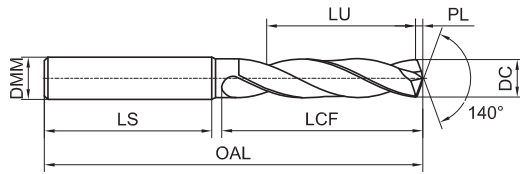


D938-A3N

3D External Coolant Twist Drill for Plain Steel Machining



Order No.	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	In Stock
D938-A3N-0100	1.00	7	45	4	30	5.5	0.18	●
D938-A3N-0105	1.05	7	45	4	30	5.4	0.19	○
D938-A3N-0110	1.10	7	45	4	30	5.4	0.20	●
D938-A3N-0120	1.20	7	45	4	30	5.2	0.22	●
D938-A3N-0130	1.30	7	45	4	30	5.1	0.24	●
D938-A3N-0140	1.40	7	45	4	30	4.9	0.25	●
D938-A3N-0145	1.45	7	45	4	30	4.8	0.26	○
D938-A3N-0150	1.50	9	55	4	38	6.8	0.27	●
D938-A3N-0160	1.60	9	55	4	38	6.6	0.29	●
D938-A3N-0165	1.65	9	55	4	38	6.5	0.30	○
D938-A3N-0170	1.70	9	55	4	38	6.5	0.31	●
D938-A3N-0175	1.75	9	55	4	38	6.4	0.32	○
D938-A3N-0180	1.80	9	55	4	38	6.3	0.33	●
D938-A3N-0185	1.85	9	55	4	38	6.2	0.34	○
D938-A3N-0190	1.90	9	55	4	38	6.2	0.35	●
D938-A3N-0200	2.00	13	55	4	36	10.0	0.36	●
D938-A3N-0205	2.05	13	55	4	36	9.9	0.37	○
D938-A3N-0210	2.10	13	55	4	36	9.9	0.38	●
D938-A3N-0220	2.20	13	55	4	36	9.7	0.40	●
D938-A3N-0230	2.30	13	55	4	36	9.6	0.42	●
D938-A3N-0235	2.35	13	55	4	36	9.5	0.43	○
D938-A3N-0240	2.40	17	55	4	33	13.4	0.44	●
D938-A3N-0250	2.50	17	55	4	33	13.3	0.45	●
D938-A3N-0260	2.60	17	55	4	33	13.1	0.47	●
D938-A3N-0270	2.70	17	55	4	33	13.0	0.49	●
D938-A3N-0275	2.75	17	55	4	33	12.9	0.50	○
D938-A3N-0280	2.80	17	55	4	33	12.8	0.51	●

Order No.	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	In Stock
D938-A3N-0285	2.85	17	55	4	33	12.7	0.52	○
D938-A3N-0290	2.90	17	55	4	33	12.7	0.53	●
D938-A3N-0295	2.95	17	55	4	33	12.6	0.54	○
D938-A3N-0300	3.00	20	62	6	36	15.5	0.55	●
D938-A3N-0305	3.05	20	62	6	36	15.4	0.56	●
D938-A3N-0310	3.10	20	62	6	36	15.4	0.56	●
D938-A3N-0315	3.15	20	62	6	36	15.3	0.57	○
D938-A3N-0320	3.20	20	62	6	36	15.2	0.58	●
D938-A3N-0325	3.25	20	62	6	36	15.1	0.59	●
D938-A3N-0330	3.30	20	62	6	36	15.1	0.60	●
D938-A3N-0335	3.35	20	62	6	36	15.0	0.61	○
D938-A3N-0340	3.40	20	62	6	36	14.9	0.62	●
D938-A3N-0350	3.50	20	62	6	36	14.8	0.64	●
D938-A3N-0355	3.55	20	62	6	36	14.7	0.65	○
D938-A3N-0360	3.60	20	62	6	36	14.6	0.66	●
D938-A3N-0365	3.65	20	62	6	36	14.5	0.66	○
D938-A3N-0370	3.70	20	62	6	36	14.5	0.67	●
D938-A3N-0380	3.80	24	66	6	36	18.3	0.69	●
D938-A3N-0385	3.85	24	66	6	36	18.2	0.70	○
D938-A3N-0390	3.90	24	66	6	36	18.2	0.71	●
D938-A3N-0395	3.95	24	66	6	36	18.1	0.72	○
D938-A3N-0400	4.00	24	66	6	36	18.0	0.73	●
D938-A3N-0405	4.05	24	66	6	36	17.9	0.74	○
D938-A3N-0410	4.10	24	66	6	36	17.9	0.75	●
D938-A3N-0415	4.15	24	66	6	36	17.8	0.76	●
D938-A3N-0420	4.20	24	66	6	36	17.7	0.76	●
D938-A3N-0425	4.25	24	66	6	36	17.6	0.77	○

● Stock ○ Available Upon Order

Notes: Non-standard customization is available for D1-D20 tools

Unit (mm)

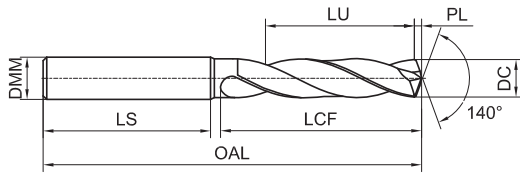
Workpiece Material													
P			M	K		N				S	H		
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steel, Tool Steel	PH and Ferritic/Martensitic Steel	Stainless Steel	Gray Cast Iron, Nodular Cast Iron	High Alloy Cast Iron	Forged Aluminum Alloy, Cast Aluminium Alloy	Cast Aluminum Alloy	Copper Alloy	Composite Material	High-temperature Alloy	Titanium Alloy	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<32HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
○	○	○		○	○								

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P126

D938-A3N

3D External Coolant Twist Drill for Plain Steel Machining



Continued

Order No.	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	In Stock
D938-A3N-0430	4.30	24	66	6	36	17.6	0.78	●
D938-A3N-0435	4.35	24	66	6	36	17.5	0.79	○
D938-A3N-0440	4.40	24	66	6	36	17.4	0.80	●
D938-A3N-0445	4.45	24	66	6	36	17.3	0.81	○
D938-A3N-0450	4.50	24	66	6	36	17.3	0.82	●
D938-A3N-0455	4.55	24	66	6	36	17.2	0.83	○
D938-A3N-0460	4.60	24	66	6	36	17.1	0.84	●
D938-A3N-0465	4.65	24	66	6	36	17.0	0.85	●
D938-A3N-0470	4.70	24	66	6	36	17.0	0.86	●
D938-A3N-0475	4.75	28	66	6	36	20.9	0.86	○
D938-A3N-0480	4.80	28	66	6	36	20.8	0.87	●
D938-A3N-0485	4.85	28	66	6	36	20.7	0.88	○
D938-A3N-0490	4.90	28	66	6	36	20.7	0.89	●
D938-A3N-0495	4.95	28	66	6	36	20.6	0.90	○
D938-A3N-0500	5.00	28	66	6	36	20.5	0.91	●
D938-A3N-0505	5.05	28	66	6	36	20.4	0.92	○
D938-A3N-0510	5.10	28	66	6	36	20.4	0.93	●
D938-A3N-0515	5.15	28	66	6	36	20.3	0.94	○
D938-A3N-0520	5.20	28	66	6	36	20.2	0.95	●
D938-A3N-0525	5.25	28	66	6	36	20.1	0.96	○
D938-A3N-0530	5.30	28	66	6	36	20.1	0.96	●
D938-A3N-0535	5.35	28	66	6	36	20.0	0.97	○
D938-A3N-0540	5.40	28	66	6	36	19.9	0.98	●
D938-A3N-0545	5.45	28	66	6	36	19.8	0.99	○
D938-A3N-0550	5.50	28	66	6	36	19.8	1.00	●
D938-A3N-0555	5.55	28	66	6	36	19.7	1.01	●
D938-A3N-0560	5.60	28	66	6	36	19.6	1.02	●

Order No.	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	In Stock
D938-A3N-0565	5.65	28	66	6	36	19.5	1.03	○
D938-A3N-0570	5.70	28	66	6	36	19.5	1.04	●
D938-A3N-0575	5.75	28	66	6	36	19.4	1.05	○
D938-A3N-0580	5.80	28	66	6	36	19.3	1.06	●
D938-A3N-0585	5.85	28	66	6	36	19.2	1.06	○
D938-A3N-0590	5.90	28	66	6	36	19.2	1.07	●
D938-A3N-0595	5.95	28	66	6	36	19.1	1.08	○
D938-A3N-0600	6.00	28	66	6	36	19.0	1.09	●
D938-A3N-0605	6.05	28	66	6	36	18.9	1.10	○
D938-A3N-0610	6.10	34	79	8	36	24.9	1.11	●
D938-A3N-0620	6.20	34	79	8	36	24.7	1.13	●
D938-A3N-0625	6.25	34	79	8	36	24.6	1.14	○
D938-A3N-0630	6.30	34	79	8	36	24.6	1.15	●
D938-A3N-0635	6.35	34	79	8	36	24.5	1.16	○
D938-A3N-0640	6.40	34	79	8	36	24.4	1.16	●
D938-A3N-0645	6.45	34	79	8	36	24.3	1.17	○
D938-A3N-0650	6.50	34	79	8	36	24.3	1.18	●
D938-A3N-0655	6.55	34	79	8	36	24.2	1.19	○
D938-A3N-0660	6.60	34	79	8	36	24.1	1.20	●
D938-A3N-0665	6.65	34	79	8	36	24.0	1.21	○
D938-A3N-0670	6.70	34	79	8	36	24.0	1.22	●
D938-A3N-0675	6.75	34	79	8	36	23.9	1.23	○
D938-A3N-0680	6.80	34	79	8	36	23.8	1.24	●
D938-A3N-0685	6.85	34	79	8	36	23.7	1.25	○
D938-A3N-0690	6.90	34	79	8	36	23.7	1.26	●
D938-A3N-0695	6.95	34	79	8	36	23.6	1.26	○
D938-A3N-0700	7.00	34	79	8	36	23.5	1.27	●

● Stock ○ Available Upon Order

Notes: Non-standard customization is available for D1-D20 tools

Unit (mm)

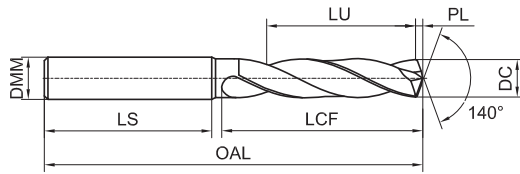
Workpiece Material													
P			M	K		N				S	H		
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steel, Tool Steel	PH and Ferritic/Martensitic Steel	Stainless Steel	Gray Cast Iron, Nodular Cast Iron	High Alloy Cast Iron	Forged Aluminum Alloy, Cast Aluminum Alloy	Cast Aluminum Alloy	Copper Alloy	Composite Material	High-temperature Alloy	Titanium Alloy	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<32HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎		○	○								

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P126

D938-A3N

3D External Coolant Twist Drill for Plain Steel Machining



Continued

Order No.	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	In Stock
D938-A3N-0705	7.05	34	79	8	36	23.4	1.28	○
D938-A3N-0710	7.10	41	79	8	36	30.4	1.29	●
D938-A3N-0720	7.20	41	79	8	36	30.2	1.31	●
D938-A3N-0730	7.30	41	79	8	36	30.1	1.33	●
D938-A3N-0735	7.35	41	79	8	36	30.0	1.34	○
D938-A3N-0740	7.40	41	79	8	36	29.9	1.35	●
D938-A3N-0745	7.45	41	79	8	36	29.8	1.36	●
D938-A3N-0750	7.50	41	79	8	36	29.8	1.36	●
D938-A3N-0755	7.55	41	79	8	36	29.7	1.37	●
D938-A3N-0760	7.60	41	79	8	36	29.6	1.38	●
D938-A3N-0765	7.65	41	79	8	36	29.5	1.39	○
D938-A3N-0770	7.70	41	79	8	36	29.5	1.40	●
D938-A3N-0775	7.75	41	79	8	36	29.4	1.41	○
D938-A3N-0780	7.80	41	79	8	36	29.3	1.42	●
D938-A3N-0785	7.85	41	79	8	36	29.2	1.43	○
D938-A3N-0790	7.90	41	79	8	36	29.2	1.44	●
D938-A3N-0795	7.95	41	79	8	36	29.1	1.45	○
D938-A3N-0800	8.00	41	79	8	36	29.0	1.46	●
D938-A3N-0805	8.05	41	79	8	36	28.9	1.46	○
D938-A3N-0810	8.10	47	89	10	40	34.9	1.47	●
D938-A3N-0815	8.15	47	89	10	40	34.8	1.48	○
D938-A3N-0820	8.20	47	89	10	40	34.7	1.49	●
D938-A3N-0825	8.25	47	89	10	40	34.6	1.50	○
D938-A3N-0830	8.30	47	89	10	40	34.6	1.51	●
D938-A3N-0840	8.40	47	89	10	40	34.4	1.53	●
D938-A3N-0845	8.45	47	89	10	40	34.3	1.54	○
D938-A3N-0850	8.50	47	89	10	40	34.3	1.55	●

Order No.	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	In Stock
D938-A3N-0855	8.55	47	89	10	40	34.2	1.56	○
D938-A3N-0860	8.60	47	89	10	40	34.1	1.57	●
D938-A3N-0870	8.70	47	89	10	40	34.0	1.58	●
D938-A3N-0880	8.80	47	89	10	40	33.8	1.60	●
D938-A3N-0885	8.85	47	89	10	40	33.7	1.61	○
D938-A3N-0890	8.90	47	89	10	40	33.7	1.62	●
D938-A3N-0895	8.95	47	89	10	40	33.6	1.63	○
D938-A3N-0900	9.00	47	89	10	40	33.5	1.64	●
D938-A3N-0905	9.05	47	89	10	40	33.4	1.65	○
D938-A3N-0910	9.10	47	89	10	40	33.4	1.66	●
D938-A3N-0915	9.15	47	89	10	40	33.3	1.67	○
D938-A3N-0920	9.20	47	89	10	40	33.2	1.67	●
D938-A3N-0925	9.25	47	89	10	40	33.1	1.68	○
D938-A3N-0930	9.30	47	89	10	40	33.1	1.69	●
D938-A3N-0935	9.35	47	89	10	40	33.0	1.70	●
D938-A3N-0940	9.40	47	89	10	40	32.9	1.71	●
D938-A3N-0945	9.45	47	89	10	40	32.8	1.72	○
D938-A3N-0950	9.50	47	89	10	40	32.8	1.73	●
D938-A3N-0955	9.55	47	89	10	40	32.7	1.74	●
D938-A3N-0960	9.60	47	89	10	40	32.6	1.75	●
D938-A3N-0965	9.65	47	89	10	40	32.5	1.76	○
D938-A3N-0970	9.70	47	89	10	40	32.5	1.77	●
D938-A3N-0975	9.75	47	89	10	40	32.4	1.77	○
D938-A3N-0980	9.80	47	89	10	40	32.3	1.78	●
D938-A3N-0985	9.85	47	89	10	40	32.2	1.79	○
D938-A3N-0990	9.90	47	89	10	40	32.2	1.80	●
D938-A3N-0995	9.95	47	89	10	40	32.1	1.81	○

● Stock ○ Available Upon Order

Notes: Non-standard customization is available for D1-D20 tools

Unit (mm)

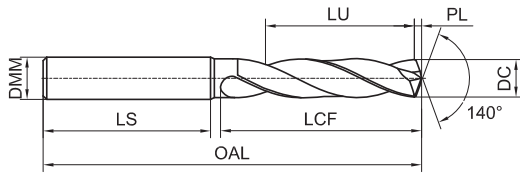
Workpiece Material													
P			M	K		N				S	H		
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steel, Tool Steel	PH and Ferritic/Martensitic Steel	Stainless Steel	Gray Cast Iron, Nodular Cast Iron	High Alloy Cast Iron	Forged Aluminum Alloy, Cast Aluminum Alloy	Cast Aluminum Alloy	Copper Alloy	Composite Material	High-temperature Alloy	Titanium Alloy	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<32HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
○	○	○		○	○								

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P126

D938-A3N

3D External Coolant Twist Drill for Plain Steel Machining



Continued

Order No.	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	In Stock
D938-A3N-1000	10.00	47	89	10	40	32.0	1.82	●
D938-A3N-1005	10.05	47	89	10	40	31.9	1.83	○
D938-A3N-1010	10.10	55	102	12	45	39.9	1.84	●
D938-A3N-1015	10.15	55	102	12	45	39.8	1.85	○
D938-A3N-1020	10.20	55	102	12	45	39.7	1.86	●
D938-A3N-1025	10.25	55	102	12	45	39.6	1.87	●
D938-A3N-1030	10.30	55	102	12	45	39.6	1.87	●
D938-A3N-1035	10.35	55	102	12	45	39.5	1.88	●
D938-A3N-1040	10.40	55	102	12	45	39.4	1.89	●
D938-A3N-1050	10.50	55	102	12	45	39.3	1.91	●
D938-A3N-1060	10.60	55	102	12	45	39.1	1.93	●
D938-A3N-1070	10.70	55	102	12	45	39.0	1.95	●
D938-A3N-1080	10.80	55	102	12	45	38.8	1.97	●
D938-A3N-1085	10.85	55	102	12	45	38.7	1.97	●
D938-A3N-1090	10.90	55	102	12	45	38.7	1.98	●
D938-A3N-1100	11.00	55	102	12	45	38.5	2.00	●
D938-A3N-1105	11.05	55	102	12	45	38.4	2.01	○
D938-A3N-1110	11.10	55	102	12	45	38.4	2.02	●
D938-A3N-1115	11.15	55	102	12	45	38.3	2.03	○
D938-A3N-1120	11.20	55	102	12	45	38.2	2.04	●
D938-A3N-1125	11.25	55	102	12	45	38.1	2.05	○
D938-A3N-1130	11.30	55	102	12	45	38.1	2.06	●
D938-A3N-1135	11.35	55	102	12	45	38.0	2.07	○
D938-A3N-1140	11.40	55	102	12	45	37.9	2.07	●
D938-A3N-1145	11.45	55	102	12	45	37.8	2.08	○
D938-A3N-1150	11.50	55	102	12	45	37.8	2.09	●
D938-A3N-1155	11.55	55	102	12	45	37.7	2.10	○

Order No.	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	In Stock
D938-A3N-1160	11.60	55	102	12	45	37.6	2.11	●
D938-A3N-1170	11.70	55	102	12	45	37.5	2.13	●
D938-A3N-1180	11.80	55	102	12	45	37.3	2.15	●
D938-A3N-1190	11.90	55	102	12	45	37.2	2.17	●
D938-A3N-1195	11.95	55	102	12	45	37.1	2.17	○
D938-A3N-1200	12.00	55	102	12	45	37.0	2.18	●
D938-A3N-1205	12.05	55	102	12	45	36.9	2.19	○
D938-A3N-1210	12.10	60	107	14	45	41.9	2.20	●
D938-A3N-1215	12.15	60	107	14	45	41.8	2.21	○
D938-A3N-1220	12.20	60	107	14	45	41.7	2.22	●
D938-A3N-1225	12.25	60	107	14	45	41.6	2.23	○
D938-A3N-1230	12.30	60	107	14	45	41.6	2.24	●
D938-A3N-1240	12.40	60	107	14	45	41.4	2.26	●
D938-A3N-1245	12.45	60	107	14	45	41.3	2.27	○
D938-A3N-1250	12.50	60	107	14	45	41.3	2.27	●
D938-A3N-1255	12.55	60	107	14	45	41.2	2.28	○
D938-A3N-1260	12.60	60	107	14	45	41.1	2.29	●
D938-A3N-1270	12.70	60	107	14	45	41.0	2.31	●
D938-A3N-1275	12.75	60	107	14	45	40.9	2.32	○
D938-A3N-1280	12.80	60	107	14	45	40.8	2.33	●
D938-A3N-1285	12.85	60	107	14	45	40.7	2.34	○
D938-A3N-1290	12.90	60	107	14	45	40.7	2.35	○
D938-A3N-1300	13.00	60	107	14	45	40.5	2.37	●
D938-A3N-1305	13.05	60	107	14	45	40.4	2.37	○
D938-A3N-1310	13.10	60	107	14	45	40.4	2.38	●
D938-A3N-1315	13.15	60	107	14	45	40.3	2.39	○
D938-A3N-1320	13.20	60	107	14	45	40.2	2.40	●

● Stock ○ Available Upon Order

Notes: Non-standard customization is available for D1-D20 tools

Unit (mm)

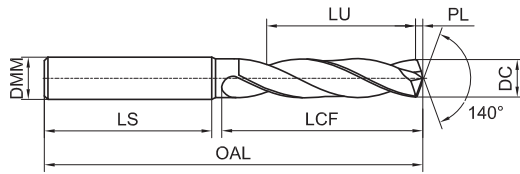
Workpiece Material													
P			M	K		N				S	H		
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steel, Tool Steel	PH and Ferritic/Martensitic Steel	Stainless Steel	Gray Cast Iron, Nodular Cast Iron	High Alloy Cast Iron	Forged Aluminum Alloy, Cast Aluminium Alloy	Cast Aluminum Alloy	Copper Alloy	Composite Material	High-temperature Alloy	Titanium Alloy	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<32HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
○	○	○		○	○								

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P126

D938-A3N

3D External Coolant Twist Drill for Plain Steel Machining



Continued

Order No.	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	In Stock
D938-A3N-1325	13.25	60	107	14	45	40.1	2.41	○
D938-A3N-1330	13.30	60	107	14	45	40.1	2.42	○
D938-A3N-1335	13.35	60	107	14	45	40.0	2.43	○
D938-A3N-1340	13.40	60	107	14	45	39.9	2.44	●
D938-A3N-1350	13.50	60	107	14	45	39.8	2.46	●
D938-A3N-1355	13.55	60	107	14	45	39.7	2.47	○
D938-A3N-1360	13.60	60	107	14	45	39.6	2.47	○
D938-A3N-1370	13.70	60	107	14	45	39.5	2.49	○
D938-A3N-1375	13.75	60	107	14	45	39.4	2.50	○
D938-A3N-1380	13.80	60	107	14	45	39.3	2.51	●
D938-A3N-1390	13.90	60	107	14	45	39.2	2.53	○
D938-A3N-1395	13.95	60	107	14	45	39.1	2.54	○
D938-A3N-1400	14.00	60	107	14	45	39.0	2.55	●
D938-A3N-1405	14.05	60	107	14	45	38.9	2.56	○
D938-A3N-1410	14.10	65	115	16	48	43.9	2.57	●
D938-A3N-1420	14.20	65	115	16	48	43.7	2.58	●
D938-A3N-1425	14.25	65	115	16	48	43.6	2.59	○
D938-A3N-1430	14.30	65	115	16	48	43.6	2.60	●
D938-A3N-1440	14.40	65	115	16	48	43.4	2.62	●
D938-A3N-1450	14.50	65	115	16	48	43.3	2.64	●
D938-A3N-1460	14.60	65	115	16	48	43.1	2.66	●
D938-A3N-1470	14.70	65	115	16	48	43.0	2.68	●
D938-A3N-1475	14.75	65	115	16	48	42.9	2.68	○
D938-A3N-1480	14.80	65	115	16	48	42.8	2.69	●
D938-A3N-1490	14.90	65	115	16	48	42.7	2.71	○
D938-A3N-1500	15.00	65	115	16	48	42.5	2.73	●
D938-A3N-1505	15.05	65	115	16	48	42.4	2.74	○

Order No.	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	In Stock
D938-A3N-1510	15.10	65	115	16	48	42.4	2.75	●
D938-A3N-1515	15.15	65	115	16	48	42.3	2.76	○
D938-A3N-1520	15.20	65	115	16	48	42.2	2.77	●
D938-A3N-1525	15.25	65	115	16	48	42.1	2.78	○
D938-A3N-1530	15.30	65	115	16	48	42.1	2.78	●
D938-A3N-1535	15.35	65	115	16	48	42.0	2.79	○
D938-A3N-1540	15.40	65	115	16	48	41.9	2.80	○
D938-A3N-1550	15.50	65	115	16	48	41.8	2.82	●
D938-A3N-1555	15.55	65	115	16	48	41.7	2.83	○
D938-A3N-1560	15.60	65	115	16	48	41.6	2.84	○
D938-A3N-1570	15.70	65	115	16	48	41.5	2.86	●
D938-A3N-1580	15.80	65	115	16	48	41.3	2.88	●
D938-A3N-1590	15.90	65	115	16	48	41.2	2.89	○
D938-A3N-1600	16.00	65	115	16	48	41.0	2.91	●
D938-A3N-1610	16.10	73	123	18	48	48.9	2.93	●
D938-A3N-1620	16.20	73	123	18	48	48.7	2.95	●
D938-A3N-1625	16.25	73	123	18	48	48.6	2.96	○
D938-A3N-1630	16.30	73	123	18	48	48.6	2.97	○
D938-A3N-1640	16.40	73	123	18	48	48.4	2.98	●
D938-A3N-1650	16.50	73	123	18	48	48.3	3.00	●
D938-A3N-1660	16.60	73	123	18	48	48.1	3.02	●
D938-A3N-1670	16.70	73	123	18	48	48.0	3.04	○
D938-A3N-1675	16.75	73	123	18	48	47.9	3.05	○
D938-A3N-1680	16.80	73	123	18	48	47.8	3.06	○
D938-A3N-1690	16.90	73	123	18	48	47.7	3.08	●
D938-A3N-1695	16.95	73	123	18	48	47.6	3.08	○
D938-A3N-1700	17.00	73	123	18	48	47.5	3.09	●

● Stock ○ Available Upon Order

Notes: Non-standard customization is available for D1-D20 tools

Unit (mm)

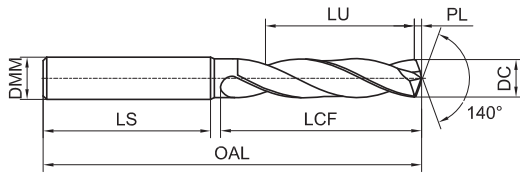
Workpiece Material													
P			M	K		N				S	H		
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steel, Tool Steel	PH and Ferritic/Martensitic Steel	Stainless Steel	Gray Cast Iron, Nodular Cast Iron	High Alloy Cast Iron	Forged Aluminum Alloy, Cast Aluminium Alloy	Cast Aluminum Alloy	Copper Alloy	Composite Material	High-temperature Alloy	Titanium Alloy	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<32HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎		○	○								

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P126

D938-A3N

3D External Coolant Twist Drill for Plain Steel Machining



Continued

Order No.	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	In Stock
D938-A3N-1710	17.10	73	123	18	48	47.4	3.11	○
D938-A3N-1720	17.20	73	123	18	48	47.2	3.13	●
D938-A3N-1730	17.30	73	123	18	48	47.1	3.15	○
D938-A3N-1740	17.40	73	123	18	48	46.9	3.17	●
D938-A3N-1750	17.50	73	123	18	48	46.8	3.18	●
D938-A3N-1760	17.60	73	123	18	48	46.6	3.20	●
D938-A3N-1770	17.70	73	123	18	48	46.5	3.22	○
D938-A3N-1780	17.80	73	123	18	48	46.3	3.24	○
D938-A3N-1790	17.90	73	123	18	48	46.2	3.26	○
D938-A3N-1795	17.95	73	123	18	48	46.1	3.27	○
D938-A3N-1800	18.00	73	123	18	48	46.0	3.28	●
D938-A3N-1810	18.10	79	131	20	50	51.9	3.29	○
D938-A3N-1820	18.20	79	131	20	50	51.7	3.31	●
D938-A3N-1830	18.30	79	131	20	50	51.6	3.33	○
D938-A3N-1840	18.40	79	131	20	50	51.4	3.35	○
D938-A3N-1850	18.50	79	131	20	50	51.3	3.37	●

Order No.	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	In Stock
D938-A3N-1860	18.60	79	131	20	50	51.1	3.38	○
D938-A3N-1870	18.70	79	131	20	50	51.0	3.40	○
D938-A3N-1880	18.80	79	131	20	50	50.8	3.42	○
D938-A3N-1890	18.90	79	131	20	50	50.7	3.44	○
D938-A3N-1900	19.00	79	131	20	50	50.5	3.46	●
D938-A3N-1910	19.10	79	131	20	50	50.4	3.48	○
D938-A3N-1915	19.15	79	131	20	50	50.3	3.49	○
D938-A3N-1920	19.20	79	131	20	50	50.2	3.49	○
D938-A3N-1930	19.30	79	131	20	50	50.1	3.51	○
D938-A3N-1940	19.40	79	131	20	50	49.9	3.53	○
D938-A3N-1950	19.50	79	131	20	50	49.8	3.55	●
D938-A3N-1960	19.60	79	131	20	50	49.6	3.57	○
D938-A3N-1970	19.70	79	131	20	50	49.5	3.59	○
D938-A3N-1980	19.80	79	131	20	50	49.3	3.60	○
D938-A3N-1990	19.90	79	131	20	50	49.2	3.62	○
D938-A3N-2000	20.00	79	131	20	50	49.0	3.64	●

● Stock ○ Available Upon Order

Notes: Non-standard customization is available for D1-D20 tools

Unit (mm)

Range of Sizes	DC(m7)	DMM(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

Workpiece Material													
P			M	K		N				S	H		
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steel, Tool Steel	PH and Ferritic/Martensitic Steel	Stainless Steel	Gray Cast Iron, Nodular Cast Iron	High Alloy Cast Iron	Forged Aluminum Alloy, Cast Aluminum Alloy	Cast Aluminum Alloy	Copper Alloy	Composite Material	High-temperature Alloy	Titanium Alloy	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<32HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
○	○	○		○	○								

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P126

Recommended Cutting Data

D938 Plain Steel Machining Twist Drill 3D/5D

Workpiece Material		Cutting speed Vc (m/min)		Feed fn (mm/rev)			
				Φ1	Φ1.5	Φ2	Φ2.5
P	Low-carbon Steel, Long Chips (<125HB)	120-80-50	140-100-60	0.06-0.08-0.12	0.08-0.15-0.18	0.10-0.15-0.20	0.10-0.15-0.20
	Low-carbon Steel, Short Chips, Free Cutting Steel (<125HB)	120-75-50	140-100-60	0.06-0.08-0.12	0.08-0.15-0.18	0.10-0.15-0.20	0.10-0.15-0.20
	High-carbon Steel and Medium-carbon Steel (<25HRC)	120-70-45	120-80-60	0.06-0.08-0.12	0.08-0.15-0.18	0.10-0.15-0.20	0.10-0.15-0.20
	Alloy Steel, Tool Steel (<35HRC)	100-70-45	110-80-60	0.05-0.07-0.11	0.08-0.13-0.16	0.08-0.13-0.16	0.09-0.13-0.16
	Alloy Steel, Tool Steel (35-48HRC)	80-60-35	90-60-35	0.05-0.07-0.11	0.08-0.10-0.14	0.08-0.11-0.14	0.08-0.11-0.14
	PH and Ferritic, Martensitic Steel (<35HRC)	70-50-30	90-60-30	0.04-0.07-0.10	0.05-0.08-0.11	0.05-0.08-0.11	0.05-0.08-0.11
	High Strength PH and Ferritic, Martensitic Steel (35-48HRC)	70-45-25	80-50-30	0.03-0.05-0.07	0.04-0.06-0.08	0.04-0.06-0.08	0.04-0.06-0.08
M	Austenitic Stainless Steels (130- 200HB)	—	80-60-40	0.02-0.04-0.06	0.03-0.05-0.07	0.03-0.06-0.08	0.03-0.06-0.08
	High Strength Austenitic and Cast Stainless Steel (<25HRC)	—	80-60-40	0.02-0.04-0.06	0.03-0.05-0.07	0.03-0.06-0.08	0.03-0.06-0.08
	Duplex Stainless Steel (<30HRC)	—	60-45-30	0.03-0.04-0.07	0.03-0.05-0.07	0.03-0.06-0.08	0.03-0.06-0.08
K	Gray Cast Iron (<32HRC)	140-100-60	160-120-60	0.08-0.10-0.14	0.10-0.13-0.16	0.12-0.15-0.18	0.13-0.17-0.20
	Alloy Cast Iron with Medium Machining Difficulty, Nodular Cast Iron (<28HRC)	120-80-60	140-100-60	0.06-0.09-0.13	0.09-0.12-0.15	0.11-0.14-0.17	0.11-0.15-0.18
	Difficult-to-machine High Alloy Cast Iron, Nodular Cast Iron (<45HRC)	100-70-50	100-80-50	0.04-0.07-0.09	0.05-0.08-0.10	0.06-0.09-0.11	0.06-0.09-0.11

[Notes]

1. Please use a machine with relatively high rigidity. It is recommended to adopt hydraulic tool holders, thermal expansion tool holders and powerful handles with spring collets.
2. When installing the tool, it is necessary to ensure that the radial bounce of the drill bit tip is less than 0.02mm.
3. This standard cutting condition table is suitable for water-soluble cutting fluids
4. For the tool edge diameter specifications not listed in the table, please refer to the closest edge diameter specifications in the table to select the cutting data. Meanwhile, during the machining process, please adjust the cutting data appropriately according to the actual machining situation.

Recommended Cutting Data

D938 Plain Steel Machining Twist Drill 3D/5D

Workpiece Material		Cutting speed Vc (m/min)		Feed fn (mm/rev)				
				Φ3	Φ4	Φ6	Φ8	Φ10
P	Low-carbon Steel, Long Chips (<125HB)	120-80-50	140-100-60	0.10-0.15-0.20	0.10-0.15-0.20	0.14-0.19-0.25	0.16-0.22-0.32	0.16-0.22-0.35
	Low-carbon Steel, Short Chips, Free Cutting Steel (<125HB)	120-75-50	140-100-60	0.10-0.15-0.20	0.10-0.15-0.20	0.14-0.19-0.25	0.16-0.22-0.32	0.16-0.22-0.35
	High-carbon Steel and Medium-carbon Steel (<25HRC)	120-70-45	120-80-60	0.10-0.15-0.20	0.10-0.15-0.20	0.14-0.19-0.25	0.16-0.22-0.30	0.16-0.22-0.32
	Alloy Steel, Tool Steel (<35HRC)	100-70-45	110-80-60	0.09-0.13-0.16	0.09-0.13-0.16	0.12-0.17-0.23	0.14-0.20-0.28	0.14-0.20-0.30
	Alloy Steel, Tool Steel (35-48HRC)	80-60-35	90-60-35	0.08-0.11-0.14	0.08-0.11-0.14	0.08-0.14-0.20	0.09-0.16-0.25	0.09-0.16-0.28
	PH and Ferritic, Martensitic Steel (<35HRC)	70-50-30	90-60-30	0.05-0.08-0.11	0.05-0.08-0.11	0.07-0.12-0.17	0.08-0.14-0.20	0.08-0.14-0.23
	High Strength PH and Ferritic, Martensitic Steel (35-48HRC)	70-45-25	80-50-30	0.04-0.06-0.08	0.04-0.06-0.08	0.06-0.10-0.14	0.08-0.13-0.18	0.08-0.13-0.20
M	Austenitic Stainless Steels (130-200HB)	—	80-60-40	0.05-0.08-0.10	0.06-0.10-0.12	0.07-0.12-0.14	0.08-0.13-0.18	0.09-0.15-0.20
	High Strength Austenitic and Cast Stainless Steel (<25HRC)	—	80-60-40	0.03-0.06-0.08	0.04-0.08-0.10	0.05-0.08-0.10	0.06-0.10-0.12	0.07-0.11-0.14
	Duplex Stainless Steel (<30HRC)	—	60-45-30	0.03-0.06-0.08	0.04-0.08-0.10	0.05-0.08-0.10	0.06-0.10-0.12	0.07-0.11-0.14
K	Gray Cast Iron (<32HRC)	140-100-60	160-120-60	0.13-0.17-0.20	0.15-0.20-0.23	0.17-0.25-0.30	0.20-0.27-0.35	0.23-0.30-0.40
	Alloy Cast Iron with Medium Machining Difficulty, Nodular Cast Iron (<28HRC)	120-80-60	140-100-60	0.11-0.15-0.18	0.13-0.17-0.20	0.15-0.20-0.25	0.17-0.25-0.32	0.20-0.28-0.36
	Difficult-to-machine High Alloy Cast Iron, Nodular Cast Iron (<45HRC)	100-70-50	100-80-50	0.06-0.09-0.11	0.08-0.10-0.13	0.10-0.13-0.16	0.12-0.16-0.20	0.14-0.20-0.26

[Notes]

1. Please use a machine with relatively high rigidity. It is recommended to adopt hydraulic tool holders, thermal expansion tool holders and powerful handles with spring collets.
2. When installing the tool, it is necessary to ensure that the radial bounce of the drill bit tip is less than 0.02mm.
3. This standard cutting condition table is suitable for water-soluble cutting fluids
4. For the tool edge diameter specifications not listed in the table, please refer to the closest edge diameter specifications in the table to select the cutting data. Meanwhile, during the machining process, please adjust the cutting data appropriately according to the actual machining situation.

Recommended Cutting Data

D938 Plain Steel Machining Twist Drill 3D/5D

Workpiece Material		Cutting speed Vc (m/min)		Feed fn (mm/rev)				
				Φ12	Φ14	Φ16	Φ18	Φ20
P	Low-carbon Steel, Long Chips (<125HB)	120-80-50	140-100-60	0.18-0.28-0.40	0.22-0.32-0.45	0.22-0.32-0.45	0.25-0.38-0.50	0.25-0.38-0.50
	Low-carbon Steel, Short Chips, Free Cutting steel (<125HB)	120-75-50	140-100-60	0.18-0.28-0.40	0.22-0.32-0.45	0.22-0.32-0.45	0.25-0.38-0.50	0.25-0.38-0.50
	High-carbon Steel and Medium-carbon Steel (<25HRC)	120-70-45	120-80-60	0.18-0.28-0.38	0.22-0.32-0.45	0.22-0.32-0.45	0.25-0.38-0.50	0.25-0.38-0.50
	Alloy Steel, Tool Steel (<35HRC)	100-70-45	110-80-60	0.15-0.23-0.34	0.18-0.25-0.38	0.18-0.25-0.38	0.20-0.30-0.40	0.20-0.30-0.40
	Alloy Steel, Tool Steel (35-48HRC)	80-60-35	90-60-35	0.11-0.19-0.30	0.12-0.22-0.32	0.12-0.22-0.32	0.14-0.24-0.34	0.14-0.24-0.34
	PH and Ferritic, Martensitic Steel (<35HRC)	70-50-30	90-60-30	0.10-0.18-0.28	0.12-0.20-0.30	0.12-0.20-0.30	0.14-0.24-0.32	0.14-0.24-0.32
	High strength PH and Ferritic, Martensitic Steel (35-48HRC)	70-45-25	80-50-30	0.10-0.18-0.28	0.12-0.20-0.30	0.12-0.20-0.30	0.14-0.24-0.32	0.14-0.24-0.32
M	Austenitic Stainless Steels (130- 200HB)	—	80-60-40	0.10-0.17-0.22	0.11-0.18-0.24	0.12-0.20-0.24	0.13-0.22-0.26	0.14-0.24-0.28
	High Strength Austenitic and Cast Stainless Steel (<25HRC)	—	80-60-40	0.08-0.13-0.16	0.09-0.13-0.18	0.10-0.14-0.18	0.10-0.14-0.20	0.12-0.16-0.22
	Duplex Stainless Steel (<30HRC)	—	60-45-30	0.08-0.13-0.16	0.09-0.13-0.18	0.10-0.14-0.18	0.10-0.14-0.20	0.12-0.16-0.22
K	Gray Cast Iron (<32HRC)	140-100-60	160-120-60	0.25-0.33-0.45	0.28-0.36-0.48	0.30-0.40-0.50	0.32-0.42-0.52	0.35-0.45-0.55
	Alloy Cast Iron with Medium Machining Difficulty, Nodular Cast Iron (<28HRC)	120-80-60	140-100-60	0.22-0.30-0.42	0.24-0.33-0.45	0.25-0.35-0.48	0.28-0.38-0.48	0.30-0.40-0.50
	Difficult-to-machine High Alloy Cast Iron, Nodular Cast Iron (<45HRC)	100-70-50	100-80-50	0.16-0.22-0.28	0.18-0.24-0.30	0.20-0.26-0.32	0.22-0.28-0.34	0.23-0.28-0.35

[Notes]

1. Please use a machine with relatively high rigidity. It is recommended to adopt hydraulic tool holders, thermal expansion tool holders and powerful handles with spring collets.
2. When installing the tool, it is necessary to ensure that the radial bounce of the drill bit tip is less than 0.02mm.
3. This standard cutting condition table is suitable for water-soluble cutting fluids
4. For the tool edge diameter specifications not listed in the table, please refer to the closest edge diameter specifications in the table to select the cutting data. Meanwhile, during the machining process, please adjust the cutting data appropriately according to the actual machining situation.