

PM-6001

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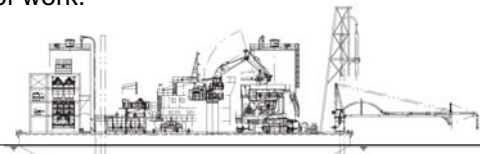
PM-6001 is equipped with :

- ① an excavator to unload dredged soil from a barge,
 - ② mixers to mix the soil with solidifying material,
 - ③ a hydraulic pump to feed the improved soil
- (Refer to the flow chart inside)

Therefore, this vessel alone can perform all the process from unloading, solidification to placement of soil by itself. By mixing with solidifying material, the soft dredged soil generated from dredging works in the ports and rivers can be improved in the strength or fluidity in order to be beneficially reused as geomaterial in reclamation works and backfill material for revetment works.

Features

- Nominal production capacity of solidified soil is 400m³ per hour and is applicable to a large-scaled rapid construction project. The capacity to pump the dredged material is 600m³ per hour.
- Two types of mixers are available onboard; a continuous mixer with paddle plates and a batch type mixer. Usually the continuous type mixer is used. However, when material needs to be adjusted to the designed fluidity or density, the batch type is used.
- With using continuous type of mixer, as the process of mixing, pumping and placement can be preformed without adding water, it is possible to build a slope with ratio 1:3 and to apply to the construction of submerged breakwater, temporary bund, and levee widening.
- The batch type mixer can homogenize the dredged soil with a high water content and produce fluid solidified soil.
- An excavator with a capacity of 5.0m³ (PL) is installed at the center of starboard side. Two sets of barge winches contribute to smooth unloading operation.
- The spreader with an outreach of 25 m can place the improved soil over a revetment. Furthermore, by connecting to the pipe arrangement on land, the work in an extensive area becomes possible.
- All the process from unloading to placement is monitored and managed in an integrated way in the control room, which makes it possible to provide high-quality performance in the construction.
- Two cement silos with a capacity of 500 tons are equipped on the vessel, providing solidifying material continuously for long hours of work.



Kanmon Kowan Construction Co., Ltd.

Head Office : 3-54 Hosoe-shinmachi, Shimonoseki 750-0017, Japan TEL: +81-83-234-3411 FAX: +81-83-223-8462
<http://www.kanmon-const.co.jp> kanmon@kanmon-const.co.jp

■ Keihin Branch Office :
 3-10 Honmoku-juniten, Naka-ku, Yokohama 231-0803, Japan
 TEL: +81-45-623-9061 FAX: +81-45-623-9062 keihin@kanmon-const.co.jp

■ Fukuoka Branch Office :
 1-7-14-702 Hakataeki-minami, Hakata-ku, Fukuoka 812-0016, Japan
 TEL: +81-92-474-4481 FAX: +81-92-474-1310 fukuoka@kanmon-const.co.jp

■ Hanshin Sales Office :
 4-2-21-605 Tomoda-cho, Nada-ku, Kobe 657-0035, Japan
 TEL: +81-78-862-5855 FAX: +81-78-862-5856 hanshin@kanmon-const.co.jp

■ Techno Base (Chofu Dockyard) :
 4-1 Chofu Minatomachi, Shimonoseki 752-0953, Japan
 TEL: +81-83-246-3000 FAX: +81-83-245-5730 chofu@kanmon-const.co.jp

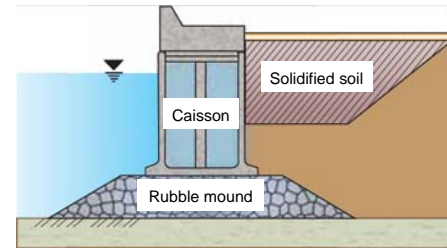
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> 400 m³/h

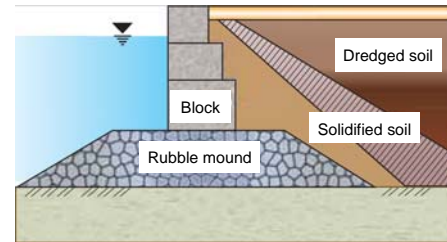
Pumping Barge with Cement Mixing Facilities

- Won recognition as commercial technology, "Premixing method of dredged soft soil" from the Ministry of Land, Infrastructure, Transport and Tourism (the former Ministry of transport).
- Able to reuse the dredged clay or silty soft clay.
- A package-type work vessel equipped with a cement slurry production plant and a hydraulic pump, capable of mixing dredged soft clay with cement slurry according to the use in the placing work.
- Taking ships sailing nearby into consideration, this vessel can be moored by spuds (effective water depth 10m) and/or anchors.
- Use of tremie pipe (effective water depth 40m) and spreader (effective length 25m) makes it possible to place the improved soil by purpose.



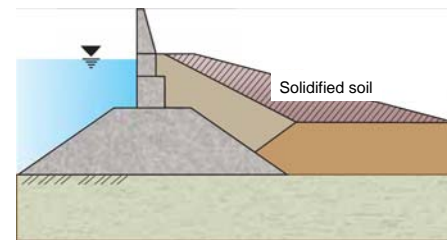
Soil pressure reduction

Solidified soil has high strength, and the weight upon a unit area becomes light by mixing with cement, which leads to the reduction in levee body and cross-sectional area of the foundation. Eventually, cost reduction can also be expected.



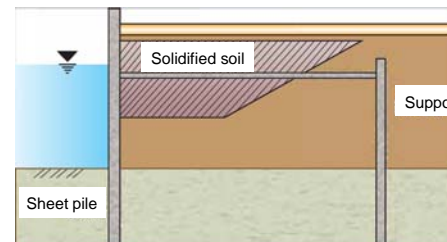
Revetment widening and soil draw-out prevention

As the solidified soil can be placed underwater, it can be used for revetment widening, soil draw-out prevention and building temporary bund.



Reclamation

Solidified soil has proper strength as a geomaterial, which enables high-quality reclamation work without requiring soil improvement work.



Liquefaction countermeasures and seismic strengthening

Solidified soil can be applied as liquefaction countermeasures of back ground or seismic strengthening of existing structures.

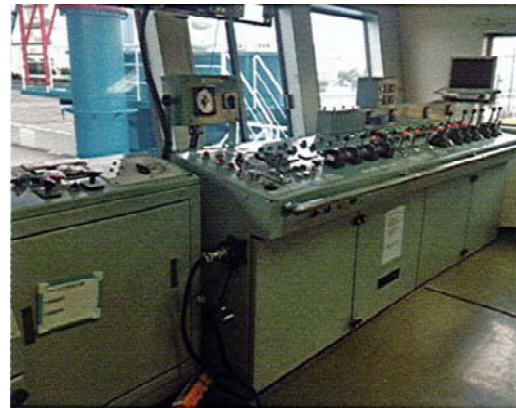


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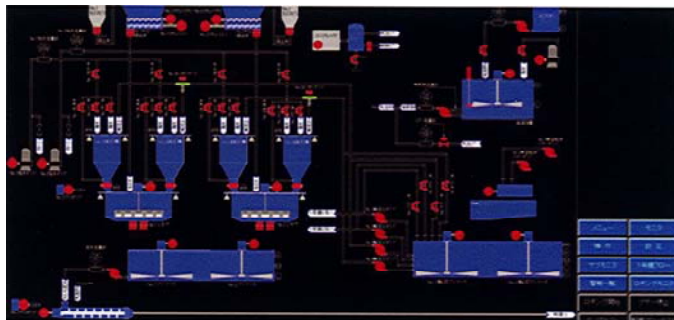
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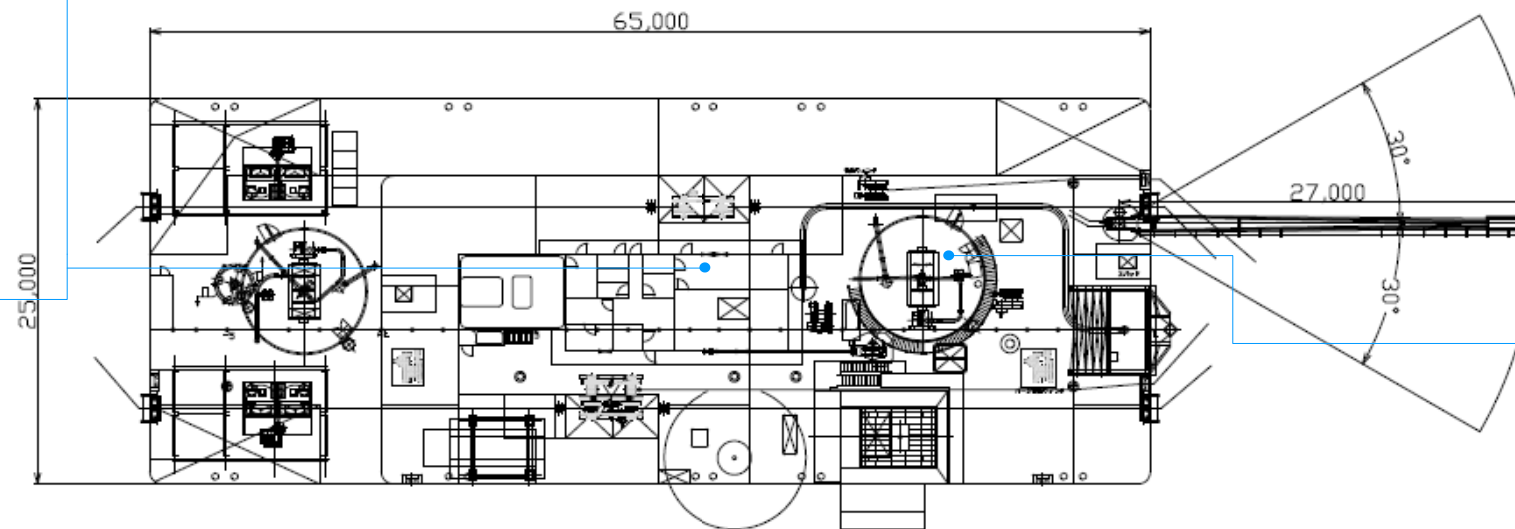
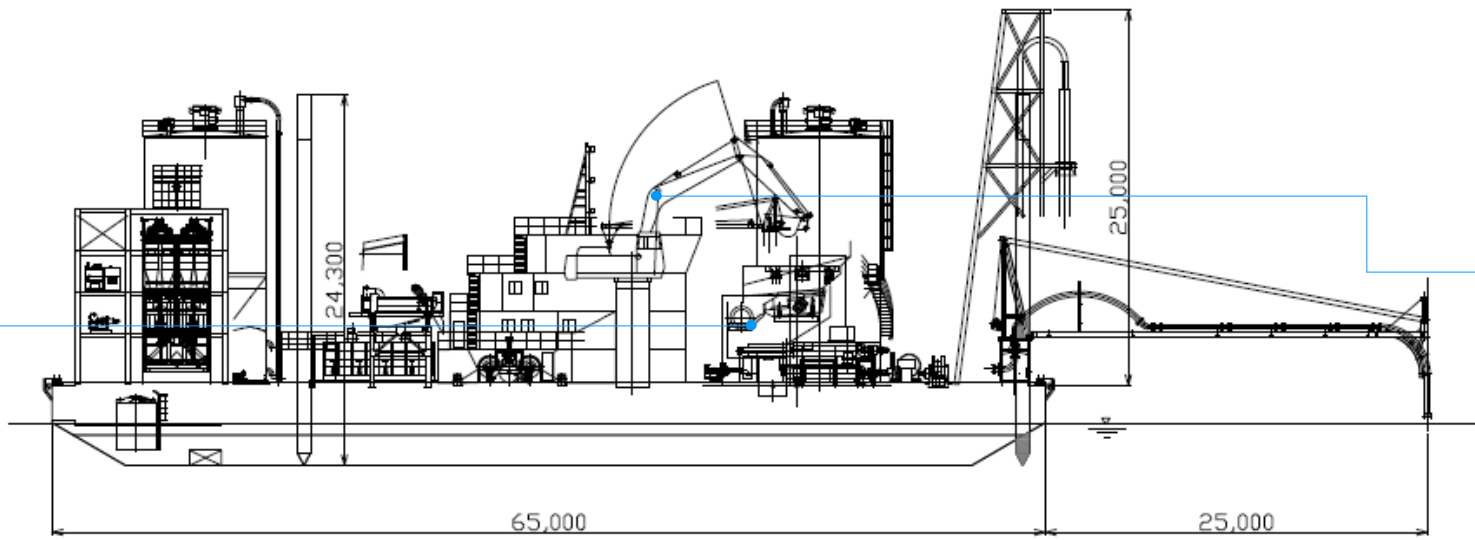
Batch plant



Operation room



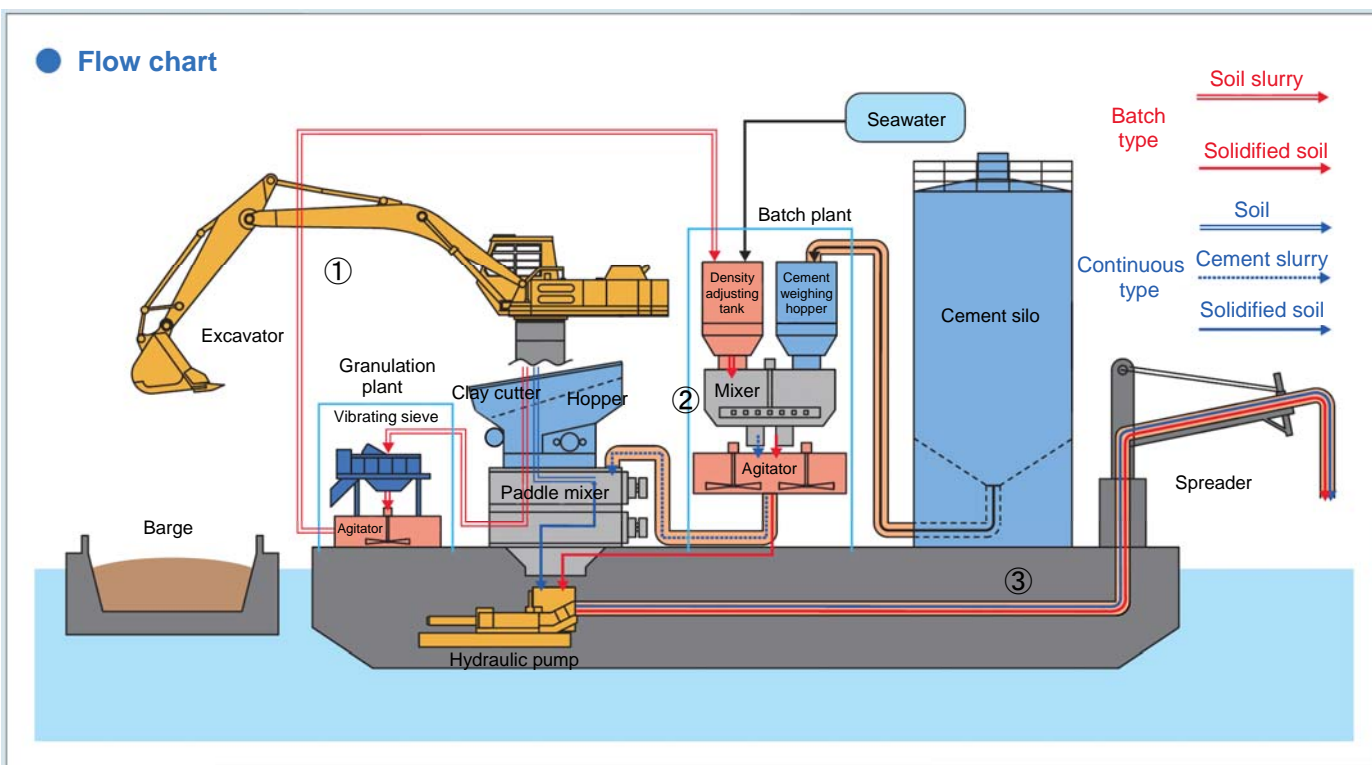
Control monitor



Excavator



Cement silo



Hull	
Builder	JMU AMTEC
Dimensions	Length 65.00 m, Width 25.00 m Depth 5.10 m, Draft 2.70 m
Machinery	
Windlass	12/6 t x 9/18m/min x 2 sets
Mooring winch	8/4 t x 9/18 m/min x 2 sets
Spud	Length 24.3 m x 2 sets
Spud winch	12/6 t x 9/18 m/min x 2 sets
Anchor & Chain	4.89 t AC-14 Anchor & 48 mm x 300 mm Chain type 3 x 4 sets
Anchor wire	36 mm x 200 mm x 4 sets
Generator	
Main generator	AC445 V x 2,250 KVA 1 Unit
Auxiliary generator	AC440 V x 610 KVA, 2 Unit AC440 V x 125 KVA
Unloader	
Type	Excavator 5.0 m ³ 1 unit

Treatment equipment	
Continuous type mixer	Twin shaft paddle mixer 400 m ³ /h (200 m ³ /h x 2) Equipped with a load cell
Batch type mixer	Density adjusting capacity : 400 m ³ /h (200 m ³ /h x 2 units) Cement mixing capacity : 400 m ³ /h (200 m ³ /h x 2 units) Cement slurry production capacity for placing premixed clay : 86 m ³ /h Density adjusting tank : 3 m ³ x 4 Mixer : 3.7 m ³ x 2 Agitator : 7.5 m ³
Sieving & soil slurry supply apparatus	Sieving capacity : 360 m ³ /h (6 m ³ /min) to screen particle size under : 10 mm Soil granulation tank : 32 m ³
Cement silo	500 t x 2
Placing equipment	
Placing capacity	400 m ³ /h
Spreader	25 m (Outreach)
Water depth of placing	40 m
Transport pipe	Steel pipe of 300 mm in diameter
Convey unit	Hydraulic pump : 600 m ³ /h