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SPECIFICATION FOR FOUNDRY MOULDING BOXES OF STEEL CONSTRUCTION

(Second Revision)

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Indian Standard

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Indian Standard

SPECIFICATION FOR FOUNDRY MOULDING BOXES OF STEEL CONSTRUCTION

(Second Revision)

0. FOREWORD

0.1 This Indian Standard (Second Revision) was adopted by the Indian Standards Institution on 30 December 1975, after the draft finalized by the Foundry Sectional Committee had been approved by the Structural and Metals Division Council.

0.2 Moulding boxes constitute an important item of expense for foundries which may be reduced by standardizing the essential dimensions of moulding boxes and their components.

0.3 This standard covering a majority of moulding boxes most commonly used by foundries, was first issued in 1958 and subsequently revised in 1967 restricting to moulding boxes of steel construction only.

0.3.1 This standard has now been revised with a view to making it more practicable in the foundry industry.

0.3.2 No attempt is, however, made to cover bigger and special purpose boxes, which may be required by jobbing foundries. However, in these cases, use could be made of components, such as bushes specified in this standard.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard covers dimensions of foundry moulding boxes fabricated from steel and their main components. The range of sizes covered is from 315 × 315 × 80 mm to 2 000 × 2 000 × 500 mm.

*Rules for rounding off numerical values (*revised*).

1.1.1 The sizes of moulding boxes higher than those specified in this standard shall be as agreed to between the manufacturer and the purchaser.

1.2 This standard applies only to the box parts with pin holes on the longitudinal side and fitted with round bushes on one end and elongated on the other end.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definition shall apply.

2.1 Box Part Size — The minimum inside dimensions of the box part. Usually the box part size is specified in the order of length, breadth and depth (*see* l_1, b and h in Table 1).

3. MANUFACTURE

3.1 Moulding boxes shall be fabricated from standard plates and sections or pressed steel plate sections or special rolled steel sections and shall either have sand retaining ribs or flanges continuously welded on the top and bottom faces, as agreed to between the purchaser and the manufacturer. The boxes shall be suitably reinforced so as to be strong and rigid as to eliminate completely the possibility of distortion under ramming pressure and withstand the rough handling use in the foundries.

3.2 Sharp corners on the box part shall be avoided.

4. BOX PART SIZES

4.1 The size of the box part shall be in accordance with Table 1.

4.2 The following tolerances shall apply to the inside dimensions of the box part:

Dimension	*Size*, mm		*Tolerance* mm
	From	To	
Length, l_1	315	450	± 1·0
	500	710	± 1·5
Breadth, b	800	1 000	± 2·0
	1 120	1 400	± 2·5
	1 600	2 000	± 3·0
Height, h	80	125	± 1·5
	150	300	± 2·0
	350	500	± 3·0

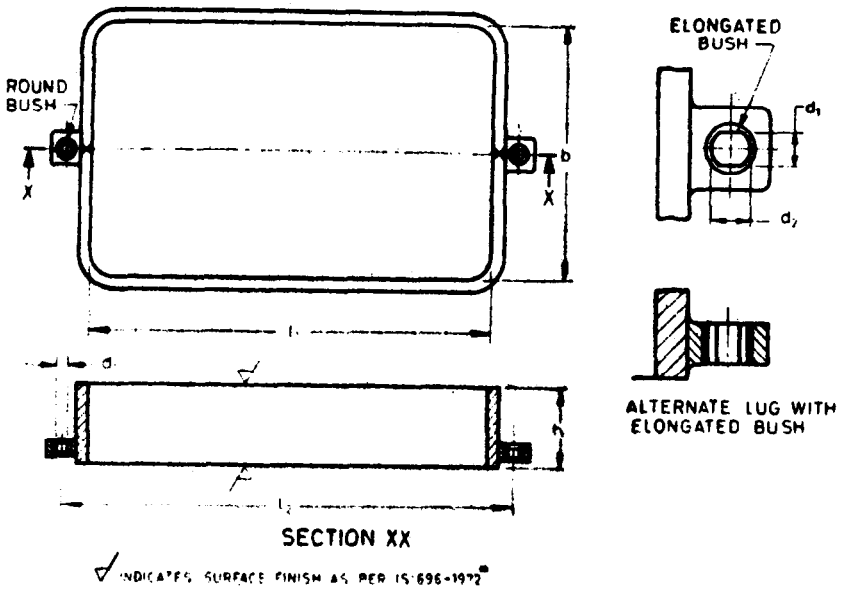
5. CLAMPING AND LIFTING ARRANGEMENT

5.1 Moulding boxes may be supplied with clamping arrangement as agreed to between the purchaser and the manufacturer.

TABLE 1 DIMENSIONS OF MOULDING BOXES

(*Clauses* 2.1, 4.1 *and* 8.1)

All dimensions in millimetres.



l_1	b	h	d_1	d_2	l_2
1	2	3	4	5	6
315	315	80 100 125	19	24	395
355	315 355	80 100 125 150			435
400	315 355 400	80 100 125 150			480
450	315 355 400 450	80 100 125 150 175			530

*Code of practice for general engineering drawings (*second revision*).

(*Continued*)

TABLE 1 DIMENSIONS OF MOULDING BOXES — *Contd*

l_1	b	h	d_1	d_2	l_2
1	2	3	4	5	6
500	315 355 400 450 500	100 125 150 175 200	19	24	580
560	355 400 450 500 560	100 125 150 175 200			640
630	355 400 450 500 630	125 150 175 200 250			710
710	400 450 500 630 710	125 150 175 200 250	22	27	820
800	400 450 500 630 710 800	125 150 175 200 250			910
900	450 500 630 710 800 900	150 175 200 250 300			1 010
1 000	500 630 710 800 900 1 000	150 175 200 250 300			1 110
1 120	630 710 800 900 1 000 1 120	150 175 200 250 300 350	25	30	1 230
1 250	710 800 900 1 000 1 120 1 250	150 175 200 250 300 350			1 360

(*Continued*)

TABLE 1 DIMENSIONS OF MOULDING BOXES — *Contd*

l_1	b	h	a_1	d_2	l_2
1	2	3	4	5	6
1 400	800	175	25	30	1 510
	900	200			
	1 000	250			
	1 120	300			
	1 250	350			
	1 400	400			
1 600	900	175			1 760
	1 000	200			
	1 120	250			
	1 250	300			
	1 400	350			
	1 600	400			
1 800	900	200	30	36	1 960
	1 000	250			
	1 120	300			
	1 250	350			
	1 400	400			
	1 600	450			
	1 800	500			
2 000	1 000	200			2 160
	1 120	250			
	1 250	300			
	1 400	350			
	1 600	400			
	1 800	450			
	2 000	500			

5.2 Moulding boxes may be supplied with handles for manual lifting and trunnions for crane lifting; the design and their method of fixing shall be as agreed to between the purchaser and the manufacturer.

5.3 Moulding boxes may be supplied with bars welded or loose as agreed to between the purchaser and the manufacturer.

6. JOINT FACES

6.1 Joint faces shall be level and true within the following permissible error in straightness:

Box Size, mm		*Tolerance* mm
From	To	
315	450	± 0·25
500	710	± 0·5
800	1 000	± 0·75
1 120	1 400	± 1·0
1 600	2 000	± 1·5

7. LUGS

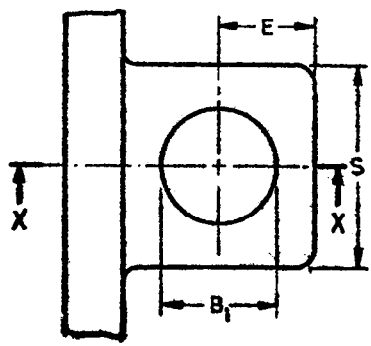
7.1 Lugs shall be single or double on each side of the box as agreed to between the purchaser and the manufacturer.

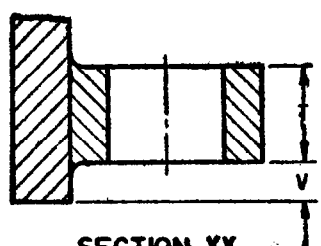
7.2 The lugs shall be suitably reinforced.

7.3 The dimensions of the lugs shall be as specified in Table 2.

TABLE 2 DIMENSIONS OF LUGS IN MOULDING BOXES

All dimensions in millimetres.





SECTION XX

Pin Diameter	B_1 (*H8)	E	S	T	V
(1)	(2)	(3)	(4)	(5)	(6)
19	$30^{+0.039}_{-0.000}$	26	50	20	10
22	$32^{+0.039}_{-0.000}$	30	56	20	10
25	$36^{+0.039}_{-0.000}$	32	65	22	12
30	$42^{+0.039}_{-0.000}$	36	73	25	15

*See IS : 919-1963 'Recommendations for limits and fits for engineering (*revised*)'.

7.4 The holes in the lugs shall be at right angles to the joint face.

8. HOLES FOR BUSHES

8.1 The tolerance on centre distance l_2 between the guide holes for bushes, as shown in Table 1, shall be $\pm 0{\cdot}5$ mm.

8.2 The centre line, that is, the axis of the guide holes centre, shall not shift on either side by more than ± 2 mm.

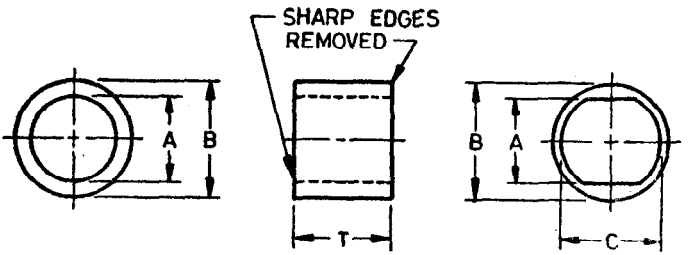
9. BUSHES

9.1 The bushes shall be manufactured from case hardening steel, case carborized and hardened to 54 to 62 *HRC*.

9.2 The bushes shall be ground on inside and outside diameter in case of round and on outside diameter in case of elongated. The dimensions of the bushes shall be maintained as shown in Table 3.

TABLE 3 DIMENSIONS OF BUSHES FOR MOULDING BOXES

All dimensions in millimetres.



A (*H9)	*B* (*U8)	*C*	*T*
(1)	(2)	(3)	(4)
$19^{+0{\cdot}052}_{-0{\cdot}000}$	$30^{+0{\cdot}081}_{+0{\cdot}048}$	24	22
$22^{+0{\cdot}052}_{-0{\cdot}000}$	$32^{+0{\cdot}093}_{+0{\cdot}068}$	27	22
$25^{+0{\cdot}052}_{-0{\cdot}000}$	$36^{+0{\cdot}093}_{+0{\cdot}063}$	30	25
$30^{+0{\cdot}062}_{-0{\cdot}000}$	$42^{+0{\cdot}106}_{+0{\cdot}081}$	36	30

**See* IS : 919-1963 ' Recommendations for limits and fits for engineering (*revised*).'

9.3 The bushes shall be press fit in the holes of the lugs and may also be tac welded.

10. MARKING

10.1 Each moulding box shall be marked with the manufacturer's name or trade-mark and the size of the box.

10.1.1 The product may also be marked with Standard mark.

10.2 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

(*Continued from page* 2)

Foundry Moulding Boxes and Patterns Subcommittee, SMDC 17 : 4

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Kalaikathir Buildings, 670 Avinashi Road, COIMBATORE 641037	21 01 41
Plot No. 43, Sector 16 A, Mathura Road, FARIDABAD 121001	8-28 88 01
Savitri Complex, 116 G.T. Road, GHAZIABAD 201001	8-71 19 96
53/5 Ward No.29, R.G. Barua Road, 5th By-lane, GUWAHATI 781003	54 11 37
5-8-56C, L.N. Gupta Marg, Nampally Station Road, HYDERABAD 500001	20 10 83
E-52, Chitaranjan Marg, C- Scheme, JAIPUR 302001	37 29 25
117/418 B, Sarvodaya Nagar, KANPUR 208005	21 68 76
Seth Bhawan, 2nd Floor, Behind Leela Cinema, Naval Kishore Road, LUCKNOW 226001	23 89 23
NIT Building, Second Floor, Gokulpat Market, NAGPUR 440010	52 51 71
Patliputra Industrial Estate, PATNA 800013	26 23 05
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