
**Ships and marine technology — Stud-link
anchor chains**

*Navires et technologie maritime — Chaînes d'ancre à mailles
étançonnées*



Reference number
ISO 1704:2008(E)

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 1704 was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 4, *Outfitting and deck machinery*.

This third edition cancels and replaces the second edition (ISO 1704:1991) which has been technically revised as follows.

- Tolerances on the nominal diameter of the links remain the same, but tolerances on other parts of the links have been appropriately adjusted.
- Lengths and tolerances of the combined links have been increased.
- The allowable manufacturing tolerance of all other dimensions has been increased.
- The nominal diameter of a common stud link is shown by d and the diameter of other links, shackles and swivels given as multiples of d .
- The swivel type and a series of its dimensions have been added for the convenience of the user. The patented swivel or the swivel with a particular function can be used as a substitute if this is possible in harmony with this International Standard.

Ships and marine technology — Stud-link anchor chains

1 Scope

This International Standard specifies the shape, proportions, dimensions and tolerances of the component parts of stud-link anchor chains.

Any statutory requirements, rules and regulations applicable to the individual ship concerned also apply.

2 Normative references

The following referenced documents are indispensable for the application 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 2093:1986, *Electroplated coatings of tin — Specification and test methods*

ISO 2339:1986, *Taper pins, unhardened*

ISO 3828:1984, *Shipbuilding and marine structures — Deck machinery — Vocabulary*

3 Terms and definitions

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

3.1

chain-shot

component of an anchor chain consisting of common stud links and joining shackles with a given nominal length (27,5 m or 25 m) in accordance with ISO 3828

3.2

common stud link

basic link of which chain-shot consists

3.3

enlarged stud link

strengthened link that connects a common stud link and the end link, in the case of connecting chain-shots, with a “D” type joining shackle, or connects a common stud link and swivel

3.4

end link

strengthened link that is attached to the ends of chain-shots, in the case of connecting chain-shots, with “D” type joining shackles or the outboard chain-shot with an end shackle

3.5

joining shackle

“D” type joining shackle or Kenter type joining shackle used for connecting chain-shots

3.6

end shackle

enlarged shackle used for connecting the outboard chain-shot to the anchor

3.7

swivel

movable component of the outboard chain-shot which prevents excessive twisting of the chain cable

3.8

outboard chain-shot

additional short chain-shot fastened to the anchor shackle

3.9

nominal size

nominal diameter of the common stud link

4 Shape and dimensions

4.1 Shape

The stud links, shackles and component parts shall be of the shapes and proportions shown in Figures 1 to 9.

4.2 Dimensions

4.2.1 General

The dimensions of stud links, shackles and component parts shall be in accordance with the values given in Tables 1 to 7.

The nominal diameter, d , is a design diameter measured at the crown of a common stud link as an average value of two measurements perpendicular to each other. See Figure 1 and Table 1.

All dimensions, based on the nominal diameters, d , of the common stud links, shall be measured after the chain and shackles have been subjected to the statutory proof loads.

4.2.2 Enlarged stud links

The proportions of the enlarged stud links are the same as those of the common stud links. The nominal diameter of the enlarged stud link is 10 % larger than the nominal diameter of the common stud link: $d_1 = 1,1 d$, the calculated values are rounded to the nearest nominal diameter of the common link.

4.2.3 Common stud links and enlarged stud links

The inside diameter of common stud links and enlarged stud links shall be sufficient to allow each link to bed properly and work freely. See Figures 1 and 2.

4.2.4 End links

The inside diameter of end links shall be sufficient to allow the shackle link to bed properly and work freely. See Figure 3. The nominal diameter of the end link is 20 % larger than the nominal diameter of the common stud link: $d_2 = 1,2 d$, the calculated values are rounded to the nearest nominal diameter of the common link.

4.2.5 Shackle retaining pin

The retaining pin used in "D" type joining shackles and end shackles shall be a taper pin having a taper of not less than 1:50 and not more than 1:16 on the diameter.

The retaining pin used in Kenter type shackles shall be a taper pin having a taper of not less than 1:50 and not more than 1:32 on the diameter. The nominal diameter of the taper pin shall be $0,37 \times d$, the calculated values are rounded to the nearest standardized nominal diameter in accordance with ISO 2339. The nominal length of the taper pin shall be $(w_4 - 2) \times$ nominal diameter to taper pin (see Figure 5), the calculated values are rounded to the nearest standardized nominal length in accordance with ISO 2339.

Nominal sizes and lengths required are given in Tables 4, 5 and 6. Other details of the taper pins, e.g. end radius, cone tolerance and surface finish, shall be in accordance with ISO 2339.

Taper pins shall be either of stainless steel or tin-coated carbon steel. If tin-coated, this shall be either by a hot-dip process or electroplating in accordance with ISO 2093:1986, 7.1, service condition 4.

5 Tolerances

5.1 Nominal diameter of common stud links

The allowable manufacturing tolerances on the nominal diameter d of the common stud links, measured at the crown, are

- -0 mm for $d \leq 40$ mm;
- -2 mm for $40 \text{ mm} < d \leq 84$ mm;
- -3 mm for $84 \text{ mm} < d \leq 122$ mm;
- -4 mm for $d > 122$ mm.

The cross-sectional area at the crown of the link shall be not less than the area of a circle of the nominal diameter.

The allowable manufacturing tolerance on the nominal diameter measured elsewhere on the link is $+5$ %.

The tolerance on the stud-link welded parts is +15 %.

The allowable manufacturing tolerance of the link except for the requirements specified above is $\pm 2,5$ %, taking into account the fact that all components of the anchor chain shall fit in with each other.

5.2 Length of five links

The length of five links is defined as $5 \times p + 2 d = 22 d$. The measurement is taken from the outside.

The allowable manufacturing tolerance on a length of five links is $+2,5$ %.

5.3 All other dimensions

The tolerances of the diameter: $+5$ %

The tolerances other than diameter: $\pm 2,5$ %.

6 Range of sizes of links and shackles

The range of nominal diameter, d , is that specified by the classification societies associated in the International Association of Classification Societies (IACS).

7 Designation of size

The nominal size of a common stud link is designated its nominal diameter, d .

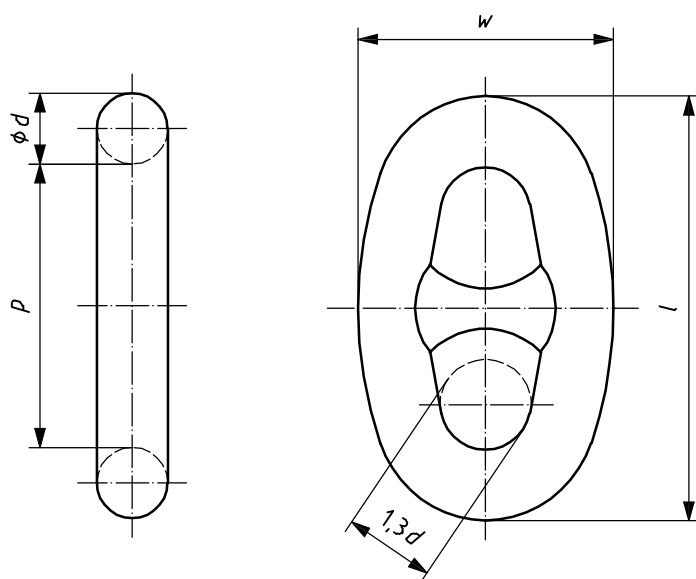
The nominal size of other links, shackles and swivels is designated by the nominal diameter, d , of the common stud link.

The nominal size of a stud-link anchor chain is designated by the nominal diameter of the common stud link.

8 Connections

Examples in the use of connecting chain-shots with joining shackle are shown in Figure 8.

Examples in the use of connecting chain outboard shot to anchor is shown in Figure 9.



Key

d = nominal diameter of common stud link

$l = 6 d$

$p = 4 d$

$w = 3,6 d$

NOTE For nominal dimensions, see Table 1.

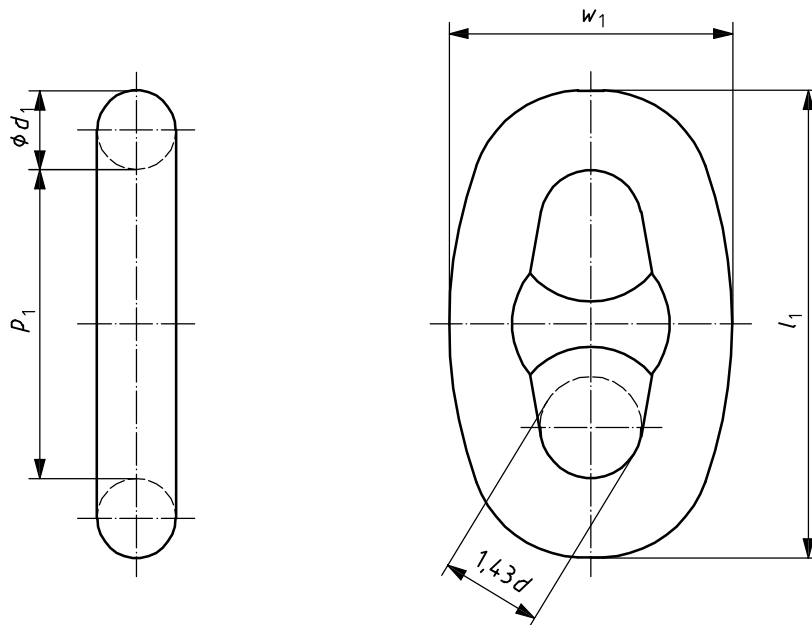
Figure 1 — Common stud link

Table 1 — Nominal dimensions of common stud link

Dimensions in millimetres

| Nominal size <i>d</i> | <i>l</i> | <i>p</i> | <i>w</i> |
|--------------------------|----------|----------|----------|
| 12,5 | 75 | 50 | 45 |
| 14 | 84 | 56 | 50 |
| 16 | 96 | 64 | 58 |
| 17,5 | 105 | 70 | 63 |
| 19 | 114 | 76 | 68 |
| 20,5 | 123 | 82 | 74 |
| 22 | 132 | 88 | 79 |
| 24 | 144 | 96 | 86 |
| | | | |
| 26 | 156 | 104 | 94 |
| 28 | 168 | 112 | 101 |
| 30 | 180 | 120 | 108 |
| 32 | 192 | 128 | 115 |
| 34 | 204 | 136 | 122 |
| | | | |
| 36 | 216 | 144 | 130 |
| 38 | 228 | 152 | 137 |
| 40 | 240 | 160 | 144 |
| 42 | 252 | 168 | 151 |
| 44 | 264 | 176 | 158 |
| | | | |
| 46 | 276 | 184 | 166 |
| 48 | 288 | 192 | 173 |
| 50 | 300 | 200 | 180 |
| 52 | 312 | 208 | 187 |
| 54 | 324 | 216 | 194 |
| | | | |
| 56 | 336 | 224 | 202 |
| 58 | 348 | 232 | 209 |
| 60 | 360 | 240 | 216 |
| 62 | 372 | 248 | 223 |
| 64 | 384 | 256 | 230 |
| | | | |
| 66 | 396 | 264 | 238 |
| 68 | 408 | 272 | 245 |

| Nominal size <i>d</i> | <i>l</i> | <i>p</i> | <i>w</i> |
|--------------------------|----------|----------|----------|
| 70 | 420 | 280 | 252 |
| 73 | 438 | 292 | 263 |
| | | | |
| 76 | 456 | 304 | 274 |
| 78 | 468 | 312 | 281 |
| 81 | 486 | 324 | 292 |
| 84 | 504 | 336 | 302 |
| | | | |
| 87 | 522 | 348 | 313 |
| 90 | 540 | 360 | 324 |
| 92 | 552 | 368 | 331 |
| 95 | 570 | 380 | 342 |
| | | | |
| 97 | 582 | 388 | 349 |
| 100 | 600 | 400 | 360 |
| 102 | 612 | 408 | 367 |
| 105 | 630 | 420 | 378 |
| 107 | 642 | 428 | 385 |
| | | | |
| 111 | 666 | 444 | 400 |
| 114 | 684 | 456 | 410 |
| 117 | 702 | 468 | 421 |
| 120 | 720 | 480 | 432 |
| | | | |
| 122 | 732 | 488 | 439 |
| 124 | 744 | 496 | 446 |
| 127 | 762 | 508 | 457 |
| 130 | 780 | 520 | 468 |
| 132 | 792 | 528 | 475 |
| | | | |
| 137 | 822 | 548 | 493 |
| 142 | 852 | 568 | 511 |
| 147 | 882 | 588 | 529 |
| 152 | 912 | 608 | 547 |
| 157 | 942 | 628 | 565 |
| 162 | 972 | 648 | 583 |



Key

d = nominal diameter of common stud link

d_1 = nominal diameter of enlarged stud link = $1,1 d$

$l_1 = 6 d_1 \approx 6,6 d$

$p_1 = 4 d_1 \approx 4,4 d$

$w_1 = 3,6 d_1 \approx 3,96 d$

NOTE For nominal dimensions, see Table 2.

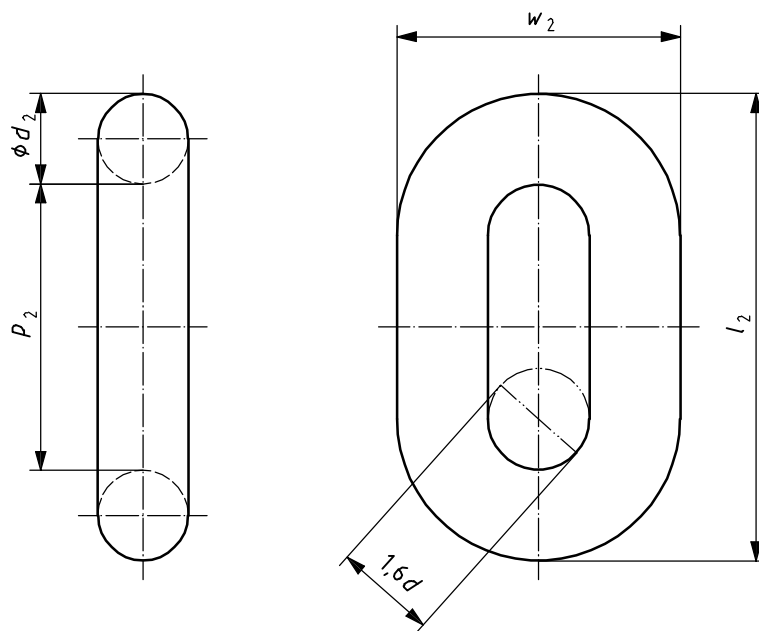
Figure 2 — Enlarged stud link

Table 2 — Nominal dimensions of enlarged stud link

Dimensions in millimetres

| Nominal size (d , common stud link) | d_1 | l_1 | p_1 | w_1 |
|--|-------|-------|-------|-------|
| 12,5 | 14 | 84 | 56 | 50 |
| 14 | 16 | 96 | 64 | 58 |
| 16 | 17,5 | 105 | 70 | 63 |
| 17,5 | 19 | 114 | 76 | 68 |
| 19 | 20,5 | 123 | 82 | 74 |
| 20,5 | 22 | 132 | 88 | 79 |
| 22 | 24 | 144 | 96 | 86 |
| 24 | 26 | 156 | 104 | 94 |
| | | | | |
| 26 | 28 | 168 | 112 | 101 |
| 28 | 30 | 180 | 120 | 108 |
| 30 | 34 | 204 | 136 | 122 |
| 32 | 36 | 216 | 144 | 130 |
| 34 | 38 | 228 | 152 | 137 |
| | | | | |
| 36 | 40 | 240 | 160 | 144 |
| 38 | 42 | 252 | 168 | 151 |
| 40 | 44 | 264 | 176 | 158 |
| 42 | 46 | 276 | 184 | 166 |
| 44 | 48 | 288 | 192 | 173 |
| | | | | |
| 46 | 50 | 300 | 200 | 180 |
| 48 | 54 | 324 | 216 | 194 |
| 50 | 56 | 336 | 224 | 202 |
| 52 | 58 | 348 | 232 | 209 |
| 54 | 60 | 360 | 240 | 216 |
| | | | | |
| 56 | 62 | 372 | 248 | 223 |
| 58 | 64 | 384 | 256 | 230 |
| 60 | 66 | 396 | 264 | 238 |
| 62 | 68 | 408 | 272 | 245 |
| 64 | 70 | 420 | 280 | 252 |
| | | | | |
| 66 | 73 | 438 | 292 | 263 |
| 68 | 76 | 456 | 304 | 274 |

| Nominal size (d , common stud link) | d_1 | l_1 | p_1 | w_1 |
|--|-------|-------|-------|-------|
| 70 | 78 | 468 | 312 | 281 |
| 73 | 81 | 486 | 324 | 292 |
| | | | | |
| 76 | 84 | 504 | 336 | 302 |
| 78 | 87 | 510 | 340 | 306 |
| 81 | 90 | 540 | 360 | 324 |
| 84 | 92 | 552 | 368 | 331 |
| | | | | |
| 87 | 97 | 582 | 388 | 349 |
| 90 | 100 | 600 | 400 | 360 |
| 92 | 102 | 612 | 408 | 367 |
| 95 | 105 | 630 | 420 | 378 |
| | | | | |
| 97 | 107 | 642 | 428 | 385 |
| 100 | 111 | 666 | 444 | 400 |
| 102 | 111 | 672 | 448 | 403 |
| 105 | 114 | 684 | 456 | 410 |
| 107 | 117 | 702 | 468 | 421 |
| | | | | |
| 111 | 122 | 732 | 488 | 439 |
| 114 | 124 | 744 | 496 | 446 |
| 117 | 130 | 780 | 520 | 468 |
| 120 | 132 | 792 | 528 | 475 |
| | | | | |
| 122 | 137 | 822 | 548 | 493 |
| 124 | 137 | 822 | 548 | 493 |
| 127 | 142 | 852 | 568 | 511 |
| 130 | 142 | 852 | 568 | 511 |
| 132 | 147 | 882 | 588 | 529 |
| | | | | |
| 137 | 152 | 912 | 608 | 547 |
| 142 | 157 | 942 | 628 | 565 |
| 147 | 162 | 972 | 648 | 583 |
| 152 | 167 | 1 002 | 668 | 601 |
| 157 | 173 | 1 038 | 692 | 623 |
| 162 | 178 | 1 068 | 712 | 641 |



Key

d = nominal diameter of common stud link

d_2 = nominal diameter of end link = $1,2 d$ ($d_2 = 1,2 d$)

$l_2 = p_2 + 2 d_2 = 6,75 d$

$p_2 = 3,65 d_2 \approx 4,35 d$

$w_2 = 3,3 d_2 \approx 4 d$

NOTE For nominal dimensions, see Table 3.

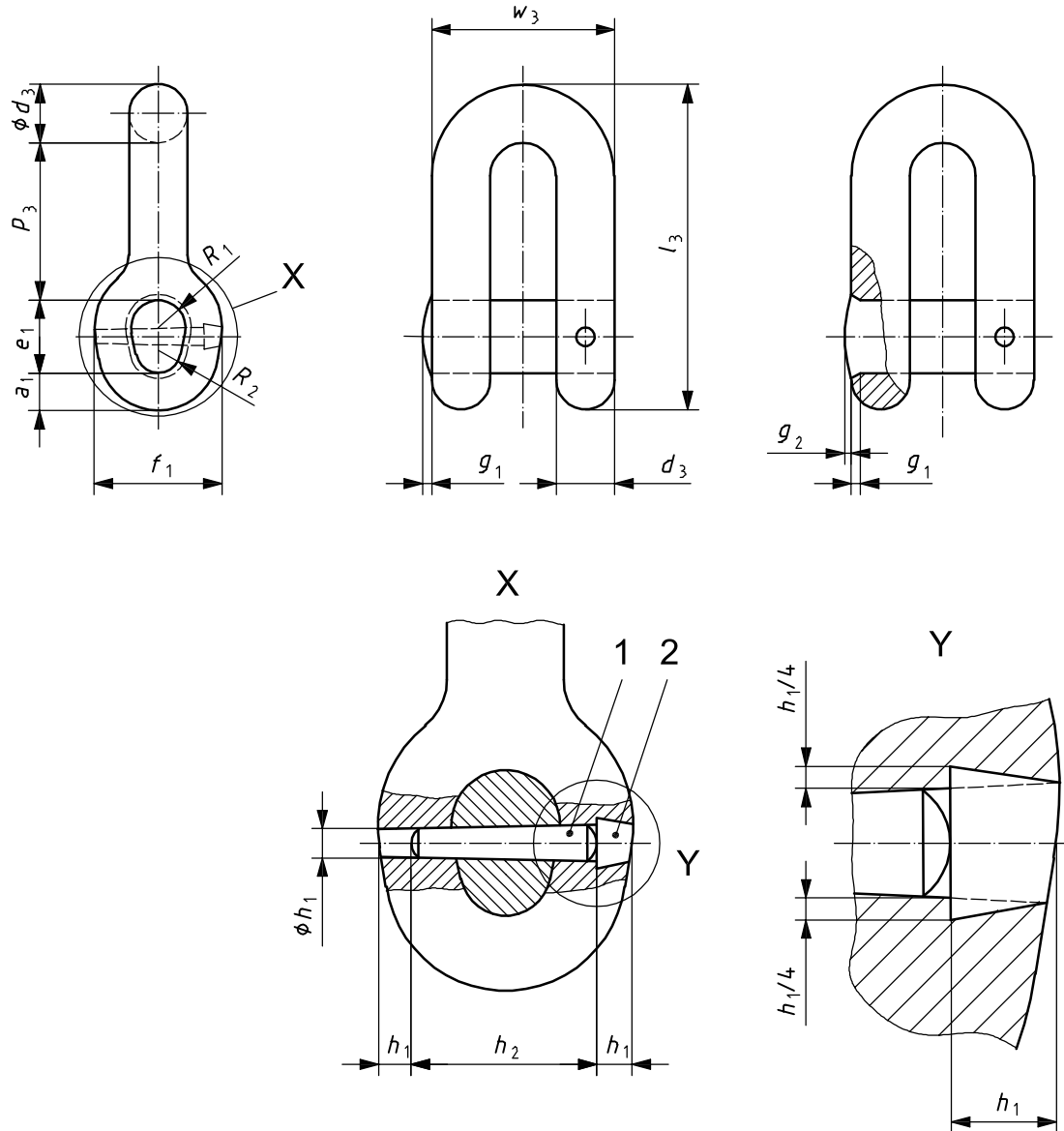
Figure 3 — End link

Table 3 — Nominal dimensions of end link

Dimensions in millimetres

| Nominal size (d , common stud link) | d_2 | l_2 | p_2 | w_2 |
|--|-------|-------|-------|-------|
| 12,5 | 15 | 84 | 54 | 50 |
| 14 | 17 | 95 | 61 | 56 |
| 16 | 19 | 108 | 70 | 64 |
| 17,5 | 21 | 117 | 76 | 70 |
| 19 | 23 | 128 | 83 | 76 |
| 20,5 | 25 | 138 | 89 | 82 |
| 22 | 26 | 149 | 96 | 88 |
| 24 | 29 | 162 | 104 | 96 |
| | | | | |
| 26 | 31 | 176 | 113 | 104 |
| 28 | 34 | 189 | 122 | 112 |
| 30 | 36 | 203 | 131 | 120 |
| 32 | 38 | 216 | 139 | 128 |
| 34 | 41 | 230 | 148 | 136 |
| | | | | |
| 36 | 43 | 243 | 157 | 144 |
| 38 | 46 | 257 | 165 | 152 |
| 40 | 48 | 270 | 174 | 160 |
| 42 | 50 | 284 | 183 | 168 |
| 44 | 53 | 297 | 191 | 176 |
| | | | | |
| 46 | 55 | 311 | 200 | 184 |
| 48 | 58 | 324 | 209 | 192 |
| 50 | 60 | 338 | 218 | 200 |
| 52 | 62 | 351 | 226 | 208 |
| 54 | 65 | 365 | 235 | 216 |
| | | | | |
| 56 | 67 | 378 | 244 | 224 |
| 58 | 70 | 392 | 252 | 232 |
| 60 | 72 | 405 | 261 | 240 |
| 62 | 74 | 419 | 270 | 248 |
| 64 | 77 | 432 | 278 | 256 |
| | | | | |
| 66 | 79 | 446 | 287 | 264 |
| 68 | 82 | 459 | 296 | 272 |

| Nominal size (d , common stud link) | d_2 | l_2 | p_2 | w_2 |
|--|-------|-------|-------|-------|
| 70 | 84 | 473 | 305 | 280 |
| 73 | 88 | 493 | 318 | 292 |
| | | | | |
| 76 | 91 | 513 | 331 | 304 |
| 78 | 94 | 527 | 339 | 312 |
| 81 | 97 | 547 | 352 | 324 |
| 84 | 101 | 567 | 365 | 336 |
| | | | | |
| 87 | 104 | 587 | 378 | 348 |
| 90 | 108 | 608 | 392 | 360 |
| 92 | 110 | 621 | 400 | 368 |
| 95 | 114 | 641 | 413 | 380 |
| | | | | |
| 97 | 116 | 655 | 422 | 388 |
| 100 | 120 | 675 | 435 | 400 |
| 102 | 122 | 689 | 444 | 408 |
| 105 | 126 | 709 | 457 | 420 |
| 107 | 128 | 722 | 465 | 428 |
| | | | | |
| 111 | 133 | 749 | 483 | 444 |
| 114 | 137 | 770 | 496 | 456 |
| 117 | 140 | 790 | 509 | 468 |
| 120 | 144 | 810 | 522 | 480 |
| | | | | |
| 122 | 146 | 824 | 531 | 488 |
| 124 | 149 | 837 | 539 | 496 |
| 127 | 152 | 857 | 552 | 508 |
| 130 | 156 | 878 | 566 | 520 |
| 132 | 158 | 891 | 574 | 528 |
| | | | | |
| 137 | 164 | 925 | 596 | 548 |
| 142 | 170 | 959 | 618 | 568 |
| 147 | 176 | 992 | 639 | 588 |
| 152 | 182 | 1 026 | 661 | 608 |
| 157 | 188 | 1 060 | 683 | 628 |
| 162 | 194 | 1 094 | 705 | 648 |



Key

- 1 retaining pin
- 2 dovetail chamber

d = nominal diameter of common stud link

d_3 = nominal diameter of joining shackle = $1,3 d$

$l_3 = 7,1d$

$p_3 = l_3 - (d_3 + a_1 + e_1) = 3,4 d$

$w_3 = 4 d$

$a_1 = 0,8 d$

$e_1 = 1,6 d$

$f_1 = 2,8 d$

$g_1 = 0,2 d$

$g_2 = 0,1 d$

h_1 = nominal diameter of taper pin

h_2 = nominal length of taper pin

$R_1 = 0,6 d$

$R_2 = 0,5 d$

NOTE 1 For nominal dimensions, see Table 4.

NOTE 2 For taper of retaining pin, see 4.2.5.

Figure 4 — “D” type joining shackle

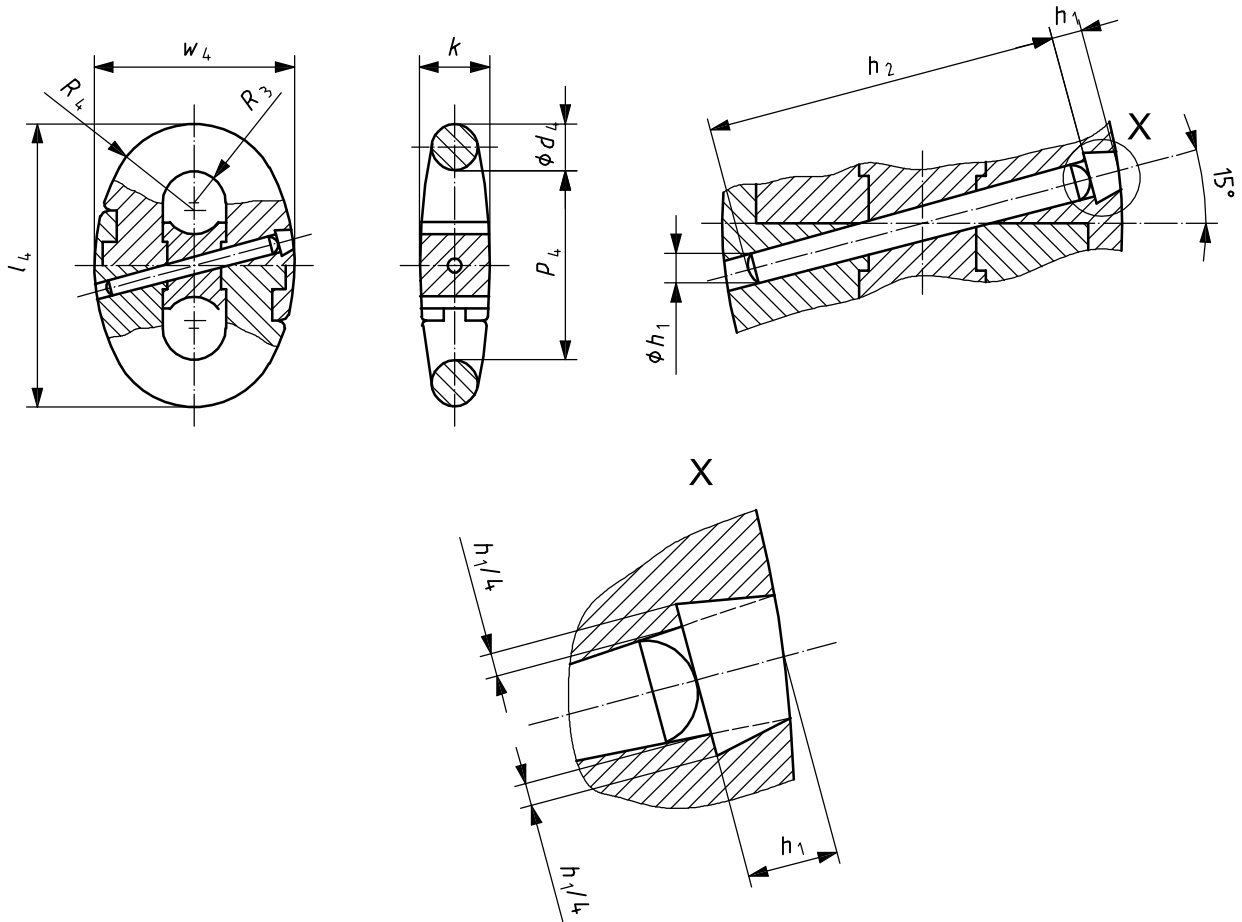
Table 4 — Nominal dimensions of “D” type joining shackle

Dimensions in millimetres

| Nominal size (d , common stud link) | d_3 | l_3 | p_3 | w_3 | a_1 | e_1 | f_1 | g_1 | g_2 | h_1 | h_2 | $2R_1$ | $2R_2$ | |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|----|
| 12,5 | 16 | 89 | 43 | 50 | 10 | 20 | 35 | 2,5 | 1,3 | 4 | 25 | 15 | 12,5 | |
| 14 | 18 | 99 | 48 | 56 | 11 | 22 | 39 | 3 | 1,4 | 6 | 28 | 17 | 14 | |
| 16 | 21 | 114 | 54 | 64 | 13 | 26 | 45 | 3 | 1,6 | | 32 | 19 | 16 | |
| 17,5 | 23 | 124 | 60 | 70 | 14 | 28 | 49 | 3,5 | 1,8 | | 38 | 21 | 17,5 | |
| 19 | 25 | 135 | 65 | 76 | 15 | 30 | 53 | 4 | 2 | | 40 | 23 | 19 | |
| 20,5 | 27 | 146 | 70 | 82 | 16 | 33 | 57 | 4 | 2 | | 45 | 25 | 20,5 | |
| 22 | 29 | 156 | 75 | 88 | 18 | 35 | 62 | 4,4 | 2,2 | | 50 | 26 | 22 | |
| 24 | 31 | 170 | 82 | 96 | 19 | 38 | 67 | 5 | 2,4 | | 55 | 29 | 24 | |
| 26 | 34 | 185 | 88 | 104 | 21 | 42 | 73 | 5 | 2,6 | | 60 | 31 | 26 | |
| 28 | 36 | 199 | 95 | 112 | 22 | 45 | 78 | 5,6 | 2,8 | | 65 | 34 | 28 | |
| 30 | 39 | 213 | 102 | 120 | 24 | 48 | 84 | 6 | 3 | | 70 | 36 | 30 | |
| 32 | 42 | 227 | 109 | 128 | 26 | 51 | 90 | 6,4 | 3,2 | | 80 | 38 | 32 | |
| 34 | 44 | 241 | 116 | 136 | 27 | 54 | 95 | 7 | 3,4 | | 85 | 41 | 34 | |
| 36 | 47 | 256 | 122 | 144 | 29 | 58 | 101 | 7 | 3,6 | | 10 | 80 | 43 | 36 |
| 38 | 49 | 270 | 129 | 152 | 30 | 61 | 106 | 7,6 | 3,8 | | | 85 | 46 | 38 |
| 40 | 52 | 284 | 136 | 160 | 32 | 64 | 112 | 8 | 4 | | | 90 | 48 | 40 |
| 42 | 55 | 298 | 143 | 168 | 34 | 67 | 118 | 8,4 | 4,2 | | | 100 | 50 | 42 |
| 44 | 57 | 312 | 150 | 176 | 35 | 70 | 123 | 9 | 4,4 | 100 | | 53 | 44 | |
| 46 | 60 | 327 | 156 | 184 | 37 | 74 | 129 | 9 | 4,6 | 110 | | 55 | 46 | |
| 48 | 62 | 341 | 163 | 192 | 38,5 | 77 | 134 | 9,5 | 4,8 | 12 | | 110 | 58 | 48 |
| 50 | 65 | 355 | 170 | 200 | 40 | 80 | 140 | 10 | 5 | | | 115 | 60 | 50 |
| 52 | 68 | 369 | 177 | 208 | 42 | 83 | 146 | 10,4 | 5,2 | | 120 | 62 | 52 | |
| 54 | 70 | 383 | 184 | 216 | 43 | 86 | 151 | 11 | 5,4 | | 125 | 65 | 54 | |
| 56 | 73 | 398 | 190 | 224 | 45 | 90 | 157 | 11 | 5,6 | | 130 | 67 | 56 | |
| 58 | 75 | 412 | 197 | 232 | 46 | 93 | 162 | 11,6 | 5,8 | | 140 | 70 | 58 | |
| 60 | 78 | 426 | 204 | 240 | 48 | 96 | 168 | 12 | 6 | | 140 | 72 | 60 | |
| 62 | 81 | 440 | 211 | 248 | 50 | 99 | 174 | 12,4 | 6,2 | | 150 | 74 | 62 | |
| 64 | 83 | 454 | 218 | 256 | 51 | 102 | 179 | 13 | 6,4 | 16 | 150 | 77 | 64 | |
| 66 | 86 | 469 | 224 | 264 | 53 | 106 | 185 | 13 | 6,6 | | 150 | 79 | 66 | |
| 68 | 88 | 483 | 231 | 272 | 54 | 109 | 190 | 13,6 | 6,8 | | 160 | 82 | 68 | |

Table 4 (continued)

| Nominal size (<i>d</i> , common stud link) | <i>d</i> ₃ | <i>l</i> ₃ | <i>p</i> ₃ | <i>w</i> ₃ | <i>a</i> ₁ | <i>e</i> ₁ | <i>f</i> ₁ | <i>g</i> ₁ | <i>g</i> ₂ | <i>h</i> ₁ | <i>h</i> ₂ | 2 <i>R</i> ₁ | 2 <i>R</i> ₂ |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-------------------------|-------------------------|
| 70 | 91 | 497 | 238 | 280 | 56 | 112 | 196 | 14 | 7 | 16 | 160 | 84 | 70 |
| 73 | 95 | 518 | 248 | 292 | 58 | 117 | 204 | 14,6 | 7,3 | | 170 | 88 | 73 |
| | | | | | | | | | | | | | |
| 76 | 99 | 540 | 258 | 304 | 61 | 122 | 213 | 15 | 7,6 | | 180 | 91 | 76 |
| 78 | 101 | 554 | 265 | 312 | 62 | 125 | 218 | 15,6 | 7,8 | | 190 | 94 | 78 |
| 81 | 105 | 575 | 275 | 324 | 65 | 130 | 227 | 16 | 8 | | 190 | 97 | 81 |
| 84 | 109 | 596 | 286 | 336 | 67 | 134 | 235 | 17 | 8,4 | | 200 | 101 | 84 |
| | | | | | | | | | | | | | |
| 87 | 113 | 618 | 296 | 348 | 70 | 139 | 244 | 17,4 | 8,7 | | 200 | 104 | 87 |
| 90 | 117 | 639 | 306 | 360 | 72 | 144 | 252 | 18 | 9 | | 220 | 108 | 90 |
| 92 | 120 | 653 | 313 | 368 | 74 | 147 | 258 | 18,4 | 9,2 | | 220 | 110 | 92 |
| 95 | 124 | 675 | 323 | 380 | 76 | 152 | 266 | 19 | 9,5 | | 220 | 114 | 95 |
| | | | | | | | | | | | | | |
| 97 | 126 | 689 | 330 | 388 | 78 | 155 | 272 | 19,4 | 9,7 | 240 | 116 | 97 | |
| 100 | 130 | 710 | 340 | 400 | 80 | 160 | 280 | 20 | 10 | 240 | 120 | 100 | |
| 102 | 133 | 724 | 347 | 408 | 82 | 163 | 286 | 20,4 | 10,2 | 240 | 122 | 102 | |
| 105 | 137 | 746 | 357 | 420 | 84 | 168 | 294 | 21 | 10,5 | 260 | 126 | 105 | |
| 107 | 139 | 760 | 364 | 428 | 86 | 171 | 300 | 21,4 | 10,7 | 260 | 128 | 107 | |
| | | | | | | | | | | 20 | | | |
| 111 | 144 | 788 | 377 | 444 | 89 | 178 | 311 | 22 | 11 | | 260 | 133 | 111 |
| 114 | 148 | 809 | 388 | 456 | 91 | 182 | 319 | 23 | 11,4 | | 280 | 137 | 114 |
| 117 | 152 | 831 | 398 | 468 | 94 | 187 | 328 | 23,4 | 11,7 | | 280 | 140 | 117 |
| 120 | 156 | 852 | 408 | 480 | 96 | 192 | 336 | 24 | 12 | | 300 | 144 | 120 |
| | | | | | | | | | | | | | |
| 122 | 159 | 866 | 415 | 488 | 98 | 195 | 342 | 24,5 | 12,3 | | 300 | 146 | 122 |
| 124 | 161 | 880 | 422 | 496 | 99 | 198 | 347 | 25 | 12,4 | | 300 | 149 | 124 |
| 127 | 165 | 902 | 432 | 508 | 102 | 203 | 356 | 25,4 | 12,7 | | 300 | 152 | 127 |
| 130 | 169 | 923 | 442 | 520 | 104 | 208 | 364 | 26 | 13 | | 320 | 156 | 130 |
| 132 | 172 | 937 | 449 | 528 | 106 | 211 | 370 | 26,4 | 13,2 | | 320 | 158 | 132 |
| | | | | | | | | | | | | | |
| 137 | 178 | 973 | 466 | 548 | 110 | 219 | 384 | 27,5 | 13,7 | 25 | 320 | 164 | 137 |
| 142 | 185 | 1008 | 483 | 568 | 114 | 227 | 398 | 28,4 | 14,2 | | 350 | 170 | 142 |
| 147 | 191 | 1044 | 500 | 588 | 118 | 235 | 412 | 29,4 | 14,7 | | 350 | 176 | 147 |
| 152 | 198 | 1079 | 517 | 608 | 122 | 243 | 426 | 30,4 | 15,2 | | 350 | 182 | 152 |
| 157 | 204 | 1115 | 534 | 628 | 126 | 251 | 440 | 31,4 | 15,7 | | 400 | 188 | 157 |
| 162 | 211 | 1150 | 551 | 648 | 130 | 259 | 454 | 32,4 | 16,2 | | 400 | 194 | 162 |



Key

X = detail of dovetail chamber for retaining pellet

d = nominal diameter of common stud link

d_4 = nominal diameter of Kenter type joining shackle = d

$l_4 = 6 d$

$p_4 = 4 d$

$w_4 = 4,2 d$

h_1 = nominal diameter of taper pin

h_2 = nominal length of taper pin

$k = 1,52 d$

$R_3 = 0,67 d$

$R_4 = 1,83 d$

NOTE 1 For nominal dimensions, see Table 5.

NOTE 2 For taper of retaining pin, see 4.2.5.

Figure 5 — Kenter type joining shackle

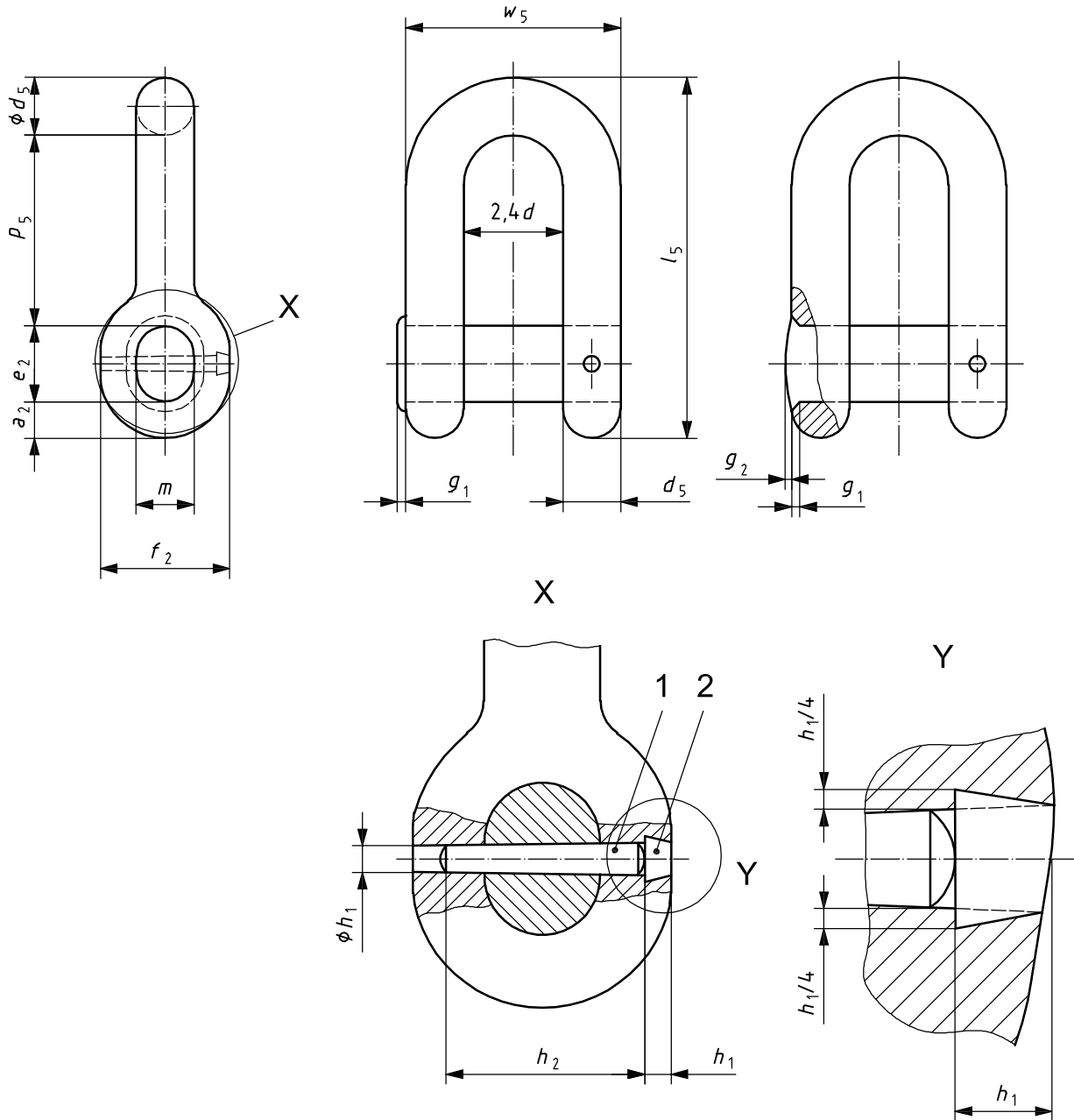
Table 5 — Nominal dimensions of Kenter type joining shackle

Dimensions in millimetres

| Nominal size (<i>d</i> , common stud link = <i>d</i> ₄) | <i>l</i> ₄ | <i>p</i> ₄ | <i>w</i> ₄ | <i>h</i> ₁ | <i>h</i> ₂ | <i>k</i> | <i>R</i> ₃ | <i>R</i> ₄ | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------|-----------------------|-----------------------|--|
| 12,5 | 75 | 50 | 53 | 4 | 45 | 19 | 8,5 | 23 | |
| 14 | 84 | 56 | 59 | 6 | 45 | 21 | 9,5 | 26 | |
| 16 | 96 | 64 | 67 | | 55 | 24 | 10,5 | 29 | |
| 17,5 | 105 | 70 | 74 | | 60 | 27 | 12 | 32 | |
| 19 | 114 | 76 | 80 | | 65 | 29 | 13 | 35 | |
| | | | | | | | | | |
| 20,5 | 123 | 82 | 86 | | 70 | 31 | 14 | 38 | |
| 22 | 132 | 88 | 92 | | 75 | 33 | 15 | 40 | |
| 24 | 144 | 96 | 101 | 10 | 80 | 36 | 16 | 44 | |
| 26 | 156 | 104 | 109 | | 85 | 40 | 17,5 | 48 | |
| 28 | 168 | 112 | 118 | | 95 | 43 | 19 | 51 | |
| | | | | | | | | | |
| 30 | 180 | 120 | 126 | | 100 | 46 | 20 | 55 | |
| 32 | 192 | 128 | 134 | | 110 | 49 | 21,5 | 59 | |
| 34 | 204 | 136 | 143 | 12 | 115 | 52 | 23 | 62 | |
| 36 | 216 | 144 | 151 | | 120 | 55 | 24 | 66 | |
| 38 | 228 | 152 | 160 | | 130 | 58 | 25 | 70 | |
| | | | | | | | | | |
| 40 | 240 | 160 | 168 | | 140 | 61 | 27 | 73 | |
| 42 | 252 | 168 | 176 | | 140 | 64 | 28 | 77 | |
| 44 | 264 | 176 | 185 | 16 | 150 | 67 | 29 | 81 | |
| 46 | 276 | 184 | 193 | | 160 | 70 | 31 | 84 | |
| 48 | 288 | 192 | 202 | | 160 | 73 | 32 | 88 | |
| | | | | | | | | | |
| 50 | 300 | 200 | 210 | | 170 | 76 | 34 | 92 | |
| 52 | 312 | 208 | 218 | | 180 | 79 | 35 | 95 | |
| 54 | 324 | 216 | 227 | 20 | 180 | 82 | 36 | 99 | |
| 56 | 336 | 224 | 235 | | 190 | 85 | 38 | 102 | |
| 58 | 348 | 232 | 244 | | 200 | 88 | 39 | 106 | |
| | | | | | | | | | |
| 60 | 360 | 240 | 252 | | 200 | 91 | 40 | 110 | |
| 62 | 372 | 248 | 260 | | 220 | 94 | 42 | 113 | |
| 64 | 384 | 256 | 269 | | 220 | 97 | 43 | 117 | |
| 66 | 396 | 264 | 277 | 25 | 220 | 100 | 44 | 121 | |
| 68 | 408 | 272 | 286 | | 220 | 103 | 46 | 124 | |

Table 5 (continued)

| Nominal size (d , common stud link = d_4) | l_4 | p_4 | w_4 | h_1 | h_2 | k | R_3 | R_4 | |
|---|-------|-------|-------|-------|-------|-----|-------|-------|--|
| 70 | 420 | 280 | 294 | 25 | 240 | 106 | 47 | 128 | |
| 73 | 438 | 292 | 307 | | 260 | 111 | 49 | 134 | |
| 76 | 456 | 304 | 319 | | 260 | 115 | 51 | 139 | |
| 78 | 468 | 312 | 328 | | 260 | 119 | 52 | 143 | |
| 81 | 486 | 324 | 340 | 30 | 280 | 123 | 54 | 148 | |
| | | | | | | | | | |
| 84 | 504 | 336 | 353 | | 280 | 128 | 57 | 154 | |
| 87 | 522 | 348 | 365 | | 300 | 132 | 58 | 159 | |
| 90 | 540 | 360 | 378 | | 300 | 137 | 60 | 165 | |
| 92 | 552 | 368 | 386 | | 320 | 140 | 62 | 168 | |
| 95 | 570 | 380 | 399 | 35 | 320 | 144 | 64 | 174 | |
| | | | | | | | | | |
| 97 | 582 | 388 | 407 | | 340 | 147 | 65 | 178 | |
| 100 | 600 | 400 | 420 | | 340 | 152 | 67 | 183 | |
| 102 | 612 | 408 | 428 | | 360 | 155 | 68 | 187 | |
| 105 | 630 | 420 | 441 | | 360 | 160 | 70 | 192 | |
| 107 | 642 | 428 | 449 | | 360 | 163 | 72 | 196 | |
| | | | | | | | | | |
| 111 | 666 | 444 | 466 | 40 | 380 | 169 | 74 | 203 | |
| 114 | 684 | 456 | 479 | | 380 | 173 | 76 | 207 | |
| 117 | 702 | 468 | 491 | | 400 | 178 | 78 | 214 | |
| 120 | 720 | 480 | 504 | | 400 | 182 | 80 | 220 | |
| 122 | 732 | 488 | 512 | | 420 | 185 | 82 | 223 | |
| | | | | | | | | | |
| 124 | 744 | 496 | 521 | | 420 | 188 | 83 | 227 | |
| 127 | 762 | 508 | 533 | | 440 | 193 | 85 | 232 | |
| 130 | 780 | 520 | 546 | 50 | 440 | 198 | 87 | 238 | |
| 132 | 792 | 528 | 554 | | 460 | 201 | 88 | 242 | |
| 137 | 822 | 548 | 757 | | 460 | 208 | 92 | 251 | |
| | | | | | | | | | |
| 142 | 852 | 568 | 596 | | 480 | 216 | 95 | 260 | |
| 147 | 882 | 588 | 617 | | 500 | 223 | 98 | 269 | |
| 152 | 912 | 608 | 638 | | 520 | 231 | 102 | 278 | |
| 157 | 942 | 628 | 659 | | 540 | 239 | 105 | 287 | |
| 162 | 972 | 648 | 680 | 560 | 246 | 109 | 296 | | |



Key

- 1 retaining pin
- 2 dovetail chamber

d = nominal diameter of common stud link
 d_5 = nominal diameter of end shackle = $1,4 d$
 $l_5 = 8,7 d$
 $p_5 = l_5 - (d_5 + a_2 + e_2) = 4,6 d$
 $w_5 = 5,2 d$
 $a_2 = 0,9 d$
 $e_2 = 1,8 d$

$f_2 = 3,1 d$
 $g_1 = 0,2 d$
 $g_2 = 0,1 d$
 $m = 1,4 d$
 h_1 = nominal diameter of taper pin
 h_2 = nominal length of taper pin

NOTE 1 For nominal dimensions, see Table 6.
 NOTE 2 For taper of retaining pin, see 4.2.5.

Figure 6 — End shackle

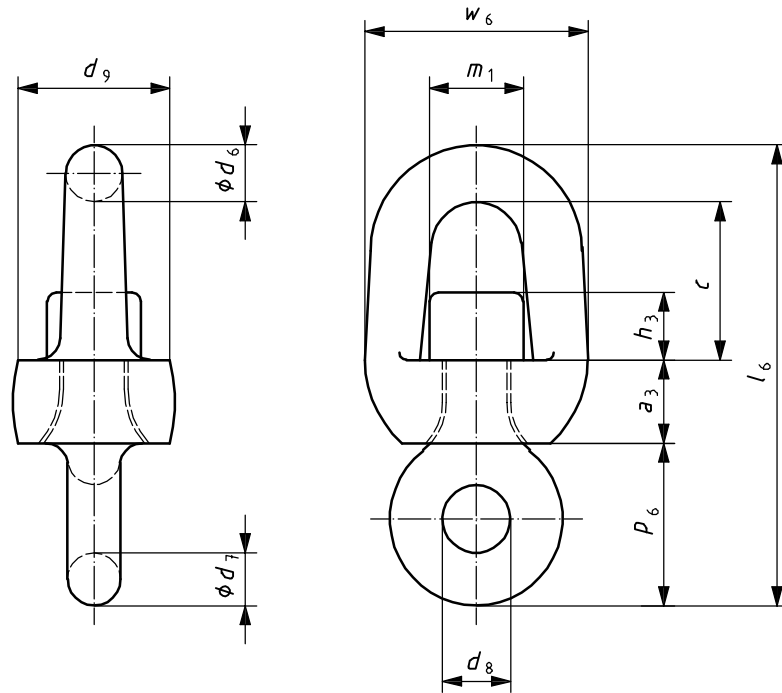
Table 6 — Nominal dimensions of end shackle

Dimensions in millimetres

| Nominal size (<i>d</i> , common stud link) | <i>d</i> ₅ | <i>l</i> ₅ | <i>p</i> ₅ | <i>w</i> ₅ | <i>a</i> ₂ | <i>e</i> ₂ | <i>f</i> ₂ | <i>g</i> ₁ | <i>g</i> ₂ | <i>h</i> ₁ | <i>h</i> ₂ | <i>m</i> | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------|----|
| 12,5 | 18 | 109 | 58 | 65 | 11 | 23 | 39 | 2,5 | 1,3 | 4 | 28 | 18 | |
| 14 | 20 | 122 | 64 | 73 | 13 | 25 | 43 | 3 | 1,4 | 6 | 30 | 20 | |
| 16 | 22 | 139 | 74 | 83 | 14 | 29 | 50 | 3 | 1,6 | | 35 | 22 | |
| | | | | | | | | | | | | | |
| 17,5 | 25 | 152 | 81 | 91 | 16 | 32 | 54 | 3,5 | 1,8 | | 40 | 25 | |
| 19 | 27 | 165 | 87 | 99 | 17 | 34 | 59 | 4 | 1,9 | | 45 | 27 | |
| 20,5 | 29 | 178 | 94 | 107 | 19 | 37 | 64 | 4 | 2 | | 45 | 29 | |
| 22 | 31 | 191 | 101 | 114 | 20 | 40 | 68 | 4,4 | 2,2 | | 50 | 31 | |
| 24 | 34 | 209 | 110 | 125 | 22 | 43 | 74 | 5 | 2,4 | | 55 | 34 | |
| | | | | | | | | | | | | | |
| 26 | 36 | 226 | 120 | 135 | 23 | 46 | 81 | 5 | 2,6 | | 60 | 37 | |
| 28 | 39 | 244 | 129 | 146 | 25 | 50 | 87 | 5,6 | 2,8 | | 70 | 39 | |
| 30 | 42 | 261 | 138 | 156 | 27 | 54 | 93 | 6 | 3 | | 75 | 42 | |
| 32 | 45 | 278 | 147 | 166 | 29 | 58 | 99 | 6,4 | 3,2 | | 80 | 45 | |
| 34 | 48 | 296 | 156 | 177 | 31 | 61 | 105 | 7 | 3,4 | | 85 | 48 | |
| | | | | | | | | | | | | | |
| 36 | 50 | 313 | 166 | 187 | 32 | 65 | 112 | 7 | 3,6 | | 10 | 85 | 50 |
| 38 | 53 | 331 | 175 | 198 | 34 | 69 | 118 | 7,6 | 3,8 | 90 | | 53 | |
| 40 | 56 | 348 | 184 | 208 | 36 | 72 | 124 | 8 | 4 | 95 | | 56 | |
| 42 | 59 | 365 | 193 | 218 | 38 | 76 | 130 | 8,4 | 4,2 | 100 | | 59 | |
| 44 | 62 | 383 | 202 | 229 | 40 | 79 | 136 | 9 | 4,4 | 110 | | 62 | |
| | | | | | | | | | | | | | |
| 46 | 64 | 400 | 212 | 239 | 41 | 83 | 143 | 9 | 4,6 | 115 | | 64 | |
| 48 | 67 | 418 | 221 | 250 | 43 | 86 | 149 | 9,6 | 4,8 | 12 | | 115 | 67 |
| 50 | 70 | 435 | 230 | 260 | 45 | 90 | 155 | 10 | 5 | | 120 | 70 | |
| 52 | 73 | 452 | 239 | 270 | 47 | 93 | 161 | 10,4 | 5,2 | | 125 | 73 | |
| 54 | 76 | 470 | 248 | 281 | 49 | 97 | 167 | 11 | 5,4 | | 130 | 76 | |
| | | | | | | | | | | | | | |
| 56 | 78 | 487 | 258 | 291 | 50 | 101 | 174 | 11 | 5,6 | | 140 | 78 | |
| 58 | 81 | 505 | 267 | 302 | 52 | 104 | 180 | 11,6 | 5,8 | | 140 | 81 | |
| 60 | 84 | 522 | 276 | 312 | 54 | 108 | 186 | 12 | 6 | | 150 | 84 | |
| 62 | 87 | 539 | 285 | 322 | 56 | 112 | 192 | 12,4 | 6,2 | 160 | 87 | | |
| 64 | 90 | 557 | 294 | 333 | 58 | 115 | 198 | 13 | 6,4 | 16 | 160 | 90 | |
| | | | | | | | | | | | | | |
| 66 | 92 | 574 | 304 | 343 | 59 | 119 | 205 | 13 | 6,6 | 160 | 92 | | |

Table 6 (continued)

| Nominal size (<i>d</i> , common stud link) | <i>d</i> ₅ | <i>l</i> ₅ | <i>p</i> ₅ | <i>w</i> ₅ | <i>a</i> ₂ | <i>e</i> ₂ | <i>f</i> ₂ | <i>g</i> ₁ | <i>g</i> ₂ | <i>h</i> ₁ | <i>h</i> ₂ | <i>m</i> | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------|--|
| 68 | 95 | 592 | 313 | 354 | 61 | 122 | 211 | 13,6 | 6,8 | 16 | 160 | 95 | |
| 70 | 98 | 609 | 322 | 364 | 63 | 126 | 217 | 14 | 7 | | 170 | 98 | |
| 73 | 102 | 635 | 336 | 380 | 66 | 131 | 226 | 14,6 | 7,3 | | 180 | 102 | |
| 76 | 106 | 661 | 350 | 395 | 68 | 137 | 236 | 15 | 7,6 | | 190 | 106 | |
| 78 | 109 | 679 | 359 | 406 | 70 | 140 | 242 | 15,6 | 7,8 | | 190 | 109 | |
| 81 | 113 | 705 | 373 | 421 | 73 | 146 | 251 | 16 | 8 | | 200 | 113 | |
| 84 | 118 | 731 | 386 | 437 | 76 | 151 | 260 | 17 | 8,4 | | 200 | 118 | |
| | | | | | | | | | | | | | |
| 87 | 122 | 757 | 400 | 452 | 78 | 157 | 270 | 17,4 | 8,7 | | 220 | 122 | |
| 90 | 126 | 783 | 414 | 468 | 81 | 162 | 279 | 18 | 9 | | 220 | 126 | |
| 92 | 129 | 800 | 423 | 478 | 83 | 166 | 285 | 18,4 | 9,2 | | 240 | 129 | |
| 95 | 133 | 827 | 437 | 494 | 86 | 171 | 295 | 19 | 9,5 | | 240 | 133 | |
| | | | | | | | | | | 20 | | | |
| 97 | 136 | 844 | 446 | 504 | 87 | 175 | 301 | 19,4 | 9,7 | | 240 | 136 | |
| 100 | 140 | 870 | 460 | 520 | 90 | 180 | 310 | 20 | 10 | | 240 | 140 | |
| 102 | 143 | 887 | 469 | 530 | 92 | 184 | 316 | 20,4 | 10,2 | | 260 | 143 | |
| 105 | 147 | 914 | 483 | 546 | 95 | 189 | 326 | 21 | 10,5 | | 260 | 147 | |
| 107 | 150 | 931 | 492 | 556 | 96 | 193 | 332 | 21,4 | 10,7 | | 260 | 150 | |
| | | | | | | | | | | | | | |
| 111 | 155 | 966 | 511 | 577 | 100 | 199 | 344 | 22 | 11 | | 280 | 155 | |
| 114 | 160 | 992 | 524 | 593 | 103 | 205 | 353 | 23 | 11,4 | | 280 | 160 | |
| 117 | 164 | 1018 | 538 | 608 | 105 | 211 | 363 | 23,4 | 11,7 | | 300 | 164 | |
| 120 | 168 | 1044 | 552 | 624 | 108 | 216 | 372 | 24 | 12 | | 300 | 168 | |
| | | | | | | | | | | | 25 | | |
| 122 | 171 | 1061 | 560 | 634 | 110 | 220 | 378 | 24,4 | 12,2 | 320 | | 171 | |
| 124 | 174 | 1079 | 570 | 645 | 112 | 223 | 384 | 25 | 12,4 | 320 | | 174 | |
| 127 | 178 | 1105 | 584 | 660 | 114 | 229 | 394 | 25,4 | 12,7 | 320 | | 178 | |
| 130 | 182 | 1131 | 598 | 676 | 117 | 234 | 403 | 26 | 13 | 320 | | 182 | |
| 132 | 185 | 1148 | 607 | 686 | 119 | 238 | 409 | 26,4 | 13,2 | 320 | | 185 | |
| | | | | | | | | | | | | | |
| 137 | 192 | 1192 | 630 | 712 | 123 | 247 | 425 | 27,4 | 13,7 | 350 | | 192 | |
| 142 | 199 | 1235 | 653 | 738 | 128 | 256 | 440 | 28,4 | 14,2 | 350 | | 199 | |
| 147 | 206 | 1279 | 676 | 764 | 132 | 265 | 456 | 29,4 | 14,7 | 350 | | 206 | |
| 152 | 213 | 1322 | 699 | 790 | 137 | 274 | 471 | 30,4 | 15,2 | 400 | | 213 | |
| 157 | 220 | 1366 | 722 | 816 | 141 | 283 | 487 | 31,4 | 15,7 | 400 | | 220 | |
| 162 | 227 | 1409 | 745 | 842 | 146 | 292 | 502 | 32,4 | 16,2 | 400 | 227 | | |



d = nominal diameter of common stud link

d_6 = nominal diameter of swivel = $1,2 d$

$l_6 = 9,7 d$

$p_6 = d_9 = 3,4 d$

$w_6 = 4,7 d$

$d_7 = 1,1 d$

$a_3 = 1,75 d$

$m_1 = 2 d$

$h_3 = d_8 = 1,4 d$

$c = 3,35 d$

NOTE For nominal dimensions, see Table 7.

Figure 7 — Swivel

Table 7 — Nominal dimensions of swivel

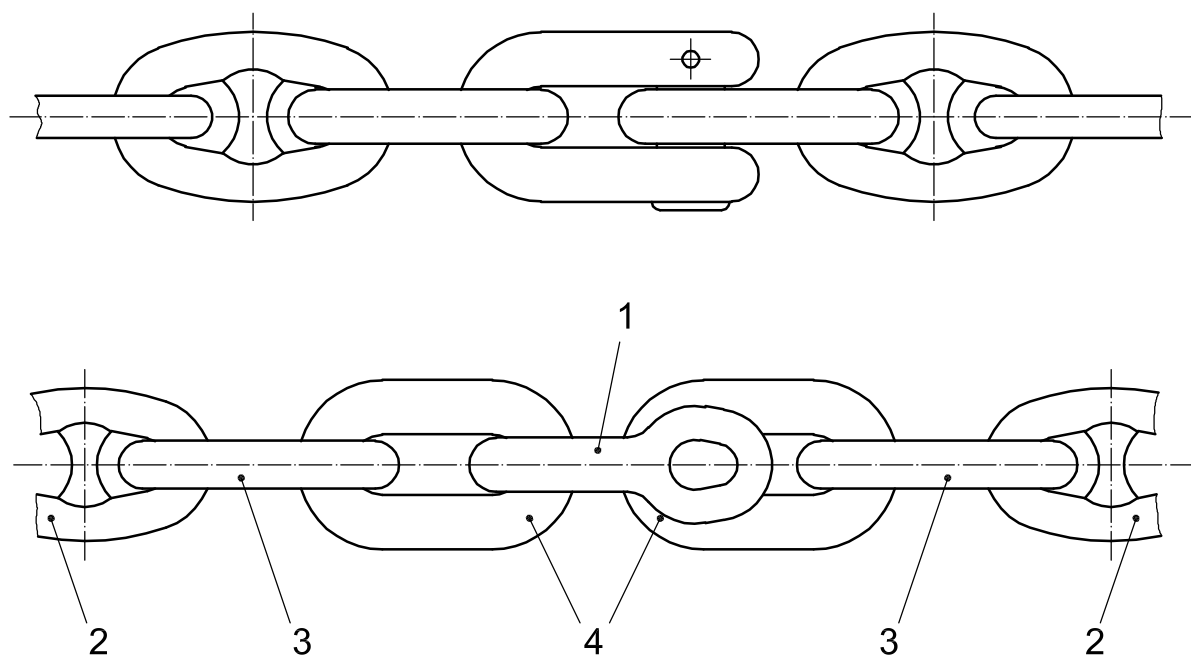
Dimensions in millimetres

| Nominal size (<i>d</i> , common stud link) | <i>d</i> ₆ | <i>l</i> ₆ | <i>w</i> ₆ | <i>d</i> ₇ | <i>d</i> ₈ | <i>d</i> ₉ | <i>a</i> ₃ | <i>c</i> | <i>m</i> ₁ |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------|-----------------------|
| 12,5 | 15 | 121 | 59 | 14 | 18 | 43 | 22 | 42 | 25 |
| 14 | 17 | 136 | 66 | 15 | 20 | 48 | 25 | 47 | 28 |
| 16 | 19 | 155 | 75 | 18 | 22 | 54 | 28 | 54 | 32 |
| | | | | | | | | | |
| 17,5 | 21 | 170 | 82 | 19 | 25 | 60 | 31 | 59 | 35 |
| 19 | 23 | 184 | 89 | 21 | 27 | 65 | 33 | 64 | 38 |
| 20,5 | 25 | 199 | 96 | 23 | 29 | 70 | 36 | 69 | 41 |
| 22 | 26 | 213 | 103 | 24 | 31 | 75 | 39 | 74 | 44 |
| 24 | 29 | 233 | 113 | 26 | 34 | 82 | 42 | 80 | 48 |
| | | | | | | | | | |
| 26 | 31 | 252 | 122 | 29 | 36 | 88 | 46 | 87 | 52 |
| 28 | 34 | 272 | 132 | 31 | 39 | 95 | 49 | 94 | 56 |
| 30 | 36 | 291 | 141 | 33 | 42 | 102 | 53 | 101 | 60 |
| 32 | 38 | 310 | 150 | 35 | 45 | 109 | 56 | 107 | 64 |
| 34 | 41 | 330 | 160 | 37 | 48 | 116 | 60 | 114 | 68 |
| | | | | | | | | | |
| 36 | 43 | 349 | 169 | 40 | 50 | 122 | 63 | 121 | 72 |
| 38 | 46 | 369 | 179 | 42 | 53 | 129 | 67 | 127 | 76 |
| 40 | 48 | 388 | 188 | 44 | 56 | 136 | 70 | 134 | 80 |
| 42 | 50 | 407 | 197 | 46 | 59 | 143 | 74 | 141 | 84 |
| 44 | 53 | 427 | 207 | 48 | 62 | 150 | 77 | 147 | 88 |
| | | | | | | | | | |
| 46 | 55 | 446 | 216 | 51 | 64 | 156 | 81 | 154 | 92 |
| 48 | 58 | 466 | 226 | 53 | 67 | 163 | 84 | 161 | 96 |
| 50 | 60 | 485 | 235 | 55 | 70 | 170 | 88 | 168 | 100 |
| 52 | 62 | 504 | 244 | 57 | 73 | 177 | 91 | 174 | 104 |
| 54 | 65 | 524 | 254 | 59 | 76 | 184 | 95 | 181 | 108 |
| | | | | | | | | | |
| 56 | 67 | 543 | 263 | 62 | 78 | 190 | 98 | 188 | 112 |
| 58 | 70 | 563 | 273 | 64 | 81 | 197 | 102 | 194 | 116 |
| 60 | 72 | 582 | 282 | 66 | 84 | 204 | 105 | 201 | 120 |
| 62 | 74 | 601 | 291 | 68 | 87 | 211 | 109 | 208 | 124 |
| 64 | 77 | 621 | 301 | 70 | 90 | 218 | 112 | 214 | 128 |
| | | | | | | | | | |
| 66 | 79 | 640 | 310 | 73 | 92 | 224 | 116 | 221 | 132 |
| 68 | 82 | 660 | 320 | 75 | 95 | 231 | 119 | 228 | 136 |
| 70 | 84 | 679 | 329 | 77 | 98 | 236 | 123 | 235 | 140 |
| 73 | 88 | 708 | 343 | 80 | 102 | 248 | 128 | 245 | 146 |

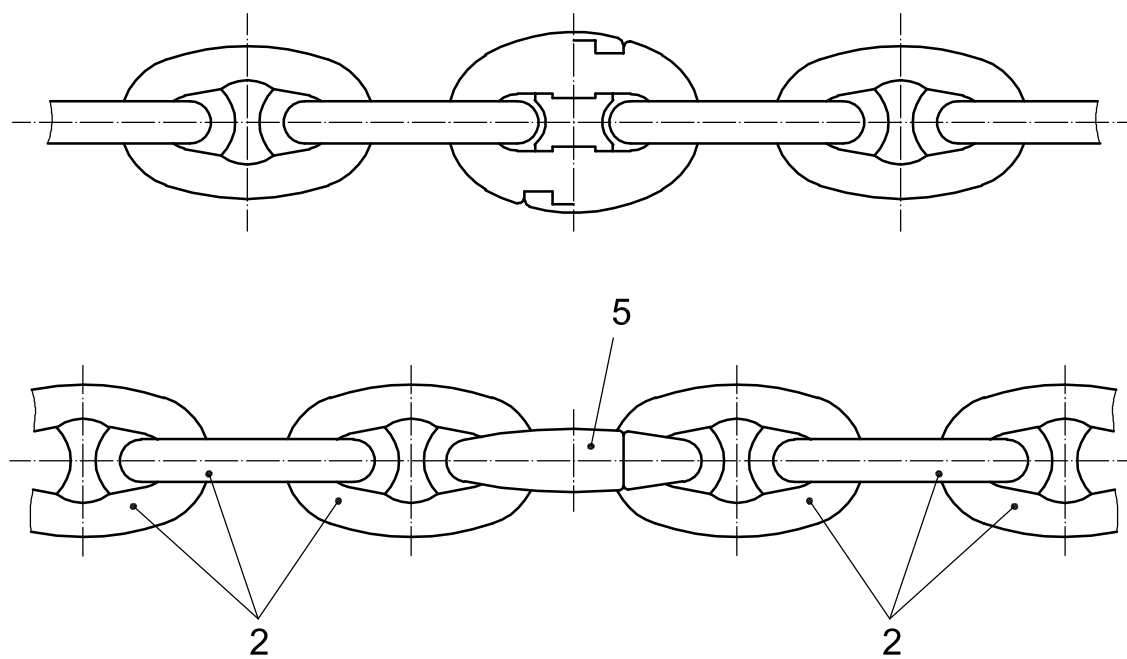
Table 7 (continued)

Dimensions in millimetres

| Nominal size (<i>d</i> , common stud link) | <i>d</i> ₆ | <i>l</i> ₆ | <i>w</i> ₆ | <i>d</i> ₇ | <i>d</i> ₈ | <i>d</i> ₉ | <i>a</i> ₃ | <i>c</i> | <i>m</i> ₁ |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------|-----------------------|
| 76 | 91 | 737 | 357 | 84 | 106 | 258 | 133 | 255 | 152 |
| 78 | 94 | 757 | 367 | 86 | 109 | 265 | 137 | 261 | 156 |
| 81 | 97 | 786 | 381 | 89 | 113 | 275 | 142 | 271 | 162 |
| 84 | 101 | 815 | 395 | 92 | 118 | 286 | 147 | 281 | 168 |
| | | | | | | | | | |
| 87 | 104 | 844 | 409 | 96 | 122 | 296 | 152 | 291 | 174 |
| 90 | 108 | 873 | 423 | 99 | 126 | 306 | 158 | 302 | 180 |
| 92 | 110 | 892 | 432 | 101 | 129 | 313 | 161 | 308 | 184 |
| 95 | 114 | 921 | 447 | 105 | 133 | 323 | 166 | 318 | 190 |
| | | | | | | | | | |
| 97 | 116 | 941 | 456 | 107 | 136 | 330 | 170 | 325 | 194 |
| 100 | 120 | 970 | 470 | 110 | 140 | 340 | 175 | 335 | 200 |
| 102 | 122 | 989 | 479 | 112 | 143 | 347 | 179 | 342 | 204 |
| 105 | 126 | 1018 | 494 | 116 | 147 | 357 | 184 | 352 | 210 |
| 107 | 128 | 1038 | 503 | 118 | 150 | 364 | 187 | 358 | 214 |
| | | | | | | | | | |
| 111 | 133 | 1077 | 522 | 122 | 155 | 377 | 194 | 372 | 222 |
| 114 | 137 | 1106 | 536 | 125 | 160 | 388 | 200 | 382 | 228 |
| 117 | 140 | 1135 | 550 | 129 | 164 | 398 | 205 | 392 | 234 |
| 120 | 144 | 1164 | 564 | 132 | 168 | 408 | 210 | 402 | 240 |
| | | | | | | | | | |
| 122 | 146 | 1183 | 573 | 134 | 171 | 415 | 214 | 409 | 244 |
| 124 | 149 | 1203 | 583 | 136 | 174 | 422 | 217 | 415 | 248 |
| 127 | 152 | 1232 | 597 | 140 | 178 | 432 | 222 | 425 | 254 |
| 130 | 156 | 1261 | 611 | 143 | 182 | 442 | 228 | 436 | 260 |
| 132 | 158 | 1280 | 620 | 145 | 185 | 449 | 231 | 442 | 264 |
| | | | | | | | | | |
| 137 | 164 | 1329 | 644 | 151 | 192 | 466 | 240 | 459 | 274 |
| 142 | 170 | 1377 | 667 | 156 | 199 | 483 | 249 | 476 | 284 |
| 147 | 176 | 1426 | 691 | 162 | 206 | 500 | 257 | 492 | 294 |
| 152 | 182 | 1474 | 714 | 167 | 213 | 517 | 266 | 509 | 304 |
| 157 | 188 | 1523 | 738 | 173 | 220 | 534 | 275 | 526 | 314 |
| 162 | 194 | 1571 | 761 | 178 | 227 | 551 | 284 | 543 | 324 |



a) Connecting chain-shots with "D" type joining shackle

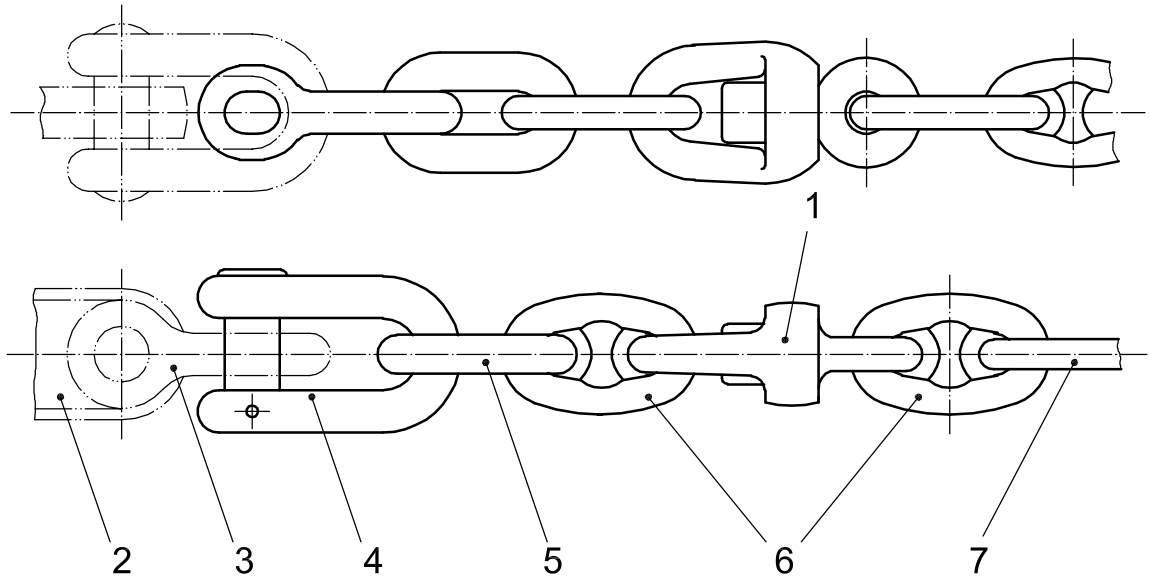


b) Connecting chain-shots with Kenter type joining shackle

Key

- 1 "D" type joining shackle
- 2 common stud link
- 3 enlarged stud link
- 4 end links
- 5 Kenter type joining shackle

Figure 8 — Examples of connecting chain-shots with joining shackle



Key

- 1 swivel
- 2 anchor
- 3 anchor shackle
- 4 end shackle
- 5 end link
- 6 enlarged stud links
- 7 common stud link

Figure 9 — Example of connecting outboard chain-shot to anchor

ICS 47.020.50

Price based on 23 pages