

Founding — Equipment for the production of lost patterns for the lost wax casting process

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British Standard

ICS 77.180

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National foreword

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 18, an inside back cover and a back cover.

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English version

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Fonderie - Outillages pour la production de modèles perdus
pour le procédé de moulage à la cire perdue

Gießereiwesen - Einrichtungen zur Herstellung von
verlorenen Modellen für das Wachsaußschmelzverfahren

This European Standard was approved by CEN on 24 December 1999.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 190, Foundry technology, the Secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2000, and conflicting national standards shall be withdrawn at the latest by December 2000.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Within its programme of work, Technical Committee CEN/TC 190 requested CEN/TC 190/WG 1.30, Production equipment, tools, foundry auxiliaries (e.g. patterns, permanent moulds, moulding materials), to prepare the following standard:

prEN 12883

Founding – Equipment for the production of lost patterns for the lost wax casting process.

This is one of three of European Standards for foundry patterns and tools. The other standards are:

EN 12890

Founding – Patterns, pattern equipment and coreboxes for the production of sand moulds and sand cores.

EN 12892

Founding – Equipment for the production of lost patterns for the lost foam casting process.

Introduction

Lost pattern production processes involve the moulding of a pattern. The pattern is then destroyed either prior to or during the casting process.

At present two processes are commonly used:

- investment casting (lost wax process);
- lost foam process.

This standard concerns the lost wax process.

This standard describes the specification for tooling to produce patterns or cores for the lost wax process.

This standard is intended for purchasers, manufacturers and founders. It is also intended to ensure correct interpretation of part and tool drawings/numerical data, and to ensure pattern equipment will produce lost moulds and lost cores, suitable for use and to assist in determining the usually undefined limits of good workmanship. It stresses the need for consultation between the founder, manufacturer (patterns), manufacturer (tooling) and purchaser before work commences.

This standard is intended to assist interested parties in producing tooling for lost wax patterns suitable for use to produce castings by the lost pattern process.

There is a complex relationship between the parties who might be involved in specifying, manufacturing, ordering and designing the equipment within the scope of this standard.

NOTE: Figure 1 gives an indication of the relationships that could exist between the four parties concerned.

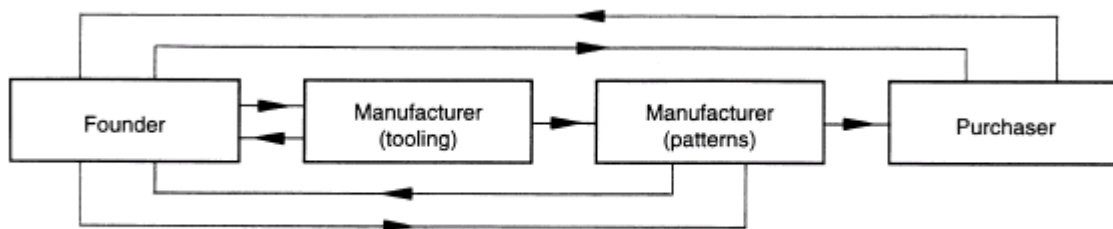


Figure 1 - Model inter-relationship between contracting parties

This standard not only specifies the usual features of design, manufacture, materials, tolerances, contractions and required machining allowances but also specifies other features such as usage, classification, quality control, marking, packaging and storage.

1 Scope

This standard specifies the requirements for tooling for the production of lost patterns for the lost wax process including soluble wax cores, and the production of ceramic cores.

This standard does not specify equipment used to produce castings by the Shaw process.

This standard does not specify the processes which directly generate the lost pattern(s) by means of numerical data such as stereolithography or sintered wax process or laminated object manufacturing (LOM).

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 10204

Metallic products – Types of inspection documents.

EN 20286-1

ISO system of limits and fits – Part 1: Bases of tolerances, deviations and fits (ISO 286-1:1988).

ISO 8062:1994

Castings – System of dimensional tolerances and machining allowances.

3 Terms and definitions

For the purposes of this standard, the following terms and definitions apply.

3.1 ceramic core

pre-formed refractory aggregate inserted into a wax or plastic pattern to shape the interior of that part of a casting which cannot be shaped by the pattern

NOTE: Sometimes wax is injected around the pre-formed core.

3.2 collapsible insert

part made in two or more pieces to permit withdrawal from an undercut pattern surface

3.3 contraction

provision applied to the tooling for shrinkage occurring during the production of castings

3.4 cast tooling process

method whereby tooling is made either from a low melting point metal alloy, normally cast under pressure, or from a resin, cast around a master pattern

3.5 dowel register

component which ensures accuracy of fit or alignment between mating portions of the tooling