Indian Standard

SPECIFICATION FOR USE IN FOUNDRIES

1. **SCOPE**

1.1 This standard covers the requirements for chaplets for use in foundries.

2. **SUPPLY OF MATERIAL**

2.1 General requirements relating to the supply of chaplets, shall be as laid down in IS: 1387-1967.

3. **MATERIAL**

3.1 Stamped Chaplets, the supporting heads of assembled chaplets and also rectangular columns shall be made of low carbon cold rolled steel strips corresponding to grade 'O' of IS: 531 - 1963*.

3.2 Chaplets with round column of diameter up to 12.5 mm shall be manufactured from soft steel wire conforming to IS: 280 - 1962; and those of diameter above 12.5 mm from hot rolled round bars conforming to IS: 226 - 1969.

4. **SHAPES AND SIZES**

4.1 The shapes and sizes of chaplets shall be as given in Tables 1 to 16.

4.1.1 Chaplets of dimensions other than those specified in Tables 1 to 16 may be supplied by agreement between the purchaser and the manufacturer.

4.1.2 For special applications, tolerances closer than those specified in the tables may be agreed to between the purchaser and the manufacturer.

5. **DESIGNATION**

5.1 The chaplets shall be designated by the word 'Chaplet' followed by type, variant and major dimension in the same order with a dash between each number and further followed by number of this standard.

Example:

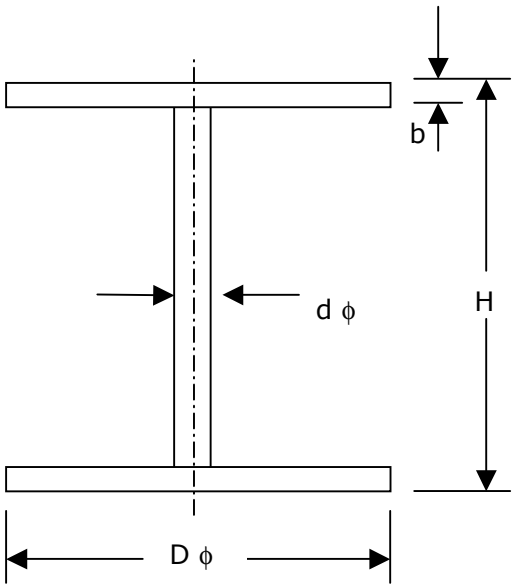
Stem chaplet, type5, variant 6 with a height 125 mm will be designated as; Chaplet V-6-125, IS: 5904

* *Specification for cold-rolled carbon steel sheets (revised).*
Specification for mild steel wire for general engineering purposes (revised).
Specification for structural steel (standard quality) (fourth revision).

TABLE 1 DIMENSIONS OF SINGLE COLUMN ROUND HEADED CHAPLETS TYPE 1, VARIANT 1

(Clauses 4.1 and 4.1.1)

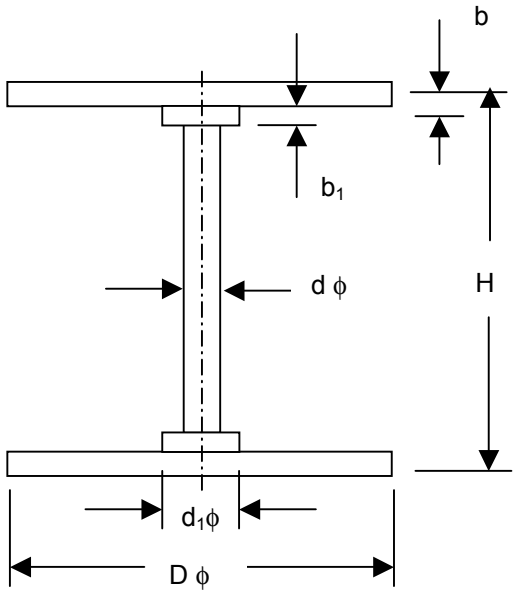
All dimensions in millimetres.



H		*D*		*d*	*b*
Nominal	Tolerance	Nominal	Tolerance		
5	+ 0.20 - 0.10	8.0	- 0.20	1.5	0.5
6					
7	+ 0.30 - 0.10	12.0	- 0.24	2.0	
8					
9					
10					
11				2.5	0.75
12					
13					
14	+ 0.50 - 0.14	15.0		3.0	
15					
16			- 0.24		
18				3.5	1.0
20	+ 0.60 - 0.14	18.0			
22					
24					
25		25.0			
30					

TABLE 2 DIMENSIONS OF SINGLE COLUMN ROUND HEADED CHAPLETS WITH COLLARS, TYPE 1, VARIANT 2

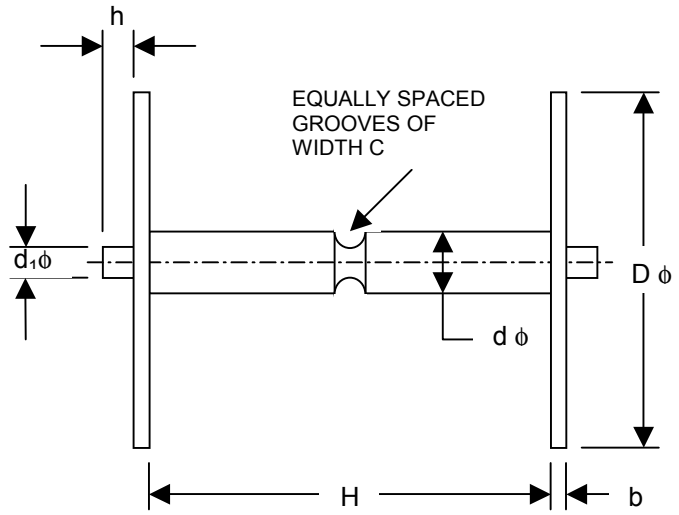
All dimensions in millimetres.



H		*D*		*d*	*d1*	*b*	*b1*
Nominal	Tolerance	Nominal	Tolerance				
5	+ 0.20 - 0.10	8.0	- 0.20	1.5	2.0	0.5	0.75
6							
7	+ 0.30 - 0.10						
8							
9		12.0	-0.24	2.0	3.0		
10		14.0					
11							
12							
13	+0.05 -0.14			2.5	3.5	0.75	0.8
14		16.0		3.0	4.5		
15							
16							
18		18.0		3.5	6	1.0	1.3
20	+0.60 -0.14						
22							
24							
25		25.0					
30							

TABLE 3 DIMENSIONS OF SINGLE COLUMN ROUND HEADED CHAPLETS FOR SUPPORTING HEAVY CORES, TYPE 1, VARIANT 3

All dimensions in millimetres.

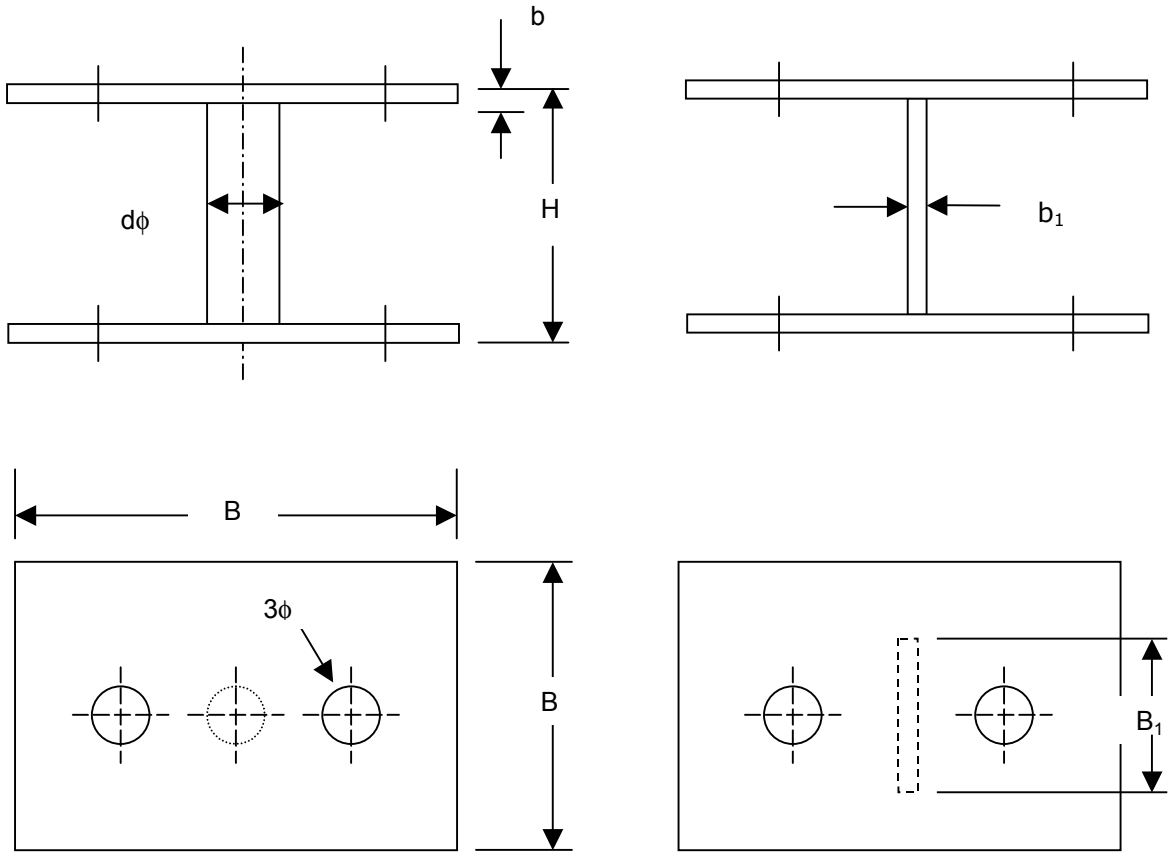


H	*D*	*d*	*b*	d_1	*c*	*h*	*N*
16	20.0	6.0	1.6	3	2	3	1
19							
22							
25							
28	25.0	8.0					2
31.5							
35							
38	30.0						
41							
44.5							
47.5							
51	35.0						
54							3
57							
60							
63.5							
66.5							
69.5	40.0						
75							

TABLE 4 DIMENSIONS OF SINGLE COLUMN CHAPLETS, TYPE 2, VARIANTS 1 AND 2

(*Clauses 4.1 and 4.1.1*)

All dimensions in millimetres.



VARIANT 1
With round column

VARIANT 2
With rectangular column

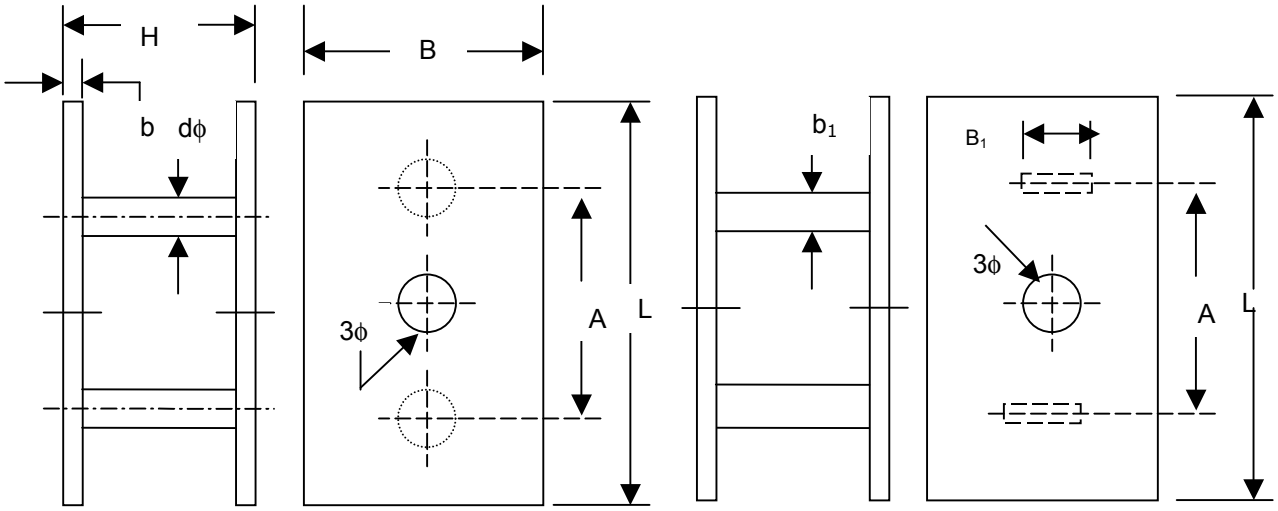
TABLE 4 DIMENSIONS OF SINGLE COLUMN CHAPLETS, TYPE 2, VARIANTS 1 AND 2 – contd

H		B	b	d		B_1xb_1
Nominal	Tolerance			For iron castings	For steel castings	For iron castings
5	+0.20 -0.10	16	0.5	3		7x1.0
6						
7						
8	+0.30 -0.10					
9						
10						
12	+0.50 -0.14	22	0.75	4		9x1.5
14						
15						
16						
18						
20						
22	+0.60 -0.14	32	1.0	6		12x2.5
24						
25						
26						
28						
30						
32	+0.80 -0.12	40	1.5	8		13x4
35						
38						
40						
45						
50						
55	+1.0 -0.06	46	2.0	10	12	_
60						
65						
70						
75						
80		50	2.5	12	14	_
85	+1.0 -0.24					
90						
95						
100						

TABLE 5 DIMENSIONS OF TWO COLUMN CHAPLETS, TYPE 3, VARIANTS 1 AND 2

(Clauses 4.1 and 4.1.1)

All dimensions in millimetres.



VARIANT 1
With round columns and rectangular heads

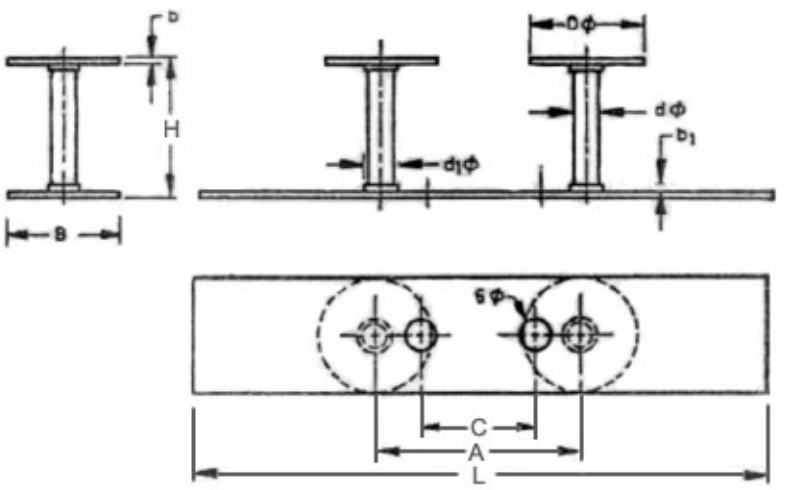
VARIANT 2
With rectangular columns and rectangular heads

H		L	B	A	b	d		B_1xb_1
Nominal	Tolerance					For iron castings	For steel castings	For iron castings
12	+0.50 -0.14	44	22	22	0.75	4		9x1.5
14								
15								
16								
18								
20	+0.60 -0.14	64	32	32	1.0	6		12x2.5
22								
24								
25								
26								
28								
32	+0.80 -0.12	80	40	40	1.5	8		13x4
35								
38								
40								
45								
50								
55	+1.0 -0.06	92	46	46	2.0	10	12	-
60								
65								
70								
75								
80	+1.0 -0.24	100	50	50	2.5	12	14	_
85								
90								
95								
100								

TABLE 6 DIMENSIONS OF TWO COLUMN CHAPLETS

(*Clauses 4.1 and 4.1.1*)

All dimensions in millimetres.

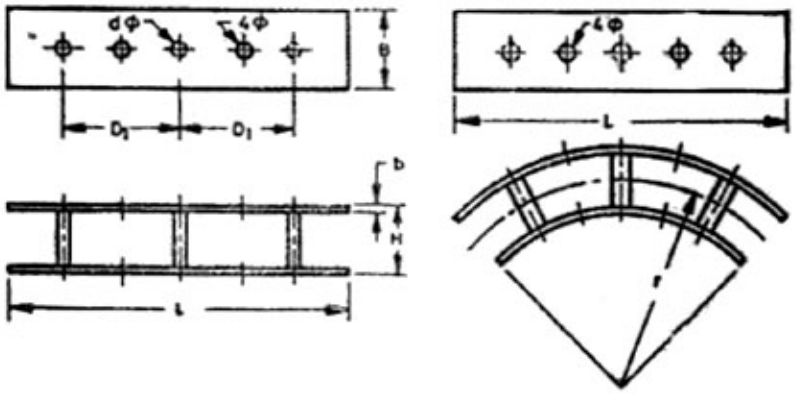


VARIANT 3
With round head, round column and rectangular bottom plate

H		*L*	*A*	*B*	*C*	*D*	*d*	d_1	*b*	b_1
Nominal	Tolerance									
10	+0.5 -0.14	100	40	20	20	20	4	6	0.8	1
12										
14										
16										
18										
20	+0.6 -0.14	125	45	25	25	25	5	7	1	1.5
22										
24										
25										
30										
35	+0.8 -0.12	150	50	40	35	40	6	8	1.2	2
40										
50										

TABLE 7 DIMENSIONS OF THREE COLUMN CHAPLETS, TYPE 4, VARIANTS 1 AND 2
(*Clauses 4.1 and 4.1.1*)

All dimensions in millimetres.



VARIANT 1
Flat

VARIANT 2
Radial

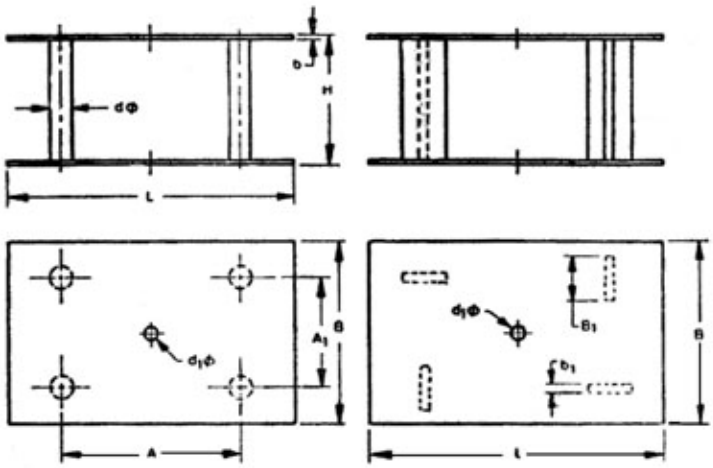
H		L	B	d	b	D_1
Nominal	Tolerance					
12	+0.5 -0.14	100	25	5	2	35
14						
15						
18		125	30	5	2.5	40
20						
22	+0.6 -0.14					
24						
25						
26	+0.8 -0.12	150	35	6	3	50
28						
30						

NOTE -For variant 2, r shall be mentioned in the order.

TABLE 8 DIMENSIONS OF FOUR COLUMN CHAPLETS, TYPE 5, VARIANTS 1 AND 2

(*Clauses 4.1 and 4.1.1*)

All dimensions in millimetres.



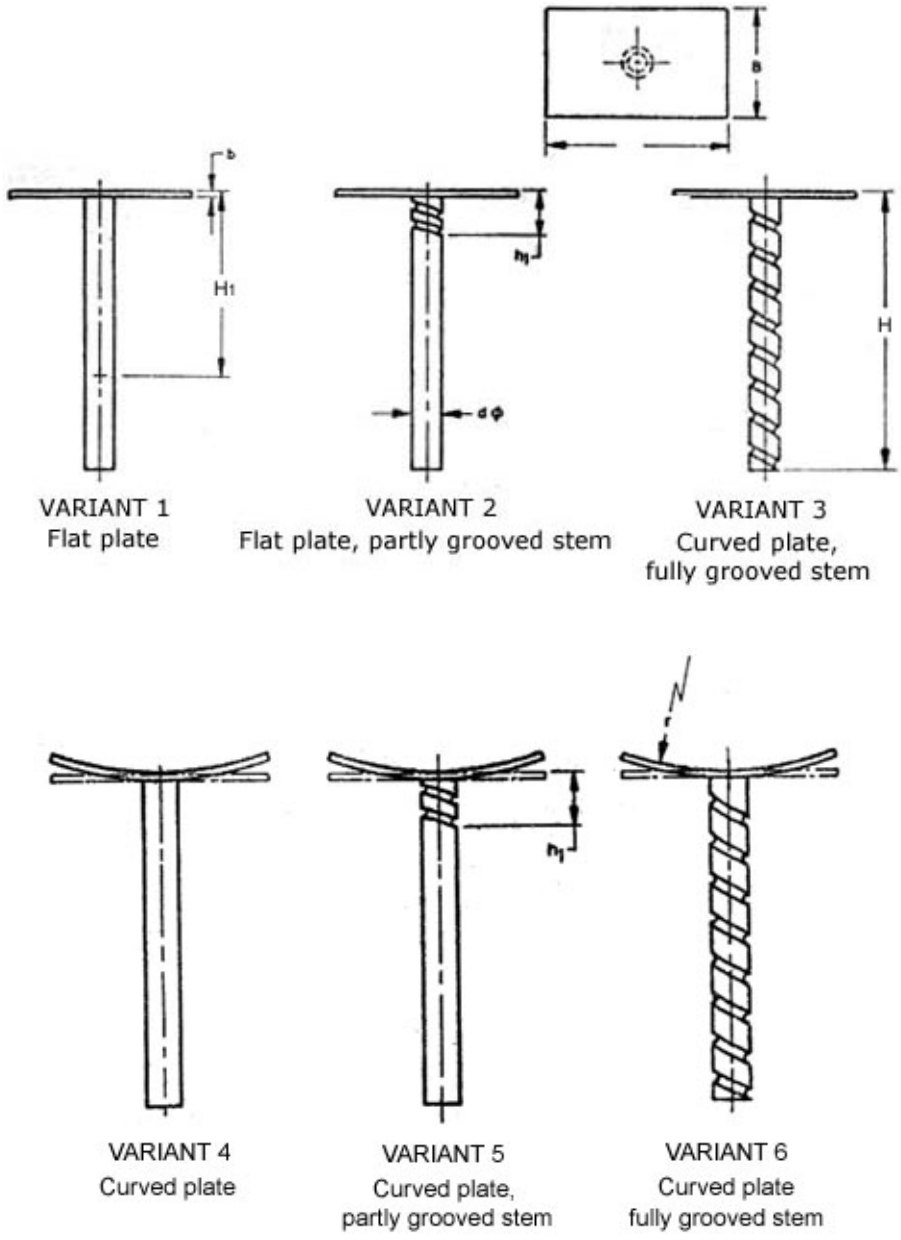
VARIANT 1
With round columns

VARIANT 2
With rectangular columns

H		L	B	A	A_1	d_1	d	d		B_1xb_1
Nominal	Tolerance							For iron castings	For steel castings	For iron castings
22	+0.60 -0.14	80	50	50	30	3	1.0	6		12x2.5
24										
25										
26										
28										
30										
32										
35										
38	+0.80 -0.12	100	60	60	35	3	1.5	8		13x4.0
40										
45										
50										
55	+1.0 -0.06	120	66	70	40	3	2.0	10	12	_
60										
65										
70										
75		130	76	80	45	4	2.5	12	14	_
80										
85	+1.0 -0.24									
90										
95										
100										
115	+1.5 -0.5	140	86	85	55	5	3.0	14	18	_
125										
130		155	96	95	60			16	22	_
150										

TABLE 9 DIMENSIONS OF STEM CHAPLETS, TYPE 6, VARIANTS 1, 2, 3, 4, 5 AND 6
(*Clauses 4.1 and 4.1.1*)

All dimensions in millimetres.



Main Dimensions of Stem Chaplets

H	75	100	125	150	175	200	250	300	350	400	450	500	600
h_1 For variants 2 & 5 only	12	15	19	22.5	26	30	37.5	45	52.5	60	67.5	75	90

TABLE 9 DIMENSIONS OF STEM CHAPLETS, TYPE 6, VARIANTS 1, 2, 3, 4, 5 & 6 - Contd

Other dimensions of stem chaplets, variants 1 to 6

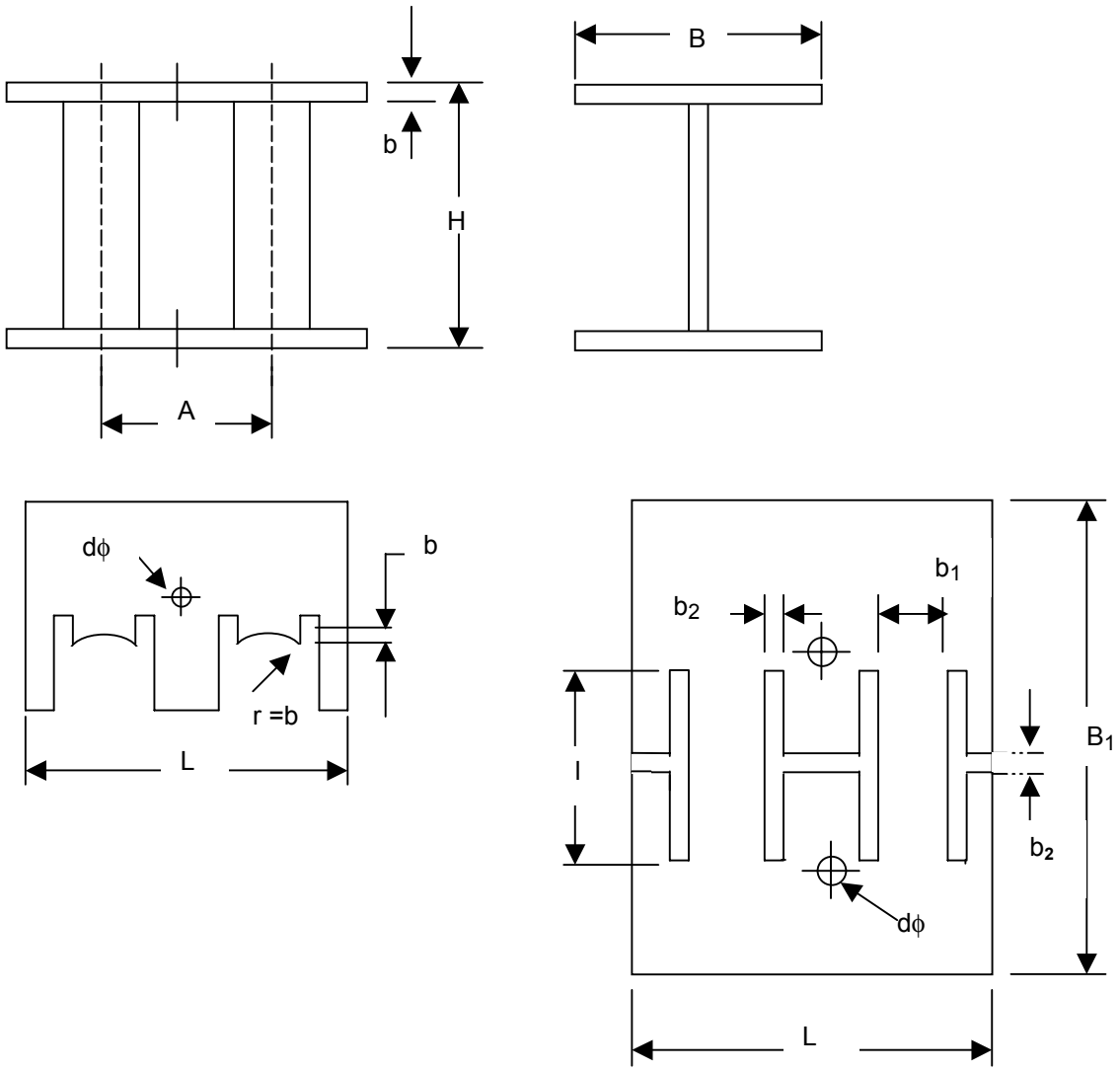
H_1	d		b	L	B
	For iron castings	For steel castings			
5	3		0.5	25	12
6					
7					
8					
9					
10					
12	4		0.75	30	16
14					
15					
16					
18					
20					
22	6		1.0	44	22
24					
25					
26					
28					
30					
32	8		1.5	50	30
35					
38					
40					
45					
50					
55	10	12	2.0	64	32
60					
65					
70					
75					
80	12	14	2.5	70	36
85					
90					
95					
100					
105					
110	14	18	3.0	80	40
115					
125					
130	16	22	3.5	92	46
140					
150					

NOTE - For variants 4, 5, & 6, r shall be mentioned in the order.

TABLE 10 DIMENSIONS OF TWO COLUMN STAMPED CHAPLETS, TYPE 7

(*Clauses 4.1and 4.1.1*)

All dimensions in millimetres.

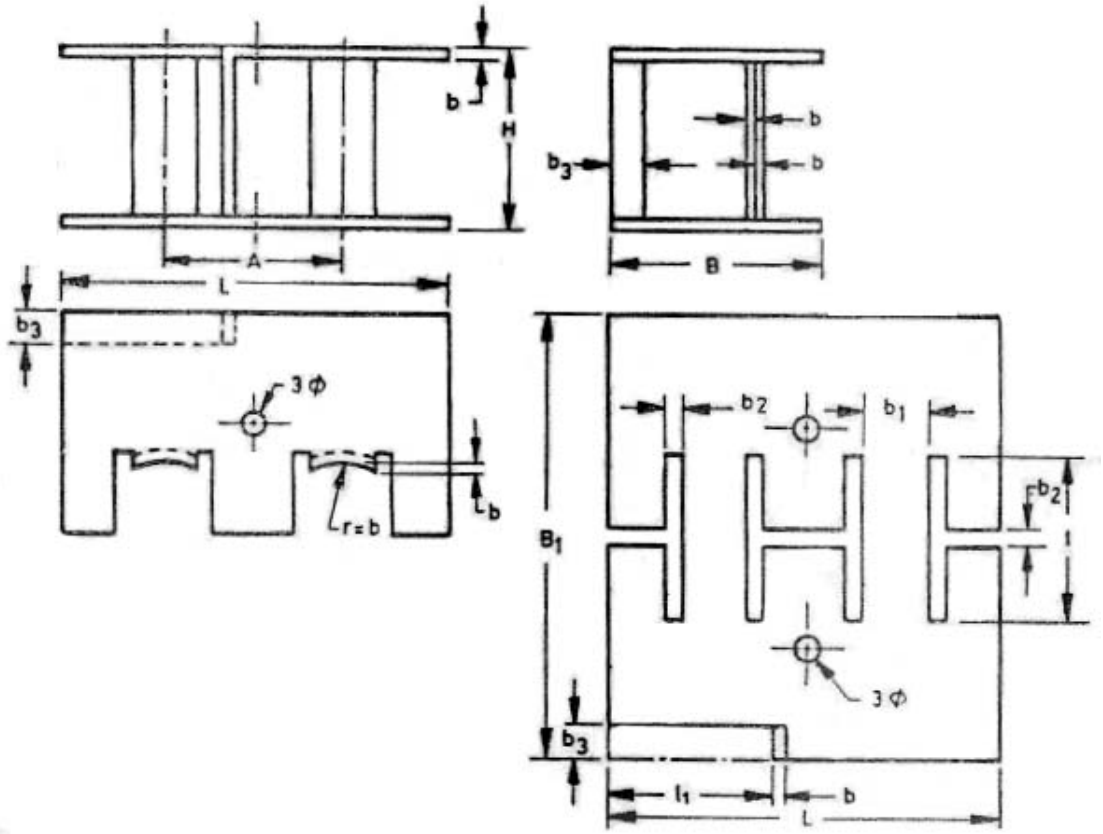


H		L	B	B	A	B_1	l	b_1	b_2	d
Nominal	Tolerance									
20	+0.60 -0.14	56	18	1.5	28	38	18	8	2.0	3.0
22			20			42	20	9		
24			22			46	22	10		
25										
26			23			48	23			
28			25	1.75		52	25			
30			27			56	27			
32	+0.80 -0.12		29	2.0		60.5	28	11	2.5	4.0
35			32			66.5	31			
38			34	2.5		71.0	34	12	3.0	
40		73	36	3.0	36	75.5	36	14	3.5	5.0
45			40			83.5	41	16		
50			45	3.5		94.0	46		4.0	

TABLE 11 DIMENSIONS OF THREE COLUMN STAMPED CHAPLETS, TYPE 7

(*Clauses 4.1 and 4.1.1*)

All dimensions in millimetres.

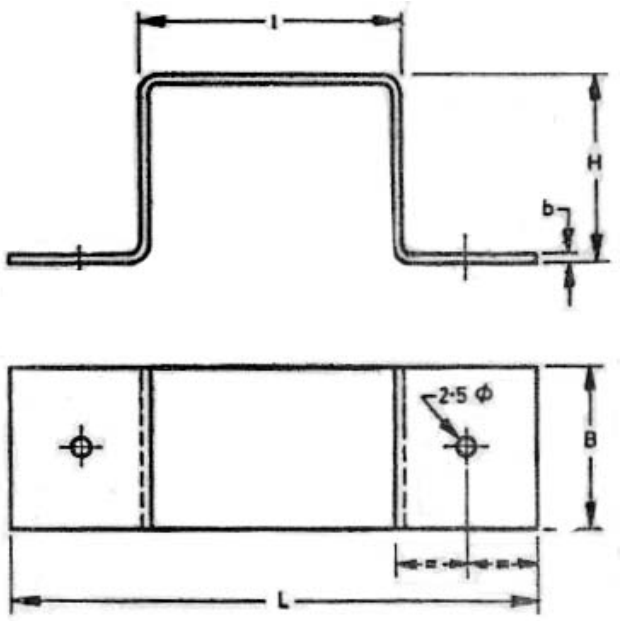


H		L	B	b	A	B_1	l	l_1	b_1	b_2	b_3
Nominal	Tolerance										
8	+0.30 -0.10	28	20	1.0	14	42	6	6	4	2	4
10							8	8			
12	+0.50 -0.14	36	25	1.5	16	52	10	10	5		
14							12	12			
15							13	13			
16							14	14	7		
18							16	16			
20	+0.80 -0.14	48	26		22	54	18	18			
22							20	20	8		

TABLE 12 DIMENSIONS OF BRIDGE TYPE CHAPLETS, TYPE 8

(*Clauses 4.1 and 4.1.1*)

All dimensions in millimetres.

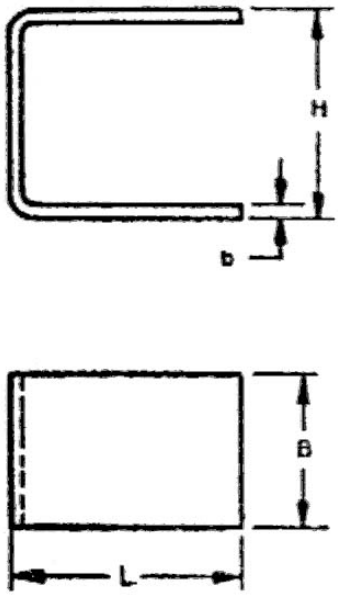


H		L	B	l	b
Nominal	Tolerance				
3	+0.20 -0.10	50	10	25	0.5
4					
5					
6	+0.30 -0.10				
7					
8					
9					
10					
12	+0.50 -0.10		20		
14					
15					
16					
18					
20	+0.60 -0.18				
22	+0.60 -0.18	80	26	40	1.0
24					
25					
26					
28					
30					
35	+0.80 -0.22	100	30	50	1.5
40					
45					
50					

TABLE 13 DIMENSIONS OF SPRING BACK CHAPLET, TYPE 9

(*Clauses 4.1 and 4.1.1*)

All dimensions in millimetres.

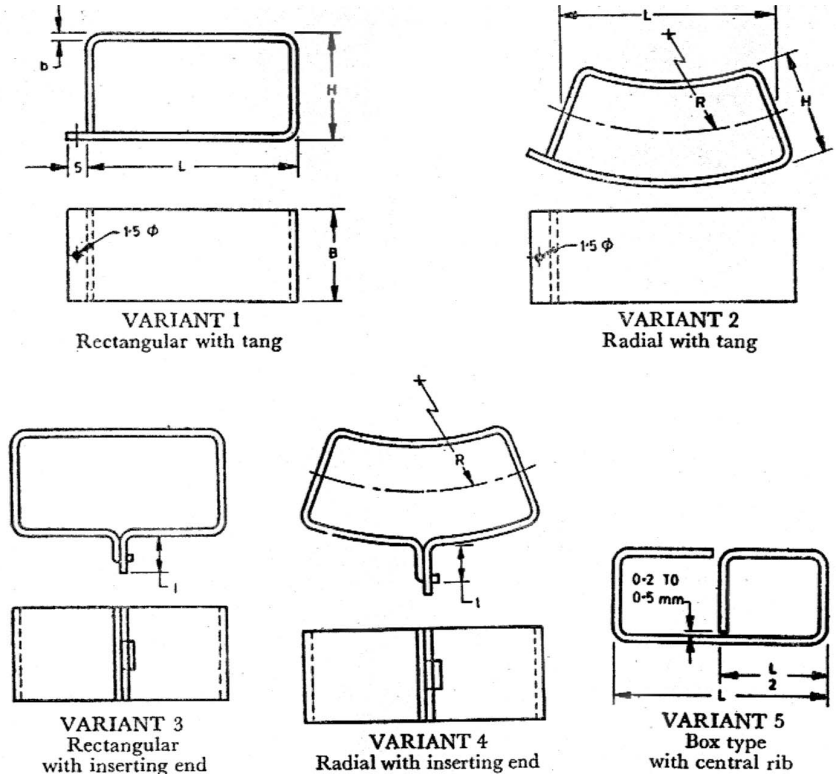


H		L	B	b
Nominal	Tolerance			
5	+0.20 -0.10	10	5	0.5
6				
7	+0.30 -0.10			
8		15	10	0.75
9				
10				
12	+0.50 -0.18	25	20	1.0
14				
15				
16				
18				
20				
22	+0.60 -0.22			
24		30	26	1.5
25				
26				
28				
30				
35	+0.80 -0.25	40		2.0
40				
45				
50				

TABLE 14 DIMENSIONS OF BOX TYPE CHAPLETS, TYPE 10, VARIANTS 1,2,3,4 AND 5

(*Clauses 4.1 and 4.1.1*)

All dimensions in millimetres.



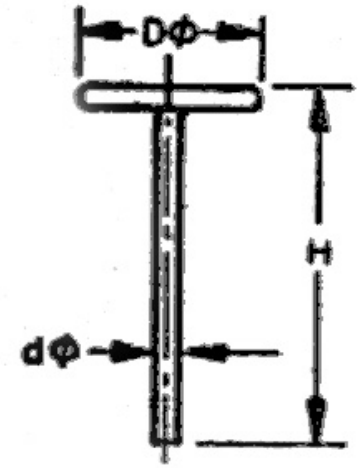
H		*L*	*B*	*b*
Nominal	Tolerance			
3	+0.20 -0.10	20	12.0	0.35
4				
5				
6			20.0	0.5
7	+0.30 -0.10	25		
8				
9			26.0	
10				
12	+0.50 -0.14	30		0.75
14				
15				
16	+0.50 -0.18	40		1.0
18				
20				
22	+0.60 -0.22	50		1.2
24				
25				
26		60		1.5
28				
30				

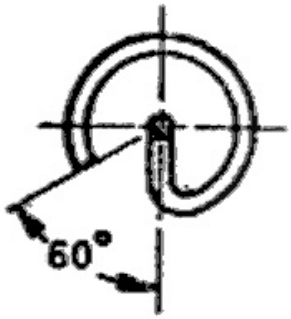
NOTE - For variants 2 and 4 R shall be mentioned in the order. For variants 3 and 4 l shall approximately be 10 mm long.

TABLE 15 DIMENSIONS OF WIRE CHAPLETS WITH SINGLE SUPPORTING SPIRAL, TYPE 11, VARIANT 1

(*Clauses 4.1 and 4.1.1*)

All dimensions in millimetres.



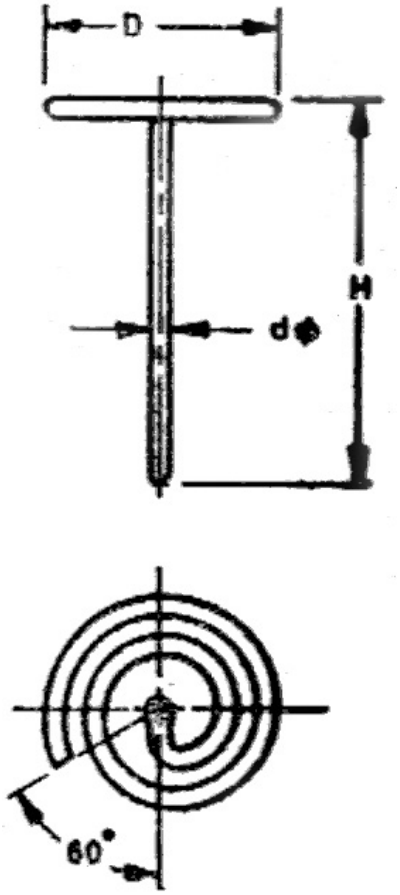


H	D	d
20	16	1.0
25	18	1.2
25	20	1.4
30	20	1.6
35	20	2.0
40	20	2.5

TABLE 16 DIMENSIONS OF WIRE CHAPLET WITH DOUBLE SUPPORTING SPIRALS, TYPE 11, VARIANT 2

(Clauses 4.1 and 4.1.1)

All dimensions in millimetres.



H	D	d
20	20	1.0
25	22	1.2
25	25	1.4
30	25	1.6
35	25	2.0
40	25	2.5

6. **REQUIREMENTS**

6.1 The chaplets shall be given an anti- corrosion coating (passivated). Zinc shall not be used for coating.

6.2 Chaplets for castings that are subjected to hydraulic testing shall be coated with tin conforming to grade SN 99.75 of IS: 26-1966*.

6.2.1 Chaplets for other uses may also be tinned in accordance with the requirements of the purchaser. Hot dip tinning shall be done in conformity with IS: 5274- 1969.

6.3 The columns of chaplets shall be perpendicular to the supporting surfaces and the deviation from perpendicularity shall not exceed 3 degrees.

6.4 The supporting surface of the chaplets shall be mutually parallel. The departure from parallelism shall not exceed:

Height, H mm	Departure from Parallelism mm
Up to 20	0.8
From 22 to 30	1.0
" 32 " 50	1.2
" 55 " 80	1.4
" 85 " 120	1.7
" 120 mm and above	2.0

6.5 The purchaser may order for supply of perforated chaplets excepts in case of type 11. The holes shall be uniformly staggered in such cases.

6.6 The pitch of the threads for type 5, variant 2, 3, 5 and 6 shall be mentioned in the order, and the roots of the threads shall have no grease, dirt or rust deposited on them.

7. **PACKAGING**

7.1 Unless specified otherwise, the material shall be supplied in waterproof double gunny bags or polythene lined boxes each weighing not more than 50 kg overall.

*Specification for tin ingots (second revision).
Recommended practice for hot dip tinning of plain carbon steel.

8. **MARKING**

8.1 Assembled and stamped type chaplets shall bear a clear marking indicating their heights on at least one of the supporting surfaces.

8.2 Each container shall be clearly marked with following information:

a) Manufacturer's name or trade mark,
b) Designation, and
c) Number of chaplets.

8.2.1 The material may also be marked with the ISI Certification Mark.

NOTE- The use of the ISI Certification Mark is governed by the provision 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 product as actually marketed are continuously checked by ISI for conformity to the standard. Details of condition, under which a license for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standard Institution.