*Annulée*

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# ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

# ISO RECOMMENDATION
# R 40

## SHIPBUILDING DETAILS FOR SEA NAVIGATION AND INLAND NAVIGATION

## ANCHOR CHAINS
### Studless Links

### 1st EDITION

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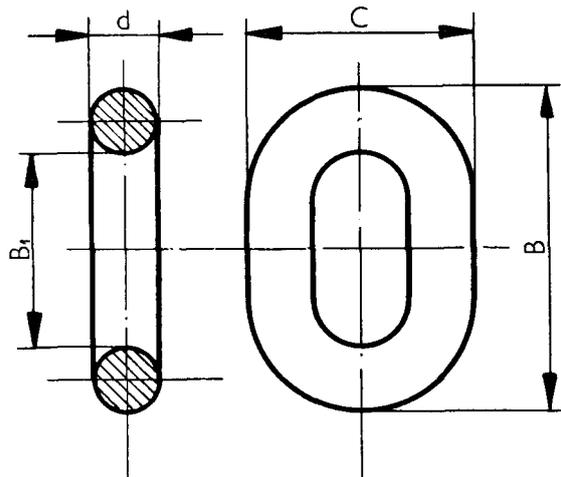Also issued in French and Russian.   Copies to be obtained through the national standards organizations.

| ISO Recommendation | R 40 | May 1957 |
|---|---|---|

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### 1. DIMENSIONS



$A$ = nominal dimension of the link
$d$ = diameter
2 values: $d'$ = millimetre value of $A$
$d''$ = inch value of $A$ transposed into rounded off millimetre value

$$B = 5\,\frac{d' + d''}{2} \qquad B_1 = B - 2\,\frac{d' + d''}{2}$$

$$C = 3.4\,\frac{d' + d''}{2}$$

Example for $A$ = 20.5 mm or $^{13}/_{16}$ inch:

$$B = 5\,\frac{20.5 + 20.6}{2} = 103 \text{ mm (rounded off)}$$

$$B_1 = 103 - 2\,\frac{20.5 + 20.6}{2} = 62 \text{ mm (rounded off)}$$

$$C = 3.4\,\frac{20.5 + 20.6}{2} = 70 \text{ mm (rounded off)}$$

| A | | d | | B | $B_1$ | C |
|---|---|---|---|---|---|---|
| | | $d'$ | $d''$ | | | |
| mm | inches | mm | mm | mm | mm | mm |
| 6* | $^1/_4$ * | 6 | 6.4 | 31 | 19 | 21 |
| 8* | $^5/_{16}$ * | 8 | 7.9 | 40 | 24 | 27 |
| 10* | $^3/_8$ * | 10 | 9.5 | 49 | 29 | 33 |
| 11 | $^7/_{16}$ | 11 | 11.1 | 55 | 33 | 38 |
| 12.5 | $^1/_2$ | 12.5 | 12.7 | 63 | 38 | 43 |
| 14.5 | $^9/_{16}$ | 14.5 | 14.3 | 72 | 43 | 49 |
| 16 | $^5/_8$ | 16 | 15.9 | 80 | 48 | 54 |
| 17.5 | $^{11}/_{16}$ | 17.5 | 17.5 | 88 | 53 | 60 |
| 19 | $^3/_4$ | 19 | 19.1 | 95 | 57 | 65 |
| 20.5 | $^{13}/_{16}$ | 20.5 | 20.6 | 103 | 62 | 70 |
| 22 | $^7/_8$ | 22 | 22.2 | 110 | 66 | 75 |
| 24 | $^{15}/_{16}$ | 24 | 23.8 | 120 | 72 | 81 |
| 25.5 | 1 | 25.5 | 25.4 | 127 | 76 | 87 |
| 27 | $1\,^1/_{16}$ | 27 | 27.0 | 135 | 81 | 92 |
| 28.5 | $1\,^1/_8$ | 28.5 | 28.6 | 143 | 86 | 97 |
| 30 | $1\,^3/_{16}$ | 30 | 30.2 | 150 | 90 | 102 |
| 32 | $1\,^1/_4$ | 32 | 31.8 | 160 | 96 | 108 |
| 33 | $1\,^5/_{16}$ | 33 | 33.3 | 166 | 100 | 113 |
| 35 | $1\,^3/_8$ | 35 | 34.9 | 175 | 105 | 119 |
| 37 | $1\,^7/_{16}$ | 37 | 36.5 | 184 | 110 | 125 |
| 38 | $1\,^1/_2$ | 38 | 38.1 | 190 | 114 | 129 |
| 40 | $1\,^9/_{16}$ | 40 | 39.7 | 199 | 119 | 135 |

\* These dimensions for inland navigation only.

NOTE. — Allowable manufacturing tolerance for the dimensions $B$, $B_1$ and $C$ is ± 2 per cent.

## 2. TESTS

| $A = d$ mm | Minimum breaking load in tonnes, calculated for 24 kgf/mm²* | Minimum proof load in tonnes, calculated for 12 kgf/mm²* |
|---|---|---|
| 6** | 1.4 | 0.7 |
| 8** | 2.4 | 1.2 |
| 10** | 3.8 | 1.9 |
| 11 | 4.6 | 2.3 |
| 12.5 | 5.9 | 2.9 |
| 14.5 | 7.9 | 4.0 |
| 16 | 9.7 | 4.8 |
| 17.5 | 11.6 | 5.8 |
| 19 | 13.6 | 6.8 |
| 20.5 | 15.8 | 7.9 |
| 22 | 18.2 | 9.1 |
| 24 | 21.7 | 10.9 |
| 25.5 | 24.5 | 12.3 |
| 27 | 27.5 | 13.7 |
| 28.5 | 30.6 | 15.3 |
| 30 | 33.9 | 17.0 |
| 32 | 38.6 | 19.3 |
| 33 | 41.1 | 20.5 |
| 35 | 46.2 | 23.1 |
| 37 | 51.6 | 25.8 |
| 38 | 54.4 | 27.2 |
| 40 | 60.3 | 30.2 |

* The minimum loads have been calculated by multiplying the double cross-section of the material of the link by 24 kgf/mm² and 12 kgf/mm² respectively.
The table shows the minimum strengths that should be attained whatever material is used.

** These dimensions for inland navigation only.