



**CSA M424.0:22**  
**(ISO 19296:2018, MOD)**  
**National Standard of Canada**



**CSA M424.0:22**  
**Underground mining mobile equipment — General requirements**  
**(ISO 19296:2018, MOD)**



# Legal Notice for Standards

Canadian Standards Association (operating as “CSA Group”) develops standards through a consensus standards development process approved by the Standards Council of Canada. This process brings together volunteers representing varied viewpoints and interests to achieve consensus and develop a standard. Although CSA Group administers the process and establishes rules to promote fairness in achieving consensus, it does not independently test, evaluate, or verify the content of standards.

## 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. CSA Group does not warrant the accuracy, completeness, or currency of any of the information published in this document. CSA Group makes no representations or warranties regarding this document’s compliance with any applicable statute, rule, or regulation.

IN NO EVENT SHALL CSA GROUP, ITS 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 CSA GROUP HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES.

In publishing and making this document available, CSA Group is 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 CSA Group accepts no responsibility whatsoever arising in any way from any and all use of or reliance on the information contained in this document.

CSA Group is a private not-for-profit company that publishes voluntary standards and related documents. CSA Group has no power, nor does it undertake, to enforce compliance with the contents of the standards or other documents it publishes.

## Intellectual property rights and ownership

As between CSA Group and the users of this document (whether it be in printed or electronic form), CSA Group is the owner, or the authorized licensee, 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. Without limitation, the unauthorized use, modification, copying, or disclosure of this document may violate laws that protect CSA Group’s and/or others’ intellectual property and may give rise to a right in CSA Group and/or others to seek legal redress for such use, modification, copying, or disclosure. To the extent permitted by licence or by law, CSA Group reserves all intellectual property rights in this document.

## Patent rights

Attention is drawn to the possibility that some of the elements of this standard may be the subject of patent rights. CSA Group shall not 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.

## Authorized use of this document

This document is being provided by 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 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 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.



# *Standards Update Service*

*CSA M424.0:22*

*March 2022*

**Title:** *Underground mining mobile equipment — General requirements*

To register for e-mail notification about any updates to this publication

- go to [www.csagroup.org/store/](http://www.csagroup.org/store/)
- click on **Product Updates**

The **List ID** that you will need to register for updates to this publication is **2429862**.

If you require assistance, please e-mail [techsupport@csagroup.org](mailto:techsupport@csagroup.org) or call 416-747-2233.

Visit CSA Group's policy on privacy at [www.csagroup.org/legal](http://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](http://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](http://www.scc.ca).

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



Cette Norme Nationale du Canada est disponible en versions française et anglaise.

*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 to judge its suitability for their particular purpose.*

*®A trademark of the Canadian Standards Association, operating as “CSA Group”*

# *National Standard of Canada*

## *CSA M424.0:22* **Underground mining mobile equipment — General requirements** *(ISO 19296:2018, MOD)*

*Prepared by*  
*International Organization for Standardization*



*Reviewed by*



*®A trademark of the Canadian Standards Association,  
operating as "CSA Group"*



*Published in March 2022 by CSA Group*  
*A not-for-profit private sector organization*  
*178 Rexdale Boulevard, Toronto, Ontario, Canada M9W 1R3*

*To purchase standards and related publications, visit our Online Store at [www.csagroup.org/store/](http://www.csagroup.org/store/)  
or call toll-free 1-800-463-6727 or 416-747-4044.*

*ICS 53.100; 13.110; 73.100.99*  
*ISBN 978-1-4883-4118-2*

*© 2022 Canadian Standards Association*  
*All rights reserved. No part of this publication may be reproduced in any form whatsoever*  
*without the prior permission of the publisher.*

# **CSA M424.0:22**

## ***Underground mining mobile equipment — General requirements***

### ***(ISO 19296:2018, MOD)***

## ***CSA Preface***

This is the first edition of CSA M424.0, *Underground mining mobile equipment — General requirements*, which is an adoption, with Canadian deviations, of ISO (International Organization for Standardization) Standard 19296 (first edition, 2018-11), *Mining — Mobile machines working underground — Machine safety*.

For brevity, this Standard will be referred to as “CSA M424.0” throughout.

This Standard is part of the CSA M424 series of Standards on underground mining mobile equipment. It is intended to be used in conjunction with additional CSA M424 Standards, as applicable.

CSA group acknowledges that the development of this Standard was made possible, in part, by the financial assistance of CanmetMINING, Lands and Minerals Sector, a department of Natural Resources Canada.

This Standard was developed by CSA Group with funding support provided by the Canadian Association of Administrators of Labour Law — Occupational Safety and Health (CAALL-OSH), including provincial and territorial governments, as well as the Government of Canada. CSA Group is solely responsible for the content of this Standard, and CSA Group and the funding bodies disclaim any liability in connection with the use of the information contained herein.

This Standard was reviewed for Canadian adoption by the CSA Subcommittee on Underground Mining Mobile Equipment — General Requirements, under the jurisdiction of the CSA Technical Committee on Underground Mining Mobile Equipment and the CSA Strategic Steering Committee on Occupational Health and Safety, and has been formally approved by the Technical Committee.

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.

© 2022 Canadian Standards Association

*All rights reserved. No part of this publication may be reproduced in any form whatsoever without the prior permission of the publisher. ISO material is reprinted with permission. Where the words “this International Standard” appear in the text, they should be interpreted as “this National Standard of Canada”.*

*Inquiries regarding this National Standard of Canada should be addressed to*  
CSA Group  
178 Rexdale Boulevard, Toronto, Ontario, Canada M9W 1R3  
1-800-463-6727 • 416-747-4000  
[www.csagroup.org](http://www.csagroup.org)

*To purchase standards and related publications, visit our Online Store at [www.csagroup.org/store/](http://www.csagroup.org/store/) or call toll-free 1-800-463-6727 or 416-747-4044.*

*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. The technical content of IEC and ISO publications is kept under constant review by IEC and ISO. To submit a proposal for change, please send the following information to [inquiries@csagroup.org](mailto:inquiries@csagroup.org) and include “Proposal for change” in the subject line:*

- a) *Standard designation (number);*
- b) *relevant clause, table, and/or figure number;*
- c) *wording of the proposed change; and*
- d) *rationale for the change.*

# Canadian deviations

The following deviations are intended to align with local occupational health and safety practices and to meet the requirements of Canadian workplace regulators.

*[Replace the title of this Standard with the following]*

## Underground mining mobile equipment — General requirements

### 1 Scope

*[Replace this Clause with the following]*

This Standard applies to new or unused wheeled or tyred, self-propelled, non-rail-bound, mobile machines for use in underground mines.

This Standard describes the technical aspects and procedures necessary for the design, performance, and testing of core design and safety requirements.

This Standard covers general requirements only. Requirements common to a variety of underground mining mobile equipment are grouped in this Standard. The remaining Standards in the series state requirements for braking and specific types of power trains. See Annex DA for additional information on how to apply the CSA M424 series of Standards.

For utility / service / support machines, this Standard only includes provisions to address the risks associated with the mobility (movement of the whole machine from one location to another). Risks for the additional functions (e.g., scaling, concrete spraying, bolting, charging drilling attachment) are not covered in this Standard.

### 2 Normative references

*[Replace the entry for ISO 6750:2005 with the following]*

ISO 6750-1:2019, *Earth-moving machinery — Operator's manual — Part 1: Contents and format*

*[Add the following]*

In this Standard, any reference to International Standards shall be replaced by the relevant National Standard of Canada.

Where reference is made to CSA Group publications, such reference shall be considered to refer to the latest edition and all amendments published to that edition. This Standard refers to the following publications, and the years shown indicate the latest editions available at the time of publication:

#### CSA Group

B51:19

*Boiler, Pressure Vessel, and Pressure Piping Code*