

El Standard 1522 *Minimum requirements for aviation fuelling hose accessories*, 1st Edition

Addendum 21 May 2021

Page 11: 3.1 General

Add new second sentence to first paragraph:

'A hose accessory shall be subjected to each of the first article tests in this section. Testing shall be undertaken for each diameter of hose accessory intended to be marketed. Results from a test on a hose accessory sized for one diameter of hose cannot read across to any accessory sized for a different hose diameter in a manufacturer's range. A new accessory may be used for each test. Caster dollies are not required to be subjected to this first article testing.'

Page 12: 3.4 Impact damage resistance

Amend start of second paragraph:

'A hose test piece with an internal diameter of 63,5 mm (2.5 in.) sized for the specific accessory under test (e.g. a 50 mm (2 in.) accessory should be mounted on a 50 mm (2 in.) hose), measuring 3,7 m (± 100mm) shall be filled with water and both ends capped to prevent any loss of containment.'

Page 15: First article qualification test summary template

Add a new fourth row to the first table of the template:

Name and contact details of hose accessory manufacturer	
Name/model of hose accessory	
Type of accessory (e.g. bead, wrap, sleeve etc.)	
<u>Hose diameter accessory is intended to be used on (e.g. to fit 63,5 mm (2,5 in.) hose).</u>	

Page 16: First article qualification test summary template

Amend step 3.4 b 1 to read 'Was a hose accessory correctly fitted to a hose test piece of the correct diameter?'

El Standard 1522

Minimum requirements for aviation fuelling
hose accessories

EI STANDARD 1522

MINIMUM REQUIREMENTS FOR AVIATION FUELLING HOSE ACCESSORIES

1st edition

May 2019

Published by
Energy Institute, London
The Energy Institute is a professional membership body incorporated by Royal Charter 2003
Registered charity number 1097899

The Energy Institute (EI) is the chartered professional membership body for the energy industry, supporting over 20 000 individuals working in or studying energy and 200 energy companies worldwide. The EI provides learning and networking opportunities to support professional development, as well as professional recognition and technical and scientific knowledge resources on energy in all its forms and applications.

The EI's purpose is to develop and disseminate knowledge, skills and good practice towards a safe, secure and sustainable energy system. In fulfilling this mission, the EI addresses the depth and breadth of the energy sector, from fuels and fuels distribution to health and safety, sustainability and the environment. It also informs policy by providing a platform for debate and scientifically-sound information on energy issues.

The EI is licensed by:

- the Engineering Council to award Chartered, Incorporated and Engineering Technician status, and
- the Society for the Environment to award Chartered Environmentalist status.

It also offers its own Chartered Energy Engineer, Chartered Petroleum Engineer, and Chartered Energy Manager titles.

A registered charity, the EI serves society with independence, professionalism and a wealth of expertise in all energy matters.

This publication has been produced as a result of work carried out within the Technical Team of the EI, funded by the EI's Technical Partners. The EI's Technical Work Programme provides industry with cost-effective, value-adding knowledge on key current and future issues affecting those operating in the energy sector, both in the UK and internationally.

For further information, please visit <http://www.energyinst.org>

The EI gratefully acknowledges the financial contributions towards the scientific and technical programme from the following companies:

Andeavor	Phillips 66
BP Exploration Operating Co Ltd	Qatar Petroleum
BP Oil UK Ltd	Repsol Sinopec
Centrica	RWE npower
Chevron North Sea Ltd	Saudi Aramco
Chevron Products Company	Scottish Power
Chrysaor	SGS
CLH	Shell UK Oil Products Limited
ConocoPhillips Ltd	Shell U.K. Exploration and Production Ltd
DCC Energy	SSE
EDF Energy	TAQA Bratani
ENI	Total E&P UK Limited
E.ON UK	Total UK Limited
Equinor	Tullow Oil
ExxonMobil International Ltd	Uniper
Innogy	Valero
Kuwait Petroleum International Ltd	Vattenfall
Nexen CNOOC	Vitol Energy
Ørsted	Woodside
Perenco	World Fuel Services

However, it should be noted that the above organisations have not all been directly involved in the development of this publication, nor do they necessarily endorse its content.

Copyright © 2019 by the Energy Institute, London.

The Energy Institute is a professional membership body incorporated by Royal Charter 2003.

Registered charity number 1097899, England

All rights reserved

No part of this book may be reproduced by any means, or transmitted or translated into a machine language without the written permission of the publisher.

ISBN 978 1 78725 083 3

Published by the Energy Institute

The information contained in this publication is provided for general information purposes only. Whilst the Energy Institute and the contributors have applied reasonable care in developing this publication, no representations or warranties, express or implied, are made by the Energy Institute or any of the contributors concerning the applicability, suitability, accuracy or completeness of the information contained herein and the Energy Institute and the contributors accept no responsibility whatsoever for the use of this information. Neither the Energy Institute nor any of the contributors shall be liable in any way for any liability, loss, cost or damage incurred as a result of the receipt or use of the information contained herein.

Hard copy and electronic access to EI and IP publications is available via our website, <https://publishing.energyinst.org>.

Documents can be purchased online as downloadable pdfs or on an annual subscription for single users and companies.

For more information, contact the EI Publications Team.

e: pubs@energyinst.org

CONTENTS

	Page
Legal notices and disclaimers.	4
Foreword	5
Acknowledgements	6
1 Introduction, scope and conformance to this standard	7
1.1 Introduction	7
1.2 Scope	7
1.3 Conformance to EI Standard 1522.	8
2 General requirements	9
2.1 Performance requirements.	9
2.2 Materials of construction	9
2.3 Fitment and removal	9
2.4 Production requirements	10
2.5 Marking requirements	10
3 First article qualification test procedures and results	11
3.1 General	11
3.2 Electrostatic charging	11
3.3 Flammability resistance	11
3.4 Impact damage resistance	12
3.5 Resistance to weathering/environmental parameters	12
Annexes	
Annex A Glossary and abbreviations	13
A.1 Glossary	13
A.2 Abbreviations used	13
Annex B First article qualification test summary template	14
Annex C References	17

LEGAL NOTICES AND DISCLAIMERS

The information contained in this publication is provided as guidance only, and although every effort has been made by EI to assure the accuracy and reliability of its contents, **EI MAKES NO GUARANTEE THAT THE INFORMATION HEREIN IS COMPLETE OR ERROR-FREE. ANY PERSON OR ENTITY MAKING ANY USE OF THE INFORMATION HEREIN DOES SO AT HIS/HER/ITS OWN RISK. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, THE INFORMATION HEREIN IS PROVIDED WITHOUT, AND EI HEREBY EXPRESSLY DISCLAIMS, ANY REPRESENTATION OR WARRANTY OF ANY KIND, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE AND NON-INFRINGEMENT. IN NO EVENT SHALL EI BE LIABLE TO ANY PERSON, OR ENTITY USING OR RECEIVING THE INFORMATION HEREIN FOR ANY CONSEQUENTIAL, INCIDENTAL, PUNITIVE, INDIRECT OR SPECIAL DAMAGES (INCLUDING, WITHOUT LIMITATION, LOST PROFITS), REGARDLESS OF THE BASIS OF SUCH LIABILITY, AND REGARDLESS OF WHETHER OR NOT EI HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR IF SUCH DAMAGES COULD HAVE BEEN FORESEEN.**

The contents of this publication are not intended or designed to define or create legal rights or obligations, or set a legal standard of care.

EI is not undertaking to meet the duties of manufacturers, purchasers, users and/or employers to warn and equip their employees and others concerning safety risks and precautions, nor is EI undertaking any of the duties of manufacturers, purchasers, users and/or employers under local and regional laws and regulations. This information should not be used without first securing competent advice with respect to its suitability for any general or specific application, and all entities have an independent obligation to ascertain that their actions and practices are appropriate and suitable for each particular situation and to consult all applicable federal, state and local laws.

EI HEREBY EXPRESSLY DISCLAIMS ANY LIABILITY OR RESPONSIBILITY FOR LOSS OR DAMAGE RESULTING FROM THE VIOLATION OF ANY LOCAL OR REGIONAL LAWS OR REGULATIONS WITH WHICH THIS PUBLICATION MAY CONFLICT.

Nothing contained in any EI publication is to be construed as granting any right, by implication or otherwise, for the manufacture, sale, or use of any method, apparatus, or product covered by letters patent. Neither should anything contained in the publication be construed as insuring anyone against liability for infringement of letters patent.

No reference made in this publication to any specific product or service constitutes or implies an endorsement, recommendation, or warranty thereof by EI.

EI, AND ITS AFFILIATES, REPRESENTATIVES, CONSULTANTS, AND CONTRACTORS AND THEIR RESPECTIVE PARENTS, SUBSIDIARIES, AFFILIATES, CONSULTANTS, OFFICERS, DIRECTORS, EMPLOYEES, REPRESENTATIVES, AND MEMBERS SHALL HAVE NO LIABILITY WHATSOEVER FOR, AND SHALL BE HELD HARMLESS AGAINST, ANY LIABILITY FOR ANY INJURIES, LOSSES OR DAMAGES OF ANY KIND, INCLUDING DIRECT, INDIRECT, INCIDENTAL, CONSEQUENTIAL, OR PUNITIVE DAMAGES, TO PERSONS, INCLUDING PERSONAL INJURY OR DEATH, OR PROPERTY RESULTING IN WHOLE OR IN PART, DIRECTLY OR INDIRECTLY, FROM ACCEPTANCE, USE OR COMPLIANCE WITH THIS PUBLICATION.

FOREWORD

This publication has been produced by the Equipment Sub-Committee of the Energy Institute (EI) Aviation Committee, incorporating technical feedback from other industry stakeholders.

This publication is intended to provide the industry with a means of establishing minimum requirements for accessories to aviation fuelling hose used worldwide. Its application by hose users, accessory manufacturers/suppliers and refuelling vehicle suppliers should ensure that such items are fit-for-purpose, do not cause inadvertent wear of the outer cover of the hose, do not contribute to foreign object debris (FOD) and do not invalidate the performance characteristics of hoses that have been tested in accordance with EI 1529 *Aviation fuelling hose and hose assemblies* or ISO 1825 *Rubber hoses and hose assemblies for aircraft ground fuelling and defuelling – Specification*. Certain performance characteristics of hoses, in particular resistance to a flame, provide an important factor of safety in mitigation of risk.

This publication has been prepared to provide aviation fuelling hose users with a means to control certain parameters of hose accessories being offered.

The specifications of this standard are intended for the convenience of both manufacturers and users, as an aid to procurement of standardised equipment and materials. This standard is not intended to inhibit purchasers or producers from purchasing or producing products that conform to other standards.

For the purpose of this publication the definitions given in Annex A apply irrespective of any other meaning the words may have in other connections.

Any manufacturer or supplier wishing to offer aviation fuelling hose accessories stated to comply with this standard is responsible for complying with all of the mandatory provisions included herein.

The EI is not undertaking to meet the duties of employers to warn and equip their employees, and others exposed, concerning health and safety risks and precautions, nor undertaking their obligations under local and regional laws and regulations.

Nothing contained in any EI publication is to be construed as granting any right, by implication or otherwise, for the manufacture, sale, or use of any method, apparatus, or product covered by letters patent. Neither should anything contained in the publication be construed as insuring anyone against liability for infringement of letters patent.

It is hoped and anticipated that this publication will assist those involved in aviation fuel handling at airports. Every effort has been made by the EI to assure the accuracy and reliability of the data contained in this publication; however, EI makes no representation, warranty, or guarantee in connection with this publication and hereby expressly disclaims any liability or responsibility for loss or damage resulting from its use or for the violation of any local or regional laws or regulations with which this publication may conflict.

Suggested revisions are invited and should be submitted to the Technical Department, Energy Institute, 61 New Cavendish Street, London, W1G 7AR (e: technical@energyinst.org).

ACKNOWLEDGEMENTS

The preparation of this edition of this publication was undertaken by Mr N. Mason (Kuwait Petroleum International Aviation Company Ltd) and Martin Hunnybun (EI) with input from technical representatives of the following companies/organisations:

Air BP Limited
Air TOTAL
Airlines for America
Chevron
Civil Aviation Administration of China
CLH Aviacion, S.A.
ExxonMobil
International Air Transport Association
Joint Inspection Group
Kuwait Petroleum International Aviation Company Ltd.
Phillips 66
Saudi Aramco
Shell Aviation Ltd.
US Department of Defense
Vitol Aviation
World Fuel Services

A draft version of this publication was distributed to industry stakeholders for technical review. The following (in addition to representatives from the above companies/organisations) generously gave of their time to provide feedback, which is greatly appreciated:

Achim Aehle	ELAFLEX - Gummi Ehlers GmbH
Xavier Allègre	Trelleborg Industrie SAS
Jean-Luc Kassabian	TITAN Aviation Services
Ulf Peemöller	ELAFLEX - Gummi Ehlers GmbH
Andy Walton	Aljac Fuelling Components Ltd

Project co-ordination and editing was undertaken by Martin Hunnybun (EI).

1 INTRODUCTION, SCOPE AND CONFORMANCE TO THIS STANDARD

1.1 INTRODUCTION

For many decades the aviation fuelling industry has procured hoses that conform to recognised international standards. Such standards typically incorporate type approval/first article tests to demonstrate, under controlled conditions, certain performance characteristics of the hose. This has provided users with a level of assurance regarding hose performance when in service at the critical interface between the aviation fuelling infrastructure and the aircraft.

A variety of hose accessories is on offer to aviation fuelling vehicle suppliers and hose users, which are intended to be fitted along the length of hoses. These may offer benefits such as minimising manual handling risks and increasing hose visibility. Despite this, there remains the need for accessories to not invalidate hose performance characteristics, cause inadvertent wear of the outer cover of the hose, contribute to FOD or introduce flammability or electrostatic hazards. The minimum requirements set out in this standard are intended to assist accessory suppliers/users to demonstrate their conformance to this standard.

1.2 SCOPE

This standard provides minimum performance requirements and first article qualification test procedures for accessories to aviation fuelling hose (meeting EI 1529 or ISO 1825).

Such accessories include items that are intended to increase hose visibility when in service, reduce the coefficient of friction when a hose is being dragged across the apron or stand, or other function. Accessories include, but are not limited to:

- spiral coils;
- wraps;
- beads;
- collars;
- sleeves (including those used for overwing fuelling grade identification);
- covers (including those used to improve the visibility of hydrant intake hose), and
- caster dollies.

This standard does not apply to hose end assemblies, couplings, nozzles, lift-assist devices or other metallic mechanical fittings that attach at hose ends. Should non-metallic versions be developed in future then they may require testing in accordance with this standard.

This standard does not describe any features of accessories that justify their use, e.g. measures of reflectance, friction etc.