SGSP Tap Drill Size Recommendations

2B Class of Fit

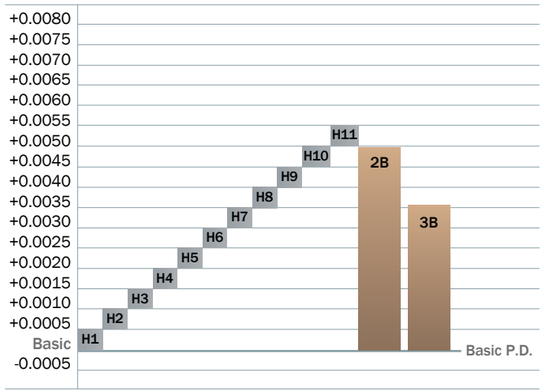
Tap Size	70% Thread	Drill Size	Inch Equiv.
6-32	0.1096	**7/64**	0.1094
8-32	0.1356	**#29**	0.1360
10-24	0.1521	**#24**	0.1520
10-32	0.1616	**#20**	0.1610
12-24	0.1781	**#16**	0.1770
1/4 - 20	0.2045	**#6**	0.2040
1/4 - 28	0.2175	**7/32**	0.2188
5/16 - 18	0.2620	**G**	0.2610
5/16 - 24	0.2746	**I**	0.2720
3/8 - 16	0.3182	**O**	0.3160
3/8 - 24	0.3371	**R**	0.3390
7/16 - 14	.03726	**3/8**	0.3750
7/16 - 20	0.3920	**25/64**	0.3906
1/2 - 13	0.4301	**27/64**	0.4219
1/2 - 20	0.4545	**29/64**	0.4531
5/8 - 11	0.5423	**35/64**	0.5469
5/8 - 18	0.5745	**37/64**	0.5781
3/4 - 10	0.6591	**21/32**	0.6562
3/4 - 16	0.6932	**11/16**	0.6875
1 - 8	0.8863	**7/8**	0.8750
M3 X 0.5	0.1004	**#39**	0.0995
M4 X 0.7	0.1323	**#29**	0.1360
M5 X 0.8	0.1681	**#18**	0.1695
M6 X 1.0	0.2004	**#7**	0.2010
M8 X 1.25	0.2701	**I**	0.2720
M10 X 1.25	0.3488	**S**	0.3480
M10 X 1.5	0.3402	**R**	0.3390
M12 X 1.25	0.4276	**27/64**	0.4219
M12 X 1.5	0.4189	**Z**	0.4130
M12 X 1.75	0.4098	**13/32**	0.4062
M14 X 2.0	0.4795	**31/64**	0.4844
M16 X 2.0	0.5583	**9/16**	0.5625
M18 X 2.5	0.6193	**5/8**	0.6250
M20 X 2.5	0.6980	**11/16**	0.6875
M24 X 3.0	0.8374	**53/64**	0.8281

SGSP Work Material & Cutting Condition Recommendations

Work Material		Tapping Speed SFM
Low Carbon Steel	1010 1018	30 - 100
Medium Carbon Steel	1035 1045	30 - 120
High Carbon Steel	1065 1095	30 - 120
Alloy Steel	4140 4130	25 - 50
Die Steel	D2 H13 (up to 20 Hrc)	20 - 50
Stainless Steel Austentic	303 304 316	20 - 30
Stainless Steel Martenstic	410 430	15 - 25
Stainless Steel Martenstic	17-4PH	15 - 25
Aluminum	6061 7075 Casting	35 - 120
Cast Iron	Grey Nodular	30 - 80

UNC/UNF Taps

- Class 2B for general threading applications
- Class 3B for precision threads generally found in medical, aerospace and applicable automotive applications
- Every size/pitch tap has a specific or given basic pitch diameter that is the basis for the “H” limits and the class of fit for that size



Suggested Percentage of Full Thread in Tapped Holes

Material		Deep Hole Tapping	Average Commercial Work	Thin Sheet Stock or Stamping
Free Cutting	Aluminum, Brass, Bronze, Cast Iron, Copper, Mild Steel, Tool Steel	60%-70%	65%-70%	75%-85%
Hard or Tough Cutting	Cast Steel, Drop Forging, Monel Metal, Nickel Steel, Stainless Steel	55%-65%	60%-70%	

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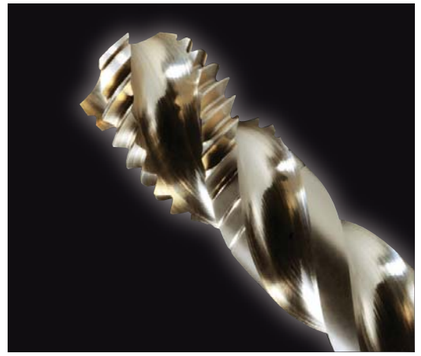
2016.11.MT

NACHI

SGSP - DIN
Spiral Fluted Taps

High Performance Tap for a Variety of Materials

SGSP Spiral Taps



High Performance Tap for a Variety of Materials

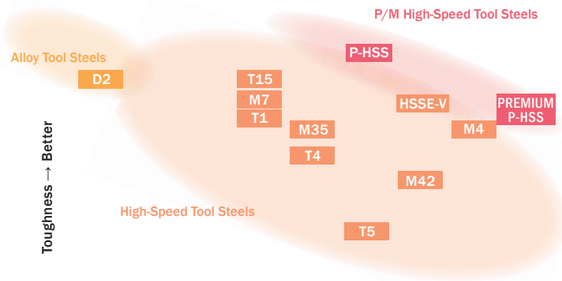
Covers a wide range of applications -
Aluminum, Cast Iron, Carbon Steel,
Alloy Steel and Stainless Steel
ANSI Shank DIN Overall Length

Features

- Made from high grade powder HSS and SG coating for longer tool life
- Optimized edge and flute shape allow for stable cutting threads, high rigidity and chip ejection
- High flexibility for superior performance on a variety of materials, machines, and cutting conditions
- Stable cutting threads and long tool life regardless of cutting speed
- Achieves easy flow of chips while cutting on Stainless Steels, Structural Steels and Aluminum Alloys

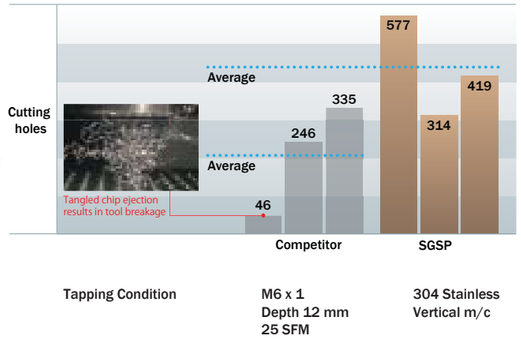
Properties

Properties of NACHI Premium P-HSS
High toughness can be obtained even at high hardness levels



Performance

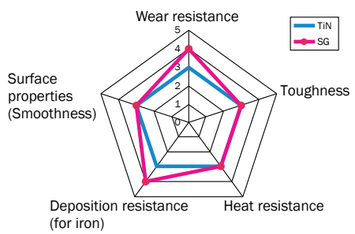
Long tool life with Stainless Steels



Tapping Condition	M6 x 1 Depth 12 mm 25 SFM	304 Stainless Vertical m/c

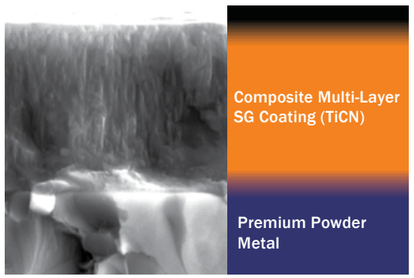
Characteristics

Characteristics of SG Coating



Composite multi-layer film coating method characterized by improved wear resistance as compared to TiN.

SG Coating (TiN + TiCN)



Applications

- Suitable for tapping Structural Steels to Stainless Steels, Aluminum Alloys

Selection Chart

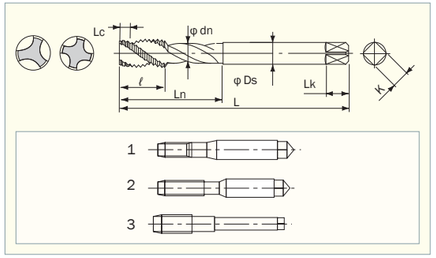
● : Great ○: Good △: OK

Carbon Steel			Alloy Steel	Die Steel	Aluminum	Stainless Steel			Cast Iron	Nickel	Titanium	Hardened
Low Carbon 1010,1018	Medium Carbon 1035,1045	High Carbon 1065,1095	4140,4340	~20Hrc D2,H13	6061 7075	300 Series	400 Series	17-4PH	Grey Ductile	Alloy	Alloy	Steel >35Hrc
●	●	●	●	○	○	●	○	△	○		△	

Stocked Size

SGSP-DIN Spiral Fluted Taps

- Modified Bottoming Style 2.5 Thread Chamfer
- SG Coating
- DIN Overall Length
- Premium Powdered High Speed Steel



List 6801 Machine Screw Sizes & Fractional Sizes

EDP No	Size	Thread Limit	No. of Flutes	Dimensions: Overall Length	Length of Thread	Under Neck Length	Shank Dia.	Style
MACHINE SCREW SIZES				L	ℓ	Ln	Ds	
1486439	**6-32**	H3	3F	2.205	0.374	0.689	0.141	1
1486451	**8-32**	H3	3F	2.480	0.374	0.752	0.168	
1486474	**10-24**	H3	3F	2.756	0.496	0.874	0.194	
1486480	**10-32**	H3	3F	2.756	0.374	0.874	0.194	
1486497	**12-24**	H3	3F	3.150	0.496	0.937	0.220	
FRACTIONAL SIZES								
1486519	**1/4 - 20**	H3	3F	3.150	0.606	1.000	0.255	
1486525	**1/4 - 28**	H3	3F	3.150	0.413	1.000	0.255	
1486531	**5/16 - 18**	H3	3F	3.543	0.697	1.126	0.318	2
1486548	**5/16 - 24**	H3	3F	3.543	0.480	1.126	0.318	
1486554	**3/8 - 16**	H3	3F	3.937	0.783	1.252	0.381	
1486560	**3/8 - 24**	H3	3F	3.543	0.480	1.252	0.381	
1486577	**7/16 - 14**	H3	3F	3.937	0.894	1.236	0.323	3
1486583	**7/16 - 20**	H3	3F	3.937	0.626	1.236	0.323	
1486590	**1/2 - 13**	H3	3F	4.331	1.024	1.425	0.367	
1486605	**1/2 - 20**	H3	3F	3.937	0.646	1.425	0.367	
1514622	**5/8 - 11**	H4	3F	4.331	1.185	1.748	0.480	
1514639	**5/8 - 18**	H4	3F	3.937	0.732	1.748	0.480	
1514645	**3/4 - 10**	H4	4F	4.921	1.303	1.937	0.590	
1514651	**3/4 - 16**	H4	4F	4.331	0.827	1.937	0.590	
1514680	**1 - 8**	H4	4F	6.299	1.626	2.323	0.800	

List 6800 Metric Sizes

EDP No	Size	Thread Limit	No. of Flutes	Dimensions: Overall Length	Length of Thread	Under Neck Length	Shank Dia.	Style
				L	ℓ	Ln	Ds	
1486233	**M3 X 0.5**	D3	3F	2.205	0.228	0.626	0.141	1
1486256	**M4 X 0.7**	D4	3F	2.480	0.307	0.689	0.168	
1486262	**M5 X 0.8**	D4	3F	2.756	0.374	0.874	0.194	
1486279	**M6 X 1.0**	D5	3F	3.150	0.453	1.000	0.255	
1486307	**M8 X 1.25**	D5	3F	3.543	0.594	1.126	0.318	2
1486313	**M10 X 1.25**	D5	3F	3.937	0.594	1.252	0.381	
1486320	**M10 X 1.5**	D6	3F	3.937	0.740	1.252	0.381	
1486336	**M12 X 1.25**	D6	3F	3.937	0.634	1.425	0.367	3
1514479	**M12 X 1.5**	D6	3F	3.937	0.780	1.425	0.367	
1486342	**M12 X 1.75**	D6	3F	4.331	0.882	1.425	0.367	
1514491	**M14 X 2.0**	D7	3F	4.331	1.024	1.669	0.429	
1514513	**M16 X 2.0**	D7	3F	4.331	1.024	1.748	0.480	
1514536	**M18 X 2.5**	D7	4F	4.921	1.280	1.937	0.542	
1514559	**M20 X 2.5**	D7	4F	5.512	1.280	1.996	0.652	
1514594	**M24 X 3.0**	D8	4F	6.299	1.535	2.323	0.760	

1 piece per package