AHB

TOOLING & MACHINERY

COMPLETE METALWORKING SOLUTIONS

(800) 991-4225
ISO Certified
www.ahbinc.com
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TAPPING HOLDERS:

- Heads for Synchronous and traditional tapping cycles
- Numertap® 770 system for best durability and range
- Tradition Bilz type
- Extended reach adapters
- Coolant and coolant groove
- Collet and Universal Drive adapters
- ANSI, DIN, JIS and ISO shank tap shanks

Tapping Selection

Synchronous

With the advent of 32 bit microprocessors, modern machine tools have the capability of synchronizing the spindle rotation and spindle feed. This has made it possible to eliminate the spring compression and tension stroke utilized in traditional tapping heads. The advantage that this brings to threading is the speed the cycle can operate. The cost of building tapping heads has also been reduced by the elimination of the axial float mechanism.

Radial float is still a very important component of your threading operation. The absence of radial float will restrict the tap's ability to follow the drilled hole. The lack of radial float will force the tap to flex to meet the hole, or to cut like a mill, causing premature tap wear.

Parlec offers many solutions for synchronous tapping cycles. We recommend the use of our tension only tapping heads. This system will allow the tap to hard start, has radial float, a tension stroke to compensate for any spindle over rotation, and quick change of tap adapters. Any Parlec TA style tapping head can be adjusted or purchased as a tension only (TT). Parlec offers TR (tapping rigid) or FS (fixed shank) tapping heads in all of our non-torque controlled systems. These units have no tension or compression stroke but do offer radial float and quick change tap adapters. In addition, Parlec offers ER style tap collets with no float, and with tension and float. These are available to use with standard ER collet chucks and with ER tap collet adapters. (Use with a NUMERTAP® collet adapter provides radial float).

Tension & Compression

Tension and compression tapping heads have been the main stay of machine tool tapping for many years. Parlec offers a wide range and style of these heads. We offer the widely used BILZ-style as well as the rugged NUMERTAP® systems. Identified as (TA) in the part number.

Torque Control

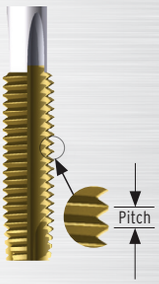
Torque control tapping is still the best solution for protecting your taps and work pieces from tap breakage. Bottom tapping or close blind hole tapping where chip evacuation is a concern, are prime operations for torque control tapping. Parlec offers torque control tapping from #4 through 1". Refer to the following pages for more detailed information: NUMERTAP® 80, 700 and BILZ-style 1,2, and 3 with torque-controlled adapters.

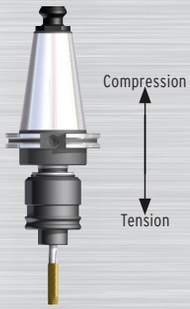
Rigid

ER tap collets are available for use with NUMERTAP® adapters as well as with standard collet chucks. Loss of radial float will result with use in standard collet chucks. Poor tap life and thread quality may result. Parlec tapping units are also available as rigid or fixed shank units (TR, FS). These units provide radial float and quick-change adapters but are rigid in the axial stroke. Unlike standard collet chuck systems, they will still yield the benefits of quick change and radial float.

Axial Feed

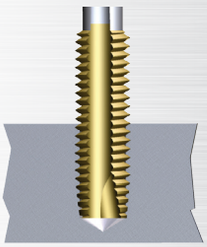
A thread is an inclined plane that is rolled into a cylinder. The distance between a point on the plane and the point directly above is the pitch of the thread. To cut a good thread the tap must be fed into the work piece precisely on pitch. This makes a tap the only tool in metalworking in which the feed rate and the speed must be perfectly synchronized. For each revolution the tap makes it must advance the pitch. Retarding the tap's advance or pushing the tap will result in an incorrect thread form.





Tension Stroke

The tap is a precision ground cutting tool. To allow the tap to cut on pitch, NUMERTAP® tapping attachments feature a free floating tension stroke. When properly applied, the feed rate of the machine is slightly less than the pitch. The tension stroke in the NUMERTAP® will allow the tap to pull itself into the work piece exactly on the pitch of the tap. This insures that the threads will gage properly.



Torque Control

A tap in one revolution must advance the pitch. If the tap is at the bottom of the hole or chip build-up blocks the hole and an effort is made to rotate the tool, catastrophic failure will result. The tool will break because there is no room to advance. To prevent this problem when tapping blind holes, select NUMERTAP® units 80 and 700, featuring torque control. Torque control tapping heads feature tension and compression strokes and perform best when programmed to underfeed. Refer to programming information in the back of this section.

Radial Float

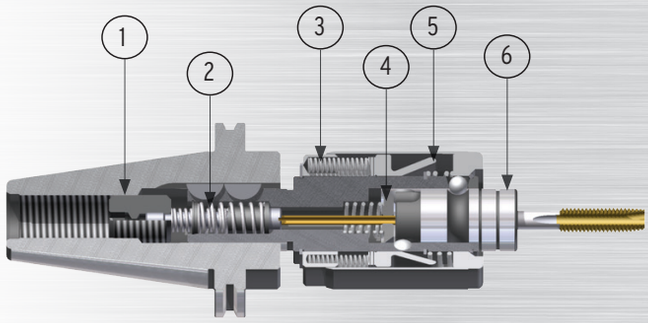
Radial Float allows for misalignment between the machine spindle and the hole to be tapped. It also allows the tap to follow a drilled hole, reducing tap flank rub. This is included with all Parlec tapping heads.

Tension Only (Synchronous & Depth Control)

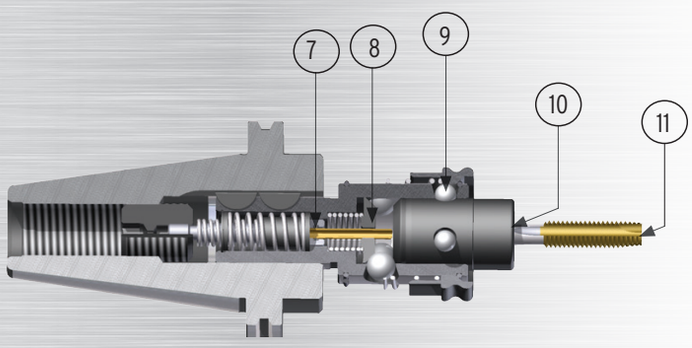
The NUMERTAP®, 100, 200, 300, and 770 units can be purchased as tension only units. (TT). Tension only is the best solution for synchronous tapping. The tension stroke will not affect the cycle during its normal operation but will add a safety margin for tap elongation or spindle over-rotation. In a normal tapping cycle, tension only will improve thread depth control by creating a positive start system.

Axial Compression

The compression stroke cushions the tap as it enters the work piece. This feature also allows holes to be retapped. This is particularly helpful when setting up a job. The compression stroke is adjustable from .000" to .250" to maximize depth control. Refer to next page.



Numertap C50-70TA5, Torque controlled, non-coolant



Numertap C50-77TA4C, Positive Drive, Coolant-Fed

1 Adjustable Length Compensation
Available on all 700/770 and Bilz-style tapping attachments with machine tapers.

2 Tension & Compression
Tap position returns +/- .001 after each cycle. Standard with all tapping attachments. Also available as tension only or rigid for synchronous tapping.

3 Torque Spring
Torque is controlled by spring pressure. This is standard on 80 and 700 units.

4 Torque Drive Ball
Standard on 80 and 700 torque controlled systems. Scallop size on the adapter pre-calibrates torque setting.

5 Torque Sleeve
Automatically controls the amount of torque transmitted to the adapter. Makes torque adjustments unnecessary.

6 Tap Adapter, Non-Coolant
Available for all standard tap sizes. Square drive ensures positive tap drive.

7 Coolant Feed Tube
Feeds coolant directly to the tap. Keeps coolant from contaminating the attachment's internal components. Restrictor allows for up to 800 PSI.

8 Seals in Coolant Fed Adapters
Keeps coolant from back feeding into attachments

9 Retention Ball
Retains adapter in the attachment while maintaining quick release during changeover. Acts as drive ball for positive drive adapters.

10 Coolant Groove
Feeds coolant along the tap shank. Reduces the need for expensive coolant through taps.

11 Coolant-Through
Feed from coolant through taps.

QUOTATION REQUEST SHEET

Contact Information

For quick response, just photocopy this page, complete all information (please include Part Print where appropriate) and simply EMAIL back to Parlec at sales@parlec.com or FAX at 1-844-269-8819

Company _____ Distributor _____

Contact Name _____ Title _____

Business Address _____ City _____ State _____ Zip _____

Phone _____ Fax _____ Email _____

TAPPING SPECIFICATIONS

Machine Taper _____

Tap Shank:

☐ ANSI (US Inch) ☐ DIN 371 ☐ DIN 376

Shank Diameter _____ Shank Square _____

Tap Size Range: _____ To _____

Tap Cycle Preference:

☐ Traditional ☐ Synchronous

Extended Reach:

☐ None ☐ 3 Inch ☐ 6 Inch

Thread Size _____

Shank Diameter _____ Shank Square _____

Coolant Preference:

☐ None ☐ Thru Tap ☐ Coolant Groove

Machine Coolant Pressure _____

Collet Style:

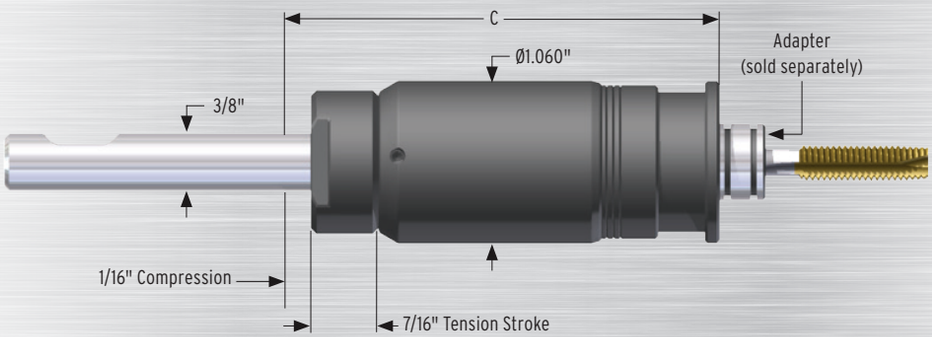
☐ Tap Collet (Square) ☐ Universal

		ANSI SIZE							
Shank	Square	Inch	NPT	STI	ANSI Metric	Metric (ISO, JIS, DIN)	ERT Tap Collets	Collets	ER11 Collets
.098	.083	–	–	–	–	M1 - M1.8 (D371), M3.5 (D376)	–	ERXX-0118	ER11-0118
.110	.083	–	–	–	–	M2 - M2.6 (D371), M4 (D376)	–	ERXX-0118	ER11-0118
.138	.106	–	–	–	–	M3 (D371), M4.5-M5 (D376)	ERTDXX-3527	ERXX-0157	ER11-0157
.141	.110	#0, #1, #2,#3, #4, #5, #6		#4	–	M1.6, M1.8, M2, M2.2, M2.5, M3, M3.15, M3.5	–	ERXX-0157	ER11-0157
.157	.118	–	–	–	–	M3.5 (DIN 371)	–	ERXX-0196	ER11-0177
.157	.126	–	–	–	–	M3 - M3.5 (JIS)	–	ERXX-0196	ER11-0177
.168	.131	#8	–	–	M4	–	ERTXX-#8	ERXX-0196	ER11-0177
.177	.134	–	–	–	–	M4(D371), M6(D376)	ERTDXX-4534	ERXX-0196	ER11-0196
.194	.152	#10	–	#6	M4.5, M5	–	ERTXX-#10	ERXX-0196	ER11-0196
.197	.157	–	–	–	–	M4-M4.5 (JIS)	–	ERXX-0236	ER11-0216
.217	.169	–	–	–	–	M7 (DIN 376)	–	ERXX-0236	ER11-0216
.217	.177	–	–	–	–	M5 - M5.5 (JIS)	–	ERXX-0236	ER11-0236
.220	.165	#12	–	#8	–	–	ERTXX-#12	ERXX-0236	ER11-0236
.236	.177	–	–	–	–	M6 (JIS)	–	ERXX-0236	ER11-0255
.236	.193	–	–	–	–	M4.5 - M6 (D371), M8 (D376)	ERTDXX-6049	ERXX-0236	ER11-0255
.244	.197	–	–	–	–	M7-M8 (JIS)	–	ERXX-0275	ER11-0255
.255	.191	#14, 1/4	–	#10	M6, M6.3	–	ERTXX-025	ERXX-0275	ER11-0275
.276	.217	–	–	–	–	M7 (D371), M9 - M10 (D376, JIS)	ERTDXX-7055	ERXX-0315	ER11-0275
.312	.234	–	1/16 - 27 1/8 - 27 - Small	–	–	–	–	ERXX-0315	–
.315	.236	–	–	–	–	M11 (JIS)	–	ERXX-0315	–
.315	.244	–	–	–	–	M8 (D371), M11 (D376)	ERTDXX-8062	ERXX-0315	–
.318	.238	5/16	–	1/4	M7, M8	–	ERTXX-031	ERXX-0354	–
.323	.242	7/16	–	–	–	–	ERTXX-043	ERXX-0354	–
.335	.256	–	–	–	–	M12 (JIS)	–	ERXX-0354	–
.354	.276	–	–	–	–	M9 (D371), M12 (D376)	ERTDXX-9070	ERXX-0354	–
.367	.275	1/2	–	3/8	M12, M12.5	–	ERTXX-050	ERXX-0393	–
.381	.286	3/8	–	5/16	M10	–	ERTXX-037	ERXX-0393	–
.393	.315	–	–	–	–	M12 (JIS), M10 (D371)	ERTDXX-1080	ERXX-0393	–
.413	.315	–	–	–	–	M14 - M15 (JIS)	–	ERXX-0433	–
.429	.322	9/16	–	7/16	M14	–	ERTXX-056	ERXX-0433	–
.433	.354	–	–	–	–	M14 (DIN 376)	–	ERXX-0433	–
.437	.328	–	1/8 - 27 - Large	–	–	–	ERTXX-012N	ERXX-0472	–
.472	.354	–	–	–	–	M16 (DIN 376)	ERTDXX-1290	ERXX-0472	–
.480	.360	5/8	–	1/2	M16	–	ERTXX-062	ERXX-0511	–
.492	.394	–	–	–	–	M16 (JIS)	–	ERXX-0511	–
.507	.380	–	–	–	–	–	–	ERXX-0511	–

Other sizes available upon request. Please call Parlec or your local Parlec representative for more information.

		ANSI SIZE					
Shank	Square	Inch	NPT	ANSI Metric	Metric	ERT Collets	ER16 - ER40 Collets
0.512	0.394	-	-	-	M17 (JIS)	-	ERXX-0551
0.542	0.406	11/16	-	M18	-	ERTXX-068	ERXX-0551
0.551	0.433	-	-	-	M18 (JIS, D376)	ERTDXX-1411	ERXX-0551
0.562	0.421	-	1/4 - 18	-	-	ERTXX-025N	ERXX-0590
0.590	0.442	3/4	-	-	-	ERTXX-075	ERXX-0590
0.591	0.472	-	-	-	M20 (JIS)	-	ERXX-0630
0.630	0.472	-	-	-	M20 (DIN 376)	ERTDXX-1612	ERXX-0630
0.652	0.489	13/16	-	M20	-	ERTXX-081	ERXX-0669
0.669	0.512	-	-	-	M22 (JIS)	-	ERXX-0669
0.687	0.515	-	1/2 - 14	-	-	ERTXX-050N	ERXX-0708
0.697	0.523	7/8	-	M22	-	ERTXX-087	ERXX-0708
0.700	0.531	-	3/8 - 18	-	-	ERTXX-037N	ERXX-0708
0.709	0.571	-	-	-	M22 - M24 (D376)	ERTDXX-1814	ERXX-0708
0.760	0.570	15/16	-	M24	-	ERTXX-093	ERXX-0787
0.787	0.591	-	-	-	M24 - M25 (JIS)		ERXX-0787
0.787	0.630	-	-	-	M27 (DIN 376)	ERTDXX-2016	ERXX-0787
0.800	0.600	1	-	M25	-	ERTXX-100	ERXX-0826
0.866	0.709	-	-	-	M30 (DIN 376)	ERTDXX-2218	ERXX-0866
0.896	0.672	1 1/16, 1 1/8	-	M27	-	-	ERXX-0905
0.906	0.669	-	-	-	M30 (JIS)	-	ERXX-0944
0.906	0.679	-	3/4 - 14	-	-	-	ERXX-0944
0.984	0.748	-	-	-	M33 (JIS)	-	ERXX-0984
0.984	0.787	-	-	-	M33 (DIN 376)	ERTDXX-2520	ERXX-0984
1.021	0.766	1 3/16, 1 1/4	-	M30	-	-	ERXX-1023
1.102	0.866	-	-	-	M36 (DIN 376)	-	ERXX-1063
1.108	0.831	1 5/16, 1 3/8	-	M33	-	-	ERXX-1102
1.125	0.843	-	1 - 11 1/2	-	-	-	ERXX-1141
1.233	0.925	1 7/16, 1 1/2	-	M36	-	-	-
1.260	0.945	-	-	-	M39 - M42 (DIN 376)	-	-
1.305	0.979	1 5/8	-	M39	-	-	-
1.312	0.984	-	1 1/4 - 11 1/2	-	-	-	-
1.417	1.142	-	-	-	M45 - M48 (DIN 376)	-	-
1.430	1.072	1 3/4	-	M42	-	-	-
1.500	1.125	-	1 1/2 -11 1/2	-	-	-	-
1.519	1.139	1 7/8	-	-	-	-	-
1.575	1.260	-	-	-	M52 (DIN 376)	-	-
1.644	1.233	2	-	M48	-	-	-
1.875	1.406	-	2 - 11 1/2	-	-	-	-
1.894	1.420	2 /	-	M56	-	-	-
2.250	1.687	-	2 1/2 - 8	-	-	-	-

Other sizes available upon request. Please call Parlec or your local Parlec representative for more information.



TORQUE-CONTROLLED TAPPING

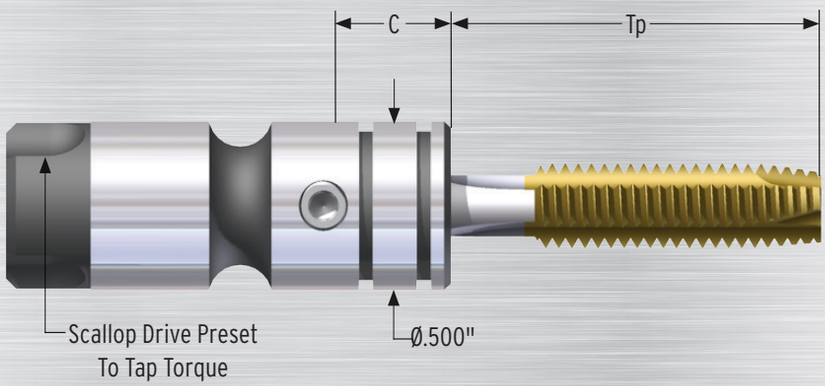
FROM #4 - 1/4" (0-80 IN./LBS.)

- Very sensitive, calibrated torque control prevents tap breakage when bottom tapping.
- Short compression stroke allows holes to be retapped and ensures depth control.
- Rugged alloy steel construction for long trouble-free service life.
- Free-floating ball bearing tension stroke ensures thread size and quality.
- Small outside diameter allows tapping near shoulders without tap extensions.
- Short gage length provides more clearance on vertical machines.
- Quick-change system allows dull taps to be replaced without removing unit from the spindle.
- Radial float improves thread quality and tap life.

Part Number	Shank	C	Approximate Weight
S37-80TA3	3/8 Straight	3.00	9 oz.

Special adapters available to #00. Order adapters separately.

TORQUE-CONTROLLED FOR BOTTOM TAPPING, TENSION AND COMPRESSION ON CNC MACHINES.



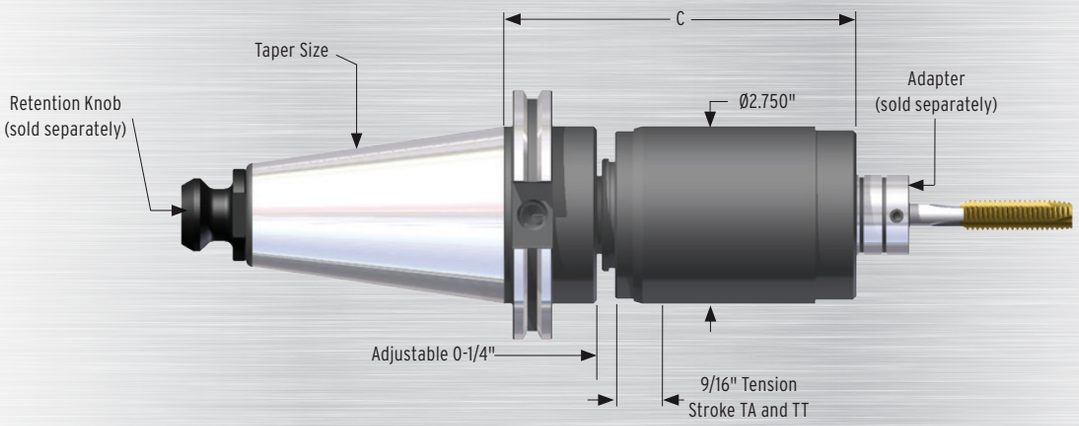
TAP ADAPTERS

- For use in NUMERTAP® 80 Attachments.

Part Number	Tap Size	C	Tp	Metric Tap Size (ANSI)
8401-#4	#4	0.38	0.87	M2.5
8401-#6	#6	0.38	1.00	M3.5
8401-#8	#8	0.38	1.00	M4
8401-#10	#10	0.38	1.18	M5
8401-#12	#12	0.38	1.16	-
8401-025	1/4	0.38	1.25	M6

Other sizes available upon request. Please call Parlec or your local Parlec representative for more information.

Numertap® 700



TORQUE-CONTROLLED TAPPING
FROM #6 - 3/4" FERROUS MATERIAL AND #6 - 1" NON-FERROUS MATERIAL

- Large work range eliminates the need to purchase several units.
- Radial float improves thread quality and tap life.
- Precalibrated torque control prevents tap breakage when bottom tapping.
- Free-floating tension stroke ensures thread size and quality.
- Adjustable compression stroke ensures depth control.
- Rugged alloy steel construction for long trouble-free service life.
- Through-spindle coolant option available gets coolant into the hole and flushes chips.
- Quick-change system allows taps to be quickly exchanged.

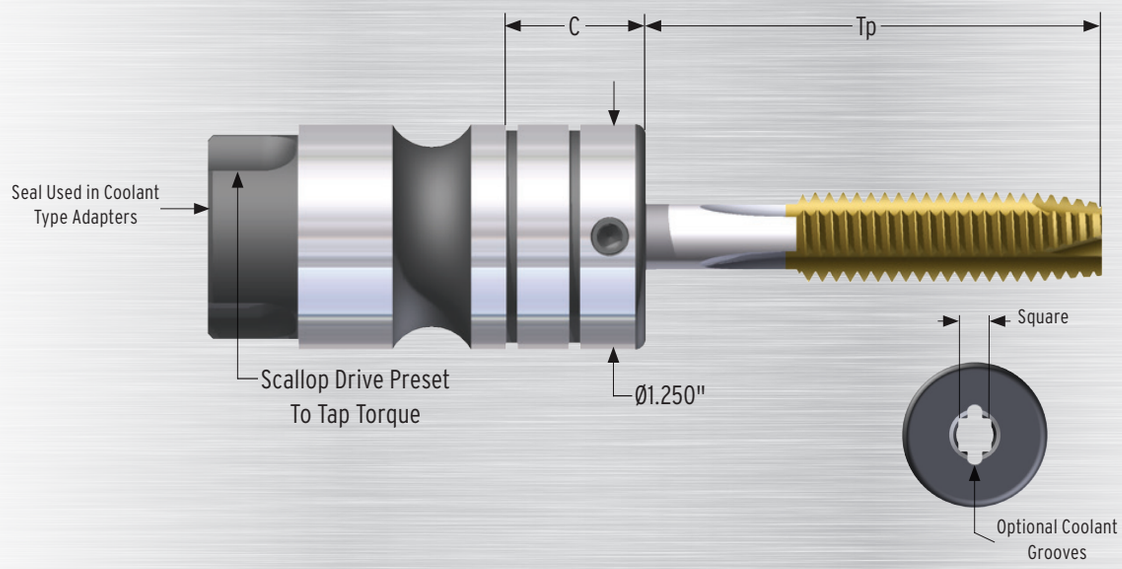
Part Number	Part Number with Coolant Fed	Shank	C	Approx. Weight
B40-70TA5	-	BT40	5.90	7 lbs.
	C40-70TA5C	C40	6.28	7 lbs.
	C50-70TA5C	C50	5.46	11 lbs.

Other sizes available upon request. Coolant-through for up to 250 lbs. of pressure.

CAPACITY

Ferrous	Non-Ferrous	Positive Drive Capacity
#10 - 3/4	#10 - 1	#6 - 1 5/8
1/1 - 1/2 NPT	1/16 - 1/2 NPT	1/16 -1 1/4 NPT
M5 - M20	M5 - M25	M3.5 - M33

TORQUE-CONTROLLED FOR BOTTOM TAPPING, TENSION AND COMPRESSION ON CNC MACHINES.



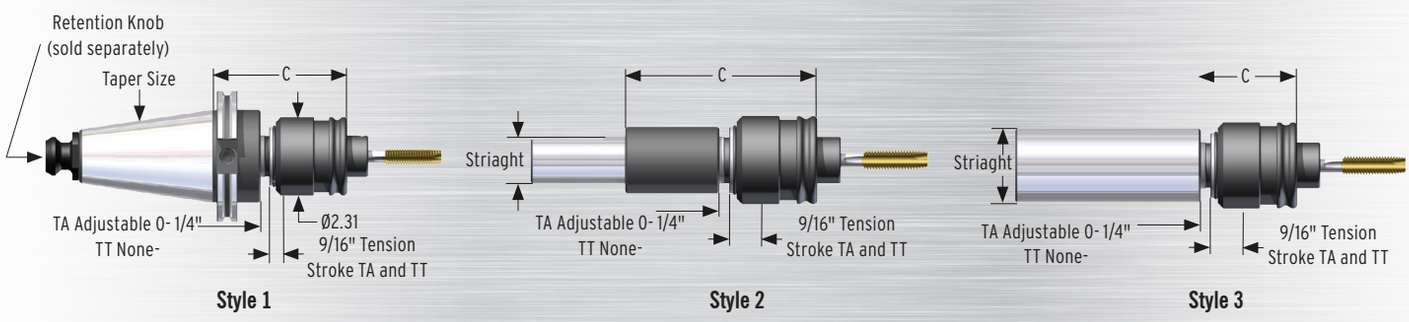
TAP ADAPTERS

- For use in NUMERTAP® 700 attachments
- Coolant Groove adapters must be used when coolant is fed through Numertap® attachments
- For coolant through taps order 7711C-xxx adapters

Part Number	Coolant Groove	Tap Size*	Metric Tap Size (ANSI)	Tp	Shank	Square
7711-#6	7711CG-#6	#6	M3.5	0.94	0.141	0.110
7711-#8	7711CG-#8	#8	M4	1.00	0.168	0.131
7711-#10	7711CG-#10	#10	M5	1.37	0.194	0.152
7711-#12	7711CG-#12	#12	-	1.34	0.220	0.155
7711-025	7711CG-025	1/4	M6	1.44	0.255	0.191
7711-031	7711CG-031	5/16	M7, M8	1.59	0.318	0.238
7711-037	7711CG-037	3/8	M10	1.75	0.381	0.286
7711-043	7711CG-043	7/16	-	2.00	0.323	0.242
7711-050	7711CG-050	1/2	M12	2.19	0.367	0.275
7711-056	7711CG-056	9/16	M14	2.34	0.429	0.322
7711-062	7711CG-062	5/8	M16	2.50	0.480	0.360
7711-068	7711CG-068	11/16	M18	2.41	0.542	0.406
7711-075	7711CG-075	3/4	-	2.56	0.590	0.442
7711-081	7711CG-081	13/16	M20	2.53	0.652	0.489
7711-087	7711CG-087	7/8	M22	2.79	0.697	0.523
7711-093	7711CG-093	15/16	M24	3.01	0.760	0.570
7711-100	7711CG-100	1	M25	3.15	0.800	0.600
7714-006	7714CG-006	1/16 NPT (1/8 NPT)	-	1.00	0.312	0.234
7714-012	7714CG-012	1/8 NPT	-	1.00	0.437	0.328
7714-025	7714CG-025	1/4 NPT	-	1.25	0.562	0.421
7714-037	7714CG-037	3/8 NPT	-	1.31	0.700	0.531
7714-050	7714CG-050	1/2 NPT	-	1.50	0.687	0.515

Other sizes available upon request. Please call Parlec or your local Parlec representative for more information. *For DIN, ISO, or JIS Metric Shanks. Each adapter is calibrated for approximately 80% of the tap breakage torque for most standard hand, plug, or bottom taps. Coolant through adapters available upon request.

Numertap® 770



TENSION/COMPRESSION TAPPING

FROM #6 - 1 5/8" HAND AND 1/16 - 1 1/4" PIPE

- Large work range eliminates the need to purchase multiple units.
- Short projection maximizes work piece size.
- Adjustable compression stroke ensures accurate depth control.
- Free-floating tension stroke ensures thread size and quality.
- Through-spindle coolant option gets coolant into the hole and flushes chips.
- Rugged alloy steel construction for long trouble-free service life.
- Radial float improves thread quality and tap life.

CAPACITY

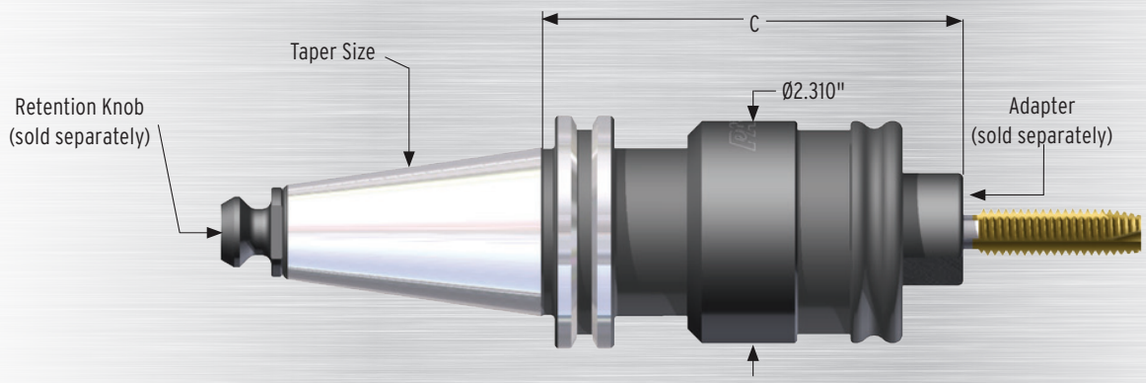
Synchr/Tens & Comp
#6 - 1 5/8 Hand
M3.5 - M36
1/16 - 1 1/4 NPT

Part Number	Coolant Through	C	Shank Type	Style	Approximate Weight
B40-77TA4	B40-77TA4C	4.99	BT40	1	5 lbs.
C40-77TA4	C40-77TA4C	4.85	CV40	1	5 lbs.
C50-77TA4	C50-77TA4C	4.04	CV50	1	9 lbs.
PC6-77TA5	PC6-77TA5C	5.16	PC6	-	5 lbs.
S10-77TA5	S10-77TA5C	5.25	1 Straight	2	4 lbs.
S12-77TA5	S12-77TA5C	5.25	1 1/4 Straight	2	4 lbs.
S15-77TA5	S15-77TA5C	5.25	1 1/2 Straight	2	4 lbs.
S20-77TA2	S20-77TA2C	2.75	2 Straight	3	4 lbs.

Other sizes available upon request. From B (Flange Entry) coolant available upon request. Coolant-through for up to 250 lbs. of pressure.

TENSION & COMPRESSION, POSITIVE DRIVE, FOR THROUGH-HOLE TAPPING ON CNC MACHINES, WITH TRADITIONAL TAPPING CYCLES.

Numertap® 770



SYNCHRONOUS (RIGID) TAPPING

FROM #6 - 1 5/8" HAND AND 1/16 - 1 1/4" PIPE

- Tension only (TT) allows synchronous tapping on machines so equipped.
- Quick-change tap adapters ensures quick, easy tap changeover.
- Radial float allows tap to follow the hole.
- Large work range maximizes work piece size and eliminates need to purchase multiple units.
- Short projection.
- Through-spindle coolant option gets coolant into the hole and flushes chips.
- Rugged alloy steel construction for long trouble-free service life.

TENSION-ONLY TAPPING

Part Number	Coolant Through	C	Shank Type	Approximate Weight
B40-77TT4	B40-77TT4C	4.99	BT40	5 lbs.
C40-77TT4	C40-77TT4C	4.85	CV40	5 lbs.
C50-77TT4	C50-77TT4C	4.04	CV50	9 lbs.
PC6-77TT5	PC6-77TT5C	5.16	PC6	5 lbs.
S10-77TT5	S10-77TT5C	5.25	1 Straight	4 lbs.
S20-77TT2	S20-77TT2C	2.75	2 Straight	4 lbs.

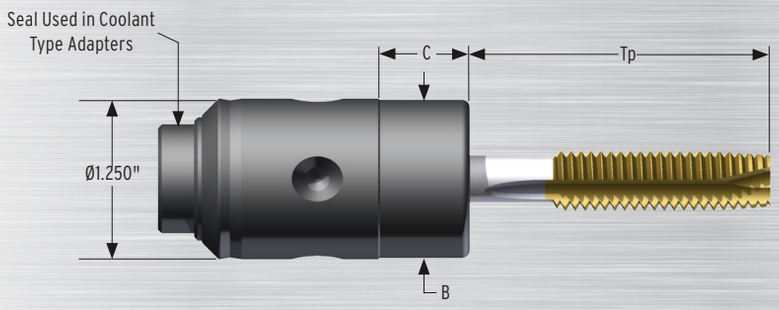
Other sizes available upon request. Coolant-through for up to 250 lbs. of pressure.

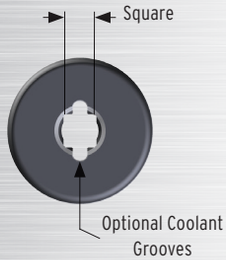
RIGID TAPPING

Part Number	Coolant Through	C	Shank Type	Approximate Weight
B40-77TR4	B40-77TR4C	3.75	BT40	5 lbs.
C40-77TR4	C40-77TR4C	3.75	CV40	5 lbs.
C50-77TR4	C50-77TR4C	3.75	CV50	9 lbs.
PC6-77FS5	PC6-77FS5C	5.16	PC6	5 lbs.
S10-77FS5	S10-77FS5C	5.25	1 Straight	4 lbs.
S20-77FS2	-	2.75	2 Straight	4 lbs.

Other sizes available upon request. Coolant-through for up to 250 lbs. of pressure.

SYNCHRONOUS AND BLIND HOLE TAPPING ON CNC MACHINES. SYNCHRONOUS RIGID TAPPING ON MACHINES WITH 32 BIT MICROPROCESSORS





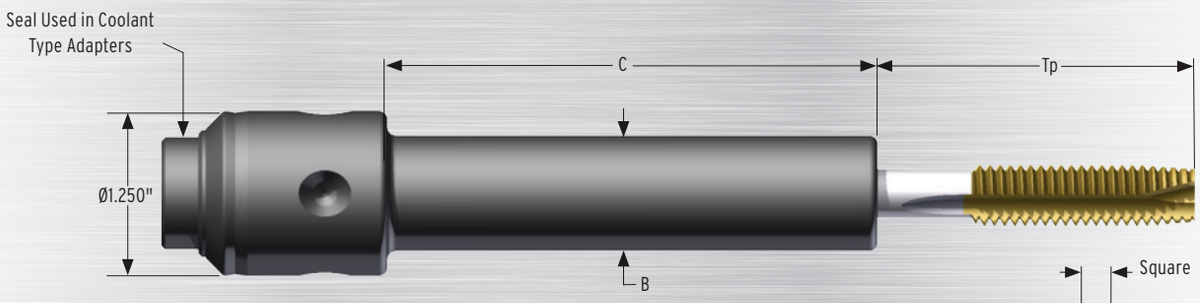
770 TAP ADAPTERS

- Positive-drive, standard short length for use in NUMERTAP® 770 attachments
- Coolant groove or coolant through adapters must be used when coolant is fed through NUMERTAP® attachments

Part Number	Coolant Groove	Tap Size	Metric Tap Size (ANSI*)	B	C	Tp	Shank	Square
7716-#6	7716CG-#6	#6	M3.5	1.25	0.70	1.19	0.141	0.110
7716-#8	7716CG-#8	#8	M4	1.25	0.70	1.27	0.168	0.131
7716-#10	7716CG-#10	#10	M5	1.25	0.70	1.51	0.194	0.152
7716-#12	7716CG-#12	#12	-	1.25	0.70	1.51	0.220	0.165
7716-025	7716CG-025	1/4	M6	1.25	0.70	1.63	0.255	0.191
7716-031	7716CG-031	5/16	M7,M8	1.25	0.70	1.79	0.318	0.238
7716-037	7716CG-037	3/8	M10	1.25	0.70	2.00	0.381	0.286
7716-043	7716CG-043	7/16	-	1.25	0.70	2.06	0.323	0.242
7716-050	7716CG-050	1/2	M12	1.25	0.70	2.23	0.367	0.275
7716-056	7716CG-056	9/16	M14	1.25	0.70	2.40	0.429	0.322
7716-062	7716CG-062	5/8	M16	1.25	0.70	2.03	0.480	0.360
7716-068	7716CG-068	11/16	M18	1.61	2.25	2.17	0.542	0.406
7716-075	7716CG-075	3/4	-	1.61	2.25	2.32	0.590	0.442
7716-081	7716CG-081	13/16	M20	1.61	2.25	2.52	0.652	0.489
7716-087	7716CG-087	7/8	M22	1.61	2.25	2.71	0.697	0.523
7716-093	7716CG-093	15/16	M24	1.61	2.25	2.60	0.760	0.570
7716-100	7716CG-100	1	M25	1.61	2.25	3.05	0.800	0.600
7716-106	7716CG-106	1 1/16 & 11/8	M27	1.61	2.25	2.99/3.30	0.896	0.672
7716-118	7716CG-118	1 3/16 & 1 1/4	M30	1.61	2.25	2.56/2.88	1.021	0.766
7716-131	7716CG-131	1 5/16 & 1 3/8	M33	1.98	2.25	2.84/3.16	1.108	0.831
7716-144	7716CG-144	1 7/16 & 1 1/2	-	1.98	2.25	4.06/4.37	1.233	0.925
7716-162	7716CG-162	1 5/8	-	1.98	2.25	4.67	1.305	0.979
7717-006	7717CG-006	1/16 NPT - 1/8 NPT	-	1.25	0.70	1.06	0.312	0.234
7717-012	7717CG-012	1/8 NPT	-	1.25	0.70	1.06	0.437	0.328
7717-025	7717CG-025	1/4 NPT	-	1.25	0.70	1.18	0.562	0.421
7717-037	7717CG-037	3/8 NPT	-	1.25	0.70	1.06	0.700	0.531
7717-050	7717CG-050	1/2 NPT	-	1.61	2.25	1.53	0.687	0.515
7717-075	7717CG-075	3/4 NPT	-	1.61	2.25	1.64	0.906	0.679
7717-100	7717CG-100	1 NPT	-	1.61	2.25	1.93	1.125	0.843
7717-125	7717CG-125	1 1/4 NPT	-	1.98	2.25	2.00	1.312	0.984

Coolant through adapters available upon request

*For DIN, ISO, or JIS Metric Shanks available upon request.



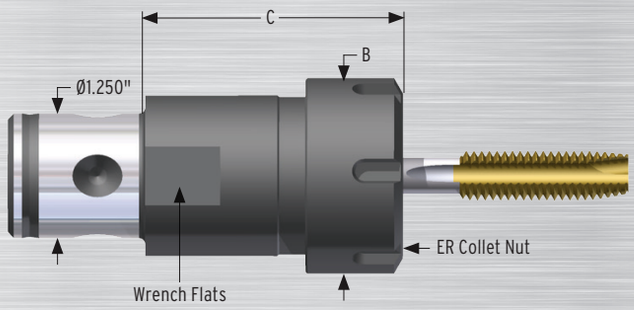
770 EXTENDED LENGTH TAP ADAPTERS

- Positive-drive, extended length for use in NUMERTAP® 770 attachments
- Coolant groove or coolant through adapters must be used when coolant is fed through NUMERTAP® attachments

C=3.70 (3" Extended)		C=6.70 (6" Extended)							
Part Number	Coolant Groove	Part Number	Coolant Groove	Tap Size	(ANSI*)	B	Tp	Shank	Square
7716-3-#6	7716CG-3-#6	7716-6-#6	7716CG-6-#6	#6	M3.5	0.75	1.06	0.141	0.110
7716-3-#8	7716CG-3-#8	7716-6-#8	7716CG-6-#8	#8	M4	0.75	1.13	0.168	0.131
7716-3-#10	7716CG-3-#10	7716-6-#10	7716CG-6-#10	#10	M5	0.75	1.38	0.194	0.152
7716-3-#12	7716CG-3-#12	7716-6-#12	7716CG-6-#12	#12	-	0.75	1.34	0.220	0.165
7716-3-025	7716CG-3-025	7716-6-025	7716CG-6-025	1/4	M6	0.75	1.44	0.255	0.191
7716-3-031	7716CG-3-031	7716-6-031	7716CG-6-031	5/16	M7,M8	0.75	1.59	0.318	0.238
7716-3-037	7716CG-3-037	7716-6-037	7716CG-6-037	3/8	M10	0.88	1.75	0.381	0.286
7716-3-043	7716CG-3-043	7716-6-043	7716CG-6-043	7/16	-	0.88	2.00	0.323	0.242
7716-3-050	7716CG-3-050	7716-6-050	7716CG-6-050	1/2	M12	0.88	2.19	0.367	0.275
7716-3-056	7716CG-3-056	7716-6-056	7716CG-6-056	9/16	M14	1.00	2.35	0.429	0.322
7716-3-062	7716CG-3-062	7716-6-062	7716CG-6-062	5/8	M16	1.00	2.50	0.480	0.360
7716-3-068	7716CG-3-068	7716-6-068	7716CG-6-068	11/16	M18	1.25	2.40	0.542	0.406
7716-3-075	7716CG-3-075	7716-6-075	7716CG-6-075	3/4	-	1.25	2.56	0.590	0.442
7716-3-081	7716CG-3-081	7716-6-081	7716CG-6-081	13/16	M20	1.25	2.53	0.652	0.489
7716-3-087	7716CG-3-087	7716-6-087	7716CG-6-087	7/8	M22	1.25	2.68	0.697	0.523
7716-3-093	7716CG-3-093	7716-6-093	7716CG-6-093	15/16	M24	1.50	2.90	0.760	0.570
7716-3-100	7716CG-3-100	7716-6-100	7716CG-6-100	1	M25	1.50	2.81	0.800	0.600
7716-3-106	7716CG-3-106	7716-6-106	7716CG-6-106	1 1/16 & 1 1/8	M27	1.61	2.75/3.06	0.896	0.672
7716-3-118	7716CG-3-118	7716-6-118	7716CG-6-118	1 3/16 & 1 1/4	M30	1.61	2.94/3.25	1.021	0.766
7716-3-131	7716CG-3-131	7716-6-131	7716CG-6-131	1 5/16 & 1 3/8	M33	1.61	3.19/3.50	1.108	0.831
7716-3-144	7716CG-3-144	7716-6-144	7716CG-6-144	1 7/16 & 1 1/2	-	1.98	3.44/3.75	1.233	0.925
7716-3-162	7716CG-3-162	7716-6-162	7716CG-6-162	1 5/8	-	1.98	4.06	1.305	0.979
7717-3-006	7717CG-3-006	7717-6-006	7717CG-6-006	1/16 NPT & 1/8 NPT	-	1.00	1.00	0.312	0.234
7717-3-012	7717CG-3-012	7717-6-012	7717CG-6-012	1/8 NPT	-	1.00	1.00	0.437	0.328
7717-3-025	7717CG-3-025	7717-6-025	7717CG-6-025	1/4 NPT	-	1.00	1.25	0.562	0.421
7717-3-037	7717CG-3-037	7717-6-037	7717CG-6-037	3/8 NPT	-	1.25	1.31	0.700	0.531
7717-3-050	7717CG-3-050	7717-6-050	7717CG-6-050	1/2 NPT	-	1.25	1.50	0.687	0.515
7717-3-075	7717CG-3-075	7717-6-075	7717CG-6-075	3/4 NPT	-	1.61	1.44	0.906	0.679
7717-3-100	7717CG-3-100	7717-6-100	7717CG-6-100	1 NPT	-	1.61	1.88	1.125	0.843
7717-3-125	7717CG-3-125	7717-6-125	7717CG-6-125	1 1/4 NPT	-	1.98	1.81	1.312	0.984

Coolant through adapters available upon request

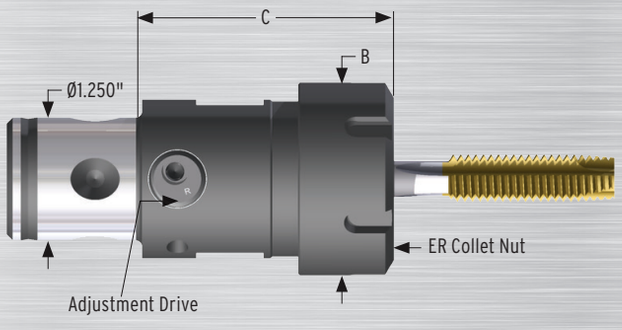
*For DIN, ISO, or JIS Metric Shanks available upon request.



ER COLLET TAP ADAPTERS

- For use in with Square Drive Collets

Part Number	Part Number with Coolant	Collet Size	Tap Size Range	B	C	Collet Nut Wrench
7716-ER16	7716C-ER16	16	#8 - 1/4	1.26	1.54	ECN20W
7716-ER20	7716C-ER20	20	#8 - 1/2	1.38	1.58	20ERHNW
7716-ER25	7716C-ER25	25	#8 - 5/8	1.65	1.50	25ERNW
7716-ER32	7716C-ER32	32	#8 - 13/16	1.97	2.34	32ERNW
7716-ER40	7716C-ER40	40	1/4 - 1	2.48	2.34	40ERNW

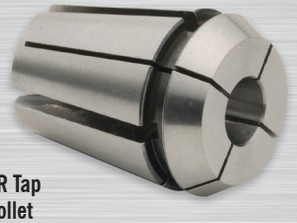


UNIVERSAL ER COLLET TAP ADAPTERS

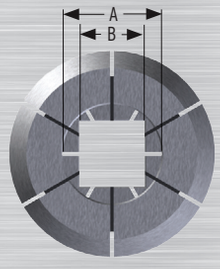
- For use in all tapping cycles on DIN, ISO, Japanese or ANSI (inch and metric) tap shanks.
- Provides flexibility for any tap shank size.
- Adjustable drive plug for any square size in the tap range. Use standard ER Collets, refer to tapsize chart, pages 74-86

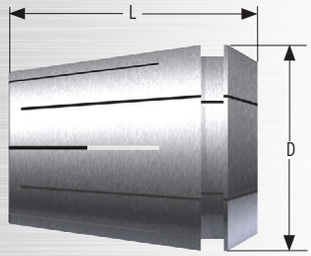
Part Number	Part Number with Coolant	Collet Size Range	Tap Size	B	C	Collet Nut Wrench	Open End
7716-ER16U	7716-ER16UC	16	#6 - 3/8	1.26	1.71	ECN20W	ECN20W
7716-ER20U	7716-ER20UC	20	#10 - 5/8	1.38	1.93	20ERHNW	ECN20W
7716-ER32U	7716-ER32UC	32	9/16 - 15/16	1.97	2.43	32ERNW	180CNW
7716-ER40U	7716-ER40UC	40	1.0 - 1.375	2.48	3.54	40ERNW	180CNW

ER TAP COLLETS



ER Tap Collet





ER 16 INCH/METRIC

Part Number	Inch Size	ANSI Metric
ERT16-#0-6	#0-#6	-
ERT16-#8	#8	M4
ERT16-#10	#10	M4.5, M5
ERT16-#12	#12	-
ERT16-025	1/4"	M6,M6.5
ERT16-031	5/16"	M7, M8
ERT16-037	3/8"	M10
ERT16-043	7/16"	-
ERT16-050	1/2"	M12,M12.5

ER 16 INCH/METRIC SET

PART NUMBER	ERT16-S009
NUMBER OF PIECES	9 PIECES
RANGE	#0-1/2"

ER 20 INCH/METRIC

ERT20-#8	#8	M4
ERT20-#10	#10	M4.5, M5
ERT20-#12	#12	-
ERT20-025	1/4"	M6,M6.5
ERT20-031	5/16"	M7, M8
ERT20-037	3/8"	M10
ERT20-043	7/16"	-
ERT20-050	1/2"	M12,M12.5

ER 20 INCH/METRIC SET

PART NUMBER	ERT20-S008
NUMBER OF PIECES	8 PIECES
RANGE	#8-1/2"

ER 25 INCH/METRIC

ERT25-#8	#8	M4
ERT25-#10	#10	M4.5, M5
ERT25-#12	#12	-
ERT25-012N	1/8" NPT	-

ER 25 INCH/METRIC

Part Number	Inch Size	ANSI Metric
ERT25-025	1/4"	M6,M6.5
ERT25-031	5/16"	M7, M8
ERT25-037	3/8"	M10
ERT25-043	7/16"	-
ERT25-050	1/2"	M12,M12.5
ERT25-056	9/16"	M14
ERT25-062	5/8"	M16

ER 25 INCH/METRIC SET

PART NUMBER	ERT25-S011
NUMBER OF PIECES	11 PIECES
RANGE	#8-5/8"

ER 32 INCH/METRIC

ERT32-#0-6	#0-#6	-
ERT32-#8	#8	M4
ERT32-#10	#10	M4.5, M5
ERT32-#12	#12	-
ERT32-012N	1/8" NPT	-
ERT32-025	1/4"	M6,M6.5
ERT32-025N	1/4" NPT	-
ERT32-031	5/16"	M7, M8
ERT32-037	3/8"	M10
ERT32-043	7/16"	-
ERT32-050	1/2"	M12,M12.5
ERT32-056	9/16"	M14
ERT32-062	5/8"	M16
ERT32-068	11/16"	M18
ERT32-075	3/4"	-
ERT32-081	13/16"	M20

ER 32 INCH/METRIC SET

PART NUMBER	ERT32-S016
NUMBER OF PIECES	16 PIECES
RANGE	#6-13/16"

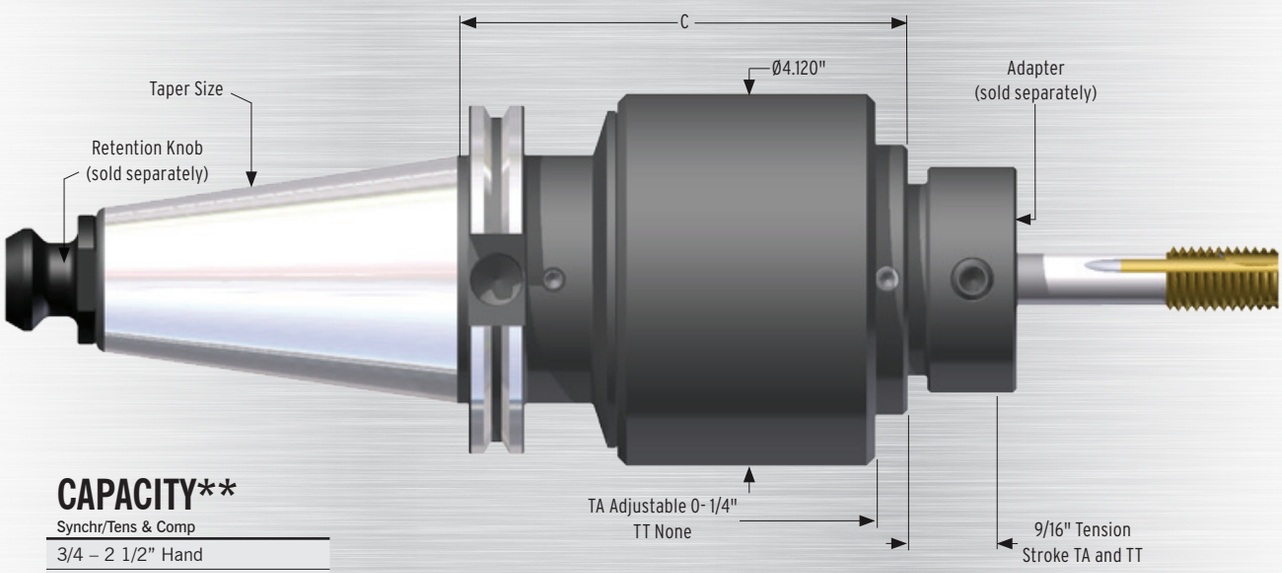
ER 40 INCH/METRIC

Part Number	Inch Size	ANSI Metric
ERT40-012N	1/8" NPT	-
ERT40-025	1/4"	M6,M6.5
ERT40-025N	1/4" NPT	-
ERT40-031	5/16"	M7, M8
ERT40-037	3/8"	M10
ERT40-037N	3/8" NPT	-
ERT40-043	7/16"	-
ERT40-050	1/2"	M12,M12.5
ERT40-050N	1/2" NPT	-
ERT40-056	9/16"	M14
ERT40-062	5/8"	M16
ERT40-068	11/16"	M18
ERT40-075	3/4"	-
ERT40-081	13/16"	M20
ERT40-087	7/8"	M22
ERT40-093	15/16"	M24
ERT40-100	1"	M25

ER 40 INCH/METRIC SET

PART NUMBER	ERT40-S017
NUMBER OF PIECES	17 PIECES
RANGE	1/4" - 1"

Numertap® 6000



CAPACITY**

Synchr/Tens & Comp
3/4 – 2 1/2" Hand
1/2 – 2" PIPE
M19 – M56

TENSION & COMPRESSION TAPPING

(Synchronous solutions available upon request)

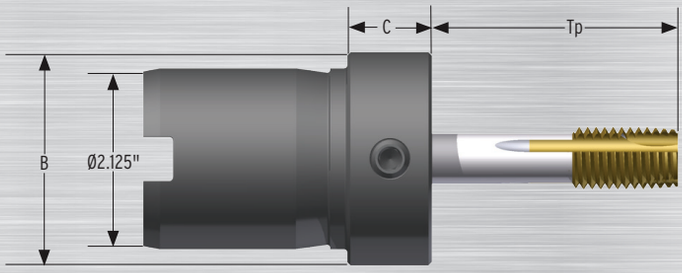
FROM 3/4" – 2 1/2" 4-PITCH AND 3/4" – 3 1/2" 6 OR 8-PITCH TAPS

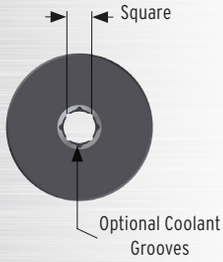
- Large work range eliminates the need to purchase multiple units.
- Rugged alloy steel construction for long trouble-free service life.
- Short compression stroke allows holes to be retapped and facilitates depth control.
- Free-floating tension stroke ensures thread size and quality.
- Through-spindle coolant option gets coolant into the hole and flushes chips.

Part Number	Coolant Fed	C	Shank Type	Approximate Weight
-	C50-60TA5C	5.62	CV50	21 lbs.
N50-60TA5	-	5.62	NMTB 50	21 lbs
-	S20-60TA5C	6.00	2" Straight	17 lbs.

For Synchronous Tapping cycles, use (TT) for Tension-Only or (FS) for Fixed Shank, Part Number example: C50-60 (TT)5.
Larger capacity available for 8-pitch taps. Coolant-through for up to 250 lbs. of pressure.

TENSION & COMPRESSION, POSITIVE DRIVE, FOR THROUGH-HOLE TAPPING





6000 TAP ADAPTERS

- For use in NUMERTAP® 6000 attachments.
- Coolant groove or coolant through adapters must be used when coolant is fed through NUMERTAP® attachments

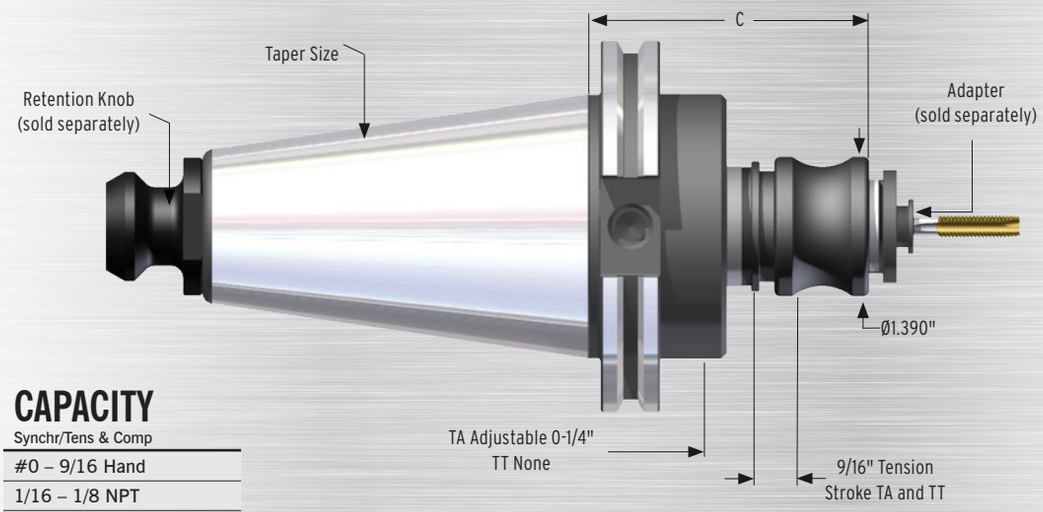
6000 TAP ADAPTERS

Part Number	Coolant Groove	Tap Size	Metric Tap Size (ANSI*)	B	C	Tp	Shank	Square
6-075	6-075CG	3/4	M19	2.50	1.00	2.21	0.590	0.442
6-081	-	13/16	M20	2.50	1.00	2.43	0.652	0.489
6-087	-	7/8	M22	2.50	1.00	2.59	0.697	0.523
6-093	-	15/16	M24	2.50	1.00	2.61	0.760	0.570
6-100	6-100CG	1	M25	2.50	1.00	2.76	0.800	0.600
6-106	6-106CG	1 1/16 & 1 1/8	M27	2.50	1.00	2.70/3.01	0.896	0.672
6-118	6-118CG	1 3/16 & 1 1/4	M30	2.50	1.00	2.84/3.15	1.021	0.766
6-131	6-131CG	1 5/16 & 1 3/8	M33	2.50	1.00	3.09/3.40	1.108	0.831
6-144	6-144CG	1 7/16 & 1 1/2	M36	2.50	1.00	3.34/3.65	1.233	0.925
6-162	6-162CG	1 5/8	M39	2.50	1.00	3.96	1.305	0.979
6-175	6-175CG	1 3/4	M42	3.20	1.00	4.15	1.430	1.072
6-187	6-187CG	1 7/8	M45	3.20	1.00	4.46	1.519	1.139
6-200	6-200CG	2	M48	3.20	1.00	5.13	1.644	1.233
6-212	6-212CG	2 1/8	-	3.20	3.10	5.50	1.769	1.327
6-225	6-225CG	2 1/4	M56	3.20	3.10	5.71	1.894	1.420
6-237	6-237CG	2 3/8	-	3.20	3.10	5.96	2.018	1.524
6-250	6-250CG	2 1/2	-	3.40	3.10	6.15	2.100	1.585
6-075N	-	3/4 NPT	-	2.50	1.00	1.56	0.906	0.679
6-100N	-	1 NPT	-	2.50	1.00	1.89	1.125	0.843
6-125N	6-125NCG	1 1/4 NPT	-	2.50	1.00	1.96	1.312	0.984
6-150N	6-150NCG	1 1/2 NPT	-	2.50	1.00	2.05	1.500	1.125
6-200N	6-200NCG	2 NPT	-	3.20	3.10	2.20	1.875	1.406

Coolant through adapters available upon request

*For DIN, ISO, or JIS Metric Shanks available upon request.

Numertap® 100



CAPACITY

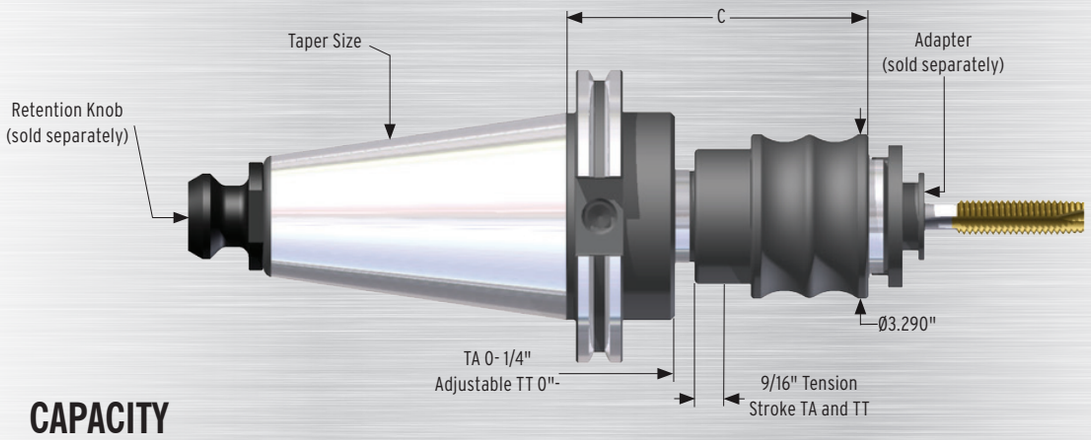
Synchr/Tens & Comp
#0 – 9/16 Hand
1/16 – 1/8 NPT

100 SYNCHRONOUS/TENSION & COMPRESSION TAPPING
FROM 0 - 9/16" HAND AND 1/16 - 1/8" NPT

- For use with popular Bilz style size 1 adapters.
- Rigid and tension-only available for use with synchronous tapping cycles.
- Radial float improves thread quality and tap life.
- Short projection maximizes work piece size.
- Adjustable short compression stroke ensures accurate depth control, TA models .
- Free-floating tension stroke ensures thread size and quality, TA and TT models.
- Rugged alloy steel construction long trouble-free service life.

Part Number	Coolant	Taper	Compression	Tension	C
B40-10TA3	B40-10TA3C	BT40	0 - 0.250	0.56	4.08
B40-10TR3	B40-10TR3C	BT40	Rigid	Rigid	3.83
C40-10TA3	C40-10TA3C	CV40	0 - 0.250	0.56	3.96
C40-10TR3	C40-10TR3C	CV40	Rigid	Rigid	3.96
C40-10TT3	C40-10TT3C	CV40	0	0.56	3.96
C50-10TA3	C50-10TA3C	CV50	0 - 0.250	0.56	3.15
C50-10TR3	C50-10TR3C	CV50	Rigid	Rigid	3.15
C50-10TT3	C50-10TT3C	CV50	0	0.56	3.96
N50-10TA3	-	NMTB 50	0 - 0.250	0.56	3.96
S10-10FS4	S10-10FS4C	1" Straight	Rigid	Rigid	4.43
S10-10TA4	S10-10TA4C	1" Straight	0.250	0.56	4.43

Coolant-through for up to 250 lbs. of pressure.



CAPACITY

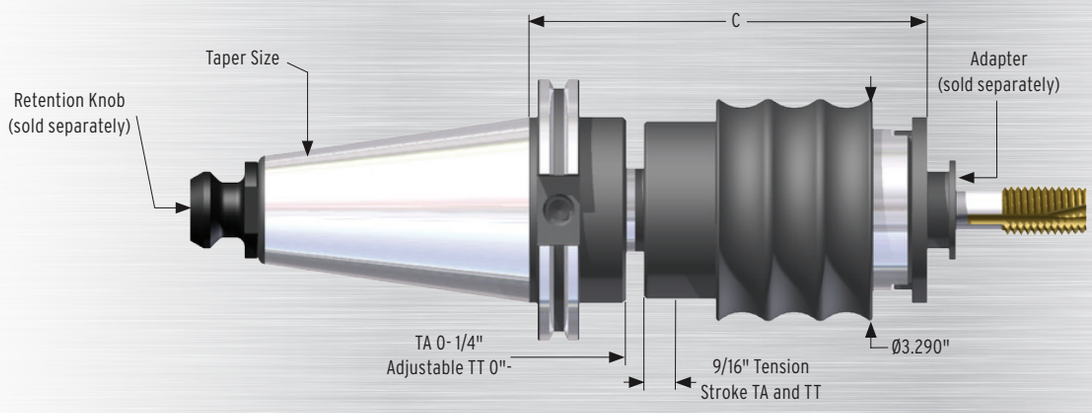
Synchr/Tens & Comp
5/16 – 7/8 Hand
1/4 & 1/2 NPT

200 SYNCHRONOUS/TENSION & COMPRESSION TAPPING
FROM 5/16 - 7/8" HAND AND 1/4 - 1/2" NPT

- For use with popular Bilz style size 2 adapters.
- Rigid and tension-only available for use with synchronous tapping cycles.
- Radial float improves thread quality and tap life.
- Short projection maximizes work piece size.
- Adjustable short compression stroke ensures accurate depth control, TA models .
- Free-floating tension stroke ensures thread size and quality, TA and TT models.
- Rugged alloy steel construction long trouble-free service life.

Part Number	Part Number with Coolant	Taper	Compression	Tension	C
B40-20TA4	B40-20TA4C	BT40	0 - 0.250	0.56	5.19
C40-20TA4	C40-20TA4C	CV40	0 - 0.250	0.56	5.06
C40-20TR4	C40-20TR4C	CV40	Rigid	Rigid	3.86
C40-20TT4	C40-20TT4C	CV40	0	0.56	3.86
C50-20TA4	C50-20TA4C	CV50	0 - 0.250	0.56	4.25
C50-20TR4	C50-20TR4C	CV50	Rigid	Rigid	4.25
C50-20TT4	C50-20TT4C	CV50	0	0.56	4.25
S10-20TA5	S10-20TA5C	1" Straight	0.250	0.56	5.46
S10-20FS5	S10-20FS5C	1" Straight	Rigid	Rigid	5.46
S12-20TA5	S12-20TA5C	1 1/4" Straight	0 - 0.250	0.56	5.46
S20-20FS3	S20-20FS3C	2" Straight	0.250	0.56	5.93
S20-20TA3	S20-20TA3C	2" Straight	Rigid	Rigid	5.93

PC6 and PC7 modular attachments available upon request. Coolant-through for up to 250 lbs. of pressure.

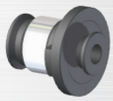


300 SYNCHRONOUS/TENSION & COMPRESSION TAPPING
FROM 13/16 - 1 3/8" HAND AND 3/4 - 1" NPT

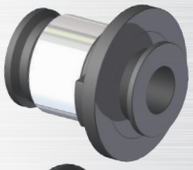
- For use with popular Bilz style size 3 adapters.
- Rigid and tension-only available for use with synchronous tapping cycles.
- Radial float improves thread quality and tap life.
- Short projection maximizes work piece size.
- Adjustable short compression stroke ensures accurate depth control, TA models .
- Free-floating tension stroke ensures thread size and quality, TA and TT models.
- Rugged alloy steel construction long trouble-free service life.

Part Number	Part Number with Coolant	Taper	Compression	Tension	C
C40-30TA5	-	CV40	0 -.250	0.56	6.46
C40-30FS5	C40-30FS5C	CV40	Rigid	Rigid	6.46
C40-30TT5	C40-30TT5C	CV40	0	0.56	6.46
C50-30TA5	C50-30TA5C	CV50	0 -0.250	0.56	5.65
C50-30FS5	C50-30FS5C	CV50	Rigid	Rigid	5.65
C50-30TT5	C50-30TT5C	CV50	0	0.56	5.65

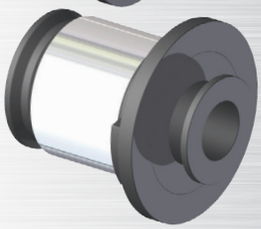
PC6 and PC7 modular attachments available upon request.
*For Synchronous tapping cycles, use (TT) for Tension Only, or (FS) for Fixed Shank.



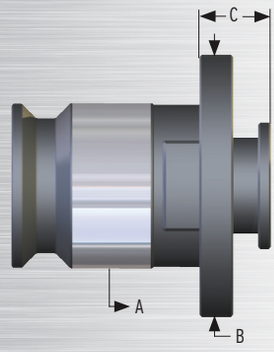
Tap Adapter
10-025



Tap Adapter
20-075



Tap Adapter
30-100



Model	A	B	C
100	0.75	1.18	0.28
200	1.22	1.89	0.43
300	1.89	2.75	0.55
100T	0.75	1.26	0.98
200T	1.22	1.97	1.34
300T	1.89	2.83	1.77

100, 200, & 300 AP ADAPTERS

- For use in NUMERTAP® 100, 200 & 300 Attachments.

	Size 1: Numertap 100 Attachment			Size 2: Numertap 200 Attachment			Size 3: Numertap 300 Attachment		
	Positive Drive			Positive Drive			Positive Drive		
Tap Size	Part No.	Coolant Groove	Torque Controlled	Part No.	Coolant Groove	Torque Controlled	Part No.	Coolant Groove	Torque Controlled
#0 - 6	10-#0-6	10CG-#0-6	10T-#0-6	–	–	–	–	–	–
#8	10-#8	10CG-#8	10T-#8	–	–	–	–	–	–
#10	10-#10	10CG-#10	10T-#10	–	–	–	–	–	–
#12	10-#12	10CG-#12	10T-#12	–	–	–	–	–	–
1/4	10-025	10CG-025	10T-025	–	–	–	–	–	–
5/16	10-031	10CG-031	10T-031	20-031	20CG-031	20T-031	–	–	–
3/8	10-037	10CG-037	10T-037	20-037	20CG-037	20T-037	–	–	–
7/16	10-043	10CG-043	10T-043	20-043	20CG-043	20T-043	–	–	–
1/2	10-050	10CG-050	10T-050	20-050	20CG-050	20T-050	–	–	–
9/16	10-056	10CG-056	10T-056	20-056	20CG-056	20T-056	–	–	–
5/8	–	–	–	20-062	20CG-062	20T-062	–	–	–
11/16	–	–	–	20-068	20CG-068	20T-068	–	–	–
3/4	–	–	–	20-075	20CG-075	20T-075	–	–	–
13/16	–	–	–	20-081	20CG-081	20T-081	30-081	30CG-081	30T-081
7/8	–	–	–	20-087	20CG-087	20T-087	30-087	30CG-087	30T-087
15/16	–	–	–	–	–	–	30-093	30CG-093	30T-093
1	–	–	–	–	–	–	30-100	30CG-100	30T-100
1 1/8	–	–	–	–	–	–	30-106	30CG-106	30T-106
1 1/4	–	–	–	–	–	–	30-118	30CG-118	30T-118
1 3/8	–	–	–	–	–	–	30-131	30CG-131	30T-131
1/16 NPT	10-006N	10CG-006N	10T-006N	–	–	–	–	–	–
1/8 NPT	10-012N	10CG-012N	10T-012N	–	–	–	–	–	–
1/4 NPT	–	–	–	20-025N	20CG-025N	20T-025N	–	–	–
3/8 NPT	–	–	–	20-037N	20CG-037N	20T-037N	–	–	–
1/2 NPT	–	–	–	20-050N	20CG-050N	20T-050N	–	–	–
3/4 NPT	–	–	–	–	–	–	30-075N	30CG-075N	30T-075N
1 NPT	–	–	–	–	–	–	30-100N	30CG-100N	30T-100N
SET (1 EA.)	10-S012	10CG-S012	10T-S012	20-S013	20CG-S013	20T-S013	30-S009	30CG-S009	30T-S009

Other sizes available upon request. Please call Parlec or your local Parlec representative for more information.

TAP DOES NOT START

Check the following:

- Program depth: Compression stroke may use up the entire program depth.
- Tap drill size: Check for tap drill size.
- Tap sharpness: Check for dull tap.

PREMATURE TORQUING OF UNIT

Check the following:

- Tap sharpness: Dull taps require more driving torque than sharp taps. NUMERTAP® systems sense dull taps. Replace to prevent possible breakage.
- Tap drill size and adequate drill depth: Check for correct size and depth.
- Tap sharpness: Check for dull tap.

OVERSIZED THREADS

Check the following:

- Feeds and speeds: Oversized threads mean that the space between adjacent teeth is too large. This is caused either by forcing or retarding the feed rate with respect to the speed. Check program feed versus tap pitch.
- Tension stroke of tapping head: Check to ensure that the tension stroke does not stick.

POOR THREAD QUALITY

Check the following:

- Feeds and speeds: Oversized threads mean that the space between adjacent teeth is too large. This is caused either by forcing or retarding the feed rate with respect to the speed. Check program feed versus tap pitch.
- Tap sharpness and condition: Check for dull tap or broken teeth. Replace as required.

Consult NUMERTAP® Tap Guide for proper tapping speeds, lubricants, geometry, and tap drill sizes for specific H limits and specific materials. If you are not using NUMERTAP® taps, consult the tap manufacturer.

TAPPING SPEEDS

Material	Tapping Speed (SFM)
Aluminum	90 - 110
Brass	80 - 100
Bronze	40 - 60
Copper	70 - 90
Copper-Beryllium	40 - 50
Inconel, Hastalloy, Waspalloy	5 - 15
Iron-Cast	65 - 75
Iron-Malleable	30 - 60
Magnesium	90 - 110
Plastics	60 - 90
Steel-Cast	30 - 40
Steel-Free Machining	50 - 80
Steel-Chromium	25 - 40
Steel-Alloy	20 - 35
Steel-Stainless	15 - 30
Titanium	10 - 25
Zinc-Die Cast	80 - 120

$$RPM = \frac{3.82 \times SFM}{\text{Tap Diameter}}$$

$$FEED\ (IPR) = \frac{1}{\text{Pitch}}$$

$$FEED\ (IPM) = \text{Feed (IPR)} \times \text{Speed (RPM)}$$

Tapping speeds are for general purpose taps. Consult tap manufacturer for high geometry taps.

TORQUE REQUIREMENTS

Tap Size	Brass	Aluminum and Leaded Brass	200 BHN Steel	300 BHN Steel	400 BHN Steel	Approximate Breaking Torque
#6	4	2	7	9	10	8
#8	4.5	2.25	8	10	11	30
#10	8.5	4.25	15	19	21	42
1/4	16	8	28	36	40	106
5/16	24	12	42	54	60	180
3/8	37	18.50	65	83	93	240
7/16	54	27	94.5	122	135	500
1/2	68	34	119	153	170	700
9/16	88	44	154	198	220	850
5/8	119	59.50	208	268	298	1000
3/4	170	85	298	383	425	1500
7/8	238	119	416	536	595	2100
1	337	168.50	590	758	842	2700
1 1/4	544	277	970	1246	1385	3000+
1 1/2	850	425	1488	1912	2125	3000+
1 3/4	1411	706	2471	3177	3530	3000+
2	1904	952	3332	4284	4760	3000+
2 1/4	2159	1080	3780	4860	5400	3000+
2 1/2	2975	1488	5208	6996	7440	3000+
2 - 8	533	267	933	1199	1333	3000+
2 1/2 - 8	663	332	1160	1492	1658	3000+
3 - 8	1139	570	1995	2565	2850	3000+
4 - 8	1411	706	2471	3177	3530	3000+
5 - 8	1768	884	3094	3978	4420	3000+
6 - 8	2125	1063	3720	4784	5315	3000+

All values in table above are in inch/lbs. Approximate values based on sharp, 4 Flute coarse pitch hand taps at 65% thread height. Dull taps require approximately 50% more torque. For 55% and 75% thread heights, multiply above values by .75 and 1.25 respectively. Torque values for helical flute taps are approximately 70% of those shown. Torque values for chip drive taps are approximately 60% of those shown. Torque values for fine pitch threads are approximately 50% of those shown.

Experience has shown that a tap will cut the best quality threads when allowed to act as its own lead screw, feeding precisely on pitch to exactly the required depth of thread. The machine must be prevented from forcing the tap to do anything else or the thread quality will suffer or the tap may break. The tension stroke in the NUMERTAP® provides the freedom required to cut the best quality threads with the least risk of breakage.
NUMERTAP® Systems can be used on any suitable machine tool which has a reversing spindle. Effective choices of spindle speeds and feeds for particular tapping requirements can be made by the following the sample calculations: Tapping a 3/4 – 10 thread, 1" deep in mild steel:

Tapping a 3/4 thread 1" Deep in mild steel:

- RPM = (12 x SFM)/(3.82 X SFM)/D where D is the tap diameter.
- Use the chart on the previous page to find the tapping speed in SFM.
- RPM = (3.82 x .50)/.75 – 255 RPM
- Tap Feed Rate = Pitch x RPM = .100 x 255 = 255 = 25.5 inches/minute.
- Feed in and out at the same feed rate.

When using a conventional tapping cycle, optimum performance is insured by slightly underfeeding the tap, normally by 2% - 10%. This forces the tension stroke of the tapping head to be used and eliminates any effect of the machine tool. The Z axis feed distance must be reduced by this same percentage. The axial float in the NUMERTAP® takes up the difference between the required thread depth and the programmed depth. If a 10% underfeed was selected, the calculations would be as follows:

- Program Feed Rate = .90 x on pitch feed rate = .90 x 25.5 = 22.95"/minute.
- Spindle Z-Axis Travel = .90 x required depth = .90 x 1.000 = .900".
- Axial Float used = 1.000 - .900 = .100"
- Do not allow the Axial Float used to equal the tension stroke length (.56).

If the tapping cycle is controlled by a "canned" program which calculates its own feed rates from an input of pitch and speed. The desired underfeed can be obtained by deliberately entering a reduced value of pitch or an increased value of threads per inch as follows:

- Actual TPI = 10 (pitch = 1/10 = .100")
- Input TPI = 11 (pitch = 1/11 = .091")
- Program Feed Rate = .091 x 255 = 23.2"/minute
- Program Feed Depth = .91 x 1.000 = .910"

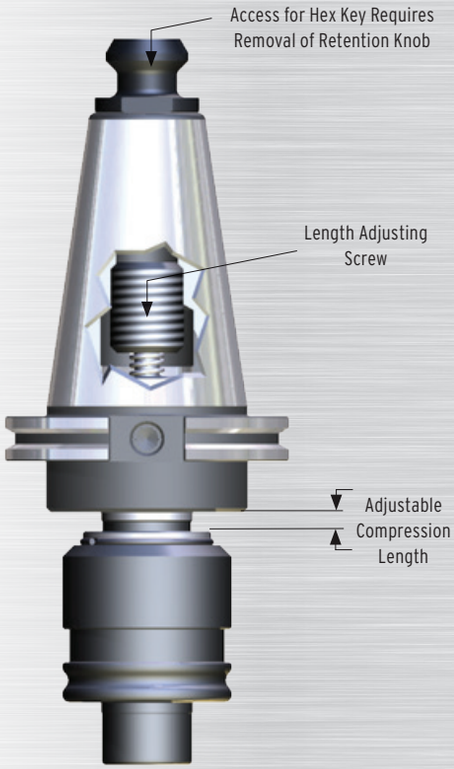
If the CNC machine has a slow spindle reversal, the program must compensate for any drive system inertia by including a dwell not long enough for the spindle to come to a full stop when the tap has reached full thread depth. If the spindle has not stopped when the program calls for it to feed out, the tap could break or be pulled out of the adapter, or the threads could be ruined. These problems can be rectified using a program similar to the following:

- Spindle clockwise
- Feed to depth (incorporating underfeed)
- Spindle stop

When using a synchronous tapping cycle, the drive system inertia may create the undesirable effect of tap elongation, or thread distortion. The best answer to this problem is the use of tension only tapping heads. Refer to the selection guide (pages 92-94).

Numertap® 100, 200, 300, 700, 770 units

The NUMERTAP® 100, 200, 300, 700 and 770 series tapping attachments with machine tapers, feature a length adjustment screw. This allows the compression stroke to be reduced or eliminated, if desired, to provide more accurate depth control. Adjusting the compression stroke to zero will result in a tension only set-up, the best solution for synchronous tapping. Turning the length adjustment screw counterclockwise reduces the compression stroke but does not affect the tension stroke.



The projections of the unit can be adjusted by turning the screw in either direction until the desired length is reached. Changing the length in this manner does not affect the tension stroke. This is an important feature if redundant tools are being set of if reground taps are being used in existing programs

Adjust the compression stroke counterclockwise until the tapping attachment body contacts the shank. This will set for tension only. This is recommended to eliminate or avoid tap elongation in synchronous tapping cycles.

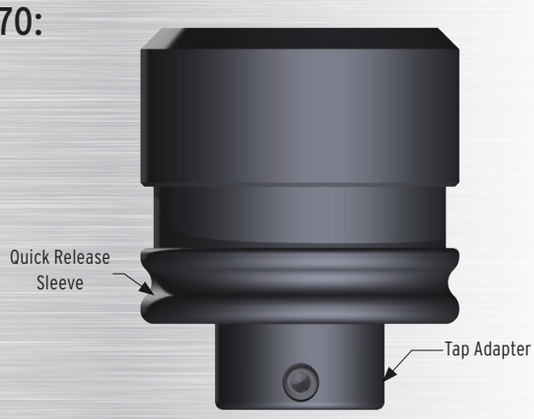
TENSION-ONLY, THE BEST SOLUTION FOR SYNCHRONOUS TAPPING

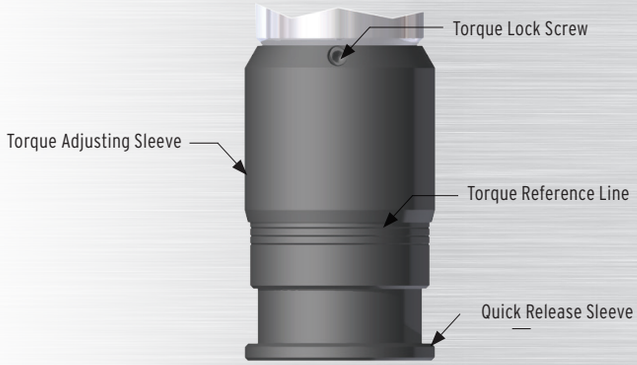
The NUMERTAP® 100, 200, 300, 700 and 770 units can be purchased as tension only units (TT) or can be adjusted to tension only units by following the instructions above. Tension only is the best solution for synchronous tapping. If the unit is purchased as a TT, the tension spring is eliminated during assembly.
The unit will be the same length as a TA unit. If a TA unit is adjusted to eliminate the compression stroke, the unit will be 1/4" shorter than its original projection length. NUMERTAP® 700 units can be adjusted for tension only, but cannot be used in synchronous tapping cycles.

NUMERTAP® 80, 700, 770 ADAPTERS

To install a tap adapter into a NUMERTAP® 80, 700 or 770:

1. Pull back the quick-release sleeve.
2. Insert the tap adapter into the unit and push back until it seats. A slight twisting motion while pushing will ensure proper seating.
3. Release the quick release sleeve. It should return to its normal position. If it does not return, the adapter is not seated. Twist and push back until it seats.

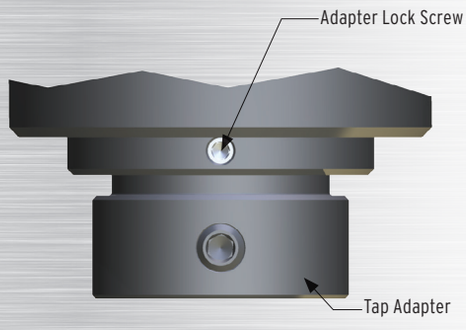




NUMERTAP® 6000

To install a tap adapter into a NUMERTAP® 6000:

1. Loosen the adapter lock set screw.
2. Insert the tap adapter into the unit and push back until it seats. A slight twisting motion while pushing will ensure proper seating.
3. Tighten the adapter lock screw.



NUMERTAP® 80

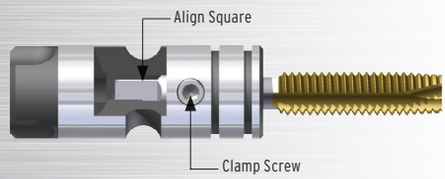
The factory setting for the torque adjusting sleeve is at maximum torque. In this state, the first (closest to the tap) torque reference line will be barely visible. This setting provides a large safety factor against tap breakage and should not be changed unless low tensile materials are being tapped.

When tapping soft materials, particularly with small taps, it is advisable to use less torque to prevent thread distortion when tap bottoms.

To adjust the torque, loosen the torque lock screw and rotate the torque adjusting sleeve to its upper limit. All three torque reference lines will be visible. Take a test cut. If the tap does not cut, increase the torque by turing the adjusting sleeve. When the proper setting is reached and there is enough torque pressure, turn the torque adjusting ring another 1/8 turn and secure the lock screw. Always adjust the torque to coarse pitch when using more than one tap in the same tapping head.

NUMERTAP® 80, 700, 770, 6000 ADAPTERS

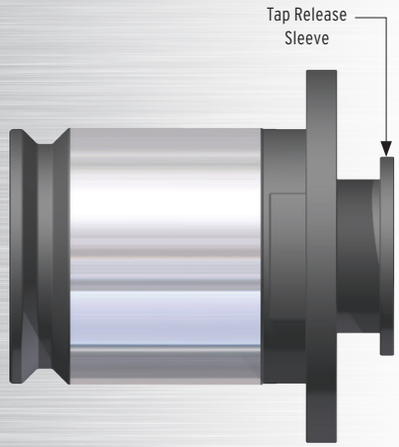
1. Loosen the set screw in the tap adapter.
2. Insert the tap into the adapter and twist until the square on the tap is aligned with the square in the adapter. Push back until the adapter is fully seated against the shoulder of the square.
3. Do not grind grooves or flats on the tap shank



If, for some reason a tap sticks in a hole, the set screw will allow the tap to pull out of the adapter without damaging the part, tapping head or tap. Grinding flats on the tap shank overrides this safety feature.

NUMERTAP® 100, 200, 300, & 7716 QR ADAPTERS

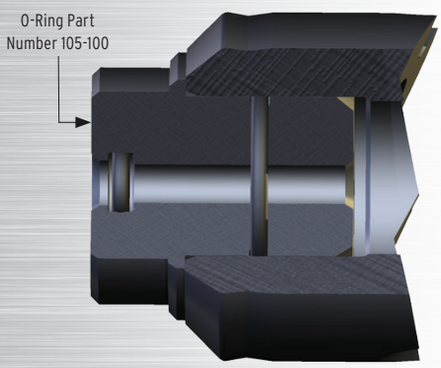
1. Push back the tap release sleeve.
2. Insert the tap into the adapter and twist until the square on the tap is aligned with the square in the adapter. Push back until the adapter is fully seated against the shoulder of the square.



Both fine and course pitch taps are used in the same adapters. Left or right hand taps can be used in any NUMERTAP® system without alteration.

COOLANT FED 700, 770 ADAPTERS

When used in through-spindle-coolant applications, coolant fed NUMERTAP® units must be used with coolant fed tap adapters. Coolant fed tap adapters feature a sealing plug at the back. The "O" ring in the ID of the plug should be periodically checked for cuts or tears. If damage is noted, the "O" ring should be replaced.



TAP INTO SAVINGS!

Parlec's Tapping systems provide superior application with the Numertap® system 770 providing the largest range of tapping capabilities available. Rigid, Tension Only and Tension and Compression systems are standard, along with Coolant or Coolant Groove Adapters with up to 6" extension length–just what you would expect from the worldwide leader in tooling and presetting solutions.

- **Full Line**
  Three systems for synchronous tapping cycles.
- **Range and Versatility**
  Largest range in a single tapping head (#6 - 1 5/8").
- **Popular Bilz Style**
  Offered in addition to the rugged Numertap systems.
- **Standard Options**
  Coolant-groove or coolant-through.
- **Adapters**
  Extended-length adapters for special applications.
- **Flexibility**
  Tap collets available for use in tapping heads and collet chucks.