

History of Quality and Dependability

For over 100 years, IRWIN HANSON has been providing the highest quality threading tools in the industry. The IRWIN HANSON name signifies dependability with professionals who use our tools each and every day. By working with various tradesmen, we are able to create solutions for endless fastening challenges. Whether creating new threads or repairing damaged and worn threads, achieving a precise fit is essential. IRWIN HANSON sets the standard for delivering quality every step of the way for your threading applications.

Tap & Die Overview

Although there are hundreds of different types of fasteners, most of them have the same basic design: a spiral groove inside a hole matches the threads on the outside diameter of a screw or bolt. IRWIN HANSON taps and dies are the tools used by professionals to create threads to solve the most challenging fastener applications.

Material Types

- **High Carbon Steel (HCS)** for hand tapping applications
- **High Speed Steel (HSS)** for machine tapping where critical dimensions are required

Point Styles

- Taper, plug, and bottoming styles are available



Laser Etched

- Tap size and recommended drill bit size are laser etched on each tool for easy identification

Precision Ground Flutes



Tap Point Styles

Taper Taps



8-10 threads

- Easiest to start
- 8 to 10 threads chamfered
- Ideal for tough starting applications
- Preferred use with deep or through hole applications

Plug Taps



3-5 threads

- 3 to 5 threads chamfered
- Most common chamfer
- Ideal for for all general purpose threading

Bottom Taps



1-2 threads

- 1 to 2 threads chamfered
- Shortest and least efficient standard chamfer
- Ideal for threading close to the bottom of blind holes

Die Styles

Hexagon Dies



5/8", 1", 1-7/16" & 1-13/16" Across Hex Flats

- Best suited to maintenance and repair work
- Recommended for use with hexagonal die stock handles
- In area with limited space, die can be used with a wrench or socket

Adjustable Round Dies



1", 1-1/2", 2" & 3" Overall Diameter

- Adjustable dies allow the user to under or over cut their threads
- Ideal for a precision threading with the adjustment of die made by set screw
- Fits into adjustable guide or plain die stock handles
- Meets Federal Specifications GGG-D-296

Solid Round Dies



1" & 1-1/2" Overall Diameter

- Ideal for general purpose threading
- Fits into adjustable guide or plain die stock handles

Tap & Die Description Guide

10-24 NC

Fastener Diameter

10 - Machine screw size
5/8" - Fractional
8 mm - Metric

Thread Pitch

Threads per inch (machine & fractional)
Distance between threads (metric)

Thread Type

NC = National Coarse (USS)

NF = National Fine (SAE)

NS = National Special

NEF = National Extra Fine
NPT = National Pipe Taper
BSP = British Standard Pipe

Applications

General purpose machines and appliances

Automotive parts requiring extreme pressures

Special threads – either diameter or threads per inch

For optical or thin wall parts

For all pipe threads

For all pipe threads

(no thread symbol required for metric fasteners)

Machine Screw Reference Guide

Before cutting a thread you must know the rod diameter.

Use the chart to determine the appropriate machine screw size:

Machine Screw	Rod Diameter
#0	.060"
#1	.073"
#2	.086"
#3	.099"
#4	.112"
#5	.125"
#6	.138"

Machine Screw	Rod Diameter
#7	.151"
#8	.164"
#9	.179"
#10	.190"
#12	.216"
#14	.242"

TAPS & DIES

TAP & DRILL SELECTION CHART

TAPS & DIES

Diam/Type	Decimal Equiv.	Fractional Tap	Machine Screw Tap	Metric Tap	Screw Ext.
1/64"	.0516				
1/32"	.0312				
1.0 mm	.0394				
60	.0400				
59	.0410				
58	.0420				
57	.0430				
56	.0465				
3/64"	.0469		0 - 80 NF		
55	.0520				
54	.0550				
1.5 mm	.0591				
53	.0595		1 - 64 NC 1 - 72NF		
1/16"	.0625				
52	.0635				
51	.0670				
50	.0700		2 - 56 NC 2 - 64 NF		
49	.0730				
48	.0760				
5/64"	.0781		3 - 48 NC		EX-1
47	.0785				
2.0 mm	.0787				
46	.0810				
45	.0820		3 - 56 NF		
44	.0860		4 - 36 NS		
43	.0890		4 - 40 NC		
42	.0935				
3/32"	.0938		4 - 48 NF		
41	.0960			3 mm - 0.60	
40	.0980				
2.5 mm	.0984			3 mm - 0.50	
39	.0995			3 mm - 0.50	
38	.1015	1/8" - 40 NS	5 - 40 NC		
37	.1040		5 - 44 NF		
36	.1065		6 - 32 NC		
7/64"	.1094				EX-2
35	.1100				
34	.1110		6 - 36 NS		
33	.1130		6 - 40 NF		
32	.1160		6 - 48 NS		
3.0 mm	.1181				
31	.1200				
1/8"	.1250				
30	.1285			4 mm - 0.70 4 mm - 0.75	
29	.1360		8 - 32 NC 8 - 36 NF		
3.5 mm	.1378				
28	.1405				

Diam/Type	Decimal Equiv.	Fractional Tap	Machine Screw Tap	Metric Tap	Screw Ext.
9/64"	.1406	8 - 40 NS			ST-1
27	.1440				
26	.1470	3/16"-24 NS			
25	.1495		10 - 24 NC		
24	.1520				
23	.1540				
5/32"	.1562	3/16"-32 NS			EX-3
22	.1570				
4.0 mm	.1575				
21	.1590		10 - 32 NF		
20	.1600			5 mm - 0.90	
19	.1660			5 mm - 0.80	
18	.1695				
11/64"	.1719				
17	.1730				
16	.1770		12 - 24 NC		
4.5 mm	.1772				
15	.1800				
14	.1820		12 - 28 NEF		
13	.1850				
3/16"	.1875				ST-2
12	.1890				
11	.1910				
10	.1935		14 - 20 NS		
9	.1960				
5.0 mm	.1969			6 mm - 1.00	
8	.1990			6 mm - 1.00	
7	.2010	1/4" - 20 NC			
13/64"	.2031		14 - 24 NS		
6	.2040				
5	.2055				
4	.2090	1/4" - 24 NS			
3	.2130	1/4" - 28 NF			
5.5 mm	.2165				
7/32"	.2188	1/4"- 32 NEF			
2	.2210				
1	.2280	1/4" - 40 NS			
A	.2340				
15/64"	.2344			7 mm - 1.00	ST-3
6.0 mm	.2362			7 mm - 1.00	
B	.2380				
C	.2420				
D	.2460				
E	.2500				
1/4"	.2500				EX-4
6.5 mm	.2559				
F	.2570	5/16"- 18 NC			

Diam/Type	Decimal Equiv.	Fractional Tap	Pipe Tap	Metric Tap	Screw Ext.
G	.2610				
17/64"	.2656			8 mm - 1.25	
H	.2660				
I	.2720	5/16"-24 NF			
7.0 mm	.2756			8 mm - 1.00	
J	.2770			8 mm - 1.00	
K	.2810				
9/32"	.2812	5/16"-32 NEF			
L	.2900				
M	.2950				
7.5 mm	.2953				
19/64"	.2969				EX-5
N	.3020			9 mm - 1.25	
5/16"	.3125	3/8"- 16 NC			ST-4
8.0 mm	.3150			9 mm - 1.00	
O	.3160			9 mm - 1.00	
P	.3230			9 mm - 0.75	
21/64"	.3281		1/8" - 28 BSP		
Q	.3320	3/8"- 24 NF	1/8" - 27 NPT		
8.5 mm	.3346			10 mm - 1.50	
R	.3390			10 mm - 1.50	
11/32"	.3438			10 mm - 1.25	
S	.3480				
9.0 mm	.3543			10 mm - 1.00	
T	.3580			10 mm - 1.00	
23/64"	.3594				
U	.3680	7/16"- 14 NC			
9.5 mm	.3740			11 mm - 1.50	
3/8"	.3750			11 mm - 1.50	ST-5
V	.3770				
W	.3806				
25/64"	.3906	7/16"- 20 NF			
10.0 mm	.3937				
X	.3970				
Y	.4040				
13/32"	.4062			12 mm - 1.75	EX-6
Z	.4130			12 mm - 1.50	
10.5 mm	.4134			12 mm - 1.50	
27/64"	.4219	1/2"- 13 NC		12 mm - 1.25	
11.0 mm	.4331				
7/16"	.4375		1/4" - 18 NPT		
11.5 mm	.4528				
29/64"	.4531	1/2"-20 NF 1/2"-24 NS	1/4" - 19 BSP		
15/32"	.4688			14 mm - 2.00	ST-6
12.0 mm	.4724			14 mm - 2.00	
31/64"	.4844	9/16" - 12 NC			
12.5 mm	.4921			14 mm - 1.50	

Diam/Type	Decimal Equiv.	Fractional Tap	Pipe Tap	Metric Tap	Screw Ext.
1/2"	.5000			14 mm - 1.25 14 mm - 1.50	
13.0 mm	.5118			14 mm - 1.25	
33/64"	.5156	9/16"- 18 NF			
17/32"	.5313	5/8" - 11 NC			EX-7
35/64"	.5469			16 mm - 2.00	
9/16"	.5625		3/8" - 18 NPT		ST-7
37/64"	.5781	5/8" - 18 NF		16 mm - 1.50	
19/32"	.5938	11/16"-11 NS			
39/64"	.6094			18 mm - 2.50	
5/8"	.6250	11/16"-16 NS			
41/64"	.6406				
21/32"	.6562	3/4" - 10 NC		18 mm - 1.50	
43/64"	.6719				
11/16"	.6875	3/4" - 16 NF		20 mm - 2.50	
45/64"	.7031		1/2" - 14 NPT		
23/32"	.7188				
47/64"	.7344				
3/4"	.7500				
49/64"	.7656				
25/32"	.7812	7/8" - 9 NC			
51/64"	.7969				
13/16"	.8125	7/8" - 14 NF		22 mm - 1.50	EX-8
53/64"	.8281			24 mm - 3.00	
27/32"	.8438				
55/64"	.8594				
7/8"	.8750	1" - 8 NC		24 mm - 2.00	
57/64"	.8906				
29/32"	.9062				
59/64"	.9219	1" - 12 NF	3/4" - 14 NPT		
15/16"	.9375	1" - 14 NS			
61/64"	.9531				
31/32"	.9688				
63/64"	.9844	1-1/8" - 7 NC			
1"	1.0000				
1-1/64"	1.0156				
1-1/32"	1.0312				
1-1/16"	1.0625				EX-9
1-3/32"	1.0938				
1-1/8"	1.1250				
1-5/32"	1.1562		1" - 11-1/2" NPT		
1-3/16"	1.1875				
1-1/4"	1.2500				
1-5/16"	1.3125				
1-3/8"	1.3750				
1-7/16"	1.4375				
1-1/2"	1.5000		1-1/4" - 11-1/2" NPT		

NC = National Coarse (USS)
NS = National Special
NF = National Fine (SAE)

NEF = National Extra Fine
NPT = National Pipe Taper
BSP = British Standard Pipe

HANSON® Round Pipe Taper Dies (HCS)



4102

Description	1-1/2" O.D. Solid Round Bulk Stock #	1-1/2" O.D. Screw Adj. Bulk Stock #	1" O.D. Screw Adj. Bulk Stock #	2" O.D. Screw Adj. Bulk Stock #
1/8" - 27 NPT	4102	5102	502101	—
1/4" - 18 NPT	4103	5103	—	—
3/8" - 18 NPT	4104	5104	—	—
1/2" - 14 NPT	4105	5105	—	—
1/2" - 14 NPT	—	—	—	4305
3/4" - 14 NPT	—	—	—	4306

*Note: 502101 is a High Speed Steel Die

HANSON Re-threading Hexagon Fractional Right & Left-hand Dies (HCS)



7220



7720

- Designed for repairing damaged bolts and studs

Description	Width Across Hex Flats	Thickness of Hex Die	Right-Hand Bulk Stock #	Left-Hand Bulk Stock #
1/4" - 20 NC	19/32"	1/4"	7220	7720
1/4" - 28 NF	19/32"	1/4"	7223	7723
5/16" - 18 NC	11/16"	5/16"	7227	7727
5/16" - 24 NF	11/16"	5/16"	7229	7729
3/8" - 16 NC	25/32"	3/8"	7234	7734
3/8" - 24 NF	25/32"	3/8"	7236	7736
7/16" - 14 NC	7/8"	7/16"	7239	7739
7/16" - 20 NF	7/8"	7/16"	7240	7740
1/2" - 13 NC	1-1/16"	1/2"	7244	7744
1/2" - 20 NF	1-1/16"	1/2"	7245	7745
9/16" - 12 NC	1-1/16"	1/2"	7248	7748
9/16" - 18 NF	1-1/16"	1/2"	7249	7749
5/8" - 11 NC	1-1/4"	5/8"	7252	7752
5/8" - 18 NF	1-1/4"	5/8"	7254	7754
11/16" - 11 NS	1-7/16"	3/4"	7256	7756
11/16" - 16 NS	1-7/16"	3/4"	7257	7757
3/4" - 10 NC	1-7/16"	3/4"	7258	7758
3/4" - 16 NF	1-7/16"	3/4"	7260	7760
7/8" - 9 NC	1-5/8"	7/8"	7261	7761
7/8" - 14 NF	1-5/8"	7/8"	7263	7763
1" - 8 NC	1-13/16"	1"	7265	7765
1" - 12 NF	1-13/16"	1"	7266	7766
1" - 14 NS	1-13/16"	1"	7267	7767
1-1/8" - 7 NC	2"	1"	7268	—
1-1/8" - 12 NF	2"	1"	7269	—
1-1/4" - 7 NC	2-3/16"	1"	7270	—
1-1/4" - 12 NF	2-3/16"	1"	7271	—
1-3/8" - 6 NC	2-3/8"	1"	7272	—
1-3/8" - 12 NF	2-3/8"	1"	7273	—
1-1/2" - 6 NC	2-9/16"	1"	7274	—
1-1/2" - 12 NF	2-9/16"	1"	7275	—

HANSON Re-threading Hexagon Metric Right & Left-hand Dies (HCS)



7349

- Ideal for repairing damaged bolts and studs where metric threads are specified

Description	Width Across Hex Flats	Thickness of Hex Die	Right-Hand Bulk Stock #	Left-Hand Bulk Stock #
14 mm - 1.25	1-1/16"	1/2"	7349	—
14 mm - 1.50	1-1/16"	1/2"	7350	—
14 mm - 2.00	1-1/16"	1/2"	7352	—
16 mm - 1.50	1-1/4"	5/8"	7355	7855
16 mm - 2.00	1-1/4"	5/8"	7356	—
18 mm - 1.00	1-7/16"	3/4"	7358	—
18 mm - 1.50	1-7/16"	3/4"	7359	7859
18 mm - 2.50	1-7/16"	3/4"	7361	—
20 mm - 2.50	1-7/16"	3/4"	7364	—
22 mm - 1.50	1-5/8"	7/8"	7365	7865
24 mm - 1.50	1-13/16"	1"	7367	—
30 mm - 1.50	2"	1"	7373	—

TAPS & DIES