HOW TO SELECT THE CORRECT SIZE TUBING FOR YOUR APPLICATION

TE Connectivity Heat Shrink Tubing

White Paper

INTRODUCTION:

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Heat Shrink Tubing, unlike many other products is designed to change shape when installed. Correctly sized tubing will conform to the substrate over which it is applied. It shrinks in diameter and in general overall length. This can make it especially tricky to select the right size for your application. This guide was put created to help with that process.



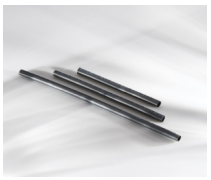
BRST TUBING



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Recovered ID vs. Size of Substrate

To achieve a good robust installation of heat shrink tubing it is important to get the best fit of the tubing to the substrate. To do this, the tube needs to shrink by at least 20% of its supplied size but not so far that the tube reaches its fully recovered size. It is best to have at least 10% unresolved recovery after the tube is installed.

Example: RNF-100 size 1" recovers to a maximum of 0.50". It should be used for applications where the expected recovered size is between

- 0.50"+ 0.05" (i.e.-10% of 0.5") = 0.55" to;
- 1" - .2" (i.e. - 20% of 1.0") = 0.80"

Or in other words, it is intended to cover something that measures between 0.55"- 0.80" outside diameters.

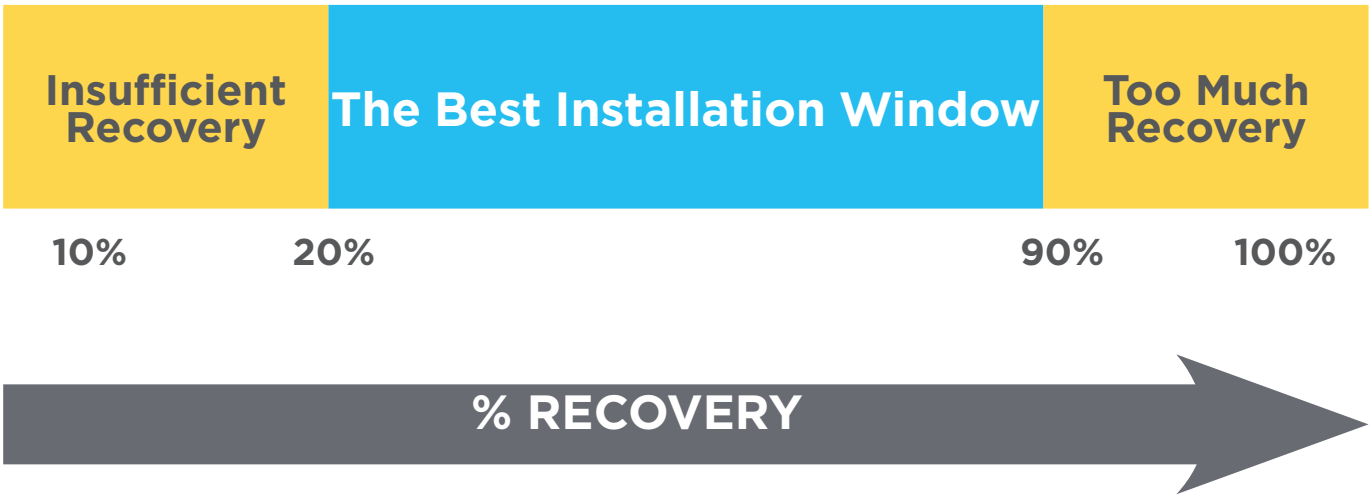
Will the heat shrink tubing work in the zone outside the recommended installation window? Maybe, but it will not give optimal performance.

Always select the biggest size tube that will fit the application. It will be easier to install and achieve the target wall thickness on of the installed tube. This will give a more robust solution.

Length Shrinkage

Just as the tubing will shrink in diameter, it will also shrink slightly in overall length during the recovery process (in general – in some case it can grow in length). Different products have different longitudinal shrinkage %'s.

Please consult with a Field Applications Engineer if this is a concern prior to placing an order. Make sure to account for this when specifying the cut length needed or when cutting the tubing in-house. When using a long length of tubing, it will need to be cut longer than the distance it needs to cover because of the shrinkage during recovery.



Installation Do's and Don'ts

- Do not force the supplied tube over something by stretching it. This can cause it to tear during recovery
- Since heat shrink tubing is supplied at a minimum expanded diameter, always use the specified Expanded ID dimension. Do not assume that the tube will be delivered at exactly the same dimension every time. However, it will always meet the specified minimum expanded ID dimension.
- Do not assume the tube will always shrink to the same fully-recovered dimensions. Always use the specified dimensions for the recovered internal diameter of the tube. Sometimes the tube will shrink a little more than the Recovered ID specified, but it will always meet the maximum specified dimension.
- Do not cut the tube length to be the final installed length required. The tube will change length during recovery. The more you shrink it the greater the longitudinal change. The long change is noted in the product specification. Use it when calculating the cut length.
- Do not recover the tubing over something with sharp edges, they can cut the tubing or puncture it which results in the tubing splitting during installation.
- Follow the installation guidelines, especially the guideline on temperature. At too low a temperature the tubing may not fully recover. At too high a temperature it may show burn marks or split.
- If you use a heat gun to recover the tubing, expect to see some wrinkles. This is caused by non-uniform heating of the tubing (chill marks), but generally has no effect on the performance of the tubing. Recommended recovery is in an oven to give uniform recovery around the entire circumference of the piece, or with a heat gun that allows the substrate to come up to temperature and assists in full recovery.
- If you have any questions when selecting which size tubing is appropriate for your application please consult with one of our FAE's.



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