



2017 Master Catalog

WIDIA  TM

Superior Deep-Hole Drilling •

WIDIA™ TOP DRILL™ Deep-Hole Drills for Steel and Cast Iron

TOP DRILL Deep-Hole Drills



Solid carbide deep-hole drills outperform gun drills and HSS deep-hole drills in deep-hole applications up to 30 x D by increasing metal removal rates by 3–4 times. Increased MRR equals bottom-line savings to customers in throughput, machine time, and personnel hours.

The TDD1*Z* Series in the WU20PD™ grade offers secure and consistent performance, excellent hole quality, and reduced cycle times. The standard lines are available from 3 to .512" (13mm) and lengths of 15, 20, 25, and 30 x D. It eliminates the traditional HSS or gun drilling without pecking, at up to 100% increased penetration rates.

132° TDS Point Geometry

- Low thrust.
- Excellent centering capabilities.
- Easy to regrind.

30° Helix with Optimized Flute Profile

- Reduces risk of chip jamming and catastrophic failure.

Four-Margin Lands

- Improves hole straightness.
- Improves hole alignment when drilling through cross holes and inclined exits.

Highly Polished Surfaces

- Reduction of friction in the chip flute and on the lands, resulting in superior chip evacuation.
- Shorter drilling time through omission of reversing cycles.

WU20PD™ Grade

- Advanced TiAlN multilayer PVD coating for steel and cast iron.
- Ultra fine-grain carbide ensures process reliability at high feed rates.

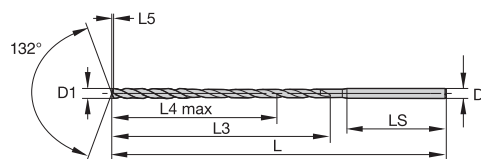
Customization

- Intermediate sizes, even up to .6299" (16mm) diameter, available as semi-standards.
- Length variations, including longer versions up to 21.65" (550mm), available as custom solutions.
- For drilling non-ferrous and uncoated materials, sharp versions are recommended and available as custom solutions.
- Excellent surface finish and concentricity.

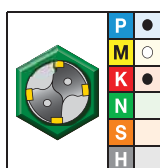


Solid Carbide Drills

Deep-Hole Drills for Steel and Cast Iron • 2 Flute • 15 x D • Z Shank



■ Deep-Hole Drills for Steel and Cast Iron • 2 Flute • WU20PD™ • 15 x D • Z Shank • Inch

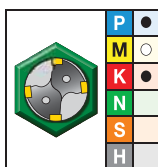


● first choice
○ alternate choice

		D1 diameter										pilot drill
order #	catalog #	mm	in	fraction	wire size	D	L3	L4 max	L5	LS	L	
3899626	TDD105Z03000	3,000	.1181	—	—	.1181	2.07	1.77	.02	1.18	3.39	TDS501A03000
3899627	TDD105Z03175	3,175	.1250	1/8	—	.1575	2.64	2.30	.03	1.26	4.13	TDS501A03175
3899628	TDD105Z03500	3,500	.1378	—	—	.1575	2.68	2.32	.03	1.26	4.13	TDS501A03500
3899629	TDD105Z03571	3,571	.1406	9/64	—	.1575	2.68	2.32	.03	1.26	4.13	TDS501A03571
3899630	TDD105Z03800	3,800	.1496	—	—	.1575	2.72	2.35	.03	1.26	4.13	TDS501A03800
3899631	TDD105Z03970	3,970	.1563	5/32	—	.1575	2.74	2.36	.03	1.26	4.13	TDS501A03970
3899632	TDD105Z04000	4,000	.1575	—	—	.1575	2.74	2.36	.03	1.26	4.13	TDS501A04000
3899683	TDD105Z04039	4,039	.1590	—	21	.1969	3.30	2.88	.03	1.34	4.88	TDS501A04039
3899684	TDD105Z04300	4,300	.1693	—	—	.1969	3.33	2.90	.03	1.34	4.88	TDS501A04300
3899685	TDD105Z04500	4,500	.1772	—	—	.1969	3.35	2.91	.04	1.34	4.88	TDS501A04500
3899686	TDD105Z04623	4,623	.1820	—	14	.1969	3.37	2.92	.04	1.34	4.88	TDS501A04623
3899687	TDD105Z04763	4,763	.1875	3/16	—	.1969	3.39	2.93	.04	1.34	4.88	TDS501A04763
3899688	TDD105Z05000	5,000	.1969	—	—	.1969	3.41	2.95	.04	1.34	4.88	TDS501A05000
3899689	TDD105Z05159	5,159	.2031	13/64	—	.2362	4.00	3.48	.04	1.42	5.63	TDS501A05160
3899690	TDD105Z05410	5,410	.2130	—	3	.2362	4.02	3.50	.04	1.42	5.63	TDS501A05410
3899691	TDD105Z05500	5,500	.2165	—	—	.2362	4.02	3.50	.04	1.42	5.63	TDS501A05500
3899692	TDD105Z05558	5,558	.2188	7/32	—	.2362	4.03	3.51	.05	1.42	5.63	TDS501A05558
3899693	TDD105Z05800	5,800	.2283	—	—	.2362	4.06	3.53	.05	1.42	5.63	TDS501A05800
3899694	TDD105Z06000	6,000	.2362	—	—	.2362	4.08	3.54	.05	1.42	5.63	TDS501A06000
3899695	TDD105Z06200	6,200	.2441	—	—	.2756	4.66	4.07	.05	1.50	6.38	TDS501A06200
3899696	TDD105Z06350	6,350	.2500	1/4	E	.2756	4.68	4.08	.05	1.50	6.38	TDS501A06350
3899697	TDD105Z06500	6,500	.2559	—	—	.2756	4.70	4.09	.05	1.50	6.38	TDS501A06500
3899698	TDD105Z06528	6,528	.2570	—	F	.2756	4.70	4.10	.05	1.50	6.38	TDS501A06528
3899699	TDD105Z06746	6,746	.2656	17/64	—	.2756	4.72	4.11	.06	1.50	6.38	TDS501A06746

(continued)

(Deep-Hole Drills for Steel and Cast Iron • 2 Flute • WU20PD™ • 15 x D • Z Shank • Inch — continued)



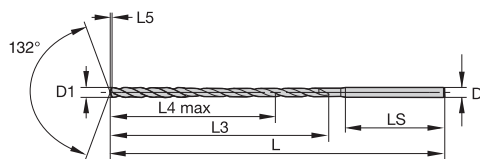
● first choice

○ alternate choice

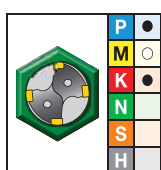
		D1 diameter										pilot drill
grade WU20PD TiAlN												
order #	catalog #	mm	in	fraction	wire size	D	L3	L4 max	L5	LS	L	
3899700	TDD105Z06800	6,800	.2677	—	—	.2756	4.73	4.12	.06	1.50	6.38	TDS501A06800
3899701	TDD105Z06909	6,909	.2720	—	I	.2756	4.74	4.13	.06	1.50	6.38	TDS501A06909
3899702	TDD105Z07000	7,000	.2756	—	—	.2756	4.76	4.13	.06	1.50	6.38	TDS501A07000
3900612	TDD105Z07145	7,145	.2813	9/32	—	.3150	5.32	4.66	.06	1.57	7.13	TDS501A07145
3900633	TDD105Z07500	7,500	.2953	—	—	.3150	5.37	4.69	.06	1.57	7.13	TDS501A07500
3899764	TDD106Z07500	7,500	.2953	—	—	.3150	6.84	6.16	.06	1.57	8.70	TDS501A07500
3900634	TDD105Z07541	7,541	.2969	19/64	—	.3150	5.37	4.69	.06	1.57	7.13	TDS501A07541
3900635	TDD105Z07938	7,938	.3125	5/16	—	.3150	5.42	4.72	.07	1.57	7.13	TDS501A07938
3900636	TDD105Z08000	8,000	.3150	—	—	.3150	5.43	4.72	.07	1.57	7.13	TDS501A08000
3900637	TDD105Z08334	8,334	.3281	21/64	—	.3543	6.02	5.26	.07	1.65	7.87	TDS501A08334
3900638	TDD105Z08433	8,433	.3320	—	Q	.3543	6.03	5.27	.07	1.65	7.87	TDS501A08433
3900639	TDD105Z08500	8,500	.3346	—	—	.3543	6.04	5.28	.07	1.65	7.87	TDS501A08500
3900640	TDD105Z08733	8,733	.3438	11/32	—	.3543	6.06	5.29	.07	1.65	7.87	TDS501A08733
3900641	TDD105Z09000	9,000	.3543	—	—	.3543	6.09	5.32	.07	1.65	7.87	TDS501A09000
3900642	TDD105Z09347	9,347	.3680	—	U	.3937	6.69	5.85	.08	1.73	8.62	TDS501A09347
3900643	TDD105Z09500	9,500	.3740	—	—	.3937	6.70	5.87	.08	1.73	8.62	TDS501A09500
3900644	TDD105Z09525	9,525	.3750	3/8	—	.3937	6.71	5.87	.08	1.73	8.62	TDS501A09525
3900645	TDD105Z09750	9,750	.3839	—	—	.3937	6.73	5.89	.08	1.73	8.62	TDS501A09750
3900647	TDD105Z10000	10,000	.3937	—	—	.3937	6.76	5.91	.08	1.73	8.62	TDS501A10000
3900648	TDD105Z10200	10,200	.4016	—	—	.4331	7.34	6.43	.08	1.81	9.37	TDS501A10200
3900649	TDD105Z10320	10,317	.4062	13/32	—	.4331	7.35	6.44	.09	1.81	9.37	TDS501A10317
3900650	TDD105Z10500	10,500	.4134	—	—	.4331	7.37	6.46	.09	1.81	9.37	TDS501A10500
3900651	TDD105Z10716	10,716	.4219	27/64	—	.4331	7.40	6.47	.09	1.81	9.37	TDS501A10716
3900652	TDD105Z11000	11,000	.4331	—	—	.4331	7.98	7.01	.09	1.81	9.37	TDS501A11000
3900653	TDD105Z11113	11,113	.4375	7/16	—	.4724	8.00	7.02	.09	1.89	10.12	TDS501A11113
3900654	TDD105Z11500	11,500	.4528	—	—	.4724	8.04	7.05	.10	1.89	10.12	TDS501A11500
3900656	TDD105Z12000	12,000	.4724	—	—	.4724	8.10	7.09	.10	1.89	10.12	TDS501A12000
3900657	TDD105Z12304	12,304	.4844	31/64	—	.5118	8.69	7.62	.10	1.97	10.87	TDS501A12304
3900658	TDD105Z12500	12,500	.4921	—	—	.5118	8.71	7.64	.10	1.97	10.87	TDS501A12500
3900659	TDD105Z12700	12,700	.5000	1/2	—	.5118	8.73	7.65	.11	1.97	10.87	TDS501A12700
3900660	TDD105Z13000	13,000	.5118	—	—	.5118	8.77	7.68	.11	1.97	10.87	TDS501A13000

Solid Carbide Drills

Deep-Hole Drills with Through Coolant • Steel and Cast Iron • 20 x D



■ Deep-Hole Drills for Steel and Cast Iron • 2 Flute • WU20PD™ • 20 x D • Z Shank • Inch

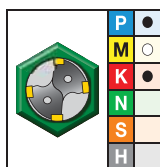


● first choice
○ alternate choice

		D1 diameter										pilot drill
order #	catalog #	mm	in	fraction	wire size	D	L3	L4 max	L5	LS	L	
3899782	TDD106Z03000	3,000	.1181	—	—	.1181	2.66	2.36	.02	1.18	3.98	TDS501A03000
3899803	TDD106Z03175	3,175	.1250	1/8	—	.1575	3.27	2.92	.03	1.26	4.92	TDS501A03175
3899804	TDD106Z03500	3,500	.1378	—	—	.1575	3.37	3.01	.03	1.26	4.92	TDS501A03500
3899805	TDD106Z03571	3,571	.1406	9/64	—	.1575	3.39	3.03	.03	1.26	4.92	TDS501A03571
3899806	TDD106Z03800	3,800	.1496	—	—	.1575	3.46	3.09	.03	1.26	4.92	TDS501A03800
3899807	TDD106Z03970	3,970	.1563	5/32	—	.1575	3.52	3.14	.03	1.26	4.92	TDS501A03970
3899808	TDD106Z04000	4,000	.1575	—	—	.1575	3.53	3.15	.03	1.26	4.92	TDS501A04000
3899809	TDD106Z04039	4,039	.1590	—	21	.1969	4.09	3.67	.03	1.34	5.87	TDS501A04039
3899810	TDD106Z04300	4,300	.1693	—	—	.1969	4.18	3.74	.03	1.34	5.87	TDS501A04300
3899811	TDD106Z04500	4,500	.1772	—	—	.1969	4.24	3.80	.04	1.34	5.87	TDS501A04500
3899812	TDD106Z04623	4,623	.1820	—	14	.1969	4.28	3.83	.04	1.34	5.87	TDS501A04623
3899813	TDD106Z04763	4,763	.1875	3/16	—	.1969	4.32	3.87	.04	1.34	5.87	TDS501A04763
3899814	TDD106Z05000	5,000	.1969	—	—	.1969	4.40	3.94	.04	1.34	5.87	TDS501A05000
3899815	TDD106Z05159	5,159	.2031	13/64	—	.2362	5.03	4.49	.04	1.42	6.81	TDS501A05160
3899816	TDD106Z05410	5,410	.2130	—	3	.2362	5.08	4.56	.04	1.42	6.81	TDS501A05410
3899818	TDD106Z05500	5,500	.2165	—	—	.2362	5.11	4.59	.04	1.42	6.81	TDS501A05500
3899819	TDD106Z05558	5,558	.2188	7/32	—	.2362	5.13	4.60	.05	1.42	6.81	TDS501A05558
3899820	TDD106Z05800	5,800	.2283	—	—	.2362	5.20	4.67	.05	1.42	6.81	TDS501A05800
3899821	TDD106Z06000	6,000	.2362	—	—	.2362	5.26	4.72	.05	1.42	6.81	TDS501A06000
3899822	TDD106Z06200	6,200	.2441	—	—	.2756	5.88	5.29	.05	1.50	7.76	TDS501A06200
3899823	TDD106Z06350	6,350	.2500	1/4	E	.2756	5.93	5.33	.05	1.50	7.76	TDS501A06350
3899824	TDD106Z06500	6,500	.2559	—	—	.2756	5.98	5.37	.05	1.50	7.76	TDS501A06500
3899825	TDD106Z06528	6,528	.2570	—	F	.2756	5.98	5.38	.05	1.50	7.76	TDS501A06528
3899826	TDD106Z06746	6,746	.2656	17/64	—	.2756	6.05	5.44	.06	1.50	7.76	TDS501A06746

(continued)

(Deep-Hole Drills for Steel and Cast Iron • 2 Flute • WU20PD™ • 20 x D • Z Shank • Inch — continued)

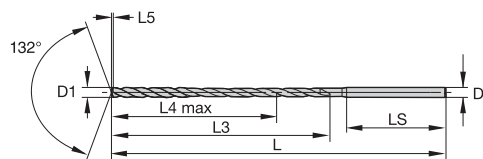


● first choice
○ alternate choice

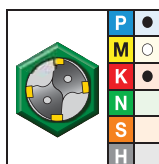
grade WU20PD TiAlN		D1 diameter										pilot drill
order #	catalog #	mm	in	fraction	wire size	D	L3	L4 max	L5	LS	L	
3899827	TDD106Z06800	6,800	.2677	—	—	.2756	6.07	5.46	.06	1.50	7.76	TDS501A06800
3899828	TDD106Z06909	6,909	.2720	—	I	.2756	6.10	5.49	.06	1.50	7.76	TDS501A06909
3899829	TDD106Z07000	7,000	.2756	—	—	.2756	6.13	5.51	.06	1.50	7.76	TDS501A07000
3899763	TDD106Z07145	7,145	.2813	9/32	—	.3150	6.73	6.06	.06	1.57	8.70	TDS501A07145
3899765	TDD106Z07541	7,541	.2969	19/64	—	.3150	6.85	6.17	.06	1.57	8.70	TDS501A07541
3899766	TDD106Z07938	7,938	.3125	5/16	—	.3150	6.98	6.28	.07	1.57	8.70	TDS501A07938
3899767	TDD106Z08000	8,000	.3150	—	—	.3150	7.00	6.30	.07	1.57	8.70	TDS501A08000
3899768	TDD106Z08334	8,334	.3281	21/64	—	.3543	7.66	6.90	.07	1.65	9.65	TDS501A08334
3899769	TDD106Z08433	8,433	.3320	—	Q	.3543	7.69	6.93	.07	1.65	9.65	TDS501A08433
3899770	TDD106Z08500	8,500	.3346	—	—	.3543	7.71	6.95	.07	1.65	9.65	TDS501A08500
3899771	TDD106Z08733	8,733	.3438	11/32	—	.3543	7.78	7.01	.07	1.65	9.65	TDS501A08733
3899772	TDD106Z09000	9,000	.3543	—	—	.3543	7.87	7.09	.07	1.65	9.65	TDS501A09000
3899783	TDD106Z09347	9,347	.3680	—	U	.3937	8.53	7.69	.08	1.73	10.59	TDS501A09347
3899784	TDD106Z09500	9,500	.3740	—	—	.3937	8.57	7.74	.08	1.73	10.59	TDS501A09500
3899785	TDD106Z09525	9,525	.3750	3/8	—	.3937	8.58	7.74	.08	1.73	10.59	TDS501A09525
3899786	TDD106Z09750	9,750	.3839	—	—	.3937	8.65	7.81	.08	1.73	10.59	TDS501A09750
3899787	TDD106Z09921	9,921	.3906	25/64	—	.3937	8.71	7.85	.08	1.73	10.59	TDS501A09921
3899788	TDD106Z10000	10,000	.3937	—	—	.3937	8.73	7.87	.08	1.73	10.59	TDS501A10000
3899789	TDD106Z10200	10,200	.4016	—	—	.4331	9.35	8.44	.08	1.81	11.54	TDS501A10200
3899790	TDD106Z10320	10,317	.4062	13/32	—	.4331	9.38	8.47	.09	1.81	11.54	TDS501A10317
3899791	TDD106Z10500	10,500	.4134	—	—	.4331	9.44	8.52	.09	1.81	11.54	TDS501A10500
3899792	TDD106Z10716	10,716	.4219	27/64	—	.4331	9.51	8.58	.09	1.81	11.54	TDS501A10716
3899793	TDD106Z11000	11,000	.4331	—	—	.4331	10.15	9.17	.09	1.81	12.48	TDS501A11000
3899794	TDD106Z11113	11,113	.4375	7/16	—	.4724	10.19	9.20	.09	1.89	12.48	TDS501A11113
3899795	TDD106Z11500	11,500	.4528	—	—	.4724	10.31	9.31	.10	1.89	12.48	TDS501A11500
3899797	TDD106Z12000	12,000	.4724	—	—	.4724	10.46	9.45	.10	1.89	12.48	TDS501A12000
3899799	TDD106Z12500	12,500	.4921	—	—	.5118	11.17	10.10	.10	1.97	13.43	TDS501A12500
3899800	TDD106Z12700	12,700	.5000	1/2	—	.5118	11.23	10.15	.11	1.97	13.43	TDS501A12700
3899801	TDD106Z13000	13,000	.5118	—	—	.5118	11.33	10.24	.11	1.97	13.43	TDS501A13000

Solid Carbide Drills

Deep-Hole Drills with Through Coolant • Steel and Cast Iron • 25 x D



■ Deep-Hole Drills for Steel and Cast Iron • 2 Flute • WU20PD™ • 25 x D • Z Shank • Inch



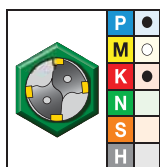
● first choice
○ alternate choice

grade WU20PD TiAlN		D1 diameter										pilot drill
order #	catalog #	mm	in	fraction	wire size	D	L3	L4 max	L5	LS	L	
3899708	TDD107Z03000	3,000	.1181	—	—	.1181	3.25	2.95	.02	1.18	4.57	TDS501A03000
3899709	TDD107Z03175	3,175	.1250	1/8	—	.1575	3.89	3.55	.03	1.26	5.71	TDS501A03175
3899710	TDD107Z03500	3,500	.1378	—	—	.1575	4.06	3.70	.03	1.26	5.71	TDS501A03500
3899712	TDD107Z03800	3,800	.1496	—	—	.1575	4.21	3.84	.03	1.26	5.71	TDS501A03800
3899733	TDD107Z03970	3,970	.1563	5/32	—	.1575	4.30	3.92	.03	1.26	5.71	TDS501A03970
3899734	TDD107Z04000	4,000	.1575	—	—	.1575	4.32	3.94	.03	1.26	5.71	TDS501A04000
3899735	TDD107Z04039	4,039	.1590	—	21	.1969	4.89	4.47	.03	1.34	6.85	TDS501A04039
3899737	TDD107Z04500	4,500	.1772	—	—	.1969	5.13	4.69	.04	1.34	6.85	TDS501A04500
3899739	TDD107Z04763	4,763	.1875	3/16	—	.1969	5.26	4.81	.04	1.34	6.85	TDS501A04763
3899740	TDD107Z05000	5,000	.1969	—	—	.1969	5.38	4.92	.04	1.34	6.85	TDS501A05000
3899743	TDD107Z05500	5,500	.2165	—	—	.2362	6.19	5.67	.04	1.42	7.99	TDS501A05500
3899744	TDD107Z05558	5,558	.2188	7/32	—	.2362	6.22	5.70	.05	1.42	7.99	TDS501A05558
3899745	TDD107Z05800	5,800	.2283	—	—	.2362	6.34	5.81	.05	1.42	7.99	TDS501A05800
3899746	TDD107Z06000	6,000	.2362	—	—	.2362	6.44	5.91	.05	1.42	7.99	TDS501A06000
3899748	TDD107Z06350	6,350	.2500	1/4	E	.2756	7.18	6.58	.05	1.50	9.13	TDS501A06350
3899749	TDD107Z06500	6,500	.2559	—	—	.2756	7.26	6.65	.05	1.50	9.13	TDS501A06500
3899750	TDD107Z06528	6,528	.2570	—	—	.2756	7.27	6.67	.05	1.50	9.13	TDS501A06528
3899751	TDD107Z06746	6,746	.2656	17/64	—	.2756	7.38	6.77	.06	1.50	9.13	TDS501A06746
3899753	TDD107Z06909	6,909	.2720	—	—	.2756	7.46	6.85	.06	1.50	9.13	TDS501A06909
3899754	TDD107Z07000	7,000	.2756	—	—	.2756	7.51	6.89	.06	1.50	9.13	TDS501A07000
3899567	TDD107Z07541	7,541	.2969	19/64	—	.3150	8.34	7.66	.06	1.57	10.28	TDS501A07541
3899568	TDD107Z07938	7,938	.3125	5/16	—	.3150	8.54	7.84	.07	1.57	10.28	TDS501A07938
3899569	TDD107Z08000	8,000	.3150	—	—	.3150	8.57	7.87	.07	1.57	10.28	TDS501A08000
3899571	TDD107Z08433	8,433	.3320	—	Q	.3543	9.35	8.59	.07	1.65	11.42	TDS501A08433

(continued)

Solid Carbide Drills

(Deep-Hole Drills for Steel and Cast Iron • 2 Flute • WU20PD™ • 25 x D • Z Shank • Inch — continued)

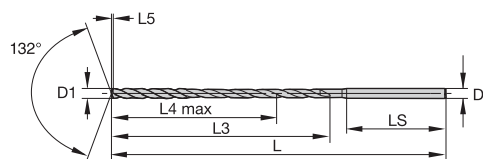


● first choice
○ alternate choice

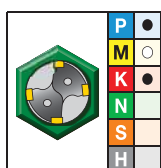
grade WU20PD TiAlN		D1 diameter										pilot drill
order #	catalog #	mm	in	fraction	wire size	D	L3	L4 max	L5	LS	L	
3899572	TDD107Z08500	8,500	.3346	—	—	.3543	9.38	8.62	.07	1.65	11.42	TDS501A08500
3899603	TDD107Z08733	8,733	.3438	11/32	—	.3543	9.50	8.73	.07	1.65	11.42	TDS501A08733
3899604	TDD107Z09000	9,000	.3543	—	—	.3543	9.64	8.86	.07	1.65	11.42	TDS501A09000
3899605	TDD107Z09347	9,347	.3680	—	U	.3937	10.37	9.53	.08	1.73	12.56	TDS501A09347
3899606	TDD107Z09500	9,500	.3740	—	—	.3937	10.44	9.61	.08	1.73	12.56	TDS501A09500
3899607	TDD107Z09525	9,525	.3750	3/8	—	.3937	10.46	9.62	.08	1.73	12.56	TDS501A09525
3899610	TDD107Z10000	10,000	.3937	—	—	.3937	10.70	9.84	.08	1.73	12.56	TDS501A10000
3899611	TDD107Z10300	10,200	.4016	—	—	.4331	11.35	10.45	.08	1.81	13.70	TDS501A10300
3899612	TDD107Z10320	10,317	.4062	13/32	—	.4331	11.41	10.50	.09	1.81	13.70	TDS501A10317
3899613	TDD107Z10500	10,500	.4134	—	—	.4331	11.51	10.59	.09	1.81	13.70	TDS501A10500
3899614	TDD107Z10716	10,716	.4219	27/64	—	.4331	11.62	10.69	.09	1.81	13.70	TDS501A10716
3899615	TDD107Z11000	11,000	.4331	—	—	.4331	12.32	11.34	.09	1.81	14.84	TDS501A11000
3899616	TDD107Z11113	11,113	.4375	7/16	—	.4724	12.37	11.39	.09	1.89	14.84	TDS501A11113
3899617	TDD107Z11500	11,500	.4528	—	—	.4724	12.57	11.57	.10	1.89	14.84	TDS501A11500
3899619	TDD107Z12000	12,000	.4724	—	—	.4724	12.83	11.81	.10	1.89	14.84	TDS501A12000
3899621	TDD107Z12500	12,500	.4921	—	—	.5118	13.63	12.56	.10	1.97	15.98	TDS501A12500
3899622	TDD107Z12700	12,700	.5000	1/2	—	.5118	13.73	12.65	.11	1.97	15.98	TDS501A12700
3899623	TDD107Z13000	13,000	.5118	—	—	.5118	13.89	12.80	.11	1.97	15.98	TDS501A13000

Solid Carbide Drills

Deep-Hole Drills with Through Coolant • Steel and Cast Iron • 30 x D



■ Deep-Hole Drills for Steel and Cast Iron • 2 Flute • WU20PD™ • 30 x D • Z Shank • Inch

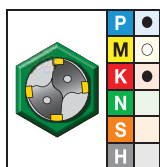


● first choice
○ alternate choice

		D1 diameter										pilot drill
order #	catalog #	mm	in	fraction	wire size	D	L3	L4 max	L5	LS	L	
3899539	TDD108Z03000	3,000	.1181	—	—	.1181	3.84	3.54	.02	1.18	5.16	TDS501A03000
3899540	TDD108Z03175	3,175	.1250	1/8	—	.1575	4.52	4.17	.03	1.26	6.50	TDS501A03175
3899541	TDD108Z03500	3,500	.1378	—	—	.1575	4.75	4.39	.03	1.26	6.50	TDS501A03500
3899542	TDD108Z03571	3,571	.1406	9/64	—	.1575	4.80	4.44	.03	1.26	6.50	TDS501A03571
3899573	TDD108Z03800	3,800	.1496	—	—	.1575	4.96	4.59	.03	1.26	6.50	TDS501A03800
3899574	TDD108Z03970	3,970	.1563	5/32	—	.1575	5.08	4.70	.03	1.26	6.50	TDS501A03970
3899575	TDD108Z04000	4,000	.1575	—	—	.1575	5.10	4.72	.03	1.26	6.50	TDS501A04000
3899576	TDD108Z04039	4,039	.1590	—	21	.1969	5.69	5.26	.03	1.34	7.83	TDS501A04039
3899577	TDD108Z04300	4,300	.1693	—	—	.1969	5.87	5.44	.03	1.34	7.83	TDS501A04300
3899578	TDD108Z04500	4,500	.1772	—	—	.1969	6.01	5.57	.04	1.34	7.83	TDS501A04500
3899579	TDD108Z04623	4,623	.1820	—	14	.1969	6.10	5.65	.04	1.34	7.83	TDS501A04623
3899580	TDD108Z04763	4,763	.1875	3/16	—	.1969	6.20	5.75	.04	1.34	7.83	TDS501A04763
3899581	TDD108Z05000	5,000	.1969	—	—	.1969	6.37	5.91	.04	1.34	7.83	TDS501A05000
3899582	TDD108Z05159	5,159	.2031	13/64	—	.2362	7.10	6.52	.04	1.42	9.17	TDS501A05160
3899583	TDD108Z05410	5,410	.2130	—	3	.2362	7.21	6.69	.04	1.42	9.17	TDS501A05410
3899584	TDD108Z05500	5,500	.2165	—	—	.2362	7.27	6.75	.04	1.42	9.17	TDS501A05500
3899585	TDD108Z05558	5,558	.2188	7/32	—	.2362	7.32	6.79	.05	1.42	9.17	TDS501A05558
3899586	TDD108Z05800	5,800	.2283	—	—	.2362	7.48	6.95	.05	1.42	9.17	TDS501A05800
3899587	TDD108Z06000	6,000	.2362	—	—	.2362	7.63	7.09	.05	1.42	9.17	TDS501A06000
3899588	TDD108Z06200	6,200	.2441	—	—	.2756	8.32	7.73	.05	1.50	10.51	TDS501A06200
3899589	TDD108Z06350	6,350	.2500	1/4	E	.2756	8.43	7.83	.05	1.50	10.51	TDS501A06350
3899590	TDD108Z06500	6,500	.2559	—	—	.2756	8.54	7.93	.05	1.50	10.51	TDS501A06500
3899591	TDD108Z06528	6,528	.2570	—	—	.2756	8.56	7.95	.05	1.50	10.51	TDS501A06528
3899592	TDD108Z06746	6,746	.2656	17/64	—	.2756	8.71	8.10	.06	1.50	10.51	TDS501A06746

(continued)

(Deep-Hole Drills for Steel and Cast Iron • 2 Flute • WU20PD™ • 30 x D • Z Shank • Inch — continued)



● first choice
○ alternate choice

grade WU20PD TiAlN		D1 diameter										pilot drill
order #	catalog #	mm	in	fraction	wire size	D	L3	L4 max	L5	LS	L	
3899593	TDD108Z06800	6,800	.2677	—	—	.2756	8.75	8.13	.06	1.50	10.51	TDS501A06800
3899594	TDD108Z06909	6,909	.2720	—	—	.2756	8.82	8.21	.06	1.50	10.51	TDS501A06909
3899595	TDD108Z07000	7,000	.2756	—	—	.2756	8.89	8.27	.06	1.50	10.51	TDS501A07000
3899600	TDD108Z07145	7,145	.2813	9/32	—	.3150	9.54	8.88	.06	1.57	11.85	TDS501A07145
3899601	TDD108Z07500	7,500	.2953	—	—	.3150	9.80	9.11	.06	1.57	11.85	TDS501A07500
3899653	TDD108Z07938	7,938	.3125	5/16	—	.3150	10.11	9.41	.07	1.57	11.85	TDS501A07938
3899654	TDD108Z08000	8,000	.3150	—	—	.3150	10.15	9.45	.07	1.57	11.85	TDS501A08000
3899655	TDD108Z08334	8,334	.3281	21/64	—	.3543	10.94	10.18	.07	1.65	13.19	TDS501A08334
3899657	TDD108Z08500	8,500	.3346	—	—	.3543	11.06	10.30	.07	1.65	13.19	TDS501A08500
3899658	TDD108Z08733	8,733	.3438	11/32	—	.3543	11.22	10.45	.07	1.65	13.19	TDS501A08733
3899659	TDD108Z09000	9,000	.3543	—	—	.3543	11.41	10.63	.07	1.65	13.19	TDS501A09000
3899661	TDD108Z09500	9,500	.3740	—	—	.3937	12.32	11.48	.08	1.73	14.53	TDS501A09500
3899662	TDD108Z09525	9,525	.3750	3/8	—	.3937	12.33	11.49	.08	1.73	14.53	TDS501A09525
3899663	TDD108Z09750	9,750	.3839	—	—	.3937	12.49	11.64	.08	1.73	14.53	TDS501A09750
3899665	TDD108Z10000	10,000	.3937	—	—	.3937	12.67	11.81	.08	1.73	14.53	TDS501A10000
3899666	TDD108Z10200	10,200	.4016	—	—	.4331	13.36	12.46	.08	1.81	15.87	TDS501A10200
3899667	TDD108Z10320	10,317	.4062	13/32	—	.4331	13.44	12.54	.09	1.81	15.87	TDS501A10317
3899668	TDD108Z10500	10,500	.4134	—	—	.4331	13.57	12.66	.09	1.81	15.87	TDS501A10500
3899670	TDD108Z11000	11,000	.4331	—	—	.4331	14.48	13.50	.09	1.81	17.20	TDS501A11000
3899671	TDD108Z11113	11,113	.4375	7/16	—	.4724	14.56	13.58	.09	1.89	17.20	TDS501A11113
3899672	TDD108Z11500	11,500	.4528	—	—	.4724	14.83	13.84	.10	1.89	17.20	TDS501A11500
3899674	TDD108Z12000	12,000	.4724	—	—	.4724	15.19	14.17	.10	1.89	17.20	TDS501A12000
3899675	TDD108Z12304	12,304	.4844	31/64	—	.5118	15.95	14.89	.10	1.97	18.54	TDS501A12304
3899676	TDD108Z12500	12,500	.4921	—	—	.5118	16.09	15.02	.10	1.97	18.54	TDS501A12500
3899677	TDD108Z12700	12,700	.5000	1/2	—	.5118	16.23	15.15	.11	1.97	18.54	TDS501A12700
3899678	TDD108Z13000	13,000	.5118	—	—	.5118	16.44	15.35	.11	1.97	18.54	TDS501A13000

■ Series TDD • Deep-Hole SC Drills • Through Coolant Applications • Metric

												
		Cutting Speed — vc Range — m/min		Recommended Feed Rate (f) by Diameter								
Material Group		min	— max	Tool Diameter (mm)	3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
P	1	90	— 130	mm/r	0,08–0,12	0,12–0,18	0,18–0,20	0,20–0,22	0,22–0,25	0,25–0,28	0,28–0,30	0,30–0,34
	2	80	— 115	mm/r	0,08–0,12	0,12–0,18	0,18–0,20	0,20–0,22	0,22–0,25	0,25–0,28	0,28–0,30	0,30–0,34
	3	70	— 110	mm/r	0,05–0,10	0,10–0,16	0,16–0,18	0,18–0,20	0,20–0,22	0,22–0,24	0,24–0,26	0,26–0,28
	4	65	— 95	mm/r	0,05–0,10	0,10–0,16	0,16–0,18	0,18–0,20	0,20–0,22	0,22–0,24	0,24–0,26	0,26–0,28
K	1	105	— 145	mm/r	0,10–0,15	0,15–0,20	0,20–0,25	0,25–0,28	0,28–0,30	0,30–0,33	0,33–0,36	0,36–0,38
	2	85	— 120	mm/r	0,10–0,15	0,15–0,20	0,20–0,25	0,25–0,28	0,28–0,30	0,30–0,33	0,33–0,36	0,36–0,38
	3	100	— 140	mm/r	0,10–0,15	0,15–0,20	0,20–0,25	0,25–0,28	0,28–0,30	0,30–0,33	0,33–0,36	0,36–0,38

■ Series TDD • Deep-Hole SC Drills • Through Coolant Applications • Inch

												
		Cutting Speed — vc Range — SFM		Recommended Feed Rate (f) by Diameter								
Material Group		min	— max	Tool Diameter (inch)	0.125–1/8	0.188–3/16	0.250–1/4	0.313–5/16	0.375–3/8	0.500–1/2	0.625–5/8	0.750–3/4
P	1	295	— 425	IPR	0.003–0.005	0.005–0.007	0.007–0.008	0.008–0.009	0.009–0.010	0.010–0.011	0.011–0.012	0.012–0.013
	2	260	— 375	IPR	0.003–0.005	0.005–0.007	0.007–0.008	0.008–0.009	0.009–0.010	0.010–0.011	0.011–0.012	0.012–0.013
	3	230	— 360	IPR	0.002–0.004	0.004–0.006	0.006–0.007	0.007–0.008	0.008–0.009	0.009	0.009–0.010	0.010–0.011
	4	215	— 310	IPR	0.002–0.004	0.004–0.006	0.006–0.007	0.007–0.008	0.008–0.009	0.009	0.009–0.010	0.010–0.011
K	1	345	— 475	IPR	0.004–0.006	0.006–0.008	0.008–0.010	0.010–0.011	0.011–0.012	0.012–0.013	0.013–0.014	0.014–0.015
	2	280	— 390	IPR	0.004–0.006	0.006–0.008	0.008–0.010	0.010–0.011	0.011–0.012	0.012–0.013	0.013–0.014	0.014–0.015
	3	325	— 460	IPR	0.004–0.006	0.006–0.008	0.008–0.010	0.010–0.011	0.011–0.012	0.012–0.013	0.013–0.014	0.014–0.015

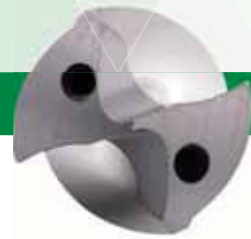
Inch
tolerance

D1	D1 tolerance m7	D	D tolerance h6
> .1181–.2362	.0000/-.0005	> .1181–.2362	.0000/-.0003
> .2362–.3937	.0000/-.0006	> .2362–.3937	.0000/-.0004
> .3937–.5118	.0000/-.0007	> .3937–.5118	.0000/-.0004

Metric
tolerance

nominal size range	D1 tolerance	D1 tolerance	D tolerance h6
>3–6	0,000/-0,012	>3–6	0,000/-0,008
>6–10	0,000/-0,015	>6–10	0,000/-0,009
>10–13	0,000/-0,018	>10–13	0,000/-0,011

WIDIA™ TOP DRILL™ Deep-Hole Drills Customization



EXTREME **CHALLENGES.**
EXTREME **RESULTS.**

Diameters

- Intermediate sizes, even up to .6299" (16mm) diameter, available as semi-standards.

Lengths

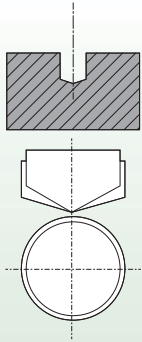
- Length variations, including longer versions up to 21.65" (550mm) depending on diameter, available as custom solutions.

Material-Specific

- For drilling non-ferrous materials, sharp and uncoated versions are recommended and available as custom solutions.

Consult the custom solutions department for specific applications.

WIDIA 

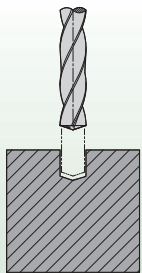


1) Pilot Drill Hole — IMPORTANT!

- The point angle of the pilot drill must be greater than one of the following deep-hole drills to protect its cutting corners.
- The diameter size of the pilot drill must be greater than one of the deep-hole drills to enable easy fit and protect margin lands. The required difference in diameter is covered by design with the different position of tolerance.
- Drill $\varnothing$ = nominal $\varnothing$ up to nominal $+0.0004"$ ($+0,010\text{mm}$).
- Depth of pilot hole: minimum $2 \times D$.
- Deeper pilot holes are preferable.

Recommendations:

- Use a conical (TDS*) or split-point drill to pilot (do not use a TDG, VariDrill™, or TDS 12 x D or any competitive drill).
- Check the pilot drill for wear, which can lead to premature wear on the TDD10* cutting edge and possibly catastrophic failure.
- TOP DRILL S™ for steel or cast iron (TDS4* series) and TOP DRILL S +™ for multiple applications (TDS501* series 3 x D and TD502* series 5 x D) with a 140° point angle are recommended.
- TDS503* series 8 x D and TDS504* series 12 x D is not recommended as the point angle is 132°!

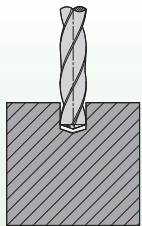


2) Feed TDD10* into Pilot Hole

- Max 500 RPM and recommended feed rate; no rapid traverse.
- Run counter-clockwise, especially in horizontal applications to protect the cutting edge, when entering the pilot hole.
- Depth: .039" (1mm) above the bottom of pilot hole.
- Feed TDD10* into pilot hole

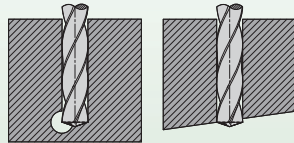
Recommendations:

- Reduce cutting speed to minimize imbalances in machine spindle/adaptor!



3) Drill Hole

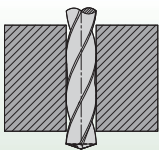
Cutting Parameters: Start recommended speed and feed rate at .039" (1mm) from the bottom of the pilot hole, clockwise.



Recommendations:

- DO NOT PECK OR DWELL up to 30 x D!
- With long-chipping steel materials, it may be necessary to increase feed rate by 10–20% to provide optimal chip control.
- For long-chipping aluminum materials, it may be necessary to decrease feed rate and increase speed.
- Reduce feed rate on angled exits and crossholes by 50–60%.

HP feed recommendations are usually higher than with competitive SC drills!



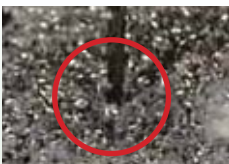
4) Drill Retraction

Cutting Parameters: 50–500 RPM and feed rate 2–6 m/min.

Recommendations:

To achieve the best tool performance, we recommend using the deep-hole drill with a hydraulic chuck.

Reduce cutting speed to minimize imbalances in machine spindle/adaptor!



5) Vertical Applications

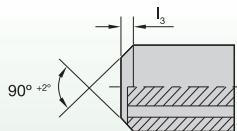
- If the pilot holes are close to each other, chips can fall into the neighboring hole.
- Do not enter a pilot hole that might contain chips with a deep hole drill to avoid chip jamming, wear, or breakage.
- If required holes are close to each other, use smart drilling strategies, make sure the pilot holes are getting properly cleaned, or switch to horizontal drilling.

Horizontal drilling process preferred for optimum chip evacuation.



6) Coolant

- For increased stability, the coolant channels of the TDD10* are smaller than on typical WIDIA™ drills.
- Steady supply of coolant delivered to the cutting edges necessary. If coolant supply is not steady or is unequal through both channels, check:
 - Coolant filtering system.
 - Sealing of adapter/spindle.
 - Chips blocking the coolant hole on the drill shank.
- Make sure that the coolant supply reaches the cutting edge before drilling begins.
- Pressure by diameter: <5mm 40–50 bar maximum; >5mm 25 bar minimum.



MQL back end according to DIN 69090-3

7) Minimal Quantity Lubrication

- On MQL applications, make sure that the coolant is directly supplied from the chuck into the back end of the drill shank (without gap) to avoid leakage.
- Pressure should be between 1–10 bar depending on coolant hole size.
- Spray contains an amount of oil less than 50 ml/h.
- If required, the shank can be evenly optimized for MQL applications with enlarged 90° chamfer instead of 40°.



8) Shanks

- Other than normal SC Drills, TDD10* series have a “Z” shank, increasing with 1mm-steps.
- For drills with uneven shank size, use reduction sleeves to adapt the shank to the customer's toolholder.
- The clamping force is better with increasing diameter.
- If required, DIN-shanks (even, 2mm steps) are available as custom solutions.

Achieve the best tool performance with hydraulic chucks.

D1	12mm hydraulic reducer sleeve		20mm hydraulic reducer sleeve		25mm hydraulic reducer sleeve		32mm hydraulic reducer sleeve		.500" hydraulic reducer sleeve		.750" hydraulic reducer sleeve	
	order number	catalog number	order number	catalog number	order number	catalog number	order number	catalog number	order number	catalog number	order number	catalog number
3	3026450	12MHC030M	3026648	20MHC030M	3026662	25MHC030M	–	–	2248993	50HC030M	2248995	75HC030M
4	3026451	12MHC040M	3026649	20MHC040M	3026663	25MHC040M	–	–	1606050	50HC040M	2248996	75HC040M
5	3026452	12MHC050M	3026650	20MHC050M	3026664	25MHC050M	–	–	2248994	50HC050M	2248997	75HC050M
6	3026643	12MHC060M	3026651	20MHC060M	3026665	25MHC060M	3026675	32MHC060M	1606061	50HC060M	1093271	75HC060M
7	3026644	12MHC070M	3026652	20MHC070M	3026666	25MHC070M	3026676	32MHC070M	–	–	–	–
8	3026645	12MHC080M	3026653	20MHC080M	3026667	25MHC080M	3026677	32MHC080M	1606062	50HC080M	1093272	75HC080M
9	3026646	12MHC090M	3026654	20MHC090M	3026668	25MHC090M	3026678	32MHC090M	–	–	–	–
10	3026647	12MHC100M	3026655	20MHC100M	3026669	25MHC100M	3026679	32MHC100M	1606064	50HC100M	1093273	75HC100M
11	–	–	3026656	20MHC110M	–	–	3026680	32MHC110M	–	–	–	–
12	–	–	3026657	20MHC120M	3026669	25MHC120M	3026681	32MHC120M	–	–	1093524	75HC120M
13	–	–	3026658	20MHC130M	–	–	3026682	32MHC130M	–	–	–	–
14	–	–	3026659	20MHC140M	3026671	25MHC140M	3026683	32MHC140M	–	–	1093525	75HC140M
15	–	–	3026660	20MHC150M	–	–	3026684	32MHC150M	–	–	–	–
16	–	–	3026661	20MHC160M	3026672	25MHC160M	3026685	32MHC160M	–	–	1093526	75HC160M