

Fittings for Flammable Refrigerants

As part of the HVAC&R industry's move to using lower GWP refrigerants, an ASHRAE research project evaluated joint types considered for field installation of systems that use flammable refrigerants.

1808-RP, Servicing and Installing Equipment Using Flammable Refrigerants: Assessment of Field-Made Mechanical Joints, provides measurements of refrigerant leak rates for press or crimp, compression and flare fittings, said principal investigator Stefan Elbel, Ph.D., Member ASHRAE. The team investigated brazed joints to create a baseline.

"The results of this study are intended to guide system manufacturers

when selecting joint types for their systems that rely on technicians to complete installation in the field," he said.

Press or crimp fittings are fairly resistant to developing leaks because of thermal or mechanical fatigue while yielding a consistent through tolerable leak rate, said Elbel.

Flare and compression fittings could yield almost no detectable leak when installed properly, but those joint types should be checked periodically to make sure they are not loose due to thermal or mechanical effects.

"It was surprising to see the potential for substantial refrigerant leakage as a result of improperly assembled mechanical refrigerant joints, as well as the large impact the technician training level has on the integrity of some of the investigated fitting types," he said. ●