कोशी प्रदेश सरकार

खानेपानी, सिंचाई तथा ऊर्जा मन्त्रालय

सिंचाई तथा ऊर्जा विकास महाशाखा

विराटनगर, नेपाल

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विषयः परिपत्र सम्बन्धमा ।

मातहतका कार्यालयहरु सबै ।

कोशी प्रदेश ।

प्रस्तुत विषयमा मातहतका सम्पूर्ण डिभिजन कार्यालयहरुले Hydraulic Structure को लागि Sheet Pile को डिजाइन / स्पेशिफिकेसन तयार गर्दा IS २३१४(Part २): २०२३, Steel Sheet Piling Section - Specification, Part २, Cold Formed Sheet Pile (Second Revision) बमोजिम गर्न / गराउन मिति २०८२/१०/२६ को सचिव स्तरीय निर्णय अनुसार यो परिपत्र जारी गरिएको व्योहरा सबैको जानकारीको अनुरोध छ ।

उक्त IS Code को Soft Copy यसैसाथ् संलग्न राखिएको छ ।

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(कृष्ण प्रसाद राजवंशी)

सि.डि.ई

फोन नं. ०२१-५९०७९२

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भारतीय मानक
Indian Standard

IS 2314 (Part 2) : 2023

इस्पात की चादर की पाइलिंग — विशिष्टि

भाग 2 अतप्त गठित चादर की पाइल

(दूसरा पुनरीक्षण)

Steel Sheet Piling Section — Specification

Part 2 Cold Formed Sheet Pile

(Second Revision)

ICS 77.140.70

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, 9 बहादुर शाह ज़फर मार्ग, नई दिल्ली - 110002
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September 2023 Price Group 8

Structural Engineering and Structural Sections Sectional Committee, CED 07

FOREWORD

This Indian Standard (Part 2) (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Structural Engineering and Structural Sections Sectional Committee had been approved by the Civil Engineering Division Council.

This standard is one of a series of Indian Standards being published under the steel economy programme. The object of this programme is to achieve economy in the use of steel by establishing rational, efficient and optimum standards for structural sections; formulation of standard codes of practice for design and fabrication of steel structures; popularization of welding in steel construction and co-ordination; and sponsoring of experimental research relating to production and use of structural steel which would enable formulation and revision of specifications and codes of practice.

Piling sections are required in large quantities for coastal protection, hydroelectric, irrigation, power, dock and underground railway projects, etc. Necessity was, therefore, felt to standardize piling sections for manufacturing these in the country.

Sheet piles are used for various purposes. Some of the important aspects in the use of sheet piles are:

a) Their resistance to bending forces which depends on shape and section moduli of the sections;
b) Ease with which piling sections can be driven and reclaimed for re-use, if required, even after a few years of service;
c) Efficiency and water-tightness of the inter-locking arrangement at the joints; and
d) Feasibility of economical rolling in the country.

These aspects have also been kept in view while preparing this standard.

This standard was first published in 1963 and subsequently revised in 1986, which contained only three types of sections, that is Z-type, U-type and flat-type piling sections, which are formed by hot rolling. In its first amendment in 2016, piling section formed by cold forming were introduced. In this revision, the committee decided to separate the standard in two parts as follows:

Part 1 Hot rolled sheet pile

Part 2 Cold formed sheet pile

In this Part, following modifications have been effected:

a) New section (Hat type pile) has been added;
b) Provision relating to tolerances have been updated; and
c) Provision relating to testing of piling section has been added.

In the formulation of this standard, assistance has been derived from the following publications:

BS EN 10249-1 : 1996 Cold formed sheet piling of non-alloy steels — Part 1: Technical delivery conditions

BS EN 10249-2 : 1996 Cold formed sheet piling of non-alloy steels — Part 2: Tolerances on shape and dimensions

The composition of the Committee responsible for the formulation of this standard is given in Annex 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.

Indian Standard

STEEL SHEET PILING SECTION — SPECIFICATION

PART 2 COLD FORMED SHEET PILE

(Second Revision)

1 SCOPE

1.1 This standard (Part 2) stipulates dimensions and dimensional tolerances for Z-type, U-type, flat-type and Hat-type profile of cold formed steel sheet piling.

1.2 Sectional properties of these sections as calculated with the nominal dimensions are also included.

2 REFERENCES

The standards given below 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 agreement based on this standard are encouraged to investigate the possibility of applying the most recent edition of these standards:

IS No.	*Title*
IS 1608 (Part 1) : 2022/ ISO 6892-1 : 2019	Metallic materials — Tensile testing: Part 1 Method of test at room temperature (*fifth revision*)
IS 1956 (Part 3) : 2019	Glossary of terms relating to iron and steel: Part 3 Long products including bars rods sections and wires (*second revision*)
IS 2062 : 2011	Hot rolled medium and high tensile structural steel — Specification (*seventh revision*)
IS 10748 : 2004	Hot-rolled steel strip for welded tubes and pipes — Specification (*second revision*)

3 TERMINOLOGY

3.1 Cold Formed Sheet Piling — Products made by cold forming on a rolling machine; the form of the product is such that when interlocking their joints or overlapping the profile ends, they constitute a continuous sheet piling structure.

4 MATERIAL

4.1 Piling sections shall be made from steel conforming to IS 2062 and IS 10748.

4.2 Where steel is required in copper bearing quality, the copper content shall be between 0.20 percent and 0.35 percent.

5 TYPES

5.1 Steel sheet piles shall be classified as follows in accordance with the cross-sectional shapes of the sections.

a) Z-type — Roughly Z-shape with joints of piles when driven located alternately at inner and outer sides of the piling wall.

b) U-Type — Roughly U-shape with joints of piles when driven located on the neutral axis of the piling wall.

c) Flat-Type — Having flat shape with high resistance to tensile forces.

d) Hat-Type — Having hat shape.

6 DESIGNATION

6.1 Cold formed steel piling sections conforming to this specifications shall be designated with the letters ISCFPS followed by the section modulus per meter of wall in cm^3 and letter symbols Z, U, F and Hat which denote Z-type, U-type, flat-type and Hat-type sections respectively.

7 PROFILE

7.1 Profile Z-type piling sections shall be as per Fig. 1.

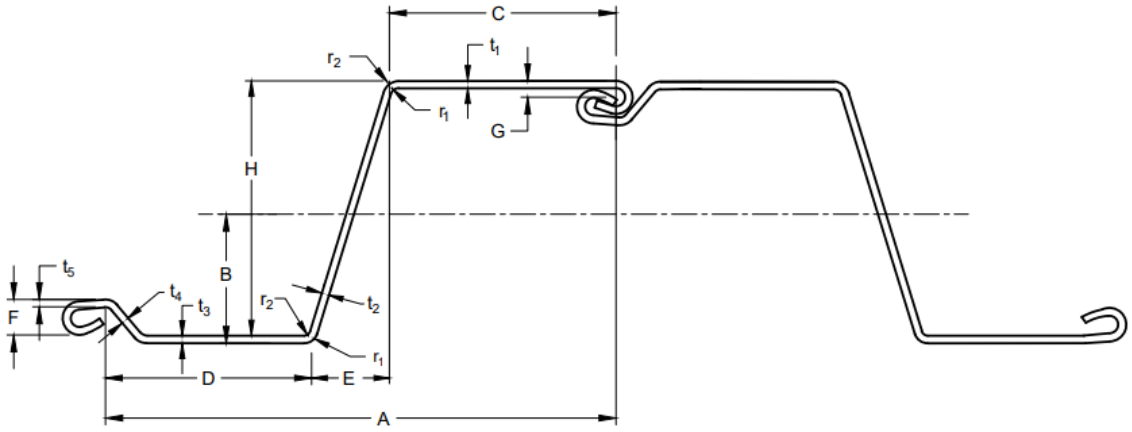


FIG.1 Z-TYPE PILING SECTION

7.2 Profile of U-type piling sections shall be as per Fig. 2.

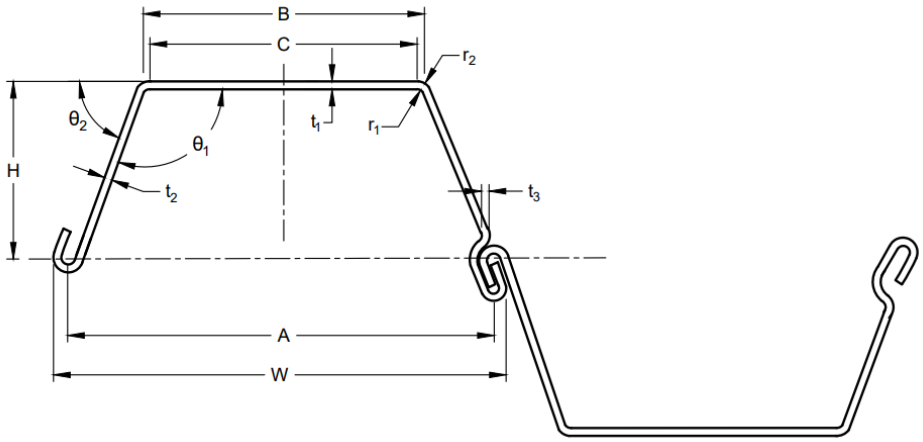


FIG.2 U-TYPE PILING SECTION

7.3 Profile of flat-type piling sections shall be as per Fig. 3.

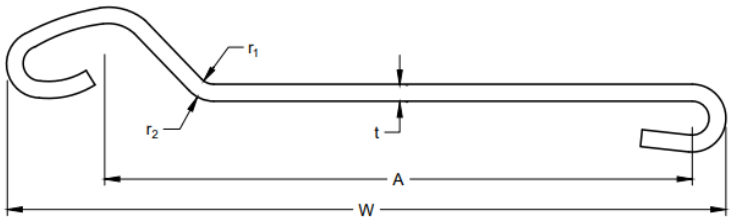


FIG.3 FLAT-TYPE PILING SECTION

7.4 Profile of Hat-type piling sections shall be as per Fig. 4.

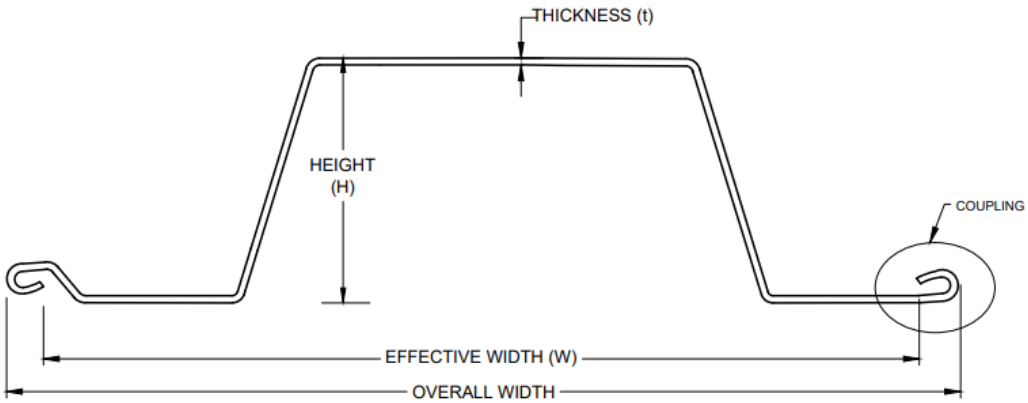


FIG.4 HAT-TYPE PILING SECTION

7.5 The Typical dimensions and approximate calculated sectional properties, based on the nominal dimensions, for the Z, U, flat-types and H-type of sheet piling sections are given in Annex A.

7.6 The geometry of the profile of the sections may be mutually decided between the manufacturer and the client.

8 REQUIREMENTS

8.1 Tolerances

Tolerances for widths (*W*), heights (*H*), thicknesses (*t*), bending deflection (*s*), and curving deflection (*c*) of cold formed steel sheet piling sections shall be as given in Table 1.

Table 1 Dimensional Tolerances

(*Clause* 8.1)

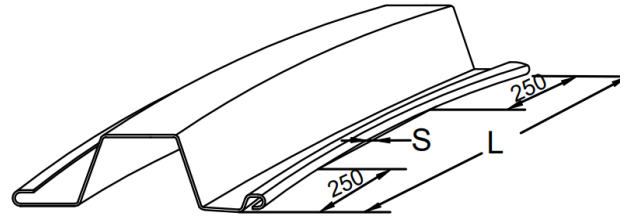
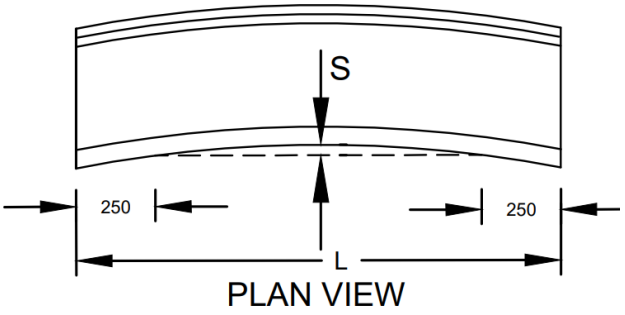
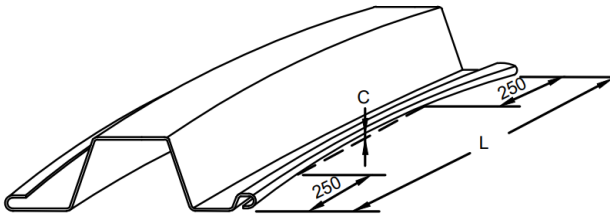
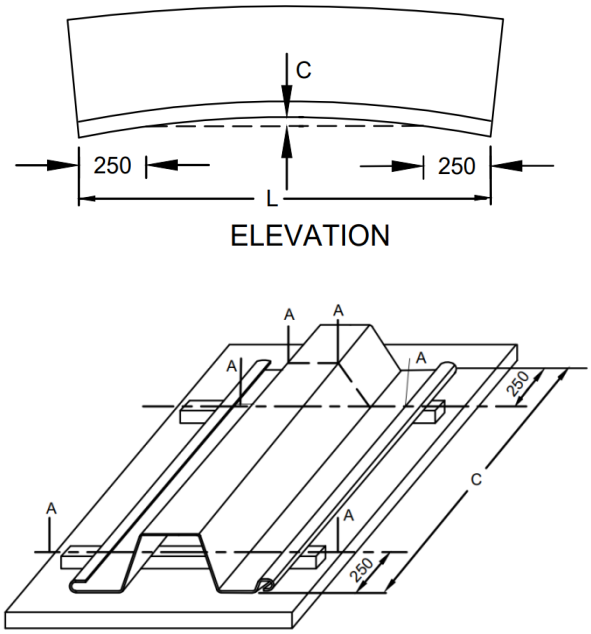
Sl No.	Characteristic	Nominal Size (in mm)	Tolerance (in mm)
(1)	(2)	(3)	(4)
i)	Height, *H*	H ≤ 200	± 4
		200 < H ≤ 300	± 6
		300 < H ≤ 400	± 8
		400 < H	± 10
ii)	Width, *W*	Single sheet piles	± 2 percent *W*
		Double sheet piles	± 3 percent *W*
iii)	Thickness, *t*	6.00 < t ≤ 8.00	± 0.35
		8.00 < t ≤ 10.00	± 0.40
iv)	Bending deflection (*S*)	 	± 0.25 percent *L*
v)	Curving deflection (*C*)		± 0.25 percent *L*

Table 1 (*Concluded*)

Sl No.	Characteristic	Nominal Size (in mm)	Tolerance (in mm)
(1)	(2)	(3)	(4)
vi)	Twist		2 percent *L* with 100 mm max
vii)	Length		± 50
viii)	Squareness of ends [out-of-squareness (t) of end cuts]		2 percent of width
ix)	Mass of sections (difference between total actual and total theoretical mass delivered):		± 7 percent

NOTES

1 Width, *W* stands for all the linear dimensions of the sections.
2 Thickness, *t* stands for the various thicknesses of sections.

8.2 Tolerances on Design Dimensions

8.2.1 Interlock shall meet the following essential requirements:

a) The interlocks shall fit with adequate free play so that the piles can easily be fitted into each other; and

b) The interlocks shall be so designed that he piles are firmly engaged despite the free play.

8.2.2 The tolerances as given in Table 2 for the three types of piling sections over the design dimensions at interlocks, as shown in Fig. 5, shall be followed to ensure the requirements specified in **8.2.1**.

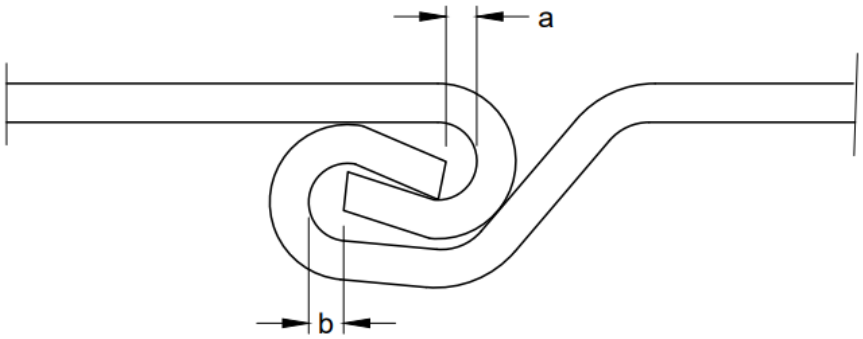
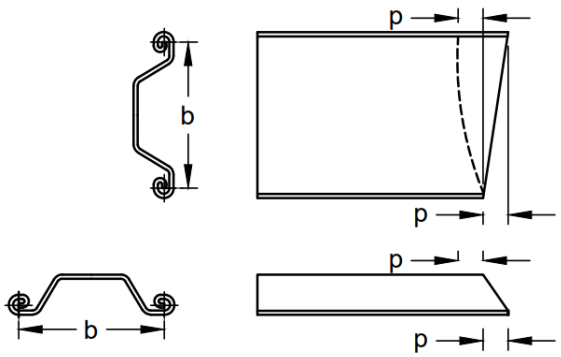


FIG.5 INTERLOCK DIMENSIONS, a AND b

Table 2 Tolerances on Design Dimensions
(*Clause* 8.2.2)

Sl No.	Type	Design Dimension	Tolerance on Design Dimension	
			mm	mm
(1)	(2)	(3)	(4)	(5)
i)	Z-type, U-type, flat-type and Hat-type	Hook width, *a*	+ 2.0	- 2.0
		Interlock opening, *b*	+ 2.0	- 2.0

Table 3 Squareness of Ends for All Profiles
(*Clause* 8.3)

Sl No.	Designation	Figure	Nominal Dimension	Tolerance
(1)	(2)	(3)	(4)	(5)
i)	*p*		All widths	± 2 % *b*

8.3 Squareness Tolerance

The Squareness Tolerance and dimensions is given in Table 3.

8.4 Deviation Angle

Each interlock allows a certain rotation. The minimum angle of coupling mating joint (the theoretical interlock swing α_{Max}) for the combination of the identical versions of Z-type are 5° and combination of the identical versions of U-type sheet piles are 5°.

9 SURFACE DEFECTS

9.1 Steel sheet piles shall not show defects under use. Surface defects may be repaired either by grinding or welding as specified in **10**.

9.2 Steel sheet piles shall be straight and the cut and surface shall be flat.

9.3 The material shall be sound and free from any surface flaws which might preclude its use for the purpose for which it is intended.

9.4 In cold formed sheet, cutting burrs which may exist at the ends of the sheet piling are acceptable provided that they do not impair the fitness of the profiles to be interlocked and their use.

10 SURFACE REPAIRS

10.1 Repair of surface defects shall be done either by grinding or by welding as specified in **10.1.1** and **10.1.2**.

10.1.1 *Repair by grinding*

Repair of surface defects by grinding shall comply with the following conditions:

a) The depth of ground portions shall be within the minus range of thickness tolerance; and
b) The ground portions shall be finished neat.

10.1.2 *Repair by welding*

Repair of surface defects by welding shall comply with the following conditions:

a) Prior to welding, defects shall be removed completely by chipping, grinding other suitable methods and their depth shall not be more than 20 percent of thickness of the parent metal. The aggregate of the surface area repaired by welding shall not exceed 2 percent of the total surface area of the sheet piling section; and
b) Portions repaired by welding shall be sound. Provisions of extra thickness shall not be less than 1.5 mm above the surface of the steel sheet pile and shall be removed by chipping or grinding to a clean finish flush with the height of the surface.

11 STRENGTH OF JOINT

11.1 Flat type steel sheet piles shall be tested in accordance with Annex B and the tensile strength of joints of flat-type sheet piles shall be as agreed upon between the purchaser and the manufacturer.

12 PACKING AND MARKING

12.1 Products may be supplied in securely tied bundles. In this case, the marking shall be on a label securely attached to the bundle or fixed to the top product of the bundle.

12.2 Where agreed at the time of the enquiry and order of sheet piling sections, the following marking will be applied:

a) Manufacturer’s identification mark;
b) Designation;
c) Grade of steel;
d) Length (in metre); and
e) Cast number.

This marking shall be located at a position close to one end of each product or on the end cut face at the manufacturer’s discretion. Marking shall be by painting, stencilling, stamping, durable adhesive labels, attached tags or by any other appropriate means.

13 BIS CERTIFICATION MARKING

The sheet pile conforming to the requirements of this standard may be certified as per the conformity assessment scheme under the provisions the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations made thereunder, and the products may be marked with Standard Mark.

ANNEX A

(*Clause* 7.5)

NOMINAL DIMENSION AND SECTIONAL PROPERTIES

A-1 The nominal dimension of Z-type, U-type, flat type and Hat-type piling section are given in Table 4, Table 5, Table 6 and Table 7 respectively (*see* Fig. 1, 2, 3 and 4).

Table 4 Nominal Dimensions of Z-Type Piling Sections

(*Clause* A-1)

All dimensions in millimetres

Sl No.	Designation	*H*	*A*	*B*	*C*	*D*	*E*	*F*	*G*	t_1	t_2	t_3	t_4	t_5	t_6	r_1	r_2
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
i)	ISCFPS 1080 Z	288	600	144	194	268	-	40	17	8	8	8	8	8	8	24	16
ii)	ISCFPS 1205 Z	303	600	151.5	217	238	-	40	17	8	8	8	8	8	8	24	16
iii)	ISCFPS 1318 Z	313	600	156.5	212	238	-	40.9	17.5	8.5	8.5	8.5	8.5	8.5	8.5	24.5	16
iv)	ISCFPS 1407 Z	326	650	163	223	271	-	41.9	18	9	9	9	9	9	9	25	16
v)	ISCFPS 1504 Z	358	670	179	258	283	-	40	17	8	8	8	8	8	8	24	16
vi)	ISCFPS 1673 Z	400	675	200	248	253	-	40	17	8	8	8	8	8	8	24	16
vii)	ISCFPS 1759 Z	400.5	685	200.3	248	263	-	40.9	17.5	8.5	8.5	8.5	8.5	8.5	8.5	24.5	16
viii)	ISCFPS 1894 Z	404	670	202	241	283	-	41.9	18	9	9	9	9	9	9	25	16
ix)	ISCFPS 1966 Z	401.5	685	200.8	248	263	-	42.9	18.3	9.5	9.5	9.5	9.5	9.5	9.5	25.5	16
x)	ISCFPS 2050 Z	402	685	201	248	263	-	43.9	19	10	10	10	10	10	10	26	16
xi)	ISCFPS 2117 Z	437.5	650	218.8	265	288	-	40.9	17.5	8.5	8.5	8.5	8.5	8.5	8.5	24.5	16
xii)	ISCFPS 2359 Z	445	700	222.5	258	292	-	43.9	19	10	10	10	10	10	10	26	16
xiii)	ISCFPS 2500 Z	439	650	219.5	265	288	-	43.9	19	10	10	10	10	10	10	26	16
xiv)	ISCFPS 2816 Z	486	675	243	292	326	-	43.9	19	10	10	10	10	10	10	26	16
xv)	ISCFPS 3046 Z	500	700	250	315	326	-	43.9	19	10	10	10	10	10	10	26	16

NOTE– Clutch dimension has not been specified and is left to the discretion of the manufacturer.

Table 5 Nominal Dimensions of U-Type Piling Sections

(*Clause* A-1)

All dimensions in millimetres

Sl No.	Designation	*W*	*H*	*A*	*B*	*C*	*D*	*E*	*F*	*G*	t_1	t_2	t_3	θ_1	θ_2	θ_3	r_1	r_2
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
i)	ISCFPS 986 U	639	197	600	386	377	-	-	-	-	8	8	8	120	60	-	16	24
ii)	ISCFPS 1037U	640	197	600	386	376	-	-	-	-	8.5	8.5	8.5	120	60	-	15.5	24
iii)	ISCFPS 1100U	641	197	600	386	376	-	-	-	-	9	9	9	120	60	-	15	24
iv)	ISCFPS 1160U	642	197	600	386	375	-	-	-	-	9.5	9.5	9.5	120	60	-	14.5	24
v)	ISCFPS 1450U	643	197	600	386	375	-	-	-	-	10	10	10	120	60	-	14	24
vi)	ISCFPS 1505U	635	260	600	424	413	-	-	-	-	8	8	8	110	70	-	16	24
vii)	ISCFPS 1593U	636	260	600	424	412	-	-	-	-	8.5	8.5	8.5	110	70	-	15.5	24
viii)	ISCFPS 1648U	795	233	750	342	334	-	-	-	-	9	9	9	132.2	47.8	-	15	24
ix)	ISCFPS 1687U	637	260	600	424	411	-	-	-	-	9	9	9	110	70	-	15	24
x)	ISCFPS 1775U	638	260	600	424	411	-	-	-	-	9.5	9.5	9.5	110	70	-	14.5	24
xi)	ISCFPS 1860U	639	260	600	424	410	-	-	-	-	10	10	10	110	70	-	14	24
xii)	ISCFPS 2250U	788	240	750	451	440	-	-	-	-	10	10	10	122.2	57.8	-	14	24
xiii)	ISCFPS 2581U	682	282	650	511	497	-	-	-	-	9	9	9	105	75	-	15	24
xiv)	ISCFPS 2680U	634	250	600	478	463	-	-	-	-	10	10	10	104.8	75.2	-	14	24
xv)	ISCFPS 2815U	617	250	600	289	278	-	-	-	-	10	10	10	122.2	57.8	-	14	24

NOTE — Clutch dimension has not been specified and is left to the discretion of the manufacturer.

Table 6 Nominal Dimensions of Flat-Type Piling Sections

(*Clause* A-1)

All dimensions in millimetres

Sl No.	Designation	*W*	*A*	*B*	*C*	*t*	r_1	r_2
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
i)	ISCFPS 100F	361	300	-	-	10	16	26

NOTE — Clutch dimension has not been specified and is left to the discretion of the manufacturer.

Table 7 Nominal Dimensions of Hat-Type Piling Sections

(*Clause* A-1)

All dimensions in millimetres

Sl No.	Designation	*W*	*H*	*t*
(1)	(2)	(3)	(4)	(5)
i)	ISCFPS 917 HAT	900	253	7
ii)	ISCFPS 1613 HAT	750	349	8.5
iii)	ISCFPS 2446 HAT	1 260	426.2	11.2
iv)	ISCFPS 2745 HAT	1 600	476.5	11.5
v)	ISCFPS 3015 HAT	1 500	510.2	11.2
vi)	ISCFPS 3306 HAT	1 400	512	13

NOTE — Clutch dimension has not been specified and is left to the discretion of the manufacturer.

A-2 The sectional properties of some of cold formed sheet piling sections are given in Table 8.

Table 8 Mass and Geometrical Properties of Sheet Piling Sections

(*Clause* 7.5)

Sl No.	Designation	Mass Per Metre	Mass Per Square Metre of Wall	Sectional Modulus Per Metre of Wall	Moment of Inertia Per Metre of Wall	Sectional Area Per Metre of Wall	Perimeter Per Meter of Wall	Stock Width
		kg	kg	cm^3	cm^4	cm^2	cm	mm
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
i)	ISCFPS 1080 Z	58.4	97.3	1 080	17 031	123.9	-	929
ii)	ISCFPS 1205 Z	58.5	97.5	1 205	18 983	124.3	-	933
iii)	ISCFPS 1318 Z	62.7	104.5	1 318	21 579	133	-	940
iv)	ISCFPS 1407 Z	70.4	108.3	1 407	24 427	149.5	-	997
v)	ISCFPS 1504 Z	67	100	1 504	28 043	127.5	-	1 068
vi)	ISCFPS 1673 Z	68.1	100.9	1 673	34 263	128.5	-	1 084
vii)	ISCFPS 1759 Z	73.1	106.7	1 759	36 365	136	-	1 096
viii)	ISCFPS 1894 Z	77.8	116.1	1 894	40 435	148	-	1 100
ix)	ISCFPS 1966 Z	81.8	119.4	1 966	40 747	152.2	-	1 098

Table 8 (*Concluded*)

Sl No.	Designation	Mass Per Metre	Mass Per Square Metre of Wall	Sectional Modulus Per Metre of Wall	Moment of Inertia Per Metre of Wall	Sectional Area Per Metre of Wall	Perimeter Per Meter of Wall	Stock Width
		kg	kg	cm^3	cm^4	cm^2	cm	mm
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
x)	ISCFPS 2050 Z	85.3	124.5	2 050	41 819	158.5	-	1 086
xi)	ISCFPS 2117 Z	75.8	116.7	2 117	48 009	148.6	-	1 138
xii)	ISCFPS 2359 Z	91.56	130.8	2 359	55 041	166.6	-	1 166
xiii)	ISCFPS 2500 Z	89.4	137.5	2 500	56 915	175	-	1 139
xiv)	ISCFPS 2816 Z	95.2	141.5	2 816	71 324	179.5	-	1 213
xv)	ISCFPS 3046 Z	100.1	143	3 046	77 902	182.1	-	1 275
xvi)	ISCFPS 986 U	61.28	102.13	986	22 630	130	-	976
xvii)	ISCFPS 1037 U	65.13	108.55	1 037	23 967	138	-	976
xviii)	ISCFPS 1100 U	68.98	114.9	1 100	25 297	146	-	977
xix)	ISCFPS 1160 U	72.8	121.33	1 160	26 559	155	-	977
xx)	ISCFPS 1450 U	76.7	127.8	1 450	27 984	163	-	977
xxi)	ISCFPS 1505 U	69.6	116.1	1 505	44 597	148	-	1 109
xxii)	ISCFPS 1593 U	74	123.38	1 593	47 530	157	-	1 110
xxiii)	ISCFPS 1648 U	78.3	104.4	1 648	39 304	133	-	1 108
xxiv)	ISCFPS 1687 U	78.39	130.65	1 687	50 198	166.45	-	1 110
xxv)	ISCFPS 1775 U	82.76	137.93	1 775	52 851	175	-	1 110
xxvi)	ISCFPS 1860 U	87.14	145.23	1 860	55 493	185	-	1 110
xxvii)	ISCFPS 2250 U	91	121.3	2 250	56 688	154.6	-	1 161
xxviii)	ISCFPS 2581 U	87.38	134.4	2 581	72 934	170.7	-	1 237
xxix)	ISCFPS 2680 U	88.3	147.2	2 680	70 264	187.4	-	1 125
xxx)	ISCFPS 2815 U	80.2	133.6	2 815	67 419	170.3	-	1 021
xxxi)	ISCFPS 100 F	36.2	120.6	104	455	153.7	-	461
xxxii)	ISCFPS 917 HAT	76	84.5	917	11 607	107.6	-	900
xxxiii)	ISCFPS 1613 HAT	93.1	124.1	1 613	28 026	158.1	-	750
xxxiv)	ISCFPS 2446 HAT	176.3	139.9	2 446	52 149	178.2	-	1 260
xxxv)	ISCFPS 2745 HAT	216.6	135.4	2 745	65 401	172.5	-	1 600
xxxvi)	ISCFPS 3015 HAT	210.7	140.5	3 015	76 918	179.0	-	1 500
xxxvii)	ISCFPS HAT 3306	230	164.3	3 306	84 655	209.3	-	1 400

ANNEX B

(*Clause* 11.1)

TESILE TEST OF FLAT TYPE SHEET PILE

B-1 COUPLING TENSILE TEST ON FLAT TYPE SHEET PILE

B-1.1 The coupling tensile test on flat type sheet pile shall be as follows:

a) Two coupling tensile test pieces shall be taken at right angle to the rolling direction from each lot of the same sectional dimensions. In this case, the dimensions of one test piece shall be 100 mm in width and 300 mm in length, and each one of the pair shall have a coupling on one side and thus representing the coupling on both side of sheet pile; and

b) The tensile test shall be carried out by measuring the disengagement strength of joint (the breaking strength if the test pieces breaks before the disengagement of the joint) in accordance with IS 1608 (Part 1). In this case, the test piece shall be set in such a manner that the two couplings engage each other with the tensile axis parallel to the axis of the test pieces, as given in the Fig. 6. The distance between grips shall be not less than 400 mm.

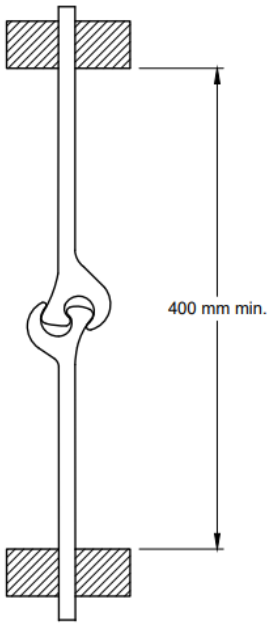


FIG. 6 TENSILE TEST SET UP

ANNEX C

(*Foreword*)

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