



SHEETPILE

PRODUCT BROCHURE

ST SERIES • HB SERIES

PRECAST CONCRETE SHEETPILE WALL

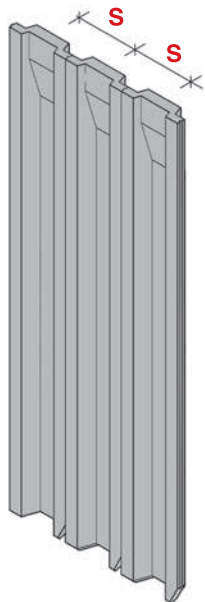
Sheet piles are widely used as temporary and permanent earth retaining systems for building platforms, stabilization of slopes, road embankments and riverbanks, and shoring walls of trenches. These embedded sheet pile walls are commonly employed for restricted site conditions, especially for wall alignment along the lot boundaries, and where open excavation is not permitted. They are also well suited to poor soil conditions, providing a cost effective alternative to replace other retaining wall systems supported on expensive piled foundations.

Precast sheet piles are manufactured in long thin structural concrete elements of folded plate sections in corrugated form. The walls are constructed by installing prefabricated sections into the ground in sequence to design depth along the planned wall alignment to support the retained earths and loads. The sheet pile walls serve generally to resist lateral earth pressures as they embedded in soils. The stability is derived from passive pressure mobilized in front of embedded toe of the wall.



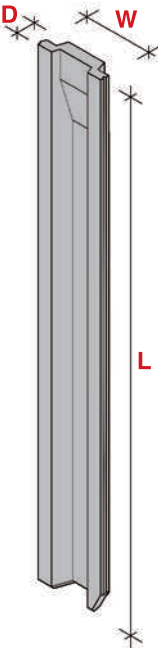
PRODUCT SPECIFICATION

Because sheet pile walls derive their support from the surrounding soil, an investigation of the foundation materials along the wall alignment should be conducted at the inception of the planning for the wall. The coordination effort required for design and construction of a sheet pile wall is dependent on the type and location of the project. Coordination and cooperation among hydraulic, geotechnical, and structural engineers must be continuous from the inception of the project to final placement in operation.



Sheetpile ST Series Suitable for soft clayey / silty or loose sandy soils

PRODUCT CODE	WIDTH W (mm)	DEPTH D (mm)	LENGTH L (mm)	SPACING S (mm)
ST-505	1200	505	6000	1200
			7500	
			9000	
			12000	
			15000	
ST-700	1200	700	9000	1200
			12000	
			15000	



APPLICATION



Development Project
Building Platform, Earth Retention and Slope Protection



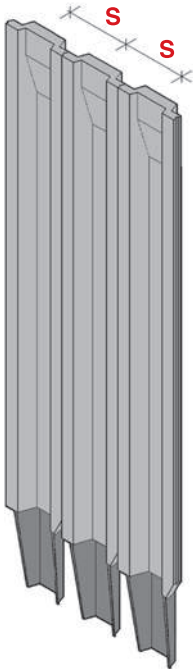
Roadwork
Embankment, Bridge, Abutment and Wingwall

Embedded sheet pile walls may be cantilever, anchored or propped structures. Cantilever sheet pile walls are suitable for only moderate height. For higher retained height, additional support to the wall however is skillfully achieved through the deployment of a system of anchors, ties, struts placed at a higher level.

Tongue and groove (T & G) joints are provided along the sides of the concrete sheet pile sections to guide and facilitate installation works. The T & G joint serves to reduce, if not totally conceal possible gaps between precast units during installation and prevent washing out of fines from the retained earths.



At service, sheet piles are considered to act as a beam subject to predominantly flexural stresses, and sometimes with combined axial stresses depending on the structural configurations. Sheet-piling loads are primarily developed by lateral earth pressures, which in turn develop shears, moments and deflections in the sheet pile sections. The precast concrete sections are reinforced adequately to resist these forces.

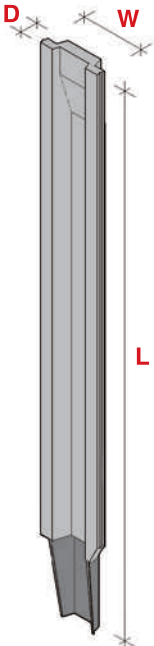


Sheetpile HB Series

Suitable for soft clayey / silty or loose sandy soils on top soil layers, but with firmer or stiffer characteristics near founding level

PRODUCT CODE	WIDTH W (mm)	DEPTH D (mm)	LENGTH L (mm)	SPACING S (mm)
HB-505	1200	505	6000 7500 9000 12000 15000	1200
HB-700	1200	700	9000 12000 15000	1200

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Marine Structure

Wharf, Jetty, Coastal Protection



Slope and Bank Stabilization

Drain, Canal, Pond, Lake and River

ADVANTAGEOUS FEATURES



Space Saving

- The precast sheetpile method of construction alleviates site constraint problem that might arise during installation and / or at the time of service.

Cost Effective

- Efficient wall section designed significantly minimises foundation cost.

Robustness

- Strong section with in-built ribbed or corrugated profiles will facilitate driving and handling process

Corrosion Free

- Being corrosion free it will entail no treatment cost.



Conventional Steel Sheetpiling

Filmsy, possibility of buckling susceptible to tranverse bending failure

Corrosion, vulnerable to adverse exposure conditions

Protective coating : not pratical and costly

Short lifespan, high maintenance costs

Escalating costs of steel

Precast Concrete Sheetpiling

Robust with rigid concrete section in special profiles

Special cement and thicker concrete cover

Inherent durable properties of concrete

Maintenance free with concrete structure

Stable price, less affected by price fluctuation

Design / Specification

- Earth retaining strucutre design to BS8002 / EC7
- Reinforced concrete design to BS8110 / EC2
- Concrete grade fcu = 40-50MPa (for standard design)
- Superimposed load = 5-10 kPa (for standard design)
- Higher grades or loading specification can be customized to meet specific project requirements

Installation

- Vibro-hammer/ or hydraulic drop hammer of adequate capacity to site soil conditions
- Work sequence in general:
 - Site clearing, preparation of access and working platform to machinery requirements
 - Setting out alignment, install guide-frame
 - Pitch wall panel, position and drive
 - Cast capping beam
- Refer to specific method statement for each project

Manufacture

- Cement (OPC) to MS522
- Aggregate (20mm) to MS29
- Steel bar to MS 146
- Admixture to MS922

Rivo Builders (M) Sdn Bhd owns and maintains an ever expanding line of proprietary precast concrete products and construction technologies. Our products are protected by patents granted including several imminent patent pending. We reserve the rights to update the information regarding its varied intellectual property and associated products and patents.



RIVO BUILDERS (M) SDN BHD

Lot 5127, Batu 6, Jalan Kenangan, Off Jalan Meru,
41050 Klang, Selangor Darul Ehsan

Tel : +603 3392 8113 Fax : +603 3392 9113

Tel : +6019 790 8113 Email : rivobuilders@gmail.com

Website : www.rivo.com.my





**JABATAN KERJA RAYA MALAYSIA
CAWANGAN JALAN**

Tingkat 15, Blok F
Ibu Pejabat JKR Malaysia
Jalan Sultan Salahuddin
50582 Kuala Lumpur



Telefon : (03) 26108041/7709 - (BPKS)
Faks : (03) 26910663 / 03 - 2692 5475
Laman Web : <http://www.jkr.gov.my>

Ruj. Kami : (2) JKRCJ.700-38/2/3/190
Tarikh : 24 Mac 2023

Pengarah
RIVO BINA SDN. BHD.
Lot 5127, Batu 6,
Jalan Kenangan,
Off Jalan Meru,
41050 Klang
SELANGOR DARUL EHSAN

Tuan/ Puan,

**KEPUTUSAN MESYUARAT JAWATANKUASA BERSAMA (JKR-LLM) KELULUSAN
PRODUK BAGI KERJA-KERJA JALAN (JBKPJ) BIL. 2/2023**

~ Produk: **Precast Concrete Sheet Pile (Pembaharuan)**

Model : **ST-Series**

No. Permohonan: **004/2018**

Dengan segala hormatnya perkara di atas adalah dirujuk dan Mesyuarat JBKPJ Bil. 2/2023 yang diadakan pada 16 Mac 2023 adalah berkaitan.

2. Adalah dimaklumkan, mesyuarat di atas telah memutuskan bahawa permohonan pembaharuan tempoh kelulusan bagi produk **Precast Concrete Sheet Pile (ST-Series)** dengan tempoh kelulusan dilanjutkan **sehingga 11 FEBRUARI 2025**. Produk yang diluluskan akan dikemaskini dan tersenarai dalam *Portal Road Material Approved List* JKR (RMAL) sebagai rujukan utama produk-produk inovasi bagi kerja-kerja jalan.

3. Bagi proses pembaharuan pendaftaran, Syarikat/ Pembekal hendaklah mengemukakan permohonan pembaharuan dalam tempoh **tiga (3) bulan sebelum tarikh luput** di atas. Sekiranya permohonan pembaharuan dikemukakan selepas tarikh luput, produk tersebut akan dinilai semula seperti permohonan baru. Di samping itu, Syarikat/ Pembekal **WAJIB** mengemukakan dokumen sokongan seperti di bawah:

- i) Testimoni projek daripada klien/ JKR Daerah
- ii) Laporan bergambar projek-projek terkini (jika ada)



4. Disertakan bersama ulasan berkenaan produk seperti di **Lampiran A** untuk makluman dan perhatian pihak tuan.

Sekian, terima kasih.

"MALAYSIA MADANI"

"BERKHIDMAT UNTUK NEGARA"

Saya yang menjalankan amanah,



(Ir. Hj. MOHAMAD SHARIP BIN WAHIJAN)

Pengerusi

Jawatankuasa Bersama (JKR-LLM) Kelulusan Produk Bagi Kerja-Kerja Jalan

b.p. Ketua Pengarah Kerja Raya

Ibu Pejabat JKR Malaysia

Pegawai Bertugas:

Ts. Nurul Saffrena binti Musa | Bahagian Pembangunan, Inovasi & Standard | saffrena@jkr.gov.my

s.k.:

1. Ketua Setiausaha
Kementerian Kerja Raya Malaysia
Tingkat 5, Blok A
Kompleks Kerja Raya
Jalan Sultan Salahuddin
50580 WILAYAH PERSEKUTUAN KUALA LUMPUR
2. Ketua Pengarah Kerja Raya
Pejabat KPKR
Tingkat 33, Blok G
Ibu Pejabat JKR Malaysia
Jalan Sultan Salahuddin
50580 WILAYAH PERSEKUTUAN KUALA LUMPUR
3. Ketua Pengarah Lembaga Lebuhraya Malaysia
Wisma Lebuhraya
Lembaga Lebuhraya Malaysia
KM 6, Jalan Serdang-Kajang
43000 Kajang, SELANGOR DARUL EHSAN
4. Timbalan Ketua Pengarah Kerja Raya (Sektor Infra)
Pejabat TKPKR (Sektor Infra)
Tingkat 33, Blok G
Ibu Pejabat JKR Malaysia
Jalan Sultan Salahuddin
50580 WILAYAH PERSEKUTUAN KUALA LUMPUR
5. Pengarah Kanan
Cawangan Jalan
Ibu Pejabat JKR Malaysia
Tingkat 15, Blok F
Jalan Sultan Salahuddin
50580 WILAYAH PERSEKUTUAN KUALA LUMPUR

s.k. (samb.):

6. Pengarah Kanan
Pusat Kecemerlangan Kejuruteraan dan Teknologi JKR (CREaTE)
Jalan Kemus, Simpang Ampat
78000 Alor Gajah
MELAKA
7. Pengarah
Cawangan Senggara Fasiliti Jalan
Ibu Pejabat JKR Malaysia
Blok D (Lama)
Jalan Sultan Salahuddin
50582 KUALA LUMPUR
8. Pengarah
Cawangan Kejuruteraan Geoteknik
Ibu Pejabat JKR Malaysia
Tingkat 26, Menara PJD
No.50 Jalan Tun Razak
50400 KUALA LUMPUR
9. Pengarah
Cawangan Kejuruteraan Cerun
Ibu Pejabat JKR Malaysia
Tingkat 12, Anjung Kanan, Blok F
Jalan Sultan Salahuddin
50582 KUALA LUMPUR



**KEPUTUSAN MESYUARAT JAWATANKUASA BERSAMA (JKR-LLM)
KELULUSAN PRODUK BAGI KERJA-KERJA JALAN BIL. 2/2023**

NO. PERMOHONAN	: 004/2018
SYARIKAT	: Rivo Bina Sdn. Bhd
PRODUK	: <i>Precast Concrete Sheetr Pile</i>
MODEL/JENAMA	: <i>ST-Series</i>
BAHAN	: <i>Precast Concrete</i>
PENGILANG	: Rivo Bina Sdn. Bhd
KEPUTUSAN	: LULUS
SAH SEHINGGA	: 11 FEBRUARI 2025

ULASAN:

- 1) Produk telah mematuhi spesifikasi piawaian dan ujian-ujian seperti berikut:
 - a) *BS 8002: Earth Retaining Structure Design*
 - b) *BS 8110: Reinforced Concrete Design*
 - c) *MS 1314: Part 1: Precast Concrete Pile, General Requirement and Specification*
 - d) *MS 1314: Part 2: 2004: Method for Determination of Bending Strength of Precast Concrete Piles (Bend Test)*

DISCLAIMER

1. Perakuan ini dikeluarkan bukan jaminan dalam perolehan projek-projek kerajaan.
2. JAWATANKUASA BERSAMA JKR-LLM KELULUSAN PRODUK BAGI KERJA-KERJA JALAN (JBKPJ) berhak membatalkan, menarik balik atau menggantung kelulusan produk pada bila-bila masa, jika mendapati:
 - a. Maklumat teknikal atau pembekal yang dikemukakan adalah tidak benar atau palsu; atau
 - b. Pembekal enggan dan gagal mengemukakan maklumat apabila diminta; atau
 - c. Gagal mematuhi piawaian JKR/ LLM/ Piawaian Antarabangsa yang ditetapkan dalam tempoh kelulusan; atau
 - d. Menerima maklum balas negatif daripada pihak pengguna; atau
 - e. Hal-hal lain yang boleh berbuat demikian dengan pertimbangan ahli JBKPJ (JKR-LLM).