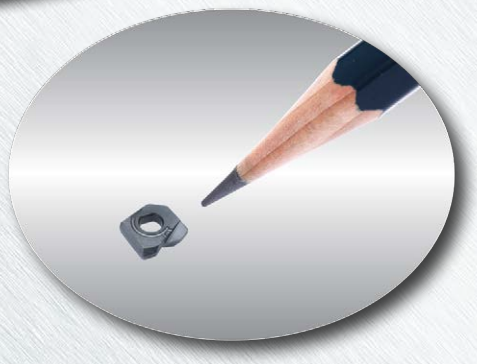
SFEEDUP HIGH SPEED & FEED

INDUSTRY 4.0 PRODUCT ANNOUNCEMENT •UPDATE• 2024

NANOFEED

MILLING PRODUCTS



Cutter Series:
12G1D, 12G1E

Insert Series:
WEEM

Diameter Range:
6mm-8mm

Grade:
IN2006

Adaptions:
End Mill (Cylindrical)

Applications:
Die & Mold
Aerospace
General Purpose

Materials:
Steels, Hardened Steels

Nano-Sized Milling Line for High-Feed Machining

The NANOFEED miniature indexable hi-feed line brings exciting new milling solutions when machining miniature components or features. This new line is available in diameter 6mm & 8mm with steel or carbide shank options. The inserts do an excellent job of managing cutting forces and are exceptionally strong. Coolant or air is delivered directly to the cutting edges through specially pressed coolant channels located in the insert. This well-engineered miniature hi-feed mill is performance packed and will provide an excellent alternative to solid carbide round end mills. Test one today!

Features & Benefits:

- Exceptionally free shearing miniature indexable hi-feed inserts
- 20° cutting edge offers a 3X feed rate multiplier.
- Metric sizes 6mm & 8mm
- Back drafted inserts provide side wall machining clearance
- Stable hi-feed miniature rough milling
- Steel & solid carbide shanks available
- Well direct coolant or air flow to the cutting edge for increased edge life!

Member IMC Group Ingersoll Cutting Tools

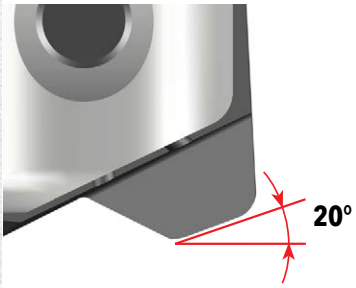
NANOFEED FEATURES

New NANOFEED technology provides exceptional hi-feed milling performance for machining of miniature components and smaller detail part features. Tools are available in 6mm and 8mm diameters with steel or solid carbide shanks. This innovative NANOFEED technology will replace smaller diameter end mills and offer great economy! Regrinding and recoating of solid carbide end mills will be greatly reduced or eliminated altogether!

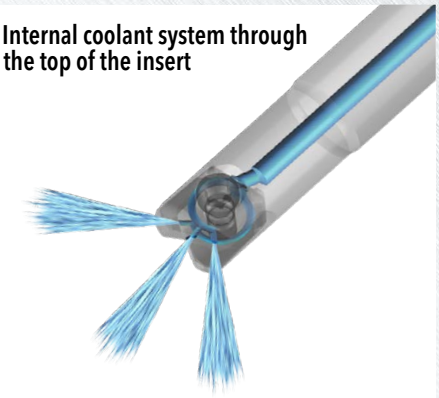
NANOFEED technology has been optimized for milling smaller size features but performs equally well when milling larger features. Applications include pocketing, shouldering, straight ramping and helical ramping for machining a variety of features in the general machining, aerospace and die & mold markets.

- Ø6-2z, Ø8-2z

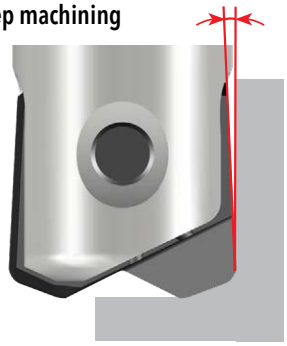
- 20° cutting edge for high feed machining



- Internal coolant system through the top of the insert

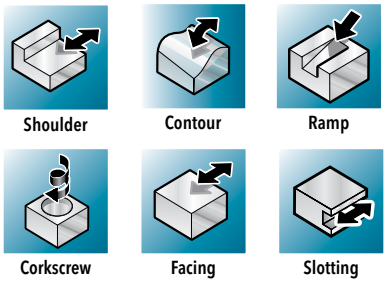


- Insert sides have a clearance angle for deep machining



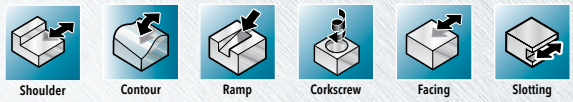
- Excellent insert clamping force
  - 1 screw fastening for rigidity and strength

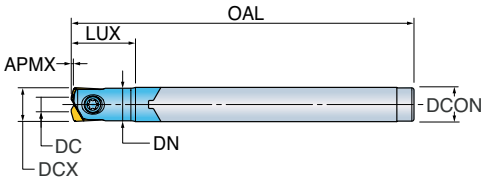
- A wide variety of applications

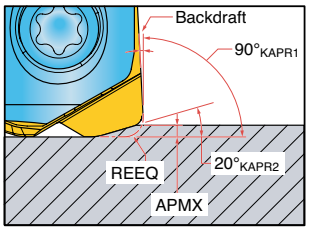


NANOFEED SERIES 12G1D, 12G1E (CYLINDRICAL SHANK)

METRIC SOLID CARBIDE END MILLS



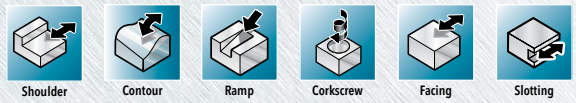




Part Number	DCX Cutting Dia. Max.	DC Cutting Dia.	DN Neck Dia.	DCON Shank Dia.	LUX Usable Length Max.	OAL Overall Length	APMX Depth of Cut Max.	ZEFF Eff. Teeth	RMPX Ramp Angle Max.	REEQ Program Radius Equivalent	KAPR1 Cutting Edge Angle	CSP Coolant
12G1D006020T7RC1	6	3	5.8	6	20	80	0.3	2	2°	0.8	90°	No
12G1D006025T7RC1	6	3	5.8	6	25	140	0.3	2	2°	0.8	90°	No
12G1E008020T0RC1	8	4	7.6	8	20	80	0.5	2	2.5°	1.0	90°	No
12G1E008030T0RC1	8	4	7.6	8	30	160	0.5	2	2.5°	1.0	90°	No

NANOFEED SERIES 12G1D, 12G1E (CYLINDRICAL SHANK)

METRIC STEEL END MILLS



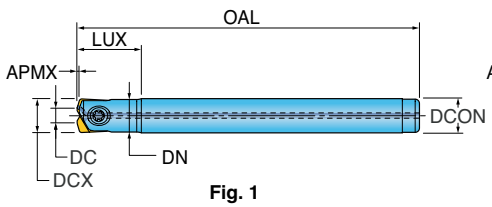


Fig. 1

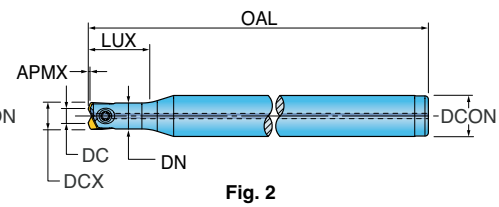
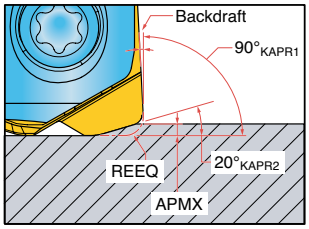


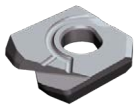
Fig. 2

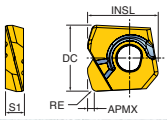


Part Number	DCX Cutting Dia. Max.	DC Cutting Dia.	DN Neck Dia.	DCON Shank Dia.	LUX Usable Length Max.	OAL Overall Length	APMX Depth of Cut Max.	ZEFF Eff. Teeth	RMPX Ramp Angle Max.	REEQ Program Radius Equivalent	KAPR1 Cutting Edge Angle	CSP Coolant	Fig.
12G1D006013T7R00	6	3	5.8	6	13	80	0.3	2	2°	0.8	90°	Yes	1
12G1D006013T1R00	6	3	5.8	10	13	120	0.3	2	2°	0.8	90°	Yes	2
12G1E008018T0R00	8	4	7.6	8	18	80	0.5	2	2.5°	1.0	90°	Yes	1
12G1E008018T2R00	8	4	7.6	12	18	140	0.5	2	2.5°	1.0	90°	Yes	2

NANOFEED METRIC INSERTS

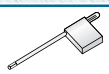
WEEM





Part Number	Application	RE Corner Radius	INSL Insert Length	DC Cutting Dia.	S1 Thickness Overall	APMX Depth of Cut Max.	NOI Number of Indexes	IH Insert Hand	Grade	IN2006
WEEM060105R	Hi-Feed	0.5	5.9	6	1.6	0.3	1	Right		•
WEEM080106R	Hi-Feed	0.6	8.4	8	1.8	0.5	1	Right		•

NANOFEED HARDWARE

	 Screw	 Driver	 **OPTIONAL** Torque Driver Handle	 **OPTIONAL** Preset Torque Bit	 **OPTIONAL** Torque Driver Bit	
12G1D006013T7R00	SM20-050-10	DS-T06F	DS-A00-.25-S	DT-05-.25	DS-T06B	
12G1D006013T1R00	SM20-050-10	DS-T06F	DS-A00-.25-S	DT-05-.25	DS-T06B	
12G1E008018T0R00	SM25-080-B1	DS-T08W	DS-A00-.25-S	DT-08-.25	DS-T08B	
12G1E008018T2R00	SM25-080-B1	DS-T08W	DS-A00-.25-S	DT-08-.25	DS-T08B	
12G1D006020T7RC1	SM20-050-10	DS-T06F	DS-A00-.25-S	DT-05-.25	DS-T06B	
12G1D006025T7RC1	SM20-050-10	DS-T06F	DS-A00-.25-S	DT-05-.25	DS-T06B	
12G1E008020T0RC1	SM25-080-B1	DS-T08W	DS-A00-.25-S	DT-08-.25	DS-T08B	
12G1E008030T0RC1	SM25-080-B1	DS-T08W	DS-A00-.25-S	DT-08-.25	DS-T08B	

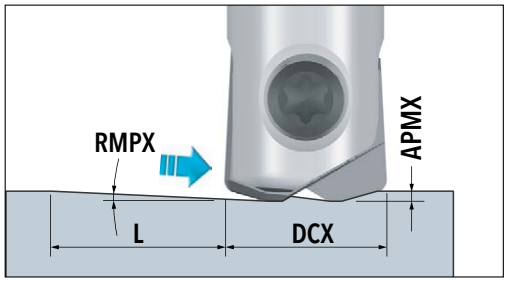
NANOFEED OPERATING GUIDELINES

Materials				V_c Cutting Speed m/min	f_z Feed/Tooth (mm)	Grade	Coolant
ISO	Mat'l Group #VDI 3323	Type	Examples			IN2006	
P	1 thru 5	Non-alloy Steel	1018, A36, 1045, A572, 1070	100 - 305	.3mm - .5mm	1	No
	6 thru 9	Low-alloy Steel	4140, 4340, P20, 8620, 300M				
	10, 11	High-alloy Steel	H13, A2, D2, M2, T1	90 - 200			
H	38 thru 39	Hardened Steel >48	A2, 01, D2	45 - 75	.3mm - .5mm	1	No

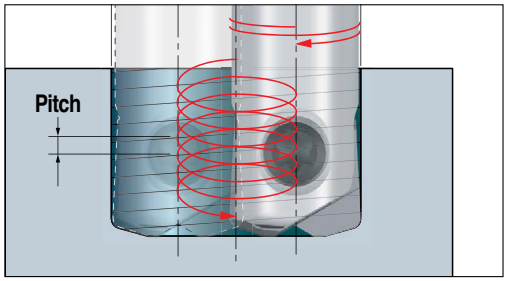
Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause for reductions in feeds and speed or dramatic increases. Additionally, DOC and WOC may need to be revised to optimize the tools performance.

NANOFEED RAMPING DATA

• Straight Ramping

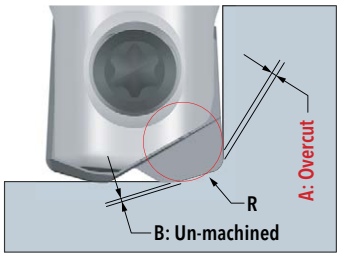


• Helical Milling



Part Number	DCX Cutting Dia. Max.	Straight Ramp Down			Helical Ramp Down		
		RPMX Ramp Angle Max.	APMX Depth of Cut Max.	L Ramp Length Min.	HD Hole Dia. Min.	HD Hole Dia. Max.	Max Pitch Per Revolution
WEEM060105R	Ø6	2.0	0.3	9	9.6	-	0.3
					-	11	0.3
WEEM080106R	Ø8	2.5	0.5	11	12	-	0.5
					-	15	0.5

NANOFEED PROGRAMMING TECHNICAL DATA



Part Number	REEQ Program Radius	A Over Cut	B Un-Machined
WEEM060105R	.8	0	.21
WEEM080106R	1	0	.32