



ARI Standard 720-97

Refrigerant Access Valves and Hose Connectors

Section 1. Purpose

1.1 *Purpose.* The purpose of this standard is to establish, for refrigerant access valves and hose connectors used in refrigerating and air-conditioning systems; definitions, location requirements, dimensions and materials, gaging procedures and conformance requirements.

1.1.1 *Intent.* This standard is intended for the guidance of the industry, including manufacturers, engineers, installers, contractors and users.

1.2 *Review and Amendment.* This standard is subject to review and amendment as technology advances.

Section 2. Scope

2.1 *Scope.* This standard applies to 1/4 in. SAE flare refrigerant access valves and hose connectors as defined in Section 3.

2.1.2 *Refrigerant.* This standard applies to access valves and hose connectors intended for use with halogenated hydrocarbon refrigerants.

Section 3. Definitions

3.1 *Definitions.* All terms in this document will follow the standard industry definitions in the current edition of *ASHRAE Terminology of Heating, Ventilation, Air Conditioning and Refrigeration* unless otherwise defined in this section.

3.2 *Refrigerant Access Valve.* A refrigerant access valve is a normally closed valve containing a refrigerant valve core incorporating a SAE external flare connection means and used for the purpose of servicing refrigeration or air conditioning systems.

3.3 *Refrigerant Access Valve Body.* A refrigerant access valve body is a special fitting machined such that it provides the external details of a SAE flare connector and internal details to permit the insertion of a refrigerant valve core.

3.4 *Refrigerant Access Valve Hose Connector.* A refrigerant access valve hose connector is a modified SAE internal threaded flare connector suitable for sealed attachment to a refrigerant hose and containing a flare sealing gasket and a depressor to automatically depress the valve core pin as the connector is threaded on the access valve external flare connection.

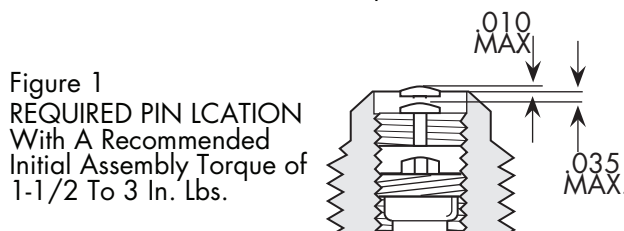
3.5 *Refrigerant Valve Core.* A refrigerant valve core is an assembly containing a spring and moveable core pin and seating details, suitably threaded for insertion into a refrigerant access valve body to provide a normally closed valve arrangement intended for use with a refrigeration or air conditioning system. Depression of the core pin opens the valve.

3.6 *"Shall", "Should", "Recommended", or "It Is Recommended".* "Shall", "should", "recommended", or "it is recommended" shall be interpreted as follows:

3.6.1 *Shall.* Where "shall" or "shall not" is used for a provision specified, that provision is mandatory if compliance with the standard is claimed.

3.6.2 *Should, Recommended, or It is Recommended.* "Should", "recommended", or "it is recommended" is used to indicate provisions which are not mandatory but which are desirable as good practice.

Section 4. Location Requirements



4.1 *Location of Valve Core Pin in Access Valve Body.* The internal machining of the access valve body shall be such that the insertion of the valve core into the valve body with a recommended initial assembly torque between 1-1/2 to 3 inch pounds [1.7 to 3.4 cm kg or 0.17 to 0.34N • m], shall provide a refrigerant seal and position the top of the core pin at a location between 0.010 in. [0.25 mm] above to 0.035 in. [0.89 mm] below the end face of the valve body flare, see Figure 1 above.

4.2 *Location of Hose Connector Gasket and Core Pin Depressor.* With the core pin located within the limits specified by this standard, the core pin depressor in the hose connector shall be positioned to permit threaded engagement with the access body flare threads and connector gasket contact with the body flare face before the depressor engages the core pin.

It is recommended that for full flow the hose connector and pin depressor should be capable of depressing the core pin a minimum of 0.020 in. [0.51 mm].



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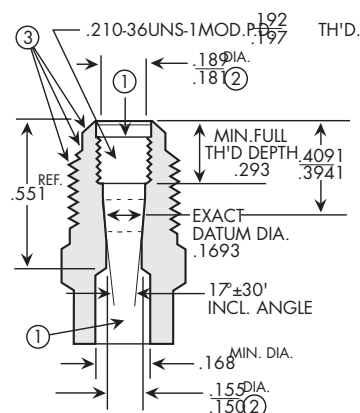
Refrigerant Access Valves and Hose Connectors

Section 5. Dimensions and Materials

REFRIGERANT ACCESS VALVE DIMENSIONS

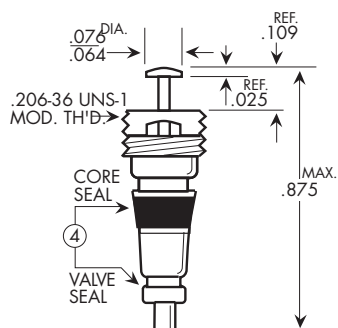
1/4" SAE FLARE SIZE

Dimensions In Inches



- ① Counterbore and/or Chamfer Optional.
- ② This Diameter Must Be Concentric With Pitch Diameter Of Internal Th'd. Within .003 T.I.R.
- ③ 1/4" SAE Flare External Dimensions To Conform To ANSI/SAE J513f "Refrigeration Tube Fittings"

Figure 2
TYPICAL BODY DIMENSIONS



- ④ Sealing Materials to Be Compatible with Halogenated Hydrocarbon Refrigerants and Refrigerant Oil For The Intended Application.

Figure 3
TYPICAL CORE DIMENSIONS

5.1 Dimensions . See Figures 2 and 3 (above).

5.1.1 While conformance to Figures 2 and 3 is recommended, where components do not meet the constructional and dimensional requirements shown, all access valves shall still interchange with components that meet these requirements and shall comply with all mandatory requirements to be in conformance with this standard.

5.2 *Materials.* Materials used for the seals on the valve core shall be compatible for service with halogenated hydrocarbon refrigerants and refrigerant oil for the intended application.

Section 6. Gaging Procedures

ACCESS VALVE BODY GAGING PROCEDURES

Dimensions In Inches

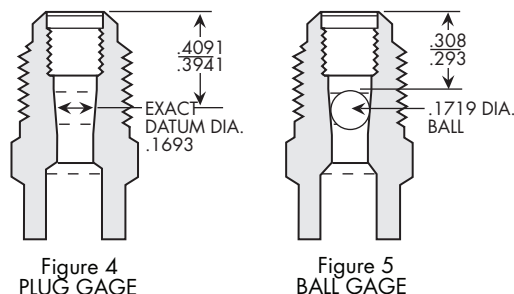


Figure 4
PLUG GAGE

Figure 5
BALL GAGE

6.1 *Gaging.* Figures 4 and 5 (above) show two accepted methods of gaging the access valve body.

Section 7. Voluntary Conformance

7.1 *Conformance.* While conformance with this standard is voluntary, conformance shall not be claimed or implied for products or equipment within its *Purpose* (Section 1) or *Scope* (Section 2) unless such claims meet all of the requirements of the standard.

APPENDIX A. References-Normative

A1 Listed here are all standards, handbooks, and other publications essential to the formation and implementation of the standard. All references in this appendix are considered as part of the standard.

A1.1 ANSI/SAE Standard J513f-MAY94, *Refrigeration Tube Fittings* , 1994, American National Standards Institute/Society of Automotive Engineers, 11 West 42nd Street, New York, NY 10036, U.S.A./400 Commonwealth Drive, Warrendale, PA 15096, U.S.A.

A1.2 ASHRAE *Terminology of Heating, Ventilation, Air Conditioning and Refrigeration*, American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., 1791 Tullie Circle N.E., Atlanta, GA 30329, U.S.A.

APPENDIX B. References-Informative

None.

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