

Power and Propulsion Solutions Modular Traction System (MTS)

BAE Systems' Power and Propulsion Solutions business area provides products to increase a vessel's operating efficiency and performance while saving fuel, operational costs, and our environment. With more than 20 years of experience in hybrid propulsion, BAE Systems is partnering with leading manufacturers of marine diesel engines to provide complete, efficient propulsion and auxiliary power systems.

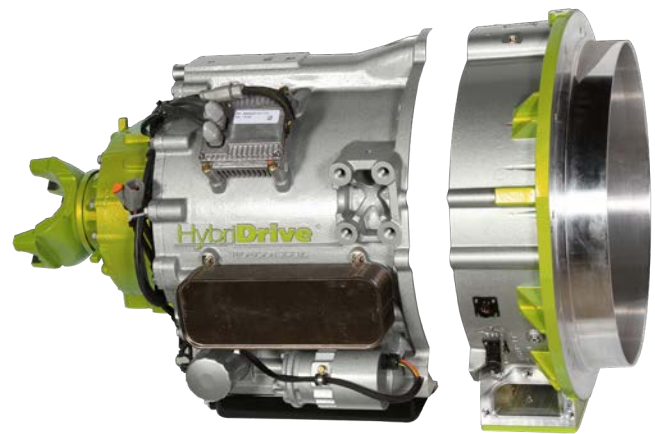
The Modular Traction System (MTS) is composed of a traction motor/reduction gear and an integrated starter generator to provide propulsion and power for the vessel. The liquid-cooled, high power-to-weight ratio AC induction electric traction motor and reduction gear connect directly to a propeller shaft to provide traction propulsion power.

The traction motor incorporates a fixed-ratio planetary reduction gear, eliminating the need for a shifting transmission. The traction motor provides high power and superior low-end starting torque.

The generator is coupled directly to the engine crankshaft, resulting in a compact bearingless design. The generator is sized to convert all engine crankshaft power to electrical power for use by the system. The compact MTS occupies an equivalent space claim of a typical conventional transmission powertrain unit.

This system's design and packaging makes it easily adaptable to various configurations and easy to install. The simple design of the MTS reduces the cost of maintenance as well as the overall life cycle cost.

We offer three motor sizes dependent on the application and duty cycle: HDS 100, HDS 200, HDS300.



AC Traction Motor (ACTM)

Integrated Starter Generator (ISG)

Features

- Mechanically simple; long life
- Integrated starter generator – eliminates conventional starter wear
- Superior low-end torque and high power-to-weight ratio
- Fits in conventional transmission space claim
- AC induction motor/permanent magnet generator — eliminates brush maintenance
- Installation flexibility: T-Drive or transverse engine mount

Benefits

- Reduced maintenance
- Flexible for worldwide various applications
- Reliable, low lifecycle cost
- Easy installation
- Sensorless ISG for improved reliability
- WEG cooled for MTS heat removal, no separate oil cooler required
- Completely high-voltage protected for safety

	Traction Motor Ratings		
	HDS100	HDS200	HDS300
Power			
Peak	190 kW (255 hp) 500 – 2485 rpm	200 kW (268 hp) 500 – 2000 rpm	230 kW (308 hp) 410 – 2110 rpm
Intermittent	175 kW (235 hp) 455 – 2485 rpm	180 kW (241 hp) 455 – 2400 rpm	200 kW (268 hp) 360 – 2640 rpm
Continuous	120 kW (161 hp) 630 – 2485 rpm	160 kW (215 hp) 630 – 2485 rpm	180 kW (241 hp) 590 – 2640 rpm
Torque			
Peak	3300 Nm (2435 ft-lbs) 0 – 200 rpm	5100 Nm (3760 ft-lbs) 0 – 200 rpm	6500 Nm (4790 ft-lbs) 0 – 1000 rpm
Intermittent	2415 Nm (1780 ft-lbs) 0 – 455 rpm	3800 Nm (2790 ft-lbs) 0 – 455 rpm	5330 Nm (3930 ft-lbs) 0 – 475 rpm
Continuous	1610 Nm (1190 ft-lbs) 0 – 630 rpm	2400 Nm (1780 ft-lbs) 0 – 630 rpm	2915 Nm (2150 ft-lbs) 0 – 1000 rpm
Speed			
Operational	0–2485 rpm	0–2485rpm	0–2640rpm
Overspeed	2730 rpm	2730 rpm	2810 rpm
Physical			
Length (end of shaft)	21.8 in (554 mm)	24.8 in (629mm)	25.7 in (653 mm)
Width	24.1 in (613 mm)	24.1 in (613 mm)	24.1 in (613 mm)
Height	22.4 in (569 mm)	22.4 in (569 mm)	22.4 in (569 mm)
Weight (wet)	654 lbs (297 kg)	804 lbs (352 kg)	855 lbs (388 kg)
Cooling	Jacket water ethylene (or propylene) -glycol, 15 gpm (57 lpm) / Internal ATF, electric oil pump, filter, cooler, oil sump		
Operating Temperature	Coolant: -40° to 167°F (-40° to 75°C) / External ambient: -40° to 185°F (-40° to 85°C)		
	Traction Generator Ratings		
	HDS100	HDS200	HDS300
Power			
Continuous	145 kW (194 hp) @ 2100 rpm	200 kW (268 hp) @ 2300 rpm	230 kW (308 hp) @ 2000 rpm
Torque			
Continuous	660 Nm (486 ft-lbs) 0 – 2100 rpm	830 Nm (610 ft-lbs) 0 – 2300 rpm	1100 Nm (810 ft-lbs) 0 – 2000 rpm
Speed	0–2100 rpm 2700 rpm	0–2300 rpm 2700 rpm	0–2000 rpm 2700 rpm
Physical			
Length (beyond FWH)	6 in (155 mm) 23.6 in (600 mm)	6 in (155 mm) 23.6 in (600 mm)	6.3 in (160 mm) 23.6 in (600 mm)
Width	23.6 in (600 mm)	23.6 in (600 mm)	23.6 in (600 mm)
Height	237 lbs (107 kg) /+26 lbs (12 kg) for CWK	251 lbs (114 kg) /+26 lbs (12 kg) for CWK	300 lbs (136 kg) /+26 lbs (12 kg) for CWK
Weight (wet)			
Cooling	Jacket water ethylene (or propylene) -glycol, 15 gpm (57 lpm)		
Operating Temperature	Coolant: -40° to 185°F (-40° to 85°C) / External ambient: -40° to 185°F (-40° to 85°C)		

North America

BAE Systems
1098 Clark Street
Endicott, NY 13760
USA

www.hybridrive.com

Rest of World

BAE Systems
Marconi Way
Rochester, Kent ME1 2XX
UK

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