

D-SERIES TAPPING TOOL INSTRUCTIONS


WARNING! READ AND FOLLOW THESE INSTRUCTIONS WHEN USING THE TAPPING TOOLS. FAILURE TO FOLLOW ANY OF THESE INSTRUCTIONS COULD RESULT IN LEAKAGE.

The recommended procedure for using the D-Series Tapping Tool is as follows:

1. Select the appropriate size and style (full or half) saddle assembly and the appropriate Tapping Tool. The carbon steel tools and saddles are marked with the size & the letter designation "C". The stainless steel tools & saddles are marked with the size only. A full saddle assembly is used to drill through both sides of the pipe and requires the longer Tapping Tool body (D2 Series). Remove the thread protector caps from the tool and saddle assembly.
2. Remove the stainless steel pipe cap from the Tapping Tool body. This will expose the drill tip. The pipe cap will be installed onto the body later.
3. Disassemble the saddle assembly and remove the PVC pipe.
4. Place the top half of the saddle in a vice, being careful not to damage gasket in the saddle.
5. Put Teflon tape on the Tapping Tool threads at drill point end where cap was removed.
6. Thread the Tapping Tool body into the top half of the saddle, leak tight. Also, consider the desired final location of the 3/4" NPT port when tightening the tool into the saddle.
7. Tighten the gland follower at the back end of the Tapping Tool to a torque of 25 Ft-Lbs.

AT THIS POINT YOU SHOULD BE READY TO ASSEMBLE THE TOOL AND SADDLE TO THE PIPE.

8. Check that the hole in the saddle gasket is properly aligned with the hole in the saddle. Do this for both halves of the saddle unless the half saddle is being used.
9. Clean the pipe OD at the intended location of the saddle. Choose a saddle location which does not have any tool marks or defects in the pipe surface. Also, make sure there are no projections from the pipe OD which would prevent the saddle from fully compressing the gasket. When the gasket is properly compressed, it will be approximately one-third of its original thickness.
10. Align the bottom half of saddle on pipe OD (or U-bolts if the half saddle is used).
11. Install the top half of saddle onto the mounting bolts or U-bolts if the half saddle is being used.
12. Install Belleville washers and nuts. The 1/2", 3/4" & 1" saddle must have (2) Belleville washers on each shaft.
13. Tighten the nuts by hand in a cross pattern taking care that the gap between both halves of the saddle is equal on both sides of the pipe. Also, make sure that the saddle is not cocked on the pipe. If U-bolts are being used, make certain that the saddle is properly centered on the pipe OD at both ends of the saddle.
14. Tighten the nuts in a cross pattern 1/4 turn at a time. **DO NOT USE AN IMPACT WRENCH.** You must use a torque wrench. You must realize that after you have tightened the first two diagonal nuts that the other 2 will be loose. When tightening each succeeding nut it should be turned lightly until no longer loose before counting the 1/4 turn. This procedure as well as that in Step 15 must be followed in order to compress the gasket evenly. If this is not done, the gasket may leak.

	North America / Central & South America Corporate Office 2701 Township Line Rd Hatfield, PA 19440-1770 USA (P) +1 215.721.1100 +1 800.355.7044 (F) +1 215.721.1101 est-info@curtisswright.com	Europe / Middle East / Africa EST Group B.V. Hoorn 312a 2404 HL, Alphen aan den Rijn The Netherlands (P) +31.172.418841 (F) +31.172.418849 est-emea@curtisswright.com	Asia Pacific EST Group Asia 35 Tannery Rd, #11-10 Tannery Block Ruby Industrial Complex Singapore 347740 (P) +65.6745.8560 (F) +65.6742.8700 est-asia@curtisswright.com
	http://estgroup.cwfc.com		

15. Continue this 1/4 turn procedure using a torque wrench until the torque wrench shows a minimal reading above zero. The 1/4 nuts used on the 1/2, 3/4 and 1" saddle sizes must be tightened to a final torque of 8 Ft-Lbs using the cross pattern of tightening in increments of 2 Ft-Lbs. The 3/8" nuts, used on the 1-1/4" through 3" saddle sizes must be tightened to a final torque of 27 Ft-Lbs. using the cross pattern of tightening in increments of 5 Ft-Lbs. Do not exceed these final torque values as damage to the gasket might result. Approximately three turns will be required from finger tightness to final torque value. After tightening the spacing between both halves of the saddle should be approximate equal on both sides of the pipe.
16. At this point, you should conduct a leak test of the Tapping Tool and back saddle to insure that everything has been properly assembled. This must be done before attempting to tap into the pipe.

WARNING! DO NOT ROTATE THE TAPPING SADDLE ON THE PIPE AFTER INSTALLATION OR LEAKAGE MAY OCCUR DURING TAPPING OPERATIONS. IF NEEDED, REMOVE SADDLE AND BACKING SADDLE IF USED, REPLACE SADDLE GASKETS AND REINSTALL SADDLE(S) AT DESIRED LOCATION.

17. Install the fittings to the 3/4" NPT connection on the Tapping Tool using Teflon tape. Also install a fitting to the 1/4" connection to bottom half of the saddle using Teflon tape, if the bottom half is to be used.
18. You must now set the drill stop on applications where a full saddle is being used. To do this push drill rod onto the pipe OD and set the stop a distance behind the gland follower equal to the OD of the pipe plus 1/8".
19. Make all final pressure connections to saddle assembly and Tapping Tool.
20. Prior to tapping the pipe, re-torque the gland follower to 25 Ft-Lbs. and check the torque on the saddle nuts and adjust the 1/4" nuts to 8 Ft-Lbs and the 3/8" nuts to 27 Ft-Lbs. if necessary.

YOU ARE NOW READY TO TAP INTO THE PIPE. IT WILL BE RELATIVELY EASY TO DRILL INTO FIRST SIDE OF THE PIPE BECAUSE NO FLUID PRESSURES ACT ON THE DRILL. HOWEVER, WHEN TAPPING INTO THE OTHER SIDE, YOU WILL HAVE TO PUSH THE DRILL AGAINST THE PRESSURE OF THE PIPE. WITH THE PIPE INTERNAL PRESSURE OF 100 PSI, THIS FORCE WILL BE ABOUT 10 LBS.

21. Install drill onto drill shank. Do not run drill for longer than 20 to 30 seconds and be careful not to exert side force on the drill shaft because the PTFE packing does not provide support against cocking of the drill.

WARNING! NEVER IMPACT THE DRILL IN EITHER THE FORWARD OR THE REVERSE MODE, AS DAMAGE TO THE INTERNAL RETAINING RING MAY OCCUR.

22. At the end of 20 to 30 seconds of the operation of the drill, retighten the gland follower to 25 Ft-Lbs and repeat Step 21.
23. Continue the 20 to 30 seconds drill periods, followed by tightening the gland follower until you have drilled through the pipe. You should be able to drill through each side of the pipe in approximately 1 minute of total drilling time. If for some reason this should take a longer time, the Tapping Tool may heat up from friction. If you find it hot to the touch, you should cool the tool with a wet rag before resuming the drilling.

WARNING! DO NOT PERMIT THE DRILL TO SLAM FORWARD AGAINST THE DRILL ROD RETAINING RING AFTER THE DRILL PIERCES THE VESSEL.



<http://estgroup.cwfc.com>

North America / Central & South America
Corporate Office
2701 Township Line Rd
Hatfield, PA 19440-1770 USA
(P) +1 215.721.1100
+1 800.355.7044
(F) +1 215.721.1101
est-info@curtisswright.com

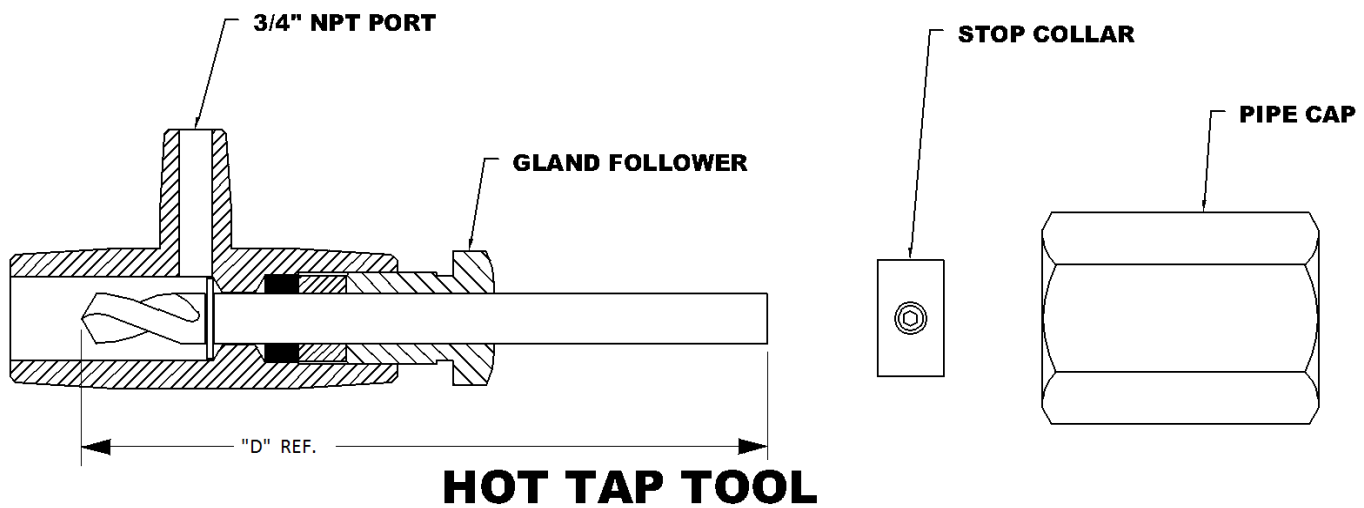
Europe / Middle East / Africa
EST Group B.V.
Hoom 312a
2404 HL, Alphen aan den Rijn
The Netherlands
(P) +31.172.418841
(F) +31.172.418849
est-emea@curtisswright.com

Asia Pacific
EST Group Asia
35 Tannery Rd, #11-10 Tannery Block
Ruby Industrial Complex
Singapore 347740
(P) +65.6745.8560
(F) +65.6742.8700
est-asia@curtisswright.com

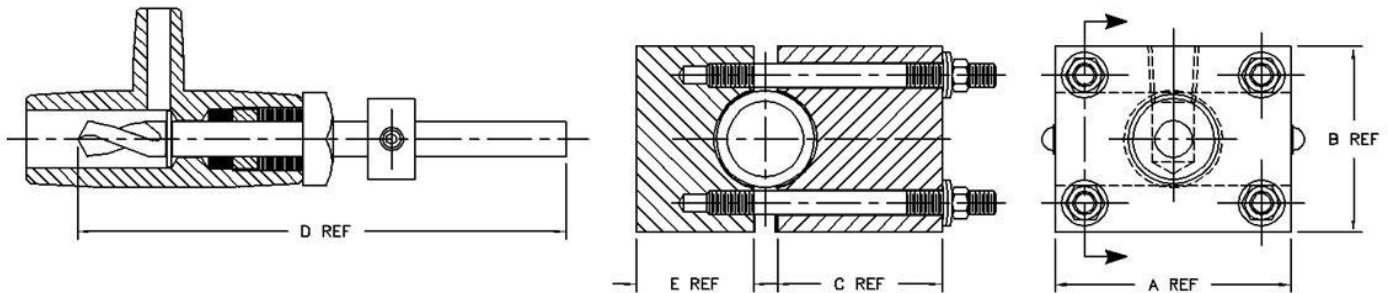
24. After drilling through the pipe, retighten gland follower to 25 Ft-Lbs torque.
25. Retract the drill until resistance is encountered.

WARNING! NEVER FORCE OR IMPACT THE DRILL AGAINST RESISTANCE ENCOUNTERED IN THE RETRACTING DIRECTION.

26. Using a radial cutoff tool, cut off the exposed end of the drill about 1/4" beyond the gland follower. If the tool will be left in place for long periods of time without the pipe cap installed, it should be mandatory to set up periodic checks of the Torque on the gland follower. Most of the creep of the packing will occur in the first 24 hours after installation. Therefore, after 24 hours re-torque the gland follower.
27. Retighten the gland follower to 25 Ft-Lbs torque.
28. Wrap the threaded portion at the back end of the Tapping Tool with Teflon tape and install stainless steel pipe cap (Removed in Step 2) leak tight. When doing this, use a second wrench around the rectangular cross section of the Tapping Tool body so that the saddle gasket and tool/saddle connection is not subjected to any twisting motion.
29. Recheck the torque on the saddle nuts and retighten, if necessary to the torque in Step 20.
30. Most of the creep in the saddle gaskets will occur in the first 24 hours after installation. Therefore, after 24 hours, re-torque the saddle nuts.
31. If saddle is to be left on the pipe for long periods of time it should be mandatory to set-up a periodic check of the torque on the saddle nuts. If the torque does not diminish by the end of a period, the next period might be lengthened.



D2 – SERIES TAPPING TOOLS



These instructions apply to items with the following part numbers.

D2-SERIES TAPPING TOOL KITS	NOMINAL PIPE SIZE	BACKING SADDLE ASSEMBLY	NOMINAL TAP SIZE	D2 TAPPING TOOL	A	B	C	D	E
D2-0025-GET-1025	1/4"	BSD-0025-0075-E	1/4"	D2-0025-GET	2 1/2	1 5/8	1 13/16	11 1/2	1 1/16
D2-0025-GET-1038	3/8"	BSD-0038-0075-E	1/4"	D2-0025-GET	2 1/2	1 3/4	1 13/16	11 1/2	1 1/8
D2-0038-GET-1050	1/2"	BSD-0050-0075-E	3/8"	D2-0038-GET	2 1/2	1 7/8	1 3/4	11 1/2	1 1/8
D2-0038-GET-1075	3/4"	BSD-0075-0075-E	3/8"	D2-0038-GET	2 1/2	2	1 3/4	11 1/2	1 1/4
D2-0038-GET-1100	1"	BSD-0100-0075-E	3/8"	D2-0038-GET	2 1/2	2 1/4	1 7/8	11 1/2	1 3/8
D2-0038-GET-1125	1-1/4"	BSD-0125-0075-E	3/8"	D2-0038-GET	3 1/2	3 1/8	2 1/4	11 1/2	1 9/16
D2-0038-GET-1150	1-1/2"	BSD-0150-0075-E	3/8"	D2-0038-GET	3 1/2	3 1/8	2 1/8	11 1/2	1 11/16
D2-0038-GET-1200	2"	BSD-0200-0075-E	3/8"	D2-0038-GET	3 1/2	3 5/8	2 3/8	11 1/2	2 1/16
D2-0038-GET-1250	2-1/2"	BSD-0250-0075-E	3/8"	* D2-0038-250-GET	3 1/2	4 1/8	2 5/8	11 5/8	2 5/16
D2-0038-GET-1300	3"	BSD-0300-0075-E	3/8"	* D2-0038-300-GET	3 1/2	4 7/8	3 7/8	12	2 5/8

NOTE: "M" in the part number designates the tools material of construction. E for 304 Stainless Steel, C for carbon steel.


Replacement Saddle Gasket

DTT-0038-GRG
(2) required per D2 Saddle Assembly

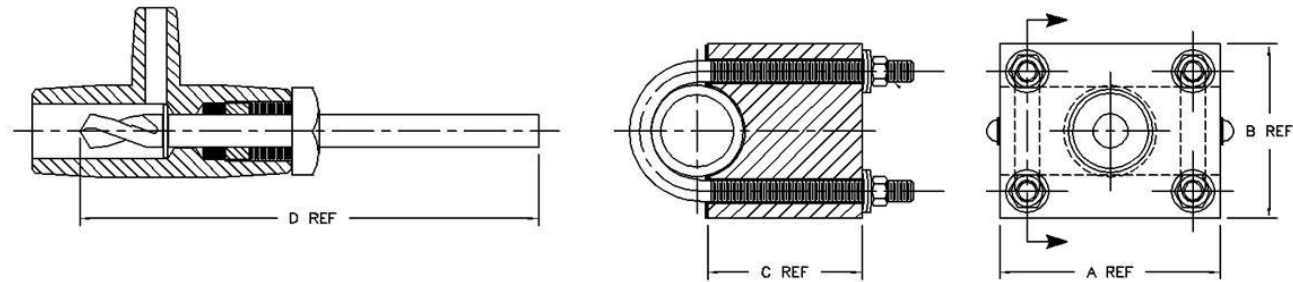
Replacement Drill Bit Assembly

D2-0025-RDT 1/4" Diameter
D2-0038-RDT 3/8" Diameter
* D2-0038-250-RDT 3/8" Diameter (2-1/2" ONLY)
* D2-0038-300-RDT 3/8" Diameter (3" ONLY)

DTT and D2 Replacement Parts
Gasket(s) are recommended for single use only.
Drill Bit Assembly and Packing are recommended to be replaced after (5) uses.

	<p>North America / Central & South America Corporate Office 2701 Township Line Rd Hatfield, PA 19440-1770 USA (P) +1 215.721.1100 +1 800.355.7044 (F) +1 215.721.1101 est-info@curtisswright.com</p>	<p>Europe / Middle East / Africa EST Group B.V. Hoon 312a 2404 HL, Alphen aan den Rijn The Netherlands (P) +31.172.418841 (F) +31.172.418849 est-emea@curtisswright.com</p>	<p>Asia Pacific EST Group Asia 35 Tannery Rd, #11-10 Tannery Block Ruby Industrial Complex Singapore 347740 (P) +65.6745.8560 (F) +65.6742.8700 est-asia@curtisswright.com</p>
	<p>http://estgroup.cwfc.com</p>		

DTT – SERIES TAPPING TOOLS



DTT-SERIES TAPPING TOOL KITS	NOMINAL PIPE SIZE	* SADDLE ASSEMBLY	NOMINAL TAP SIZE	DTT TAPPING TOOL	A	B	C	D	E
DTT-0025-GET-1025	1/4"	SAD-0025-0075-E	1/4"	DTT-0025-GET	2 1/2	1 5/8	1 13/16	9 5/16	1 1/16
DTT-0025-GET-1038	3/8"	SAD-0038-0075-E	1/4"	DTT-0025-GET	2 1/2	1 3/4	1 13/16	9 5/16	1 1/8
DTT-0038-GET-1050	1/2"	SAD-0050-0075-E	3/8"	DTT-0038-GET	2 1/2	1 7/8	1 3/4	9 5/16	N/A
DTT-0038-GET-1075	3/4"	SAD-0075-0075-E	3/8"	DTT-0038-GET	2 1/2	2	1 3/4	9 5/16	N/A
DTT-0038-GET-1100	1"	SAD-0100-0075-E	3/8"	DTT-0038-GET	2 1/2	2 1/4	1 7/8	9 5/16	N/A
DTT-0038-GET-1125	1-1/4"	SAD-0125-0075-E	3/8"	DTT-0038-GET	3 1/2	3 1/8	2 1/4	9 5/16	N/A
DTT-0038-GET-1150	1-1/2"	SAD-0150-0075-E	3/8"	DTT-0038-GET	3 1/2	3 1/8	2 1/8	9 5/16	N/A
DTT-0038-GET-1200	2"	SAD-0200-0075-E	3/8"	DTT-0038-GET	3 1/2	3 5/8	2 3/8	9 5/16	N/A
DTT-0038-GET-1250	2-1/2"	SAD-0250-0075-E	3/8"	DTT-0038-GET	3 1/2	4 1/8	2 5/8	9 5/16	N/A
DTT-0038-GET-1300	3"	SAD-0300-0075-E	3/8"	DTT-0038-GET	3 1/2	4 7/8	3 7/8	9 5/16	N/A

NOTE: "M" in the part number designates the tools material of construction. E for 304 Stainless Steel, C for carbon steel.

Replacement Saddle Gasket

DTT-0038-GRG
(1) required per DTT Saddle Assembly

Replacement Drill Bit Assembly


DTT-0025-RDT 1/4" Diameter
DTT-0038-RDT 3/8" Diameter

DTT and D2 Replacement Parts
Gasket(s) are recommended for single use only.
Drill Bit Assembly and Packing are recommended to be replaced after (5) uses.

QUESTIONS? Contact EST Group Customer Service at any of the following locations with questions.

- In USA and Canada: tel: 800-355-7044, 215-721-1100; e-mail: est-info@curtisswright.com
- In Europe: tel: +31-172-418841; e-mail: est-emea@curtisswright.com
- In Asia: tel: +65-6745-8560; e-mail: est-asia@curtisswright.com
- On the Internet: <http://estgroup.cwfc.com>

EST Group provides a complete range of repair products, services, and replacement parts covering the life cycle of heat exchangers and condensers; additionally EST Group provides products and services to facilitate pressure testing pipe, piping systems, pressure vessels, and their components. Visit EST Group on the Internet at <http://estgroup.cwfc.com>.

	<p>North America / Central & South America Corporate Office 2701 Township Line Rd Hatfield, PA 19440-1770 USA (P) +1 215.721.1100 +1 800.355.7044 (F) +1 215.721.1101 est-info@curtisswright.com</p>	<p>Europe / Middle East / Africa EST Group B.V. Hoorn 312a 2404 HL, Alphen aan den Rijn The Netherlands (P) +31.172.418841 (F) +31.172.418849 est-emea@curtisswright.com</p>	<p>Asia Pacific EST Group Asia 35 Tannery Rd, #11-10 Tannery Block Ruby Industrial Complex Singapore 347740 (P) +65.6745.8560 (F) +65.6742.8700 est-asia@curtisswright.com</p>
<p>http://estgroup.cwfc.com</p>			