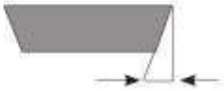
Inserts - ISO Designation

1 Shape

Symbol	Shape	Nose Angle	Figure
H	Hexagonal	120°	
O	Octagonal	135°	
P	Pentagonal	108°	
S	Square	90°	
T	Triangular	60°	
C	Rhombic	80°	
D		55°	
E		75°	
F		50°	
M		86°	
V		35°	
W	Trigon	80°	
L	Rectangular	90°	
A	Parallelogram	85°	
B		82°	
K		55°	
R	Round	-	

2 Relief Angle

Symbol	Relief Angle
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0
P	11°
O	Others



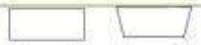
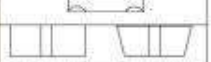
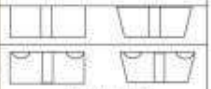
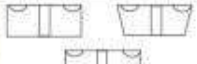
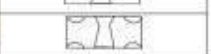
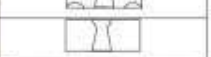
3 Accuracy

Symbol (class)	Tolerance (mm)		
	Corner Height (m)	Thickness (s) (s)	I.C. Dia. (d)
A	±0.005	±0.025	±0.025
F	±0.005	±0.025	±0.013
C	±0.013	±0.025	±0.025
H	±0.013	±0.025	±0.013
E	±0.025	±0.025	±0.025
G	±0.025	±0.13	±0.025
J	±0.025	±0.13	±0.05 / ±0.13 *
K	±0.01	±0.025	±0.05 / ±0.13 *
L	±0.025	±0.025	±0.05 / ±0.13 *
M	±0.08 / ±0.18 *	±0.13	±0.05 / ±0.13 *
N	±0.08 / ±0.18 *	±0.025	±0.05 / ±0.13 *
U	±0.13 / ±0.38 *	±0.13	±0.08 / ±0.25 *

* Details of accuracy will vary according to shape and size of insert - futher details are available on request.

1	2	3	4	5
T	N	M	G	16

4 Groove and Hole

Symbol	Shape of Hole	Chipbreaker	Shape
N	Without Hole	Without	
R		Single-sided	
F		Double-sided	
A	Cylindrical Hole	Without	
M		Single-sided	
G		Double-sided	
W	With partly cylindrical hole, double-side 40° - 60°	Without	
T		Single-sided	
Q	With partly cylindrical hole, double-side 40° - 60° Countersink	Without	
U		Double-sided	
B	With partly cylindrical hole, single-side 70° - 90° Countersink	Without	
H		Single-sided	
C	With partly cylindrical hole, single-side 70° - 90° Countersink	Without	
J		Double-sided	
X	Special Type		

5 Cutting Edge Length

R		S		C		W		T		D		V		K		I.C. dia. (mm)
Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	
03	3.97	03	3.97	03	4.0	02	2.7	06	6.9	04	4.8	-	-	-	-	3.97
-	-	04	4.76	04	4.8	L3	-	08	8.2	05	5.8	-	-	-	-	4.76
05	5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.0
-	-	05	5.56	05	5.6	03	3.8	09	9.6	06	6.8					5.56
06	6.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.0
-	-	06	6.35	06	6.5	04	4.3	11	11.0	07	7.8	-	-	-	-	6.35
-	-	07	7.94	08	8.1	05	5.4	13	13.8	09	9.7	-	-	-	-	7.94
08	8.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.0
09	9.525	09	9.525	09	9.7	06	6.5	16	16.5	11	11.6	16	16.6	16	19.7	9.525
10	10.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.0
12	12.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.0
12	12.7	12	12.7	12	12.9	08	8.7	22	22.0	15	15.5	22	22.1			12.70
15	15.875	15	15.875	16	16.1	10	10.9	27	27.5	19	19.4					15.875
16	16.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.0
19	19.05	19	19.05	19	19.3	13	13.0	33	33.0	23	23.3					19.05
20	20.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20.0
-	-	22	22.225	22	22.6			38	38.5	27	27.1					22.225
25	25.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25.0
25	25.4	25	25.4	25	25.8			44	44.0	31	31.0	-	-	-	-	25.4
31	31.75	31	31.75	32	32.2			55	55.0	38	38.8	-	-	-	-	31.75
32	32.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32.0

Note: For the insert shape "K", the rule for the relationship between the symbol and the dimension differs from those of other shapes.

Detailed accuracy for **J, K, L, M, N,** and **U** classes
For inserts whose corner angle is larger than 55°

Inscribed circle	Tolerance on inscribed circle dia. (d)		Tolerance on corner height (m)		Insert Shapes applied
	J, K, L, M, N	U	J, K, L, M, N	U	
6.35	±0.05	±0.08	±0.08	±0.13	H M O R P S T C E M
9.525					
12.70	±0.08	±0.13	±0.13	±0.20	
15.875	±0.10	±0.18	±0.15	±0.27	
19.05					
25.40	±0.13	±0.25	±0.18	±0.38	

For D-type inserts whose corner angles are 55°

Inscribed circle	Tolerance on inscribed circle dia. (d)	Tolerance on corner height (m)	Insert Shapes applied
6.35	±0.05	±0.011	D
9.525			
12.70	± 0.08	± 0.15	
15.875	±0.10	±0.11	
19.05			

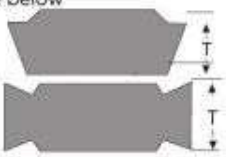
Note: The tolerance for shape V may be increased more than the value above.

7a Edge Preparation (Milling Inserts)

Rake Angle	C_r
A	14°
D	60°
E	75°
F	85°
P	90°
Special	

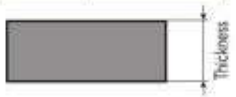
Relief Angle	α_n
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
Z	Special

Note on insert thickness
For chipbreaker inserts, the thickness is defined as 'T' (height from the bottom face to the cutting edge) shown in the figure below



6 Thickness

Symbol	Thickness
01	1.59
02	2.38
T2	2.78
03	3.18
T3	3.97
04	4.76
05	5.56
06	6.35
07	7.94
09	9.52

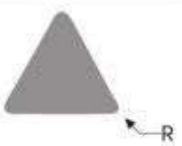


6 7 7a 8 9 10
04 08 T N - XX

(Optional Symbols)

7 Corner Radius

Symbol	Corner Radius (mm)
00	0.03
02	0.2
04	0.4
08	0.8
12	1.2
16	1.6
20	2.0
24	2.4
28	2.8
32	3.2



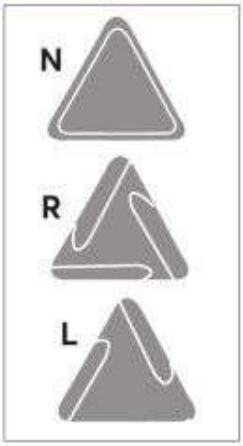
Radius (Turning Inserts)

8 Symbols of major cutting edge (Milling Inserts)

Symbol	Condition of Cutting Edge	Shape
F	Sharp Edge	
E	Honed Rounded edge	
T	Chamfered edge	
S	Combination Chamfered & honed edge	

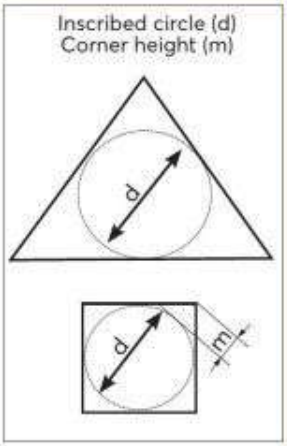
9 Hand of Insert

Symbol	Hand
R	Right
L	Left
N	Neutral



10 Chipbreaker

Chipbreakers are not part of ISO designation. Each manufacturer designates a chipbreaker in their own way.



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Q-Series Grade Descriptions

QX500 (ISO **P10-P25**) Cerment. For high speed finishing and light cutting. Will remain a high class surface finish. Mainly used on steels and can be applied to finish some Stainless steels and Cast Irons.
QX505 (ISO **K05-K15**) Coated. Used for finishing, semi finishing and medium roughing of Cast Irons including Malleable and Nodular Irons, at high speed.
QX510 (ISO **P01-P15 M10-M15 K01-K20**) Coated. Used for finishing on Steels and Stainless Steels, suitable also for turning Cast Irons including Malleable irons at high speeds.

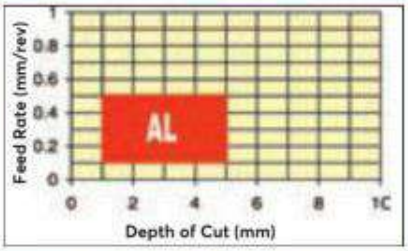
QX5020 (ISO **P10-P35 M10-M30 K10-K30**) CVD Coated. An excellent general purpose grade for medium roughing on Steels, Stainless and Cast Irons.
QX530 (ISO **P25-P35 M15-M25**) Coated. Turning grade for Steels, Cast Steels and Stainless Steels. A good general purpose Steel grade for roughing.
QX5030 (ISO **P20-P40 M20-M30**) CVD Coated.
Medium / rough turning and intermediate cutting of steel / stainless steel. Combination of toughest substrate and alumina coating (MT-TiCN + TiC + AL2O3 + TiN) having superior chipping resistance provide wide coverage.

QX535S (ISO **M10-M30**) CVD Coated. For roughing and finishing turning applications on a wide variety of Stainless Steels.
QX8010 (ISO **M10 S10**) Coated. Excellent grade giving superior results on heat resistant super alloys, especially for the aerospace industry. TiAln based coating ensures high wear resistance on these demanding materials.
K10 (ISO **K05-K20**) Uncoated. Used in combination with a high rake geometry for matching Aluminiums, Plastics and other soft Non-Ferrous materials.

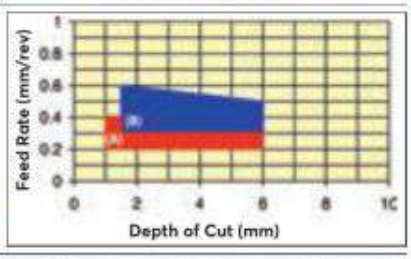
Material Group	Material Description Like Colour defines similar machineability	Brinell Hardness HB	Rockwell Hardness HRC	Tensile Strength N/mm²	QX500	QX505	QX510	QX5020	QX530	QX5030	QX535S	QX8010	K10
					Speed - m/min								
1.1	Mild, soft & free machining non-alloy low carbon steels	-130	- -	-400	200-270		200-300	180-350	150-200	150-200			
1.2	Non-alloy, case hardening, structural & low to medium carbon steels	-200		-700	180-250		200-300	150-320	130-180	130-180			
1.3	Non alloy, plain & medium carbon steels & castings	-260	-26	-850	150-220		200-300	130-280	110-150	120-150			
1.4	Generally low to medium alloy steels & castings	-260	-26	-850	140-210		170-250	140-210	110-140	120-140			
1.5	Medium to high alloy steels, tool steels & steel	260-340	26-48	850-1200	140-200		140-200	130-200	100-120	100-120			
1.6	Heat treated high alloy steels & castings	340-450	36-48	1200-1500	110-180		90-180	100-170	70-90	70-90			
2.1	Soft, generally easy to machine Ferritic & Martensitic steels & castings	-230	-20	-800	90-190			110-220		70-120	170-220	80-120	
2.2	Medium, reasonable to machine Austenitic stainless steels & castings	-290	-30	-1000	70-160	100-220		70-140	60-100	70-120	120-170	80-120	30-60
2.3	Hard, difficult to machine Ferritic & Austenitic (duplex) stainless & castings	-340	-36	-1200					50-90	50-90	70-120	80-120	30-70
3.1	Grey cast iron - soft to medium	-180			175-280	200-420	150-250	190-400					
3.2	Grey cast iron - medium to hard	180-300			160-250	160-340	100-180	150-300					
3.3	Malleable & Nodular iron - soft to medium	-220			175-280	110-300	150-250	120-250					
3.4	Malleable & Nodular irons - medium to hard	220-300			160-250	100-280	100-180	100-200					
4.1	Pure Titanium (also pure Nickel)											30-70	
4.2	Titanium alloys of a medium & hard nature											30-70	
4.3	Titanium alloys of a hard & very hard nature											30-50	
5.1	Heat resistant super alloys including iron based high temperature alloys											30-50	
5.2	Heat resistant super alloys, cobalt or nickel based, medium to hard to machine											30-50	
5.3	Heat resistant super alloys, cobalt or nickel based, hard or very hard to machine											30-50	
6.1	Copper			-500	200-250								200-500
6.2	Brass (Alpha - long chip)			-800	200-250								200-500
6.3	Brass (Beta - short chip) & soft Bronze			-800	200-250								100-500
6.4	High strength Bronze			-1200									
7.1	Unalloyed: Aluminium, Magnesium & Zinc			-150	300-500								400-700
7.2	Aluminium alloys less than 5% Si Magnesium & Zinc alloys (long chip)			150-300	300-500								400-700
7.3	Aluminium alloys 5% to 10% Si			200-500	300-500								400-600
7.4	Aluminium alloys above 10% Si (short chip)			200-500									300-500
8.1	Thermoplastics												400-700
8.2	Thermo-setting plastics												400-700
8.3	Reinforced plastics & composite materials												200-500

YAMALOY — Think *POSITIVE* . . . and NEGATIVE — YAMALOY

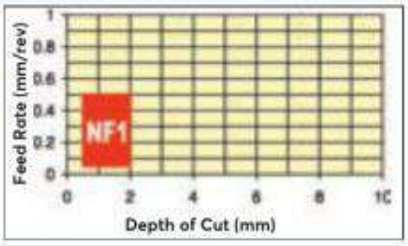
AL - High positive breaker specifically for aluminium alloys.



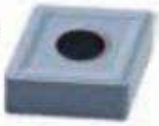
L11 / R11 - General purpose breaker for copy turning.
(A): 05 L/R11.
(B): 10 L/R11.

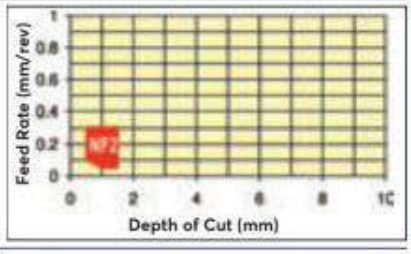


NF1 - Finishing breaker used on small VNMG 12 inserts.

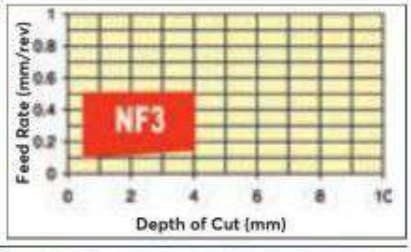


NF2 - A finishing chipbreaker associated with QX500 cermet will provide excellent surface finishes at high speeds on the majority of ferrous materials.

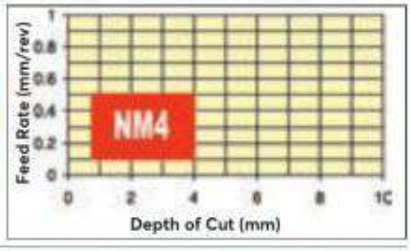




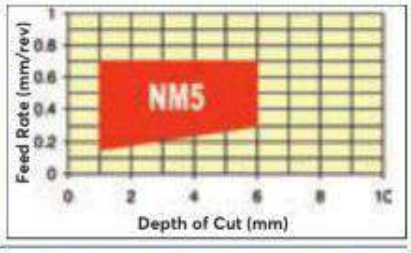
NF3 - Finishing chipbreaker for negative inserts used with QX510 for finishing steel or finish and medium cutting on cast iron.



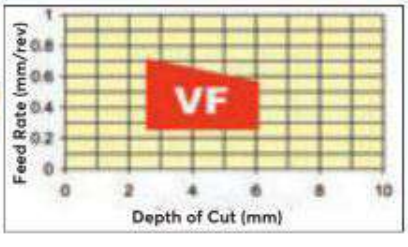
NM4 - Medium breaker used on negative inserts for light to medium roughing.



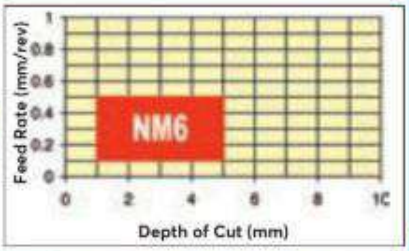
NM5 - General chipbreaker for medium roughing or semi finishing on steels and stainless in combination with grades QX510 and QX520.



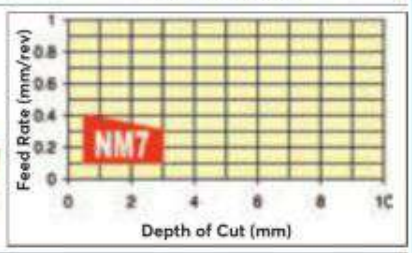
VF - General purpose chipbreaker with a radius groove, used with negative inserts. For light to medium cutting across a wide application band.



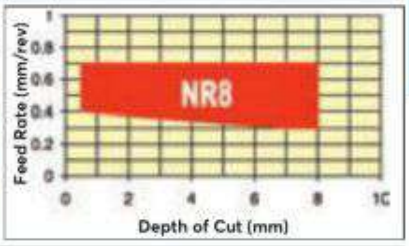
NM6 - General application medium breaker used on negative inserts with tougher grades.



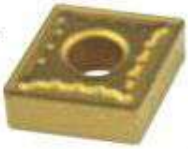
NM7 - A ripple edge breaker ideal for copy turning where cut depth varies and chip control is very important. Use with grade QX520 on steels, stainless and malleable irons.

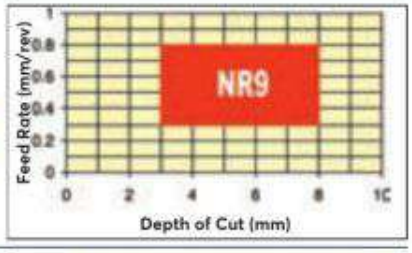


NR8 - Roughing breaker for steels and stainless with grades QX520.

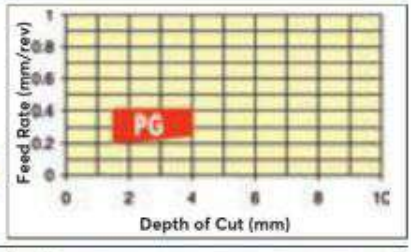


NR9 - General application roughing breaker, suitable for intermittent cuts on negative inserts.

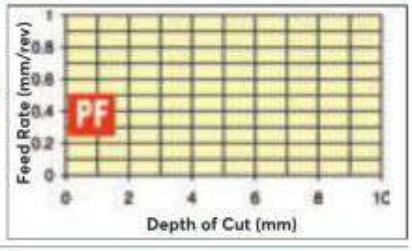




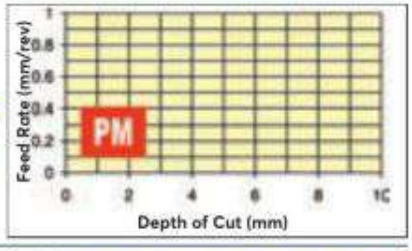
PG - General application finishing and light to medium roughing in conjunction with SPMR and TPMR positive inserts.



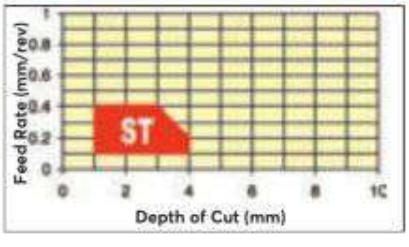
PF - Finishing breaker used on positive inserts for general application.



PM - Medium breaker used on positive inserts for general application.



ST - Light to medium roughing breaker used in conjunction with QX535S grade for turning stainless steels.



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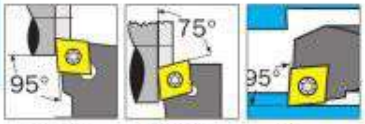
CCGT

P	STEEL
M	STAINLESS STEEL
K	CAST IRON
N	ALUMINIUM
S	SUPER ALLOYS
H	HARDENED STEEL

Chip Breaker	Application
PF	Finish
AL	Med Cut (Alum)

Grade	ISO Designation P	M	K				
K10	-	-	05 - 20				✓
QX500	10 - 25	-	-	✓	✓	✓	✓
QX520	10 - 35	10 - 30	10 - 30	✓	✓	✓	
QX530	20 - 40	20 - 30	-	✓	✓		

Suitable for External/Internal Toolholders:



SCLC- SCKC- S__ _SCLC-

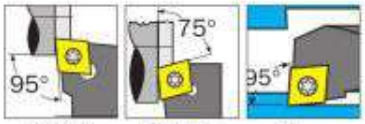
Insert Size CCGT	Chip-breaker	Grade	Order Code YML-120
060202	AL	K10	-0121N
	PF	QX500	-0223A
060204	PF	QX520	-0223D
	AL	K10	-0131N
09T302	AL	K10	-0151N
	PF	QX500	-0263A
09T304	PF	QX520	-0263D
	AL	K10	-0161N
09T308	AL	K10	-0169N
120402	AL	K10	-0171N
120404	AL	K10	-0181N
120408	AL	K10	-0191N

CCMT

Chip Breaker	Application
PM	Med Cut

Grade	ISO Designation P	M	K				
K10	-	-	05 - 20				✓
QX500	05 - 15	-	-	✓	✓	✓	✓
QX520	10 - 35	10 - 30	10 - 30	✓	✓	✓	
QX5020	10 - 35	10 - 30	10 - 30	✓	✓	✓	
QX5030	25 - 35	15 - 25	-	✓	✓		

Suitable for External/Internal Toolholders:

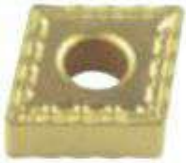


SCLC- SCKC- S__ _SCLC-

Insert Size CCMT	Chip-breaker	Grade	Order Code YML-120
060202	PM	QX500	-0351A
	PM	QX5020	-0351G
060204	PM	QX500	-0355A
	PM	QX520	-0355D
	PM	QX5030	-0355H
09T304	PM	QX500	-0403A
	PM	QX520	-0403D
	PM	QX5030	-0403H
09T308	PM	QX500	-0406A
	PM	QX5020	-0406G
120404	PM	QX5020	-0410G

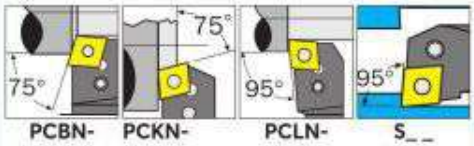
CNMG

Chip Breaker	Application
NF3	Finish
NSA	Light Cut
NM5	Med Cut
NM6	Med Cut
NM7	Med/Rough



Grade	ISO Designation P	M	K				
QX510	01 - 15	10 - 15	01 - 20	✓		✓	
QX520	10 - 35	10 - 30	10 - 30	✓	✓	✓	
QX530	20 - 40	20 - 30	-	✓	✓		
QX5030	25 - 35	15 - 25	-	✓	✓		
QX535S	-	10 - 30	-		✓		
QX8010	10	10	10	✓	✓	✓	✓

Suitable for External/Internal Toolholders:



PCBN- PCKN- PCLN- S__ _PCLN-

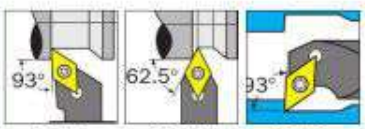
Insert Size CNMG	Chip-breaker	Grade	Order Code YML-120
120404	NM6	QX5030	-0711H
120408	NSA	QX8010	-0724K
	NM6	QX5030	-0716H

DCGT

Chip Breaker	Application
PF	Finish
AL	Med Cut (Alum)

Grade	ISO Designation P	M	K				
K10	-	-	05 - 20				✓
QX500	10 - 25	-	-	✓	✓	✓	✓
QX520	10 - 35	10 - 30	10 - 30	✓	✓	✓	
QX530	20 - 40	20 - 30	-	✓	✓		

Suitable for Internal/External Toolholders:



SDJC- SDNC- SDUC-

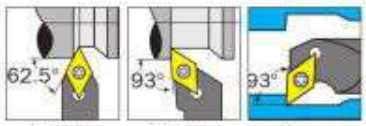
Insert Size DCGT	Chip-breaker	Grade	Order Code YML-120
070202	AL	K10	-1021N
070204	AL	K10	-1031N
11T302	AL	K10	-1051N
11T304	PF	QX530	-1263E
	AL	K10	-1061N
11T308	AL	K10	-1071N

DCMT

Chip Breaker	Application
PM	Med Cut

Grade	ISO Designation P	M	K				
QX520	10 - 35	10 - 30	10 - 30	✓	✓	✓	
QX5030	25 - 35	15 - 25			✓	✓	

Suitable for Internal/External Toolholders:



SDNC- SDJC- S__ _SDUC-

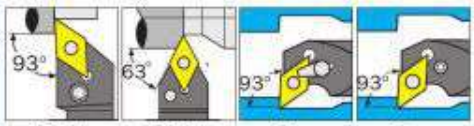
Insert Size DCMT	Chip-breaker	Grade	Order Code YML-120
070204	PM	QX520	-1314D
11T304	PM	QX520	-1328D
	PM	QX5030	-1328H
11T308	PM	QX5020	-1335G
	PM	QX5030	-1335H

DNMG

Chip Breaker	Application
NM4	Med Cut
NM5	Med Cut
NM6	Med Cut

Grade	ISO Designation P	M	K				
QX505	-	-	05 - 15	✓		✓	
QX520	10 - 35	10 - 30	10 - 30	✓	✓	✓	
QX530	20 - 40	20 - 30	-	✓	✓		
QX5030	25 - 35	15 - 25	-	✓	✓		
QX535S	-	10 - 30	-		✓		
QX8010	10	10	10	✓	✓	✓	✓

Suitable for Internal/External Toolholders:



PDJN PDNN S__ _MDUN- S__ _PDUN-

Insert Size DNMG	Chip-breaker	Grade	Order Code YML-120
110404	NM4	QX5020	-1574G
110408	NM4	QX5020	-1575G
150604	NM6	QX530	-1696E
150608	NM6	QX5030	-1716H

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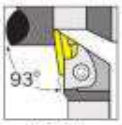
KNUX

Chip Breaker	Application
R11	Rough

Grade	ISO Designation P	M	K	P	M	K	N	S	H
QX520	10 - 35	10 - 30	10 - 30	✓	✓	✓			
QX530	20 - 40	20 - 30	-	✓	✓				

Suitable for External Toolholders:



CKJN-

Insert Size	Chip-breaker	Grade	Order Code YML-120
160405	R11	QX5030	-2223H
	R11	QX520	-2213D
	R11	QX530	-2213E

SCMT

Chip Breaker	Application
PM	Medium

Grade	ISO Designation P	M	K	P	M	K	N	S	H
QX520	10 - 35	10 - 30	10 - 30	✓	✓	✓			

Suitable for External Toolholders:

SSDC- SSSC-

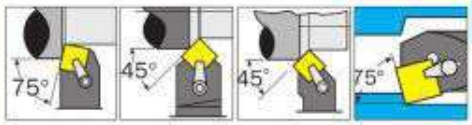
Insert Size	Chip-breaker	Grade	Order Code YML-120
09T304	PM	QX520	-0425D

SPMR

Chip Breaker	Application
PG	Medium

Grade	ISO Designation P	M	K	P	M	K	N	S	H
QX520	10 - 35	10 - 30	10 - 30	✓	✓	✓			
QX530	20 - 40	20 - 30	-	✓	✓				
QX5020	10 - 35	10 - 30	10 - 30	✓	✓	✓			
QX5030	25 - 35	15 - 25		✓	✓				

Suitable for Internal/External Toolholders:



CSBP- CSDP- CSSP- S___CSKP

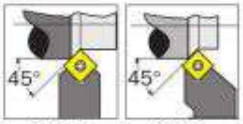
Insert Size	Chip-breaker	Grade	Order Code YML-120
120304	PG	QX520	-6642D
120308	PG	QX5020	-6662G
	PG	QX5030	-6662H

SCGT

Chip Breaker	Application
AL	Medium (Alum)

Grade	ISO Designation P	M	K	P	M	K	N	S	H
K10	-	-	05 - 20				✓		

Suitable for External Toolholders:



SSDC- SSSC-

Insert Size	Chip-breaker	Grade	Order Code YML-120
09T308	AL	K10	-4169N

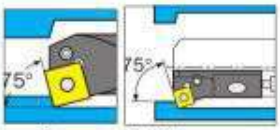
SNMG

Chip Breaker	Application
NM6	Med Cut
NM7	Med/Rough
NR8	Rough

Grade	ISO Designation P	M	K	P	M	K	N	S	H
QX510	01 - 15	10 - 15	01 - 20	✓		✓			
QX520	10 - 35	10 - 30	10 - 30	✓	✓	✓			
QX530	20 - 40	20 - 30	-	✓	✓				
QX5030	25 - 35	15 - 25		✓	✓				
QX535S		10 - 30			✓				

Suitable for Internal/External Toolholders:

PSBN- PSDN- PSKN-



S__ _PSKN- PSKN-

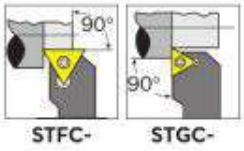
Insert Size	Chip-breaker	Grade	Order Code YML-120
120408	NM6	QX5030	-5336H

TCGT

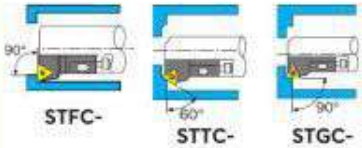
Chip Breaker	Application
PF	Finish
AL	Medium

Grade	ISO Designation P	M	K	P	M	K	N	S	H
K10	-	-	05 - 20				✓		
QX520	10 - 35	10 - 30	10 - 30	✓	✓	✓			
QX5020	10 - 35	10 - 30	10 - 30	✓	✓	✓			

Suitable for Internal/External Toolholders:



STFC- STGC-



STFC- STTC- STGC-

Insert Size	Chip-breaker	Grade	Order Code YML-120
110202	AL	K10	-6931N
110204	AL	K10	-6941N
16T304	AL	K10	-6971N
16T308	AL	K10	-6981N

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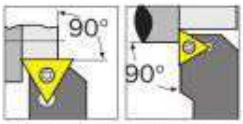
TCMT

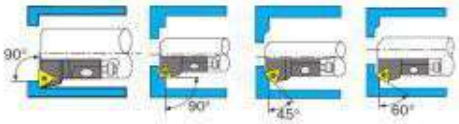
Chip Breaker	Application
PM	Med Cut

Grade	ISO Designation P	M	K	P	M	K	N	S	H
QX500	10 - 25	-	-	✓	✓	✓			
QX520	10 - 35	10 - 30	10 - 30	✓	✓	✓			

Suitable for Internal/External Toolholders:



STFC- STGC-



STFC- STGC- STSC- STTC-

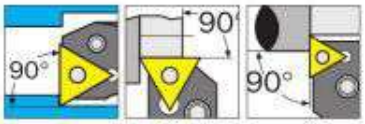
Insert Size Chip-breaker TCMT	Grade	Order Code YML-120
090204 PM	QX5020	-7110G
110204 PM	QX500	-7120A
PM	QX520	-7120D
16T304 PM	QX500	-7140A
PM	QX5020	-7140G
16T308 PM	QX5020	-7145G

TNMG

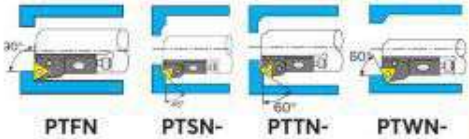
Chip Breaker	Application
NF3	Finish
NM5	Med Cut
NM6	Med Cut
NM7	Med Cut
NR8	Rough
NR9	Rough

Grade	ISO Designation P	M	K	P	M	K	N	S	H
QX500	10 - 25	-	-	✓	✓	✓			
QX520	10 - 35	10 - 30	10 - 30	✓	✓	✓			
QX5030	25 - 35	15 - 25	-	✓	✓				
QX535S	-	10 - 30	-		✓				

Suitable for Internal/External Toolholders:



S_ _ _PTFN- PTFN- PTGN-



PTFN PTSN- PTTN- PTWN-

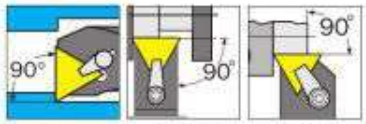
Insert Size Chip-breaker TNMG	Grade	Order Code YML-120
160404 NM6	QX5030	-7516H
160408 NM6	QX5030	-7526H

TPMR

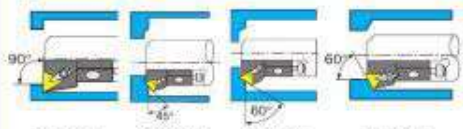
Chip Breaker	Application
PG	Med/Cut

Grade	ISO Designation P	M	K	P	M	K	N	S	H
QX520	10 - 35	10 - 30	10 - 30	✓	✓	✓			
QX530	20 - 40	20 - 30		✓	✓				
QX5020	10 - 35	10 - 30	10 - 30	✓	✓	✓			
QX5030	25 - 35	15 - 25		✓	✓				

Suitable for Internal/External Toolholders:



S_ _ _CTFR- CTCP- CTFP-



CTFP- CTSP- CTTP- CTWP-

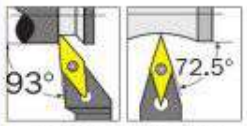
Insert Size Chip-breaker TPMR	Grade	Order Code YML-120
110304 PG	QX5020	-8742G
PG	QX5030	-8742H
160304 PG	QX520	-8772D
160308 PG	QX520	-8782D
PG	QX5030	-8782H

VCGT

Chip Breaker	Application
AL	Med Cut

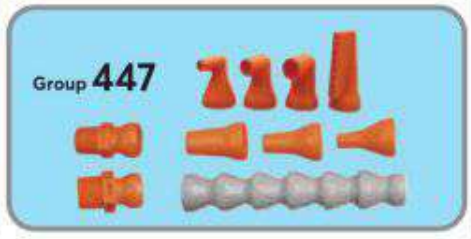
Grade	ISO Designation P	M	K	P	M	K	N	S	H
K10	-	-	05 - 20				✓		

Suitable for External Toolholders:



SVJC- SVVCN

Insert Size Chip-breaker VCGT	Grade	Order Code YML-120
110302 AL	K10	-9101N
110304 AL	K10	-9111N
160404 AL	K10	-9141N
160408 AL	K10	-9151N
160412 AL	K10	-9161N

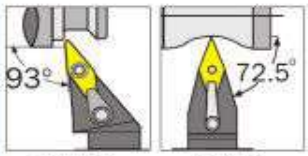


VNMG

Chip Breaker	Application
NFI	Finish
VF	Finish

Grade	ISO Designation P	M	K	P	M	K	N	S	H
QX500	10 - 25	-	-	✓	✓	✓	✓		
QX520	10 - 35	10 - 30	10 - 30	✓	✓	✓			
QX530	20 - 40	20 - 30	-	✓	✓				
QX5030	25 - 35	15 - 25	-	✓	✓				

Suitable for External Toolholders:



MVJNL- MVVN-

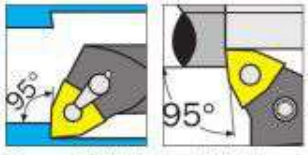
Insert Size Chip-breaker VNMG	Grade	Order Code YML-120
12T302 NFI	QX530	-9402E
12T304 NFI	QX500	-9404A
NFI	QX530	-9404E
12T308 NFI	QX5030	-9408H

WNMG

Chip Breaker	Application
NSS	Light/Medium
NM4	Med Cut
NM5	Med Cut
NM6	Med Cut

Grade	ISO Designation P	M	K	P	M	K	N	S	H
QX510	01 - 15	10 - 15	01 - 20	✓	✓				
QX520	10 - 35	10 - 30	10 - 30	✓	✓				
QX5030	25 - 35	15 - 25	-		✓	✓			
QX535S	-	10 - 30	-		✓	✓			
QX8010	10	10	10	✓	✓	✓			

Suitable for Internal/External Toolholders:



S_ _ _MWLN- PWLN-

Insert Size Chip-breaker WNMG	Grade	Order Code YML-120
060404 NM4	QX520	-9774D
060408 NSS	QX8010	-9780K
080408 NM6	QX5030	-9836H

Insert Geometry for Finishing & Semi-finishing of Aluminium & Aluminium Alloys

- Optimised edge and radius geometry.
- Improved surface finish.
- Improved chip control.
- 'G' Tolerance for high repeatability.
- First choice for machining pure aluminium.
- 30% longer insert life compared to uncoated grade.

Grade K10C

ISO N05-N15 PVD Coated. Micrograin carbide for machining aluminium and aluminium alloys, 30% higher tool life against uncoated grade. Smooth coating and polished surface gives better chip control.

ALC Geometry

For finishing and semi finishing of aluminium and aluminium alloys. A unique breaker design gives a sharp cutting edge and positive rake angle. Special edge preparation and surface treatment produce better surface quality and greater chip control, reduced friction and vibration. 'G' tolerance inserts for higher repeatability.

Feed Rates

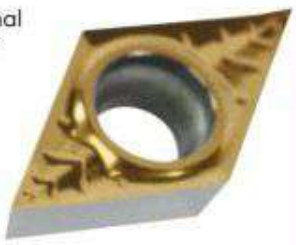
For Machining Pure Aluminium
Ap. DOC = 0.02 ~ 4.80 (mm)
F = 0.05~0.50 (mm/r)

For Machining Aluminium Alloys
Ap. DOC = 0.02 ~ 3.50 (mm)
F = 0.05~0.40 (mm/r)

30% LONGER INSERT LIFE COMPARED TO UNCOATED GRADE

DCGX

Fits the same Internal/External Toolholders as DCGT



Insert Size DCGX	Chip-breaker	Grade	Order Code YML-120
070204	ALC	K10C	-1282N
11T304	ALC	K10C	-1291N

TCGX

Fits the same Internal/External Toolholders as TCGT

Insert Size TCGX	Chip-breaker	Grade	Order Code YML-120
16T308	ALC	K10C	-7096N

CCGX

Fits the same Internal/External Toolholders as CCGT

Insert Size CCGX	Chip-breaker	Grade	Order Code YML-120
060202	ALC	K10C	-0312N
060204	ALC	K10c	-0314N
09T304	ALC	K10C	-0318N
09T308	ALC	K10C	-0320N
120404	ALC	K10C	-0324N
120408	ALC	K10C	-0326N

SCGX

Fits the same Internal/External Toolholders as SCGT

Insert Size SCGX	Chip-breaker	Grade	Order Code YML-120
120408	ALC	K10C	-4173N

VCGX

Fits the same Internal/External Toolholders as VCGT

Insert Size VCGX	Chip-breaker	Grade	Order Code YML-120
110302	ALC	K10C	-9201N
110304	ALC	K10C	-9203N
160404	ALC	K10C	-9233N