



# General Purpose Screw Machine Length Drill

## Styles R40, R41, R42

### How To Use This Chart:

- 1. Determine your Workpiece Material from the Application Material Groups (AMG) below.
- 2. Use the Icons to find Product Features.
- 3. Find the Surface Feet Per Minute (SFM) and Alpha Code  
example: 361W  
361 = SFM  
W = Alpha Code used to find your Feed Rate



HSS
ANSI
2.5XD
118°
Chip Breaker
Flute Length
Curved Arrow

<b>R40</b>
<b>R41</b>
<b>R42</b>
N60 - 2"
<b>113</b>
1.1 115J
1.2 98J
1.3 89G
1.4 69G
1.5 46F
1.6 33E
1.7
1.8
2.1 52F
2.2 30H
2.3 33D
2.4
3.1 105J
3.2 89G
3.3 66F
3.4 52F
4.1 89G
4.2 52E
4.3 26C
5.1 43H
5.2 26F
5.3 13B
6.1 118H
6.2 125J
6.3 89I
6.4 52H
7.1 108K
7.2 98J
7.3 98I
7.4 82I
8.1 98K
8.2 115I
8.3 56G
9.1 13C
10.1

## Feed Rate Chart

Alpha Code	Feed in Inches per Revolution (IPR) ± 25%															Ø Diameter				
	1mm/ 1/32"	2mm/ 3/32"	3mm/ 1/8"	4mm/ 5/32"	5mm/ 3/16"	6mm/ 1/4"	8mm/ 5/16"	10mm/ 3/8"	12mm/ 1/2"	15mm/ 9/16"	16mm/ 5/8"	20mm/ 3/4"	25mm/ 1"	30mm/ 1.1/8"	40mm/ 1.5/8"	50mm/ 2"				
A	0.0004	0.0009	0.0011	0.0013	0.0014	0.0017	0.0021	0.0024	0.0027	0.0032	0.0034	0.0043	0.0049	0.0053	0.0061	0.0069				
B	0.0006	0.0011	0.0015	0.0016	0.0018	0.0021	0.0026	0.0031	0.0035	0.0041	0.0043	0.0053	0.0060	0.0065	0.0074	0.0082				
C	0.0006	0.0013	0.0017	0.0020	0.0022	0.0025	0.0031	0.0039	0.0043	0.0049	0.0051	0.0063	0.0071	0.0077	0.0087	0.0094				
D	0.0006	0.0015	0.0021	0.0024	0.0027	0.0031	0.0039	0.0047	0.0051	0.0059	0.0061	0.0074	0.0083	0.0090	0.0100	0.0108				
E	0.0007	0.0017	0.0024	0.0028	0.0031	0.0037	0.0045	0.0055	0.0059	0.0068	0.0071	0.0085	0.0094	0.0102	0.0112	0.0122				
F	0.0007	0.0020	0.0029	0.0033	0.0037	0.0043	0.0054	0.0065	0.0070	0.0080	0.0083	0.0098	0.0108	0.0116	0.0126	0.0135				
G	0.0007	0.0022	0.0033	0.0038	0.0043	0.0050	0.0063	0.0075	0.0081	0.0091	0.0094	0.0110	0.0122	0.0130	0.0140	0.0148				
H	0.0008	0.0026	0.0040	0.0046	0.0051	0.0059	0.0075	0.0090	0.0096	0.0107	0.0110	0.0126	0.0140	0.0148	0.0157	0.0165				
I	0.0008	0.0030	0.0047	0.0053	0.0059	0.0068	0.0087	0.0104	0.0110	0.0122	0.0126	0.0142	0.0157	0.0165	0.0173	0.0181				
J	0.0009	0.0033	0.0053	0.0060	0.0067	0.0078	0.0098	0.0117	0.0124	0.0137	0.0142	0.0159	0.0175	0.0183	0.0191	0.0198				
K	0.0010	0.0036	0.0059	0.0067	0.0075	0.0087	0.0110	0.0130	0.0138	0.0153	0.0157	0.0177	0.0193	0.0201	0.0209	0.0215				
L	0.0011	0.0040	0.0065	0.0073	0.0082	0.0094	0.0120	0.0142	0.0152	0.0165	0.0169	0.0191	0.0207	0.0215	0.0224	0.0231				
M	0.0012	0.0043	0.0071	0.0080	0.0089	0.0102	0.0130	0.0154	0.0165	0.0177	0.0181	0.0205	0.0220	0.0228	0.0238	0.0248				
N	0.0013	0.0047	0.0077	0.0086	0.0095	0.0110	0.0140	0.0165	0.0179	0.0189	0.0193	0.0219	0.0234	0.0242	0.0253	0.0265				
S	0.0003	0.0006	0.0008	0.0010	0.0012	0.0015	0.0020	0.0031	0.0039	0.0048	0.0051	0.0059	0.0070	0.0070	0.0090					
T	0.0006	0.0011	0.0016	0.0020	0.0024	0.0028	0.0035	0.0043	0.0051	0.0063	0.0067	0.0075	0.0080	0.0090	0.0100					
U	0.0010	0.0019	0.0028	0.0031	0.0035	0.0042	0.0055	0.0067	0.0079	0.0088	0.0091	0.0094	0.0110	0.0120	0.0140					
V	0.0015	0.0027	0.0039	0.0045	0.0051	0.0060	0.0079	0.0098	0.0110	0.0122	0.0126	0.0134	0.0160	0.0170	0.0200					
W	0.0019	0.0035	0.0051	0.0059	0.0067	0.0079	0.0102	0.0130	0.0150	0.0165	0.0169	0.0177	0.0190	0.0190	0.0200					
X	0.0022	0.0041	0.0059	0.0071	0.0083	0.0098	0.0130	0.0165	0.0189	0.0210	0.0217	0.0228								
Y	0.0027	0.0049	0.0071	0.0087	0.0102	0.0125	0.0169	0.0217	0.0276	0.0276	0.0276	0.0291								
Z	0.0037	0.0068	0.0098	0.0128	0.0157	0.0210	0.0315	0.0394	0.0433	0.0463	0.0472	0.0472								

### How To Use This Chart to Find Cutting Feed Rate (IPR):

1. Find your Alpha Code on the AMG Chart (example: 279 U : U is the Alpha Code)
2. Find the closest diameter for your cutting application on the chart to find your IPR

Application Material Groups (AMG)		Hardness HRC	ISO
1. Steel	1.1 Magnetic soft steel	12L14, 12L15	<120 HB P 1
	1.2 Structural Steel/ case carburising steel	1005-1025, 1214, 1215, A36	<200 HB P 1
	1.3 Plain Carbon steel	1030-1060, 1050-1060, 1144-1146	<24 P 2
	1.4 Alloy steel	4140,4340,52100,8620 H11-H41,A2,D2,01,P20,420	<24 P 3
	1.5 Alloy steel/ Hardened and tempered steel	4140,4340,52100,8620 H11-H41,A2,D2,01,P20,420	>24<38 P 4
	1.6 Alloy steel/ Hardened and tempered steel	4140,4340,52100,8620 H11-H41,A2,D2,01,P20,420	>38 H 1
	1.7 Alloy steel Hardened	A2-D2, H10-H41, L1-L6, M1-M42, T1	49-55 H 3
	1.8 Alloy steel Hardened	A2-D2, H10-H41, L1-L6, M1-M42, T1	55-63 H 4
2. Stainless Steel	2.1 Free machining Stainless Steel	200, 303, 416, 420F, 430F, 440	<24 M 1
	2.2 Austenitic	301, 302, 304, 316, 321, 330, CUSTOM 455, AM-350	<24 M 3
	2.3 Ferritic + Austenitic, Martensitic	318-329, 400-446, DUPLEX	<32 M 2
	2.4 Precipitation Hardened	15-5PH, Custom 450 17-4PH	<32 S 2
3. Cast Iron	3.1 Lamellar graphite	Grey, G10, Gg40, J431C, A48 CLASS 20	<150 HB K 1
	3.2 Lamellar graphite	Grey, GG25-Gg40, J158, A48 CLASS 40-60	>150 HB<32 K 2
	3.3 Nodular graphite/ Malleable Cast Iron	A220, A436, A439, A602, Black, GGG40-GGG70	<200 HB K 3
	3.4 Nodular graphite/ Malleable Cast Iron	Black Gts/Gtw, J434C	>200 HB<32 K 4
4. Titanium	4.1 Titanium, unalloyed	Commercially Pure	<200 HB S 1
	4.2 Titanium, alloyed	6Al4V, 6A14V-2Sn, Monel, Monel K	<28 S 2
	4.3 Titanium, alloyed	6Al4V-4Mo, 7A14V-4Mo, 4911-4967	>28<38 S 3
5. Nickel	5.1 Nickel, unalloyed	Commercially Pure, 17644, 200, 5553	<150 HB S 1
	5.2 Nickel, alloyed	Monel 400, Hastelloy C, Inconel 625, Waspaloy	<28 S 2
	5.3 Nickel, alloyed	Inconel 718, Nimonic 75-95, Rene 41, Inconel 825, A286	>28<38 S 3
6. Copper	6.1 Copper	Commercially Pure	<100 HB N 3
	6.2 β-Brass, Bronze	314-340, 350-370	<200 HB N 4
	6.3 α-Brass	Alloyed Cu + Al + Fe, Long Chipping	<200 HB N 3
	6.4 High Strength Bronze	Ampco 18-25	<49 N 4
7. Aluminium Magnesium	7.1 Al, Mg, unalloyed	Commercially Pure	<100 HB N 1
	7.2 Al alloyed, Si<0.5%	6061 T6, 7075, 314-340	<150 HB N 1
	7.3 Al alloyed, Si>0.5%<10%	6061 T6, 380-390	<120 HB N 1
	7.4 Al alloyed, Si>10% Mg alloys	Magnesium Whisker Reinforced	<120 HB N 2
8. Synthetic Materials	8.1 Thermoplastics	Ultradim, Polystrol	---
	8.2 Thermosetting plastics	Bakelit, Pertinax	---
	8.3 Reinforced plastic materials	CFK, GFKAFK	---
9. Hard Mat.	9.1 Cermets (Metal-ceramics)	Ferrotic	<54 H
10. Graphite	10.1 Standard graphite	---	O



# SCREW MACHINE DRILL

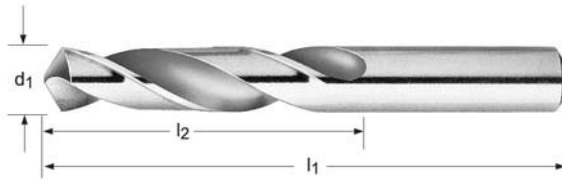
## General Purpose Screw Machine Length

**R40** - Fractional Sizes

**R41** - Wire Gauge Sizes

**R42** - Letter Sizes

Bright Finish improves chip flow in soft or non-ferrous materials



- <sup>1)</sup> Sizes 45/64 and larger are steam oxide
- <sup>2)</sup> 1" reduced shank
- <sup>3)</sup> 1-1/4" reduced shank
- <sup>4)</sup> 1-1/2" reduced shank

R40	R41	R42
ANSI	ANSI	ANSI
2.5XD	2.5XD	2.5XD
HSS	HSS	HSS
118°	118°	118°
3/64 - 2"	N60 - N1	A - Z

d <sub>1</sub> Ø Inch	d <sub>1</sub> Ø Nr.	d <sub>1</sub> Ø letter	d <sub>1</sub> decimal Inch	l <sub>2</sub> Inch	l <sub>1</sub> Inch	Pack Qty	R40	R41	R42
	60		0.0400	1/2	1.3/8	12	—	041060	—
	59		0.0410	1/2	1.3/8	12	—	041059	—
	58		0.0420	1/2	1.3/8	12	—	041058	—
	57		0.0430	1/2	1.3/8	12	—	041057	—
	56		0.0465	1/2	1.3/8	12	—	041056	—
3/64			0.0469	1/2	1.3/8	12	040003	—	—
	55		0.0520	5/8	1.5/8	12	—	041055	—
	54		0.0550	5/8	1.5/8	12	—	041054	—
	53		0.0595	5/8	1.5/8	12	—	041053	—
1/16			0.0625	5/8	1.5/8	12	040004	—	—
	52		0.0635	11/16	1.11/16	12	—	041052	—
	51		0.0670	11/16	1.11/16	12	—	041051	—
	50		0.0700	11/16	1.11/16	12	—	041050	—
	49		0.0730	11/16	1.11/16	12	—	041049	—
	48		0.0760	11/16	1.11/16	12	—	041048	—
5/64			0.0781	11/16	1.11/16	12	040005	—	—
	47		0.0785	11/16	1.11/16	12	—	041047	—
	46		0.0810	3/4	1.3/4	12	—	041046	—
	45		0.0820	3/4	1.3/4	12	—	041045	—
	44		0.0860	3/4	1.3/4	12	—	041044	—
	43		0.0890	3/4	1.3/4	12	—	041043	—
	42		0.0935	3/4	1.3/4	12	—	041042	—
3/32			0.0938	3/4	1.3/4	12	040006	—	—
	41		0.0960	13/16	1.13/16	12	—	041041	—
	40		0.0980	13/16	1.13/16	12	—	041040	—
	39		0.0995	13/16	1.13/16	12	—	041039	—
	38		0.1015	13/16	1.13/16	12	—	041038	—
	37		0.1040	13/16	1.13/16	12	—	041037	—
	36		0.1065	13/16	1.13/16	12	—	041036	—
7/64			0.1094	13/16	1.13/16	12	040007	—	—
	35		0.1100	7/8	1.7/8	12	—	041035	—
	34		0.1110	7/8	1.7/8	12	—	041034	—
	33		0.1130	7/8	1.7/8	12	—	041033	—
	32		0.1160	7/8	1.7/8	12	—	041032	—

# SCREW MACHINE DRILL



d <sub>1</sub> Ø Inch	d <sub>1</sub> Ø Nr.	d <sub>1</sub> Ø letter	d <sub>1</sub> decimal Inch	l <sub>2</sub> Inch	l <sub>1</sub> Inch	Pack Qty	R40	R41	R42	
1/8	31		0.1200	7/8	1.7/8	12	—	041031	—	
			0.1250	7/8	1.7/8	12	040008	—	—	
	30		0.1285	15/16	1.15/16	12	—	041030	—	
	29		0.1360	15/16	1.15/16	12	—	041029	—	
9/64	28		0.1405	15/16	1.15/16	12	—	041028	—	
			0.1406	15/16	1.15/16	12	040009	—	—	
	27		0.1440	1"	2.1/16	12	—	041027	—	
	26		0.1470	1"	2.1/16	12	—	041026	—	
	25		0.1495	1"	2.1/16	12	—	041025	—	
	24		0.1520	1"	2.1/16	12	—	041024	—	
5/32	23		0.1540	1"	2.1/16	12	—	041023	—	
			0.1563	1"	2.1/16	12	040010	—	—	
	22		0.1570	1.1/16	2.1/8	12	—	041022	—	
	21		0.1590	1.1/16	2.1/8	12	—	041021	—	
	20		0.1610	1.1/16	2.1/8	12	—	041020	—	
	19		0.1660	1.1/16	2.1/8	12	—	041019	—	
11/64	18		0.1695	1.1/16	2.1/8	12	—	041018	—	
			0.1719	1.1/16	2.1/8	12	040011	—	—	
	17		0.1730	1.1/8	2.3/16	12	—	041017	—	
	16		0.1770	1.1/8	2.3/16	12	—	041016	—	
	15		0.1800	1.1/8	2.3/16	12	—	041015	—	
	14		0.1820	1.1/8	2.3/16	12	—	041014	—	
3/16	13		0.1850	1.1/8	2.3/16	12	—	041013	—	
			0.1875	1.1/8	2.3/16	12	040012	—	—	
	12		0.1890	1.3/16	2.1/4	12	—	041012	—	
	11		0.1910	1.3/16	2.1/4	12	—	041011	—	
	10		0.1935	1.3/16	2.1/4	12	—	041010	—	
	9		0.1960	1.3/16	2.1/4	12	—	041009	—	
13/64	8		0.1990	1.3/16	2.1/4	12	—	041008	—	
	7		0.2010	1.3/16	2.1/4	12	—	041007	—	
			0.2031	1.3/16	2.1/4	12	040013	—	—	
	6		0.2040	1.1/4	2.3/8	12	—	041006	—	
	5		0.2055	1.1/4	2.3/8	12	—	041005	—	
	4		0.2090	1.1/4	2.3/8	12	—	041004	—	
7/32	3		0.2130	1.1/4	2.3/8	12	—	041003	—	
			0.2188	1.1/4	2.3/8	12	040014	—	—	
	2		0.2210	1.5/16	2.7/16	12	—	041002	—	
	1		0.2280	1.5/16	2.7/16	12	—	041001	—	
	15/64		A	0.2340	1.5/16	2.7/16	12	—	—	042001
				0.2344	1.5/16	2.7/16	12	040015	—	—
		B	0.2374	1.3/8	2.1/2	12	—	—	042002	
		C	0.2421	1.3/8	2.1/2	12	—	—	042003	
		D	0.2461	1.3/8	2.1/2	12	—	—	042004	
		E	0.2500	1.3/8	2.1/2	12	—	—	042005	
1/4			0.2500	1.3/8	2.1/2	12	040016	—	—	
		F	0.2571	1.7/16	2.5/8	12	—	—	042006	
		G	0.2610	1.7/16	2.5/8	12	—	—	042007	
17/64			0.2656	1.7/16	2.5/8	12	040017	—	—	
		H	0.2661	1.1/2	2.11/16	12	—	—	042008	
		I	0.2720	1.1/2	2.11/16	12	—	—	042009	
		J	0.2772	1.1/2	2.11/16	12	—	—	042010	
9/32			0.2811	1.1/2	2.11/16	12	—	—	042011	
			0.2813	1.1/2	2.11/16	12	040018	—	—	
		L	0.2902	1.9/16	2.3/4	12	—	—	042012	
		M	0.2949	1.9/16	2.3/4	12	—	—	042013	
19/64			0.2969	1.9/16	2.3/4	12	040019	—	—	
		N	0.3020	1.5/8	2.13/16	12	—	—	042014	
5/16			0.3125	1.5/8	2.13/16	6	040020	—	—	
		O	0.3161	1.11/16	2.15/16	6	—	—	042015	
21/64		P	0.3228	1.11/16	2.15/16	6	—	—	042016	
			0.3281	1.11/16	2.15/16	6	040021	—	—	
		Q	0.3319	1.11/16	3"	6	—	—	042017	
11/32		R	0.3390	1.11/16	3"	6	—	—	042018	
			0.3437	1.11/16	3"	6	040022	—	—	
		S	0.3480	1.3/4	3.1/16	6	—	—	042019	



# SCREW MACHINE DRILL

d <sub>1</sub> Ø Inch	d <sub>1</sub> Ø Nr.	d <sub>1</sub> Ø letter	d <sub>1</sub> decimal Inch	l <sub>2</sub> Inch	l <sub>1</sub> Inch	Pack Qty	R40	R41	R42
		T	0.3580	1.3/4	3.1/16	6	—	—	042020
23/64			0.3594	1.3/4	3.1/16	6	040023	—	—
		U	0.3680	1.13/16	3.1/8	6	—	—	042021
3/8			0.3750	1.13/16	3.1/8	6	040024	—	—
		V	0.3772	1.7/8	3.1/4	6	—	—	042022
		W	0.3858	1.7/8	3.1/4	6	—	—	042023
25/64			0.3906	1.7/8	3.1/4	6	040025	—	—
		X	0.3969	1.15/16	3.5/16	6	—	—	042024
		Y	0.4039	1.15/16	3.5/16	6	—	—	042025
13/32			0.4063	1.15/16	3.5/16	6	040026	—	—
		Z	0.4130	2"	3.3/8	6	—	—	042026
27/64			0.4219	2"	3.3/8	6	040027	—	—
7/16			0.4375	2.1/16	3.7/16	6	040028	—	—
29/64			0.4531	2.1/8	3.9/16	6	040029	—	—
15/32			0.4687	2.1/8	3.5/8	6	040030	—	—
31/64			0.4844	2.3/16	3.11/16	6	040031	—	—
1/2			0.5000	2.1/4	3.3/4	6	040032	—	—
33/64			0.5156	2.3/8	3.7/8	1	040033	—	—
17/32			0.5313	2.3/8	3.7/8	1	040034	—	—
35/64			0.5469	2.1/2	4"	1	040035	—	—
9/16			0.5625	2.1/2	4"	1	040036	—	—
37/64			0.5781	2.5/8	4.1/8	1	040037	—	—
19/32			0.5937	2.5/8	4.1/8	1	040038	—	—
39/64			0.6094	2.3/4	4.1/4	1	040039	—	—
5/8			0.6250	2.3/4	4.1/4	1	040040	—	—
41/64			0.6406	2.7/8	4.1/2	1	040041	—	—
21/32			0.6563	2.7/8	4.1/2	1	040042	—	—
43/64			0.6719	2.7/8	4.5/8	1	040043	—	—
11/16			0.6875	2.7/8	4.5/8	1	040044	—	—
45/64			0.7031	3"	4.3/4	1	040545 <sup>1)</sup>	—	—
23/32			0.7188	3"	4.3/4	1	040546 <sup>1)</sup>	—	—
47/64			0.7344	3.1/8	5"	1	040547 <sup>1)</sup>	—	—
3/4			0.7500	3.1/8	5"	1	040548 <sup>1)</sup>	—	—
49/64			0.7656	3.1/4	5.1/8	1	040549 <sup>1)</sup>	—	—
25/32			0.7813	3.1/4	5.1/8	1	040550 <sup>1)</sup>	—	—
51/64			0.7969	3.3/8	5.1/4	1	040551 <sup>1)</sup>	—	—
13/16			0.8125	3.3/8	5.1/4	1	040552 <sup>1)</sup>	—	—
53/64			0.8281	3.1/2	5.3/8	1	040553 <sup>1)</sup>	—	—
27/32			0.8438	3.1/2	5.3/8	1	040554 <sup>1)</sup>	—	—
55/64			0.8594	3.1/2	5.1/2	1	040555 <sup>1)</sup>	—	—
7/8			0.8750	3.1/2	5.1/2	1	040556 <sup>1)</sup>	—	—
57/64			0.8906	3.5/8	5.5/8	1	040557 <sup>1)</sup>	—	—
29/32			0.9063	3.5/8	5.5/8	1	040558 <sup>1)</sup>	—	—
59/64			0.9219	3.3/4	5.3/4	1	040559 <sup>1)</sup>	—	—
15/16			0.9375	3.3/4	5.3/4	1	040560 <sup>1)</sup>	—	—
61/64			0.9531	3.7/8	5.7/8	1	040561 <sup>1)</sup>	—	—
31/32			0.9688	3.7/8	5.7/8	1	040562 <sup>1)</sup>	—	—
63/64			0.9844	4"	6"	1	040563 <sup>1)</sup>	—	—
1"			1.0000	4"	6"	1	040600 <sup>1)</sup>	—	—
1.1/16			1.0625	4"	6.1/4	1	040604 <sup>1)2)</sup>	—	—
1.1/8			1.1250	4"	6.3/8	1	040608 <sup>1)2)</sup>	—	—
1.3/16			1.1875	4.1/4	6.5/8	1	040612 <sup>1)2)</sup>	—	—
1.1/4			1.2500	4.3/8	6.3/4	1	040616 <sup>1)2)</sup>	—	—
1.5/16			1.3125	4.3/8	7"	1	040620 <sup>1)3)</sup>	—	—
1.3/8			1.3750	4.1/2	7.1/8	1	040624 <sup>1)3)</sup>	—	—
1.7/16			1.4375	4.3/4	7.3/8	1	040628 <sup>1)3)</sup>	—	—
1.1/2			1.5000	4.7/8	7.1/2	1	040632 <sup>1)3)</sup>	—	—
1.9/16			1.5625	4.7/8	7.3/4	1	040636 <sup>1)4)</sup>	—	—
1.5/8			1.6250	4.7/8	7.3/4	1	040640 <sup>1)4)</sup>	—	—
1.3/4			1.7500	5.1/8	8"	1	040648 <sup>1)4)</sup>	—	—
1.13/16			1.8125	5.3/8	8.1/4	1	040652 <sup>1)4)</sup>	—	—
1.7/8			1.8750	5.3/8	8.1/4	1	040656 <sup>1)4)</sup>	—	—
1.15/16			1.9375	5.5/8	8.1/2	1	040660 <sup>1)4)</sup>	—	—
2"			2.0000	5.5/8	8.1/2	1	040700 <sup>1)4)</sup>	—	—