

New Bi-Metal Seam Welded Tubing

The advantages of clad metal systems have not been available to the specialty welded tubing market. The barrier has typically related to mixing of the clad and substrate layers in the continuous seam welded joint of the formed tube. Technical Materials, Inc. has now introduced a composite strip design that creates a weld joint purely of the clad surface alloy. Mixing of the clad and substrate alloys in the weld bead has been entirely eliminated. The unique design offers engineers unlimited variations of ID and/or OD clad tubes using performance critical alloys of stainless steel, copper, precious metals and even exotic alloys such as tantalum and niobium.

Clad tubing produced via seam welding offers significant cost advantages over seamless processes used previously. The concept of thin-layer clad tubes offers intrinsic metal savings when looking for the surface chemistry benefits of expensive metals such as gold, platinum, tantalum or today's medical alloys. Perhaps most significant are the performance benefits realized through combining outer surface corrosion resistant alloys with core alloys chosen to enhance characteristics of the overall tube. Core metals such as copper can be selected to improve thermal conductivity in the case of heat exchangers. Depending on the application, outer layers can be high temperature stainless steels or corrosion resistant alloys. Other applications take advantage of low-density alloy cores or high strength cores.

TMI's strip is produced with the critical metal layer (customer specified) clad not only on one surface, but also on both edges of the composite strip. When roll-formed into a tube, these abutting edges are welded to form a joint that is 100% the critical metal or alloy. See illustration. Whether formed with the critical metal on the ID or OD, the clad system equals the surface characteristics of a conventional solid tube, while providing enhanced overall characteristics.

