RFS Technologies, Inc
Installation Instructions for
2HB12-50JPLX Cables

ANSI/UL 2196

Cable Marking: E239351 (UL) CATVP_5AWG_75C_RFS Technologies, an Amphenol Company_DragonSkin™_ 2HB12-50JPLX_ UL 2196 - FRR 2.0H 50V FHIT.1250 U-KKKKK-MMYY-XXXX FT

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General Installation Requirements for RFS Technologies, Inc 2HB12-50JPLX DragonSkin Cable

DragonSkin™, the new generation of CATVP coaxial cables, are used to distribute Radio Frequency (RF) signals.

DragonSkin™ cable is rated to 50V with a 2hr fire resistive rating. System FHIT.1250.

The cable marking is as follows: E239351 (UL) CATVP_5AWG_75C_RFS_Technologies, _an_Amphenol_Company_DragonSkin™_ 2HB12-50JPLX_UL 2196 - FRR 2.0H 50V FHIT.1250 U-KKKKK-MMYY-XXXX FT

X will be R or B to indicate Red or Black in color.

DragonSkin™ cable is a patent-pending design.

Authorities Having Jurisdiction should be consulted before installation.

These instructions were written for qualified and experienced personnel. Installation is to be in accordance with the National Electric Code (NEC). They describe the main points which must be followed during the installation.

General Remarks

In principle, care must be taken to avoid any strain that may cause physical damage, electrical/RF degradation. (e.g. over bending, stepping over cable, pulling over sharp edges, etc.).

Mechanical Features of 2HB12-50JPLX

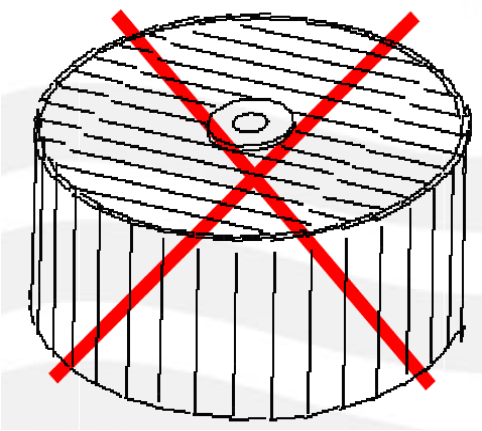
• Weight, approximately	0.45 kg/m	(0.3 lb/ft)
• Minimum Bending radius, single bending	178 mm	(7in)
• Minimum Bending radius, repeated bending	254 mm	(10in)
• Required clamp spacing	0.61 m	(2ft)

Transport/Shipment & Handling of the Drum

Drums must be handled carefully, in order to avoid any deformation of the drum and the cable.

- If the drum will be shipped (e.g. by van or truck) the drum will be secured to wooden pallet. Take special care when loading and unloading.
- Cable will be shipped on a reel that attached to pallet, whereas forklifts may be used. The forks must be long enough to engage with the length of the pallet to avoid cable damage.

- Do not lay the drum on its side, reels must be transported and handled in their up- right position only (the cable could be damaged or deformed because of its own weight).



- Make sure that the cable end is always properly sealed and fixed as close as possible to the drum core.

- **<u>Hoisting/Pulling – Handling of the Cable (Where Applicable)</u>**
- If a crane is used, a special hanger is necessary to avoid damaging the drum flanges.

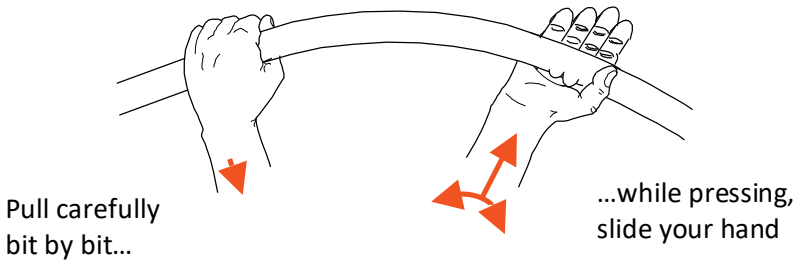
- Hoisting grips (e.g. used to support cable weight) must be used for vertical installation. Use one (1) hoisting grip for every 200 feet. Refer to the hoisting grip installation instruction.

- Do not drag the cable over sharp edges. If this cannot be avoided, protective measures must be taken such as having an additional person in place to guide the cable.

- In order to protect the cable against any damage, protective measures must be taken. If cables must be pulled in horizontal runs use pipe rollers or wooden planks.

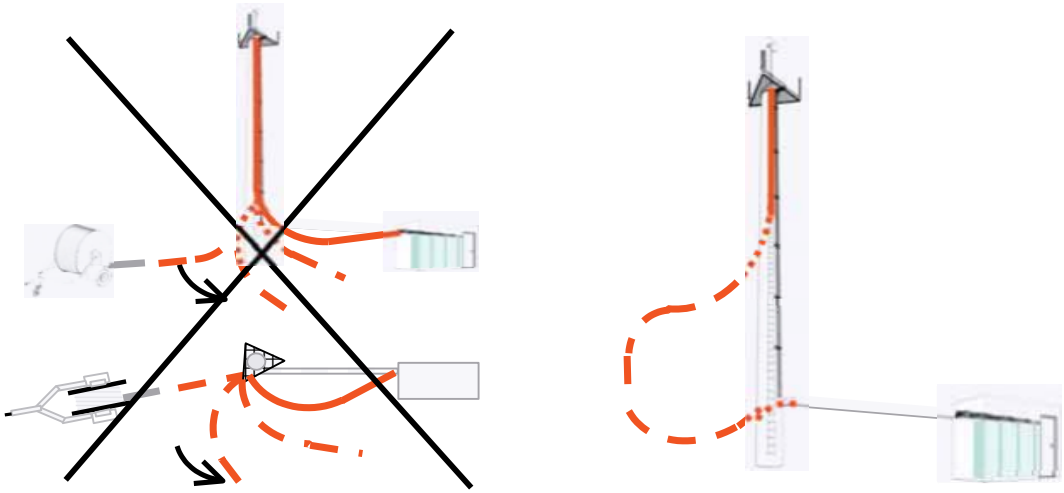
- The minimum bending radius given on page 2 should be strictly observed. The DragonSkin™ cable is bent manually with a force that is applied in a distributed manner (while carefully pressing the hand slides along the cable (see Sketch 1).

Sketch 1



- Do not twist the cable, e.g. if changing from vertical to horizontal run (see Sketch 2).

Sketch 2



As shown from side (upper) and top (lower) view, do not swing the cable horizontally creating a twist in the vertical run.

As shown from side view, rather form a large bow and pull and guide the cable horizontally without creating a twist.

- Do not leave the cable hanging in a long free space, e.g. during the installation under a platform. In adverse conditions additional protective measures must be taken.

- Keep the cable end down during cutting and connector installation in order to prevent any particles from entering the cable.

Standalone cable

Fixation of the Cable

1. **Wall or Floor Assembly —** Minimum 2-hour fire rated concrete or masonry wall or concrete floor. Opening in wall or floor through which cable or cable tray passes is to be sized to closely follow the contour of the cable or cable tray. Through opening in wall or floor to be fire stopped using a compatible firestop system.

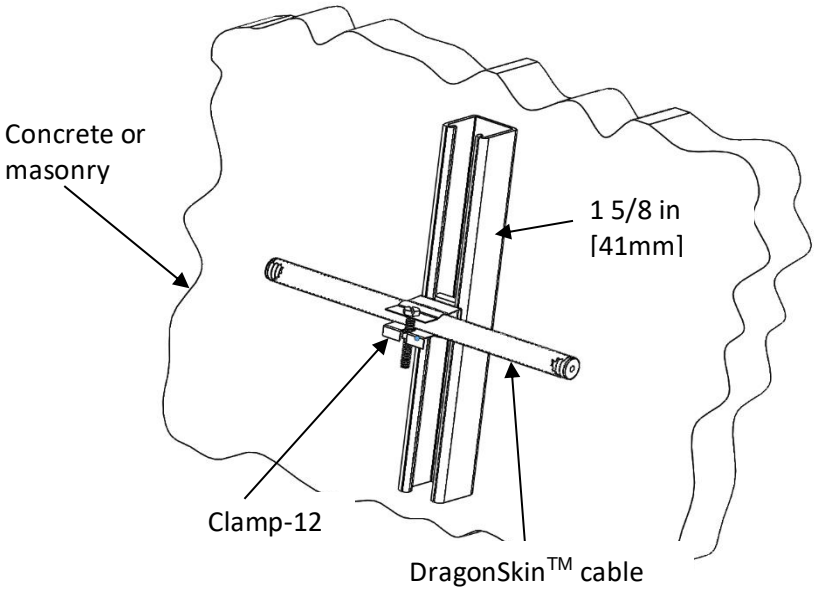
2. **DragonSkin™ Cable —** The hourly fire rating applies to cable passing completely through a fire zone and terminating a minimum of 12 inches beyond the fire rated wall or floor bounding the fire zone. The cables as identified below may be installed in the horizontal or vertical orientations and contain bends with a **7** inches minimum bend radius.

3. **Clamp-type Supports —** For use with DragonSkin™ (Sketches 3, 4, 5, 6 and 7) The cable(s) installed horizontally or vertically shall be secured to the steel struts by (Sketch 3) stainless steel clamps (**CLAMP-12)**. The maximum distance between the clamps is 24 inches. The clamps should be tightened with a 4-6mm gap between each clamp end.

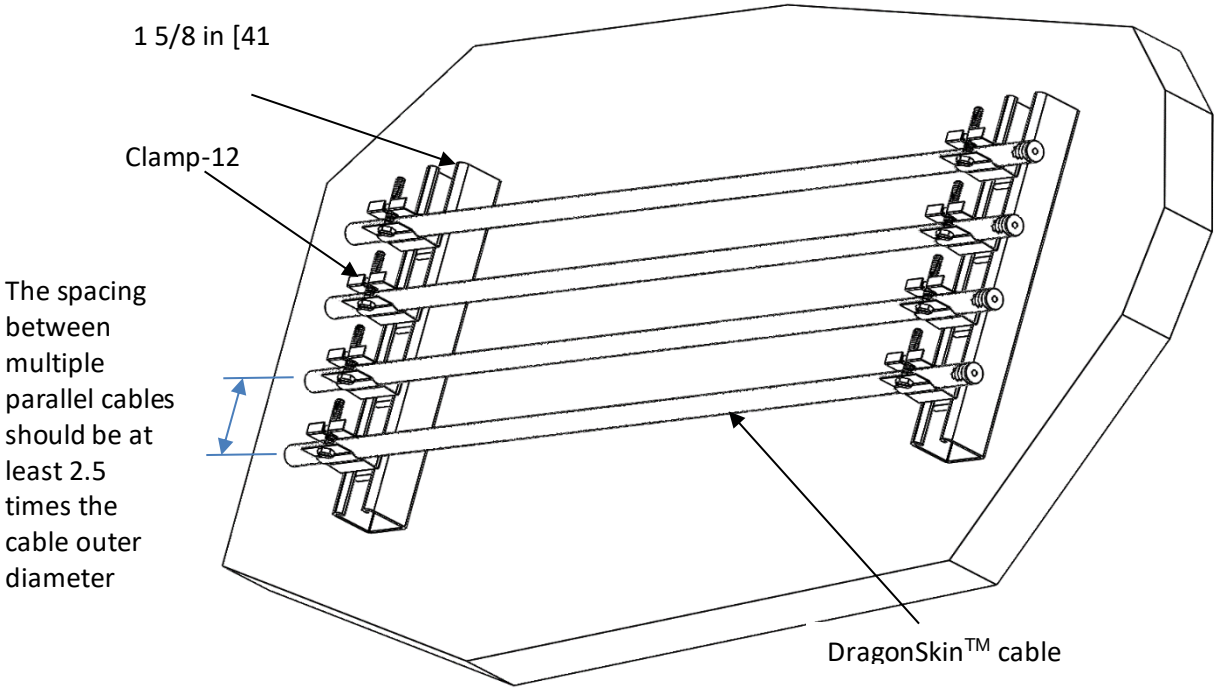
   3A. **Trapeze-type Supports —** (Sketch 5) — The DragonSkin™ cable(s) shall be installed on trapeze-type supports with stainless steel clamps (**CLAMP-12)**, separated with a maximum of 24 inches. The trapeze-type supports shall be secured from the surface of the floor.

   3B. **Non-Galvanized Cable Tray-Type Supports —** (Sketch 6) — The DragonSkin™ cable(s) shall be installed within cable trays with stainless steel clamps (**CLAMP-12)** every 24 inches. The cable tray-type supports shall be secured to the surface of the wall or floor.

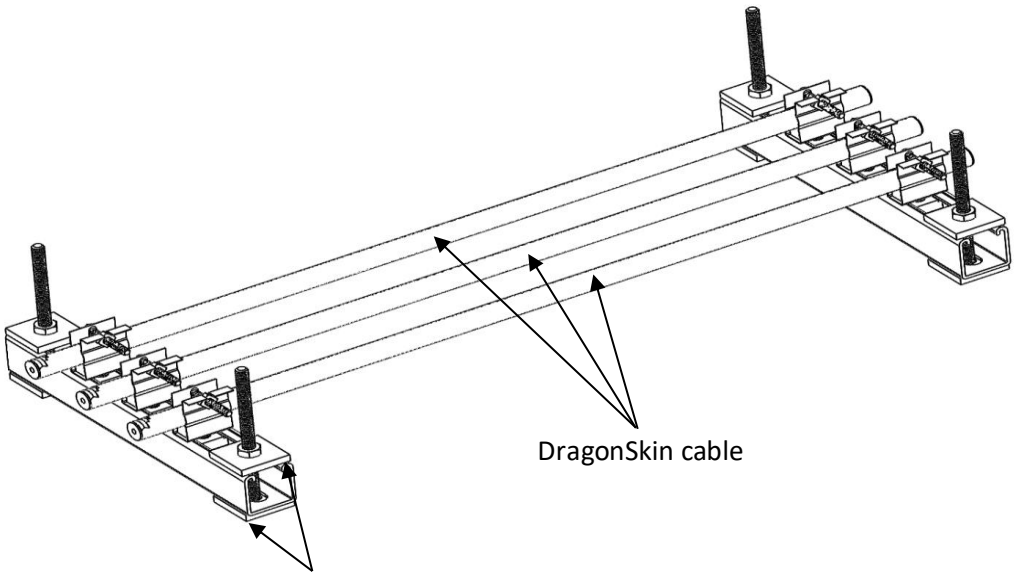
Sketch 3: Cable Clamp



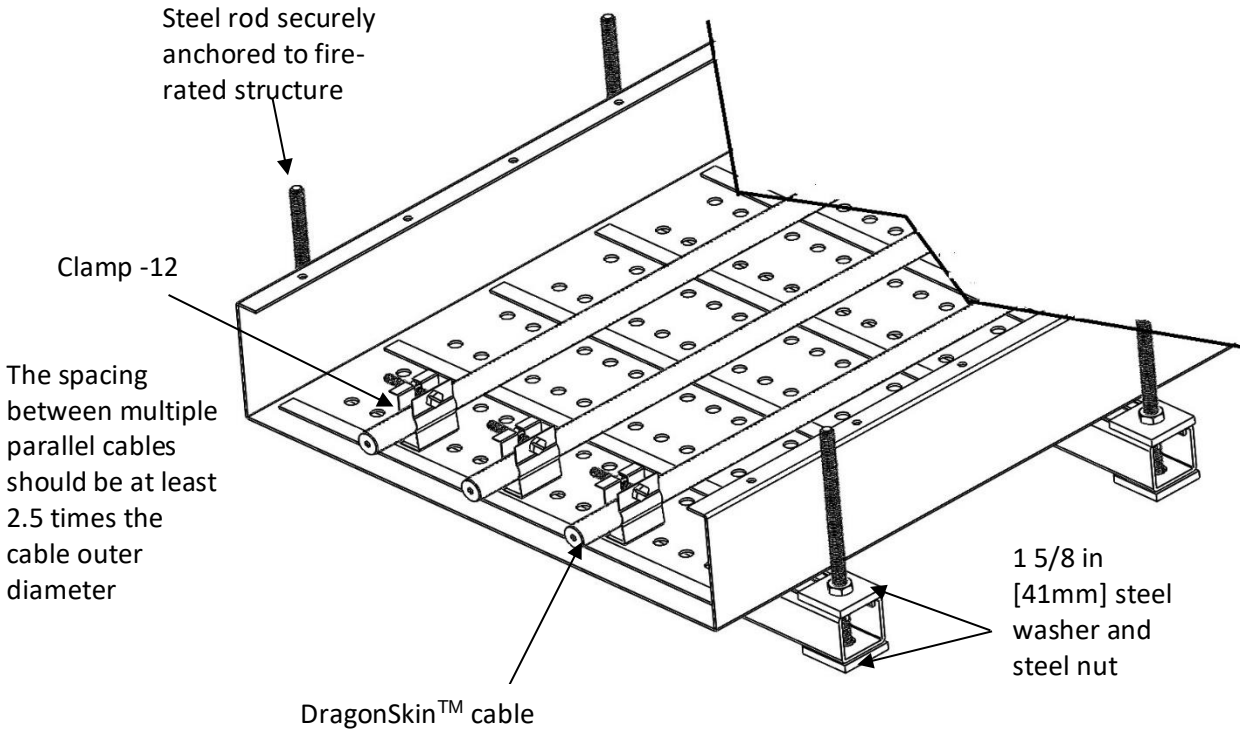
Sketch 4: Steel Struts



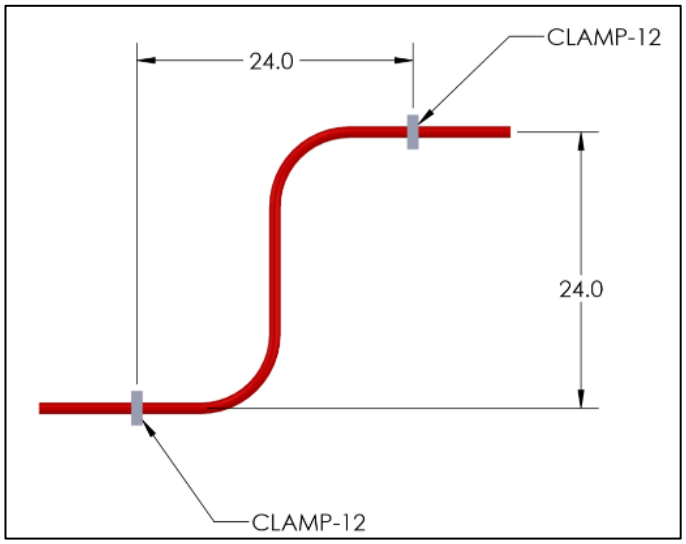
Sketch 5: Steel Strut Trapeze



Sketch 6: Cable Tray



Sketch 7: Clamp Spacing



Cable in conduit

Fixation of the Cable

1. Wall or Floor Assembly — Concrete or masonry wall or concrete floor having an hourly rating corresponding to at least the FRR. Opening in wall or floor through which cable passes is to be sized to closely follow the contour of the cable. Through opening in wall or floor is to be firestopped using a compatible firestop system. See **Through-penetration Firestop Systems** (Guide XHEZ) category for presently Certified firestop systems.

2. Raceway --- Horizontal and vertical installation.
ALLIED TUBE & CONDUIT CORPORATION — 2 inches. Type EMT E-Z Pull Brand

	Minimum Raceway Trade Size, in.
DragonSkin Cable	2

Note 1: Horizontal or Vertical Installation
Note 2: Only one cable inside the conduit

2A. Raceway Coupling — (Not Shown).
COOPER CROUSE-HINDS/EATON – 2 in. compression (665 model).
ATKORE/KONKORE – 2 in. Set screw (SK200RKON model)

2B. Raceway Elbow — (Not Shown).
ALLIED TUBE & CONDUIT CORPORATION — 2 in. Type EMT E-Z Pull Brand.

3. Fire Resistive Cables —

RFS Technologies, Inc. — DragonSkin 2HB12-50JPLX Type CATVP cable. To be installed as described herein and in accordance with the manufacturer's installation instructions 603400216500 dated Aug 2020, File FHJR.R40176.

4. Supports — (Figure 4) - Min 12 gauge, by 1-1/2 in. wide or 1-5/8 in wide, painted or unpainted, slotted steel channels with hemmed flange edges. Channel bottom with or without holes. Lengths of slotted steel channels 5 ft. and less shall be secured to the wall or floor with a min of two 1/4 in. diameter (or larger) by 2-1/4 in. min long concrete screws, or 1/4 in. diameter (or larger) by 1-3/4 in. long min steel masonry anchors. One screw or anchor to be located at each end of the slotted steel channel. Lengths of slotted steel channel in excess of 5 ft. require a min of three screws or anchors, one at each end of the channel and one centrally located within the length of the channel. For horizontal and vertical cable installations, the cable(s) shall be installed with RFS Technologies Clamp-12 maximum of 2 ft. OC. Refer to the Manufacturer's Installation Instructions for additional details. For horizontal and vertical cable installations with conduit, the supports shall be spaced at a maximum of 5 ft OC.

4A. Trapeze-type Supports — (Figure 5) - The raceways shall be installed on/from trapeze-type supports. The trapeze-type supports shall be secured from the surface of the floor. The

supports shall be spaced a maximum of 2 ft. OC, (Figure 9) - 5 ft. OC when used with conduit. Refer to the Manufacturer's Installation Instructions for additional details.

4B. Cable Tray-type Supports — (Figure 6) The cable(s) shall be installed within cables trays with RFS Technologies Clamp-12 maximum of 2 ft. OC. When used with conduit, supports shall be spaced at a maximum of 5 ft OC. The cable tray-type supports shall be secured to the surface of the wall or floor. Refer to the Manufacturer's Installation Instructions for additional details.

5. Clamps — (Figure 3) one-piece single-bolt pipe clamps. Min 25 gauge stainless steel, 1-1/4 in. wide. Refer to manufactures installation instructions.

RFS Technologies, Inc. — Type Clamp-12

5A. Clamps — (Figure 8)
COOPER B-LINE SYS - 2 in. (B2006PAZN model)
ERICO PROD –2 in. EMT (SCH32B model)
For horizontal or vertical cable installations, the clamp shall be spaced a maximum of 5 ft.

6. **Pull Box** - (Not Shown)
HOFFMAN – Pull box (ASE16X16X6NK model)

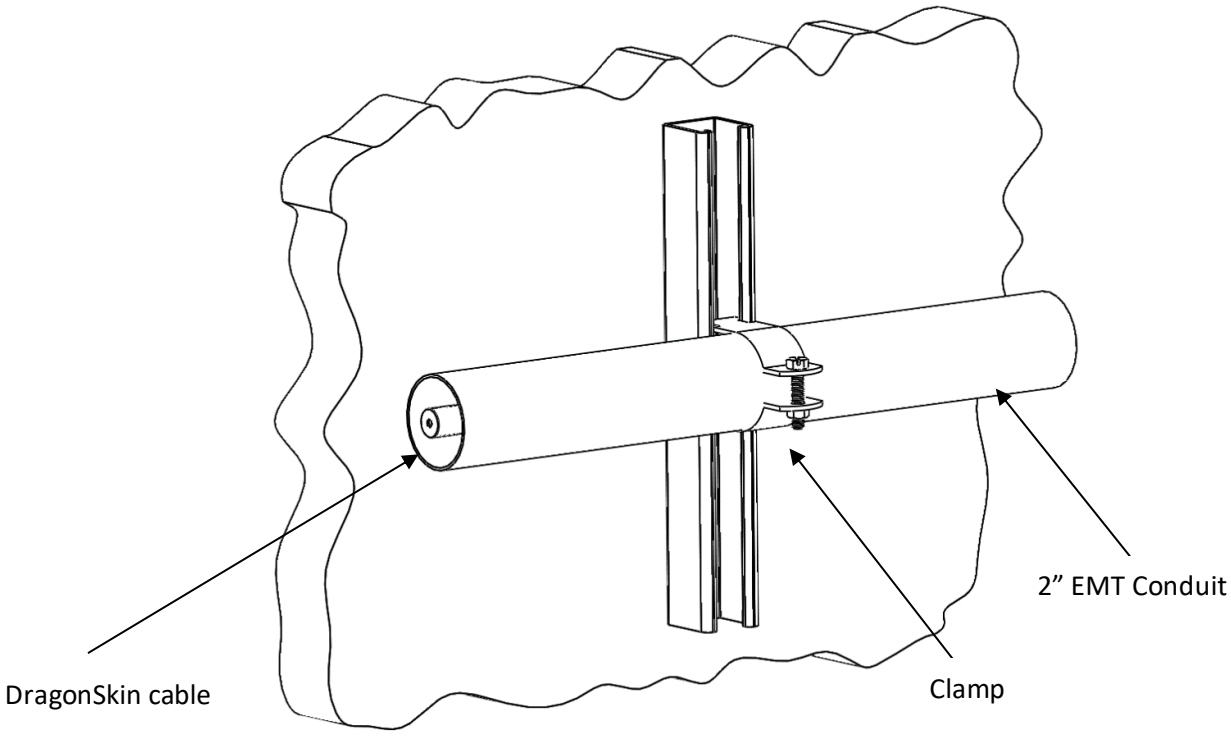
7. Pull Box Connector — (Not Shown).
COOPER CROUSE-HINDS/EATON - 2 in. compression (655 model).
ATKORE/KONKORE – 2 in. set screw (SC200RKON model)

8. Pulling Lubricant - (Figure 10) — When installing DragonSkin cables within a single conduit, the cable shall be coated with pulling lubricant.
AMERICAN POLYWATER CORP —Polywater LZ

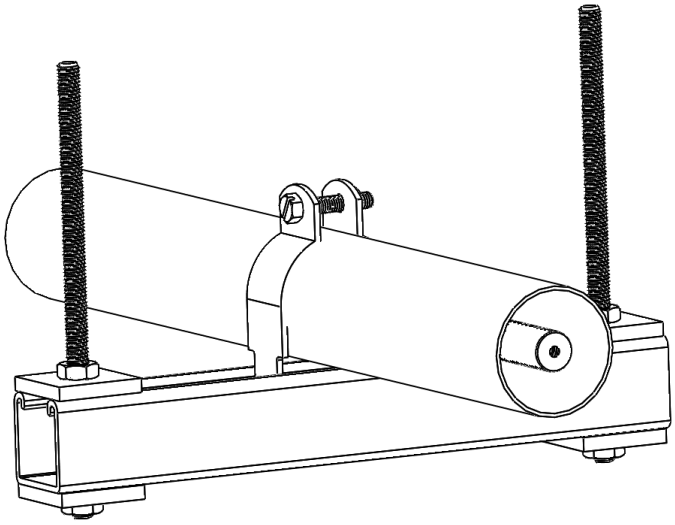
9. Vertical Cable Supports - (Not Shown)
HUBBELL – Single eye grip .73-.85 (073041280 model). Vertical runs beyond the maximum distance (50 ft.) require the cables to be supported using a HUBBELL stainless steel wire mesh support grip within a vertical enclosure. The grip must be suspended from a steel bolt or steel hook fastened to the back or side wall of the enclosure.

*Bearing the Certification Mark of UL

Sketch 8: Two-piece Single-bolt Pipe Clamp



Sketch 9: Steel Strut Trapeze



Sketch 10: Hoisting Grip