

# **GUHRING**

The Tool Company

## **High Performance Taps**

*2011 Full-Line Catalog*



# Contents

## GENERAL INFORMATION

- Index to Guhring Taps Page 3
- Tap Compass / Material Selection Guide Page 18
- Material Hardness Cross Reference Chart Page 25

## CUT TAPS

- For general purpose applications Page 29
- For alloyed & unalloyed steels Page 41
- For stainless steels & aerospace alloys Page 65
- For high-tensile and tool steels Page 77
- For cast iron & abrasive materials Page 91
- For aluminum & aluminum alloys Page 101
- For titanium, nickel and their alloys Page 109

## STI TAPS

- Through hole Page 60
- Blind hole Page 61
- EG-M Page 62

## FORM TAPS

- Technical overview Page 116
- UNC/UNF Page 122
- Metric Page 125
- Metric fine Page 127

## PIPE TAPS

- NPT / NPTF Page 74

## TECHNICAL INFORMATION

- Definitions, flute forms, chamfer forms Page 132
- Tap tolerances and approx. limits Page 134
- Cutting rate recommendations Page 137
- DIN characteristic features for taps Page 140
- Guhring substrate and coating descriptions Page 146
- Tap drill sizes Page 147
- Troubleshooting Page 155

## GUHRING NO. APPENDIX

- Cobalt, PM cobalt and carbide taps Page 157

# GUHRING ✓ Select

For well over 100 years, the name Guhring has been associated with cutting tool innovation and quality. High-production facilities on every continent rely on Guhring technology to elevate their productivity, and manufacturers of high-precision parts know that Guhring provides consistent quality and performance.

Now smaller machine shops can also enjoy the benefits of Guhring's well-known cutting tool expertise with **GUHRING Select**, a category of stocked standard drills, taps and variable helix carbide end mills. This category is comprised of existing cutting tool series; current products which are already favorites in many machine shops across the United States.

Each **GUHRING Select** series has been chosen because of its versatility in a wide range of materials and machining operations, to provide you with a full compliment of quality drill, tap and end mill options at an economical price. These top-quality cutting tools will increase your productivity, and because they're **GUHRING Select**, you can **save 22% - 40%** over similar style tools by purchasing them. For the 3-man shop or the high-production facility, Guhring has a **GUHRING Select** tool which can help increase profitability.

Look for the **Guhring Select** logo to quickly identify these economical cutting tool choices.



# Through hole taps



	Series	Thread-Type	Color Ring	Class of Fit	Standard	Chamfer Lead	Substrate	Finish	Page No.	
<b>UNC</b>										
✓	3901	UNC		2B	ANSI	B	Cobalt	bright finish	30	
✓	3961	UNC		2B	ANSI	B	Cobalt	MolyGlide®	30	
	873	UNC		2B	DIN 371	B	Cobalt	bright finish	30	
	878	UNC		2B	DIN 376	B	Cobalt	bright finish	30	
<b>UNF</b>										
✓	3902	UNF		2B	ANSI	B	Cobalt	bright finish	31	
✓	3962	UNF		2B	ANSI	B	Cobalt	MolyGlide®	31	
	908	UNF		2B	DIN 374	B	Cobalt	bright finish	31	
<b>METRIC</b>										
✓	3900	Metric		6H	ANSI	B	Cobalt	bright finish	32	
✓	3960	Metric		6H	ANSI	B	Cobalt	MolyGlide®	32	
	803	Metric		ISO 2 (6H)	DIN 371	B	Cobalt	bright finish	32	
	815	Metric		ISO 2 (6H)	DIN 376	B	Cobalt	bright finish	33	
<b>METRIC FINE</b>										
	827	Metric Fine		ISO 2 (6H)	DIN 374	B	Cobalt	bright finish	34	
	830	Metric Fine		ISO 2 (6H)	DIN 374	C	Cobalt	bright finish	35	
<b>UNC</b>										
	3913	UNC		2B	ANSI	B	Cobalt	bright finish	42	
	3916	UNC		2B	ANSI	B	Cobalt	TiN coated	42	
	3946	UNC		2B	ANSI	B	Cobalt	TiCN coated	42	
	2881	UNC		2B	DIN 371	B	Cobalt	oxide finish	42	
	2883	UNC		2B	DIN 376	B	Cobalt	oxide finish	42	

Index

**GUHRING**



Competitively priced high-performance alternative to generic taps - See page 2 for details

- General Purpose
- Alloyed & Unalloyed Steels
- Stainless Steels
- High Tensile, Tool Steels
- Cast Iron
- Aluminum and Alloys
- Titanium or Nickel

For a complete description of workpiece materials and which color ring they fall under, please see the Tap Compass at the beginning of the catalog



# Through hole taps

Index

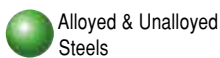
	Series	Thread-Type	Color Ring	Class of Fit	Standard	Chamfer Lead	Substrate	Finish	Page No.	
<b>UNF</b>										
	3914	UNF		2B	ANSI	B	Cobalt	bright finish	43	
	3917	UNF		2B	ANSI	B	Cobalt	TiN coated	43	
	3947	UNF		2B	ANSI	B	Cobalt	TiCN coated	43	
	2885	UNF		2B	DIN 374	B	Cobalt	oxide finish	43	
<b>METRIC</b>										
	3912	Metric		6H	ANSI	B	Cobalt	bright finish	44	
	3915	Metric		6H	ANSI	B	Cobalt	TiN coated	44	
	3945	Metric		6H	ANSI	B	Cobalt	TiCN coated	44	
	2876	Metric		6H	DIN 371	B	Cobalt	oxide finish	44	
<b>METRIC FINE</b>										
	3973	Metric Fine		6H	ANSI	B	Cobalt	TiN coated	45	
	2879	Metric Fine		ISO 2 (6H)	DIN 374	B	Cobalt	oxide finish	45	
<b>OVERSIZED</b>										
	3982	UNC / oversized		H7	ANSI	B	Cobalt	TiN coated	56	
	3986	UNC / oversized		H11	ANSI	B	Cobalt	TiN coated	56	
	3983	UNF / oversized		H7	ANSI	B	Cobalt	TiN coated	57	
	3987	UNF / oversized		H11	ANSI	B	Cobalt	TiN coated	57	
<b>STI</b>										
	3990	UNC / STI		3B	STI Tap	B	Cobalt	TiN coated	60	
	3991	UNF / STI		3B	STI Tap	B	Cobalt	TiN coated	60	
<b>EG M</b>										
	1010	Metric		6H mod	EG M		Cobalt	TiN coated	62	

# Through hole taps



	Series	Thread-Type	Color Ring	Class of Fit	Standard	Chamfer Lead	Substrate	Finish	Page No.	
<b>UNC</b>										
	3996	UNC		3B	ANSI	B	Cobalt	TiN coated	66	
	3907	UNC		2B	ANSI	B	PM cobalt	TiN coated	66	
	1980	UNC		2B	DIN 371	B	Cobalt	bright finish	66	
	1985	UNC		2B	DIN 376	B	Cobalt	bright finish	66	
<b>UNF</b>										
	3997	UNF		3B	ANSI	B	Cobalt	TiN coated	67	
	3908	UNF		2B	ANSI	B	PM cobalt	TiN coated	67	
	1990	UNF		2B	DIN 374	B	Cobalt	bright finish	67	
<b>METRIC</b>										
	3906	Metric		6H	ANSI	B	PM cobalt	TiN coated	68	
	877	Metric		ISO 2 (6H)	DIN 371	B	PM cobalt	bright finish	69	
	879	Metric		ISO 2 (6H)	DIN 376	B	PM cobalt	bright finish	68	
	1870	Metric		ISO 2 (6H)	DIN 371	B	Cobalt	bright finish	69	
	1872	Metric		ISO 2 (6H)	DIN 376	B	Cobalt	bright finish	68	
<b>METRIC FINE</b>										
	1873	Metric Fine		ISO 2 (6H)	DIN 374	B	Cobalt	bright finish	69	
<b>UNC</b>										
	3992	UNC		2B	DIN / ANSI	B	PM cobalt	TiN coated	78	
<b>UNF</b>										
	3994	UNF		2B	DIN / ANSI	B	PM cobalt	TiN coated	78	

Index



For a complete description of workpiece materials and which color ring they fall under, please see the Tap Compass at the beginning of the catalog



# Through hole taps

Index

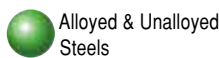
	Series	Thread-Type	Color Ring	Class of Fit	Standard	Chamfer Lead	Substrate	Finish	Page No.	
<b>METRIC</b>										
	<b>NEW</b> 4122	Metric		6H	DIN / ANSI	B	PM cobalt	TiN coated	79	
	<b>NEW</b> 4123	Metric Fine		6H	DIN / ANSI	B	PM cobalt	TiN coated	79	
	804	Metric		6H	DIN 371	B	Cobalt	bright finish	80	
	1914	Metric		ISO 2 (6H)	DIN 371	B	Cobalt	TiCN coated	80	
	816	Metric		ISO 2 (6H)	DIN 376	B	Cobalt	bright finish	80	
	1915	Metric		ISO 2 (6H)	DIN 376	B	Cobalt	TiCN coated	80	
<b>METRIC FINE</b>										
	828	Metric Fine		ISO 2 (6H)	DIN 374	B	Cobalt	bright finish	81	
<b>UNC</b>										
	3937	UNC		2B	ANSI	C	Cobalt	FIREX® coated	92	
	1979	UNC		2B	DIN 371	C	Cobalt	oxide finish	92	
	1984	UNC		2B	DIN 376	C	Cobalt	oxide finish	92	
<b>UNF</b>										
	3938	UNF		2B	ANSI	C	Cobalt	FIREX® coated	93	
	1989	UNF		2B	DIN 374	C	Cobalt	oxide finish	93	
<b>METRIC</b>										
	3936	Metric		6HX	ANSI	C	Cobalt	FIREX® coated	94	
	969	Metric		ISO2(6H)	DIN 371	C	Carbide	bright finish	97	
	1883	Metric		ISO2(6H)	DIN 376	C	Carbide	bright finish	97	
	1858	Metric		ISO2(6H)	DIN 371	C	Carbide	bright finish	94	
	1859	Metric		ISO2(6H)	DIN 376	C	Carbide	bright finish	94	
	318	Metric		6HX	DIN 371	C	Cobalt	TiAlN oated	98	
	1890	Metric		6HX	DIN 371	C	Cobalt	oxide finish	98	
	319	Metric		6HX	DIN 376	C	Cobalt	TiAlN oated	98	
	1897	Metric		6HX	DIN 376	C	Cobalt	oxide finish	98	

# Through hole taps



	Series	Thread-Type	Color Ring	Class of Fit	Standard	Chamfer Lead	Substrate	Finish	Page No.	
<b>METRIC FINE</b>										
	972	Metric Fine		ISO2(6H)	DIN 371	C	Carbide	bright finish	97	
	1861	Metric Fine		ISO2(6H)	DIN 371	C	Carbide	bright finish	95	
	1860	Metric Fine		ISO2(6H)	DIN 374	C	Carbide	bright finish	95	
	347	Metric Fine		6HX	DIN 374	C	Cobalt	TiAlN coated	98	
	1904	Metric Fine		6HX	DIN 374	C	Cobalt	oxide finish	98	
<b>UNC</b>										
	3925	UNC		2B	ANSI	B	Cobalt	bright finish	102	
	3928	UNC		2B	ANSI	B	Cobalt	TiN coated	102	
	3967	UNC		2B	ANSI	B	Cobalt	MolyGlide®	102	
<b>UNF</b>										
	3926	UNF		2B	ANSI	B	Cobalt	bright finish	102	
	3929	UNF		2B	ANSI	B	Cobalt	TiN coated	102	
	3968	UNF		2B	ANSI	B	Cobalt	MolyGlide®	102	
<b>METRIC</b>										
	3924	Metric		6H	ANSI	B	Cobalt	bright finish	103	
	3927	Metric		6H	ANSI	B	Cobalt	TiN coated	103	
	3966	Metric		6H	ANSI	B	Cobalt	MolyGlide®	103	
	1858	Metric		ISO 2 (6H)	DIN 371	C	Carbide	bright finish	103	
	1859	Metric		ISO 2 (6H)	DIN 376	C	Carbide	bright finish	103	
<b>METRIC FINE</b>										
	1860	Metric Fine		ISO 2 (6H)	DIN 371	C	Carbide	bright finish	103	
	1861	Metric Fine		ISO 2 (6H)	DIN 376	C	Carbide	bright finish	103	

Index


















For a complete description of workpiece materials and which color ring they fall under, please see the Tap Compass at the beginning of the catalog





## Through hole taps

Index

	Series	Thread-Type	Color Ring	Class of Fit	Standard	Chamfer Lead	Substrate	Finish	Page No.	
<b>UNC</b>										
	<b>2918</b>	UNC	 Ni	2BX	DIN 371	B	PM cobalt	bright finish	110	
<del>2904</del>	<del>2905</del> ‡	UNC	 Ti	2BX	DIN 371	B	PM cobalt	bright finish	110	
<b>UNF</b>										
	<b>2919</b>	UNF	 Ni	2BX	DIN 371	B	PM cobalt	bright finish	110	
<del>2906</del>	<del>2907</del> ‡	UNF	 Ti	2BX	DIN 371	B	PM cobalt	bright finish	110	
<b>METRIC</b>										
	<b>2916</b>	Metric	 Ni	6HX	DIN 371	B	PM cobalt	bright finish	111	
<del>2900</del>	<del>2901</del> ‡	Metric	 Ti	6HX	DIN 371	B	PM cobalt	bright finish	111	
<b>METRIC FINE</b>										
	<b>2917</b>	Metric Fine	 Ni	6HX	DIN 371	B	PM cobalt	bright finish	111	
<del>2902</del>	<del>2903</del> ‡	Metric Fine	 Ti	6HX	DIN 371	B	PM cobalt	bright finish	111	

‡ Design change - Crossed out series numbers are being replaced with the numbers with this symbol: ‡

# Blind hole taps



	Series	Thread Type	Color Ring	Class of Fit	Standard	Chamfer Lead	Helix	Substrate	Finish	Page No.	
<b>UNC</b>											
✓	3904	UNC		2B	ANSI	C	40° helix	Cobalt	bright finish	36	
✓	3964	UNC		2B	ANSI	C	40° helix	Cobalt	MolyGlide®	36	
	876	UNC		2B	DIN 371	C	40° helix	Cobalt	bright finish	36	
	881	UNC		2B	DIN 376	C	40° helix	Cobalt	bright finish	36	
<b>UNF</b>											
✓	3905	UNF		2B	ANSI	C	40° helix	Cobalt	bright finish	37	
✓	3965	UNF		2B	ANSI	C	40° helix	Cobalt	MolyGlide®	37	
	911	UNF		2B	DIN 374	C	40° helix	Cobalt	bright finish	37	
<b>METRIC</b>											
✓	3903	Metric		6H	ANSI	C	40° helix	Cobalt	bright finish	38	
✓	3963	Metric		6H	ANSI	C	40° helix	Cobalt	MolyGlide®	38	
	810	Metric		ISO 2 (6H)	DIN 371	C	40° helix	Cobalt	bright finish	38	
	822	Metric		ISO 2 (6H)	DIN 376	C	40° helix	Cobalt	bright finish	38	
<b>METRIC FINE</b>											
	830	Metric Fine		ISO 2 (6H)	DIN 374	C		Cobalt	bright finish	35	
	833	Metric Fine		ISO 2 (6H)	DIN 374	C	15° helix	Cobalt	bright finish	39	
	834	Metric Fine		ISO 2 (6H)	DIN 374	C	40° helix	Cobalt	bright finish	39	

Index



Competitively priced high-performance alternative to generic taps - See page 2 for details

General Purpose   
 Alloyed & Unalloyed Steels   
 Stainless Steels   
 High Tensile, Tool Steels   
 Cast Iron   
 Aluminum and Alloys   
 Titanium or Nickel

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## Blind hole taps

Index

	Series	Thread Type	Color Ring	Class of Fit	Standard	Chamfer Lead	Helix	Substrate	Finish	Page No.	
<b>UNC</b>											
	3977	UNC		2B	ANSI	E	40° helix	Cobalt	TiN coated	48	
	3919	UNC		2B	ANSI	C	40° helix	Cobalt	bright finish	46	
	3922	UNC		2B	ANSI	C	40° helix	Cobalt	TiN coated	46	
	3949	UNC		2B	ANSI	C	40° helix	Cobalt	TiCN coated	46	
	3954	UNC		2B	ANSI	C	40° helix	Cobalt	TiN coated	49	
	1837	UNC		2B	DIN 371	C(K)	40° helix	Cobalt	TiN coated	46	
<b>UNF</b>											
	3978	UNF		2B	ANSI	E	40° helix	Cobalt	TiN coated	48	
	3920	UNF		2B	ANSI	C	40° helix	Cobalt	bright finish	47	
	3923	UNF		2B	ANSI	C	40° helix	Cobalt	TiN coated	47	
	3950	UNF		2B	ANSI	C	40° helix	Cobalt	TiCN coated	47	
	3955	UNF		2B	ANSI	C	40° helix	Cobalt	TiN coated	49	
	1838	UNF		2B	DIN 374	C(K)	40° helix	Cobalt	TiN coated	47	
<b>METRIC</b>											
	3976	Metric		6H	ANSI	E	40° helix	Cobalt	TiN coated	53	
	3918	Metric		6H	ANSI	C	40° helix	Cobalt	bright finish	50	
	3921	Metric		6H	ANSI	C	40° helix	Cobalt	TiN coated	50	
	3948	Metric		6H	ANSI	C	40° helix	Cobalt	TiCN coated	50	
	4126	Metric		2B	ANSI	C	40° helix	Cobalt	TiN coated	50	
	2790	Metric		ISO 2 (6H)	DIN 371	E	40° helix	Cobalt	bright finish	53	
	889	Metric		ISO 2 (6H)	DIN 371	C	40° helix	Cobalt	bright finish	51	
	2791	Metric		ISO 2 (6H)	DIN 376	E	40° helix	Cobalt	bright finish	53	
	890	Metric		ISO 2 (6H)	DIN 376	C	40° helix	Cobalt	bright finish	51	

# Blind hole taps



	Series	Thread Type	Color Ring	Class of Fit	Standard	Chamfer Lead	Helix	Substrate	Finish	Page No.	
<b>METRIC FINE</b>											
	3974	Metric Fine		6H	ANSI	C	40° helix	Cobalt	TiN coated	52	
	2792	Metric Fine		ISO 2 (6H)	DIN 374	E	40° helix	Cobalt	bright finish	54	
	2424	Metric Fine		ISO 2 (6H)	DIN 374	C	40° helix	Cobalt	bright finish	52	
<b>OVERSIZED</b>											
	3980	UNC / oversized		H7	ANSI	C	40° helix	Cobalt	TiN coated	58	
	3984	UNC / oversized		H11	ANSI	C	40° helix	Cobalt	TiN coated	58	
	3981	UNF / oversized		H7	ANSI	C	40° helix	Cobalt	TiN coated	59	
	3985	UNF / oversized		H11	ANSI	C	40° helix	Cobalt	TiN coated	59	
<b>STI</b>											
	3988	UNC / STI		3B	STI Tap	C	40° helix	Cobalt	TiN coated	61	
	3989	UNF / STI		3B	STI Tap	C	40° helix	Cobalt	TiN coated	61	
<b>EG M</b>											
	1011	Metric		6H mod	EG M		40° helix	Cobalt	TiN coated	63	
<b>UNC</b>											
	3998	UNC		3B	ANSI	C	40° helix	Cobalt	TiN coated	70	
	3910	UNC		2B	ANSI	C	40° helix	PM cobalt	TiN coated	70	
	1981	UNC		2B	DIN 376	C	40° helix	Cobalt	bright finish	70	
	1986	UNC		2B	DIN 376	C	40° helix	Cobalt	bright finish	70	
<b>UNF</b>											
	3999	UNF		3B	ANSI	C	40° helix	Cobalt	TiN coated	71	
	3911	UNF		2B	ANSI	C	40° helix	PM cobalt	TiN coated	71	
	2867	UNF		2B	DIN 374	C	40° helix	Cobalt	bright finish	71	

Index



## Blind hole taps

Index

	Series	Thread Type	Color Ring	Class of Fit	Standard	Chamfer Lead	Helix	Substrate	Finish	Page No.	
<b>METRIC</b>											
	3909	Metric		6H	ANSI	C	40° helix	PM cobalt	TiN coated	72	
	909	Metric		ISO 2 (6H)	DIN 371	C	40° helix	PM cobalt	bright finish	72	
	910	Metric		ISO 2 (6H)	DIN 376	C	40° helix	PM cobalt	bright finish	72	
	2896	Metric		ISO 2 (6H)	DIN 371	C	15° helix	Cobalt	TiN coated	73	
	2895	Metric		ISO 2 (6H)	DIN 376	C	15° helix	Cobalt	TiN coated	73	
<b>METRIC FINE</b>											
	936	Metric Fine		ISO 2 (6H)	DIN 374	C	40° helix	PM cobalt	bright finish	72	
	2897	Metric Fine		ISO 2 (6H)	DIN 374	C	15° helix	Cobalt	TiN coated	73	
<b>PIPE TAP - NPT</b>											
	1088	NPT			Guhring Std.			Cobalt	TiN coated	74	
<b>PIPE TAP - NPTF</b>											
	4127	NPTF			Guhring Std.			Cobalt	TiN coated	74	
<b>UNC</b>											
	3993	UNC		2B	DIN / ANSI	C	40° helix	PM cobalt	TiN coated	82	
	4124	UNC		2B	DIN / ANSI	C	15° helix	PM cobalt	TiN coated	83	
<b>UNF</b>											
	3995	UNF		2B	DIN / ANSI	C	40° helix	PM cobalt	TiN coated	82	
	4125	UNF		2B	DIN / ANSI	C	15° helix	PM cobalt	TiN coated	83	
<b>METRIC</b>											
	4120	Metric		6H	DIN / ANSI	C	40° helix	PM cobalt	TiN coated	84	
	1188	Metric		6HX	DIN 371	C	15° helix	PM cobalt	TiCN coated	87	
	1194	Metric		6HX	DIN 374	C	15° helix	PM cobalt	TiCN coated	87	
	811	Metric		ISO 2 (6H)	DIN 371	C	40° helix	Cobalt	bright finish	85	
	823	Metric		ISO 2 (6H)	DIN 376	C	40° helix	Cobalt	bright finish	86	
	935	Metric		ISO 2 (6H)	DIN 376	C	15° helix	PM cobalt	bright finish	87	

# Blind hole taps



Index

	Series	Thread Type	Color Ring	Class of Fit	Standard	Chamfer Lead	Helix	Substrate	Finish	Page No.	
	1894	Metric		ISO 2 (6H)	DIN 371	C	40° helix	Cobalt	bright finish	85	
	1916	Metric		ISO 2 (6H)	DIN 371	C	40° helix	Cobalt	TiCN coated	85	
	1901	Metric		ISO 2 (6H)	DIN 376	C	40° helix	Cobalt	bright finish	85	
	1917	Metric		ISO 2 (6H)	DIN 376	C	40° helix	Cobalt	TiCN coated	86	
	2944	Metric		ISO 2 (6H)	Guhring Std.	D	0° helix	Carbide	TiCN coated	86	
<b>METRIC FINE</b>											
	4121	Metric Fine		6H	DIN / ANSI	C	40° helix	PM cobalt	TiN coated	84	
	1200	Metric Fine		6HX	DIN 376	C	15° helix	PM cobalt	TiCN coated	87	
	835	Metric Fine		ISO 2 (6H)	DIN 374	C	40° helix	Cobalt	bright finish	88	
	1907	Metric Fine		ISO 2 (6H)	DIN 374	C	40° helix	Cobalt	bright finish	88	
<b>UNC</b>											
	4118	UNC		2B	DIN / ANSI	C		Carbide	bright finish	96	
	3937	UNC		2B	ANSI	C		Cobalt	FIREX® coated	92	
	1979	UNC		2B	DIN 371	C		Cobalt	oxide finish	92	
	1984	UNC		2B	DIN 376	C		Cobalt	oxide finish	92	
<b>UNF</b>											
	4119	UNF		2B	DIN / ANSI	C		Carbide	bright finish	96	
	3938	UNF		2B	ANSI	C		Cobalt	FIREX® coated	93	
	1989	UNF		2B	DIN 374	C		Cobalt	oxide finish	93	
<b>METRIC</b>											
	3936	Metric		6HX	ANSI	C		Cobalt	FIREX® coated	94	
	1858	Metric		ISO2(6H)	DIN 371	C		Carbide	bright finish	94	
	1859	Metric		ISO2(6H)	DIN 376	C		Carbide	bright finish	94	
	318	Metric		6HX	DIN 371	C		Cobalt	TiAlN coated	98	
	319	Metric		6HX	DIN 376	C		Cobalt	TiAlN coated	98	

General Purpose   
 Alloyed & Unalloyed Steels   
 Stainless Steels   
 High Tensile, Tool Steels   
 Cast Iron   
 Aluminum and Alloys   
 Titanium or Nickel

*For a complete description of workpiece materials and which color ring they fall under, please see the Tap Compass at the beginning of the catalog*



## Blind hole taps

Index

	Series	Thread Type	Color Ring	Class of Fit	Standard	Chamfer Lead	Helix	Substrate	Finish	Page No.	
<b>METRIC FINE</b>											
	972	Metric Fine		ISO2(6H)	DIN 371	C		Carbide	bright finish	97	
	1861	Metric Fine		ISO2(6H)	DIN 371	C		Carbide	bright finish	95	
	1860	Metric Fine		ISO2(6H)	DIN 374	C		Carbide	bright finish	95	
	347	Metric Fine		6HX	DIN 374	C		Cobalt	TiAlN coated	98	
	1904	Metric Fine		6HX	DIN 374	C		Cobalt	oxide finish	98	
<b>UNC</b>											
	3931	UNC		2B	ANSI	C	45° helix	Cobalt	bright finish	105	
	3934	UNC		2B	ANSI	C	45° helix	Cobalt	TiN coated	105	
	3970	UNC		2B	ANSI	C	45° helix	Cobalt	MolyGlide®	105	
<b>UNF</b>											
	3932	UNF		2B	ANSI	C	45° helix	Cobalt	bright finish	105	
	3935	UNF		2B	ANSI	C	45° helix	Cobalt	TiN coated	105	
	3971	UNF		2B	ANSI	C	45° helix	Cobalt	MolyGlide®	105	
<b>METRIC</b>											
	3930	Metric		6H	ANSI	C	45° helix	Cobalt	bright finish	106	
	3933	Metric		6H	ANSI	C	45° helix	Cobalt	TiN coated	106	
	3969	Metric		6H	ANSI	C	45° helix	Cobalt	MolyGlide®	106	
	969	Metric		ISO 2 (6H)	DIN 371	C		Carbide	bright finish	106	
	971	Metric		ISO 2 (6H)	DIN 371	C	15° helix	Carbide	bright finish	106	
	1883	Metric		ISO 2 (6H)	DIN 376	C		Carbide	bright finish	106	
<b>METRIC FINE</b>											
	972	Metric Fine		ISO 2 (6H)	DIN 371	C		Carbide	bright finish	107	
	977	Metric Fine		ISO 2 (6H)	DIN 371	C	15° helix	Carbide	bright finish	107	
	978	Metric Fine		ISO 2 (6H)	DIN 374	C	15° helix	Carbide	bright finish	107	

# Blind hole taps



	Series	Thread Type	Color Ring	Class of Fit	Standard	Chamfer Lead	Helix	Substrate	Finish	Page No.	
<b>UNC</b>											
	2922	UNC	Ni	2BX	DIN 371	C	10° helix	PM cobalt	TiAlN coated	112	
	2912	UNC	Ti	2BX	DIN 371	C	15° helix	PM cobalt	TiCN coated	112	
<b>UNF</b>											
	2923	UNF	Ni	2BX	DIN 371	C	10° helix	PM cobalt	TiAlN coated	112	
	2914	UNF	Ti	2BX	DIN 371	C	15° helix	PM cobalt	TiCN coated	112	
<b>METRIC</b>											
	2920	Metric	Ni	6HX	DIN 371	C	10° helix	PM cobalt	TiAlN coated	113	
<del>2908</del>	<del>2909</del> ‡	Metric	Ti	6HX	DIN 371	C	15° helix	PM cobalt	TiCN coated	113	
<b>METRIC FINE</b>											
	2921	Metric Fine	Ni	6HX	DIN 371	C	10° helix	PM cobalt	TiAlN coated	113	
	2910	Metric Fine	Ti	6HX	DIN 371	C	15° helix	PM cobalt	TiCN coated	113	

Index

‡ Design change - Crossed out series numbers are being replaced with the numbers with this symbol: ‡



# Form taps

	Series	Thread-Type	Color Ring	Class of Fit	Standard	Chamfer Lead	Substrate	Finish	Page No.	
<b>UNC</b>										
	3959	UNC		2BX	ANSI	E	Cobalt	TiN coated	122	
	3940	UNC		2BX	ANSI	C	Cobalt	TiN coated	122	
	3943	UNC		2BX	ANSI	C	Cobalt	TiCN coated	122	
	1582	UNC		2BX	DIN 371	C	Cobalt	TiN coated	123	
	1583	UNC		2BX	DIN 376	C	Cobalt	TiN coated	123	





## Form taps

Index


Series	Thread-Type	Color Ring	Class of Fit	Standard	Chamfer Lead	Substrate	Finish	Page No.	
<b>UNF</b>									
3972	UNF		2BX	ANSI	E	Cobalt	TiN coated	124	
3941	UNF		2BX	ANSI	C	Cobalt	TiN coated	123	
3944	UNF		2BX	ANSI	C	Cobalt	TiCN coated	123	
1584	UNF		2BX	DIN 371	C	Cobalt	TiN coated	124	
1585	UNF		2BX	DIN 376	C	Cobalt	TiN coated	124	
<b>METRIC</b>									
3979	Metric		6HX	ANSI	E	Cobalt	TiN coated	125	
3939	Metric		6HX	ANSI	C	Cobalt	TiN coated	125	
3942	Metric		6HX	ANSI	C	Cobalt	TiCN coated	125	
1927	Metric		6HX	DIN 371	E	Carbide	*TiCN coated	126	
1972	Metric		6HX	DIN 371	C	Carbide	*TiCN coated	126	
1931	Metric		6HX	DIN 376	C	Carbide	*TiCN coated	127	
323	Metric		6HX	DIN 371	C	PM cobalt	TiCN coated	126	
1717	Metric		6HX	DIN 371	C	PM cobalt	AlCrN	126	
919	Metric		6HX	DIN 371	C	Cobalt	TiN coated	126	
342	Metric		6HX	DIN 376	C	PM cobalt	TiN coated	127	
1719	Metric		6HX	DIN 376	C	PM cobalt	AlCrN	127	
<b>METRIC FINE</b>									
3975	Metric Fine		6HX	ANSI	C	Cobalt	TiN coated	127	
1581	Metric Fine		6HX	DIN 374	C	Carbide	*TiCN coated	129	
1721	Metric Fine		6HX	DIN 371	C	PM cobalt	AlCrN	129	
338	Metric Fine		6HX	DIN 374	C	PM cobalt	TiN coated	128	
1723	Metric Fine		6HX	DIN 374	C	PM cobalt	AlCrN	128	
927	Metric Fine		6HX	DIN 374	C	Cobalt	TiN coated	128	

\* All carbide form taps will be changing to TiCN coating as inventory levels are replenished

# Guhring Material Selection Tap Compass



 General Purpose

 Alloyed & Unalloyed Steels

 Stainless Steels






















































 High Tensile, Tool Steels


 Cast Iron

 Aluminum and Alloys

 Titanium or Nickel

*For a complete description of workpiece materials and which color ring they fall under, please see the Tap Compass at the beginning of the catalog*

	Material	Condition	Hardness		COLOR RING		
			HRC	Brinell	Recommended	Alternate(s)	
 <b>Unalloyed Carbon Steels</b>	1005, 1006, 1008, 1009, 1010, 1011, 1012, 1013, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1025, 1026, 1029	Normalized, Hot rolled, Annealed, Cold drawn	-	≤ 180			
		Hot rolled, Normalized, Annealed, Cold drawn	≤ 20	≤ 230			
		Annealed, Cold drawn	≤ 30	≤ 280			
	1030, 1033, 1035, 1037, 1038, 1039, 1040, 1042, 1043, 1044, 1045, 1046, 1049, 1050, 1053, 1055, 1059	Hot rolled, Normalized, Annealed, Cold Drawn	-	≤ 180			
			≤ 20	≤ 230			
		Annealed, Cold drawn, Quenched and Tempered	≤ 30	≤ 280			
		Normalized, Annealed, Quenched and Tempered	≤ 35	≤ 320			
	1060, 1064, 1065, 1069, 1070, 1071, 1074, 1075, 1078, 1080, 1084, 1085, 1086, 1090, 1095	Quenched and Tempered	≤ 38	≤ 350			
		Hot rolled, Normalized, Annealed, Cold drawn	≤ 38	≤ 230			
		Hot rolled, Annealed, Cold drawn, Quenched and Tempered	≤ 20	≤ 280			
		Normalized, Annealed, Quenched and Tempered	≤ 35	≤ 320			
		Quenched and Tempered	≤ 38	≤ 350			
<b>Free Machining Leaded Steels</b>		Low Carbon 10L10, 10L15, 10L17, 10L20, 10L23, 11L15, 11L16, 11L17, 12L11, 12L12, 12L13, 12L14, 12L15, 51L15, 1L17, 51L20	Hot rolled, Normalized, Annealed, Cold drawn	-	≤ 150		
				-	≤ 200		
				≤ 25	≤ 250		
	Medium Carbon 10L25, 10L30, 10L35, 10L40, 10L42, 10L45, 10L49, 10L50, 10L55, 86L20, 86L40, 11L37, 11L38, 11L39, 11L41, 11L44, 11L46, 41L25, 41L30, 41L35, 41L40, 41L42, 41L47, 41L50	Hot rolled, Normalized, Annealed, Cold drawn	-	≤ 200			
			≤ 25	≤ 250			
		Cold drawn, Quenched and Tempered	≤ 33	≤ 300			
		≤ 38	≤ 350				
	<b>Resulphurized Steels</b>	Low Carbon 1108, 1109, 1110, 1114, 1115, 1116, 1118, 1119, 1120, 1126, 1211, 1212, 1213, 1215	Hot rolled, Annealed	-	≤ 150		
Cold drawn			-	≤ 200			
Medium Carbon 1132, 1137, 1138, 1139, 1140, 1141, 1144, 1145, 1146, 1151		Hot rolled, Normalized, Annealed, Cold drawn	-	≤ 180			
			≤ 20	≤ 230			
		Cold drawn, Quenched and Tempered	≤ 30	≤ 280			
		Quenched and Tempered	≤ 35	≤ 320			
	≤ 38	≤ 350					



















































	Material	Condition	Hardness		COLOR RING		
			HRC	Brinell	Recommended	Alternate(s)	
 <p><b>Carbon Manganese Steels</b></p>	Low Carbon	1513, 1518, 1522	Normalized, Hot rolled, Annealed, Cold drawn	-	≤ 180		
			Annealed, Cold drawn	≤ 20	≤ 230		
			Hot rolled, Normalized, Annealed, Cold drawn	≤ 30	≤ 280		
	Medium Carbon	1524, 1525, 1526, 1527, 1536, 1541	Hot rolled, Normalized, Annealed, Cold drawn	-	≤ 180		
				≤ 20	≤ 230		
			Hot rolled, Annealed, Cold drawn, Normalized, Quenched and Tempered	≤ 30	≤ 280		
			Normalized, Annealed, Quenched and Tempered	≤ 35	≤ 320		
	Quenched and Tempered	≤ 38	≤ 350				
	High Carbon	1547, 1548 (46Mn5), 1551 (52Mn4), 1552 (52Mn5), 1561, 1566 (66Mn4), 1572 (80Mn4)	Hot rolled, Normalized, Annealed, Cold Drawn	≤ 20	≤ 230		
			Hot rolled, Annealed, Cold drawn, Normalized, Quenched and Tempered	≤ 30	≤ 280		
			Normalized, Annealed, Quenched and Tempered	≤ 35	≤ 320		
			Quenched and Tempered	≤ 38	≤ 350		










Tap Compass

Structural Steels	Yield Strength in 1000 PSI	30, 35, 42, 45, 50	Hot rolled, Normalized, Stress relieved	-	≤ 150		
		55, 60, 65	Hot rolled, Normalized, Stress relieved, Quenched and Tempered	-	≤ 200		
		70, 75, 80		≤ 25	≤ 250		
		85, 90, 100, 110		≤ 38	≤ 300		
		135, 140, 145, 150, 160	Quenched and Tempered	≤ 38	≤ 350		









Boron Treated Steels	Low Carbon Manganese Steels	10B08, 10B15, 10B16, 10B21, 10B22, 10B23	Normalized, Hot rolled, Annealed, Cold drawn	-	≤ 180		
			≤ 20	≤ 230			
	Annealed, Cold drawn	≤ 30	≤ 280				
	Medium Carbon Manganese Steels	10B30, 10B35, 10B37, 10B38, 10B39, 10B40, 10B41, 10B45, 10B50, 10B62, 13B20, 15B22, 15B47	Hot rolled, Normalized, Annealed, Cold drawn	-	≤ 180		
			≤ 20	≤ 230			
			Hot rolled, Cold drawn, Annealed, Normalized, Quenched and Tempered	≤ 30	≤ 280		
			Normalized, Annealed, Quenched and Tempered	≤ 35	≤ 320		
	Quenched and Tempered	≤ 38	≤ 350				





























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	Material	Condition	Hardness		COLOR RING	
			HRC	Brinell	Recommended	Alternate(s)
 <b>Boron Treated Steels</b>	<b>Low Carbon Alloyed Steels</b>  32B15, 41B18, 51B15, 51B17, 51B20, 86B20, 86B22, 94B15, 94B17	Hot rolled, Annealed, Cold drawn	≤ 20	≤ 230		
		Hot rolled, Annealed, Cold drawn, Normalized	≤ 30	≤ 280		
		Normalized, Quenched and Tempered	≤ 35	≤ 320		
	≤ 38		≤ 350			
	<b>Medium Carbon Alloyed Steels</b>  51B30, 51B32, 51B40, 51B55, 92B55, 50B40, 50B44, 50B46, 50B50, 50B60, 51B60, 81B45, 86B45, 94B30, 94B40	Hot rolled, Annealed, Cold drawn	≤ 20	≤ 230		
		Normalized, Cold drawn, Annealed, Quenched and Tempered	≤ 30	≤ 280		
Normalized, Quenched and Tempered		≤ 35	≤ 320			
	≤ 38	≤ 350				
<b>Alloy Steels</b>	<b>Low Carbon</b>  2317, 2512, 2515, 2517, 3115, 3120, 3215, 3220, 3312, 3316, 3325, 4012, 4023, 4024, 4027, 4028, 4118, 4119, 4125, 4317, 4320, 4419, 4422, 4427, 4608, 4615, 4617, 4620, 4621, 4626, 4718, 4720, 4815, 4817, 4820, 5015, 5115, 5117, 5120, 6115, 6118, 6120, 6125, 8115, 8615, 8617, 8620, 8622, 8625, 8627, 8720, 8822, 9310, 9315, 9317	Hot rolled, Annealed, Cold drawn	≤ 20	≤ 230		
		Hot rolled, Normalized, Annealed, Cold drawn	≤ 30	≤ 280		
		Normalized, Quenched and Tempered	≤ 35	≤ 320		
	≤ 38		≤ 350			
	<b>Medium Carbon</b>  1330, 1335, 1340, 1345, 3140, 3145, 3150, 3230, 3240, 3335, 3340, 3435, 3450, 4032, 4037, 4063, 4130, 4135, 4137, 4140, 4142, 4145, 4147, 4150, 4161, 4337, 4340, 4640, 5045, 5046, 5060, 5130, 5132, 5135, 5140, 5145, 5157, 5150, 5155, 5160, 6130, 6135, 6140, 6145, 6150, 7140, 6145, 6150, 7140, 8630, 8632, 8635, 8637, 8640, 8642, 8645, 8650, 8650, 8660, 8735, 8740, 8742, 9250, 9254, 9255, 9260, 9262, 9840, 9850, 2340	Hot rolled, Annealed, Cold drawn	≤ 20	≤ 230		
		Annealed, Normalized, Cold drawn, Quenched and Tempered	≤ 30	≤ 280		
Normalized, Quenched and Tempered		≤ 35	≤ 320			
	≤ 38	≤ 350				
<b>Stainless Steels, Wrought</b>  <i>Continues on next page</i>	<b>Ferritic</b>  405, 409, 429, 430, 434, 436, 442, 446	Annealed	-	≤ 185		
	<b>Austenitic</b>  201, 202, 301, 302B, 304, 304L, 305, 308, 309, 309S, 310, 310S, 314, 316, 316L, 317, 321, 330, 347, 348, 384, 385, Nitronic 32, Nitronic 33, Nitronic 40, Nitronic 50, Nitronic 60		-	≤ 180		
		Annealed, Cold drawn	≤ 20	≤ 230		
		Cold drawn	≤ 30	≤ 280		
	<b>Martensitic</b>  1403, 410, 414, 420, 422, 431, 440A, 440B, 440C, 501, 502, Greek Ascology	Annealed	-	≤ 180		
			≤ 20	≤ 230		
		Quenched and Tempered	≤ 30	≤ 280		
			≤ 35	≤ 320		
		≤ 38	≤ 350			




Material	Condition	Hardness		COLOR RING			
		HRC	Brinell	Recommended	Alternate(s)		
 <b>Stainless Steels, Wrought</b>	Precipitation Hardening	15-5PH, 16-6PH, 17-4PH, 17-7PH, 17-14CuMo, AF-71, AFC-77, AM-363, AM363, AM350, AM355, Custom450, Custom 455, HNM, PH13-8 Mo, PH14-8 Mo, PH15-7Mo, Stainless W	Annealed	-	≤ 200		
				≤ 25	≤ 250		
	Hardened		≤ 33	≤ 300			
			≤ 38	≤ 350			



















Tap Compass











Free Machining Stainless Steels	Medium Carbon	430F, 430F Se	Annealed	-	≤ 180			
		203 Ez, 303, 303 Se, 303 Ma, 303 Pb, 303 PlusX				Cold drawn	≤ 28	≤ 270
	416, 416 Se, 416 PlusX, 420F, 420F Se, 440F, 440F Se	Medium Carbon		Annealed	-	≤ 180		
				Annealed, Cold drawn	≤ 23	≤ 240		
		Quenched and Tempered		≤ 35	≤ 320			







Tool Steels	High Speed Steels	M1, M2, M6, M10, T1, T2, T6	Annealed	≤ 25	≤ 250			
		M3-1, M3-2, M4, M7, M30, M33, M34, M36, M41, M42, M43, M44, M46, M47, T4, T5, T8, T15		-	≤ 220			
	Hot Works	H10, H11, H12, H13, H14, H19			≤ 29	≤ 270		
					-	≤ 200		
	Hot Works	H21, H22, H23, H24, H25, H26, H41, H42, H43		≤ 25	≤ 250			
			Quenched and Tempered	≤ 38	≤ 350			
	Cold Works	A7, D2, D3, D4, D5, D7 A2, A3, A4, A5, A6, A8, A9, A10, O1, O2, O6, O7	Annealed		-	≤ 200		
					≤ 25	≤ 250		
								
								
	Stock Resisting	S1, S2, S4, S5, S6, S7		-	≤ 220			
	Mold	P2, P3, P4, P5, P6, P20, P21		-	≤ 150			
	Special Purpose	F1, F2, L2, L3, L6		-	≤ 200			
				≤ 25	≤ 250			





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






	Material	Condition	Hardness		COLOR RING		
			HRC	Brinell	Recommended	Alternate(s)	
 <p><b>Tool Steels</b></p>	<b>Water Hardening</b>	W1, W2, W5	Annealed	≤ 25	≤ 250		
	<b>Nitriding</b>	Nitralloy 125, Nitralloy 135, Nitralloy 135Mod, Nitralloy 225, Nitralloy 230, Nitralloy EZ, Nitralloy N, Nitrex 1				Normalized, Quenched and Tempered	≤ 30

	Material	Condition	Hardness		COLOR RING	
			HRC	Brinell	Recommended	Alternate(s)
<b>Gray Cast Iron</b>		As cast, Annealed	-	≤ 180		
		As cast	≤ 25	≤ 250		
						
						
						
						
						
		As cast, Quenched and Tempered	≤ 35	≤ 320		
						





















	Material	Condition	Hardness		COLOR RING	
			HRC	Brinell	Recommended	Alternate(s)
<b>Ductile Cast Iron</b>	<b>Ferritic</b>	Annealed	-	≤ 190		
						
	<b>Ferritic / Pearlitic</b>	As cast	-	≤ 220		
					≤ 25	≤ 250
	<b>Pearlitic / Martensitic</b>	Normalized and Tempered	≤ 33	≤ 300		
<b>Martensitic</b>	Quenched and Tempered	≤ 36	≤ 330			






















	Material	Condition	Hardness		COLOR RING	
			HRC	Brinell	Recommended	Alternate(s)
<b>High Alloy Cast Iron</b>	<b>Austenitic</b>	As cast	-	≤ 220		
			-	≤ 215		
			≤ 25	≤ 250		

	Material	Condition	Hardness		COLOR RING	
			HRC	Brinell	Recommended	Alternate(s)
<b>High Alloy Ductile Cast Iron</b>	<b>Austenitic</b>	Annealed	-	≤ 200		
			≤ 28	≤ 270		


















































	Material	Material		Condition	Hardness		COLOR RING	
		UNS	ASTM / SAE		HRC	Brinell	Recommended	Alternate(s)
 <p><b>Malleable Cast Iron</b></p>	Ferritic	F20000	A602 G M3210, J158 G M3210, A47 G 32510, A47 G 3201	Malleablized	-	≤ 160		
	Pearlitic	F22830, F23130, F23530, F20001, F20002	A220 G 40010, J125 pearlitic malleable, A220 G 45006, A220 G 45008, A220 G 50005, A602 G M4504, J158 G M4504, A602 G M5003, J158 G M5003	Malleablized and Heat Treated	-	≤ 200		
					≤ 23	≤ 240		
	Martensitic	F20003, F2410, F20004, F25530	A602 G M5503, J158 G M5503, A220 G 60004, A602 G M7002, J158 G M7002, A220 G 70003, A220 G 80002, A602 G M8501, J158 G M8501, A220 G 90001	Malleablized and Heat Treated	≤ 26	≤ 255		
					≤ 27	≤ 260		
					≤ 30	≤ 280		
≤ 35					≤ 320			

Tap Compass

Aluminum	Al Alloys, Wrought	Low Silicon	EC 1060, 1100, 1145, 1175, 1235, 2011, 2014, 2017, 2018, 2021, 2024, 2025, 2117, 2218, 2219, 2618, 3003, 3004, 3005, 4032, 5005, 5050, 5052, 5056, 5083, 5086, 5154, 5252, 5254, 5454, 5456, 5457, 5652, 5657, 6053, 6061, 6063, 6066, 6070, 6101, 6151, 6253, 6262, 6463, 6951, 7001, 7004, 7005, 7039, 7049, 7050, 7075, 7079, 7175, 7178	Cold drawn	-	30 to 80 500 kg		
				Solution treated and Aged	-	75 to 150 500 kg		
	Al Alloys, Wrought	≤ 7%	A140, 201.0, 208.0, 213.0, 222.0, 224.0, 242.0, 295.0, B295.0, 308.0, 319.0, 328.0, A332.0, F332.0, 333.0, 354.0, 355.0, C355.0, 356.0, A356.0, 357.0, 359.0, B443.0, 514.0, A514.0, 520.0, 535.0, 705.0, 707.0, A712.0, D712.0, 713.0, 771.0, 8500, A850.0, B850.0	As cast	-	40 to 100 500 kg		
				Solution treated and Aged	-	70 to 125 500 kg		
	Die Casting	7-10% Silicon	360.0, A360.0, 380.0, A380.0, C443.0, 518.0	As cast	-	40 to 100 500 kg		
				Solution treated and Aged	-	70 to 125 500 kg		
		7-14% Silicon	383.0, A384.0, 413.0, A413.0	As cast	-	40 to 100 500 kg		
				Solution treated and Aged	-	70 to 125 500 kg		
	≤ 14% Silicon	390.0, 392.0	As cast	-	40 to 100 500 kg			
			Solution treated and Aged	-	70 to 125 500 kg			

Titanium Alloys, Wrought	Commercially Pure	99.5	Annealed	-	≤ 170			
		99.2, 99.0, Ti-0.2Pd		-	≤ 200			
		99.0, 98.0, Ti-0.2Pd		≤ 29	≤ 275			
	Alpha and Alpha-Beta Alloys	Ti-8Mn, Ti2Al-11Sn-5Zr-1Mo, Ti-5Al-2, 5Sn ELI, Ti-5Al-6Sn-2Zr-1Mo, Ti-6Al-2Cb-1Ta-0.8Mo, Ti-6Al-2Sn-4Zr-2Mo, Ti-6Al-2Sn-4Zr-2Mo-2.5Si, Ti-6Al-2Sn-4Zr-6Mo		≤ 37	≤ 340			
		Ti-6Al-4V, Ti-6Al-4V ELI		≤ 38	≤ 350			
		Ti-5Al-2Sn-2Zr-4Mo-4Cr (Ti-17), Ti-6Al-6V-2Sn, Ti-7Al-4Mo, Ti-8Al-1Mo-1V		≤ 40	≤ 370			
		Ti-1Al-8V-5Fe		≤ 41	≤ 380			



	Material	Condition	Hardness		Recommended Alternate(s)			
			HRC	Brinell				
 <b>Titanium Alloys, Wrought</b>	<b>Alpha and Alpha-Beta Alloys</b>	Ti-6Al-4V, Ti-6Al-4V ELI, Ti-6Al-2Sn-4Zr-2Mo, Ti-6Al-2Sn-4Zr-2Mo-.2Si, Ti-6Al-2Sn-4Zr-6Mo	Solutions treated and Aged	≤ 41	≤ 380			
		Ti-1Al-8V-5Fe, Ti-3Al-2.5V, Ti-5Al-2Sn-2Zr-4Mo-4Cr (Ti-17), Ti-6Al-6V-2Sn, Ti-7Al-4Mo		≤ 46	≤ 440			
	<b>Beta Alloys</b>	Ti-3Al-8V-6Cr-4Mo-4Zr, Ti-8Mo-8V-2Fe-3Al, Ti-11.5Mo-6Zr-4.5Sn, Ti-10-2Fe-3Al, Ti-13V-11Cr-3Al	Annealed or Solution treated	≤ 38	≤ 350			
		Solutions treated and Aged	≤ 46	≤ 440				
<b>Titanium Alloys, Cast</b>	<b>Commercially Pure</b>	99.0, Ti-0.2Pd, ASMT B367 Grades C-1, C-2, C-7A, C-7B	As Cast, As Cast and Annealed	-	≤ 200			
		99.0, Ti-0.2Pd, ASMT B367 Grades C-3, C-4, C-8A, C-8B		≤ 25	≤ 250			
	<b>Alpha and Alpha-Beta Alloys</b>	Ti-5Al-2Sn, Ti-6Al-4V, Ti-6Al-2Sn-4Zr-2Mo, Ti-8Al-1Mo-1V, ASMT B367 Grades C-5, C-6		≤ 35	≤ 320			
		≤ 38		≤ 350				
<b>Chromium-Nickel</b>	<b>Alpha and Alpha-Beta Alloys</b>	A560 2 40 2 375 Grade 50Cr-50Ni, 60Cr-40Ni	As Cast	≤ 41	≤ 375			
<b>Nickel Alloys, Cast</b>	<b>Wrought and Cast</b>	Nickel 200, Nickel 201, Nickel 205, Nickel 211, Nickel 220, Nickel 230	Annealed, Cold drawn	-	≤ 170			
		MONEL Alloy 400, MONEL Alloy 401, MONEL Alloy 404, MONEL Alloy R405; A2996 Grades CZ-100, M-35; A494 Grades CZ-100, M-35	Annealed, Cold drawn, As Cast	≤ 25	≤ 250			
		Incoloy Alloys, Inconel Alloys, Hastelloy Alloys, Rene, DURANICKEL Alloy 301, MONEL Alloy 502, MONEL Alloy K500, NI-SPAN-C Alloy 902, PERMANICKEL Alloy 300	Solution treated	≤ 35	≤ 320			
		Aged	≤ 39	≤ 360				
<b>Magnesium Alloys</b>	<b>Wrought and Cast</b>	Magnesium	As Cast	--	≤ 150			
<b>Copper Alloys</b>	<b>Wrought and Cast</b>	C10100, C27000, C71500, C52400, C77000, C17200, C71500, C95500, C86500, Beryllium Copper	Annealed, Cold drawn	--	≤ 120			
<b>Brass</b>	<b>Wrought and Cast</b>	CUZn10, CUZn20, 836, 838, Red Brass, Yellow Brass	Annealed, Cold drawn, As Cast	--	≤ 180			
<b>Bronze</b>	<b>Phosphor Bronze</b>	C5xxxx	Spring tempered	≤ 24	≤ 245			
	<b>Aluminum Bronze</b>	C60600, C64200, 952, 953	Annealed, Cold drawn		≤ 200			
	<b>Manganese Bronze</b>	862, 863, 865	Annealed, Cold drawn		≤ 225			
	<b>Silicon Bronze</b>	C64700, C66100, 878	As Cast		≤ 115			
<b>Plastics</b>		Thermoplastics, Duroplastics		--	--			

# Material Hardness & Tensile Strength Cross-Reference Chart\*

HARDNESS				TENSILE STRENGTH
Brinell	Vickers	Rockwell		PSI
		HRB	HRC	

76	80			
80.7	85	41.0		
85.5	90	48.0		
90.2	95	52.0		
95	100	58.2		
98.8	105			
105	110	62.3		
109	115			
114	120	66.7		57,000
119	125			59,000
124	130	71.2		61,000
128	135			63,000
133	140	75.0		66,000
138	145			68,000
143	150	78.7		70,000
147	155			72,000
152	160	81.7		73,000
156	165			74,000
162	170	85.0		79,000
166	175			81,000
171	180	87.1		83,000
176	185			86,000
181	190	89.5		88,000
185	195			90,000
190	200	91.6		91,000
195	205	92.6		92,000
199	210	93.5		95,000
204	215	94.0		98,000
209	220	95.0		102,000
214	225	96.0		105,000
219	230	96.7		107,000
223	235			109,000
228	240	98.1	20.3	111,000
233	245		21.3	113,000
238	250	99.5	22.2	116,000
242	255		23.1	118,000
247	260	101	24.0	122,000
252	265		24.8	124,000
257	270	102	25.6	126,000
261	275		26.4	129,000
266	280	104	27.1	131,000
271	285		27.8	134,000
276	290	105	28.5	138,000
280	295		29.2	139,000
285	300		29.8	142,000
295	310		31.0	146,000
304	320		32.2	150,000
314	330		33.3	154,000
323	340		34.4	159,000
333	350		35.5	164,000
342	360		36.6	169,000
352	370		37.7	176,000
361	380		38.8	181,000
371	390		39.8	185,000
380	400		40.8	191,000
390	410		41.8	198,000
399	420		42.7	202,000
409	430		43.6	205,000
418	440		44.5	208,000
428	450		45.3	212,000
437	460		46.1	219,000
447	470		46.9	225,000
456	480		47.7	232,000
463	490		48.4	235,000
475	500		49.1	238,000
485	510		49.8	245,000
494	520		50.5	250,000
504	530		51.1	254,000
513	540		51.7	259,000

HARDNESS				TENSILE STRENGTH
Brinell	Vickers	Rockwell		PSI
		HRB	HRC	

523	550		52.3	264,000
532	560		53.0	269,000
542	570		53.6	274,000
551	580		54.1	279,000
561	590		54.7	284,000
570	600		55.2	287,000
580	610		55.7	292,000
589	620		56.3	294,000
599	630		56.8	304,000
608	640		57.3	310,000
618	650		57.8	315,000
	660		58.3	326,000
	670		58.8	
	680		59.2	
	690		59.7	
	700		60.1	
	720		61.0	
	740		61.8	
	760		62.5	
	780		63.3	
	800		64.0	
	820		64.7	
	840		65.3	
	860		65.9	
	880		66.4	
	900		67.0	
	920		67.5	
	940		68.0	

\* Figures listed are approximate. Actual conversions may vary by material and alloy content.

$$\text{PSI (pound / in}^2\text{)} = \text{N/mm}^2 \times 145.0377$$

$$\text{N/mm}^2 = \text{pound / in}^2 \div 145.0377$$

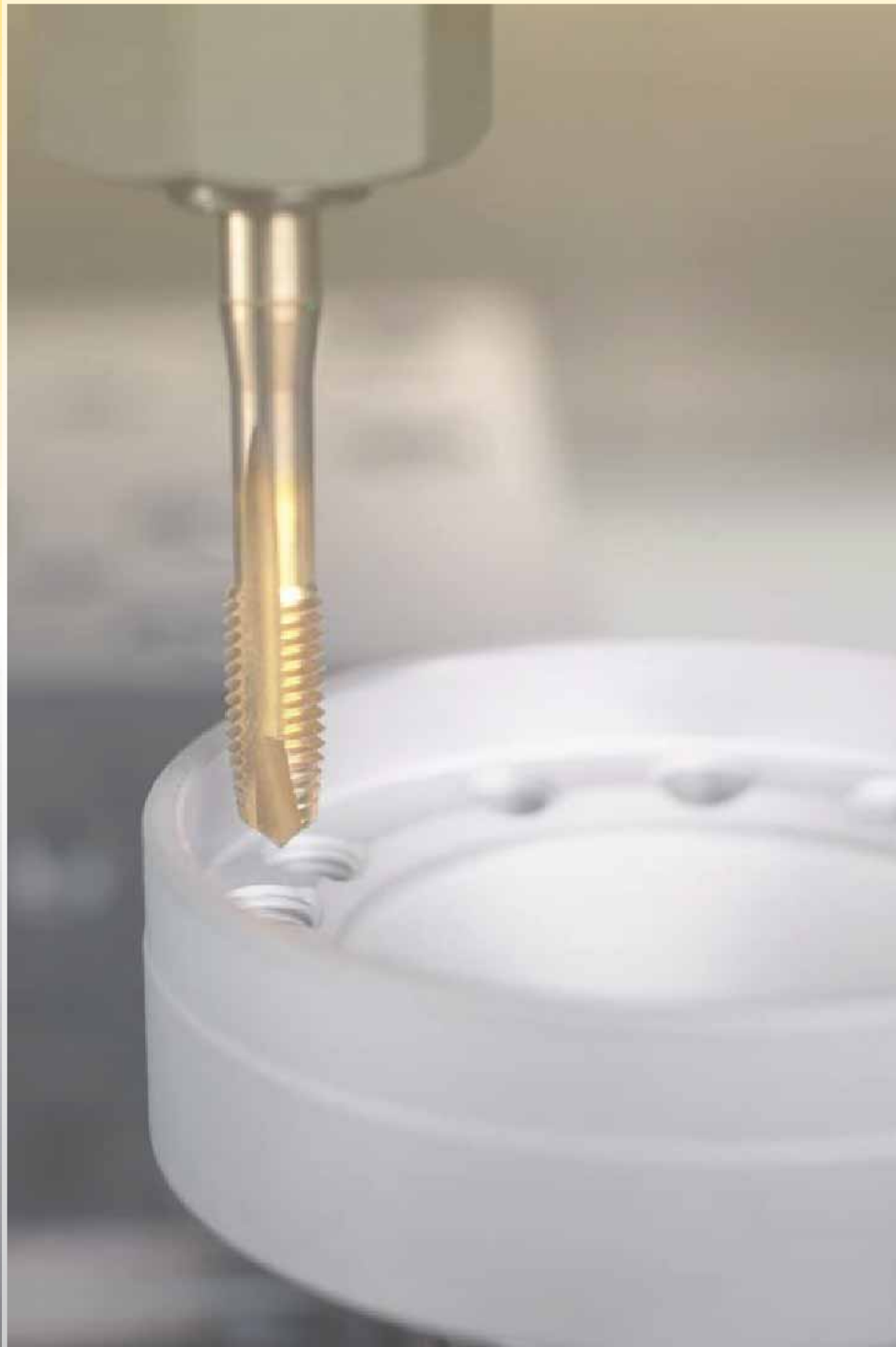
**GUHRING**



# Cut Taps



# GUHRING



# YELLOW RING CUT TAPS


- **Through hole**

UNC	Page 30
UNF	Page 31
Metric	Page 32
Metric fine	Page 34

- **Blind hole**

UNC	Page 36
UNF	Page 37
Metric	Page 38
Metric fine	Page 39

*Note: Items marked as International Stock may become stocked in USA if sufficient volume is recognized.*

Material group	Approximate Rc	Approximate HB	Recommended SFM			
			HSS-E		HSS-E-PM	
			bright finish	hard coated	bright finish	hard coated
 Structural steels, free-cutting steels		<180	30-50	40-70	50-70	55-95
Unalloyed case hardened steels	<20	<230	20-40	30-70	40-65	40-80
Unalloyed heat-treatable steels	<25	<250	15-35	25-50	30-60	35-75



# UNC

## 2B Class of Fit



### Through Hole

### 0° Helix

### Plug Tap Chamfer Lead



### B · 3.5 - 5

# General Purpose

## ANSI length - ANSI shank

Series 3901 - Cobalt, UNC, spiral point, bright finish

Series 3961 - Cobalt, UNC, spiral point, MolyGlide® coated



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	Series	M Series	Order No.
						3901	3961	
4-40	3	0.141	0.110	1.882	H2/H3			2.845
5-40	3	0.141	0.110	1.941	H2/H3			3.175
6-32	3	0.141	0.110	2.000	H3/H4			3.505
8-32	3	0.168	0.131	2.130	H3/H4			4.166
10-24	3	0.194	0.152	2.382	H3/H4			4.826
12-24	3	0.220	0.165	2.382	H3/H4			5.486
1/4-20	3	0.255	0.191	2.500	H4/H5			6.350
5/16-18	3	0.318	0.238	2.720	H4/H5			7.938
3/8-16	3	0.381	0.286	2.941	H5/H6			9.525
7/16-14	3	0.323	0.242	3.157	H5/H6			11.113
1/2-13	3	0.367	0.275	3.381	H5/H6			12.700
9/16-12	3	0.429	0.322	3.591	H5/H6			14.288
5/8-11	3	0.480	0.360	3.811	H5/H6			15.875
3/4-10	4	0.590	0.442	4.252	H5/H6			19.050
7/8-9	4	0.697	0.523	4.689	H6/H7			22.225
1-8	4	0.800	0.600	5.130	H6/H7			25.400

## DIN length - DIN shank

Series 873 - Cobalt, UNC, spiral point, bright finish, DIN 371

Series 878 - Cobalt, UNC, spiral point, bright finish, DIN 376



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	2B Approx. Limits	DIN 371 Series	DIN 376 Series	Order No.
						873	878	
2-56	3	2.800	2.100	45.000	H2/H3			2.184
3-48	3	2.800	2.100	50.000	H2/H3			2.515
4-40	3	3.500	2.700	56.000	H2/H3			2.845
5-40	3	3.500	2.700	56.000	H2/H3			3.175
6-32	3	4.000	3.000	56.000	H3/H4			3.505
8-32	3	4.500	3.400	63.000	H3/H4			4.166
10-24	3	6.000	4.900	70.000	H3/H4			4.826
12-24	3	6.000	4.900	80.000	H3/H4			5.486
1/4-20	3	7.000	5.500	80.000	H4/H5			6.350
5/16-18	3	8.000	6.200	90.000	H4/H5			7.938
3/8-16	3	9.000	7.000	100.000	H5/H6			9.525
7/16-14	3	8.000	6.200	100.000	H5/H6			11.113
1/2-13	3	9.000	7.000	110.000	H5/H6			12.700
9/16-12	3	11.000	9.000	110.000	H5/H6		°	14.288
5/8-11	3	12.000	9.000	110.000	H5/H6			15.875
3/4-10	4	14.000	11.000	125.000	H5/H6		°	19.050
7/8-9	4	18.000	14.500	140.000	H6/H7			22.225
1-8	4	18.000	14.500	160.000	H6/H7		°	25.400
1 1/4-7	4	22.000	18.000	180.000	H7/H8			31.750
1 1/2-6	4	32.000	24.000	200.000	H7/H8		°	38.100

# General Purpose



## UNF

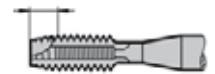
2B  
Class of Fit



Through Hole

0° Helix

Plug Tap  
Chamfer Lead



B · 3.5 - 5

Cut Taps

### ANSI length - ANSI shank

Series 3902 - Cobalt, UNF, spiral point, bright finish

Series 3962 - Cobalt, UNF, spiral point, MolyGlide® coated



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	Series		Order No.
						3902	M 3962	
4-48	3	0.141	0.110	1.882	H2/H3			2.845
5-44	3	0.141	0.110	1.941	H2/H3			3.175
6-40	3	0.141	0.110	2.000	H2/H3			3.505
8-36	3	0.168	0.131	2.130	H2/H3			4.166
10-32	3	0.194	0.152	2.382	H3/H4			4.826
12-28	3	0.220	0.165	2.382	H3/H4			5.486
1/4-28	3	0.255	0.191	2.500	H3/H4			6.350
5/16-24	3	0.318	0.238	2.720	H3/H4			7.938
3/8-24	3	0.381	0.286	2.941	H3/H4			9.525
7/16-20	3	0.323	0.242	3.157	H4/H5			11.113
1/2-20	3	0.367	0.275	3.381	H4/H5			12.700
9/16-18	3	0.429	0.322	3.591	H4/H5			14.288
5/8-18	3	0.480	0.360	3.811	H4/H5			15.875
3/4-16	4	0.590	0.442	4.252	H5/H6			19.050
7/8-14	4	0.697	0.523	4.689	H6/H7			22.225
1-12	4	0.800	0.600	5.130	H6/H7			25.400

### DIN length - DIN shank

Series 908 - Cobalt, UNF, spiral point, bright finish, DIN 374



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	2B Approx. Limits	DIN 374		Order No.
						Series 908	Series	
4-48	3	2.200	n.a.	56.000	H2/H3	○		2.845
5-44	3	2.500	2.100	56.000	H2/H3	○		3.175
6-40	3	2.500	2.100	56.000	H2/H3	○		3.505
8-36	3	2.800	2.100	63.000	H2/H3	○		4.166
10-32	3	3.500	2.700	70.000	H3/H4	○		4.826
12-28	3	4.000	3.000	80.000	H3/H4	○		5.486
1/4-28	3	4.500	3.400	80.000	H3/H4	○		6.350
5/16-24	3	6.000	4.900	90.000	H3/H4	○		7.938
3/8-24	3	7.000	5.500	90.000	H3/H4	○		9.525
7/16-20	3	8.000	6.200	90.000	H4/H5	○		11.113
1/2-20	3	9.000	7.000	100.000	H4/H5	○		12.700
9/16-18	3	11.000	9.000	100.000	H4/H5	○		14.288
5/8-18	3	12.000	9.000	100.000	H4/H5	○		15.875
3/4-16	4	14.000	11.000	110.000	H5/H6	○		19.050
7/8-14	4	18.000	14.500	125.000	H6/H7	○		22.225
1 1/8-12	4	22.000	18.000	150.000	H6/H7	○		28.575
1 1/4-12	4	22.000	18.000	150.000	H6/H7	○		31.750

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)





# General Purpose

## METRIC

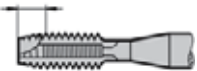
ISO2 (6H)  
Class of Fit



Through Hole

0° Helix

Plug Tap  
Chamfer Lead



B · 3.5 - 5

### ANSI length - ANSI shank

Series 3900 - Cobalt, Metric, spiral point, bright finish

Series 3960 - Cobalt, Metric, spiral point, MolyGlide® coated



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	ISO2 (6H) Approx. Limits	●	M	Order No.
						Series 3900	Series 3960	
M2 X 0.40	3	0.141	0.110	1.752	D2/D3			2.000
M3 X 0.50	3	0.141	0.110	1.941	D2/D3			3.000
M4 X 0.70	3	0.168	0.131	2.130	D3/D4			4.000
M5 X 0.80	3	0.194	0.152	2.382	D3/D4			5.000
M6 X 1.00	3	0.255	0.191	2.500	D4/D5			6.000
M8 X 1.25	3	0.318	0.238	2.720	D4/D5			8.000
M10 X 1.50	3	0.381	0.286	2.941	D4/D5			10.000
M12 X 1.75	3	0.367	0.275	3.381	D5/D6			12.000
M14 X 2.00	3	0.429	0.322	3.591	D5/D6			14.000
M16 X 2.00	3	0.480	0.360	3.811	D6/D7			16.000
M18 X 2.50	4	0.542	0.406	4.031	D6/D7			18.000
M20 X 2.50	4	0.652	0.489	4.469	D6/D7			20.000

### DIN length - DIN shank

Series 803 - Cobalt, Metric, spiral point, bright finish, DIN 371



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	●	DIN 371	Order No.
						Series 803		
M1.4 X 0.30	2	2.500	2.100	40.000	D2/D3			1.400
M1.6 X 0.35	2	2.500	2.100	40.000	D2/D3	°		1.600
M1.7 X 0.35	2	2.500	2.100	40.000	D2/D3			1.700
M1.8 X 0.35	2	2.500	2.100	40.000	D2/D3	°		1.800
M2 X 0.40	3	2.800	2.100	45.000	D2/D3			2.000
M2.2 X 0.45	3	2.800	2.100	45.000	D2/D3	°		2.200
M2.3 X 0.40	3	2.800	2.100	45.000	D2/D3	°		2.300
M2.5 X 0.45	3	2.800	2.100	50.000	D2/D3			2.500
M2.6 X 0.45	3	2.800	2.100	50.000	D2/D3	°		2.600
M3 X 0.50	3	3.500	2.700	56.000	D2/D3	°		3.000
M3.5 X 0.60	3	4.000	3.000	56.000	D3/D4			3.500
M4 X 0.70	3	4.500	3.400	63.000	D3/D4			4.000
M5 X 0.80	3	6.000	4.900	70.000	D3/D4			5.000
M6 X 1.00	3	6.000	4.900	80.000	D4/D5			6.000
M7 X 1.00	3	7.000	5.500	80.000	D4/D5			7.000
M8 X 1.25	3	8.000	6.200	90.000	D4/D5			8.000
M10 X 1.50	3	10.000	8.000	100.000	D4/D5			10.000

# General Purpose



## DIN length - DIN shank

Series 815 - Cobalt, Metric, spiral point, bright finish, DIN 376



## METRIC

ISO2 (6H)  
Class of Fit



Through Hole

0° Helix

Plug Tap  
Chamfer Lead



B · 3.5 - 5

Cut Taps

Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 376 Series 815	Order No.
M1.6 x 0.35	2	1.200	n.a.	40.000	D2/D3	○	1.600
M1.8 x 0.35	2	1.200	n.a.	40.000	D2/D3	○	1.800
M2 x 0.40	3	1.400	n.a.	45.000	D2/D3	○	2.000
M2.5 x 0.45	3	1.800	n.a.	50.000	D2/D3		2.500
M2.6 x 0.45	3	1.800	n.a.	50.000	D2/D3	○	2.600
M3 x 0.50	3	2.200	n.a.	56.000	D2/D3		3.000
M3.5 x 0.60	3	2.500	2.100	56.000	D3/D4		3.500
M4 x 0.70	3	2.800	2.100	63.000	D3/D4		4.000
M5 x 0.80	3	3.500	2.700	70.000	D3/D4		5.000
M6 x 1.00	3	4.500	3.400	80.000	D4/D5		6.000
M7 x 1.00	3	5.500	4.300	80.000	D4/D5		7.000
M8 x 1.25	3	6.000	4.900	90.000	D4/D5		8.000
M10 x 1.50	3	7.000	5.500	100.000	D4/D5		10.000
M12 x 1.75	3	9.000	7.000	110.000	D5/D6		12.000
M14 x 2.00	3	11.000	9.000	110.000	D5/D6	○	14.000
M16 x 2.00	3	12.000	9.000	110.000	D6/D7	○	16.000
M18 x 2.50	4	14.000	11.000	125.000	D6/D7		18.000
M20 x 2.50	4	16.000	12.000	140.000	D6/D7		20.000
M22 x 2.50	4	18.000	14.500	140.000	D6/D7		22.000
M24 x 3.00	4	18.000	14.500	160.000	D7/D8	○	24.000
M27 x 3.00	4	20.000	16.000	160.000	D7/D8	○	27.000
M30 x 3.50	4	22.000	18.000	180.000	D8/D9	○	30.000
M36 x 4.00	4	28.000	22.000	200.000	D8/D9		36.000

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)



# General Purpose

DIN length - DIN shank

Series 827 - Cobalt, Metric Fine, spiral point, bright finish, DIN 374



## METRIC FINE

ISO2 (6H)  
Class of Fit



Through Hole

0° Helix

Plug Tap  
Chamfer Lead



B · 3.5 - 5

Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 374 Series 827	Order No.
M3 x 0.35	3	2.200	n.a.	56.000	D2/D3		3.002
M3.5 x 0.35	3	2.500	2.100	56.000	D3/D4		3.502
M4 x 0.50	3	2.800	2.100	63.000	D3/D4		4.003
M5 x 0.50	3	3.500	2.700	70.000	D3/D4		5.003
M6 x 0.50	3	4.500	3.400	80.000	D3/D4		6.003
M6 x 0.75	3	4.500	3.400	80.000	D3/D4		6.004
M7 x 0.75	3	5.500	4.300	80.000	D3/D4		7.004
M8 x 0.50	3	6.000	4.900	80.000	D3/D4		8.003
M8 x 0.75	3	6.000	4.900	80.000	D3/D4		8.004
M8 x 1.00	3	6.000	4.900	90.000	D4/D5		8.005
M9 x 1.00	3	7.000	5.500	90.000	D4/D5		9.005
M10 x 0.75	3	7.000	5.500	90.000	D4/D5		10.004
M10 x 1.00	3	7.000	5.500	90.000	D4/D5		10.005
M10 x 1.25	3	7.000	5.500	100.000	D4/D5		10.006
M11 x 1.00	3	8.000	6.200	90.000	D4/D5		11.005
M12 x 1.00	3	9.000	7.000	100.000	D4/D5		12.005
M12 x 1.25	3	9.000	7.000	100.000	D4/D5		12.006
M12 x 1.50	3	9.000	7.000	100.000	D5/D6		12.007
M14 x 1.00	3	11.000	9.000	100.000	D4/D5		14.005
M14 x 1.25	3	11.000	9.000	100.000	D4/D5		14.006
M14 x 1.50	3	11.000	9.000	100.000	D4/D5		14.007
M15 x 1.00	3	12.000	9.000	100.000	D4/D5	°	15.005
M15 x 1.50	3	12.000	9.000	100.000	D4/D5	°	15.007
M16 x 1.00	3	12.000	9.000	100.000	D4/D5		16.005
M16 x 1.50	3	12.000	9.000	100.000	D4/D5		16.007
M18 x 1.00	4	14.000	11.000	110.000	D4/D5		18.005
M18 x 1.50	4	14.000	11.000	110.000	D4/D5		18.007
M18 x 2.00	4	14.000	11.000	125.000	D6/D7		18.008
M20 x 1.00	4	16.000	12.000	125.000	D6/D7		20.005
M20 x 1.50	4	16.000	12.000	125.000	D6/D7		20.007
M20 x 2.00	4	16.000	12.000	140.000	D6/D7		20.008
M22 x 1.00	4	18.000	14.500	125.000	D6/D7	°	22.005
M22 x 1.50	4	18.000	14.500	125.000	D6/D7	°	22.007
M22 x 2.00	4	18.000	14.500	140.000	D6/D7	°	22.008
M24 x 1.00	4	18.000	14.500	140.000	D6/D7	°	24.005
M24 x 1.50	4	18.000	14.500	140.000	D6/D7	°	24.007
M24 x 2.00	4	18.000	14.500	140.000	D6/D7		24.008
M26 x 1.50	4	18.000	14.500	140.000	D7/D8		26.007
M27 x 1.50	4	20.000	16.000	140.000	D7/D8	°	27.007
M27 x 2.00	4	20.000	16.000	140.000	D7/D8	°	27.008
M28 x 1.50	4	20.000	16.000	140.000	D7/D8	°	28.007
M30 x 1.50	4	22.000	18.000	150.000	D7/D8		30.007
M30 x 2.00	4	22.000	18.000	150.000	D7/D8		30.008
M32 x 1.50	4	22.000	18.000	150.000	D7/D8	°	32.007
M33 x 1.50	4	25.000	20.000	160.000	D7/D8	°	33.007
M35 x 1.50	4	28.000	22.000	170.000	D8/D9		35.007
M36 x 1.50	4	28.000	22.000	170.000	D8/D9	°	36.007

# General Purpose



## DIN length - DIN shank

Series 830 - Cobalt, Metric Fine, straight flute, bright finish, DIN 374



## METRIC FINE

ISO2 (6H)  
Class of Fit



Through or  
Blind Hole

0° Helix

Chamfer Lead



C · 2 - 3

Cut Taps

Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 374 Series 830	Order No.
M3 x 0.35	3	2.200		56.000	D2/D3	○	3.002
M3.5 x 0.35	3	2.500	2.100	56.000	D3/D4	○	3.502
M4 x 0.50	3	2.800	2.100	63.000	D3/D4	○	4.003
M5 x 0.50	3	3.500	2.700	70.000	D3/D4		5.003
M6 x 0.50	3	4.500	3.400	80.000	D3/D4	○	6.003
M6 x 0.75	3	4.500	3.400	80.000	D3/D4		6.004
M7 x 0.75	3	5.500	4.300	80.000	D3/D4	○	7.004
M8 x 0.50	3	6.000	4.900	80.000	D3/D4	○	8.003
M8 x 0.75	3	6.000	4.900	80.000	D3/D4	○	8.004
M8 x 1.00	3	6.000	4.900	90.000	D4/D5	○	8.005
M9 x 1.00	3	7.000	5.500	90.000	D4/D5	○	9.005
M10 x 0.75	3	7.000	5.500	90.000	D4/D5	○	10.004
M10 x 1.00	3	7.000	5.500	90.000	D4/D5		10.005
M10 x 1.25	3	7.000	5.500	100.000	D4/D5		10.006
M11 x 1.00	3	8.000	6.200	90.000	D4/D5	○	11.005
M12 x 1.00	3	9.000	7.000	100.000	D4/D5		12.005
M12 x 1.25	3	9.000	7.000	100.000	D4/D5		12.006
M12 x 1.50	3	9.000	7.000	100.000	D5/D6		12.007
M14 x 1.00	3	11.000	9.000	100.000	D4/D5	○	14.005
M14 x 1.25	3	11.000	9.000	100.000	D4/D5		14.006
M14 x 1.50	3	11.000	9.000	100.000	D4/D5	○	14.007
M15 x 1.00	3	12.000	9.000	100.000	D4/D5	○	15.005
M16 x 1.00	3	12.000	9.000	100.000	D4/D5	○	16.005
M16 x 1.50	3	12.000	9.000	100.000	D4/D5		16.007
M18 x 1.00	4	14.000	11.000	110.000	D4/D5	○	18.005
M18 x 1.50	4	14.000	11.000	110.000	D4/D5	○	18.007
M18 x 2.00	4	14.000	11.000	125.000	D6/D7	○	18.008
M20 x 1.00	4	16.000	12.000	125.000	D6/D7	○	20.005
M20 x 1.50	4	16.000	12.000	125.000	D6/D7		20.007
M20 x 2.00	4	16.000	12.000	140.000	D6/D7	○	20.008
M22 x 1.00	4	18.000	14.500	125.000	D6/D7	○	22.005
M22 x 1.50	4	18.000	14.500	125.000	D6/D7	○	22.007
M24 x 1.00	4	18.000	14.500	140.000	D6/D7	○	24.005
M24 x 1.50	4	18.000	14.500	140.000	D6/D7		24.007
M24 x 2.00	4	18.000	14.500	140.000	D6/D7		24.008
M26 x 1.50	4	18.000	14.500	140.000	D7/D8	○	26.007
M27 x 1.50	4	20.000	16.000	140.000	D7/D8	○	27.007
M27 x 2.00	4	20.000	16.000	140.000	D7/D8		27.008
M28 x 1.50	4	20.000	16.000	140.000	D7/D8	○	28.007
M30 x 1.50	4	22.000	18.000	150.000	D7/D8		30.007
M30 x 2.00	4	22.000	18.000	150.000	D7/D8	○	30.008
M32 x 1.50	4	22.000	18.000	150.000	D7/D8	○	32.007
M35 x 1.50	6	28.000	22.000	170.000	D8/D9	○	35.007
M36 x 1.50	6	28.000	22.000	170.000	D8/D9	○	36.007
M38 x 1.50	6	28.000	22.000	170.000	D8/D9		38.007

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)



# UNC

## 2B Class of Fit



### Blind Hole

### 40° Helix

### Semi-bottoming Chamfer Lead



### C · 2-3

# General Purpose

## ANSI length - ANSI shank

Series 3904 - Cobalt, UNC, 40° helix, bright finish

Series 3964 - Cobalt, UNC, 40° helix, MolyGlide® coated



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	Series	M	Order No.
						Series 3904	Series 3964	
4-40	3	0.141	0.110	1.882	H2/H3			2.845
5-40	3	0.141	0.110	1.941	H2/H3			3.175
6-32	3	0.141	0.110	2.000	H3/H4			3.505
8-32	3	0.168	0.131	2.130	H3/H4			4.166
10-24	3	0.194	0.152	2.382	H3/H4			4.826
12-24	3	0.220	0.165	2.382	H3/H4			5.486
1/4-20	3	0.255	0.191	2.500	H4/H5			6.350
5/16-18	3	0.318	0.238	2.720	H4/H5			7.938
3/8-16	3	0.381	0.286	2.941	H5/H6			9.525
7/16-14	3	0.323	0.242	3.157	H5/H6			11.113
1/2-13	3	0.367	0.275	3.381	H5/H6			12.700
9/16-12	3	0.429	0.322	3.591	H5/H6			14.288
5/8-11	3	0.480	0.360	3.811	H5/H6			15.875
3/4-10	4	0.590	0.442	4.252	H5/H6			19.050
7/8-9	4	0.697	0.523	4.689	H6/H7			22.225
1-8	4	0.800	0.600	5.130	H6/H7			25.400

## DIN length - DIN shank

Series 876 - Cobalt, UNC, 40° helix, bright finish, DIN 371

Series 881 - Cobalt, UNC, 40° helix, bright finish, DIN 376



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	2B Approx. Limits	DIN 371	DIN 376	Order No.
						Series 876	Series 881	
2-56	3	2.800	2.100	45.000	H2/H3			2.184
4-40	3	3.500	2.700	56.000	H2/H3			2.845
6-32	3	4.000	3.000	56.000	H3/H4			3.505
8-32	3	4.500	3.400	63.000	H3/H4			4.166
10-24	3	6.000	4.900	70.000	H3/H4			4.826
1/4-20	3	7.000	5.500	80.000	H4/H5			6.350
5/16-18	3	8.000	6.200	90.000	H4/H5			7.938
3/8-16	3	9.000	7.000	100.000	H5/H6			9.525
7/16-14	3	8.000	6.200	100.000	H5/H6		°	11.113
1/2-13	3	9.000	7.000	110.000	H5/H6			12.700
9/16-12	3	11.000	9.000	110.000	H5/H6			14.288
5/8-11	3	12.000	9.000	110.000	H5/H6		°	15.875
3/4-10	4	14.000	11.000	125.000	H5/H6			19.050
7/8-9	4	18.000	14.500	140.000	H6/H7			22.225
1-8	4	18.000	14.500	160.000	H6/H7		°	25.400

# General Purpose



**UNF**

**2B**  
Class of Fit



**Blind Hole**

**40° Helix**

**Semi-bottoming  
Chamfer Lead**



**C · 2-3**

Cut Taps

## ANSI length - ANSI shank

Series 3905 - Cobalt, UNF, 40° helix, bright finish

Series 3965 - Cobalt, UNF, 40° helix, MolyGlide® coated



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	Series		Order No.
						Series 3905	Series 3965	
4-48	3	0.141	0.110	1.882	H2/H3			2.845
5-44	3	0.141	0.110	1.941	H2/H3			3.175
6-40	3	0.141	0.110	2.000	H2/H3			3.505
8-36	3	0.168	0.131	2.130	H2/H3			4.166
10-32	3	0.194	0.152	2.382	H3/H4			4.826
12-28	3	0.220	0.165	2.382	H3/H4			5.486
1/4-28	3	0.255	0.191	2.500	H3/H4			6.350
5/16-24	3	0.318	0.238	2.720	H3/H4			7.938
3/8-24	3	0.381	0.286	2.941	H3/H4			9.525
7/16-20	3	0.323	0.242	3.157	H4/H5			11.113
1/2-20	3	0.367	0.275	3.381	H4/H5			12.700
9/16-18	3	0.429	0.322	3.591	H4/H5			14.288
5/8-18	3	0.480	0.360	3.811	H4/H5			15.875
3/4-16	4	0.590	0.442	4.252	H5/H6			19.050
7/8-14	4	0.697	0.523	4.689	H6/H7			22.225
1-12	4	0.800	0.600	5.130	H6/H7			25.400

## DIN length - DIN shank

Series 911 - Cobalt, UNF, 40° helix, bright finish, DIN 374



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	2B Approx. Limits	DIN 374		Order No.
						Series 911	Series	
3-56	3	1.800	na	50.000	H2/H3	°		2.515
4-48	3	2.200	na	56.000	H2/H3	°		2.845
5-44	3	2.500	2.100	56.000	H2/H3	°		3.175
6-40	3	2.500	2.100	56.000	H2/H3	°		3.505
8-36	3	2.800	2.100	63.000	H2/H3			4.166
10-32	3	3.500	2.700	70.000	H3/H4			4.826
1/4-28	3	4.500	3.400	80.000	H3/H4			6.350
5/16-24	3	6.000	4.900	90.000	H3/H4	°		7.938
3/8-24	3	7.000	5.500	90.000	H3/H4			9.525
7/16-20	3	8.000	6.200	90.000	H4/H5			11.113
1/2-20	3	9.000	7.000	100.000	H4/H5	°		12.700
9/16-18	3	11.000	9.000	100.000	H4/H5			14.288
5/8-18	3	12.000	9.000	100.000	H4/H5	°		15.875
3/4-16	4	14.000	11.000	110.000	H5/H6			19.050
7/8-14	4	18.000	14.500	125.000	H6/H7			22.225

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)



# General Purpose



## METRIC

ISO2 (6H)  
Class of Fit



Blind Hole

40° Helix

Semi-bottoming  
Chamfer Lead



C · 2-3

### ANSI length - ANSI shank

Series 3903 - Cobalt, Metric, 40° helix, bright finish

Series 3963 - Cobalt, Metric, 40° helix, MolyGlide® coated

Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	ISO2 (6H) Approx. Limits	Series	M Series	Order No.
						3903	3963	
M2 X 0.40	3	0.141	0.110	1.752	D2/D3			2.000
M3 X 0.50	3	0.141	0.110	1.941	D2/D3			3.000
M4 X 0.70	3	0.168	0.131	2.130	D3/D4			4.000
M5 X 0.80	3	0.194	0.152	2.382	D3/D4			5.000
M6 X 1.00	3	0.255	0.191	2.500	D4/D5			6.000
M8 X 1.25	3	0.318	0.238	2.720	D4/D5			8.000
M10 X 1.50	3	0.381	0.286	2.941	D4/D5			10.000
M12 X 1.75	3	0.367	0.275	3.381	D5/D6			12.000
M14 X 2.00	3	0.429	0.322	3.591	D5/D6			14.000
M16 X 2.00	3	0.480	0.360	3.811	D6/D7			16.000
M18 X 2.50	4	0.542	0.406	4.031	D6/D7			18.000
M20 X 2.50	4	0.652	0.489	4.469	D6/D7			20.000

### DIN length - DIN shank

Series 822 - Cobalt, Metric, 40° helix, bright finish, DIN 376

Series 810 - Cobalt, Metric, 40° helix, bright finish, DIN 371



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 376 Series	DIN 371 Series	Order No.
						822	810	
M2 x 0.40	3	2.800	2.100	45.000	D2/D3			2.000
M2.2 x 0.45	3	2.800	2.100	45.000	D2/D3			2.200
M2.3 x 0.40	3	2.800	2.100	45.000	D2/D3		°	2.300
M2.5 x 0.45	3	2.800	2.100	50.000	D2/D3			2.500
M2.6 x 0.45	3	2.800	2.100	50.000	D2/D3		°	2.600
M3 x 0.50	3	3.500	2.700	56.000	D2/D3		°	3.000
M3.5 x 0.60	3	4.000	3.000	56.000	D3/D4			3.500
M4 x 0.70	3	4.500	3.400	63.000	D3/D4			4.000
M5 x 0.80	3	6.000	4.900	70.000	D3/D4			5.000
M6 x 1.00	3	6.000	4.900	80.000	D4/D5			6.000
M8 x 1.25	3	8.000	6.200	90.000	D4/D5			8.000
M10 x 1.50	3	10.000	8.000	100.000	D4/D5			10.000
M3 x 0.50	3	2.200	n.a.	56.000	D2/D3	°		3.000
M3.5 x 0.60	3	2.500	2.100	56.000	D3/D4	°		3.500
M4 x 0.70	3	2.800	2.100	63.000	D3/D4			4.000
M5 x 0.80	3	3.500	2.700	70.000	D3/D4			5.000
M6 x 1.00	3	4.500	3.400	80.000	D4/D5	°		6.000
M7 x 1.00	3	5.500	4.300	80.000	D4/D5			7.000
M8 x 1.25	3	6.000	4.900	90.000	D4/D5			8.000
M10 x 1.50	3	7.000	5.500	100.000	D4/D5			10.000
M12 x 1.75	3	9.000	7.000	110.000	D5/D6	°		12.000
M14 x 2.00	3	11.000	9.000	110.000	D5/D6			14.000
M16 x 2.00	3	12.000	9.000	110.000	D6/D7			16.000
M18 x 2.50	4	14.000	11.000	125.000	D6/D7			18.000

# General Purpose



**METRIC /  
METRIC  
FINE**

**ISO2 (6H)  
Class of Fit**



**Blind Hole**

**40° Helix  
15° Helix**

**Semi-bottoming  
Chamfer Lead**



**C · 2-3**

Cut Taps

## DIN length - DIN shank (cont'd)

Series 822 - Cobalt, Metric, 40° helix, bright finish, DIN 376

Series 810 - Cobalt, Metric, 40° helix, bright finish, DIN 371



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 376	DIN 371	Order No.
						Series 822	Series 810	
M20 x 2.50	4	16.000	12.000	140.000	D6/D7	○		20.000
M22 x 2.50	4	18.000	14.500	140.000	D6/D7			22.000
M24 x 3.00	4	18.000	14.500	160.000	D7/D8	○		24.000
M27 x 3.00	4	20.000	16.000	160.000	D7/D8	○		27.000
M30 x 3.50	4	22.000	18.000	180.000	D8/D9	○		30.000

## DIN length - DIN shank

Series 834 - Cobalt, Metric Fine, 40° helix, bright finish, DIN 374

Series 833 - Cobalt, Metric Fine, 15° helix, bright finish, DIN 374



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 374	DIN 374	Order No.
						Series 834	Series 833	
M3 x 0.35	3	2.200	n.a.	56.000	D2/D3	○		3.002
M3.5 x 0.35	3	2.500	2.100	56.000	D3/D4	○		3.502
M4 x 0.50	3	2.800	2.100	63.000	D3/D4	○	○	4.003
M5 x 0.50	3	3.500	2.700	70.000	D3/D4	○	○	5.003
M6 x 0.50	3	4.500	3.400	80.000	D3/D4			6.003
M6 x 0.75	3	4.500	3.400	80.000	D3/D4	○	○	6.004
M8 x 0.75	3	6.000	4.900	80.000	D3/D4	○	○	8.004
M8 x 1.00	3	6.000	4.900	90.000	D4/D5	○	○	8.005
M10 x 1.00	3	7.000	5.500	90.000	D4/D5	○		10.005
M10 x 1.25	3	7.000	5.500	100.000	D4/D5	○	○	10.006
M12 x 1.00	3	9.000	7.000	100.000	D4/D5		○	12.005
M12 x 1.25	3	9.000	7.000	100.000	D4/D5			12.006
M12 x 1.50	3	9.000	7.000	100.000	D5/D6		○	12.007
M14 x 1.00	3	11.000	9.000	100.000	D4/D5	○		14.005
M14 x 1.25	3	11.000	9.000	100.000	D4/D5		○	14.006
M14 x 1.50	3	11.000	9.000	100.000	D4/D5			14.007
M16 x 1.00	3	12.000	9.000	100.000	D4/D5	○	○	16.005
M16 x 1.50	3	12.000	9.000	100.000	D4/D5			16.007
M18 x 1.00	4	14.000	11.000	110.000	D4/D5		○	18.005
M18 x 1.50	4	14.000	11.000	110.000	D4/D5	○	○	18.007
M20 x 1.00	4	16.000	12.000	125.000	D6/D7		○	20.005
M20 x 1.50	4	16.000	12.000	125.000	D6/D7		○	20.007
M22 x 1.50	4	18.000	14.500	125.000	D6/D7		○	22.007
M24 x 1.50	4	18.000	14.500	140.000	D6/D7		○	24.007
M24 x 2.00	4	18.000	14.500	140.000	D6/D7	○		24.008
M26 x 1.50	4	18.000	14.500	140.000	D7/D8	○	○	26.007
M27 x 1.50	4	20.000	16.000	140.000	D7/D8	○	○	27.007
M27 x 2.00	4	20.000	16.000	140.000	D7/D8		○	27.008
M30 x 1.50	4	22.000	18.000	150.000	D7/D8	○	○	30.007
M30 x 2.00	4	22.000	18.000	150.000	D7/D8	○	○	30.008

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)



# GUHRING



# GREEN RING CUT TAPS

## • Through hole

UNC	Page 42
UNF	Page 43
Metric	Page 44
Metric fine	Page 45

## • Blind hole

UNC	Page 46
UNF	Page 47
Metric	Page 50
Metric fine	Page 52

## • Oversized H7/H11

Through hole	Page 56
Blind hole	Page 58

## • STI Taps

Through hole	Page 60
Blind hole	Page 61

## • EG-M Taps

Through hole	Page 62
Blind hole	Page 63

*Note: Items marked as International Stock may become stocked in USA if sufficient volume is recognized.*

Material group	Approximate Rc	Approximate HB	Recommended SFM			
			HSS-E		HSS-E-PM	
			bright finish	hard coated	bright finish	hard coated
• Structural steels, free-cutting steels	<20	<230	40-50	40-75	40-65	40-80
Case hardened steels, heat-treatable steels	<25	<250	30-45	30-65	30-60	35-75
Nitriding steels, spheroidal graphite iron	<30	<280	20-30	30-55	30-50	35-65
	<35	<320	15-25	20-35	25-45	30-60



# Universal Applications - Alloyed & Unalloyed Steels

## UNC

### 2B

#### Class of Fit



Through Hole

0° Helix

Plug Tap  
Chamfer Lead



B · 3.5 - 5

### ANSI length - ANSI shank

Series 3913 - Cobalt, UNC, spiral point, bright finish

Series 3916 - Cobalt, UNC, spiral point, TiN coated

Series 3946 - Cobalt, UNC, spiral point, TiCN coated



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	●	● S	● C	Order No.
						Series 3913	Series 3916	Series 3946	
2-56	3	0.141	0.110	1.751	H2/H3				2.184
3-48	3	0.141	0.110	1.811	H2/H3				2.515
4-40	3	0.141	0.110	1.882	H2/H3				2.845
5-40	3	0.141	0.110	1.941	H2/H3				3.175
6-32	3	0.141	0.110	2.000	H3/H4				3.505
8-32	3	0.168	0.131	2.130	H3/H4				4.166
10-24	3	0.194	0.152	2.382	H3/H4				4.826
12-24	3	0.220	0.165	2.382	H3/H4				5.486
1/4-20	3	0.255	0.191	2.500	H4/H5				6.350
5/16-18	3	0.318	0.238	2.720	H4/H5				7.938
3/8-16	3	0.381	0.286	2.941	H5/H6				9.525
7/16-14	3	0.323	0.242	3.157	H5/H6				11.113
1/2-13	4	0.367	0.275	3.381	H5/H6				12.700
9/16-12	4	0.429	0.322	3.591	H5/H6				14.288
5/8-11	4	0.480	0.360	3.811	H5/H6				15.875
3/4-10	4	0.590	0.442	4.252	H5/H6				19.050
7/8-9	4	0.697	0.523	4.689	H6/H7				22.225
1-8	4	0.800	0.600	5.130	H6/H7				25.400
1 1/8-7	4	0.896	0.672	5.441	H6/H7				28.575
1 1/4-7	4	1.021	0.766	5.748	H7/H8				31.750
1 3/8-6	4	1.108	0.831	6.063	H7/H8				34.925
1 1/2-6	6	1.233	0.925	6.378	H7/H8				38.100

### DIN length - DIN shank

Series 2881 - Cobalt, UNC, spiral point, steam oxide finish, DIN 371

Series 2883 - Cobalt, UNC, spiral point, steam oxide finish, DIN 376



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	2B Approx. Limits	●	●	Order No.
						DIN 371 Series 2881	DIN 376 Series 2883	
4-40	3	3.500	2.700	56.000	H2/H3	○		2.845
5-40	3	3.500	2.700	56.000	H3/H4	○		3.175
6-32	3	4.000	3.000	56.000	H3/H4	○		3.505
8-32	3	4.500	3.400	63.000	H3/H4			4.166
10-24	3	6.000	4.900	70.000	H3/H4	○		4.826
12-24	3	6.000	4.900	80.000	H4/H5			5.486
1/4-20	3	7.000	5.500	80.000	H4/H5	○		6.350
5/16-18	3	8.000	6.200	90.000	H5/H6	○		7.938
3/8-16	3	10.000	7.000	100.000	H4/H5			9.525
7/16-14	3	8.000	6.200	100.000	H5/H6		○	11.113
1/2-13	3	9.000	7.000	110.000	H5/H6		○	12.700
5/8-11	3	12.000	9.000	110.000	H5/H6		○	15.875
3/4-10	4	14.000	11.000	125.000	H5/H6		○	19.050
7/8-9	4	18.000	14.500	140.000	H6/H7		○	22.225
1-8	4	18.000	14.500	160.000	H6/H7			25.400

# Universal Applications - Alloyed & Unalloyed Steels



## ANSI length - ANSI shank

Series 3914 - Cobalt, UNF, spiral point, bright finish

Series 3917 - Cobalt, UNF, spiral point, TiN coated

Series 3947 - Cobalt, UNF, spiral point, TiCN coated



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	●	● S	● C	Order No.
						Series 3914	Series 3917	Series 3947	
2-64	3	0.141	0.110	1.751	H2/H3				2.184
3-56	3	0.141	0.110	1.811	H2/H3				2.515
4-48	3	0.141	0.110	1.882	H2/H3				2.845
5-44	3	0.141	0.110	1.941	H2/H3				3.175
6-40	3	0.141	0.110	2.000	H2/H3				3.505
8-36	3	0.168	0.131	2.130	H2/H3				4.166
10-32	3	0.194	0.152	2.382	H3/H4				4.826
12-28	3	0.220	0.165	2.382	H3/H4				5.486
1/4-28	3	0.255	0.191	2.500	H3/H4				6.350
5/16-24	3	0.318	0.238	2.720	H3/H4				7.938
3/8-24	3	0.381	0.286	2.941	H3/H4				9.525
7/16-20	3	0.323	0.242	3.157	H4/H5				11.113
1/2-20	3	0.367	0.275	3.381	H4/H5				12.700
9/16-18	3	0.429	0.322	3.591	H4/H5				14.288
5/8-18	4	0.480	0.360	3.811	H4/H5				15.875
3/4-16	4	0.590	0.442	4.252	H5/H6				19.050
7/8-14	4	0.697	0.523	4.689	H6/H7				22.225
1-12	4	0.800	0.600	5.130	H6/H7				25.400
1 1/8-12	4	0.896	0.672	5.441	H6/H7				28.575
1 1/4-12	4	1.021	0.766	5.748	H7/H8				31.750
1 3/8-12	4	1.108	0.831	6.063	H7/H8				34.925
1 1/2-12	6	1.233	0.925	6.378	H7/H8				38.100

## UNF

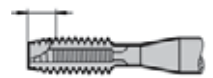
2B  
Class of Fit



Through Hole

0° Helix

Plug Tap  
Chamfer Lead



B · 3.5 - 5

Cut Taps

## DIN length - DIN shank

Series 2885 - Cobalt, UNF, spiral point, steam oxide finish, DIN 374



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	2B Approx. Limits	●	Order No.
						DIN 374 Series 2885	
4-48	3	2.200	n.a.	56.000	H2/H3	○	2.845
6-40	3	2.500	2.100	56.000	H2/H3	○	3.505
10-32	3	3.500	2.700	70.000	H3/H4	○	4.826
12-28	3	4.000	3.000	80.000	H3/H4	○	5.486
1/4-28	3	4.500	3.400	80.000	H3/H4	○	6.350
3/8-24	3	7.000	5.500	90.000	H3/H4		9.525
5/8-18	3	12.000	9.000	100.000	H4/H5		15.875
7/8-14	4	18.000	14.500	125.000	H6/H7	○	22.225
1-12	4	18.000	14.500	140.000	H6/H7	○	25.400

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)



# Universal Applications - Alloyed & Unalloyed Steels



## METRIC

### ANSI length - ANSI shank

Series 3912 - Cobalt, Metric, spiral point, bright finish

Series 3915 - Cobalt, Metric, spiral point, TiN coated

Series 3945 - Cobalt, Metric, spiral point, TiCN coated

ISO2 (6H)  
Class of Fit



Through Hole

0° Helix

Plug Tap  
Chamfer Lead



B · 3.5 - 5

Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	ISO2 (6H) Approx. Limits	● Series 3912	● Series 3915	● Series 3945	Order No.
M2 X 0.40	3	0.141	0.110	1.752	D2/D3				2.000
M3 X 0.50	3	0.141	0.110	1.941	D2/D3				3.000
M4 X 0.70	3	0.168	0.131	2.130	D3/D4				4.000
M5 X 0.80	3	0.194	0.152	2.382	D3/D4				5.000
M6 X 1.00	3	0.255	0.191	2.500	D4/D5				6.000
M8 X 1.25	3	0.318	0.238	2.720	D4/D5				8.000
M10 X 1.50	3	0.381	0.286	2.941	D4/D5				10.000
M12 X 1.75	4	0.367	0.275	3.381	D5/D6				12.000
M14 X 2.00	4	0.429	0.322	3.591	D5/D6				14.000
M16 X 2.00	4	0.480	0.360	3.811	D6/D7				16.000
M18 X 2.50	4	0.542	0.406	4.031	D6/D7				18.000
M20 X 2.50	4	0.652	0.489	4.469	D6/D7				20.000
M22 x 2.50	4	0.697	0.523	4.689	D6/D7				22.000
M24 x 3.00	4	0.760	0.570	4.909	D6/D7				24.000
M30 x 3.50	4	0.766	1.021	5.433	D6/D7				30.000

### DIN length - DIN shank

Series 2876 - Cobalt, Metric, spiral point, steam oxide finish, DIN 371



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	● DIN 371 Series 2876	Order No.
M3 X 0.50	3	3.500	2.700	56.000	D2/D3	○	3.000
M4 X 0.70	3	4.500	3.400	63.000	D3/D4	○	4.000
M5 X 0.80	3	6.000	4.900	70.000	D3/D4	○	5.000
M6 X 1.00	3	6.000	4.900	80.000	D4/D5	○	6.000
M8 X 1.25	3	8.000	6.200	90.000	D4/D5		8.000
M10 X 1.50	3	10.000	8.000	100.000	D4/D5		10.000

# Universal Applications - Alloyed & Unalloyed Steels



## ANSI length - ANSI shank

Series 3973 - Cobalt, Metric Fine, spiral point, TiN coated



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	ISO2 (6H) Approx. Limits	<b>S</b> Series <b>3973</b>	Order No.
M6 x 0.75	3	0.255	0.191	2.500	D4/D5		6.004
M8 X 1.00	3	0.318	0.238	2.720	D4/D5		8.005
M10 X 1.00	3	0.381	0.286	2.941	D4/D5		10.005
M10 X 1.25	3	0.381	0.286	2.941	D4/D5		10.006
M12 X 1.00	4	0.367	0.275	3.381	D4/D5		12.005
M12 X 1.25	4	0.367	0.275	3.381	D4/D5		12.006
M12 X 1.50	4	0.367	0.275	3.381	D5/D6		12.007
M14 X 1.25	4	0.429	0.322	3.591	D4/D5		14.006
M14 X 1.50	4	0.429	0.322	3.591	D4/D5		14.007
M16 X 1.50	4	0.480	0.360	3.811	D4/D5		16.007
M18 X 1.50	4	0.542	0.406	4.031	D4/D5		18.007
M20 X 1.50	4	0.652	0.489	4.469	D6/D7		20.007
M22 x 1.50	4	0.697	0.523	4.689	D6/D7		22.007
M24 x 1.50	4	0.760	0.570	4.909	D6/D7		24.007

**METRIC FINE**

ISO2 (6H)  
Class of Fit



Through Hole

0° Helix

Plug Tap  
Chamfer Lead



B · 3.5 - 5

## DIN length - DIN shank

Series 2879 - Cobalt, Metric Fine, spiral point, oxide finish, DIN 374



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	<b>DIN 374</b> Series <b>2879</b>	Order No.
M3 X 0.35	3	2.200	2.200	56.000	D2/D3	°	3.002
M5 X 0.50	3	3.500	2.700	70.000	D3/D4	°	5.003
M6 X 0.75	3	4.500	3.400	80.000	D3/D4	°	6.004
M8 X 0.75	3	6.000	4.900	80.000	D3/D4	°	8.004
M8 X 1.00	3	6.000	4.900	90.000	D4/D5		8.005
M10 X 1.00	3	7.000	5.500	90.000	D4/D5	°	10.005
M12 X 1.00	4	9.000	7.000	100.000	D4/D5	°	12.005
M14 X 1.50	4	11.000	9.000	100.000	D4/D5	°	14.007
M16 X 1.50	4	12.000	9.000	100.000	D4/D5	°	16.007
M18 X 1.50	4	14.000	11.000	110.000	D4/D5	°	18.007
M20 X 1.50	4	16.000	12.000	125.000	D6/D7	°	20.007

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)



# Universal Applications - Alloyed & Unalloyed Steels

## UNC

2B  
Class of Fit



Blind Hole

40° Helix

Semi-bottoming  
Chamfer Lead



C · 2-3

### ANSI length - ANSI shank

Series 3919 - Cobalt, UNC, 40° helix, bright finish

Series 3922 - Cobalt, UNC, 40° helix, TiN coated

Series 3949 - Cobalt, UNC, 40° helix, TiCN coated



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	● Series	● S Series	● C Series	Order No.
						3919	3922	3949	
2-56	3	0.141	0.110	1.751	H2/H3				2.184
3-48	3	0.141	0.110	1.811	H2/H3				2.515
4-40	3	0.141	0.110	1.882	H2/H3				2.845
5-40	3	0.141	0.110	1.941	H2/H3				3.175
6-32	3	0.141	0.110	2.000	H3/H4				3.505
8-32	3	0.168	0.131	2.130	H3/H4				4.166
10-24	3	0.194	0.152	2.382	H3/H4				4.826
12-24	3	0.220	0.165	2.382	H3/H4				5.486
1/4-20	3	0.255	0.191	2.500	H4/H5				6.350
5/16-18	3	0.318	0.238	2.720	H4/H5				7.938
3/8-16	3	0.381	0.286	2.941	H5/H6				9.525
7/16-14	3	0.323	0.242	3.157	H5/H6				11.113
1/2-13	3	0.367	0.275	3.381	H5/H6				12.700
9/16-12	3	0.429	0.322	3.591	H5/H6				14.288
5/8-11	4	0.480	0.360	3.811	H5/H6				15.875
3/4-10	4	0.590	0.442	4.252	H5/H6				19.050
7/8-9	4	0.697	0.523	4.689	H6/H7				22.225
1-8	4	0.800	0.600	5.130	H6/H7				25.400
1 1/8-7	4	0.896	0.672	5.441	H6/H7				28.575
1 1/4-7	4	1.021	0.766	5.748	H7/H8				31.750
1 3/8-6	4	1.108	0.831	6.063	H7/H8				34.925
1 1/2-6	6	1.233	0.925	6.378	H7/H8				38.100

### DIN length - DIN shank

Series 1837 - Cobalt, UNC, 40° helix, TiN coated, DIN 371, C(K) chamfer lead



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	2B Approx. Limits	DIN 371 S Series	Order No.
						1837	
10-24	3	6.000	4.900	70.000	H3/H4	°	4.826
12-24	3	6.000	4.900	80.000	H3/H4	°	5.486
1/4-20	3	7.000	5.500	80.000	H4/H5		6.350
5/16-18	3	8.000	6.200	90.000	H4/H5		7.938
3/8-16	3	10.000	8.000	100.000	H5/H6	°	9.525

#### TECH TIP: C(K) Chamfer Lead

A C/K Chamfer lead is the same length as the C chamfer lead in that it incorporates 2 – 3 threads into the lead length. As an optional standard this chamfer form is found on semi-bottoming taps with a 40 degree R.H. helix. After complete production of the tap (including hard coating) with the C chamfer form – there is an additional flute grind through the cutting chamfer at approximately a 20 degree helix. This chamfer will show its best results when used in moderately tough materials that tend to produce long chips. The “helix correction” helps to cause an immediate irregular chip flow as the chip formation is starting. This irregular chip flow helps to break the chip and allow it to flow more freely up the flute. This geometry is very useful in applications where “birdnesting” is a common problem.

# Universal Applications - Alloyed & Unalloyed Steels



## ANSI length - ANSI shank

Series 3920 - Cobalt, UNF, 40° helix, bright finish  
 Series 3923 - Cobalt, UNF, 40° helix, TiN coated  
 Series 3950 - Cobalt, UNF, 40° helix, TiCN coated



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	Series	Series	Series	Order No.
						3920	3923	3950	
2-64	3	0.141	0.110	1.751	H2/H3				2.184
3-56	3	0.141	0.110	1.811	H2/H3				2.515
4-48	3	0.141	0.110	1.882	H2/H3				2.845
5-44	3	0.141	0.110	1.941	H2/H3				3.175
6-40	3	0.141	0.110	2.000	H2/H3				3.505
8-36	3	0.168	0.131	2.130	H2/H3				4.166
10-32	3	0.194	0.152	2.382	H3/H4				4.826
12-28	3	0.220	0.165	2.382	H3/H4				5.486
1/4-28	3	0.255	0.191	2.500	H3/H4				6.350
5/16-24	3	0.318	0.238	2.720	H3/H4				7.938
3/8-24	3	0.381	0.286	2.941	H3/H4				9.525
7/16-20	3	0.323	0.242	3.157	H4/H5				11.113
1/2-20	3	0.367	0.275	3.381	H4/H5				12.700
9/16-18	3	0.429	0.322	3.591	H4/H5				14.288
5/8-18	4	0.480	0.360	3.811	H4/H5				15.875
3/4-16	4	0.590	0.442	4.252	H5/H6				19.050
7/8-14	4	0.697	0.523	4.689	H6/H7				22.225
1-12	4	0.800	0.600	5.130	H6/H7				25.400
1 1/8-12	4	0.896	0.672	5.441	H6/H7				28.575
1 1/4-12	4	1.021	0.766	5.748	H6/H7				31.750
1 3/8-12	4	1.108	0.831	6.063	H6/H7				34.925
1 1/2-12	6	1.233	0.925	6.378	H6/H7				38.100

**UNF**

**2B**  
Class of Fit



**Blind Hole**

**40° Helix**

**Semi-bottoming Chamfer Lead**



**C · 2-3**

Cut Taps

## DIN length - DIN shank

Series 1838 - Cobalt, UNF, 40° helix, TiN coated, DIN 374, C(K) chamfer lead



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	2B Approx. Limits	DIN 374	Order No.
						Series 1838	
10-32	3	3.500	2.700	70.000	H3/H4	○	4.826
12-28	3	4.000	3.000	80.000	H3/H4	○	5.486
1/4-28	3	4.500	3.400	80.000	H3/H4	○	6.350
5/16-24	3	6.000	4.900	90.000	H3/H4		7.938
3/8-24	3	7.000	5.500	90.000	H3/H4		9.525
7/16-20	3	8.000	6.200	100.000	H4/H5		11.113
1/2-20	3	9.000	7.000	100.000	H4/H5	○	12.700
5/8-18	4	12.000	9.000	100.000	H4/H5		15.875
7/8-14	4	18.000	14.500	125.000	H6/H7	○	22.225
1-12	4	18.000	14.500	140.000	H6/H7	○	25.400

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)





# Universal Applications - Alloyed & Unalloyed Steels

**UNC /  
UNF**

**2B  
Class of Fit**



**Blind Hole**

**40° Helix**

**Full-bottoming  
Chamfer Lead**



**E · 1.5 - 2**

## ANSI length - ANSI shank

Series 3977 - Cobalt, UNC, 40° helix, TiN coated, Form E



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	<b>S</b> Series <b>3977</b>	Order No.
2-56	3	0.141	0.110	1.751	H2/H3		2.184
3-48	3	0.141	0.110	1.811	H2/H3		2.515
4-40	3	0.141	0.110	1.882	H2/H3		2.845
5-40	3	0.141	0.110	1.941	H2/H3		3.175
6-32	3	0.141	0.110	2.000	H3/H4		3.505
8-32	3	0.168	0.131	2.130	H3/H4		4.166
10-24	3	0.194	0.152	2.382	H3/H4		4.826
12-24	3	0.220	0.165	2.382	H3/H4		5.486
1/4-20	3	0.255	0.191	2.500	H4/H5		6.350
5/16-18	3	0.318	0.238	2.720	H4/H5		7.938
3/8-16	3	0.381	0.286	2.941	H5/H6		9.525
7/16-14	3	0.323	0.242	3.157	H5/H6		11.113
1/2-13	3	0.367	0.275	3.381	H5/H6		12.700
9/16-12	3	0.429	0.322	3.591	H5/H6		14.288
5/8-11	4	0.480	0.360	3.811	H5/H6		15.875
3/4-10	4	0.590	0.442	4.252	H5/H6		19.050
7/8-9	4	0.697	0.523	4.689	H6/H7		22.225
1-8	4	0.800	0.600	5.130	H6/H7		25.400
1 1/4-7	4	1.021	0.766	5.748	H7/H8		31.750
1 1/2-6	6	1.233	0.925	6.378	H7/H8		38.100

## ANSI length - ANSI shank

Series 3978 - Cobalt, UNF, 40° helix, TiN coated, Form E



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	<b>S</b> Series <b>3978</b>	Order No.
2-64	3	0.141	0.110	1.751	H2/H3		2.184
3-56	3	0.141	0.110	1.811	H2/H3		2.515
4-48	3	0.141	0.110	1.882	H2/H3		2.845
5-44	3	0.141	0.110	1.941	H2/H3		3.175
6-40	3	0.141	0.110	2.000	H2/H3		3.505
8-36	3	0.168	0.131	2.130	H2/H3		4.166
10-32	3	0.194	0.152	2.382	H3/H4		4.826
12-28	3	0.220	0.165	2.382	H3/H4		5.486
1/4-28	3	0.255	0.191	2.500	H3/H4		6.350
5/16-24	3	0.318	0.238	2.720	H3/H4		7.938
3/8-24	3	0.381	0.286	2.941	H3/H4		9.525
7/16-20	3	0.323	0.242	3.157	H4/H5		11.113
1/2-20	3	0.367	0.275	3.381	H4/H5		12.700
9/16-18	3	0.429	0.322	3.591	H4/H5		14.288
5/8-18	4	0.480	0.360	3.811	H4/H5		15.875
3/4-16	4	0.590	0.442	4.252	H5/H6		19.050
7/8-14	4	0.697	0.523	4.689	H6/H7		22.225
1-12	4	0.800	0.600	5.130	H6/H7		25.400
1 1/4-12	4	1.021	0.766	5.748	H6/H7		31.750
1 1/2-12	6	1.233	0.925	6.378	H6/H7		38.100

# Universal Applications - Alloyed & Unalloyed Steels



## ANSI length - ANSI shank

Series 3954 - Cobalt, UNC, 40° helix, TiN coated, axial coolant through



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	<b>S</b> Series 3954	Order No.
1/4-20	3	0.255	0.191	2.500	H4/H5		6.350
5/16-18	3	0.318	0.238	2.720	H4/H5		7.938
3/8-16	3	0.381	0.286	2.941	H5/H6		9.525
7/16-14	3	0.323	0.242	3.157	H5/H6		11.113
1/2-13	3	0.367	0.275	3.381	H5/H6		12.700
5/8-11	4	0.480	0.360	3.811	H5/H6		15.875
3/4-10	4	0.590	0.442	4.252	H5/H6		19.050

**UNC / UNF**

**2B Class of Fit**



**Blind Hole**

**40° Helix**

**Semi-bottoming Chamfer Lead**



**C · 2-3**

## ANSI length - ANSI shank

Series 3955 - Cobalt, UNF, 40° helix, TiN coated, axial coolant through



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	<b>S</b> Series 3955	Order No.
1/4-28	3	0.255	0.191	2.500	H3/H4		6.350
5/16-24	3	0.318	0.238	2.720	H3/H4		7.938
3/8-24	3	0.381	0.286	2.941	H3/H4		9.525
7/16-20	3	0.323	0.242	3.157	H4/H5		11.113
1/2-20	3	0.367	0.275	3.381	H4/H5		12.700
5/8-18	4	0.480	0.360	3.811	H4/H5		15.875
3/4-16	4	0.590	0.442	4.252	H5/H6		19.050

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)



# Universal Applications - Alloyed & Unalloyed Steels

**NEW** Available Fall 2011



## METRIC

### ANSI length - ANSI shank

Series 4126 - Cobalt, Metric, 40° helix, TiN coated, axial coolant through

ISO2 (6H)  
Class of Fit



Blind Hole

40° Helix

Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	S Series 4126	Order No.
M6 X 1.00	3	0.255	0.191	2.500	D4/D5		6.000
M8 X 1.25	3	0.318	0.238	2.720	D4/D5		8.000
M10 X 1.50	3	0.381	0.286	2.941	D4/D5		10.000
M12 X 1.75	3	0.367	0.275	3.381	D5/D6		12.000
M14 X 2.00	3	0.429	0.322	3.591	D5/D6		14.000
M16 X 2.00	3	0.480	0.360	3.811	D6/D7		16.000

Semi-bottoming  
Chamfer Lead



C · 2-3

### ANSI length - ANSI shank

Series 3918 - Cobalt, Metric, 40° helix, bright finish

Series 3921 - Cobalt, Metric, 40° helix, TiN coated

Series 3948 - Cobalt, Metric, 40° helix, TiCN coated



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	ISO2 (6H) Approx. Limits	Series 3918	S Series 3921	C Series 3948	Order No.
M2 X 0.40	3	0.141	0.110	1.752	D2/D3				2.000
M3 X 0.50	3	0.141	0.110	1.941	D2/D3				3.000
M4 X 0.70	3	0.168	0.131	2.130	D3/D4				4.000
M5 X 0.80	3	0.194	0.152	2.382	D3/D4				5.000
M6 X 1.00	3	0.255	0.191	2.500	D4/D5				6.000
M8 X 1.25	3	0.318	0.238	2.720	D4/D5				8.000
M10 X 1.50	3	0.381	0.286	2.941	D4/D5				10.000
M12 X 1.75	3	0.367	0.275	3.381	D5/D6				12.000
M14 X 2.00	3	0.429	0.322	3.591	D5/D6				14.000
M16 X 2.00	4	0.480	0.360	3.811	D6/D7				16.000
M18 X 2.50	4	0.542	0.406	4.031	D6/D7				18.000
M20 X 2.50	4	0.652	0.489	4.469	D6/D7				20.000
M22 x 2.50	4	0.697	0.523	4.689	D6/D7				22.000
M24 x 3.00	4	0.760	0.570	4.909	D7/D8				24.000
M30 x 3.50	4	1.021	0.766	5.433	D8/D9				30.000

# Universal Applications - Alloyed & Unalloyed Steels



## DIN length - DIN shank

Series 889 - Cobalt, Metric, 40° helix, bright finish, DIN 371

Series 890 - Cobalt, Metric, 40° helix, bright finish, DIN 376



## METRIC

ISO2 (6H)  
Class of Fit



Blind Hole

40° Helix

Semi-bottoming  
Chamfer Lead



C · 2-3

Cut Taps

Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 371 Series 889	DIN 376 Series 890	Order No.
M2 X 0.40	3	2.800	2.100	45.000	D2/D3	○		2.000
M2.2 X 0.45	3	2.800	2.100	45.000	D2/D3			2.200
M2.5 X 0.45	3	2.800	2.100	50.000	D2/D3	○		2.500
M2.6 X 0.45	3	2.800	2.100	50.000	D2/D3	○		2.600
M3 X 0.50	3	3.500	2.700	56.000	D2/D3	○		3.000
M3.5 X 0.60	3	4.000	3.000	56.000	D3/D4	○		3.500
M4 X 0.70	3	4.500	3.400	63.000	D3/D4	○		4.000
M4 X 0.70	3	4.500	3.400	63.000	D3/D4	○		4.000
M5 X 0.80	3	6.000	4.900	70.000	D4/D5	○		5.000
M6 X 1.00	3	6.000	4.900	80.000	D4/D5			6.000
M8 X 1.25	3	8.000	6.200	90.000	D4/D5			8.000
M10 X 1.50	3	10.000	8.000	100.000	D4/D5	○		10.000
M3 X 0.50	3	2.200	n.a.	56.000	D2/D3		○	3.000
M4 X 0.70	3	2.800	2.100	63.000	D3/D4		○	4.000
M5 X 0.80	3	3.500	2.700	70.000	D3/D4		○	5.000
M6 X 1.00	3	4.500	3.400	80.000	D4/D5		○	6.000
M8 X 1.25	3	6.000	4.900	90.000	D4/D5		○	8.000
M10 X 1.50	3	7.000	5.500	100.000	D4/D5			10.000
M12 X 1.75	3	9.000	7.000	110.000	D5/D6		○	12.000
M14 X 2.00	3	11.000	9.000	110.000	D5/D6		○	14.000
M16 X 2.00	4	12.000	9.000	110.000	D6/D7			16.000
M20 X 2.50	4	16.000	12.000	140.000	D6/D7			20.000
M24 X 3.00	4	18.000	14.500	160.000	D7/D8			24.000

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)



# Universal Applications - Alloyed & Unalloyed Steels

## METRIC FINE

ISO2 (6H)  
Class of Fit



Blind Hole

40° Helix

Semi-bottoming  
Chamfer Lead



C · 2-3

### ANSI length - ANSI shank

Series 3974 - Cobalt, Metric Fine, 40° helix, TiN coated



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	ISO2 (6H) Approx. Limits	<b>S</b> Series 3974	Order No.
M6 x 0.75	3	0.255	0.191	2.500	D3/D4		6.004
M8 X 1.00	3	0.318	0.238	2.720	D4/D5		8.005
M10 X 1.00	3	0.381	0.286	2.941	D4/D5		10.005
M10 X 1.25	3	0.381	0.286	2.941	D4/D5		10.006
M12 X 1.00	3	0.367	0.275	3.381	D4/D5		12.005
M12 X 1.25	3	0.367	0.275	3.381	D4/D5		12.006
M12 X 1.50	3	0.367	0.275	3.381	D5/D6		12.007
M14 X 1.25	3	0.429	0.322	3.591	D4/D5		14.006
M14 X 1.50	3	0.429	0.322	3.591	D4/D5		14.007
M16 X 1.50	4	0.480	0.360	3.811	D4/D5		16.007
M18 X 1.50	4	0.542	0.406	4.031	D4/D5		18.007
M20 X 1.50	4	0.652	0.489	4.469	D6/D7		20.007
M22 x 1.50	4	0.697	0.523	4.689	D6/D7		22.007
M24 x 1.50	4	0.760	0.570	4.909	D6/D7		24.007

### DIN length - DIN shank

Series 2424 - Cobalt, Metric Fine, 40° helix, bright finish, DIN 374



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	<b>DIN 374</b> Series 2424	Order No.
M5 X 0.50	3	3.500	2.700	70.000	D3/D4	°	5.003
M6 X 0.75	3	4.500	3.400	80.000	D3/D4		6.004
M8 X 1.00	3	6.000	4.900	90.000	D4/D5	°	8.005
M10 X 1.00	3	7.000	5.500	90.000	D4/D5		10.005
M10 X 1.25	3	7.000	5.500	100.000	D4/D5	°	10.006
M12 X 1.00	3	9.000	7.000	100.000	D4/D5		12.005
M12 X 1.25	3	9.000	7.000	100.000	D4/D5	°	12.006
M12 X 1.50	3	9.000	7.000	100.000	D5/D6	°	12.007
M14 X 1.00	3	11.000	9.000	100.000	D4/D5	°	14.005
M14 X 1.50	3	11.000	9.000	100.000	D4/D5	°	14.007
M16 X 1.50	4	12.000	9.000	100.000	D4/D5	°	16.007
M18 X 1.50	4	14.000	11.000	110.000	D4/D5		18.007
M20 X 1.50	4	16.000	12.000	125.000	D6/D7		20.007
M24 X 1.50	4	18.000	14.500	140.000	D6/D7	°	24.007
M24 X 2.00	4	18.000	14.500	140.000	D6/D7		24.008

# Universal Applications - Alloyed & Unalloyed Steels



## ANSI length - ANSI shank

Series 3976 - Cobalt, Metric, 40° helix, TiN coated, Form E



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	Series 3976	Order No.
M2 X 0.40	3	0.141	0.110	1.752	D2/D3		2.000
M3 X 0.50	3	0.141	0.110	1.941	D2/D3		3.000
M4 X 0.70	3	0.168	0.131	2.130	D3/D4		4.000
M5 X 0.80	3	0.194	0.152	2.382	D3/D4		5.000
M6 X 1.00	3	0.255	0.191	2.500	D4/D5		6.000
M8 X 1.25	3	0.318	0.238	2.720	D4/D5		8.000
M10 X 1.50	3	0.381	0.286	2.941	D4/D5		10.000
M12 X 1.75	3	0.367	0.275	3.381	D5/D6		12.000
M14 X 2.00	3	0.429	0.322	3.591	D5/D6		14.000
M16 X 2.00	4	0.480	0.360	3.811	D6/D7		16.000
M18 X 2.50	4	0.542	0.406	4.031	D6/D7		18.000
M20 X 2.50	4	0.652	0.489	4.469	D6/D7		20.000

## METRIC

6H  
Class of Fit



Blind Hole

40° Helix

Full-bottoming  
Chamfer Lead



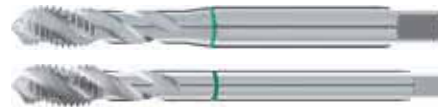
E · 1.5 - 2

Cut Taps

## DIN length - DIN shank

Series 2790 - Cobalt, Metric, 40° helix, bright finish, DIN 371, Form E

Series 2791 - Cobalt, Metric, 40° helix, bright finish, DIN 376, Form E



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	2B Approx. Limits	DIN 371 Series 2790	DIN 376 Series 2791	Order No.
M3 X 0.50	3	3.500	2.700	56.000	D2/D3			3.000
M4 X 0.70	3	4.500	3.400	63.000	D3/D4			4.000
M5 X 0.80	3	6.000	4.900	70.000	D3/D4			5.000
M6 X 1.00	3	6.000	4.900	80.000	D4/D5			6.000
M8 X 1.25	3	8.000	6.200	90.000	D4/D5			8.000
M10 X 1.50	3	10.000	8.000	100.000	D4/D5			10.000
M4 X 0.70	3	2.800	2.100	63.000	D3/D4		°	4.000
M5 X 0.80	3	3.500	2.700	70.000	D3/D4		°	5.000
M6 X 1.00	3	4.500	3.400	80.000	D4/D5			6.000
M8 X 1.25	3	6.000	4.900	90.000	D4/D5		°	8.000
M10 X 1.50	3	7.000	5.500	100.000	D4/D5			10.000
M12 X 1.75	3	9.000	7.000	110.000	D5/D6			12.000
M14 X 2.00	3	11.000	9.000	110.000	D5/D6			14.000
M16 X 2.00	4	12.000	9.000	110.000	D6/D7		°	16.000

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)



# Universal Applications - Alloyed & Unalloyed Steels

## METRIC FINE

ISO2 (6H)  
Class of Fit



Blind Hole

40° Helix

Full-bottoming  
Chamfer Lead



E · 1.5 - 2

DIN length - DIN shank

Series 2792 - Cobalt, Metric Fine, 40° helix, bright finish, DIN 374, Form E



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	2B Approx. Limits	DIN 374	Order No.
						Series	
M8 X 1.00	3	6.000	4.900	90.000	D4/D5	○	8.005
M10 X 1.00	3	7.000	5.500	90.000	D4/D5		10.005
M12 X 1.00	3	9.000	7.000	100.000	D4/D5		12.005
M12 X 1.25	3	9.000	7.000	100.000	D4/D5	○	12.006
M12 X 1.50	3	9.000	7.000	100.000	D5/D6		12.007
M14 X 1.00	3	11.000	9.000	100.000	D4/D5	○	14.005
M14 X 1.25	3	11.000	9.000	100.000	D4/D5	○	14.006
M14 X 1.50	3	11.000	9.000	100.000	D4/D5	○	14.007

Refer to pages 142-145 for additional dimensional information



# ER Tapping Collets

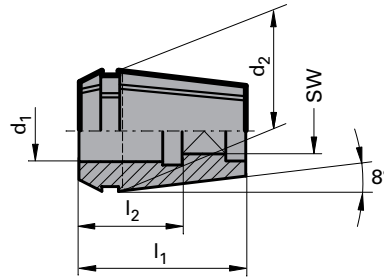
For DIN standard shank taps  
Series 4308



Corresponding shank/square dimensions in mm:

d1	4.5	5.5	6	7	8	9	10	11	12	14	16	18	20	22
Square Size	3.4	4.3	4.9	5.5	6.2	7	8	9	9	11	12	14.5	16	18
l2	18	18	18	18	22	22	25	25	25	25	25	25	28	28

d2 nominal size	d1 mm	l1 mm	Order Code
ER16	4.5	27.5	4.516
ER16	5.5	27.5	5.516
ER16	6	27.5	6.016
ER16	7	27.5	7.016
ER16	8	27.5	8.016
ER20	4	31.5	4.020
ER20	4.5	31.5	4.520
ER20	5.5	31.5	5.520
ER20	6	31.5	6.020
ER20	7	31.5	7.020
ER20	8	31.5	8.020
ER20	9	31.5	9.020
ER20	10	31.5	10.020
ER20	11	31.5	11.020
ER25	4.5	34	4.525
ER25	5.5	34	5.525
ER25	6	34	6.025
ER25	7	34	7.025
ER25	8	34	8.025
ER25	9	34	9.025
ER25	10	34	10.025
ER25	11	34	11.025
ER25	12	34	12.025
ER32	4	40	4.032
ER32	4.5	40	4.532
ER32	5.5	40	5.532
ER32	6	40	6.032
ER32	7	40	7.032
ER32	8	40	8.032
ER32	9	40	9.032
ER32	10	40	10.032
ER32	11	40	11.032
ER32	12	40	12.032
ER32	14	40	14.032
ER32	16	40	16.032
ER32	18	40	18.032
ER32	20	40	20.032
ER40	7	46	7.040
ER40	8	46	8.040
ER40	9	46	9.040
ER40	10	46	10.040
ER40	11	46	11.040
ER40	12	46	12.040
ER40	14	46	14.040
ER40	16	46	16.040
ER40	18	46	18.040
ER40	20	46	20.040
ER40	22	46	22.040



DIN shank taps require tapping collets with the correct diameters and square dimensions. Guhring provides precision ground collets from stock.





# Universal Applications - Alloyed & Unalloyed Steels

## UNC

H7 / H11  
Tolerance



Through Hole

0° Helix

Plug Tap  
Chamfer Lead



B · 3.5 - 5

### ANSI length - ANSI shank

Series 3982 - Cobalt, UNC, spiral point, TiN coated, H7 tolerance



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	Actual H7 Limits	<b>S</b> Series <b>3982</b>	Order No.
6-32	3	0.141	0.110	2.000	H7		3.505
8-32	3	0.168	0.131	2.130	H7		4.166
10-24	3	0.194	0.152	2.382	H7		4.826
12-24	3	0.220	0.165	2.382	H7		5.486
1/4-20	3	0.255	0.191	2.500	H7		6.350
5/16-18	3	0.318	0.238	2.720	H7		7.938
3/8-16	3	0.381	0.286	2.941	H7		9.525
7/16-14	3	0.323	0.242	3.157	H7		11.113
1/2-13	4	0.367	0.275	3.381	H7		12.700
5/8-11	4	0.480	0.360	3.811	H7		15.875

### ANSI length - ANSI shank

Series 3986 - Cobalt, UNC, spiral point, TiN coated, H11 tolerance



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	Actual H11 Limits	<b>S</b> Series <b>3986</b>	Order No.
6-32	3	0.141	0.110	2.000	H11		3.505
8-32	3	0.168	0.131	2.130	H11		4.166
10-24	3	0.194	0.152	2.382	H11		4.826
12-24	3	0.220	0.165	2.382	H11		5.486
1/4-20	3	0.255	0.191	2.500	H11		6.350
5/16-18	3	0.318	0.238	2.720	H11		7.938
3/8-16	3	0.381	0.286	2.941	H11		9.525
7/16-14	3	0.323	0.242	3.157	H11		11.113
1/2-13	4	0.367	0.275	3.381	H11		12.700
5/8-11	4	0.480	0.360	3.811	H11		15.875

#### TECH TIP: Oversized taps

Oversized Taps are taps that are typically +0.003"/+0.005" larger than standard pitch diameter. An H7 thread limit tap is +0.003" oversize from the basic pitch diameter while an H11 thread limit tap is +0.005" oversize. Typically, oversized taps are used for threading parts that will be subsequently plated or heat treated after tapping.

# Universal Applications - Alloyed & Unalloyed Steels



## ANSI length - ANSI shank

Series 3983 - Cobalt, UNF, spiral point, TiN coated, H7 tolerance



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	Actual H7 Limits	<b>S</b> Series <b>3983</b>	Order No.
6-40	3	0.141	0.110	2.000	H7		3.505
8-36	3	0.168	0.131	2.130	H7		4.166
10-32	3	0.194	0.152	2.382	H7		4.826
12-28	3	0.220	0.165	2.382	H7		5.486
1/4-28	3	0.255	0.191	2.500	H7		6.350
5/16-24	3	0.318	0.238	2.720	H7		7.938
3/8-24	3	0.381	0.286	2.941	H7		9.525
7/16-20	3	0.323	0.242	3.157	H7		11.113
1/2-20	4	0.367	0.275	3.381	H7		12.700
5/8-18	4	0.480	0.360	3.811	H7		15.875

# UNF

H7 / H11 Tolerance



Through Hole

0° Helix

Plug Tap Chamfer Lead



B · 3.5 - 5

## ANSI length - ANSI shank

Series 3987 - Cobalt, UNF, spiral point, TiN coated, H11 tolerance



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	Actual H11 Limits	<b>S</b> Series <b>3987</b>	Order No.
6-40	3	0.141	0.110	2.000	H11		3.505
8-36	3	0.168	0.131	2.130	H11		4.166
10-32	3	0.194	0.152	2.382	H11		4.826
12-28	3	0.220	0.165	2.382	H11		5.486
1/4-28	3	0.255	0.191	2.500	H11		6.350
5/16-24	3	0.318	0.238	2.720	H11		7.938
3/8-24	3	0.381	0.286	2.941	H11		9.525
7/16-20	3	0.323	0.242	3.157	H11		11.113
1/2-20	4	0.367	0.275	3.381	H11		12.700
5/8-18	4	0.480	0.360	3.811	H11		15.875

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)



# Universal Applications - Alloyed & Unalloyed Steels

## UNC

H7 / H11  
Tolerance



Blind Hole

40° Helix

Chamfer Lead



C · 2-3

### ANSI length - ANSI shank

Series 3980 - Cobalt, UNC, 40° helix, TiN coated, H7 tolerance



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	Actual H7 Limits	<b>S</b> Series 3980	Order No.
6-32	3	0.141	0.110	2.000	H7		3.505
8-32	3	0.168	0.131	2.130	H7		4.166
10-24	3	0.194	0.152	2.382	H7		4.826
12-24	3	0.220	0.165	2.382	H7		5.486
1/4-20	3	0.255	0.191	2.500	H7		6.350
5/16-18	3	0.318	0.238	2.720	H7		7.938
3/8-16	3	0.381	0.286	2.941	H7		9.525
7/16-14	3	0.323	0.242	3.157	H7		11.113
1/2-13	3	0.367	0.275	3.381	H7		12.700
5/8-11	4	0.480	0.360	3.811	H7		15.875

### ANSI length - ANSI shank

Series 3984 - Cobalt, UNC, 40° helix, TiN coated, H11 tolerance



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	Actual H11 Limits	<b>S</b> Series 3984	Order No.
6-32	3	0.141	0.110	2.000	H11		3.505
8-32	3	0.168	0.131	2.130	H11		4.166
10-24	3	0.194	0.152	2.382	H11		4.826
12-24	3	0.220	0.165	2.382	H11		5.486
1/4-20	3	0.255	0.191	2.500	H11		6.350
5/16-18	3	0.318	0.238	2.720	H11		7.938
3/8-16	3	0.381	0.286	2.941	H11		9.525
7/16-14	3	0.323	0.242	3.157	H11		11.113
1/2-13	3	0.367	0.275	3.381	H11		12.700
5/8-11	4	0.480	0.360	3.811	H11		15.875

#### TECH TIP: Oversized taps

Oversized Taps are taps that are typically +0.003"/+0.005" larger than standard pitch diameter. An H7 thread limit tap is +0.003" oversize from the basic pitch diameter while an H11 thread limit tap is +0.005" oversize. Typically, oversized taps are used for threading parts that will be subsequently plated or heat treated after tapping.

# Universal Applications - Alloyed & Unalloyed Steels



## ANSI length - ANSI shank

Series 3981 - Cobalt, UNF, 40° helix, TiN coated, H7 tolerance



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	Actual H7 Limits	<b>S</b> Series <b>3981</b>	Order No.
6-40	3	0.141	0.110	2.000	H7		3.505
8-36	3	0.168	0.131	2.130	H7		4.166
10-32	3	0.194	0.152	2.382	H7		4.826
12-28	3	0.220	0.165	2.382	H7		5.486
1/4-28	3	0.255	0.191	2.500	H7		6.350
5/16-24	3	0.318	0.238	2.720	H7		7.938
3/8-24	3	0.381	0.286	2.941	H7		9.525
7/16-20	3	0.323	0.242	3.157	H7		11.113
1/2-20	3	0.367	0.275	3.381	H7		12.700
5/8-18	4	0.480	0.360	3.811	H7		15.875

# UNF

H7 / H11 Tolerance



Blind Hole

40° Helix

Semi-bottoming Chamfer Lead



C · 2-3

## ANSI length - ANSI shank

Series 3985 - Cobalt, UNF, 40° helix, TiN coated, H11 tolerance



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	Actual H11 Limits	<b>S</b> Series <b>3985</b>	Order No.
6-40	3	0.141	0.110	2.000	H11		3.505
8-36	3	0.168	0.131	2.130	H11		4.166
10-32	3	0.194	0.152	2.382	H11		4.826
12-28	3	0.220	0.165	2.382	H11		5.486
1/4-28	3	0.255	0.191	2.500	H11		6.350
5/16-24	3	0.318	0.238	2.720	H11		7.938
3/8-24	3	0.381	0.286	2.941	H11		9.525
7/16-20	3	0.323	0.242	3.157	H11		11.113
1/2-20	3	0.367	0.275	3.381	H11		12.700
5/8-18	4	0.480	0.360	3.811	H11		15.875

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)



# Universal Applications - Alloyed & Unalloyed Steels

**UNC / UNF**

**3B Class of Fit STI Tap**



**Through Hole**

**0° Helix**

**Plug Tap Chamfer Lead**



**B · 3.5 - 5**

## ANSI length - ANSI shank

Series 3990 - Cobalt, UNC, spiral point, TiN coated, STI style tap



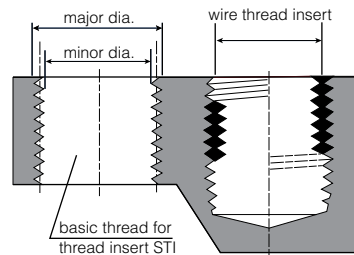
Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	3B Approx. Limits	<b>S</b> Series 3990	Order No.
4-40	3	0.141	0.110	2.000	H2/H3		2.845
6-32	3	0.194	0.152	2.380	H3/H4		3.505
8-32	3	0.220	0.165	2.380	H3/H4		4.166
10-24	3	0.255	0.191	2.500	H3/H4		4.826
1/4-20	3	0.318	0.238	2.720	H4/H5		6.350
5/16-18	3	0.381	0.286	2.937	H4/H5		7.938
3/8-16	3	0.367	0.275	3.381	H5/H6		9.525
1/2-13	4	0.480	0.360	3.810	H5/H6		12.700

## ANSI length - ANSI shank

Series 3991 - Cobalt, UNF, spiral point, TiN coated, STI style tap



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	3B Approx. Limits	<b>S</b> Series 3991	Order No.
4-48	3	0.141	0.110	2.000	H2/H3		2.845
6-40	3	0.168	0.131	2.126	H3/H4		3.505
8-36	3	0.220	0.165	2.374	H3/H4		4.166
10-32	3	0.255	0.191	2.500	H3/H4		4.826
1/4-28	3	0.272	0.238	2.720	H3/H4		6.350
5/16-24	3	0.381	0.286	2.940	H3/H4		7.938
3/8-24	3	0.323	0.242	3.157	H5/H6		9.525
1/2-20	4	0.429	0.322	3.594	H5/H6		12.700



### TECH TIP: Heli-Coil STI Taps

An STI Tap thread tap is designed to create an oversized hole so it can accommodate the required Heli-Coil insert.

Screw Thread Inserts are helically formed coils of diamond-shaped stainless steel or phosphorous bronze wire that screw into a threaded hole to form a mating internal thread. Screw thread inserts are a convenient way of repairing stripped out threads and are also used to provide stronger threads in soft materials than what can be obtained by directly tapping the base material. Aluminum, zinc die cast, magnesium and even wood are some materials an STI may be used in.

# Universal Applications - Alloyed & Unalloyed Steels



## ANSI length - ANSI shank

Series 3988 - Cobalt, UNC, 40° helix, TiN coated, STI style tap



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	3B Approx. Limits	S Series 3988	Order No.
4-40	3	0.141	0.110	2.000	H2/H3		2.845
6-32	3	0.194	0.152	2.380	H3/H4		3.505
8-32	3	0.220	0.165	2.380	H3/H4		4.166
10-24	3	0.255	0.191	2.500	H3/H4		4.826
1/4-20	3	0.318	0.238	2.720	H4/H5		6.350
5/16-18	3	0.381	0.286	2.937	H4/H5		7.938
3/8-16	3	0.367	0.275	3.381	H5/H6		9.525
1/2-13	4	0.480	0.360	3.810	H5/H6		12.700

**UNC / UNF**

**3B Class of Fit**

**STI Tap**



**Blind Hole**

**40° Helix**

**Semi-bottoming Chamfer Lead**



**C · 2-3**

## ANSI length - ANSI shank

Series 3989 - Cobalt, UNF, 40° helix, TiN coated, STI style tap



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	3B Approx. Limits	S Series 3989	Order No.
4-48	3	0.141	0.110	2.000	H2/H3		2.845
6-40	3	0.168	0.131	2.126	H3/H4		3.505
8-36	3	0.220	0.165	2.374	H3/H4		4.166
10-32	3	0.255	0.191	2.500	H3/H4		4.826
1/4-28	3	0.272	0.238	2.720	H3/H4		6.350
5/16-24	3	0.381	0.286	2.940	H3/H4		7.938
3/8-24	3	0.323	0.242	3.157	H5/H6		9.525
1/2-20	4	0.429	0.322	3.594	H5/H6		12.700

UNC Tap Size	Drill or countersink dia. inch
2-56	0.0906
3-48	0.1063
4-40	0.1220
5-40	1.1339
6-32	0.1496
8-32	0.1732
10-24	0.2047
12-24	0.2283
1/4-20	0.2638
5/16-18	0.3307
3/8-16	0.3937
7/16-14	0.4567
1/2-13	0.5236
9/16-12	0.5906
5/8-11	0.6496
3/4-10	0.7776
7/8-9	0.9055
1-8	1.0312
1 1/8-7	1.1614
1 1/4-7	1.2812
1 3/8-6	1.4173
1 1/2-6	1.5469

UNF Tap Size	Drill or countersink dia. inch
2-64	0.0906
3-56	0.1063
4-48	0.1181
5-44	0.1299
6-40	0.1457
8-36	0.1732
10-32	0.2008
12-28	0.2244
1/4-28	0.2598
5/16-24	0.3230
3/8-24	0.3858
7/16-20	0.4528
1/2-20	0.5156
9/16-18	0.5781
5/8-18	0.6406
3/4-16	0.7677
7/8-14	0.8906
1-12	1.0236
1 1/8-12	1.1481
1 1/4-12	1.2736
1 3/8-12	1.3976
1 1/2-12	1.5236

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)



# Universal Applications - Alloyed & Unalloyed Steels

**NEW** Available Fall 2011



## METRIC

DIN length - DIN shank

Series 1010 - Cobalt, Metric, spiral point, TiN coated, DIN 40435

6H mod  
Class of Fit  
EG-M Tap



Through Hole

0° Helix

Plug Tap  
Chamfer Lead



B · 3.5 - 5

Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	<b>S</b> Series 1010	Order No.
EGM 4	3	6.000	4.90	70.00	○	4.000
EGM 5	3	6.000	4.90	80.00	○	5.000
EGM 6	3	8.000	6.20	90.00		6.000
EGM 8	3	10.000	8.00	100.00		8.000
EGM 10	3	9.000	7.00	110.00		10.000
EGM 12	4	11.000	9.00	110.00	○	12.000
EGM 14	4	12.000	9.00	125.00	○	14.000
EGM 16	4	14.000	11.00	125.00	○	16.000

### TECH TIP: EG-M taps

Taps that are designated as EG-M are ISO metric thread, for internal threads that adopt a threaded insert (60° thread angle) such as threaded wire inserts designated for metric applications.

# Universal Applications - Alloyed & Unalloyed Steels



## DIN length - DIN shank

Series 1011 - Cobalt, Metric, 40° helix, TiN coated, DIN 40435

**NEW** Available Fall 2011



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	Series 1011	Order No.
EGM 4	3	6.000	4.90	70.00	○	4.000
EGM 5	3	6.000	4.90	80.00	○	5.000
EGM 6	3	8.000	6.20	90.00	○	6.000
EGM 8	3	10.000	8.00	100.00		8.000
EGM 10	3	9.000	7.00	110.00		10.000
EGM 12	4	11.000	9.00	110.00	○	12.000
EGM 14	4	12.000	9.00	125.00	○	14.000
EGM 16	4	14.000	11.00	125.00	○	16.000

## METRIC

6H mod  
Class of Fit

## EG-M Tap



Blind Hole

40° Helix

Semi-bottoming  
Chamfer Lead



C · 2-3

Metric Tap Size	Drill or countersink dia. mm
M4	4.20
M5	5.25
M6	6.30
M8	8.40
M10	10.50
M12	12.50
M14	14.50
M16	16.50

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)



# GUHRING



# BLUE RING CUT TAPS

## • Through hole

UNC	Page 66
UNF	Page 67
Metric	Page 68
Metric fine	Page 69


## • Blind hole

UNC	Page 70
UNF	Page 71
Metric	Page 72
Metric fine	Page 73

## • Pipe taps

NPT	Page 74
NPTF	Page 74

*Note: Items marked as International Stock may become stocked in USA if sufficient volume is recognized.*

Material group	Approximate Rc	Approximate HB	Recommended SFM			
			HSS-E		HSS-E-PM	
			bright finish	hard coated	bright finish	hard coated
 Stainless- and acid-resistant steels, sulphured austenitic martensitic		<180	25-35	40-55	30-55	35-70
	<25	<250	20-30	30-40	30-50	35-60
	<30	<280	20-30	25-40	25-45	30-50
	<35	<320	10-20	20-30	20-35	25-50



# Stainless Steel and Aerospace Alloys

## UNC

3B / 2B  
Class of Fit



Through Hole

0° Helix

Plug Tap  
Chamfer Lead



B · 3.5 - 5

### ANSI length - ANSI shank

Series 3996 - PM cobalt, UNC, 3B, spiral point, TiN coated  
Series 3907 - PM cobalt, UNC, 2B, spiral point, TiN coated

**NEW** <sup>3B</sup>  
Available  
Fall 2011



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B	<b>S</b>	3B	<b>S</b>	Order No.
					Approx. Limits	Series 3907	Approx. Limits	Series 3996	
4-40	3	0.141	0.110	1.882	H2/H3		H2		2.845
5-40	3	0.141	0.110	1.941	H2/H3		H2		3.175
6-32	3	0.141	0.110	2.000	H3/H4		H2		3.505
8-32	3	0.168	0.131	2.130	H3/H4		H2		4.166
10-24	3	0.194	0.152	2.382	H3/H4		H3		4.826
12-24	3	0.220	0.165	2.382	H3/H4		H3		5.486
1/4-20	3	0.255	0.191	2.500	H4/H5		H3		6.350
5/16-18	3	0.318	0.238	2.720	H4/H5		H3		7.938
3/8-16	3	0.381	0.286	2.941	H5/H6		H3		9.525
7/16-14	3	0.323	0.242	3.157	H5/H6		H3		11.113
1/2-13	4	0.367	0.275	3.381	H5/H6		H3		12.700
9/16-12	4	0.429	0.322	3.591	H5/H6		H3		14.288
5/8-11	4	0.480	0.360	3.811	H5/H6		H3		15.875
3/4-10	4	0.590	0.442	4.252	H5/H6		H4		19.050
7/8-9	4	0.697	0.523	4.689	H6/H7		H4		22.225
1-8	4	0.800	0.600	5.130	H6/H7		H4		25.400

### DIN length - DIN shank

Series 1980 - Cobalt, UNC, spiral point, bright finish, DIN 371  
Series 1985 - Cobalt, UNC, spiral point, bright finish, DIN 376



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	2B	DIN 371	DIN 376	Order No.
					Approx. Limits	Series 1980	Series 1985	
4-40	3	3.500	2.700	56.000	H2/H3			2.845
6-32	3	4.000	3.000	56.000	H3/H4			3.505
8-32	3	4.500	3.400	63.000	H3/H4			4.166
10-24	3	6.000	4.900	70.000	H3/H4	o		4.826
12-24	3	6.000	4.900	80.000	H3/H4			5.486
1/4-20	3	7.000	5.500	80.000	H4/H5			6.350
5/16-18	3	8.000	6.200	90.000	H4/H5			7.938
3/8-16	3	9.000	7.000	100.000	H5/H6	o		9.525
1/2-13	3	9.000	7.000	110.000	H5/H6			12.700
9/16-12	4	11.000	9.000	110.000	H5/H6		o	14.288
5/8-11	4	12.000	9.000	110.000	H5/H6			15.875
3/4-10	4	14.000	11.000	125.000	H5/H6		o	19.050
7/8-9	4	18.000	14.500	140.000	H6/H7			22.225
1-8	4	18.000	14.500	160.000	H6/H7			25.400

# Stainless Steel and Aerospace Alloys



## ANSI length - ANSI shank

Series 3997 - PM cobalt, UNF, 3B, spiral point, TiN coated

Series 3908 - PM cobalt, UNF, 2B, spiral point, TiN coated

**NEW** <sup>3B</sup>  
Available  
Fall 2011



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B	<b>S</b>	3B	<b>S</b>	Order No.
					Approx. Limits	Series <b>3908</b>	Approx. Limits	Series <b>3997</b>	
4-48	3	0.141	0.110	1.882	H2/H3		H2		2.845
5-44	3	0.141	0.110	1.941	H2/H3		H2		3.175
6-40	3	0.141	0.110	2.000	H2/H3		H2		3.505
8-36	3	0.168	0.131	2.130	H2/H3		H2		4.166
10-32	3	0.194	0.152	2.382	H3/H4		H3		4.826
12-28	3	0.220	0.165	2.382	H3/H4		H3		5.486
1/4-28	3	0.255	0.191	2.500	H3/H4		H3		6.350
5/16-24	3	0.318	0.238	2.720	H3/H4		H3		7.938
3/8-24	3	0.381	0.286	2.941	H3/H4		H3		9.525
7/16-20	3	0.323	0.242	3.157	H4/H5		H3		11.113
1/2-20	4	0.367	0.275	3.381	H4/H5		H3		12.700
9/16-18	4	0.429	0.322	3.591	H4/H5		H3		14.288
5/8-18	4	0.480	0.360	3.811	H4/H5		H3		15.875
3/4-16	4	0.590	0.442	4.252	H5/H6		H3		19.050
7/8-14	4	0.697	0.523	4.689	H6/H7		H4		22.225
1-12	4	0.800	0.600	5.130	H6/H7		H4		25.400

## UNF

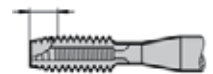
3B / 2B  
Class of Fit



Through Hole

0° Helix

Plug Tap  
Chamfer Lead

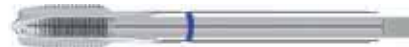


B · 3.5 - 5

Cut Taps

## DIN length - DIN shank

Series 1990 - Cobalt, UNF, spiral point, bright finish, DIN 374



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	2B	DIN 374	Order No.
					Approx. Limits	Series <b>1990</b>	
6-40	3	2.500	2.100	56.000	H2/H3	○	3.505
8-36	3	2.800	2.100	63.000	H2/H3	○	4.166
10-32	3	3.500	2.700	70.000	H3/H4		4.826
12-28	3	4.000	3.000	80.000	H3/H4	○	5.486
1/4-28	3	4.500	3.400	80.000	H3/H4	○	6.350
3/8-24	3	7.000	5.500	90.000	H3/H4	○	9.525

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)



# Stainless Steel and Aerospace Alloys

## Metric

6H  
Class of Fit



Through Hole

0° Helix

Plug Tap  
Chamfer Lead



B · 3.5 - 5

**ANSI length - ANSI shank**  
Series 3906 - PM cobalt, Metric, spiral point, TiN coated



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	ISO2 (6H) Approx. Limits	S Series 3906	Order No.
M2 X 0.40	3	0.141	0.110	1.752	D2/D3		2.000
M3 X 0.50	3	0.141	0.110	1.941	D2/D3		3.000
M4 X 0.70	3	0.168	0.131	2.130	D3/D4		4.000
M5 X 0.80	3	0.194	0.152	2.382	D3/D4		5.000
M6 X 1.00	3	0.255	0.191	2.500	D4/D5		6.000
M8 X 1.25	3	0.318	0.238	2.720	D4/D5		8.000
M10 X 1.50	3	0.381	0.286	2.941	D4/D5		10.000
M12 X 1.75	4	0.367	0.275	3.381	D5/D6		12.000
M14 X 2.00	4	0.429	0.322	3.591	D5/D6		14.000
M16 X 2.00	4	0.480	0.360	3.811	D6/D7		16.000
M18 X 2.50	4	0.542	0.406	4.031	D6/D7		18.000
M20 X 2.50	4	0.652	0.489	4.469	D6/D7		20.000

**DIN length - DIN shank**  
Series 879 - PM cobalt, Metric, spiral point, bright finish, DIN 376  
Series 1872 - Cobalt, Metric, spiral point, bright finish, DIN 376



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 376 Series 879	DIN 376 Series 1872	Order No.
M3 X 0.50	3	2.200	n.a.	56.000	D2/D3			3.000
M4 X 0.70	3	2.800	2.100	63.000	D3/D4			4.000
M5 X 0.80	3	3.500	2.700	70.000	D3/D4			5.000
M6 X 1.00	3	4.500	3.400	80.000	D4/D5			6.000
M8 X 1.25	3	6.000	4.900	90.000	D4/D5			8.000
M10 X 1.50	3	7.000	5.500	100.000	D4/D5			10.000
M12 X 1.75	3	9.000	7.000	110.000	D5/D6			12.000
M14 X 2.00	3	11.000	9.000	110.000	D5/D6	o	o	14.000
M16 X 2.00	3	12.000	9.000	110.000	D6/D7	o		16.000
M18 X 2.50	4	14.000	11.000	125.000	D6/D7			18.000
M20 X 2.50	4	16.000	12.000	140.000	D6/D7			20.000
M22 X 2.50	4	18.000	14.500	140.000	D6/D7		o	22.000
M24 X 3.00	4	18.000	14.500	160.000	D7/D8			24.000
M30 X 3.50	4	22.000	18.000	180.000	D8/D9			30.000

# Stainless Steel and Aerospace Alloys



## DIN length - DIN shank

Series 877 - PM cobalt, Metric, spiral point, bright finish, DIN 371  
 Series 1870 - Cobalt, Metric, spiral point, bright finish, DIN 371



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 371	DIN 371	Order No.
						Series	Series	
M2 x 0.40	3	2.800	2.100	45.000	D2/D3	877	1870	2.000
M2.2 x 0.45	3	2.800	2.100	45.000	D2/D3	○	○	2.200
M3 X 0.50	3	3.500	2.700	56.000	D2/D3			3.000
M4 X 0.70	3	4.500	3.400	63.000	D3/D4		○	4.000
M5 X 0.80	3	6.000	4.900	70.000	D3/D4		○	5.000
M6 X 1.00	3	6.000	4.900	80.000	D4/D5			6.000
M8 X 1.25	3	8.000	6.200	90.000	D4/D5			8.000
M10 X 1.50	3	10.000	8.000	100.000	D4/D5			10.000

**Metric/  
Metric Fine**

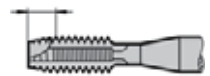
**6H  
Class of Fit**



**Through Hole**

**0° Helix**

**Plug Tap  
Chamfer Lead**



**B · 3.5 - 5**

Cut Taps

## DIN length - DIN shank

Series 1873 - Cobalt, Metric Fine, spiral point, bright finish, DIN 374



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 374	Order No.
						Series	
M3 X 0.35	3	2.200	n.a.	56.000	D2/D3	1873	3.002
M4 X 0.50	3	2.800	2.100	63.000	D3/D4	○	4.003
M5 X 0.50	3	3.500	2.700	70.000	D3/D4	○	5.003
M6 X 0.75	3	4.500	3.400	80.000	D3/D4	○	6.004
M8 X 1.00	3	6.000	4.900	90.000	D4/D5		8.005
M10 X 1.00	3	7.000	5.500	90.000	D4/D5		10.005
M12 X 1.00	3	9.000	7.000	100.000	D4/D5	○	12.005
M14 X 1.50	3	11.000	9.000	100.000	D4/D5		14.007
M16 X 1.50	3	12.000	9.000	100.000	D4/D5	○	16.007
M18 X 1.50	4	14.000	11.000	110.000	D4/D5	○	18.007
M24 X 2.00	4	18.000	14.500	140.000	D6/D7		24.008

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)



# Stainless Steel and Aerospace Alloys

## UNC

3B / 2B  
Class of Fit



Blind Hole

40° Helix

Semi-bottoming  
Chamfer Lead



C · 2-3

### ANSI length - ANSI shank

Series 3998 - PM cobalt, UNC, 3B, 40° helix, TiN coated  
Series 3910 - PM cobalt, UNC, 2B, 40° helix, TiN coated

**NEW** <sup>3B</sup>  
Available  
Fall 2011



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	<b>S</b>	3B	<b>S</b>	Order No.
						Series 3910	Approx. Limits	Series 3998	
4-40	3	0.141	0.110	1.882	H2/H3		H2		2.845
5-40	3	0.141	0.110	1.941	H2/H3		H2		3.175
6-32	3	0.141	0.110	2.000	H3/H4		H2		3.505
8-32	3	0.168	0.131	2.130	H3/H4		H2		4.166
10-24	3	0.194	0.152	2.382	H3/H4		H3		4.826
12-24	3	0.220	0.165	2.382	H3/H4		H3		5.486
1/4-20	3	0.255	0.191	2.500	H4/H5		H3		6.350
5/16-18	3	0.318	0.238	2.720	H4/H5		H3		7.938
3/8-16	3	0.381	0.286	2.941	H5/H6		H3		9.525
7/16-14	3	0.323	0.242	3.157	H5/H6		H3		11.113
1/2-13	3	0.367	0.275	3.381	H5/H6		H3		12.700
9/16-12	4	0.429	0.322	3.591	H5/H6		H3		14.288
5/8-11	4	0.480	0.360	3.811	H5/H6		H3		15.875
3/4-10	4	0.590	0.442	4.252	H5/H6		H4		19.050
7/8-9	4	0.697	0.523	4.689	H6/H7		H4		22.225
1-8	4	0.800	0.600	5.130	H6/H7		H4		25.400

### DIN length - DIN shank

Series 1981 - Cobalt, UNC, 40° helix, bright finish, DIN 371  
Series 1986 - Cobalt, UNC, 40° helix, bright finish, DIN 376



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	2B Approx. Limits	DIN 371	DIN 376	Order No.
						Series 1981	Series 1986	
2-56	3	2.800	2.100	45.000	H2/H3			2.184
4-40	3	3.500	2.700	56.000	H2/H3			2.845
5-40	3	3.500	2.700	56.000	H2/H3	°		3.175
6-32	3	4.000	3.000	56.000	H3/H4			3.505
8-32	3	4.500	3.400	63.000	H3/H4	°		4.166
10-24	3	6.000	4.900	70.000	H3/H4	°		4.826
1/4-20	3	7.000	5.500	80.000	H4/H5			6.350
5/16-18	3	8.000	6.200	90.000	H4/H5			7.938
3/8-16	3	9.000	7.000	100.000	H5/H6			9.525
7/16-14	3	8.000	6.200	100.000	H5/H6		°	11.113
1/2-13	3	9.000	7.000	110.000	H5/H6			12.700
9/16-12	3	11.000	9.000	110.000	H5/H6		°	14.288
5/8-11	4	12.000	9.000	110.000	H5/H6			15.875
3/4-10	4	14.000	11.000	125.000	H5/H6			19.050
7/8-9	4	18.000	14.500	140.000	H6/H7			22.225

# Stainless Steel and Aerospace Alloys



## ANSI length - ANSI shank

Series 3999 - PM cobalt, UNF, 3B, 40° helix, TiN coated  
 Series 3911 - PM cobalt, UNF, 2B, 40° helix, TiN coated

**NEW** <sup>3B</sup> Available Fall 2011



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	3B	3B Approx. Limits	3999	Order No.
						Series 3911		Series 3999	
4-48	3	0.141	0.110	1.882	H2/H3		H2		2.845
5-44	3	0.141	0.110	1.941	H2/H3		H2		3.175
6-40	3	0.141	0.110	2.000	H2/H3		H2		3.505
8-36	3	0.168	0.131	2.130	H2/H3		H2		4.166
10-32	3	0.194	0.152	2.382	H3/H4		H3		4.826
12-28	3	0.220	0.165	2.382	H3/H4		H3		5.486
1/4-28	3	0.255	0.191	2.500	H3/H4		H3		6.350
5/16-24	3	0.318	0.238	2.720	H3/H4		H3		7.938
3/8-24	3	0.381	0.286	2.941	H3/H4		H3		9.525
7/16-20	3	0.323	0.242	3.157	H4/H5		H3		11.113
1/2-20	3	0.367	0.275	3.381	H4/H5		H3		12.700
9/16-18	4	0.429	0.322	3.591	H4/H5		H3		14.288
5/8-18	4	0.480	0.360	3.811	H4/H5		H3		15.875
3/4-16	4	0.590	0.442	4.252	H5/H6		H3		19.050
7/8-14	4	0.697	0.523	4.689	H6/H7		H4		22.225
1-12	4	0.800	0.600	5.130	H6/H7		H4		25.400

## UNF

3B / 2B  
Class of Fit



Blind Hole

40° Helix

Semi-bottoming  
Chamfer Lead



C · 2-3

Cut Taps

## DIN length - DIN shank

Series 2867 - Cobalt, UNF, 40° helix, bright finish, DIN 374



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	2B Approx. Limits	DIN 374	Order No.
						Series 2867	
3-56	3	1.800	n.a.	50.000	H2/H3	○	2.515
4-48	3	2.200	n.a.	56.000	H2/H3	○	2.845
5-44	3	2.500	2.100	56.000	H2/H3	○	3.175
6-40	3	2.500	2.100	56.000	H2/H3	○	3.505
8-36	3	2.800	2.100	63.000	H2/H3	○	4.166
10-32	3	3.500	2.700	70.000	H3/H4	○	4.826
12-28	3	4.000	3.000	80.000	H3/H4	○	5.486
1/4-28	3	4.500	3.400	80.000	H3/H4	○	6.350
5/16-24	3	6.000	4.900	90.000	H3/H4	○	7.938
3/8-24	3	7.000	5.500	90.000	H3/H4	○	9.525
7/16-20	3	8.000	6.200	90.000	H4/H5	○	11.113
1/2-20	3	9.000	7.000	100.000	H4/H5	○	12.700
5/8-18	4	12.000	9.000	100.000	H4/H5	○	15.875
7/8-14	4	18.000	14.500	125.000	H6/H7		22.225
1-12	4	18.000	14.500	140.000	H6/H7		25.400

Refer to pages 142-145 for additional dimensional information

● USA Stock    ○ International Stock (0-2 wks)    When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)





# Stainless Steel and Aerospace Alloys

## METRIC

ISO2 (6H)  
Class of Fit



Blind Hole

40° Helix

Semi-bottoming  
Chamfer Lead



C · 2-3

### ANSI length - ANSI shank

Series 3909 - PM cobalt, Metric, 40° helix, TiN coated

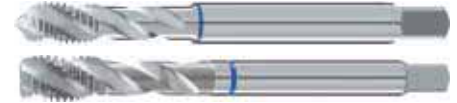


Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	ISO2 (6H) Approx. Limits	Series 3909	Order No.
M2 X 0.40	3	0.141	0.110	1.752	D2/D3		2.000
M3 X 0.50	3	0.141	0.110	1.941	D2/D3		3.000
M4 X 0.70	3	0.168	0.131	2.130	D3/D4		4.000
M5 X 0.80	3	0.194	0.152	2.382	D3/D4		5.000
M6 X 1.00	3	0.255	0.191	2.500	D4/D5		6.000
M8 X 1.25	3	0.318	0.238	2.720	D4/D5		8.000
M10 X 1.50	3	0.381	0.286	2.941	D4/D5		10.000
M12 X 1.75	3	0.367	0.275	3.381	D5/D6		12.000
M14 X 2.00	3	0.429	0.322	3.591	D5/D6		14.000
M16 X 2.00	4	0.480	0.360	3.811	D6/D7		16.000
M18 X 2.50	4	0.542	0.406	4.031	D6/D7		18.000
M20 X 2.50	4	0.652	0.489	4.469	D6/D7		20.000

### DIN length - DIN shank

Series 909 - PM cobalt, Metric, 40° helix, bright finish, DIN 371

Series 910 - PM cobalt, Metric, 40° helix, bright finish, DIN 376



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 371 Series 909	DIN 376 Series 910	Order No.
M3 X 0.50	3	3.500	2.700	56.000	D2/D3			3.000
M4 X 0.70	3	4.500	3.400	63.000	D3/D4	°		4.000
M5 X 0.80	3	6.000	4.900	70.000	D3/D4			5.000
M6 X 1.00	3	6.000	4.900	80.000	D4/D5			6.000
M8 X 1.25	3	8.000	6.200	90.000	D4/D5			8.000
M10 X 1.50	3	10.000	8.000	100.000	D4/D5			10.000
M12 X 1.75	3	9.000	7.000	110.000	D5/D6			12.000
M14 X 2.00	3	11.000	9.000	110.000	D5/D6		°	14.000
M16 X 2.00	4	12.000	9.000	110.000	D6/D7			16.000
M20 X 2.50	4	16.000	12.000	140.000	D6/D7		°	20.000
M24 X 3.00	4	18.000	14.500	160.000	D7/D8			24.000

### DIN length - DIN shank

Series 936 - PM cobalt, Metric Fine, 40° helix, bright finish, DIN 374



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 374 Series 936	Order No.
M8 X 1.00	3	6.000	4.900	90.000	D4/D5		8.005
M10 X 1.00	3	7.000	5.500	90.000	D4/D5		10.005
M12 X 1.00	3	9.000	7.000	100.000	D4/D5	°	12.005
M12 X 1.50	3	9.000	7.000	100.000	D5/D6		12.007
M14 X 1.50	3	11.000	9.000	100.000	D4/D5		14.007
M16 X 1.50	4	12.000	9.000	100.000	D4/D5		16.007
M18 X 1.50	4	14.000	11.000	110.000	D4/D5		18.007
M20 X 1.50	4	16.000	12.000	125.000	D6/D7	°	20.007

# Stainless Steel and Aerospace Alloys



## DIN length - DIN shank

Series 2895 - Cobalt, Metric, 15° helix, TiN coated, DIN 376

Series 2896 - Cobalt, Metric, 15° helix, TiN coated, DIN 371



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 376	DIN 371	Order No.
						<b>S</b> Series	<b>S</b> Series	
						<b>2895</b>	<b>2896</b>	
M3 X 0.50	3	3.500	2.700	56.000	D2/D3			3.000
M4 X 0.70	3	4.500	3.400	63.000	D3/D4			4.000
M5 X 0.80	3	6.000	4.900	70.000	D3/D4			5.000
M6 X 1.00	3	6.000	4.900	80.000	D4/D5			6.000
M8 X 1.25	3	8.000	6.200	90.000	D4/D5			8.000
M10 X 1.50	3	10.000	8.000	100.000	D4/D5		°	10.000
M12 X 1.75	3	9.000	7.000	110.000	D5/D6	°		12.000
M14 X 2.00	3	11.000	9.000	110.000	D5/D6	°		14.000
M16 X 2.00	4	12.000	9.000	110.000	D6/D7			16.000
M18 X 2.50	4	14.000	11.000	125.000	D6/D7	°		18.000
M20 X 2.50	4	16.000	12.000	140.000	D6/D7			20.000
M22 X 2.50	4	18.000	14.500	140.000	D6/D7			22.000
M24 X 3.00	4	18.000	14.500	160.000	D7/D8			24.000

**METRIC / METRIC FINE**

ISO2 (6H)  
Class of Fit



Blind Hole

15° Helix

Semi-bottoming  
Chamfer Lead



C · 2-3

## DIN length - DIN shank

Series 2897 - Cobalt, Metric Fine, 15° helix, TiN coated, DIN 374



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 374	Order No.
						<b>S</b> Series	
						<b>2897</b>	
M4 X 0.50	3	2.800	2.100	63.000	D3/D4	°	4.003
M5 X 0.50	3	3.500	2.700	70.000	D3/D4	°	5.003
M6 X 0.50	3	4.500	3.400	80.000	D3/D4	°	6.003
M6 X 0.75	3	4.500	3.400	80.000	D3/D4		6.004
M8 X 1.00	3	6.000	4.900	90.000	D4/D5		8.005
M10 X 1.00	3	7.000	5.500	90.000	D4/D5	°	10.005
M12 X 1.00	3	9.000	7.000	100.000	D4/D5	°	12.005
M12 X 1.50	3	9.000	7.000	100.000	D5/D6	°	12.007
M14 X 1.50	3	11.000	9.000	100.000	D4/D5		14.007
M16 X 1.50	4	12.000	9.000	100.000	D4/D5		16.007
M18 X 1.50	4	14.000	11.000	110.000	D4/D5		18.007
M20 X 1.50	4	16.000	12.000	125.000	D6/D7	°	20.007
M22 X 1.50	4	18.000	14.500	125.000	D6/D7		22.007
M24 X 1.50	4	18.000	14.500	140.000	D6/D7	°	24.007

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)



# Stainless Steel and Aerospace Alloys

## NPT / NPTF



Blind or Through Hole

**ANSI length - ANSI shank**

Series 1088 - Cobalt, NPT, 25° helix, TiN coated pipe tap



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	<b>S</b> Series 1088	Order No.
1/16-27	4	8.000	6.20	90.00		8.190
1/8-27	4	11.000	9.00	90.00		10.620
1/4-18	5	14.000	11.00	100.00		14.140
3/8-18	5	16.000	12.00	110.00		17.570
1/2-14	5	18.000	14.50	125.00		21.900
3/4-14	5	22.000	18.00	140.00		27.230
1 11-1/2	5	25.000	20.00	170.00		34.180

25° Helix

Semi-bottoming Chamfer Lead



C · 2-3

**ANSI length - ANSI shank**

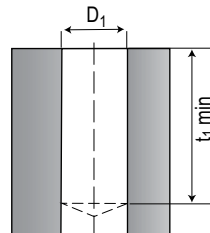
Series 4127 - Cobalt, NPTF, 25° helix, TiN coated pipe tap



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	<b>S</b> Series 4127	Order No.
1/16-27	4	8.000	6.20	90.00		8.190
1/8-27	4	11.000	9.00	90.00		10.620
1/4-18	5	14.000	11.00	100.00		14.140
3/8-18	5	16.000	12.00	110.00		17.570
1/2-14	5	18.000	14.50	125.00		21.900
3/4-14	5	22.000	18.00	140.00		27.230
1 11-1/2	5	25.000	20.00	170.00		34.180

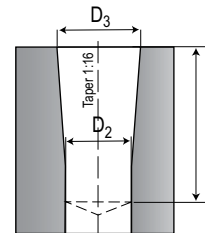
Refer to pages 142-145 for additional dimensional information

Drilling cylindrically without using a reamer



Nominal Size d1	Threads per Inch	D2 inch	t1 min. inch
1/16	27	0.2420	0.4724
1/8	27	0.3346	0.4724
1/4	18	0.4331	0.6890
3/8	18	0.5709	0.6929
1/2	14	0.7031	0.9016
3/4	14	0.9134	0.9055
1	11 1/2	1.1417	1.0787
1 1/4	11 1/2	1.4882	1.1063
1 1/2	11 1/2	1.7323	1.1181
2	11 1/2	2.2047	1.1181

Drilling cylindrically and reaming conically using a reamer



Nominal Size d1	Threads per Inch	D2 inch	D3 inch	t1 min. inch
1/16	27	0.2344	0.2516	0.4724
1/8	27	0.3248	0.3441	0.4724
1/4	18	0.4219	0.4472	0.6890
3/8	18	0.5551	0.5827	0.6929
1/2	14	0.6890	0.7213	0.9016
3/4	14	0.8937	0.9319	0.9055
1	11 1/2	1.1250	1.1689	1.0787
1 1/4	11 1/2	1.4688	1.5138	1.1063
1 1/2	11 1/2	1.7087	1.7528	1.1181
2	11 1/2	2.1850	2.2268	1.1181

# ER Tapping Collets

For DIN standard shank taps



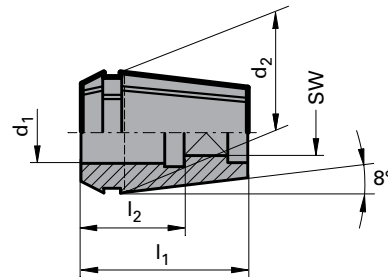
## Series 4308



Corresponding shank/square dimensions in mm:

d1	4.5	5.5	6	7	8	9	10	11	12	14	16	18	20	22
Square Size	3.4	4.3	4.9	5.5	6.2	7	8	9	9	11	12	14.5	16	18
l2	18	18	18	18	22	22	25	25	25	25	25	25	28	28

d2 nominal size	d1 mm	l1 mm	Order Code
ER16	4.5	27.5	4.516
ER16	5.5	27.5	5.516
ER16	6	27.5	6.016
ER16	7	27.5	7.016
ER16	8	27.5	8.016
ER20	4	31.5	4.020
ER20	4.5	31.5	4.520
ER20	5.5	31.5	5.520
ER20	6	31.5	6.020
ER20	7	31.5	7.020
ER20	8	31.5	8.020
ER20	9	31.5	9.020
ER20	10	31.5	10.020
ER20	11	31.5	11.020
ER25	4.5	34	4.525
ER25	5.5	34	5.525
ER25	6	34	6.025
ER25	7	34	7.025
ER25	8	34	8.025
ER25	9	34	9.025
ER25	10	34	10.025
ER25	11	34	11.025
ER25	12	34	12.025
ER32	4	40	4.032
ER32	4.5	40	4.532
ER32	5.5	40	5.532
ER32	6	40	6.032
ER32	7	40	7.032
ER32	8	40	8.032
ER32	9	40	9.032
ER32	10	40	10.032
ER32	11	40	11.032
ER32	12	40	12.032
ER32	14	40	14.032
ER32	16	40	16.032
ER32	18	40	18.032
ER32	20	40	20.032
ER40	7	46	7.040
ER40	8	46	8.040
ER40	9	46	9.040
ER40	10	46	10.040
ER40	11	46	11.040
ER40	12	46	12.040
ER40	14	46	14.040
ER40	16	46	16.040
ER40	18	46	18.040
ER40	20	46	20.040
ER40	22	46	22.040



DIN shank taps require tapping collets with the correct diameters and square dimensions. Guhring provides precision ground collets from stock.

# GUHRING



# RED RING CUT TAPS


## • Through hole

UNC	Page 78
UNF	Page 78
Metric	Page 79
Metric fine	Page 79

## • Blind hole

UNC	Page 82
UNF	Page 83
Metric	Page 84
Metric fine	Page 84

*Note: Items marked as International Stock may become stocked in USA if sufficient volume is recognized.*

Material group	Approximate Rc	Approximate HB	Recommended SFM					
			HSS-E		HSS-E-PM		Solid carbide	
			bright finish	hard coated	bright finish	hard coated	bright finish	hard coated
 Alloyed case hardened steels	<25	<250	10-20	30-40	30-50	35-70	-	-
Alloyed heat-treatable steels	<30	<280	25-35	30-50	25-45	35-65	-	-
Alloyed tool steels	<35	<320	15-30	20-40	20-45	30-60	-	-
High speed tool steels	<38	<380	8-15	10-30	15-35	25-55	-	-
	<44	<415	-	-	4-10	8-15	4-8	8-16
	<60		-	-	-	4-10	3-6	6-12



# High-Tensile, Heat-Treatable Hardened and Tool Steels

## UNC / UNF

### 2B Class of Fit



### Through Hole

### 0° Helix

### Plug Tap Chamfer Lead



### B · 3.5 - 5

## DIN length - ANSI shank

Series 3992 - PM cobalt, UNC, spiral point, TiN coated



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	<b>S</b> Series 3992	Order No.
4-40	3	0.141	0.110	2.205	H2/H3		2.845
5-40	3	0.141	0.110	2.205	H2/H3		3.175
6-32	3	0.141	0.110	2.205	H3/H4		3.505
8-32	3	0.168	0.131	2.480	H3/H4		4.166
10-24	3	0.194	0.152	2.756	H3/H4		4.826
12-24	3	0.220	0.165	3.150	H3/H4		5.486
1/4-20	3	0.255	0.191	3.150	H4/H5		6.350
5/16-18	3	0.318	0.238	3.543	H4/H5		7.938
3/8-16	3	0.381	0.286	3.937	H5/H6		9.525
7/16-14	3	0.323	0.242	3.937	H5/H6		11.113
1/2-13	4	0.367	0.275	4.331	H5/H6		12.700
9/16-12	4	0.429	0.322	4.331	H5/H6		14.288
5/8-11	4	0.480	0.360	4.331	H5/H6		15.875
3/4-10	4	0.590	0.442	4.921	H5/H6		19.050
7/8-9	4	0.697	0.523	5.512	H6/H7		22.225
1-8	4	0.800	0.600	6.299	H6/H7		25.400
1 1/8-7	4	0.896	0.672	7.087	H7/H8		28.575
1 1/4-7	4	1.021	0.766	7.087	H7/H8		31.750
1 3/8-6	5	1.108	0.831	7.874	H7/H8		34.925
1 1/2-6	5	1.233	0.925	7.874	H7/H8		38.100

## DIN length - ANSI shank

Series 3994 - PM cobalt, UNF, spiral point, TiN coated



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	<b>S</b> Series 3994	Order No.
4-48	3	0.141	0.110	2.205	H2/H3		2.845
5-44	3	0.141	0.110	2.205	H2/H3		3.175
6-40	3	0.141	0.110	2.205	H2/H3		3.505
8-36	3	0.168	0.131	2.480	H2/H3		4.166
10-32	3	0.194	0.152	2.756	H3/H4		4.826
12-28	3	0.220	0.165	3.150	H3/H4		5.486
1/4-28	3	0.255	0.191	3.150	H3/H4		6.350
5/16-24	3	0.318	0.238	3.543	H3/H4		7.938
3/8-24	3	0.381	0.286	3.543	H3/H4		9.525
7/16-20	3	0.323	0.242	3.937	H4/H5		11.113
1/2-20	4	0.367	0.275	3.937	H4/H5		12.700
9/16-18	4	0.429	0.322	3.937	H4/H5		14.288
5/8-18	4	0.480	0.360	3.937	H4/H5		15.875
3/4-16	4	0.590	0.442	4.331	H5/H6		19.050
7/8-14	4	0.697	0.523	4.921	H6/H7		22.225
1-12	4	0.800	0.600	5.512	H6/H7		25.400
1 1/8-12	4	0.896	0.672	5.906	H6/H7		28.575
1 1/4-12	4	1.021	0.766	5.901	H6/H7		31.750
1 3/8-12	6	1.108	0.831	6.693	H6/H7		34.925
1 1/2-12	6	1.233	0.925	6.699	H6/H7		38.100

# High-Tensile, Heat-Treatable Hardened and Tool Steels



## DIN length - ANSI shank

Series 4122 - PM cobalt, Metric, spiral point, TiN coated

**NEW** Available Fall 2011



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	<b>S</b> Series 4122	Order No.
M3 X 0.50	3	0.141	0.110	2.205	D2/D3		3.000
M4 X 0.70	3	0.168	0.131	2.480	D3/D4		4.000
M5 X 0.80	3	0.194	0.152	2.756	D3/D4		5.000
M6 X 1.00	3	0.255	0.191	3.150	D4/D5		6.000
M8 X 1.25	3	0.318	0.238	3.543	D4/D5		8.000
M10 X 1.50	3	0.381	0.286	3.937	D4/D5		10.000
M12 X 1.75	4	0.367	0.275	4.331	D5/D6		12.000
M14 X 2.00	4	0.429	0.322	4.331	D5/D6		14.000
M16 X 2.00	4	0.480	0.360	4.331	D6/D7		16.000
M18 X 2.50	4	0.542	0.406	4.921	D6/D7		18.000
M20 X 2.50	4	0.652	0.489	5.512	D6/D7		20.000

## METRIC / Metric Fine

ISO2 (6H)  
Class of Fit



Through Hole

0° Helix

Plug Tap  
Chamfer Lead



B · 3.5 - 5

## DIN length - ANSI shank

Series 4123 - PM cobalt, Metric Fine, spiral point, TiN coated

**NEW** Available Fall 2011



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	<b>S</b> Series 4123	Order No.
M8 X 1.00	3	0.318	0.238	3.543	D4/D5		8.005
M10 X 1.00	3	0.381	0.286	3.543	D4/D5		10.005
M10 X 1.25	3	0.381	0.286	3.543	D4/D5		10.006
M12 X 1.00	4	0.367	0.275	3.937	D4/D5		12.005
M12 X 1.25	4	0.367	0.275	3.937	D4/D5		12.006
M12 X 1.50	4	0.367	0.275	3.937	D5/D6		12.007
M14 X 1.25	4	0.429	0.322	3.937	D4/D5		14.006
M14 X 1.50	4	0.429	0.322	3.937	D4/D5		14.007
M16 X 1.50	4	0.480	0.360	3.937	D4/D5		16.007
M18 X 1.50	4	0.542	0.406	4.331	D4/D5		18.007
M20 X 1.50	4	0.652	0.489	4.921	D6/D7		20.007

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)





# High-Tensile, Heat-Treatable Hardened and Tool Steels

## METRIC

ISO2 (6H)  
Class of Fit



Through Hole

0° Helix

Plug Tap  
Chamfer Lead



B · 3.5 - 5

### DIN length - DIN shank

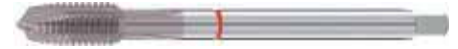
Series 804 - Cobalt, Metric, spiral point, bright finish, DIN 371  
Series 1914 - Cobalt, Metric, spiral point, TiCN coated, DIN 371



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 371	DIN 371	Order No.
						Series 804	Series 1914	
M2 x 0.40	3	2.800	2.100	45.000	D2/D3		°	2.000
M2.2 x 0.45	3	2.800	2.100	45.000	D2/D3	°		2.200
M2.3 X 0.40	3	2.800	2.100	45.000	D2/D3		°	2.300
M2.5 x 0.45	3	2.800	2.100	50.000	D2/D3			2.500
M2.6 x 0.45	3	2.800	2.100	50.000	D2/D3	°	°	2.600
M3 x 0.50	3	3.500	2.700	56.000	D2/D3	°		3.000
M3.5 x 0.60	3	4.000	3.000	56.000	D3/D4			3.500
M4 x 0.70	3	4.500	3.400	63.000	D3/D4			4.000
M5 x 0.80	3	6.000	4.900	70.000	D3/D4		°	5.000
M6 x 1.00	3	6.000	4.900	80.000	D4/D5			6.000
M8 x 1.25	3	8.000	6.200	90.000	D4/D5			8.000
M10 x 1.50	3	10.000	8.000	100.000	D4/D5			10.000

### DIN length - DIN shank

Series 816 - Cobalt, Metric, spiral point, bright finish, DIN 376  
Series 1915 - Cobalt, Metric, spiral point, TiCN coated, DIN 376



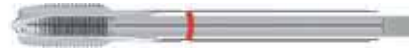
Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 376	DIN 376	Order No.
						Series 816	Series 1915	
M3 x 0.50	3	2.200	n.a.	56.000	D2/D3	°	°	3.000
M4 x 0.70	3	2.800	2.100	63.000	D3/D4	°	°	4.000
M5 x 0.80	3	3.500	2.700	70.000	D3/D4	°	°	5.000
M6 x 1.00	3	4.500	3.400	80.000	D4/D5		°	6.000
M8 x 1.25	3	6.000	4.900	90.000	D4/D5	°	°	8.000
M10 x 1.50	3	7.000	5.500	100.000	D4/D5		°	10.000
M12 x 1.75	3	9.000	7.000	110.000	D5/D6	°		12.000
M14 x 2.00	3	11.000	9.000	110.000	D5/D6		°	14.000
M16 x 2.00	3	12.000	9.000	110.000	D6/D7		°	16.000
M18 x 2.50	4	14.000	11.000	125.000	D6/D7	°	°	18.000
M20 x 2.50	4	16.000	12.000	140.000	D6/D7			20.000
M24 x 3.00	4	18.000	14.500	160.000	D7/D8			24.000

# High-Tensile, Heat-Treatable Hardened and Tool Steels



## DIN length - DIN shank

Series 828 - Cobalt, Metric Fine, spiral point, bright finish, DIN 374



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 374 Series ● 828	Order No.
M3 x 0.35	3	2.200	n.a.	56.000	D2/D3	○	3.002
M4 x 0.50	3	2.800	2.100	63.000	D3/D4	○	4.003
M5 x 0.50	3	3.500	2.700	70.000	D3/D4	○	5.003
M6 x 0.75	3	4.500	3.400	80.000	D3/D4		6.004
M8 x 0.75	3	6.000	4.900	80.000	D3/D4	○	8.004
M8 x 1.00	3	6.000	4.900	90.000	D4/D5	○	8.005
M10 x 1.00	3	7.000	5.500	90.000	D4/D5	○	10.005
M12 x 1.50	3	9.000	7.000	100.000	D5/D6		12.007
M14 x 1.50	3	11.000	9.000	100.000	D4/D5		14.007
M16 x 1.50	3	12.000	9.000	100.000	D4/D5	○	16.007
M18 x 1.50	4	14.000	11.000	110.000	D4/D5	○	18.007
M20 x 1.50	4	16.000	12.000	125.000	D6/D7		20.007
M22 x 1.50	4	18.000	14.500	125.000	D6/D7	○	22.007

**METRIC FINE**

ISO2 (6H)  
Class of Fit



Through Hole

0° Helix

Plug Tap  
Chamfer Lead



B · 3.5 - 5

Cut Taps

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)



# High-Tensile, Heat-Treatable Hardened and Tool Steels

**UNC /  
UNF**

**2B  
Class of Fit**



**Blind Hole**

**40° Helix**

**Semi-bottoming  
Chamfer Lead**



**C · 2-3**

**DIN length - ANSI shank**

Series 3993 - PM cobalt, UNC, 40° helix, TiN coated



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	<b>S</b> Series <b>3993</b>	Order No.
4-40	3	0.141	0.110	2.205	H2/H3		2.845
5-40	3	0.141	0.110	2.205	H2/H3		3.175
6-32	3	0.141	0.110	2.205	H3/H4		3.505
8-32	3	0.168	0.131	2.480	H3/H4		4.166
10-24	3	0.194	0.152	2.756	H3/H4		4.826
12-24	3	0.220	0.165	3.150	H3/H4		5.486
1/4-20	3	0.255	0.191	3.150	H4/H5		6.350
5/16-18	3	0.318	0.238	3.543	H4/H5		7.938
3/8-16	3	0.381	0.286	3.937	H5/H6		9.525
7/16-14	3	0.323	0.242	3.937	H5/H6		11.113
1/2-13	3	0.367	0.275	4.331	H5/H6		12.700
9/16-12	3	0.429	0.322	4.331	H5/H6		14.288
5/8-11	4	0.480	0.360	4.331	H5/H6		15.875
3/4-10	4	0.590	0.442	4.921	H5/H6		19.050
7/8-9	5	0.697	0.523	5.512	H6/H7		22.225
1-8	5	0.800	0.600	6.299	H6/H7		25.400
1 1/8-7	5	0.896	0.672	7.087	H6/H7		28.575
1 1/4-7	5	1.021	0.766	7.087	H7/H8		31.750
1 3/8-6	5	1.108	0.831	7.874	H7/H8		34.925
1 1/2-6	6	1.233	0.925	7.874	H7/H8		38.100

**DIN length - ANSI shank**

Series 3995 - PM cobalt, UNF, 40° helix, TiN coated



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	<b>S</b> Series <b>3995</b>	Order No.
4-48	3	0.141	0.110	2.205	H2/H3		2.845
5-44	3	0.141	0.110	2.205	H2/H3		3.175
6-40	3	0.141	0.110	2.205	H2/H3		3.505
8-36	3	0.168	0.131	2.480	H2/H3		4.166
10-32	3	0.194	0.152	2.756	H3/H4		4.826
12-28	3	0.220	0.165	3.150	H3/H4		5.486
1/4-28	3	0.255	0.191	3.150	H3/H4		6.350
5/16-24	3	0.318	0.238	3.543	H3/H4		7.938
3/8-24	3	0.381	0.286	3.543	H3/H4		9.525
7/16-20	3	0.323	0.242	3.937	H4/H5		11.113
1/2-20	3	0.367	0.275	3.937	H4/H5		12.700
9/16-18	3	0.429	0.322	3.937	H4/H5		14.288
5/8-18	4	0.480	0.360	3.937	H4/H5		15.875
3/4-16	4	0.590	0.442	4.331	H5/H6		19.050
7/8-14	5	0.697	0.523	4.921	H6/H7		22.225
1-12	5	0.800	0.600	5.512	H6/H7		25.400
1 1/8-12	5	0.896	0.672	5.906	H6/H7		28.575
1 1/4-12	5	1.021	0.766	5.901	H6/H7		31.750
1 3/8-12	5	1.108	0.831	6.693	H6/H7		34.925
1 1/2-12	6	1.233	0.925	6.699	H6/H7		38.100

Refer to pages 142-145 for additional dimensional information

# High-Tensile, Heat-Treatable Hardened and Tool Steels



## DIN length - ANSI shank

Series 4124 - PM cobalt, UNC, 15° helix, TiN coated

**NEW** Available Fall 2011



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	S Series 4124	Order No.
4-40	3	0.141	0.110	2.205	H2/H3		2.845
5-40	3	0.141	0.110	2.205	H2/H3		3.175
6-32	3	0.141	0.110	2.205	H3/H4		3.505
8-32	3	0.168	0.131	2.480	H3/H4		4.166
10-24	3	0.194	0.152	2.756	H3/H4		4.826
12-24	3	0.220	0.165	3.150	H3/H4		5.486
1/4-20	3	0.255	0.191	3.150	H4/H5		6.350
5/16-18	3	0.318	0.238	3.543	H4/H5		7.938
3/8-16	3	0.381	0.286	3.937	H5/H6		9.525
7/16-14	3	0.323	0.242	3.937	H5/H6		11.113
1/2-13	3	0.367	0.275	4.331	H5/H6		12.700
9/16-12	3	0.429	0.322	4.331	H5/H6		14.288
5/8-11	4	0.480	0.360	4.331	H5/H6		15.875
3/4-10	4	0.590	0.442	4.921	H5/H6		19.050
7/8-9	5	0.697	0.523	5.512	H6/H7		22.225
1-8	5	0.800	0.600	6.299	H6/H7		25.400

**UNC / UNF**

**2B Class of Fit**



**Blind Hole**

**15° Helix**

**Semi-bottoming Chamfer Lead**



**C · 2-3**

## DIN length - ANSI shank

Series 4125 - PM cobalt, UNF, 15° helix, TiN coated

**NEW** Available Fall 2011



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	S Series 4125	Order No.
4-48	3	0.141	0.110	2.205	H2/H3		2.845
5-44	3	0.141	0.110	2.205	H2/H3		3.175
6-40	3	0.141	0.110	2.205	H2/H3		3.505
8-36	3	0.168	0.131	2.480	H2/H3		4.166
10-32	3	0.194	0.152	2.756	H3/H4		4.826
12-28	3	0.220	0.165	3.150	H3/H4		5.486
1/4-28	3	0.255	0.191	3.150	H3/H4		6.350
5/16-24	3	0.318	0.238	3.543	H3/H4		7.938
3/8-24	3	0.381	0.286	3.937	H3/H4		9.525
7/16-20	3	0.323	0.242	3.937	H4/H5		11.113
1/2-20	3	0.367	0.275	4.331	H4/H5		12.700
9/16-18	3	0.429	0.322	3.937	H4/H5		14.288
5/8-18	4	0.480	0.360	4.331	H4/H5		15.875
3/4-16	4	0.590	0.442	4.331	H5/H6		19.050
7/8-14	5	0.697	0.523	4.921	H6/H7		22.225
1-12	5	0.800	0.600	5.512	H6/H7		25.400

### Red ring taps for tough materials

When tapping high tensile steels or tougher alloys, using a tap with a lower helix angle can sometimes improve tool life.

High tensile and some high alloy steels can be difficult to tap. Guhring's red ring offering provides you with tools that are designed with these materials in mind. Both a thicker core diameter and a lower rake angle add strength for these manufacturing applications.

### Why a 15° helix vs a 40° helix?

Tapping of high tensile materials typically produces high amounts of torque on a tool. It is advantageous to note that when the needed thread depth is 1.5 x diameter or less - a 15° helix tool will withstand higher torque than a 40° helix while still pulling chips from the hole efficiently.

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)



# High-Tensile, Heat-Treatable Hardened and Tool Steels

## METRIC / Metric Fine

ISO2 (6H)  
Class of Fit



Blind Hole

40° Helix

Semi-bottoming  
Chamfer Lead



C · 2-3

DIN length - ANSI shank  
Series 4120- PM cobalt, Metric, 40° helix, TiN coated

**NEW** Available  
Fall 2011



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	S Series 4120	Order No.
M3 X 0.50	3	0.141	0.110	2.205	D2/D3		3.000
M4 X 0.70	3	0.168	0.131	2.480	D3/D4		4.000
M5 X 0.80	3	0.194	0.152	2.756	D3/D4		5.000
M6 X 1.00	3	0.255	0.191	3.150	D4/D5		6.000
M8 X 1.25	3	0.318	0.238	3.543	D4/D5		8.000
M10 X 1.50	3	0.381	0.286	3.937	D4/D5		10.000
M12 X 1.75	3	0.367	0.275	4.331	D5/D6		12.000
M14 X 2.00	3	0.429	0.322	4.331	D5/D6		14.000
M16 X 2.00	3	0.480	0.360	4.331	D6/D7		16.000
M18 X 2.50	4	0.542	0.406	4.921	D6/D7		18.000
M20 X 2.50	4	0.652	0.489	4.921	D6/D7		20.000

DIN length - ANSI shank  
Series 4121 - PM cobalt, Metric Fine, 40° helix, TiN coated

**NEW** Available  
Fall 2011



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	S Series 4121	Order No.
M8 X 1.00	3	0.318	0.238	90.000	D4/D5		8.005
M10 X 1.00	3	0.381	0.286	90.000	D4/D5		10.005
M10 X 1.25	3	0.381	0.286	100.000	D4/D5		10.006
M12 X 1.00	3	0.367	0.275	100.000	D4/D5		12.005
M12 X 1.25	3	0.367	0.275	100.000	D4/D5		12.006
M12 X 1.50	3	0.367	0.275	100.000	D5/D6		12.007
M14 X 1.25	3	0.429	0.322	100.000	D4/D5		14.006
M14 X 1.50	3	0.429	0.322	100.000	D4/D5		14.007
M16 X 1.50	4	0.480	0.360	100.000	D4/D5		16.007
M18 X 1.50	4	0.542	0.406	100.000	D4/D5		18.007
M20 X 1.50	4	0.652	0.489	125.000	D6/D7		20.007

# High-Tensile, Heat-Treatable Hardened and Tool Steels



## DIN length - DIN shank

Series 811 - Cobalt, Metric, 40° helix, bright finish, DIN 371

Series 1916 - Cobalt, Metric, 40° helix, TiCN coated, DIN 371



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 371	DIN 371	Order No.
						Series 811	Series 1916	
M2 X 0.40	3	2.800	2.100	45.000	D2/D3			2.000
M2.5 X 0.45	3	2.800	2.100	50.000	D2/D3			2.500
M2.6 X 0.45	3	2.800	2.100	50.000	D2/D3	o		2.600
M3 X 0.50	3	3.500	2.700	56.000	D2/D3	o	o	3.000
M3.5 X 0.60	3	4.000	3.000	56.000	D3/D4	o	o	3.500
M4 X 0.70	3	4.500	3.400	63.000	D3/D4	o		4.000
M5 X 0.80	3	6.000	4.900	70.000	D3/D4		o	5.000
M6 X 1.00	3	6.000	4.900	80.000	D4/D5	o		6.000
M7 X 1.00	3	7.000	5.500	80.000	D4/D5	o	o	7.000
M8 X 1.25	3	8.000	6.200	90.000	D4/D5			8.000
M10 X 1.50	3	10.000	8.000	100.000	D4/D5			10.000

## METRIC

ISO2 (6H)  
Class of Fit



Blind Hole

40° Helix

Semi-bottoming  
Chamfer Lead



C · 2-3

Cut Taps

## DIN length - DIN shank

Series 1894 - Cobalt, Metric, 40° helix, bright finish, DIN 371, axial coolant through

Series 1901 - Cobalt, Metric, 40° helix, bright finish, DIN 376, axial coolant through



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 371	DIN 376	Order No.
						Series 1894	Series 1901	
M5 X 0.80	3	6.000	4.900	70.000	D3/D4			5.000
M6 X 1.00	3	6.000	4.900	80.000	D4/D5	o		6.000
M8 X 1.25	3	8.000	6.200	90.000	D4/D5			8.000
M10 X 1.50	3	10.000	8.000	100.000	D4/D5	o		10.000
M12 X 1.75	3	9.000	7.000	110.000	D5/D6		o	12.000
M14 x 2.00	3	11.000	9.000	110.000	D5/D6			14.000
M16 X 2.00	4	12.000	9.000	110.000	D6/D7			16.000
M18 x 2.50	4	16.000	12.000	140.000	D6/D7		o	18.000
M20 x 2.50	4	18.000	14.500	160.000	D6/D7			20.000

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)



# High-Tensile, Heat-Treatable Hardened and Tool Steels

## METRIC

ISO2 (6H)  
Class of Fit



Blind Hole

40° Helix

Semi-bottoming  
Chamfer Lead



C · 2-3



D · 3.5-5

### DIN length - DIN shank

Series 823 - Cobalt, Metric, 40° helix, bright finish, DIN 376, chamfer type C  
Series 1917 - Cobalt, Metric, 40° helix, TiCN coated, DIN 376, chamfer type C



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 376	DIN 376	Order No.
						Series 823	Series 1917	
M3 X 0.50	3	2.200	n.a.	56.000	D2/D3			3.000
M4 X 0.70	3	2.800	2.100	63.000	D3/D4		°	4.000
M5 X 0.80	3	3.500	2.700	70.000	D3/D4			5.000
M6 X 1.00	3	4.500	3.400	80.000	D4/D5		°	6.000
M8 X 1.25	3	6.000	4.900	90.000	D4/D5			8.000
M10 X 1.50	3	7.000	5.500	100.000	D4/D5			10.000
M12 X 1.75	3	9.000	7.000	110.000	D5/D6			12.000
M14 X 2.00	3	11.000	9.000	110.000	D5/D6			14.000
M16 X 2.00	4	12.000	9.000	110.000	D6/D7		°	16.000
M18 X 2.50	4	14.000	11.000	125.000	D6/D7	°	°	18.000
M20 X 2.50	4	16.000	12.000	140.000	D6/D7	°		20.000
M22 X 2.50	5	18.000	14.500	140.000	D6/D7	°	°	22.000
M24 X 3.00	5	18.000	14.500	160.000	D7/D8			24.000
M30 X 3.50	5	22.000	18.000	180.000	D7/D8			30.000

### DIN length - DIN shank

Series 2944 - carbide, Metric, TiCN coated, straight flute, chamfer type D



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 376	Order No.
						Series 2944	
M3 X 0.50	3	3.500	2.700	56.000	D2/D3	°	3.000
M4 X 0.70	4	4.500	3.400	63.000	D3/D4	°	4.000
M5 X 0.80	4	6.000	4.900	70.000	D3/D4		5.000
M6 X 1.00	4	6.000	4.900	80.000	D4/D5		6.000
M8 X 1.25	5	8.000	6.200	90.000	D4/D5		8.000
M10 X 1.50	5	10.000	8.000	100.000	D4/D5		10.000
M12 X 1.75	5	12.000	9.000	110.000	D5/D6		12.000
M16 X 2.00	5	16.000	12.000	110.000	D6/D7	°	16.000

#### TECH TIP: Type D Form

A type D chamfer form has a 3.5 - 5 thread chamfer lead. This chamfer can be used in both through holes and in blind holes when the tap drill depth permits this chamfer length. This is especially useful when tapping harder materials due to the extended chamfer length which distributes the thread cutting process over more cutting edges. The D chamfer form is usually found on rigid, straight fluted tap designs.

# High-Tensile, Heat-Treatable Hardened and Tool Steels



## DIN length - DIN shank

Series 1188 - PM Cobalt, Metric, 15° helix, TiCN coated, DIN 371, axial coolant  
 Series 1194 - PM Cobalt, Metric, 15° helix, TiCN coated, DIN 376, axial coolant



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	6HX Approx. Limits	DIN 371	DIN 376	Order No.
						Series	Series	
M6 X 1.00	3	6.000	4.900	80.000	D4/D5	1188		6.000
M8 X 1.25	3	8.000	6.200	90.000	D4/D5			8.000
M10 X 1.50	3	10.000	8.000	100.000	D4/D5			10.000
M12 X 1.75	4	9.000	7.000	110.000	D5/D6			12.000
M14 X 2.00	4	11.000	9.000	110.000	D5/D6			14.000
M16 X 2.00	4	12.000	9.000	110.000	D6/D7			16.000
M20 X 2.50	5	16.000	12.000	140.000	D6/D7			20.000
M24 X 3.00	5	18.000	14.500	160.000	D7/D8			24.000

**METRIC / METRIC FINE**

**6HX Class of Fit**



**Blind Hole**

**15° Helix**

**Semi-bottoming Chamfer Lead**



**C · 2-3**

Cut Taps

## DIN length - DIN shank

Series 935 - PM cobalt, Metric, 15° helix, bright finish, DIN 376



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H)	DIN 376	Order No.
					Approx. Limits	Series	
M12 X 1.75	3	9.000	7.000	110.000	D5/D6	935	12.000
M16 X 2.00	4	12.000	9.000	110.000	D6/D7		16.000
M20 X 2.50	4	16.000	12.000	140.000	D6/D7		20.000

## DIN length - DIN shank

Series 1200 - PM Cobalt, Metric Fine, 15° helix, TiCN coated, DIN 376, axial coolant



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	6HX	DIN 374	Order No.
					Approx. Limits	Series	
M9 X 1	4	7.000	5.500	90.000	D4/D5	1200	9.005
M10 X 1	4	7.000	5.500	90.000	D4/D5		10.005
M12 X 1	4	9.000	7.000	100.000	D4/D5		12.005
M12 X 1.25	4	9.000	7.000	100.000	D4/D5		12.006
M12 X 1.50	4	9.000	7.000	100.000	D5/D6		12.007
M14 X 1.50	4	11.000	9.000	100.000	D4/D5		14.007
M16 X 1.50	5	12.000	9.000	100.000	D4/D5		16.007
M18 X 1.50	5	14.000	11.000	110.000	D4/D5		18.007
M20 X 1.50	6	16.000	12.000	125.000	D6/D7		20.007
M24 X 1.50	6	18.000	14.500	140.000	D6/D7		24.007

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)





# High-Tensile, Heat-Treatable Hardened and Tool Steels

**METRIC**

**FINE**

ISO2 (6H)  
Class of Fit



**Blind Hole**

**40° Helix**

**Semi-bottoming  
Chamfer Lead**



**C · 2-3**

**DIN length - DIN shank**

Series 835 - Cobalt, Metric Fine, 40° helix, bright finish, DIN 374



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 374	Order No.
						Series	
M6 X 0.75	3	4.500	3.400	80.000	D3/D4	○ <b>835</b>	6.004
M8 X 0.75	3	6.000	4.900	80.000	D3/D4	○	8.004
M8 X 1.00	3	6.000	4.900	90.000	D4/D5		8.005
M10 X 1.00	3	7.000	5.500	90.000	D4/D5		10.005
M12 X 1.00	3	9.000	7.000	100.000	D4/D5	○	12.005
M12 X 1.50	3	9.000	7.000	100.000	D5/D6		12.007
M14 X 1.50	3	11.000	9.000	100.000	D4/D5		14.007
M16 X 1.50	4	12.000	9.000	100.000	D4/D5	○	16.007
M18 X 1.50	4	14.000	11.000	110.000	D4/D5		18.007
M20 X 1.50	4	16.000	12.000	125.000	D6/D7		20.007
M22 X 1.50	5	18.000	14.500	125.000	D6/D7	○	22.007
M24 X 1.50	5	18.000	14.500	140.000	D6/D7		24.007

**DIN length - DIN shank**

Series 1907 - Cobalt, Metric Fine, 40° helix, bright finish, DIN 374, axial coolant



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 374	Order No.
						Series	
M6 X 0.75	3	4.500	3.400	80.000	D3/D4	 <b>1907</b>	6.004
M8 X 0.75	3	6.000	4.900	80.000	D3/D4	○	8.004
M8 X 1.00	3	6.000	4.900	90.000	D4/D5		8.005
M10 X 1.00	3	7.000	5.500	90.000	D4/D5	○	10.005
M12 X 1.00	3	9.000	7.000	100.000	D4/D5	○	12.005
M12 X 1.50	3	9.000	7.000	100.000	D5/D6	○	12.007
M14 X 1.50	3	11.000	9.000	100.000	D4/D5	○	14.007
M16 X 1.50	4	12.000	9.000	100.000	D4/D5		16.007
M18 X 1.50	4	14.000	11.000	110.000	D4/D5	○	18.007
M20 X 1.50	4	16.000	12.000	125.000	D6/D7	○	20.007

Refer to pages 142-145 for additional dimensional information



# ER Tapping Collets

For DIN standard shank taps

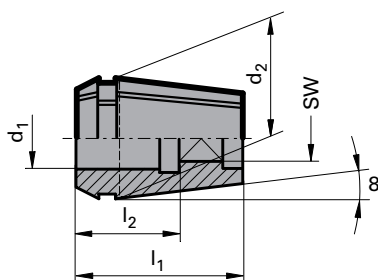
## Series 4308



Corresponding shank/square dimensions in mm:

d1	4.5	5.5	6	7	8	9	10	11	12	14	16	18	20	22
Square Size	3.4	4.3	4.9	5.5	6.2	7	8	9	9	11	12	14.5	16	18
l2	18	18	18	18	22	22	25	25	25	25	25	25	28	28

d2 nominal size	d1 mm	l1 mm	Order Code
ER16	4.5	27.5	4.516
ER16	5.5	27.5	5.516
ER16	6	27.5	6.016
ER16	7	27.5	7.016
ER16	8	27.5	8.016
ER20	4	31.5	4.020
ER20	4.5	31.5	4.520
ER20	5.5	31.5	5.520
ER20	6	31.5	6.020
ER20	7	31.5	7.020
ER20	8	31.5	8.020
ER20	9	31.5	9.020
ER20	10	31.5	10.020
ER20	11	31.5	11.020
ER25	4.5	34	4.525
ER25	5.5	34	5.525
ER25	6	34	6.025
ER25	7	34	7.025
ER25	8	34	8.025
ER25	9	34	9.025
ER25	10	34	10.025
ER25	11	34	11.025
ER25	12	34	12.025
ER32	4	40	4.032
ER32	4.5	40	4.532
ER32	5.5	40	5.532
ER32	6	40	6.032
ER32	7	40	7.032
ER32	8	40	8.032
ER32	9	40	9.032
ER32	10	40	10.032
ER32	11	40	11.032
ER32	12	40	12.032
ER32	14	40	14.032
ER32	16	40	16.032
ER32	18	40	18.032
ER32	20	40	20.032
ER40	7	46	7.040
ER40	8	46	8.040
ER40	9	46	9.040
ER40	10	46	10.040
ER40	11	46	11.040
ER40	12	46	12.040
ER40	14	46	14.040
ER40	16	46	16.040
ER40	18	46	18.040
ER40	20	46	20.040
ER40	22	46	22.040



DIN shank taps require tapping collets with the correct diameters and square dimensions. Guhring provides precision ground collets from stock.

# GUHRING



# WHITE RING CUT TAPS

- **Through hole**

UNC

Page 92

UNF

Page 93

Metric

Page 94

Metric fine

Page 95

- **Blind hole**

Metric

Page 96

Metric fine

Page 97

*Note: Items marked as International Stock may become stocked in USA if sufficient volume is recognized.*

Material group	Approximate Rc	Approximate HB	Recommended SFM					
			HSS-E		HSS-E-PM		Solid carbide	
			bright finish	hard coated	bright finish	hard coated	bright finish	hard coated
Cast iron		<180	50-70	60-90	55-85	65-110	70-100	80-130
Spheroidal graphite iron	<25	<250	30-50	45-85	40-70	60-100	70-100	80-130
Malleable cast iron	<35	<320	15-35	20-40	25-45	35-55	60-110	70-120



# Cast Iron and Abrasive Materials

## UNC

2B  
Class of Fit



Through or  
Blind Hole

0° Helix

### ANSI length - ANSI shank

Series 3937 - Cobalt, UNC, straight flute, FIREX® coated



	No.	Shank dia.	Square Size	Overall Length	2B Approx.	<b>F</b> Series	Order
Size	Flutes	inch	inch	inch	Limits	<b>3937</b>	No.
6-32	3	0.141	0.110	2.000	H3/H4		3.505
8-32	3	0.168	0.131	2.130	H3/H4		4.166
10-24	4	0.194	0.152	2.382	H3/H4		4.826
12-24	4	0.220	0.165	2.382	H3/H4		5.486
1/4-20	4	0.255	0.191	2.500	H4/H5		6.350
5/16-18	4	0.318	0.238	2.720	H4/H5		7.938
3/8-16	4	0.381	0.286	2.941	H5/H6		9.525
7/16-14	4	0.323	0.242	3.157	H5/H6		11.113
1/2-13	4	0.367	0.275	3.381	H5/H6		12.700
5/8-11	4	0.480	0.360	3.811	H5/H6		15.875

Cut Taps

Straight Flute  
Chamfer Lead



C · 2 - 3

### DIN length - DIN shank

Series 1979 - Cobalt, UNC, straight flute, oxide finish, DIN 371

Series 1984 - Cobalt, UNC, straight flute, oxide finish, DIN 376



	No.	Shank dia.	Square Size	Overall Length	2B Approx.	DIN 371 Series	DIN 376 Series	Order
Size	Flutes	mm	dec.	mm	Limits	<b>1979</b>	<b>1984</b>	No.
2-56	3	2.800	2.100	45.000	H2/H3	°		2.184
3-48	3	2.800	2.100	50.000	H2/H3	°		2.515
4-40	3	3.500	2.700	56.000	H2/H3	°		2.845
5-40	3	3.500	2.700	56.000	H2/H3	°		3.175
6-32	3	4.000	3.000	56.000	H3/H4	°		3.505
8-32	3	4.500	3.400	63.000	H3/H4	°		4.166
10-24	4	6.000	4.900	70.000	H3/H4	°		4.826
12-24	4	6.000	4.900	80.000	H3/H4	°		5.486
1/4-20	4	7.000	5.500	80.000	H4/H5	°		6.350
5/16-18	4	8.000	6.200	90.000	H4/H5			7.938
3/8-16	4	9.000	7.000	100.000	H5/H6			9.525
7/16-14	4	8.000	6.200	100.000	H5/H6		°	11.113
1/2-13	4	9.000	7.000	110.000	H5/H6			12.700
9/16-12	4	11.000	9.000	110.000	H5/H6		°	14.288
5/8-11	4	12.000	9.000	110.000	H5/H6		°	15.875
3/4-10	5	14.000	11.000	125.000	H5/H6			19.050
7/8-9	5	18.000	14.500	140.000	H6/H7		°	22.225
1-8	5	18.000	14.500	160.000	H6/H7		°	25.400

# Cast Iron and Abrasive Materials



## ANSI length - ANSI shank

Series 3938 - Cobalt, UNF, straight flute, FIREX® coated



	No.	Shank dia.	Square Size	Overall Length	2B Approx.	<b>F</b> Series	Order
Size	Flutes	inch	inch	inch	Limits	<b>3938</b>	No.
6-40	3	0.141	0.110	2.000	H2/H3		3.505
8-36	3	0.168	0.131	2.130	H2/H3		4.166
10-32	4	0.194	0.152	2.382	H3/H4		4.826
12-28	4	0.220	0.165	2.382	H3/H4		5.486
1/4-28	4	0.255	0.191	2.500	H3/H4		6.350
5/16-24	4	0.318	0.238	2.720	H3/H4		7.938
3/8-24	4	0.381	0.286	2.941	H3/H4		9.525
7/16-20	4	0.323	0.242	3.157	H4/H5		11.113
1/2-20	4	0.367	0.275	3.381	H4/H5		12.700
5/8-18	4	0.480	0.360	3.811	H4/H5		15.875

# UNF

2B  
Class of Fit



Through or  
Blind Hole

0° Helix

Straight Flute  
Chamfer Lead



C · 2 - 3

Cut Taps

## DIN length - DIN shank

Series 1989 - Cobalt, UNF, straight flute, oxide finish, DIN 374



	No.	Shank dia.	Square Size	Overall Length	2B Approx.	DIN 374 Series	Order
Size	Flutes	mm	dec.	mm	Limits	<b>1989</b>	No.
3-56	3	1.800	na	50.000	H2/H3	○	2.515
4-48	3	2.200	na	56.000	H2/H3	○	2.845
6-40	3	2.500	2.100	56.000	H2/H3	○	3.505
8-36	3	2.800	2.100	63.000	H2/H3	○	4.166
10-32	4	3.500	2.700	70.000	H3/H4	○	4.826
12-28	4	4.000	3.000	80.000	H3/H4	○	5.486
1/4-28	4	4.500	3.400	80.000	H3/H4	○	6.350
5/16-24	4	6.000	4.900	90.000	H3/H4		7.938
3/8-24	4	7.000	5.500	90.000	H3/H4		9.525
7/16-20	4	8.000	6.200	90.000	H4/H5	○	11.113
1/2-20	4	9.000	7.000	100.000	H4/H5	○	12.700
9/16-18	4	11.000	9.000	100.000	H4/H5		14.288
3/4-16	5	14.000	11.000	110.000	H5/H6		19.050
7/8-14	5	18.000	14.500	125.000	H6/H7		22.225
1-12	5	18.000	14.500	140.000	H6/H7	○	25.400

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)



# Cast Iron and Abrasive Materials

## METRIC

ISO2 (6H)  
Class of Fit



Through or  
Blind Hole

0° Helix

Straight Flute  
Chamfer Lead



C · 2 - 3

### ANSI length - ANSI shank

Series 3936 - Cobalt, Metric, straight flute, FIREX® coated



	No.	Shank dia.	Square Size	Overall Length	6HX Approx.	<b>F</b> Series	Order
Size	Flutes	inch	inch	inch	Limits	<b>3936</b>	No.
M3 X 0.50	3	0.141	0.110	1.941	D2/D3		3.000
M4 X 0.70	3	0.168	0.131	2.130	D3/D4		4.000
M5 X 0.80	4	0.194	0.152	2.382	D3/D4		5.000
M6 X 1.00	4	0.255	0.191	2.500	D4/D5		6.000
M8 X 1.25	4	0.318	0.238	2.720	D4/D5		8.000
M10 X 1.50	4	0.381	0.286	2.941	D4/D5		10.000
M12 X 1.75	4	0.367	0.275	3.381	D5/D6		12.000
M14 X 2.00	4	0.429	0.322	3.591	D5/D6		14.000
M16 X 2.00	4	0.480	0.360	3.811	D6/D7		16.000

### DIN length - DIN shank

Series 1858 - Carbide, Metric, straight flute, bright finish, DIN 371, radial coolant through

Series 1859 - Carbide, Metric, straight flute, bright finish, DIN 376, radial coolant through



	No.	Shank dia.	Square Size	Overall Length	ISO2 (6HX) Approx.	DIN 371 Series	DIN 376 Series	Order
Size	Flutes	mm	dec.	mm	Limits	<b>1858</b>	<b>1859</b>	No.
M5 X 0.80	4	6.000	4.900	70.000	D3/D4			5.000
M6 X 1.00	4	6.000	4.900	80.000	D4/D5			6.000
M8 X 1.25	4	8.000	6.200	90.000	D4/D5			8.000
M10 X 1.50	4	10.000	8.000	100.000	D4/D5			10.000
M12 X 1.75	4	9.000	7.000	110.000	D5/D6			12.000
M14 X 2.00	4	11.000	9.000	110.000	D5/D6		o	14.000
M16 X 2.00	4	12.000	9.000	110.000	D6/D7			16.000
M18 X 2.50	4	14.000	11.000	125.000	D6/D7		o	18.000
M20 X 2.50	4	16.000	12.000	140.000	D6/D7			20.000

# Cast Iron and Abrasive Materials



## DIN length - DIN shank

Series 1860 - Carbide, Metric Fine, straight flute, bright finish, DIN 374, radial coolant



	No.	Shank dia.	Square Size	Overall Length	ISO2 (6H) Approx.	DIN 374 ○ Series	Order
Size	Flutes	mm	dec.	mm	Limits	<b>1860</b>	No.
M12 X 1.50	4	9.000	7.000	100.000	D5/D6		12.007
M14 X 1.50	4	11.000	9.000	100.000	D4/D5		14.007
M16 X 1.50	4	12.000	9.000	100.000	D4/D5		16.007

**METRIC  
FINE**

ISO2 (6H)  
Class of Fit



Through or  
Blind Hole

0° Helix

Straight Flute  
Chamfer Lead



C · 2 - 3

Cut Taps

## DIN length - DIN shank

Series 1861 - Carbide, Metric Fine, straight flute, bright finish, DIN 371, radial coolant



	No.	Shank dia.	Square Size	Overall Length	ISO2 (6H) Approx.	DIN 371 ○ Series	Order
Size	Flutes	mm	dec.	mm	Limits	<b>1861</b>	No.
M5 X 0.50	4	6.000	4.900	70.000	D3/D4		5.003
M8 X 1.00	4	8.000	6.200	90.000	D4/D5		8.005
M10 X 1.00	4	10.000	8.000	90.000	D4/D5		10.005

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)





# Cast Iron and Abrasive Materials

**NEW** Available Fall 2011

## UNC / UNF

2B  
Class of Fit



Blind Hole

0° Helix

### DIN length - ANSI shank

Series 4118 - Carbide, UNC, straight flute, bright finish, axial coolant



	No.	Shank dia.	Square Size	Overall Length	2B Approx.	Series	Order
Size	Flutes	inch	inch	inch	Limits	<b>4118</b>	No.
10-24	3	0.194	0.152	2.756	H3/H4		4.826
12-24	3	0.220	0.165	3.150	H3/H4		5.486
1/4-20	3	0.255	0.191	3.150	H4/H5		6.350
5/16-18	3	0.318	0.238	3.543	H4/H5		7.938
3/8-16	3	0.381	0.286	3.937	H5/H6		9.525
7/16-14	3	0.323	0.242	3.937	H5/H6		11.113
1/2-13	3	0.367	0.275	4.331	H5/H6		12.700
5/8-11	4	0.480	0.360	4.331	H5/H6		15.875
3/4-10	4	0.590	0.442	4.921	H5/H6		19.050

Cut Taps

Straight Flute  
Chamfer Lead

**NEW** Available Fall 2011

### DIN length - ANSI shank

Series 4119 - Carbide, UNF, straight flute, bright finish, axial coolant



C · 2 - 3

	No.	Shank dia.	Square Size	Overall Length	2B Approx.	Series	Order
Size	Flutes	inch	inch	inch	Limits	<b>4119</b>	No.
10-32	3	0.194	0.152	2.756	H3/H4		4.826
12-28	3	0.220	0.165	3.150	H3/H4		5.486
1/4-28	3	0.255	0.191	3.150	H3/H4		6.350
5/16-24	3	0.318	0.238	3.543	H3/H4		7.938
3/8-24	3	0.381	0.286	3.543	H3/H4		9.525
7/16-20	3	0.323	0.242	3.937	H4/H5		11.113
1/2-20	3	0.367	0.275	3.937	H4/H5		12.700
5/8-18	4	0.480	0.360	3.937	H4/H5		15.875
3/4-16	4	0.590	0.442	4.331	H5/H6		19.050

# Cast Iron and Abrasive Materials



## DIN length - DIN shank

Series 969 - Carbide, Metric, straight flute, bright finish, DIN 371, axial coolant  
 Series 1883 - Carbide, Metric, straight flute, bright finish, DIN 376, axial coolant



	No.	Shank dia.	Square Size	Overall Length	ISO2 (6H) Approx.	DIN 371 ○ Series	DIN 376 ○ Series	Order
Size	Flutes	mm	dec.	mm	Limits	<b>969</b>	<b>1883</b>	No.
*M3 X 0.50	3	3.500	2.700	56.000	D2/D3	°		3.000
*M4 X 0.70	3	4.500	3.400	63.000	D3/D4			4.000
M5 X 0.80	4	6.000	4.900	70.000	D3/D4			5.000
M6 X 1.00	4	6.000	4.900	80.000	D4/D5			6.000
M8 X 1.25	4	8.000	6.200	90.000	D4/D5			8.000
M10 X 1.50	4	10.000	8.000	100.000	D4/D5			10.000
M12 X 1.75	4	9.000	7.000	110.000	D5/D6			12.000
M14 X 2.00	4	11.000	9.000	110.000	D5/D6			14.000
M16 X 2.00	4	12.000	9.000	110.000	D6/D7			16.000
M18 X 2.50	4	14.000	11.000	125.000	D6/D7		°	18.000
M20 X 2.50	4	16.000	12.000	140.000	D6/D7			20.000

\* Sizes <M5 do not have coolant ducts through the tap

**METRIC /  
METRIC  
FINE**

ISO2 (6H)  
Class of Fit



**Blind Hole**

**0° Helix**

**Straight Flute  
Chamfer Lead**

Cut Taps

## DIN length - DIN shank

Series 972 - Carbide, Metric Fine, straight flute, bright finish, DIN 371, axial coolant



	No.	Shank dia.	Square Size	Overall Length	ISO2 (6H) Approx.	DIN 371 ○ Series	Order
Size	Flutes	mm	dec.	mm	Limits	<b>972</b>	No.
*M4 X 0.50	3	4.500	3.400	63.000	D3/D4	°	4.003
M5 X 0.50	4	6.000	4.900	70.000	D3/D4	°	5.003
M8 X 1.00	4	8.000	6.200	90.000	D4/D5	°	8.005
M10 X 1.00	4	10.000	8.000	90.000	D4/D5	°	10.005

\* Sizes <M5 do not have coolant ducts through the tap

**C · 2 - 3**

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)



# Cast Iron and Abrasive Materials

**METRIC**

**FINE**

**6HX  
Class of Fit**



**Blind Hole**

**0° Helix**

**Straight Flute  
Chamfer Lead**



**C · 2 - 3**

Cut Taps

## DIN length - DIN shank

Series 318 - Cobalt, Metric, straight flute, TiAlN coated, DIN 371, axial coolant  
Series 1890 - Cobalt, Metric, straight flute, oxide finish, DIN 371, axial coolant



	No.	Shank dia.	Square Size	Overall Length	6HX Approx.	DIN 371 Series	DIN 371 Series	Order
Size	Flutes	mm	dec.	mm	Limits	<b>318</b>	<b>1890</b>	No.
M5 X 0.80	4	6.000	4.900	70.000	D3/D4	°		5.000
M6 X 1.00	4	6.000	4.900	80.000	D4/D5			6.000
M8 X 1.25	4	8.000	6.200	90.000	D4/D5			8.000
M10 X 1.50	4	10.000	8.000	100.000	D4/D5			10.000

## DIN length - DIN shank

Series 319 - Cobalt, Metric, straight flute, TiAlN coated, DIN 376, axial coolant  
Series 1897 - Cobalt, Metric, straight flute, oxide finish, DIN 376, axial coolant



	No.	Shank dia.	Square Size	Overall Length	6HX Approx.	DIN 376 Series	DIN 376 Series	Order
Size	Flutes	mm	dec.	mm	Limits	<b>319</b>	<b>1897</b>	No.
M12 X 1.75	4	9.000	7.000	110.000	D5/D6			12.000
M14 X 2.00	4	11.000	9.000	110.000	D5/D6		°	14.000
M16 X 2.00	4	12.000	9.000	110.000	D6/D7		°	16.000
M18 X 2.50	5	14.000	11.000	125.000	D6/D7	°	°	18.000
M20 X 2.50	5	16.000	12.000	140.000	D6/D7		°	20.000

## DIN length - DIN shank

Series 1904 - Cobalt, Metric Fine, straight flute, oxide finish, DIN 374, axial coolant  
Series 347 - Cobalt, Metric Fine, straight flute, TiAlN coated, DIN 374, axial coolant



	No.	Shank dia.	Square Size	Overall Length	ISO2 (6H) Approx.	DIN 374 Series	DIN 374 Series	Order
Size	Flutes	mm	dec.	mm	Limits	<b>1904</b>	<b>347</b>	No.
M8 X 1.00	4	6.000	4.900	90.000	D4/D5	°		8.005
M10 X 1.00	4	7.000	5.500	90.000	D4/D5	°	°	10.005
M12 X 1.00	4	9.000	7.000	100.000	D4/D5	°	°	12.005
M12 X 1.50	4	9.000	7.000	100.000	D5/D6	°		12.007
M14 X 1.50	4	11.000	9.000	100.000	D4/D5			14.007
M16 X 1.50	4	12.000	9.000	100.000	D4/D5			16.007
M18 X 1.50	5	14.000	11.000	110.000	D4/D5	°		18.007
M20 X 1.50	5	16.000	12.000	125.000	D6/D7		°	20.007
M22 X 1.50	5	18.000	14.500	125.000	D6/D7			22.007
M24 X 1.50	5	18.000	14.500	140.000	D6/D7		°	24.007

# Thread milling cutters by **GUHRING**

## Features and Benefits:

**Sub-micro grain carbide substrate**  
*Longer tool life with tighter tolerances*

**More cost-effective than indexable thread mills**

**PVD TiCN coating standard on many series**  
*Extends tool life by providing heat and wear resistance*

**Helical flute design reduces chatter**

**The same carbide thread mill can produce**

- *Right or left hand threads*
- *Single or multiple thread leads*
- *Internal or external threads*

**Countersink style thread mills eliminate secondary operations**

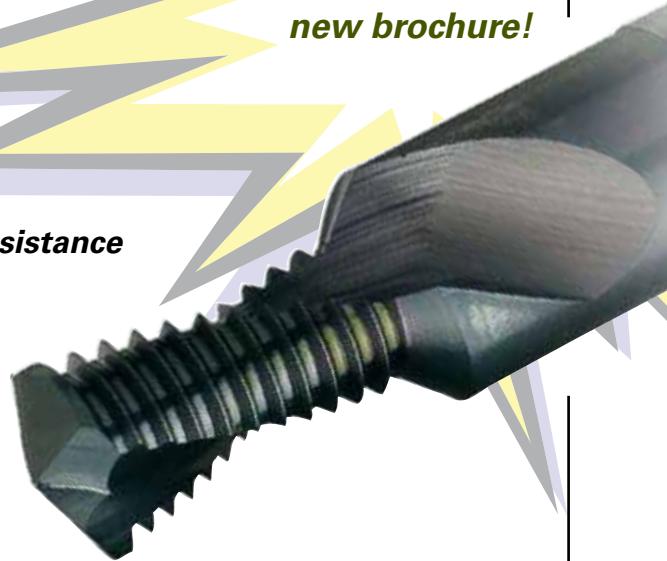
**Coolant-fed style thread mills**  
*For improved chip evacuation and better surface finish*

**Drill & thread mill styles combine drill and threading into one tool**

*Well-suited for:*

- *Steels*
- *Stainless steels*
- *Titanium and alloys*
- *High-temperature alloys*
- *Non-ferrous materials*

*Coming soon -  
Watch for our  
new brochure!*



# GUHRING



# BLACK RING CUT TAPS


## •Through hole

UNC	Page 102
UNF	Page 102
Metric	Page 103
Metric fine	Page 103

## •Blind hole

UNC	Page 105
UNF	Page 105
Metric	Page 106
Metric fine	Page 107

*Note: Items marked as International Stock may become stocked in USA if sufficient volume is recognized.*

Material group	Approximate Rc	Approximate HB	Recommended SFM						
			HSS-E		HSS-E-PM		Solid carbide		
			bright finish	hard coated	bright finish	hard coated	bright finish	hard coated	
 Aluminium and Al-alloys		SILICON CONTENT							
		< 6%	n/a	30-50	50-75	50-70	65-80	80-140	90-165
	Al cast alloys	6-10%	n/a	25-35	40-50	40-65	65-80	80-140	90-165
		>10%	n/a	-	25-35	40-65	65-80	60-130	80-140
	Al wrought alloys	n/a	30-80	50-65	65-100	-	-	-	-
		n/a	75-150	35-60	50-65	-	-	-	-

# Aluminum and Aluminum Alloys



## ANSI length - ANSI shank

Series 3925 - Cobalt, UNC, spiral point, bright finish  
 Series 3928 - Cobalt, UNC, spiral point, TiN coated  
 Series 3967 - Cobalt, UNC, spiral point, MolyGlide® coated

**UNC /  
UNF**

**2B  
Class of Fit**



**Through Hole**

**0° Helix**

**Plug Tap  
Chamfer Lead**



**B · 3.5 - 5**

Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	Series	Series	Series	Order No.
						Series 3925	Series 3928	Series 3967	
4-40	3	0.141	0.110	2.205	H2/H3				2.845
5-40	3	0.141	0.110	2.205	H2/H3				3.175
6-32	3	0.141	0.110	2.000	H3/H4				3.505
8-32	3	0.168	0.131	2.130	H3/H4				4.166
10-24	3	0.194	0.152	2.382	H3/H4				4.826
12-24	3	0.220	0.165	2.382	H3/H4				5.486
1/4-20	3	0.255	0.191	2.500	H4/H5				6.350
5/16-18	3	0.318	0.238	2.720	H4/H5				7.938
3/8-16	3	0.381	0.286	2.941	H5/H6				9.525
7/16-14	3	0.323	0.242	3.157	H5/H6				11.113
1/2-13	3	0.367	0.275	3.381	H5/H6				12.700
5/8-11	3	0.480	0.360	3.811	H5/H6				15.875

## ANSI length - ANSI shank

Series 3926 - Cobalt, UNF, spiral point, bright finish  
 Series 3929 - Cobalt, UNF, spiral point, TiN coated  
 Series 3968 - Cobalt, UNF, spiral point, MolyGlide® coated



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	Series	Series	Series	Order No.
						Series 3926	Series 3929	Series 3968	
4-48	3	0.141	0.110	2.205	H2/H3				2.845
5-44	3	0.141	0.110	2.205	H2/H3				3.175
6-40	3	0.141	0.110	2.000	H2/H3				3.505
8-36	3	0.168	0.131	2.130	H2/H3				4.166
10-32	3	0.194	0.152	2.382	H3/H4				4.826
12-28	3	0.220	0.165	2.382	H3/H4				5.486
1/4-28	3	0.255	0.191	2.500	H3/H4				6.350
5/16-24	3	0.318	0.238	2.720	H3/H4				7.938
3/8-24	3	0.381	0.286	2.941	H3/H4				9.525
7/16-20	3	0.323	0.242	3.157	H4/H5				11.113
1/2-20	3	0.367	0.275	3.381	H4/H5				12.700
5/8-18	3	0.480	0.360	3.811	H4/H5				15.875

# Aluminum and Aluminum Alloys



## ANSI length - ANSI shank

Series 3924 - Cobalt, Metric, spiral point, bright finish, chamfer type B  
 Series 3927 - Cobalt, Metric, spiral point, TiN coated, chamfer type B  
 Series 3966 - Cobalt, Metric, spiral point, MolyGlide® coated, chamfer type B



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	ISO2 (6H) Approx. Limits	●	● S	● M	Order No.
						Series 3924	Series 3927	Series 3966	
M3 X 0.50	3	0.141	0.110	1.941	D2/D3				3.000
M4 X 0.70	3	0.168	0.131	2.130	D3/D4				4.000
M5 X 0.80	3	0.194	0.152	2.382	D3/D4				5.000
M6 X 1.00	3	0.255	0.191	2.500	D4/D5				6.000
M8 X 1.25	3	0.318	0.238	2.720	D4/D5				8.000
M10 X 1.50	3	0.381	0.286	2.941	D4/D5				10.000
M12 X 1.75	3	0.367	0.275	3.381	D5/D6				12.000
M14 X 2.00	3	0.429	0.322	3.591	D5/D6				14.000
M16 X 2.00	3	0.480	0.360	3.811	D6/D7				16.000

**METRIC / METRIC FINE**

ISO2 (6H)  
Class of Fit



Through Hole

0° Helix

Plug Tap  
Chamfer Lead

## DIN length - DIN shank

Series 1858 - Carbide, Metric, bright finish, DIN 371, radial coolant, chamfer type C  
 Series 1859 - Carbide, Metric, bright finish, DIN 376, radial coolant, chamfer type C



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	●	●	Order No.
						DIN 371 Series 1858	DIN 376 Series 1859	
M5 X 0.80	4	6.000	4.900	70.000	D3/D4			5.000
M6 X 1.00	4	6.000	4.900	80.000	D4/D5			6.000
M8 X 1.25	4	8.000	6.200	90.000	D4/D5			8.000
M10 X 1.50	4	10.000	8.000	100.000	D4/D5			10.000
M12 X 1.75	4	9.000	7.000	110.000	D5/D6		○	12.000
M14 X 2.00	4	11.000	9.000	110.000	D5/D6		○	14.000
M16 X 2.00	4	12.000	9.000	110.000	D6/D7		○	16.000
M18 X 2.50	4	14.000	11.000	125.000	D6/D7		○	18.000
M20 X 2.50	4	16.000	12.000	140.000	D6/D7		○	20.000



B · 3.5 - 5



C · 2 - 3

## DIN length - DIN shank

Series 1860 - Carbide, Metric Fine, bright finish, DIN 371, radial coolant  
 Series 1861 - Carbide, Metric Fine, bright finish, DIN 376, radial coolant



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	●	●	Order No.
						DIN 371 Series 1860	DIN 376 Series 1861	
M5 X 0.80	4	6.000	4.900	70.000	D5/D6			5.003
M8 X 1.25	4	8.000	6.200	90.000	D4/D5			8.005
M10 X 1.50	4	10.000	8.000	100.000	D4/D5			10.005
M12 X 1.75	4	9.000	7.000	110.000	D3/D4			12.007
M14 X 2.00	4	11.000	9.000	110.000	D4/D5			14.007
M16 X 2.00	4	12.000	9.000	110.000	D4/D5			16.007

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)



# Aluminum and Aluminum Alloys

**NEW** Available Fall 2011



**UNC / UNF**

**2B Class of Fit**



**Through Hole**

**0° Helix**

## DIN length - ANSI shank

Series 4118 - Carbide, UNC, straight flute, bright finish, DIN 371, axial coolant

Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	Series	Order No.
						<b>4118</b>	
10-24	3	0.194	0.152	2.756	H3/H4		4.826
12-24	3	0.220	0.165	3.150	H3/H4		5.486
1/4-20	3	0.255	0.191	3.150	H4/H5		6.350
5/16-18	3	0.318	0.238	3.543	H4/H5		7.938
3/8-16	3	0.381	0.286	3.937	H5/H6		9.525
7/16-14	3	0.323	0.242	3.937	H5/H6		11.113
1/2-13	3	0.367	0.275	4.331	H5/H6		12.700
5/8-11	4	0.480	0.360	4.331	H5/H6		15.875
3/4-10	4	0.590	0.442	4.921	H5/H6		19.050

**Plug Tap Chamfer Lead**



**B · 3.5 - 5**

**NEW** Available Fall 2011



## DIN length - ANSI shank

Series 4119 - Carbide, UNF, straight flute, bright finish, DIN 371, axial coolant

Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	Series	Order No.
						<b>4119</b>	
10-32	3	0.194	0.152	2.756	H3/H4		4.826
12-28	3	0.220	0.165	3.150	H3/H4		5.486
1/4-28	3	0.255	0.191	3.150	H3/H4		6.350
5/16-24	3	0.318	0.238	3.543	H3/H4		7.938
3/8-24	3	0.381	0.286	3.543	H3/H4		9.525
7/16-20	3	0.323	0.242	3.937	H4/H5		11.113
1/2-20	3	0.367	0.275	3.937	H4/H5		12.700
5/8-18	4	0.480	0.360	3.937	H4/H5		15.875
3/4-16	4	0.590	0.442	4.331	H5/H6		19.050

# Aluminum and Aluminum Alloys



## ANSI length - ANSI shank

Series 3931 - Cobalt, UNC, 45° helix, bright finish  
 Series 3934 - Cobalt, UNC, 45° helix, TiN coated  
 Series 3970 - Cobalt, UNC, 45° helix, MolyGlide® coated



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	●	● S	● M	Order No.
						Series 3931	Series 3934	Series 3970	
4-40	2	0.141	0.110	2.205	H2/H3				2.845
5-40	2	0.141	0.110	2.205	H2/H3				3.175
6-32	2	0.141	0.110	2.205	H3/H4				3.505
8-32	2	0.168	0.131	2.130	H3/H4				4.166
10-24	2	0.194	0.152	2.382	H3/H4				4.826
12-24	2	0.220	0.165	2.382	H3/H4				5.486
1/4-20	2	0.255	0.191	2.500	H4/H5				6.350
5/16-18	2	0.318	0.238	2.720	H4/H5				7.938
3/8-16	2	0.381	0.286	2.941	H5/H6				9.525
7/16-14	2	0.323	0.242	3.157	H5/H6				11.113
1/2-13	2	0.367	0.275	3.381	H5/H6				12.700
5/8-11	3	0.480	0.360	3.813	H5/H6				15.875

**UNC /  
UNF**

**2B  
Class of Fit**



**Blind Hole**

**45° Helix**

**Semi-bottoming  
Chamfer Lead**



**C · 2-3**

Cut Taps

## ANSI length - ANSI shank

Series 3932 - Cobalt, UNF, 45° helix, bright finish  
 Series 3935 - Cobalt, UNF, 45° helix, TiN coated  
 Series 3971 - Cobalt, UNF, 45° helix, MolyGlide® coated



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	2B Approx. Limits	●	● S	● M	Order No.
						Series 3932	Series 3935	Series 3971	
4-48	3	0.141	0.110	2.205	H2/H3				2.845
5-44	3	0.141	0.110	2.205	H2/H3				3.175
6-40	2	0.141	0.110	2.000	H2/H3				3.505
8-36	2	0.168	0.131	2.130	H2/H3				4.166
10-32	2	0.194	0.152	2.382	H3/H4				4.826
12-28	2	0.220	0.165	2.382	H3/H4				5.486
1/4-28	2	0.255	0.191	2.500	H3/H4				6.350
5/16-24	2	0.318	0.238	2.720	H3/H4				7.938
3/8-24	2	0.381	0.286	2.941	H3/H4				9.525
7/16-20	2	0.323	0.242	3.157	H4/H5				11.113
1/2-20	2	0.367	0.275	3.381	H4/H5				12.700
5/8-18	3	0.480	0.360	3.811	H4/H5				15.875

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)

# Aluminum and Aluminum Alloys



## METRIC

ISO2 (6H)  
Class of Fit



Blind Hole

45° Helix  
15° Helix

Semi-bottoming  
Chamfer Lead



C · 2-3

### ANSI length - ANSI shank

Series 3930 - Cobalt, Metric, 45° helix, bright finish

Series 3933 - Cobalt, Metric, 45° helix, TiN coated

Series 3969 - Cobalt, Metric, 45° helix, MolyGlide® coated



Size	No. Flutes	Shank dia. inch	Square Size inch	Overall Length inch	ISO2 (6H) Approx. Limits	● Series	● S Series	● M Series	Order No.
						3930	3933	3969	
M3 X 0.50	2	0.141	0.110	1.941	D2/D3				3.000
M4 X 0.70	2	0.168	0.131	2.130	D3/D4				4.000
M5 X 0.80	2	0.194	0.152	2.382	D3/D4				5.000
M6 X 1.00	2	0.255	0.191	2.500	D4/D5				6.000
M8 X 1.25	2	0.318	0.238	2.720	D4/D5				8.000
M10 X 1.50	2	0.381	0.286	2.941	D4/D5				10.000
M12 X 1.75	2	0.367	0.275	3.381	D5/D6				12.000
M14 X 2.00	3	0.429	0.322	3.591	D5/D6				14.000
M16 X 2.00	3	0.480	0.360	3.811	D6/D7				16.000

### DIN length - DIN shank

Series 971 - Carbide, Metric, 15° helix, bright finish, DIN 371, axial coolant



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	● DIN 371 Series	Order No.
						971	
*M3 X 0.50	3	3.500	2.700	56.000	D2/D3	○	3.000
*M4 X 0.70	3	4.500	3.400	63.000	D3/D4	○	4.000
M5 X 0.80	3	6.000	4.900	70.000	D3/D4		5.000
M6 X 1.00	3	6.000	4.900	80.000	D4/D5		6.000
M8 X 1.25	3	8.000	6.200	90.000	D4/D5		8.000
M10 X 1.50	3	10.000	8.000	100.000	D4/D5		10.000

\* Sizes <M5 do not have coolant ducts through the tap

### DIN length - DIN shank

Series 969 - Carbide, Metric, bright finish, DIN 371, axial coolant

Series 1883 - Carbide, Metric, bright finish, DIN 376, axial coolant



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	● DIN 371 Series	● DIN 376 Series	Order No.
						969	1883	
*M3 X 0.50	3	3.500	2.700	56.000	D2/D3	○		3.000
*M4 X 0.70	3	4.500	3.400	63.000	D3/D4			4.000
M5 X 0.80	4	6.000	4.900	70.000	D3/D4			5.000
M6 X 1.00	4	6.000	4.900	80.000	D4/D5			6.000
M8 X 1.25	4	8.000	6.200	90.000	D4/D5			8.000
M10 X 1.50	4	10.000	8.000	100.000	D4/D5			10.000
M12 X 1.75	4	9.000	7.000	110.000	D5/D6			12.000
M14 X 2.00	4	11.000	9.000	110.000	D5/D6			14.000
M16 X 2.00	4	12.000	9.000	110.000	D6/D7			16.000
M18 X 2.50	4	14.000	11.000	125.000	D6/D7		○	18.000
M20 X 2.50	4	16.000	12.000	140.000	D6/D7			20.000

\* Sizes <M5 do not have coolant ducts through the tap

# Aluminum and Aluminum Alloys



## DIN length - DIN shank

Series 978 - Carbide, Metric Fine, 15° helix, bright finish, DIN 374, axial coolant



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 374 Series	Order No.
M12 X 1.50	3	9.000	7.000	100.000	D5/D6	978	12.007
M14 X 1.50	3	11.000	9.000	100.000	D4/D5	○	14.007
M18 X 1.50	4	14.000	11.000	110.000	D4/D5	○	18.007

**METRIC FINE**

ISO2 (6H)  
Class of Fit



Blind Hole

## DIN length - DIN shank

Series 972 - Carbide, Metric Fine, straight flute, bright finish, DIN 371, axial coolant



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 371 Series	Order No.
*M4 X 0.50	3	4.500	3.400	63.000	D3/D4	○	4.003
M5 X 0.50	4	6.000	4.900	70.000	D3/D4	○	5.003
M8 X 1.00	4	8.000	6.200	90.000	D4/D5	○	8.005
M10 X 1.00	4	10.000	8.000	90.000	D4/D5	○	10.005

\* Sizes <M5 do not have coolant ducts through the tap

15° Helix  
0° Helix

Semi-bottoming  
Chamfer Lead



C · 2-3



C · 2-3

## DIN length - DIN shank

Series 977 - Carbide, Metric Fine, 15° helix, bright finish, DIN 371, axial coolant



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 371 Series	Order No.
*M4 X 0.50	3	4.500	3.400	63.000	D3/D4	○	4.003
M5 X 0.50	3	6.000	4.900	70.00	D3/D4	○	5.003
M6 X 0.50	3	6.000	4.900	80.000	D3/D4	○	6.003
M8 X 1.00	3	8.000	6.200	90.000	D4/D5	○	8.005
M10 X 1.00	3	10.000	8.000	90.000	D4/D5	○	10.005

\* Sizes <M5 do not have coolant ducts through the tap

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)

# GUHRING



# TI / NI CUT TAPS

- **Through hole**

UNC	Page 110
UNF	Page 110
Metric	Page 111
Metric fine	Page 111

- **Blind hole**

UNC	Page 112
UNF	Page 112
Metric	Page 113
Metric fine	Page 113

*Note: Items marked as International Stock may become stocked in USA if sufficient volume is recognized.*

Material group	Approximate Rc	Approximate HB	Recommended SFM					
			HSS-E		HSS-E-PM		Solid carbide	
			bright finish	hard coated	bright finish	hard coated	bright finish	hard coated
Titanium and Ti-alloys		140-275	-	-	12-25	20-30	-	-
		300-380	-	-	6-12	10-18	-	-
Nickel and Ni-alloys		200-300	-	-	6-12	10-18	-	-
		>300	-	-	3-6	6-12	-	-



# Titanium, Ti Alloys and Nickel, Ni Alloys

## UNC / UNF

### 2BX Class of Fit



### Through Hole

### 0° Helix



### DIN length - DIN shank

Series 2905‡ - PM cobalt, UNC, spiral point, TiCN coated, DIN 371, 2BX class of fit, for Titanium

Series 2918 - PM cobalt, UNC, spiral point, TiAlN coated, DIN 371, 2BX class of fit, for Nickel

Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	2BX Approx. Limits	DIN 371	DIN 371	Order No.
						Ⓒ Ti Series 2905	Ⓐ Ni Series 2918	
6-32	3	4.000	3.000	56.000	H3/H4			3.505
8-32	3	4.500	3.400	63.000	H3/H4			4.166
10-24	3	6.000	4.900	70.000	H3/H4			4.826
12-24	3	6.000	4.900	80.000	H3/H4			5.486
1/4-20	3	7.000	5.500	80.000	H4/H5			6.350
5/16-18	4	8.000	6.200	90.000	H4/H5			7.938
3/8-16	4	9.000	7.000	100.000	H5/H6			9.525

‡ Series 2905 replaces series 2904, due to a design change.

### Plug Tap Chamfer Lead



### B · 3.5 - 5



### DIN length - DIN shank

Series 2907‡ - PM cobalt, UNF, spiral point, TiCN coated, DIN 371, 2BX class of fit, for Titanium

Series 2919 - PM cobalt, UNF, spiral point, TiAlN coated, DIN 371, 2BX class of fit, for Nickel

Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	2BX Approx. Limits	DIN 371	DIN 371	Order No.
						Ⓒ Ti Series 2907	Ⓐ Ni Series 2919	
6-40	3	4.000	3.000	56.000	H2/H3			3.505
8-36	3	4.500	3.400	63.000	H2/H3			4.166
10-32	3	6.000	4.900	70.000	H3/H4			4.826
12-28	3	6.000	4.900	80.000	H3/H4			5.486
1/4-28	3	7.000	5.500	80.000	H3/H4			6.350
5/16-24	4	8.000	6.200	90.000	H3/H4			7.938
3/8-24	4	9.000	8.000	90.000	H3/H4			9.525

‡ Series 2907 replaces series 2906, due to a design change.

# Titanium, Ti Alloys and Nickel, Ni Alloys



## DIN length - DIN shank

Series 2901‡ - PM cobalt, Metric, spiral point, TiCN coated, DIN 371, for Titanium  
 Series 2916 - PM cobalt, Metric, spiral point, TiAlN coated, DIN 371, for Nickel



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 371	DIN 371	Order No.
						Ⓢ Ti Series	Ⓐ Ni Series	
M3 X 0.50	3	2.800	2.700	56.000	D2/D3	2901	2916	3.000
M4 X 0.70	3	4.500	3.400	63.000	D3/D4			4.000
M5 X 0.80	3	6.000	4.900	70.000	D3/D4			5.000
M6 X 1.00	3	6.000	4.900	80.000	D4/D5			6.000
M8 X 1.25	3	8.000	6.200	90.000	D4/D5			8.000
M10 X 1.50	3	10.000	8.000	100.000	D4/D5			10.000
M12 X 1.75	4	9.000	7.000	110.000	D5/D6		°	12.000
M16 X 2.0	4	12.000	9.000	110.000	D6/D7		°	16.000

‡ Series 2901 replaces series 2900, due to a design change.

**METRIC /  
METRIC  
FINE**

**6HX  
Class of Fit**



**Through Hole**

**0° Helix**

**Plug Tap  
Chamfer Lead**



**B · 3.5 - 5**

Cut Taps

## DIN length - DIN shank

Series 2903‡ - PM cobalt, Metric Fine, spiral point, TiCN coated, DIN 371, for Titanium  
 Series 2917 - PM cobalt, Metric Fine, spiral point, TiAlN coated, DIN 371, for Nickel



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 371	DIN 371	Order No.
						Ⓢ Ti Series	Ⓐ Ni Series	
M3 X 0.35	3	3.500	2.700	56.000	D2/D3		°	3.002
M4 X 0.50	3	4.500	3.400	63.000	D3/D4		°	4.003
M5 X 0.50	3	6.000	4.900	70.000	D3/D4	°	°	5.003
M6 X 0.50	3	6.000	4.900	80.000	D3/D4		°	6.003
M6 X 0.75	3	6.000	4.900	80.000	D3/D4			6.004
M8 X 0.50	3	8.000	6.200	80.000	D3/D4		°	8.003
M8 X 0.75	3	8.000	6.200	80.000	D3/D4		°	8.004
M8 X 1.00	3	8.000	6.200	90.000	D4/D5	°	°	8.005
M10 X 1.00	3	10.000	8.000	90.000	D4/D5	°	°	10.005
M10 X 1.25	3	10.000	8.000	100.000	D4/D5			10.006

‡ Series 2903 replaces series 2902, due to a design change.

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)





# Titanium, Ti Alloys and Nickel, Ni Alloys



**UNC /  
UNF**

**2BX  
Class of Fit**



**Blind Hole**

**15° / 10° Helix**

**Semi-bottoming  
Chamfer Lead**



**C · 2-3**

## DIN length - DIN shank

Series 2912 - PM cobalt, UNC, 15° helix, TiCN coated, DIN 371, 2BX class of fit, for Titanium

Series 2922 - PM cobalt, UNC, 10° helix, TiAlN coated, DIN 371, 2BX class of fit, for Nickel

Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	2BX Approx. Limits	DIN 371	DIN 371	Order No.
						Ⓒ Ti Series <b>2912</b>	Ⓐ Ni Series <b>2922</b>	
4-40	3	3.500	2.700	56.000	H2/H3			2.845
5-40	3	3.500	2.700	56.000	H2/H3			3.175
6-32	3	4.000	3.000	56.000	H3/H4			3.505
8-32	3	4.500	3.400	63.000	H3/H4			4.166
10-24	3	6.000	4.900	70.000	H3/H4			4.826
12-24	3	6.000	4.900	80.000	H3/H4			5.486
1/4-20	3	7.000	5.500	80.000	H4/H5			6.350
5/16-18	3	8.000	6.200	90.000	H4/H5			7.938
3/8-16	4	10.000	8.000	100.000	H5/H6			9.525
7/16-14*	4	8.000	6.200	100.000	H5/H6			11.113
1/2-13*	4	9.000	7.000	110.000	H5/H6			12.700
5/8-11*	4	12.000	9.000	110.000	H5/H6			15.875



## DIN length - DIN shank

Series 2914 - PM cobalt, UNF, 15° helix, TiCN coated, DIN 371, 2BX class of fit, for Titanium

Series 2923 - PM cobalt, UNF, 10° helix, TiAlN coated, DIN 371, 2BX class of fit, for Nickel

Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	2BX Approx. Limits	DIN 371	DIN 371	Order No.
						Ⓒ Ti Series <b>2914</b>	Ⓐ Ni Series <b>2923</b>	
4-48	3	0.138	0.106	2.205	H2/H3			2.845
5-44	3	0.138	0.106	2.205	H2/H3			3.175
6-40	3	4.000	3.000	56.000	H2/H3			3.505
8-36	3	4.500	3.400	63.000	H2/H3			4.166
10-32	3	6.000	4.900	70.000	H3/H4			4.826
12-28	3	6.000	4.900	80.000	H3/H4			5.486
1/4-28	3	7.000	5.500	80.000	H3/H4			6.350
5/16-24	3	8.000	6.200	90.000	H3/H4			7.938
3/8-24	4	10.000	8.000	90.000	H3/H4			9.525
7/16-20*	4	8.000	6.200	100.000	H4/H5			11.113
1/2-20*	4	9.000	7.000	110.000	H4/H5			12.700
5/8-18*	4	12.000	9.000	110.000	H4/H5			15.875

\*Denotes sizes manufactured to DIN 376 standards.

# Titanium, Ti Alloys and Nickel, Ni Alloys



## DIN length - DIN shank

Series 2909 ‡ - PM cobalt, Metric, 15° helix, TiCN coated, DIN 371, for Titanium  
 Series 2920 - PM cobalt, Metric, 10° helix, TiAlN coated, DIN 371, for Nickel



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 371 Series <b>C</b> Ti <b>2909</b>	DIN 371 Series <b>A</b> Ni <b>2920</b>	Order No.
M3 X 0.50	3	3.500	2.700	56.000	D2/D3	°		3.000
M4 X 0.70	3	4.500	3.400	63.000	D3/D4			4.000
M5 X 0.80	3	6.000	4.900	70.000	D3/D4	°		5.000
M6 X 1.00	3	6.000	4.900	80.000	D4/D5	°		6.000
M8 X 1.25	3	8.000	6.200	90.000	D4/D5	°		8.000
M10 X 1.50	3	10.000	8.000	100.000	D4/D5	°		10.000
M12 X 1.75	4	9.000	7.000	110.000	D5/D6	°	°	12.000
M16 X 2.0	4	12.000	9.000	110.000	D6/D7	°	°	16.000

‡ Series 2909 replaces series 2908, due to a design change.

**METRIC /  
METRIC  
FINE**

**6HX  
Class of Fit**



**Blind Hole**

**15° / 10° Helix**

**Semi-bottoming  
Chamfer Lead**



**C · 2-3**

Cut Taps

## DIN length - DIN shank

Series 2910 - PM cobalt, Metric Fine, 15° helix, TiCN coated, DIN 371, for Titanium  
 Series 2921 - PM cobalt, Metric Fine, 10° helix, TiAlN coated, DIN 371, for Nickel



Size	No. Flutes	Shank dia. mm	Square Size mm	Overall Length mm	ISO2 (6H) Approx. Limits	DIN 371 Series <b>C</b> Ti <b>2910</b>	DIN 371 Series <b>A</b> Ni <b>2921</b>	Order No.
M3 X 0.35	3	3.500	2.700	56.000	D2/D3	°		3.002
M4 X 0.50	3	4.500	3.400	63.000	D3/D4	°		4.003
M5 X 0.50	3	6.000	4.900	70.000	D3/D4	°		5.003
M6 X 0.50	3	6.000	4.900	80.000	D3/D4	°		6.003
M6 X 0.75	3	6.000	4.900	80.000	D3/D4	°		6.004
M8 X 0.50	3	8.000	6.200	80.000	D3/D4			8.003
M8 X 0.75	3	8.000	6.200	80.000	D3/D4	°		8.004
M8 X 1.00	3	8.000	6.200	90.000	D4/D5	°		8.005
M10 X 1.00	3	10.000	8.000	90.000	D4/D5	°		10.005
M10 X 1.25	3	10.000	8.000	100.000	D4/D5			10.006

Refer to pages 142-145 for additional dimensional information

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)

113

# GUHRING



# Form Taps



# Fluteless taps and thread forming

Fluteless taps are used for the forming of internal threads without chip removal. In contrast to conventional tapping where material is cut from the workpiece, thread forming is a pressure deformation process without chip removal for the production of internal threads. During the process the material is cold formed without interrupting the grain flow.

According to DIN 8583, thread forming is described as "pressing the thread into the workpiece with a tool possessing a spiral working area". The spiral threaded, polygonal portion of the fluteless tap is "screwed" into the pre-drilled workpiece with an appropriate constant feed rate equal to the thread pitch. The thread profile is pressed gradually via the forming lead into the material of the workpiece so to speak. Subsequently, the pressure in the deformation zone exceeds the compression limit, the workpiece becomes ductile and is deformed. The material yields radially, "flows" along the thread profile in the unoccupied base of the tool and forms the minor diameter of the nut thread. The flow process creates the process specific form pockets (claws).

The tapping size hole diameter is heavily dependent on the formability of the material, the workpiece geometry and the required effective depth of the thread. In comparison to conventional tapping, a larger diameter tapping size hole should be selected. With a larger diameter tapping size hole the load on the tool is reduced while increasing the tool life. Thanks to the uninterrupted grain flow, the loading capacity of the thread remains sufficient with a 50% effective thread depth.

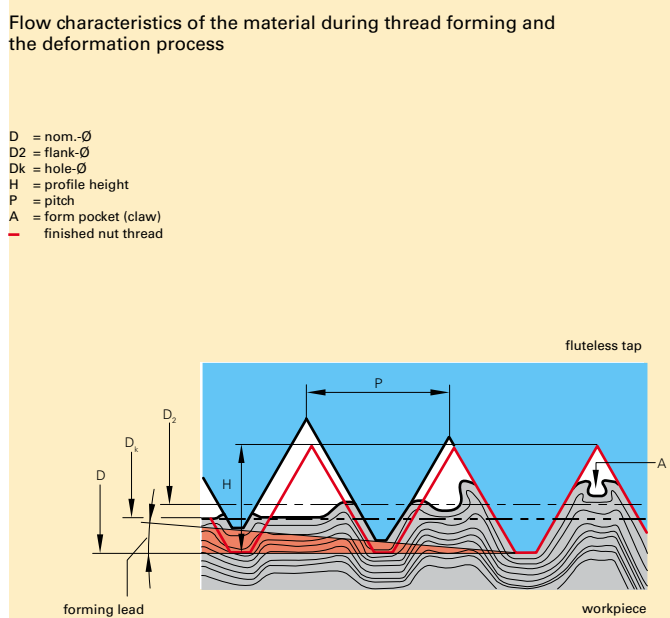
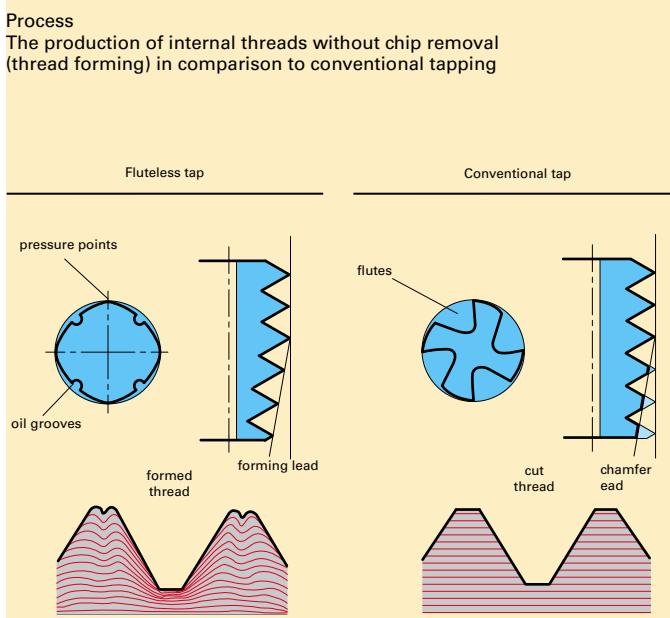
The partially formed crests of the thread with decreasing effective thread depth are a typical characteristic of threads produced by the thread forming process. With the flanks of the thread fully formed, they have no influence on the

tensile strength of the thread. If necessary, the required deformation level of the thread should be determined by performing a test.

Lubrication is of significant importance. The lubrication prevents material from building up on the thread flanks and ensures that the necessary torque for the forming process is not too high. Therefore, under no circumstances should there ever be a break-down in lubrication! Preference should be given to lubricants such as cooling agents of oils containing graphite such as those used in rolling processes. Always follow the rule: "The better the lubrication the easier the thread forming process!"

## It offers the following advantages:

- no chip formation.
- one tool for the production of threads in through and blind holes.
- application in wide range of materials.
- no cutting errors.
- pitch and angle of thread errors that can occur with thread cutting are eliminated.
- internal threads produced by thread forming possess a higher tensile strength particularly at the thread flanks thanks to the so-called "uninterrupted grain flow" and the cold forming process.
- the surface of the thread is improved.
- fluteless taps can be applied at higher speeds because the formability of many materials increases with the forming speed. This does not have a negative effect on the tool life.
- reduced danger of breakage through rigid design



# Guhring's new fluteless taps - Characteristics and advantages

Conventional fluteless taps, produced by a grinding process only, show traces of microscopic, very fine grinding marks on the surface of the tool. This also applies to the threaded portion of the tool required to perform the thread forming operation.

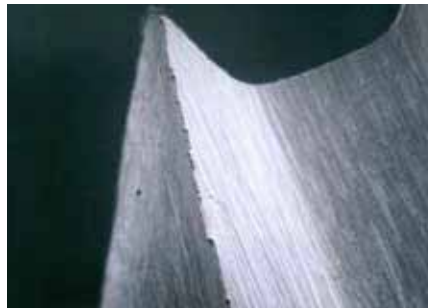
This surface topography (structure) has a negative effect on the friction between the tool and the material to be re-formed as well as on the herewith associated heat development, on the necessary torque and last but not least on the wear of the pressure points of the fluteless tap. In addition, the "grinding marks" encourage the build-up of the material to be re-formed in the thread flanks of the fluteless tap. This is also called cold welding.

Thanks to a special process to improve the surface topography (structure), Guhring's new Profile fluteless taps no longer possess these "grinding marks". This has been confirmed in research and tool life studies in varying materials under production conditions.

For the user, a longer tool life and increased cutting speeds are the benefits of this special process. The tool life can be increased considerably depending on the material to be machined and the application conditions. A 100% increase in tool life is not unusual.

The improved surface topography is not only of benefit to tools with bright finish. Particularly coated tools also benefit from the new process. Outer contour and forming lead greatly determine the performance of the fluteless tap. Numerous tests have shown that fluteless taps with optimal pressure point geometry and quantity achieve increased tool life and dimensional accuracy.

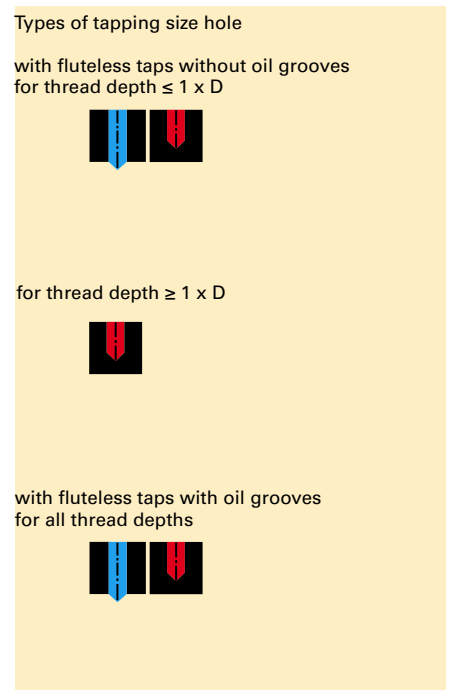
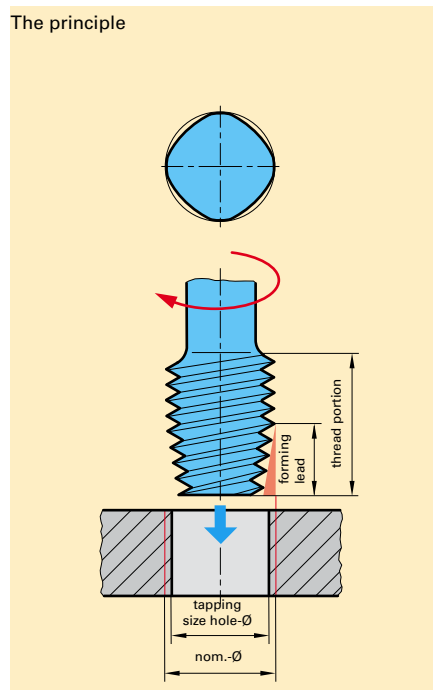
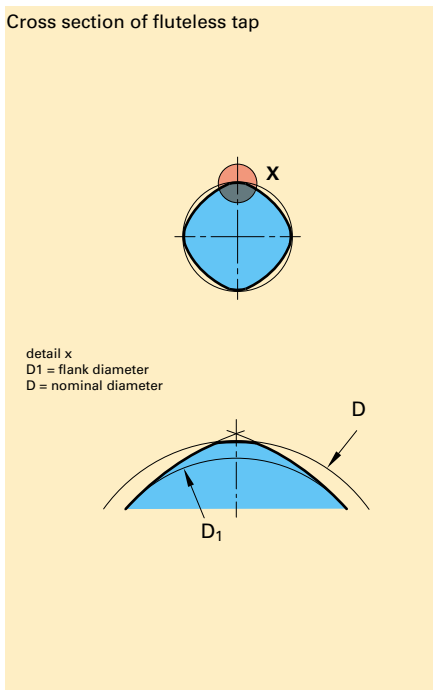
Further improvements in quality are achieved when the fluteless tap is produced completely in one setting and with one grinding wheel - set-up with a special roll. Pitch errors between the thread crests and former lead transition area do not occur as with the conventional grinding process.



Surface of a conventional fluteless tap

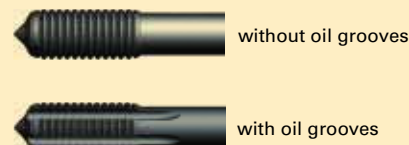
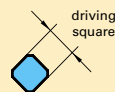
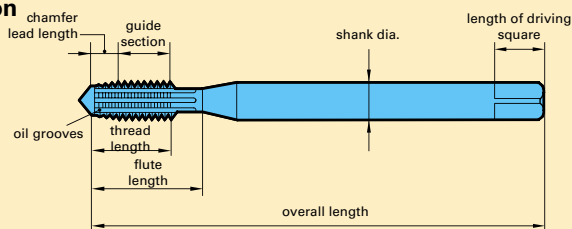


Optimised surface of a Guhring Profile fluteless tap

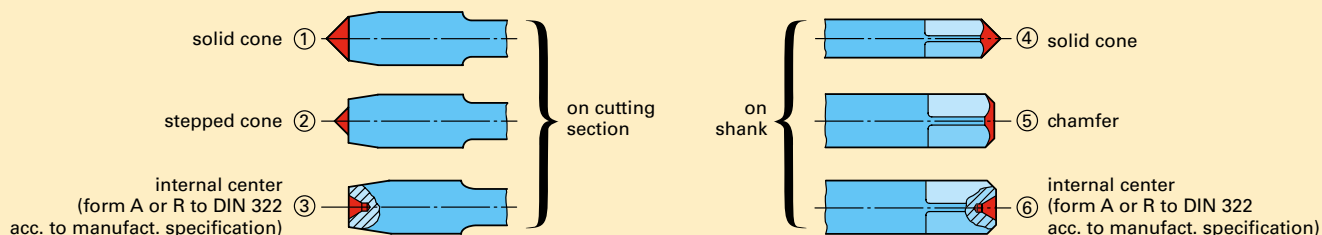


# Definitions, angles, centers, thread tolerances and fits

## Thread portion



## Types of centres (standard, to DIN 2197/DIN 2175)



Thread dia. range mm	Center on cutting section		Center on shank
	with chamfer forms A, C, D, E	with chamfer form B	
≤ 5.6	①	①	④ ⑤ ⑥
> 5.6 ... 12.8	① ② ③	① ② ③	④ ⑤ ⑥
> 12.8	③	③	⑥

## Thread tolerances and fits

Fits between internal and external threads are separated by a diagonal stroke, as for example 6H/6g (internal/external thread). The fit has to be selected in conjunction with the appropriate thread connection.

The tolerance zones of the tolerance classes fine, medium and coarse are allocated to three screw-in lengths short S), normal (N) and long (L). Generally, the following rules apply for selecting a tolerance class:

### Fine tolerance zone (S):

For precision threads, when only a small variation in the fit is permitted.

### Screw-in lengths

The quality of thread connection is also affected by the screw-in length. The ISO tolerance system was, especially as regards the pitch diameter, divided into three groups, i.e.

- S (Short) = short screw-in length
- N (Normal) = normal screw-in length
- L (Long) = long screw-in length

### Medium tolerance zone (N):

General application

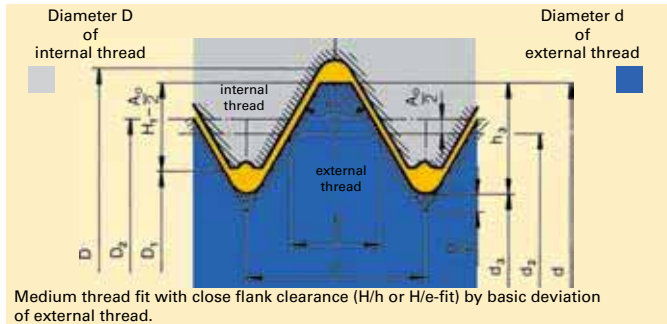
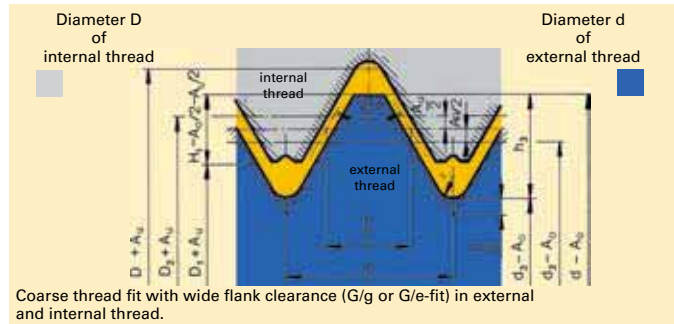
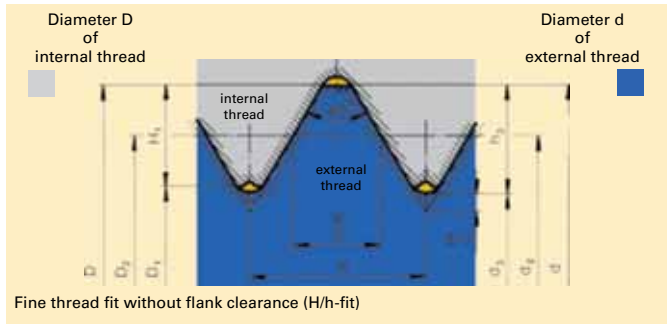
### Coarse tolerance zone (L):

There are no special precision requirements and in cases where production difficulties may occur, e.g. thread production in hot-rolled rods, deep blind holes or plastic components.

The following fit should be selected for normal screw-in length N:

To ensure a tighter fit of thread connections, we recommend for short screw-in lengths a narrower fit.

### Thread fit with varying flank clearance



#### Explanation of symbols

- D = major diameter of internal thread
- D1 = nominal diameter of tapping size hole
- D2 = effective diameter of internal thread
- d = major diameter of external thread
- d2 = effective diameter of external thread
- d3 = root diameter of external thread
- P = pitch
- s = pitch angle
- H = peak to valley height of thread profile
- A<sub>0</sub> = positive tolerance
- A<sub>u</sub> = negative tolerance

### Tapping size hole diameter

With fluteless tapping, the tapping size hole diameter influences the distinction of the formed thread. A too small tapping size hole diameter results in an over-forming of the thread which must definitely be prevented because this can

lead to tool breakage. A too large tapping size hole is acceptable with certain tolerances because formed threads have a sufficient loading capacity from a 50% bearing depth.

<p>Tapping size hole diameter is too large:</p> <ul style="list-style-type: none"> <li>• thread not formed</li> <li>• large form pocket (claw)</li> <li>• height of profile too low</li> </ul>	<p>Optimal tapping size hole diameter:</p> <ul style="list-style-type: none"> <li>• thread fully formed</li> <li>• small form pocket (claw)</li> <li>• optimal height of profile</li> </ul>	<p>Tapping size hole too small:</p> <ul style="list-style-type: none"> <li>• thread over-formed</li> <li>• no form pocket (claw)</li> <li>• profile too high</li> </ul>
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### Cooling lubricants with fluteless taps

With fluteless taps the main task of the coolant is lubrication. The better the lubrication with the maximum concentration, the longer the tool life.

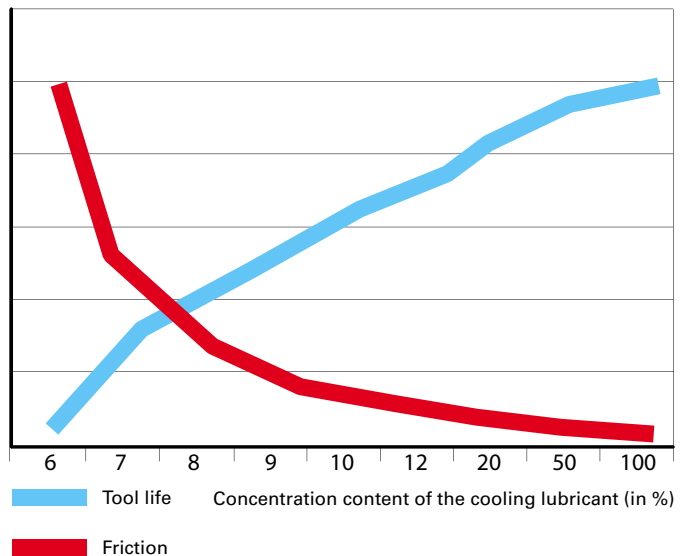
There are two different types of lubricant:

#### Oil based lubricants

These are mineral oils with the best lubricating characteristics. They reduce friction and achieve optimal life.

#### Soluble lubricants

Soluble, or emulsion, lubricants are concentrates mixed with water. Where a 6% emulsion is typically fine for most cutting processes, a higher level of lubricity is needed for thread forming. A content of 12% is ideal for forming threads. It should be noted that 50% of the success of thread forming is based on proper lubrication.





# GUHRING



# FORM TAPS

- **Fluteless Taps**

UNC

Page 122

UNF

Page 123

Metric

Page 125

Metric fine

Page 127

*Note: Items marked as International Stock may become stocked in USA if sufficient volume is recognized.*

Cutting Rate Recommendations for Form Taps can be found on page 138



# Thread Forming Taps

## UNC

2BX  
Class of Fit



Through or  
Blind Hole

Chamfer Lead



C · 2-3



E · 1.5 - 2

### ANSI length - ANSI shank

Series 3940 - Cobalt, UNC, form tap, TiN coated, Form C chamfer

Series 3943 - Cobalt, UNC, form tap, TiCN coated, Form C chamfer



Size	No. Lube Grooves	Shank dia. inch	Square Size inch	Overall Length inch	2BX Approx. Limits	Series		Order No.
						<b>S</b> 3940	<b>C</b> 3943	
4-40	4	0.141	0.110	1.882	H4/H5			2.845
5-40	4	0.141	0.110	1.941	H4/H5			3.175
6-32	4	0.141	0.110	2.000	H5/H6			3.505
8-32	4	0.168	0.131	2.130	H5/H6			4.166
10-24	4	0.194	0.152	2.382	H6/H7			4.826
12-24	4	0.220	0.165	2.382	H6/H7			5.486
1/4-20	4	0.255	0.191	2.500	H7/H8			6.350
5/16-18	5	0.318	0.238	2.720	H8/H9			7.938
3/8-16	5	0.381	0.286	2.941	H8/H9			9.525
7/16-14	5	0.323	0.242	3.157	H9/H10			11.113
1/2-13	5	0.367	0.275	3.381	H10/H11			12.700
9/16-12	5	0.429	0.322	3.591	H10/H11			14.288
5/8-11	5	0.480	0.360	3.811	H11/H12			15.875
3/4-10	7	0.590	0.442	4.252	H12/H13			19.050

### ANSI length - ANSI shank

Series 3959 - Cobalt, UNC, straight flute, TiN coated, Form E chamfer



Size	No. Lube Grooves	Shank dia. inch	Square Size inch	Overall Length inch	2BX Approx. Limits	Series		Order No.
						<b>S</b> 3959		
4-40	4	0.141	0.110	1.882	H4/H5			2.845
6-32	4	0.141	0.110	2.000	H5/H6			3.505
8-32	4	0.168	0.131	2.130	H5/H6			4.166
10-24	4	0.194	0.152	2.382	H6/H7			4.826
1/4-20	4	0.255	0.191	2.500	H7/H8			6.350
5/16-18	5	0.318	0.238	2.720	H8/H9			7.938
3/8-16	5	0.381	0.286	2.941	H8/H9			9.525
7/16-14	5	0.323	0.242	3.157	H9/H10			11.113
1/2-13	5	0.367	0.275	3.381	H10/H11			12.700
9/16-18	5	0.429	0.322	3.591	H10/H11			14.288
5/8-11	5	0.480	0.360	3.811	H11/H12			15.875

# Thread Forming Taps



## DIN length - DIN shank

Series 1582 - Cobalt, UNC, form tap, TiN coated, DIN 371  
 Series 1583 - Cobalt, UNF, form tap, TiN coated, DIN 376



Size	No. Lube Grooves	Shank dia. mm	Square Size mm	Overall Length mm	2BX Approx. Limits	DIN 371	DIN 376	Order No.
						Series 1582	Series 1583	
10-24	4	6.000	4.900	70.000	H6/H7			4.826
12-24	4	6.000	4.900	80.000	H6/H7	°		5.486
1/4-20	4	7.000	5.500	80.000	H7/H8			6.350
5/16-18	5	8.000	6.200	90.000	H8/H9			7.938
3/8-16	5	10.000	8.000	100.000	H8/H9			9.525
7/16-14	5	8.000	6.200	100.000	H9/H10			11.113
1/2-13	5	9.000	7.000	110.000	H10/H11			12.700
9/16-12	5	11.000	9.000	110.000	H10/H11			14.288
5/8-11	5	12.000	9.000	110.000	H11/H12		°	15.875
3/4-10	7	14.000	11.000	125.000	H12/H13		°	19.050

**UNC / UNF**  
**2BX**  
**Class of Fit**



**Through or Blind Hole**

## ANSI length - ANSI shank

Series 3941 - Cobalt, UNF, form tap, TiN coated  
 Series 3944 - Cobalt, UNF, form tap, TiCN coated



**Chamfer Lead**

**C · 2-3**

Size	No. Lube Grooves	Shank dia. inch	Square Size inch	Overall Length inch	2BX Approx. Limits	S	C	Order No.
						Series 3941	Series 3944	
4-48	4	0.141	0.110	1.882	H4/H5			2.845
5-44	4	0.141	0.110	1.941	H4/H5			3.175
6-40	4	0.141	0.110	2.000	H5/H6			3.505
8-36	4	0.168	0.131	2.130	H4/H5			4.166
10-32	4	0.194	0.152	2.382	H5/H6			4.826
12-28	4	0.220	0.165	2.382	H6/H7			5.486
1/4-28	4	0.255	0.191	2.500	H6/H7			6.350
5/16-24	5	0.318	0.238	2.720	H7/H8			7.938
3/8-24	5	0.381	0.286	2.941	H7/H8			9.525
7/16-20	5	0.323	0.242	3.157	H8/H9			11.113
1/2-20	5	0.367	0.275	3.381	H8/H9			12.700
9/16-12	5	0.429	0.322	3.591	H8/H9			14.288
5/8-18	5	0.480	0.360	3.811	H9/H10			15.875
3/4-16	7	0.590	0.442	4.252	H10/H11			19.050

Form Taps



# Thread Forming Taps

## UNF

2BX  
Class of Fit



Through or  
Blind Hole

Chamfer Lead



E · 1.5 - 2



C · 2-3

### ANSI length - ANSI shank

Series 3972 - Cobalt, UNF, form tap, TiN coated, Form E chamfer



Size	No. Lube Grooves	Shank dia. inch	Square Size inch	Overall Length inch	2BX Approx. Limits	DIN 371	Order No.
						Series	
4-48	4	0.141	0.110	1.882	H4/H5		2.845
5-44	4	0.141	0.110	1.941	H4/H5		3.175
6-40	4	0.141	0.110	2.000	H5/H6		3.505
8-36	4	0.168	0.131	2.130	H4/H5		4.166
10-32	4	0.194	0.152	2.382	H5/H6		4.826
1/4-28	4	0.255	0.191	2.500	H6/H7		6.350
5/16-24	5	0.318	0.238	2.720	H7/H8		7.938
3/8-24	5	0.381	0.286	2.941	H7/H8		9.525
7/16-20	5	0.323	0.242	3.157	H8/H9		11.113
1/2-20	5	0.367	0.275	3.381	H8/H9		12.700
9/16-18	5	0.429	0.322	3.591	H8/H9		14.288
5/8-18	5	0.480	0.360	3.811	H9/H10		15.875

### DIN length - DIN shank

Series 1584 - Cobalt, UNF, form tap, TiN coated, DIN 371, Form C chamfer



Size	No. Lube Grooves	Shank dia. mm	Square Size mm	Overall Length mm	2BX Approx. Limits	DIN 371	Order No.
						Series	
10-32	4	6.000	4.900	70.000	H5/H6	°	4.826
12-28	4	6.000	4.900	80.000	H6/H7	°	5.486
1/4-28	4	7.000	5.500	80.000	H6/H7	°	6.350
5/16-24	5	8.000	6.200	90.000	H7/H8	°	7.938
3/8-24	5	10.000	8.000	100.000	H7/H8	°	9.525

### DIN length - DIN shank

Series 1585 - Cobalt, UNF, form tap, TiN coated, DIN 376, Form C chamfer



Size	No. Lube Grooves	Shank dia. mm	Square Size mm	Overall Length mm	2BX Approx. Limits	DIN 376	Order No.
						Series	
7/16-20	5	8.000	6.200	100.000	H8/H9		11.113
1/2-20	5	9.000	7.000	100.000	H8/H9		12.700
9/16-18	5	11.000	9.000	100.000	H8/H9	°	14.288
5/8-18	5	12.000	9.000	100.000	H9/H10	°	15.875
3/4-16	7	14.000	11.000	110.000	H10/H11	°	19.050

# Thread Forming Taps



## ANSI length - ANSI shank

Series 3939 - Cobalt, Metric, form tap, TiN coated  
 Series 3942 - Cobalt, Metric, form tap, TiCN coated



Size	No. Lube Grooves	Shank dia. inch	Square Size inch	Overall Length inch	6HX	<b>S</b>	<b>C</b>	Order No.
					Approx. Limits	Series 3939	Series 3942	
M3 X 0.50	4	0.141	0.110	1.941	D5/D6			3.000
M4 X 0.70	4	0.168	0.131	2.130	D6/D7			4.000
M5 X 0.80	4	0.194	0.152	2.382	D7/D8			5.000
M6 X 1.00	4	0.255	0.191	2.500	D8/D9			6.000
M8 X 1.25	5	0.318	0.238	2.720	D9/D10			8.000
M10 X 1.50	5	0.381	0.286	2.941	D10/D11			10.000
M12 X 1.75	5	0.367	0.275	3.381	D11/D12			12.000
M14 X 2.00	5	0.429	0.322	3.591	D13/D14			14.000
M16 X 2.00	5	0.480	0.360	3.811	D13/D14			16.000

## METRIC

6HX  
 Class of Fit



Through or Blind Hole

## ANSI length - ANSI shank

Series 3979 - Cobalt, Metric, form tap, TiN coated, Form E chamfer



Size	No. Lube Grooves	Shank dia. inch	Square Size inch	Overall Length inch	6HX	<b>S</b>	Order No.
					Approx. Limits	Series 3979	
M3 X 0.50	4	0.141	0.110	1.941	D5/D6		3.000
M4 X 0.70	4	0.168	0.131	2.130	D6/D7		4.000
M5 X 0.80	4	0.194	0.152	2.382	D7/D8		5.000
M6 X 1.00	4	0.255	0.191	2.500	D8/D9		6.000
M8 X 1.25	5	0.318	0.238	2.720	D9/D10		8.000
M10 X 1.50	5	0.381	0.286	2.941	D10/D11		10.000
M12 X 1.75	5	0.367	0.275	3.381	D11/D12		12.000
M14 x 2.00	5	0.429	0.322	3.591	D13/D14		14.000
M16 x 2.00	5	0.480	0.360	3.811	D13/D14		16.000

## Chamfer Lead



C · 2-3



E · 1.5 - 2

Form Taps



# Thread Forming Taps



## METRIC

6HX  
Class of Fit



Through or  
Blind Hole

### DIN length - DIN shank

Series 919 - Cobalt, Metric, form tap, TiN coated, DIN 371, form C chamfer

Series 1717 - PM cobalt, Metric, form tap, AlCrN, DIN 371, radial coolant, form C chamfer

Size	No. Lube Grooves	Shank dia. mm	Square Size mm	Overall Length mm	6HX Approx. Limits	DIN 371 <b>S</b>	DIN 371 <b>P</b>	Order No.
						Series <b>919</b>	Series <b>1717</b>	
M3 X 0.50	4	3.500	2.700	56.000	D5/D6			3.000
M3.5 X 0.60	4	4.000	3.000	56.000	D6/D7	o		3.500
M4 X 0.70	4	4.500	3.400	63.000	D6/D7			4.000
M5 X 0.80	4	6.000	4.900	70.000	D7/D8			5.000
M6 X 1.00	4	6.000	4.900	80.000	D8/D9		o	6.000
M8 X 1.25	5	8.000	6.200	90.000	D9/D10			8.000
M10 X 1.50	5	10.000	8.000	100.000	D10/D11			10.000



### DIN length - DIN shank

Series 323 - PM cobalt, Metric, form tap, TiN coated, DIN 371, radial coolant, form C chamfer

### Chamfer Lead



C · 2-3



E · 1.5 - 2

Size	No. Lube Grooves	Shank dia. mm	Square Size mm	Overall Length mm	6HX Approx. Limits	DIN 371 <b>S</b>	Order No.
						Series <b>323</b>	
M5 X 0.80	4	6.000	4.900	70.000	D7/D8		5.000
M6 X 1.00	4	6.000	4.900	80.000	D8/D9		6.000
M8 X 1.25	5	8.000	6.200	90.000	D9/D10		8.000
M10 X 1.50	5	10.000	8.000	100.000	D10/D11		10.000



### DIN length - DIN shank

Series 1972 - Carbide, Metric, form tap, \*\*TiCN coated DIN 371, radial coolant, form C chamfer

Series 1927 - Carbide, Metric, form tap, \*\*TiCN coated, DIN 371, radial coolant, Form E chamfer

Size	No. Lube Grooves	Shank dia. inch	Square Size inch	Overall Length inch	6HX Approx. Limits	DIN 371 <b>S</b>	DIN 371 <b>S</b>	Order No.
						Series <b>1972</b>	Series <b>1927</b>	
*M3 X 0.50	4	3.500	2.700	56.000	D5/D6	o		3.000
*M4 X 0.70	4	4.500	3.400	63.000	D6/D7	o		4.000
M5 X 0.80	4	6.000	4.900	70.000	D7/D8		o	5.000
M6 X 1.00	4	6.000	4.900	80.000	D8/D9			6.000
M8 X 1.25	5	8.000	6.200	90.000	D9/D10			8.000
M10 X 1.50	5	10.000	8.000	100.000	D10/D11			10.000

\* Sizes <M5 do not have coolant ducts through the tap

\*\*All carbide form taps will be changing to TiCN coating as inventory levels are replenished.

# Thread Forming Taps



## DIN length - DIN shank

Series 342 - PM cobalt, Metric, form tap, TiN coated, DIN 376, radial coolant  
 Series 1719 - PM cobalt, Metric, form tap, AlCrN, DIN 376, radial coolant



Size	No. Lube Grooves	Shank dia. mm	Square Size mm	Overall Length mm	6HX Approx. Limits	DIN 376 <b>S</b>	DIN 376 <b>P</b>	Order No.
						Series <b>342</b>	Series <b>1719</b>	
M12 X 1.75	5	9.000	7.000	110.000	D11/D12			12.000
M14 X 2.00	5	11.000	9.000	110.000	D13/D14			14.000
M16 X 2.00	5	12.000	9.000	110.000	D13/D14			16.000
M12 X 1.75	5	9.000	7.000	110.000	D11/D12		o	12.000
M14 X 2.00	5	11.000	9.000	110.000	D13/D14		o	14.000
M16 X 2.00	5	12.000	9.000	110.000	D13/D14		o	16.000
M20 X 2.50	7	16.000	12.000	140.000	D14/D15			20.000

**METRIC / METRIC FINE**

**6HX Class of Fit**



**Through or Blind Hole**

## DIN length - DIN shank

Series 1931 - Carbide, Metric, form tap, \*\*TiCN coated, DIN 376, radial coolant



Size	No. Lube Grooves	Shank dia. mm	Square Size mm	Overall Length mm	6HX Approx. Limits	DIN 376 <b>S</b>	Order No.
						Series <b>1931</b>	
M12 X 1.75	5	9.000	7.000	110.000	D11/D12		12.000
M14 X 2.00	5	11.000	9.000	110.000	D13/D14	o	14.000
M16 X 2.00	5	12.000	9.000	110.000	D13/D14	o	16.000
M18 X 2.50	6	14.000	11.000	125.000	D14/D15	o	18.000
M20 X 2.50	7	16.000	12.000	140.000	D14/D15	o	20.000

**Chamfer Lead**



**C · 2-3**

\*\* All carbide form taps will be changing to TiCN coating as inventory levels are replenished.

## ANSI length - ANSI shank

Series 3975 - Cobalt, Metric Fine, form tap, TiN coated



Size	No. Lube Grooves	Shank dia. inch	Square Size inch	OAL inch	6HX Approx. Limits	<b>S</b>	Order No.
						Series <b>3975</b>	
M6 x 0.75	4	0.255	0.191	2.500	D6/D7		6.004
M8 X 1.00	5	0.318	0.238	2.720	D7/D8		8.005
M10 X 1.00	5	0.381	0.286	2.941	D7/D8		10.005
M10 X 1.25	5	0.381	0.286	2.941	D7/D8		10.006
M12 X 1.00	5	0.367	0.275	3.381	D7/D8		12.005
M12 X 1.25	5	0.367	0.275	3.381	D7/D8		12.006
M12 X 1.50	5	0.367	0.275	3.381	D8/D9		12.007
M14 X 1.25	5	0.429	0.322	3.591	D9/D10		14.006
M14 X 1.50	5	0.429	0.322	3.591	D10/D11		14.007
M16 X 1.50	5	0.480	0.360	3.811	D10/D11		16.007
M18 x 1.50	7	0.542	0.406	4.031	D10/D11		18.007
M20 x 1.50	7	0.652	0.489	4.469	D11/D12		20.007

● USA Stock

○ International Stock (0-2 wks)

When ordering: EDP no. = Series + Order no. (i.e. 3912 21840)





# Thread Forming Taps

**METRIC**

**FINE**

**6HX  
Class of Fit**



**Through or  
Blind Hole**

**Chamfer Lead**



**C · 2-3**

## DIN length - DIN shank

Series 927 - Cobalt, Metric Fine, form tap, TiN coated, DIN 374



Size	No. Lube Grooves	Shank dia. mm	Square Size mm	Overall Length mm	6HX Approx. Limits	DIN 374		Order No.
						<b>S</b> Series	Series	
						<b>927</b>		
M6 X 0.75	4	4.500	3.400	80.000	D6/D7			6.004
M8 X 0.75	5	6.000	4.900	80.000	D7/D8	o		8.004
M8 X 1.00	5	6.000	4.900	90.000	D7/D8			8.005
M10 X 1.00	5	7.000	5.500	90.000	D7/D8	o		10.005
M10 X 1.25	5	7.000	5.500	100.000	D7/D8			10.006
M12 X 1.00	5	9.000	7.000	100.000	D7/D8			12.005
M12 X 1.25	5	9.000	7.000	100.000	D7/D8			12.006
M12 X 1.50	5	9.000	7.000	100.000	D8/D9			12.007
M14 X 1.00	5	11.000	9.000	100.000	D8/D9	o		14.005
M14 X 1.50	5	11.000	9.000	100.000	D10/D11			14.007
M16 X 1.00	5	12.000	9.000	100.000	D10/D11	o		16.005
M16 X 1.50	5	12.000	9.000	100.000	D10/D11			16.007
M18 X 1.00	7	14.000	11.000	110.000	D10/D11	o		18.005
M18 X 1.50	7	14.000	11.000	110.000	D10/D11			18.007
M20 X 1.00	7	16.000	12.000	125.000	D11/D12	o		20.005
M20 X 1.50	7	16.000	12.000	125.000	D11/D12			20.007
M22 X 1.50	7	18.000	14.500	125.000	D11/D12			22.007
M24 X 1.50	7	18.000	14.500	140.000	D11/D12	o		24.007

## DIN length - DIN shank

Series 338 - PM cobalt, Metric Fine, form tap, TiN coated, DIN 374, radial coolant

Series 1723 - PM cobalt, Metric Fine, form tap, AlCrN, DIN 374, radial coolant



Size	No. Lube Grooves	Shank dia. mm	Square Size mm	Overall Length mm	6HX Approx. Limits	DIN 374		Order No.
						<b>S</b> Series	<b>P</b> Series	
						<b>338</b>	<b>1723</b>	
M8 X 1.00	5	6.000	4.900	90.000	D7/D8	o		8.005
M10 X 1.00	5	7.000	5.500	90.000	D7/D8	o		10.005
M12 X 1.00	5	9.000	7.000	100.000	D7/D8	o	o	12.005
M12 X 1.25	5	9.000	7.000	100.000	D7/D8			12.006
M12 X 1.50	5	9.000	7.000	100.000	D8/D9	o	o	12.007
M14 X 1.50	5	11.000	9.000	100.000	D10/D11			14.007
M16 X 1.50	5	12.000	9.000	100.000	D10/D11	o		16.007
M18 X 1.50	7	14.000	11.000	110.000	D10/D11			18.007
M20 X 1.50	7	16.000	12.000	125.000	D11/D12		o	20.007
M24 X 1.50	7	18.000	14.500	140.000	D11/D12		o	24.007

# Thread Forming Taps



## DIN length - DIN shank

Series 1721 - PM cobalt, Metric Fine, form tap, AlCrN, DIN 371, radial coolant



Size	No. Lube Grooves	Shank dia. mm	Square Size mm	Overall Length mm	6HX Approx. Limits	DIN 371	Order No.
						Series	
M8 X 1.00	5	8.000	6.200	90.000	D7/D8	<b>P</b> 1721	8.005
M10 X 1.00	5	10.000	8.000	90.000	D7/D8	°	10.005
M10 X 1.25	5	10.000	8.000	100.000	D7/D8		10.006

**METRIC FINE**

6HX  
Class of Fit



Through or  
Blind Hole

## DIN length - DIN shank

Series 1581 - Carbide, Metric Fine, form tap, \*\*TiCN coated, DIN 374, radial coolant



Size	No. Lube Grooves	Shank dia. mm	Square Size mm	Overall Length mm	6HX Approx. Limits	DIN 374	Order No.
						Series	
M10 X 1.00	5	10.000	8.000	90.000	D7/D8	<b>S</b> 1581	10.005
M12 X 1.00	5	10.000	8.000	100.000	D7/D8	°	12.005
M12 X 1.50	5	10.000	8.000	100.000	D8/D9		12.007
M14 X 1.00	5	11.000	9.000	100.000	D8/D9	°	14.005
M14 X 1.25	5	11.000	9.000	100.000	D9/D10	°	14.006
M14 X 1.50	5	11.000	9.000	100.000	D10/D11	°	14.007
M16 X 1.50	5	12.000	9.000	100.000	D10/D11	°	16.007
M18 X 1.50	7	14.000	11.000	110.000	D10/D11	°	18.007
M20 X 1.50	7	16.000	12.000	125.000	D11/D12	°	20.007
M24 X 1.50	7	18.000	14.500	140.000	D11/D12	°	24.007

**Chamfer Lead**



C · 2-3

Form Taps

All carbide form taps will be changing to TiCN coating as inventory levels are replenished.

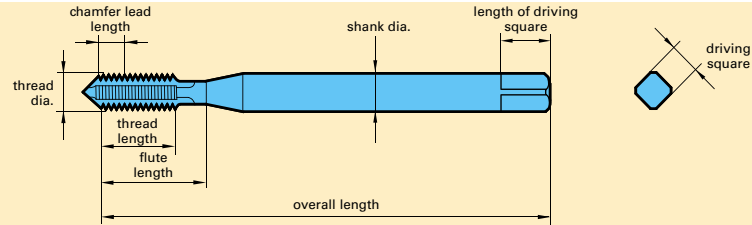


# Technical Information

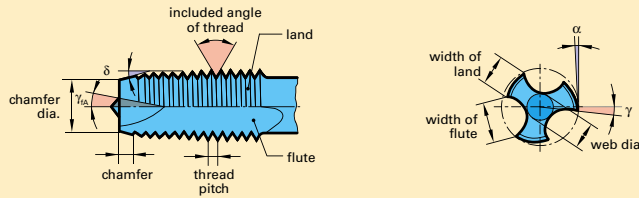


**GUHRING**

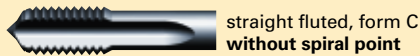
# Definitions and angles, centers and flute forms



$\delta$  = try square  
 $\gamma_{fA}$  = spiral point angle  
 $\alpha$  = clearance angle  
 $\gamma$  = rake angle



## Flute forms



straight fluted, form C  
without spiral point



helix angle  
15°



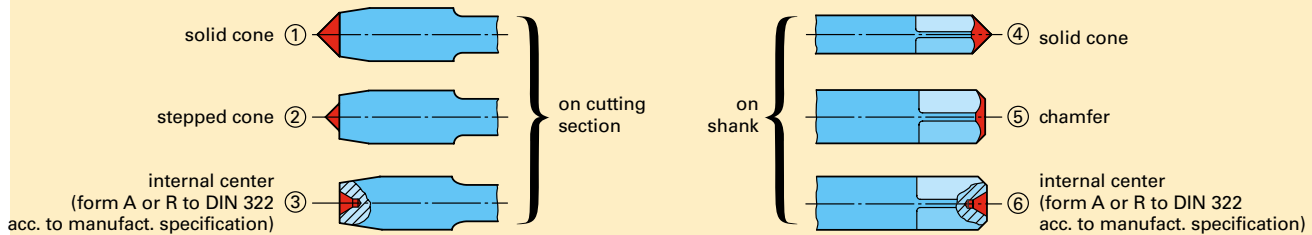
straight fluted, form B  
with spiral point



helix angle  
40°

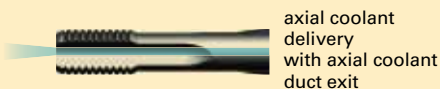
## Types of centers (standard, to DIN 2197/DIN 2175)

**Note:** DIN standard taps  $\leq 10.0$ mm diameter are manufactured with male centers

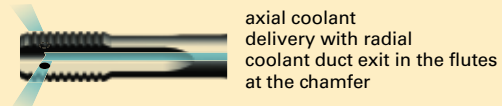


Thread dia. range mm	Center on cutting section		Center on shank
	with chamfer forms A, C, D, E	with chamfer form B	
$\leq 4.2$	①	①	④ ⑤ ⑥
$> 4.2 \dots 5.6$	① ②	①	④ ⑤ ⑥
$> 5.6 \dots 10.0$	① ② ③	① ② ③	④ ⑤ ⑥
$> 10.0$	③	③	⑥

## Coolant duct geometries



axial coolant delivery with axial coolant duct exit



axial coolant delivery with radial coolant duct exit in the flutes at the chamfer

# Chamfer forms, selection and application

## Application recommendations

The type of tapped hole required determines the chamfer. Generally the tap geometry - i.e. form, number and direction of flutes, cutting angle, etc. - depend on the material to be machined and on the application. Basically, taps up to M16 for tapping ISO metric threads or for the engineering industry in general, have 3 flutes, and above this size 4 or more flutes.

Taps with left-hand flutes and taps with spiral points remove the chips in the cutting direction or direction of feed and are therefore especially suitable for tapping through holes. Taps with straight flutes and long chamfer lead (form D) also give good results.

As far as blind holes are concerned we recommend taps with right-hand spiral flutes or straight fluted taps with a short chamfer lead length. Tools with right-hand spiral flutes

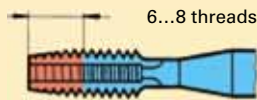
have the chip flow in the backward direction, i.e. up the flutes. The chamfer lead length is designed in such a way so that during the return movement chips do not jam and are reliably sheared off.

The tapping of aluminium, grey cast iron and brass requires taps with a short chamfer lead length, regardless of whether through or blind holes are required. In these materials a long chamfer lead length would act as a core drill with chip breaker grooves and would only drill the tapping size hole to the major diameter instead of cutting a thread.

Straight fluted taps without spiral point are general purpose tools and have the disadvantage of not showing optimum results in particular materials. It's well worth the effort to take the trouble of ascertaining the most suitable tool for any given metal-cutting task.

## Chamfer forms to DIN 2197

### Form A



long, 6 - 8 threads  
for short  
through holes

### Form B



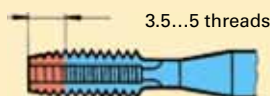
medium, 3.5 - 5.5 threads,  
with spiral point,  
for all through holes  
in medium and long-chipping materials

### Form C



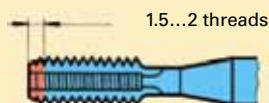
short, 2 - 3 threads  
for blind holes  
and generally for  
aluminium, grey cast iron  
and brass

### Form D



medium, 3.5 - 5 threads  
for short  
through holes and blind holes  
where tap drill clearance permits.

### Form E



extremely short, 1.5-2 threads,  
for blind holes with  
little run-out depth.  
Avoid use if possible.

### Form F



extremely short, 1-1.5 threads,  
for blind holes with  
little run-out depth.  
Avoid use if possible.

# Tap Tolerances and Approximate Limits

## UNC/UNF Taps

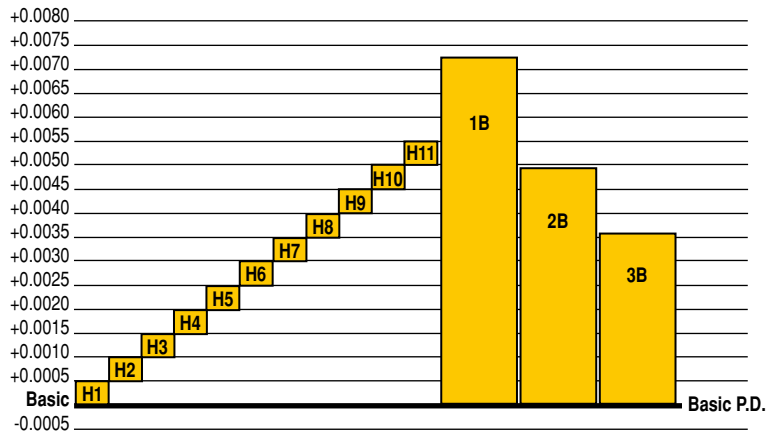
Screw size and fractional threads are typically specified as one of three classes of fit. Class 1B – for low precision, or threads that are typically used in areas where dirt and grime are a constant factor; Class 2B for general threading applications (by far the most common); and Class 3B for precision threads generally found in medical, aerospace and applicable automotive applications.

- As seen in the chart – these classes of fit do overlap even though they are progressive in accuracy. To further break down the accuracy of these threads we have “H” limits in increments of 0.0005”

- 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.

- As you can see in the chart – the class of fit will give you minimum and maximum pitch diameter limits that need to be maintained during manufacturing (typically these are your thread gauge limits). By seeing the “H” limits illustrated you are better able to understand what area of the class of fit you are actually working within.

(This chart does not show a specific size tap – its purpose is to give a visual understanding of how the “H” limits work within the different classes of fit).



## Metric Taps

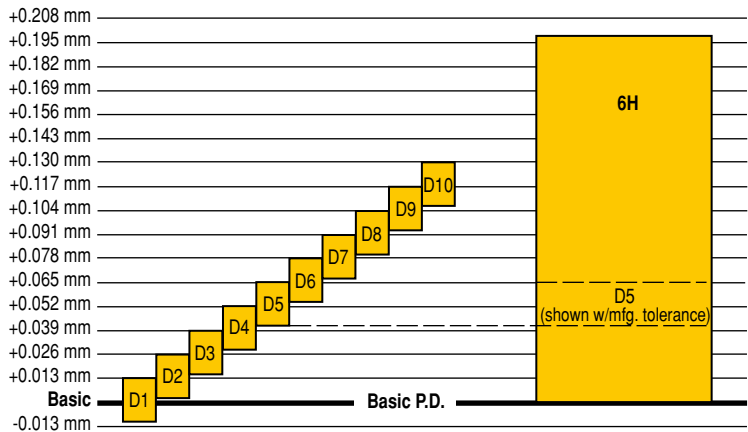
Metric threads have their own classifications for class of fit and the thread limits within them. When discussing UNC/UNF threads we worked with 3B, 2B and 1B Classes of fit and had “H” limits which helped define the accuracy within each class. To help understand Metric tolerancing it may be easiest to look at the similarities between both Metric and Fractional tolerancing.

- A metric 6H class of fit is quite similar to the fractional 2B class of fit - as is the metric 4H to the fractional 3B. We will focus on the 6H class of fit as this is our standard offering in metric sizes. (Please note that special classes of fit can be produced for any given application upon request).

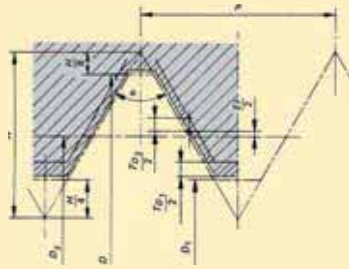
- Again – the class of fit will give you minimum and maximum pitch diameter limits that need to be maintained during manufacturing. Within the class of fit – metric thread limits are further broken down into “D” limits. Each “D” limit equals 0.013mm (0.013mm = 0.00051” – extremely similar to that of fractional “H” limit tolerancing).

- As you look at this chart you can see how the “D” limits help control what area of the class of fit you are working within.

(This chart does not show a specific size tap – its purpose is to give a visual understanding of how the “D” limits work within a class of fit).



# Taps for ISO metric threads DIN EN 22857 (extract)



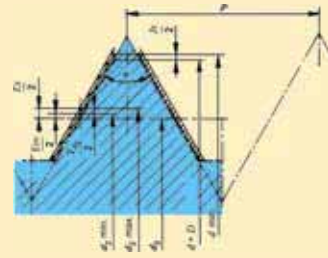
## Profile of the nut thread

### Basic profile:

- D major diameter
- D<sub>1</sub> nom. dia. of tapping size hole
- D<sub>2</sub> basic pitch diameter
- P<sup>z</sup> pitch of diameter
- α included angle of thread
- H height of peak to peak thread profile
- EI basic deviation of pitch, zero with tolerance zone H, positive with tolerance zone G

### Tolerances:

- T<sub>D1</sub> tolerance on tapping size hole dia
- T<sub>D2</sub> tolerance on tap pitch dia.



## Profile of the tap

### Basic profile:

- d=D major diameter
- d min. d min. permissible min. tap major dia.
- Js minimum clearance on major diameter
- d<sub>2</sub>=D<sub>2</sub> basic pitch diameter
- d<sub>2</sub> min. minimum tap pitch diameter
- d<sub>2</sub> max. maximum tap pitch diameter
- Es upper deviation of pitch diameter
- Em lower deviation of pitch diameter

### Tolerance:

- T<sub>d2</sub> tolerance on tap pitch diameter

With the aim of unifying threads on an international basis, the ISO thread was brought out and has been accepted by all concerned. Today the ISO metric thread is the most common type. As you can see, our tap program demonstrates this fact in the clearest possible way.

Taps with deviating tolerances according to DIN 802 part 1 will be given additional marking "X" (6 HX, 6 GX).

We recommend the application of taps in accordance with the adjacent table:

## Metric tolerance qualities (figure identification)

Tolerance qualities of external threads are defined by the table to the right, those of nut threads by the table on the lower right.

## Tolerance positions (letter identification)

ISO metric internal threads are identified by capital letters A to H, ISO metric external threads by small letters a to h. Tolerance zones A to G have positive and a to g negative basic pitch deviations in contrast to the tolerance zones H and h which commence at zero. Generally, tolerance zones H and g are used. For threads destined for surface treatment tolerance zones G and e are applied.

When manufacturing ISO-external threads the deviations that are determined for the major diameter with regard to the tolerance zones a to g have to be taken into account.

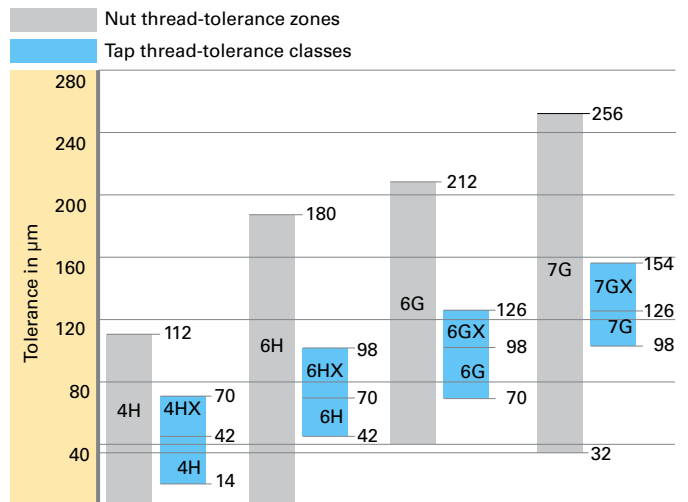
## Tolerance zones (nut thread)/

## Tolerance classes (tap thread)

Quality and position of tolerance determine the tolerance zone, which is identified by the appropriate figures and letters.

The abbreviation for the tolerance class of tap corresponds to the tolerance zone of the internal thread for which the tap is used in most cases. Therefore, it is not identical with the tolerance zone of the cut nut thread in every application.

## Tolerance zone / tolerance class allocation



DIN EN 22857		Tolerance zone of internal thread to be cut				DIN 802 part 1 (withdrawn)	
Application class of tap	Designation*	Reference	4H	5H	6H	6G	7G
Class 1	ISO 1		4H	5H			4H
Class 2	ISO 2				6H		6H
Class 3	ISO 3					6G	6G
-	-					7G	7G

\* The tolerance of the 3 application classes is calculated in accordance to the following data dependent on one tolerance unit t the value of which corresponds to the value of the basic pitch diameter TD2 in tolerance class 5 of the nut thread (polished to a pitch of 0.2 mm ):  
 $t = t_{D2}$  Tolerance class 5 of nut thread

Technical



# Taps for ISO metric threads DIN EN 22857 (extract)

## Thread clearances and fits

Fits between internal and external threads are separated by a diagonal stroke, as for example 6H/6g (internal/external thread). The fit has to be selected in conjunction with the appropriate thread connection.

The tolerance zones of the tolerance classes fine, medium and coarse are allocated to three screw-in lengths short (S), normal (N) and long (L). Generally, the following rules apply for selecting a tolerance class:

### Fine tolerance zone (S):

For precision threads, when only a small variation in the fit is permitted.

### Medium tolerance zone (N):

General application

### Coarse tolerance zone (L):

There are no special precision requirements and in cases where production difficulties may occur, e.g. thread production in hot-rolled rods, deep blind holes or plastic components.

## Screw-in lengths

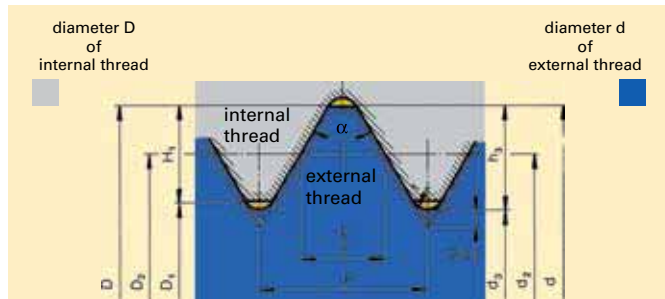
The quality of thread connection is also affected by the screw-in length. The ISO tolerance system was, especially as regards the pitch diameter, divided into three groups, i.e.

- S (Short) = short screw-in length
- N (Normal) = normal screw-in length
- L (Long) = long screw-in length

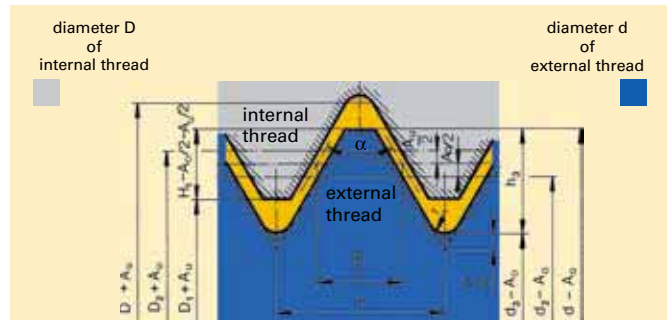
The following fit should be selected for normal screw-in length N:

To ensure a tighter fit of thread connections, we recommend for short screw-in lengths a narrower fit. As far as long screw-in lengths are concerned, fits with a larger tolerance must be used to compensate for pitch deviations.

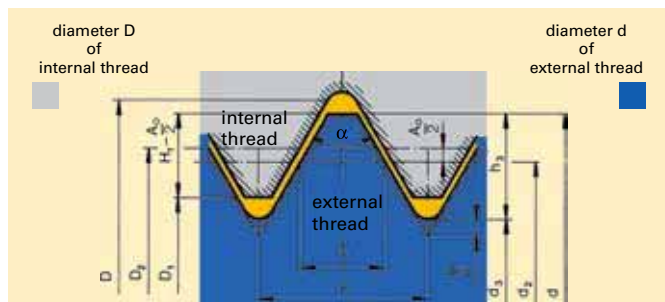
## Thread fits with different flank clearance



Zero profile of thread fit without flank clearance (H/h-fit).



Thread fit with wide flank clearance (G/g-fit or G/e-fit) in external and internal thread.



Thread fit with narrow flank (H/g- or H/e-fit) by basic deviation of external thread.

### Explanation of symbols

- D =  $\varnothing$  nom. of internal thread
- $D_1$  = Tapping size hole  $\varnothing$  of internal thread
- $D_2$  = Basic pitch  $\varnothing$  of internal thread
- d =  $\varnothing$  nom. of external thread
- $d_2$  = Basic pitch  $\varnothing$  of external thread
- $d_1$  = Tapping size hole  $\varnothing$  of external thread
- P = Pitch
- $\alpha$  = Included angle of thread
- H = Height of peak to peak thread profile
- $A_u$  = Upper tolerance limit
- $A_l$  = Lower tolerance limit

# Cutting rate recommendations for cut taps

Material group		Approximate Rc	Approximate HB	Recommended SFM					
				HSS-E		HSS-E-PM		Solid carbide	
				bright finish	hard coated	bright finish	hard coated	bright finish	hard coated
● Structural steels, free-cutting steels			<180	30-50	40-70	50-70	55-95	-	-
	Unalloyed case hardened steels	<20	<230	20-40	30-70	40-65	40-80	-	-
	Unalloyed heat-treatable steels	<25	<250	15-35	25-50	30-60	35-75	-	-
● Structural steels, free-cutting steels		<20	<230	40-50	40-75	40-65	40-80	-	-
	Case hardened steels, heat-treatable steels	<25	<250	30-45	30-65	30-60	35-75	-	-
	Nitriding steels, spheroidal graphite iron	<30	<280	20-30	30-55	30-50	35-65	-	-
		<35	<320	15-25	20-35	25-45	30-60	-	-
		<38	<380	10-25	20-40	20-45	30-55	-	-
● Stainless- and acid-resistant steels, sulphured			<180	25-35	40-55	30-55	35-70	-	-
	austenitic	<25	<250	20-30	30-40	30-50	35-60	-	-
	martensitic	<30	<280	20-30	25-40	25-45	30-50	-	-
		<35	<320	10-20	20-30	20-35	25-50	-	-
● Alloyed case hardened steels		<25	<250	10-20	30-40	30-50	35-70	-	-
	Alloyed heat-treatable steels	<30	<280	25-35	30-50	25-45	35-65	-	-
	Alloyed tool steels	<35	<320	15-30	20-40	20-45	30-60	-	-
	High speed tool steels	<38	<380	8-15	10-30	15-35	25-55	-	-
		<44	<415	-	-	4-10	8-15	4-8	8-16
		<60		-	-	-	4-10	3-6	6-12
● Cast iron			<180	50-70	60-90	55-85	65-110	70-100	80-130
	Spheroidal graphite iron	<25	<250	30-50	45-85	40-70	60-100	70-100	80-130
	Malleable cast iron	<35	<320	15-35	20-40	25-45	35-55	60-110	70-120
● Aluminium and Al-alloys		SILICON CONTENT	WROUGHT ALUMINIUM						
		< 6%	n/a	30-50	50-75	50-70	65-80	80-140	90-165
	Al cast alloys	6-10%	n/a	25-35	40-50	40-65	65-80	80-140	90-165
		>10%	n/a	-	25-35	40-65	65-80	60-130	80-140
	Al wrought alloys	n/a	30-80	50-65	65-100	-	-	-	-
		n/a	75-150	35-60	50-65	-	-	-	-
● Titanium and Ti-alloys			140-275	-	-	12-25	20-30	-	-
			300-380	-	-	6-12	10-18	-	-
● Nickel and Ni-alloys			200-300	-	-	6-12	10-18	-	-
			>300	-	-	3-6	6-12	-	-
Plastics				15-30	-	20-40	-	30-60	-
Magnesium-alloys				90-140	-	-	-	110-180	-
Brass, short-chipping				30-45	-	45-60	-	80-100	-
	long-chipping			30-45	-	45-60	-	80-100	-

# Cutting Rate recommendations for form/fluteless taps

Thanks to the development of modern tool materials, geometries, coatings and recently the Guhring developed improved tool surface the scope of malleable materials able to be fluteless tapped is expanding. The table "Cutting rate recommendations" below provides an overview of materials that can be machined with Guhring's "Profile" fluteless

taps. In many cases, a test in harder or more brittle materials is worth while in order to benefit from the advantages of fluteless tapping in these materials. Please contact our technical specialists for advice.

## Cutting rate recommendations

Material group		Approximate Rc	Approximate HB	Recommended SFM		
				HSS-E	HSS-E-PM	Solid carbide
● Structural steels, free-cutting steels	Unalloyed case hardened steels	<20	<230	45-70	60-90	90-120
	Unalloyed heat-treatable steels	<25	<250	40-65	55-80	75-100
	Unalloyed heat-treatable steels	<25	<250	30-55	50-75	65-95
● Structural steels, free-cutting steels	Case hardened steels, heat-treatable steels	<20	<230	40-65	55-80	75-100
	Case hardened steels, heat-treatable steels	<25	<250	30-55	50-75	65-95
	Nitriding steels, spheroidal graphite iron	<30	<280	25-45	40-70	60-85
	Nitriding steels, spheroidal graphite iron	<35	<320	20-35	35-60	50-75
	Nitriding steels, spheroidal graphite iron	<38	<380	-	-	-
● Stainless- and acid-resistant steels, sulphured	austenitic	<180	<180	40-50	45-60	50-70
	austenitic	<25	<250	35-50	40-55	45-60
	martensitic	<30	<280	25-40	35-50	40-55
	martensitic	<35	<320	-	25-40	30-45
● Alloyed case hardened steels	Alloyed case hardened steels	<25	<250	25-45	40-60	55-80
	Alloyed heat-treatable steels	<30	<280	20-40	35-55	50-70
	Alloyed tool steels	<35	<320	15-30	30-50	40-60
	High speed tool steels	<38	<380	-	-	-
	High speed tool steels	<44	<415	-	-	-
	High speed tool steels	<60	>415	-	-	-
● Cast iron	Spheroidal graphite iron	<180	<180	-	-	-
	Spheroidal graphite iron	<25	<250	40-65	60-80	75-130
	Malleable cast iron	<35	<320	40-65	60-80	75-130
● Aluminium and Al-alloys	SILICON CONTENT	WROUGHT ALUMINIUM				
	Al cast alloys	<10%	n/a	60-75	70-140	100-165
	Al cast alloys	>10%	n/a	-	-	-
	Al wrought alloys	n/a	30-80	80-100	100-150	150-200
● Titanium and Ti-alloys	Titanium and Ti-alloys	<320	<320	7-26	7-26	20-35
	Titanium and Ti-alloys	>320	>320	-	-	-
● Nickel and Ni-alloys	Nickel and Ni-alloys	<320	<320	7-26	7-26	20-35
	Nickel and Ni-alloys	>320	>320	-	-	-
Plastics	Plastics			-	-	-
Magnesium-alloys	Magnesium-alloys			-	-	-
● Brass, short-chipping	Brass, short-chipping	<180	<180	35-50	50-65	75-100
	long-chipping	<180	<180	40-65	60-80	80-120

# Cutting Speeds Conversion for Taps

Tap Sizes	Surface Feet per Minute																		
	5'	10'	15'	20'	25'	30'	40'	50'	60'	70'	80'	90'	100'	110'	120'	130'	140'	150'	
	Revolutions per Minute																		
<b>UNC/UNF Taps</b>																			
No. 2	212	424	637	888	1110	1333	1777	2221	2665	3109	3554	3999	4442	4886	5330	5774	6218	6662	
No. 3	191	382	573	772	964	1157	1543	1929	2315	2701	3086	3472	3858	4244	4629	5015	5401	5787	
No. 4	174	347	521	682	853	1023	1364	1705	2046	2387	2728	3069	3411	3751	4092	4434	4775	5116	
No. 5	147	294	441	611	764	917	1222	1528	1833	2139	2445	2750	3056	3361	3667	3973	4278	4584	
No. 6	136	273	409	553	691	829	1106	1382	1659	1935	2212	2488	2766	3042	3318	3595	3871	4148	
No. 8	119	239	358	466	583	699	932	1165	1398	1631	1864	2097	2330	2563	2796	3029	3262	3495	
No. 10	101	201	302	402	502	603	804	1005	1205	1406	1607	1808	2009	2210	2411	2612	2813	3014	
No. 12	87	174	260	354	442	531	707	884	1061	1238	1415	1592	1769	1945	2122	2300	2476	2653	
1/4	76	153	229	306	382	458	611	764	917	1070	1222	1375	1528	1681	1833	1968	2139	2292	
5/16	62	123	185	245	306	367	489	611	733	856	978	1100	1222	1345	1467	1589	1711	1833	
3/8	50	101	151	204	255	305	407	509	611	713	815	917	1019	1120	1222	1324	1426	1528	
7/16	43	87	130	175	219	262	349	437	524	611	698	786	873	960	1048	1135	1222	1310	
1/2	38	76	115	153	191	229	305	382	458	535	611	688	764	840	917	993	1070	1146	
9/16	34	68	102	137	172	206	274	342	410	478	547	616	683	752	820	888	952	1020	
5/8	32	64	96	122	153	183	244	306	367	428	489	550	611	672	733	794	856	917	
11/16	28	55	83	111	138	167	222	278	333	389	444	500	556	611	667	722	778	833	
3/4	25	51	76	102	128	153	203	255	305	357	407	458	509	560	611	662	713	764	
7/8	22	43	65	87	109	131	175	218	262	306	350	392	437	480	524	568	611	655	
1	19	38	57	76	96	115	153	191	230	268	305	344	382	420	458	497	535	573	
1 1/8	17	34	51	68	84	102	136	170	204	238	272	306	340	373	407	441	475	509	
1 1/4	15	31	46	61	76	92	122	153	183	214	244	275	305	336	367	397	428	458	
1 3/8	14	28	42	56	69	83	111	139	167	194	222	250	278	306	333	361	389	417	
1 1/2	13	25	38	51	63	76	102	127	153	178	204	229	255	280	305	331	356	382	
<b>Metric Taps</b>																			
M 2.0	242	484	725	967	1209	1451	1934	2418	2901	3385	3868	4352	4835	5319	5803	6286	6770	7253	
M 3.0	162	324	486	647	809	971	1295	1619	1942	2266	2590	2914	3237	3561	3885	4208	4532	4856	
M 3.5	138	277	415	554	692	830	1107	1384	1661	1938	2214	2491	2768	3045	3322	3599	3875	4152	
M 4.0	122	243	365	487	608	730	973	1217	1460	1703	1946	2190	2433	2676	2920	3163	3406	3650	
M 5.0	97	194	291	388	485	582	776	970	1163	1357	1551	1745	1939	2133	2327	2521	2715	2909	
M 6.0	81	162	243	324	405	486	647	809	971	1133	1295	1457	1619	1781	1942	2104	2266	2428	
M 7.0	69	138	208	277	346	415	554	692	830	969	1107	1246	1384	1522	1661	1799	1938	2076	
M 8.0	61	121	182	243	303	364	485	606	728	849	970	1091	1213	1334	1455	1577	1698	1819	
M 10.0	48	97	145	194	242	291	388	485	582	679	776	873	970	1067	1163	1260	1357	1454	
M 12.0	40	81	121	162	202	243	324	405	486	567	647	728	809	890	971	1052	1133	1214	
M 14.0	35	69	104	139	173	208	277	347	416	485	555	624	693	763	832	901	971	1040	
M 16.0	30	61	91	121	152	182	243	303	364	424	485	546	606	667	728	788	849	910	
M 18.0	27	54	81	108	135	162	216	269	323	377	431	485	539	593	647	700	754	808	
M 20.0	24	49	73	97	121	146	194	243	291	340	388	437	485	534	582	631	680	728	
M 22.0	22	44	66	88	110	132	176	221	265	309	353	397	441	485	529	573	618	662	
M 24.0	20	40	61	81	101	121	162	202	243	283	323	364	404	445	485	526	566	606	
M 27.0	18	36	54	72	90	108	144	180	216	252	287	323	359	395	431	467	503	539	
M 30.0	16	32	49	65	81	97	129	162	194	226	259	291	323	356	388	420	453	485	

# DIN characteristic features for taps

## Master standards for dimensions to DIN 2184

The standard DIN 2184 stipulates the major dimensions for taps and fluteless taps required for the thread production with nominal diameter  $d_1 > 0.9 \dots 113 \text{ mm}$ . Part 1 is the master standard for dimensions for a long tool design, part 2 the master standard for dimensions for the short tool design. According to the nominal

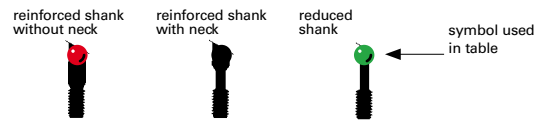
diameter range and dependent on the pitch, the number of teeth and the ratio total length these master standards include: the max. thread length, the shank designs "reinforced shank" and "reduced shank". A detailed illustration of shank designs and characteristic features can be found below.

## Taps

DIN 2184-1				DIN 2184-1			
Machine taps, long				Hand taps and machine taps, short			
ISO metric thread		ISO metric fine thread		ISO metric thread		ISO metric fine thread	
DIN 371 DIN 376		DIN 371 DIN 374		DIN 352		DIN 2181	
UNC/BSW* thread	UNF thread	G- thread	UNC/BSW* thread	UNF thread	G thread	Pg thread	
~DIN 371 ~DIN 376	~DIN 371 ~DIN 374	DIN 5156	~DIN 352	~DIN 2181	DIN 5157	DIN 40 432	

## Fluteless taps

DIN 2184-1				
DIN 2174		DIN 2184-1		
ISO metric thread	ISO metric fine thread	UNC thread	UNF thread	G thread
previously DIN 371 DIN 376	previously DIN 371 DIN 374	previously ~DIN 371 ~DIN 376	previously ~DIN 371 ~DIN 374	previously DIN 5156



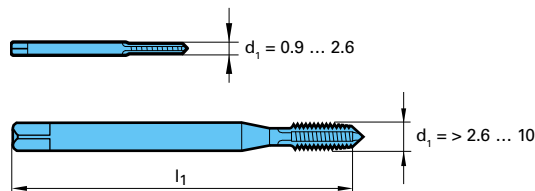
## Shank designs for thread cutting tools

Thread type	DIN		contained in the master standards	Nominal diameter ranges mm			
	Taps	Fluteless taps		0.9 ... 2.6	>2.6 ... 6.35	>6.35 ... 10.0	>10.0
<b>M</b> ISO metric threads	DIN 371		2184-1	●	●	●	—
	DIN 376		2184-1	●	●	●	●
	DIN 352		2184-2	●	●	●	●
	DIN 2174		2184-1	●	●	●	●
<b>MF</b> ISO metric fine threads	DIN 371		2184-1	●	●	●	—
	DIN 374		2184-1	—	●	●	●
	DIN 2181		2184-2	●	●	●	●
	DIN 2174		2184-1	●	●	●	●
<b>UNC/BSW</b> threads	~DIN 371		2184-1	●	●	●	—
	~DIN 376		2184-1	●	●	●	●
	~DIN 352		2184-2	●	●	●	●
<b>UNF</b> threads	~DIN 371		2184-1	●	●	●	—
	~DIN 374		2184-1	—	●	●	●
	~DIN 2181		2184-2	●	●	●	●
				●	●	●	●

## Characteristic features of the individual standards

### DIN 371

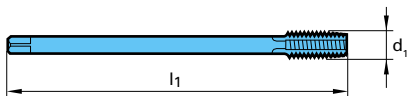
in the master standard  
DIN 2184-1



Standard for machine taps with reinforced shank for standard ISO metric threads and ISO metric fine threads. Long design. Shank design in accordance with diameter ranges shown above (mm).

### DIN 376

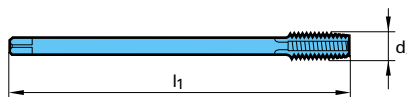
in the master standard  
DIN 2184-1



Standard for machine taps with reduced shank for standard ISO metric threads. Long design. Diameter range  $d_1 = 1.6 \dots 68 \text{ mm}$  ( $\leq \text{Ø M3}$ , shank without square)

### DIN 374

in the master standard  
DIN 2184-1

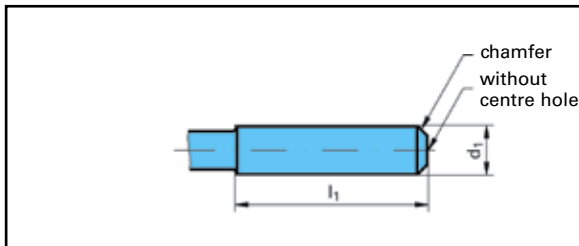


Standard for machine taps with reduced shank for ISO metric fine threads. Long design. Diameter range  $d_1 = 3 \dots 52 \text{ mm}$

# Carbide straight shanks for thread milling cutters to DIN 6535

## Form HA, plain

Dimensions in mm

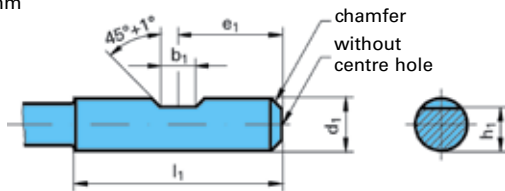


$d_1$ h6	$l_1$ $+2$ 0	$d_1$ h6	$l_1$ $+2$ 0
2	28	14	45
3	28	16	48
4	28	18	48
5	28	20	50
6	36	25	56
8	36	32	60
10	40		
12	45		

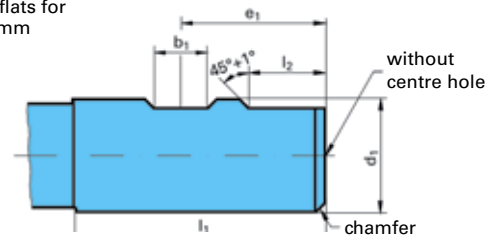
## Form HB, with drive flat

Dimensions in mm

with one drive flat for  $d_1 = 6$  and 20 mm



with two drive flats for  $d_1 = 25$  and 32 mm



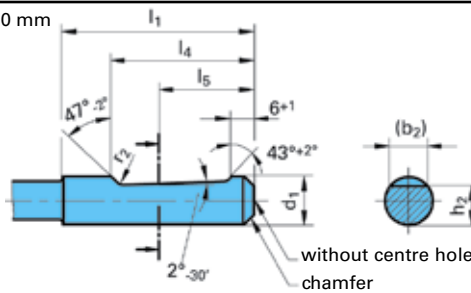
$d_1$ h6	$b_1$ $+0,05$ 0	$e_1$ 0 -1	$h_1$ h11	$l_1$ $+2$ 0	$l_2$ $+1$ 0
6	4.2	18	5.1	36	—
8	5.5	18	6.9	36	—
10	7	20	8.5	40	—
12	8	22.5	10.4	45	—
14	8	22.5	12.7	45	—
16	10	24	14.2	48	—
18	10	24	16.2	48	—
20	11	25	18.2	50	—
25	12	32	23	56	17
32	14	36	30	60	19

## Form HE, with whistle notch flat without coolant ducts\*

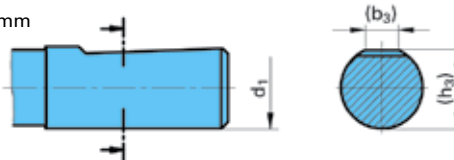
\* Design: Straight shanks to DIN 6535 are available with or without oil feed holes. Applications for various tools, dimensions and position of oil feed holes are fully described within the standard range sections.

Dimensions in mm

for  $d_1 = 6$  up to 20 mm

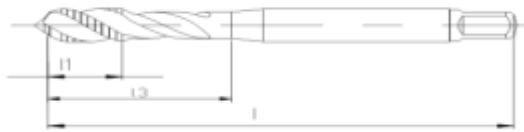


for  $d_1 = 25$  and 32 mm



$d_1$ h6	$(b_2)$ ≈	$(b_3)$	$h_2$ h11	$(h_3)$	$l_1$ $+2$ 0	$l_2$ 0 -1	$l_5$ nom. size	$r_2$ min.
6	4.3	—	5.1	—	36	25	18	1.2
8	5.5	—	6.9	—	36	25	18	1.2
10	7.1	—	8.5	—	40	28	20	1.2
12	8.2	—	10.4	—	45	33	22.5	1.2
14	8.1	—	12.7	—	45	33	22.5	1.2
16	10.1	—	14.2	—	48	36	24	1.6
18	10.8	—	16.2	—	48	36	24	1.6
20	11.4	—	18.2	—	50	38	25	1.6
25	13.6	9.3	23.0	24.1	56	44	32	1.6
32	15.5	9.9	30.0	31.2	60	48	35	1.6

## General dimensional information - taps



### ANSI Standard Taps

#### UNC - inch dimensions

UNC Size	Shank dia.	Square Size	l	l3	l1
2-56	0.141	0.110	1.882	0.631	0.441
3-48	0.141	0.110	1.882	0.631	0.441
4-40	0.141	0.110	1.882	0.709	0.441
5-40	0.141	0.110	1.941	0.709	0.276
6-32	0.141	0.110	1.941	0.709	0.276
8-32	0.168	0.131	2.130	0.827	0.315
10-24	0.194	0.152	2.382	0.945	0.433
12-24	0.220	0.165	2.382	1.024	0.433
1/4-20	0.255	0.191	2.500	1.181	0.512
5/16-18	0.318	0.238	2.720	1.377	0.630
3/8-16	0.381	0.286	2.941	1.456	0.709
7/16-14	0.323	0.242	3.157	1.496	0.707
1/2-13	0.367	0.275	3.381	1.575	0.787
9/16-12	0.429	0.322	3.591	1.575	0.827
5/8-11	0.480	0.360	3.811	1.732	0.984
3/4-10	0.590	0.442	4.252	1.732	0.984
7/8-9	0.697	0.523	4.689	2.283	1.110
1-8	0.800	0.600	5.130	2.480	1.260
1 1/8-7					
1 1/4-7	1.021	0.766	5.748	2.677	1.457
1 3/8-6					
1 1/2-6	1.233	0.925	6.377	2.953	1.771

### DIN Standard Taps

#### UNC - inch dimensions

UNC Size	Shank dia.	Square Size	l	l3	l1
2-56	0.110	0.083	1.772	0.531	0.197
3-48	0.110	0.083	1.772	0.531	0.236
4-40	0.110	0.083	1.772	0.531	0.315
5-40	0.137	0.106	2.205	0.709	0.394
6-32	0.137	0.106	2.205	0.709	0.394
8-32	0.177	0.134	2.480	0.827	0.472
10-24	0.236	0.192	2.756	0.984	0.551
12-24	0.236	0.192	3.149	1.181	0.433
1/4-20	0.236	0.192	3.149	1.181	0.630
5/16-18	0.315	0.244	3.543	1.377	0.709
3/8-16	0.394	0.315	3.937	1.535	0.787
7/16-14			Only available in DIN 376		
1/2-13			Only available in DIN 376		
9/16-12			Only available in DIN 376		
5/8-11			Only available in DIN 376		
3/4-10			Only available in DIN 376		
7/8-9			Only available in DIN 376		
1-8			Only available in DIN 376		
1 1/8-7			Only available in DIN 376		
1 1/4-7			Only available in DIN 376		
1 3/8-6			Only available in DIN 376		
1 1/2-6			Only available in DIN 376		

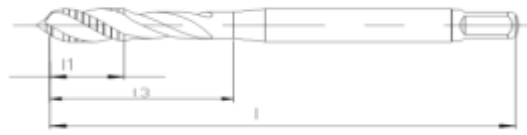
#### UNF - inch dimensions

UNF Size	Shank dia.	Square Size	l	l3	l1
2-64	0.141	0.110	1.882	0.631	
3-56	0.141	0.110	1.882	0.631	
4-48	0.141	0.110	1.882	0.709	
5-44	0.141	0.110	1.941	0.709	0.236
6-40	0.141	0.110	1.941	0.709	0.256
8-36	0.168	0.131	2.130	0.827	0.276
10-32	0.194	0.152	2.382	0.945	0.335
12-28	0.220	0.165	2.382	1.024	0.354
1/4-28	0.255	0.191	2.500	1.181	0.354
5/16-24	0.318	0.238	2.720	1.377	0.433
3/8-24	0.381	0.286	2.941	1.456	0.433
7/16-20	0.323	0.242	3.157	1.496	0.511
1/2-20	0.367	0.275	3.381	1.575	0.511
9/16-18	0.429	0.322	3.591	1.575	0.551
5/8-18	0.480	0.360	3.811	1.732	0.590
3/4-16	0.590	0.442	4.252	1.732	0.630
7/8-14	0.697	0.523	4.689	1.732	0.748
1-12	0.800	0.600	5.130	1.968	0.866
1 1/8-12					
1 1/4-12	1.021	0.766	5.748	2.087	0.866
1 3/8-12					
1 1/2-12	1.233	0.925	6.377	2.205	0.945

#### UNF - inch dimensions

UNF Size	Shank dia.	Square Size	l	l3	l1
2-64	0.110	0.083	1.772	0.531	
3-56	0.110	0.083	1.772	0.531	0.315
4-48	0.110	0.083	1.772	0.531	0.236
5-44	0.137	0.106	2.205	0.709	0.236
6-40	0.137	0.106	2.205	0.709	0.256
8-36	0.177	0.134	2.480	0.827	0.276
10-32	0.236	0.192	2.756	0.984	0.335
12-28	0.236	0.192	3.149	1.181	0.354
1/4-28	0.236	0.192	3.149	1.181	0.354
5/16-24	0.315	0.244	3.543	1.377	0.433
3/8-24	0.394	0.315	3.937	1.535	0.433
7/16-20			Only available in DIN 376		
1/2-20			Only available in DIN 376		
9/16-18			Only available in DIN 376		
5/8-18			Only available in DIN 376		
3/4-16			Only available in DIN 376		
7/8-14			Only available in DIN 376		
1-12			Only available in DIN 376		
1 1/8-12			Only available in DIN 376		
1 1/4-12			Only available in DIN 376		
1 3/8-12			Only available in DIN 376		
1 1/2-12			Only available in DIN 376		

## General dimensional information - taps



### ANSI Standard Taps

#### Metric - inch dimensions

Metric Size	Shank dia.	Square Size	l	l3	l1
M2x0.4	0.141	0.110	1.752	n.a.	
M3x0.5	0.141	0.110	1.941	0.709	0.276
M4x0.7	0.168	0.131	2.130	0.827	0.315
M5x0.8	0.194	0.152	2.382	0.945	0.433
M6x1	0.255	0.191	2.500	1.181	0.512
M8x1.25	0.318	0.238	2.720	1.377	0.629
M10x1.5	0.381	0.286	2.941	1.456	0.709
M12x1.75	0.367	0.275	3.381	1.732	0.787
M14x2	0.429	0.322	3.591	1.850	0.827
M16x2	0.480	0.360	3.811	1.929	0.984
M18x2.5	0.542	0.406	4.031	2.087	0.984
M20x2.5	0.652	0.489	4.469	2.283	1.110
M22 x 2.50					
M24 x 3.00					
M30 x 3.50					
M36 x 4.0					

### DIN Standard Taps

#### Metric - inch dimensions

Metric Size	Shank dia.	Square Size	l	l3	l1
M2x0.4	0.110	0.083	1.772	0.531	0.315
M3x0.5	0.137	0.106	2.205	0.709	0.394
M4x0.7	0.177	0.134	2.480	0.827	0.472
M5x0.8	0.236	0.192	2.756	0.984	0.551
M6x1	0.236	0.192	3.149	1.181	0.630
M8x1.25	0.315	0.244	3.543	1.377	0.709
M10x1.5	0.394	0.315	3.937	1.535	0.787
M12x1.75			Only available in DIN 376		
M14x2			Only available in DIN 376		
M16x2			Only available in DIN 376		
M18x2.5			Only available in DIN 376		
M20x2.5			Only available in DIN 376		
M22 x 2.50					
M24 x 3.00					
M30 x 3.50					
M36 x 4.0					

#### Metric Fine - inch dimensions

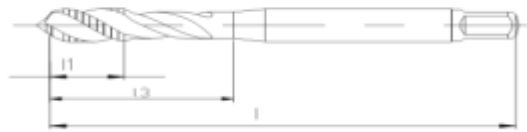
MF Size	Shank dia.	Square Size	l	l3	l1
M2x0.25					
M3x0.35	0.141	0.110	1.941	0.709	0.236
M4x0.5	0.168	0.131	2.130	0.827	0.197
M5x0.5	0.194	0.152	2.382	0.945	0.197
M6x0.75	0.255	0.191	2.500	1.181	0.315
M8x1	0.318	0.238	2.720	1.377	0.433
M10x1	0.381	0.286	2.941	1.456	0.433
M12x1	0.367	0.275	3.381	1.732	0.433
M14x1.5	0.429	0.322	3.591	1.850	0.591
M16x1.5	0.480	0.360	3.811	1.929	0.591
M18x1.5	0.542	0.406	4.031	2.087	0.629
M20x1.5	0.652	0.489	4.469	2.283	0.629
M22 x 1					
M24 x 2					
M30 x 1.5					
M36 x 2					

#### Metric Fine - inch dimensions

MF Size	Shank dia.	Square Size	l	l3	l1
M2x0.25					
M3x0.35	0.086	n.a.	2.205	n.a.	0.276
M4x0.5	0.110	0.083	2.480	n.a.	0.315
M5x0.5	0.138	0.106	2.756	n.a.	0.394
M6x0.75	0.177	0.134	3.149	n.a.	0.519
M8x1	0.236	0.193	3.543	n.a.	0.551
M10x1	0.276	0.217	3.937	n.a.	0.709
M12x1	0.354	0.276	3.937	n.a.	0.787
M14x1.5	0.433	0.354	3.937	n.a.	0.787
M16x1.5	0.472	0.354	3.937	n.a.	0.866
M18x1.5	0.551	0.433	4.331	n.a.	0.984
M20x1.5	0.623	0.472	4.921	n.a.	0.984
M22 x 1	0.709	0.571	4.921	n.a.	0.984
M24 x 2	0.709	0.571	5.512	n.a.	0.984
M30 x 1.5	0.866	0.709	5.905	n.a.	1.102
M36 x 2	1.102	0.866	6.693	n.a.	1.181



## General dimensional information - taps



### ANSI Standard Taps

#### UNC - metric dimensions

UNC Size	Shank dia.	Square Size	l	l3	l1
2-56	3.581	2.794	47.8	16.0	11.2
3-48	3.581	0.110	47.8	16.0	11.2
4-40	3.581	0.110	47.8	18.0	11.2
5-40	3.581	0.110	49.3	18.0	7.0
6-32	3.581	0.110	49.3	18.0	7.0
8-32	4.267	3.327	54.1	21.0	8.0
10-24	4.928	3.861	60.5	24.0	11.0
12-24	5.588	4.191	60.5	26.0	11.0
1/4-20	6.477	4.851	63.5	30.0	13.0
5/16-18	8.077	6.045	69.1	35.0	16.0
3/8-16	9.677	7.264	74.7	37.0	18.0
7/16-14	8.204	6.147	80.2	38.0	18.0
1/2-13	9.322	6.985	85.9	40.0	20.0
9/16-12	10.897	8.179	91.2	40.0	21.0
5/8-11	12.192	9.144	96.8	44.0	25.0
3/4-10	14.986	11.227	108.0	44.0	25.0
7/8-9	17.704	13.284	119.1	58.0	28.2
1-8	20.320	15.240	130.3	63.0	32.0
1 1/8-7					
1 1/4-7	25.933	19.456	146.0	68.0	37.0
1 3/8-6					
1 1/2-6	31.318	23.495	162.0	75.0	45.0

### DIN Standard Taps

#### UNC - metric dimensions

UNC Size	Shank dia.	Square Size	l	l3	l1
2-56	2.8	2.1	45.0	13.5	8.0
3-48	2.8	2.1	45.0	13.5	9.0
4-40	2.8	2.1	45.0	13.5	6.5
5-40	3.5	2.7	56.0	18.0	6.5
6-32	3.5	2.7	56.0	18.0	8.0
8-32	4.5	3.4	63.0	21.0	8.0
10-24	6.0	4.9	70.0	25.0	11.0
12-24	6.0	4.9	80.0	30.0	11.0
1/4-20	6.0	4.9	80.0	30.0	13.0
5/16-18	8.0	6.2	90.0	35.0	14.0
3/8-16	10.0	8.0	100.0	39.0	16.0
7/16-14			Only available in DIN 376		
1/2-13			Only available in DIN 376		
9/16-12			Only available in DIN 376		
5/8-11			Only available in DIN 376		
3/4-10			Only available in DIN 376		
7/8-9			Only available in DIN 376		
1-8			Only available in DIN 376		
1 1/8-7			Only available in DIN 376		
1 1/4-7			Only available in DIN 376		
1 3/8-6			Only available in DIN 376		
1 1/2-6			Only available in DIN 376		

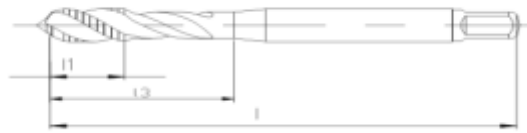
#### UNF - metric dimensions

UNF Size	Shank dia.	Square Size	l	l3	l1
2-64	3.581	2.79	47.8	16.0	
3-56	3.581	2.79	47.8	16.0	
4-48	3.581	2.79	47.8	18.0	
5-44	3.581	2.79	49.3	18.0	6.0
6-40	3.581	2.79	49.3	18.0	6.5
8-36	4.267	3.33	54.1	21.0	7.0
10-32	4.928	3.86	60.5	24.0	8.5
12-28	5.588	4.19	60.5	26.0	9.0
1/4-28	6.477	4.85	63.5	30.0	9.0
5/16-24	8.077	6.05	69.1	35.0	11.0
3/8-24	9.677	7.26	74.7	37.0	11.0
7/16-20	8.204	6.15	80.2	38.0	13.0
1/2-20	9.322	6.99	85.9	40.0	13.0
9/16-18	10.897	8.18	91.2	40.0	14.0
5/8-18	12.192	9.14	96.8	44.0	15.0
3/4-16	14.986	11.23	108.0	44.0	16.0
7/8-14	17.704	13.28	119.1	44.0	19.0
1-12	20.320	15.24	130.3	50.0	22.0
1 1/8-12					
1 1/4-12	25.933	19.46	146.0	53.0	22.0
1 3/8-12					
1 1/2-12	31.318	23.50	162.0	56.0	24.0

#### UNF - metric dimensions

UNF Size	Shank dia.	Square Size	l	l3	l1
2-64	2.8	2.1	45.0	13.5	8.0
3-56	2.8	2.1	45.0	13.5	8.0
4-48	2.8	2.1	45.0	13.5	6.0
5-44	3.5	2.7	56.0	18.0	6.0
6-40	3.5	2.7	56.0	18.0	6.5
8-36	4.5	3.4	63.0	21.0	7.0
10-32	6.0	4.9	70.0	25.0	8.5
12-28	6.0	4.9	80.0	30.0	9.0
1/4-28	6.0	4.9	80.0	30.0	9.0
5/16-24	8.0	6.2	90.0	35.0	11.0
3/8-24	10.0	8.0	100.0	39.0	11.0
7/16-20			Only available in DIN 376		
1/2-20			Only available in DIN 376		
9/16-18			Only available in DIN 376		
5/8-18			Only available in DIN 376		
3/4-16			Only available in DIN 376		
7/8-14			Only available in DIN 376		
1-12			Only available in DIN 376		
1 1/8-12			Only available in DIN 376		
1 1/4-12			Only available in DIN 376		
1 3/8-12			Only available in DIN 376		
1 1/2-12			Only available in DIN 376		

## General dimensional information - taps



### ANSI Standard Taps

#### Metric - Metric dimensions

Metric Size	Shank dia.	Square Size	l	l3	l1
M2x0.4	3.581	2.79	44.5	n.a.	
M3x0.5	3.581	2.79	49.3	18.0	7.0
M4x0.7	4.267	3.33	54.1	21.0	8.0
M5x0.8	4.928	3.86	60.5	24.0	11.0
M6x1	6.477	4.85	63.5	30.0	13.0
M8x1.25	8.077	6.05	69.1	35.0	16.0
M10x1.5	9.677	7.26	74.7	37.0	18.0
M12x1.75	9.322	6.99	85.9	44.0	20.0
M14x2	10.897	8.18	91.2	47.0	21.0
M16x2	12.192	9.14	96.8	49.0	25.0
M18x2.5	13.767	10.31	102.4	53.0	25.0
M20x2.5	16.561	12.42	113.5	58.0	28.2
M22 x 2.50					
M24 x 3.00					
M30 x 3.50					
M36 x 4.0					

### DIN Standard Taps

#### Metric - Metric dimensions

Metric Size	Shank dia.	Square Size	l	l3	l1
M2x0.4	2.8	2.1	45.0	13.5	8.0
M3x0.5	3.5	2.7	56.0	18.0	10.0
M4x0.7	4.5	3.4	63.0	21.0	12.0
M5x0.8	6.0	4.9	70.0	25.0	14.0
M6x1	6.0	4.9	80.0	30.0	16.0
M8x1.25	8.0	6.2	90.0	35.0	18.0
M10x1.5	10.0	8.0	100.0	39.0	20.0
M12x1.75			Only available in DIN 376		
M14x2			Only available in DIN 376		
M16x2			Only available in DIN 376		
M18x2.5			Only available in DIN 376		
M20x2.5			Only available in DIN 376		
M22 x 2.50					
M24 x 3.00					
M30 x 3.50					
M36 x 4.0					

#### Metric Fine - Metric dimensions

MF Size	Shank dia.	Square Size	l	l3	l1
M2x0.25					
M3x0.35	3.581	2.794	49.301	18.0	5.994
M4x0.5	4.267	3.327	54.102	21.0	5.004
M5x0.5	4.928	3.861	60.503	24.0	5.004
M6x0.75	6.477	4.851	63.500	30.0	8.001
M8x1	8.077	6.045	69.088	35.0	10.998
M10x1	9.677	7.264	74.701	37.0	10.998
M12x1	9.322	0.275	85.877	44.0	10.998
M14x1.5	10.897	8.179	91.211	47.0	15.011
M16x1.5	12.192	9.144	96.799	49.0	15.011
M18x1.5	13.767	10.312	102.387	53.0	15.977
M20x1.5	16.561	12.421	113.513	58.0	15.977
M22 x 1					
M24 x 2					
M30 x 1.5					
M36 x 2					

#### Metric Fine - Metric dimensions

MF Size	Shank dia.	Square Size	l	l3	l1
M2x0.25					
M3x0.35	2.2	n.a.	56.0	n.a.	7.0
M4x0.5	2.8	2.1	63.0	n.a.	8.0
M5x0.5	3.5	2.7	70.0	n.a.	10.0
M6x0.75	4.5	3.4	80.0	n.a.	13.2
M8x1	6.0	4.9	90.0	n.a.	14.0
M10x1	7.0	5.5	100.0	n.a.	18.0
M12x1	9.0	7.0	100.0	n.a.	20.0
M14x1.5	11.0	9.0	100.0	n.a.	20.0
M16x1.5	12.0	9.0	100.0	n.a.	22.0
M18x1.5	14.0	11.0	110.0	n.a.	25.0
M20x1.5	16.0	12.0	125.0	n.a.	25.0
M22 x 1	18.0	14.5	125.0	n.a.	25.0
M24 x 2	18.0	14.5	140.0	n.a.	25.0
M30 x 1.5	22.0	18.0	150.0	n.a.	28.0
M36 x 2	28.0	22.0	170.0	n.a.	30.0

# Guhring Substrate and Coating Descriptions

## High speed steels

Only high quality tool materials are used to produce HSS tools. Systematic selection of alloying elements ensure the tool possesses the optimal characteristics for the individual tasks. These elements include:

Tungsten, Molybdenum: increase heat- and wear-resistance

Vanadium: increases wear-resistance of finishing tools

Cobalt: enables increased hardening temperatures and heat-resistance.

## Carbide

Carbide, similar to steel, is a less than precise and indeed a very general term for an entire material group. Carbide can be produced in an infinite number of variations with different characteristics through the combination of at least two basic constituents.

## Carbide production

Carbide consists of a hardness carrier – tungsten carbide plus maybe one or more carbides – and an extremely tough component: Cobalt (Co). Cobalt basically serves as a cementing or binding agent in which the carbide particles are distributed.

Our carbide division has a state-of-the-art laboratory at its disposal to ensure our carbide always corresponds with customer requirements. From the raw material to the finished product, samples are continuously examined in order to guarantee and document the highest quality and process reliability in accordance with the certification.

## High-performance thin-film PVD coatings from Guhring

	Type	Identifying Color	Coating Process	Coating Temperature	Layer Structure	Thickness (µm)	Nano-hardness (HV 0.05)	Friction Coefficient (fetting)	Thermal Stability
<b>TiN</b> Titanium Nitride	Hard • Wear-resistant	Gold	PVD Physical Vapor Deposition	930° F 500° C	Monolayer	1.5 - 4.0	2400	0.50	1100° F 595° C
<b>TiCN</b> Titanium Carbonitride	Hard • Wear-resistant	Gray Violet	PVD Physical Vapor Deposition	930° F 500° C	Gradient	1.5 - 5.0	3000	0.25	840° F 450° C
<b>TiAlN</b> Titanium Aluminum Nitride	Hard • Wear-resistant	Black Violet	PVD Physical Vapor Deposition	930° F 500° C	Monolayer	1.5 - 4.0	3300	0.50	1470° F 800° C
<b>FIREX®</b> Special TiN-TiAlN	Hard • Wear-resistant	Red Violet	PVD Physical Vapor Deposition	930° F 500° C	Multilayer	1.5 - 5.0	3000-3300	0.50	1470° F 800° C
<b>nano-FIREX®</b> Special TiN-TiAlN	Hard • Wear-resistant	Red Violet	PVD Physical Vapor Deposition	930° F 500° C	Multilayer	1.5 - 4.0	3000-3300	0.50	1470° F 800° C
<b>Super-A™</b> Aluminum Titanium Nitride	Hard • Wear-resistant	Dark Gray	PVD Physical Vapor Deposition	930° F 500° C	Monolayer	1.5 - 4.0	3800	0.60	1650° F 900° C
<b>nano-A™</b> Aluminum Titanium Nitride	Hard • Wear-resistant	Dark Gray	PVD Physical Vapor Deposition	930° F 500° C	Monolayer	1.5 - 4.0	3800	0.60	1650° F 900° C
<b>MolyGlide®</b> MoS <sub>2</sub> -Based	Soft • Lubricating	Silver	PVD Physical Vapor Deposition	305° F 150° C	Monolayer	1.0	n.a.	0.10	1470° F 800° C

Technical

# UNC / UNF Tap Drill Sizes

81-59% Theoretical Percentage of Thread				
Tap Size	dec	Fract	Wire/ Let	Theor %
3-48	0.0772			1.960 81
3-48	0.0776			1.970 79
3-48	0.0780	5/64		1.980 78
3-48	0.0783		47	1.990 76
3-48	0.0787			2.000 75
3-48	0.0791			2.010 74
3-48	0.0795			2.020 72
3-48	0.0799			2.030 71
3-48	0.0803			2.040 69
3-48	0.0807			2.050 68
3-48	0.0811		46	2.060 66
3-48	0.0815			2.070 65
3-48	0.0819		45	2.080 63
3-48	0.0823			2.090 62
3-48	0.0827			2.100 60
3-48	0.0831			2.110 59
3-56	0.0803			2.040 81
3-56	0.0807			2.050 79
3-56	0.0811		46	2.060 77
3-56	0.0815			2.070 75
3-56	0.0819		45	2.080 74
3-56	0.0823			2.090 72
3-56	0.0827			2.100 70
3-56	0.0831			2.110 69
3-56	0.0835			2.120 67
3-56	0.0839			2.130 65
3-56	0.0843			2.140 63
3-56	0.0846			2.150 62
3-56	0.0850			2.160 60
3-56	0.0854			2.170 59
4-40	0.0858		44	2.180 81
4-40	0.0862			2.190 79
4-40	0.0866			2.200 78
4-40	0.0870			2.210 77
4-40	0.0874			2.220 76
4-40	0.0878			2.230 75
4-40	0.0882			2.240 73
4-40	0.0886			2.250 72
4-40	0.0890		43	2.260 71
4-40	0.0894			2.270 70
4-40	0.0898			2.280 68
4-40	0.0902			2.290 67
4-40	0.0906			2.300 66
4-40	0.0909			2.310 65
4-40	0.0913			2.320 64
4-40	0.0917			2.330 63
4-40	0.0921			2.340 61
4-40	0.0925			2.350 60
4-40	0.0929			2.360 59
4-48	0.0902			2.290 81
4-48	0.0906			2.300 79
4-48	0.0909			2.310 78
4-48	0.0913			2.320 76
4-48	0.0917			2.330 75
4-48	0.0921			2.340 74
4-48	0.0925			2.350 72
4-48	0.0929			2.360 71
4-48	0.0933		42	2.370 69
4-48	0.0937	3/32		2.380 68
4-48	0.0941			2.390 66
4-48	0.0945			2.400 65
4-48	0.0949			2.410 63
4-48	0.0953			2.420 62
4-48	0.0957			2.430 60
4-48	0.0961		41	2.440 59
5-40	0.0988			2.510 81
5-40	0.0992			2.520 79
5-40	0.0996		39	2.530 78
5-40	0.1000			2.540 77
5-40	0.1004			2.550 76
5-40	0.1008			2.560 75
5-40	0.1012			2.570 73
5-40	0.1016		38	2.580 72
5-40	0.1020			2.590 71
5-40	0.1024			2.600 70
5-40	0.1028			2.610 68
5-40	0.1031			2.620 67
5-40	0.1035			2.630 66
5-40	0.1039		37	2.640 65
5-40	0.1043			2.650 64
5-40	0.1047			2.660 63
5-40	0.1051			2.670 61
5-40	0.1055			2.680 60
5-40	0.1059			2.690 59
5-44	0.1012			2.570 81
5-44	0.1016		38	2.580 79
5-44	0.1020			2.590 78
5-44	0.1024			2.600 77
5-44	0.1028			2.610 75
5-44	0.1031			2.620 74
5-44	0.1035			2.630 73

81-59% Theoretical Percentage of Thread				
Tap Size	dec	Fract	Wire/ Let	Theor %
5-44	0.1039		37	2.640 71
5-44	0.1043			2.650 70
5-44	0.1047			2.660 69
5-44	0.1051			2.670 67
5-44	0.1055			2.680 66
5-44	0.1059			2.690 65
5-44	0.1063			2.700 63
5-44	0.1067		36	2.710 62
5-44	0.1071			2.720 61
5-44	0.1075			2.730 59
6-32	0.1051			2.670 81
6-32	0.1055			2.680 80
6-32	0.1059			2.690 79
6-32	0.1063			2.700 78
6-32	0.1067		36	2.710 77
6-32	0.1071			2.720 76
6-32	0.1075			2.730 75
6-32	0.1079			2.740 74
6-32	0.1083			2.750 73
6-32	0.1087			2.760 72
6-32	0.1091			2.770 71
6-32	0.1094	7/64		2.780 70
6-32	0.1098		35	2.790 69
6-32	0.1102			2.800 68
6-32	0.1106			2.810 67
6-32	0.1110		34	2.820 67
6-32	0.1114			2.830 66
6-32	0.1118			2.840 65
6-32	0.1122			2.850 64
6-32	0.1126			2.860 63
6-32	0.1130		33	2.870 62
6-32	0.1134			2.880 61
6-32	0.1138			2.890 60
6-32	0.1142			2.900 59
6-40	0.1118			2.840 81
6-40	0.1122			2.850 79
6-40	0.1126			2.860 78
6-40	0.1130		33	2.870 77
6-40	0.1134			2.880 76
6-40	0.1138			2.890 75
6-40	0.1142			2.900 73
6-40	0.1146			2.910 72
6-40	0.1150			2.920 71
6-40	0.1154			2.930 70
6-40	0.1157			2.940 69
6-40	0.1161		32	2.950 67
6-40	0.1165			2.960 66
6-40	0.1169			2.970 65
6-40	0.1173			2.980 64
6-40	0.1177			2.990 63
6-40	0.1181			3.000 61
6-40	0.1185			3.010 60
6-40	0.1189			3.020 59
8-32	0.1311			3.330 81
8-32	0.1315			3.340 80
8-32	0.1319			3.350 79
8-32	0.1323			3.360 78
8-32	0.1327			3.370 77
8-32	0.1331			3.380 76
8-32	0.1335			3.390 75
8-32	0.1339			3.400 74
8-32	0.1343			3.410 73
8-32	0.1346			3.420 72
8-32	0.1350			3.430 71
8-32	0.1354			3.440 70
8-32	0.1358		29	3.450 69
8-32	0.1362			3.460 68
8-32	0.1366			3.470 67
8-32	0.1370			3.480 67
8-32	0.1374			3.490 66
8-32	0.1378			3.500 65
8-32	0.1382			3.510 64
8-32	0.1386			3.520 63
8-32	0.1390			3.530 62
8-32	0.1394			3.540 61
8-32	0.1398			3.550 60
8-32	0.1402			3.560 59
8-36	0.1346			3.420 81
8-36	0.1350			3.430 80
8-36	0.1354			3.440 79
8-36	0.1358		29	3.450 78
8-36	0.1362			3.460 77
8-36	0.1366			3.470 76
8-36	0.1370			3.480 75
8-36	0.1374			3.490 74
8-36	0.1378			3.500 73
8-36	0.1382			3.510 72
8-36	0.1386			3.520 70
8-36	0.1390			3.530 69
8-36	0.1394			3.540 68
8-36	0.1398			3.550 67

81-59% Theoretical Percentage of Thread				
Tap Size	dec	Fract	Wire/ Let	Theor %
8-36	0.1402			3.560 66
8-36	0.1406	9/64	28	3.570 65
8-36	0.1409			3.580 64
8-36	0.1413			3.590 63
8-36	0.1417			3.600 62
8-36	0.1421			3.610 61
8-36	0.1425			3.620 60
10-24	0.1461			3.710 81
10-24	0.1465			3.720 80
10-24	0.1469		26	3.730 80
10-24	0.1472			3.740 79
10-24	0.1476			3.750 78
10-24	0.1480			3.760 78
10-24	0.1484			3.770 77
10-24	0.1488			3.780 76
10-24	0.1492			3.790 75
10-24	0.1496		25	3.800 75
10-24	0.1500			3.810 74
10-24	0.1504			3.820 73
10-24	0.1508			3.830 72
10-24	0.1512			3.840 72
10-24	0.1516			3.850 71
10-24	0.1520		24	3.860 70
10-24	0.1524			3.870 69
10-24	0.1528			3.880 69
10-24	0.1531			3.890 68
10-24	0.1535			3.900 67
10-24	0.1539		23	3.910 67
10-24	0.1543			3.920 66
10-24	0.1547			3.930 65
10-24	0.1551			3.940 64
10-24	0.1555			3.950 64
10-24	0.1559			3.960 63
10-24	0.1563	5/32		3.970 62
10-24	0.1567			3.980 62
10-24	0.1571		22	3.990 61
10-24	0.1575			4.000 60
10-24	0.1579			4.010 59
10-24	0.1583			4.020 59
10-32	0.1571		22	3.990 81
10-32	0.1575			4.000 80
10-32	0.1579			4.010 79
10-32	0.1583			4.020 78
10-32	0.1587			4.030 77
10-32	0.1591		21	4.040 76
10-32	0.1594			4.050 75
10-32	0.1598			4.060 74
10-32	0.1602			4.070 73
10-32	0.1606			4.080 72
10-32	0.1610		20	4.090 71
10-32	0.1614			4.100 70
10-32	0.1618			4.110 69
10-32	0.1622			4.120 68
10-32	0.1626			4.130 67
10-32	0.1630			4.140 67
10-32	0.1634			4.150 66
10-32	0.1638			4.160 65
10-32	0.1642			4.170 64
10-32	0.1646			4.180 63
10-32	0.1650			4.190 62
10-32	0.1654			4.200 61
10-32	0.1657			4.210 60
10-32	0.1661		19	4.220 59
12-24	0.1720	11/64		4.370 81
12-24	0.1724			4.380 81
12-24	0.1728		17	4.390 80
12-24	0.1732			4.400 79
12-24	0.1736			4.410 78
12-24	0.1740			4.420 78
12-24	0.1744			4.430 77
12-24	0.1748			4.440 76
12-24	0.1752			4.450 75
12-24	0.1756			4.460 75
12-24	0.176			

# UNC / UNF Tap Drill Sizes

81-59% Theoretical Percentage of Thread					
Tap Size	dec	Fract	Wire/ Let	mm	Theor %
12-24	0.1831			4.650	61
12-24	0.1835			4.660	60
12-24	0.1839			4.670	59
12-24	0.1843			4.680	59
12-28	0.1783			4.530	81
12-28	0.1787			4.540	80
12-28	0.1791			4.550	80
12-28	0.1795			4.560	79
12-28	0.1799		15	4.570	78
12-28	0.1803			4.580	77
12-28	0.1807			4.590	76
12-28	0.1811			4.600	75
12-28	0.1815			4.610	74
12-28	0.1819		14	4.620	74
12-28	0.1823			4.630	73
12-28	0.1827			4.640	72
12-28	0.1831			4.650	71
12-28	0.1835			4.660	70
12-28	0.1839			4.670	69
12-28	0.1843			4.680	68
12-28	0.1846			4.690	68
12-28	0.1850		13	4.700	67
12-28	0.1854			4.710	66
12-28	0.1858			4.720	65
12-28	0.1862			4.730	64
12-28	0.1866			4.740	63
12-28	0.1870			4.750	63
12-28	0.1874		3/16	4.760	62
12-28	0.1878			4.770	61
12-28	0.1882			4.780	60
12-28	0.1886			4.790	59
1/4-20	0.1988			5.050	79
1/4-20	0.1992		8	5.060	78
1/4-20	0.2008			5.100	76
1/4-20	0.2012		7	5.110	75
1/4-20	0.2028			5.150	73
1/4-20	0.2031		13/64	5.160	72
1/4-20	0.2039		6	5.180	71
1/4-20	0.2047			5.200	70
1/4-20	0.2055		5	5.220	69
1/4-20	0.2067			5.250	67
1/4-20	0.2087			5.300	64
1/4-20	0.2091		4	5.310	63
1/4-20	0.2106			5.350	61
1/4-28	0.2126			5.400	81
1/4-28	0.2130		3	5.410	80
1/4-28	0.2146			5.450	76
1/4-28	0.2165			5.500	72
1/4-28	0.2185			5.550	68
1/4-28	0.2189		7/32	5.560	67
1/4-28	0.2205			5.600	64
1/4-28	0.2209		2	5.610	63
1/4-28	0.2224			5.650	59
5/16-18	0.2539			6.450	81
5/16-18	0.2559			6.500	78
5/16-18	0.2571		F	6.530	77
5/16-18	0.2579			6.550	76
5/16-18	0.2598			6.600	73
5/16-18	0.2610		G	6.630	71
5/16-18	0.2618			6.650	70
5/16-18	0.2638			6.700	67
5/16-18	0.2657		17/64	6.750	65
5/16-18	0.2677			6.800	62
5/16-18	0.2697			6.850	59
5/16-24	0.2697			6.850	79
5/16-24	0.2717		I	6.900	75
5/16-24	0.2736			6.950	72
5/16-24	0.2756			7.000	68
5/16-24	0.2768		J	7.030	66
5/16-24	0.2776			7.050	64
5/16-24	0.2795			7.100	61
3/8-16	0.3091			7.850	81
3/8-16	0.3110			7.900	79
3/8-16	0.3126		5/16	7.940	77
3/8-16	0.3130			7.950	76
3/8-16	0.3150			8.000	74
3/8-16	0.3161		O	8.030	73
3/8-16	0.3169			8.050	72
3/8-16	0.3189			8.100	69
3/8-16	0.3209			8.150	67
3/8-16	0.3228		P	8.200	64
3/8-16	0.3248			8.250	62
3/8-16	0.3268			8.300	59
3/8-24	0.3327			8.450	78
3/8-24	0.3346			8.500	75
3/8-24	0.3366			8.550	71
3/8-24	0.3386			8.600	67
3/8-24	0.3406			8.650	64
3/8-24	0.3425			8.700	60
7/16-14	0.3622			9.200	81
7/16-14	0.3642			9.250	79

81-59% Theoretical Percentage of Thread					
Tap Size	dec	Fract	Wire/ Let	mm	Theor %
7/16-14	0.3661			9.300	77
7/16-14	0.3677		U	9.340	75
7/16-14	0.3681			9.350	75
7/16-14	0.3701			9.400	73
7/16-14	0.3720			9.450	71
7/16-14	0.3740			9.500	68
7/16-14	0.3748		3/8	9.520	68
7/16-14	0.3760			9.550	66
7/16-14	0.3772		V	9.580	65
7/16-14	0.3780			9.600	64
7/16-14	0.3799			9.650	62
7/16-14	0.3819			9.700	60
7/16-20	0.3858		W	9.800	80
7/16-20	0.3878			9.850	77
7/16-20	0.3898			9.900	73
7/16-20	0.3906		25/64	9.920	72
7/16-20	0.3917			9.950	71
7/16-20	0.3937			10.000	67
7/16-20	0.3957			10.050	64
7/16-20	0.3969		X	10.080	63
7/16-20	0.3976			10.100	61
1/2-13	0.4193			10.650	81
1/2-13	0.4213			10.700	79
1/2-13	0.4220		27/64	10.720	78
1/2-13	0.4232			10.750	77
1/2-13	0.4252			10.800	75
1/2-13	0.4272			10.850	73
1/2-13	0.4291			10.900	71
1/2-13	0.4311			10.950	69
1/2-13	0.4331			11.000	67
1/2-13	0.4350			11.050	65
1/2-13	0.4370			11.100	63
1/2-13	0.4374		7/16	11.110	63
1/2-13	0.4390			11.150	61
1/2-13	0.4409			11.200	59
1/2-20	0.4488			11.400	79
1/2-20	0.4508			11.450	76
1/2-20	0.4528			11.500	73
1/2-20	0.4531		29/64	11.510	72
1/2-20	0.4547			11.550	70
1/2-20	0.4567			11.600	67
1/2-20	0.4587			11.650	64
1/2-20	0.4606			11.700	61
9/16-12	0.4744			12.050	81
9/16-12	0.4764			12.100	80
9/16-12	0.4783			12.150	78
9/16-12	0.4803			12.200	76
9/16-12	0.4823			12.250	74
9/16-12	0.4843		31/64	12.300	72
9/16-12	0.4862			12.350	70
9/16-12	0.4882			12.400	69
9/16-12	0.4902			12.450	67
9/16-12	0.4921			12.500	65
9/16-12	0.4941			12.550	63
9/16-12	0.4961			12.600	61
9/16-12	0.4980			12.650	60
9/16-18	0.5039			12.800	81
9/16-18	0.5059			12.850	78
9/16-18	0.5079			12.900	76
9/16-18	0.5098			12.950	73
9/16-18	0.5118			13.000	70
9/16-18	0.5138			13.050	67
9/16-18	0.5157		33/64	13.100	65
9/16-18	0.5177			13.150	62
9/16-18	0.5197			13.200	59
5/8-11	0.5295			13.450	81
5/8-11	0.5311		17/32	13.490	80
5/8-11	0.5315			13.500	79
5/8-11	0.5335			13.550	77
5/8-11	0.5354			13.600	76
5/8-11	0.5374			13.650	74
5/8-11	0.5394			13.700	72
5/8-11	0.5413			13.750	71
5/8-11	0.5433			13.800	69
5/8-11	0.5453			13.850	67
5/8-11	0.5469		35/64	13.890	66
5/8-11	0.5472			13.900	66
5/8-11	0.5492			13.950	64
5/8-11	0.5512			14.000	62
5/8-11	0.5531			14.050	61
5/8-11	0.5551			14.100	59
5/8-18	0.5669			14.400	81
5/8-18	0.5689			14.450	78
5/8-18	0.5709			14.500	75
5/8-18	0.5728			14.550	72
5/8-18	0.5748			14.600	70
5/8-18	0.5768			14.650	67
5/8-18	0.5780		37/64	14.680	65
5/8-18	0.5787			14.700	64
5/8-18	0.5807			14.750	61
5/8-18	0.5827			14.800	59

81-59% Theoretical Percentage of Thread					
Tap Size	dec	Fract	Wire/ Let	mm	Theor %
3/4-10	0.6457			16.400	80
3/4-10	0.6476			16.450	79
3/4-10	0.6496			16.500	77
3/4-10	0.6516			16.550	76
3/4-10	0.6535			16.600	74
3/4-10	0.6555			16.650	73
3/4-10	0.6563		21/32	16.670	72
3/4-10	0.6575			16.700	71
3/4-10	0.6594			16.750	70
3/4-10	0.6614			16.800	68
3/4-10	0.6634			16.850	67
3/4-10	0.6654			16.900	65
3/4-10	0.6673			16.950	64
3/4-10	0.6693			17.000	62
3/4-10	0.6713			17.050	61
3/4-10	0.6720		43/64	17.070	60
3/4-10	0.6732			17.100	59
3/4-16	0.6850			17.400	80
3/4-16	0.6870			17.450	78
3/4-16	0.6874		11/16	17.460	77
3/4-16	0.6890			17.500	75
3/4-16	0.6909			17.550	73
3/4-16	0.6929			17.600	70
3/4-16	0.6949			17.650	68
3/4-16	0.6969			17.700	65
3/4-16	0.6988			17.750	63
3/4-16	0.7008			17.800	61
7/8-9	0.7579			19.250	81
7/8-9	0.7598			19.300	80
7/8-9	0.7618			19.350	78
7/8-9	0.7638			19.400	77
7/8-9	0.7657		49/64	19.450	76
7/8-9	0.7677			19.500	74
7/8-9	0.7697			19.550	73
7/8-9	0.7717			19.600	72
7/8-9	0.7736			19.650	70
7/8-9	0.7756			19.700	69
7/8-9	0.7776			19.750	67
7/8-9	0.7795			19.800	66
7/8-9	0.7811		25/32	19.840	65
7/8-9	0.7815			19.850	65
7/8-9	0.7835			19.900	63

## UNC / UNF Tap Drill Sizes

81-59% Theoretical Percentage of Thread					
Tap Size	dec	Fract	Wire/ Let	mm	Theor %
1 1/8-7	0.9689	31/32		24.610	84
1 1/8-7	0.9724			24.700	82
1 1/8-7	0.9764			24.800	80
1 1/8-7	0.9803			24.900	78
1 1/8-7	0.9843	63/64		25.000	76
1 1/8-7	0.9882			25.100	74
1 1/8-7	0.9921			25.200	72
1 1/8-7	0.9961			25.300	69
1 1/8-7	1.0000	1		25.400	67
1 1/8-7	1.0039			25.500	65
1 1/8-7	1.0079			25.600	63
1 1/8-7	1.0118			25.700	61
1 1/8-7	1.0157	1 1/64		25.800	59
1 1/8-7	1.0197			25.900	57
1 1/8-7	1.0236			26.000	55
1 1/8-12	1.0394			26.400	79
1 1/8-12	1.0433			26.500	75
1 1/8-12	1.0469	1 3/64		26.590	72
1 1/8-12	1.0472			26.600	72
1 1/8-12	1.0512			26.700	68
1 1/8-12	1.0551			26.800	65
1 1/8-12	1.0591			26.900	61
1 1/8-12	1.0626	1 1/16		26.990	58
1 1/8-12	1.0630			27.000	57
1 1/4-7	1.0937	1 3/32		27.780	84
1 1/4-7	1.1024			28.000	80
1 1/4-7	1.1063			28.100	77
1 1/4-7	1.1094	1 7/64		28.180	76
1 1/4-7	1.1102			28.200	75
1 1/4-7	1.1142			28.300	73
1 1/4-7	1.1181			28.400	71
1 1/4-7	1.1220			28.500	69
1 1/4-7	1.1248	1 1/8		28.570	67

81-59% Theoretical Percentage of Thread					
Tap Size	dec	Fract	Wire/ Let	mm	Theor %
1 1/4-7	1.1260			28.600	67
1 1/4-7	1.1299			28.700	65
1 1/4-7	1.1339			28.800	63
1 1/4-7	1.1378			28.900	60
1 1/4-7	1.1406	1 9/64		28.970	59
1 1/4-12	1.1614			29.500	82
1 1/4-12	1.1654			29.600	78
1 1/4-12	1.1693			29.700	75
1 1/4-12	1.1720	1 11/64		29.770	72
1 1/4-12	1.1732			29.800	71
1 1/4-12	1.1772			29.900	67
1 1/4-12	1.1811			30.000	64
1 1/4-12	1.1850			30.100	60
1 3/8-6	1.1969			30.400	82
1 3/8-6	1.2008			30.500	80
1 3/8-6	1.2031	1 13/64		30.560	79
1 3/8-6	1.2047			30.600	79
1 3/8-6	1.2087			30.700	77
1 3/8-6	1.2126			30.800	75
1 3/8-6	1.2165			30.900	73
1 3/8-6	1.2189	1 7/32		30.960	72
1 3/8-6	1.2205			31.000	71
1 3/8-6	1.2244			31.100	70
1 3/8-6	1.2283			31.200	68
1 3/8-6	1.2323			31.300	66
1 3/8-6	1.2343			31.350	65
1 3/8-6	1.2362			31.400	64
1 3/8-6	1.2402			31.500	62
1 3/8-6	1.2441			31.600	60
1 3/8-6	1.2480			31.700	59
1 3/8-12	1.2874			32.700	81
1 3/8-12	1.2913			32.800	77
1 3/8-12	1.2953			32.900	74

81-59% Theoretical Percentage of Thread					
Tap Size	dec	Fract	Wire/ Let	mm	Theor %
1 3/8-12	1.2969	1 19/64		32.940	72
1 3/8-12	1.2992			33.000	70
1 3/8-12	1.3031			33.100	66
1 3/8-12	1.3071			33.200	63
1 3/8-12	1.3110			33.300	59
1 1/2-6	1.3228			33.600	82
1 1/2-6	1.3268			33.700	80
1 1/2-6	1.3280	1 21/64		33.730	79
1 1/2-6	1.3307			33.800	78
1 1/2-6	1.3346			33.900	76
1 1/2-6	1.3386			34.000	75
1 1/2-6	1.3425			34.100	73
1 1/2-6	1.3437			34.130	72
1 1/2-6	1.3465			34.200	71
1 1/2-6	1.3504			34.300	69
1 1/2-6	1.3543			34.400	67
1 1/2-6	1.3583			34.500	65
1 1/2-6	1.3594			34.530	65
1 1/2-6	1.3622			34.600	64
1 1/2-6	1.3661			34.700	62
1 1/2-6	1.3701			34.800	60
1 1/2-6	1.3740			34.900	58
1 1/2-6	1.3748	1 3/8		34.920	58
1 1/2-12	1.4134			35.900	80
1 1/2-12	1.4173			36.000	76
1 1/2-12	1.4213			36.100	73
1 1/2-12	1.4220	1 27/64		36.120	72
1 1/2-12	1.4252			36.200	69
1 1/2-12	1.4291			36.300	65
1 1/2-12	1.4331			36.400	62
1 1/2-12	1.4370			36.500	58
1 1/2-12	1.4374	1 7/16		36.510	58

## Metric Tap Drill Sizes

81-59% Theoretical Percentage of Thread					
Tap Size	dec	Fract	Wire/ Let	mm	Theor %
M3x0.35	0.1035			2.630	81
M3x0.35	0.1039		37	2.640	79
M3x0.35	0.1043			2.650	77
M3x0.35	0.1047			2.660	75
M3x0.35	0.1051			2.670	73
M3x0.35	0.1055			2.680	70
M3x0.35	0.1059			2.690	68
M3x0.35	0.1063			2.700	66
M3x0.35	0.1067		36	2.710	64
M3x0.35	0.1071			2.720	62
M3x0.35	0.1075			2.730	59
M3x0.50	0.0976			2.480	80
M3x0.50	0.0980		40	2.490	79
M3x0.50	0.0984			2.500	77
M3x0.50	0.0988			2.510	75
M3x0.50	0.0992			2.520	74
M3x0.50	0.0996		39	2.530	72
M3x0.50	0.1000			2.540	71
M3x0.50	0.1004			2.550	69
M3x0.50	0.1008			2.560	68
M3x0.50	0.1012			2.570	66
M3x0.50	0.1016		38	2.580	65
M3x0.50	0.1020			2.590	63
M3x0.50	0.1024			2.600	62
M3x0.50	0.1028			2.610	60
M3x0.50	0.1031			2.620	59
M3.5x0.60	0.1130		33	2.870	81
M3.5x0.60	0.1134			2.880	80
M3.5x0.60	0.1138			2.890	78
M3.5x0.60	0.1142			2.900	77
M3.5x0.60	0.1146			2.910	76
M3.5x0.60	0.1150			2.920	74
M3.5x0.60	0.1154			2.930	73
M3.5x0.60	0.1157			2.940	72
M3.5x0.60	0.1161		32	2.950	71
M3.5x0.60	0.1165			2.960	69
M3.5x0.60	0.1169			2.970	68
M3.5x0.60	0.1173			2.980	67
M3.5x0.60	0.1177			2.990	65
M3.5x0.60	0.1181			3.000	64
M3.5x0.60	0.1185			3.010	63
M3.5x0.60	0.1189			3.020	62
M3.5x0.60	0.1193			3.030	60
M3.5x0.60	0.1197			3.040	59
M4x0.50	0.1370			3.480	80
M4x0.50	0.1374			3.490	79

81-59% Theoretical Percentage of Thread					
Tap Size	dec	Fract	Wire/ Let	mm	Theor %
M4x0.50	0.1378			3.500	77
M4x0.50	0.1382			3.510	75
M4x0.50	0.1386			3.520	74
M4x0.50	0.1390			3.530	72
M4x0.50	0.1394			3.540	71
M4x0.50	0.1398			3.550	69
M4x0.50	0.1402			3.560	68
M4x0.50	0.1406	9/64	28	3.570	66
M4x0.50	0.1409			3.580	65
M4x0.50	0.1413			3.590	63
M4x0.50	0.1417			3.600	62
M4x0.50	0.1421			3.610	60
M4x0.50	0.1425			3.620	59
M4x0.70	0.1283		30	3.260	81
M4x0.70	0.1287			3.270	80
M4x0.70	0.1291			3.280	79
M4x0.70	0.1295			3.290	78
M4x0.70	0.1299			3.300	77
M4x0.70	0.1303			3.310	76
M4x0.70	0.1307			3.320	75
M4x0.70	0.1311			3.330	74
M4x0.70	0.1315			3.340	73
M4x0.70	0.1319			3.350	71
M4x0.70	0.1323			3.360	70
M4x0.70	0.1327			3.370	69
M4x0.70	0.1331			3.380	68
M4x0.70	0.1335			3.390	67
M4x0.70	0.1339			3.400	66
M4x0.70	0.1343			3.410	65
M4x0.70	0.1346			3.420	64
M4x0.70	0.1350			3.430	63
M4x0.70	0.1354			3.440	62
M4x0.70	0.1358		29	3.450	60
M4x0.70	0.1362			3.460	59
M5x0.50	0.1764			4.480	80
M5x0.50	0.1768			4.490	79
M5x0.50	0.1772		16	4.500	77
M5x0.50	0.1776			4.510	75
M5x0.50	0.1780			4.520	74
M5x0.50	0.1783			4.530	72
M5x0.50	0.1787			4.540	71
M5x0.50	0.1791			4.550	69
M5x0.50	0.1795			4.560	68
M5x0.50	0.1799		15	4.570	66
M5x0.50	0.1803			4.580	65
M5x0.50	0.1807			4.590	63

81-59% Theoretical Percentage of Thread					
Tap Size	dec	Fract	Wire/ Let	mm	Theor %
M5x0.50	0.1811			4.600	62
M5x0.50	0.1815			4.610	60
M5x0.50	0.1819		14	4.620	59
M5x0.80	0.1638			4.160	81
M5x0.80	0.1642			4.170	80
M5x0.80	0.1646			4.180	79
M5x0.80	0.1650			4.190	78
M5x0.80	0.1654			4.200	77
M5x0.80	0.1657			4.210	76
M5x0.80	0.1661		19	4.220	75
M5x0.80	0.1665			4.230	74
M5x0.80	0.1669			4.240	73
M5x0.80	0.1673			4.250	72
M5x0.80	0.1677			4.260	71
M5x0.80	0.1681			4.270	70
M5x0.80	0.1685			4.280	69
M5x0.80	0.1689			4.290	68
M5x0.80	0.1693		18	4.300	67
M5x0.80	0.1697			4.310	66
M5x0.80	0.1701			4.320	65
M5x0.80	0.1705			4.330	64
M5x0.80	0.1709			4.340	64

# Metric Tap Drill Sizes

81-59% Theoretical Percentage of Thread					
Tap Size	dec	Fract	Wire/Let	mm	Theor %
M6x1.00	0.1992		8	5.060	72
M6x1.00	0.2008			5.100	69
M6x1.00	0.2012		7	5.110	69
M6x1.00	0.2028			5.150	65
M6x1.00	0.2031	13/64		5.160	65
M6x1.00	0.2039		6	5.180	63
M6x1.00	0.2047			5.200	62
M6x1.00	0.2055		5	5.220	60
M7x0.75	0.2461		D	6.250	77
M7x0.75	0.2480			6.300	72
M7x0.75	0.2500	1/4	E	6.350	67
M7x0.75	0.2520			6.400	62
M7x1.00	0.2343	15/64		5.950	81
M7x1.00	0.2362			6.000	77
M7x1.00	0.2378		B	6.040	74
M7x1.00	0.2382			6.050	73
M7x1.00	0.2402			6.100	69
M7x1.00	0.2421		C	6.150	65
M7x1.00	0.2441			6.200	62
M8x0.50	0.2949		M	7.490	79
M8x0.50	0.2953			7.500	77
M8x0.50	0.2969	19/64		7.540	71
M8x0.50	0.2972			7.550	69
M8x0.50	0.2992			7.600	62
M8x0.75	0.2854			7.250	77
M8x0.75	0.2874			7.300	72
M8x0.75	0.2894			7.350	67
M8x0.75	0.2902		L	7.370	65
M8x0.75	0.2913			7.400	62
M8x1.00	0.2736			6.950	81
M8x1.00	0.2756			7.000	77
M8x1.00	0.2768		J	7.030	75
M8x1.00	0.2776			7.050	73
M8x1.00	0.2795			7.100	69
M8x1.00	0.2811	9/32	K	7.140	66
M8x1.00	0.2815			7.150	65
M8x1.00	0.2835			7.200	62
M8x1.25	0.2638			6.700	80
M8x1.25	0.2657	17/64	H	6.750	77
M8x1.25	0.2677			6.800	74
M8x1.25	0.2697			6.850	71
M8x1.25	0.2717		I	6.900	68
M8x1.25	0.2736			6.950	65
M8x1.25	0.2756			7.000	62
M8x1.25	0.2768		J	7.030	60
M8x1.25	0.2776			7.050	59
M9x1.00	0.3130			7.950	81
M9x1.00	0.3150			8.000	77
M9x1.00	0.3161		O	8.030	75
M9x1.00	0.3169			8.050	73
M9x1.00	0.3189			8.100	69
M9x1.00	0.3209			8.150	65
M9x1.00	0.3228		P	8.200	62
M10x0.75	0.3642			9.250	77
M10x0.75	0.3661			9.300	72
M10x0.75	0.3677		U	9.340	68
M10x0.75	0.3681			9.350	67
M10x0.75	0.3701			9.400	62
M10x1.00	0.3524			8.950	81
M10x1.00	0.3543			9.000	77
M10x1.00	0.3563			9.050	73
M10x1.00	0.3579		T	9.090	70
M10x1.00	0.3583			9.100	69
M10x1.00	0.3594	23/64		9.130	67
M10x1.00	0.3602			9.150	65
M10x1.00	0.3622			9.200	62
M10x1.25	0.3425			8.700	80
M10x1.25	0.3437	11/32		8.730	78
M10x1.25	0.3445			8.750	77
M10x1.25	0.3465			8.800	74
M10x1.25	0.3480		S	8.840	71
M10x1.25	0.3484			8.850	71
M10x1.25	0.3504			8.900	68
M10x1.25	0.3524			8.950	65
M10x1.25	0.3543			9.000	62
M10x1.25	0.3563			9.050	59
M10x1.50	0.3319		Q	8.430	81
M10x1.50	0.3327			8.450	80
M10x1.50	0.3346			8.500	77
M10x1.50	0.3366			8.550	74
M10x1.50	0.3386			8.600	72
M10x1.50	0.3390		R	8.610	71
M10x1.50	0.3406			8.650	69
M10x1.50	0.3425			8.700	67
M10x1.50	0.3437	11/32		8.730	65
M10x1.50	0.3445			8.750	64
M10x1.50	0.3465			8.800	62
M10x1.50	0.3480		S	8.840	60
M10x1.50	0.3484			8.850	59
M11x1.00	0.3917			9.950	81

81-59% Theoretical Percentage of Thread					
Tap Size	dec	Fract	Wire/Let	mm	Theor %
M11x1.00	0.3937			10.000	77
M11x1.00	0.3957			10.050	73
M11x1.00	0.3969		X	10.080	71
M11x1.00	0.3976			10.100	69
M11x1.00	0.3996			10.150	65
M11x1.00	0.4016			10.200	62
M12x1.00	0.4311			10.950	81
M12x1.00	0.4331			11.000	77
M12x1.00	0.4350			11.050	73
M12x1.00	0.4370			11.100	69
M12x1.00	0.4374	7/16		11.110	69
M12x1.00	0.4390			11.150	65
M12x1.00	0.4409			11.200	62
M12x1.25	0.4213			10.700	80
M12x1.25	0.4220	27/64		10.720	79
M12x1.25	0.4232			10.750	77
M12x1.25	0.4252			10.800	74
M12x1.25	0.4272			10.850	71
M12x1.25	0.4291			10.900	68
M12x1.25	0.4311			10.950	65
M12x1.25	0.4331			11.000	62
M12x1.25	0.4350			11.050	59
M12x1.50	0.4114			10.450	80
M12x1.50	0.4130		Z	10.490	77
M12x1.50	0.4134			10.500	77
M12x1.50	0.4154			10.550	74
M12x1.50	0.4173			10.600	72
M12x1.50	0.4193			10.650	69
M12x1.50	0.4213			10.700	67
M12x1.50	0.4220	27/64		10.720	66
M12x1.50	0.4232			10.750	64
M12x1.50	0.4252			10.800	62
M12x1.50	0.4272			10.850	59
M12x1.75	0.3996			10.150	81
M12x1.75	0.4016			10.200	79
M12x1.75	0.4035			10.250	77
M12x1.75	0.4039		Y	10.260	77
M12x1.75	0.4055			10.300	75
M12x1.75	0.4063	13/32		10.320	74
M12x1.75	0.4075			10.350	73
M12x1.75	0.4094			10.400	70
M12x1.75	0.4114			10.450	68
M12x1.75	0.4130		Z	10.490	66
M12x1.75	0.4134			10.500	66
M12x1.75	0.4154			10.550	64
M12x1.75	0.4173			10.600	62
M12x1.75	0.4193			10.650	59
M14x1.00	0.5098			12.950	81
M14x1.00	0.5118			13.000	77
M14x1.00	0.5138			13.050	73
M14x1.00	0.5138			13.050	73
M14x1.00	0.5157	33/64		13.100	69
M14x1.00	0.5177			13.150	65
M14x1.00	0.5197			13.200	62
M14x1.25	0.5000	1/2		12.700	80
M14x1.25	0.5020			12.750	77
M14x1.25	0.5039			12.800	74
M14x1.25	0.5059			12.850	71
M14x1.25	0.5079			12.900	68
M14x1.25	0.5098			12.950	65
M14x1.25	0.5118			13.000	62
M14x1.25	0.5138			13.050	59
M14x1.50	0.4902			12.450	80
M14x1.50	0.4921			12.500	77
M14x1.50	0.4941			12.550	74
M14x1.50	0.4961			12.600	72
M14x1.50	0.4980			12.650	69
M14x1.50	0.5000	1/2		12.700	67
M14x1.50	0.5020			12.750	64
M14x1.50	0.5039			12.800	62
M14x1.50	0.5059			12.850	59
M14x2.00	0.4685			11.900	81
M14x2.00	0.4689	15/32		11.910	80
M14x2.00	0.4705			11.950	79
M14x2.00	0.4724			12.000	77
M14x2.00	0.4744			12.050	75
M14x2.00	0.4764			12.100	73
M14x2.00	0.4783			12.150	71
M14x2.00	0.4803			12.200	69
M14x2.00	0.4823			12.250	67
M14x2.00	0.4843	31/64		12.300	65
M14x2.00	0.4862			12.350	64
M14x2.00	0.4882			12.400	62
M14x2.00	0.4902			12.450	60
M15x1.00	0.5492			13.950	81
M15x1.00	0.5512			14.000	77
M15x1.00	0.5531			14.050	73
M15x1.00	0.5551			14.100	69
M15x1.00	0.5571			14.150	65
M15x1.00	0.5591			14.200	62
M15x1.50	0.5295			13.450	80

81-59% Theoretical Percentage of Thread					
Tap Size	dec	Fract	Wire/Let	mm	Theor %
M15x1.50	0.5311	17/32		13.490	77
M15x1.50	0.5315			13.500	77
M15x1.50	0.5335			13.550	74
M15x1.50	0.5354			13.600	72
M15x1.50	0.5374			13.650	69
M15x1.50	0.5394			13.700	67
M15x1.50	0.5413			13.750	64
M15x1.50	0.5433			13.800	62
M15x1.50	0.5453			13.850	59
M16x1.00	0.5886			14.950	81
M16x1.00	0.5906			15.000	77
M16x1.00	0.5925			15.050	73
M16x1.00	0.5937	19/32		15.080	71
M16x1.00	0.5945			15.100	69
M16x1.00	0.5965			15.150	65
M16x1.00	0.5984			15.200	62
M16x1.50	0.5689			14.450	80
M16x1.50	0.5709			14.500	77
M16x1.50	0.5728			14.550	74
M16x1.50	0.5748			14.600	72
M16x1.50	0.5768			14.650	69
M16x1.50	0.5787			14.700	67
M16x1.50	0.5807			14.750	64
M16x1.50	0.5827			14.800	62
M16x1.50	0.5846			14.850	59
M16x2.00	0.5469	35/64		13.890	81
M16x2.00	0.5472			13.900	81
M16x2.00	0.5492			13.950	79
M16x2.00	0.5512			14.000	77
M16x2.00	0.5531			14.050	75
M16x2.00	0.5551			14.100	73
M16x2.00	0.5571			14.150	71
M16x2.00	0.5591			14.200	69
M16x2.00	0.5610			14.250	67
M16x2.00	0.5626	9/16		14.290	66
M16x2.00	0.5630			14.300	65
M16x2.00	0.5650			14.350	64
M16x2.00	0.5669			14.400	62
M16x2.00	0.5689			14.450	60
M18x1.00	0.6673			16.950	81

# Metric Tap Drill Sizes

81-59% Theoretical Percentage of Thread					
Tap Size	dec	Fract	Wire/Let	mm	Theor %
M20x1.50	0.7343	47/64		18.650	69
M20x1.50	0.7362			18.700	67
M20x1.50	0.7382			18.750	64
M20x1.50	0.7402			18.800	62
M20x1.50	0.7421			18.850	59
M20x2.00	0.7047			17.900	81
M20x2.00	0.7067			17.950	79
M20x2.00	0.7087			18.000	77
M20x2.00	0.7106			18.050	75
M20x2.00	0.7126			18.100	73
M20x2.00	0.7146			18.150	71
M20x2.00	0.7165			18.200	69
M20x2.00	0.7185			18.250	67
M20x2.00	0.7189	23/32		18.260	67
M20x2.00	0.7205			18.300	65
M20x2.00	0.7224			18.350	64
M20x2.00	0.7244			18.400	62
M20x2.00	0.7264			18.450	60
M20x2.50	0.6850			17.400	80
M20x2.50	0.6870			17.450	79
M20x2.50	0.6874	11/16		17.460	78
M20x2.50	0.6890			17.500	77
M20x2.50	0.6909			17.550	75
M20x2.50	0.6929			17.600	74
M20x2.50	0.6949			17.650	72
M20x2.50	0.6969			17.700	71
M20x2.50	0.6988			17.750	69
M20x2.50	0.7008			17.800	68
M20x2.50	0.7028			17.850	66
M20x2.50	0.7031	45/64		17.860	66
M20x2.50	0.7047			17.900	65
M20x2.50	0.7067			17.950	63
M20x2.50	0.7087			18.000	62
M20x2.50	0.7106			18.050	60
M20x2.50	0.7126			18.100	59
M22x1.00	0.8248			20.950	81
M22x1.00	0.8268			21.000	77
M22x1.00	0.8280	53/64		21.030	75
M22x1.00	0.8287			21.050	73
M22x1.00	0.8307			21.100	69
M22x1.00	0.8327			21.150	65
M22x1.00	0.8346			21.200	62
M22x1.50	0.8051			20.450	80
M22x1.50	0.8071			20.500	77
M22x1.50	0.8091			20.550	74
M22x1.50	0.8110			20.600	72
M22x1.50	0.8126	13/16		20.640	70
M22x1.50	0.8130			20.650	69
M22x1.50	0.8150			20.700	67
M22x1.50	0.8169			20.750	64
M22x1.50	0.8189			20.800	62
M22x1.50	0.8209			20.850	59
M22x2.00	0.7835			19.900	81
M22x2.00	0.7854			19.950	79
M22x2.00	0.7874			20.000	77
M22x2.00	0.7894			20.050	75
M22x2.00	0.7913			20.100	73
M22x2.00	0.7933			20.150	71
M22x2.00	0.7953			20.200	69
M22x2.00	0.7969	51/64		20.240	68
M22x2.00	0.7972			20.250	67
M22x2.00	0.7992			20.300	65
M22x2.00	0.8012			20.350	64
M22x2.00	0.8031			20.400	62
M22x2.00	0.8051			20.450	60
M22x2.50	0.7638			19.400	80
M22x2.50	0.7657	49/64		19.450	79
M22x2.50	0.7677			19.500	77
M22x2.50	0.7697			19.550	75
M22x2.50	0.7717			19.600	74
M22x2.50	0.7736			19.650	72
M22x2.50	0.7756			19.700	71
M22x2.50	0.7776			19.750	69
M22x2.50	0.7795			19.800	68

81-59% Theoretical Percentage of Thread					
Tap Size	dec	Fract	Wire/Let	mm	Theor %
M22x2.50	0.7811	25/32		19.840	67
M22x2.50	0.7815			19.850	66
M22x2.50	0.7835			19.900	65
M22x2.50	0.7854			19.950	63
M22x2.50	0.7874			20.000	62
M22x2.50	0.7894			20.050	60
M22x2.50	0.7913			20.100	59
M24x1.00	0.9035			22.950	81
M24x1.00	0.9055			23.000	77
M24x1.00	0.9063	29/32		23.020	75
M24x1.00	0.9075			23.050	73
M24x1.00	0.9094			23.100	69
M24x1.00	0.9114			23.150	65
M24x1.00	0.9134			23.200	62
M24x1.50	0.8839			22.450	80
M24x1.50	0.8858			22.500	77
M24x1.50	0.8878			22.550	74
M24x1.50	0.8898			22.600	72
M24x1.50	0.8917			22.650	69
M24x1.50	0.8937			22.700	67
M24x1.50	0.8957			22.750	64
M24x1.50	0.8976			22.800	62
M24x1.50	0.8996			22.850	59
M24x2.00	0.8622			21.900	81
M24x2.00	0.8642			21.950	79
M24x2.00	0.8661			22.000	77
M24x2.00	0.8681			22.050	75
M24x2.00	0.8701			22.100	73
M24x2.00	0.8720			22.150	71
M24x2.00	0.8740			22.200	69
M24x2.00	0.8748	7/8		22.220	69
M24x2.00	0.8760			22.250	67
M24x2.00	0.8780			22.300	65
M24x2.00	0.8799			22.350	64
M24x2.00	0.8819			22.400	62
M24x2.00	0.8839			22.450	60
M24x3.00	0.8209			20.850	81
M24x3.00	0.8228			20.900	80
M24x3.00	0.8248			20.950	78
M24x3.00	0.8268			21.000	77
M24x3.00	0.8280	53/64		21.030	76
M24x3.00	0.8287			21.050	74
M24x3.00	0.8307			21.100	74
M24x3.00	0.8327			21.150	73
M24x3.00	0.8346			21.200	72
M24x3.00	0.8366			21.250	71
M24x3.00	0.8386			21.300	69
M24x3.00	0.8406			21.350	68
M24x3.00	0.8425			21.400	67
M24x3.00	0.8437	27/32		21.430	66
M24x3.00	0.8445			21.450	65
M24x3.00	0.8465			21.500	64
M24x3.00	0.8484			21.550	63
M24x3.00	0.8504			21.600	62
M24x3.00	0.8524			21.650	60
M24x3.00	0.8543			21.700	59
M27x3.00	0.9370			23.800	82
M27x3.00	0.9374	15/16		23.810	82
M27x3.00	0.9409			23.900	80
M27x3.00	0.9449			24.000	77
M27x3.00	0.9488			24.100	74
M27x3.00	0.9528			24.200	72
M27x3.00	0.9531	61/64		24.210	72
M27x3.00	0.9567			24.300	69
M27x3.00	0.9606			24.400	67
M27x3.00	0.9646			24.500	64
M27x3.00	0.9685			24.600	62
M27x3.00	0.9689	31/32		24.610	61
M27x3.00	0.9724			24.700	59
M27x2.00	0.9803			24.900	81
M27x2.00	0.9843	63/64		25.000	77
M27x2.00	0.9882			25.100	73
M27x2.00	0.9921			25.200	69
M27x2.00	0.9961			25.300	65

81-59% Theoretical Percentage of Thread					
Tap Size	dec	Fract	Wire/Let	mm	Theor %
M27x2.00	1.0000	1		25.400	62
M30x3.50	1.0354			26.300	83
M30x3.50	1.0394			26.400	79
M30x3.50	1.0433			26.500	77
M30x3.50	1.0469	1 3/64		26.590	75
M30x3.50	1.0472			26.600	75
M30x3.50	1.0512			26.700	73
M30x3.50	1.0551			26.800	70
M30x3.50	1.0591			26.900	68
M30x3.50	1.0626	1 1/16		26.990	66
M30x3.50	1.0630			27.000	66
M30x3.50	1.0669			27.100	64
M30x3.50	1.0709			27.200	62
M30x3.50	1.0748			27.300	59
M30x2.00	1.0984			27.900	81
M30x2.00	1.1024			28.000	77
M30x2.00	1.1063			28.100	73
M30x2.00	1.1094	1 7/64		28.180	70
M30x2.00	1.1102			28.200	69
M30x2.00	1.1142			28.300	65
M30x2.00	1.1181			28.400	62
M30x2.00	1.1220			28.500	58
M33x3.50	1.1535			29.300	81
M33x3.50	1.1563	1 5/32		29.370	80
M33x3.50	1.1575			29.400	79
M33x3.50	1.1614			29.500	77
M33x3.50	1.1654			29.600	75
M33x3.50	1.1693	1 11/64		29.770	71
M33x3.50	1.1732			29.800	70
M33x3.50	1.1772			29.900	68
M33x3.50	1.1811			30.000	66
M33x3.50	1.1850			30.100	64
M33x3.50	1.1874	1 3/16		30.160	62
M33x3.50	1.1890			30.200	62
M33x3.50	1.1929			30.300	59
M33x2.00	1.2165			30.900	81
M33x2.00	1.2189	1 7/32		30.960	79
M33x2.00	1.2205			31.000	77
M33x2.00	1.2244			31.100	73
M33x2.00	1.2283			31.200	69
M33x2.00	1.2323			31.300	65
M33x2.00	1.2343	1 15/64		31.350	64
M33x2.00	1.2362			31.400	62
M33x2.00	1.2402			31.500	58
M36x4.00	1.2500	1 1/4		31.750	82
M36x4.00	1.2520			31.800	81
M36x4.00	1.2559			31.900	79
M36x4.00	1.2598			32.000	77
M36x4.00	1.2638			32.100	75
M36x4.00	1.2657	1 17/64		32.150	74
M36x4.00	1.2677			32.200	73
M36x4.00	1.2717			32.300	71
M36x4.00	1.2756			32.400	69
M36x4.00	1.2795			32.500	67
M36x4.00	1.2811	1 9/32		32.540	67
M36x4.00	1.2835			32.600	65
M36x4.00	1.2874			32.700	64
M36x4.00	1.2913			32.800	62
M36x4.00	1.2953			32.900	60
M36x4.00	1.2969	1 19/64		32.940	59
M36x3.00	1.2913			32.800	82
M36x3.00	1.2953			32.900	80
M36x3.00	1.2969	1 19/64		32.940	79
M36x3.00	1.2992			33.000	77
M36x3.00	1.3031			33.100	74
M36x3.00	1.3071			33.200	72
M36x3.00	1.3110			33.300	69
M36x3.00	1.3126	1 5/16		33.340	68
M36x3.00	1.3150			33.400	67
M36x3.00	1.3189</				



# Drill Size for Thread Forming

DRILL SIZE FOR THREAD FORMING @ 55% THREAD								
Metric Threads			Metric Threads			UNC / UNF Threads		
Tap Dia.	Pitch (mm)	Drill size (mm)	Tap Dia.	Pitch (mm)	Drill size (mm)	Tap Size	TPI	Drill size (mm)
M 1	0.25	0.91	M 10	1.25	9.53	4	40	2.61
M 1.1	0.25	1.01	M 10	1.50	9.44	4	48	2.65
M 1.2	0.25	1.11	M 11	0.75	10.72	5	40	2.94
M 1.4	0.30	1.29	M 11	1.00	10.63	5	44	2.96
M 1.6	0.35	1.47	M 11	1.50	10.44	6	32	3.21
M 1.7	0.35	1.57	M 12	1.00	11.63	6	40	3.27
M 1.8	0.35	1.67	M 12	1.25	11.53	8	32	3.87
M 2	0.40	1.85	M 12	1.50	11.44	8	36	3.90
M 2.2	0.45	2.03	M 12	1.75	11.35	10	24	4.43
M 2.3	0.40	2.15	M 14	1.00	13.63	10	32	4.53
M 2.6	0.45	2.43	M 14	1.25	13.53	12	24	5.09
M 3	0.50	2.81	M 14	1.50	13.44	12	28	5.15
M 3.5	0.60	3.28	M 14	2.00	13.25	1/4	20	5.88
M 4	0.70	3.74	M 15	1.00	14.63	1/4	28	6.01
M 4.5	0.75	4.22	M 15	1.50	14.44	5/16	18	7.41
M 5	0.50	4.81	M 16	1.00	15.63	5/16	24	7.54
M 5	0.80	4.70	M 16	1.50	15.44	3/8	16	8.93
M 5.5	0.50	5.31	M 16	2.00	15.25	3/8	24	9.13
M 6	0.75	5.72	M 17	1.00	16.63	7/16	14	10.43
M 6	1.00	5.63	M 17	1.50	16.44	7/16	20	10.64
M 7	0.75	6.72	M 18	1.00	17.63	1/2	13	11.97
M 7	1.00	6.63	M 18	1.50	17.44	1/2	20	12.23
M 8	0.75	7.72	M 18	2.00	17.25	9/16	12	13.50
M 8	1.00	7.63	M 18	2.50	17.07	9/16	18	13.76
M 8	1.25	7.53	M 20	1.00	19.63	5/8	11	15.01
M 9	0.75	8.72	M 20	2.50	19.07	5/8	18	15.35
M 9	1.00	8.63				3/4	10	18.10
M 9	1.25	8.53				3/4	16	18.46
M 10	0.75	9.72				7/8	14	21.55
M 10	1.00	9.63				1	12	24.61

DRILL SIZE FOR THREAD FORMING @ 57.5% THREAD								
Metric Threads			Metric Threads			UNC / UNF Threads		
Tap Dia.	Pitch (mm)	Drill size (mm)	Tap Dia.	Pitch (mm)	Drill size (mm)	Tap Size	TPI	Drill size (mm)
M 1	0.25	0.90	M 10	1.25	9.51	4	40	2.60
M 1.1	0.25	1.00	M 10	1.50	9.41	4	48	2.64
M 1.2	0.25	1.10	M 11	0.75	10.71	5	40	2.93
M 1.4	0.30	1.28	M 11	1.00	10.61	5	44	2.95
M 1.6	0.35	1.46	M 11	1.50	10.41	6	32	3.19
M 1.7	0.35	1.56	M 12	1.00	11.61	6	40	3.26
M 1.8	0.35	1.66	M 12	1.25	11.51	8	32	3.86
M 2	0.40	1.84	M 12	1.50	11.41	8	36	3.89
M 2.2	0.45	2.02	M 12	1.75	11.32	10	24	4.41
M 2.3	0.40	2.14	M 14	1.00	13.61	10	32	4.52
M 2.6	0.45	2.42	M 14	1.25	13.51	12	24	5.07
M 3	0.50	2.80	M 14	1.50	13.41	12	28	5.13
M 3.5	0.60	3.27	M 14	2.00	13.22	1/4	20	5.85
M 4	0.70	3.73	M 15	1.00	14.61	1/4	28	6.00
M 4.5	0.75	4.21	M 15	1.50	14.41	5/16	18	7.39
M 5	0.50	4.80	M 16	1.00	15.61	5/16	24	7.52
M 5	0.80	4.69	M 16	1.50	15.41	3/8	16	8.90
M 5.5	0.50	5.30	M 16	2.00	15.22	3/8	24	9.11
M 6	0.75	5.71	M 17	1.00	16.61	7/16	14	10.40
M 6	1.00	5.61	M 17	1.50	16.41	7/16	20	10.62
M 7	0.75	6.71	M 18	1.00	17.61	1/2	13	11.94
M 7	1.00	6.61	M 18	1.50	17.41	1/2	20	12.20
M 8	0.75	7.71	M 18	2.00	17.22	9/16	12	13.46
M 8	1.00	7.61	M 18	2.50	17.02	9/16	18	13.74
M 8	1.25	7.51	M 20	1.00	19.61	5/8	11	14.97
M 9	0.75	8.71	M 20	2.50	19.02	5/8	18	15.32
M 9	1.00	8.61				3/4	10	18.06
M 9	1.25	8.51				3/4	16	18.43
M 10	0.75	9.71				7/8	14	21.52
M 10	1.00	9.61				1	12	24.57

DRILL SIZE FOR THREAD FORMING @ 60% THREAD								
Metric Threads			Metric Threads			UNC / UNF Threads		
Tap Dia.	Pitch (mm)	Drill size (mm)	Tap Dia.	Pitch (mm)	Drill size (mm)	Tap Size	TPI	Drill size (mm)
M 1	0.25	0.90	M 10	1.25	9.49	4	40	2.59
M 1.1	0.25	1.00	M 10	1.50	9.39	4	48	2.63
M 1.2	0.25	1.10	M 11	0.75	10.69	5	40	2.92
M 1.4	0.30	1.28	M 11	1.00	10.59	5	44	2.94
M 1.6	0.35	1.46	M 11	1.50	10.39	6	32	3.18
M 1.7	0.35	1.56	M 12	1.00	11.59	6	40	3.25
M 1.8	0.35	1.66	M 12	1.25	11.49	8	32	3.84
M 2	0.40	1.84	M 12	1.50	11.39	8	36	3.88
M 2.2	0.45	2.02	M 12	1.75	11.29	10	24	4.39
M 2.3	0.40	2.14	M 14	1.00	13.59	10	32	4.50
M 2.6	0.45	2.42	M 14	1.25	13.49	12	24	5.05
M 3	0.50	2.80	M 14	1.50	13.39	12	28	5.12
M 3.5	0.60	3.26	M 14	2.00	13.18	1/4	20	5.83
M 4	0.70	3.71	M 15	1.00	14.59	1/4	28	5.98
M 4.5	0.75	4.19	M 15	1.50	14.39	5/16	18	7.36
M 5	0.50	4.80	M 16	1.00	15.59	5/16	24	7.51
M 5	0.80	4.67	M 16	1.50	15.39	3/8	16	8.88
M 5.5	0.50	5.30	M 16	2.00	15.18	3/8	24	9.09
M 6	0.75	5.69	M 17	1.00	16.59	7/16	14	10.37
M 6	1.00	5.59	M 17	1.50	16.39	7/16	20	10.59
M 7	0.75	6.69	M 18	1.00	17.59	1/2	13	11.90
M 7	1.00	6.59	M 18	1.50	17.39	1/2	20	12.18
M 8	0.75	7.69	M 18	2.00	17.18	9/16	12	13.42
M 8	1.00	7.59	M 18	2.50	16.98	9/16	18	13.71
M 8	1.25	7.49	M 20	1.00	19.59	5/8	11	14.93
M 9	0.75	8.69	M 20	2.50	18.98	5/8	18	15.30
M 9	1.00	8.59				3/4	10	18.01
M 9	1.25	8.49				3/4	16	18.40
M 10	0.75	9.69				7/8	14	21.48
M 10	1.00	9.59				1	12	24.54

DRILL SIZE FOR THREAD FORMING @ 62.5% THREAD								
Metric Threads			Metric Threads			UNC / UNF Threads		
Tap Dia.	Pitch (mm)	Drill size (mm)	Tap Dia.	Pitch (mm)	Drill size (mm)	Tap Size	TPI	Drill size (mm)
M 1	0.25	0.89	M 10	1.25	9.47	4	40	2.57
M 1.1	0.25	0.99	M 10	1.50	9.36	4	48	2.62
M 1.2	0.25	1.09	M 11	0.75	10.68	5	40	2.91
M 1.4	0.30	1.27	M 11	1.00	10.58	5	44	2.93
M 1.6	0.35	1.45	M 11	1.50	10.36	6	32	3.17
M 1.7	0.35	1.55	M 12	1.00	11.58	6	40	3.24
M 1.8	0.35	1.65	M 12	1.25	11.47	8	32	3.83
M 2	0.40	1.83	M 12	1.50	11.36	8	36	3.87
M 2.2	0.45	2.01	M 12	1.75	11.26	10	24	4.38
M 2.3	0.40	2.13	M 14	1.00	13.58	10	32	4.49
M 2.6	0.45	2.41	M 14	1.25	13.47	12	24	5.04
M 3	0.50	2.79	M 14	1.50	13.36	12	28	5.10
M 3.5	0.60	3.25	M 14	2.00	13.15	1/4	20	5.81
M 4	0.70	3.70	M 15	1.00	14.58	1/4	28	5.96
M 4.5	0.75	4.18	M 15	1.50	14.36	5/16	18	7.34
M 5	0.50	4.79	M 16	1.00	15.58	5/16	24	7.49
M 5	0.80	4.66	M 16	1.50	15.36	3/8	16	8.85
M 5.5	0.50	5.29	M 16	2.00	15.15	3/8	24	9.08
M 6	0.75	5.68	M 17	1.00	16.58	7/16	14	10.34
M 6	1.00	5.58	M 17	1.50	16.36	7/16	20	10.57
M 7	0.75	6.68	M 18	1.00	17.58	1/2	13	11.87
M 7	1.00	6.58	M 18	1.50	17.36	1/2	20	12.16
M 8	0.75	7.68	M 18	2.00	17.15	9/16	12	13.39
M 8	1.00	7.58	M 18	2.50	16.94	9/16	18	13.69
M 8	1.25	7.47	M 20	1.00	19.58	5/8	11	14.89
M 9	0.75	8.68	M 20	2.50	18.94	5/8	18	15.28
M 9	1.00	8.58				3/4	10	17.97
M 9	1.25	8.47				3/4	16	18.38
M 10	0.75	9.68				7/8	14	21.45
M 10	1.00	9.58				1	12	24.50

Technical

# Drill Size for Thread Forming

DRILL SIZE FOR THREAD FORMING @ 65% THREAD								
Metric Threads			Metric Threads			UNC / UNF Threads		
Tap Dia.	Pitch (mm)	Drill size (mm)	Tap Dia.	Pitch (mm)	Drill size (mm)	Tap Size	TPI	Drill size (mm)
M 1	0.25	0.89	M 10	1.25	9.45	4	40	2.56
M 1.1	0.25	0.99	M 10	1.50	9.34	4	48	2.61
M 1.2	0.25	1.09	M 11	0.75	10.67	5	40	2.89
M 1.4	0.30	1.27	M 11	1.00	10.56	5	44	2.92
M 1.6	0.35	1.45	M 11	1.50	10.34	6	32	3.15
M 1.7	0.35	1.55	M 12	1.00	11.56	6	40	3.22
M 1.8	0.35	1.65	M 12	1.25	11.45	8	32	3.81
M 2	0.40	1.82	M 12	1.50	11.34	8	36	3.85
M 2.2	0.45	2.00	M 12	1.75	11.23	10	24	4.36
M 2.3	0.40	2.12	M 14	1.00	13.56	10	32	4.48
M 2.6	0.45	2.40	M 14	1.25	13.45	12	24	5.02
M 3	0.50	2.78	M 14	1.50	13.34	12	28	5.09
M 3.5	0.60	3.23	M 14	2.00	13.12	1/4	20	5.79
M 4	0.70	3.69	M 15	1.00	14.56	1/4	28	5.95
M 4.5	0.75	4.17	M 15	1.50	14.34	5/16	18	7.31
M 5	0.50	4.78	M 16	1.00	15.56	5/16	24	7.47
M 5	0.80	4.65	M 16	1.50	15.34	3/8	16	8.82
M 5.5	0.50	5.28	M 16	2.00	15.12	3/8	24	9.06
M 6	0.75	5.67	M 17	1.00	16.56	7/16	14	10.31
M 6	1.00	5.56	M 17	1.50	16.34	7/16	20	10.55
M 7	0.75	6.67	M 18	1.00	17.56	1/2	13	11.84
M 7	1.00	6.56	M 18	1.50	17.34	1/2	20	12.14
M 8	0.75	7.67	M 18	2.00	17.12	9/16	12	13.35
M 8	1.00	7.56	M 18	2.50	16.90	9/16	18	13.66
M 8	1.25	7.45	M 20	1.00	19.56	5/8	11	14.85
M 9	0.75	8.67	M 20	2.50	18.90	5/8	18	15.25
M 9	1.00	8.56				3/4	10	17.93
M 9	1.25	8.45				3/4	16	18.35
M 10	0.75	9.67				7/8	14	21.42
M 10	1.00	9.56				1	12	24.46

DRILL SIZE FOR THREAD FORMING @ 67.5% THREAD								
Metric Threads			Metric Threads			UNC / UNF Threads		
Tap Dia.	Pitch (mm)	Drill size (mm)	Tap Dia.	Pitch (mm)	Drill size (mm)	Tap Size	TPI	Drill size (mm)
M 1	0.25	0.89	M 10	1.25	9.43	4	40	2.55
M 1.1	0.25	0.99	M 10	1.50	9.31	4	48	2.60
M 1.2	0.25	1.09	M 11	0.75	10.66	5	40	2.88
M 1.4	0.30	1.26	M 11	1.00	10.54	5	44	2.91
M 1.6	0.35	1.44	M 11	1.50	10.31	6	32	3.14
M 1.7	0.35	1.54	M 12	1.00	11.54	6	40	3.21
M 1.8	0.35	1.64	M 12	1.25	11.43	8	32	3.80
M 2	0.40	1.82	M 12	1.50	11.31	8	36	3.84
M 2.2	0.45	1.99	M 12	1.75	11.20	10	24	4.34
M 2.3	0.40	2.12	M 14	1.00	13.54	10	32	4.46
M 2.6	0.45	2.39	M 14	1.25	13.43	12	24	5.00
M 3	0.50	2.77	M 14	1.50	13.31	12	28	5.07
M 3.5	0.60	3.22	M 14	2.00	13.08	1/4	20	5.77
M 4	0.70	3.68	M 15	1.00	14.54	1/4	28	5.93
M 4.5	0.75	4.16	M 15	1.50	14.31	5/16	18	7.29
M 5	0.50	4.77	M 16	1.00	15.54	5/16	24	7.45
M 5	0.80	4.63	M 16	1.50	15.31	3/8	16	8.80
M 5.5	0.50	5.27	M 16	2.00	15.08	3/8	24	9.04
M 6	0.75	5.66	M 17	1.00	16.54	7/16	14	10.28
M 6	1.00	5.54	M 17	1.50	16.31	7/16	20	10.53
M 7	0.75	6.66	M 18	1.00	17.54	1/2	13	11.80
M 7	1.00	6.54	M 18	1.50	17.31	1/2	20	12.12
M 8	0.75	7.66	M 18	2.00	17.08	9/16	12	13.32
M 8	1.00	7.54	M 18	2.50	16.85	9/16	18	13.64
M 8	1.25	7.43	M 20	1.00	19.54	5/8	11	14.82
M 9	0.75	8.66	M 20	2.50	18.85	5/8	18	15.23
M 9	1.00	8.54				3/4	10	17.88
M 9	1.25	8.43				3/4	16	18.32
M 10	0.75	9.66				7/8	14	21.39
M 10	1.00	9.54				1	12	24.43

DRILL SIZE FOR THREAD FORMING @ 70% THREAD								
Metric Threads			Metric Threads			UNC / UNF Threads		
Tap Dia.	Pitch (mm)	Drill size (mm)	Tap Dia.	Pitch (mm)	Drill size (mm)	Tap Size	TPI	Drill size (mm)
M 1	0.25	0.88	M 10	1.25	9.41	4	40	2.54
M 1.1	0.25	0.98	M 10	1.50	9.29	4	48	2.59
M 1.2	0.25	1.08	M 11	0.75	10.64	5	40	2.87
M 1.4	0.30	1.26	M 11	1.00	10.52	5	44	2.90
M 1.6	0.35	1.43	M 11	1.50	10.29	6	32	3.13
M 1.7	0.35	1.53	M 12	1.00	11.52	6	40	3.20
M 1.8	0.35	1.63	M 12	1.25	11.41	8	32	3.79
M 2	0.40	1.81	M 12	1.50	11.29	8	36	3.83
M 2.2	0.45	1.99	M 12	1.75	11.17	10	24	4.32
M 2.3	0.40	2.11	M 14	1.00	13.52	10	32	4.45
M 2.6	0.45	2.39	M 14	1.25	13.41	12	24	4.98
M 3	0.50	2.76	M 14	1.50	13.29	12	28	5.05
M 3.5	0.60	3.21	M 14	2.00	13.05	1/4	20	5.75
M 4	0.70	3.67	M 15	1.00	14.52	1/4	28	5.92
M 4.5	0.75	4.14	M 15	1.50	14.29	5/16	18	7.27
M 5	0.50	4.76	M 16	1.00	15.52	5/16	24	7.43
M 5	0.80	4.62	M 16	1.50	15.29	3/8	16	8.77
M 5.5	0.50	5.26	M 16	2.00	15.05	3/8	24	9.02
M 6	0.75	5.64	M 17	1.00	16.52	7/16	14	10.25
M 6	1.00	5.52	M 17	1.50	16.29	7/16	20	10.51
M 7	0.75	6.64	M 18	1.00	17.52	1/2	13	11.77
M 7	1.00	6.52	M 18	1.50	17.29	1/2	20	12.10
M 8	0.75	7.64	M 18	2.00	17.05	9/16	12	13.28
M 8	1.00	7.52	M 18	2.50	16.81	9/16	18	13.62
M 8	1.25	7.41	M 20	1.00	19.52	5/8	11	14.78
M 9	0.75	8.64	M 20	2.50	18.81	5/8	18	15.20
M 9	1.00	8.52				3/4	10	17.84
M 9	1.25	8.41				3/4	16	18.29
M 10	0.75	9.64				7/8	14	21.36
M 10	1.00	9.52				1	12	24.39

DRILL SIZE FOR THREAD FORMING @ 72.5% THREAD								
Metric Threads			Metric Threads			UNC / UNF Threads		
Tap Dia.	Pitch (mm)	Drill size (mm)	Tap Dia.	Pitch (mm)	Drill size (mm)	Tap Size	TPI	Drill size (mm)
M 1	0.25	0.88	M 10	1.25	9.38	4	40	2.53
M 1.1	0.25	0.98	M 10	1.50	9.26	4	48	2.58
M 1.2	0.25	1.08	M 11	0.75	10.63	5	40	2.86
M 1.4	0.30	1.25	M 11	1.00	10.51	5	44	2.89
M 1.6	0.35	1.43	M 11	1.50	10.26	6	32	3.11
M 1.7	0.35	1.53	M 12	1.00	11.51	6	40	3.19
M 1.8	0.35	1.63	M 12	1.25	11.38	8	32	3.77
M 2	0.40	1.80	M 12	1.50	11.26	8	36	3.82
M 2.2	0.45	1.98	M 12	1.75	11.14	10	24	4.30
M 2.3	0.40	2.10	M 14	1.00	13.51	10	32	4.43
M 2.6	0.45	2.38	M 14	1.25	13.38	12	24	4.96
M 3	0.50	2.75	M 14	1.50	13.26	12	28	5.04
M 3.5	0.60	3.20	M 14	2.00	13.01	1/4	20	5.72
M 4	0.70	3.65	M 15	1.00	14.51	1/4	28	5.90
M 4.5	0.75	4.13	M 15	1.50	14.26	5/16	18	7.24
M 5	0.50	4.75	M 16	1.00	15.51	5/16	24	7.42
M 5	0.80	4.61	M 16	1.50	15.26	3/8	16	8.74
M 5.5	0.50	5.25	M 16	2.00	15.01	3/8	24	9.00
M 6	0.75	5.63	M 17	1.00	16.51	7/16	14	10.22
M 6	1.00	5.51	M 17	1.50	16.26	7/16	20	10.49
M 7	0.75	6.63	M 18	1.00	17.51	1/2	13	11.74
M 7	1.00	6.51	M 18	1.50	17.26	1/2	20	12.07
M 8	0.75	7.63	M 18	2.00	17.01	9/16	12	13.24
M 8	1.00	7.51	M 18	2.50	16.77	9/16	18	13.59
M 8	1.25	7.38	M 20	1.00	19.51	5/8	11	14.74
M 9	0.75	8.63	M 20	2.50	18.77	5/8	18	15.18
M 9	1.00	8.51				3/4	10	17.80
M 9	1.25	8.38				3/4	16	18.27
M 10	0.75	9.63				7/8	14	21.33
M 10	1.00	9.51				1	12	24.36

# Tapping Formulas and Calculations

## RPM for UNC/UNF Taps

$$\text{RPM} = (\text{revolution / minute}) = \frac{\text{cutting speed (SFM)} \times 3.82}{\text{tap diameter}}$$

## Feed Rate for UNC/UNF Taps

$$\text{IPR} = (\text{inch / revolution}) = \frac{1 \text{ inch}}{\text{threads per inch (TPI)}}$$

$$\text{IPM} = (\text{inch / minute}) = \frac{\text{RPM}}{\text{threads per inch (TPI)}}$$

## RPM for M/MF Taps

$$\text{RPM} = (\text{revolution / minute}) = \frac{\text{cutting speed (SFM)} \times 97.028}{\text{tap diameter (mm)}}$$

## Feed Rate for M/MF Taps

$$\text{IPR} = (\text{inch / revolution}) = \text{pitch (mm)} \times 0.03937$$

$$\text{IPM} = (\text{inch / minute}) = \text{RPM} \times \text{pitch (mm)} \times 0.03937$$

## To calculate Tap Drill Size

### UNC/UNF and M/MF Cut Taps – General Requirements

$$\text{Tap Drill Size} = \text{Tap basic major diameter} - \text{pitch}$$

### UNC/UNF Cut Taps – Special Percentage of Thread Requirements

$$\text{Drill Size} = \text{Basic major diameter} - \frac{0.01299 \times \text{desired percentage of thread}^*}{\text{threads per inch (TPI)}}$$

### M/MF Cut Taps – Special Percentage of Thread Requirements

$$\text{Drill Size (mm)} = \text{Basic major diameter} - \frac{\text{desired percentage of thread}^* \times \text{pitch (mm)}}{76.98}$$

### UNC/UNF and M/MF Form Taps – General Requirements

$$\text{Tap Drill Size} = \text{Basic major diameter} - \frac{\text{pitch}}{2}$$

### UNC/UNF Form Taps – Special Percentage of Thread Requirements

$$\text{Drill Size} = \text{Basic major diameter} - \frac{0.0068 \times \text{desired percentage of thread}^*}{\text{threads per inch (TPI)}}$$

### M/MF Form Taps – Special Percentage of Thread Requirements

$$\text{Drill Size (mm)} = \text{Basic major diameter} - \frac{\text{desired percentage of thread}^* \times \text{pitch (mm)}}{147.06}$$

\* Actual percentage will vary from desired percentage due to runout of drilling operation.

# Troubleshooting - Application problems with new taps

## Problem

## Possible causes

## Solution

### 1 Thread produced is too large



- incorrect tap, tap geometry not suitable for the application
- tapping size hole too small
- alignment error of tapping size hole or position
- machine spindle axially restricted
- cold welding at the flank of the tap
- lead of tap unsatisfactory due to insufficient thread depth
- cutting speed too high
- lubrication or coolant supply insufficient
- tolerance specification on tap does not correspond to specifications on drawing and/or thread gauge

- apply correct tap for the material to be machined
- observe tapping size hole table in the technical section. Note different tapping size hole diameters for fluteless taps.
- - check for correct tool clamping
- - apply floating tap holder
- - check core drill
- - use mechanical feed
- - apply tension/compression tap chuck
- - apply new tap
- - apply coated tap
- - optimize lubrication
- - tap with forced feed
- - apply tap with modified lead
- - reduce cutting speed
- - improve lubrication
- ensure sufficient and suitable coolant supply and check concentration
- apply correct tap for required tolerances

### 2 Thread axially miscut



- spiral-fluted taps, corresponding to our design, are applied with too much pressure for initial tapping
- initial tapping pressure too low for taps with spiral point corresponding to our form "B"

- with spiral-fluted taps only light pressure required for initial tapping. The tap should immediately be applied within the tension/compression range
- taps with spiral point or left hand spiral require higher axial pressure. Ensure tap operates within the tension/compression range

### 3 Thread produced is too small



- tolerance specification on tap does not correspond to specifications on drawing and/or thread gauge
- incorrect tap
- tap does not cut accurately (thread plug gauge)
- machine spindle is axially too rigid

- apply correct tap for required tolerance
- apply correct tap for the material to be machined
- avoid strong axial forces during the cutting process
- apply tension/compression chuck

# Troubleshooting - Application problems with new taps

## Problem

## Possible causes

## Solution

### 4 Thread surface not according to requirements



- cutting edge geometry not suitable for the application
- cutting speed too high
- insufficient coolant (concentration and supply)
- chip congestion
- tapping size hole too small
- with tough, hard materials loading on tool too much or pitch too steep
- built-up edge
- cold welding

- apply "correct" tap for the material to be machined
- - reduce cutting speed
- - optimize lubrication
- ensure suitable coolant and sufficient volume
- apply suitable tap type
- observe tapping size hole diameter specifications to DIN 336 or respective standards. Observe table for fluteless taps
- apply hand tap sets
- apply coated tap
- improve coolant supply

### 5 Tool life insufficient

- surface hardening of tapping size hole
- reasons listed under: "thread surface not according to requirements"
- chip congestion

- - check drill (cutting edge) for wear
- - heat or surface treatment following thread production
- reasons listed under: thread surface "not according to requirements"
- apply correct tap

### 6 Tool breakage during advance or return



- tapping size hole too small
- teeth of chamfer lead overloaded
- tap hits bottom of tapping size hole
- - lack of or incorrect chamfer of tapping size hole
- - positional or angle error of tapping size hole
- - tool hardness not suitable for the application
- - cutting edge geometry not suitable for the application

- observe tapping size hole dia. acc. to DIN 336 or respective standards
- - longer chamfer lead (blind or through hole)
- - increase no. of teeth of chamfer lead by increasing no. of flutes
- - apply tap sets
- - check hole depth
- - apply tension/compression tap chuck
- - correct chamfer angle of tapping size hole
- - ensure correct tool clamping
- - apply floating tap holder
- - check core drill
- apply suitable tap for the individual application

# Appendix of Guhring Tap Part Numbers

Series	Thread Type	Substrate	Color ring	Style of tap	Standard	Coolant	Chamfer	Helix	Surface	Tolerance	Page
318	Metric	Cobalt	white ring	blind or through hole	DIN 371	axial coolant fed	Form C		TiAlN coated	6HX	98
319	Metric	Cobalt	white ring	blind or through hole	DIN 376	axial coolant fed	Form C		TiAlN coated	6HX	98
323	Metric	PM cobalt		form tap	DIN 371	radial coolant fed	Form C		TiN coated	6HX	126
338	Metric fine	PM cobalt		form tap	DIN 374	radial coolant fed	Form C		TiN coated	6HX	128
342	Metric	PM cobalt		form tap	DIN 376	radial coolant fed	Form C		TiN coated	6HX	127
347	Metric fine	Cobalt	white ring	blind or through hole	DIN 374	axial coolant fed	Form C		TiAlN coated	6HX	98
803	Metric	Cobalt	yellow ring	through hole	DIN 371		Form B		bright finish	ISO 2(6H)	32
804	Metric	Cobalt	red ring	through hole	DIN 371		Form B		bright finish	6H	80
810	Metric	Cobalt	yellow ring	blind hole	DIN 371		Form C	40° helix	bright finish	ISO 2(6H)	38
811	Metric	Cobalt	red ring	blind hole	DIN 371		Form C	40° helix	bright finish	ISO 2(6H)	85
815	Metric	Cobalt	yellow ring	through hole	DIN 376		Form B		bright finish	ISO 2(6H)	33
816	Metric	Cobalt	red ring	through hole	DIN 376		Form B		bright finish	ISO 2(6H)	80
822	Metric	Cobalt	yellow ring	blind hole	DIN 376		Form C	40° helix	bright finish	ISO 2(6H)	38
823	Metric	Cobalt	red ring	blind hole	DIN 376		Form C	40° helix	bright finish	ISO 2(6H)	86
827	Metric fine	Cobalt	yellow ring	through hole	DIN 374		Form B		bright finish	ISO 2(6H)	34
828	Metric fine	Cobalt	red ring	through hole	DIN 374		Form B		bright finish	ISO 2(6H)	81
830	Metric fine	Cobalt	yellow ring	blind or through hole	DIN 374		Form C		bright finish	ISO 2(6H)	35
833	Metric fine	Cobalt	yellow ring	blind hole	DIN 374		Form C	15° helix	bright finish	ISO 2(6H)	39
834	Metric fine	Cobalt	yellow ring	blind hole	DIN 374		Form C	40° helix	bright finish	ISO 2(6H)	39
835	Metric fine	Cobalt	red ring	blind hole	DIN 374		Form C	40° helix	bright finish	ISO 2(6H)	88
873	UNC	Cobalt	yellow ring	through hole	DIN 371		Form B		bright finish	2B	30
876	UNC	Cobalt	yellow ring	blind hole	DIN 371		Form C	40° helix	bright finish	2B	36
877	Metric	PM cobalt	blue ring	through hole	DIN 371		Form B		bright finish	ISO 2(6H)	69
878	UNC	Cobalt	yellow ring	through hole	DIN 376		Form B		bright finish	2B	30
879	Metric	PM cobalt	blue ring	through hole	DIN 376		Form B		bright finish	ISO 2(6H)	68
881	UNC	Cobalt	yellow ring	blind hole	DIN 376		Form C	40° helix	bright finish	2B	36
889	Metric	Cobalt	green ring	blind hole	DIN 371		Form C	40° helix	bright finish	ISO 2(6H)	51
890	Metric	Cobalt	green ring	blind hole	DIN 376		Form C	40° helix	bright finish	ISO 2(6H)	51
908	UNF	Cobalt	yellow ring	through hole	DIN 374		Form B		bright finish	2B	31
909	Metric	PM cobalt	blue ring	blind hole	DIN 371		Form C	40° helix	bright finish	ISO 2(6H)	72
910	Metric	PM cobalt	blue ring	blind hole	DIN 376		Form C	40° helix	bright finish	ISO 2(6H)	72
911	UNF	Cobalt	yellow ring	blind hole	DIN 374		Form C	40° helix	bright finish	2B	37
919	Metric	Cobalt		form tap	DIN 371		Form C		TiN coated	6HX	126
927	Metric fine	Cobalt		form tap	DIN 374		Form C		TiN coated	6HX	128
935	Metric	PM cobalt	red ring	blind hole	DIN 376		Form C	15° helix	bright finish	ISO 2(6H)	87
936	Metric fine	PM cobalt	blue ring	blind hole	DIN 374		Form C	40° helix	bright finish	ISO 2(6H)	72
969	Metric	Carbide	black ring	blind or through hole	DIN 371	axial coolant fed	Form C		bright finish	ISO 2(6H)	97
969	Metric	Carbide	white ring	blind or through hole	DIN 371	axial coolant fed	Form C		bright finish	ISO 2(6H)	97
971	Metric	Carbide	black ring	blind hole	DIN 371	axial coolant fed	Form C	15° helix	bright finish	ISO 2(6H)	106
972	Metric fine	Carbide	black ring	blind or through hole	DIN 371	axial coolant fed	Form C		bright finish	ISO 2(6H)	97
972	Metric fine	Carbide	white ring	blind or through hole	DIN 371	axial coolant fed	Form C		bright finish	ISO 2(6H)	97
977	Metric fine	Carbide	black ring	blind hole	DIN 371	axial coolant fed	Form C	15° helix	bright finish	ISO 2(6H)	107
978	Metric fine	Carbide	black ring	blind hole	DIN 374	axial coolant fed	Form C	15° helix	bright finish	ISO 2(6H)	107
1010	Metric	Cobalt	green ring	through hole	EG M				TiN coated	6H mod	62
1011	Metric	Cobalt	green ring	blind hole	EG M				TiN coated	6H mod	63
1088	NPTF	Cobalt	blue ring	blind hole					TiN coated		74
1188	Metric	PM cobalt	red ring	blind hole	DIN 371	axial coolant fed	Form C	15° helix	TiCN coated	6HX	87
1194	Metric	PM cobalt	red ring	blind hole	DIN 376	axial coolant fed	Form C	15° helix	TiCN coated	6HX	87
1200	Metric fine	PM cobalt	red ring	blind hole	DIN 376	axial coolant fed	Form C	15° helix	TiCN coated	6HX	87
1581	Metric fine	Carbide		form tap	DIN 374	radial coolant fed	Form C		*TiCN coated	6HX	129
1582	UNC	Cobalt		form tap	DIN 371		Form C		TiN coated	2BX	123
1583	UNC	Cobalt		form tap	DIN 376		Form C		TiN coated	2BX	123
1584	UNF	Cobalt		form tap	DIN 371		Form C		TiN coated	2BX	124
1585	UNF	Cobalt		form tap	DIN 376		Form C		TiN coated	2BX	124
1717	Metric	PM cobalt		form tap	DIN 371	radial coolant fed	Form C		AlCrN	6HX	126
1719	Metric	PM cobalt		form tap	DIN 376	radial coolant fed	Form C		AlCrN	6HX	127
1721	Metric fine	PM cobalt		form tap	DIN 371	radial coolant fed	Form C		AlCrN	6HX	129
1723	Metric fine	PM cobalt		form tap	DIN 374	radial coolant fed	Form C		AlCrN	6HX	128
1837	UNC	Cobalt	green ring	blind hole	DIN 371		Form C(K)	40° helix	TiN coated	2B	46
1838	UNF	Cobalt	green ring	blind hole	DIN 374		Form C(K)	40° helix	TiN coated	2B	47
1858	Metric	Carbide	black ring	blind or through hole	DIN 371	radial coolant fed	Form C		bright finish	ISO 2(6H)	94
1858	Metric	Carbide	white ring	blind or through hole	DIN 371	radial coolant fed	Form C		bright finish	ISO 2(6H)	94
1859	Metric	Carbide	black ring	blind or through hole	DIN 376	radial coolant fed	Form C		bright finish	ISO 2(6H)	94
1859	Metric	Carbide	white ring	blind or through hole	DIN 376	radial coolant fed	Form C		bright finish	ISO 2(6H)	94
1860	Metric fine	Carbide	black ring	blind or through hole	DIN 371	radial coolant fed	Form C		bright finish	ISO 2(6H)	95
1860	Metric fine	Carbide	white ring	blind or through hole	DIN 374	radial coolant fed	Form C		bright finish	ISO 2(6H)	95
1861	Metric fine	Carbide	black ring	blind or through hole	DIN 376	radial coolant fed	Form C		bright finish	ISO 2(6H)	95
1861	Metric fine	Carbide	white ring	blind or through hole	DIN 371	radial coolant fed	Form C		bright finish	ISO 2(6H)	95
1870	Metric	Cobalt	blue ring	through hole	DIN 371		Form B		bright finish	ISO 2(6H)	69
1872	Metric	Cobalt	blue ring	through hole	DIN 376		Form B		bright finish	ISO 2(6H)	68
1873	Metric fine	Cobalt	blue ring	through hole	DIN 374		Form B		bright finish	ISO 2(6H)	69

\* All carbide form taps will be changing to TiCN coating as inventory levels are replenished

# Appendix of Guhring Tap Part Numbers

Series	Thread Type	Substrate	Color ring	Style of tap	Standard	Coolant	Chamfer	Helix	Surface	Tolerance	Page
1883	Metric	Carbide	black ring	blind hole	DIN 376	axial coolant fed	Form C		bright finish	ISO 2(6H)	97
1883	Metric	Carbide	white ring	blind hole	DIN 376		Form C		bright finish	ISO 2(6H)	97
1890	Metric	Cobalt	white ring	through hole	DIN 371		Form C		oxide finish	6HX	98
1894	Metric	Cobalt	red ring	blind hole	DIN 371	axial coolant fed	Form C	40° helix	bright finish	ISO 2(6H)	85
1897	Metric	Cobalt	white ring	through hole	DIN 376		Form C		oxide finish	6HX	98
1901	Metric	Cobalt	red ring	blind hole	DIN 376	axial coolant fed	Form C	40° helix	bright finish	ISO 2(6H)	85
1904	Metric fine	Cobalt	white ring	blind or through hole	DIN 374	axial coolant fed	Form C		oxide finish	6HX	98
1907	Metric fine	Cobalt	red ring	blind hole	DIN 374	axial coolant fed	Form C	40° helix	bright finish	ISO 2(6H)	88
1914	Metric	Cobalt	red ring	through hole	DIN 371		Form B		TiCN coated	ISO 2(6H)	80
1915	Metric	Cobalt	red ring	through hole	DIN 376		Form B		TiCN coated	ISO 2(6H)	80
1916	Metric	Cobalt	red ring	blind hole	DIN 371		Form C	40° helix	TiCN coated	ISO 2(6H)	85
1917	Metric	Cobalt	red ring	blind hole	DIN 376		Form C	40° helix	TiCN coated	ISO 2(6H)	86
1927	Metric	Carbide		form tap	DIN 371	radial coolant fed	Form E		*TiCN coated	6HX	126
1931	Metric	Carbide		form tap	DIN 376	radial coolant fed	Form C		*TiCN coated	6HX	127
1972	Metric	Carbide		form tap	DIN 371	radial coolant fed	Form C		*TiCN coated	6HX	126
1979	UNC	Cobalt	white ring	blind or through hole	DIN 371		Form C		oxide finish	2B	92
1980	UNC	Cobalt	blue ring	through hole	DIN 371		Form B		bright finish	2B	66
1981	UNC	Cobalt	blue ring	blind hole	DIN 371		Form C	40° helix	bright finish	2B	70
1984	UNC	Cobalt	white ring	blind or through hole	DIN 376		Form C		oxide finish	2B	92
1985	UNC	Cobalt	blue ring	through hole	DIN 376		Form B		bright finish	2B	66
1986	UNC	Cobalt	blue ring	blind hole	DIN 376		Form C	40° helix	bright finish	2B	70
1989	UNF	Cobalt	white ring	blind or through hole	DIN 374		Form C		oxide finish	2B	93
1990	UNF	Cobalt	blue ring	through hole	DIN 374		Form B		bright finish	2B	67
2424	Metric fine	Cobalt	green ring	blind hole	DIN 374		Form C	40° helix	bright finish	ISO 2(6H)	52
2790	Metric	Cobalt	green ring	blind hole	DIN 371		Form E	40° helix	bright finish	ISO 2(6H)	53
2791	Metric	Cobalt	green ring	blind hole	DIN 376		Form E	40° helix	bright finish	ISO 2(6H)	53
2792	Metric fine	Cobalt	green ring	blind hole	DIN 374		Form E	40° helix	bright finish	ISO 2(6H)	54
2867	UNF	Cobalt	blue ring	blind hole	DIN 374		Form C	40° helix	bright finish	2B	71
2876	Metric	Cobalt	green ring	through hole	DIN 371		Form B		oxide finish	6H	44
2879	Metric fine	Cobalt	green ring	through hole	DIN 374		Form B		oxide finish	ISO 2(6H)	45
2881	UNC	Cobalt	green ring	through hole	DIN 371		Form B		oxide finish	2B	42
2883	UNC	Cobalt	green ring	through hole	DIN 376		Form B		oxide finish	2B	42
2885	UNF	Cobalt	green ring	through hole	DIN 374		Form B		oxide finish	2B	43
2895	Metric	Cobalt	blue ring	blind hole	DIN 376		Form C	15° helix	TiN coated	ISO 2(6H)	73
2896	Metric	Cobalt	blue ring	blind hole	DIN 371		Form C	15° helix	TiN coated	ISO 2(6H)	73
2897	Metric fine	Cobalt	blue ring	blind hole	DIN 374		Form C	15° helix	TiN coated	ISO 2(6H)	73
2904	Metric	PM cobalt	Ti	through hole	DIN 371		Form B		TiCN coated	6HX	111
2909	Metric fine	PM cobalt	Ti	through hole	DIN 371		Form B		TiCN coated	6HX	111
2905	UNC	PM cobalt	Ti	through hole	DIN 371		Form B		TiCN coated	2BX	110
2907	UNF	PM cobalt	Ti	through hole	DIN 371		Form B		TiCN coated	2BX	110
2909	Metric	PM cobalt	Ti	blind hole	DIN 371		Form C	15° helix	TiCN coated	6HX	113
2910	Metric fine	PM cobalt	Ti	blind hole	DIN 371		Form C	15° helix	TiCN coated	6HX	113
2912	UNC	PM cobalt	Ti	blind hole	DIN 371		Form C	15° helix	TiCN coated	2BX	112
2914	UNF	PM cobalt	Ti	blind hole	DIN 371		Form C	15° helix	TiCN coated	2BX	112
2916	Metric	PM cobalt	Ni	through hole	DIN 371		Form B		TiAlN coated	6HX	111
2917	Metric fine	PM cobalt	Ni	through hole	DIN 371		Form B		TiAlN coated	6HX	111
2918	UNC	PM cobalt	Ni	through hole	DIN 371		Form B		TiAlN coated	2BX	110
2919	UNF	PM cobalt	Ni	through hole	DIN 371		Form B		TiAlN coated	2BX	110
2920	Metric	PM cobalt	Ni	blind hole	DIN 371		Form C	10° helix	TiAlN coated	6HX	113
2921	Metric fine	PM cobalt	Ni	blind hole	DIN 371		Form C	10° helix	TiAlN coated	6HX	113
2922	UNC	PM cobalt	Ni	blind hole	DIN 371		Form C	10° helix	TiAlN coated	2BX	112
2923	UNF	PM cobalt	Ni	blind hole	DIN 371		Form C	10° helix	TiAlN coated	2BX	112
2944	Metric	Carbide	red ring	blind hole	Guhring Std.		Form D	0° helix	TiCN coated	ISO 2(6H)	86
3900	Metric	Cobalt	yellow ring	through hole	ANSI		Form B		bright finish	6H	32
3901	UNC	Cobalt	yellow ring	through hole	ANSI		Form B		bright finish	2B	30
3902	UNF	Cobalt	yellow ring	through hole	ANSI		Form B		bright finish	2B	31
3903	Metric	Cobalt	yellow ring	blind hole	ANSI		Form C	40° helix	bright finish	6H	38
3904	UNC	Cobalt	yellow ring	blind hole	ANSI		Form C	40° helix	bright finish	2B	36
3905	UNF	Cobalt	yellow ring	blind hole	ANSI		Form C	40° helix	bright finish	2B	37
3906	Metric	PM cobalt	blue ring	through hole	ANSI		Form B		TiN coated	6H	68
3907	UNC	PM cobalt	blue ring	through hole	ANSI		Form B		TiN coated	2B	66
3908	UNF	PM cobalt	blue ring	through hole	ANSI		Form B		TiN coated	2B	67
3909	Metric	PM cobalt	blue ring	blind hole	ANSI		Form C	40° helix	TiN coated	6H	72
3910	UNC	PM cobalt	blue ring	blind hole	ANSI		Form C	40° helix	TiN coated	2B	70
3911	UNF	PM cobalt	blue ring	blind hole	ANSI		Form C	40° helix	TiN coated	2B	71
3912	Metric	Cobalt	green ring	through hole	ANSI		Form B		bright finish	6H	44
3913	UNC	Cobalt	green ring	through hole	ANSI		Form B		bright finish	2B	42
3914	UNF	Cobalt	green ring	through hole	ANSI		Form B		bright finish	2B	43
3915	Metric	Cobalt	green ring	through hole	ANSI		Form B		TiN coated	6H	44
3916	UNC	Cobalt	green ring	through hole	ANSI		Form B		TiN coated	2B	42

Technical

\* All carbide form taps will be changing to TiCN coating as inventory levels are replenished

## Appendix of Guhring Tap Part Numbers

Series	Thread Type	Substrate	Color ring	Style of tap	Standard	Coolant	Chamfer	Helix	Surface	Tolerance	Page
3917	UNF	Cobalt	green ring	through hole	ANSI		Form B		TiN coated	2B	43
3918	Metric	Cobalt	green ring	blind hole	ANSI		Form C	40° helix	bright finish	6H	50
3919	UNC	Cobalt	green ring	blind hole	ANSI		Form C	40° helix	bright finish	2B	46
3920	UNF	Cobalt	green ring	blind hole	ANSI		Form C	40° helix	bright finish	2B	47
3921	Metric	Cobalt	green ring	blind hole	ANSI		Form C	40° helix	TiN coated	6H	50
3922	UNC	Cobalt	green ring	blind hole	ANSI		Form C	40° helix	TiN coated	2B	46
3923	UNF	Cobalt	green ring	blind hole	ANSI		Form C	40° helix	TiN coated	2B	47
3924	Metric	Cobalt	black ring	through hole	ANSI		Form B		bright finish	6H	103
3925	UNC	Cobalt	black ring	through hole	ANSI		Form B		bright finish	2B	102
3926	UNF	Cobalt	black ring	through hole	ANSI		Form B		bright finish	2B	102
3927	Metric	Cobalt	black ring	through hole	ANSI		Form B		TiN coated	6H	103
3928	UNC	Cobalt	black ring	through hole	ANSI		Form B		TiN coated	2B	102
3929	UNF	Cobalt	black ring	through hole	ANSI		Form B		TiN coated	2B	102
3930	Metric	Cobalt	black ring	blind hole	ANSI		Form C	45° helix	bright finish	6H	106
3931	UNC	Cobalt	black ring	blind hole	ANSI		Form C	45° helix	bright finish	2B	105
3932	UNF	Cobalt	black ring	blind hole	ANSI		Form C	45° helix	bright finish	2B	105
3933	Metric	Cobalt	black ring	blind hole	ANSI		Form C	45° helix	TiN coated	6H	106
3934	UNC	Cobalt	black ring	blind hole	ANSI		Form C	45° helix	TiN coated	2B	105
3935	UNF	Cobalt	black ring	blind hole	ANSI		Form C	45° helix	TiN coated	2B	105
3936	Metric	Cobalt	white ring	blind or through hole	ANSI		Form C		FIREX® coated	6HX	94
3937	UNC	Cobalt	white ring	blind or through hole	ANSI		Form C		FIREX® coated	2B	92
3938	UNF	Cobalt	white ring	blind or through hole	ANSI		Form C		FIREX® coated	2B	93
3939	Metric	Cobalt		form tap	ANSI		Form C		TiN coated	6HX	125
3940	UNC	Cobalt		form tap	ANSI		Form C		TiN coated	2BX	122
3941	UNF	Cobalt		form tap	ANSI		Form C		TiN coated	2BX	123
3942	Metric	Cobalt		form tap	ANSI		Form C		TiCN coated	6HX	125
3943	UNC	Cobalt		form tap	ANSI		Form C		TiCN coated	2BX	122
3944	UNF	Cobalt		form tap	ANSI		Form C		TiCN coated	2BX	123
3945	Metric	Cobalt	green ring	through hole	ANSI		Form B		TiCN coated	6H	44
3946	UNC	Cobalt	green ring	through hole	ANSI		Form B		TiCN coated	2B	42
3947	UNF	Cobalt	green ring	through hole	ANSI		Form B		TiCN coated	2B	43
3948	Metric	Cobalt	green ring	blind hole	ANSI		Form C	40° helix	TiCN coated	6H	50
3949	UNC	Cobalt	green ring	blind hole	ANSI		Form C	40° helix	TiCN coated	2B	46
3950	UNF	Cobalt	green ring	blind hole	ANSI		Form C	40° helix	TiCN coated	2B	47
3954	UNC	Cobalt	green ring	blind hole	ANSI	axial coolant fed	Form C	40° helix	TiN coated	2B	49
3955	UNF	Cobalt	green ring	blind hole	ANSI	axial coolant fed	Form C	40° helix	TiN coated	2B	49
3959	UNC	Cobalt		form tap	ANSI		Form E		TiN coated	2BX	122
3960	Metric	Cobalt	yellow ring	through hole	ANSI		Form B		MolyGlide®	6H	32
3961	UNC	Cobalt	yellow ring	through hole	ANSI		Form B		MolyGlide®	2B	30
3962	UNF	Cobalt	yellow ring	through hole	ANSI		Form B		MolyGlide®	2B	31
3963	Metric	Cobalt	yellow ring	blind hole	ANSI		Form C	40° helix	MolyGlide®	6H	38
3964	UNC	Cobalt	yellow ring	blind hole	ANSI		Form C	40° helix	MolyGlide®	2B	36
3965	UNF	Cobalt	yellow ring	blind hole	ANSI		Form C	40° helix	MolyGlide®	2B	37
3966	Metric	Cobalt	black ring	through hole	ANSI		Form B		MolyGlide®	6H	103
3967	UNC	Cobalt	black ring	through hole	ANSI		Form B		MolyGlide®	2B	102
3968	UNF	Cobalt	black ring	through hole	ANSI		Form B		MolyGlide®	2B	102
3969	Metric	Cobalt	black ring	blind hole	ANSI		Form C	45° helix	MolyGlide®	6H	106
3970	UNC	Cobalt	black ring	blind hole	ANSI		Form C	45° helix	MolyGlide®	2B	105
3971	UNF	Cobalt	black ring	blind hole	ANSI		Form C	45° helix	MolyGlide®	2B	105
3972	UNF	Cobalt		form tap	ANSI		Form E		TiN coated	2BX	124
3973	Metric fine	Cobalt	green ring	through hole	ANSI		Form B		TiN coated	6H	45
3974	Metric fine	Cobalt	green ring	blind hole	ANSI		Form C	40° helix	TiN coated	6H	52
3975	Metric fine	Cobalt		form tap	ANSI		Form C		TiN coated	6HX	127
3976	Metric	Cobalt	green ring	blind hole	ANSI		Form E	40° helix	TiN coated	6H	53
3977	UNC	Cobalt	green ring	blind hole	ANSI		Form E	40° helix	TiN coated	2B	48
3978	UNF	Cobalt	green ring	blind hole	ANSI		Form E	40° helix	TiN coated	2B	48
3979	Metric	Cobalt		form tap	ANSI		Form E		TiN coated	6HX	125
3980	UNC / oversized	Cobalt	green ring	blind hole	ANSI		Form C	40° helix	TiN coated	H7	58
3981	UNF / oversized	Cobalt	green ring	blind hole	ANSI		Form C	40° helix	TiN coated	H7	59
3982	UNC / oversized	Cobalt	green ring	through hole	ANSI		Form B		TiN coated	H7	56
3983	UNF / oversized	Cobalt	green ring	through hole	ANSI		Form B		TiN coated	H7	57
3984	UNC / oversized	Cobalt	green ring	blind hole	ANSI		Form C	40° helix	TiN coated	H11	58
3985	UNF / oversized	Cobalt	green ring	blind hole	ANSI		Form C	40° helix	TiN coated	H11	59
3986	UNC / oversized	Cobalt	green ring	through hole	ANSI		Form B		TiN coated	H11	56
3987	UNF / oversized	Cobalt	green ring	through hole	ANSI		Form B		TiN coated	H11	57
3988	UNC / STI	Cobalt	green ring	blind hole	STI Tap		Form C	40° helix	TiN coated	3B	61
3989	UNF / STI	Cobalt	green ring	blind hole	STI Tap		Form C	40° helix	TiN coated	3B	61
3990	UNC / STI	Cobalt	green ring	through hole	STI Tap		Form B		TiN coated	3B	60
3991	UNF / STI	Cobalt	green ring	through hole	STI Tap		Form B		TiN coated	3B	60
3992	UNC	PM cobalt	red ring	through hole	DIN / ANSI		Form B		TiN coated	2B	78



## Appendix of Guhring Tap Part Numbers

Series	Thread Type	Substrate	Color ring	Style of tap	Standard	Coolant	Chamfer	Helix	Surface	Tolerance	Page
3993	UNC	PM cobalt	red ring	blind hole	DIN / ANSI		Form C	40° helix	TiN coated	2B	82
3994	UNF	PM cobalt	red ring	through hole	DIN / ANSI		Form B		TiN coated	2B	78
3995	UNF	PM cobalt	red ring	blind hole	DIN / ANSI		Form C	40° helix	TiN coated	2B	82
3996	UNC	Cobalt	blue ring	through hole	ANSI		Form B		TiN coated	3B	66
3997	UNF	Cobalt	blue ring	through hole	ANSI		Form B		TiN coated	3B	67
3998	UNC	Cobalt	blue ring	blind hole	ANSI		Form C	40° helix	TiN coated	3B	70
3999	UNF	Cobalt	blue ring	blind hole	ANSI		Form C	40° helix	TiN coated	3B	67
4118	UNC	Carbide	white ring	blind hole	DIN/ANSI	axial coolant fed	Form C		bright finish	2B	96
4119	UNF	Carbide	white ring	blind hole	DIN/ANSI	axial coolant fed	Form C		bright finish	2B	96
4120	Metric	PM cobalt	red ring	blind hole	DIN / ANSI		Form C		TiN coated	6H	84
4121	Metric Fine	PM cobalt	red ring	blind hole	DIN / ANSI		Form C		TiN coated	6H	84
4122	Metric	PM cobalt	red ring	through hole	DIN / ANSI		Form B		TiN coated	6H	79
4123	Metric Fine	PM cobalt	red ring	through hole	DIN / ANSI		Form B		TiN coated	6H	79
4124	UNC	PM cobalt	red ring	blind hole	DIN / ANSI		Form C	15° helix	TiN coated	2B	83
4125	UNF	PM cobalt	red ring	blind hole	DIN / ANSI		Form C	15° helix	TiN coated	2B	83
4126	Metric	Cobalt	green ring	blind hole	ANSI	axial coolant fed	Form C	40° helix	TiN coated	2B	50
4127	NPTF	Cobalt	blue ring	blind hole					TiN coated		74

# STANDARD & SPECIAL PRODUCT RANGE

## • HSS, HSCO & PM Standards •

GU 500 DZ Universal Drills  
GT 500 DZ High Performance Drills  
GT 100 Parabolic Flute Deep Hole Drills  
Coolant-Through GT 100 IC Parabolic Flute Deep Hole Drills  
GT 80 Parabolic Flute Deep Hole Drills  
Coolant-Through GT 80 IC Parabolic Flute Deep Hole Drills  
GT 50 Parabolic Flute Deep Hole Drills  
General Purpose Drills  
Heavy Duty Drills  
Heavy Duty Split Point Drills  
Low Helix Drills  
High Helix Drills  
Micro-Precision Drills  
NC Spot Drills  
Drill-Countersinks  
High Performance HSS-E Taps  
High Performance PM HSS-E Taps

## • HSS & HSCO Specials •

Drills  
Step Drills  
Step Drill Reamers  
Step Core Drills  
Step Core Drill Reamers  
Reamers  
Step Reamers  
Subland Drills  
Subland Drill Reamers  
Subland Core Drills  
Taps

## • Carbide Standards •

RT 100 U/F High Penetration Drills  
RT 100 X High Penetration Drills  
RT 100 VA Drills for Stainless Steels  
RT 100 R High Penetration Drills  
RT 100 T Deep Hole Drills  
Coolant-Through RT 100 U/F/C High Penetration Drills  
Coolant-Through RT 150 GG Straight-Flute High Penetration Drills  
Coolant-Through HT/RT 800 WP Interchangeable Insert Drills  
GS 200 U/G Three-Flute High Precision Drills  
GT 100 Parabolic Flute Deep Hole Drills  
Exclusive Line® Small-Diameter Drills  
EB 100 Small-Diameter Single-Flute Gun Drills  
General Purpose Drills  
NC Spot Drills  
PRO-Line Universal End Mills  
TECH-Line High Performance End Mills

## • Carbide Specials •

Drills  
RT High Performance Drills  
G Drills  
Gun Drills  
Three- & Four-Flute Drills  
Step Drills  
Step Drill Reamers  
Step Core Drills  
Step Core Drill Reamers  
Reamers  
Step Reamers  
Subland Drills  
Subland Drill Reamers  
Subland Core Drills  
Taps  
End Mills

## • PCD Specials •

### • Coating Services •

Titanium Nitride (TiN)  
Titanium Carbonitride (TiCN)  
Titanium Aluminum Nitride (TiAlN)  
FIREX® Special Multilayer Hard Coating  
Super A (AlTiN)  
MolyGlide® Lubricating Soft Coating  
Nitride / Steam Oxide  
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### • GE 100 Modular Tooling System •

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