ASME A112.14.3-2022/ CSA B481.1:22

National Standard of Canada
American National Standard

Hydromechanical grease interceptors

Legal Notice for Harmonized Standard Jointly Developed by ASME and CSA Group

Intellectual property rights and ownership

As between American Society of Mechanical Engineers ("ASME") and Canadian Standards Association (Operating as "CSA Group") (collectively "ASME and CSA Group") and the users of this document (whether it be in printed or electronic form), ASME and CSA Group are the joint owners of all works contained herein that are protected by copyright, all trade-marks (except as otherwise noted to the contrary), and all inventions and trade secrets that may be contained in this document, whether or not such inventions and trade secrets are protected by patents and applications for patents. The unauthorized use, modification, copying, or disclosure of this document may violate laws that protect the intellectual property of ASME and CSA Group and may give rise to a right in ASME and CSA Group to seek legal redress for such use, modification, copying, or disclosure. ASME and CSA Group reserve all intellectual property rights in this document.

Disclaimer and exclusion of liability

This document is provided without any representations, warranties, or conditions of any kind, express or implied, including, without limitation, implied warranties or conditions concerning this document's fitness for a particular purpose or use, its merchantability, or its non-infringement of any third party's intellectual property rights. ASME and CSA Group do not warrant the accuracy, completeness, or currency of any of the information published in this document. ASME and CSA Group make no representations or warranties regarding this document's compliance with any applicable statute, rule, or regulation.

IN NO EVENT SHALL ASME AND CSA GROUP, THEIR RESPECTIVE VOLUNTEERS, MEMBERS, SUBSIDIARIES, OR AFFILIATED COMPANIES, OR THEIR EMPLOYEES, DIRECTORS, OR OFFICERS, BE LIABLE FOR ANY DIRECT, INDIRECT, OR INCIDENTAL DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES, HOWSOEVER CAUSED, INCLUDING BUT NOT LIMITED TO SPECIAL OR CONSEQUENTIAL DAMAGES, LOST REVENUE, BUSINESS INTERRUPTION, LOST OR DAMAGED DATA, OR ANY OTHER COMMERCIAL OR ECONOMIC LOSS, WHETHER BASED IN CONTRACT, TORT (INCLUDING NEGLIGENCE), OR ANY OTHER THEORY OF LIABILITY, ARISING OUT OF OR RESULTING FROM ACCESS TO OR POSSESSION OR USE OF THIS DOCUMENT, EVEN IF ASME OR CSA GROUP HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES.

In publishing and making this document available, ASME and CSA Group are not undertaking to render professional or other services for or on behalf of any person or entity or to perform any duty owed by any person or entity to another person or entity. The information in this document is directed to those who have the appropriate degree of experience to use and apply its contents, and ASME and CSA Group accept no responsibility whatsoever arising in any way from any and all use of or reliance on the information contained in this document.

ASME and CSA Group have no power, nor do they undertake, to enforce compliance with the contents of the standards or other documents they jointly publish.

Authorized use of this document

This document is being provided by ASME and CSA Group for informational and non-commercial use only. The user of this document is authorized to do only the following:

If this document is in electronic form:

- load this document onto a computer for the sole purpose of reviewing it;
- search and browse this document; and
- print this document if it is in PDF format.

Limited copies of this document in print or paper form may be distributed only to persons who are authorized by ASME and CSA Group to have such copies, and only if this Legal Notice appears on each such copy.

In addition, users may not and may not permit others to

- alter this document in any way or remove this Legal Notice from the attached standard;
- sell this document without authorization from ASME and CSA Group; or
- make an electronic copy of this document.

If you do not agree with any of the terms and conditions contained in this Legal Notice, you may not load or use this document or make any copies of the contents hereof, and if you do make such copies, you are required to destroy them immediately. Use of this document constitutes your acceptance of the terms and conditions of this Legal Notice.

ASME SETTING THE STANDARD

CSA GROUP™

Standards Update Service

ASME A112.14.3-2022/CSA B481.1:22
July 2022

Title: *Hydromechanical grease interceptors*

To register for e-mail notification about any updates to this publication
- go to **www.csagroup.org/store/**
- click on **Product Updates**

The **List ID** that you will need to register for updates to this publication is **2429820**.

If you require assistance, please e-mail **techsupport@csagroup.org** or call 416-747-2233.

Visit CSA Group's policy on privacy at **www.csagroup.org/legal** to find out how we protect your personal information.

Canadian Standards Association (operating as "CSA Group"), under whose auspices this National Standard has been produced, was chartered in 1919 and accredited by the Standards Council of Canada to the National Standards system in 1973. It is a not-for-profit, nonstatutory, voluntary membership association engaged in standards development and certification activities.

CSA Group standards reflect a national consensus of producers and users — including manufacturers, consumers, retailers, unions and professional organizations, and governmental agencies. The standards are used widely by industry and commerce and often adopted by municipal, provincial, and federal governments in their regulations, particularly in the fields of health, safety, building and construction, and the environment.

More than 10 000 members indicate their support for CSA Group's standards development by volunteering their time and skills to Committee work.

CSA Group offers certification and testing services in support of and as an extension to its standards development activities. To ensure the integrity of its certification process, CSA Group regularly and continually audits and inspects products that bear the CSA Group Mark.

In addition to its head office and laboratory complex in Toronto, CSA Group has regional branch offices in major centres across Canada and inspection and testing agencies in fourteen countries. Since 1919, CSA Group has developed the necessary expertise to meet its corporate mission: CSA Group is an independent service organization whose mission is to provide an open and effective forum for activities facilitating the exchange of goods and services through the use of standards, certification and related services to meet national and international needs.

For further information on CSA Group services, write to
CSA Group
178 Rexdale Boulevard
Toronto, Ontario, M9W 1R3
Canada

A National Standard of Canada is a standard developed by a Standards Council of Canada (SCC) accredited Standards Development Organization, in compliance with requirements and guidance set out by SCC. More information on National Standards of Canada can be found at www.scc.ca.

SCC is a Crown corporation within the portfolio of Innovation, Science and Economic Development (ISED) Canada. With the goal of enhancing Canada's economic competitiveness and social well-being, SCC leads and facilitates the development and use of national and international standards. SCC also coordinates Canadian participation in standards development, and identifies strategies to advance Canadian standardization efforts.

Accreditation services are provided by SCC to various customers, including product certifiers, testing laboratories, and standards development organizations. A list of SCC programs and accredited bodies is publicly available at www.scc.ca.

Standards Council of Canada
600-55 Metcalfe Street
Ottawa, Ontario, K1P 6L5
Canada

Cette Norme Nationale du Canada n'est disponible qu'en anglais.

CSA Group

The Canadian Standards Association (operating as "CSA Group"), under whose auspices this National Standard has been produced, was chartered in 1919 and accredited by the Standards Council of Canada to the National Standards system in 1973. It is a not-for-profit, nonstatutory, voluntary membership association engaged in standards development and certification activities.

CSA Group standards reflect a national consensus of producers and users including manufacturers, consumers, retailers, unions and professional organizations, and governmental agencies. The standards are used widely by industry and commerce and often adopted by municipal, provincial, and federal governments in their regulations, particularly in the fields of health, safety, building and construction, and the environment.

More than 10 000 members indicate their support for CSA Group's standards development by volunteering their time and skills to Committee work.

CSA Group offers certification and testing services in support of and as an extension to its standards development activities. To ensure the integrity of its certification process, CSA Group regularly and continually audits and inspects products that bear the CSA Group Mark.

In addition to its head office and laboratory complex in Toronto, CSA Group has regional branch offices in major centres across Canada and inspection and testing agencies in fourteen countries. Since 1919, CSA Group has developed the necessary expertise to meet its corporate mission: CSA Group is an independent service organization whose mission is to provide an open and effective forum for activities facilitating the exchange of goods and services through the use of standards, certification and related services to meet national and international needs.

For further information on CSA Group services, write to
CSA Group
178 Rexdale Boulevard, Toronto, Ontario,
Canada M9W 1R3

American National Standards Institute

The American National Standards Institute (ANSI), Inc. is the nationally recognized coordinator of voluntary standards development in the United States through which voluntary organizations, representing virtually every technical discipline and every facet of trade and commerce, organized labor and consumer interests, establish and improve the some 10 000 national consensus standards currently approved as American National Standards.

ANSI provides that the interests of the public may have appropriate participation and representation in standardization activity, and cooperates with departments and agencies of U.S. Federal, state and local governments in achieving compatibility between government codes and standards and the voluntary standards of industry and commerce.

ANSI represents the interests of the United States in international nontreaty organizations such as the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC). The Institute maintains close ties with regional organizations such as the Pacific Area Standards Congress (PASC) and the Pan American Standards Commission (COPANT). As such, ANSI coordinates the activities involved in the U.S. participation in these groups.

ANSI approval of standards is intended to verify that the principles of openness and due process have been followed in the approval procedure and that a consensus of those directly and materially affected by the standards has been achieved. ANSI coordination is intended to assist the voluntary system to ensure that national standards needs are identified and met with a set of standards that are without conflict or unnecessary duplication in their requirements.

Responsibility of approving American standards rests with the
American National Standards Institute, Inc.
25 West 43rd Street, Fourth floor
New York, NY 10036

ASME/CSA Standard

ASME A112.4.2-2022/CSA B481.1:22
Hydromechanical grease interceptors

Published in July 2022 by CSA Group
A not-for-profit private sector organization
178 Rexdale Boulevard, Toronto, Ontario, Canada M9W 1R3
1-800-463-6727 • 416-747-4044

Visit the CSA Group Online Store at www.csagroup.org/store/

The American Society of Mechanical Engineers (ASME)
Two Park Avenue
New York, NY 10016-5990, USA
1-800-843-2763

Visit the ASME Online Store at www.asme.org

Commitment for Amendments

This Standard is issued jointly by the American Society of Mechanical Engineers (ASME) and the Canadian Standards Association (Operating as "CSA Group"). Amendments to this Standard will be made only after processing according to the Standards writing procedures of both ASME and CSA Group.

The American Society of Mechanical Engineers (ASME)
Two Park Avenue
New York, NY 10016-5990
USA
1-800-843-2763
Visit the ASME Online Store at
www.asme.org

ISBN 978-0-7918-7520-9

This Standard is available for public review on a continuous basis. This provides an opportunity for additional public input from industry, academia, regulatory agencies, and the public at large.

Published in July 2022 by
CSA Group
A not-for-profit private sector organization
178 Rexdale Boulevard
Toronto, Ontario, Canada
M9W 1R3
1-800-463-6727 or 416-747-4044
Visit the CSA Group Online Store at
www.csagroup.org/store/

ISBN 978-1-4883-4079-6
ICS 91.140.80; 91.140.70

Contents

ASME A112 Standards Committee on Plumbing Materials and Equipment

W. M. Smith	American Society of Plumbing Engineers, Montgomery, Alabama, USA	*Chair*
S. Rawalpindiwala	Kohler Co., Kohler, Wisconsin, USA	*Vice-Chair*
M. R. Gibeault	Kohler Co., Kohler, Wisconsin, USA	*Alternate*
A. L. Guzman Rodriguez	American Society of Mechanical Engineers, New York, New York, USA	*Staff Secretary*
R. K. Adler	City of San Jose, San Jose, California, USA	
J. A. Ballanco	JB Engineering & Code Consulting, PC, Munster, Indiana, USA	
J. E. Bertrand	Watts Water Technologies, Inc., Avon, Ohio, USA	
C. Haldiman	Watts Regulator., North Andover, Massachusetts, USA	*Alternate*
T. Burger	ASSE International, Mokena, Illinois, USA	
R. Burnham	Zurn Industries LLC, Erie, Pennsylvania, USA	
M. Campos	ICC Evaluation Service, LLC, Brea, California, USA	
S. L. Cavanaugh	Cavanaugh Consulting, Santa Fe, New Mexico, USA	*Contributing Member*
W. E. Chapin	Professional Code Consulting, LLC, Cullman, Alabama, USA	

P. V. DeMarco	IAPMO, Dayton, New Jersey, USA	
N. E. Dickey	Hansgrohe, Inc., Alpharetta, Georgia, USA	
G. S. Duren	Code Compliance, Inc., S Pasadena, Florida, USA	
R. Emmerson	Consultant, Arlington Heights, Illinois, USA	
K. Ernst	OS&B, Oakville, Ontario, Canada	
R. L. George	Plumb-Tech Design and Consulting Services L.L.C, Monroe, Michigan, USA	
D. Gleiberman	Sloan Valve Co., Los Angeles, California, USA	
J. W. Lauer	Sloan Valve Company, Anaheim, California, USA	*Alternate*
M. Guard	Regulosity, LLC, Wauwatosa, Wisconsin, USA	
G. W. Harrison	Wayne Harrison Consulting, Edmond, Oklahoma, USA	
L. Himmelblau	Chicago Faucet, Des Plaines, Illinois, USA	
J. Kendzel	American Supply Association, Itasca, Illinois, USA	*Contributing Member*
J. M. Koeller	Koeller and Co., Yorba Linda, California, USA	
N. M. Kummerlen	Consultant, Lorain, Ohio, USA	*Contributing Member*

C. J. Lagan	American Standard/LIXIL, Piscataway, New Jersey, USA	
M. Malatesta	American Standard/LIXIL, Piscataway, New Jersey, USA	*Alternate*
W. H. LeVan	Cast Iron Soil Pipe Institute, Auburn, Alabama, USA	
D. Parney	Cast Iron Soil Pipe Institute, Mundelein, Illinois, USA	*Alternate*
D. Marbry	Fluidmaster, Inc., San Juan Capistrano, California, USA	
R. Mata	American Society of Plumbing Engineers, Mentor, Ohio, USA	
D. Liang	CSA Group, Toronto, Ontario, Canada	*Contributing Member*
L. A. Mercer	IAPMO Group, Valley City, Ohio, USA	
J. Menard	CSA Group, Toronto, Ontario, Canada	*Contributing Member*
A. Murra	Abraham Murra Consulting, Rancho Santa Margarita, California, USA	
D. Orton	NSF International, Ann Arbor, Michigan, USA	
A. Ciechanowski	NSF International, Ann Arbor, Michigan, USA	*Alternate*
R. Pickering	Eastern Research Group, Inc., Morrisville, North Carolina, USA	*Contributing Member*
A. Poon	Delta Faucet Company, Indianapolis, Indiana, USA	

B. Ramkarran	Infinity Drains, LTD, Amityville, New York, USA	*Contributing Member*
S. A. Remedios	Remedios Consulting LLC, London, Ontario, Canada	
M. Sigler	International Code Council, Orlando, Florida, USA	
G. L. Simmons	Charlotte Pipe & Foundry, Charlotte, North Carolina, USA	
W. B. Morris	Charlotte Pipe & Foundry, Charlotte, North Carolina, USA	*Alternate*
S. Tanner	US Environmental Protection Agency, Washington, District of Columbia, USA	*Contributing Member*
J. C. Watson	Elkay Manufacturing, Downers Grove, Illinois, USA	
M. Weiss	Plumbing and Drainage Institute, Polson, Montana, USA	
W. C. Whitehead	Whitehead Consulting Services, Red Oak, Texas, USA	
S. J. McDanal	Jay R. Smith Mfg. Co., Montgomery, Alabama, USA	*Alternate*

ASME A112.14.3 Project Team on Grease Interceptors

D. Orton	NSF International, Ann Arbor, Michigan, USA	*Chair*
J. A. Ballanco	JB Engineering & Code Consulting, PC, Munster, Indiana, USA	
W. C. Batten	Thermaco Inc., Asheboro, North Carolina, USA	
R. Beaulieu	Canplas Industries Ltd., Barrie, Ontario, Canada	
R. Burnham	Zurn Industries LLC, Erie, Pennsylvania, USA	
M. Campos	ICC Evaluation Service, LLC, Brea, California, USA	
N. E. Dickey	Hansgrohe, Inc., Alpharetta, Georgia, USA	
G. S. Duren	Code Compliance, Inc., S Pasadena, Florida, USA	
R. L. George	Plumb-Tech Design and Consulting Services L.L.C, Monroe, Michigan, USA	
G. W. Harrison	Wayne Harrison Consulting, Edmond, Oklahoma, USA	
M. J. Lenger	Cleanblu Inc., Capistrano Beach, California, USA	
K. Loucks	IW Consulting Service, LLC, Vancouver, Washington, USA	
M. Weiss	Plumbing & Drainage Institute (PDI), Polson, Montana, USA	

W. C. Whitehead	Whitehead Consulting Services, Red Oak, Texas, USA	
D. Viola	IAPMO, Mokena, Illinois, USA	*Contributing Member*

CSA Technical Committee on Drains and Interceptors

R. Beaulieu	Canplas Industries Ltd., Barrie, Ontario, Canada *Category: Producer Interest*	*Chair*
B. Brown	Schier Products, Edwardsville, Kansas, USA	*Non-voting*
T. Burger	ASSE International, Cleveland, Ohio, USA	*Non-voting*
R. Burnham	Zurn Industries LLC, Erie, Pennsylvania, USA *Category: Producer Interest*	
M. Constantin	City of Edmonton, Edmonton, Alberta, Canada *Category: Regulatory Authority*	
J. Costa	Good Harbour Labs, Mississauga, Ontario, Canada	*Non-voting*
P. Despatis	Régie du bâtiment du Québec, Montréal, Québec, Canada *Category: Regulatory Authority*	
N. Dickey	Hansgrohe, Inc., Alpharetta, Georgia, USA *Category: Producer Interest*	
G. Emberson	Contour Industries Inc., Toronto, Ontario, Canada	*Non-voting*
R. Fenney	Fenney & Associates Inc., London, Ontario, Canada	*Non-voting*
S. Ferrazzo	Green Turtle - Zurn, Charlotte, North Carolina, USA	*Non-voting*

B. Ghaly	Watts Regulator Co., Burlington, Ontario, Canada *Category: Producer Interest*	
M. Gordon	Regional Municipality of Waterloo, Cambridge, Ontario, Canada *Category: Regulatory Authority*	
A. Guzman Rodriquez	American Society of Mechanical Engineers (ASME), New York, New York, USA	*Non-voting*
G. Hale	The Corporation of the Town of Markham, Markham, Ontario, Canada *Category: Regulatory Authority*	
G. W. Harrison	Wayne Harrison Consulting, Edmond, Oklahoma, USA *Category: User/General Interest*	
E. Ho	IAPMO Group, Markham, Ontario, Canada *Category: User/General Interest*	
K. S. Hui	Ontario Ministry of Municipal Affairs, Toronto, Ontario, Canada	*Non-voting*
D. Liang	CSA Group, Toronto, Ontario, Canada *Category: User/General Interest*	
K. Loucks	Schier Products Company, Vancouver, Washington, USA *Category: Producer Interest*	
R. Mata	American Society of Plumbing Engineers, Mentor, Ohio, USA	
A. Mikrogiannakis	Goslyn Canada, Aurora, Ontario, Canada *Category: Producer Interest*	
A. I. Murra	Abraham Murra Consulting, Rancho Santa Margarita, California, USA	*Non-voting*

B. Orr	City of London, London, Ontario, Canada *Category: Regulatory Authority*	
D. Orton	NSF International, Ann Arbor, Michigan, USA *Category: User/General Interest*	
T. P. Palkon	IAPMO R&T, Mokena, Illinois, USA	*Non-voting*
H. Parlee	City of Edmonton, Edmonton, Alberta, Canada	*Non-voting*
F. Piazza	Richmond Hill, Ontario, Canada	*Non-voting*
A. Puddicomb	City of Toronto, Toronto Water, Toronto, Ontario, Canada *Category: Regulatory Authority*	
S. A. Remedios	Remedios Consulting, London, Ontario, Canada *Category: User/General Interest*	
D. Rockwell	Rockwell Supplies, Lower Sackville, Nova Scotia, Canada	*Non-voting*
W. Smith	American Society of Plumbing Engineers (ASPE), Montgomery, Alabama, USA	*Non-voting*
C. Spagnuolo	Region of Peel, Mississauga, Ontario, Canada *Category: Regulatory Authority*	
M. Weiss	PDI, Polson, Montana, USA *Category: User/General Interest*	
F. Winter	Canplas, Barrie, Ontario, Canada	*Non-voting*
M. Khalil	CSA Group, Toronto, Ontario, Canada	*Project Manager*

ASME/CSA Harmonization Task Group on Drains and Interceptors

D. Orton	NSF International, Ann Arbor, Michigan, USA	*Chair*
J. A. Ballanco	JB Engineering & Code Consulting, PC, Munster, Indiana, USA	
W. C. Batten	Thermaco Inc., Asheboro, North Carolina, USA	
R. Beaulieu	Canplas Industries Ltd., Barrie, Ontario, Canada	
R. Burnham	Zurn Industries LLC, Erie, Pennsylvania, USA	
B. Brown	Schier Products, Edwardsville, Kansas, USA	
M. Campos	ICC Evaluation Service, LLC, Brea, California, USA	
N. E. Dickey	Hansgrohe, Inc., Alpharetta, Georgia, USA	
G. S. Duren	Code Compliance, Inc., S Pasadena, Florida, USA	
R. L. George	Plumb-Tech Design and Consulting Services L.L.C, Monroe, Michigan, USA	
G. W. Harrison	Wayne Harrison Consulting, Edmond, Oklahoma, USA	
C. Haldiman	Watts Water Technologies Inc., North Andover, Massachusetts, USA	
M. J. Lenger	Cleanblu Inc., Capistrano Beach, California, USA	

K. Loucks	IW Consulting Service, LLC, Vancouver, Washington, USA
M. Weiss	Plumbing & Drainage Institute (PDI), Polson, Montana, USA
W. C. Whitehead	Whitehead Consulting Services, Red Oak, Texas, USA
A. Lathia	CSA Group, Independence, Ohio, USA
A. Mikrogiannakis	Goslyn Canada, Aurora, Ontario, Canada
D. Liang	CSA Group, Toronto, Ontario, Canada
E. Ho	IAPMO Group, Markham, Ontario, Canada
B. Orr	City of London, London, Ontario, Canada
C. Rylant	Jay R. Smith Mfg Co., Montgomery, Alabama, USA
F. Winter	Canplas Industries Ltd., Barrie, Ontario, Canada
J. Costa	Good Harbour Labs, Mississauga, Ontario, Canada
R. Fenney	Fenney & Associates Inc., London, Ontario, Canada
T. C. Valente	CSA Group, Independence, Ohio, USA
D. Viola	IAPMO, Markham, Ontario, Canada
M. Lenger	Clean Blu, California, USA

Preface

This is the first edition of ASME A112.14.3/CSA B481.1, *Hydromechanical grease interceptors*. It supersedes the CSA B481 Series, *Grease interceptors*, published in 2012, and the ASME A112.14.3-2018, Hydromechanical Grease Interceptors Standards.

This Standard was prepared by the ASME/CSA Harmonization Task Group on Interceptors, under the jurisdiction of the ASME A112 Standards Committee on Plumbing Materials and Equipment and the CSA Technical Committee on Drains and Interceptors. The ASME A112 Standards Committee operates under the jurisdiction of the ASME Board on Standardization and Testing and the CSA Technical Committee operates under the jurisdiction of the CSA Strategic Steering Committee on Construction and Civil Infrastructure.

This Standard is considered suitable for use for conformity assessment within the stated scope of the Standard.

This Standard was approved as an American National Standard by the American National Standards Institute on May 13, 2022.

This Standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

ASME Notes:

1) *The next edition of this standard is scheduled for publication in 2025.*
2) *This standard was developed under procedures accredited as meeting the criteria for American National Standards and it is an American National Standard. The standards committee that approved the code or standard was balanced to ensure that individuals from competent and concerned interests had an opportunity to participate. The proposed standard was made available for public review and comment, which provided an opportunity for additional public input from industry, academia, regulatory agencies, and the public-at-large.*
3) *ASME does not "approve," "rate," or "endorse" any item, construction, proprietary device, or activity. ASME does not take any position with respect to the validity of any patent rights asserted in connection with any items mentioned in this document, and does not undertake to insure anyone utilizing a standard against liability for infringement of any applicable letters patent, nor does ASME assume any such liability. Users of a standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, is entirely their own responsibility.*
4) *Participation by federal agency representatives or persons affiliated with industry is not to be interpreted as government or industry endorsement of this standard.*
5) *ASME accepts responsibility for only those interpretations of this document issued in accordance with the established ASME procedures and policies, which precludes the issuance of interpretations by individuals.*
6) *Upon request, ASME will issue an interpretation of any requirement of this standard. An interpretation can be issued only in response to a request submitted through the online Interpretation Submittal Form. The form is accessible at http://go.asme.org/InterpretationRequest. ASME procedures provide for reconsideration of any interpretation when or if additional information that might affect an interpretation is available. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME committee.*

Interpretations are published on the ASME website under the Committee Pages at http://cstools.asme.org/ as they are issued.

CSA Notes:

1) *Use of the singular does not exclude the plural (and vice versa) when the sense allows.*
2) *Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.*
3) *This publication was developed by consensus, which is defined by* CSA Policy governing standardization — Code of good practice for standardization *as "substantial agreement. Consensus implies much more than a simple majority, but not necessarily unanimity". It is consistent with this definition that a member may be included in the Technical Committee list and yet not be in full agreement with all clauses of this publication.*
4) *This Standard is subject to review within five years from the date of publication. Suggestions for its improvement will be referred to the appropriate committee.*
5) *To submit a request for interpretation of this Standard, please send the following information to inquiries@csagroup.org and include "Request for interpretation" in the subject line:*
   a) *define the problem, making reference to the specific clause, and, where appropriate, include an illustrative sketch;*
   b) *provide an explanation of circumstances surrounding the actual field condition; and*
   c) *where possible, phrase the request in such a way that a specific "yes" or "no" answer will address the issue.*

   Committee interpretations are processed in accordance with the CSA Directives and guidelines governing standardization *and are available on the* Current Standards Activities *page at standardsactivities.csa.ca.*
6) *Attention is drawn to the possibility that some of the elements of this Standard may be the subject of patent rights. CSA Group is not to be held responsible for identifying any or all such patent rights. Users of this Standard are expressly advised that determination of the validity of any such patent rights is entirely their own responsibility.*

ASME A112.14.3-2022/CSA B481.1:22
Hydromechanical grease interceptors

1 Scope

1.1 Inclusions

This Standard specifies construction and marking requirements, as well as the performance criteria for the testing and rating of hydromechanical grease interceptors, rated by flow in litres per minute and gallons per minute.

1.2 Exclusions

This Standard does not apply to interceptors intended for rainwater, sanitary wastewater, or wastewater containing petroleum products such as gasoline, heating oils, or mineral oils.

1.3 Terminology

In this Standard, “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with the standard; “should” is used to express a recommendation or that which is advised but not required; and “may” is used to express an option or that which is permissible within the limits of the Standard.

Notes accompanying clauses do not include requirements or alternative requirements; the purpose of a note accompanying a clause is to separate from the text explanatory or informative material.

Notes to tables and figures are considered part of the table or figure and may be written as requirements.

Annexes are designated normative (mandatory) or informative (non-mandatory) to define their application.

1.4 Units of measure

The values given in either SI (metric) or U.S. Customary units of measure are equivalent in application; however, each measurement system is to be used independently of the other. In this Standard, U.S. Customary units are shown in parentheses. Combining values from the two measurement systems can result in non-conformance with this Standard.

1.5 U.S. gallons

All references to gallons are to U.S. liquid gallons.

1.6 Alternatives

The requirements of this Standard are not intended to prevent the use of alternative designs, materials, or methods of construction, provided such alternatives meet the intent and requirements of this Standard.

2 Reference publications

This Standard refers to the following publications, and where such reference is made, it shall be to the edition listed below, including all amendments published thereto.

ASME (American Society of Mechanical Engineers)

A112.3.1-2007(R2017)
Stainless steel drainage systems for sanitary DWV, storm, & vacuum applications above & below ground

A112.4.4-2017
Plastic push-fit drain, waste, and vent (DWV) fittings

B1.20.1-2013(R2018)
Pipe Threads, General Purpose, Inch

ASPE (American Society of Plumbing Engineers)

Plumbing Engineering Design Handbook, Volume Four, Plumbing Components and Equipment, 2020

ASME (American Society of Mechanical Engineers)/CSA Group

A112.14.4-2022/CSA B481.5:22
Grease Removal Devices

ASTM (American Society for Testing and Materials)

A53/A53M-20
Standard specification for pipe, steel, black and hot-dipped, zinc-coated, welded and seamless

A307-21
Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength

A888-20
Standard specification for hubless cast iron soil pipe and fittings for sanitary and storm drain, waste, and vent piping applications

B117-19
Standard practise for operating salt spray (fog) apparatus

B306-20
Standard specification for copper drainage tube (DWV)

C581-20
Standard practice for determining chemical resistance of thermosetting resins used in glass-fiber-reinforced structures intended for liquid service

D638-14
Standard test method for tensile properties of plastics

D1298-12b(2017)
Standard test method for density, relative density, or API gravity of crude petroleum and liquid petroleum products by hydrometer method

D1784-20
Standard classification system and basis for specification for rigid poly(vinyl chloride) (PVC) compounds and chlorinated poly(vinyl chloride) (CPVC) compounds

D1998-15
Standard specification for polyethylene upright storage tanks

D2661-14e1
Standard specification for Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 plastic drain, waste, and vent pipe and fittings

D2665-20
Standard specification for Poly(Vinyl Chloride) (PVC) plastic drain, waste, and vent pipe and fittings

D3350-14
Standard specification for polyethylene plastics pipe and fittings material

D3359-17
Standard test method for rating adhesion by tape test

D3965-16
Standard classification system and basis for specifications for rigid acrylonitrile-butadiene-styrene (ABS) materials for pipe and fittings

D4101-17e1
Standard classification system and basis for specification for polypropylene injection and extrusion materials

CISPI (Cast Iron Soil Pipe Institute)

301-18
Standard specification for hubless cast iron soil pipe and fittings for sanitary and storm drain, waste, and vent piping applications

CSA Group

B66:21
Design, material, and manufacturing requirements for prefabricated septic tanks and sewage holding tanks

B1800:21
Thermoplastics nonpressure pipe compendium

B181.1:21 (part of B1800:21 Thermoplastics nonpressure pipe compendium)
Acrylonitrile-butadiene-styrene (ABS) drain, waste, and vent pipe and pipe fittings

B181.2:21 (part of B1800:21, Thermoplastics nonpressure pipe compendium)
Polyvinylchloride (PVC) and chlorinated polyvinylchloride (CPVC) drain, waste, and vent pipe and pipe fittings

B181.3:21 (part of B1800:21, Thermoplastic nonpressure pipe compendium)
Polyolefin and polyvinylidene fluoride (PVDF) laboratory drainage systems

C22.2 No. 0.15:15 (R2020)
Adhesive labels

IAPMO (International Association of Plumbing and Mechanical Officials)
Z1000-2019
Prefabricated Septic Tanks

UL (Underwriters' Laboratories)
969, edition 5
Standard for marking and labelling systems

3 Definitions and abbreviations

3.1 Definitions

The following definitions shall apply in this Standard:

Breakdown grease capacity — the number of kilograms or pounds of grease that a grease interceptor retains at a specific flow rate at the last increment preceding two successive increments in which either the average efficiency is less than 90% or the incremental efficiency is less than 80%.

Directly connected — describes when the fixtures routed to a grease interceptor are connected directly to the grease interceptor without an air gap or air break. The grease interceptor discharge can be directly or indirectly connected to the plumbing drainage system.

Fats, oils, and greases (FOG) — insoluble organic fats, oils, and greases from animal or vegetable sources.

Flow control — a device that is installed upstream from an interceptor and has a permanent orifice that controls the rate of flow through the interceptor.

External flow control — a separate fitting outside the grease interceptor, with or without air intake.

Integral flow control — a flow control provided by the manufacturer and essential to the system. An integral flow control can be internal or external.

Internal flow control — a flow control inside the grease interceptor, with or without air intake.

Vented flow control — a flow control that allows air to be entrained in the flow.

Flow rating — the maximum flow at which a grease interceptor will meet the FOG retention requirements of this Standard, as well as those of ASME A112.14.4/CSA B481.5.

Grease removal device (GRD) — a plumbing appliance that is installed in the sanitary drainage system in order to intercept free-floating insoluble FOG from waste water discharges.

Note: *Such equipment operates on a time- or event-controlled basis and is designed to remove the entire range of commonly available free-floating FOG automatically without intervention from the user except for maintenance.*

Indirectly connected — describes when the fixtures routed to a grease interceptor are connected to the grease interceptor through an air gap or air break. The grease interceptor discharge can be directly or indirectly connected to the plumbing drainage system.

Interceptor — a plumbing appurtenance intended to be installed in a sanitary drainage system to intercept a designated material or substance.

Grease interceptor — a plumbing appurtenance intended to be installed in a sanitary drainage system to intercept FOG from wastewater discharges.

Hydromechanical grease interceptor — a plumbing appurtenance or appliance installed in a sanitary drainage system to intercept nonpetroleum FOG from a wastewater discharge; rated by flow. The design incorporates hydromechanical separation by employing air entrainment, interior baffling, and/or barriers in combination or separately. The design also includes one or more of the following:

a) external flow control, with air intake (vent);
b) external flow control, without air intake (vent);
c) internal flow control; or
d) without external flow control, indirectly connected.

Solids interceptor — a plumbing appurtenance intended to be installed in a sanitary drainage system upstream of a grease interceptor to intercept particles or sediments.

Minimum grease capacity — the number of kilograms or pounds of grease that a grease interceptor must retain at a specified flow rate.

Note: *Minimum grease capacities for standard flow rates can be found in Table 1.*

Sediment — a particulate substance with a specific gravity of 1.1 or greater that can settle at the bottom of an interceptor.

Note: *Sediments are also referred to as "solids" in this Standard.*

Standard plumbing tools — devices or implements, especially once held in the hand, used to carry out a particular function, that are normally utilized by plumbers for installing and maintaining plumbing equipment.

Note: *Standard plumbing tools include screwdrivers, key wrenches, flat-jawed wrenches, or pliers.*

3.2 Abbreviations

The following abbreviations shall apply in this Standard:

ABS — acrylonitrile-butadiene-styrene
CPVC — chlorinated polyvinylchloride
FOG — fats, oils, and greases
FRP — fibreglass-reinforced plastic
gpm — US liquid gallons per minute
GRD — grease removal device
L/MIN — litres (metric liquid) per minute
NPS — nominal pipe size
OD — outside diameter
PE — polyethylene
PP — polypropylene
PVC — polyvinylchloride

4 Material requirements

4.1 General

Grease interceptors shall be constructed of materials that can sustain the anticipated use without breaking, cracking, or leakage.

4.2 Optional material specifications

Upon request of the purchaser or the authority having jurisdiction, the materials or construction may be evaluated to the specifications described in Annex D.

5 Construction requirements

5.1 General

Grease interceptors shall

a) be constructed to perform at the maximum flow rate for which they are rated, as established in accordance with Clause 6.3;
b) be constructed with a water tight cover as demonstrated during the functional leakage requirement in Clause 6.2.1;
c) have inlet and outlet connections as follows:
   i) threaded connections shall comply with ASME B1.20.1;
   ii) spigot connections shall comply with the OD requirements of ASME A112.3.1, ASME B1.20.1, ASTM A53/A53M, ASTM B306, ASTM A888, or ASTM D2665;
   iii) solvent cement connections shall comply with ASTM D2661 or ASTM D2665; or
   iv) plastic push fit drain, waste, and vent connections shall comply with ASME A112.4.4.
d) be protected against galvanic corrosion if dissimilar metallic materials are used in their construction; and
e) have a removable cover, or other internal access for
   i) proper cleaning and removal of FOG and sediments; and
   ii) personnel to reach removable internal components.

5.2 Flow control devices

5.2.1 Rating

The flow rate and grease retention capacity of each grease interceptor shall be determined by application of the parameters of this Standard. Grease interceptor size shall be expressed in litres per minute [L/min] (gallons per minute [gpm]). If the interceptor design incorporates a flow control device, the device shall be applied according to manufacturer's requirements.

Grease interceptors shall be rated using one or more of the following test methods:

Type	Figure	Installation parameters
A	see Figure 1	Units directly connected, with an external flow control, with an air intake (vent)
B	see Figure 1	Units directly connected, with an external flow control, without an air intake (vent)

Type	Figure	Installation parameters
C	see Figure 2	Units directly connected, with internal flow control
D	see Figure 3	Units indirectly connected, without an external flow control, with or without internal flow control

5.2.2 Flow controls and/or vents

5.2.2.1 Application

The use and placement of flow controls and/or vents or air intakes for grease interceptors shall be in accordance with the manufacturer's installation requirements.

5.2.2.2 Testing and rating

When a flow control (vented or unvented) and/or vent is used during testing for rating a grease interceptor, the rating of the unit shall not exceed the tested flow through the flow control. The manufacturer's literature shall reflect that a rating was achieved with a flow control and/or vent attached, and that a flow control and/or vent shall be installed with the unit.

5.3 Fasteners

5.3.1 Threaded fasteners

Threaded fasteners shall have standard commercial threads and shall be capable of being installed and removed using standard plumbing tools or manufacturer provided tools.

5.3.2 Fasteners for corrosion-resistant grease interceptors

For grease interceptors compliant with Clause 6.5, removable fasteners shall be made of brass, stainless steel, or other corrosion-resistant materials.

6 Test methods and performance requirements

6.1 Loading test for covers

6.1.1 Load classification

The grease interceptor covers and top rims intended for sale in Canada shall be rated in accordance with the load classifications specified in Table 2. The load classifications are based on the different types of traffic to which the cover and top rim will be subjected under typical use conditions. A "no load" rating shall not require testing under Clause 6.1.

Note: *This test is optional for products sold in the United States.*

6.1.2 Test equipment

The diameter of the platen applying the test load shall be as specified in Table 2. The same platen shall be used throughout the test. For example, if a failure is expected at 48 000 kg (10 600 lb) then a 250 mm (9.8 in) platen shall be used from the beginning of the load application.

6.1.3 Test method

The loading test for grease interceptor covers shall be conducted at room temperature, 20 °C ± 5° (68.5 °F ± 9°) for covers intended to be used only indoors, or at the minimum and maximum ambient air temperatures (as specified by the manufacturer) for covers intended to be used outdoors. The procedure shall be as follows:

a) Install the cover and top rim in the same way as it would be placed in its intended application.
b) Place the platen specified in Clause 6.1.2, at the centre of the cover and gradually apply load to the platen at a rate of 6.0 mm/minute ± 1.0 mm (0.25 in/minute ± 0.045 in) until point of failure is reached as specified in Clause 6.1.4.

Note: *Only one cover may be tested, or an average of three covers of the same construction, to determine the cover classification.*

6.1.4 Load at failure

The load at failure shall be the lowest of the following:

a) for brittle materials, the load at which the first fracture on any part of the cover or rim appears;
b) for ductile materials, the load at which the maximum deflection of the cover exceeds 5% of its largest transverse dimension (while loaded); or
c) the load at which the permanent set (at the point of loading, after the load is removed) exceeds 2% of the largest transverse dimension of the cover.

6.1.5 Calculation of maximum safe live load

The cover and rim safe live load shall be calculated by dividing the load at failure determined in Clause 6.1.4 by two.

6.1.6 Cover load rating

The cover/rim load rating shall be classified by matching the safe live load of the cover/rim as determined in Clause 6.1.5 with the load classification safe live load listed in Table 2. The rating shall be the load classification with the safe live load that is equal to or smaller than the cover/rim safe live load. For example, if a cover/rim fails at 3 000 kg (6 600 lb), then its maximum safe live load is 1 500 kg (3 300 lb) and it will be rated medium duty, since the next small safe live load listed in Table 1 is 900 kg (2 000 lb) for the medium duty load classification.

6.2 Leakage requirements

6.2.1 Functional leakage requirements

The interceptor shall be equipped with a watertight cover. No leakage shall be observed during the rating test in Clause 6.3. Failure of the test shall be constituted by the presence of bubbles or puddling. Fasteners may be retightened during the test to stop leakage.

6.2.2 Hydrostatic pressure test

6.2.2.1 Application

Grease interceptors intended for sale in Canada shall be tested in accordance with Clause 6.2.2.2.

6.2.2.2 Test method

The testing shall be conducted as follows:

a) The outlet of the grease interceptor shall be plugged and a vertical standpipe comprised of clear 51 mm (2 in) pipe shall be installed at the inlet.

b) The interceptor shall be filled with water at room temperature to just below the cover seal of the device.
c) The grease interceptor cover shall be installed as recommended by the manufacturer.
d) The interceptor shall then be filled with water through the inlet until the water reaches 36 mm (1.4 in) above the cover seal.
e) The water shall be allowed to stabilize for 5 min and the interceptor refilled to 36 mm (1.4 in) if necessary.
f) The water level shall be observed for 15 min. Any decrease in water level greater than 13 mm (0.5 in) shall constitute a failure.

Note: *Grease removal devices complying with ASME A112.14.4/CSA B481.5 are exempt from this requirement.*

6.3 Rating test

6.3.1 Construction of test equipment

6.3.1.1 Test sink

6.3.1.1.1 Compliance criteria

Test sinks shall comply with the following.:

a) The sinks shall be constructed of corrosion-resistant material, structurally reinforced, and supported on legs. The legs shall be of such length that the rim of the sinks are 910 mm (36 in) above the floor. The sink legs shall be structurally braced.
b) For flow rates up to and including 189 L/min (50 gpm), the test sinks shall be 189 L (50 gal) and have the following inside dimensions: 2440 mm (96 in) in length, 610 m (24 in) in width, 320 mm (12.5 in) in depth. The sinks shall have two compartments of equal length.
c) For flow rates above 189 L/min (50 gpm) up to and including 378 L/min (100 gpm), the test sinks shall be as follows:
   i) multiples of two of the sinks specified in Item b); or
   ii) a 378 L (100 gal) sink having the following dimensions: 3200 mm (128 in) in length, 910 mm (36 in) in width, and 320 mm (12.5 in) in depth; it shall be divided into two equal compartments.
d) For flow rates of greater than 378 L/min (100 gpm) up to and including 756 L/min (200 gpm), two sinks as specified in Items b) and c) shall be used.
e) For flow rates of greater than 756 L/min (200 gpm), not more than two sinks shall be used.

6.3.1.1.2 Sink waste connections

For sinks constructed per Clause 6.3.1.1.1 b), each sink compartment shall be fitted with a 38 mm (1-1/2 in) standard sink waste connection with flange, threaded or slip joint tailpiece, and locknut. The waste connections shall be located on opposite sides of the centre partition in the corner formed by the front side of the sink and the centre partition.

For sinks constructed per Clause 6.3.1.1.1 c), each sink compartment shall be fitted with a 51 mm (2 in) sink waste connection with flange, threaded or slip joint tailpiece, and locknut. The waste connections shall be located on opposite sides of the centre partition in the corner formed by the front side of the sink and the centre partition.

6.3.1.1.3 Water level gauges

Each component shall be equipped with a gauge connection and a water level gauge with gauge glass. Each gauge connection shall be fitted into the bottom of a sink compartment and in close proximity to

the waste outlet. Each gauge shall be mounted on the outside of the sink, adjacent to its respective gauge connection, and shall extend diagonally upward from the bottom centre to the top outside corners. These gauges shall be calibrated to read the number of millimetres (inches) of water in the sink compartments above the sink waste flange.

6.3.1.1.4 Movable sink partitions

Each compartment of the sink shall be fitted with a movable partition, making it possible to regulate the size of the compartment to any desired capacity.

6.3.1.2 Skimming tank

The skimming tank shall be constructed as follows:

a) The skimming tank shall be rectangular in shape and open at the top. The tank shall be constructed of galvanized sheet or corrosion-resisting metal with structural reinforcement.

b) The tank dimensions shall be as follows:
   i) For flow rates of 189 L/min (50 gpm) or less, the minimum tank dimensions shall be not less than 2440 mm (96 in) in length, 710 mm (28 in) in width, and 810 mm (32 in) in depth.
   ii) For flow rates greater than 189 L/min (50 gpm) up to and including 378 L/min (100 gpm), the tank dimensions shall be 3660 mm (144 in) in length, 910 mm (36 in) in width, and 710 mm (28 in) in depth.
   iii) For flow rates greater than 378 L/min (100 gpm) up to and including 756 L/min (200 gpm), the tank dimensions shall be
      A) two 3660 mm (144 in) tanks in series complying with Item ii); or
      B) a single tank complying with Item ii) and following the tank lowering procedure prescribed in Clause 6.3.8.2.

c) The waste outlet from the tank shall be 102 mm (4 in) in diameter, connected to the bottom of the tank at one end and trapped to retain a minimum of 610 mm (24 in) of water in the tank. The tank shall be provided with a 102 mm (4 in) bottom drain and valve to permit draining, cleaning, and shall comply with the tank level maintenance procedure in Clause 6.3.8.2. If two skim tanks are plumbed in series for flow rates over 100 gpm, then two 102 mm (4 in) traps shall be installed in parallel to connect the tanks, and two 102 mm (4 in) traps shall be installed on the downstream tank.

d) The skimming tank shall be equipped with a stationary baffle located approximately 1220 mm (48 in) from the inlet end of the tank receiving the discharge from the interceptor. This baffle shall extend the width of the tank and to within 102 mm (4 in) of the bottom of the tank. The purpose of this baffle shall be to limit the heavy spread of grease to one end of the tank and to control to a degree the turbulent water currents created by the discharge from the interceptor.

e) For flow rates exceeding 378 L/min (100 gpm), the skim tank may be outfitted with splash guards where the effluent of the grease interceptor enters the skim tank. The splash guards shall be squeegeed between increments in accordance with Clause 6.3.8.5.

6.3.2 Installation of testing equipment — Direct connection test types A, B, and C (see Figures 1 and 2)

6.3.2.1 Waste pipe sizes

6.3.2.1.1 Inlet

The combined horizontal waste, vertical waste riser, and interceptor inlet shall be as follows:

a) For test flows of 189 L/min (50 gpm) or less, the piping shall be 51 mm (2 in) in size and configured in accordance with Figures 1 and 2.

b) For test flows greater than 189 L/min (50 gpm) up to and including 378 L/min (100 gpm), the pipe shall be 76 mm (3 in) in size and configured in accordance with Figure 1 or 2.

6.3.2.1.2 Outlet

Outlet piping size from the interceptor on test shall be equal to the outlet size of the interceptor.

6.3.2.2 Sink and interceptor locations

The sink shall be located with the sink rim 3.96 m (13 ft) above the outside bottom of the grease interceptor being tested. The interceptor shall be so located that its bottom is 3.05 m (10 ft) below the floor level upon which the sink is located.

6.3.2.3 Skimming tank location

The skimming tank shall be located relative to the interceptor such that discharge piping from the interceptor is above the tank rim by a distance not less than 76 mm (3 in).

6.3.2.4 Installation of waste piping

6.3.2.4.1 Sink connections

The sink outlet waste connection from each compartment shall be as follows:

a) For test flows of 189 L/min (50 gpm) or less, the waste connection from each compartment shall be 38 mm (1-1/2 in) in size.
b) For test flows over 189 L/min (50 gpm), the waste connection from each compartment shall be 51 mm (2 in) in size.

6.3.2.4.2 Sink connection valves

Each sink connection shall be fitted with a full-port quick opening valve.

Note: *Quick opening valves include quick opening gate valves and quarter turn ball valves but do not include multi-turn valves.*

6.3.2.4.3 Combined horizontal waste piping

The combined horizontal waste piping into which the sink outlets connect shall be installed with the centreline 280 mm (11 in) below the bottom of the sink and properly hung and braced from the sink reinforcement and supports. This waste piping shall be fitted to the inlet of a vented (air intake), flow control, and/or vent, or equal device (if required for use with the interceptor).

6.3.2.4.4 Flow control and/or vent device

The flow control and/or vent device, if required by the manufacturer, shall be adequate in size for the interceptor to be tested and shall be equipped with the proper size orifice and/or other details to provide the proposed flow rate of the subject interceptor based on the simultaneous drainage of both sink compartments as detailed hereinafter (see Clause 6.3.6.4.2). The waste piping on either side of the flow control and/or vent shall be fitted with unions to permit removal of the device. If the flow control orifice required exceeds 51 mm (2 in) in diameter, thereby requiring a flow control larger than 51 mm (2 in), the outlet piping shall be no less than 77 mm (3 in).

Type	Manufacturer installation parameters	Laboratory flow control configuration
A	Units directly connected, with an external flow control, with an air intake (vent)	Use laboratory flow control with air intake open (see Figure 1)
B	Units directly connected, with an external flow control, without an air intake (vent)	Use laboratory flow control with air intake closed (see Figure 1)
C	Units directly connected, with internal flow control	No laboratory flow control (see Figure 2)
D	Units indirectly connected, without an external flow control, with or without internal flow control	Flow is controlled by a valve (see Figure 3)

6.3.2.4.5 Vertical waste riser

The vertical waste riser shall be connected to the outlet of the flow control and/or vent device, if required, and shall extend downward to connect to the grease interceptor inlet by means of an elbow and short horizontal nipple. For test flows exceeding 189 L/min (50 gpm), requiring connections larger than 51 mm (2 in), interceptor inlet and outlet sizes shall be no less than 77 mm (3 in).

6.3.2.4.6 Interceptor inlet connection

If the inlet diameter of the interceptor to be tested exceeds the riser pipe diameter size, reducing coupling shall be used to permit connection of the inlet pipe.

6.3.2.4.7 Interceptor discharge

The discharge pipe from the interceptor outlet to the skimming tank shall be equal in size to the outlet of the interceptor, have a pitch of 10 mm/m (1/8 in/ft), and be provided with a 51 mm (2 in) vent properly located to prevent siphoning of the interceptor.

6.3.3 Installation of testing equipment — Indirect connection test types D

Note: *See Figure 3.*

6.3.3.1 Sink and interceptor location

The sink shall be located on a floor with the sink rim 910 mm (36 in) above the floor level and 3.96 m (13 ft) above the outside bottom of the grease interceptor being tested.

6.3.3.2 Floor sink location

A 127 mm (5 in) deep floor sink to receive the indirect waste discharge from the test sink shall be located in the floor supporting the test sink. The rim of the floor sink shall be located at floor level.

6.3.3.3 Skimming tank location

The skimming tank shall be located low enough, with respect to the interceptor, for the discharge piping from the interceptor to clear the tank rim by not less than 76 mm (3 in).

6.3.3.4 Installation of waste piping

6.3.3.4.1 Sink connections

The sink outlet waste connection from each sink compartment shall be 38 mm (1-1/2 in) in size and each connection shall be fitted with a quick-opening valve.

6.3.3.4.2 Combined horizontal waste piping

The combined horizontal waste piping into which the sink outlets connect shall be 76 mm (3 in), installed with the centreline 280 mm (11 in) below the bottom of the sink and properly hung and braced from the sink reinforcement and supports. This waste pipe shall connect to a single 76 mm (3 in) valve that shall serve to regulate the total discharge flow rate. The pipe connected to the valve outlet shall turn downward 90° and shall terminate 25 mm (1 in) above the rim and at the centreline of the floor sink.

6.3.3.4.3 Floor sink to interceptor piping

The floor sink shall be a minimum of 228 mm (9 in) x 228 mm (9 in) x 127 mm (5 in) deep in size with a discharge pipe sized to match the inlet of the interceptor being tested. A P-trap fitting, sized to match the outlet pipe of the floor sink, shall be connected to the outlet of the floor sink. Horizontal piping from the P-trap shall be of the same size and 910 mm (36 in) in length with a minimum 51 mm (2 in) vent connected to the vertical waste riser, which shall extend downward to connect to the grease interceptor inlet by means of a 90° elbow and horizontal pipe.

Note: *Splash guards may be used on the floor sink to ensure all lard and water enters the floor sink.*

6.3.3.4.4 Interceptor discharge

The discharge pipe from the grease interceptor outlet to the skimming tank shall be the same size as the inlet pipe. It shall have a minimum pitch of 10 mm/m (1/8 in/ft) and shall be provided with a 51 mm (2 in) vent properly located to prevent siphoning of the interceptor.

6.3.4 Installation of testing equipment — Interceptors larger than 378 L/min (100 gpm) types A, B, and C (see Figure 4)

6.3.4.1 Sink and interceptor locations

The sink shall be located with the sink rim 3.96 m (13 ft) above the outside bottom of the grease interceptor being tested. The interceptor shall be so located that its bottom is 3.05 m (10 ft) below the floor level upon which the sink is located.

6.3.4.2 Skimming tank location

The skimming tank shall be located relative to the interceptor such that the discharge piping from the interceptor is above the tank rim by a distance not less than 76 mm (3 in).

6.3.4.3 Sink waste piping

Sink connections for 189 L/min (50 gpm) sinks and 378 L/min (100 gpm) sinks shall comply with the respective requirements of Clause 6.3.2.4.1. Horizontal piping exiting the test sinks shall comply with the corresponding requirements from Clause 6.3.2.1 and 6.3.3.4.2 for pipe sizing and elevation.

6.3.4.4 Horizontal waste piping upstream of flow control and/or vent device

The outlets of the sink waste piping adapted to a 102 mm (4 in) pipe size before combining into one of the following fittings:

a) a combination double wye and 1/8 bend, or
b) a double wye with 1/8 bend.

6.3.4.5 Flow control and/or vent device

Flow control, if required by manufacturer, shall be adequate in size for the interceptor to be tested, and equipped with the proper size orifice and/or other details to provide the proposed flow rate of the

subject interceptor based on the simultaneous drainage of both sink compartments as detailed hereinafter (see Clause 6.3.6.4.2). The waste piping on either side of the flow control and/or vent shall be fitted with unions to permit removal of the device. If the flow control orifice required exceeds 51 mm (2 in) in diameter, thereby requiring a flow control larger than 51 mm (2 in), the outlet piping shall be no less than 77 mm (3 in). For flow rates greater than 378 L/min (100 gpm), the flow control shall be installed as illustrated in Figure 4.

6.3.4.6 Vertical waste riser

The vertical waste riser shall be connected to the outlet of the flow control and shall extend downward to connect to the grease interceptor inlet by means of an elbow and a short horizontal nipple. For flow rates greater than 378 L/min (100 gpm), the vertical waste riser, interceptor inlet and outlet connections shall be not less than 102 mm (4 in) in diameter.

6.3.4.7 Interceptor inlet connection

If the inlet diameter of the interceptor to be tested exceeds the riser pipe diameter size, use reducing coupling to permit connection of the inlet pipe.

6.3.4.8 Interceptor discharge

The discharge pipe from the interceptor outlet to the skimming tank shall be equal in size to the outlet of the interceptor, have a pitch of 10 mm/m (1/8 in/ft), and be provided with a 102 mm (4 in) vent properly located to prevent siphoning of the interceptor.

6.3.5 Installation of testing equipment — Interceptors larger than 378 L/min (100 gpm) type D (see Figure 5)

6.3.5.1 Sink and interceptor locations

The sink shall be located on a floor with the sink rim 910 mm (36 in) above the floor level and 3.96 m (13 ft) above the outside bottom of the grease interceptor being tested.

6.3.5.2 Floor sink and location

A 152 mm (6 in) deep floor sink to receive the indirect waste discharge from the test sinks shall be located in the floor supporting the test sink. The rim of the floor sink shall be located at floor level. The outlet of the floor sink shall be sized to handle the test flow rate and shall not be less than 76 mm (3 in).

6.3.5.3 Skimming tank location

The skimming tank shall be located low enough, with respect to the interceptor, for the discharge piping from the interceptor to clear the tank rim by not less than 76 mm (3 in).

6.3.5.4 Installation of waste piping

6.3.5.4.1 Sink connections

The sink outlet waste connection from each sink compartment shall be 51 mm (2 in) in size, and each connection shall be fitted with a quick-opening valve.

6.3.5.4.2 Combined horizontal waste piping

Sink connections for 189 L/min (50 gpm) sinks and 378 L/min (100 gpm) sinks shall comply with the respective requirements of Clause 6.3.2.4.1. Horizontal piping exiting the test sinks shall comply with the corresponding requirements from Clauses 6.3.2.1 and 6.3.3.4.2 for pipe sizing and elevation. The

pipe connected to the valve outlet for each sink shall turn downward 90° and shall terminate 25 mm (1 in) above the rim and at the centreline of the floor sink.

6.3.5.4.3 Floor sink to interceptor piping

A trap fitting shall be connected to the outlet of the floor sink, of a size appropriate for the flow rate tested, but not less than 76 mm (3 in). Horizontal piping of the same size and 910 mm (36 in) in length with a vent shall be connected between the floor sink elbow and the vertical waste riser, which shall extend downward to connect to the grease interceptor inlet by means of an elbow and a short horizontal nipple.

6.3.5.4.4 Interceptor discharge

The discharge pipe from the grease interceptor outlet to the skimming tank shall be the same size as the inlet pipe. It shall have a minimum pitch of 10 mm/m (1/8 in/ft) and shall provide a minimum 51 mm (2 in) vent properly located to prevent siphoning of the interceptor.

6.3.5.4.5 Interceptor connections

If the inlet connection of the interceptor is larger than the inlet pipe necessary to provide the required flow rate, reducing couplings shall be permitted to be used.

6.3.6 Preliminary test procedure

6.3.6.1 Media analysis

Before conducting rating tests on any grease interceptor, simple analysis of the test media shall be made to determine the following characteristics:

a) Water: hydrogen ion concentration shall have a pH value from 6.0 to 8.0. If the water pH does not fall within the prescribed range, the pH shall be adjusted using hydrochloric acid (commercially available muriatic acid is acceptable). The pH shall be verified before every rating test and adjusted if necessary on every increment.

b) Lard: specific gravity shall be in the range of 0.870 to 0.885, at 65.5 °C (150 °F). The specific gravity shall be measured with a hydrometer on every lot of lard. For hydrometers calibrated at temperatures other than 65.5 °C (150 °F), the measured value shall be corrected in accordance with ASTM D1298.

Note: *For example, hydrometers calibrated at 15.5 °C (60 °F), for the value measured at 65.5 °C (150 °F) the correction for temperature is calculated using the following formula:*

$SG_{corr} = SG_{meas} \times 0.9987996$

where

SG_{corr} = specific gravity with correction for temperature

SG_{means} = specific gravity measured

c) Viscosity in centipoise (cP), at 65.5 °C (150 °F). The viscosity shall be measured with a digital viscometer at a minimum speed of 60 rpm in a temperature bath maintained at 65.5 °C ± 3.3 °C (150 °F ± 5 °F). The viscosity shall be verified for every batch of lard.

6.3.6.2 Establishing sink compartment capacity

The size of each test compartment shall be established by means of the movable partitions so that the gross capacity of each compartment in litres (gallons) will be equal 1.2 times the proposed flow rate in litres per minute [L/min] (gallons per minute [gpm]) of the interceptor to be tested. The gross sink

capacity shall be calculated on the basis of length x width x depth of 305 mm (12 in) above the sink outlet flange.

6.3.6.3 Establishing volume of incremental discharge

The volume of water to be discharged from each sink compartment during each test increment shall be based on 254 mm (10 in) of water above the sink outlet flange. On this basis, the incremental discharge in litres (gallons) per compartment shall be equal to the proposed litres per minute [L/min] (gallons per minute [gpm]) flow rate of the interceptor being tested.

6.3.6.4 Computation of flow rate

6.3.6.4.1 Procedure

The flow rate from the sink shall be computed by timing the rate of drainage of the first 241 mm (9 1/2 in) of water from the sink compartment, measured from the 254 mm (10 in) mark to the datum line 13 mm (1/2 in) above the sink outlet flange.

6.3.6.4.2 Check flow rate tests

The flow rates of the test sinks shall be calibrated using the following procedure:

a) Setup:
   i) establish the sink compartment capacities;
   ii) connect the sink to the interceptor with the flow control and/or vent or equivalent device, as required;
   iii) confirm equipment is properly sized and installed; and
   iv) confirm the interceptor discharge pipe is properly vented and extended to the skimming tank.

b) Test:
   The following series of check flow rate tests shall be made. Three tests shall be made for each of the following conditions:
   i) drain compartments No. 1 and No. 2 simultaneously, and gauge and compute the flow rate on the basis of the time required to drain compartment No. 1; and
   ii) drain compartments No. 1 and No. 2 simultaneously, and gauge and compute the flow rate on the basis of the time required to drain compartment No. 2.

c) Criteria:
   The time for the measured discharge shall not be less than 108.6 seconds or exceed 114 seconds.

6.3.6.4.3 Calibrated drainage flow rates

The average of the three tests for each of the groups and Clauses 6.3.6.4.2 b) i) and 6.3.6.4.2 b) ii), shall be considered as the calibrated drainage flow rate for that group provided no one of the tests varies by more than 5% from the other two in the same group. If such variation occurs, the test showing the discrepancy shall be discarded and additional check tests shall be made until three tests meeting the condition specified in this Clause are obtained.

The average of the calibrated drainage flow rates for simultaneous discharge, as determined in this paragraph and Clauses 6.3.6.4.2 b) i) and 6.3.6.4.2 b) ii), shall be equal to or exceed by not more than 5% the proposed flow rate of the interceptor being tested. If the average flow rate so determined is less than the proposed flow rate of the interceptor, the flow control and/or vent orifice, if utilized, shall be enlarged and the check flow rate tests rerun, and the calibrated drainage flow rates shall be again computed until flow rates within the required limits are obtained.

If the average of the calibrated drainage flow rates exceeds the proposed flow rate of the interceptor by more than 5%, the flow control and/or vent orifice, if utilized, shall be reduced in size, and the tests specified in this Clause shall be repeated until an average flow rate is obtained which falls within the 5% limit stipulated in this Clause.

6.3.6.5 Flow rate above 378 L/min (100 gpm)

When combining flow rates from multiple sinks, the flow rates from each sink shall be calculated individually and both added together. The combined flow rates from the sinks shall meet the tolerances prescribed in Clause 6.3.6.4.3.

6.3.7 Rating test

6.3.7.1 Procedure

After preliminary data collection and tests have been completed, the rating tests shall be conducted as specified in Clauses 6.3.7.2 to 6.3.7.10, and all test data shall be recorded. The information shall be recorded on a form, which contains the data as shown on the “Grease interceptor rating test report form” (see Clause 6.3.9).

6.3.7.2 Test media

Tests shall be conducted with fresh, unused lard with the recorded physical characteristics stated in Clause 6.3.6.1 b) and water as defined in Clause 6.3.6.1 a), both within a temperature range of 66 °C to 71 °C (150 °F to 160 °F).

6.3.7.3 Ratio of lard to water

Both compartments of the test sink(s) shall be supplied with the required volume of water (Clause 6.3.6.3) at the temperature prescribed in Clause 6.3.6.1. The test lard, within the temperature range specified in Clause 6.3.7.2, shall be introduced into one compartment during each incremental discharge in the ratio of 0.45 kg (1 lb) of lard for each 19 L (5 gal) of water in that compartment. Consequently, the proportion of lard to the total amount of water discharged from each sink during each increment shall be 0.45 kg (1 lb) for each 38 L (10 gal).

6.3.7.4 Test increments

The following shall apply for test increments:

a) Each test increment shall consist of the simultaneous discharge of the water from both sink compartments and the lard from the test compartment.

b) During the first test increment, the lard shall be poured into the No. 1 compartment (that compartment having its discharge outlet closest to the interceptor, measured along the waste pipe), and the No. 2 compartment shall discharge clear water. During the second test increment, the lard shall be poured into the No. 2 compartment, while the water in No. 1 remains clear. This procedure of introducing the lard into alternate sink compartments shall be continued throughout the test. When multiple sinks are used, there are multiple No. 1 and No. 2 compartments. The lard shall always be introduced in the sink compartments at the ratio specified in Clause 6.3.7.3.

6.3.7.5 Flow rates

The drainage period for each increment shall be gauged and timed on the basis of the flow from the compartment containing the clear water. The flow rate from the compartment shall be computed as prescribed in Clause 6.3.6.4.1 and recorded for each increment.

6.3.7.6 Efficiency determinations (minimum grease capacity)

At the option of the manufacturer, the efficiency determination shall be conducted at either the interceptor's minimum grease capacity per Table 1 (see Clause 6.3.7.1) or at the interceptor's maximum grease capacity by determining the break down point (see Clause 6.3.7.7.3).

6.3.7.7 Efficiency determinations (maximum grease capacity)

6.3.7.7.1 Procedure

The grease shall be removed from the skimming tank and the efficiency of the interceptor shall be computed at intervals of five increments or less until the average efficiency reaches approximately 93% and/or the incremental efficiency reaches approximately 85%. After this point has been reached, efficiency checks shall be made after each incremental discharge. The formula for determining the efficiency specified in this Clause shall be as follows:

$$efficiency = \frac{(grease\ added - grease\ skimmed)}{(grease\ added)}$$

6.3.7.7.2 Duration of test

The test procedure in Clause 6.3.7.7 shall be continued until the average efficiency reaches 85% or less and/or the incremental efficiency reaches 75% or less.

6.3.7.7.3 Determination of test breakdown grease capacity

The test failure, or breakdown grease capacity of the interceptor, shall be established at the increment preceding two successive increments in which either the average efficiency is less that 90% or the incremental efficiency is less than 80%.

6.3.7.8 Efficiency determinations (minimum grease capacity)

6.3.7.8.1 Procedure

The grease shall be removed from the skimming tank and the efficiency of the interceptor shall be computed at intervals of five increments or less until the average efficiency reaches approximately 93% and/or the incremental efficiency reaches approximately 85%. After this point has been reached, efficiency checks shall be made after each incremental discharge. The formula for determining the efficiency specified in this Clause shall be as follows:

$$efficiency = \frac{(grease\ added - grease\ skimmed)}{(grease\ added)}$$

6.3.7.8.2 Duration of the test

The test procedure in Clause 6.3.7.7 shall be continued until the 12th increment.

6.3.7.8.3 Determination of efficiency at minimum grease capacity

The efficiency shall be established at the increment preceding the increment in which either the average efficiency is less than 90% or the incremental efficiency is less than 80%. If the average efficiency has not yet dropped below 90%, or the incremental efficiency has not yet dropped below 80%, the efficiency shall be reported at the 12th increment.

6.3.7.9 Performance requirements for certification

The interceptor shall conform with or exceed the following requirements at the breakdown point:

a) have an average efficiency of 90% or more (see Clause 6.3.7.6);
b) have an incremental efficiency of 80% or more (see Clause 6.3.7.6); and
c) have retained not less than 0.9 kg (2 lb) of grease from each 3.8 L/min (1 gpm) average flow rate as determined during the test.

6.3.7.10 Rated capacities

Standard rating flow and grease retention capacities for grease interceptors tested in accordance with the procedure specified in Clause 6.3.7.9 shall conform in their respective values with those expressed in Table 1.

6.3.8 Skimming

6.3.8.1 Procedure

During the skimming procedure, a mixture of water and grease shall be removed from the skim tank and placed in a separatory funnel equipped with a drain cock. The procedure shall be continued until the visible grease has been removed from the surface of the water in the skim tank.

6.3.8.2 Single tank level maintenance procedure for flows above 378 L/min (100 gpm)

For laboratories with single skim tanks complying with Clause 6.3.1.2 b) iii) B), the water level in the skim tank shall be adjusted as follows:

a) Prior to each increment, the water level shall be lowered by a volume equal to the volume in the grease sinks upstairs. For example, the water shall be lowered by the following distances:
   i) 568 L/min (150 gpm) test: 340 mm (13.4 in); and
   ii) 757 L/min (200 gpm) test: 452 mm (17.8 in).
b) During the increment, the drain valve on the skim tank shall be closed in order to retain 100% of the water from the test sinks during the 5 min separation time.

6.3.8.3 Separation time in skim tank

The skimming procedure shall be initiated no less than 5 min after the increment to be skimmed has discharged into the tank.

6.3.8.4 Skimming equipment

A sheet metal hand baffle, slightly shorter than the width of the skimming tank and 305 mm (12 in) in width, shall be employed to push all surfaced grease to one corner of the tank from which the grease can be readily skimmed by means of a rectangular pan.

6.3.8.5 Skimming method

When splash guards are utilized, they shall be squeegeed into the tank prior to the skim procedure. The first 25 mm (1 in) of the baffle plate shall be immersed at one end of the skimming tank and the baffle moved toward the opposite end, as in Clause 6.3.8.4, to concentrate surfaced grease. The baffle shall be moved at a rate sufficient to prevent turbulence from drawing the accumulating grease below the baffle, and to minimize grease passing through the clearance space between the baffle and the tank walls.

Upon reaching a point 51 mm (2 in) from the end of the tank, the baffle motion shall be slowed and simultaneously lowered to bring the cooler surface in contact with the trapped grease. The motion shall be executed such that the baffle is submerged to within 25 mm (1 in) of its top upon reaching the end of the last 51 mm (2 in) of horizontal travel.

The baffle shall then be removed from the water and moved, grease side up, to the separatory funnel where the adhering grease shall be squeegeed off and added to the previous contents. The baffle shall be used until the amounts of grease collected are less than 1% by visual observation.

6.3.8.6 Separatory funnel procedure

The mixture shall be allowed to stand in the funnel for 5 min, at the end of which time the water shall be drawn off from the bottom of the funnel. The remainder shall be drained from the separatory funnel into one or more pre-weighed cans or bottles and immediately inverted upside down.

The inverted cans or bottles shall be cooled to solidify the grease. The containers may be placed in a freezer or refrigerator to expedite the cooling process. After the lard has solidified, any water that has collected near the cap/lid shall be poured off. The sample may be heated and cooled as necessary to ensure that all water has been removed.

The lard shall be weighed on a gram balance and weights shall be taken to the nearest 1/2 gram. Tare weights of the pre-weighed containers shall then be subtracted from the total weight, and the corrected weight of lard removed shall be entered as data.

6.3.9 Grease interceptor rating test reporting form

A rating test reporting form containing the same information as shown in Figure 6 shall be used by the testing laboratory to record the test results for each interceptor.

6.4 Corrosion test

6.4.1 General

Mild steel grease interceptors designed to be used outdoors and intended for sale in Canada shall meet the requirements of Clause 6.4.3. The grease interceptors selected for testing shall be as received from the manufacturer and shall not have been used for other tests. The coated components of the grease interceptors shall be free of surface defects, uncoated areas, and stains.

6.4.2 Test method

Coated surfaces or parts shall be tested in accordance with ASTM B117 for 24 h.

6.4.3 Pass/fail criteria

After undergoing the test specified in Clause 6.4.2, coatings shall not show more than one surface defect in any 650 mm^2 (1.0 in^2) area, or up to three surface defects on a 25 mm (1 in) length of parting lines, seams, or edges. Surface defects shall not exceed 0.8 mm (0.03 in) in any dimension.

6.4.4 Scale specimens

Because of the large size of some grease interceptors, a scale model made of the same material and using the same assembly techniques as the actual grease interceptor may be supplied as a specimen for the test specified in Clause 6.4.2.

6.5 Chemical and corrosion resistant grease interceptors

When the manufacturer claims chemical and/or corrosion resistance, the product shall be tested according to Annex E.

7 Marking and literature

7.1 Required markings

Grease interceptors shall be marked with (see Figures 7a and 7b)

a) the name, trademark, or other known mark of the manufacturer;
b) the product model number;
c) the applicable ASME/CSA Standard designation (i.e., "ASME A112.14.3/CSA B481.1");
d) the flow rating;
e) the removal efficiency, expressed as a percentage, measured at the rated grease capacity (i.e., "92% efficient at 22.7 kg/50 lb capacity");
f) the grease containment capacity;
g) for grease interceptors intended for sale in Canada, the access cover load classification, determined in accordance with Clause 6.1.1. (i.e., L, M, H, X, or S); and
h) a mark indicating whether an external flow control device is required (i.e., "Required (part number)" or "Not required"), an internal flow control device is required, or no flow control device is required.

In addition, the inlets and outlets of the grease interceptors shall be clearly identified to indicate the direction of flow.

7.2 Optional markings

Grease interceptors that are intended to comply with the Clauses listed in this section shall be marked as follows:

a) Grease interceptors that have been tested and comply with a load rating in accordance with Clause 6.1 shall be marked with the access cover load classification (i.e., L, M, M, X, or S), along with their minimum and maximum temperatures tested in °C with (°F) if required;
Note: *These markings are mandatory in Canada.*
b) Grease interceptors that have been tested and comply with Clause 6.2.2 may be marked with "water and air tight seal". Grease interceptors not complying with Clause 6.2.2 shall not be marked with this label.
c) Grease interceptors that have been tested and comply with the chemical and corrosion resistance tests in Annex E may be marked "Chemical and corrosion resistant". Grease interceptors not complying with Annex E shall not be marked with this label.
d) Grease interceptors that have been tested and comply with the corrosion resistance test in Annex E may be marked "Corrosion resistant for outdoor use". Grease interceptors not complying with Annex E shall not be marked with this label.

7.3 Marking quality

Markings shall be

a) permanent or indelible;
b) legible or readable; and
c) visible after installation.

A permanent label or chip on the cover of the grease interceptor may be used.

7.4 Permanent markings

Examples of acceptable means of applying permanent markings shall include firing on, etching, sand blasting, mechanical stamping, stamping with a permanent (non-water soluble) ink, or casting in. Adhesive labels that comply with CAN/CSA-C22.2 No. 0.15 or UL 969 shall also be considered permanent when placed on a surface that is not normally submerged in water. The exposure conditions specified in Clause 7.1 of UL 969 shall apply.

7.5 Cover marking

For grease interceptors intended for sale in Canada, the cover shall be marked permanently with the following:

a) the load classification in accordance with Clause 6.1.1 (L, M, H, X, or S);
b) for covers with no classification, a note: “Do not step on cover” / “Ne pas marcher sur le couvercle”; and
c) if for outdoor use, the minimum and maximum temperatures tested in °C with (°F) if required.

Note: *For grease interceptors intended for sales outside of Canada and that comply with the corresponding clauses, these markings are optional.*

7.6 Installation instructions

Hydromechanical grease interceptors shall be provided with complete installation instructions, including the following:

a) flow control and venting requirements;
b) separate trapping requirements (if required by manufacturer);
c) elevation and accessibility requirements;
d) safety- and health-related instructions;
e) cleanout locations;
f) instructions which show the clearances required for maintenance and cleaning and to prevent hazards;
g) cautions against installation in any manner except as tested and rated; and
h) where a reducer is required on the outlet, it shall be eccentric with the flat on the bottom.

Note: *An eccentric reducer will prevent changing the static water level and performance of the interceptor.*

7.7 Maintenance and cleaning instructions

Units shall be provided with maintenance and cleaning instructions including the following:

a) maintenance instructions;
b) safety and health provisions; and
c) cleaning instructions.

Each grease interceptor shall be provided with service and cleaning instructions which include a trouble shooting guide, as well as instructions for performing necessary servicing or for obtaining servicing.

8 Sizing, location, and installation of grease interceptors

8.1 Prohibited fixtures

Piping from other sanitary fixtures such as water closets, urinals, and lavatories shall not be installed into the inlet piping to an interceptor. The inlet piping to the interceptor should only be from fixtures and appliances that discharge grease or oil-laden wastes.

8.2 Sizing

8.2.1 Sizing determination

The size of a grease interceptor should be determined by considering the capacity of the fixtures or appliances, plus the supply of water. If those parameters are not known, Table 1 may be used as a guide for sizing grease interceptors.

8.2.2 Sizing considerations

Grease interceptors conforming to this Standard are designed to operate efficiently at their rated flow.

8.2.3 Size symbols

It has been determined through the testing and rating procedure that ten different-sized interceptors shall be required for normal domestic, commercial, and institutional installations. These sizes are based on standard flow rates and grease retention capacity ratings for grease interceptors. (See Table 1)

8.3 Sizing calculations

8.3.1 Process

Peak flow rate shall be used as the basis for determining the minimum size of the grease interceptor that is required. The peak flow rate shall be determined by calculating the maximum amount of wastewater that can be discharged per minute through the grease interceptor.

Note: *Additional sizing methodology resources are available in the ASPE Plumbing Engineering Design Handbook, Volume Four, Plumbing Components and Equipment, Chapter 8.*

8.3.2 Sizing by fixture volume

Table 3 shows the basic standard formula in steps for sizing grease interceptors to suit requirements of specific fixtures. An example of this sizing formula application is included to illustrate the steps.

8.3.3 Fixtures to be connected to grease interceptors

The regulatory authority shall be consulted to determine which fixtures or appliances are required to be connected to a grease interceptor and whether a dedicated grease interceptor is required or not for fixtures or appliances such as, but not limited to

a) sinks;
b) food waste disposers/grinders;
c) floor drains in food preparation and storage areas;
d) self-cleaning exhaust hoods;
e) mop sinks; and
f) floor drains.

Note: *When the authority having jurisdiction determines a grease interceptor is required to service a dishwasher, it should be a dedicated grease interceptor.*

8.3.4 Interceptor sizing based on discharge flow rate

Supply fittings and/or appliances with manufacturer's discharge rate or consumption rate shall be included at that rate.

Examples include the following:

a) Dishwashers (if discharging to an interceptor), self-cleaning exhaust hoods: the manufacturer's literature shall be consulted for the peak discharge rates.

b) Supply fittings: the volume of water produced by the supplies shall be used (i.e., 5.6 to 7.5 L/min [1.5 to 2.0 gpm] per NPS-3/4 faucet).

8.3.5 Multiple fixtures

Where multiple fixtures are served by a single interceptor, the total capacity of each fixture shall be calculated in accordance with Table 3, the total number of fixture shall be established and that number applied to the total capacity to determine the maximum simultaneous discharge.

8.3.6 Sizing by pipe capacity

When the fixture volume or discharge flow rate is not known, Table 4 should be used as a method for sizing grease interceptors utilizing maximum pipe capacity.

8.4 Location

8.4.1 Location considerations

The interceptor shall be installed as close as practical to the fixture or fixtures being served. The interceptor may be set on the floor, partially recessed in the floor, or fully recessed below the floor to suit piping and structural conditions. Installation shall be avoided wherein long runs of pipe, exceeding 7.6 m (25 ft), are necessary to reach the interceptor. This precaution will reduce the possibility of pipeline becoming clogged with congealed grease that could collect before reaching the interceptor.

8.4.2 Clearance and access considerations

Sufficient clearance shall be anticipated for removal of interceptor cover for cleaning. Grease interceptors shall be located in areas

a) that provide adequate access for interceptor maintenance; and
b) that provide access for an effluent sampling port.

Note: *Where an effluent sampling port is not integral to its design, and the interceptor is installed above grade (i.e., on the floor) or is semi-recessed into the floor, a cleanout tee may be installed downstream of the interceptor outlet. Where the grease interceptor is installed below grade (i.e., in the floor), a backwater valve with its flapper removed may be used as an effluent sampling port.*

8.5 Installation

8.5.1 Types of installations

8.5.1.1 Applications

Figures 8 through 12 are included to illustrate various grease interceptor installations normally encountered. These figures will serve as a guide to the practical application of grease interceptors.

8.5.1.2 General

There are two main types of grease interceptor installations: point-of-source and multiple-fixture installations. Their characteristics are described in Annex F.

8.5.2 Prohibited fixtures

Piping from other sanitary fixtures such as water closets, urinals, and lavatories shall not be installed into the inlet piping to an interceptor. The inlet piping to the interceptor should only be from fixtures and appliances that discharge grease or oil-laden wastes.

8.5.3 Waste line venting

The waste line downstream from a grease interceptor shall be vented in accordance with plumbing code requirements.

8.5.4 Alternate installations

Grease interceptors that are tested and rated without the use of vented flow control devices should be installed in the same manner as tested and rated, in accordance with the manufacturer's instructions.

Table 1
Standard flow rates and grease retention capacity ratings for grease interceptors
(See Clauses 3.1, 6.1.6, 6.3.7.6, 6.3.7.10, 8.2.1, and 8.2.3 and Table 3.)

Size symbol	Flow rate, L/min (gpm)	Grease capacity, kg (lb)
2	7.6 (2)	1.8 (4)
4	15 (4)	3.6 (8)
7	26 (7)	6.4 (14)
10	38 (10)	9.1 (20)
15	57 (15)	13.6 (30)
20	76 (20)	18.1 (40)
25	95 (25)	22.7 (50)
35	132 (35)	31.8 (70)
50	189 (50)	45.4 (100)
75	284 (75)	68 (150)
100	378 (100)	90.7 (200)
150	568 (150)	136 (300)
200	757 (200)	181 (400)

Table 2
Cover load classification
(See Clauses 6.1.1, 6.1.2, and 6.1.6.)

Load classification	Safe live load, kg (lb)	Platen diameter, mm (in)	Minimum test load at failure, kg (lb)
No load rating (NR)	0	N/A	0
Light duty (L): Foot traffic	135 (300)	90 (3.5)	270 (600)
Medium duty (M):	900 (2 000)	150 (5.9)	1 800 (4 000)

(Continued)

Table 2 (Concluded)

Load classification	Safe live load, kg (lb)	Platen diameter, mm (in)	Minimum test load at failure, kg (lb)
light vehicular traffic (e.g., cars)			
Heavy duty (H): Light trucks	2 250 (5 000)	150 (5.9)	4 500 (10 000)
Extra heavy duty (X): Heavy trucks	3 375 (7 500)	250 (9.8)	6 750 (15 000)
Special duty (S)	4 500 (10 000)	250 (9.8)	9 000 (20 000)

Notes:

1) *For example, to be classified heavy duty, a cover must fail above 4500 kg (10 000 lb) so that its safe live load is above 2250 kg (5000 lb).*
2) *These load categories are for products intended for sale in Canada. They are optional for products sold in the United States.*

Table 3
Procedure for sizing grease interceptors
(See Clauses 8.3.2 and 8.3.5.)

Step	Formula	Example
1	**Determine cubic content of fixture** Multiply length x width x depth.	**A sink 1.219 m long x 0.610 m wide x 0.305 m deep (48 in long x 24 in wide x 12 in deep)** Cubic content: 1.2 x 0.61 x 0.30 = 0.2268 m^3 (48 x 24 x 12 = 13,824 in^3)
2	**Determine capacity in gallons** 1 L = 0.001 m^3 (1 gal = 231 in^3)	**Content in litres (gallons)** $\frac{0.2268}{.001} = 226.8\ L \left(\frac{13,824}{231} = 59.8\ gal\right)$
3	**Determine actual drainage load** The fixture is normally filled to about 75% of capacity with water. The items being washed displace about 25% of the fixture content; thus, actual drainage load = 75% of the fixture capacity.	**Actual drainage load** 0.75 x 226.8 = 170.1 L (0.75 x 59.8 = 44.9 gal)

(Continued)

Table 3 (Concluded)

Step	Formula	Example
4	**Determine flow rate and drainage period** In general, good practice dictates a one-minute drainage period; however, where conditions permit, a two-minute drainage period is acceptable. Drainage period is the actual time required to completely drain the fixture. $Flow\ rate = \frac{actual\ drainage\ load}{drainage\ period}$	**Calculate the flow rate for each period:** One-minute period = $\frac{170.1}{1}$ = 170.1 L/min ($\frac{44.9}{1}$ = 44.9 gpm) flow rate Two-minute period = $\frac{170.1}{2}$ = 85.05 L/min ($\frac{44.9}{1}$ = 22.5 gpm) flow rate
5	**Select interceptor** From Table 1, select interceptor that corresponds to the flow rate calculated; see Note 1).	**Select interceptor** For one-minute period: 170.1 L/min (44.9 gpm) = Size 50 for two-minute period: 85.05 L/min (22.5 gpm) = Size 25

Notes:
1) *Select the next larger size when the flow rate falls between the two sizes listed.*
2) *The depth of the sinks shall be based on the flood rim elevation and not the divider/stopper elevation.*

Table 4
Interceptor sizing method utilizing maximum pipe capacity
(See Clause 8.3.6.)

Nominal pipe size	Full pipe flow at 12.7 mm (0.5 in) slope, L/min (gpm)	Interceptor size one-minute drain, L/min (gpm)	Interceptor size two-minute drain, L/min (gpm)
2	73.59 (19.44)	75.71 (20)	37.85 (10)
3	222.09 (58.67)	283.91 (75)	132.49 (35)
4	476.09 (125.77)	—	283.91 (75)

Note: *Based on a slope of 6.35 mm per 304.8 mm (0.25 in per foot) based on Manning's formula with friction faction N = 0.012; Cast Iron Soil Pipe and Fittings Handbook and nCH8, Flow Theory and Capacity; pp. 130–134 [Full Pipe]; Cast Iron Soil Pipe Institute (CISPI); 2401 Fieldcrest Drive, Mundelein, IL 60060.*

Figure 1
Test configuration for rating directly connected grease interceptors with external flow control, with or without vent
(See Clauses 5.2.1, 6.3.2, 6.3.2.1.1, and 6.3.2.4.4.)

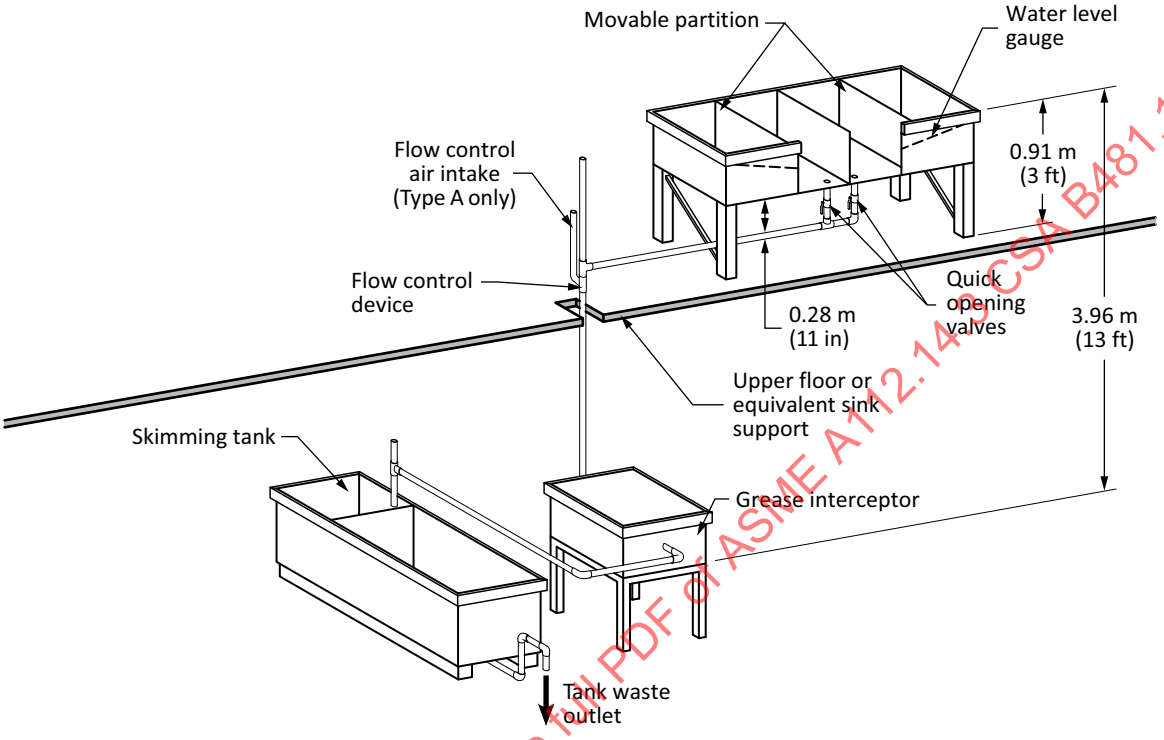

Illustration of a sample test configuration with the name and location of various components identified. The location of the movable partitions, flow control air intake (type A only), flow control device, water level gauge, quick opening valves, upper floor or equivalent sink support, skimming tank, grease interceptor, and tank waste outlet are specifically pointed out on the illustration. Also identified on the illustration are several key dimensions for proper installation.

Figure 2
Test configuration for rating directly connected grease interceptors with internal flow control
(See Clauses 5.2.1, 6.3.2, 6.3.2.1.1, and 6.3.2.4.4.)

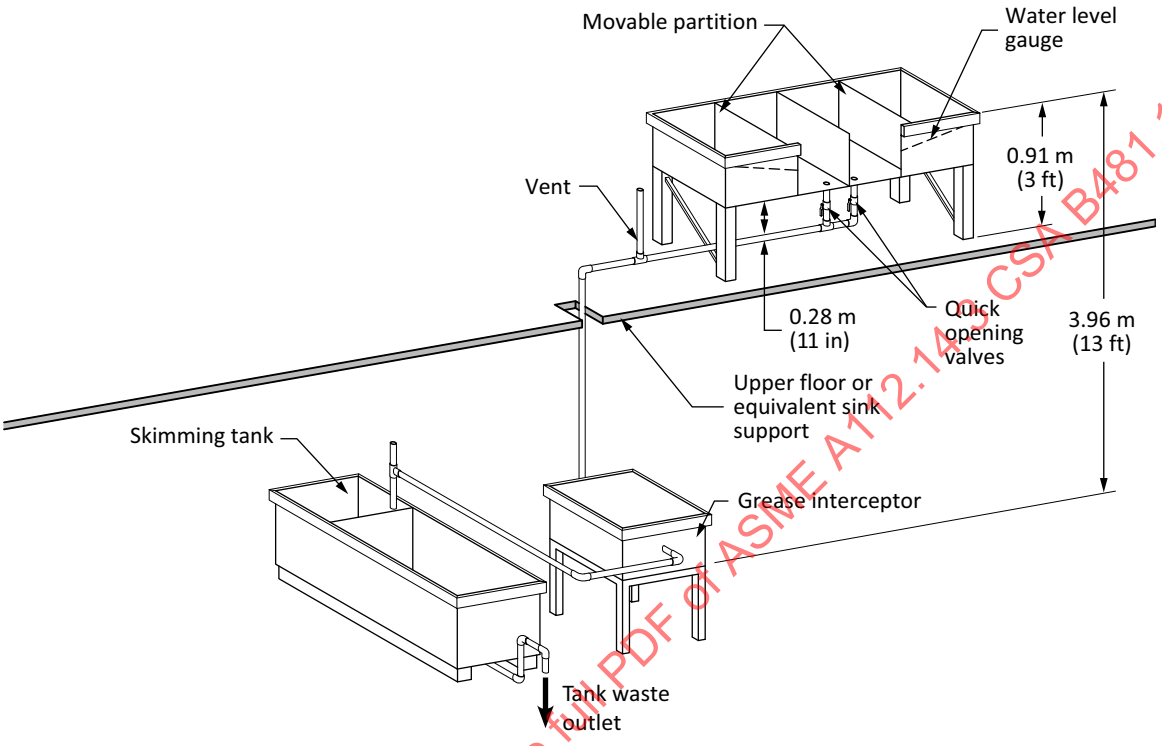

Illustration of a sample test configuration with the name and location of various components identified. The location of the movable partitions, water level gauge, vent, quick opening valves, upper floor or equivalent sink support, skimming tank, grease interceptor, and tank waste outlet are specifically pointed out on the illustration. Also identified on the illustration are several key dimensions for proper installation.

Figure 3
Test configuration for rating indirectly connected grease interceptors, with or without flow controls
(See Clauses 5.2.1, 6.3.2.4.4, and 6.3.3.)

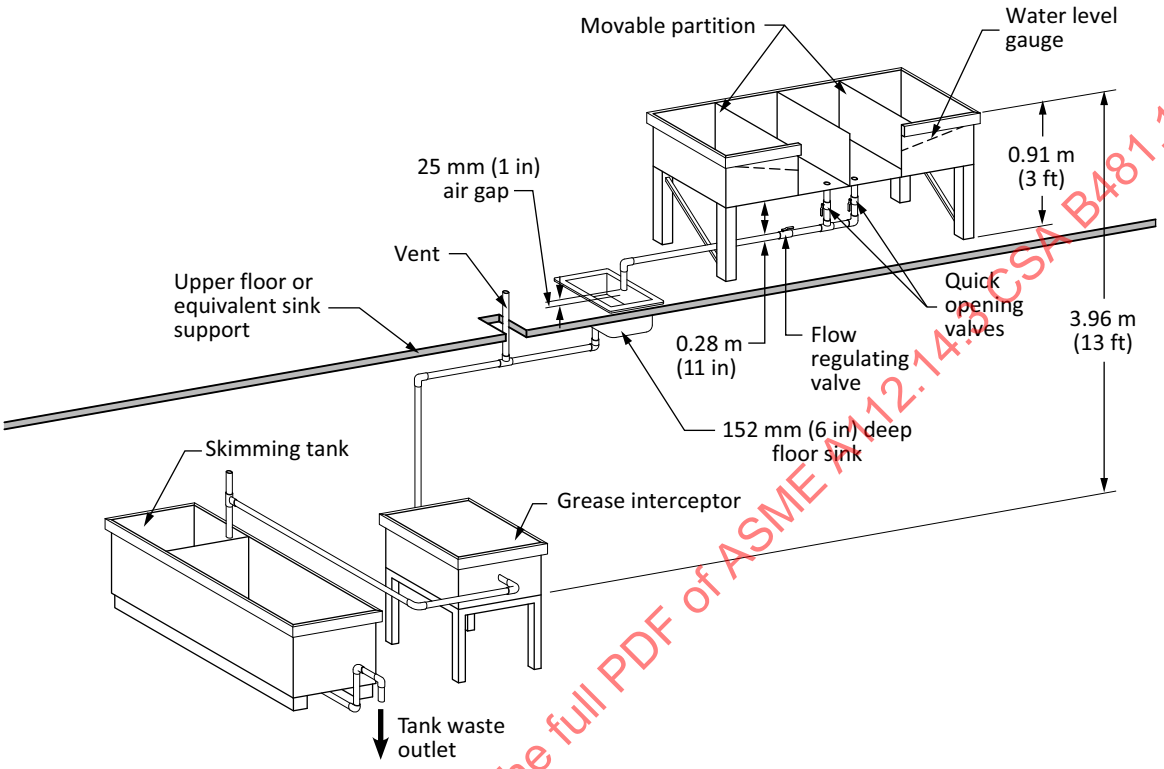

Illustration of a sample test configuration with the name and location of various components identified. The location of the movable partitions, water level gauge, flow regulating valve, quick opening valves, 25 mm (1 in) air gap, vent, upper floor or equivalent sink support, 152 mm (6 in) deep floor sink, skimming tank, grease interceptor, and tank waste outlet are specifically pointed out on the illustration. Also identified on the illustration are several key dimensions for proper installation.

Figure 4
Test configuration for rating directly connected grease interceptors larger than 378 L/min (100 gpm), with external flow control, with or without vent
(See Clauses 6.3.4 and 6.3.4.4.)

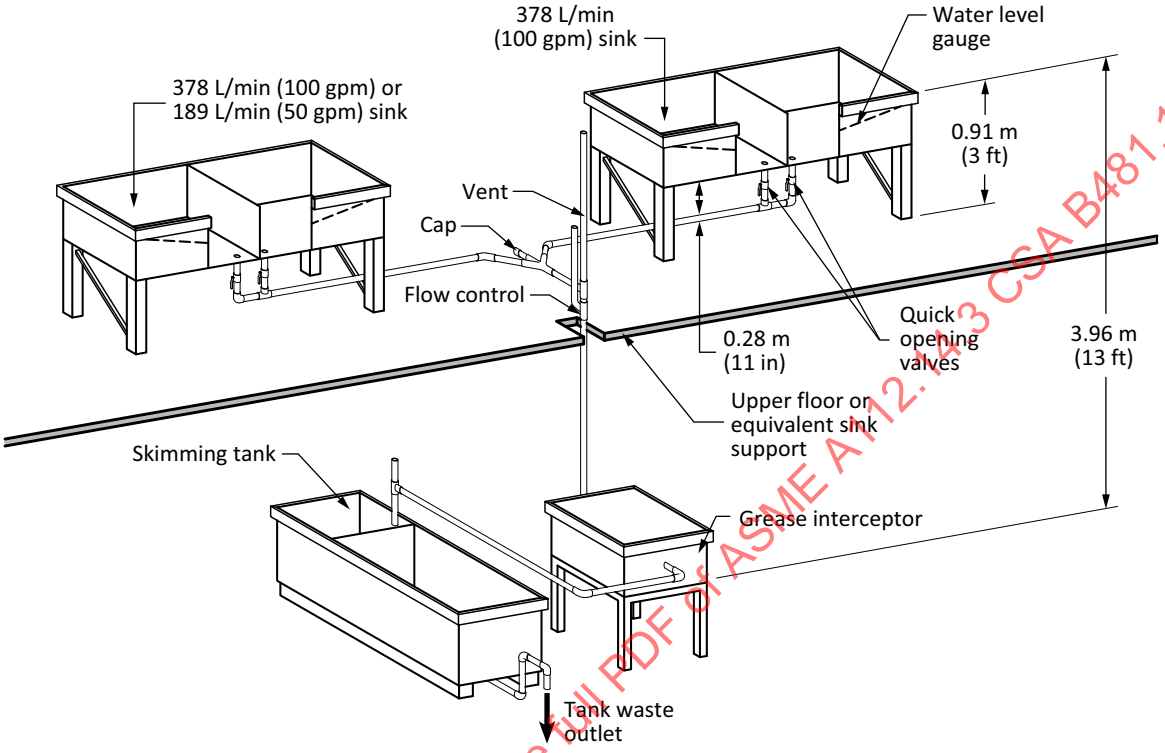

Illustration of a sample test configuration with the name and location of various components identified. The location of the water level gauge, quick opening valves, flow control, upper floor or equivalent sink support, skimming tank, grease interceptor, and tank waste outlet are specifically pointed out on the illustration. Also identified on the illustration are several key dimensions for proper installation.

Note: *The plumbing configuration above may be used to combine flows from two 189 L/min (50 gpm) sinks in accordance with Clause 6.3.1.1.1 c) i).*

Figure 5
Test configuration for rating indirectly connected grease interceptors larger than 378 L/min (100 gpm), with or without flow controls
(See Clause 6.3.5.)

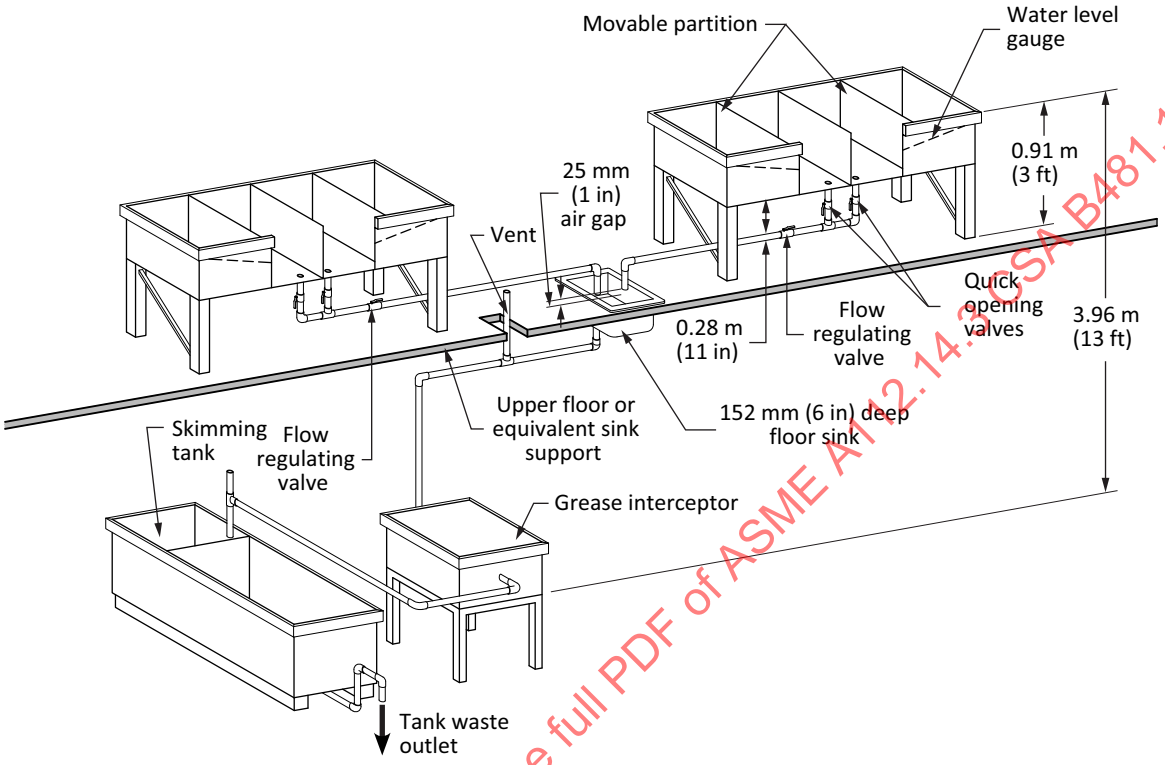

Illustration of a sample test configuration with the name and location of various components identified. The location of the movable partitions, water level gauge, flow regulating valve, quick opening valves, 25 mm (1 in) air gap, vent, upper floor or equivalent sink support, 152 mm (6 in) deep floor sink, skimming tank, grease interceptor and tank waste outlet are specifically pointed out on the illustration. Also identified on the illustration are several key dimensions for proper installation.

Note: *The plumbing configuration above may be used to combine flows from two 189 L/min (50 gpm) sinks in accordance with Clause 6.3.1.1.1 c) i).*

Figure 6
Grease interceptor rating test reporting form
(See Clause 6.3.9.)

Interceptor manufacturer:		Model no.:	L/min size:	Report no.:
Sink capacity and flow	**Test media data**	**Flow control data**	**Test lab information**	
Capacity no. 1: L	Spec. gravity:	Laboratory orifice dimension:	Test lab:	Test date:
Capacity no. 2: L		Manufacturer orifice dimension:		Notes:
	Viscosity:	Type:	Test technicians:	(1) Drainage gauged on clear compartment.
Simultaneous no. 1: L/min		Orifice shape:		
Simultaneous no. 2: L/min				(2) The "amount retained" is a calculation of "added" minus "skimmed"

					Incremental				Accumulated			
					(drop-skim)/drop x 100 = efficiency				(drop-skim)/drop x 100 = efficiency			
No.	Test	Clear	Second	Rate L/min	kg Added	kg Skimmed	kg Retained	Efficiency	kg Added	kg Skimmed	kg Retained	Efficiency
1	1	2										
2	2	1										
3	1	2										
4	2	1										
5	1	2										
6	2	1										
7	1	2										
8	2	1										
9	1	2										
10	2	1										
11	1	2										
12	2	1										
13	1	2										
14	2	1										
15	1	2										
16	2	1										
17	1	2										
18	2	1										
19	1	2										
20	2	1										
21	1	2										
22	2	1										
23	1	2										
24	2	1										
25	1	2										
26	2	1										
27	1	2										
28	2	1										
29	1	2										
30	2	1										
31	1	2										
Average or total												

(3) All skimmed weights taken after dewatering by separatory funnel and chilling

Summary and adjusted results based on the totals at the increment when grease retained equals 0.237 kg per L/min rated flow

Req. retention:
(1) Total skimmed:
(2) Total retained:
(3) Total added:
Eff. = (line 3 – line 1) / line 3
Efficiency % =

Summary and results based on the testing to "maximum grease capacity"

Breakdown increment no.
(1) Total skimmed:
(2) Total retained:
(3) Total added:
Eff. = (line 3 – line 1) / line 3
Efficiency % =

(Continued)

Figure 6 (Concluded)

Interceptor manufacturer:			Model no.:		GPM Size:	Report no.:
Sink capacity and flow		Test media data	Flow control data	Test lab information		
Capacity no. 1:	gal	Spec. gravity:	Laboratory orifice dimension:	Test lab:		Test date:
Capacity no. 2:	gal		Manufacturer orifice dimension:			Notes:
		Viscosity:	Type:	Test technicians:		(1) Drainage gauged on clear compartment.
Simultaneous no. 1:	GPM		Orifice shape:			
Simultaneous no. 2:	GPM					(2) The "amount retained" is a calculation of "added" minus "skimmed"

					Incremental				Accumulated				
					(drop-skim)/drop x 100 = efficiency				(drop-skim)/drop x 100 = efficiency				
No.	Test	Clear	Second	Rate GPM	lb. Added	lb. Skimmed	lb. Retained	Efficiency	lb. Added	lb. Skimmed	lb. Retained	Efficiency	(3) All skimmed weights taken after dewatering by separatory funnel and chilling
1	1	2											
2	2	1											
3	1	2											Summary and adjusted results based on the totals at the increment when grease retained equals 2 lb per GPM rated flow
4	2	1											
5	1	2											
6	2	1											
7	1	2											
8	2	1											Req. retention:
9	1	2											(1) Total skimmed:
10	2	1											(2) Total retained:
11	1	2											(3) Total added:
12	2	1											Eff. = (line 3 – line 1) / line 3
13	1	2											Efficiency % =
14	2	1											
15	1	2											
16	2	1											
17	1	2											Summary and results based on the testing to "maximum grease capacity"
18	2	1											
19	1	2											
20	2	1											
21	1	2											Breakdown increment no.
22	2	1											
23	1	2											(1) Total skimmed:
24	2	1											(2) Total retained:
25	1	2											(3) Total added:
26	2	1											Eff. = (line 3 – line 1) / line 3
27	1	2											Efficiency % =
28	2	1											
29	1	2											
30	2	1											
31	1	2											
Average or total													

Illustration of a sample grease interceptor rating test reporting form.

Figure 7a
Sample label — Canada
(See Clause 7.1.)

Name of manufacturer
Model Number:

This product conforms to

ASME A112.14.3 / CSA B481.1

Flow rating:

132 L/min (35 gpm)

Grease removal efficiency:

90.0%

Maximum grease containment capacity:

32 kg (70 lb)

Access cover load rating:

H

Inlet size:

100 mm (NPS-4)

Flow control device:

Required (part number):

Illustration of sample label for products to be sold in Canada.

Figure 7b
Sample label — U.S.
(See Clause 7.1.)

Name of manufacturer
Model Number:

This product conforms to

ASME A112.14.3 / CSA B481.1

Flow rating:

35 gpm (132 L/min)

Grease removal efficiency:

90.0%

Maximum grease containment capacity:

70 lb (32 kg)

Inlet size:

NPS-4

Flow control device:

Required (part number):

Illustration of sample label for products to be sold in the U.S.

Figure 8
Typical above-grade installation
(See Clause 8.5.1.1.)

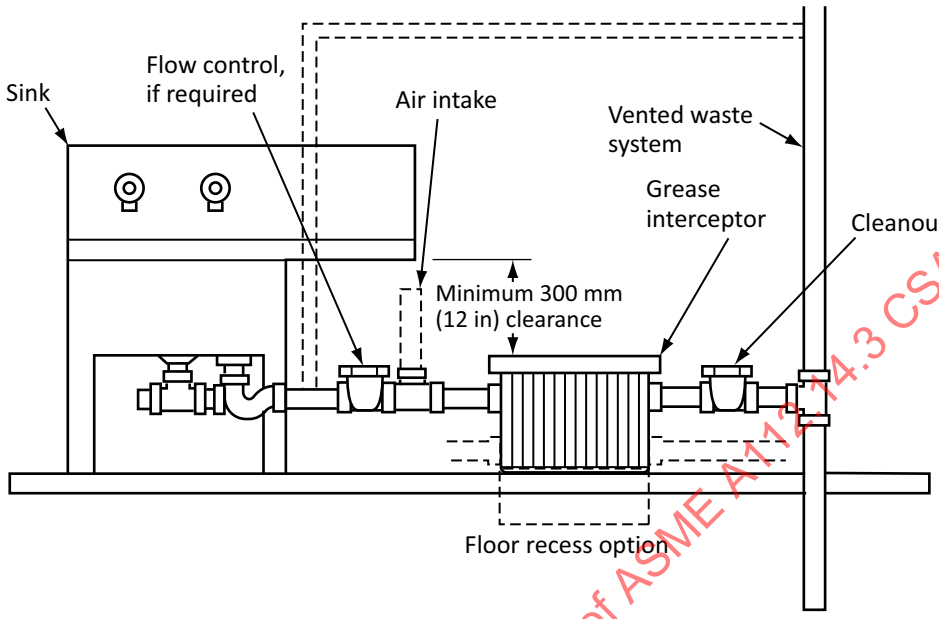

Illustration of a typical above-grade installation with the name and location of various components identified. The location of the sink, flow control, air intake, vented waste system, grease interceptor, and cleanout are specifically pointed out on the illustration. Also identified on the illustration is the minimum clearance dimension and floor recess option.

Figure 9
Typical grease interceptor serving trapped and vented sink installation — Flow control air intake intersects vent
(See Clause 8.5.1.1.)

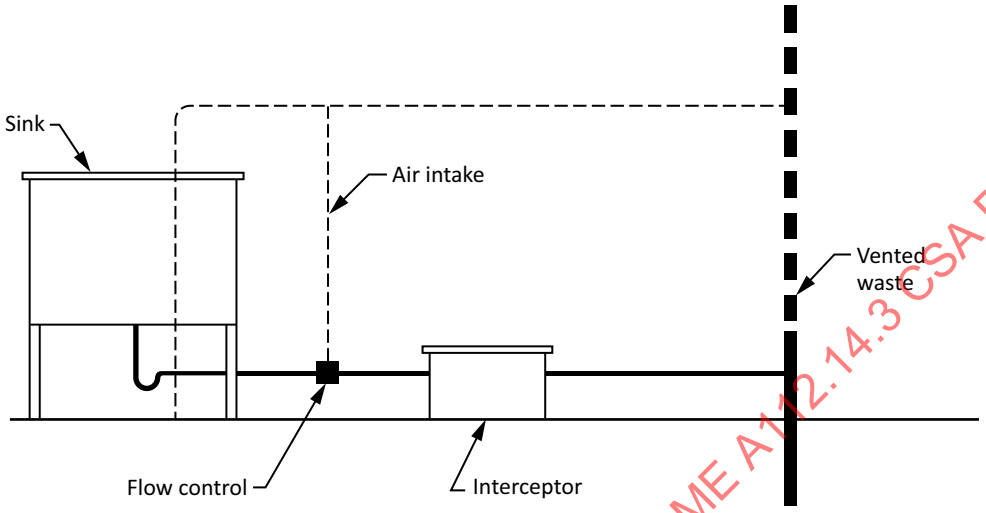

Illustration of a typical grease interceptor serving trapped and vented sink installation with the name and location of various components identified. The location of the sink, flow control, air intake, vented waste system, and grease interceptor are specifically pointed out on the illustration.

Figure 10
Typical grease interceptor serving dishwasher installation — Flow control air intake intersects vent
(See Clause 8.5.1.1.)

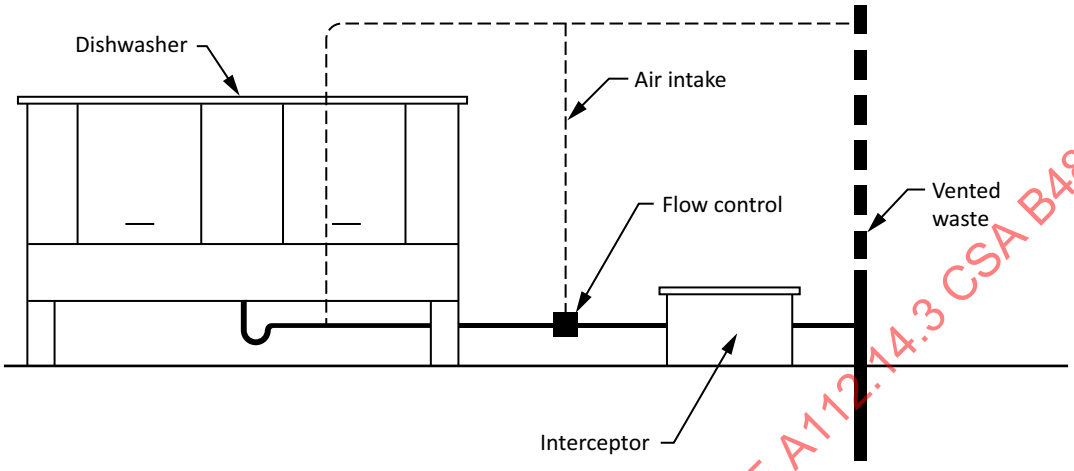

Illustration of a typical grease interceptor serving dishwasher installation with the name and location of various components identified. The location of the dishwasher, flow control, air intake, vented waste system, and grease interceptor are specifically pointed out on the illustration.

Figure 11
Typical grease interceptor serving two individually trapped and vented sinks installation — Flow control air intake intersects vent
(See Clause 8.5.1.1.)

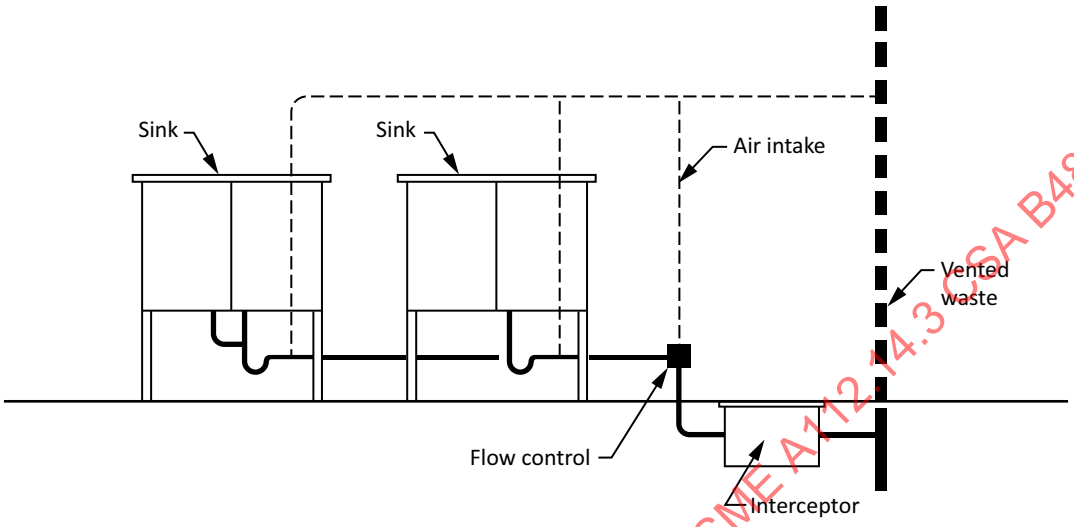

Illustration of a typical grease interceptor serving two individually trapped and vented sinks installation with the name and location of various components identified. The location of the sinks, flow control, air intake, vented waste system, and grease interceptor are specifically pointed out on the illustration.

Figure 12
Typical grease interceptor serving trapped and vented sinks installation — Flow control air intake intersects vent
(See Clause 8.5.1.1.)

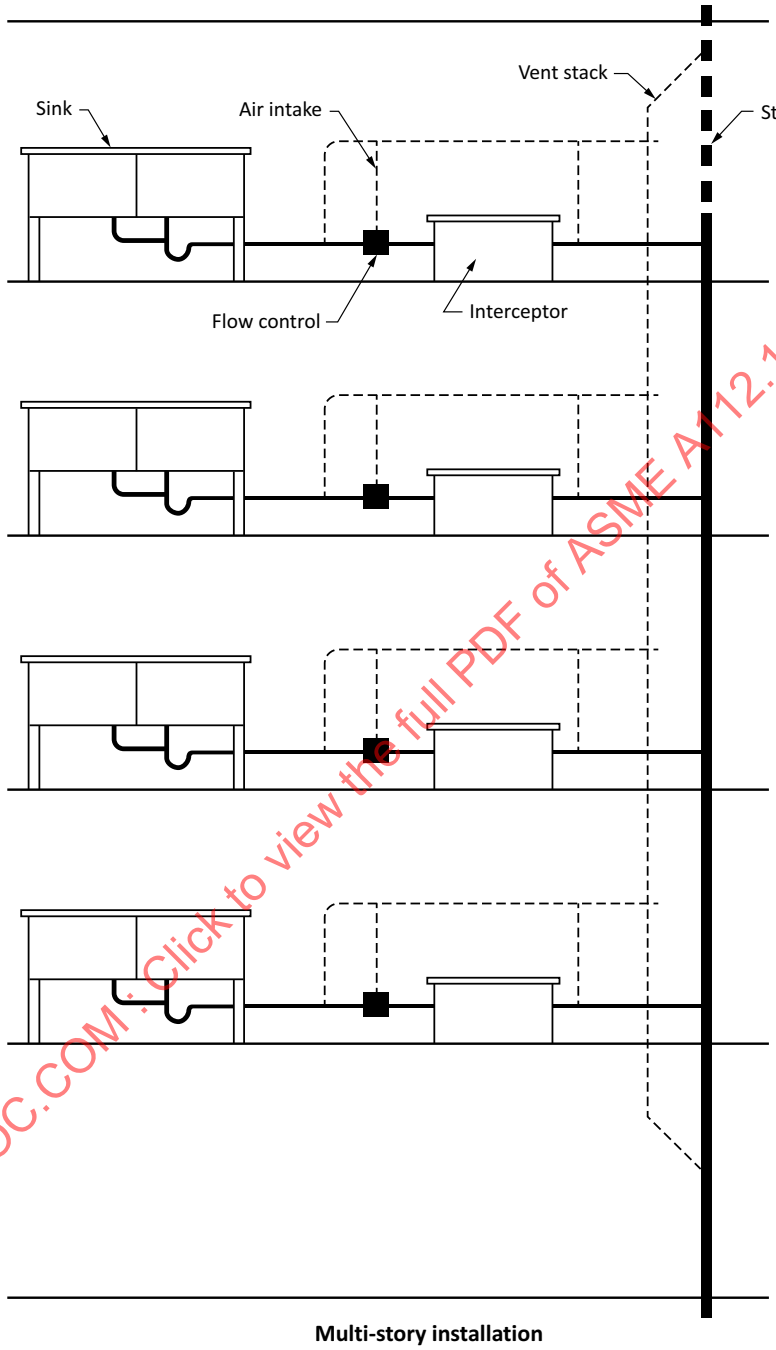

Illustration of a typical grease interceptor serving trapped and vented sinks installation with the name and location of various components identified. The location of the sink, flow control, air intake, vented waste system, and grease interceptor are specifically pointed out on the illustration.

Annex A (informative)
Additional considerations

Note: *This informative Annex has been written in mandatory language to facilitate adoption by anyone wishing to do so.*

A.1 Grease interceptors

A.1.1 Applications

Grease interceptors are typically used in facilities that prepare, process, or serve food. These facilities include restaurants, cafeterias, supermarkets, bars, schools, hospitals, correctional facilities, nursing homes, multi-family dwellings, and food processing facilities.

A.1.2 Purpose

Grease interceptors are used to reduce the amount of FOG and solids in wastewater before it is discharged into the sanitary drainage system and are necessary where excess amounts of FOG can be present in wastewater.

A.1.3 Sizing

Grease interceptors shall be sized in accordance with Clause 8.3. Sizing shall be re-evaluated whenever there is a significant change in operation, such as the expansion of a facility, remodeling that requires a plumbing permit, or a change in ownership.

A.1.4 Installation

Grease interceptors shall be installed in accordance with Clause 8.5.

A.1.5 Maintenance

Grease interceptors shall be maintained in accordance with Annex G.