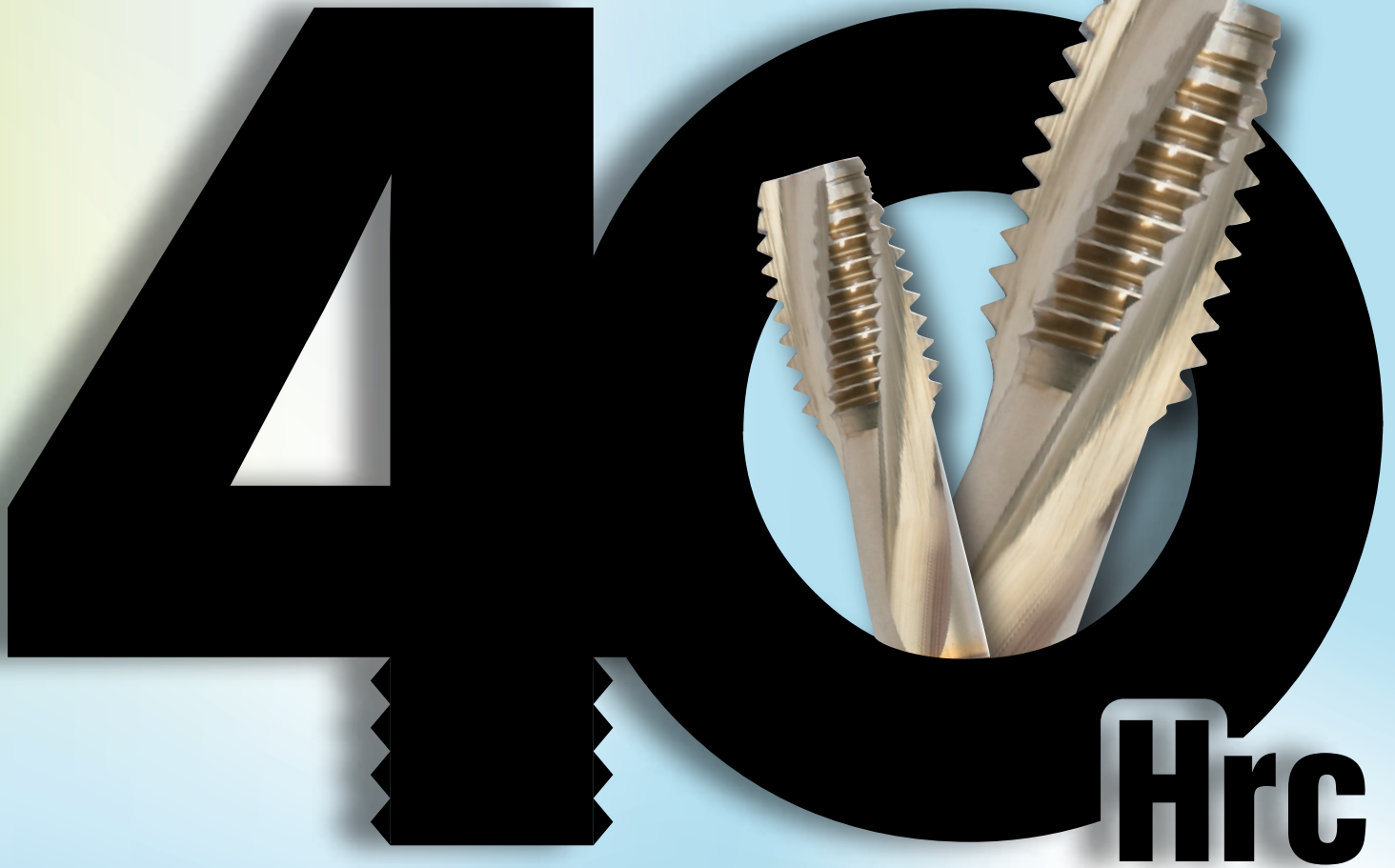


SG-Low Spiral Taps

Engineered for tapping Pre-Hardened Steel up to



- SG low Spiral Taps are made from Premium High Speed Steel (HSSE Material)
- 15° Helix angle design achieves an easy flow of chips and maintains the strength of cutting edge.
- SG Coated (Tin +TiCN) coated to enhance abrasion resistance.
- It is best suited for Tapping Pre-hardened steel, Die-Steel, Tools Steels, Alloy steels up to 40Hrc.

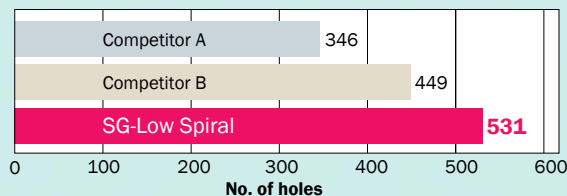
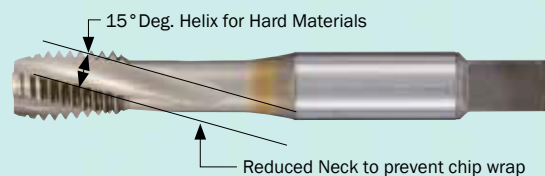
SG-Low Spiral Taps

Engineered for tapping
Pre-Hardened Steel up to ~40 Hrc

Features

- Made exclusively from Premium High Speed Steel (HSSE material)
- 15° Helix angle designed to achieve an easy flow of chips and maintain the strength of cutting edge.
- Flute shape has been designed to avoid chips from wrapping around the shank especially during horizontal tapping applications.
- Designed for tapping Pre-hardened steel, Die-steel, Tool Steels, Alloy Steels up to 40 Hrc.
- SG Coated (Tin + TiCN) coated to enhance abrasion resistance. SG coating is tough for harder applications and has a small coefficient of abrasion.

Performance



Tapping condition
Size : 1/4-20
RPM : 450
Feed : .04IPR / 18IPM
Depth of Thread :
Material : DC-53 (20-25 Hrc)
Coolant : Cutting Oil

Tapping Speeds

SG-Low Spiral Taps List No. 6958, 6959
SFM : Surface Feet per Minutes

Work Materials		Tapping Speed SFM
Low Carbon Steel	1010,1018	25-50
Medium Carbon Steel	1035,1045	20-50
High Carbon Steel	1065,1095	15-30
Alloy Steel	4140,4130	15-30
Die Steels	D2,H13	15-35
Hardened Die Steels(20-40Hrc)	D2,H13	8-15
Stainless steel (Austentic)	303,304,316	15-45
Stainless steel (Martensitic)	410,430	12-20
Stainless steel (PH) up to 35Hrc	17-4PH	12-20
Titanium Alloy Up to 32Hrc	6AL4V	15-20
Magnesium Alloy		40-80
Ductile cast Irons	80-55-06	20-50
Cast Irons	Nodular,Grey	30-65

1. These are general tapping condition, may be altered by Your condition.
2. These conditions are for tapping depth 1.5D. In case of deeper thread you may multiply these values by the coefficient of next table.

Thread depth	Coefficient
Up to 1.5D	1
1.5D~2.5D	0.9
2.5D~3D	0.8
Over 3D	0.7

Conversion Table

Surface Feet per Minute to Revolutions per Minute

Surface Feet per Minute	20	25	30	40	50	60	70	80	90	100
TAP Size	Revolutions per Minute									
0	1273	1592	1910	2546	3183	3820	4456	5093	5730	6366
1	1047	1308	1570	2093	2617	3140	3663	4186	4710	5233
2	888	1110	1333	1777	2221	2665	3109	3554	3999	4442
3	772	964	1157	1543	1929	2315	2701	3086	3472	3858
4	682	853	1023	1364	1705	2046	2387	2728	3069	3411
5	611	764	917	1222	1528	1833	2139	2445	2750	3056
6	553	691	829	1106	1382	1658	1934	2211	2487	2764
8	466	583	699	932	1165	1398	1631	1864	2097	2330
10	402	502	603	804	1005	1205	1406	1607	1808	2009
12	354	442	531	707	884	1061	1238	1415	1592	1769
1/4	306	382	458	611	764	917	1070	1222	1375	1528
5/16	245	306	367	489	611	733	856	978	1100	1222
3/8	204	255	306	407	509	611	713	815	917	1019
7/16	175	219	262	349	437	524	611	698	786	873
1/2	153	191	229	306	382	458	535	611	688	764
9/16	137	172	206	275	344	412	481	550	619	687
5/8	122	153	183	244	306	367	428	489	550	611
3/4	102	128	153	203	255	306	357	407	458	509
7/8	87	109	131	175	218	262	306	350	392	437
1	76	96	115	153	191	230	268	306	344	382

The material being tapped is the primary factor in determining the most effective TAPPING SPEED. However there are a number of other factors which may require consideration. Among these are: thread pitch, thread length, percent of thread, lubrication, tap flute style and chamfer, equipment and method of tapping. The best speed is determined by experiment on the job. The table below lists speeds which have proven satisfactory under average conditions.

Applications

- Suitable for tapping Pre-hardened Steels, Mold Steels, tool steels, structural steel (under 40 Hrc)

Selection Chart

● : Great ○ : Good △ : OK

Tapping Depth				Workpiece Material										
Blind Hole		Through Hole		Carbon Steel			Alloy Steel 4140,4130	Die Steel ~40Hrc D2,H13	Stainless Steel			Titanium Alloy ~32Hrc	Magnesium Alloy	Cast Iron Nodular,Grey
<1.5×Dia	>1.5×Dia	<1.5×Dia	>1.5×Dia	Low Carbon 1010,1018	Medium Carbon 1035,1045	High Carbon 1065,1095			Austentic 303,304,316	Martensitic 410,430	P.H 17-4PH			
●	○	●	○	△	○	●	●	●	△	△	△	○	○	

Stocked Size

SG-Low Spiral Fluted Tap

- Modified Bottoming Style 2 1/2 to 3 Thread Lead
- SG Coating



List No. 6959 Machine Screw Sizes & Fractional Sizes

Nominal Size	Thread/Inch		No. of Flutes	E.D.P. Numbers							Dimensions			Std. Pack.
	NC UNC	NF UNF		GT3	GT4	GT5	GT6	GT7	GT8	GT9	Overall Length	Length of Thread	Shank Dia.	
MACHINE SCREW SIZES														
2	56		3	94597							1 3/4	0.437	0.141	3
		64	3	94598							1 3/4	0.437	0.141	3
3	48		3		94599						1 13/16	0.500	0.141	3
		56	3	94600							1 13/16	0.500	0.141	3
4	40		3			94601					1 7/8	0.236	0.141	3
		48	3		94602						1 7/8	0.236	0.141	3
5	40		3			94603					1 15/16	0.236	0.141	3
		44	3			94604					1 15/16	0.236	0.141	3
6	32		3			94605					2	0.276	0.141	3
		40	3			94606					2	0.276	0.141	3
8	32		3			94607					2 1/8	0.276	0.168	3
		36	3			94608					2 1/8	0.276	0.168	3
10	24		3				94609				2 3/8	0.354	0.194	3
		32	3			94610					2 3/8	0.354	0.194	3
12	24		3				94611				2 3/8	0.354	0.220	3
		28	3				94612				2 3/8	0.354	0.220	3
FRACTIONAL SIZES														
1/4	20		3		94633			94613			2 1/2	0.433	0.255	3
		28	3		94634		94614				2 1/2	0.433	0.255	3
5/16	18		3		94635			94615			2 23/32	0.472	0.318	3
		24	3		94636			94616			2 23/32	0.472	0.318	3
3/8	16		3		94637				94617		2 15/16	0.551	0.381	3
		24	3		94638			94618			2 15/16	0.551	0.381	3
7/16	14		3						94619		3 5/32	0.709	0.323	3
		20	3		94639				94620		3 5/32	0.709	0.323	3
1/2	13		3		94640				94621		3 3/8	0.787	0.367	3
		20	3		94641				94622		3 3/8	0.787	0.367	3
9/16	12		3						94623		3 19/32	0.827	0.429	3
		18	3						94624		3 19/32	0.827	0.429	3
5/8	11		3							94625	3 13/16	0.905	0.480	3
		18	3						94626		3 13/16	0.905	0.480	3
3/4	10		4							94627	4 1/4	0.984	0.590	3
		16	4						94628		4 1/4	0.984	0.590	3
7/8	9		4							94629	4 11/16	1.102	0.697	3
		14	4							94630	4 11/16	1.102	0.697	3
1	8		4							94631	5 1/8	1.260	0.800	3
		12	4							94632	5 1/8	1.260	0.800	3

List No. 6958 Metric Size

Nominal Size (mm)	Pitch (mm)	No. of Flutes	E.D.P. Numbers					Dimensions			Std. Pack.
			GT5	GT6	GT7	GT8	GT9	Overall Length	Length of Thread	Shank Dia.	
METRIC											
3	0.5	3	59615					1 15/16	0.236	0.1413	
4	0.7	3	59617					2 1/8	0.276	0.1683	
5	0.8	3	59619					2 3/8	0.354	0.1943	
6	1	3	59620					2 1/2	0.433	0.2553	
8	1	3	59622					2 23/32	0.472	0.3183	
	1.25	3	59623					2 23/32	0.472	0.3183	
10	1.25	3	59624					2 15/16	0.551	0.3813	
	1.5	3			59625			2 15/16	0.551	0.3813	
12	1.25	3				59626		3 3/8	0.669	0.3673	
	1.75	3				59627		3 3/8	0.669	0.3673	
14	1.5	3				59628		3 19/32	0.787	0.4293	
	2	3				59629		3 19/32	0.787	0.4293	

Nominal Size (mm)	Pitch (mm)	No. of Flutes	E.D.P. Numbers					Dimensions			Std. Pack.	
			GT5	GT6	GT7	GT8	GT9	Overall Length	Length of Thread	Shank Dia.		
METRIC												
16	1.5	3					59630		3 13/16	0.787	0.480	3
	2	3					59631		3 13/16	0.787	0.480	3
18	1.5	4					59632		4 1/32	0.984	0.542	3
	2.5	4						59633	4 1/32	0.984	0.542	3
20	1.5	4					59634		4 15/32	0.984	0.652	3
	2.5	4						59635	4 15/32	0.984	0.652	3
22	1.5	4					59636		4 11/16	0.984	0.697	3
	2.5	4						59637	4 11/16	0.984	0.697	3
24	1.5	4					59638		4 29/32	1.181	0.760	3
	3	4					59639		4 29/32	1.181	0.760	3

Tolerance Table

List No. 6959 Machine Screw Sizes & Fractional Sizes

GT Limits Table

Fractional, Machine screw, and Metric Taps
Over 42 TPI, or less than 0.6mm pitch

CLASS	MIN	MAX
GT2	0.0002	0.0008
GT3	0.0006	0.0012
GT4	0.0010	0.0016
GT5	0.0014	0.0020
GT6	0.0018	0.0024
GT7	0.0022	0.0028

Fractional, Machine screw, and Metric Taps
Less than 42 TPI, or over 0.6mm pitch

CLASS	MIN	MAX
GT2	0.0000	0.0008
GT3	0.0004	0.0012
GT4	0.0008	0.0016
GT5	0.0012	0.0020
GT6	0.0016	0.0024
GT7	0.0020	0.0028
GT8	0.0024	0.0031
GT9	0.0028	0.0035
GT10	0.0031	0.0039

H Limits Table

Fractional and Machine screw types

CLASS	MIN	MAX
H1	0.0000	0.0005
H2	0.0005	0.0010
H3	0.0010	0.0015
H4	0.0015	0.0020
H5	0.0020	0.0025
H6	0.0025	0.0030
H7	0.0030	0.0035
H8	0.0035	0.0040
H9	0.0040	0.0045
H10	0.0045	0.0050
H11	0.0050	0.0055
H12	0.0055	0.0060

GT Limits Conversion Chart

Recommended tap limits for 2B and 3B

Tap Size	CLASS 2B		CLASS 3B	
	H Limits	GT Limits	H Limits	GT Limits
2-56	H2	GT3	H1	—
2-64	H2	GT3	H1	—
3-48	H2	GT4	H1	—
3-56	H2	GT3	H1	—
4-40	H2	GT5	H2	—
4-48	H2	GT4	H1	—
5-40	H2	GT5	H2	—
5-44	H2	GT5	H2	—
6-32	H3	GT5	H2	—
6-40	H2	GT5	H2	—
8-32	H3	GT5	H2	—
8-36	H2	GT5	H2	—
10-24	H3	GT6	H3	—
10-32	H3	GT5	H2	—
12-24	H3	GT6	H3	—
12-28	H3	GT6	H3	—
1/4-20	H5	GT7	H3	GT4
1/4-28	H4	GT6	H3	GT4
5/16-18	H5	GT7	H3	GT4
5/16-24	H4	GT7	H3	GT4
3/8-16	H5	GT8	H3	GT4
3/8-24	H4	GT7	H3	GT4
7/16-14	H5	GT8	H3	—
7/16-20	H5	GT8	H3	GT4
1/2-13	H5	GT8	H3	GT4
1/2-20	H5	GT8	H3	GT4
9/16-12	H5	GT8	H3	—
9/16-18	H5	GT8	H3	—
5/8-11	H5	GT9	H3	—
5/8-18	H5	GT8	H3	—
3/4-10	H5	GT9	H5	—
3/4-16	H5	GT8	H3	—
7/8-9	H6	GT9	H4	—
7/8-14	H6	GT9	H4	—
1-8	H6	GT9	H4	—
1-12	H6	GT9	H4	—

List No. 6958 Metric Size

D Limits Table

Metric size

Class	Min	Max
D3	0.0009	0.0015
D4	0.0012	0.0020
D5	0.0015	0.0025
D6	0.0018	0.0030
D7	0.0019	0.0035
D8	0.0024	0.0040
D9	0.0025	0.0045

GT Limits Conversion Chart-2

Recommended tap limits for 6H

TAP size	D Limits	GT limits
M3 × 0.5	D3	GT4
M3.5 × 0.6	D4	GT5
M4 × 0.7	D4	GT5
M5 × 0.8	D4	GT5
M6 × 1.0	D5	GT6
M7 × 1.0	D5	GT6
M8 × 1.0	D5	GT6
M8 × 1.25	D5	GT6
M10 × 1.25	D5	GT6
M10 × 1.5	D6	GT7
M12 × 1.25	D5	GT6
M12 × 1.75	D6	GT7

TAP size	D Limits	GT limits
M14 × 1.5	D6	GT7
M14 × 2	D7	GT8
M16 × 1.5	D6	GT7
M16 × 2	D7	GT8
M18 × 1.5	D6	GT7
M18 × 2.5	D7	GT8
M20 × 1.5	D7	GT8
M20 × 2.5	D7	GT8
M22 × 1.5	D7	GT8
M22 × 2.5	D7	GT8
M24 × 1.5	D8	GT10
M24 × 3	D8	GT10

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