NPA

NEW

Member IMC Group Ingersoll Cutting Tools

New Product Announcement

MILLING - SCEM

PRIMOLINE™

Cutter Series

P3N2R-_C
Cylindrical shank

P3N2R-_W
Weldon flat shank

Geometry

3-flute, coolant thru with a serrated cutting edge, variable pitch, variable helix

Diameter Range

.250–1.000"

Depth of Cut

1.5xD and 2xD APMX

Grade

IN05S

Lead Angle

90°

Corner Radii

.015", .030", .060", .090", .125", .188", .250"

Materials

- Aluminum alloys

PRIMOALUR™

NEW

Premium 3-Flute, Solid Carbide 90° End Mills, Ideal for Roughing Aluminum Alloys

- Serrated cutting edge provides unique chip management, disrupts vibrations, and reduces heat
- Variable pitch and variable helix to assist with vibration control
- 2x, 3x, 4x, 5x, and up to 6xD usable length maximum (LUX) provides a deep reach capability
- Coolant thru to assist with chip control and evacuation



See it in action! »

Overview

PrimoLine, Ingersoll's new, premium, solid carbide end mill product line features **PrimoAlu-R**, the robust 3-flute end mills for aluminum roughing applications.



Coolant Thru

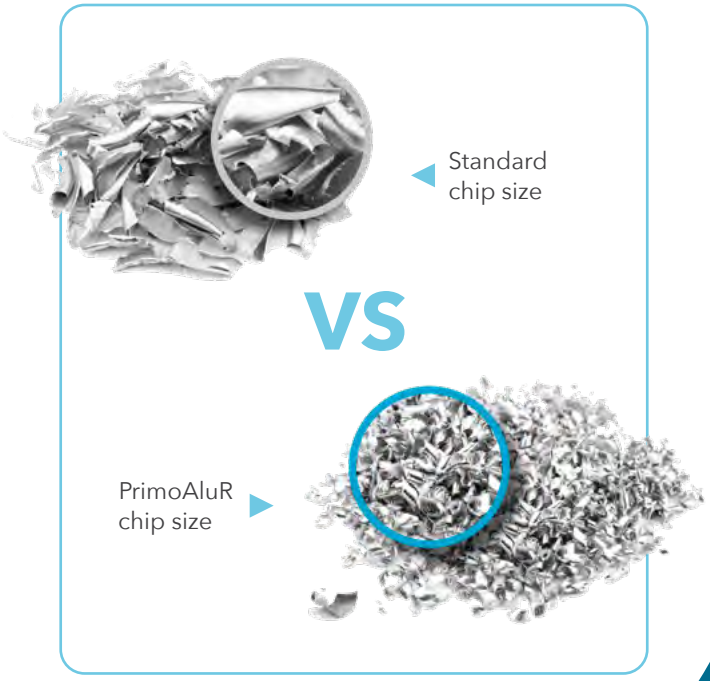
Coolant helps with temperature control in the cutting area and optimal chip evacuation, resulting in a cleaner work area.

Serrated Cutting Edge

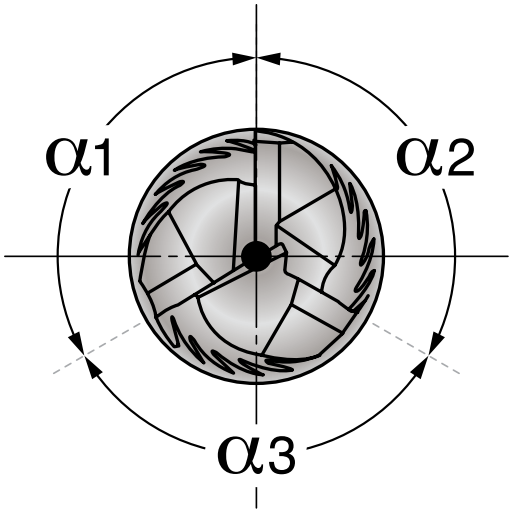
Serrations help break chips into smaller pieces reducing heat buildup, and it disrupts harmonic vibrations enabling HEM and aggressive material removal.

FEATURES & BENEFITS:

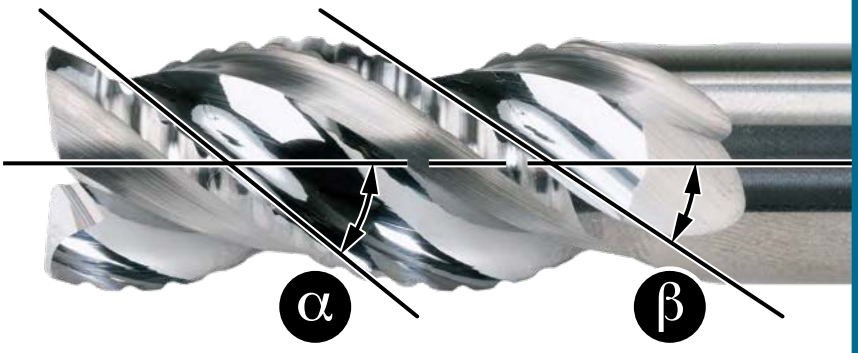
- Serrated cutting edge provides unique chip management
- Variable pitch and variable helix to assist with vibration control
- No vibration when milling into corners with the same radius as the tool
- Coolant thru to assist with chip control and evacuation
- 1.5xD and 2xD depth-of-cut (APMX)
- 2x, 3x, 4x, 5x, and up to 6xD lengths (LUX) provides a deep reach capability
- Wide variety of corner radii: .015", .030", .060", .090", .125", .188", .250" radius (RE)



Variable Pitch and Variable (Different) Helix Angles

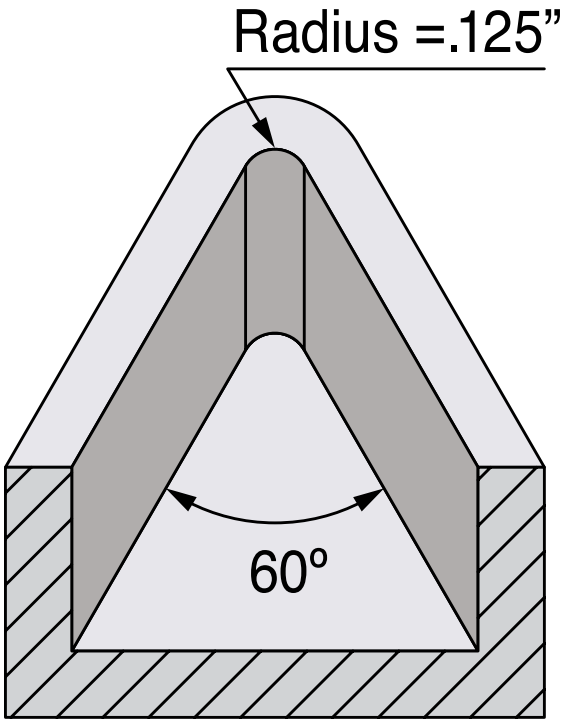


$$\alpha 1 \neq \alpha 2 \neq \alpha 3$$



$$\alpha \neq \beta$$

No Feed Reduction Needed in Extreme Cutting Conditions



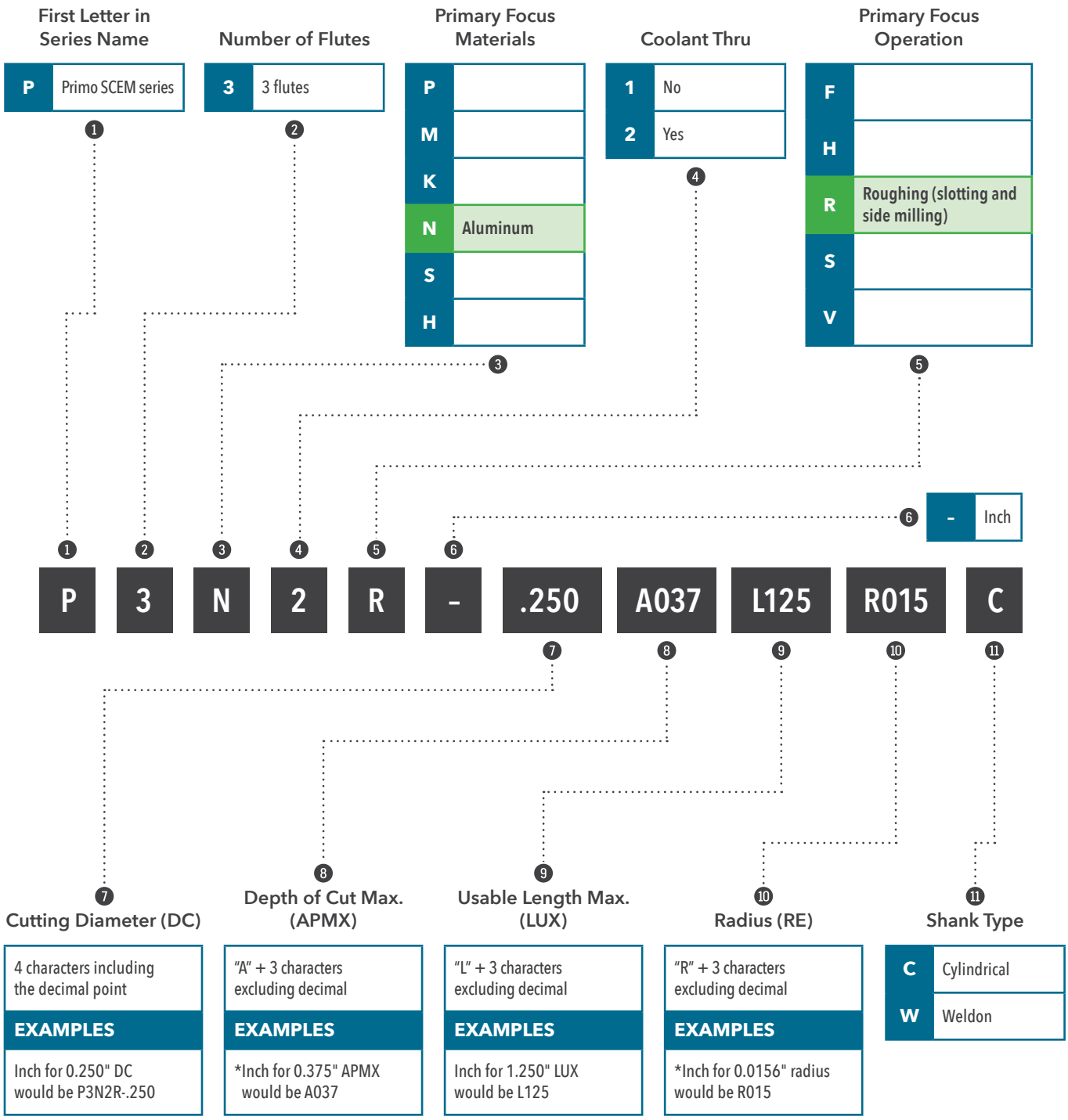
EXAMPLE

- Workpiece corner profile: Radius =.125"
- Diameter of SCEM tool: .250"

SUMMARY

In this case, the workpiece corner profile has the same radius as the tool. There is no need to reduce the feed rate when programming movements are ≤ 90° with **PrimoAlu SCEM**. Programming tricks that slow down the tool are not needed. **PrimoAlu's** unique design disrupts harmonic vibrations and prevents the tool from being drawn into part during full-radius engagement. Therefore, **"higher productivity"** can be achieved while providing a straight and true finish without vibration or chatter marks.

Solid Carbide End Mill (SCEM) Part Number Nomenclature



4 characters including the decimal point	"A" + 3 characters excluding decimal	"L" + 3 characters excluding decimal	"R" + 3 characters excluding decimal	C Cylindrical W Weldon
EXAMPLES	**EXAMPLES**	**EXAMPLES**	**EXAMPLES**	
Inch for 0.250" DC would be P3N2R-.250	*Inch for 0.375" APMX would be A037	Inch for 1.250" LUX would be L125	*Inch for 0.0156" radius would be R015	

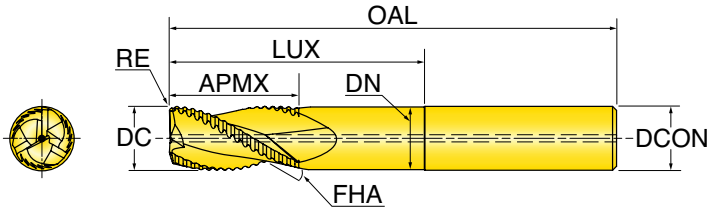
*Measurement is truncated.

Shoulder | Channel | Ramp | Pocket | Helical/ Corkscrew | Coolant

Series P3N2R

3-FLUTE SCEM 90° - CYLINDRICAL WITH COOLANT





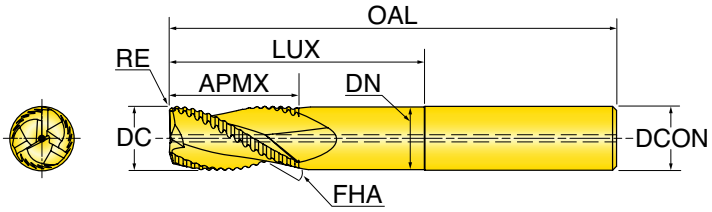
Part Number	DC Cutting Diameter	RE Radius	APMX Depth of Cut Max.	LUX Usable Length Max.	ULDR Usable Length Diameter Ratio	OAL Overall Length	DN Neck Diameter	DCON Shank Diameter	RMPX Ramp Angle Max.
INCH									
P3N2R-.250A037L125R015C	0.2500	0.015	0.375	1.250	5×	2.75	0.222	0.250	3.5
P3N2R-.312A046L156R015C	0.3125	0.015	0.469	1.563	5×	3.50	0.285	0.313	3.5
P3N2R-.375A056L187R015C	0.3750	0.015	0.562	1.875	5×	3.75	0.347	0.375	3.5
P3N2R-.500A100L200R015C	0.5000	0.015	1.000	2.000	4×	3.88	0.472	0.500	4.0
P3N2R-.500A075L250R015C	0.5000	0.015	0.750	2.500	5×	4.38	0.472	0.500	4.0
P3N2R-.500A075L300R015C	0.5000	0.015	0.750	3.000	6×	4.88	0.472	0.500	4.0
P3N2R-.500A100L200R030C	0.5000	0.030	1.000	2.000	4×	3.88	0.472	0.500	4.0
P3N2R-.500A075L250R030C	0.5000	0.030	0.750	2.500	5×	4.38	0.472	0.500	4.0
P3N2R-.500A075L300R030C	0.5000	0.030	0.750	3.000	6×	4.88	0.472	0.500	4.0
P3N2R-.500A100L200R060C	0.5000	0.060	1.000	2.000	4×	3.88	0.472	0.500	4.0
P3N2R-.500A075L250R060C	0.5000	0.060	0.750	2.500	5×	4.38	0.472	0.500	4.0
P3N2R-.500A075L300R060C	0.5000	0.060	0.750	3.000	6×	4.88	0.472	0.500	4.0
P3N2R-.500A100L200R090C	0.5000	0.090	1.000	2.000	4×	3.88	0.472	0.500	4.0
P3N2R-.500A075L250R090C	0.5000	0.090	0.750	2.500	5×	4.38	0.472	0.500	4.0
P3N2R-.500A075L300R090C	0.5000	0.090	0.750	3.000	6×	4.88	0.472	0.500	4.0
P3N2R-.500A100L200R125C	0.5000	0.125	1.000	2.000	4×	3.88	0.472	0.500	4.0
P3N2R-.500A075L250R125C	0.5000	0.125	0.750	2.500	5×	4.38	0.472	0.500	4.0
P3N2R-.500A075L300R125C	0.5000	0.125	0.750	3.000	6×	4.88	0.472	0.500	4.0

Shoulder | Channel | Ramp | Pocket | Helical/ Corkscrew | Coolant

Series P3N2R *continued*

3-FLUTE SCEM 90° - CYLINDRICAL WITH COOLANT





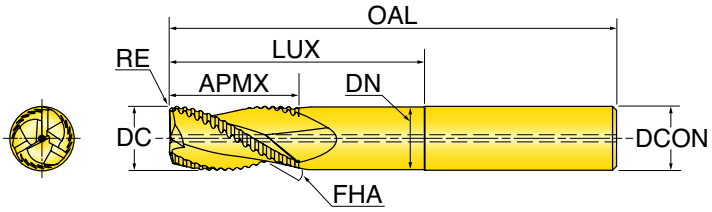
Part Number	DC Cutting Diameter	RE Radius	APMX Depth of Cut Max.	LUX Usable Length Max.	ULDR Usable Length Diameter Ratio	OAL Overall Length	DN Neck Diameter	DCON Shank Diameter	RMPX Ramp Angle Max.
INCH									
P3N2R-.625A125L250R015C	0.6250	0.015	1.250	2.500	4×	4.50	0.597	0.625	4.0
P3N2R-.625A093L312R015C	0.6250	0.015	0.938	3.125	5×	5.25	0.597	0.625	4.0
P3N2R-.625A093L375R015C	0.6250	0.015	0.938	3.750	6×	5.75	0.597	0.625	4.0
P3N2R-.625A093L125R030C	0.6250	0.030	0.938	1.250	2×	3.25	0.597	0.625	4.0
P3N2R-.625A125L187R030C	0.6250	0.030	1.250	1.875	3×	4.00	0.597	0.625	4.0
P3N2R-.625A125L250R030C	0.6250	0.030	1.250	2.500	4×	4.50	0.597	0.625	4.0
P3N2R-.625A093L312R030C	0.6250	0.030	0.938	3.125	5×	5.25	0.597	0.625	4.0
P3N2R-.625A093L375R030C	0.6250	0.030	0.938	3.750	6×	5.75	0.597	0.625	4.0
P3N2R-.625A125L250R060C	0.6250	0.060	1.250	2.500	4×	4.50	0.597	0.625	4.0
P3N2R-.625A093L312R060C	0.6250	0.060	0.938	3.125	5×	5.25	0.597	0.625	4.0
P3N2R-.625A093L375R060C	0.6250	0.060	0.938	3.750	6×	5.75	0.597	0.625	4.0
P3N2R-.625A125L250R090C	0.6250	0.090	1.250	2.500	4×	4.50	0.597	0.625	4.0
P3N2R-.625A093L312R090C	0.6250	0.090	0.938	3.125	5×	5.25	0.597	0.625	4.0
P3N2R-.625A093L375R090C	0.6250	0.090	0.938	3.750	6×	5.75	0.597	0.625	4.0
P3N2R-.625A093L125R125C	0.6250	0.125	0.938	1.250	2×	3.25	0.597	0.625	4.0
P3N2R-.625A125L187R125C	0.6250	0.125	1.250	1.875	3×	4.00	0.597	0.625	4.0
P3N2R-.625A125L250R125C	0.6250	0.125	1.250	2.500	4×	4.50	0.597	0.625	4.0
P3N2R-.625A093L312R125C	0.6250	0.125	0.938	3.125	5×	5.25	0.597	0.625	4.0
P3N2R-.625A093L375R125C	0.6250	0.125	0.938	3.750	6×	5.75	0.597	0.625	4.0
P3N2R-.625A125L250R188C	0.6250	0.188	1.250	2.500	4×	4.50	0.597	0.625	4.0
P3N2R-.625A093L312R188C	0.6250	0.188	0.938	3.125	5×	5.25	0.597	0.625	4.0
P3N2R-.625A093L375R188C	0.6250	0.188	0.938	3.750	6×	5.75	0.597	0.625	4.0

Shoulder | Channel | Ramp | Pocket | Helical/ Corkscrew | Coolant

Series P3N2R *continued*

3-FLUTE SCEM 90° - CYLINDRICAL WITH COOLANT





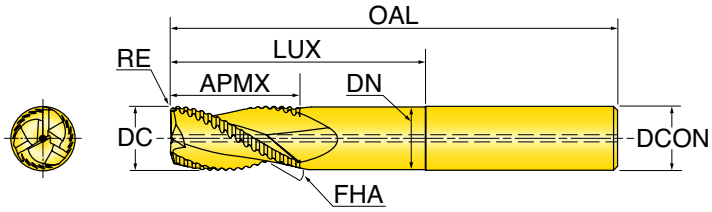
Part Number	DC Cutting Diameter	RE Radius	APMX Depth of Cut Max.	LUX Usable Length Max.	ULDR Usable Length Diameter Ratio	OAL Overall Length	DN Neck Diameter	DCON Shank Diameter	RMPX Ramp Angle Max.
INCH									
P3N2R-.750A112L150R030C	0.7500	0.030	1.125	1.500	2×	3.75	0.722	0.750	4.0
P3N2R-.750A150L225R030C	0.7500	0.030	1.500	2.250	3×	4.38	0.722	0.750	4.0
P3N2R-.750A150L300R030C	0.7500	0.030	1.500	3.000	4×	5.25	0.722	0.750	4.0
P3N2R-.750A112L375R030C	0.7500	0.030	1.125	3.750	5×	6.00	0.722	0.750	4.0
P3N2R-.750A112L450R030C	0.7500	0.030	1.125	4.500	6×	6.75	0.722	0.750	4.0
P3N2R-.750A150L300R060C	0.7500	0.060	1.500	3.000	4×	5.25	0.722	0.750	4.0
P3N2R-.750A112L375R060C	0.7500	0.060	1.125	3.750	5×	6.00	0.722	0.750	4.0
P3N2R-.750A112L450R060C	0.7500	0.060	1.125	4.500	6×	6.75	0.722	0.750	4.0
P3N2R-.750A150L300R090C	0.7500	0.090	1.500	3.000	4×	5.25	0.722	0.750	4.0
P3N2R-.750A112L375R090C	0.7500	0.090	1.125	3.750	5×	6.00	0.722	0.750	4.0
P3N2R-.750A112L450R090C	0.7500	0.090	1.125	4.500	6×	6.75	0.722	0.750	4.0
P3N2R-.750A112L150R125C	0.7500	0.125	1.125	1.500	2×	3.75	0.722	0.750	4.0
P3N2R-.750A150L225R125C	0.7500	0.125	1.500	2.250	3×	4.38	0.722	0.750	4.0
P3N2R-.750A150L300R125C	0.7500	0.125	1.500	3.000	4×	5.25	0.722	0.750	4.0
P3N2R-.750A112L375R125C	0.7500	0.125	1.125	3.750	5×	6.00	0.722	0.750	4.0
P3N2R-.750A112L450R125C	0.7500	0.125	1.125	4.500	6×	6.75	0.722	0.750	4.0
P3N2R-.750A150L300R188C	0.7500	0.188	1.500	3.000	4×	5.25	0.722	0.750	4.0
P3N2R-.750A112L375R188C	0.7500	0.188	1.125	3.750	5×	6.00	0.722	0.750	4.0
P3N2R-.750A112L450R188C	0.7500	0.188	1.125	4.500	6×	6.75	0.722	0.750	4.0
P3N2R-.750A150L300R250C	0.7500	0.250	1.500	3.000	4×	5.25	0.722	0.750	4.0
P3N2R-.750A112L375R250C	0.7500	0.250	1.125	3.750	5×	6.00	0.722	0.750	4.0
P3N2R-.750A112L450R250C	0.7500	0.250	1.125	4.500	6×	6.75	0.722	0.750	4.0

Shoulder | Channel | Ramp | Pocket | Helical/ Corkscrew | Coolant

Series P3N2R *continued*

3-FLUTE SCEM 90° - CYLINDRICAL WITH COOLANT





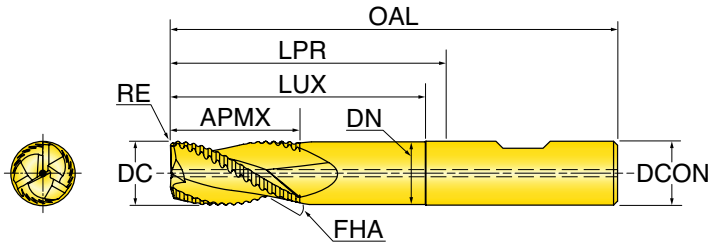
Part Number	DC Cutting Diameter	RE Radius	APMX Depth of Cut Max.	LUX Usable Length Max.	ULDR Usable Length Diameter Ratio	OAL Overall Length	DN Neck Diameter	DCON Shank Diameter	RMPX Ramp Angle Max.
INCH									
P3N2R-1.00A150L200R030C	1.0000	0.030	1.500	2.000	2×	4.38	0.972	1.000	4.0
P3N2R-1.00A200L300R030C	1.0000	0.030	2.000	3.000	3×	5.38	0.972	1.000	4.0
P3N2R-1.00A200L400R030C	1.0000	0.030	2.000	4.000	4×	6.38	0.972	1.000	4.0
P3N2R-1.00A150L500R030C	1.0000	0.030	1.500	5.000	5×	7.38	0.972	1.000	4.0
P3N2R-1.00A150L600R030C	1.0000	0.030	1.500	6.000	6×	8.38	0.972	1.000	4.0
P3N2R-1.00A200L400R060C	1.0000	0.060	2.000	4.000	4×	6.38	0.972	1.000	4.0
P3N2R-1.00A150L600R060C	1.0000	0.060	1.500	6.000	6×	8.50	0.972	1.000	4.0
P3N2R-1.00A200L400R090C	1.0000	0.090	2.000	4.000	4×	6.38	0.972	1.000	4.0
P3N2R-1.00A150L500R090C	1.0000	0.090	1.500	5.000	5×	7.38	0.972	1.000	4.0
P3N2R-1.00A150L600R090C	1.0000	0.090	1.500	6.000	6×	8.50	0.972	1.000	4.0
P3N2R-1.00A150L225R125C	1.0000	0.125	1.500	2.250	2×	4.63	0.972	1.000	4.0
P3N2R-1.00A200L300R125C	1.0000	0.125	2.000	3.000	3×	5.38	0.972	1.000	4.0
P3N2R-1.00A200L400R125C	1.0000	0.125	2.000	4.000	4×	6.38	0.972	1.000	4.0
P3N2R-1.00A150L500R125C	1.0000	0.125	1.500	5.000	5×	7.38	0.972	1.000	4.0
P3N2R-1.00A150L600R125C	1.0000	0.125	1.500	6.000	6×	8.38	0.972	1.000	4.0
P3N2R-1.00A200L400R188C	1.0000	0.188	2.000	4.000	4×	6.38	0.972	1.000	4.0
P3N2R-1.00A150L600R188C	1.0000	0.188	1.500	6.000	6×	8.50	0.972	1.000	4.0
P3N2R-1.00A200L400R250C	1.0000	0.250	2.000	4.000	4×	6.38	0.972	1.000	4.0
P3N2R-1.00A150L600R250C	1.0000	0.250	1.500	6.000	6×	8.50	0.972	1.000	4.0

Shoulder | Channel | Ramp | Pocket | Helical/ Corkscrew | Coolant

Series P3N2R

3-FLUTE SCEM 90° - WELDON WITH COOLANT





See pg 13 for Weldon flat dimensions

Part Number	DC Cutting Dia.	RE Radius	APMX Depth of Cut Max.	LUX Usable Length Max.	ULDR Usable Length Dia. Ratio	LPR Projection Length	OAL Overall Length	DN Neck Dia.	DCON Shank Dia.	RMPX Ramp Angle Max.
INCH										
P3N2R-.250A037L125R015W	0.2500	0.015	0.375	1.250	5×	1.590	2.75	0.222	0.250	3.5
P3N2R-.312A046L156R015W	0.3125	0.015	0.469	1.563	5×	2.120	3.50	0.285	0.313	3.5
P3N2R-.375A056L187R015W	0.3750	0.015	0.562	1.875	5×	2.220	3.75	0.347	0.375	3.5
P3N2R-.500A100L200R015W	0.5000	0.015	1.000	2.000	4×	2.100	3.88	0.472	0.500	4.0
P3N2R-.500A075L250R015W	0.5000	0.015	0.750	2.500	5×	2.600	4.38	0.472	0.500	4.0
P3N2R-.500A075L300R015W	0.5000	0.015	0.750	3.000	6×	3.100	4.88	0.472	0.500	4.0
P3N2R-.500A100L200R030W	0.5000	0.030	1.000	2.000	4×	2.100	3.88	0.472	0.500	4.0
P3N2R-.500A075L250R030W	0.5000	0.030	0.750	2.500	5×	2.600	4.38	0.472	0.500	4.0
P3N2R-.500A075L300R030W	0.5000	0.030	0.750	3.000	6×	3.100	4.88	0.472	0.500	4.0
P3N2R-.500A100L200R060W	0.5000	0.060	1.000	2.000	4×	2.100	3.88	0.472	0.500	4.0
P3N2R-.500A075L250R060W	0.5000	0.060	0.750	2.500	5×	2.600	4.38	0.472	0.500	4.0
P3N2R-.500A075L300R060W	0.5000	0.060	0.750	3.000	6×	3.100	4.88	0.472	0.500	4.0
P3N2R-.500A100L200R090W	0.5000	0.090	1.000	2.000	4×	2.100	3.88	0.472	0.500	4.0
P3N2R-.500A075L250R090W	0.5000	0.090	0.750	2.500	5×	2.600	4.38	0.472	0.500	4.0
P3N2R-.500A075L300R090W	0.5000	0.090	0.750	3.000	6×	3.100	4.88	0.472	0.500	4.0
P3N2R-.500A100L200R125W	0.5000	0.125	1.000	2.000	4×	2.100	3.88	0.472	0.500	4.0
P3N2R-.500A075L250R125W	0.5000	0.125	0.750	2.500	5×	2.600	4.38	0.472	0.500	4.0
P3N2R-.500A075L300R125W	0.5000	0.125	0.750	3.000	6×	3.100	4.88	0.472	0.500	4.0

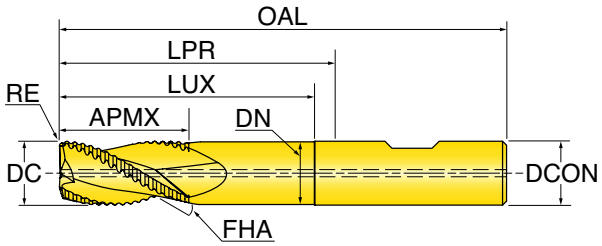
Shoulder | Channel | Ramp | Pocket | Helical/ Corkscrew | Coolant

Series P3N2R *continued*

3-FLUTE SCEM 90° - WELDON WITH COOLANT







See pg 13 for Weldon flat dimensions

Part Number	DC Cutting Dia.	RE Radius	APMX Depth of Cut Max.	LUX Usable Length Max.	ULDR Usable Length Dia. Ratio	LPR Projection Length	OAL Overall Length	DN Neck Dia.	DCON Shank Dia.	RMPX Ramp Angle Max.
INCH										
P3N2R-.625A125L250R015W	0.6250	0.015	1.250	2.500	4×	2.610	4.50	0.597	0.625	4.0
P3N2R-.625A093L312R015W	0.6250	0.015	0.938	3.125	5×	3.360	5.25	0.597	0.625	4.0
P3N2R-.625A093L375R015W	0.6250	0.015	0.938	3.750	6×	3.860	5.75	0.597	0.625	4.0
P3N2R-.625A093L125R030W	0.6250	0.030	0.938	1.250	2×	1.360	3.25	0.597	0.625	4.0
P3N2R-.625A125L187R030W	0.6250	0.030	1.250	1.875	3×	2.110	4.00	0.597	0.625	4.0
P3N2R-.625A125L250R030W	0.6250	0.030	1.250	2.500	4×	2.610	4.50	0.597	0.625	4.0
P3N2R-.625A093L312R030W	0.6250	0.030	0.938	3.125	5×	3.360	5.25	0.597	0.625	4.0
P3N2R-.625A093L375R030W	0.6250	0.030	0.938	3.750	6×	3.860	5.75	0.597	0.625	4.0
P3N2R-.625A125L250R060W	0.6250	0.060	1.250	2.500	4×	2.610	4.50	0.597	0.625	4.0
P3N2R-.625A093L312R060W	0.6250	0.060	0.938	3.125	5×	3.360	5.25	0.597	0.625	4.0
P3N2R-.625A093L375R060W	0.6250	0.060	0.938	3.750	6×	3.860	5.75	0.597	0.625	4.0
P3N2R-.625A125L250R090W	0.6250	0.090	1.250	2.500	4×	2.610	4.50	0.597	0.625	4.0
P3N2R-.625A093L312R090W	0.6250	0.090	0.938	3.125	5×	3.360	5.25	0.597	0.625	4.0
P3N2R-.625A093L375R090W	0.6250	0.090	0.938	3.750	6×	3.860	5.75	0.597	0.625	4.0
P3N2R-.625A093L125R125W	0.6250	0.125	0.938	1.250	2×	1.360	3.25	0.597	0.625	4.0
P3N2R-.625A125L187R125W	0.6250	0.125	1.250	1.875	3×	2.110	4.00	0.597	0.625	4.0
P3N2R-.625A125L250R125W	0.6250	0.125	1.250	2.500	4×	2.610	4.50	0.597	0.625	4.0
P3N2R-.625A093L312R125W	0.6250	0.125	0.938	3.125	5×	3.360	5.25	0.597	0.625	4.0
P3N2R-.625A093L375R125W	0.6250	0.125	0.938	3.750	6×	3.860	5.75	0.597	0.625	4.0
P3N2R-.625A125L250R188W	0.6250	0.188	1.250	2.500	4×	2.610	4.50	0.597	0.625	4.0
P3N2R-.625A093L312R188W	0.6250	0.188	0.938	3.125	5×	3.360	5.25	0.597	0.625	4.0
P3N2R-.625A093L375R188W	0.6250	0.188	0.938	3.750	6×	3.860	5.75	0.597	0.625	4.0

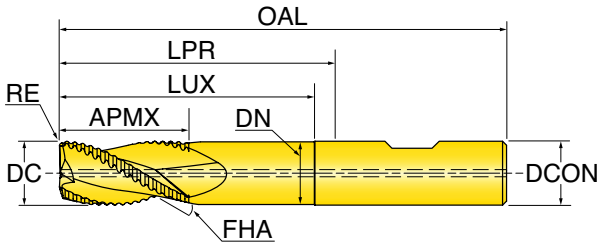
Shoulder | Channel | Ramp | Pocket | Helical/ Corkscrew | Coolant

Series P3N2R *continued*

3-FLUTE SCEM 90° - WELDON WITH COOLANT







See pg 13 for Weldon flat dimensions

Part Number	DC Cutting Dia.	RE Radius	APMX Depth of Cut Max.	LUX Usable Length Max.	ULDR Usable Length Dia. Ratio	LPR Projection Length	OAL Overall Length	DN Neck Dia.	DCON Shank Dia.	RMPX Ramp Angle Max.
INCH										
P3N2R-.750A112L150R030W	0.7500	0.030	1.125	1.500	2×	1.740	3.75	0.722	0.750	4.0
P3N2R-.750A150L225R030W	0.7500	0.030	1.500	2.250	3×	2.360	4.38	0.722	0.750	4.0
P3N2R-.750A150L300R030W	0.7500	0.030	1.500	3.000	4×	3.240	5.25	0.722	0.750	4.0
P3N2R-.750A112L375R030W	0.7500	0.030	1.125	3.750	5×	3.990	6.00	0.722	0.750	4.0
P3N2R-.750A112L450R030W	0.7500	0.030	1.125	4.500	6×	4.740	6.75	0.722	0.750	4.0
P3N2R-.750A150L300R060W	0.7500	0.060	1.500	3.000	4×	3.240	5.25	0.722	0.750	4.0
P3N2R-.750A112L375R060W	0.7500	0.060	1.125	3.750	5×	3.990	6.00	0.722	0.750	4.0
P3N2R-.750A112L450R060W	0.7500	0.060	1.125	4.500	6×	4.740	6.75	0.722	0.750	4.0
P3N2R-.750A150L300R090W	0.7500	0.090	1.500	3.000	4×	3.240	5.25	0.722	0.750	4.0
P3N2R-.750A112L375R090W	0.7500	0.090	1.125	3.750	5×	3.990	6.00	0.722	0.750	4.0
P3N2R-.750A112L450R090W	0.7500	0.090	1.125	4.500	6×	4.740	6.75	0.722	0.750	4.0
P3N2R-.750A112L150R125W	0.7500	0.125	1.125	1.500	2×	1.740	3.75	0.722	0.750	4.0
P3N2R-.750A150L225R125W	0.7500	0.125	1.500	2.250	3×	2.360	4.38	0.722	0.750	4.0
P3N2R-.750A150L300R125W	0.7500	0.125	1.500	3.000	4×	3.240	5.25	0.722	0.750	4.0
P3N2R-.750A112L375R125W	0.7500	0.125	1.125	3.750	5×	3.990	6.00	0.722	0.750	4.0
P3N2R-.750A112L450R125W	0.7500	0.125	1.125	4.500	6×	4.740	6.75	0.722	0.750	4.0
P3N2R-.750A150L300R188W	0.7500	0.188	1.500	3.000	4×	3.240	5.25	0.722	0.750	4.0
P3N2R-.750A112L375R188W	0.7500	0.188	1.125	3.750	5×	3.990	6.00	0.722	0.750	4.0
P3N2R-.750A112L450R188W	0.7500	0.188	1.125	4.500	6×	4.740	6.75	0.722	0.750	4.0
P3N2R-.750A150L300R250W	0.7500	0.250	1.500	3.000	4×	3.240	5.25	0.722	0.750	4.0
P3N2R-.750A112L375R250W	0.7500	0.250	1.125	3.750	5×	3.990	6.00	0.722	0.750	4.0
P3N2R-.750A112L450R250W	0.7500	0.250	1.125	4.500	6×	4.740	6.75	0.722	0.750	4.0

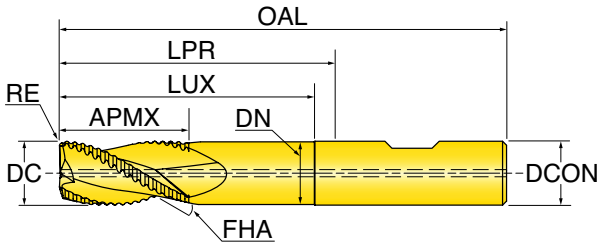
Shoulder | Channel | Ramp | Pocket | Helical/ Corkscrew | Coolant

Series P3N2R *continued*

3-FLUTE SCEM 90° - WELDON WITH COOLANT







See pg 13 for Weldon flat dimensions

Part Number	DC Cutting Dia.	RE Radius	APMX Depth of Cut Max.	LUX Usable Length Max.	ULDR Usable Length Dia. Ratio	LPR Projection Length	OAL Overall Length	DN Neck Dia.	DCON Shank Dia.	RMPX Ramp Angle Max.
INCH										
P3N2R-1.00A150L200R030W	1.0000	0.030	1.500	2.000	2×	2.110	4.38	0.972	1.000	4.0
P3N2R-1.00A200L300R030W	1.0000	0.030	2.000	3.000	3×	3.110	5.38	0.972	1.000	4.0
P3N2R-1.00A200L400R030W	1.0000	0.030	2.000	4.000	4×	4.110	6.38	0.972	1.000	4.0
P3N2R-1.00A150L500R030W	1.0000	0.030	1.500	5.000	5×	5.110	7.38	0.972	1.000	4.0
P3N2R-1.00A150L600R030W	1.0000	0.030	1.500	6.000	6×	6.110	8.38	0.972	1.000	4.0
P3N2R-1.00A200L400R060W	1.0000	0.060	2.000	4.000	4×	4.110	6.38	0.972	1.000	4.0
P3N2R-1.00A150L600R060W	1.0000	0.060	1.500	6.000	6×	6.240	8.50	0.972	1.000	4.0
P3N2R-1.00A200L400R090W	1.0000	0.090	2.000	4.000	4×	4.110	6.38	0.972	1.000	4.0
P3N2R-1.00A150L500R090W	1.0000	0.090	1.500	5.000	5×	5.110	7.38	0.972	1.000	4.0
P3N2R-1.00A150L600R090W	1.0000	0.090	1.500	6.000	6×	6.240	8.50	0.972	1.000	4.0
P3N2R-1.00A150L225R125W	1.0000	0.125	1.500	2.250	2×	2.360	4.63	0.972	1.000	4.0
P3N2R-1.00A200L300R125W	1.0000	0.125	2.000	3.000	3×	3.110	5.38	0.972	1.000	4.0
P3N2R-1.00A200L400R125W	1.0000	0.125	2.000	4.000	4×	4.110	6.38	0.972	1.000	4.0
P3N2R-1.00A150L500R125W	1.0000	0.125	1.500	5.000	5×	5.110	7.38	0.972	1.000	4.0
P3N2R-1.00A150L600R125W	1.0000	0.125	1.500	6.000	6×	6.110	8.38	0.972	1.000	4.0
P3N2R-1.00A200L400R188W	1.0000	0.188	2.000	4.000	4×	4.110	6.38	0.972	1.000	4.0
P3N2R-1.00A150L600R188W	1.0000	0.188	1.500	6.000	6×	6.240	8.50	0.972	1.000	4.0
P3N2R-1.00A200L400R250W	1.0000	0.250	2.000	4.000	4×	4.110	6.38	0.972	1.000	4.0
P3N2R-1.00A150L600R250W	1.0000	0.250	1.500	6.000	6×	6.240	8.50	0.972	1.000	4.0

Weldon Flat Dimensions

Fig. 1
Standard



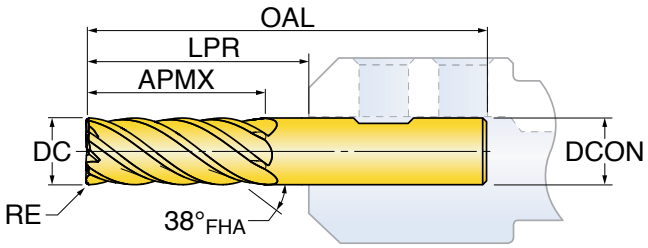
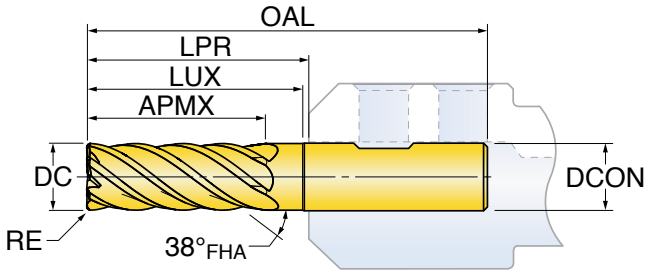
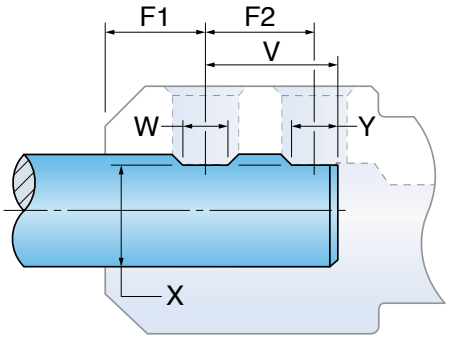


Fig. 2
Necked



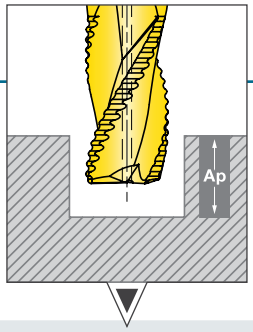


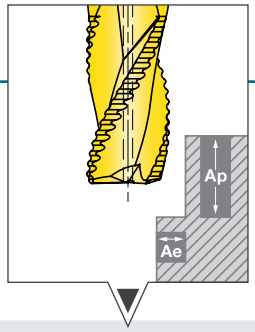


DCON Diameter	Modified Weldon Flat Dimensions (inch)				*F1 Nose to Center of 1st Flat	F2 1st Flat to 2nd Flat
	V	W	X	Y		
.250	.781	.187	.207	-	.50	-
.312	.781	.250	.267	-	.60	-
.375	.781	.280	.325	-	.75	-
.437	-	-	-	-	.75	-
.500	.891	.330	.440	-	.88	-
.625	.953	.400	.560	-	.94	-
.750	1.015	.455	.675	-	1.00	-
.875	1.015	.455	.810	.500	1.00	.866
1.000	1.141	.515	.925	.500	1.12	1.000
1.250	1.141	.515	1.156	.500	1.12	1.000

***Note for F1 dimensions:** Minimum value shown. The F1 dimension may vary depending on the holder type and manufacturer.

Operating Guidelines





Materials				Vc Cutting Speed SFM	DC Cutting Diameter (inch)	Slotting fz Feed Per Tooth (ipt)		Shoulder Milling *fz Feed Per Tooth (ipt)	
ISO	Material Group #VDI 3323	Type	Examples			Ap=1xD	**Ap=1.5xD to 2xD	Max Ap ≤ 2xD	
								Ae ≤ 0.4xD	Ae > 0.4xD
N	21-30	Aluminum alloys	7075, 6061	700-3300	.250	.0012-.0020	.0008-.0016	.0020-.0039	.0012-.0018
					.312	.0016-.0024	.0008-.0020	.0020-.0039	.0012-.0020
					.375	.0016 - .0028	.0012-.0024	.0020-.0047	.0016-.0024
					.500	.0016-.0047	.0016-.0031	.0031-.0079	.0020-.0047
					.625	.0020-.0047	.0020-.0055	.0031-.0079	.0031-.0055
					.750	.0024-.0063	.0024-.0059	.0031-.0079	.0031-.0059
					1.00	.0024-.0063	.0024-.0063	.0031-.0079	.0031-.0063

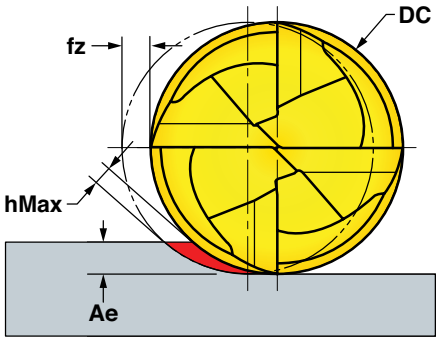
*fz = chip thinning calculations are included in the chip load above, especially when Ae ≤ .25xD.

**Ap ≤ 1.5xD for tools .375" DC or less

- High pressure coolant is highly recommended, as it will provide optimal chip evacuation and performance.
- A power milling chuck, or coolant thru (CX series) holder (for tools with Weldon flats) is highly recommended, starting at .500" DC or larger. Using a weak holder impacts performance.

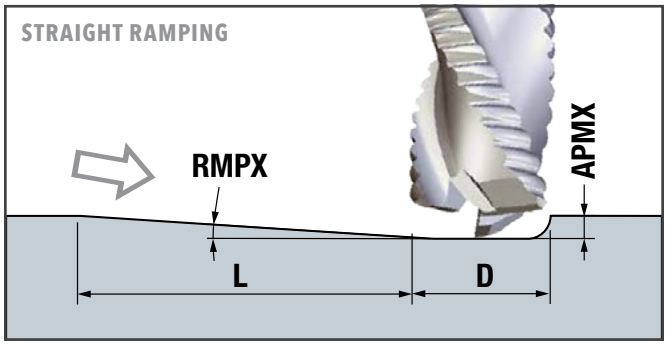
Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may necessitate adjustments in speed or feed. Additionally, DOC and WOC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

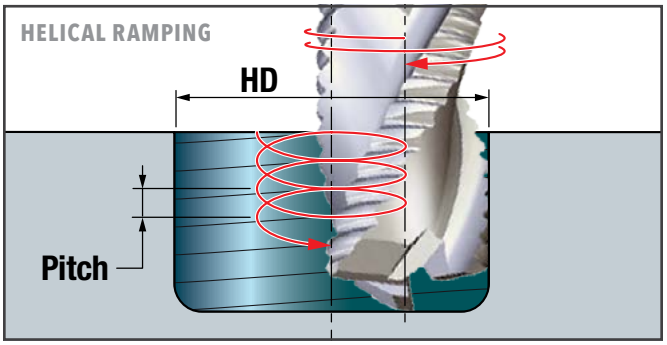
Chip Thinning



- Due to the lower radial engagement, *chip thinning* is accentuated, and a much higher feed-per-tooth (fz) can be applied in order to arrive at the true chip thickness (hMax).
- When Ae ≤ .25xD, recommend use of **Chip Thinning Calculator** ▶ to ensure hMax is within fz range.
- If needed, Chip Thinning Calculator can be found on our website Machining App.

Ramping Guidelines





DC Cutter Dia.	STRAIGHT RAMPING			HELICAL RAMPING													
	RPMX Ramp Angle Max.	APMX Depth of Cut at 1.5xD	L Ramp Length Min.	HD Hole Diameter Max.							Pitch Max.						
				.015" RE	.030" RE	.060" RE	.090" RE	.125" RE	.188" RE	.250" RE	.015" RE	.030" RE	.060" RE	.090" RE	.125" RE	.188" RE	.250" RE
.250	3.5	.375	6.1	.447	-	-	-	-	-	-	.038	-	-	-	-	-	-
.312	3.5	.469	7.7	.565	-	-	-	-	-	-	.048	-	-	-	-	-	-
.375	3.5	.563	9.2	.684	-	-	-	-	-	-	.059	-	-	-	-	-	-
.500	4.0	.750	10.8	.922	.893	.836	.779	.713	-	-	.092	.086	.074	.061	.047	-	-
.625	4.0	.938	13.4	1.159	1.131	1.074	1.017	.950	.831	-	.117	.111	.098	.086	.071	.045	-
.750	4.0	1.125	16.1	1.397	1.368	1.311	1.254	1.188	1.069	.950	.142	.135	.123	.110	.096	.070	.044
1.000	4.0	1.500	21.5	-	1.843	1.786	1.729	1.663	1.544	1.425	-	.185	.172	.160	.145	.119	.093

HD = Hole Diameter Max. formula when Helical Ramping **HD = ((DC-(1 x RE)) x 1.9)**	
EXAMPLES	
P3N2R-.500A075L250R030C	**P3N2R-.750A112L375R125W**
DC = .500" with RE = .03"	**DC = .750" with RE = .125"**
HD = ((DC-(1 x RE)) x 1.9)	**HD = ((DC-(1 x RE)) x 1.9)**
HD = ((.500-(1 x .03)) x 1.9)	**HD = ((.750-(1 x .125)) x 1.9)**
HD = .893	**HD = 1.188**

