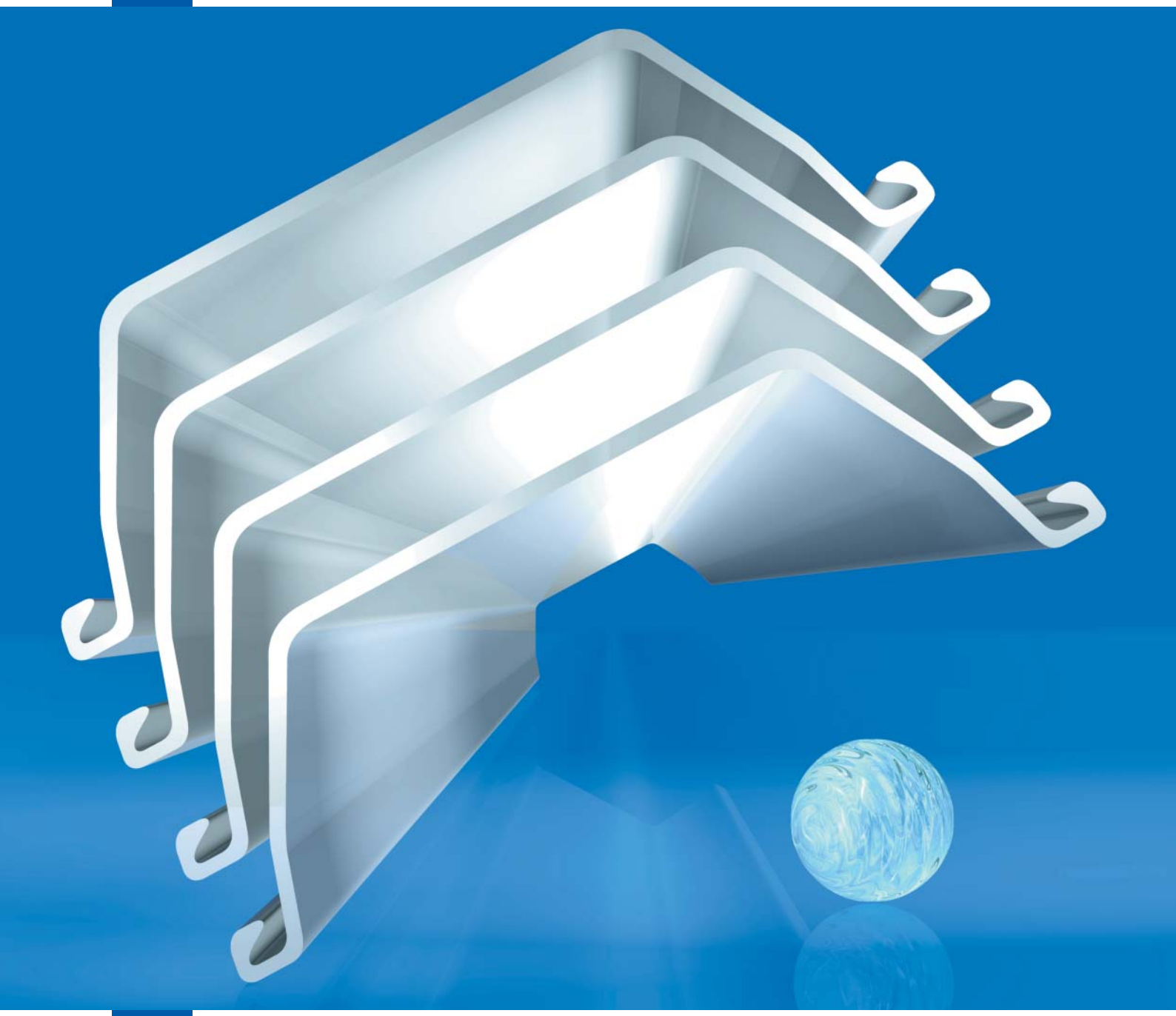
JFE

JFESP

JFE Steel Sheet Piles



JFE Steel Corporation

INTRODUCTION

Steel sheet piles that are widely used in the construction of river embankments, quay walls of ports, retaining walls, cut-off walls, earthquake strengthening structures, and in many other types of construction work are becoming increasingly important.
JFE has been taking full advantage of the state-of-the-art rolling mills at West Japan Works to produce U-shaped and linear steel sheet piles that conform to the new JIS standard (JIS A 5523) established in 2000 and to conventional JIS standards (JIS A 5528). We also pride ourselves on the construction of corner steel sheet piles made by integral roll forming and heavy-duty-coated steel sheet piles (JFE marine coat) for use in the marine environment.
We are confident that the wide range of steel sheet piles produced by JFE (JFESP) will fully satisfy the demanding needs of our customers.
You are kindly invited to find out for yourself the many advantages to be had in using our JFESP steel sheet piles, as well.

▲West Japan Works (Fukuyama)

CONTENTS

▲West Japan Works (Kurashiki)

Features and Characteristics

1 A wide range of types and cost efficiencies to meet every need

Both U-shaped and linear steel sheet piles are available for economical design.

2 High reliability

Steel sheet piles are produced using the state-of-the-art facilities at our West Japan Works under rigorous quality control.

3 Excellent workability

The joints of steel sheet piles have a sufficient margin of flexibility when combined together to ensure excellent interchangeability and workability.

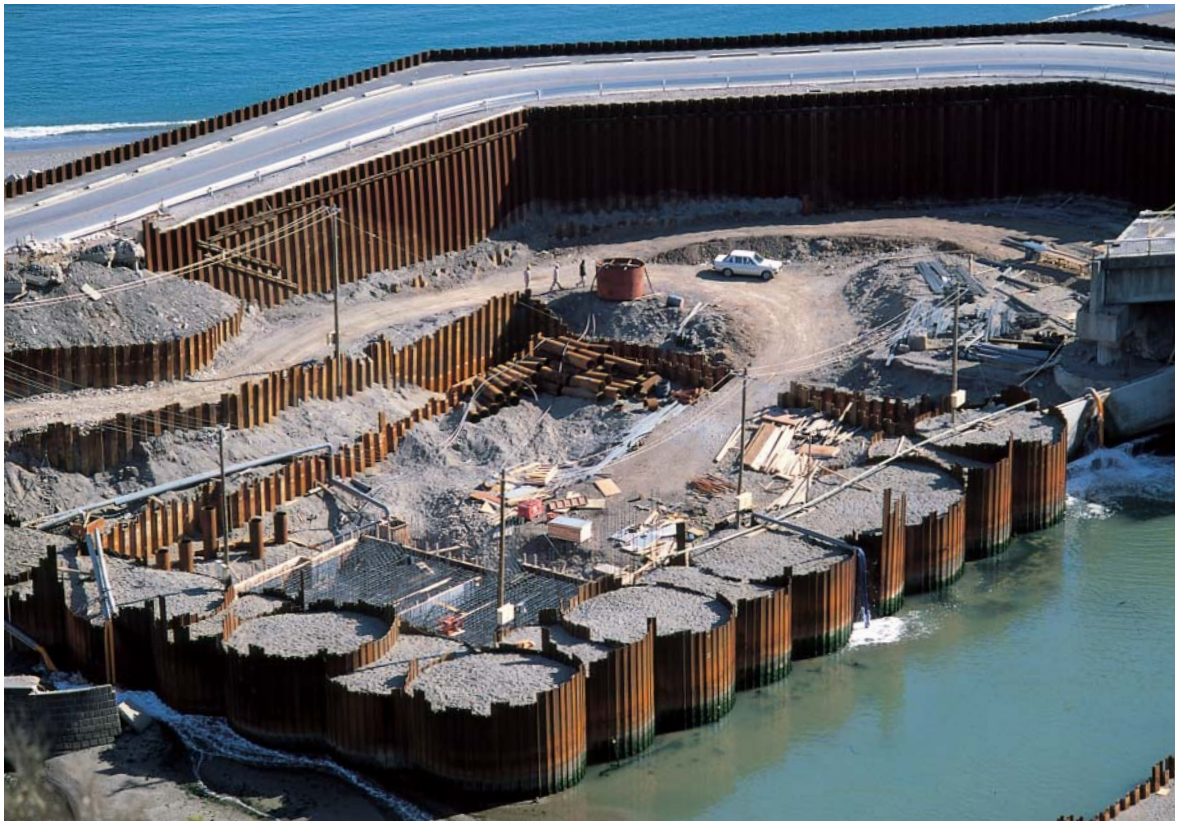
Usage and Applications

Steel sheet piles can be used for a very wide range of purposes including those listed below.

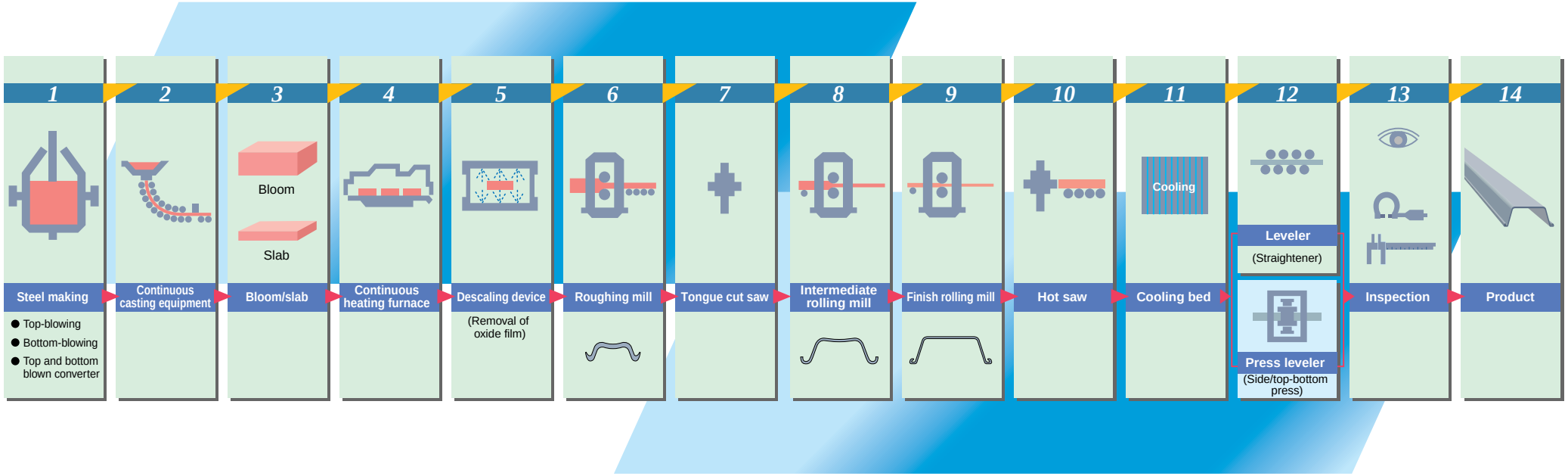
1 For permanent structures — Quay walls, embankments, breakwaters, retaining walls, scour protection walls, cut-off walls, dams, and training dikes, amongst others

2 For temporary works — Earth retaining, breasting, double cofferdams, and islet building, amongst others

3 Special uses — Oil retaining walls, protection of underground oil transport pipes, fill-up aseismic reinforcement walls, liquefaction prevention, and land subsidence prevention, amongst others



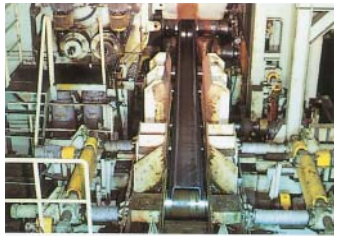
Production Process of Steel Sheet Piles

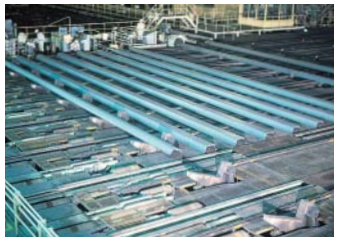


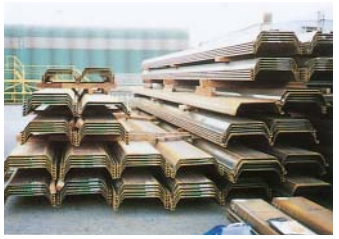

Intermediate rolling mill


Hot saw


Cooling bed


Leveler


Inspection of product


Shipment of product

Standards

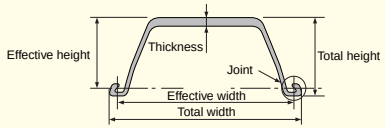
The standards most affecting the production of steel sheet piles are JIS A 5523 (hot-rolled steel sheet piles for welding) and JIS A 5528 (hot-rolled steel sheet piles).

■ Chemical composition and mechanical properties

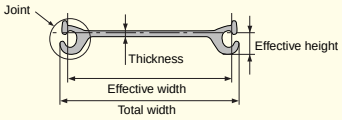
Standard	Designation	Chemical composition (%)						Carbon equivalent (%)	Mechanical properties				
		C	Si	Mn	P	S	Free nitrogen	Ceq	Yield point or yield strength (N/mm²)	Tensile strength (N/mm²)	Elongation (%)	Charpy absorbed energy	
												thickness (mm)	(J)
JIS A 5523 (hot-rolled steel sheet piles for welding)	**SYW295**	0.18 or less	0.55 or less	1.50 or less	0.04 or less	0.04 or less	0.0060 or less	0.44 or less	295 or more	490 or more	17 or more	t < 9.5 9.5 ≦ t < 12 12 ≦ t	22 or more 32 or more 43 or more
	SYW390	0.18 or less	0.55 or less	1.50 or less	0.04 or less	0.04 or less	0.0060 or less	0.46 or less	390 or more	540 or more	15 or more		
JIS A 5528 (hot-rolled steel sheet piles)	**SY295**	—	—	—	0.04 or less	0.04 or less	—	—	295 or more	490 or more	17 or more	—	—
	SY390	—	—	—	0.04 or less	0.04 or less	—	—	390 or more	540 or more	15 or more	—	—

Notes: 1. The carbon equivalent is calculated using the following formula: Carbon equivalent (%) = C + Mn/6 + Si/24 + Ni/40 + Cr/5 + Mo/4 + V/14
2. The Charpy absorbed energy is the value at the test temperature of 0℃.
3. Joint tension tests are conducted for linear steel sheet piles.
(Refer to Page 11 on linear steel sheet piles for the tensile strength of joints.)
4. The value of free nitrogen is represented by the total nitrogen in accordance with JIS A 5523:2000, item #5. Chemical composition, Note 2.

■ Tolerances for shapes and dimensions

Item \ Shape of cross section		U-shaped
		
		JIS tolerance
Total width		＋10mm － 5mm
Total difference in width		No specification
Total height		± 4%
Thickness	Less than 10 mm	± 1.0mm
	10 mm or more up to less than 16 mm	± 1.2mm
	16 mm or more	± 1.5mm
Length		＋ Not specified 0
Curvature	10 m or less in length	Total length × 0.12% or less
	More than 10 m in length	(Total length－10m) × 0.10%＋12mm or less
Warpage	10 m or less in length	Total length × 0.25% or less
	More than 10 m in length	(Total length－10m) × 0.20%＋25mm or less
Curvature of edges		No specification
Difference in cross section cut at right angles		4% or less of width

■ Tolerance for shape and dimensions

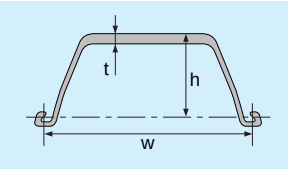
Item \ Shape of cross section		Linear shape
		
		Tolerance
Width		±4mm
Height		—
Thickness	Less than 10 mm	＋1.5mm －0.7mm
	10 mm or more up to less than 16 mm	＋1.5mm －0.7mm
	16 mm or more	—
Length		＋ Not specified 0
Curvature	10 m or less in length	Total length(m) × 0.15% or less
	More than 10 m in length	(Total length－10m) × 0.10%＋15mm or less
Warpage	10 m or less in length	Total length(m) × 0.20% or less
	More than 10 m in length	(Total length－10m) × 0.10%＋20mm or less
Difference in cross section cut at right angles		4% or less of width

Notes: 1. The tolerances for the shape and dimensions of linear steel sheet piles are based on the JIS A 5523 or 5528 standard.
2. The tolerances for width, height, and thickness apply to the portions shown above. However, the tolerance for width applies to the entire width.
3. The curvature is measured in the direction parallel to the sheet pile wall, while the warpage is measured in the direction perpendicular to the sheet pile wall.

Shape and Cross-sectional Performance

1 U-shaped steel sheet pile

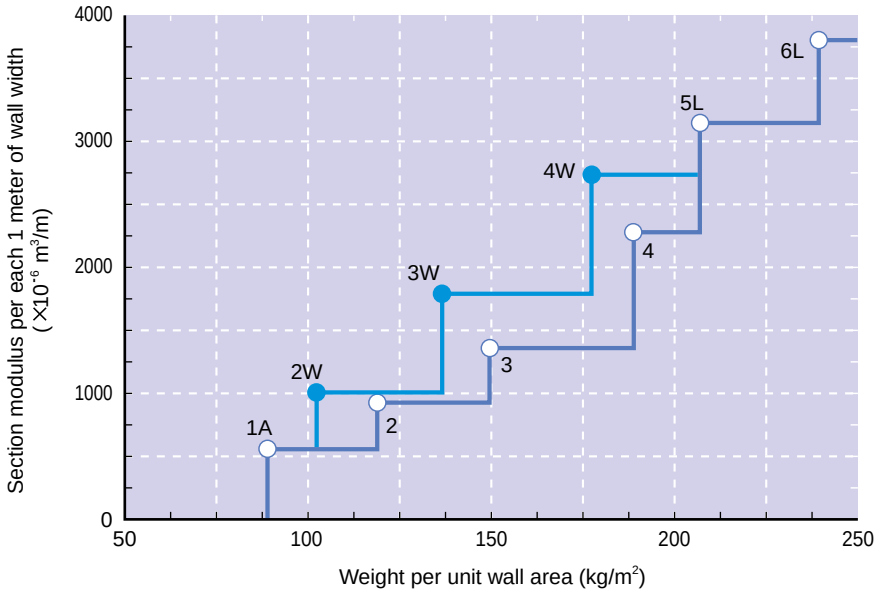
Select an appropriate type of U-shaped steel sheet pile based on the usage and load conditions.



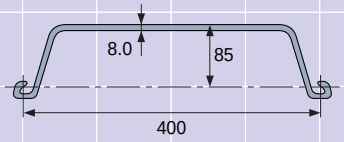
■ List of cross-sectional performance values

Type	Dimensions			Per steel sheet pile				Per each meter of wall width			
	Effective width W (mm)	Effective height h (mm)	Thickness t (mm)	Cross section x 10^{-4} (m^2)	Geometrical moment of inertia x 10^{-8} (m^4)	Section modulus x 10^{-6} (m^3)	Unit weight (kg/m)	Cross section x 10^{-4} (m^2/m)	Geometrical moment of inertia x 10^{-8} (m^4/m)	Section modulus x 10^{-6} (m^3/m)	Unit weight (kg/m^2)
JFESP−2W	600	130	10.3	78.70	2,110	203	61.8	131.2	13,000	1,000	103
JFESP−3W	600	180	13.4	103.9	5,220	376	81.6	173.2	32,400	1,800	136
JFESP−4W	600	210	18.0	135.3	8,630	539	106	225.5	56,700	2,700	177
JFESP−1A	400	85	8.0	45.21	598	88	35.5	113.0	4,500	529	88.8
JFESP−2	400	100	10.5	61.18	1,240	152	48.0	153.0	8,740	874	120
JFESP−3	400	125	13.0	76.42	2,220	223	60.0	191.0	16,800	1,340	150
JFESP−4	400	170	15.5	96.99	4,670	362	76.1	242.5	38,600	2,270	190
JFESP−5L	500	200	24.3	133.8	7,960	520	105	267.6	63,000	3,150	210
JFESP−6L	500	225	27.6	153.0	11,400	680	120	306.0	86,000	3,820	240

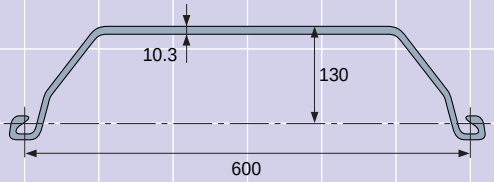
■ Section modulus per weight



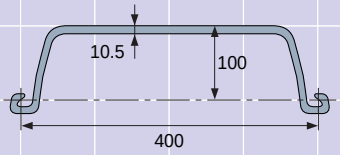
JFESP－1A



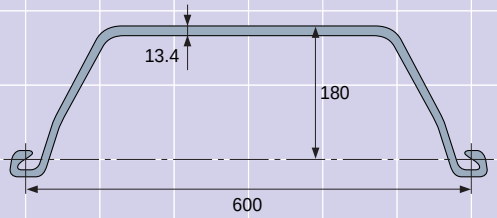
JFESP－2W



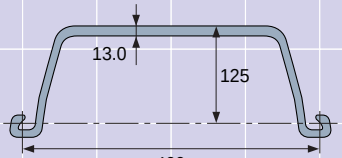
JFESP－2



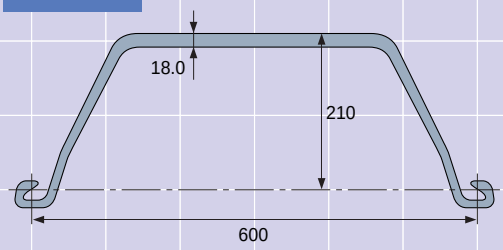
JFESP－3W



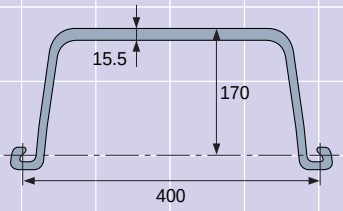
JFESP－3



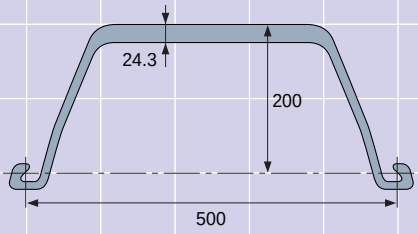
JFESP－4W



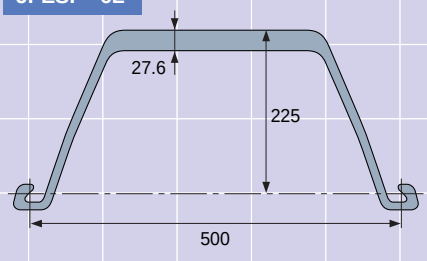
JFESP－4



JFESP－5L



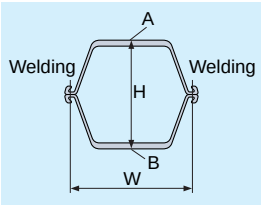
JFESP－6L

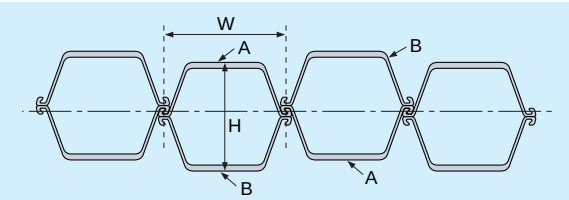


Shape and Cross-sectional Performance

2 Combined steel sheet piles

Combined steel sheet piles are made by welding two U-shaped sheet piles together. As a result, great cross-sectional performance can be expected. Combined steel sheet piles are used for large mooring quay walls. An appropriate combination of types permits economical design that best accommodates each set of design conditions.





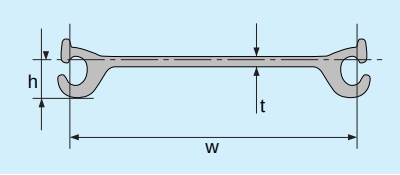
■ Combined steel sheet piles

Type		Dimensions		Cross section		Geometrical moment of inertia		Section modulus		Weight (kg/m^2) Length of A/B steel sheet piles		
A	B	H (mm)	W (mm)	Single x 10^{-4} (m^2)	Per each meter of wall x 10^{-4} (m^2/m)	Single x 10^{-8} (m^4)	Per each meter of wall x 10^{-8} (m^4/m)	Single x 10^{-6} (m^3)	Per each meter of wall x 10^{-6} (m^3/m)	100%	90%	80%
JFESP−3W	**JFESP−3W**	404	600	207.8	396.3	50,600	84,300	2,500	3,760	272	258	245
JFESP−4W	**JFESP−3W**	435	600	239.2	398.7	65,300	112,000	2,810	4,890	313	299	286
JFESP−4W	**JFESP−4W**	466	600	270.6	451.0	86,600	144,000	3,720	5,630	354	336	301
JFESP−4	**JFESP−4**	387	400	194.0	484.0	41,600	104,000	2,150	5,380	380	361	342
JFESP−5L	**JFESP−5L**	445	500	267.6	535.2	80,500	161,000	3,620	7,240	420	399	378
JFESP−6L	**JFESP−5L**	471	500	286.8	573.6	92,500	185,000	3,850	7,700	450	429	408
JFESP−6L	**JFESP−6L**	497	500	306.0	612.0	108,000	216,000	4,350	8,700	480	456	432

Shape and Cross-sectional Performance

3 Linear steel sheet piles

Linear steel sheet piles used primarily for cell structures can be selected from two types based on the tensile strength required.



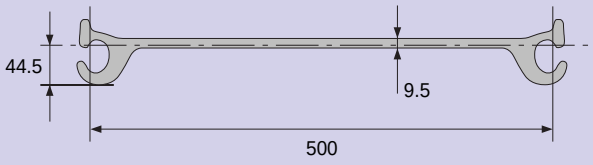
■ Cross-sectional performance

Type	Dimensions			Cross section	Weight		Geometrical moment of inertia		Section modulus	
	W (mm)	h (mm)	t (mm)	Per each pile x 10^{-4} (m^2)	Per each pile (kg/m)	Per each meter of wall (kg/m^2)	Per each pile x 10^{-8} (m^4)	Per each meter of wall x 10^{-8} (m^4/m)	Per each pile x 10^{-6} (m^3)	Per each meter of wall x 10^{-6} (m^3/m)
JFESP–FL	500	44.5	9.5	78.57	61.7	123	184	396	45.7	89
JFESP–FXL	500	47.0	12.7	98.36	77.2	154	245	570	60.3	121

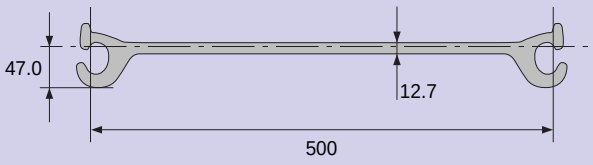
■ Tensile strength of joint

Type	Tensile strength of joint (MN/m)
JFESP–FL	3.92 or more
JFESP–FXL	5.88 or more

JFESP–FL



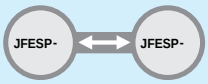
JFESP–FXL



Steel sheet pile cell method

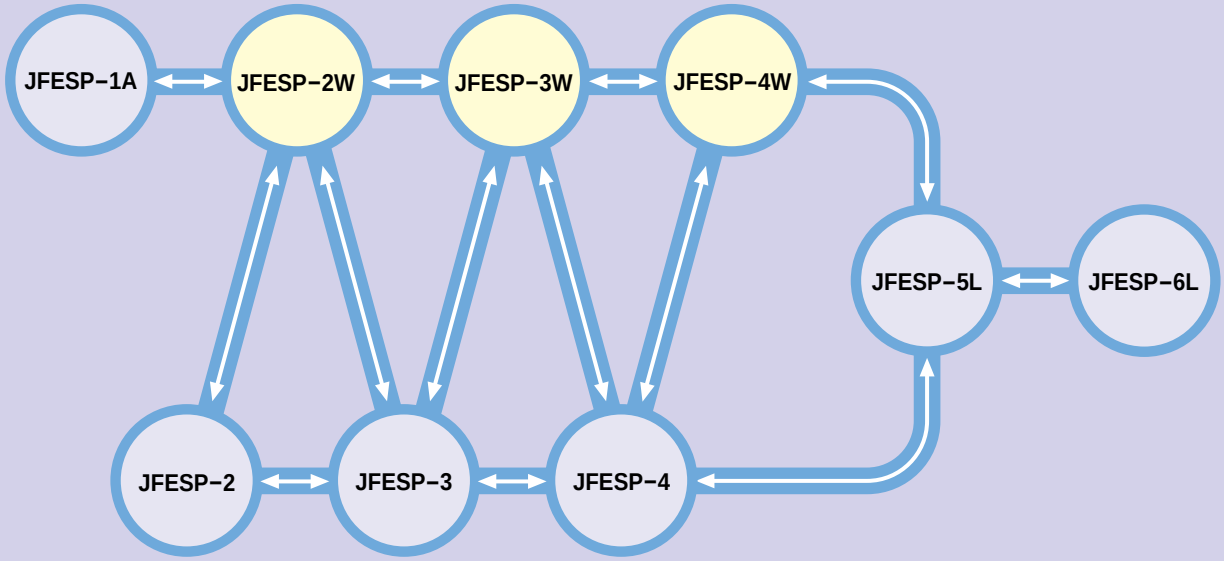
Interchangeability and Turning Angle of Steel Sheet Piles

JFESP joints can be mutually engaged within the ranges shown below.

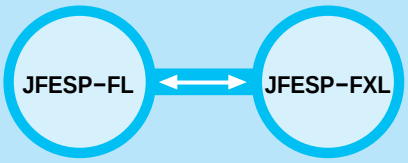


Types of engagements possible

U-shape



Linear shape



● The standard engagement range is shown here, which may vary according to the working conditions.

The standard turning angle is shown below for when steel sheet piles of the same type are engaged.

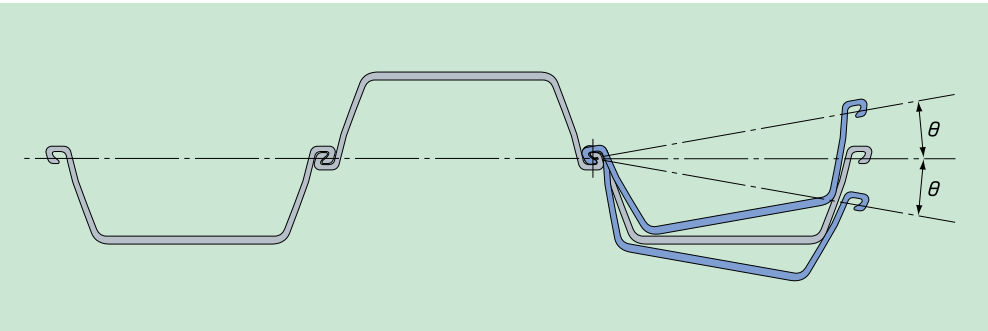
U-shaped steel sheet piles

$\theta = \pm 6^{\circ}$

Linear steel sheet piles

FL type: $\theta = \pm 12.5^{\circ}$

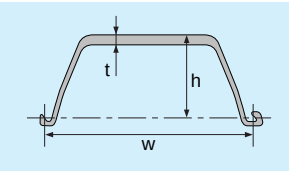
FXL type: $\theta = \pm 10^{\circ}$



Corner Steel Sheet Piles

Hot-rolled corner steel sheet piles

Steel sheet piles made by hot rolling for 90° corners have less deformation than processed corner sheet piles. These piles have the added advantage that they can be piled up for easy transport and storage.
They can also be driven in the same way as general steel sheet piles.



■ Cross-sectional performance

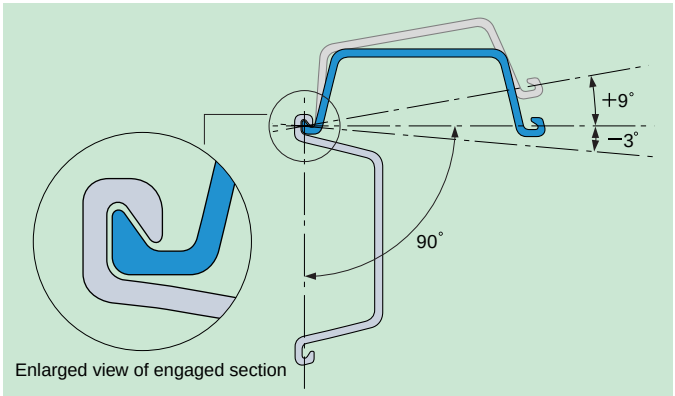
Type	Dimensions			Cross section	Weight		Geometrical moment of inertia		Section modulus	
	W (mm)	h (mm)	t (mm)	Per each pile x 10^{-4} (m^2)	Per each pile (kg/m)	Per each meter of wall (kg/m^2)	Per each pile x 10^{-8} (m^4)	Per each meter of wall x 10^{-8} (m^4/m)	Per each pile x 10^{-6} (m^3)	Per each meter of wall x 10^{-6} (m^3/m)
JFESP−C3	400	125	13.0	76.42	60.0	150	2,220	16,800	223	1,340
JFESP−C4	400	170	15.5	96.99	76.1	190	4,670	38,600	362	2,270

1 Material

The material used in the production of hot-rolled corner steel sheet plates is the same as that used in general steel sheet piles.

2 Standard turning angle

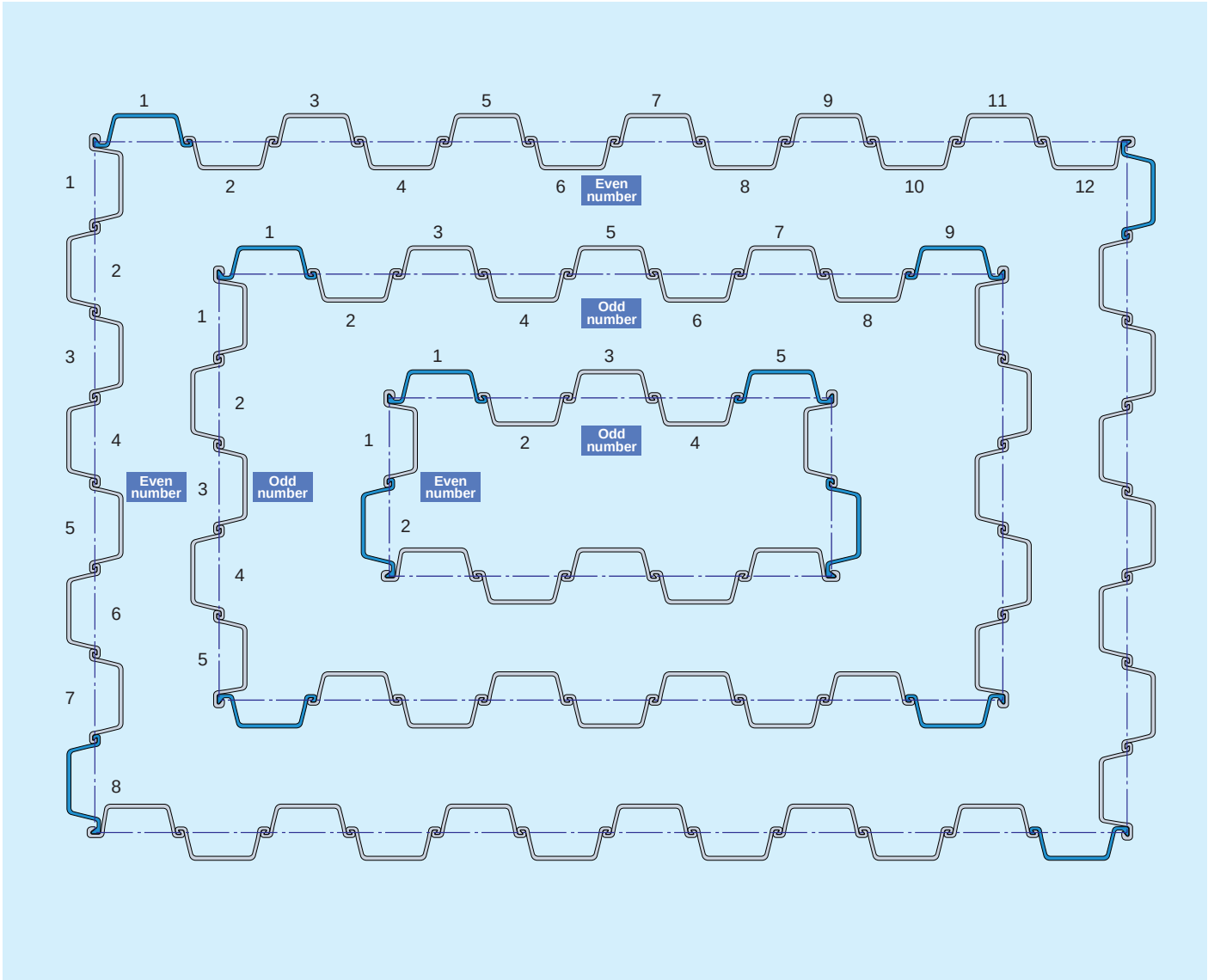
The standard turning angles when type C3 and type 3 are engaged, as well as when type C4 and type 4 are engaged, are shown below.



Corner Steel Sheet Piles

3 Driving procedure

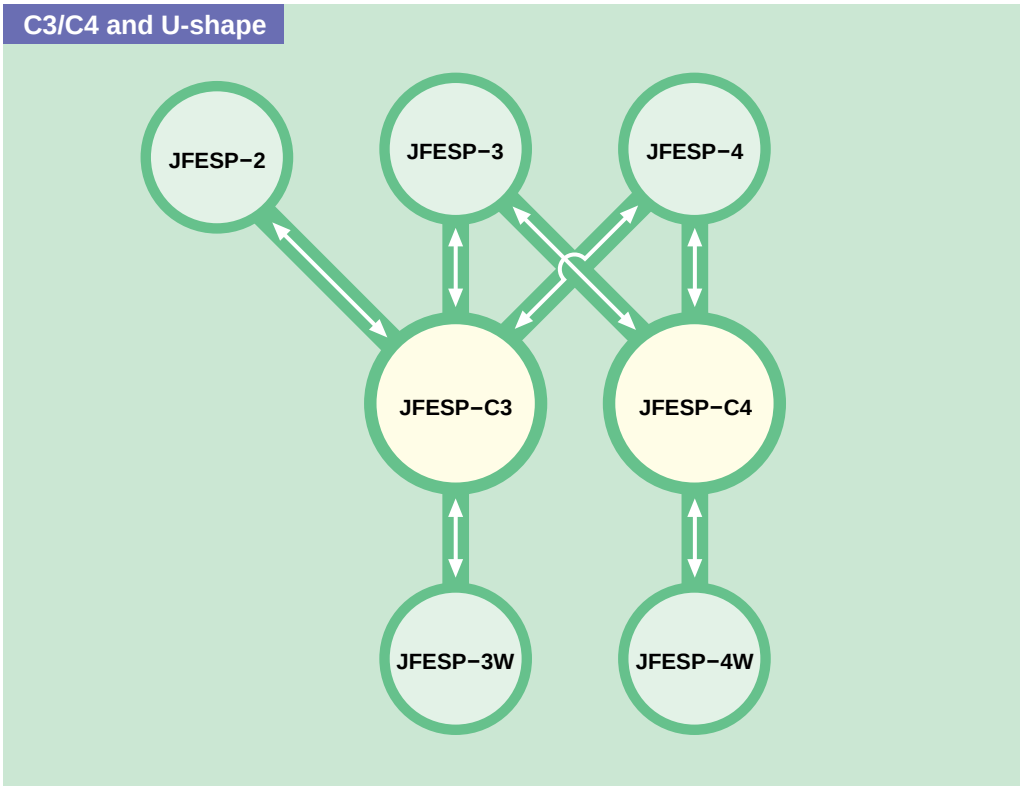
Wall closing is easy when the central dimension of the steel sheet pile wall is a multiple of the effective width of the steel sheet piles.

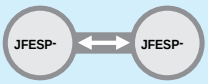


Corner Steel Sheet Piles

4 Interchangeability

C3/C4 and U-shape





Engagement possible

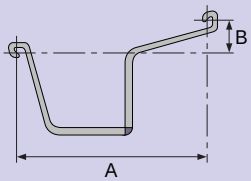
- Interchangeability of corner-side joints
- The standard engagement range is shown here, which may vary according to the working conditions.

Fabricated steel sheet piles

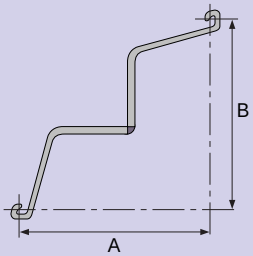
Steel sheet piles processed into shapes other than those shown below are also available.

■ U-shaped steel sheet piles

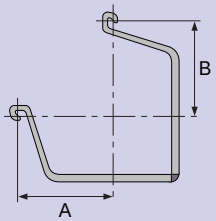
Corner sheet piles



R - type

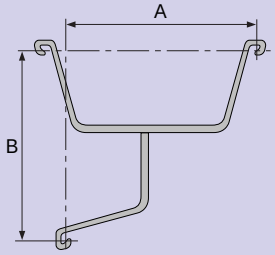


O - type

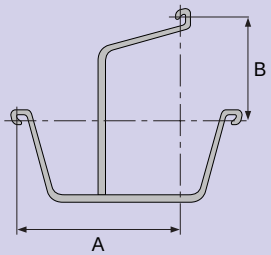


C - type

Connection sheet piles



OT - type



CT - type

- Fabricated steel sheet piles are produced according to the dimensions A and B.

Table of Weights

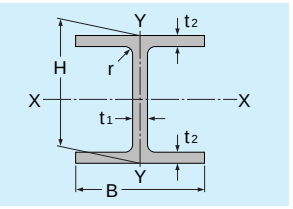
(Unit: kg)

Type / Length m	U-shaped steel sheet pile									Linear steel sheet pile	
	2W	3W	4W	1A	2	3	4	5L	6L	FL	FXL
1.0	61.8	81.6	106	35.5	48.0	60.0	76.1	105	120	61.7	77.2
5.0	309	408	530	178	240	300	380	525	600	309	386
5.5	340	449	583	195	264	330	419	578	660	339	425
6.0	371	490	636	213	288	360	457	630	720	370	463
6.5	402	530	689	231	312	390	495	682	780	401	502
7.0	433	571	742	248	336	420	533	735	840	432	540
7.5	464	612	795	266	360	450	571	788	900	463	579
8.0	494	653	848	284	384	480	609	840	960	494	618
8.5	525	694	901	302	408	510	647	892	1,020	524	656
9.0	556	734	954	320	432	540	685	945	1,080	555	695
9.5	587	775	1,007	337	456	570	723	998	1,140	586	733
10.0	618	816	1,060	355	480	600	761	1,050	1,200	617	772
10.5	649	857	1,113	373	504	630	799	1,102	1,260	648	811
11.0	680	898	1,166	390	528	660	837	1,155	1,320	679	849
11.5	711	938	1,219	408	552	690	875	1,208	1,380	710	888
12.0	742	979	1,272	426	576	720	913	1,260	1,440	740	926
12.5	772	1,020	1,325	444	600	750	951	1,312	1,500	771	965
13.0	803	1,061	1,378	462	624	780	989	1,365	1,560	802	1,004
13.5	834	1,102	1,431	479	648	810	1,027	1,418	1,620	833	1,042
14.0	865	1,142	1,484	497	672	840	1,065	1,470	1,680	864	1,081
14.5	896	1,183	1,537	515	696	870	1,103	1,522	1,740	895	1,119
15.0	927	1,224	1,590	532	720	900	1,142	1,575	1,800	926	1,158
15.5	958	1,265	1,643	550	744	930	1,180	1,628	1,860	956	1,197
16.0	989	1,306	1,696	568	768	960	1,218	1,680	1,920	987	1,235
16.5	1,020	1,346	1,749	586	792	990	1,256	1,732	1,980	1,018	1,274
17.0	1,051	1,387	1,802	604	816	1,020	1,294	1,785	2,040	1,049	1,312
17.5	1,082	1,428	1,855	621	840	1,050	1,332	1,838	2,100	1,080	1,351
18.0	1,112	1,469	1,908	639	864	1,080	1,370	1,890	2,160	1,111	1,390
18.5	1,143	1,510	1,961	657	888	1,110	1,408	1,942	2,220	1,141	1,428
19.0	1,174	1,550	2,014	674	912	1,140	1,446	1,995	2,280	1,172	1,467
19.5	1,205	1,591	2,067	692	936	1,170	1,484	2,048	2,340	1,203	1,505
20.0	1,236	1,632	2,120	710	960	1,200	1,522	2,100	2,400	1,234	1,544
20.5	1,267	1,673	2,173	728	984	1,230	1,560	2,152	2,460	1,265	1,583
21.0	1,298	1,714	2,226	746	1,008	1,260	1,598	2,205	2,520	1,296	1,621
21.5	1,329	1,754	2,279	763	1,032	1,290	1,636	2,258	2,580	1,327	1,660
22.0	1,360	1,795	2,332	781	1,056	1,320	1,674	2,310	2,640	1,357	1,698
22.5	1,390	1,836	2,385	799	1,080	1,350	1,712	2,362	2,700	1,388	1,737
23.0	1,421	1,877	2,438	816	1,104	1,380	1,750	2,415	2,760	1,419	1,776
23.5	1,452	1,918	2,491	834	1,128	1,410	1,788	2,468	2,820	1,450	1,814
24.0	1,483	1,958	2,544	852	1,152	1,440	1,826	2,520	2,880	1,481	1,853
24.5	1,514	1,999	2,597	870	1,176	1,470	1,864	2,572	2,940	1,512	1,891
25.0	1,545	2,040	2,650	888	1,200	1,500	1,902	2,625	3,000	1,543	1,930
25.5	1,576	2,081	2,703	905	1,224	1,530	1,941	2,678	3,060	1,573	1,969
26.0	1,607	2,122	2,756	923	1,248	1,560	1,979	2,730	3,120	1,604	2,007
26.5	1,638	2,162	2,809	941	1,272	1,590	2,017	2,782	3,180	1,635	2,046
27.0	1,669	2,203	2,862	958	1,296	1,620	2,055	2,835	3,240	1,666	2,084
27.5	1,700	2,244	2,915	976	1,320	1,650	2,093	2,888	3,300	1,697	2,123
28.0	1,730	2,285	2,968	994	1,344	1,680	2,131	2,940	3,360	1,728	2,162
28.5	1,761	2,326	3,021	1,012	1,368	1,710	2,169	2,992	3,420	1,758	2,200
29.0	1,792	2,366	3,074	1,030	1,392	1,740	2,207	3,045	3,480	1,789	2,239
29.5	1,823	2,407	3,127	1,047	1,416	1,770	2,245	3,098	3,540	1,820	2,277
30.0	1,854	2,448	3,180	1,065	1,440	1,800	2,283	3,150	3,600	1,851	2,316

Note: The type and length are determined by taking the design and workability into consideration.

JFESP Related Products

H-section steel piles



■ Dimensions and cross-sectional performance

Nominal dimensions	Dimensions					Cross section	Unit weight	Geometrical moment of inertia x 10^{-8} (m^4)		Section modulus x 10^{-6} (m^3)		Radius of gyration of area x 10^{-2} (m)	
	H mm	B mm	t_1 mm	t_2 mm	r mm	m^2	kg/m	Ix	Iy	Zx	Zy	ix	iy
200×200	200	200	8	12	13	63.53	49.9	4,720	1,600	472	160	8.62	5.02
250×250	250	250	9	14	13	91.43	71.8	10,700	3,650	860	292	10.8	6.32
300×300	300	300	10	15	13	118.5	93.0	20,200	6,750	1,350	450	13.1	7.55
350×350	344	348	10	16	13	144.0	113	32,800	11,240	1,910	646	15.1	8.84
	350	350	12	19	13	171.9	135	39,800	13,600	2,280	776	15.2	8.89
400×400	400	400	13	21	22	218.7	172	66,600	22,400	3,330	1,120	17.5	10.1
	400	408	21	21	22	250.7	197	70,900	23,800	3,540	1,170	16.8	9.75
	414	405	18	28	22	295.4	232	92,800	31,000	4,480	1,530	17.7	10.2
	428	407	20	35	22	360.7	283	119,000	39,400	5,570	1,930	18.2	10.4
	458	417	30	50	22	528.6	415	187,000	60,500	8,170	2,900	18.8	10.7
	498	432	45	70	22	770.1	605	298,000	94,400	12,000	4,370	19.7	11.1
500×500	500	500	25	25	26	368.3	289	163,000	52,200	6,520	2,090	21.0	11.9

Length : The standard length conforms to JIS standards. The maximum length is 30.0 m.
Material: The standard for H-section steel piles used in the foundations of civil engineering and construction structures is JIS A 5526 H-Section Steel Piles SHK400, 400M, and 490M, while the standard for H-section steel piles for general structures is JIS G 3101 Rolled Steel Material for General Structures SS400.

JFESP Related Products

JFE marine coat steel sheet piles (heavy-duty-coated steel sheet piles)

● Features of JFE marine coat steel sheet piles

1. Excellent long-term anticorrosion characteristics

The JFE marine coat steel sheet pile is coated with chemical-resistant, weather-resistant urethane elastomer, which can maintain corrosion-resistance and durability for a long period of time.*1)

2. Excellent cost efficiency

JFE marine coat steel sheet piles will maintain the anticorrosion performance for an extended period of time, thereby lowering the total cost of corrosion proofing of structures.

3. Excellent quality

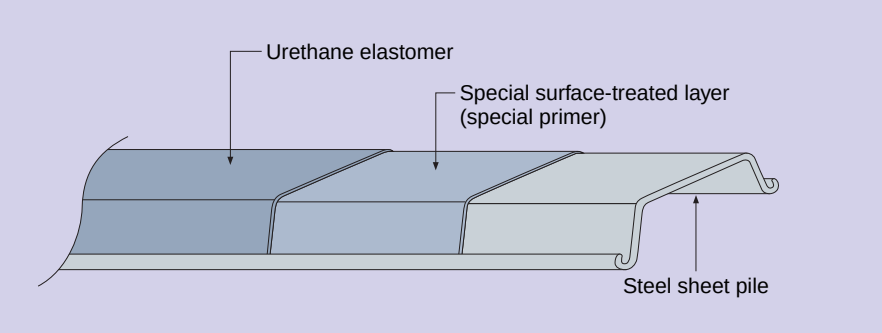
Produced under rigorous quality control, JFE marine coat steel sheet piles are a uniform, high-quality product.*2)

*1) Heavy-duty-coated steel sheet piles need periodical maintenance and control after installation. For details, refer to the "Corrosion-proof and Repair Manual for Harbor Steel Structures" and "Maintenance and Repair Manual for Harbor Steel Structures" issued by the Coastal Development Institute of Technology of Japan.

*2) Heavy-duty coated steel sheet piles are usually produced in anticipation of use at harbors. Care needs to be exercised when they are to be used in open seas or under other special conditions.

● Structure of coating

Urethane elastomer coating



● Basic physical properties of coating material of JFE marine coat steel sheet pile

The basic physical properties of the coating material (urethane elastomer) used for JFE marine coat steel sheet piles are shown below.

Urethane elastomer coating

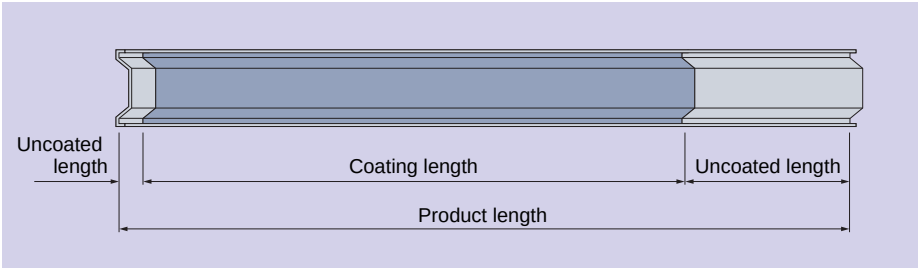
Item		Value*3)
Specific gravity	(g/cm^3)	1.0 or more
Tensile strength	(MPa)	8.0 or more
Elongation	(%)	30 or more
Hardness	(HDD)	50 or more
Water absorption coefficient	(%)	0.35or less
Volume resistivity	($\Omega \cdot cm$)	1.0×10^{12} or more
Adhesive strength	(MPa)	3.0 or more

*3) Based on the "Product Specifications for Heavy-duty Coated Steel Sheet Piles" issued by the Japanese Association for Steel Pipe Piles.

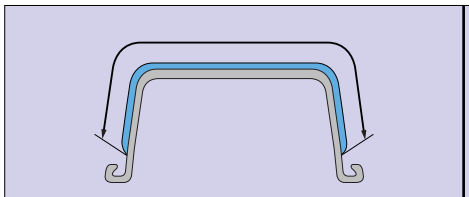
● Scope of production and specifications

Type of steel sheet piles	Coating length (m)*		Uncoated edge length (mm)	Coating thickness (mm)	Color
2W, 3W, 4W, 5L, 6L	Urethane elastomer	1～6	350 or more	Standard: 2.0	Black

* Steel sheet piles of 6-9 m in coating length are also available. Contact us for details.



Coating length per cross section (Reference value) (m)

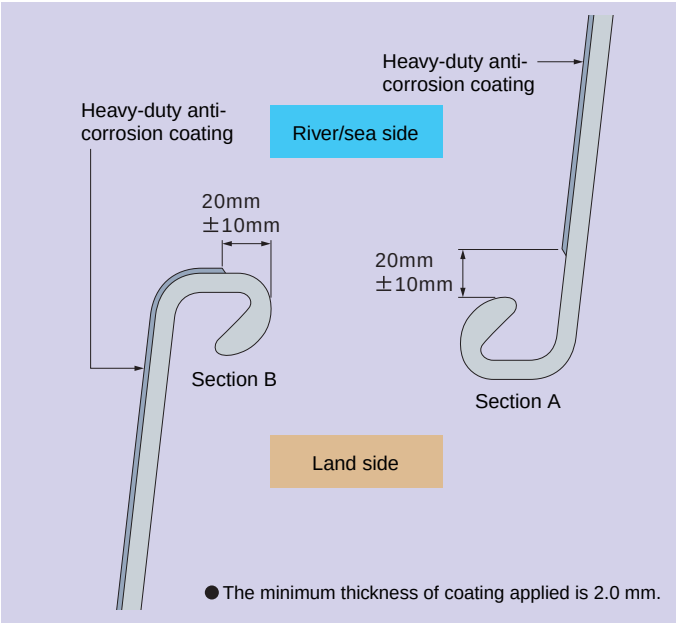


2W	0.65	5L	0.66	2W	0.77	5L	0.76
3W	0.72	6L	0.70	3W	0.84	6L	0.80
4W	0.75			4W	0.87		

● Heavy-duty anticorrosion coating is also possible for deformed steel sheet piles and other piles with complex shapes. Contact us for detailed specifications.
● The surface of urethane elastomer coated steel sheet piles can be colored (acrylic urethane) within the specified coloring range. Contact us for details.

● Coating range of joints

U-shaped steel sheet piles

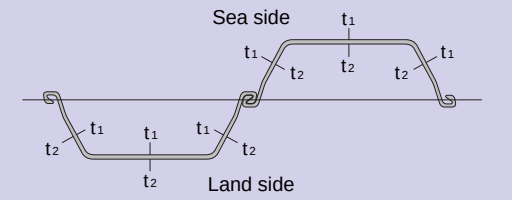


● The minimum thickness of coating applied is 2.0 mm.

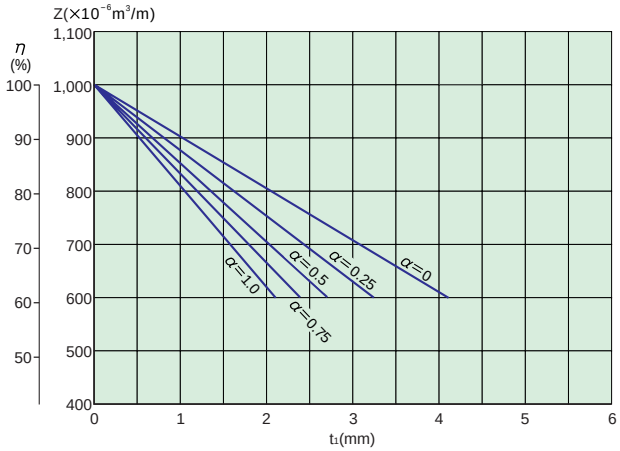
Section Modulus of Steel Sheet Piles after Corrosion

Calculations of the section modulus of steel sheet piles after corrosion are shown below.

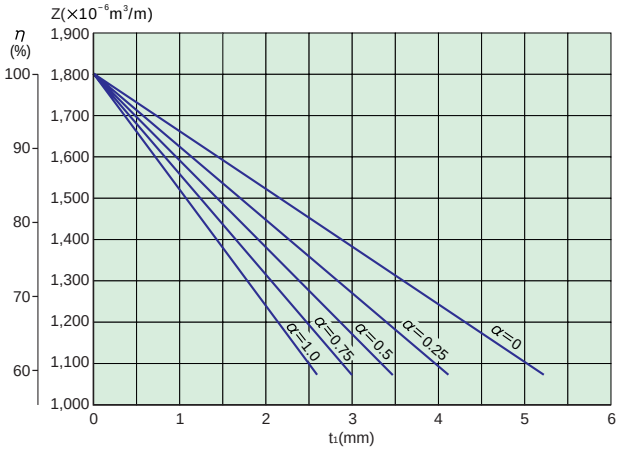
Z	Section modulus of steel sheet pile after corrosion (x $10^{-6}m^3/m$)
Z_0	Section modulus of steel sheet pile without corrosion (x $10^{-6}m^3/m$)
η	Ratio of section modulus of steel sheet pile after corrosion to Zo: $\eta = Z/Zo$ (%)
t_1, t_2	Thickness of corrosion on respective sides of steel sheet pile (mm)
α	Ratio of t2 to t1: $\alpha = t2/t1$



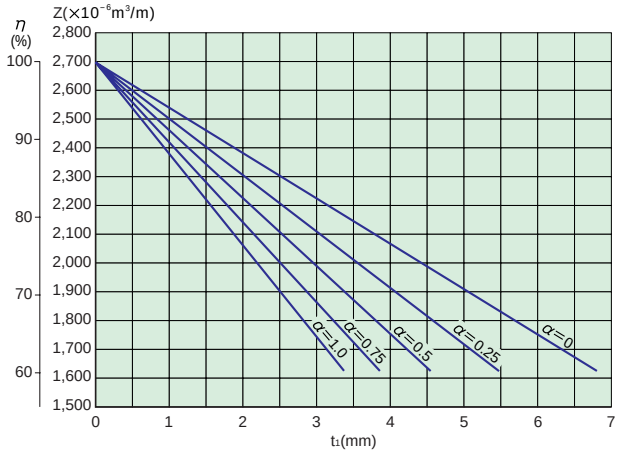
JFESP–2W



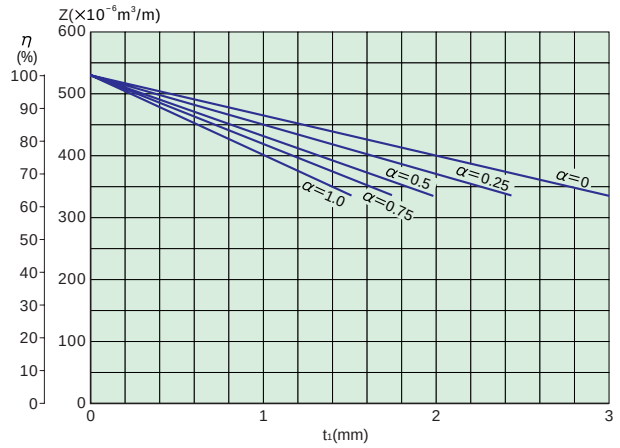
JFESP–3W



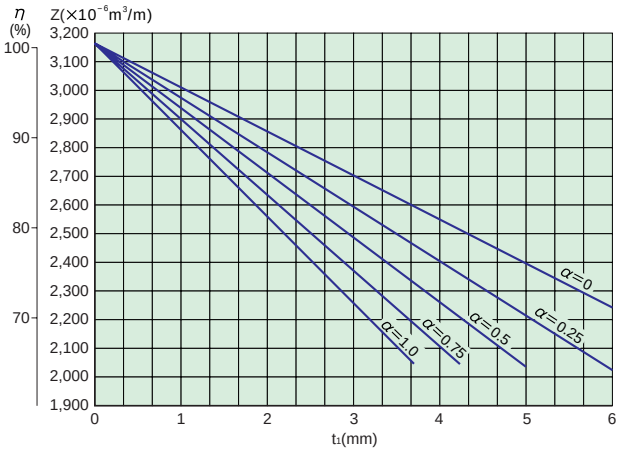
JFESP–4W



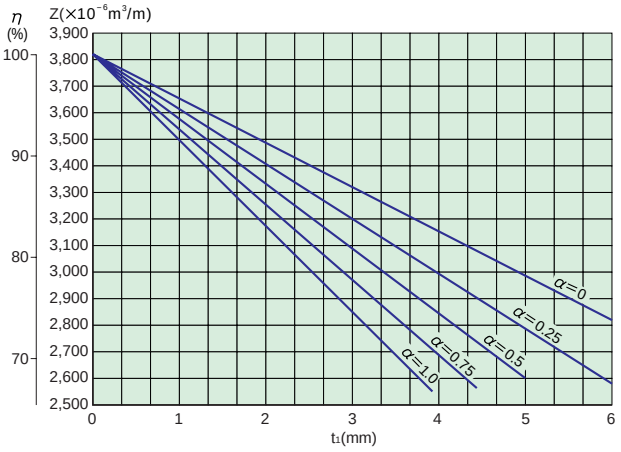
JFESP–1A



JFESP–5L



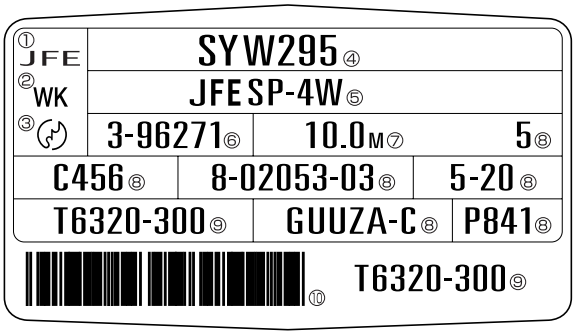
JFESP–6L

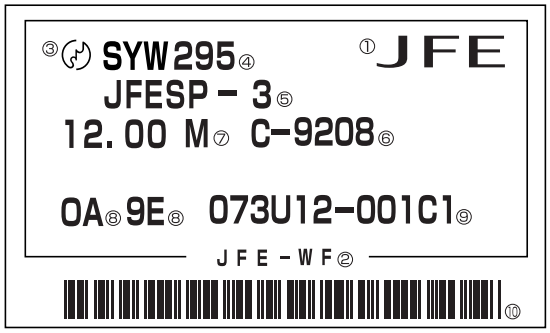


● For details, refer to "Steel Sheet Piles - From Design to Installation" issued by the Japanese Association for Steel Pipe Piles.

Forms and Methods of Packing

■ Examples of labeling





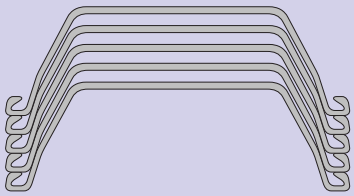
① Company mark
② Company code
③ JIS mark
④ Standard code
⑤ Type of sheet pile
⑥ Steel No.
⑦ Length
⑧ Maker control No.
⑨ Product No.
⑩ Bar code

The standard methods of packing steel sheet piles are shown below.

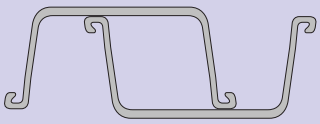
Kind	Type	Method of packing	Number of stacked sheet piles
U-shape	**JFESP−2W**	Stack 1	5 sheets
	JFESP−3W		
	JFESP−4W	Stack 1	5 sheets (less than 20 m) 3 sheets (20 m or more)
	JFESP−1A	Stack 1	5 sheets
	JFESP−2	Stack 1	5 sheets
	JFESP−3		
	JFESP−4	Coupling (Pair of 2 sheets)	—
	JFESP−5L	Stack 1	5 sheets (less than 20 m) 3 sheets (20 m or more)
	JFESP−6L	Stack 1	3 sheets
Linear	**JFESP−FL**	Stack 2	3 sheets
	JFESP−FXL		

[Note] Contact us regarding other forms and methods of packing.

Stack 1 (Example of five stacked U-shaped steel sheet piles)



Coupling (Pair of 2 U-shaped steel sheet piles)



Stack 2 (Linear steel sheet piles)

●For further information, please contact our nearest office or send your inquiries to :

Export Dept. Plate & Structural Sec. Phone : (03) 3597−4132 Fax : (03) 3597−4159

Cat.No.D1E-501-01

JFE Steel Corporation

http://www.jfe-steel.co.jp/en/

TOKYO HEAD OFFICE Hibiya Kokusai Building, 2-3 Uchisaiwaicho 2-chome, Chiyodaku, Tokyo 100-0011, Japan
Phone : (81)3-3597-3111 Fax : (81)3-3597-4860

NEW YORK OFFICE 350 Park Avenue, 27th Fl., New York, NY 10022, U.S.A.
Phone : (1)212-310-9320 Fax : (1)212-308-9292

HOUSTON OFFICE 10777 Westheimer, Suite 1010, Houston, TX 77042, U.S.A.
Phone : (1)713-532-0052 Fax : (1)713-532-0062

VANCOUVER OFFICE P.O. Box 49168, Three Bentall Centre, 453-595, Burrard Street, Vancouver, B.C. V7X 1J1, Canada
Phone : (1)604-687-0091 Fax : (1)604-688-7020

SYDNEY OFFICE Suite 3A, Level 33, Colonial Centre, 52 Martin Place, Sydney, NSW 2000, Australia
Phone : (61)2-9221-2082 Fax : (61)2-9221-2083

RIO DE JANEIRO OFFICE Praia de Botafogo, 228 Setor B Salas 508 & 509, CEP 22359-900, Botafogo, Rio de Janeiro-R.J., Brazil
Phone : (55)21-2553-1132 Fax : (55)21-2553-3430

LONDON OFFICE 8th Floor, International Press Centre, 76 Shoe Lane, London EC4A 3JB, U.K.
Phone : (44)20-7583-1133 Fax : (44)20-7583-1144

SINGAPORE OFFICE 16 Raffles Quay, No. 15-03, Hong Leong Building, Singapore 048581
Phone : (65)6220-1174 Fax : (65)6224-8357

MALAYSIA OFFICE Unit C-13A-5, Block-C, Megan Avenue II. 12, Jalan Yap Kwan Seng 50450, Kuala Lumpur, Malaysia
Phone : (60)3-2164-6618 Fax : (60)3-2164-6695

BANGKOK OFFICE 22nd Floor, Abdulrahim Place 990, Rama IV Road, Bangkok 10500, Thailand
Phone : (66)2-636-1886 Fax : (66)2-636-1891

JAKARTA OFFICE 15th Floor Summitmas II, JI Jendral Sudirman Kav. 61-62, Jakarta 12190, Indonesia
Phone : (62)21-522-6405 Fax : (62)21-522-6408

MANILA OFFICE 23rd Floor 6788 Ayala Avenue, Oledan Square, Makati City, Metro Manila, Philippines
Phone : (63)2-886-7432 Fax : (63)2-886-7315

SEOUL OFFICE 13th Floor, Donghwa Bldg., 58-7 Seosomun-dong, Chung-ku, Seoul 100-110, Korea
Phone : (82)2-779-8248 Fax : (82)2-779-8958

BEIJING OFFICE 1720, Beijing Fortune Building, Chaoyang District, Beijing 100004, People's Republic of China
Phone : (86)10-6590-9051 Fax : (86)10-6590-9056

SHANGHAI OFFICE Room No.2112, Lippo Plaza, 222 Huai Hai Road(M), Shanghai 200021, People's Republic of China
Phone : (86)21-5396-5610 Fax : (86)21-5396-5611

GUANGZHOU OFFICE Room2001, Citic Plaza 233, Tian He North Road, Guangzhou 510613, People's Republic of China
Phone : (86)20-3891-2467 Fax : (86)20-3891-2469

HONG KONG OFFICE 901, 1Exchange Square, 8 Connaught Place, Central, Hong Kong SAR
Phone : (852)2537-2176 Fax : (852)2537-5339

0603R(0403) SP
Printed in Japan