WATCH THE WIDTH!
REDUCE POTENTIAL DEFECTS
Another helpful tip from BD Loops

Recent testing by BD Loops shows the width of the saw-cut critical to preventing defects in the installation of inductance loops. The following chart data shows the importance of using the proper saw-cut width to provide space for epoxy/sealant to completely flow around the loop wires to minimize air spaces between the wires. Air spaces between wires can fill with water, which can freeze and cause the wires to become exposed by pushing them out of the saw-cut groove. Air spaces allow movement of the wires within the groove, this movement can be caused by any form of ground vibrations resulting in a false detection.

Test data shows that even when using the thinnest two-component polyester epoxy sealant on a 1/8" groove, there was not enough space between the wires and the saw-cut wall to allow the epoxy to fill the void. A Polyurethane sealant was also used and its data is listed below. Bondo P-606V epoxy had a viscosity of 4,000 – 7,000 cps (much like the consistency of hot honey). The other, Chemque Q-seal 290S had a viscosity of 9,000 – 30,000 cps (the consistency of thick ketchup).

CLEARANCE CHART

Saw Blade Width	Width Of Cut	Wire Gage	Wire Size	Clearance	Wire Vendor
New 1/8"	.125	20	.118	**.007****	Brand X
Used 1/8"	.111	18	.109	**.002****	Brand Y
New 3/16"	.187	16	*	**Built in backer rod***	**BD Loops**
Used 3/16"	.183	16	*	**Built in backer rod***	**BD Loops**

**BD Loops are designed to fit within a 3/16" groove and has an outer jacket with built in backer-rod that completely seals the bottom portion of the groove, so sealant does not need to flow around the wire.*

*** Two sheets of 20# copy paper measures .006 in thickness*

1/8" Saw-cut groove test data

Epoxy/Sealant	Width Of Cut	Wire Gage	Wire Vendor	Air Gaps Present
Bondo P-606V	.125	20	Brand X	YES
Bondo P-606V	.122	18	Brand Y	YES
Bondo P-606V	.111	18	Brand Y	YES
Bondo P-606V	.185	16	BD Loops	NO
Bondo P-606V	.180	16	BD Loops	NO
Chemque Q-seal 290S	.125	20	Brand X	YES
Chemque Q-seal 290S	.122	18	Brand Y	YES
Chemque Q-seal 290S	.111	18	Brand Y	YES
Chemque Q-seal 290S	.185	16	BD Loops	NO
Chemque Q-seal 290S	.178	16	BD Loops	NO

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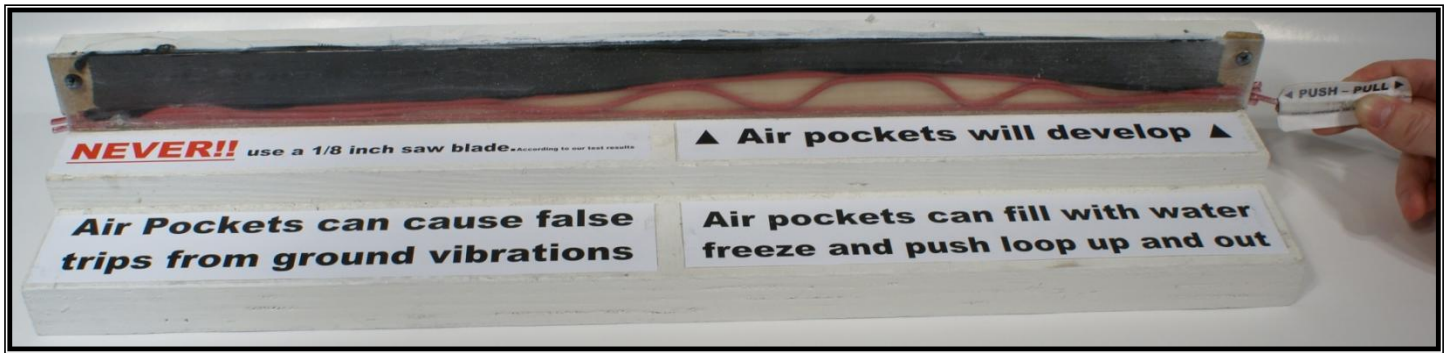
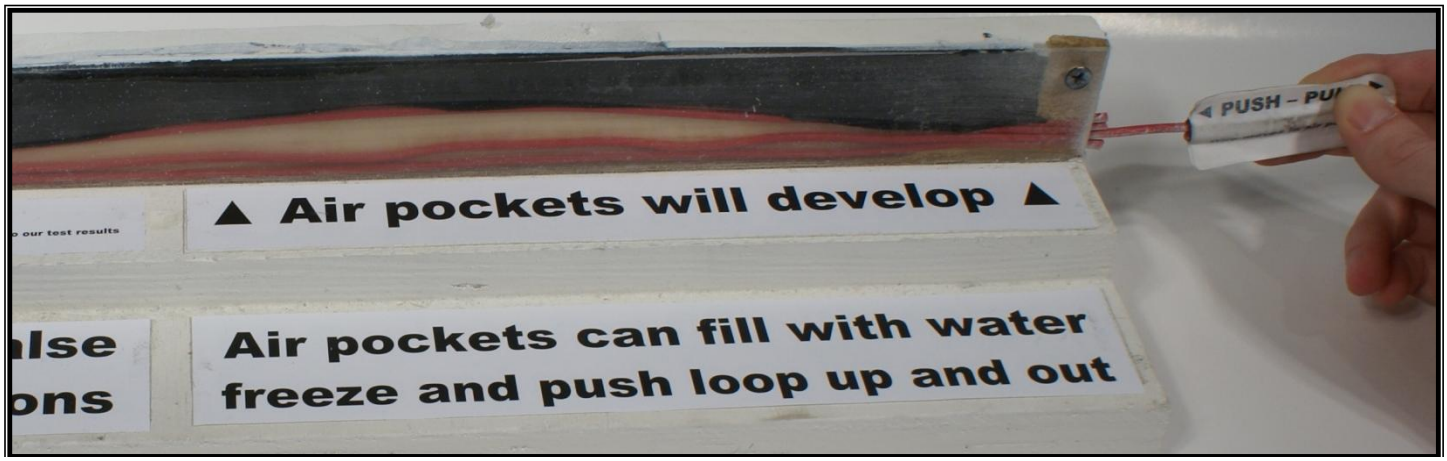
These tests are supported by the following pictures, which show clear evidence of the air gaps between the wires.



Note the air pockets



Ground vibrations can cause false detections

BD Loops preformed saw-cut loops have no air pocket

Conclusion:

The test proves that a 1/8” saw-cut (as claimed by some vendors) will not provide durability and reliability due to the high possibility of air pockets forming in and around the loops. The tests clearly indicate the wider 3/16” saw-cut and the preformed loops from **BD Loops** provide the best possible installation to minimize future defects.

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