IS 2028 : 2004
(Reaffirmed 2013)
(Reaffirmed 2019)

भारतीय मानक

खुले जबड़े वाले रिंच (पाने) — विशिष्टि

(पाँचवा पुनरीक्षण)

Indian Standard

OPEN JAW WRENCHES (SPANNERS) — SPECIFICATION

(Fifth Revision)

ICS 25.140.30

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

January 2004

Price Group 4

Assembly Hand Tools Sectional Committee, BP 05

FOREWORD

This Indian Standard (Fifth Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Assembly Hand Tools Sectional Committee had been approved by the Basic and Production Engineering Division Council.

This standard was first published in 1962. Since then this standard had undergone four revisions, the first revision in 1968 and the fourth revision in 1998. The above revisions had been taken up to align with IS 6131 : 1980 'Technical requirements for hand-operated wrenches (spanners) and sockets (*first revision*) and IS 2027 : 1992 'Spanners and sockets—Widths across flats (*third rivision*)'as well as to delete a few non-preferred sizes. In the fourth revision, one more table consisting of ISO series spanner was also included.

In this revision, alternate dimensions for double-ended open jaw wrenches (spanners) for general purposes (torque series C) and a few sizes have been added to be in line with the prevalent and industrial practices with the assistance and data supplied by the manufacturers.

Assistance has also been derived from ISO 3318 : 1990 'Assembly tools for screws and nuts — Double-headed open-ended wrenches, double-headed ring wrenches and combination wrenches — Maximum widths of heads', ISO 10102 : 1990 'Assembly tools for screws and nuts — Double-headed open-ended engineers' wrenches' issued by the International Organization for Standardization, DIN 895 : 1987 'Engineers' wrenches, double head, open end with unequal jaw widths, test torques series D' and DIN 3110 : 1987 'Engineers' wrenches, double head, open end, with unequal jaw widths, test torques series C'.

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 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be same as that of the specified value in this standard.

Indian Standard

OPEN JAW WRENCHES (SPANNERS) — SPECIFICATION

(Fifth Revision)

1 SCOPE

This standard covers the requirements for forged open jaw (ended) wrenches (spanners) of torque series C and D of IS 6131.

2 REFERENCES

The following standards contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	*Title*
2027 : 1992	Spanners and sockets — Widths across flats (*third revision*)
3748 : 1990	Tool and die steels — Specification (*second revision*)
6131 : 1980	Technical requirements for hand-operated wrenches (spanners) and sockets (*first revision*)

3 DIMENSIONS

3.1 The dimensions for single-ended open jaw wrenches (spanners) for general purposes (torque series C) shall be as given in Table 1.

3.2 The dimensions for double-ended open jaw wrenches (spanners) for automobile use (torque series C) shall be as given in Table 2.

3.3 The alternate dimensions for double-ended open jaw wrenches (spanners) for general purposes (torque series C) shall be as given in Table 3.

3.4 The dimensions for double-ended open jaw wrenches (spanners) for general purposes (torque series D) shall be as given in Table 4.

3.5 The dimensions for double headed open-ended engineers' wrenches (spanners) for ISO series (torque series C) shall be as given in Table 5.

3.6 Tolerance on Width Across Flats

The width(s) across flats and the corresponding tolerances for the open jaw wrenches (spanners) for forged and subsequently machined wrenches (spanners) shall be as specified in IS 2027.

3.7 The wrenches (spanners) need not comply with the illustrations given in Tables 1 to 5 which are diagrammatic only; only the indicated dimensions are to be maintained.

4 MATERIAL

Any suitable grade of steel conforming to IS 3748 shall be used which after suitable heat treatment shall fulfil the requirements of hardness and torque test as laid down in **5** and **8**.

5 HARDNESS

The wrench (spanner) shall be hardened throughout and the hardness measured at any point on the spanner shall be within the limits specified in IS 6131.

6 WORKMANSHIP AND FINISH

The workmanship and finish shall be as per **3** of IS 6131.

7 SAMPLING

The sampling shall be as per **7** of IS 6131.

8 TORQUE TESTING

The torque testing shall be as per **6** of IS 6131.

9 DESIGNATION

The wrenches (spanners) shall be designated by :

a) Commonly used name;
b) Single-ended (SE), double-ended (DE) or double-headed (DH);
c) Whether general purpose (GP), automobile use (A) or engineers' (E);
d) Torque series C or D (*see* IS 6131);
e) Nominal width(s) across flats in millimetres; and
f) Number of this standard.

Example 1

An open jaw wrench (spanner) single-ended for general

purposes, torque series D, having nominal width across flat, s = 10 mm and conforming to this standard shall be designated as :

Wrench or Spanner SE – GP – Series – IS 2028 – D-10

Example 2

An open jaw wrench (spanner) double-ended for automobiles, torque series C having nominal widths across flat, s_1 = 19 mm and s_2 = 22 mm shall be designated as :

Wrench or Spanner DE – A – Series – IS 2028 – C – 19 – 22

10 PRESERVATION AND PACKING

The preservation and packing shall be as per **5** of IS 6131.

11 MARKING

11.1 The wrenches (spanners) shall be marked legibly and permanently with at least :

a) Nominal width(s) across flats on their respective end(s);
b) Name or initials/recognized trade-mark of the manufacturer or both; and
c) Year of manufacture may also be marked, if required by the purchaser.

11.1.1 The carton shall have markings of designation, nominal width(s) across flats, the name or initials/ recognized trade-mark of the manufacturer or both and quantity.

11.2 BIS Certification Marking

11.2.1 Each wrench (spanner) may also be marked with the Standard Mark.

11.2.2 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 the Standard Mark may be granted to the manufacturers or producers may be obtained from the Bureau of Indian Standards.

Table 1 Dimensions for Single-Ended Open Jaw Wrenches (Spanners) for General Purposes (Torque Series C)

(*Clauses* 3.1 *and* 3.7)

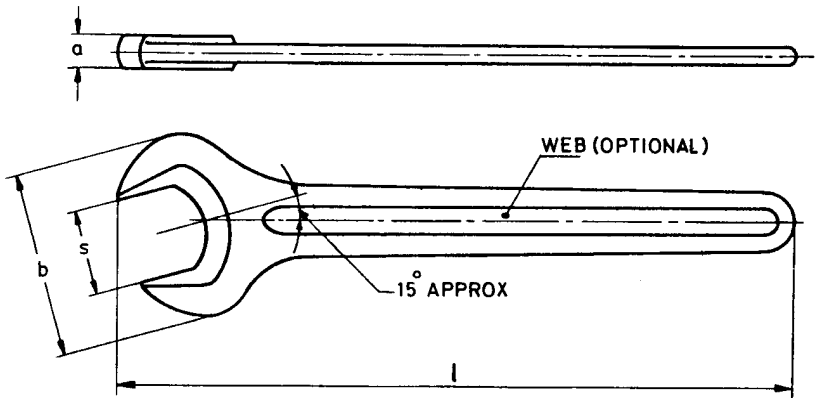


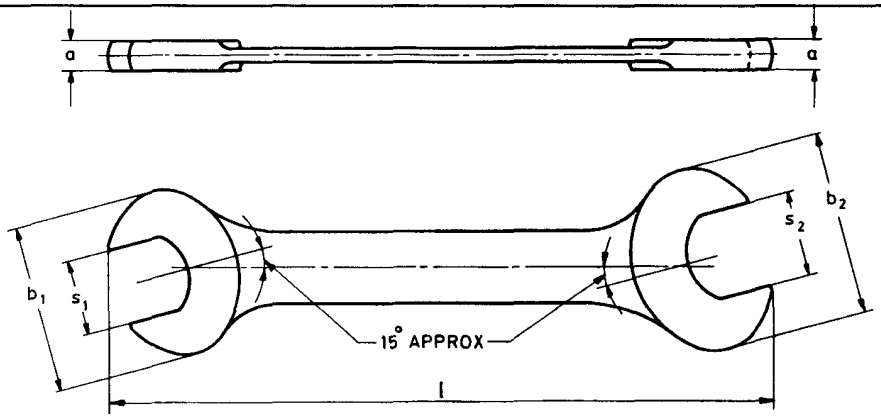
Table 1 (*Concluded*)

All dimensions in millimetres.

Nominal Width Across Flats, *s*	*a*	*b*	*l*	
	Max	*Max*	*Max*	*Min*
6	3.5	15.5	75	70
7	3.5	17.5	80	75
8	4.0	20.5	100	90
9	4.5	22.5	105	95
10	5.0	24.5	110	100
11	5.5	26.5	120	105
12	5.5	28.5	130	120
13	6.0	30.5	140	125
14	6.0	32.5	150	130
15	6.0	35	160	140
16	6.5	37	165	150
17	6.5	39	165	150
18	6.5	41	175	155
19	7.5	43	180	160
21	8.5	47	195	175
22	8.5	49	205	185
24	9.5	53	230	210
27	10.5	60	250	230
30	11.5	65	275	250
32	12.5	70	290	260
34	13.0	74	305	275
36	13.5	80	320	290
41	15.0	90	360	330
46	16.0	100	400	360
50	17.0	110	435	395
55	18.0	120	480	435
60	19.0	130	520	470
65	20.0	140	555	505
70	21.0	150	600	545
75	22.0	160	640	580
80	23.0	170	675	615
85	24.0	185	725	660
90	32.0	205	750	685
95	32.0	205	750	685
100	32.0	205	780	715

Table 2 Dimensions for Double-Ended Open Jaw Wrenches (Spanners) for Automobile Use (Torque Series C)

(*Clauses* 3.2 *and* 3.7)

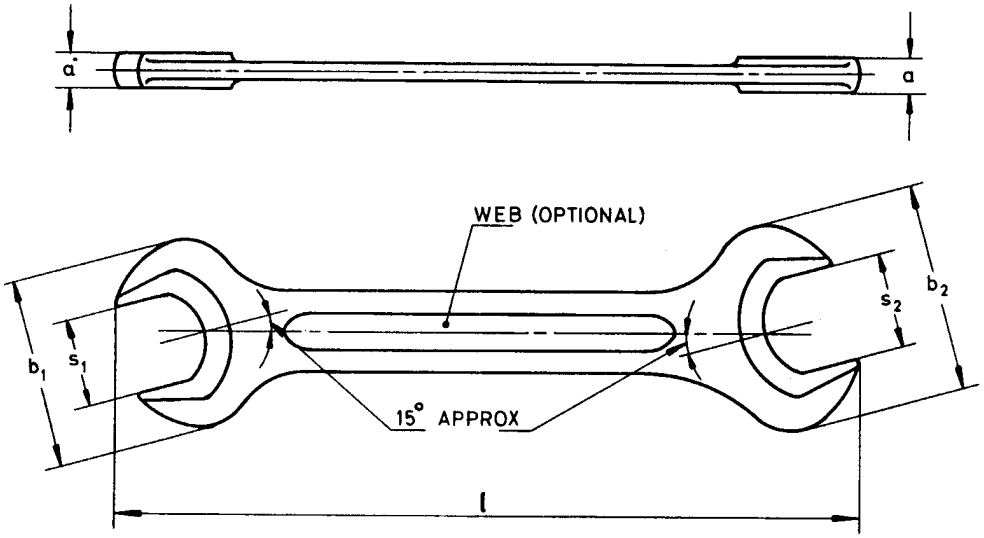


All dimensions in millimetres.

Nominal Width Across Flats $s_1 \times s_2$	a	b_1	b_2	l	
	Max	*Max*	*Max*	*Max*	*Min*
6 ×7	3.7	19	20	135	120
7 × 8	4.0	20	22	140	125
8 × 9	4.0	22	24	145	130
8 ×10	4.5	22	27	155	140
10 ×11	5.0	27	30	165	150
10 ×13	5.5	27	34	175	160
11 ×13	5.5	30	34	175	160
12 ×13	5.5	32	34	180	165
12 ×14	5.5	32	35	180	165
13 ×14	6.0	34	35	190	175
13 ×15	6.0	34	37	190	175
13 ×16	6.5	34	38	200	180
13 ×17	6.5	34	42	210	190
14 ×15	6.0	35	37	190	175
14 ×17	6.5	38	42	210	190
15 × 16	6.5	37	38	210	190
16 × 17	6.5	38	42	210	190
16 × 18	7.0	38	44	215	195
17 × 19	7.0	42	47	225	205
18 × 19	7.5	44	47	225	205
18 × 21	8.0	44	49	240	220
18 × 24	9.0	44	56	250	230
19 × 22	8.0	47	52	240	220
19 × 24	9.0	47	56	270	240
20 × 22	8.0	48	52	245	225
21 × 23	8.0	49	53	250	230
21 × 24	9.0	49	56	260	235
22 × 24	9.0	52	56	270	240
24 × 26	9.0	56	59	280	250
24 × 27	9.0	56	63	280	250
24 × 30	10.0	56	66	290	260
25 × 28	9.0	58	64	290	260
27 × 30	10.0	63	66	310	275
27 × 32	10.0	63	71	315	275
30 × 32	10.0	66	71	325	280
30 × 34	11.0	66	75	335	290
30 × 36	11.0	66	80	350	300
32 × 36	11.0	71	80	350	300
34 × 36	12.0	75	80	375	325
36 × 41	13.0	80	88	400	350
41 × 46	17.0	88	96	450	400
46 × 50	18.0	96	105	500	450

Table 3 Alternate Dimensions for Double-Ended Open Jaw Wrenches (Spanners) for General Purposes (Torque Series C)

(*Clauses* 3.3 *and* 3.7)

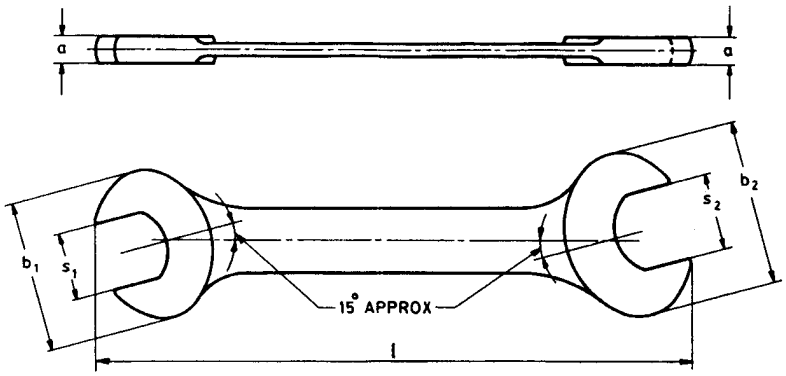


All dimensions in millimetres.

Nominal Width Across Flats $s_1 \times s_2$	a	b_1	b_2	l	
	Max	*Max*	*Max*	*Max*	*Min*
6 ×7	4.0	17.0	20.0	95	80
8 × 9	4.5	20.0	24.0	110	95
10 × 11	5.0	23.0	27.0	120	105
12 × 13	5.5	30.0	32.0	140	120
13 × 16	6.5	32.0	38.0	155	135
14 × 15	6.0	34.0	36.0	160	135
15 × 16	6.5	36.0	38.0	155	135
16 × 17	6.5	38.0	41.0	175	155
16 × 18	7.0	38.0	42.0	175	155
18 × 19	7.0	42.0	46.0	195	175
18 × 21	8.0	42.0	49.0	195	175
20 × 22	8.0	47.5	51.5	215	190
21 × 23	8.5	49.0	54.0	230	205
21 × 24	8.5	49.0	54.0	230	205
24 × 26	9.0	54.0	58.0	250	220
24 × 27	10.0	54.0	58.0	250	220
26 × 28	10.0	56.0	60.0	260	230
27 × 30	12.0	56.0	62.0	275	245
27 × 32	12.0	58.0	62.0	275	245
30 × 32	12.0	66.0	71.0	275	245
30 × 34	12.0	66.0	75.0	275	245
32 × 36	13.0	70.0	80.0	310	280
36 × 41	14.0	80.0	88.0	360	330
41 × 46	16.0	90.0	100.0	400	365
46 × 50	17.0	100.0	110.0	440	400
50 × 50	18.0	110.0	120.0	485	440
50 × 55	18.0	110.0	120.0	485	440
55 × 60	19.0	110.0	130.0	525	475

Table 4 Dimensions for Double-Ended Open Jaw Wrenches (Spanners) for General Purposes (Torque Series D)

(*Clauses* 3.4 *and* 3.7)

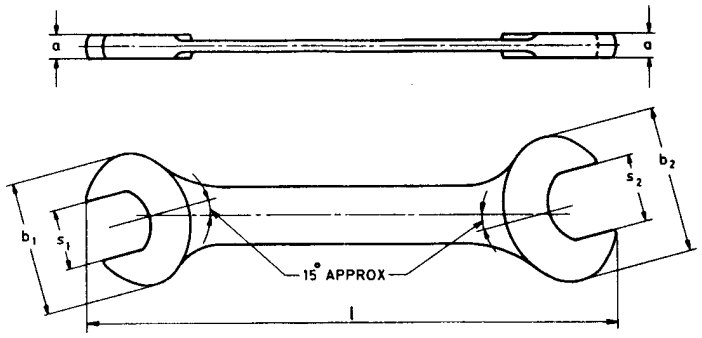


All dimensions in millimetres.

Nominal Width Across Flats $s_1 \times s_2$	a	b_1	b_2	l	
	Max	*Max*	*Max*	*Max*	*Min*
6 × 7	3.5	15.5	17.5	100	90
7 × 8	4.0	17.5	20.5	110	100
8 × 9	4.0	20.5	22.5	110	100
8 ×10	4.5	20.5	24.5	120	110
10 × 11	5.5	24.5	26.5	130	115
10 × 13	5.5	24.5	30.5	130	115
11 × 13	6.0	26.5	30.5	140	125
12 × 13	6.0	28.5	30.5	145	130
12 × 14	6.0	28.5	32.5	150	135
13 × 14	6.0	30.5	32.5	150	135
13 × 15	6.5	30.5	35.0	160	145
13 × 16	7.0	30.5	37.0	165	150
13 × 17	7.0	30.5	39.0	165	150
14 × 15	6.5	32.5	35.0	160	140
14 × 17	7.0	32.5	39.0	165	150
15 × 16	7.0	35.0	37.0	165	150
16 × 17	7.0	37.0	39.0	165	150
16 × 18	7.5	37.0	41.0	170	155
17 × 19	7.5	39.0	43.0	180	165
18 × 19	7.5	41.0	43.0	180	165
18 × 21	9.0	41.0	47.0	200	180
18 × 24	9.5	41.0	53.0	210	190
19 × 22	9.0	43.0	49.0	200	180
19 × 24	9.5	43.0	53.0	220	200
21 × 23	9.5	47.0	51.0	230	210
21 × 24	9.5	47.0	53.0	230	210
22 × 24	9.5	49.0	53.0	230	210
24 × 26	10.0	53.0	58.0	255	230
24 × 27	10.5	53.0	60.0	255	230
24 × 30	11.5	53.0	65.0	285	255
27 × 30	11.5	60.0	65.0	285	255
27 × 32	12.5	60.0	70.0	285	255
30 × 32	12.5	65.0	70.0	285	255
30 × 34	13.0	65.0	75.0	300	270
30 × 36	13.5	65.0	80.0	320	290
32 × 36	13.5	70.0	80.0	320	290
34 × 36	13.5	75.0	80.0	320	290
36 × 41	15.0	80.0	90.0	365	330
41 × 46	16.0	90.0	100.0	400	365
46 × 50	17.0	100.0	110.0	440	400
50 × 55	18.0	110.0	120.0	485	440
55 × 60	19.0	120.0	130.0	525	475

Table 5 Dimensions for Double-Headed Open-Ended Engineers' Wrenches (Spanners) ISO Series (Torque Series C)

(*Clauses* 3.5 *and* 3.7)



All dimensions in millimetres.

Nominal Width Across Flats $s_1 \times s_2$	a *Max*	b_1 *Max*	b_2 *Max*	l *Min*
3.2 × 4	3.0	14	15	81
4 ×5	3.5	15	18	87
5 × 5.5	3.5	18	19	95
5.5 × 7	4.5	19	22	99
6 × 7	4.5	20	22	103
7 × 8	4.5	22	24	111
8 × 9	5.0	24	26	119
8 × 10	5.5	24	28	119
9 × 11	6.0	26	30	127
10 × 11	6.0	28	30	135
10 × 13	7.0	28	34	135
11 × 13	7.0	30	34	143
12 × 13	7.0	32	34	151
13 × 14	7.0	34	36	159
13 × 15	7.5	34	39	159
13 × 16	8.0	34	41	159
13 × 17	8.5	34	43	159
14 × 15	7.5	36	39	167
15 × 16	8.0	39	41	175
15 × 18	8.5	39	45	175
16 × 17	8.5	41	43	183
16 × 18	8.5	41	45	183
17 × 19	9.0	43	47	191
18 × 19	9.0	45	47	199
18 × 21	10.0	45	51	199
19 × 22	10.0	47	53	207
20 × 22	10.0	49	53	215
21 × 22	10.0	51	53	223
21 × 23	10.5	51	55	223
21 × 24	11.0	51	57	223
22 × 24	11.0	53	57	231
24 × 27	12.0	57	64	247
24 × 30	13.0	57	70	247
25 × 28	12.0	59	66	255
27 × 30	13.0	64	70	271
27 × 32	13.5	64	74	271
30 × 32	13.5	70	74	295
30 × 34	14.0	70	78	295
32 × 34	14.0	74	78	311
32 × 36	14.5	74	83	311
34 × 36	14.5	78	83	327
36 × 41	16.0	83	93	343
41 × 46	17.5	93	104	383
46 × 50	19.0	104	112	423
50 × 55	20.5	112	123	455
55 × 60	22.0	123	133	495

NOTES

1 a, $Max \approx (s_2)^{0.75}$ $\quad b_1$, $Max \approx 2.1 s_1 + 7$ $\quad b_2$, $Max \approx 2.1\, s_2 + 7$

2 l, $Min \approx s_1 \times 8 + 55$

Bureau of Indian Standards

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Review of Indian Standards

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters :

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110 002
Telephones : 2323 0131, 2323 33 75, 2323 9402

Telegrams : Manaksanstha
(Common to all offices)

Regional Offices :		Telephone
Central	: Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110 002	2323 7617, 2323 3841
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