

International Standard



4308

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Cranes — Selection of wire ropes

Appareils de levage — Choix des câbles

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Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 4308 was developed by Technical Committee ISO/TC 96, *Cranes, lifting appliances and related equipment*, and was circulated to the member bodies in February 1978.

It has been approved by the member bodies of the following countries :

Australia	Italy	South Africa, Rep. of
Czechoslovakia	Japan	Spain
Finland	Korea, Rep. of	Sweden
France	Mexico	Switzerland
India	Norway	United Kingdom
Ireland	Poland	Yugoslavia
Israel	Romania	

The member bodies of the following countries expressed disapproval of the document on technical grounds :

Belgium
Netherlands
New Zealand
USA

Cranes — Selection of wire ropes

1 Scope and field of application

This International Standard specifies two methods for the selection of wire rope to be used on the type of lifting appliances designated in ISO 4306, and which are listed in annex A.

This International Standard establishes the minimum requirements for these wire ropes in order that they may have acceptable strength and performance levels with respect to design, application and maintenance of the appliance.

It allows the wire rope to be selected by one of two methods, one based on the value of the rope selection factor C , and the other based on the value of the coefficient of utilisation Z_p , as given in table 1.

For the specific application to a type of apparatus (mobile cranes, travelling bridges, etc.), a choice in the classification groups shall be made in accordance with ISO 4301. Only the C or Z_p values of the selected group (or their calculated equivalent) shall be used for the choice of rope.

An example of such a choice is given in annex C for mobile cranes.

2 References

ISO 2408, *Steel wire ropes for general purposes — Characteristics*.

ISO 4301, *Lifting appliances — Classification*.

ISO 4306/1, *Lifting appliances — Vocabulary — Part 1: Types of cranes*.¹⁾

ISO 4309, *Wire rope for lifting appliances — Code of practice for examination and discard*.

1) At present at the stage of draft.

2) $1 \text{ N/mm}^2 = 10^6 \text{ N/m}^2 = 1 \text{ MPa}$

3 Type of rope

Where possible, the wire rope used shall be in accordance with ISO 2408.

However, the use of wire rope not specified by ISO 2408 is permitted, but in such cases the supplier of the wire rope shall show to the user that the product fulfils the minimum requirements detailed in this International Standard.

4 Duty conditions

The mechanisms of lifting appliances shall be classified according to the duty conditions laid down in ISO 4301.

5 Selection procedure

5.1 Calculation of C values

The value of C is a function of Z_p and is given by the equation

$$C = \sqrt{\frac{Z_p}{K' \times R_o}} \quad \dots(1)$$

where

C is the rope selection factor (minimum);

K' is the empirical factor of minimum breaking load of a given rope construction (see table 4 of ISO 2408);

R_o is the minimum tensile strength of the wire used in the rope, in newtons per square millimetre²⁾;

Z_p is the minimum practical coefficient of utilisation.

Table 1 gives the values of Z_p which shall be used for each classification group of mechanism in order to achieve the