



# Cable Pulling Grips Selection, Inspection & Application

This is a guide for the Selection, Inspection and Application of cable grips to ensure a safe pulling operation, optimum grip strength and grip longevity

## CABLE GRIP SELECTION

The grips are safety critical and must be used by competent trained personnel.

It's essential to choose the correct grip for the job.

There are a number of variables that can weaken a cable grip that are not immediately obvious on visual inspection, this is why a Safety Factor is used.

It's important to know the difference between Working Load and Approximate Break Load, and how to use the Safety Factor to calculate the Working Load Limit for the cable grip that will be used.

The Working Load Limit (WLL) is calculated by dividing the Approximate Break Load by the Safety Factor.

The Safety Factor is determined by existing company, local utility or industry safety guidelines.

**NOTE:** To ensure maximise grip performance, the grip must be double banded, as described in the "Application Instructions" below.

There are many factors that must be taken into account when assessing the suitability of a cable grip for a proposed application and calculating the WLL.

These include:

- **Size of cable grip in relation to size of the Cable/Conductor**
- **Approximate breaking strength of the cable grip.**
- **Suitability and compatibility of any attachments used - Swivels, Rope, etc.**
- **Stability of object(s) when gripped.**
- **Grip surface of conductor.**
- **Resistive force of conductor.**
- **Anticipated path of movement:**
  - Underground - through conduit, number of bends, use of cable lubricant.
  - Overhead - through rollers, number of rollers, diversions/ angles.
- **Environment/operating conditions.**
- **Condition of cable grip.**



If you have any questions regarding suitability for any particular grip application, please contact TEN

Please note: Cable grips must be double steel banded securely before being pulled.

## CABLE GRIP INSPECTION

When inspecting a cable grip, it's critical to be able to identify damage or potential trouble spots.

The following are some of the types of damage you should be aware of prior to the commencement of a pulling project with your cable grips.

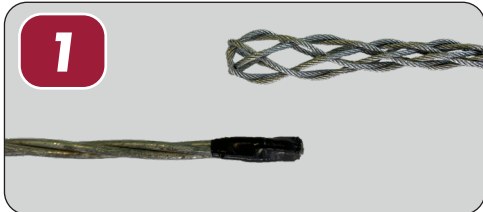
If these are observed, the grip should be replaced.

Damaged Pulling Eye		Frayed Wires		Rusted Wires		Bent or Broken Wires	
<p>The eye of the cable grip is very important. If any damage is found, replace the grip immediately. Causes of eye damage include:</p> <ul style="list-style-type: none"> <li>• Pulling loads at an angle as opposed to straight line pulling</li> <li>• Misuse and wear from excessive use</li> </ul>		<p>Frayed wires cause the cable grip to weaken significantly. The more wires damaged, the weaker the grip. Causes of fraying are:</p> <ul style="list-style-type: none"> <li>• Excessive abrasion while cable is being pulled</li> <li>• Becoming stuck or snagging during a pulling operation</li> </ul>		<p>Rust will weaken the strands of wire. If excessive rust is identified, replace the grip immediately. Causes of rust are:</p> <ul style="list-style-type: none"> <li>• Grips left in moist conditions or stored damp after exposure</li> <li>• Water with high salinity content will cause rusting more rapidly</li> </ul>		<p>Bent or Broken wires cause the cable grip to weaken significantly. The more wires damaged, the weaker the grip. Causes of this type of damage are:</p> <ul style="list-style-type: none"> <li>• Excessive abrasion while cable is being pulled</li> <li>• General wear &amp; tear</li> </ul>	



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## CABLE GRIP APPLICATION



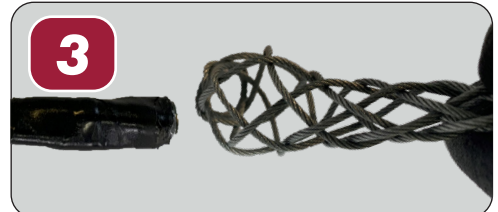
**1**

Select the correct grip for the diameter of the conductor. (e.g. 3/2.75 (3/12) - ST/GZ - 5.93mm mod P/No. ZCS1710)



**2**

Tape the end of the conductor to reduce snagging during installation.



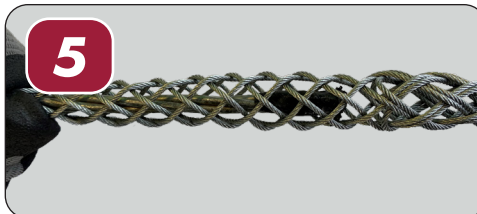
**3**

Widen the lattice at the end of the grip. This will cause the lattice to expand for ease of insertion



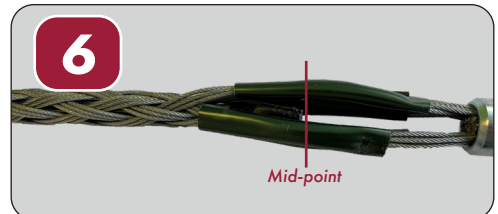
**4**

Slide the end of the conductor into the grip.



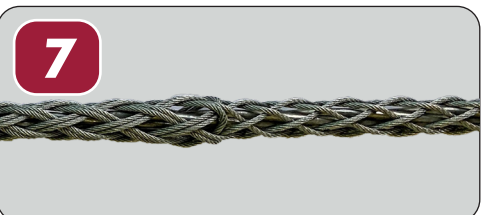
**5**

Continue widening the lattice as you slide the conductor into the grip.



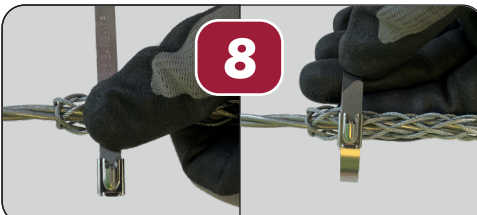
**6**

Slide the conductor in until the end is at the midpoint of the protective shoulders.



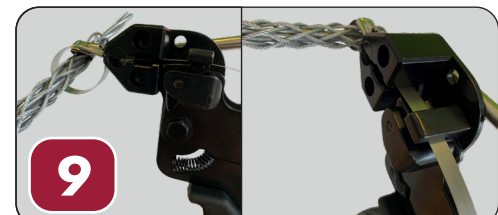
**7**

Push the lattice against conductor to ensure it is in good contact with the conductor.



**8**

Select the appropriate Band-It Tie and wrap around the grip. Ties should be applied at 30mm & 55mm from the end of the grip.



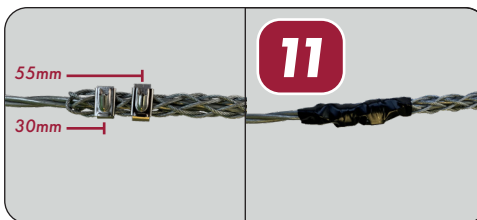
**9**

Attach the Band-It tool to the tie and tighten until firm on the grip.



**10**

Once the band is tight, push the cutting lever of the tool up to remove excess band.



**11**

Apply a second band, repeating above steps 8-9-10 and finish by taping the bands and end of grip. This will reduce snagging during pulling.



For removal of the grip, reverse steps above. Use pair of side cutters to cut the band near the lock to remove the ties. Take care not to damage the grip strands

PLEASE NOTE: Ball-Lokt band (KT6U078-200) and Ball-Lokt Band-It tool (KS652-TOOL) specifically used during grip testing, available from TEN



Grip application complete.

Applied on 3/2.75 (3/12) - SC/GZ conductor with applicable Swivel (GGT001). Contact TEN for further information