



Standard Specification for Paintball Gun Threaded-Propellant Source Interface¹

This standard is issued under the fixed designation F 1750; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last approval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification covers the male and female threaded connectors used to interface a propellant source of 10 342 kPa (1800 psig) or less to a paintball gun.

1.2 The values stated in SI units are to be regarded as standard. The values given in parentheses are for information only.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

D 2240 Test Method for Rubber Property—Durometer Hardness²

2.2 Military Standard:

MS28775 O-Ring Dash Sizes

2.3 CGA Standard:

CGA-320 .825-14NGO-RH-EXT (Flat Nipple)

2.4 Federal Standard:

FED-STD-H28/9A 24 March 1989 Federal Standard Screw-Thread Standards for Federal Services Section 9 Gas Cylinder Valve Outlet and Inlet Threads

2.5 ANSI Standard:

ANSI Y14.5M-1982 Dimensioning and Tolerancing³

3. Connector Gender Assignment

3.1 The female connector is that connector which is configured as part of the paintball gun.

3.2 The male connector is that connector which is configured as part of the propellant source.

4. Materials and Manufacture

4.1 The male and female connectors shall be made from materials that are compatible with CO₂. The materials and

processes used to manufacture male and female connectors shall result in items with mechanical strength sufficient to pass a 20 684-kPa (3000-psig) proof pressure check without failure or any degradation to function.

4.2 The O-ring seal shall be made from an elastomer compatible with CO₂. The O-ring seal shall have a hardness that will register a Type A durometer reading of 90 ± 5 . The O-ring shall conform dimensionally to MS28775-015.

4.3 The O-ring seal shall be installed on the male connector in the groove described by Dimensions C and K on Fig. 1.

4.4 The male and female connectors shall not have any sharp edges or hanging burrs. All sharp edges will be broken R.38 MAX (R.015 MAX).

5. Performance

5.1 The interface is intended for use with CO₂.

5.2 The maximum operating pressure of the interface is 10 342 kPa (1800 psig).

5.3 The maximum allowable leakage at 10 342 kPa (1800 psig) is 0.1 cm³/min.

5.4 The male connector shall incorporate a means for propellant shutoff that shall meet the maximum leakage requirement.

5.5 When the male and female connectors are joined and pressurized, together they shall meet the maximum leakage specification.

6. Physical Envelope

6.1 The male connector shall conform to the physical envelope described in Fig. 1.

6.2 The female connector shall conform to the physical envelope described in Fig. 2.

7. Valve Core

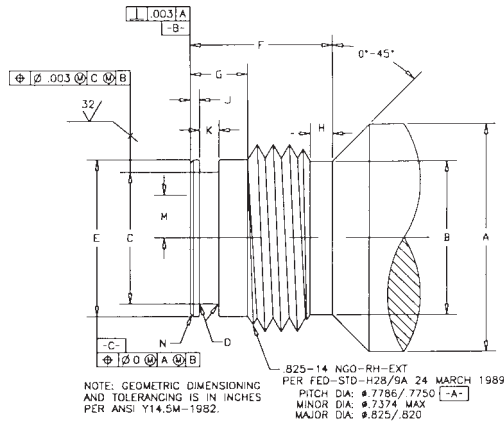
7.1 The male connector may contain, as a means of propellant shutoff, a valve core to provide for an automatic shutoff of flow at the time of disconnection. The stem of the valve core shall not protrude beyond the face of the male connector, that surface designated as Datum B in Fig. 1. Full flow must be achieved when the stem of the valve core has been depressed 1.78 mm (0.070 in.) from the surface designated as Datum B in Fig. 1. The stem of the valve core shall be able to be depressed to a maximum depth of 2.54 mm (0.100 in.) below Datum B without being damaged. If a valve core is not used there shall

¹ This specification is under the jurisdiction of ASTM Committee F-8 on Sports Equipment and Facilities and is the direct responsibility of Subcommittee F08.24 on Paintball Sports.

Current edition approved Nov. 10, 1996. Published April 1997.

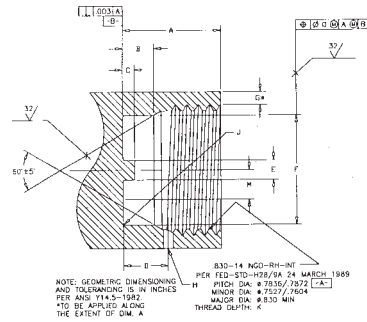
² *Annual Book of ASTM Standards*, Vol 09.01.

³ Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.



Dimension	SI	Inches
A	φ22.86 min	φ0.900 min
B	φ17.15 ± 0.13	φ0.675 ± 0.005
C	φ14.66 ± 0.08	φ0.577 ± 0.003
D	R.25 ± 0.13	R.010 ± 0.005
E	φ17.63/17.40	φ0.694/0.685
F	15.88 min	0.625 min
G	6.35 ± 0.13	0.250 ± 0.005
H	2.54 ± 0.13	0.100 ± 0.005
J	1.02 ± 0.13	0.040 ± 0.005
K	2.16 ± 0.08	0.085 ± 0.003
N	0.38 ± 0.13 × 45° ± 3°	0.015 ± 0.005 × 45° ± 3°
M	R 4.78 max	R.188 max

FIG. 1 Male Connector



Dimension	SI	Inches
A	15.75 ± 0.13	0.620 ± 0.005
B	5.08 ± 0.13	0.200 ± 0.005
C	1.91 ± 0.13	0.075 ± 0.005
D	5.79 ± 0.13	0.288 ± 0.005
E	3.18 ± 0.13	0.125 ± 0.005
F	φ17.78 ± 0.08	φ0.703/0.694
G	0.89 min	0.035 min
H	φ0.79 min	φ0.031 min
J	R.64 max	R.025 max
K	9.53 min	0.375 min
M	R 4.78 max	R.188 max

FIG. 2 Female Connector

not be any feature of the male connector which will interfere with the valve opening feature of the female fitting.

8. Venting

8.1 The female connector shall have a provision for the self venting of residual gas pressure prior to the disconnection of the threaded interface. Fig. 2 (Dimensions D and H) shows a recommended location and feature size for a vent hole.

9. Operating Temperatures

9.1 The interface shall have an operating range from - 40° to + 60°C (-40° to + 140°F).

10. Flow

10.1 The interface shall flow not less than 170 sL/min at 689 kPa (6 S.C.F.M. at 100 psid).

10.2 The feature allowing flow through the female connector shall lie within the area designated by Dimension M in Fig. 2.

10.3 The feature allowing flow through the male connector shall lie within the area designated by Dimension M in Fig. 1.

11. Keywords

11.1 paintball gun; propellant

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