

Evaluation of Basket Type Grips on PowerGlide™ MV

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The intent of this test is to evaluate the performance of a basket type grip on a PowerGlide MV cable, due to customer concerns with the improved coefficient of friction of PowerGlide MV when compared to a traditional linear low-density polyethylene jacket. The sample is a PowerGlide MV 1/0 Solid Aluminum 25kV cable. The basket type grip used in this test is a Woodhead L.P. basket grip part number 35975 with a grip range of 1.00 inch to 1.24 inches outside diameter. On May 16, 2008, we evaluated two scenarios that might take place during a pull in the field. First, we tested five samples with friction tape between the basket grip and the cable, as a recommended practice by AEIC (Shown Below in Picture 1).



Picture 1: Friction Tape Applied Between Grip and Cable

Then, we tested five samples without friction tape between the grip and the cable (Shown Below in Picture 2).



Picture 2: Grip with no Friction Tape Applied

A stress strain machine was used to evaluate the amount of axial force the connection could withstand before slipping. Each test sample was cut to a length of 10 feet and on each end a basket grip was attached. One end of the test sample was fixed while a force was applied to the other end. During this test, the cable tension was slowly increased until slipping occurred or the jacket began to fail. A failure was apparent when the indicated tension started to decline. The criteria for the grip to pass is when the indicated tension exceeds the maximum pulling tension of the conductor, which is 636 pounds for the sample cable. The results from the test are shown in the Table below.

Test Number	Friction Tape		W/O Friction Tape	
	Tension (LBS)	Pass	Tension (LBS)	Pass
1	3000	Y	2870	Y
2	2100	Y	3800	Y
3	2500	Y	3100	Y
4	2610	Y	4000	Y
5	2500	Y	4000	Y

Table: Measured Tensions

Results

During testing, no slippage occurred where the basket grip contacted the cable. Finally, in all cases, the tension at jacket failure was much higher than the rated conductor pulling tension of 636 pounds. The lubricating component, which was compounded into the jacket, does not affect the pulling performance when choosing the basket grip pulling method.