
**Building construction machinery
and equipment — Concrete placing
systems for stationary equipment —**

Part 1:
**Terminology and commercial
specifications**

*Machines et matériels pour la construction des bâtiments — Système
de distribution de béton pour équipements stationnaires —*

Partie 1: Terminologie et spécifications commerciales



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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).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 195, *Building construction machinery and equipment*, Subcommittee SC 1, *Machinery and equipment for concrete work*.

ISO 17740 consists of the following parts, under the general title *Building construction machinery and equipment — Concrete placing systems for stationary equipment*:

— *Part 1: Terminology and commercial specifications*

Additional parts, dealing with safety requirements, are under preparation.

Introduction

This International Standard is part of a series of standards for concrete placing systems which are mounted on a slewing pedestal at the top of a base structure.

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Building construction machinery and equipment — Concrete placing systems for stationary equipment —

Part 1: Terminology and commercial specifications

1 Scope

This part of ISO 17740 defines terminology and commercial specifications for concrete placing systems which are stationary.

This part of ISO 17740 is not applicable to concrete placing systems which are part of a mobile or trailer-mounted concrete pumping system (see ISO 21573-1).

2 Terms and definitions

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

2.1

concrete placing system

power-driven devices consisting of an extensible placing boom, a boom pedestal and base structure to deposit concrete

2.2

placing boom

extensible boom with a fixed concrete conveying pipe for delivering concrete to work areas within its reach

Note 1 to entry: Typically, a rubber hose is fixed to the end of the conveying pipe to facilitate concrete distribution.

2.3

boom pedestal

support structure for connecting the placing boom with the base structure

2.4

counter-jib and ballast

counter-weighted structure which is typically located 180° opposite the placing boom which offsets or partially offsets the weight and moments of the placing boom

2.5

control station

location which contains devices or controls for the operation of the concrete placing system

Note 1 to entry: This can include a radio remote, cable remote or local controls and emergency controls. The normal working place during pumping and distributing concrete is the remote control.

2.6

working platform

work area typically used for assembly and maintenance work

2.7

base structure

tubular columns, lattice booms or other base structures on which stationary booms can be erected

Note 1 to entry: Base structure can be affixed to a baseplate, wall or other structure and typically includes the distributing pipeline, working platform and an access ladder.

2.8

floor frame

guide for the base structure in the floor of the building

Note 1 to entry: It also can be part of the self-climbing system, in which case it is part of the vertical support.

2.9

access ladder

means of access to the working platform

2.10

climbing system

combination of components and assemblies that allow for the lifting and support of the entire concrete placing system within or outside a building or structure

Note 1 to entry: This system includes provisions for connecting to a building or structure for both vertical and horizontal support and can be lifted with a crane or other lifting device.

2.10.1

self-climbing system

hydraulically-powered climbing and engagement system for lifting and support of the entire concrete placing system without the use of a crane or other lifting device

2.11

base plate

clamps the free-standing concrete-placing boom to the ground floor and supports the base structure

2.11.1

ballastable base structure

employs counter-balancing weights to support the free-standing concrete-placing boom and the base structure

2.12

free-standing system

application method which allows the concrete placing system and base structure to function up to a given height without being supported by a building or structure

2.12.1

ballasted free-standing system

employs counter-balancing weights mounted to a ballastable base structure instead of a method for rigidly attaching the base structure to a grounded structure

2.12.2

supported free-standing system

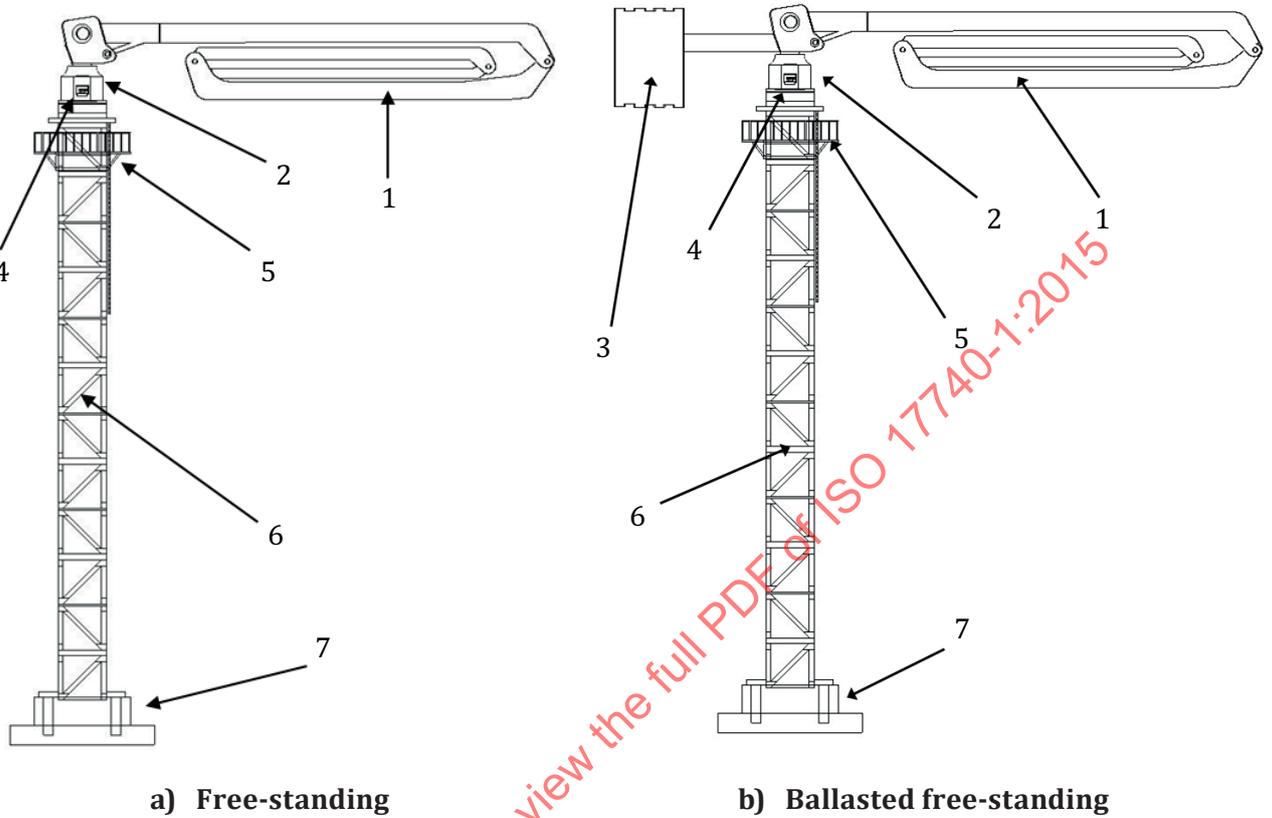
additional horizontal support from a building or structure because its height exceeds the overturning support capacity of the base

3 Classification

The concrete placing systems shall be classified by the following:

- free-standing and ballasted free-standing (see [Figure 1](#));
- free-standing with support (see [Figure 2](#));

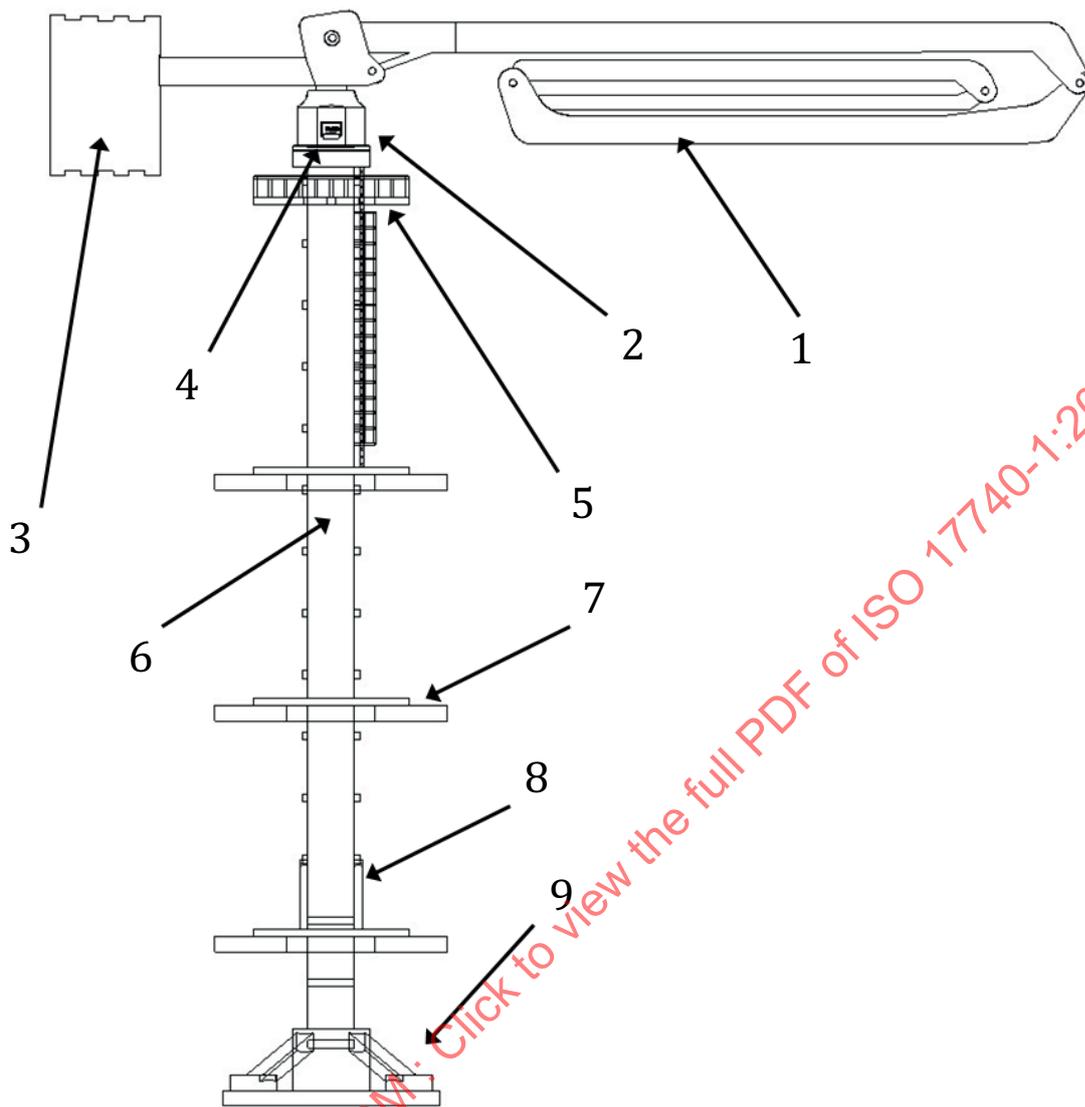
- inside climbing (see [Figure 3](#));
- wall mount (see [Figure 4](#)).



Key

- 1 placing boom
- 2 boom pedestal
- 3 counter-jib and ballast
- 4 control station
- 5 working platform
- 6 base structure
- 7 base plate

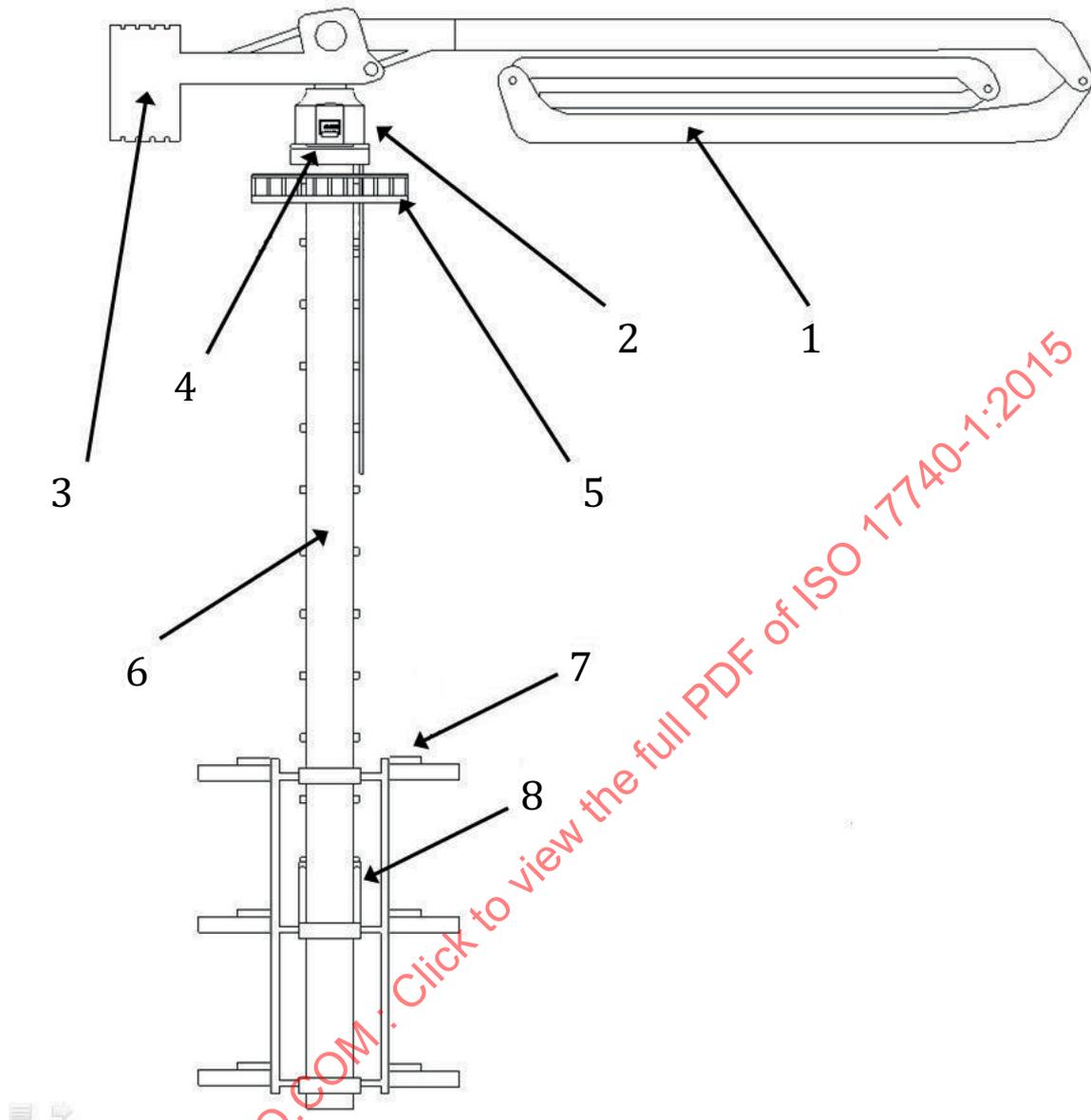
Figure 1 — Free-standing and ballasted free-standing



Key

- 1 placing boom
- 2 boom pedestal
- 3 counter-jib and ballast
- 4 control station
- 5 working platform
- 6 base structure
- 7 floor frame
- 8 climbing system
- 9 base plate

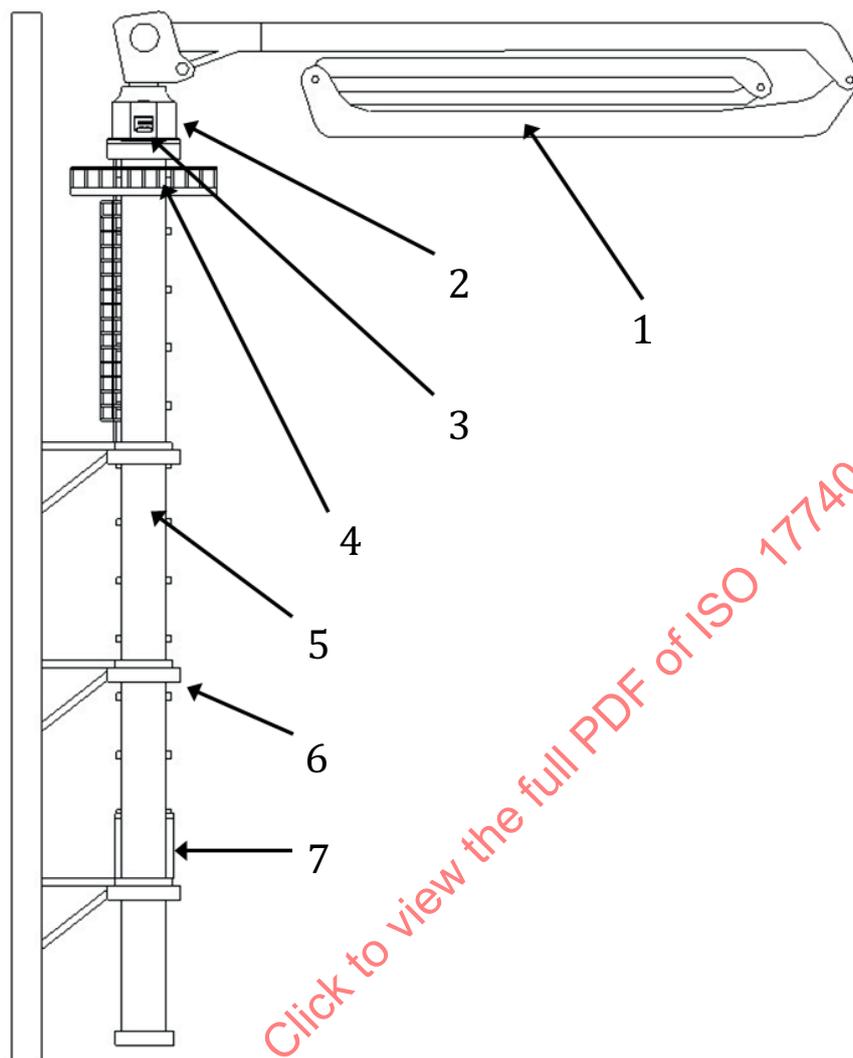
Figure 2 — Free-standing with support



Key

- 1 placing boom
- 2 boom pedestal
- 3 counter-jib and ballast
- 4 control station
- 5 working platform
- 6 base structure
- 7 floor frame
- 8 climbing system

Figure 3 — Inside climbing (self-climbing shown)



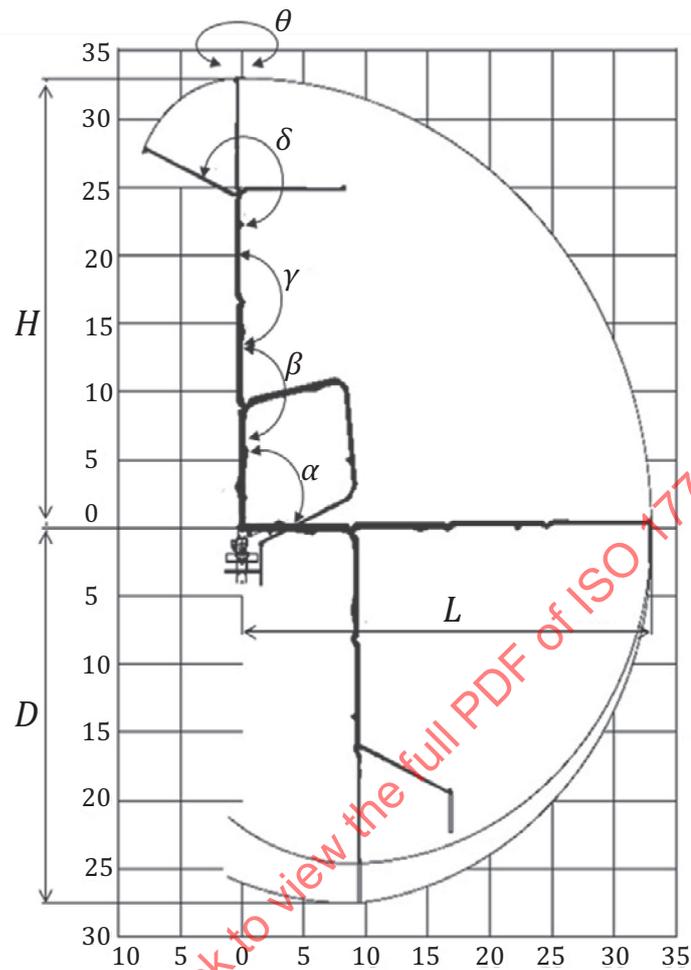
Key

- 1 placing boom
- 2 boom pedestal
- 3 control station
- 4 working platform
- 5 base structure
- 6 horizontal support
- 7 climbing system

Figure 4 — Wall mount (self-climbing shown)

4 Dimensions

Dimensions of concrete placing booms are shown in [Figure 5](#).

**Key**

- D boom depth reach (including end hose)
- H boom vertical reach
- L boom horizontal reach
- α elevation angle of boom arm 1
- β articulation angle of boom arm 2
- γ articulation angle of boom arm 3
- δ articulation angle of boom arm 4
- θ slewing angle

NOTE Dimensions for multiple section booms are not shown.

Figure 5 — Working range diagram of a concrete placing boom

5 Commercial specifications

5.1 General characteristics

The following general characteristics shall be specified:

- manufacturer (including contact information);

- prime mover (combustion engine or electric):
 - a) if combustion engine:
 - 1) type (spark ignition or compression ignition);
 - 2) model;
 - 3) manufacturer;
 - 4) operating speed;
 - 5) engine net power;
 - 6) fuel type;
 - 7) fuel tank capacity;
 - b) if electric:
 - 1) model and type;
 - 2) rated power;
 - 3) rated current;
 - 4) voltage and frequency;
 - 5) speed range.

5.2 Dimensional characteristics

The following dimensional characteristics shall be specified:

- horizontal reach (m);
- vertical reach (m);
- boom depth reach (including end hose) (m);
- boom arm lengths (as applicable):
 - arm 1 (m);
 - arm 2 (m);
 - arm 3 (m);
 - arm 4 (m);
 - arm 5 (m);
- articulation angles (as applicable):
 - arm 1 (deg);
 - arm 2 (deg);
 - arm 3 (deg);
 - arm 4 (deg);
 - arm 5 (deg);
- slewing angle (deg);