

NPA

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New Product Announcement No. 2015-13



MILL²RUSH

TNMX 18 Line Extended Flute Cutter & Splitter Insert



 **TaeguTec**
Member IMC Group

New Product Announcement No. 2015-13



TaeguTec is pleased to announce that the MILL2RUSH TNMX 18 line has been expanded to include the use of splitter inserts and extended flute cutters.

The TNMX 18 is a double-sided triangular insert with 8mm thickness and 13mm depth of cut which has gained great popularity in heavy duty 90° machining.

The latest design improvements have introduced other advantages to the TNMX 18 line.

The splitter insert's grooves located along the cutting edges reduce the cutting load, vibration and noise under unstable machining conditions such as long overhang or weak fixtures.

As such, the splitter inserts promote very stable machining and higher productivity as the grooves also generate reduced cutting load which, in turn, allow for higher table feed during machining.

The extended flute end mills and shell mills enable a wide variety of applications using the new TNMX chip splitter inserts.

For effective use of splitter inserts, the even number teeth cutters are also available as standard items.

FEATURES



Splitter insert

- **Low cutting force → Increased feed rate → Higher productivity**
- **Stable machining in long overhang and unstable fixture operations**
- **Smooth machining**

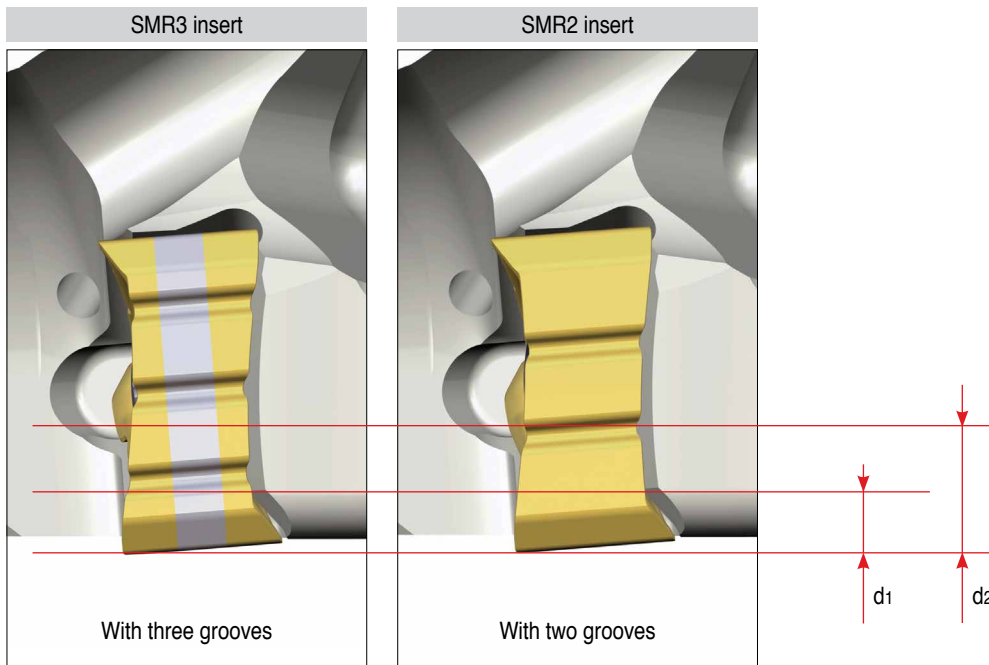
Extended flute end mill & shell mill cutter

- **Available from Ø50mm**
- **Even number cutters now available as standard items**

2 Splitter insert types (TNMX 18)

SMR2	SMR3
	
<ul style="list-style-type: none"> - 6 corners - 2 grooves 	<ul style="list-style-type: none"> - 6 corners - 3 grooves - Different periphery color

Splitter range



Depth of cut	TNMX 18
d1 (mm)	2.7
d2 (mm)	6.9

• The splitter insert's effective axial depth of cut $\geq d_1$

TNMX 18 insert standard extended flute cutter range

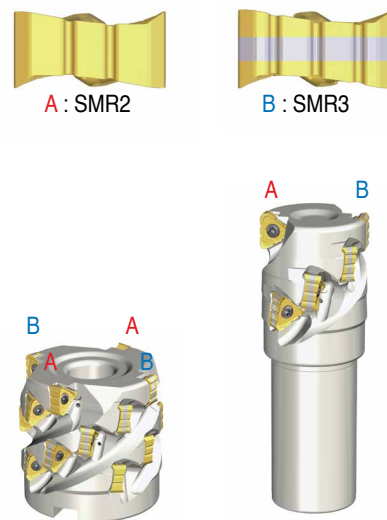


Insert	End mill type	Shell mill type
TNMX 18	Ø50	Ø63-100

- Both cutting edges split chips into small pieces for cutting load reduction and create a complete cutting edge when combined.



- For optimum machining efficiency, use even numbered flute type cutters.



Also applicable to existing face mill & end mill type cutters.

Availability

In stock

Price

Available in the GAL system

Sincerely,
TaeguTec

Park Hong-sik

Rotating & Non-Rotating Product Manager

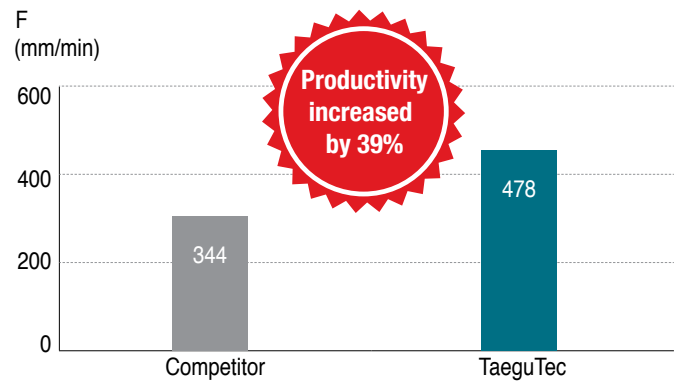
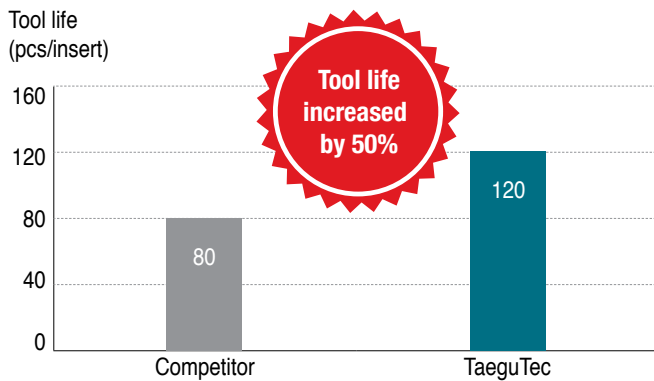
Sincerely,
TaeguTec

Lee Jae-wook

Milling Product Manager

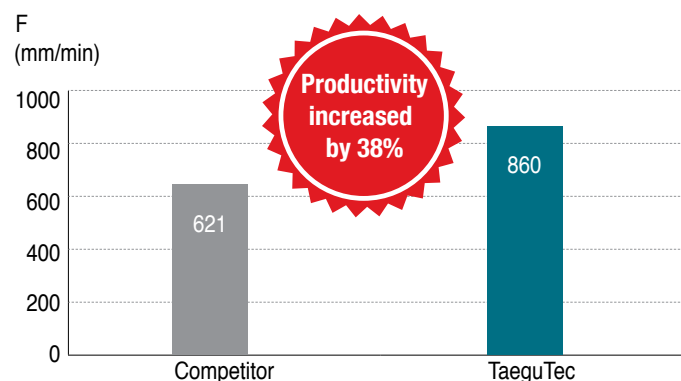
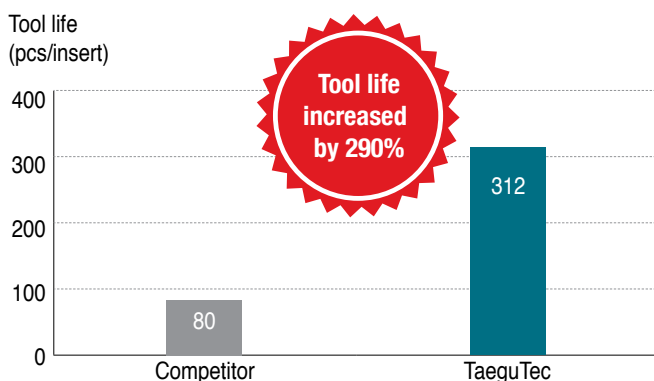
Case study 1

		Competitor	TaeguTec
Workpiece material		Alloy steel (SCM4, 42CrMo4)	
Cutter		D80 extended cutter (4 flutes)	TES D80-60-32R-TN18 (4 flutes)
Insert		Double-sided 4 corners insert	TNMX 1806 PNTR-SMR2/3 TT9080 (6 corners)
Cutting speed	V (m/min)	180	200
	N (rpm)	717	796
Feed rate	Fz (mm/tooth)	0.12	0.15
	F (mm/min)	344	478
Width of cut	ae (mm)	20	20
Depth of Cut	ap (mm)	45	45
Coolant		Dry	Dry
Tool life (pcs/insert)		80	120



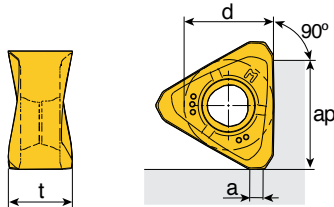
Case study 2

		Competitor	TaeguTec
Workpiece material		Cast iron (FC300, GG30)	
Cutter		D100 extended cutter (6 flutes)	TES D100-71-40R-TN18-6F (6 flutes)
Insert		Single-sided 2 corners insert	TNMX 1806 PNTR-SMR2/3 TT9080 (6 corners)
Cutting speed	V (m/min)	250	250
	N (rpm)	796	796
Feed rate	Fz (mm/tooth)	0.13	0.18
	F (mm/min)	621	860
Width of cut	ae (mm)	25	25
Depth of Cut	ap (mm)	65	65
Coolant		Wet	Wet
Tool life (pcs/insert)		80	312






TNMX 18

Insert



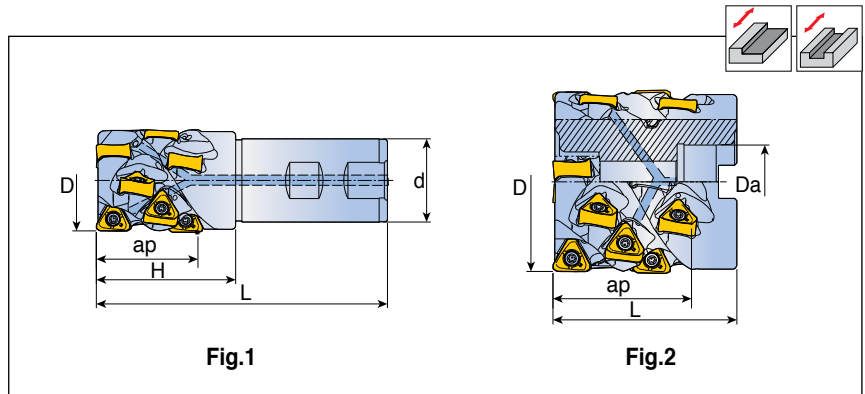
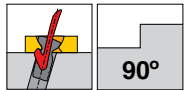
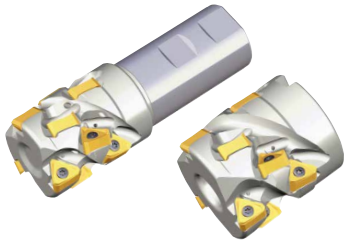
Size	Dimension (mm)			
	d	t	ap	a
18	11.65	8	13	1.4

Insert	Designation	Recommended machining conditions		Coated						
		Feed (mm/tooth)	ap (mm)	TT9080	TT8080	TT7800	TT7080	TT6800	TT6080	TT2510
	TNMX 1806 PNTR-M	0.07-0.15	1.0-11.0	●	●	●	●		●	●
	TNMX 1806 PNTR-SMR2 new	0.10-0.20	2.7-11.0	●	●	●		●	●	
	TNMX 1806 PNTR-SMR3 new	0.10-0.20	2.7-11.0	●	●	●		●	●	

● : Standard items

TEF/TES-TN18 new

Extended flute cutter



Designation	No. of insert	Dimension (mm)							Kg	Fig.	Mounting bolt	Insert
		D	d	Da	L	H	ap					
TEF D50-48-W40-TN18-2F	2	8	50	40	-	140	67	48	-	1	-	TNMX 1806...
D50-48-W40-TN18	3	12	50	40	-	140	67	48	-	1	-	
TES D63-48-27R-TN18-2F	2	8	63	-	27	70	-	48	1.2	2	SH M12x1.75x50	
D63-48-27R-TN18	3	12	63	-	27	70	-	48	1.1	2	SH M12x1.75x50	
D80-60-32R-TN18	4	20	80	-	32	80	-	60	2.2	2	SH M16x2x60	
D100-71-40R-TN18-4F	4	24	100	-	40	100	-	71	4.5	2	SH M20x2.5x70	
D100-71-40R-TN18	5	30	100	-	40	100	-	71	4.4	2	SH M20x2.5x70	
D100-71-40R-TN18-6F	6	36	100	-	40	100	-	71	4.4	2	SH M20x2.5x70	

• Coolant through type

Spare parts

Designation	Screw	Wrench			
	TEF/TES-TN18	 TS 40B100I	 T-T15		

Recommended Cutting Conditions

Cutting Speed :Vc(m/min)

ISO	Material	Condition	Tensile strength (N/mm ²)	Hardness HB	Material No.	Coated							
						TT9080	TT7080	TT7800	TT8080	TT6800	TT6080	TT2510	
P	Non-alloy steel, cast steel, free cutting steel	< 0.25%C Annealed	420	125	1	220-370	250-410	160-270	170-250				
		>= 0.25%C Annealed	650	190	2	180-310	200-380	140-210	130-220				
		< 0.55%C Quenched and tempered	850	250	3	115-195	140-230	90-160	90-170				
		>= 0.55%C Annealed	750	220	4	130-210	160-250	100-170	100-190				
		Quenched and tempered	1000	300	5	115-175	135-195	80-140	70-160				
	Low alloy steel and cast steel (less than 5% of alloying elements)	Annealed	600	200	6	175-265	190-290	140-200	150-220				
		Quenched and tempered	930	275	7	130-215	150-240	90-160	110-190				
			1000	300	8	105-185	135-225	70-150	80-160				
			1200	350	9	95-160	120-190	60-110	70-120				
	High alloy steel, cast steel and tool steel	Annealed	680	200	10	85-155	100-150	60-90	70-110				
Quenched and tempered		1100	325	11	75-135	90-140	50-90	60-100					
M	Stainless steel and cast steel	Ferritic / martensitic	680	200	12	115-270			90-200				
		Martensitic	820	240	13	100-230			70-160				
		Austenitic	600	180	14	120-275			100-210				
K	Gray cast iron (GG)	Ferritic		160	15					180-350	200-390		
		Pearlitic		250	16					140-280	160-300		
	Cast iron nodular (GGG)	Ferritic		180	17					115-230	130-250		
		Pearlitic		260	18					100-200	110-210		
	Malleable cast iron	Ferritic		130	19					190-310	210-330		
		Pearlitic		230	20					120-260	130-280		
N	Aluminum - wrought alloy	Not cureable		60	21								
		Cured		100	22								
	Aluminum-cast, alloyed	<=12% Si Not cureable		75	23								
		Cured		90	24								
	Copper alloys	>12% Si High temp.		130	25								
		>1% Pb Free cutting		110	26								
	Non-metallic	Electrolytic copper	Brass		90	27							
					100	28							
						29							
	S	High temp. alloys	Fe based	Annealed		200	31	40-80			30-65		
Cured					280	32	30-60			20-45			
Ni or Co based			Annealed		250	33	35-70			25-50			
			Cured		350	34	30-60			20-40			
Titanium, Ti alloys		Alpha+beta alloys cured	Cast		320	35	35-65			20-45			
				Rm 400	36	90-130			60-100				
				Rm 1050	37	35-70			25-55				
H	Hardened steel	Hardened		55HRC	38	40-75					70-180		
		Hardened		60HRC	39	30-55					50-130		
	Chilled cast iron	Cast		400	40								
Cast iron nodular	Hardened		55HRC	41									

■ Steel
 ■ Stainless steel
 ■ Cast iron
 ■ Nonferrous
 ■ High temp. alloys
 ■ Hardened steel