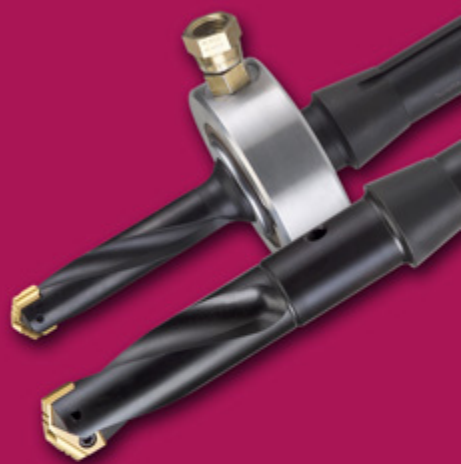


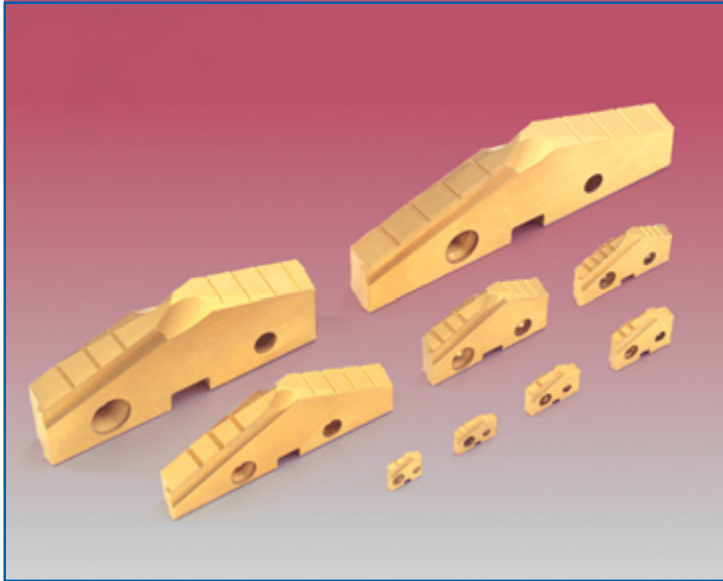


METCUT[®]
Spade Drills



**Holders
Blades
Accessories**

*Performance
Efficiency
Economy
for your
toughest
applications*



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How to Order Carbide and T-15 Steel Spade Blade Inserts

XX A - B B B B C

<p>X. Substrate 7F = T-15 HSS 9C = Carbide</p>	<p>A. Series Number Y = 0.375" – 0.435" Z = 0.436" – 0.508" 0 = 0.509" – 0.690" 1 = 0.691" – 0.960" 2 = 0.961" – 1.380" 3 = 1.381" – 1.879" 4 = 1.880" – 2.570" 5* = 2.500" – 3.000" 6* = 3.001" – 3.500" 7* = 3.501" – 4.000" 8* = 4.001" – 4.500"</p>	<p>B. Diameter (e.g. 1.050" = 1050)</p>	<p>C. Coating T (TiN) N (TiCN) G (TiN/TiCN) A (TiAlN) H (CX-H) D (Diamond)</p>
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**T-15 steel only*



How to Order Spade Blade Holders

X A B C D

<p>X. Shank Size 7 = Inch Shank 8 = Metric Shank</p>	<p>A. Flute Style H = Helical S = Straight</p>	<p>B. Holder Series Y, Z, 0, 0.5, 1, 1.5, 2, 2.5, 3, 4, 5, 7</p>	<p>C. Shank Style S = Straight T = Morse Taper SR = R-8</p>	<p>D. Length S = Short M = Medium L = Long E = Extended Length</p>
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Metcut spade blades give you the edge!

- Highest performance in the industry
- Faster penetration rates – 35% to 100% higher "in-feed" rates than competitors' blades
- More holes per blade – 25% to 50% wear-life improvement over competitors' blades
- Less down time
- Interchangeable with other conventional spade blades
- Improved surface finish – elimination of secondary operations
- Complete standard and specials drill body / holder offering.
- Lower variability

Premium blade construction:

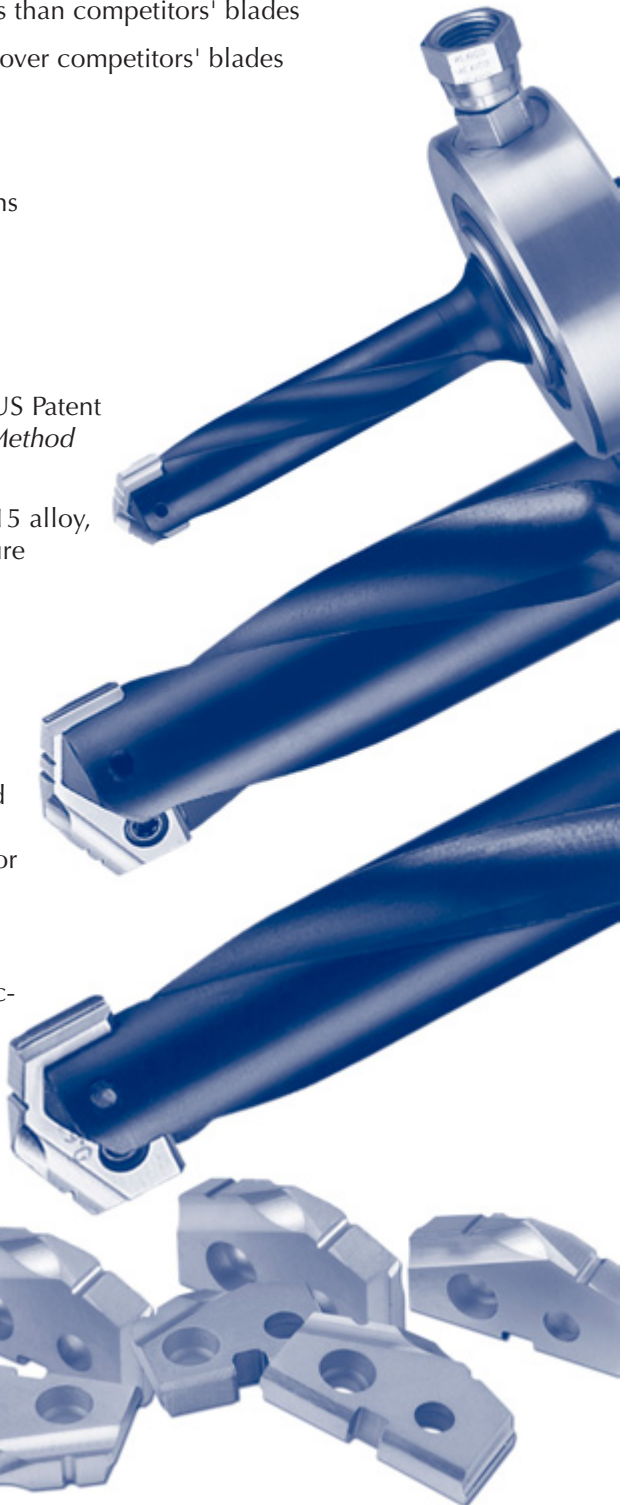
- Unique cutting geometry protected under Kennametal Inc. US Patent Number 63701702 (April 16, 2002) "*Spade Blade Drill and Method of Making*".
- Fabricated from a pressed and HIP sintered powder metal T-15 alloy, yielding a more uniform and consistent metallurgical structure provides lower variability than competing blades.

Premium service and support:

- A specials program that delivers custom engineered spade blade and spade blade holder sizes and geometries to fulfill every customer requirement.
- A complete line of straight and helical fluted holders offered with both straight and taper shank styles; all holders are engineered to accommodate the option of a coolant gland for use where coolant through the spindle is lacking.

Premium Coatings:

- **TiN** (Titanium Nitride) gives longer tool life and added lubricity, while allowing more aggressive machining of steels.
- **TiCN** (Titanium Carbonitride) is a general purpose coating well suited to machining of mild steel, ductile cast iron and nonferrous materials such as aluminum and copper alloys. TiCN is superior in preventing excessive BUE (built-up edge).
- **"G"** is comprised of more than 20 layers of TiCN and TiAlN with an overcoat of TiN optimized for drilling mild steel and ductile cast iron.
- **TiAlN** (Titanium Aluminum Nitride) a multilayer, mixed phase coating designed for high-speed machining in alloy steels, high temp alloys, gray cast iron and titanium. Performance advantages require TiAlN coated tools to be operated at relatively high speeds, typically 50% greater than other PVD coatings such as TiN.
- **CX-H** is a proprietary coating designed for optimal drilling of abrasive, short chipping nonferrous alloys (e.g. red brass, Al-Si alloys).
- **Diamond** coating is designed for abrasive nonferrous alloys.





Application Information

T-15 HSS spade blades are recommended:

- For replacing steel twist drills resulting in 2X to 3X higher penetration rates and up to 4X to 5X longer wearlife.
- For providing straighter and more consistent holes with superior surface finishes than can be produced using either HSS twist drills or carbide indexable drills.
- When rigidity of the machine or the fixture requires a more forgiving, durable and tougher tool; T-15 steel possesses a higher transverse rupture strength and is more impact-resistant than comparable carbide spade blades and/or carbide indexable drills.
- In applications requiring hole depths up through 15X to 20X diameter; pecking may be required for depths above 7X diameter for some materials.
- As a more cost effective alternative to carbide indexable drills since T-15 steel spade blades operate at comparable penetration rates to single-effective indexable drills in materials <35 Rc, and one spade blade holder accommodates multiple diameter blades.

Carbide spade blades are recommended:

- For high productivity applications in which wearlife must be maximized; typically limited to hole depths less than 5X diameter.
- For use in highly abrasive materials such as cast iron, cast aluminum, etc.; or in harder steel alloys, typically 30 to 45 Rc.
- To exceed the performance of single-effective indexable drills by 20% to 50% in materials <45 Rc.
- To get improved productivity in contrast to T-15 steel spade blades by allowing 50% to 100% higher speeds; operational parameters of carbide blades recommend hole depths < 5X diameter, rigid set-ups, and 50% to 100% higher coolant pressures.

Spade blade holders generally can accommodate a range of blade sizes up to 1.30 to 1.35 times the smallest blade size. It is therefore possible to cover the entire range of hole sizes with just a few spade drill holders. Contrast this with the inventories required for indexable drills and steel taper shank drills.

Straight fluted spade blade holders are recommended for horizontal machining center applications to maximize chip evacuation given their inherent open flute construction.

Helical fluted spade blade holders may be necessary for vertical machining center applications to break chips, enhancing chip removal.

R-8 (Bridgeport) holders and blades are used in Bridgeport machines that require a R-8 taper holder.

Through coolant via the spindle cooling is preferable for optimal drilling with spade blades. However, if spindle cooling is unavailable, then coolant glands or inducers should be used to provide through coolant capability. All METCUT spade blade holders are manufactured with both the option of through the spindle cooling or with a rotary coolant gland. Flood coolant is not recommended, but can be used for very short hole depths, less than one diameter. Through coolant *must* be used with spade drill depths greater than one diameter.

Half-size spade blade holders (see pages 17-20) may be required where the penetration rate (in-feed) exceeds the recommended values by more than 25%. They are also recommended for use in gummy materials (e.g., aluminum, copper alloys) where torque forces can exceed the yield strength of the spade blade holder, typically where the spade blade diameter exceeds the spade blade body diameter by more than 25%. Without half-size holders, the spade blade's excessive overhang can expose it to premature failure and the holder to potential catastrophic break-up.

Series 0, 1 and 2 spade blade diameters have both full size and half size holders that provide proper support to the blade under most circumstances. Standard full-size holders can accommodate the full diameter range for a given spade blade series. Half-size holders should be used only for blade diameters that exceed the half-size spade blade holder body diameter by at least 0.010".



Upgrade your tool crib with METCUT Spade Blade Holders

You've heard about the performance advantages of METCUT spade blades and you want to try them. But you've got an investment in tool holders. How can you make a cost effective switch? Let us prove the value of genuine METCUT spade blades and holders.

Why settle for universal-style toolholders?

UPGRADE TO METCUT!

Superior hole making solutions by design.™

METCUT spade blade inserts:

- Increase average wear life by up to 2.5 times over coated universal-style blades
- Increase productivity (ipm) by as much as 50% over universal-style blades
- Cost up to 50% less than same substrate material universal-style blades

Universal-style spade blade inserts:

- Lower wear life which means costly tool change-outs and machine down time
- Lower ipm which gives fewer parts per machine-hour, less productivity
- Higher investment costs in blade inventory without higher return on investment

Spade Blade Holder Cross-Reference

Taper Shank, Straight Flute Holders

Universal Type Series	METCUT Blade Series	Blade Diameter Range	Morse Taper No.	Short Length			Standard Length			Long Length		
				Max. Drill Depth	OAL	METCUT Holder	Max. Drill Depth	OAL	METCUT Holder	Max. Drill Depth	OAL	METCUT Holder
A	2	31/32"-1-3/8"	3	3.07	9.44	7S2S	7.82	14.19	7S2L	10.89	17.26	7S2E
AA	2	1-1/8"-1-3/8"	3	2.88	9.44	7S2.5S	7.63	15.19	*7S2.5L-4M	—	—	—
B	3	1-3/8"-1-7/8"	4	4.33	12.13	7S3S	8.43	16.13	7S3M	13.18	20.38	7S3L
C,D	4	1-7/8"-2-9/16"	4	5.90	13.62	7S4S	9.90	17.63	7S4M	16.02	23.75	7S4L
E,F	5,6	2-1/2"-3-1/2"	5	6.24	15.38	7S5S	11.99	21.13	7S5M	17.74	26.88	7S5L
G	7,8	3-1/2"-4-1/2"	5	6.88	16.28	7S7S	12.25	22.28	7S7M	19.45	30.53	7S7L

*#4 Morse Taper

Straight Shank, Straight Flute Holders

Universal Type Series	METCUT Blade Series	Blade Diameter Range	Shank Dia.	Short Length			Standard Length			Long Length		
				Max. Drill Depth	OAL	METCUT Holder	Max. Drill Depth	OAL	METCUT Holder	Max. Drill Depth	OAL	METCUT Holder
A	2	31/32"-1-3/8"	1.25	3.07	8.00	7S2SS	7.82	12.75	7S2SL	10.89	15.92	7S2SE
AA	2	1-1/8"-1-3/8"	1.25	2.88	8.00	7S2.5SS	7.63	12.75	7S2.5SL	—	—	—
B	3	1-3/8"-1-7/8"	1.50	4.33	9.88	7S3SS	8.43	13.88	7S3SM	13.18	18.63	7S3SL
C,D	4	1-7/8"-2-9/16"	1.50	5.90	11.38	7S4SS	9.90	15.38	7S4SM	16.02	21.50	7S4SL
E,F	5,6	2-1/2"-3-1/2"	2.00	6.24	12.50	7S5SS	11.99	18.25	7S5SM	17.74	24.00	7S5SL
G	7,8	3-1/2"-4-1/2"	3.00	6.88	15.25	7S7SS	12.25	21.25	7S7SM	19.45	29.50	7S7SL



Minimum Coolant Volumetric Flow Rate and Coolant Pressure for T-15 HSS and Carbide Spade Blades

Note: These flow rates and coolant pressures are general recommendations for water-based coolants. They are guidelines for achieving maximum tool life and chip evacuation at the recommended speeds and feeds.

The table recommends adjusted flow and pressure rates for blade size, blade material, and holder length (short, medium, long, extended length). Since carbide blades are normally used in applications 5 x diameter or less, the long and extended length holders are not listed.

Holder* Length	X & Z .375"-.508"		0 .509"-.690"		1 .691"-.960"		2 .961"-1.380"		3 1.381"-1.879"		4 & 5 1.880"-3.000"		6, 7 & 8 3.001"-4.500"		
	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	
Low Carbon Steel 1010, 1020, 1025, 1522, etc.															
T-15 HSS															
Flow (GPM)	S/M	2.4	2.6	2.4	2.6	3.7	4.2	6.0	7.0	11.0	12.0	26.0	30.0	36.0	40.0
	L	2.8	3.0	2.8	3.0	4.3	4.8	6.9	8.1	12.7	13.8	29.9	34.5	41.4	46.0
	E	3.1	3.4	3.1	3.4	4.8	5.5	7.8	9.1	14.3	15.6	33.8	39.0	46.8	52.0
Pressure (PSI)	S/M	160.0	170.0	75.0	90.0	75.0	95.0	60.0	80.0	55.0	75.0	30.0	40.0	>50.0	
	L	184.0	195.5	86.3	103.5	86.3	109.3	69.0	92.0	63.3	86.3	34.5	46.0	>57.5	
	E	208.0	221.0	97.5	117.0	97.5	123.5	78.0	104.0	71.5	97.5	39.0	52.0	>65.0	
Carbide															
Flow (GPM)	S/M	2.6	2.9	2.9	3.1	4.4	5.0	7.5	8.8	15.4	16.8				
Pressure (PSI)	S/M	200.0	212.5	105.0	126.0	105.0	133.0	96.0	128.0	104.5	142.5				
Free Machining Steel 1118, 1215, 12L14, etc.															
T-15 HSS															
Flow (GPM)	S/M	2.5	2.7	2.8	3.0	4.4	5.2	7.0	8.0	12.0	14.0	30.0	33.0	37.0	41.0
	L	2.9	3.1	3.2	3.5	5.1	6.0	8.1	9.2	13.8	16.1	34.5	38.0	42.6	47.2
	E	3.3	3.5	3.6	3.9	5.7	6.8	9.1	10.4	15.6	18.2	39.0	42.9	48.1	53.3
Pressure (PSI)	S/M	175.0	185.0	100.0	120.0	105.0	140.0	80.0	115.0	75.0	100.0	40.0	50.0	>60.0	
	L	201.3	212.8	115.0	138.0	120.8	161.0	92.0	132.3	86.3	115.0	46.0	57.5	>69.0	
	E	227.5	240.5	130.0	156.0	136.5	182.0	104.0	149.5	97.5	130.0	52.0	65.0	>78.0	
Carbide															
Flow (GPM)	S/M	2.8	3.0	3.4	3.6	5.3	6.2	8.8	10.0	16.8	19.6				
Pressure (PSI)	S/M	218.8	231.3	140.0	168.0	147.0	196.0	128.0	184.0	142.5	190.0				
Medium Carbon Steel 1040, 1050, 1527, 1144, etc.															
T-15 HSS															
Flow (GPM)	S/M	2.3	2.5	2.3	2.6	3.6	4.1	5.0	6.0	10.0	12.0	26.0	30.0	36.0	40.0
	L	2.6	2.9	2.6	3.0	4.1	4.7	5.8	6.9	11.5	13.8	29.9	34.5	41.4	46.0
	E	3.0	3.3	3.0	3.4	4.7	5.3	6.5	7.8	13.0	15.6	33.8	39.0	46.8	52.0
Pressure (PSI)	S/M	155.0	165.0	70.0	85.0	70.0	90.0	55.0	75.0	50.0	70.0	30.0	40.0	>50.0	
	L	178.3	189.8	80.5	97.8	80.5	103.5	63.3	86.3	57.5	80.5	34.5	46.0	>57.5	
	E	201.5	214.5	91.0	110.5	91.0	117.0	71.5	97.5	65.0	91.0	39.0	52.0	>65.0	
Carbide															
Flow (GPM)	S/M	2.5	2.8	2.8	3.1	4.3	4.9	6.3	7.5	14.0	16.8				
Pressure (PSI)	S/M	193.8	206.3	98.0	119.0	98.0	126.0	88.0	120.0	95.0	133.0				
Alloy Steel 4140, 5140, 8640, etc.															
T-15 HSS															
Flow (GPM)	S/M	2.2	2.4	2.2	2.4	3.5	3.9	5.0	6.0	10.0	11.0	26.0	28.0	31.0	36.0
	L	2.5	2.8	2.5	2.8	4.0	4.5	5.8	6.9	11.5	12.7	29.9	32.2	35.7	41.4
	E	2.9	3.1	2.9	3.1	4.6	5.1	6.5	7.8	13.0	14.3	33.8	36.4	40.3	46.8
Pressure (PSI)	S/M	155.0	165.0	65.0	75.0	65.0	80.0	50.0	70.0	45.0	60.0	30.0	35.0	>40.0	
	L	178.3	189.8	74.8	86.3	74.8	92.0	57.5	80.5	51.8	69.0	34.5	40.3	>46.0	
	E	201.5	214.5	84.5	97.5	84.5	104.0	65.0	91.0	58.5	78.0	39.0	45.5	>52.0	
Carbide															
Flow (GPM)	S/M	2.4	2.6	2.6	2.9	4.2	4.7	6.3	7.5	14.0	15.4				
Pressure (PSI)	S/M	193.8	206.3	91.0	105.0	91.0	112.0	80.0	112.0	85.5	114.0				
High Strength Alloy 4340, 4330V, 300M, etc.															
T-15 HSS															
Flow (GPM)	S/M	2.2	2.4	2.2	2.4	2.9	3.1	4.0	5.0	7.0	8.0	21.0	23.0	27.0	30.0
	L	2.5	2.8	2.5	2.8	3.3	3.6	4.6	5.8	8.1	9.2	24.2	26.5	31.1	34.5
	E	2.9	3.1	2.9	3.1	3.8	4.0	5.2	6.5	9.1	10.4	27.3	29.9	35.1	39.0
Pressure (PSI)	S/M	150.0	160.0	55.0	60.0	45.0	50.0	25.0	30.0	25.0	30.0	20.0	25.0	>30.0	
	L	172.5	184.0	63.3	69.0	51.8	57.5	28.8	34.5	28.8	34.5	23.0	28.8	>34.5	
	E	195.0	208.0	71.5	78.0	58.5	65.0	32.5	39.0	32.5	39.0	26.0	32.5	>39.0	
Carbide															
Flow (GPM)	S/M	2.4	2.6	2.6	2.9	3.5	3.7	5.0	6.3	9.8	11.2				
Pressure (PSI)	S/M	187.5	200.0	77.0	84.0	63.0	70.0	40.0	48.0	47.5	57.0				



Holder* Length	X & Z .375"-.508"		0 .509"-.690"		1 .691"-.960"		2 .961"-1.380"		3 1.381"-1.879"		4 & 5 1.880"-3.000"		6, 7 & 8 3.001"-4.500"	
	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High

Structural Steel A36, A285, A516, etc.

T-15 HSS															
Flow (GPM)	S/M	2.3	2.5	2.4	2.6	3.5	3.9	5.0	6.0	9.0	10.0	23.0	26.0	31.0	35.0
	L	2.6	2.9	2.8	3.0	4.0	4.5	5.8	6.9	10.4	11.5	26.5	29.9	35.7	40.3
	E	3.0	3.3	3.1	3.4	4.6	5.1	6.5	7.8	11.7	13.0	29.9	33.8	40.3	45.5
Pressure (PSI)	S/M	155.0	165.0	75.0	85.0	65.0	80.0	40.0	55.0	40.0	50.0	25.0	30.0	>40.0	
	L	178.3	189.8	86.3	97.8	74.8	92.0	46.0	63.3	46.0	57.5	28.8	34.5	>46.0	
	E	201.5	214.5	97.5	110.5	84.5	104.0	52.0	71.5	52.0	65.0	32.5	39.0	>52.0	
Carbide															
Flow (GPM)	S/M	2.5	2.8	2.9	3.1	4.2	4.7	6.3	7.5	12.6	14.0				
Pressure (PSI)	S/M	193.8	206.3	105.0	119.0	91.0	112.0	64.0	88.0	76.0	95.0				

Tool Steel H-13, H-21, A-4, O-2, etc.

T-15 HSS															
Flow (GPM)	S/M	2.3	2.5	2.3	2.5	2.9	3.1	4.0	5.0	7.0	8.0	21.0	23.0	27.0	30.0
	L	2.6	2.9	2.6	2.9	3.3	3.6	4.6	5.8	8.1	9.2	24.2	26.5	31.1	34.5
	E	3.0	3.3	3.0	3.3	3.8	4.0	5.2	6.5	9.1	10.4	27.3	29.9	35.1	39.0
Pressure (PSI)	S/M	145.0	155.0	55.0	60.0	45.0	50.0	25.0	30.0	25.0	30.0	20.0	25.0	>30.0	
	L	166.8	178.3	63.3	69.0	51.8	57.5	28.8	34.5	28.8	34.5	23.0	28.8	>34.5	
	E	188.5	201.5	71.5	78.0	58.5	65.0	32.5	39.0	32.5	39.0	26.0	32.5	>39.0	
Carbide															
Flow (GPM)	S/M	2.5	2.8	2.8	3.0	3.5	3.7	5.0	6.3	9.8	11.2				
Pressure (PSI)	S/M	181.3	193.8	77.0	84.0	63.0	70.0	40.0	48.0	47.5	57.0				

Stainless Steel 303, 416, 420, 17-4PH, etc.

T-15 HSS															
Flow (GPM)	S/M	2.3	2.5	2.3	2.6	3.5	3.7	5.0	6.0	9.0	10.0	23.0	26.0	33.0	37.0
	L	2.6	2.9	2.6	3.0	4.0	4.3	5.8	6.9	10.4	11.5	26.5	29.9	38.0	42.6
	E	3.0	3.3	3.0	3.4	4.6	4.8	6.5	7.8	11.7	13.0	29.9	33.8	42.9	48.1
Pressure (PSI)	S/M	160.0	170.0	70.0	85.0	65.0	75.0	40.0	55.0	40.0	50.0	25.0	30.0	>35.0	
	L	184.0	195.5	80.5	97.8	74.8	86.3	46.0	63.3	46.0	57.5	28.8	34.5	>40.3	
	E	208.0	221.0	91.0	110.5	84.5	97.5	52.0	71.5	52.0	65.0	32.5	39.0	>45.5	
Carbide															
Flow (GPM)	S/M	2.5	2.8	2.8	3.1	4.2	4.4	6.3	7.5	12.6	14.0				
Pressure (PSI)	S/M	200.0	212.5	98.0	119.0	91.0	105.0	64.0	88.0	76.0	95.0				

Cast Iron Gray, Ductile, Nodular

T-15 HSS															
Flow (GPM)	S/M	2.2	2.4	2.2	2.4	3.1	3.3	4.0	5.0	8.0	9.0	23.0	26.0	27.0	30.0
	L	2.5	2.8	2.5	2.8	3.6	3.8	4.6	5.8	9.2	10.4	26.5	29.9	31.1	34.5
	E	2.9	3.1	2.9	3.1	4.0	4.3	5.2	6.5	10.4	11.7	29.9	33.8	35.1	39.0
Pressure (PSI)	S/M	155.0	165.0	60.0	65.0	50.0	60.0	30.0	40.0	30.0	35.0	25.0	30.0	>30.0	
	L	178.3	189.8	69.0	74.8	57.5	69.0	34.5	46.0	34.5	40.3	28.8	34.5	>34.5	
	E	201.5	214.5	78.0	84.5	65.0	78.0	39.0	52.0	39.0	45.5	32.5	39.0	>39.0	
Carbide															
Flow (GPM)	S/M	2.4	2.6	2.6	2.9	3.7	4.0	5.0	6.3	11.2	12.6				
Pressure (PSI)	S/M	193.8	206.3	84.0	91.0	70.0	84.0	48.0	64.0	57.0	66.5				

Aluminum

T-15 HSS															
Flow (GPM)	S/M	2.6	2.8	3.3	3.7	5.3	6.1	8.0	9.0	14.0	16.0	30.0	33.0	37.0	41.0
	L	3.0	3.2	3.8	4.3	6.1	7.0	9.2	10.4	16.1	18.4	34.5	38.0	42.6	47.2
	E	3.4	3.6	4.3	4.8	6.9	7.9	10.4	11.7	18.2	20.8	39.0	42.9	48.1	53.3
Pressure (PSI)	S/M	185.0	200.0	140.0	180.0	150.0	200.0	115.0	160.0	90.0	125.0	40.0	50.0	>60.0	
	L	212.8	230.0	161.0	207.0	172.5	230.0	132.3	184.0	103.5	143.8	46.0	57.5	>69.0	
	E	240.5	260.0	182.0	234.0	195.0	260.0	149.5	208.0	117.0	162.5	52.0	65.0	>78.0	
Carbide															
Flow (GPM)	S/M	2.9	3.1	4.0	4.4	6.4	7.3	10.0	11.3	19.6	22.4				
Pressure (PSI)	S/M	231.3	250.0	196.0	252.0	210.0	280.0	184.0	256.0	171.0	237.5				

High Temp. Alloy Hastelloy B, Inconel 600, etc.

T-15 HSS															
Flow (GPM)	S/M	2.2	2.4	2.2	2.4	3.1	3.2	4.0	5.0	7.0	8.0	23.0	26.0	27.0	30.0
	L	2.5	2.8	2.5	2.8	3.6	3.7	4.6	5.8	8.1	9.2	26.5	29.9	31.1	34.5
	E	2.9	3.1	2.9	3.1	4.0	4.2	5.2	6.5	9.1	10.4	29.9	33.8	35.1	39.0
Pressure (PSI)	S/M	150.0	160.0	60.0	65.0	50.0	55.0	30.0	35.0	25.0	30.0	25.0	30.0	>30.0	
	L	172.5	184.0	69.0	74.8	57.5	63.3	34.5	40.3	28.8	34.5	28.8	34.5	>34.5	
	E	195.0	208.0	78.0	84.5	65.0	71.5	39.0	45.5	32.5	39.0	32.5	39.0	>39.0	
Carbide															
Flow (GPM)	S/M	2.4	2.6	2.6	2.9	3.7	3.8	5.0	6.3	9.8	11.2				
Pressure (PSI)	S/M	187.5	200.0	84.0	91.0	70.0	77.0	48.0	56.0	47.5	57.0				



Recommended Starting Speeds (SFM) and Feeds (IPR) — T-15 HSS Blades

MATERIAL	Hardness Bhn	SPEEDS (SFM) Coatings					FEED (IPR) Series/Diameters							
		TiCN or "G"	TiAlN	CX-H	Diamond	Y & Z	0	1	2	3	4	5	6, 7, 8	
						.375 to .508	.509 to .690	.691 to .960	.961 to 1.380	1.381 to 1.879	1.880 to 2.570	2.571 to 3.000	3.001 to 4.500	
Low Carbon Steel 1010, 1020, 1025, 1522, etc.	85 – 125 125 – 175 175 – 225 225 – 275	175 165 155 145	225 210 200 185	NR NR NR NR	240 230 215 NR	.008 .007 .006 .006	.011 .010 .009 .008	.013 .012 .011 .010	.016 .016 .015 .014	.020 .020 .019 .018	.023 .022 .021 .021	.025 .024 .023 .023	.028 .027 .026 .025	
Free Machining Steel 1118, 1215, 12L14, etc.	100 – 150 150 – 200 200 – 250	200 180 160	260 240 220	NR NR NR	NR NR NR	.008 .007 .006	.011 .010 .010	.014 .013 .013	.017 .016 .016	.021 .020 .020	.025 .023 .023	.026 .024 .024	.028 .026 .026	
Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1144, 1151, etc.	125 – 175 175 – 225 225 – 275 275 – 325	165 155 145 135	210 190 170 160	NR NR NR NR	NR NR NR NR	.007 .006 .006 .005	.009 .008 .008 .007	.012 .011 .010 .009	.016 .015 .014 .012	.020 .019 .018 .016	.023 .022 .021 .019	.025 .023 .022 .021	.027 .025 .024 .023	
Alloy Steel 4140, 5140, 8640, etc.	125 – 175 175 – 225 225 – 275 275 – 325 325 – 375	150 140 130 120 110	195 180 165 150 140	NR NR NR NR NR	200 185 NR NR NR	.007 .007 .006 .005 .004	.009 .009 .008 .007 .006	.011 .010 .010 .010 .009	.015 .014 .013 .012 .012	.018 .017 .016 .015 .015	.021 .019 .019 .017 .017	.023 .021 .020 .018 .018	.025 .023 .021 .020 .020	
High Strength Alloy 4340, 4330V, etc.	225 – 300 300 – 350 350 – 400	90 70 NR	105 85 NR	130 100 80	NR NR NR	.006 .005 .004	.008 .007 .006	.010 .009 .008	.012 .011 .010	.015 .014 .012	.017 .016 .014	.019 .018 .016	.021 .021 .019	
Structural Steel A36, A285, A516, etc.	100 – 150 150 – 250 250 – 350	150 125 100	180 160 135	NR NR NR	NR NR NR	.007 .006 .005	.010 .009 .008	.012 .011 .009	.015 .013 .011	.018 .016 .014	.021 .019 .017	.023 .021 .019	.026 .024 .022	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 – 200 200 – 250 250 – 350 350 – 400	85 75 45 NR	105 90 NR NR	NR 110 70 50	NR NR NR NR	.007 .006 .005 .004	.008 .007 .006 .005	.009 .008 .007 .006	.011 .011 .009 .007	.013 .013 .011 .009	.015 .015 .013 .012	.016 .016 .014 .013	.018 .018 .016 .014	
Stainless Steel 416, 420, 17-4PH, etc.	135 – 185 185 – 275 275 – 350	80 NR NR	100 85 75	120 105 90	NR NR NR	.007 .006 .005	.008 .007 .006	.010 .009 .007	.012 .011 .009	.015 .013 .011	.017 .015 .013	.019 .017 .015	.021 .019 .017	
Cast Iron Gray, Ductile, Nodular	120 – 150 150 – 200 200 – 220 220 – 260 260 – 320	180 160 140 120 100	225 200 175 150 125	270 240 210 180 150	250 200 190 165 125	.008 .007 .006 .005 .004	.013 .011 .009 .007 .006	.017 .014 .012 .010 .007	.020 .018 .016 .012 .009	.024 .022 .018 .014 .012	.027 .025 .021 .017 .014	.029 .027 .023 .019 .016	.031 .029 .025 .021 .018	
Aluminum - Wrought Cast	— —	NR NR	700 400	NR NR	750 500	.007 .008	.012 .013	.015 .016	.019 .020	.021 .022	.024 .025	.025 .026	.026 .027	
Copper Alloys	—	NR	450	NR	550	.007	.012	.015	.019	.021	.024	.025	.026	
High Temp. Alloy Hastelloy B, Inconel 600, etc.	140 – 210 210 – 280 280 – 340	NR NR NR	35 30 25	45 40 35	NR NR NR	.006 .005 .004	.007 .006 .006	.008 .007 .007	.010 .008 .008	.013 .010 .009	.015 .012 .011	.016 .013 .012	.017 .014 .013	
Titanium Alloys	—	NR	40	50	45	.005	.007	.008	.010	.012	.015	.016	.017	

NR = Not Recommended

Formulas: IPM = RPM x IPR ★ SFM = .262 x RPM x Diameter ★ RPM = SFM x 3.82 ÷ Diameter

Premium Coatings:

- **TiN** (Titanium Nitride) gives longer tool life and added lubricity, while allowing more aggressive machining of steels.
- **TiCN** (Titanium Carbonitride) is a general purpose coating well suited to machining of mild steel, ductile cast iron and nonferrous materials such as aluminum and copper alloys. TiCN is superior in preventing excessive BUE (built-up edge).
- **"G"** is comprised of more than 20 layers of TiCN and TiAlN with an overcoat of TiN optimized for drilling mild steel and ductile cast iron.
- **TiAlN** (Titanium Aluminum Nitride) a multilayer, mixed phase coating designed for high-speed machining in alloy steels, high temp alloys, gray cast iron and titanium. Performance advantages require TiAlN coated tools to be operated at relatively high speeds, typically 50% greater than other PVD coatings such as TiN.
- **CX-H** is a proprietary coating designed for optimal drilling of abrasive, short chipping nonferrous alloys (e.g. red brass, Al-Si alloys).
- **Diamond** coating is designed for abrasive nonferrous alloys.



Decimal Size	Inch Size	Metric Size	TiN Coated EDP Number	TiCN Coated EDP Number	TiAlN Coated EDP Number
Series X: .375" through .436"					
.3740	—	9,5	7FX-0374T	7FX-0374N	7FX-0374A
.3750	3/8	—	7FX-0375T	7FX-0375N	7FX-0375A
.3860	W	—	7FX-0386T	7FX-0386N	7FX-0386A
.3890	SAE #4	—	7FX-0389T	7FX-0389N	7FX-0389A
.3906	25/64	—	7FX-0391T	7FX-0391N	7FX-0391A
.3937	—	10,0	7FX-0394T	7FX-0394N	7FX-0394A
.4016	—	10,2	7FX-0402T	7FX-0402N	7FX-0402A
.4063	13/32	—	7FX-0406T	7FX-0406N	7FX-0406A
.4134	—	10,5	7FX-0413T	7FX-0413N	7FX-0413A
.4219	27/64	—	7FX-0422T	7FX-0422N	7FX-0422A
.4252	—	10,8	7FX-0425T	7FX-0425N	7FX-0425A
.4331	—	11,0	7FX-0433T	7FX-0433N	7FX-0433A
Series Z: .437" through .508"					
.4375	7/16	—	7FZ-0438T	7FZ-0438N	7FZ-0438A
.4520	SAE #5	—	7FZ-0452T	7FZ-0452N	7FZ-0452A
.4531	29/64	—	7FZ-0453T	7FZ-0453N	7FZ-0453A
.4646	—	11,8	7FZ-0465T	7FZ-0465N	7FZ-0465A
.4688	15/32	—	7FZ-0469T	7FZ-0469N	7FZ-0469A
.4724	—	12,0	7FZ-0472T	7FZ-0472N	7FZ-0472A
.4844	31/64	—	7FZ-0484T	7FZ-0484N	7FZ-0484A
.4921	—	12,5	7FZ-0492T	7FZ-0492N	7FZ-0492A
.5000	1/2	—	7FZ-0500T	7FZ-0500N	7FZ-0500A
Series 0: .509" through .690"					
.5090	SAE #6	—	7F0-0509T	7F0-0509N	7F0-0509A
.5118	—	13,0	7F0-0512T	7F0-0512N	7F0-0512A
.5156	33/64	—	7F0-0516T	7F0-0516N	7F0-0516A
.5313	17/32	—	7F0-0531T	7F0-0531N	7F0-0531A
.5469	35/64	—	7F0-0547T	7F0-0547N	7F0-0547A
.5512	—	14,0	7F0-0551T	7F0-0551N	7F0-0551A
.5625	9/16	—	7F0-0563T	7F0-0563N	7F0-0563A
.5709	—	14,5	7F0-0571T	7F0-0571N	7F0-0571A
.5781	37/64	—	7F0-0578T	7F0-0578N	7F0-0578A
.5906	—	15,0	7F0-0591T	7F0-0591N	7F0-0591A
.5938	19/32	—	7F0-0594T	7F0-0594N	7F0-0594A
.6094	39/64	—	7F0-0609T	7F0-0609N	7F0-0609A
.6102	—	15,5	7F0-0610T	7F0-0610N	7F0-0610A
.6250	5/8	—	7F0-0625T	7F0-0625N	7F0-0625A
.6299	—	16,0	7F0-0630T	7F0-0630N	7F0-0630A
.6406	41/64	—	7F0-0641T	7F0-0641N	7F0-0641A
.6496	—	16,5	7F0-0650T	7F0-0650N	7F0-0650A
.6563	21/32	—	7F0-0656T	7F0-0656N	7F0-0656A
.6611	—	16,8	7F0-0661T	7F0-0661N	7F0-0661A
.6693	—	17,0	7F0-0669T	7F0-0669N	7F0-0669A
.6719	43/64	—	7F0-0672T	7F0-0672N	7F0-0672A
.6875	11/16	—	7F0-0688T	7F0-0688N	7F0-0688A
.6890	SAE #8	17,5	7F0-0689T	7F0-0689N	7F0-0689A
Series 1: .691" through .960"					
.7031	45/64	—	7F1-0703T	7F1-0703N	7F1-0703A
.7087	—	18,0	7F1-0709T	7F1-0709N	7F1-0709A
.7188	23/32	—	7F1-0719T	7F1-0719N	7F1-0719A
.7283	—	18,5	7F1-0728T	7F1-0728N	7F1-0728A
.7344	47/64	—	7F1-0734T	7F1-0734N	7F1-0734A
.7480	—	19,0	7F1-0748T	7F1-0748N	7F1-0748A

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T-15 HSS Spade Blades



Decimal Size	Inch Size	Metric Size	TiN Coated EDP Number	TiCN Coated EDP Number	TiAlN Coated EDP Number
(continued) Series 1: .691" through .960"					
.7500	3/4		7F1-0750T	7F1-0750N	7F1-0750A
.7580	—	19,25	7F1-0758T	7F1-0758N	7F1-0758A
.7656	49/64	—	7F1-0766T	7F1-0766N	7F1-0766A
.7677	—	19,5	7F1-0768T	7F1-0768N	7F1-0768A
.7813	25/32	—	7F1-0781T	7F1-0781N	7F1-0781A
.7874	—	20,0	7F1-0787T	7F1-0787N	7F1-0787A
.7969	51/64	—	7F1-0797T	7F1-0797N	7F1-0797A
.8060	SAE #10	—	7F1-0806T	7F1-0806N	7F1-0806A
.8071	—	20,5	7F1-0807T	7F1-0807N	7F1-0807A
.8125	13/16	—	7F1-0813T	7F1-0813N	7F1-0813A
.8268	—	21,0	7F1-0827T	7F1-0827N	7F1-0827A
.8281	53/64	—	7F1-0828T	7F1-0828N	7F1-0828A
.8438	27/32	—	7F1-0844T	7F1-0844N	7F1-0844A
.8594	55/64	—	7F1-0859T	7F1-0859N	7F1-0859A
.8661	—	22,0	7F1-0866T	7F1-0866N	7F1-0866A
.8750	7/8	—	7F1-0875T	7F1-0875N	7F1-0875A
.8906	57/64	—	7F1-0891T	7F1-0891N	7F1-0891A
.9063	29/32	—	7F1-0906T	7F1-0906N	7F1-0906A
.9219	59/64	—	7F1-0922T	7F1-0922N	7F1-0922A
.9375	15/16	—	7F1-0938T	7F1-0938N	7F1-0938A
.9449	—	24,0	7F1-0945T	7F1-0945N	7F1-0945A
.9531	61/64	—	7F1-0953T	7F1-0953N	7F1-0953A
.9600	—	24,4	7F1-0960T	7F1-0960N	7F1-0960A
Series 2: .961" through 1.380"					
.9688	31/32	—	7F2-0969T	7F2-0969N	7F2-0969A
.9810	SAE #12	—	7F2-0981T	7F2-0981N	7F2-0981A
.9843	—	25,0	7F2-0984T	7F2-0984N	7F2-0984A
1.0000	1	—	7F2-1000T	7F2-1000N	7F2-1000A
1.0156	1-1/64	—	7F2-1016T	7F2-1016N	7F2-1016A
1.0236	—	26,0	7F2-1024T	7F2-1024N	7F2-1024A
1.0313	1-1/32	—	7F2-1031T	7F2-1031N	7F2-1031A
1.0469	1-3/64	—	7F2-1047T	7F2-1047N	7F2-1047A
1.0625	1-1/16	—	7F2-1063T	7F2-1063N	7F2-1063A
1.0781	1-5/64	—	7F2-1078T	7F2-1078N	7F2-1078A
1.0938	1-3/32	—	7F2-1094T	7F2-1094N	7F2-1094A
1.1024	—	28,0	7F2-1102T	7F2-1102N	7F2-1102A
1.1060	SAE #14	—	7F2-1106T	7F2-1106N	7F2-1106A
1.1094	1-7/64	—	7F2-1109T	7F2-1109N	7F2-1109A
1.1250	1-1/8	—	7F2-1125T	7F2-1125N	7F2-1125A
1.1310	—	—	7F2-1131T	7F2-1131N	7F2-1131A
1.1406	1-9/64	—	7F2-1141T	7F2-1141N	7F2-1141A
1.1417	—	29,0	7F2-1142T	7F2-1142N	7F2-1142A
1.1563	1-5/32	—	7F2-1156T	7F2-1156N	7F2-1156A
1.1614	—	29,5	7F2-1161T	7F2-1161N	7F2-1161A
1.1811	—	30,0	7F2-1181T	7F2-1181N	7F2-1181A
1.1875	1-3/16	—	7F2-1188T	7F2-1188N	7F2-1188A
1.1929	—	30,3	7F2-1193T	7F2-1193N	7F2-1193A
1.2031	1-13/64	—	7F2-1203T	7F2-1203N	7F2-1203A
1.2188	1-7/32	—	7F2-1219T	7F2-1219N	7F2-1219A
1.2205	—	31,0	7F2-1221T	7F2-1221N	7F2-1221A
1.2310	SAE #16	—	7F2-1231T	7F2-1231N	7F2-1231A
1.2344	1-15/64	—	7F2-1234T	7F2-1234N	7F2-1234A
1.2500	1-1/4	—	7F2-1250T	7F2-1250N	7F2-1250A
1.2598	—	32,0	7F2-1260T	7F2-1260N	7F2-1260A

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Decimal Size	Inch Size	Metric Size	TiN Coated EDP Number	TiCN Coated EDP Number	TiAlN Coated EDP Number
1.2656	1-17/64	—	7F2-1266T	7F2-1266N	7F2-1266A
1.2813	1-9/32	—	7F2-1281T	7F2-1281N	7F2-1281A
1.2992	—	33,0	7F2-1299T	7F2-1299N	7F2-1299A
1.3125	1-5/16	—	7F2-1313T	7F2-1313N	7F2-1313A
1.3281	1-21/64	—	7F2-1328T	7F2-1328N	7F2-1328A
1.3386	—	34,0	7F2-1339T	7F2-1339N	7F2-1339A
1.3438	1-11/32	—	7F2-1344T	7F2-1344N	7F2-1344A
1.3594	1-23/64	—	7F2-1359T	7F2-1359N	7F2-1359A
1.3750	1-3/8	—	7F2-1375T	7F2-1375N	7F2-1375A
1.3780	—	35,0	7F2-1378T	7F2-1378N	7F2-1378A

Series 3: 1.381" through 1.879"

1.3906	1-25/64	—	7F3-1391T	7F3-1391N	7F3-1391A
1.4063	1-13/32	—	7F3-1406T	7F3-1406N	7F3-1406A
1.4173	—	36,0	7F3-1417T	7F3-1417N	7F3-1417A
1.4375	1-7/16	—	7F3-1438T	7F3-1438N	7F3-1438A
1.4531	1-29/64	—	7F3-1453T	7F3-1453N	7F3-1453A
1.4567	—	37,0	7F3-1457T	7F3-1457N	7F3-1457A
1.4688	1-15/32	—	7F3-1469T	7F3-1469N	7F3-1469A
1.4844	1-31/64	—	7F3-1484T	7F3-1484N	7F3-1484A
1.4961	—	38,0	7F3-1496T	7F3-1496N	7F3-1496A
1.5000	1-1/2	—	7F3-1500T	7F3-1500N	7F3-1500A
1.5156	1-33/64	—	7F3-1516T	7F3-1516N	7F3-1516A
1.5250	—	38,74	7F3-1525T	7F3-1525N	7F3-1525A
1.5313	1-17/32	—	7F3-1531T	7F3-1531N	7F3-1531A
1.5354	—	39,0	7F3-1535T	7F3-1535N	7F3-1535A
1.5430	SAE #20	—	7F3-1543T	7F3-1543N	7F3-1543A
1.5625	1-9/16	—	7F3-1563T	7F3-1563N	7F3-1563A
1.5748	—	40,0	7F3-1575T	7F3-1575N	7F3-1575A
1.5781	1-37/64	—	7F3-1578T	7F3-1578N	7F3-1578A
1.5938	1-19/32	—	7F3-1594T	7F3-1594N	7F3-1594A
1.6142	—	41,0	7F3-1614T	7F3-1614N	7F3-1614A
1.6250	1-5/8	—	7F3-1625T	7F3-1625N	7F3-1625A
1.6535	—	42,0	7F3-1654T	7F3-1654N	7F3-1654A
1.6563	1-21/32	—	7F3-1656T	7F3-1656N	7F3-1656A
1.6875	1-11/16	—	7F3-1688T	7F3-1688N	7F3-1688A
1.6929	—	43,0	7F3-1693T	7F3-1693N	7F3-1693A
1.7031	1-45/64	—	7F3-1703T	7F3-1703N	7F3-1703A
1.7188	1-23/32	—	7F3-1719T	7F3-1719N	7F3-1719A
1.7323	—	44,0	7F3-1732T	7F3-1732N	7F3-1732A
1.7500	1-3/4	—	7F3-1750T	7F3-1750N	7F3-1750A
1.7656	1-49/64	—	7F3-1766T	7F3-1766N	7F3-1766A
1.7717	—	45,0	7F3-1772T	7F3-1772N	7F3-1772A
1.7813	1-25/32	—	7F3-1781T	7F3-1781N	7F3-1781A
1.7930	SAE #24	—	7F3-1793T	7F3-1793N	7F3-1793A
1.8110	—	46,0	7F3-1811T	7F3-1811N	7F3-1811A
1.8125	1-13/16	—	7F3-1813T	7F3-1813N	7F3-1813A
1.8281	1-53/64	—	7F3-1828T	7F3-1828N	7F3-1828A
1.8438	1-27/32	—	7F3-1844T	7F3-1844N	7F3-1844A
1.8504	—	47,0	7F3-1850T	7F3-1850N	7F3-1850A
1.8750	1-7/8	—	7F3-1875T	7F3-1875N	7F3-1875A

Series 4: 1.880" through 2.570"

1.8800	—	—	7F4-1880T	7F4-1880N	7F4-1880A
1.8898	—	48,0	7F4-1890T	7F4-1890N	7F4-1890A
1.9063	1-29/32	—	7F4-1906T	7F4-1906N	7F4-1906A
1.9291	—	49,0	7F4-1929T	7F4-1929N	7F4-1929A

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T-15 HSS Spade Blades



Decimal Size	Inch Size	Metric Size	TiN Coated EDP Number	TiCN Coated EDP Number	TiAlN Coated EDP Number
(continued) Series 4: 1.880" through 2.570"					
1.9375	1-15/16	—	7F4-1938T	7F4-1938N	7F4-1938A
1.9688	1-31/32	—	7F4-1969T	7F4-1969N	7F4-1969A
2.0000	2	—	7F4-2000T	7F4-2000N	7F4-2000A
2.0079	—	51,0	7F4-2008T	7F4-2008N	7F4-2008A
2.0156	2-1/64	—	7F4-2016T	7F4-2016N	7F4-2016A
2.0313	2-1/32	—	7F4-2031T	7F4-2031N	7F4-2031A
2.0472	—	52,0	7F4-2047T	7F4-2047N	7F4-2047A
2.0625	2-1/16	—	7F4-2063T	7F4-2063N	7F4-2063A
2.0866	—	53,0	7F4-2087T	7F4-2087N	7F4-2087A
2.0938	2-3/32	—	7F4-2094T	7F4-2094N	7F4-2094A
2.1250	2-1/8	—	7F4-2125T	7F4-2125N	7F4-2125A
2.1260	—	54,0	7F4-2126T	7F4-2126N	7F4-2126A
2.1563	2-5/32	—	7F4-2156T	7F4-2156N	7F4-2156A
2.1654	—	55,0	7F4-2165T	7F4-2165N	7F4-2165A
2.1875	2-3/16	—	7F4-2188T	7F4-2188N	7F4-2188A
2.2047	—	56,0	7F4-2205T	7F4-2205N	7F4-2205A
2.2188	2-7/32	—	7F4-2219T	7F4-2219N	7F4-2219A
2.2441	—	57,0	7F4-2244T	7F4-2244N	7F4-2244A
2.2500	2-1/4	—	7F4-2250T	7F4-2250N	7F4-2250A
2.2559	—	57,3	7F4-2256T	7F4-2256N	7F4-2256A
2.2813	2-9/32	—	7F4-2281T	7F4-2281N	7F4-2281A
2.2835	—	58,0	7F4-2284T	7F4-2284N	7F4-2284A
2.3125	2-5/16	—	7F4-2313T	7F4-2313N	7F4-2313A
2.3228	—	59,0	7F4-2323T	7F4-2323N	7F4-2323A
2.3438	2-11/32	—	7F4-2344T	7F4-2344N	7F4-2344A
2.3622	—	60,0	7F4-2362T	7F4-2362N	7F4-2362A
2.3750	2-3/8	—	7F4-2375T	7F4-2375N	7F4-2375A
2.3906	2-25/64	—	7F4-2391T	7F4-2391N	7F4-2391A
2.4016	—	61,0	7F4-2402T	7F4-2402N	7F4-2402A
2.4063	2-13/32	—	7F4-2406T	7F4-2406N	7F4-2406A
2.4375	2-7/16	—	7F4-2438T	7F4-2438N	7F4-2438A
2.4409	—	62,0	7F4-2441T	7F4-2441N	7F4-2441A
2.4688	2-15/32	—	7F4-2469T	7F4-2469N	7F4-2469A
2.4803	—	63,0	7F4-2480T	7F4-2480N	7F4-2480A
2.5000	2-1/2	—	7F4-2500T	7F4-2500N	7F4-2500A
2.5197	—	64,0	7F4-2520T	7F4-2520N	7F4-2520A
2.5313	2-17/32	—	7F4-2531T	7F4-2531N	7F4-2531A
2.5591	—	65,0	7F4-2559T	7F4-2559N	7F4-2559A
2.5625	2-9/16	—	7F4-2563T	7F4-2563N	7F4-2563A
Series 5: 2.500" through 3.000"					
2.5000	2-1/2	—	7F5-2500T	7F5-2500N	7F5-2500A
2.5197	—	64,0	7F5-2520T	7F5-2520N	7F5-2520A
2.5313	2-17/32	—	7F5-2531T	7F5-2531N	7F5-2531A
2.5625	2-9/16	—	7F5-2563T	7F5-2563N	7F5-2563A
2.5984	—	66,0	7F5-2598T	7F5-2598N	7F5-2598A
2.6250	2-5/8	—	7F5-2625T	7F5-2625N	7F5-2625A
2.6563	2-21/32	—	7F5-2656T	7F5-2656N	7F5-2656A
2.6772	—	68,0	7F5-2677T	7F5-2677N	7F5-2677A
2.6875	2-11/16	—	7F5-2688T	7F5-2688N	7F5-2688A
2.7188	2-23/32	—	7F5-2719T	7F5-2719N	7F5-2719A
2.7500	2-3/4	—	7F5-2750T	7F5-2750N	7F5-2750A
2.7559	—	70,0	7F5-2756T	7F5-2756N	7F5-2756A
2.7813	2-25/32	—	7F5-2781T	7F5-2781N	7F5-2781A
2.8125	2-13/16	—	7F5-2813T	7F5-2813N	7F5-2813A

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Decimal Size	Inch Size	Metric Size	TiN Coated EDP Number	TiCN Coated EDP Number	TiAlN Coated EDP Number
2.8346	—	72,0	7F5-2835T	7F5-2835N	7F5-2835A
2.8438	2-27/32	—	7F5-2844T	7F5-2844N	7F5-2844A
2.8750	2-7/8	—	7F5-2875T	7F5-2875N	7F5-2875A
2.9063	2-29/32	—	7F5-2906T	7F5-2906N	7F5-2906A
2.9134	—	74,0	7F5-2913T	7F5-2913N	7F5-2913A
2.9375	2-15/16	—	7F5-2938T	7F5-2938N	7F5-2938A
2.9688	2-31/32	—	7F5-2969T	7F5-2969N	7F5-2969A
2.9921	—	76,0	7F5-2992T	7F5-2992N	7F5-2992A
3.0000	3	—	7F5-3000T	7F5-3000N	7F5-3000A

Series 6: 3.001" through 3.500"

3.0625	3-1/16	—	7F6-3063T	7F6-3063N	7F6-3063A
3.0709	—	78,0	7F6-3071T	7F6-3071N	7F6-3071A
3.1250	3-1/8	—	7F6-3125T	7F6-3125N	7F6-3125A
3.1496	—	80,0	7F6-3150T	7F6-3150N	7F6-3150A
3.1875	3-3/16	—	7F6-3188T	7F6-3188N	7F6-3188A
3.2283	—	82,0	7F6-3228T	7F6-3228N	7F6-3228A
3.2500	3-1/4	—	7F6-3250T	7F6-3250N	7F6-3250A
3.3071	—	84,0	7F6-3307T	7F6-3307N	7F6-3307A
3.3125	3-5/16	—	7F6-3313T	7F6-3313N	7F6-3313A
3.3750	3-3/8	—	7F6-3375T	7F6-3375N	7F6-3375A
3.3858	—	86,0	7F6-3386T	7F6-3386N	7F6-3386A
3.4375	3-7/16	—	7F6-3438T	7F6-3438N	7F6-3438A
3.4646	—	88,0	7F6-3465T	7F6-3465N	7F6-3465A
3.5000	3-1/2	—	7F6-3500T	7F6-3500N	7F6-3500A

Series 7: 3.501" through 4.000"

3.5433	—	90,0	7F7-3543T	7F7-3543N	7F7-3543A
3.5625	3-9/16	—	7F7-3563T	7F7-3563N	7F7-3563A
3.6250	3-5/8	—	7F7-3625T	7F7-3625N	7F7-3625A
3.6875	3-11/16	—	7F7-3688T	7F7-3688N	7F7-3688A
3.7008	—	94,0	7F7-3701T	7F7-3701N	7F7-3701A
3.7500	3-3/4	—	7F7-3750T	7F7-3750N	7F7-3750A
3.7795	—	96,0	7F7-3780T	7F7-3780N	7F7-3780A
3.8125	3-13/16	—	7F7-3813T	7F7-3813N	7F7-3813A
3.8583	—	98,0	7F7-3858T	7F7-3858N	7F7-3858A
3.8750	3-7/8	—	7F7-3875T	7F7-3875N	7F7-3875A
3.9375	3-15/16	—	7F7-3938T	7F7-3938N	7F7-3938A
4.0000	4	—	7F7-4000T	7F7-4000N	7F7-4000A

Series 8: 4.001" through 4.500"

4.0625	4-1/16	—	7F8-4063T	7F8-4063N	7F8-4063A
4.0945	—	104,0	7F8-4095T	7F8-4095N	7F8-4095A
4.1250	4-1/8	—	7F8-4125T	7F8-4125N	7F8-4125A
4.1875	4-3/16	—	7F8-4188T	7F8-4188N	7F8-4188A
4.2500	4-1/4	—	7F8-4250T	7F8-4250N	7F8-4250A
4.3125	4-5/16	—	7F8-4313T	7F8-4313N	7F8-4313A
4.3750	4-3/8	—	7F8-4375T	7F8-4375N	7F8-4375A
4.4094	—	112,0	7F8-4409T	7F8-4409N	7F8-4409A
4.4375	4-7/16	—	7F8-4438T	7F8-4438N	7F8-4438A
4.5000	4-1/2	—	7F8-4500T	7F8-4500N	7F8-4500A

Blade Sets for R-8 (Bridgeport) Holders

(holders are listed on

- Series 0 TiN Coated Spade Blade Set C53100
10 sizes: 33/64, 17/32, 35/64, 9/16, 37/64, 19/32, 39/64, 5/8, 21/32, 11/16
- Series 1 TiN Coated Spade Blade Set C53101
10 sizes: 45/64, 23/32, 3/4, 49/64, 25/32, 13/16, 27/32, 7/8, 29/32, 15/16
- Series 2 TiN Coated Spade Blade Set C53102
10 sizes: 31/32, 63/64, 1, 1-1/32, 1-1/16, 1-1/8, 1-5/32, 1-3/16, 1-1/4, 1-3/8





Recommended Starting Speeds (SFM) and Feeds (IPR) — Carbide Blades

MATERIAL	Hardness Bhn	SPEEDS (SFM) Coatings					FEED (IPR) Series/Diameters					
		TiN	TiCN or TiN/TiCN		TiAlN	CX-H	Diamond	Y & Z	0	1	2	3
			to	to				to	to	to		
Low Carbon Steel	85 – 125	300	375	NR	375	NR	0.375 to 0.508	0.509 to 0.690	0.691 to 0.960	0.961 to 1.380	1.381 to 1.879	
1010, 1020, 1025, 1522, etc.	125 – 175 175 – 225 225 – 275	275 225 190	325 275 240	NR NR NR	325 NR NR	NR NR NR	.009 .008 .007 .006	.011 .010 .010 .009	.014 .014 .013 .012	.017 .016 .016 .014	.020 .019 .018 .017	
Free Machining Steel	100 – 150	325	375	NR	NR	NR	.010	.012	.016	.019	.023	
1118, 1215, 12L14, etc.	150 – 200 200 – 250	275 250	350 325	NR NR	NR NR	NR NR	.009 .008	.011 .010	.014 .013	.018 .017	.021 .020	
Medium Carbon Steel	125 – 175	250	300	NR	NR	NR	.008	.010	.013	.016	.019	
1030, 1040, 1050, 1527, 1140, 1144, 1151, etc.	175 – 225 225 – 275 275 – 325	210 175 150	260 230 200	NR NR NR	NR NR NR	NR NR NR	.007 .007 .006	.009 .009 .008	.012 .011 .010	.015 .014 .013	.019 .018 .016	
Alloy Steel	125 – 175	250	275	NR	NR	NR	.008	.009	.012	.015	.018	
4140, 5140, 8640, etc.	175 – 225 225 – 275 275 – 325 325 – 375	225 200 190 160	250 230 220 NR	NR NR NR NR	NR NR NR NR	NR NR NR NR	.007 .006 .005 .005	.009 .008 .007 .007	.012 .011 .010 .009	.014 .014 .013 .012	.017 .016 .015 .015	
High Strength Alloy	225 – 300	150	175	200	NR	NR	.006	.009	.010	.012	.015	
4340, 4330V, etc.	300 – 350 350 – 400	125 NR	150 NR	175 150	NR NR	NR NR	.005 .004	.008 .007	.009 .008	.011 .010	.014 .012	
Structural Steel	100 – 150	250	275	325	NR	NR	.008	.011	.013	.015	.018	
A36, A285, A516, etc.	150 – 250 250 – 350	200 175	230 200	265 225	NR NR	NR NR	.007 .006	.009 .008	.012 .010	.013 .012	.016 .014	
Tool Steel	150 – 200	160	190	NR	NR	NR	.007	.008	.009	.011	.013	
H-13, H-21, A-4, O-2, S-3, etc.	200 – 250 250 – 350 350 – 400	110 75 NR	150 NR NR	175 135 95	NR NR NR	NR NR NR	.006 .005 .004	.007 .006 .005	.008 .007 .006	.011 .009 .007	.013 .011 .009	
Stainless Steel	135 – 185	150	175	250	NR	NR	.009	.010	.013	.014	.016	
416, 420, 17-4PH, etc.	185 – 275 275 – 350	NR NR	150 100	200 150	NR NR	NR NR	.008 .007	.009 .008	.012 .011	.013 .012	.015 .014	
Cast Iron	120 – 150	300	400	450	400	NR	.009	.013	.017	.020	.024	
Gray, Ductile, Nodular	150 – 200 200 – 220 220 – 260 260 – 320	275 225 200 175	350 300 275 225	400 350 325 275	350 300 300 250	NR NR NR NR	.008 .008 .007 .006	.012 .011 .011 .009	.016 .014 .013 .011	.019 .018 .016 .014	.022 .020 .018 .016	
Aluminum - Wrought	—	NR	1300	NR	1300	1450	.010	.014	.018	.022	.024	
Cast	—	NR	850	NR	900	1000	.008	.013	.016	.020	.022	
Copper Alloys	—	NR	750	NR	900	800	.009	.012	.015	.019	.021	
High Temp. Alloy	140 – 210	NR	85	100	90	NR	.005	.007	.008	.010	.012	
Hastelloy B, Inconel 600, etc.	210 – 280 280 – 340	NR NR	70 55	85 70	NR NR	NR NR	.005 .004	.006 .005	.007 .006	.010 .008	.012 .010	

NR = Not Recommended

Formulas: IPM = RPM x IPR ★ SFM = .262 x RPM x Diameter ★ RPM = SFM x 3.82 ÷ Diameter

Premium Coatings:

- **TiN** (Titanium Nitride) gives longer tool life and added lubricity, while allowing more aggressive machining of steels.
- **TiCN** (Titanium Carbonitride) is a general purpose coating well suited to machining of mild steel, ductile cast iron and nonferrous materials such as aluminum and copper alloys. TiCN is superior in preventing excessive BUE (built-up edge).
- **“G”** is comprised of more than 20 layers of TiCN and TiAlN with an overcoat of TiN optimized for drilling mild steel and ductile cast iron.
- **TiAlN** (Titanium Aluminum Nitride) a multilayer, mixed phase coating designed for high-speed machining in alloy steels, high temp alloys, gray cast iron and titanium. Performance advantages require TiAlN coated tools to be operated at relatively high speeds, typically 50% greater than other PVD coatings such as TiN.
- **CX-H** is a proprietary coating designed for optimal drilling of abrasive, short chipping nonferrous alloys (e.g. red brass, Al-Si alloys).
- **Diamond** coating is designed for abrasive nonferrous alloys.



Decimal Size	Inch Size	Metric Size	TiN Coating EDP Number	TiCN Coating EDP Number	TiAlN Coating EDP Number
Series Y: .375 through .436					
.3740	—	9,50	9CY-0374T	9CY-0374N	9CY-0374A
.3750	3/8	—	9CY-0375T	9CY-0375N	9CY-0375A
.3860	W	—	9CY-0386T	9CY-0386N	9CY-0386A
.3890	SAE #4	—	9CY-0389T	9CY-0389N	9CY-0389A
.3906	25/64	—	9CY-0391T	9CY-0391N	9CY-0391A
.3937	—	10,0	9CY-0394T	9CY-0394N	9CY-0394A
.4016	—	10,2	9CY-0402T	9CY-0402N	9CY-0402A
.4063	13/32	—	9CY-0406T	9CY-0406N	9CY-0406A
.4134	—	10,5	9CY-0413T	9CY-0413N	9CY-0413A
.4219	27/64	—	9CY-0422T	9CY-0422N	9CY-0422A
.4252	—	10,8	9CY-0425T	9CY-0425N	9CY-0425A
.4313	—	11,0	9CY-0433T	9CY-0433N	9CY-0433A
Series Z: .437 through .508					
.4375	7/16	—	9CZ-0438T	9CZ-0438N	9CZ-0438A
.4520	SAE #5	—	9CZ-0452T	9CZ-0452N	9CZ-0452A
.4531	29/64	—	9CZ-0453T	9CZ-0453N	9CZ-0453A
.4688	15/32	—	9CZ-0469T	9CZ-0469N	9CZ-0469A
.4724	—	12,0	9CZ-0472T	9CZ-0472N	9CZ-0472A
.4844	31/64	—	9CZ-0484T	9CZ-0484N	9CZ-0484A
.4921	—	12,5	9CZ-0492T	9CZ-0492N	9CZ-0492A
.5000	1/2	—	9CZ-0500T	9CZ-0500N	9CZ-0500A
Series 0: .509 through .690					
.5090	SAE #6	—	9C0-0509T	9C0-0509N	9C0-0509A
.5118	—	13,0	9C0-0512T	9C0-0512N	9C0-0512A
.5156	33/64	—	9C0-0516T	9C0-0516N	9C0-0516A
.5313	17/32	—	9C0-0531T	9C0-0531N	9C0-0531A
.5469	35/64	—	9C0-0547T	9C0-0547N	9C0-0547A
.5512	—	14,0	9C0-0551T	9C0-0551N	9C0-0551A
.5625	9/16	—	9C0-0563T	9C0-0563N	9C0-0563A
.5706	—	14,5	9C0-0571T	9C0-0571N	9C0-0571A
.5781	37/64	—	9C0-0578T	9C0-0578N	9C0-0578A
.5909	—	15,0	9C0-0591T	9C0-0591N	9C0-0591A
.5938	19/32	—	9C0-0594T	9C0-0594N	9C0-0594A
.6094	39/64	—	9C0-0609T	9C0-0609N	9C0-0609A
.6102	—	15,5	9C0-0610T	9C0-0610N	9C0-0610A
.6250	5/8	—	9C0-0625T	9C0-0625N	9C0-0625A
.6299	—	16,0	9C0-0630T	9C0-0630N	9C0-0630A
.6406	41/64	—	9C0-0641T	9C0-0641N	9C0-0641A
.6496	—	16,5	9C0-0650T	9C0-0650N	9C0-0650A
.6563	21/32	—	9C0-0656T	9C0-0656N	9C0-0656A
.6693	—	17,0	9C0-0669T	9C0-0669N	9C0-0669A
.6719	43/64	—	9C0-0672T	9C0-0672N	9C0-0672A
.6875	11/16	—	9C0-0688T	9C0-0688N	9C0-0688A
.6890	SAE #8	17,5	9C0-0689T	9C0-0689N	9C0-0689A
Series 1: .691 through .960					
.7031	45/64	—	9C1-0703T	9C1-0703N	9C1-0703A
.7087	—	18,0	9C1-0709T	9C1-0709N	9C1-0709A
.7188	23/32	—	9C1-0719T	9C1-0719N	9C1-0719A
.7283	—	18,5	9C1-0728T	9C1-0728N	9C1-0728A
.7344	47/64	—	9C1-0734T	9C1-0734N	9C1-0734A
.7480	—	19,0	9C1-0748T	9C1-0748N	9C1-0748A
.7500	3/4	—	9C1-0750T	9C1-0750N	9C1-0750A
.7656	49/64	—	9C1-0766T	9C1-0766N	9C1-0766A

continued on next page



Decimal Size	Inch Size	Metric Size	TiN Coating EDP Number	TiCN Coating EDP Number	TiAlN Coating EDP Number
(continued) Series 1: .691" through .960"					
.7677	—	19,5	9C1-0768T	9C1-0768N	9C1-0768A
.7813	25/32	—	9C1-0781T	9C1-0781N	9C1-0781A
.7874	—	20,0	9C1-0787T	9C1-0787N	9C1-0787A
.7969	51/64	—	9C1-0797T	9C1-0797N	9C1-0797A
.8060	SAE #10	—	9C1-0806T	9C1-0806N	9C1-0806A
.8071	—	20,5	9C1-0807T	9C1-0807N	9C1-0807A
.8125	13/16	—	9C1-0813T	9C1-0813N	9C1-0813A
.8268	—	21,0	9C1-0827T	9C1-0827N	9C1-0827A
.8438	27/32	—	9C1-0844T	9C1-0844N	9C1-0844A
.8594	55/64	—	9C1-0859T	9C1-0859N	9C1-0859A
.8661	—	22,0	9C1-0866T	9C1-0866N	9C1-0866A
.8750	7/8	—	9C1-0875T	9C1-0875N	9C1-0875A
.8906	57/64	—	9C1-0891T	9C1-0891N	9C1-0891A
.9063	29/32	—	9C1-0906T	9C1-0906N	9C1-0906A
.9219	59/64	—	9C1-0922T	9C1-0922N	9C1-0922A
.9375	15/16	—	9C1-0938T	9C1-0938N	9C1-0938A
.9449	—	24,0	9C1-0945T	9C1-0945N	9C1-0945A
Series 2: .961" through 1.380"					
.9688	31/32	—	9C2-0969T	9C2-0969N	9C2-0969A
.9810	SAE #12	—	9C2-0981T	9C2-0981N	9C2-0981A
.9843	—	25,0	9C2-0984T	9C2-0984N	9C2-0984A
1.0000	1	—	9C2-1000T	9C2-1000N	9C2-1000A
1.0156	1-1/64	—	9C2-1016T	9C2-1016N	9C2-1016A
1.0236	—	26,0	9C2-1024T	9C2-1024N	9C2-1024A
1.0313	1-1/32	—	9C2-1031T	9C2-1031N	9C2-1031A
1.0625	1-1/16	—	9C2-1063T	9C2-1063N	9C2-1063A
1.0938	1-3/32	—	9C2-1094T	9C2-1094N	9C2-1094A
1.1024	—	28,0	9C2-1102T	9C2-1102N	9C2-1102A
1.1060	SAE #14	—	9C2-1106T	9C2-1106N	9C2-1106A
1.1250	1-1/8	—	9C2-1125T	9C2-1125N	9C2-1125A
1.1417	—	29,0	9C2-1142T	9C2-1142N	9C2-1142A
1.1563	1-5/32	—	9C2-1156T	9C2-1156N	9C2-1156A
1.1614	—	29,5	9C2-1161T	9C2-1161N	9C2-1161A
1.1811	—	30,0	9C2-1181T	9C2-1181N	9C2-1181A
1.1875	1-3/16	—	9C2-1188T	9C2-1188N	9C2-1188A
1.2008	—	30,5	9C2-1201T	9C2-1201N	9C2-1201A
1.2188	1-7/32	—	9C2-1219T	9C2-1219N	9C2-1219A
1.2205	—	31,0	9C2-1221T	9C2-1221N	9C2-1221A
1.2310	SAE #16	—	9C2-1231T	9C2-1231N	9C2-1231A
1.2500	1-1/4	—	9C2-1250T	9C2-1250N	9C2-1250A
1.2598	—	32,0	9C2-1260T	9C2-1260N	9C2-1260A
1.2813	1-9/32	—	9C2-1281T	9C2-1281N	9C2-1281A
1.2992	—	33,0	9C2-1299T	9C2-1299N	9C2-1299A
1.3125	1-5/16	—	9C2-1313T	9C2-1313N	9C2-1313A
1.3386	—	34,0	9C2-1339T	9C2-1339N	9C2-1339A
1.3438	1-11/32	—	9C2-1344T	9C2-1344N	9C2-1344A
1.3750	1-3/8	—	9C2-1375T	9C2-1375N	9C2-1375A
1.3780	—	35,0	9C2-1378T	9C2-1378N	9C2-1378A
Series 3: 1.381" through 1.879"					
1.5430	SAE #20	—	9C3-1543T	9C3-1543N	9C3-1543A
1.7930	SAE #24	—	9C3-1793T	9C3-1793N	9C3-1793A



Max/ Drill Depth	Body Length	Overall Length	Shank Diameter	Shank Length	Pipe Tap	Straight Flute EDP Number	Helical Flute EDP Number
 Holders with Straight Shanks 							
Series X: .375" through .436"							
1.09	1.59	3.97	0.75	2.375	1/8	7SXSS	—
2.19	2.68	5.06	0.75	2.375	1/8	7SXSM	—
4.38	4.87	7.25	0.75	2.375	1/8	7SXSE	—
Series Z: .437" through .508"							
1.58	3.37	5.75	0.75	2.375	1/8	7SZSS	7HZSS
2.59	4.38	6.76	0.75	2.375	1/8	7SZSM	7HZSM
3.59	5.38	7.76	0.75	2.375	1/8	7SZSL	7HZSL
4.46	6.25	8.63	0.75	2.375	1/8	7SZSE	7HZSE
Series 0: .509" through .690"							
2.18	3.97	6.35	0.75	2.375	1/8	7S0SS	7H0SS
3.44	5.33	7.71	0.75	2.375	1/8	7S0SM	7H0SM
4.86	6.75	9.13	0.75	2.375	1/8	7S0SL	7H0SL
7.90	9.80	12.17	0.75	2.375	1/8	7S0SE	7H0SE
Series 0.5: .609" through .690"							
1.98	3.97	6.35	0.75	2.375	1/4	7S0.5SS	7H0.5SS
3.34	5.33	7.71	0.75	2.375	1/4	7S0.5SM	7H0.5SM
4.76	6.75	9.13	0.75	2.375	1/4	7S0.5SL	7H0.5SL
7.80	9.80	12.17	0.75	2.375	1/4	7S0.5SE	7H0.5SE
Series 1: .690" through .960"							
2.76	4.85	7.23	1.00	2.375	1/4	7S1SS	7H1SS
4.71	6.80	9.18	1.00	2.375	1/4	7S1SM	7H1SM
6.63	8.72	11.10	1.00	2.375	1/4	7S1SL	7H1SL
10.66	12.75	15.12	1.00	2.375	1/4	7S1SE	7H1SE
Series 1.5: .859" through .960"							
2.55	4.85	7.22	1.00	2.375	1/4	7S1.5SS	7H1.5SS
4.80	6.80	9.18	1.00	2.375	1/4	7S1.5SM	7H1.5SM
6.42	8.72	11.10	1.00	2.375	1/4	7S1.5SL	7H1.5SL
10.45	12.75	15.12	1.00	2.375	1/4	7S1.5SE	7H1.5SE
Series 2: .961" through 1.380"							
3.07	5.56	8.00	1.25	2.437	1/4	7S2SS	7H2SS
5.45	7.94	10.38	1.25	2.437	1/4	7S2SM	7H2SM
7.82	10.31	12.75	1.25	2.437	1/4	7S2SL	7H2SL
10.89	13.38	15.82	1.25	2.437	1/4	7S2SE	7H2SE
Series 2.5: 1.187" through 1.380"							
2.88	5.56	8.00	1.25	2.437	1/4	7S2.5SS	7H2.5SS
5.26	5.56	8.00	1.25	2.437	1/4	7S2.5SM	7H2.5SM
7.63	10.31	12.75	1.25	2.437	1/4	7S2.5SL	7H2.5SL
10.70	13.38	15.82	1.25	2.437	1/4	7S2.5SE	7H2.5SE
Series 3: 1.381" through 1.879"							
4.43	7.25	9.88	1.50	2.625	1/4	7S3SS	7H3SS
8.43	11.25	13.88	1.50	2.625	1/4	7S3SM	7H3SM
13.18	16.00	18.63	1.50	2.625	1/4	7S3SL	7H3SL





Max/ Drill Depth	Body Length	Overall Length	Shank Diameter	Shank Length	Pipe Tap	Straight Flute EDP Number	Helical Flute EDP Number
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Holders with Straight Shanks (continued)



Series 4: 1.880" through 2.570"							
5.90	8.75	11.38	1.50	2.625	1/4	7S4SS	7H4SS
9.90	12.75	15.38	1.50	2.625	1/4	7S4SM	7H4SM
16.02	18.87	21.50	1.50	2.625	1/4	7S4SL	7H4SL
Series 5: 2.500" through 3.500" holds series 5 + series 6 blades							
6.24	9.25	12.50	2.00	3.250	1/4	7S5SS	—
11.99	15.00	18.25	2.00	3.250	1/4	7S5SM	7H5SM
17.74	20.75	24.00	2.00	3.250	1/4	7S5SL	7H5SL
Series 7: 3.501 through 4.500" holds series 7 + series 8 blades							
6.88	8.63	15.25	3.00	6.625	1/4	7S7SS	—
12.25	14.63	21.25	3.00	6.625	1/4	7S7SM	—
19.45	22.86	29.50	3.00	6.625	1/4	7S7SL	—

Metric Size Holders with Straight Shanks

Series Y: 9,50 through 11,07							
31,75	69,45	119,45	20,00	50,00	1/8-28 BSP	8SYSS	
60,33	98,03	148,03	20,00	50,00	1/8-28 BSP	8SYSM	
111,13	148,83	198,83	20,00	50,00	1/8-28 BSP	8SYSL	
Series Z: 11,10 through 12,90							
31,75	69,45	119,45	20,00	50,00	1/8-28 BSP	8SZSS	
60,33	98,03	148,03	20,00	50,00	1/8-28 BSP	8SZSM	
111,13	148,83	198,83	20,00	50,00	1/8-28 BSP	8SZSL	
Series 0: 12,93 through 17,53							
34,93	73,03	123,03	20,00	50,00	1/8-28 BSP	8S0SS	
63,50	101,60	151,60	20,00	50,00	1/8-28 BSP	8S0SM	
114,30	152,40	202,40	20,00	50,00	1/8-28 BSP	8S0SL	
Series 0.5: 15,47 through 17,53							
34,93	73,03	123,03	20,00	50,00	1/8-28 BSP	8S0.5SS	
63,50	101,60	151,60	20,00	50,00	1/8-28 BSP	8S0.5SM	
114,30	152,40	202,40	20,00	50,00	1/8-28 BSP	8S0.5SL	
Series 1: 17,54 through 24,38							
66,68	109,93	165,93	25,00	56,00	1/4-19 BSP	8S1SS	
117,48	160,73	216,73	25,00	56,00	1/4-19 BSP	8S1SM	
168,28	211,53	267,53	25,00	56,00	1/4-19 BSP	8S1SL	
269,88	313,13	369,13	25,00	56,00	1/4-19 BSP	8S1SE	
Series 1.5: 21,82 through 24,38							
66,68	109,93	165,93	25,00	56,00	1/4-19 BSP	8S1.5SS	
117,48	160,73	216,73	25,00	56,00	1/4-19 BSP	8S1.5SM	
168,28	211,53	267,53	25,00	56,00	1/4-19 BSP	8S1.5SL	
269,88	313,13	369,13	25,00	56,00	1/4-19 BSP	8S1.5SE	

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Max/ Drill Depth	Body Length	Overall Length	Shank Diameter	Shank Length	Pipe Tap	Straight Flute EDP Number	Helical Flute EDP Number
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Metric Size Holders with Straight Shanks

(continued)



Series 2: 24,41 through 35,05

85,73	130,18	190,19	32,00	60,00	1/4-19 BSP	8S2SS	
136,53	180,98	240,98	32,00	60,00	1/4-19 BSP	8S2SM	
187,33	231,78	291,78	32,00	60,00	1/4-19 BSP	8S2SL	
288,93	333,38	393,38	32,00	60,00	1/4-19 BSP	8S2SE	

Series 2.5: 30,15 through 35,05

85,73	132,16	192,16	32,00	60,00	1/4-19 BSP	8S2.5SS	
136,53	183,36	243,36	32,00	60,00	1/4-19 BSP	8S2.5SM	
187,33	234,16	294,16	32,00	60,00	1/4-19 BSP	8S2.5SL	
288,93	335,76	395,76	32,00	60,00	1/4-19 BSP	8S2.5SE	

Series 3: 35,08 through 47,73

120,65	173,04	243,04	40,00	70,00	1/4-19 BSP	8S3SS	
158,75	211,14	281,14	40,00	70,00	1/4-19 BSP	8S3SM	
209,55	261,94	331,94	40,00	70,00	1/4-19 BSP	8S3SL	

Series 4: 47,95 through 65,28

130,18	184,94	254,94	40,00	70,00	1/4-19 BSP	8S4SS	
180,98	235,74	305,74	40,00	70,00	1/4-19 BSP	8S4SM	
231,78	286,54	356,54	40,00	70,00	1/4-19 BSP	8S4SL	

Series 5: 63,50 through 88,90 holds series 5 + series 6

171,45	227,01	307,01	50,00	80,00	1/4-19 BSP	8S5SS	
222,25	277,81	357,81	50,00	80,00	1/4-19 BSP	8S5SM	
273,05	328,61	408,61	50,00	80,00	1/4-19 BSP	8S5SL	

Series 7: 88,93 through 114,30 holds series 7 + series 8

171,45	238,13	328,13	63,00	90,00	1/4-19 BSP	8S7SS	
222,25	288,93	378,93	63,00	90,00	1/4-19 BSP	8S7SM	
273,05	339,73	429,73	63,00	90,00	1/4-19 BSP	8S7SL	

HOLDERS for R-8 (Bridgeport) Applications

Max/ Drill Depth	Gage Length	Overall Length	Morse Taper	Pipe Tap	Straight Flute EDP Number	Helical Flute EDP Number
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Series 0: .509" through .690"

3.29	5.19	9.19	R8 (16°50')	1/16-27	—	7H0SR8
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Series 1: .691" through .960"

3.34	5.19	9.19	R8 (16°50')	1/16-27	—	7H1SR8
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Series 2: .961" through 1.380"

3.32	5.19	9.19	R8 (16°50')	1/16-27	—	7H2SR8
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Max/ Drill Depth	Gage Length	Overall Length	Morse Taper	Pipe Tap	Straight Flute EDP Number	Helical Flute EDP Number
 Holders with Taper Shanks 						
 Series Y: .375" through .436" 						
1.39	3.37	6.31	2	1/8	7SYTS	7HYTS
2.27	4.25	7.19	2	1/8	7SYTM	7HYTM
3.15	5.13	8.07	2	1/8	7SYTL	7HYTL
4.46	6.44	9.38	2	1/8	7SYTE	7HYTE
 Series Z: .437" through .508" 						
1.58	3.56	6.50	2	1/8	7SZTS	7HZTS
2.59	4.56	7.50	2	1/8	7SZTM	7HZTM
3.59	5.57	8.51	2	1/8	7SZTL	7HZTL
4.46	6.44	9.38	2	1/8	7SZTE	7HZTE
 Series 0: .509" through .695" 						
2.18	4.16	7.10	2	1/8	7S0TS	7H0TS
3.44	5.52	8.46	2	1/8	7S0TM	7H0TM
4.86	6.94	9.88	2	1/8	7S0TL	7H0TL
7.90	10.00	12.93	2	1/8	7S0TE	7H0TE
 Series 0.5: .609" through .695" 						
1.98	4.16	7.10	2	1/8	—	—
3.34	5.52	8.46	2	1/8	—	7H0.5TM
4.76	6.94	9.88	2	1/8	7S0.5TL	7H0.5TL
7.80	10.00	12.93	2	1/8	7S0.5TE	7H0.5TE
 Series 1: .690" through .960" 						
2.76	5.04	8.73	3	1/4	7S1TS	7H1TS
4.71	6.99	10.68	3	1/4	7S1TM	7H1TM
6.63	8.91	12.60	3	1/4	7S1TL	7H1TL
10.66	12.94	16.63	3	1/4	7S1TE	7H1TE
 Series 1.5: .859" through .960" 						
2.55	5.04	8.73	3	1/4	7S1.5TS	—
4.80	6.99	10.68	3	1/4	7S1.5TM	—
6.42	8.91	12.60	3	1/4	—	7H1.5TL
10.45	12.94	16.63	3	1/4	—	7H1.5TE
 Series 2: .961" through 1.380" 						
3.07	5.75	9.44	3	1/4	7S2TS	7H2TS
5.45	8.13	11.82	3	1/4	7S2TM	7H2TM
7.82	10.50	14.19	3	1/4	7S2TL	7H2TL
10.89	13.57	17.26	3	1/4	7S2TE	7H2TE
 Series 2.5: 1.187" through 1.380" 						
2.88	5.75	9.44	3	1/4	7S2.5TS	7H2.5TS
2.88	5.75	9.44	4	1/4	7S2.5TS-4MT	—
5.26	8.13	11.82	3	1/4	—	7H2.5TM
5.26	8.13	11.82	4	1/4	7S2.5TM-4MT	—
7.63	10.50	14.19	3	1/4	7S2.5TL	7H2.5TL
7.63	10.50	14.19	4	1/4	7S2.5TL-4MT	—
10.70	13.57	17.26	3	1/4	7S2.5TE	7H2.5TE

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Max/ Drill Depth	Gage Length	Overall Length	Morse Taper	Pipe Tap	Straight Flute EDP Number	Helical Flute EDP Number
 Holders with Taper Shanks (continued) 						
 Series 3: 1.381" through 1.879" 						
4.43	7.50	12.13	4	1/4	7S3TS	7H3TS
8.43	11.50	16.13	4	1/4	7S3TM	7H3TM
13.18	16.25	20.88	4	1/4	7S3TL	7H3TL
 Series 4: 1.880" through 2.570" 						
5.90	9.00	13.62	4	1/4	7S4TS	7H4TS
9.90	13.00	17.63	4	1/4	7S4TM	7H4TM
16.02	19.12	23.75	4	1/4	7S4TL	7H4TL
 Series 5: 2.500" through 3.500" holds series 5 + series 6 blades 						
6.24	9.50	15.38	5	1/4	7S5TS	—
11.99	15.25	21.13	5	1/4	7S5TM	7H5TM
17.74	21.00	26.88	5	1/4	7S5TL	7H5TL
 Series 7: 3.501 through 4.500" holds series 7 + series 8 blades 						
6.88	10.41	16.28	5	1/4	7S7TS	—
12.25	16.41	22.28	5	1/4	7S7TM	—
19.45	24.65	30.53	5	1/4	7S7TL	—

ACCESSORIES

Holder Series Number	Coolant Gland EDP Number	Locating Pin EDP Number	Torx Screw EDP Number	Torx Wrench EDP Number
X	—	—	MS-1454	56-2025
Y	290-1100	SP-1	56-1013	56-2017
Z	290-1100	SP-1	56-1015	56-2026
0, 0.5	290-1100 290-1075A*	SP-2	56-1014	56-2017
1, 1.5	290-1125 290-1100A*	SP-3	56-1020	56-2028
2, 2.5	290-1150 290-1100A*	SP-4	56-1018	56-2015
3, 4	290-1175	SP-5	56-1585	56-2020
5	290-1250	SP-6	56-1025	56-2125
7	290-1300	SP-6	56-1025	56-2125

* R-8 (Bridgeport) holders only



Metalcutting Safety (read this before using METCUT products)

Modern metalcutting operations involve high energy, high spindle or cutter speeds, and high temperatures and cutting forces. Hot, flying chips may be projected from the workpiece during metalcutting. Although advanced cutting tool materials are designed and manufactured to withstand the high cutting forces and temperatures that normally occur in these operations, they are susceptible to fragmenting in service, particularly if they are subjected to over-stress, severe impact or otherwise abused. Therefore, precautions should be taken to adequately protect workers, observers and equipment against hot, flying chips, fragmented cutting tools, broken workpieces or other similar projectiles. Machines should be fully guarded and personal protective equipment should be used at all times.

When grinding advanced cutting tool materials, a suitable means for collection and disposal of dust, mist or sludge should be provided. Overexposure to dust or mist containing metallic particles can be hazardous to health particularly if exposure continues over an extended period of time and may cause eye, skin and mucous membrane irritation and temporary or permanent respiratory disease. Certain existing pulmonary and skin conditions may be aggravated by exposure to dust or mist. Adequate ventilation, respiratory protection and eye protection should be provided when grinding and workers should avoid breathing of and prolonged skin contact with dust or mist. General

Industry Safety and Health Regulations, Part 1910. U.S. Department of Labor, published in Title 29 of the Code of Federal Regulations should be consulted. Obtain from METCUT and read the applicable Material Safety Data Sheet before grinding.

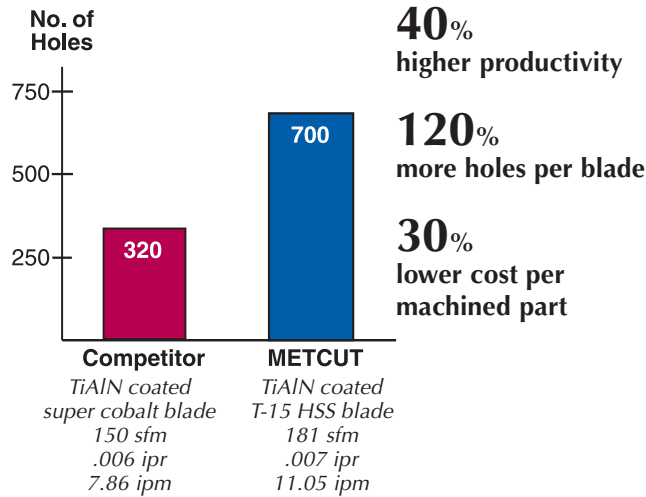
Cutting tools are only one part of the worker-machine-tool system. Many variables exist in machining operations, including the metal removal rate; the workpiece size, shape, strength and rigidity; the chucking and fixturing; the load carrying capability of centers; the cutter and spindle speed and torque limitations; the holder and boring bar overhang; the available power; and the condition of the tooling and the machine. A safe metalcutting operation must take all of these variables, and others, into consideration.

METCUT has no control over the end use of its products or the environment into which those products are placed. METCUT urges that its customers adhere to the recommended standards of use of their metalcutting machines and tools, and that they follow procedures that ensure safe metalcutting operations. The information included throughout this catalog under the heading "Technical Data" and other recommendations on machining practices referred to herein are only advisory in nature and do **not** constitute representations or warranties and are not necessarily appropriate for any particular work environment or application.



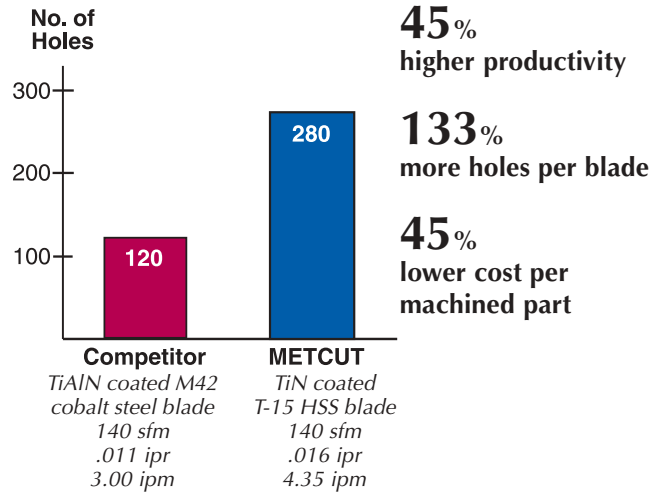
1010 Carbon Steel 25 Rc

Drill diameter: 7/16" (.4375") Hole depth: 1.000"



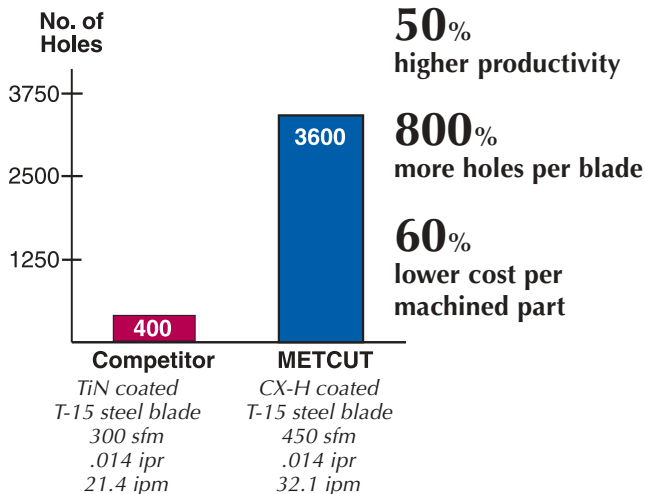
A-36 Structural Steel 38 Rc

Drill diameter: 1-31/32"(1.9688") Hole depth: 0.6250"



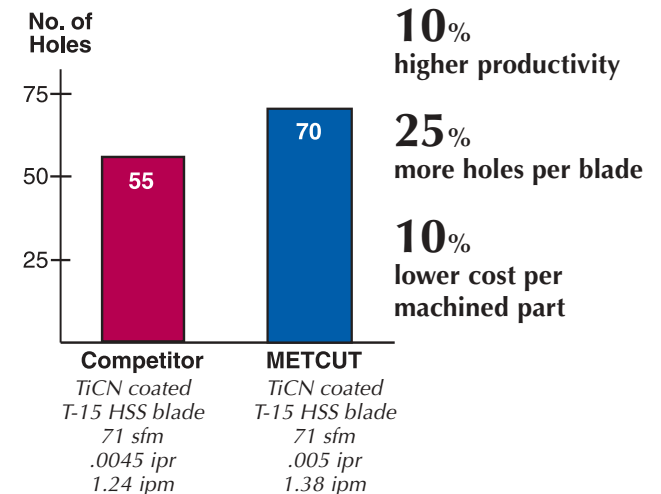
Red Brass 150 Bhn

Drill diameter: 3/4" (.7500") Hole depth: 1.000"



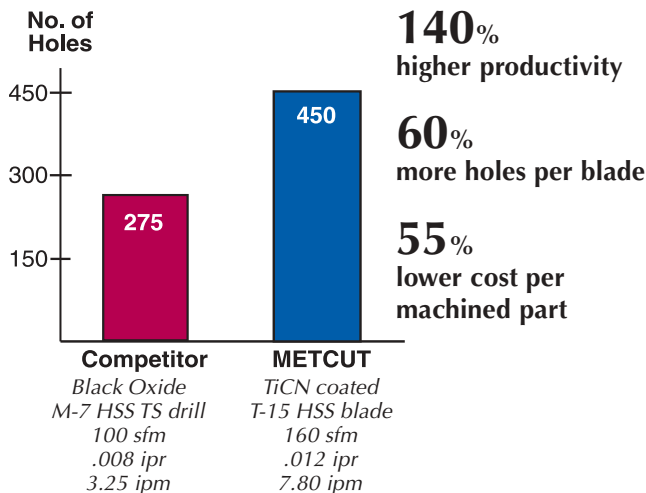
15-5 PH Stainless Steel 35 to 38 Rc

Drill diameter: 0.9843" (25,00mm) Hole depth: 5.20"



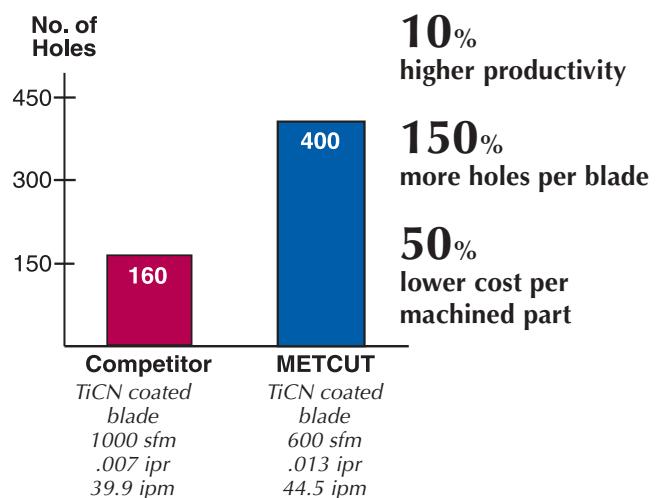
Structural Iron

Drill diameter: 15/16" (.9375") Hole depth: 2.500"



6061-T6 Aluminum Alloy

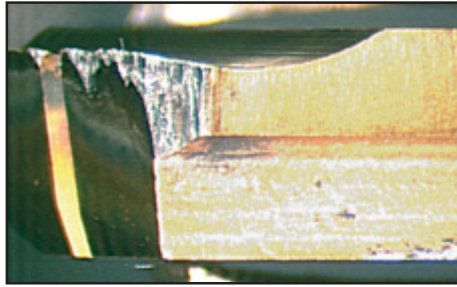
Drill diameter: 17,00mm (.6692") Hole depth: 2.00"



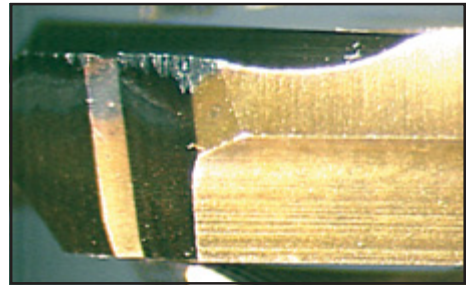
METCUT® Spade Blades

Actual photos of tool wear under identical operating conditions

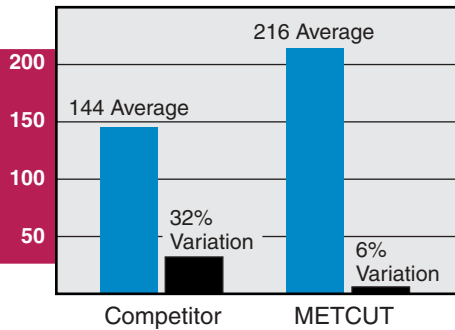
Series #1 (3/4")
Spade Blades
after 144 Holes;
4150 Material@285 HBN



Competitor



METCUT



Summary of performance data from tests conducted under identical operating conditions using Series #2 TiN Coated Spade Blades

Material: 4150, 285 HBN
Feed Rate: 80 SF, 6.4 IPM

SEE
ADDITIONAL
PERFORMANCE
COMPARISONS
ON INSIDE
BACK COVER



METCUT spade blades are sold through a world-wide network of industrial distributors.



Customer Service

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Tel: (+1) 706-863-7708 • Fax: (+1) 706-860-6021
Email: greenfield.ipg.international@kennametal.com

Technical Service

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Special Quotations

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