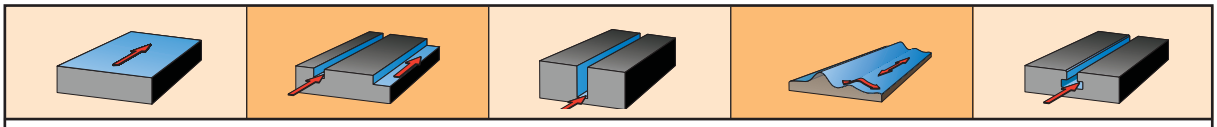
Precision balanced to G 6.3 (in relation to the maximum permissible number of revolutions)

Supply details: Basic body fitted with clamping screws, without inserts
Ordering example: 3 pieces MHSC.25.R.03-11-H63A-50

➲ E16-E21

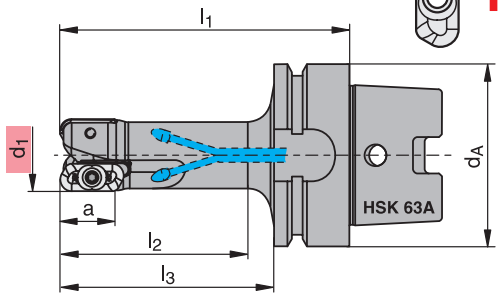
	d_1				
XDHT 11T3..	**25**	10000126-0/M2,5x5,5/8IP	DMSD 1,8NM	KMS-HSK63	SS-KMS-HSK63
XDHT 11T3..	**32-50**	10000125-0/M2,5x7,3/8IP			

	XDHT 11T3..  **C18**				



MHPC-19

19



* metric dimension 63.00 mm

Drawing: MHPC.125.R.02-19-H63A-325-F

Type, description	d_1 [inches]	d_A* [inches]	l_1 [inches]	l_2 [inches]	l_3 [inches]	a [inches]	z	
MHPC.100.R.02-19-H63A-200-F	1.000	2.480	3.500	2.000	2.480	0.700	2	XDHX 1904..
MHPC.100.R.02-19-H63A-250-F	1.000	2.480	4.000	2.500	2.980	0.700	2	XDHX 1904..
MHPC.100.R.02-19-H63A-325-F	1.000	2.480	4.750	3.250	3.730	0.700	2	XDHX 1904..
MHPC.100.R.02-19-H63A-400-F	1.000	2.480	5.550	4.000	4.480	0.700	2	XDHX 1904..
MHPC.125.R.02-19-H63A-250-F	1.250	2.480	4.000	2.500	2.980	0.700	2	XDHX 1904..
MHPC.125.R.02-19-H63A-325-F	1.250	2.480	4.750	3.250	3.730	0.700	2	XDHX 1904..
MHPC.125.R.02-19-H63A-400-F	1.250	2.480	5.550	4.000	4.480	0.700	2	XDHX 1904..
MHPC.125.R.03-19-H63A-250-F	1.250	2.480	4.000	2.500	2.980	0.700	3	XDHX 1904..
MHPC.125.R.03-19-H63A-325-F	1.250	2.480	4.750	3.250	3.730	0.700	3	XDHX 1904..
MHPC.125.R.03-19-H63A-400-F	1.250	2.480	5.550	4.000	4.480	0.700	3	XDHX 1904..
MHPC.150.R.02-19-H63A-250-F	1.500	2.480	4.000	2.500	2.980	0.700	2	XDHX 1904..
MHPC.150.R.02-19-H63A-325-F	1.500	2.480	4.750	3.250	3.730	0.700	2	XDHX 1904..
MHPC.150.R.02-19-H63A-400-F	1.500	2.480	5.550	4.000	4.480	0.700	2	XDHX 1904..
MHPC.150.R.03-19-H63A-250-F	1.500	2.480	4.000	2.500	2.980	0.700	3	XDHX 1904..
MHPC.150.R.03-19-H63A-325-F	1.500	2.480	4.750	3.250	3.730	0.700	3	XDHX 1904..
MHPC.150.R.03-19-H63A-400-F	1.500	2.480	5.550	4.000	4.480	0.700	3	XDHX 1904..

Insert radius > 0.160 inches: Modify basic body

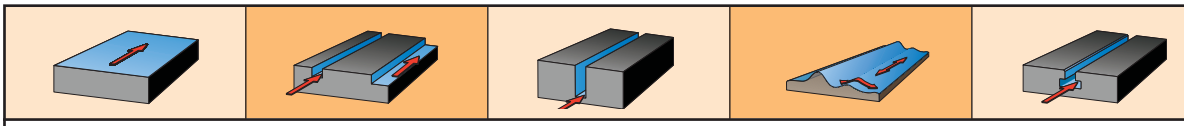
Supply details: Basic body fitted with clamping screws, without inserts

Ordering example: 1 piece MHPC.150.R.03-19-H63A-250-F

➲ E16-E21

	d_1			Nm 5.0 44.3 in.lbs		
XDHX 1904..	**1.000**	7818430/M4,0x7,0/T15	7724103/TORX/T15	DMSD5.0NM	KMS-HSK63	SS-KMS-HSK63
XDHX 1904..	**1.250-1.500**	7818428/M4,0x8,5/T15				

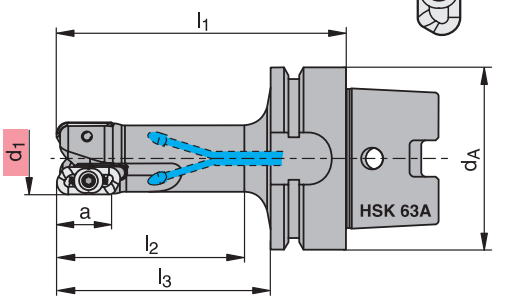
	XDHX 1904..  **C19**				



MHPC-19

* metric dimension 63.00 mm

19



Drawing: MHPC.200.R.02-19-H63A-400-F

Type, description	d_1 [inches]	d_A * [inches]	l_1 [inches]	l_2 [inches]	l_3 [inches]	a [inches]	z	
MHPC.200.R.02-19-H63A-250-F	2.000	2.480	4.000	2.500	2.980	0.700	2	XDHX 1904..
MHPC.200.R.02-19-H63A-325-F	2.000	2.480	4.750	3.250	3.730	0.700	2	XDHX 1904..
MHPC.200.R.02-19-H63A-400-F	2.000	2.480	5.550	4.000	4.480	0.700	2	XDHX 1904..
MHPC.200.R.03-19-H63A-250-F	2.000	2.480	4.000	2.500	2.980	0.700	3	XDHX 1904..
MHPC.200.R.03-19-H63A-325-F	2.000	2.480	4.750	3.250	3.730	0.700	3	XDHX 1904..
MHPC.200.R.03-19-H63A-400-F	2.000	2.480	5.550	4.000	4.480	0.700	3	XDHX 1904..
MHPC.200.R.04-19-H63A-250-F	2.000	2.480	4.000	2.500	2.980	0.700	4	XDHX 1904..
MHPC.200.R.04-19-H63A-325-F	2.000	2.480	4.750	3.250	3.730	0.700	4	XDHX 1904..
MHPC.200.R.04-19-H63A-400-F	2.000	2.480	5.550	4.000	4.480	0.700	4	XDHX 1904..

Insert radius > 0.160 inches: Modify basic body

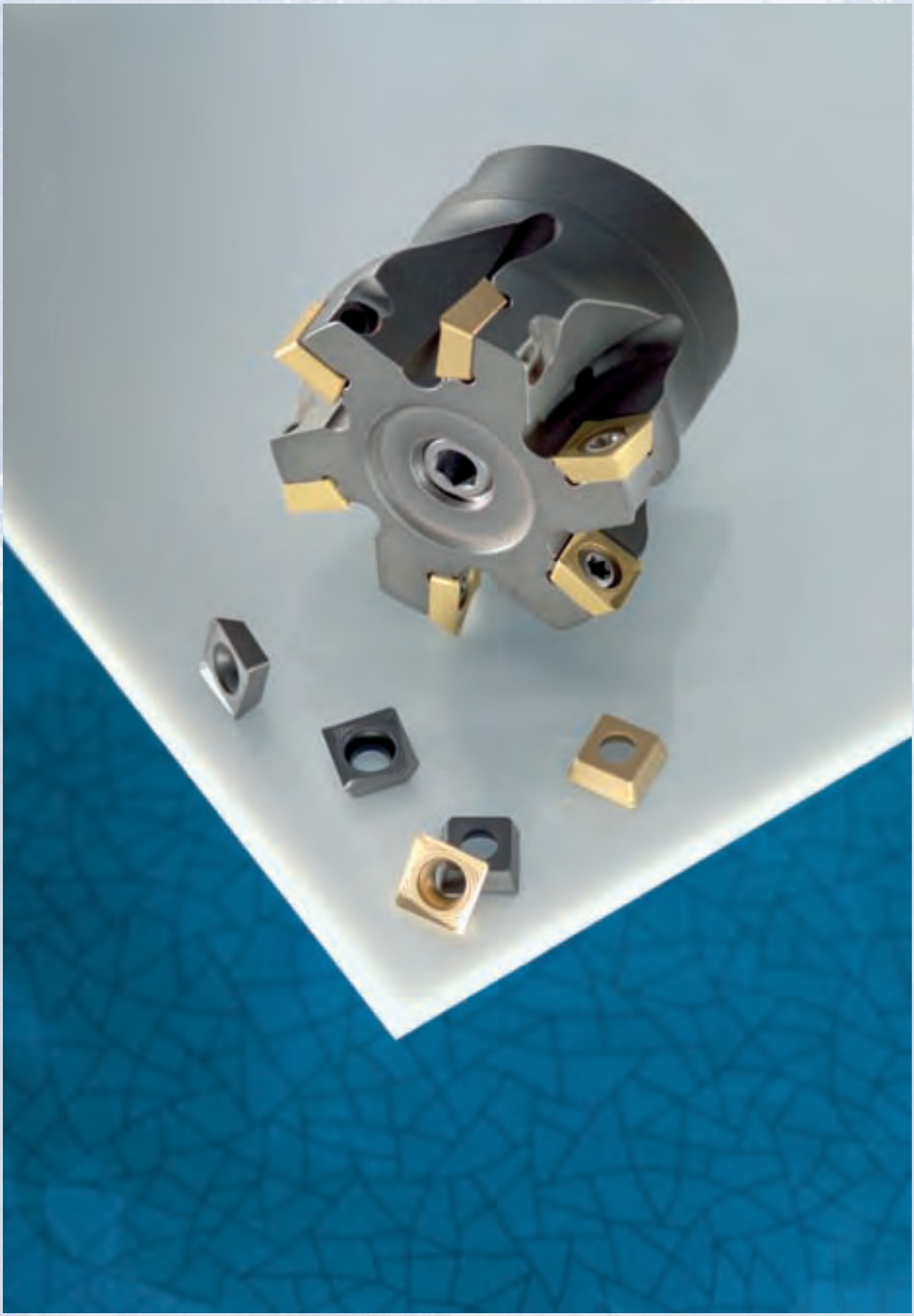
Supply details: Basic body fitted with clamping screws, without inserts
Ordering example: 1 piece MHPC.200.R.04-19-H63A-250-F

➲ E16-E21

	d_1			Nm 5.0 44.3 in.lbs		
XDHX 1904..	**2.000**	7818429/M4,0x11,0/T15	7724103/TORX/T15	DMSD5.0NM	KMS-HSK63	SS-KMS-HSK63

XDHX 1904..

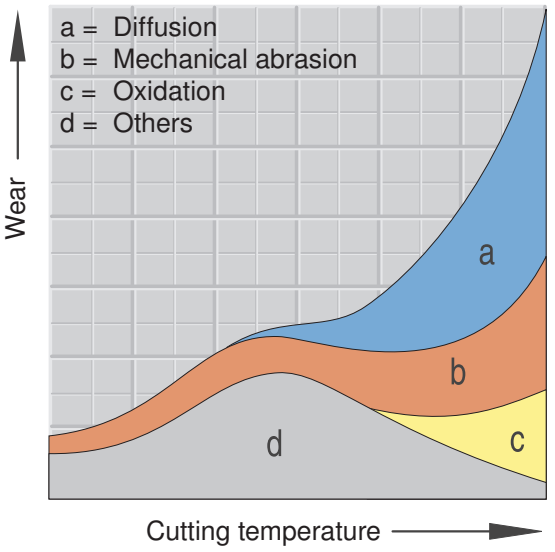
C19



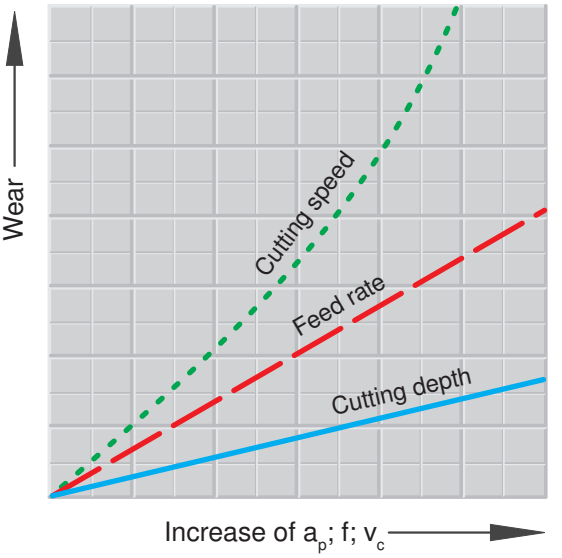
Causes of wear

Wear is caused through simultaneous mechanical and thermal stress to the cutting edge.
The most common causes are:

> Mechanical abrasion
> Oxidation
> Diffusion



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



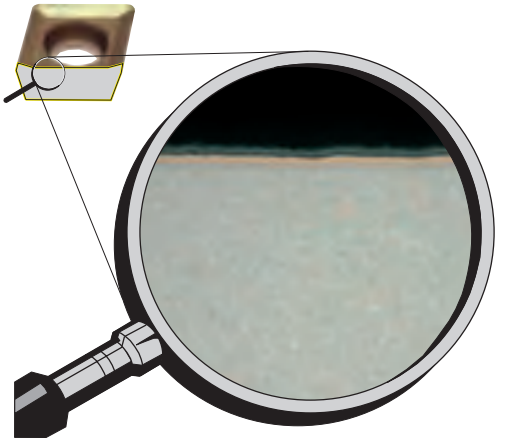
Cutting temperature and wear depend decisively upon the machining conditions.

Benefits of hard material coatings

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

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

> Friction
> Heat
> Oxidation
> Diffusion



Types of wear

Flank wear

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

Reasons:

> Cutting speed too high
> Carbide grade with too low wear resistance
> Feed rate too low
(insufficent chip thickness)

Remedies:

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

Edge chipping

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

Reasons:

> Grade with too high wear resistance
> Vibrations
> Feed rate too high or too large cutting depth
> Built-up edges, chip clogging
> Cutting edge geometry too positive

Remedies:

> Use tougher grade
> Use negative cutting edge geometry with chip groove
> Increase stability (tool, workpiece)
> Incresae cutting speed
> Reduce feed rate

Thermal cracking

Small cracks at 90° with reference to cutting edge

Reasons:

> Varyiing temperature of cutting edge, thermal shock
> Incorrect cooling
> High tensile materials
> Excessive cutting speed

Remedies:

> Use grade that is resistant to thermal cracking
> Apply cooling lubricant abundantly or use dry milling
> Reduce cutting speed
> Decrease feed rate

Built-up edges

Built-up material / edges occur when the chip is
not evacuated properly due to a too low cutting
temperature.

Reasons:

> Cutting speed too low
> Rake angle too small
> Wrong cutting material
> Lack of cooling / lubrication

Remedies:

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

Types of wear

Notching

Notch at the maximum cutting depth

Reasons:

> Cold work hardening materials (e.g. super alloys)
> Cast iron and forging crust
> Formation of burrs

Remedies:

> Decrease cutting speed
> Climb milling
> Change working orientation of the milling cutter
> Reduce approach angle

Insert breakage / edge chipping

Excessive stress of the insert causes breakage.

Reasons:

> Excessive stress of the carbide grade
> Lack of stability
> Corner angle too small
> Excessive notching
> Sudden changes of cutting forces

Remedies:

> Use tougher cutting material
> Use protective edge chamfer
> Increase honing of edge
> Use more stable geometry
> Reduce feed rate

Cratering

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

Reasons:

> Too high cutting speed and / or feed rate
> Rake angle too shallow
> Grade with insufficient wear resistance
> Insufficient coolant supply

Remedies:

> Reduce cutting speed and / or feed rate
> Increase coolant quantity and / or pressure, optimise coolant supply
> Use grade which is more resistant to cratering

Deformation of the cutting edge

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

Reasons:

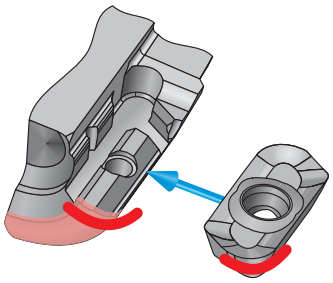
> Too high machining temperature resulting in softening of substrate
> Damaged coating
> Chip groove too narrow

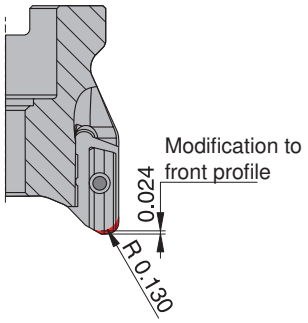
Remedies:

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

Modification to basic body

HPC-19 from insert radius r > 0.160 inches onwards





For indexable inserts with a corner radius larger than 0.160 inches the basic body of the tool must be modified according to the drawing above (can be done by CERATIZIT upon request).

Clamping screws

The XDH.-19 inserts are mounted onto the insert pocket with a specified screw and a torque moment.

Failure to observe correct insert mounting procedure can result in insert breakage, machine damage and personal injury of the operator.

For safety reasons it is recommended to use a new screw after every insert change.

XDHT-19 53.1 lbs.in
6.0 Nm
XDHX-19 44.3 lbs.in
5.0 Nm

Cutting data tool/material

Frame of suggested cutting conditions for machining aluminium alloys in aerospace industry.

HPC-19	v_c (fpm)	f_z (inches)	a_p (inches)	v_c (fpm)	f_z (inches)	a_p (mm)	v_c (fpm)	f_z (inches)	a_p (inches)
▼	11500 - 1000	≤ 0.004	0.010 - 0.100	10000 - 1000	≤ 0.010	0.040 - 0.250	10000 - 1000	≤ 0.025	0.160 - 0.700
	Requested surface quality depends on used tip radius and chip load.			Combined cutting condition and radial depth of cut (a_e) must fit to continuous power of machine tools.					

For more detailed information regarding appropriate cutting data and their comparison with existing continuous power of machine tool please consult our CD catalogue and „Power estimation“ chapter.

Measures for milling problems

Remedy measure / Problem	Flank wear	Chipping of cutting edge	Thermal cracks	Built-up edges	Notching	Insert breakage, chipping of cutting edge	Cratering	Deformation of cutting edge	Bad workpiece surface	Chattering, vibrations	Chip formation, chip jamming	Edge chipping on the workpiece	Overstress of the machine
Cutting speed	↓	↑	↓	↑	↓		↓	↓	↑	~			↓
Feed rate per tooth	↑	↓	↓	↑	↓	↓	↓	↓	↓	~		↓	↓
Toughness of cutting material		↑	~		↑	↑							
Wear resistance of cutting material	↑				~		↑	↑~					
Approach angle			↓	~	↓					↓	~	↓	↓
Rake angle		~		↑~	~	~		↑~		↑	~		
Cutting edge facet		↑		~	↑				↓			↓	
Stability		↑				↑			↑	↑			
Precision of axial & radial run-out									↑	↑		~	
Wear of cutting edge	~	~				~		~	~			~	
Positioning of the milling tool						~			~	~		~	
Cooling, chip removal			↑	↑	↑		↑	~	~		~		
Insert, axial adjustment						~			~	~			
Depth of cut		~			~	~			~	~		↓	↓

↑ raise, increase

↓ lower, decrease

~ control, optimise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Hardness values
Comparison table

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Tensile strength N/mm²	Vickers HV	Brinell HB	Rockwell HRC	Shore C
575	180	171		
595	185	176		
610	190	181		
625	195	185		
640	200	190	12,0	
660	205	195	13,0	
675	210	199	14,0	
690	215	204	15,0	
705	220	209	15,5	28
720	225	214	16,0	
740	230	219	17,0	29
755	235	223	18,0	
770	240	228	20,3	30
785	245	233	21,3	
800	250	238	22,2	31
820	255	242	23,1	32
835	260	247	24,0	33
850	265	252	24,8	
865	270	257	25,6	
880	275	261	26,4	34
900	280	268	27,1	
915	285	271	27,8	35
930	290	276	28,5	
950	295	280	29,2	36
965	300	285	29,8	37
995	310	295	31,0	38
1030	320	304	32,2	39
1060	330	314	33,3	40
1095	340	323	34,3	41
1125	350	333	35,5	42
1155	360	342	36,6	43
1190	370	352	37,7	44
1220	380	361	38,8	45
1255	390	371	39,8	46
1290	400	380	40,8	47
1320	410	390	41,8	48
1350	420	399	42,7	
1385	430	409	43,6	49
1420	440	418	44,5	
1455	450	428	45,3	51
1485	460	437	46,1	52
1520	470	447	46,9	53
1555	480	465	47,7	54
1595	490	466	48,4	
1630	500	475	49,1	57
1665	510	485	49,8	58
1700	520	494	50,5	59
1740	530	504	51,1	60

Tensile strength N/mm²	Vickers HV	Brinell HB	Rockwell HRC	Shore C
1775	540	513	51,7	61
1810	550	523	52,3	62
1845	560	532	53,0	63
1880	570	542	53,6	64
1920	580	551	54,1	65
1955	590	561	54,7	66
1995	600	570	55,2	67
2030	610	580	55,7	68
2070	620	589	56,3	69
2105	630	599	56,8	70
2145	640	608	57,3	71
2180	650	618	57,8	72
2210	660	628	58,3	73
2240	665	633	58,8	74
2280	670	638	59,3	
2310	675	643	59,8	75
2350	680	648	60,3	76
2380	685	653	61,1	77
2410	690	658	61,3	78
2450	695	663	61,7	79
2480	710	668	62,2	80
2520	720	678	62,6	81
2550	730	683	63,1	82
2590	740	693	63,5	
2630	750	703	63,9	83
2660	760	708	64,3	84
2700	770	718	64,7	85
2730	780	723	65,1	
2770	790	733	65,5	86
2800	800	738	65,9	
2840	810	748	66,3	87
2870	820	753	66,7	88
2910	830	763	67,0	
2940	840	768	67,4	89
2980	850		67,7	
3010	860		68,1	90
3050	870		68,4	
3080	880		68,7	91
3120	890		69,0	
3150	900		69,3	92
3190	910		69,6	
3220	920		69,9	
3260	930		70,1	
3290	940		70,4	
3290	940	—	68,0	—

Materials
Comparison table

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DIN	Mat. no.	BS	AFNOR	SS	AISI	$K_{c1.1}$	m_c	VDI 3323 group
10 SPb 20	1.0722		10 PbF 2		11 L 08	1350	0,21	1
100 Cr 6	1.2067	BL 3	Y 100 C 6		L 3	1775	0,24	6/9
105 WCr 6	1.2419		105 WC 13			1775	0,24	6/9
12 CrMo 9 10	1.7380	1501-622 Gr. 31; 45	10 CD 9.10	2218	A 182-F22	1675	0,24	6/7
12 Ni 19	1.5680		Z 18 N 5		2515	2450	0,23	10/11
13 CrMo 4 4	1.7335	1501-620 Gr. 27	15 CD 3.5	2216	A 182-F11; F12	1675	0,24	6/7
14 MoV 6 3	1.7715	1503-660-440				1675	0,24	6/7
14 Ni 6	1.5622		16 N 6		A 350-LF 5	1675	0,24	6/7
14 NiCr 10	1.5732		14 NC 11		3415	1675	0,24	6/7
14 NiCr 14	1.5752	655 M 13	12 NC 15		3310; 9314	1675	0,24	6/7
14 NiCrMo 13 4	1.6657					1675	0,24	6/7
15 Cr 3	1.7015	523 M 15	12 C 3		5015	1675	0,24	6/7
15 CrMo 5	1.7262		12 CD 4			1675	0,24	6/7
15 Mo 3	1.5415	1501-240	15 D 3	2912	A 204 Gr. A	1675	0,24	6/7
16 MnCr 5	1.7131	527 M 17	16 MC 5	2511	5115	1675	0,24	6/7
16 Mo 5	1.5423	1503-245-420			4520	1675	0,24	6/7
17 CrNiMo 6	1.6587	820 A 16	18 NCD 6			1675	0,24	6/7
21 NiCrMo 2	1.6523	805 M 20	20 NCD 2	2506	8620	1725	0,24	6/8
25 CrMo 4	1.7218	1717 CDS 110	25 CD 4 S	2225	4130	1725	0,24	6/8
28 Mn 6	1.1170	150 M 28	20 M 5		1330	1500	0,22	2
32 CrMo 12	1.7361	722 M 24	30 CD 12	2240		1775	0,24	6/9
34 Cr 4	1.7033	530 A 32	32 C 4		5132	1725	0,24	6/8
34 CrMo 4	1.7220	708 A 37	35 CD 4	2234	4135; 4137	1775	0,24	6/9
34 CrNiMo 6	1.6582	817 M 40	35 NCD 6	2541	4340	1775	0,24	6/9
35 S 20	1.0726	212 M 36	35 MF 4	1957	1140	1525	0,22	2/3
36 CrNiMo 4	1.6511	816 M 40	40 NCD 3		9840	1775	0,24	6/9
36 Mn 5	1.1167					1525	0,22	2/3
36 NiCr 6	1.5710	640 A 35	35 NC 6		3135	1800	0,24	3/9
38 MnSi 4	1.5120					1800	0,24	3/9
39 CrMoV 13 9	1.8523	897 M 39				1775	0,24	6/9
40 Mn 4	1.1157	150 M 36	35 M 5		1039	1525	0,22	2/3
40 NiCrMo 2 2	1.6546	311-Type 7	40 NCD 2		8740	1775	0,24	6/9
41 Cr 4	1.7035	530 M 40	42 C 4		5140	1775	0,24	6/9
41 CrAlMo 7	1.8509	905 M 39	40 CAD 6.12	2940	A 355 Cl. A	1775	0,24	6/9
41 CrMo 4	1.7223	708 M 40	42 CD 4 TS	2244	4142; 4140	1775	0,24	6/9
42 Cr 4	1.7045	530 A 40	42 C 4 TS	2245	5140	1775	0,24	6/9
42 CrMo 4	1.7225	708 M 40	42 CD 4	2244	4142; 4140	1775	0,24	6/9
45 WCrV 7	1.2542	BS 1		2710	S 1	1775	0,24	6/9
50 CrV 4	1.8159	735 A 50	50 CV 4	2230	6150	1775	0,24	6/9
55 Cr 3	1.7176	527 A 60	55 C 3	2253	5155	1775	0,24	6/9
55 NiCrMoV 6	1.2713		55 NCDV 7		L 6	1775	0,24	6/9
55 Si 7	1.0904	250 A 53	55 S 7	2085; 2090	9255	1775	0,24	6/9
58 CrV 4	1.8161					1775	0,24	6/9
60 SiCr 7	1.0961		60 SC 7		9262	1775	0,24	6/9
9 SMn 28	1.0715	230 M 07	S 250	1912	1213	1350	0,21	1
9 SMn 36	1.0736	240 M 07	S 300		1215	1350	0,21	1
9 SMnPb 28	1.0718		S 250 Pb	1914	12 L 13	1350	0,21	1
9 SMnPb 36	1.0737		S 300 Pb	1926	12 L 14	1350	0,21	1
Al99	3.0205					700	0,25	21
AlCuMg1	3.1325					700	0,25	22

Materials
Comparison table

DIN	Mat. no.	BS	AFNOR	SS	AISI	$K_{c1.1}$	m_c	VDI 3323 group
AlMg1	3.3315					700	0,25	21
AlMgSi1	3.2315					700	0,25	22
C 105 W1	1.1545		Y1 105	1880	W 110	1675	0,24	3
C 125 W	1.1663		Y2 120		W 112	1675	0,24	3
C 15	1.0401	080 M 15	AF3 7 C 12; XC 18	1350	1015	1350	0,21	1
C 22	1.0402	050 A 20	AF 42 C 20	1450	1020	1350	0,21	1
C 35	1.0501	060 A 35	AF 55 C 35	1550	1035	1525	0,22	2/3
C 45	1.0503	080 M 46	AF 65 C 45	1650	1045	1525	0,22	2/3
C 55	1.0535	070 M 55		1655	1055	1675	0,24	3
C 60	1.0601	080 A 62	CC 55		1060	1675	0,24	3
Cf 35	1.1183					1525	0,22	2/3
Cf 53	1.1213					1525	0,22	2/3
Ck 101	1.1274	060 A 96		1870	1095	1675	0,24	3
Ck 15	1.1141	080 M 15	XC 15; XC 18	1370	1015	1350	0,21	1
Ck 55	1.1203	070 M 55	XC 55		1055	1675	0,24	3
Ck 60	1.1221	080 A 62	XC 60	1665; 1678	1060	1675	0,24	3
CoCr20W15Ni	2.4764					3300	0,24	35
CuZn15	2.0240					700	0,27	27
CuZn36Pb3	2.0375					700	0,27	26
E-Cu57	2.0060					700	0,27	28
G-AlSi10Mg	3.2381					700	0,25	24
G-AlSi12	3.2581					700	0,25	23
G-AlSi9Cu3	3.2163					700	0,25	23
G-CuSn5ZnPb	2.1096					700	0,27	26
G-CuZn40Fe	2.0590					700	0,27	28
G-X 120 Mn 12	1.3401	Z 120 M 12	Z 120 M 12		A 128 (A)	3300	0,24	35
G-X 20 Cr 14	1.4027	420 C 29	Z 20 C 13 M			1875	0,21	12/13
G-X 40 NiCrSi 38 18	1.4865	330 C 40				2600	0,24	31
G-X 45 CrSi 9 3	1.4718	401 S 45	Z 45 CS 9		HNV 3	2450	0,23	10/11
G-X 5 CrNi 13 4	1.4313	425 C 11	Z 5 CN 13.4	2385	CA 6-NM	1875	0,21	12/13
G-X 5 CrNiMoNb 18 10	1.4581	318 C 17	Z 4 CNDNb 18.12 M			2150	0,2	14
G-X 6 CrNi 18 9	1.4308	304 C 15	Z 6 CN 18.10 M	2333	CF-8	2150	0,2	14
G-X 6 CrNiMo 18 10	1.4408					2150	0,2	14
G-X 7 Cr 13	1.4001					1875	0,21	12/13
GG-10	0.6010		Ft 10 D	01 10-00	A48-20 B	1150	0,2	15
GG-15	0.6015	Grade 150	Ft 15 D	01 15-00	A48-25 B	1150	0,2	15
GG-20	0.6020	Grade 220	Ft 20 D	01 20-00	A48-30 B	1150	0,2	15
GG-25	0.6025	Grade 260	Ft 25 D	01 25-00	A48-40 B	1250	0,24	15/16
GG-30	0.6030	Grade 300	Ft 30 D	01 30-00	A48-45 B	1350	0,28	16
GG-35	0.6035	Grade 350	Ft 35 D	01 35-00	A48-50 B	1350	0,28	16
GG-40	0.6040	Grade 400	Ft 40 D	01 40-00	A48-60 B	1350	0,28	16
GGG-35.3	0.7033					1225	0,25	17
GGG-40	0.7040	SNG 420/12	FGS 400-12	0717-02	60-40-18	1225	0,25	17
GGG-40.3	0.7043	SNG 370/17	FGS 370-17	0717-15		1225	0,25	17
GGG-50	0.7050	SNG 500/7	FGS 500-7	0727-02	65-45-12	1350	0,28	18
GGG-60	0.7060	SNG 600/3	FGS 600-3	0732-03	80-55-06	1350	0,28	18
GGG-70	0.7070	SNG 700/2	FGS 700-2	0737-01	100-70-03	1350	0,28	18
GGG-NiCr 20 2	0.7660	S-NiCr 20 2	S-NC 20 2		A 439 Type D-2	1350	0,28	18
GGG-NiMn 13 7	0.7652	S-NiMn 13 7	S-NM 13 7			1350	0,28	18
GS-Ck 45	1.1191	080 M 46	XC 42	1672	1045	1525	0,22	2/3

Materials
Comparison table

CERATIZIT

DIN	Mat. no.	BS	AFNOR	SS	AISI	$K_{c1.1}$	m_c	VDI 3323 group
GTS-35-10	0.8135	B 340/12	MN 35-10			1225	0,25	19
GTS-45-06	0.8145	P 440/7				1420	0,3	20
GTS-55-04	0.8155	P 510/4	MP 50-5			1420	0,3	20
GTS-65-02	0.8165	P 570/3	MP 60-3			1420	0,3	20
GTS-70-02	0.8170	P 690/2	IP 70-2			1420	0,3	20
NiCr20TiAl	2.4631	HR 401; 601	Nimonic 80 A			3300	0,24	33
NiCr22Mo9Nb	2.4856		Inconel 625			3300	0,24	33
NiCu30Al	2.4375		Monel K 500			3300	0,24	34
NiFe25Cr20NbTi	2.4955					3300	0,24	34
S 18-0-1	1.3355	BT 1	Z 80 WCV 18-04-01		T 1	2450	0,23	10/11
S 18-1-2-5	1.3255	BT 4	Z 80 WKCV 18-05-04-0		T 4	2450	0,23	10/11
S 2-9-2	1.3348		Z 100 DCWV 09-04-02-	2782	M 7	2450	0,23	10/11
S 6-5-2	1.3343	BM 2	Z 85 WDCV 06-05-04-0	2722	M 2	2450	0,23	10/11
S 6-5-2-5	1.3243		Z 85 WDKCV 06-05-05-	2723		2450	0,23	10/11
TiAl6V4	3.7165	TA 10 - TA 13	T-A 6 V			2110	0,22	37
X 10 Cr 13	1.4006	410 S 21	Z 12 C 13	2302	410; CA-15	1875	0,21	12/13
X 10 CrNiMoNb 18 12	1.4583				318	2150	0,2	14
X 10 CrNiS 18 9	1.4305	303 S 21	Z 10 CNF 18.09	2346	303	2150	0,2	14
X 100 CrMoV 5 1	1.2363	BA 2	Z 100 CDV 5	2260	A 2	2450	0,23	10/11
X 12 CrMoS 17	1.4104		Z 10 CF 17	2383	430 F	1875	0,21	12/13
X 12 CrNi 17 7	1.4310	301 S 21	Z 12 CN 17.07		301	2150	0,2	14
X 12 CrNi 22 12	1.4829					1350	0,28	16
X 12 CrNi 25 21	1.4845	310 S24	Z 12 CN 25.20	2361	310 S	2150	0,2	14
X 12 CrNiTi 18 9	1.4878	321 S 20	Z 6 CNT 18.12 (B)	2337	321	2150	0,2	14
X 12 NiCrSi 36 16	1.4864	NA 17	Z 12 NCS 37.18		330	2600	0,24	31
X 15 CrNiSi 20 12	1.4828	309 S 24	Z 15 CNS 20.12		309	1350	0,28	16
X 165 CrMoV 12	1.2601			2310		2450	0,23	10/11
X 2 CrNiMo 18 13	1.4440					2150	0,2	14
X 2 CrNiMoN 17 13 3	1.4429	316 S 62	Z 2 CND 17.13 Az	2375	316 LN	2150	0,2	14
X 2 CrNiN 18 10	1.4311	304 S 62	Z 2 CN 18 .10	2371	304 LN	2150	0,2	14
X 20 CrNi 17 2	1.4057	431 S 29	Z 15 CN 16.02	2321	431	1875	0,21	12/13
X 210 Cr 12	1.2080	BD 3	Z 200 C 12		D 3	2450	0,23	10/11
X 210 CrW 12	1.2436			2312		2450	0,23	10/11
X 30 WCrV 9 3	1.2581	BH 21	Z 30 WCV 9		H 21	2450	0,23	10/11
X 40 CrMoV 5 1	1.2344	BH 13	Z 40 CDV 5	2242	H 13	2450	0,23	10/11
X 46 Cr 13	1.4034	420 S 45	Z 40 C 14			1875	0,21	12/13
X 5 CrNi 18 9	1.4301	304 S 15	Z 6 CN 18.09	2332; 2333	304; 304 H	2150	0,2	14
X 5 CrNiMo 17 13 3	1.4436	316 S 16	Z 6 CND 17.12	2343	316	2150	0,2	14
X 5 CrNiMo 18 10	1.4401	316 S 16	Z 6 CND 17.11	2347	316	2150	0,2	14
X 53 CrMnNiN 21 9	1.4871	349 S 54	Z 52 CMN 21.09		EV 8	1875	0,21	12/13
X 6 Cr 13	1.4000	403 S 17	Z 6 C 13	2301	403	1875	0,21	12/13
X 6 Cr 17	1.4016	430 S 15	Z 8 C 17	2320	430	1875	0,21	12/13
X 6 CrMo 17	1.4113	434 S 17	Z 8 CD 17.01	2325	434	1875	0,21	12/13
X 6 CrNiMoTi 17 12 2	1.4571	320 S 31	Z 6 CNT 17.12	2350	316 Ti	2150	0,2	14
X 6 CrNiNb 18 10	1.4550	347 S 17	Z 6 CNNb 18.10	2338	347	2150	0,2	14
X 6 CrNiTi 18 10	1.4541	321 S 12	Z 6 CNT 18.10	2337	321	2150	0,2	14
X2 CrNi 18-8	1.4317					2150	0,2	14

Cutting data
Tool/material

	v_c (feet/ min)	f_z (inch)	a_p (inch)	v_c (feet/ min)	f_z (inch)	a_p (inch)	v_c (feet/ min)	f_z (inch)	a_p (inch)
Maximill A260-041									
▼	1148 - 492	.0020 - .0059	.0039 - .0787	656 - 262	.0039 - .0098	.0787 - .1575	–	–	–
▼	919 - 492	.0020 - .0059	.0039 - .0787	656 - 262	.0039 - .0098	.0787 - .1575	–	–	–
▼	919 - 492	.0020 - .0059	.0039 - .0787	656 - 262	.0039 - .0098	.0787 - .1575	–	–	–
▼	> 6562	.0020 - .0059	.0039 - .0787	> 6562	.0039 - .0098	.0787 - .1575	–	–	–
▼	–	.0020 - .0059	–	246 - 82	.0039 - .0098	.0787 - .1575	–	–	–
Maximill A490-09									
▼	1148 - 492	.0020 - .0059	.0039 - .0787	656 - 262	.0039 - .0098	.0787 - .1575	492 - 197	.0071 - .0138	.1181 - .2362
▼	919 - 492	.0020 - .0059	.0039 - .0787	656 - 262	.0039 - .0098	.0787 - .1575	492 - 197	.0071 - .0138	.1181 - .2362
▼	919 - 492	.0020 - .0059	.0039 - .0787	656 - 394	.0039 - .0098	.0787 - .1575	492 - 262	.0079 - .0138	.1181 - .2362
▼	< 6562	.0020 - .0059	.0039 - .0787	< 6562	.0039 - .0098	.0787 - .1575	< 65617	.0079 - .0138	.1181 - .2362
▼	–	–	–	246 - 82	.0039 - .0098	.0787 - .1575	–	–	–
Maximill A260-032									
▼	–	–	–	656 - 262	.0039 - .0098	.0394 - .1575	492 - 197	.0079 - .0157	.1575 - .3543
▼	–	–	–	656 - 262	.0039 - .0098	.0394 - .1575	492 - 197	.0079 - .0157	.1575 - .3543
▼	–	–	–	656 - 394	.0039 - .0098	.0394 - .1575	492 - 262	.0079 - .0157	.1575 - .3543
▼	< 6562	.0031 - .0059	.0039 - .0787	< 6562	.0039 - .0098	.0394 - .1575	< 6562	.0079 - .0157	.1575 - .3543
▼	–	–	–	246 - 82	.0039 - .0098	.0394 - .1575	–	–	–
Maximill C251-05									
▼	1148 - 591	.0039 - .0138	.0098 - .0394	–	–	–	–	–	–
▼	820 - 262	.0020 - .0059	.0098 - .0394	–	–	–	–	–	–
▼	1148 - 328	.0020 - .0079	.0098 - .0394	–	–	–	–	–	–
▼	< 6562	.0039 - .0079	.0098 - .0394	–	–	–	–	–	–
▼	246 - 82	.0020 - .0059	.0098 - .0394	–	–	–	–	–	–
Maximill C251-08 / G251-08									
▼	1148 - 591	.0059 - .0157	.0197 - .0591	–	–	–	–	–	–
▼	820 - 262	.0031 - .0079	.0197 - .0591	–	–	–	–	–	–
▼	1148 - 328	.0031 - .0098	.0197 - .0591	–	–	–	–	–	–
▼	< 6562	.0039 - .0118	.0197 - .0591	–	–	–	–	–	–
▼	246 - 82	.0020 - .0059	.0197 - .0591	–	–	–	–	–	–
Maximill C251-10 / G251-10 / A251-10									
▼	–	–	–	1148 - 591	.0059 - .0197	.0197 - .0984	–	–	–
▼	–	–	–	820 - 262	.0039 - .0118	.0197 - .0984	–	–	–
▼	–	–	–	1148 - 328	.0039 - .0118	.0197 - .0984	–	–	–
▼	–	–	–	< 6562	.0039 - .0157	.0197 - .0984	–	–	–
▼	–	–	–	246 - 82	.0031 - .0098	.0197 - .0984	–	–	–

Cutting speed v_c for SM80

➲ E21

	v_c (feet/ min)	f_z (inch)	a_p (inch)	v_c (feet/ min)	f_z (inch)	a_p (inch)	v_c (feet/ min)	f_z (inch)	a_p (inch)
Maximill A251-12 / A260-052									
▼	–	–	–	1148 - 591	.0079 - .0315	.0197 - .1181	–	–	–
▼	–	–	–	820 - 262	.0039 - .0177	.0197 - .1181	–	–	–
▼	–	–	–	1148 - 328	.0039 - .0177	.0197 - .1181	–	–	–
▼	–	–	–	< 6562	.0039 - .0177	.0197 - .1181	–	–	–
▼	–	–	–	246 - 82	.0039 - .0118	.0197 - .1181	–	–	–
Maximill A251-16 / A260-053									
▼	–	–	–	1148 - 591	.0098 - .0315	.0591 - .1575	–	–	–
▼	–	–	–	820 - 262	.0079 - .0236	.0591 - .1575	–	–	–
▼	–	–	–	1148 - 328	.0079 - .0236	.0591 - .1575	–	–	–
▼	–	–	–	< 6562	.0079 - .0236	.0591 - .1575	–	–	–
▼	–	–	–	246 - 82	.0059 - .0138	.0591 - .1575	–	–	–
Maximill A251-20									
▼	–	–	–	–	–	–	1148 - 591	.0098 - .0315	.0591 - .1575
▼	–	–	–	–	–	–	820 - 262	.0079 - .0236	.0591 - .1575
▼	–	–	–	–	–	–	1148 - 328	.0079 - .0236	.0591 - .1575
▼	–	–	–	–	–	–	–	–	–
▼	–	–	–	–	–	–	246 - 82	.0059 - .0138	.0591 - .1575
Maximill C210 / G210 / A210 / A260-042									
▼	1148 - 394	.0020 - .0039	.0039 - .0787	919 - 394	.0031 - .0059	.0787 - .1575	591 - 328	.0059 - 0079	.1575 - .3150
▼	820 - 328	.0020 - .0039	.0039 - .0787	591 - 262	.0031 - .0059	.0787 - .1575	525 - 230	.0059 - 0079	.1575 - .3150
▼	984 - 394	.0020 - .0039	.0039 - .0787	919 - 394	.0039 - .0059	.0787 - .1575	722 - 328	.0059 - 0079	.1575 - .3150
▼	< 6562	.0020 - .0039	.0039 - .0787	< 6562	.0031 - .0059	.0787 - .1575	< 6562	.0059 - 0079	.1575 - .3150
▼	–	–	–	246 - 82	.0031 - .0059	.0787 - .1575	–	–	–
▽	1640 - 492	.0016 - .0035	.0079 - .0236	–	–	–	–	–	–
Maximill C141 / A241 / A260-051									
▼	1148 - 361	.0020 - .0039	.0039 - .0787	787 - 328	.0039 - .0098	.0787 - .1575	492 - 262	.0079 - .0138	< .5512
▼	820 - 459	.0020 - .0039	.0039 - .0787	656 - 328	.0039 - .0098	.0787 - .1575	459 - 262	.0079 - .0138	< .5512
▼	1148 - 328	.0020 - .0039	.0039 - .0787	919 - 295	.0039 - .0098	.0787 - .1575	722 - 262	.0079 - .0118	< .5512
▼	< 6562	.0020 - .0039	.0039 - .0787	< 6562	.0039 - .0098	.0787 - .1575	< 6562	.0079 - .0138	< .5512
▼	–	–	–	246 - 82	.0039 - .0098	.0787 - .1575	–	–	–
Maximill A280 / A260-037									
▼	1148 - 492	.0031 - .0047	.0039 - .0787	656 - 262	.0039 - .0079	.0787 - .1969	–	–	–
▼	886 - 361	.0031 - .0039	.0039 - .0787	656 - 262	.0039 - .0079	.0787 - .1969	–	–	–
▼	1148 - 328	.0020 - .0039	.0039 - .0787	656 - 262	.0039 - .0079	.0787 - .1969	–	–	–
▼	< 6562	.0020 - .0039	.0039 - .0787	< 6562	.0039 - .0079	.0787 - .1969	–	–	–
▼	–	–	–	246 - 82	.0039 - .0079	.0787 - .1969	–	–	–

Cutting speed v_c for SM80

➲ E21

Cutting data
Tool/material

	v_c (feet/min)	f_z (inch)	a_p (inch)	v_c (feet/min)	f_z (inch)	a_p (inch)	v_c (feet/min)	f_z (inch)	a_p (inch)
Maximill A260-036									
▼	–	–	–				–	–	–
▼	–	–	–				–	–	–
▼	–	–	–				–	–	–
▼	< 6562	.0020 - .0039	.0039 - .0591	< 6562	.0039 - .0059	.0591 - .1575	< 6562	.0059 - .0098	≤ 4134
▼	–	–	–				–	–	–
Maximill A490-09									
▼	1148 - 492	.164 - .492	.328 - 6.56	656 - 262	.328 - .82	6.56 - 13.12	–	–	–
▼	918 - 328	.164 - .492	.328 - 6.56	656 - 262	.328 - .82	6.56 - 13.12	–	–	–
▼	918 - 492	.164 - .492	.328 - 6.56	656 - 394	.328 - .82	6.56 - 13.12	–	–	–
▼	< 6560	.164 - .492	.328 - 6.56	< 6560	.328 - .82	6.56 - 13.12	–	–	–
▼	360 - 49	.164 - .492	.328 - 6.56	360 - 49	.328 - .492	6.56 - 13.12	–	–	–
Maximill A260-040									
▼	–	–	–	656 - 394	.0039 - .0079	.0394 - .2756	492 - 262	.0079 - .0157	.1575 - .5512
▼	–	–	–	656 - 394	.0039 - .0079	.0394 - .2756	492 - 262	.0079 - .0157	< .4724
Maximill A260-025									
▼	–	–	–	591 - 262	.0039 - .0079	.0787 - .3543	394 - 197	.0079 - .0138	.2362 - .7087
▼	–	–	–	591 - 262	.0039 - .0079	.0787 - .3543	394 - 197	.0079 - .0138	.2362 - .7087
▼	–	–	–	591 - 328	.0039 - .0079	.0787 - .3543	492 - 262	.0079 - .0138	.2362 - .7087
Maximill A260-026									
▼	–	–	–	591 - 262	.0039 - .0079	.0787 - .3150	394 - 197	.0079 - .0138	.2362 - .7087
▼	–	–	–	591 - 262	.0039 - .0079	.0787 - .3150	394 - 197	.0079 - .0138	.2362 - .7087
▼	–	–	–	820 - 394	.0039 - .0079	.0787 - .3150	492 - 262	.0079 - .0138	.2362 - .7087
Maximill A260-023									
▼	1148 - 492	.0031 - .0047	.0039 - .0787	722 - 394	.0039 - .0079	.0787 - .1575	492 - 262	.0079 - .0157	.1575 - .2756
Maximill A260-018									
▼	722 - 492	.0031 - .0047	.0039 - .0787	591 - 262	.0039 - .0079	.0787 - .1575	197 - 394	.0079 - .0138	.1575 - .3543
▼	656 - 361	.0031 - .0047	.0039 - .0787	591 - 295	.0039 - .0079	.0787 - .1575	230 - 130	.0079 - .0138	.1575 - .3543
▼	919 - 492	.0031 - .0047	.0039 - .0787	591 - 394	.0039 - .0079	.0787 - .1575	328 - 492	.0079 - .0138	.1575 - .3543
▼	< 6562	.0020 - .0039	.0039 - .0787	–	–	–	–	–	–
HSC-11									
▼	11483 - 984	.0020-.0039	.0118 - .0591	9842 - 984	.0030 - .0079	.0591 - .2362	4921 - 656	.0039-.0098	.1969 - .3937

Cutting speed v_c for SM80

➲ E21

Cutting data
Grades/material

CERATIZIT

	Workpiece material	Type of treatment / alloy		VDI 3323 group	Hardness HB	CTW4615/H216T v_c [SFM]	CTW4615/H216T v_c [SFM]
A	Non alloyed steel	annealed	≤ 0,15% C	1	125	—	—
		annealed	0,15% - 0,45% C	2	150 - 250	—	—
		tempered	≥ 0,45% C	3	300	—	—
	Low alloyed steel	annealed		6	180	—	—
		tempered		7 / 8	250 - 300	—	—
		tempered		9	350	—	—
	High alloyed steel	annealed		10	200	—	—
		tempered		11	350	—	—
	Stainless steel	annealed	ferritic	12	200	—	—
		tempered	martensitic	13	325	—	—
R	Stainless steel	annealed	ferritic / martensitic	14	200	—	—
		quenched	austenitic	14	180	—	—
		quenched	duplex	14	230 - 260	—	—
		hardened	martensitic / austenitic	14	330	—	—
F	Grey cast iron		perlitic / ferritic	15	180	295 - 525	295 - 525
			perlitic / martensitic	16	260	262 - 427	262 - 427
	Grey cast iron with spheroidal graphite		ferritic	17	160	328 - 525	328 - 525
			perlitic	18	250	295 - 492	295 - 492
	Tempered iron		ferritic	19	130	328 - 525	328 - 525
			perlitic	20	230	230 - 492	230 - 492
N	Aluminium wrought alloys	non hardened		21	60	—	656 - 9842
		hardened		22	100	—	656 - 6562
	Aluminium cast alloys	non hardened	< 12% Si	23	80	—	656 - 6562
		hardened	< 12% Si	24	90	—	656 - 5905
		non hardened	> 12% Si	25	130	—	656 - 3281
	Copper and copper alloys (bronze, brass)		machining alloy stock (1% Pb)	26	—	—	656 - 1968
			brass, red bronze	27	—	820 - 3281	820 - 3281
			bronze	28	90	—	492 - 1312
			lead-free copper and electrolytic copper	29	100	—	984 - 2625
	Non metal materials		thermosetting plastics	29	100	262 - 3281	262 - 3281
			fibre reinforced plastics	29	—	230 - 1640	230 - 1640
			hard rubber	30	—	262 - 984	262 - 984
S	Heat resistant alloys	annealed	Fe-base	31	200	—	—
		hardened	Fe-base	32	280	—	—
		annealed	Ni or Co-base	33	250	—	—
		hardened	Ni or Co-base 30 - 58 HRC	34	350	—	—
		cast	Ni or Co-base 1500 - 2200 Nmm²	35	320	—	—
	Titanium alloys		pure titanium	36	R_m 400 *	—	—
			alpha + beta alloys	37	R_m 1050 *	—	—
H	Tempered steel	hardened and tempered		38	55 HRC	—	—
		hardened and tempered		39	60 HRC	—	—
	Chilled castings	cast		40	400	—	—
	Tempered cast iron	hardened and tempered		40	55 HRC	—	—

* R_m = maximum strength, measured in MPa

Cutting data
Grades/material

S26T		TA201	TCM10
☒	☒	☒	☒
v_c [sfm]	v_c [sfm]	v_c [sfm]	v_c [sfm]
252 - 722	328 - 525	—	492 - 1312
459 - 328	295 - 492	—	492 - 1148
394 - 591	262 - 459	—	492 - 1050
394 - 591	262 - 459	—	394 - 1247
361 - 558	262 - 459	—	394 - 1181
328 - 525	230 - 361	—	394 - 1115
328 - 525	197 - 328	—	394 - 1247
295 - 492	197 - 328	—	394- 1050
—	—	—	394 - 1115
—	—	—	394 - 984
—	—	—	394 - 984
—	—	—	394 - 1181
—	—	—	100 - 919
—	—	—	—
—	—	—	—
—	—	—	328 - 1575
—	—	—	328 - 1378
—	—	656 - 2297**	328 - 1968
—	—	—	328 - 1640
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—	—	328 - 820	—
—	—	328 - 820	—
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—	—	230 - 820	—
—	—	230 - 492	—
—	—	—	—
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Uncoated carbide

** From cast iron GGG 60 onwards ☒ = recommended application ☐ = possible application

Cutting data
Grades/material

Workpiece material		Type of treatment / alloy		VDI 3323 group	Hardness HB	AMZ v_c [sfm]	AMZ v_c [sfm]
A	Non alloyed steel	annealed	≤ 0,15% C	1	125	—	—
		annealed	0,15% - 0,45% C	2	150 - 250	—	—
		tempered	≥ 0,45% C	3	300	—	—
	Low alloyed steel	annealed		6	180	—	—
		tempered		7 / 8	250 - 300	—	—
		tempered		9	350	—	—
	High alloyed steel	annealed		10	200	—	—
		tempered		11	350	—	—
	Corrosion resistant steel	annealed	ferritic	12	200	—	—
		tempered	martensitic	13	325	—	—
R	Stainless steel	annealed	ferritic / martensitic	14	200	—	—
		quenched	austenitic	14	180	—	—
		quenched	Duplex	14	230 - 260	—	—
		hardened	martensitic / austenitic	14	330	—	—
F	Grey cast iron		perlitic / ferritic	15	180	591 - 772	—
			perlitic / martensitic	16	260	459 - 591	—
	Grey cast iron with spheroidal graphite		ferritic	17	160	492 - 722	—
			perlitic	18	250	394 - 591	—
	Tempered iron		ferritic	19	130	591 - 722	—
			perlitic	20	230	492 - 656	—
N	Aluminium wrought alloys	non hardened		21	60	—	984 - 10499
		hardened		22	100	—	656 - 9186
	Aluminium cast alloys	non hardened	< 12% Si	23	80	—	1312 - 6562
		hardened	< 12% Si	24	90	—	1312 - 6562
		non hardened	> 12% Si	25	130	—	656 - 3937
	Copper and copper alloys (bronze, brass)		machining alloy stock (1% Pb)	26	—	—	820 - 3281
			brass, red bronze	27	—	656 - 3281	656 - 3281
			bronze	28	90	—	492 - 2625
			lead-free copper and electrolytic copper	29	100	—	492 - 1640
	Non metal materials		thermosetting plastics	29	100	—	262 - 656
			fibre reinforced plastics	29	—	—	262 - 772
			hard rubber	30	—	—	328 - 1050
S	Heat resistant alloys	annealed	Fe-base	31	200	—	—
		hardened	Fe-base	32	280	—	—
		annealed	Ni- or Co-base	33	250	—	—
		hardened	Ni- or Co-base 30 - 58 HRC	34	350	—	—
		cast	Ni- or Co-base 1500 - 2200 Nmm²	35	320	—	—
	Titanium alloys		pure titanium	36	R_m 400 *	—	—
			alpha + beta alloys	37	R_m 1050 *	—	—
H	Tempered steel	hardened and tempered		38	55 HRC	—	—
		hardened and tempered		39	60 HRC	—	—
	Chilled castings	cast		40	400	—	—
	Tempered cast iron	hardened and tempered		40	55 HRC	—	—

* R_m = maximum strength, measured in MPa

Cutting data
Grades/material

CTP1235		CTP1625		CTP2235		GM246	
(dry) ☐	(wet) ☒	(wet) ☒	(dry) ☒	(dry) ☐	(wet) ☒	(dry) ☐	(wet) ☒
v_c [sfm]	v_c [sfm]	v_c [sfm]	v_c [sfm]	v_c [sfm]	v_c [sfm]	v_c [sfm]	v_c [sfm]
328 - 722	230 - 590	558 - 656	295 - 427	492 - 853	295 - 590	525 - 853	459 - 591
328 - 722	230 - 590	459 - 525	295 - 427	492 - 853	295 - 590	427 - 722	361 - 492
328 - 722	230 - 590	427 - 492	295 - 427	492 - 853	295 - 590	295 - 525	230 - 427
262 - 722	230 - 558	492 - 591	295 - 427	262 - 722	230 - 525	492 - 722	361 - 558
262 - 722	230 - 558	427 - 525	295 - 427	262 - 722	230 - 525	361 - 623	262 - 492
262 - 722	230 - 558	394 - 492	295 - 427	262 - 722	230 - 525	295 - 525	260 - 427
262 - 590	197 - 459	328 - 394	230 - 295	295 - 590	230 - 459	394 - 656	328 - 492
262 - 590	197 - 459	295 - 361	230 - 295	295 - 590	230 - 459	295 - 459	230 - 361
230 - 590	197 - 459	427 - 525	295 - 427	230 - 590	197 - 459	361 - 722	295 - 459
230 - 590	197 - 459	361 - 492	295 - 427	230 - 590	197 - 459	295 - 591	262 - 361
197 - 656	131 - 459	459 - 591	295 - 427	197 - 656	197 - 459	295 - 820	197 - 459
197 - 656	131 - 459	361 - 427	295 - 427	197 - 656	197 - 459	328 - 525	197 - 394
197 - 656	131 - 459	—	—	197 - 656	197 - 459	164 - 328	164 - 295
197 - 656	131 - 459	295 - 361	230 - 295	197 - 656	197 - 459	197 - 591	164 - 459
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		—	—		66 - 197	66 - 164	66 - 164
		—	—		66 - 197	66 - 131	66 - 131
		—	—		66 - 197	82 - 131	82 - 131
		—	—		66 - 98	49 - 115	49 - 115
		—	164 - 295		66 - 98	66 - 115	66 - 115
		—	115 - 164		131 - 230	164 - 361	164 - 361
		—	—		66 - 131	98 - 164	98 - 164
		—	—			—	—
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		—	—			—	—

Coated carbide

☒ = recommended application ☐ = possible application

Cutting data
Grades/material

	Workpiece material	Type of treatment / alloy		VDI 3323 group	Hardness HB	GM43+ v_c [sfm]	GM43+ v_c [sfm]
A	Non alloyed steel	annealed	≤ 0,15% C	1	125	656 - 919	427 - 689
		annealed	0,15% - 0,45% C	2	150 - 250	558 - 820	361 - 591
		tempered	≥ 0,45% C	3	300	492 - 722	295 - 492
	Low alloyed steel	annealed		6	180	459 - 656	262 - 459
		tempered		7 / 8	250 - 300	427 - 591	197 - 427
		tempered		9	350	328 - 525	197 - 361
	High alloyed steel	annealed		10	200	328 - 525	197 - 361
		tempered		11	350	295 - 459	197 - 328
	Corrosion resistant steel	annealed	ferritic	12	200	427 - 591	262 - 459
		tempered	martensitic	13	325	295 - 492	230 - 427
R	Stainless steel	annealed	ferritic / martensitic	14	200	—	230 - 459
		quenched	austenitic	14	180	—	230 - 427
		quenched	Duplex	14	230 - 260	—	197 - 361
		hardened	martensitic / austenitic	14	330	—	230 - 427
F	Grey cast iron		perlitic / ferritic	15	180	—	—
			perlitic / martensitic	16	260	—	—
	Grey cast iron with spheroidal graphite		ferritic	17	160	—	—
			perlitic	18	250	—	—
	Tempered iron		ferritic	19	130	—	—
			perlitic	20	230	—	—
N	Aluminium wrought alloys	non hardened		21	60	—	—
		hardened		22	100	—	—
	Aluminium cast alloys	non hardened	< 12% Si	23	80	—	—
		hardened	< 12% Si	24	90	—	—
		non hardened	> 12% Si	25	130	—	—
	Copper and copper alloys (bronze, brass)		machining alloy stock (1% Pb)	26	—	—	—
			brass, red bronze	27	—	—	—
			bronze	28	90	—	—
			lead-free copper and electrolytic copper	29	100	—	—
	Non metal materials		thermosetting plastics	29	100	—	—
			fibre reinforced plastics	29	—	—	—
			hard rubber	30	—	—	—
S	Heat resistant alloys	annealed	Fe-base	31	200	—	197 - 328
		hardened	Fe-base	32	280	—	197 - 328
		annealed	Ni- or Co-base	33	250	—	164 - 262
		hardened	Ni- or Co-base 30 - 58 HRC	34	350	—	131 - 246
		cast	Ni- or Co-base 1500 - 2200 Nmm²	35	320	—	148 - 246
	Titanium alloys		pure titanium	36	R_m 400 *	—	66 - 131
			alpha + beta alloys	37	R_m 1050 *	—	—
H	Tempered steel	hardened and tempered		38	55 HRC	—	—
		hardened and tempered		39	60 HRC	—	—
	Chilled castings	cast		40	400	—	—
	Tempered cast iron	hardened and tempered		40	55 HRC	—	—

* R_m = maximum strength, measured in MPa

Cutting data
Grades/material

SM80	SR216		SR226+	
☒	☐	☒	☒	☐
v_c [sfm]	v_c [sfm]	v_c [sfm]	v_c [sfm]	v_c [sfm]
131 - 262	—	—	689 - 1148	427 - 656
98 - 197	—	—	558 - 1050	361 - 591
66 - 131	—	—	492 - 919	295 - 492
131 - 213	—	—	429 - 820	262 - 459
66 - 115	—	—	459 - 689	197 - 394
49 - 82	—	—	328 - 591	197 - 361
66 - 115	—	—	459 - 689	197 - 361
49 - 82	—	—	328 - 558	197 - 361
98 - 164	—	—	459 - 623	262 - 459
131 - 197	—	—	328 - 558	230 - 394
98 - 164	—	—	361 - 656	—
98 - 164	—	—	394 - 689	—
49 - 148	—	—	—	—
66 - 131	—	—	262 - 459	—
—	591 - 1148	591 - 1148	525 - 722	394 - 591
—	459 - 919	459 - 919	328 - 558	262 - 492
—	427 - 820	427 - 820	328 - 656	262 - 558
—	328 - 656	328 - 656	295 - 591	230 - 459
—	492 - 1050	492 - 1050	295 - 591	230 - 459
—	394 - 820	394 - 820	262 - 525	230 - 426
1050 - 1968	—	—	—	—
656 - 1476	—	—	—	—
984 - 1640	—	—	—	—
656 - 1312	—	—	—	—
—	—	—	—	—
262 - 361	—	—	—	—
262 - 361	—	—	—	—
262 - 361	—	—	—	—
262 - 984	—	—	—	—
—	—	—	—	—
—	—	—	—	—
230 - 492	—	—	—	—
82 - 115	—	—	—	197 - 295
49 - 82	—	—	—	197 - 295
49 - 82	—	—	—	—
33 - 66	—	—	—	—
33 - 66	—	—	—	—
82 - 148	—	—	—	—
49 - 98	—	—	—	—
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—	—	—	230 - 427	—
—	—	—	—	—

☒ = recommended application ☐ = possible application

Coated carbide

TECHNICAL INFORMATION

Application data
HSC/HPC

Clamping screws for inserts

Recommended torque moments for screws of strength class 12.9

		Nm	in.lbs.	
M2	Torx 06	0,7	6,2	
M2.2	Torx 07	0,8	7,1	
M2.5	Torx 08	1,2	10,6	
M2.5	Torx Plus TP08	1.6	14.1	
M3	Torx 08	2,0	17,7	
M3.5	Torx 15	3,2	28,3	
M4.5	Torx 20	5,5	48,7	

HSC/HPC applications:
Recommended torque moments for screws of strength class 16.9 and higher

		Nm			
M2.5	Torx Plus TP08	1,8	15,9 in.lbs.	HSC-11	
M4	Torx 15	5,0	44,3 in.lbs.	HPC-19	
M4	Torx 15	6,0	53,1 in.lbs.	HSC-19	

Clamping screws for milling adapters

Recommended torque moments for screws of strength class **12.9**

Revolution numbers for all shell milling cutters, <u>without</u> (HSC/HPC tools excluded)

		Recommended torque moments		Maximum revolution numbers								
				Ø 1.5	Ø 2.0	Ø 2.5	Ø 3.0	Ø 4.0	Ø 5.0	Ø 6.0	Ø 8.0	Ø 10.0
		Nm	ft.lbs.	[1000 rev/min]								
DIN 912	M8	30	22,1	16.0	12.5	10.0	9.0	6.5	5.0	4.0	2.5	2.0
DIN 912	M10	50	36,9									
DIN 912	M12	80	59,0									
DIN 912	M16	110	81,1									
DIN 912	M20	120	88,5									

Assembly devices

Set with handle, holders + 5 bits	in.lbs.
DMSD 0.7NM/SORT T06	6.2
DMSD 1.2NM/SORT T08	10.6
DMSD 1.6NM/SORT 8IP	14.1
DMSD 1.8NM/SORT 8IP	15.9
DMSD 1-5NM/SORT	8.8-44.3
DMSD 3.2NM/SORT T15	28.3
DMSD 5.0NM/SORT T15	44.3

Holder

DMSD-H	

Bit	in.lbs.
DMSD-B 8IP-50MM	
DMSD-B T06-50MM	
DMSD-B T08-50MM	
DMSD-B T15-50MM	

Handle

DMSD-G 0.7NM	6.2
DMSD-G 1.2NM	6.2
DMSD-G 1.6NM	6.2
DMSD-G 1.8NM	5.0
DMSD-G 3.2NM	5.0
DMSD-G 5.0NM	5.0

Insert Index

CERATIZIT systems

Shape A

Shape C

Shape H

Shape L

Shape R

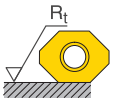
Shape S

Shape T

Shape V

Shape W

Shape X



for finishing

Other systems

Tool Index

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