

भारतीय मानक मसौदा

खुले जबड़े वाले रिंच (पाने) — विशिष्टि

(IS 2028 का छठा पुनरीक्षण)

Draft Indian Standard

Open Jaw Wrenches (Spanners) — Specification

(Sixth Revision of IS 2028)

ICS 25.140.30

Hand Tools Sectional Committee, PGD 34

Last Date for Comments: **One month from the date of circulation**

FOREWORD

This Indian Standard (Sixth Revision), will be adopted by the Bureau of Indian Standards after the draft finalized by the Hand Tools Sectional Committee had been approved by the Production and General Engineering Division Council.

This standard was first published in 1962. Since then, this standard had undergone five revisions, the first revision was in 1968 and subsequently revised in 1971, 1981, 1998 and the fifth revision was in 2004. The sixth revision has been brought out to keep pace with the latest technological developments and Indian industry practices.

In this sixth revision, the following changes have been made:

- a) New grades for material have been added; and
- b) Dimensions of Table 1, Table 2, Table 3, Table 4 and Table 5 have been modified and new sizes have been included.

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 : 2022 'Rules for rounding off numerical values (*second revision*)'. 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
(Sixth Revision)

1 SCOP

This Indian 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:

<i>IS No.</i>	<i>Title</i>
IS 2027 : 2023	Spanners and Sockets — Widths Across Flats (<i>third revision</i>)
IS 6131 : 1980	Technical Requirements for Hand-Operated Wrenches (spanners) and Sockets (<i>first revision</i>)

3 DIMENSIONS

3.1 The dimensions for single-ended open jaw wrenches (spanners) for general purposes (torque series C or D according to material used Alloy steel or Carbon steel) shall be as given in Table 1.

3.2 The dimensions for double-ended open jaw wrenches (spanners) for automobile use (torque series C or D according to material used Alloy steel or Carbon steel) 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 or D according to material used Alloy steel or Carbon steel) shall be as given in Table 3.

3.4 The dimensions for double-ended open jaw W1-enchcs (spanners) for general purposes (torque series C or D according to material used Alloy steel or Carbon steel) 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 or D according to material used Alloy steel or Carbon steel) shall be as given in Table 5.

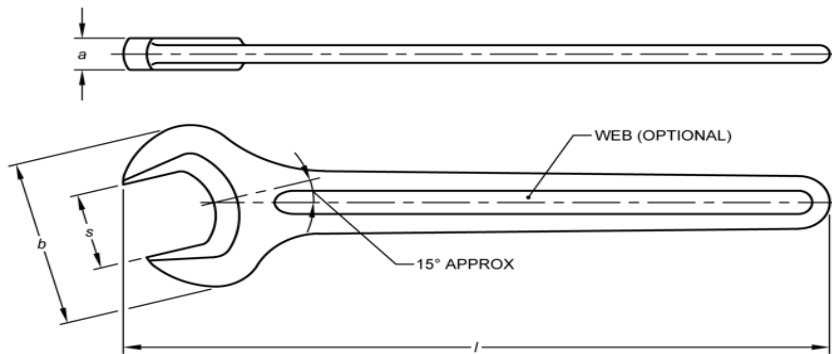
3.6 Tolerance on Width Across Flats

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; the indicated dimensions are to be maintained.

Table 1 Dimensions for Single-Ended Open Jaw Wrenches (Spanners) for General Purposes (Torque Series C or D)
(Clauses 3.1 and 3.7)

All dimensions are in millimeters

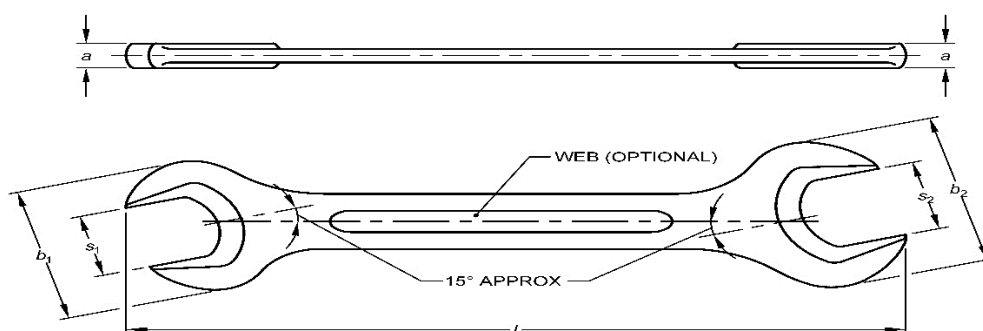


Sl No.	Nominal Width Across Flats, <i>s</i> (mm)	<i>a</i> Max	<i>b</i> Max	<i>l</i> Max	<i>l</i> Min
(1)	(2)	(3)	(4)	(5)	(6)
i)	4	3.5	15.5	75	70
ii)	5	3.5	15.5	75	70
iii)	5.5	3.5	15.5	75	70
iv)	6	3.5	15.5	75	70
v)	7	3.5	17.5	80	75
vi)	8	4.0	20.5	100	90
vii)	9	4.5	22.5	105	95
viii)	10	5.0	24.5	110	100
ix)	11	5.5	26.5	120	105
x)	12	5.5	28.5	130	120
xi)	13	6.0	30.5	140	125
xii)	14	6.0	32.5	150	130
xiii)	15	6.0	35	160	140
xiv)	16	6.5	39	165	150
xv)	17	7.5	39	165	150
xvi)	18	7.5	41	175	155
xvii)	19	8.0	43	180	160
xviii)	21	8.5	47	195	175
xix)	22	9.0	49	205	185
xx)	24	10.0	53	230	210
xxi)	25	10.0	53	230	210
xxii)	26	10.0	53	230	210
xxiii)	27	10.5	60	250	230
xxiv)	28	10.5	60	250	230
xxv)	30	11.5	65	275	250
xxvi)	31	11.5	65	275	250
xxvii)	32	13.0	70	290	260
xxviii)	33	13.0	70	290	260
xxix)	34	13.0	74	305	275
xxx)	35	13.0	74	305	275
xxxi)	36	14.0	80	320	290
xxxii)	38	14.0	84	325	290
xxxiii)	40	14.5	84	325	295

xxxiv)	41	15.0	90	360	320
xxxv)	42	15.0	90	360	320
xxxvi)	45	16.5	100	400	360
xxxvii)	46	17.0	100	400	360
xxxviii)	48	17.0	100	400	360
xxxix)	50	17.0	110	435	395
xl)	51	17.0	110	435	395
xli)	52	17.0	110	435	395
xl ii)	54	18.0	120	480	435
xl iii)	55	19.0	120	480	435
xl iv)	56	19.0	120	480	435
xl v)	57	19.0	120	480	435
xl vi)	58	19.0	120	480	435
xl vii)	60	20.0	130	520	470
xl viii)	61	20.0	130	520	470
xl ix)	62	20.0	130	520	470
l)	63	20.0	130	520	470
li)	65	20.5	140	555	505
li i)	66	20.5	140	555	505
li ii)	67	20.5	140	555	505
li v)	68	21.0	150	600	545
l v)	69	21.0	150	600	545
l vi)	70	22.0	150	600	545
l vii)	71	22.0	150	600	545
l viii)	72	22.0	150	600	545
l ix)	73	22.0	150	600	545
l x)	74	22.0	160	640	580
l xi)	75	23.0	160	640	580
l xii)	80	25.0	175	675	615
l xiii)	85	25.0	185	725	660
l xiv)	90	34.0	205	725	660
l xv)	95	34.0	215	900	810
l xvi)	100	34.0	215	900	810
l xvii)	105	34.0	215	900	810
l xviii)	110	35.0	250	1200	810
l xix)	115	35.0	270	1200	1000
l xx)	120	35.0	270	1200	1000
l xxi)	125	35.0	270	1200	1000
l xxii)	130	35.0	270	1200	1000
l xxiii)	135	35.0	270	1200	1000
l xxiv)	140	35.0	270	1200	1000
l xxv)	145	35.0	320	1200	1000

Table 2 Dimensions for Double-Ended Open Jaw Wrenches (Spanners) for Automobile Use (Torque Series C or D)
(Clauses 3.2 and 3.7)

All dimensions are in millimeters

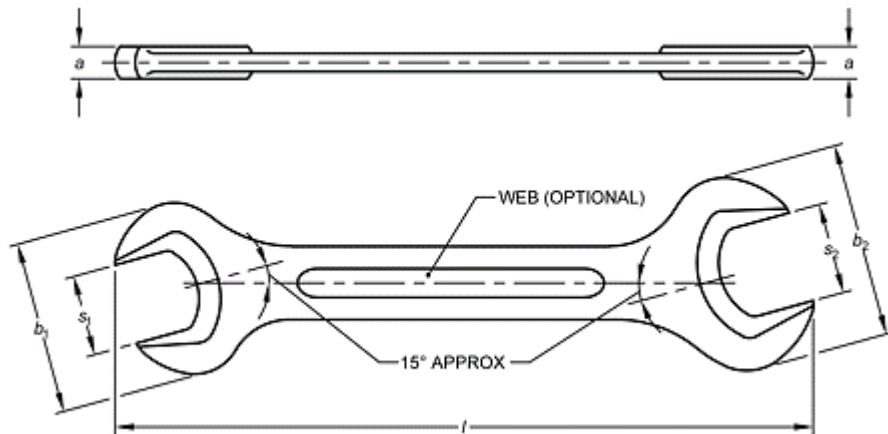


Sl No.	Nominal Width Across Flats $S_1 \times S_2$	a Max	b_1 Max	b_2 Max	l Max	Min
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	6 × 7	3.7	19	20	135	120
ii)	7 × 8	4.0	20	22	140	125
iii)	8 × 9	4.0	22	24	145	130
iv)	8 × 10	4.5	22	27	155	140
v)	10 × 11	5.0	27	30	165	150
vi)	10 × 13	5.5	27	34	175	160
vii)	11 × 13	6.0	32	35	175	160
viii)	11 × 14	6.0	32	35	180	165
ix)	12 × 13	6.0	32	35	180	165
x)	13 × 14	6.0	34	35	190	175
xi)	13 × 15	6.0	34	37	190	175
xii)	13 × 16	6.5	34	38	200	180
xiii)	13 × 17	6.5	34	42	210	190
xiv)	14 × 15	6.0	35	37	190	175
xv)	15 × 16	7.0	38	44	215	195
xvi)	15 × 18	7.0	38	44	215	195
xvii)	16 × 17	7.0	38	42	210	190
xviii)	16 × 18	7.0	38	44	215	195
xix)	17 × 19	7.0	42	47	225	205
xx)	18 × 19	7.5	44	47	225	205
xxi)	18 × 21	8.0	44	49	240	220
xxii)	18 × 24	9.0	44	56	250	230
xxiii)	19 × 22	8.0	47	52	240	220
xxiv)	19 × 24	9.0	47	56	270	240
xxv)	20 × 22	8.0	48	52	245	225
xxvi)	21 × 23	8.0	49	53	250	230
xxvii)	21 × 24	9.0	49	56	260	235
xxviii)	22 × 24	9.0	52	56	270	240
xxix)	24 × 26	9.0	56	59	280	250
xxx)	24 × 27	9.0	56	63	280	250
xxxi)	24 × 30	10.0	56	66	290	260
xxxii)	25 × 28	9.0	58	64	290	260
xxxiii)	27 × 30	10.0	63	66	310	275

xxxiv)	27×32	10.0	63	71	315	275
xxxv)	30×32	10.0	66	71	325	280
xxxvi)	30×34	11.0	66	75	335	290
xxxvii)	30×36	11.0	66	80	350	300
xxxviii)	32×34	11.0	71	75	335	290
xxxix)	32×36	11.0	71	80	350	300
xl)	34×36	12.0	75	80	375	325
xli)	36×41	13.0	80	88	400	350
xlii)	41×46	17.0	88	96	450	400
xliii)	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 or D)
(Clauses 3.3 and 3.7)**

All dimensions are in millimetres.

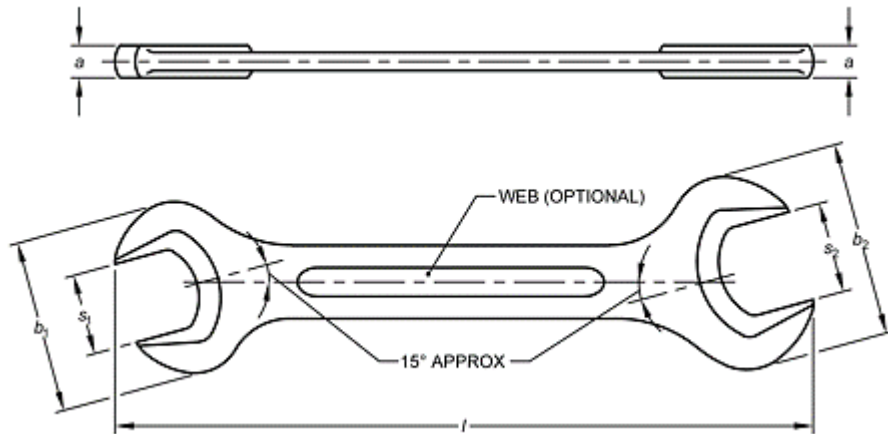


Sl No.	Nominal Width Across Flats $S_1 \times S_2$	a Max	b_1 Max	b_2 Max	l Max	l Min
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	6 × 7	4.5	17.0	20.0	100	80
ii)	6 × 8	4.5	20.0	24.5	110	95
iii)	8 × 9	5.0	20.5	24.5	120	95
iv)	8 × 10	5.0	20.5	24.5	120	95
v)	9 × 11	5.0	23.0	27.0	130	105
vi)	10 × 11	5.5	25.0	27.0	130	105
vii)	10 × 12	5.5	25	32.5	150	105
viii)	10 × 13	5.5	25	32.5	150	115
ix)	11 × 13	6.0	30.0	32.5	150	115
x)	12 × 13	6.0	30.0	32.0	145	115
xi)	12 × 14	6.0	32.0	36.0	150	115
xii)	13 × 14	6.0	32.0	36.0	155	135
xiii)	13 × 15	6.5	32.0	36.0	160	135
xiv)	13 × 16	7.0	32.0	38.0	160	135
xv)	13 × 17	7.0	34.0	41.0	175	150
xvi)	14 × 15	6.5	34.0	36.0	160	135
xvii)	14 × 17	7.0	34.0	41.0	175	150
xviii)	15 × 16	7.0	36.0	38.0	165	135
xix)	15 × 18	7.0	38.0	42.0	175	150
xx)	15 × 21	8.0	36.0	49.0	195	175
xxi)	16 × 17	7.0	38.0	41.0	175	150
xxii)	16 × 18	7.5	38.0	42.0	175	150
xxiii)	17 × 19	7.5	42.0	46.0	195	165
xxiv)	18 × 19	7.5	42.0	46.0	195	165
xxv)	18 × 21	8.5	42.0	49.0	210	175
xxvi)	19 × 22	8.5	47.5	51.5	215	180
xxvii)	20 × 22	8.5	47.5	51.5	215	180
xxviii)	21 × 23	9.5	49.0	54.0	230	200
xxix)	21 × 24	9.5	49.0	54.0	230	200
xxx)	21 × 26	9.5	49.0	58.0	240	200
xxxi)	22 × 24	9.5	49.0	54.0	230	200
xxxii)	23 × 25	10.0	54.0	58.0	255	220

xxxiii)	24 × 26	10.0	54.0	58.0	255	220
xxxiv)	24 × 27	10.5	54.0	60.0	255	220
xxxv)	25 × 28	11.5	58	60.0	285	230
xxxvi)	25 × 30	12.0	58	62.0	260	230
xxxvii)	26 × 28	10.0	56.0	60.0	260	230
xxxviii)	27 × 28	10.0	58.0	60.0	260	230
xxxix)	27 × 30	12.0	60.0	65.0	285	230
xl)	27 × 32	12.0	66.0	71.0	285	230
xli)	28 × 32	12.0	66.0	71.0	285	230
xl ii)	28 × 33	12.0	66.0	71.0	285	230
xl iii)	30 × 32	12.5	66.0	71.0	285	245
xl iv)	30 × 33	12.5	66.0	71.0	285	245
xl v)	30 × 34	13.0	66.0	75.0	285	245
xl vi)	32 × 36	13.5	70.0	80.0	320	280
xl vii)	36 × 41	15.0	80.0	90.0	365	330
xl viii)	41 × 46	16.0	90.0	100.0	400	365
xl ix)	46 × 50	17.0	100.0	110.0	440	400
l)	46 × 55	18.0	100.0	120.0	440	400
li)	50 × 50	18.0	110.0	120.0	485	440
li i)	50 × 55	18.0	110.0	120.0	485	440
li i i)	55 × 60	19.0	120.0	130.0	525	475

**Table 4 Dimensions for Double-Ended Open Jaw Wrenches
(Spanners) for General Purposes (Torque Series C or D)
(Clauses 3.4 and 3.7)**

All dimensions are in millimeters

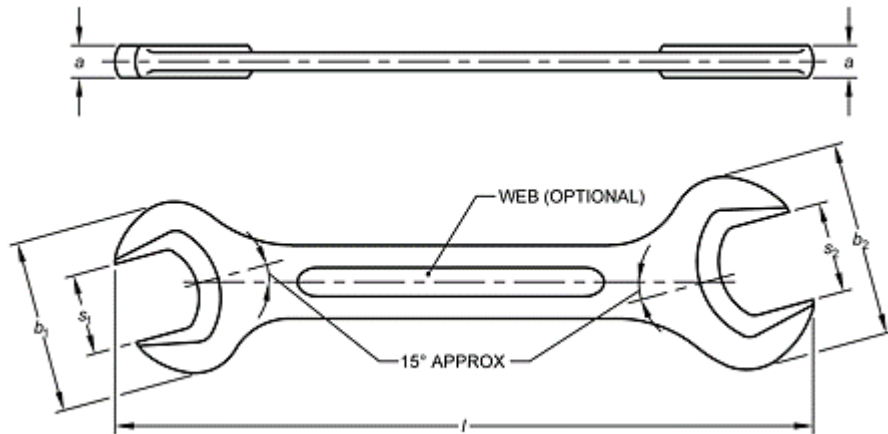


Sl No.	Nominal Width Across Flats $S_1 \times S_2$	a Max	b_1 Max	b_2 Max	l Max	Min
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	5.5 × 7	3.5	15.5	17.5	100	90
ii)	6 × 7	3.5	15.5	17.5	100	90
iii)	7 × 8	4.0	17.5	20.5	110	100
iv)	8 × 9	4.0	20.5	22.5	110	100
v)	8 × 10	4.5	20.5	24.5	120	110
vi)	10 × 11	5.5	24.5	26.5	130	115
vii)	10 × 12	5.5	24.5	28.5	130	115
viii)	10 × 13	5.5	24.5	30.5	130	115
ix)	11 × 13	6.0	26.5	30.5	140	125
x)	12 × 13	6.0	28.5	30.5	145	130
xi)	12 × 14	6.0	28.5	32.5	150	135
xii)	13 × 14	6.0	30.5	32.5	150	135
xiii)	13 × 15	6.5	30.5	35.0	160	145
xiv)	13 × 16	7.0	30.5	37.0	165	145
xv)	13 × 17	7.0	30.5	39.0	165	150
xvi)	14 × 15	6.5	32.5	35.0	160	140
xvii)	14 × 17	7.0	32.5	39.0	165	150
xviii)	15 × 16	7.0	35.0	37.0	165	150
xix)	16 × 17	7.0	37.0	39.0	165	150
xx)	16 × 18	7.5	37.0	41.0	170	155
xxi)	17 × 19	7.5	39.0	43.0	180	165
xxii)	18 × 19	7.5	41.0	43.0	180	165
xxiii)	18 × 21	9.0	41.0	47.0	200	175
xxiv)	18 × 24	9.5	41.0	53.0	210	190
xxv)	19 × 22	9.0	43.0	49.0	200	180
xxvi)	19 × 24	9.5	43.0	53.0	220	200
xxvii)	20 × 22	8.5	43.0	49.0	200	180
xxviii)	21 × 23	9.5	47.0	51.0	230	210
xxix)	21 × 24	9.5	47.0	53.0	230	210
xxx)	22 × 24	9.5	49.0	53.0	230	210
xxxi)	24 × 26	10.0	53.0	58.0	255	230

xxxii)	24 × 27	10.5	53.0	60.0	255	230
xxxiii)	24 × 30	11.5	53.0	65.0	285	255
xxxiv)	24 × 32	11.5	53.0	70.0	285	255
xxxv)	27 × 30	11.5	60.0	65.0	285	255
xxxvi)	27 × 32	12.5	60.0	70.0	285	255
xxxvii)	30 × 32	12.5	65.0	70.0	285	255
xxxviii)	30 × 34	13.0	65.0	75.0	300	270
xxxix)	30 × 36	13.5	66.0	80.0	320	280
xl)	32 × 36	13.5	70.0	80.0	320	280
xli)	34 × 36	15.0	75.0	80.0	330	290
xl ii)	34 × 38	15.0	80.0	85.0	335	290
xl iii)	36 × 38	15.0	80.0	85.0	335	290
xl iv)	36 × 41	16.0	80.0	90.0	365	330
xl v)	41 × 46	16.0	90.0	100.0	400	365
xl vi)	46 × 50	17.0	100.0	110.0	440	400
xl vii)	50 × 55	18.0	110.0	120.0	485	440
xl viii)	55 × 60	19.0	120.0	130.0	525	475
xl ix)	60 × 65	20.0	140.0	150.0	590	510
l)	65 × 70	21.0	150.0	160.0	590	530
li)	70 × 75	24.0	160.0	170.0	680	620
lii)	75 × 80	24.0	170.0	180.0	680	620

Table 5 Dimensions for Double-Headed Open-Ended Engineers' Wrenches (Spanners)
ISO Series (Torque Series C or D)
(Clauses 3.5 and 3.7)

All dimensions are in millimeters



Sl No.	Nominal Width Across Flats $S_1 \times S_2$	a Max	b_1 Max	b_2 Max	l Min	Max
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	3.2×4	3.0	14	15	81	113
ii)	4×5	3.5	15	18	87	122
iii)	5×5.5	3.5	18	19	95	133
iv)	5.5×7	4.5	19	22	99	139
v)	6×7	4.5	20	22	103	144
vi)	7×8	4.5	22	24	111	155
vii)	8×9	5.0	24	26	119	167
viii)	8×10	5.5	24	28	119	167
ix)	9×11	6.0	26	30	127	181
x)	10×11	6.0	28	30	135	189
xi)	10×13	7.0	28	34	135	189
xii)	11×13	7.0	30	34	143	200
xiii)	12×13	7.0	32	34	151	211
xiv)	13×14	7.0	34	36	159	223
xv)	13×15	7.5	34	39	159	223
xvi)	13×16	8.0	34	41	159	223
xvii)	13×17	8.5	34	43	159	223
xviii)	14×15	7.5	36	39	167	234
xix)	15×16	8.0	39	41	175	245
xx)	15×18	8.5	39	45	175	245
xxi)	16×17	8.5	41	43	183	256
xxii)	16×18	8.5	41	45	183	256
xxiii)	17×19	9.0	43	47	191	267
xxiv)	18×19	9.0	45	47	199	279
xxv)	18×21	10.0	45	51	199	279
xxvi)	19×22	10.0	47	53	207	290
xxvii)	20×22	10.0	49	53	215	301
xxviii)	21×22	10.0	51	53	223	312
xxix)	21×23	10.5	51	55	223	312

xxx)	21 × 24	11.0	51	57	223	312
xxxi)	22 × 24	11.0	53	57	231	323
xxxii)	24 × 27	12.0	57	64	247	346
xxxiii)	24 × 30	13.0	57	70	247	346
xxxiv)	25 × 28	12.0	59	66	255	354
xxxv)	27 × 30	13.0	64	70	271	379
xxxvi)	27 × 32	13.5	64	74	271	379
xxxvii)	30 × 32	13.5	70	74	295	413
xxxviii)	30 × 34	14.0	70	78	295	413
xxxix)	32 × 34	14.0	74	78	311	435
xl)	32 × 36	14.5	74	83	311	435
xli)	34 × 36	14.5	78	83	327	458
xl ii)	36 × 41	16.0	83	93	343	480
xl iii)	41 × 46	17.5	93	104	383	536
xl iv)	46 × 50	19.0	104	112	423	592
xl v)	50 × 55	20.5	112	123	455	637
xl vi)	55 × 60	22.0	123	133	495	693

4 MATERIALS

Any suitable grade of steel which fulfill the requirements of the hardness and torque test as laid down in 5 and 8 can be used. Some of the suitable material grades are mentioned in Table 6.

Table 6 Chemical Composition of Steel Grades

Sl No.	Grade	C (Min)	Si	Mn	S (Max)	P (Max)	Cr (Min)	V (Min)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
i)	Chrome Vanadium	0.28	0.40 <i>Max</i>	0.40 <i>Min</i>	0.040	0.040	0.30	0.07
ii)	40Cr	0.37	0.17-0.37	0.50-0.80	0.040	0.040	0.80	-
iii)	Medium Carbon	0.35	0.10-0.40	0.50 <i>Min</i>	0.040	0.040	-	-

NOTE — Composition limit in weight percent maximum, unless shown as a range or a minimum.

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) in accordance with this standard shall be designated by:

- Commonly used name;
- Single-ended (SE), double-ended (DE) or double-headed (DH);
- whether general purpose (GP), automobile use (A) or engineers' (E);
- 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.
- d) Designation C or D as mentioned in IS 6131 with reference to the raw material used, alloy steel or carbon steel, respectively.

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.

11.2.1.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations made thereunder. The details of conditions under which the license for the use of the Standard Mark may be granted to the manufacturers or producers may be obtained from the Bureau of Indian Standards.