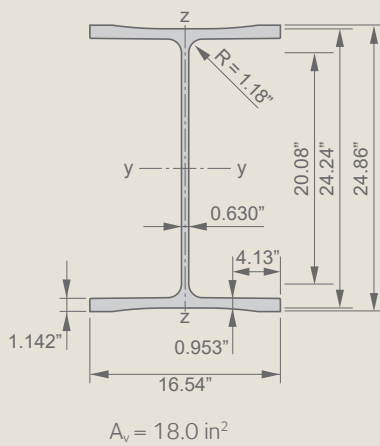




# HZ 630M

## HZ<sup>®</sup>-M Steel wall system

# ArcelorMittal



This combined wall system comprises 3 elements<sup>1)</sup>:

- HZ-M king piles: wide flange beams with specific flange geometries and milled grooves,
- AZ infill sheet piles: standard sheet piles,
- RZD, RZU and RH: hot rolled connectors.

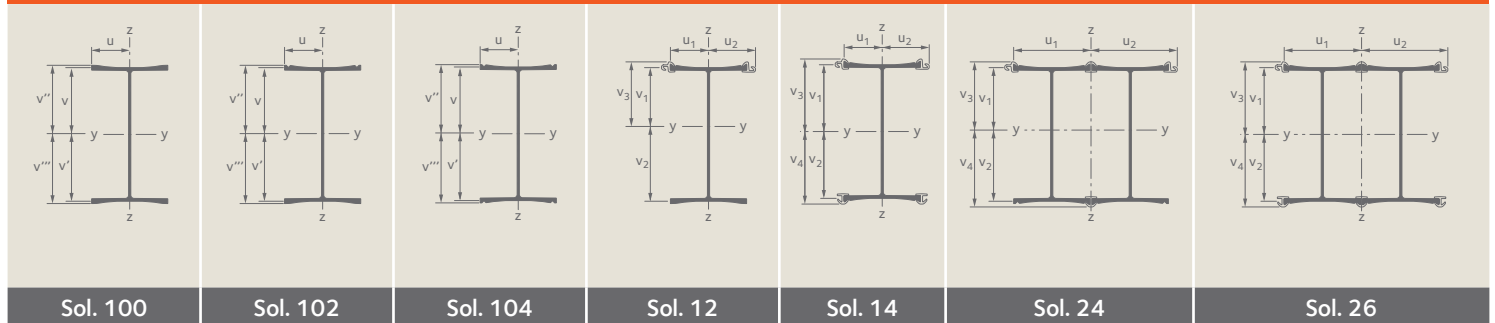
The new HZ 630M section, launched in 2019, completes the existing range of the already large HZ-M series. It was developed mainly for very **hard driving conditions** (installation in compact soils) and for **structures with restrictions on the height of the system**.

The **flange thickness is 0.953"** (measured at the location specified in the European standard), and the **maximum height of an HZ 630M solution is only 26.46"** (including connectors).

Check our brochure 'The HZ<sup>®</sup>-M Steel Wall System' for more details on available steel grades, connectors, tolerances, delivery conditions, welding, installation recommendations, etc.

<sup>1)</sup> The HZ-M king pile can also be installed without any infill sheet piles, yielding a very stiff combined wall system C 1 or C 23.

### Solutions



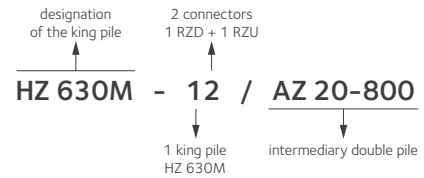
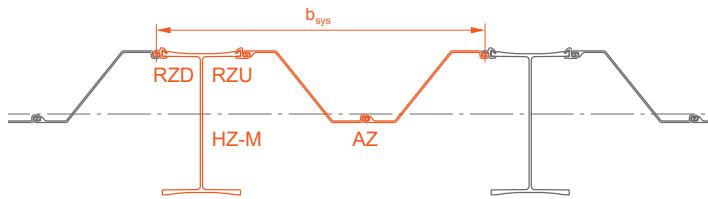
Dimensions							Properties per solution												
$b_{sys}$	$v$	$v'$	$v''$	$v'''$	$u$	-	$A$	$G$	$I_y$	$I_z$	$I_t$	$I_{\omega}$	$W_{el,y}^*$	$W_{el,y}^{**}$	$W_{el,z}$	$W_{pl,y}$	$A_{LW}$	$A_{LS}$	
in	in	in	in	in	in	-	in <sup>2</sup>	lb/ft	in <sup>4</sup>	in <sup>4</sup>	in <sup>4</sup>	in <sup>6</sup>	in <sup>3</sup>	in <sup>3</sup>	in <sup>3</sup>	in <sup>3</sup>	ft <sup>2</sup> /ft	ft <sup>2</sup> /ft	
Sol. 100	-	12.12	12.12	12.43	12.43	8.27	-	48.37	164.59	5 306	822	14 109 670	<b>437.8</b>	-	99.5	480.9	1.38	7.97	
Sol. 102	-	12.26	11.98	12.57	12.29	8.27	-	47.83	162.77	5 224	793	14 105 797	<b>426.3</b>	-	95.8	474.2	1.44	7.97	
Sol. 104	-	12.12	12.12	12.43	12.43	8.27	-	47.29	160.94	5 144	764	13 102 185	<b>424.4</b>	-	92.5	467.7	1.44	8.04	
	$b_{sys}$	$v_1$	$v_2$	$v_3$	$v_4$	$u_1$	$u_2$	$A$	$G$	$I_y$	$I_z$	$I_t$	$I_{\omega}$	$W_{el,y}^*$	$W_{el,y}^{**}$	$W_{el,z}$	$W_{pl,y}$	$A_{LW}$	$A_{LS}$
	in	in	in	in	in	in	in	in <sup>2</sup>	lb/ft	in <sup>4</sup>	in <sup>4</sup>	in <sup>4</sup>	in <sup>6</sup>	in <sup>3</sup>	in <sup>3</sup>	in <sup>3</sup>	in <sup>3</sup>	ft <sup>2</sup> /ft	ft <sup>2</sup> /ft
Sol. 12	19.29	10.85	13.39	11.96	-	8.26	10.39	54.20	184.45	6 037	1 283	18 149 888	<b>450.7</b>	504.7	123.6	536.1	1.91	8.29	
Sol. 14	19.29	12.10	12.14	13.22	13.25	8.26	10.39	59.90	203.85	6 940	1 712	21 232 597	<b>571.8</b>	523.6	164.8	617.9	1.91	9.21	
Sol. 24	36.38	11.42	12.83	12.53	13.94	16.81	18.93	107.19	364.79	12 031	10 339	10 339 354 556	<b>937.9</b>	862.9	546.2	1 077.4	3.50	9.94	
Sol. 26	36.38	12.11	12.13	13.23	13.24	16.81	18.93	113.43	386.02	12 980	12 163	12 163 483 032	<b>1 070.1</b>	980.0	642.6	1 160.1	3.50	10.80	

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## HZ-M/AZ steel wall solution definitions and designations



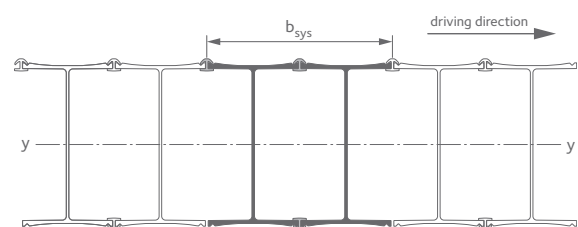
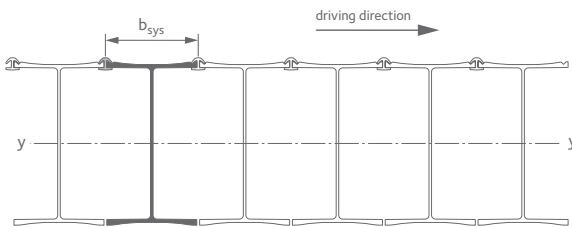
## Combinations

	Properties per ft of wall							Per system		
	$b_{sys}$ in	A in <sup>2</sup> /ft	$I_y$ in <sup>4</sup> /ft	$W_{el,y}^*$ in <sup>3</sup> /ft	$W_{el,y}^{**}$ in <sup>3</sup> /ft	$G_{60\%}$ lb/ft <sup>2</sup>	$G_{80\%}$ lb/ft <sup>2</sup>	$G_{100\%}$ lb/ft <sup>2</sup>	$A_{LW}$ ft <sup>2</sup> /ft	$A_{LS}$ ft <sup>2</sup> /ft
HZ 630M-12 / AZ 20-800	82.28	10.84	1 133	84.6	94.7	36.05	40.15	44.25	8.73	15.11
HZ 630M-14 / AZ 20-800	82.28	11.53	1 265	104.2	95.4	37.64	42.36	47.08	8.73	16.03
HZ 630M-24 / AZ 20-800	99.37	14.31	1 662	129.5	119.2	51.63	55.02	58.42	10.32	16.77
HZ 630M-26 / AZ 20-800	99.37	14.93	1 777	146.5	134.1	53.17	57.08	60.99	10.32	17.62
HZ 630M-12 / AZ 13-770	79.92	10.54	1 031	76.9	86.2	35.60	39.32	43.04	7.96	14.34
HZ 630M-14 / AZ 13-770	79.92	11.25	1 166	96.1	88.0	37.24	41.60	45.96	7.96	15.27
HZ 630M-24 / AZ 13-770	97.01	14.15	1 591	124.0	114.1	51.64	54.70	57.77	9.55	16.00
HZ 630M-26 / AZ 13-770	97.01	14.79	1 708	140.8	129.0	53.21	56.81	60.40	9.55	16.86
HZ 630M-12 / AZ 20-700	74.41	11.72	1 196	89.3	100.0	39.21	43.53	47.85	8.00	14.38
HZ 630M-14 / AZ 20-700	74.41	12.48	1 341	110.5	101.2	40.97	45.97	50.98	8.00	15.30
HZ 630M-24 / AZ 20-700	91.50	15.32	1 759	137.1	126.1	55.54	59.05	62.56	9.59	16.03
HZ 630M-26 / AZ 20-700	91.50	16.00	1 883	155.2	142.2	57.21	61.28	65.35	9.59	16.89
HZ 630M-12 / AZ 18-10/10	68.90	12.33	1 239	92.5	103.6	41.54	45.94	50.34	7.52	13.90
HZ 630M-14 / AZ 18-10/10	68.90	13.15	1 396	115.0	105.4	43.44	48.58	53.71	7.52	14.82
HZ 630M-24 / AZ 18-10/10	85.98	16.04	1 829	142.6	131.2	58.45	61.98	65.50	9.11	15.55
HZ 630M-26 / AZ 18-10/10	85.98	16.76	1 962	161.7	148.1	60.23	64.35	68.46	9.11	16.41

Note: Please contact us for combinations with other infill sheet piles.

## Combination C 1

## Combination C 23



	Properties per ft of wall							Per system		
	$b_{sys}$ in	A in <sup>2</sup> /ft	$I_y$ in <sup>4</sup> /ft	$W_{el,y}^*$ in <sup>3</sup> /ft	$W_{el,y}^{**}$ in <sup>3</sup> /ft	$G_{60\%}$ lb/ft <sup>2</sup>	$G_{80\%}$ lb/ft <sup>2</sup>	$G_{100\%}$ lb/ft <sup>2</sup>	$A_{LW}$ ft <sup>2</sup> /ft	$A_{LS}$ ft <sup>2</sup> /ft
C 1	17.09	35.78	3 972	312.1	314.3	-	-	121.77	1.68	8.20
C 23	34.17	36.50	4 080	327.0	300.1	-	-	124.21	3.27	9.82

$b_{sys}$  width of one system (HZ or HZ/AZ combination) [in]  
 $v_p, v_z, u_1$  distance of the neutral axis to the extreme fibre of the HZ-M flanges [in]  
 $v_y, v_p, u_2$  distance of the neutral axis to the extreme fibre of the connector RH/RZ [in]  
 A cross sectional area [in<sup>2</sup>], [in<sup>2</sup>/ft]  
 $A_v$  shear area [in<sup>2</sup>]  
 $A_{LS}$  coating area on the soil side (back), excluding the inside of the interlocks, per element or system width, per unit length [ft<sup>2</sup>/ft]  
 $A_{LW}$  coating area on the water side (front), excluding the inside of the interlocks, per element or system width, per unit length [ft<sup>2</sup>/ft]  
 G mass of the element / solution (with length RH/RZ = length HZ) per unit length [lb/ft]  
 $G_{60\%}$  mass of the combination with length of the infill sheet piles AZ = 60% of length of the HZ-M king piles [lb/ft<sup>2</sup>]  
 $G_{80\%}$  mass of the combination with length of the infill sheet piles AZ = 80% of length of the HZ-M king piles [lb/ft<sup>2</sup>]

$G_{100\%}$  mass of the combination with length of all the elements = length of the HZ-M king piles [lb/ft<sup>2</sup>]  
 $I_y$  moment of inertia about the main neutral axis y-y [in<sup>4</sup>], [in<sup>4</sup>/ft]  
 $I_t$  torsional constant [in<sup>4</sup>]  
 $I_w$  warping constant [in<sup>6</sup>]  
 $I_z$  moment of inertia about the neutral axis z-z (weak axis) [in<sup>4</sup>]  
 $W_{el,y}^*$  equivalent elastic section modulus of the combination related to the extreme fiber of the flange of the HZ-M [in<sup>3</sup>/ft]  
 $W_{el,y}^{**}$  equivalent elastic section modulus of the combination related to the extreme fiber of the connector RH/RZ [in<sup>3</sup>/ft]  
 $W_{el,z}$  elastic section modulus of the element related to neutral axis z-z (weak axis) [in<sup>3</sup>]  
 $W_{pl,y}$  plastic section modulus of the HZ-M [in<sup>3</sup>]