



Cutter Series:

- 1EJ5A End Mills
- 1EJ5C End Mills
- EJ5C / EJ6C Face Mills
- EJ5D / EJ6D Face Mills

Diameters:

.500" - 6.000"

Insert Series:

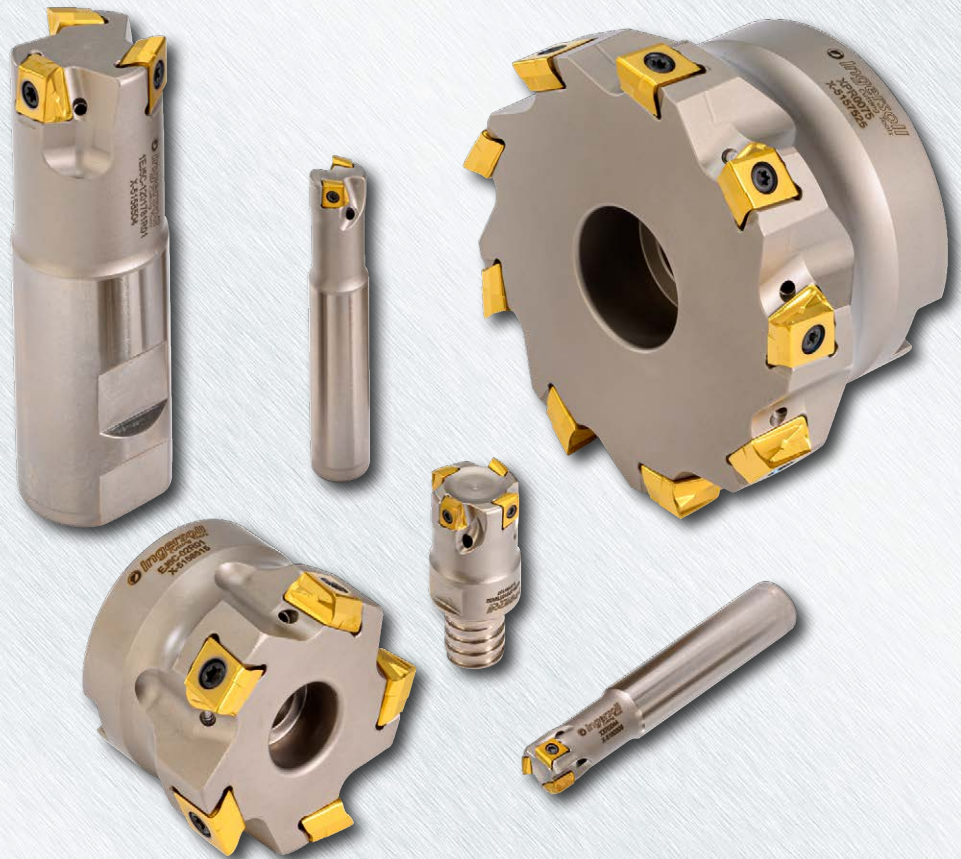
- CGM101R / CGX101R
- CGM313R / CGX313R
- CGM324R / CGX324R

Grades:

- IN2515/IN4015
- IN2505/IN4005
- IN2530/IN4030
- IN2535/IN4035

Materials:

Iron, Steel, Stainless Steel,
Super Alloys, Aluminum



Innovative Combinations - Unprecedented Versatility

Three comprehensive series of tangential endmills and facemills feature versatility, productivity and economy.

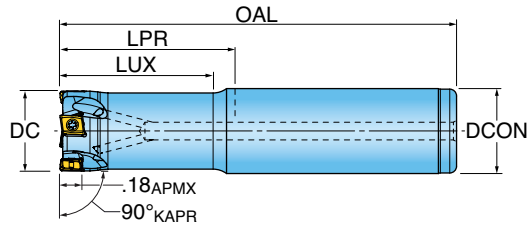
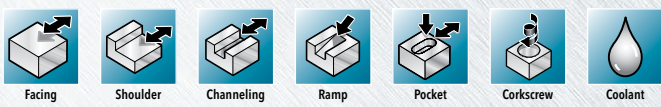
FEATURES & BENEFITS:

- Insert sizes of 5, 11 and 13mm offer new combinations of diameters, densities and lengths-of-cut.
- Starting in diameters as small as .500"!
- Dovetailed insert mounting 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 not requiring the performance benefits of ground-profile inserts
- MaxSFeed is capable of ramping and spiral interpolation!



MAXSPEED™ 05 SERIES 1EJ5A (CYLINDRICAL SHANK)

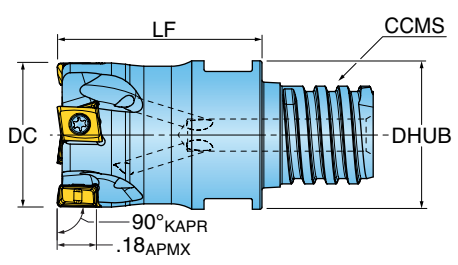
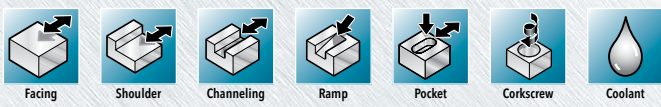
90° END MILL (5MM INSERT)



| Part Number | DC Cutting Dia. | LUX Usable Length Max. | LPR Protruding Length | OAL Overall Length | ZEFF Effective Teeth | DCON Shank Dia. | RMPX Ramp Angle Max. |
|------------------|-----------------|------------------------|-----------------------|--------------------|----------------------|-----------------|----------------------|
| 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 |

MAXSPEED™ 05 SERIES 1EJ5A (CHIP•SURFER STYLE)

90° END MILL (5MM INSERT)

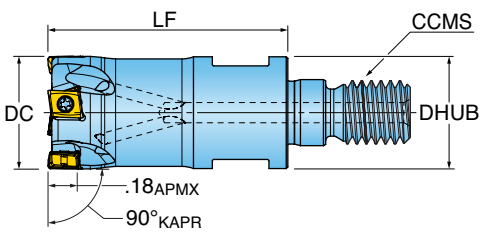
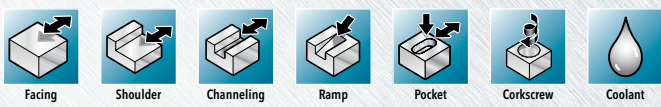


| Part Number | DC Cutting Dia. | LF Functional Length | ZEFF Effective Teeth | CCMS Connection Code Machine Side | DHUB Hub Dia. | RMPX Ramp Angle Max. |
|------------------|-----------------|----------------------|----------------------|-----------------------------------|---------------|----------------------|
| 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 |



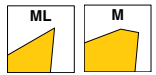
MAXSPEED™ 05 SERIES 1EJ5A (TOP-ON STYLE)

90° END MILL (5MM INSERT)



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

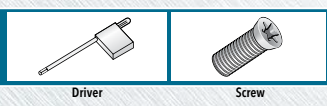
MAXSPEED™ 05 INSERTS



| Part Number | Application | RE Corner Radius | INSL Insert Length | W1 Insert Width | S1 Thickness | Grade | IN2510 | IN2505 | IN2530 |
|---------------|-----------------|------------------|--------------------|-----------------|--------------|-------|--------|--------|--------|
| CGM101R001-ML | General Purpose | 0.015 | 0.240 | 0.200 | 0.200 | | • | | • |
| CGX101R001-M | Utility | 0.015 | 0.240 | 0.200 | 0.200 | | • | • | • |

Insert screw tightening torque: 10-14 in*lbs.

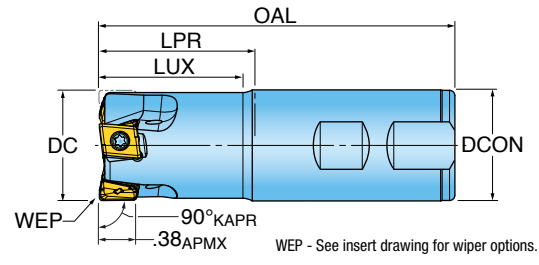
MAXSPEED™ 05 HARDWARE



| | | |
|------------|--------------|-------------|
| 05 Cutters | DS-TP06S-NEU | SM18-041-00 |
|------------|--------------|-------------|

MAXSPEED™ 11 SERIES 1EJ5C (WELDON SHANK)

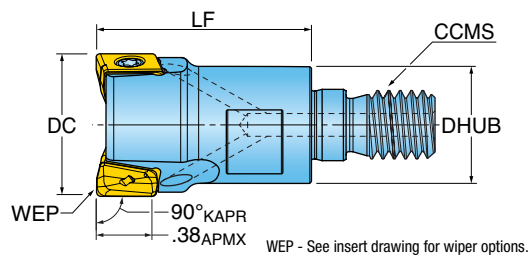
90° END MILL (11MM INSERT)



| Part Number | DC Cutting Dia. | LUX Usable Length Max. | LPR Protruding Length | OAL Overall Length | ZEFF Effective Teeth | DCON Shank Dia. | RMPX Ramp Angle Max. |
|------------------|-----------------|------------------------|-----------------------|--------------------|----------------------|-----------------|----------------------|
| 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 |

MAXSPEED™ 11 SERIES 1EJ5C (TOP-ON STYLE)

90° END MILL (11MM INSERT)

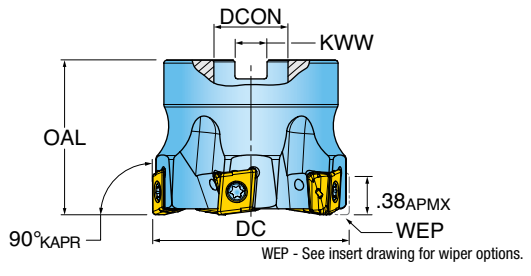


| Part Number | DC Cutting Dia. | LF Functional Length | ZEFF Effective Teeth | CCMS Connection Code Machine Side | DHUB Hub Dia. | RMPX Ramp Angle Max. |
|------------------|-----------------|----------------------|----------------------|-----------------------------------|---------------|----------------------|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



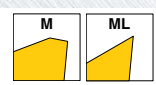
MAXSPEED™ 11 SERIES EJ5C, EJ6C

90° FACE MILL (11MM INSERT)



| Part Number | DC Cutting Dia. | OAL Overall Length | ZEFF Effective Teeth | DCON Bore Dia. | KWW Keyway | RMPX Ramp Angle Max. |
|-------------|-----------------|--------------------|----------------------|----------------|------------|----------------------|
| 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 |

MAXSPEED™ 11 INSERTS










| Part Number | Application | RE Corner Radius | BS Wiper Length | INSL Insert Length | W1 Insert Width | S1 Thickness | Grade | IN4015 | IN2515 | IN4005 | IN2505 | IN4030 | IN2530 |
|---------------|-----------------|------------------|-----------------|--------------------|-----------------|--------------|-------|--------|--------|--------|--------|--------|--------|
| CGM313R001-M | General Purpose | 0.031 | 0.079 | 0.433 | 0.436 | 0.236 | | • | • | • | • | • | • |
| CGM313R001-ML | General Purpose | 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 | 0.062 | 0.047 | 0.433 | 0.436 | 0.236 | | • | • | • | • | • | • |
| CGX313R001-M | Utility | 0.031 | 0.079 | 0.433 | 0.436 | 0.236 | | • | • | • | • | • | • |
| CGX313R002-M | Utility | 0.062 | 0.047 | 0.433 | 0.436 | 0.236 | | • | • | • | • | • | • |

Insert screw tightening torque: 25-30 in*lbs.



MAXSPEED™ 11 HARDWARE

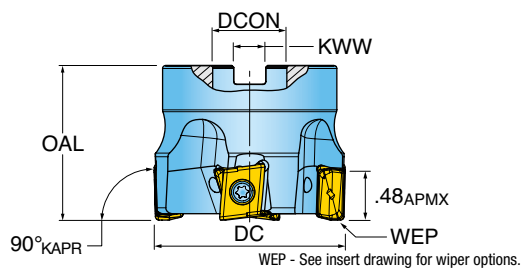
| |  |  |  |  |  |  |  |
|------------------|---|---|---|---|---|---|---|
| | Driver Handle | Driver Bit | Insert Screw | Retention Bolt | **OPTIONAL** Torque Driver Handle | **OPTIONAL** Preset Torque Bit | **OPTIONAL** Torque Driver Bit |
| 1EJ5C-1001780R01 | DS-A00T | DS-T156B | SM35-095-H0 | - |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

Insert screw tightening torque: 25-30 in*lbs.



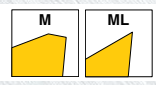
MAXSPEED™ 13 SERIES EJ5D, EJ6D

90° FACE MILL (13MM INSERT)

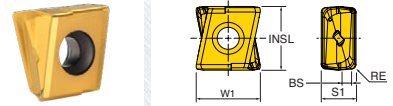


| Part Number | DC Cutting Dia. | OAL Overall Length | ZEFF Effective Teeth | DCON Bore Dia. | KWW Keyway | RMPX Ramp Angle Max. |
|-------------|-----------------|--------------------|----------------------|----------------|------------|----------------------|
| EJ5D-02R01 | 2.000 | 1.570 | 5 | 0.750 | 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 |

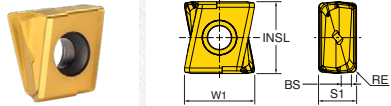
MAXSPEED™ 13 INSERTS



CGM324R00_-ML










CGM324R00_-M



| Part Number | Application | RE Corner Radius | BS Wiper Length | INSL Insert Length | W1 Insert Width | S1 Thickness | Grade | 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 | 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 | 0.062 | 0.067 | 0.531 | 0.518 | 0.281 | | • | • | • | • | • | • | • | • |
| CGM324R004-M | General Purpose | 0.125 | 0.005 | 0.531 | 0.518 | 0.281 | | • | • | • | • | • | • | | |
| CGM324R004-ML | General Purpose | 0.125 | 0.005 | 0.531 | 0.518 | 0.281 | | • | • | • | • | • | • | • | • |
| CGX324R001-M | Utility | 0.031 | 0.099 | 0.531 | 0.518 | 0.281 | | • | • | • | • | • | • | | |
| CGX324R002-M | Utility | 0.062 | 0.067 | 0.531 | 0.518 | 0.281 | | • | • | • | • | • | • | | |

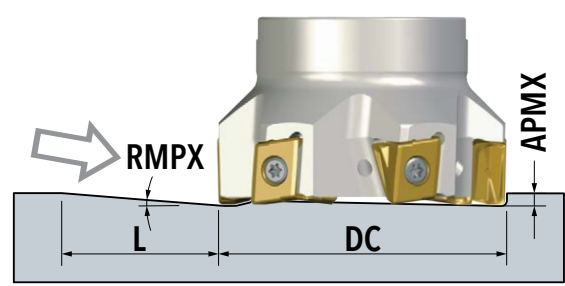


MAXSPEED™ 13 HARDWARE

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

Insert screw tightening torque: 30-35 in*lbs.

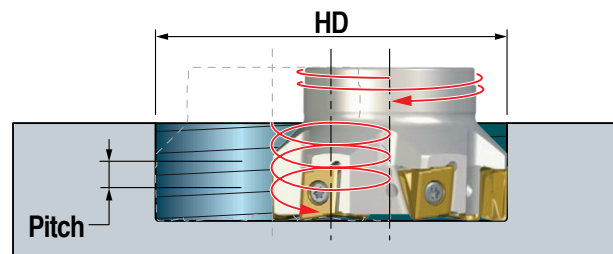
MAXSPEED™ 05 STRAIGHT RAMPING



| DCX Cutter Diameter | 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 max. depth of cut (.185") while traveling at the max ramp angle listed for the cutter.

MAXSPEED™ 05 HELICAL RAMPING



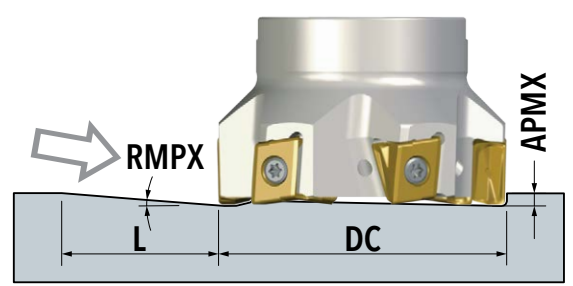
Pitch:
The max. pitch is determined to not exceed the max. depth of cut (APMX) and to not exceed the max. ramp angle (RMPX).

All ramping data is calculated with CGM101R001-ML inserts installed.

| DCX Cutter Diameter | HD Min. | HD Max. | HD Min. w/o Cusp | HD Max. w/o Cusp | Max Pitch Per Revolution |
|---------------------------|------------|------------|------------------------|------------------------|-----------------------------|
| 0.500 | 0.808 | 1.000 | 0.970 | 0.970 | 0.037 |
| 0.750 | 1.306 | 1.500 | 1.470 | 1.470 | 0.034 |
| 1.000 | 1.806 | 2.000 | 1.970 | 1.970 | 0.032 |

- Example:**
1. The min. hole dia. that the .500" dia. cutter can interpolate from solid is .808" (leaving a raised cusp).
 2. The max. hole dia. that the .500" dia. cutter can interpolate from solid is 1.000".
 3. The max. hole dia. that the .500" dia. cutter can interpolate from solid while leaving a flat-bottom is .970" (leaving no raised cusp).

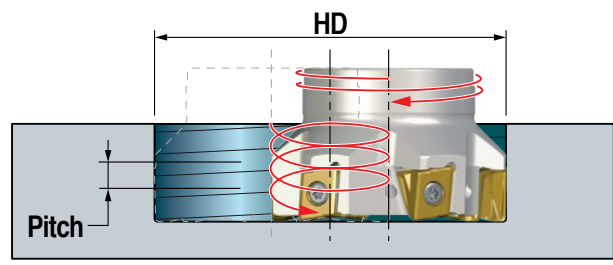
MAXSPEED™ 11 STRAIGHT RAMPING



| DCX Cutter Diameter | 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 max. depth of cut (.385") while traveling at the max ramp angle listed for the cutter.

MAXSPEED™ 11 HELICAL RAMPING



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

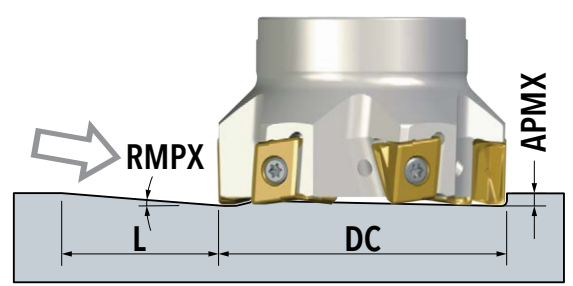
| DCX Cutter Diameter | HD Min. | HD Max. | HD Min. w/o Cusp | HD Max. w/o Cusp | Max Pitch Per Revolution |
|---------------------------|------------|------------|------------------------|------------------------|-----------------------------|
| 1.000 | 1.568 | 2.000 | 1.780 | 1.938 | 0.093 |
| 1.250 | 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 |

Example:

1. The min. hole dia. that the 1.000" dia. cutter can interpolate from solid is 1.568" (leaving a raised cusp).
2. The max. hole dia. that the 1.000" dia. cutter can interpolate from solid is 2.000".
3. The max. hole dia. that the 1.000" dia. cutter can interpolate from solid while leaving a flat-bottom is 1.938" (leaving no raised cusp).

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

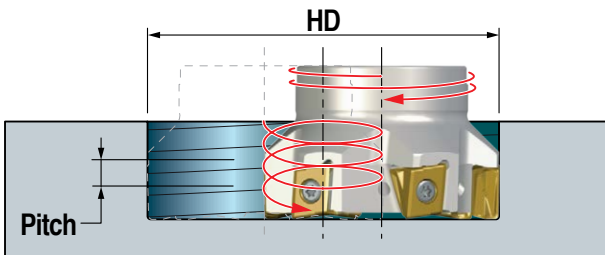
MAXSPEED™ 13 STRAIGHT RAMPING



| DCX Cutter Diameter | 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 max. depth of cut (.479") while traveling at the max ramp angle listed for the cutter.

MAXSPEED™ 13 HELICAL RAMPING



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

| DCX Cutter Diameter | HD Min. | HD Max. | HD Min. w/o Cusp | HD 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 |

- Example:**
1. The min. hole dia. that the 2.000" dia. cutter can interpolate from solid is 3.470" (leaving a raised cusp).
 2. The max. hole dia. that the 2.000" dia. cutter can interpolate from solid is 4.000".
 3. The max. hole dia. that the 2.000" dia. cutter can interpolate from solid while leaving a flat-bottom is 3.938" (leaving no raised cusp).

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



MAXSPEED™ 05 OPERATING GUIDELINES

| ISO | Materials | | | V _c Cutting Speed SFM | f _z Feed/Tooth (inch) | Harder <-----> Tougher | | | Coolant | Geometry | |
|----------|--------------------------|--|-----------------------------|--|--|------------------------|--------|--------|------------------------------------|----------|----|
| | Mat'l Group #VDI 3323 | Type | Examples | | | IN2510 | IN2505 | IN2530 | | M | ML |
| P | 1 thru 5 | Non-alloy Steel | 1018, A36, 1045, A572, 1070 | 400-850 | .0015-.0030 | | 1 | 2 | NO | 2 | 1 |
| | 6 thru 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 thru 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 thru 16 | Gray Cast Iron | CLS. 20, 30, 45 | 500-700 | .0015-.0030 | 1 | 2 | 3 | NO | 2 | 1 |
| | 17 thru 18 | Nodular Cast Iron | 60-40-18, 100-70-03 | 400-650 | .0015-.0030 | 2 | 1 | 3 | NO | 1 | 2 |
| N | 21 thru 30 | Aluminum | 7075, 6061 | 1000+ | .0015-.0030 | 1 | | 2 | | | 1 |
| S | 31 thru 35 | High-Temp Alloys | Inconel, Hastelloy, Monel | 60-130 | .0015-.0030 | | 2 | 1 | YES | 2 | 1 |
| | 36 thru 37 | Titanium Alloys | 6AL-4V, 5Al-5Mo-5V-3Cr | 65-150 | .0015-.0030 | | 2 | 1 | YES | 2 | 1 |
| H | 38 thru 39 | Hardened Steel >48 | A2, 01, 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.



MAXSPEED™ 11 OPERATING GUIDELINES

| ISO | Materials | | | V _c Cutting Speed SFM | f _z Feed/ Tooth (inch) | Harder <-----> Tougher | | | | | | | Coolant | Geometry | |
|----------|-----------------------|--|-----------------------------|---|--|------------------------|--------|--------|--------|--------|--------|--------|------------------------------------|----------|----|
| | Mat'l Group #VDI 3323 | Type | Examples | | | IN4015 | IN2515 | IN4005 | IN2505 | IN4030 | IN2530 | IN2535 | | M | ML |
| P | 1 thru 5 | Non-alloy Steel | 1018, A36, 1045, A572, 1070 | 400-850 | .005-.012 | | | 2 | 1 | | 3 | | NO | 1 | 2 |
| | 6 thru 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 thru 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 thru 16 | Gray Cast Iron | CLS. 20, 30, 45 | 400-750 | .005-.012 | 1 | 2 | 3 | | | | | NO | 2 | 1 |
| | 17 thru 18 | Nodular Cast Iron | 60-40-18, 100-70-03 | 300-650 | .005-.012 | | 1 | 3 | 2 | | | | NO | 1 | 2 |
| N | 21 thru 30 | Aluminum | 7075, 6061 | 1000+ | .004-.015 | | 1 | 2 | | | | | YES | | 1 |
| S | 31 thru 35 | High-Temp Alloys | Inconel, Hastelloy, Monel | 75-150 | .004-.008 | | | | | 3 | 2 | 1 | YES | 2 | 1 |
| | 36 thru 37 | Titanium Alloys | 6AL-4V, 5Al-5Mo-5V-3Cr | 75-200 | .004-.008 | | | | | 3 | 2 | 1 | YES | | 1 |
| H | 38 thru 39 | Hardened Steel >48 | A2, 01, 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.



MAXSPEED™ 13 OPERATING GUIDELINES

| ISO | Materials | | | V _c Cutting Speed SFM | f _z Feed/ Tooth (inch) | Harder <-----> Tougher | | | | | | | Coolant | Geometry | | |
|----------|-----------------------|--|-----------------------------|---|--|------------------------|--------|--------|--------|--------|--------|--------|---------|------------------------------------|---|----|
| | Mat'l Group #VDI 3323 | Type | Examples | | | IN4015 | IN2515 | IN4005 | IN2505 | IN4030 | IN2530 | IN4035 | | IN2535 | M | ML |
| P | 1 thru 5 | Non-alloy Steel | 1018, A36, 1045, A572, 1070 | 400-850 | .005-.014 | | | 2 | 1 | 4 | 3 | | | NO | 1 | 2 |
| | 6 thru 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 thru 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 thru 16 | Gray Cast Iron | CLS. 20, 30, 45 | 400-750 | .005-.015 | 1 | 2 | 3 | | | | | | NO | 2 | 1 |
| | 17 thru 18 | Nodular Cast Iron | 60-40-18, 100-70-03 | 300-650 | .005-.015 | | 1 | 3 | 2 | | | | | NO | 1 | 2 |
| N | 21 thru 30 | Aluminum | 7075, 6061 | 1000+ | .004-.015 | | 1 | | 2 | | | | | YES | | 1 |
| S | 31 thru 35 | High-Temp Alloys | Inconel, Hastelloy, Monel | 75-150 | .004-.008 | | | | | | 3 | 2 | 1 | YES | 2 | 1 |
| | 36 thru 37 | Titanium Alloys | 6AL-4V, 5Al-5Mo-5V-3Cr | 75-200 | .004-.008 | | | | | | 3 | 2 | 1 | YES | | 1 |
| H | 38 thru 39 | Hardened Steel >48 | A2, 01, 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.