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IS 1732 (1989): Steel Bars round and square for structural and general engineering purposes [CED 7: Structural Engineering and structural sections]



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“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

**STEEL BARS, ROUND AND SQUARE FOR
STRUCTURAL AND GENERAL ENGINEERING
PURPOSES — DIMENSIONS**

(*Second Revision*)

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BUREAU OF INDIAN STANDARDS
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FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards on 28 June 1989, after the draft finalised by the Structural Sections Sectional Committee had been approved by the Civil Engineering Division Council.

This standard was first published in 1961. In its first revision in 1971 the dimensions, sectional area and mass of round and square bars were based on ISO/R 1035/I-1969 and ISO/R 1035/II-1969, respectively. With the publication of these recommendations into ISO Standards, another revision of IS : 1732 was felt necessary. In this revision, therefore, the dimensions, sectional area and mass of round and square steel bars have been aligned with the 'Preferred Sizes' of ISO 1035/I-1980 'Hot rolled steel bars — Part I Dimensions of round bars' and ISO 1035/2-1980 'Hot rolled steel bars' — Part 2 Dimensions of square bars' issued by the International Organisation for Standardization.

Dimensions 5 mm and 6 mm both for the round and square bars have been retained from the earlier version of the standard, as these are produced and used widely in the country.

Values of mass and sectional area of bars have been given in three significant figures.

Indian Standard

STEEL BARS, ROUND AND SQUARE FOR STRUCTURAL AND GENERAL ENGINEERING PURPOSES — DIMENSIONS

(Second Revision)

1 SCOPE

1.1 This standard specifies dimensions, sectional areas and mass of hot-rolled round and square steel bars for structural and general engineering purposes.

1.1.1 This standard is mainly intended to cover bars made from steel conforming to the following Indian Standard:

IS 226 : 1975	Specification for structural steel (standard quality) (<i>fifth revision</i>)
IS 961 : 1975	Specification for structural steel (high tensile) (<i>second revision</i>)
IS 1977 : 1975	Specification for structural steel (ordinary quality) (<i>second revision</i>)
IS 2062 : 1984	Specification for weldable structural steel (<i>third revision</i>)
IS 8500 : 1977	Specification for weldable structural steel (medium and high strength qualities)

1.1.2 This standard does not cover bars for rivets and threaded components.

2 REFERENCES

2.1 The following Indian Standard is a necessary adjunct to this standard:

IS 1852 : 1985	Specification for rolling and cutting tolerances for hot-rolled steel products (<i>fourth revision</i>)
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3 DESIGNATION

3.1 Hot rolled round and square steel bars conforming to this standard shall be designated by the letters ISRO and ISSQ respectively followed by the diameter in mm in the case of round bars and the side width in mm in the case of square bars (*see* Tables 1 and 2).

4 DIMENSIONS AND MASS

4.1 The dimensions and mass of hot-rolled round and square steel bars shall be as given in Tables 1 and 2.

Table 1 Dimensions, Sectional Areas and Mass of Hot-Rolled Round Steel Bars*(Clauses 3.1, 4.1 and 4.1.1)*

Designation	Diameter	Sectional Area	Mass Per Metre
	mm	cm ²	kg
(1)	(2)	(3)	(4)
ISRO 5	5.0	0.196	0.154
ISRO 6	6.0	0.283	0.222
ISRO 8	8.0	0.503	0.395
ISRO 10	10.0	0.785	0.617
ISRO 12	12.0	1.13	0.888
ISRO 14	14.0	1.54	1.21
ISRO 16	16.0	2.01	1.58
ISRO 18	18.0	2.54	2.00
ISRO 20	20.0	3.14	2.47
ISRO 22	22.0	3.80	2.98
ISRO 25	25.0	4.91	3.85
ISRO 28	28.0	6.16	4.83
ISRO 30	30.0	7.07	5.55
ISRO 32	32.0	8.04	6.31
ISRO 35	35.0	9.62	7.55
ISRO 40	40.0	12.6	9.85
ISRO 45	45.0	15.9	12.5
ISRO 50	50.0	19.6	15.4
ISRO 55	55.0	23.8	18.7
ISRO 60	60.0	28.3	22.2
ISRO 65	65.0	33.2	26.0
ISRO 70	70.0	38.5	30.2
ISRO 75	75.0	44.2	34.7
ISRO 80	80.0	50.3	39.5
ISRO 90	90.0	63.6	49.9
ISRO 100	100.0	78.5	61.7
ISRO 110	110.0	95.0	74.6
ISRO 120	120.0	113	88.8
ISRO 140	140.0	154	121
ISRO 160	160.0	201	158
ISRO 180	180.0	254	200
ISRO 200	200.0	314	247

Table 2 Dimensions, Sectional Areas and Mass of Hot-Rolled Square Steel Bars*(Clauses 3.1, 4.1 and 4.1.1)*

Designation	Side Width	Sectional Area	Mass per Metre
	mm	cm ²	kg
(1)	(2)	(3)	(4)
ISSQ 5	5.0	0.25	0.196
ISSQ 6	6.0	0.36	0.283
ISSQ 8	8.0	0.64	0.502
ISSQ 10	10.0	1.00	0.785
ISSQ 12	12.0	1.44	1.13
ISSQ 14	14.0	1.96	1.54
ISSQ 16	16.0	2.56	2.01
ISSQ 18	18.0	3.24	2.54
ISSQ 20	20.0	4.00	3.14
ISSQ 22	22.0	4.84	3.80
ISSQ 25	25.0	6.25	4.91
ISSQ 30	30.0	9.00	7.06
ISSQ 35	35.0	12.2	9.58
ISSQ 40	40.0	16.0	12.6
ISSQ 50	50.0	25.0	19.6
ISSQ 60	60.0	36.0	28.3
ISSQ 70	70.0	49.0	38.5
ISSQ 80	80.0	64.0	50.2
ISSQ 100	100.0	100	78.5
ISSQ 120	120.0	144	113

4.1.1 The cross-sectional area of round and square steel bars are given in Tables 1 and 2 respectively for information. The values have been rounded off to three significant figures.

5 TOLERANCES

5.1 The rolling and cutting tolerances for the steel bars shall be in accordance with IS 1852 : 1985.

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