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**PGD 34 (20365) WC**  
**April 2023**

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*भारतीय मानक मसौदा*  
**खुले जबड़े वाले रिंच (पाने) — विशिष्ट**  
*( IS 2028 का छटा पुनरीक्षण )*

*Draft Indian Standard*  
**OPEN JAW WRENCHES (SPANNERS) — SPECIFICATION**  
*( Sixth Revision of IS 2028 )*

ICS 25.140.30

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Hand Tools Sectional Committee, PGD 34

**FOREWORD**

*(Formal clause will be added later.)*

This standard was first published in 1962. Since then, this standard had undergone five revisions. The above revisions had been taken up to align with IS 6131. ‘Technical requirements for hand-operated wrenches (spanners) and sockets (first revision) and IS 2027:1992 ‘Spanners and sockets—Widths across flats (third revision)’ as well as to delete a few non-preferred sizes. In the fourth revision, one more table consisting of the ISO series spanner was also included. The fifth revision included alternate dimensions for double-ended open-jaw wrenches (spanners) for general purposes (torque series C) and a few sizes. The Sixth revision has been brought out to keep pace with the latest technological developments and international practices.

In this revision, the following changes have been made:

- a) Material designations have been updated as per the latest Indian Standard; and
- b) Tables 1 to 5 have been modified to include additional sizes of Open Jaw wrenches

While preparing this standard, assistance has also been derived from:

- a) ISO 3318:2016 ‘Assembly tools for screws and nuts — Double-headed open-ended wrenches, double-headed ring wrenches and combination wrenches — Maximum widths of heads.
- b) ISO 10102: 2018 ‘Assembly tools for screws and nuts — Double-headed open-ended engineers’ wrenches’ issued by the International Organization for Standardization.
- c) DIN895:2007 ‘Engineers wrenches for subordinate applications - Dimensions and test torques’.
- d) DIN 3110:2007 ‘Engineers’ wrenches, double head, open end, with unequal jaw width, 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 : 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.

*Draft Indian Standard*  
**OPEN JAW WRENCHES (SPANNERS) — SPECIFICATION**  
( *Sixth Revision of IS 2028* )

## 1 SCOPE

This draft 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 : 1992	Spanners and Sockets — Widths Across Flats ( <i>third revision</i> )
IS 3748 : 1990	Tool and Die Steels — Specification ( <i>second revision</i> )
IS 6131 : 1980	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) 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 MATERIALS

Any suitable grade of steel conforming to IS 3748 or any of the steel grades mentioned in Table 6. The materials after suitable heat treatment shall fulfil the requirements of hardness and torque test as laid down in 5 and 8.

**Table 6 Chemical composition of Steel Grades**

Sl No.	Grade	C	Si	Mn	S(Max)	P(Max)	Cr	V
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(i)	31CrV3	0.28- 0.35	0.25- 0.40	0.40-0.60	0.030	0.030	0.40-0.70	0.07-0.12
(ii)	40Cr	0.37-0.44	0.17- 0.37	0.50-0.80	0.03	0.03	0.8-1.10	Nil

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) 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);
- Nominal width(s) across flats in millimetres; and
- 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 the following marking:

- 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 and any other marking 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.

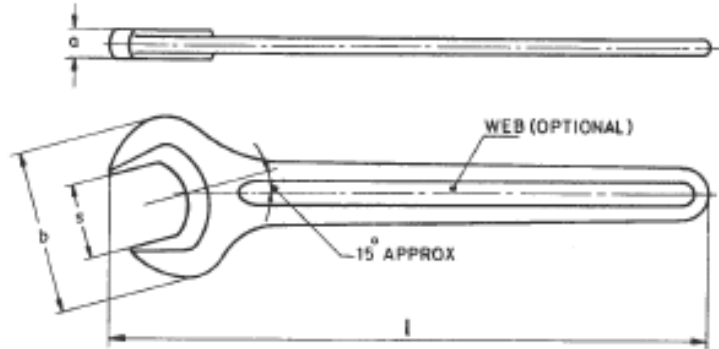
## **12 BIS Certification Marking**

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

**12.1.1** 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)

All dimensions are in millimetres.



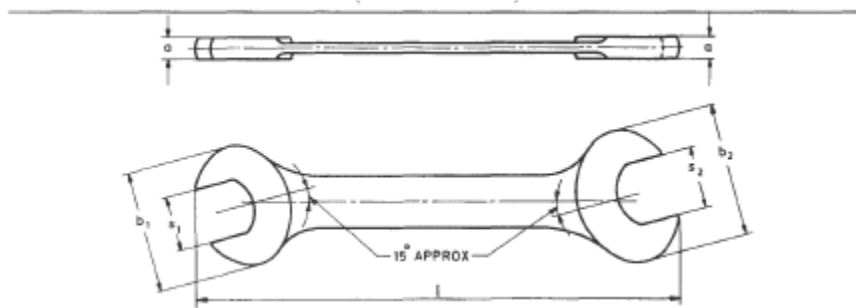
SI No.	Nominal Width Across Flats, <i>s</i>	<i>a</i>		<i>b</i>		<i>l</i>	
		Max	Max	Max	Min		
(1)	(2)	(3)	(4)	(5)	(6)		
(i)	6	3.5	15.5	75	70		
(ii)	7	3.5	17.5	80	75		
(iii)	8	4.0	20.5	100	90		
(iv)	9	4.5	22.5	105	95		
(v)	10	5.0	24.5	110	100		
(vi)	11	5.5	26.5	120	105		
(vii)	12	5.5	28.5	130	120		
(viii)	13	6.0	30.5	140	125		
(ix)	14	6.0	32.5	150	130		
(x)	15	6.0	35	160	140		
(xi)	16	6.5	37	165	150		
(xii)	17	6.5	39	165	150		
(xiii)	18	6.5	41	175	155		
(xiv)	19	7.5	43	180	160		
(xv)	21	8.5	47	195	175		
(xvi)	22	8.5	49	205	185		
(xvii)	24	9.5	53	230	210		
(xviii)	27	10.5	60	250	230		
(xix)	30	11.5	65	275	250		
(xx)	32	12.5	70	290	260		
(xxi)	34	13.0	74	305	275		
(xxii)	36	13.5	80	320	290		
(xxiii)	41	15.0	90	360	330		
(xxiv)	46	16.0	100	400	360		
(xxv)	50	17.0	110	435	395		
(xxvi)	55	18.0	120	480	435		
(xxvii)	60	19.0	130	520	470		
(xxviii)	65	20.0	140	555	505		

(xxix)	70	21.0	150	600	545
(xxx)	75	22.0	160	640	580
(xxxix)	80	23.0	170	675	615
(xxxixii)	85	24.0	185	725	660
(xxxixiii)	90	24.0	185	750	680
(xxxixiv)	95	30.0	210	880	810
(xxxixv)	100	31.0	215	910	840

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

(Clauses 3.2 and 3.7)

All dimensions are in millimetres.



Sl No.	Nominal Width Across Flats $S_1 \times S_2$	$a$	$b_1$	$b_2$	$l$	
(1)	(2)	Max (3)	Max (4)	Max (5)	Max (6)	Min (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	5.5	30	34	175	160
(viii)	12 × 13	5.5	32	34	180	165
(ix)	12 × 14	5.5	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)	14 × 17	6.5	38	42	210	190
(xvi)	16 × 17	6.5	38	42	210	190
(xvii)	16 × 18	7.0	38	44	215	195
(xviii)	17 × 19	7.0	42	47	225	205

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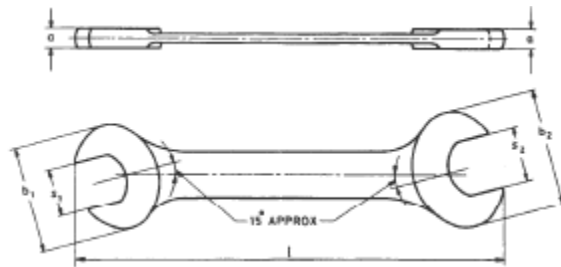
(xix)	18 × 19	7.5	44	47	225	205
(xx)	18 × 21	8.0	44	49	240	220
(xxi)	19 × 22	8.0	47	52	240	220
(xxii)	19 × 22	8.0	47	52	240	220
(xxiii)	19 × 24	9.0	47	56	270	240
(xxiv)	20 × 22	8.0	48	52	245	225
(xxv)	21 × 23	8.0	49	53	250	230
(xxvi)	21 × 24	9.0	49	56	260	235
(xxvii)	22 × 24	9.0	52	56	270	240
(xxviii)	24 × 26	9.0	56	59	280	250
(xxix)	24 × 27	9.0	56	63	280	250
(xxx)	24 × 30	10.0	56	66	290	260
(xxxi)	25 × 28	9.0	58	64	290	260
(xxxii)	27 × 30	10.0	63	66	310	275
(xxxiii)	27 × 32	10.0	63	71	315	275
(xxxiv)	30 × 32	10.0	66	71	325	280
(xxxv)	30 × 34	11.0	66	75	335	290
(xxxvi)	30 × 36	11.0	66	80	350	300
(xxxvii)	32 × 36	11.0	71	80	350	300
(xxxviii)	34 × 36	12.0	75	80	375	325
(xxxix)	36 × 41	13.0	80	88	400	350
(xl)	41 × 46	17.0	88	96	450	400
(xli)	46 × 50	18.0	96	105	500	450

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**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 are in millimetres.



All dimensions are in millimetres.

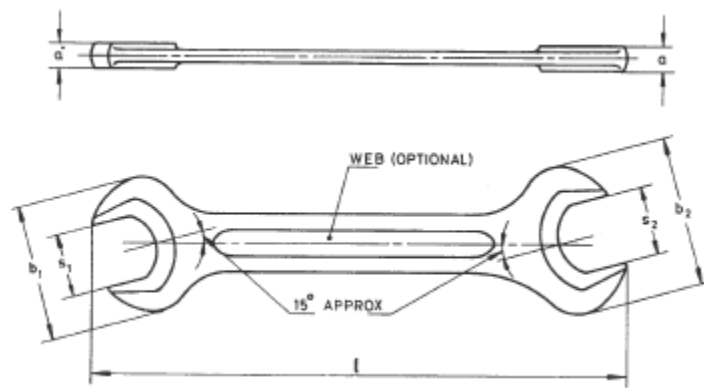
SI No.	Nominal Width Across Flats $S_1 \times S_2$	$a$	$b_1$	$b_2$	$l$	
(1)	(2)	Max	Max	Max	Max	Min
(i)	(ii)	(3)	(4)	(5)	(6)	(7)
(i)	6 × 7	4.0	17.0	20.0	95	80
(ii)	8 × 9	4.5	20.0	24.0	110	95
(iii)	10 × 11	5.0	23.0	27.0	120	105
(iv)	12 × 13	5.5	30.0	32.0	140	120
(v)	13 × 16	6.5	32.0	38.0	155	135
(vi)	14 × 15	6.0	34.0	36.0	160	135
(vii)	15 × 16	6.5	36.0	38.0	155	135
(viii)	16 × 17	6.5	38.0	41.0	175	155
(ix)	16 × 18	7.0	38.0	42.0	175	155
(x)	18 × 19	7.0	42.0	46.0	195	175
(xi)	18 × 21	8.0	42.0	49.0	195	175
(xii)	20 × 22	8.0	47.5	51.5	215	190
(xiii)	21 × 23	8.5	49.0	54.0	230	205
(xiv)	21 × 24	8.5	49.0	54.0	230	205
(xv)	24 × 26	9.0	54.0	58.0	250	220
(xvi)	24 × 27	10.0	54.0	58.0	250	220
(xvii)	25 × 28	10.0	56.0	60.0	260	230
(xviii)	27 × 30	12.0	56.0	62.0	275	245
(xix)	27 × 32	12.0	58.0	62.0	275	245
(xx)	30 × 32	12.0	66.0	71.0	275	245
(xxi)	30 × 34	12.0	66.0	75.0	275	245
(xxii)	32 × 36	13.0	70.0	80.0	310	280
(xxiii)	36 × 41	14.0	80.0	88.0	360	330
(xxiv)	41 × 46	16.0	90.0	100.0	400	365
(xxv)	46 × 50	17.0	100.0	110.0	440	400
(xxvi)	50 × 50	18.0	110.0	120.0	485	440
(xxvii)	50 × 55	18.0	110.0	120.0	485	440

**Table 4**

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

(Clauses 3.4 and 3.7)

All dimensions are in millimetres.



Sl No.	Nominal Width Across Flats $S_1 \times S_2$	$a$ <i>Max</i>	$b_1$ <i>Max</i>	$b_2$ <i>Max</i>	$l$ <i>Max</i>	$M$
(1)	(2)	(3)	(4)	(5)	(6)	<i>in</i> (7)
(i)	6 × 7	3.5	15.5	17.5	100	90
(ii)	7 × 8	4.0	17.5	20.5	110	100
(iii)	8 × 9	4.0	20.5	22.5	110	100
(iv)	8 × 9	4.5	120.5	24.5	120	110
(v)	10 × 11	5.5	24.5	26.5	130	115
(vi)	10 × 13	5.5	24.5	30.5	130	115
(vii)	11 × 13	6.0	26.5	30.5	140	125
(viii)	12 × 13	6.0	28.5	30.5	145	130
(ix)	12 × 14	6.0	28.5	32.5	150	135
(x)	13 × 14	6.0	30.5	32.5	150	135
(xi)	13 × 15	6.5	30.5	35.0	160	145

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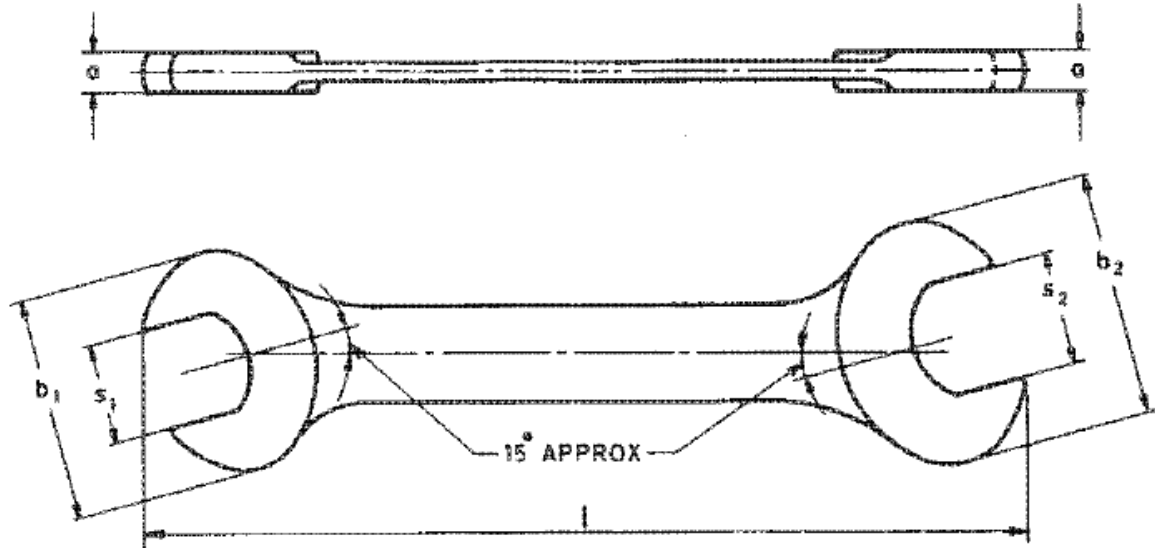
(xii)	13 × 16	7.0	30.5	37.0	165	150
(xiii)	13 × 17	7.0	30.5	39.0	165	150
(xiv)	14 × 15	6.5	32.5	35.0	160	140
(xv)	14 × 17	7.0	32.5	39.0	165	150
(xvi)	15 × 16	7.0	35.0	37.0	165	150
(xvii)	16 × 17	7.0	37.0	39.0	165	150
(xviii)	16 × 18	7.5	37.0	41.0	170	155
(xix)	17 × 19	7.5	39.0	43.0	180	165
(xx)	18 × 19	7.5	41.0	43.0	180	165
(xxi)	18 × 21	9.0	41.0	47.0	200	180
(xxii)	18 × 24	9.5	41.0	53.0	210	190
(xxiii)	19 × 22	9.0	43.0	49.0	200	180
(xxiv)	19 × 24	9.5	43.0	53.0	220	200
(xxv)	21 × 23	9.5	47.0	51.0	230	210
(xxvi)	21 × 24	9.5	47.0	53.0	230	210
(xxvii)	22 × 24	9.5	49.0	53.0	230	210
(xxviii)	24 × 26	10.0	53.0	58.0	255	230
(xxix)	24 × 27	10.5	53.0	60.0	255	230
(xxx)	24 × 30	11.5	53.0	65.0	285	255
(xxxi)	27 × 30	11.5	60.0	65.0	285	255
(xxxii)	27 × 32	12.5	60.0	70.0	285	255
(xxxiii)	30 × 32	12.5	65.0	70.0	285	255
(xxxiv)	30 × 34	13.0	65.0	75.0	300	270
(xxxv)	30 × 36	13.5	65.0	80.0	320	290
(xxxvi)	32 × 36	13.5	70.0	80.0	320	290
xxxvii)	34 × 36	15.0	75.0	80.0	330	295
(xxxviii)	36 × 41	15.0	80.0	90.0	365	330
(xxxix)	41 × 46	16.0	90.0	100.0	400	365
(xl)	46 × 50	17.0	100.0	110.0	440	400
(xli)	50 × 55	18.0	110.0	120.0	485	440
(xlii)	55 × 60	19.0	120.0	130.0	525	475

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

All dimensions are in millimetres.



SI No.	Nominal Width Across Flats $S_1 \times S_2$	$a$	$b_1$	$b_2$	$l$	$l$
		Max (3)	Max (4)	Max (5)	Min (6)	Max (7)
(1)	(2)					
(i)	3.2 x 4	3.0	14	15	81	113
(ii)	4 x 5	3.5	15	18	87	122
(iii)	5 x 5.5	3.5	18	19	95	133
(iv)	5.5 x 7	4.5	19	22	99	139
(v)	6 x 7	4.5	20	22	103	144
(vi)	7 x 8	4.5	22	24	111	155
(vii)	8 x 9	5.0	24	26	119	167
(viii)	8 x 10	5.5	24	28	119	167
(ix)	9 x 11	6.0	26	30	127	181
(x)	10 x 11	6.0	28	30	135	189
(xi)	10 x 13	7.0	28	34	135	189
(xii)	11 x 13	7.0	30	34	143	200
(xiii)	12 x 13	7.0	32	34	151	211
(xiv)	13 x 14	7.0	34	36	159	223
(xv)	13 x 15	7.5	34	39	159	223
(xvi)	13 x 16	8.0	34	41	159	223
(xvii)	13 x 17	8.5	34	43	159	223
(xviii)	14 x 15	7.5	36	39	167	234
(xix)	15 x 16	8.0	39	41	175	245
(xx)	15 x 18	8.5	39	45	175	245
(xxi)	16 x 17	8.5	41	43	183	256

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(xxii)	16 x 18	8.5	41	45	183	256
(xxiii)	17 x 19	9.0	43	47	191	267
(xxiv)	18 x 19	9.0	45	47	199	279
(xxv)	18 x 21	10.0	45	51	199	279
(xxvi)	19 x 22	10.0	47	53	207	290
(xxvii)	20 x 22	10.0	49	53	215	301
(xxviii)	21 x 22	10.0	51	53	223	312
(xxix)	21 x 23	10.5	51	55	223	312
(xxx)	21 x 24	11.0	51	57	223	312
(xxxi)	22 x 24	11.0	53	57	231	323
(xxxii)	24 x 27	12.0	57	64	247	346
(xxxiii)	24 x 30	13.0	57	70	247	346
(xxxiv)	25 x 28	12.0	59	66	255	354
(xxxv)	27 x 30	13.0	64	70	271	379
(xxxvi)	27 x 32	13.5	64	74	271	379
(xxxvii)	30 x 32	13.5	70	74	295	413
(xxxviii)	30 x 34	14.0	70	78	295	413
(xxxix)	32 x 34	14.0	74	78	311	435
(xl)	32 x 36	14.5	74	83	311	435
(xli)	34 x 36	14.5	78	83	327	458
(xlii)	36 x 41	16.0	83	93	343	480
(xliii)	41 x 46	17.5	93	104	383	536
(xliv)	46 x 50	19.0	104	112	423	592
(xlv)	50 x 55	20.5	112	123	455	637
(xlvi)	55 x 60	22.0	123	133	495	693

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