NPA

EXPANSION

Member IMC Group Ingersoll Cutting Tools

New Product Announcement

MILLING - INDEXABLE

MAXSFEED™

Cutter Series (Depth of Cut)

- 1EJ5A End Mills (.185")
- 1EJ7A Face Mills (.185")
- 1EJ5B End Mills (.317")
- EJ5B, EJ6B Face Mills (.317")
- 1EJ5C End Mills (.385")
- EJ5C, EJ6C Face Mills (.385")
- EJ5D, EJ6D Face Mills (.479")
- NEW **2EJ3C, 2EJ1D 90° Long Edge (3.466")**

Insert Series

- CGM101R, CGX101R (5 mm)
- CGM212R (8 mm)
- CGM313R (11 mm)
- CGM324R (13 mm)

Geometry

- M: General Purpose
- ML: General Purpose - Keen Edge

Diameter Range

0.500–6.000"

Lead Angle

90°

Corner Radii

.015–.125"

Materials

- Steel
- Stainless Steel
- Cast Iron
- Non-Ferrous
- High-Temp Alloys
- Hardened Steel

NEW **Extended Flute Cutters - Full and Half Effective Series**

- Long edge end mill recommended for rough milling deep shoulders.
- Strong, double-sided, 4-corner tangential insert with positive edge geometry for smooth milling applications
- End mill and face mill bodies available from 0.5" to 6.0" diameter range.

See it in action! »

SFEEDUP™ HIGH SPEED & FEED EXPANSION

ingersoll-imc.com

Overview

Following the success of the **MaxSFeed** 5 mm, 11 mm, and 13 mm IC series of inserts and cutters, Ingersoll expands this family with new 8 mm IC inserts and associated cutter bodies.

Two new inserts have been added:

» **CGM212R00_-M** for general purpose milling

» **CGM212R00_-ML** for high-temp alloys, titanium alloys and stainless steel

New cylindrical shank tooling is also available for heavy duty milling chucks and ER style collets (available in the 8 mm series).

A new cutter body, 1EJ7A, has been added as well and utilizes the standard 5 mm IC insert along with Ingersoll's MultiSurfer shanks for an increased range of applications.

All MaxSFeed series inserts are optimized with our latest geometries for smooth machining and improved stability.

8 mm Expansion

FEATURES & BENEFITS:

- Four comprehensive series of tangential end mills and face mills offer versatility, productivity, and economy.
- Insert sizes of 5, 8, 11, and 13 mm give operators a wide range of diameter, density, and length-of-cut combinations to work with.
- Dovetailed insert mounting is a prominent feature for increased edge-life and improved cutter reliability.
- High performance, ground-profile inserts are shaped to minimize lap lines when shouldering – available in both heavy and light geometries.
- Economical utility inserts for situations that do not require the performance benefits of ground-profile inserts.
- MaxSFeed series of inserts are capable of straight ramping and helical interpolation.
- Premium milling grades and the latest post-coating treatment technology.

SCAN/CLICK/TAP to view the new, **MaxSFeed** exchangeable milling/slotting heads

NEW

11 mm and 13 mm Extended Flute Expansion

Ingersoll's popular MaxSFeed series continues to grow and now features a new line of extended flute milling cutters.

Utilizing the already popular CGM series of inserts, the new full and half effective long edge milling series achieves high metal removal rates increasing your overall productivity while achieving performance increases over older milling technology.

The half effective milling series excels when used in applications where reduced cutting forces are needed or where overall gage length increase over 3xD ratios.

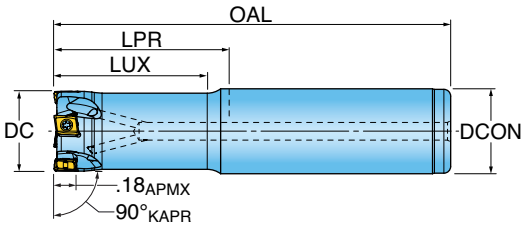
FEATURES & BENEFITS:

- Dovetailed profile design to ensure rigid and reliable insert clamping.
- Full effective 2EJC3 utilizes CGM313R series of inserts.
- Half effective 2EJ1D series utilizes CGM324R series of inserts.
- 4 edge inserts available with the latest grades and insert edge geometry.
- Suitable for various materials, steel, stainless steel, irons, and high-temp alloys.

Contents

5 mm • Series 1EJ5A

END MILL - CYLINDRICAL (5 MM INSERT)



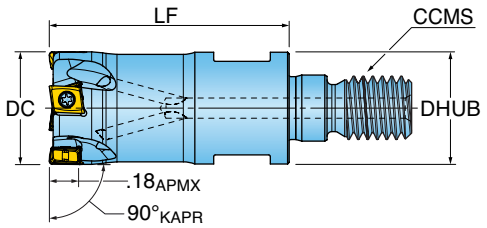
Part Number	DC Cutting Dia.	LUX Usable Length Max.	LPR Protruding Length	OAL Overall Length	ZEFF Effective Teeth	DCON Shank Dia.	RPMX Ramp Angle Max.
INCH							
1EJ5A-05009S4R01	0.500	0.800	1.000	2.780	2	0.500	1.60
1EJ5A-05009S4R02	0.500	0.800	1.000	2.780	3	0.500	1.60
1EJ5A-07015S7R01	0.750	1.300	1.500	3.500	3	0.750	0.97
1EJ5A-07015S7R02	0.750	1.300	1.500	3.500	4	0.750	0.97
1EJ5A-10015S1R01	1.000	1.300	1.500	3.750	5	1.000	0.69
1EJ5A-10015S1R02	1.000	1.300	1.500	3.750	6	1.000	0.69

Insert screw tightening torque: 10–14 in lb

Face | Shoulder | Channel | Ramp | Pocket | Corkscrew | Coolant

5 mm • Series 1EJ5A

END MILL - TOPON (5 MM INSERT)



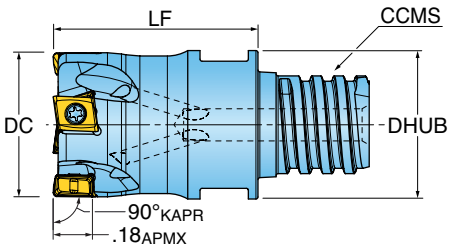
Part Number	DC Cutting Dia.	LF Functional Length	ZEFF Effective Teeth	CCMS Connection Code Machine Side	DHUB Hub Dia.	RPMX Ramp Angle Max.
INCH						
1EJ5A-05010X4R01	0.500	1.00	2	TopOn 6 mm	0.465	1.60
1EJ5A-05010X4R02	0.500	1.00	3	TopOn 6 mm	0.465	1.60
1EJ5A-07015X6R01	0.750	1.50	3	TopOn 10 mm	0.700	0.97
1EJ5A-07015X6R02	0.750	1.50	4	TopOn 10 mm	0.700	0.97
1EJ5A-10015X7R01	1.000	1.50	5	TopOn 12 mm	0.820	0.70
1EJ5A-10015X7R02	1.000	1.50	6	TopOn 12 mm	0.820	0.70

Insert screw tightening torque: 10–14 in lb

Face | Shoulder | Channel | Ramp | Pocket | Corkscrew | Coolant

5 mm • Series 1EJ5A

END MILL - CHIPSURFER (5 MM INSERT)



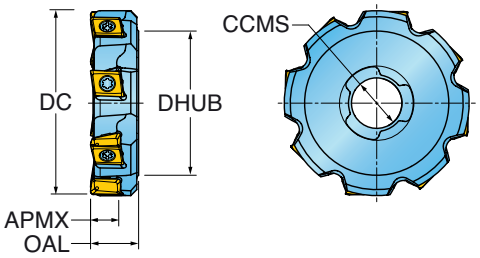
Part Number	DC Cutting Dia.	LF Functional Length	ZEFF Effective Teeth	CCMS Connection Code Machine Side	DHUB Hub Dia.	RPMX Ramp Angle Max.
INCH						
1EJ5A-05006T8R01	0.500	0.65	2	ChipSurfer T08	0.485	1.60
1EJ5A-05006T8R02	0.500	0.65	3	ChipSurfer T08	0.485	1.60
1EJ5A-07010TSR01	0.750	1.00	3	ChipSurfer T12	0.725	0.97
1EJ5A-07010TSR02	0.750	1.00	4	ChipSurfer T12	0.725	0.97

Insert screw tightening torque: 10–14 in lb

Face | Shoulder | Channel | Ramp | Corkscrew

5 mm • Series 1EJ7A NEW

FACE MILL - MULTISURFER ADAPTION (5 MM INSERT)

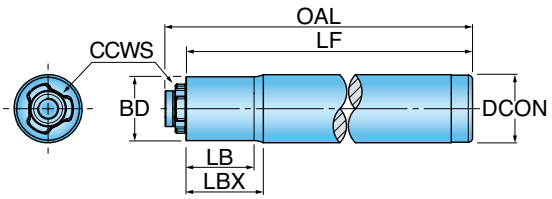


Part Number	DC Cutting Dia.	OAL Overall Length	DHUB Hub Dia.	ZEFF Effective Teeth	APMX Depth of Cut Max.	CCMS Connection Code Machine Side	RPMX Ramp Angle Max.
INCH							
1EJ7A-10032LQR01	1.000	0.315	0.748	6	0.185	MultiSurfer LQ	0.6
1EJ7A-12032LQR01	1.250	0.315	0.945	8	0.185	MultiSurfer LQ	0.4
1EJ7A-15040LRR01	1.500	0.394	1.220	10	0.185	MultiSurfer LR	0.3

Insert screw tightening torque: 10–14 in lb

5 mm • Series S_L_SA NEW

STEEL SHANK, NECKED - MULTISURFER ADAPTION

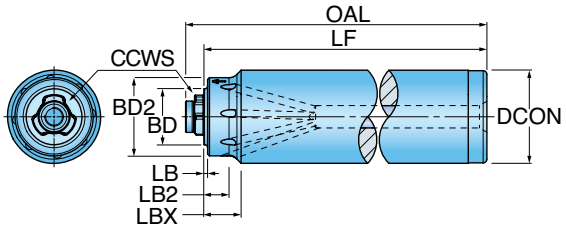


Part Number	CCWS Connection Code Workpiece Side	LB Body Length	LBX Body Length Max.	LF Functional Length	OAL Overall Length	BD Body Dia.	DCON Shank Dia.	BMC Body Material Code
INCH								
S062LPSA-05	MultiSurfer LP	0.600	0.650	4.000	4.170	0.510	0.625	Steel
S062LQSA-06	MultiSurfer LQ	0.700	0.720	4.000	4.190	0.590	0.625	Steel
S062LQSA-07	MultiSurfer LQ	0.780	0.800	5.000	5.190	0.590	0.625	Steel
S075LRSA-08	MultiSurfer LR	0.900	0.940	5.500	5.730	0.670	0.750	Steel
METRIC								
S016LPSA-16	MultiSurfer LP	13.00 mm	16.60 mm	100.00 mm	104.35 mm	13.00 mm	16.00 mm	Steel
S016LQSA-18	MultiSurfer LQ	16.00 mm	18.20 mm	100.00 mm	104.90 mm	15.00 mm	16.00 mm	Steel
S016LQSA-19	MultiSurfer LQ	16.00 mm	18.20 mm	130.00 mm	134.90 mm	15.00 mm	16.00 mm	Steel
S020LRSA-23	MultiSurfer LR	20.20 mm	23.80 mm	140.00 mm	146.00 mm	17.00 mm	20.00 mm	Steel

Note: Shank modifications can be made by cutting off the back to desired length or turning back the neck for more usable length.

5 mm • Series S_L_SA NEW

STEEL SHANK - MULTISURFER ADAPTION

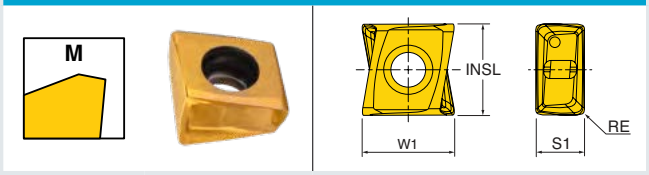


Part Number	CCWS Connection Code Workpiece Side	LB Body Length	LB2 Body Length 2	LBX Body Length Max.	LF Functional Length	OAL Overall Length	BD Body Dia.	BD2 Body Dia. 2	DCON Shank Dia.	CNSC Coolant Entry Style Code	CXSC Coolant Exit Style Code	BMC Body Material Code
INCH												
S075LPSA-03	MultiSurfer LP	0.030	0.300	0.380	4.250	4.420	0.510	0.625	0.750	1	1, 3	Steel
S100LQSA-03	MultiSurfer LQ	0.030	0.300	0.380	4.250	4.440	0.590	0.812	1.000	1	1, 3	Steel
S125LRSA-03	MultiSurfer LR	0.030	0.300	0.380	5.750	5.980	0.670	1.125	1.250	1	1, 3	Steel
METRIC												
S020LPSA-10	MultiSurfer LP	0.76 mm	7.60 mm	10.00 mm	100.00 mm	104.35 mm	13.00 mm	16.00 mm	20.00 mm	1	1, 3	Steel
S025LQSA-10	MultiSurfer LQ	0.76 mm	7.60 mm	10.00 mm	100.00 mm	104.90 mm	15.00 mm	21.00 mm	25.00 mm	1	1, 3	Steel
S032LRSA-10	MultiSurfer LR	0.76 mm	7.60 mm	10.00 mm	140.00 mm	146.00 mm	17.00 mm	28.00 mm	32.00 mm	1	1, 3	Steel

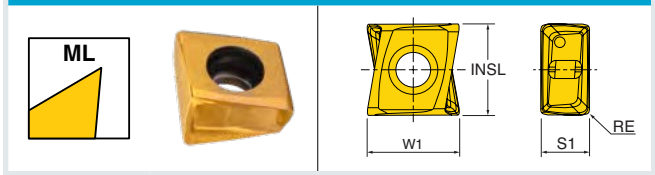
Note: Shank modifications can be made by cutting off the back to desired length or turning back the neck for more usable length.

5 mm • Inserts

CGM101R001-M



CGM101R001-ML



Part Number	Application	RE Corner Radius	INSL Insert Length	W1 Insert Width	S1 Thickness (Overall)	Grades		
						IN2510	IN2505	IN2530
CGM101R001-ML	General Purpose	0.015	0.197	0.197	0.106	•		•
CGX101R001-M	Utility	0.015	0.197	0.197	0.106	•	•	•

5 mm • Hardware

Part Number	Insert Screw*	Driver	Optional: Torque Driver Handle	Optional: Preset Torque Adapter	Optional: Torque Driver Bit
1EJ5A-05009S4R01	SM18-041-00	DS-TP06S-NEU	DS-A00-.25-S	DT-11-.25	DS-TP06B
1EJ5A-05009S4R02	SM18-041-00	DS-TP06S-NEU	DS-A00-.25-S	DT-11-.25	DS-TP06B
1EJ5A-07015S7R01	SM18-041-00	DS-TP06S-NEU	DS-A00-.25-S	DT-11-.25	DS-TP06B
1EJ5A-07015S7R02	SM18-041-00	DS-TP06S-NEU	DS-A00-.25-S	DT-11-.25	DS-TP06B
1EJ5A-10015S1R01	SM18-041-00	DS-TP06S-NEU	DS-A00-.25-S	DT-11-.25	DS-TP06B
1EJ5A-10015S1R02	SM18-041-00	DS-TP06S-NEU	DS-A00-.25-S	DT-11-.25	DS-TP06B
1EJ5A-05010X4R01	SM18-041-00	DS-TP06S-NEU	DS-A00-.25-S	DT-11-.25	DS-TP06B
1EJ5A-05010X4R02	SM18-041-00	DS-TP06S-NEU	DS-A00-.25-S	DT-11-.25	DS-TP06B
1EJ5A-07015X6R01	SM18-041-00	DS-TP06S-NEU	DS-A00-.25-S	DT-11-.25	DS-TP06B
1EJ5A-07015X6R02	SM18-041-00	DS-TP06S-NEU	DS-A00-.25-S	DT-11-.25	DS-TP06B
1EJ5A-10015X7R01	SM18-041-00	DS-TP06S-NEU	DS-A00-.25-S	DT-11-.25	DS-TP06B
1EJ5A-10015X7R02	SM18-041-00	DS-TP06S-NEU	DS-A00-.25-S	DT-11-.25	DS-TP06B
1EJ5A-05006T8R01	SM18-041-00	DS-TP06S-NEU	DS-A00-.25-S	DT-11-.25	DS-TP06B
1EJ5A-05006T8R02	SM18-041-00	DS-TP06S-NEU	DS-A00-.25-S	DT-11-.25	DS-TP06B
1EJ5A-07010TSR01	SM18-041-00	DS-TP06S-NEU	DS-A00-.25-S	DT-11-.25	DS-TP06B
1EJ5A-07010TSR02	SM18-041-00	DS-TP06S-NEU	DS-A00-.25-S	DT-11-.25	DS-TP06B
1EJ7A-10032LQR01	SM18-049-00	TD 6P	DS-A00-.25-S	DT-11-.25	DS-TP06B
1EJ7A-12032LQR01	SM18-049-00	TD 6P	DS-A00-.25-S	DT-11-.25	DS-TP06B
1EJ7A-15040LRR01	SM18-049-00	TD 6P	DS-A00-.25-S	DT-11-.25	DS-TP06B

*Insert screw tightening torque: 10–14 in lb

5 mm (MultiSurfer) • Hardware NEW

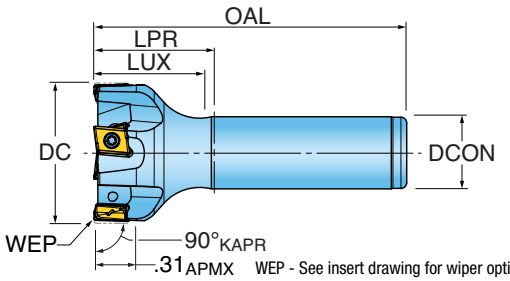
Part Number	Insert Screw*	Driver Handle	Torx Bit
S062LPSA-05	TS40T098/HG-P	DS-A00T	DS-TP156B
S062LQSA-06	TS50T110/HG-P	DS-A00T	DS-TP206B
S062LQSA-07	TS50T110/HG-P	DS-A00T	DS-TP206B
S075LRSA-08	TS60T130/HG-P	DS-A00T	DS-TP206B
S016LPSA-16	TS40T098/HG-P	DS-A00T	DS-TP156B
S016LQSA-18	TS50T110/HG-P	DS-A00T	DS-TP206B
S016LQSA-19	TS50T110/HG-P	DS-A00T	DS-TP206B
S020LRSA-23	TS60T130/HG-P	DS-A00T	DS-TP206B
S075LPSA-03	TS40T098/HG-P	DS-A00T	DS-TP156B
S100LQSA-03	TS50T110/HG-P	DS-A00T	DS-TP206B
S125LRSA-03	TS60T130/HG-P	DS-A00T	DS-TP206B
S020LPSA-10	TS40T098/HG-P	DS-A00T	DS-TP156B
S025LQSA-10	TS50T110/HG-P	DS-A00T	DS-TP206B
S032LRSA-10	TS60T130/HG-P	DS-A00T	DS-TP206B

*Insert screw tightening torque: 10–14 in lb

Face | Shoulder | Channel | Ramp | Pocket | Corkscrew | Coolant

8 mm • Series 1EJ5B NEW

END MILL - CYLINDRICAL (8 MM INSERT)



WEP - See insert drawing for wiper options.

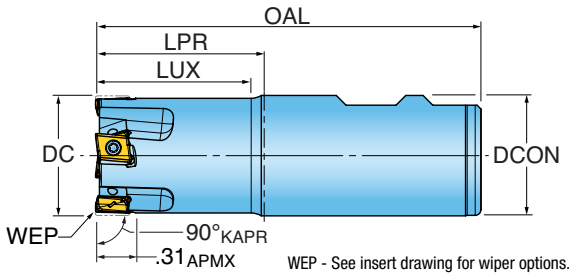
Part Number	DC Cutting Dia.	LUX Usable Length Max.	LPR Protruding Length	OAL Overall Length	ZEFF Effective Teeth	DCON Shank Dia.	RPMX Ramp Angle Max.
INCH							
1EJ5B-10012S7R01	1.000	1.250	1.250	3.250	3	0.750	1.41
1EJ5B-15012S7R01	1.500	1.250	1.250	3.250	4	0.750	0.84
1EJ5B-20012S7R01	2.000	1.250	1.250	3.250	5	0.750	0.60

Insert screw tightening torque: 14–18 in lb

Face | Shoulder | Channel | Ramp | Pocket | Corkscrew | Coolant

8 mm • Series 1EJ5B NEW

END MILL - WELDON (8 MM INSERT)



WEP - See insert drawing for wiper options.

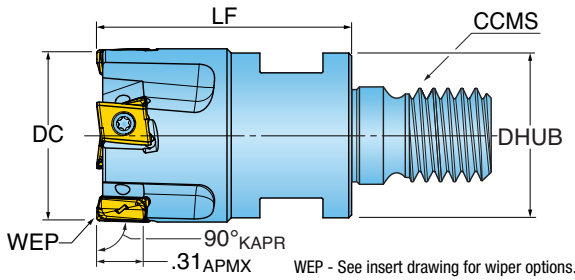
Part Number	DC Cutting Dia.	LUX Usable Length Max.	LPR Protruding Length	OAL Overall Length	ZEFF Effective Teeth	DCON Shank Dia.	RPMX Ramp Angle Max.
INCH							
1EJ5B-0701284R01	0.750	1.208	1.250	3.500	2	0.750	2.18
1EJ5B-0701280R01	0.750	0.968	1.250	3.500	2	1.000	2.18
1EJ5B-0701280R02	0.750	0.968	1.250	3.500	3	1.000	2.18
1EJ5B-0702280R01	0.750	1.968	2.250	4.500	2	1.000	2.18
1EJ5B-0703280R01	0.750	2.968	3.250	5.500	2	1.000	2.18
1EJ5B-1001780R01	1.000	1.624	1.750	4.000	3	1.000	1.41
1EJ5B-1001780R02	1.000	1.624	1.750	4.000	4	1.000	1.41
1EJ5B-1001784R01	1.000	1.750	1.750	3.750	3	0.750	1.41
1EJ5B-1003280R01	1.000	3.124	3.250	5.500	3	1.000	1.41
1EJ5B-1201781R01	1.250	1.615	1.750	4.000	3	1.250	1.05
1EJ5B-1201781R02	1.250	1.615	1.750	4.000	4	1.250	1.05
1EJ5B-1201781R03	1.250	1.615	1.750	4.000	5	1.250	1.05
1EJ5B-1201784R01	1.250	1.750	1.750	4.000	3	0.750	1.05
1EJ5B-1203281R01	1.250	3.115	3.250	5.500	4	1.250	1.05
1EJ5B-1501781R01	1.500	1.750	1.750	4.000	4	1.250	0.84
1EJ5B-1501781R02	1.500	1.750	1.750	4.000	5	1.250	0.84
1EJ5B-1501781R03	1.500	1.750	1.750	4.000	6	1.250	0.84
1EJ5B-1502281R01	1.500	2.250	2.250	4.500	5	1.250	0.84

Insert screw tightening torque: 14–18 in lb

Face | Shoulder | Channel | Ramp | Pocket | Corkscrew | Coolant

8 mm • Series 1EJ5B NEW

END MILL - TOPON (8 MM INSERT)



WEP - See insert drawing for wiper options.

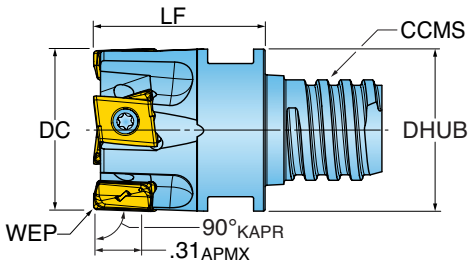
Part Number	DC Cutting Dia.	LF Functional Length	ZEFF Effective Teeth	CCMS Connection Code Machine Side	DHUB Hub Dia.	RPMX Ramp Angle Max.
INCH						
1EJ5B-07015X6R01	0.750	1.500	2	TopOn M10	0.725	2.18
1EJ5B-07015X6R02	0.750	1.500	3	TopOn M10	0.725	2.18
1EJ5B-10015X7R01	1.000	1.500	3	TopOn M12	0.817	1.41
1EJ5B-10015X7R02	1.000	1.500	4	TopOn M12	0.817	1.41
1EJ5B-12017X8R01	1.250	1.750	3	TopOn M16	1.320	1.05
1EJ5B-12017X8R02	1.250	1.750	4	TopOn M16	1.320	1.05
1EJ5B-12017X8R03	1.250	1.750	5	TopOn M16	1.320	1.05
1EJ5B-15015X9R01	1.500	1.750	4	TopOn M20	1.417	0.84
1EJ5B-15015X9R02	1.500	1.750	5	TopOn M20	1.417	0.84
1EJ5B-15015X9R03	1.500	1.750	6	TopOn M20	1.417	0.84

Insert screw tightening torque: 14–18 in lb

Face | Shoulder | Channel | Ramp | Pocket | Corkscrew | Coolant

8 mm • Series 1EJ5B NEW

END MILL - CHIPSURFER (8 MM INSERT)



WEP - See insert drawing for wiper options.

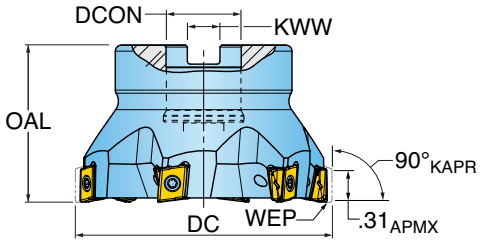
Part Number	DC Cutting Dia.	LF Functional Length	ZEFF Effective Teeth	CCMS Connection Code Machine Side	DHUB Hub Dia.	RPMX Ramp Angle Max.
INCH						
1EJ5B-07010TSR01	0.750	1.000	2	ChipSurfer T12	0.725	2.18
1EJ5B-07010TSR02	0.750	1.000	3	ChipSurfer T12	0.725	2.18
1EJ5B-10012TUR01	1.000	1.000	3	ChipSurfer T15	0.945	1.41
1EJ5B-10012TUR02	1.000	1.000	4	ChipSurfer T15	0.945	1.41

Insert screw tightening torque: 14–18 in lb

Face | Shoulder | Channel | Ramp | Pocket | Corkscrew | Coolant

8 mm • Series EJ5B, EJ6B NEW

FACE MILL (8 MM INSERT)



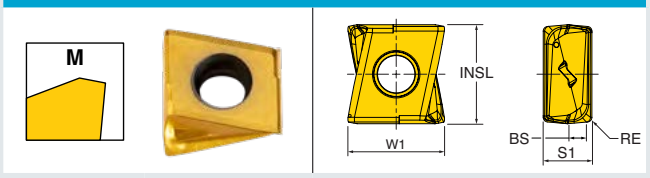
WEP - See insert drawing for wiper options.

Part Number	DC Cutting Dia.	OAL Overall Length	ZEFF Effective Teeth	DCON Bore Dia.	KWW Keyway	RPMX Ramp Angle Max.
INCH						
EJ5B-01R01	1.500	1.570	6	0.500	0.250	0.84
EJ6B-01R01	1.500	1.570	5	0.500	0.250	0.84
EJ5B-02R01	2.000	1.570	10	0.750	0.312	0.60
EJ5B-02R02	2.000	1.570	7	0.750	0.312	0.60
EJ6B-02R01	2.000	1.570	5	0.750	0.312	0.60
EJ5B-02R03	2.500	1.570	9	0.750	0.312	0.47
EJ6B-02R02	2.500	1.570	6	0.750	0.312	0.47
EJ5B-03R01	3.000	1.750	14	1.000	0.375	0.38
EJ5B-03R02	3.000	1.750	10	1.000	0.375	0.38
EJ6B-03R01	3.000	1.750	7	1.000	0.375	0.38

Insert screw tightening torque: 14–18 in lb

8 mm • Inserts NEW

CGM212R00_-M



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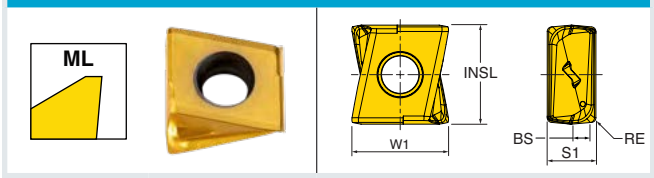


Part Number	Application	RE Corner Radius	BS Wiper Length	INSL Insert Length	W1 Insert Width	S1 Thickness	Grades										
							IN4040	IN2540	IN2510	IN4015	IN2515	IN4005	IN2505	IN4030	IN2530	IN4035	IN2535
CGM212R001-M	General Purpose	0.015	0.069	0.345	0.336	0.169	•	•	•	•	•	•	•	•	•		
CGM212R001-ML	General Purpose - Keen Edge	0.015	0.069	0.345	0.336	0.169	•	•	•	•	•	•	•	•	•	•	•
CGM212R002-M	General Purpose	0.031	0.053	0.345	0.333	0.169	•	•	•	•	•	•	•	•	•		
CGM212R002-ML	General Purpose - Keen Edge	0.031	0.053	0.345	0.332	0.169	•	•	•	•	•	•	•	•	•	•	•
CGM212R003-M	General Purpose	0.062	0.022	0.345	0.325	0.169	•	•	•	•	•	•	•	•	•		
CGM212R003-ML	General Purpose - Keen Edge	0.062	0.022	0.345	0.324	0.169	•	•	•	•	•	•	•	•	•	•	•

8 mm • Hardware NEW

			Optional		
Part Number	 Insert Screw*	 Driver	 Torque Driver Handle	 Preset Torque Adapter	 Torque Driver Bit
1EJ5B-0701284R01	SM30-074-21	DS-0020	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-0701280R01	SM30-074-21	DS-0020	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-0701280R02	SM30-074-21	DS-0020	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-0702280R01	SM30-074-21	DS-0020	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-0703280R01	SM30-074-21	DS-0020	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-1001780R01	SM30-082-81	DS-0020	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-1001780R02	SM30-082-81	DS-0020	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-1001784R01	SM30-082-81	DS-0020	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-1003280R01	SM30-082-81	DS-0020	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-1201781R01	SM30-082-81	DS-0020	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-1201781R02	SM30-082-81	DS-0020	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-1201781R03	SM30-082-81	DS-0020	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-1201784R01	SM30-082-81	DS-0020	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-1203281R01	SM30-082-81	DS-0020	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-1501781R01	SM30-082-21	DS-0020	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-1501781R02	SM30-082-21	DS-0020	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-1501781R03	SM30-082-21	DS-0020	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-1502281R01	SM30-082-21	DS-0020	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-10012S7R01	SM30-082-81	DS-0020	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-15012S7R01	SM30-082-21	DS-0020	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-20012S7R01	SM30-082-21	DS-0020	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-07015X6R01	SM30-074-21	DS-0020	DS-A00-.25-S	DT-18-.25	DS-0021

*Insert screw tightening torque: 14–18 in lb

8 MM HARDWARE CONTINUES ON NEXT PAGE

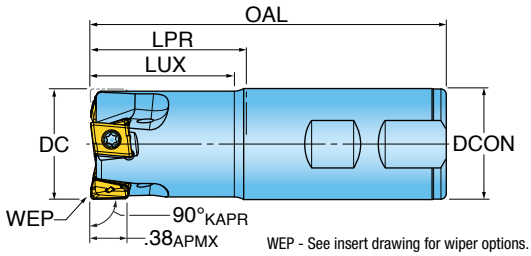
8 mm • Hardware (continued) NEW

				Optional			
Part Number	 Insert Screw*	 Driver	 Retention Bolt	 Coolant Bolt	 Torque Driver Handle	 Preset Torque Adapter	 Torque Driver Bit
1EJ5B-07015X6R02	SM30-074-21	DS-0020	–	–	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-10015X7R01	SM30-082-81	DS-0020	–	–	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-10015X7R02	SM30-082-81	DS-0020	–	–	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-12017X8R01	SM30-082-81	DS-0020	–	–	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-12017X8R02	SM30-082-81	DS-0020	–	–	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-12017X8R03	SM30-082-81	DS-0020	–	–	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-15015X9R01	SM30-082-21	DS-0020	–	–	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-15015X9R02	SM30-082-21	DS-0020	–	–	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-15015X9R03	SM30-082-21	DS-0020	–	–	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-07010TSR01	SM30-074-21	DS-0020	–	–	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-07010TSR02	SM30-074-21	DS-0020	–	–	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-10012TUR01	SM30-082-81	DS-0020	–	–	DS-A00-.25-S	DT-18-.25	DS-0021
1EJ5B-10012TUR02	SM30-082-81	DS-0020	–	–	DS-A00-.25-S	DT-18-.25	DS-0021
EJ5B-01R01	SM30-082-21	DS-0020	SD04-47	–	DS-A00-.25-S	DT-18-.25	DS-0021
EJ6B-01R01	SM30-082-21	DS-0020	SD04-47	–	DS-A00-.25-S	DT-18-.25	DS-0021
EJ5B-02R01	SM30-082-21	DS-0020	SD06-46	SD06-89	DS-A00-.25-S	DT-18-.25	DS-0021
EJ5B-02R02	SM30-082-21	DS-0020	SD06-46	SD06-89	DS-A00-.25-S	DT-18-.25	DS-0021
EJ6B-02R01	SM30-082-21	DS-0020	SD06-46	SD06-89	DS-A00-.25-S	DT-18-.25	DS-0021
EJ5B-02R03	SM30-082-21	DS-0020	SD06-46	SD06-89	DS-A00-.25-S	DT-18-.25	DS-0021
EJ6B-02R02	SM30-082-21	DS-0020	SD06-46	SD06-89	DS-A00-.25-S	DT-18-.25	DS-0021
EJ5B-03R01	SM30-082-21	DS-0020	SD08-46	SD08-92	DS-A00-.25-S	DT-18-.25	DS-0021
EJ5B-03R02	SM30-082-21	DS-0020	SD08-46	SD08-92	DS-A00-.25-S	DT-18-.25	DS-0021
EJ6B-03R01	SM30-082-21	DS-0020	SD08-46	SD08-92	DS-A00-.25-S	DT-18-.25	DS-0021

*Insert screw tightening torque: 14–18 in lb

11 mm • Series 1EJ5C

END MILL - WELDON (11 MM INSERT)



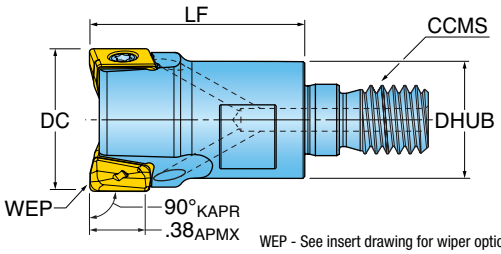
WEP - See insert drawing for wiper options.

Part Number	DC Cutting Dia.	LUX Usable Length Max.	LPR Protruding Length	OAL Overall Length	ZEFF Effective Teeth	DCON Shank Dia.	RPMX Ramp Angle Max.
INCH							
1EJ5C-1001780R01	1.000	1.550	1.750	4.000	2	1.000	1.99
1EJ5C-1001784R01	1.000	1.750	1.750	3.750	2	0.750	1.99
1EJ5C-1003780R01	1.000	3.550	3.750	6.000	2	1.000	1.99
1EJ5C-1201780R01	1.250	1.750	1.750	4.000	3	1.000	1.41
1EJ5C-1201781R01	1.250	1.550	1.750	4.000	3	1.250	1.41
1EJ5C-1204281R01	1.250	4.050	4.250	6.500	3	1.250	1.41
1EJ5C-1501781R01	1.500	1.550	1.750	4.000	4	1.250	1.08
1EJ5C-1501781R02	1.500	1.550	1.750	4.000	3	1.250	1.08
1EJ5C-1504281R02	1.500	4.050	4.250	6.500	3	1.250	1.08

Insert screw tightening torque: 25–30 in lb

11 mm • Series 1EJ5C

END MILL - TOPON (11 MM INSERT)



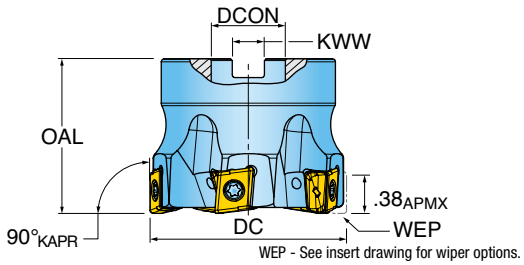
WEP - See insert drawing for wiper options.

Part Number	DC Cutting Dia.	LF Functional Length	ZEFF Effective Teeth	CCMS Connection Code Machine Side	DHUB Hub Dia.	RPMX Ramp Angle Max.
INCH						
1EJ5C-10015X7R01	1.000	1.500	2	TopOn 12 mm	0.820	1.99
1EJ5C-12017X8R01	1.250	1.750	3	TopOn 16 mm	1.135	1.41

Insert screw tightening torque: 25–30 in lb

11 mm • Series EJ5C, EJ6C

FACE MILL (11 MM INSERT)



WEP - See insert drawing for wiper options.

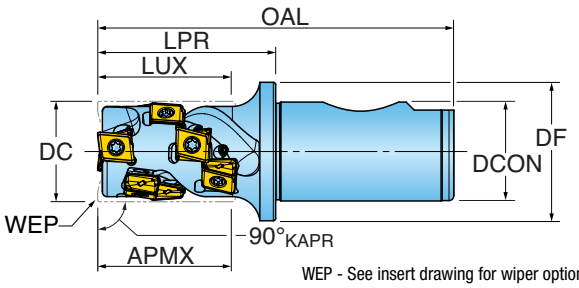
Part Number	DC Cutting Dia.	OAL Overall Length	ZEFF Effective Teeth	DCON Bore Dia.	KWW Keyway	RPMX Ramp Angle Max.
INCH						
EJ5C-01R01	1.500	1.570	5	0.500	0.250	1.08
EJ6C-01R01	1.500	1.570	4	0.500	0.250	1.08
EJ5C-02R01	2.000	1.570	6	0.750	0.312	0.76
EJ6C-02R01	2.000	1.570	5	0.750	0.312	0.76
EJ5C-02R02	2.500	1.570	7	0.750	0.312	0.58
EJ6C-02R02	2.500	1.570	6	0.750	0.312	0.58
EJ5C-03R01	3.000	2.375	9	1.000	0.375	0.47
EJ6C-03R01	3.000	2.375	7	1.000	0.375	0.47
EJ5C-04R01	4.000	2.375	13	1.500	0.625	0.34
EJ6C-04R01	4.000	2.375	9	1.500	0.625	0.34

Insert screw tightening torque: 25–30 in lb

Face Shoulder Channel Ramp Pocket Corkscrew Coolant

11 mm • Series 2EJ3C NEW

EXTENDED FLUTE END MILL – WELDON (11 MM INSERT, FULL EFFECTIVE)



WEP - See insert drawing for wiper options.

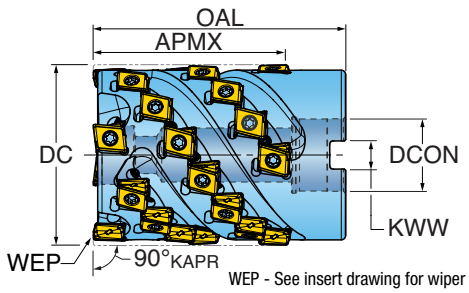
Part Number	DC Cutting Dia.	APMX Depth of Cut Max.	LUX Usable Length Max.	LPR Protruding Length	OAL Overall Length	ZEFF Eff. Teeth Face	ZEFP Eff. Teeth Periph.	ZNF Face Insert Count	ZNP Periph. Insert Count	NOF Flute Count	DCON Shank Dia.	DF Flange Dia.	RPMX Ramp Angle Max.
INCH													
2EJ3C-1201781R01	1.250	1.041	1.200	1.750	4.000	2	2	2	4	2	1.250	1.750	1.41°
2EJ3C-1202081R01	1.250	1.369	1.450	2.000	4.250	2	2	2	6	2	1.250	1.750	1.41°
2EJ3C-1202281R01	1.250	1.696	1.700	2.250	4.500	2	2	2	8	2	1.250	1.750	1.41°
2EJ3C-1502081R01	1.500	1.368	1.500	2.000	4.250	2	2	2	6	2	1.250	1.750	1.08°
2EJ3C-2002581R01	2.000	2.019	2.500	2.500	4.750	3	3	3	15	3	1.250	–	0.76°

Note: Total number of inserts = ZNF + ZNP.
Insert screw tightening torque: 25–30 in lb

Face Shoulder Channel Ramp Pocket Corkscrew Coolant

11 mm • Series 2EJ3C NEW

EXTENDED FLUTE SHELL MILL (11 MM INSERT, FULL EFFECTIVE)



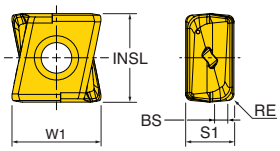
WEP - See insert drawing for wiper options.

Part Number	DC Cutting Dia.	APMX Depth of Cut Max.	OAL Overall Length	ZEFF Eff. Teeth Face	ZEFP Eff. Teeth Periphery	ZNF Face Insert Count	ZNP Peripheral Insert Count	NOF Flute Count	DCON Bore Dia.	KWW Keyway	RPMX Ramp Angle Max.
INCH											
2EJ3C-20027D1R01	2.000	2.019	2.750	3	3	3	15	3	0.750	0.312	0.76°
2EJ3C-25035D3R01	2.500	2.672	3.500	4	4	4	28	4	1.000	0.375	0.58°
2EJ3C-30037D4R01	3.000	2.997	3.750	5	5	5	40	5	1.250	0.500	0.47°

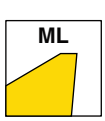
Note: Total number of inserts = ZNF + ZNP.
Insert screw tightening torque: 25–30 in lb

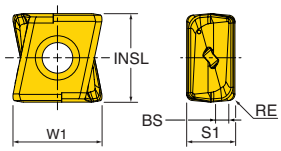
11 mm • Inserts

CGM313R00_-M



CGM313R00_-ML





Part Number	Application	RE Corner Radius	BS Wiper Length	INSL Insert Length	W1 Insert Width	S1 Thickness	Grades							
							IN4015	IN2515	IN4005	IN2505	IN4030	IN2530	IN4035	IN2535
CGM313R001-M	General Purpose	0.031	0.079	0.433	0.436	0.236	•	•	•	•	•	•		
CGM313R001-ML	General Purpose, Keen Edge	0.031	0.079	0.433	0.436	0.236	•	•	•	•	•	•	•	•
CGM313R002-M	General Purpose	0.062	0.047	0.433	0.436	0.236	•	•	•	•	•	•		
CGM313R002-ML	General Purpose, Keen Edge	0.062	0.047	0.433	0.436	0.236	•	•	•	•	•	•	•	•

11 mm • Hardware

Part Number	Insert Screw*	Driver Handle	Driver Bit	Optional: Retention Bolt	Optional: Torque Driver Handle	Optional: Preset Torque Adapter	Optional: Torque Driver Bit
1EJ5C-1001780R01	SM35-095-H0	DS-A00T	DS-T156B	-	DS-A00-.25-T	DT-35-.25	DS-T15B
1EJ5C-1001784R01	SM35-095-H0	DS-A00T	DS-T156B	-	DS-A00-.25-T	DT-35-.25	DS-T15B
1EJ5C-1003780R01	SM35-095-H0	DS-A00T	DS-T156B	-	DS-A00-.25-T	DT-35-.25	DS-T15B
1EJ5C-1201780R01	SM35-107-H0	DS-A00T	DS-T156B	-	DS-A00-.25-T	DT-35-.25	DS-T15B
1EJ5C-1201781R01	SM35-107-H0	DS-A00T	DS-T156B	-	DS-A00-.25-T	DT-35-.25	DS-T15B
1EJ5C-1204281R01	SM35-107-H0	DS-A00T	DS-T156B	-	DS-A00-.25-T	DT-35-.25	DS-T15B
1EJ5C-1501781R01	SM35-107-H0	DS-A00T	DS-T156B	-	DS-A00-.25-T	DT-35-.25	DS-T15B
1EJ5C-1501781R02	SM35-107-H0	DS-A00T	DS-T156B	-	DS-A00-.25-T	DT-35-.25	DS-T15B
1EJ5C-1504281R02	SM35-107-H0	DS-A00T	DS-T156B	-	DS-A00-.25-T	DT-35-.25	DS-T15B
1EJ5C-10015X7R01	SM35-095-H0	DS-A00T	DS-T156B	-	DS-A00-.25-T	DT-35-.25	DS-T15B
1EJ5C-12017X8R01	SM35-107-H0	DS-A00T	DS-T156B	-	DS-A00-.25-T	DT-35-.25	DS-T15B
EJ5C-01R01	SM35-107-H0	DS-A00T	DS-T156B	SD04-47	DS-A00-.25-T	DT-35-.25	DS-T15B
EJ6C-01R01	SM35-107-H0	DS-A00T	DS-T156B	SD04-47	DS-A00-.25-T	DT-35-.25	DS-T15B
EJ5C-02R01	SM35-107-H0	DS-A00T	DS-T156B	SD06-47	DS-A00-.25-T	DT-35-.25	DS-T15B
EJ6C-02R01	SM35-107-H0	DS-A00T	DS-T156B	SD06-47	DS-A00-.25-T	DT-35-.25	DS-T15B
EJ5C-02R02	SM35-107-H0	DS-A00T	DS-T156B	SD06-47	DS-A00-.25-T	DT-35-.25	DS-T15B
EJ6C-02R02	SM35-107-H0	DS-A00T	DS-T156B	SD06-47	DS-A00-.25-T	DT-35-.25	DS-T15B
EJ5C-03R01	SM35-107-H0	DS-A00T	DS-T156B	SD08-43	DS-A00-.25-T	DT-35-.25	DS-T15B
EJ6C-03R01	SM35-107-H0	DS-A00T	DS-T156B	SD08-43	DS-A00-.25-T	DT-35-.25	DS-T15B
EJ5C-04R01	SM35-107-H0	DS-A00T	DS-T156B	SD12-89	DS-A00-.25-T	DT-35-.25	DS-T15B
EJ6C-04R01	SM35-107-H0	DS-A00T	DS-T156B	SD12-89	DS-A00-.25-T	DT-35-.25	DS-T15B

*Insert screw tightening torque: 25–30 in lb

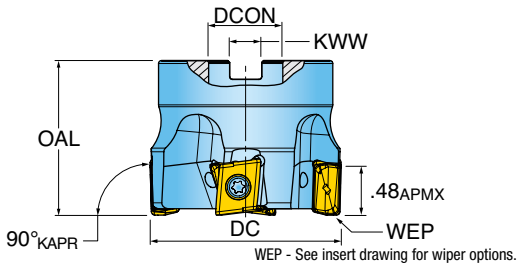
11 mm (Extended Flute / Series 2EJ3C) NEW

Part Number	Insert Screw*	Driver Handle	Driver Bit	Retention Bolt	Optional: Torque Driver Handle	Optional: Preset Torque Adapter	Optional: Torque Driver Bit
2EJ3C-1201781R01	SM35-107-H0	DS-A00T	DS-T156B	-	DS-A00-.25-T	DT-30-.25	DS-T15B
2EJ3C-1202081R01	SM35-107-H0	DS-A00T	DS-T156B	-	DS-A00-.25-T	DT-30-.25	DS-T15B
2EJ3C-1202281R01	SM35-107-H0	DS-A00T	DS-T156B	-	DS-A00-.25-T	DT-30-.25	DS-T15B
2EJ3C-1502081R01	SM35-107-H0	DS-A00T	DS-T156B	-	DS-A00-.25-T	DT-30-.25	DS-T15B
2EJ3C-2002581R01	SM35-107-H0	DS-A00T	DS-T156B	-	DS-A00-.25-T	DT-30-.25	DS-T15B
2EJ3C-20027D1R01	SM35-107-H0	DS-A00T	DS-T156B	SD-06-A2	DS-A00-.25-T	DT-30-.25	DS-T15B
2EJ3C-25035D3R01	SM35-107-H0	DS-A00T	DS-T156B	SD08-81	DS-A00-.25-T	DT-30-.25	DS-T15B
2EJ3C-30037D4R01	SM35-107-H0	DS-A00T	DS-T156B	SD10-54	DS-A00-.25-T	DT-30-.25	DS-T15B

*Insert screw tightening torque: 25–30 in lb

13 mm • Series EJ5D, EJ6D

FACE MILL (13 MM INSERT)



WEP - See insert drawing for wiper options.

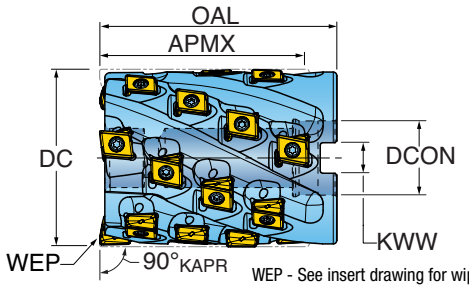
Part Number	DC Cutting Dia.	OAL Overall Length	ZEFF Effective Teeth	DCON Bore Dia.	KWW Keyway	RPMX Ramp Angle Max.
INCH						
EJ5D-02R01	2.000	1.570	5	0.750	0.312	0.98
EJ6D-02R01	2.000	1.570	4	0.750	0.312	0.98
EJ5D-02R02	2.500	1.570	6	0.750	0.312	0.75
EJ5D-02R03	2.500	1.570	6	1.000	0.375	0.75
EJ6D-02R02	2.500	1.570	5	0.750	0.312	0.75
EJ5D-03R01	3.000	2.000	7	1.000	0.375	0.60
EJ6D-03R01	3.000	2.000	5	1.000	0.375	0.60
EJ5D-04R01	4.000	2.375	9	1.500	0.625	0.44
EJ6D-04R01	4.000	2.375	7	1.250	0.500	0.44
EJ6D-04R02	4.000	2.375	7	1.500	0.625	0.44
EJ6D-05R01	5.000	2.500	11	1.500	0.625	0.34
EJ6D-06R01	6.000	2.500	13	1.500	0.625	0.28

Insert screw tightening torque: 30–35 in lb

Face | Shoulder | Channel | Ramp | Pocket | Corkscrew | Coolant

13 mm • Series 2EJ1D NEW

EXTENDED FLUTE SHELL MILL (13 MM INSERT, HALF EFFECTIVE)



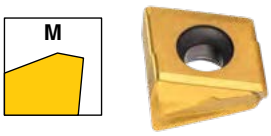
WEP - See insert drawing for wiper options.

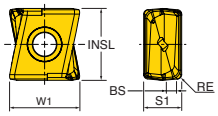
Part Number	DC Cutting Dia.	APMX Depth of Cut Max.	OAL Overall Length	ZEFF Eff. Teeth Face	ZEFP Eff. Teeth Periphery	ZNF Face Insert Count	ZNP Peripheral Insert Count	NOF Flute Count	DCON Bore Dia.	KWW Keyway	RPMX Ramp Angle Max.
INCH											
2EJ1D-20040D3R01	2.000	3.466	4.250	2	2	2	14	4	1.000	0.375	0.98°
2EJ1D-25040D3R01	2.500	3.466	4.250	2	2	2	14	4	1.000	0.375	0.75°
2EJ1D-30040D4R01	3.000	3.465	4.000	3	3	3	24	6	1.250	0.500	0.60°
2EJ1D-40040D5R01	4.000	3.465	4.000	4	4	4	28	8	1.500	0.625	0.44°

Note: Total number of inserts = ZNF + ZNP.
Insert screw tightening torque: 30–35 in lb

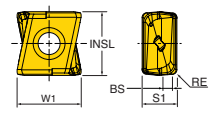
13 mm • Inserts

CGM324R00_-M





CGM324R00_-ML



Part Number	Application	RE Corner Radius	BS Wiper Length	INSL Insert Length	W1 Insert Width	S1 Thickness	Grades							
							IN4015	IN2515	IN4005	IN2505	IN4030	IN2530	IN4035	IN2535
CGM324R001-M	General Purpose	0.031	0.099	0.531	0.518	0.281	•	•	•	•	•	•		
CGM324R001-ML	General Purpose, Keen Edge	0.031	0.099	0.531	0.518	0.281	•	•	•	•	•	•	•	•
CGM324R002-M	General Purpose	0.062	0.067	0.531	0.518	0.281	•	•	•	•	•	•		
CGM324R002-ML	General Purpose, Keen Edge	0.062	0.067	0.531	0.518	0.281	•	•	•	•	•	•	•	•
CGM324R004-M	General Purpose	0.125	0.005	0.531	0.518	0.281	•	•	•	•	•	•		

13 mm • Hardware

Part Number	Insert Screw*	Driver Handle	Driver Bit	Optional: Retention Bolt	Optional: Torque Driver Handle	Optional: Preset Torque Adapter	Optional: Torque Driver Bit
EJ5D-02R01	SM40-123-H0	DS-A00T	DS-T156B	SD06-47	DS-A00-.25-T	DT-35-.25	DS-T15B
EJ6D-02R01	SM40-123-H0	DS-A00T	DS-T156B	SD06-47	DS-A00-.25-T	DT-35-.25	DS-T15B
EJ5D-02R02	SM40-123-H0	DS-A00T	DS-T156B	SD06-47	DS-A00-.25-T	DT-35-.25	DS-T15B
EJ5D-02R03	SM40-123-H0	DS-A00T	DS-T156B	SD08-46	DS-A00-.25-T	DT-35-.25	DS-T15B
EJ6D-02R02	SM40-123-H0	DS-A00T	DS-T156B	SD06-47	DS-A00-.25-T	DT-35-.25	DS-T15B
EJ5D-03R01	SM40-123-H0	DS-A00T	DS-T156B	SD08-46	DS-A00-.25-T	DT-35-.25	DS-T15B
EJ6D-03R01	SM40-123-H0	DS-A00T	DS-T156B	SD08-46	DS-A00-.25-T	DT-35-.25	DS-T15B
EJ5D-04R01	SM40-123-H0	DS-A00T	DS-T156B	SD12-89	DS-A00-.25-T	DT-35-.25	DS-T15B
EJ6D-04R01	SM40-123-H0	DS-A00T	DS-T156B	SD10-49	DS-A00-.25-T	DT-35-.25	DS-T15B
EJ6D-04R02	SM40-123-H0	DS-A00T	DS-T156B	SD12-89	DS-A00-.25-T	DT-35-.25	DS-T15B
EJ6D-05R01	SM40-123-H0	DS-A00T	DS-T156B	SD12-89	DS-A00-.25-T	DT-35-.25	DS-T15B
EJ6D-06R01	SM40-123-H0	DS-A00T	DS-T156B	SD12-89	DS-A00-.25-T	DT-35-.25	DS-T15B

*Insert screw tightening torque: 30–35 in lb

13 mm (Extended Flute / Series 2EJ1D) NEW

Part Number	Insert Screw*	Driver Handle	Driver Bit	Retention Bolt	Optional: Torque Driver Handle	Optional: Preset Torque Adapter	Optional: Torque Driver Bit
2EJ1D-20040D3R01	SM40-123-H0	DS-A00T	DS-T156B	SD08-97	DS-A00-.25-T	DT-35-.25	DS-T15B
2EJ1D-25040D3R01	SM40-123-H0	DS-A00T	DS-T156B	SD08-97	DS-A00-.25-T	DT-35-.25	DS-T15B
2EJ1D-30040D4R01	SM40-123-H0	DS-A00T	DS-T156B	SD10-B5	DS-A00-.25-T	DT-35-.25	DS-T15B
2EJ1D-40040D5R01	SM40-123-H0	DS-A00T	DS-T156B	SD12-54	DS-A00-.25-T	DT-35-.25	DS-T15B

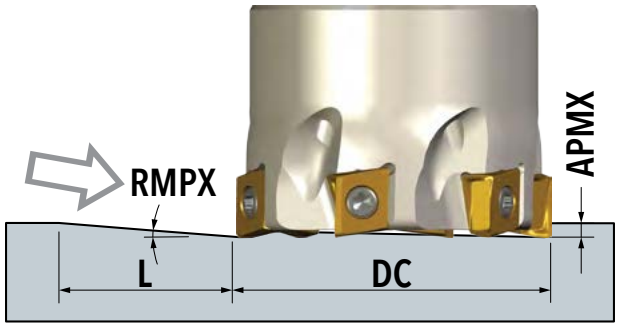
*Insert screw tightening torque: 30–35 in lb

5 mm • Operating Guidelines

Materials				Vc Cutting Speed SFM	fz* Feed/Tooth (inch)	Harder «---» Tougher			Coolant	Geometry	
ISO	Material Group #VDI 3323	Type	Examples			IN2510	IN2505	IN2530		M	ML
P	1–5	Non-alloy steel	1018, A36, 1045, A572, 1070	400–850	.0015–.0030	–	1	2	No	2	1
	6–9	Low-alloy steel	4140, 4340, P20, 8620, 300M	350–500	.0015–.0030	–	1	2	No	2	1
	10, 11	High-alloy steel	H13, A2, D2, M2, T1	250–500	.0015–.0030	–	1	2	No	1	2
M	12, 13	Stainless steel (ferritic & martensitic)	410, 416, 440	350–550	.0015–.0030	–	2	1	Yes	2	1
	14	Stainless steel (austenitic)	303, 304, 316, 15-5, 17-4	300–500	.0015–.0030	–	2	1	May not be required at high speeds	2	1
K	15, 16	Gray cast iron	CLS. 20, 30, 45	500–700	.0015–.0030	1	2	3	No	2	1
	17, 18	Nodular cast iron	60-40-18, 100-70-03	400–650	.0015–.0030	2	1	3	No	1	2
N	21–30	Aluminum	7075, 6061	1000+	.0015–.0030	1	–	2	–	–	1
S	31–35	High-temp alloys	Inconel, Hastelloy, Monel	60–130	.0015–.0030	–	2	1	Yes	2	1
	36, 37	Titanium alloys	6Al-4V, 5Al-5Mo-5V-3Cr	65–150	.0015–.0030	–	2	1	Yes	2	1
H	38, 39	Hardened steel >48	A2, O1, D2	150–400	.0015–.0030	–	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.

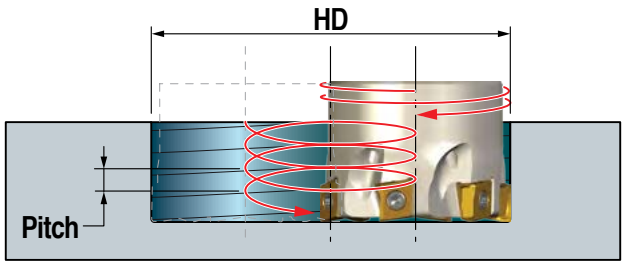
5 mm • Straight Ramping



DCX Cutting Dia. Max.	RMPX Ramp Angle Max.	L*	APMX Depth of Cut Max.
0.500	1.60	6.620	0.185
0.750	0.97	10.930	0.185
1.000	0.69	15.360	0.185

* L in this table is the length the cutter travels to reach the maximum depth of cut **(.185")** while traveling at the maximum ramp angle listed for the cutter.

5 mm • Helical Ramping



PITCH

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

DCX Cutting Dia. Max.	HD Hole Dia. Min.	HD Hole Dia. Max.	HD Hole Dia. Max. w/o Cusp	Max. Pitch Per Revolution
0.500	0.808	1.000	0.970	0.037
0.750	1.306	1.500	1.470	0.034
1.000	1.806	2.000	1.970	0.032

EXAMPLE

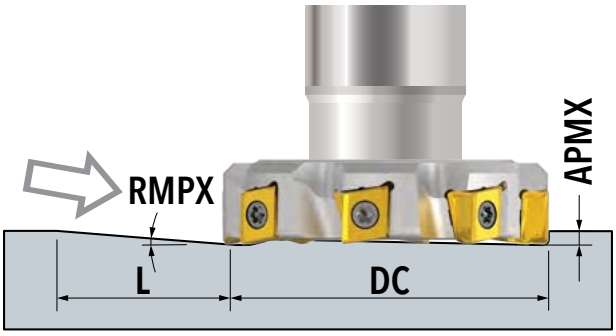
» The minimum hole diameter that the **.500"** diameter cutter can interpolate from solid is **.808"** (leaving a raised cusp).

» The maximum hole diameter that the **.500"** diameter cutter can interpolate from solid is **1.000"**.

» The maximum hole diameter that the **.500"** diameter cutter can interpolate from solid while leaving a flat-bottom is **.970"** (leaving no raised cusp).

» The maximum pitch for this series matches the insert's radial wiper length of **.040"**.

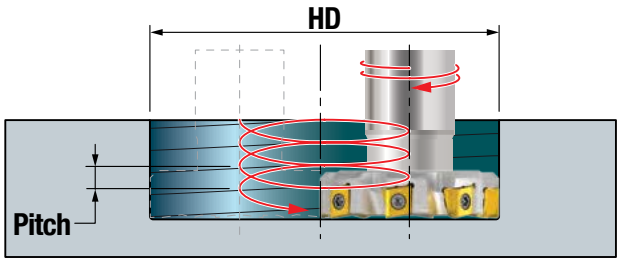
5 mm (MultiSurfer) • Straight Ramping



DCX Cutting Dia. Max.	RMPX Ramp Angle Max.	L*	APMX Depth of Cut Max.
1.000	0.6	17.300	0.185
1.250	0.4	26.000	0.185
1.500	0.3	34.600	0.185

* L in this table is the length the cutter travels to reach the maximum depth of cut **(.185")** while traveling at the maximum ramp angle listed for the cutter.

5 mm (MultiSurfer) • Helical Ramping



PITCH

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

DCX Cutting Dia. Max.	HD Hole Dia. Min.	HD Hole Dia. Max.	HD Hole Dia. Max. w/o Cusp	Max. Pitch Per Revolution
1.000	1.90	-	0.970	0.0010
-	-	2.00	-	0.0011
1.250	2.40	-	1.470	0.0214
-	-	2.50	-	0.0233
1.500	2.90	-	1.970	0.0196
-	-	3.00	-	0.0210

EXAMPLE

» The minimum hole diameter that the **1.000"** diameter cutter can interpolate from solid is **1.90"** (leaving a raised cusp).

» The maximum hole diameter that the **1.000"** diameter cutter can interpolate from solid is **2.00"**.

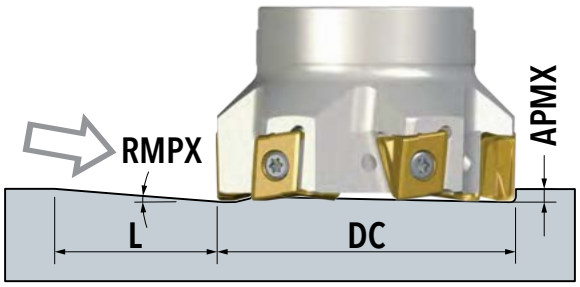
» The maximum hole diameter that the **1.000"** diameter cutter can interpolate from solid while leaving a flat-bottom is **.970"** (leaving no raised cusp).

8 mm • Operating Guidelines

Materials				Vc Cutting Speed SFM	fz* Feed/ Tooth (inch)	Harder «----------» Tougher							Coolant	Geometry	
ISO	Material Group #VDI 3323	Type	Examples			IN2510	IN2515	IN4005	IN2505	IN4030	IN2530	IN2535		M	ML
P	1–5	Non-alloy steel	1018, A36, 1045, A572, 1070	400–850	.004–.010	–	–	2	1	–	3	–	No	1	2
	6–9	Low-alloy steel	4140, 4340, P20, 8620, 300M	300–600	.004–.008	–	–	2	1	–	3	–	No	1	2
	10, 11	High-alloy steel	H13, A2, D2, M2, T1	300–600	.004–.008	–	–	2	1	–	3	–	No	1	2
M	12, 13	Stainless steel (ferritic & martensitic)	410, 416, 440	350–700	.004–.010	–	–	–	–	3	2	1	Yes	2	1
	14	Stainless steel (austenitic)	303, 304, 316, 15-5, 17-4	300–600	.004–.010	–	–	–	–	3	2	1	May not be required at high speeds	2	1
K	15, 16	Gray cast iron	CLS. 20, 30, 45	400–750	.004–.010	1	2	3	–	–	–	–	No	2	1
	17, 18	Nodular cast iron	60-40-18, 100-70-03	300–650	.004–.010	–	1	3	2	–	–	–	No	1	2
N	21–30	Aluminum	7075, 6061	1000+	.004–.015	–	1	–	2	–	–	–	Yes	–	1
S	31–35	High-temp alloys	Inconel, Hastelloy, Nimonic, Monel	75–150	.004–.008	–	–	–	3	–	2	1	Yes	2	1
	36, 37	Titanium alloys	6Al-4V, 5Al-5Mo-5V-3Cr	75–200	.004–.008	–	–	–	3	–	2	1	Yes	–	1
H	38, 39	Hardened steel >48	A2, O1, D2	150–400	.002–.004	–	–	–	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.

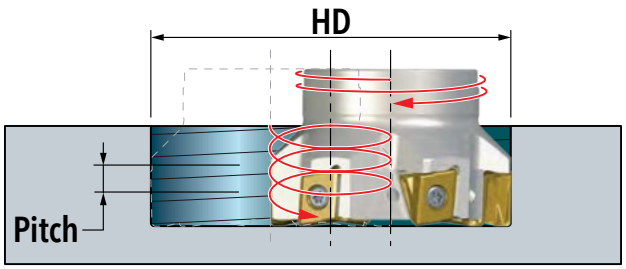
8 mm • Straight Ramping



DCX Cutting Dia. Max.	RMPX Ramp Angle Max.	L*	APMX Depth of Cut Max.
0.750	2.18	8.310	0.317
1.000	1.41	12.880	0.317
1.250	1.05	17.840	0.317
1.500	0.84	21.620	0.317
2.000	0.60	30.270	0.317
2.500	0.47	38.645	0.317
3.000	0.38	47.795	0.317

* L in this table is the length the cutter travels to reach the maximum depth of cut **(.317")** while traveling at the maximum ramp angle listed for the cutter.

8 mm • Helical Ramping



PITCH

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

DCX Cutting Dia. Max.	HD Hole Dia. Min.	HD Hole Dia. Max.	HD Hole Dia. Max. w/o Cusp	Max. Pitch Per Revolution
0.750	1.176	1.500	1.468	0.075
1.000	1.676	2.000	1.968	0.064
1.250	2.176	2.250	2.468	0.060
1.500	2.676	3.000	2.968	0.057
2.000	3.676	4.000	3.968	0.054
2.500	4.676	5.000	4.968	0.053
3.000	5.830	6.000	5.968	0.051

All ramping data is calculated with CGM212R001-M inserts installed.

EXAMPLE

» The minimum hole diameter that the **.750"** diameter cutter can interpolate from solid is **1.176"** (leaving a raised cusp).

» The maximum hole diameter that the **.750"** diameter cutter can interpolate from solid is **1.500"**.

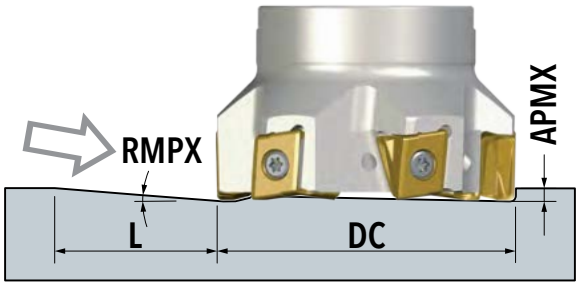
» The maximum hole diameter that the **.750"** diameter cutter can interpolate from solid while leaving a flat-bottom is **1.468"** (leaving no raised cusp).

11 mm • Operating Guidelines

Materials				Vc Cutting Speed SFM	fz* Feed/ Tooth (inch)	Harder «----------» Tougher							Coolant	Geometry	
ISO	Material Group #VDI 3323	Type	Examples			IN4015	IN2515	IN4005	IN2505	IN4030	IN2530	IN2535		M	ML
P	1–5	Non-alloy steel	1018, A36, 1045, A572, 1070	400–850	.005–.012	–	–	2	1	–	3	–	No	1	2
	6–9	Low-alloy steel	4140, 4340, P20, 8620, 300M	300–600	.005–.010	–	–	2	1	–	3	–	No	1	2
	10, 11	High-alloy steel	H13, A2, D2, M2, T1	300–600	.005–.010	–	–	2	1	–	3	–	No	1	2
M	12, 13	Stainless steel (ferritic & martensitic)	410, 416, 440	350–700	.005–.012	–	–	–	–	3	2	1	Yes	2	1
	14	Stainless steel (austenitic)	303, 304, 316, 15-5, 17-4	300–600	.005–.012	–	–	–	–	3	2	1	May not be required at high speeds	2	1
K	15, 16	Gray cast iron	CLS. 20, 30, 45	400–750	.005–.012	1	2	3	–	–	–	–	No	2	1
	17, 18	Nodular cast iron	60-40-18, 100-70-03	300–650	.005–.012	–	1	3	2	–	–	–	No	1	2
N	21–30	Aluminum	7075, 6061	1000+	.004–.015	–	1	–	2	–	–	–	Yes	–	1
S	31–35	High-temp alloys	Inconel, Hastelloy, Monel	75–150	.004–.008	–	–	–	3	–	2	1	Yes	2	1
	36, 37	Titanium alloys	6Al-4V, 5Al-5Mo-5V-3Cr	75–200	.004–.008	–	–	–	3	–	2	1	Yes	–	1
H	38, 39	Hardened steel >48	A2, O1, D2	150–400	.002–.004	–	–	–	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.

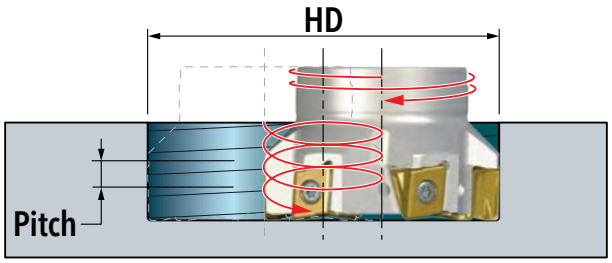
11 mm • Straight Ramping



DCX Cutting Dia. Max.	RMPX Ramp Angle Max.	L*	APMX Depth of Cut Max.
1.000	1.99	11.080	0.385
1.250	1.41	15.640	0.385
1.500	1.08	20.420	0.385
2.000	0.76	29.020	0.385
2.500	0.58	38.030	0.385
3.000	0.47	46.930	0.385
4.000	0.34	64.880	0.385

* L in this table is the length the cutter travels to reach the maximum depth of cut **(.385")** while traveling at the maximum ramp angle listed for the cutter.

11 mm • Helical Ramping



PITCH

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

DCX Cutting Dia. Max.	HD Hole Dia. Min.	HD Hole Dia. Max.	HD Hole Dia. Min. w/o Cusp	HD Hole Dia. Max. w/o Cusp	Max. Pitch Per Revolution
1.000	1.568	2.000	1.780	1.938	0.093
1.250	2.066	2.500	2.280	2.438	0.082
1.500	2.566	3.000	2.780	2.938	0.076
2.000	3.566	4.000	3.780	3.938	0.071
2.500	4.566	5.000	4.780	4.938	0.068
3.000	5.566	6.000	5.780	5.938	0.066
4.000	7.566	8.000	7.780	7.938	0.063

All ramping data is calculated with CGM313R001-M inserts installed.

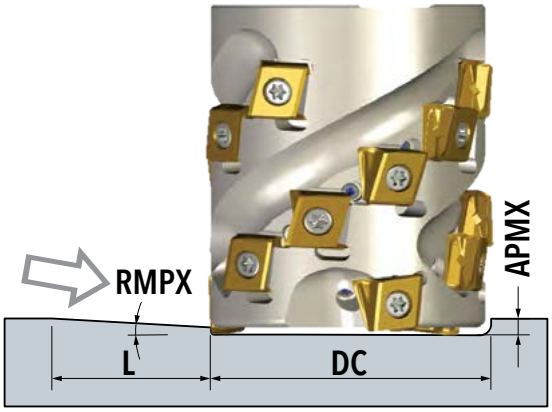
EXAMPLE

» The minimum hole diameter that the **1.000"** diameter cutter can interpolate from solid is **1.568"** (leaving a raised cusp).

» The maximum hole diameter that the **1.000"** diameter cutter can interpolate from solid is **2.000"**.

» The maximum hole diameter that the **1.000"** diameter cutter can interpolate from solid while leaving a flat-bottom is **1.938"** (leaving no raised cusp).

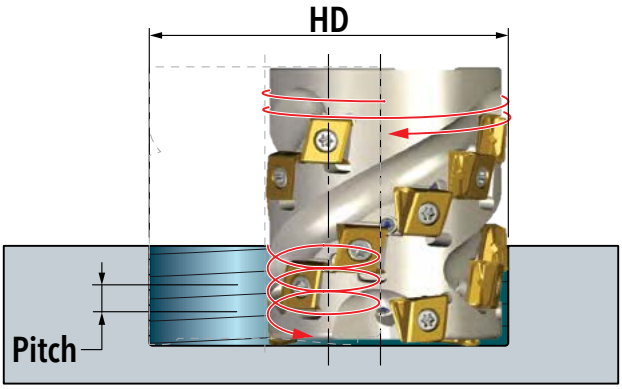
11 mm (Extended Flute / Series 2EJ3C) • Straight Ramping NEW



DCX Cutting Dia. Max.	RMPX Ramp Angle Max.	L*
1.250	1.41°	15.640
2.000	1.08°	29.020
2.500	0.76°	38.030
3.000	0.47°	46.930

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

11 mm (Extended Flute / Series 2EJ3C) • Helical Ramping NEW



DCX Cutting Dia. Max.	HD Hole Dia. Min.	HD Hole Dia. Max.	HD Hole Dia. Max. w/o Cusp	Max. Pitch Per Revolution
1.250	2.066	2.500	2.438	0.082
2.000	3.566	4.000	3.938	0.071
2.500	4.566	5.000	4.938	0.068
3.000	5.566	6.000	5.938	0.066

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 **1.250"** diameter cutter can interpolate from solid is **2.066"** (leaving a raised cusp).

» The maximum hole diameter that the **1.250"** diameter cutter can interpolate from solid is **2.500"**.

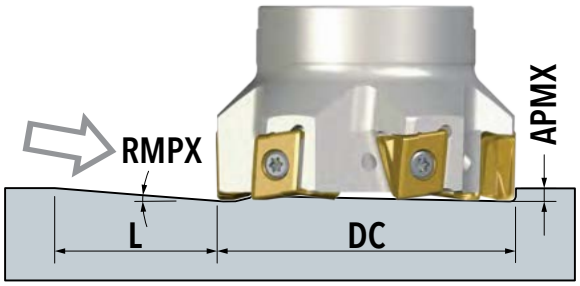
» The maximum hole diameter that the **1.250"** diameter cutter can interpolate from solid while leaving a flat-bottom is **2.438"** (leaving no raised cusp).

13 mm • Operating Guidelines

Materials				Vc Cutting Speed SFM	fz* Feed/ Tooth (inch)	Harder «----------» Tougher								Coolant	Geometry	
ISO	Material Group #VDI 3323	Type	Examples			IN4015	IN2515	IN4005	IN2505	IN4030	IN2530	IN4035	IN2535		M	ML
P	1–5	Non-alloy steel	1018, A36, 1045, A572, 1070	400–850	.005–.014	–	–	2	1	4	3	–	–	No	1	2
	6–9	Low-alloy steel	4140, 4340, P20, 8620, 300M	350–700	.005–.012	–	–	2	1	4	3	–	–	No	1	2
	10, 11	High-alloy steel	H13, A2, D2, M2, T1	300–600	.005–.012	–	–	2	1	4	3	–	–	No	1	2
M	12, 13	Stainless steel (ferritic & martensitic)	410, 416, 440	350–700	.005–.012	–	–	–	–	4	3	2	1	Yes	2	1
	14	Stainless steel (austenitic)	303, 304, 316, 15-5, 17-4	300–600	.005–.012	–	–	–	–	4	3	2	1	May not be required at high speeds	2	1
K	15, 16	Gray cast iron	CLS. 20, 30, 45	400–750	.005–.015	1	2	3	–	–	–	–	–	No	2	1
	17, 18	Nodular cast iron	60-40-18, 100-70-03	300–650	.005–.015	–	1	3	2	–	–	–	–	No	1	2
N	21–30	Aluminum	7075, 6061	1000+	.004–.015	–	1	–	2	–	–	–	–	Yes	–	1
S	31–35	High-temp alloys	Inconel, Hastelloy, Monel	75–150	.004–.008	–	–	–	–	–	3	2	1	Yes	2	1
	36, 37	Titanium alloys	6Al-4V, 5Al-5Mo-5V-3Cr	75–200	.004–.008	–	–	–	–	–	3	2	1	Yes	–	1
H	38, 39	Hardened steel >48	A2, O1, D2	150–400	.002–.004	–	–	–	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.

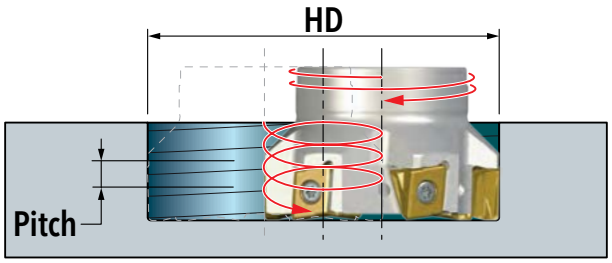
13 mm • Straight Ramping



DCX Cutting Dia. Max.	RMPX Ramp Angle Max.	L*	APMX Depth of Cut Max.
2.000	0.98	28.000	0.479
2.500	0.75	36.590	0.479
3.000	0.6	45.740	0.479
4.000	0.44	62.370	0.479
5.000	0.34	80.720	0.479
6.000	0.28	98.020	0.479

* L in this table is the length the cutter travels to reach the maximum depth of cut **(.479")** while traveling at the maximum ramp angle listed for the cutter.

13 mm • Helical Ramping



PITCH

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

DCX Cutting Dia. Max.	HD Hole Dia. Min.	HD Hole Dia. Max.	HD Hole Dia. Min. w/o Cusp	HD Hole Dia. Max. w/o Cusp	Max. Pitch Per Revolution
2.000	3.470	4.000	3.740	3.938	0.091
2.500	4.470	5.000	4.740	4.938	0.087
3.000	5.470	6.000	5.740	5.938	0.084
4.000	7.470	8.000	7.740	7.938	0.082
5.000	9.470	10.000	9.740	9.938	0.079
6.000	11.470	12.000	11.740	11.938	0.078

All ramping data is calculated with CGM324R001-M inserts installed.

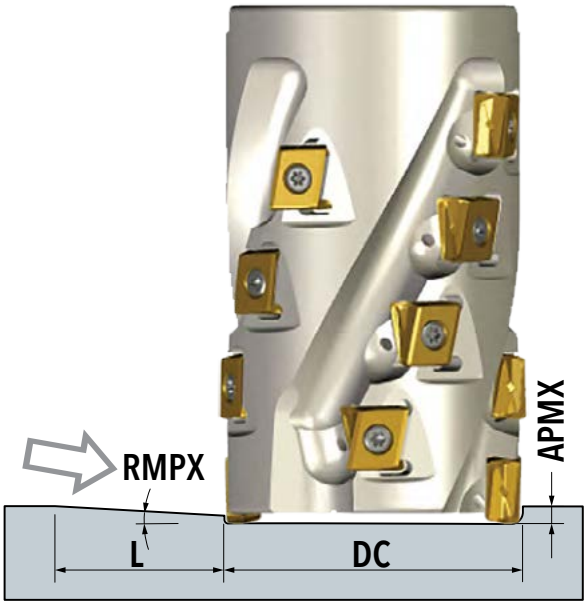
EXAMPLE

» The minimum hole diameter that the **2.000"** diameter cutter can interpolate from solid is **3.470"** (leaving a raised cusp).

» The maximum hole diameter that the **2.000"** diameter cutter can interpolate from solid is **4.000"**.

» The maximum hole diameter that the **2.000"** diameter cutter can interpolate from solid while leaving a flat-bottom is **3.938"** (leaving no raised cusp).

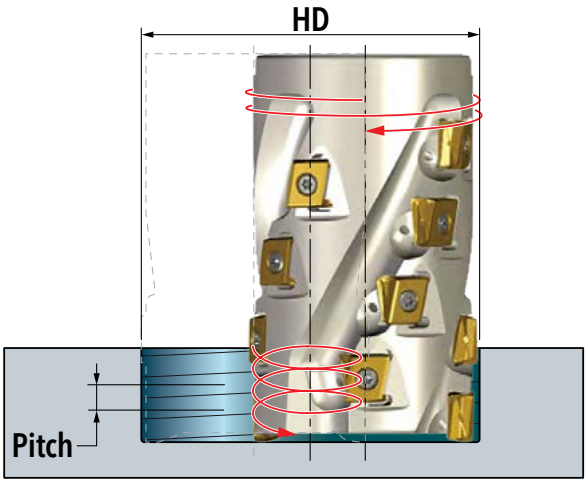
13 mm (Extended Flute / Series 2EJ1D) • Straight Ramping NEW



DCX Cutting Dia. Max.	RMPX Ramp Angle Max.	L*
2.000	0.98°	28.000
2.500	0.75°	36.590
3.000	0.60°	45.740
4.000	0.44°	62.370

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

13 mm (Extended Flute / Series 2EJ1D) • Helical Ramping NEW



DCX Cutting Dia. Max.	HD Hole Dia. Min.	HD Hole Dia. Max.	HD Hole Dia. Max. w/o Cusp	Max. Pitch Per Revolution
2.000	3.470	4.000	3.938	0.091
2.500	4.470	5.000	4.938	0.087
3.000	5.470	6.000	5.938	0.084
4.000	7.470	8.000	7.938	0.082

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 **2.000"** diameter cutter can interpolate from solid is **3.470"** (leaving a raised cusp).

» The maximum hole diameter that the **2.000"** diameter cutter can interpolate from solid is **4.000"**.

» The maximum hole diameter that the **2.000"** diameter cutter can interpolate from solid while leaving a flat-bottom is **3.938"** (leaving no raised cusp).