2017 Master Catalog

WIDIA™

Indexable Milling • Slotting Mills

Reliable, Powerful, and Durable Milling Tools •

M16 Series T-Slotting Mills

M16

Designed for maximum chip evacuation and optimum security, the M16 Series Slotting Mills are an excellent choice for T-slot milling of steel and cast iron.

- Strong and sturdy tool design ensures reliable steel and cast iron machining, time after time.
- Maximum chip evacuation streamlines your most challenging milling operations.

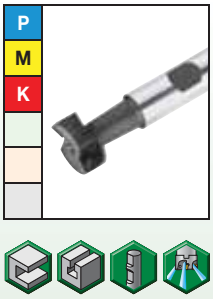
Slotting Mills

M16

Slot Width Range:
11–21,9mm

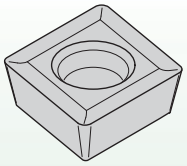
Indexes per insert: 2
Diameter: 25–50mm

Pages: J4–J7



These products are available for metric only.

Insert Offering



Inserts with positive chipbreaker providing low cutting forces.

T-Slotting

Steel

- If machining a vertical slot, minimize depth; reference Figure 1. If the depth is greater than Figure 1, chip evacuation problems could occur.
- Vibrations could occur when the T-slot cutter diameter increases; use Figure 1 as the starting point. If vibrations are a concern, adopt the Figure 2 solution.

Cast Iron

- Fewer problems with chip evacuation and reduced cutting forces enable deeper vertical slots as shown in Figures 2 and 3.

Figure 1

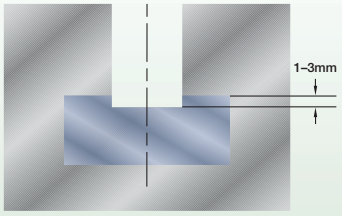


Figure 2

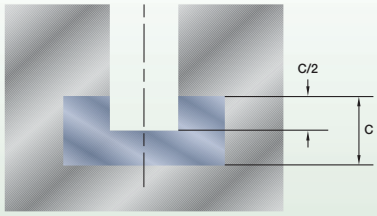
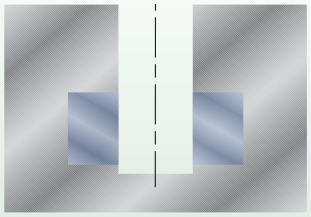
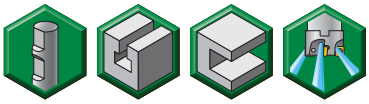


Figure 3

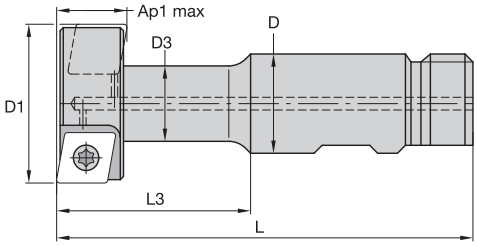


NOTE: Air blast is recommended to disperse the chips.

These products are available for metric only.



- T-slot mill.
- Ideal for steel and cast iron machining.



Weldon Shanks

order number	catalog number	D1	D	D3	L	L3	Ap1 max	Z	Z U	insert 1	coolant supply	kg
2021380	**12391602600M**	25	16	13	80	32	11,0	4	2	CPNT060204T	Yes	0,1
2021381	**12391603000**	32	16	15	90	42	13,9	4	2	CPNT080308T	Yes	0,2
2021382	**12391603400**	40	25	19	105	49	17,9	4	2	CPNT09T308T	Yes	0,4
2021383	**12391603800**	50	32	25	120	60	21,9	4	2	CPNT120408T	Yes	0,7

NOTE: Z = number of pocket seats.
ZU = number of effective teeth.

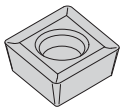
Spare Parts

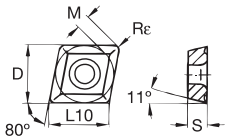
D1	insert screw	Nm	Torx driver	Torx wrench
25	**12148068700**	1,0	–	**12148086600**
32	**12148067200**	2,0	–	**12148086600**
40	**12148038800**	3,0	–	**12148000600**
50	**12148007200**	4,0	**12148007500**	–

Insert Selection Guide

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1–P2	CPNT	WP40PM	**CPNT**	**WP40PM**	CPNT	WP40PM
P3–P4	CPNT	WP35CM	**CPNT**	**WP35CM**	CPNT	WP35CM
P5–P6	CPNT	WP35CM	**CPNT**	**WP40PM**	CPNT	WP40PM
M1–M2	CPNT	WP40PM	**CPNT**	**WP40PM**	CPNT	WP40PM
M3	CPNT	TN7535	**CPNT**	**WP35CM**	CPNT	WP35CM
K1–K2	CPNT	WK15CM	**CPNT**	**WK15CM**	CPNT	WK15CM
K3	CPNT	WK15CM	**CPNT**	**WP35CM**	CPNT	WP35CM
N1–N2	–	–	–	–	–	–
N3	–	–	–	–	–	–
S1–S2	–	–	–	–	–	–
S3	–	–	–	–	–	–
S4	–	–	–	–	–	–
H1	–	–	–	–	–	–

These products are available for metric only.


CPNT



● first choice
○ alternate choice

P		●	●
M		○	●
K	●	○	
N			
S			○
H			

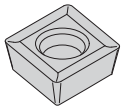
CPNT • CP0602..

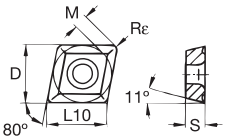
catalog number	cutting edges	D	L10	M	S	Rε	hm	WK15CM	WP35CM	WP40PM
CPNT060204T	2	6,35	6,45	1,54	2,38	0,40	0,03	5903680	5903676	5578222

CPNT • CP0803..

catalog number	cutting edges	D	L10	M	S	Rε	hm	WK15CM	WP35CM	WP40PM
CPNT080308T	2	7,94	8,06	1,76	3,18	0,80	0,09	5903701	5903677	–

These products are available for metric only.


CPNT



● first choice
○ alternate choice

P		●	●
M		○	●
K	●	○	
N			
S			○
H			

■ CPNT • CP09T3..

catalog number	cutting edges	D	L10	M	S	Rε	hm	WK15CM	WP35CM	WP40PM
CPNT09T308T	2	9,52	9,67	2,20	3,97	0,80	0,04	5903702	5903678	ı

■ CPNT • CP1204..

catalog number	cutting edges	D	L10	M	S	Rε	hm	WK15CM	WP35CM	WP40PM
CPNT120408T	2	12,70	12,90	3,08	4,76	0,80	0,03	5903703	5903679	ı

Recommended Starting Speeds [m/min]

Material Group		WK15CM			WP35CM			WP40PM		
P	0	–	–	–	455	**395**	370	295	**260**	245
	1	–	–	–	455	**395**	370	295	**260**	245
	2	–	–	–	280	**255**	230	250	**215**	180
	3	–	–	–	255	**230**	205	230	**195**	160
	4	–	–	–	190	**175**	160	205	**170**	135
	5	–	–	–	260	**230**	210	170	**155**	135
	6	–	–	–	160	**135**	110	150	**115**	90
M	1	–	–	–	205	**185**	155	195	**170**	155
	2	–	–	–	185	**160**	140	175	**150**	125
	3	–	–	–	145	**130**	115	130	**115**	90
K	1	420	**385**	340	295	**265**	240	–	–	–
	2	335	**295**	275	235	**210**	190	–	–	–
	3	280	**250**	230	195	**175**	160	–	–	–
N	1	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	40	**35**	30
	2	–	–	–	–	–	–	40	**35**	30
	3	–	–	–	–	–	–	50	**40**	30
	4	–	–	–	66	**50**	33	65	**50**	35
H	1	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–

*NOTE: FIRST choice starting speeds are in **bold** type.*
As the average chip thickness increases, the speed should be decreased.

Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
CPNT	0,12	**0,29**	0,46	0,09	**0,21**	0,33	0,07	**0,16**	0,25	0,06	**0,14**	0,22	0,05	**0,13**	0,20	CPNT
CPNT	0,12	**0,29**	0,46	0,09	**0,21**	0,33	0,07	**0,16**	0,25	0,06	**0,14**	0,22	0,05	**0,13**	0,20	CPNT
CPNT	0,12	**0,29**	0,46	0,08	**0,21**	0,33	0,06	**0,16**	0,25	0,06	**0,14**	0,22	0,05	**0,13**	0,20	CPNT
CPNT	0,12	**0,35**	0,58	0,08	**0,25**	0,42	0,06	**0,19**	0,32	0,06	**0,16**	0,28	0,05	**0,15**	0,25	CPNT

NOTE: Use "Light Machining" value as starting feed rate.

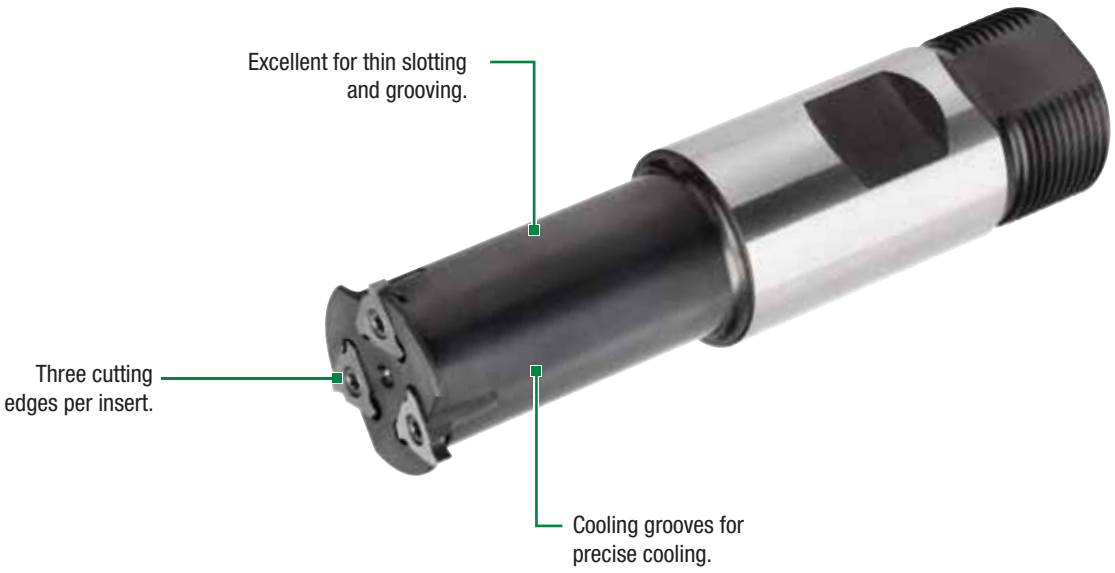
For Precise Slotting and Grooving Applications •

M94 Series Slotting Mills

M94

The M94 Series Slotting Mills are equipped with three cutting edges per insert and precise cooling capabilities for the most demanding small width slotting and grooving operations.

- Coolant grooves provide accurate and consistent cooling performance.
- Perfect choice when shallow grooving and slotting are required.
- Tangential mounted inserts ensure maximum strength and stability.



Slotting Mills

M94

Slot Width Range:
1,93–5,23mm

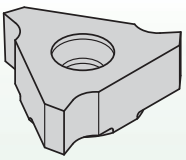
Indexes per insert: 3
Diameter: 25–80mm

Pages: J10–J14

P
M
K

These products are available for metric only.

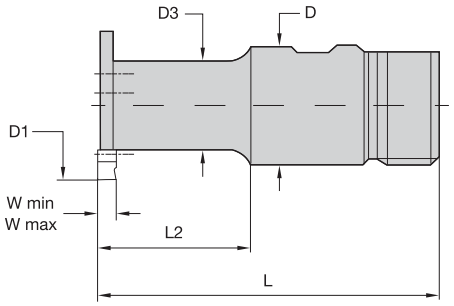
Insert Offering

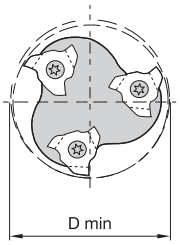


Inserts with free-cutting geometry providing low cutting forces.

These products are available for metric only.

- Three cutting edges per insert.
- Tangential mounted inserts.
- Shallow grooving and slotting.





Weldon Shanks

order number	catalog number	D1	D	D3	D min	L	L2	W min	W max	Z	insert 1	coolant supply	kg
2022619	**12290900800**	25	25	21	34	100	44	1,93	2,73	3	TCAX1103ZZ..	No	0,4
2022620	**12290901200**	40	32	32	65	110	50	2,73	4,26	3	TNAX1604ZZ..	No	0,7

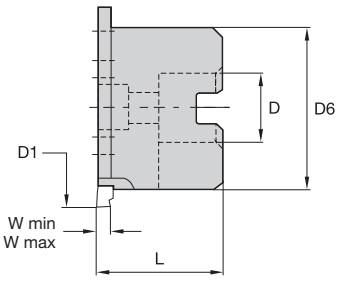
NOTE: D min = minimum internal hole diameter required for clearance.

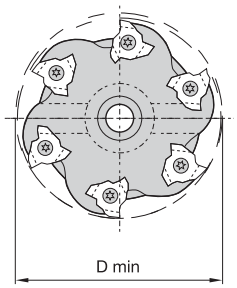
Spare Parts

D1	insert screw	Nm	Torx driver
25	**12148080000**	1,0	**12148086600**
40	**12148067200**	3,5	**12148086600**

These products are available for metric only.

- Three cutting edges per insert.
- Tangential mounted inserts.
- Shallow grooving and slotting.





Shell Mills

order number	catalog number	D1	D	D min	D6	L	W min	W max	Z	insert 1	coolant supply	kg
2022621	**12290911600**	63	22	85	55	40	2,73	4,26	6	TNAX1604ZZ..	No	0,7
2022622	**12290911800**	80	27	102	68	50	4,26	5,23	6	TNAX2206ZZ..	No	1,3

NOTE: D min = minimum internal hole diameter required for clearance.

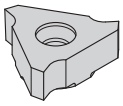
Spare Parts

D1	insert screw	Nm	Torx driver
63	**12148067200**	3,5	**12148086600**
80	**12148007200**	6,0	**12148007500**

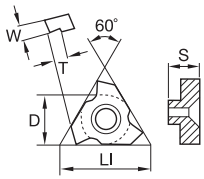
Insert Selection Guide

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1–P2	TCAX/TNAX	TTM/TTM08	**TCAX/TNAX**	**TTM/TTM08**	TCAX/TNAX	TTM/TTM08
P3–P4	TCAX/TNAX	TTM/TTM08	**TCAX/TNAX**	**TTM/TTM08**	TCAX/TNAX	TTM/TTM08
P5–P6	TCAX/TNAX	TTM/TTM08	**TCAX/TNAX**	**TTM/TTM08**	TCAX/TNAX	TTM/TTM08
M1–M2	TCAX/TNAX	TTM/TTM08	**TCAX/TNAX**	**TTM/TTM08**	TCAX/TNAX	TTM/TTM08
M3	TCAX/TNAX	TTM/TTM08	**TCAX/TNAX**	**TTM/TTM08**	TCAX/TNAX	TTM/TTM08
K1–K2	TCAX/TNAX	TTM/TTM08	**TCAX/TNAX**	**TTM/TTM08**	TCAX/TNAX	TTM/TTM08
K3	TCAX/TNAX	THM	**TCAX/TNAX**	**THM**	TCAX/TNAX	THM
N1–N2	TCAX/TNAX	THM	**TCAX/TNAX**	**THM**	TCAX/TNAX	THM
N3	TCAX/TNAX	THM	**TCAX/TNAX**	**THM**	TCAX/TNAX	THM
S1–S2	TCAX/TNAX	THM	**TCAX/TNAX**	**THM**	TCAX/TNAX	THM
S3	TCAX/TNAX	THM	**TCAX/TNAX**	**THM**	TCAX/TNAX	THM
S4	TCAX/TNAX	THM	**TCAX/TNAX**	**THM**	TCAX/TNAX	THM
H1	–	–	**–**	**–**	–	–

These products are available for metric only.



TCAX
TNAX



● first choice
○ alternate choice

P		●	●
M		○	○
K	○	○	○
N	●		
S	○		
H			

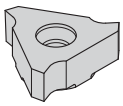
TCAX • 1103..

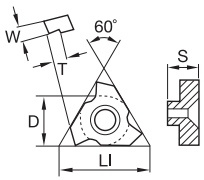
catalog number	cutting edges	D	LI	W	T	S	hm	THM	TTM	TTM08
TCAX1103ZZ18	3	6,35	11,00	1,93	2,10	3,20	0,07	-	-	2014041
TCAX1103ZZ21	3	6,35	11,00	2,23	2,25	3,20	0,07	2026017	-	2026018
TCAX1103ZZ26	3	6,35	11,00	2,73	2,35	3,20	0,07	2014054	2014056	-

TNAX • 1604..

catalog number	cutting edges	D	LI	W	T	S	hm	THM	TTM	TTM08
TNAX1604ZZ26	3	9,52	16,49	2,73	3,08	4,76	0,07	2014152	-	2014164
TNAX1604ZZ31	3	9,52	16,49	3,26	3,04	4,76	0,07	2014166	-	2014168
TNAX1604ZZ41	3	9,52	16,49	4,26	3,32	4,76	0,07	2014170	2014172	-

These products are available for metric only.





● first choice
○ alternate choice

P			●	●
M			○	○
K		○	○	○
N		●		
S		○		
H				

■ TNAX • 2206..

catalog number	cutting edges	D	LI	W	T	S	hm	THM	TTM 2014176	TTM 2026022	TTM08
TNAX2206ZZ41	3	12,70	22,00	4,26	4,02	6,40	0,07	ı		ı	ı
TNAX2206ZZ51	3	12,70	22,00	5,23	4,43	6,40	0,07	ı		ı	ı

Recommended Starting Speeds [m/min]

Material Group		THM			TTM/TTM08		
P	1	–	**–**	–	560	**490**	460
	2	–	**–**	–	345	**280**	245
	3	–	**–**	–	345	**280**	245
	4	–	**–**	–	280	**195**	180
	5	–	**–**	–	360	**280**	260
	6	–	**–**	–	165	**130**	115
M	1	–	**–**	–	330	**195**	130
	2	–	**–**	–	195	**115**	80
	3	–	**–**	–	215	**130**	100
K	1	395	**295**	245	–	**–**	–
	2	410	**330**	230	–	**–**	–
	3	425	**310**	195	–	**–**	–
N	1	2950	**1970**	1640	–	**–**	–
	2	2245	**1525**	1265	–	**–**	–
	3	1475	**920**	655	–	**–**	–
S	1	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–
	4	–	**–**	–	–	**–**	–
H	1	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–

*NOTE: FIRST choice starting speeds are in **bold** type.*
As the average chip thickness increases, the speed should be decreased.

Recommended Starting Feeds

Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
TCAX/TNAX	0,12	**0,29**	0,45	0,08	**0,21**	0,33	0,06	**0,16**	0,25	0,06	**0,14**	0,21	0,05	**0,13**	0,20	TCAX/TNAX

NOTE: Use "Light Machining" value as starting feed rate.

Easy Access to Proven Metalworking Expertise!

WIDIA™ Customer Application Engineers assist customers and engineering groups throughout the world with expert tool selection and application recommendations for the entire range of WIDIA tooling.

Customer Application Support (CAS)

EXTREME **CHALLENGES.**
EXTREME **RESULTS.**

ORIGINATING COUNTRY	LANGUAGE	TEL	FAX	EMAIL
Australia	English	+61 001 724 539 6921 *	001 724 539 6830 *	ap.techsupport@widia.com
Austria	German	0800 291630	0049 911 9735 429*	eu.techsupport@widia.com
Belgium	English / French	0800 80410	0049 911 9735 429*	eu.techsupport@widia.com
China	Chinese	+86 400 889 2237	+86 21 58999985 *	w-cn.techsupport@widia.com
Denmark	English	+45 808 89295	001 724 539 6830 *	na.techsupport@widia.com
Finland	English	0800 919413	001 724 539 6830 *	na.techsupport@widia.com
France	Frensh	+33 080 5540 379	0049 911 9735 429*	eu.techsupport@widia.com
Germany	German	0800 1015774	0911 9735 429*	eu.techsupport@widia.com
India	English	+91 001 724539 6921 *	001 724 539 6830 *	ap.techsupport@widia.com
Israel	English	+972 1809 449907	001 724 539 6830 *	na.techsupport@widia.com
Italy	Italian	800 916568	02 89512146 *	eu.techsupport@widia.com
Japan	English	+81 001 724539 6921 *	001 724 539 6830 *	ap.techsupport@widia.com
Korea (South)	English	+82 001 724539 6921 *	001 724 539 6830 *	ap.techsupport@widia.com
Malaysia	English	+60 001 724539 6921 *	001 724 539 6830 *	ap.techsupport@widia.com
Netherlands	English	0800 0201131	001 724 539 6830 *	na.techsupport@widia.com
New Zealand	English	+64 001 724539 6921 *	001 724 539 6830 *	ap.techsupport@widia.com
Norway	English	800 10081	001 724 539 6830 *	na.techsupport@widia.com
Poland	Polish	00800 4411943	06166 56504*	eu.techsupport@widia.com
Russia (landline)	Russian	+7 8800 5556395	0048 6166 56504*	eu.techsupport@widia.com
Russia (cell phone)	Russian	+7 8005556395	0048 6166 56504*	eu.techsupport@widia.com
Singapore	English	+65 001 724539 6921 *	001 724 539 6830 *	ap.techsupport@widia.com
South Africa	English	+27 0800 981644	001 724 539 6830 *	na.techsupport@widia.com
Sweden	English	+46 020798794	001 724 539 6830 *	na.techsupport@widia.com
Taiwan	English	+886 001 724539 6921 *	001 724 539 6830 *	ap.techsupport@widia.com
Thailand	English	+66 001 724539 6921 *	001 724 539 6830 *	ap.techsupport@widia.com
United Kingdom	English	+44 0800 028 2996	001 724 539 6830 *	na.techsupport@widia.com
Ukraine	Russian	+380 0800502665	0048 6166 56504*	eu.techsupport@widia.com
USA	English	888 539 5145	001 724 539 6830 *	na.techsupport@widia.com

Phone and fax numbers marked with * are not toll free.

For more information, contact your local WIDIA Authorized Distributor or visit **widia.com/services**.

WIDIA™

M95

M95 slotting cutters are ideal for deeper applications that require the cutting load to be shared from one insert to the other. They provide groove widths from 4–10mm and cutter diameters from 100–200mm as well as an economical way to achieve balanced cutting.

Features and Benefits

- Cutters available in arbor mount.
- Inserts with four indexes.
- Staggered keyways in mounting bore, used for multiple ganged cutters.
- Slot width 4–10mm.
- Three insert geometries available; SNHX in 11 and 12mm iC.
- Requires only one spare part.
- Economical to use.
- Available in Latest WIDIA™ Victory™ Grade.

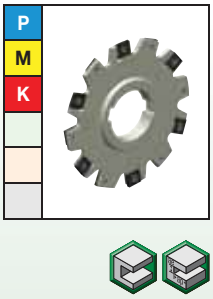
Slotting Mills

M95

Slot Width Range:
4–10mm

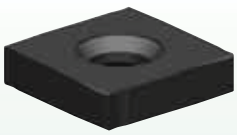
Indexes per insert: 4
Diameter: 100–200mm

Pages: J18–J21



These products are available for metric only.

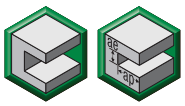
Insert Offering

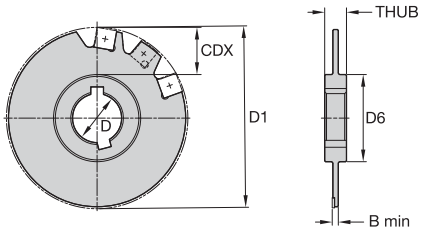


SNHX

Inserts with free-cutting geometry providing low cutting forces.

These products are available for metric only.





M95

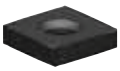
order number	catalog number	D1	D	D6	B min	CDX	THUB	Z	Z S	coolant supply	kg
2016502	**12299510400**	100	27	48	4	26,0	12,0	12	6	No	0,3
2016514	**12299515500**	100	27	48	5	26,0	12,0	12	6	No	0,3
2016516	**12299515600**	100	27	48	6	26,0	12,0	10	5	No	0,3
2016518	**12299515700**	100	27	48	7	26,0	12,0	9	3	No	0,3
2016520	**12299515800**	100	27	48	8	26,0	12,0	9	3	No	0,4
2016524	**12299520400**	125	40	58	4	91,5	12,0	14	7	No	0,4
2016526	**12299525500**	125	40	58	5	91,5	12,0	14	7	No	0,4
2016528	**12299525600**	125	40	58	6	91,5	12,0	12	6	No	0,5
2016530	**12299525700**	125	40	58	7	91,5	12,0	12	4	No	0,5
2016532	**12299525800**	125	40	58	8	91,5	12,0	12	4	No	0,6
2016544	**12299526000**	125	40	58	10	91,5	12,0	12	6	No	0,6
2016547	**12299530400**	160	40	68	4	114,0	12,0	18	9	No	0,7
2022648	**12299535500**	160	40	68	5	114,0	12,0	18	9	No	0,7
2016551	**12299535600**	160	40	68	6	114,0	12,0	16	8	No	1,0
2016555	**12299535800**	160	40	68	8	114,0	12,0	15	5	No	1,1
2022650	**12299536000**	160	40	68	10	114,0	12,0	16	8	No	1,2
2016562	**12299546000**	200	22	72	10	136,0	12,0	18	9	No	1,9
2022652	**12299545800**	200	50	72	8	136,0	12,0	18	6	No	1,6

Spare Parts

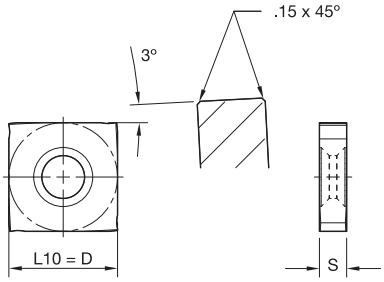
D1	B min	 insert screw	 Nm	 wrench	 bushing
100	4	**12147548500**	1,2	**170.023**	**–**
100	5	**12147562300**	1,2	**170.023**	**12147676800**
100	6	**12147548600**	5,0	**170.025**	**12147676900**
100	7	**12147548600**	5,0	**170.025**	**12147676900**
100	8	**12147548600**	5,0	**170.025**	**12147676900**
125	4	**12147548500**	1,2	**170.023**	**–**
125	5	**12147562300**	1,2	**170.023**	**12147676800**
125	6	**12147548600**	5,0	**170.025**	**12147676900**
125	7	**12147548600**	5,0	**170.025**	**12147676900**
125	8	**12147548600**	5,0	**170.025**	**12147676900**
125	10	**12147572400**	5,0	**170.025**	**12147677000**
160	4	**12147548500**	1,2	**170.023**	**–**
160	5	**12147562300**	1,2	**170.023**	**12147676800**
160	6	**12147548600**	5,0	**170.025**	**12147676900**
160	8	**12147548600**	5,0	**170.025**	**12147676900**
160	10	**12147572400**	5,0	**170.025**	**12147677000**
200	8	**12147548600**	5,0	**170.025**	**12147676900**
200	10	**12147572400**	5,0	**170.025**	**12147677000**

Insert Selection Guide

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1–P2	SNHX	WP40PM	**SNHX**	**WP40PM**	SNHX	WP40PM
P3–P4	SNHX	WP35CM	**SNHX**	**WP35CM**	SNHX	WP35CM
P5–P6	SNHX	WP35CM	**SNHX**	**WP35CM**	SNHX	WP35CM
M1–M2	SNHX	WP40PM	**SNHX**	**WP40PM**	SNHX	WP40PM
M3	SNHX	WP35CM	**SNHX**	**WP35CM**	SNHX	WP35CM
K1–K2	SNHX	WK15CM	**SNHX**	**WK15CM**	SNHX	WK15CM
K3	SNHX	WP35CM	**SNHX**	**WP35CM**	SNHX	WP35CM
N1–N2	–	–	–	–	–	–
N3	–	–	–	–	–	–
S1–S2	–	–	–	–	–	–
S3	–	–	–	–	–	–
S4	–	–	–	–	–	–
H1	–	–	–	–	–	–



SNHX



● first choice
○ alternate choice

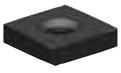
P		●	●
M		○	●
K	●	○	
N			
S			○
H			

SNHX • 12,7mm iC

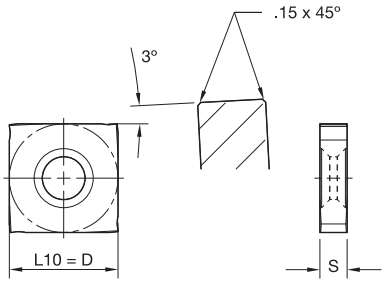
catalog number	cutting edges	D	L10	S	hm	WK15CM	WP35CM	WP40PM
123506601	4	12,70	12,70	3,18	0,08	5903650	5903674	5903646

SNHX • 11mm iC

catalog number	cutting edges	D	L10	S	hm	WK15CM	WP35CM	WP40PM
123506599	4	11,00	11,00	2,38	0,08	5903648	5903672	5903644



SNHX



P		●	●
M		○	●
K	●	○	
N			
S			○
H			

● first choice
○ alternate choice

SNHX • 11mm iC

catalog number	cutting edges	D	L10	S	hm	WK15CM	WP35CM	WP40PM
123506600	4	11,00	11,00	2,70	0,08	5903649	5903673	5903645

SNHX • 12,7mm iC

catalog number	cutting edges	D	L10	S	hm	WK15CM	WP35CM	WP40PM
123506602	4	12,70	12,70	5,40	0,08	5903671	5903675	5903647

Recommended Starting Speeds [m/min]

Material Group		WK15CM			WP35CM			WP40PM		
P	0	–	–	–	455	**395**	370	295	**260**	245
	1	–	–	–	455	**395**	370	295	**260**	245
	2	–	–	–	280	**255**	230	250	**215**	180
	3	–	–	–	255	**230**	205	230	**195**	160
	4	–	–	–	190	**175**	160	205	**170**	135
	5	–	–	–	260	**230**	210	170	**155**	135
	6	–	–	–	160	**135**	110	150	**115**	90
M	1	–	–	–	205	**185**	155	195	**170**	155
	2	–	–	–	185	**160**	140	175	**150**	125
	3	–	–	–	145	**130**	115	130	**115**	90
K	1	420	**385**	340	295	**265**	240	–	–	–
	2	335	**295**	275	235	**210**	190	–	–	–
	3	280	**250**	230	195	**175**	160	–	–	–
N	1	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–
	4	–	–	–	66	**50**	33	–	–	–
H	1	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–

*NOTE: FIRST choice starting speeds are in **bold** type.*
As the average chip thickness increases, the speed should be decreased.

Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
SNHX	0,12	**0,28**	0,71	0,08	**0,20**	0,51	0,06	**0,15**	0,38	0,06	**0,13**	0,33	0,05	**0,12**	0,30	SNHX

NOTE: Use "Light Machining" value as starting feed rate.

WIDIA™ M900™ Series •
Adjustable Slotting Cutters

The WIDIA M900 Series is a multipurpose slotting cutter with high-precision capability for numerous operations. The cutter is one of the most productive of its kind for slotting and for cut-off operations. Two keyways in the cutter provide wide slot options by mounting several cutters together in a gang-slotting style operation.

M900

Features

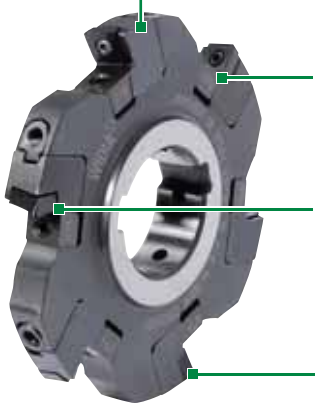
- Insert geometries and grades for various workpiece materials.
- Easy setting for desired width.
- Superior cartridge sliding mechanism.
- Available in arbor and shell mount.
- Two keyways for staggered slotting.
- Strong, reliable pocket seat.

Benefits

- Wide range of slot width options.
- High accuracy of slots.
- Security/stability of cartridge cutter.
- Wide range of mounting options.
- Multiple slots by gang slotting.

Application

- Full slotting.
- Half slotting (left and right styles).
- Gang slotting.
- Shoulder milling.
- Face milling.
- Back face milling.



Slotting Mills

M900™

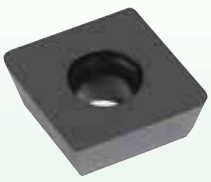
Slot Width Range:
12–22mm

Indexes per insert: 2
Diameter: 100–315mm

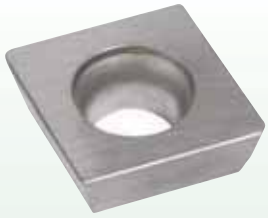
Pages: J24–J30

These products are available for metric only.

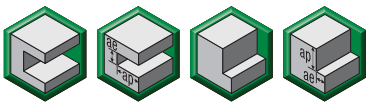
Insert Offering

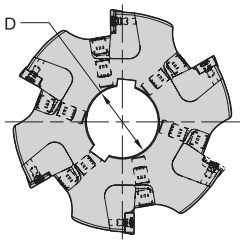


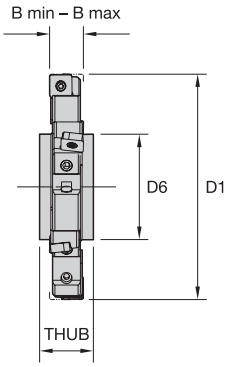
MDHX Geometry
iC 09mm



MDHW Geometry
iC 12mm





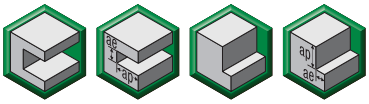


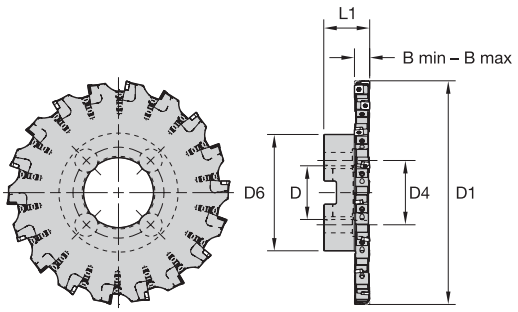
Arbor Mount • 9mm

order number	catalog number	D1	D	D6	B min	B max	THUB	Z	max RPM	coolant supply	kg
2003598	**12399010200**	100	32	48	12	14	16,0	6	7070	No	0,5
2067540	**12399011400**	100	32	48	14	16	16,0	6	7070	No	0,8
2003695	**12399010400**	125	40	58	12	14	16,0	8	6370	No	0,8
2003696	**12399011600**	125	40	58	14	16	16,0	8	6370	No	0,9
2003697	**12399012800**	125	40	58	16	18	20,0	8	6370	No	1,1
2003796	**12399011800**	160	40	58	14	16	16,0	10	5600	No	1,6
2003797	**12399013000**	160	40	58	16	18	20,0	10	5600	No	1,9
2065591	**12399010800**	200	50	72	12	14	16,0	12	5040	No	2,1
2003879	**12399012000**	200	50	72	14	16	16,0	12	5040	No	2,6
2003880	**12399013200**	200	50	72	16	18	20,0	12	5040	No	2,9
2067541	**12399013400**	250	50	72	16	18	20,0	16	4480	No	7,0
2116241	**12399013600**	315	60	84	16	18	20,0	20	3990	No	7,6

Spare Parts

D1	 insert screw	 Torx driver	 STC screw	 T-handle hex wrench	 clamp wedge	 cartridge left-hand	 cartridge right-hand	 adjusting wedge left-hand	 adjusting wedge right-hand
100	**12148067200**	**12749726100**	**12148574100**	**12148050000**	**12748307600**	**12748210100**	**12748210200**	**12748551100**	**12748551200**
100	**12148067200**	**12749726100**	**12148574100**	**12148050000**	**12748307600**	**12748210300**	**12748210400**	**12748551100**	**12748551200**
125	**12148067200**	**12749726100**	**12148574100**	**12148050000**	**12748307600**	**12748210100**	**12748210200**	**12748551100**	**12748551200**
125	**12148067200**	**12749726100**	**12148574100**	**12148050000**	**12748307600**	**12748210300**	**12748210400**	**12748551100**	**12748551200**
125	**12148067200**	**12749726100**	**12148574100**	**12148050000**	**12748307700**	**12748210500**	**12748210600**	**12748551100**	**12748551200**
160	**12148067200**	**12749726100**	**12148574100**	**12148050000**	**12748307600**	**12748210300**	**12748210400**	**12748551100**	**12748551200**
160	**12148067200**	**12749726100**	**12148574100**	**12148050000**	**12748307700**	**12748210500**	**12748210600**	**12748551100**	**12748551200**
200	**12148067200**	**12749726100**	**12148574100**	**12148050000**	**12748307600**	**12748210100**	**12748210200**	**12748551100**	**12748551200**
200	**12148067200**	**12749726100**	**12148574100**	**12148050000**	**12748307600**	**12748210300**	**12748210400**	**12748551100**	**12748551200**
200	**12148067200**	**12749726100**	**12148574100**	**12148050000**	**12748307700**	**12748210500**	**12748210600**	**12748551100**	**12748551200**
250	**12148067200**	**12749726100**	**12148574100**	**12148050000**	**12748307700**	**12748210500**	**12748210600**	**12748551100**	**12748551200**
315	**12148067200**	**12749726100**	**12148574100**	**12148050000**	**12748307700**	**12748210500**	**12748210600**	**12748551100**	**12748551200**





Shell Mount • 9mm

order number	catalog number	D1	D	D4	D6	B min	B max	L1	Z	max RPM	coolant supply	kg
2003602	12399111400	100	27	–	48	14	16	33,0	6	7070	No	0,8
2003700	12399110400	125	32	–	58	12	14	37,0	8	6370	No	1,1
2003701	12399111600	125	32	–	58	14	16	37,0	8	6370	No	1,2
2003702	12399112800	125	32	–	58	16	18	37,0	8	6370	No	1,4
2003800	12399110600	160	40	–	70	12	14	42,0	10	5600	No	1,8
2003801	12399111800	160	40	–	70	14	16	42,0	10	5600	No	2,1
2003802	12399113000	160	40	–	70	16	18	42,0	10	5600	No	2,3
2003897	12399110800	200	40	67	90	12	14	44,0	12	5040	No	3,0
2003898	12399112000	200	40	67	90	14	16	44,0	12	5040	No	3,3
2003899	12399113200	200	40	67	90	16	18	44,0	12	5040	No	3,7
2003997	12399113400	250	60	102	130	16	18	50,0	16	4480	No	7,0
2004095	12399113600	315	60	102	130	16	18	50,0	20	3990	No	9,7

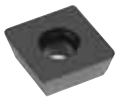
Spare Parts

D1	insert screw	Torx driver	STC screw	T-handle hex wrench	clamp wedge	cartridge left-hand	cartridge right-hand	adjusting wedge left-hand	adjusting wedge right-hand
125	12148067200	12749726100	12148574100	12148050000	12748307600	12748210100	12748210200	12748551100	12748551200
100	12148067200	12749726100	12148574100	12148050000	12748307600	12748210300	12748210400	12748551100	12748551200
125	12148067200	12749726100	12148574100	12148050000	12748307600	12748210100	12748210200	12748551100	12748551200
125	12148067200	12749726100	12148574100	12148050000	12748307700	12748210500	12748210600	12748551100	12748551200
160	12148067200	12749726100	12148574100	12148050000	12748307600	12748210100	12748210200	12748551100	12748551200
160	12148067200	12749726100	12148574100	12148050000	12748307600	12748210300	12748210400	12748551100	12748551200
160	12148067200	12749726100	12148574100	12148050000	12748307700	12748210500	12748210600	12748551100	12748551200
200	12148067200	12749726100	12148574100	12148050000	12748307600	12748210100	12748210200	12748551100	12748551200
200	12148067200	12749726100	12148574100	12148050000	12748307600	12748210300	12748210400	12748551100	12748551200
200	12148067200	12749726100	12148574100	12148050000	12748307700	12748210500	12748210600	12748551100	12748551200
250	12148067200	12749726100	12148574100	12148050000	12748307700	12748210500	12748210600	12748551100	12748551200
315	12148067200	12749726100	12148574100	12148050000	12748307700	12748210500	12748210600	12748551100	12748551200

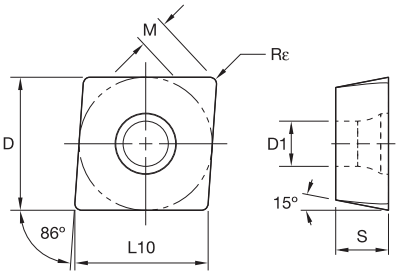
Insert Selection Guide

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1–P2	MDHX	WP40PM	**MDHX**	**WP40PM**	MDHX	WP40PM
P3–P4	MDHX	WP35CM	**MDHX**	**WP35CM**	MDHX	WP35CM
P5–P6	MDHX	WP35CM	**MDHX**	**WP40PM**	MDHX	WU35PM
M1–M2	MDHX	WP25PM	**MDHX**	**WP25PM**	MDHX	WU35PM
M3	MDHX	WP35CM	**MDHX**	**WP40PM**	MDHX	WU35PM
K1–K2	MDHX	WK15CM	**MDHX**	**WK15CM**	MDHX	WK15CM
K3	MDHX	WK15CM	**MDHX**	**WP35CM**	MDHX	WP35CM
N1–N2	–	–	**–**	**–**	–	–
N3	–	–	**–**	**–**	–	–
S1–S2	MDHX	WP25PM	**MDHX**	**WU35PM**	MDHX	WU35PM
S3	MDHX	WU35PM	**MDHX**	**WU35PM**	MDHX	WU35PM
S4	MDHX	WP25PM	**MDHX**	**WU35PM**	MDHX	WU35PM
H1	–	–	**–**	**–**	–	–

Inserts • MDH..


MDHX


MDHX



● first choice
○ alternate choice

		WK15CM	WP25PM	WU35PM	WP35CM	WP40PM
P			●	●	●	●
M			●	●	○	●
K	●	○		○		
N						
S			●	●		○
H		○				

MDHX

catalog number	cutting edges	D	D1	L10	M	S	Rε	5903706	5903722	5903710	5903708	5903704
MDHX09T308	2	9,53	3,40	9,55	1,85	3,97	0,80	WK15CM	WP25PM	WU35PM	WP35CM	WP40PM

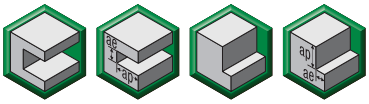
Recommended Starting Feeds

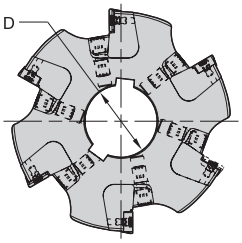
Recommended Starting Feeds [mm]

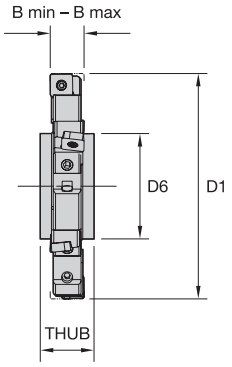
Light Machining	General Purpose	Heavy Machining

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
MDHX	0,12	**0,23**	0,46	0,08	**0,17**	0,33	0,06	**0,13**	0,25	0,06	**0,11**	0,22	0,05	**0,10**	0,20	MDHX

NOTE: Use "Light Machining" value as starting feed rate.







Arbor Mount • 12mm

order number	catalog number	D1	D	D6	B min	B max	THUB	Z	max RPM	coolant supply	kg
2003881	**12399014400**	200	50	72	18	20	20,0	12	5040	No	3,2
2003882	**12399015600**	200	50	72	20	22	24,0	12	3990	No	3,7
2003993	**12399014600**	250	50	72	18	20	20,0	16	4480	No	5,1
2003994	**12399015800**	250	50	72	20	22	24,0	16	3570	No	5,9
2004081	**12399014800**	315	60	84	18	20	20,0	20	3990	No	8,1
2004082	**12399016000**	315	60	84	20	22	24,0	20	3220	No	9,4

Spare Parts

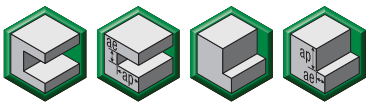


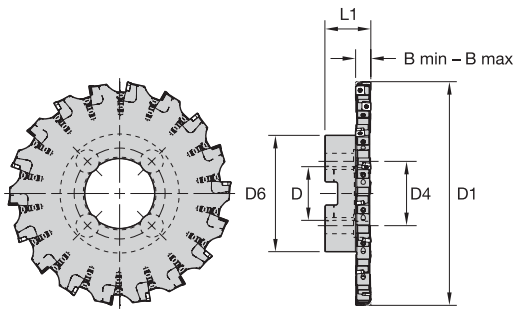






D1	insert screw	Torx driver	STC screw	T-handle hex wrench	clamp wedge	cartridge left-hand	cartridge right-hand	adjusting wedge left-hand	adjusting wedge right-hand
200	**12748605300**	**12749723200**	**12148574100**	**12148050000**	**12748307700**	**12748210700**	**12748210800**	**12748551100**	**12748551200**
200	**12748605300**	**12749723200**	**12148574100**	**12148050000**	**12748307800**	**12748210900**	**12748211000**	**12748551100**	**12748551200**
250	**12748605300**	**12749723200**	**12148574100**	**12148050000**	**12748307700**	**12748210700**	**12748210800**	**12748551100**	**12748551200**
250	**12748605300**	**12749723200**	**12148574100**	**12148050000**	**12748307800**	**12748210900**	**12748211000**	**12748551100**	**12748551200**
315	**12748605300**	**12749723200**	**12148574100**	**12148050000**	**12748307700**	**12748210700**	**12748210800**	**12748551100**	**12748551200**
315	**12748605300**	**12749723200**	**12148574100**	**12148050000**	**12748307800**	**12748210900**	**12748211000**	**12748551100**	**12748551200**





Shell Mount • 12mm

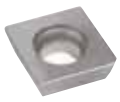
order number	catalog number	D1	D	D4	D6	B min	B max	L1	Z	max RPM	coolant supply	kg
2003900	**12399114400**	200	40	67	90	18	20	44,8	12	5040	No	3,8
2003901	**12399115600**	200	40	67	90	20	22	46,0	12	3990	No	4,3
2003998	**12399114600**	250	60	102	130	18	20	51,8	16	4480	No	7,2
2003999	**12399115800**	250	60	102	130	20	22	53,0	16	3570	No	7,9
2004096	**12399114800**	315	60	102	130	18	20	51,8	20	3990	No	10,2
2004097	**12399116000**	315	60	102	130	20	22	53,0	20	3220	No	11,3

Spare Parts

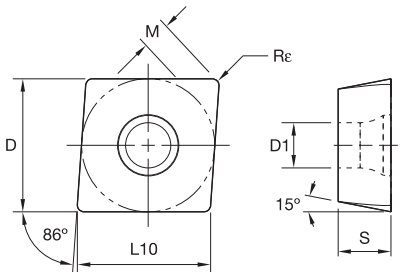
D1	insert screw	Torx driver	STC screw	T-handle hex wrench	clamp wedge	cartridge left-hand	cartridge right-hand	adjusting wedge left-hand	adjusting wedge right-hand
200	**12748605300**	**12749723200**	**12148574100**	**12148050000**	**12748307700**	**12748210700**	**12748210800**	**12748551100**	**12748551200**
200	**12748605300**	**12749723200**	**12148574100**	**12148050000**	**12748307800**	**12748210900**	**12748211000**	**12748551100**	**12748551200**
250	**12748605300**	**12749723200**	**12148574100**	**12148050000**	**12748307700**	**12748210700**	**12748210800**	**12748551100**	**12748551200**
250	**12748605300**	**12749723200**	**12148574100**	**12148050000**	**12748307800**	**12748210900**	**12748211000**	**12748551100**	**12748551200**
315	**12748605300**	**12749723200**	**12148574100**	**12148050000**	**12748307700**	**12748210700**	**12748210800**	**12748551100**	**12748551200**
315	**12748605300**	**12749723200**	**12148574100**	**12148050000**	**12748307800**	**12748210900**	**12748211000**	**12748551100**	**12748551200**

Insert Selection Guide

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1–P2	MDHW	WP40PM	**MDHW**	**WP40PM**	MDHW	WP40PM
P3–P4	MDHW	WP35CM	**MDHW**	**WP35CM**	MDHW	WP35CM
P5–P6	MDHW	WP35CM	**MDHW**	**WP40PM**	MDHW	WU35PM
M1–M2	MDHW	WP25PM	**MDHW**	**WP25PM**	MDHW	WU35PM
M3	MDHW	WP35CM	**MDHW**	**WP40PM**	MDHW	WU35PM
K1–K2	MDHW	WK15CM	**MDHW**	**WK15CM**	MDHW	WK15CM
K3	MDHW	WK15CM	**MDHW**	**WP35CM**	MDHW	WP35CM
N1–N2	–	–	**–**	**–**	–	–
N3	–	–	**–**	**–**	–	–
S1–S2	MDHW	WP25PM	**MDHW**	**WU35PM**	MDHW	WU35PM
S3	MDHW	WU35PM	**MDHW**	**WU35PM**	MDHW	WU35PM
S4	MDHW	WP25PM	**MDHW**	**WU35PM**	MDHW	WU35PM
H1	–	–	**–**	**–**	–	–


MDHW


MDHW



● first choice
○ alternate choice

		WK15CM	WP25PM	WU35PM	WP35CM	WP40PM
P			●	●	●	●
M			●	●	○	●
K		●	○		○	
N						
S			●	●		○
H			○			

MDHW

catalog number	cutting edges	D	D1	L10	M	S	Rε	WK15CM	WP25PM	WU35PM	WP35CM	WP40PM
MDHW120408	2	12,70	5,50	12,73	2,58	4,76	0,80	5903707	5903723	5903721	5903709	5903705

Recommended Starting Speeds [m/min]

Material Group		WK15CM			WP25PM			WU35PM			WP35CM			WP40PM		
P	0	–	**–**	–	330	**285**	270	260	**230**	215	455	**395**	370	295	**260**	245
	1	–	**–**	–	330	**285**	270	260	**230**	215	455	**395**	370	295	**260**	245
	2	–	**–**	–	275	**240**	200	220	**190**	160	280	**255**	230	250	**215**	180
	3	–	**–**	–	255	**215**	175	200	**170**	140	255	**230**	205	230	**195**	160
	4	–	**–**	–	225	**185**	150	180	**150**	120	190	**175**	160	205	**170**	135
	5	–	**–**	–	185	**170**	150	150	**135**	120	260	**230**	210	170	**155**	135
	6	–	**–**	–	165	**125**	100	130	**100**	80	160	**135**	110	150	**115**	90
M	1	–	**–**	–	205	**180**	165	170	**150**	135	205	**185**	155	195	**170**	155
	2	–	**–**	–	185	**160**	130	155	**130**	110	185	**160**	140	175	**150**	125
	3	–	**–**	–	140	**120**	95	115	**100**	80	145	**130**	115	130	**115**	90
K	1	420	**385**	340	230	**205**	185	–	**–**	–	295	**265**	240	–	**–**	–
	2	335	**295**	275	180	**160**	150	–	**–**	–	235	**210**	190	–	**–**	–
	3	280	**250**	230	150	**135**	120	–	**–**	–	195	**175**	160	–	**–**	–
N	1	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
S	1	–	**–**	–	40	**35**	25	35	**30**	25	–	**–**	–	40	**35**	30
	2	–	**–**	–	40	**35**	25	35	**30**	25	–	**–**	–	40	**35**	30
	3	–	**–**	–	50	**40**	25	45	**35**	25	–	**–**	–	50	**40**	30
	4	–	**–**	–	70	**50**	35	60	**45**	30	66	**50**	33	65	**50**	35
H	1	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–

*NOTE: FIRST choice starting speeds are in **bold** type.*
As the average chip thickness increases, the speed should be decreased.

Recommended Starting Feeds

Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
MDHW	0,12	**0,23**	0,46	0,08	**0,17**	0,33	0,06	**0,13**	0,25	0,06	**0,11**	0,22	0,05	**0,10**	0,20	MDHW

NOTE: Use "Light Machining" value as starting feed rate.

WIDIA™ Knowledge Center

EXTREME **CHALLENGES.**
EXTREME **RESULTS.**

Classes to Suit Everyone

Doing things the same way year after year can stall productivity. Continuing education and training in the latest machining practices are necessary to stay competitive.

The Knowledge Center offers several ways to get trained: industry- and application-specific courses, customer onsite programs, and online-based certified metalcutting professional courses. In-person classes include lecture, lab, and machining demonstrations.

Regional Training

The Regional Application Engineering Program is designed to provide a broad base of knowledge for the selection and use of metalcutting tools. Instruction includes lecture-style presentations and video demonstrations. Participants receive notes and text materials, and the video demonstrations reinforce the theories presented in the lecture.

Metalcutting Application Training

The Comprehensive Metalworking Application Course provides a broad base of knowledge for the selection and use of metalcutting tools. Lecture-style presentations and laboratory demonstrations enhance course material through actual cutting tests and reinforce the theories presented in the lecture.

For more information, contact your local WIDIA Authorized Distributor or visit **widia.com/services**.

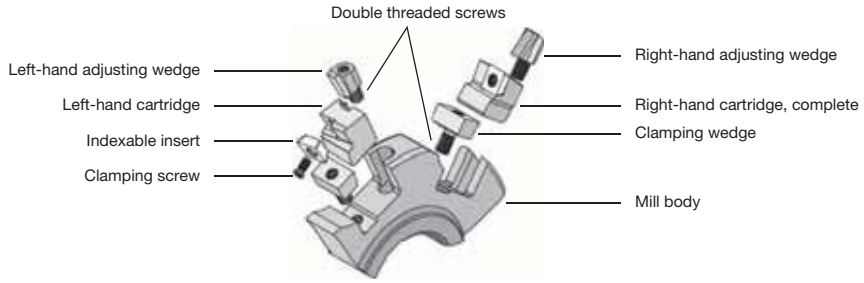
WIDIA™

Assembly and Operating Instructions

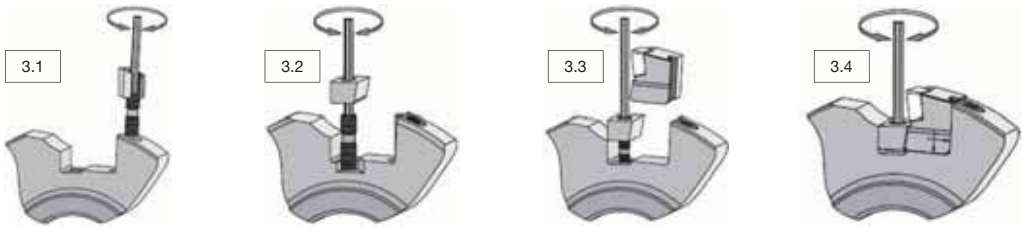
1. General

The runout tolerance of the milling cutter has a decisive effect on the quality of workpieces and the life cycle of tools. Proper tool fitting and the precise axial setting of the milling insert are essential for a successful application and optimum results. One key requirement for assembly and setting work is that all components are clean. Bearing surfaces must be free from grease, and only the threads of indexable insert clamping screws and double threaded screws of clamping and adjusting wedges should be lubricated with copper grease. The indexable inserts should be inserted in the cleaned insert seats so that they are positioned correctly on the bearing surfaces. The indexable insert clamping screws should be tightened with the specified torque.

2. Exploded Diagram of Spare Parts



3. Mounting the Cartridges in the Mill Body



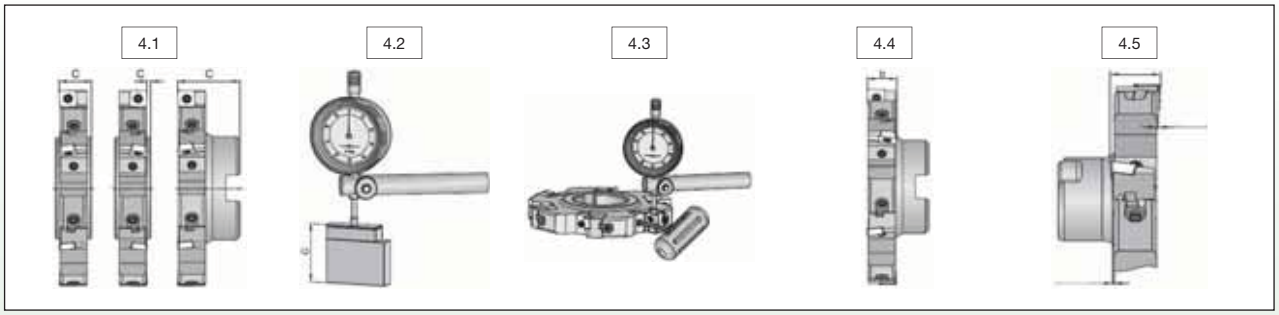
3.1 Turn double threaded screw 1 clockwise in the adjusting wedge. Then insert both parts in the slot in the mill body and turn the double threaded screw clockwise until the adjusting wedge is flush with the milling cutter.

3.2 Turn double threaded screw 3 clockwise in the mill body. Then mount the clamping wedge on the double threaded screw and screw both parts together until the lower edge of the clamping wedge is at the same height as the chip space runout.

3.3 Push the top of the fully assembled cartridge into the mill body using the rear bearing surface of the milling cutter so that the cartridge slot makes contact with the adjusting wedge spring. Ensure a perfect axial/radial surface.

3.4 Secure the correctly positioned cartridge by tightening the clamping wedge with a preset torque of MApre = 1 Nm to set the runout or cutting width.

4. Setting the Runout for Milling Cutters with 2–3 Cutting Edges



4.1 Possible interpretations of the measuring dimension C.

4.2 Set gage to desired measurement C using gage blocks set to 0.

4.3 Set cartridge to ~0,1mm before final measurement. Clamping wedge is tightened with torque MApre = 1 Nm. Then briefly loosen clamping wedge and tighten again.

4.4 Set cartridge to 0,02mm before final measurement. Then briefly loosen clamping wedge so that the contact surfaces can level out. Tighten clamping.

4.4 Wedge again with torque MApre = 1 Nm.

4.5 Adjust cartridge to final measurement. Tighten clamping wedge with torque MA = 4 Nm. Check runout of the fully adjusted milling cutter.

5. Setting the Runout for Milling Cutters with 3 Cutting Edges

The cutting widths for milling cutters with 3 cutting edges are set using purpose-designed optical tool presetting equipment. Note that the projection of the cartridges from the mill body must be almost exactly the same on both sides. The sequence of steps required for setting the cartridge is identical to those for tools with 2 cutting edges.

ATTENTION:

At each tool adjustment, the body, cartridges, indexable inserts, and spare parts must be checked and replaced if necessary. Before each tool use, the clamping and double threaded screws must be tightened with the specified torque. The tools must only be used in accordance with their function. We accept no liability for their improper use. Changes of any kind and/or printing errors are not valid grounds for claims.