NEW SERIES

SMALL DIAMETER HIGH PERFORMANCE DRILLS

GARR TOOL®

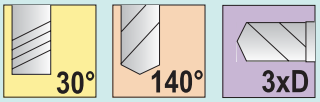
091M

supplement to Catalog 09

1550H - 2 Flute

0.792mm - 1.450mm
(.0312" - .0571")

NEW SERIES



TOLERANCES	
d_1	+.0000" –.0004" (+.000 –.010mm)
d_2	[h6] +.0000" –.0003" (+.000 –.008mm)

Balinit® HELICA Coated

High performance solid submicron grain carbide drill on 3mm or 1/8" diameter shank

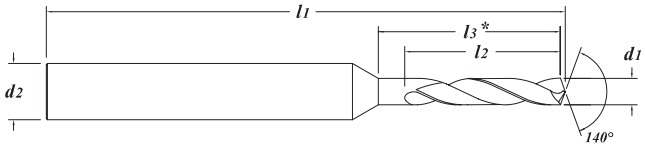
30° helix for better chip evacuation

Recommended to run in high nickel, high temperature alloys, cobalt-based alloys, stainless steels and tool steels

Balinit® HELICA is a multi-layer AlCr-based coating designed exclusively for high performance drilling

Live tooling recommended on lathe processes

* l_3 reach = l_2 + .075" [2mm]



EDP#	d_1 Diameter Decimal		d_1 Diameter Metric	d_2 Shank Diameter	l_1 Overall Length	l_2 Flute Length
00100	.0312"	1/32"	.792	1/8"	2"	5/32"
00102	.0315"		.800	3.0	50	4.0
00104	.0319"		.810	3.0	50	4.0
00106	.0320"	#67	.812	1/8"	2"	11/64"
00108	.0323"		.820	3.0	50	4.5
00110	.0327"		.830	3.0	50	4.5
00112	.0330"	#66	.838	1/8"	2"	11/64"
00114	.0331"		.840	3.0	50	4.5
00116	.0335"		.850	3.0	50	4.5
00118	.0339"		.860	3.0	50	4.5
00120	.0343"		.870	3.0	50	4.5
00122	.0346"		.880	3.0	50	4.5
00124	.0350"	#65	.890	3.0	50	4.5
00126	.0354"		.900	3.0	50	4.5
00128	.0358"		.910	3.0	50	5.0
00130	.0360"	#64	.914	1/8"	2"	3/16"
00132	.0362"		.920	3.0	50	5.0
00134	.0366"		.930	3.0	50	5.0
00136	.0370"	#63	.940	3.0	50	5.0
00138	.0374"		.950	3.0	50	5.0
00140	.0378"		.960	3.0	50	5.0
00142	.0380"	#62	.965	1/8"	2"	3/16"
00144	.0382"		.970	3.0	50	5.0
00146	.0386"		.980	3.0	50	5.0
00148	.0390"	#61	.990	3.0	50	5.0
00150	.0394"		1.000	3.0	50	5.0
00152	.0400"	#60	1.016	1/8"	2"	13/64"
00154	.0410"	#59	1.041	1/8"	2"	13/64"
00156	.0413"		1.050	3.0	50	5.5
00158	.0420"	#58	1.066	1/8"	2"	7/32"
00160	.0430"	#57	1.092	1/8"	2"	7/32"
00162	.0433"		1.100	3.0	50	5.5
00164	.0453"		1.150	3.0	50	6.0
00166	.0465"	#56	1.181	1/8"	2"	15/64"
00168	.0469"	3/64"	1.191	1/8"	2"	15/64"
00170	.0472"		1.200	3.0	50	6.0
00172	.0492"		1.250	3.0	50	6.5
00174	.0512"		1.300	3.0	50	6.5
00176	.0520"	#55	1.320	1/8"	2"	17/64"
00178	.0531"		1.350	3.0	50	6.5
00180	.0550"	#54	1.397	1/8"	2"	9/32"
00182	.0551"		1.400	3.0	50	7.0
00184	.0571"		1.450	3.0	50	7.0

† *Metric equivalents are for reference only*

1550H - 2 Flute *(continued)*

1.500mm - 3.175mm
(.0591" - .1250")

EDP#	d_1 Diameter Decimal		Metric	d_2 Shank Diameter	l_1 Overall Length	l_2 Flute Length
00186	.0591"		1.500	3.0	50	7.5
00188	.0595"	#53	1.511	1/8"	2"	19/64"
00190	.0610"		1.550	3.0	50	7.5
00192	.0625"	1/16"	1.587	1/8"	2"	5/16"
00194	.0630"		1.600	3.0	50	7.5
00196	.0635"	#52	1.613	1/8"	2"	5/16"
00198	.0650"		1.650	3.0	50	8.5
00200	.0669"		1.700	3.0	50	8.5
00202	.0670"	#51	1.702	1/8"	2"	11/32"
00204	.0689"		1.750	3.0	50	9.0
00206	.0700"	#50	1.778	1/8"	2"	23/64"
00208	.0709"		1.800	3.0	50	9.0
00210	.0728"		1.850	3.0	50	9.5
00212	.0730"	#49	1.854	1/8"	2"	3/8"
00214	.0748"		1.900	3.0	50	9.5
00216	.0760"	#48	1.930	1/8"	2"	3/8"
00218	.0768"		1.950	3.0	50	10.0
00220	.0781"	5/64"	1.983	1/8"	2"	13/32"
00222	.0785"	#47	1.994	1/8"	2"	13/32"
00224	.0787"		2.000	3.0	50	10.0
00226	.0807"		2.050	3.0	50	10.5
00228	.0810"	#46	2.057	1/8"	2"	27/64"
00230	.0820"	#45	2.083	1/8"	2"	27/64"
00232	.0827"		2.100	3.0	50	10.5
00234	.0846"		2.150	3.0	50	11.0
00236	.0860"	#44	2.184	1/8"	2"	7/16"
00238	.0866"		2.200	3.0	50	11.0
00240	.0886"		2.250	3.0	50	11.5
00242	.0890"	#43	2.260	1/8"	2"	29/64"
00244	.0906"		2.300	3.0	50	11.5
00246	.0925"		2.350	3.0	50	12.0
00248	.0935"	#42	2.375	1/8"	2"	31/64"
00250	.0938"	3/32"	2.382	1/8"	2"	31/64"
00252	.0945"		2.400	3.0	50	12.0
00254	.0960"	#41	2.438	1/8"	2"	31/64"
00256	.0965"		2.450	3.0	50	12.5
00258	.0980"	#40	2.489	1/8"	2"	1/2"
00260	.0984"		2.500	3.0	50	12.5
00262	.0995"	#39	2.527	1/8"	2"	1/2"
00264	.1004"		2.550	3.0	50	13.0
00266	.1015"	#38	2.578	1/8"	2"	17/32"
00268	.1024"		2.600	3.0	50	13.0
00270	.1040"	#37	2.641	1/8"	2"	17/32"
00272	.1043"		2.650	3.0	50	13.5
00274	.1063"		2.700	3.0	50	13.5
00276	.1065"	#36	2.705	1/8"	2"	17/32"
00278	.1083"		2.750	3.0	50	14.0
00280	.1094"	7/64"	2.778	1/8"	2"	9/16"
00282	.1100"	#35	2.794	1/8"	2"	9/16"
00284	.1102"		2.800	3.0	50	14.0
00286	.1110"	#34	2.819	1/8"	2"	9/16"
00288	.1122"		2.850	3.0	50	14.5
00290	.1130"	#33	2.870	1/8"	2"	19/32"
00292	.1142"		2.900	3.0	50	14.5
00294	.1160"	#32	2.946	1/8"	2"	19/32"
00296	.1161"		2.950	3.0	50	15.0
00298	.1181"		3.000	3.0	50	15.0
00300	.1200"	#31	3.048	1/8"	2"	5/8"
00302	.1250"	1/8"	3.175	1/8"	2"	5/8"

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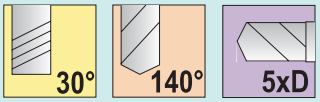

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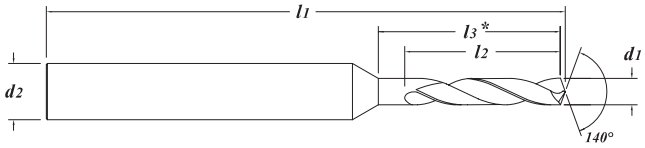

EDP#	d_1 Diameter Decimal		Metric	d_2 Shank Diameter	l_1 Overall Length	l_2 Flute Length
00304	.0312"	1/32"	.792	1/8"	2"	15/64"
00306	.0315"		.800	3.0	50	6.0
00308	.0319"		.810	3.0	50	6.0
00310	.0320"	#67	.812	1/8"	2"	15/64"
00312	.0323"		.820	3.0	50	6.0
00314	.0327"		.830	3.0	50	6.0
00316	.0330"	#66	.838	1/8"	2"	15/64"
00318	.0331"		.840	3.0	50	6.0
00320	.0335"		.850	3.0	50	6.0
00322	.0339"		.860	3.0	50	6.5
00324	.0343"		.870	3.0	50	6.5
00326	.0346"		.880	3.0	50	6.5
00328	.0350"	#65	.890	3.0	50	6.5
00330	.0354"		.900	3.0	50	6.5
00332	.0358"		.910	3.0	50	6.5
00334	.0360"	#64	.914	1/8"	2"	1/4"
00336	.0362"		.920	3.0	50	6.5
00338	.0366"		.930	3.0	50	6.5
00340	.0370"	#63	.940	3.0	50	7.0
00342	.0374"		.950	3.0	50	7.0
00344	.0378"		.960	3.0	50	7.0
00346	.0380"	#62	.965	1/8"	2"	17/64"
00348	.0382"		.970	3.0	50	7.0
00350	.0386"		.980	3.0	50	7.0
00352	.0390"	#61	.990	3.0	50	7.0
00354	.0394"		1.000	3.0	50	7.0
00356	.0400"	#60	1.016	1/8"	2"	9/32"
00358	.0410"	#59	1.041	1/8"	2"	9/32"
00360	.0413"		1.050	3.0	50	7.5
00362	.0420"	#58	1.066	1/8"	2"	5/16"
00364	.0430"	#57	1.092	1/8"	2"	5/16"
00366	.0433"		1.100	3.0	50	8.0
00368	.0453"		1.150	3.0	50	8.0
00370	.0465"	#56	1.181	1/8"	2"	11/32"
00372	.0469"	3/64"	1.191	1/8"	2"	11/32"
00374	.0472"		1.200	3.0	50	9.0
00376	.0492"		1.250	3.0	50	9.0
00378	.0512"		1.300	3.0	50	9.0
00380	.0520"	#55	1.320	1/8"	2"	3/8"
00382	.0531"		1.350	3.0	50	9.5
00384	.0550"	#54	1.397	1/8"	2"	3/8"
00386	.0551"		1.400	3.0	50	10.0
00388	.0571"		1.450	3.0	50	10.5

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1250H - 2 Flute *(continued)*

1.500mm - 3.175mm
(.0591" - .1250")

EDP#	d_1 Diameter Decimal		Metric	d_2 Shank Diameter	l_1 Overall Length	l_2 Flute Length
00390	.0591"		1.500	3.0	50	10.5
00392	.0595"	#53	1.511	1/8"	2"	7/16"
00394	.0610"		1.550	3.0	50	11.0
00396	.0625"	1/16"	1.587	1/8"	2"	7/16"
00398	.0630"		1.600	3.0	50	11.0
00400	.0635"	#52	1.613	1/8"	2"	15/32"
00402	.0650"		1.650	3.0	50	11.5
00404	.0669"		1.700	3.0	50	11.5
00406	.0670"	#51	1.702	1/8"	2"	15/32"
00408	.0689"		1.750	3.0	50	12.0
00410	.0700"	#50	1.778	1/8"	2"	1/2"
00412	.0709"		1.800	3.0	50	13.0
00414	.0728"		1.850	3.0	50	13.0
00416	.0730"	#49	1.854	1/8"	2"	1/2"
00418	.0748"		1.900	3.0	50	13.5
00420	.0760"	#48	1.930	1/8"	2"	17/32"
00422	.0768"		1.950	3.0	50	14.0
00424	.0781"	5/64"	1.983	1/8"	2"	9/16"
00426	.0785"	#47	1.994	1/8"	2"	9/16"
00428	.0787"		2.000	3.0	50	14.0
00430	.0807"		2.050	3.0	50	14.0
00432	.0810"	#46	2.057	1/8"	2"	9/16"
00434	.0820"	#45	2.083	1/8"	2"	9/16"
00436	.0827"		2.100	3.0	50	14.5
00438	.0846"		2.150	3.0	50	14.5
00440	.0860"	#44	2.184	1/8"	2"	19/32"
00442	.0866"		2.200	3.0	50	15.5
00444	.0886"		2.250	3.0	50	15.5
00446	.0890"	#43	2.260	1/8"	2"	5/8"
00448	.0906"		2.300	3.0	50	16.0
00450	.0925"		2.350	3.0	50	16.0
00452	.0935"	#42	2.375	1/8"	2"	21/32"
00454	.0938"	3/32"	2.382	1/8"	2"	21/32"
00456	.0945"		2.400	3.0	50	17.0
00458	.0960"	#41	2.438	1/8"	2"	43/64"
00460	.0965"		2.450	3.0	50	17.0
00462	.0980"	#40	2.489	1/8"	2"	11/16"
00464	.0984"		2.500	3.0	50	17.5
00466	.0995"	#39	2.527	1/8"	2"	11/16"
00468	.1004"		2.550	3.0	50	17.5
00470	.1015"	#38	2.578	1/8"	2"	45/64"
00472	.1024"		2.600	3.0	50	18.0
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00476	.1043"		2.650	3.0	50	18.5
00478	.1063"		2.700	3.0	50	19.0
00480	.1065"	#36	2.705	1/8"	2"	3/4"
00482	.1083"		2.750	3.0	50	19.5
00484	.1094"	7/64"	2.778	1/8"	2"	49/64"
00486	.1100"	#35	2.794	1/8"	2"	49/64"
00488	.1102"		2.800	3.0	50	19.5
00490	.1110"	#34	2.819	1/8"	2"	25/32"
00492	.1122"		2.850	3.0	50	20.0
00494	.1130"	#33	2.870	1/8"	2"	51/64"
00496	.1142"		2.900	3.0	50	20.0
00498	.1160"	#32	2.946	1/8"	2"	13/16"
00500	.1161"		2.950	3.0	50	21.0
00502	.1181"		3.000	3.0	50	21.0
00504	.1200"	#31	3.048	1/8"	2"	7/8"
00506	.1250"	1/8"	3.175	1/8"	2"	7/8"

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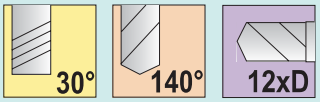

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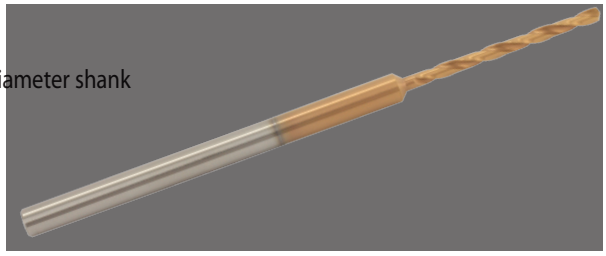

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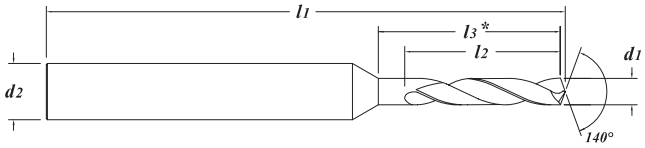

EDP#	d_1 Diameter Decimal		d_1 Diameter Metric	d_2 Shank Diameter	l_1 Overall Length	l_2 Flute Length
00510	.0312"	1/32"	.792	1/8"	2"	7/16"
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00524	.0331"		.840	3.0	50	12.0
00526	.0335"		.850	3.0	50	12.0
00528	.0339"		.860	3.0	50	13.0
00530	.0343"		.870	3.0	50	13.0
00532	.0346"		.880	3.0	50	13.0
00534	.0350"	#65	.890	3.0	50	13.0
00536	.0354"		.900	3.0	50	13.0
00538	.0358"		.910	3.0	50	13.0
00540	.0360"	#64	.914	1/8"	2"	1/2"
00542	.0362"		.920	3.0	50	13.0
00544	.0366"		.930	3.0	50	13.0
00546	.0370"	#63	.940	3.0	50	14.0
00548	.0374"		.950	3.0	50	14.0
00550	.0378"		.960	3.0	50	14.0
00552	.0380"	#62	.965	1/8"	2"	9/16"
00554	.0382"		.970	3.0	50	14.0
00556	.0386"		.980	3.0	50	14.0
00558	.0390"	#61	.990	3.0	50	14.0
00560	.0394"		1.000	3.0	50	14.0
00562	.0400"	#60	1.016	1/8"	2"	9/16"
00564	.0410"	#59	1.041	1/8"	2"	9/16"
00566	.0413"		1.050	3.0	50	15.0
00568	.0420"	#58	1.066	1/8"	2"	9/16"
00570	.0430"	#57	1.092	1/8"	2"	9/16"
00572	.0433"		1.100	3.0	50	16.0
00574	.0453"		1.150	3.0	50	16.0
00576	.0465"	#56	1.181	1/8"	2"	5/8"
00578	.0469"	3/64"	1.191	1/8"	2"	5/8"
00580	.0472"		1.200	3.0	50	18.0
00582	.0492"		1.250	3.0	50	18.0
00584	.0512"		1.300	3.0	50	18.0
00586	.0520"	#55	1.320	1/8"	2"	3/4"
00588	.0531"		1.350	3.0	50	19.0
00590	.0550"	#54	1.397	1/8"	2"	3/4"
00592	.0551"		1.400	3.0	65	20.0
00594	.0571"		1.450	3.0	65	21.0

† *Metric equivalents are for reference only*

1850H - 2 Flute *(continued)*

1.500mm - 3.175mm
(.0591" - .1250")

EDP#	d_1 Diameter Decimal		Metric	d_2 Shank Diameter	l_1 Overall Length	l_2 Flute Length
00596	.0591"		1.500	3.0	65	21.0
00598	.0595"	#53	1.511	1/8"	2-1/2"	13/16"
00600	.0610"		1.550	3.0	65	22.0
00602	.0625"	1/16"	1.587	1/8"	2-1/2"	13/16"
00604	.0630"		1.600	3.0	65	22.0
00606	.0635"	#52	1.613	1/8"	2-1/2"	7/8"
00608	.0650"		1.650	3.0	65	23.0
00610	.0669"		1.700	3.0	65	23.0
00612	.0670"	#51	1.702	1/8"	2-1/2"	7/8"
00614	.0689"		1.750	3.0	65	24.0
00616	.0700"	#50	1.778	1/8"	2-1/2"	1"
00618	.0709"		1.800	3.0	65	26.0
00620	.0728"		1.850	3.0	65	26.0
00622	.0730"	#49	1.854	1/8"	2-1/2"	1"
00624	.0748"		1.900	3.0	65	27.0
00626	.0760"	#48	1.930	1/8"	2-1/2"	1-1/8"
00628	.0768"		1.950	3.0	65	28.0
00630	.0781"	5/64"	1.983	1/8"	2-1/2"	1-1/8"
00632	.0785"	#47	1.994	1/8"	2-1/2"	1-1/8"
00634	.0787"		2.000	3.0	65	28.0
00636	.0807"		2.050	3.0	65	28.0
00638	.0810"	#46	2.057	1/8"	2-1/2"	1-1/8"
00640	.0820"	#45	2.083	1/8"	2-1/2"	1-1/8"
00642	.0827"		2.100	3.0	65	29.0
00644	.0846"		2.150	3.0	65	29.0
00646	.0860"	#44	2.184	1/8"	2-1/2"	1-3/16"
00648	.0866"		2.200	3.0	65	31.0
00650	.0886"		2.250	3.0	65	31.0
00652	.0890"	#43	2.260	1/8"	2-1/2"	1-1/4"
00654	.0906"		2.300	3.0	65	32.0
00656	.0925"		2.350	3.0	65	32.0
00658	.0935"	#42	2.375	1/8"	3"	1-5/16"
00660	.0938"	3/32"	2.382	1/8"	3"	1-5/16"
00662	.0945"		2.400	3.0	75	34.0
00664	.0960"	#41	2.438	1/8"	3"	1-11/32"
00666	.0965"		2.450	3.0	75	34.0
00668	.0980"	#40	2.489	1/8"	3"	1-3/8"
00670	.0984"		2.500	3.0	75	35.0
00672	.0995"	#39	2.527	1/8"	3"	1-3/8"
00674	.1004"		2.550	3.0	75	35.0
00676	.1015"	#38	2.578	1/8"	3"	1-13/32"
00678	.1024"		2.600	3.0	75	36.0
00680	.1040"	#37	2.641	1/8"	3"	1-7/16"
00682	.1043"		2.650	3.0	75	37.0
00684	.1063"		2.700	3.0	75	38.0
00686	.1065"	#36	2.705	1/8"	3"	1-1/2"
00688	.1083"		2.750	3.0	75	39.0
00690	.1094"	7/64"	2.778	1/8"	3"	1-9/16"
00692	.1100"	#35	2.794	1/8"	3"	1-9/16"
00694	.1102"		2.800	3.0	75	39.0
00696	.1110"	#34	2.819	1/8"	3"	1-5/8"
00698	.1122"		2.850	3.0	75	40.0
00700	.1130"	#33	2.870	1/8"	3"	1-5/8"
00702	.1142"		2.900	3.0	75	40.0
00704	.1160"	#32	2.946	1/8"	3"	1-5/8"
00706	.1161"		2.950	3.0	75	42.0
00708	.1181"		3.000	3.0	75	42.0
00710	.1200"	#31	3.048	1/8"	3"	1-3/4"
00712	.1250"	1/8"	3.175	1/8"	3"	1-3/4"

GARR TOOL High Performance Drilling Guide

Fractional

Type	Rc Hardness	Recommended SFM	CHIPLOAD PER FLUTE (Fz)		
		Series 1250H 1550H 1850H	1/32" - 0.99mm (.0312" - .0390")	1.00mm - 2.00mm (.0394" - .0787")	2.01mm - 1/8" (.0791" - .1250")
COBALT BASE ALLOYS					
Powdered Metal, Stellite, Hs-21, Haynes 25/188, X-40, L-605	< 35 > 35	100 - 150 80 - 110	.0002" - .0004" .0002" - .0004"	.0004" - .0008" .0003" - .0006"	.0006" - .0012" .0005" - .0010"
NICKEL BASE ALLOYS					
Invar, Kovar, Inconel-625/718, Waspalloy, Rene, Hastalloy, A286	< 35 > 35	125 - 150 100 - 125	.0003" - .0005" .0002" - .0004"	.0004" - .0008" .0003" - .0006"	.0006" - .0012" .0005" - .0010"
IRON BASE ALLOYS					
Incoloy 800-802, Multimet N-155, Timkin 16-25-6, Carpenter 22-b3	< 35 > 35	125 - 175 80 - 100	.0004" - .0008" .0003" - .0006"	.0006" - .0012" .0004" - .0008"	.0008" - .0015" .0006" - .0012"
MONEL					
Monel - 65% Nickel		75 - 125	.0002" - .0004"	.0003" - .0006"	.0005" - .0010"
TITANIUM ALLOYS					
Commercially Pure, 6Al-4V, Astm 1/2/3, 6Al-25N-4Zr-2Mo-Si		150 - 200	.0003" - .0006"	.0004" - .0008"	.0006" - .0012"
STAINLESS STEELS					
(Precipitation) 13/8, 15/5, 17-4, pH Types	< 35 > 35	125 - 175 80 - 125	.0003" - .0005" .0002" - .0004"	.0004" - .0008" .0003" - .0006"	.0006" - .0012" .0005" - .0010"
(Austentic) Inox, 200 Series, 300 Series	< 35 > 35	100 - 175 80 - 125	.0003" - .0005" .0002" - .0004"	.0004" - .0008" .0003" - .0006"	.0006" - .0012" .0005" - .0010"
(Austentic) 304L, 316L, Nitronic 50, Inox	< 35 > 35	80 - 100 60 - 90	.0003" - .0005" .0002" - .0004"	.0004" - .0008" .0003" - .0006"	.0006" - .0012" .0005" - .0010"
(Martensitic) 400 Series	< 35 > 35	100 - 150 80 - 125	.0003" - .0005" .0002" - .0004"	.0004" - .0008" .0003" - .0006"	.0006" - .0012" .0005" - .0010"
HIGH STRENGTH TOOL STEELS					
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, O1	< 35 35-48 > 48	100 - 175 80 - 130 60 - 80	.0003" - .0006" .0002" - .0005" .0002" - .0004"	.0004" - .0008" .0003" - .0008" .0003" - .0006"	.0006" - .0012" .0006" - .0012" .0005" - .0010"
MEDIUM ALLOY TOOL STEELS					
200, 250, 300, 8620	< 35 > 35	125 - 175 80 - 125	.0004" - .0008" .0003" - .0005"	.0006" - .0012" .0004" - .0008"	.0008" - .0015" .0006" - .0012"
CARBON STEELS					
Platinum, A36, 12L14, 1000's, 1100's, 1300's	< 35 > 35	125 - 175 80 - 125	.0004" - .0008" .0003" - .0005"	.0006" - .0012" .0004" - .0008"	.0008" - .0015" .0006" - .0012"
CAST MATERIAL					
Steel		100 - 175	.0003" - .0006"	.0004" - .0008"	.0006" - .0012"
Ductile Iron		100 - 200	.0004" - .0008"	.0006" - .0012"	.0008" - .0015"
Gray Iron		80 - 175	.0004" - .0008"	.0006" - .0012"	.0008" - .0015"
Aluminum		100 - 250	.0004" - .0008"	.0006" - .0012"	.0008" - .0015"
ALUMINUM					
2014, 2024, 6061-(T1-T6), 7075, Extruded		125 - 300	.0004" - .0008"	.0006" - .0012"	.0008" - .0015"
MAGNESIUM					
		125 - 250	.0004" - .0008"	.0006" - .0012"	.0008" - .0015"
COPPER					
Copper Alloys		125 - 250	.0004" - .0008"	.0006" - .0012"	.0008" - .0015"
BRASS					
Short Chips Long Chips		125 - 250 100 - 200	.0004" - .0008" .0003" - .0005"	.0006" - .0012" .0004" - .0008"	.0008" - .0015" .0006" - .0012"
BRONZE					
Short Chips Long Chips		100 - 250 80 - 175	.0004" - .0008" .0003" - .0006"	.0006" - .0012" .0004" - .0008"	.0008" - .0015" .0006" - .0012"

NOTE - ABOVE ARE STARTING PARAMETERS ONLY. HIGHER RESULTS MAY BE ACHIEVED WITH OPTIMUM CONDITIONS.

GARR TOOL High Performance Drilling Guide

Metric

Type	Rc Hardness	Recommended M/Min. Series 1250H 1550H 1850H	CHIPLOAD PER FLUTE (Fz) 1/32" - 0.99mm (.0312" - .0390")	1.00mm - 2.00mm (.0394" - .0787")	2.01mm - 1/8" (.0791" - .1250")
COBALT BASE ALLOYS					
Powdered Metal, Stellite, Hs-21, Haynes 25/188, X-40, L-605	< 35 > 35	30 - 45 25 - 35	.005mm - .010mm .005mm - .010mm	.010mm - .020mm .008mm - .015mm	.015mm - .030mm .013mm - .025mm
NICKEL BASE ALLOYS					
Invar, Kovar, Inconel-625/718, Waspalloy, Rene, Hastalloy, A286	< 35 > 35	40 - 45 30 - 40	.008mm - .013mm .005mm - .010mm	.010mm - .020mm .008mm - .015mm	.015mm - .030mm .013mm - .025mm
IRON BASE ALLOYS					
Incoloy 800-802, Multimet N-155, Timkin 16-25-6, Carpenter 22-b3	< 35 > 35	40 - 50 25 - 30	.010mm - .020mm .008mm - .015mm	.015mm - .030mm .010mm - .020mm	.020mm - .038mm .015mm - .030mm
MONEL					
Monel - 65% Nickel		20 - 40	.005mm - .010mm	.008mm - .015mm	.013mm - .025mm
TITANIUM ALLOYS					
Commercially Pure, 6Al-4V, Astm 1/2/3, 6Al-25N-4Zr-2Mo-Si		45 - 60	.008mm - .015mm	.010mm - .020mm	.015mm - .030mm
STAINLESS STEELS					
(Precipitation) 13/8, 15/5, 17-4, pH Types	< 35 > 35	40 - 50 25 - 40	.008mm - .013mm .005mm - .010mm	.010mm - .020mm .008mm - .015mm	.015mm - .030mm .013mm - .025mm
(Austentic) Inox, 200 Series, 300 Series	< 35 > 35	30 - 50 25 - 40	.008mm - .013mm .005mm - .010mm	.010mm - .020mm .008mm - .015mm	.015mm - .030mm .013mm - .025mm
(Austentic) 304L, 316L, Nitronic 50, Inox	< 35 > 35	25 - 30 20 - 25	.008mm - .013mm .005mm - .010mm	.010mm - .020mm .008mm - .015mm	.015mm - .030mm .013mm - .025mm
(Martensitic) 400 Series	< 35 > 35	30 - 45 25 - 40	.008mm - .013mm .005mm - .010mm	.010mm - .020mm .008mm - .015mm	.015mm - .030mm .013mm - .025mm
HIGH STRENGTH TOOL STEELS					
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, O1	< 35 35-48 > 48	30 - 50 25 - 40 20 - 25	.008mm - .015mm .005mm - .013mm .005mm - .010mm	.010mm - .020mm .008mm - .020mm .008mm - .015mm	.015mm - .030mm .015mm - .030mm .013mm - .025mm
MEDIUM ALLOY TOOL STEELS					
200, 250, 300, 8620	< 35 > 35	40 - 50 25 - 40	.010mm - .020mm .008mm - .013mm	.015mm - .030mm .010mm - .020mm	.020mm - .038mm .015mm - .030mm
CARBON STEELS					
Platinum, A36, 12L14, 1000's, 1100's, 1300's	< 35 > 35	40 - 50 25 - 40	.010mm - .020mm .008mm - .013mm	.015mm - .030mm .010mm - .020mm	.020mm - .038mm .015mm - .030mm
CAST MATERIAL					
Steel		30 - 50	.008mm - .015mm	.010mm - .020mm	.015mm - .030mm
Ductile Iron		30 - 60	.010mm - .020mm	.015mm - .030mm	.020mm - .038mm
Gray Iron		25 - 50	.010mm - .020mm	.015mm - .030mm	.020mm - .038mm
Aluminum		30 - 75	.010mm - .020mm	.015mm - .030mm	.020mm - .038mm
ALUMINUM					
2014, 2024, 6061-(T1-T6), 7075, Extruded		40 - 90	.010mm - .020mm	.015mm - .030mm	.020mm - .038mm
MAGNESIUM					
		40 - 75	.010mm - .020mm	.015mm - .030mm	.020mm - .038mm
COPPER					
Copper Alloys		40 - 75	.010mm - .020mm	.015mm - .030mm	.020mm - .038mm
BRASS					
Short Chips Long Chips		40 - 75 30 - 60	.010mm - .020mm .008mm - .013mm	.015mm - .030mm .010mm - .020mm	.020mm - .038mm .015mm - .030mm
BRONZE					
Short Chips Long Chips		30 - 75 25 - 50	.010mm - .020mm .008mm - .015mm	.015mm - .030mm .010mm - .020mm	.020mm - .038mm .015mm - .030mm

NOTE - ABOVE ARE STARTING PARAMETERS ONLY. HIGHER RESULTS MAY BE ACHIEVED WITH OPTIMUM CONDITIONS.

NEWEST PRODUCT FLYERS

Our solid carbide reamers, made from premium submicron grain carbide, come standard with straight flutes, a 45° lead chamfer, and a neck behind the flutes for better reach into the part. We have included over 500 sizes in this new line.

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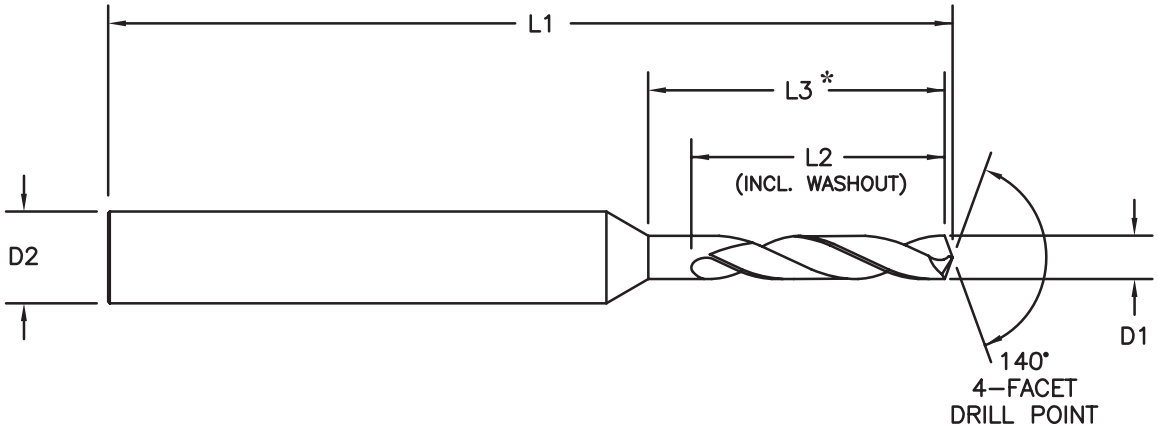

D1: _____ TOL: _____

D2: _____ TOL: _____

L1: _____

L2: _____

* L3: _____ (L2 + .075"[2mm] STD)

HELIX ANGLE (30° STD): _____

COATING: _____

MAT'L BEING CUT: _____

DIMENSIONS NOT SHOWN TO BE GARR TOOL STANDARDS
TOLERANCES ARE BEFORE ANY COATING IS APPLIED

GARR TOOL
ALMA, MICHIGAN

SCALE: ___	DRAWN BY:	APPR. BY:
DATE:		DATE:

TITLE: HIGH PERFORMANCE DRILL

CUSTOMER:	DWG NO.:

REVISIONS			

GARR TOOL®

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