



UL 567A

STANDARD FOR SAFETY

Emergency Breakaway Fittings, Swivel Connectors and Pipe-Connection Fittings for Gasoline and Gasoline/Ethanol Blends with Nominal Ethanol Concentrations up to 85 Percent (E0 – E85)

UL Standard for Safety for Emergency Breakaway Fittings, Swivel Connectors and Pipe-Connection Fittings for Gasoline and Gasoline/Ethanol Blends with Nominal Ethanol Concentrations up to 85 Percent (E0 – E85), UL 567A

First Edition, Dated March 5, 2015

Summary of Topics

This revision of ANSI/UL 567A includes an editorial revision to Supplement SA.

The revised requirements are substantially in accordance with Proposal(s) on this subject dated November 16, 2018.

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1

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Standard for Emergency Breakaway Fittings, Swivel Connectors and Pipe- Connection Fittings for Gasoline and Gasoline/Ethanol Blends with Nominal Ethanol Concentrations up to 85 Percent (E0 – E85)

Prior to the first edition, the requirements for the products covered by this standard were included in the Outline of Investigation for Emergency Breakaway Fittings, Swivel Connectors and Pipe-Connection Fittings for Gasoline and Gasoline/Ethanol Blends with Nominal Ethanol Concentrations up to 85 Percent (E0 – E85), UL 567A.

First Edition

March 5, 2015

This ANSI/UL Standard for Safety consists of the First Edition including revisions through April 1, 2019.

The most recent designation of ANSI/UL 567A as an American National Standard (ANSI) occurred on April 1, 2019. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at <https://csds.ul.com>.

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CONTENTS

INTRODUCTION

1 Scope	4A
2 General	4B
2.1 Components	4B
2.2 Units of measurement	5
2.3 Undated references	5
3 Glossary	5

CONSTRUCTION

4 General	8
5 Materials	8
5.1 Metallic materials	8
5.2 Nonmetallic materials	11
5.3 Casting impregnation materials	13
5.4 Internal parts	13
5.5 Blending options	14
6 Swivel Connectors and Emergency Breakaway Fittings	14
7 Pipe-Connecting Fittings	14
8 End Connections	16
9 Hose Assemblies	18

PERFORMANCE

10 General	18
11 Long Term Exposure Test	20
11.1 General	20
11.2 Samples	20
11.3 Method	20A
11.4 Results	20B
12 Electrical-Continuity Test	20B
12.1 General	20B
12.2 Electrical continuity measurement	20B
12.3 Electrical continuity alternate method	21
13 External Leakage Test	21
14 Seat Leakage Test	23
15 Operation Test	23
16 Endurance Test	25
17 Abuse Test	26
18 Drop Test	27
19 Hydrostatic Strength Test	27
20 Pull Test	28
20.1 Pipe-connecting fitting	28
20.2 Emergency breakaway fitting	28
21 Marking Adhesion Test	29
22 Moist Ammonia-Air Stress Cracking Test	29
23 Blending Cycling Test	30

MANUFACTURING AND PRODUCTION

24 General 31

INSTALLATION AND OPERATING INSTRUCTIONS

25 General 31

MARKING

26 General 31

SUPPLEMENT SA - Test Fluids

SA.1 Details SA1

INTRODUCTION

1 Scope

1.1 These requirements cover emergency breakaway fittings, swivel connectors and pipe-connecting fittings of the threadless compression type. Connectors and fittings covered by these requirements are intended only for the following services.

1.2 A swivel connector is either a hose swivel or joint swivel. The swivel connector will allow radial movement and shall be constructed for use with the fluids shown in 1.4.

1.3 An emergency breakaway fitting is used between the outlet of the dispensing device and the hose nozzle valve and separates in the event that the coupling is subjected to an excessive pull force to safeguard against abnormally excessive pull force on the hose assembly and dispenser and prevent loss of liquid. An emergency breakaway fitting shall be constructed for use with the fluids shown in 1.4. The fittings shall be of the single-break or reconnectable type.

1.4 Emergency breakaway fittings, swivel connectors, and pipe-connecting fittings are intended for use with one or more of the following as applicable:

- a) Gasoline formulated in accordance with the Standard Specification for Automotive Spark-Ignition Fuel, ASTM D4814;
- b) Gasoline/ethanol blends with nominal ethanol concentrations up to 25 percent ethanol (E25), consisting of gasoline formulated in accordance with the Standard Specification for Automotive Spark-Ignition Fuel, ASTM D4814, when blended with denatured fuel ethanol formulated to be consistent with the Standard Specification for Denatured Fuel Ethanol for Blending with Gasolines for Use as Automotive Spark-Ignition Engine Fuel, ASTM D4806; or
- c) Gasoline/ethanol blends with nominal ethanol concentrations above 25 percent formulated in accordance with the Standard Specification in item (b) or formulated in accordance with the Standard Specification for Ethanol Fuel Blends for Flexible-Fuel Automotive Spark-Ignition Engines, ASTM D5798.

1.5 Requirements for the installation and use of dispensing equipment handling the fuels described in 1.4 are included in the Flammable and Combustible Liquids Code, ANSI/NFPA 30, and the Code for Motor Fuel Dispensing Facilities and Repair Garages, ANSI/NFPA 30A.

1.6 These requirements do not cover devices intended for use with diesel, biodiesel, diesel/biodiesel blends, kerosene or fuel oil, which are covered under the Standard for Emergency Breakaway Fittings, Swivel Connectors, and Pipe-Connection Fittings for Diesel Fuel, Biodiesel Fuel, Diesel/Biodiesel Blends with Nominal Biodiesel Concentrations up to 20 Percent (B20), Kerosene, and Fuel Oil, UL 567B.

1.7 These requirements do not cover devices intended for use with anhydrous ammonia or LP-Gas, which as covered under the Standard for Emergency Breakaway Fittings, Swivel Connectors, and Pipe-Connection Fittings for Petroleum Products and LP-Gas, UL 567.

1.8 A hose assembly provided with a swivel connector or emergency breakaway fitting for use with fuels anticipated by these requirements shall comply with the applicable requirements in the Standard for Hose and Hose Assemblies for Gasoline and Gasoline/Ethanol Blends with Nominal Ethanol Concentrations up to 85 Percent (E0 – E85), UL 330A.

1.9 Products intended to be rated for use with gasoline or gasoline/ethanol blends with nominal ethanol concentrations:

- a) Up to 25 percent (E0 – E25) shall be evaluated using the CE25a test fluid as the only applicable test fluid;
- b) Up to 40 percent (E0 – E40) shall be evaluated using both the CE25a and CE40a test fluid; or
- c) Up to 85 percent shall be evaluated using both the CE25a and the CE85a test fluids.

2 General

2.1 Components

2.1.1 Except as indicated in 2.1.2, a component of a product covered by this standard shall comply with the requirements for that component.

2.1.2 A component is not required to comply with a specific requirement that:

- a) Involves a feature or characteristic not required in the application of the component in the product covered by this standard, or
- b) Is superseded by a requirement in this standard.

2.1.3 A component shall be used in accordance with its rating established for the intended conditions of use.

2.1.4 Specific components are incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions.

2.2 Units of measurement

2.2.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.

2.3 Undated references

2.3.1 Any undated reference to a code or standard appearing in the requirements of this standard shall be interpreted as referring to the latest edition of that code or standard.

3 Glossary

3.1 For the purpose of this standard, the following definitions apply.

3.2 BLENDING OPTION – Dispensing devices may be provided with an option that blends two specific fuels into one fuel to be dispensed. This blending occurs at the dispenser level and can be in two forms:

a) Fixed blending – Blending at the dispenser level that blends two specific fuels into one fuel to be dispensed, and that fuel to be dispensed is fixed. For example, fixed blending includes blend options where gasoline and denatured fuel ethanol can be blended to achieve E85, which is the actual dispensed fuel.

b) Variable blending – Blending at the dispenser level that blends two specific fuels into the fuel to be dispensed, but the fuel to be dispensed can be any of a number of previously set points. For example, variable blending includes blend options where gasoline and E85 can be blended to achieve E40, E60, and E85 as the actual dispensed fuel.

3.3 FITTING, PIPE-CONNECTING – A fitting of the threadless compression seal-ring type for use in the assembly of dispensing devices to facilitate connection of piping or tubing. These fittings shall be made in the straight coupling style, as well as in the tee, ell, reducer, adapter, and other styles.

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3.4 FITTING, RECONNECTABLE TYPE – An emergency breakaway fitting designed such that upon separation it is intended to be reconnected and reused when it is not damaged.

3.5 FITTING, SINGLE-BREAK TYPE – An emergency breakaway fitting that, upon separation, is not intended to be reconnected and reused.

3.6 GASOLINE/ETHANOL BLENDS – Blended fuels composed of a gasoline component and an ethanol component. The numerical value corresponding to the ethanol component determines the blend rating (such as E85 for 85% ethanol, 15% gasoline).

3.7 HOSE SWIVEL – A swivel connector with one end attached to a hose and the other end to an appurtenance. The hose swivel will allow radial movement of the hose and/or appurtenance to prevent the hose from twisting or having torsional stress.

3.8 PRESSURE INDICATING DEVICE – As used herein, the pressure indicating device means one of the following:

- a) An analog gauge having a pressure range such that the test pressure is between 30 and 70 percent of the maximum scale reading of the gauge;
- b) A digital pressure transducer, or other digital gauge, that is calibrated over a range of pressure that includes the test pressure; or
- c) Other device that is equivalent to the devices in (a) or (b).

3.9 SEALS, DYNAMIC – A seal that is subject to mechanical movement or other applied forces that result in movement or flexing of the seal under normal use conditions.

3.10 SEALS, STATIC – A seal that is not subject to mechanical movement or other applied forces other than compressing forces that are applied during installation, after which, the seal is held in place during normal use conditions.

3.11 SWIVEL CONNECTOR – A type of swivel categorized as either a hose swivel or swivel joint.

3.12 SWIVEL JOINT – A swivel connector installed in a piping system with at least one end attached to a rigid pipe or other appurtenance that is firmly affixed. The swivel joint will allow radial movement of the pipe or other appurtenance attached to the swivel to prevent torsional stress.

CONSTRUCTION

4 General

4.1 A connector or fitting shall be constructed for an operating pressure of not less than 50 pounds per square inch gauge (psig) (340 kPa) for the fluid confining portion of the device and 0.5 psig (3.45 kPa) for the vapor confining portion of the device, when provided, and an ultimate rupture pressure of not less than five times the design pressure.

4.2 An emergency breakaway fitting shall be constructed to separate in the event that the coupling is subjected to a pull force not less than 100 pounds (445 N), and not to exceed 350 pounds (1557 N).

5 Materials

5.1 Metallic materials

5.1.1 General

5.1.1.1 A metallic part, in contact with the fuels anticipated by these requirements, shall be resistant to the action of the fuel if degradation of the material will result in leakage of the fuel or if it will impair the function of the device. For all fuel ratings, see Corrosion due to fluid, 5.1.2.1. For products rated for gasoline/ethanol blends with nominal ethanol concentrations greater than 40 percent, see Metallic materials – system level, 5.1.3.

5.1.1.2 The exposed surfaces of metallic parts shall be resistant to atmospheric corrosion if this corrosion will lead to leakage of the fluid or if it will impair the function of the device. The material shall comply with the requirements in Atmospheric corrosion, 5.1.2.2.

5.1.1.3 Metallic parts in contact with the fuels anticipated by these requirements shall not be constructed of lead, or materials that are substantially lead. In addition, no coatings or platings containing lead shall be used, such as terne-plated steel.

5.1.2 Metallic materials – material level

5.1.2.1 Corrosion due to fluid

5.1.2.1.1 All metallic materials used for fluid confining parts shall be resistant to corrosion caused by the fuels anticipated by these requirements. In addition, metallic materials, used internally in fluid confining parts, that are required to operate in some manner to address safety (e.g. plunger on a valve) shall be resistant to corrosion caused by these fuels. This requirement also applies to all tubing, piping, or other interconnection means between components. Compliance is verified by the Long Term Exposure Test, Section 11.

5.1.2.1.2 A coating or plating, applied to a base metal, shall be resistant to the action of the fuels anticipated by these requirements as determined by the Long Term Exposure Test, Section 11.