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**Ships and marine technology —
Anchor chain releasers**

*Navires et technologie maritime — Systèmes de détente pour chaînes
d'ancre*

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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 of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 4, *Outfitting and deck machinery*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Ships and marine technology — Anchor chain releasers

1 Scope

This document provides a classification of anchor chain releasers and a description of their structure. It also specifies their basic dimensions, requirements and test methods, and their marking and surface signs.

It is applicable to the design, production and acceptance of anchor chain releasers.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. 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 3828, *Shipbuilding and marine structures — Deck machinery — Vocabulary and symbols*

ISO 8501-1, *Preparation of steel substrates before application of paints and related products — Visual assessment of surface cleanliness — Part 1: Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 3828 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

4 Classification, structures and main dimensions

4.1 Classification

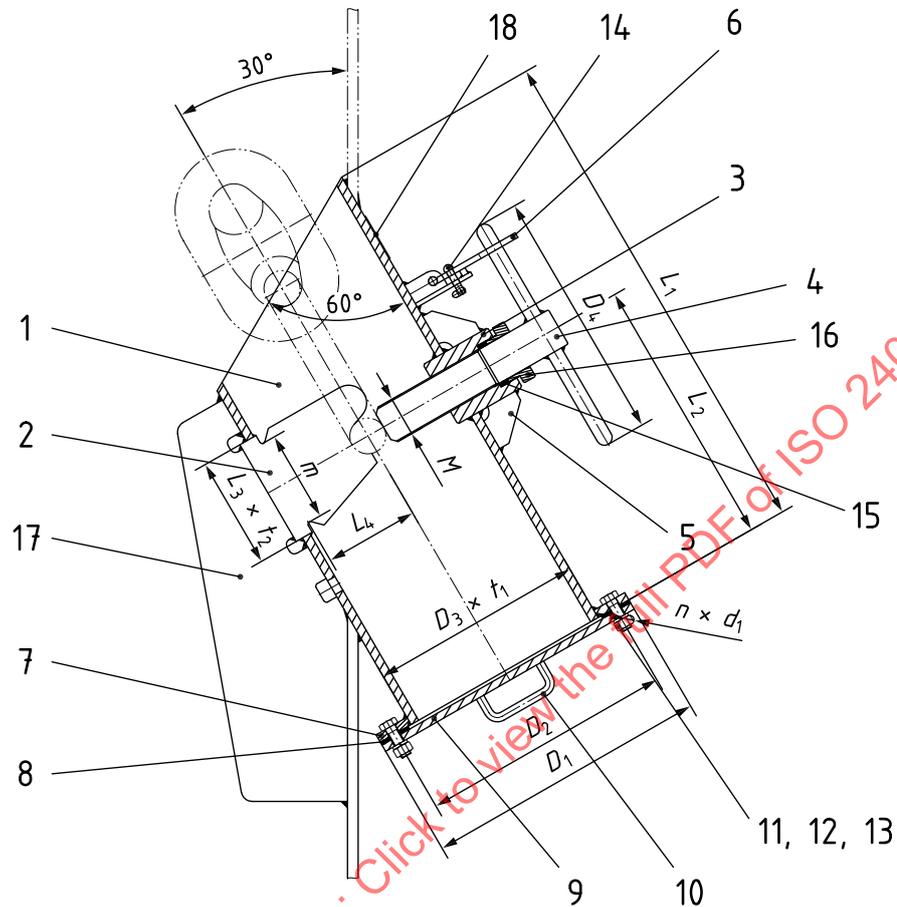
Anchor chain releasers are classified into the types shown in [Table 1](#), based on their structure and application.

Table 1 — Types and parameters of anchor chain releasers

No.	Classification	Type code	Nominal size mm	Application
1	Tongue anchor chain releaser	A	36 to 152	Grade 3 anchor chains of the sizes specified in ISO 1704
2	Plug type anchor chain releaser	B	50 to 120	
3	Plug type anchor chain releaser	C	50 to 120	

4.2 Structure and main dimensions

4.2.1 The structure and main dimensions of Type A anchor chain releasers are shown in Figure 1 and Table 2.



Key

- | | | | | |
|------------------|------------------------|-----------------|------------------|-----------------------|
| 1 trunk | 5 reinforced stiffener | 9 cover | 13 spring washer | 16 securing nut |
| 2 chain hook | 6 securing buckle | 10 handle | 14 tongued pin | 17 reinforced bracket |
| 3 liner | 7 flange | 11 hexagon bolt | 15 packing | 18 instructions plate |
| 4 threaded shaft | 8 gasket | 12 hexagon nut | | |

Figure 1 — Structure of Type A anchor chain releasers

Table 2 — Main dimensions of Type A anchor chain releasers

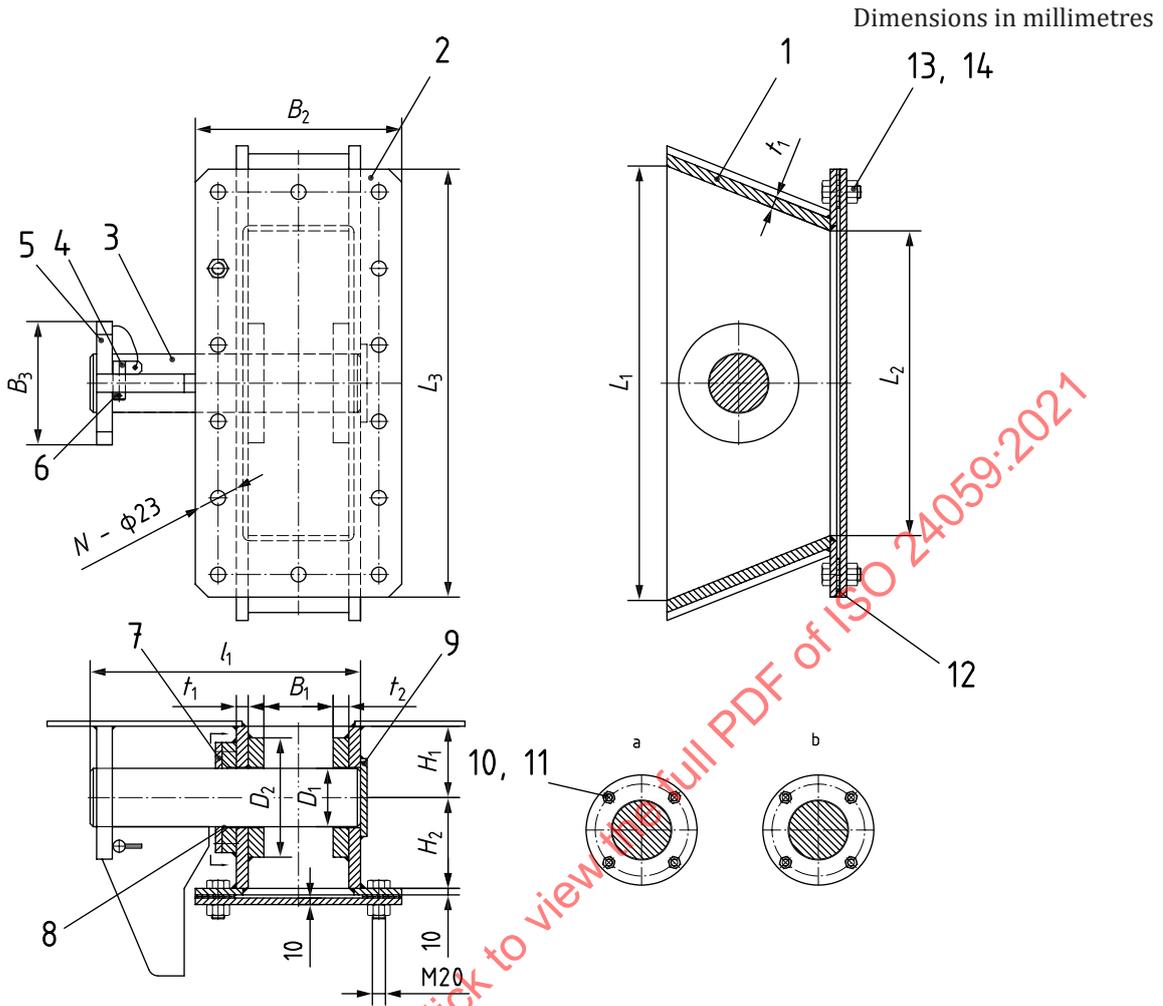
Dimensions in millimetres

Chain diameter	L_1	L_2	$L_3 \times t_2$	L_4	D_1	D_2	$D_3 \times t_1$	D_4	M	m	$n \times d_1$	Theoretic mass kg
36 to 46	735	342	150 × 36	119	375	325	273 × 13	360	Tr60 × 4	110	12 × ø 18	79
48 to 56	835	378	174 × 50	131	440	390	325 × 14	410	Tr70 × 4	134	12 × ø 22	114
58 to 68	995	455	212 × 55	177	540	480	406 × 16	460	Tr75 × 4	172	16 × ø 22	188

Table 2 (continued)

Chain diameter	L_1	L_2	$L_3 \times t_2$	L_4	D_1	D_2	$D_3 \times t_1$	D_4	M	m	$n \times d_1$	Theoretic mass kg
70 to 81	1 245	551	286 × 70	227	645	585	508 × 18	470	Tr90 × 4	206	20 × ø 22	312
84 to 92		508	302 × 85					525	Tr100 × 4	222		342
95 to 105	1 430	598	337 × 95	272	754	694	610 × 20	535	Tr110 × 12	257		495
107 to 114		563	366 × 110					620	Tr115 × 12	266		535
117 to 127	1 615	653	398 × 120	312	856	786	711 × 22	630	Tr125 × 12	298	24 × ø 22	737
130 to 137	1 790	744	438 × 130	334	958	885	813 × 22	640	Tr135 × 12	338		962
142 to 152	1 970	822	472 × 140	370	1 060	990	914 × 25	730	Tr145 × 12	372	28 × ø 22	1 308

4.2.2 The structure and main dimensions of Type B anchor chain releasers are shown in [Figure 2](#) and [Table 3](#).



Key

- | | | | | |
|---------|-------------|-----------------|----------------|-----------------|
| 1 body | 4 check pin | 7 packing gland | 10 stud bolt | 13 hexagon bolt |
| 2 cover | 5 stopper | 8 packing | 11 hexagon nut | 14 hexagon nut |
| 3 pin | 6 split pin | 9 stop plate | 12 gasket | |
- a For ϕ 52 to 60.
 b For ϕ 64 to 120.

Figure 2 — Structure of Type B anchor chain releasers

Table 3 — Main dimensions of Type B anchor chain releasers

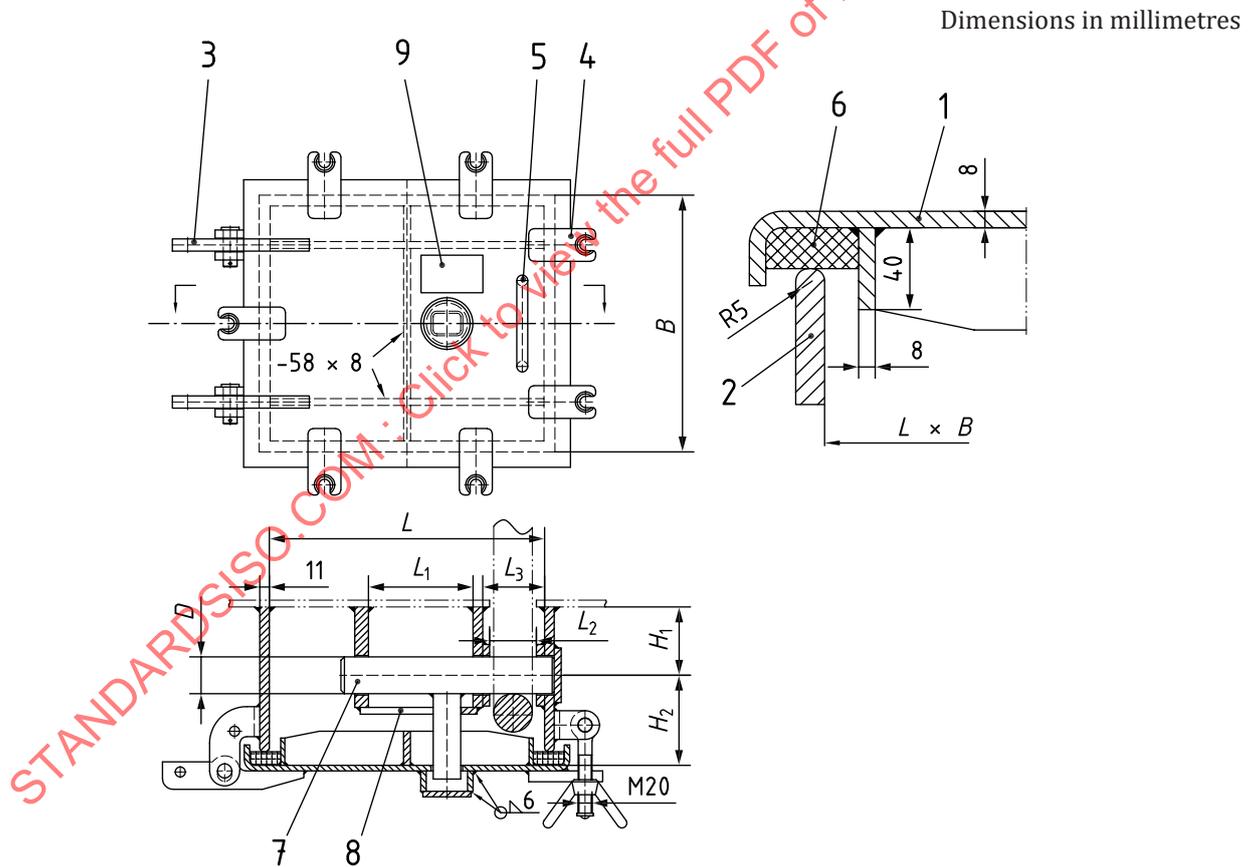
Dimensions in millimetres

Nom- inal size	Chain diameter	L_1	L_2	L_3	l_1	B_1	B_2	B_3	D_1	D_2	H_1	H_2	t_1	t_2	N	Theo- retic mass kg
52	50 to 52	384	270	460	256	64	238	114	54	112	63	82	14	10	10	41
56	54 to 56	420	296	486	272	68	246	122	58	120	69	88	14	12	10	48
60	58 to 60	448	314	504	288	72	254	130	62	128	74	94	14	14	14	54
64	62 to 64	478	334	524	308	78	264	138	66	136	80	100	14	16	14	60
68	66 to 68	504	352	542	322	82	272	148	70	144	84	107	16	16	14	71
73	70 to 73	540	380	570	348	88	282	156	75	154	87	114	16	18	14	81

Table 3 (continued)

Nominal size	Chain diameter	L_1	L_2	L_3	l_1	B_1	B_2	B_3	D_1	D_2	H_1	H_2	t_1	t_2	N	Theoretic mass kg
78	76 to 78	576	404	594	368	94	292	166	80	164	95	122	16	20	14	93
84	81 to 84	624	438	628	388	100	302	178	85	174	102	131	16	22	14	106
90	87 to 90	670	470	660	414	106	316	190	90	184	110	140	18	24	14	128
95	92 to 95	708	496	686	442	112	330	200	95	194	118	148	18	28	14	146
102	98 to 102	762	534	724	478	120	346	212	100	206	128	158	22	28	14	188
111	105 to 111	828	580	770	512	130	364	230	110	224	139	171	24	30	18	231
120	114 to 120	892	620	810	556	140	386	246	120	242	150	184	24	36	18	274

4.2.3 The structure and main dimensions of Type C anchor chain releasers are shown in Figure 3 and Table 4. Where it is forbidden to use port state control (PSC) with butterfly nuts for locking, Type C shall not be selected.



Key

- | | |
|------------------|-----------------|
| 1 cover | 6 packing |
| 2 coaming | 7 plug |
| 3 hinge | 8 body |
| 4 butterfly nuts | 9 warning signs |
| 5 handle | |

Figure 3 — Structure of Type C anchor chain releasers

Table 4 — Main dimensions of Type C anchor chain releasers

Dimensions in millimetres

Nominal size	Chain diameter	L	B	L ₁	L ₂	L ₃	D	H ₁	H ₂	Theoretic mass kg		
50	50	400	332	244	70	104	60	100	115	64		
52	52			246	72	106	62			69		
54	54	435	420	252	74	112	64			105	120	72
56	56			256	78	114	67	76				
58	58	475	450	262	80	122	69	110	130	80		
60	60			265	82	125	71			82		
62	62	480	480	269	84	130	73			135	140	85
64	64			272	86	135	75					86
66	66	500	504	281	88	140	78			140	140	90
68	68				92		79	92				
70	70	536	540	288	94	146	81	115	148	93		
73	73				98	150	84			94		
76	76	570	570	300	102	158	88	120	155	95		
78	78			303	105	162	90			96		
81	81	630	620	309	108	167	93	125	165	96		
84	84			312	111	170	96			98		
87	87	668	670	325	115	181	100			175	175	100
90	90			327	118	183	103					106
92	92	700	710	339	121	195	105	130	185	113		
95	95			342	124	198	108			119		
97	97	750		353	127	205	110	135	140	192	121	
100	100			356	130	208	113	150				
102	102	810		358	132	210	115	140			192	186
105	105			371	137	221	118					214
107	107	830		374	140	225	120	145			225	257
111	111			376	142	226	123		244			
114	114	830		398	150	246	127		145	225		286
117	117				153	248	130	327				
120	120			403	156	253	133	150		372		

NOTE For nominal sizes 50 to 73, there are seven butterfly nuts; for nominal sizes 76 to 120, there are eight butterfly clips.

5 Requirements

5.1 Materials

5.1.1 Refer to [Table 5](#) for the materials of the main components of anchor chain releasers.

Table 5 — Materials of the main components of anchor chain releasers

Component	Materials	
	Name	Main mechanical properties
Body, trunk, reinforced bracket	Hull steel	Minimum yield stress: 300 N/mm ²
Cover, coaming, flange, hinge, stop plate, reinforced stiffener, etc.	Carbon steel	Minimum yield stress: 235 N/mm ²
Pin, chain hook	Quality carbon steel	Minimum yield stress: 235 N/mm ²
Threaded shaft, liner	Quality carbon steel	Minimum yield stress: 300 N/mm ²
Hexagon bolt, nut, washer, stud bolt, round pin, tongued pi	Stainless steel	—

5.1.2 The material of the packing and gasket shall be polychloroprene, with a Shore hardness of 35 to 45, and a tensile strength of not less than 14 MPa.

5.2 External appearance

The surface of anchor chain releasers shall be free of defects such as burrs, scars, slag inclusion and cracks.

5.3 Operational performance

After fabrication, it shall be possible to turn flexibly the threaded shaft of Type A anchor chain releasers.

After fabrication, it shall be possible to move flexibly the pin handle of Type B and Type C anchor chain releasers.

5.4 Derusting

Derusting of the anchor chain releaser shall not be less than Sa2.5 or St3 in accordance with ISO 8501-1. Two coats of anti-rust primers shall be applied, and a neutral lubricating grease shall be applied to the surface of shafts and screw shafts.

5.5 Tolerance

The dimensional tolerances that are not noted on the anchor chain releaser shall be of class C as specified in ISO 2768-1.

5.6 Strength

5.6.1 No chain breakaway shall occur when the anchor chain releaser is under 15 % of the anchor chain breaking load. For the anchor chain breaking load, refer to ISO 1704.

5.6.2 Crack shall occur when the anchor chain releaser is under 15 % to 30 % of the anchor chain breaking load to release the chain automatically.

5.6.3 The strength calculation for the chain hook, plug or pin shall be according to [Annex A](#).

5.7 Tightness

5.7.1 Anchor chain releasers shall be subject to a water pressure test. The test pressure shall be higher than the design pressure, and no water leakage shall occur.

5.7.2 Anchor chain releasers, after being installed onboard, shall be subject to a watertight test, and no water leakage shall occur on the exterior surface.

6 Test methods

6.1 Materials

Materials of the anchor chain releaser shall be checked by the method of batch No. and quality assurance certificates, and the result shall be in conformity with [5.1](#).

6.2 External appearance

The external appearance shall be inspected through visual inspection and hand touching, and the result shall be in conformity with [5.2](#).

6.3 Operational performance

After fabrication of the anchor chain releaser, continuous starting of plug, pin shaft and threaded shaft shall be tested not less than three times, and the result shall be in conformity with [5.3](#).

6.4 Derusting

Derusting of the anchor chain releaser shall be inspected in accordance with the methods specified in ISO 8501-1, and the result shall be in conformity with [5.4](#).

6.5 Tolerance

Dimensional tolerance of the anchor chain releaser shall be measured by conventional measuring devices, and the result shall be in conformity with [5.5](#).

6.6 Strength

Install the anchor chain releaser onto the tension unit, apply a load slowly along the direction where the chain is under force to 15 % of the anchor chain breaking load, maintain the load for 10 min, and the result shall be in conformity with [5.6.1](#). Continuously apply the load to 30 % of anchor chain breaking load to test the maximum load, and the result shall be in conformity with [5.6.2](#).

6.7 Tightness

6.7.1 Form a sealed item by joining body and flange plate, apply and maintain a water pressure higher than the design pressure for a period of 5 min, check the external surface of the anchor chain releaser, and the result shall be in conformity with [5.7.1](#).

6.7.2 A hose test shall be conducted under a pressure of not less than 0,2 MPa, with a nozzle diameter of not less than 12,5 mm. The flushing shall be made towards the sealing strap from a distance not exceeding 1,5 m, for a period of 3 min, and the result shall be in accordance with 5.7.2. Watertightness of the anchor chain releaser after installation on board may be verified at the time of the hydrostatic test for the chain locker.

6.7.3 Where a Type C anchor chain releaser is adopted, a tightness achieved by butterfly nuts can be in contradiction with classification societies or administration specifications. Compliance with the watertight requirement of chain lockers in Reg. 22-2 of the International Convention on Load Lines^[2] shall be carefully addressed.

7 Marking

The anchor chain releaser shall be marked as follows:

- a) denomination: anchor chain releaser;
- b) a reference to this document: ISO 24059:2021;
- c) type code: A, B or C;
- d) nominal size.

EXAMPLE A Type A anchor chain releaser with a nominal size of 70 is identified as:

Anchor chain releaser ISO 24059:2021 A70

8 Signs

The anchor chain releaser shall be furnished with the following product signs on its surface:

- a) maker's name or trademark;
- b) product name;
- c) product specification and a reference to this document;
- d) product date or batch No.;
- e) product quality conformity seals.

Annex A (normative)

Strength calculations

A.1 Latch and plug

A.1.1 Shearing strength of the latch, plug and tongue plate

The schematic diagram of the forces applied is as shown in [Figure A.1](#).

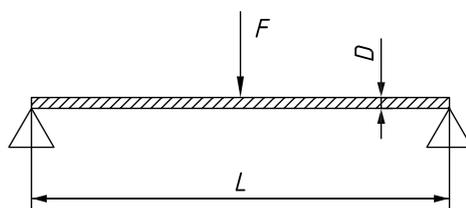


Figure A.1 — Schematic diagram of forces applied

$$F = P \cdot 0,15$$

$$Q = F / 2$$

$$\tau = F \cdot L_1 \cdot L_2$$

$$\tau = Q / A < [\tau]$$

where

P is the anchor chain breaking force, N;

F is the shaft load, N;

Q is the shaft shearing force, N;

A is the section area of the anchor, mm^2 ;

τ is the shearing strength, N / mm^2 ;

$[\tau]$ is the allowable shearing stress, N / mm^2 .