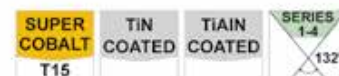


Spade Drill Inserts

Super Cobalt (T15) – TiN Coated & TiAlN Coated



- For use with high nickel alloys and materials with hardness over 29HRC
- Custom sizes available upon request



TiN COATED: Titanium Nitride reinforces the wear resistance, hardness and toughness of the tool

TiAlN COATED: Titanium Aluminum Nitride has a higher hardness than TiN which greatly increases the tool life and can withstand higher temperatures when machining cast irons and tough steels

Series Min. to Max.	Thickness	Diameter	Decimal Equivalent (Inch)	Super Cobalt (T15) TiN Coated	Super Cobalt (T15) TiAlN Coated
				Code	Code
Y 0.374" to 0.436" 9.50 mm to 11.07 mm	3/32" 2.4 mm	9.50 mm	0.3740	548345	548616
		3/8"	0.3750	548346	548617
		9.80 mm	0.3858	548347	548618
		25/64"	0.3906	548348	548619
		10 mm	0.3937	548349	548620
		10.20 mm	0.4016	548350	548621
		13/32"	0.4062	548351	548622
		10.50 mm	0.4134	548352	548623
		27/64"	0.4219	548353	548624
Z 0.437" to 0.510" 11.10 mm to 12.95 mm	3/32" 2.4 mm	10.80 mm	0.4252	548354	548625
		11 mm	0.4331	548355	548626
		7/16"	0.4375	548356	548627
		11.50 mm	0.4528	548357	548628
		29/64"	0.4531	548358	548629
		15/32"	0.4688	548359	548630
		12 mm	0.4724	548360	548631
		31/64"	0.4844	548361	548632
		12.50 mm	0.4921	548362	548633
O 0.511" to 0.695" 12.98 mm to 17.65 mm	1/8" 3.2 mm	1/2"	0.5000	548363	548634
		13 mm	0.5118	548364	548490
		33/64"	0.5156	548365	548491
		17/32"	0.5312	548366	548492
		13.50 mm	0.5315	548367	548493
		35/64"	0.5469	548382	548508
		14 mm	0.5512	548368	548494
		9/16"	0.5625	548369	548495
		14.50 mm	0.5709	548370	548496
		37/64"	0.5781	548371	548497
		15 mm	0.5906	548372	548498
		19/32"	0.5938	548373	548499
		39/64"	0.6094	548383	548509
		15.50 mm	0.6102	548374	548500
		5/8"	0.6250	548375	548501
		16 mm	0.6299	548376	548502
		41/64"	0.6406	548384	548510
		16.50 mm	0.6496	548377	548503
		21/32"	0.6562	548378	548504
		17 mm	0.6693	548379	548505
1 0.690" to 0.960" 17.53 mm to 24.38 mm <i>(continued on next page)</i>	5/32" 4.0 mm	43/64"	0.6719	548385	548511
		11/16"	0.6875	548380	548506
		17.50 mm	0.6890	548381	548507
		45/64"	0.7031	548386	548512
		18 mm	0.7087	548387	548513
		23/32"	0.7188	548388	548514
		18.50 mm	0.7283	548389	548515
		47/64"	0.7344	548390	548516
		19 mm	0.7480	548391	548517
		3/4"	0.7500	548392	548518
		49/64"	0.7656	548393	548519
		19.50 mm	0.7677	548394	548520



Spade Drill Inserts



Super Cobalt (T15) – TiN Coated & TiAlN Coated (continued)

Series Min. to Max.	Thickness	Diameter	Decimal Equivalent (Inch)	Super Cobalt (T15) TiN Coated	Super Cobalt (T15) TiAlN Coated
				Code	Code
(continued) 1 0.690" to 0.960" 17.53 mm to 24.38 mm	5/32" 4.0 mm	25/32"	0.7812	548395	548521
		20 mm	0.7874	548396	548522
		51/64"	0.7969	548408	548534
		20.50 mm	0.8071	548397	548523
		13/16"	0.8125	548398	548524
		21 mm	0.8268	548399	548525
		27/32"	0.8438	548400	548526
		55/64"	0.8594	548409	548535
		22 mm	0.8661	548401	548527
		7/8"	0.8750	548402	548528
		57/64"	0.8906	548410	548536
		23 mm	0.9055	548403	548529
		29/32"	0.9062	548404	548530
		59/64"	0.9219	548405	548531
		15/16"	0.9375	548406	548532
		24 mm	0.9449	548407	548533
2 0.961" to 1.380" 24.41 mm to 35.05 mm	3/16" 4.8 mm	31/32"	0.9688	548411	548537
		63/64"	0.9843	548412	548538
		1"	1.0000	548413	548539
		1-1/64"	1.0156	548414	548540
		26 mm	1.0236	548415	548541
		1-1/32"	1.0312	548416	548542
		1-3/64"	1.0469	548437	548563
		1-1/16"	1.0625	548417	548543
		27 mm	1.0630	548418	548544
		1-3/32"	1.0938	548419	548545
		28 mm	1.1024	548420	548546
		1-7/64"	1.1094	548438	548564
		1-1/8"	1.1250	548421	548547
		29 mm	1.1417	548422	548548
		1-5/32"	1.1562	548423	548549
		30 mm	1.1811	548424	548550
		1-3/16"	1.1875	548425	548551
		1-7/32"	1.2188	548426	548552
		31 mm	1.2205	548427	548553
		1-1/4"	1.2500	548428	548554
		32 mm	1.2598	548429	548555
		1-9/32"	1.2812	548430	548556
		33 mm	1.2992	548431	548557
		1-5/16"	1.3125	548432	548558
		34 mm	1.3386	548433	548559
		1-11/32"	1.3438	548434	548560
		1-3/8"	1.3750	548435	548561
		35 mm	1.3780	548436	548562
3 1.353" to 1.882" 34.36 mm to 47.80 mm (continued on next page)	1/4" 6.4 mm	1-13/32"	1.4062	548439	548565
		36 mm	1.4173	548440	548566
		1-7/16"	1.4375	548441	548567
		37 mm	1.4567	548442	548568
		1-15/32"	1.4688	548443	548569
		38 mm	1.4961	548444	548570
		1-1/2"	1.5000	548445	548571
		1-17/32"	1.5312	548446	548572
		39 mm	1.5354	548447	548573
		1-9/16"	1.5625	548448	548574
		40 mm	1.5748	548449	548575
		1-19/32"	1.5938	548450	548576
		41 mm	1.6142	548451	548577
		1-5/8"	1.6250	548452	548578
		42 mm	1.6535	548453	548579
		1-21/32"	1.6562	548454	548580



Spade Drill Inserts



Super Cobalt (T15) – TiN Coated & TiAlN Coated (continued)

Series Min. to Max.	Thickness	Diameter	Decimal Equivalent (Inch)	Super Cobalt (T15) TiN Coated	Super Cobalt (T15) TiAlN Coated
				Code	Code
(continued) 3 1.353" to 1.882" 34.36 mm to 47.80 mm	1/4" 6.4 mm	1-11/16"	1.6875	548455	548581
		43 mm	1.6929	548456	548582
		1-23/32"	1.7188	548457	548583
		44 mm	1.7323	548458	548584
		1-3/4"	1.7500	548459	548585
		45 mm	1.7717	548460	548586
		1-25/32"	1.7812	548461	548587
		46 mm	1.8110	548462	548588
		1-13/16"	1.8125	548463	548589
		1-27/32"	1.8438	548464	548590
		47 mm	1.8504	548465	548591
		1-7/8"	1.8750	548466	548592
4 1.850" to 2.570" 46.99 mm to 65.28 mm	5/16" 8.0 mm	1-29/32"	1.9062	548467	548593
		1-15/16"	1.9375	548468	548594
		1-31/32"	1.9688	548469	548595
		2"	2.0000	548470	548596
		2-1/32"	2.0312	548471	548597
		2-3/64"	2.0472	548472	548598
		2-1/16"	2.0625	548473	548599
		2-3/32"	2.0938	548474	548600
		2-1/8"	2.1250	548475	548601
		2-5/32"	2.1562	548476	548602
		2-3/16"	2.1875	548477	548603
		2-7/32"	2.2188	548478	548604
		2-1/4"	2.2500	548479	548605
		2-9/32"	2.2812	548480	548606
		2-5/16"	2.3125	548481	548607
		2-11/32"	2.3438	548482	548608
		2-3/8"	2.3750	548483	548609
		2-13/32"	2.4062	548484	548610
		2-7/16"	2.4375	548485	548611
		2-15/32"	2.4688	548486	548612
		2-1/2"	2.5000	548487	548613
		2-17/32"	2.5312	548488	548614
		2-9/16"	2.5625	548489	548615

High Speed Steel (M4) – TiN Coated & TiAlN Coated



- For use with steels and cast irons
- Custom sizes available upon request



TiN COATED: Titanium Nitride reinforces the wear resistance, hardness and toughness of the tool

TiAlN COATED: Titanium Aluminum Nitride has a higher hardness than TiN which greatly increases the tool life and can withstand higher temperatures when machining cast irons and tough steels

Series Min. to Max.	Thickness	Diameter	Decimal Equivalent (Inch)	HSS (M4) TiN Coated	HSS (M4) TiAlN Coated
				Code	Code
1 0.690" to 0.960" 17.53 mm to 24.38 mm (continued on next page)	5/32" 4.0 mm	45/64"	0.7031	548000	548134
		18 mm	0.7087	548001	548135
		23/32"	0.7188	548002	548136
		18.50 mm	0.7283	548003	548137
		47/64"	0.7344	548004	548138
		19 mm	0.7480	548005	548139
		3/4"	0.7500	548006	548140

Spade Drill Inserts



High Speed Steel (M4) – TiN Coated & TiAlN Coated (continued)

Series Min. to Max.	Thickness	Diameter	Decimal Equivalent (Inch)	HSS (M4) TiN Coated	HSS (M4) TiAlN Coated
				Code	Code
(continued) 1 0.690" to 0.960" 17.53 mm to 24.38 mm	5/32" 4.0 mm	49/64"	0.7656	548007	548141
		19.50 mm	0.7677	548008	548142
		25/32"	0.7812	548009	548143
		20 mm	0.7874	548010	548144
		51/64"	0.7969	548022	548156
		20.50 mm	0.8071	548011	548145
		13/16"	0.8125	548012	548146
		21 mm	0.8268	548013	548147
		27/32"	0.8438	548014	548148
		55/64"	0.8594	548023	548159
		22 mm	0.8661	548015	548149
		7/8"	0.8750	548016	548150
		57/64"	0.8906	548024	548158
		23 mm	0.9055	548017	548151
		29/32"	0.9062	548018	548152
		59/64"	0.9219	548019	548153
		15/16"	0.9375	548020	548154
		24 mm	0.9449	548021	548155
2 0.961" to 1.380" 24.41 mm to 35.05 mm	3/16" 4.8 mm	31/32"	0.9688	548025	548159
		63/64"	0.9843	548026	548160
		1"	1.0000	548027	548161
		1-1/64"	1.0156	548028	548162
		26 mm	1.0236	548029	548163
		1-1/32"	1.0312	548030	548164
		1-3/64"	1.0469	548051	548185
		1-1/16"	1.0625	548031	548165
		27 mm	1.0630	548032	548166
		1-3/32"	1.0938	548033	548167
		28 mm	1.1024	548034	548168
		1-7/64"	1.1094	548052	548186
		1-1/8"	1.1250	548035	548169
		29 mm	1.1417	548036	548170
		1-5/32"	1.1562	548037	548171
		30 mm	1.1811	548038	548172
		1-3/16"	1.1875	548039	548173
		1-7/32"	1.2188	548040	548174
		31 mm	1.2205	548041	548175
		1-1/4"	1.2500	548042	548176
		32 mm	1.2598	548043	548177
		1-9/32"	1.2812	548044	548178
		33 mm	1.2992	548045	548179
		1-5/16"	1.3125	548046	548180
		34 mm	1.3386	548047	548181
		1-11/32"	1.3438	548048	548182
		1-3/8"	1.3750	548049	548183
		35 mm	1.3780	548050	548184
3 1.353" to 1.882" 34.36 mm to 47.80 mm (continued on next page)	1/4" 6.4 mm	1-13/32"	1.4062	548053	548187
		36 mm	1.4173	548054	548188
		1-7/16"	1.4375	548055	548189
		37 mm	1.4567	548056	548190
		1-15/32"	1.4688	548057	548191
		38 mm	1.4961	548058	548192
		1-1/2"	1.5000	548059	548193
		1-17/32"	1.5312	548060	548194
		39 mm	1.5354	548061	548195
		1-9/16"	1.5625	548062	548196
		40 mm	1.5748	548063	548197
		1-19/32"	1.5938	548064	548198
		41 mm	1.6142	548065	548199
		1-5/8"	1.6250	548066	548200



Spade Drill Inserts



High Speed Steel (M4) – TiN Coated & TiAlN Coated (continued)

Series Min. to Max.	Thickness	Diameter	Decimal Equivalent (Inch)	HSS (M4) TiN Coated	HSS (M4) TiAlN Coated
				Code	Code
(continued) 3 1.353" to 1.882" 34.36 mm to 47.80 mm	1/4" 6.4 mm	42 mm	1.6535	548067	548201
		1-21/32"	1.6563	548068	548202
		1-11/16"	1.6875	548069	548203
		43 mm	1.6929	548070	548204
		1-23/32"	1.7188	548071	548205
		44 mm	1.7323	548072	548206
		1-3/4"	1.7500	548073	548207
		45 mm	1.7717	548074	548208
		1-25/32"	1.7812	548075	548209
		46 mm	1.8110	548076	548210
		1-13/16"	1.8125	548077	548211
		1-27/32"	1.8438	548078	548212
		47 mm	1.8504	548079	548213
		1-7/8"	1.8750	548080	548214
4 1.850" to 2.570" 46.99 mm to 65.28 mm	5/16" 8.0 mm	1-29/32"	1.9063	548081	548215
		1-15/16"	1.9375	548082	548216
		1-31/32"	1.9688	548083	548217
		2"	2.0000	548084	548218
		2-1/32"	2.0313	548085	548219
		2-3/64"	2.0472	548086	548220
		2-1/16"	2.0625	548087	548221
		2-3/32"	2.0938	548088	548222
		2-1/8"	2.1250	548089	548223
		2-5/32"	2.1563	548090	548224
		2-3/16"	2.1875	548091	548225
		2-7/32"	2.2188	548092	548226
		2-1/4"	2.2500	548093	548227
		2-9/32"	2.2813	548094	548228
		2-5/16"	2.3125	548095	548229
		2-11/32"	2.3438	548096	548230
		2-3/8"	2.3750	548097	548231
		2-13/32"	2.4063	548098	548232
		2-7/16"	2.4375	548099	548233
		2-15/32"	2.4688	548100	548234
		2-1/2"	2.5000	548101	548235
		2-17/32"	2.5313	548102	548236
		2-9/16"	2.5625	548103	548237
5 2.456" to 3.000" 62.38 mm to 76.20 mm	7/16" 11.1 mm	2-1/2"	2.5000	548104	TiAlN Available Upon Request
		2-5/8"	2.6250	548105	
		2-3/4"	2.7500	548106	
		2-25/32"	2.7813	548107	
		2-13/16"	2.8125	548108	
		2-27/32"	2.8438	548109	
		2-7/8"	2.8750	548110	
		2-29/32"	2.9063	548111	
		2-15/16"	2.9375	548112	
		2-31/32"	2.9688	548113	
6 3.001" to 3.507" 76.23 mm to 89.08 mm	7/16" 11.1 mm	3"	3.0000	548114	TiAlN Available Upon Request
		3-1/32"	3.0313	548115	
		3-1/16"	3.0625	548116	
		3-3/32"	3.0938	548117	
		3-1/8"	3.1250	548118	
		3-1/4"	3.2500	548119	
		3-3/8"	3.3750	548120	
7 3.455" to 4.000" 87.76 mm to 101.60 mm (continued on next page)	7/16" 11.1 mm	3-7/16"	3.4375	548121	TiAlN Available Upon Request
		3-1/2"	3.5000	548122	
		3-9/16"	3.5625	548123	
		3-5/8"	3.6250	548124	
		3-3/4"	3.7500	548125	
		3-7/8"	3.8750	548126	

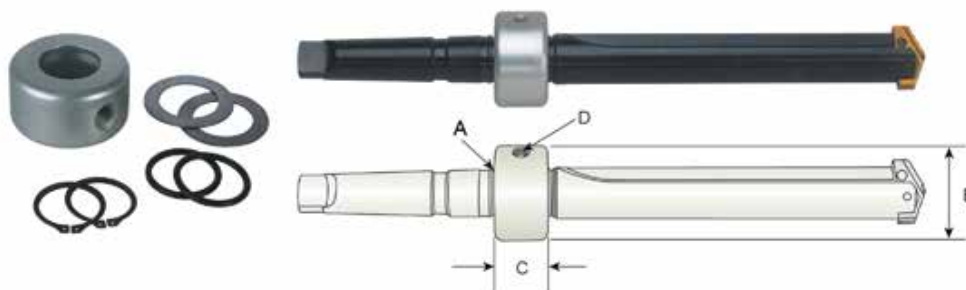
Spade Drill Inserts



High Speed Steel (M4) – TiN Coated & TiAlN Coated (continued)

Series Min. to Max.	Thickness	Diameter	Decimal Equivalent (Inch)	HSS (M4) TiN Coated	HSS (M4) TiAlN Coated
				Code	Code
(continued) 7 3.455" to 4.000", 87.76 to 101.60 mm	7/16" 11.1 mm	3-15/16"	3.9375	548127	TiAlN Available Upon Request
		4"	4.0000	548128	
8 4.001" to 4.507" 101.63 mm to 114.48 mm	7/16" 11.1 mm	4-1/16"	4.0625	548129	TiAlN Available Upon Request
		4-1/8"	4.1250	548130	
		4-1/4"	4.2500	548131	
		4-3/8"	4.3750	548132	
		4-1/2"	4.5000	548133	

Rotary Coolant Inducers (RCI) & Accessories

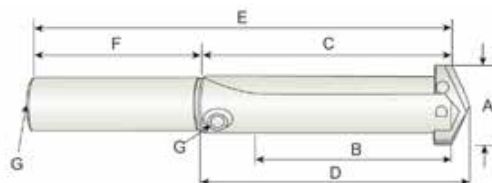


A Inside Diameter (Inch)	B Outside Diameter (Inch)	C Height (Inch)	D Coolant Hole Thread Size (NPT)	Thread for Driving Rod	Code
3/4	1-3/4	7/8	1/8	5/16-18 – NC	549625
1	2-1/8	1-1/8	1/8	5/16-18 – NC	549626
1-1/4	2-1/2	1-3/8	1/4	3/8-16 – NC	549627
1-3/4	3	1-3/8	1/4	3/8-16 – NC	549628
2-1/4	3-3/4	1-3/4	1/2	1/2-13 – NC	549629

Spade Drill Holders



Short Length – Straight Shank – Straight Flute



Series	Shank Diameter (Inch)	A Drill Insert Range (Inch)	B Maximum Drill Depth (Inch)	C Flute Length (Inch)	D Reference Length (Inch)	E Overall Length (Inch)	F Shank Length (Inch)	G Coolant Hole Thread Size (NPT)	Code
Y	3/4	3/8 – 27/64	1-1/4	2-1/32	2-1/8	4-13/32	2-3/8	1/8	549580
Z	3/4	7/16 – 1/2	1-1/4	2-1/32	2-1/8	4-13/32	2-3/8	1/8	549581
0	3/4	33/64 – 11/16	1-3/8	2-3/16	2-19/64	4-9/16	2-3/8	1/8	549564
0.5	3/4	39/64 – 11/16	1-3/8	2-3/16	2-19/64	4-9/16	2-3/8	1/8	549565
1	3/4	45/64 – 15/16	2-5/8	3-7/8	4-1/64	6-7/8	3	1/8	549566
1	1	45/64 – 15/16	2-5/8	3-7/8	4-1/64	6-7/8	3	1/8	549567
1.5	3/4	55/64 – 15/16	2-5/8	3-7/8	4-1/64	6-7/8	3	1/8	549568
1.5	1	55/64 – 15/16	2-5/8	3-7/8	4-1/64	6-7/8	3	1/8	549569
2	1	31/32 – 1-3/8	3-3/8	4-1/2	4-41/64	8	3-1/2	1/8	549570
2	1-1/4	31/32 – 1-3/8	3-3/8	4-1/2	4-41/64	8	3-1/2	1/8	549571