

Steel Sheet Pile

Steel Grades

Standard Designation: NF 35.520 (FRANCE) Circulaire 590.2 (BELGIUM)						Other steel grades comparable properties been supplied in compliance with the specifications and recommendations of the following standards					
Grade	Minimum yield point N/mm ²	Minimum tensile strength N/mm ²	Minimum elongation Lo-5.65 % So	Bend test 180° e < 16mm/ e > 16mm		Euronorm	USA	Canada	G.B.	G.F.R.	Japan
						25 - 72	ASTM	CSA G. 4021	BS 4360	EAU	A. 5528
E 240 SP	240	390	28	1e	1.5e	Fe 360 B				SiSo 37	
PAE 250	250	390	26		1e						
PAE 270	270	420	25		1.5e	Fe 430 B	A 328	Gr.260 W	Gr.43 A	SiSo 45	
E 270 SP	270	440	25	1e	1.5e	Fe 490 B	A 572 Gr.42	Gr.300 W			SY 295
PAE 300	300	450	23		2e						
PAE 320	320	470	23		2e		A 572 Gr.45				
E 320 SP	320	490	23	1.5e	2e	Fe 510 B	A 572 Gr.50	Gr.350 W	Gr.50 A	SiSo S	
PAE 360 2)	360	490	22		2.5e						
E 360 SP	360	510	22	2e	3e		A 572 Gr.55				SY 390
PAE 390 2)	390	510	20		2.5e						
E 390 SP*	390	550	20	2e	3e		A 572 Gr.60	Gr.400 W			
PAE 420 2)	420	520	19		3e						
E 430 SP*	430	570	17	3e	4e						
MERCOR 360	360	490	22		2.5e	A 690					

* These grades may contain dispersoid elements within the following ranges:
Mo - 0.01-0.06%, V - 0.02-0.10%

- 1) If all other conditions are respected a tensile strength of 20 N/mm² lower than the minimum indicated is acceptable.
Addition of copper: on request
- 2) For qualities with a guaranteed minimum yield point equal or higher than 360 N/mm² the carbon content in the heat analysis is limited to 0.22% and the manganese content to 1.6%.

Steel Qualities

	Ultimate Stress		Minimum Yield Stress				Minimum Elongation on 200mm	
	kg/mm ²	N/mm ²	Up to and including 16mm thick		Over 16mm up to and including 40mm thick		Up to and including 9mm thick	Over 9mm thick
			kg/mm ²	N/mm ²	kg/mm ²	N/mm ²	%	%
BS.4360: 1986 (Mild Steel) Grade 43A	43.8/59.1	430/580	28.0	275	27.0	265	16	20
BS.4360: 1986 (High yield Steel) Grade 50A	49.9/65.2	490/640	36.2	355	35.2	345	15	18
Similar to ASTM - A328	48.2 min.	482.6 min.	27.0	265	27.0	265	-	17

Notes:

COPPER BEARING STEEL - all the grades of steel are available with 0.20% up to 0.35% or over 0.35% up to 0.50% Copper content.

1 N/mm² = 0.101972 kg/mm²

Recommended working stresses for Steel Sheet Piling

Class of Work	BS.4360: 1986 Grade 43A ASTM A328 (Mild Steel)		BS. 4360: 1986 Grade 50A (High yield Steel)	
	kg/mm ²	N/mm ²	kg/mm ²	N/mm ²
Permanent	14.2	140	18.3	180

Notes:

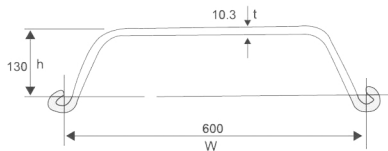
For guidance only.

Stresses in temporary conditions occurring during construction may be varied at the discretion of the client's engineer.

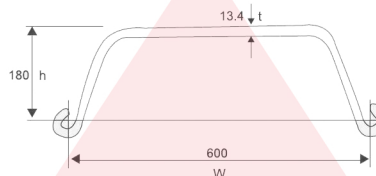
Steel Sheet Piles

Other available ranges :

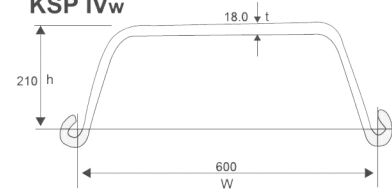
KSP II_w



KSP III_w



KSP IV_w



Section	Dimensions			Section Area		Unit weight		Moment of inertia		Modulus of section	
	W	h	t	A	A/m	M	M/m	I	I/m	Z _y	Z _y /m
	mm	mm	mm	cm ²	cm ² /m	kg/m	kg/m ²	cm ⁴	cm ⁴ /m	cm ³	cm ³ /m
KSP II _w	600	130	10.3	78.70	131.2	61.8	103	2,110	13,000	203	1,000
KSP III _w	600	180	13.4	103.9	173.2	81.6	136	6,220	32,400	376	1,800
KSP IV _w	600	210	18.0	135.3	225.5	106	177	8,630	56,700	539	2,700

Note : The sizes are also available in FSP sheet piles.
Sectional properties given per single pile, and per linear metre wall.

Steel Sheet Pile

1) Grades Of Steel

Chemical composition and mechanical properties

Notation	Chemical Composition (%)									Tensile Strength (N/mm ²)	Yield Point (N/mm ²)	Elongation (%)	
	O	Si	Mn	P	S	Cu	Ni	O	Nb +V			Test Piece	
SY295	-	-	-	0.040 max.	0.040 max.	0.25 min.	-	-	-	490 min	294 min	JIS No. 1A	17 min
SY390	-	-	-	0.040 max	0.040 max	0.25 min	-	-	-	539 min	392 min	JIS No. 1A	15 min
CR4C490	0.20 max.	0.55 max.	1.20 max.	0.070 - 0.15	0.040 max.	0.20 min.	0.65 max.	0.30 - 0.80	0.15 max.	JIS No. 1A	17 min		

Note: * Mo, Ti and other element added as necessary

2) Dimensional Tolerances

JIS A 5528 : 2000			
HOT ROLLED STEEL SHEET PILE "U" SHAPE			
Dimension		Tolerance	
Height		±4%	
Width (B)		+ 10 - 5	
Thickness	t < 10	± 1.0	
	10 ≤ t < 16	± 1.2	
	t ≥ 16	± 1.5	
Length (L)		+ Not Specified 0	
Deflection	L ≤ 10m.	Full Length (M) x 0.12% max.	
	L > 10m.	Full Length - 10m. x 0.10% + 12mm. max	
Camber	L ≤ 10m.	Full Length (M) x 0.25% max.	
	L ≥ 10m.	Full Length - 10m. x 0.20% + 20mm. max	
Difference in vertically Cut Sections.		Within 4% of Width	

Note: The deflection shall be in the direction parallel to the sheet pile wall and the camber shall be in the direction vertical to the sheet pile wall.