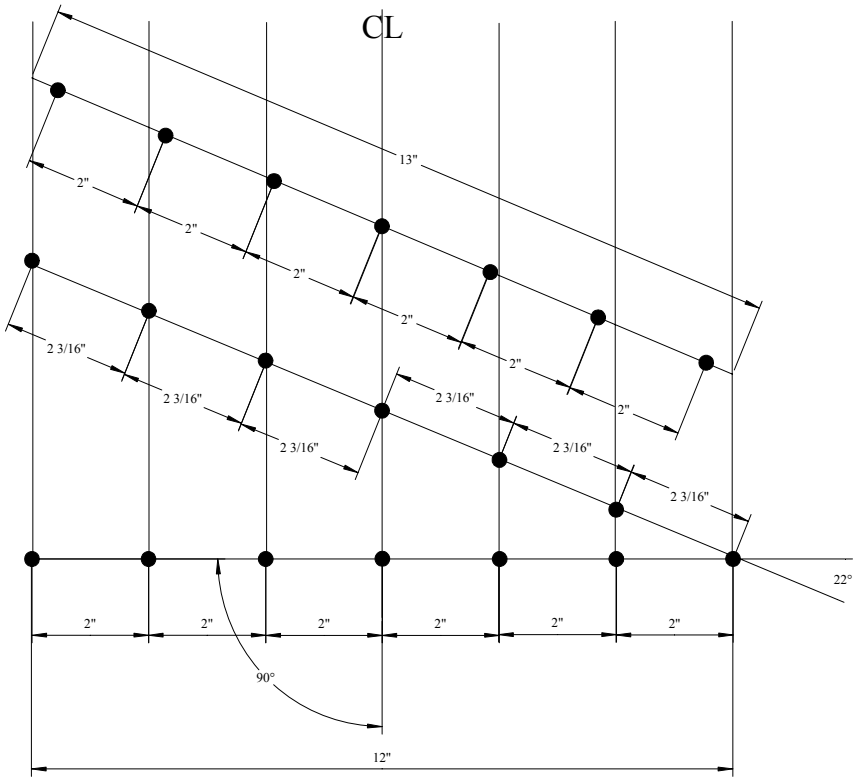
FENNER DUNLOP
CONVEYOR BELTING AMERICAS

Finger Splice Update

Tips on Bias vs. Square Finger Splice Layouts

When laying out a finger splice one must be aware of the effect the bias angle has on the pattern. The 2” finger pitch can greatly be affected by not measuring from the square center line and thus allowing the fingers to take on pitch less than 2”.



This is most noticeable on belt widths 42” and greater as the larger number of fingers in the splice width the more likely they will not fit properly out near the belt edges.

In the past finger splices were looked on as easy to crack open about where the idler junction was in the belt. This was due in part from not understanding the effects of the finger pitch change along the splice bias angle.

It was common for splicers to measure their 2” pitch along this angle, the same way they would if the square splice was being used. It was this mistake along with using improper splice materials that allowed the finger splice to show signs of early failure.

As you look at the above drawing you can see how fingers with a 2” pitch when laid out properly along the bias angle have base width of 2 3/16” along the angle. In general It is important to understand the splice is seeing tension across the belt width (i.e. – square to the center line) so any change to the finger will effect the splice.

To help reduce the lay out time a simple temple can be made (or ordered from CIR in Sparks, NV) to make sure the pattern stays correct if a bias or square splice lay out is used.

The following adjustable fold up template can be made for less than $250 from items found at most any hardware store and will save one to two hours on a finger splice. Store in tube made from 4" PVC pipe for easy and safe transport to the job site.

Parts List

(4) 48" Adjustable T-Squares
(4) 5/16" x 1" Carriage Head Bolts
(4) 5/16" Wing Nuts & Flat Washers
(58) ¾" Drawer Pull Knobs (with round head bolts) – number depends on template width.
(1) Chalk Line – White (250 ft)

STEP 1
Remove and discard the T-section of the square. In the ends opposite of the adjustable slot drill a 3/8" hole for the 5/16" x 1" Carriage Head Bolts.

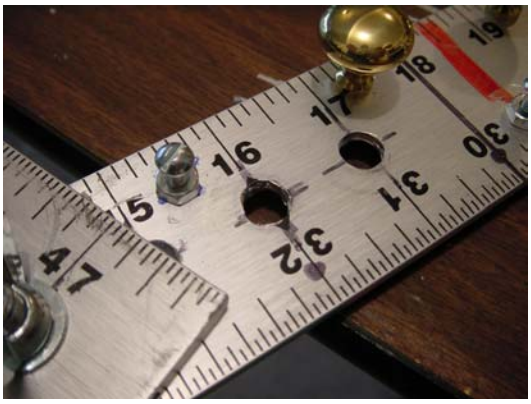
STEP 2
Bolt together the frame as seen the above drawings. The adjustable end is where you would change the splice length as needed.

STEP 3
Make the square splice ends by drilling a hole ¼" from the edge of the base square every two inches starting in the template center.

Note: This works best if template belt width is worked out before hand. I used 30" for my mine so it would require fewer knobs and thus could be moved over to lay out wider belts.

STEP 4
On the opposites end drill the same set of holes ¼" from the edge making sure to have one end as a base and one end as a point (point end starts with center line and base line starts with 1" marks on each side of the center line).

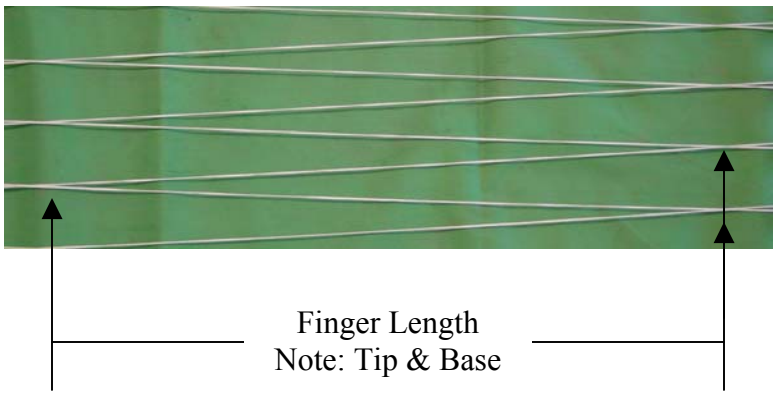
STEP 5
Remove each end and rotate so the bias angle knobs can be drilled. From the proposed template center (remember the bias angle line is longer than the belt width thus extra length will be needed) lay out the same pattern holes (base and point) allowing 2 3/16" of an inch between the hole centers.



STEP 6
After both ends have been drilled and the knobs bolted in place you can choose if a square or bias angle finger splice is to laid out. Install the proper ends (making sure there is a point and base end of the same pitch) and pull a chalk line string around the knobs (note how they cross each other to make the finger tip and base clean and sharp).

STEP 7
Center the template over the belt center line at the end of the belt (noticing the splice travel – base or point end) and "pop" the chalk lines keep in mind to pull and release each one 90 deg to the belt so the pattern comes out right.

STEP 8
Repeat on the other belt end (ref splice travel). You can now cut out the finger pattern.



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