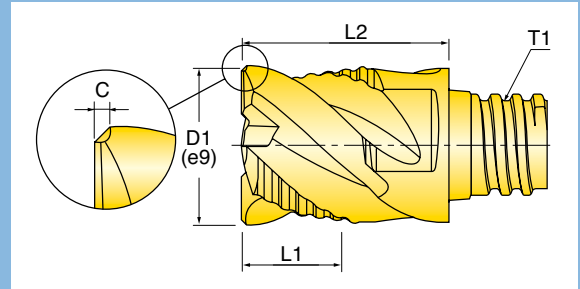


# CHIP SURFER™ SERIES 47C\*RU, 47D\*RU

ROUGH-FIN SOLID CARBIDE END MILL TIP (0 DEG. LEAD, 45 DEG. HELIX, CENTER CUTTING FOR ROUGHING & FINISHING)




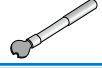
GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
IN2005	+	+	+		+	

+ Good 0 Bad



Cutter Number	T1 Thread Size	D1 Nominal Diameter	Eff. Flutes	L1 Cutting Edge Length	L2 Extension Length	C Corner
47C-3120TRU01	T05	0.312	4	0.200	0.390	0.012 Chamfer
47C-3727T6RU01	T06	0.375	4	0.270	0.510	0.012 Chamfer
47D-3727T6RU03	T06	0.375	4	0.270	0.510	0.031 R
47C-5037T8RU01	T08	0.500	4	0.370	0.650	0.015 Chamfer
47D-5037T8RU03	T08	0.500	4	0.370	0.645	0.031 R
47C-6247TRRU02	T10	0.625	4	0.470	0.800	0.024 Chamfer
47D-6247TRRU06	T10	0.625	4	0.470	0.800	0.062 R
47C-7562TSRU02	T12	0.750	4	0.620	1.000	0.024 Chamfer
47D-7562TSRU06	T12	0.750	4	0.620	1.000	0.062 R
47C-1088TURU02	T15	1.000	4	0.880	1.450	0.024 Chamfer

Operating guidelines on page 92.

HARDWARE		
Thread Size	Wrench	Optional Torque Wrench
T05	WS-0043	DT-60-06
T06	WS-0029	DT-90-08
T08	WS-0030	DT-130-10
T10	WS-0044	DT-250-13
T12	WS-0059	DT-250-16
T15	WS-0061	-

When assembling, be sure carbide tip is seated firmly on shank with no gap.  
 Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

# CHIP SURFER™ SERIES 47C\*RN, 47D\*RN, 48C\*RN, 48D\*RN

SOLID CARBIDE SERRATED ROUGHING TIP (0 DEG. LEAD, 45 DEG. HELIX;  
4 FLUTE CENTER CUTTING, 5 & 6 FLUTE NOT CENTER CUTTING)



Shoulder



Slabbing



Channel



Ramping



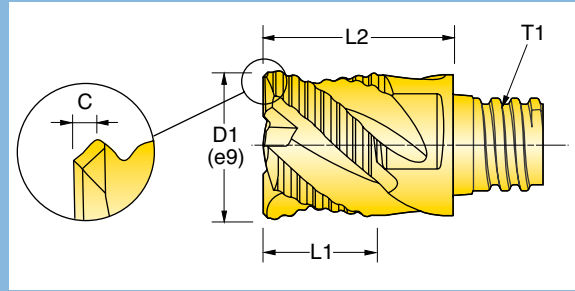
Helical Interp.



Pocket



Facing



GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(P/K)</sub>
IN2005	+	+	+		+	

+ Good 0 Bad



Cutter Number	T1 Thread Size	D1 Nominal Diameter	Eff Flutes	L1 Cutting Edge Length	L2 Extension Length	C Corner	Ramp Angle
47C-3120TQRN01	T05	0.312	4	0.20	0.390	0.010 Chamfer	90
47D-3727T6RN03	T06	0.375	4	0.27	0.495	0.031 R	90
47C-3727T6RN01	T06	0.375	4	0.27	0.510	0.013 Chamfer	90
47D-5037T8RN03	T08	0.500	4	0.37	0.645	0.031 R	90
47D-5037T8RN06	T08	0.500	4	0.37	0.645	0.062 R	90
47C-5037T8RN01	T08	0.500	4	0.37	0.650	0.012 Chamfer	90
47C-6247TRRN01	T10	0.625	5	0.47	0.800	0.014 Chamfer	7
48C-7562TSRN01	T12	0.750	6	0.62	1.000	0.016 Chamfer	3
48D-7562TSRN06	T12	0.750	6	0.62	1.000	0.062 R	3

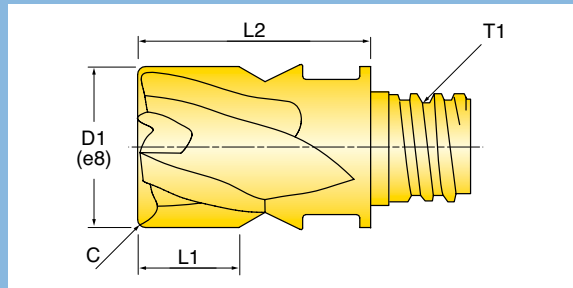
Operating guidelines on page 92.

Thread Size	HARDWARE	
	Wrench	Optional Torque Wrench
T05	WS-0043	DT-60-06
T06	WS-0029	DT-90-08
T08	WS-0030	DT-130-10
T10	WS-0044	DT-250-13
T12	WS-0059	DT-250-16

When assembling, be sure carbide tip is seated firmly on shank with no gap.

Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

SOLID CARBIDE END MILL TIP (0 DEG. LEAD, 45 DEG. HELIX, HIGH PRECISION, CENTER CUTTING)



GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(P/K)</sub>
IN2005	+	+	+		+	0

+ Good 0 Bad



Cutter Number	T1 Thread Size	D1 Nominal Diameter	Eff. Flutes	L1 Cutting Edge Length	L2 Extension Length	C Corner
46D-3120TQRD03	T05	0.312	3	0.200	0.390	0.031 R
46J-3120TQRD04	T05	0.312	3	0.200	0.390	Sharp
46D-3727T6RD01	T06	0.375	3	0.270	0.510	0.015 R
46D-3727T6RD03	T06	0.375	3	0.270	0.510	0.031 R
46D-3727T6RD06	T06	0.375	3	0.270	0.510	0.062 R
46J-3727T6RD05	T06	0.375	3	0.270	0.510	Sharp
46D-5037T8RD01	T08	0.500	3	0.370	0.650	0.015 R
46D-5037T8RD03	T08	0.500	3	0.370	0.650	0.031 R
46D-5037T8RD06	T08	0.500	3	0.370	0.650	0.062 R
46J-5037T8RD06	T08	0.500	3	0.370	0.650	Sharp

Operating guidelines on page 92.

HARDWARE		
Thread Size	Wrench	Optional Torque Wrench
T05	WS-0043	DT-60-06
T06	WS-0029	DT-90-08
T08	WS-0030	DT-130-10

When assembling, be sure carbide tip is seated firmly on shank with no gap.  
 Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

SOLID CARBIDE VARIABLE-PITCH END MILL TIP (0 DEG. LEAD, 38 DEG. HELIX, CENTER CUTTING)



Shoulder



Channel



Ramping



Helical Interp.



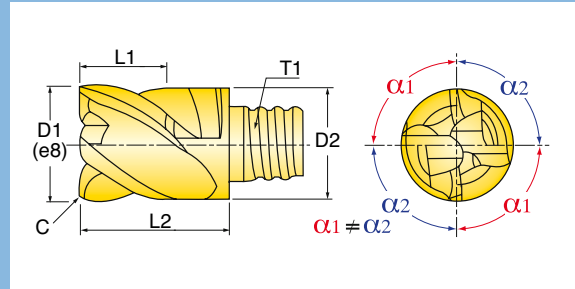
Pocket



Facing



Slabbing



**GRADES**

IN2005

P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
+	+	+		+	0

+ Good 0 Bad



Cutter Number	T1 Thread Size	D1 Nominal Diameter	Eff. Flutes	L1 Cutting Edge Length	L2 Extension Length	C Corner
47C-3120TQRQ01	T05	0.312	4	0.200	0.390	0.012 Chamfer
47D-3120TQRQ01	T05	0.312	4	0.200	0.390	0.015 R
47J-3120TQRQ04	T05	0.312	4	0.200	0.390	Sharp
47C-3727T6RQ01	T06	0.375	4	0.270	0.510	0.016 Chamfer
47D-3727T6RQ01	T06	0.375	4	0.270	0.510	0.015 R
47D-3727T6RQ03	T06	0.375	4	0.270	0.510	0.031 R
47J-3727T6RQ05	T06	0.375	4	0.270	0.510	Sharp
47C-5037T8RQ02	T08	0.500	4	0.370	0.650	0.020 Chamfer
47D-5037T8RQ01	T08	0.500	4	0.370	0.650	0.015 R
47D-5037T8RQ03	T08	0.500	4	0.370	0.650	0.031 R
47D-5037T8RQ06	T08	0.500	4	0.370	0.650	0.062 R
47J-5037T8RQ06	T08	0.500	4	0.370	0.650	Sharp
47C-6247TRRQ02	T10	0.625	4	0.470	0.810	0.024 Chamfer
47D-6247TRRQ03	T10	0.625	4	0.470	0.810	0.031 R
47D-6247TRRQ06	T10	0.625	4	0.470	0.810	0.062 R
47C-7562TSRQ02	T12	0.750	4	0.620	1.000	0.024 Chamfer
47D-7510TSRQ03	T12	0.750	4	1.000	1.380	0.031 R
47D-7562TSRQ03	T12	0.750	4	0.620	1.000	0.031 R
47D-7562TSRQ06	T12	0.750	4	0.620	1.000	0.062 R
47D-7562TSRQ12	T12	0.750	4	0.620	1.000	0.125 R
47C-1088TURQ02	T15	1.000	4	0.880	1.450	0.024 Chamfer
47D-1010TURQ03	T15	1.000	4	1.000	1.600	0.031 R
47D-1088TURQ03	T15	1.000	4	0.880	1.450	0.031 R
47D-1088TURQ06	T15	1.000	4	0.880	1.450	0.062 R
47D-1088TURQ12	T15	1.000	5	0.880	1.450	0.125 R
47D-1088TURQ25	T15	1.000	4	0.880	1.450	0.250 R

Operating guidelines on page 92.

Thread Size	Hardware	
	Wrench	Optional Torque Wrench
T05	WS-0043	DT-60-06
T06	WS-0029	DT-90-08
T08	WS-0030	DT-130-10
T10	WS-0044	DT-250-13
T12	WS-0059	DT-250-16
T15	WS-0061	-

When assembling, be sure carbide tip is seated firmly on shank with no gap.

Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

SOLID CARBIDE END MILL TIP (0 DEG. LEAD, 45 DEG. HELIX, HIGH PRECISION, CENTER CUTTING)



Shoulder

Slabbing

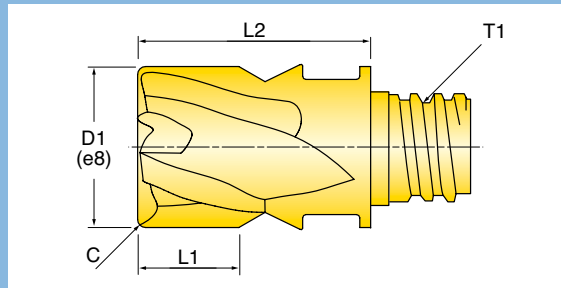
Channel

Ramping

Helical Interp.

Pocket

Facing



GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
IN2005	+	+	+		+	0

+ Good 0 Bad



Cutter Number	T1 Thread Size	D1 Nominal Diameter	Eff. Flutes	L1 Cutting Edge Length	L2 Extension Length	C Corner
47D-3120TQRD01	T05	0.312	4	0.200	0.390	0.015 R
47D-3120TQRD03	T05	0.312	4	0.200	0.390	0.031 R
47D-3120TQRD06	T05	0.312	4	0.200	0.390	0.062 R
47J-3120TQRD04	T05	0.312	4	0.200	0.390	Sharp
47D-3727T6RD01	T06	0.375	4	0.270	0.510	0.015 R
47D-3727T6RD03	T06	0.375	4	0.270	0.510	0.031 R
47D-3727T6RD06	T06	0.375	4	0.270	0.510	0.031 R
47D-3727T6RD06	T06	0.375	4	0.270	0.510	0.062 R
47J-3727T6RD05	T06	0.375	4	0.270	0.510	Sharp
47D-5037T8RD01	T08	0.500	4	0.370	0.650	0.015 R
47D-5037T8RD03	T08	0.500	4	0.370	0.650	0.031 R
47D-5037T8RD06	T08	0.500	4	0.370	0.650	0.062 R
47J-5037T8RD06	T08	0.500	4	0.370	0.650	Sharp
47D-6247TRRD03	T10	0.625	4	0.470	0.800	0.031 R
47D-6247TRRB06	T10	0.625	4	0.470	0.800	0.062 R
47J-6247TRRD08	T10	0.625	4	0.470	0.800	Sharp
47D-7562TSRD03	T12	0.750	4	0.620	1.000	0.031 R
47D-7562TSRB06	T12	0.750	4	0.620	1.000	0.062 R

Operating guidelines on page 92.

Thread Size	HARDWARE	
	Wrench	Optional Torque Wrench
T05	WS-0043	DT-60-06
T06	WS-0029	DT-90-08
T08	WS-0030	DT-130-10
T10	WS-0044	DT-250-13
T12	WS-0059	DT-250-16

When assembling, be sure carbide tip is seated firmly on shank with no gap.

Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

# CHIP SURFER™ SERIES 47J-25

SOLID CARBIDE END MILL TIP (0 DEG. LEAD, 45 DEG. HELIX, HIGH PRECISION, CENTER CUTTING)



Shoulder



Channel



Helical Interp.



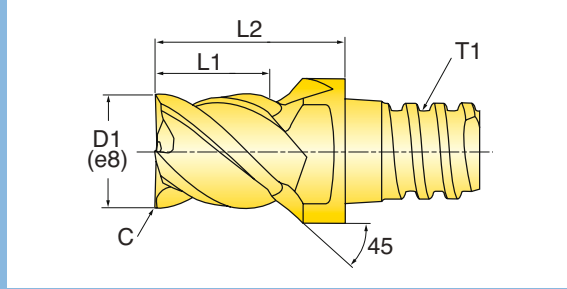
Pocket



Facing



Ramping



GRADES	P	M	K	N <sub>(M)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
IN2005	+	+	+		+	0

+ Good 0 Bad



Cutter Number	T1 Thread Size	D1 Nominal Diameter	Eff. Flutes	L1 Cutting Edge Length	L2 Extension Length	C Corner
47J-2520TQRD04	T05	0.250	4	0.200	0.390	Sharp

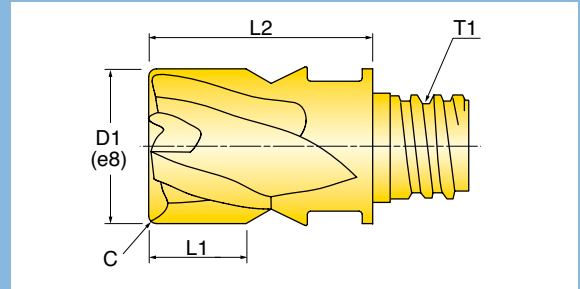
Operating guidelines on page 92.

HARDWARE		
Thread Size	Wrench	Optional Torque Wrench
T05	WS-0043	DT-60-06

When assembling, be sure carbide tip is seated firmly on shank with no gap.  
 Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.



SOLID CARBIDE FINISHING END MILL TIP (0 DEG. LEAD, 45 DEG. HELIX)



GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(P/K)</sub>
IN2005	+	+	+		+	+

+ Good 0 Bad



Cutter Number	T1 Thread Size	D1 Nominal Diameter	Eff Flutes	L1 Cutting Edge Length	L2 Extension Length	C Corner	Ramp Angle
48D-3120TQRD03	T05	0.312	6	0.20	0.390	0.031 R	3
48J-3120TQRD04	T05	0.312	6	0.20	0.390	Sharp	3
48D-3727T6RD01	T06	0.375	6	0.27	0.500	0.015 R	5
48D-3727T6RD03	T06	0.375	6	0.27	0.500	0.031 R	5
48D-3727T6RD06	T06	0.375	6	0.27	0.500	0.062 R	5
48J-3727T6RD05	T06	0.375	6	0.27	0.500	Sharp	5
48D-5037T8RD01	T08	0.500	6	0.37	0.650	0.015 R	5
48D-5037T8RD03	T08	0.500	6	0.37	0.650	0.031 R	5
48D-5037T8RD06	T08	0.500	6	0.37	0.650	0.062 R	5
48J-5037T8RD06	T08	0.500	6	0.37	0.650	Sharp	5
49D-6247TRRD03	T10	0.625	8	0.47	0.800	0.031 R	5
49D-6247TRRD06	T10	0.625	8	0.47	0.800	0.062 R	5
49J-6247TRRD08	T10	0.625	8	0.47	0.800	Sharp	5
49D-7562TSRD03	T12	0.750	10	0.62	1.000	0.031 R	3
49D-7562TSRD06	T12	0.750	10	0.62	1.000	0.062 R	3
49D-7562TSRD12	T12	0.750	8	0.62	1.000	0.125 R	-
49D-1088TURD12	T15	1.000	10	0.88	1.450	0.125 R	-

Operating guidelines on page 92.

HARDWARE		
Thread Size	Wrench	Optional Torque Wrench
T05	WS-0043	DT-60-06
T06	WS-0029	DT-90-08
T08	WS-0030	DT-130-10
T10	WS-0044	DT-250-13
T12	WS-0059	DT-250-16
T15	WS-0061	-

When assembling, be sure carbide tip is seated firmly on shank with no gap.

Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

## SOLID CARBIDE BACKDRAFT FINISHING TIP



Shoulder



Ramping



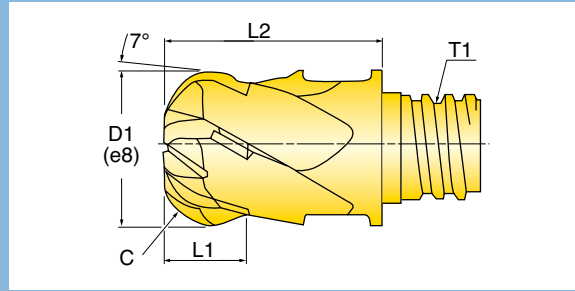
Helical Interp.



Facing



Contour



GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
IN2005	+	+	+		+	0

+ Good 0 Bad



Cutter Number	T1 Thread Size	D1 Nominal Diameter	Eff Flutes	L1 Cutting Edge Length	L2 Extension Length	C Corner	Ramp Angle
48U-3719T6RB03	T06	0.375	6	0.19	0.500	0.031 R	9
48U-3719T6RB06	T06	0.375	6	0.19	0.500	0.062 R	9
48U-5027T8RB03	T08	0.500	6	0.27	0.630	0.031 R	9
48U-5027T8RB06	T08	0.500	6	0.27	0.650	0.062 R	9
48U-5027T8RB12	T08	0.500	6	0.27	0.630	0.125 R	9
48U-6235TRRB20	T10	0.625	6	0.35	0.800	0.200 R	9

Operating guidelines on page 92.

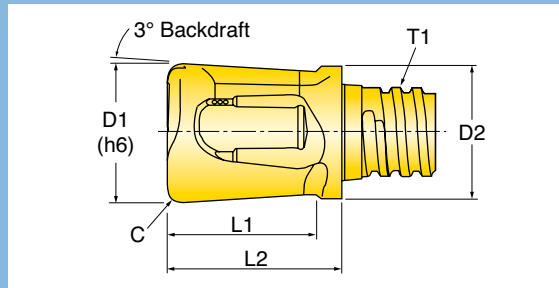
Thread Size	HARDWARE	
	Wrench	Optional Torque Wrench
T06	WS-0029	DT-90-08
T08	WS-0030	DT-130-10
T10	WS-0044	DT-250-13

When assembling, be sure carbide tip is seated firmly on shank with no gap.

Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.



SOLID CARBIDE FLAT BOTTOM PLUNGE TIP (3 DEGREE BACKDRAFT, CENTER CUTTING)





GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
IN2005	+	+	+		+	0

+ Good 0 Bad



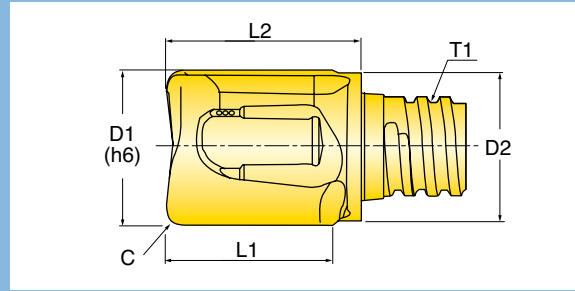
Cutter Number	T1 Thread Size	D1 Nominal Diameter	Eff. Flutes	D2 Flange Diameter	L1 Cutting Edge Length	L2 Extension Length	C Corner
45V-3738T6RA03	T06	0.375	2	0.35	0.38	0.480	0.031 R
45V-5045T8RA03	T08	0.500	2	0.48	0.45	0.600	0.031 R
45V-6260TRRA03	T10	0.625	2	0.60	0.60	0.750	0.031 R

\*If used for spot facing, drilling or boring, drill depth not to exceed 2/3 edge length.  
Operating guidelines on page 92.

HARDWARE		
Thread Size	Wrench	Optional Torque Wrench
T06	WS-0029	DT-90-05
T08	WS-0030	DT-130-07
T10	WS-0044	DT-250-08

When assembling, be sure carbide tip is seated firmly on shank with no gap.  
Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

SOLID CARBIDE DRILL-MILL TIP (0 DEGREE LEAD, CENTER CUTTING)





GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
IN2005	+	+	+		+	0

+ Good 0 Bad



Cutter Number	T1 Thread Size	D1 Nominal Diameter	Eff. Flutes	D2 Flange Diameter	L1 Cutting Edge Length	L2 Extension Length	C Corner
45D-3738T6RA01	T06	0.375	2	0.35	0.38	0.480	0.015 R
45D-5045T8RA01	T08	0.500	2	0.48	0.45	0.600	0.015 R
45D-6263TRRA01	T10	0.625	2	0.60	0.60	0.750	0.015 R

\*Drill depth not to exceed 2/3 edge length.  
Operating guidelines on page 92.

HARDWARE		
Thread Size	Wrench	Optional Torque Wrench
T06	WS-0029	DT-90-05
T08	WS-0030	DT-130-07
T10	WS-0044	DT-250-08

When assembling, be sure carbide tip is seated firmly on shank with no gap.  
Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

SOLID CARBIDE END MILL TIP FOR ALUMINUM (0 DEGREE LEAD, 45 HELIX, POLISHED, SHARP, HIGH PRECISION, CENTER CUTTING)



Shoulder

Slabbing

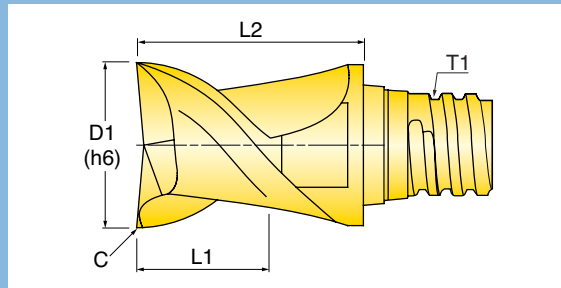
Channel

Ramping

Helical Interp.

Pocket

Facing



GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
IN05S				+		

+ Good 0 Bad



Cutter Number	T1 Thread Size	D1 Nominal Diameter	Eff. Flutes	L1 Cutting Edge Length	L2 Extension Length	C Corner
46D-3120QRD02-P	T05	0.312	3	0.200	0.390	0.020 R
45D-3727T6RD02-P	T06	0.375	2	0.270	0.500	0.020 R
45J-3727T6RD05-P	T06	0.375	2	0.270	0.500	Sharp
46D-3727T6RD02-P	T06	0.375	3	0.270	0.500	0.020 R
46D-3727T6RD03-P	T06	0.375	3	0.270	0.500	0.031 R
46D-3727T6RD06-P	T06	0.375	3	0.270	0.500	0.062 R
45D-5037T8RD02-P	T08	0.500	2	0.370	0.650	0.020 R
45J-5037T8RD06-P	T08	0.500	2	0.370	0.650	Sharp
46D-5037T8RD02-P	T08	0.500	3	0.370	0.650	0.020 R
46D-5037T8RD03-P	T08	0.500	3	0.370	0.650	0.031 R
46D-5037T8RD06-P	T08	0.500	3	0.370	0.650	0.062 R
46D-5037T8RD09-P	T08	0.500	3	0.370	0.650	0.094 R
46D-5037T8RD12-P	T08	0.500	3	0.370	0.650	0.125 R
46D-6239TRRD03-P	T10	0.625	3	0.390	0.800	0.031 R
46D-6239TRRD06-P	T10	0.625	3	0.390	0.800	0.062 R
46D-6239TRRD09-P	T10	0.625	3	0.390	0.800	0.094 R
46D-6239TRRD12-P	T10	0.625	3	0.390	0.800	0.125 R
46J-6239TRRD08-P	T10	0.625	3	0.390	0.800	Sharp
46D-7550SRD02-P	T12	0.750	3	0.500	1.000	0.020 R
46D-7550SRD06-P	T12	0.750	3	0.500	1.000	0.062 R
46D-7550SRD09-P	T12	0.750	3	0.500	1.000	0.094 R
46D-7550SRD12-P	T12	0.750	3	0.500	1.000	0.125 R

Operating guidelines on page 92.

Thread Size	HARDWARE	
	Wrench	Optional Torque Wrench
T05	WS-0043	DT-60-06
T06	WS-0029	DT-90-08
T08	WS-0030	DT-130-10
T10	WS-0044	DT-250-13
T12	WS-0059	DT-250-16

When assembling, be sure carbide tip is seated firmly on shank with no gap.

Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

# CHIP SURFER™ SERIES 46D\*RN

SOLID CARBIDE SERRATED ROUGHING TIP FOR ALUMINUM (0 DEG. LEAD, 45 DEG. HELIX, CENTER CUTTING)



Shoulder



Slabbing



Channel



Ramping



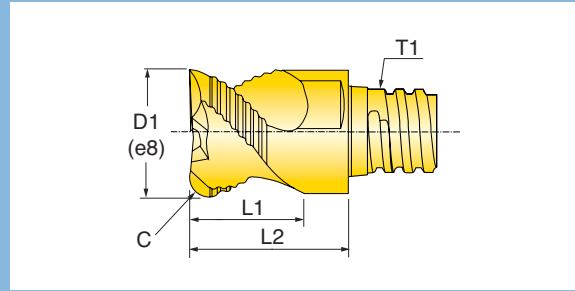
Helical Interp.



Pocket



Facing



GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
IN05S				+		

+ Good 0 Bad



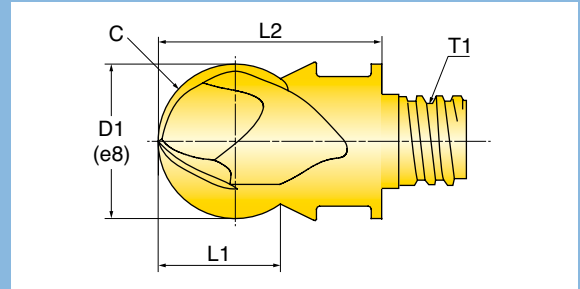
Cutter Number	T1 Thread Size	D1 Nominal Diameter	L1 Cutting Edge Length	Eff. Flutes	L2 Extension Length	C Corner
46D-3121TQRN01	T05	0.312	0.21	3	0.390	0.008 R
46D-3725T6RN01	T06	0.375	0.25	3	0.510	0.008 R
46D-5033T8RN01	T08	0.500	0.33	3	0.650	0.008 R
46D-6242TRRN01	T10	0.625	0.42	3	0.810	0.008 R
46D-7555TSRN01	T12	0.750	0.55	3	1.000	0.008 R
46D-1077TURN01	T15	1.000	0.77	3	1.457	0.008 R

Operating guidelines on page 92.

HARDWARE		
Thread Size	Wrench	Optional Torque Wrench
T05	WS-0043	DT-60-06
T06	WS-0029	DT-90-08
T08	WS-0030	DT-130-10
T10	WS-0044	DT-250-13
T12	WS-0059	DT-250-16
T15	WS-0061	-

When assembling, be sure carbide tip is seated firmly on shank with no gap.  
 Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

SOLID CARBIDE HELICAL BALL NOSE TIP FOR ALUMINUM (HIGH PRECISION)



GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
IN05S				+		

+ Good 0 Bad



Cutter Number	T1 Thread Size	D1 Nominal Diameter	Eff. Flutes	L1 Cutting Edge Length	L2 Extension Length	C Corner	Tolerance
45B-3120TQRB03-P	T05	0.312	2	0.20	0.390	0.156 R	0.0004
45B-3727T6RB05-P	T06	0.375	2	0.27	0.510	0.187 R	0.0004
45B-5037T8RB06-P	T08	0.500	2	0.37	0.650	0.250 R	0.0004
45B-6247TRRB08-P	T10	0.625	2	0.47	0.800	0.312 R	0.0004
45B-7550TSRB10-P	T12	0.750	2	0.50	1.000	0.375 R	0.0004
45B-1086TURB14-P	T15	1.000	2	0.86	1.450	0.500 R	0.0005

Operating guidelines on page 92.

HARDWARE		
Thread Size	Wrench	Optional Torque Wrench
T05	WS-0043	DT-60-06
T06	WS-0029	DT-90-08
T08	WS-0030	DT-130-10
T10	WS-0044	DT-250-13
T12	WS-0059	DT-250-16

When assembling, be sure carbide tip is seated firmly on shank with no gap.

Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

## SOLID CARBIDE SPHERICAL BALL NOSE TIP



Shoulder



Channel



Ramping



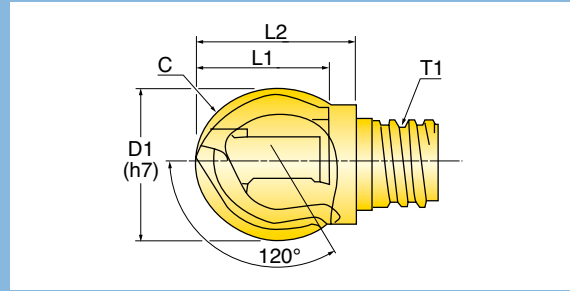
Helical Interp.



Pocket



Contour



GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
IN2005	+	+	+		+	+

+ Good 0 Bad



Cutter Number	T1 Thread Size	D1 Nominal Diameter	Eff. Flutes	L1 Cutting Edge Length	L2 Extension Length	C Corner
45X-3727TQRA03	T05	0.375	2	0.330	0.380	0.187 R
45X-5037T6RA04	T06	0.500	2	0.400	0.450	0.250 R
45X-6248T8RA06	T08	0.625	2	0.550	0.600	0.312 R
45X-7560TRRA07	T10	0.750	2	0.660	0.710	0.375 R

Operating guidelines on page 92.

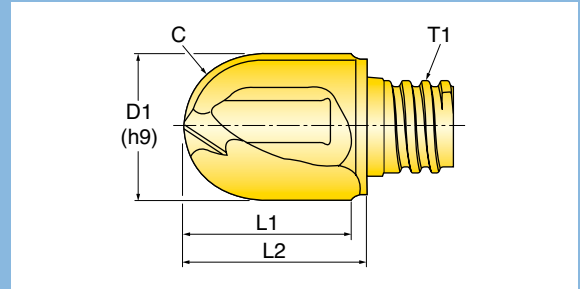
Thread Size	HARDWARE	
	Wrench	Optional Torque Wrench
T05	WS-0043	DT-60-04
T06	WS-0030	DT-90-07
T08	WS-0044	DT-130-08
T10	WS-0044	DT-130-08

When assembling, be sure carbide tip is seated firmly on shank with no gap.

Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.



SOLID CARBIDE BALL NOSE TIP



GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(P/K)</sub>
IN2005	+	+	+		+	+

+ Good 0 Bad



Cutter Number	T1 Thread Size	D1 Nominal Diameter	Eff. Flutes	L1 Cutting Edge Length	L2 Extension Length	C Corner
45B-3131TQRA04	T05	0.312	2	0.310	0.390	0.156 R
45B-3738T6RA04	T06	0.375	2	0.380	0.480	0.187 R
45B-5050T8RA06	T08	0.500	2	0.500	0.640	0.250 R
45B-6263TRRA07	T10	0.625	2	0.630	0.750	0.312 R

Operating guidelines on page 92.

HARDWARE		
Thread Size	Wrench	Optional Torque Wrench
T05	WS-0043	DT-60-04
T06	WS-0029	DT-90-05
T08	WS-0030	DT-130-07
T10	WS-0044	DT-250-08

When assembling, be sure carbide tip is seated firmly on shank with no gap.

Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

SOLID CARBIDE BALL NOSE TIP FOR HARD STEEL (HIGH PRECISION)



Shoulder



Channel



Ramping



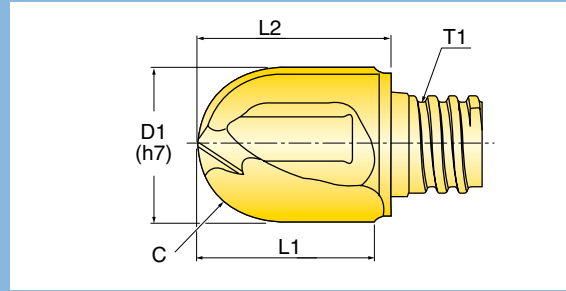
Helical Interp.



Pocket



Contour



GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(P/K)</sub>
IN2006	+		+			+

+ Good 0 Bad



Cutter Number	T1 Thread Size	D1 Nominal Diameter	Eff. Flutes	L1 Cutting Edge Length	L2 Extension Length	C Corner
45B-3131TQRW04	T05	0.312	2	0.310	0.390	0.156 R
45B-3738T6RW04	T06	0.375	2	0.380	0.480	0.187 R
45B-5050T8RW06	T08	0.500	2	0.500	0.640	0.250 R
45B-6263TRRW07	T10	0.625	2	0.630	0.750	0.312 R

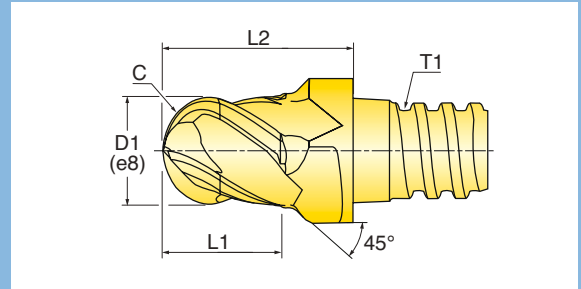
Operating guidelines on page 92.

Thread Size	HARDWARE	
	Wrench	Optional Torque Wrench
T05	WS-0043	DT-60-04
T06	WS-0029	DT-90-05
T08	WS-0030	DT-130-07
T10	WS-0044	DT-250-08

When assembling, be sure carbide tip is seated firmly on shank with no gap.

Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

SOLID CARBIDE HELICAL BALL NOSE TIP (HIGH PRECISION), SMALL DIA.



GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
IN2005	+	+	+		+	0

+ Good 0 Bad



Cutter Number	T1 Thread Size	D1 Nominal Diameter	Eff. Flutes	L1 Cutting Edge Length	L2 Extension Length	C Corner	Tolerance
47B-2520TQRB03	T05	0.250	4	0.20	0.390	0.125 R	0.0004

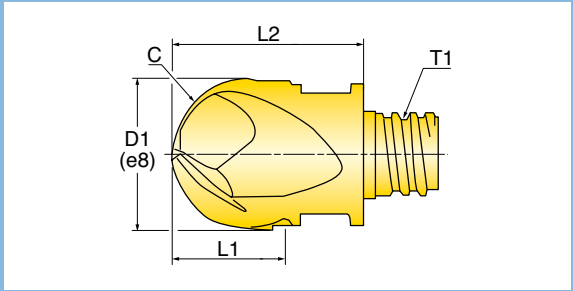
Operating guidelines on page 92.

HARDWARE		
Thread Size	Wrench	Optional Torque Wrench
T05	WS-0043	DT-60-06

When assembling, be sure carbide tip is seated firmly on shank with no gap.  
 Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

# CHIP SURFER™ SERIES 47B, 45B

SOLD CARBIDE HELICAL BALL NOSE TIP (HIGH PRECISION)



GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
IN2005	+	+	+		+	0

+ Good 0 Bad



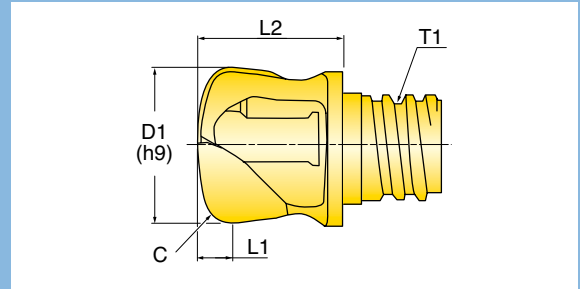
Cutter Number	T1 Thread Size	D1 Nominal Diameter	Eff. Flutes	L1 Cutting Edge Length	L2 Extension Length	C Corner	Tolerance
47B-3120QRB03	T05	0.312	4	0.20	0.390	0.156 R	0.0004
45B-3120QRB03	T05	0.312	2	0.20	0.390	0.156 R	0.0004
45B-3727T6RB05	T06	0.375	2	0.27	0.510	0.187 R	0.0004
47B-3727T6RB05	T06	0.375	4	0.27	0.510	0.187 R	0.0004
47B-3727T6RB05	T06	0.375	4	0.27	0.510	0.187 R	0.0004
47B-5037T8RB06	T08	0.500	4	0.37	0.650	0.250 R	0.0005
45B-5037T8RB06	T08	0.500	2	0.37	0.650	0.250 R	0.0005
45B-6235TRRB08	T10	0.625	2	0.35	0.800	0.312 R	0.0005
47B-6247TRRB08	T10	0.625	4	0.47	0.800	0.312 R	0.0005
45B-7550TSRB10	T12	0.750	2	0.50	1.000	0.375 R	0.0005
47B-7562TSRB10	T12	0.750	4	0.62	1.000	0.375 R	0.0005
47B-7510TSRB13	T12	0.750	4	1.00	1.380	0.375 R	0.0005
47B-1010TURB16	T15	1.000	4	1.00	1.600	0.500 R	0.0005

Operating guidelines on page 92.

Thread Size	HARDWARE	
	Wrench	Optional Torque Wrench
T05	WS-0043	DT-60-06
T06	WS-0029	DT-90-08
T08	WS-0030	DT-130-10
T10	WS-0044	DT-250-13
T12	WS-0059	DT-250-16
T15	WS-0061	-

When assembling, be sure carbide tip is seated firmly on shank with no gap.  
 Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

## SOLID CARBIDE ULTRA HIGH-FEED ROUGHING TIP (NEUTRAL GEOMETRY)



GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
IN2005	+	+	+		+	+

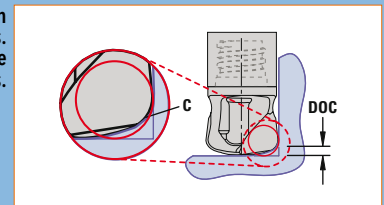
+ Good 0 Bad


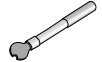


Cutter Number	T1 Thread Size	D1 Nominal Diameter	Eff. Flutes	L1 Cutting Edge Length	L2 Extension Length	C Corner
45A-3703T6RA06	T06	0.375	2	0.020	0.470	0.080 R
45A10001T6RA20	T06	0.394 (10mm)	2	0.020	0.490	0.080 R
45A12001T8RA25	T08	0.472 (12mm)	2	0.040	0.440	0.100 R
45A-5004T8RA08	T08	0.500	2	0.040	0.490	0.100 R
45A16001TRRA30	T10	0.630 (16mm)	2	0.040	0.800	0.120 R
45A-7506TSRA12	T12	0.750	2	0.060	0.700	0.120 R

Operating guidelines on page 96.

NOTE: Program as for a square bottom end mill with noted corner radius. This method will ensure and minimize remaining stock for secondary passes.



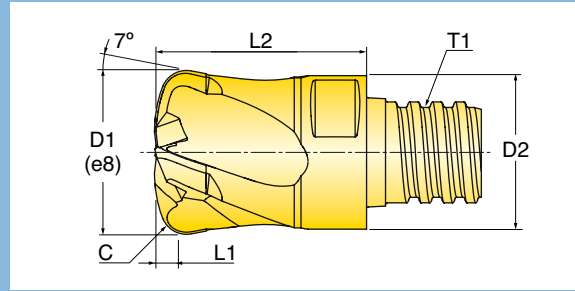
HARDWARE		
Thread Size	Wrench	Optional Torque Wrench
T06	WS-0029	DT-90-05
T08	WS-0030	DT-130-07
T10	WS-0044	DT-250-08
T12	WS-0059	-

When assembling, be sure carbide tip is seated firmly on shank with no gap.

Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

# CHIP SURFER™ SERIES 47A, 48A

SOLID CARBIDE ULTRA HIGH-FEED ROUGHING TIP (POSITIVE GEOMETRY)



GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
IN2006	+	+	+		+	+

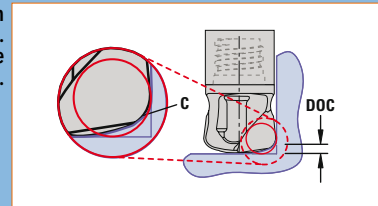
+ Good 0 Bad



Cutter Number	T1 Thread Size	D1 Nominal Diameter	Eff. Flutes	L1 Cutting Edge Length	L2 Extension Length	C Corner
47A08001TQRA16	T05	0.314 (8mm)	4	0.016	0.393	0.065 R
47A10001T6RA20	T06	0.394 (10mm)	4	0.019	0.511	0.080 R
47A-5004T8RA09	T08	0.500	4	0.023	0.649	0.100 R
47A16001TRRA32	T10	0.630 (16mm)	4	0.031	0.807	0.125 R
47A20001TSRA40	T12	0.787 (20mm)	4	0.039	1.000	0.160 R
48A-1004TURA20	T15	1.000	6	0.047	1.450	0.145 R

Operating guidelines on page 94.

NOTE: Program as for a square bottom end mill with noted corner radius. This method will ensure and minimize remaining stock for secondary passes.



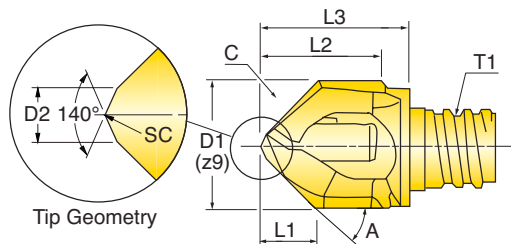
Thread Size	HARDWARE	
	Wrench	Optional Torque Wrench
T05	WS-0043	DT-60-06
T06	WS-0029	DT-90-08
T08	WS-0030	DT-130-10
T10	WS-0044	DT-250-13
T12	WS-0059	DT-250-16
T15	WS-0061	-

When assembling, be sure carbide tip is seated firmly on shank with no gap.

Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.



## SOLID CARBIDE CHAMFER AND SPOTTING TIP



GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
IN2005	+	+	+	0	+	0

+ Good 0 Bad



Cutter Number	T1 Thread Size	A Nominal Chamfer Angle	D1 Nominal Diameter	Eff. Flutes	D2	L1 Length of Cut	L2 Depth	L3 Extension Length
45N08007TQRA45	T05	45	0.315	2	0.039	0.14	0.27	0.380
45M10009T6RA30	T06	30	0.394	2	0.059	0.30	0.37	0.460
45N10009T6RA45	T06	45	0.394	2	0.059	0.18	0.35	0.500
45P10009T6RA60	T06	60	0.394	2	0.059	0.10	0.39	0.500
45N10009T6RA72	T06	72	0.394	2	0.059	0.06	0.35	0.500
45M12012T8RA30	T08	30	0.472	2	0.059	0.37	0.47	0.598
45N12012T8RA45	T08	45	0.472	2	0.059	0.22	0.47	0.610
45P12012T8RA60	T08	60	0.472	2	0.059	0.14	0.47	0.598
45M16015TRRA30	T10	30	0.630	2	0.098	0.47	0.65	0.795
45N16015TRRA45	T10	45	0.630	2	0.059	0.30	0.59	0.740
45P16015TRRA60	T10	60	0.630	2	0.059	0.17	0.61	0.783
45M20018TSRA30	T12	30	0.787	2	0.098	0.61	0.73	0.972
45N20018TSRA45	T12	45	0.787	2	0.059	0.30	0.73	0.972
45P20018TSRA60	T12	60	0.787	2	0.059	0.23	0.59	0.830

Operating guidelines on page 92.

### HARDWARE



Thread Size	Wrench	Optional Torque Wrench
T05	WS-0043	DT-60-04
T06	WS-0029	DT-90-05
T08	WS-0030	DT-130-07
T10	WS-0044	DT-250-08
T12	WS-0059	-

When assembling, be sure carbide tip is seated firmly on shank with no gap.

Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

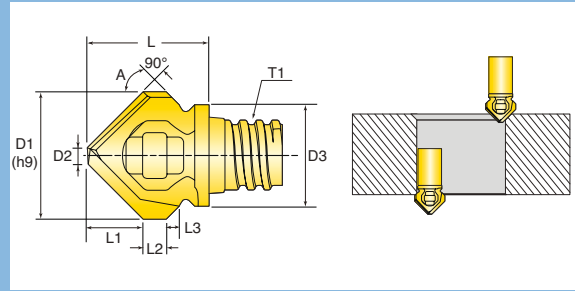
SOLID CARBIDE FRONT BACK CHAMFER TIP



Chamfer



Countersink



GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
IN2005	+	+	+	0	+	0

+ Good 0 Bad



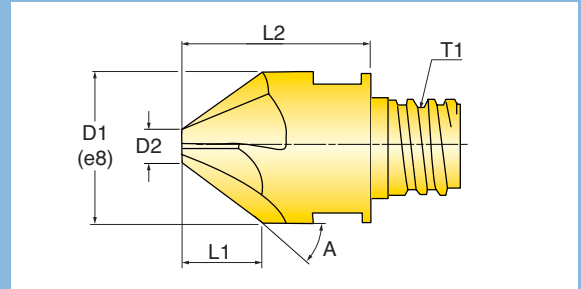
Cutter Number	T1 Thread Size	D1 Nominal Diameter	D2 Inner Diameter	D3 Neck Diameter	Eff. Flutes	L Extension Length	L1 Length of Cut	L2	L3
45N09809TQRA45	T05	0.386	0.047	0.300	2	0.425	0.169	0.098	0.035
45N11814T6RA45	T06	0.465	0.053	0.370	2	0.470	0.209	0.079	0.047
45N15722T8RA45	T08	0.618	0.059	0.453	2	0.618	0.280	0.079	0.087

Operating guidelines on page 92.

HARDWARE		
Thread Size	Wrench	Optional Torque Wrench
T05	WS-0043	DT-60-04
T06	WS-0029	DT-90-05
T08	WS-0030	DT-130-07

When assembling, be sure carbide tip is seated firmly on shank with no gap.  
 Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

SOLID CARBIDE CHAMFER TIP (NON-CENTER CUTTING)



GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
IN2005	+	+	+	0	+	0

+ Good 0 Bad



Cutter Number	T1 Thread Size	A Nominal Chamfer Angle	D1 Nominal Diameter	D2 Inner Diameter	Eff. Flutes	L1 Length of Cut	L2 Extension Length
47N-5006T8RA45	T08	45	0.500	0.078	4	0.200	0.650
48N20025TSRA45	T12	45	0.787	0.197	6	0.290	1.000

Operating guidelines on page 92.

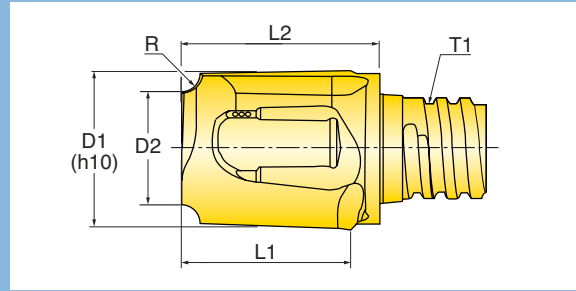
HARDWARE		
Thread Size	Wrench	Optional Torque Wrench
T08	WS-0030	DT-130-10
T12	WS-0059	DT-250-16

When assembling, be sure carbide tip is seated firmly on shank with no gap.  
 Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

## SOLID CARBIDE CORNER ROUNDING TIP



Rounding





GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
IN2005	+	+	+	0	+	0

+ Good 0 Bad



Cutter Number	T1 Thread Size	R Corner Radius	D1 Nominal Diameter	D2 Inner Diameter	Eff. Flutes	L1 Length	L2 Extension Length
45R08007TQRA10	T05	.039 (1.0 mm)	0.315	0.228	2	0.30	0.42
45R10009T6RA16	T06	.062 (1.6 mm)	0.394	0.268	2	0.37	0.49
45R10009T6RA25	T06	.098 (2.5 mm)	0.394	0.200	2	0.37	0.49
45R12012T8RA30	T08	.118 (3.0 mm)	0.472	0.256	2	0.47	0.61
45R12012T8RA40	T08	.156 (4.0 mm)	0.472	0.185	2	0.47	0.61
45R16015TRRA50	T10	.196 (5.0 mm)	0.630	0.244	2	0.59	0.75
45R20007TSRA60	T12	.236 (6.0 mm)	0.787	0.315	2	0.51	0.69

Operating guidelines on page 92.

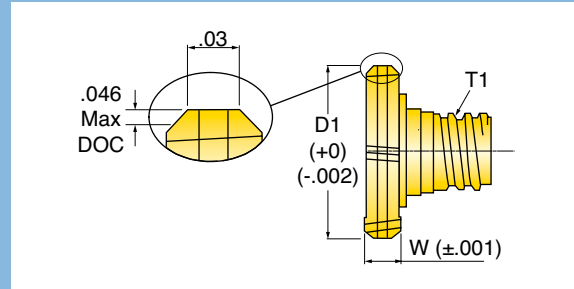
HARDWARE		
Thread Size	Wrench	Optional Torque Wrench
T05	WS-0043	DT-60-04
T06	WS-0029	DT-90-05
T08	WS-0030	DT-130-07
T10	WS-0044	DT-250-08
T12	WS-0059	-

When assembling, be sure carbide tip is seated firmly on shank with no gap.

Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

# CHIP SURFER™ SERIES 18T V-FORM

SOLID CARBIDE FRONT/BACK CHAMFER TIP (V-FORM)



GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
IN1030	+	+	+		+	0

+ Good 0 Bad



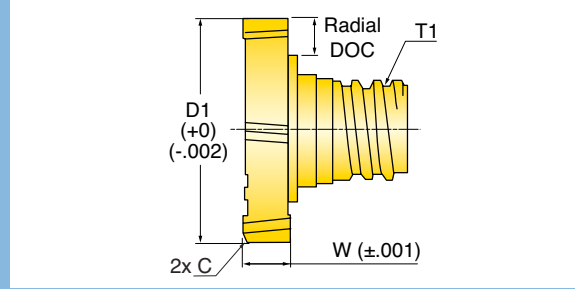
Cutter Number	T1 Thread Size	D1 Nominal Diameter	Eff. Flutes	W Width	Corner	Driver Size/Torque Value (in lbs.)
18T-6216T6RN06	T06	0.625	6	0.156	.050x45deg	T25 (90)

Operating guidelines on page 100.

HARDWARE		
Driver Size	Torx Driver	Optional Torque Bit
T25	DS-T25T	DS-T25B

When assembling, be sure carbide tip is seated firmly on shank with no gap.  
 Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

## SOLID CARBIDE PRECISION T-SLOT MILLING TIP (STAGGERED TEETH)



GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
IN1030	+	+	+		+	0
	+ Good		0 Bad			



Cutter Number	T1 Thread Size	D1 Nominal Diameter	W Width	Eff. Flutes	Max. Radial Depth of Cut	C Corner	Driver Size/Torque Value (in lbs.)
18T-5006TQRN00	T05	0.500	0.062	6	0.09	.006x45deg	T20 (60)
18T-5012TQRN00	T05	0.500	0.125	6	0.09	.015	T20 (60)
18T-6205T6RN02	T06	0.625	0.056	6	0.13	.015	T20 (90)
18T-6206T6RN01	T06	0.625	0.062	6	0.13	.015	T20 (90)
18T-6206T6RN02	T06	0.625	0.068	6	0.13	.015	T20 (90)
18T-6208T6RN01	T06	0.625	0.078	6	0.13	.015	T20 (90)
18T-6208T6RN02	T06	0.625	0.086	6	0.13	.015	T20 (90)
18T-6210T6RN01	T06	0.625	0.105	6	0.13	.015	T20 (90)
18T-6212T6RN01	T06	0.625	0.125	6	0.13	.015	T25 (90)
18T-6216T6RN01	T06	0.625	0.156	6	0.13	.015	T25 (90)
18T-7516T8RN01	T08	0.750	0.156	6	0.13	.015	T30 (130)
18T-7519T8RN01	T08	0.750	0.187	6	0.13	.015	T30 (130)
18T-7525T8RN01	T08	0.750	0.250	6	0.13	.015	T30 (130)
18T-8718T8RN01	T08	0.875	0.187	6	0.19	.015	T40 (130)
18T-8725T8RN01	T08	0.875	0.250	6	0.19	.015	T40 (130)
18T-8731T8RN01	T08	0.875	0.312	6	0.19	.015	T40 (130)
18T-10018TRRN02	T10	1.000	0.187	6	0.19	.015	T50 (250)
18T-10025TRRN02	T10	1.000	0.250	6	0.19	.015	T50 (250)
18T-10037TRRN02	T10	1.000	0.375	6	0.19	.015	T50 (250)

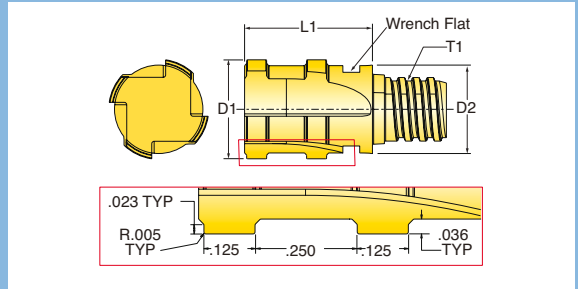
Operating guidelines on page 100.

HARDWARE		
Driver Size	Torx Driver	Optional Torque Bit
T20	DS-T20T	DS-T20B (.250" drive)
T25	DS-T25T	DS-T25B (.250" drive)
T30	DS-T30T	DS-T30B (.250" drive)
T40	DS-T40T	DS-T40B (.250" drive)
T50	DS-T50L	DS-T50B (.312" drive)

When assembling, be sure carbide tip is seated firmly on shank with no gap.  
 Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.



SOLID CARBIDE DOUBLE GROOVE MILLING TIP (FOR HEAT EXCHANGER TUBE SHEETS)



Cutter Number	T1 Adaption	D1 Nom. Dia.	D2 Neck Dia.	L1 Extension Length	Number of Flutes
47Z-6280TRRA01	T10	0.625	0.553	0.800	4

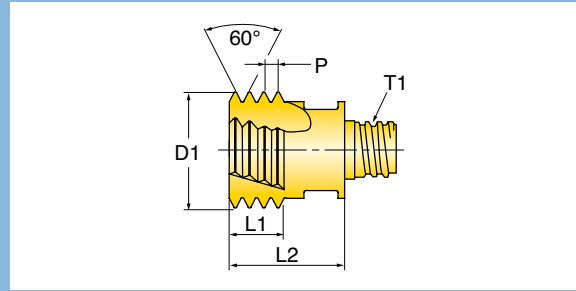
For neck clearance when reaching deeper than .80", recommend shank S062T10CA-14.  
Operating guidelines on page 92.

HARDWARE		
Thread Size	Wrench	Optional Torque Wrench
T10	WS-0044	DT-250-13

When assembling, be sure carbide tip is seated firmly on shank with no gap.  
Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

# CHIP SURFER™ SERIES 47Y\*UN, 46Y\*UN, 46Y\*IS, 47Y\*IS, 48Y\*IS

SOLID CARBIDE THREAD MILLING TIP - INTERNAL THREAD MILLS FOR UN THREADS



GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
IN2005	+	+	+		+	

+ Good 0 Bad

INCH



Cutter Number	T1 Thread Size	P Pitch (TPI)	UNC	UNF	UNEF	Eff. Flutes	D1 Nominal Diameter	L1 Length of Cut	L2 Extension Length
47Y-24UNTQRA13	T05	24	-	-	9/16 & 5/8	4	0.394	0.252	0.526
47Y-20UNTQRA13	T05	20	-	1/2	-	4	0.394	0.252	0.526
47Y-18UNTQRA13	T05	18	-	9/16 & 5/8	1-1/8 & 1-5/8	4	0.394	0.220	0.526
47Y-16UNT6RA17	T06	16	-	3/4	-	4	0.472	0.315	0.671
47Y-24UNTQRA13	T08	14	-	7/8	-	5	0.630	0.500	0.821
47Y-12UNT8RA21	T08	12	-	1 & 1-1/2	-	5	0.630	0.500	0.821
47Y-10UNT8RA21	T08	10	3/4	-	-	4	0.602	0.500	0.821
46Y-09UNT8RA21	T08	09	7/8	-	-	3	0.630	0.445	0.821

SOLID CARBIDE THREAD MILLING TIP - INTERNAL THREAD MILLS FOR ISO THREADS



METRIC

Cutter Number	T1 Thread Size	P Pitch (mm)	M Coarse	M Fine	D1 Nom. Dia.	Eff. Flutes	L1	L2
47Y075ISTQRA13	T05	0.750	-	0>=12	0.394	4	0.236	0.526
47Y100ISTQRA13	T05	1.000	-	0>=12	0.394	4	0.236	0.526
47Y150ISTQRA13	T05	1.500	-	0>=14	0.394	4	0.236	0.526
47Y150IST6RA17	T06	1.500	-	0>=16	0.472	4	0.295	0.671
48Y150IST8RA21	T08	1.500	-	0>=20	0.630	6	0.472	0.821
47Y200IST6RA17	T06	2.000	M16	0>=17	0.472	4	0.315	0.671
47Y200IST8RA21	T08	2.000	-	0>=19	0.630	5	0.472	0.821
47Y250IST8RA20	T08	2.500	M20	0>=22	0.606	5	0.492	0.821
46Y300IST8RA21	T08	3.000	M24	0>=25	0.630	3	0.472	0.821

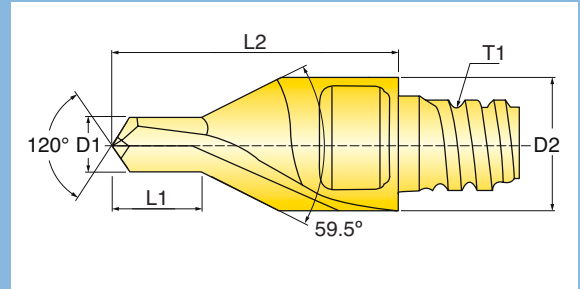
Operating guidelines on page 98.

Thread Size	HARDWARE	
	Wrench	Optional Torque Wrench
T05	WS-0043	DT-60-06
T06	WS-0029	DT-90-08
T08	WS-0030	DT-130-10

When assembling, be sure carbide tip is seated firmly on shank with no gap.

Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

SOLID CARBIDE CENTER DRILL TIP



GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
IN2005	+	+	+	0	+	

+ Good 0 Bad



Cutter Number	T1 Thread Size	Size Designation (ANSI B94)	D1 Minor Diameter	D2 Diameter	L1 Cutting Edge Length	L2 Extension Length
45Z-1221TQRA06	T05	#4	0.125	0.312	0.165	0.59
45Z-1851T8RA09	T08	#5	0.187	0.500	0.242	0.90
45Z-2152T8RA09	T08	#6	0.218	0.500	0.281	0.90
45Z-2564TRRA11	T10	#7	0.250	0.625	0.322	1.10

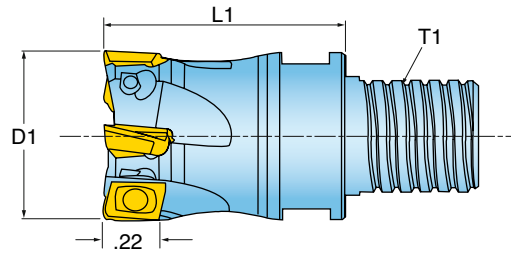
\*Diameter is larger than ANSI standard.  
Operating guidelines on page 97.

HARDWARE		
Thread Size	Wrench	Optional Torque Wrench
T05	WS-0043	DT-60-06
T08	WS-0030	DT-130-10
T10	WS-0044	DT-250-13

When assembling, be sure carbide tip is seated firmly on shank with no gap.  
Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

# HIPOPOS™ SERIES 12J1D (CHIP-SURFER STYLE)

INDEXABLE 0 DEGREE LEAD END MILL TIP



Cutter Number	T1 Thread Size	D1 Nominal Diameter	# Effective	L1 Extension Length	Ramp Angle
12J1D-03006T6R01	T06	0.375	2	0.63	9.6
12J1D-05006T8R01	T08	0.500	2	0.65	6
12J1D-05006T8R02	T08	0.500	3	0.65	6
12J1D-06008TRR01	T10	0.625	4	0.80	4
12J1D-07010TSR01	T12	0.750	5	1.00	2.6
12J1D-07010TSR02	T12	0.750	3	1.00	2.6

## HARDWARE



Thread Size

Wrench

Optional Torque Wrench

T06

WS-0029

DT-90-08

T08

WS-0030

DT-130-10

T10

WS-0044

DT-250-13

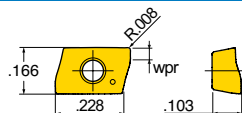
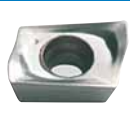
T12

WS-0059

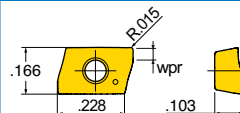
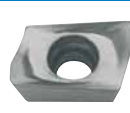
DT-250-16

## INSERTS

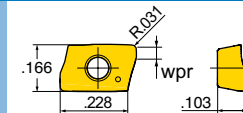
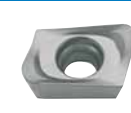
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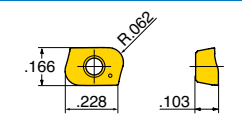
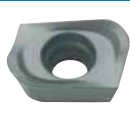
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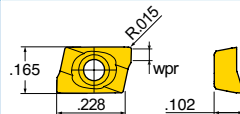
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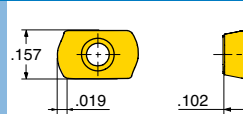
AOMT060216R



AOCT060204FR-P



UOMT0602TR



Insert Number	Application	Corner	GRADE	IN2005	IN2030	IN1030	IN055	IN2505				
AOMT060202R	Multi-Purpose	.008r		●	●	●						
AOMT060204R	Multi-Purpose	.015r		●	●							
AOMT060208R	Multi-Purpose	.031r		●	●							
AOMT060216R*	Multi-Purpose	.062r		●	●							
AOCT060204FR-P	Ground/Polished (for Alum.)	.015r					●					
UOMT0602TR	Hi Feed	.040r			●			●				

\* Cutter body should be relieved to accept .062"R insert.

● = P ● = M ● = K ● = N ● = S ○ = H

## HARDWARE



SM18-041-00

DS-TP06S (Tx Plus 06)

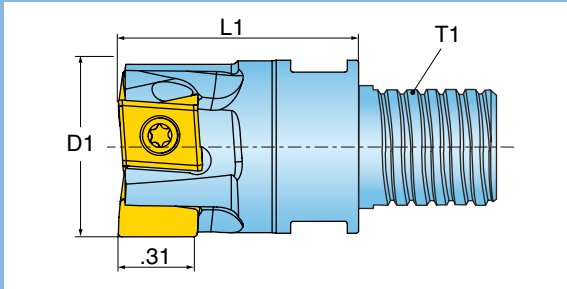
DTN005S

DS-TP06TB

When assembling, be sure carbide tip is seated firmly on shank with no gap.

Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

INDEXABLE 0 DEGREE LEAD END MILL TIP (WITH 4 INDEXES)



Cutter Number	T1 Adaption	D1 Nominal Diameter	L1 Extension Length	# Effective
1SJ1Y-07010TSR01	T12	0.750	1.00	3
1SJ1Y-10012TUR01	T15	1.000	1.25	4

**INSERTS**

DGM212R100	DGM212R101	DGM212R103

Part Number	Applications	Grade											
			IN2005	IN2015	IN2030	IN2505							
DGM212R100	Multi-Purpose - 0.015" R		●	●	●								
DGM212R101	Multi-Purpose - 0.031" R		●	●	●	●							
DGM212R103	Multi-Purpose - 0.062" R		●	●	●								

● = P   ● = M   ● = K   ● = N   ● = S   ○ = H

HARDWARE				
	Insert Screw	Driver	Wrench	Optional Torque Wrench
1SJ1Y-07010TSR01	SM30-074-21	DS-T08W	WS-0059	DT-250-16
1SJ1Y-10012TUR01	SM30-082-21	DS-T08W	WS-0061	

# PROBALL™ SERIES 1BW (CHIP-SURFER STYLE)

INDEXABLE BALL NOSE END MILL TIP



Channel

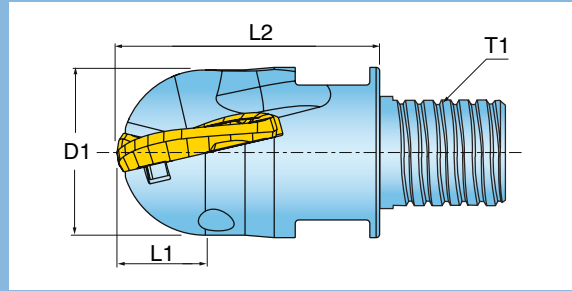
Ramping

Helical Interp.

Pocket

Contour

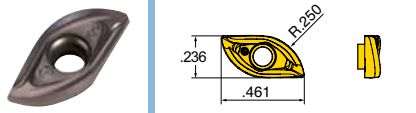
Coolant



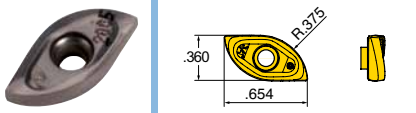
Cutter Number	T1 Adaption	D1 Nom. Dia.	L1 Extension Length	L2 Max. Depth of Cut	# Effective	Accepts Inserts
1BW7T-05007T8R01	T08	0.500	0.75	0.25	2	NKET12
1BW7V-07010TSR01	T12	0.750	1.00	0.38	2	NKET18

## INSERTS

NKET120200R



NKET180300R



Part Number	Applications	Grade								
			IN2005	IN2030						
NKET120200R	Multi-Purpose - 0.250" R									
NKET180300R	Multi-Purpose - 0.375" R									

● = P   
 ● = M   
 ● = K   
 ● = N   
 ● = S   
 ● = H

## HARDWARE



Insert Screw

Torx Driver

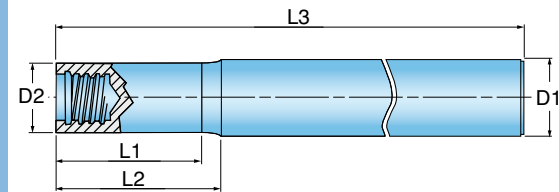
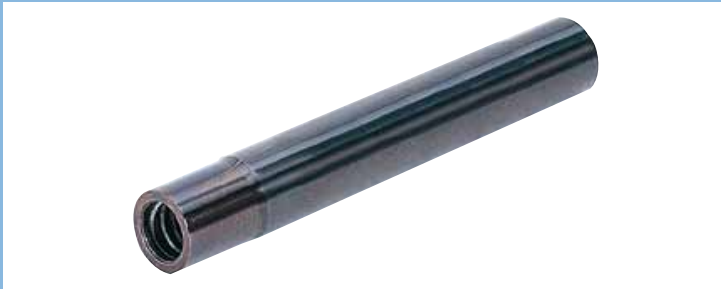
Wrench

Optional torque wrench

1BW7T-05007T8R01	SM25-052-80	DS-T06F	WS-0030	DT-130-10
1BW7V-07010TSR01	SM30-080-10	DS-T09W	WS-0059	DT-250-16



STRAIGHT SHANKS - NECKED DOWN (SIMULTANEOUS FIT "T" STYLE ADAPTION)



Part Number	T1 Thread Size	Shank Material	L1 Projection Length	L2 Extension Length	L3 Overall Length	D1 Shank Diameter	Shank Style	D2 Mating Diameter	Coolant
S031T05SA-05	T05	Steel	0.51	0.59	2.50	0.312	Cyl	0.300	No
S037T06SA-06	T06	Steel	0.50	0.60	3.00	0.375	Cyl	0.364	No
S050T08SA-06	T08	Steel	0.53	0.63	3.50	0.500	Cyl	0.480	No
S050T08SA-061*	T08	Steel	0.53	0.63	3.50	0.500	Cyl	0.455	No
S062T10SA-06	T10	Steel	0.68	0.78	4.00	0.625	Cyl	0.600	No
S075T10SA-00	T10	Steel	-	0.13	2.75	0.750	Cyl	0.750	No
WB100T12SA-00	T12	Steel	-	0.24	3.00	1.000	Weldon	0.720	No
S075T12SA-08	T12	Steel	0.88	1.00	5.00	0.750	Cyl	0.720	No
WB125T15SA-00	T15	Steel	-	0.35	4.00	1.250	Weldon	0.940	No
S100T15SA-13	T15	Steel	1.30	1.40	5.30	1.000	Cyl	0.940	No
S100T15SA-24	T15	Steel	2.40	2.50	7.00	1.000	Cyl	0.940	No
S031T05CA-09	T05	Carbide	0.92	1.00	3.00	0.312	Cyl	0.300	No
S031T05CA-19	T05	Carbide	1.92	2.00	4.00	0.312	Cyl	0.300	No
S037T06CA-12	T06	Carbide	1.18	1.25	4.00	0.375	Cyl	0.364	No
S037T06CA-20	T06	Carbide	1.93	2.00	4.75	0.375	Cyl	0.364	No
S012T08CA040	T08	Carbide	1.49	1.57	3.54	12.000	Cyl	0.455	No
S012T08CA080	T08	Carbide	3.06	3.15	5.12	12.000	Cyl	0.455	No
S050T08CA-15	T08	Carbide	1.41	1.50	4.00	0.500	Cyl	0.480	No
S050T08CA-151*	T08	Carbide	1.41	1.50	4.00	0.500	Cyl	0.455	No
S050T08CA-25	T08	Carbide	2.41	2.50	5.50	0.500	Cyl	0.480	No
S050T08CA-251*	T08	Carbide	2.41	2.50	5.50	0.500	Cyl	0.455	No
S062T10CA-14**	T10	Carbide	1.40	1.50	4.00	0.625	Cyl	0.553	No
S062T10CA-34	T10	Carbide	3.40	3.50	5.50	0.625	Cyl	0.600	No
S062T10CA-49	T10	Carbide	4.89	5.00	7.00	0.625	Cyl	0.600	No
S075T12CA-14	T12	Carbide	1.40	1.50	4.00	0.750	Cyl	0.720	No
S075T12CA-29	T12	Carbide	2.89	3.00	5.50	0.750	Cyl	0.720	No
S075T12CA-44	T12	Carbide	4.39	4.50	8.00	0.750	Cyl	0.720	No
S100T15CA-24	T15	Carbide	2.37	2.50	5.00	1.000	Cyl	0.940	No
S100T15CA-39	T15	Carbide	3.87	4.00	7.00	1.000	Cyl	0.940	No
S012T08HA040	T08	Heavy Metal	1.55	1.57	3.54	12.000	Cyl	0.455	Yes

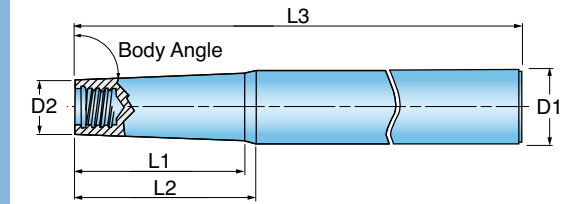
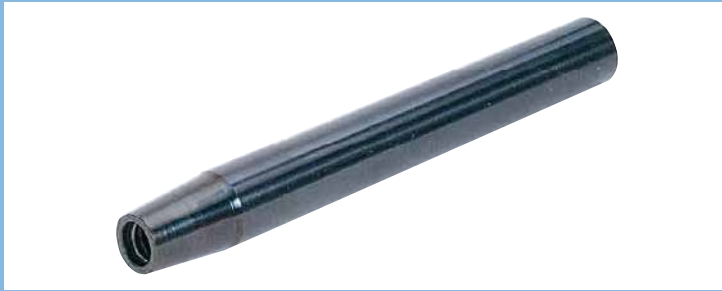
\*Necked down for 12mm diameter tips.

\*\*Necked down for Double Groove tip.

When assembling, be sure carbide tip is seated firmly on shank with no gap.

Note: DO NOT apply lubricant to the thread connection.

## CONICAL SHANKS (SIMULTANEOUS FIT "T" STYLE ADAPTION)

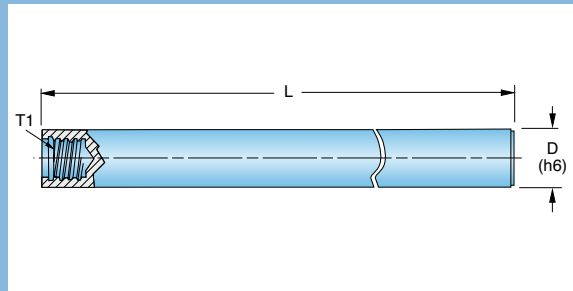


Part Number	T1 Thread Size	Shank Material	Body Angle	L1 Projection Length	L2 Extension Length	L3 Overall Length	D1 Shank Diameter	Shank Style	D2 Mating Diameter
S062T06SK-13	T06	Steel	85	1.25	1.37	5.00	0.625	Cyl	0.364
S062T06SK-21	T06	Steel	89	1.75	2.15	6.30	0.625	Cyl	0.364
S062T08SK-08	T08	Steel	85	0.75	0.85	5.50	0.625	Cyl	0.480
S075T08SK-31	T08	Steel	89	2.75	3.15	6.50	0.750	Cyl	0.480
S100T12SK-16	T12	Steel	85	-	1.60	6.30	1.000	Cyl	0.720
S100T12SK-34	T12	Steel	89	3.40	3.75	8.00	1.000	Cyl	0.720
S125T12SK-31	T12	Steel	85	-	3.15	7.50	1.250	Cyl	0.720
S125T15SK-18	T15	Steel	85	-	1.80	8.00	1.250	Cyl	0.940
S125T15SK-40	T15	Steel	89	-	4.00	10.00	1.250	Cyl	0.940
WB150T15SK-34	T15	Steel	89	-	3.40	10.00	1.500	Weldon	0.940
S037T05CK-15	T05	Carbide	89	-	1.50	3.50	0.375	Cyl	0.300
S062T05CK-39	T05	Carbide	89	3.90	4.00	6.00	0.625	Cyl	0.300
S050T06CK-25	T06	Carbide	88.5	2.41	2.50	5.50	0.500	Cyl	0.364
S062T06CK-35	T06	Carbide	88.5	3.37	3.50	6.50	0.625	Cyl	0.364
S062T08CK-35	T08	Carbide	89	3.45	3.50	6.50	0.625	Cyl	0.480
S075T08CK-40	T08	Carbide	89	3.81	4.00	7.00	0.750	Cyl	0.480
S075T10CK-40	T10	Carbide	89	-	4.00	6.50	0.750	Cyl	0.600
S075T10CK-62	T10	Carbide	89	6.24	6.30	8.80	0.750	Cyl	0.600
S100T12CK-55	T12	Carbide	89	-	5.50	10.00	1.000	Cyl	0.720
S125T15CK-50	T15	Carbide	89	-	5.00	8.00	1.250	Cyl	0.940
S125T15CK-80	T15	Carbide	89	-	8.00	12.00	1.250	Cyl	0.940

When assembling, be sure carbide tip is seated firmly on shank with no gap.  
 Note: DO NOT apply lubricant to the thread connection.



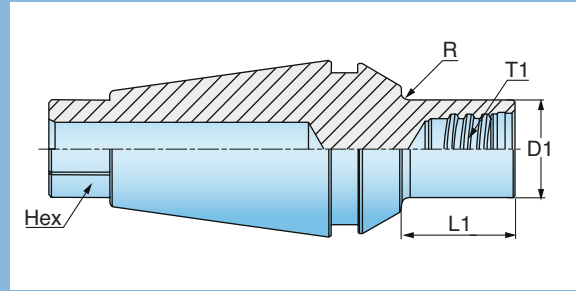
STRAIGHT SHANKS - NO NECK (SIMULTANEOUS FIT "T" STYLE ADAPTION)



Part Number	T1 Thread Size	Shank Material	D1 Shank Diameter	Shank Style	Coolant Thru	L Overall Length
S031T05SA-27	T05	Steel	0.312	Cyl	No	2.75
S037T06SA-21	T06	Steel	0.375	Cyl	No	2.13
S037T06SA-32	T06	Steel	0.375	Cyl	No	3.25
S050T08SA-37	T08	Steel	0.500	Cyl	No	3.75
S062T10SA-40	T10	Steel	0.625	Cyl	No	4.00
S031T05CA-40	T05	Carbide	0.312	Cyl	No	4.00
S031T05CA-65	T05	Carbide	0.312	Cyl	No	6.50
S037T06CA-40	T06	Carbide	0.375	Cyl	No	4.00
S037T06CA-70	T06	Carbide	0.375	Cyl	No	7.00
S050T08CA-40	T08	Carbide	0.500	Cyl	No	4.00
S050T08CA-75	T08	Carbide	0.500	Cyl	No	7.50
S062T10CA-40	T10	Carbide	0.625	Cyl	No	4.00
S062T10CA-80	T10	Carbide	0.625	Cyl	No	8.00
S075T12CA-40	T12	Carbide	0.750	Cyl	No	4.00
S075T12CA-80	T12	Carbide	0.750	Cyl	No	8.00
S031T05HA-35	T05	Heavy Metal	0.312	Cyl	Yes	3.50
S037T06HA-45	T06	Heavy Metal	0.375	Cyl	Yes	4.50
S050T08HA-55	T08	Heavy Metal	0.500	Cyl	Yes	5.50
S062T10HA-65	T10	Heavy Metal	0.625	Cyl	Yes	6.50
S075T12HA-75	T12	Heavy Metal	0.750	Cyl	Yes	7.50

When assembling, be sure carbide tip is seated firmly on shank with no gap.  
 Note: DO NOT apply lubricant to the thread connection.

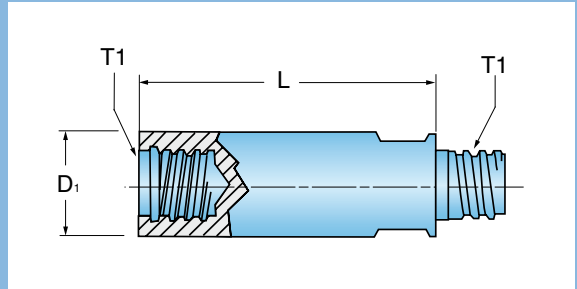
SOLID ER SHANK (SIMULTANEOUS FIT "T" STYLE ADAPTION)



Part Number	ER Size	T1 Thread Size	L1 Length	D1 Diameter	Hex	R	Coolant
ER11T05SA-02	ER11	T05	0.157	0.300	.31	-	-
ER11T05SA-05	ER11	T05	0.413	0.300	.31	-	-
ER16T05SA-02	ER16	T05	0.157	0.300	.31	.03	-
ER16T05SA-05	ER16	T05	0.413	0.300	.31	.03	-
ER16T06SA-02	ER16	T06	0.157	0.354	.31	.03	-
ER16T06SA-05	ER16	T06	0.413	0.354	.31	-	-
ER16T08SA-02	ER16	T08	0.157	0.472	.31	-	-
ER16T08SA-06	ER16	T08	0.512	0.472	.31	.03	-
ER20T05SA-02	ER20	T05	0.157	0.300	.43	.03	-
ER20T05SA-05	ER20	T05	0.413	0.300	.43	.03	-
ER20T06SA-02	ER20	T06	0.157	0.354	.43	.03	-
ER20T06SA-05	ER20	T06	0.413	0.354	.43	.03	-
ER20T08SA-02	ER20	T08	0.157	0.472	.43	.03	-
ER20T08SA-06	ER20	T08	0.512	0.472	.43	.03	-
ER20T10SA-02	ER20	T10	0.157	0.598	.43	.03	-
ER20T10SA-07	ER20	T10	0.630	0.598	.43	.03	-
ER25T05SA-02	ER25	T05	0.157	0.300	.56	.03	-
ER25T06SA-02	ER25	T06	0.157	0.354	.56	.03	-
ER25T06SA-05	ER25	T06	0.413	0.354	.56	.03	-
ER25T08SA-02	ER25	T08	0.157	0.472	.56	.03	-
ER25T08SA-05	ER25	T08	0.413	0.472	.56	.03	-
ER25T10SA-02	ER25	T10	0.157	0.598	.56	.03	-
ER25T10SA-05	ER25	T10	0.413	0.598	.56	.03	-
ER25T12SA-02	ER25	T12	0.157	0.720	.56	.03	-
ER25T12SA-05	ER25	T12	0.413	0.720	.56	.03	-
ER32T05SA-10	ER32	T05	0.984	0.300	.75	.20	Yes
ER32T05SA-20	ER32	T05	1.968	0.300	.75	.32	Yes
ER32T06SA-10	ER32	T06	0.984	0.354	.75	.20	Yes
ER32T06SA-20	ER32	T06	1.968	0.354	.75	.24	Yes
ER32T08SA-10	ER32	T08	0.984	0.472	.75	.08	Yes
ER32T08SA-20	ER32	T08	1.968	0.472	.75	.20	Yes
ER32T10SA-10	ER32	T10	0.984	0.598	.75	.08	Yes
ER32T10SA-20	ER32	T10	1.968	0.598	.75	.12	Yes
ER32T12SA-10	ER32	T12	0.984	0.720	.75	.12	Yes
ER32T12SA-20	ER32	T12	1.968	0.720	.75	.12	Yes
ER32T15SA-10	ER32	T15	0.984	0.950	.75	.03	Yes
ER32T15SA-20	ER32	T15	1.968	0.950	.75	.03	Yes

When assembling, be sure carbide tip is seated firmly on shank with no gap.  
 Note: DO NOT apply lubricant to the thread connection.

EXTENSIONS (SIMULTANEOUS FIT "T" STYLE ADAPTION)



Part Number	T1 Thread Size	L Extension Length	D1 Nominal Diameter
T05T05SA-10	T05	1.000	0.300
T06T06SA-10	T06	1.000	0.366
T08T08SA-10	T08	1.000	0.480
T10T10SA-15	T10	1.500	0.600
T12T12SA-15	T12	1.500	0.720
T15T15SA-17	T15	1.770	0.940

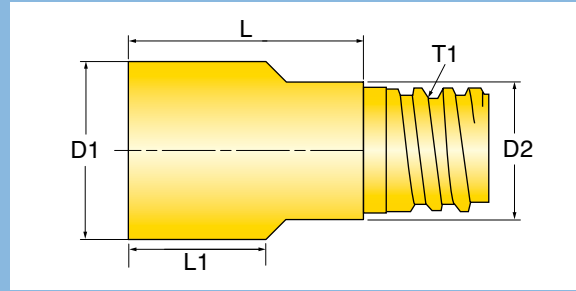
Thread Size	HARDWARE	
	Wrench	Optional Torque Wrench
T05	WS-0043	DT-60-06
T06	WS-0029	DT-90-08
T08	WS-0030	DT-130-10
T10	WS-0044	DT-250-13
T12	WS-0059	DT-250-16
T15	WS-0061	-

When assembling, be sure carbide tip is seated firmly on shank with no gap.

Note: DO NOT apply lubricant to the thread connection. Wrench not included with carbide tip or shank purchase.

# CHIP SURFER™ SERIES 4RJ BLANKS

SOLID CARBIDE CYLINDRICAL BLANKS WITH FINISH GROUND "T" ADAPTION



**GRADES**

IN04S IN05S IN06S

P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
+	+	+	+	+	+

+ Good 0 Bad

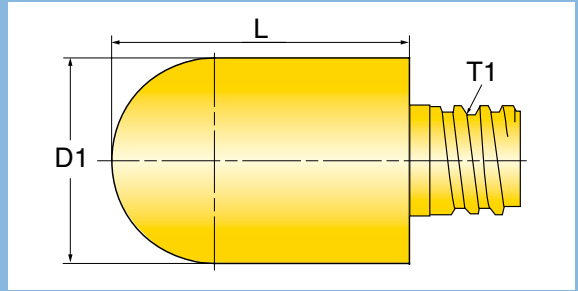


Part Number	T1 Thread Size	D1 Nominal Diameter	D2 Flange Diameter	L Extension Length	L1 Cutting Edge Length
4RJ08000TQ-S100	T05	0.315	-	0.407	-
4RJ08000TQ-S150	T05	0.315	-	0.606	-
4RJ10000TQ-S140	T05	0.394	-	0.533	-
4RJ10000T6-S140	T06	0.394	-	0.525	-
4RJ10000T6-S190	T06	0.394	-	0.766	-
4RJ12000T6-S170	T06	0.472	-	0.671	-
4RJ-5000T8-S060	T08	0.501	-	0.670	-
4RJ-5000T8-S090	T08	0.501	-	0.910	-
4RJ16000T8-S210	T08	0.630	-	0.823	-
4RJ16000TR-S210	T10	0.630	-	0.820	-
4RJ20000TR-S260	T10	0.787	-	1.025	-
4RJ20000TS-S260	T12	0.787	0.726	1.025	0.661
4RJ20000TS-S340	T12	0.787	0.726	1.360	1.000
4RJ22200TS-S290	T12	0.866	0.726	1.160	0.700
4RJ25000TS-S370	T15	0.984	-	1.480	-
4RJ-1000TU-S140	T15	1.001	-	1.475	-



# CHIP SURFER™ SERIES 4RB BLANKS

SOLID CARBIDE BALL NOSE BLANKS WITH FINISH GROUND "T"  
ADAPTION



GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
IN05S	+	+	+	+	+	+

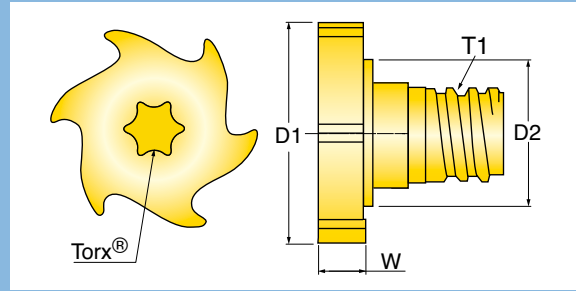
+ Good 0 Bad



Part Number	T1 Thread Size	D1 Nominal Diameter	L Extension Length
4RB08000TQ-S100	T05	0.315	0.407
4RB10000T6-S140	T06	0.394	0.525
4RB-5000T8-S060	T08	0.501	0.670
4RB16000TR-S210	T10	0.630	0.820

# CHIP SURFER™ SERIES 18T BLANKS

SOLID CARBIDE T-SLOT PREFORM BLANKS WITH FINISH GROUND "T" ADAPTION (TEETH ARE UNGROUND)



GRADES	P	M	K	N <sub>(K)</sub>	S <sub>(M)</sub>	H <sub>(PK)</sub>
IN30M	+	+	+	+	+	0

+ Good 0 Bad

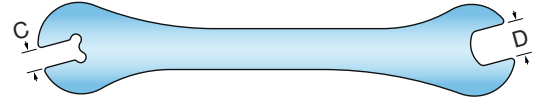


Part Number	T1 Thread Size	D1 Nominal Diameter	W Width	D2 Hub Diameter	Torx	Total Number of Teeth
18T14019TQRS000	T05	0.551	0.075	0.320	T20	6
18T14028TQRS000	T05	0.551	0.110	0.320	T20	6
18T14043TQRS000	T05	0.551	0.169	0.320	T20	6
18T16323T6RS000	T06	0.641	0.090	0.364	T20	6
18T16333T6RS000	T06	0.641	0.130	0.364	T25	6
18T16343T6RS000	T06	0.641	0.169	0.364	T25	6
18T19439T8RS000	T08	0.762	0.149	0.480	T30	6
18T19444T8RS000	T08	0.762	0.173	0.480	T30	6
18T19451T8RS000	T08	0.762	0.200	0.480	T30	6
18T19467T8RS000	T08	0.762	0.263	0.480	T30	6
18T19844T8RS000	T08	0.779	0.173	0.480	T30	6
18T19854T8RS000	T08	0.779	0.212	0.480	T30	6
18T19864T8RS000	T08	0.779	0.251	0.480	T30	6
18T23453T8RS000	T08	0.919	0.208	0.480	T40	6
18T23463T8RS000	T08	0.919	0.248	0.480	T40	6
18T23483T8RS000	T08	0.919	0.327	0.480	T40	6
18T23499T8RS000	T08	0.919	0.387	0.480	T40	6
18T25826TRRS000	T10	1.015	0.102	0.630	T50	6
18T25840TRRS000	T10	1.015	0.157	0.630	T50	6
18T25850TRRS000	T10	1.015	0.197	0.630	T50	6
18T25866TRRS000	T10	1.015	0.260	0.630	T50	6
18T25883TRRS000	T10	1.015	0.326	0.630	T50	6
18T25899TRRS000	T10	1.015	0.390	0.630	T50	6
18T28610TRRS000	T10	1.125	0.405	0.630	T40	6
18T28628TRRS000	T10	1.125	0.110	0.630	T40	6
18T28636TRRS000	T10	1.125	0.141	0.630	T40	6
18T28656TRRS000	T10	1.125	0.220	0.630	T40	6
16T35612TSRS000	T12	1.400	0.472	0.720	T50	3
16T35616TSRS000	T12	1.400	0.629	0.720	T50	3

Allow up to .015" on diameter for grind stock.

# CHIP SURFER™ WRENCH KIT

SIX DIFFERENT WRENCHES



ORDER THIS Pak Number

(QTY) Wrench P/N

Wrench Opening Sizes (mm)

KIT CHIP SURFER WRENCH

(1) WS-0043	4 and 6
(1) WS-0029	5 and 8
(1) WS-0030	7 and 10
(1) WS-0044	8 and 13
(1) WS-0059	9 and 16
(1) WS-0061	20

# CHIP SURFER™ PAK FOR SNAP RING GROOVES - 18T

CONTENTS: 4 DIFFERENT TIPS, 1 SHANK AND 1 WRENCH



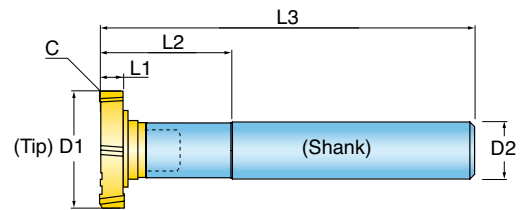
Slotting



T-Slotting



T-Slot Pak  
(6 Flutes) Multi-Purpose, PVD - TiAIN-Coated IN1030



Order This Pak Number

Shank

(Qty) T-Slot Tips

L1  
Width of Cut

D1  
Nominal Diameter

L2  
Projection Length

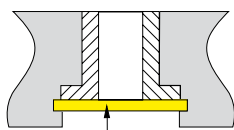
L3  
Assm Length

Corner

D2  
Shank Adaption

Wrench

S037T06KA-12-98	S037T06CA-12(Carbide)	(1) 18T-6205T6RN02	.056	.625	1.45	4.190	.015R	.375 Cyl	DS-T20T
		(1) 18T-6206T6RN02	.068						
		(1) 18T-6208T6RN02	.086						
		(1) 18T-6212T6RN01	.125						

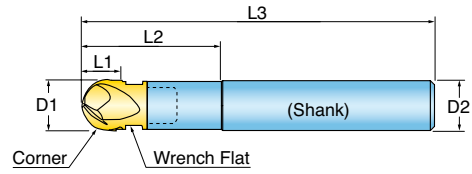


Snap Ring Groove

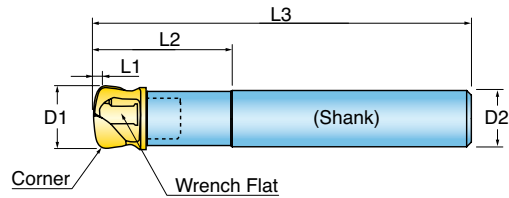


Internal Snap Ring

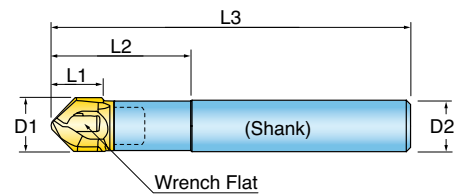
CONTENTS: 2 TIPS, 1 SHANK AND 1 WRENCH



ORDER THIS PAK NUMBER	(QTY) Ball Nose Tip	Straight Shank	D1 Ball Nose Dia.	Ball Nose Corner	D2 Shank Adaption	L1 Length of Cut	L2 Projection Length	L3 Assem. Length	Wrench
S050T08KA-06-05	(2) 47B-5037T8RB06	S050T08SA-06 (Steel)	.500	.250	.500 Cyl	.37	1.18	4.15	WS-0030
S050T08KA-25-05	(2) 47B-5037T8RB06	S050T08CA-25 (Carbide)	.500	.250	.500 Cyl	.37	3.10	6.15	WS-0030



ORDER THIS PAK NUMBER	(QTY) End Mill Tip	Straight Shank	D1 End Mill Dia.	D2 Shank Adaption	L1 Depth of Cut	L2 Projection Length	L3 Assem. Length	Wrench
S037T06KA-06-F2	(2) 45A-3703T6RA06	S037T06SA-06 (stl)	.375	.375 Cyl	.02	.98	3.48	WS-0029
S037T06KA-20-F2	(2) 45A-3703T6RA06	S037T06CA-20 (carb)	.375	.375 Cyl	.02	2.43	5.23	WS-0029
S050T08KA-06-F2	(2) 45A-5004T8RA08	S050T08SA-06 (stl)	.500	.500 Cyl	.04	1.33	4.30	WS-0030
S050T08KA-25-F2	(2) 45A-5004T8RA08	S050T08CA-25 (carb)	.500	.500 Cyl	.04	3.25	6.30	WS-0030



ORDER THIS PAK NUMBER	(QTY) Chamfer/Spotter Tip	Straight Shank	D1 End Mill Dia.	Included Angle	D2 Shank Adaption	L1 Length of Cut	L2 Projection Length	L3 Assem. Length	Wrench
S037T06KA-06-07	(2) 45N-10009T6RA45	S037T06SA-06 (Steel)	.400	90°	.375 Cylindrical	.46	.96	3.50	WS-0029