# SPD3, 5, 7 and 9A Self-Reversing Tapping Attachments Safety And Operation Instructions Revised 01/06



torque bar to hold the tapping attachment's stop arm from rotating. The torque bar **must** be mounted securely to the table or quill of your machine. The torque bar installation **must** be stronger than the largest tap in the capacity range of your tapping attachment. Order Tapmatic Torque Bars shown.



#### 5. To Install Collets In Rubber-Flex Collet Chucks:

Some collets vary slightly in outside diameter. This does not affect capacity or performance. To install, put collet into the end of the drive spindle and push the tap chuck nut over it until the threads are engaged. Screw nut down completely. This will seat collet properly. Then back off nut to install tap. Collets must be ordered separately.

#### 6. Inserting Tap In Rubber-Flex Collet Chucks:

Follow instructions to avoid excessive wear on back jaws when using tapping heads with collet chucks. Insert the tap into the tap chuck of the attachment so that the back jaws will engage the square of the tap. Hand tighten the chuck nut first, then tighten the back jaw on those units with adjustable back jaws. Then using the wrenches provided tighten the chuck nut firmly. When tightened correctly, the rubber flex collet should absorb most torque pressure, preventing the back jaws from being damaged by excessive torque. If the tap you are using has a male center at the square end, you must remove the point to assure maximum engagement in the back jaws.

Collet Series	Catalog No.	Tap Size	Collet Range Shank Size
#21000 Series	21600 ★	#0-#8 Standard	.098177
For SPD3 attachments with	21700 ★	#10-1/4" Standard	.177256
capacities (#0-1/4")	21500		.040098
	21200		.094146
#22000 Series	22100 ★	#0-1/4" Standard	.139257
For SPD5 attachments with	22200 ★	1/4"-1/2" Standard	.253383
capacities (#6-1/2")	22300		.090180
_ · · · ·	22000		.194318
#24000 Series	24100 ★	#10-1/2" Standard	.176383
For SPD7 attachments with	24000 ★	5/16"-5/8"	.280500
capacities (#10-5/8")	24300		.110280
#26000 Series	26100	1/2"-3/4"	.360630
For SPD9A attachments with	26200	7/8"-1-1/8"	.630900
capacities (1/2"-1-1/8")			

**Rubber-Flex Collet** 

For Use With Tapping Attachments With Rubber-Flex Collet Spindles.

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\*\*These maximum tapping speeds are for optimum tapping conditions for the tap size, tap pitch and material involved. Optimum conditions are (1) a through hole or blind hole with generous chip clearance; (2) thread depth is one times a tap diameter or less; (3) free machining material; (4) tap drill diameter for 60% thread; (5) use of LPS Tapmatic Cutting Fluid or Coolant; and (6) proper designed tap. Reduce speed accordingly for each non-optimum condition.

1/2 1/2-9/16 9/16

5/8 5/8 3/4 3/4

7/8 7/8 -9 -14

-16

-14

1400 1500

1400

1200 1300

1400 1500

250 175

750 600

300

750 600

500

400

550 425

### SPD3, 5, 7 and 9A Self-Reversing Tapping Attachments Safety And Operation Instructions

This tapping attachment can be used on all types of manually operated or automated machines with rotating, non-reversing spindles. It should not be used on machines which reverse on the back stroke.

This attachment incorporates in its design a gear reverse which has a 1to 1 reverse ratio. Reversing speed, then, is equal to the machine's spindle speed. Therefore, the in-feed and out-feed of the machine spindle may remain the same. The "bore cycle" on most NC machines can be employed for tapping.

#### MOUNTING THE STOP ARM

There are three (3) screws provided with the unit to properly mount the stop arm onto the top of the housing.

Extend strong torque bar from machine quill or machine table to engage short stop arm. DO NOT LENGTHEN STOP ARM. Also, clamp part to be tapped securely as full power of the machine is transmitted in reverse. DO NOT HOLD PART BY HAND. DO NOT HOLD STOP ARM BY HAND.

#### INSTALLING THE ARBOR IN TAPER MOUNT UNITS

Make sure that the taper mount of the unit and the arbor itself are clean and free of oil or grease. Then with a twisting motion, insert the arbor into the tapping attachment. The twisting motion allows the air entrapped in the taper to be released. When the arbor is inserted completely, several sharp blows should be made on the tang with a lead hammer to make sure the arbor is seated firmly. It is important that this procedure be followed, as the taper may be damaged if slippage occurs. Occasionally, for large units, it may be necessary for the attachment to be pinned to the arbor. This may be done with a #4 Taper Pin.

#### INSERTING THE TAP Rubber Flex Collet Spindle:

Rubber Flex Collet Spindle: If the tap you are using has a male center as in Figure 1, the point should be ground off so that the tap square will be engaged by the back jaws as shown in Figure 2.

After removing the point, insert the tap into the tap chuck of the attachment so that the back jaws will engage the square of the tap. Hand tighten the chuck nut first. Then tighten back jaws with hex key. Then using wrenches provided, tighten chuck nut. This procedure will assure true running of the tap. Note: Reduce capacity 25% for roll form taps.



Quick Change Spindle: To install or remove a tap adapter lift the release collar #71A. Please order collets and tap adapters separately.

**TAPPING SPEEDS:** The Tapping Attachment has been designed to operate properly at recommended tapping speeds. Please refer to chart for the recommendations for specific tap sizes. **Do not exceed the maximum speed shown on the tapping attachment.** 

#### THROUGH HOLE TAPPING

Through holes are easily tapped without machine stops or dwells; merely feed in and out, as desired. For programmed machine operation, program the machine spindle to feed at, or slightly less than, the taps' feed per revolution to insure production of quality threads.

Manual tapping with the attachment does not require operator to apply any lead pressure on the tap during the tapping operation. The free axial float in the attachment will automatically permit the tap to follow its own lead. The operator merely moves the machine's spindle behind the lead of the tap until the desired depth is reached. To reduce wear within the tapper, it is recommended that a short, quick, upward movement of the machine spindle be made during transition from drive to reverse. The tap will return to a forward rotation as soon as it is withdrawn from the hole.

#### **BOTTOM HOLE TAPPING**

For accurate and efficient bottom hole tapping, a machine feed stop should be used to allow the attachment's spindle to disengage in neutral before the tap bottoms in the hole. To achieve this, set the machine stop so that the machine feed plus the attachment's self-feed will equal the desired thread depth. This greatly simplifies the tapping operation, and affords maximum tap protection. This attachment does not have a clutch. It is positive drive.

This attachment does not have a clutch. It is positive drive. These units have a fixed self-feed length. The amount of self feed is 3mm for SPD3, 5mm for SPD5, 7mm for SPD7 and 10mm for SPD9A. For added tap protection in quick-change models, the torque release tap holders (TC style) may be employed. The tap will stop without breaking if the bottom of the hole is accidentally engaged.

#### LUBRICATION

Lubricate approximately every 100,000 holes.

**To Lubricate:** Remove set screw from housing wall, add grease (use 2 tubes), and reinstall set screw. FOR ADDITIONAL GREASE-USE ORDER NO. 29000 FOR A CASE OF 12 TUBES.

**MAINTENANCE NOTE:** If tapping attachment becomes contaminated with coolant, submerge it in a light weight spindle oil. Allow the oil to work through the unit, then remove and let stand. When most of the oil has drained from the unit, re-grease it.

#### TAP LUBRICATION

To insure maximum tap life, the proper lubricant should be used. For an ALL PURPOSE tapping fluid that meets the toughest safety requirements use our MQL Systems DRY-CUT.

#### **REMOVAL OF TAPERED ARBORS**

Removal of the arbor from the Jacobs or DIN taper in a tapping attachment will generally require striking the arbor with a soft metal rod. Hold the tapping attachment, with the arbor pointed away, in one hand and strike the arbor sideways on tang or in relief area, with a brass rod grasped in the other hand. Numerous blows may be required. **DO NOT STRIKE THE TAPPING ATTACHMENT.** 

Stubborn arbors and arbors install d with Loctite will require the application of heat. Using a soft fiame propane torch, evenly heat the interface area where the arbor enters the attachment. (300% F will be required to break down the Loctite.) After applying heat, resume striking the arbor with the soft metal rod until the arbor loosens. Always use caution when handling heated parts.

#### PROGRAMMING INSTRUCTIONS WHEN USED ON CNC MACHINES

- **1.** Utilize bore cycle of machine.
- 2. Set machine in-feed and out-feed at 98 to 100% of correct feed rate for thread pitch.
- 3. Establish clearance plane above hole (equal to diameter of largest tap within specific unit's capacity, up to maximum of 5/8" for largest tools) where machine's rapid approach converts to feed rate so that tap will definitely clear hole during retraction before machine idexes to next position.
- 4. For through holes or blind holes with sufficient clearance, simply machine feed to desired thread depth and retract.
- 5. For blind holes or controlled thread depth, machine feed to the desired thread depth minus the tapping attachment self-feed distance (see "Bottom Hole Tapping" above). Check depth on first hole and adjust program depth accordingly.

### Parts Listing SPD3, 5, 7 and 9A Self-Reversing Tapping Attachments



## Parts Listing SPD3, 5, 7 and 9A Self-Reversing Tapping Attachments

IDENT	PART NAME	SPD3	SPD5	SPD7	SPD9	Notes:
2*3*4 55T5757 57T5577 57T1557 57766 66A7789 99A100**111**1214 1557**167177778 19919191919191919191919191919191919191	Stop Arm Screws Cushion Spring Spring Biased Driver Ball Bearings Shim Lock Set Screw Plug Planet Gear Washer Gear Axle & Washers Guide Spindle Bushing Reversing Member Flange Washer Lock Nut Spring Biased Rev. Driver Reversing Drive Spring Drive Spindle Bushing Retaining Ring Set Screw Back Jaws Rubber Flex Collet (Small) Rubber Flex Collet (	51302 (3 required) 51312 58304 51305 (2 required) 51305 (2 required) 51305 (2 required) 51305 (3 required) 51306 (3 required) 51307A (3 required) 50329 58309 (3) 513091 58310 58304 51312 58314C 51315 50315 503161 21600 21700 50318 51319HA (2) 51319HA (2) 51319HA (2) 51319FA (2) 51319FA (2) 51319FA (2) 51319FA (2) 51319FA (2) 51319FA (2) 51319FA (2) 51319FA (2) 513214 (6) 51322 (2 required) 50328 51324 51324 51324 51324 51324 51324 51324 51325 50328 (3required) 51327 51328 51228 50338 503341 - 50315 (2 required) 53374 58370A (5) 58371 58374 583751 (3 required) - 2496 (8 required)	51502 (3required) 51512 58504 50509 (2 required) 51505 50305A (1) 503051 51506 (3 required) 51507A (3required) 51507A (3required) 56529 585091 (3) 515091 58510 58504 58512 585141C 58515 50315 56516 22100 22200 56518 - 51519JA (2) 51519JA (2) 51519JA (2) 51519JA (2) 51519JA (2) 51519JA (2) 51519JA (2) 51519JA (2) 51519AA (2) 51528A (2) - 51519GA (2) - 58520 51521A (6) 51522 (2 required) 51523 51524 51524 51524 51524 51524 51524 51524 51527 58528 (3 required) 51527 585731 58574 60328 (3 required) - 29511 29497 (10 required)	51502 (3required) 507122 58704 50708 50709 (2 required) 51705 50305A (1) 503051 51706 (3required) 51707A (3 required) 51707A (3 required) 50718 - - 58719CA (2) 58719KA (2) 587	51902 (3required) 509122 509271 50908 50909 (2 required) 51905 (3) 50905 (1) 50905 (1) 50905 (3) required) 51906 (3 required) 51907A (3 required) 51907A (3 required) 51907A (3 required) 51908 58909 (3) 51910 509271 51912 58914C 50916 26100 26200 50918 - - 51919LA - 51919LA - 51919NA (2) - - 51919NA (2) - 51921A (6) 51922 (2 required) 51923 51924 (3) 51924 519241 519241 519241 519242 589259 50928 (3 required) 51927 50930 58930 - - 50915 589359A (4) - 50706 58970A (5) 62871 - 58972 (4 required) 62873 62875 (2 required) 29513 50916	<ul> <li>(RF) Denotes Rubber Flex Only</li> <li>(Thd Mount) Denotes Thread Mount Only</li> <li>(1) Lock Set Screw comes with Ident #5XX.</li> <li>(2) Threaded (#19) or Tapered (#19X) Mount only supplied as an assembly with part #5T, #5TI and #20</li> <li>(3) Reversing Member (#9) supplied as an assembly with part #14 and #15.</li> <li>(4) Drive Spindle (#25) only supplied as an assembly with part #8.</li> <li>(5) Quick Change Drive Spindle (#70QC) only supplied as an assembly with part #8, #71, #72, #73, #74 and #75.</li> <li>(6) Stop Arm (#21) only supplied as an assembly with part #8.</li> <li><b>INSTRUCTIONS FOR</b> DISASSEMBLY</li> <li>1. Remove tap chuck (#18), rubber flex collet (#17X or XX), back jaw retaining screw (#34) and back jaws (#16X)</li> <li>2. (SPD7 and SPD9) Remove return spring. (#28) by threading spring puller (supplied with unit) into part (#33) and pulling out to expose spring for hock also supplied with unit.)</li> <li>3. Remove lock nut (#10)</li> <li>4. Remove all internal components</li> <li>FOR ASSEIMBLY Reverse procedure outlined above.</li> </ul>
WRENCH KITS	5/64 HEX KEY RF 1/8 Hex Key 3/32 Hex Key 5/32 Hex Key 5/8 Wrench (RF) 1/2 WRench (RF) 3/4 Wrench (RF) 3/32 Wrench 1 5/16 Wrench 1 5/16 Wrench 1 9/16 Wrench (RF) #5 Hook Spring Puller 2 Wrench #1 Hook	27078 27125 27093 - - 28062 28050 - 28097 - - - - - - - - - -	27078 27125 27093 27156 - - - 28075 28097 28131 - - - - -	27078 - 27093 27156 - - - 28097 28131 - 29085 29090 -	27078 27125 27093 - 27218 - - 28156 - 29090 28200 29081	

\*These items are considered normal wear parts.

Repair Service is available at...

Attention:

Repair Department Tapmatic Corporation 802 Clearwater Loop Post Falls, ID 83854

### To Expedite Repair

Return tool direct to Tapmatic Corporation, by United Parcel Service and enclose the following statement with your purchase order: "Authorization given to repair and return tool, without notification if total repair cost does not exceed 40% of the cost of a new tool." Tapmatic will repair the tool and call to request your credit card # for invoicing.

**Important:** Be sure to return the tool complete with the tap chuck nut, back jaw and if the tool is a reversing unit, include stop arm. Otherwise, we will add these missing parts to every non-warranty repair.

**Cost Notification:** Tapmatic will FAX a cost notification to you, soliciting your approval before repairs are completed.

If it is determined that a tapping attachment cannot be repaired, at the customer's request, Tapmatic will return the disassembled parts. We are not able to reassemble tapping attachments using damaged or worn out parts.

**Optional Return Procedure**: Tools may also be returned for repair through your local Tapmatic Distributor. They will ship the tool to us and include instructions for the repair and return. You may already have an open account with them which facilitates the handling of invoicing.

Priority Service: Tapmatic services tapping attachments returned for repair in the order in which they are received. All tools will be evaluated and repaired within three weeks from the date they arrive subject to receiving the customer's approval to proceed with the repair.

Priority is given to the tools shipped to us by overnight or second day.

If a repair is sent to us by UPS ground or similar service it can also be given priority. Just call and let us know you need priority service and advise if you would like the tool returned to you by overnight or second day. In the interest of fairness, to all our customers, we ask that you approve return shipment by overnight or second day before we agree to upgrade your repair order to priority service. Typical turnaround, not including shipping time, for priority repairs is 3 days subject to receiving the customer's approval to proceed with the repair.

If we can answer any questions, please call our toll free number: 800 395-8231.

The Tapping Specialists
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