

REW #36

ROCKBESTOS WIRE & CABLE CO.
Division of Cerro de Pasco Corporation

Other addressees -
for information

INTERNAL MEMORANDUM

CC: R.F. Coyle (2)
G.S. Buettner
File (2)

New Haven, Conn. January 11, 1960

To: J.F.S. Abbott

From: D.A. Charlotte

Subject: Small Diameter Type SA Wire

W.E. Tierney recently requested that we consider a small diameter silicone rubber asbestos braided wire with which we might possibly get Underwriters' approval. Reduction in diameter would be accomplished by the use of a finer asbestos braiding yarn to be applied over the standard wall of silicone rubber required for Type SA.

Our present 9-Cut asbestos yarn gives a .040" wall (.080" adder). The 18-Cut asbestos yarn that we use on small sizes of Table ML Mining Cable gives a .0275" wall (.055" adder). We have used some 30-Cut yarn, .0225" wall (.045" adder), but have run into considerable breakage in production due to low tensile strength. In order to meet the 80% minimum asbestos content on very fine yarns, finer carrier threads must be used and this accounts for the low tensile strength. We have had fair success when running 2 ends of the 30-cut yarn.

Other sizes of yarn are available, namely 20, 24, 28-cut, with tensile strengths of 2, 1 3/4, 1 1/2 lbs. respectively. Our 18-cut yarn has a 2 lb. tensile, and the 30-cut yarn a 1 1/4 lb. tensile. It is possible that we could braid successfully with one of the intermediate sizes but this would have to be investigated by R. & D. In any such investigation, braid adders should be carefully checked and this applies also to the 30-cut yarn as we have very little factual data to substantiate the adder of .045" now shown on specification cards.

A table of comparative diameters is shown below to indicate approximate overall diameters with 9-cut (regular Type SA), 18-cut and 30-cut yarn on a solid conductor. Diameter of Type R is shown in last column.

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Size AWG	9-Cut yarn	Outside Diameter		Type R
		18-Cut yarn	30-Cut yarn	
14	.243	.218	.208	.171
12	.260	.235	.225	.188
10	.281	.256	.246	.242
8	.350 *	.315-	.305	.311

* .045" braid thickness (.090" adder) as core diameter is .260".

The above tabulation indicates that we can approach Type R diameters on sizes #10 and 8 AWG. However, on sizes #14 and 12 AWG we are faced with 3/64" insulation on Type SA whereas Type R has 2/64" insulation. If we decide to contact the Underwriters relative to decrease in asbestos braid thickness, we should consider inquiring into the possibility of 2/64" silicone rubber on sizes #14 and #12 AWG.

RM


D.A. Charlotte

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