

More TOOLING  
More APPLICATIONS  
More CHIPS

2023 Product Catalog

# T-BELI



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## Exceptional, Fully Stocked Tooling

T-Beli has earned and maintained a reputation as an industry leading manufacturer of high performance carbide end mills. We consistently outperform other manufacturers by offering **extremely high quality, fully stocked cutting tools** at competitive prices, ensuring that you enjoy the best results while maximizing your shop's profitability.

## Unbeatable Custom Tool Experience

T-Beli's Custom-Engineered Solutions Program is designed to give you the best possible custom tool experience from beginning-to-end. We set ourselves apart with a team of engineers eager to understand every aspect of your project. Within 48 hours, we will return a quote with **expertly crafted geometries designed to produce extraordinary results** in your specific application. We'll then work with you to ensure proper tool setup and running parameters that deliver maximized performance.

## Outstanding Technical Expertise

Our team of experienced engineers live and breathe cutting tools and are enthusiastic about maximizing your shop floor productivity. Whether it be in your shop or over the phone, we have **knowledgeable technical field representatives and in-house tool experts** available to help you with tool selection, tool design, application support, and troubleshooting.



# Let T-Beli Impress You

At T-Beli, it is our goal to design and manufacture industry-leading products at competitive prices so you don't have to settle for ordinary cutting tools.

T-beli end mills are built to last and **excel at aggressive running parameters**, meaning you will experience greatly reduced cycle times, heightened productivity, and superior part finish. This translates directly to savings and efficiencies in your shop, and positively affects your bottom line.

We offer **more than 8,800 fully stocked tools** optimized for a variety of operations and designed for the unique challenges of non-ferrous and ferrous material groups. If you can't find what you're looking for, consider our custom-engineered solutions program

## Our Tools Deliver

- + Superior Part Finish
- + Extended Tool Life
- + Improved Bottom Line
- + Increased Material Removal Rates

End Mills for Aluminum Alloys & Non-Ferrous Materials



End Mills for Steels, Tool Steels & Cast Iron



End Mills for Stainless Steels & High Temp Alloys



End Mills for Nickel Alloys



End Mills for Titanium & Titanium Alloys



High Feed End Mills



Specialty Profiles



## Send Your Shopping Cart Directly to Your Distributor

Did you know that you can place a T-Beli Solutions order directly to your distributor from our website? After creating your [Tbeli.com](https://www.tbeli.com) account, you're able to build and send "shopping carts" directly to your participating distributor to order.

# OUR COATINGS

	<b>Nplus</b>	<b>Zplus</b>	<b>Tplus</b>	<b>Aplus</b>
Application Benefits	Nplus is specially engineered for optimal performance and extended tool life in aluminum alloys and non-ferrous materials, especially high-silicon aluminums and copper alloys. Its high hardness and excellent edge retention provide improved wear resistance.	Zplus provides higher hardness, lubricity, and abrasion resistance. While it's specifically engineered for aluminum applications, it is also an optimal coating for other non-ferrous materials. Zplus holds up well in abrasive materials and reduces the chance of built-upedge in softer, gummy alloys.	Tplus is an ideal choice for increased wear resistance and edge strength in stainless steels, high temp alloys, and hardened steels up to 65Rc. Also an excellent choice for increased wear resistance in a wide variety of ferrous materials.	Aplus allows for high temperature resistance, decreased wear, and improved tool life. Proven to work in high speed machining and dry conditions, these benefits are seen in a wide range of ferrous materials and titanium alloys.
Materials	Wrought Aluminum, Cast Aluminum, Graphite, and Other Non-Ferrous Alloys	Wrought Aluminum, Cast Aluminum, Graphite, and Other Non-Ferrous Alloys	Stainless Steels, High Temp Alloys, Hardened Steels	Low Alloy Steels, Medium Alloy Steels, Tool Steels, Cast Iron, and Titanium
Coating Appearance	light grey/silver 	light gold / champagne 	copper 	black / grey 
Max. Usage Temp.	2,012° F	1,110° F	2,192° F	2,012° F
Microhardness (HV 0.05)	4079 (40 GPa)	2243 (22 GPa)	4487 (44 GPa)	4079 (40 GPa)
Coefficient of Friction	0.45	0.40	0.35	0.45

## The Advantageous Qualities of T-Beli Solutions' Nplus Coating

Is Nplus coating the right option for you, and your next project? Let us answer that question for you in our "In the Loupe" blog post: *The Advantageous Qualities of T-beli Solutions' Nplus Coating.* There, we bring you through the many benefits of this unique coating option, but also tell you when Nplus may not be your best option.

## TB35AL-3

## 3 FLUTE - CORNER RADIUS

## 35° Helix - Variable Pitch - Chipbreaker Rougher

- Designed for outstanding performance and accelerated material removal rates in aluminum and non-ferrous materials
- Engineered with optimized variable pitch and chipbreaker geometry for reduced harmonics and elevated material removal rates
- Unique tool design requires less torque and horsepower
- Unique "3 teeth-to-center" end geometry for ramping applications
- h6 shank tolerance for high precision tool holders
- *Zplus* coating offers higher hardness and added lubricity for maximum performance
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Corner Radius R	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Uncoated	Zplus Coated	Tool Description
1	4	0.1	2.5	50	3	82101	82102	TB35AL-03010-R0.1
	4	0.1	6	50	3			TB35AL-03010-06-R0.1
	4	0.1	8	50	3			TB35AL-03010-08-R0.1
	4	0.1	10	50	3			TB35AL-03010-10-R0.1
	4	0.1	12	50	3			TB35AL-03010-12-R0.1
2	4	0.2	6	50	3			TB35AL-03020-R0.2
	4	0.2	8	50	3			TB35AL-03020-08-R0.2
	4	0.2	10	50	3			TB35AL-03020-10-R0.2
	4	0.2	12	50	3			TB35AL-03020-12-R0.2
	4	0.2	16	50	3			TB35AL-03020-16-R0.2
3	4	0.3	9	50	3			TB35AL-03020-R0.3
	4	0.3	12	50	3			TB35AL-03020-12-R0.3
	4	0.3	16	50	3			TB35AL-03020-16-R0.3
	4	0.3	20	50	3			TB35AL-03020-20-R0.3
	4	0.3	25	50	3			TB35AL-03020-25-R0.3
4	6	0.5	12	50	3			TB35AL-03020-R0.5
	6	0.5	16	50	3			TB35AL-03020-16-R0.5
	6	0.5	20	50	3			TB35AL-03020-20-R0.5
	6	0.5	25	50	3			TB35AL-03020-25-R0.5
5	4	0.5	13	50	3			TB35AL-03020-R0.5
	4	0.5	16	50	3	TB35AL-03020-13-R0.5		
	4	0.5	20	50	3	TB35AL-03020-16-R0.5		
	4	0.5	25	50	3	TB35AL-03020-25-R0.5		
	4	0.5	30	60	3	TB35AL-03020-30-R0.5		

\* .0003 max TIR

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## TB35AL-3

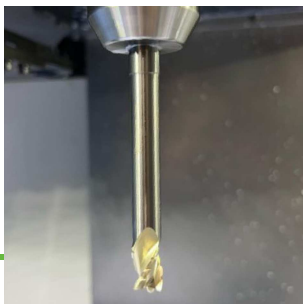
## 3 FLUTE - CORNER RADIUS

35° Helix - Variable Pitch - Chipbreaker Rougher (cont.)

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Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Corner Radius R	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Uncoated	Zplus Coated	Tool Description
6	6	0.5	15	50	3	82101	82102	TB35AL-03060-R0.5
	6	0.5	25	75	3			TB35AL-03060-25-R0.5
	6	0.5	35	100	3			TB35AL-03060-35-R0.5
	6	0.5	45	100	3			TB35AL-03060-45-R0.5
	6	0.5	55	120	3			TB35AL-03060-55-R0.5
8	8	0.5	20	60	3			TB35AL-03080-R0.2
	8	0.5	25	75	3			TB35AL-03080-25-R0.5
	8	0.5	35	100	3			TB35AL-03080-35-R0.5
	8	0.5	45	100	3			TB35AL-03080-45-R0.5
	8	0.5	60	120	3			TB35AL-03080-60-R0.5
10	10	0.5	25	75	3			TB35AL-03100-R0.5
	10	0.5	35	100	3			TB35AL-03100-35-R0.5
	10	0.5	45	100	3			TB35AL-03100-45-R0.5
	10	0.5	55	150	3			TB35AL-03100-55-R0.5
	10	0.5	65	150	3			TB35AL-03100-65-R0.5
12	12	0.5	25	75	3			TB35AL-03120-R0.5
	12	0.5	35	100	3			TB35AL-03120-35-R0.5
	12	0.5	45	100	3			TB35AL-03120-45-R0.5
	12	0.5	55	150	3			TB35AL-03120-55-R0.5
	12	0.5	65	150	3			TB35AL-03120-65-R0.5

\*.0003 max TIR



Coating: Zplus  
 Cutter Dia: 10  
 Length of Cut: 15  
 Radius: 0.5  
 Reach (LBS): 75

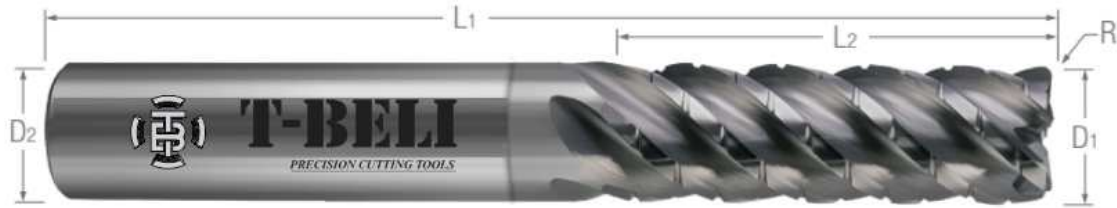
Run Faster. Push Harder. Machine Smarter.

Tag us and share what you are working on @belitools

# 5 FLUTE - CORNER RADIUS

## Chipbreaker Rougher - Variable Pitch - For High Efficiency Milling

- Specially engineered for optimal performance in High Efficiency Milling (Tbeli) of aerospace aluminum alloys with excellent performance in other non-ferrous alloys
- Excellent tool life and maximum material removal rates proven through extensive testing
- Engineered with variable pitch and offset chipbreaker geometry for optimal chip evacuation, minimized harmonics, and reduced tool pressure
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Nplus* coating for maximum performance in abrasive aluminums and extended tool life in a wide variety of non-ferrous alloys
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Corner Radius R	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Uncoated	<i>Nplus</i> Coated	Tool Description
6	6	0.5	15	50	3	82101	82103	TBAL-05060-R0.5
	6	0.5	25	75	3			TBAL-05060-25-R0.5
	6	0.5	35	100	3			TBAL-05060-35-R0.5
	6	0.5	45	100	3			TBAL-05060-45-R0.5
	6	0.5	55	120	3			TBAL-05060-55-R0.5
8	8	0.5	20	60	3			TBAL-05080-R0.2
	8	0.5	25	75	3			TBAL-05080-25-R0.5
	8	0.5	35	100	3			TBAL-05080-35-R0.5
	8	0.5	45	100	3			TBAL-05080-45-R0.5
	8	0.5	60	120	3			TBAL-05080-60-R0.5
10	10	0.5	25	75	3			TBAL-05100-R0.5
	10	0.5	35	100	3			TBAL-05100-35-R0.5
	10	0.5	45	100	3			TBAL-05100-45-R0.5
	10	0.5	55	150	3			TBAL-05100-55-R0.5
	10	0.5	65	150	3			TBAL-05100-65-R0.5
12	12	0.5	25	75	3			TBAL-05120-R0.5
	12	0.5	35	100	3			TBAL-05120-35-R0.5
	12	0.5	45	100	3			TBAL-05120-45-R0.5
	12	0.5	55	150	3			TBAL-05120-55-R0.5
	12	0.5	65	150	3			TBAL-05120-65-R0.5

\* .0003 max TIR

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## TBAL-5

## 5 FLUTE - CORNER RADIUS

### Chipbreaker Rougher - Variable Pitch - For High Efficiency Milling (cont.)

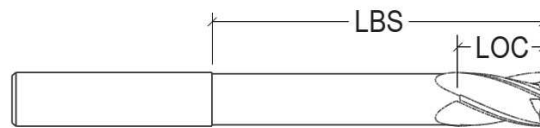
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Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Corner Radius R	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Uncoated	Nplus Coated	Tool Description
6	6	0.5	15	50	3	82101	82103	TBAL-05060-R0.5
	6	0.5	25	75	3			TBAL-05060-25-R0.5
	6	0.5	35	100	3			TBAL-05060-35-R0.5
	6	0.5	45	100	3			TBAL-05060-45-R0.5
	6	0.5	55	120	3			TBAL-05060-55-R0.5
8	8	0.5	20	60	3			TBAL-05080-R0.2
	8	0.5	25	75	3			TBAL-05080-25-R0.5
	8	0.5	35	100	3			TBAL-05080-35-R0.5
	8	0.5	45	100	3			TBAL-05080-45-R0.5
	8	0.5	60	120	3			TBAL-05080-60-R0.5
10	10	0.5	25	75	3			TBAL-05100-R0.5
	10	0.5	35	100	3			TBAL-05100-35-R0.5
	10	0.5	45	100	3			TBAL-05100-45-R0.5
	10	0.5	55	150	3			TBAL-05100-55-R0.5
	10	0.5	65	150	3			TBAL-05100-65-R0.5
12	12	0.5	25	75	3			TBAL-05120-R0.5
	12	0.5	35	100	3			TBAL-05120-35-R0.5
	12	0.5	45	100	3			TBAL-05120-45-R0.5
	12	0.5	55	150	3	TBAL-05120-55-R0.5		
	12	0.5	65	150	3	TBAL-05120-65-R0.5		

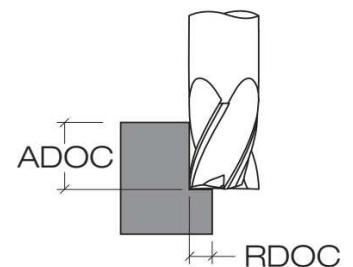
\*.0003 max TIR



Regular Style



Reduced Neck Style



Key: LOC=Length of Cut

ADOC=Axial Depth of Cut

RDOC=Radial Depth of Cut

# 2 FLUTE - SQUARE

## High Balance - Reduced Neck

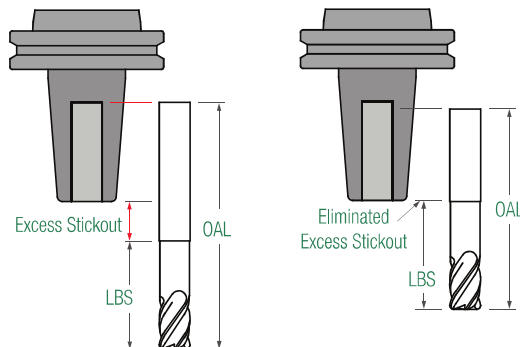
- Designed for outstanding performance and accelerated material removal rates in aluminum and non-ferrous materials
- Designed for high performance in Makino MAG machining centers capable of elevated RPMs and feed rates
- Precision balanced for high velocity machining in aluminum (up to 33,000 RPM)
- Shank length designed for optimal use in high performance tool holders, providing reduced excess stickout and increased rigidity
- Excellent performance in High Efficiency Milling
- Reduced neck provides maximum strength in long reach and deep pocketing applications
- Center cutting
- h6 shank tolerance for high precision tool holders
- Solid carbide



2 Flute

Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Reach (LBS) L <sub>3</sub>	Flutes	Uncoated	Tool Description
4	6	8	50	12	3	82101	ALG-R-02020
	6	12	50	16	3		ALG-R-02020-16
	6	12	50	20	3		ALG-R-02020-20
	6	12	50	25	3		ALG-R-02020-25
6	6	10	50	15	3		ALG-R-02060
	6	15	75	25	3		ALG-R-02060-25
	6	15	100	35	3		ALG-R-02060-35
	6	15	100	45	3		ALG-R-02060-45
	6	15	120	55	3		ALG-R-02060-55
8	8	15	60	20	3		ALG-R-02080
	8	15	75	25	3		ALG-R-02080-25
	8	20	100	35	3		ALG-R-02080-35
	8	20	100	45	3		ALG-R-02080-45
	8	20	120	60	3		ALG-R-02080-60
10	10	15	75	25	3		ALG-R-02100
	10	20	100	35	3		ALG-R-02100-35
	10	30	100	45	3	ALG-R-02100-45	
	10	35	150	55	3	ALG-R-02100-55	
	10	45	150	65	3	ALG-R-02100-65	

\*.0003 max TIR



Shank length designed for optimal use in high performance tool holders, providing reduced excess stickout and increased rigidity.

## ALG-RN

## 2 FLUTE - CORNER RADIUS

## High Balance - Reduced Neck

- Designed for outstanding performance and accelerated material removal rates in aluminum and non-ferrous materials
- Designed for high performance in Makino MAG machining centers capable of elevated RPMs and feed rates
- Precision balanced for high velocity machining in aluminum (up to 33,000 RPM)
- Shank length designed for optimal use in high performance tool holders, providing reduced excess stickout and increased rigidity
- Excellent performance in High Efficiency Milling (HEM)
- Reduced neck provides maximum strength in long reach and deep pocketing applications
- Center cutting
- h6 shank tolerance for high precision tool holders
- Solid carbide



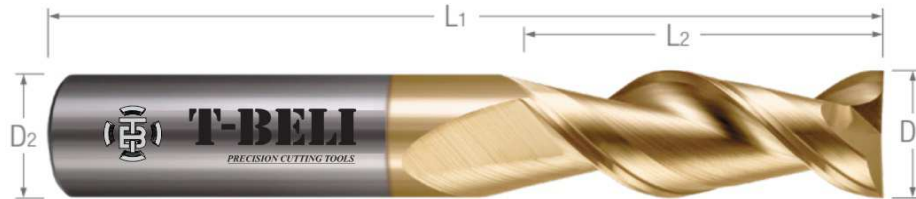
Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Corner Radius R	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Reach (LBS) L <sub>3</sub>	Flutes	Uncoated	Tool Description
4	6	0.5	8	50	12	3	82101	ALG-RN-02020-R0.5
	6	0.5	12	50	16	3		ALG-RN-02020-16-R0.5
	6	0.5	12	50	20	3		ALG-RN-02020-20-R0.5
	6	0.5	12	50	25	3		ALG-RN-02020-25-R0.5
5	6	0.5	8	50	13	3		ALG-RN-02020-R0.5
	6	0.5	12	50	16	3		ALG-RN-02020-13-R0.5
	6	0.5	15	50	20	3		ALG-RN-02020-16-R0.5
	6	0.5	18	50	25	3		ALG-RN-02020-25-R0.5
	6	0.5	20	60	30	3		ALG-RN-02020-30-R0.5
6	6	0.5	10	50	15	3		ALG-RN-02060-R0.5
	6	0.5	15	75	25	3		ALG-RN-02060-25-R0.5
	6	0.5	15	100	35	3		ALG-RN-02060-35-R0.5
	6	0.5	15	100	45	3		ALG-RN-02060-45-R0.5
	6	0.5	15	120	55	3		ALG-RN-02060-55-R0.5
8	8	0.5	15	60	20	3		ALG-RN-02080
	8	0.5	15	75	25	3		ALG-RN-02080-25-R0.5
	8	0.5	20	100	35	3		ALG-RN-02080-35-R0.5
	8	0.5	20	100	45	3		ALG-RN-02080-45-R0.5
	8	0.5	20	120	60	3		ALG-RN-02080-60-R0.5
10	10	0.5	15	75	25	3		ALG-RN-02100-R0.5
	10	0.5	20	100	35	3		ALG-RN-02100-35-R0.5
	10	0.5	30	100	45	3		ALG-RN-02100-45-R0.5
	10	0.5	35	150	55	3		ALG-RN-02100-55-R0.5
	10	0.5	45	150	65	3		ALG-RN-02100-65-R0.5
12	12	0.5	15	75	25	3	ALG-RN-02120-R0.5	
	12	0.5	20	100	35	3	ALG-RN-02120-35-R0.5	
	12	0.5	30	100	45	3	ALG-RN-02120-45-R0.5	
	12	0.5	35	150	55	3	ALG-RN-02120-55-R0.5	
	12	0.5	45	150	65	3	ALG-RN-02120-65-R0.5	

## M45AL

## 2 FLUTE - SQUARE

45° Helix

- Designed for outstanding performance and accelerated material removal rates in aluminum and non-ferrous materials
- Designed with a high helix for improved part finish and shearing action
- Cylindrically ground to maintain edge strength
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Zplus* coating offers higher hardness and added lubricity for maximum performance
- Solid carbide

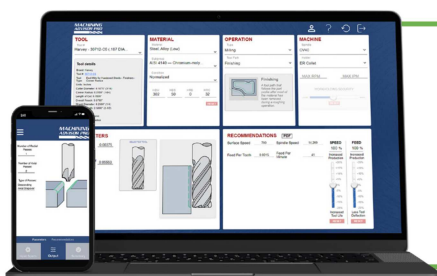


2 Flute

Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	0AL L <sub>1</sub>	Flutes	Uncoated	Zplus Coated	Tool Description
4	6	12	50	2	82101	82102	M45AL-02020
	6	16	50	2			M45AL-02020-16
	6	20	50	2			M45AL-02020-20
	6	25	50	2			M45AL-02020-25
6	6	15	50	2			M45AL-02060
	6	25	75	2			M45AL-02060-25
	6	35	100	2			M45AL-02060-35
	6	45	100	2			M45AL-02060-45
	6	55	120	2			M45AL-02060-55
8	8	20	60	2			M45AL-02080
	8	25	75	2			M45AL-02080-25
	8	35	100	2			M45AL-02080-35
	8	45	100	2			M45AL-02080-45
	8	60	120	2			M45AL-02080-60
10	10	25	75	2			M45AL-02100
	10	35	100	2			M45AL-02100100-35
	10	45	100	2			M45AL-02100100-45
	10	55	150	2			M45AL-02100150-55
	10	65	150	2			M45AL-02100150-65
12	12	25	75	2			M45AL-02120
	12	35	100	2	M45AL-02120100-35		
	12	45	100	2	M45AL-02120100-45		
	12	55	150	2	M45AL-02120150-55		
	12	65	150	2	M45AL-02120150-65		

\*.0003 max TIR

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## Machine With Confidence

Customized running parameters for your specific setup and material to take your T-BELI Tool products further.

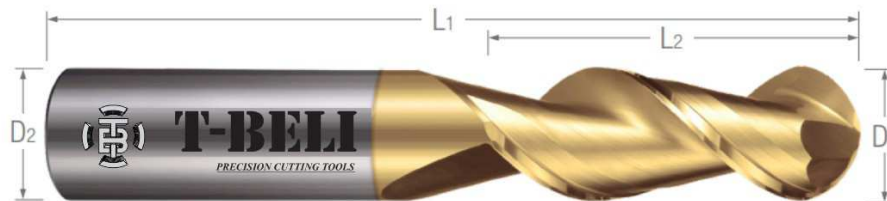


## B45AL

## 2 FLUTE - BALL

45° Helix

- Designed for outstanding performance and accelerated material removal rates in aluminum and non-ferrous materials
- Designed with a high helix for improved part finish and shearing action
- Cylindrically ground to maintain edge strength
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Zplus* coating offers higher hardness and added lubricity for maximum performance
- Solid carbide



2 Flute

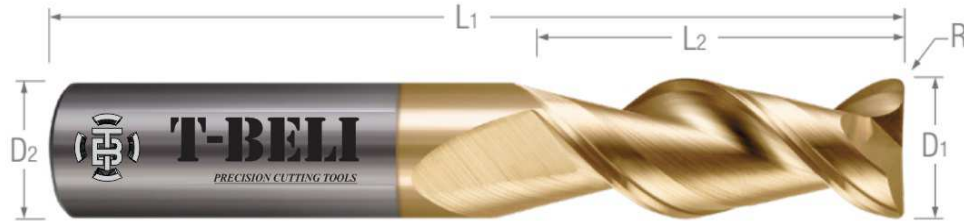
Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Uncoated	Zplus Coated	Tool Description
4	6	12	50	2	82101	82102	B45AL-02020
	6	16	50	2			B45AL-02020-16
	6	20	50	2			B45AL-02020-20
	6	25	50	2			B45AL-02020-25
6	6	15	50	2			B45AL-02060
	6	25	75	2			B45AL-02060-25
	6	35	100	2			B45AL-02060-35
	6	45	100	2			B45AL-02060-45
	6	55	120	2			B45AL-02060-55
8	8	20	60	2			B45AL-02080
	8	25	75	2			B45AL-02080-25
	8	35	100	2			B45AL-02080-35
	8	45	100	2			B45AL-02080-45
	8	60	120	2			B45AL-02080-60
10	10	25	75	2			B45AL-02100
	10	35	100	2			B45AL-02100100-35
	10	45	100	2			B45AL-02100100-45
	10	55	150	2			B45AL-02100150-55
	10	65	150	2			B45AL-02100150-65
12	12	25	75	2			B45AL-02120
	12	35	100	2	B45AL-02120100-35		
	12	45	100	2	B45AL-02120100-45		
	12	55	150	2	B45AL-02120150-55		
	12	65	150	2	B45AL-02120150-65		

# 2 FLUTE - CORNER RADIUS

R45AL

45° Helix

- Designed for outstanding performance and accelerated material removal rates in aluminum and non-ferrous materials
- Designed with a high helix for improved part finish and shearing action
- Cylindrically ground to maintain edge strength
- Center cutting
- h6 shank tolerance for high precision tool holders
- Zplus coating offers higher hardness and added lubricity for maximum performance
- Solid carbide



2 Flute

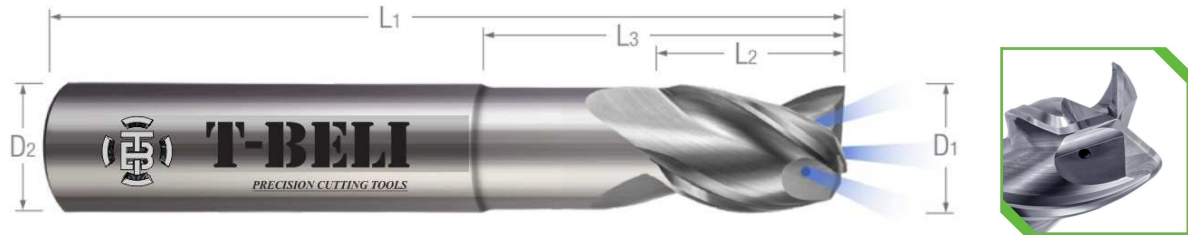
Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Corner Radius R	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Uncoated	Zplus Coated	Tool Description
1	4	0.1	2.5	50	2	82101	82102	R45AL-02010-R0.1
	4	0.1	6	50	2			R45AL-02010-06-R0.1
	4	0.1	8	50	2			R45AL-02010-08-R0.1
	4	0.1	10	50	2			R45AL-02010-10-R0.1
	4	0.1	12	50	2			R45AL-02010-12-R0.1
2	4	0.2	6	50	2			R45AL-02020-R0.2
	4	0.2	8	50	2			R45AL-02020-08-R0.2
	4	0.2	10	50	3			R45AL-02020-10-R0.2
	4	0.2	12	50	2			R45AL-02020-12-R0.2
	4	0.2	16	50	2			R45AL-02020-16-R0.2
4	6	0.5	12	50	2			R45AL-02020-R0.5
	6	0.5	16	50	2			R45AL-02020-16-R0.5
	6	0.5	20	50	2			R45AL-02020-20-R0.5
	6	0.5	25	50	2			R45AL-02020-25-R0.5
	6	0.5	15	50	2			R45AL-02060-R0.5
6	6	0.5	25	75	2			R45AL-02060-25-R0.5
	6	0.5	35	100	2			R45AL-02060-35-R0.5
	6	0.5	45	100	2			R45AL-02060-45-R0.5
	6	0.5	55	120	2			R45AL-02060-55-R0.5
	8	0.5	20	60	2			R45AL-02080-R0.5
8	8	0.5	25	75	2			R45AL-02080-25-R0.5
	8	0.5	35	100	2			R45AL-02080-35-R0.5
	8	0.5	45	100	2			R45AL-02080-45-R0.5
	8	0.5	60	120	2			R45AL-02080-60-R0.5
	10	0.5	25	75	2	R45AL-02100-R0.5		
10	10	0.5	35	100	2	R45AL-02100-35-R0.5		
	10	0.5	45	100	2	R45AL-02100-45-R0.5		
	10	0.5	55	150	2	R45AL-02100-55-R0.5		
	10	0.5	65	150	2	R45AL-02100-65-R0.5		
	12	0.5	25	75	2	R45AL-02120-R0.5		
12	12	0.5	35	100	2	R45AL-02120-35-R0.5		
	12	0.5	45	100	2	R45AL-02120-45-R0.5		
	12	0.5	55	150	2	R45AL-02120-55-R0.5		
	12	0.5	65	150	2	R45AL-02120-65-R0.5		

### 3 FLUTE - SQUARE

### TPGC-R-3

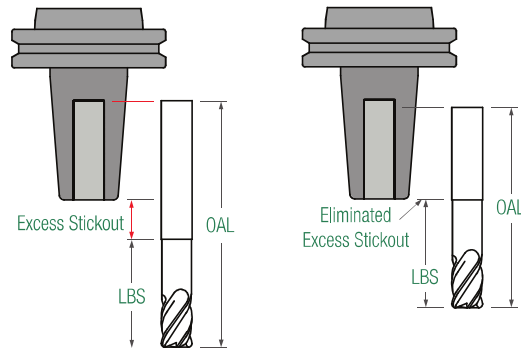
#### Coolant Through - High Balance - Reduced Neck

- Designed for outstanding performance and accelerated material removal rates in aluminum and non-ferrous materials
- Designed for high performance in Makino MAG machining centers capable of elevated RPMs and feed rates
- Precision balanced for high velocity machining in aluminum (up to 33,000 RPM)
- Shank length designed for optimal use in high performance tool holders, providing reduced excess stickout and increased rigidity
- Excellent performance in High Efficiency Milling
- Radial coolant holes for reduced heat, enhanced chip evacuation, and increased MRR
- Reduced neck provides maximum strength in long reach and deep pocketing applications
- Unique "3 teeth-to-center" end geometry for ramping applications
- h6 shank tolerance for high precision tool holders
- Solid carbide



3 Flute

Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Reach (LBS) L <sub>3</sub>	Flutes	Uncoated	Tool Description
4	6	8	50	12	3	82101	TPGC-R-03020
	6	12	50	16	3		TPGC-R-03020-16
	6	12	50	20	3		TPGC-R-03020-20
	6	12	50	25	3		TPGC-R-03020-25
6	6	10	50	15	3		TPGC-R-03060
	6	15	75	25	3		TPGC-R-03060-25
	6	15	100	35	3		TPGC-R-03060-35
	6	15	100	45	3		TPGC-R-03060-45
	6	15	120	55	3		TPGC-R-03060-55
	6	15	120	60	3		TPGC-R-03060-60
8	8	15	60	20	3		TPGC-R-03080
	8	15	75	25	3		TPGC-R-03080-25
	8	20	100	35	3		TPGC-R-03080-35
	8	20	100	45	3		TPGC-R-03080-45
	8	20	120	60	3		TPGC-R-03080-60
10	10	15	75	25	3		TPGC-R-03100
	10	20	100	35	3		TPGC-R-03100-35
	10	30	100	45	3		TPGC-R-03100-45
	10	35	150	55	3		TPGC-R-03100-55
	10	45	150	65	3		TPGC-R-03100-65



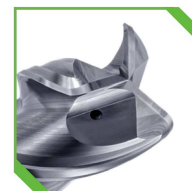
Shank length designed for optimal use in high performance tool holders, providing reduced excess stickout and increased rigidity.

## TPGC-RN-3

## 3 FLUTE - CORNER RADIUS

### Coolant Through - High Balance - Reduced Neck

- Designed for outstanding performance and accelerated material removal rates in aluminum and non-ferrous materials
- Designed for high performance in Makino MAG machining centers capable of elevated RPMs and feed rates
- Precision balanced for high velocity machining in aluminum (up to 33,000 RPM)
- Shank length designed for optimal use in high performance tool holders, providing reduced excess stickout and increased rigidity
- Excellent performance in High Efficiency Milling
- Radial coolant holes for reduced heat, enhanced chip evacuation, and increased MRR
- Reduced neck provides maximum strength in long reach and deep pocketing applications
- Unique "3 teeth-to-center" end geometry for ramping applications
- h6 shank tolerance for high precision tool holders
- Solid carbide



3 Flute

Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Corner Radius R	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Reach (LBS) L <sub>3</sub>	Flutes	Uncoated	Tool Description
4	6	0.5	8	50	12	3	82101	TPGC-RN-03020-R0.5
	6	0.5	12	50	16	3		TPGC-RN-03020-16-R0.5
	6	0.5	12	50	20	3		TPGC-RN-03020-20-R0.5
	6	0.5	12	50	25	3		TPGC-RN-03020-25-R0.5
6	6	0.5	15	75	25	3		TPGC-RN-03060-25-R0.5
	6	0.5	15	100	35	3		TPGC-RN-03060-35-R0.5
	6	0.5	15	100	45	3		TPGC-RN-03060-45-R0.5
	6	0.5	15	120	55	3		TPGC-RN-03060-55-R0.5
8	8	0.5	15	60	20	3		TPGC-RN-03080-R0.5
	8	0.5	15	75	25	3		TPGC-RN-03080-25-R0.5
	8	0.5	20	100	35	3		TPGC-RN-03080-35-R0.5
	8	0.5	20	100	45	3		TPGC-RN-03080-45-R0.5
	8	0.5	20	120	60	3		TPGC-RN-03080-60-R0.5
10	10	0.5	15	75	25	3		TPGC-RN-03100-R0.5
	10	0.5	20	100	35	3		TPGC-RN-03100-35-R0.5
	10	0.5	30	100	45	3		TPGC-RN-03100-45-R0.5
	10	0.5	35	150	55	3		TPGC-RN-03100-55-R0.5
	10	0.5	45	150	65	3		TPGC-RN-03100-65-R0.5
12	12	0.5	15	75	25	3		TPGC-RN-03120-R0.5
	12	0.5	20	100	35	3		TPGC-RN-03120-35-R0.5
	12	0.5	30	100	45	3	TPGC-RN-03120-45-R0.5	
	12	0.5	35	150	55	3	TPGC-RN-03120-55-R0.5	
	12	0.5	45	150	65	3	TPGC-RN-03120-65-R0.5	

\*.0003 max TIR

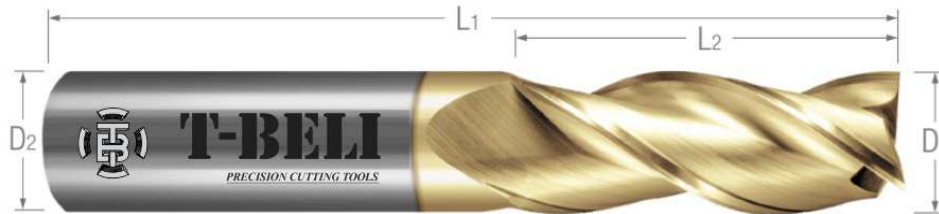
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## Q35AL

## 3 FLUTE - SQUARE

35° Helix

- Designed for outstanding performance and accelerated material removal rates in aluminum and non-ferrous materials
- Designed for tough roughing applications with 3 flutes and 35° helix
- Cylindrically ground to maintain edge strength
- Excellent performance in High Efficiency Milling
- Center cutting
- h6 shank tolerance for high precision tool holders
- Zplus coating offers higher hardness and added lubricity for maximum performance
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Uncoated	Zplus Coated	Tool Description
4	6	12	50	3	82101	82102	Q35AL-03020
	6	16	50	3			Q35AL-03020-16
	6	20	50	3			Q35AL-03020-20
	6	25	50	3			Q35AL-03020-25
6	6	15	50	3			Q35AL-03060
	6	25	75	3			Q35AL-03060-25
	6	35	100	3			Q35AL-03060-35
	6	45	100	3			Q35AL-03060-45
	6	55	120	3			Q35AL-03060-55
8	8	20	60	3			Q35AL-03080
	8	25	75	3			Q35AL-03080-25
	8	35	100	3			Q35AL-03080-35
	8	45	100	3			Q35AL-03080-45
	8	60	120	3			Q35AL-03080-60
10	10	25	75	3			Q35AL-03100
	10	35	100	3			Q35AL-03100100-35
	10	45	100	3			Q35AL-03100100-45
	10	55	150	3			Q35AL-03100150-55
	10	65	150	3			Q35AL-03100150-65
12	12	25	75	3			Q35AL-03120
	12	35	100	3	Q35AL-03120100-35		
	12	45	100	3	Q35AL-03120100-45		
	12	55	150	3	Q35AL-03120150-55		
	12	65	150	3	Q35AL-03120150-65		

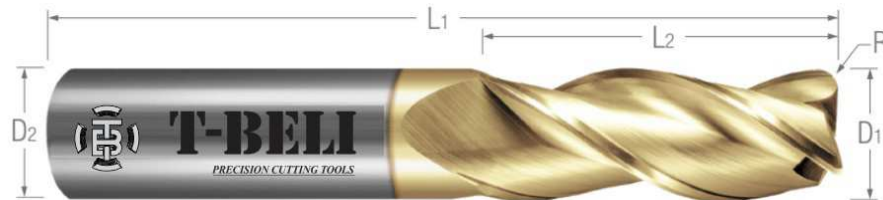
**Q35AL-R**

METRIC

**3 FLUTE - CORNER RADIUS - METRIC**

35° Helix

- Designed for outstanding performance and accelerated material removal rates in aluminum and non-ferrous materials
- Designed for tough roughing applications with 3 flutes and 35° helix
- Cylindrically ground to maintain edge strength
- Excellent performance in High Efficiency Milling
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Zplus* coating offers higher hardness and added lubricity for maximum performance
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Corner Radius R	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Uncoated	Zplus Coated	Tool Description
1	4	0.1	2.5	50	3	82101	82102	Q35AL-R-03010-R0.1
	4	0.1	6	50	3			Q35AL-R-03010-06-R0.1
	4	0.1	8	50	3			Q35AL-R-03010-08-R0.1
	4	0.1	10	50	3			Q35AL-R-03010-10-R0.1
	4	0.1	12	50	3			Q35AL-R-03010-12-R0.1
2	4	0.2	6	50	3			Q35AL-R-03020-R0.2
	4	0.2	8	50	3			Q35AL-R-03020-08-R0.2
	4	0.2	10	50	3			Q35AL-R-03020-10-R0.2
	4	0.2	12	50	3			Q35AL-R-03020-12-R0.2
	4	0.2	16	50	3			Q35AL-R-03020-16-R0.2
4	6	0.5	12	50	3			Q35AL-R-03020-R0.5
	6	0.5	16	50	3			Q35AL-R-03020-16-R0.5
	6	0.5	20	50	3			Q35AL-R-03020-20-R0.5
	6	0.5	25	50	3			Q35AL-R-03020-25-R0.5
6	6	0.5	15	50	3			Q35AL-R-03060-R0.5
	6	0.5	25	75	3			Q35AL-R-03060-25-R0.5
	6	0.5	35	100	3			Q35AL-R-03060-35-R0.5
	6	0.5	45	100	3			Q35AL-R-03060-45-R0.5
	6	0.5	55	120	3			Q35AL-R-03060-55-R0.5
8	8	0.5	20	60	3			Q35AL-R-03080-R0.5
	8	0.5	25	75	3			Q35AL-R-03080-25-R0.5
	8	0.5	35	100	3			Q35AL-R-03080-35-R0.5
	8	0.5	45	100	3			Q35AL-R-03080-45-R0.5
	8	0.5	60	120	3			Q35AL-R-03080-60-R0.5
10	10	0.5	25	75	3			Q35AL-R-03100-R0.5
	10	0.5	35	100	3	Q35AL-R-03100-35-R0.5		
	10	0.5	45	100	3	Q35AL-R-03100-45-R0.5		
	10	0.5	55	150	3	Q35AL-R-03100-55-R0.5		
	10	0.5	65	150	3	Q35AL-R-03100-65-R0.5		
12	12	0.5	25	75	3	Q35AL-R-03120-R0.5		
	12	0.5	35	100	3	Q35AL-R-03120-35-R0.5		
	12	0.5	45	100	3	Q35AL-R-03120-45-R0.5		
	12	0.5	55	150	3	Q35AL-R-03120-55-R0.5		
	12	0.5	65	150	3	Q35AL-R-03120-65-R0.5		

**3 FLUTE - SQUARE** **New Items!****Q40AL-V****40° Helix - Variable Pitch**

- Designed for outstanding performance and accelerated material removal rates in aluminum and non-ferrous materials
- Designed with a specialized combination of features for excellent performance in roughing and finishing applications
- Unique "3 teeth-to-center" end geometry for ramping applications
- Wiper flat design leaves superior floor finish
- Excellent performance in High Efficiency Milling
- Center cutting
- h6 shank tolerance for high precision tool holders
- Uncoated tool offers an excellent option for aluminum finishing applications
- *Zplus* coating offers higher hardness and added lubricity for maximum performance
- Solid carbide



3 Flute

Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Uncoated	Zplus Coated	Tool Description
4	6	8	50	3	82101	82102	Q40AL-V-03020
	6	16	50	3			Q40AL-V-03020-16
	6	20	50	3			Q40AL-V-03020-20
	6	25	50	3			Q40AL-V-03020-25
6	6	10	50	3			Q40AL-V-03060
	6	25	75	3			Q40AL-V-03060-25
	6	35	100	3			Q40AL-V-03060-35
	6	45	100	3			Q40AL-V-03060-45
	6	55	120	3			Q40AL-V-03060-55
8	8	15	60	3			Q40AL-V-03080
	8	25	75	3			Q40AL-V-03080-25
	8	35	100	3			Q40AL-V-03080-35
	8	45	100	3			Q40AL-V-03080-45
	8	60	120	3			Q40AL-V-03080-60
10	10	25	75	3			Q40AL-V-03100
	10	35	100	3			Q40AL-V-03100100-35
	10	45	100	3			Q40AL-V-03100100-45
	10	55	150	3			Q40AL-V-03100150-55
	10	65	150	3			Q40AL-V-03100150-65
12	12	25	75	3			Q40AL-V-03120
	12	35	100	3	Q40AL-V-03120100-35		
	12	45	100	3	Q40AL-V-03120100-45		
	12	55	150	3	Q40AL-V-03120150-55		
	12	65	150	3	Q40AL-V-03120150-65		

## Q45AL-V

New Items!

## 3 FLUTE - SQUARE

45° Helix

- Designed for outstanding performance and accelerated material removal rates in aluminum and non-ferrous materials
- Designed with a high helix for improved part finish and shearing action
- Cylindrically ground to maintain edge strength
- Center cutting
- Excellent performance in High Efficiency Milling
- h6 shank tolerance for high precision tool holders
- *Zplus* coating offers higher hardness and added lubricity for maximum performance
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Uncoated	Zplus Coated	Tool Description
4	6	8	50	3	82101	82102	Q45AL-V-03020
	6	16	50	3			Q45AL-V-03020-16
	6	20	50	3			Q45AL-V-03020-20
	6	25	50	3			Q45AL-V-03020-25
6	6	10	50	3			Q45AL-V-03060
	6	25	75	3			Q45AL-V-03060-25
	6	35	100	3			Q45AL-V-03060-35
	6	45	100	3			Q45AL-V-03060-45
	6	55	120	3			Q45AL-V-03060-55
8	8	15	60	3			Q45AL-V-03080
	8	25	75	3			Q45AL-V-03080-25
	8	35	100	3			Q45AL-V-03080-35
	8	45	100	3			Q45AL-V-03080-45
	8	60	120	3			Q45AL-V-03080-60
10	10	25	75	3			Q45AL-V-03100
	10	35	100	3			Q45AL-V-03100100-35
	10	45	100	3			Q45AL-V-03100100-45
	10	55	150	3			Q45AL-V-03100150-55
12	10	65	150	3			Q45AL-V-03100150-65
	12	25	75	3			Q45AL-V-03120
	12	35	100	3	Q45AL-V-03120100-35		
	12	45	100	3	Q45AL-V-03120100-45		
	12	55	150	3	Q45AL-V-03120150-55		
12	65	150	3	Q45AL-V-03120150-65			

# 5 FLUTE - CORNER RADIUS

# BVAL-R

## Variable Pitch - For High Efficiency Milling

- Specially engineered for optimal performance in High Efficiency Milling of aerospace aluminum alloys with excellent performance in other non-ferrous alloys
- Excellent tool life and maximum material removal rates proven through extensive testing
- Engineered with variable pitch for minimized harmonics and reduced tool pressure
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Nplus* coating for maximum performance in abrasive aluminums and extended tool life in a wide variety of non-ferrous alloys
- Solid carbide



5 Flute

Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Corner Radius R	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Uncoated	<i>Nplus</i> Coated	Tool Description
4	6	0.5	8	50	5	83101	84102	BVAL-R-05020-R0.5
	6	0.5	16	50	5			BVAL-R-05020-16-R0.5
	6	0.5	20	50	5			BVAL-R-05020-20-R0.5
	6	0.5	25	50	5			BVAL-R-05020-25-R0.5
5	6	0.5	10	50	5			BVAL-R-05020-R0.5
	6	0.5	13	50	5			BVAL-R-05020-13-R0.5
	6	0.5	16	50	5			BVAL-R-05020-16-R0.5
	6	0.5	25	50	5			BVAL-R-05020-25-R0.5
6	6	0.5	30	60	5			BVAL-R-05020-30-R0.5
	6	0.5	10	50	5			BVAL-R-05060-R0.5
	6	0.5	25	75	5			BVAL-R-05060-25-R0.5
	6	0.5	35	100	5			BVAL-R-05060-35-R0.5
8	6	0.5	45	100	5			BVAL-R-05060-45-R0.5
	6	0.5	55	120	5			BVAL-R-05060-55-R0.5
	8	0.5	15	60	5			BVAL-R-05080-R0.5
	8	0.5	25	75	5			BVAL-R-05080-25-R0.5
10	8	0.5	35	100	5			BVAL-R-05080-35-R0.5
	8	0.5	45	100	5			BVAL-R-05080-45-R0.5
	8	0.5	60	120	5			BVAL-R-05080-60-R0.5
	10	0.5	25	75	5			BVAL-R-05100-R0.5
12	10	0.5	35	100	5	BVAL-R-05100-35-R0.5		
	10	0.5	45	100	5	BVAL-R-05100-45-R0.5		
	10	0.5	55	150	5	BVAL-R-05100-55-R0.5		
	10	0.5	65	150	5	BVAL-R-05100-65-R0.5		
12	12	0.5	25	75	5	BVAL-R-05120-R0.5		
	12	0.5	35	100	5	BVAL-R-05120-35-R0.5		
	12	0.5	45	100	5	BVAL-R-05120-45-R0.5		
	12	0.5	55	150	5	BVAL-R-05120-55-R0.5		
	12	0.5	65	150	5	BVAL-R-05120-65-R0.5		

# SCR-M

## 4 FLUTE - CORNER RADIUS Chipbreaker Rougher - Variable Pitch

- Offers outstanding performance and high temperature resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Engineered with variable pitch and offset chipbreaker geometry for optimal chip evacuation, reduced harmonics, and reduced tool pressure
- Eccentric relief for maximum edge strength
- Redesigned end geometry for optimal ramping, slotting, and plunging

- Center cutting
- h6 shank tolerance for high precision tool holders
- *Aplus* coating offers added lubricity and high temperature resistance for faster speeds and feeds and improved tool life
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Corner Radius R	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	<i>Aplus</i> Coated	<i>Aplus</i> Coated + Weldon Flat	Tool Description
4	6	0.5	8	50	4	84101	85102	SCR-M-04040-R0.5
	6	0.5	16	50	4			SCR-M-04040-16-R0.5
	6	0.5	20	50	4			SCR-M-04040-20-R0.5
	6	0.5	25	50	4			SCR-M-04040-25-R0.5
5	6	0.5	10	50	4			SCR-M-04050-R0.5
	6	0.5	13	50	4			SCR-M-04050-13-R0.5
	6	0.5	16	50	4			SCR-M-04050-16-R0.5
	6	0.5	25	50	4			SCR-M-04050-25-R0.5
	6	0.5	30	60	4			SCR-M-04050-30-R0.5
6	6	0.5	10	50	4			SCR-M-04060-R0.5
	6	0.5	25	75	4			SCR-M-04060-25-R0.5
	6	0.5	35	100	4			SCR-M-04060-35-R0.5
	6	0.5	45	100	4			SCR-M-04060-45-R0.5
	6	0.5	55	120	4			SCR-M-04060-55-R0.5
	8	0.5	15	60	4			SCR-M-04080-R0.5
8	8	0.5	25	75	4			SCR-M-04080-25-R0.5
	8	0.5	35	100	4			SCR-M-04080-35-R0.5
	8	0.5	45	100	4			SCR-M-04080-45-R0.5
	8	0.5	60	120	4			SCR-M-04080-60-R0.5
	10	0.5	25	75	4			SCR-M-04100-R0.5
10	10	0.5	35	100	4	SCR-M-04100-35-R0.5		
	10	0.5	45	100	4	SCR-M-04100-45-R0.5		
	10	0.5	55	150	4	SCR-M-04100-55-R0.5		
	10	0.5	65	150	4	SCR-M-04100-65-R0.5		
	12	0.5	25	75	4	SCR-M-04120-R0.5		
12	12	0.5	35	100	4	SCR-M-04120-35-R0.5		
	12	0.5	45	100	4	SCR-M-04120-45-R0.5		
	12	0.5	55	150	4	SCR-M-04120-55-R0.5		
	12	0.5	65	150	4	SCR-M-04120-65-R0.5		

# SCR-ML-V

## 4 FLUTE - CORNER RADIUS

### Chipbreaker Rougher - Variable Pitch - Reduced Neck

- Offers outstanding performance and high temperature resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Engineered with variable pitch and offset chipbreaker geometry for optimal chip evacuation, reduced harmonics, and reduced tool pressure
- Eccentric relief for maximum edge strength
- Redesigned end geometry for optimal ramping, slotting, and plunging
- Center cutting
- Reduced neck provides maximum strength in long reach and deep pocketing applications
- h6 shank tolerance for high precision tool holders
- *Aplus* coating offers added lubricity and high temperature resistance for faster speeds and feeds and improved tool life
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Corner Radius R	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Reach (LBS) L <sub>3</sub>	Flutes	<i>Aplus</i> Coated	Tool Description
6	6	0.5	10	50	15	4	86254	SCR-ML-V-04060-R0.5
	6	0.5	25	75	25	4		SCR-ML-V-04060-25-R0.5
	6	0.5	35	100	35	4		SCR-ML-V-04060-35-R0.5
	6	0.5	45	100	45	4		SCR-ML-V-04060-45-R0.5
	6	0.5	55	120	55	4		SCR-ML-V-04060-55-R0.5
8	8	0.5	15	60	20	4		SCR-ML-V-04080-R0.5
	8	0.5	25	75	25	4		SCR-ML-V-04080-25-R0.5
	8	0.5	35	100	35	4		SCR-ML-V-04080-35-R0.5
	8	0.5	45	100	45	4		SCR-ML-V-04080-45-R0.5
	8	0.5	60	120	60	4		SCR-ML-V-04080-60-R0.5
10	10	0.5	25	75	25	4		SCR-ML-V-04100-R0.5
	10	0.5	35	100	35	4		SCR-ML-V-04100-35-R0.5
	10	0.5	45	100	45	4		SCR-ML-V-04100-45-R0.5
	10	0.5	55	150	55	4		SCR-ML-V-04100-55-R0.5
	10	0.5	65	150	65	4		SCR-ML-V-04100-65-R0.5
12	12	0.5	25	75	25	4		SCR-ML-V-04120-R0.5
	12	0.5	35	100	35	4		SCR-ML-V-04120-35-R0.5
	12	0.5	45	100	45	4		SCR-ML-V-04120-45-R0.5
	12	0.5	55	150	55	4		SCR-ML-V-04120-55-R0.5
	12	0.5	65	150	65	4		SCR-ML-V-04120-65-R0.5

## SCR-M-5

New Items!

## 5 FLUTE - CORNER RADIUS

## Chipbreaker Rougher - Variable Pitch

- Offers outstanding performance and high temperature resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Engineered for excellent performance in High Efficiency Milling
- 5 flute variable pitch and offset chipbreaker geometry for optimal chip evacuation, reduced harmonics, and reduced tool pressure

- Center cutting
- h6 shank tolerance for high precision tool holders
- *Aplus* coating offers added lubricity and high temperature resistance for faster speeds and feeds and improved tool life
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Corner Radius R	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Aplus Coated	Tool Description
4	6	0.5	8	50	5	84106	SCR-M-50040-R0.5
	6	0.5	16	50	5		SCR-M-50040-16-R0.5
	6	0.5	20	50	5		SCR-M-50040-20-R0.5
6	6	0.5	10	50	5		SCR-M-50060-R0.5
	6	0.5	25	75	5		SCR-M-50060-25-R0.5
	6	0.5	35	100	5		SCR-M-50060-35-R0.5
	6	0.5	45	100	5		SCR-M-50060-45-R0.5
	6	0.5	55	120	5		SCR-M-50060-55-R0.5
8	8	0.5	15	60	5		SCR-M-50080-R0.5
	8	0.5	25	75	5		SCR-M-50080-25-R0.5
	8	0.5	35	100	5		SCR-M-50080-35-R0.5
	8	0.5	45	100	5		SCR-M-50080-45-R0.5
	8	0.5	60	120	5		SCR-M-50080-60-R0.5
10	10	0.5	25	75	5		SCR-M-50100-R0.5
	10	0.5	35	100	5		SCR-M-50100-35-R0.5
	10	0.5	45	100	5		SCR-M-50100-45-R0.5
	10	0.5	55	150	5		SCR-M-50100-55-R0.5
	10	0.5	65	150	5		SCR-M-50100-65-R0.5
12	12	0.5	25	75	5		SCR-M-50120-R0.5
	12	0.5	35	100	5		SCR-M-50120-35-R0.5
	12	0.5	45	100	5		SCR-M-50120-45-R0.5
	12	0.5	55	150	5		SCR-M-50120-55-R0.5
	12	0.5	65	150	5		SCR-M-50120-65-R0.5

**6 FLUTE - CORNER RADIUS** New Items!

**SCR-M-6**

**Chipbreaker Rougher - Variable Pitch**

Roughers

- Offers outstanding performance and high temperature resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Engineered for excellent performance in High Efficiency Milling
- 6 flute variable pitch and offset chipbreaker geometry for optimal chip evacuation, reduced harmonics, and reduced tool pressure
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Aplus* coating offers added lubricity and high temperature resistance for faster speeds and feeds and improved tool life
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Corner Radius R	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Aplus Coated	Tool Description
<b>6</b>	6	0.5	10	50	7	<b>84325</b>	SCR-M-60060-R0.5
	6	0.5	25	75	7		SCR-M-60060-25-R0.5
	6	0.5	35	100	7		SCR-M-60060-35-R0.5
	6	0.5	45	100	7		SCR-M-60060-45-R0.5
	6	0.5	55	120	7		SCR-M-60060-55-R0.5
<b>8</b>	8	0.5	15	60	7		SCR-M-60080-R0.5
	8	0.5	25	75	7		SCR-M-60080-25-R0.5
	8	0.5	35	100	7		SCR-M-60080-35-R0.5
	8	0.5	45	100	7		SCR-M-60080-45-R0.5
	8	0.5	60	120	7		SCR-M-60080-60-R0.5
<b>10</b>	10	0.5	25	75	7		SCR-M-60100-R0.5
	10	0.5	35	100	7		SCR-M-60100-35-R0.5
	10	0.5	45	100	7		SCR-M-60100-45-R0.5
	10	0.5	55	150	7		SCR-M-60100-55-R0.5
	10	0.5	65	150	7		SCR-M-60100-65-R0.5
<b>12</b>	12	0.5	25	75	7		SCR-M-60120-R0.5
	12	0.5	35	100	7		SCR-M-60120-35-R0.5
	12	0.5	45	100	7		SCR-M-60120-45-R0.5
	12	0.5	55	150	7		SCR-M-60120-55-R0.5
	12	0.5	65	150	7		SCR-M-60120-65-R0.5

## SCR-M-7

New Items!

## 7 FLUTE - CORNER RADIUS

### Chipbreaker Rougher - Variable Pitch

- Offers outstanding performance and high temperature resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Engineered for excellent performance in High Efficiency Milling
- 7 flute variable pitch and offset chipbreaker geometry for optimal chip evacuation, reduced harmonics, and reduced tool pressure

- End cutting geometry (non-center cutting)
- h6 shank tolerance for high precision tool holders
- *Aplus* coating offers added lubricity and high temperature resistance for faster speeds and feeds and improved tool life
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Corner Radius R	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	<i>Aplus</i> Coated	Tool Description
6	6	0.5	10	50	7	84327	SCR-M-70060-R0.5
	6	0.5	25	75	7		SCR-M-70060-25-R0.5
	6	0.5	35	100	7		SCR-M-70060-35-R0.5
	6	0.5	45	100	7		SCR-M-70060-45-R0.5
	6	0.5	55	120	7		SCR-M-70060-55-R0.5
8	8	0.5	15	60	7		SCR-M-70080-R0.5
	8	0.5	25	75	7		SCR-M-70080-25-R0.5
	8	0.5	35	100	7		SCR-M-70080-35-R0.5
	8	0.5	45	100	7		SCR-M-70080-45-R0.5
	8	0.5	60	120	7		SCR-M-70080-60-R0.5
10	10	0.5	25	75	7		SCR-M-70100-R0.5
	10	0.5	35	100	7		SCR-M-70100-35-R0.5
	10	0.5	45	100	7		SCR-M-70100-45-R0.5
	10	0.5	55	150	7		SCR-M-70100-55-R0.5
	10	0.5	65	150	7		SCR-M-70100-65-R0.5
12	12	0.5	25	75	7		SCR-M-70120-R0.5
	12	0.5	35	100	7		SCR-M-70120-35-R0.5
	12	0.5	45	100	7		SCR-M-70120-45-R0.5
	12	0.5	55	150	7		SCR-M-70120-55-R0.5
	12	0.5	65	150	7		SCR-M-70120-65-R0.5

## SPQ-3

3 FLUTE - SQUARE  
Variable Pitch

- Offers outstanding performance and high temperature resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Designed with variable pitch and 3 flutes for reduced harmonics, increased chip clearance, and higher quality parts in full slotting and heavy roughing applications
- Eccentric relief for maximum edge strength
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Aplus* coating offers added lubricity and high temperature resistance for faster speeds and feeds and improved tool life
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Aplus Coated	Tool Description
4	6	8	50	3	84985	SPQ-3-30040
	6	16	50	3		SPQ-3-30040-16
	6	20	50	3		SPQ-3-30040-20
	6	25	50	3		SPQ-3-30040-25
5	6	10	50	3		SPQ-3-30050
	6	13	50	3		SPQ-3-30050-13
	6	16	50	3		SPQ-3-30050-16
	6	25	50	3		SPQ-3-30050-25
	6	30	60	3		SPQ-3-30050-30
6	6	10	50	3		SPQ-3-30060
	6	25	75	3		SPQ-3-30060-25
	6	35	100	3		SPQ-3-30060-35
	6	45	100	3		SPQ-3-30060-45
	6	55	120	3		SPQ-3-30060-55
8	8	15	60	3		SPQ-3-30080
	8	25	75	3		SPQ-3-30080-25
	8	35	100	3		SPQ-3-30080-35
	8	45	100	3		SPQ-3-30080-45
	8	60	120	3		SPQ-3-30080-60
10	10	25	75	3		SPQ-3-30100
	10	35	100	3		SPQ-3-30100-35
	10	45	100	3		SPQ-3-30100-45
	10	55	150	3		SPQ-3-30100-55
	10	65	150	3		SPQ-3-30100-65
12	12	25	75	3	SPQ-3-30120	
	12	35	100	3	SPQ-3-30120-35	
	12	45	100	3	SPQ-3-30120-45	
	12	55	150	3	SPQ-3-30120-55	
	12	65	150	3	SPQ-3-30120-65	

## 3 FLUTE - CORNER RADIUS

### SPQ-3R

### Variable Pitch

- Offers outstanding performance and high temperature resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Designed with variable pitch and 3 flutes for reduced harmonics, increased chip clearance, and higher quality parts in full slotting and heavy roughing applications
- Eccentric relief for maximum edge strength
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Aplus* coating offers added lubricity and high temperature resistance for faster speeds and feeds and improved tool life
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Corner Radius R	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	<i>Aplus</i> Coated	Tool Description
4	6	0.5	12	50	3	84955	SPQ-3R-30040-R0.5
	6	0.5	16	50	3		SPQ-3R-30040-16-R0.5
	6	0.5	20	50	3		SPQ-3R-30040-20-R0.5
	6	0.5	25	50	3		SPQ-3R-30040-25-R0.5
6	6	0.5	15	50	3		SPQ-3R-30060-R0.5
	6	0.5	25	75	3		SPQ-3R-30060-25-R0.5
	6	0.5	35	100	3		SPQ-3R-30060-35-R0.5
	6	0.5	45	100	3		SPQ-3R-30060-45-R0.5
	6	0.5	55	120	3		SPQ-3R-30060-55-R0.5
8	8	0.5	20	60	3		SPQ-3R-30080-R0.5
	8	0.5	25	75	3		SPQ-3R-30080-25-R0.5
	8	0.5	35	100	3		SPQ-3R-30080-35-R0.5
	8	0.5	45	100	3		SPQ-3R-30080-45-R0.5
	8	0.5	60	120	3		SPQ-3R-30080-60-R0.5
10	10	0.5	25	75	3		SPQ-3R-30100-R0.5
	10	0.5	35	100	3		SPQ-3R-30100-35-R0.5
	10	0.5	45	100	3		SPQ-3R-30100-45-R0.5
	10	0.5	55	150	3		SPQ-3R-30100-55-R0.5
	10	0.5	65	150	3		SPQ-3R-30100-65-R0.5
12	12	0.5	25	75	3		SPQ-3R-30120-R0.5
	12	0.5	35	100	3	SPQ-3R-30120-35-R0.5	
	12	0.5	45	100	3	SPQ-3R-30120-45-R0.5	
	12	0.5	55	150	3	SPQ-3R-30120-55-R0.5	
	12	0.5	65	150	3	SPQ-3R-30120-65-R0.5	

## 3 FLUTE - BALL

## SPQ-3B

- Offers outstanding performance and high temperature resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Designed for excellent chip evacuation in slotting, pocketing, and roughing applications
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Aplus* coating offers added lubricity and high temperature resistance for faster speeds and feeds and improved tool life
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Aplus Coated	Tool Description
4	6	8	50	3	849995	SPQ-3B-30040
	6	16	50	3		SPQ-3B-30040-16
	6	20	50	3		SPQ-3B-30040-20
	6	25	50	3		SPQ-3B-30040-25
5	6	10	50	3		SPQ-3B-30050
	6	13	50	3		SPQ-3B-30050-13
	6	16	50	3		SPQ-3B-30050-16
	6	25	50	3		SPQ-3B-30050-25
	6	30	60	3		SPQ-3B-30050-30
6	6	10	50	3		SPQ-3B-30060
	6	25	75	3		SPQ-3B-30060-25
	6	35	100	3		SPQ-3B-30060-35
	6	45	100	3		SPQ-3B-30060-45
	6	55	120	3		SPQ-3B-30060-55
8	8	15	60	3		SPQ-3B-30080
	8	25	75	3		SPQ-3B-30080-25
	8	35	100	3		SPQ-3B-30080-35
	8	45	100	3		SPQ-3B-30080-45
	8	60	120	3		SPQ-3B-30080-60
10	10	25	75	3		SPQ-3B-30100
	10	35	100	3		SPQ-3B-30100-35
	10	45	100	3		SPQ-3B-30100-45
	10	55	150	3		SPQ-3B-30100-55
	10	65	150	3		SPQ-3B-30100-65
12	12	25	75	3		SPQ-3B-30120
	12	35	100	3		SPQ-3B-30120-35
	12	45	100	3		SPQ-3B-30120-45
	12	55	150	3		SPQ-3B-30120-55
	12	65	150	3	SPQ-3B-30120-65	

## SPQ-4

4 FLUTE - SQUARE  
Variable Pitch

- Offers outstanding performance and high temperature resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Engineered with eccentric relief for maximum edge strength in both roughing and finishing applications
- Variable pitch geometry results in higher quality parts by decreasing chatter and harmonics
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Aplus* coating offers added lubricity and high temperature resistance for faster speeds and feeds and improved tool life
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	<i>Aplus</i> Coated	Tool Description
4	6	8	50	4	84985	SPQ-4-40040
	6	16	50	4		SPQ-4-40040-16
	6	20	50	4		SPQ-4-40040-20
	6	25	50	4		SPQ-4-40040-25
5	6	10	50	4		SPQ-4-40050
	6	13	50	4		SPQ-4-40050-13
	6	16	50	4		SPQ-4-40050-16
	6	25	50	4		SPQ-4-40050-25
	6	30	60	4		SPQ-4-40050-30
6	6	10	50	4		SPQ-4-40060
	6	25	75	4		SPQ-4-40060-25
	6	35	100	4		SPQ-4-40060-35
	6	45	100	4		SPQ-4-40060-45
	6	55	120	4		SPQ-4-40060-55
8	8	15	60	4		SPQ-4-40080
	8	25	75	4		SPQ-4-40080-25
	8	35	100	4		SPQ-4-40080-35
	8	45	100	4		SPQ-4-40080-45
	8	60	120	4		SPQ-4-40080-60
10	10	25	75	4		SPQ-4-40100
	10	35	100	4	SPQ-4-40100-35	
	10	45	100	4	SPQ-4-40100-45	
	10	55	150	4	SPQ-4-40100-55	
	10	65	150	4	SPQ-4-40100-65	
12	12	25	75	4	SPQ-4-40120	
	12	35	100	4	SPQ-4-40120-35	
	12	45	100	4	SPQ-4-40120-45	
	12	55	150	4	SPQ-4-40120-55	
	12	65	150	4	SPQ-4-40120-65	

# 4 FLUTE - BALL - METRIC

**SPQ-4B**

**METRIC**

## Variable Pitch

- Offers outstanding performance and high temperature resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Engineered with eccentric relief for maximum edge strength in both roughing and finishing applications
- Variable pitch geometry results in higher quality parts by decreasing chatter and harmonics
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Aplus* coating offers added lubricity and high temperature resistance for faster speeds and feeds and improved tool life
- Solid carbide



4 Flute

Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Aplus Coated	Tool Description
4	6	8	50	4	849295	SPQ-4B-40040
	6	16	50	4		SPQ-4B-40040-16
	6	20	50	4		SPQ-4B-40040-20
	6	25	50	4		SPQ-4B-40040-25
5	6	10	50	4		SPQ-4B-40050
	6	13	50	4		SPQ-4B-40050-13
	6	16	50	4		SPQ-4B-40050-16
	6	25	50	4		SPQ-4B-40050-25
	6	30	60	4		SPQ-4B-40050-30
6	6	10	50	4		SPQ-4B-40060
	6	25	75	4		SPQ-4B-40060-25
	6	35	100	4		SPQ-4B-40060-35
	6	45	100	4		SPQ-4B-40060-45
8	6	55	120	4		SPQ-4B-40060-55
	8	15	60	4		SPQ-4B-40080
	8	25	75	4		SPQ-4B-40080-25
	8	35	100	4		SPQ-4B-40080-35
	8	45	100	4		SPQ-4B-40080-45
10	8	60	120	4		SPQ-4B-40080-60
	10	25	75	4		SPQ-4B-40100
	10	35	100	4	SPQ-4B-40100-35	
	10	45	100	4	SPQ-4B-40100-45	
	10	55	150	4	SPQ-4B-40100-55	
12	10	65	150	4	SPQ-4B-40100-65	
	12	25	75	4	SPQ-4B-40120	
	12	35	100	4	SPQ-4B-40120-35	
	12	45	100	4	SPQ-4B-40120-45	
	12	55	150	4	SPQ-4B-40120-55	
	12	65	150	4	SPQ-4B-40120-65	

# SPQ-4R

METRIC

## 4 FLUTE - CORNER RADIUS - METRIC

### Variable Pitch

- Offers outstanding performance and high temperature resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Engineered with eccentric relief for maximum edge strength in both roughing and finishing applications
- Variable pitch geometry results in higher quality parts by decreasing chatter and harmonics
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Aplus* coating offers added lubricity and high temperature resistance for faster speeds and feeds and improved tool life
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Corner Radius R	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	<i>Aplus</i> Coated	Tool Description
4	6	0.5	12	50	4	84965	SPQ-4R-40040-R0.5
	6	0.5	16	50	4		SPQ-4R-40040-16-R0.5
	6	0.5	20	50	4		SPQ-4R-40040-20-R0.5
	6	0.5	25	50	4		SPQ-4R-40040-25-R0.5
6	6	0.5	15	50	4		SPQ-4R-40060-R0.5
	6	0.5	25	75	4		SPQ-4R-40060-25-R0.5
	6	0.5	35	100	4		SPQ-4R-40060-35-R0.5
	6	0.5	45	100	4		SPQ-4R-40060-45-R0.5
	6	0.5	55	120	4		SPQ-4R-40060-55-R0.5
8	8	0.5	20	60	4		SPQ-4R-40080-R0.5
	8	0.5	25	75	4		SPQ-4R-40080-25-R0.5
	8	0.5	35	100	4		SPQ-4R-40080-35-R0.5
	8	0.5	45	100	4		SPQ-4R-40080-45-R0.5
	8	0.5	60	120	4		SPQ-4R-40080-60-R0.5
10	10	0.5	25	75	4		SPQ-4R-40100-R0.5
	10	0.5	35	100	4		SPQ-4R-40100-35-R0.5
	10	0.5	45	100	4		SPQ-4R-40100-45-R0.5
	10	0.5	55	150	4		SPQ-4R-40100-55-R0.5
	10	0.5	65	150	4		SPQ-4R-40100-65-R0.5
12	12	0.5	25	75	4		SPQ-4R-40120-R0.5
	12	0.5	35	100	4	SPQ-4R-40120-35-R0.5	
	12	0.5	45	100	4	SPQ-4R-40120-45-R0.5	
	12	0.5	55	150	4	SPQ-4R-40120-55-R0.5	
	12	0.5	65	150	4	SPQ-4R-40120-65-R0.5	

## 4 FLUTE - SQUARE

### SPQ-4LN

### Variable Pitch - Reduced Neck

- Offers outstanding performance and high temperature resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Engineered with eccentric relief for maximum edge strength in both roughing and finishing applications
- Variable pitch geometry results in higher quality parts by decreasing chatter and harmonics
- Center cutting
- Reduced neck provides maximum strength in long reach and deep pocketing applications
- h6 shank tolerance for high precision tool holders
- *Aplus* coating offers added lubricity and high temperature resistance for faster speeds and feeds and improved tool life
- Solid carbide



4 Flute

Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Reach (LBS) L <sub>3</sub>	Flutes	Aplus Coated	Tool Description
6	6	10	50	15	4	86884	SPQ-4LN-40060
	6	15	75	25	4		SPQ-4LN-4006075-25
	6	15	100	35	4		SPQ-4LN-40060100-35
	6	15	100	45	4		SPQ-4LN-40060100-45
	6	15	120	55	4		SPQ-4LN-40060120-55
8	8	15	60	20	4		SPQ-4LN-40080
	8	15	75	25	4		SPQ-4LN-4008075-25
	8	20	100	35	4		SPQ-4LN-40080100-35
	8	20	100	45	4		SPQ-4LN-40080100-45
	8	20	120	60	4		SPQ-4LN-40080120-60
10	10	15	75	25	4		SPQ-4LN-40100
	10	20	100	35	4		SPQ-4LN-40100100-35
	10	30	100	45	4		SPQ-4LN-40100100-45
	10	35	150	55	4		SPQ-4LN-40100150-55
	10	45	150	65	4		SPQ-4LN-40100150-65
12	12	15	75	25	4		SPQ-4LN-40120
	12	20	100	35	4		SPQ-4LN-40120100-35
	12	30	100	45	4		SPQ-4LN-40120100-45
	12	35	150	55	4		SPQ-4LN-40120150-55
	12	45	150	65	4		SPQ-4LN-40120150-65

## SPQ-4BL

4 FLUTE - BALL  
Variable Pitch - Reduced Neck

- Offers outstanding performance and high temperature resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Engineered with eccentric relief for maximum edge strength in both roughing and finishing applications
- Variable pitch geometry results in higher quality parts by decreasing chatter and harmonics
- Center cutting
- Reduced neck provides maximum strength in long reach and deep pocketing applications
- h6 shank tolerance for high precision tool holders
- *Aplus* coating offers added lubricity and high temperature resistance for faster speeds and feeds and improved tool life
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	0AL L <sub>1</sub>	Reach (LBS) L <sub>3</sub>	Flutes	<i>Aplus</i> Coated	Tool Description
6	6	10	50	15	4	86884	SPQ-4BL-40060
	6	15	75	25	4		SPQ-4BL-4006075-25
	6	15	100	35	4		SPQ-4BL-40060100-35
	6	15	100	45	4		SPQ-4BL-40060100-45
	6	15	120	55	4		SPQ-4BL-40060120-55
8	8	15	60	20	4		SPQ-4BL-40080
	8	15	75	25	4		SPQ-4BL-4008075-25
	8	20	100	35	4		SPQ-4BL-40080100-35
	8	20	100	45	4		SPQ-4BL-40080100-45
	8	20	120	60	4		SPQ-4BL-40080120-60
10	10	15	75	25	4		SPQ-4BL-40100
	10	20	100	35	4		SPQ-4BL-40100100-35
	10	30	100	45	4		SPQ-4BL-40100100-45
	10	35	150	55	4		SPQ-4BL-40100150-55
	10	45	150	65	4		SPQ-4BL-40100150-65
12	12	15	75	25	4		SPQ-4BL-40120
	12	20	100	35	4		SPQ-4BL-40120100-35
	12	30	100	45	4		SPQ-4BL-40120100-45
	12	35	150	55	4		SPQ-4BL-40120150-55
	12	45	150	65	4		SPQ-4BL-40120150-65

## SPQ-5

5 FLUTE - SQUARE  
Variable Pitch

- Offers outstanding performance and high temperature resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Engineered for excellent performance in light profiling, High Efficiency Milling, and finishing applications
- 5 flute variable pitch design for reduced harmonics and increased feed rates
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Aplus* coating offers added lubricity and high temperature resistance for faster speeds and feeds and improved tool life
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	<i>Aplus</i> Coated	Tool Description
4	6	8	50	5	84985	SPQ-5-50040
	6	16	50	5		SPQ-5-50040-16
	6	20	50	5		SPQ-5-50040-20
	6	25	50	5		SPQ-5-50040-25
5	6	10	50	5		SPQ-5-50050
	6	13	50	5		SPQ-5-50050-13
	6	16	50	5		SPQ-5-50050-16
	6	25	50	5		SPQ-5-50050-25
	6	30	60	5		SPQ-5-50050-30
6	6	10	50	5		SPQ-5-50060
	6	25	75	5		SPQ-5-5006075-25
	6	35	100	5		SPQ-5-50060100-35
	6	45	100	5		SPQ-5-50060100-45
	6	55	120	5		SPQ-5-50060120-55
8	8	15	60	5		SPQ-5-50080
	8	25	75	5		SPQ-5-5008075-25
	8	35	100	5		SPQ-5-50080100-35
	8	45	100	5		SPQ-5-50080100-45
	8	60	120	5		SPQ-5-50080120-60
10	10	25	75	5		SPQ-5-50100
	10	35	100	5	SPQ-5-50100100-35	
	10	45	100	5	SPQ-5-50100100-45	
	10	55	150	5	SPQ-5-50100150-55	
	10	65	150	5	SPQ-5-50100150-65	
12	12	25	75	5	SPQ-5-50120	
	12	35	100	5	SPQ-5-50120100-35	
	12	45	100	5	SPQ-5-50120100-45	
	12	55	150	5	SPQ-5-50120150-55	
	12	65	150	5	SPQ-5-50120150-65	

## SPQ-6

6 FLUTE - SQUARE  
Variable Pitch

- Offers outstanding performance and high temperature resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Engineered for excellent performance in light profiling, High Efficiency Milling, and finishing applications
- 6 flute variable pitch design for reduced harmonics and increased feed rates
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Aplus* coating offers added lubricity and high temperature resistance for faster speeds and feeds and improved tool life
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Aplus Coated	Tool Description
4	6	8	50	6	84985	SPQ-6-60040
	6	16	50	6		SPQ-6-60040-16
	6	20	50	6		SPQ-6-60040-20
	6	25	50	6		SPQ-6-60040-25
5	6	10	50	6		SPQ-6-60050
	6	13	50	6		SPQ-6-60050-13
	6	16	50	6		SPQ-6-60050-16
	6	25	50	6		SPQ-6-60050-25
	6	30	60	6		SPQ-6-60050-30
6	6	10	50	6		SPQ-6-60060
	6	25	75	6		SPQ-6-6006075-25
	6	35	100	6		SPQ-6-60060100-35
	6	45	100	6		SPQ-6-60060100-45
	6	55	120	6		SPQ-6-60060120-55
8	8	15	60	6		SPQ-6-60080
	8	25	75	6		SPQ-6-6008075-25
	8	35	100	6		SPQ-6-60080100-35
	8	45	100	6		SPQ-6-60080100-45
	8	60	120	6		SPQ-6-60080120-60
10	10	25	75	6		SPQ-6-60100
	10	35	100	6		SPQ-6-60100100-35
	10	45	100	6		SPQ-6-60100100-45
	10	55	150	6		SPQ-6-60100150-55
	10	65	150	6		SPQ-6-60100150-65
12	12	25	75	6		SPQ-6-60120
	12	35	100	6		SPQ-6-60120100-35
	12	45	100	6		SPQ-6-60120100-45
	12	55	150	6		SPQ-6-60120150-55
	12	65	150	6	SPQ-6-60120150-65	

## 6 FLUTE - BALL

### Variable Pitch

## SPQ-6B

- Offers outstanding performance and high temperature resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Engineered for excellent performance in light profiling, High Efficiency Milling, and finishing applications
- 6 flute variable pitch design for reduced harmonics and increased feed rates
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Aplus* coating offers added lubricity and high temperature resistance for faster speeds and feeds and improved tool life
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Aplus Coated	Tool Description
4	6	8	50	6	849695	SPQ-6B-60040
	6	16	50	6		SPQ-6B-60040-16
	6	20	50	6		SPQ-6B-60040-20
	6	25	50	6		SPQ-6B-60040-25
6	6	10	50	6		SPQ-6B-60060
	6	25	75	6		SPQ-6B-60060-25
	6	35	100	6		SPQ-6B-60060-35
	6	45	100	6		SPQ-6B-60060-45
	6	55	120	6		SPQ-6B-60060-55
8	8	15	60	6		SPQ-6B-60080
	8	25	75	6		SPQ-6B-60080-25
	8	35	100	6		SPQ-6B-60080-35
	8	45	100	6		SPQ-6B-60080-45
	8	60	120	6		SPQ-6B-60080-60
10	10	25	75	6		SPQ-6B-60100
	10	35	100	6		SPQ-6B-60100-35
	10	45	100	6		SPQ-6B-60100-45
	10	55	150	6		SPQ-6B-60100-55
	10	65	150	6		SPQ-6B-60100-65
12	12	25	75	6		SPQ-6B-60120
	12	35	100	6	SPQ-6B-60120-35	
	12	45	100	6	SPQ-6B-60120-45	
	12	55	150	6	SPQ-6B-60120-55	
	12	65	150	6	SPQ-6B-60120-65	

## SPQ-7

7 FLUTE - SQUARE  
Variable Pitch

- Offers outstanding performance and high temperature resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Engineered for excellent performance in High Efficiency Milling
- 7 flute variable pitch design for reduced harmonics and increased feed rates
- End cutting geometry (non-center cutting)
- h6 shank tolerance for high precision tool holders
- *Aplus* coating offers added lubricity and high temperature resistance for faster speeds and feeds and improved tool life
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	<i>Aplus</i> Coated	Tool Description
4	6	8	50	7	849985	SPQ-7-70040
	6	16	50	7		SPQ-7-70040-16
	6	20	50	7		SPQ-7-70040-20
	6	25	50	7		SPQ-7-70040-25
6	6	10	50	7		SPQ-7-70060
	6	25	75	7		SPQ-7-7006075-25
	6	35	100	7		SPQ-7-70060100-35
	6	45	100	7		SPQ-7-70060100-45
	6	55	120	7		SPQ-7-70060120-55
8	8	15	60	7		SPQ-7-70080
	8	25	75	7		SPQ-7-7008075-25
	8	35	100	7		SPQ-7-70080100-35
	8	45	100	7		SPQ-7-70080100-45
	8	60	120	7		SPQ-7-70080120-60
10	10	25	75	7		SPQ-7-70100
	10	35	100	7		SPQ-7-70100100-35
	10	45	100	7		SPQ-7-70100100-45
	10	55	150	7		SPQ-7-70100150-55
	10	65	150	7		SPQ-7-70100150-65
12	12	25	75	7		SPQ-7-70120
	12	35	100	7	SPQ-7-70120100-35	
	12	45	100	7	SPQ-7-70120100-45	
	12	55	150	7	SPQ-7-70120150-55	
	12	65	150	7	SPQ-7-70120150-65	

## SPQF-7

7 FLUTE - SQUARE  
Finisher

- Offers outstanding performance and high temperature resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Excellent performance in light profiling, High Efficiency Milling, and finishing applications
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Aplus* coating offers added lubricity and high temperature resistance for faster speeds and feeds and improved tool life
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	<i>Aplus</i> Coated	Tool Description
6	6	10	50	7		SPQF-7-70060
	6	25	75	7		SPQF-7-7006075-25
	6	35	100	7		SPQF-7-70060100-35
	6	45	100	7		SPQF-7-70060100-45
	6	55	120	7		SPQF-7-70060120-55
8	8	15	60	7		SPQF-7-70080
	8	25	75	7		SPQF-7-7008075-25
	8	35	100	7		SPQF-7-70080100-35
	8	45	100	7		SPQF-7-70080100-45
	8	60	120	7		SPQF-7-70080120-60
10	10	25	75	7		SPQF-7-70100
	10	35	100	7		SPQF-7-70100100-35
	10	45	100	7		SPQF-7-70100100-45
	10	55	150	7		SPQF-7-70100150-55
	10	65	150	7		SPQF-7-70100150-65
12	12	25	75	7		SPQF-7-70120
	12	35	100	7		SPQF-7-70120100-35
	12	45	100	7		SPQF-7-70120100-45
	12	55	150	7		SPQF-7-70120150-55
	12	65	150	7		SPQF-7-70120150-65

## SSHR-4R

## 4 FLUTE - CORNER RADIUS

## Coolant Through - Chipbreaker Rougher - Variable Pitch

- Offers proven performance and extended tool life in stainless steels, high temp alloys, and hardened steels up to 65 Rc
- 4 flute variable pitch and offset chipbreaker geometry for optimal chip evacuation, minimized harmonics, and reduced tool pressure
- Radial coolant holes for reduced heat, enhanced chip evacuation, and increased material removal rates
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Tplus* coating offers high hardness for improved tool life and increased edge strength in difficult-to-machine materials
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Corner Radius R	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	<i>Tplus</i> Coated	Tool Description
4	6	0.5	12	50	4	845955	SSHR-4R-40040-R0.5
	6	0.5	16	50	4		SSHR-4R-40040-16-R0.5
	6	0.5	20	50	4		SSHR-4R-40040-20-R0.5
	6	0.5	25	50	4		SSHR-4R-40040-25-R0.5
6	6	0.5	15	50	4		SSHR-4R-40060-R0.5
	6	0.5	25	75	4		SSHR-4R-40060-25-R0.5
	6	0.5	35	100	4		SSHR-4R-40060-35-R0.5
	6	0.5	45	100	4		SSHR-4R-40060-45-R0.5
	6	0.5	55	120	4		SSHR-4R-40060-55-R0.5
8	8	0.5	20	60	4		SSHR-4R-40080-R0.5
	8	0.5	25	75	4		SSHR-4R-40080-25-R0.5
	8	0.5	35	100	4		SSHR-4R-40080-35-R0.5
	8	0.5	45	100	4		SSHR-4R-40080-45-R0.5
	8	0.5	60	120	4		SSHR-4R-40080-60-R0.5
10	10	0.5	25	75	4		SSHR-4R-40100-R0.5
	10	0.5	35	100	4		SSHR-4R-40100-35-R0.5
	10	0.5	45	100	4		SSHR-4R-40100-45-R0.5
	10	0.5	55	150	4		SSHR-4R-40100-55-R0.5
	10	0.5	65	150	4		SSHR-4R-40100-65-R0.5
12	12	0.5	25	75	4		SSHR-4R-40120-R0.5
	12	0.5	35	100	4	SSHR-4R-40120-35-R0.5	
	12	0.5	45	100	4	SSHR-4R-40120-45-R0.5	
	12	0.5	55	150	4	SSHR-4R-40120-55-R0.5	
	12	0.5	65	150	4	SSHR-4R-40120-65-R0.5	

# MULTI-FLUTE - CORNER RADIUS

# SSXR-4R

## Knuckle Rougher - Variable Pitch

Roughers

- Offers proven performance and extended tool life in stainless steels, high temp alloys, and hardened steels up to 65 Rc
- Well-suited for increased wear resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Engineered with staggered "low profile" edge geometry for chip control and minimized cutting forces
- Available in 4 flute and 5 flute options
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Tplus* coating offers high hardness for improved tool life and increased edge strength in difficult-to-machine materials
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Corner Radius R	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	<i>Tplus</i> Coated	Tool Description
6	6	0.5	15	50	4	864165	SSXR-4R-40060-R0.5
	6	0.5	25	75	4		SSXR-4R-40060-25-R0.5
	6	0.5	35	100	4		SSXR-4R-40060-35-R0.5
	6	0.5	45	100	4		SSXR-4R-40060-45-R0.5
	6	0.5	55	120	4		SSXR-4R-40060-55-R0.5
8	8	0.5	20	60	4		SSXR-4R-40080-R0.5
	8	0.5	25	75	4		SSXR-4R-40080-25-R0.5
	8	0.5	35	100	4		SSXR-4R-40080-35-R0.5
	8	0.5	45	100	4		SSXR-4R-40080-45-R0.5
	8	0.5	60	120	4		SSXR-4R-40080-60-R0.5
10	10	0.5	25	75	4		SSXR-4R-40100-R0.5
	10	0.5	35	100	4		SSXR-4R-40100-35-R0.5
	10	0.5	45	100	4		SSXR-4R-40100-45-R0.5
	10	0.5	55	150	4		SSXR-4R-40100-55-R0.5
	10	0.5	65	150	4		SSXR-4R-40100-65-R0.5
12	12	0.5	25	75	4		SSXR-4R-40120-R0.5
	12	0.5	35	100	4		SSXR-4R-40120-35-R0.5
	12	0.5	45	100	4		SSXR-4R-40120-45-R0.5
	12	0.5	55	150	4		SSXR-4R-40120-55-R0.5
	12	0.5	65	150	4		SSXR-4R-40120-65-R0.5

## SSMS-4E

New Items!

## 4 FLUTE - SQUARE

## Variable Pitch

- Offers proven performance and extended tool life in stainless steels, high temp alloys, and hardened steels up to 65 Rc
- Well-suited for increased wear resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Engineered with eccentric relief for maximum edge strength in both roughing and finishing applications

- Variable pitch geometry results in higher quality parts by decreasing chatter and harmonics
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Tplus* coating offers high hardness for improved tool life and increased edge strength in difficult-to-machine materials



4 Flute

Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	<i>Tplus</i> Coated	Tool Description
4	6	8	50	4	81985	SSMS-4E-40040
	6	16	50	4		SSMS-4E-40040-16
	6	20	50	4		SSMS-4E-40040-20
	6	25	50	4		SSMS-4E-40040-25
6	6	10	50	4		SSMS-4E-40060
	6	25	75	4		SSMS-4E-40060-25
	6	35	100	4		SSMS-4E-40060-35
	6	45	100	4		SSMS-4E-40060-45
	6	55	120	4		SSMS-4E-40060-55
8	8	15	60	4		SSMS-4E-40080
	8	25	75	4		SSMS-4E-40080-25
	8	35	100	4		SSMS-4E-40080-35
	8	45	100	4		SSMS-4E-40080-45
	8	60	120	4		SSMS-4E-40080-60
10	10	25	75	4		SSMS-4E-40100
	10	35	100	4		SSMS-4E-40100-35
	10	45	100	4		SSMS-4E-40100-45
	10	55	150	4		SSMS-4E-40100-55
	10	65	150	4		SSMS-4E-40100-65
12	12	25	75	4		SSMS-4E-40120
	12	35	100	4		SSMS-4E-40120-35
	12	45	100	4		SSMS-4E-40120-45
	12	55	150	4		SSMS-4E-40120-55
	12	65	150	4		SSMS-4E-40120-65

## SSMS-4B

New Items!

## 4 FLUTE - BALL

## Variable Pitch

- Offers proven performance and extended tool life in stainless steels, high temp alloys, and hardened steels up to 65 Rc
- Well-suited for increased wear resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Engineered with eccentric relief for maximum edge strength in both roughing and finishing applications
- Variable pitch geometry results in higher quality parts by decreasing chatter and harmonics

- Center cutting
- h6 shank tolerance for high precision tool holders
- *Tplus* coating offers high hardness for improved tool life and increased edge strength in difficult-to-machine materials
- Solid carbide



4 Flute

Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	<i>Tplus</i> Coated	Tool Description
4	6	8	50	4	81985	SSMS-4B-40040
	6	16	50	4		SSMS-4B-40040-16
	6	20	50	4		SSMS-4B-40040-20
	6	25	50	4		SSMS-4B-40040-25
6	6	10	50	4		SSMS-4B-40060
	6	25	75	4		SSMS-4B-40060-25
	6	35	100	4		SSMS-4B-40060-35
	6	45	100	4		SSMS-4B-40060-45
	6	55	120	4		SSMS-4B-40060-55
8	8	15	60	4		SSMS-4B-40080
	8	25	75	4		SSMS-4B-40080-25
	8	35	100	4		SSMS-4B-40080-35
	8	45	100	4		SSMS-4B-40080-45
10	8	60	120	4		SSMS-4B-40080-60
	10	25	75	4		SSMS-4B-40100
	10	35	100	4		SSMS-4B-40100-35
	10	45	100	4		SSMS-4B-40100-45
	10	55	150	4		SSMS-4B-40100-55
12	10	65	150	4		SSMS-4B-40100-65
	12	25	75	4		SSMS-4B-40120
	12	35	100	4	SSMS-4B-40120-35	
	12	45	100	4	SSMS-4B-40120-45	
	12	55	150	4	SSMS-4B-40120-55	
	12	65	150	4	SSMS-4B-40120-65	

# 5 FLUTE - CORNER RADIUS New Items!

**SSMS-5R**

## Variable Pitch

- Offers proven performance and extended tool life in stainless steels, high temp alloys, and hardened steels up to 65 Rc
- Well-suited for increased wear resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Engineered for excellent performance in light profiling, High Efficiency Milling, and finishing applications
- 5 flute variable pitch design for reduced harmonics and increased feed rates
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Tplus* coating offers high hardness for improved tool life and increased edge strength in difficult-to-machine materials
- Solid carbide



5 Flute

Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Corner Radius R	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Tplus Coated	Tool Description
4	6	0.5	12	50	5	845155	SSMS-5R-50040-R0.5
	6	0.5	16	50	5		SSMS-5R-50040-16-R0.5
	6	0.5	20	50	5		SSMS-5R-50040-20-R0.5
	6	0.5	25	50	5		SSMS-5R-50040-25-R0.5
6	6	0.5	15	50	5		SSMS-5R-50060-R0.5
	6	0.5	25	75	5		SSMS-5R-50060-25-R0.5
	6	0.5	35	100	5		SSMS-5R-50060-35-R0.5
	6	0.5	45	100	5		SSMS-5R-50060-45-R0.5
	6	0.5	55	120	5		SSMS-5R-50060-55-R0.5
8	8	0.5	20	60	5		SSMS-5R-50080-R0.5
	8	0.5	25	75	5		SSMS-5R-50080-25-R0.5
	8	0.5	35	100	5		SSMS-5R-50080-35-R0.5
	8	0.5	45	100	5		SSMS-5R-50080-45-R0.5
	8	0.5	60	120	5		SSMS-5R-50080-60-R0.5
10	10	0.5	25	75	5		SSMS-5R-50100-R0.5
	10	0.5	35	100	5		SSMS-5R-50100-35-R0.5
	10	0.5	45	100	5		SSMS-5R-50100-45-R0.5
	10	0.5	55	150	5		SSMS-5R-50100-55-R0.5
	10	0.5	65	150	5		SSMS-5R-50100-65-R0.5
12	12	0.5	25	75	5		SSMS-5R-50120-R0.5
	12	0.5	35	100	5	SSMS-5R-50120-35-R0.5	
	12	0.5	45	100	5	SSMS-5R-50120-45-R0.5	
	12	0.5	55	150	5	SSMS-5R-50120-55-R0.5	
	12	0.5	65	150	5	SSMS-5R-50120-65-R0.5	

# 6 FLUTE - SQUARE

**New Items!**

**SSMS-6E**

## Variable Pitch

- Offers proven performance and extended tool life in stainless steels, high temp alloys, and hardened steels up to 65 Rc
- Well-suited for increased wear resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Engineered for excellent performance in light profiling, High Efficiency Milling, and finishing applications
- 6 flute variable pitch design for reduced harmonics and increased feed rates
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Tplus* coating offers high hardness for improved tool life and increased edge strength in difficult-to-machine materials
- Solid carbide



6 Flute

Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Tplus Coated	Tool Description
4	6	8	50	6	812985	SSMS-6E-60040
	6	16	50	6		SSMS-6E-60040-16
	6	20	50	6		SSMS-6E-60040-20
	6	25	50	6		SSMS-6E-60040-25
6	6	10	50	6		SSMS-6E-60060
	6	25	75	6		SSMS-6E-60060-25
	6	35	100	6		SSMS-6E-60060-35
	6	45	100	6		SSMS-6E-60060-45
	6	55	120	6		SSMS-6E-60060-55
8	8	15	60	6		SSMS-6E-60080
	8	25	75	6		SSMS-6E-60080-25
	8	35	100	6		SSMS-6E-60080-35
	8	45	100	6		SSMS-6E-60080-45
	8	60	120	6		SSMS-6E-60080-60
10	10	25	75	6		SSMS-6E-60100
	10	35	100	6		SSMS-6E-60100-35
	10	45	100	6		SSMS-6E-60100-45
	10	55	150	6		SSMS-6E-60100-55
	10	65	150	6		SSMS-6E-60100-65
12	12	25	75	6		SSMS-6E-60120
	12	35	100	6		SSMS-6E-60120-35
	12	45	100	6		SSMS-6E-60120-45
	12	55	150	6		SSMS-6E-60120-55
	12	65	150	6		SSMS-6E-60120-65

# 6 FLUTE - SQUARE

SSMSC-6E

## Coolant Through - Variable Pitch

- Offers proven performance and extended tool life in stainless steels, high temp alloys, and hardened steels up to 65 Rc
- Engineered for excellent performance in light profiling, High Efficiency Milling, and finishing applications
- 6 flute variable pitch design for reduced harmonics and increased feed rates
- Radial coolant holes for reduced heat, enhanced chip evacuation, and increased material removal rates
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Tplus* coating offers high hardness for improved tool life and increased edge strength in difficult-to-machine materials
- Solid carbide



6 Flute

Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	<i>Tplus</i> Coated	Tool Description
8	8	15	60	6	874115	SSMSC-6E-60080
	8	25	75	6		SSMSC-6E-60080-25
	8	35	100	6		SSMSC-6E-60080-35
	8	45	100	6		SSMSC-6E-60080-45
	8	60	120	6		SSMSC-6E-60080-60
10	10	25	75	6		SSMSC-6E-60100
	10	35	100	6		SSMSC-6E-60100-35
	10	45	100	6		SSMSC-6E-60100-45
	10	55	150	6		SSMSC-6E-60100-55
	10	65	150	6		SSMSC-6E-60100-65
12	12	25	75	6		SSMSC-6E-60120
	12	35	100	6		SSMSC-6E-60120-35
	12	45	100	6		SSMSC-6E-60120-45
	12	55	150	6		SSMSC-6E-60120-55
	12	65	150	6		SSMSC-6E-60120-65

## SSMS-6B

New Items!

## 6 FLUTE - BALL

## Variable Pitch

- Offers proven performance and extended tool life in stainless steels, high temp alloys, and hardened steels up to 65 Rc
- Well-suited for increased wear resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Engineered for excellent performance in light profiling, High Efficiency Milling, and finishing applications
- 6 flute variable pitch design for reduced harmonics and increased feed rates

- Center cutting
- h6 shank tolerance for high precision tool holders
- *Tplus* coating offers high hardness for improved tool life and increased edge strength in difficult-to-machine materials
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Tplus Coated	Tool Description
6	6	10	50	6	87666	SSMS-6B-60060
	6	25	75	6		SSMS-6B-60060-25
	6	35	100	6		SSMS-6B-60060-35
	6	45	100	6		SSMS-6B-60060-45
	6	55	120	6		SSMS-6B-60060-55
8	8	15	60	6		SSMS-6B-60080
	8	25	75	6		SSMS-6B-60080-25
	8	35	100	6		SSMS-6B-60080-35
	8	45	100	6		SSMS-6B-60080-45
	8	60	120	6		SSMS-6B-60080-60
10	10	25	75	6		SSMS-6B-60100
	10	35	100	6		SSMS-6B-60100-35
	10	45	100	6		SSMS-6B-60100-45
	10	55	150	6		SSMS-6B-60100-55
	10	65	150	6		SSMS-6B-60100-65
12	12	25	75	6		SSMS-6B-60120
	12	35	100	6		SSMS-6B-60120-35
	12	45	100	6		SSMS-6B-60120-45
	12	55	150	6		SSMS-6B-60120-55
	12	65	150	6		SSMS-6B-60120-65

# 7 FLUTE - CORNER RADIUS

**New Items!**

**SSMS-7R**

## Variable Pitch

- Offers proven performance and extended tool life in stainless steels, high temp alloys, and hardened steels up to 65 Rc
- Well-suited for increased wear resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Engineered for excellent performance in High Efficiency Milling
- 7 flute variable pitch design for reduced harmonics and increased feed rates
- End cutting geometry (non-center cutting)
- h6 shank tolerance for high precision tool holders
- *Tplus* coating offers high hardness for improved tool life and increased edge strength in difficult-to-machine materials
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Corner Radius R	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Tplus Coated	Tool Description
4	6	0.5	12	50	7	845155	SSMS-7R-70040-R0.5
	6	0.5	16	50	7		SSMS-7R-70040-16-R0.5
	6	0.5	20	50	7		SSMS-7R-70040-20-R0.5
	6	0.5	25	50	7		SSMS-7R-70040-25-R0.5
6	6	0.5	15	50	7		SSMS-7R-70060-R0.5
	6	0.5	25	75	7		SSMS-7R-70060-25-R0.5
	6	0.5	35	100	7		SSMS-7R-70060-35-R0.5
	6	0.5	45	100	7		SSMS-7R-70060-45-R0.5
	6	0.5	55	120	7		SSMS-7R-70060-55-R0.5
8	8	0.5	20	60	7		SSMS-7R-70080-R0.5
	8	0.5	25	75	7		SSMS-7R-70080-25-R0.5
	8	0.5	35	100	7		SSMS-7R-70080-35-R0.5
	8	0.5	45	100	7		SSMS-7R-70080-45-R0.5
	8	0.5	60	120	7		SSMS-7R-70080-60-R0.5
10	10	0.5	25	75	7		SSMS-7R-70100-R0.5
	10	0.5	35	100	7		SSMS-7R-70100-35-R0.5
	10	0.5	45	100	7		SSMS-7R-70100-45-R0.5
	10	0.5	55	150	7		SSMS-7R-70100-55-R0.5
	10	0.5	65	150	7		SSMS-7R-70100-65-R0.5
12	12	0.5	25	75	7		SSMS-7R-70120-R0.5
	12	0.5	35	100	7		SSMS-7R-70120-35-R0.5
	12	0.5	45	100	7		SSMS-7R-70120-45-R0.5
	12	0.5	55	150	7		SSMS-7R-70120-55-R0.5
	12	0.5	65	150	7		SSMS-7R-70120-65-R0.5

7 Flute

## MFSS-7R

## MULTI-FLUTE - CORNER RADIUS

## Finisher

- Offers proven performance and extended tool life in stainless steels, high temp alloys, and hardened steels up to 65 Rc
- Well-suited for increased wear resistance in a wide range of ferrous materials, including low and medium alloy steels, tool steels, and cast iron
- Designed with high flute count for excellent performance in light profiling, High Efficiency Milling, and finishing applications

- End cutting geometry (non-center cutting)
- h6 shank tolerance for high precision tool holders
- *Tplus* coating offers high hardness for improved tool life and increased edge strength in difficult-to-machine materials
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Corner Radius R	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	<i>Tplus</i> Coated	Tool Description
8	8	0.5	20	60	7	89545	MFSS-7R-70080-R0.5
	8	0.5	25	75	7		MFSS-7R-70080-25-R0.5
	8	0.5	35	100	7		MFSS-7R-70080-35-R0.5
	8	0.5	45	100	7		MFSS-7R-70080-45-R0.5
	8	0.5	60	120	7		MFSS-7R-70080-60-R0.5
10	10	0.5	25	75	7		MFSS-7R-70100-R0.5
	10	0.5	35	100	7		MFSS-7R-70100-35-R0.5
	10	0.5	45	100	7		MFSS-7R-70100-45-R0.5
	10	0.5	55	150	7		MFSS-7R-70100-55-R0.5
	10	0.5	65	150	7		MFSS-7R-70100-65-R0.5
12	12	0.5	25	75	7		MFSS-7R-70120-R0.5
	12	0.5	35	100	7		MFSS-7R-70120-35-R0.5
	12	0.5	45	100	7		MFSS-7R-70120-45-R0.5
	12	0.5	55	150	7		MFSS-7R-70120-55-R0.5
	12	0.5	65	150	7		MFSS-7R-70120-65-R0.5

## TTSV-5R

New Items!

## 5 FLUTE - CORNER RADIUS

## Chipbreaker Rougher - Variable Pitch

- Offers outstanding performance and high temperature resistance in titanium and titanium alloys
- Engineered for excellent performance in High Efficiency Milling
- 5 flute variable pitch and offset chipbreaker geometry for optimal chip evacuation, reduced harmonics, and reduced tool pressure

- Center cutting
- h6 shank tolerance for high precision tool holders
- *Aplus* coating offers added lubricity and high temperature resistance for faster speeds and feeds and improved tool life
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Corner Radius R	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Aplus Coated	Tool Description
6	6	0.5	15	50	5	811456	TTSV-5R-50060-R0.5
	6	0.5	25	75	5		TTSV-5R-50060-25-R0.5
	6	0.5	35	100	5		TTSV-5R-50060-35-R0.5
	6	0.5	45	100	5		TTSV-5R-50060-45-R0.5
	6	0.5	55	120	5		TTSV-5R-50060-55-R0.5
8	8	0.5	20	60	5		TTSV-5R-50080-R0.5
	8	0.5	25	75	5		TTSV-5R-50080-25-R0.5
	8	0.5	35	100	5		TTSV-5R-50080-35-R0.5
	8	0.5	45	100	5		TTSV-5R-50080-45-R0.5
	8	0.5	60	120	5		TTSV-5R-50080-60-R0.5
10	10	0.5	25	75	5		TTSV-5R-50100-R0.5
	10	0.5	35	100	5		TTSV-5R-50100-35-R0.5
	10	0.5	45	100	5		TTSV-5R-50100-45-R0.5
	10	0.5	55	150	5		TTSV-5R-50100-55-R0.5
	10	0.5	65	150	5		TTSV-5R-50100-65-R0.5
12	12	0.5	25	75	5		TTSV-5R-50120-R0.5
	12	0.5	35	100	5		TTSV-5R-50120-35-R0.5
	12	0.5	45	100	5		TTSV-5R-50120-45-R0.5
	12	0.5	55	150	5		TTSV-5R-50120-55-R0.5
	12	0.5	65	150	5		TTSV-5R-50120-65-R0.5

## TTS-5R

## 5 FLUTE - CORNER RADIUS

## Variable Pitch

- Offers outstanding performance and high temperature resistance in titanium and titanium alloys
- Engineered for excellent performance in light profiling, High Efficiency Milling, and finishing applications
- 5 flute variable pitch design for reduced harmonics and increased feed rates
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Aplus* coating offers added lubricity and high temperature resistance for faster speeds and feeds and improved tool life
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Corner Radius R	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	<i>Aplus</i> Coated	Tool Description
6	6	0.5	15	50	5	811456	TTS-5R-50060-R0.5
	6	0.5	25	75	5		TTS-5R-50060-25-R0.5
	6	0.5	35	100	5		TTS-5R-50060-35-R0.5
	6	0.5	45	100	5		TTS-5R-50060-45-R0.5
	6	0.5	55	120	5		TTS-5R-50060-55-R0.5
8	8	0.5	20	60	5		TTS-5R-50080-R0.5
	8	0.5	25	75	5		TTS-5R-50080-25-R0.5
	8	0.5	35	100	5		TTS-5R-50080-35-R0.5
	8	0.5	45	100	5		TTS-5R-50080-45-R0.5
	8	0.5	60	120	5		TTS-5R-50080-60-R0.5
10	10	0.5	25	75	5		TTS-5R-50100-R0.5
	10	0.5	35	100	5		TTS-5R-50100-35-R0.5
	10	0.5	45	100	5		TTS-5R-50100-45-R0.5
	10	0.5	55	150	5		TTS-5R-50100-55-R0.5
	10	0.5	65	150	5		TTS-5R-50100-65-R0.5
12	12	0.5	25	75	5		TTS-5R-50120-R0.5
	12	0.5	35	100	5		TTS-5R-50120-35-R0.5
	12	0.5	45	100	5		TTS-5R-50120-45-R0.5
	12	0.5	55	150	5		TTS-5R-50120-55-R0.5
	12	0.5	65	150	5		TTS-5R-50120-65-R0.5

**6 FLUTE - SQUARE** New Items!**TTS-6E****Variable Pitch - For High Efficiency Milling**

- Specially engineered for optimal performance in High Efficiency Milling of Titanium 6Al4V and other titanium alloys
- Variable pitch geometry results in higher quality parts by decreasing chatter and harmonics
- Not for use in traditional slotting and roughing toolpaths
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Aplus* coating offers added lubricity and high temperature resistance for faster speeds and feeds and improved tool life
- Solid carbide



6 Flute

Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	<i>Aplus</i> Coated	Tool Description
<b>6</b>	6	10	50	6	<b>87156</b>	TTS-6E-60060
	6	25	75	6		TTS-6E-60060-25
	6	35	100	6		TTS-6E-60060-35
	6	45	100	6		TTS-6E-60060-45
	6	55	120	6		TTS-6E-60060-55
<b>8</b>	8	15	60	6		TTS-6E-60080
	8	25	75	6		TTS-6E-60080-25
	8	35	100	6		TTS-6E-60080-35
	8	45	100	6		TTS-6E-60080-45
	8	60	120	6		TTS-6E-60080-60
<b>10</b>	10	25	75	6		TTS-6E-60100
	10	35	100	6		TTS-6E-60100-35
	10	45	100	6		TTS-6E-60100-45
	10	55	150	6		TTS-6E-60100-55
	10	65	150	6		TTS-6E-60100-65
<b>12</b>	12	25	75	6		TTS-6E-60120
	12	35	100	6		TTS-6E-60120-35
	12	45	100	6		TTS-6E-60120-45
	12	55	150	6		TTS-6E-60120-55
	12	65	150	6		TTS-6E-60120-65

## TTS-6B

New Items!

## 6 FLUTE - BALL

## Variable Pitch - For High Efficiency Milling

- Specially engineered for optimal performance in High Efficiency Milling of Titanium 6Al4V and other titanium alloys
- Variable pitch geometry results in higher quality parts by decreasing chatter and harmonics
- Not for use in traditional slotting and roughing toolpaths
- Center cutting
- h6 shank tolerance for high precision tool holders
- *Aplus* coating offers added lubricity and high temperature resistance for faster speeds and feeds and improved tool life
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Aplus Coated	Tool Description
6	6	10	50	6	87866	TTS-6B-60060
	6	25	75	6		TTS-6B-60060-25
	6	35	100	6		TTS-6B-60060-35
	6	45	100	6		TTS-6B-60060-45
	6	55	120	6		TTS-6B-60060-55
8	8	15	60	6		TTS-6B-60080
	8	25	75	6		TTS-6B-60080-25
	8	35	100	6		TTS-6B-60080-35
	8	45	100	6		TTS-6B-60080-45
	8	60	120	6		TTS-6B-60080-60
10	10	25	75	6		TTS-6B-60100
	10	35	100	6		TTS-6B-60100-35
	10	45	100	6		TTS-6B-60100-45
	10	55	150	6		TTS-6B-60100-55
	10	65	150	6		TTS-6B-60100-65
12	12	25	75	6		TTS-6B-60120
	12	35	100	6		TTS-6B-60120-35
	12	45	100	6		TTS-6B-60120-45
	12	55	150	6		TTS-6B-60120-55
	12	65	150	6		SSMS-6B-60120-65

**TTS-7R**

METRIC

**7 FLUTE - CORNER RADIUS - METRIC**

Variable Pitch

- Offers outstanding performance and high temperature resistance in titanium and titanium alloys
- Engineered for excellent performance in High Efficiency Milling
- 7 flute variable pitch design for reduced harmonics and increased feed rates

- End cutting geometry (non-center cutting)
- h6 shank tolerance for high precision tool holders
- *Aplus* coating offers added lubricity and high temperature resistance for faster speeds and feeds and improved tool life
- Solid carbide



Cutter Dia.* D <sub>1</sub> (h6)	Shank Dia. D <sub>2</sub> (h6)	Corner Radius R	Length of Cut L <sub>2</sub>	OAL L <sub>1</sub>	Flutes	Aplus Coated	Tool Description
<b>6</b>	6	0.5	15	50	7	<b>89966</b>	TTS-7R-70060-R0.5
	6	0.5	25	75	7		TTS-7R-70060-25-R0.5
	6	0.5	35	100	7		TTS-7R-70060-35-R0.5
	6	0.5	45	100	7		TTS-7R-70060-45-R0.5
	6	0.5	55	120	7		TTS-7R-70060-55-R0.5
<b>8</b>	8	0.5	20	60	7		TTS-7R-70080-R0.5
	8	0.5	25	75	7		TTS-7R-70080-25-R0.5
	8	0.5	35	100	7		TTS-7R-70080-35-R0.5
	8	0.5	45	100	7		TTS-7R-70080-45-R0.5
	8	0.5	60	120	7		TTS-7R-70080-60-R0.5
<b>10</b>	10	0.5	25	75	7		TTS-7R-70100-R0.5
	10	0.5	35	100	7		TTS-7R-70100-35-R0.5
	10	0.5	45	100	7		TTS-7R-70100-45-R0.5
	10	0.5	55	150	7		TTS-7R-70100-55-R0.5
	10	0.5	65	150	7		TTS-7R-70100-65-R0.5
<b>12</b>	12	0.5	25	75	7		TTS-7R-70120-R0.5
	12	0.5	35	100	7		TTS-7R-70120-35-R0.5
	12	0.5	45	100	7		TTS-7R-70120-45-R0.5
	12	0.5	55	150	7		TTS-7R-70120-55-R0.5
	12	0.5	65	150	7		TTS-7R-70120-65-R0.5

## CUSTOM TOOLS

### How We Are Different

Our custom tools consistently outperform competition in even the most difficult-to-machine materials because we adopt a unique "end-to-end" approach to our custom tool program.

We start by gaining a detailed understanding of your requirements. We design your tool by utilizing our proprietary geometries, coatings, and edge prep technology. Your tool is then manufactured to your exact standards. After you receive your custom design, our engineers are on standby to provide technical support and the ideal running parameters for your tool.

### Our Capabilities

Our specials are ground from Solid carbide on state-of-the-art CNC equipment. We manufacture configurations that our competitors won't even quote, including end mills up to 6" in diameter and up to 27" in overall length.

While we specialize in end mills, our team of professional engineers regularly design and manufacture form tools, drills, coolant-fed tooling, step drills, Christmas tree cutters, end mills, and more.

We are committed to providing turnkey solutions for our customers, and we pay attention to the intricate details of every tool to certify its quality and performance.

### We Provide

- + Expert knowledge
- + Quick quoting
- + Unbeatable service
- + Fast lead times
- + Quality tooling
- + Machining assistance

### Our Custom Tool Process



#### Detailed Understanding of Your Requirements

During the quoting process, **we set ourselves apart** with a team of engineers eager to understand every aspect of your project, from work material and part envelope to machine capabilities and other critical factors.



#### Designs Optimized for Your Specific Application

Our objective is to return a quote **within 48 hours** that includes tool design, dimensions, and expected lead time. We will also provide a copy of your quote to your preferred distributor at a **very competitive price**.



#### Outstanding Quality & Reliable Lead Times

After you receive your tool within our reliable lead time windows, our engineers will provide running parameters that assure your tool delivers **ideal performance** while providing accuracy, strength, and **impressive results**.

# New Tools for 2023



## High Feed End Mills

4 and 5 Flute Combo Feed -  
Chipbreaker -  
Variable Pitch - Coolant Through



## Specialty Profiles

Corner Rounding End Mills -  
T-Beli Flute - 3 & 5 Flute -  
High Performance



## End Mills for Stainless & High Temp Alloys

Contour Finishers - 4 Flute  
Ball - Tapered Neck



## End Mills for Nickel Alloys

6 flute - Corner Radius -  
Variable Pitch - Coolant Through



## End Mills for Stainless & High Temp Alloys

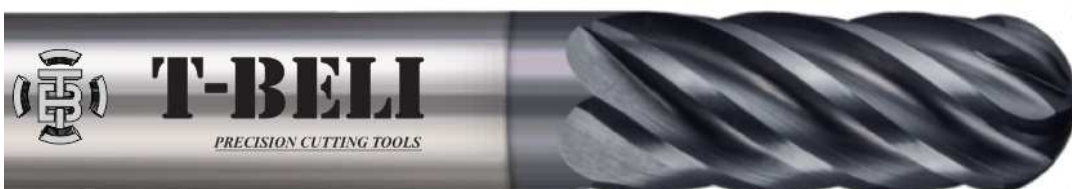
4 Flute - Taper & Oval -  
Multi-Axis Finishers

## End Mills for Aluminum Alloys & Non-Ferrous Materials

3 Flute - Corner Radius - 35° Helix  
- Reduced Neck

## End Mills for Stainless & High Temp Alloys

4, 5 and 6 Flute  
- Variable Pitch  
- Reduced Neck





## More Than 1,300 New reasons to Keep Making Chips With T-Beli

T-Beli's extensive new offering features a variety of high performance tooling engineered for contour finishing, corner rounding, multi-axis finishing, long reach applications in stainless steels, and more. Precision-crafted and meticulously tested, T-Beli's 1,300+ new tooling solutions provide unmatched machining capabilities so you can make more chips than ever before in 2023.