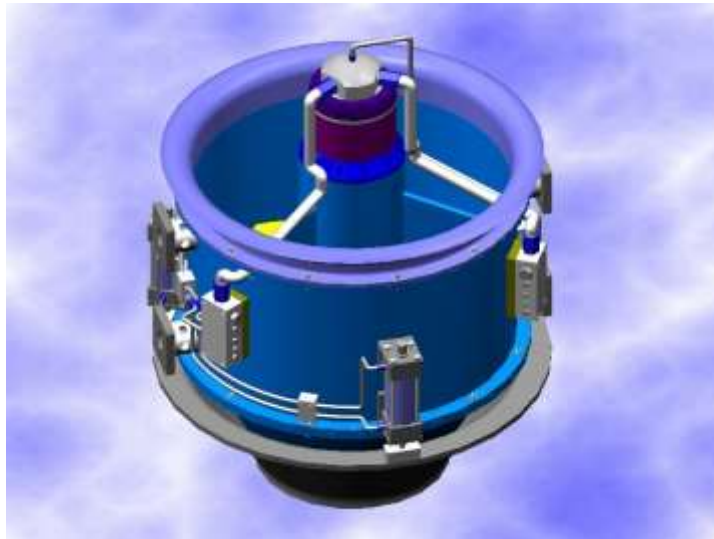


Explore another world with  
**PT. Marine Propulsion Solutions**

## Electric & Hydraulic SubSea Excavators



### **New generation subsea excavator systems**

PT. Marine Propulsion Solutions announces its New Generation of Variable Mass Flow SubSea Excavators operated hydraulically or by direct electric motor drives (400 to 3400 Vac) pressure compensated and built as an integral part of the excavator unit.

The Variable Mass-Flow Excavation systems are designed to cope with highly variable soil conditions with cutting capabilities enhanced to tackle stiff clays of up to 50 kPa.

Units are designed for either ROV or DP-equipped offshore support vessels and available from 25 upto 1000Kw. The Excavator System is an efficient, cost-effective solution for the removal of sandbag stabilization and other materials from existing pipelines in combined soils consisting of sand, gravels, other non-cohesives and clays. The EMS SubSea System solution is a fully integrated launch, excavation and survey/profiling system for larger systems. Mass flow excavation involves no physical contact between the subsea unit and seabed and allows pipelines and valves to be exposed without risk of damage. Soils can be removed from and within complex shapes with relative ease. The main tasks for Excavator System include:

**\* Pipeline burial/deburial,**

**\* Trenching,**

**\* Excavation, and on/scour protection removal.**



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# Electric & Hydraulic Excavator Systems

## PT. Marine Proposal Solutions – SubSea

The system normally operates at 2-5 meters above the seabed and has dual propeller counter rotating propellers for use in the blowing or cuffing mode (or combination). In the blowing mode, production rates upto 20 cubic meters/second can be achieved through use of the variable displacement Nozzle Assembly. Propeller speeds are adjustable for an optimum balance between flow and speed when dredging combined soils. In the cutting mode, flows upto 11 cubic meters / second are achieved.

In the blowing mode, high flow can be selected for the excavation of sandy soils. In the cutting mode, high water speed is available to deal with stiff clays. The new system's turbines are configured for much higher speeds. In addition, the turbines are counter-rotating and provide....

### Underwater Site Preparation/Excavation and Dredging Modules

ROV Mounted Modules						
Model	Power		Flow Rate	Discharge Velocity	Pressure Head	Excavation Rate
	Kw	Hp	m/sec	m/sec	M	m <sup>3</sup> /sec
E15RM	15	20				
E30RM	30	40				
E40RM	40	54				
E55RM	55	74				
E90RM	75	100	Upto 2 m <sup>3</sup> /sec	Upto 6 m/sec		Upto 600 m <sup>3</sup> /sec
E125RM	125	167				
E180RM	180	241				
Vessel Assisted Modules						
E250VM	185	250	Upto 4 m <sup>3</sup> /sec	Upto 6 m/sec		Upto 1200m <sup>3</sup> /hr
E325VM	250	335				
E500VM	375	500	Upto 8 m <sup>3</sup> /sec	Upto 6 m/sec	1.4M	Upto 2400m <sup>3</sup> /hr
E750VM	550	735				
E1000VM	750	1000				

### Maneuverability in strong currents – Tracking

[Sonsub LTD.](#) has developed the ROV-deployed excavator system named Aeolus utilizing our Model E250VM hydraulically driven excavation unit, the Aeolus system has been developed to deliver mass excavation of seabed material with undrained shear strength of less than 20kPa or excavation of seabed material which has been previously cut or fluidized.

The intended fields of utilization for the Aeolus are excavation of mechanically cut or fluidized soil, pipeline/flowline free-span removal tool, pipeline/flowline trencher, trench back-fill tool, drill cutting removal tool (in "free-fly" mode), and cable/umbilical trencher when excavator head is mounted onto "heavy" track based equipment. The system went through a very successful trial campaign.

Surveying and monitoring equipment can be installed on the units, resulting in precise positioning and trench depth control. Multi-beam sonar can also be mounted on the trailing end of the excavator to get a real-time image of the excavation effect.

Larger units and all ancillary parts can be provided with standard 20 ft ISO containers for ease of mobilization and storage and may be deployed from any DP-equipped vessel. We can supply the launch system ensuring the subsea unit is unaffected as the vessel adopts an optimal heading in relation to wind and sea conditions.



# SubSea Excavator Systems