



# Continuous Cutting Overshot

## MAN-TTT-180K (R02)

### Thru-Tubing Technology

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# **Continuous Cutting Overshot**

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## Description

The Continuous Cutting Overshot is used to cut and retrieve continuous tubing that have been parted, stuck, and/or abandoned in the wellbore. The tool consists of a Top Sub, Bowl, Guide, Shearable Slip Bowl, Grapple and Cutting Grapples.

## Operation

The Continuous Cutting Overshot is attached on the fishing string, lowered to the top of the fish and then stripped over to the desired depth. To initiate the cut, simply pick up on the work string, to set the grapple and shear the shear screws. This will force the cutting grapples into the fish, shearing it in two and leaving a clean top for further retrieval or entry for wireline equipment. The overpull to cut the coil is only 25-30% of the yield of the tubing being cut (this can vary due to well bore friction, spalling of cutting grapple blades, etc.). The overshot is not a releasable tool for upward travel, but it can be released to travel down hole. Simply bump down sharply to release the grapple and continue to the desired depth.

## Tool Size and Cutting Capability

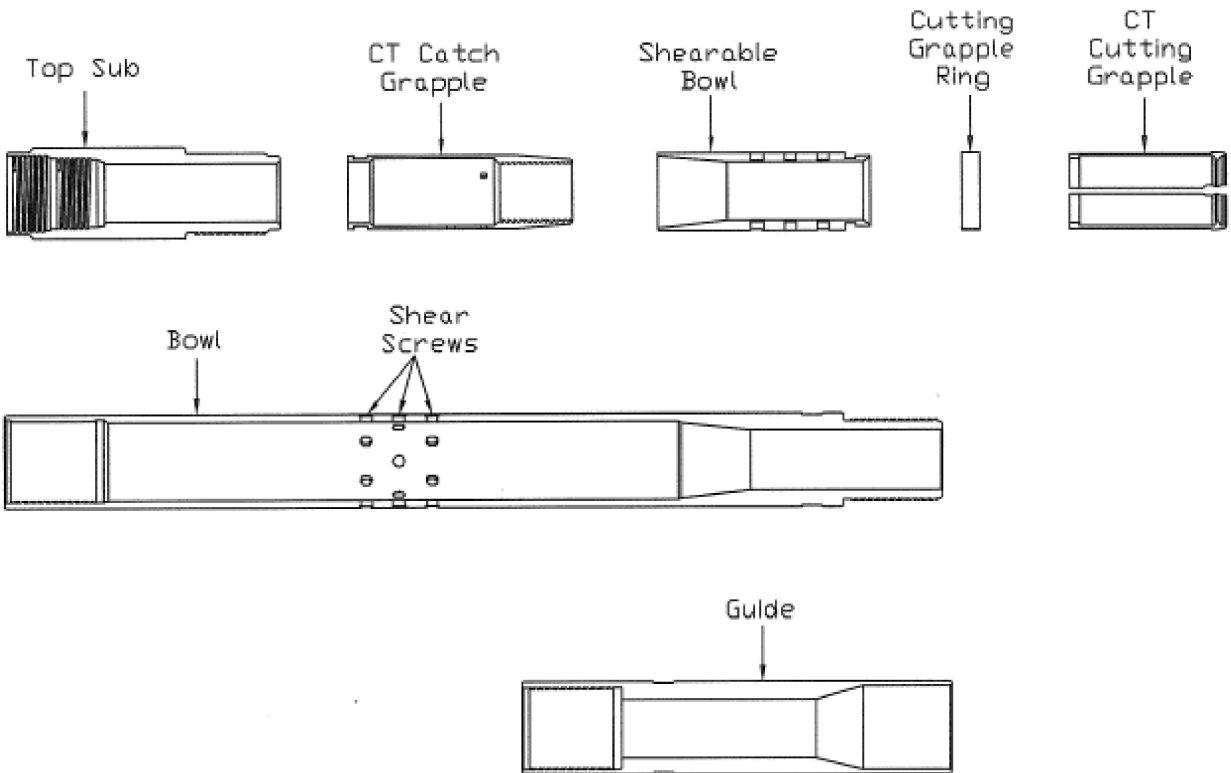
Tool OD		Length		Coiled Tubing Size					Top Connection
in.	mm	in.	mm	1.0 in.	1.250 in.	1.500 in.	1.750 in.	2.0 in.	
2.063	52.4	23.50	596.9	x	x				1.500 in. CS Hydril Box
2.500	63.5	35.80	909.3			x			2.062 in. CS Hydril Box
2.700	68.6	39.00	990.6		x	x	x		2.375 in. CS Hydril Box
3.375	85.7	34.80	883.9				x	x	2.875 in. CS Hydril Box



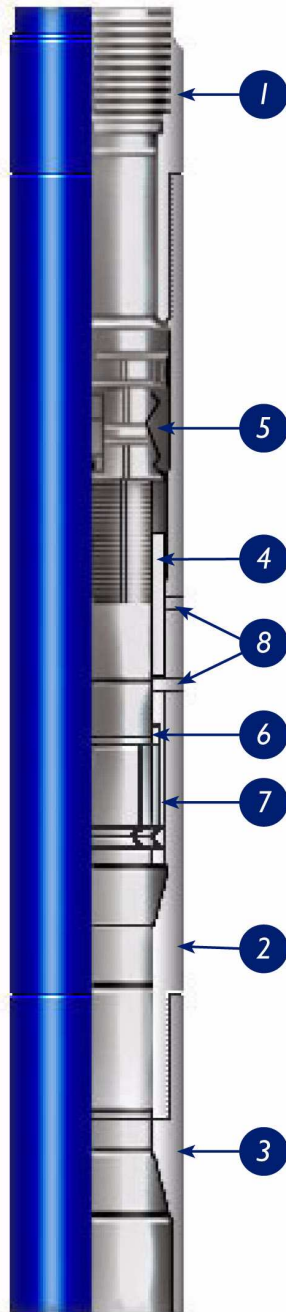
**Note:** Unless otherwise indicated, all the strength figures given in this manual, are the result of calculations based on the yield strength of the material used in the manufacture of this product. These strength calculations are considered accurate within plus or minus 20% and are to be used only as a guide. They do not constitute a guarantee, actual or implied. In use, appropriate allowance should be made as a safety factor.

# Continuous Cutting Overshot

## Part Identification Sheet



## TT0180-206K BOM, Schematic and Specs



ITEM	QTY	TOOL PARTS DESCRIPTION	PART NUMBER
1	1	Top Sub	TT0180-206K-001
2	1	Bowl	TT0180-206K-002
3	1	Guide	TT0180-206K-003
4	1	Shearable Bowl	TT0180-206K-004
5	1	Grapple f/1 1/4" Coil Tubing	TT0182-225B
	1	Grapple f/1" Coil Tubing	TT0182-225A
6	1	Cutting Grapple f/1 1/4" Coil Tubing	TT0182-225D
	1	Cutting Grapple f/1" Coil Tubing	TT0182-225DA
7	1	Cutting Grapple Ring	TT0180-225D-006
8	18	Brass Slotted Shear Screws	PUR-TBSS160-020

**Tool Name:** 2.063 in. OD Slim Hole Coiled Tubing Cutting Overshot

**Product Code:** TT0180-206K    **Tool OD:** 2.063 in.    **Tool ID:** 1-5/16 in.

**Material:** AISI 4340 HT    **Tool Length:** 33.2 in.

**Minimum Yield:** 140,000 psi

**Strength Properties of Tool:**

**Minimum Yield Point and Load to Yield:** Lower Cutting Grapple Taper in Bowl, 65,000 lbs

**Burst Point and Burst Pressure:** N/A Pack-Off should not be run below overshot.

**Torsional Weak and Ft-Lbs to Yield:** Pin Connection on Top Sub, 1,360 ft-lbs, without tensile loading.

**Recommended Make Up Torque:**

**1st Connection:** Top Sub and Bowl Connection - 600 ft-lbs.

**2nd Connection:** Bowl and Guide Connection - 600 ft-lbs.

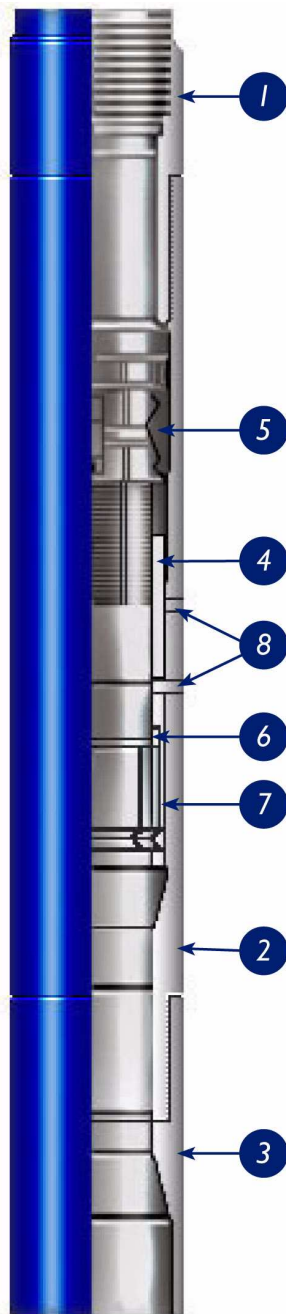
**Miscellaneous Information:**

**Shear Pin Size and Values:** 1/4-20 X 5/16 in. Long Brass Slotted Head Shear Screws, 1,417 lbs (plus or minus 20%) per screw

**Max Number of Shear Pins:** 18

# Continuous Cutting Overshot

## TT0180-250K BOM, Schematic and Specs



ITEM	QTY	TOOL PARTS DESCRIPTION	PART NUMBER
1	1	Top Sub	TT0180-250K-001
2	1	Bowl	TT0180-250K-002
3	1	Guide	TT0180-250K-003
4	1	Shearable Bowl	TT0180-250K-004
5	1	Grapple f/1 1/2" Coil Tubing	TT0182-230C
6	1	Cutting Grapple f/1 1/2" Coil Tubing	TT0182-250F
7	1	Cutting Grapple Ring	TT0180-230C-002
8	18	Brass Slotted Shear Screws	PUR-TBSS160-020

**Tool Name:** 2.500 in. OD Slimhole CT Cutting Overshot

**Product Code:** TT0180-250K **Tool OD:** 2.500 in. **Tool ID:** 1.563 in.

**Material:** AISI 4140 HT / 4340 HT **Tool Length:** 35.8 in. w/ 2-1/16 in. CS

**Minimum Yield:** 100,000 psi; 140,000 psi for the Bowl

**Strength Properties of Tool:**

**Minimum Yield Point and Load to Yield:** The thread relief of the pin connection of the Top Sub, 74,000 lbs; bowl taper swell of the Bowl, 120,000 lbs.

**Burst Point and Burst Pressure:** N/A Pack-Off Sub should not be run below overshot.

**Torsional Weak Point and Ft-Lbs to Yield:** 2,440 ft-lbs as a function of torsional yield of the box connection of the Bowl.

**Recommended Make Up Torque:**

**1st Connection:** The Top Sub - Bowl connection - 610 ft-lbs.

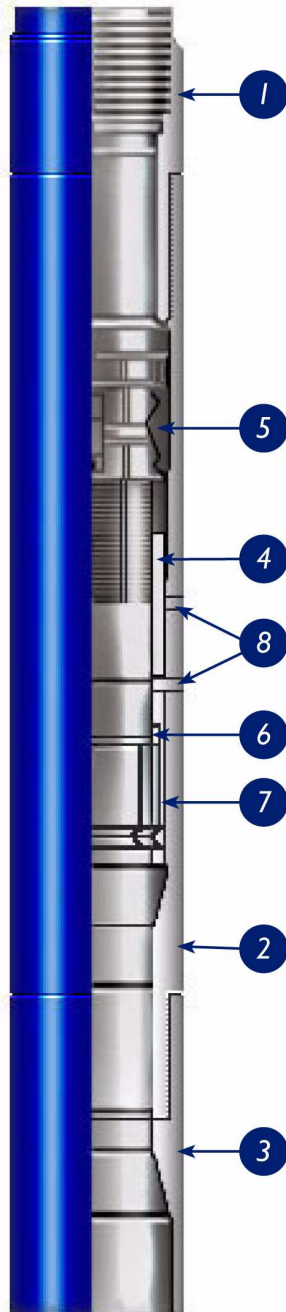
**2nd Connection:** The Bowl - Guide connection - 420 ft-lbs.

**Miscellaneous Information:**

**Shear Pin Size and Values:** 1/4-20 X 5/16 in. Long Brass Slotted Head Shear Screws, 1,417 lbs (plus or minus 20%) per screw

**Max Number of Shear Pins:** 18

## TT0180-270K BOM, Schematic and Specs



ITEM	QTY	TOOL PARTS DESCRIPTION	PART NUMBER
1	1	Top Sub	TT0180-270C-001
2	1	Bowl	TT0180-270K-002
3	1	Guide	TT0180-270C-003
4	1	Shearable Bowl	TT0180-270K-004
5	1	Grapple f/1 1/4" Coil Tubing	TT0182-313B
	1	Grapple f/1 1/2" Coil Tubing	TT0182-313C
	1	Grapple f/1 3/4" Coil Tubing	TT0182-313D
6	1	Cutting Grapple f/1 1/4" Coil Tubing	TT0182-270F
	1	Cutting Grapple f/1 1/2" Coil Tubing	TT0182-270G
	1	Cutting Grapple f/1 3/4" Coil Tubing	TT0182-270H
7	1	Cutting Grapple Ring	TT0180-270K-006
8	18	Brass Slotted Shear Screws	PUR-TBSS160-020

**Tool Name:** 2.700" OD Slimhole CT Cutting Overshot

**Product Code:** TT0180-270K **Tool OD:** 2.700 in. **Tool ID:** 1.813 in.

**Material:** AISI 4140 HT / 4340 HT **Tool Length:** 39 in. w/ 2-3/8 in. CS

**Minimum Yield:** 100,000 psi; 140,000 psi for the Bowl

**Strength Properties of Tool:**

**Minimum Yield Point and Load to Yield:** The fillet near the pin connection of the Top Sub, 62,000 lbs; bowl taper swell of the Bowl, 124,000 lbs.

**Burst Point and Burst Pressure:** N/A Pack-Off Sub should not be run below overshot.

**Torsional Weak Point and Ft-Lbs to Yield:** 2,250 ft-lbs as a function of torsional yield of the box connection of the Bowl.

**Recommended Make Up Torque:**

**1st Connection:** The Top Sub - Bowl connection - 675 ft-lbs.

**2nd Connection:** The Bowl - Guide connection - 710 ft-lbs.

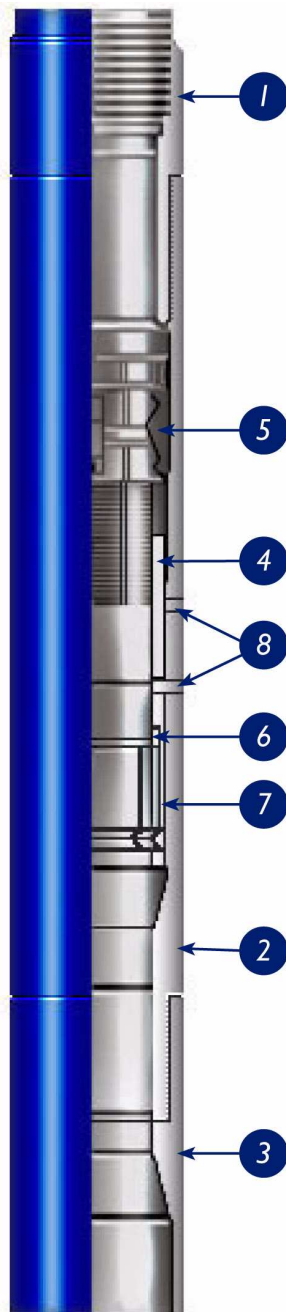
**Miscellaneous Information:**

**Shear Pin Size and Values:** 1/4-20 X 5/16 in. Long Brass Slotted Head Shear Screws, 1417 lbs (plus or minus 20%) per screw

**Max Number of Shear Pins:** 18

# Continuous Cutting Overshot

## TT0180-338K BOM, Schematic and Specs



ITEM	QTY	TOOL PARTS DESCRIPTION	PART NUMBER
1	1	Top Sub	TT0180-338K-001
2	1	Bowl	TT0180-338K-002
3	1	Guide	TT0180-338K-003
4	1	Shearable Bowl	TT0180-338K-004
5	1	Grapple F/ 1-3/4" Coil Tubing	TT0182-338D
	1	Grapple F/ 2" Coil Tubing	TT0182-338E
6	1	Cutting Grapple F/ 1-3/4" Coil Tubing	TT0182-338I
	1	Cutting Grapple F/ 2" Coil Tubing	TT0182-338J
7	1	Cutting Grapple Ring	TT0180-338K-006
8	18	Brass Slotted Shear Screws 3/8-16 x 1/2"	PUR-TBSS240-032

**Tool Name:** 3.375 in. OD Slimhole CT Cutting Overshot

**Product Code:** TT0180-338K **Tool OD:** 3.375 in. **Tool ID:** 2.130 in.

**Material:** AISI 4140 HT **Tool Length:** 45.75 in. w/2-7/8 in. Hydril CS

**Minimum Yield:** 100,000 psi

**Strength Properties of Tool:**

**Minimum Yield Point and Load to Yield:** The fillet near the pin connection of the Top Sub, 91,100 lbs; bowl taper swell of the Bowl, 180,000 lbs.

**Burst Point and Burst Pressure:** N/A

Note: Pack-Off Sub should not be run below overshot.

**Torsional Weak Point and ft/lbs to Yield:** 4,580 ft/lbs as a function of torsional yield of the box connection of the Bowl. The recommended make up torque of the Hydril CS is 2100 ft/lbs.

**Recommended Make Up Torque:**

**1st Connection:** The Top Sub - Bowl connection - 2100 ft/lbs.

**2nd Connection:** The Bowl - Guide connection - 2100 ft/lbs.

**Miscellaneous Information:**

**Shear Pin Size and Values:** 3/8-16 X 1/2 in. Long Brass Slotted Head Shear Screws, 3565 lbs (plus or minus 20%) per screw

**Max Number of Shear Pins:** 18



## 1.0 Pre-Assembly



**Warning:** Make sure all tool parts and components have been thoroughly cleaned or serious damage and/or injury could occur!



**Note:** Verify that the correct O-ring redress kit and quantities are used as specified on the Bill Of Materials (for example, 5 each etc...). Lay out all redress kit components on a clean surface.



**Note:** Make sure to lubricate all O-rings and threaded surfaces.



**Note:** Visually inspect all parts for damage or wear. Thread parts together without the O-rings to check fit. Repair or replace damaged parts.



**Caution:** Always file wrench marks or burrs and clean off debris!



**Caution:** This tool should always be disassembled, cleaned thoroughly, inspected and reassembled after each job!

## 2.0 Assembly

**2.1** On a sturdy work surface, stand the Redress Tool on end. Grease the ID and OD of the Shearable Bowl (item #4) and insert, shoulder facing up, into the Redress Tool.

**2.2** One by one, take each Cutting Grapple blade and insert them into the slot cut into the Redress Tool, and then rotate them around the rim of the Shearable Bowl. Continue until all of the blades are in place and evenly spaced. Now slide the Cutting Grapple Ring over the blades and down, while trying to maintain the spacing between the blades. It may be necessary to take a small brass rod and tap down the ring to fully seat it. Remove Cutting Grapple/Shearable Bowl from the Redress Tool.



**Note:** Once you have the ring in place, slide it down by hand as far as it can go. You can take the Shearable Bowl/Cutting Grapple out of the Redress Tool to continue tapping the ring until it is fully seated.

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2.3 Grease the entire ID of the Guide (item #3) and then put it in a vise.

2.4 Grease the ID and pin threads of the Bowl (item #2) and screw onto the Guide wrench tight.

2.5 Move the assembly down in the vise to the Bowl.



**Caution:** Do not vise on the holes, as this can damage the tool!

2.6 Grease the blades of the Cutting Grapple, then insert the Shearable Bowl/Cutting Grapple into the Bowl, blades first. Make sure to align the holes in the Shearable Bowl with those in the Bowl, so that the Shear Screws can be inserted. Use a brass rod to insert, until all 18 holes are aligned.

2.7 Depending upon your required shear values, insert and evenly space 1-18 Shear Screws (item #5).

2.8 Grease the OD fingers of the Cutting Grapple and insert it just past the ID threads of the Bowl.

2.9 Grease the entire ID of the Top Sub (item #1) and screw into the Bowl wrench tight.

## 3.0 Disassembly

3.1 Place the tool in a vise on the Bowl (item #2).



**Caution:** 3.2 Do not vise on the holes, as this can damage the tool!

3.3 Remove the Top Sub (item #1).

3.4 Now remove the Guide (item #3) from the Bowl.

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**3.5** Using a brass rod that has the same OD as the coil tubing, insert into the top of the Bowl and drive out the Tubing/Shearable Bowl/Grapple, until it is loose. Once loose, you should be able to remove it by hand.



**Caution:** Make sure that the Cutting Grapple Ring came out with the other parts! If not it can be removed by tapping it out with a brass rod!



**Note:** Remove and discard all O-rings. Replace O-rings after each use. Thoroughly clean tool parts in a cleaner approved by state and/or local laws.



**Note:** Visually inspect tool for swelling after each use. Damaged or swelled components must be replaced.



**Note:** It is recommended that a Magnetic Particle Inspection (MPI) be completed on all components after each job.

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