



A leading supplier of Wirelines and Slicklines
to the oil and gas industry

**SLICKLINE WIRE
AND
WELL SERVICE STRAND
MANAGEMENT**

SUGGESTED GUIDANCE



A "ONE STOP" SOURCE FOR SLICKLINES, BRAIDED STRANDS & DOWN-HOLE TOOLS



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Slickline Management: 0.092” Diameter Slickline

Proper management and care of slicklines will prolong working life of materials. Lines should be cut back after extended runs in the hole. If there are any concerns regarding the condition of the wire a 6-foot sample can be returned to Danum Well Services Ltd. for independent inspection free of charge.

During Spooling:

	EIPS Carbon Steel	GD22 Duplex Material	GD31Mo Special Alloy
Tension	Back tension when spooling 600lbs		
Beds/Lines	Dependent on drum type		
Curvature	120 x wire diameter		
Marking	Yellow paint on first 4 layers		
Min. Sheave Diameter	120 x wire diameter		

During/After Work:

	EIPS Carbon Steel	GD22 Duplex Material	GD31Mo Special Alloy
After Jarring	Test with DWS Torsion Tester – Torsion test	Test with DWS Torsion Tester – Wrap test	Test with DWS Torsion Tester – Wrap test
Cleaning Recommendations	Line wipe should be used on last pull out of the hole		

Storage:

	EIPS Carbon Steel	GD22 Duplex Material	GD31Mo Special Alloy
Cleaning/Lubricant Recommendations	Line wipe with light oil as a corrosion inhibitor		
Drum Storage	Drums should not be stacked and where possible should be stored indoors away from elemental conditions including UV and rain		
Torsion Test	Test before use and compare to Manufacturers certified results	Wrap test before use and visually inspect quality of surface	Wrap test before use and visually inspect quality of surface

Slickline Management: 0.108” Diameter Slickline

Proper management and care of slicklines will prolong working life of materials. Lines should be cut back after extended runs in the hole. If there are any concerns regarding the condition of the wire a 6-foot sample can be returned to Danum Well Services Ltd. for independent inspection free of charge.

During Spooling:

	EIPS Carbon Steel	GD22 Duplex Material	GD31Mo Special Alloy
Tension	Back tension when spooling 600lbs		
Beds/Lines	Dependent on drum type		
Curvature	120 x wire diameter		
Marking	Yellow paint on first 4 layers		
Min. Sheave Diameter	120 x wire diameter		

During/After Work:

	EIPS Carbon Steel	GD22 Duplex Material	GD31Mo Special Alloy
After Jarring	Test with DWS Torsion Tester – Torsion test	Test with DWS Torsion Tester – Wrap test	Test with DWS Torsion Tester – Wrap test
Cleaning Recommendations	Line wipe should be used on last pull out of the hole		

Storage:

	EIPS Carbon Steel	GD22 Duplex Material	GD31Mo Special Alloy
Cleaning/Lubricant Recommendations	Line wipe with light oil as a corrosion inhibitor		
Drum Storage	Drums should not be stacked and where possible should be stored indoors away from elemental conditions including UV and rain		
Torsion Test	Test before use and compare to Manufacturers certified results	Wrap test before use and visually inspect quality of surface	Wrap test before use and visually inspect quality of surface

Slickline Management: 0.125” Diameter Slickline

Proper management and care of slicklines will prolong working life of materials. Lines should be cut back after extended runs in the hole. If there are any concerns regarding the condition of the wire a 6-foot sample can be returned to Danum Well Services Ltd. for independent inspection free of charge.

During Spooling:

	EIPS Carbon Steel	GD22 Duplex Material	GD31Mo Special Alloy
Tension	Back tension when spooling 800lbs		
Beds/Lines	Dependent on drum type		
Curvature	120 x wire diameter		
Marking	Yellow paint on first 4 layers		
Min. Sheave Diameter	120 x wire diameter		

During/After Work:

	EIPS Carbon Steel	GD22 Duplex Material	GD31Mo Special Alloy
After Jarring	Test with DWS Torsion Tester – Torsion test	Test with DWS Torsion Tester – Wrap test	Test with DWS Torsion Tester – Wrap test
Cleaning Recommendations	Line wipe should be used on last pull out of the hole		

Storage:

	EIPS Carbon Steel	GD22 Duplex Material	GD31Mo Special Alloy
Cleaning/Lubricant Recommendations	Line wipe with light oil as a corrosion inhibitor		
Drum Storage	Drums should not be stacked and where possible should be stored indoors away from elemental conditions including UV and rain		
Torsion Test	Test before use and compare to Manufacturers certified results	Wrap test before use and visually inspect quality of surface	Wrap test before use and visually inspect quality of surface

Slickline Management: 0.160" Diameter Slickline

Proper management and care of slicklines will prolong working life of materials. Lines should be cut back after extended runs in the hole. If there are any concerns regarding the condition of the wire a 6-foot sample can be returned to Danum Well Services Ltd. for independent inspection free of charge.

During Spooling:

	EIPS Carbon Steel	GD22 Duplex Material	GD31Mo Special Alloy
Tension	Back tension when spooling 1200 lbs		
Beds/Lines	Dependent on drum type		
Curvature	120 x wire diameter		
Marking	Yellow paint on first 4 layers		
Min. Sheave Diameter	120 x wire diameter		

During/After Work:

	EIPS Carbon Steel	GD22 Duplex Material	GD31Mo Special Alloy
After Jarring	Test with DWS Torsion Tester – Torsion test	Test with DWS Torsion Tester – Wrap test	Test with DWS Torsion Tester – Wrap test
Cleaning Recommendations	Line wipe should be used on last pull out of the hole		

Storage:

	EIPS Carbon Steel	GD22 Duplex Material	GD31Mo Special Alloy
Cleaning/Lubricant Recommendations	Line wipe with light oil as a corrosion inhibitor		
Drum Storage	Drums should not be stacked and where possible should be stored indoors away from elemental conditions including UV and rain		
Torsion Test	Test before use and compare to Manufacturers certified results	Wrap test before use and visually inspect quality of surface	Wrap test before use and visually inspect quality of surface

Well Service Strand Management:

7/32" Diameter 1 x 19 Formed Strand

Proper management and care of well service strands will prolong working life of materials. Strands require bedding in prior to use and should be cut back after extended runs in the hole. If there are any concerns regarding the condition of the wire a 6-foot sample can be returned to Danum Well Services Ltd. for independent inspection free of charge.

During Spooling:

	Galvanized	GD31Mo (Alloy 926)
Tension	2000 lbs max.	
Beds/Lines	Dependent on drum type	
Curvature	14ins. Drum Core	
Marking	Yellow paint on first 4 layers on the drum	
Min. Sheave Diameter	16 ins.	

During/After Work:

	Galvanized	GD31Mo (Alloy 926)
After Jarring	Cut back 100 ft. and inspect wires.	
Cleaning Recommendations	Line wiper should be used on last pull out of the hole	

Storage:

	EIPS Carbon Steel	GD31Mo (Alloy 926)
Cleaning/Lubricant Recommendations	Use a line wipe on the last run and apply light oil or grease as a corrosion inhibitor	
Drum Storage	Drums should not be stacked and where possible should be stored indoors away from elemental conditions including UV and rain	
Torsion Test	As per manufacturers standards	

Well Service Strand Management:

5/16" Diameter 1 x 19 Formed Strand

Proper management and care of well service strands will prolong working life of materials. Strands require bedding in prior to use and should be cut back after extended runs in the hole. If there are any concerns regarding the condition of the wire a 6-foot sample can be returned to Danum Well Services Ltd. for independent inspection free of charge.

During Spooling:

	Galvanized	GD31Mo (Alloy 926)
Tension	4000 lbs max.	
Beds/Lines	Dependent on drum type	
Curvature	18 ins. Drum core	
Marking	First 4 layers on the drum marked with yellow paint	
Min. Sheave Diameter	20 ins.	

During/After Work:

	Galvanized	GD31Mo (Alloy 926)
After Jarring	Cut back 100 ft. and inspect wires	
Cleaning Recommendations	Line wipe after last run in the hole	

Storage:

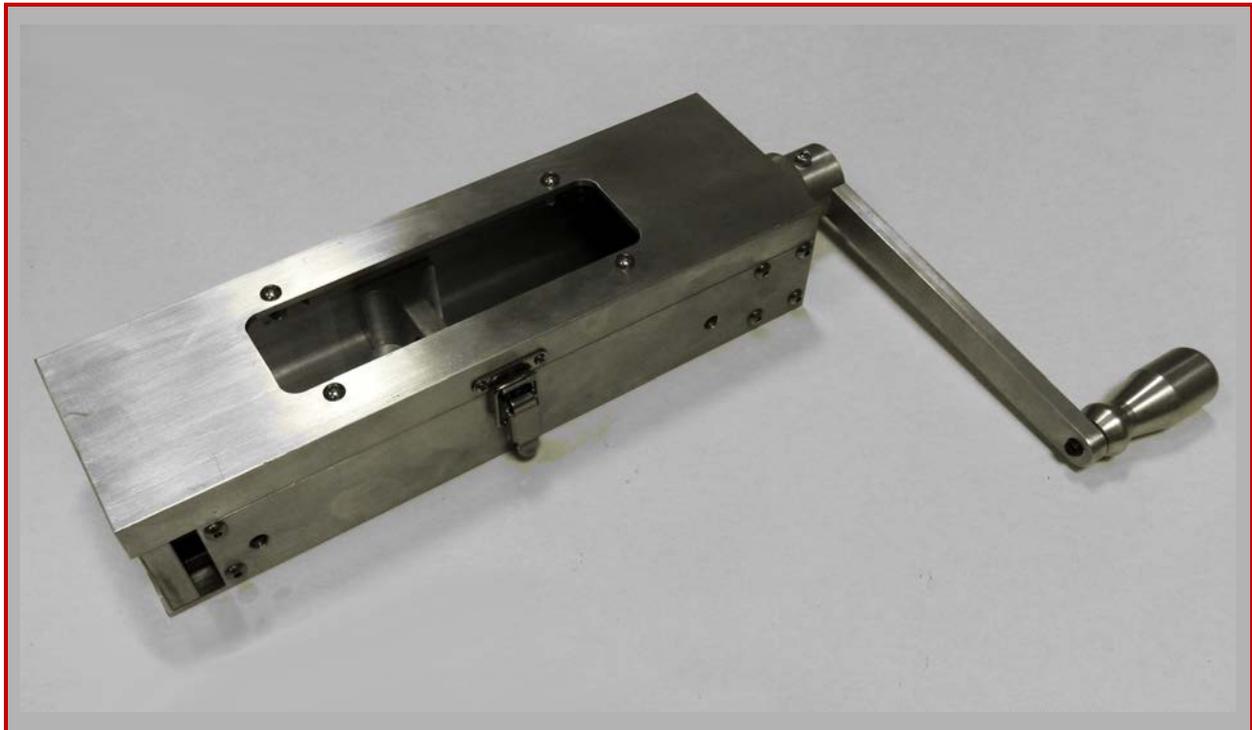
	EIPS Carbon Steel	GD31Mo (Alloy 926)
Cleaning/Lubricant Recommendations	Use a line wipe on the last run and apply light oil or grease as a corrosion inhibitor	
Drum Storage	Drums should not be stacked and where possible should be stored indoors away from elemental conditions including UV and rain	
Torsion Test	As per manufacturers standards	

Torsion testing Carbon Steel Slickline:

The complex stress and strain conditions that occur in the sample during the torsion test are sensitive to minor variations in materials, making the torsion test a useful tool in assessing wire ductility under torsional loading.

The wire should be cut to length as stipulated in the DWS torsion test manual. The specification for EIPS Carbon Steel wire states a minimum number of torsions as listed below:

Wire Diameter		Minimum Number of Torsions
(ins.)	(mm)	
0.092	2.34	21
0.108	2.74	19
0.125	3.18	16
0.160	4.06	TBC

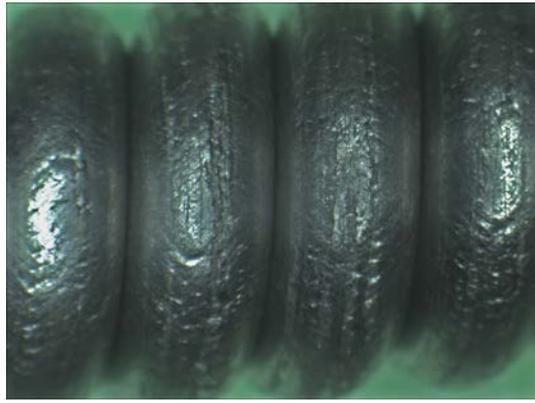
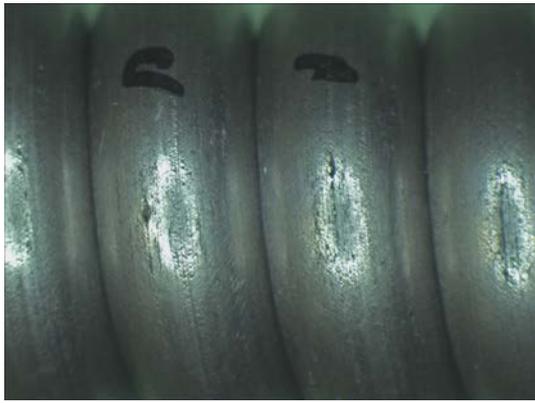
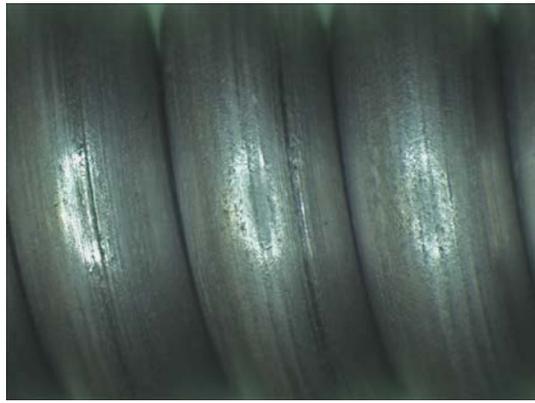


Wrap testing Alloy Slickline:

The wrap test for alloy slickline is designed to test the ability of wire to undergo plastic deformation during wrapping. The test consists of winding a wire a minimum of 8 uniform wraps around a mandrel of its own diameter (the same piece of wire is typically used as a mandrel) to form a closely wrapped helix.

The wire should then be inspected for any inconsistencies or physical defects.

Below are some examples of wrap test results:

	
<p>Figure 1: Pass. Although the wire surface has an "orange peel" appearance there is no indication of surface rupturing.</p>	<p>Figure 2: Fail. The surface of the wire has crazed and cracked. This deep rupturing shows that the wire is susceptible to corrosive attack.</p>
	
<p>Figure 3: Fail. This wire surface is showing signs of "pick-up" on the marked coils. Cut back and re-inspect.</p>	<p>Figure 4: Fail. This wire surface shows scoring. Wrapping the wire exposes the entire surface of the wire due to the helix when wound. Cut back and re-inspect.</p>

Wire Breaks by type:

	
<p>Snarl Type Fracture This type of break is caused by a loop being allowed to form in the wire and it being pulled straight without the loop being able to unfold. Poor handling or a mishap down well such as overrunning can cause this.</p>	<p>Shear Type Tensile Overload Break The title itself suggests the cause of this type of break. Quite simply the wire has had a far greater load placed upon it and it has simply broken through the excessive weight applied.</p>
	
<p>Hydrogen Embrittlement This fracture is found on carbon steel slickline and is caused by sour well conditions. We would suggest that if this type of fracture is found you should look at using a different type of material to avoid any unwanted downtime.</p>	<p>Loss in Diameter This photograph demonstrates what can happen to a wire when it has been stretched; in this case being passed around a sheave under too high a load caused the break.</p>

NOTES.

Other than tensile overload breaks most other types can be avoided with wire management. Danum Well Services Ltd offers a service where every wire or cable purchased from us can be inspected in an independent lab to ensure it is still fit for use. This involves the client cutting a 4ft sample off the cable whilst in service and sending it to us. We then submit the sample to an independent laboratory that inspects the sample and issues a brief report of findings. This will give both our clients and the oil companies some security as to the condition of the wires or cables before they are run in a well.

Even a simple scratch on the wire surface where it has been dragged over a deck floor can instigate a point where a wire can be attacked by a corrosive well environment.

The importance of a logbook cannot be stressed enough, you may be on a job where a failure could occur but the damage to the wire was done on a previous job. Knowing what a wire or strand has done in the past will be a great help in investigating any failure.

Any further information required please do not hesitate to contact the office where any of the DWS team will be pleased to assist you.