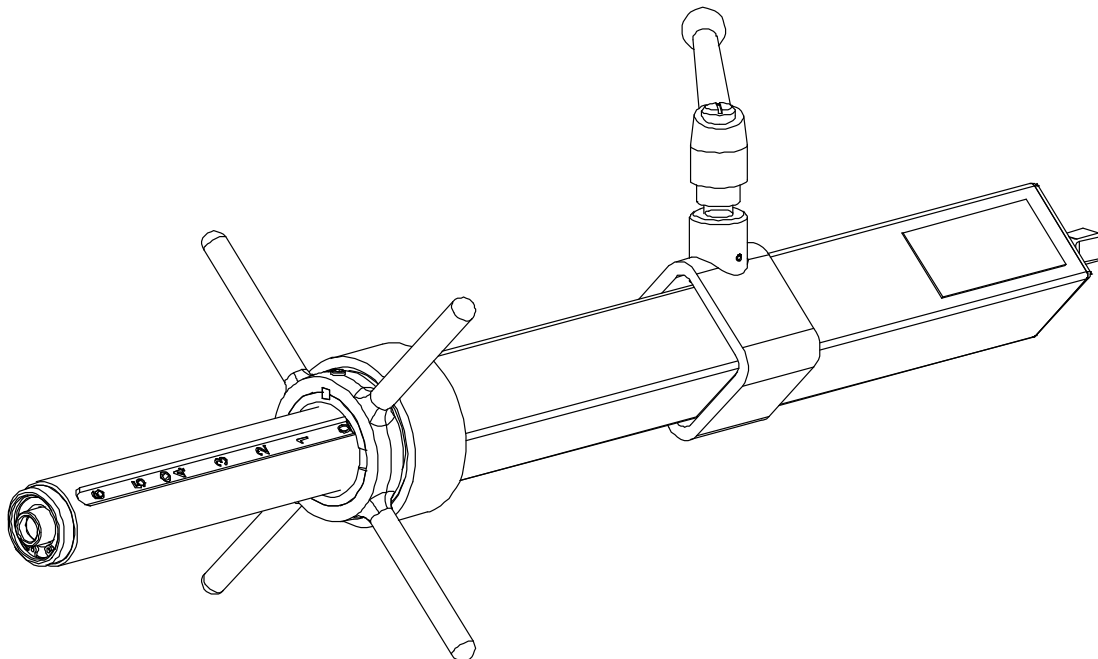


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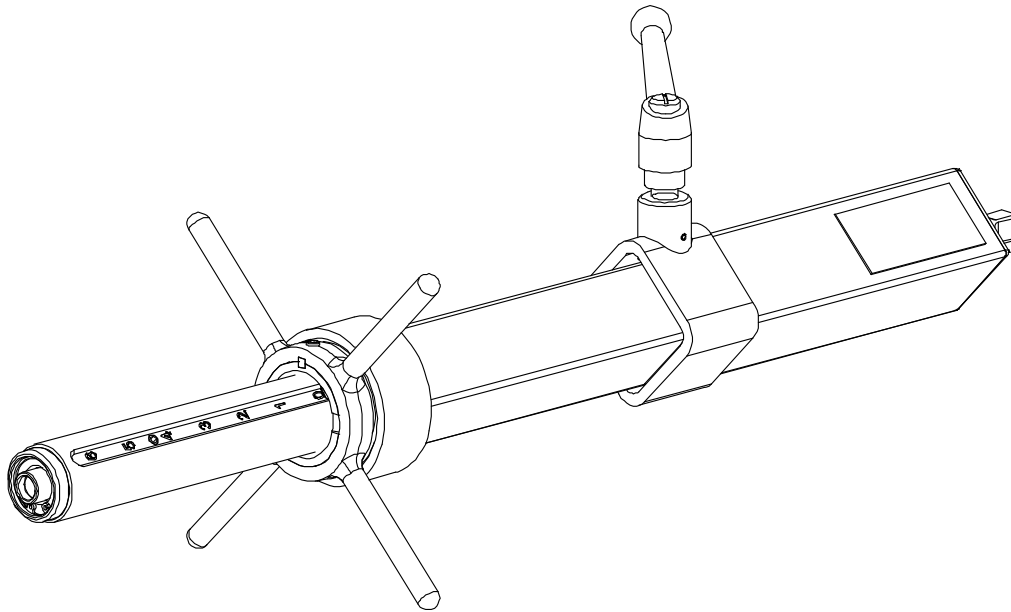
The TapMate™ Too Pipe Drilling Machine



Please read all instructions before using this tool.
Pay particular attention to the section on feeding the shell
cutters into the pipe wall.

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General Description

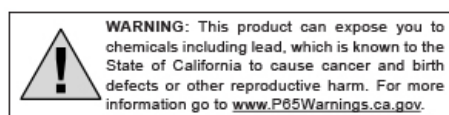
The Transmate TapMate Too™ drilling machine features lightweight construction, manual feed with an integral travel scale. It is capable of making $\frac{3}{4}$ " – 2" cuts in both pressurized and non-pressurized mains.

Ease of use and machine flexibility are two of the key design parameters of the TapMate Too™. The light weight of the machine (approx 10 lbs.) aids in both set-up and break down at the job site. It can use either a holesaw ($\frac{3}{4}$ " – 2") or a spade drill ($\frac{3}{4}$ " - 1") to give the TapMate Too™ the flexibility to cut through cast iron, ductile iron, asbestos cement, steel or plastic pipes at normal waterworks operating pressures. The travel into and out of the cut uses both a quick travel and a threaded travel method. The quick travel is provided by a sliding square tube mechanism, bring the cutting tool through the corporation and into contact with the pipe (about 6 $\frac{1}{2}$ " of quick travel max). A steel feed nut traveling on a threaded tube provides mechanical force to cut the pipe wall. This threaded travel provides about 6 $\frac{1}{4}$ " of total possible travel. In most cases only a few inches of travel is needed. A scale, marked in inches, is cut into the threaded tube so you will always know where you are in the cutting process.

Holesaws of various sizes and types are available to meet your needs. They easily attached to the TapMate Too™ through the use of the arbors that thread into the end of the shaft. A small holesaw arbor provides connection for $\frac{3}{4}$ " – 1 $\frac{1}{4}$ " holesaws and the large holesaw arbor provides the connection for 1 $\frac{1}{2}$ " – 2" holesaws. A pilot drill is provided with each arbor that slides into the arbor and is locked into place by a set screw. If using a spade bit, the spade bit holder threads directly to the end of the shaft instead of the arbor.

The TapMate Too™ attaches to the corporation with the use of adapter bells. These adapters are machined to match the outlet threads of your corporation. All adapters are constructed of cast ductile iron, steel, or aluminum and they thread onto the end of the threaded lead tube. An o-ring is provided to seal the adapters to the end of the threaded lead tube.

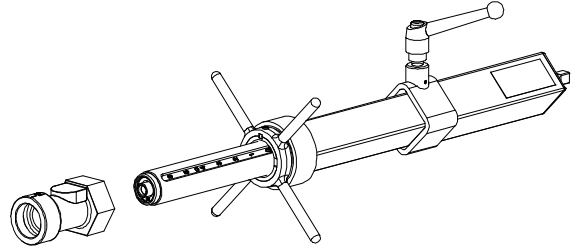
The TapMate Too™, as an option, can be powered hydraulically with the TapMate Too Hydraulic Drive (part number 372-351). Or electrically with the Ridgid 690 Electric Drive (part number 373-351), or even with just a hand drill.



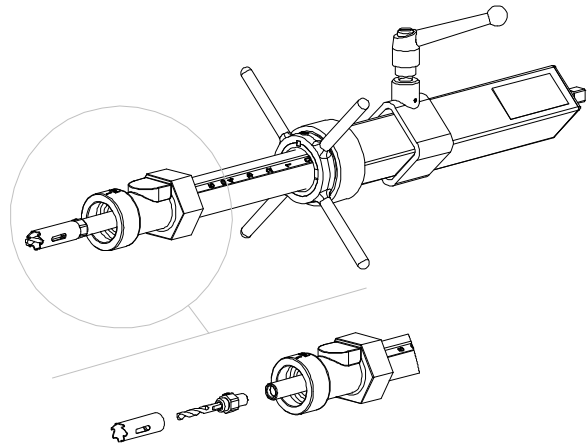
USING THE TAPMATE TOO

A. ASSEMBLING THE MACHINE

1. Choose the proper size and type of Adapter to match the outlet threads of the corporation stop you intend to use (for assistance, see Corporation / Adapter cross reference, page 14). Thread the hex shaped end of the adapter onto the Lead Tube until it is snug. This assures the O-Ring in the adapter will seal against the Lead Tube.



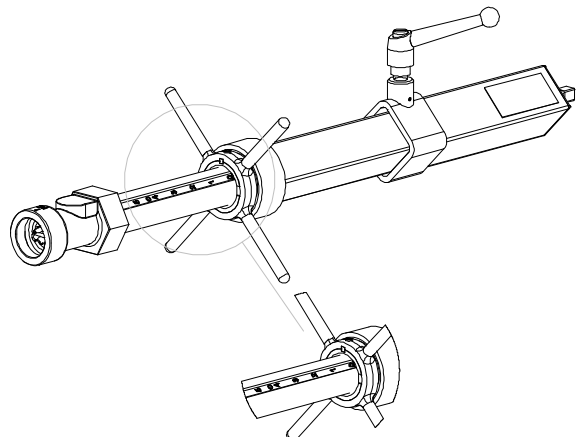
2. Loosen the Brake Handle and collapse square tubes. This will expose the end of the Shaft out of the Adapter. Attach the proper cutting tool to the Shaft, either with a spade bit holder and spade bit, or the appropriate size arbor and holesaw. Hold the square end of the shaft with a crescent wrench and thread on the cutting tool. DO NOT use a pipe wrench on the shaft.



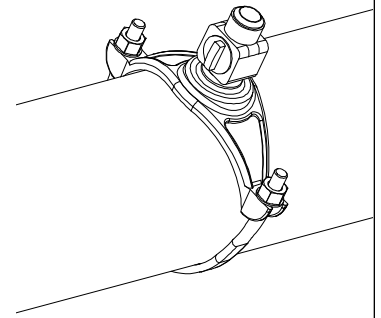
If you have chosen to use a Holesaw, check that the pilot drill is locked into place prior to attaching to the Shaft. There is a set screw on the side of the arbor that bears onto a ground flat on the pilot drill. If the pilot drill is not locked, it may just spin and not cut the pilot hole.

It is recommended that you DO NOT use the Pilot Drill in the Arbor if cutting plastic pipe.

3. Retract the Shaft and cutting tool back into the Adapter by extending the square tubes to its full travel (approximately 6 1/2"). The Lead Nut is wound back so that the number "0" shows on the milled scale in the Lead Tube.

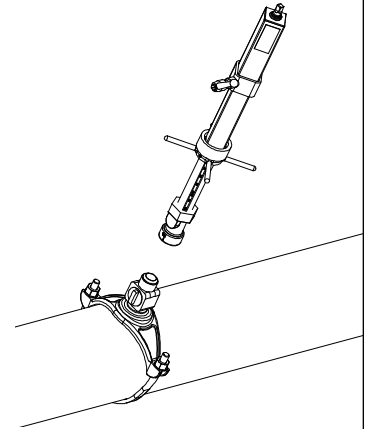


B. ATTACH SERVICE CLAMP of SADDLE & CORPORATION STOP per MANUFACTURER DIRECTIONS

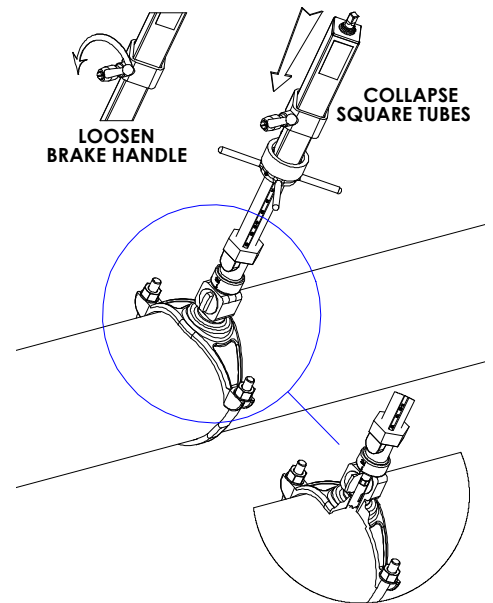


C. MOUNT MACHINE ON THE CORP. STOP

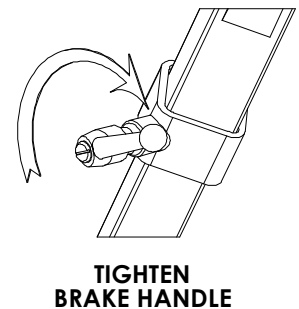
1. Thread the machine and adapter onto the corporation stop until it is tight. If the adapter is left loose you may leak water. Use a pipe wrench on the Adapter to tighten the machine and adapter onto the corporation stop.



2. Open the corporation stop. Loosen the brake handle and slowly collapse the two square tubes, advancing the cutting tool until it contacts the pipe wall. Avoid a sharp contact with the main, as this may damage the Pilot Drill, Spade Bit or Holesaws.



3. Tighten the brake with the brake handle. Mount the ratchet wrench on the square end of the Shaft.



D. DRILLING CAST IRON DUCTILE IRON and STEEL PIPE

NOTE: The Ratchet Wrench must always turn the Shaft in the clockwise direction when looking toward the main. Reversing the direction of the Shaft's rotation will damage your cutting tools.

1. Using the Spade Bits

The spade bit will act like a standard drill bit. Turn the ratchet handle in the back a full 360 degrees if possible. You should try to apply even force so that the Spade Bit continually moves into the pipe, feeding into the pipe only while the Shaft is turning.

2. Using the Holesaws and Arbors

The holesaws will not act like a standard drill bit and the feeding rate must be changed. Overfeeding the holesaws will break the teeth off and make the cut hard work.

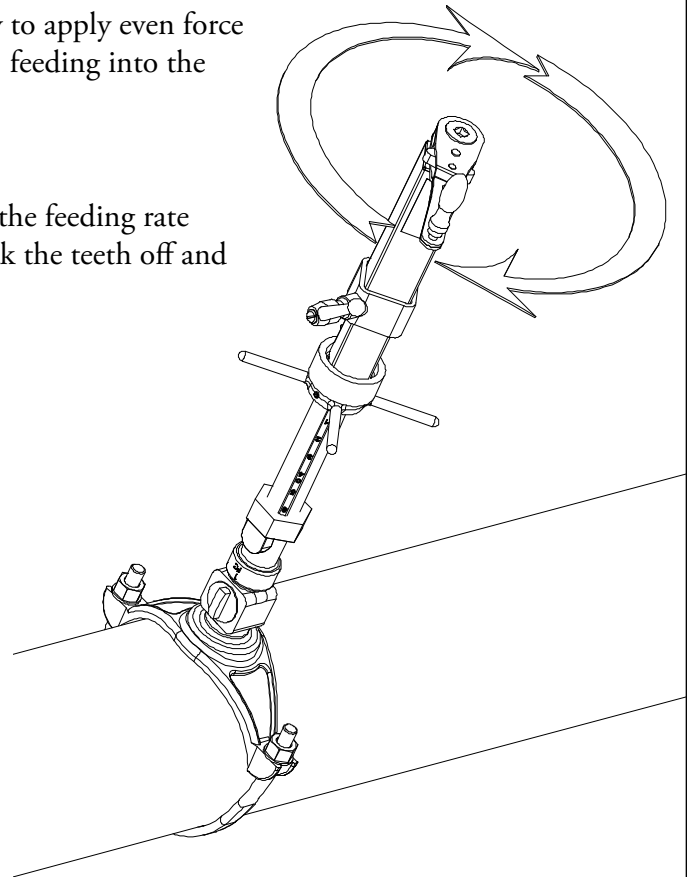
Holesaw manufacturers advise that more the 25 ft-lbs. of torque is enough to damage the teeth of holesaws. A holesaw **SHOULD NOT BE FORCED INTO THE MAIN**. It needs to cut a path as it goes, unlike a standard drill bit which chisels its way through the pipe wall.

We advise you to feed the holesaw so the the ratchet is always easy to turn. If the ratchet catches, reverse the feed out of the cut (NOT in the direction of the Shaft's rotation) until the holesaw is freely turning. Proceed back into the cut, then back off the feed and go a little slower. At first, the feed may seem very slow to the operator and he may be wondering how long it will take to make the cut.

Please do not be impatient! You will find that a fast cut can be obtained with very little effort if you feed the holesaws as recommended.

If possible, turn the ratchet wrench a full 360 degrees, rotating the shaft in a clockwise direction as viewed looking towards the pipe. If unable to rotate the full 360 degrees then go a head and ratchet back and forth. **NOTE:** Remember that as you are ratcheting back you are NOT rotating the shaft, so do not feed the cutter in as you are ratcheting back. Start out feeding very slowly and get used to the cutting action of a holesaw on the pipe. As a general rule, you will feed about 1/8th of a turn on the feed nut for every two revolutions of the shaft.

The key is to feed the holesaw so the ratchet is always free turning. Please try this method no matter how many cuts you've made in the past. You will find that cutting a hole into a water main is much less work! If there has been one common problem with the TapMate Too™ for new users, it has been overfeeding the holesaws.

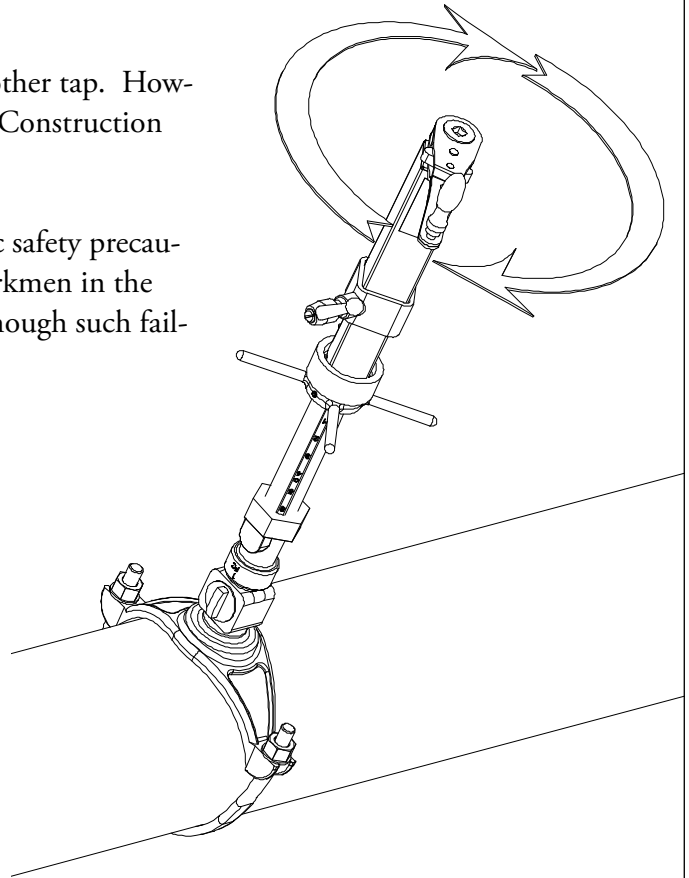


E. DRILLING PLASTIC PIPE

The composition and construction of plastic pipe requires the use of additional tapping techniques. Unibell, the plastic pipe manufacturers association recommends a shell cutter with at least two flutes for tapping PVC pipe. For this reason, we advise you to use the PVC hole-saws when tapping into plastic. Remove the pilot drill from the Arbor prior to cutting PVC pipe.

Tapping plastic pipe uses the same techniques as any other tap. However, the Unibell Handbook of PVC Pipe Design and Construction lists these additional precautions:

- When drilling or tapping any pressurized pipe, basic safety precautions are advised to assure personal safety to the workmen in the event of a sudden and unexpected pipe failure. Although such failures are extremely infrequent, nevertheless, the following precautions are recommended:
- A second workman or supervisor should be present in the immediate vicinity.
- In addition to normal protective clothing, goggles or face shields should be worn.
- Ladders should be provided for quick exit availability.
- A heavy protective blanket with a hole in the center to permit installation and operation of the tapping and drilling machine should be provided to cover the exposed area of the pipe.

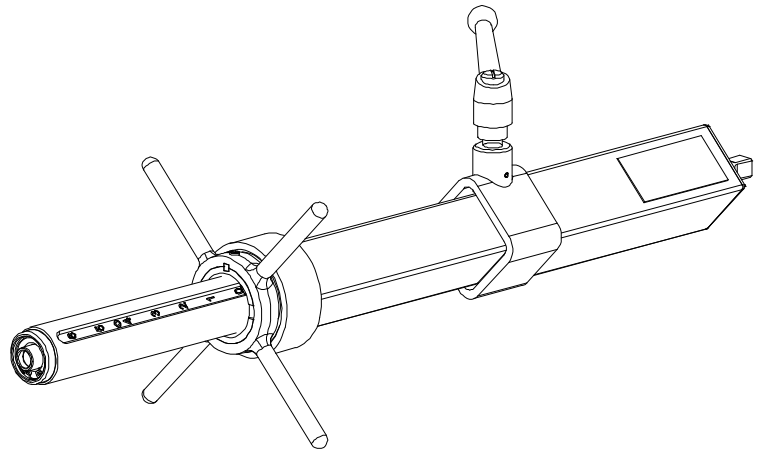


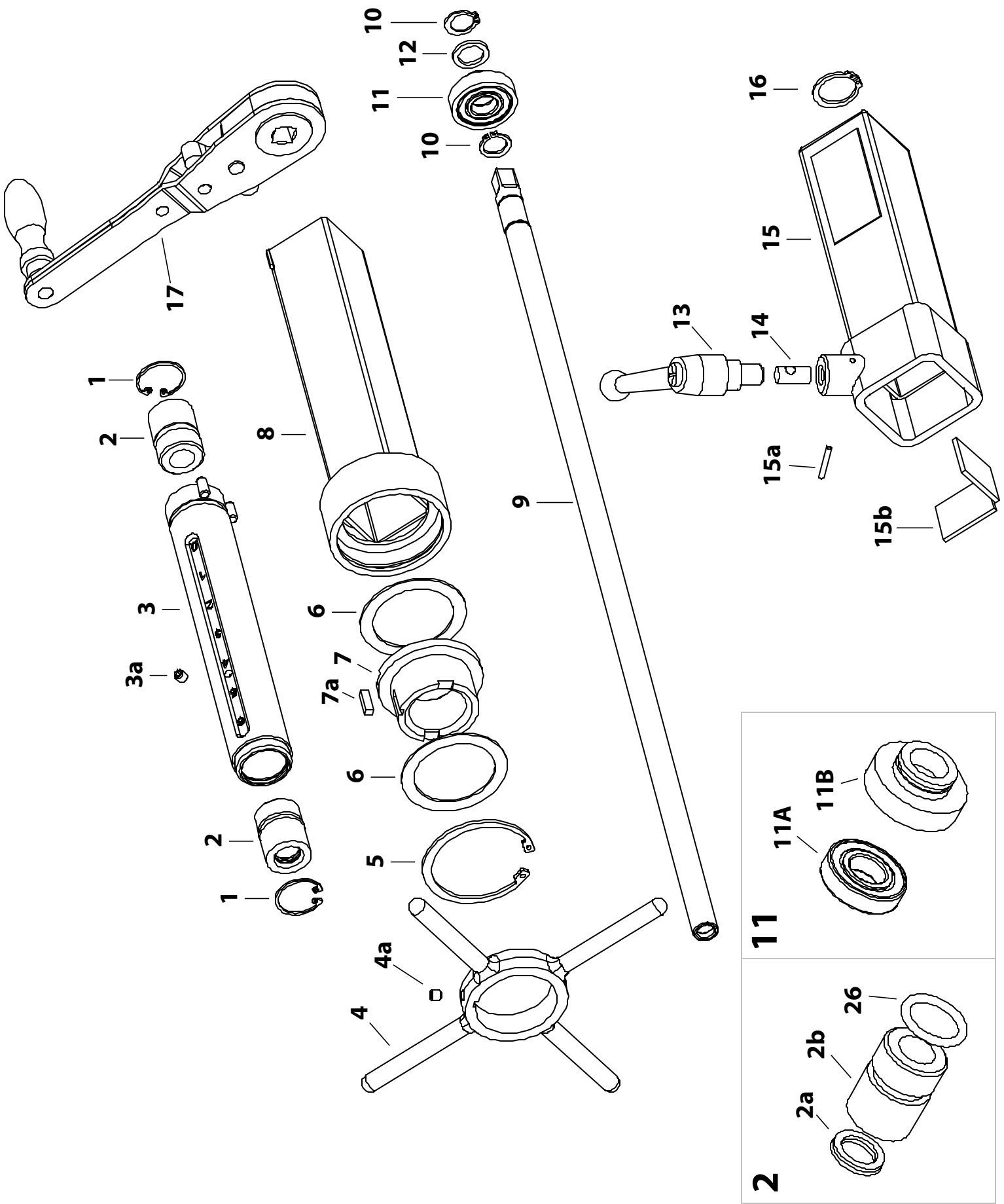
F. REMOVING THE MACHINE FROM THE MAIN

1. The cut is complete when the shaft advances easily into the main. Thread the Lead Nut back so that “0” shows on the ruler scale and then loosen the brake handle and pull the sliding brake tube and thrust tubes apart to full extension.
2. Close the corporation stop. If it will not close, check that the machine is fully retracted. The shaft of the drilling machine may still be interfering.
3. Unthread the machine from the corporation stop. The cut is complete.

G. CLEANING AND STORAGE

1. The TapMate Too™ should be cleaned after each use. Clean the thread of the Lead Tube if necessary. Spray the Lead Tube with Tri Flow (or equivalent) lubricant.
2. Examine the cutting tool, if it is dull then replace it before the next cut.
3. We advise the machine be stored in the tool box provided.





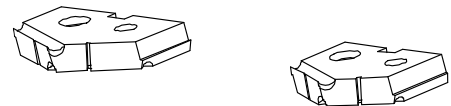
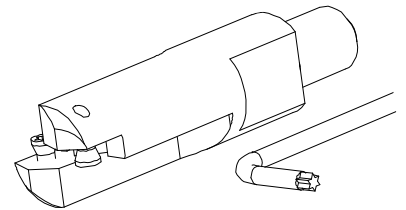
TAPMATE TOO™ PARTS LIST

REF NO.	DESCRIPTION	ITEM NO.	REF NO.	DESCRIPTION	ITEM NO.
1	Lead Tube Snap Ring (2 required)	351-23-54	9	Shaft	351-20
2	Lead Tube Bushing Complete (includes Bushing, Shaft Seal, O-Ring)	351-22-2A	10	Shaft End Snap Ring (2 required)	351-20-54
2a	Poly Pak Shaft Seal	351-57-2	11	Shaft End Bushing Complete	351-22-1A
2b	Lead Tube Bushing	351-22-2	11a	Shaft End Bearing	351-20-56
2c	Lead Tube Bushing O-Ring	351-57-1-62	11b	Shaft End Bushing	351-22-1
3	Lead Tube	351-23	12	Shaft End Nylatron Washer	351-20-531
3a	Lead Tube Set Screw	351-23-512	13	Brake Handle	351-29-2
4	Handle for Lead Nut	351-29-1	14	Brake Pin	351-50-2
5	Lead Nut Snap Ring	351-24-54	15	Brake Tube (includes Brake Pads)	351-30
5a	Arbor & Handle Set Screw	351-51-2	15b	Brake Pad (2 required)	351-30-1
6	Lead Nut Nylatron Washers (2 required)	351-24-531	15a	Roll Pin	351-50-3
7	Lead Nut	351-24	16	Shaft End Bushing Snap Ring	351-22-54
7a	Lead Nut Key	351-24-66	17	Ratchet Wrench	351-60-1
8	Thrust Tube	351-32	Not Illustrated: Toolbox		351-61

SPADE BIT

The spade bit provides a low cost alternative to the traditional twist drill bit. Spade bits are attached to the spade bit holder using the two Torx™ screws provided.

PART NUMBER	DESCRIPTION
351-03-106	3/4" Spade Bit (actual OD 23/32")
351-03-108	1" Spade Bit (actual OD 7/8")
351-03-12	Spade Bit Holder (includes Torx Key Wrench and Screws; required for Spade Bit use)
351-60-5	Torx Key Wrench
351-03-512	Spade Bit Screw (2 required)

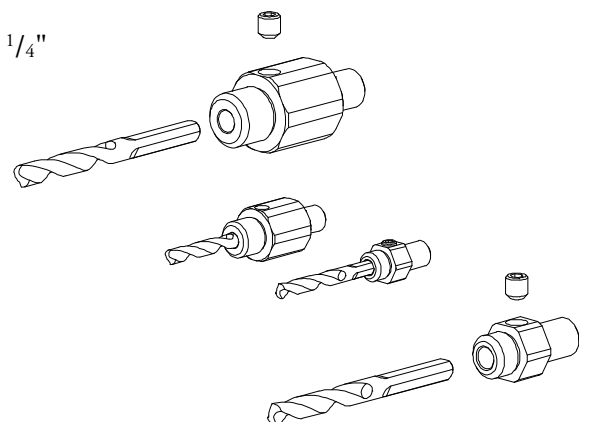


Caution: Over tightening of these small screws will strip out the heads. Spade bits are available in the 3/4" nominal (23/32" actual), and the 1" nominal (7/8" actual) sizes.

HOLESAW ARBORS

The arbors mate the end of the shaft to the holesaw being used. Two arbors are available. The Small Arbor accommodates 3/4" - 1 1/4" holesaws. The Large Arbor is necessary for 1 1/2" and 2" cuts.

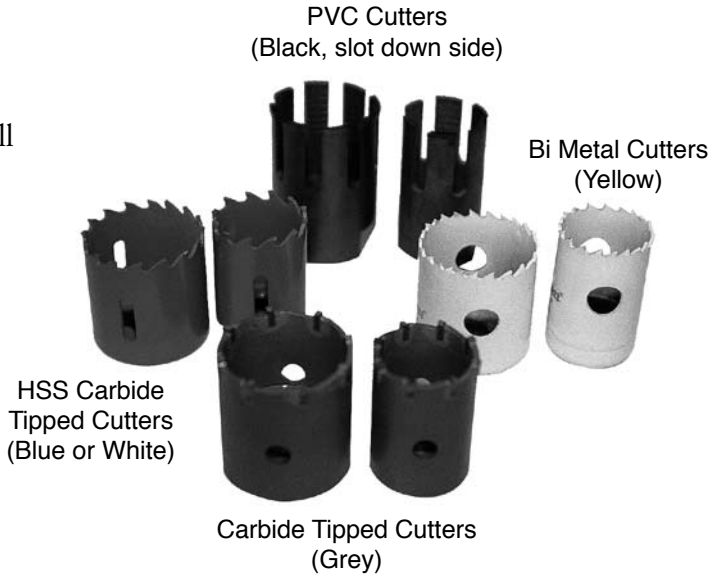
PART NUMBER	DESCRIPTION
351-14-1	Small Holesaw Arbor, includes Arbor Pilot Drill 351-01-402 (for 3/4", 1" and 1 1/4" holesaws)
351-14-2	Large Holesaw Arbor, includes Arbor Pilot Drill 351-01-402 (for 1 1/2" and 2" holesaws)
351-01-402	1/4" Arbor Pilot Drill (for Small and Large Holesaw Arbor)
351-01-403	1/4" Arbor Pilot Drill w/Retaining Spring



HOLESAWS

Five types of Holesaws are available. The carbide tipped holesaw is best for use on A/C, Cast Iron, or Ductile Iron pipe. The HSS carbide tipped Holesaw works well on ductile iron, cast iron and A/C. The High Speed Steel holesaw is best for use with Steel Pipe, but may be used for ductile, cast iron and A/C as well. The PVC holesaw is necessary for cutting into plastic pipe. Special deep throated cutters for HDPE (not shown) are also available.

All types of holesaws are available in 5 sizes (shown below).



Holesaws	
Nominal Size	Actual O.D.
3/4"	11/16"
1"	7/8"
1 1/4"	1 1/8"
1 1/2"	1 3/8"
2"	1 3/4"

	PART NUMBER	DESCRIPTION	PART NUMBER	DESCRIPTION	
For Ductile, Cast Iron & A/C	351-01-106	3/4" Carbide Holesaw	For PVC only	351-01-206	3/4" PVC Holesaw
	351-01-108	1" Carbide Holesaw		351-01-208	1" PVC Holesaw
	351-01-110	1 1/4" Carbide Holesaw		351-01-210	1 1/4" PVC Holesaw
	351-01-112	1 1/2" Carbide Holesaw		351-01-212	1 1/2" PVC Holesaw
	351-01-116	2" Carbide Holesaw		351-01-216	2" PVC Holesaw
For Ductile, Cast Iron & A/C	351-01-406	3/4" HSS Carbide Tip Holesaw	For HDPE	351-01-906	3/4" HDPE Holesaw
	351-01-408	1" HSS Carbide Tip Holesaw		351-01-908	1" HDPE Holesaw
	351-01-410	1 1/4" HSS Carbide Tip Holesaw		351-01-910	1 1/4" HDPE Holesaw
	351-01-412	1 1/2" HSS Carbide Tip Holesaw		351-01-912	1 1/2" HDPE Holesaw
	351-01-416	2" HSS Carbide Tip Holesaw		351-01-916	2" HDPE Holesaw
For Ductile, Cast Iron, A/C & Steel	351-01-506	3/4" Bimetal Holesaw			
	351-01-508	1" Bimetal Holesaw			
	351-01-510	1 1/4" Bimetal Holesaw			
	351-01-512	1 1/2" Bimetal Holesaw			
	351-01-516	2" Bimetal Holesaw			

MACHINE ADAPTERS

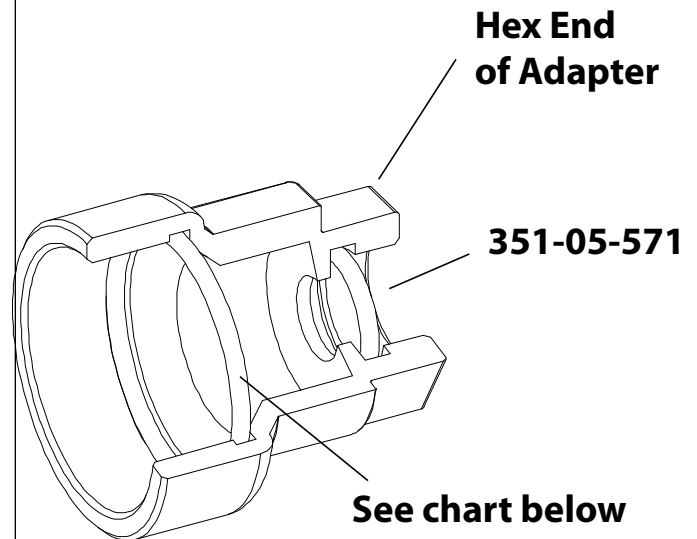
Adapters are available for all 3/4" - 2" corp stops. Special adapters can be made at the factory. Contact Transmate for additional information at 1-800-426-9341.



PART NUMBER	DESCRIPTION*
351-05-406	3/4" Female Iron Pipe Adapter
351-05-408	1" Female Iron Pipe Adapter
351-05-410	1 1/4" Female Iron Pipe Adapter
351-05-412	1 1/2" Female Iron Pipe Adapter
351-05-416	2" Female Iron Pipe Adapter
351-05-420	2 1/2" Female Iron Pipe Adapter
351-05-506	3/4" Flare Copper Adapter
351-05-508	1" Flare Copper Adapter
351-05-510	1 1/4" Flare Copper Adapter
351-05-512	1 1/2" Flare Copper Adapter
351-05-516	2" Flare Copper Adapter
351-05-606	3/4" Male Iron Pipe Adapter
351-05-608	1" Male Iron Pipe Adapter
351-05-610	1 1/4" Male Iron Pipe Adapter
351-05-612	1 1/2" Male Iron Pipe Adapter
351-05-616	2" Male Iron Pipe Adapter
351-05-812	1 1/2" Jones SG Adapter
351-05-816	2" Jones SG Adapter
351-05-706	3/4" Special Fine Thread Adapter
351-05-708	1" Special Fine Thread Adapter
351-05-710	1 1/4" Special Fine Thread Adapter
351-05-712	1 1/2" Special Fine Thread Adapter
351-05-716	2" Special Fine Thread Adapter
351-05-106	3/4" HDPE Adapter FIP
351-05-108	1" HDPE Adapter FIP
351-05-110	1 1/4" HDPE Adapter FIP
351-05-112	1 1/2" HDPE Adapter FIP
351-05-116	2" HDPE Adapter FIP
351-05-906	3/4" HDPE Adapter FC
351-05-908	1" HDPE Adapter FC
351-05-910	1 1/4" HDPE Adapter FC
351-05-912	1 1/2" HDPE Adapter FC
351-05-916	2" HDPE Adapter FC
351-05-206	3/4" HDPE Adapter MIP
351-05-208	1" HDPE Adapter MIP
351-05-210	1 1/4" HDPE Adapter MIP
351-05-212	1 1/2" HDPE Adapter MIP
351-05-216	2" HDPE Adapter MIP

*Note: Adapter thread description describes thread machined on the adapter

Adapter O-Rings



PART NUMBER	DESCRIPTION
351-05-571	TT Adapter O-Ring (All TT Adapters)
351-05-5571-1	TT Adapter O-Ring 3/4" Flare Copper
351-05-5571-2	TT Adapter O-Ring 1" Flare Copper
351-05-5571-2	TT Adapter O-Ring 1" Flare Copper
351-05-5571-3	TT Adapter O-Ring 1 1/4" Flare Copper
351-05-5571-4	TT Adapter O-Ring 1 1/2" Flare Copper
351-05-5571-5	TT Adapter O-Ring 2" Flare Copper
351-05-706-57	TT Adapter O-Ring 3/4" Special Fine Thread
351-05-708-57	TT Adapter O-Ring 1" Special Fine Thread
351-05-710-57	TT Adapter O-Ring 1 1/4" Special Fine Thread
351-05-712-57	TT Adapter O-Ring 1 1/2" Special Fine Thread
351-05-716-57	TT Adapter O-Ring 2" Special Fine Thread

TAPMATE TOO PVC to HDPE CUTTER CHART

When do I have to use the HDPE cutter instead of the PVC plastic cutter?

This is totally dependent on the wall thickness of the HDPE pipe. The PVC cutter can be used on HDPE pipe with up to 1¹/₈" wall thickness, but beyond 1¹/₈" wall it is recommended that the HDPE cutter and adapter be used. The chart below outlines the different wall thickness of HDPE pipe. Approximate values of wall thickness can be derived by taking the OD of the pipe divided by the SDR number. The shaded area below shows where the PVC cutter can be used.

Nominal Size	Average OD	MINIMUM WALL					Max Wall	Min. Wall	Diff. in Perimeter
		SDR 15.55 110 psi	SDR 13.5 130 psi	SDR 11 160 psi	SDR 9 200 psi	SDR 7 265 psi			
3	3.50	0.23	0.26	0.32	0.39	0.50	0.50	0.23	1.72
4	4.50	0.29	0.33	0.41	0.50	0.64	0.64	0.29	2.22
5	5.56	0.36	0.41	0.51	0.62	0.80	0.80	0.36	2.74
6	6.63	0.43	0.49	0.60	0.74	0.95	0.95	0.43	3.26
7	7.13	0.46	0.53	0.65	0.79	1.02	1.02	0.46	3.50
8	8.63	0.56	0.64	0.78	0.96	1.23	1.23	0.56	4.25
10	10.75	0.69	0.80	0.98	1.19	1.54	1.54	0.69	5.29
12	12.75	0.82	0.94	1.16	1.42	1.82	1.82	0.82	6.27
13	13.39	0.86	0.99	1.22	1.49	1.91	1.91	0.86	6.58
14	14.00	0.90	1.04	1.27	1.56	2.00	2.00	0.90	6.89
16	16.00	1.03	1.19	1.46	1.78		1.78	1.03	4.68
18	18.00	1.16	1.33	1.64			1.64	1.16	2.98
20	20.00	1.29	1.48	1.82			1.82	1.29	3.32
21.5	21.50	1.39	1.59	1.96			1.96	1.39	3.57
22	22.00	1.42	1.63	2.00			2.00	1.42	3.65
24	24.00	1.55	1.78	2.18			2.18	1.55	3.98
26	26.00	1.68	1.93	2.36			2.36	1.68	4.31
28	28.00	1.81	2.07	2.55			2.55	1.81	4.64
30	30.00	1.94	2.22	2.73			2.73	1.94	4.97
800 mm	31.50	2.03	2.33				2.33	2.03	1.89
32	32.00	2.07	2.37				2.37	2.07	1.92
34	34.00	2.19	2.52				2.52	2.19	2.04
36	36.00	2.32	2.67				2.67	2.32	2.16
1000 mm	39.37						0.00	0.00	0.00
42	42.00						0.00	0.00	0.00
1200 mm	47.24						0.00	0.00	0.00

Note: If it is determined that an HDPE cutter is required, it MUST be used in conjunction with an HDPE adapter. Due to the cutters increased overall length.

