NPA

NEW

New Product Announcement

Member IMC Group
Ingersoll Cutting Tools

MILLING - INDEXABLE

Cutter Series (Depth of Cut)
1WG1G End Mill (.051)
WG5G Face Mill (.051)
WG6G Face Mill (.051)

Insert Series
WNMU11 (11 mm)

Geometry
MR: Hi-Feed, Heavy Duty

Diameter Range
1.500–5.000"

Grades
IN2505, IN2530

Lead Angle
10.1°

Adaptions
End Mill (TopOn Connection)
Face Mill

Materials
- Steel
- Cast Iron

WINFEED HF™

NEW **Hi-Feed Milling Products**

- 6 cutting edges provides exceptional economy
- Fixed lead angle produces consistent chip thinning for predictable high-feed performance
- Increased metal removal rates from rigid, dual dovetail insert pocket design
- Reinforced cutting corner at maximum depth of cut provides reliable shoulder milling
- Face and peripheral insert wipers provide superior surface finish







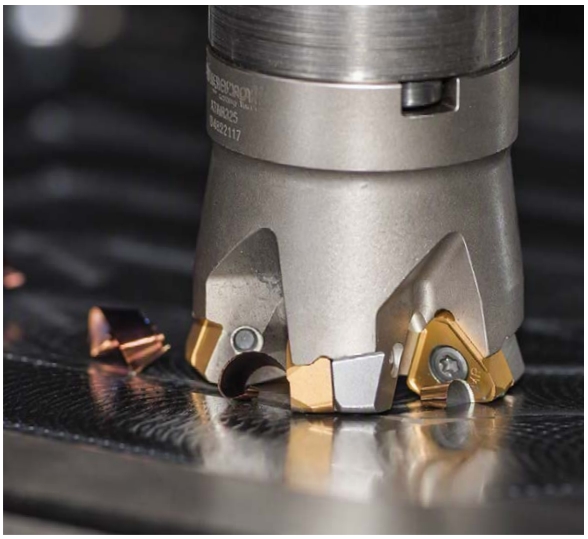


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WINSFEED™ ADVANCED MACHINING

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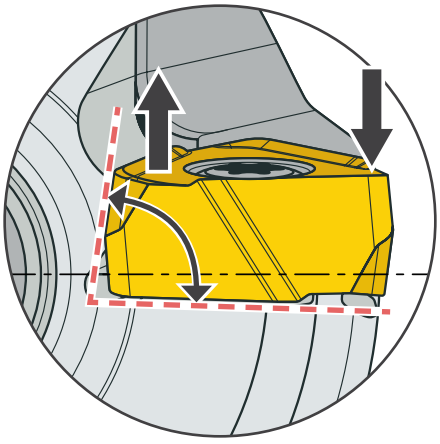
Overview

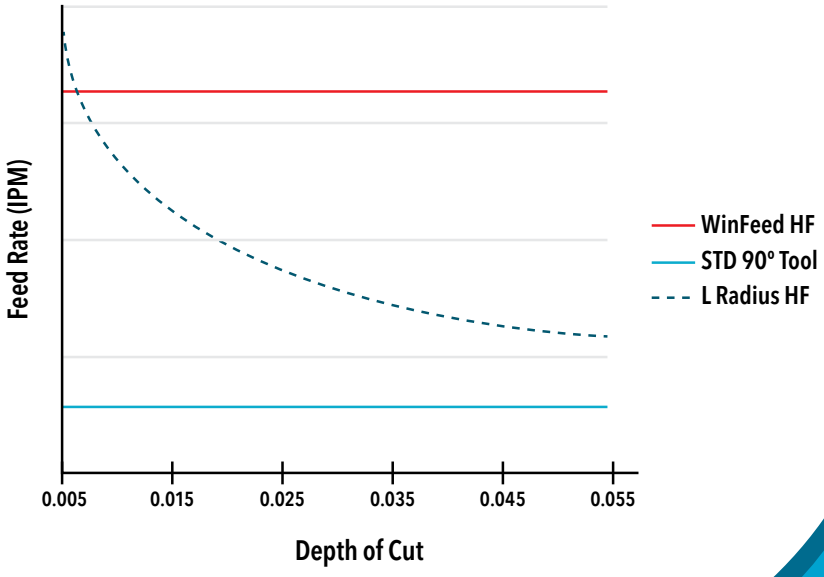


- **Exceptional Insert Economy:** Six usable cutting edges per insert deliver excellent cost efficiency and help reduce overall tooling costs.
- **Consistent High-Feed Performance:** The 10.1° lead angle sets this high-feed cutter apart from conventional designs. It maintains consistent feed rates up to the maximum depth of cut, while large-radius high-feed cutters experience significant feed-rate reductions as depth increases.
- **Increased Metal Removal Rates:** The dovetail insert design provides added strength and stability, allowing for more aggressive machining and greater material removal than traditional high-feed cutters.
- **Reliable Shoulder Milling Performance:** A reinforced cutting corner at maximum depth of cut helps maintain feed rates during shoulder milling, delivering consistent productivity even in demanding applications.
- **Superior Surface Finish:** Face and outside-diameter wipers minimize scalloping on the machined face and sidewall, helping achieve a smoother, more consistent finish.
- **Predictable Chip-Thinning Performance:** Unlike large-radius cutting geometries, the 10.1° lead angle provides consistent chip-thinning characteristics across the cutting depth range, supporting stable feed rates and predictable machining performance.
- **Expanded Machining Versatility:** Additional insert clearance enables ramping operations, expanding application flexibility and reducing the need for specialized tooling.

Comparing Lead Angle Versus High Feed Radius

Dovetail Insert Geometry



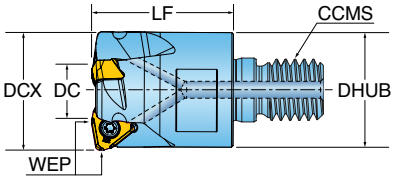


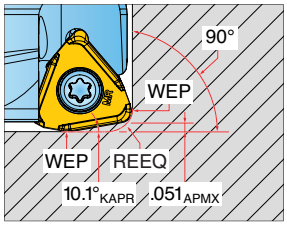
Face | Lead Angle | Shoulder | Ramp | Contour | Pocket | Corkscrew | Plunge | Coolant

Series 1WG1G

HI-FEED END MILL - TOPON (11 MM INSERT)







WEP - See insert drawing for wiper options.

Part Number	DCX Cutting Dia. Max.	DC Cutting Dia.	LF Functional Length	ZEFF Effective Teeth	REEQ Program Radius Equivalent	DHUB Hub Dia.	CCMS Connection Code Machine Side	RMPX Ramp Angle Max.
INCH								
1WG1G-15017X9R01	1.5	0.843	1.75	3	0.101	1.425	TopOn M20	1.8°
1WG1G-15017X9R02	1.5	0.843	1.75	2	0.101	1.425	TopOn M20	1.8°

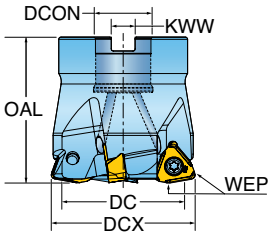
Insert screw tightening torque: 30–35 in lb

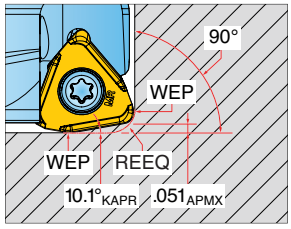
Series WG5G

Face | Lead Angle | Shoulder | Ramp | Contour | Pocket | Corkscrew | Plunge | Coolant

HI-FEED FACE MILL (11 MM INSERT)







WEP - See insert drawing for wiper options.

Part Number	DCX Cutting Dia. Max.	DC Cutting Dia.	OAL Overall Length	ZEFF Effective Teeth	REEQ Program Radius Equivalent	DCON Bore Dia.	KWW Keyway	RMPX Ramp Angle Max.
INCH								
WG5G-20R01	2.000	1.339	2.000	5	0.101	0.750	0.312	1.0°
WG5G-25R01	2.500	1.838	2.000	6	0.101	0.750	0.312	0.7°
WG5G-30R01	3.000	2.337	2.000	7	0.101	1.000	0.375	0.6°
WG5G-30R02	3.000	2.337	2.000	7	0.101	1.250	0.500	0.6°
WG5G-40R01	4.000	3.336	2.375	8	0.101	1.500	0.640	0.4°
WG5G-50R01	5.000	4.336	2.500	10	0.101	1.500	0.640	0.3°

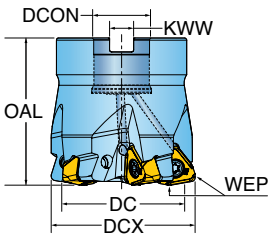
Insert screw tightening torque: 30–35 in lb

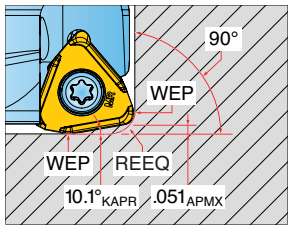
Face | Lead Angle | Shoulder | Ramp | Contour | Pocket | Corkscrew | Plunge | Coolant

Series WG6G

HI-FEED FACE MILL (11 MM INSERT)







WEP - See insert drawing for wiper options.

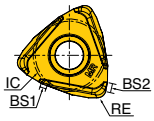
Part Number	DCX Cutting Dia. Max.	DC Cutting Dia.	OAL Overall Length	ZEFF Effective Teeth	REEQ Program Radius Equivalent	DCON Bore Dia.	KWW Keyway	RMPX Ramp Angle Max.
INCH								
WG6G-20R01	2.000	1.339	2.000	4	0.101	0.750	0.312	1.0°
WG6G-25R01	2.500	1.838	2.000	5	0.101	0.750	0.312	0.7°
WG6G-30R01	3.000	2.337	2.000	6	0.101	1.000	0.375	0.6°
WG6G-30R02	3.000	2.337	2.000	6	0.101	1.250	0.500	0.6°
WG6G-40R01	4.000	3.336	2.375	7	0.101	1.500	0.640	0.4°
WG6G-50R01	5.000	4.336	2.500	9	0.101	1.500	0.640	0.3°

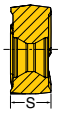
Insert screw tightening torque: 30–35 in lb

11 mm • Insert • MR

WNMU110612TR-MR







Part Number	Application	RE Corner Radius	BS1 Wiper Length	BS2 Wiper Length	IC Inscribed Circle Dia.	S Thickness	NOI No. of Indexes	IH Insert Hand	Grade	
									IN2505	IN2530
WNMU110612TR-MR	Hi-Feed, Heavy Duty	.050"	.038"	.051"	11 mm	0.25	6	Right	•	•

End Mill Hardware

					Optional			
Part Number	Insert Screw*	Driver Handle	Driver Bit	Retention Bolt	Coolant Retention Bolt	Torque Driver Handle	Preset Torque Adapter	Torque Driver Bit
1WG1G	SM40-123-H0	DS-A00T	BLD T15/M7	–	–	DS-A00-25T	DT-35-.25	DS-T15B1

*Insert screw tightening torque: 30–35 in lb

Face Mill Hardware

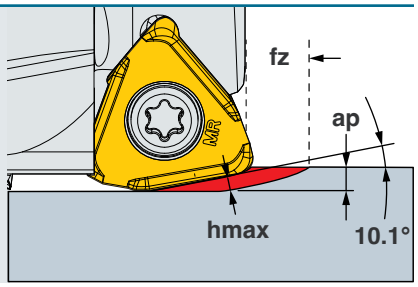
					Optional			
Part Number	Insert Screw*	Driver Handle	Driver Bit	Retention Bolt	Coolant Retention Bolt	Torque Driver Handle	Preset Torque Adapter	Torque Driver Bit
WG5G-WG6G (Ø 2.0"–2.5")	SM40-123-H0	DS-A00T	BLD T15/M7	SD06-48	SD06-89	DS-A00-25T	DT-35-.25	DS-T15B1
WG5G-WG6G (Ø 3.0")	SM40-123-H0	DS-A00T	BLD T15/M7	SD08-47	SD08-92	DS-A00-25T	DT-35-.25	DS-T15B1
WG5G-WG6G (Ø 4.0"–5.0")	SM40-123-H0	DS-A00T	BLD T15/M7	SD12-82	SD12-99	DS-A00-25T	DT-35-.25	DS-T15B1

*Insert screw tightening torque: 30–35 in lb

11mm • Operating Guidelines

AXIAL CHIP THINNING

NOTE: The operating guidelines table below includes a column for feed-per-tooth (fz). That column accounts for the axial chip thinning that's generated by the cutting-edge angle (lead angle). All WinFeedHF high-feed cutters have a 10.1° cutting edge angle resulting in an fz that is approximately 5x the recommended chip thickness (hex).



Materials				Vc Cutting Speed SFM	Hex Max. Chip Thickness (inch)	fz* Feed/Tooth (inch)	Harder «---» Tougher		Coolant	Geometry
ISO	Mat'l Group #VDI 3323	Type	Examples				IN2505	IN2530		MR
P	1-5	Non-alloy steel	1018, A36, 1045, A572, 1070	450-900	.006-.020	.029-.096	1	2	No	1
	6-9	Low-alloy steel	4140, 4340, P20, 8620, 300M	350-800	.005-.017	.024-.082	1	2	No	1
	10, 11	High-alloy steel	H13, A2, D2, M2, T1	250-600	.004-.014	.019-.067	1	2	No	1
K	15, 16	Gray cast iron	CLS. 20, 30, 45	500-1100	.006-.022	.029-.106	1	2	No	1
	17-20	Nodular cast iron	60-40-18, 100-70-03	350-850	.005-.018	.024-.087	1	2	No	1

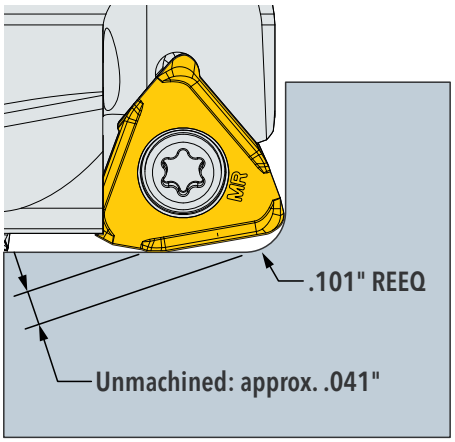
Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause for reductions in feeds and speed or dramatic increases. Additionally,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

11 mm • Programming Tips

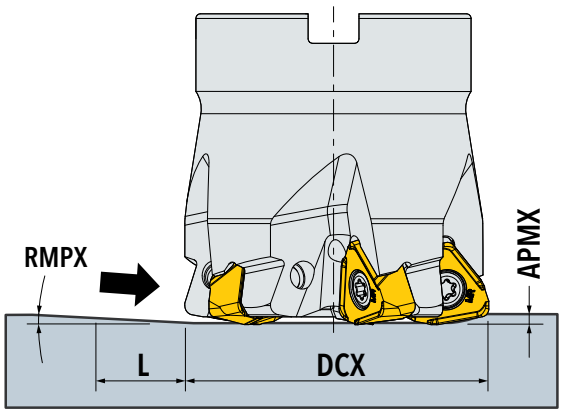
» The shape of the insert nose can be approximated by programming as-if the insert had a **.101"** corner radius (REEQ). The difference will result in an un-machined area that's approximately **.041"** deep.

» The recommendations for cutting speed, chip-thickness grade, and insert geometry are starting recommendations and should be optimized based on the type and rate of edge failure.

» The **Machining Calculator App**, on Ingersoll's website, is another resource for estimating and optimizing parameters. There are additional inputs like the radial width of cut and the effective rake angle can be included into the estimates.



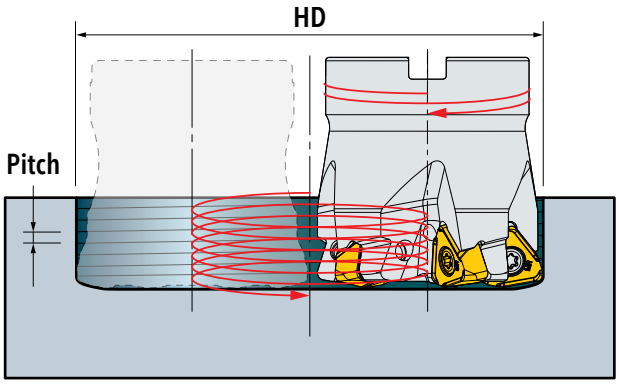
11 mm • Straight Ramping



DCX Cutting Dia. Max.	RMPX Ramp Angle Max.	L*	APMX Depth of Cut Max.
1.500	1.80	1.622	0.051
2.000	1.00	2.921	0.051
2.500	0.70	4.174	0.051
3.000	0.60	4.774	0.051
4.000	0.40	7.305	0.051
5.000	0.30	9.740	0.051

* L in this table is the length the cutter travels to reach the maximum depth of cut **(0.051")** while traveling at the maximum ramp angle listed for the cutter.

11 mm • Helical Ramping



DCX Cutting Dia. Max.	HD Hole Dia. Min.	HD Hole Dia. Max.	HD Hole Dia. Max. w/o Cusp Range	
1.500	2.070	3.000	2.083	2.157
2.000	3.058	4.000	2.585	2.661
2.500	4.054	5.000	3.086	3.162
3.000	5.054	6.000	3.587	3.663
4.000	7.052	8.000	4.588	4.664
5.000	9.050	10.000	5.588	5.664

PITCH

The maximum pitch is determined to not exceed the maximum depth of cut (APMX) and to not exceed the maximum ramp angle (RMPX).

EXAMPLE

» The minimum hole diameter that the **1.500"** diameter cutter can interpolate from solid is **2.070"** (leaving a raised cusp).

» The maximum hole diameter that the **1.500"** diameter cutter can interpolate from solid is **3.000"**.

» The maximum hole diameter that the **1.500"** diameter cutter can interpolate from solid while leaving a flat-bottom is a range **2.083-2.157"** (leaving no raised cusp).

» The maximum pitch for this series matches the insert's radial wiper length of **0.051"**.