MILLING AND DRILLING

M R

METAL REMOVAL
BY **WIDIA**™

THE METAL CUTTING TOOL PHILOSOPHY

QUALITY

From raw material to final inspection, our state-of-the-art equipment and methods deliver products that will significantly boost your productivity and profitability.

PERFORMANCE

Our carbide technology is simply unsurpassed, as is our commitment to always provide you the grades and technologies to maximize your output.

SERVICE

Our field staff, fully backed by a team of in-house technical experts, has one objective: to give you the best tool for the job!

GENERAL ENGINEERING

TRANSPORTATION

METAL REMOVAL BY WIDIA

WIDIA addresses customers' needs by providing them with innovative products and the latest technologies. Our precision metalworking tools cover applications like ISO turning and milling applications.

We help customers reduce their manufacturing spend by offering cost-effective, high-quality solutions that eliminate bottlenecks.

Our solutions meet customers' machining needs in the transportation, general engineering, and die & mold industries — and enable them to gain a competitive edge.
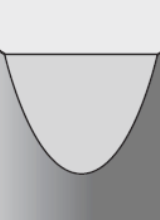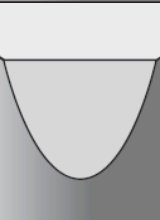
GRADES ON DIFFERENT MACHINING CONDITIONS

wear resistance ←——————→ toughness

Grade	Coating	Grade Description		05	10	15	20	25	30	35
MR1000K		Uncoated grade with micro-fine substrate suited for machining cast iron in medium to finish applications.	P							
			M							
			K	■	■					
			N							
			S							
			H							
MR2500P		PVD TiALN-coated grade with micro-fine substrate suited for machining steel and cast iron in medium to finish applications.	P	■	■	■				
			M							
			K		■	■				
			N							
			S							
			H							
MR3000P		Uncoated carbide that's great for general-purpose turning grade for steels and ideal for medium machining to heavy roughing.	P		■	■	■	■	■	
			M							
			K				■	■	■	■
			N							
			S							
			H							

P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High-Temp Alloys
H	Hardened Materials

Milling

ISO INSERT NOMENCLATURE

S	**P**	**K**	**N**
Insert Shape	Insert Clearance Angle	Tolerance Class	Geometry and Clamping Type

Insert Shape (S)

A	85°
B	82°
C	80°
E	75°
H	120°
L	90°
O	135°
R	(round)
S	90°
T	60°
W	80°
X	Special Design

Insert Clearance Angle (P)

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

Geometry and Clamping Type (N)

symbol	hole	shape of hole	chipbreaker	shape of insert's section
N	without		without	
R	without		single-sided	
F			double-sided	
A	with	cylindrical hole	without	
M	with	cylindrical hole	single-sided	
G			double-sided	
W	with	partly cylindrical hole, 40–60º countersink	without	
T			single-sided	
Q	with	partly cylindrical hole, 40–60º double countersink	without	
U			double-sided	
B	with	partly cylindrical hole, 70–90º countersink	without	
H			single-sided	
C	with	partly cylindrical hole, 70–90º double countersink	without	
J			double-sided	
X	special design			

indexable inserts with facets/wipers

indexable inserts with corner radii

insert thickness

iC	tolerances on "iC"		tolerances on "M"	
	classes J, K, L, M, N ($^+$/$-$)	class U ($^+$/$-$)	classes M & N ($^+$/$-$)	class U ($^+$/$-$)
4,76–10,00	0,051	0,076	0,076	0,127
11,11–14,29	0,076	0,127	0,127	0,203
15,00–20,64	0,102	0,178	0,152	0,279
22,00–31,16	0,127	0,254	0,178	0,381
31,75–35,00	0,152	0,254	0,2	0,381

	iC (+/−)	M (+/−)	T (+/−)		iC (+/−)	M (+/−)	T (+/−)
A	0,025	0,005	0,025	J	0,05–0,15*	0,005	0,025
B	0,025	0,005	0,013	K	0,05–0,15*	0,013	0,025
C	0,025	0,013	0,025	L	0,05–0,15*	0,025	0,025
D	0,025	0,013	0,013	M	0,05–0,15*	0,08–0,20*	0,013
E	0,025	0,025	0,025	N	0,05–0,15*	0,08–0,20*	0,025
F	0,013	0,005	0,025	P**	0,038	0,038	0,038
G	0,025	0,025	0,013	U	0,08–0,25*	0,13–0,30*	0,013
H	0,013	0,013	0,025				

*See table above for tolerances according to insert size and class.
**WIDIA standard only.

ISO INSERT NOMENCLATURE

12	**03**	**ED**	**S**	**R**
Size (Cutting Edge Length)	Insert Thickness	Corner Configuration	Cutting Edge Form	Insert Hand

Insert Thickness

symbol	thickness
T1	1,98
02	2,38
03	3,18
T3	3,97
04	4,76
05	5,56
06	6,35
07	7,94

Cutting Edge Form

F		sharp
E		honed
T		T-land
S		honed + T-land

Insert Hand

direction of cutter rotation
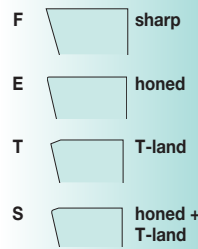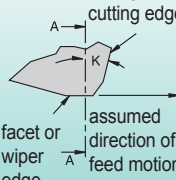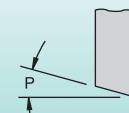
Size (Cutting Edge Length)
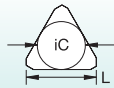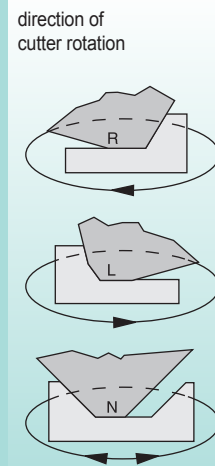
inscribed circle "iC" versus cutting edge length "L"

For shapes A, L, and X, see position #1; use length of leading cutting edge.

	"L" for shapes						
iC	**S**	**T**	**R**	**O**	**C**	**H**	**E**
6,00	–	–	06	–	–	–	–
6,35	06	11	06	02	06	03	06
8,00	–	–	08	–	–	–	–
9,52	09	16	09	04	09	05	09
10,00	–	–	10	–	–	–	–
12,00	–	–	12	–	–	–	–
12,70	12	22	12	05	12	07	13
15,88	15	27	15	06	16	09	16
16,00	–	–	16	–	–	–	–
19,05	19	33	19	07	19	11	19
20,00	–	–	20	–	–	–	–
25,00	–	–	25	–	–	–	–
25,40	25	4					

Corner Configuration

radius

leading or major cutting edge

facet or wiper edge

assumed direction of feed motion

MO	round insert			wiper edge clearance P	
01	0,1mm				
02	0,2mm			A	3°
04	0,4mm			B	5°
05	0,5mm	If letter is replaced by number(s), refer to table for radius "r."		C	7°
08	0,8mm			D	15°
10	1,0mm			E	20°
12	1,2mm	**lead angle K**		F	25°
15	1,5mm	A	45°	G	30°
16	1,6mm	D	60°	N	0°
24	2,4mm	E	75°	P	11°
32	3,2mm	P	90°		

INSERTS FOLLOWING THE
GRADE MR2500P
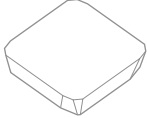
● APMT/APPT

Insert	Description	Insert grade	Work material	Ordering code
	APMT160408PDR	MR2500P	Steel & Cast Iron	6740742
	APMT1135PDR	MR2500P	Steel & Cast Iron	6741543
	APPT160408PDSR	MR2500P	Steel & Cast Iron	6882765
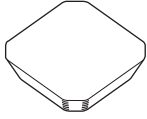
● XPNT

Insert	Description	Insert grade	Work material	Ordering code
	XPNT160412	MR2500P	Steel & Cast Iron	6655361

● SPKN
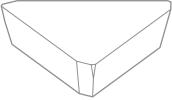
Insert	Description	Insert grade	Work material	Ordering code
	SPKN1203EDR	MR2500P	Steel & Cast Iron	6740745
	SPKN1203EDL	MR3000P	Steel	6882811
	SPKN1203EDL	MR1000K	Cast Iron	6882812
	SPKN1203EDL	MR2500P	Steel & Cast Iron	6882813
	SPKN1504EDR	MR2500P	Steel & Cast Iron	6740746
	SPKN1504EDR	MR1000K	Cast Iron	6882814
	SPKN1504EDL	MR2500P	Steel & Cast Iron	6882815
	SPKN1203EDR	MR1000K	Cast Iron	6841023
	SPKN1504EDR	MR3000P	Steel & Cast Iron	6841025
	SPKN1203EDR	MR3000P	Steel & Cast Iron	6841024

● SEKN

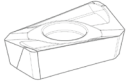| Insert	Description	Insert grade	Work material	Ordering code
	SEKN1203AFN	MR2500P	Steel & Cast Iron	6882764

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INSERTS FOLLOWING THE GRADE MR2500P
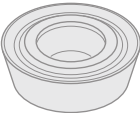
● TPKN

Insert	Description	Insert grade	Work material	Ordering code
	TPKN1603PDR	MR2500P	Steel & Cast Iron	6882769
	TPKN2204PDR	MR2500P	Steel & Cast Iron	6740781
	TPKN2204PDR	MR1000K	Cast Iron	6882816
	TPKN2204PDL	MR2500P	Steel & Cast Iron	6882817
	TPKN2204PDR	MR3000P	Steel & Cast Iron	6841022

● TPKR
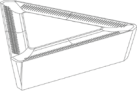
Insert	Description	Insert grade	Work material	Ordering code
	TPKR1603PDR	MR2500P	Steel & Cast Iron	6882770

● RDMX/RDEX

Insert	Description	Insert grade	Work material	Ordering code
	RDMX10T300	MR2500P	Steel & Cast Iron	6655352
	RDMX1604M0T	MR2500P	Steel & Cast Iron	6882768
	RDMX12T3	MR2500P	Steel & Cast Iron	6826650
	RDEX12T3	MR2500P	Steel & Cast Iron	6826649
	RDEX1003	MR2500P	Steel & Cast Iron	6826648

● RPMT

Insert	Description	Insert grade	Work material	Ordering code
	RPMT1204MO	MR2500P	Steel & Cast Iron	6740744

● RPMW

Insert	Description	Insert grade	Work material	Ordering code
	RPMW1003M0T	MR2500P	Steel & Cast Iron	6882766
	RPMW1204M0	MR2500P	Steel & Cast Iron	6882767

INSERTS FOLLOWING THE
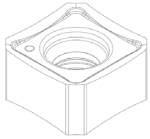## GRADE MR2500P

● SNMX

Insert	Description	Insert grade	Work material	Ordering code
	SNMX1206	MR2500P	Steel & Cast Iron	6689762

● TNUN

Insert	Description	Insert grade	Work material	Ordering code
	TNUN270620	MR3000P	Steel & Cast Iron	6894066

● SDMT

Insert	Description	Insert grade	Work material	Ordering code
	SDMT1204PDRMH	MR2500P	Steel & Cast Iron	6768345

● SOMT

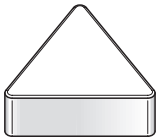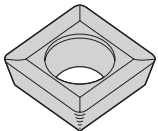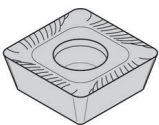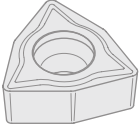| Insert	Description	Insert grade	Work material	Ordering code
	SOMT060204ML	MR2500P	Steel & Cast Iron	6882818
	SOMT09T306-MRT2	MR2500P	Steel & Cast Iron	6826647

INSERTS FOLLOWING THE
GRADE MR2500P

⬢ WCMT/WCMX

insert	description	insert grade	work material	ordering code
	WCMX030208-MRT2	MR2500P	Steel & Cast Iron	6870150
	WCMT040204-MRT2	MR2500P	Steel & Cast Iron	6740731
	WCMT050308-MRT2	MR2500P	Steel & Cast Iron	6740732
	WCMT06T308-MRT2	MR2500P	Steel & Cast Iron	6740733
	WCMT080408-MRT2	MR2500P	Steel & Cast Iron	6740734
	WCMT080412-MRT2	MR2500P	Steel & Cast Iron	6870151

METAL REMOVAL
BY WIDIA

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