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Indian Standard

SPECIFICATION FOR MILD STEEL DUST-BINS

(First Revision)

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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

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Indian Standard

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0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 24 November 1970, after the draft finalized by the Builders' Hardware Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 The specification for mild steel dust-bins was first issued in 1959 to recommend suitable designs of mild steel dust-bins for collection and removal of solid refuse from offices, residences, etc. The revision of the standard has been issued to make improvements in the same in the light of the comments received from users and manufacturers. The standard also makes reference to the recent Indian Standards on materials of construction.

0.3 In the formulation of this standard due weightage has been given to international co-ordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country.

0.4 This standard is one of a series of Indian Standards on builders' hardware.

0.5 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 lays down the requirements regarding material, size, shape and dimensions, manufacture, workmanship and finish for mild steel dust-bins.

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

2. MATERIALS

2.1 The materials used for the manufacture of dust-bins shall comply with the requirements given in Table 1.

3. NOMINAL CAPACITY

3.1 The dust-bins shall be of four sizes having nominal capacities of 30, 60, 70 and 100 litres.

3.1.1 The dust-bins may be made in other capacities where so agreed to between the manufacturer and the purchaser.

4. SHAPES AND DIMENSIONS

4.1 The shape of the first three sizes, namely, 30-, 60- and 70-litre bins shall be as shown in Fig. 1 and 2 and their dimensions shall conform to those specified in Table 1.

4.2 The shape of the 100-litre bin shall conform to Fig. 3 and its dimensions shall be those as given in Table 2.

4.3 The dust-bins may be made in other shapes and dimensions where so agreed to between the manufacturer and the purchaser.

5. MANUFACTURE

5.1 Body — The body shall not be made from more than two pieces so as to avoid unnecessary joints and the seams shall be either locked and grooved or seam-welded. The sheets shall be carefully shaped to ensure a close fit at the seam and the inner surface of the joint shall be smooth. In the case of galvanized steel sheets welded construction is not employed.

5.1.1 The thickness of the black sheets and galvanized steel sheets shall comply with the requirements given in Table 1.

5.2 Top Rim of the Body

5.2.1 In the case of 30-, 60- and 70-litre bins, the top rim of the body shall be rolled and reinforced by a mild steel wire of 5 mm diameter in the case of 30-litre bin and by 6 mm diameter wire in the case of larger bins. The rolled edge shall cover the wire completely as shown in Fig. 4.

5.2.2 In the case of 100-litre bin the top rim of the body shall be stiffened with a hoop made from mild steel angle 25 × 25 × 3 mm closely fitted round the top edge and securely attached to the body by riveting or welding. There shall be at least six welds in case the hoop is welded. The ends of the flat shall be welded and smoothly finished level with top edge of the body.

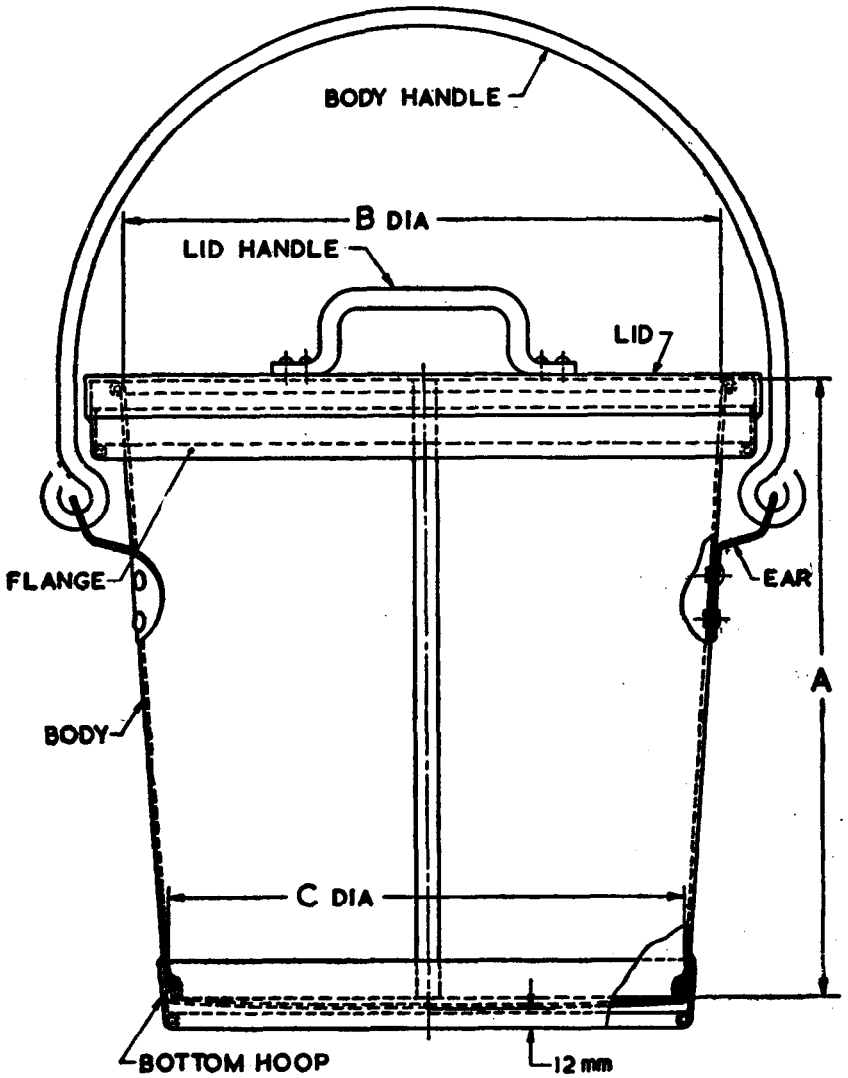

FIG. 1 30-LITRE DUST-BIN

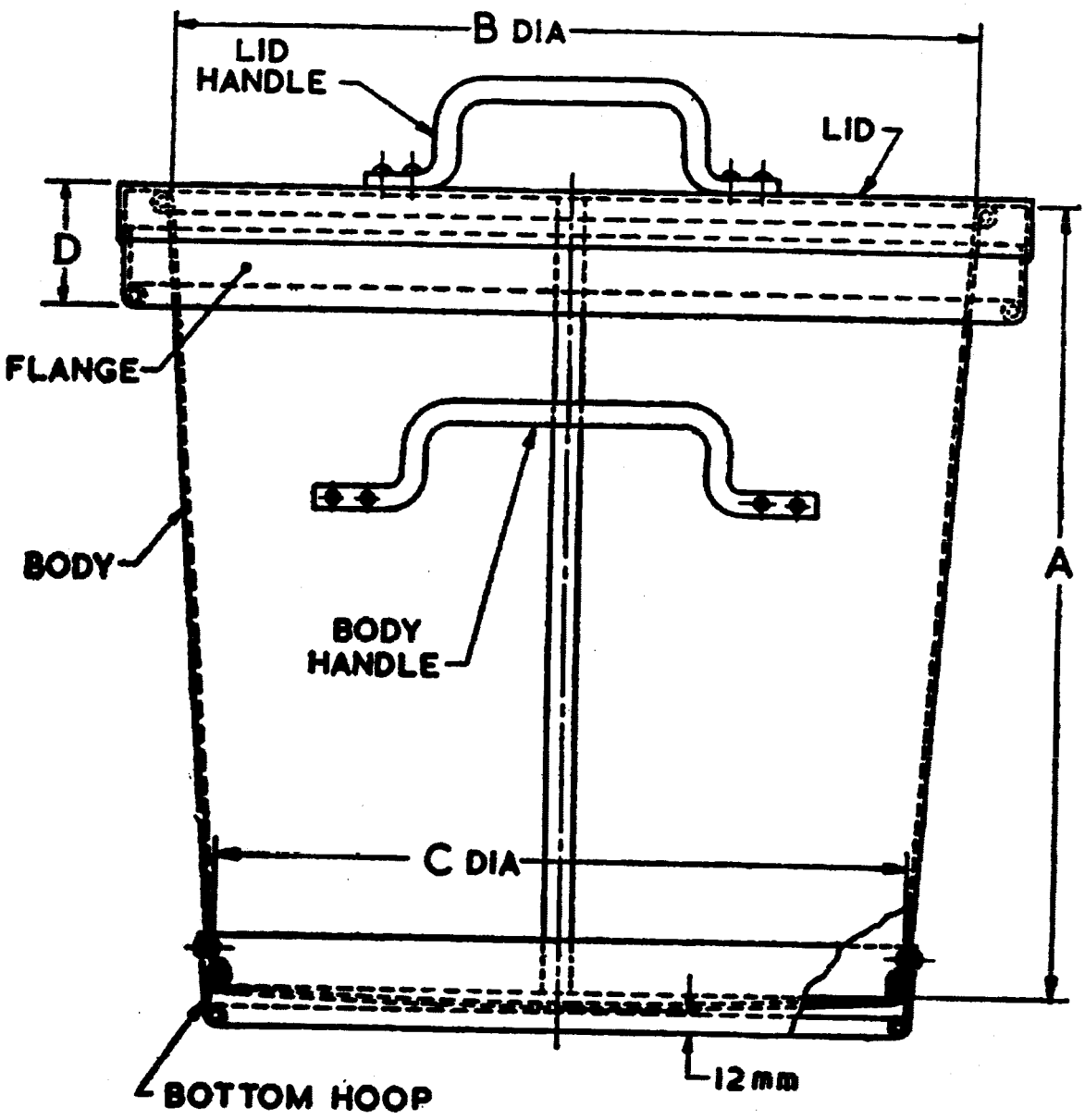

FIG. 2 60-LITRE DUST-BIN

5.3 Body — The bottom of the bin shall be a concave surface downwards. It shall be seamless and smooth and attached to the body by means of a lock joint and in such a way that there is no crevice or raw edge inside the bin. The joints shall be finished smooth.

5.3.1 The minimum vertical distance between the under side of the bottom of the bin and level surface on which it stands shall be 12 mm.

5.4 Bottom Hoop — The base of the bin shall be reinforced with hoop of thickness specified in Table 1, closely fitted and securely attached to the body by riveting or welding at least at six places. The bottom of the hoop shall be rounded and rolled close inwards to a diameter of not less than 5 mm. The height of the reinforcing hoop shall be 40 mm.

TABLE 1 REQUIREMENTS FOR MILD STEEL DUST-BINS

(*Clauses* 2.1, 4.1, 5.1.1, 5.4 *and* 5.5.1)

Sl No.	Material	Requirements	Suitable Grade in Indian Standard
(1)	(2)	(3)	(4)
i)	Black sheets	Shall be of mild steel free from cracks, pittings, blisters, laminations and other surface defects. They shall satisfy the bend test given below: 'Suitable test pieces shall be bent cold through 180° either by pressures or by blows till the internal radius is not greater than 1½ times in thickness of the test pieces. At the end of the test, the test pieces shall not show any signs of fractures'	Grade 0 of IS : 1079-1968*
ii)	Galvanized steel sheets	The galvanized sheet shall be free from cracks, pittings, blisters, laminations and other surface defects	Not inferior to Class 3 of IS : 277-1969†
iii)	Steel bars, sections, etc	—	Grade St 32-0 of IS : 1977-1969‡

*Specification for hot rolled carbon steel sheet and strip (*second revision*).

†Specification for galvanized steel sheets (plain and corrugated) (*second revision*).

‡Specification for structural steel (ordinary quality) (*first revision*).

5.5 Lid

5.5.1 In the case of 30-, 60- and 70-litre bins, the lid shall be round shape and of single piece construction except that the flange may be welded on or seamed on as shown in Fig. 5. The flanges shall be finished with an inside beaded edge as illustrated in Fig. 5. The depth shall be in accordance with Table 1. The lid shall fit outside the bin and the difference between the internal diameter of the lid at its bead and the external diameter of the body at its top rim shall neither be less than 5 mm nor more than 10 mm.

5.5.2 In the case of 100-litre bin, the lid shall be flat, folding along its diameter by means of hinges riveted smooth to the lid. The lid shall be reinforced by means of mild steel flat 25 × 3 mm as shown in Fig. 3 to support the hinges and strengthen the rim. Half of the lid shall be riveted to the top of mild steel angle rim of the body and the edge locked round the mild steel angle (*see* detail at Y in Fig. 3).

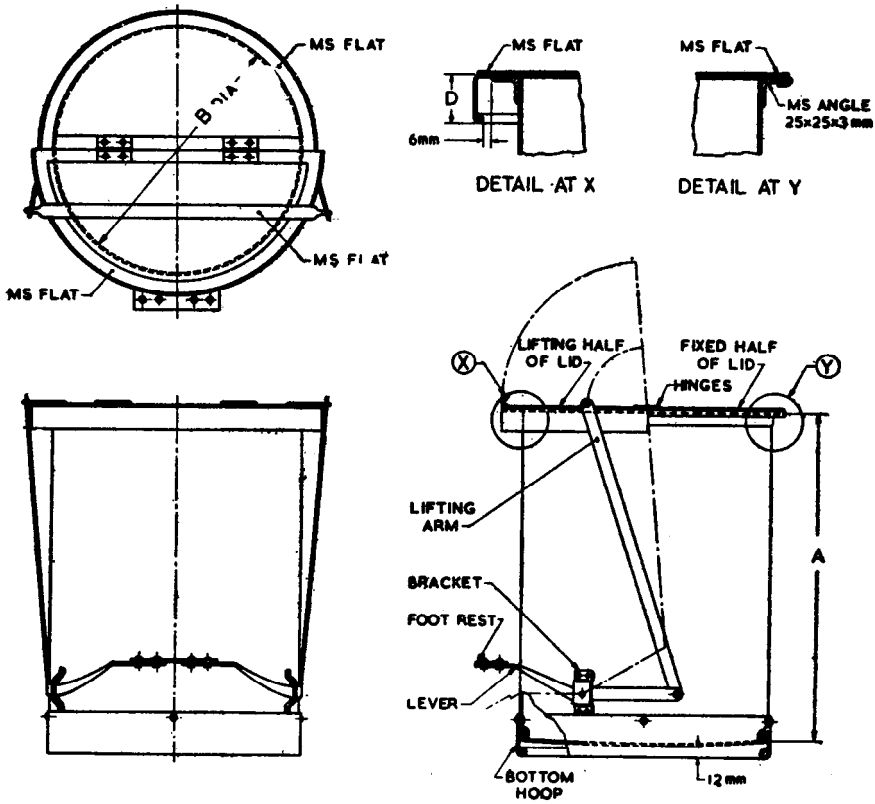

FIG. 3 100-LITRE DUST-BIN

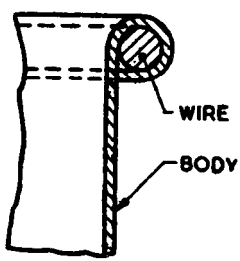

FIG. 4 FORM OF BEAD ON TOP RIM OF BODY

TABLE 2 DIMENSIONS AND WEIGHTS OF DUST-BINS

(*Clauses* 4.2 *and* 7.1)

Nominal Capacity	Dimensions				Thickness of Black or Galvanized Sheet				Approximate Weight of Bin with Attachment After Galvanizing
	Internal Height *A*	Internal Diameter at Top *B*	Internal Diameter at Bottom *C*	Depth of Flange of Lid *D*	Body	Bottom	Lid	Bottom Reinforcing Hoop	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
litres	mm	mm	mm	mm	mm	mm	mm	mm	kg
30	355	355	305	50	0·630	0·800	0·630	1·25	6
60	510	400	350	50	0·800	0·800	0·630	1·25	9
70	560	430	380	50	0·800	0·800	0·630	1·60	10·5
100	610	460	460	50	0·800	1·000	0·800	1·60	15·5

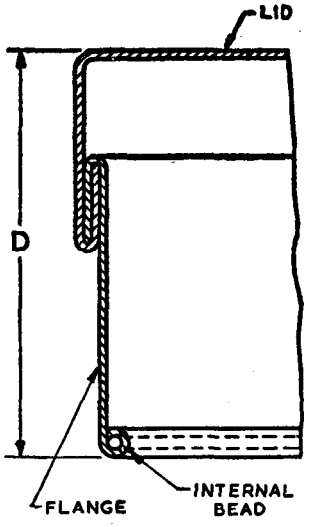

FIG. 5 SECTION OF LID SHOWING METHOD OF SEAMING ON FLANGE AND FORM OF INTERNAL BEAD

5.6 The mechanical lifting arrangement shall comprise the following:

a) The levers of mild steel flat 25 × 6 mm having eyes 12 mm in diameter at its ends and at the fulcrum,

b) Two brackets made of mild steel flat 40 × 6 mm to support the fulcrum pin 10 mm in diameter,

c) Two lifting arms of mild steel flat 25 × 6 mm having eyes 12 mm in diameter at both ends,

d) A foot rest 150 × 60 × 6 mm riveted on to the lever at its middle point, and

e) Mild steel flat 25 × 6 mm fixed on top of the opening half of the lid and forged at its ends into a circular section 10 mm in diameter pinned into the eyes of the lifting arms.

5.6.1 The general arrangement and the dimensions of the parts of lifting device shall conform to those specified in Fig. 3.

5.6.2 The lifting device shall be worked by foot by applying force on foot rest. The device should work freely through the whole range of movement.

5.7 Body Handles

5.7.1 In the case of 30-litre bin, the body handle shall be fitted with a 12 mm fluted round edge hale type handle of such a shape as to swing clear of the lid when the latter is in position. Each ear shall be attached to the body by two or more rivets. Steel bars conforming to Grade St 32·0 of IS : 1977-1969* may also be used.

5.7.2 In the case of 60- and 70-litre bins, the body handles shall be fixed at positions diametrically opposite, straddling the side seams and at a height above the centre of gravity of the bins. The handles shall be of round section, with ends flattened and turned down. The handles shall be so shaped as to give a comfortable hand hold, the grip being not less than 115 mm and shall have a clear projection of not less than 50 mm from the sides of the bin. The handles shall be attached to the body at an upward angle of 30° to the horizontal. Each handle shall be fixed by four rivets 5 mm in diameter in case of 60-litre bins by 6 mm diameter rivets in case of 70-litre bins. The rivets shall have flat heads on the inside of the bins.

5.8 Lid Handle

5.8.1 The lid handle shall be of 10 mm mild steel round with 100 × 50 mm grip for 30-, 60- and 70-litre bins and shall be attached to the lid in a central position with one or two rivets on each end.

5.8.2 There shall be no lid handle in case of 100-litre bin.

6. WORKMANSHIP AND FINISH

6.1 The bins shall be free from cracks, splits, dents, distortions and other defects. The bending of the sheets shall be done in such a manner as not to weaken the sheets. The welding shall be continuous and even. The rivets shall be well drawn, and soundly snapped. The joints shall be well pressed and locked. The body handles of 30-litre bin, the lifting device and the hinges of 100-litre bin shall move freely without any undue play or stiffness. The bins shall be finished smooth all over and all sharp corners and burrs shall be removed.

6.2 Dust-bins made from black sheets, after fabrication, shall be thoroughly cleaned free from all traces of rust, grease and dirt and then shall be hot-dip galvanized. Handles for the body and the components of the mechanical lifting device shall, however, be hot-dip galvanized after manufacture but before they are fitted to the dust-bins.

6.2.1 The coating of the zinc shall be uniform and at no place be less than class 3 of IS : 277-1969†. The galvanizing treatment shall withstand the tests specified in IS : 2633-1964‡.

*Specification for structural steel (ordinary quality) (*first revision*).

†Specification for galvanized steel sheets (plain and corrugated) (*second revision*).

‡Methods of testing weight, thickness and uniformity of coating on hot dipped galvanized articles.

6.2.2 The zinc coating shall be free from uncovered spots, pin-holes, stains, granulations and objectionable flow marks. The coating shall be adherent and shall not peel off.

6.3 If specified by the purchaser, the dust-bins and the attachments shall be painted with two coats of white paint inside and two coats of black paint outside. The paints used shall conform to the relevant Indian Standards specified in Table 3.

TABLE 3 PAINTS FOR DUST-BINS

Sl No.	Purpose	When Oil Paint Finish is Required	When Enamel Finish is Required
(1)	(2)	(3)	(4)
i)	Priming coat	IS : 113-1950* IS : 2931-1964†	IS : 106-1962‡
ii)	White paint for painting inside	IS : 127-1962§ IS : 2339-1963‖	IS : 133-1965¶
iii)	Black paint for painting outside, handles and other attachments	IS : 128-1962** IS : 290-1961††	IS : 133-1965¶

*Specification for ready mixed paint, brushing, undercoating, interior, to Indian Standard colours.

†Specification for ready mixed paint, brushing, aluminium-zinc oxide composite primer.

‡Specification for ready mixed paint, brushing, priming, for enamels, for use on wood (*revised*).

§Specification for ready mixed paint, brushing, finishing, exterior, semi-gloss, for general purposes, white (*revised*).

‖Specification for aluminium paint for general purposes, in dual container.

¶Specification for enamel, interior (a) undercoating, (b) finishing, colour as required (*revised*).

**Specification for ready mixed paint, brushing, finishing, semi-gloss, for general purposes, black (*revised*).

††Specification for coal tar black paint (*revised*).

7. WEIGHT

7.1 The weight of the bins together with attachments shall be as specified in Table 2 with a variation of $^{+5}_{-0}$ percent.

8. MARKING

8.1 Each bin shall be clearly and permanently marked with the following information:

a) Manufacturer's name or trade-mark,

b) Capacity of the bin, and

c) Year of manufacture, if required by the purchaser.

8.1.1 The bin may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and the Rules and Regulations made thereunder. Presence of this mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard, under a well-defined system of inspection, testing and quality control during production. This system, which is devised and supervised by ISI and operated by the producer, has the further safeguard that the products as actually marketed are continuously checked by ISI for conformity to the standard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	*Unit*	*Symbol*
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	*Unit*	*Symbol*
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	*Unit*	*Symbol*	*Definition*
Force	newton	N	1 N = 1 kg.m/s^2
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2

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