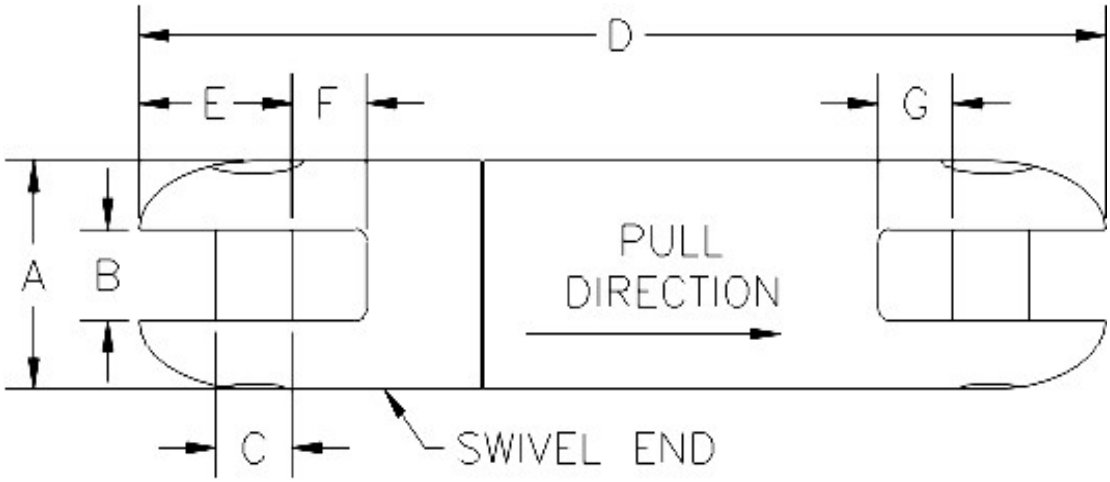
OPERATING SPECIFICATIONS

DCD Design & Manufacturing Ltd.

SERIES 00503 DUB-LITE® SWIVEL STYLE 2

1. The DUB-Lite® Swivel is specifically designed for directional drilling applications. It is intended for coupling the reamer head to the utility being pulled back. The swivel permits rotation of the drill pipe while protecting the utility from twisting.



Part Number	Safe Working Limit	Ultimate Load	A	B	C	D	E	F	G	Net Weight	Clevis Pin Kit
00503-202	**5,000 lb** 22 kN	**15,000 lb** 66 kN	**1-1/4”** 32 mm	**1/2”** 13 mm	**13/32”** 10 mm	**4-31/32”** 126 mm	**3/4”** 19 mm	**1/2”** 13 mm	**9/16”** 14 mm	**1.08 lb** 0.49 kg	**00020-HEX**
00503-204	**8,500 lb** 38 kN	**25,500 lb** 113 kN	**2”** 51 mm	**3/4”** 19 mm	**11/16”** 17 mm	**7-11/16”** 195 mm	**1-3/8”** 35 mm	**5/8”** 16 mm	**3/4”** 19 mm	**4.4 lb** 2.0 kg	**00035-HEX**
00503-205	**10,000 lb** 44 kN	**30,000 lb** 133 kN	**2-1/4”** 57 mm	**7/8”** 22 mm	**3/4”** 19 mm	**8-11/16”** 221 mm	**1-1/2”** 38 mm	**3/4”** 19 mm	**7/8”** 22 mm	**6.9 lb** 3.1 kg	**00037-HEX**
00503-208	**15,000 lb** 66 kN	**45,000 lb** 200 kN	**2-1/2”** 64 mm	**1”** 25 mm	**7/8”** 22 mm	**10-9/32”** 261 mm	**1-3/4”** 44 mm	**7/8”** 22 mm	**1”** 25 mm	**10.0 lb** 4.5 kg	**00040-HEX**
00503-210	**20,000 lb** 89 kN	**60,000 lb** 267 kN	**2-1/2”** 64 mm	**1”** 25 mm	**7/8”** 22 mm	**10-29/32”** 277 mm	**1-3/4”** 44 mm	**7/8”** 22 mm	**1”** 25 mm	**10.7 lb** 4.8 kg	**00040-HEX**
00503-215	**30,000 lb** 133 kN	**90,000 lb** 400 kN	**3”** 76 mm	**1-5/16”** 33 mm	**1-1/8”** 29 mm	**12-3/4”** 323 mm	**2-1/4”** 57 mm	**1-1/8”** 29 mm	**1-1/4”** 31 mm	**14.8 lb** 6.8 kg	**00045-HEX**

Dimensions and weights subject to change without notice.

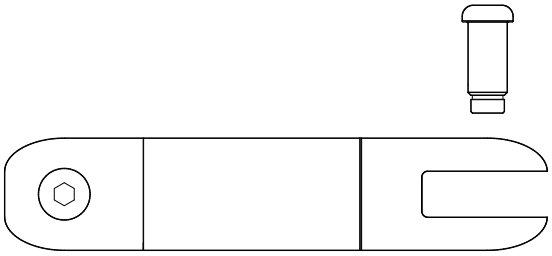
The **Safe Working Limit** is calculated using a 3:1 safety factor based on the ultimate load.
The **Ultimate Load** is the tensile loading required to separate the DUB-Lite® swivel into two or more parts.

OPERATING INSTRUCTIONS

DCD Design & Manufacturing Ltd.

SERIES 00503 DUB-LITE® SWIVEL STYLE 2

OPERATION



1. Unscrew the clevis pins and remove from the swivel using the hex key provided.

2. Ensure that the swivel is orientated with the pull direction arrow pointing towards the rotating end (drill string end, towards the machine, or in the direction of pull-back), with the opposite end attached to the non-rotating product (duct). This ensures that the rotating load is exerted on the press-fit portion of the bearings, preventing excessive internal wear of the product.

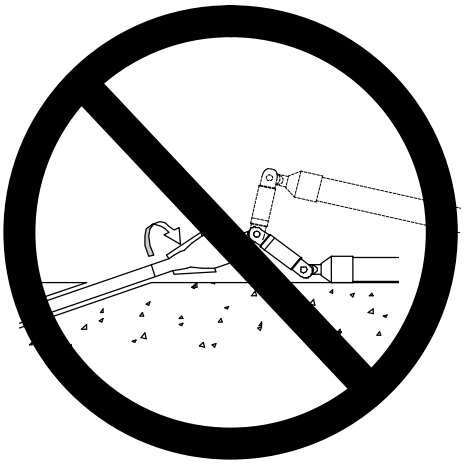
3. Insert the items you want to attach into the clevis ends. Re-insert the clevis pins and ensure they are tightened down securely.

SAFETY

The DUB-Lite® swivel is designed to operate only within its specified safe working limit (see *Operating Specifications*). Operation of the DUB Lite® swivel at loads in excess of its **safe working limit** will void the warranty as that may cause permanent bearing damage even though separation due to failure will not occur until the specified **ultimate load** is reached.

Rotating parts can cause death or serious injury! Stay well clear. Do not wear loose clothing.

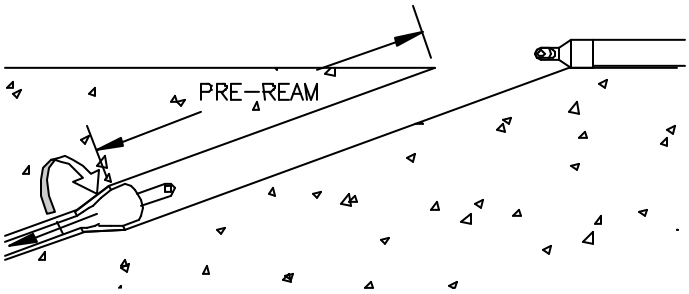
A swivel is not a universal joint! It is designed to be used under tension and in a straight line. Any use of this product that allows the swivel to fall away from the centerline of rotation will severely affect the life of the swivel.



OPERATING INSTRUCTIONS

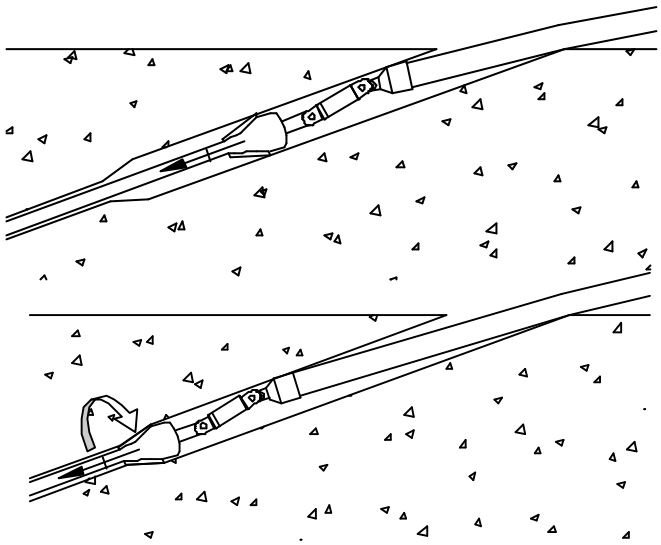
SAFETY – continued

Use the following procedure for attaching the swivel to the reamer. This procedure will ensure maximum safety for personnel in the area of operation and avoid unnecessary side loads on the swivel which may cause permanent damage.



Step 1 Pre-ream hole to minimum of one drill rod length.

Step 2 Push reamer back to surface. Attach Dub-Swivel and Duct Puller to reamer.



Step 3 Pull back **without rotation** for the length of the pre-reamed hole.

Step 4 Start rotation slowly and continue pullback.

Make sure that all components of the pulling system are able to withstand the maximum pulling loads. Components not rated for the pull force may break and release the stored energy of the pull. Never use a worn, defective or incomplete component.

Be prepared for the unexpected. Always use recognized safety practices and wear recognized safety equipment.

Replace worn or damaged clevis pins with only DCD parts. The Clevis Pin is designed specifically for this application. It is manufactured and heat treated in a manner to satisfy both design requirements and claimed capacities. Use of any other product as a replacement part will void the warranty and may result in property damage, severe bodily harm, or death to operators or persons nearby. In any instances, the DCD warranty will be avoided and DCD will accept no responsibility for product failure or personal injury.

Do not modify or dismantle the DUB-Lite® swivel. It has been assembled, and inspected and is only covered by a warranty in its “as shipped” form. Any attempt to dismantle or modify the swivel will result in the warranty becoming void.

SERVICE

After each use, while the machine is still rotating, use a water hose to wash all dirt from the split line groove. Pour oil into the groove and rotate the swivel a couple of turns to protect the seal from drying out.

Assess the condition of the swivel checking for wear and external damage. Check for axial and radial play in the bearings. Replace worn or bent clevis pins.

Lubricate the swivel with lithium-based grease containing an extreme pressure (EP) additive (the swivel has been factory lubricated with Renolit S2TX grease). Do not mix with calcium or other based greases. Use a hand-operated grease gun with slow pumping action to avoid high grease pressures. High grease pressure may damage the seals. Lack of proper lubrication will shorten the life of the bearings. Note: 00503-202 size does not require greasing.

A replacement part kit containing bearings and seals is available for the DUB-Lite® swivel. Replacement of parts should only be done using this kit and must be installed as per instructions included with the kit. Use of this kit will not extend product warranty unless factory installed. Call the factory toll free at **1-888-794-8357** for factory rebuild service.