



Split Shot® Cutters

0.875 inch

1.000 inch

MAN-REC-SS (R00)

Owen Oil Tools LP

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0.875 - 1.000 in.
Split Shot® Cutters



Description

Owen's New Split Shot® Cutter has been redesigned with the customer in mind and allows for easy electrical arming before loading the explosive segments. Split Shot® Cutters are designed for use where traditional jet cutters were not effective or could not be used. The Split Shot® Cutter's linear configuration allows it to be positioned adjacent to the collar or connection and secured by in-line magnets. After detonation, the collar or connection is split allowing the pipe to be freed for easy removal.

Benefits/Capabilities

In addition to the benefits of its predecessor, the New Split Shot® Cutter incorporates a number of improvements to enhance performance and improve operator safety;

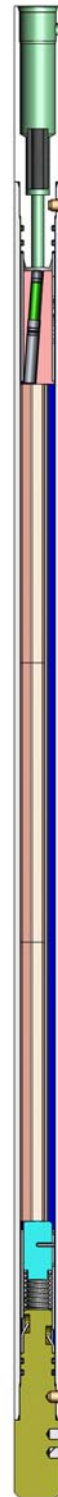
- A one-piece, precision cut segment holder,
- Uses Owen's DET-3050-009 spring contact Tubing Cutter detonator, allowing for easy assembly when used with the Magnetic Top Sub with Contacts (sold separately),
- The Magnetic Top Sub with Contacts is reusable with the available redress kit (sold separately),
- Detonator and Detonation Transfer Assembly (DTA) must be ordered separately,
- HMX Split Shot Cutters are available by special order and parts must be ordered by replacing the 3 with a 4 (for example, SSC-XXXX-4XX).



Note: Unfortunately, the New Split Shot® Cutter cannot be run with the Safe Detonator System.

Tool Diameter	0.875 in.	22.2 mm	1.000 in.	25.4 mm
Housing Material	Steel		Aluminum	
Explosive Length	18 in.		18 in.	
	45.7 cm		45.7 cm	
Explosive Load	500 grain/ft		500 grain/ft	
Minimum Running Restriction	1.000 in.	25.4 mm	1.290 in.	32.8 mm
Recommended Tubing	1.315 - 2.375 in.		1.660 to 2.375 in.	
Applications	33.4 - 60.3 mm		42.2 to 60.3 mm	
Maximum Pressure	psi	MPa	psi	MPa
Up to 200°F (93°C)	9,700	66.9	11,700	80.7
200°F to 325°F (93°C to 163°C)	9,200	63.4	11,000	75.8
325°F to 400°F (163°C to 200°C)	8,850	61.0	9,850	67.9

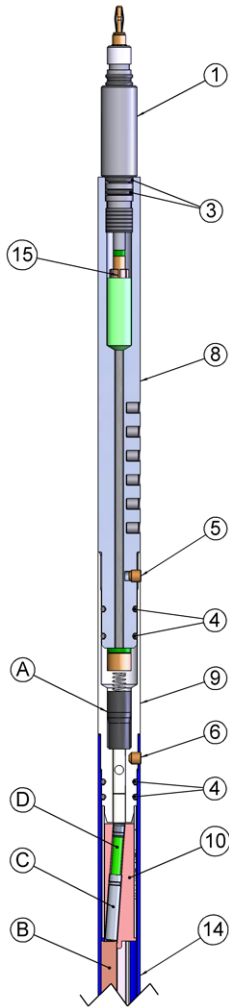
*Pressure Ratings are based on 1 hour exposure. For durations exceeding 1 hour, please contact Owen Engineering. Refer to the "Time vs Temperature Chart for Explosives" for allowable operating temperatures.



0.875 - 1.000 in.
Split Shot® Cutter



0.875 in. BOM and Schematic

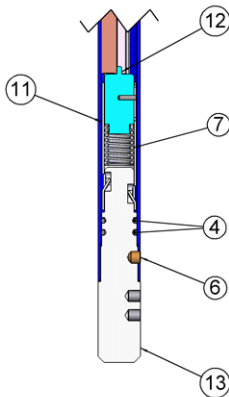


Item	Qty	Part Number	Description
1	1	AES-AS3347***	Contact Sub
2	1	DET-3050-053	Rubber Sleeve (not shown)
3	2	OOO-V569-110	O-Ring, Viton -110
4	6	OOO-V569-113	O-Ring, Viton -113
5	1	PUR-0504-031	Shear Screw 1/4-20X1/4IN Brass
6	2	PUR-0504-031	Screw
7	1	PUR-1250-600	Spring
8	1	SSC-0875-010*	Magnetic Top Sub (Open Bore)
		SSC-0875-040	Magnetic Top Sub with Contacts (recommended)
9	1	SSC-0875-018	Detonator Adapter
10	1	SSC-0875-029	Detonation Transfer Assembly (DTA) Holder
11	1	SSC-0875-036	Segment Holder
12	1	SSC-0875-046	Piston
13	1	SSC-0875-058	Bottom Sub
14	1	SSC-0875-111S	Housing
15	1	SSC-0875-250	Contact Kit
16	1	DET-0010-096	End Seal (not shown)
17	1	SSC-0875-020***	Shunt Plug (not shown)
-	-	SSC-1000-027***	Arming Sub (not shown)
-	-	SSC-0875-260**	Redress Kit
A	1	DET-3050-009***	Detonator
B	1	L05-RDXC-618	Segment Kit
C	1	DET-3050-429***	Bi-Directional Booster
D	2 in.	A571010***	Detonating Cord, HMX, 80 GR, Nylon, LS

* This top sub and the included Rubber Sleeve are required in order to use a leaded-type detonator. Sold separately.

** Includes items 4, 5, and 15

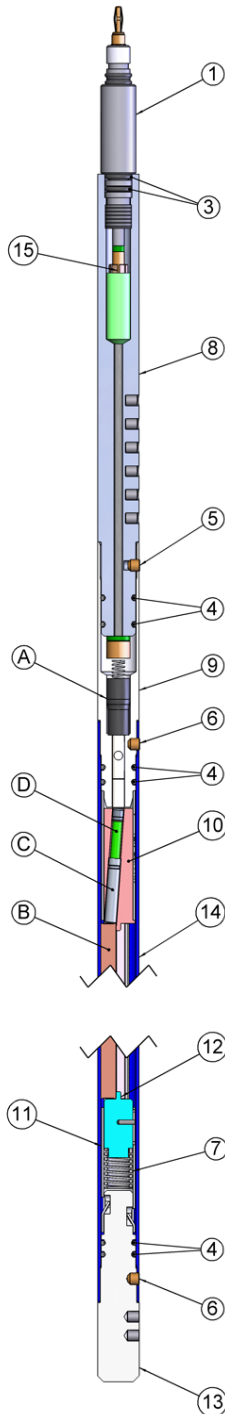
*** Sold separately



0.875 - 1.000 in. Split Shot® Cutter



1.000 in. BOM and Schematic



Item	Qty	Part Number	Description
1	1	ADP-1000-358***	Contact Sub
2	1	DET-3050-053	Rubber Sleeve (not shown)
3	2	OOO-V569-115	O-Ring, Viton -115
4	6	OOO-V569-113	O-Ring, Viton -113
5	1	PUR-0504-031	Shear Screw 1/4-20X1/4IN Brass
6	2	PUR-0504-031	Screw
7	1	PUR-1250-600	Spring
8	1	SSC-1000-010*	Magnetic Top Sub (Open Bore)
		SSC-1000-040	Magnetic Top Sub with Contacts (recommended)
9	1	SSC-1000-018	Detonator Adapter
10	1	SSC-0875-029	Detonation Transfer Assembly (DTA) Holder
11	1	SSC-0875-036	Segment Holder
12	1	SSC-0875-046	Piston
13	1	SSC-1000-058	Bottom Sub
14	1	SSC-1000-111	Housing
15	1	SSC-1000-250	Contact Kit
16	1	DET-0010-096	End Seal (not shown)
17	1	SSC-1000-020***	Shunt Plug (not shown)
-	-	SSC-1000-027***	Arming Sub (not shown)
-	-	SSC-1000-260**	Redress Kit
A	1	DET-3050-009***	Detonator
B	1	L05-RDXC-618	Segment Kit
C	1	DET-3050-429***	Bi-Directional Booster
D	2 in.	A571010***	Detonating Cord, HMX, 80 GR, Nylon, LS

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1.0 Pre-Assembly



Warning: Explosives are destructive by nature! Do not attempt to disassemble or alter the explosive in any manner! Do not crush, hammer, pinch, impact, pull wires or abuse any explosive!



Warning: Be sure to follow safe operating practices as found in API RP-67 in accordance with governmental regulations, company policies and manufacturer's recommendations!

1.1 The Magnetic Top Sub with Contacts (item #8) comes fully assembled. After firing the cutter, it will have to be rebuilt using the Redress Kit (section 6) before assembling the tool again.

1.2 Unpack the hardware and explosive Segments (item B). The Segments are numbered in sequential order for assembly.

1.3 Remove the Screw (item #6) securing the Housing (item #14) to the Bottom Sub (item #13). Remove the Bottom Sub and Segment Holder (item #11) from the Housing.

1.4 Pull the Segment Holder and Bottom Sub apart.



Note: Make sure that the Spring (item #7) remains inside the Segment Holder.

1.5 Remove the Detonation Transfer Assembly (DTA) Holder (item #10) from the Segment Holder end marked "This End Up". This may require a slight spreading of the Segment Holder sides.

1.6 Remove the O-rings (items #3 and 4) from their package and visually inspect them for cuts or cracks.



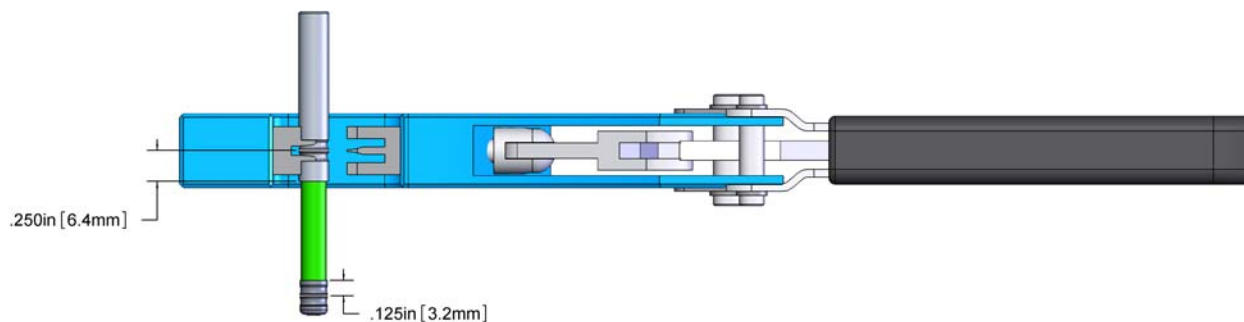
Caution: The O-rings should never be rolled or twisted into their grooves, as "spiral failure" could occur, through no fault of the producer! Care must also be taken not to pinch or cut the O-ring during installation!

2.0 Assembly of Detonation Transfer Assembly (DTA)

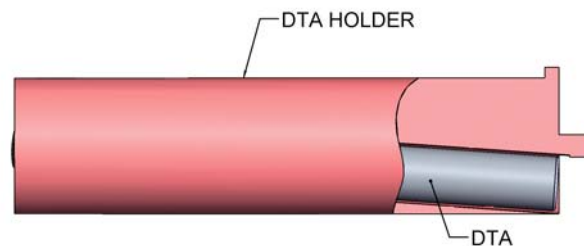
2.1 Using Owen Super Cutters, cut a section of detonating cord (item D) 1.688 in. (42.5 mm) long. Make sure that both ends are cut squarely.

2.2 Place the End Seal (item #16) over one end of the detonating cord and press it tightly against the end. Place this end inside the crimping tool, aligning it so that it crimps at approximately 0.125 in. (3.3 mm) past the open end of the End Seal. Crimp with moderate pressure, taking care not to form 'ears' that will protrude and interfere with insertion into the DTA Holder.

2.3 Remove the Bi-directional Booster (item C) from its packaging. Repeat the crimping procedure outlined above after placing the booster onto the opposite end of the detonating cord and holding firmly against the powder face.




2.4 With both ends crimped, perform a test fit by sliding the assembled DTA into the bore of the DTA Holder. One end of the Holder has a tab. Insert the End Seal into this hole, gently pressing the assembly into the bore until the Bi-directional Booster face is flush with the face of the Holder (as shown below). Should there be any interference, **STOP!** Remove the assembly, locate the problem and adjust as required before proceeding.

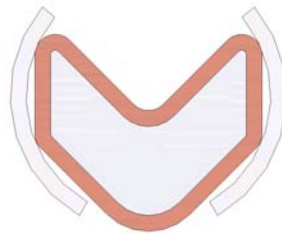


2.5 Insert the DTA/DTA Holder into the Segment Holder. Once the assembly will fit all the way into its bore, the DTA is ready for use.

3.0 Loading Segments into the Holder

 *Note: Loading may require slightly spreading the sides of the Segment Holder.*

3.1 Both the 0.875 and 1.000 in. tools use three 6 in. long Segments. Insert Segment #1 into the Segment Holder and shoulder it up against the DTA Holder (item #10) and under its alignment pin. The Segment should seat firmly into the Segment Holder with its inner angle facing outward (refer to the graphic below).



3.2 Install Segment #3, by shouldering it up against the Piston (item #12) and under its alignment pin. Lastly, install Segment #2 while depressing the Piston to allow insertion between the previous two Segments. All of the Segments should fit tightly in the Segment Holder without gaps.



3.3 At this point, there is no spring force against the Segments. Until the Bottom Sub is installed in Step 5.2, the Spring (item #7) has nothing to push against.

3.4 The Segment Holder and its explosives **must not** be installed into the Housing (item #14) until step 5.3.

4.0 Arming, Electrically

4.1 Install 2 O-rings (item #4) onto the Detonator Adapter (item #9) and lubricate.

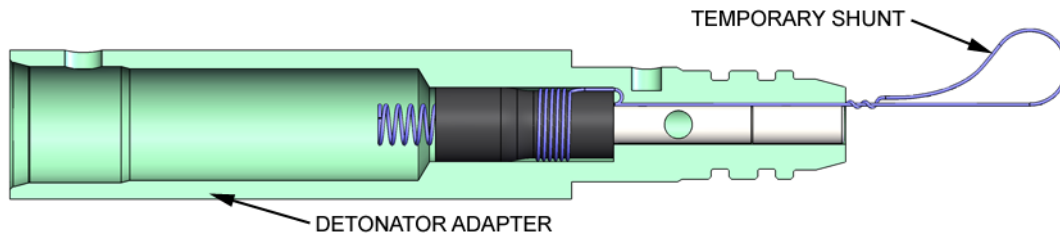
4.2 Install the 2 O-rings (item #3) onto the Contact Sub (item #1) and lubricate and set aside.

4.3 Remove the Detonator (item A) from its package, disconnect the ground wire from the spring and wrap it around the rubber sleeve of the detonator. The detonator will still be shunted because the temporary shunt has not been removed.



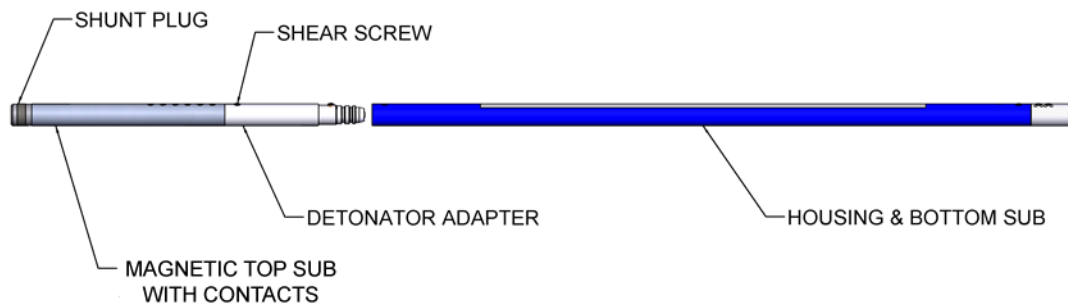
Note: Refer to the 009 Cutter Detonator manual (MAN-DET-009) for more information about the proper use of the detonator.

4.4 Insert the Detonator, output end first, into the large end of the Detonator Adapter. While pressing on the rubber boot, push it into its bore until it is fully seated and flush with the small end of the Detonator Adapter.



4.5 Thread the Shunt Plug (item #17) into the Magnetic Top Sub with Contacts (item #8).

4.6 Attach the Detonator Adapter to the Magnetic Top Sub with Contacts with the Shear Screw (item #5). With the detonator shunted through the Magnetic Top Sub with



Contacts, remove the temporary shunt and then attach the Arming Sub to the Magnetic Top Sub with Contacts/Detonator Adapter assembly by installing the Screw (item #6).

4.7 Make sure that the wireline is shunted. At this point, the Shunt Plug can be removed from the Magnetic Top Sub with Contacts.

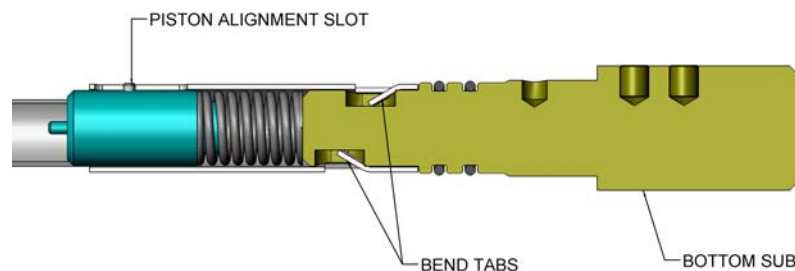
4.8 Connect the Magnetic Top Sub with Contacts to the wireline. This will electrically connect the detonator to the wireline, while the detonator is still in the confined hardware.

5.0 Arming, Ballistically

5.1 Remove the Arming Sub.

5.2 Attach the Housing to the Magnetic Top Sub with Contacts/Detonator/Adapter, by installing the Screw (item#6).


5.3 Install the two O-rings (item #4) onto the Bottom Sub and lubricate. Insert the Bottom Sub into the Segment Holder and align the magnets with the alignment slot. Use a small, flat-blade screwdriver to bend over the 2 segment holder tabs into the slots in the Bottom Sub.

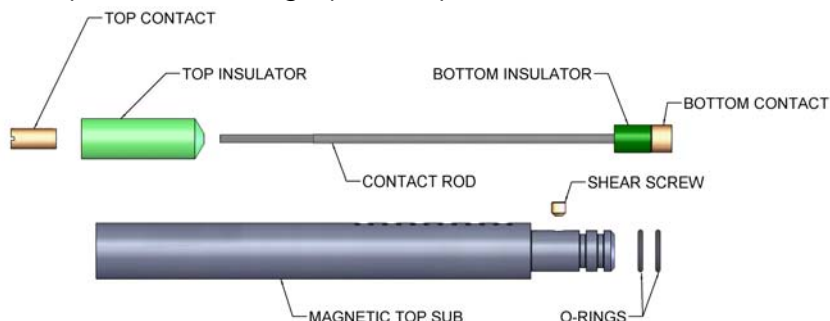


5.4 Slide the Segment Holder/Bottom Sub assembly into the Housing. The Segment Holder will engage with the Detonator Adapter on the other end. The Spring (item #7) will begin to compress at this point and it will be normal to feel resistance. Push the assembly into the Housing until the O-rings seat onto their lands and the Bottom Sub threaded hole aligns with the through hole in the Housing.

5.5 Finally, install the Screw (item #6) into the Bottom Sub. The tool is now armed and ready to run in hole.

6.0 Redressing the Magnetic Top Sub with Contacts

 *Note: After firing the Split Shot Cutter the Magnetic Top Sub with Contacts (item #8) can be used again. However, a redress kit must be obtained to assemble a new Magnetic Top Sub with Contacts assembly. The kit contains a Contact Kit (item #15), a Shear Screw (item #5) and two O-rings (item #4).*



6.1 To assemble the Magnetic Top Sub with Contacts, first install the two O-rings (item #4).

6.2 Next, unscrew the Top Contact and remove the Top Insulator.

6.3 Now insert the Contact rod into the bottom of the Magnetic Top Sub with Contacts.

6.4 Hold the Magnetic Top Sub with Contacts upright and drop in the Top Insulator, with the open end facing up. Now drop in the Top Contact, with the slotted end facing up,

6.5 Using a flat blade screwdriver, tighten the Top Contact.

6.6 Using a Multimeter or Ohmmeter, attach one lead of the meter to the Contact Rod Head and the other lead to the Upper Contact. Observe the reading on the meter. The reading should be approximately one Ohm.

6.7 Next, move one lead to the body of the Magnetic Top Sub, and observe the reading on the meter. The reading should be infinity. If there is any continuity, the assembly contains a short and must be disassembled and inspected.

6.8 The Magnetic Top Sub with Contacts is now ready to be used downhole.