
**Foundry machinery — Vocabulary —
Part 5:
Cupola furnaces and pouring devices
and ladles**

Machines de fonderie — Vocabulaire —

Partie 5: Cubilots et dispositifs de coulée et poches de coulées



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 306, *Foundry machinery*.

A list of all parts in the ISO 23472 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Documentation gives rise to numerous international exchanges of both intellectual and material nature. These exchanges often become difficult, either because of the great variety of terms used in various fields or languages to express the same concept, or because of the absence of, or the imprecision of, useful concepts.

To avoid misunderstandings due to this situation and to facilitate such exchanges, it is advisable to select terms to be used in various languages or in various countries to express the same concept, and to establish definitions providing satisfactory equivalents for the various terms in different languages.

The objects involved in the ISO 23472 series are foundry machines used in foundry production.

The purpose of the ISO 23472 series is to provide definitions in English that are rigorous, uncomplicated and which can be understood by all concerned. The scope of each concept defined has been chosen to provide a definition that is suitable for general application within foundry machinery, which includes machines and equipment adapted in each stage of the processes within different casting processes.

As a metal thermoforming method that fills molten metal into the mold to produce machine parts or rough parts after solidification, casting has a long history and various processes, and its technology remains constantly developing and changing. According to the differences in the mold used, or different ways of molten metal filling or solidification, casting processes are usually divided into sand casting, permanent casting and other casting processes. According to different casting processes and different stages of production, casting equipment covered by foundry machinery is divided into the following major categories:

- molding and coremaking machines and other equipment related to non-permanent mold casting process;
- die casting machines and other equipment related to permanent mold casting process;
- abrasive blasting machines and other equipment related to cleaning and finishing for casting;
- cupola furnaces and pouring devices and ladles.

This document only involves terms and definitions of cupola furnaces, pouring devices and ladles, including basic concepts specifically concerning structural characteristics and functions, important mechanisms and parts, main technological processes and parameters of various cupola furnaces and their melting auxiliary equipment, burdening and charging equipment, pouring devices, ladles, molten metal treatment and transfer equipment, and other related equipment (see [Figure 1](#)).

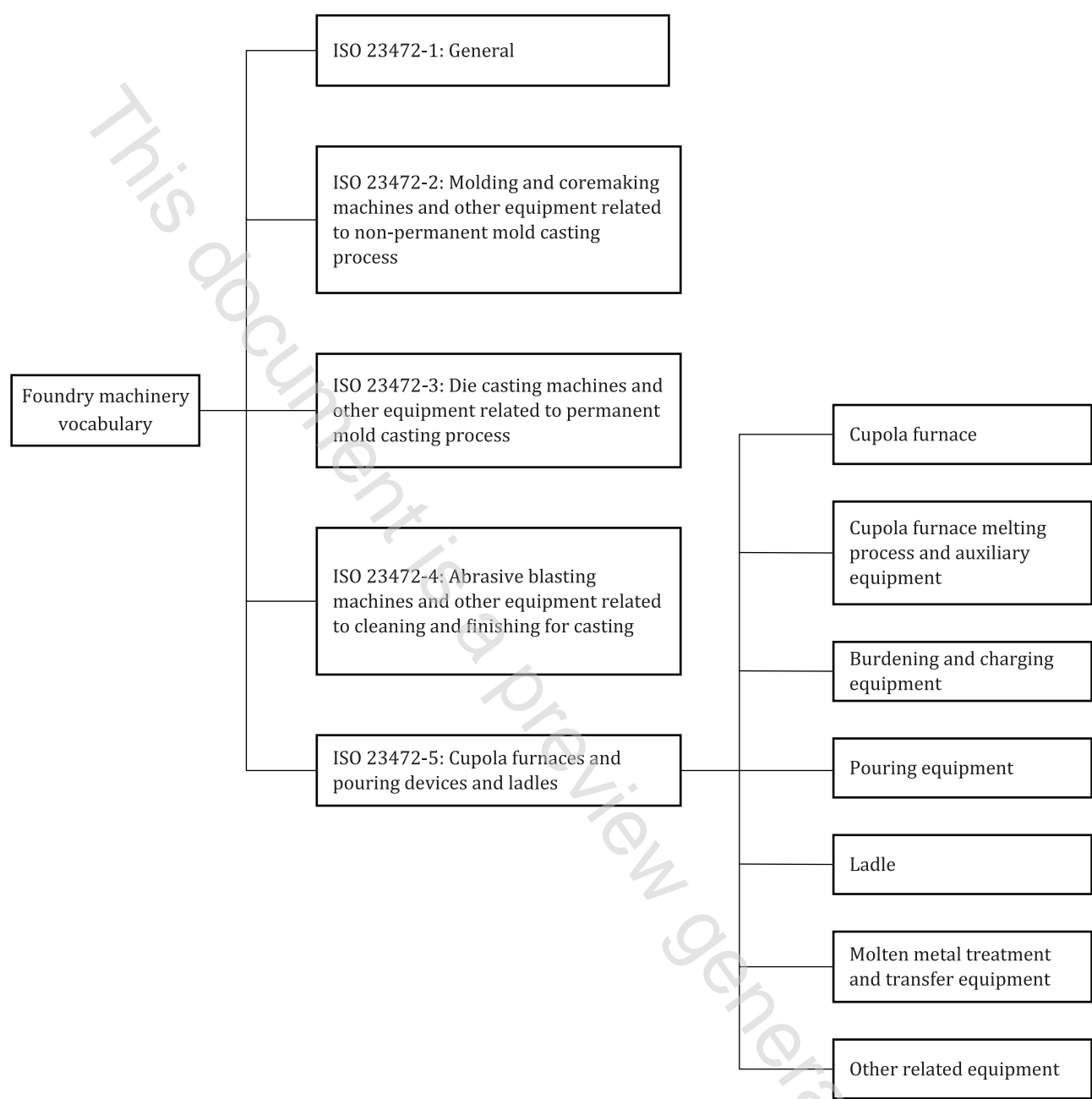


Figure 1 — Structure of vocabulary on cupola furnaces and pouring devices and ladles

Foundry machinery — Vocabulary —

Part 5: Cupola furnaces and pouring devices and ladles

1 Scope

This document defines a set of terms and definitions for cupola furnaces, pouring devices and ladles in foundry machinery.

It applies to standards development in the foundry machinery field, technical documentation, related scientific and technical publications, etc.

This document is not applicable to process and equipment related to melting and pouring of nonferrous metal.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

alloy loss rate

percentage of alloy oxidized during melting relative to the amount added

3.2

automatic ladle replacement system

complete set of devices that sends the *ladle* (3.43) with *molten metal* (3.49) inside to the changing position and withdraws the empty ladle

3.3

automatic pouring machine

pouring equipment (3.56) that automatically and systematically completes the pouring process according to the set procedure

3.4

automatic transfer system for molten metal

system that automatically transfers *molten metal* (3.49) among each working station by a *ladle* (3.43), from the molten metal loading point, along a pre-set routing to the molten metal treatment station and slag-off position, finally loading molten metal into the pouring machine

Note 1 to entry: The system can also complete the inoculation and/or spheroidization process according to technical requirements during the transfer operation.

Note 2 to entry: The system usually includes a *ladle transfer car* (3.47) at the *forehearth* (3.29), a ladle for transfer, a transfer rail, a ladle transfer car with rotating and turnover capabilities, a spheroidization station, slag-off position, transfer safety warning facilities, etc.