

Introduction

Splicing Dyneema is simple providing you take it a step at a time.



All the tools you need are shown in the picture above. Working from the top we have a *sharp* pair of scissors or you can use a *sharp* knife (it's surprisingly tough to cut), a large darning needle (this was the prototype, and we now use a shorter one), a "fid" – a pointy tubular tool for threading one rope through another, and some ordinary electrician's tape.

To cut Dyneema rope, first take a piece of tape long enough to go round the rope at least twice. Wrap it around the point where you wish to cut the rope, and then make the cut in the *middle* of the tape. This will leave you with *two* ends that will not fray.

A couple of definitions:-

The main body of rope you are trying to splice into is called the "*standing part*".

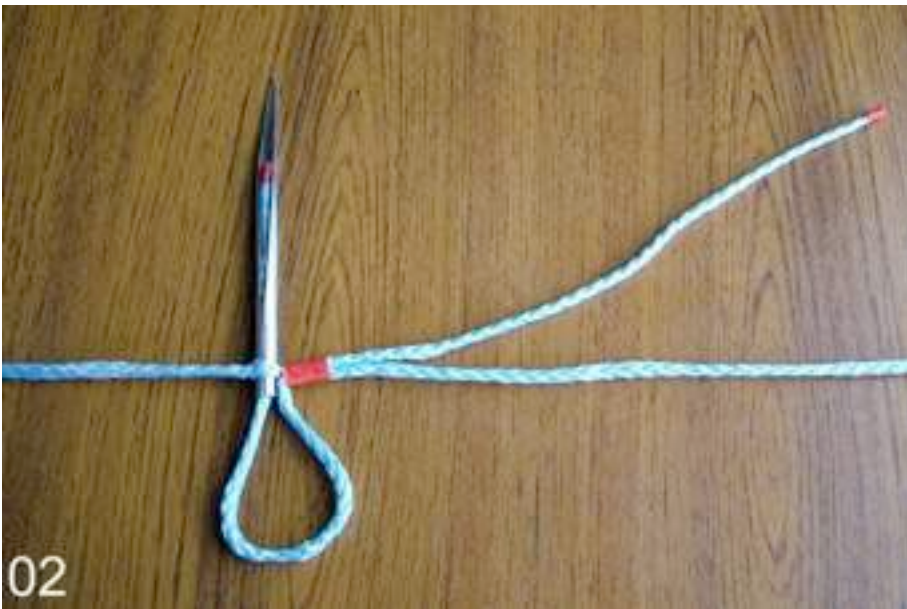
The tail, which you are usually trying to splice in, is called the "*working part*", or "*working end*".

The Long Splice



You can see that we have two standing parts, and two working parts.

Cut the ends of the standing parts as described above, to sort out any frayed ends. Lay the two standing parts overlapping in such a way that you can tape them together with the two working ends each of length 25cm to 30cm (10" to 12"), or about the length of this A4 page. It is not critical, but if you are uncertain, it is better for them to be longer than shorter (by mischance the darning needles are just over 23cm long, it would have been nice if they had been made exactly the right length as a gauge!).



To use the fid, always open up the rope by compressing it gently along its axis, and insert the fid between the strands, adjacent to the tape, and *not* through the strands. Admittedly, this is the fiddliest thing you have to do, but it makes a much better job from a neatness and strength point of view. If you have done it properly, the fid requires very little force.

Next thread the respective working end into the tubular fid, and then pull the fid fully through the standing part. This will leave the loop of the working part neatly threaded through the standing part.



Now pull the working end until the loop has disappeared, and the first tuck of the splice is complete.



The next step is a fiddly one. When you open up the rope by pushing along its axis you can see little holes where the strands open up. Skip two holes, from the exit point of the first tuck, and push the fid into the third hole at an angle of about 45 degrees, as in the picture. This means that it should come out at the fourth hole on the under side. That's the fiddly bit



Now insert the working end in the fid,



and proceed as in the previous tuck



To complete the splice you need to bury the working end completely inside the tubular braid of which the rope is made. To do this take the darning needle and open up the strands as you did with the fid, but instead of coming out of the other side of the rope, you push it up inside the rope.

Start where the last tuck came out and skip four holes between strands, and go into the fifth hole at an angle so that the point of the needle is facing along the standing part away from the last tuck. You can now gently thread the braid onto the needle, if you think you have snagged a thread or slipped out of the side, stop, withdraw the needle until you are clear, and then proceed until you have buried about three quarters of its length inside the rope.

Push the needle out through the nearest hole in the braid. Thread the working end through the eye of the needle. With a bit of a struggle at the start, draw the needle and working end through the braid.

The tape dimly visible in the top left of the picture was a misleading attempt to show where to bring the point of the needle out. There is no need for it! (Version 2 of the manual will correct this.)



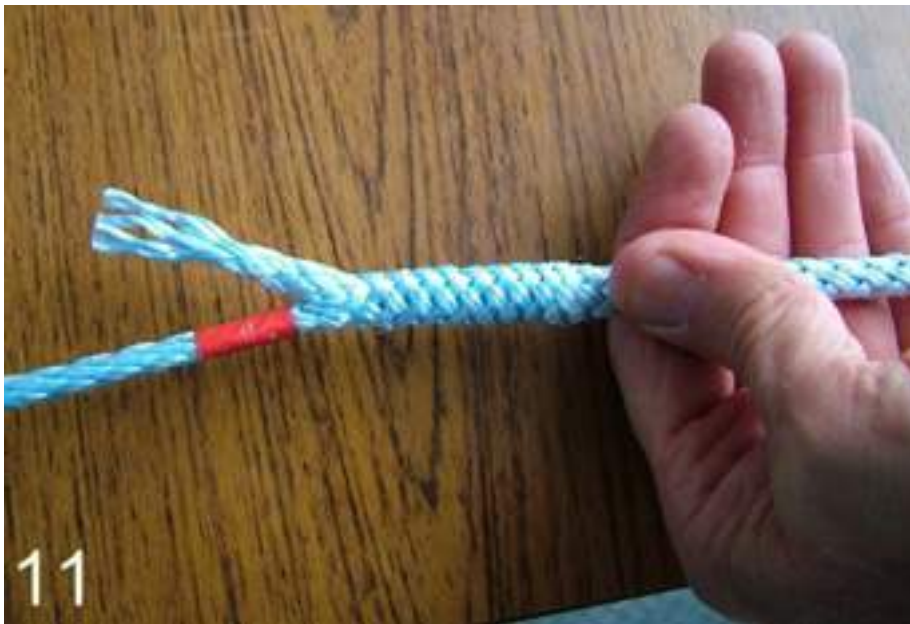
Remove the working end from the needle, and ***do not let it disappear inside the braid***. Carefully pull through the braid to remove the loop visible in the lower right of the picture, ***but do not smooth out the expanded braid***. As before ignore the misleading piece of tape at the left of the picture.



Remove the tape from the working end. Now taper the working end over a distance of a couple of inches, (5cm) by pulling out strands at differing lengths,



and cutting them off.



Now ease the braid smooth over the working end, which should disappear into the inside of the tube. Again, ignore the misleading piece of tape.



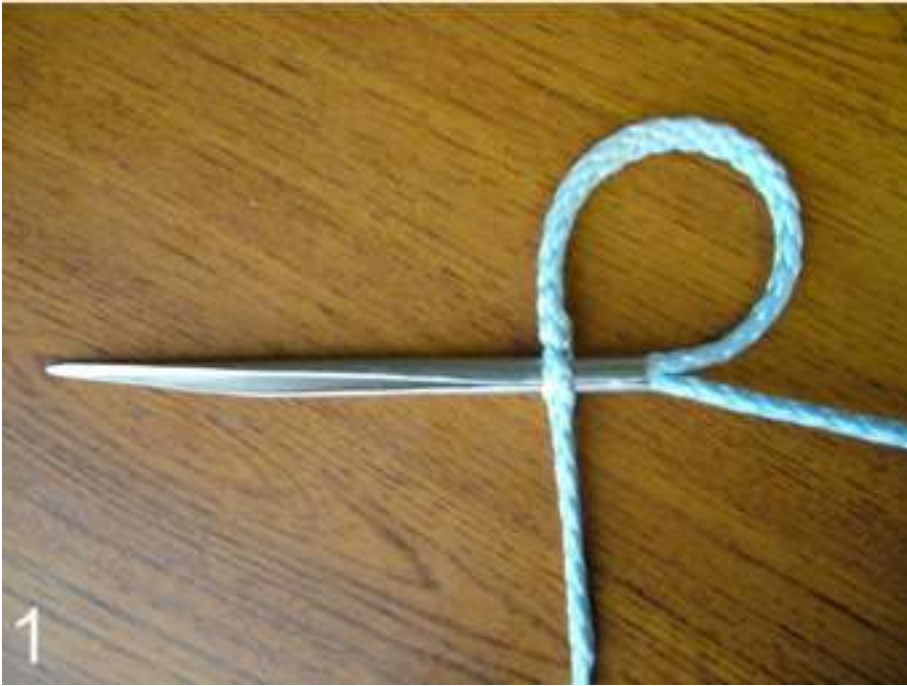
You have completed half of the splice, now do the other end, starting all over again from picture 02.



The lower spliced rope shows the effect of not tapering the working end prior to burying it inside the rope. There is a sharp change in diameter, which can weaken the splice. This is absent from the top rope, which has been tapered properly. These ropes and splices are exactly the same diameter but the

apparent difference is down to the camera angle. A well made and tapered splice has a strength of between 95% and 100% of the full strength of the rope, so it is well worth the effort to do it nicely.

The Eye Splice



The eye splice is started in a different way to the long splice, but the finishing off is identical.

Insert the fid at a point to give a working end of length 25cm to 30cm (10" to 12"), or about the length of this A4 page. It is not critical, but if you are uncertain, it is better for them to be longer than shorter (by mischance the darning needles are just over 23cm long, it would have been nice if they had been made exactly the right length as a gauge!).

Take hold of the standing part about 15cm (6") from the insertion point of the fid. Fold it back on itself, and after a bit of squeezing and moulding it in your fingers, insert the fold into the end of the fid.



Pull the fid, and the folded bit of the standing part through the hole in the working end. It looks a little odd, but if you pull through, you will create an eye, into which you may or may not decide to put an eyelet, depending on the application.



The remaining kink can now be smoothed out, by pulling the working end, and its continuation in the eye. Smooth the kink out, with your fingers, until it looks like a normal splicing hole. You will now have a simple eye with a normal looking standing part and working part.



Tighten the eye around the eyelet, or adjust the size of the eye to your requirements.

This picture shows the standing part at the top, and the working part at the bottom. The benefit of this technique of creating an eye, is that it will tend to tighten under load, but the conventional method of inserting a working part into the standing part will tend to undo under load.



You should now insert the fid as in picture 4 of the long splice, i.e. skip two holes and enter the third, and with the fid at approximately 45 degrees to the standing part, exit at the fourth hole along. You end up with this picture 5 matching the state of play in picture 5 of the long splice.

Proceed from here exactly as in the long splice instructions, until you have finished.