

Sumi Wave Mill Series

WEX Type

Expansion



- New grades ACM200/ACM300 specially suited for ISO **M** and **S** area
- Chipbreaker E/EH type for stainless steel and exotic alloys
- High efficiency machining
- Excellent machining accuracy and surface finish

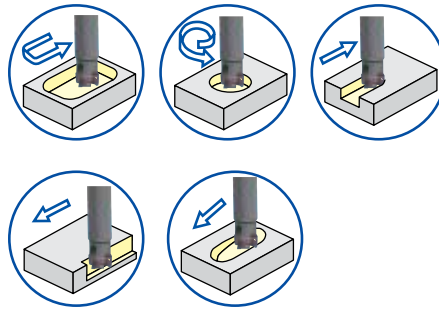


Wave Mill Series WEX Type



■ Features

● Wide Application Range



■ Ramping (Slant Milling)

Cutter Diameter	Max. Ramping Angle	
	Type 2000	Type 3000
Ø14	5°	
Ø16	4°	
Ø20	4°	
Ø25	2°	5°
Ø32	1°30'	3°
Ø40	1°	2°
Ø50	0°30'	1°
Ø63	0°30'	0°30*
Ø80		0°30'
Ø100~		Impossible

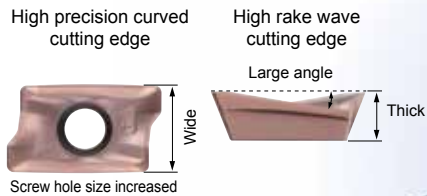
Maximum ramping angle depends on the cutter diameter.

● Precision Insert with Strong Cutting Edge and Low Cutting Force

Wave shaped cutting edge design lowers cutting resistance yet improves cutting edge strength.

Achieving high quality finish with high precision cutting edge.

Smooth cutting even for deep grooves and low rigidity machines.



● Internal Coolant Holes

Improved chip evacuation with air or coolant supply.

● Wide Variety of Inserts

6 types of chipbreaker design (L, G, H, E, EH and S)

9 milling grades for a wide range of work materials and applications.

- ACP100, ACP200, ACP300 (steel milling grades)

- ACK200, ACK300 (cast iron milling grades)

- ACM200, ACM300 (stainless steel, exotic alloy milling grades)

- DL1000, H1 (aluminium milling grades)

● High Durable Body

Special surface treatment improves corrosion resistance as well as scratch resistance.

Increased screw size improves clamping force and durability.

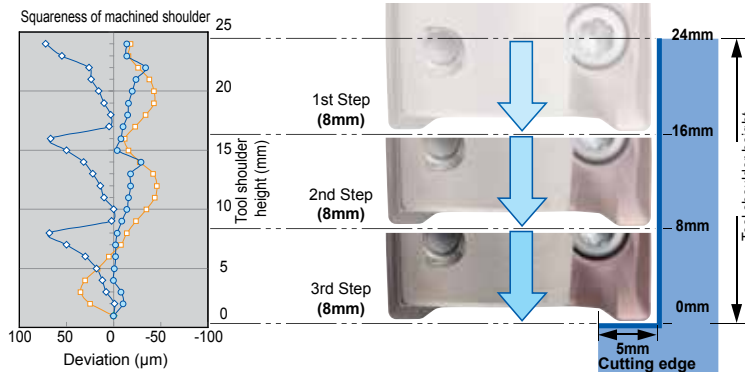
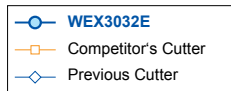
■ Product Range

Type	Cat. No.	Series	Diameter Range (mm)				Image	
			Ø10	Ø20	Ø40	Ø60		
Shank	WEX 2000E	Short Type	14			63		
	WEX 2000EL	Long Type	14			40		
	WEX 2000EW	Weldon Shank Short Type	16			20		
	WEX 3000E	Short Type	25			63		
	WEX 3000EL	Long Type	25			40		
	WEX 3000EW	Weldon Shank Short Type	25			32		
Shell	WEX 2000F	Shell Type	40				63	
	WEX 3000F	Shell Type	40				63	
Modular	WEX 2000M	Modular Type	16			40		
	WEX 3000M	Modular Type	25			40		

Cutting Performance

Shoulder Milling

Precision cutting edges double the accuracy of a 90 degree square shoulder reducing the usual step marks to just witness marks.

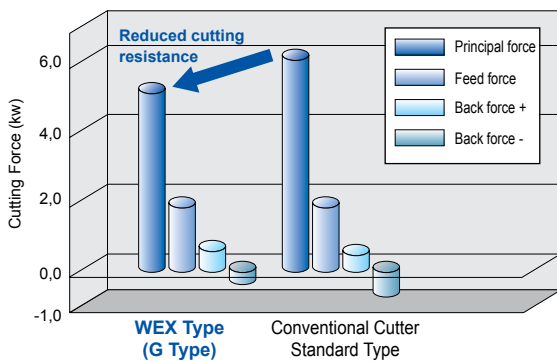


Cutting Conditions:
 Work Material: St 42-3
 Cutter: WEX 3032 E (Ø32)
 Insert: AXMT170508PEER-G
 Grade: ACP200

$v_c = 150\text{m/min}$
 $f_t = 0,15\text{mm/t}$ ($v_f = 675\text{mm/min}$)
 $a_e = 5\text{mm}$
 $a_p = 8\text{mm} \times 3\text{passes}$
 dry

Cutting Force

Cutting resistance (main component) is approx 15% lower than conventional cutters.

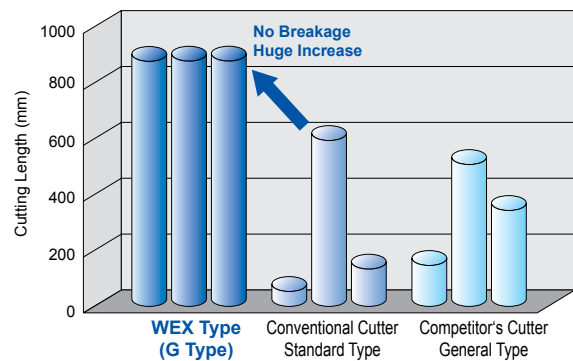


Cutting Conditions:
 Work Material: C50
 Cutter: WEX 3032 E (Ø32)
 Insert: AXMT170508PEER-G
 Grade: ACP200

$v_c = 200\text{m/min}$
 $f_t = 0,2\text{mm/t}$ ($v_f = 1.200\text{mm/min}$)
 $a_e = 8\text{mm}$
 $a_p = 10\text{mm}$
 dry

Fracture Resistance

Huge increase in fracture resistance with improved cutting edge strength.

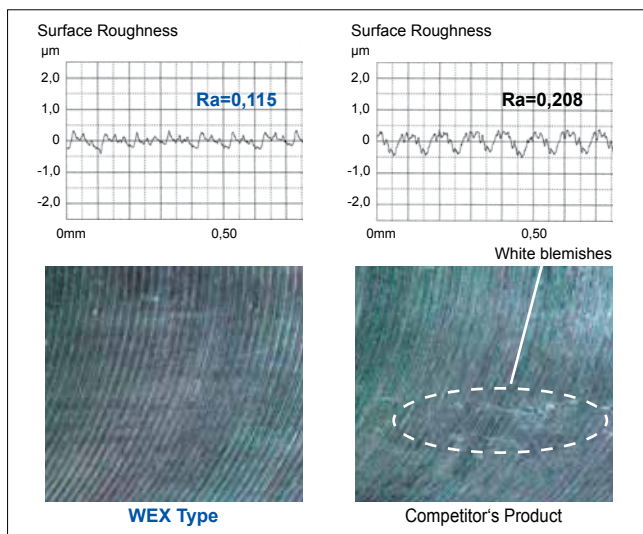


Cutting Conditions:
 Work Material: 42CrMo4
 Cutter: WEX 3032 E (Ø32)
 Insert: AXMT170508PEER-G
 Grade: ACP200

$v_c = 100\text{m/min}$
 $f_t = 0,4\text{mm/t}$ ($v_f = 1.260\text{mm/min}$)
 $a_e = 25\text{mm}$
 $a_p = 3\text{mm}$
 dry

Surface Finish (Aluminium Milling)

Smooth surface free of white blemishes.

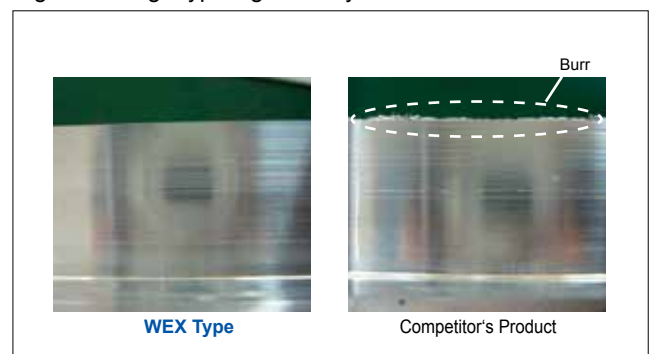


Cutting Conditions:
 Work Material: A5052
 Cutter: WEX 3032 E (Ø32)
 Insert: AeMT170504PEFR-S
 Grade: (H1)

$v_c = 800\text{m/min}$
 $f_t = 0,1\text{mm/t}$ ($v_f = 2.400\text{mm/min}$)
 $a_e = 16\text{mm}$
 $a_p = 10\text{mm}$
 dry

Cutting Performance

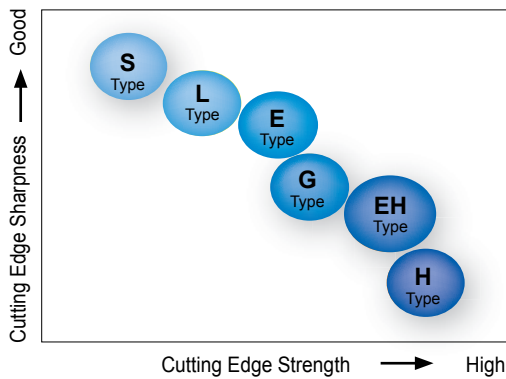
High rake edge type significantly reduces burr.



Cutting Conditions:
 Work Material: A5052
 Cutter: WEX 3032 E (Ø32)
 Insert: AEMT170504PEFR-S
 Grade: (H1)

$v_c = 800\text{m/min}$
 $f_t = 0,1\text{mm/t}$ ($v_f = 2.400\text{mm/min}$)
 $a_e = 5\text{mm}$
 $a_p = 12\text{mm}$
 dry

Chipbreaker Selection



Series Expansion

E Type chipbreaker for exotic alloys

For 2000 Type
R0,4 / R0,8 / R1,2

For 3000 Type
R0,4 / R0,8 / R1,2 /
R1,6 / R2,0 / R3,0



Characteristics

Work Material	Steel, Cast Iron			Stainless Steel, Exotic Alloy		Aluminium
	L	G	H	E	EH	S
Chipbreaker						
Features	Low Cutting Force	General Purpose	Strong Edged	General Purpose	Strong Edged	High Rake
Chipbreaker Profile for 2000 Series Insert						
Chipbreaker Profile for 3000 Series Insert						
Application	Light cut, low rigidity milling and reduced burrs	Main chipbreaker general purpose to interrupted milling	Roughing, heavy interrupted and hardened steel milling	Light cutting to general purpose	Heavy interrupted machining	Aluminium, non-ferrous metal

Chipbreaker for Stainless Steel, Exotic Alloys E / EH Type

Features of E / EH Type

- Improved adhesion resistance
Smooth cutting edge design allows smooth chip flow.
- Improved cutting performance
Optimized rake angle and edge treatment.

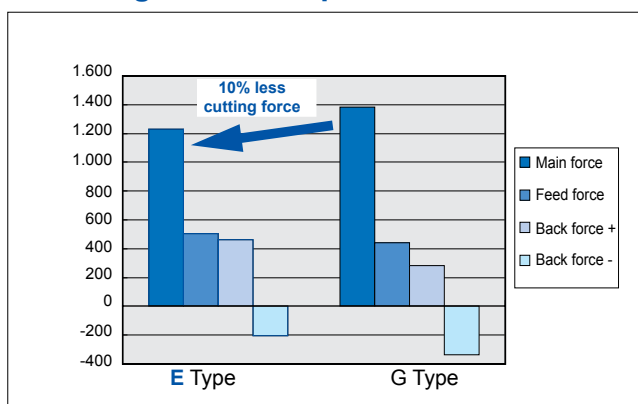


E / EH Type



L Type / G Type

Cutting Force Comparison

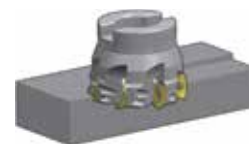


Cutting Conditions:

Work Material: X5CrNi1810
Cutter: WEX 2050 F
Insert:
Grade:

$v_c = 180\text{m/min}$
 $f_t = 0,15\text{mm/t}$
 $a_e = 20\text{mm}$
 $a_p = 3\text{mm}$
dry

Tool Life Comparison



	E Type	G Type
Tool Wear		
Cutting Length	1,5m	0,9m

Cutting Conditions:

Work Material: X5CrNi1810
Cutter: WEX 2050 F
Insert:
Grade:

$v_c = 120\text{m/min}$
 $f_t = 0,15\text{mm/t}$
 $a_e = 20\text{mm}$
 $a_p = 3\text{mm}$
dry

Grade Selection

ISO	Grade	Finishing to Light Cutting	Medium Cut	Rough to Heavy Cutting
P	Coated Carbide	ACP100		
		ACP200		ACP300
M	Coated Carbide	ACM200		ACM300

ISO	Grade	Finishing to Light Cutting	Medium Cut	Rough to Heavy Cutting
K	Coated Carbide	ACK200		ACK300
N	Coated Carbide	DL1000		
	Carbide	H1		

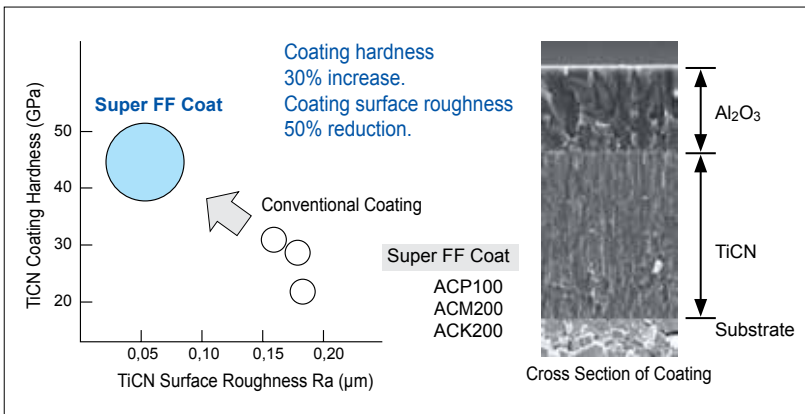
▽ CVD ▲ PVD

Feature of Coat

● Super FF Coat

The unique CVD process, super FF coat technology, produces ultra-flat boundary faces between coating layers and super fine particles to achieve higher reliability and longer tool life.

Feature



▽ CVD: Chemical Vapor Deposition

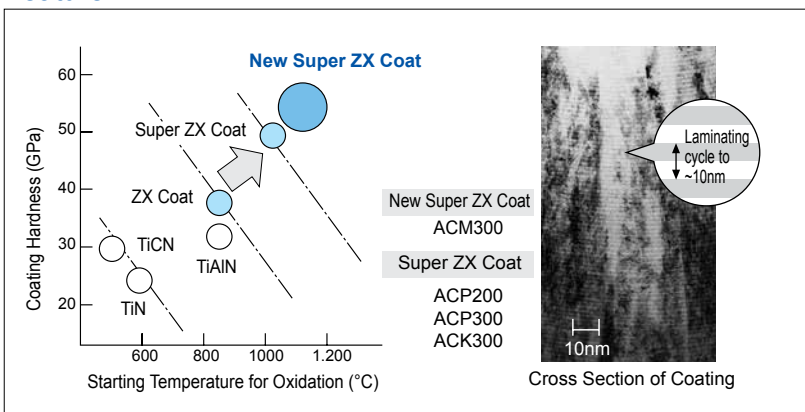
- Smooth coating surface provides excellent adhesion and chipping resistance.
- Improved coating adhesion strength.
- Harder than conventional coatings with high improvements in wear resistance.
- High speed, high efficiency machining of more than 1,5 times that of conventional grades possible.
- Achieving more than double the tool life of conventional grades under the same cutting conditions.

● New Super ZX Coat / Super ZX Coat

Utilising our proprietary thin layer coating technology and advanced nanotechnology, Sumitomo Electric has developed „New super ZX and super ZX coat“, coatings that consist of approximately 1.000 alternating, nanometre-level-thin layers. (1nanometre = 1 billion of a metre)

▲ PVD: Physical Vapor Deposition

Feature



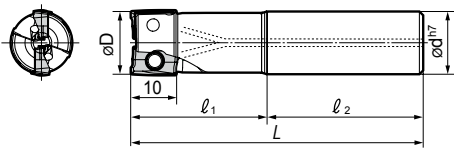
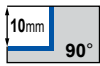
- The product series with a coating film hardness approximately 40% higher and an oxidation onset temperature 200°C higher than conventional products.
- Enables machining at least 1,5 times faster and more efficiently than conventional products.
- A product life at least twice as long as that of conventional products achieved under the same machining conditions.

Wave Mill Series

WEX 2000 Type

WEX 2000 E/EL

Rake Angle	Radial	8°~15°
	Axial	16°~24°



Body (Short Type „E“)

Cat. No.	Stock	Dimensions (mm)					No. of Teeth	Weight (kg)
		øD	ød	l ₁	l ₂	L		
WEX 2014 E	●	14	16	25	55	80	1	0,10
2016 E	●	16	16	25	75	100	2	0,13
2018 E	○	18	16	25	75	100	2	0,14
2020 E	●	20	20	30	80	110	3	0,22
2022 E	○	22	20	30	80	110	3	0,23
WEX 2025 E	●	25	25	35	85	120	4	0,38
2028 E	○	28	25	35	85	120	4	0,39
2030 E	○	30	25	35	85	120	4	0,40
2032 E	●	32	32	40	90	130	5	0,70
2040 E	○	40	32	30	120	150	6	0,91
WEX 2050 E	○	50	32	30	120	150	7	1,02
2063 E	○	63	32	30	120	150	8	1,22

Body (Long Type „EL“)

Cat. No.	Stock	Dimensions (mm)					No. of Teeth	Weight (kg)
		øD	ød	l ₁	l ₂	L		
WEX 2014 EL	●	14	16	25	95	120	1	0,14
2016 EL	●	16	16	25	120	145	2	0,19
2018 EL	○	18	16	25	120	145	2	0,19
2020 EL	●	20	20	40	110	150	2	0,32
2022 EL	○	22	20	30	120	150	2	0,33
WEX 2025 EL	●	25	25	50	120	170	2	0,55
2028 EL	○	28	25	30	140	170	2	0,59
2030 EL	○	30	25	30	140	170	2	0,60
2032 EL	○	32	32	60	120	180	2	0,99
2040 EL	○	40	32	30	150	180	2	1,12

Body (Long Type „E“ + Small Shank)

Cat. No.	Stock	Dimensions (mm)					No. of Teeth	Weight (kg)
		øD	ød	l ₁	l ₂	L		
WEX 2016 EL15	●	16	15	25	120	145	2	0,17
2020 EL19	●	20	19	40	110	150	2	0,30
2025 EL24	●	25	24	50	120	170	2	0,53
2025 EL24Z3	○	25	24	50	120	170	3	0,50
3032 EL30	○	32	30	60	120	180	2	0,95

Body (Weld on Shank Short Type „EW“)

Cat. No.	Stock	Dimensions (mm)					No. of Teeth	Weight (kg)
		øD	ød	l ₁	l ₂	L		
WEX 2016 EW	●	16	16	25	75	100	2	0,12
2020 EW	●	20	20	30	80	110	3	0,21

Inserts are not included.

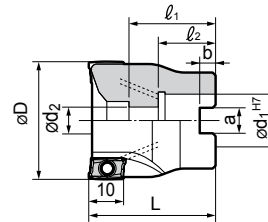
● Euro stock
○ Delivery on request

Spare Parts

Screw	Wrench	Recommended Tightening Torque (N·m)	Applicable Endmill
BFTX 0305 IP BFTX 0306 IP	TRDR 08 IP	2,0	WEX 2014 ~ WEX 2018 WEX 2020 ~ WEX 2063

WEX 2000 F

Rake Angle	Radial	16°~18°
	Axial	23°~25°



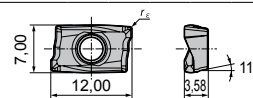
Body (Shell Type „F“)

Cat. No.	Stock	Dimensions (mm)								No. of Teeth	Weight (kg)
		øD	ød ₁	ød ₂	a	b	L	l ₁	l ₂		
WEX 2040 F	●	40	16	9	8,4	5,6	40	28	18	6	0,19
2050 F	●	50	22	11	10,4	6,3	40	26	20	7	0,29
2063 F	●	63	22	11	10,4	6,3	40	26	20	8	0,51

Inserts are not included.

● Euro stock

Inserts for WEX2000 Type



Application	Coated Carbide							Carbide	DLC	
	P	P	K	M	M	M	S			
High Speed / Light cut	●		●	●	●	●	●	●	●	
General Purpose	●	●	●	●	●	●	●	●	●	
Roughing		●	●	●	●	●	●			
Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	Radius r _ε
AXMT 123504 PEER-G	●	●	●	●	●					0,4
123508 PEER-G	●	●	●	●	●					0,8
123512 PEER-G	●	●	●	●	●					1,2
AXMT 123504 PEER-H	●	●	●	●	●					0,4
123508 PEER-H	●	●	●	●	●					0,8
123512 PEER-H	●	●	●	●	●					1,2
AXMT 123504 PEER-E						●	●			0,4
123508 PEER-E			●			●	●			0,8
123512 PEER-E						●	●			1,2
AXMT 123508 PEER-EH			●			●	●			0,8
AXET 123502 PEFR-S								●	●	0,2
123504 PEFR-S								●	●	0,4
123508 PEFR-S								●	●	0,8

G - General type

H - Strong cutting edge

E - For stainless steel / exotic alloy

EH - Strong edge for stainless steel / exotic alloy

S - For aluminium alloy

● Euro stock

— Unable to produce

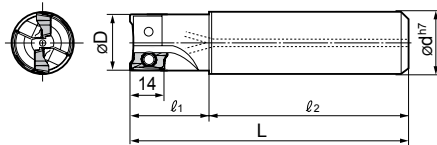
Spare Parts

Screw	Wrench	Recommended Tightening Torque (N·m)	Applicable Endmill
BFTX 0306 IP	TRDR 08 IP	2,0	WEX 2000 F

Wave Mill Series WEX 3000 Type

WEX 3000 E/EL

Rake Angle	Radial	8°~15°
	Axial	16°~24°



Body (Short Type „E“)

Cat. No.	Stock	Dimensions (mm)					No. of Teeth	Weight (kg)
		øD	ød	l ₁	l ₂	L		
WEX 3025 E	●	25	25	35	85	120	2	0,37
3028 E	○	28	25	35	85	120	2	0,39
3030 E	○	30	25	40	90	130	3	0,42
WEX 3032 E	●	32	32	40	90	130	3	0,67
3035 E	○	35	32	40	90	130	3	0,69
3040 E	●	40	32	50	120	170	4	1,01
3050 E	○	50	32	50	120	170	5	1,23
3063 E	○	63	32	50	120	170	6	1,58

Body (Short Type „E“ + Small Shank)

Cat. No.	Stock	Dimensions (mm)					No. of Teeth	Weight (kg)
		øD	ød	l ₁	l ₂	L		
WEX 3025 E20	○	25	20	35	85	120	2	0,25
3032 E25	○	32	25	40	90	130	3	0,43

Body (Long Type „EL“)

Cat. No.	Stock	Dimensions (mm)					No. of Teeth	Weight (kg)
		øD	ød	l ₁	l ₂	L		
WEX 3025 EL	●	25	25	50	120	170	2	0,54
3028 EL	○	28	25	50	120	170	2	0,56
3030 EL	○	30	25	60	120	180	2	0,60
3032 EL	●	32	32	60	120	180	2	0,95
3035 EL	○	35	32	60	120	180	2	0,98
WEX 3040 EL	●	40	32	80	140	220	2	1,38

Body (Weldon Shank Short Type „EW“)

Cat. No.	Stock	Dimensions (mm)					No. of Teeth	Weight (kg)
		øD	ød	l ₁	l ₂	L		
WEX 3025 EW	●	25	25	35	85	120	2	0,36
3032 EW	●	32	32	40	90	130	3	0,65

Inserts are not included.

- Euro stock
- Delivery on request

*Attention: If nose radius of inserts is 2,0mm or more please modify cutter body as indicated.



Standard chamfer is 0,5mm by 45 degrees

Increase chamfer to 1mm x 45 degrees when using 2,0mm radius insert
AXMT 170520 PEER

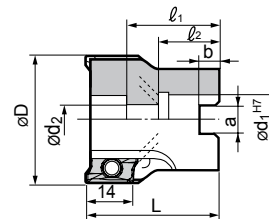
Increase chamfer to 1,5mm x 45 degrees when using 3,0mm radius insert
AXMT 170530 PEER

Spare Parts

Screw	Wrench	Recommended Tightening Torque (N·m)	Applicable Endmill
BFTX 0407 IP BFTX 0409 IP	TRDR 15 IP	3,0	WEX 3025 ~ WEX 3030 WEX 3032 ~ WEX 3063

WEX 3000 F

Rake Angle	Radial	12°~15°
	Axial	19°~24°



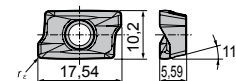
Body (Shell Type „F“)

Cat. No.	Stock	Dimensions (mm)								No. of Teeth	Weight (kg)
		øD	ød ₁	ød ₂	a	b	L	l ₁	l ₂		
WEX 3040 F	●	40	16	9	8,4	5,6	40	28	18	4	0,16
3050 F	●	50	22	11	10,4	6,3	40	26	20	5	0,25
3063 F	●	63	22	11	10,4	6,3	40	26	20	6	0,48
3080 F	●	80	27	13,5	12,4	7,0	50	31	25	7	1,06
3100 F	●	100	32	32	14,4	8,5	50	32	26	8	1,99

Inserts are not included.

- Euro stock

Inserts for WEX3000 Type



Application	Coated Carbide						Carbide		DLC	
	P	P	P	K	K	M	N	N		
High Speed / Light cut	●			●		●	●	●	●	
General Purpose		●	●	●	●	●	●	●	●	
Roughing		●	●	●	●	●	●	●	●	
Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	Radius r _ε
AXMT 170508 PEER-L	●	●	●	●	●			-	-	0,8
AXMT 170504 PEER-G	●	●	●	●	●			-	-	0,4
170508 PEER-G	●	●	●	●	●			-	-	0,8
170512 PEER-G	●	●	●	●	●			-	-	1,2
170516 PEER-G	●	●	●	●	●			-	-	1,6
170520 PEER-G*	●	●	●	●	●			-	-	2,0
170530 PEER-G*	●	●	●	●	●			-	-	3,0
AXMT 170508 PEER-H	●	●	●	●	●			-	-	0,8
170512 PEER-H	○	○	○	●	●			-	-	1,2
AXMT 170504 PEER-E			●			●	●	-	-	0,4
170508 PEER-E			●			●	●	-	-	0,8
170512 PEER-E			●			●	●	-	-	1,2
170516 PEER-E			●			●	●	-	-	1,6
170520 PEER-E*			●			●	●	-	-	2,0
170530 PEER-E*			●			●	●	-	-	3,0
AXMT 170508 PEER-EH			●			●	●	-	-	0,8
AXET 170502 PEFR-S	-	-	-	-	-	-	-	●	●	0,2
170504 PEFR-S	-	-	-	-	-	-	-	●	●	0,4
170508 PEFR-S	-	-	-	-	-	-	-	●	●	0,8

- G - General type
- H - Strong cutting edge
- E - For stainless steel / exotic alloy
- EH - Strong edge for stainless steel / exotic alloy
- S - For aluminium alloy

- Euro stock
- Delivery on request
- Unable to produce
- * Cutter body modification is required

Spare Parts

Screw	Wrench	Recommended Tightening Torque (N·m)	Applicable Endmill
BFTX 0409 IP	TRDR 15 IP	3,0	WEX 3000 F

Wave Mill Series Modular Tools

Features

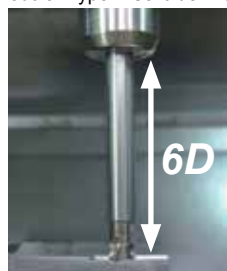
Standard type (single piece) has only 2D-3D length but modular type fixed with a carbide arbor can achieve 6D length.

Cutting Conditions:

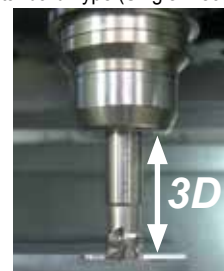
Work Material: C50 $v_c = 100\text{m/min}$
 Cutter: WEX 2025 M12Z4 ($\varnothing 25 \times 4$ teeth) $f_t = 0,1\text{mm/t}$
 Machine: M/C BT50 $a_e = 8\text{mm} \times 3\text{passes}$
 $a_p = 2,0\text{mm}$

Note: Actual tool overhang amount depends on the tooling, machine and work rigidity.

Modular Type + Carbide Arbor



Standard Type (Single Piece)

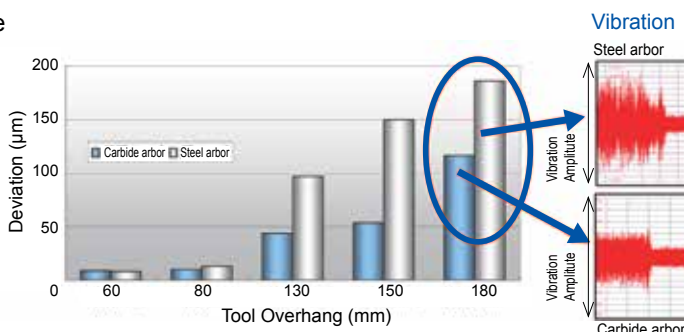
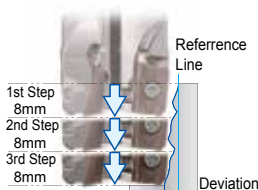


Cutting Performance

Carbide arbor can achieve better accuracy and more stable milling as compared steel arbor.

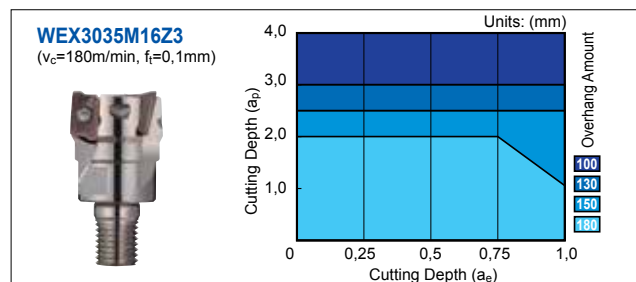
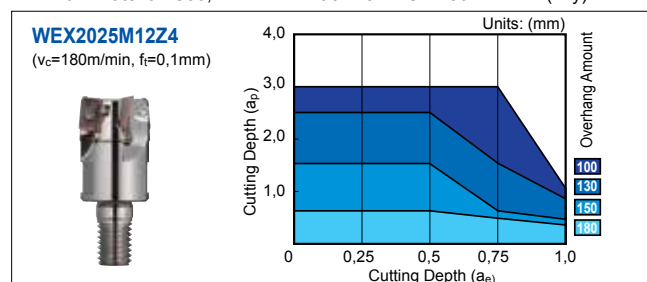
Cutting Conditions:

Work Material: C50
 Cutter: WEX 2025 M12Z4 ($\varnothing 25 \times 4$ teeth)
 Machine: M/C BT50
 $v_c = 100\text{m/min}$
 $f_t = 0,1\text{mm/t}$
 $a_e = 8\text{mm} \times 3\text{passes}$
 $a_p = 2,0\text{mm}$



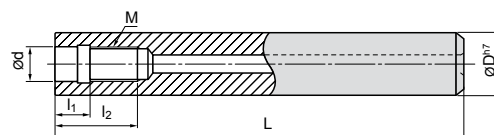
Application Range

Work Material: C50, Machine: M/C BT50 (Dry)



Note: The above conditions are meant as a guide. Actual conditions will depend on individual work and machine rigidity.

Special Arbors for Modular Tools



Carbide Arbor

Cat. No.	Stock	Dimensions (mm)						
		M	ød	øD	L	l ₁	l ₂	L _M
MA 15M08L120C	●	M8	8,5	15	120	10	18	145
15M08L160C	●	M8	8,5	15	160	10	18	185
16M08L120C	●	M8	8,5	16	120	10	18	145
16M08L160C	●	M8	8,5	16	160	10	18	185
MA 18M10L150C	●	M10	10,5	18	150	10	20	180
18M10L200C	●	M10	10,5	18	200	10	20	230
20M10L150C	●	M10	10,5	20	150	10	20	180
20M10L200C	●	M10	10,5	20	200	10	20	230
MA 23M12L200C	●	M12	12,5	23	200	10	22	235
23M12L250C	●	M12	12,5	23	250	10	22	285
25M12L200C	●	M12	12,5	25	200	10	22	235
25M12L250C	●	M12	12,5	25	250	10	22	285
MA 28M16L200C	●	M16	17,0	28	200	10	24	240
28M16L300C	●	M16	17,0	28	300	10	24	340
32M16L200C	●	M16	17,0	32	200	10	24	240
32M16L300C	●	M16	17,0	32	300	10	24	340

Steel Arbor

Cat. No.	Stock	Dimensions (mm)						
		M	ød	øD	L	l ₁	l ₂	L _M
MA 16M08L120S	●	M8	8,5	16	120	10	18	145
20M10L150S	●	M10	10,5	20	150	10	20	180
25M12L200S	●	M12	12,5	25	200	10	22	235
32M16L200S	●	M16	17,5	32	200	10	24	240

Arbor Identification

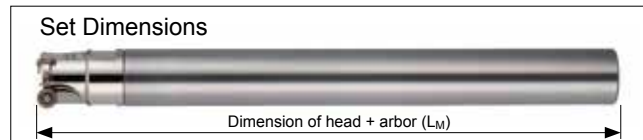
MA 15 **M10** **L150** **C**
 Modular Diameter Mounting Arbor Length Material
 Arbor Shank Screw Carbide Steel

Recommended Tightening Torque

Screw Size	Recomm. Tight. T. (N.m)	Tool Dimensions	
		W	S
M08	23	8	13
M10	46	8	15
M12	80	10	19
M16	90	10	24

Notes about tightening the head:

When attaching the cutter head to an arbor, follow the recommended tightening torque. (table opposite) Confirm the mounting screw size for the head and the arbor before assembly. When attaching head to an arbor, follow the standard tightening torque in the table.

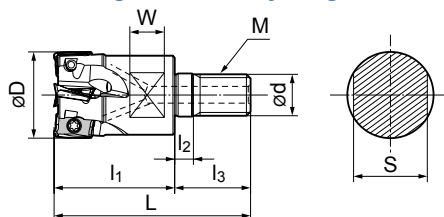


Wave Mill Series Modular Tools

WEX 2000 M

Rake Angle	Radial	10°~18°
	Axial	14°~25°
Stock		10mm
		90°

Endmills for High Efficiency, High Quality Finish



Head

Cat. No.	Stock	Dimensions (mm)									No. of Teeth
		øD	ød	M	L	l ₁	l ₂	l ₃	W	S	
WEX 2016M08Z2	●	16	8,5	M8	42	25	5	17	8	13	2
2018M08Z2	○	18	8,5	M8	42	25	5	17	8	13	2
WEX 2020M10Z3	●	20	10,5	M10	49	30	5	19	8	15	3
2022M10Z3	○	22	10,5	M10	49	30	5	19	8	15	3
WEX 2025M12Z4	●	25	12,5	M12	56	35	5	21	10	19	4
2028M12Z4	○	28	12,5	M12	56	35	5	21	10	19	4
WEX 2030M16Z4	●	30	17,0	M16	63	40	5	23	10	24	4
2032M16Z5	●	32	17,0	M16	63	40	5	23	10	24	5
2040M16Z6	○	40	17,0	M16	63	40	5	23	10	24	6

Inserts are not included.

WEX 3000 M

Rake Angle	Radial	8°~15°
	Axial	16°~24°
Stock		14mm
		90°

Head

Cat. No.	Stock	Dimensions (mm)									No. of Teeth
		øD	ød	M	L	l ₁	l ₂	l ₃	W	S	
WEX 3025M12Z2	○	25	12,5	M12	56	35	5	21	10	19	2
3028M12Z2	○	28	12,5	M12	56	35	5	21	10	19	2
WEX 3030M16Z3	○	30	17,0	M16	63	40	5	23	10	24	3
3032M16Z3	○	32	17,0	M16	63	40	5	23	10	24	3
3035M16Z3	○	35	17,0	M16	63	40	5	23	10	24	3
WEX 3040M16Z4	○	40	17,0	M16	63	40	5	23	10	24	4

Inserts are not included.

Arbor



Inserts

Application		Coated Carbide							Carbide	DLC	
High Speed / Light cut		P			K		M S	K N	N		
General Purpose		P			K		M S	K N	N		
Roughing		P	P		K		M S	K N	N		
Cat. No.		ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL 1000	Radius r _ε
		AXMT	123504 PEER-G	●	●	●	●	●			
	123508 PEER-G	●	●	●	●	●			-	-	0,8
	123512 PEER-G	●	●	●	●	●			-	-	1,2
AXMT	123504 PEER-H	●	●	●	●	●			-	-	0,4
	123508 PEER-H	●	●	●	●	●			-	-	0,8
	123512 PEER-H	●	●	●	●	●			-	-	1,2
AXMT	123504 PEER-E						●	●	-	-	0,4
	123508 PEER-E						●	●	-	-	0,8
	123512 PEER-E						●	●	-	-	1,2
AXMT	123508 PEER-EH			●			●	●	-	-	0,8
AXET	123502 PEFR-S	-	-	-	-	-	-	-	●	●	0,2
	123504 PEFR-S	-	-	-	-	-	-	-	●	●	0,4
	123508 PEFR-S	-	-	-	-	-	-	-	●	●	0,8

G - General type
H - Strong cutting edge
E - For stainless steel / exotic alloy
EH - Strong edge for stainless steel / exotic alloy
S - For aluminium alloy

● Euro stock
○ Japan stock
- Unable to produce
* Cutter body modification is required

Inserts

Application		Coated Carbide							Carbide	DLC	
High Speed / Light cut		P			K		M S	K N	N		
General Purpose		P			K		M S	K N	N		
Roughing		P	P		K		M S	K N	N		
Cat. No.		ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL 1000	Radius r _ε
		AXMT	170508 PEER-L	●	●	●	●	●			
AXMT	170504 PEER-G	●	●	●	●	●			-	-	0,4
	170508 PEER-G	●	●	●	●	●			-	-	0,8
	170512 PEER-G	●	●	●	●	●			-	-	1,2
	170516 PEER-G	●	●	●	●	●			-	-	1,6
	170520 PEER-G*	●	●	●	●	●			-	-	2,0
	170530 PEER-G*	●	●	●	●	●			-	-	3,0
AXMT	170508 PEER-H	●	●	●	●	●			-	-	0,8
	170512 PEER-H	○	○	○	●	●			-	-	1,2
AXMT	170504 PEER-E						●	●	-	-	0,4
	170508 PEER-E						●	●	-	-	0,8
	170512 PEER-E						●	●	-	-	1,2
	170516 PEER-E						●	●	-	-	1,6
	170520 PEER-E*						●	●	-	-	2,0
	170530 PEER-E*						●	●	-	-	3,0
AXMT	170508 PEER-EH			●			●	●	-	-	0,8
AXET	170502 PEFR-S	-	-	-	-	-	-	-	●	●	0,2
	170504 PEFR-S	-	-	-	-	-	-	-	●	●	0,4
	170508 PEFR-S	-	-	-	-	-	-	-	●	●	0,8

Spare Parts

Screw	Wrench	Recommended Tightening Torque (N·m)	Applicable Endmill
BFTX 0305 IP	TRDR 08 IP	2,0	WEX 2016M, WEX 2018M
BFTX 0306 IP		2,0	WEX 2020M ~ WEX 2040M
BFTX 0407 IP	TRDR 15 IP	3,0	WEX 3025M ~ WEX 3030M
BFTX 0409 IP		3,0	WEX 3032M ~ WEX 3040M

Cutter Identification

WEX **2** **016** **M08** **Z2**
Cutter Series Insert Size Cutter Diameter Mounting Screw Size No. of Teeth

Wave Mill Series

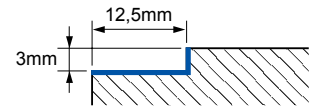
WEX Type

Recommended Cutting Conditions

WEX2000 Series

Cutter: WEX2025E Insert: AXMT123508PEER - □

Cutting Data: $a_p = 3\text{mm}$, $a_e = 12,5\text{mm}$, dry



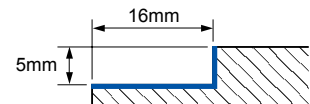
ISO	Material	HB	Chipbreaker	Coated Carbide								Diamond like Carbon Coated Carbide								
				ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	DL1000									
				Feed Rate (mm/tooth)																
				0,08	0,15	0,20	0,08	0,15	0,20	0,08	0,15	0,20	0,08	0,15	0,20	0,08	0,15	0,20	0,05	0,15
Cutting Speed v_c (m/min)																				
P	Unalloyed steel, <0, 15%C, annealed	125	G	380	350	330	350	330	315	330	315	295								
	" , <0, 45%C, annealed	190	G	285	255	235	255	235	220	235	220	220								
	" , <0, 45%C, tempered	250	G	235	210	190	210	190	170	190	170	150								
	" , <0, 75%C, annealed	270	G	190	162	143	171	152	133	152	133	115								
	" , <0, 75%C, tempered	300	G	145	115	95	115	95	75	95	75	55								
	Low alloyed steel, annealed	180	G	265	235	220	235	220	200	220	200	180								
	" , tempered	275	G	170	145	125	150	130	115	130	115	95								
	" , tempered	300	G	150	125	105	135	115	95	115	95	75								
P	" , tempered	350	G	125	95	75	105	85	65	85	65	45								
	High alloyed and tool steel, annealed	200	G	235	210	190	210	190	170	190	170	150								
P	" , tempered	325	G	125	95	75	95	75	55	75	55	35								
	M	Stainless steel, ferritic/martensitic, annealed	200	E										175	155	125	155	140	110	
Martensitic, tempered		240	EH										160	140	110	145	125	100		
Austenitic, plunged		180	E										190	170	140	170	150	125		
K	Grey cast iron		G										285	255	235	255	235	220		
	Nodular cast iron		G										190	160	140	160	140	125		
S	High tempered resist. alloys, Fe based, annealed	300	E										50	40		45	35			
	" , hardened	330	E										35	25		30	20			
N	Aluminium alloy, Si < 13%		S															1000	750	500
	Aluminium alloy, Si > 13%		S															250	200	170
	Copper alloy		S															350	330	300

The above recommended cutting conditions are meant as a guide. Actual conditions will depend on the individual machine, work shape and clamping. They will need to be adjusted according to machine rigidity, work clamp rigidity, cutting depth and other factors.
For groove milling, reduce the feed rate approximately 70% of the corresponding value shown above.

WEX3000 Series

Cutter: WEX30325E Insert: AXMT170508PEER - □

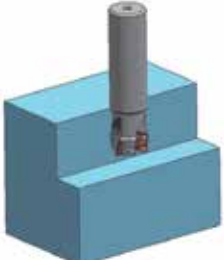
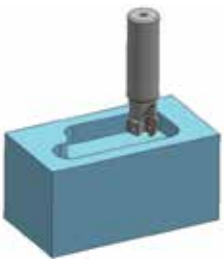

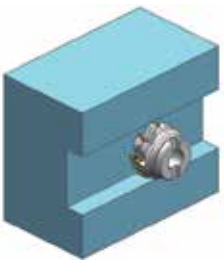
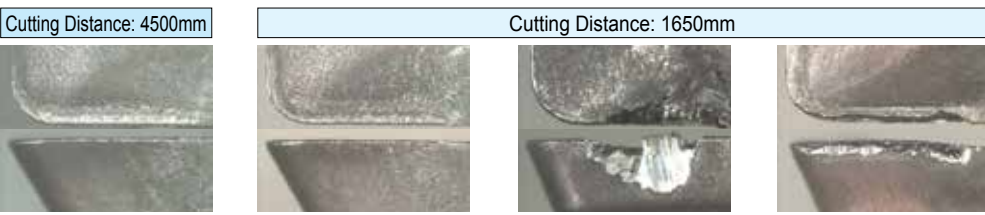
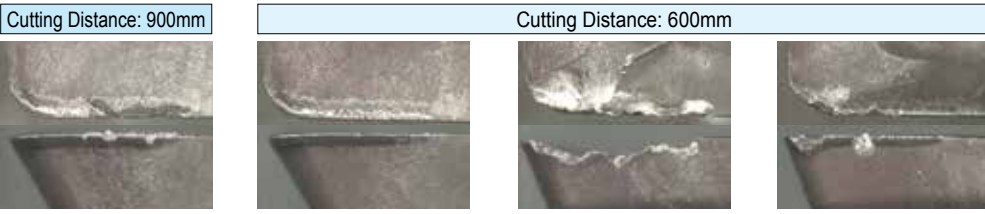
Cutting Data: $a_p = 5\text{mm}$, $a_e = 16\text{mm}$, dry



ISO	Material	HB	Chipbreaker	Coated Carbide								Diamond like Carbon Coated Carbide									
				ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	DL1000										
				Feed Rate (mm/tooth)																	
				0,12	0,25	0,35	0,12	0,25	0,35	0,12	0,25	0,35	0,12	0,25	0,35	0,12	0,25	0,35	0,12	0,25	0,35
Cutting Speed v_c (m/min)																					
P	Unalloyed steel, <0, 15%C, annealed	125	G	400	370	350	370	350	330	350	330	310									
	" , <0, 45%C, annealed	190	G	300	270	250	270	250	230	250	230	210									
	" , <0, 45%C, tempered	250	G	250	220	200	220	200	180	200	180	160									
	" , <0, 75%C, annealed	270	G	200	170	150	180	160	140	160	140	120									
	" , <0, 75%C, tempered	300	G	150	120	100	120	100	80	100	80	60									
	Low alloyed steel, annealed	180	G	280	250	230	250	230	210	230	210	190									
	" , tempered	275	G	180	150	130	160	140	120	140	120	100									
	" , tempered	300	G	160	130	110	140	120	100	120	100	80									
P	" , tempered	350	G	130	100	80	110	90	70	90	70	50									
	High alloyed and tool steel, annealed	200	G	250	220	200	220	200	180	200	180	160									
P	" , tempered	325	G	130	100	80	100	80	60	80	60	40									
	M	Stainless steel, ferritic/martensitic, annealed	200	E										185	165	135	165	150	120		
Martensitic, tempered		240	EH										170	150	120	150	135	110			
Austenitic, plunged		180	E										200	180	150	180	160	135			
K	Grey cast iron		G										300	270	250	270	250	230			
	Nodular cast iron		G										200	170	150	170	150	130			
S	High tempered resist. alloys, Fe based, annealed	300	E										50	30		45	25				
	" , hardened	330	E										50	30		45	25				
N	Aluminium alloy, Si < 13%		S															1000	750	500	
	Aluminium alloy, Si > 13%		S															250	200	170	
	Copper alloy		S															350	330	300	

The above recommended cutting conditions are meant as a guide. Actual conditions will depend on the individual machine, work shape and clamping. They will need to be adjusted according to machine rigidity, work clamp rigidity, cutting depth and other factors.
For groove milling, reduce the feed rate approximately 70% of the corresponding value shown above.

Recommended Cutting Conditions

<p>Block, 42CrMo4</p>	<p>Die Mold, Low Carbon Steel</p>
<p>Achieving comparably smaller step marks on the machined side wall, WEX type also is capable of performing finishing applications.</p> 	<p>The current tool suffers from short tool life due to breakage. WEX could achieve double the tool life without any breakages.</p> 
<p>Cutting Data:</p> <p>Cutter: WEX 3032 E (Ø32) Insert: AXMT170508PEER-G Grade: ACP200</p> <p>$v_c = 200\text{m/min}$ $f_t = 0,15\text{mm/t}$ $a_e = 5\text{mm}$ $a_p = 10\text{mm} \times 3\text{passes}$ dry</p>	<p>Cutting Data:</p> <p>Cutter: WEX 3032 E (Ø32) Insert: AXMT170508PEER-G Grade: ACP100</p> <p>$v_c = 151\text{m/min}$ $f_t = 0,2\text{mm/t}$ $a_e = 25\text{mm}$ $a_p = 5\text{mm}$ wet</p>
<p>Screw Rotor, X5CrNiMo17122</p>	<p>Injection Mold, 55NiCrMoV6</p>
<p>Current tool suffers from short tool life due to chipping as a result of cutting vibrations. WEX has relatively less cutting noise and could perform up to 5hrs of machining without chipping.</p> 	<p>Achieving lower cutting noise, better chip evacuation and improved surface finish as compared to current tool. Furthermore, stable machining can still be achieved at double the feed rate.</p> 
<p>Cutting Data:</p> <p>Cutter: WEX 3050 F (Ø50) Insert: AXMT170508PEER-G Grade: ACP300</p> <p>$v_c = 80\text{m/min}$ $f_t = 0,15\text{mm/t}$ $a_e = 15\text{--}50\text{mm}$ $a_p = 4\text{mm}$ dry</p>	<p>Cutting Data:</p> <p>Cutter: WEX 3080 E (Ø80) Insert: AXMT170508PEER-G Grade: ACP200</p> <p>$v_c = 75\text{m/min}$ $f_t = 0,19\text{mm/t}$ $a_e = 80\text{mm}$ $a_p = 5\text{mm}$ dry</p>
<p>Machine Parts, X5CrNi810</p>	
<p>Cutting Distance: 4500mm</p>  <p>WEX Type WEX Type Competitor A Competitor B</p> <p>A base material with excellent fracture resistance along with high-hardness coating ensures stable machining without loss.</p>	<p>Cutter: WEX 3032 E (Ø32) Insert: AXMT170508PEER-E Grade: ACM300</p> <p>Cutting Data:</p> <p>$v_c = 150\text{m/min}$ $f_t = 0,15\text{mm/t}$ $a_e = 10\text{mm}$ $a_p = 3,0\text{mm}$ dry</p>
<p>Machine Parts, X5CrNi1810</p>	
<p>Cutting Distance: 900mm</p>  <p>WEX Type WEX Type Competitor A Competitor B</p> <p>Demonstrating excellent fracture resistance in wet machining, which is prone to thermal cracking.</p>	<p>Cutter: WEX 3032 E (Ø32) Insert: AXMT170508PEER-E Grade: ACM300</p> <p>Cutting Data:</p> <p>$v_c = 150\text{m/min}$ $f_t = 0,15\text{mm/t}$ $a_e = 10\text{mm}$ $a_p = 3,0\text{mm}$ wet</p>

Wave Mill Series
WEX Type



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