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**Inland navigation vessels —  
Manually- and power-operated  
coupling devices for pushing units  
and coupled vessels — Safety  
requirements and main dimensions**

*Bateaux de navigation intérieure — Treuils d'accouplement  
manoeuvrés à la main ou motorisés pour les convois poussés et les  
formations à couple — Exigences de sécurité et dimensions principales*

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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](http://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](http://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 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 8, *Ships and marine technology*, Subcommittee SC 7, *Inland navigation vessels*.

This third edition ~~cancels and replaces the second edition (ISO 6218:2005)~~, which has been technically revised with the following changes: [57205.html](https://www.iso.org/standard/57205.html)

- addition of power-driven coupling devices, with requirements and figures respectively;
- addition of “Parts” with drawing;
- new regulation of Types;
- addition of requirements for a tensioning device;
- foundation as accessory part;
- [Figure 1](#) and [Figure 2](#) added (components of coupling device), [Figure 4](#) corrected (brake);
- requirements on Material added;
- assembly instruction added;
- operating instructions added;
- designation updated;
- [Annex A](#) updated.

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# Inland navigation vessels — Manually- and power-operated coupling devices for pushing units and coupled vessels — Safety requirements and main dimensions

## 1 Scope

This International Standard specifies dimensions and safety requirements for manually operated and power-driven coupling devices used for assembling inland navigation vessels as a push tow or vessels coupled alongside by means of wire rope connections. The coupling device secures the stable positioning of the coupled vessels.

Requirements for the safety to protect operators from accidents during the creation, operation, and separation of the wire rope connections of push tows and vessels coupled alongside are contained in this International Standard.

It also gives rules for designation and testing.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 2768-1, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

ISO 3730, *Shipbuilding and marine structures — Mooring winches*

ISO 4014, *Hexagon head bolts — Product grades A and B*

## 3 Terms and definitions

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

### 3.1

#### **manually operated coupling device**

straining device in which a wire rope is strained by turning a hand wheel

### 3.2

#### **minimum breaking load**

load at which the wire rope will break

### 3.3

#### **power-driven coupling device**

straining device in which a wire rope is strained by a power-driven equipment

### 3.4

#### **tensioning device**

ratchet spanner

tool used to increase the tension of the taut wire rope

**3.5  
straining load**

tensile force applied to the wire rope when a specific tangential force is applied to the hand wheel or when a specific force by a power operated mechanism is applied to the gear

**4 Safety requirements**

**4.1 General**

**4.1.1 Components**

Manually operated coupling devices consist of hand wheel, gear, rope drum with rope fastening, footbrake, arresting device, and winch plate, see [Figure 1](#).

Manually operated coupling devices may have the following additional components:

- tensioning device;
- change gear.

Accessory parts for coupling devices are the following:

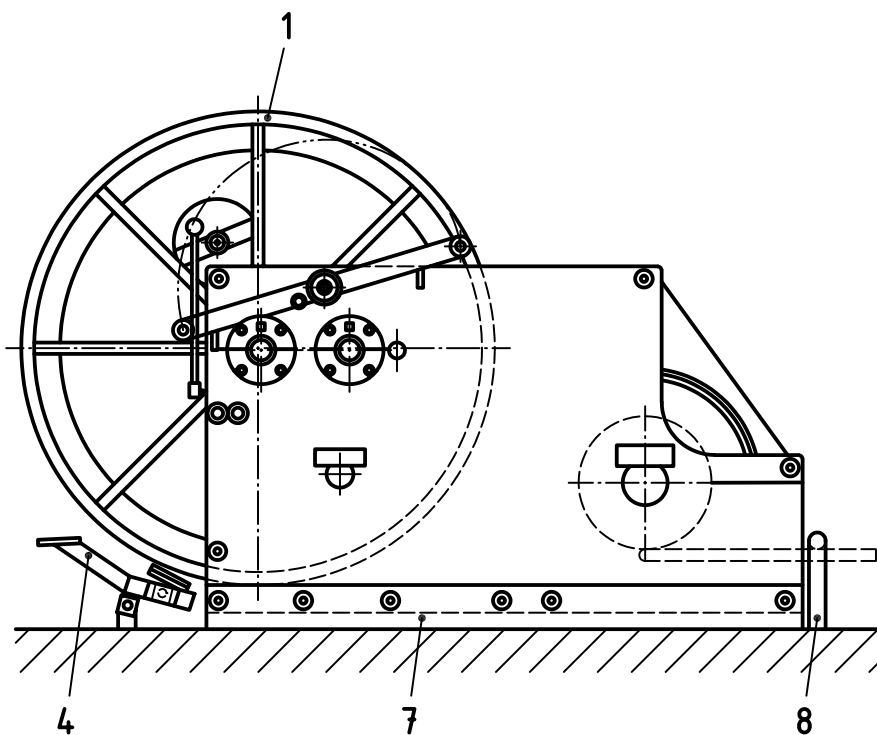
- foundation;
- guide track for wire rope;

Power operated coupling devices consist of power unit (e.g. electric motor, hydraulic power pack) with controls and gearing, rope drum with rope fastening, arresting device, and winch plate, see [Figure 2](#).

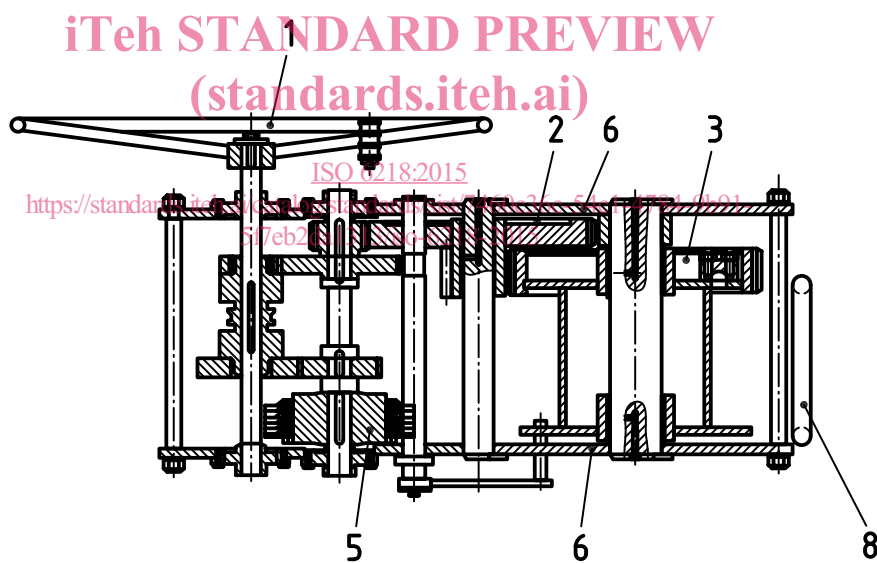
Electrical drives and control equipment shall meet the requirements in ISO 3730.

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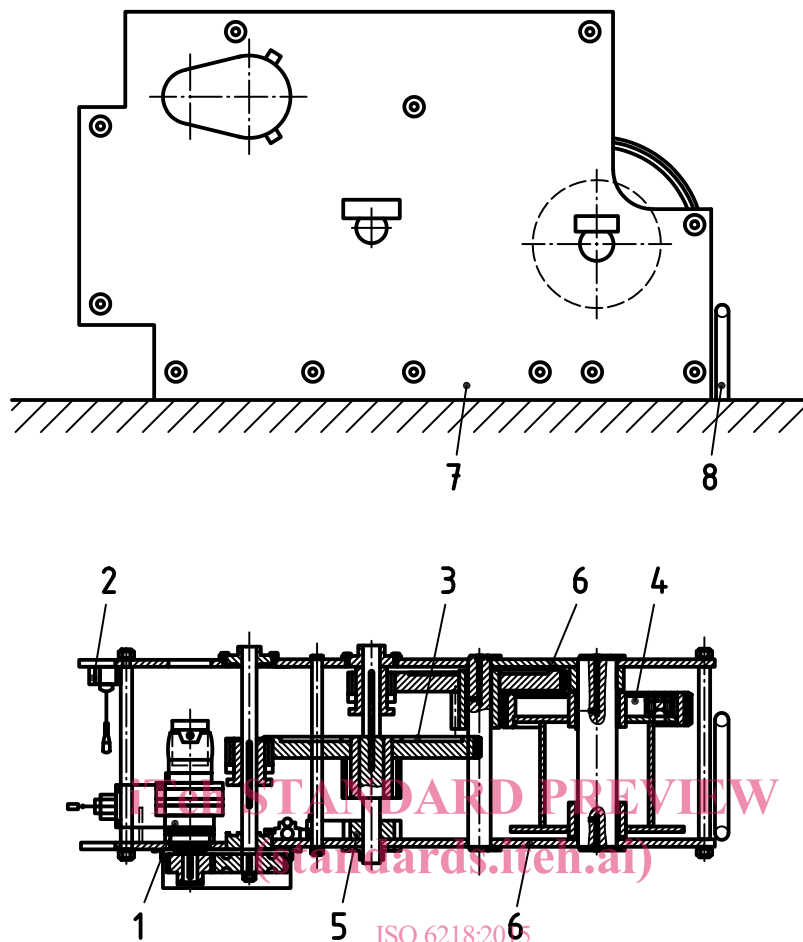
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**Key**

- 1 handwheel
  - 2 gear
  - 3 rope drum with rope fastening
  - 4 footbrake (only shown in side view)
  - 5 arresting device
  - 6 winch plate
- Accessory parts:
- 7 foundation
  - 8 guide track

**Figure 1 — Manually operated coupling device, components**



**Key**

- 1 power unit (e.g. electric motor, hydraulic motor)
- 2 controls
- 3 gear
- 4 rope drum with rope fastening
- 5 arresting device
- 6 winch plate

Accessory parts:

- 7 foundation
- 8 guide track

**Figure 2 — Power operated coupling device, components**

**4.1.2 Requirements**

The coupling device shall be constructed such that even under the most severe expected conditions, resulting, for example, from the size of the coupled vessels, the actuating power, the meteorological conditions, the wave height, etc., there is no danger to crew members, for example from breaking wire ropes, or crushing or shearing parts. The strength requirements according to ISO 3730 shall be fulfilled.

Combined coupling devices shall comply with the requirements for both manually- and power-operated coupling devices.

## 4.2 Limitation of actuating power for power operated coupling devices

The motor shall be equipped with a control device to the effect that the actuating power is limited to the maximum allowed power.

## 4.3 Limitation of rope speed

The maximum speed of the wire rope shall be limited to 1,0 m/s.

## 4.4 Strength requirements

All parts of the coupling devices shall be designed and secured such that they withstand the highest minimum breaking load of the wire rope according to [Table 1](#).

## 5 Models

### 5.1 Operation

The distinction is made between:

- manually operated (M), or
- power operated (P), or
- combined (M/P) coupling devices.

### 5.2 Position of handwheel/motor

The distinction is made between

- a left hand model (L), coupling device with hand wheel or the power-driven equipment and the drum on the left hand side of the gearing, and
- a right-hand model (R) coupling device with hand wheel or the power-driven equipment and the drum on the right hand side of the gearing,

when looking in the direction in which the wire rope is paid out. See [Figure 3](#).



a) Left hand model

b) Right hand model

#### Key

- 1 wire rope
- 2 handwheel/power-driven equipment
- 3 direction of view

**Figure 3 — Models**