

SWAGING TECHNIQUES - COMPACT STRAND WIRE ROPE

Preface:

The intention of this publication is to provide guidance on swaging techniques for compact strand wire rope. The steps outlined in this procedure should only be executed by an experienced and qualified rigging professional.

All raw materials, tools, measurement equipment, and gage calibration services described in this procedure can be obtained from Hayn Enterprises, LLC.

Steps / Operations:

- 1.0 Ensure that the swage terminal selected is suited for use with compact strand wire rope. Hayn part numbers will have a suffix of "-CS".
- 2.0 Deburr / slightly chamfer wire rope cut end to ensure smooth insertion into swage terminal.
- 3.0 Clean / scuff wire rope with **3M** Scotch-Brite™ "General Purpose Hand Pad 7447 or equivalent for the entire depth of swage plus 2 wire diameters or 14 times wire diameter. Example: 12mm Compact Strand x 14 = 168mm length to clean
- 4.0 Ensure both the wire rope and swage terminal are free of contaminants and oils by wiping down with Acetone and a lint free wipe such as a Hayn Wipe or equivalent.
- 5.0 Insert wire rope to full depth of the swage terminal and mark exit point on the wire rope with permanent marker. Extract the wire rope and place next to swage fitting and mark hole depth with permanent marker.
- 6.0 Spray wire rope with **LOCTITE**™ Kleen N Prime 7471 and wait at least 1 minute prior to moving to the next step.
- 7.0 Lightly coat wire rope with **LOCTITE**™ Sleeve Retainer 640 for a length of 12 times wire diameter.

NOTE: Cure time is 24 hours @ 22° Celsius (72° Degrees Fahrenheit). Loctite curing performance is temperature sensitive and dramatically slows with temperatures below 22° Celsius (72° Degrees Fahrenheit).

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- 8.0 Apply 140 Grit Synthetic Diamond Powder to the **LOCTITE**™ coated surface.
- 9.0 Insert / rotate (2 full turns) the swage fitting onto the wire rope ensuring 100% entry by observing the permanent marker line made during step 5.0.
- 10.0 Perform swage operation using a WireTeknik or Top Reff roll swage machine.
 - 10.1 Select appropriate die size and lightly lubricate.
 - 10.2 Select and install appropriate pulling attachment (WireTeknik Only).
 - 10.3 Engage swage machine dies $\frac{1}{2}$ → 1 wire diameter short of swage depth indicated with permanent marker.
 - 10.4 Ensure the wire rope has straight alignment / entry into swage terminal during the swage operation.
 - 10.5 Using the permanent marker line on the wire rope, ensure wire is 100% inserted into swage fitting prior to commencing swage operation.
 - 10.6 The permanent marker line should have disappeared, as the swage terminal will grow in length during the swage operation.

After Swage Inspections / Actions:

- 1.0 Inspect to determine if any permanent marker is visible on the wire rope.

NOTE: If marker remains visible, the wire rope was not completely engaged during the swage operation and full pull out strength has not been achieved. The fitting must not be used.
- 2.0 Wipe / clean wire rope and swage terminal with Acetone to ensure all remaining oil, debris, Sleeve Retainer and Diamond Power are removed.
- 3.0 All measurement inspections should be performed using a calibrated measuring instrument. Hayn recommends digital calipers or a digital micrometer.
- 4.0 Measure after swage dimension of the swage terminal and compare value to “Swage Dimension Table” located on page 7 of Hayn Wire Rigging catalog.

NOTE: Due to variations in wire rope, material hardness, and fitting manufacture tolerance it may be necessary to repeat steps 10.0

Document after swage measured value with job for permanent record of swage validity.