

# **FORMATION OF TUBULAR CRIMP CONNECTIONS: ELEMENTARY CONSIDERATIONS**

R.S. Timsit  
Timron Scientific Consulting Inc.  
467 Woburn Ave, Toronto, ON, Canada M5M 1L6

## **ABSTRACT**

The paper reviews the fundamental principles of mechanical crimp connections and provides a simple predictive model for achieving acceptable tubular crimps with a solid conductor. This model is based on well-established strain-strain relationships of cylindrical bodies in elasticity mechanics. The model is used to relate the residual contact load in the crimp junction to the mechanical yield strength and elastic springback properties of both the conductor and the crimp barrel. It is shown that the relative yield strength and relative elastic modulus of the materials in contact must meet specific conditions to achieve a crimp junction with acceptable strength and electrical contact resistance. The paper also provides an explanation for the minimum compaction required to achieve a reliable electrical crimp connection in stranded wire connections.