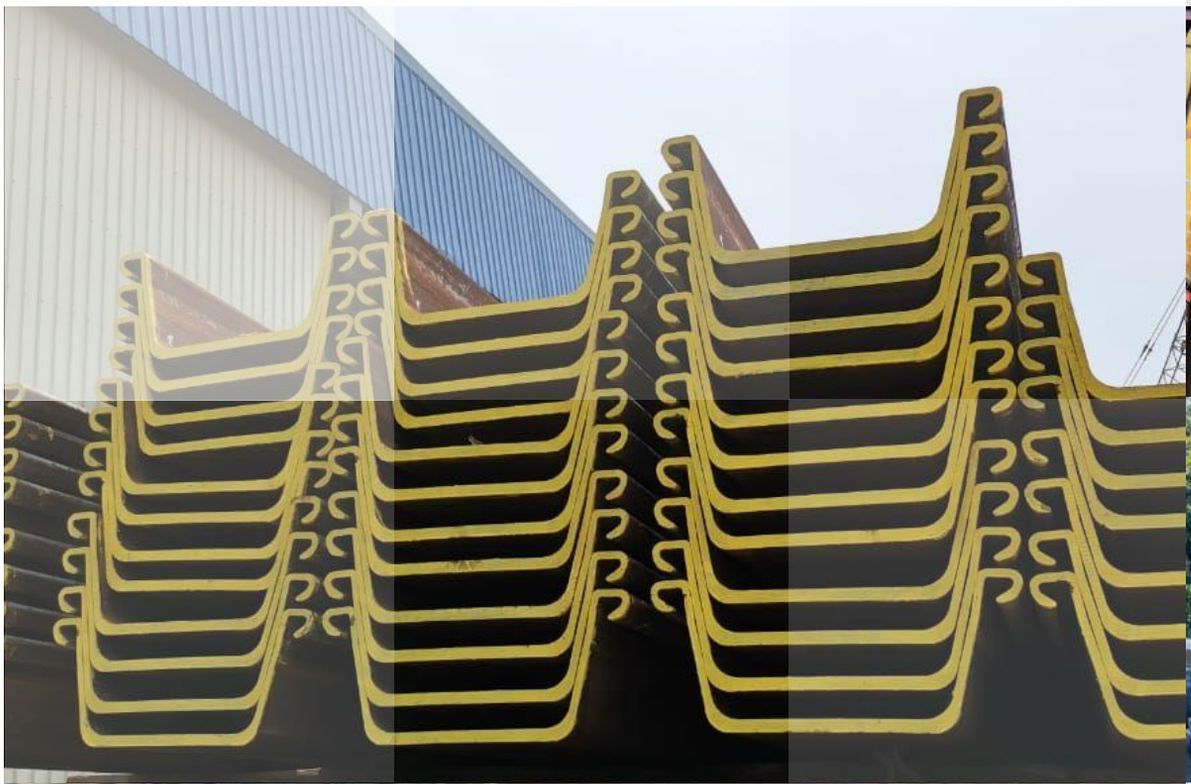
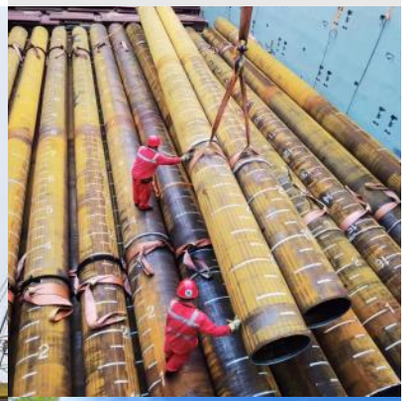
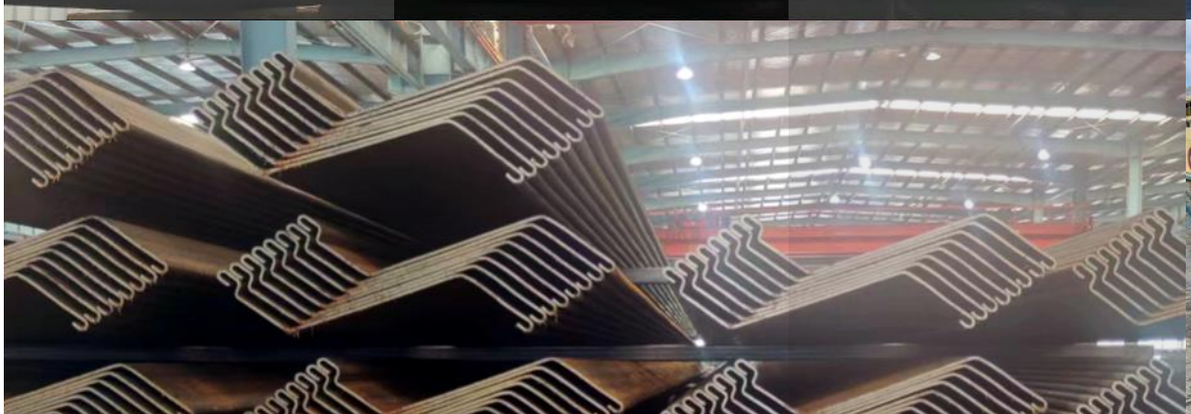
DELIVERING **COMPLETE CONSTRUCTION PRODUCTS** TO THE PHILIPPINES

www.escsteelphil.com







ESC STEEL PHILIPPINES

ESC STEEL PHILIPPINES, INC.

General Brochure - 2024 Edition

Steel Sheet Piles I Steel Pipe Piles I Combined Wall Systems I Tie Rod Systems
Connector Sealant & Accessories I Corrosion Protection Coatings I Cathodic Protection System
PVC Sheet Piles I Mooring Bollards I Marine Fender Systems I Structural Steel Fabrication
H Beams, Channels & Sections I Trench Boxes

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ESC Group
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OUR VISION

"To be the leading company in Philippines for the supply of high quality steel products such as sheet piles, tie rods, steel pipe piles, structural steel fabrications."

"To be the leading company in Philippines for the supply of high quality construction products such as PVC Sheet Piles, cathodic protection systems, mooring bollards & marine rubber fenders."

John Luis Yeates (MEng, CAPM)
President
ESC Steel Philippines, Inc.

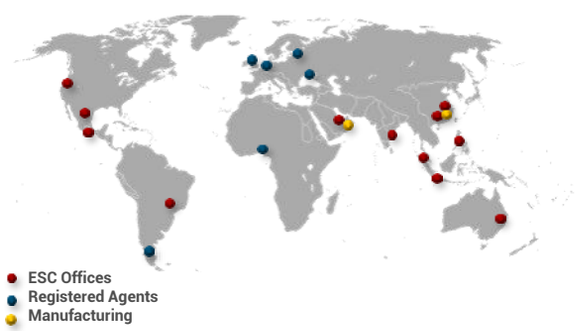
OUR MISSION

We aim to achieve our vision by:

- Delivering quality products and services to achieve excellent customer satisfaction.
- Improving continuously to respond to an ever changing market
- Implementing advanced technology for the betterment of the construction industry.
- Evolving into new supply chains through partnerships and alliances with other leading industrial businesses.
- Being a responsible and reliable partner to all stakeholders
- Helping build green communities and opportunities for them.
- Collaborating with government organizations.
- Creating a great place to work with plenty of opportunities for employees, their families and communities to thrive.

ESC GLOBAL LOCATIONS

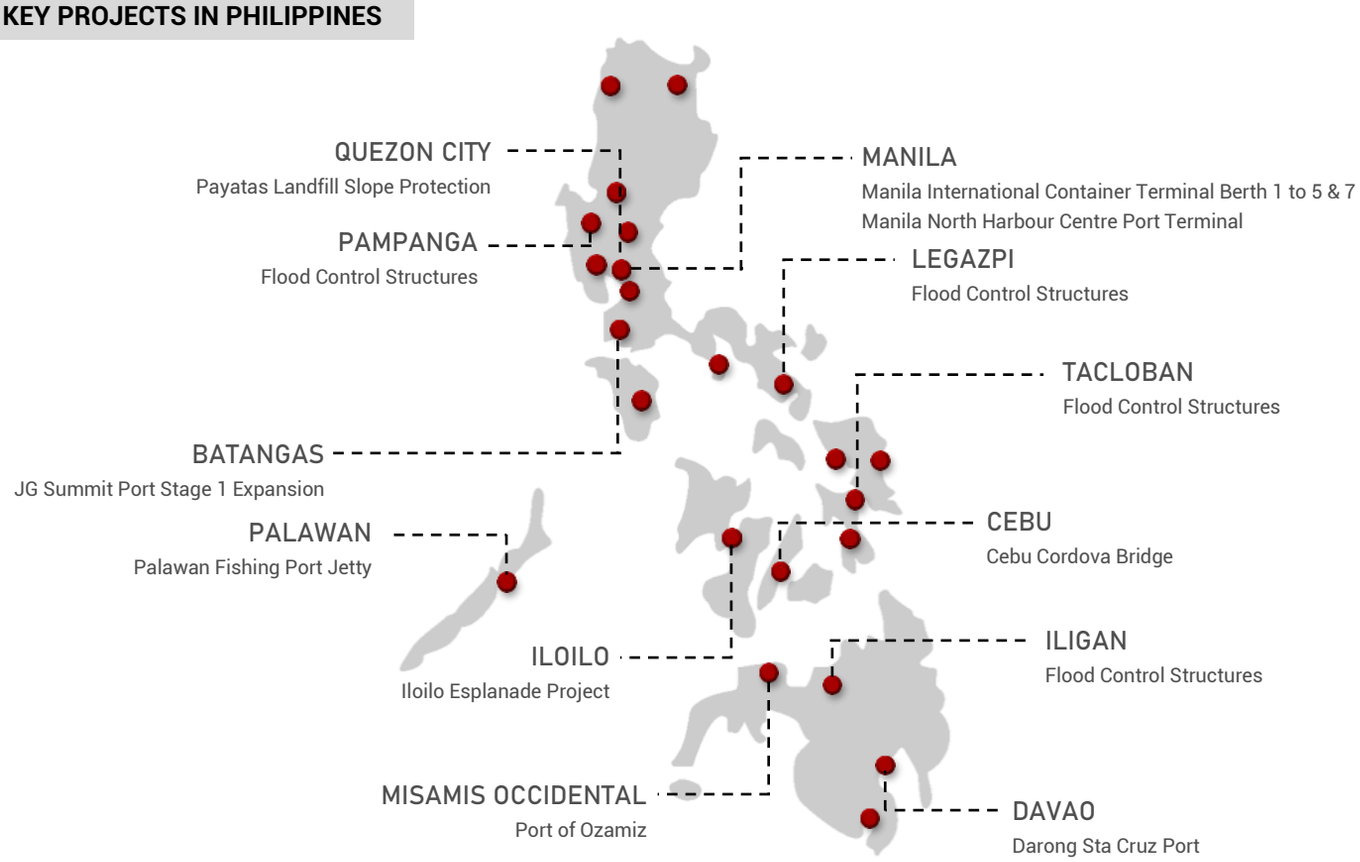
ESC Group operates with a strategic network of manufacturing, offices and agents to effectively serve its global client base.



ESC AFFILIATIONS & ACCREDITATIONS

ESC has worked on projects, holds accreditation or conducted educational seminars with numerous contractors, developers, government agencies and associations for the betterment of the Philippine nation's infrastructure.

KEY PROJECTS IN PHILIPPINES



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KEY PROJECTS IN PHILIPPINES

Pasig Marikina Flood Control, Steel Sheet Piles

Zamboanga Bridge, Steel Bridge Girders

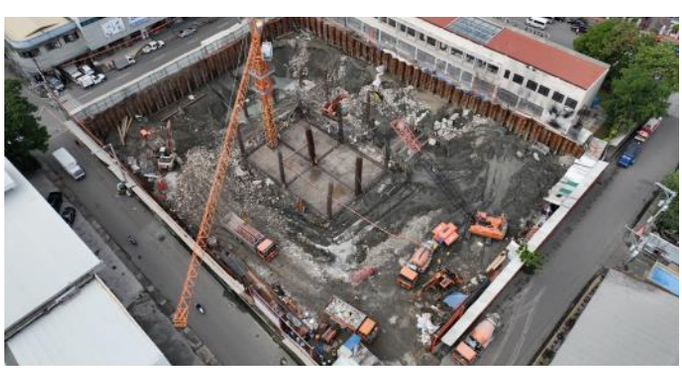
Manila International Container Terminal Berth 6, Reefer Racks

Spratly Islands, Tie Rod Systems

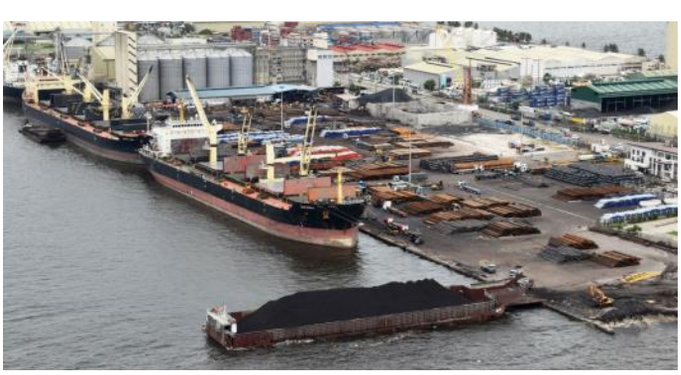
Maritime Academy of Asia Pacific, Steel Pipe Piles

Cebu Cordova Bridge, Various Steel Structures

Bohol Flood Control, PVC Sheet Piles



Patria de Cebu, Combined Wall System



Manila Harbour Center Port Terminal, Bollards

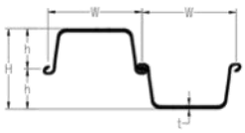
Dipolog Port, Rubber Dock Fenders

STEEL SHEET PILES

Z, U & Ω PROFILES

HOT ROLLED U SERIES

Items marked with * are typically in our Manila inventory, for other items please check lead time with your nearest sales office

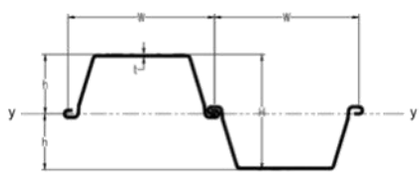


Type II, III, IV, V_L, V_{IL}

Type IIw, IIIw, IVw, HRU

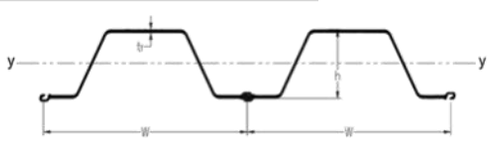
Section	Width (w) mm	Single Height (h) mm	Combined Height (H) mm	Thickness Flange (t_f) mm	Weight Per Pile kg/m	Weight Per Wall kg/m²	Elastic Section Modulus cm³/m	Moment of Inertia cm⁴/m	Coating Area (one side per pile) m²/m
Type II*	400	100	200	10.5	48.0	120.0	874	8,740	0.67
Type III*	400	125	250	13.0	60.0	150.0	1,340	16,800	0.72
Type IIIA	400	150	300	13.0	58.4	146.0	1,520	22,800	0.72
Type IIIw	600	180	360	13.4	81.6	136.0	1,800	32,400	0.95
Type IV*	400	170	340	15.5	76.1	190.0	2,270	38,600	0.81
Type V_M	500	175	350	16.5	86.0	172.0	2,310	40,290	0.88
HRU25-750	750	225	450	14.6	110.4	147.2	2,500	56,300	1.03
Type IVw	600	210	420	18.0	106.0	177.0	2,700	56,700	0.99
Type V_L	500	200	400	24.3	105.0	210.0	3,150	63000	0.88
Type V_A	500	200	400	19.5	105.0	210.0	3,150	63,000	0.88
HRU32-600	600	126	452	19.0	114.0	190.0	3,200	72,320	0.93
Type VIL	500	225	450	27.6	120.0	240.0	3,820	86,000	0.91

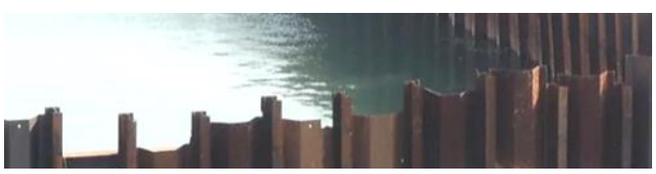
COLD FORMED ESC-CRU SERIES



Section	Width (w) mm	Single Height (h) mm	Combined Height (H) mm	Thickness (t) mm	Weight Per Pile kg/m	Weight Per Wall kg/m²	Elastic Section Modulus cm³/m	Moment of Inertia cm⁴/m	Coating Area (one side per pile) m²/m
ESC-CRU9-600	600	170	340	7.0	52.6	87.7	947	16,820	0.94
ESC-CRU13-600-8.0	600	200	400	8.0	65.1	108.6	1,337	26,740	1.04
ESC-CRU13-500	500	170	340	10.0	70.7	141.4	1,305	22,195	0.88
ESC-CRU13-600	600	155	310	10.0	77.2	128.7	1,260	19,550	0.92
ESC-CRU14-500	500	210	420	10.0	73.5	147.1	1,440	30,240	0.92
ESC-CRU16-600	600	200	400	10.0	81.4	135.7	1,653	33,061	1.04
ESC-CRU18-600	600	215	430	9.5	77.9	129.8	1,800	38,700	1.05
ESC-CRU22-600	600	250	500	10.0	87.9	146.5	2,200	55,000	1.12
ESC-CRU23-700	700	270	540	9.0	89.5	127.9	2,299	62,060	1.27
ESC-CRU28-750	750	270	540	11.0	109.4	156.3	2,770	75,340	1.30
ESC-CRU32-600	600	260	520	13.0	114.0	190.0	3,200	83,200	1.14
ESC-CRU32-750	750	280	560	12.0	133.6	178.2	3,210	89,960	1.32
ESC-CRU37-750	750	305	610	13.0	143.0	191.0	3,750	114,340	1.40

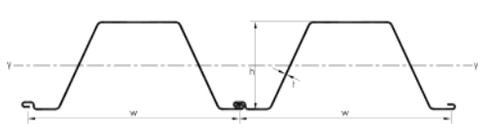
HOT ROLLED NS-SP-H SERIES

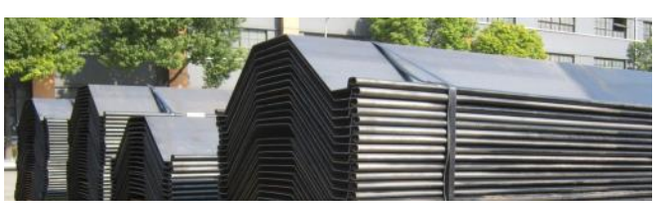




Section	Width (w) mm	Height (h) mm	Thickness Flange (t_f) mm	Weight Per Pile kg/m	Weight Per Wall kg/m²	Elastic Section Modulus cm³/m	Moment of Inertia cm⁴/m	Coating Area (one side per pile) m²/m
NS-SP-10H	900	230	10.8	86.4	96.0	902	10,500	1.35
NS-SP-25H	900	300	13.2	113.0	126.0	1,610	24,400	1.53
NS-SP-45H	900	368	15.0	147.0	163.0	2,450	45,000	1.71
NS-SP-50H	900	370	17.0	167.0	186.0	2,760	51,100	1.71

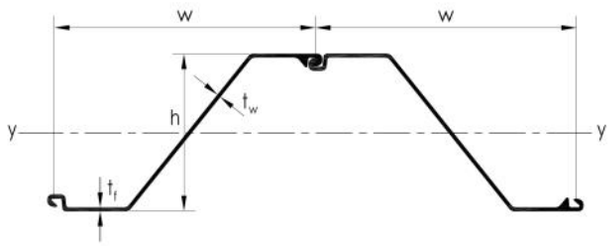
COLD FORMED ESC-CRM & ESC-CRW SERIES





Section	Width (w) mm	Height (h) mm	Thickness (t) mm	Weight Per Pile kg/m	Weight Per Wall kg/m²	Section Modulus cm³/m	Moment of Inertia cm⁴/m	Coating Area (one side per pile) m²/m
ESC-CRM9-900	900	253	7.0	76.0	84.5	920	11,600	1.40
ESC-CRM16-900	900	350.5	9.5	110.1	122.4	1,610	28,210	1.50
ESC-CRW25-1250	1,250	493	11.0	163.8	131.1	2,490	76,870	2.00
ESC-CRW28-1250	1,250	495	12.5	197.8	158.2	2,820	88,200	2.00

HOT ROLLED ESC-HRZ SERIES



>10% Savings vs Traditional Hot Rolled U Sheet Piles
Material Lighter weight with wide profile

Minimum S355GP Steel Grade
minimum 355MPa/50 ksi yield stress

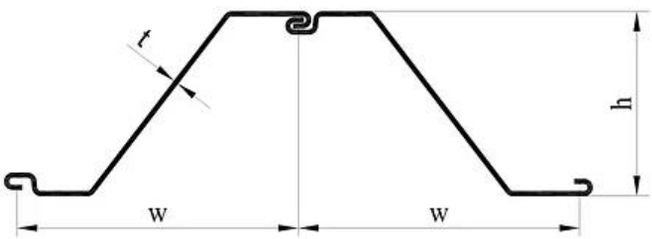
BS EN 10248
Produced to European Sheet Pile Standards

Over 25 Years
Used successfully in projects around the world

Section	Width (w) mm	Height (h) mm	Thickness Flange (t_f) mm	Thickness Web (t_w) mm	Weight Per Pile kg/m	Weight Per Wall kg/m²	Section Modulus cm³/m	Moment of Inertia cm⁴/m	Coating Area (one side per pile) m²/m
ESC-HRZ12-770*	770	343.5	8.6	8.5	72.8	94.5	1,252	21,496	0.98
ESC-HRZJ12-770*	770	345	8.5	8.5	72.8	94.5	1,258	21,500	0.98
ESC-HRZ13-770	770	344	9.1	9.0	76.2	99.0	1,304	22,433	0.98
ESC-HRZJ13-770	770	345	9.0	9.0	76.2	99.0	1,310	22,500	0.98
ESC-HRZJ14-770	770	345	9.5	9.5	79.7	103.5	1,350	23,460	0.98
ESC-HRZJ17-700	700	420	8.5	8.5	73.2	104.6	1,731	36,304	0.93
ESC-HRZ17-700	700	420	8.5	8.4	73.3	104.7	1,735	36,425	0.99
ESC-HRZJ18-700	700	420	9.0	9.0	76.7	109.5	1,804	37,894	0.93
ESC-HRZJ19-700	700	421	9.5	9.5	80.1	114.5	1,878	39,485	0.93
ESC-HRZJ20-700	700	421	10.0	10.0	83.6	119.4	1,951	41,076	0.93
ESC-HRZ24-700	700	459	11.3	11.2	95.8	136.9	2,435	55,950	1.02
ESC-HRZJ24-700	700	439	11.0	11.0	95.1	135.9	2,432	53,379	0.97
ESC-HRZE24-700	700	459	12.0	9.0	89.5	127.9	2,435	55,870	1.00
ESC-HRZJ26-700	700	440	12.0	12.0	102.5	146.5	2,606	57,329	0.97
ESC-HRZ26-700	700	460	12.3	12.2	103.0	147.1	2,600	59,840	1.02
ESC-HRZE26-700	700	460	13.0	10.0	96.7	138.1	2,600	59,810	1.00
ESC-HRZ28-700	700	461	13.3	13.2	110.1	157.3	2,760	63,740	1.02
ESC-HRZE28-700	700	461	14.0	11.0	103.9	148.4	2,765	63,750	1.00
ESC-HRZJ28-700	700	441	13.0	13.0	109.9	157.0	2,779	61,279	0.97
ESC-HRZE34-700	700	508	13.5	11.0	112.1	160.1	3,450	87,880	1.09
ESC-HRZE36-700	700	509	14.0	11.5	116.2	166.1	3,580	91,130	1.09
ESC-HRZ36-700	700	499	15.1	11.2	118.7	169.6	3,590	89,750	1.09
ESC-HRZJ36-700	700	499	17.0	11.0	118.1	168.8	3,600	89,826	1.02
ESC-HRZE38-700	700	510	15.0	12.5	124.2	177.4	3,800	96,860	1.09
ESC-HRZJ38-700	700	500	18.0	12.0	125.9	179.9	3,800	95,004	1.02
ESC-HRZJ40-700	700	501	19.0	13.0	133.7	191.0	3,999	100,184	1.02
ESC-HRZE40-700	700	511	16.0	13.5	132.2	188.8	4,015	102,590	1.09
ESC-HRZJ48-700	700	507	23.5	14.5	156.1	223.1	4,760	120,667	1.02
ESC-HRZJ50-700	700	508	24.5	15.5	164.0	234.3	4,959	125,966	1.02
ESC-HRZJ52-700	700	509	25.5	16.5	171.8	245.4	5,158	131,266	1.02
ESC-HRZ52-700	700	505	24.1	17.0	174.3	249.0	5,160	130,400	1.09

PROJECTS IN PHILIPPINES & INTERNATIONALLY

COLD FORMED ESC-CRZ SERIES



Section	Width (w) mm	Height (h) mm	Thickness (t) mm	Weight Per Pile kg/m	Weight Per Wall kg/m²	Section Modulus cm³/m	Moment of Inertia cm⁴/m	Coating Area (one side per pile) m²/m
ESC-CRZ9-770	770	343.5	6.0	50.4	65.5	875	15,053	1.10
ESC-CRZ10-770	770	343.5	7.0	58.8	76.4	1,020	17,561	1.10
ESC-CRZ11-770	770	343.5	7.5	63.0	81.8	1,093	18,816	1.10
ESC-CRZ12-770*	770	343.5	8.5	72.6	94.2	1,302	21,413	1.10
ESC-CRZ13-770	770	344	9.0	75.6	98.1	1,312	22,579	1.10
ESC-CRZ14-770	770	345	9.5	79.3	102.9	1,355	23,396	1.10
ESC-CRZ17-700	700	420	8.5	73.1	104.4	1,660	29,040	1.10
ESC-CRZ18-700	700	420	9.0	76.5	109.4	1,822	38,480	1.10
ESC-CRZ18-800	800	500	8.5	79.9	99.8	1,858	46,474	1.10
ESC-CRZ19-700	700	421	9.5	80.4	114.8	1,870	39,419	1.10
ESC-CRZ20-700	700	421	10.0	84.4	120.6	1,946	40,954	1.10
ESC-CRZ20-800	800	490	9.5	88.7	110.8	2,000	49,026	1.20
ESC-CRZ22-800	800	480	10.0	94.0	117.5	2,167	52,000	1.21
ESC-CRZ22-700	700	449	9.0	82.3	117.6	2,250	50,509	1.13
ESC-CRZ23-800	800	530	9.5	92.4	115.5	2,332	61,811	1.25
ESC-CRZ24-700-10.0	700	459	10.0	91.2	130.3	2,450	56,230	1.20
ESC-CRZ24-700	700	459	11.2	97.8	139.6	2,442	56,036	1.13
ESC-CRZ25-800	800	520	10.5	102.6	128.0	2,501	65,060	1.25
ESC-CRZ26-700-10.0	700	460	12.2	106.7	152.4	2,602	59,838	1.13
ESC-CRZ26-700	700	460	12.2	106.7	152.4	2,602	59,838	1.13
ESC-CRZ28-700	700	499	12.0	107.4	153.4	2,801	69,896	1.14
ESC-CRZ28-750	750	560	10.0	97.4	129.8	2,813	78,780	1.24
ESC-CRZ30-750	750	550	11.5	110.6	147.4	3,006	82,673	1.23
ESC-CRZ32-750	750	560	12.0	116.1	154.8	3,202	89,690	1.24
ESC-CRZ34-630	630	459	13.0	117.2	186.0	3,430	78,870	1.20
ESC-CRZ34-700	700	540	11.5	111.3	159.0	3,400	91,850	1.25
ESC-CRZ36-700-11.0	700	540	11.0	109.6	156.6	3,460	93,723	1.34
ESC-CRZ36-700	700	540	12.2	118.1	168.8	3,609	97,444	1.25
ESC-CRZ38-700	700	560	13.0	127.1	181.6	3,868	108,291	1.34
ESC-CRZ40-700	700	580	13.0	129.1	184.4	4,015	112,427	1.31
ESC-CRZ42-700	700	580	13.5	134.1	191.6	4,170	120,634	1.31
ESC-CRZ44-700	700	580	14.0	142.0	202.8	4,443	128,841	1.31
ESC-CRZ46-700	700	580	14.5	147.4	210.5	4,623	134,076	1.31
ESC-CRZ48-700	700	590	15.0	156.3	223.2	4,832	142,846	1.34
ESC-CRZ50-580	580	580	16.0	146.7	253.0	5,023	145,657	1.19
ESC-CRZ50-700	700	560	16.0	164.0	234.3	5,020	140,578	1.34
ESC-CRZ52-700	700	550	16.0	167.7	239.6	5,226	143,742	1.34

FAST FACTS ABOUT ESC-CRZ COLD FORMED SHEET PILES

Can be produced to any custom length below 25m

For projects which require long or a non-standard length sheet piles, ESC can produce custom lengths with its continuous forming line, saving on splicing welds on site.

Cold Formed from the highest quality Hot Rolled Coil

Other common structural steel sections utilise cold forming technology. ESC uses only the highest quality steel coils from the most reputable steel mills.

ESC-CRZ12-770 offers more than 10% savings vs Z12 Hot Rolled Z Piles & Type 2 Sheet Piles

Without compromising quality, material strength and usability

Minimum S355 Steel Grade

minimum 355MPa/50 ksi yield stress

BS EN 10249

Produced to European Sheet Pile Standards

Over 25 Years

Used successfully in projects around the world

Over 10 Years

Used successfully in projects in the Philippines for government and private projects

Common Sizes in Stock

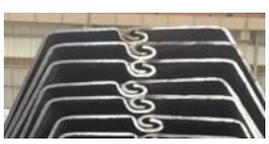
For fast deliveries catering for urgent construction projects

Extensive Inspection & Testing & Full Traceability

Material Testing, Dimensional Checking after production in both China & Philippines. Full material traceability.

Superior Quality against Other Cold Formed Steel Sheet Pile Suppliers

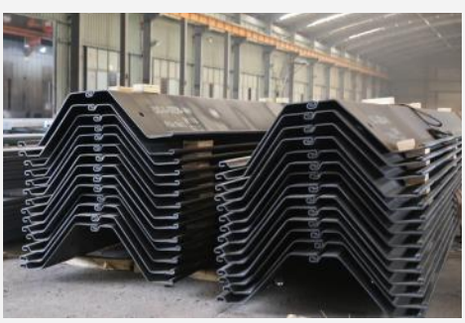
More secure connector, superior steel quality and stricter dimensional tolerance

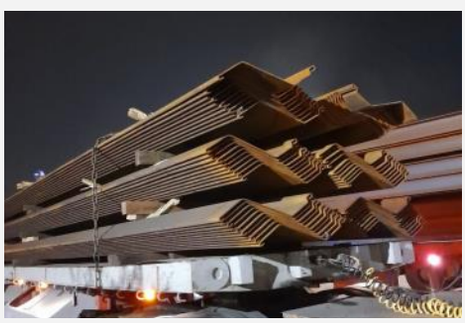


Others

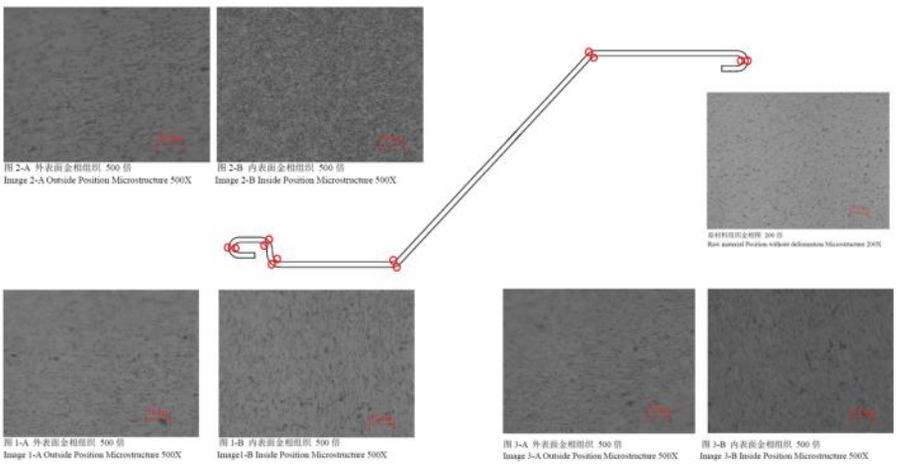
ESC STEEL PHILIPPINES

PROJECTS IN PHILIPPINES

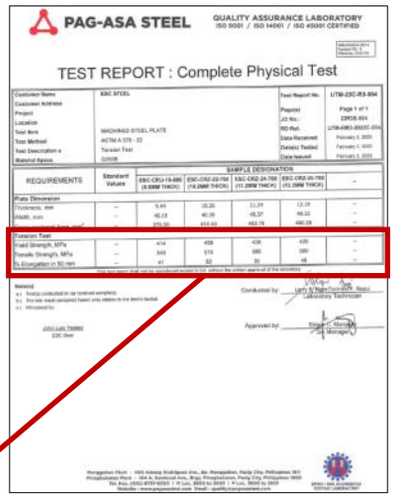




COLD FORMED ESC-CRZ SERIES (continued)



Check for **Microcracking** in formed sections



Tension Test					
Yield Strength, MPa	--	414	439	438	425
Tensile Strength, MPa	--	545	570	585	585
% Elongation in 50 mm	--	41	62	35	49

This test report shall not be reproduced except in full, without the written approval of the laboratory

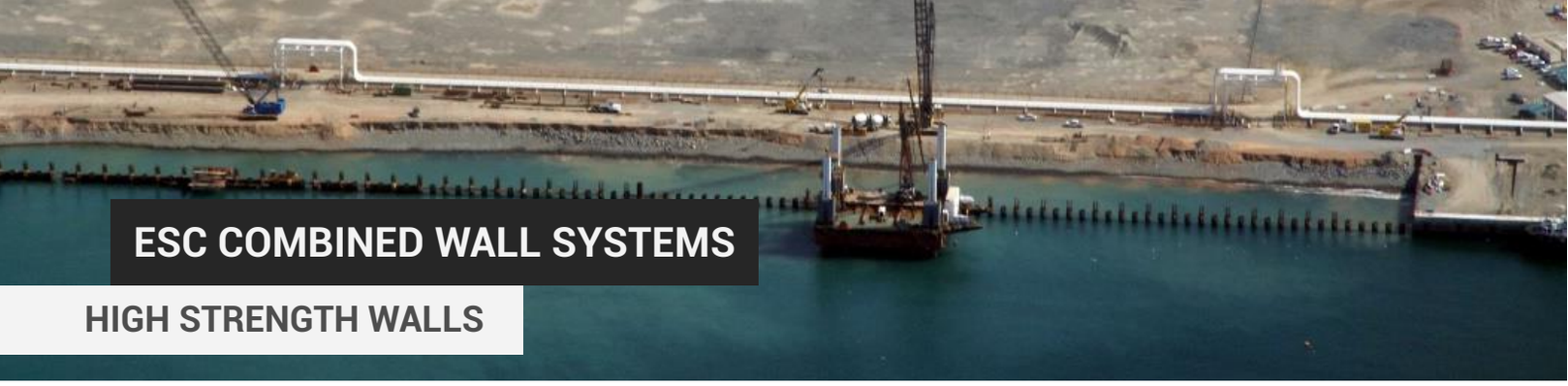
Sample Material Testing in Philippines
Minimum Yield Strength 355MPa
Actual Yield Strength 414-438MPa (20% higher)

I can also confirm that the CRZ 26-1400 cold rolled sheet piles used as the infill sheets in the waterfront pipe combi wall and selected for this project as a cost saving alternative to the AZ 26-700 hot rolled sheet piles that berth 3 continued on from, performed no different in driving and the finished wall is equal or no different to the AZ 26-700 combi wall.

Testimonials from clients confirming Cold Formed Z Sheet Piles were a cost saving alternative to Hot Rolled Z Sheet Piles with no compromise in installation and application

Detailed Connector Testing with 3rd Party Inspection Report

Extensive use in Philippines and globally



ESC COMBINED WALL SYSTEMS

HIGH STRENGTH WALLS

INTRODUCTION

A Combined Wall System consists of King Piles (consisting of either H Piles or Pipe Piles) that withstand most of the loading and Infill Sheet Piles that transmit pressure loads to the King Piles.

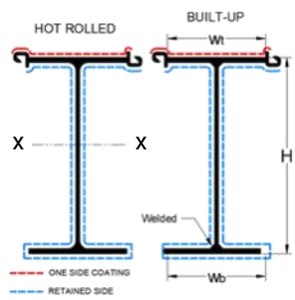
The Pipe Piles serve two purposes from a structural standpoint, the first being as a retaining member that resists horizontal hydrostatic and earth pressures. The second purpose is to act as a bearing pile, resisting vertical loads. Pipe Pile Combination Walls are generally utilised when a standard series of sheet piles do not have the strength to resist the required design loads. Integration with Tie Back Systems and other anchorages is simple and ESC can offer the full configuration as part of its piling solution package. Frequently infill sheet piles are not required to be the same length as the king Pipe piles – typically between 60 to 100% of the H Pile length.

KING PIPE PILES

OD (mm)	Unit Width	Thickness	Mass per meter	Moment of Inertia Ixx	Section Modulus Zxx	Coating Area (one side per pile)
	mm	mm	mm	cm^4	cm^3	m^2/m
800	870	10	213.2	193,600	4,840	1.33
900	970	12	281.2	330,000	7,330	1.48
1000	1070	14	358.8	527,100	10,540	1.64
1200	1270	16	485.6	1,043,100	17,390	1.95
1500	1570	16	604	2,053,700	27,380	2.43
1500	1570	20	748.4	2,546,600	33,950	2.43
1800	1870	20	896.3	4,430,000	49,220	2.90
2000	2070	24	1,187.9	7,272,700	72,730	3.21

KING H PILE

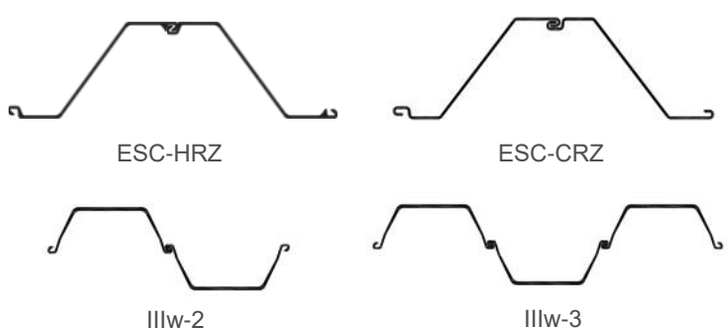
Section	Hot Rolled (HR) Built Up (BH)	Flange Width (wt/wb)	Combined Width	Height	Thickness Web	Thickness Flange wt	Thickness Flange wb	Mass per meter	Moment of Inertia Ixx	Moment of Inertia Iyy	Section Modulus Zxx	Section Modulus Zyy	Coating Area (one side per pile)
	mm	mm	mm	mm	mm	mm	mm	kg/m	cm^4	cm^4	cm^3	cm^3	m^2/m
600x300	HR	300/300	370	588	12	20	20	147	114,000	9,010	3,890	601	0.41
700x300	HR	300/300	370	700	13	24	24	182	197,000	10,800	5,640	721	0.41
800x300	HR	300/300	370	800	14	26	26	207	286,000	11,700	7,160	781	0.41
900x300	HR	300/300	370	900	16	28	28	240	404,000	12,600	8,990	842	0.41
1000x450/475	BH	450/475	520	1,000	20	22	24	329	687,800	46,820	13,760	940	0.568
1000x450/505	BH	450/505	520	1,000	24	26	26	385	793,400	56,380	15,870	1,130	0.568
1200x450/500	BH	450/500	520	1,200	26	28	28	454	1,287,500	59,210	21,460	990	0.568
1200x450/495	BH	450/495	520	1,200	28	32	32	499	1,423,500	65,470	23,730	1,090	0.568
1075x465	HR	465/465	535	1,075	16	25.5	25.5	337	857,482	58,094	15,135	2,057	0.575
1090x465	HR	465/465	535	1,090	20	34	34	431	1,121,448	72,371	19,757	2,563	0.575



**Paint area excludes inside surface of clutches*

INFILL SHEET PILE OPTIONS

Section	Combined Width (w)	Height (h)	Thickness (t)	Weight Per Pair	Section Modulus	Moment of Inertia
	mm	mm	mm	kg/m	cm^3/m	cm^4/m
ESC-HRZJ14-770	770	345	9.5	159.4	2,174	38,546
ESC-HRZJ19-700	700	421	9.5	160.2	2,629	55,279
ESC-HRZJ26-700	700	440	12.0	205	3,648	80,261
ESC-CRZ20-800	1,600	479	9.5	177.4	3,285	78,573
ESC-CRZ25-800	1,600	520	10.5	205.2	4,000	104,100
ESC-CRZ32-750	1,500	560	12.0	232.2	4,800	134,540
IIIw-2	1,200	360	13.4	163.2	3,240	38,880
IIIw-3	1,800	360	13.4	244.8	4,860	58,320



PROJECTS IN PHILIPPINES

COMBINED WALL SYSTEM—PIPE KING PILE

		INFILL SHEET PILE															
		ESC-HRZJ14-770		ESC-HRZJ19-700		ESC-HRZJ26-700		ESC-CRZ20-800		ESC-CRZ25-800		ESC-CRZ32-750		IIIw-2		IIIw-3	
	Pipe Size	Unit Width	Zxx	Unit Width	Zxx	Unit Width	Zxx	Unit Width	Zxx	Unit Width	Zxx	Unit Width	Zxx	Unit Width	Zxx	Unit Width	Zxx
	OD x t mm	mm	cm^3/m	mm	cm^3/m	mm	cm^3/m	mm	cm^3/m	mm	cm^3/m	mm	cm^3/m	mm	cm^3/m	mm	cm^3/m
KING PILE	800x10	2,410	2,410	2,270	2,740	2,270	3,020	2,470	2,750	2,470	2,750	2,470	2,750	2,070	2,810	2,670	2,360
	900x12	2,510	3,260	2,370	3,610	2,370	3,850	2,570	3,280	2,570	3,530	2,570	3,530	2,170	3,780	2,770	3,110
	1000x14	2,610	4,330	2,470	4,710	2,470	4,920	2,670	4,220	2,670	4,540	2,670	4,540	2,270	4,990	2,870	4,080
	1200x16	2,810	6,420	2,670	6,860	2,670	7,010	2,870	6,090	2,870	6,520	2,870	6,520	2,470	7,300	3,070	5,980
	1500x16	3,110	8,970	2,970	9,470	2,970	9,580	3,170	8,440	3,170	8,970	3,170	8,970	2,770	10,070	3,370	8,360
	1500x20	3,110	11,080	2,970	11,680	2,970	11,790	3,170	10,390	3,170	11,040	3,170	11,040	2,770	12,440	3,370	10,300
	1800x20	3,410	14,560	3,270	15,240	3,270	15,320	3,470	13,650	3,470	14,440	3,470	14,440	3,070	16,170	3,670	13,590
	2000x24	3,610	20,250	3,470	21,120	3,470	21,190	3,670	19,000	3,670	20,030	3,670	20,030	3,270	22,360	3,870	18,940

Pipe-HRZ/CRZ

Pipe-IIIw-2

Pipe-IIIw-3

COMBINED WALL SYSTEM— H KING PILE

		INFILL SHEET PILE											
		ESC-HRZJ14-770		ESC-HRZJ19-700		ESC-HRZJ26-700		ESC-CRZ20-800		ESC-CRZ25-800		ESC-CRZ32-750	
	Beam Size	Unit Width	Zxx	Unit Width	Zxx	Unit Width	Zxx	Unit Width	Zxx	Unit Width	Zxx	Unit Width	Zxx
	Dimension	mm	cm^3/m	mm	cm^3/m	mm	cm^3/m	mm	cm^3/m	mm	cm^3/m	mm	cm^3/m
KING PILE	600x300	1,910	2,730	1,770	3,260	1,770	3,750	1,970	3,340	1,970	3,780	1,870	4,540
	700x300	1,910	3,530	1,770	4,080	1,770	4,480	1,970	4,000	1,970	4,380	1,870	5,080
	800x300	1,910	4,250	1,770	4,830	1,770	5,180	1,970	4,630	1,970	4,960	1,870	5,630
	900x300	1,910	5,160	1,770	5,770	1,770	6,090	1,970	5,450	1,970	5,740	1,870	6,410
	1000x450/475	2,060	7,050	1,920	7,740	1,920	8,000	2,120	7,230	2,120	7,470	2,020	8,140
	1000x450/505	2,060	8,080	1,920	8,840	1,920	9,100	2,120	8,230	2,120	8,470	2,020	9,190
	1200x450/500	2,060	10,730	1,920	11,660	1,920	11,870	2,120	10,740	2,120	10,940	2,020	11,730
	1200x450/495	2,060	11,830	1,920	12,840	1,920	13,060	2,120	11,810	2,120	12,010	2,020	12,860
	1075x465	2,075	7,620	1,935	8,330	1,935	8,550	2,135	7,740	2,135	7,950	2,035	8,600
	1090x465	2,075	9,850	1,935	10,710	1,935	10,940	2,135	9,900	2,135	10,110	2,035	10,870

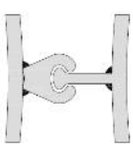
H-HRZ

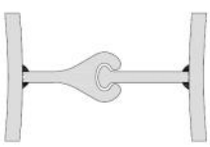
H-CRZ

CONTINUOUS PIPE PILE SYSTEM

A Continuous Pipe Pile System Wall (or sometimes referred to as Steel Pipe Sheet Piles) consists of Steel Pipe Piles with connecting joints welded to them. They are typically considered in retaining walls, riverside and harbour revetments and cofferdams as an higher strength alternative to conventional steel sheet pile systems. Besides carrying retaining loads, the system can also act as a foundation pile carrying vertical loads. ESC offers a range of conventional and special systems.

Connector	Unit Width*	kg/m (total both sides)*	Min Thickness (mm)
P-P	250	69-84	9
P-T	180	45	9
L-T	60-80	28-33	8
9E	70	19	10
MF75	75	19	12
MF100	100	22	12
MF180	180	29	12
FD300	300	36	12
EU	180	varies	10


MF75-180

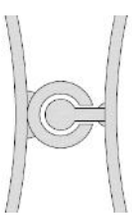

MF300

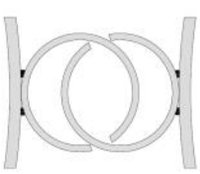
FD300

P-T

L-T

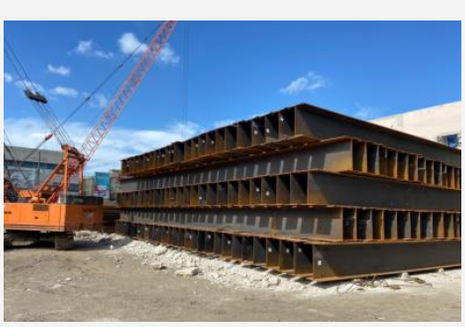
9E


EU


P-P

Note dimensions and weights here are indicative only, there are multiple configurations of thickness, section and width that can be customized by ESC.

PROJECTS IN PHILIPPINES



STEEL PIPE PILES

PRODUCT LINE

PIPE PILE SIZES & WEIGHTS

Weight per Unit Length (kg/m)	Thickness (mm)															
	6	7	8	9	10	11	12	13	14	15	16	18	20	22	25	30
400	58.300	67.844	77.338	86.784	96.180	105.527	114.824	124.072	133.271	142.420	151.520	169.572	187.427	205.085	231.202	273.743
450	65.698	76.475	87.203	97.882	108.511	119.090	129.621	140.102	150.534	160.916	171.249	191.768	212.089	232.213	262.028	310.735
500	73.097	85.107	97.068	108.979	120.841	132.654	144.418	156.132	167.797	179.412	190.979	213.963	236.750	259.340	292.855	347.727
600	87.894	102.370	116.797	131.175	145.503	159.782	174.012	188.192	202.323	216.405	230.437	258.354	286.073	313.596	354.509	421.712
700	102.690	119.633	136.526	153.370	170.164	186.910	203.605	220.252	236.849	253.397	269.895	302.745	335.396	367.851	416.163	495.696
800	117.487	136.896	156.255	175.565	194.826	214.037	233.199	252.312	271.375	290.389	309.354	347.135	384.719	422.106	477.817	569.681
OD (mm) 900	132.284	154.159	175.984	197.761	219.487	241.165	262.793	284.372	305.901	327.381	348.812	391.526	434.042	476.362	539.470	643.665
1,000	147.081	171.422	195.714	219.956	244.149	268.292	292.387	316.432	340.427	364.374	388.271	435.917	483.365	530.617	601.124	717.650
1,200		205.948	235.172	264.347	293.472	322.548	351.574	380.552	409.480	438.358	467.188	524.698	582.011	639.127	724.432	865.619
1,400				308.737	342.795	376.803	410.762	444.672	478.532	512.343	546.104	613.480	680.657	747.638	847.739	1,013.588
1,500				330.933	367.456	403.931	440.356	476.732	513.058	549.335	585.563	657.870	729.980	801.893	909.393	1,087.572
1,600						431.058	469.950	508.791	547.584	586.327	625.021	702.261	779.303	856.149	971.047	1,161.557
1,800						485.314	529.137	572.911	616.636	660.312	703.938	791.042	877.949	964.659	1,094.354	1,309.526
2,000						539.569	588.325	637.031	685.688	734.296	782.855	879.824	976.595	1,073.170	1,217.662	1,457.495

PIPE FORMING PROCESSES

ESC utilises both LSAW (Longitudinal) and SSAW (Spiral) pipe forming processes to produce high quality, economical pipe piles at competitive lead times nationwide in the Philippines. It can produce and deliver pipe piles in excess of 50m per piece.

STEEL GRADES

Standard	Description
EN 10025	S235, S275, S355, S390, S420, S460
EN10219-1	S235JRH , S275JOH, S355JOH, S420MH, S460MH
ASTM A252	Grade 2, Grade 3
ASTM A572	Gr 50, Gr 60
GB/T 700 & 1591	Q235B, Q275B, Q345B, Q355B, Q390B, Q420B
JIS A5525	SKK400, SKK490
API5L	X42, X46, X52, X56, X60, X65, X70, X80
Low Corrosion/Weathering Steel	ASTM A690 / S355JOW
Others	Available on Request, contact ESC for further info

STEEL PIPE PILE COATING SYSTEMS

ESC Steel Philippines offers high quality marine grade corrosion protection coatings from international recognized brands. The coating systems include: Coal Tar Epoxy, Glass Flake Epoxy, Polyurethane. These can also been used in conjunction with cathodic protection systems for a long lasting marine structure.

FABRICATED COMPONENTS

PIPE-PIPE CONNECTORS

LIFTING POINTS

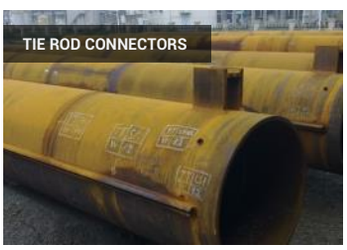
SHEAR RINGS (INTERNAL & EXTERNAL)

PILE SHOES

BEVELLED ENDS FOR SPLICING

FLANGE COMPONENTS (FENDER & HEAD)

GROUTING PIPES


TIE ROD CONNECTORS

ANCHOR TIE RODS

ANCHORING SYSTEMS

TIE ROD SYSTEMS

ESC is proud to offer a full suite of options for designing, fabricating and supplying full Tie Rod System Assemblies at competitive delivery schedules. On top of this is the flexibility to provide a wide range of steel grades. Project specific requirements can also be catered for such as corrosion protection combinations, high forces, extreme lengths and large expected settlements. Please contact your nearest ESC office for full technical specifications, pricing and technical advice.

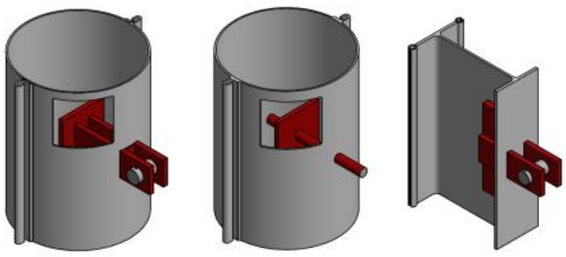
UPSET THREAD TIE RODS

Bar Dia (mm)	Thread Size	Grade 355 YS: 355MPa kN	Grade 355 UTS: 470MPa kN	Grade 450 YS: 450MPa kN	Grade 450 UTS: 700MPa kN	Grade 500 YS: 500MPa kN	Grade 500 UTS: 700MPa kN	Grade 700 YS: 700MPa kN	Grade 700 UTS: 900MPa kN
32	M39	285	410	362	507	402	563	563	723
36	M45	361	519	458	641	509	712	712	915
40	M48	446	641	565	791	628	879	879	1,130
45	M52	564	811	716	1,002	795	1,113	1,113	1,431
50	M60	697	1,001	883	1,237	981	1,374	1,374	1,766
55	M64	843	1,211	1,068	1,496	1,187	1,662	1,662	2,137
60	M72	1,003	1,441	1,272	1,780	1,413	1,978	1,978	2,543
65	M76	1,177	1,691	1,492	2,090	1,658	2,322	2,322	2,985
70	M85	1,366	1,962	1,731	2,424	1,923	2,693	2,693	3,462
75	M90	1,568	2,252	1,987	2,782	2,208	3,091	3,091	3,974
80	M95	1,784	2,562	2,261	3,165	2,512	3,517	3,517	4,522
85	M100	2,013	2,893	2,552	3,573	2,836	3,970	3,970	5,104
90	M105	2,257	3,243	2,861	4,006	3,179	4,451	4,451	5,723
95	M110	2,515	3,613	3,188	4,463	3,542	4,959	4,959	6,376
100	M115	2,787	4,004	3,533	4,946	3,925	5,495	5,495	7,065

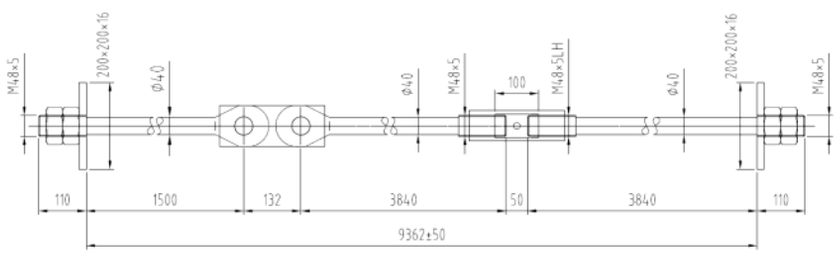
CORROSION PROTECTION OPTIONS

Corrosion Protection of Tie Rod Systems can be achieved with the following methods or a combination of these methods. Other less common options include encapsulation and Teflon coating.

HIGH MODULUS WALL CONNECTIONS



TYPICAL CONFIGURATION



PROJECTS IN PHILIPPINES

SEALANT, ACCESSORIES, COATINGS

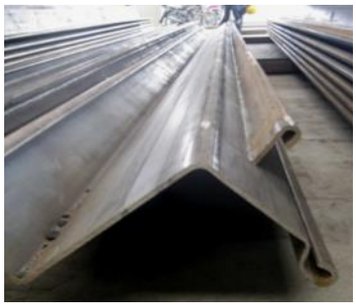
PRODUCT LINE

INTERLOCK/CLUTCH SEALANT

A combination of a well designed and manufactured sheet pile interlock and a properly applied sealant can virtually eliminate any fluid leakage through the sheet piles, even at high hydrostatic pressures.
ESC offers a range of time proven interlock sealants that can be used for hot rolled, cold formed and cold rolled sheet piles in various conditions from tropical to arctic. They are especially effective for cofferdams and marine applications.

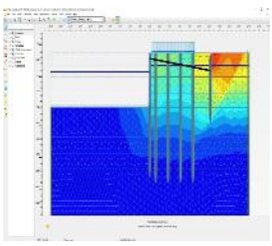
CORNER / JUNCTION PILES

ESC can supply both special connectors and also fabricated corner/junction sheet piles for various angles.



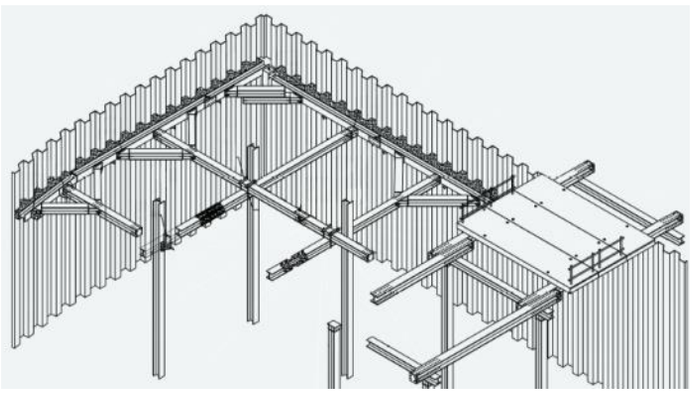
ESC DESIGN ASSISTANCE

ESC's engineering team utilises the latest software for design of steel sheet pile walls. Please do not hesitate to contact ESC's engineering department for design or installation advice or assistance.



STRUTTING SYSTEMS

ESC has been involved in difficult project sites from its inception over 20 years ago. Part of the ESC Sheet Piling Solution has often included full design of the strutting system. Using the in-house expertise of ESC's global network of engineers, ESC is well equipped to design and also fabricate full strutting system assemblies. These strutting systems include: Standard Struts, Reusable Modular Struts, Hydraulically Activated Struts & Circular Struts. Please see the Prefabricated Struts.

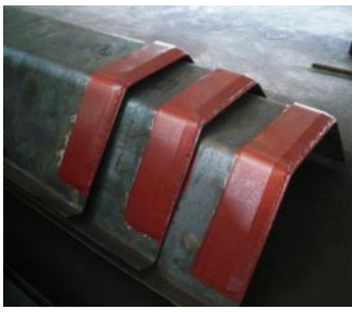


COATING SYSTEMS

ESC Steel Philippines offers high quality marine grade corrosion protection coatings from international recognized brands. The coating systems include: Coal Tar Epoxy, Glass Flake Epoxy, Polyurethane. These can also been used in conjunction with cathodic protection systems for a long lasting marine structure.

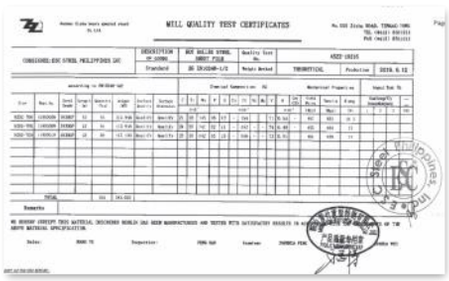
PILE SHOES

ESC can weld special reinforced pile shoes on its sheet piles to assist in penetrating difficult soil conditions. This technique can especially be useful for thinner, more economical sheet piles.



STEEL MATERIAL TESTING

ESC Sheet Piles always come furnished with authentic mill certificates. ESC has also completed periodic mechanical and chemical testing in the Philippines in accredited laboratories.

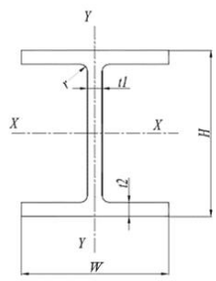


H BEAMS, CHANNELS & SECTIONS

PRODUCT LINE

H BEAMS - FOR STRUTS

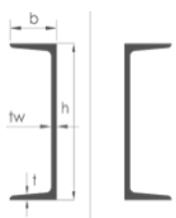
Height (h)	Width (w)	Thickness (tw)	Thickness (tf)	Sectional area	Weight	Ixx	Iyy	ix	iy	Wx	Wy
kg/m	mm	mm	mm	cm^2	kg/m	cm^4	cm^4	cm	cm	cm^3	cm^3
100	100	6	8	21.58	16.9	378	134	4.18	2.48	75.6	26.7
125	125	6.5	9	30	23.6	839	293	5.28	3.12	134	46.9
150	150	7	10	39.64	31.1	1,620	563	6.39	3.76	216	75.1
175	175	7.5	114	51.42	40.4	2,900	984	7.5	4.37	331	112
200	200	8	12	63.53	49.9	4,720	1,600	8.61	5.02	472	160
200	200	8	12	63.53	49.9	4,720	1,600	8.61	5.02	472	160
250	250	9	14	91.43	71.8	10,700	3,650	10.8	6.31	860	292
300	300	10	15	118.5	93	20,200	6,750	13.1	7.55	1,350	450
350	350	12	19	171.9	135	39,800	13,600	15.2	8.88	2,280	776
400	400	13	21	218.7	172	66,600	22,400	17.5	10.1	3,330	1,120

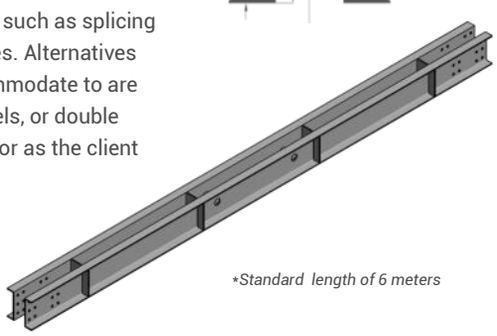


*NOTE that ESC can supply an extensive range of Wide Flange Beams in ASTM standards

CHANNELS - FOR WALERS

The Waling Assembly transmits forces from the sheet piling to the anchorage whilst simultaneously aligning and stiffening the wall. ESC offers standard hot rolled channel sections presented, but can also provide full options such as splicing plates and bolt holes. Alternatives that ESC can accommodate to are cold formed channels, or double wide flange beams or as the client requires.





*Standard length of 6 meters

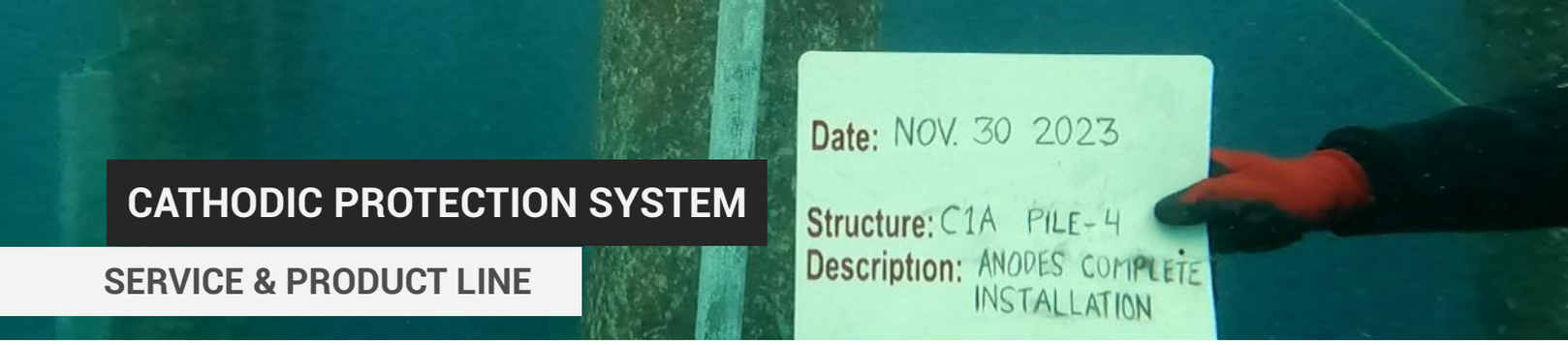
Section	h	b	t_w	t	Sectional Area	Mass per Unit Length	Moment of Inertia	Section Modulus	Coating Area
	Values for a single channel section								
	mm	mm	mm	mm	cm^2	kg/m	cm^4	cm^3	m^2/m
WC01	180	70	9.0	10.5	29.29	22.99	1,370	152	0.60
WC02	200	73	7.0	11.0	28.83	22.63	1,780	178	0.65
WC03	200	75	9.0	11.0	32.83	25.77	1,914	191	0.66
WC04	220	77	7.0	11.5	31.84	24.99	2,394	218	0.71
WC05	220	79	9.0	11.5	36.24	28.45	2,571	234	0.71
WC06	250	78	7.0	12.0	34.91	27.40	3,359	269	0.77
WC07	250	80	9.0	12.0	39.91	31.33	3,620	290	0.78
WC08	280	82	7.5	12.5	40.02	31.42	4,753	340	0.85
WC09	280	84	9.5	12.5	45.62	35.81	5,118	366	0.85
WC10	320	88	8.0	14.0	48.50	38.07	7,511	469	0.95
WC11	320	90	10.0	14.0	54.90	43.10	8,057	504	0.95
WC12	360	96	9.0	16.0	60.89	47.80	11,874	660	1.05
WC13	360	98	11.0	16.0	68.09	53.45	12,652	703	1.06
WC14	400	100	10.5	18.0	75.04	58.91	17,577	879	1.14
WC15	400	102	12.5	18.0	83.04	65.19	18,644	932	1.15

OTHER STEEL ITEMS

ESC can supply out of inventory a wide breadth of high quality steel products for construction needs across the Philippines.

- Square Bar
- Round Bar
- Purlins
- GI & BI Pipes
- Square & Rectangular Hollow Section
- Deformed Bar
- Angle Bar - Equal & Unequal
- Steel Plates
- Steel Coils

PROJECTS IN PHILIPPINES



CATHODIC PROTECTION SYSTEM

SERVICE & PRODUCT LINE

INTRODUCTION

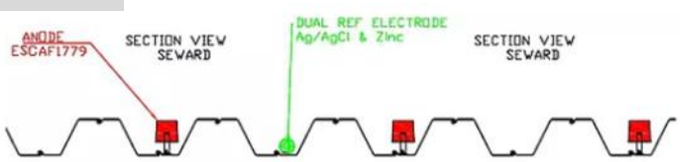
Cathodic Protection involves electrically connecting a sacrificial element that preferentially corrodes instead of the sheet pile or steel structure. Sacrificial elements are typically constituted of an alloy of aluminium, magnesium and zinc depending of the water conditions. It may be used as a supplementary form of corrosion protection on top of the corrosion coating system. ESC can offer it's experience in the design, specification and integration of a Cathodic Protection System for submerged steel structures.

APPLICATIONS

ESC have supplied to various applications and projects including:

Ports & Jetties	Ships, Barges, Pontoons
Offshore Structures	Subsea Pipelines
Power Plants	Storage Tanks
Underground Pipelines	Reinforcement in Concrete Structures

DESIGN



ESC can select the best anode size, quantity and configuration which is dependent on site conditions, protected steel components and coatings. Full calculations utilising DNV, NACE, British Standards alongside project specific requirements can be produced by ESC engineers.

INSTALLATION

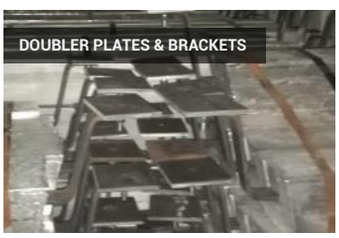
ESC employs NACE Certified Cathodic Protection Technicians that can be utilised for its projects to ensure the proper installation and commissioning of marine cathodic protection systems.

ESC have also partnered with selected installation contractors to provide a complete end to end service to meet the owner or general contractor's requirements.

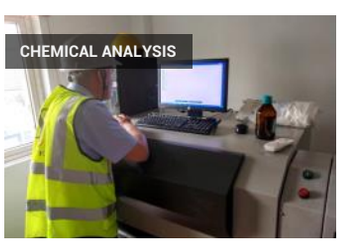
STANDARDS

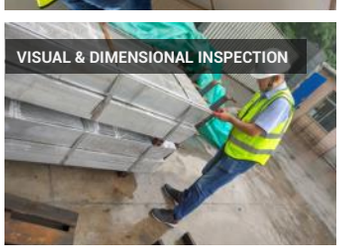
	Aluminium	Zinc
Typical Composition (constituents >1%)	Al - >94.09%, Zn - 2.5-5.75%	Zn—>99.414%
Closed Circuit Potential (vs Ag/AgCl Electrode)	-1050mV	-900 to –1100mV
Capacity (min)	2,500Ah/kg	780Ah/kg
Density	2,780kg/m^3	7,130kg/m^3
Tolerance - Weight	±3%	
Tolerance - Dimensions	Length: ±3%, Width: ±5%, Height: ±10%	
Delivery Specification	NACE SP0387	

ACCESSORIES



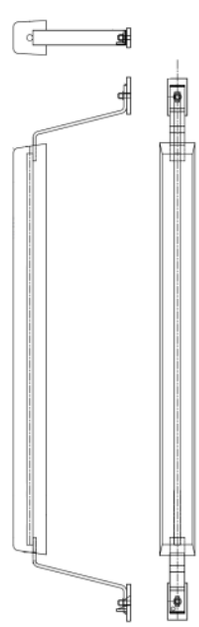
QUALITY TESTING





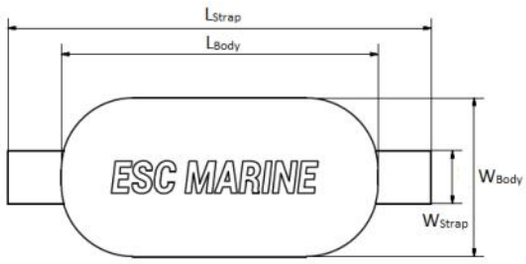
ANODES FOR STEEL PILES—ALUMINIUM

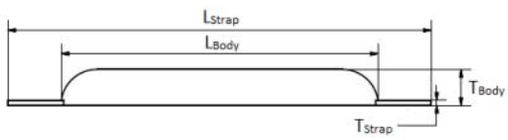
Size	Net Weight	Gross Weight	CS Width	CS Height
	kg	kg	mm	mm
ESC-SOF300	30	41.4	95/105	100
ESC-SOF350	35	47.1	95/105	100
ESC-SOF400	40	52.9	95/105	100
ESC-SOF450	45	58.7	95/105	100
ESC-SOF500	50	61.0	123/143	133
ESC-SOF550	55	66.5	123/143	133
ESC-SOF600	60	71.9	123/143	133
ESC-SOF650	65	77.3	123/143	133
ESC-SOF700	70	82.7	123/143	133
ESC-SOF750	75	88.1	123/143	133
ESC-SOF800	80	93.5	123/143	133
ESC-SOF850	85	99.0	123/143	133
ESC-SOF900	90	102.0	150/170	160
ESC-SOF950	95	112.4	150/170	160
ESC-SOF1000	100	112.6	150/170	160
ESC-SOF1100	110	123.1	150/170	160
ESC-SOF1200	120	133.7	150/170	160
ESC-SOF1300	130	144.3	150/170	160
ESC-SOF1400	140	154.8	150/170	160
ESC-SOF1500	150	172.2	195/185	190
ESC-SOF1600	160	183.3	195/185	190
ESC-SOF1700	170	194.4	195/185	190
ESC-SOF1800	180	205.3	195/185	190



ZINC HULL ANODES—WELD ON TWO STRAP

	Body			Strap			Weight	
	Width	Length	Thickness	Width	Length	Thickness	Net	Gross
	mm	mm	mm	mm	mm	mm	kg	kg
ESC-Z30W	99	198	23	30	280	5.0	2.7	3.0
ESC-Z45W	75	305	35	30	402	5.0	4.1	4.5
ESC-Z85W	150	301	34	50	402	5.0	7.7	8.5
ESC-Z120W	100	450	50	50	585	5.0	10.9	12.0
ESC-Z150W	150	300	50	40	400	6.0	14.4	15.0
ESC-Z180W	150	300	60	40	400	6.0	17.4	18.0
ESC-Z220W	150	300	55	40	400	6.0	21.4	22.0





ALUMINUM HULL ANODES—WELD ON TWO STRAP

	Body			Strap			Weight	
	Width	Length	Thickness	Width	Length	Thickness	Net	Gross
	mm	mm	mm	mm	mm	mm	kg	kg
ESC-A16W	73	300	29	30	402	5.0	1.2	1.6
ESC-A30W	131	297	33	50	402	5.0	2.2	3.0
ESC-A35W	149	293	34	50	402	5.0	2.7	3.5
ESC-A41W	83	425	45	50	585	5.0	3.0	4.1
ESC-A54W	100	450	50	50	585	5.0	4.3	5.4
ESC-A72W	150	400	60	40	400	6.0	6.6	7.2
ESC-A86W	200	400	50	40	400	6.0	7.9	8.6
ESC-A103W	200	400	60	40	400	6.0	9.6	10.3

CUSTOM ANODE SIZING & OTHER CONFIGURATIONS

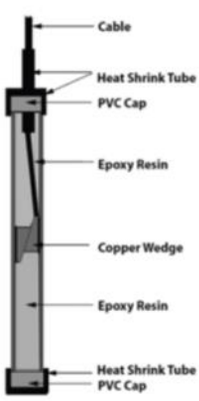
ESC offers an extensive range of anode configurations and sizes that can be customized per project or as per your existing design.

Weld On - 4 Strap
Bolt On Anodes
Pipe Core Standoff
Sled Anodes
Bracelet Anodes
Ball Anodes

IMPRESSED CURRENT CATHODIC PROTECTION

In some applications where there is a high resistance and a dependable external power source, Impressed Current Cathodic Protection (ICCP) may be an ideal alternative to a sacrificial galvanic anode system. ICCP systems are frequently used to protect underground steel structures & pipelines but can be used in other applications such as for the protection of marine steel structures, storage tanks and even ships.

ESC have partnered with a reputable provider from Europe for such systems that are high quality, dependable and safe and can provide complete technical support.



PROJECTS IN PHILIPPINES

ESC PVC SHEET PILES

PRODUCT LINE - www.escpvcsheetpiling.com

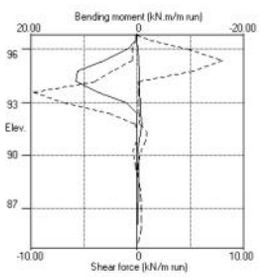
ESC Vinyl Sheet Piles also known as PVC Sheet Pile are a modern alternative for your project. It offers a lower cost that steel, wood or concrete alternatives. ESC Vinyl Sheet Pile is a strong, light-weight, UV and impact resistant product. The product is inert does not rust, corrode or crack. ESC Vinyl Sheet Pile retains its structural integrity for decades.

MATERIAL STANDARDS

	Test Standard	Min Value
Tensile Strength	ASTM D638	44.8
Flexural Strength	ASTM D790	66.0
Tensile Modulus of Elasticity	ASTM D638	2,620 MPa
Notched Izod Impact Test	ASTM D256	2.46J/m
Heat Deflection Temperature	ASTM D648	70°C

ESC DESIGN ASSISTANCE

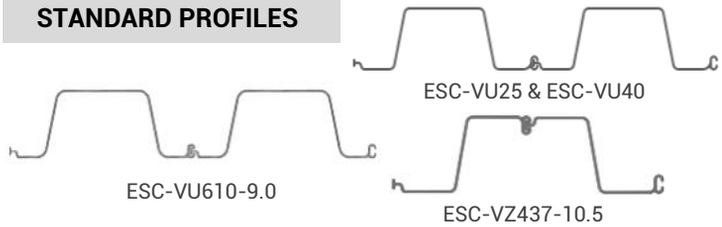
ESC's engineering team utilises the latest software for design of PVC Sheet Pile walls. Please do not hesitate to contact ESC's engineering department for design or installation advice or assistance.



CORNER PILES

Corner Piles can be specially produced without requirement of special corner connectors and can be made to suit various angles.

STANDARD PROFILES



Section	Pile O/A Width	Effective Width	Height	Thickness	Elastic Section Modulus	Moment of Inertia	Allowable Bending Moment
	mm	mm	mm	mm	cm^3/m	cm^4/m	kNm/m
ESC-VU25	512	500	160	6.0	502	4,013	10.3
ESC-VU40	614	600	230	7.5	920	10,574	18.8
ESC-VU610-9.0	628	610	230	9.0	1,085	12,478	23.8
ESC-VZ437-10.5	458	437	254	10.5	1,480	19,300	33.3
ESC-VZ437-11.18	458	437	254	11.2	1,715	22,700	39.0

INSTALLATION GUIDES

ESC can fabricate and supply reinforced steel installation mandrels that are reusable to assist the penetration of the PVC sheet piles into the soil. Installation guides are also available to keep alignment of the sheet pile line both vertically and horizontally.

PRODUCT DESIGN & TESTING TO DPWH SPECIFICATION

PROJECTS IN PHILIPPINES

MOORING BOLLARDS

MARINE SYSTEMS

INTRODUCTION

Marine mooring bollards provide a simple yet efficient method for fulfilling mooring requirements to allow safe securing of vessels next to jetties, wharves, berths and dolphins in ports and harbours. ESC can offer a wide range of cast iron or steel bollards in various sizes, grades and capacities.

ESC bollards are designed and manufactured in accordance to various international standards such as BS 6349 pt 4 and PIANC guidelines. Bollards are safety critical components and ESC strives to provide bollards with superior service life and resistance to physical and corrosive environments.

T-HEAD

Capacity	Anchors
10 tons	4 x M20
15 tons	5 x M24
25 tons	5 x M30
30 tons	5 x M30
50 tons	5 x M36
100 tons	7 x M42
150 tons	7 x M48
200 tons	8 x M56

T-HEAD PPA DESIGN

Capacity	Anchors
5 tons	4 x M20
10 tons	4 x M27
15 tons	4 x M33
25 tons	4 x M42
35 tons	6 x M42
50 tons	6 x M48
70 tons	6 x M56
100 tons	6 x M64
150 tons	6 x M72
200 tons	6 x M120

MOORING CLEAT

Capacity	Anchors
1 ton	
5 tons	6 x M20
10 tons	
15 tons	6 x M20
25 tons	6 x M24

PILLAR

Capacity	Anchors
10 tons	4 x M20
15 tons	4 x M24
30 tons	4 x M36
50 tons	7 x M36
100 tons	7 x M48

PILLAR PPA DESIGN

Capacity	Anchors
15 tons	4 x M36
25 tons	4 x M48
35 tons	6 x M48
50 tons	6 x M56
70 tons	6 x M64
100 tons	8 x M64
150 tons	8 x M80
200 tons	8 x M90

SINGLE BITT

Capacity	Anchors
15 tons	4 x M24
30 tons	5 x M30
50 tons	6 x M36
75 tons	6 x M42
100 tons	7 x M48

PROJECTS IN PHILIPPINES

MARINE RUBBER FENDERS

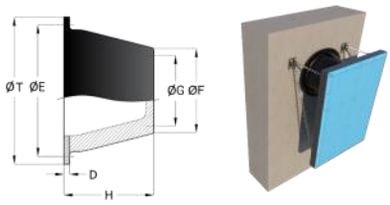
PRODUCT LINE - www.escmarinesystems.com

MARINE FENDERS

Marine Rubber Fenders are critical for the energy absorption of a berthing vessel into the berth structure. A single vessel can be over 200,000 tons so safe energy absorption in worst case scenarios is paramount. The marine fenders primary job is to protect the berthing structure without damaging the vessel hull for all potential vessel types, sizes and approach scenarios. ESC offers a full range of fender options to compliment its marine steel piling products.

ESC has strategic partnerships with PIANC registered manufacturers with over 20 years of experience delivering marine fender system solutions to Asia, North America, Central & South America, Europe and Middle East. ESC's global network provides an end-to-end solution that is customized to project requirements providing detailed support in close proximity to its valuable clients.

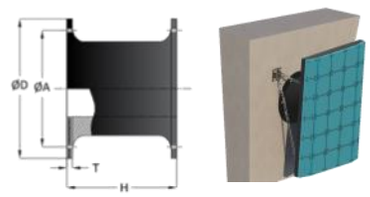
CONE FENDERS



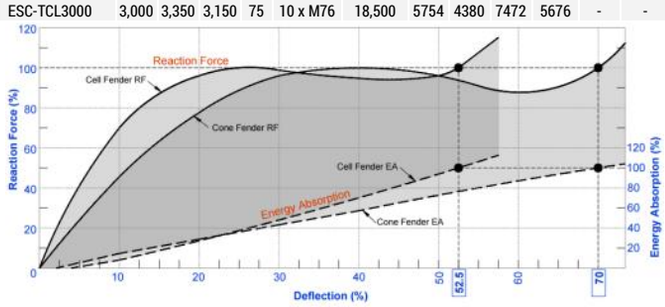
	Dimensions								Fender Performance @70% deflection					
									Grade 1.0		Grade 1.5		Grade 2.0	
	H	ØD	ØF	T	ØE	ØG	Anchors / Head Bolts	Weight	EA	RF	EA	RF	EA	RF
	mm	mm	mm	mm	mm	mm		Kg	kNm	kN	kNm	kN	kNm	kN
ESC-TCF350	350	570	330	22	510	275	4 x M20	50	12	63	21	105	31	156
ESC-TCF400	400	600	340	22	540	260	4 x M24	75	19	82	31	138	46	204
ESC-TCF500	500	750	425	22	675	325	4 x M24	135	36	129	61	215	90	318
ESC-TCF600	600	900	510	27	810	390	6 x M30	235	63	185	105	310	155	458
ESC-TCF700	700	1,050	595	27	945	455	6 x M30	350	99	252	166	422	246	623
ESC-TCF800	800	1,200	680	27	1,080	520	6 x M36	540	148	329	248	551	367	814
ESC-TCF860	860	1,290	730	30	1,160	560	6 x M36	690	184	380	309	636	456	941
ESC-TCF900	900	1,350	765	33	1,215	585	6 x M36	765	211	417	354	697	523	1,030
ESC-TCF950	950	1,425	810	34	1,282	618	6 x M36	910	249	464	416	777	615	1,148
ESC-TCF1000	1,000	1,500	850	35	1,350	650	6 x M42	1,050	290	514	485	860	717	1,272
ESC-TCF1100	1,100	1,650	935	40	1,485	715	6 x M42	1,400	386	622	646	1,041	954	1,539
ESC-TCF1150	1,150	1,725	980	40	1,550	750	6 x M42	1,600	441	680	738	1,138	1,091	1,682
ESC-TCF1200	1,200	1,800	1,020	42	1,620	780	8 x M42	1,800	501	741	838	1,239	1,239	1,832
ESC-TCF1250	1,250	1,875	1,060	44	1,690	810	8 x M42	2,050	566	804	947	1,344	1,401	1,987
ESC-TCF1300	1,300	1,950	1,105	46	1,755	845	8 x M48	2,400	637	869	1,066	1,454	1,575	2,150
ESC-TCF1400	1,400	2,100	1,190	49	1,890	980	8 x M48	2,960	796	1,008	1,331	1,686	1,968	2,493
ESC-TCF1450	1,450	2,175	1,232	51	1,960	1,035	8 x M48	3,450	884	1,082	1,479	1,809	2,186	2,674
ESC-TCF1500	1,500	2,250	1,275	51	2,025	1,090	8 x M48	3,600	979	1,157	1,637	1,936	2,420	2,862
ESC-TCF1600	1,600	2,400	1,360	58	2,160	1,200	8 x M48	4,200	1,188	1,317	1,987	2,203	2,937	3,256
ESC-TCF1800	1,800	2,700	1,530	62	2,430	1,350	10 x M56	6,600	1,691	1,667	2,829	2,788	4,182	4,121
ESC-TCF2000	2,000	3,000	1,700	62	2,700	1,500	10 x M56	9,000	2,320	2,058	3,881	3,442	5,737	5,088

Performance figures shown are for the standard rubber grade, higher values utilising higher rubber grades can be produced. Please contact ESC for more information.

CELL FENDERS

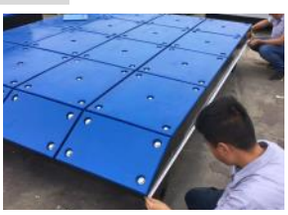


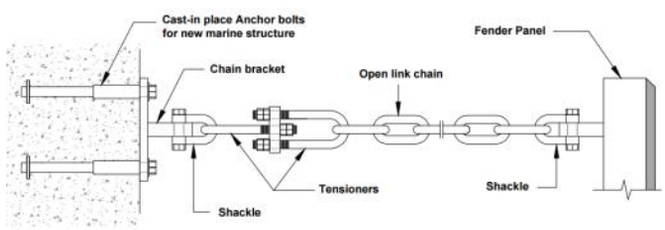
	Dimensions						Fender Performance @52.5% deflection					
							Grade P0		Grade P1		Grade P2	
	H	ØD	ØA	T	Anchors	Weight	EA	RF	EA	RF	EA	RF
	mm	mm	mm	mm		Kg	kNm	kN	kNm	kN	kNm	kN
ESC-TCL630	630	840	700	25	4 x M30	220	48	175	63	228	73	263
ESC-TCL800	800	1,050	900	30	6 x M33	400	98	280	118	330	138	383
ESC-TCL1000	1,000	1,300	1,100	25	6 x M39	790	195	445	252	572	289	660
ESC-TCL1150	1,150	1,500	1,300	37	6 x M42	1,200	297	589	388	760	445	885
ESC-TCL1250	1,250	1,650	1,450	40	6 x M42	1,500	382	696	497	902	574	1042
ESC-TCL1450	1,450	1,850	1,650	42	6 x M52	2,300	596	936	776	1215	895	1402
ESC-TCL1600	1,600	2,000	1,800	45	8 x M52	3,000	801	1140	970	1351	1120	1558
ESC-TCL1700	1,700	2,100	1,900	50	8 x M56	3,700	960	1287	1250	1672	1442	1928
ESC-TCL2000	2,000	2,200	2,000	50	8 x M64	5,000	1564	1781	2040	2310	2348	2668
ESC-TCL2250	2,250	2,550	2,300	57	10 x M64	7,400	2472	2502	3215	3249	3703	3748
ESC-TCL2500	2,500	2,950	2,700	70	10 x M64	10,500	3391	3088	4410	4012	5088	4630
ESC-TCL3000	3,000	3,350	3,150	75	10 x M76	18,500	5754	4380	7472	5676	-	-



FRONTAL PANEL, CHAINS & ANCHORS

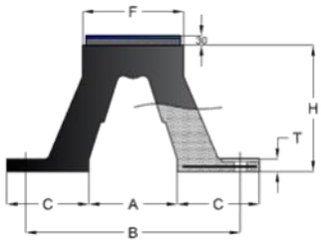
ESC's marine rubber systems for cone fenders and cell fenders feature front panels which safely distribute the fender reaction force to the hull of the berthing vessel. These front panels are made with a high quality steel fabrication protected with a high quality marine coating. The vessel facing surface features replaceable high wear resistance UMHW PE Pads.

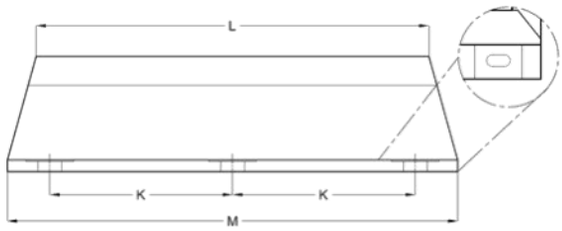




PROJECTS IN PHILIPPINES

V (OR ARCH) FENDERS





Section	Dimensional properties									Bolt Spacing per Length							
										L=1000(n=4)		L=1500(n=6)		L=2000(n=8)		L=2500(n=8)	
	H	A	B	C	F	T	Hole Size	Bolt	Weight	1000	39.37	1500	59.1	2000	78.7	2500	98.4
	mm	mm	mm	mm	mm	mm			kg/m	K	M	K	M	K	M	K	M
ESC-TAR200	200	144	320	128	130	30	58x29	M24	60	860	1,100	680	1,600	620	2,100	785	2,600
ESC-TAR250	250	180	410	160	165	33	64x32	M30	90	862	1,125	680	1,625	620	2,125	790	2,625
ESC-TAR300	300	210	490	195	245	33	70x35	M30	120	870	1,150	685	1,650	625	2,150	790	2,650
ESC-TAR400	400	280	670	260	320	40	82x41	M36	210	900	1,200	700	1,700	635	2,200	800	2,700
ESC-TAR500	500	350	840	325	395	45	94x47	M42	330	930	1,250	715	1,750	645	2,250	810	2,750
ESC-TAR600	600	420	1,010	390	470	54	100x50	M48	480	960	1,300	730	1,800	655	2,300	820	2,800
ESC-TAR800	800	560	1,340	520	600	72	136x68	M64	880	1040	1,400	770	1,900	680	2,400	845	2,900
ESC-TAR1000	1,000	700	1,680	650	750	90	136x68	M64	1395	1100	1,500	800	2,000	700	2,500	865	3,000

FAST FACTS ABOUT ESC-TAR SERIES V FENDERS

45% or 52.5% design deflection

Depending on the consultant's design, ESC can offer fenders that have design deflections at the two standard values

1000mm, 1500mm, 2000mm, 2500mm (& 3,000mm for some sizes) frontal lengths

ESC can also supply non-standard intermediate length (for example 1200mm) V fenders

Performance Testing in Philippines if required

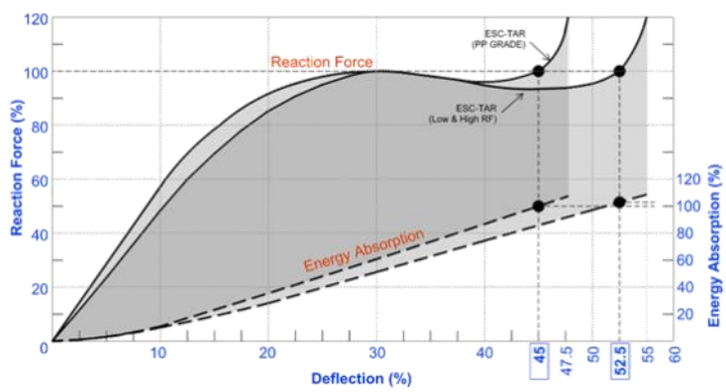
ESC have been successful working with fender testing laboratories to comply with clients' requirements

ENERGY ABSORPTION & REACTION FORCES PER M LENGTH (L)

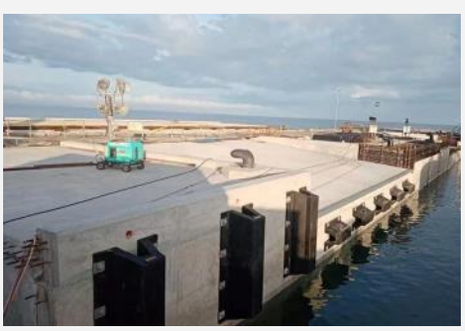
Section	Fender Performance @45% deflection at grade		Fender Performance @52.5% deflection at grade (intermediate values possible)			
	Grade PP		Low RF		High RF	
	EA	RF	EA	RF	EA	RF
	kNm	kN	kNm	kN	kNm	kN
ESC-TAR200	9.81	147	6*	100*	14*	230*
ESC-TAR250	15.3	184	13*	180*	20*	280*
ESC-TAR300	22.2	221	22	175	41	332
ESC-TAR400	39.3	295	41	234	74	430
ESC-TAR500	61.4	369	63	294	114	538
ESC-TAR600	88.3	441	89	351	164	644
ESC-TAR800	157	589	159	470	290	862
ESC-TAR1000	246	736	246	588	452	1078

* Fender Performance @ 50% deflection at grade

Note: 1 kN-m = 0.1019 Ton-m, 1 kN = 0.1019 Ton

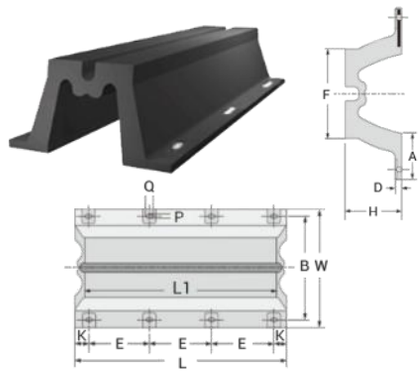


PROJECTS IN PHILIPPINES



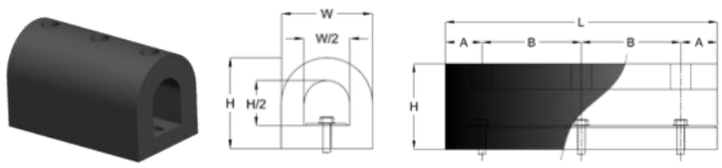
M FENDERS

Model	Dimensional properties						L1									
	W	A	B	F	D	K	1000	1500	2000	2500	3000	3500	L=L1+	P	Q	Bolt
	mm	mm	mm	mm	mm	mm	E	E	E	E	E	E				
ESC-MF500	1250	340	1090	660	55	160	930	715	645	810	730	686	250	47	94	M42
ESC-MF600	1500	408	1310	776	66	170	960	730	655	820	740	692	300	58	116	M48
ESC-MF800	2000	544	1740	1035	88	180	1040	770	680	845	700		400	68	136	M64
ESC-MF1000	2480	670	2180	1294	110	200	2180	800	700				500	68	136	M64

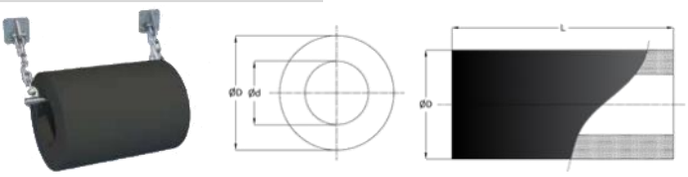


D FENDERS

Model	H	W	A	B	Weight	Flat Bar	Bolt	EA	RF
	mm	mm	mm	mm	kg/m	mm		kNm	kN
ESC-TDF100	100	100	90-130	200-300	8	40 x 5	M12	1.4	77
ESC-TDF150	150	150	110-150	250-350	18.1	60 x 8	M16	3.2	115
ESC-TDF200	200	200	130-180	300-400	32.1	80 x 10	M20	5.7	153
ESC-TDF250	250	250	140-200	350-450	50.2	90 x 12	M24	9	192
ESC-TDF300	300	300	140-200	350-450	72.3	110 x 12	M24	12.9	230
ESC-TDF350	350	350	140-200	350-450	98.4	130 x 15	M30	17.6	268
ESC-TDF375	375	375	140-200	350-450	113	140 x 15	M30	20.2	287
ESC-TDF400	400	400	140-200	350-450	129	150 x 15	M30	23	306
ESC-TDF500	500	500	140-200	350-450	201	180 x 20	M36	35.9	383

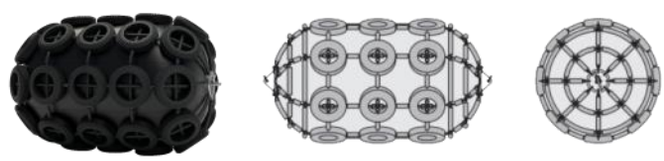


CYLINDRICAL FENDERS

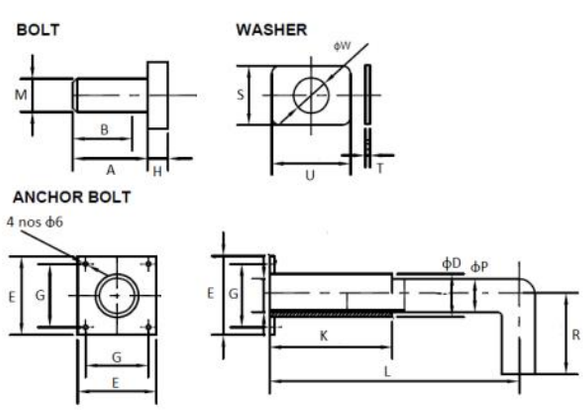


Model	D	d	L	Weight	Fender Performance @50% Deflection			
					LOW RF		HIGH RF	
					EA	RF	EA	RF
	mm	mm	mm	kg/m	kNm	kN	kNm	kN
ESC-TCY400	400	200	8,000	118	10.6	122	17.2	195
ESC-TCY500	500	250	8,000	184	16.4	152	27	245
ESC-TCY600	600	300	3,000	265	24.1	182	38.2	293
ESC-TCY700	700	400	3,000	360	32.2	212	53.3	342
ESC-TCY800	800	400	3,000	469	42.3	244	69.2	390
ESC-TCY900	900	450	3,000	594	53.2	275	87.3	440
ESC-TCY1000	1,000	500	3,000	733	65.4	305	108.2	490
ESC-TCY1200	1,200	600	3,000	1,055	97.2	375	155.4	588
ESC-TCY1400	1,400	700	3,000	1,434	130.3	434	216.2	685
ESC-TCY1600	1,600	800	3,000	1,872	173.5	495	276.4	785
ESC-TCY1800	1,800	900	3,000	2,370	225.6	556	359.3	883
ESC-TCY2000	2,000	1,000	3,000	2,925	270.7	640	431.2	1,015

PNEUMATIC FENDERS



Model	D	d	L	Weight	Fender Performance @50% Deflection		
					LOW RF		HIGH RF
					EA	RF	EA
	mm	mm	mm	kg/m	kNm	kN	kNm
ESC-PNF1000	Ø1000x1500L	975	950	1,350	200	375	2,000
ESC-PNF1200	Ø1200x2000L	1,200	1,140	1,620	220	430	2,600
ESC-PNF1500	Ø1500x2500L	1,525	1,420	2,050	250	525	3,250
ESC-PNF2000	Ø2000x3500L	2,050	1,900	2,700	300	650	4,500
ESC-PNF2500	Ø2500x4000L	2,490	2,380	3,380	450	890	5,200
ESC-PNF3300	Ø3300x6500L	3,380	3,140	4,460	500	1,080	8,500
ESC-PNF4500	Ø4500x9000L	4,710	4,270	6,180	800	1,470	12,000



CAST IN ANCHORS

ESC carries some sizes and quantities of anchors in inventory to allow contractors to optimise their construction schedule.

Bolt Size	A	B	C	H	S	U	T	φW	φD	E	F	G	K	L	φP	R
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
M24	70	60	36	15	55	75	6	28	24	65	6	50	90	185	32	60
M30	85	70	46	19	65	85	6	34	30	80	6	65	110	220	40	70
M36	100	80	55	23	75	100	6	40	36	85	6	70	125	250	48	90
M42	120	95	65	26	90	150	9	47	42	110	6	85	145	340	55	100
M48	140	110	75	30	100	150	9	54	48	115	6	90	175	390	65	110
M56	145	115	85	35	120	162	9	62	56	123	6	98	195	405	75	130
M64	150	120	95	40	140	175	9	70	64	130	6	105	215	420	85	150

PROJECTS IN PHILIPPINES

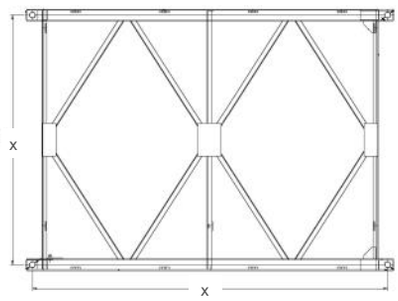
MODULAR BRIDGE (PANEL TYPE)

PRODUCT LINE

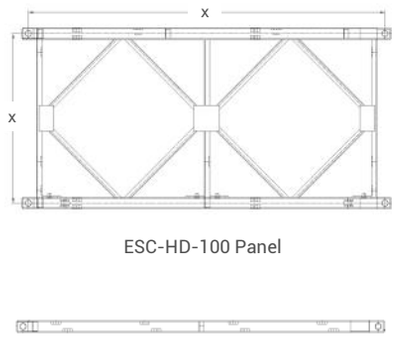
MODULAR BRIDGE (PANEL TYPE)

Modular Bridges have been used for many decades as a engineering marvel, with a highly modular system that can be assembled in short amounts of time. It can be used typically as a temporary bridge system.

ESC have established themselves as a reputable modular bridge supplier in the Philippines for government projects, with solutions that can be used for a wide range of bridge spans and loadings.

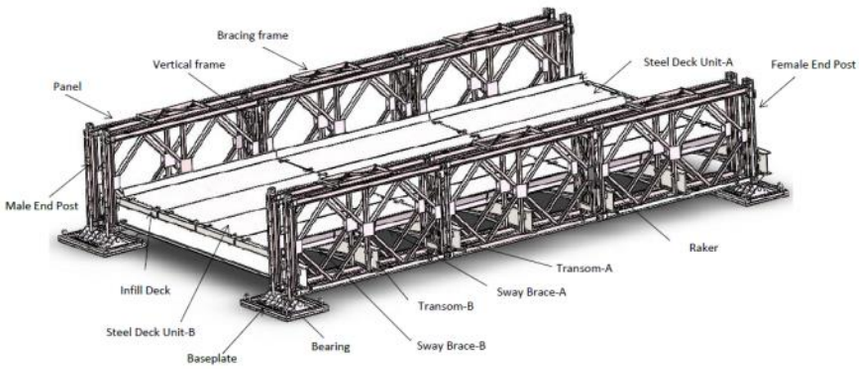


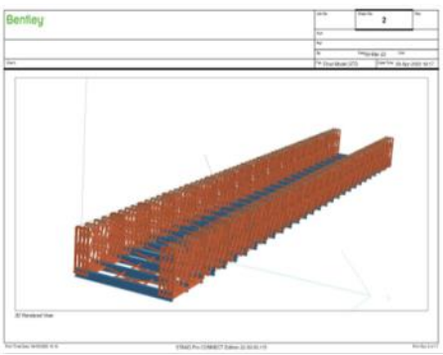
ESC-HD-200 Panel



ESC-HD-100 Panel

TYPICAL COMPONENTS OF A MODULAR BRIDGE





Structural Analysis

Installation & Launching Sequence

Supply of Launching Rollers & Other Installation Equipment

ESC Site Engineers

Inventory of Components in Manila for Emergency Response

STEEL STRUCTURES

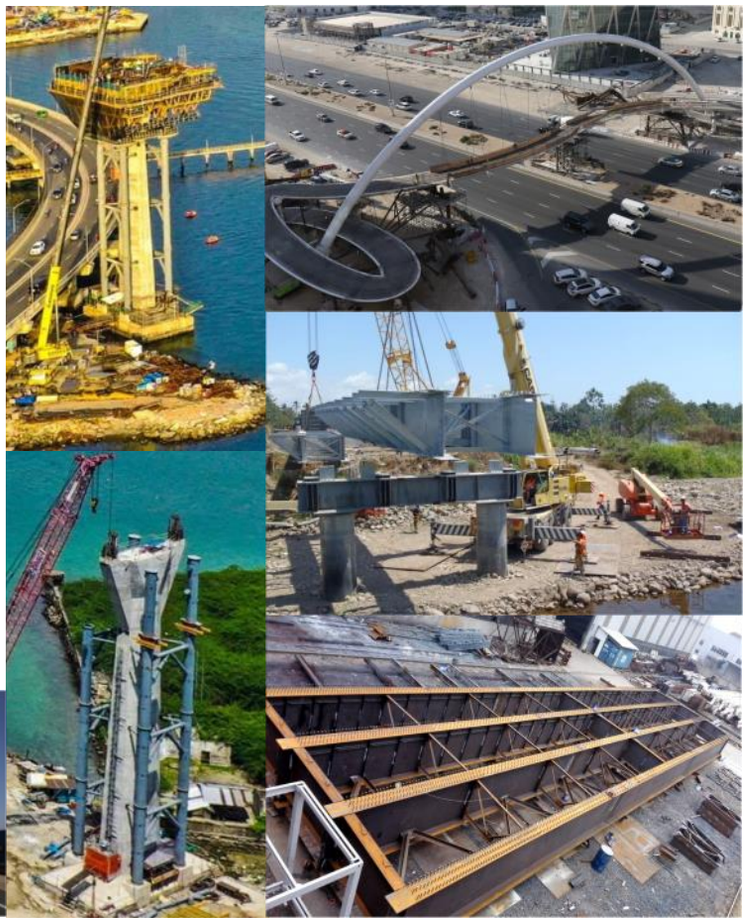
ESC CAPABILITIES

STEEL BRIDGE STRUCTURES

ESC has a growing track record of providing high quality bridge structure fabrications in conformance to various international and project standards. Due to a wide client reach, ESC is able to offer a wide range of steel grades for example ASTM A709-50W Weathering Steel and also conform to regional legal requirements such as CE marking. Other important components can be provided such as formwork, elastomeric bearing sets, bolting, hand rails and scuppers.

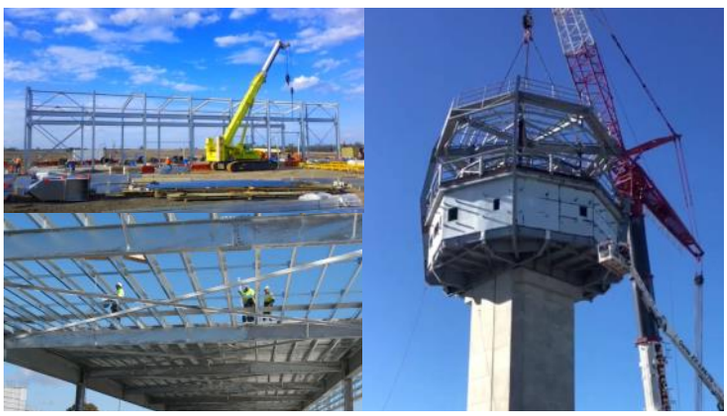
A full suite of CAD tools, state of the art machinery, skilled operators and welders, certified quality team, knowledgeable logistics personnel, project management staff and calibrated dimensional measurement equipment all ensure a good end product quality delivered on time and on budget. Some examples of ESC's capability and experience include:

- Temporary Support Structures
- Heavy Truss Structures
- Multiple Plate Girders
- Trapezoidal Box Girders
- Movable Bridges—eg Bascule
- Launching Gantry Systems
- Formwork Systems
- Box or Pipe Arch
- Temporary or Modular Bridge
- Special Bridges



PRE-ENGINEERED STEEL BUILDINGS (PEB)

With the rising costs of construction materials, Pre-Engineered Steel Buildings are transforming into the design of choice for warehouses, aircraft hangers and other structures. With the ability to optimise the geometry of the members, drastic weight savings can be made to the design. Bolted connections also increase the speed of site erection and reduce the amount of issues onsite.
ESC is a key supplier in Philippines and globally for Pre-Engineered Steel Buildings. ESC offers the ability to deliver a faster fabrication than its competitors, a quality control system that minimizes quality issues and a highly competitive commercial terms.



OTHER STEEL STRUCTURES

ESC have supplied for a vast range of high quality structural and architectural steel solutions such as:

- Steel Pontoons
- Railway Masts
- Process Structures
- Reefer Racks
- Maintenance Platforms
- Ornamental Structures
- Gangways
- Material Handling Structures

OTHER PRODUCTS

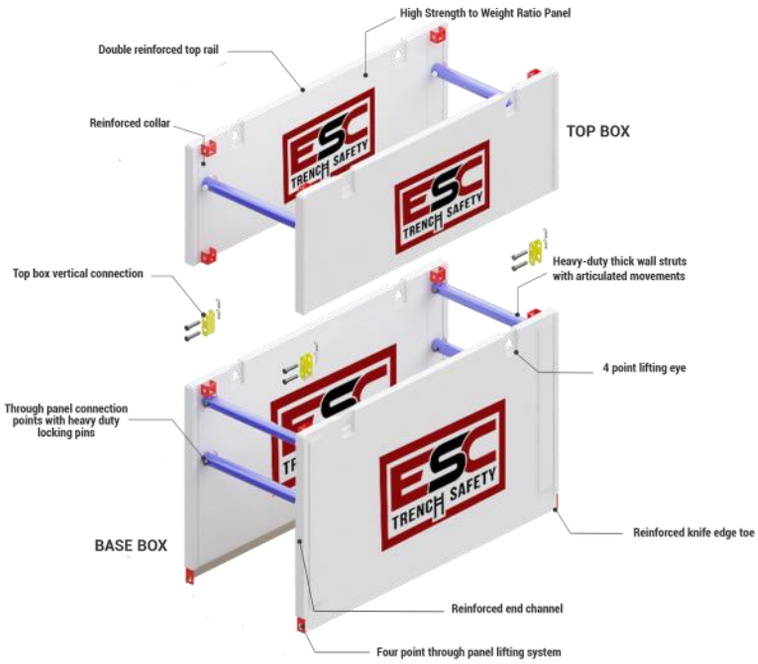
ESC CAPABILITIES

TRENCH BOX SYSTEM

Trench Boxes (or also known as trench shields) are a reliable excavation support system that have been used globally. ESC offers standard trench boxes from inventory for sale and lease options.

STEEL TRENCH BOXES

Type	Model	Box Length (m)	Box Height (m)	Panel Thickness (mm)	Clear Height (m)	Clear Length (m)	Safe Working Load (kPa)	Panel Weight (kg)
Top Box	TT40/10/16	4.0	1.6	100	-	3.6	40	702
Base Box	TB40/10/24	4.0	2.4	100	1.47	3.6	40	1,007

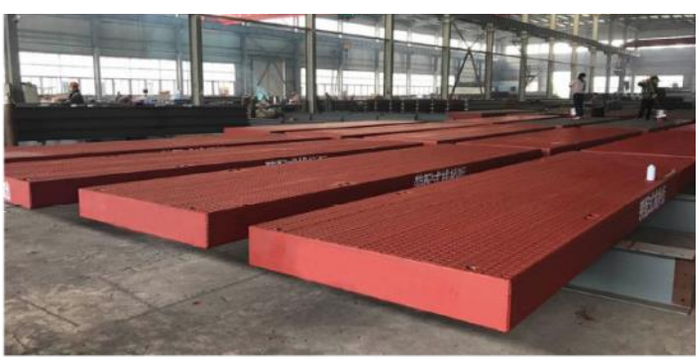


ALUMINUM TRENCH BOXES

METRO DECKS / ROAD DECK PANELS

Metro decks or also known as road deck panels are a modular steel deck that is commonly used as a temporary floor surface for vehicular access during construction projects.

ESC with its overseas partners keep in inventory a large quantity of metro decks for sale or lease.



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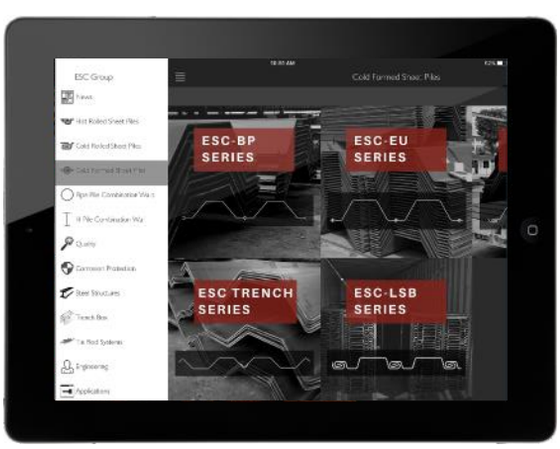

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