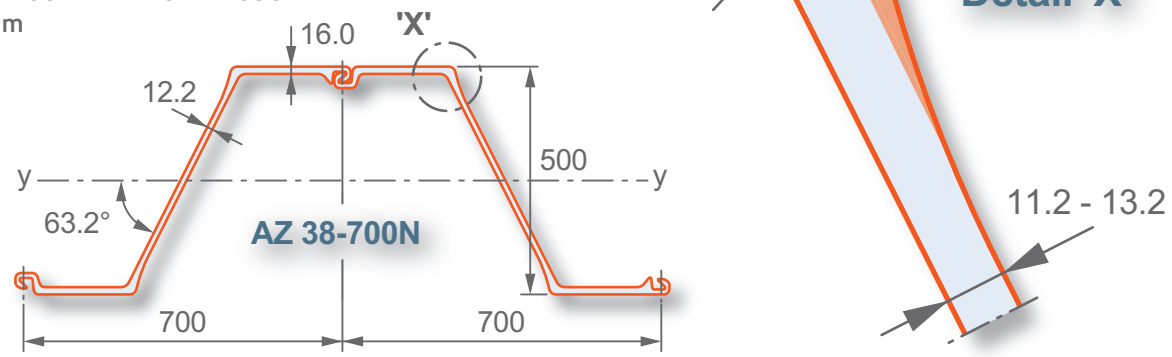
AZ 38-700N

STEEL SHEET PILING 100 YEARS MADE IN LUXEMBOURG

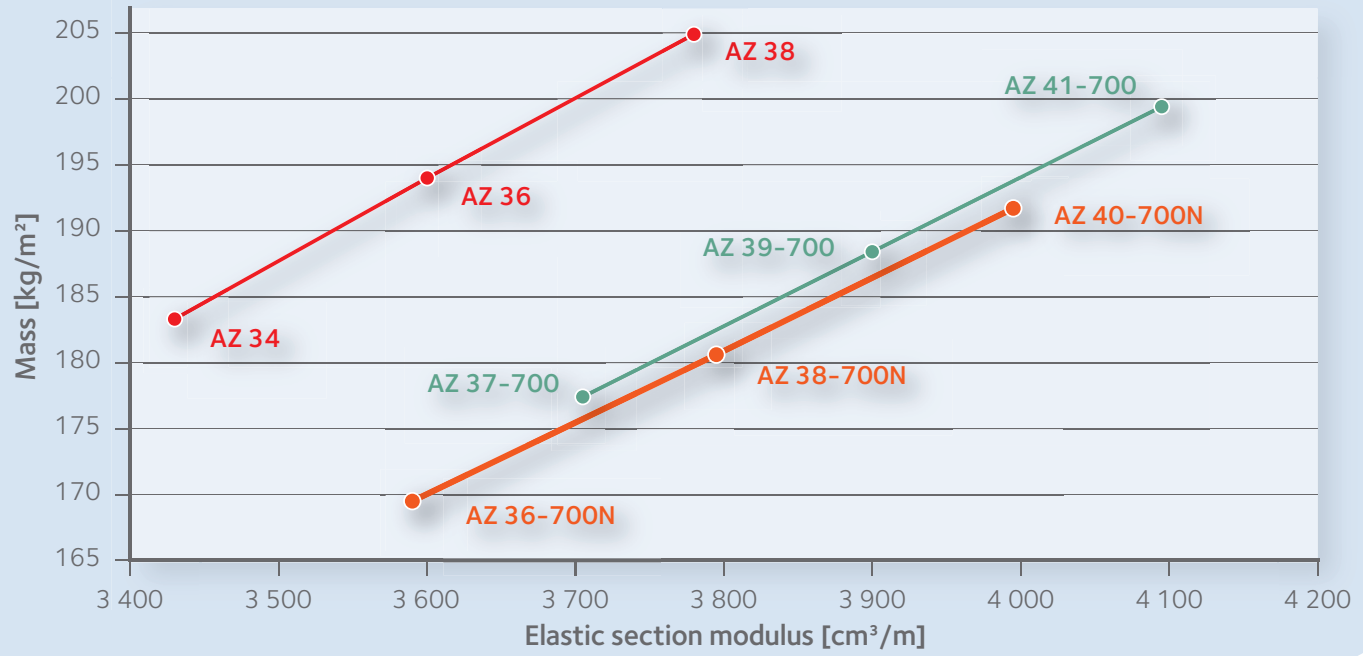
ArcelorMittal

Assets of the AZ 38-700N range:

- '**reinforced shoulders**' for hard driving conditions
- optimized web / flange thicknesses
- proven '**Larssen**' **interlocks**
- excellent ratio elastic section modulus W_y / mass
- overall **minimum thickness up to 13.2 mm** for enhanced corrosion resistance and product lifetime
- steel grades up to **S 460 AP** and **ASTM A690**
- lengths up to **31.0 m**



Year	91	1992	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	2008	09	10	2011	12
Section		AZ 38																AZ 39-700			AZ 38-700N	
Width (mm)		630																700			700	
Elastic section modulus (cm^3/m)		3 780																3 900			3 795	
Mass (kg/m^2)		204.9																188.4			180.6	

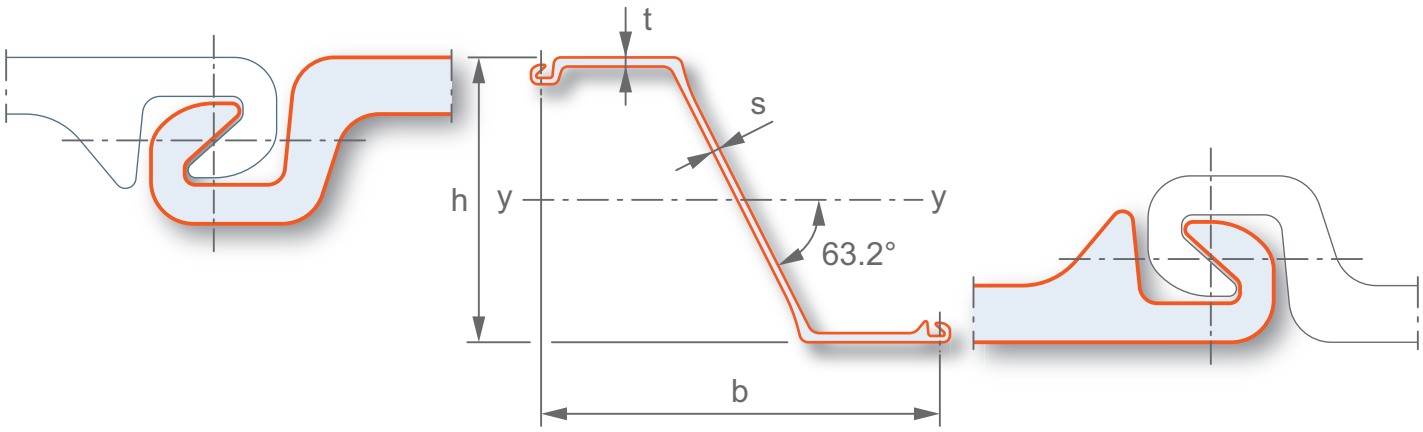


The **most recent revolution in the steel sheet piling industry started in 2004** with the initial version of the **AZ 38-700**. It was the first **700 mm wide hot rolled Z-section** that instantly made his way into the sheet piling market. 14% of weight reduction, reduced installation time due to its high width, higher stiffness,... to name only a few assets compared to the previous AZ 38. This innovative sheet pile definitely contributed to the execution of more and **more cost-efficient sheet piling structures** in the higher range of section modulus.

January **2008** was another milestone for this profile. Owing to its success, especially for driving into dense soils, the demand largely exceeded the production capacity of the mill in Belval, Luxembourg. As a consequence of the feedback received from our customers, a new improved shape was launched: the **AZ 39-700**. A similar geometry, but with an increased web thickness and with a hint of 'reinforced shoulders'. This minor change of the shape lead to two striking advantages: superior driveability properties, and higher productivity at the mill.

The last chapter of this **continuous enhancement** will occur in **2011, introducing the AZ 38-700N**. A new calibration of the rolling process at the mill allows the manufacturing of this stiffer section, with much thicker **'reinforced shoulders'**, just like the AZ 48. The ultimate edition of this profile is the final stage of the development of this section and will undoubtedly denote a landmark for the future.

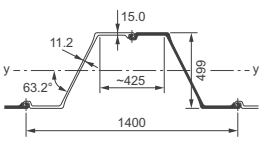
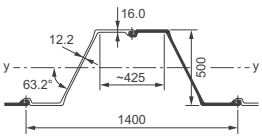
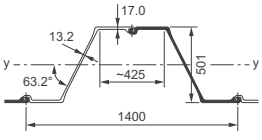
The AZ 38-700N will be available for shipment by the second quarter of 2011.



Section	Width	Height	Thickness		Sectional area	Mass		Moment of inertia	Elastic section modulus	Static moment	Plastic section modulus	Class *						
	b	h	t	s		single pile	wall					S 240 GP	S 270 GP	S 320 GP	S 355 GP	S 390 GP	S 430 GP	S 460 AP
	mm	mm	mm	mm	cm²/m	kg/m	kg/m²	cm⁴/m	cm³/m	cm³/m	cm³/m							
AZ 36-700N	700	499	15.0	11.2	216	118.6	**169**	89 610	**3 590**	2 055	4 110	**2**	**2**	**2**	**2**	**2**	**2**	**2**
AZ 38-700N	700	500	16.0	12.2	230	126.4	**181**	94 840	**3 795**	2 180	4 360	**2**	**2**	**2**	**2**	**2**	**2**	**2**
AZ 40-700N	700	501	17.0	13.2	244	134.2	**192**	100 080	**3 995**	2 305	4 605	**2**	**2**	**2**	**2**	**2**	**2**	**2**

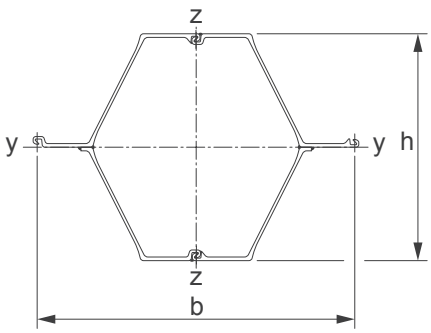
* Classification according to EN 1993-5. Class 1 is obtained by verification of the rotation capacity for a class-2 cross-section.
Steel grade S 460 AP following specification of the mill and ASTM A 690 are available on request.

Section properties

Section		S = Single pile D = Double pile	Sectional area	Mass	Moment of inertia	Elastic section modulus	Radius of gyration	Coating area *
			cm²	kg/m	cm⁴	cm³	cm	m²/m
AZ 36-700N		**Per S**	151.1	**118.6**	62 730	**2 510**	20.37	1.03
		Per D	302.2	**237.3**	125 450	**5 030**	20.37	2.05
		Per m of wall	215.9	**169.5**	89 610	**3 590**	20.37	1.47
AZ 38-700N		**Per S**	161.0	**126.4**	66 390	**2 655**	20.31	1.03
		Per D	322.0	**252.8**	132 780	**5 310**	20.31	2.05
		Per m of wall	230.0	**180.6**	94 840	**3 795**	20.31	1.47
AZ 40-700N		**Per S**	170.9	**134.2**	70 060	**2 795**	20.25	1.03
		Per D	341.9	**268.4**	140 110	**5 595**	20.25	2.05
		Per m of wall	244.2	**191.7**	100 080	**3 995**	20.25	1.47

* One side, excluding inside of interlocks

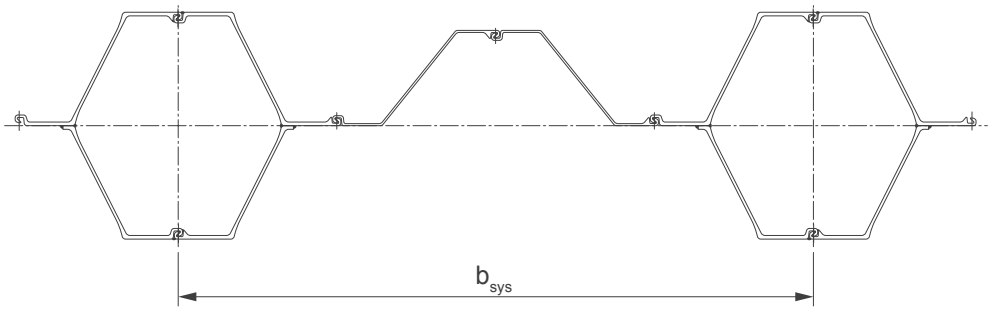
CAZ Box pile



Section	Width b	Height h	Perimeter	Steel section	Total section	Mass *	Moment of inertia		Elastic section modulus		Min. radius of gyration	Coating area **
							y - y	z - z	y - y	z - z		
	mm	mm	cm	cm^2	cm^2	kg/m	cm^4	cm^4	cm^3	cm^3	cm	m^2/m
CAZ 36-700N	1 400	998	434	534	7 215	**419**	627 000	710 770	**12 525**	9 895	34.3	4.12
CAZ 38-700N	1 400	1 000	435	570	7 245	**447**	667 900	757 530	**13 315**	10 550	34.2	4.12
CAZ 40-700N	1 400	1 002	436	606	7 275	**476**	709 010	804 300	**14 105**	11 205	34.2	4.12

* The mass of the welds is not taken into account
** Outside surface, excluding inside of interlocks

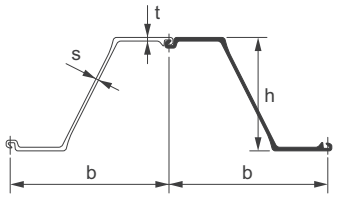
Combined wall : CAZ box piles / AZ sheet piles



Combination	System width b_{sys}	$Mass_{100}$*	$Mass_{60}$*	Moment of inertia I_{sys}	Elastic section modulus W_{sys}
	mm	kg/m^2	kg/m^2	cm^4/m	cm^3/m
CAZ 36-700N / AZ 13-770	2 940	**194**	174	224 980	**4 495**
CAZ 36-700N / AZ 18-700	2 800	**204**	183	242 830	**4 850**
CAZ 38-700N / AZ 13-770	2 940	**204**	183	238 890	**4 760**
CAZ 38-700N / AZ 18-700	2 800	**214**	193	257 440	**5 130**
CAZ 40-700N / AZ 13-770	2 940	**214**	193	252 870	**5 030**
CAZ 40-700N / AZ 18-700	2 800	**225**	203	272 120	**5 415**

* $Mass_{100}$: $L_{AZ} = 100\% L_{CAZ}$; $Mass_{60}$: $L_{AZ} = 60\% L_{CAZ}$

AZ 700 / AZ 770 Steel Sheet Piling Range | 2011



Section	Width	Height	Thickness		Sectional area	Mass		Moment of inertia	Elastic section modulus	Static moment	Plastic section modulus	Class *						
	b	h	t	s		single pile	wall					S 240 GP	S 270 GP	S 320 GP	S 355 GP	S 390 GP	S 430 GP	S 460 AP
	mm	mm	mm	mm	cm²/m	kg/m	kg/m²	cm⁴/m	cm³/m	cm³/m	cm³/m							
AZ 12-770	770	344	8.5	8.5	120	72.6	**94**	21 430	**1 245**	740	1 480	2	2	3	3	3	3	3
AZ 13-770	770	344	9.0	9.0	126	76.1	**99**	22 360	**1 300**	775	1 546	2	2	3	3	3	3	3
AZ 14-770	770	345	9.5	9.5	132	79.5	**103**	23 300	**1 355**	805	1 611	2	2	2	2	3	3	3
AZ 14-770-10/10	770	345	10.0	10.0	137	82.9	**108**	24 240	**1 405**	840	1 677	2	2	2	2	2	3	3
AZ 12-700R	700	314	8.5	8.5	123	67.7	**97**	18 880	**1 205**	710	1 415	2	2	3	3	3	3	3
AZ 13-700R	700	315	9.5	9.5	135	74.0	**106**	20 540	**1 305**	770	1 540	2	2	2	3	3	3	3
AZ 13-700R-10/10	700	316	10.0	10.0	140	77.2	**110**	21 370	**1 355**	800	1 600	2	2	2	2	3	3	3
AZ 14-700R	700	316	10.5	10.5	146	80.3	**115**	22 190	**1 405**	835	1 665	2	2	2	2	2	3	3
AZ 17-700	700	420	8.5	8.5	133	73.1	**104**	36 230	**1 730**	1 015	2 027	2	2	3	3	3	3	3
AZ 18-700	700	420	9.0	9.0	139	76.5	**109**	37 800	**1 800**	1 060	2 116	2	2	3	3	3	3	3
AZ 19-700	700	421	9.5	9.5	146	80.0	**114**	39 380	**1 870**	1 105	2 206	2	2	2	3	3	3	3
AZ 20-700	700	421	10.0	10.0	152	83.5	**119**	40 960	**1 945**	1 150	2 296	2	2	2	2	2	3	3
AZ 24-700	700	459	11.2	11.2	174	95.7	**137**	55 820	**2 430**	1 435	2 867	2	2	2	2	2	2	3
AZ 26-700	700	460	12.2	12.2	187	102.9	**147**	59 720	**2 600**	1 535	3 070	2	2	2	2	2	2	2
AZ 28-700	700	461	13.2	13.2	200	110.0	**157**	63 620	**2 760**	1 635	3 273	2	2	2	2	2	2	2
AZ 36-700N	700	499	15.0	11.2	216	118.6	**169**	89 610	**3 590**	2 055	4 110	2	2	2	2	2	2	2
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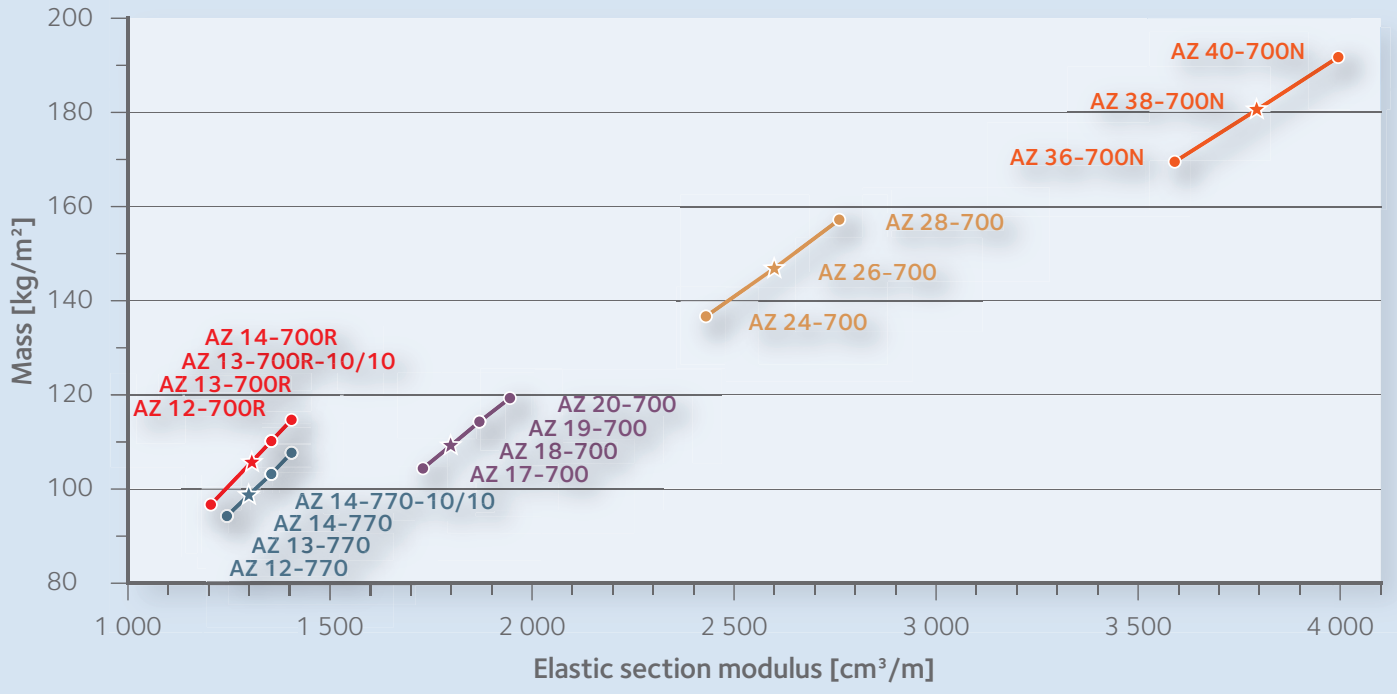

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