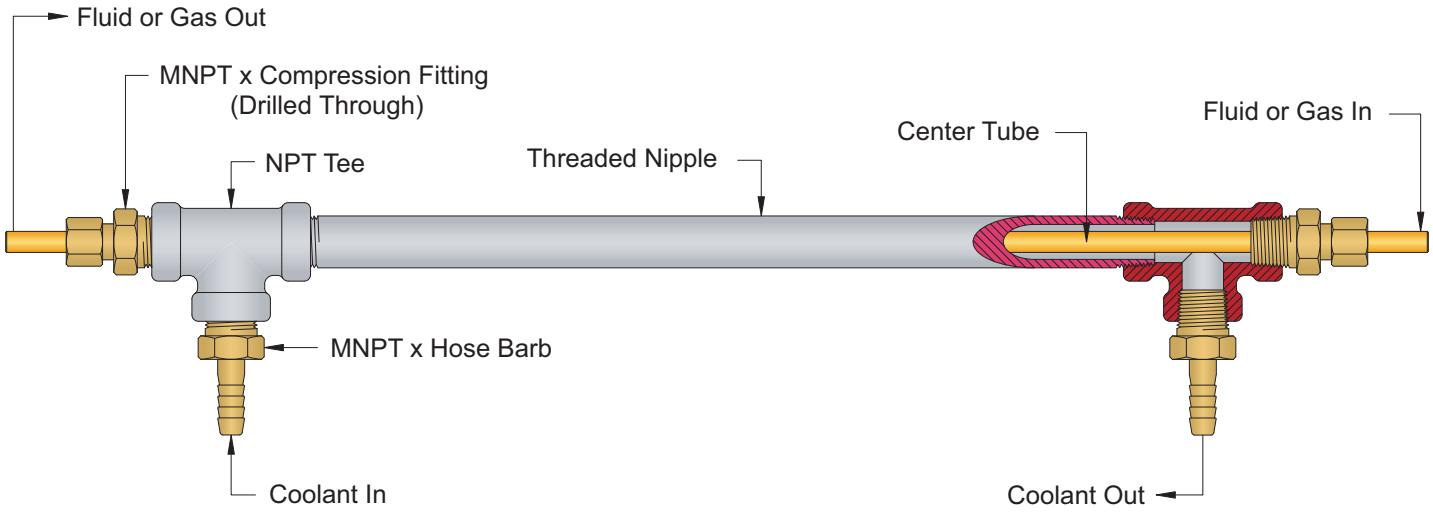
Technical Bulletin

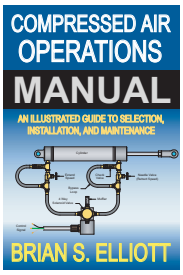
Simple Heat Exchanger for Instrumentation and Laboratory Applications

Within the laboratory and instrumentation communities, there are countless applications where fluids and gases must be cooled or heated. Finding a solution for these bench top situations can be a little maddening. Building a rig by coiling up a length of copper tube and immersing it into a pot of ice water may work fine to prove a process, but in the long haul a more defined, and predictable, solution is needed.

The simple heat exchanger illustrated below can be made in just a few minutes and provides an excellent solution for small applications. The shell of the exchanger is made from a threaded pipe nipple and two tees. The branches of the tees are fitted with hose barbs. The ends of the tees are fitted with ordinary compression fittings that have been drilled through to allow clearance for the center tube. After the shell and compression fittings are assembled, the center tube is inserted and the compression nuts are tightened. The size and length of these units are only limited by the practicality of available materials. The largest size compression fittings that are generally available is ¾". Threaded pipe (for the shell) is usually available in 10 & 20 foot lengths. To increase the capacity of a heat exchanger like this, it's usually more reasonable to construct two or more units and arrange them in a parallel configuration.



Comprehensive information on compressed air systems is provided in the book **"Compressed Air Operations Manual"** by Brian S. Elliott, ISBN: 0-07-147526-5 Published by the McGraw-Hill Book Co.



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