International Standard ISO 7364

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

Shipbuilding and marine structures — Deck machinery — Accommodation ladder winches

Construction navale et structures maritimes — Auxiliaires de pont — Treuils pour échelles de coupée

First edition — 1983-05-15

UDC 621.864 : 629.12 Ref. No. ISO 7364-1983 (E)

Descriptors : shipbuilding, decks, machinery, ladders, winches, specifications, characteristics, designation, acceptance inspection.

Price based on 3 pages

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 7364 was developed by Technical Committee ISO/TC 8, *Shipbuilding and marine structures*, and was circulated to the member bodies in April 1982.

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

Austria	Germany, F.R.	Poland
Belgium	India	Romania
Brazil	Italy	Spain
China	Japan	Thailand
Cuba	Korea, Dem. P. Rep. of	United Kingdom
Czechoslovakia	Korea, Rep. of	USSR
Egypt, Arab Rep. of	Mexico	Yugoslavia
Finland	Netherlands	
France	Norway	

No member body expressed disapproval of the document.

Printed in Switzerland

Shipbuilding and marine structures — Deck machinery — Accommodation ladder winches

1 Scope and field of application

This International Standard specifies requirements and characteristics of lightly powered ships' accommodation ladder winches provided with electric, hydraulic or pneumatic drive, and unpowered ships' accommodation ladder winches.

It does not include requirements for the prime mover used to operate the winch.

2 References

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

ISO 3828, *Shipbuilding — Deck machinery — Vocabulary.*

ISO 5488, *Shipbuilding — Accommodation ladders.*

3 Definitions

For the purpose of this International Standard, the definitions given in ISO 3828 apply, with the following exceptions.

3.1 **nominal size** : The nominal size, which corresponds to the drum load as given in the table, is used as a designation of a winch in accordance with this International Standard.

3.2 **drum load** : The maximum rope tension in the rope or ropes at the drum exit either when the winch is hoisting an unloaded accommodation ladder at the nominal speed, with the rope or ropes wound on the drum in a single layer, or when the winch is placing the accommodation ladder in its stowage position.

3.3 **Types of winches** (see the figure)

3.3.1 **right-hand winch** : A winch where the reduction gear or drive of the drum is on the right-hand side of the drum, in relation to an observer situated on the side of the motor or power supply.

3.3.2 **left-hand winch** : A winch where the reduction gear or drive of the drum is on the left-hand side of the drum, in relation to an observer situated on the side of the motor or power supply.

3.3.3 **symmetrical double drum winch** : A winch where the reduction gear or drive of the drums is between symmetrically situated drums.

4 Design and operation

4.1 The winches shall be equipped with one or two drums. The drum shall be a split drum where two ropes are to be wound on it.

4.2 The drum length shall be such that the rope can be wound on fully, in not more than three layers.

4.3 The drum diameter shall be not less than 14 times the rope diameter given in the table.

4.4 The flange height shall be such that it will project at least 1,5 rope diameters beyond the outermost layer of the rope.

4.5 Double drum winches intended for double flight accommodation ladders shall be fitted with a suitable device to allow independent holding, hoisting or lowering of each flight.

4.6 The winch shall be provided with a device capable of holding the drum at 1,5 holding load. For powered winches, such device shall automatically operate when the drive is being shut off or if the power fails. Manual lowering and hoisting of the accommodation ladder shall be possible. A self-locking wormgear (or equivalent) may be considered a holding device if agreed between the purchaser and the manufacturer.

4.7 For design purposes the drum shall be based on the use of 6 × 37 galvanized steel wire rope with fibre core of 1 770 N/mm^2 tensile grade, as specified in ISO 2408. Wire rope diameters are listed in the table. This requirement does not preclude the use of other types of rope in service.

In every case the safety factor of the rope shall be not less than five in relation to the holding load listed in the table.

NOTE — Attention is drawn to the possibility of national authorities requiring a safety factor of more than five. The relevant figures for a safety factor of six are shown in brackets in the table.

4.8 The winch shall be designed to ensure that all bearing surfaces and corresponding component parts of the winch are lubricated during operation.

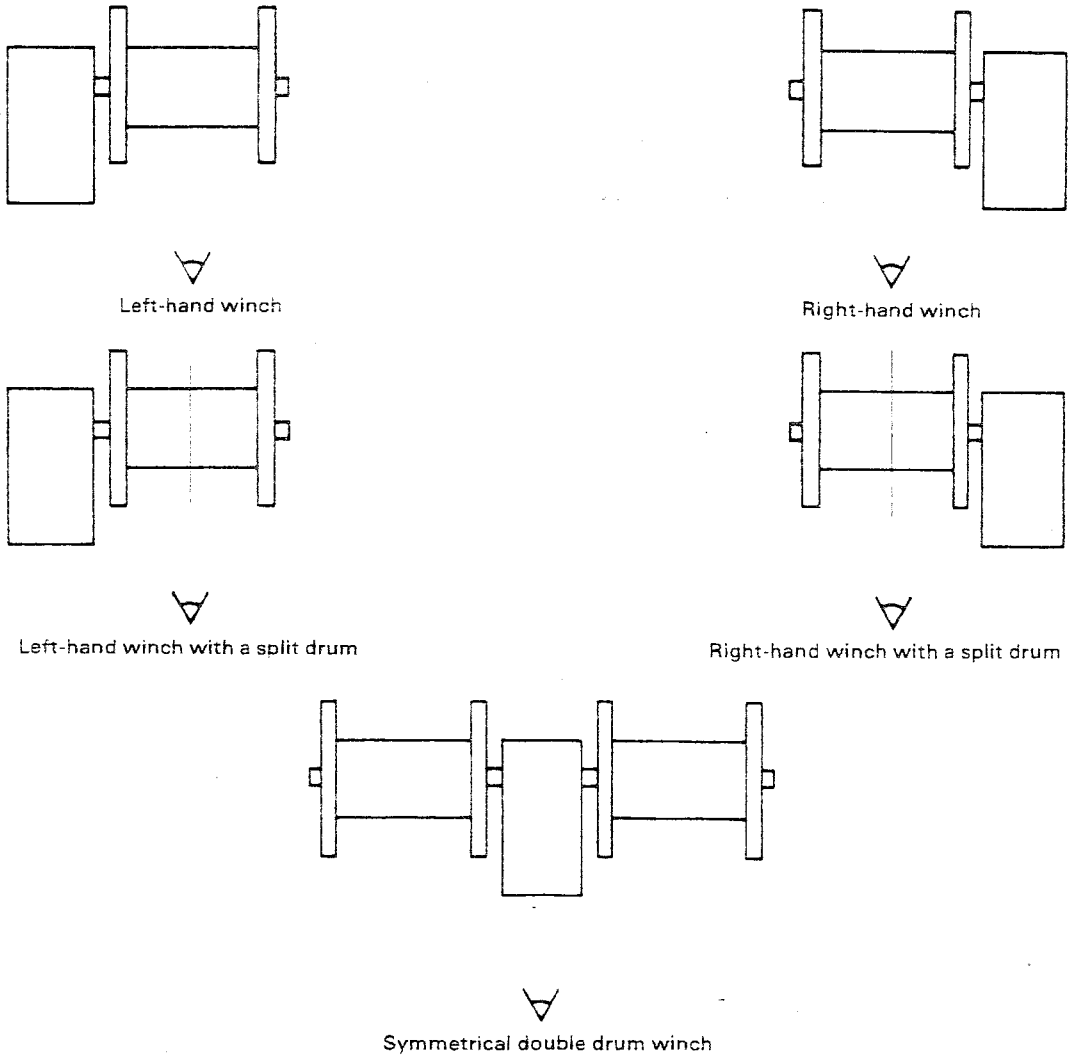

Figure — Examples of accommodation ladder winches

4.9 Stresses in component parts of the winch being acted upon with the drum load and holding load shall not exceed 0,4 times the 0,2 % proof stress of the material.

4.10 The winch shall be fitted with a local emergency stop.

4.11 If agreed between the purchaser and manufacturer, the accommodation ladder winch may be provided with a speed control on the drive for hoisting and lowering.

4.12 Lightly powered winches shall be also provided with manual drive.

4.13 The operator shall be protected against the possibility of being struck by a revolving crank handle.

4.14 Electrical equipment shall be installed in accordance with IEC Publications.

5 Characteristics

5.1 The characteristics of the winch shall be as listed in the table.

5.2 For lightly powered winches the nominal speed of hoisting the accommodation ladder shall be not less than 0,1 m/s.

5.3 It shall be possible to overload the drive of the winch by 1,5 times the drum load for 2 min when the accommodation ladder is being hoisted, without causing failure.

Table — Performance data

1	2	3	4	5
Nominal size	Drum load[1] kN	Holding load[1] kN	Minimum rope strength[1] (= 5 (6) × holding load)[2] kN	Steel wire rope diameter[2] [3] mm
5	5	15	75 (90)	12 (13)
6	6,3	18	90 (108)	13 (16)
8	8	25	125 (150)	16 (18)
10	10	30	150 (180)	18 (20)
12	12,5	37,5	188 (225)	20 (22)
16	16	48	240 (288)	22 (24)

1) For winches working with two ropes the listed values are the sum of the forces on each rope.

2) In columns 4 and 5, a holding load safety factor of five is given with a safety factor of six indicated in brackets.

3) The rope diameter is given for winches working with one rope only.

6 Designation

Accommodation ladder winches conforming to this International Standard shall be designated as follows, in the order given :

- accommodation ladder winch;
- the number of this International Standard;
- type of drive (E - electric, H - hydraulic, P - pneumatic, U - unpowered);
- nominal size (according to the table);
- type of winch (R - right-hand, L - left-hand, *and* D - single drum, DD - split drum, *or* 2DS - symmetrical double drum).

Example :

Designation of an electrically driven accommodation ladder winch of nominal size 12, right-hand, with a single split drum :

Accommodation ladder winch ISO 7364-E-12-R-DD

Additional information shall be given, for example the type of current (AC or DC), voltage, frequency and if possible pressure (bar) in hydraulic and pneumatic systems.

7 Acceptance tests (individual)

The winch shall be tested as a complete unit, i.e. prime mover, drum, gearing and controls. The results of tests shall be recorded in the certificate.

7.1 Test without load

The winch shall be run without load for 10 min continuously, 5 min in each direction. The temperature of bearings shall be checked.

7.2 Drum load test

The winch shall be run under drum load through two lowering and hoisting cycles, the length of the rope paid out being not less than one-third of the drum capacity.

The following shall be checked :

a) oil-tightness;

b) power input;

c) speed obtained;

d) presence of abnormal noise;

e) correct operation of the control brake.

7.3 Static test under 1,5 holding load

A load equivalent to the 1,5 holding load shall be applied, with the rope wound in a single layer on the drum. The holding device shall prevent rotation of the drum when subjected to this load.

7.4 On board test and inspections

The winch shall be tested as a part of the complete accommodation ladder unit. The minimum extent of the test shall be as follows :

a) twice hoisting the accommodation ladder up to its full height and lowering it (tested as in 7.2);

b) holding a static load for the complete accommodation ladder unit loaded as specified in ISO 5488 paragraph 6.1.3.