MADE IN CANADA
FABRIQUÉ AU CANADA

TYCarb®

Carbide End Mill Program

GP End Mills

GP High Performance 4 Flute End Mills

TyCarb GP High Performance end mills feature differential flute spacing to achieve virtually chatter free machining in a wide range of materials. Excellent results can be achieved on all steels from carbon to alloy as well as stainless and even exotic materials. With the unique design of these tools as well as the superior TiAlN coating you can expect excellent levels of performance in your machining applications.

- Differential flute spacing
- Superior TiAlN PVD coating
- Available with Cylindrical or Weldon style shanks
- Available with square end as well as wide range of radius choices

GP High Performance 4 Flute Ball Nose End Mills

TyCarb GP High Performance 4 flute ball nose end mills feature Differential flute spacing to achieve virtually chatter free machining in a wide range of materials. Excellent results can be achieved on all steels from carbon to alloy as well as stainless and even exotic materials. With the unique design of these tools as well as the superior TiAlN coating you can expect excellent levels of performance in your machining applications.

- Differential flute spacing
- Superior TiAlN PVD coating
- Available with Cylindrical or Weldon style shanks

GP 2 Flute End Mills

TyCarb two flute end mills are designed for plunging, slotting and applications where increased chip clearance at higher feed rates are required in heavy peripheral machining applications.

TyCarb 2 Flute GP end mills are used in general milling applications in low to medium carbon steels, cast iron, easy to machine stainless steels, composites, plastics, aluminum, aluminum and copper alloys as well as brass and bronze.

- Available with Cylindrical or Weldon style shanks
- Superior TiAlN PVD coating

TL25 Grade has a thick titanium aluminum nitride (TiAlN) PVD coating designed for the most demanding, dry machining applications. Due to it's exceptional balance of wear and toughness this grade maintains sharp cutting edges and consistent controlled wear rates.

UP25 This uncoated carbide grade is made from high quality micro grain material. UP25 is used for general purpose machining of all steels including stainless.

Recommended Cutting Parameters

Work Material	Type of Cut	Axial DOC	Radial DOC	Speed (SFM)	Feed (Inches Per Tooth)						
					1/8	1/4	3/8	1/2	5/8	3/4	1
Low Carbon Steels <= 38 Rc 1018, 12L14, 8620	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D .5 x D	350 425	.0008 .0010	.0016 .0020	.0024 .0030	.0032 .0040	.0040 .0050	.0048 .0060	.0064 .0080
Medium Carbon Steels <= 38 Rc 4140, 4340	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D .5 x D	325 375	.0006 .0008	.0013 .0017	.0020 .0026	.0027 .0035	.0034 .0044	.0040 .0053	.0054 .0070
Tool and Die Steels <= 38 Rc A2, D2, O1, S7, P20, H13	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D .5 x D	325 375	.0006 .0008	.0013 .0017	.0020 .0026	.0027 .0035	.0034 .0044	.0040 .0053	.0054 .0070
Tool Steels 39 Rc to 48 Rc	Slotting Peripheral - Rough	.75 x D 1 x D	1 x D .5 x D	225 275	.0005 .0006	.0010 .0012	.0015 .0017	.0020 .0023	.0025 .0029	.0030 .0035	.0040 .0046
Easy to machine stainless steel 416, 410, 302, 303	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D .5 x D	300 375	.0006 .0008	.0012 .0016	.0018 .0024	.0025 .0032	.0031 .0040	.0037 .0048	.0050 .0064
Moderately difficult stainless steels 304, 316, Invar, Kovar	Slotting Peripheral - Rough	.75 x D 1.5 x D	1 x D .5 x D	275 350	.0005 .0007	.0011 .0015	.0016 .0023	.0022 .0032	.0027 .0037	.0033 .0045	.0044 .0064
Difficult to machine stainless steels 316L, 17-4 PH, 15-5 PH, 13-8 PH	Slotting Peripheral - Rough	.5 x D 1 x D	1 x D .5 x D	250 300	.0004 .0005	.0009 .0011	.0012 .0016	.0018 .0022	.0022 .0028	.0027 .0033	.0036 .0044
Cast Iron Grey	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D .5 x D	400 500	.0006 .0007	.0012 .0015	.0019 .0023	.0025 .0030	.0031 .0037	.0038 .0046	.0050 .0060
Cast Iron Ductile	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D .5 x D	300 400	.0006 .0007	.0012 .0014	.0018 .0021	.0023 .0028	.0029 .0035	.0035 .0042	.0046 .0056
Cast Iron Malleable	Slotting Peripheral - Rough	.75 x D 1 x D	1 x D .75 x D	250 325	.0004 .0005	.0008 .0011	.0012 .0016	.0015 .0022	.0019 .0027	.0023 .0033	.0030 .0044
Aluminum Alloys 2024, 6061, 7075	Slotting Peripheral - Rough	1 x D 1 x D	1 x D .5 x D	800 1000	.0008 .0010	.0015 .0020	.0022 .0030	.0030 .0040	.0037 .0050	.0047 .0060	.0060 .0080
Titanium Alloys	Slotting Peripheral - Rough	.5 x D 1 x D	1 x D .5 x D	250 300	.0005 .0006	.0010 .0012	.0015 .0017	.0020 .0023	.0025 .0029	.0030 .0035	.0040 .0046
High Temperature Alloys Inconel, Haynes, Stellite, Hastalloy	Slotting Peripheral - Rough	.25 x D 1 x D	1 x D .25 x D	70 95	.0004 .0005	.0008 .0009	.0012 .0014	.0015 .0018	.0019 .0022	.0024 .0028	.0030 .0036

GP4 Variable Flute End Mills

The TyCarb GP Series of 4 flute end mills have been specifically designed for today's difficult materials as well as the modern machinery now available. From Micro Grain Carbide Rod to differential fluting and superior PVD coating the GP Series excels in all materials and applications.

The unique design enables true chatter-free machining. Excellent performance is achievable in slotting as well as profiling applications. The GP family is ideal for heavily interrupted cuts and when machining carbon, die, alloy and stainless steels, also titanium as well as other materials that generate high temperatures.

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4 Flute End Mills
(Variable Flute / Center Cutting)

Designation	Cutter Dia.	Shank Dia.	Length of Cut	OAL	Corner Radius	UP25	T125
GP4S-SQ0125	1/8	1/8	1/4	1.1/2	-	●	●
GP4S-SQ0125-010	1/8	1/8	1/4	1.1/2	.010	●	●
GP4R-SQ0125	1/8	1/8	1/2	2	-	●	●
GP4R-SQ0125-010	1/8	1/8	1/2	2	.010	●	●
GP4S-SQ0187	3/16	3/16	5/16	1.1/2	-	●	●
GP4S-SQ0187-015	3/16	3/16	5/16	1.1/2	.015	●	●
GP4R-SQ0187	3/16	3/16	5/8	2	-	●	●
GP4R-SQ0187-015	3/16	3/16	5/8	2	.015	●	●
GP4S-SQ0250	1/4	1/4	3/8	2	-	●	●
GP4S-SQ0250-015	1/4	1/4	3/8	2	.015	●	●
GP4S-SQ0250-030	1/4	1/4	3/8	2	.030	●	●
GP4R-SQ0250	1/4	1/4	3/4	2.1/2	-	●	●
GP4R-SQ0250-020	1/4	1/4	3/4	2.1/2	.020	●	●
GP4R-SQ0250-030	1/4	1/4	3/4	2.1/2	.030	●	●
GP4L-SQ0250	1/4	1/4	1.1/4	3	-	●	●
GP4L-SQ0250-020	1/4	1/4	1.1/4	3	.020	●	●
GP4S-SQ0312	5/16	5/16	1/2	2	-	●	●
GP4S-SQ0312-020	5/16	5/16	1/2	2	.020	●	●
GP4R-SQ0312	5/16	5/16	13/16	2.1/2	-	●	●
GP4R-SQ0312-020	5/16	5/16	13/16	2.1/2	.020	●	●
GP4S-SQ0375	3/8	3/8	1/2	2	-	●	●
GP4S-SQ0375-020	3/8	3/8	1/2	2	.020	●	●
GP4S-SQ0375-030	3/8	3/8	1/2	2	.030	●	●
GP4R-SQ0375	3/8	3/8	7/8	2.1/2	-	●	●
GP4R-SQ0375-020	3/8	3/8	7/8	2.1/2	.020	●	●
GP4R-SQ0375-030	3/8	3/8	7/8	2.1/2	.030	●	●
GP4R-SQ0375-060	3/8	3/8	7/8	2.1/2	.060	●	●
GP4R-SQ0375-120	3/8	3/8	7/8	2.1/2	.120	●	●
GP4E-SQ0375	3/8	3/8	1.1/8	3	-	●	●
GP4E-SQ0375-020	3/8	3/8	1.1/8	3	.020	●	●
GP4L-SQ0375	3/8	3/8	1.1/2	3.1/2	-	●	●
GP4L-SQ0375-030	3/8	3/8	1.1/2	3.1/2	.030	●	●
GP4R-SQ0437	7/16	7/16	1	2.3/4	-	●	●
GP4S-SQ0500	1/2	1/2	5/8	2.1/2	-	●	●
GP4S-SQ0500-020	1/2	1/2	5/8	2.1/2	.020	●	●
GP4S-SQ0500-030	1/2	1/2	5/8	2.1/2	.030	●	●
GP4R-SQ0500	1/2	1/2	1	3	-	●	●
GP4R-SQ0500-030	1/2	1/2	1	3	.030	●	●
GP4R-SQ0500-060	1/2	1/2	1	3	.060	●	●
GP4E-SQ0500	1/2	1/2	1.1/4	3	-	●	●
GP4E-SQ0500-020	1/2	1/2	1.1/4	3	.020	●	●
GP4E-SQ0500-030	1/2	1/2	1.1/4	3	.030	●	●
GP4E-SQ0500-060	1/2	1/2	1.1/4	3	.060	●	●
GP4E-SQ0500-090	1/2	1/2	1.1/4	3	.090	●	●
GP4E-SQ0500-120	1/2	1/2	1.1/4	3	.120	●	●
GP4M-SQ0500	1/2	1/2	1.5/8	3.1/2	-	●	●
GP4L-SQ0500	1/2	1/2	2	4	-	●	●
GP4L-SQ0500-030	1/2	1/2	2	4	.030	●	●
GP4R-SQ0562	9/16	9/16	1.1/4	3.1/2	-	●	●
GP4R-SQ0625	5/8	5/8	1.1/4	3.1/2	-	●	●
GP4R-SQ0625-030	5/8	5/8	1.1/4	3.1/2	.030	●	●
GP4R-SQ0625-060	5/8	5/8	1.1/4	3.1/2	.060	●	●
GP4E-SQ0625	5/8	5/8	1.5/8	3.1/2	-	●	●
GP4E-SQ0625-030	5/8	5/8	1.5/8	3.1/2	.030	●	●
GP4S-SQ0750	3/4	3/4	7/8	3	-	●	●
GP4S-SQ0750-030	3/4	3/4	7/8	3	.030	●	●
GP4S-SQ0750-060	3/4	3/4	7/8	3	.060	●	●
GP4R-SQ0750	3/4	3/4	1.1/2	4	-	●	●
GP4R-SQ0750-030	3/4	3/4	1.1/2	4	.030	●	●
GP4R-SQ0750-060	3/4	3/4	1.1/2	4	.060	●	●
GP4R-SQ0750-090	3/4	3/4	1.1/2	4	.090	●	●
GP4R-SQ0750-120	3/4	3/4	1.1/2	4	.120	●	●
GP4E-SQ0750	3/4	3/4	1.3/4	4	-	●	●
GP4E-SQ0750-030	3/4	3/4	1.3/4	4	.030	●	●
GP4E-SQ0750-060	3/4	3/4	1.3/4	4	.060	●	●
GP4E-SQ0750-120	3/4	3/4	1.3/4	4	.120	●	●
GP4M-SQ0750	3/4	3/4	2.3/8	5	-	●	●
GP4R-SQ1000	1	1	1.1/2	4	-	●	●
GP4R-SQ1000-030	1	1	1.1/2	4	.030	●	●
GP4R-SQ1000-060	1	1	1.1/2	4	.060	●	●
GP4R-SQ1000-120	1	1	1.1/2	4	.120	●	●

GP4 Variable Flute & Ball Nose End Mills

The TyCarb GP Series of 4 flute end mills have been specifically designed for today's difficult materials as well as the modern machinery now available. From Micro Grain Carbide Rod to differential fluting and superior PVD coating, the GP Series excels in all materials and applications.

The unique design enables true chatter-free machining. Excellent performance is achievable in slotting as well as profiling applications. The GP family is ideal for heavily interrupted cuts and when machining carbon, die, alloy and stainless steels, also titanium, as well as other materials that generate high temperatures.

4 Flute End Mills
(Variable Flute / Center Cutting / Weldon)

Designation	Cutter Dia.	Shank Dia.	Length of Cut	OAL	Corner Radius	UP25	TL25
GP4RW-SQ0500	1/2	1/2	1	3	-	●	●
GP4RW-SQ0500-030	1/2	1/2	1	3	.030	●	●
GP4RW-SQ0500-060	1/2	1/2	1	3	.060	●	●
GP4EW-SQ0500	1/2	1/2	1.1/4	3	-	●	●
GP4EW-SQ0500-030	1/2	1/2	1.1/4	3	.030	●	●
GP4EW-SQ0500-060	1/2	1/2	1.1/4	3	.060	●	●
GP4RW-SQ0562	9/16	9/16	1.1/4	3.1/2	-	●	●
GP4RW-SQ0625	5/8	5/8	1.1/4	3.1/2	-	●	●
GP4RW-SQ0625-030	5/8	5/8	1.1/4	3.1/2	.030	●	●
GP4RW-SQ0625-060	5/8	5/8	1.1/4	3.1/2	.060	●	●
GP4EW-SQ0625	5/8	5/8	1.5/8	3.1/2	-	●	●
GP4EW-SQ0625-030	5/8	5/8	1.5/8	3.1/2	.030	●	●
GP4SW-SQ0750	3/4	3/4	7/8	3	-	●	●
GP4SW-SQ0750-030	3/4	3/4	7/8	3	.030	●	●
GP4SW-SQ0750-060	3/4	3/4	7/8	3	.060	●	●
GP4RW-SQ0750	3/4	3/4	1.1/2	4	-	●	●
GP4RW-SQ0750-030	3/4	3/4	1.1/2	4	.030	●	●
GP4RW-SQ0750-060	3/4	3/4	1.1/2	4	.060	●	●
GP4RW-SQ0750-120	3/4	3/4	1.1/2	4	.120	●	●
GP4RW-SQ1000	1	1	1.1/2	4	-	●	●
GP4RW-SQ1000-030	1	1	1.1/2	4	.030	●	●
GP4RW-SQ1000-060	1	1	1.1/2	4	.060	●	●
GP4RW-SQ1000-120	1	1	1.1/2	4	.120	●	●

GP Ball Nose Series End Mills are manufactured to the same stringent standards as our regular 4 flute cutters. Differential pitch and superior PVD coatings ensure trouble free performance on even the most difficult materials. These end mills are available with either Cylindrical or Weldon shanks.

4 Flute Ball Nose End Mills
(Variable Flute / Cylindrical Shank)

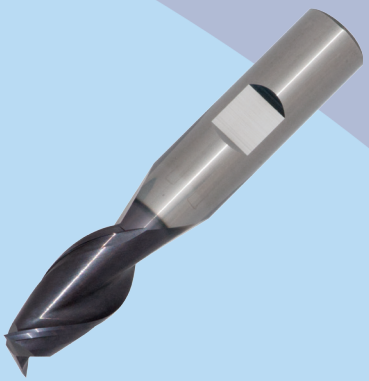
Designation	Cutter Dia.	Shank Dia.	Length of Cut	OAL	Corner Radius	TL25
GP4RC-BN0187	3/16	3/16	5/8	2	.094	●
GP4RC-BN0250	1/4	1/4	3/4	2.1/2	.125	●
GP4RC-BN0312	5/16	5/16	13/16	2.1/2	.156	●
GP4RC-BN0375	3/8	3/8	7/8	2.1/2	.188	●
GP4RC-BN0500	1/2	1/2	1	3	.250	●
GP4RC-BN0625	5/8	5/8	1.1/4	3.1/2	.312	●
GP4RC-BN0750	3/4	3/4	1.1/2	4	.375	●
GP4RC-BN1000	1	1	1.1/2	4	.500	●

4 Flute Ball Nose End Mills
(Variable Flute / Weldon)

Designation	Cutter Dia.	Shank Dia.	Length of Cut	OAL	Corner Radius	TL25
GP4RW-BN0500	1/2	1/2	1	3	.250	●
GP4RW-BN0625	5/8	5/8	1.1/4	3.1/2	.312	●
GP4RW-BN0750	3/4	3/4	1.1/2	4	.375	●
GP4RW-BN1000	1	1	1.1/2	4	.500	●

GP2 Series 2 Flute & Ball Nose End Mills

TyCarb GP Series 2 flute end mills are designed for general milling applications in low to medium carbon steels, cast iron, easy to machine stainless steels as well as aluminum, brass, bronze and copper alloys. Now available with square corners as well as corner rads and full ball nose variations that are available with either cylindrical or weldon shanks.



2 Flute End Mills
(Center Cutting / Cylindrical)

Designation	Cutter Dia.	Shank Dia.	Length of Cut	OAL	Corner Radius	UP25	TL25
GP2R-SQ0250	1/4	1/4	3/4	2.1/2	-	●	●
GP2R-SQ0250-020	1/4	1/4	3/4	2.1/2	.020	●	●
GP2R-SQ0250-040	1/4	1/4	3/4	2.1/2	.040	●	●
GP2R-SQ0312	5/16	5/16	13/16	2.1/2	-	●	●
GP2R-SQ0312-020	5/16	5/16	13/16	2.1/2	.020	●	●
GP2R-SQ0375	3/8	3/8	7/8	2.1/2	-	●	●
GP2R-SQ0375-020	3/8	3/8	7/8	2.1/2	.020	●	●
GP2R-SQ0375-040	3/8	3/8	7/8	2.1/2	.040	●	●
GP2R-SQ0437	7/16	7/16	1	2.3/4	-	●	●
GP2R-SQ0500	1/2	1/2	1	3	-	●	●
GP2R-SQ0500-030	1/2	1/2	1	3	.030	●	●
GP2R-SQ0500-060	1/2	1/2	1	3	.060	●	●
GP2R-SQ0562	9/16	9/16	1.1/4	3.1/2	-	●	●
GP2R-SQ0625	5/8	5/8	1.1/4	3.1/2	-	●	●
GP2R-SQ0625-030	5/8	5/8	1.1/4	3.1/2	.030	●	●
GP2R-SQ0625-060	5/8	5/8	1.1/4	3.1/2	.060	●	●
GP2R-SQ0750	3/4	3/4	1.1/2	4	-	●	●
GP2R-SQ0750-030	3/4	3/4	1.1/2	4	.030	●	●
GP2R-SQ0750-060	3/4	3/4	1.1/2	4	.060	●	●
GP2R-SQ0875	7/8	7/8	1.1/2	4	-	●	●
GP2R-SQ1000	1	1	1.1/2	4	-	●	●

2 Flute End Mills
(Center Cutting / Weldon)

Designation	Cutter Dia.	Shank Dia.	Length of Cut	OAL	Corner Radius	UP25	TL25
GP2RW-SQ0500	1/2	1/2	1	3	-	●	●
GP2RW-SQ0562	9/16	9/16	1.1/4	3.1/2	-	●	●
GP2RW-SQ0625	5/8	5/8	1.1/4	3.1/2	-	●	●
GP2RW-SQ0750	3/4	3/4	1.1/2	4	-	●	●
GP2RW-SQ0875	7/8	7/8	1.1/2	4	-	●	●
GP2RW-SQ1000	1	1	1.1/2	4	-	●	●

2 Flute Ball Nose End Mills
(Center Cutting / Cylindrical)

Designation	Cutter Dia.	Shank Dia.	Length of Cut	OAL	Corner Radius	UP25	TL25
GP2RC-BN0250	1/4	1/4	3/4	2.1/2	.125	●	●
GP2RC-BN0312	5/16	5/16	13/16	2.1/2	.156	●	●
GP2RC-BN0375	3/8	3/8	7/8	2.1/2	.188	●	●
GP2RC-BN0500	1/2	1/2	1	3	.250	●	●
GP2RC-BN0625	5/8	5/8	1.1/4	3.1/2	.313	●	●
GP2RC-BN0750	3/4	3/4	1.1/2	4	.375	●	●
GP2RC-BN1000	1	1	1.1/2	4	.500	●	●

ORION End Mills for Aluminum

ORION end mills are ideal for high performance milling in all grades of aluminum, including the high silicon series as well as extruded and die cast parts.

Due to the unique and polished flute configuration, the Orion end mills are designed for aggressive chip evacuation under extremely heavy chip loads. Orion end mills are capable of speeds in excess of 2,000 SFM when run in a balanced assembly. Orion End Mills are available as 2 flute, 3 flute as well as 3 flute Rougher/Finishers.

TYCarb

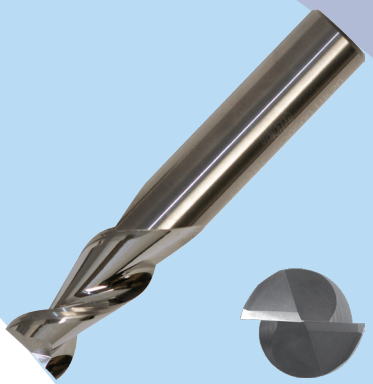
UK20 This uncoated carbide grade is made from high quality micro grain material. Due to it's exceptional balance of wear and toughness this grade maintains sharp cutting edges and consistent controlled wear rates. UK20 is used for general purpose to high speed machining of aluminum and non-ferrous materials.

Recommended Cutting Parameters		Application			Uncoated UK20	Cutting Speed (Vc) Maximum Feed per Tooth for Side Milling Operations* Cutting Diameter						
		Side Milling		Slotting								
		Axial Depth	Radial Depth	Max. Axial Depth								
Tool Series	Material	ap	ae	ap	SFM	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
ORION	Aluminum Alloys	1.5 x D	0.5 x D	1 x D	1000 - 2000 SFM	.0023 - .0043	.0028 - .0055	.0034 - .006	.0045 - .008	.0056 - .0095	.0068 - .011	.0090 - .013
	Aluminum with High Silicon	1.5 x D	0.5 x D	1 x D	700 - 2000 SFM	.0018 - .0043	.0023 - .0050	.0027 - .0052	.0036 - .0061	.0045 - .0075	.0054 - .0081	.0072 - .0110
	other Non-Ferrous materials	1.5 x D	0.5 x D	1 x D	750 - 1500 SFM	.0018 - .0043	.0023 - .0050	.0027 - .0052	.0036 - .0061	.0045 - .0075	.0054 - .0081	.0072 - .0110

* Feed per tooth in slotting applications should not exceed 80% of feed per tooth for side milling

ORION 2 Flute End Mills for Aluminum

- Orion 2 flute End Mills specifically designed for Aluminum
- New Polished flute design for effective chip evacuation
- One tool for roughing, semi-finishing as well as finishing operations
- Effective for slotting up to 1xD axial depth
- For Side or profile milling capable of 0.5xD radial and 1.5xD axial depth
- Cutting speeds only limited by your machine (Tool Balancing for Higher speeds recommended)
- Multiple length and radius tools available



ORION 2 Flute Solid Carbide End Mills (Center Cutting)

Designation	Cutter Diameter	Length of Cut	OAL	Corner Radius	UK20 Uncoated
OR2RC-SQ0125	1/8	3/8	1.1/2	-	●
OR2EC-SQ0125	1/8	1/2	1.1/2	-	●
OR2LC-SQ0125	1/8	3/4	2.1/2	-	●
OR2RC-SQ0187	3/16	5/16	2	-	●
OR2EC-SQ0187	3/16	9/16	2	-	●
OR2RC-SQ0250	1/4	1/2	2.1/2	-	●
OR2RC-SQ0250-015	1/4	1/2	2.1/2	.015	●
OR2RC-SQ0250-030	1/4	1/2	2.1/2	.030	●
OR2RC-SQ0250-060	1/4	1/2	2.1/2	.060	●
OR2EC-SQ0250	1/4	3/4	2.1/2	-	●
OR2EC-SQ0250-015	1/4	3/4	2.1/2	.015	●
OR2LC-SQ0250	1/4	1.1/8	2.1/2	-	●
OR2LC-SQ0250-015	1/4	1.1/8	2.1/2	.015	●
OR2RC-SQ0312	5/16	5/8	2.1/2	-	●
OR2RC-SQ0312-030	5/16	5/8	2.1/2	.030	●
OR2LC-SQ0312	5/16	1.1/8	3	-	●
OR2RC-SQ0375	3/8	3/4	2.1/2	-	●
OR2RC-SQ0375-030	3/8	3/4	2.1/2	.030	●
OR2EC-SQ0375	3/8	1.1/8	3	-	●
OR2EC-SQ0375-030	3/8	1.1/8	3	.030	●
OR2LC-SQ0375	3/8	2	4	-	●
OR2LC-SQ0375-030	3/8	2	4	.030	●

Designation	Cutter Diameter	Length of Cut	OAL	Corner Radius	UK20 Uncoated
OR2RC-SQ0500	1/2	1	3	-	●
OR2RC-SQ0500-030	1/2	1	3	.030	●
OR2EC-SQ0500	1/2	1.1/4	3	-	●
OR2EC-SQ0500-030	1/2	1.1/4	3	.030	●
OR2EC-SQ0500-060	1/2	1.1/4	3	.060	●
OR2LC-SQ0500	1/2	2	4	-	●
OR2LC-SQ0500-030	1/2	2	4	.030	●
OR2RC-SQ0625	5/8	1.1/4	3.1/2	-	●
OR2RC-SQ0625-030	5/8	1.1/4	3.1/2	.030	●
OR2RC-SQ0625-060	5/8	1.1/4	3.1/2	.060	●
OR2EC-SQ0625	5/8	1.5/8	3.1/2	-	●
OR2EC-SQ0625-030	5/8	1.5/8	3.1/2	.030	●
OR2LC-SQ0625	5/8	2	4	-	●
OR2RC-SQ0750	3/4	1.1/2	4	-	●
OR2RC-SQ0750-030	3/4	1.1/2	4	.030	●
OR2EC-SQ0750	3/4	1.3/4	4	-	●
OR2EC-SQ0750-030	3/4	1.3/4	4	.030	●
OR2LC-SQ0750	3/4	3	6	-	●
OR2RC-SQ1000	1	1.1/2	4	-	●
OR2EC-SQ1000	1	2	4	-	●
OR2EC-SQ1000-030	1	2	4	.030	●
OR2LC-SQ1000	1	3	6	-	●

UK20 This uncoated carbide grade is made from high quality micro grain material. Due to it's exceptional balance of wear and toughness this grade maintains sharp cutting edges and consistent controlled wear rates. UK20 is used for general purpose to high speed machining of aluminum and non-ferrous materials.

ORION 3 Flute End Mills for Aluminum

- Orion 3 flute End Mills specifically designed for Aluminum
- Differential flute spacing for chatter free performance
- New Polished flute design for effective chip evacuation
- One tool for roughing, semi-finishing as well as finishing operations
- Effective for slotting up to 1xD axial depth
- For Side or profile milling capable of 0.5xD radial and 1.5xD axial depth
- Cutting speeds only limited by your machine
  (Tool Balancing for Higher speeds recommended)

ORION 3 Flute Solid Carbide End Mills (Variable Flute / Center Cutting)

Designation	Cutter Diameter	Length of Cut	OAL	Corner Radius	UK20 Uncoated
OR3RC-SQ0125	1/8	3/8	1.1/2	-	●
OR3EC-SQ0125	1/8	1/2	1.1/2	-	●
OR3LC-SQ0125	1/8	3/4	2.1/2	-	●
OR3RC-SQ0187	3/16	5/16	2	-	●
OR3EC-SQ0187	3/16	9/16	2	-	●
OR3RC-SQ0250	1/4	1/2	2.1/2	-	●
OR3RC-SQ0250-015	1/4	1/2	2.1/2	.015	●
OR3EC-SQ0250	1/4	3/4	2.1/2	-	●
OR3EC-SQ0250-015	1/4	3/4	2.1/2	.015	●
OR3LC-SQ0250	1/4	1-1/8	2.1/2	-	●
OR3LC-SQ0250-015	1/4	1-1/8	2.1/2	.015	●
OR3RC-SQ0312	5/16	5/8	2.1/2	-	●
OR3RC-SQ0312-030	5/16	5/8	2.1/2	.030	●
OR3LC-SQ0312	5/16	1-1/8	3	-	●
OR3RC-SQ0375	3/8	3/4	2.1/2	-	●
OR3RC-SQ0375-030	3/8	3/4	2.1/2	.030	●
OR3EC-SQ0375	3/8	1-1/8	3	-	●
OR3EC-SQ0375-030	3/8	1-1/8	3	.030	●
OR3LC-SQ0375	3/8	2	4	-	●
OR3LC-SQ0375-030	3/8	2	4	.030	●
OR3RC-SQ0500	1/2	1	3	-	●
OR3RC-SQ0500-030	1/2	1	3	.030	●

Designation	Cutter Diameter	Length of Cut	OAL	Corner Radius	UK20 Uncoated
OR3EC-SQ0500	1/2	1.1/4	3	-	●
OR3EC-SQ0500-030	1/2	1.1/4	3	.030	●
OR3LC-SQ0500	1/2	2	4	-	●
OR3LC-SQ0500-030	1/2	2	4	.030	●
OR3RC-SQ0625	5/8	1.1/4	3.1/2	-	●
OR3RC-SQ0625-030	5/8	1.1/4	3.1/2	.030	●
OR3EC-SQ0625	5/8	1.5/8	3.1/2	-	●
OR3EC-SQ0625-030	5/8	1.5/8	3.1/2	.030	●
OR3LC-SQ0625	5/8	2	4	-	●
OR3LC-SQ0625-030	5/8	2	4	.030	●
OR3RC-SQ0750	3/4	1.1/2	4	-	●
OR3RC-SQ0750-030	3/4	1.1/2	4	.030	●
OR3EC-SQ0750	3/4	1.3/4	4	-	●
OR3EC-SQ0750-030	3/4	1.3/4	4	.030	●
OR3LC-SQ0750	3/4	3	6	-	●
OR3LC-SQ0750-030	3/4	3	6	.030	●
OR3RC-SQ1000	1	1.1/2	4	-	●
OR3RC-SQ1000-030	1	1.1/2	4	.030	●
OR3EC-SQ1000	1	2	4	-	●
OR3EC-SQ1000-030	1	2	4	.030	●
OR3LC-SQ1000	1	3	6	-	●
OR3LC-SQ1000-030	1	3	6	.030	●

UK20 This uncoated carbide grade is made from high quality micro grain material. Due to it's exceptional balance of wear and toughness this grade maintains sharp cutting edges and consistent controlled wear rates. UK20 is used for general purpose to high speed machining of aluminum and non-ferrous materials.

PLOR 3 Flute End Mills for Aluminum

The re-engineered 3 flute TyCarb Orion PLOR series takes a significant leap forward in cutter performance in aluminum and non-ferrous materials. The unique design characteristics incorporates center cutting of all three flutes directly to the center-point of the tools (both end mill and ball nose) which expands application versatility to plunging, ramping, and even drilling. The revised tools improve feed rates, overall cutter balance at high spindle speeds and lower cutting forces versus traditionally designed 3 flute end mills. The square corner end mills also incorporate an improved dish for increased ramping angles. The combined performance gains of the improved design simply translates into better workpiece finishes and enhanced machine spindle life.

- Highly Polished 3 flute design for Aluminum and Non Ferrous materials
- Balanced 3 flute to center design for improved ramping & drilling applications
- Differential pitch for vibration free machining
- Available as Square end or Ball Nose design
- Special diameters or lengths available on request
- Premium Micro-Grain carbide

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ORION 3 Flute Balanced Center Cut Square End

Designation	Cutter Dia.	Shank Dia.	Length of Cut	OAL	Corner Radius	UK20 Uncoated
PLOR3RC-SQ0250	1/4	1/4	3/4	2.1/2	-	●
PLOR3RC-SQ0312	5/16	5/16	13/16	2.1/2	-	●
PLOR3RC-SQ0375	3/8	3/8	3/4	2.1/2	-	●
PLOR3EC-SQ0500	1/2	1/2	1.1/4	3	-	●
PLOR3RC-SQ0625	5/8	5/8	1.1/4	3.1/2	-	●
PLOR3RC-SQ0750	3/4	3/4	1.1/2	4	-	●

ORION 3 Flute Balanced Center Cut Ball Nose

Designation	Cutter Dia.	Shank Dia.	Length of Cut	OAL	Corner Radius	UK20 Uncoated
PLOR3RC-BN0250	1/4	1/4	3/4	2.1/2	.125	●
PLOR3RC-BN0312	5/16	5/16	13/16	2.1/2	.156	●
PLOR3RC-BN0375	3/8	3/8	3/4	2.1/2	.188	●
PLOR3EC-BN0500	1/2	1/2	1.1/4	3	.250	●
PLOR3RC-BN0625	5/8	5/8	1.1/4	3.1/2	.313	●
PLOR3RC-BN0750	3/4	3/4	1.1/2	4	.375	●

ORION 3 Flute Metric Square End

Designation	Cutter Dia.	Shank Dia.	Length of Cut	OAL	Corner Radius	UK20 Uncoated
PLOR3EC-SQ06MM	6	6	20	64	-	●
PLOR3EC-SQ08MM	8	8	20	64	-	●
PLOR3EC-SQ10MM	10	10	28	76	-	●
PLOR3EC-SQ12MM	12	12	32	76	-	●
PLOR3EC-SQ16MM	16	16	38	89	-	●

ORION 3 Flute Metric Ball Nose

Designation	Cutter Dia.	Shank Dia.	Length of Cut	OAL	Corner Radius	UK20 Uncoated
PLOR3EC-BN06MM	6	6	20	64	3.0	●
PLOR3EC-BN08MM	8	8	20	64	4.0	●
PLOR3EC-BN10MM	10	10	28	76	5.0	●
PLOR3EC-BN12MM	12	12	32	76	6.0	●
PLOR3EC-BN16MM	16	16	38	89	8.0	●

ORION 3 Flute Roughing End Mills for Aluminum

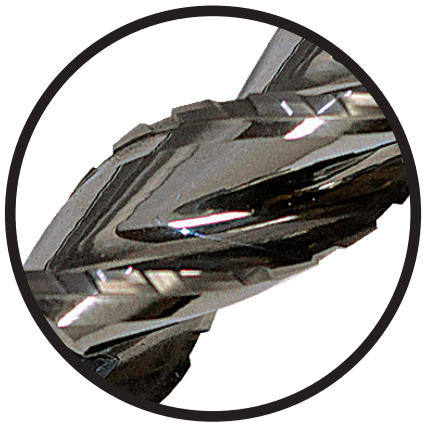
- Orion 3 flute Roughing End Mills specifically designed for Aluminum
- Orion 3 flute design feature differential flute spacing for chatter free performance
- New Polished flute design for effective chip evacuation
- Designed for aggressive feed rates while maintaining good surface finishes
- Specially designed chipbreaker creates smaller chips and reduces cutting loads on lighter duty machines

ORION 3 Flute Roughing End Mills
(Variable Flute / Center Cutting / Cylindrical Shank)

Designation	Cutter Dia.	Shank Dia.	Length of Cut	OAL	Chamfer	UK20 Uncoated
RCOR3RC-SQ0250-C10	1/4	1/4	3/4	2.1/2	.010	●
RCOR3RC-SQ0375-C10	3/8	3/8	7/8	2.1/2	.010	●
RCOR3EC-SQ0375-C10	3/8	3/8	1.1/8	3	.010	●
RCOR3MC-SQ0375-C10	3/8	3/8	1.1/2	3	.010	●
RCOR3EC-SQ0500-C20	1/2	1/2	1.1/4	3	.020	●
RCOR3LC-SQ0500-C20	1/2	1/2	2	4	.020	●
RCOR3RC-SQ0625-C30	5/8	5/8	1.1/4	3.1/2	.030	●
RCOR3LC-SQ0625-C30	5/8	5/8	2	4	.030	●
RCOR3RC-SQ0750-C30	3/4	3/4	1.1/2	4	.030	●
RCOR3SP-SQ0750-C30	3/4	3/4	1.5/8	4	.030	●
RCOR3EC-SQ0750-C30	3/4	3/4	1.3/4	4	.030	●
RCOR3MC-SQ0750-C30	3/4	3/4	2.1/4	4.1/2	.030	●
RCOR3LC-SQ0750-C30	3/4	3/4	3	6	.030	●
RCOR3EC-SQ1000-C50	1	1	1.1/2	4	.050	●
RCOR3MC-SQ1000-C50	1	1	2	4.1/2	.050	●
RCOR3LC-SQ1000-C50	1	1	3	6	.050	●

ORION 3 Flute Roughing End Mills
(Variable Flute / Center Cutting / Weldon Shank)

Designation	Cutter Dia.	Shank Dia.	Length of Cut	OAL	Chamfer	UK20 Uncoated
RCOR3EW-SQ0500-C20	1/2	1/2	1.1/4	3	.020	●
RCOR3RW-SQ0625-C30	5/8	5/8	1.1/4	3.1/2	.030	●
RCOR3RW-SQ0750-C30	3/4	3/4	1.1/2	4	.030	●
RCOR3RW-SQ1000-C50	1	1	1.1/2	4	.050	●



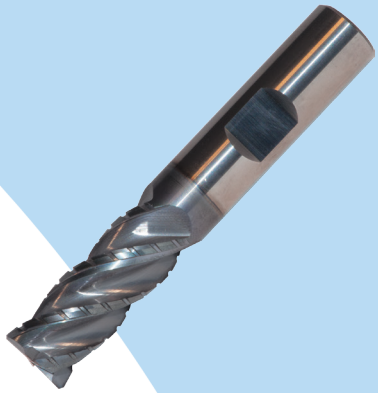
Recommended Cutting Parameters		Application			Uncoated UK20 Cutting Speed Vc	Cutting Speed (Vc) Maximum Feed per Tooth for Side Milling Operations* Cutting Diameter						
		Side Milling		Slotting								
		Axial Depth	Radial Depth	Max. Axial Depth								
Tool Series	Material	ap	ae	ap	SFM	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
ORION Roughing Cutters	Aluminum Alloys	1.5 x D	0.5 x D	1 x D	1000 - 2000	.003 - .0054	.0035 - .0068	.004 - .0075	.0056 - .010	.007 - .0118	.0085 - .0138	.0113 - .0163
	Aluminum with High Silicon	1.5 x D	0.5 x D	1 x D	700 - 2000	.0023 - .0054	.003 - .0063	.0034 - .0068	.0045 -.0076	.0056 - .0094	.0068 - .010	.009 - .0138
	other Non-Ferrous materials	1.5 x D	0.5 x D	1 x D	750 - 1500	.0023 - .0054	.003 - .0063	.0034 - .0068	.0045 -.0076	.0056 - .0094	.0068 - .010	.009 - .0138

* Feed per tooth in slotting applications should not exceed 80% of feed per tooth for side milling

RC4 Variable Flute Roughing End Mills

The New TyCarb Rougher / Finisher is recommended for use in most materials from carbon, tool, die, alloy steels as well as cast iron and even stainless steel. The unique chipbreaker and flute configuration achieves higher productivity with less H.P. than other High Performance end mills. The specially designed chipbreaker creates smaller chips, ensuring rapid evacuation and helping reduce potential tool chatter. Added features include differential flute spacing to achieve even higher productivity.

- Cutting edges protected with 45 deg. chamfer
- Next generation AlCrN PVD coating
- Differential flute spacing
- Available with cylindrical or weldon style shanks



4 Flute Roughing End Mills
(Variable Flute / Center Cutting)

Designation	Cutter Dia.	Shank Dia.	Length of Cut	OAL	Chamfer	TL30 Coated
RC4RC-SQ0250-C10	1/4	1/4	3/4	2.1/2	.010	●
RC4RC-SQ0375-C10	3/8	3/8	7/8	2.1/2	.010	●
RC4EC-SQ0500-C20	1/2	1/2	1.1/4	3	.020	●
RC4RC-SQ0625-C30	5/8	5/8	1.1/4	3.1/2	.030	●
RC4RC-SQ0750-C30	3/4	3/4	1.1/2	4	.030	●
RC4RC-SQ1000-C30	1	1	1.1/2	4	.030	●

4 Flute Roughing End Mills
(Variable Flute / Center Cutting / Weldon)

Designation	Cutter Dia.	Shank Dia.	Length of Cut	OAL	Chamfer	TL30 Coated
RC4EW-SQ0500-C20	1/2	1/2	1.1/4	3	.020	●
RC4RW-SQ0625-C30	5/8	5/8	1.1/4	3.1/2	.030	●
RC4RW-SQ0750-C30	3/4	3/4	1.1/2	4	.030	●
RC4RW-SQ1000-C30	1	1	1.1/2	4	.030	●

Recommended Cutting Parameters

Work Material	Type of Cut	Axial DOC	Radial DOC	Speed (SFM)	Feed (Inches Per Tooth)					
					1/4	3/8	1/2	5/8	3/4	1
Low Carbon Steels <= 38 Rc 1018, 12L14, 8620	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D .5 x D	350 425	.0018 .0022	.0026 .0033	.0035 .0044	.0044 .0055	.0053 .0066	.0070 .0088
Medium Carbon Steels <= 38 Rc 4140, 4340	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D .5 x D	325 375	.0014 .0019	.0022 .0029	.0030 .0039	.0037 .0048	.0044 .0058	.0059 .0077
Tool and Die Steels <= 38 Rc A2, D2, O1, S7, P20, H13	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D .5 x D	325 375	.0014 .0019	.0022 .0029	.0030 .0039	.0037 .0048	.0044 .0058	.0059 .0077
Tool Steels 39 Rc to 48 Rc	Slotting Peripheral - Rough	.75 x D 1 x D	1 x D .5 x D	225 275	.0011 .0013	.0017 .0019	.0022 .0025	.0028 .0032	.0033 .0038	.0044 .0051
Easy to machine stainless steel 416, 410, 302, 303	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D .5 x D	300 375	.0013 .0018	.0020 .0026	.0028 .0035	.0034 .0044	.0041 .0053	.0055 .0070
Moderately difficult stainless steels 304, 316, Invar, Kovar	Slotting Peripheral - Rough	.75 x D 1.5 x D	1 x D .5 x D	275 350	.0012 .0017	.0018 .0025	.0024 .0035	.0030 .0041	.0036 .0050	.0048 .0070
Difficult to machine stainless steels 316L, 17-4 PH, 15-5 PH, 13-8 PH	Slotting Peripheral - Rough	.5 x D 1 x D	1 x D .5 x D	250 300	.0010 .0012	.0013 .0018	.0020 .0024	.0024 .0031	.0030 .0036	.0040 .0048
Cast Iron Grey	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D .5 x D	400 500	.0013 .0017	.0021 .0025	.0028 .0033	.0034 .0041	.0042 .0051	.0055 .0066
Cast Iron Ductile	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D .5 x D	300 400	.0013 .0015	.0020 .0023	.0025 .0031	.0032 .0039	.0039 .0046	.0051 .0062
Cast Iron Malleable	Slotting Peripheral - Rough	.75 x D 1 x D	1 x D .75 x D	250 325	.0009 .0012	.0013 .0018	.0017 .0024	.0021 .0030	.0025 .0036	.0033 .0048
Titanium Alloys	Slotting Peripheral - Rough	.5 x D 1 x D	1 x D .5 x D	250 300	.0011 .0013	.0017 .0019	.0022 .0025	.0028 .0032	.0033 .0039	.0044 .0051
High Temperature Alloys Inconel, Haynes, Stellite, Hastalloy	Slotting Peripheral - Rough	.25 x D 1 x D	1 x D .25 x D	70 95	.0009 .0010	.0013 .0015	.0017 .0020	.0021 .0024	.0026 .0031	.0033 .0040

2² - 4 Flute Rougher / Finisher End Mills

The TyCarb 2² High Performance end mills are specifically designed with 2 roughing flutes and 2 Finishing flutes to operate at roughing cutter parameters while achieving excellent surface finish. The eccentric relief and differential flute spacing design make this tool suitable for a wide variety of materials- carbon, die, alloy and stainless steels as well as exotic materials.

- Differential flute spacing
- Next generation AlCrN PVD coating
- Cutting edges protected with a 45 degree chamfer
- Eccentric relief flute design
- Available with Cylindrical or Weldon style shanks

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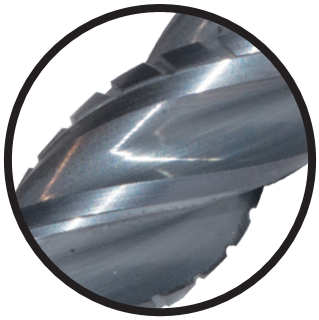

4 Flute Rougher / Finisher End Mills
(Variable Flute / Center Cutting)

Designation	Cutter Dia.	Shank Dia.	Length of Cut	OAL	Chamfer	TL30 Coated
SM4RC-SQ0250-C10	1/4	1/4	3/4	2.1/2	.010	●
SM4RC-SQ0375-C10	3/8	3/8	7/8	2.1/2	.010	●
SM4EC-SQ0500-C20	1/2	1/2	1-1/4	3	.020	●
SM4RC-SQ0625-C30	5/8	5/8	1-1/4	3.1/2	.030	●
SM4RC-SQ0750-C30	3/4	3/4	1-1/2	4	.030	●
SM4RC-SQ1000-C30	1	1	1-1/2	4	.030	●

4 Flute Rougher / Finisher End Mills
(Variable Flute / Center Cutting / Weldon)

Designation	Cutter Dia.	Shank Dia.	Length of Cut	OAL	Chamfer	TL30 Coated
SM4EW-SQ0500-C20	1/2	1/2	1-1/4	3	.020	●
SM4RW-SQ0625-C30	5/8	5/8	1-1/4	3.1/2	.030	●
SM4RW-SQ0750-C30	3/4	3/4	1-1/2	4	.030	●
SM4RW-SQ1000-C30	1	1	1-1/2	4	.030	●

Recommended Cutting Parameters

Work Material	Type of Cut	Axial DOC	Radial DOC	Speed (SFM)	Feed (Inches Per Tooth)					
					1/4	3/8	1/2	5/8	3/4	1
Low Carbon Steels <= 38 Rc 1018, 12L14, 8620	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D .5 x D	350 425	.0014 .0022	.0022 .0033	.0029 .0044	.0036 .0055	.0043 .0066	.0058 .0088
Medium Carbon Steels <= 38 Rc 4140, 4340	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D .5 x D	325 375	.0012 .0019	.0018 .0029	.0024 .0039	.0031 .0048	.0036 .0058	.0049 .0077
Tool and Die Steels <= 38 Rc A2, D2, O1, S7, P20, H13	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D .5 x D	325 375	.0012 .0019	.0018 .0029	.0024 .0039	.0031 .0048	.0036 .0058	.0049 .0077
Tool Steels 39 Rc to 48 Rc	Slotting Peripheral - Rough	.75 x D 1 x D	1 x D .5 x D	225 275	.0009 .0013	.0014 .0019	.0018 .0025	.0023 .0032	.0027 .0038	.0036 .0051
Easy to machine stainless steel 416, 410, 302, 303	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D .5 x D	300 375	.0011 .0018	.0016 .0026	.0023 .0035	.0028 .0044	.0033 .0053	.0045 .0070
Moderately difficult stainless steels 304, 316, Invar, Kovar	Slotting Peripheral - Rough	.75 x D 1.5 x D	1 x D .5 x D	275 350	.0010 .0017	.0014 .0025	.0020 .0035	.0024 .0041	.0030 .0050	.0040 .0070
Difficult to machine stainless steels 316L, 17-4 PH, 15-5 PH, 13-8 PH	Slotting Peripheral - Rough	.5 x D 1 x D	1 x D .5 x D	250 300	.0008 .0012	.0011 .0018	.0016 .0024	.0020 .0031	.0024 .0036	.0032 .0048
Cast Iron Grey	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D .5 x D	400 500	.0011 .0017	.0017 .0025	.0023 .0033	.0028 .0041	.0034 .0051	.0045 .0066
Cast Iron Ductile	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D .5 x D	300 400	.0011 .0015	.0016 .0023	.0021 .0031	.0026 .0039	.0032 .0046	.0041 .0062
Cast Iron Malleable	Slotting Peripheral - Rough	.75 x D 1 x D	1 x D .75 x D	250 325	.0007 .0012	.0011 .0018	.0014 .0024	.0017 .0030	.0021 .0036	.0027 .0048
Titanium Alloys	Slotting Peripheral - Rough	.5 x D 1 x D	1 x D .5 x D	250 300	.0009 .0013	.0014 .0019	.0018 .0025	.0023 .0032	.0027 .0039	.0036 .0051
High Temperature Alloys Inconel, Haynes, Stellite, Hastalloy	Slotting Peripheral - Rough	.25 x D 1 x D	1 x D .25 x D	70 95	.0007 .0010	.0011 .0015	.0014 .0020	.0017 .0024	.0022 .0031	.0027 .0040

HF Multi Flute High Feed End Mills

- TyCarb High Feed end mills are designed for roughing to semi-finish applications
- Significantly reduces machining time in hardened materials
- TyCarb High Feed end mills are capable of feed rates up to 0.029 IPT
- Effective for Z axis machining including pocketing, face milling, helical ramping as well as circular interpolation
- Now available with next generation AlCrN PVD coating
- Excellent in long reach applications

High Feed End Mills

Designation	Cutter Dia.	Shank Dia.	Rtheo	Uncut	Max ap	OAL	Lgth Below Shank	Neck Dia.	Flutes	TL30 Coated
HF4RC-DR0250-034	1/4	1/4	.034	.006	.013	2.50	.750	.210	4	●
HF4RC-DR0312-042	5/16	5/16	.042	.008	.017	3.00	1.00	.270	4	●
HF4RC-DR0375-051	3/8	3/8	.051	.010	.020	3.50	1.25	.340	4	●
HF4RC-DR0500-070	1/2	1/2	.070	.013	.028	4.00	1.50	.460	4	●
HF4RC-DR0625-085	5/8	5/8	.085	.016	.033	4.00	1.50	.590	4	●
HF5RC-DR0625-085	5/8	5/8	.085	.016	.033	4.00	1.50	.590	5	●
HF5RC-DR0750-100	3/4	3/4	.100	.019	.040	5.00	2.00	.710	5	●

High Feed End Mills - Technical Programming Information

Cutter Dia. Inch	Max. ap	Rtheo	Shoulder	RCN	Material Uncut	Circular Interpolation		Length of travel to max ap per deg.		
						Smallest	Largest	deg.	2 deg.	3 deg.
1/4	.013	.034	.020	.064	.006	.378	.500	.762	.381	.254
5/16	.017	.042	.024	.080	.008	.472	.625	.953	.476	.317
3/8	.020	.051	.030	.096	.010	.567	.750	1.143	.572	.381
1/2	.027	.070	.040	.126	.013	.752	1.000	1.525	.762	.508
5/8	.033	.085	.049	.160	.016	.945	1.250	1.906	.953	.635
3/4	.040	.100	.059	.192	.019	1.134	1.500	2.287	1.143	.762
All dimensions are shown in inch						Feed % Reduction:		100%	70%	50%

Recommended Cutting Parameters

Work Material	Axial DOC	Radial DOC	Speed		Recommended Feed (Inches Per Tooth)					
			Min.	Max.	1/4	5/16	3/8	1/2	5/8	3/4
Medium Carbon Steels <= 38 Rc 4140, 4340	0.05 x D	0.50 x D	500	650	.010 - .014	.012 - .016	.016 - .020	.020 - .025	.022 - .027	.024 - .029
Tool and Die Steels <= 38 Rc A2, D2, O1, S7, P20, H13	0.05 x D	0.50 x D	480	600	.010 - .014	.012 - .016	.016 - .020	.020 - .025	.022 - .027	.024 - .029
Tool Steels 39 Rc to 48 Rc	0.05 x D	0.50 x D	375	525	.006 - .010	.008 - .012	.012 - .014	.016 - .020	.017 - .022	.018 - .024
Easy to machine stainless steel 416, 410, PH Stainless	0.05 x D	0.50 x D	250	375	.006 - .010	.008 - .012	.012 - .014	.016 - .020	.017 - .022	.018 - .024
Hardened Tool Steels 48 - 53 Rc	0.05 x D	0.50 x D	350	500	.008 - .012	.010 - .014	.014 - .018	.018 - .022	.020 - .024	.020 - .027

End Mills for Taper Pipe Thread Prep. 2 Flute Chamfer Tools

Used for milling the workpiece in preparation of the thread milling or tapping operation of NPT type threads.

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Advantages:

- Increases the tool life of thread milling cutters, indexable inserts or NPT type taps
- Equal and uniform load along the cutting edge of the thread mill cutter
- Shorter machining time during the thread mill operation, due to the preparation of the workpiece

Solid Carbide Tapered End Mills

Designation	Shank Dia.	Tip Dia.	Flute Length	OAL	No. of Flutes	Thread Size	TL25
Standard Length							
TP4RC-SQ0375	3/8	.32	.95	3.0	4	NPT 1/8" - 1" NPTF 1/8" - 1" BSPT 1/8" - 1"	●
TP4RC-SQ0500	1/2	.42	1.26	3.5	4	NPT 1/4" - 3" NPTF 1/4" - 3" BSPT 1/4" - 3"	●
Extended Length							
TP4LC-SQ0500	1/2	.42	1.26	6.0	4	NPT 1/4" - 3" NPTF 1/4" - 3" BSPT 1/4" - 3"	●

External Preparation

Internal Preparation

CH2RC - 2 Flute Chamfer Tools

- 2 Flute chamfer tools
- Designed for all materials
- Premium Micro Grain carbide
- Available with 60, 90, & 120° included angles

2 Flute Chamfer Tools

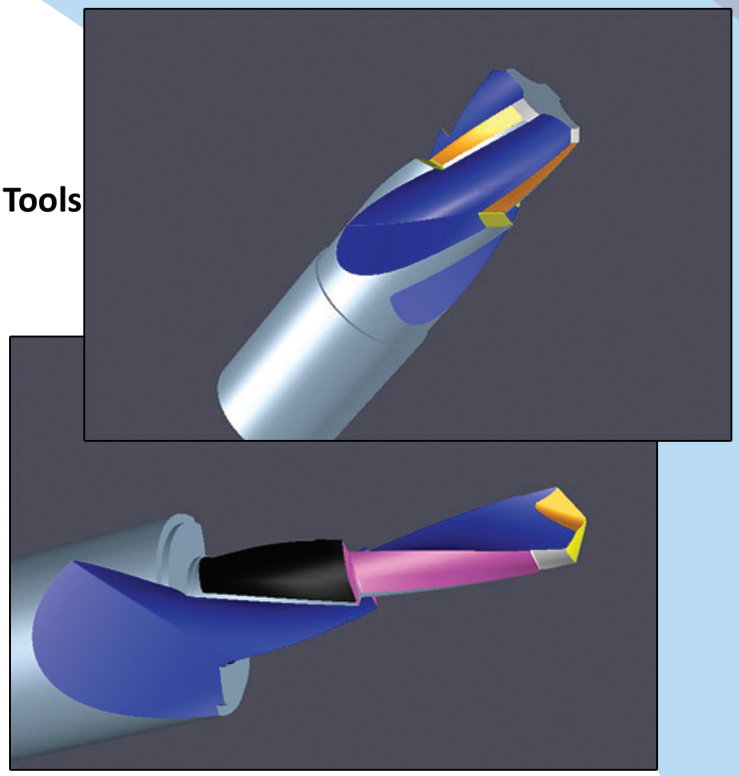
Designation	Angle	Diameter	Flute Length	OAL	UP25
CH2RC-0250-A60	60	1/4	3/8	2.1/2	●
CH2RC-0375-A60	60	3/8	1/2	2.1/2	●
CH2RC-0500-A60	60	1/2	5/8	3	●
CH2RC-0187-A90	90	3/16	3/8	2	●
CH2RC-0250-A90	90	1/4	3/8	2.1/2	●
CH2RC-0312-A90	90	5/16	3/8	2.1/2	●
CH2RC-0375-A90	90	3/8	1/2	2.1/2	●
CH2RC-0500-A90	90	1/2	5/8	3	●
CH2RC-0250-A120	120	1/4	3/8	2.1/2	●
CH2RC-0375-A120	120	3/8	1/2	2.1/2	●
CH2RC-0500-A120	120	1/2	5/8	3	●

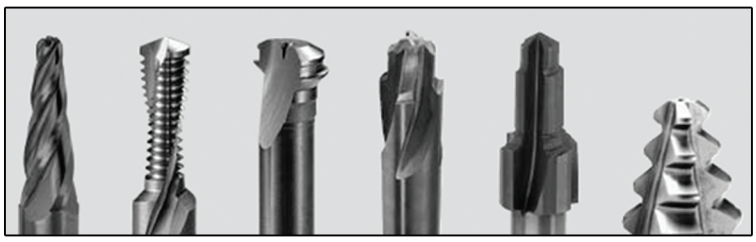
Custom Solutions

From simple modifications to standard lines of tooling, to completely engineered tooling solutions - we have the skill and experience to deliver quality products to increase productivity

- Solid Carbide Tooling
- Custom Drills & Taper Mills
- Virtually Unlimited Form Tools
- Coolant Through G-Drills, Step Drills & Ball Tools
- Special Radii
- Reamers
- Jig Boring Tools
- Forming Tools
- Dovetail Cutters
- Porting Tools
- Coolant Through
- Advanced Coating Capability

TYCarb





TYcarb

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