

TURNING



CCMT	<i>Pg.071</i>
CNMA	<i>Pg.075</i>
CNMG	<i>Pg.077</i>
DCMT	<i>Pg.085</i>
DNMG	<i>Pg.087</i>
TCMT	<i>Pg.091</i>
TNMA	<i>Pg.093</i>
TNMG	<i>Pg.095</i>
TNUX	<i>Pg.103</i>
VBMT	<i>Pg.105</i>
VNMG	<i>Pg.107</i>
WNMA	<i>Pg.109</i>
WNMG	<i>Pg.111</i>

PVD Grades - Explained

3 X numbers - PVD



PVD

UN110

*General Prepose
*All Materials

PVD

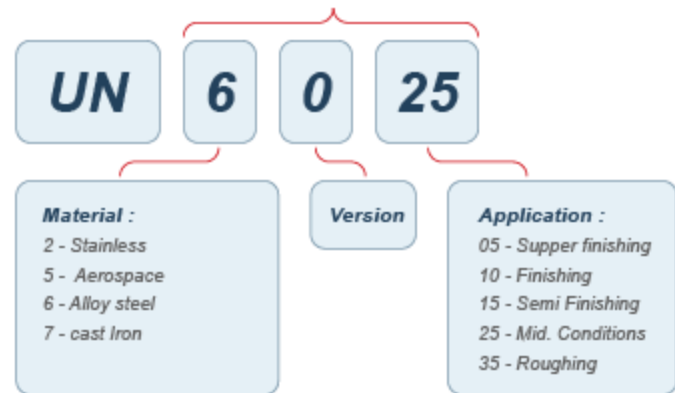
UN210

*Stainless steel

PVD

CVD Grades - Explained

4 X numbers - CVD



CVD

UN6010

*Long tool Life-
very Hard

CVD

UN6015 NEW

*General purpose
-Hard

CVD

UN6025

*General purpose
-Tough

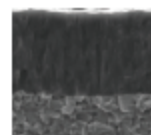
CVD

UN7010

*Cast Iron

CVD

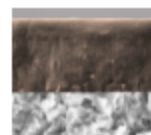
GRADE	ISO	Features & Applications
UN110 Sub micron PVD coated	P05 - P15	-A very tough PVD grade with excellent wear resistance -For cutting speeds (Vc) - up to 180 m/min -Developed for Internal Turning and Turning of Aerospace material -In all applications should be used with coolant
	M15 - M25	
	K10 - K20	
	S20 - S35	
UN210 Sub Micron PVD Coated	M10 - M25	-Unique PVD grade, using patented deposition technology -Especially developed for Stainless steel machining, in Turning Negative inserts
UN6010 K10 Grade Very Thick CVD Coated	P05 - P10	-Modern CVD grade with very thick Alpha Alumina For high wear resistance Turning machining -Applicable for Alloy Steel -Extremely wear resistant grade for stable conditions of cutting, up to cutting speed (Vc) of 450 m/min -In most applications should be used with coolant
	K05 - K10	
UN6015 P15 Grade CVD Coated	P10 - P15	-P15 Substrate & CVD coated grade with Alpha Alumina For General Turning machining -Applicable for Alloy Steel, Stainless steel, cast Iron -Extremely versatile grade for all conditions of cutting, upto cutting speed (Vc) of 330 m/min -In most applications should be used with coolant
	M15	
	K10 - K15	
UN6025 Cobalt Enriched CVD Coated	P20 - P25	-Cobalt Enriched Substrate & CVD coated grade with Alpha Alumina For General Turning machining -Applicable for Alloy Steel, Stainless steel, cast Iron and some Aerospace material -Extremely versatile grade for all conditions of cutting, upto cutting speed (Vc) of 250m/min -In most applications should be used with coolant
	M20	
	K20 - K25	
UN7010 K10 Grade Very Thick CVD Coated	K15 - K20	-Modern CVD grade with very thick Alpha Alumina For high wear resistance Turning machining -Applicable for cast Iron material -Extremely wear resistant grade for stable conditions of cutting, up to cutting speed (Vc) of 450 m/min -In most applications should be used with coolant



UN110

Hyper Pulsed - Extremely Thick PVD coating & submicron substrate

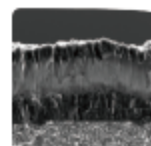
- Unique coating composition, with ground breaking deposition technology
- Thickest PVD coating in commercial use, with over 7mic of deposition



UN210

Hyper Pulsed PVD coating & submicron substrate

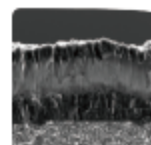
- Unique coating composition, with ground breaking deposition technology
- Especially developed for Stainless steel machining



UN6010

P10 substrate & modern CVD Coating

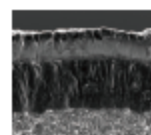
- Extremely wear resistant Turning grade
- With CVD coating based of very thick Alpha Alumina
- Excellent wear resistance and hot hardness parameters



UN6015

P15 Substrate & Modern CVD Coating

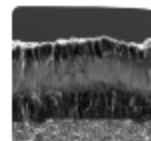
- General purpose turning grade
- With CVD coating with (MT) TiCN layer and Alpha alumina
- Excellent wear resistance and toughness combination



UN6025

Cobalt Enriched substrate & modern CVD Coating

- General purpose turning grade
- With CVD coating with (MT) TiCN layer and Alpha alumina
- Excellent toughness and wear resistance combination



UN7010

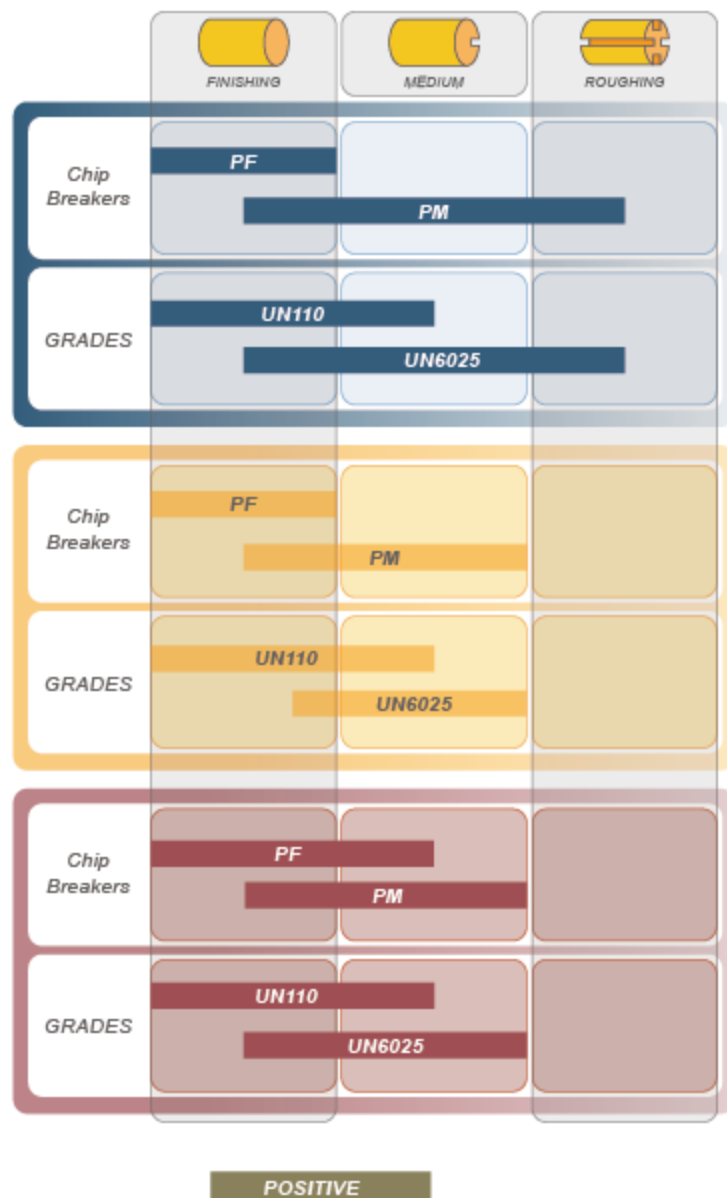
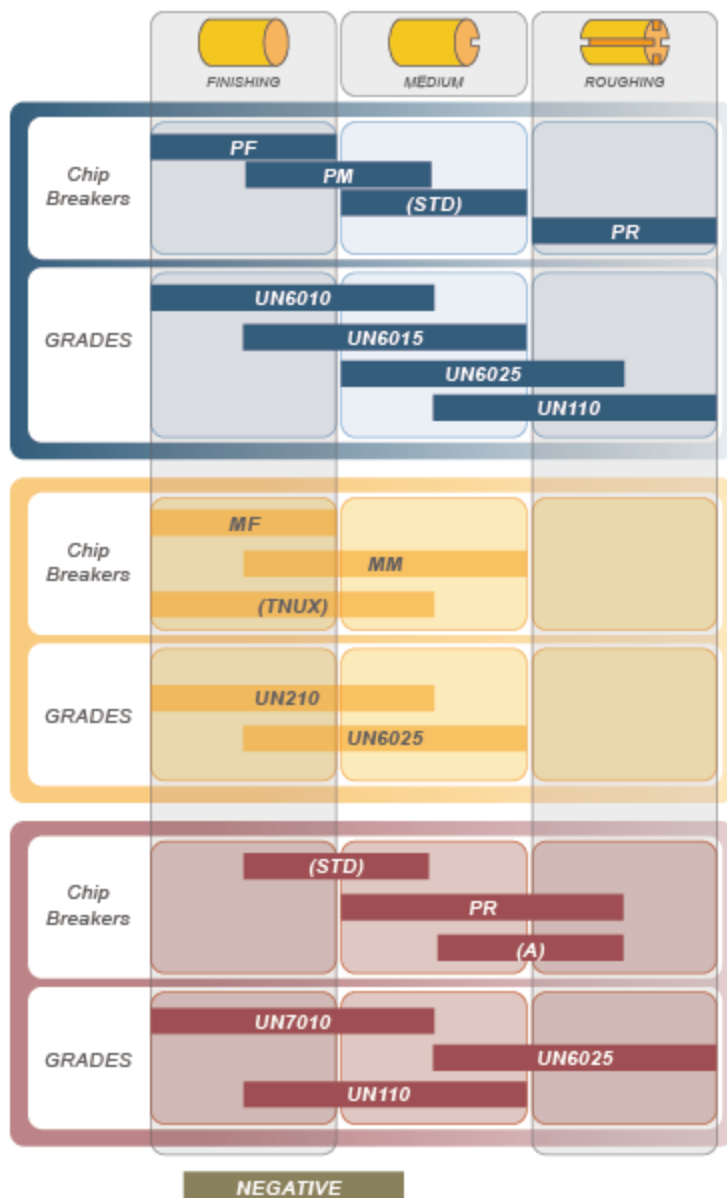
K10 substrate & modern CVD Coating

- Extremely wear resistant Turning grade
- With CVD coating based of very thick Alpha Alumina
- Excellent wear resistance and hot hardness parameters

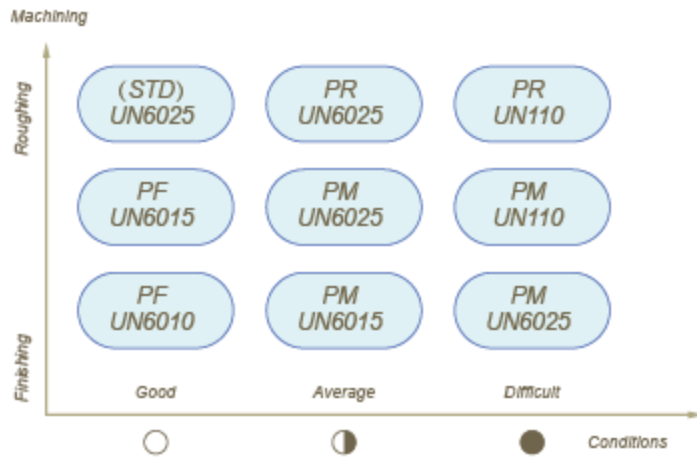
PF	<ul style="list-style-type: none"> Sharp Chip-breaker for Finishing and sticky material 	<ul style="list-style-type: none"> Fz min: 0.12 (mm/Rev) 	P M K
PM	<ul style="list-style-type: none"> for Semi- Finishing General Machining 	<ul style="list-style-type: none"> Fz min: 0.18 (mm/Rev) 	P M K
(STD)	<ul style="list-style-type: none"> Tough Chip-breaker for Mid-tough machining 	<ul style="list-style-type: none"> Fz min: 0.24 (mm/Rev) 	P K
PR	<ul style="list-style-type: none"> Tough Chip-breaker for General-tough machining 	<ul style="list-style-type: none"> Fz min: 0.35 (mm/Rev) 	P K
MF	<ul style="list-style-type: none"> Sharp Chip-breaker Stainless Steel - Finishing 	<ul style="list-style-type: none"> Fz min: 0.12 (mm/Rev) 	M S
MM	<ul style="list-style-type: none"> for Semi- Finishing Stainless steel -General Machining 	<ul style="list-style-type: none"> Fz min: 0.18 (mm/Rev) 	M S
CNM(A)	<ul style="list-style-type: none"> Flat top Chip Breaker for Cast iron machining 	<ul style="list-style-type: none"> Fz min: 0.15 (mm/Rev) 	K
TNU(X)	<ul style="list-style-type: none"> Very sharp chip breaker like KNUX for Low carbon steel & Stainless Steel 	<ul style="list-style-type: none"> Fz min: 0.10 (mm/Rev) 	P M

Chip Breaker name and Geometry		Applications and Features
PF		<ul style="list-style-type: none"> Sharp chip breaker For finishing operations Also adopted for sticky material and Stainless steel Chip Control starts at Fz: 0.12
PM		<ul style="list-style-type: none"> Semi Finishing chip breaker for General machining First choice for stable machining and light-Mid. cutting pressure Smooth cutting due to very positive chip breaker angles Chip Control starts at Fz: 0.18
(STD)		<ul style="list-style-type: none"> Mid. cutting conditions - chip breaker for General machining First choice for Un-stable machining with reasonable cutting pressure Reinforced chipbreaker allows for high shock resistance Chip Control starts at Fz: 0.25
PR		<ul style="list-style-type: none"> Roughing chip breaker mostly used in tough machining applications First choice for very Un-stable machining or for thick casting "skin" Tough and reinforced cutting edge and chip breaker angles Chip Control starts at Fz: 0.35
(A)		<ul style="list-style-type: none"> Flat top Insert design used mostly for Cast Iron applications Chip Control starts at Fz: 0.15 Use with UN 7010 grade for best results
(X)		<ul style="list-style-type: none"> Sharp chip breaker For finishing operations with performance similar to KNUX Also adopted for sticky material, Stainless steel and Aerospace Material Chip Control starts at Fz: 0.10
MF		<ul style="list-style-type: none"> Sharp chip breaker - especially developed for stainless Applications For finishing operations Also adopted for very soft or sticky material Chip Control starts at Fz: 0.10
MM		<ul style="list-style-type: none"> Semi Finishing chip breaker - especially developed for stainless Applications First choice for all stainless steel applications Also adopted for very soft, sticky material and some Aerospace material Chip Control starts at Fz: 0.14

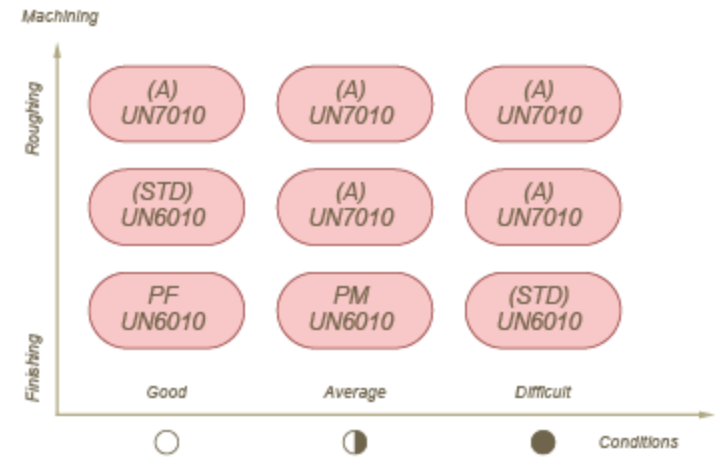
OVER VIEW- CHIP BREAKERS & GRADES



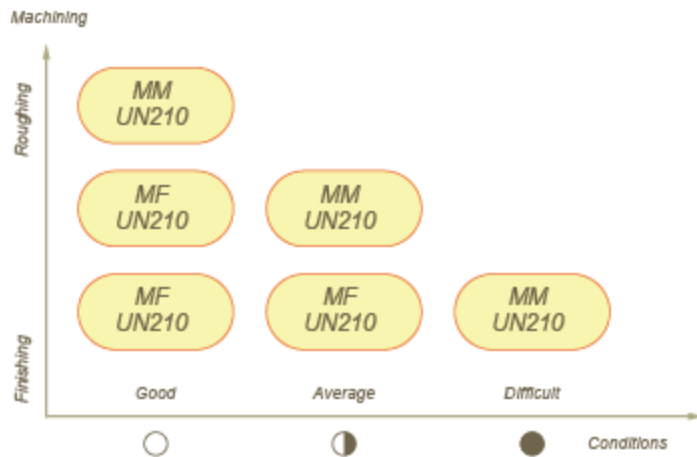
ISO P (Steel)



ISO K (Cast iron)



ISO M (Stainless Steel)



Fz Fits the Chip-breaker

IMPORTANT

PF : Bigger than 0.11

PM : Bigger than 0.18

(STD) : Bigger than 0.25

PR: Bigger than 0.35

Grade

UN 6025 : CVD General Purpose

Vc

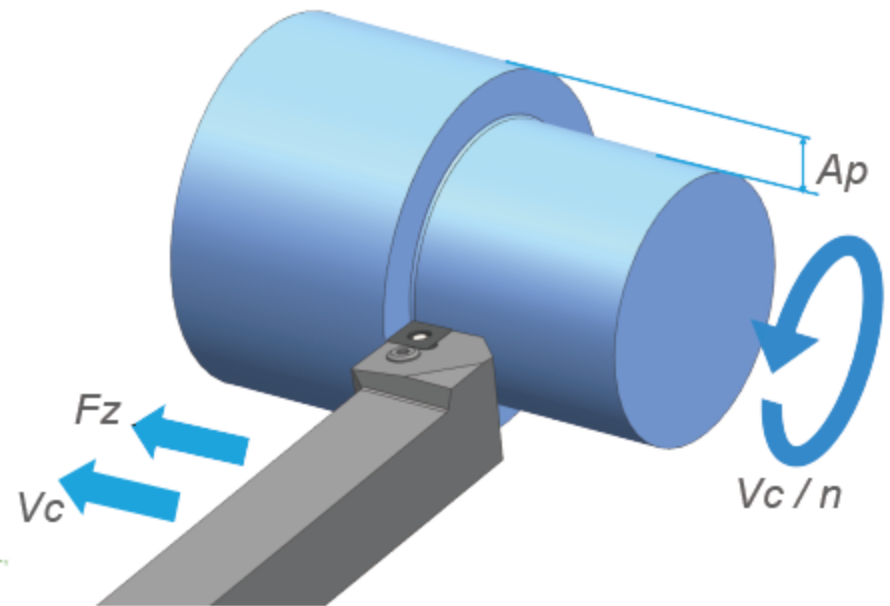
Vc: 220: Any Speed below 280

Ap

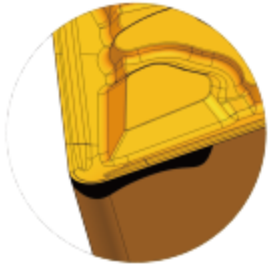
Depth of Cut : Any depth is fine

Coolant

Always - ON



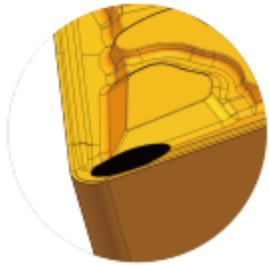
Flank Wear



UN6015 CHANGE TO UN6010

UN6025 CHANGE TO UN6015

Crater Wear

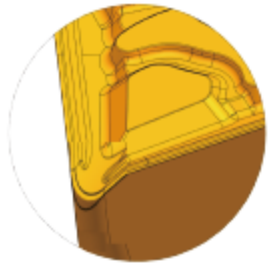


PVD grades

CHANGE TO

CVD grades

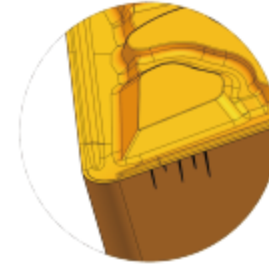
Plastic Deformation



CHANGE TO PVD grades

UN6025 CHANGE TO UN6015

Thermal Cracks

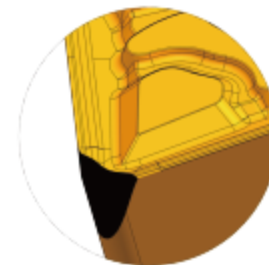


CVD grades

CHANGE TO

PVD grades

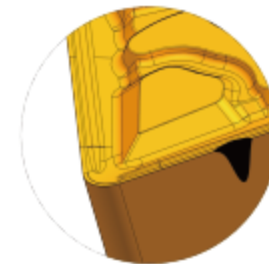
Edge Breakage



UN6015 CHANGE TO UN6025

CHANGE TO PVD grades

Notch Wear



CHANGE TO UN210



FAMILY

			IC	LE	RE	S
5100000106	CCMT 060204 PF	UN110	6.35	6.35	0.40	2.38
5100000110	CCMT 09T304 PM	UN110	9.53	9.53	0.40	3.97
5100000112	CCMT 09T304 PM	UN6025	9.53	9.53	0.40	3.97
5100000114	CCMT 09T308 PM	UN110	9.53	9.53	0.80	3.97
5100000116	CCMT 09T308 PM	UN6025	9.53	9.53	0.80	3.97
5100000110	CCMT 120408 PM	UN110	12.70	12.70	0.80	4.76
5100000120	CCMT 120408 PM	UN6025	12.70	12.70	0.80	4.76



PRODUCT - LINE UP

CCMT 060204 PF UN 110	CCMT 09T304 PM UN 110	CCMT 09T304 PM UN 6025	CCMT 09T308 PM UN 110	CCMT 09T308 PM UN 6025	CCMT 120408 PM UN 110	CCMT 120408 PM UN 6025
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FINISHING

Mid. Conditions

ROUGHING

CHIP BREAKERS

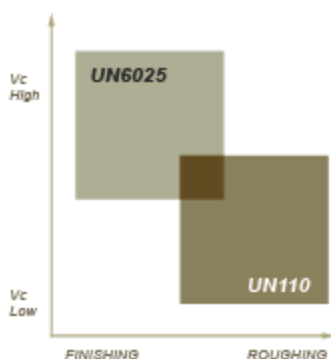
PF

- Sharp Chip-breaker
- for Finishing and sticky material
- Starting Feed (Fz) : 0.12 (mm/Rev)

PM

- Semi Finishing chip Breaker for General Machining
- First Choice for ALL conditions
- Starting Feed (Fz) : 0.18 (mm/Rev)

GRADE



UN6025

- Cobalt Enriched & Alpha Alumina CVD.
- General Purpose internal and external TURNING Applications.
- Where a good balance of wear resistance and toughness is required.

UN110

- Sub Micron Substrate & thick Hyper Pulsed PVD coating.
- Suitable for Low to Mid Cutting Speeds in INTERNAL TURNING.
- An excellent option for tough, aggressive and non stable condition.

CUTTING CONDITIONS

(P)
STEEL

Vc	80 - 180
Fz	0.12 - 0.18
Ap	0.3 - 1.0

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc	80 - 150
Fz	0.12 - 0.18
Ap	0.3 - 1.0

(K)
CAST IRON

Vc	80 - 150
Fz	0.12 - 0.18
Ap	0.3 - 2.0

Vc	110	Fz	0.15	Ap	1.0
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CCMT 060204 PF UN110

(P)
STEEL

Vc	80 - 180
Fz	0.14 - 0.22
Ap	0.3 - 2.0

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc	80 - 150
Fz	0.14 - 0.22
Ap	0.3 - 2.0

(K)
CAST IRON

Vc	80 - 150
Fz	0.14 - 0.22
Ap	0.3 - 3.0

Vc	110	Fz	0.18	Ap	1.5
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CCMT 09T304 PM UN110

(P)
STEEL

Vc	120 - 250
Fz	0.14 - 0.22
Ap	0.3 - 2.0

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc	120 - 170
Fz	0.14 - 0.22
Ap	0.3 - 2.0

(K)
CAST IRON

Vc	120 - 230
Fz	0.14 - 0.22
Ap	0.3 - 3.0

Vc	160	Fz	0.18	Ap	1.0
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CCMT 09T304 PM UN6025

(P)
STEEL

Vc	80 - 180
Fz	0.14 - 0.22
Ap	0.5 - 3.0

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc	80 - 150
Fz	0.14 - 0.22
Ap	0.5 - 4.0

(K)
CAST IRON

Vc	80 - 150
Fz	0.14 - 0.22
Ap	0.5 - 4.0

Vc	110	Fz	0.18	Ap	2.0
----	-----	----	------	----	-----

CCMT 09T308 PM UN110

(P)
STEEL

Vc	120 - 250
Fz	0.14 - 0.22
Ap	0.5 - 3.0

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc	120 - 170
Fz	0.14 - 0.22
Ap	0.5 - 4.0

(K)
CAST IRON

Vc	120 - 230
Fz	0.14 - 0.22
Ap	0.5 - 4.0

Vc	160	Fz	0.18	Ap	2.0
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CCMT 09T308 PM UN6025



CCMT 120408 PM UN110

(P)
STEEL

Vc 80 - 180
Fz 0.18 - 0.30
Ap 0.5 - 4.0

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc 80 - 150
Fz 0.18 - 0.30
Ap 0.5 - 5.0

Vc 110 Fz 0.24 Ap 2.0

(K)
CAST IRON

Vc 80 - 150
Fz 0.18 - 0.30
Ap 0.5 - 5.0

Vc 80 - 150
Fz 0.18 - 0.30
Ap 0.5 - 5.0

CCMT 120408 PM UN6025

(P)
STEEL

Vc 120 - 250
Fz 0.18 - 0.30
Ap 0.5 - 4.0

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc 120 - 170
Fz 0.18 - 0.30
Ap 0.5 - 5.0

Vc 150 Fz 0.24 Ap 2.0

(K)
CAST IRON

Vc 120 - 230
Fz 0.18 - 0.30
Ap 0.5 - 5.0

Vc 120 - 230
Fz 0.18 - 0.30
Ap 0.5 - 5.0



CCMT

CNMA

CNMG

DCMT

DNMG

TCMT

TNMA

TNMG

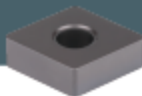
TNUX

VBMT

VNMG

WNMA

WNMG



FAMILY

			IC	LE	RE	S
5100000238	CNMA 120404	UN7010	12.70	12.70	0.40	4.76
5100000090	CNMA 120408	UN7010	12.70	12.70	0.80	4.76
5100000092	CNMA 120412	UN7010	12.70	12.70	1.20	4.76



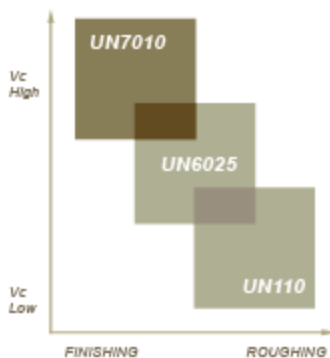
PRODUCT - LINE UP



CHIP BREAKERS

- A**
- Flat top chip breaker
 - For all cast iron application
 - Starting Feed (Fz) : 0.15 (mm/Rev)

GREAD



- UN7010**
- Hard K15 substrate with Thick Alumina (Alpha) CVD coating.
 - For high speed CAST IRON TURNING Applications.
 - Where the focus is on very high abrasive wear resistance and high speed machining.
 - First Choice for cast iron application.

CUTTING CONDITIONS

CNMA 120404 UN7010		
(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc Fz Ap	Vc Fz Ap	Vc 200 - 320 Fz 0.15 - 0.40 Ap 0.3 - 0.0
RECOMMENDED CONDITIONS		
Vc 270	Fz 0.25	Ap 1.5

CNMA 120408 UN7010		
(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc Fz Ap	Vc Fz Ap	Vc 200 - 320 Fz 0.15 - 0.40 Ap 0.5 - 0.0
RECOMMENDED CONDITIONS		
Vc 270	Fz 0.25	Ap 2.0

CNMA 120412 UN7010		
(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc Fz Ap	Vc Fz Ap	Vc 200 - 320 Fz 0.15 - 0.40 Ap 0.7 - 0.0
RECOMMENDED CONDITIONS		
Vc 270	Fz 0.25	Ap 2.0

CCMT

CNMA

CNMG

DCMT

DNMG

TCMT

TNMA

TNMG

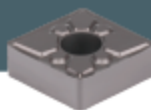
TNXX

VBMT

VNMG

WNMA

WNMG



FAMILY

			IC	LE	RE	S
5100000258	CNMG 120404 PF	UN6015	12.70	12.70	0.40	4.76
5100000004	CNMG 120404 PF	UN6025	12.70	12.70	0.40	4.76
5100000006	CNMG 120404 MF	UN210	12.70	12.70	0.40	4.76
5100000234	CNMG 120404 PF	UN110	12.70	12.70	0.40	4.76
5100000260	CNMG 120404 PM	UN6015	12.70	12.70	0.40	4.76
5100000162	CNMG 120404 PM	UN6025	12.70	12.70	0.40	4.76
5100000262	CNMG 120408 PF	UN6015	12.70	12.70	0.80	4.76
5100000005	CNMG 120408 PF	UN6025	12.70	12.70	0.80	4.76
5100000010	CNMG 120408 PM	UN6010	12.70	12.70	0.80	4.76
5100000012	CNMG 120408 PM	UN6025	12.70	12.70	0.80	4.76
5100000018	CNMG 120408 PR	UN6025	12.70	12.70	0.80	4.76
5100000016	CNMG 120408 PR	UN6010	12.70	12.70	0.80	4.76
5100000014	CNMG 120408 MF	UN210	12.70	12.70	0.80	4.76
5100000020	CNMG 120408 MM	UN210	12.70	12.70	0.80	4.76
5100000236	CNMG 120408 PM	UN110	12.70	12.70	0.80	4.76
5100000204	CNMG 120408 PM	UN6015	12.70	12.70	0.80	4.76
5100000158	CNMG 120408 STD	UN6010	12.70	12.70	0.80	4.76
5100000205	CNMG 120408 STD	UN6015	12.70	12.70	0.80	4.76
5100000160	CNMG 120408 STD	UN6025	12.70	12.70	0.80	4.76
5100000024	CNMG 120412 PM	UN6025	12.70	12.70	1.20	4.76
5100000022	CNMG 120412 PM	UN6010	12.70	12.70	1.20	4.76
5100000030	CNMG 120412 PR	UN6025	12.70	12.70	1.20	4.76
5100000028	CNMG 120412 PR	UN6010	12.70	12.70	1.20	4.76
5100000205	CNMG 120412 STD	UN6015	12.70	12.70	1.20	4.76
5100000096	CNMG 120412 STD	UN6010	12.70	12.70	1.20	4.76
5100000104	CNMG 120412 STD	UN6025	12.70	12.70	1.20	4.76



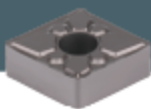
FINISHING	MEDIUM	ROUGHING
CNMG 120404 PF UN6015	CNMG 120404 PM UN6015	
CNMG 120404 PF UN6025	CNMG 120404 PM UN6025	
CNMG 120404 PF UN110		
CNMG 120404 MF UN210		
CNMG 120404 UN7010		
CNMG 120408 PF UN6015	CNMG 120408 PM UN6015	CNMG 120408 PR UN6025
CNMG 120408 PF UN6025	CNMG 120408 PM UN6025	
CNMG 120408 PR UN6010	CNMG 120408 PM UN110	
CNMG 120408 MF UN210	CNMG 120408 (STD) UN6015	
	CNMG 120408 (STD) UN6025	
	CNMG 120408 MM UN210	
	CNMA 120408 UN7010	
CNMG 120412 (STD) UN6010	CNMG 120412 PM UN6015	CNMG 120412 PR UN6025
CNMG 120412 PR UN6010	CNMG 120412 PM UN6025	CNMA 120408 UN7010
	CNMG 120412 (STD) UN6015	
	CNMG 120412 (STD) UN6025	

RADIUS 0.4

RADIUS 0.8

RADIUS 1.2

- CCMT
- CNMA
- CNMG
- DCMT
- DNMG
- TNMG
- TCMT
- TNMA
- TNMG
- TNMX
- VBMT
- VNMG
- WNMA
- WNMG



RADIUS 0.4

CUTTING CONDITIONS

CNMG 120404 PF UN6015

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 200 - 300 Fz 0.10 - 0.25 Ap 0.3 - 1.8	Vc 140 - 220 Fz 0.10 - 0.25 Ap 0.3 - 1.8	Vc 180 - 260 Fz 0.10 - 2.50 Ap 0.3 - 1.8
RECOMMENDED CONDITIONS		
Vc 230	Fz 0.18	Ap 1.8

CNMG 120404 PF UN6025

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 120 - 250 Fz 0.10 - 0.25 Ap 0.3 - 1.8	Vc 100 - 180 Fz 0.10 - 0.25 Ap 0.3 - 1.8	Vc 120 - 200 Fz 0.10 - 0.25 Ap 0.3 - 1.8
RECOMMENDED CONDITIONS		
Vc 150	Fz 0.25	Ap 1.8

CNMG 120404 MF UN210

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 100 - 160 Fz 0.10 - 0.25 Ap 0.7 - 2.0	Vc 100 - 160 Fz 0.10 - 0.25 Ap 0.7 - 2.0	Vc Fz Ap
RECOMMENDED CONDITIONS		
Vc 130	Fz 0.18	Ap 2.2

CNMG 120404 PF UN110

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 100 - 180 Fz 0.10 - 0.25 Ap 0.3 - 1.8	Vc 100 - 170 Fz 0.10 - 0.25 Ap 0.3 - 1.8	Vc 100 - 160 Fz 0.10 - 0.25 Ap 0.3 - 1.8
RECOMMENDED CONDITIONS		
Vc 130	Fz 0.25	Ap 1.8

CNMG 120404 PM UN6015

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 200 - 300 Fz 0.14 - 0.30 Ap 0.2 - 4.0	Vc 140 - 220 Fz 0.14 - 0.30 Ap 0.3 - 3.0	Vc 180 - 260 Fz 0.14 - 0.30 Ap 0.2 - 4.0
RECOMMENDED CONDITIONS		
Vc 230	Fz 0.22	Ap 1.7

CNMG 120404 PM UN6025

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 120 - 250 Fz 0.14 - 0.30 Ap 0.2 - 4.0	Vc 100 - 180 Fz 0.14 - 0.30 Ap 0.3 - 3.0	Vc 120 - 200 Fz 0.14 - 0.30 Ap 0.2 - 4.0
RECOMMENDED CONDITIONS		
Vc 150	Fz 0.22	Ap 1.7

CNMG 120408 PF UN6015

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 200 - 300 Fz 0.10 - 0.25 Ap 0.5 - 2.5	Vc 140 - 220 Fz 0.10 - 0.25 Ap 0.5 - 2.5	Vc 180 - 260 Fz 0.10 - 0.25 Ap 0.5 - 2.5
RECOMMENDED CONDITIONS		
Vc 230	Fz 0.18	Ap 1.8

CNMG 120408 PF UN6025

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 120 - 250 Fz 0.10 - 0.25 Ap 0.5 - 1.8	Vc 100 - 180 Fz 0.10 - 0.25 Ap 0.5 - 1.8	Vc 120 - 200 Fz 0.10 - 0.25 Ap 0.5 - 1.8
RECOMMENDED CONDITIONS		
Vc 150	Fz 0.25	Ap 1.9

CNMG 120408 PM UN6010

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 240 - 340 Fz 0.18 - 0.30 Ap 0.4 - 5.0	Vc Fz Ap	Vc 200 - 300 Fz 0.18 - 0.30 Ap 0.4 - 5.0
RECOMMENDED CONDITIONS		
Vc 110	Fz 0.18	Ap 2.0

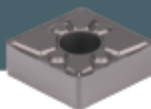
CNMG 120408 PM UN6025

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 120 - 250 Fz 0.18 - 0.30 Ap 0.4 - 5.0	Vc 100 - 180 Fz 0.18 - 0.30 Ap 0.4 - 5.0	Vc 120 - 200 Fz 0.18 - 0.30 Ap 0.4 - 5.0
RECOMMENDED CONDITIONS		
Vc 150	Fz 0.24	Ap 1.9

RADIUS 0.8

- CNMG
- CCMT
- CNMA
- CNMG
- DCMT
- DNMG
- TCMT
- TNMA
- TNMG
- TNMX
- VBMT
- VNMG
- WNMA
- WNMG

CNMG



RADIUS 0.8

RADIUS 0.8

CNMG 120408 PR UN6025

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 120 - 250 Fz 0.34 - 0.50 Ap 0.5 - 6.0	Vc Fz Ap	Vc 120 - 200 Fz 0.34 - 0.50 Ap 0.5 - 6.0
RECOMMENDED CONDITIONS		
Vc 160	Fz 0.42	Ap 2.2

CNMG 120408 PR UN6010

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 240 - 340 Fz 0.34 - 0.50 Ap 0.5 - 6.0	Vc Fz Ap	Vc 200 - 300 Fz 0.34 - 0.50 Ap 0.5 - 6.0
RECOMMENDED CONDITIONS		
Vc 270	Fz 0.42	Ap 2.2

CNMG 120408 MF UN210

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 100 - 160 Fz 0.10 - 0.25 Ap 0.5 - 2.0	Vc 100 - 160 Fz 0.10 - 0.25 Ap 0.5 - 2.0	Vc Fz Ap
RECOMMENDED CONDITIONS		
Vc 130	Fz 0.15	Ap 2.2

CNMG 120408 MM UN210

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 100 - 160 Fz 0.15 - 0.30 Ap 0.5 - 2.5	Vc 100 - 160 Fz 0.15 - 0.30 Ap 0.5 - 2.5	Vc Fz Ap
RECOMMENDED CONDITIONS		
Vc 130	Fz 0.23	Ap 2.2

CNMG 120408 PM UN110

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 100 - 180 Fz 0.18 - 0.30 Ap 0.4 - 5.0	Vc 100 - 170 Fz 0.18 - 0.30 Ap 0.4 - 5.0	Vc 100 - 180 Fz 0.18 - 0.30 Ap 0.4 - 5.0
RECOMMENDED CONDITIONS		
Vc 130	Fz 0.24	Ap 1.9

CNMG 120408 PM UN6015

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 200 - 300 Fz 0.14 - 0.30 Ap 0.5 - 4.0	Vc 140 - 220 Fz 0.14 - 0.30 Ap 0.5 - 4.0	Vc 180 - 260 Fz 0.14 - 0.30 Ap 0.5 - 4.0
RECOMMENDED CONDITIONS		
Vc 230	Fz 0.22	Ap 1.7

CNMG 120408 STD UN6010

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 240 - 340 Fz 0.24 - 0.45 Ap 0.5 - 6.0	Vc Fz Ap	Vc 200 - 300 Fz 0.24 - 0.45 Ap 0.5 - 6.0
RECOMMENDED CONDITIONS		
Vc 270	Fz 0.35	Ap 2.0

CNMG 120408 STD UN6015

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 200 - 300 Fz 0.24 - 0.45 Ap 0.5 - 6.0	Vc Fz Ap	Vc 180 - 260 Fz 0.24 - 0.45 Ap 0.5 - 6.0
RECOMMENDED CONDITIONS		
Vc 230	Fz 0.35	Ap 2.0

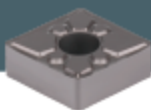
CNMG 120408 STD UN6025

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 120 - 250 Fz 0.24 - 0.45 Ap 0.5 - 6.0	Vc Fz Ap	Vc 120 - 200 Fz 0.24 - 0.45 Ap 0.5 - 6.0
RECOMMENDED CONDITIONS		
Vc 160	Fz 0.35	Ap 2.0

CNMG 120412 PM UN6025

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 120 - 250 Fz 0.14 - 0.30 Ap 0.7 - 5.0	Vc 100 - 180 Fz 0.14 - 0.30 Ap 0.7 - 5.0	Vc 120 - 200 Fz 0.14 - 0.30 Ap 0.7 - 5.0
RECOMMENDED CONDITIONS		
Vc 160	Fz 0.22	Ap 2.2

CCMT
CNMA
CNMG
DCMT
DNMG
TCMT
TNMA
TNMG
TNMX
VBMT
VNMG
WNMA
WNMG



RADIUS 1.2

CNMG 120412 PM UN6010

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 240 - 340 Fz 0.14 - 0.30 Ap 0.7 - 5.0	Vc Fz Ap	Vc 200 - 300 Fz 0.14 - 0.30 Ap 0.7 - 5.0
RECOMMENDED CONDITIONS	Vc 270 Fz 0.22 Ap 2.2	

CNMG 120412 PR UN6025

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 120 - 250 Fz 0.34 - 0.50 Ap 0.7 - 6.0	Vc Fz Ap	Vc 120 - 200 Fz 0.34 - 0.50 Ap 0.7 - 6.0
RECOMMENDED CONDITIONS	Vc 160 Fz 0.42 Ap 1.6	

CNMG 120412 PR UN6010

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 240 - 340 Fz 0.34 - 0.50 Ap 0.7 - 6.0	Vc Fz Ap	Vc 200 - 300 Fz 0.34 - 0.50 Ap 0.7 - 6.0
RECOMMENDED CONDITIONS	Vc 270 Fz 0.42 Ap 1.6	

CNMG 120412 STD UN6015

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 200 - 300 Fz 0.24 - 0.45 Ap 0.7 - 6.0	Vc Fz Ap	Vc 180 - 260 Fz 0.24 - 0.45 Ap 0.5 - 6.0
RECOMMENDED CONDITIONS	Vc 230 Fz 0.35 Ap 2.0	

CNMG 120412 STD UN6010

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 240 - 340 Fz 0.24 - 0.45 Ap 0.7 - 6.0	Vc Fz Ap	Vc 200 - 300 Fz 0.24 - 0.45 Ap 0.7 - 6.0
RECOMMENDED CONDITIONS	Vc 270 Fz 0.35 Ap 2.3	

CNMG 120412 STD UN6025

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 120 - 250 Fz 0.24 - 0.45 Ap 0.7 - 6.0	Vc Fz Ap	Vc 120 - 200 Fz 0.24 - 0.45 Ap 0.7 - 6.0
RECOMMENDED CONDITIONS	Vc 160 Fz 0.35 Ap 2.3	

RADIUS 1.2

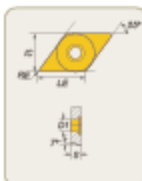


CCMT
CNMA
CNMG
DCMT
DNMG
TCMT
TNMA
TNMG
TNUX
VBMT
VNMG
WNMA
WNMG



FAMILY

			IG	LE	RE	S
5100000122	DCMT 070204 PF	UN110	6.35	7.75	0.40	2.38
5100000126	DCMT 11T304 PF	UN110	9.53	11.60	0.40	3.97
5100000128	DCMT 11T304 PF	UN6025	9.53	11.60	0.40	3.97
5100000130	DCMT 11T308 PF	UN110	9.53	11.60	0.80	3.97
5100000132	DCMT 11T308 PF	UN6025	9.53	11.60	0.80	3.97



PRODUCT - LINE UP



CHIP BREAKERS

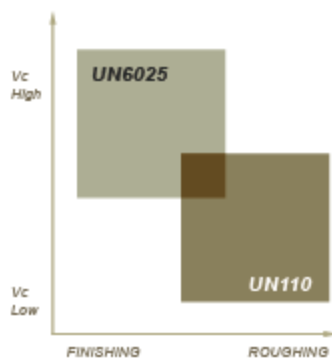
PF

- Sharp Chip-breaker
- for Finishing and sticky material
- Starting Feed (Fz) : 0.12 (mm/Rev)

PM

- Semi Finishing chip Breaker for General Machining
- First Choice for ALL conditions
- Starting Feed (Fz) : 0.18 (mm/Rev)

GRADE



UN6025

- Cobalt Enriched & Alpha Alumina CVD.
- General Purpose internal and external TURNING Applications.
- Where a good balance of wear resistance and toughness is required.

UN110

- Sub Micron Substrate & thick Hyper Pulsed PVD coating.
- Suitable for Low to Mid Cutting Speeds in INTERNAL TURNING
- An excellent option for tough, aggressive and non stable condition.

CUTTING CONDITIONS

(P)
STEEL

Vc 80 - 180
Fz 0.08 - 0.15
Ap 0.3 - 1.0

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc 80 - 150
Fz 0.06 - 0.15
Ap 0.3 - 1.0

Vc

Fz

(K)
CAST IRON

Vc 80 - 150
Fz 0.06 - 0.17
Ap 0.3 - 2.0

Vc

Fz

Ap

DCMT 070204 PF UN110

Vc 110 Fz 0.12 Ap 1.0

(P)
STEEL

Vc 80 - 180
Fz 0.10 - 0.18
Ap 0.3 - 2.0

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc 80 - 150
Fz 0.08 - 0.18
Ap 0.3 - 2.0

Vc

Fz

(K)
CAST IRON

Vc 80 - 150
Fz 0.10 - 0.18
Ap 0.3 - 2.0

Vc

Fz

Ap

DCMT 11T304 PF UN110

Vc 110 Fz 0.14 Ap 1.0

(P)
STEEL

Vc 120 - 210
Fz 0.10 - 0.18
Ap 0.3 - 2.0

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc 120 - 170
Fz 0.08 - 0.18
Ap 0.3 - 2.0

Vc

Fz

(K)
CAST IRON

Vc 120 - 230
Fz 0.10 - 0.18
Ap 0.3 - 2.0

Vc

Fz

Ap

DCMT 11T304 PF UN6025

Vc 160 Fz 0.18 Ap 1.0

(P)
STEEL

Vc 80 - 180
Fz 0.10 - 0.18
Ap 0.5 - 2.0

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc 80 - 150
Fz 0.08 - 0.18
Ap 0.5 - 2.0

Vc

Fz

(K)
CAST IRON

Vc 80 - 150
Fz 0.10 - 0.18
Ap 0.5 - 2.0

Vc

Fz

Ap

DCMT 11T308 PF UN110

Vc 110 Fz 0.14 Ap 2.0

(P)
STEEL

Vc 120 - 210
Fz 0.10 - 0.18
Ap 0.5 - 2.0

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc 120 - 170
Fz 0.08 - 0.18
Ap 0.5 - 2.0

Vc

Fz

(K)
CAST IRON

Vc 120 - 230
Fz 0.10 - 0.18
Ap 0.5 - 2.0

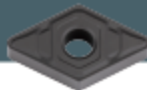
Vc

Fz

Ap

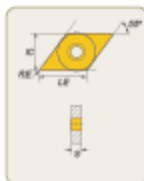
DCMT 11T308 PF UN6025

Vc 160 Fz 0.14 Ap 1.0



FAMILY

			IC	LE	RE	S
5100000242	DNMG 150604 PF	UN6025	12.70	15.50	0.40	6.35
5100000035	DNMG 160605 PF	UN6025	12.70	16.50	0.00	6.35
5100000294	DNMG 150608 PM	UN6015	12.70	15.50	0.80	6.35
5100000040	DNMG 160605 PM	UN6025	12.70	16.50	0.00	6.35
5100000026	DNMG 150608 MF	UN210	12.70	15.50	0.80	6.35
5100000124	DNMG 160605 MM	UN210	12.70	16.50	0.00	6.35
5100000222	DNMG 150612 PM	UN6025	12.70	15.50	1.20	6.35



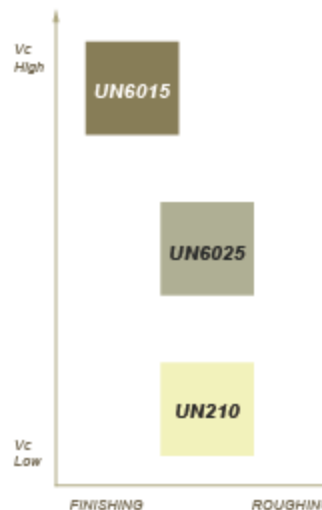
PRODUCT - LINE UP



CHIP BREAKERS

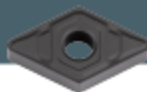
- PF**
 - Sharp Chip-breaker
 - for Finishing and sticky material
 - **Starting Feed (Fz) : 0.12 (mm/Rev)**
- PM**
 - Semi Finishing chip Breaker for General Machining
 - First Choice for stable conditions
 - **Starting Feed (Fz) : 0.18 (mm/Rev)**
- STD**
 - Mid. conditions Chip-breaker
 - for General-tough or unstable machining conditions
 - **Starting Feed (Fz) : 0.25 (mm/Rev)**
- MF**
 - Unique and very Sharp Chip-breaker
 - for Finishing of Stainless steel and Aerospace material
 - **Starting Feed (Fz) : 0.11 (mm/Rev)**
- MM**
 - Unique and Mid. conditions Chip-breaker
 - First Choice for Stainless steel and Aerospace material
 - **Starting Feed (Fz) : 0.15 (mm/Rev)**

GREAD



- UN6015**
 - A P15 substrate & Alfa Alumina CVD coating.
 - General Purpose grade for internal and external TURNING applications.
 - Excellent balance of wear resistance and toughness makes this the first choice for stable conditions, in the range of light to moderate machining.
- UN6025**
 - Cobalt Enriched & Alpha Alumina CVD.
 - General Purpose internal and external TURNING Applications.
 - where a good balance of wear resistance and toughness is required.
- UN210**
 - Sub Micron Substrate & unique and Patented Hyper Pulsed PVD Coating.
 - Suitable for all STAINLESS STEEL applications.
 - Especially developed to delay Notch wear damage.

CCMT
CNMA
CNMG
DCMT
DNMG
TCMT
TNMA
TNMG
TNMX
VBMT
VNMG
WNMA
WNMG



CUTTING CONDITIONS

DNMG 150604 PF UN6025

(F)
STEEL

Vc 120 - 240
Fz 0.10 - 0.25
Ap 0.3 - 2.0

RECOMMENDED CONDITIONS

(M)

STAINLESS STEEL

Vc 120 - 240
Fz 0.10 - 0.25
Ap 0.3 - 2.0

Vc 110 Fz 0.12 Ap 1.0

(K)

CAST IRON

Vc 120 - 250
Fz 0.10 - 2.50
Ap 0.3 - 2.0

Vc 120 - 250
Fz 0.10 - 2.50
Ap 0.3 - 2.0

DNMG 150608 MM UN210

(P)
STEEL

Vc 80 - 100
Fz 0.15 - 0.30
Ap 0.4 - 2.5

RECOMMENDED CONDITIONS

(M)

STAINLESS STEEL

Vc 80 - 100
Fz 0.15 - 0.30
Ap 0.4 - 2.5

Vc 110 Fz 0.17 Ap 1.0

(K)

CAST IRON

Vc
Fz
Ap

Vc 120 - 250
Fz 0.18 - 0.50
Ap 0.5 - 5.0

DNMG 150608 PF UN6025

(F)
STEEL

Vc 120 - 240
Fz 0.10 - 0.25
Ap 0.4 - 2.0

RECOMMENDED CONDITIONS

(M)

STAINLESS STEEL

Vc 120 - 240
Fz 0.10 - 0.25
Ap 0.4 - 2.0

Vc 160 Fz 0.25 Ap 1.0

(K)

CAST IRON

Vc 120 - 250
Fz 0.10 - 0.25
Ap 0.4 - 2.0

Vc 120 - 250
Fz 0.10 - 0.25
Ap 0.4 - 2.0

DNMG 150612 PM UN6025

(P)
STEEL

Vc 120 - 240
Fz 0.18 - 0.50
Ap 0.5 - 5.0

RECOMMENDED CONDITIONS

(M)

STAINLESS STEEL

Vc 120 - 240
Fz 0.20 - 0.50
Ap 0.5 - 5.0

Vc 160 Fz 0.18 Ap 1.0

(K)

CAST IRON

Vc 120 - 250
Fz 0.18 - 0.50
Ap 0.5 - 5.0

Vc 120 - 250
Fz 0.18 - 0.50
Ap 0.5 - 5.0

DNMG 150608 PM UN6015

(F)
STEEL

Vc 200 - 300
Fz 0.14 - 0.42
Ap 0.5 - 4.0

RECOMMENDED CONDITIONS

(M)

STAINLESS STEEL

Vc 200 - 300
Fz 0.10 - 0.42
Ap 0.5 - 4.0

Vc 160 Fz 0.14 Ap 1.0

(K)

CAST IRON

Vc 200 - 300
Fz 0.14 - 0.42
Ap 0.5 - 4.0

Vc 200 - 300
Fz 0.14 - 0.42
Ap 0.5 - 4.0

DNMG 150608 PM UN6025

(F)
STEEL

Vc 120 - 240
Fz 0.14 - 0.42
Ap 0.5 - 4.0

RECOMMENDED CONDITIONS

(M)

STAINLESS STEEL

Vc 120 - 240
Fz 0.10 - 0.42
Ap 0.5 - 4.0

Vc 160 Fz 0.20 Ap 2.0

(K)

CAST IRON

Vc 120 - 250
Fz 0.14 - 0.42
Ap 0.5 - 4.0

Vc 120 - 250
Fz 0.14 - 0.42
Ap 0.5 - 4.0

DNMG 150608 MF UN210

(F)
STEEL

Vc 80 - 100
Fz 0.08 - 0.18
Ap 0.4 - 2.0

RECOMMENDED CONDITIONS

(M)

STAINLESS STEEL

Vc 80 - 100
Fz 0.10 - 0.18
Ap 0.4 - 2.0

Vc 110 Fz 0.13 Ap 1.0

(K)

CAST IRON

Vc
Fz
Ap

Vc 120 - 250
Fz 0.18 - 0.50
Ap 0.5 - 5.0



CCMT

CNMA

CNMG

DCMT

DNMG

TCMT

TNMA

TNMG

TNUX

VBMT

VNMG

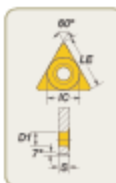
WNMA

WNMG



FAMILY

			IC	LE	RE	S
5100000138	TCMT 110204 PF	UN110	6.35	11.00	0.40	2.41
5100000142	TCMT 16T304 PF	UN110	6.53	16.50	0.40	4.02
5100000144	TCMT 16T304 PF	UN6025	6.53	16.50	0.40	4.02
5100000146	TCMT 16T308 PM	UN110	6.53	16.50	0.60	4.02
5100000148	TCMT 16T308 PM	UN6025	6.53	16.50	0.80	4.02



PRODUCT - LINE UP



CHIP BREAKERS

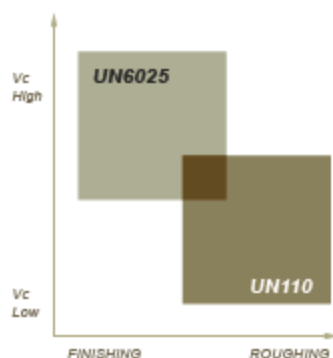
PF

- Sharp Chip-breaker
- for Finishing and sticky material
- Starting Feed (Fz) : 0.12 (mm/Rev)

PM

- Semi Finishing chip Breaker for General Machining
- First Choice for ALL conditions
- Starting Feed (Fz) : 0.18 (mm/Rev)

GRADE



UN6025

- Cobalt Enriched & Alpha Alumina CVD.
- General Purpose internal and external TURNING Applications.
- Where a good balance of wear resistance and toughness is required.

UN110

- Sub Micron Substrate & thick Hyper Pulsed PVD coating.
- Suitable for Low to Mid Cutting Speeds in INTERNAL TURNING.
- An excellent option for tough, aggressive and non stable condition.

CUTTING CONDITIONS

(P) STEEL

Vc	80 - 180
Fz	0.08 - 0.15
Ap	0.3 - 1.0

RECOMMENDED CONDITIONS

(M) STAINLESS STEEL

Vc	80 - 150
Fz	0.06 - 0.15
Ap	0.3 - 1.0

(K) CAST IRON

Vc	80 - 150
Fz	0.06 - 0.17
Ap	0.3 - 2.0

Vc	110	Fz	0.13	Ap	1.0
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TCMT 16T304 PF UN110

(P) STEEL

Vc	80 - 180
Fz	0.10 - 0.18
Ap	0.3 - 2.0

RECOMMENDED CONDITIONS

(M) STAINLESS STEEL

Vc	80 - 150
Fz	0.08 - 0.18
Ap	0.3 - 2.0

(K) CAST IRON

Vc	80 - 150
Fz	0.10 - 0.18
Ap	0.3 - 2.0

Vc	110	Fz	0.14	Ap	1.0
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TCMT 16T304 PF UN6025

(P) STEEL

Vc	120 - 210
Fz	0.10 - 0.18
Ap	0.3 - 2.0

RECOMMENDED CONDITIONS

(M) STAINLESS STEEL

Vc	120 - 170
Fz	0.08 - 0.18
Ap	0.3 - 2.0

(K) CAST IRON

Vc	120 - 230
Fz	0.10 - 0.18
Ap	0.3 - 2.0

Vc	160	Fz	0.14	Ap	1.0
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TCMT 16T308 PM UN110

(P) STEEL

Vc	80 - 180
Fz	0.10 - 0.18
Ap	0.5 - 2.0

RECOMMENDED CONDITIONS

(M) STAINLESS STEEL

Vc	80 - 150
Fz	0.08 - 0.18
Ap	0.5 - 2.0

(K) CAST IRON

Vc	80 - 150
Fz	0.10 - 0.18
Ap	0.5 - 2.0

Vc	110	Fz	0.10	Ap	2.0
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TCMT 16T308 PM UN6025

(P) STEEL

Vc	120 - 210
Fz	0.10 - 0.18
Ap	0.5 - 2.0

RECOMMENDED CONDITIONS

(M) STAINLESS STEEL

Vc	120 - 170
Fz	0.08 - 0.18
Ap	0.5 - 2.0

(K) CAST IRON

Vc	120 - 230
Fz	0.10 - 0.18
Ap	0.5 - 2.0

Vc	160	Fz	0.10	Ap	2.0
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CCMT
CNMA
CNMG
DCMT
DNMG
TCMT
TNMA
TNMG
TNUX
VBMT
VNMG
WNMA
WNMG



FAMILY

			IC	LE	RE	S
5100000196	TNMA 160404	UN7010	9.53	16.50	0.40	4.76
5100000090	TNMA 160408	UN7010	9.53	16.50	0.80	4.76
5100000100	TNMA 160412	UN7010	9.53	16.50	1.20	4.76

PRODUCT - LINE UP

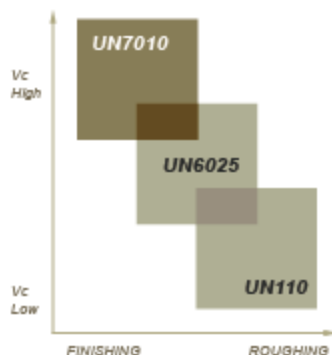


CHIP BREAKERS

A

- Flat top chip breaker
- For all cast iron application
- Starting Feed (Fz) : 0.15 (mm/Rev)

GREAD



UN7010

- Hard K15 substrate with Thick Alumina (Alpha) CVD coating.
- For high speed CAST IRON TURNING Applications.
- Where the focus is on very high abrasive wear resistance and high speed machining.
- First Choice for cast iron application.

CUTTING CONDITIONS

(P)
STEEL

Vc
Fz
Ap

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc
Fz
Ap

Vc

Fz

(K)
CAST IRON

Vc 200 - 300
Fz 0.15 - 0.40
Ap 0.3 - 4.0

Ap

1.7

TNMA 160404 UN7010

(P)
STEEL

Vc
Fz
Ap

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc
Fz
Ap

Vc

Fz

(K)
CAST IRON

Vc 200 - 300
Fz 0.15 - 0.40
Ap 0.5 - 4.0

Ap

1.9

TNMA 160408 UN7010

(P)
STEEL

Vc
Fz
Ap

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc
Fz
Ap

Vc

Fz

(K)
CAST IRON

Vc 200 - 300
Fz 0.15 - 0.40
Ap 0.7 - 4.0

Ap

2.1

TNMA 160412 UN7010



FAMILY

			IC	LE	RE	S
510000182	TNMG 160404 PF	UN110	0.52	16.50	0.40	4.76
510000202	TNMG 160404 PF	UN015	0.52	16.50	0.40	4.70
510000042	TNMG 160404 PF	UN6025	0.52	16.50	0.40	4.76
510000200	TNMG 160404 PM	UN110	0.52	16.50	0.40	4.70
510000206	TNMG 160404 MF	UN210	0.52	16.50	0.40	4.76
510000204	TNMG 160404 PM	UN015	0.52	16.50	0.40	4.70
510000064	TNMG 160404 PM	UN6025	0.52	16.50	0.40	4.76
510000212	TNMG 160408 PR	UN025	0.52	16.50	0.00	4.70
510000184	TNMG 160408 PF	UN110	0.52	16.50	0.80	4.76
5100002044	TNMG 160408 PF	UN025	0.52	16.50	0.00	4.70
510000202	TNMG 160408 PM	UN110	0.52	16.50	0.80	4.76
510000200	TNMG 160408 PM	UN015	0.52	16.50	0.00	4.70
510000046	TNMG 160408 PM	UN6025	0.52	16.50	0.80	4.76
510000200	TNMG 160408 MF	UN210	0.52	16.50	0.00	4.70
510000050	TNMG 160408 MM	UN210	0.52	16.50	0.80	4.76
510000174	TNMG 160408 STD	UN010	0.52	16.50	0.00	4.70
510000288	TNMG 160408 STD	UN6015	0.52	16.50	0.80	4.76
510000164	TNMG 160408 STD	UN025	0.52	16.50	0.00	4.70
510000048	TNMG 160412 PR	UN6025	0.52	16.50	1.20	4.76
510000170	TNMG 160412 STD	UN010	0.52	16.50	1.20	4.70
510000166	TNMG 160412 STD	UN6025	0.52	16.50	1.20	4.76



	FINISHING	MEDIUM	ROUGHING
RADIUS 0.4	TNMG 100404 PF UN6025	TNMG 100404 PM UN6015 TNMG 100404 PM UN110	
	TNMG 100404 PF UN110		
	TNMG 100404 MF UN210		
	TNMG 100404 UN7010		
RADIUS 0.8	TNMG 100408 STD UN6010	TNMG 100408 PM UN6025	TNMG 100408 PR UN6025
	TNMG 100408 PF UN6025	TNMG 100408 PM UN110	
	TNMG 100408 PF UN110	TNMG 100408 STD UN6025	
	TNMG 100408 MF UN210	TNMG 100408 MM UN210	
		TNMA 100408 UN7010	
RADIUS 1.2	TNMG 100412 STD UN6010	TNMG 100412 STD UN6025	TNMG 100412 PR UN6025
			TNMA 100412 UN7010

CCMT

CNMA

CNMG

DCMT

DNMG

TCMT

TNMA

TNMG

TNMX

VBMT

VNMG

WNMA

WNMG



RADIUS 0.4

CUTTING CONDITIONS

TNMG 160404 PF UN110

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 80 - 180 Fz 0.10 - 0.25 Ap 0.3 - 1.8	Vc 80 - 150 Fz 0.10 - 0.25 Ap 0.3 - 1.8	Vc 80 - 150 Fz 0.10 - 0.25 Ap 0.3 - 1.8
RECOMMENDED CONDITIONS		
Vc 110	Fz 0.25	Ap 1.5

TNMG 160404 PF UN6015

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 200 - 300 Fz 0.10 - 0.25 Ap 0.3 - 1.8	Vc 200 - 300 Fz 0.10 - 0.25 Ap 0.3 - 1.8	Vc 200 - 300 Fz 0.10 - 0.25 Ap 0.3 - 1.8
RECOMMENDED CONDITIONS		
Vc 160	Fz 0.25	Ap 1.5

TNMG 160404 PF UN6025

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 120 - 240 Fz 0.10 - 0.25 Ap 0.3 - 1.8	Vc 120 - 170 Fz 0.10 - 0.25 Ap 0.3 - 1.8	Vc 120 - 250 Fz 0.10 - 0.25 Ap 0.3 - 1.8
RECOMMENDED CONDITIONS		
Vc 160	Fz 0.25	Ap 1.5

TNMG 160404 PM UN110

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 80 - 180 Fz 0.14 - 0.30 Ap 0.3 - 4.0	Vc 80 - 150 Fz 0.10 - 0.28 Ap 0.3 - 4.0	Vc 80 - 150 Fz 0.14 - 0.30 Ap 0.3 - 4.0
RECOMMENDED CONDITIONS		
Vc 110	Fz 0.25	Ap 1.9

TNMG 160404 MF UN210

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 80 - 160 Fz 0.08 - 0.18 Ap 0.3 - 2.0	Vc 80 - 160 Fz 0.10 - 0.18 Ap 0.3 - 2.0	Vc Fz Ap
RECOMMENDED CONDITIONS		
Vc 160	Fz 0.25	Ap 1.5

TNMG 160404 PM UN6015

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 200 - 300 Fz 0.14 - 0.30 Ap 0.3 - 4.0	Vc 200 - 300 Fz 0.16 - 0.28 Ap 0.3 - 4.0	Vc 200 - 300 Fz 0.14 - 0.30 Ap 0.3 - 4.0
RECOMMENDED CONDITIONS		
Vc 160	Fz 0.25	Ap 1.7

TNMG 160404 PM UN6025

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 120 - 240 Fz 0.14 - 0.30 Ap 0.2 - 4.0	Vc 120 - 240 Fz 0.16 - 0.30 Ap 0.2 - 4.0	Vc 120 - 250 Fz 0.14 - 0.30 Ap 0.2 - 4.0
RECOMMENDED CONDITIONS		
Vc 160	Fz 0.25	Ap 1.7

TNMG 160408 PR UN6025

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 120 - 240 Fz 0.34 - 0.55 Ap 0.5 - 4.0	Vc Fz Ap	Vc 120 - 250 Fz 0.34 - 0.55 Ap 0.5 - 4.0
RECOMMENDED CONDITIONS		
Vc 160	Fz 0.45	Ap 2.2

TNMG 160408 PF UN110

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 80 - 180 Fz 0.10 - 0.25 Ap 0.5 - 1.8	Vc 80 - 150 Fz 0.10 - 0.25 Ap 0.5 - 1.8	Vc 80 - 150 Fz 0.10 - 0.25 Ap 0.5 - 1.8
RECOMMENDED CONDITIONS		
Vc 110	Fz 0.25	Ap 1.9

TNMG 160408 PF UN6025

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 120 - 240 Fz 0.10 - 0.25 Ap 0.5 - 1.8	Vc 100 - 180 Fz 0.10 - 0.25 Ap 0.5 - 1.8	Vc 120 - 240 Fz 0.10 - 0.25 Ap 0.5 - 1.8
RECOMMENDED CONDITIONS		
Vc 130	Fz 0.15	Ap 2.2

RADIUS 0.8



RADIUS 0.8

TNMG 160408 PM UN110

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 80 - 180 Fz 0.14 - 0.30 Ap 0.5 - 5.0	Vc 80 - 150 Fz 0.10 - 0.28 Ap 0.5 - 5.0	Vc 80 - 150 Fz 0.14 - 0.30 Ap 0.5 - 5.0
RECOMMENDED CONDITIONS		
Vc 110	Fz 0.20	Ap 2.0

TNMG 160408 PM UN6015

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 200 - 300 Fz 0.14 - 0.30 Ap 0.5 - 5.0	Vc 200 - 300 Fz 0.10 - 0.28 Ap 0.5 - 5.0	Vc 200 - 300 Fz 0.14 - 0.30 Ap 0.5 - 5.0
RECOMMENDED CONDITIONS		
Vc 160	Fz 0.20	Ap 2.0

TNMG 160408 PM UN6025

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 120 - 240 Fz 0.14 - 0.30 Ap 0.5 - 5.0	Vc 120 - 240 Fz 0.10 - 0.28 Ap 0.5 - 5.0	Vc 120 - 250 Fz 0.14 - 0.30 Ap 0.5 - 5.0
RECOMMENDED CONDITIONS		
Vc 160	Fz 0.20	Ap 2.0

TNMG 160408 MF UN210

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 80 - 160 Fz 0.08 - 0.18 Ap 0.4 - 2.0	Vc 80 - 160 Fz 0.10 - 0.18 Ap 0.4 - 2.0	Vc Fz Ap
RECOMMENDED CONDITIONS		
Vc 110	Fz 0.13	Ap 1.9

TNMG 160408 MM UN210

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 80 - 160 Fz 0.15 - 0.30 Ap 0.4 - 2.5	Vc 80 - 160 Fz 0.15 - 0.30 Ap 0.4 - 2.5	Vc Fz Ap
RECOMMENDED CONDITIONS		
Vc 110	Fz 0.17	Ap 1.9

TNMG 160408 STD UN6010

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 240 - 330 Fz 0.18 - 0.42 Ap 0.5 - 4.0	Vc Fz Ap	Vc 240 - 330 Fz 0.18 - 0.45 Ap 0.5 - 4.0
RECOMMENDED CONDITIONS		
Vc 160	Fz 0.34	Ap 2.1

TNMG 160408 STD UN6015

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 200 - 300 Fz 0.18 - 0.42 Ap 0.5 - 4.0	Vc 200 - 300 Fz 0.20 - 0.30 Ap 0.5 - 4.0	Vc 200 - 300 Fz 0.18 - 0.45 Ap 0.5 - 4.0
RECOMMENDED CONDITIONS		
Vc 160	Fz 0.34	Ap 2.1

TNMG 160408 STD UN6025

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 120 - 240 Fz 0.18 - 0.42 Ap 0.5 - 4.0	Vc 120 - 240 Fz 0.20 - 0.30 Ap 0.5 - 4.0	Vc 120 - 250 Fz 0.18 - 0.45 Ap 0.5 - 4.0
RECOMMENDED CONDITIONS		
Vc 160	Fz 0.34	Ap 2.1

TNMG 160412 PR UN6025

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 120 - 240 Fz 0.34 - 0.55 Ap 0.7 - 0.0	Vc Fz Ap	Vc 120 - 250 Fz 0.34 - 0.55 Ap 0.7 - 0.0
RECOMMENDED CONDITIONS		
Vc 160	Fz 0.45	Ap 2.2

TNMG 160412 STD UN6010

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 240 - 330 Fz 0.18 - 0.42 Ap 0.8 - 5.0	Vc Fz Ap	Vc 240 - 330 Fz 0.18 - 0.45 Ap 0.8 - 5.0
RECOMMENDED CONDITIONS		
Vc 160	Fz 0.34	Ap 2.3

RADIUS 0.8

RADIUS 1.2

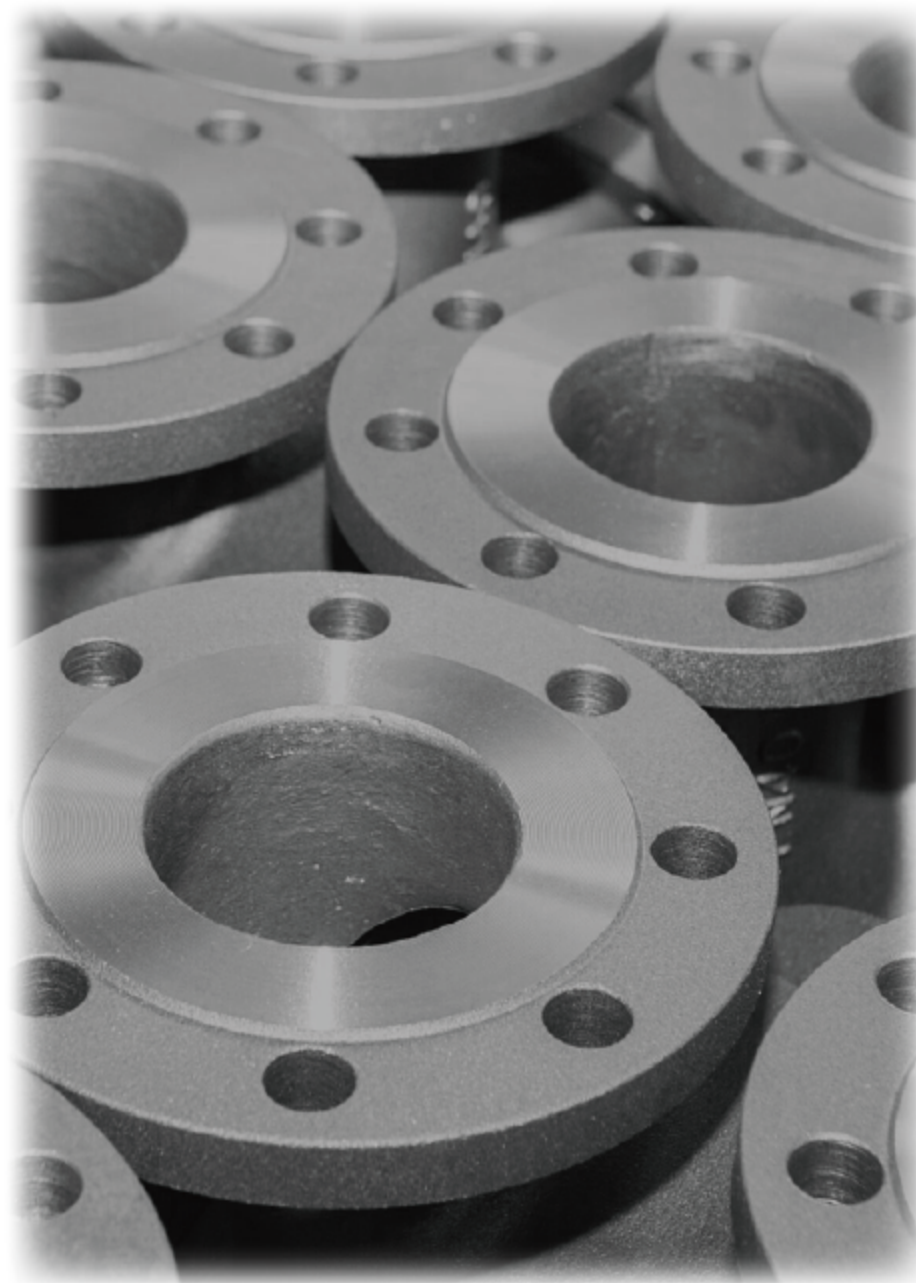
- CCMT
- CNMA
- CNMG
- DCMT
- DNMG
- TCMT
- TNMA
- TNMG
- TNUX
- VBMT
- VNMG
- WNMA
- WNMG



RADIUS 1.2

TNMG 160412 STD UN6025

	(F) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc	120 - 240	120 - 240	120 - 250
Fz	0.18 - 0.42	0.20 - 0.30	0.18 - 0.45
Ap	0.8 - 5.0	0.8 - 5.0	0.8 - 5.0
RECOMMENDED CONDITIONS		Vc 160 Fz 0.34 Ap 2.3	



CCMT

CNMA

CNMG

DCMT

DNMG

TCMT

TNMA

TNMG

TNUX

VBMT

VNMG

WNMA

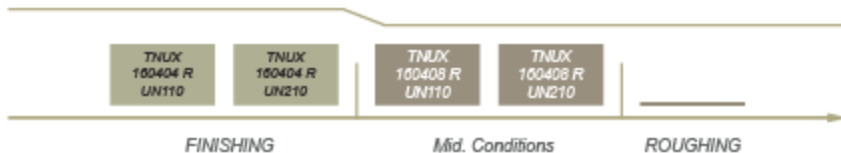
WNMG



FAMILY

			IC	LE	RE	S
510000052	TNUX 160404 R	UN110	9.52	16.50	0.40	4.76
510000254	TNUX 160404 R	UN210	9.52	16.50	0.40	4.76
510000054	TNUX 160408 R	UN110	9.52	16.50	0.80	4.76
510000255	TNUX 160408 R	UN210	9.52	16.50	0.80	4.76

PRODUCT - LINE UP

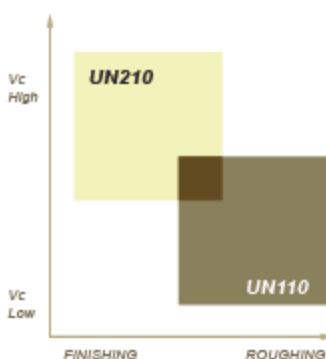


CHIP BREAKERS

R / L

- Left or Right, very Sharp Chip-breakers
- for Finishing and sticky material
- Basic operation - same as KNUX
- **Starting Feed (Fz) : 0.12 (mm/Rev)**

GRADE



UN210

- Sub Micron Substrate & Unique PVD coating.
- Optimized for STAINLESS STEEL applications.
- Can be used for Low-Carbon steel as well.

UN110

- Sub Micron Substrate & thick Hyper Pulsed PVD coating.
- Suitable for Low to Mid Cutting Speeds in INTERNAL TURNING.
- An excellent option for tough, aggressive and non stable condition.

CUTTING CONDITIONS

(P)
STEEL

Vc	80 - 180
Fz	0.10 - 0.20
Ap	0.3 - 2.0

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc	80 - 150
Fz	0.10 - 0.20
Ap	0.3 - 2.0

TNUX 160404 R UN110

(K)
CAST IRON

Vc	80 - 150
Fz	0.10 - 0.20
Ap	0.3 - 2.0

Vc	110	Fz	0.15	Ap	1.8
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TNUX 160404 R UN210

(P)
STEEL

Vc	80 - 160
Fz	0.10 - 0.20
Ap	0.3 - 2.0

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc	80 - 150
Fz	0.10 - 0.20
Ap	0.3 - 2.0

(K)
CAST IRON

Vc	
Fz	
Ap	

Vc	110	Fz	0.14	Ap	1.8
----	-----	----	------	----	-----

TNUX 160408 R UN110

(P)
STEEL

Vc	80 - 180
Fz	0.14 - 0.24
Ap	0.4 - 2.0

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc	80 - 150
Fz	0.14 - 0.24
Ap	0.4 - 2.0

(K)
CAST IRON

Vc	80 - 150
Fz	0.14 - 0.24
Ap	0.4 - 2.0

Vc	110	Fz	0.19	Ap	1.9
----	-----	----	------	----	-----

TNUX 160408 R UN210

(P)
STEEL

Vc	80 - 160
Fz	0.14 - 0.24
Ap	0.4 - 2.0

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc	80 - 150
Fz	0.14 - 0.24
Ap	0.4 - 2.0

(K)
CAST IRON

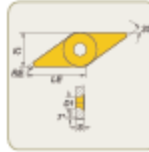
Vc	
Fz	
Ap	

Vc	110	Fz	0.19	Ap	1.9
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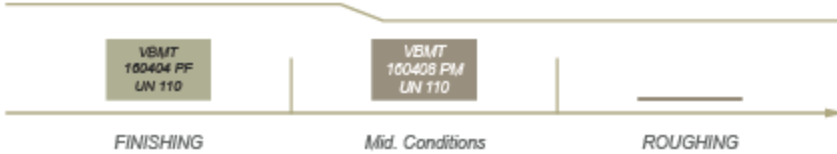


FAMILY

			IC	LE	RE	S
5100000150	VBMT 160404 PF	UN110	9.52	16.60	0.40	4.76
5100000154	VBMT 160408 PM	UN110	9.52	16.60	0.80	4.76



PRODUCT - LINE UP



CHIP BREAKERS

PF

- Sharp Chip-breaker
- for Finishing and sticky material

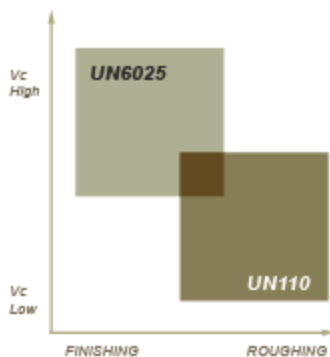
- Starting Feed (Fz) : 0.12 (mm/Rev)

PM

- Semi Finishing chip Breaker for General Machining
- First Choice for ALL conditions

- Starting Feed (Fz) : 0.18 (mm/Rev)

GREAD



UN110

- Sub Micron Substrate & thick Hyper Pulsed PVD coating.
- Suitable for Low to Mid Cutting Speeds in EXTERNAL TURNING.
- An excellent option for tough, aggressive and non stable condition.

CUTTING CONDITIONS

(P)
STEEL

Vc	80 - 180
Fz	0.10 - 0.18
Ap	0.3 - 2.0

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc	80 - 150
Fz	0.08 - 0.18
Ap	0.3 - 2.0

(K)
CAST IRON

Vc	80 - 150
Fz	0.08 - 0.20
Ap	0.3 - 2.0

Vc	110	Fz	0.14	Ap	1.8
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VBMT 160408 PM UN110

(P)
STEEL

Vc	80 - 180
Fz	0.10 - 0.32
Ap	0.5 - 2.5

RECOMMENDED CONDITIONS

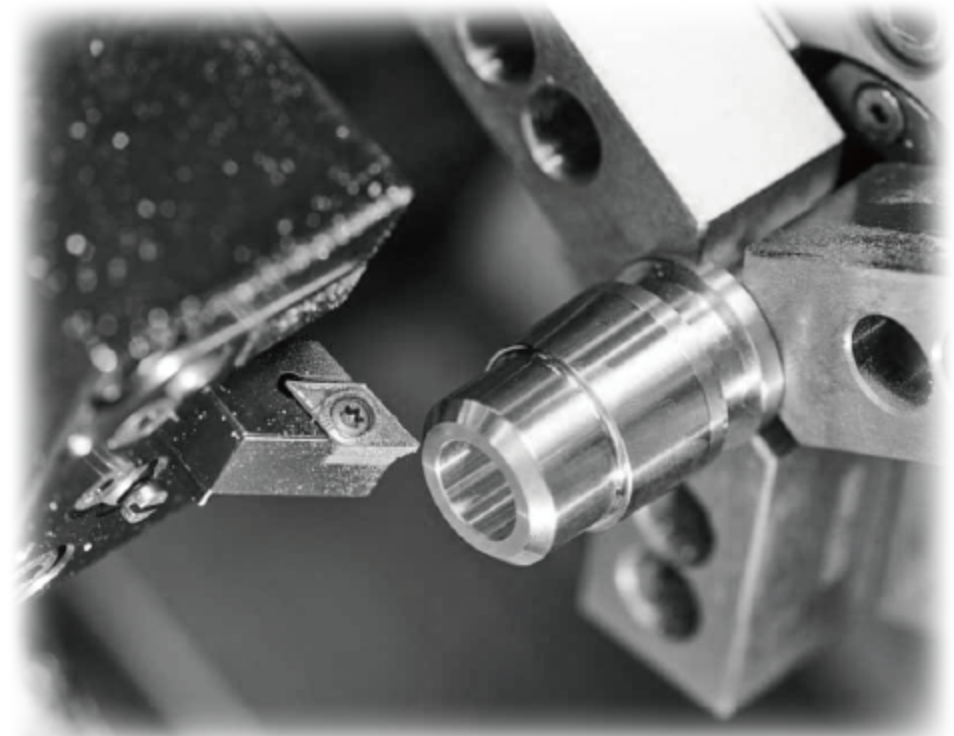
(M)
STAINLESS STEEL

Vc	80 - 150
Fz	0.18 - 0.32
Ap	0.5 - 2.5

(K)
CAST IRON

Vc	80 - 150
Fz	0.14 - 0.48
Ap	0.5 - 2.5

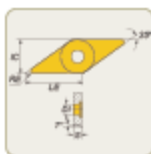
Vc	110	Fz	0.24	Ap	2.0
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FAMILY

			IC	LE	RE	S
510000290	VNMG 160404 PF	UN6015	9.52	16.50	0.40	4.76
510000056	VNMG 160404 PF	UN6025	9.52	16.50	0.40	4.76
510000292	VNMG 160408 PM	UN6015	9.52	16.50	0.80	4.76
510000058	VNMG 160408 PM	UN6025	9.52	16.50	0.80	4.76



PRODUCT - LINE UP



CHIP BREAKERS

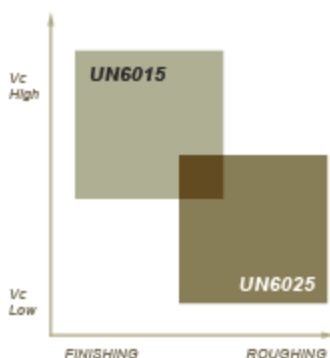
PF

- Sharp Chip-breaker
- for Finishing and sticky material
- Starting Feed (Fz) : 0.12 (mm/Rev)

PM

- Semi Finishing chip Breaker for General Machining
- First Choice for ALL conditions
- Starting Feed (Fz) : 0.18 (mm/Rev)

GREAD



UN6015

- A P15 substrate & Alfa Alumina CVD coating.
- General Purpose grade for internal and external TURNING applications.
- Excellent balance of wear resistance and toughness makes this the first choice for stable conditions, in the range of light to moderate machining.

UN6025

- Cobalt Enriched & Alpha Alumina CVD
- General Purpose internal and external TURNING Applications
- where a good balance of wear resistance and toughness is required

CUTTING CONDITIONS

(P)
STEEL

Vc	180 - 280
Fz	0.08 - 0.30
Ap	0.3 - 1.0

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc	180 - 280
Fz	0.08 - 0.30
Ap	0.3 - 1.0

Vc

Fz

Ap

170

0.19

1.8

VNMG 160404 PF UN6015

(K)
CAST IRON

Vc	180 - 280
Fz	0.08 - 0.30
Ap	0.3 - 1.0

Vc

Fz

Ap

170

0.19

1.8

VNMG 160404 PF UN6025

(P)
STEEL

Vc	140 - 250
Fz	0.08 - 0.30
Ap	0.3 - 1.0

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc	140 - 230
Fz	0.08 - 0.30
Ap	0.3 - 1.0

Vc

Fz

Ap

110

0.14

1.8

(K)
CAST IRON

Vc	140 - 250
Fz	0.08 - 0.30
Ap	0.3 - 1.0

Vc

Fz

Ap

110

0.14

1.8

VNMG 160408 PM UN6015

(P)
STEEL

Vc	180 - 280
Fz	0.08 - 0.30
Ap	0.4 - 1.2

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc	180 - 280
Fz	0.08 - 0.30
Ap	0.4 - 1.2

Vc

Fz

Ap

110

0.19

1.9

(K)
CAST IRON

Vc	180 - 280
Fz	0.08 - 0.30
Ap	0.4 - 1.2

Vc

Fz

Ap

110

0.19

1.9

VNMG 160408 PM UN6025

(P)
STEEL

Vc	140 - 250
Fz	0.08 - 0.30
Ap	0.4 - 1.2

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc	140 - 230
Fz	0.08 - 0.30
Ap	0.4 - 1.2

Vc

Fz

Ap

170

0.19

1.9

(K)
CAST IRON

Vc	140 - 250
Fz	0.08 - 0.30
Ap	0.4 - 1.2

Vc

Fz

Ap

170

0.19

1.9



FAMILY

			IC	LE	RE	S
5100000102	WNMA 080408	UN7010	12.70	8.70	0.80	4.76
5100000104	WNMA 080412	UN7010	12.70	8.70	1.20	4.76



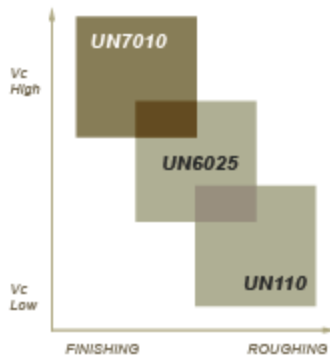
PRODUCT - LINE UP



CHIP BREAKERS

- A**
- Flat top chip breaker
 - For all cast iron application
 - Starting Feed (Fz) : 0.15 (mm/Rev)

GREAD



- UN7010**
- Hard K15 substrate with Thick Alumina (Alpha) CVD coating.
 - For high speed CAST IRON TURNING Applications
 - Where the focus is on very high abrasive wear resistance and high speed machining.
 - First Choice for cast iron application.

CUTTING CONDITIONS

(P)
STEEL

Vc
Fz
Ap

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc
Fz
Ap

Vc 230 Fz 0.00 Ap 1.7

WNMA 080408 UN7010

(K)
CAST IRON

Vc 200 - 320
Fz 0.15 - 0.40
Ap 0.5 - 5.0

Vc 230 Fz 0.00 Ap 1.7

(P)
STEEL

Vc
Fz
Ap

RECOMMENDED CONDITIONS

(M)
STAINLESS STEEL

Vc
Fz
Ap

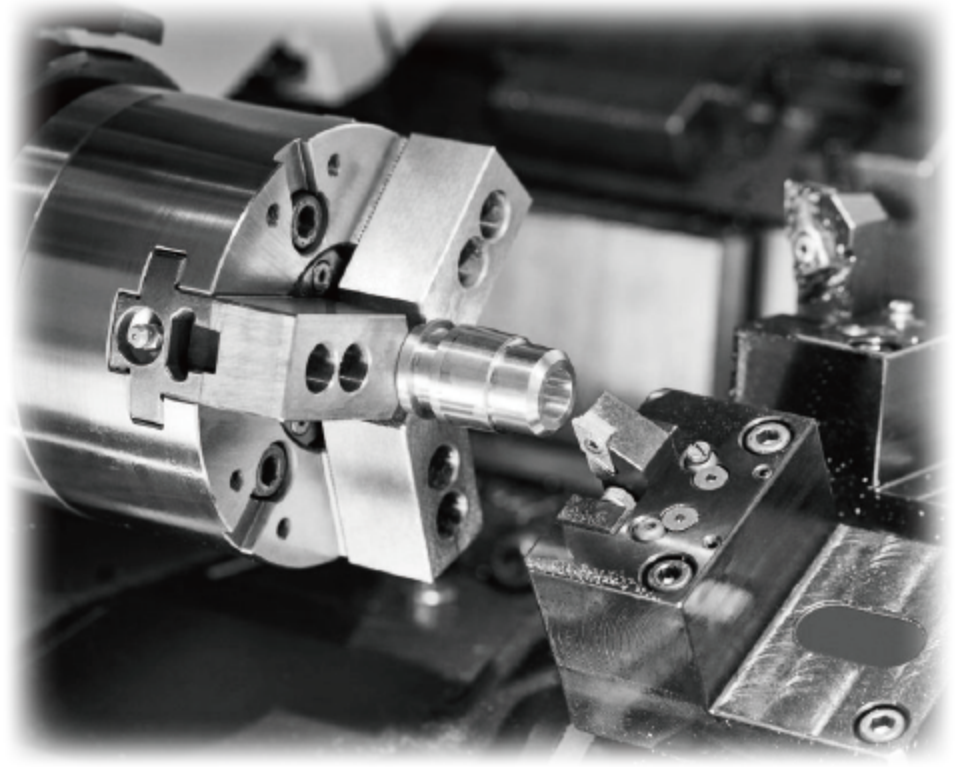
Vc 230 Fz 0.00 Ap 1.0

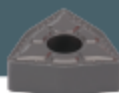
WNMA 080412 UN7010

(K)
CAST IRON

Vc 200 - 320
Fz 0.15 - 0.40
Ap 0.7 - 5.0

Vc 230 Fz 0.00 Ap 1.0





FAMILY

			IC	LE	RE	S
510000082	WNMG 080404 MF	UN210	12.70	8.70	0.40	4.76
510000086	WNMG 080404 PF	UN5025	12.70	8.70	0.40	4.76
5100000214	WNMG 080404 PM	UN6025	12.70	8.70	0.40	4.76
5100000270	WNMG 080404 PF	UN5015	12.70	8.70	0.40	4.76
5100000272	WNMG 080404 PM	UN6015	12.70	8.70	0.40	4.76
5100000310	WNMG 080408 PF	UN110	12.70	8.70	0.80	4.76
5100000274	WNMG 080408 PF	UN6015	12.70	8.70	0.80	4.76
5100000070	WNMG 080408 PF	UN5025	12.70	8.70	0.80	4.76
5100000074	WNMG 080408 PM	UN6025	12.70	8.70	0.80	4.76
5100000080	WNMG 080408 PR	UN5025	12.70	8.70	0.80	4.76
5100000078	WNMG 080408 PR	UN6010	12.70	8.70	0.80	4.76
5100000240	WNMG 080408 MF	UN210	12.70	8.70	0.80	4.76
5100000076	WNMG 080408 MM	UN210	12.70	8.70	0.80	4.76
5100000072	WNMG 080408 PM	UN5010	12.70	8.70	0.80	4.76
5100000276	WNMG 080408 PM	UN6015	12.70	8.70	0.80	4.76
5100000278	WNMG 080408 STD	UN5015	12.70	8.70	0.80	4.76
5100000170	WNMG 080408 STD	UN6025	12.70	8.70	0.80	4.76
5100000188	WNMG 080408 STD	UN5010	12.70	8.70	0.80	4.76
5100000086	WNMG 080412 PR	UN6025	12.70	8.70	1.20	4.76
5100000084	WNMG 080412 PR	UN5010	12.70	8.70	1.20	4.76
5100000280	WNMG 080412 STD	UN6015	12.70	8.70	1.20	4.76
5100000204	WNMG 080412 STD	UN5025	12.70	8.70	1.20	4.76
5100000180	WNMG 080412 STD	UN6010	12.70	8.70	1.20	4.76



FINISHING	MEDIUM	ROUGHING
WNMG 080404 PF UN6015	WNMG 080404 PM UN6015	
WNMG 080404 PF UN6025	WNMG 080404 PM UN6025	
WNMG 080404 MF UN210		
WNMG 080408 PF UN6015	WNMG 080408 PM UN6010	WNMG 080408 PR UN6025
WNMG 080408 PF UN6025	WNMG 080408 PM UN6015	
WNMG 080408 STD UN6010	WNMG 080408 PM UN6025	
WNMG 080408 PR UN6010	WNMG 080408 STD UN6015	
WNMG 080408 MF UN210	WNMG 080408 STD UN6025	
	WNMG 080408 MM UN210	
	WNMA 080408 UN7010	
WNMG 080412 STD UN6010	WNMG 080412 STD UN6015	WNMG 080412 PR UN6025
WNMG 080412 PR UN6010	WNMG 080412 STD UN6025	WNMA 080412 UN7010

RADIUS 0.4

RADIUS 0.8

RADIUS 1.2

CCMT

CNMA

CNMG

DCMT

DNMG

TCMT

TNMA

TNMG

TNMX

VBMT

VNMG

WNMA

WNMG



RADIUS 0.4

CUTTING CONDITIONS

WNUMG 080404 MF UN210

(P)
STEELVc 100 - 160
Fz 0.10 - 0.25
Ap 0.3 - 2.0(M)
STAINLESS STEELVc 100 - 160
Fz 0.10 - 0.25
Ap 0.3 - 2.0(K)
CAST IRONVc
Fz
Ap

RECOMMENDED CONDITIONS

Vc 130 Fz 0.15 Ap 2.2

WNUMG 080404 PF UN6025

(P)
STEELVc 120 - 250
Fz 0.10 - 0.25
Ap 0.3 - 1.8(M)
STAINLESS STEELVc 100 - 180
Fz 0.10 - 0.25
Ap 0.3 - 1.8(K)
CAST IRONVc 120 - 200
Fz 0.10 - 0.25
Ap 0.3 - 1.8

RECOMMENDED CONDITIONS

Vc 160 Fz 0.22 Ap 1.9

WNUMG 080404 PM UN6025

(P)
STEELVc 120 - 250
Fz 0.18 - 0.30
Ap 0.3 - 3.5(M)
STAINLESS STEELVc 100 - 180
Fz 0.18 - 0.30
Ap 0.3 - 3.5(K)
CAST IRONVc 120 - 200
Fz 0.18 - 0.30
Ap 0.3 - 3.5

RECOMMENDED CONDITIONS

Vc 160 Fz 0.22 Ap 1.9

WNUMG 080404 PF UN6015

(P)
STEELVc 200 - 300
Fz 0.10 - 0.25
Ap 0.3 - 1.8(M)
STAINLESS STEELVc 140 - 220
Fz 0.10 - 0.25
Ap 0.3 - 1.8(K)
CAST IRONVc 180 - 200
Fz 0.10 - 0.25
Ap 0.3 - 1.8

RECOMMENDED CONDITIONS

Vc 230 Fz 0.22 Ap 1.7

WNUMG 080404 PM UN6015

(P)
STEELVc 200 - 300
Fz 0.18 - 0.30
Ap 0.2 - 4.0(M)
STAINLESS STEELVc 140 - 220
Fz 0.18 - 0.30
Ap 0.3 - 3.0(K)
CAST IRONVc 180 - 200
Fz 0.18 - 0.30
Ap 0.2 - 4.0

RECOMMENDED CONDITIONS

Vc 230 Fz 0.22 Ap 1.7

WNUMG 080408 PF UN110

(P)
STEELVc 100 - 180
Fz 0.10 - 0.25
Ap 0.4 - 4.0(M)
STAINLESS STEELVc 100 - 170
Fz 0.10 - 0.25
Ap 0.4 - 4.0(K)
CAST IRONVc 100 - 180
Fz 0.10 - 0.25
Ap 0.4 - 4.0

RECOMMENDED CONDITIONS

Vc 160 Fz 0.34 Ap 2.1

WNUMG 080408 PF UN6015

(P)
STEELVc 200 - 300
Fz 0.10 - 0.25
Ap 0.5 - 4.0(M)
STAINLESS STEELVc 140 - 220
Fz 0.10 - 0.25
Ap 0.5 - 4.0(K)
CAST IRONVc 180 - 200
Fz 0.10 - 0.25
Ap 0.5 - 4.0

RECOMMENDED CONDITIONS

Vc 230 Fz 0.18 Ap 1.8

WNUMG 080408 PF UN6025

(P)
STEELVc 120 - 250
Fz 0.10 - 0.25
Ap 0.5 - 4.0(M)
STAINLESS STEELVc 100 - 180
Fz 0.10 - 0.25
Ap 0.5 - 4.0(K)
CAST IRONVc 120 - 200
Fz 0.10 - 0.25
Ap 0.5 - 4.0

RECOMMENDED CONDITIONS

Vc 160 Fz 0.26 Ap 1.9

WNUMG 080408 PM UN6025

(P)
STEELVc 120 - 250
Fz 0.18 - 0.30
Ap 0.4 - 4.0(M)
STAINLESS STEELVc 100 - 180
Fz 0.18 - 0.30
Ap 0.4 - 4.0(K)
CAST IRONVc 120 - 200
Fz 0.18 - 0.30
Ap 0.4 - 4.0

RECOMMENDED CONDITIONS

Vc 160 Fz 0.22 Ap 1.9

WNUMG 080408 PR UN6025

(P)
STEELVc 120 - 250
Fz 0.34 - 0.50
Ap 0.5 - 5.0(M)
STAINLESS STEELVc
Fz
Ap(K)
CAST IRONVc 120 - 200
Fz 0.34 - 0.50
Ap 0.5 - 5.0

RECOMMENDED CONDITIONS

Vc 160 Fz 0.42 Ap 2.2

RADIUS 0.8

CCMT

CNMA

CNMG

DCMT

DNMG

TCMT

TNMA

TNMG

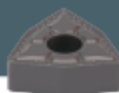
TNMX

VBMT

VNUMG

WNMA

WNUMG



RADIUS 0.8

WNUMG 080408 PR UN6010

(P)
STEELVc 240 - 340
Fz 0.34 - 0.50
Ap 0.5 - 5.0(M)
STAINLESS STEELVc
Fz
Ap(K)
CAST IRONVc 200 - 300
Fz 0.34 - 0.50
Ap 0.5 - 5.0

RECOMMENDED CONDITIONS

Vc 270 Fz 0.42 Ap 2.2

WNUMG 080408 MF UN210

(P)
STEELVc 100 - 160
Fz 0.10 - 0.25
Ap 0.5 - 2.0(M)
STAINLESS STEELVc 100 - 160
Fz 0.10 - 0.25
Ap 0.5 - 2.0(K)
CAST IRONVc
Fz
Ap

RECOMMENDED CONDITIONS

Vc 130 Fz 0.18 Ap 2.2

WNUMG 080408 MM UN210

(P)
STEELVc 100 - 160
Fz 0.15 - 0.30
Ap 0.5 - 2.5(M)
STAINLESS STEELVc 100 - 160
Fz 0.15 - 0.30
Ap 0.5 - 2.5(K)
CAST IRONVc
Fz
Ap

RECOMMENDED CONDITIONS

Vc 130 Fz 0.23 Ap 2.2

WNUMG 080408 PM UN6010

(P)
STEELVc 240 - 340
Fz 0.18 - 0.30
Ap 0.4 - 5.0(M)
STAINLESS STEELVc
Fz
Ap(K)
CAST IRONVc 200 - 300
Fz 0.10 - 0.30
Ap 0.4 - 5.0

RECOMMENDED CONDITIONS

Vc 270 Fz 0.22 Ap 1.9

WNUMG 080408 PM UN6015

(P)
STEELVc 200 - 300
Fz 0.18 - 0.30
Ap 0.5 - 4.5(M)
STAINLESS STEELVc 140 - 220
Fz 0.18 - 0.30
Ap 0.5 - 4.5(K)
CAST IRONVc 180 - 260
Fz 0.10 - 0.30
Ap 0.5 - 4.5

RECOMMENDED CONDITIONS

Vc 230 Fz 0.22 Ap 1.7

WNUMG 080408 STD UN6015

(P)
STEELVc 200 - 300
Fz 0.24 - 0.45
Ap 0.5 - 5.0(M)
STAINLESS STEELVc
Fz
Ap(K)
CAST IRONVc 180 - 260
Fz 0.24 - 0.45
Ap 0.5 - 5.0

RECOMMENDED CONDITIONS

Vc 230 Fz 0.36 Ap 2.0

WNUMG 080408 STD UN6025

(P)
STEELVc 120 - 250
Fz 0.24 - 0.45
Ap 0.5 - 5.0(M)
STAINLESS STEELVc
Fz
Ap(K)
CAST IRONVc 120 - 200
Fz 0.24 - 0.45
Ap 0.5 - 5.0

RECOMMENDED CONDITIONS

Vc 160 Fz 0.36 Ap 2.0

WNUMG 080408 STD UN6010

(P)
STEELVc 240 - 340
Fz 0.24 - 0.45
Ap 0.5 - 5.0(M)
STAINLESS STEELVc
Fz
Ap(K)
CAST IRONVc 200 - 300
Fz 0.24 - 0.45
Ap 0.5 - 5.0

RECOMMENDED CONDITIONS

Vc 270 Fz 0.36 Ap 2.0

WNUMG 080412 PR UN6025

(P)
STEELVc 120 - 250
Fz 0.34 - 0.50
Ap 0.7 - 5.0(M)
STAINLESS STEELVc
Fz
Ap(K)
CAST IRONVc 120 - 200
Fz 0.34 - 0.50
Ap 0.7 - 5.0

RECOMMENDED CONDITIONS

Vc 160 Fz 0.42 Ap 1.6

WNUMG 080412 PR UN6010

(P)
STEELVc 240 - 340
Fz 0.34 - 0.50
Ap 0.7 - 5.0(M)
STAINLESS STEELVc
Fz
Ap(K)
CAST IRONVc 200 - 300
Fz 0.34 - 0.50
Ap 0.7 - 5.0

RECOMMENDED CONDITIONS

Vc 270 Fz 0.42 Ap 1.6

RADIUS 0.8

RADIUS 1.2

CCMT

CNMA

CNMG

DCMT

DNMG

TCMT

TNMA

TNMG

TNXU

VBMT

VWNG

WNMA

WNUMG



RADIUS 1.2

WNMG 080412 STD UN6015

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 200 - 300 Fz 0.24 - 0.45 Ap 0.7 - 5.0	Vc Fz Ap	Vc 180 - 200 Fz 0.24 - 0.45 Ap 0.7 - 5.0
RECOMMENDED CONDITIONS	Vc 230 Fz 0.35 Ap 2.0	

WNMG 080412 STD UN6025

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 120 - 250 Fz 0.24 - 0.45 Ap 0.7 - 5.0	Vc Fz Ap	Vc 120 - 200 Fz 0.24 - 0.45 Ap 0.7 - 5.0
RECOMMENDED CONDITIONS	Vc 150 Fz 0.35 Ap 2.3	

WNMG 080412 STD UN6010

(P) STEEL	(M) STAINLESS STEEL	(K) CAST IRON
Vc 240 - 340 Fz 0.24 - 0.45 Ap 0.7 - 5.0	Vc Fz Ap	Vc 200 - 300 Fz 0.24 - 0.45 Ap 0.7 - 5.0
RECOMMENDED CONDITIONS	Vc 270 Fz 0.35 Ap 2.3	



CCMT
CNMA
CNMG
DCMT
DNMG
TCMT
TNMA
TNMG
TNMX
VBMT
WNMG
WNMA
WNMG