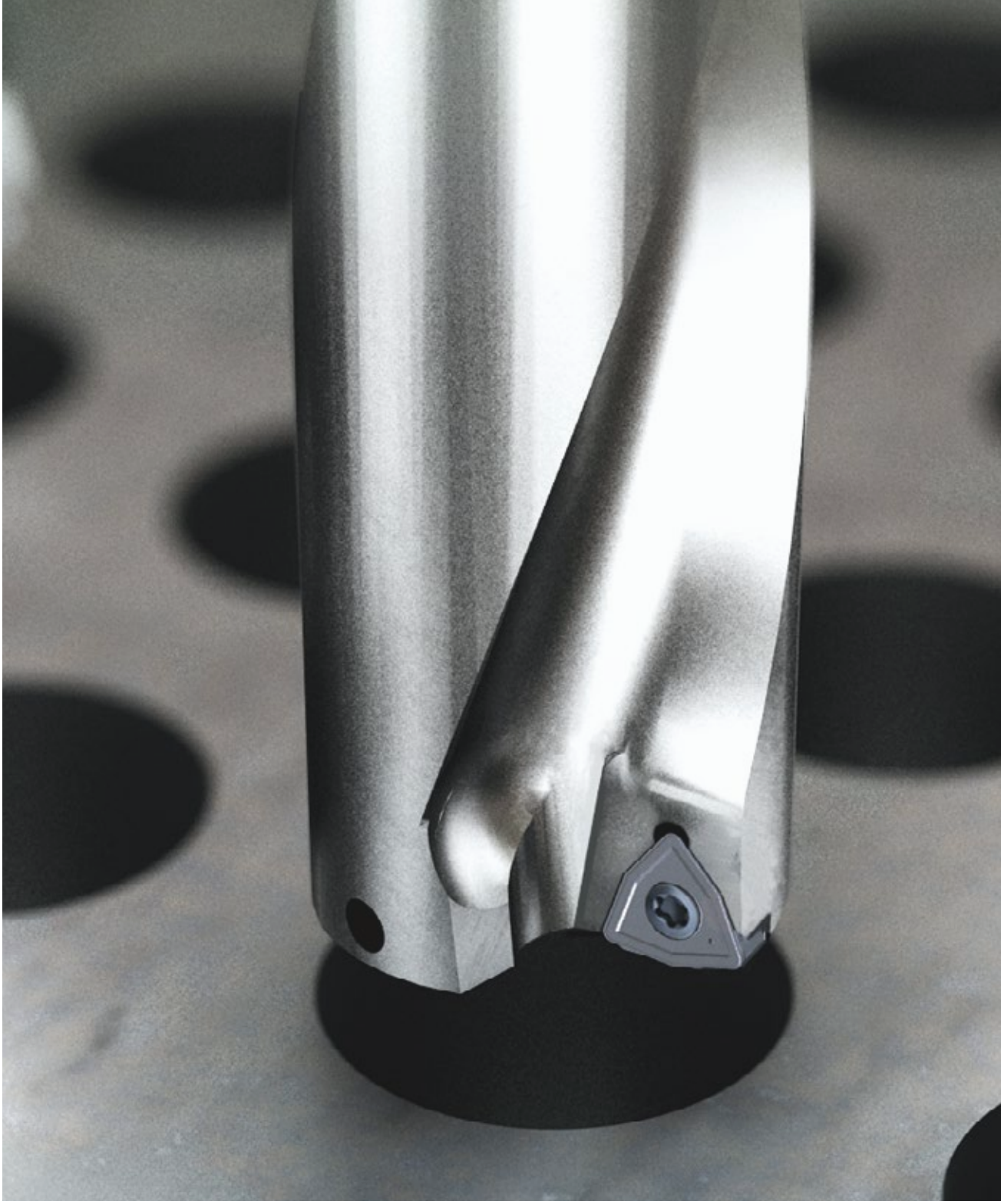
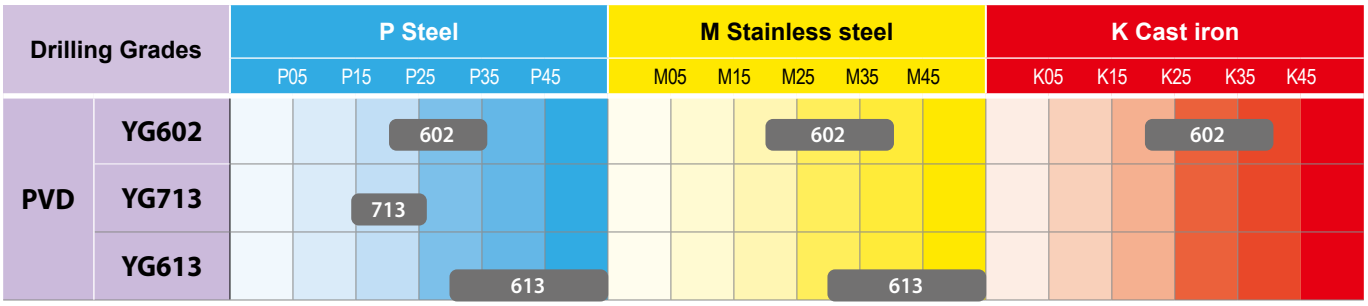
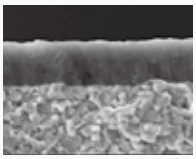
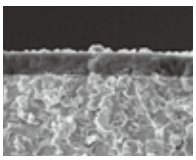
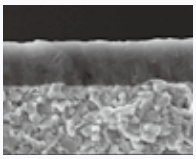


DRILLING

Drilling Overview

Drilling Grades



YG602 P20 - P35 M20 - M40 K20 - K40 S15 - S25	PVD - TiAlN 	**Universal grade for General Drilling Application** • Ultra Dense PVD Coating with optimal thermal resistance & strength • Sub-Micron substrate designed for demanding application
YG713 P15 - P25	PVD - TiAlN 	**Drilling Grade for General Steel Application** • Multi-layer TiAlN structure realizes stronger crater and flank wear resistance • Fine-grained carbide and balanced substrate
YG613 P30 - P50 M30 - M50	PVD - TiAlN 	**Drilling Grade for Stainless Steel Application** • New coating layer with high toughness and lubrication on ultra fine grain substrate with high toughness. • The toughest substrates provides excellent cutting performance in stainless steel

Universal Drilling Inserts

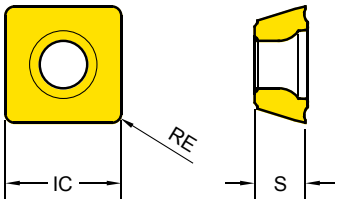
	**4 Corner**	SPMX Series	**SPMX**	05, 06, 07, 09, 11, 14
	**ISO 3 Corner**	WCMX Series	**WCMX**	03, 04, 05, 06, 08

Drilling Chip breakers

P	M	K			
	M		**–ST**		• Sharp Geometry • Sticky Material, Stainless Steel
P	M	K	**General Inserts** **(No Description)**		• First Choice for General Application

Drilling - Inserts

Drilling Inserts (SPMX)



Series	inch IC	S
SPMX 0502	.197	.094
SPMX 0602	.236	.095
SPMX 07T3	.313	.156
SPMX 0904	.386	.169
SPMX 1104	.453	.189
SPMX 1405	.563	.205

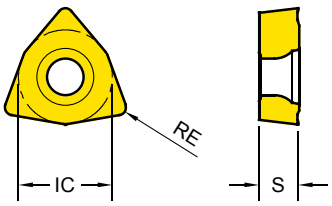
SPMX		Designation	Fn (in/rev.)	EDP 3200.. P25 M30 K30 S20 YG602	P30 YG713	P40 M35 S30 YG613
SPMX General		SPMX 050204	.003~.006	● 0005	○ 0062	● 0077
		SPMX 060204	.003~.006	● 0006	○ 0063	● 0078
		SPMX 07T308	.003~.006	● 0007	○ 0064	● 0061
		SPMX 090408	.003~.006	● 0008	○ 0065	● 0079
		SPMX 110408	.004~.007	● 0009	○ 0066	● 0080
		SPMX 140512	.004~.008	● 0010	○ 0067	
-ST Stainless Steel		SPMX 050204 -ST	.001~.004	● 0011		● 0070
		SPMX 060204 -ST	.002~.004	● 0012		● 0071
		SPMX 07T308 -ST	.002~.004	● 0013		● 0068
		SPMX 090408 -ST	.002~.005	● 0014		● 0072
		SPMX 110408 -ST	.004~.007			● 0073
		SPMX 140512 -ST	.004~.008			● 0074

●: Stock item ○: Order made item

Cutting Speed			Vc (ft/min.)					
ISO	VDI	Sub Group	YG602 Min	YG602 Max	YG713 Min	YG713 Max	YG613 Min	YG613 Max
P	1~5	Non-Alloyed Steel	590	1250	660	980	330	690
	6~9	Low-Alloyed Steel	390	980	560	890	230	590
	10~11	High-Alloyed Steel	230	490	280	480	130	295
M	12~13	Ferritic & Martensitic	390	660	-	-	230	590
	14	Austenitic Stainless Steel	430	820	-	-	230	660
K	15~16	Grey Cast Iron	390	820	-	-	-	-
	17~18	Nodular Cast Iron	430	720	-	-	-	-
S	31~35	Fe/Ni/Co-based HRSA	-	-	-	-	-	-
	36~37	Titanium alloys	-	-	-	-	-	-
H	38~41	Hard Materials	-	-	160	330	-	-

Drilling - Inserts

Drilling Inserts (WCMX)



Series	inch IC	S
WCMX 0302	.219	.094
WCMX 0402	.250	.094
WCMX 0503	.313	.125
WCMX 06T3	.375	.156
WCMX 0804	.500	.187

WCMX
General

WCMX	Designation	Fn (in/rev.)	EDP 3200.. P25 M30 K30 S20 YG602	P30 YG713	P40 M35 S30 YG613
	WCMX 030208	.002~.005	● 0031	○ 0086	
	WCMX 040208	.002~.005	● 0003	○ 0087	
	WCMX 050308	.002~.006	● 0001	○ 0088	
	WCMX 06T308	.003~.006	● 0002	○ 0089	
	WCMX 080412	.003~.006	● 0004	○ 0090	● 0091

●: Stock item ○: Order made item

Cutting Speed			Vc (ft/min.)					
ISO	VDI	Sub Group	YG602 Min	YG602 Max	YG713 Min	YG713 Max	YG613 Min	YG613 Max
P	1~5	Non-Alloyed Steel	590	1250	660	980	330	690
	6~9	Low-Alloyed Steel	390	980	560	890	230	590
	10~11	High-Alloyed Steel	230	490	280	480	130	295
M	12~13	Ferritic & Martensitic	390	660	-	-	230	590
	14	Austenitic Stainless Steel	430	820	-	-	230	660
K	15~16	Grey Cast Iron	390	820	-	-	-	-
	17~18	Nodular Cast Iron	430	720	-	-	-	-
S	31~35	Fe/Ni/Co-based HRSA	-	-	-	-	-	-
	36~37	Titanium alloys	-	-	-	-	-	-
H	38~41	Hard Materials	-	-	160	330	-	-