

3-A® Sanitary Standards for Hose Assemblies, Number 62-02

*Standards Developing Organizations
3-A Sanitary Standards, Inc. (3-A SSI)
In Collaboration With
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United States Food and Drug Administration (USFDA)
United States Department of Agriculture (USDA)
European Hygienic Engineering & Design Group (EHEDG)*

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Note: The highlighted text denotes changes to the previous document.

TABLE OF CONTENTS

TITLE	i
DISCLAIMERS	iv
FOREWORD	iv
 A SCOPE	 1
 B NORMATIVE REFERENCES	 1
 C DEFINITIONS	 2
C1 Product	2
C2 Surfaces	2
C2.1 Product Contact Surfaces	2
C2.2 Nonproduct Contact Surfaces	2
C3 Cleaning	2
C3.1 Clean-in-Place (CIP) Cleaning.....	2
C3.2 CIPable.....	3
C3.3 Clean-Out-of-Place (COP).....	3
C3.4 Manual Cleaning.....	3
C4 Hose Assembly.....	3
C5 Sanitary Hose Coupling Types	3
C5.1 Sanitary Hose Coupling	3
C5.1.1 Type 1 Sanitary Hose Coupling	3
C5.1.2 Type 2 Sanitary Hose Coupling	3
C5.1.3 Type 3 Sanitary Hose Coupling	3
C6 Fittings	3
C6.1 Fitting Portion	3
C6.2 CIP Fittings	3
C6.3 Manually Cleaned Fittings	3
C7 Authorized Fabricator/Distributor	4
C8 Inspectable	4
C9 Nontoxic materials	4
C10 Readily Removable	4
C11 Simple Hand Tools.....	4
C12 Coatings, Overlays, and Encapsulations	4
C13 Hose Coupling Junction	4
 D MATERIALS	 5
D1 Product Contact Surfaces	5
D1.1 Metals.....	5
D1.2 Nonmetals	5
D2 Nonproduct Contact Surfaces	5

E FABRICATION 6

 E1 Product Contact Surfaces 6

 E1.1 Coupling & Hose Requirements 6

 E1.2 Surface Texture 6

 E1.3 Joints 6

 E1.4 Bonded Materials 7

 E1.5 Coatings 7

 E1.6 Radii 8

 E1.7 Draining 8

 E1.8 Cleaning and Inspectability..... 8

 E2 Nonproduct Contact Surface Fabrication..... 9

 E2.1 Exposed surfaces..... 9

 E2.2 Metal Overbraid for High-Temperature/-Pressure Applications 9

 E2.3 Gaskets and Sealants..... 9

 E2.4 Coatings 9

 E2.5 Sticker, Label, and Permanent Marker..... 9

APPENDIX

F SPECIAL CONSIDERATIONS 10

G STAINLESS STEEL AND EQUIVALENT MATERIALS 12

H PRODUCT CONTACT SURFACE FINISH 15

I ENGINEERING DESIGN AND TECHNICAL CONSTRUCTION FILE... 15

Disclaimers

3-A Sanitary Standards and 3-A Accepted Practices are developed through the efforts of experts, working on a volunteer basis, using science-based information and their professional experiences to reach consensus decisions on the sanitary (hygienic) criteria in these 3-A documents.

3-A SSI, its employees and its volunteer committees/working groups shall not incur any obligation or liability for damages, including consequential damages, arising from or in connection with the development, use, interpretation, or reliance upon this 3-A Sanitary Standard.

3-A Sanitary Standards and 3-A Accepted Practices do not include provisions for mechanical, electrical, or personnel safety. Such safety criteria are established by government regulations and other standards development organizations (SDOs). Other SDO standards may be referenced.

Drawings and illustrations contained herein are examples to assist in understanding the criteria in this 3-A Sanitary. Appendix drawings and illustrations are not intended to show all variations of the equipment or system nor are they exclusive of alternate approved methods. Appendix drawings and illustrations are non-normative.

Foreword

This 3-A Sanitary Standard establishes minimum sanitary (hygienic) requirements for design, materials, fabrication, and/or installation of Hose Assemblies.

This 3-A Sanitary Standard is for use on a voluntary basis by directly and materially affected organizations such as equipment and machinery fabricators, processors, regulatory agencies and by other SDOs to assure adequate public health protections exist for the equipment or systems and covered products. 3-A SSI uses these documents as its source of sanitary criteria for 3-A Symbol authorization.

This 3-A Sanitary Standard was developed jointly by 3-A SSI, the United States Public Health Service (USPHS)/United States Food and Drug Administration (USFDA), the United States Department of Agriculture – Dairy Programs (USDA), and the European Hygienic Engineering & Design Group (EHEDG).

It is our intent to encourage inventive genius and provide a forum to discuss new developments. Suggestions for improvement and new technology are welcome at any time for consideration by 3-A SSI. Please forward comments to 3-A SSI, 6888 Elm Street, Suite 2D; McLean, VA 22101-3829, USA or by fax: 703-761-6284, or by e-mail to: 3-ainfo@3a.org.

A SCOPE

A1 This 3-A Sanitary Standard covers the sanitary aspects of hose assemblies consisting of sanitary couplings permanently attached to one or both ends of multiple-use smooth-bore hoses in a manner such that the resultant hose-to-coupling junction is CIPable. The hose assemblies are intended for the conveying of milk, milk products, or other comestibles. The hose assemblies covered by this standard are of three basic types as defined in C5.1.1, C5.1.2 and C5.1.3, and the components described therein are to be assembled only by their manufacturer, or by an authorized fabricator/distributor. Also see Appendix F1.

A2 This 3-A Sanitary Standard does not cover the following types of hose assemblies: Also see Appendix F2 and F3.

A2.1 Hose assemblies which utilize band, strap, or worm-gear type clamps or manually tightened fitting devices customarily used to secure removable fittings and which are not designed for CIP cleaning.

A2.2 Hose assemblies with a convoluted or a corrugated inner surface. Also see Appendix F4.

A2.3 Hose assemblies with exposed metal overbraid exterior surfaces. Also see E2.1 and Appendix F5.

A2.4 Hose assemblies with a hose ID of less than 0.75 in. (19.05 mm).

B NORMATIVE REFERENCES

B1 The following listed 3-A Sanitary Standards, 3-A Accepted Practices and other documents shall be considered as Normative References and the provisions of the referenced documents shall apply to this Standard without further reference in this document unless necessary to describe special considerations.

B2 3-A Sanitary Standards

Doc. No.	Title (3-A Sanitary Standard for:)
18-	Multiple-Use Rubber and Rubber-Like Materials
20-	Multiple-Use Plastic Materials
33-	Metal Tubing
63-	Sanitary Fittings

B3 Other References and Standards

Ref. No	Title
1.	SAE-AMS-QQ-C-320, Chromium Plating (Electrodeposited). SAE-AMS QQ-N-290A, Nickel Plating (Electrodeposited). Society of Automotive Engineers (AWS), 400 Commonwealth Dr., Warrendale, PA 15096-0001.

2. *AIST Steel Products Manual, Stainless & Heat Resisting Steels*, Table 2-1. Association for Iron & Steel Technology (AIST), 410 Commonwealth Drive, Warrendale, PA 15086, Phone: (412) 776-1535. www.AIST.org
3. *Steel Casting Handbook, Supplement 2*, 1999, Steel Founders Society of America, 780 McArdle Dr., Unit G, Crystal Lake, IL 60014, Phone: (815) 455-8240, Fax: (815) 455-8241, Internet: www.sfsa.org
4. AWS/ANSI D18.1 – Specification for Welding of Austenitic Stainless Steel Tube and Pipe Systems in Sanitary (Hygienic) Applications. Published by American Welding Society, 550 N.W. LeJeune Rd., Miami FL, Phone: (800) 443-3953, www.aws.org
5. EHEDG Doc. 9 – Welding Stainless Steel to Meet Hygienic Requirements. European Hygienic Engineering & Design Group. Published by EHEDG, www.ehedg.org
6. ASTM specifications for Cast Grades A351/A351M, A743/A743M and A744/A744M. Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, Phone: (610) 832-9500. www.astm.org/standard/index.shtml
7. ASTM specifications for Wrought Grades A-276, A-582, and A-666. Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, Phone: (610) 832-9500. www.astm.org/standard/index.shtml

C DEFINITIONS

C1 *Product:* Milk, milk products or other food products.

C2 Surfaces

C2.1 *Product Contact Surfaces:* All surfaces which are exposed to the product and surfaces from which splashed product, liquids, or material may drain, drop, or be drawn into the product or onto product contact surfaces. Also see D2.2 and E1.1.2.

C2.2 *Nonproduct Contact Surfaces:* All exposed surfaces from which splashed product, liquids, or other materials cannot drain, drop, or be drawn into or onto the product, product contact surfaces, open packages, or the product contact surfaces of package components.

C3 Cleaning

C3.1 *Clean-in-Place Cleaning:* (CIP): The removal of soil from product contact surfaces in their process position by circulating, spraying, or flowing chemical solutions and water rinses onto and over the surfaces to be cleaned. Components of the equipment, which are not designed to be cleaned in place, are removed from the equipment to be COP or manually cleaned.

Product contact surfaces to be CIP cleaned are inspectable except as specified in E1.8.1, E1.8.2 and E1.8.3.

C3.2 *CIPable*: The design and fabrication of equipment which allows the product contact surfaces to be cleaned by CIP methods for a prescribed time and at a prescribed concentration, flow rate, pressure, and temperature demonstrated to be effective.

C3.3 *Clean-Out-of-Place (COP)*: Removal of soil when the equipment is partially or totally disassembled. Soil removal is effected by circulating chemical solutions and water rinses in a wash tank, which may be fitted with circulating pump(s).

C3.4 *Manual Cleaning*: Removal of soil when the equipment is partially or totally disassembled. Soil removal is effected with chemical solutions and water rinses with the assistance of one or a combination of brushes, nonmetallic scouring pads, and high or low pressure hoses, with cleaning aids manipulated by hand.

C4 *Hose Assembly*: An assembly consisting of a flexible hose with a coupling attached to one or both ends.

C5 Sanitary Hose Coupling Types

C5.1 *Sanitary Hose Coupling*: A device, inclusive of a portion of a fitting, secured to the end of a hose which mates with connecting sanitary fittings of pipelines or other equipment.

C5.1.1 *Type 1 Sanitary Hose Coupling*: A device typically consisting of a part inserted into the hose and an exterior collar or collet. The exterior collar or collet is mechanically compressed, or alternatively, the part inserted into the hose is mechanically expanded, so as to provide a 360° seal area at the innermost junction point of the fitting to the hose inside diameter.

C5.1.2 *Type 2 Sanitary Hose Coupling*: A device typically consisting of a part inserted into the hose and an exterior collar. The interior and exterior parts are tightened by means of a threaded connection to provide a permanent joint with a 360° seal area at the innermost junction point of the fitting to the hose inside diameter. This coupling, if undamaged, can be removed and permanently attached to a new hose. Also see Appendix F3.

C5.1.3 *Type 3 Sanitary Hose Coupling*: A unitized hose end construction where the hose end is molded, heat fused, or vulcanized directly to a fitting made of stainless steel, plastic, rubber, or rubber-like material.

C6 Fittings

C6.1 *Fitting Portion*: That portion of a sanitary hose coupling, which in service, is to be mated to a similar counterpart fitting on pipelines or equipment.

C6.2 *CIP Fittings*: Fittings designed to be cleaned while fully assembled. If such a fitting has a removable joint, the joint is self-centering, employs a gasket, and the resulting gasketed joint forms a substantially flush interior surface.

C6.3 *Manually Cleaned Fittings*: Removable joint fittings that require dismantling for manual