



# ARMORED HVTECK COPPER TAPE SHIELDED CABLE



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## A COMPARATIVE REVIEW OF 25% OVERLAP VS. GAPPED COPPER TAPE DESIGNS

Southwire HVTECK cables feature a helically applied 5-mil copper tape with a minimum 25% overlap, the industry standard for medium-voltage construction. This design delivers superior physical protection and promotes a more uniform electric field compared to gapped tape configurations, which may offer slight cost reductions but can compromise cable durability and overall performance.

The primary function of the metallic tape shield is to confine the electric field within the cable, prevent electromagnetic interference with nearby equipment, relieve electrostatic stress from the insulation, and provide a path to ground for fault or leakage currents.

This article compares the shield effectiveness, physical protection, and durability of overlapping versus gapped tape in HVTECK cables.

## HVTECK COPPER TAPE SHIELD COMPARISON

FEATURE	OVERLAPPING TAPE (E.G., 25% OVERLAP)	GAPPED TAPE (E.G., 15% GAPPED)
SAMPLE IMAGE		
CONSTRUCTION	The copper tape is helically applied with a 25% overlap, creating a continuous metallic shield around cable core (insulation shield, insulation, conductor shield and conductor)	Copper tape is applied with deliberate gaps (usually small, but enough to reduce material usage)
SHIELDING EFFECTIVENESS	Interlocked armor contributes additional electromagnetic shielding in HVTECK cables, a continuous 25% overlapped copper tape shield provides superior, predictable EMI performance compared to gapped designs	Interlocked armor contributes additional electromagnetic shielding in HVTECK cables, however gapped copper tape shield might not offer the best EMI protection for the inner conductor phases
PHYSICAL PROTECTION	HVTECK armor provides the primary mechanical protection, however a 25% overlapped tape shield adds an additional layer of protection to the inner conductor phases.	Less physical protection for the inner conductors due the tape gaps



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# MEDIUM VOLTAGE COPPER TAPE SHIELDED CABLE



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SAMPLE IMAGE		
WATER PENETRATION	Overlapping copper tape provides an added moisture resistance layer for the inner conductors (insulation shield, insulation, conductor shield and conductor) that complements the inner jacket, the armor, and outer jacket	The gapped designs could permit moisture to penetrate into the cable core (insulation shield, insulation, conductor shield and conductor) if the inner jacket, the armor, and outer jacket has been compromised
SHORT-CIRCUIT CAPACITY	Generally, it has a higher short-circuit capacity if the shield is used to carry out part this fault current	Lower short-circuit capacity compared to overlapping tape
DURABILITY	More durable, as the overlap accounts for potential corrosion protection for the inner conductors	Less durable; the gapped areas are more vulnerable to corrosion and environmental factors for the inner conductors
STANDARDS	The most common stocked construction in North America for HVTECK cables, often specified as 5 mil thick with a 25% overlap, meeting UL 1072, ICEA S-93-639 and CSA C68.10 standards	Less common; may be found in some local inventories but is not a standard across the board