

# Pipe Recovery Products

**COILED TUBING, TUBING, CASING,  
AND DRILLPIPE CUTTERS**



**JRC**

**JET RESEARCH CENTER®**

# Coiled Tubing Cutters

## HIGH-PERFORMANCE CUTTERS FOR COILED TUBING APPLICATIONS

### CUTTER ASSEMBLIES

Description	Part No.	Diameter	Collapse Rating	Target Specifications		
				Diameter	Thickness	Weight
0.948-in. Coiled Tubing Cutter, RDX	100118389	0.9480 in. [24.08 mm]	10,000 psi [689 bar]	1.25 in.	0.095 in.	Coiled Tubing
1 $\frac{3}{16}$ -in. Coiled Tubing Cutter, RDX	100000429	1.1875 in. [30.20 mm]	10,000 psi [689 bar]	1.50 in.	0.109 in.	Coiled Tubing
1 $\frac{3}{8}$ -in. Coiled Tubing Cutter, HMX	100000569	1.3750 in. [34.90 mm]	15,000 psi [1034 bar]	1.90 in.	0.150 in.	2.9 lb/ft



Coiled Tubing Cutter Assembly

### ADDITIONAL COMPONENTS

Description	0.94-in. Coiled Tubing Cutter, RDX	1 $\frac{3}{16}$ -in. Coiled Tubing Cutter, RDX	1 $\frac{3}{8}$ -in. Coiled Tubing Cutter, HMX
[1] D1210 Resistorized Detonator, HNS 460°F/1 hr	100010855	100010855	100010855
[2] Contact Sub	100158243	100014497	100014497
[3] Shunt Plug	120042542	120042541	120042541
[4] Safety Tube for Detonator	100158234	100158234	100158234



[1] D1210 Resistorized Detonator (100010855)



[2] Contact Sub  
 $\frac{3}{4}$ -in. OD (100158243)  
 1-in. OD (100014497)



[3] Shunt Plug  
 $\frac{3}{4}$ -in. OD (120042542)  
 1-in. OD (120042541)



[4] Safety Tube for Detonator  
 (100158234)



## ELECTRICAL ASSEMBLY



### Shunt Plug

The shunt plug grounds the system during assembly while the detonator shunt wire is removed.

The shunt plug size must correspond to the contact sub size.



### Contact Sub (Includes O-Rings)

O-Ring:  $\frac{3}{4}$ -in. OD 100158365  
1-in. OD 100158368

O-Ring: 100158355



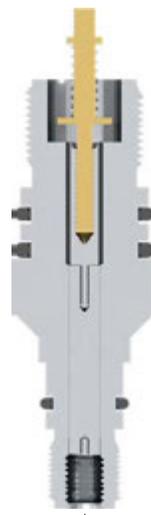
### D1210 Resistorized Detonator



### Safety Tube for Detonator

The protective holder encompasses the detonator, shielding the worker while the electrical connection is made to the firing head or casing collar locator (CCL).

## FINAL ASSEMBLY



### Contact Sub



### D1210 Resistorized Detonator



### Coiled Tubing Cutter Assembly

It is recommended to run all cutters with a running tool string of the same OD or smaller than the cutter OD. Attempting to cut pipe with a cutter smaller than the recommended size will not result in a successful cut. When cutting pipe with threaded collars, do not shoot the cutter in a collar.

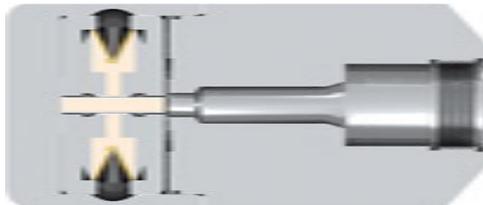
# Tubing Cutters

## ECONOMICAL TUBING CUTTERS FOR STANDARD CONDITIONS

### CUTTER ASSEMBLIES

Description	Part No.	Diameter	Collapse Rating	Target Specifications		
				Diameter	Thickness	Weight
1 <sup>1</sup> / <sub>8</sub> -in. Tubing Cutter, HMX (CI)	101288527	1.6875 in. [42.90 mm]	12,500 psi [861 bar]	2 <sup>3</sup> / <sub>8</sub> in.	0.190-0.254 in.	4.70-5.95 lb/ft
1 <sup>3</sup> / <sub>8</sub> -in. Tubing Cutter, HMX (CI)	101290400	1.8130 in. [46.05 mm]	12,500 psi [861 bar]	2 <sup>3</sup> / <sub>8</sub> in.	0.190-0.254 in.	4.70-5.95 lb/ft
2 <sup>1</sup> / <sub>8</sub> -in. Tubing Cutter, HMX (CI)	101290402	2.1250 in. [53.98 mm]	12,500 psi [861 bar]	2 <sup>3</sup> / <sub>8</sub> in.	0.217-0.308 in.	6.50-8.70 lb/ft
2 <sup>1</sup> / <sub>4</sub> -in. Tubing Cutter, HMX (CI)	101290405	2.2500 in. [57.15 mm]	12,500 psi [861 bar]	2 <sup>3</sup> / <sub>8</sub> in.	0.217-0.276 in.	6.50-7.90 lb/ft
2 <sup>1</sup> / <sub>2</sub> -in. Tubing Cutter, HMX (CI)	101290406	2.5000 in. [63.50 mm]	12,500 psi [861 bar]	3 <sup>1</sup> / <sub>2</sub> in.	0.254-0.289 in.	9.30-10.30 lb/ft

(CI) Cast Iron



Tubing Cutter Assembly

### ADDITIONAL COMPONENTS

Description	Part No.
[1] Firing Head Assembly, 1 <sup>1</sup> / <sub>2</sub> -in. OD	100000434
[2] Shunt Plug (1 <sup>1</sup> / <sub>8</sub> -in. 12UN "GO" Pin)	100010861
[3a] D1208 Resistorized Detonator, HNS 460°F/1 hr	100000432
[3b] Top Fire Detonator - RED® Detonator 375°F/1 hr	102350510
[4] Aluminum Extension Mandrel	100008258
[5] Protective Holder (for 1 <sup>1</sup> / <sub>2</sub> -in. Firing Head)	100010862
[6] Aluminum Adapter for RED® Detonator	101293676



[1] Firing Head Assembly  
(100000434)



[2] Shunt Plug  
(100010861)



[3a] D1208 Resistorized Detonator  
(100000432)



[3b] Top Fire RED® Detonator  
(102350510)



[4] Aluminum Extension Mandrel  
(100008258)



[5] Protective Holder  
(100010862)



[6] Aluminum Adapter for RED® Detonator  
(101293676)



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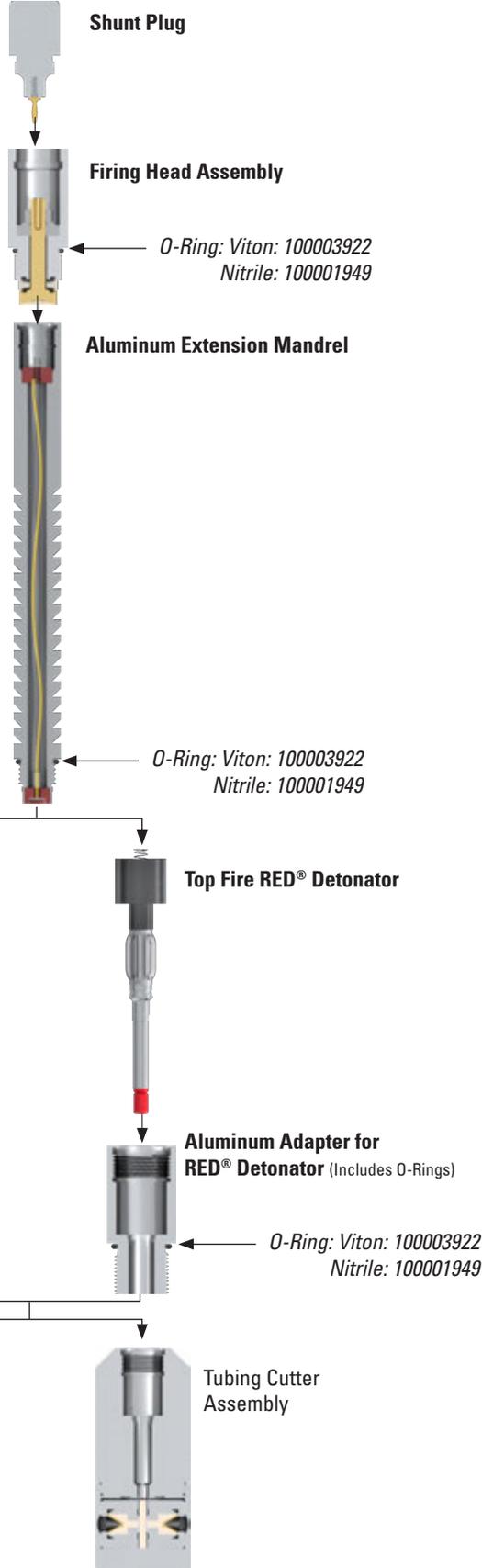
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## TUBING CUTTER ASSEMBLY DIAGRAM

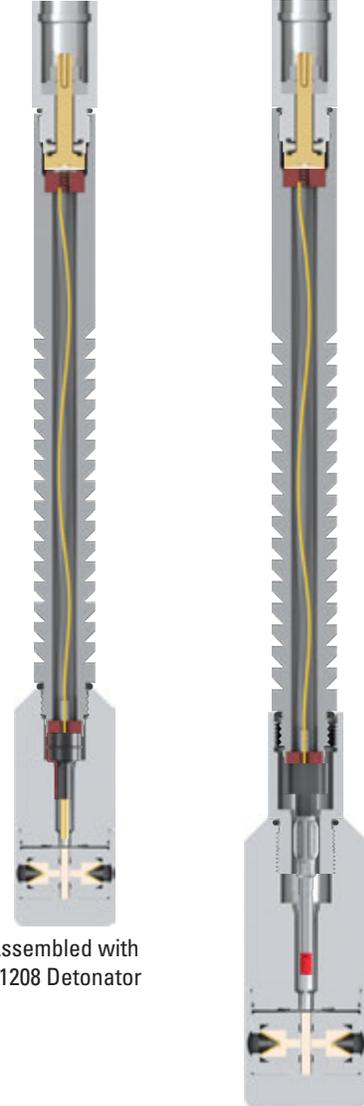
The shunt plug grounds the system during assembly while the detonator shunt wire is removed.

The JRC Firing Head Assembly uses a "GO" 1 $\frac{3}{16}$ -in. 12UN box.

The JRC custom shock-absorbing extension mandrel minimizes damage to other tools in the tool string. The unique shock grooves absorb the detonation shock waves transmitted up the tool.



## TUBING CUTTER FINAL ASSEMBLY



Assembled with D1208 Detonator

Assembled with Top Fire RED® Detonator

**JRC**

**JET RESEARCH CENTER®**

# High-Pressure & Specialty Tubing Cutters

## HIGH-PERFORMANCE CUTTERS FOR HIGH-PRESSURE, ID RESTRICTIONS, AND HASTELLOY TUBING

### CUTTER ASSEMBLIES

Description	Part No.	Diameter	Collapse Rating	Shipping Class	Target Specifications		
					Diameter	Thickness	Weight
1 <sup>1</sup> / <sub>16</sub> -in. <b>Super Tubing Cutter, HMX</b>	102012507	1.5623 in. [39.70 mm]	20,000 psi [1,379 bar]	1.4	2 <sup>3</sup> / <sub>8</sub> in.	0.190-0.254 in.	4.70-5.95 lb/ft
1 <sup>1</sup> / <sub>16</sub> -in. Tubing Cutter, HMX	100000352	1.6875 in. [42.90 mm]	20,000 psi [1,379 bar]	1.4	2 <sup>3</sup> / <sub>8</sub> in.	0.190-0.254 in.	4.70-5.95 lb/ft
1 <sup>3</sup> / <sub>32</sub> -in. Tubing Cutter, HMX	100000570	1.7188 in. [43.65 mm]	20,000 psi [1,379 bar]	1.4	2 <sup>3</sup> / <sub>8</sub> in.	0.190-0.254 in.	4.70-5.95 lb/ft
1 <sup>3</sup> / <sub>16</sub> -in. Tubing Cutter, HMX	100000353	1.8130 in. [46.05 mm]	20,000 psi [1,379 bar]	1.4	2 <sup>3</sup> / <sub>8</sub> in.	0.190-0.254 in.	4.70-5.95 lb/ft
1 <sup>1</sup> / <sub>8</sub> -in. <b>Super Tubing Cutter, HMX</b>	102012508	1.8130 in. [46.05 mm]	20,000 psi [1,379 bar]	1.4	2 <sup>3</sup> / <sub>8</sub> in.	0.217-0.308 in.	6.50-8.70 lb/ft
2 <sup>1</sup> / <sub>32</sub> -in. Tubing Cutter, HMX	100000354	2.0320 in. [51.61 mm]	20,000 psi [1,379 bar]	1.4	2 <sup>3</sup> / <sub>8</sub> in.	0.217-0.308 in.	6.50-8.70 lb/ft
2 <sup>1</sup> / <sub>16</sub> -in. Tubing Cutter, HMX	100000355	2.1250 in. [53.98 mm]	20,000 psi [1,379 bar]	1.4	2 <sup>3</sup> / <sub>8</sub> in.	0.217-0.308 in.	6.50-8.70 lb/ft
2 <sup>1</sup> / <sub>8</sub> -in. <b>Hastelloy Tubing Cutter, HMX</b>	100000430	2.1250 in. [53.98 mm]	20,000 psi [1,379 bar]	1.4	2 <sup>3</sup> / <sub>8</sub> in.	0.276 in.	7.90 lb/ft
2 <sup>1</sup> / <sub>4</sub> -in. Tubing Cutter, HMX	100000356	2.2500 in. [57.15 mm]	20,000 psi [1,379 bar]	1.4	2 <sup>3</sup> / <sub>8</sub> in.	0.217-0.276 in.	6.50-7.90 lb/ft
2 <sup>1</sup> / <sub>2</sub> -in. Tubing Cutter, HMX	100116367	2.5940 in. [65.89 mm]	20,000 psi [1,379 bar]	1.4	3 <sup>1</sup> / <sub>2</sub> in.	0.254-0.289 in.	9.30-10.30 lb/ft
2 <sup>7</sup> / <sub>10</sub> -in. Tubing Cutter, HMX	100011034	2.7000 in. [68.58 mm]	20,000 psi [1,379 bar]	1.4	3 <sup>1</sup> / <sub>2</sub> in.	0.254-0.289 in.	9.30-10.30 lb/ft
2 <sup>7</sup> / <sub>10</sub> -in. <b>Hastelloy Tubing Cutter, HMX</b>	100000431	2.7000 in. [68.58 mm]	20,000 psi [1,379 bar]	1.1	3 <sup>1</sup> / <sub>2</sub> in.	0.289 in.	10.30 lb/ft

### ADDITIONAL COMPONENTS

Description	Part No.
[1] Firing Head Assembly, 1 <sup>1</sup> / <sub>2</sub> -in. OD	100000434
[2] Shunt Plug (1 <sup>3</sup> / <sub>16</sub> -in. 12UN "GO" Pin)	100010861
[3a] D1208 Resistorized Detonator, HNS 460°F/1 hr	100000432
[3b] Top Fire Detonator - RED® 375°F/1 hr	102350510
[4a] Aluminum Extension Mandrel (15,000 psi)	100008258
[4b] Steel Extension Mandrel (20,000 psi)	101293227
[5] Protective Holder (for 1 <sup>1</sup> / <sub>2</sub> -in. Firing Head)	100010862
[6] Aluminum Adapter for RED® Detonator	101293676

Super Tubing Cutters are designed as **UNDERSIZED** tubing severing tools, and due to design, they will produce some tubing distortion and uneven severance.



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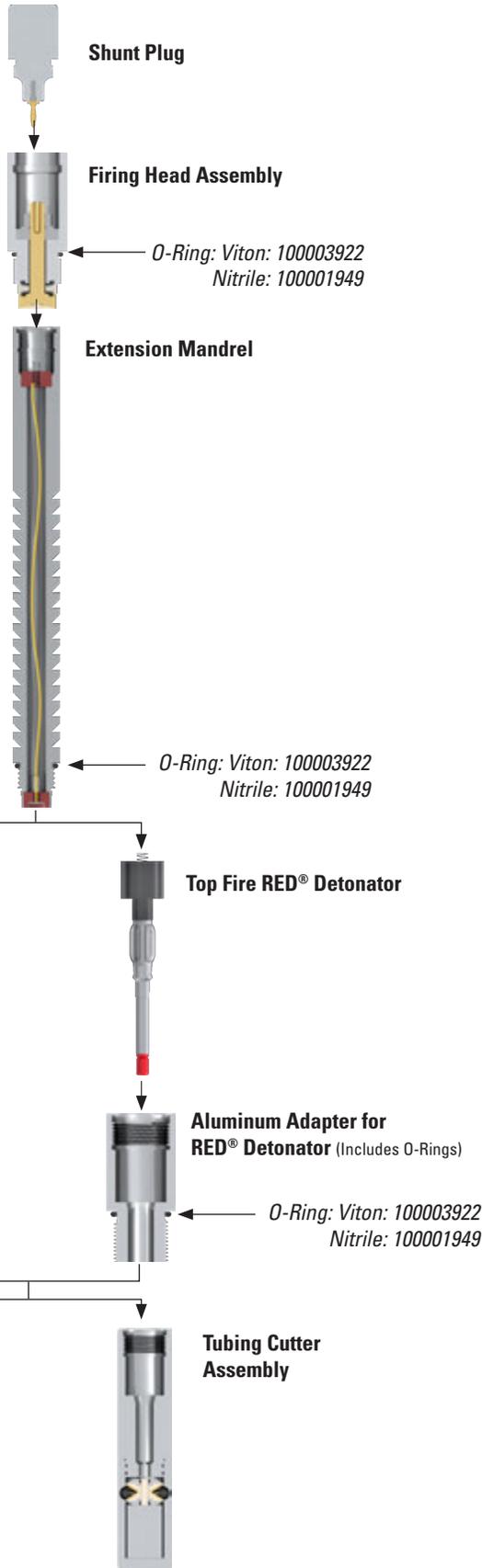
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## HIGH-PRESSURE & SPECIALTY CUTTER ASSEMBLY DIAGRAM

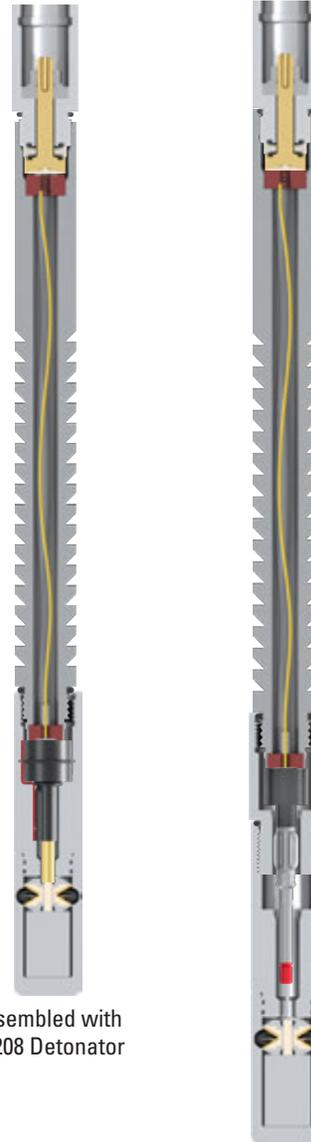
The shunt plug grounds the system during assembly while the detonator shunt wire is removed.

The JRC Firing Head Assembly uses a "GO" 1 $\frac{1}{16}$ -in. 12UN box connection.

The JRC custom shock-absorbing extension mandrel minimizes damage to other tools in the tool string. The unique shock grooves absorb the detonation shock waves transmitted up the tool.



## HIGH-PRESSURE & SPECIALTY TUBING CUTTER FINAL ASSEMBLY



Assembled with D1208 Detonator



Assembled with Top Fire RED Detonator

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**JET RESEARCH CENTER®**

# Casing and Drillpipe Cutters

## HIGH-PERFORMANCE CASING AND DRILLPIPE CUTTERS

### CUTTER ASSEMBLIES

Description	Part No.	Diameter	Collapse Rating	Shipping Class	Target Specifications		
					Diameter	Thickness	Weight
2½-in. Drillpipe Cutter, HMX	100116368	2.375 in. [60.30 mm]	20,000 psi [1,378 bar]	1.4	3½-in. DP	0.449 in.	15.5 lb/ft
2½-in. Drillpipe Cutter, HMX*	101978733	2.938 in. [74.60 mm]	12,500 psi [861 bar]	1.4	4 in.	0.262-0.380 in.	11.85-15.70 lb/ft
3½-in. Drillpipe Cutter, HMX*	101978734	3.313 in. [81.40 mm]	12,000 psi [827 bar]	1.4	4½-in. DP	0.271-0.430 in.	13.75-20.00 lb/ft
3½-in. Casing Cutter, HMX*	101978736	3.625 in. [92.08 mm]	7,500 psi [517 bar]	1.4	4½ in.	0.205-0.337 in.	9.50-15.10 lb/ft
					5 in.	0.253-0.437 in.	11.50-21.40 lb/ft
					5 in. DP	0.296 in.	16.25 lb/ft
4-in. Casing Cutter, HMX	101293457	4.0000 in. [101.60 mm]	9,000 psi [620 bar]	1.1	5 in.	0.253-0.437 in.	11.50-21.40 lb/ft
					5-in. DP	0.296-0.362 in.	16.25-19.50 lb/ft
4-in. Casing Cutter, HMX*	101978737	4.000 in. [101.60 mm]	9,000 psi [620 bar]	1.4	5 in.	0.253-0.437 in.	11.50-21.40 lb/ft
4½-in. Casing Cutter, HMX*	101978738	4.5000 in. [114.30 mm]	9,000 psi [620 bar]	1.4	5½ in.	0.304-0.415 in.	17.00-23.00 lb/ft
					5 in.	0.253-0.437 in.	11.50-21.40 lb/ft
4¾-in. Casing Cutter, HMX*	101978739	4.750 in. [120.65 mm]	9,000 psi [620 bar]	1.4	5½ in.	0.244-0.304 in.	14.00-15.50 lb/ft
					5¾ in.	0.330-0.430 in.	19.50-25.20 lb/ft
5½-in. Casing Cutter, HMX*	101951863	5.500 in. [139.70 mm]	9,000 psi [620 bar]	1.4	6 in.	0.228-0.417 in.	20.00-28.00 lb/ft
					7 in.	0.408-0.540 in.	29.00-38.00 lb/ft
6-in. Casing Cutter, HMX*	101978741	6.000 in. [152.40 mm]	9,000 psi [620 bar]	1.4	7 in.	0.317-0.408 in.	23.00-29.00 lb/ft
6½-in. Casing Cutter, HMX*	101978742	6.125 in. [155.58 mm]	9,000 psi [620 bar]	1.4	7 in.	0.317-0.408 in.	23.00-29.00 lb/ft
7¼-in. Casing Cutter, HMX*	101978743	7.250 in. [184.15 mm]	8,000 psi [557 bar]	1.4	8 in.	0.400-0.595 in.	36.00-52.00 lb/ft
					9 in.	0.435-0.545 in.	43.50-53.50 lb/ft
8½-in. Casing Cutter, HMX*	101978744	8.188 in. [207.98 mm]	8,000 psi [557 bar]	1.4	9 in.	0.435-0.545 in.	43.50-53.50 lb/ft

\*Segmented Cutter Kit includes Adapter for D1208 (100014468) and Aluminum Extension Mandrel (100008258)

### ADDITIONAL COMPONENTS

Description	Part No.
[1] Firing Head, 1½-in. OD	100000434
[2] Shunt Plug (1⅜-in. 12UN "GO" Pin)	100010861
[3a] D1208 Resistorized Detonator, HNS 460°F/1 hr	100000432
[3b] Top Fire Detonator - RED® Detonator 375°F/1 hr	102350510
[4a] Adapter for D1208	100014468
[4b] Adapter for RED® Detonator	101295128
[5a] Aluminum Extension Mandrel	100008258
[5b] Steel Extension Mandrel	101293227
[6] Protective Holder (for 1½-in. Firing Head)	100010862



[1] Firing Head Assembly  
(100000434)



[2] Shunt Plug  
(100010861)



[4a] Adapter for D1208  
(100014468)



[4b] Aluminum Adapter for RED®  
Detonator (101295128)



[3a] D1208 Resistorized  
Detonator (100000432)



[3b] Top Fire RED®  
Detonator (102350510)



[5] Extension Mandrel  
15,000 psi (100008258)  
20,000 psi (101293227)



[6] Protective Holder  
(100010862)

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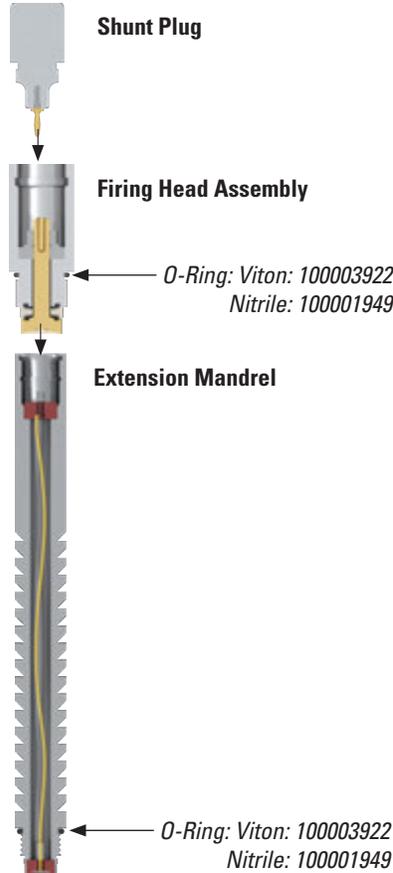
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## CUTTER AND DRILLPIPE ASSEMBLY DIAGRAM

The shunt plug grounds the system during assembly while the detonator shunt wire is removed.

The JRC Firing Head Assembly uses a "GO" 1 $\frac{3}{16}$ -in. 12UN box connection.

The JRC custom shock-absorbing extension mandrel minimizes damage to other tools in the tool string. The unique shock grooves absorb the detonation shock waves transmitted up the tool.



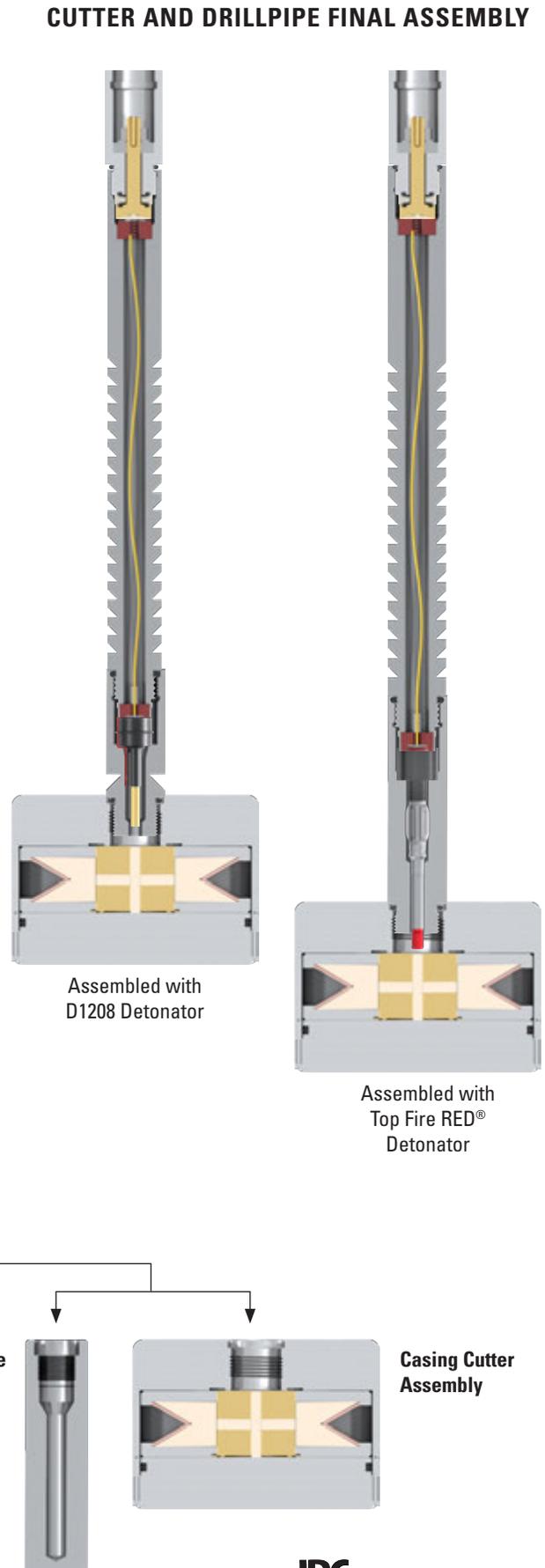
**D1208, Resistorized Detonator**

**Top Fire RED<sup>®</sup> Detonator**

**D1208 Adapter**

O-Ring:  
Viton: 100003922  
Nitrile: 100001949

**Aluminum Adapter for RED<sup>®</sup> Detonator**



**JRC**

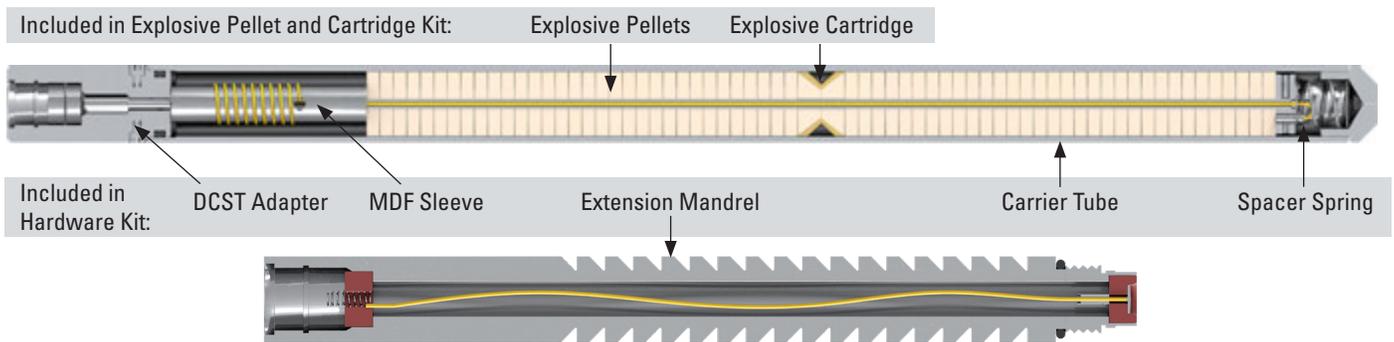
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# Drill Collar Severing Tools

## DRILL COLLAR SEVERING TOOL (DCST)

### DCST PRIMARY EQUIPMENT

Tool OD	Explosive Pellet and Cartridge Kit		MDF Assembly	Hardware Kit
	HMX	HNS		
1½-in. DCST	101214053	101237459	100118417	100118390
1¾-in. DCST	101293167	101293207	100118417	101292915
2-in. DCST	101293168	101293234	100118417	101292956
2½-in. DCST	101293168	101293234	100118417	101604779
2¾-in. DCST	101293152	101293235	100118417	101292957



### DCST ADDITIONAL EQUIPMENT

Tool OD	Pressure Rating	DCST Adapter	Firing Head Assembly	Extension Mandrel	RED® Adapter (if required)
1½ in.	15,000 psi	100157807 (in kit)	100118430 (required)	100158260 (in kit) 101293225	120042268
	20,000 psi				
1¾ in.	15,000 psi	100158288 (in kit)	100000434 (required)	100008258 (in kit)	101293676
	20,000 psi	101293169		101293227	101293230
2 in.	15,000 psi	100157816 (in kit)	100000434 (required)	100008258 (in kit)	101293676
	20,000 psi	101293187		101293227	101293230
2½ in.	26,000 psi	101538611 (in kit)	100157532 (in kit)	101539987 (in kit)	Not required if using 102273068
		102273068 (for RED® Detonator, order separately)			
2¾ in.	15,000 psi	100158290 (in kit)	100000434 (required)	100008258 (in kit)	101293676
	20,000 psi	101293220		101293227	101293230

### ADDITIONAL COMPONENTS

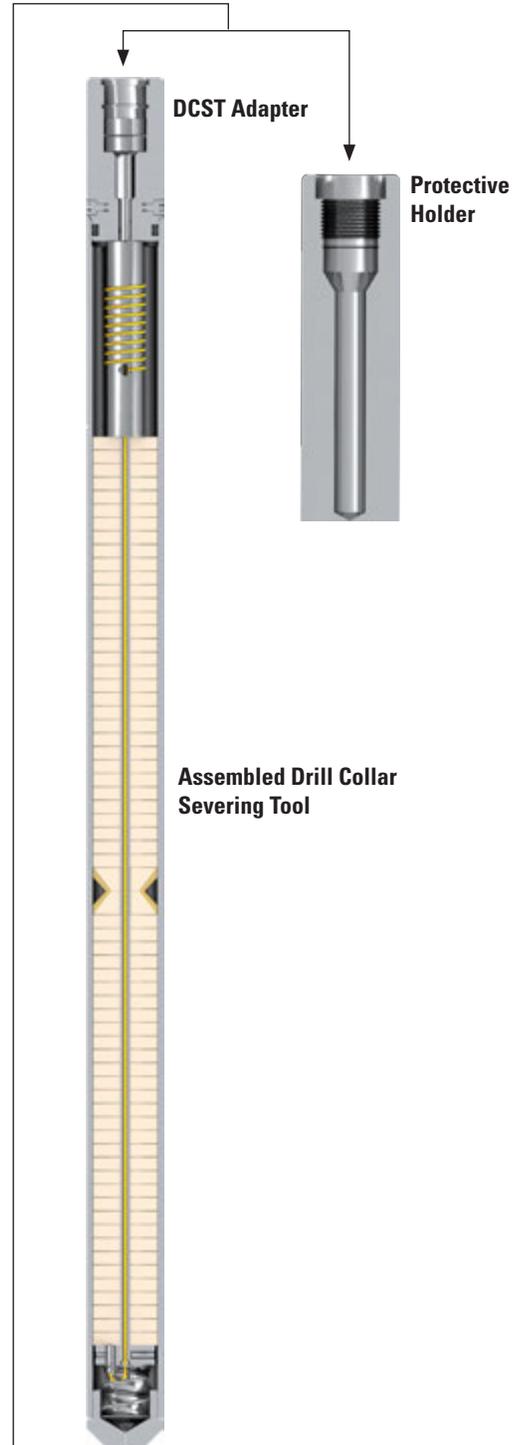
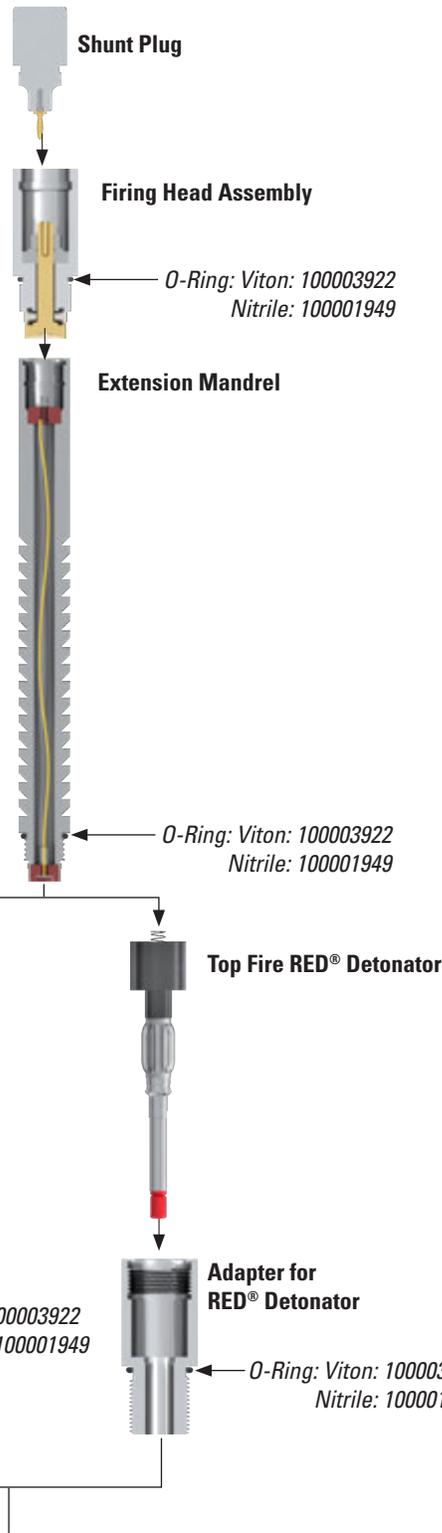
Description	Part No.	
D1208 Resistorized Detonator, HNS 460°F/1 hr	100000432	
Top Fire Detonator - RED® Detonator 375°F/1 hr	102350510	
Shunt Plug	1½ in.	100118431
	1¾-2½ in.	100010861
Protective Holder	100010862	
Loading Tool	100118432	

## DRILL COLLAR SEVERING TOOL ASSEMBLY DIAGRAM

The shunt plug grounds the system during assembly while the detonator shunt wire is removed.

The JRC Firing Head Assembly uses a "GO" 1 $\frac{3}{16}$ -in. 12UN box connection.

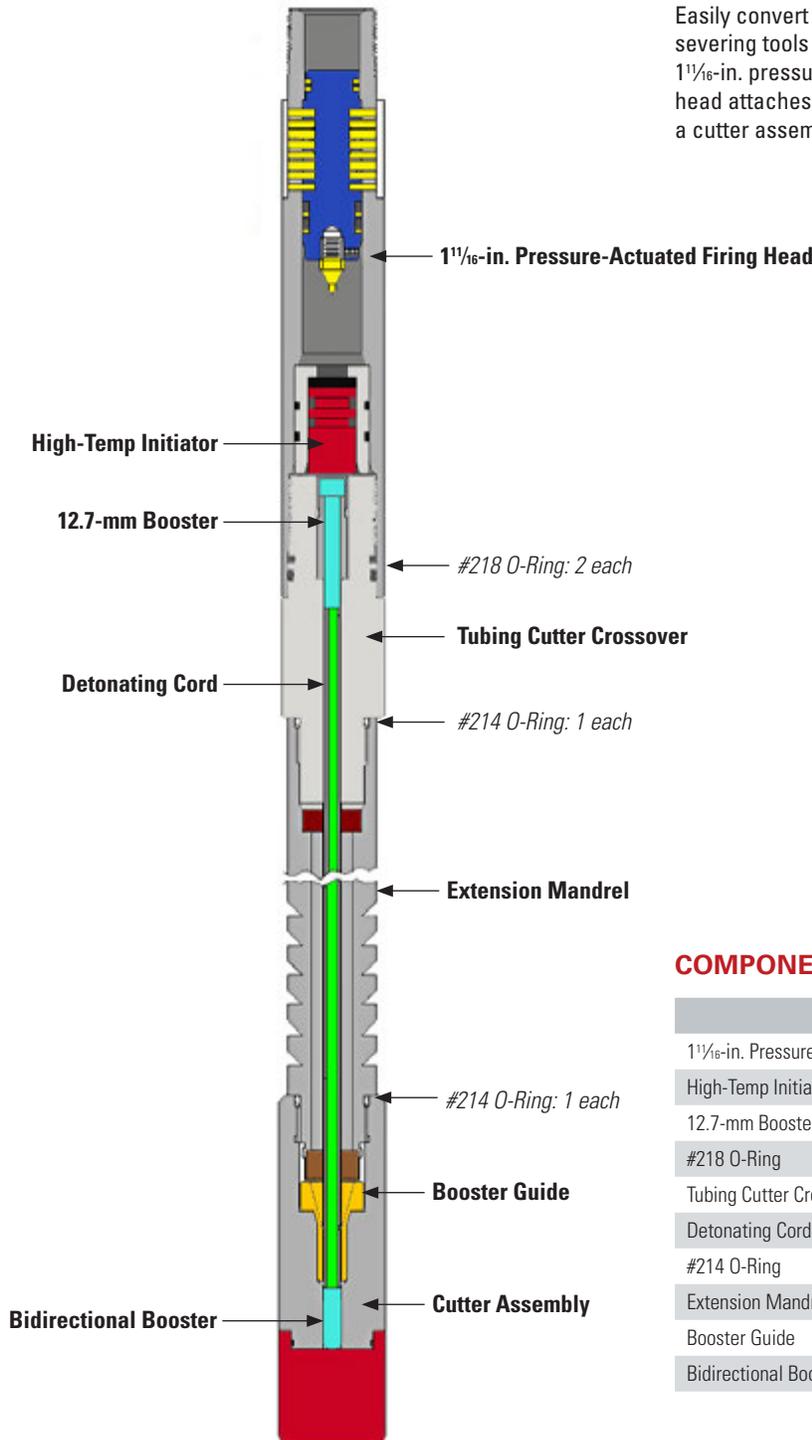
The JRC custom shock-absorbing extension mandrel minimizes damage to other tools in the tool string. The unique shock grooves absorb the detonation shock waves transmitted up the tool.



# Pressure-Actuated Firing Head for Pipe Recovery

## CONVEYANCE FLEXIBILITY FOR TUBING AND CASING CUTTERS

Easily convert any of the included tubing, casing, or drill collar severing tools to function through pressure actuation using a TCP 1<sup>1</sup>/<sub>16</sub>-in. pressure-actuated firing head. The pressure-actuated firing head attaches using a crossover sub to the extension mandrel(s) of a cutter assembly.



### COMPONENTS

Description	Part No.
1 <sup>1</sup> / <sub>16</sub> -in. Pressure-Actuated Firing Head (PAFH)	100005224
High-Temp Initiator	100005302
12.7-mm Booster, HMX	101653762
#218 O-Ring	100026838
Tubing Cutter Crossover	100014224
Detonating Cord	As required
#214 O-Ring	100001949
Extension Mandrel	100008258
Booster Guide	100014225
Bidirectional Booster	As required



# Electronic Quick-Change Trigger for Pipe Recovery

## CONVEYANCE FLEXIBILITY FOR TUBING AND CASING CUTTERS

The Quick-Change Trigger (QCT) is a battery-powered electronic trigger system designed for electrically initiating perforating, setting, or cutting assemblies. The trigger may be conveyed on slickline, coil tubing, or pipe.

### COMPONENTS

Description	Part No.
Top Sub	102324716
Electronics Housing	102324718
Electronics Cartridge	102324717
Battery Housing (9 days)	102324720
Battery Housing (18 days)	102338782
Battery Pack (9 days)	102338926
Battery Pack (18 days)	102338928
P/T Safety Switch	102324721
QCT Programming Kit	102338804



#### Top Sub

Allows wellbore fluids to contact pressure transducer through a filtered replaceable screen

#### Electronics Housing

Consists of electronic boards mounted on a solid chassis with a pressure and temperature sensor

#### Battery Housing

Battery package provides up to 13Ah at 319°F (165°C)

#### Pressure and Temperature Safety Switch

Module housing mechanical pressure and temperature interrupts

Pressure switch opens at 500 psi +/- 150 psi  
 Temperature switch opens at 122°F (50°C) +/- 9°F (9°C)  
 Temperature switch closes at 95°F (35°C) +/- 5°F (5°C)

Bottom connection is a standard "GO" connection

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# Operational Notes

## FAILURE TO FOLLOW THE ASSEMBLY INSTRUCTIONS CAN RESULT IN EXTENSIVE BODILY INJURY AND DEATH.

Do not attempt to use any of these products unless you have received training in the handling and use of oilfield explosive products.

Refer to and apply the procedures listed in the Recommended Practices for Oilfield Explosives Safety, API Recommended Practice 67 (RP67) and your company's operations and safety procedures before assembling or using this product.

The assembly and arming of any cutter or severing tool should only take place at the jobsite where they are to be used and immediately prior to running the cutting tool into the pipe. If there is any delay, the device should be disarmed and safely stored.

Use only the tools designed to be used with or for explosive loading.

Do not handle explosives when electric storms (thunder and/or lightning) are in the immediate area. Do not handle explosives in a sandstorm or similar situation that can result in the buildup of static electric charges.

For every application, choose the largest diameter cutter that can be run in the drillpipe. The named size of each cutter indicates its outside diameter (OD).

Centralize the cutter in the pipe where possible, especially when running smaller diameter cutters because of restrictions in the pipe.

Run a gauge run prior to running the cutter. This helps to ensure that the cutter can reach the required depth and that it will not be necessary to return a live cutter to surface. The tool used for the gauge run—dummy cutter, gauge cutter, gauge ring, etc.—should be of similar length and the same diameter or slightly larger than the diameter of the cutter. The gauge run also reduces the chance of getting a live cutter stuck in the pipe.

Avoid hitting obstructions in the pipe with the cutter. Do not run the cutter into an obstruction or restriction in an attempt to pass—often referred to as spudding. Never spud with an explosive tool.

The running-in-hole speed will often be determined by the small clearance between the cutter and the pipe, and the viscosity of the fluid. Do not overrun the cutter with the wireline. Slow down to pass restrictions and tools in the pipe string. Slow down at the fluid level.

Where possible, have the same pressure and weight of fluid inside and outside the pipe to be cut. Large pressure differences can result in the tool string being lost or stuck after cutting. If necessary, shoot some circulation holes to equalize pressures and/or to circulate the fluids to equalize the pressures before cutting the pipe.

Applying tension to the pipe is generally going to result in a cleaner cut and increase the chance of making a cut when using an undersized cutter and/or decentralized cutter, or freeing a partially stuck pipe. In most situations, it is not necessary to apply tension to the pipe to obtain a cut; however, where possible, the pipe weight should be picked up so that the pipe is at neutral weight or tension at the cut depth when the cut is made.

### Shoot tubing cutters near a collar—2 to 4 feet above or below

—to take advantage of the standoff between the tubing and the casing to minimize the chance of damage to the casing. Do not shoot the cutter in a collar or in the upset close to the collar. The cutter will not cut the pipe.

### Shoot casing cutters near a collar—2 to 4 feet above or below

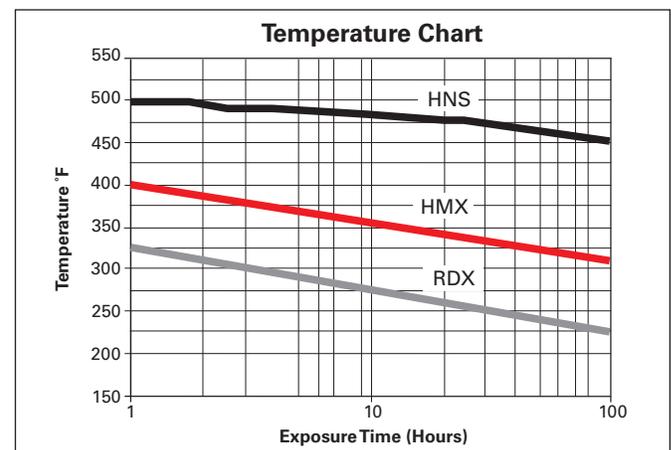
—to take advantage of the standoff between the casing and an outer casing to minimize the chance of damage to the outer casing string. Do not shoot the cutter in a collar or in the upset close to the collar. The cutter will not cut the pipe.

### Shoot drillpipe cutters in the body of a joint of drillpipe.

Do not shoot in the connection or upset. The cutter will not cut the pipe. When cutting drillpipe inside casing, cut near a connection in the drillpipe to take advantage of the standoff between the drillpipe and the casing to minimize the chance of damage to the casing string.

### When shooting drill collar severing tools (DCST), the best option is to shoot the connection.

The extension mandrel is recommended when shooting cutters with more than 20 grams of explosive load and in all cases when delicate tooling is being run above the cutter. When shooting cutters with over 100 grams of explosives, consider using two extension mandrels.





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