



METAL REMOVAL
BY **WIDIA™**

Cost-effective | Versatile | Reliable



Milling



METAL REMOVAL
BY WIDIA™

Cost-effective | Versatile | Reliable

THE METAL CUTTING TOOL PHILOSOPHY



Cost-effective

Get more for less. MRW offers quality tools at prices that makes them budget-friendly.



Reliable

Tested, trusted. Every MRW tool carries the legacy of WIDIA's technical expertise and pioneering innovation.



Versatile

One tool, many solutions. Most MRW tools provide versatility in operations with a single tool. Productivity, inventory and sourcing simplified.



Available

Just get it. MRW redefines productivity with most tools readily available at retailers across the country.

METAL REMOVAL BY WIDIA

MRW addresses customer needs by providing them with innovative products and latest technologies. Our precision metalworking tools cover applications like ISO turning, milling, drilling and solid end mills.

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

Coating	Grade Description	wear resistance ← → toughness							
		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							
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							
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							

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



SELECT THE CUTTING SPEED

Indexable Milling											
	Material group	Material Specification	MR1000K			MR3000P			MR2500P		
			m/min			m/min			m/min		
			max.	start	min.	max.	start	min.	max.	start	min.
P	1	Low carbon steel (<0.3%C)				210	195	180	330	290	270
	2	Medium & High carbon steel(>0.3%C)				150	130	120	275	250	200
	3	Alloy/Tool steels <35HRc				125	110	100	255	220	175
	4	Alloy/Tool steels 36 to 48HRc				110	100	80	225	190	150
	5	Ferritic, Martensitic & PH SS (<35HRc)				100	80	60	185	175	150
	6	Ferritic, Martensitic & PH SS 36 to 48HRc)							165	130	100
M	1	Austenitic SS									
	2	Austenitic SS									
	3	Austenitic SS : Duplex									
K	1	Gray CI	145	110	90				250	220	185
	2	Ductile, Compacted graphite and malleable CI <80KSI	150	120	85				200	180	150
	3	Ductile, Compacted graphite and malleable CI >80KSI	155	115	70				180	150	120

ISO INSERT NOMENCLATURE

S

Insert Shape

P

Insert Clearance Angle

K

Tolerance Class

N

Geometry and Clamping Type

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

Size
(Cutting Edge Length)

03

Insert Thickness

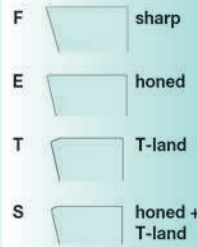
symbol	thickness
T1	1,98
02	2,38
03	3,18
T3	3,97
04	4,76
05	5,56
06	6,35
07	7,94

ED

Corner
Configuration

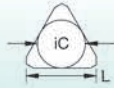
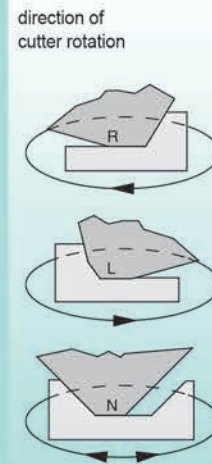
S

Cutting Edge
Form



R

Insert Hand

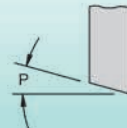
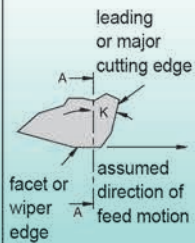


inscribed circle "iC" versus
cutting edge length "L"

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

iC	"L" for shapes						
	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					

radius

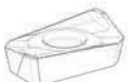


MO	round insert	lead angle K		wiper edge clearance P	
01	0,1mm			A	3°
02	0,2mm			B	5°
04	0,4mm			C	7°
05	0,5mm			D	15°
08	0,8mm			E	20°
10	1,0mm			F	25°
12	1,2mm			G	30°
15	1,5mm	A	45°	N	0°
16	1,6mm	D	60°	P	11°
24	2,4mm	E	75°		
32	3,2mm	P	90°		

If letter is replaced by number(s), refer to table for radius "r."

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

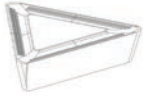


INSERTS FOLLOWING THE GRADE MR2500P


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
	RPMT1204M0	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



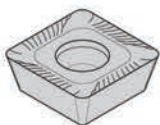
◆ SDMT

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

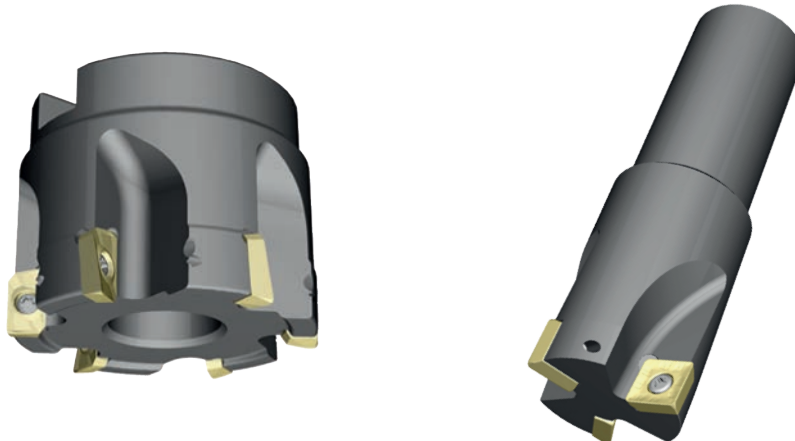




Milling Cutter

CUTTER NOMENCLATURE

MR	EM	D080	Z05	A16	AP11
(1) Brand	(2) Insert Material	(3) Diameter	(4) Effective number of Teeth	(5) Mounting Size	(6) Style of Insert Used
MR - MR brand	EM - End Mill SM - Shell Mill FM - Face Mill	016 - 16mm 025 - 25mm 032 - 32mm	03 - 3 05 - 5 07 - 7 09 - 9	A - Cylindrical Shank S - Shell Mill 16 - 16mm 20 - 20mm 25 - 25mm 32 - 32mm	AP11 - APMT11 AP16 - APMT16 SP15 - SPKN15 TP22 - TPKN22



Milling Cutter

ISO Nomenclature	MRW MM	Mounting style	Mounting size	Z	OAL	Insert style
MRFMD080Z05S27TP22	7160643	Shell Mill	27	5	50	TPKN22
MRFMD100Z07S32TP22	7160644	Shell Mill	32	7	50	TPKN22
MRFMD125Z08S40TP22	7160645	Shell Mill	40	8	63	TPKN22
MRFMD160Z10S40TP22	7160646	Shell Mill	40	10	63	TPKN22
MRFMD080Z05S27SP15	7160703	Shell Mill	27	5	50	SPKN15
MRFMD100Z07S32SP15	7160704	Shell Mill	32	7	50	SPKN15
MRFMD125Z08S40SP15	7160754	Shell Mill	40	8	63	SPKN15
MRFMD160Z10S40SP15	7160755	Shell Mill	40	10	63	SPKN15
MRFMD080Z05S27TP22	7160756	Shell Mill	27	5	50	TPKN22
MRFMD100Z07S32TP22	7160757	Shell Mill	32	7	50	TPKN22
MRFMD125Z08S40TP22	7160758	Shell Mill	40	8	63	TPKN22
MRFMD160Z10S40TP22	7160759	Shell Mill	40	10	63	TPKN22

ISO Nomenclature	MRW MM	Mounting style	Mounting size	Z	OAL	Insert style
MREMD016Z02A16AP11	7160753	Cylindrical Shank	16	2	170	APMT11
MREMD020Z02A20AP11	7160760	Cylindrical Shank	20	2	170	APMT11
MREMD025Z03A25AP11	7160761	Cylindrical Shank	25	3	210	APMT11
MREMD032Z03A32AP11	7160762	Cylindrical Shank	32	3	250	APMT11
MRSMD040Z04S16AP11	7160763	Shell Mill	16	4	40	APMT11
MRSMD050Z05S22AP11	7160765	Shell Mill	22	5	40	APMT11
MRSMD063Z06S22AP11	7160766	Shell Mill	22	6	40	APMT11
MRSMD080Z08S27AP11	7160767	Shell Mill	27	8	50	APMT11
MRSMD100Z09S32AP11	7160768	Shell Mill	32	9	50	APMT11

ISO Nomenclature	MRW MM	Mounting style	Mounting size	Z	OAL	Insert style
MREMD020Z02A20AP16	7160791	Cylindrical Shank	20	2	170	APMT 16
MREMD025Z02A25AP16	7160792	Cylindrical Shank	25	2	210	APMT 16
MREMD032Z03A32AP16	7160793	Cylindrical Shank	32	3	250	APMT 16
MRSMD040Z04S16AP16	7160794	Shell Mill	16	4	40	APMT 16
MRSMD050Z05S22AP16	7160795	Shell Mill	22	5	40	APMT 16
MRSMD063Z06S22AP16	7160796	Shell Mill	22	6	40	APMT 16
MRSMD080Z07S27AP16	7160797	Shell Mill	27	7	50	APMT 16
MRSMD100Z08S32AP16	7160798	Shell Mill	32	8	50	APMT 16
MRSMD125Z09S40AP16	7160799	Shell Mill	40	9	63	APMT 16



4-Flute

- Multipurpose tools for a wide range of workpiece materials
- Various lengths-of-cut and overall lengths
- Four flutes for high Metal Removal Rates (MRR) and tool life

Short Series

Cutting Diameter	Flute Length	Overall Length	Shank Diameter	Ordering Code
1	3	50	4	7111712
2	6	50	4	7111713
3	8	50	4	7111714
4	11	50	4	7111715
5	13	50	6	7111716
6	16	50	6	7111688
8	20	60	8	7111689
10	25	75	10	7111690
12	30	75	12	7111781
16	45	100	16	7111782
20	45	100	20	7111783

Long Series

Cutting Diameter	Flute Length	Overall Length	Shank Diameter	Ordering Code
3	12	75	4	7111784
4	15	75	4	7111785
5	20	75	6	7111786
6	20	75	6	7111787
8	25	100	8	7111788
10	30	100	10	7111789
12	35	100	12	7111790
16	50	150	16	7111811
20	55	150	20	7111812
16	45	100	16	7111782
20	45	100	20	7111783

APPLICATIONS



Slotting:
Square End



Side Milling/
Shoulder Milling:
Square End



DIN 6527



Comer Style:
Square End



Cylindrical/Plain
Shank



Cylindrical/Plain
Shank



Tool Dimensions:
Flute Configuration:
4





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



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A series of horizontal dotted lines spanning the width of the page, providing a template for writing or drawing.



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