

Paradigm Shear Pin Release tool is connected directly below the Cable Head in a Slick-E-Line® tool string and provides a rated mechanical weak point in the event the tool becomes stuck. The top part of the release tool can be separated by applying an overpull greater than the shear rating of the pins holding the tool together. When separated the Release tool leaves a clean fish neck on the bottom part of the Release tool, free of debris and cable to allow the abandoned tool string to be recovered more efficiently by a conventional fishing operation.



The Shear Pin Release tool is a mechanical release device with an electrical feed trough. Deployment of the Release tool can eliminate the risk of cable damage or breakage due to excess over-pull.

The release tool is supplied with precision machined brass shear pins with a guaranteed shear strength.

Features:

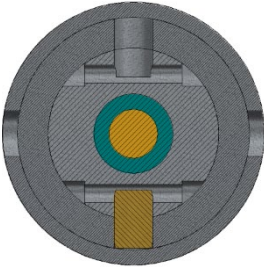

- Provides a releasable connection of the Slick-E-Line® tool string
- Robust body design
- Fishing neck, modified 1.750" reduced to tool diameter 1.693"
- Multiple shear pin size options for operational flexibility
- Sleeve to retain shear pin after shearing
- S³P treated, increasing surface hardness and shearing performance
- Sour and Sweet service

Part Number:	A1222024	
Diameter	43 mm	1 11/16"
Fish Neck modified A/B	43 mm / 38.1 mm	1.693" / 1.500"
Make up length	205 mm	8.07"
Weight	2.2 kg	4.8 lb

Temperature rating	177 °C	350 °F
Pressure rating	103 MPa	15,000 psi
Fishing strength	44,000 lbs	20,000 kg
Upper thread connection	1 3/16"-12 TPI UN BOX, GOI	
Bottom thread connection	1 3/16"-12 TPI UN PIN, GOI	
Standard shear pin sizes	3/16", 7/32", 1/4"	
Maximum voltage	1000 V AC/DC	
Through current maximum	7 A	
Materials	Corrosion resistant throughout	

Release Force

The force required to shear the pins can be calculated by taking the product of the shear pin cross section area and the material ultimate shear stress. These shear pins can be fitted in a single or double shear pin arrangement. The ultimate shear stress values for the Paradigm supplied shear pins is shown in table below. The area of the pressure tight electrical connection will increase the required release force when wellbore pressure increases, and needs to be added to the required shear force.

Shear Pin Rating*							
Ultimate Shear Stress Brass				43,000 psi		296 MPa	
Pin diameter		Cross Section Area		Single Shear		Double Shear	
3/16 inch	4.763 mm	0.028 inch ²	17.81 mm ²	1187 lbs	538 kg	2375 lbs	1077 kg
7/32 inch	5.556 mm	0.038 inch ²	24.25 mm ²	1616 lbs	733 kg	3232 lbs	1466 kg
1/4 inch	6.350 mm	0.049 inch ²	31.67 mm ²	2111 lbs	957 kg	4222 lbs	1915 kg
Shear Pin Arrangement							
							
Single Shear				Double Shear			
Well pressure release force							
Pressure area electrical connection				0.014 inch ²		9.35 mm ²	
Well pressure				Release Force increase			
5,000 psi		34.5 MPa		73 lbs		33 kg	
10,000 psi		68.9 MPa		145 lbs		66 kg	
15,000 psi		103.3 MPa		217 lbs		99 kg	
<p>*The shearing loads stated are verified by actual shearing tests performed on a Instron universal testing machine and valid only when Paradigm supplied shear pins are used. They also rely on the cutting edges being sharp and the shear pins having a close fit. Paradigm equipment, software and specifications are nominal and subject to change without notice to improve design, reliability, function or otherwise.</p>							