YMW U.S.A.

2003

Tap and Die Product Guide

TAPPING THE FUTURE

ISO 9001:2000

Quality. Consistency. Performance.

YMW U.S.A.

YAMAWA was founded with the lofty ideal of contributing to the progress and growth of the world's machine industry by producing taps, dies, center drills and other cutting tools of the highest quality.

For more than 80 years we have continued our pursuit of that ideal. We exceed world standards in both production technology and quality control. Yamawa is recognized for its superior quality control and is the first tap manufacturer in Japan to achieve ISO 9001 certification.

The products we export are highly acclaimed by manufacturers in all of the industrial fields in which they are used, which include aerospace, automotive and light / heavy electrical industries as well as by consumer product manufacturers around the world.

We remain committed to continuous improvement through advances in technology and product quality. We thank you for your continued support.

Head office and export department
Nakajima Gold Building, 13-10 Kyobashi 3 chome, Chuo-ku Tokyo 104-0031, Japan

Our United States distribution center has a large inventory of YMW products to support selected industrial distributors. YMW also has U.S. based tool modification as well as tool coating capabilities, including TiN and TiCN coating systems.

Quality. Consistency. Performance. Our commitment to these principles is reflected in each tool we make. It's a commitment you can count on.

Yonezawa Plant (ISO 9001: 2000)

Equipped with both production lines and out Quality Control Center, this plant obtained ISO 9001 certification in 1996. Of the three Yamawa plants, Yonezawa Plant has the longest history of manufacturing and the highest production capacity. Products include roll taps, spiral point, pipe and hand style taps.

Fukushima Plant (ISO 9001: 2000)

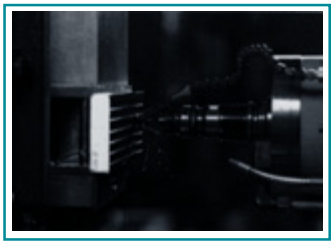
Provides both production lines and facilities for "in house" production of specialized production machine tools. This plant develops and manufactures special tap and die production equipment, and supplies this equipment to our other manufacturing sites. Products include spiral flute taps, dies and combined drills/countersinks.

Aizu Plant (ISO 9001: 2000)

Equipped with the most sophisticated machine tools available, this plant features the most advanced system of automated, labor-saving mass production. Products include sprial fluted taps and carbide taps.

Creating high quality, high performance taps and cutting tools to support technical innovation in metal machining

As rapid technical innovation unfolds in every field of industry, metal cutting and threading are faced with demands for higher quality and more efficient machining. By developing and supplying more precise, high performance taps and center drills to meet these evolving needs, YAMAWA is contributing to the advancement of global machining.



Product Line

Precision Cutting Tools

- Taps • Center Drills • Dies

Regrind Fixtures

- Tap and Drill Sharpeners

Precision Pitch Diameter Measuring Machines

- Three-wire measuring machine for highly accurate pitch diameter measurement

YAMAWA products respond to a wide variety of technical demands, addressing a wide range of metal processing needs, including:

Tapping hard to machine materials

Technological advances in the aerospace industry and other fields have prompted the use of various new light weight, heat resistant materials such as titanium and nickel based alloys. The extreme hardness and toughness of these materials accelerate wear on cutting tools, making conventional taps inadequate. YAMAWA continues to develop specific high performance tap designs for such hard to machine materials. We supply a broad range of new products in response to evolving customer needs, supporting the cutting edge of the next generation of metal processing.

New tap innovation

New taps have been introduced for high-performance threading of high-silicon aluminum and wrought aluminums.

YAMAWA is continuously updating tap designs based on meeting and exceeding our customers' tapping needs for increased quality at higher production rates.

Industry demand for high production and higher quality screw threads

High-speed, high-precision, multi-function CNC machine tools in the field of metal machining, have provided the platforms for threading improvements. YAMAWA has been quick to respond to this emerging trend, leading the industry in the development and introduction of taps for CNC and high-speed and ultra high-speed machining. We continue to produce a steady stream of high-performance taps in response to today's increasingly high demand for quality threads at reduced tapping costs.

Environmental protection and increased efficiency

YAMAWA is actively engaged in finding solutions for the increasing important problems of coolant management. Our proprietary oil-less thread forming taps have eliminated the need for cutting oil during tapping for popular thread sizes. This not only enables cleaner threading but also makes the entire process more efficient by eliminating chips during threading and reducing the cleanup step.

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List Number Index

EDP Number Index is on page 63.

How to Order YMW Standard Taps

Ordering Instructions:
Please use EDP numbers when ordering to save time and avoid errors.

Packaging:
To insure your YMW taps arrive in good condition, we request purchases be made in full package quantities only.

Standard Package Quantities:

Package Quantity	Product Size Ranges				
	Taps				
	American National Form	Pipe	Metric	Center Drills	Dies
3 pieces per pkg.	No. 0-12 1/2" - 7/8"	1/16" - 3/4"	M1 - M24	00-8	—
1 piece per pkg.	1" & over and all extended taps	1" & over	M25 & over	—	13/16" O.D. to 2" O.D.

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Our technical expertise continues to create high quality, high performance products

For more than 80 years, YAMAWA has continued to develop superior technical expertise as a pioneer in the tap and die industry.

Our vast storehouse of technological know-how has helped to produce many of the diverse products that have supported our growth over the years. We have established a flexible production system and a research and development system geared to the needs of our customers.

We remain committed to the development of high-quality, high-performance products, while continuing to refine and advance our technical capabilities.

YAMAWA's Unique Capabilities

Tap production involves the grinding of many features on a tap blank to produce a finished precision tool. For many years, YAMAWA has recognized the need to build these precision tap grinding machines "in house" as a means of achieving greater tool precision and higher quality tools. Today, YAMAWA makes more than 90% of its own production machines, thereby controlling tap quality from cutoff to final laser marking and measurement. Machines manufactured include machine tools to thread, flute grind, chamfer, tap square and OD grind, and machines to measure all of the taps' critical elements such as thread pitch diameter. The self-reliance at YAMAWA allows us to control product quality and production capabilities by custom engineering machines not readily available in the open market. At YAMAWA, we understand how to make taps, tap manufacturing machines and tap measuring equipment.

Research and Development

To achieve maximum tapping efficiency, we analyze materials to be tapped in detail. After carefully selecting a tap base material we thoroughly control heat treatment and design. This allows us to develop and supply taps that are ideally suited to their application. In addition to the basic tap research taking place at our technical research center, we also have a test center where we conduct performance and durability tests on the taps that we produce to evaluate tool performance with the goal of continuous improvement.

Quality Control

Equipped with many measuring machines manufactured in-house, YAMAWA maintains a rigorous quality system that includes inspection both at the machine stage and for finished goods. This quality control system has received widespread acclaim, along with numerous awards. In 1996, the Yonezawa Plant stepped ahead of our competitors by receiving ISO 9001. The Fukushima Plant and Aizu Plant were ISO 9001 certified in 2000.

Screw Thread Terms and Definitions

Major Diameter — The largest diameter of a straight thread.

Minor Diameter — The smallest diameter of a straight thread

Angle of Thread — The angle included between the flanks of the thread measured in an axial plane.

Half Angle of Thread — The angle included between a flank of thread and the normal (90°) to the axis, measured in an axial plane.

Pitch — The distance from a point on a screw to a corresponding point on the next thread measured parallel to the axis.

Metric —The pitch in inches $= \frac{\text{Pitch in Millimeters}}{25.4}$

Inches — The pitch in inches $= \frac{1}{\text{Number of threads per inch}}$

Lead of Thread — The distance a screw thread advances axially in one turn. On a single-thread screw the lead and pitch are identical. On a double-thread, the lead is 2 x the pitch. On a triple-thread the lead is 3 x pitch, etc.

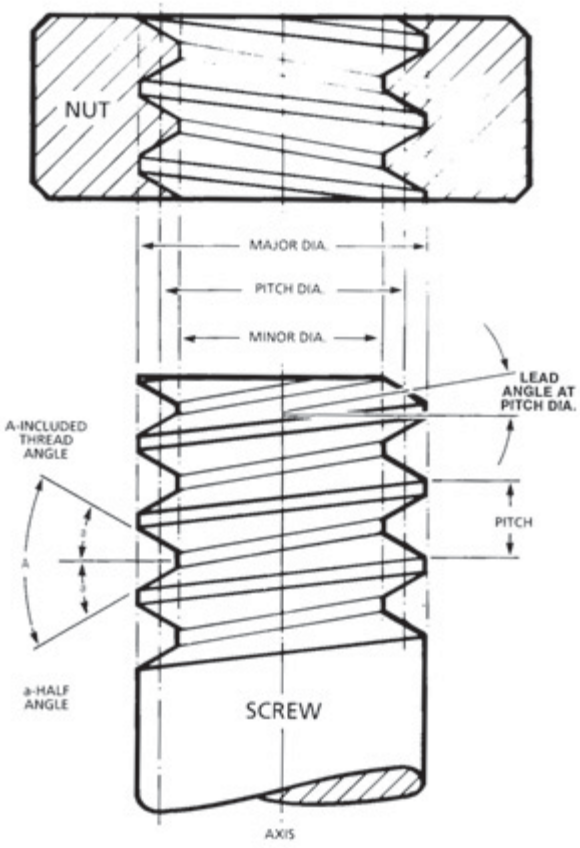
Lead Angle — The angle made by the helix of a thread at the pitch diameter with a line perpendicular to the axis.

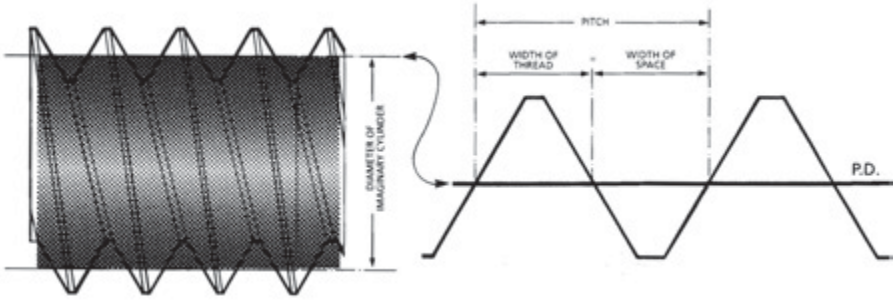
Tolerance — The total amount of variation permitted from a specified dimension. Tolerance may be expressed plus, minus or both.

Allowance — The intentional minimum clearance between mating threads.

Length of Engagement — The length that is engaged measured parallel to the axis, when mating parts are fully assembled.

Pitch Diameter — On a straight screw thread, the diameter of an imaginary cylinder, the surface of which would pass through the threads at such points as to make equal the width of the threads and the width of the spaces cut by the surface of the cylinder.





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ZELX® High Performance Tap Index

World Class Quality made for American Industry

All YMW taps are made to U.S.C.T.I. dimensions or DIN/ANSI dimensions.

JIS and DIN dimensioned taps are available upon request.

Catalog Page No.	Photo	List No.	Description
11,12		**3218** **3228**	**ZELX SS Taps** for through holes in stainless and alloy steel Spiral Pointed taps, plug style are made of YMW exclusive high vanadium premium high speed steel.
11,12		**3218T** **3228T**	**ZELX SS Taps** for stainless and alloy steel with TiN Spiral Pointed taps, plug style. TiN surface coating reduces tool wear substantially. For through hole tapping.
12		**3718** **3728**	**ZELX SS Taps** extended shank 6" overall length Spiral Pointed taps, plug style with extended length containing all of the features of ZELX SS taps. For through holes.
13		**3278** **3278T**	**ZELX SS Taps Metric sizes** for stainless steel and alloy steel featuring ANSI dimensions. Spiral Pointed taps, plug style. For through holes
13		**3800** **3801**	**ZELX Combined Drill and Countersink** for drilling stainless steels, alloy steels, aluminums, and ductile irons.
14, 15		**3318** **3328**	**ZELX SS Taps** for stainless and alloy steel Spiral Fluted taps, modified bottom style have proven to be productive for tapping blind holes.
14, 15		**3318T** **3328T**	**ZELX SS Taps** for stainless and alloy steel with TiN Spiral Fluted taps, modified bottom style for blind holes. TiN coating gives added lubricity to minimize welding and chip buildup.
16		**3818** **3828**	**ZELX SS Taps** extended shank 6" overall length Spiral Fluted taps, modified bottom style providing the extra length needed for hard to reach places. For blind hole tapping.
17		**3378** **3378T**	**ZELX SS Taps Metric sizes** for stainless steel and alloy steel featuring ANSI dimensions. Spiral Fluted taps, modified bottoming for blind holes.
18		**3438 NPT** **3448 NPTF**	**ZELX SS Pipe Taps** for stainless steel and alloy steel Slow Spiral Fluted taps provide greater shear angle and greater lifting action for discharge of chips.
19		**3114** **3124**	**ZELX Mold Taps** for tapping pre-hardened mold steels Straight Fluted hand style tap provides maximum performance in through or blind holes.
19		**3434** **NPT**	**ZELX Pipe Mold Taps** for tapping mold steels Containing premium cobalt high speed steel to withstand high heat and high stress in tapping die mold steel.
20 21		**3917** **3929** **3977**	**ZELX CARB CI** for tapping cast irons and other abrasive materials producing broken chips. Carbide hand tap, straight flute, plug and bottoming styles. Metric
20 21		**3910** **3920** **3970**	**ZELX CARB AL** for tapping aluminum, die cast silicon aluminum alloys and soft materials that produce stringy chips. Carbide hand tap, straight flute, plug and bottoming styles Metric

Catalog Page No.	Photo	List No.	Description
22		**3814** **3824** **3884**	**ZELX AL** for tapping cast aluminum and wrought aluminum alloys Spiral Pointed taps, plug style Metric
23		**3701** **3711** **3771**	**ZELX AL** for tapping cast aluminum and wrought aluminum alloys, 45° Spiral Fluted taps, modified bottom style Metric
24		**3804** **3834** **3874**	**ZELX ALS** for cast aluminum alloys, 25° Spiral Fluted taps, modified bottom style Metric
25		**3612** **3622** **3672**	**ZELX NI** for nickel base alloys and hardened alloy steel. Spiral Pointed taps, plug style giving proven performance in tapping nickel/cobalt/iron base alloys for through holes. Metric
26 27		**3615** **3625** **3675**	**ZELX NI** for nickel base alloys and hardened alloy steel. Spiral Fluted taps, bottom and modified bottom style provide exceptional consistency in tapping deep blind holes. Metric
28		**3619** **3629**	**ZELX NI-STI** Screw Thread Inserts (STI) taps Spiral Pointed taps, plug style.
29		**3617** **3627**	**ZELX NI-STI** Screw Thread Inserts (STI) taps Spiral Fluted taps, bottom and modified bottom style
30		**3613** **3623** **3673**	**ZELX TI** for titanium alloys, Spiral Point, Left Hand Slow Spiral Fluted taps, plug style developed for high performance in through hole tapping. Metric
31, 32		**3616** **3626** **3676**	**ZELX TI** for titanium alloys Spiral Fluted taps, bottom and modified bottom style developed for optimum tapping in tough blind hole applications. Metric
33		**3580** **3570**	**ZELX-OL-RZ** for stainless steel and other soft alloy steels forming taps, plug style (for dry tapping) Metric
34 35		**3502** **3512** **3572**	**ZELX HP-RZ** for stainless steels and other soft alloy steels forming taps, plug and bottom styles Metric
36		**3315** **3325**	**ZELX-FR** for through holes, fast tapping and rigid computer controlled set ups, for synchronized tapping, LH Spiral Fluted, modified bottom style w/TiN
36		**3317** **3327**	**ZELX-FR** for blind hole, fast tapping and rigid computer controlled set ups, for synchronized tapping, RH Spiral Fluted, modified bottom style w/TiN

ZELX Tap Selector for Exotic Materials

Using the right tap makes the difference.

Material Family Name	Hardness (BHN)	Through Hole	Speed (FPM)	Blind Hole	Speed (FPM)
Common Iron Base Alloys					
A286	Up to 275	ZELX-SS Spiral Point	20	ZELX-SS Spiral Flute	10
Incoloy 800	Over 275 thru 375	ZELX-NI Spiral Point	10	ZELX-NI Spiral Flute	10
Common Stainless Steels					
Stainless Steel Alloys	Up to 275	ZELX-SS Spiral Point	45	ZELX-SS Spiral Flute	30
Precipitation Hardening (PH) Stainless Steel	Over 275 thru 375	ZELX-NI Spiral Point	30	ZELX-NI Spiral Flute	15
Common Nickel Base Alloys					
Hastelloy Inconel	Up to 275	ZELX-NI Spiral Point	20	ZELX-NI Spiral Flute	10
Waspalloy Incoloy Astraloy	Over 275 thru 375	ZELX-NI Spiral Point	15	ZELX-NI Spiral Flute	10
Rene Monel					
Common Titanium Alloys					
Commercially Pure Titanium	Up to 275	ZELX-TI L.H. Slow Spiral	25	ZELX-TI R.H. Slow Spiral	10
Annealed Titanium Alloys Ti-6A1-4V	Over 275 thru 340	ZELX-TI L.H. Slow Spiral	15	ZELX-TI R.H. Slow Spiral	10
Hardened	Over 345	ZELX-TI Spiral (Special) taps may be required	7	ZELX-TI Spiral (Special) taps may be required)	5

Coating Recommendation Chart

P=Preferred A= Accepted N=Not Recommended

Material	Bright	Oxide	Nitride	TiN	TiCN	TiAlN	CrN
Aluminum	N	N	P	N	N	N	A
Cast Aluminum	N	N	P	A	N	N	N
Composites	N	N	A	P	P	N	A
Brass	P	N	P	N	N	N	P
Copper Alloys	N	N	P	N	N	N	P
Steels							
soft	N	P	N	A	P	N	N
hard	N	P	N	A	P	A	N
Cast Iron							
Gray	N	A	A	P	P	N	N
Ductile	N	A	A	P	P	N	N
Stainless	N	P	N	A	P	A	N
High Temp Alloys							
Iron Based	N	P	A	A	P	A	N
Cobalt Based	N	P	A	A	P	A	N
Nickel Based	N	P	A	A	P	A	A
Titanium	N	N	P	A	A	A	A
Plastics	N	N	A	P	A	N	A
Speed (SFM) Increase	**0%**	**0%**	**0%**	**50%**	**50%**	**100%**	**0%**

Suggested Speeds for Taps Coversion Chart — fpm to rpm

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Tap Sizes	Taper Pipe Taps	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																	
0		318	637	955	1273	1592	1910	2546	3183	3820	4456	5093	5729	6366	7003	7639	8276	8913	9549
1		273	546	819	1046	1308	1570	2093	2617	3140	3663	4186	4710	5233	5756	6279	6805	7326	7849
2		212	424	637	888	1110	1333	1777	2221	2665	3109	3554	3999	4442	4886	5330	5774	6218	6662
3		191	382	573	772	964	1157	1543	1929	2315	2701	3086	3472	3858	4244	4629	5015	5401	5787
4		174	347	521	682	853	1023	1364	1705	2046	2387	2728	3069	3411	3751	4092	4434	4775	5116
5		147	294	441	611	764	917	1222	1528	1833	2139	2445	2750	3056	3361	3667	3973	4278	4584
6		136	273	409	553	691	829	1106	1382	1659	1935	2212	2488	2766	3042	3318	3595	3871	4148
8		119	239	358	466	583	699	932	1165	1398	1631	1864	2097	2330	2563	2796	3029	3262	3495
10		101	201	302	402	502	603	804	1005	1205	1406	1607	1808	2009	2210	2411	2612	2813	3014
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	1986	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	1/8	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	1/4	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	728	489	550	611	672	733	794	856	917
11/16	3/8	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	1/2	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	3/4	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	1	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
1-5/8		12	23	35	47	59	71	94	118	141	165	188	212	235	259	282	306	329	353
1-3/4		11	22	33	44	55	65	87	109	131	153	175	196	218	240	262	284	306	327
1-7/8		10	20	30	41	51	61	81	102	122	143	163	183	204	224	244	265	285	306
2		9	19	29	38	48	57	76	96	115	134	153	172	191	210	229	248	267	287
M1		490	979	1469	1959	2449	2938	3918	4897	5877	6856	7836	8815	9795	10774	11754	12733	13713	14692
M2		242	484	725	967	1209	1451	1934	2418	2901	3385	3868	4352	4835	5319	5803	6286	6770	7253
M3		162	324	486	647	829	971	1295	1619	1942	2266	2590	2914	3237	3561	3885	4208	4532	4856
M3.5		138	277	415	557	692	830	1107	1384	1661	1938	2214	2491	2768	3045	3322	3599	3875	4152
M4		122	243	365	487	608	730	973	1217	1460	1698	1946	2190	2433	2676	2920	3163	3406	3650
M5		97	194	291	388	785	582	776	970	1163	1357	1551	1745	1939	2133	2327	2521	2715	2909
M6		81	162	243	324	405	486	647	809	971	1133	1295	1457	1619	1781	1942	2104	2266	2428
M7		69	138	208	277	346	415	554	692	830	969	1107	1246	1384	1522	1661	1799	1938	2076
M8		61	121	182	243	303	364	485	606	728	849	970	1091	1213	1334	1455	1577	1698	1819
M10		48	97	145	194	242	291	388	485	582	679	776	873	970	1067	1163	1260	1357	1454
M12		40	81	121	162	202	243	324	405	486	567	647	728	809	890	971	1052	1133	1214
M14		35	69	104	139	173	208	277	347	416	485	555	624	693	763	832	901	971	1040
M16		30	61	91	121	152	182	243	303	364	424	485	546	606	667	728	788	849	910
M18		27	54	81	108	135	162	216	269	323	377	431	485	539	593	647	700	754	808
M20		24	49	73	97	121	146	194	243	291	340	388	437	485	534	582	631	680	728
M22		22	44	66	88	110	132	176	221	265	309	353	397	441	485	529	573	618	662
M24		20	40	61	81	101	121	162	202	243	283	323	364	404	445	485	526	566	606
M27		18	36	54	72	90	108	144	180	216	252	287	323	359	395	431	467	503	539
M30		16	32	49	65	81	97	129	162	194	226	259	291	323	356	388	420	453	485

ZELX Product Offering Summary

Series	Tap Type	Style	Sizes	Tap Dimensions	Tap Material	Tap Application
3218 3228	Spiral Point	Plug	Machine Screw Fractional	USCTI	Vanadium HSS	Stainless & Alloy Steel, Ductile Irons
3318 3228	Spiral Flute	Modified Bottoming	Machine Screw Fractional	USCTI	Vanadium HSS	Stainless & Alloy Steel, Ductile Irons
3218T 3228T	Spiral Point, TiN	Plug	Machine Screw Fractional	USCTI	Vanadium HSS	Stainless & Alloy Steel, Ductile Irons
3318T 3328T	Spiral Flute	Modified Bottoming	Machine Screw Fractional	USCTI	Vanadium HSS	Stainless & Alloy Steel, Ductile Irons
3718 3728	Extended Spiral Point	Plug	Machine Screw Fractional	USCTI	Vanadium HSS	Stainless & Alloy Steel, Ductile Irons
3818 3828	Extended Spiral Flute	Modified Bottoming	Machine Screw Fractional	USCTI	Vanadium HSS	Stainless & Alloy Steel, Ductile Irons
3438 3448	Slow Spiral Flute	NPT NPTF	NPT Pipe NPTF Pipe	USCTI	Vanadium HSS	Stainless & Alloy Steel, Ductile Irons
3114 3124	Straight Flute	Plug	Machine Screw Fractional	USCTI	Cobalt HSS	Mold Steel & Alloy Steels >30 Rc
3434	Taper Pipe	Straight Flute	NPT Pipe	USCTI	Cobalt HSS	Mold Steel & Alloy Steels >30 Rc
3278 3278T	Spiral Point Spiral Point, TiN	Plug	Metric	USCTI	Vanadium HSS	Stainless & Alloy Steel, Ductile Irons
3378 3378T	Spiral Flute Spiral Flute, TiN	Modified Bottoming	Metric	USCTI	Vanadium HSS	Stainless & Alloy Steel, Ductile Irons
3613 3623	Spiral Point	Plug	Machine Screw Fractional	USCTI	Cobalt Vanadium Premium Steel	Titanium, Copper Alloys, Soft Plastics
3673	Spiral Point	Plug	Metric	USCTI	Cobalt Vanadium Premium Steel	Titanium, Copper Alloys, Soft Plastics
3616 3626 3676	Spiral Flute	Modified Bottoming	Machine Screw Fractional Metric	USCTI	Cobalt, Vanadium Premium Steel	Titanium, Copper Alloys, Soft Plastics
3612 3622 3672	Spiral Point	Plug	Machine Screw Fractional Metric	USCTI	Cobalt, Vanadium Premium Steel	Nickel Base & Exotic Alloy, Stainless >30 Rc
3615 3625 3675	Spiral Flute	Plug/ Bottoming	Machine Screw Fractional Metric	USCTI	Cobalt, Vanadium Premium Steel	Nickel Base & Exotic Alloy, Stainless >30 Rc
3619 3629	Spiral Point STI	Plug	Machine Screw Fractional	USCTI	Cobalt, Vanadium Premium Steel	Nickel Base & Exotic Alloy, Stainless >30 Rc
3617 3627	Spiral Flute STI	Plug/ Bottoming	Machine Screw Fractional	USCTI	Cobalt, Vanadium Premium Steel	Nickel Base & Exotic Alloy, Stainless >30 Rc
3814 3824 3884	Spiral Point	Plug	Machine Screw Fractional Metric	USCTI / DIN Length	Vanadium HSS	Cast Silicon Aluminum and Wrought Aluminum
3701 3711 3771	Spiral Flute, 45°	Modified Bottoming	Machine Screw Fractional Metric	USCTI / DIN Length	Vanadium HSS	Wrought Aluminum Alloys, Soft Plastics
3804 3834 3874	Slow Spiral Flute, 25°	Modified Bottoming	Machine Screw Fractional Metric	USCTI / DIN Length	Vanadium HSS	Cast Silicon Aluminum Alloys
3570 3580	Roll Form, Dry	Plug	Metric Machine Screw & Fractional	USCTI / DIN Length	Cobalt, Vanadium Premium Steel	Stainless Steel and Other Soft Alloys
3502 3512 3572	Roll Form, Wet	Plug / Bottoming	Machine Screw Fractional Metric	USCTI / DIN Length	Cobalt, Vanadium Premium Steel	Stainless Steel and Other Soft Alloys
3550 3552 3750	Roll Form	Plug / Bottoming	Machine Screw Fractional Metric	USCTI / DIN Length	Vanadium HSS	Aluminum, Brass, Copper Alloys
3560 3565 3575	Roll Form	Plug / Bottoming	Machine Screw Fractional Metric	USCTI / DIN Length	Vanadium HSS	Stainless Steels, Alloy Steels
3317 3327	RH Spiral Flute	Modified Bottoming	Machine Screw Fractional	USCTI	Vanadium HSS	Fast, Rigid, Synchronized Tapping
3315 3325	LH Spiral Flute	Plug	Machine Screw Fractional	USCTI	Vanadium HSS	Fast, Rigid, Synchronized Tapping

ZELX® SS Taps

Custom Blended Vanadium High Speed Steel Taps For Stainless Steels, Alloy Steels and Ductile Irons

- Tap geometry specially engineered for tapping stainless steels and other exotic materials
- Design extends tool life, improves both product thread finish and pitch diameter size.

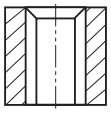
ZELX SS Taps are designed for difficult jobs, including the stainless steel family of materials as well as alloy steels, high carbon steel and ductile irons. Due to the unique tool steel and tap geometry ZELX SS Spiral Pointed Taps increase productivity through longer tool life and are ideally suited for through hole tapping.

ZELX SS Taps are oxide surface treated or Titanium Nitride (TiN) coated to reduce loading and galling of product material, thereby improving tap wearlife and thread quality.

The special ZELX SS tool geometry creates less torque, better removal of chips and runs cooler. Necked design enhances flow of cutting fluid to cutting teeth and reduces surface contact between the tool and workpiece for more efficient threading.

ZELX SS taps are suitable for UNJ Aerospace internal threading applications.

FOR THROUGH HOLE TAPPING



SPIRAL POINTED TAPS

List

3218	Machine Screw sizes with oxide surface treatment
3228	Fractional sizes with oxide surface treatment
3218T	Machine Screw sizes with TiN (Titanium Nitride)
3228T	Fractional sizes with TiN (Titanium Nitride)

Plug Style
(3 to 5 threads chamfered)
*Available in bright, add “B” to EDP No.

Nominal Size	TPI NC UNC	TPI NF UNF	No. of Flutes	Pitch Diameter Limit / EDP Numbers H2	H2 TiN	H3	H3 TiN	H4	H4 TiN	H5	H6	H7	Dimensions Length of Thread	Length of Neck	Length Overall
2	56	—	2	382623	—	382624	—	—	—	—	—	—	.256	.181	1-3/4
3	48	—	2	382600	—	—	—	—	—	—	—	—	.295	.205	1-13/16
4	40	—	2	382601*	382901*	382602*	—	382612	—	382634*	—	—	.335	.227	1-7/8
4	—	48	2	382683	—	—	—	—	—	—	—	—	.335	.227	1-7/8
5	40	—	3	382603	382903*	—	—	—	—	—	—	—	.374	.251	1-15/16
6	32	—	3	382604	—	382605	382905*	382608	—	382635*	382659	382665*	.413	.274	2
6	—	40	3	382684	—	—	—	—	—	—	—	—	.413	.274	2
8	32	—	3	382606	—	382607	382907*	382629	—	382637	382660	382667	.453	.297	2-1/8
8	—	36	3	382686	—	—	—	—	—	—	—	—	.453	.297	2-1/8
10	24	—	3	—	—	382609	382909*	—	—	382639	382690	382669	.531	.344	2-3/8
10	—	32	3	382611	—	382610	382910*	382630	—	382640	382661	382670*	.531	.344	2-3/8
12	24	—	3	—	—	382688	—	—	—	—	—	—	.571	.366	2-3/8
12	—	28	3	—	—	382689	—	—	—	—	—	—	.571	.366	2-3/8
1/4	20	—	3	—	—	382613	382913*	—	—	382643	382590	382673	.591	.409	2-1/2
1/4	—	28	3	—	—	382614	382914*	382631*	—	382644	382662	382674*	.591	.409	2-1/2
5/16	18	—	3	—	—	382615	382915*-	—	—	382645	—	382675	.669	.456	2-23/32
5/16	—	24	3	—	—	382616	382916*	382632	—	382646	382663	382676	.669	.456	2-23/32
3/8	16	—	3	—	—	382617	382917*	—	—	382647	—	382668*	.748	.502	2-15/16
3/8	—	24	3	—	—	382618	382918*	382633*	—	382648	382664	382678	.748	.502	2-15/16
7/16	14	—	3	—	—	382619	382919*	—	—	382649	—	—	.866	—	3-5/32
7/16	—	20	3	—	—	382620	382920*	—	—	382650*	382691	382680	.866	—	3-5/32
1/2	13	—	3	—	—	382621	382921*	—	—	382651*	—	382681*	.984	—	3-3/8
1/2	—	20	3	—	—	382622	382922*	—	—	382652*	382692	382682*	.984	—	3-3/8
9/16	12	—	3	—	—	382653	382953*	—	—	—	—	—	.984	—	3-19/32
9/16	—	18	3	—	—	382654	382954*	—	—	—	—	—	.984	—	3-19/32
5/8	11	—	3	—	—	382625	382925*	—	—	382655	—	—	1.083	—	3-13/16
5/8	—	18	3	—	—	382626	382926*	382636	—	382656	382694	382591*	1.083	—	3-13/16
3/4	10	—	3	—	—	382627	382927*	—	—	382657	—	—	1.201	—	4-1/4
3/4	—	16	3	—	—	382628	382928*	—	—	382658	—	382592*	1.201	—	4-1/4

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ZELX® SS Taps

Custom Blended Vanadium High Speed Steel Taps For Stainless Steels, Alloy Steels and Ductile Irons

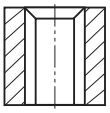
ZELX SS taps are suitable for UNJ Aerospace internal threading applications

(continued) SPIRAL POINTED TAPS

List
3218 Machine Screw sizes with oxide surface treatment
3228 Fractional sizes with oxide surface treatment
3218T Machine Screw sizes with TiN (Titanium Nitride)
3228T Fractional sizes with TiN (Titanium Nitride)

Plug Style
(3 to 5 threads chamfered)
*Available in bright, add "B" to EDP No.

FOR THROUGH HOLE TAPPING



Nominal Size	TPI NC UNC	TPI NF UNF	No. of Flutes	Pitch Diameter Limit / EDP Numbers H2	H2 TiN	H3	H3 TiN	H4	H4 TiN	H5	H6	H7	Dimensions Length of Thread	Length of Neck	Length Overall
7/8	9	—	3	—	—	—	—	382695	382995*	—	—	—	1.339	—	4-11/16
7/8	—	14	3	—	—	—	—	382696	382996*	—	382699	—	1.339	—	4-11/16
1	8	—	3	—	—	—	—	382697	382997*	—	—	—	1.496	—	5-1/8
1	—	12	3	—	—	—	—	382679	—	—	—	—	1.496	—	5-1/8
1-1/8	7	—	4	—	—	—	—	—	—	—	382700	—	1.535	—	5-7/16
1-1/8	—	12	4	—	—	—	—	—	—	382701	—	—	1.535	—	5-7/16
1-1/4	7	—	4	—	—	—	—	—	—	—	382702	—	1.535	—	5-3/4
1-1/4	—	12	4	—	—	—	—	—	—	382703	—	—	1.535	—	5-3/4
1-3/8	6	—	4	—	—	—	—	—	—	—	382705	—	1.811	—	6-1/16
1-3/8	—	12	4	—	—	—	—	—	—	382706	—	—	1.811	—	6-1/16
1-1/2	6	—	4	—	—	—	—	—	—	—	382707	—	1.811	—	6-3/8
1-1/2	—	12	4	—	—	—	—	—	—	382708	—	—	1.811	—	6-3/8
1-3/4	5	—	4	—	—	—	—	—	—	—	—	382709	1.929	—	7
2	—	4-1/2	4	—	—	—	—	—	—	—	—	382710	1.929	—	7-5/8

NOTE:
6" extended taps have the same approximate thread lengths as corresponding non-extended taps

6" EXTENDED SPIRAL POINTED TAPS

List
3718 Machine Screw sizes
3728 Fractional sizes

Plug Style
(3 to 5 threads chamfered)
Taps have oxide surface treatment

FOR THROUGH HOLE TAPPING

Nominal Size	Threads per inch NC UNC	Threads per inch NF UNF	No. of Flutes	Pitch Diameter Limit / EDP Numbers H2	H3	Dimensions Overall Length
2	56	—	2	382523	—	6"
3	48	—	2	382500	—	6"
4	40	—	2	382501	—	6"
6	32	—	3	—	382505	6"
8	32	—	3	—	382507	6"
10	24	—	3	—	382509	6"
10	—	32	3	—	382510	6"
1/4	20	—	3	—	382513	6"
1/4	—	28	3	—	382514	6"
5/16	18	—	3	—	382515	6"
5/16	—	24	3	—	382516	6"
3/8	16	—	3	—	382517	6"
3/8	—	24	3	—	382518	6"
7/16	14	—	3	—	382519	6"
7/16	—	20	3	—	382520	6"
1/2	13	—	3	—	382521	6"
1/2	—	20	3	—	382522	6"

ZELX® SS Metric Taps • ZELX® SS Drills & Countersinks

Custom Blended Vanadium High Speed Steel Taps
For Stainless Steels, Alloy Steels and Ductile Irons

ZELX SS taps are suitable for UNJ Aerospace internal threading applications

METRIC SPIRAL POINTED TAPS

List **3278** with oxide surface treatment
3278T with TiN (Titanium Nitride)

Plug Style
(3 to 5 threads chamfered)
*Available in bright, add "B" to EDP No.

Nominal Size	No. of Flutes	Pitch Diameter Limit / EDP Numbers									Dimensions		
		D3	D3 TiN	D4	D4 TiN	D5	D5 TiN	D6	D6 TiN	D7	Thread Length	Neck Length	Length Overall
M3 x 0.5	3	372615	372915*	—	—	—	—	—	—	—	.374	.251	1-15/16
M3.5 x 0.6	3	—	—	372616	—	—	—	—	—	—	.413	.274	2
M4 x 0.7	3	—	—	372617	372917*	—	—	—	—	—	.453	.297	2-1/8
M5 x 0.8	3	—	—	372619	372919*	—	—	—	—	—	.531	.344	2-3/8
M6 x 1.0	3	—	—	—	—	372620	372920*	—	—	—	.591	.409	2-1/2
M7 x 1.0	3	—	—	—	—	372621	—	—	—	—	.669	.456	2-23/32
M8 x 1.0	3	—	—	—	—	372622	—	—	—	—	.669	.456	2-23/32
M8 x 1.25	3	—	—	—	—	372623	372923*	—	—	—	.669	.456	2-23/32
M10 x 1.25	3	—	—	—	—	372624	—	—	—	—	.748	.502	2-15/16
M10 x 1.5	3	—	—	—	—	—	—	372625	372925*	—	.748	.502	2-15/16
M12 x 1.25	3	—	—	—	—	372626	—	—	—	—	.984	—	3-3/8
M12 x 1.75	3	—	—	—	—	—	—	372627	372927*	—	.984	—	3-3/8
M14 x 1.5	3	—	—	—	—	—	—	372628	—	—	.984	—	3-19/32
M14 x 2.0	3	—	—	—	—	—	—	—	—	372629	.984	—	3-19/32
M16 x 1.5	3	—	—	—	—	—	—	372630	—	—	1.083	—	3-13/16
M16 x 2.0	3	—	—	—	—	—	—	—	—	372631	1.083	—	3-13/16
M18 X 1.5	3	—	—	—	—	—	—	372632	—	—	1.083	—	4-1/32
M18 x 2.5	3	—	—	—	—	—	—	—	—	372633	1.083	—	4-1/32

ZELX® SS Drills & Countersinks

Custom Blended Vanadium High Speed Steel Combined Drill & Countersinks
For Stainless Steels, Alloy Steels, Aluminums and Ductile Irons

YMW combined drills and countersinks with a 60° included angle are ideal for CNC and general machining applications. They are designed and manufactured for high efficiency and good wear life. TiN coating is available upon request.

PERFORMANCE COMBINED DRILL AND COUNTERSINK

List **3800** **Plain Type** TiN & TiCN available

Size	EDP Numbers	Dimensions		
		Body Diameter	Drill Diameter	Overall Length
00	350000	1/8	.025	1-7/32
0	350001	1/8	1/32	1-7/32
1	350010	1/8	3/64	1-1/4
2	350020	3/16	5/64	1-7/8
3	350030	1/4	7/64	2
4	350040	5/16	1/8	2-1/8
5	350050	7/16	3/16	2-3/4
6	350060	1/2	7/32	3
7	350070	5/8	1/4	3-1/4
8	350080	3/4	5/16	3-1/2

List **3801** **Long Type** TiN & TiCN available

Size	EDP Numbers for Overall Length				Dimensions	
	3"	4"	5"	6"	Body Diam.	Drill Diam.
1	350310	350410	350510	350610	1/8	3/64
2	—	350420	350520	350620	3/16	5/64
3	—	350430	350530	350630	1/4	7/64
4	—	350440	350540	350640	5/16	1/8
4-1/2	—	350445	350545	350645	3/8	9/64
5	—	350450	350550	350650	7/16	3/16
6	—	—	350560	350660	1/2	7/32
7	—	—	350570	350670	5/8	1/4
8	—	—	—	350680	3/4	5/16

ZELX® SS Taps

Custom Blended Vanadium High Speed Steel Taps For Stainless Steels, Alloy Steels and Ductile Irons

ZELX SS Spiral Fluted Taps are designed for difficult jobs inlcuding the stainless steel family of materials as well as alloy steels, high carbon steel and ductile irons. Our unique design ZELX SS taps increase productivity through longer tool life. The modified bottom chamfer makes them ideally suited to blind hole tapping.

ZELX Spiral Fluted Taps are oxide surface treated or Titanium Nitride (TiN) coated to reduce loading and galling of product material, improving tap wearlife and thread quality.

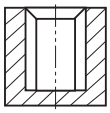
Necked design enhances flow of cutting fluid to cutting teeth and reduces surface contact between the tool and work-piece for more efficient threading.

The special ZELX tool geometry creates less torque, better removal of chips and runs cooler.

Full bottom tap with 1-2 threads chamfer available upon request. ZELX SS Taps are suitable for UNJ Aerospace internal threading applications.

ZELX SS taps are suitable for UNJ Aerospace internal threading applications

FOR BLIND HOLE TAPPING



SPIRAL FLUTED TAPS

List
3318 Machine Screw sizes with steam oxide surface treatment
3328 Fractional sizes with steam oxide surface treatment
3318T Machine Screw sizes with TiN (Titanium Nitride)
3328T Fractional sizes with TiN (Titanium Nitride)

Modified Bottoming Style
(2-1/2 to 3-1/2 threads chamfered)
*Available in bright, add “B” to EDP No.

Nominal Size	TPI NC UNC	TPI NF UNF	No. of Flutes	Pitch Diameter Limit / EDP Numbers H2	H2 TiN	H3	H3 TiN	H4	H4 TiN	H5	H6	H7	Dimensions Length of Thread	Length of Neck	Length Overall
2	56	—	2	384623	—	—	—	—	—	—	—	—	.157	.280	1-3/4
3	48	—	2	384600	—	—	—	—	—	—	—	—	.197	.303	1-13/16
4	40	—	2	384601	384901*	384602*	—	384629	—	384634	—	—	.236	.326	1-7/8
4	—	48	2	384683	—	—	—	—	—	—	—	—	.236	.326	1-7/8
5	40	—	3	384603	384903*	—	—	—	—	—	—	—	.236	.389	1-15/16
6	32	—	3	384604	—	384605	384905*	384636	—	384635	384659	384665	.276	.411	2
6	—	40	3	384684	—	384685	—	—	—	—	—	—	.276	.411	2
8	32	—	3	384606	—	384607	384907*	384638	—	384637	384660	384667	.276	.474	2-1/8
8	—	36	3	—	—	384687	—	—	—	—	—	—	.276	.474	2-1/8
10	24	—	3	384624	—	384609	384909*	—	—	384639	384690	384669	.354	.521	2-3/8
10	—	32	3	384611	—	384610	384910*	384630	—	384640	384662	384670	.276	.599	2-3/8
12	24	—	3	—	—	384688	—	—	—	—	—	—	.354	.583	2-3/8
12	—	28	3	—	—	384689	—	—	—	—	—	—	.276	.661	2-3/8
1/4	20	—	3	—	—	384613	384913*	—	—	384643*	—	384673	.433	.567	2-1/2
1/4	—	28	3	—	—	384614	384914*	384631	—	384644*	384664	384674	.354	.646	2-1/2
5/16	18	—	3	—	—	384615	384915*	—	—	384645	—	384675	.472	.653	2-23/32
5/16	—	24	3	—	—	384616	384916*	384632	—	384646	—	384676	.394	.731	2-23/32
3/8	16	—	3	—	—	384617	384917*	—	—	384647	—	384677	.551	.699	2-15/16
3/8	—	24	3	—	—	384618	384918*	384633*	—	384648	—	384678	.394	.856	2-15/16
7/16	14	—	3	—	—	384619	384919*	—	—	384649	—	384679	.591	—	3-5/32
7/16	—	20	3	—	—	384620	384920*	—	—	384650	384691	384680	.472	—	3-5/32
1/2	13	—	3	—	—	384621	384921*	—	—	384651*	—	384681	.630	—	3-3/8
1/2	—	20	3	—	—	384622	384922*	—	—	384652	384692	384682	.472	—	3-3/8
9/16	12	—	3	—	—	384653	384953*	—	—	—	—	—	.709	—	3-19/32
9/16	—	18	3	—	—	384654	384954*	—	—	384698	—	—	.512	—	3-19/32
5/8	11	—	3	—	—	384625	384925*	—	—	384655	—	—	.748	—	3-13/16
5/8	—	18	3	—	—	384626	384926*	—	—	384656	—	384672	.512	—	3-13/16
3/4	10	—	4	—	—	384627	384927*	—	—	384657	—	—	.827	—	4-1/4
3/4	—	16	4	—	—	684628	384928*	—	—	384658	—	384686	.591	—	4-1/4
7/8	9	—	4	—	—	—	—	384695	384995*	—	—	—	.827	—	4-11/16
7/8	—	14	4	—	—	—	—	384696	384996*	—	—	—	.709	—	4-11/16

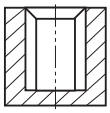
continued on next page

ZELX® SS Taps

Custom Blended Vanadium High Speed Steel Taps For Stainless Steels, Alloy Steels and Ductile Irons

ZELX SS taps are suitable for UNJ Aerospace internal threading applications

FOR BLIND HOLE TAPPING



(continued) SPIRAL FLUTED TAPS

List
3318 Machine Screw sizes with steam oxide surface treatment
3328 Fractional sizes with steam oxide surface treatment
3318T Machine Screw sizes with TiN (Titanium Nitride)
3328T Fractional sizes with TiN (Titanium Nitride)

Modified Bottoming Style
(2-1/2 to 3-1/2 threads chamfered)
*Available in bright, add "B" to EDP No.

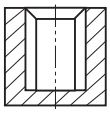
Nominal Size	TPI NC UNC	TPI NF UNF	No. of Flutes	Pitch Diameter Limit / EDP Numbers H2	H2 TiN	H3	H3 TiN	H4	H4 TiN	H5	H6	H7	Dimensions Length of Thread	Length of Neck	Length Overall
1	8	—	4	—	—	—	—	384697	384997*	—	—	—	.984	—	5-1/8
1	—	12	4	—	—	—	—	384668	—	—	—	—	.709	—	5-1/8
1-1/8	7	—	4	—	—	—	—	—	—	—	384701	—	1.181	—	5-7/16
1-1/8	—	12	4	—	—	—	—	—	—	384702	—	—	0.787	—	5-7/16
1-1/4	7	—	4	—	—	—	—	—	—	—	384703	—	1.181	—	5-3/4
1-1/4	—	12	4	—	—	—	—	—	—	384705	—	—	0.787	—	5-3/4
1-3/8	6	—	4	—	—	—	—	—	—	—	384706	—	1.575	—	6-1/16
1-3/8	—	12	4	—	—	—	—	—	—	384707	—	—	0.787	—	6-1/16
1-1/2	6	—	4	—	—	—	—	—	—	—	384709	—	1.575	—	6-3/8
1-1/2	—	12	4	—	—	—	—	—	—	384711	—	—	0.787	—	6-3/8
1-3/4	5	—	4	—	—	—	—	—	—	—	—	384714	1.772	—	7
2	4-1/2	—	4	—	—	—	—	—	—	—	—	384715	1.969	—	7-5/8

SPIRAL FLUTED TAPS

List
3318 Machine Screw Sizes
3328 Fractional Sizes

Bottoming Style
(1 to 2 Threads Chamfered)
Taps have oxide surface treatment

FOR BLIND HOLE TAPPING



Nominal Size	TPI NC UNC	TPI NF UNF	No. of Flutes	Pitch Diameter Limit / EDP Numbers H2	H3	H4	H5	H7	Dimensions Length of Thread	Length of Neck	Length Overall
4	40		2	384001	384002	—	384034	—	.236	.326	1-7/8
4		48	2	384083	—	—	—	—	.236	.326	1-7/8
5	40		3	384003	—	—	—	—	.236	.389	1-15/16
6	32		3	384004	384005	—	384035	—	.276	.411	2
6		40	3	384084	384085	—	—	—	.276	.411	2
8	32		3	384006	384007	—	384037	—	.276	.474	2-1/8
10	24		3		384009	—	384039	—	.354	.521	2-3/8
10		32	3		384010	—	384040	—	.276	.599	2-3/8
1/4	20		3		384013	—	384043	—	.433	.567	2-1/2
1/4		28	3		384014	—	384044	—	.354	.646	2-1/2
5/16	18		3		384015	—	384045	—	.472	.653	2-23/32
5/16		24	3		384016	—	384046	—	.394	.731	2-23/32
3/8	16		3		384017	—	384047	384077	.551	.699	2-15/16
3/8		24	3		384018	384033	384048	—	.394	.856	2-15/16
7/16	14		3		384019	—	384049	—	.591	—	3-5/32
7/16		20	3		384020	—	384050	—	.472	—	3-5/32
1/2	13		3		384021	—	384051	—	.630	—	3-3/8
1/2		20	3		384022	—	384052	—	.472	—	3-3/8
9/16	12		3		384053	—	—	—	.709	—	3-19/32
9/16		18	3		384054	—	—	—	.512	—	3-19/32
5/8	11		3		384025	—	384055	—	.748	—	3-13/16
5/8		18	3		384026	—	384056	—	.512	—	3-13/16
3/4	10		4		384027	—	—	—	.827	—	4-1/4
3/4		16	4		384028	—	—	—	.591	—	4-1/4

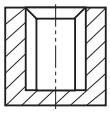
NOTE:
6" extended taps have the same approximate thread lengths as corresponding non-extended taps

ZELX® SS Taps

Custom Blended Vanadium High Speed Steel Taps For Stainless Steels, Alloy Steels and Ductile Irons

ZELX SS taps are suitable for UNJ Aerospace internal threading applications

FOR BLIND HOLE TAPPING



6" EXTENDED SPIRAL FLUTED TAPS

List **3818** Machine Screw sizes
3828 Fractional sizes

Modified Bottoming Style
(2-1/2 to 3-1/2 threads chamfered)
Taps have oxide surface treatment

Threads per inch				Pitch Diameter Limit / EDP Numbers		Dimensions
Nominal Size	NC UNC	NF UNF	No. of Flutes	H2	H3	Overall Length
2	56	—	2	384523	—	6"
3	48	—	2	384500	—	6"
4	40	—	2	384501	—	6"
6	32	—	3	—	384505	6"
8	32	—	3	—	384507	6"
10	24	—	3	—	384509	6"
10	—	32	3	—	384510	6"
1/4	20	—	3	—	384513	6"
1/4	—	28	3	—	384514	6"
5/16	18	—	3	—	384515	6"
5/16	—	24	3	—	384516	6"
3/8	16	—	3	—	384517	6"
3/8	—	24	3	—	384518	6"
7/16	14	—	3	—	384519	6"
7/16	—	20	3	—	384520	6"
1/2	13	—	3	—	384521	6"
1/2	—	20	3	—	384522	6"

Gages are Precision "Measuring" Tools… Handle Properly

1. ***Clean the part before gaging.***
   Get rid of dirt and chips.
2. ***Do not force the gage.***
   Use reasonably light pressure only.
3. ***Protect the gage from damage.***
   Nicks and burrs allow inaccurate results.
4. ***Keep gage clean and lightly oiled.***
   This increases wear life.
5. ***Avoid handling gaging surfaces.***
   Fingerprints cause rust.

ZELX® SS Metric Taps

Custom Blended Vanadium High Speed Steel Taps For Stainless Steels, Alloy Steels and Ductile Irons

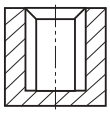
ZELX SS taps are suitable for UNJ Aerospace internal threading applications

METRIC SPIRAL FLUTED TAPS

List **3378** with oxide surface sreatment
3378T with TiN (Titanium Nitride)

Modified Bottoming Style
(2-1/2 to 3-1/2 threads chamfered)
*Available in bright. Add "B" to EDP No.

FOR BLIND HOLE TAPPING



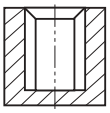
Nominal Size	No. of Flutes	Pitch Diameter Limit / EDP Numbers									Dimensions		
		D3	D3 TiN	D4	D4 TiN	D5	D5 TiN	D6	D6 TiN	D7	Thread Length	Neck Length	Length Overall
M3 x 0.5	3	374615	374915*	—	—	—	—	—	—	—	.197	.428	1-15/16
M3.5 x 0.6	3	—	—	374616	—	—	—	—	—	—	.276	.411	2
M4 x 0.7	3	—	—	374617	374917*	—	—	—	—	—	.276	.474	2-1/8
M5 x 0.8	3	—	—	374619	374919*	—	—	—	—	—	.354	.521	2-3/8
M6 x 1.0	3	—	—	—	—	374620	374920*	—	—	—	.433	.567	2-1/2
M7 x 1.0	3	—	—	—	—	374621	—	—	—	—	.433	.692	2-23/32
M8 x 1.0	3	—	—	—	—	374622	—	—	—	—	.472	.653	2-23/32
M8 x 1.25	3	—	—	—	—	374623	374923*	—	—	—	.472	.653	2-23/32
M10 x 1.25	3	—	—	—	—	374624	—	—	—	—	.472	.778	2-15/16
M10 x 1.5	3	—	—	—	—	—	—	374625	374925*	—	.512	.738	2-15/16
M12 x 1.25	3	—	—	—	—	374626	374926*	—	—	—	.551	—	3-3/8
M12 x 1.75	3	—	—	—	—	—	—	374627	374927*	—	.591	—	3-3/8
M14 x 1.5	3	—	—	—	—	—	—	374628	—	—	.551	—	3-19/32
M14 x 2.0	3	—	—	—	—	—	—	—	—	374629	.709	—	3-19/32
M16 x 1.5	3	—	—	—	—	—	—	374630	—	—	.551	—	3-13/16
M16 x 2.0	3	—	—	—	—	—	—	—	—	374631	.709	—	3-13/16
M18 x 1.5	4	—	—	—	—	—	—	374632	—	—	.551	—	4-1/32
M18 x 2.5	4	—	—	—	—	—	—	—	—	374633	.787	—	4-1/32

METRIC SPIRAL FLUTED TAPS

List **3378**

Bottoming Style
(1 to 2 threads chamfered)
Taps have oxide surface treatment

FOR BLIND HOLE TAPPING



Nominal Size	No. of Flutes	Pitch Diameter Limit / EDP Numbers					Dimensions		
		D3	D4	D5	D6	D7	Length of Thread	Length of Neck	Length Overall
M3 x 0.5	3	374015	—	—	—	—	.197	.428	1-15/16
M3.5 x 0.6	3	—	374016	—	—	—	.276	.411	2
M4 x 0.7	3	—	374017	—	—	—	.276	.474	2-1/8
M5 x 0.8	3	—	374019	—	—	—	.354	.521	2-3/8
M6 x 1	3	—	—	374020	—	—	.433	.567	2-1/2
M7 x 1	3	—	—	374021	—	—	.433	.692	2-23/32
M8 x 1	3	—	—	374022	—	—	.472	.653	2-23/32
M8 x 1.25	3	—	—	374023	—	—	.472	.653	2-23/32
M10 x 1.25	3	—	—	374024	—	—	.472	.778	2-15/16
M10 x 1.5	3	—	—	—	374025	—	.512	.738	3-3/8
M12 x 1.25	3	—	—	374026	—	—	.551	—	3-3/8
M12 x 1.75	3	—	—	—	374027	—	.591	—	3-19/32
M14 x 1.5	3	—	—	—	374028	—	.551	—	3-19/32
M14 x 2	3	—	—	—	—	374029	.709	—	3-13/16
M16 x 1.5	3	—	—	—	374030	—	.551	—	3-13/16
M16 x 2	3	—	—	—	—	374031	.709	—	4-1/32
M18 x 1.5	3	—	—	—	374032	—	.551	—	4-1/32

ZELX® SS Pipe Taps

Custom Blended Vanadium High Speed Steel Taps For Stainless Steels, Alloy Steels, Ductile Irons

SLOW SPIRAL FLUTED PIPE TAPS

List **3438** NPT Pipe Tap
3448 NPTF Pipe Tap Dryseal Taper

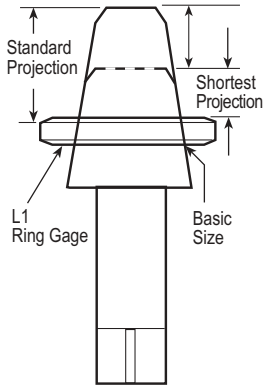
Taps have oxide surface treatment
Pipe Taps are standard with 2-1/2 to 3-1/2 threads chamfered

Nominal Size	Threads per Inch	No. of Flutes	EDP Numbers		Dimensions	
			NPT	NPTF	Length of Thread	Length Overall
1/16	27	4	383640	383660	11/16	2-1/8
1/8 (Lg. Shank)	27	4	383641	383661	3/4	2-1/8
1/8 (Sm. Shank)	27	4	383642	383662	3/4	2-1/8
1/4	18	4	383643	383663	1-1/16	2-7/16
3/8	18	4	383644	383664	1-1/16	2-9/16
1/2	14	4	383645	383665	1-3/8	3-1/8
3/4	14	4	383646	383666	1-3/8	3-1/4
1	11-1/2	4	383647	383667	1-3/4	3-3/4

*The nominal size of a Pipe Tap is that of the pipe fitting to be tapped, not the actual size of the tap. The thread tapers 3/4 of an inch per foot.

Taper Pipe Tap Standard Projection

ZELX Pipe Taps are designed for difficult jobs including stainless steels, alloy steels and ductile irons.



TAPER PIPE TAPS - General Dimensions - Inches

*Nominal Pipe Size	Length Overall		Length of Thread		Length of Square		Diameter of Shank		Size of Square		†Gage Measurement		Taper Per Foot		Tap Drill Sizes First 2 or 3 Threads(Full)
	Length	Tol.	Length	Tol.	Length	Tol.	Dia.	Tol.	Size	Tol.	Projection	Tol.	Min.	Max.	
1/16	2-1/8	±1/32	11/16	±1/16	3/8	±1/32	.3125	-.0015	.234	-.004	.312	±1/16	23/32	25/32	C
1/8	2-1/8	±1/32	3/4	±1/16	3/8	±1/32	.3125	-.0015	.234	-.004	.312	±1/16	23/32	25/32	Q
1/8	2-1/8	±1/32	3/4	±1/16	3/8	±1/32	.4375	-.0015	.328	-.004	.312	±1/16	23/32	25/32	Q
1/4	2-7/16	±1/32	1-1/16	±1/16	7/16	±1/32	.5625	-.002	.421	-.006	.459	±1/16	23/32	25/32	7/16
3/8	2-9/16	±1/32	1-1/16	±1/16	1/2	±1/32	.7000	-.002	.531	-.006	.454	±1/16	23/32	25/32	9/16
1/2	3-1/8	±1/32	1-3/8	±1/16	5/8	±1/32	.6875	-.002	.515	-.006	.579	±1/16	23/32	25/32	45/64
3/4	3-1/4	±1/32	1-3/8	±1/16	11/16	±1/32	.9063	-.002	.679	-.006	.565	±1/16	23/32	25/32	29/32
1	3-3/4	±1/16	1-3/4	±3/32	13/16	±1/16	1.1250	-.002	.843	-.008	.678	±3/32	23/32	25/32	1-9/64
1-1/4	4	±1/16	1-3/4	±3/32	15/16	±1/16	1.3125	-.003	.984	-.008	.686	±3/32	23/32	25/32	1-31/64
1-1/2	4-1/4	±1/16	1-3/4	±1/8	1	±1/16	1.5000	-.003	1.125	-.008	.699	±3/32	23/32	25/32	1-23/32
2	4-1/2	±1/16	1-3/4	±1/8	1-1/8	±1/16	1.8750	-.003	1.406	-.008	.667	±3/32	23/32	25/32	2-3/16

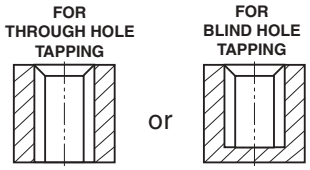
†Taper Pipe tap standard projection is the distance the small end of the tap projects through an American National Standard Pipe Thread Ring Gage.

ZELX® Mold Taps
For Mold Steels

First Choice For Tapping Mold Steels

Ideal for tapping mold steels, tool steels and gray cast irons, YMW offers this series of ZELX Mold Taps made of Cobalt High Speed Steel, ZELX Mold Hand Taps and Mold Pipe Taps.

Combined with specially designed geometry, Cobalt High Speed Steel improves the toughness of ZELX Taps for use in Prehardened Mold Steels. Furnished bright without surface treatment, taps can be surface treated upon request.



MOLD HAND TAPS

List **3114** Machine Screw sizes **Plug Style**
3124 Fractional sizes (4 to 6 threads chamfered)

Nominal Size	Threads per inch NC UNC	Threads per inch NF UNF	No. of Flutes	Pitch Diameter Limit / EDP Numbers H2	Pitch Diameter Limit / EDP Numbers H3	Dimensions Length of Thread	Dimensions Length Overall
4	40	—	3	389599	—	9/16	1-7/8
5	40	—	3	389601	—	5/8	1-15/16
6	32	—	3	—	389602	11/16	2
8	32	—	3	—	389604	3/4	2-1/8
10	24	—	3	—	389606	7/8	2-3/8
10	—	32	3	—	389607	7/8	2-3/8
1/4	20	—	3	—	389613	1	2-1/2
1/4	—	28	3	—	389614	1	2-1/2
5/16	18	—	4	—	389615	1-1/8	2-23/32
5/16	—	24	4	—	389616	1-1/8	2-23/32
3/8	16	—	4	—	389617	1-1/4	2-15/16
3/8	—	24	4	—	389618	1-1/4	2-15/16
7/16	14	—	4	—	389619	1-7/16	3-5/32
7/16	—	20	4	—	389620	1-7/16	3-5/32
1/2	13	—	4	—	389621	1-21/32	3-3/8
1/2	—	20	4	—	389622	1-21/32	3-3/8
5/8	11	—	4	—	389625	1-13/16	3-13/16
5/8	—	18	4	—	389626	1-13/16	3-13/16
3/4	10	—	4	—	389627	2	4-1/4
3/4	—	16	4	—	389628	2	4-1/4

Typical Mold Steels

Material	AISI Specifications
Hardened Steel (HRC 30-45)	1045, 1046, 1049, 1050, 1053, 1055, 1060, 4135, 4140, 4125, D2, H13
Heat Resistant Steel	304, 309, 310, 330, 409 446, 309S, 310S
Cast Iron	ASTM A48-64

American Iron & Steel Institute Specifications

MOLD TAPER PIPE TAPS

List **3434** **NPT Straight Flute Style**
Pipe Taps are standard with 2-1/2 to 3-1/2 threads chamfered

Nominal Size	Threads per Inch	No. of Flutes	EDP Numbers NPT	Dimensions Length of Thread	Dimensions Length Overall
1/8 (Lg. Shank)	27	4	389641	3/4	2-1/8
1/4	18	4	389643	1-1/16	2-7/16
3/8	18	4	389644	1-1/16	2-9/16
1/2	14	4	389645	1-3/8	3-1/8
3/4	14	5	389646	1-3/8	3-1/4

For general dimensions of taper pipe taps, see page 18.
Titanium Nitride coating (TiN) is available upon request.
TiN coating approaches the hardness of carbide.
TiN's smooth, hard finish increases tool life and helps to improve product thread flank finish.

ZELX® Performance Quality Carbide Hand Taps

Micro Grain Carbide

YMW solid ultra fine grain carbide taps are manufactured from the finest micro grain carbide for exceptional wear life and reduced chipping.

For the longest tool life available from any tap, YMW offers two carbide tap designs — one for tapping cast irons and another for aluminums.

Ideal for long production runs where reduced tool changes mean improved production efficiency. Thin film coatings such as TiN (Titanium Nitride) and TiCN (Titanium Carbonitride) are available upon request.

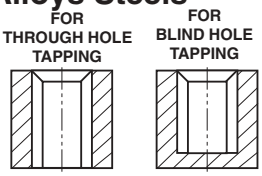
YMW carbide taps have also proven to be an excellent choice for threading very abrasive materials below 40Rc, such as alloy steels, stainless steels, exotic alloys and non metallics.

ZELX® CARB CI CARBIDE HAND TAPS

For Cast Irons, Hard Plastics, Fiberglass, Cast Brass, Cobalt, Chrome Alloys Steels

List **3917** Machine Screw sizes
3927 Fractional sizes

Straight flute
Plug (3 to 5 threads chamfered) for through hole tapping
Bottoming (1 to 2 threads chamfered) for blind hole tapping



ZELX® CARB AL CARBIDE HAND TAPS

For Aluminum Alloys, Zinc Die Castings, Copper Alloys and Soft Plastics

LIST **3910** Machine Screw sizes
3920 Fractional sizes

Straight flute
Plug (3 to 5 threads chamfered) for through hole tapping
Bottoming (1 to 2 threads chamfered) for blind hole tapping
TiN or TiCN coating available upon request.

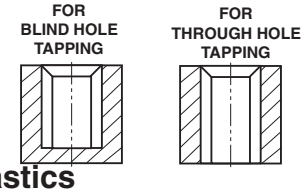
Nominal Size	Threads per Inch NC UNC	NF UNF	Ground Thread Limits	EDP Numbers FOR CAST IRONS 4 Flutes Plug	Bottoming	FOR ALUM. ALLOYS 3 Flutes Plug	Bottoming	Dimensions Length of Thread	Length Overall
				LIST 3917		LIST 3910			
5	40	—	H3	—	—	384800	384801	5/8	1-5/16
6	32	—	H3	—	—	384802	384803	11/16	2
8	32	—	H3	—	—	384804	384805	3/4	2-1/8
10	24	—	H3	383806	383807	384806	384807	7/8	2-3/8
10	—	32	H3	383808	383809	384808	384809	7/8	2-3/8
				LIST 3927		LIST 3920			
1/4	20	—	H3	383810	383811	384810	384811	1	2-1/2
1/4	20	—	H5	383860	383861	384860	384861	1	2-1/2
1/4	—	28	H3	383812	383813	384812	384813	1	2-1/2
1/4	—	28	H5	383862	383863	384862	384863	1	2-1/2
5/16	18	—	H3	383814	383815	384814	384815	1-1/8	2-23/32
5/16	18	—	H5	383864	383865	384864	384865	1-1/8	2-23/32
5/16	—	24	H3	383816	383817	384816	384817	1-1/8	2-23/32
5/16	—	24	H5	383866	383867	384866	384867	1-1/8	2-23/32
3/8	16	—	H3	383818	383819	384818	384819	1-1/4	2-15/16
3/8	16	—	H5	383868	383869	384868	384869	1-1/4	2-15/16
3/8	—	24	H3	383820	383821	384820	384821	1-1/4	2-15/16
3/8	—	24	H5	383870	383871	384870	384871	1-1/4	2-15/16
7/16	14	—	H3	383822	383823	384822	384823	1-7/16	3-5/32
7/16	14	—	H5	383872	383873	384872	384873	1-7/16	3-5/32
7/16	—	20	H3	383824	383825	384824	384825	1-7/16	3-5/32
7/16	—	20	H5	383874	383875	384874	384875	1-7/16	3-5/32
1/2	13	—	H3	383826	383827	384826	384827	1-21/32	3-3/8
1/2	13	—	H5	383876	383877	384876	384877	1-21/32	3-3/8
1/2	—	20	H3	383828	383829	384828	384829	1-21/32	3-3/8
1/2	—	20	H5	383878	383879	384878	384879	1-21/32	3-3/8
5/8	11	—	H3	383834	383835	—	—	1-13/16	3-13/16
5/8	11	—	H5	383884	383885	—	—	1-13/16	3-13/16
5/8	—	18	H3	383836	383837	—	—	1-13/16	3-13/16
5/8	—	18	H5	383886	383887	—	—	1-13/16	3-13/16

ZELX® CARB CI CARBIDE HAND TAPS

For Cast Irons, Hard Plastics, Fiberglass, Cast Brass and Chrome Alloy Steels

List 3977 Metric sizes

Straight Flute
Plug (3 - 5 threads chamfered) for through hole tapping
Bottoming (1 to 2 threads chamfered) for blind hole tapping



ZELX® CARB AL CARBIDE HAND TAPS

For Aluminum Alloys, Zinc Die Castings, Copper Alloys and Soft Plastics

List 3970 Metric sizes

Straight flute
Plug (3 to 5 threads chamfered) for through hole tapping
Bottoming (1 to 2 threads chamfered) for blind hole tapping
TiN or TiCN coating available upon request.

Nominal Size	Ground Thread Limits	EDP Numbers				Dimensions	
		FOR CAST IRONS 4 Flutes		**FOR ALUM. ALLOYS** 3 Flutes			
		Plug	Bottoming	Plug	Bottoming	Length of Thread	Length Overall
		LIST 3977		LIST 3970			
M3 x 0.5	D3	370000	370001	371000	371001	5/8	1-15/16
M4 x 0.7	D4	370002	370003	371002	371003	3/4	2-1/8
M5 x 0.8	D4	370004	370005	371004	371005	7/8	2-3/8
M6 x 1	D5	370006	370007	371006	371007	1	2-1/2
M8 x 1	D5	370008	370009	371008	371009	1-1/8	2-23/32
M8 x 1.25	D5	370010	370011	371010	371011	1-1/8	2-23/32
M10 x 1.25	D5	370012	370013	371012	371013	1-1/4	2-15/16
M10 x 1.5	D6	370014	370015	371014	371015	1-1/4	2-15/16
M12 x 1.25	D5	370016	370017	371016	371017	1-21/32	3-3/8
M12 x 1.5	D6	370018	370019	371018	371019	1-21/32	3-3/8
M12 x 1.75	D6	370020	370021	371020	371021	1-21/32	3-3/8
M14 x 1.5	D6	370022	370023	—	—	1-21/32	3-19/32
M14 x 2	D7	370024	370025	—	—	1-21/32	3-19/32
M16 x 1.5	D6	370026	370027	—	—	1-13/16	3-13/16
M16 x 2	D7	370028	370029	—	—	1-13/16	3-13/16

ZELX® AL Taps

Custom Blended Vanadium High Speed Steel Taps
For Silicon Die Cast, Zinc Die Cast Aluminum and Wrought Aluminum Alloys

SPIRAL POINTED TAPS

List **3814** Machine Screw sizes
3824 Fractional sizes

Plug Style
(4 to 5 threads chamfered)
DIN tap lengths, USCTI shank dimensions
Taps have a nitride surface toughening treatment
TiN (Titanium Nitride) or TiCN (Titanium Carbon Nitride) available for an extra charge.

FOR THROUGH HOLE TAPPING

Nominal Size	Threads per inch NC UNC	Threads per inch NF UNF	No. of Flutes	Pitch Diameter Limit / EDP Numbers H2	H3	H4	H5	H7	DIN Lenghts - USCTI shanks Dimensions Length of Thread	Length of Neck	Length Overall
2	56		2	386200	—	—	—	—	.276	.196	1.772
4	40		2	386201	—	—	—	—	.433	.276	2.205
5	40		3	386202	—	—	—	—	.433	.276	2.205
6	32		3	—	386203	—	—	—	.512	.275	2.205
8	32		3	—	386204	—	—	—	.512	.315	2.480
10	24		3	—	386205	—	—	—	.630	.354	2.756
10		32	3	—	386206	—	—	—	.630	.354	2.756
1/4	20		3	—	386207	—	386208	—	.748	.433	3.150
1/4		28	3	—	386209	386211	—	—	.748	.433	3.150
5/16	18		3	—	386212	—	386213	—	.866	.512	3.543
5/16		24	3	—	386214	386215	—	—	.866	.512	3.543
3/8	16		3	—	386216	—	386217	—	.945	.590	3.937
3/8		24	3	—	386218	386219	—	—	.787	.748	3.543
7/16	14		3	—	386220	—	386221	—	.945	.709	3.937
7/16		20	3	—	386222	—	386223	—	.945	.709	3.937
1/2	13		3	—	386224	—	386225	—	1.142	.630	4.331
1/2		20	3	—	386226	—	386227	—	.866	.906	3.937

METRIC SPIRAL POINTED TAPS

List **3884** Metric sizes

Plug Style
(4 to 5 threads chamfered)
DIN tap lengths, USCTI shank dimensions
Taps have nitride surface toughening treatment
TiN (Titanium Nitride) or TiCN (Titanium Carbon Nitride) available for an extra charge.

FOR THROUGH HOLE TAPPING

Nominal Size	No. of Flutes	Pitch Diameter Limit / EDP Numbers D3	D4	D5	D6	DIN lengths - USCTI shanks Dimensions Length of Thread	Length of Neck	Length Overall
M3 x 0.5	3	386228	—	—	—	.433	.276	2.205
M3.5 x 0.6	3	—	386229	—	—	.512	.275	2.205
M4 x 0.7	3	—	386230	—	—	.512	.315	2.480
M5 x 0.8	3	—	386231	—	—	.630	.354	2.756
M6 x 1	3	—	—	386232	—	.748	.433	3.150
M7 x 1	3	—	—	386233	—	.748	.433	3.150
M8 x 1	3	—	—	386234	—	.866	.512	3.543
M8 x 1.25	3	—	—	386235	—	.866	.512	3.543
M10 x 1.25	3	—	—	386236	—	.945	.590	3.937
M10 x 1.5	3	—	—	—	386237	.945	.590	3.937
M12 x 1.25	3	—	—	386238	—	.866	.906	3.937
M12 x 1.5	3	—	—	386239	—	.866	.906	3.937
M12 x 1.75	3	—	—	—	386240	1.142	.630	4.331

ZELX® AL Taps

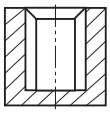
Custom Blended Vanadium High Speed Steel Taps
For Wrought Aluminum Alloys, Copper, Zinc Alloys, Magnesium Alloys
Will also thread deep blind holes in Silicon Die Cast Aluminum > 1-1/2 diameters in depth

45° SPIRAL FLUTED TAPS

List **3701** Machine Screw sizes
3711 Fractional sizes

Modified Bottoming
(2-1/2 to 3 threads chamfered)
For tapping Wrought Aluminums (6061-T6, 7075 type)
DIN tap lengths, USCTI shank dimensions
Taps have nitride surface toughening treatment
TiN (Titanium Nitride) and TiCN (Titanium Carbonitride) available for an extra charge

FOR BLIND HOLE TAPPING



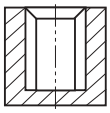
Nominal Size	Threads Per Inch UNC UNJC	UNF UNJF	No. of Flutes	Diameter Limit / EDP Numbers H2	H3	H4	H5	H7	DIN lengths - USCTI shanks Dimensions Length of Thread	Length of Neck	Length Overall
2	56		2	386500	—	—	—	—	.276	.196	1.772
4	40		2	386501	—	—	—	—	.433	.276	2.205
5	40		3	386502	—	—	—	—	.433	.276	2.205
6	32		3	—	386503	—	—	—	.512	.275	2.205
8	32		3	—	386504	—	—	—	.512	.315	2.480
10	24		3	—	386505	—	—	—	.630	.354	2.756
10		32	3	—	386506	—	—	—	.630	.354	2.756
1/4	20		3	—	386507	—	386508	—	.748	.433	3.150
1/4		28	3	—	386509	386511	—	—	.748	.433	3.150
5/16	18		3	—	386512	—	386513	—	.866	.512	3.543
5/16		24	3	—	386514	386515	—	—	.866	.512	3.543
3/8	16		3	—	386516	—	386517	—	.945	.590	3.937
3/8		24	3	—	386518	386519	—	—	.787	.748	3.543
7/16	14		3	—	386520	—	386521	—	.945	.709	3.937
7/16		20	3	—	386522	—	386523	—	.945	.709	3.937
1/2	13		3	—	386524	—	386525	—	1.142	.630	4.331
1/2		20	3	—	386526	—	386527	—	.866	.906	3.937

45° METRIC SPIRAL FLUTED TAPS

List **3771** Metric sizes

Modified Bottoming
(2-1/2 to 3 threads chamfered)
DIN tap lengths, USCTI shank dimensions
For tapping wrought aluminums (6061-T6, 7075 type)
Taps have nitride surface toughening treatment
TiN (Titanium Nitride) and TiCN (Titanium Carbonitride) available for an extra charge

FOR BLIND HOLE TAPPING



Nominal Size	No. of Flutes	Pitch Diameter Limit / EDP Numbers D3	D4	D5	D6	DIN lengths - USCTI shanks Dimensions Length of Thread	Length of Neck	Length Overall
M3 x 0.5	3	386528	—	—	—	.433	.276	2.205
M3.5 x 0.6	3	—	386529	—	—	.512	.275	2.205
M4 x 0.7	3	—	386530	—	—	.512	.315	2.480
M5 x 0.8	3	—	386531	—	—	.630	.354	2.756
M6 x 1	3	—	—	386532	—	.748	.433	3.150
M7 x 1	3	—	—	386533	—	.748	.433	3.150
M8 x 1	3	—	—	386534	—	.866	.512	3.543
M8 x 1.25	3	—	—	386535	—	.866	.512	3.543
M10 x 1.25	3	—	—	386536	—	.945	.590	3.937
M10 x 1.5	3	—	—	—	386537	.945	.590	3.937
M12 x 1.25	3	—	—	386538	—	.866	.906	3.937
M12 x 1.5	3	—	—	386539	—	.866	.906	3.937
M12 x 1.75	3	—	—	—	386540	1.142	.630	4.331

ZELX® ALS Taps

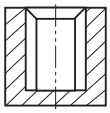
Custom Blended Vanadium High Speed Steel Taps
For Silicon Die Cast Aluminum Alloys, Soft Plastics and Copper Alloys
Designed for shallow hole tapping < 1-1/2 diameters in depth

25° SPIRAL FLUTED TAPS

List **3804** Machine Screw sizes
3834 Fractional sizes

Modified Bottoming
(2-1/2 to 3 thread chamfered)
Taps have nitride surface toughening treatment
DIN tap lengths, USCTI shank dimensions

FOR BLIND HOLE TAPPING



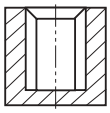
Nominal Size	Threads per inch UNC UNJC	UNF UNJF	No. of Flutes	Pitch Diameter Limit / EDP Numbers H2	H3	H4	H5	H7	DIN lengths - USCTI shanks Dimensions Length of Thread	Length of Neck	Length Overall
2	56		3	386400	—	—	—	—	.276	.196	1.772
4	40		3	386401	—	—	—	—	.433	.276	2.205
5	40		3	386402	—	—	—	—	.433	.276	2.205
6	32		3	—	386403	—	—	—	.512	.275	2.205
8	32		3	—	386404	—	—	—	.512	.315	2.480
10	24		3	—	386405	—	—	—	.630	.354	2.756
10		32	3	—	386406	—	—	—	.630	.354	2.756
1/4	20		3	—	386407	—	386408	—	.748	.433	3.150
1/4		28	3	—	386409	386411	—	—	.748	.433	3.150
5/16	18		3	—	386412	—	386413	—	.866	.512	3.543
5/16		24	3	—	386414	386415	—	—	.866	.512	3.543
3/8	16		3	—	386416	—	386417	—	.945	.590	3.937
3/8		24	3	—	386418	386419	—	—	.787	.748	3.543
7/16	14		3	—	386420	—	386421	—	.945	.709	3.937
7/16		20	3	—	386422	—	386423	—	.945	.709	3.937
1/2	13		3	—	386424	—	386425	—	1.142	.630	4.331
1/2		20	3	—	386426	—	386427	—	.866	.906	3.937

25° METRIC SPIRAL FLUTED TAPS

List **3874** Metric sizes

Modified Bottoming
(2-1/2 to 3 threads chamfered)
Taps have nitride surface toughening treatment
DIN tap lengths, USCTI shank dimensions

FOR BLIND HOLE TAPPING



Nominal Size	No. of Flutes	Pitch Diameter Limit/EDP Numbers D3	D4	D5	D6	DIN lengths - USCTI shanks Dimensions Length of Thread	Length of Neck	Length Overall
M3 x 0.5	3	386428	—	—	—	.433	.276	2.205
M3.5 x 0.6	3	—	386429	—	—	.512	.275	2.205
M4 x 0.7	3	—	386430	—	—	.512	.315	2.480
M5 x 0.8	3	—	386431	—	—	.630	.354	2.756
M6 x 1	3	—	—	386432	—	.748	.433	3.150
M7 x 1	3	—	—	386433	—	.748	.433	3.150
M8 x 1	3	—	—	386434	—	.866	.512	3.543
M8 x 1.25	3	—	—	386435	—	.866	.512	3.543
M10 x 1.25	3	—	—	386436	—	.945	.590	3.937
M10 x 1.5	3	—	—	—	386437	.945	.590	3.937
M12 x 1.25	3	—	—	386438	—	.866	.630	3.937
M12 x 1.5	3	—	—	386439	—	.866	.630	3.937
M12 x 1.75	3	—	—	—	386440	1.142	.906	4.331

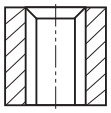
ZELX® NI Taps

Cobalt, Vanadium Premium Steel Taps

For Nickel Base Alloys, Other Exotic Alloys, Mold and Stainless Steels > 30 Rc

ZELX NI Taps are suitable for UNJ Aerospace internal threading applications.

FOR THROUGH HOLE TAPPING



SPIRAL POINTED TAPS

List **3612** Machine Screw sizes
3622 Fractional sizes

Plug Style
(3 to 5 threads chamfered)
Taps have an oxide and nitride surface toughening treatment

TPI				Pitch Diameter Limit / EDP Numbers						Dimensions		
Nominal Size	NC UNC	NF UNF	No. of Flutes	H2	H3	H4	H5	H6	H7	Length of Thread	Length of Neck	Length Overall
2	56	—	2	385523	—	—	—	—	—	.256	.181	1-3/4
4	40	—	2	385501	385502	385504	—	—	—	.335	.227	1-7/8
5	40	—	3	385503	—	—	—	—	—	.374	.251	1-5/16
6	32	—	3	—	385505	385524	385535	—	—	.413	.274	2
6	—	40	3	385512	—	—	—	—	—	.413	.274	2
8	32	—	3	—	385507	385529	385537	385560	385567	.453	.297	2-1/8
10	24	—	3	—	385509	—	385539	—	—	.531	.344	2-3/8
10	—	32	3	—	385510	385530	385540	385561	385570	.531	.344	2-3/8
1/4	20	—	3	—	385513	—	385543	—	—	.591	.409	2-1/2
1/4	—	28	3	—	385514	385531	385544	385562	385574	.591	.409	2-1/2
5/16	18	—	3	—	385515	—	385545	—	—	.669	.456	2-23/32
5/16	—	24	3	—	385516	385532	385546	385563	385576	.669	.456	2-23/32
3/8	16	—	3	—	385517	—	385547	—	385553	.748	.502	2-15/16
3/8	—	24	3	—	385518	385533	385548	385564	385578	.748	.502	2-15/16
7/16	14	—	3	—	385519	—	385549	—	—	.866	—	3-5/32
7/16	—	20	3	—	385520	—	385550	—	—	.866	—	3-5/32
1/2	13	—	3	—	385521	—	385551	—	385581	.984	—	3-3/8
1/2	—	20	3	—	385522	—	385552	—	385582	.984	—	3-3/8
5/8	11	—	3	—	385525	—	385555	—	385585	1.083	—	3-13/16
5/8	—	18	3	—	385526	—	385556	—	385586	1.083	—	3-13/16
3/4	10	—	3	—	385527	—	385557	—	—	1.201	—	4-1/4
3/4	—	16	3	—	385528	—	385558	—	—	1.201	—	4-1/4

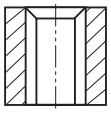
ZELX® NI taps have been designed for extended tap life in Cobalt, Nickel and Iron-based exotic materials such as Inconel, Hasteloy, Waspalloy and Stainless Steels > 30 Rc.

METRIC SPIRAL POINTED TAPS

List **3672** Metric sizes

Plug Style
(3 to 5 Threads Chamfered)
For Nickel Alloys, Inconel & Stainless Steels > 30Rc
Taps have an oxide and nitride surface toughening treatment

FOR THROUGH HOLE TAPPING



Nominal Size	No. of Flutes	Pitch Diameter Limit / EDP Numbers				Dimensions		
		D3	D4	D5	D6	Length of Thread	Length of Neck	Length Overall
M2.5 x 0.45	2	387320	—	—	—	.295	.205	1-13/16
M3 x 0.5	3	387321	—	—	—	.374	.251	1-15/16
M3.5 x 0.6	3	—	387322	—	—	.413	.274	2
M4 x 0.7	3	—	387323	—	—	.453	.297	2-1/8
M5 x 0.8	3	—	387324	—	—	.531	.344	2-3/8
M6 x 1	3	—	—	387325	—	.591	.409	2-1/2
M7 x 1	3	—	—	387326	—	.669	.456	2-23/32
M8 x 1	3	—	—	387327	—	.669	.456	2-23/32
M8 x 1.25	3	—	—	387328	—	.669	.456	2-23/32
M10 x 1.25	3	—	—	387329	—	.748	.502	2-15/16
M10 x 1.5	3	—	—	—	387330	.748	.502	2-15/16
M12 x 1.25	3	—	—	387331	—	.984	—	3-3/8
M12 x 1.75	3	—	—	—	387332	.984	—	3-3/8

ZELX® NI Taps

Cobalt, Vanadium Premium Steel Taps

For Nickel Base Alloys, Other Exotic Alloys, Mold and Stainless Steels > 30 Rc

SPIRAL FLUTED TAPS

ZELX NI taps are suitable for UNJ Aerospace internal threading applications

List **3615** Machine Screw sizes
3625 Fractional sizes

Bottoming Style
(1 to 2 threads chamfered)
Taps have an oxide and nitride surface toughening treatment

FOR BLIND HOLE TAPPING

Nominal Size	Threads Per Inch NC UNC	NF UNF	No. of Flutes	Pitch Diameter Limit / EDP Numbers H2	H3	H4	H5	Dimensions Length of Thread	Length of Neck	Length Overall
4	40	—	3	387583	387002	—	387072	.236	.326	1-7/8
4	—	48	3	387003	—	—	—	.236	.326	1-7/8
5	40	—	3	381581	—	—	—	.236	.389	1-15/16
6	32	—	3	387006	387005	—	387035	.276	.411	2
6	—	40	3	387011	—	—	—	.276	.411	2
8	32	—	3	387024	387580	—	387037	.276	.474	2-1/8
10	24	—	3	—	387009	—	387039	.354	.521	2-3/8
10	—	32	3	—	381556	—	387040	.276	.599	2-3/8
1/4	20	—	3	—	387013	—	387043	.433	.567	2-1/2
1/4	—	28	3	—	387579	387031	387443	.354	.646	2-1/2
5/16	18	—	3	—	387015	—	387045	.472	.653	2-23/32
5/16	—	24	3	—	387577	387032	387046	.394	.731	2-23/32
3/8	16	—	3	—	387017	—	387047	.551	.699	2-15/16
3/8	—	24	3	—	387575	387033	387048	.394	.856	2-15/16
7/16	14	—	3	—	387019	—	387049	.591	—	3-5/32
7/16	—	20	3	—	387573	—	387050	.472	—	3-5/32
1/2	13	—	3	—	387500	—	387051	.630	—	3-3/8
1/2	—	20	3	—	387022	—	387052	.472	—	3-3/8
5/8	11	—	4	—	387025	—	—	.748	—	3-13/16
5/8	—	18	4	—	381508	—	—	.512	—	3-13/16
3/4	10	—	4	—	387027	—	—	.827	—	4-1/4

SPIRAL FLUTED TAPS

List **3615** Machine Screw sizes
3625 Fractional sizes

Modfied Bottoming Style
(3 to 4 threads chamfered)
Taps have an oxide and nitride surface toughening treatment
*Available in bright; add "B" to EDP No.

FOR BLIND HOLE TAPPING

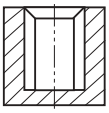
Nominal Size	TPI NC UNC	NF UNF	No. of Flutes	Pitch Diameter Limit / EDP Numbers H2	H3	H4	H5	H6	H7	Dimensions Length of Thread	Length of Neck	Length Overall
2	56	—	3	387523	—	—	—	—	—	.157	.280	1-3/4
4	40	—	3	387501	387502	387512	—	—	—	.236	.326	1-7/8
5	40	—	3	—	387504	—	—	—	—	.236	.389	1-15/16
6	32	—	3	—	387505	387508	387535	—	—	.276	.411	2
8	32	—	3	—	387507	387529	387537	387560	387567	.276	.474	2-1/8
10	24	—	3	—	387509	—	387539	—	—	.354	.521	2-3/8
10	—	32	3	—	387510	387530	387540*	387561	387570	.276	.599	2-3/8
1/4	20	—	3	—	387513	—	387543	—	—	.433	.567	2-1/2
1/4	—	28	3	—	387514	387531	387544	387562	387574	.354	.646	2-1/2
5/16	18	—	3	—	387515	—	387545	—	—	.472	.653	2-23/32
5/16	—	24	3	—	387516	387532	387546	387563	387576	.394	.731	2-23/32
3/8	16	—	3	—	387517	—	387547	—	—	.551	.699	2-15/16
3/8	—	24	3	—	387518	387533	387548	387564	387578	.394	.856	2-15/16
7/16	14	—	3	—	387519	—	387549	—	—	.591	1.259	3-5/32
7/16	—	20	3	—	387520	—	387050	—	—	.472	1.378	3-5/32
1/2	13	—	3	—	387521	—	387551	—	387581	.630	1.417	3-3/8
1/2	—	20	3	—	387522	—	387552	—	387582	.472	1.575	3-3/8
5/8	11	—	4	—	387525	—	387555	—	387585	.748	1.456	3-13/16
5/8	—	18	4	—	387526	—	387556	—	387586	.512	1.692	3-13/16
3/4	10	—	4	—	387527	—	387557	—	—	.827	1.574	4-1/4
3/4	—	16	4	—	387528	—	387558	—	—	.591	1.810	4-1/4

ZELX® NI Taps

Cobalt, Vanadium Premium Steel Taps
For Nickel Base Alloys, Other Exotic Alloys, Mold and Stainless Steels > 30 Rc

ZELX NI taps are suitable for UNJ Aerospace internal threading applications

FOR BLIND HOLE TAPPING



METRIC SPIRAL FLUTED TAPS

List 3675 Metric sizes

Modified Bottoming Style
(3 to 4 threads chamfered)
For Nickel Alloys, Inconel & Stainless Steels > 30Rc
Taps have an oxide and nitride surface toughening treatment

Nominal Size	No. of Flutes	Pitch Diameter Limit / EDP Numbers				Dimensions		
		D3	D4	D5	D6	Length of Thread	Length of Neck	Length Overall
M2.5 x 0.45	2	388320	—	—	—	.295	.205	1-13/16
M3 x 0.5	3	388321	—	—	—	.197	.428	1-15/16
M3.5 x 0.6	3	—	388322	—	—	.276	.411	2
M4 x 0.7	3	—	388323	—	—	.276	.474	2-1/8
M5 x 0.8	3	—	388324	—	—	.354	.521	2-3/8
M6 x 1	3	—	—	388325	—	.433	.567	2-1/2
M7 x 1	3	—	—	388326	—	.433	.692	2-23/32
M8 x 1	3	—	—	388327	—	.472	.653	2-23/32
M8 x 1.25	3	—	—	388328	—	.472	.653	2-23/32
M10 x 1.25	3	—	—	388329	—	.472	.778	2-15/16
M10 x 1.5	3	—	—	—	388330	.512	.738	2-15/16
M12 x 1.25	3	—	—	388331	—	.551	—	3-3/8
M12 x 1.75	3	—	—	—	388332	.591	—	3-3/8

ZELX® NI STI Taps

Cobalt, Vanadium Premium Steel Taps

For Nickel Base Alloys, Other Exotic Alloys, Mold and Stainless Steels > 30 Rc

ZELX NI Taps have been designed for extended for extended tap life in Cobalt, Nickel and Iron base exotic materials such as: Inconel, Hastelloy, Waspalloy and very hard Stainless Steels, Mold and Tool Steels.

STI taps are oversize to the extent that the internal thread which they produce will accomodate a helical coil wire screw thread insert, which at final assembly will accept a screw thread of the nominal size and pitch.

STI SPIRAL POINTED TAPS

List **3619** Machine Screw sizes
3629 Fractional sizes

Plug Style
(3 to 5 threads chamfered)
Taps have an oxide and nitride surface toughening treatment

Nominal Size	Threads per inch NC UNC	NF UNF	No. of Flutes	Pitch Diameter Limit / EDP Numbers H1	H2	H3	H4	Dimensions Length of Thread	Length of Neck	Length Overall
2	56	—	2	—	387200	—	—	.335	.227	1-7/8
4	40	—	3	387203	387204	—	—	.413	.274	2
6	32	—	3	—	387208	387224	—	.531	.344	2-3/8
6	—	40	3	—	387209	—	—	.453	.297	2-1/8
8	32	—	3	—	387210	387226	—	.571	.366	2-3/8
10	24	—	3	—	387212	387228	—	.591	.409	2-1/2
10	—	32	3	—	387213	387229	—	.591	.409	2-1/2
1/4	20	—	3	—	387248	387258	—	.669	.456	2-23/32
1/4	—	28	3	—	387249	387259	—	.669	.456	2-23/32
5/16	18	—	3	—	—	387260	387272	.748	.502	2-15/16
5/16	—	24	3	—	387251	387261	—	.748	.502	2-15/16
3/8	16	—	3	—	—	387262	387270	.984	—	3-3/8
3/8	—	24	3	—	387253	387263	—	.866	—	3-5/32
7/16	14	—	3	—	—	387264	—	.984	—	3-19/32
7/16	—	20	3	—	—	387265	387275	.984	—	3-3/8
1/2	13	—	3	—	—	387266	—	1.083	—	3-13/16
1/2	—	20	3	—	—	387267	—	.984	—	3-19/32

Recommended Minor Diameters and Tap Drills for Inch Size STI

Nominal Size STI	Threads per Inch UNC	UNF	Aluminum Recommended Drill Nominal Size	Dec. Equiv.	Plastic - Steel - Magnesium Recommended Drill Nominal Size	Dec. Equiv.
2	56	—	3/32	.0938	41	.0960
4	40	—	31	.1200	31	.1200
6	32	—	26	.1470	25	.1495
8	32	—	17	.1730	16	.1770
10	24	—	13/64	.2031	5	.2055
10	—	32	7	.2010	13/64	.2031
1/4	20	—	H	.2660	H	.2660
1/4	—	28	G	.2610	6,7mm	.2638
5/16	18	—	Q	.3320	Q	.3320
5/16	—	24	21/64	.3281	21/64	.3281
3/8	16	—	X	.3970	X	.3970
3/8	—	24	25/64	.3906	25/64	.3906
7/16	14	—	29/64	.4531	29/64	.4531
7/16	—	20	29/64	.4531	29/64	.4531
1/2	13	—	33/64	.5156	17/32	.5312
1/2	—	20	33/64	.5156	17/32	.5312

ZELX® NI STI Taps

Cobalt, Vanadium Premium Steel Taps
For Nickel Base Alloys, Other Exotic Alloys, Mold and Stainless Steels > 30 Rc

ZELX NI Taps have been designed for extended for extended tap life in Cobalt, Nickel and Iron base exotic materials such as: Inconel, Hastelloy, Waspalloy and very hard Stainless Steels, Mold and Tool Steels.

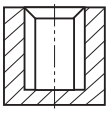
STI taps are oversize to the extent that the internal thread which they produce will accomodate a helical coil wire screw thread insert, which at final assembly will accept a screw thread of the nominal size and pitch.

STI SPIRAL FLUTED TAPS

List **3617** Machine Screw sizes
3627 Fractional sizes

Modified Bottoming Style
(3 to 4 threads chamfered)
Taps have an oxide and nitride surface toughening treatment

FOR BLIND HOLE TAPPING



Nominal Size	Threads per inch NC UNC	Threads per inch NF UNF	No. of Flutes	Pitch Diameter Limit / EDP Numbers H1	H2	H3	H4	Dimensions Length of Thread	Length of Neck	Length Overall
2	56	—	3	—	387400	—	—	.236	.326	1-7/8
4	40	—	3	387403	387404	387420	—	.276	.411	2
6	32	—	3	—	387408	387424	—	.354	.521	2-3/8
6	—	40	3	—	387409	—	—	.276	.474	2-1/8
8	32	—	3	—	387410	387426	—	.354	.583	2-3/8
10	24	—	3	—	387412	387428	—	.433	.567	2-1/2
10	—	32	3	—	387413	387429	—	.354	.646	2-1/2
1/4	20	—	3	—	387448	387458	—	.472	.653	2-23/32
1/4	—	28	3	—	387449	387459	—	.394	.731	2-23/32
5/16	18	—	3	—	—	387460	387470	.551	.699	2-15/16
5/16	—	24	3	—	387451	387461	—	.394	.856	2-15/16
3/8	16	—	3	—	—	387462	387472	.630	1.417	3-3/8
3/8	—	24	3	—	387453	387463	—	.472	1.378	3-5/32
7/16	14	—	3	—	—	387464	—	.709	1.338	3-19/32
7/16	—	20	3	—	—	387465	387475	.472	1.575	3-3/8
1/2	13	—	3	—	—	387466	—	.748	1.456	3-13/16
1/2	—	20	3	—	—	387467	—	.512	1.535	3-19/32

STI SPIRAL FLUTED TAPS

List **3617** Machine Screw sizes
3627 Fractional sizes

Bottoming Style
(1 to 2 threads chamfered)
Taps have an oxide and nitride surface toughening treatment

FOR BLIND HOLE

Nominal Size	Threads per inch NC UNC	Threads per inch NF UNF	No. of Flutes	Pitch Diameter Limit / EDP Numbers H1	H2	H3	H4	Dimensions Length of Thread	Length of Neck	Length Overall
4	40	—	3	387004	387419	—	—	.276	.411	2
6	32	—	3	387008	387425	—	387042	.354	.521	2-3/8
8	32	—	3	381409	387026	—	387044	.354	.583	2-3/8
10	24	—	3	387012	387028	—	387445	.433	.567	2-1/2
10	32	—	3	—	387029	—	387057	.354	.646	2-1/2
1/4	20	—	3	—	387058	—	387090	.472	.653	2-23/32
1/4	—	28	3	—	387059	—	387091	.394	.731	2-23/32
5/16	18	—	3	—	387060	—	387092	.551	.699	2-15/16
5/16	—	24	3	—	387061	—	387093	.394	.856	2-15/16
3/8	16	—	3	—	387062	—	387084	.630	1.417	3-3/8
3/8	—	24	3	—	387063	—	387085	.472	1.378	3-5/32
7/16	14	—	3	—	387064	—	387086	.709	1.338	3-19/32
7/16	—	20	3	—	387065	—	387087	.472	1.575	3-3/8
1/2	13	—	3	—	387066	—	387088	.748	1.456	3-13/16
1/2	—	20	3	—	387067	—	387089	.512	1.535	3-19/32

ZELX® TI Taps

Cobalt, Vanadium Premium Steel Taps

For Titanium, Titanium Alloys, Magnesium and Beryllium Copper

ZELX TI Slow Spiral Flute Taps have a left hand spiral flute design specifically designed to tap R.H. Threads in Titanium and Titanium Alloys. The Left Hand Slow Spiral makes this series of taps ideal for through hole tapping of right hand threads. The ZELX TI Taps are made from a cobalt, high vanadium base tool material to provide increased productivity as well as increased tap life while tapping Titanium.

ZELX TI taps are suitable for UNJ Aerospace internal threading applications.

SPIRAL POINT TAPS (R.H. THREAD)

List **3613** Machine Screw sizes
3623 Fractional sizes

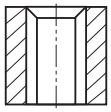
Plug Style
(4.5 to 6 threads chamfered)
Taps have a nitride surface toughening treatment

Nominal Size	Threads per Inch NC UNC	Threads per Inch NF UNF	No. of Flutes	Pitch Diameter Limit / EDP Numbers H2	H3	H4	H5	H6	H7	Dimensions Length of Thread	Length of Neck	Length Overall
2	56	—	3	385623	—	—	—	—	—	.256	.181	1-3/4
4	40	—	3	385601	—	—	—	—	—	.335	.227	1-7/8
5	40	—	3	385603	—	—	—	—	—	.374	.251	1-15/16
6	32	—	3	—	385605	—	385635	—	—	.413	.274	2
8	32	—	3	—	385607	385629	385637	385660	385667	.453	.297	2-1/8
10	24	—	3	—	385609	—	385639	—	—	.531	.344	2-3/8
10	—	32	3	—	385610	385630	385640	385661	385670	.531	.344	2-3/8
1/4	20	—	3	—	385613	—	385643	—	—	.591	.409	2-1/2
1/4	—	28	3	—	385614	385631	385644	385662	385674	.591	.409	2-1/2
5/16	18	—	3	—	385615	—	385645	—	—	.669	.456	2-23/32
5/16	—	24	3	—	385616	385632	385646	385663	385676	.669	.456	2-23/32
3/8	16	—	3	—	385617	—	385647	—	—	.748	.502	2-15/16
3/8	—	24	3	—	385618	385633	385648	385664	385678	.748	.502	2-15/16
7/16	14	—	3	—	385619	—	385649	—	—	.866	.984	3-5/32
7/16	—	20	3	—	385620	—	385650	—	—	.866	.984	3-5/32
1/2	13	—	3	—	385621	—	385651	—	—	.984	1.063	3-3/8
1/2	—	20	3	—	385622	—	385652	—	—	.984	1.063	3-3/8

METRIC SPIRAL POINT TAPS (R.H. THREAD)

List **3673** Metric sizes

Plug Style
(3 to 4 threads chamfered)
Taps have a nitride surface toughening treatment



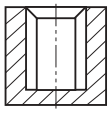
Nominal Size	No. of Flutes	Pitch Diameter Limits/EDP Numbers D3	D4	D5	D6	Dimensions Length of Thread	Length of Neck	Length Overall
M2.5 x 0.45	2	385700	—	—	—	.295	.205	1-13/16
M3 x 0.5	3	385701	—	—	—	.374	.251	1-15/16
M3.5 x 0.6	3	—	385702	—	—	.413	.274	2
M4 x 0.7	3	—	385703	—	—	.453	.297	2-1/8
M5 x 0.8	3	—	385704	—	—	.531	.344	2-3/8
M6 x 1	3	—	—	385705	—	.591	.409	2-1/2
M7 x 1	3	—	—	385706	—	.669	.456	2-23/32
M8 x 1	3	—	—	385707	—	.669	.456	2-23/32
M8 x 1.25	3	—	—	385708	—	.669	.456	2-23/32
M10 x 1.25	3	—	—	385709	—	.748	.502	2-15/16
M10 x 1.5	3	—	—	—	385710	.748	.502	2-15/16
M12 x 1.25	3	—	—	385711	—	.984	—	3-3/8
M12 x 1.75	3	—	—	—	385712	.984	—	3-3/8

ZELX® TI Taps

Cobalt, Vanadium Premium Steel Taps
For Titanium, Titanium Alloys, Magnesium and Beryllium Copper

ZELX TI taps are suitable for UNJ Aerospace internal threading applications.

FOR BLIND HOLE TAPPING



RIGHT HAND SPIRAL FLUTED TAPS

List **3616** Machine Screw sizes
3626 Fractional sizes

Bottoming Style
(1 to 2 threads chamfered)
Taps have a nitride surface toughening treatment

Nominal Size	Threads per inch NC UNC	Threads per inch NF UNF	No. of Flutes	Pitch Diameter Limit / EDP Numbers H3	H4	H5	Dimensions Length of Thread	Length of Neck	Length Overall
4	40	—	2	—	387001	—	.236	.326	1-7/8
6	32	—	3	387606	—	—	.276	.411	2
8	32	—	3	387007	—	—	.276	.474	2-1/8
10	24	—	3	381608	—	—	.354	.521	2-3/8
10	—	32	3	387010	—	—	.276	.599	2-3/8
1/4	20	—	3	387628	—	387627	.433	.567	2-1/2
1/4	—	28	3	387014	—	—	.354	.646	2-1/2
5/16	18	—	3	387695	—	387079	.472	.653	2-23/32
5/16	—	24	3	387016	—	—	.394	.731	2-23/32
3/8	16	—	3	387611	—	387685	.551	.699	2-15/16
3/8	—	24	3	387018	—	—	.394	.856	2-15/16
7/16	14	—	3	381629	—	—	.591	1.259	3-5/32
7/16	—	20	3	387020	—	387050	.472	1.378	3-5/32
1/2	13	—	3	387021	—	—	.630	1.417	3-3/8
1/2	—	20	3	387023	—	—	.472	1.575	3-3/8

See next page for Modified Bottoming style taps in Machine Screw, Fractional and Metric sizes

ZELX® TI Taps

For Titanium, Titanium Alloys, Magnesium and Beryllium Copper

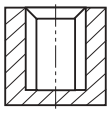
ZELX TI taps are suitable for UNJ aerospace internal threading applications.

RIGHT HAND SPIRAL FLUTED TAPS

List **3616** Machine Screw sizes
3626 Fractional sizes

Modified Bottoming Style
(3 to 4 threads chamfered)
Taps have a nitride surface toughening treatment

FOR BLIND HOLE TAPPING



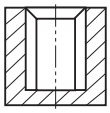
Nominal Size	TPI NC UNC	TPI NF UNF	No. of Flutes	Pitch Diameter Limit / EDP Numbers H2	H3	H4	H5	H6	H7	Dimensions Length of Thread	Length of Neck	Length Overall
2	56	—	3	387623	—	—	—	—	—	.157	.280	1-3/4
4	40	—	3	387601	—	387612	—	—	—	.236	.326	1-7/8
6	32	—	3	—	387605	387608	387635	—	—	.276	.411	2
8	32	—	3	—	387607	387629	387637	387660	387667	.276	.474	2-1/8
10	24	—	3	—	387609	—	—	—	—	.354	.521	2-3/8
10	—	32	3	—	387610	387630	387640	387661	387670	.276	.599	2-3/8
1/4	20	—	3	—	387613	—	—	—	—	.433	.567	2-1/2
1/4	—	28	3	—	387614	387631	387644	387662	387674	.354	.646	2-1/2
5/16	18	—	3	—	387615	—	—	—	—	.472	.653	2-23/32
5/16	—	24	3	—	387616	387632	387646	387663	387676	.394	.731	2-23/32
3/8	16	—	3	—	387617	—	—	—	—	.551	.699	2-15/16
3/8	—	24	3	—	387618	387633	387648	387664	387678	.394	.856	2-15/16
7/16	14	—	3	—	387619	—	—	—	—	.591	1.259	3-5/32
7/16	—	20	3	—	387620	—	387650	—	—	.472	1.378	3-5/32
1/2	13	—	3	—	387621	—	387626	—	—	.630	1.417	3-3/8
1/2	—	20	3	—	387622	—	387652	—	—	.472	1.575	3-3/8

METRIC RIGHT HAND SPIRAL FLUTED TAPS

List **3676** Metric

Modified Bottoming Style
(3 to 4 threads chamfered)
Taps have a nitride surface toughening treatment

FOR BLIND HOLE TAPPING



Nominal Size	No. of Flutes	Pitch Diameter Limit / EDP Numbers D3	D4	D5	D6	Dimensions Length of Thread	Length of Neck	Length Overall
M2.5 x 0.45	2	387700	—	—	—	.295	.205	1-13/16
M3 x 0.5	3	387701	—	—	—	.197	.428	1-15/16
M3.5 x 0.6	3	—	387702	—	—	.276	.411	2
M4 x 0.7	3	—	387703	—	—	.276	.474	2-1/8
M5 x 0.8	3	—	387704	—	—	.354	.521	2-3/8
M6 x 1	3	—	—	387705	—	.433	.567	2-1/2
M7 x 1	3	—	—	387706	—	.433	.692	2-23/32
M8 x 1	3	—	—	387707	—	.472	.653	2-23/32
M8 x 1.25	3	—	—	387708	—	.472	.653	2-23/32
M10 x 1.25	3	—	—	387709	—	.472	.778	2-15/16
M10 x 1.5	3	—	—	—	387710	.512	.738	2-15-16
M12 x 1.25	3	—	—	387711	—	.551	——	3-3/8
M12 x 1.75	3	—	—	—	387712	.591	——	3-3/8

ZELX® OL-RZ Taps

Cobalt, Vanadium Premium Steel Taps

For Stainless Steels and Other Soft, Low and Medium Carbon Steels

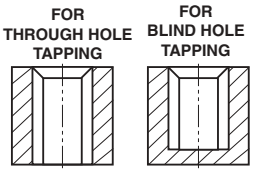
Designed for shallow hole tapping < 1-1/2 diameters in depth.

Thread Roll taps require larger tap drill sizes than corresponding cutting taps.

HIGH PERFORMANCE ROLL TAPS FOR DRY TAPPING

List 3580 Machine screw sizes
Fractional sizes

Plug Style
(3 to 5 threads chamfered)
DIN tap lengths, USCTI shank dimensions
Taps have TiCN coating for coolant free roll tapping
OL-RZ Roll taps can be run 1.5 to 2 times faster than the tapping speeds recommended for thread cutting taps.
Taps can be run dry or with mist coolant.

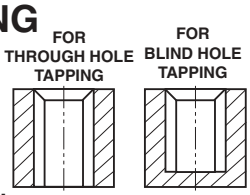


Threads per inch			Pitch Diameter Limit / EDP Numbers					DIN lengths - ANSI shanks Dimensions			
Nominal Size	UNC UNJC	UNF UNJF	H2	H3	H4	H5	H6	No. of Lube Grooves	Length of Thread	Length of Neck	Length Overall
2	56	—	—	386600	—	—	—	0	.354	—	1.772
4	40	—	—	—	—	386601	—	0	.433	.276	2.205
4	—	48	—	—	—	386602	—	0	.433	.276	2.205
5	40	—	—	—	—	386603	—	0	.433	.276	2.205
6	32	—	—	—	—	386604	—	0	.512	.275	2.205
8	32	—	—	—	—	386605	—	0	.512	.315	2.480
10	24	—	—	—	—	—	386606	0	.630	.354	2.756
10	—	32	—	—	—	—	386607	0	.630	.354	2.756
1/4	20	—	—	—	—	—	386608	0	.748	.433	3.150
1/4	—	28	—	—	—	—	386609	0	.748	.433	3.150

METRIC HIGH PERFORMANCE ROLL TAPS FOR DRY TAPPING

List 3570 Metric sizes

Plug Style
(3 to 5 threads chamfered)
DIN tap lengths, USCTI shank dimensions
Taps have TiCN coating for coolant free roll tapping.
OL-RZ Roll taps can be run 1.5 to 2 times faster than the tapping speeds recommended for thread cutting taps.
Taps can be run dry or with mist coolant.



Nominal Size	Pitch Diameter Limit / EDP Numbers							DIN lengths - ANSI shanks Dimensions			
	D5	D6	D7	D8	D9	D10	D11	No. of Lube Grooves	Length of Thread	Length of Neck	Length Overall
M3 x 0.5	386610	—	—	—	—	—	—	0	.433	.276	2.205
M3.5 x 0.6	—	386611	—	—	—	—	—	0	.512	.275	2.205
M4 x 0.7	—	386612	—	—	—	—	—	0	.512	.315	2.480
M5 x 0.8	—	—	386614	—	—	—	—	0	.630	.354	2.756
M6 x 1	—	—	—	386615	—	—	—	0	.748	.433	3.150

Thread Roll taps require larger tap drill sizes than corresponding cutting taps.

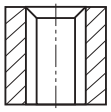
ZELX® HP-RZ Taps
Cobalt, Vanadium Premium Steel Taps
For Stainless Steels, Low, Medium, High Carbon Steels

HIGH PERFORMANCE ROLL TAPS

List **3502** Machine Screw sizes
3512 Fractional sizes

Plug Style (3 to 5 threads chamfered)
DIN tap lengths, USCTI shank dimensions
Taps have TiCN coating for tapping with coolant
HP-RZ Roll taps can be run 2 times faster than the tapping speeds recommended for thread cutting taps.

FOR THROUGH HOLE TAPPING



Nominal Size	Threads per inch UNC UNJC	UNF UNJF	Pitch Diameter Limit / EDP Numbers H2	H3	H4	H5	H6	H7	DIN lengths - USCTI shanks Dimensions No. of Lube Grooves	Length of Thread	Length of Neck	Length Overall
6	32	—	—	386810	—	386811	—	—	2	.512	.276	2.205
8	32	—	—	386814	—	386815	—	—	2	.512	.375	2.480
10	24	—	—	—	386818	—	386819	—	2	.630	.354	2.756
10	—	32	—	—	386822	—	386823	—	2	.630	.354	2.756
1/4	20	—	—	—	386826	—	386827	—	2	.748	.433	3.150
1/4	—	28	—	—	386830	—	386831	—	2	.748	.433	3.150
5/16	18	—	—	—	—	386834	—	386835	3	.866	.512	3.543
5/16	—	24	—	—	—	386838	—	386839	3	.866	.512	3.543
3/8	16	—	—	—	—	386842	—	386843	3	.945	.591	3.937
3/8	—	24	—	—	—	386846	—	386847	3	.787	.748	3.543
7/16	14	—	—	—	—	386850	—	386851	4	.945	—	3.937
7/16	—	20	—	—	—	386854	—	386855	4	.945	—	3.937
1/2	13	—	—	—	—	386858	—	386859	4	1.142	—	4.331
1/2	—	20	—	—	—	386862	—	386863	4	.866	—	3.937

HIGH PERFORMANCE ROLL TAPS

List **3502** Machine Screw sizes
3512 Fractional sizes

Bottoming Style
(2 to 2-1/2 threads chamfered)
DIN tap lengths, USCTI shank dimensions
Taps have TiCN coating for tapping with coolant
HP-RZ Roll taps can be run 2 times faster than the tapping speeds recommended for thread cutting taps.

FOR BLIND HOLE TAPPING

Nominal Size	Threads per Inch UNC UNJC	UNF UNJF	Pitch Diameter Limit / EDP Numbers H2	H3	H4	H5	H6	H7	DIN lengths - USCTI shanks Dimensions No. of Lube Grooves	Length of Thread	Length of Neck	Length Overall
0	—	80	386800	—	—	—	—	—	0	.315	—	1.575
2	56	—	—	386801	—	—	—	—	0	.354	—	1.772
3	48	—	—	386802	—	—	—	—	0	.276	.217	1.969
3	—	56	—	386803	—	—	—	—	0	.276	.217	1.969
4	40	—	—	386804	—	386805	—	—	0	.433	.276	2.205
4	—	48	—	386806	—	386807	—	—	0	.433	.276	2.205
5	40	—	—	—	—	386799	—	—	2	.433	.276	2.205
6	32	—	—	386808	—	386809	—	—	2	.512	.276	2.205
8	32	—	—	386812	—	386813	—	—	2	.512	.315	2.480
10	24	—	—	—	386816	—	386817	—	2	.630	.354	2.756
10	—	32	—	—	386820	—	386821	—	2	.630	.354	2.756
1/4	20	—	—	—	386824	—	386825	—	2	.748	.433	3.150
1/4	—	28	—	—	386828	—	386829	—	2	.748	.433	3.150
5/16	18	—	—	—	—	386832	—	386833	3	.866	.512	3.543
5/16	—	24	—	—	—	386836	—	386837	3	.866	.512	3.543
3/8	16	—	—	—	—	386840	—	386841	3	.945	.597	3.937
3/8	—	24	—	—	—	386844	—	386845	3	.787	.748	3.543
7/16	14	—	—	—	—	386848	—	386849	4	.945	—	3.937
7/16	—	20	—	—	—	386852	—	386853	4	.945	—	3.937
1/2	13	—	—	—	—	386856	—	386857	4	1.142	—	4.331
1/2	—	20	—	—	—	386860	—	386861	4	.866	—	3.937

Metric high performance roll taps on following page

ZELX® HP-RZ Taps

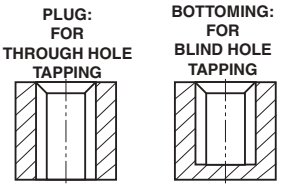
Cobalt, Vanadium Premium Steel Taps
For Stainless Steels, Low, Medium, High Carbon Steels

Thread Roll taps require larger tap drill sizes than corresponding cutting taps.

METRIC HIGH PERFORMANCE ROLL TAPS

List 3572 Metric sizes

Plug Style
(3 to 5 threads chamfered)
Bottoming Style (1 to 2 threads chamfered)
DIN tap lengths, USCTI shank dimensions
Taps have TiCN coating for tapping with coolant



Nominal Size	Ground Thread Limits	EDP Numbers		No. of Lube Grooves	DIN lengths - USCTI shanks		
		Plug	Bottoming		Length of Thread	Length of Neck	Length Overall
M3 x 0.5	D5	386885	386864	2	.433	.276	2.205
M3.5 x 0.6	D6	386886	386865	2	.512	.275	2.205
M4 x 0.7	D6	386887	386866	2	.512	.315	2.480
M5 x 0.8	D7	386888	386867	2	.630	.354	2.756
M6 x 1	D8	386889	386868	2	.748	.433	3.150
M7 x 1	D9	386870	386869	2	.748	.433	3.150
M8 x 1	D9	386872	386871	3	.866	.512	3.543
M8 x 1.25	D9	386874	386873	3	.866	.512	3.543
M10 x 1.25	D9	386876	386875	4	.945	.590	3.937
M10 x 1.5	D10	386878	386877	4	.945	.590	3.937
M12 x 1.25	D9	386880	386879	4	.866	—	3.937
M12 x 1.5	D9	386882	386881	4	.866	—	3.937
M12 x 1.75	D11	386884	386883	4	1.142	—	4.331

YMW U.S.A.

RECOMMENDED CUTTING SPEED IS 65-100 SFM.
Can be operated at higher SFM depending on application.

ZELX® FR Taps

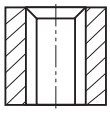
Custom Blended Vanadium High Speed Steel Taps
For Fast Tapping and Rigid, Computer Controlled Setups
For Low and Medium Carbon Steels, Die Cast Aluminums and Zinc Alloys
For synchronized tapping at 2 to 3 times faster than conventional taps

ZELX-FR TAPS for FAST RIGID TAPPING

List **3315** Machine Screw sizes
3325 Fractional sizes

Plug Style
(5 threads chamfered)
TiN (Titanium Nitride) coated
Tap has left hand slow spiral flutes for good chip ejection downward
Ideal for tapping up to 1.5 diameters in depth

FOR THROUGH HOLE TAPPING



Nominal Size	Threads per inch NC UNC	NF UNF	Pitch Diameter Limit / EDP Numbers H2	H3	Dimensions Length of Thread	Length of Neck	Length Overall
4	40	—	384201	—	.335	.0768	1-7/8
5	40	—	384203	—	.374	.0898	1-15/16
6	32	—	—	384205	.413	.0938	2
8	32	—	—	384207	.453	.1197	2-1/8
10	24	—	—	384209	.531	.1312	2-3/8
10	—	32	—	384210	.531	.1312	2-3/8
1/4	20	—	—	384213	.591	.1796	2-1/2
1/4	—	28	—	384214	.591	.1796	2-1/2
5/16	18	—	—	384215	.669	.2343	2-23/32
5/16	—	24	—	384216	.669	.2343	2-23/32
3/8	16	—	—	384217	.748	.2871	2-15/16
3/8	—	24	—	384218	.748	.2871	2-15/16
7/16	14	—	—	384219	.984	—	3-5/32
7/16	—	20	—	384220	.866	—	3-5/32
1/2	13	—	—	384221	1.142	—	3-3/8
1/2	—	20	—	384222	.945	—	3-3/8
5/8	11	—	—	384225	1.260	—	3-13/16
5/8	—	18	—	384226	.984	—	3-13/16
3/4	10	—	—	384227	1.467	—	4-1/4
3/4	—	16	—	384228	1.142	—	4-1/4

ZELX-FR TAPS for FAST RIGID TAPPING

List **3317** Machine Screw sizes
3327 Fractional sizes

Modified Bottoming Style
(2.5 threads chamfered)
TiN (Titanium Nitride) coated
Tap has right hand slow spiral flutes for good chip lifting upward
Ideal for tapping up to 1.5 diameters in depth

FOR BLIND HOLE TAPPING

Nominal Size	Threads per inchPitch NC UNC	NF UNF	Diameter Limit / EDP Numbers H2	H3	Dimensions Length of Thread	Length of Neck	Length Overall
4	40	—	384401	—	.236	.0768	1-7/8
5	40	—	384403	—	.236	.0898	1-15/16
6	32	—	—	384405	.276	.0938	2
8	32	—	—	384407	.276	.1197	2-1/8
10	24	—	—	384409	.354	.1312	2-3/8
10	—	32	—	384410	.276	.1312	2-3/8
1/4	20	—	—	384413	.433	.1796	2-1/2
1/4	—	28	—	394414	.354	.1796	2-1/2
5/16	18	—	—	384415	.472	.2343	2-23/32
5/16	—	24	—	384416	.394	.2343	2-23/32
3/8	16	—	—	384417	.551	.2871	2-15/16
3/8	—	24	—	384418	.394	.2871	2-15/16
7/16	14	—	—	384419	.591	—	3-5/32
7/16	—	20	—	384420	.472	—	3-5/32
1/2	13	—	—	384421	.630	—	3-3/8
1/2	—	20	—	384422	.472	—	3-3/8
5/8	11	—	—	384425	.748	—	3-13/16
5/8	—	18	—	384426	.572	—	3-13/16
3/4	10	—	—	384427	.827	—	4-1/4
3/4	—	16	—	384428	.591	—	4-1/4

Industrial Quality Hand Taps

Vanadium High Speed Steel Taps

For Tapping Steels, Irons, Brass and Plastics

Hand taps are manufactured from YMW's own high speed steel for maximum toughness and wear life. Hand taps are the most popular style of general purpose taps for hand use, or for tapping under power.

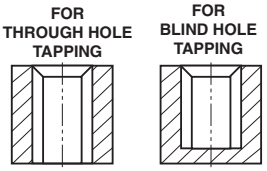
YMW hand taps are designed to thread a wide variety of materials—steels, irons, brass and plastics—in through or blind hole conditions.

Hand taps store chips in their flutes adjacent to the chamfered teeth during the tapping operation.

Hand Taps

List **3110** Machine Screw sizes

USCTI dimensions
Taper (7 to10 threads chamfered)
Plug (3 to 5 threads chamfered)
Bottoming (1 to 2 threads chamfered)
Oxide coated
*Available in Bright. Add "B" to end of EDP for uncoated tap.



Threads per inch					EDP Numbers			Dimensions	
Nominal Size	NC UNC	NF UNF	No. of Flutes	Ground Thread Limits	Taper	Plug	Bottoming	Length of Thread	Length Overall
0	—	80	2	H1	380000*	380001*	380002*	5/16	1-5/8
0	—	80	2	H2	—	380101	380102	5/16	1-5/8
1	64	—	2	H1	380003*	380004*	380005*	3/8	1-11/16
1	64	—	2	H2	—	380104	—	3/8	1-11/16
1	—	72	2	H1	380006*	380007*	380008*	3/8	1-11/16
1	—	72	2	H2	—	380107	380108	3/8	1-11/16
2	56	—	3	H1	380009	380010	380011	7/16	1-3/4
2	56	—	3	H2	380109*	380110*	380111*	7/16	1-3/4
2	—	64	3	H1	—	380013	380014	7/16	1-3/4
2	—	64	3	H2	380112*	380113*	380114*	7/16	1-3/4
3	48	—	3	H1	—	380016	—	1/2	1-13/16
3	48	—	3	H2	380115*	380116*	380117*	1/2	1-13/16
3	—	56	3	H1	—	380019	—	1/2	1-13/16
3	—	56	3	H2	380118*	380119*	380120*	1/2	1-13/16
4	40	—	3	H1	380021	380022	380023	9/16	1-7/8
4	40	—	3	H2	380121*	380122*	380123*	9/16	1-7/8
4	—	48	3	H1	—	380025	—	9/16	1-7/8
4	—	48	3	H2	380124*	380125*	380126*	9/16	1-7/8
4		36(NS)	3	H2	380127*	380128*	380129*	9/16	1-7/8
5	40	—	3	H1	—	380031	380032	5/8	1-15/16
5	40	—	3	H2	380130*	380131*	380132*	5/8	1-15/16
5	—	44	3	H1	—	380034	—	5/8	1-15/16
5	—	44	3	H2	380133*	380134*	380135*	5/8	1-15/16
6	32	—	3	H1	380036	380037	380038	11/16	2
6	32	—	3	H2	380136*	380137*	380138*	11/16	2
6	32	—	3	H3	380236*	380237*	380238*	11/16	2
6	—	40	3	H1	—	380040	—	11/16	2
6	—	40	3	H2	380139*	380140*	380141*	11/16	2
8	32	—	4	H1	380042	380043	380044	3/4	2-1/8
8	32	—	4	H2	380142	380143	380144	3/4	2-1/8
8	32	—	4	H3	380242*	380243*	380244*	3/4	2-1/8
8	—	36	4	H1	—	380046	—	3/4	2-1/8
8	—	36	4	H2	380145*	380146*	380147*	3/4	2-1/8
10	24	—	4	H1	380048	380049	380050	7/8	2-3/8
10	24	—	4	H2	380148	380149	380150	7/8	2-3/8
10	24	—	4	H3	380248*	380249*	380250*	7/8	2-3/8
10	—	32	4	H1	380051	380052	380053	7/8	2-3/8
10	—	32	4	H2	380151	380152	380153	7/8	2-3/8
10	—	32	4	H3	380251*	380252*	380253	7/8	2-3/8
12	24	—	4	H1	—	380055	—	15/16	2-3/8
12	24	—	4	H3	380254*	380255*	380256*	15/16	2-3/8
12	—	28	4	H1	—	380058	—	15/16	2-3/8
12	—	28	4	H3	380257*	380258*	380259*	15/16	2-3/8

Fractional sizes listed on next page.

Industrial Quality Hand Taps
Vanadium High Speed Steel Taps
For Tapping Steels, Irons, Brass and Plastics

Taper (7 to 10 threads)
Has the longest standard chamfer ensuring easier starting and requires less tapping torque because of more working teeth.

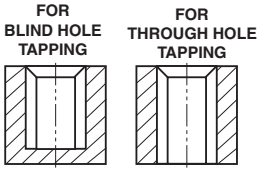
Plug (3 to 5 threads)
The most common chamfer for use by hand or machine in through or blind holes.

Bottoming (1 to 2 threads)
For threading close to the bottom of blind holes, the least efficient standard chamfer.

HAND TAPS

List **3120** Fractional sizes

USCTI dimensions
Taper (7 to 10 threads chamfered)
Plug (3 to 5 threads chamfered)
Bottoming (1 to 2 threads chamfered)
Oxide coated
*Available in Bright. Add “B” to end of EDP for uncoated tap.



Nominal Size	Threads per inch NC UNC	Threads per inch NF UNF	No. of Flutes	Ground Thread Limits	EDP Numbers Taper	EDP Numbers Plug	EDP Numbers Bottoming	Dimensions Length of Thread	Dimensions Length Overall
1/4	20	—	4	H1	381000	381001	381002	1	2-1/2
1/4	20	—	4	H2	381100	381101	381102	1	2-1/2
1/4	20	—	4	H3	381200*	381201*	381202	1	2-1/2
1/4	20	—	4	H5	—	381401	381402	1	2-1/2
1/4	—	28	4	H1	—	381004	381005	1	2-1/2
1/4	—	28	4	H2	—	381104	381105	1	2-1/2
1/4	—	28	4	H3	381203	381204*	381205	1	2-1/2
1/4	—	28	4	H4	—	381304	381305	1	2-1/2
5/16	18	—	4	H1	—	381007	381008	1-1/8	2-23/32
5/16	18	—	4	H2	—	381107	381108	1-1/8	2-23/32
5/16	18	—	4	H3	381206*	381207*	381208*	1-1/8	2-23/32
5/16	18	—	4	H5	—	381407	381408	1-1/8	2-23/32
5/16	—	24	4	H1	—	381010	381011	1-1/8	2-23/32
5/16	—	24	4	H2	—	381110	381111	1-1/8	2-23/32
5/16	—	24	4	H3	381209*	381210*	381211*	1-1/8	2-23/32
5/16	—	24	4	H4	—	381310	381311	1-1/8	2-23/32
3/8	16	—	4	H1	—	381013	381014	1-1/4	2-15/16
3/8	16	—	4	H2	—	381113	381114	1-1/4	2-15/16
3/8	16	—	4	H3	381212*	381213*	381214*	1-1/4	2-15/16
3/8	16	—	4	H5	—	381413	381414	1-1/4	2-15/16
3/8	—	24	4	H1	—	381016	381017	1-1/4	2-15/16
3/8	—	24	4	H2	—	381116	381117	1-1/4	2-15/16
3/8	—	24	4	H3	381215*	381216*	381217	1-1/4	2-15/16
3/8	—	24	4	H4	—	381316	381317	1-1/4	2-15/16
7/16	14	—	4	H3	381218*	381219*	381220*	1-7/16	3-5/32
7/16	14	—	4	H5	—	381419	381420	1-7/16	3-5/32
7/16	—	20	4	H2	—	381122	—	1-7/16	3-5/32
7/16	—	20	4	H3	381221*	381222*	381223*	1-7/16	3-5/32
7/16	—	20	4	H5	—	381422*	381423	1-7/16	3-5/32
1/2	13	—	4	H1	—	381025	381026	1-21/32	3-3/8
1/2	13	—	4	H2	—	381125	381126	1-21/32	3-3/8
1/2	13	—	4	H3	381224	381225*	381226	1-21/32	3-3/8
1/2	13	—	4	H5	—	381425	381426	1-21/32	3-3/8
1/2	—	20	4	H1	—	381028	381029	1-21/32	3-3/8
1/2	—	20	4	H3	381227*	381228*	381229	1-21/32	3-3/8
1/2	—	20	4	H5	—	381428	381429	1-21/32	3-3/8

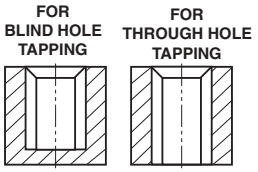
continued on next page

Industrial Quality Hand Taps
Vanadium High Speed Steel Taps
For Tapping Steels, Irons, Brass and Plastics

(continued) HAND TAPS

List **3120** Fractional sizes (continued)

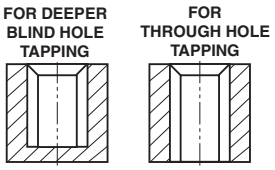
USCTI dimensions
Taper (7 to 10 threads chamfered)
Plug (3 to 5 threads chamfered)
Bottoming (1 to 2 threads chamfered)
Oxide coated
*Available in Bright. Add “B” to end of EDP for uncoated tap.



Threads per inch					EDP Numbers			Dimensions	
Nominal Size	NC UNC	NF UNF	No. of Flutes	Ground Thread Limits	**Taper**	**Plug**	**Bottoming**	Length of Thread	Length Overall
9/16	12	—	4	H3	381230*	381231*	381232*	1-21/32	3-19/32
9/16	12	—	4	H5	—	381431	—	1-21/32	3-19/32
9/16	—	18	4	H2	—	381134	—	1-21/32	3-19/32
9/16	—	18	4	H3	381233*	381234*	381235*	1-21/32	3-19/32
9/16	—	18	4	H5	—	381434	381435	1-21/32	3-19/32
5/8	11	—	4	H1	—	381037	381038*	1-13/16	3-13/16
5/8	11	—	4	H2	—	381137	—	1-13/16	3-13/16
5/8	11	—	4	H3	381236*	381237*	381238*	1-13/16	3-13/16
5/8	11	—	4	H5	—	381437	318438	1-13/16	3-13/16
5/8	—	18	4	H1	—	381040	—	1-13/16	3-13/16
5/8	—	18	4	H2	—	381140	—	1-13/16	3-13/16
5/8	—	18	4	H3	381239*	381240*	381241*	1-13/16	3-13/16
5/8	—	18	4	H5	—	381440	381441	1-13/16	3-13/16
11/16	—	11(NS)	4	H3	381242*	381243*	381244*	1-13/16	4-1/32
11/16	—	16(NS)	4	H3	381245*	381246*	381247*	1-13/16	4-1/32
3/4	10	—	4	H2	—	381149	—	2	4-1/4
3/4	10	—	4	H3	381248*	381249*	381250*	2	4-1/4
3/4	10	—	4	H5	—	381449	381450	2	4-1/4
3/4	—	16	4	H1	—	381052	—	2	4-1/4
3/4	—	16	4	H2	—	381152	—	2	4-1/4
3/4	—	16	4	H3	381251*	381252*	381253*	2	4-1/4
3/4	—	16	4	H5	—	381452	381453*	2	4-1/4
7/8	9	—	4	H4	381354*	381355	381356*	2-7/32	4-11/16
7/8	9	—	4	H6	—	381455	—	2-7/32	4-11/16
7/8	—	14	4	H2	—	381158	—	2-7/32	4-11/16
7/8	—	14	4	H4	381357*	381358*	381359*	2-7/32	4-11/16
7/8	—	14	4	H6	—	381458	—	2-7/32	4-11/16
1	8	—	4	H2	—	381161	—	2-1/2	5-1/8
1	8	—	4	H4	381360*	381361	381362	2-1/2	5-1/8
1	8	—	4	H6	—	381461	—	2-1/2	5-1/8
1	—	12	4	H4	381363*	381364*	381365*	2-1/2	5-1/8
1	—	14(NS)	4	H2	—	381167*	—	2-1/2	5-1/8
1	—	14(NS)	4	H4	381366*	381367*	381368*	2-1/2	5-1/8
1-1/8	7	—	4	H4	381369*	381370*	381371*	2-9/16	5-7/16
1-1/8	—	12	4	H4	381372*	381373*	381374*	2-9/16	5-7/16
1-1/4	7	—	4	H4	381375*	381376*	381377*	2-9/16	5-3/4
1-1/4	—	12	6	H4	381378*	381379*	381380*	2-9/16	5-3/4
1-3/8	6	—	4	H4	381381*	381382*	381383*	3	6-1/16
1-3/8	—	12	6	H4	381384*	381385*	381386*	3	6-1/16
1-1/2	6	—	4	H4	381387*	381388*	381389*	3	6-3/8
1-1/2	—	12	6	H4	381390*	381391*	381392*	3	6-3/8

YMW Optional Three Flute Taps

Hand Taps with 3 flutes provide more storage space for chips when threading holes greater than 1-1/2 tap diameters in depth. Using hand taps with fewer than the standard 4 flutes reduces tap breakage caused by flutes clogging with product chips during deep blind hole tapping.



HAND TAPS FOR FERROUS MATERIALS

List **3113** Machine Screw sizes
3123 Fractional sizes

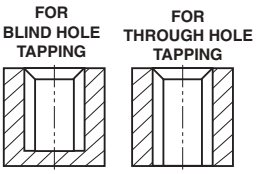
Plug (3 to 5 threads chamfered)
Bottoming (1 to 2 threads chamfered)
Oxide coated
*Available in Bright, add “B” to end of EDP number for uncoated tap.

Nominal Size	Threads per inch NC UNC	Threads per inch NF UNF	No. of Flutes	Ground Thread Limits	EDP Numbers Plug	EDP Numbers Bottoming	Dimensions Length of Thread	Dimensions Length Overall
8	32	—	3	H1	380401	380402	3/4	2-1/8
8	32	—	3	H2	380451	380452*	3/4	2-1/8
8	32	—	3	H3	380501*	380502*	3/4	2-1/8
10	24	—	3	H1	380407	—	7/8	2-3/8
10	24	—	3	H2	380457	—	7/8	2-3/8
10	24	—	3	H3	380507*	380508*	7/8	2-3/8
10	—	32	3	H2	380460	380461	7/8	2-3/8
10	—	32	3	H3	380510*	380511*	7/8	2-3/8
1/4	20	—	3	H1	381601	—	1	2-1/2
1/4	20	—	3	H2	381651	—	1	2-1/2
1/4	20	—	3	H3	381701*	381702*	1	2-1/2
1/4	20	—	3	H5	381801	381802	1	2-1/2
1/4	—	28	3	H3	381704*	381705	1	2-1/2
5/16	18	—	3	H1	381607	—	1-1/8	2-23/32
5/16	18	—	3	H3	381707*	381708*	1-1/8	2-23/32
5/16	18	—	3	H5	381807	381808	1-1/8	2-23/32
5/16	—	24	3	H3	381710*	381711*	1-1/8	2-23/32
3/8	16	—	3	H1	381613	—	1-1/4	2-15/16
3/8	16	—	3	H3	381713*	381714*	1-1/4	2-15/16
3/8	16	—	3	H5	381813	381814	1-1/4	2-15/16
3/8	—	24	3	H3	381716*	381717*	1-1/4	2-15/16
7/16	14	—	3	H3	381719*	381720*	1-7/16	3-5/32
7/16	—	20	3	H3	381722*	—	1-7/16	3-5/32
1/2	13	—	3	H3	381725*	381726*	1-21/32	3-3/8
1/2	—	20	3	H3	381728	—	1-21/32	3-3/8

Industrial Quality Hand Taps
Vanadium High Speed Steel Taps

YMW Optional Two Flute Taps

Hand Taps with 2 flutes provide more storage space for chips when threading holes greater than 1-1/2 tap diameters in depth. Using hand taps with fewer than the standard 4 flutes reduces tap breakage caused by flutes clogging with product chips during deep blind hole tapping.



HAND TAPS FOR FERROUS MATERIALS

List **3112** Machine Screw sizes
3122 Fractional sizes

Optional Two Flutes
Plug (3 to 5 threads chamfered)
Bottoming (1 to 2 threads chamfered)
Oxide coated
*Available in Bright, add “B” to end of EDP number for uncoated tap.

Nominal Size	Threads per inch NC UNC	Threads per inch NF UNF	No. of Flutes	Ground Thread Limits	EDP Numbers Plug	EDP Numbers Bottoming	Dimensions Length of Thread	Dimensions Length Overall
2	56	—	2	H1	380601	380602	7/16	1-3/4
2	56	—	2	H2	380651*	380652*	7/16	1-3/4
3	48	—	2	H2	380657*	380658*	1/2	1-13/16
4	40	—	2	H1	380613	—	9/16	1-7/8
4	40	—	2	H2	380663	380664*	9/16	1-7/8
5	40	—	2	H2	380672*	380673*	5/8	1-15/16
5	—	44	2	H2	380675	—	5/8	1-15/16
6	32	—	2	H1	380628	—	11/16	2
6	32	—	2	H2	380678	380679	11/16	2
6	32	—	2	H3	380728*	380729*	11/16	2
6	—	40	2	H2	380681	—	11/16	2
8	32	—	2	H2	380684	380685	3/4	2-1/8
8	32	—	2	H3	380734*	380735*	3/4	2-1/8
10	24	—	2	H2	380690	380691	7/8	2-3/8
10	24	—	2	H3	380740*	380741*	7/8	2-3/8
10	—	32	2	H2	380693	380694	7/8	2-3/8
10	—	32	2	H3	380743*	380744*	7/8	2-3/8
1/4	20	—	2	H3	381951	381952	1	2-1/2
1/4	—	28	2	H3	381954*	381955*	1	2-1/2
5/16	18	—	2	H3	381957*	381958*	1-1/8	2-23/32

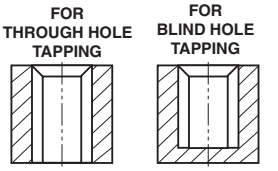
YMW U.S.A.

Industrial Quality Spiral Point Taps
Vanadium High Speed Steel Taps

YMW Spiral Pointed Taps are engineered to shear product material efficiency during the threading operation. Spiral pointed taps shoot chips out ahead of the tap during threading, reducing loading and clogging of the flutes with product chips.

These taps are designed to tap steels and ferrous materials that produce stringy chips. They are also ideal for brass, plastics in through hole applications.

Spiral Pointed taps are recommended for tapping through holes or blind bottoming holes where the hole depth is great enough to allow for chip accumulation at bottom of the hole.



SPIRAL POINT TAPS FOR FERROUS MATERIALS

List **3210** Machine Screw sizes
3220 Fractional sizes

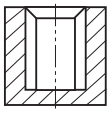
Plug Style (3 to 5 threads chamfered)
USCTI dimensions
Taps have oxide surface treatment
*Available in Bright, add “B” to the end of the EDP number for uncoated tap.

Nominal Size	Threads per Inch NC UNC	NF UNF	No. of Flutes	Pitch Diameter Limit / EDP Numbers H1	H2	H3	H4	H5	H7	Dimensions Length of Thread	Length Overall
0	—	80	2	382000*	382050*	382100*	382146*	382150*	—	5/16	1-5/8
1	64	—	2	382002*	382052	—	—	—	—	3/8	1-11/16
1	—	72	2	382004*	382054	—	—	—	—	3/8	1-11/16
2	56	—	2	382006*	382056	382106	382147	382156	—	7/16	1-3/4
2	—	64	2	382008	382058*	—	—	—	—	7/16	1-3/4
3	48	—	2	382010	382060*	382110*	—	—	—	1/2	1-13/16
3	—	56	2	382012	382062*	—	—	—	—	1/2	1-13/16
4	40	—	2	382014	382064	382114	382148	382164	382190	9/16	1-7/8
4	—	48	2	382016	382066*	—	—	—	—	9/16	1-7/8
4		36(NS)	2	—	382068	—	—	—	—	9/16	1-7/8
5	40	—	2	382020	382070*	—	—	—	—	5/8	1-15/16
5	—	44	2	—	382072	—	—	—	—	5/8	1-15/16
6	32	—	2	382024	382074	382124*	382149	382174*	382192*	11/16	2
6	—	40	2	382026	382076	—	—	—	—	11/16	2
8	32	—	2	382028	382078*	382128*	382151	382178*	382194*	3/4	2-1/8
8	—	36	2	382032	382082*	—	—	—	—	3/4	2-1/8
10	24	—	2	382034	382084	382134*	—	—	382196*	7/8	2-3/8
10	—	32	2	382038	382088	382138	382152	382188*	382198	7/8	2-3/8
12	24	—	2	382042	—	382142*	—	—	—	15/16	2-3/8
12	—	28	2	—	—	382144	—	—	—	15/16	2-3/8
1/4	20	—	2	382200*	382250*	382300	382352	382400*	—	1	2-1/2
1/4	20	—	3	—	—	382302*	—	382402*	—	1	2-1/2
1/4	—	28	2	382204*	382256*	382304*	382356*	382404	382442	1	2-1/2
1/4	—	28	3	—	382257*	382306	382357*	—	—	1	2-1/2
5/16	18	—	2	382208*	382258*	382308	—	382408*	—	1-1/8	2-23/32
5/16	18	—	3	—	382260	382310*	—	382410*	—	1-1/8	2-23/32
5/16	—	24	2	382212*	382262*	382312*	382362*	—	—	1-1/8	2-23/32
5/16	—	24	3	—	382264*	382314*	382364*	—	—	1-1/8	2-23/32
3/8	16	—	3	382216*	382266	382316	—	382416*	—	1-1/4	2-15/16
3/8	—	24	3	382218*	382268*	382318*	382368*	—	—	1-1/4	2-15/16
7/16	14	—	3	—	382270*	382320*	—	382420	—	1-7/16	3-5/32
7/16	—	20	3	—	382272*	382322*	—	382422*	—	1-7/16	3-5/32
1/2	13	—	3	382224*	382274*	382324	—	382424*	—	1-21/32	3-3/8
1/2	—	20	3	382226*	382276*	382326*	—	382426*	—	1-21/32	3-3/8
5/8	11	—	3	—	—	328332	—	382432*	—	1-13/16	3-13/16
5/8	—	18	3	—	—	382334*	—	—	—	1-13/16	3-13/16
3/4	10	—	3	—	—	382336*	—	382436*	—	2	4-1/4
3/4	—	16	3	—	—	382338*	—	—	—	2	4-1/4

Industrial Quality
Vanadium High Speed Steel Taps

YMW Spiral Point Taps are recommended for threading blind holes where a short chamfer is required.

FOR BLIND HOLE TAPPING



SPIRAL POINT BOTTOMING TAPS FOR FERROUS APPLICATIONS

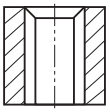
List **3210B** Machine Screw sizes (1 to 2 threads chamfered)
3220B Fractional sizes Taps have oxide surface treatment
*Available in Bright, add "B" to the end of the EDP number for uncoated tap.

Nominal Size	Threads per Inch NC UNC	Threads per Inch NF UNF	No. of Flutes	Pitch Diameter Limit / EDP Numbers H1	H2	H3	H4	H7	Dimensions Length of Thread	Dimensions Length Overall
0	—	80	2	382001*	—	—	—	—	5/16	1-5/8
1	64	—	2	—	382053*	—	—	—	3/8	1-11/16
1	—	72	2	382005*	382055*	—	—	—	3/8	1-11/16
2	56	—	2	382007*	382057	—	—	—	7/16	1-3/4
3	48	—	2	—	382061	—	—	—	1/2	1-13/16
3	—	56	2	—	382063*	—	—	—	1/2	1-13/16
4	40	—	2	—	382065	—	—	382191	9/16	1-7/8
4	—	48	2	—	382067*	—	—	—	9/16	1-7/8
5	40	—	2	—	382071*	—	—	—	5/8	1-15/16
5	—	44	2	—	382073*	—	—	—	5/8	1-15/16
6	32	—	2	—	382075*	382125*	—	382193*	11/16	2
6	—	40	2	—	382077*	—	—	—	11/16	2
8	32	—	2	—	382079	382129*	—	382195*	3/4	2-1/8
8	—	36	2	—	382083	—	—	—	3/4	2-1/8
10	24	—	2	—	—	382135*	—	—	7/8	2-3/8
10	—	32	2	—	382089*	382139*	—	—	7/8	2-3/8
12	24	—	2	—	—	382143*	—	—	15/16	2-3/8
12	—	28	2	—	—	382145*	—	—	15/16	2-3/8
1/4	20	—	2	—	—	382301*	—	—	1	2-1/2
1/4	—	28	2	—	382255*	382305*	—	—	1	2-1/2
5/16	18	—	2	—	—	382309*	—	—	1-1/8	2-23/32
5/16	—	24	2	—	—	382313*	382365*	—	1-1/8	2-23/32
3/8	16	—	3	—	—	382317	—	—	1-1/4	2-15/16
7/16	14	—	3	—	—	382321*	—	—	1-7/16	3-5/32

SPIRAL POINT ONLY

LIST **3214** Machine Screw sizes **Plug Style** (3 to 5 threads chamfered)
3224 Fractional sizes Taps have oxide surface treatment

FOR THROUGH HOLE TAPPING



1 TO 1-1/2 DIAMETERS IN DEPTH

Nominal Size	Threads per Inch NC UNC	Threads per Inch NF UNF	No. of Flutes	Pitch Diameter Limit / EDP Numbers H2	H3	Dimensions Length of Thread	Dimensions Length Overall
4	40	—	2	386054	—	9/16	1-7/8
5	40	—	2	386060	—	5/8	1-15/16
6	32	—	2	386064	386114	11/16	2
8	32	—	2	386068	386118	3/4	2-1/8
10	24	—	2	—	386122	7/8	2-3/8
10	—	32	2	386078	386124	7/8	2-3/8
12	24	—	2	—	386126	15/16	2-3/8
1/4	20	—	2	—	386300	1	2-1/2
5/16	18	—	2	—	386304	1-1/8	2-23/32
3/8	16	—	3	—	386308	1-1/4	2-15/16
1/2	13	—	3	—	386316	1-21/32	3-3/8

Industrial Quality Spiral Fluted Taps
Vanadium High Speed Steel Taps

YMW Spiral Fluted Taps are engineered for improved chip lifting action in threading blind bottoming holes. The spiral flute design helps lift the chips up and out of the product hole during threading, improving threading efficiency. The approximate 45° spiral flutes also permit the spanning of keyways or cross drilled holes during threading.

These taps are ideal for blind hole tapping ferrous materials that produce stringy chips. For more difficult alloy steel and exotic alloy tapping, see ZELX® taps for application recommendations on page 10.

The secret to threading deep blind holes is the handling and disposal of the chips generated during the threading process. Spiral fluted taps lift chips up and out of the product hole during threading. Handling product chips in this way reduces chip clogging of the tap's flutes and reduces tap breakage during deep hole threading (more than 1 to 1-1/2 tap diameters in depth).

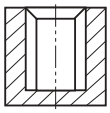
This tap's chamfer is precision ground on specially built Yamawa chamfering machines.

SPIRAL FLUTED TAPS FOR FERROUS MATERIALS

LIST **3310** Machine Screw sizes
3320 Fractional sizes

Plug (3 to 5 threads chamfered)
Bottoming (1 to 2 threads chamfered)
USCTI dimensions
Taps have oxide surface treatment
*Available in Bright, add "B" to end of EDP Number for uncoated tap.

FOR BLIND HOLE TAPPING

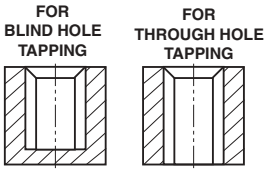


Nominal Size	Threads per inch NC UNC	NF UNF	No. of Flutes	Ground Thread Limits	EDP Numbers Plug	EDP Numbers Bottoming	Dimensions Length of Thread	Dimensions Length Overall
3	48	—	2	H2	384060*	384061*	1/2	1-13/16
4	40	—	2	H2	384064*	384065	9/16	1-7/8
5	40	—	3	H2	384070*	384071*	5/8	1-15/16
6	32	—	3	H3	384124	384125	11/16	2
8	32	—	3	H3	384128*	384129*	3/4	2-1/8
10	24	—	3	H3	384132*	384133	7/8	2-3/8
10	—	32	3	H3	384134*	384135*	7/8	2-3/8
12	24	—	3	H3	384136*	384137*	15-16	2-3/8
1/4	20	—	3	H3	384300*	384301*	1	2-1/2
1/4	—	28	3	H3	384302*	384303*	1	2-1/2
5/16	18	—	3	H3	384304*	384305	1-1/8	2-23/32
5/16	—	24	3	H3	384306*	384307*	1-1/8	2-23/32
3/8	16	—	3	H3	384308*	384309*	1-1/4	2-15/16
3/8	—	24	3	H3	384310*	384311	1-1/4	2-15/16
7/16	14	—	3	H3	384312*	384313	1-7/16	3-5/32
7/16	—	20	3	H3	384316*	384317	1-7/16	3-5/32
1/2	13	—	3	H3	384320*	384321	1-21/32	3-3/8
1/2	—	20	3	H3	384324*	384325*	1-21/32	3-3/8
5/8	11	—	3	H3	384328	384329*	1-13/16	3-13/16
5/8	—	18	3	H3	384332*	384333*	1-13/16	3-13/16
3/4	10	—	4	H3	384336*	384337*	2	4-1/4
3/4	—	16	4	H3	384340*	384341*	2	4-1/4

Industrial Quality +.005" Oversize Taps
Vanadium High Speed Steel Taps

Oversize taps are +.005” larger than basic pitch diameter (equivalent to an H11).

Oversize taps are supplied in the popular plug chamfer which is 3-5 pitches in length.



+.005" OVERSIZE HAND TAPS FOR FERROUS MATERIALS

List **3111** Machine Screw sizes
3121 Fractional sizes

Plug (3 to 5 threads chamfered)
USCTI dimensions
Taps have oxide surface treatment

+.005" OVERSIZE SPIRAL POINT TAPS FOR FERROUS MATERIALS

List **3211** Machine Screw sizes
3221 Fractional sizes

Plug Style (3 to 5 threads chamfered)
Straight Flute
Taps have oxide surface treatment

Nominal Size	Threads per inch NC UNC	NF UNF	Hand Taps No. of Flutes	Hand Taps EDP Numbers	Spiral Pointed Taps No. of Flutes	Spiral Pointed Taps EDP Numbers	Dimensions Length of Thread	Dimensions Length Overall
			List 3111		List 3211			
6	32	—	3	385035	2	385212	11/16	2
8	32	—	4	385041	2	385214	3/4	2-1/8
10	24	—	4	385047	2	385216	7/8	2-3/8
10	—	32	4	385050	2	385217	7/8	2-3/8
			List 3121		List 3221			
1/4	20	—	4	385062	2	385231	1	2-1/2
1/4	—	28	4	385065	2	385232	1	2-1/2
5/16	18	—	4	385068	2	385233	1-1/8	2-23/32
5/16	—	24	4	385071	2	385234	1-1/8	2-23/32
3/8	16	—	4	385074	3	385235	1-1/4	2-15/16
3/8	—	24	4	385077	3	385236	1-1/4	2-15/16
7/16	14	—	4	385080	3	385237	1-7/16	3-5/32
7/16	—	20	4	385083	3	385238	1-7/16	3-5/32
1/2	13	—	4	385086	3	385239	1-21/32	3-3/8
1/2	—	20	4	385089	3	385240	1-21/32	3-3/8
5/8	11	—	4	385098	3	385243	1-13/16	3-13/16
3/4	10	—	4	385104	3	385245	2	4-1/4

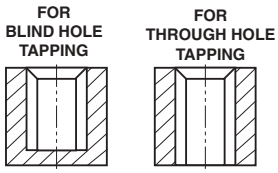
YMW U.S.A.

ROLL TAPS

List **3510** Machine Screw sizes

AVAILABLE WHILE SUPPLIES LAST

Plug (3 to 5 threads chamfered)
Bottoming (1 to 2 threads chamfered)
USCTI dimensions
For tapping ductile materials
Taps have oxide surface treatment
7/16 to 1/2" taps have 4 lubrication grooves;
9/16 and larger have 6 grooves.
***Available while stocks last**; replaced by **N-RZ** for roll tapping ferrous materials (steels) and **N-RS** for roll tapping nonferrous materials (aluminum, etc.)



Industrial Quality Roll Taps
Vanadium High Speed Steel Taps

Recommended Drill sizes for Roll Taps							
	Theoretical Drill Size				Tap Suggested for Class of Thread		
Nominal Size and Pitch mm	Max. Approx . 55% Thread	Min. Approx . 75% Thread	Drill Approx. 65% Thread	Decimal Equivalent Inches	2B	3B	2
0-80NF	.0553	.0537	54	.0550	H3	H2	H2
1-64NC	.0671	.0652	51	.0670	—	H2	H2
1-72NF	.0678	.0661	51	.0670	H3	H2	H2
2-56NC	.0793	.0771	5/64	.0781	H3	H2	H2
2-64NF	.0801	.0782	47	.0785	H3	H3	H3
3-48NC	.0912	.0886	43	.0890	H3	H2	H2
3-56NF	.0923	.0901	2.3mm	.0905	H3	H2	H2
4-40NC	.1026	.0995	38	.1015	H5	H3	H3
4-48NF	.1042	.1016	2.6mm	.1024	H5	H3	H3
5-40NC	.1156	.1125	2.9mm	.1142	H5	H3	H3
6-32NC	.1263	.1224	1/8	.1250	H5	H3	H3
6-40NF	.1286	.1255	3.25mm	.1280	H5	H3	H3
8-32NC	.1523	.1484	25	.1495	H5	H3	H3
8-36NF	.1536	.1501	24	.1520	H5	H3	H3
10-24NC	.1744	.1692	11/64	.1719	H6	H4	H4
10-32NF	.1783	.1744	16	.1770	H6	H4	H4
12-24NC	.2004	.1952	8	.1990	H6	H4	H4

Thread Roll taps require larger tap drill sizes than corresponding cutting taps.

Nominal Size	Threads per inch NC UNC	NF UNF	Style	Pitch Diameter Limit / EDP Numbers H2	H3	H4	H5	H6	H10 ‡	Dimensions Length of Thread	Length Overall
0	—	80	Bot	387732*	—	—	—	—	—	5/16	1-5/8
1	64	—	Bot	387734*	—	—	—	—	—	3/8	1-11/16
1	—	72	Bot	387736*	—	—	—	—	—	3/8	1-11/16
2	56	—	Bot	387738*	387776*	—	—	—	—	7/16	1-3/4
2	—	64	Bot	387740*	387778*	—	—	—	—	7/16	1-3/4
3	48	—	Bot	387742*	387780*	—	—	—	—	1/2	1-13/16
3	—	56	Bot	387744*	387782*	—	—	—	—	1/2	1-13/16
4	40	—	Plg	—	387783	—	387856*	—	—	9/16	1-7/8
4	40	—	Bot	—	387784*	—	387857*	—	—	9/16	1-7/8
4	—	48	Plg	—	387785*	—	387858*	—	—	9/16	1-7/8
4	—	48	Bot	—	387786*	—	387859*	—	—	9/16	1-7/8
5	40	—	Plg	—	387787*	—	387860*	—	—	5/8	1-15/16
5	40	—	Bot	—	387788*	—	387861*	—	—	5/8	1-15/16
5	—	44	Plg	—	387789*	—	387862*	—	—	5/8	1-15/16
5	—	44	Bot	—	387790*	—	387863*	—	—	5/8	1-15/16
6	32	—	Plg	—	387791*	—	387864*	—	387970*	11/16	2
6	32	—	Bot	—	387792*	—	387865*	—	387971*	11/16	2
6	—	40	Plg	—	387793*	—	387866*	—	—	11/16	2
6	—	40	Bot	—	387794*	—	387867*	—	—	11/16	2
8	32	—	Plg	—	387795*	—	387868*	—	387972	3/4	2-1/8
8	32	—	Bot	—	387796*	—	387869*	—	387973*	3/4	2-1/8
8	—	36	Plg	—	387797*	—	387870*	—	—	3/4	2-1/8
8	—	36	Bot	—	387798*	—	387871*	—	—	3/4	2-1/8
10	24	—	Plg	—	—	387829*	—	387903*	387974*	7/8	2-3/8
10	24	—	Bot	—	—	387830*	—	387904*	387975*	7/8	2-3/8
10	—	32	Plg	—	—	387831	—	387905*	387976*	7/8	2-3/8
10	—	32	Bot	—	—	387832*	—	387906*	387977*	7/8	2-3/8
12	24	—	Plg	—	—	387833*	—	387907*	—	15/16	2-3/8
12	24	—	Bot	—	—	387834*	—	387908*	—	15/16	2-3/8
12	—	28	Plg	—	—	387835*	—	387909*	—	15/16	2-3/8
12	—	28	Bot	—	—	387836*	—	387910*	—	15/16	2-3/8

‡ H10 Taps are available to allow plating of threaded hole after forming.

Industrial Quality Roll Taps

Vanadium High Speed Steel Taps

YMW Roll Taps do not cut product threads, they form the threads, eliminating the problem of chip disposal in through or blind hole threading.

Roll tap tapping speeds can be increased by as much as double the speeds recommended for use with cutting style taps. Roll taps improve production rates due to the elimination of chips during threading, their stronger tool design and higher possible tapping speeds.

Roll taps require a larger drilled hole size prior to tapping. See the table “Recommended Drill Size for Roll Taps.”

Recommended Drill sizes for Roll Taps

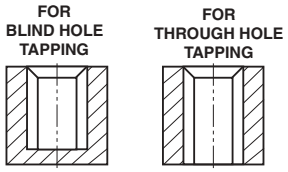
Nominal Size and Pitch mm	Theoretical Drill Size: Max. Approx . 55% Thread	Theoretical Drill Size: Min. Approx . 75% Thread	Drill Approx. 65% Thread	Decimal Equivalent Inches	Tap Suggested for Class of Thread: 2B	3B	2
1/4-20NC	.2312	.2250	1	.2280	H6	H4	H4
1/4-28NF	.2366	.2322	15/64	.2344	H5	H4	H4
5/16-18NC	.2917	.2847	L	.2900	H7	H5	H5
5/16-24NF	.2969	.2917	M	.2950	H7	H5	H5
3/8-16NC	.3516	.3438	S	.3480	H7	H5	H5
3/8-24NF	.3594	.3542	T	.3580	H7	H5	H5
1/2-13NC	.4712	.4615	15/32	.4682	H8	H5	H5
1/2-20NF	.4830	.4730	12.25mm	.4823	H8	H5	H5
5/8-11NC	.5909	.5795	14.75mm	.5807	H7	H7	H7
5/8-18NF	.6042	.5972	15.25mm	.6004	H7	H7	H7
3/4-16NC	.7125	.7000	45/64	.7031	H7	H7	H7
3/4-16NF	.7266	.7188	23/32	.7188	H7	H7	H7

ROLL TAPS FOR STEELS

List **3520** Fractional sizes

AVAILABLE WHILE SUPPLIES LAST

Plug (3 to 5 threads chamfered)
Bottoming (1 to 2 threads chamfered)
USCTI dimensions
For tapping ductile materials
Taps have oxide surface treatment
7/16 to 1/2" taps have 4 lubrication grooves; 9/16 and larger have 6 grooves.
***Available while stocks last**; replaced by **N-RZ** for roll tapping ferrous materials (steels) and **N-RS** for roll tapping nonferrous materials (aluminum, etc.)



Nominal Size	Threads per Inch: NC UNC	NF UNF	Style	Pitch Diameter Limit / EDP Numbers: H4	H5	H6	H7	H8	H10 ‡	Dimensions: Length of Thread	Length Overall
1/4	20	—	Plg	387837*		387911*	—	—	387978*	1	2-1/2
1/4	20	—	Bot	387838*		387912*	—	—	387979*	1	2-1/2
1/4	—	28	Plg	387839*		387913*	—	—	387980*	1	2-1/2
1/4	—	28	Bot	387840*		387914*	—	—	387981*	1	2-1/2
5/16	18	—	Plg	—	387872*	—	387930*	—	—	1-1/8	2-23/32
5/16	18	—	Bot	—	387873*	—	387931*	—	—	1-1/8	2-23/32
5/16	—	24	Plg	—	387874*	—	387932*	—	—	1-1/8	2-23/32
5/16	—	24	Bot	—	387875*	—	387933*	—	—	1-1/8	2-23/32
3/8	16	—	Plg	—	387876*	—	387934*	—	—	1-1/4	2-15/16
3/8	16	—	Bot	—	387877*	—	387935*	—	—	1-1/4	2-15/16
3/8	—	24	Plg	—	387878*	—	387936*	—	—	1-1/4	2-15/16
3/8	—	24	Bot	—	387879*	—	387937*	—	—	1-1/4	2-15/16
7/16	14	—	Plg	—	387880*	—	—	387960*	—	1-7/16	3-5/32
7/16	14	—	Bot	—	387881*	—	—	387961*	—	1-7/16	3-5/32
7/16	—	20	Plg	—	387882*	—	—	387962*	—	1-7/16	3-5/32
7/16	—	20	Bot	—	387883*	—	—	387963*	—	1-7/16	3-5/32
1/2	13	—	Plg	—	387884*	—	—	387964*	—	1-21/32	3-3/8
1/2	13	—	Bot	—	387885*	—	—	387965*	—	1-21/32	3-3/8
1/2	—	20	Plg	—	387886*	—	—	387966*	—	1-21/32	3-3/8
1/2	—	20	Bot	—	387887*	—	—	387967*	—	1-21/32	3-3/8
9/16	12	—	Plg	—	—	—	387946*	—	387990*	1-21/32	3-19/32
9/16	12	—	Bot	—	—	—	387947*	—	387991*	1-21/32	3-19/32
9/16	—	18	Plg	—	—	—	387948*	—	387992*	1-21/32	3-19/32
9/16	—	18	Bot	—	—	—	387949*	—	387993*	1-21/32	3-19/32
5/8	11	—	Plg	—	—	—	387950*	—	387994*	1-13/16	3-13/16
5/8	11	—	Bot	—	—	—	387951*	—	387995*	1-13/16	3-13/16
5/8	—	18	Plg	—	—	—	387952*	—	387996*	1-13/16	3-13/16
5/8	—	18	Bot	—	—	—	387953*	—	387997*	1-13/16	3-13/16
3/4	10	—	Plg	—	—	—	387954*	—	387998*	2	4-1/4
3/4	10	—	Bot	—	—	—	387955*	—	387999*	2	4-1/4
3/4	—	16	Plg	—	—	—	387956*	—	388000*	2	4-1/4
3/4	—	16	Bot	—	—	—	387957*	—	388001*	2	4-1/4

‡ H10 taps are available to allow plating of threaded hole after forming.

YMW U.S.A.

Thread Roll taps require larger tap drill sizes than corresponding cutting taps.

NEW

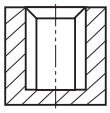
Industrial Quality N-RZ Roll Taps
Custom Blended Vanadium High Speed Steel Taps
For Stainless Steels & Alloy Steels (for Ferrous Materials)

N-RZ ROLL TAPS FOR FERROUS APPLICATIONS

List **3560** Machine Screw sizes
3565 Fractional sizes

Bottoming Style
(2 to 2-1/2 threads chamfered)
Improved performance, new tap design
DIN tap lengths, USCTI shank dimensions
Taps have an oxide coating for improved roll tapping in steels
Replaces #3510 and #3520 Roll Tap styles

FOR BLIND HOLE TAPPING



Nominal Size	Threads per Inch UNC UNJC	Threads per Inch UNF UNJF	Pitch Diameter Limit / EDP Numbers H2	H3	H4	H5	H6	H7	DIN lengths - USCTI shanks No. of Lube Grooves	Dimensions Length of Thread	Length of Neck	Length Overall
0		80	389410	—	—	—	—	—	0	.315	—	1.575
1	64		389411	—	—	—	—	—	0	.315	—	1.575
1		72	389412	—	—	—	—	—	0	.315	—	1.575
2	56		389413	389414	—	—	—	—	0	.354	—	1.772
2		64	389415	389416	—	—	—	—	0	.354	—	1.772
3	48		389417	389418	—	—	—	—	0	.276	.217	1.969
3		56	389419	389420	—	—	—	—	0	.276	.217	1.969
4	40		—	389421	—	389422	—	—	0	.433	.276	2.205
4		48	—	389425	—	389426	—	—	0	.433	.276	2.205
5	40		—	389429	—	389430	—	—	4	.433	.276	2.205
5		44	—	389433	—	389434	—	—	4	.433	.276	2.205
6	32		—	389437	—	389438	—	—	4	.512	.276	2.205
6		40	—	389442	—	389443	—	—	4	.512	.276	2.205
8	32		—	389446	—	389447	—	—	4	.512	.315	2.480
8		36	—	389450	—	389451	—	—	4	.512	.315	2.480
10	24		—	—	389454	—	389455	—	4	.630	.354	2.756
10		32	—	—	389458	—	389459	—	4	.630	.354	2.756
12	24		—	—	389462	—	389463	—	4	.630	.354	3.150
12		28	—	—	389466	—	389467	—	4	.630	.354	3.150
1/4	20		—	—	389470	—	389471	—	4	.748	.433	3.150
1/4		28	—	—	389474	—	389475	—	4	.748	.433	3.150
5/16	18		—	—	—	389478	—	389479	3	.866	.512	3.543
5/16		24	—	—	—	389482	—	389483	3	.866	.512	3.543
3/8	16		—	—	—	389486	—	389487	3	.945	.597	3.937
3/8		24	—	—	—	389490	—	389491	3	.787	.748	3.543
7/16	14		—	—	—	389494	—	389495	4	.945	—	3.937
7/16		20	—	—	—	389498	—	389499	4	.945	—	3.937
1/2	13		—	—	—	389504	—	389505	4	1.142	—	4.331
1/2		20	—	—	—	389508	—	389509	4	.866	—	3.937

N-RZ Roll taps can be run 1.5 times faster than the tapping speeds recommended for thread cutting taps.

Calculating Min and Max Drill Size for Roll Tapping

For Unified Inch Threads

Maximum Drill Size:
Basic Major Diameter - $\frac{3}{8N}$

Minimum Drill Size:
Basic Major Diameter - $\frac{1}{2N}$

N = Number of Threads per Inch

For 60° Metric Threads

Maximum Drill Size:
Basic Major Diameter -0.375P

Minimum Drill Size:
Basic Major Diameter - 0.5P

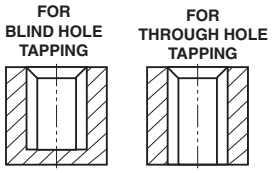
P= Pitch

Note: Use millimeter value for basic major diameter and pitch: the drill size will be in millimeters

Industrial Quality Roll Taps
Custom Blended Vanadium High Speed Steel Taps
For Stainless Steels & Alloy Steels (for Ferrous Materials)

NEW

YMW U.S.A.



N-RZ ROLL TAPS FOR FERROUS APPLICATIONS

List **3560** Machine Screw sizes
3565 Fractional sizes

Plug Style (3 to 5 threads chamfered)
Improved performance, new tap design
DIN tap lengths, USCTI shank dimensions
Taps have an oxide coating for improved roll tapping in steels

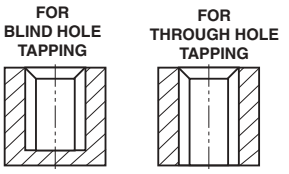
Nominal Size	Threads per Inch UNC UNJC	UNF UNJF	Pitch Diameter Limit / EDP Numbers H2	H3	H4	H5	H6	H7	DIN lengths - USCTI shanks No. of Lube Grooves	Dimensions Length of Thread	Length of Neck	Length Overall
4	40		—	389423	—	389424	—	—	0	.433	.276	2.205
4		48	—	389427	—	389428	—	—	0	.433	.276	2.205
5	40		—	389431	—	389432	—	—	4	.433	.276	2.205
5		44	—	389435	—	389436	—	—	4	.433	.276	2.205
6	32		—	389440	—	389441	—	—	4	.512	.276	2.205
6		40	—	389444	—	389445	—	—	4	.512	.276	2.205
8	32		—	389448	—	389449	—	—	4	.512	.315	2.480
8		36	—	389452	—	389453	—	—	4	.512	.315	2.480
10	24		—	—	389456	—	389457	—	4	.630	.354	2.756
10		32	—	—	389460	—	389461	—	4	.630	.354	2.756
12	24		—	—	389464	—	389465	—	4	.630	.354	3.150
12		28	—	—	389468	—	389469	—	4	.630	.354	3.150
1/4	20		—	—	389472	—	389473	—	4	.748	.433	3.150
1/4		28	—	—	389476	—	389477	—	4	.748	.433	3.150
5/16	18		—	—	—	389480	—	389481	3	.866	.512	3.543
5/16		24	—	—	—	389484	—	389485	3	.866	.512	3.543
3/8	16		—	—	—	389488	—	389489	3	.945	.597	3.937
3/8		24	—	—	—	389492	—	389493	3	.787	.748	3.543
7/16	14		—	—	—	389496	—	389497	4	.945	—	3.937
7/16		20	—	—	—	389502	—	389503	4	.945	—	3.937
1/2	13		—	—	—	389506	—	389507	4	1.142	—	4.331
1/2		20	—	—	—	389510	—	389511	4	.866	—	3.937

N-RZ METRIC ROLL TAPS

NEW MM Sizes

List **3575** **Metric**

Plug Style (3 to 5 threads chamfered)
Bottoming Style (2 to 21/2 threads chamfered)
DIN tap lengths, USCTI shank dimensions
Taps have an oxide coating for improved roll tapping in steels



Nominal Size	Ground Thread Limits	EDP Numbers Plug	Bottoming	No. of Lube Grooves	DIN lengths - USCTI shanks Dimensions Length of Thread	Length of Neck	Length Overall
M3 x 0.5	D5	389513	389512	4	.433	.276	2.205
M3.5 x 0.6	D6	389515	389514	4	.512	.276	2.205
M4 x 0.7	D6	389517	389516	4	.512	.315	2.480
M5 x 0.8	D7	389519	389518	4	.630	.354	2.756
M6 x 1	D8	389521	389520	4	.748	.433	3.150
M7 x 1	D9	389523	389522	4	.748	.433	3.150
M8 x 1	D9	389525	389524	3	.866	.512	3.543
M8 x 1.25	D9	389527	389526	3	.866	.512	3.543
M10 x 1.25	D9	389529	389528	4	.945	.591	3.937
M10 x 1.5	D10	389531	389530	4	.945	.591	3.937
M12 x 1.25	D9	389533	389532	4	.866	—	3.937
M12 x 1.75	D11	389535	389534	4	1.142	—	4.331

N-RZ roll taps can run 1.5 times faster than the tapping speeds recommended for thread cutting taps.

Thread Roll taps require larger tap drill sizes than corresponding cutting taps.

NEW

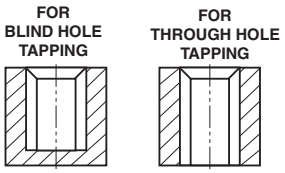
Industrial Quality N-RS Taps
Custom Blended Vanadium High Speed Steel Taps
For Aluminums, Brass, Copper Alloys (Nonferrous Materials)

Thread Roll taps require larger tap drill sizes than corresponding cutting taps.

N-RS ROLL TAPS

List **3550** Machine Screw sizes
3552 Fractional sizes

Bottoming Style (2 to 2-1/2 threads chamfered)
DIN tap lengths, USCTI shank dimensions
Improved performance, new tap design
Taps have a nitride surface toughening treatment



Nominal Size	Threads per Incn UNC UNJC	UNF UNJF	Pitch Diameter Limit/EDP Numbers H2	H3	H4	H5	H6	H7	DIN Lengths - USCTI Shanks No. of Lube Grooves	Dimensions Length of Thread	Length of Neck	Length Overall
0		80	388410	—	—	—	—	—	0	.315	—	1.575
1	64		388411	—	—	—	—	—	0	.315	—	1.575
1		72	388412	—	—	—	—	—	0	.315	—	1.575
2	56		388413	388414	—	—	—	—	0	.354	—	1.772
2		64	388415	388416	—	—	—	—	0	.354	—	1.772
3	48		388417	388418	—	—	—	—	0	.276	.217	1.969
3		56	388419	388420	—	—	—	—	0	.276	.217	1.969
4	40		—	388421	—	388422	—	—	0	.433	.276	2.205
4		48	—	388425	—	388426	—	—	0	.433	.276	2.205
5	40		—	388429	—	388430	—	—	1	.433	.276	2.205
5		44	—	388433	—	388434	—	—	1	.433	.276	2.205
6	32		—	388437	—	388438	—	—	1	.512	.276	2.205
6		40	—	388442	—	388443	—	—	1	.512	.276	2.205
8	32		—	388446	—	388447	—	—	1	.512	.315	2.480
8		36	—	388450	—	388451	—	—	1	.512	.315	2.480
10	24		—	—	388454	—	388455	—	1	.630	.354	2.756
10		32	—	—	388458	—	388459	—	1	.630	.354	2.756
12	24		—	—	388462	—	388463	—	1	.630	.354	3.150
12		28	—	—	388466	—	388467	—	1	.630	.354	3.150
1/4	20		—	—	388470	—	388471	—	1	.748	.433	3.150
1/4		28	—	—	388474	—	388475	—	1	.748	.433	3.150
5/16	18		—	—	—	388478	—	388479	1	.866	.512	3.543
5/16		24	—	—	—	388482	—	388483	1	.866	.512	3.543
3/8	16		—	—	—	388486	—	388487	1	.945	.591	3.937
3/8		24	—	—	—	388490	—	388491	1	.787	.748	3.543
7/16	14		—	—	—	388494	—	388495	1	.945	—	3.937
7/16		20	—	—	—	388498	—	388499	1	.945	—	3.937
1/2	13		—	—	—	388504	—	388505	1	1.142	—	4.331
1/2		20	—	—	—	388508	—	388509	1	.866	—	3.937

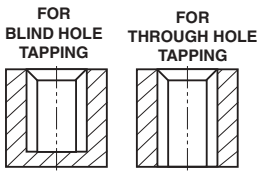
N-RS Roll taps can be run 1.5 times faster than the tapping speeds recommended for thread cutting taps.

Industrial Quality N-RS Taps

Custom Blended Vanadium High Speed Steel Taps
For Aluminums, Brass, Copper Alloys (Nonferrous Materials)

NEW

YMW U.S.A.



N-RS ROLL TAPS

List **3550** Machine Screw sizes
3552 Fractional sizes

Plug Style (3 to 5 threads chamfered)
DIN tap lengths, USCTI shank dimensions
Improved performance, new tap design
Taps have a nitride surface toughening treatment

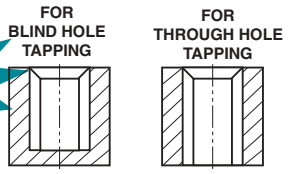
Nominal Size	Threads per Inch UNC UNJC	UNF UNJF	Pitch Diameter Limit/EDP Numbers H2	H3	H4	H5	H6	H7	No. of Lube Grooves	DIN lengths - USCTI shanks Dimensions Length of Thread	Length of Neck	Length Overall
4	40		—	388423	—	388424	—	—	0	.433	.276	2.205
4		48	—	388427	—	388428	—	—	0	.433	.276	2.205
5	40		—	388431	—	388432	—	—	1	.433	.276	2.205
5		44	—	388435	—	388436	—	—	1	.433	.276	2.205
6	32		—	388440	—	388441	—	—	1	.512	.276	2.205
6		40	—	388444	—	388445	—	—	1	.512	.276	2.205
8	32		—	388448	—	388449	—	—	1	.512	.315	2.480
8		36	—	388452	—	388453	—	—	1	.512	.315	2.480
10	24		—	—	388456	—	388457	—	1	.630	.354	2.756
10		32	—	—	388460	—	388461	—	1	.630	.354	2.756
12	24		—	—	388464	—	388465	—	1	.630	.354	3.150
12		28	—	—	388468	—	388469	—	1	.630	.354	3.150
1/4	20		—	—	388472	—	388473	—	1	.748	.433	3.150
1/4		28	—	—	388476	—	388477	—	1	.748	.433	3.150
5/16	18		—	—	—	388480	—	388481	1	.866	.512	3.543
5/16		24	—	—	—	388484	—	388485	1	.866	.512	3.543
3/8	16		—	—	—	388488	—	388489	1	.945	.590	3.937
3/8		24	—	—	—	388492	—	388493	1	.787	.748	3.543
7/16	14		—	—	—	388496	—	388497	1	.945	—	3.937
7/16		20	—	—	—	388502	—	388503	1	.945	—	3.937
1/2	13		—	—	—	388506	—	388507	1	1.142	—	4.331
1/2		20	—	—	—	388510	—	388511	1	.866	—	3.937

N-RS Metric Roll Taps

List **3750** Metric

Bottoming Style (2 to 2 1/2 threads chamfered)
DIN tap lengths, USCTI shank dimensions
Improved performance, new tap design
Taps have a nitride surface toughening treatment

NEW MM Sizes



Nominal Size	Ground Thread Limits	EDP Numbers Plug	Bottoming	No. of Lube Grooves	DN lengths - USCTI shanks Length of Thread	Length of Neck	Length Overall
M3 x 0.5	D5	388513	388512	1	.433	.276	2.205
M3.5 x 0.6	D6	388515	388514	1	.512	.276	2.205
M4 x 0.7	D6	388517	388516	1	.512	.315	2.480
M5 x 0.8	D7	388519	388518	1	.630	.354	2.756
M6 x 1	D8	388521	388520	1	.748	.433	3.150
M7 x 1	D9	388523	388522	1	.748	.433	3.150
M8 x 1	D9	388525	388524	1	.866	.512	3.543
M8 x 1.25	D9	388527	388526	1	.866	.512	3.543
M10 x 1.25	D9	388529	388528	1	.945	.591	3.937
M10 x 1.5	D10	388531	388530	1	.945	.591	3.937
M12 x 1.25	D9	388533	388532	1	.866	—	3.937
M12 x 1.75	D11	388535	388534	1	1.142	—	4.331

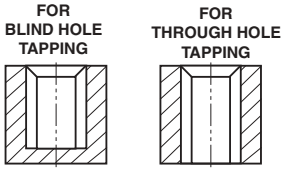
N-RS Roll taps can be run 1.5 times faster than the tapping speeds recommended for thread cutting taps.

Thread Roll taps require larger tap drill sizes than corresponding cutting taps.

Industrial Quality Taps for Cast Iron
Vanadium High Speed Steel Taps

YMW Taps for Cast Iron

These taps have a geometry suited for tapping gray irons and irons that produce broken chips. This design is also appropriate for some non-metallics such as Bakelite and Cast Brass.



HAND TAPS

List 3127 Fractional sizes

Straight flute
Plug (3 to 5 threads chamfered)
Bottoming (1 to 2 threads chamfered)
Taps have a surface toughening tap treatment

Nominal Size	Threads per inch NC UNC	Threads per inch NF UNF	No. of Flutes	Ground Thread Limits	EDP Numbers Plug	EDP Numbers Bottoming	Dimensions Length of Thread	Dimensions Length Overall
1/4	20	—	4	H3	386001	386002	1	2-1/2
1/4	20	—	4	H5	386003	386004	1	2-1/2
1/4	—	28	4	H3	386005	386006	1	2-1/2
5/16	18	—	4	H3	386007	386008	1-1/8	2-23/32
5/16	18	—	4	H5	386009	386010	1-1/8	2-23/32
5/16	—	24	4	H3	386011	386012	1-1/8	2-23/32
3/8	16	—	4	H3	386013	386014	1-1/4	2-15/16
3/8	16	—	4	H5	386015	386016	1-1/4	2-15/16
3/8	—	24	4	H3	386017	386018	1-1/4	2-15/16
7/16	14	—	4	H3	386019	386020	1-7/16	3-5/32
7/16	14	—	4	H5	386021	386022	1-7/16	3-5/32
7/16	—	20	4	H3	386023	386024	1-7/16	3-5/32
7/16	—	20	4	H5	386025	386026	1-7/16	3-5/32
1/2	13	—	4	H3	386027	386028	1-21/32	3-3/8
1/2	13	—	4	H5	386029	386030	1-21/32	3-3/8
1/2	—	20	4	H3	386031	386032	1-21/32	3-3/8
1/2	—	20	4	H5	386033	386034	1-21/32	3-3/8
9/16	12	—	4	H3	386035	386036	1-21/32	3-19/32
9/16	—	18	4	H3	386037	386038	1-21/32	3-19/32
5/8	11	—	4	H3	386039	386040	1-13/16	3-13/16
5/8	—	18	4	H3	386041	386042	1-13/16	3-13/16
3/4	10	—	4	H3	386043	386044	2	4-1/4
3/4	—	16	4	H3	386045	386046	2	4-1/4

TAPER PIPE TAPS

List 3437 NPT
3447 NPTF Dryseal

Straight flute
(2-1/2 to 3-1/2 threads chamfered)
Taps have a surface toughening tap treatment

Nominal Size	Threads per Inch	No. of Flutes	EDP Numbers NPS	EDP Numbers NPSF	Dimensions Length of Thread	Dimensions Length Overall
1/8 (Lg. Shank)	27	4	383201	383226	3/4	2-1/8
1/8 (Sm. Shank)	27	4	383202	383227	3/4	2-1/8
1/4	18	4	383203	383228	1-1/16	2-7/16
3/8	18	4	383204	383229	1-1/16	2-9/16
1/2	14	4	383205	383230	1-3/8	3-1/8
3/4	14	5	383206	383231	1-3/8	3-1/4
1	11-1/2	5	383207	383232	1-3/4	3-3/4
1-1/4	11-1/2	5	383208	383233	1-3/4	4
1-1/2	11-1/2	7	383209	383234	1-3/4	4-1/4
2	11-1/2	7	383210	383235	1-3/4	4-1/2

Industrial Quality STI Taps
Vanadium High Speed Steel Taps

YMW STI, Screw Thread Insert Hand Taps are manufactured to perform to the most exacting standards. STI Hand style taps have been correctly sized to produce a threaded hole to accommodate a helical coil wire screw thread insert, which at final assembly will accept a screw thread of the nominal size and pitch.

H Limits stocked as standard are for Class 2B and 3B finished assemblies.

STI Hand Taps are standard in two popular chamfer lengths: Chamfer: Plug (3 to 5 pitches) Bottoming (1 to 2 pitches)

Technical Information:

Screw thread inserts are helical threaded bushings coiled from diamond shaped cross-section wire. They are screwed into tapped holes to form nominal size internal threads: assembled inserts, Classes 2B and 3B, are controlled by the tolerance range of the tapped hole into which the insert is fitted. Due to the radius on the crest of the insert at the minor diameter, the assembled insert will accept external threaded parts which are threaded to MIL-S-7742 or MIL-S-8879. The grip coil or coils of the screw locking insert are shaped to provide a prevailing torque when the screw is installed in the assembled insert. STI Inserts are available either as a free running thread or as a screw-locking insert providing a self-locking torque on the male fastener.

Gaging Practice:

Accuracy of the finished threaded hole, when the insert is installed, depends upon the accuracy of the tapped hole. If the finished tapped hole gages satisfactorily, the finished hole produced by the installed insert will be within the thread tolerance, provided the insert meets the MIL standards drawing requirement.

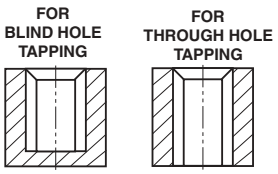
It is, therefore, not necessary to gage the installed insert. After the insert is installed, if the GO thread plug gage is used, it may not enter freely because the insert may not have fully seated in the tapped hole; however, the insert should become seated after a bolt or screw is installed and tightened.

For additional information, refer to U.S.A. MIL-S-33537 and MIL-T-21309.

STI HAND TAPS–GENERAL PURPOSE

List **3119** Machine Screw sizes
3129 Fractional sizes

Straight flute
Plug (3 to 5 threads chamfered)
Bottoming (1 to 2 threads chamfered)
All taps have a Bright finish



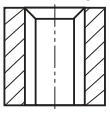
Nominal Size	Threads per inch NC UNC	Threads per inch NF UNF	No. of Flutes	Ground Thread Limits	EDP Numbers Plug	EDP Numbers Bottoming	Dimensions Length of Thread	Dimensions Length Overall	Dimensions Shank Diameter
2	56	—	3	H2	380780	380781	9/16	1-7/8	.141
4	40	—	3	H2	380784	380785	11/16	2	.141
6	32	—	3	H3	380816	380817	7/8	2-3/8	.194
8	32	—	3	H3	380820	380821	15/16	2-3/8	.220
10	24	—	3	H2	380800	380801	1	2-1/2	.255
10	—	32	3	H2	380802	380803	1	2-1/2	.255
10	—	32	3	H3	380826	380827	1	2-1/2	.255
1/4	20	—	3	H3	381880	381881	1-1/8	2-23/32	.318
1/4	—	28	3	H2	381862	381863	1-1/8	2-23/32	.318
5/16	18	—	4	H3	381884	381885	1-1/4	2-15/16	.381
5/16	—	24	4	H2	381866	381867	1-1/4	2-15/16	.381
3/8	16	—	4	H3	381888	381889	1-21/32	3-3/8	.367
7/16	14	—	4	H3	381892	—	1-21/32	3-19/32	.429
7/16	—	20	4	H3	381894	381901	1-21/32	3-3/8	.367
1/2	13	—	4	H3	381896	—	1-13/16	3-13/16	.480
1/2	—	20	4	H3	381898	—	1-21/32	3-19/32	.429

‡ Supplemental surface treatments available upon request: oxide surface treatment and Titanium Nitride (TiN).

STI SPIRAL POINTED TAPS

List **3219** Machine Screw sizes **Plug** (3 to 5 threads chamfered)
3229 Fractional sizes All taps have a Bright finish‡

FOR THROUGH HOLE TAPPING



Nominal Size	Threads per inch NC UNC	NF UNF	No. of Flutes	Pitch Diameter Limit / EDP Numbers H1	H2	H3	Dimensions Length of Thread	Length Overall	Shank Diameter
2	56	—	2	—	382716	—	9/16	1-7/8	.141
4	40	—	2	382704	382720	—	11/16	2	.141
6	32	—	2	—	382724	382740	7/8	2-3/8	.194
8	32	—	2	—	382726	382742	15/16	2-3/8	.220
10	24	—	2	—	382728	—	1	2-1/2	.255
10	—	32	2	—	382729	—	1	2-1/2	.255
1/4	20	—	2	—	382758	382768	1-1/8	2-23/32	.318
1/4	—	28	2	—	382759	382769	1-1/8	2-23/32	.318
5/16	—	24	2	—	382761	—	1-1/4	2-15/16	.381

‡ Supplemental surface treatments available upon request: oxide surface treatment and Titanium Nitride (TiN).

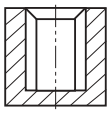
See page 61 for Recommended Minor Diameter and Tap Drills for STI Taps.

For tapping hardened steels or exotic alloys, use ZELX-NI STI Taps.

STI FAST SPIRAL FLUTED TAPS–GENERAL PURPOSE

LIST **3319** Machine Screw sizes **Bottoming** (1 to 2 threads chamfered)
3329 Fractional sizes All taps have a Bright finish‡

FOR BLIND HOLE TAPPING



Nominal Size	Threads per inch NC UNC	NF UNF	No. of Flutes	Pitch Diameter Limit / EDP Numbers H2	H3	H4	Dimensions Length of Thread	Length Overall	Shank Diameter
2	56	—	2	384700	—	—	9/16	1-7/8	.141
4	40	—	2	384704	384720	384736	11/16	2	.141
6	32	—	3	384708	384724	384740	7/8	2-3/8	.194
8	32	—	3	384710	384726	384742	15/16	2-3/8	.220
10	24	—	3	384712	384728	—	1	2-1/2	.255
10	—	32	3	384713	384729	384745	1	2-1/2	.255
1/4	20	—	3	384748	384758	—	1-1/8	2-23/32	.318
1/4	—	28	3	384749	384759	384769	1-1/8	2-23/32	.318
5/16	18	—	3	—	384760	—	1-1/4	2-15/16	.381
5/16	—	24	3	—	384761	384771	1-1/4	2-15/16	.381
3/8	16	—	3	—	384762	384772	1-21/32	3-3/8	.367
3/8	—	24	3	384753	384763	—	1-7/16	3-5/32	.323
7/16	14	—	3	—	384764	—	1-21/32	3-19/32	.429
7/16	—	20	3	—	384765	384775	1-21/32	3-3/8	.367
1/2	13	—	3	—	384766	—	1-13/16	3-13/16	.480
1/2	—	20	3	—	384767	—	1-21/32	3-19/32	.429

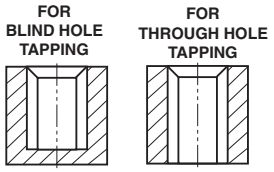
‡ Supplemental surface treatments available upon request: oxide surface treatment and Titanium Nitride (TiN).

See page 61 For Recommended Minor Diameter and Tap Drills for STI Taps.

For tapping hardened steels or exotic alloys, use ZELX-NI STI Taps.

Industrial Quality Metric Taps
Vanadium High Speed Steel Taps

YMW Metric Taps
Metric taps are available in the most popular "D" Limits for ISO 6H Tolerance Class threading. Metric taps are manufactured to U.S.C.T.I. inch blank dimensions.



HAND TAPS–GENERAL PURPOSE

LIST 3170 Metric Hand Taps

Straight flute
Plug (3 to 5 threads chamfered)
Bottoming (1 to 2 threads chamfered)
All taps have a Bright finish‡

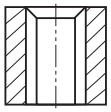
Nominal Size	No. of Flutes	Ground Thread Limits	EDP Numbers		Dimensions	
			Plug	Bottoming	Length of Thread	Length Overall
M1.6 x 0.35	2	D3	377995	377996	5/16	1-5/8
M1.8 x 0.35	2	D3	377998	377999	3/8	1-11/16
M2 x 0.4	3	D3	378001	378002	7/16	1-3/4
M2.2 x 0.45	3	D3	378004	378005	7/16	1-3/4
M2.5 x 0.45	3	D3	378007	378008	1/2	1-13/16
M3 x 0.5	3	D3	378010	378011	5/8	1-15/16
M3.5 x 0.6	3	D4	378013	378014	11/16	2
M4 x 0.7	4	D4	378016	378017	3/4	2-1/8
M4.5 x 0.75	4	D4	378019	378020	7/8	2-3/8
M5 x 0.8	4	D4	378022	378023	7/8	2-3/8
M6 x 1	4	D5	378025	378026	1	2-1/2
M7 x 1	4	D5	378028	378029	1-1/8	2-23/32
M8 x 1	4	D5	378031	378032	1-1/8	2-23/32
M8 x 1.25	4	D5	378034	378035	1-1/8	2-23/32
M10 x 1.25	4	D5	378037	378038	1-1/4	2-15/16
M10 x 1.5	4	D6	378040	378041	1-1/4	2-15/16
M12 x 1.25	4	D5	378043	378044	1-21/32	3-3/8
M12 x 1.75	4	D6	378046	378047	1-21/32	3-3/8
M14 x 1.5	4	D6	378049	378050	1-21/32	3-19/32
M14 x 2	4	D7	378052	378053	1-21/32	3-19/32
M16 x 1.5	4	D6	378055	378056	1-13/16	3-13/16
M16 x 2	4	D7	378058	378059	1-13/16	3-13/16
M18 x 1.5	4	D6	378061	378062	1-13/16	4-1/32
M18 x 2.5	4	D7	378064	378065	1-13/16	4-1/32
M20 x 1.5	4	D6	378067	378068	2	4-15/32
M20 x 2.5	4	D7	378070	378071	2	4-15/32
M22 x 1.5	4	D6	378073	378074	2-7/32	4-11/16
M22 x 2.5	4	D7	378076	378077	2-7/32	4-11/16
M24 x 2	4	D7	378079	378080	2-7/32	4-29/32
M24 x 3	4	D8	378082	378083	2-7/32	4-29/32
M27 x 2	4	D7	378085	378086	2-1/2	5-1/8
M27 x 3	4	D8	378088	378089	2-1/2	5-1/8
M30 x 2	4	D7	378091	378092	2-9/16	5-7/16
M30 x 3.5	4	D9	378094	378095	2-9/16	5-7/16
M33 x 2	4	D7	378097	378098	2-9/16	5-3/4
M33 x 3.5	4	D9	378100	378101	2-9/16	5-3/4
M36 x 3	4	D8	378103	378104	3	6-1/16
M36 x 4	4	D9	378106	378107	3	6-1/16
M39 x 3	6	D8	378109	378110	3-3/16	6-11/16
M39 x 4	6	D10	378112	378113	3-3/16	6-11/16

‡ Supplemental surface treatments available upon request: oxide surface treatment and Titanium Nitride (TiN).

YMW Metric Taps

Metric taps are available in the most popular “D” Limits for ISO 6H Tolerance Class threading. Metric taps are manufactured to U.S.C.T.I. inch blank dimensions.

FOR THROUGH HOLE TAPPING

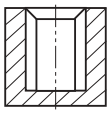


SPIRAL POINTED TAPS–GENERAL PURPOSE

List **3270** Metric Taps **Plug** (3 to 5 threads chamfered)
All taps have a Bright finish‡

Nominal Size	No. of Flutes	Ground Thread Limits	EDP Numbers Plug	Dimensions Length of Thread	Dimensions Length Overall
M3 x 0.5	3	D3	378115	5/8	1-15/16
M3.5 x 0.6	3	D4	378116	11/16	2
M4 x 0.7	3	D4	378117	3/4	2-1/8
M4.5 x 0.75	3	D4	378118	7/8	2-3/8
M5 x 0.8	3	D4	378119	7/8	2-3/8
M6 x 1	3	D5	378120	1	2-1/2
M7 x 1	3	D5	378121	1-1/8	2-23/32
M8 x 1	3	D5	378122	1-1/8	2-23/32
M8 x 1.25	3	D5	378123	1-1/8	2-23/32
M10 x 1.25	3	D5	378124	1-1/4	2-15/16
M10 x 1.5	3	D6	378125	1-1/4	2-15/16
M12 x 1.25	3	D5	378126	1-21/32	3-3/8
M12 x 1.75	3	D6	378127	1-21/32	3-3/8
M14 x 1.5	3	D6	378128	1-21/32	3-19/32
M14 x 2	3	D7	378129	1-21/32	3-19/32
M16 x 1.5	3	D6	378130	1-13/16	3-13/16
M16 x 2	3	D7	378131	1-13/16	3-13/16
M18 x 1.5	3	D6	378132	1-13/16	4-1/32
M18 x 2.5	3	D7	378133	1-13/16	4-1/32

FOR BLIND HOLE TAPPING



FAST SPIRAL FLUTED TAPS–GENERAL PURPOSE

List **3370** Metric Taps **Plug** (2-1/2 to 3-1/2 threads chamfered)
All taps have a Bright finish‡

Nominal Size	No. of Flutes	Ground Thread Limits	EDP Numbers Plug	Dimensions Length of Thread	Dimensions Length Overall
M3 x 0.5	3	D3	378215	5/8	1-15/16
M3.5 x 0.6	3	D4	378216	11/16	2
M4 x 0.7	3	D4	378217	3/4	2-1/8
M4.5 x 0.75	3	D4	378218	7/8	2-3/8
M5 x 0.8	3	D4	378219	7/8	2-3/8
M6 x 1	3	D5	378220	1	2-1/2
M7 x 1	3	D5	378221	1-1/8	2-23/32
M8 x 1	3	D5	378222	1-1/8	2-23/32
M8 x 1.25	3	D5	378223	1-1/8	2-23/32
M10 x 1.25	3	D5	378224	1-1/4	2-15/16
M10 x 1.5	3	D6	378225	1-1/4	2-15/16
M12 x 1.25	3	D5	378226	1-21/32	3-3/8
M12 x 1.75	3	D6	378227	1-21/32	3-3/8
M14 x 1.5	3	D6	378228	1-21/32	3-19/32
M14 x 2	3	D7	378229	1-21/32	3-19/32
M16 x 1.5	3	D6	378230	1-13/16	3-13/16
M16 x 2	3	D7	378231	1-13/16	3-13/16
M18 x 1.5	4	D6	378232	1-13/16	4-1/32
M18 x 2.5	4	D7	378233	1-13/16	4-1/32

‡ Supplemental surface treatments available upon request: oxide surface treatment and Titanium Nitride (TiN).

Industrial Quality Pipe Taps

Vanadium High Speed Steel Taps

NPT Taper Pipe Taps These general purpose taper pipe taps are ideal for threading a wide variety of materials, such as steels and irons, and can also be used for nonferrous and nonmetallic materials.

Ground thread taper pipe taps are standard in American Standard Pipe Form (NPT) and American Standard Dryseal Pipe Form (NPTF).

The nominal size of a pipe tap is that of the pipe fitting to be tapped, not the actual size of the tap. The thread tapers 3/4 of an inch per foot.

Interrupted NPT Taper Pipe Taps have full threads in the tap chamfer and for the first few threads. The balance of the threads are interrupted to reduce drag while threading. These pipe taps are standard having an odd number of flutes, 5 or 7.

Straight Pipe Taps have American National Standard Straight Pipe Tap form of thread and are marked NPS. Dryseal American National Standard Straight Pipe thread form are marked NPSF. Taps marked NPS are suitable for tapping holes or couplings for low pressure work to assemble with taper thread pipe or fittings to secure a tight joint when a sealer is used. They are suitable for NPSC and NPSM work.

TAPER PIPE TAPS–GENERAL PURPOSE

List **3430** NPT ANPT
3440 NPTF
3435 Interrupted NPT

Taps have oxide surface treatment
All pipe taps have a chamfer of 2-1/2 to 3 1/2 threads
*Available in Bright. Add "B" to the end of the EDP no.

		Regular			‡ Interrupted			
			EDP Numbers			EDP Numbers	Dimensions	
Nominal Size	Threads per Inch	No. of Flutes	NPT or ANPT	NPTF	No. of Flutes	NPT or ANPT	Length of Thread	Length Overall
1/16	27	4	383100	383125*	—	—	11/16	2-1/8
1/8 (Lg. Shank)	27	4	383101	383126*	5	383151	3/4	2-1/8
1/8 (Sm. Shank)	27	4	383102	383127*	5	383152	3/4	2-1/8
1/4	18	4	383103	383128	5	383153	1-1/16	2-7/16
3/8	18	4	383104	383129*	5	383154	1-1/16	2-9/16
1/2	14	4	383105	383130*	5	383155	1-3/8	3-1/8
3/4	14	5	383106	383131*	5	383156	1-3/8	3-1/4
1	11-1/2	5	383107	383132*	5	383157	1-3/4	3-3/4
1-1/4	11-1/2	5	383108	383133*	5	383158	1-3/4	4
1-1/2	11-1/2	7	383109	383134*	7	383159	1-3/4	4-1/4
2	11-1/2	7	383110	383135*	7	383160	1-3/4	4-1/2

‡ For general dimensions and standard projection limits of taper pipe taps see page 18.

STRAIGHT PIPE TAPS–GENERAL PURPOSE

LIST **3450** NPS
3460 NPSF Dryseal

Modified Style
(3 - 5 threads chamfered)
Taps have oxide surface treatment
*Available in Bright. Add "B" to end of the EDP no.

			EDP Numbers		Dimensions	
Nominal Size	Threads per Inch	No. of Flutes	NPS	NPSF	Length of Thread	Length Overall
1/8 (Lg. Shank)	27	4	383301	383326	3/4	2-1/8
1/8 (Sm. Shank)	27	4	383302	383327	3/4	2-1/8
1/4	18	4	383303	383328	1-1/16	2-7/16
3/8	18	4	383304	383329	1-1/16	2-9/16
1/2	14	4	383305	383330	1-3/8	3-1/8
3/4	14	5	383306	383331	1-3/8	3-1/4
1	11-1/2	5	383307	383332	1-3/4	3-3/4

For Straight Pipe General Dimensions, see page 61.

YMW U.S.A.

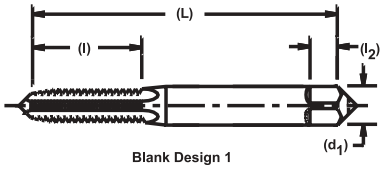
YMW round adjustable dies are manufactured on state of the art machining centers for the highest quality dies possible.

H.S.S. Round Dies

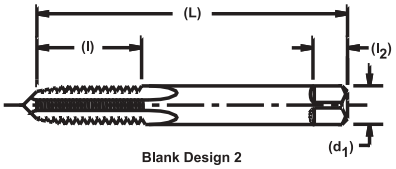
List **3710** Machine Screw Sizes Adjustable Round Die
3720 Fractional Sizes

Nominal Size	Threads per inch NC UNC	NF UNF	EDP Numbers 13/16" O.D. 1/4" thickness	1" O.D. 3/8" thickness	1-1/2" O.D. 1/2" thickness	2" O.D. 5/8" thickness
5	40	—	360365	—	—	—
5	—	44	360366	—	—	—
6	32	—	360367	360368	—	—
6	—	40	360370	—	—	—
8	32	—	360372	360373	—	—
8	—	36	360374	—	—	—
10	24	—	360376	360377	—	—
10	—	32	360379	360380	—	—
12	24	—	360381	360382	—	—
12	—	28	360383	—	—	—
1/4	20	—	360333	360334	360335	—
1/4	—	28	360336	360337	360338	—
5/16	18	—	360339	360340	360341	—
5/16	—	24	360342	360343	360344	—
3/8	16	—	—	360345	360346	—
3/8	—	24	—	360347	360348	—
7/16	14	—	—	360349	360350	—
7/16	—	20	—	360351	360352	—
1/2	13	—	—	—	360353	—
1/2	—	20	—	—	360354	—
9/16	12	—	—	—	360355	—
9/16	—	18	—	—	360356	—
5/8	11	—	—	—	360357	360358
5/8	—	18	—	—	360359	360360
3/4	10	—	—	—	—	360361
3/4	—	16	—	—	—	360362
7/8	9	—	—	—	—	360363
7/8	—	14	—	—	—	360364

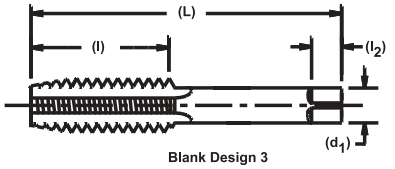
Dimensions Table 302 (*USCTI)



Blank Design 1



Blank Design 2



Blank Design 3

General Dimensions

Nominal Diameter Range Inches Over	To (Incl)	Machine Screw Size No.	Nominal Fractional Diameter Inches	Nominal Metric Diameter Millimeters	Style Per Illustration Above	Overall Length L	Tap Dimensions — Inches Thread Length l	Square Length l_2	Shank Diameter d_1	Size of Square a
.052	.065	0 (.0600)		M 1.6 (.0630)	1	1.63	.31	.19	.1410	.110
.065	.078	1 (.0730)		M1.8 (.0709)	1	1.69	.38	.19	.1410	.110
.078	.091	2 (.0860)		M2 (0787), M2.2 (.0866)	1	1.75	.44	.19	.1410	.110
.091	.104	3 (.0990)		M2.5 (.0984)	1	1.81	.50	.19	.1410	.110
.104	.117	4 (.1120)			1	1.88	.56	.19	.1410	.110
.117	.130	5 (.1250)		M3 (.1181)	1	1.94	.63	.19	.1410	.110
.130	.145	6 (.1380)		M3.5 (.1378)	1	2.00	.69	.19	.1410	.110
.145	.171	8 (.1640)		M4 (.1575)	1	2.13	.75	.25	.1680	.131
.171	.197	10 (.1900)		M4.5 (.1772), M5 (.1969)	1	2.38	.88	.25	.1940	.152
.197	.223	12 (.2160)			1	2.38	.94	.28	.2200	.165
.223	.260		1/4 (.2500)	M6 (.2362)	2	2.50	1.00	.31	.2550	.191
.260	.323		5/16 (.3125)	M7 (.2756), M8 (.3150)	2	2.72	1.13	.38	.3180	.238
.323	.395		3/8 (.3750)	M10 (.3937)	2	2.94	1.25	.44	.3810	.286
.395	.448		7/16 (.4375)		3	3.16	1.44	.41	.3230	.242
.448	.510		1/2 (.5000)	M12 (.4724)	3	3.38	1.66	.44	.3670	.275
.510	.573		9/16 (.5625)	M14 (.5512)	3	3.59	1.66	.50	.4290	.322
.573	.635		5/8 (.6250)	M16 (.6299)	3	3.81	1.81	.56	.4800	.360
.635	.709		11/16 (.6875)	M18 (.7087)	3	4.03	1.81	.63	.5420	.406
.709	.760		3/4 (.7500)		3	4.25	2.00	.69	.5900	.442
.760	.823		13/16 (.8125)	M20 (.7874)	3	4.47	2.00	.69	.6520	.489
.823	.885		7/8 (.8750)	M22 (.8661)	3	4.69	2.22	.75	.6970	.523
.885	.948		15/16 (.9375)	M24 (.9449)	3	4.91	2.22	.75	.7600	.570
.948	1.010		1 (1.0000)	M25 (.9843)	3	5.13	2.50	.81	.8000	.600
1.010	1.073		1-1/16 (1.0625)	M27 (1.0630)	3	5.13	2.50	.88	.8960	.672
1.073	1.135		1-1/8 (1.1250)		3	5.44	2.56	.88	.8960	.672
1.135	1.198		1-3/16 (1.1875)	M30 (1.1811)	3	5.44	2.56	1.00	1.0210	.766
1.198	1.260		1-1/4 (1.2500)		3	5.75	2.56	1.00	1.0210	.766
1.260	1.323		1-5/16 (1.3125)	M33 (1.2992)	3	5.75	2.56	1.06	1.1080	.831
1.323	1.385		1-3/8 (1.3750)		3	6.06	3.00	1.06	1.1080	.831
1.358	1.448		1-7/16 (1.4375)	M36 (1.4173)	3	6.06	3.00	1.13	1.2330	.925
1.448	1.510		1-1/2 (1.5000)		3	6.38	3.00	1.13	1.2330	.925
1.510	1.635		1-5/8 (1.6250)	M39 (1.5354)	3	6.69	3.19	1.13	1.3050	.979
1.635	1.760		1-3/4 (1.7500)	M42 (1.6535)	3	7.00	3.19	1.25	1.4300	1.072
1.760	1.885		1-7/8 (1.8750)		3	7.31	3.56	1.25	1.5190	1.139
1.885	2.010		2 (2.0000)	M48 (1.8898)	3	7.63	3.56	1.38	1.6440	1.233
2.010	2.135		2 1/8 (2.1250)		3	8.00	3.56	1.38	1.7690	1.327
2.135	2.260		2 1/4 (2.2500)	M56 (2.2047)	3	8.25	3.56	1.44	1.8940	1.420
2.260	2.385		2 3/8 (2.3750)		3	8.50	4.00	1.44	2.0190	1.514
2.385	2.510		2 1/2 (2.5000)		3	8.75	4.00	1.50	2.1000	1.575
2.510	2.635		2 5/8 (2.6250)	M64 (2.5197)	3	8.75	4.00	1.50	2.2250	1.669
2.635	2.760		2 3/4 (2.7500)		3	9.25	4.00	1.56	2.3500	1.762
2.760	2.885		2 7/8 (2.8750)	M72 (2.8346)	3	9.25	4.00	1.56	2.4750	1.856
2.885	3.010		3 (3.0000)		3	9.75	4.56	1.63	2.5430	1.907
3.010	3.135		3 1/8 (3.1250)		3	9.75	4.56	1.63	2.6680	2.001
3.135	3.260		3 1/4 (3.2500)	M80 (3.1496)	3	10.00	4.56	1.75	2.7930	2.095
3.260	3.385		3 3/8 (3.3750)		3	10.00	4.56	1.75	2.8830	2.162
3.385	3.510		3 1/2 (3.5000)		3	10.25	4.94	2.00	3.0080	2.256
3.510	3.635		3 5/8 (3.6250)	M90 (3.5433)	3	10.25	4.94	2.00	3.1330	2.350
3.635	3.760		3 3/4 (3.7500)		3	10.50	5.31	2.13	3.2170	2.413
3.760	3.885		3 7/8 (3.8750)		3	10.50	5.31	2.13	3.3420	2.506
3.885	4.010		4 (4.0000)	M100 (3.9370)	3	10.75	5.31	2.25	3.4670	2.600

*United States Cutting Tool Institute (USCTI) governs tap dimensions for the United States

USCTI Table 302 Tap Tolerance

Element	Nominal Diameter Range – Inches Over	To (Inc.)	Direction	Tolerance (Inches)
Length Overall - L	.0520	1.0100	Plus or Minus	.031
	1.0100	4.0100	Plus or Minus	.063
Length of Thread - l	.0520	.2230	Plus or Minus	.047
	.2230	.5100	Plus or Minus	.063
	.5100	1.5100	Plus or Minus	.094
	1.5100	4.0100	Plus or Minus	.125
Length of square - l_2	.0520	1.0100	Plus or Minus	.031
	1.0100	4.0100	Plus or Minus	.063
Diameter of shank - d_1	.0520	.2230	Minus	.0015
	.2230	.6350	Minus	.0015
	.6350	1.0100	Minus	.0020
	1.0100	1.5100	Minus	.0020
	1.5100	2.0100	Minus	.0030
	2.0100	4.0100	Minus	.0030
Size of square - a	.0520	.5100	Minus	.004
	.5100	1.0100	Minus	.006
	1.0100	2.0100	Minus	.008
	2.0100	4.0100	Minus	.010

Special Fine Pitch Taps — Short Series, Ground Thread (Ref. USCTI Table 303)

Unless otherwise specified, special taps 1.010" to 1.510" diameter inclusive having 14 or more threads per inch or 1.75 millimeter pitch and finer, and sizes over 1.510" diameter with 10 or more threads per inch, or 2.5 millimeter pitch and finer, will be made to the general dimensions shown below:

Nominal Diameter Range Inches Over	To (Incl.)	Nominal Fractional Diameter Inches	Nominal Metric Diameter Millimeters	General Tap Dimensions - Inches Overall Length L	Thread Length l	Square Length l_2	Shank Diameter d_1	Size of Square a
1.010	1.073	1-1/16	M27	4.00	1.50	.88	.8960	.672
1.073	1.135	1- 1/8		4.00	1.50	.88	.8960	.672
1.135	1.198	1-3/16	M30	4.00	1.50	1.00	1.0210	.766
1.198	1.260	1-1/4		4.00	1.50	1.00	1.0210	.766
1.260	1.323	1-5/16	M33	4.00	1.50	1.00	1.1080	.831
1.323	1.385	1-3/8		4.00	1.50	1.00	1.1080	.831
1.385	1.448	1-7/16	M36	4.00	1.50	1.00	1.2330	.925
1.448	1.510	1-1/2		4.00	1.50	1.00	1.2330	.925
1.510	1.635	1-5/8	M39	5.00	2.00	1.13	1.3050	.979
1.635	1.760	1-3/4	M42	5.00	2.00	1.25	1.4300	1.072
1.760	1.885	1-7/8		5.00	2.00	1.25	1.5190	1.139
1.885	2.010	2	M48	5.00	2.00	1.38	1.6440	1.233
2.010	2.135	2-1/8		5.25	2.00	1.38	1.7690	1.327
2.135	2.260	2-1/4	M56	5.25	2.00	1.44	1.8940	1.420
2.260	2.385	2-3/8		5.25	2.00	1.44	2.0190	1.514
2.385	2.510	2-1/2		5.25	2.00	1.50	2.1000	1.575
2.510	2.635	2-5/8	M64	5.50	2.00	1.50	2.1000	1.575
2.635	2.760	2-3/4		5.50	2.00	1.50	2.1000	1.575
2.760	2.885	2-7/8	M72	5.50	2.00	1.50	2.1000	1.575
2.885	3.010	3		5.50	2.00	1.50	2.1000	1.575
3.010	3.135	3-1/8		5.75	2.00	1.50	2.1000	1.575
3.135	3.260	3-1/4	M80	5.75	2.00	1.50	2.1000	1.575
3.260	3.385	3-3/8		5.75	2.00	1.50	2.1000	1.575
3.385	3.510	3-1/2		5.75	2.00	1.50	2.1000	1.575
3.510	3.635	3-5/8	M90	6.00	2.00	1.75	2.1000	1.575
3.635	3.760	3-3/8		6.00	2.00	1.75	2.1000	1.575
3.760	3.885	3-7/8		6.00	2.00	1.75	2.1000	1.575
3.885	4.010	4	M100	6.00	2.00	1.75	2.1000	1.575

Straight Pipe Taps — General Dimensions — Inches

Nominal Pipe Size	L Overall Length Length	L Overall Length Tol	l Length of Thread Length	l Length of Thread Tol	l_2 Length of Square Length	l_2 Length of Square Tol.	d_1 Shank Diameter Dia.	Cut Thread Tol.	Ground Thread Tol.	a Size of Square Size	a Size of Square Tol	Tap Drill Sizes
1/8	2-1/8	±1/32	3/4	±1/16	3/8	±1/32	.3125	-.007	-.0015	.234	-.004	11/32
1/8	2-1/8	±1/32	3/4	±1/16	3/8	±1/32	.4375	-.007	-.0015	.328	-.004	11/32
1/4	2-7/16	±1/32	1-1/16	±1/16	7/16	±1/32	.5625	-.007	-.0020	.421	-.006	7/16
3/8	2-9/16	±1/32	1-1/16	±1/16	1/2	±1/32	.7000	-.007	-.0020	.531	-.006	37/64
1/2	3-1/8	±1/32	1-3/8	±1/16	5/8	±1/32	.6875	-.007	-.0020	.515	-.006	23/32
3/4	3-1/4	±1/32	1-3/8	±1/16	11/16	±1/32	.9063	-.009	-.0020	.679	-.006	59/64
1	3-3/4	±1/16	1-3/4	±3/32	13/16	±1/16	1.1250	-.009	-.0020	.843	-.008	1-5/32

Straight Pipe Taps —Standard Sizes and Limits — H.S. Steel Ground Threads

Nominal Pipe Size	Threads Per Inch NPS	Threads Per Inch NPSF	No. of Flutes	American Standard Pipe Form (NPS, NPSC and NPSM) Major Diameter Min	Major Diameter Max	Pitch Diameter Min	Pitch Diameter Max	American Standard Dryseal Pipe Form (NPSF) Major Diameter Min	Major Diameter Max	Pitch Diameter Min	Pitch Diameter Max	*Minor Dia. Of Flat Max.
1/8	27	27	4	.4022	.4032	.3746	.3751	.3932	.3942	.3696	.3701	.004
1/4	18	18	4	.5347	.5357	.4933	.4938	.5239	.5249	.4859	.4864	.005
3/8	18	18	4	.6701	.6711	.6287	.6292	.6593	.6603	.6213	.6218	.005
1/2	14	14	4	.8347	.8357	.7806	.7811	.8230	.8240	.7712	.7717	.005
3/4	14	14	5	1.0447	1.0457	.9906	.9916	1.0335	1.0345	.9817	.9822	.005
1	11-1/2	11-1/2	5	1.3062	1.3077	1.2402	1.2412	1.2933	1.2943	1.2295	1.2305	.006

Recommended Minor Diameters and Tap Drills for STI

Nominal Size STI	Threads per Inch NC UNC	Threads per Inch NF UNF	Aluminum Recommended Drill Nominal Size	Aluminum Recommended Drill Dec. Equivalent	Plastic - Steel - Magnesium Recommended Drill Nominal Size	Plastic - Steel - Magnesium Recommended Drill Dec. Equivalent
2	56	—	3/32	.0938	41	.0960
4	40	—	31	.1200	31	.1200
6	32	—	26	.1470	25	.1495
8	32	—	17	.1730	16	.1770
10	24	—	13/64	.2031	5	.2055
10	—	32	7	.2010	13/64	.2031
1/4	20	—	H	.2660	H	.2660
1/4	—	28	G	.2610	6.7MM	.2638
5/16	18	—	Q	.3320	Q	.3320
5/16	—	24	21/64	.3281	21/64	.3281
3/8	16	—	X	.3970	X	.3970
3/8	—	24	25/64	.3906	25/64	.3906
7/16	14	—	29/64	.4531	29/64	.4531
7/16	—	20	29/64	.4531	29/64	.4531
1/2	13	—	33/64	.5156	17/32	.5312
1/2	—	20	33/64	.5156	17/32	.5312

YMW U.S.A.

Decimal Equivalents

Decimal Equivalent	Drill Size	Decimal Equivalent	Drill Size	Decimal Equivalent	Drill Size	Decimal Equivalent	Drill Size	Decimal Equivalent	Drill Size	Decimal Equivalent	Drill Size
.0059	#97	.0430	#57	.1100	#35	.1990	#8	.3031	7.70mm	.5118	13.00mm
.0063	#96	.0433	1.10mm	.1102	2.80mm	.2008	5.10mm	.3051	7.75mm	.5156	**33/64**
.0067	#95	.0453	1.15mm	.1110	#34	.2010	#7	.3071	7.80mm	.5312	**17/32**
.0071	#94	.0465	#56	.1130	#33	.2031	**13/64**	.3110	7.90mm	.5315	13.50mm
.0075	#93	.0469	**3/64**	.1142	2.90mm	.2040	#6	.3125	**5/16**	.5469	**35/64**
.0079	#92	.0472	1.20mm	.1160	#32	.2047	5.20mm	.3150	8.00mm	.5512	14.00mm
.0083	#91	.0492	1.25mm	.1181	3.00mm	.2055	#5	.3160	O	.5625	**9/16**
.0087	#90	.0512	1.30mm	.1200	#31	.2067	5.25mm	.3189	8.10mm	.5709	14.50mm
.0091	#89	.0520	#55	.1220	3.10mm	.2087	5.30mm	.3228	8.20mm	.5781	**37/64**
.0095	#88	.0531	1.35mm	.1250	**1/8**	.2090	#4	.3230	P	.5906	15.00mm
.0098	.25mm	.0550	#54	.1260	3.20mm	.2126	5.40mm	.3248	8.25mm	.5938	**19/32**
.0100	#87	.0551	1.40mm	.1280	3.25mm	.2130	#3	.3268	8.30mm	.6094	**39/64**
.0105	#86	.0571	1.45mm	.1285	#30	.2165	5.50mm	.3281	**21/64**	.6102	15.50mm
.0110	#85	.0591	1.50mm	.1299	3.30mm	.2188	**7/32**	.3307	8.40mm	.6250	**5/8**
.0115	#84	.0595	#53	.1339	3.40mm	.2205	5.60mm	.3320	Q	.6299	16.00mm
.0118	.30mm	.0610	1.55mm	.1360	#29	.2210	#2	.3346	8.50mm	.6406	**41/64**
.0120	#83	.0625	**1/16**	.1378	3.50mm	.2244	5.70mm	.3386	8.60mm	.6496	16.50mm
.0125	#82	.0630	1.60mm	.1405	#28	.2264	5.75mm	.3390	R	.6562	**21/32**
.0130	#81	.0635	#52	.1406	**9/64**	.2280	#1	.3425	8.70mm	.6693	17.00mm
.0135	#80	.0650	1.65mm	.1417	3.60mm	.2283	5.80mm	.3438	**11/32**	.6719	**43/64**
.0138	.35mm	.0669	1.70mm	.1440	#27	.2323	5.90mm	.3445	8.75mm	.6875	**11/16**
.0145	#79	.0670	#51	.1457	3.70mm	.2340	A	.3465	8.80mm	.6890	17.50mm
.0156	**1/64**	.0689	1.75mm	.1470	#26	.2344	**15/64**	.3480	S	.7031	**45/64**
.0157	.40mm	.0700	#50	.1476	3.75mm	.2362	6.00mm	.3504	8.90mm	.7087	18.00mm
.0160	#78	.0709	1.80mm	.1495	#25	.2380	B	.3543	9.00mm	.7188	**23/32**
.0177	.45mm	.0728	1.85mm	.1496	3.80mm	.2402	6.10mm	.3580	T	.7283	18.50mm
.0180	#77	.0700	#49	.1520	#24	.2420	C	.3583	9.10mm	.7344	**47/64**
.0197	.50mm	.0748	1.90mm	.1535	3.90mm	.2441	6.20mm	.3594	**23/64**	.7480	19.00mm
.0200	#76	.0760	#48	.1540	#23	.2460	D	.3622	9.20mm	.7500	**3/4**
.0210	#75	.0768	1.95mm	.1562	**5/32**	.2461	6.25mm	.3642	9.25mm	.7656	**49/64**
.0217	.55mm	.0781	**5/64**	.1570	#22	.2480	6.30mm	.3661	9.30mm	.7677	19.50mm
.0225	#74	.0785	#47	.1575	4.00mm	.2500	**1/4**, E	.3680	U	.7812	**25/32**
.0236	.60mm	.0787	2.00mm	.1590	#21	.2520	6.40mm	.3701	9.40mm	.7874	20.00mm
.0240	#73	.0807	2.05mm	.1610	#20	.2559	6.50mm	.3740	9.50mm	.7969	**51/64**
.0250	#72	.0810	#46	.1614	4.10mm	.2570	F	.3750	**3/8**	.8071	20.50mm
.0256	.65mm	.0820	#45	.1654	4.20mm	.2598	6.60mm	.3770	V	.8125	**13/16**
.0260	#71	.0827	2.10mm	.1660	#19	.2610	G	.3780	9.60mm	.8268	21.00mm
.0276	.70mm	.0846	2.15mm	.1673	4.25mm	.2638	6.70mm	.3819	9.70mm	.8281	**53/64**
.0280	#70	.0860	#44	.1693	4.30mm	.2656	**17/64**	.3839	9.75mm	.8438	**27/32**
.0292	#69	.0866	2.20mm	.1695	#18	.2657	6.75mm	.3858	9.80mm	.8465	21.50mm
.0295	.75mm	.0886	2.25mm	.1719	**11/64**	.2660	H	.3860	W	.8594	**55/64**
.0310	#68	.0890	#43	.1730	#17	.2677	6.80mm	.3898	9.90mm	.8661	22.00mm
.0312	**1/32**	.0906	2.30mm	.1732	4.40mm	.2717	6.90mm	.3906	**25/64**	.8750	**7/8**
.0315	.80mm	.0925	2.35mm	.1770	#16	.2720	I	.3937	10.00mm	.8858	22.50mm
.0320	#67	.0935	#42	.1772	4.50mm	.2756	7.00mm	.3970	X	.8906	**57/64**
.0330	#66	.0938	**3/32**	.1800	#15	.2770	J	.4040	Y	.9055	23.00mm
.0335	.85mm	.0945	2.40mm	.1811	4.60mm	.2795	7.10mm	.4062	**13/32**	.9062	**29/32**
.0350	#65	.0960	#41	.1820	#14	.2810	K	.4130	Z	.9219	**59/64**
.0354	.90mm	.0965	2.45mm	.1850	#13	.2812	**9/32**	.4134	10.50mm	.9252	23.50mm
.0360	#64	.0980	#40	.1850	4.70mm	.2835	7.20mm	.4219	**27/64**	.9375	**15/16**
.0370	#63	.0984	2.50mm	.1870	4.75mm	.2854	7.25mm	.4331	11.00mm	.9449	24.00mm
.0374	.95mm	.0995	#39	.1875	**3/16**	.2874	7.30mm	.4375	**7/16**	.9531	**61/64**
.0380	#62	.1015	#38	.1890	#12	.2900	L	.4528	11.50mm	.9646	24.50mm
.0390	#61	.1024	2.60mm	.1890	4.80mm	.2913	7.40mm	.4531	**29/64**	.9688	**31/32**
.0394	1.00mm	.1040	#37	.1910	#11	.2950	M	.4688	**15/32**	.9843	25.00mm
.0400	#60	.1063	2.70mm	.1929	4.90mm	.2953	7.50mm	.4724	12.00mm	.9844	**63/64**
.0410	#59	.1065	#36	.1935	#10	.2969	**19/64**	.4844	**31/64**	1.0000	1"
.0413	1.05mm	.1083	2.75mm	.1960	#9	.2992	7.60mm	.4921	12.50mm		
.0420	#58	.1094	**7/64**	.1969	5.00mm	.3020	N	.5000	**1/2**		

EDP Number Index

List Number Index is on page 3.

Metalcutting Safety (read this before using YMW products)

Modern metalcutting operations involve high energy, high spindle or cutter speeds, and high temperatures and cutting forces. Hot, flying chips may be projected from the workpiece during metalcutting. Although advanced cutting tool materials are designed and manufactured to withstand the high cutting forces and temperatures that normally occur in these operations, they are susceptible to fragmenting in service, particularly if they are subjected to over-stress, severe impact or otherwise abused. Therefore, precautions should be taken to adequately protect workers, observers and equipment against hot, flying chips, fragmented cutting tools, broken workpieces or other similar projectiles. Machines should be fully guarded and personal protective equipment should be used at all times.

When grinding advanced cutting tool materials, a suitable means for collection and disposal of dust, mist or sludge should be provided. Overexposure to dust or mist containing metallic particles can be hazardous to health particularly if exposure continues over an extended period of time and may cause eye, skin and mucous membrane irritation and temporary or permanent respiratory disease. Certain existing pulmonary and skin conditions may be aggravated by exposure to dust or mist. Adequate ventilation, respiratory protection and eye protection should be provided when grinding and workers should avoid breathing of and prolonged skin contact with dust or mist. General Industry Safety and Health Regulations, Part 1910. U.S. Department of Labor, published in Title 29 of the Code of Federal Regulations should be consulted. Obtain from YMW and read the applicable Material Safety Data Sheet before grinding.

Cutting tools are only one part of the worker-machine-tool system. Many variables exist in machining operations, including the metal removal rate; the workpiece size, shape, strength and rigidity; the chucking and fixturing; the load carrying capability of centers; the cutter and spindle speed and torque limitations; the holder and boring bar overhang; the available power; and the condition of the tooling and the machine. A safe metalcutting operation must take all of these variables, and others, into consideration.

YMW has no control over the end use of its products or the environment into which those products are placed. YMW urges that its customers adhere to the recommended standards of use of their metalcutting machines and tools, and that they follow procedures that ensure safe metalcutting operations. The information included throughout this catalog under the heading “Technical Data” and other recommendations on machining practices referred to herein are only advisory in nature and do not constitute representations or warranties and are not necessarily appropriate for any particular work environment or application.

YMW U.S.A.

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Tap and Die Product Guide

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