

QUANTUM ENGINES | DIAMOND ENGINES

Cummins MerCruiser Diesel
RELIABILITY THROUGH INNOVATION



Professional

ENGINE SERIES





The Power of Two Legendary Names in Marine Propulsion

Cummins Incorporated + Mercury Marine

Engineering Expertise + Global Network

Cummins Inc. is recognized worldwide as a leader in advanced diesel power systems. Its success in the marine market includes over 80 years of experience producing reliable propulsion and auxiliary engines for commercial and recreational applications.

Since the company was founded in 1939, Mercury Marine has continually set the standard as the world's most innovative technological leader in marine propulsion and has consistently emphasized performance and innovation. That pledge remains strong today, as Mercury is repeatedly recognized for its ability to foresee and fulfill the needs of its consumers.

Cummins MerCruiser Diesel, a joint venture between these two industry leaders, represents a combination of world-class research and engineering expertise, exceptional range of products and an ever-growing global service network. Through this alliance, CMD has emerged as the industry's premiere choice for prop-to-helm performance.

Professional ENGINE SERIES



Versatile



Powerful



Durable



Cummins MerCruiser Diesel

RELIABILITY THROUGH INNOVATION

Trusted in the most demanding applications

When you make your living on the water, the demands and expectations you put on your engines are high. Long hours, heavy seas, constant running and maximum loads are the norm. At CMD, we understand your needs and have built an entire organization dedicated to developing the most reliable, durable and efficient marine diesel propulsion systems in the world that are specifically engineered for the rigors of commercial use.

Every CMD Professional Series engine has been specifically tuned for heavy-duty cycles and maximum serviceability. Should a problem ever occur, every system is backed by a global support network of more than 1,500 dealers and distributors, with highly trained technicians and quality parts to help you get back on the water as quickly as possible.

Quantum Engines >> Designed for superior strength and performance in a wide array of applications, these engines are easy to install and thoughtfully designed for access during routine maintenance. Meeting EPA Tier 2 and IMO emission certification standards, these full-authority electronic engines provide better power-to-weight ratios, cleaner starting, and less noise while they virtually eliminate smoke.

Diamond Engines >> Our time-tested Diamond engines have a long track record of reliable performance under the most rigorous service. Meeting IMO emissions standards, the optimized four-cycle mechanical fuel systems provide reliable, fuel-efficient operation.



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Superior Power & Versatility

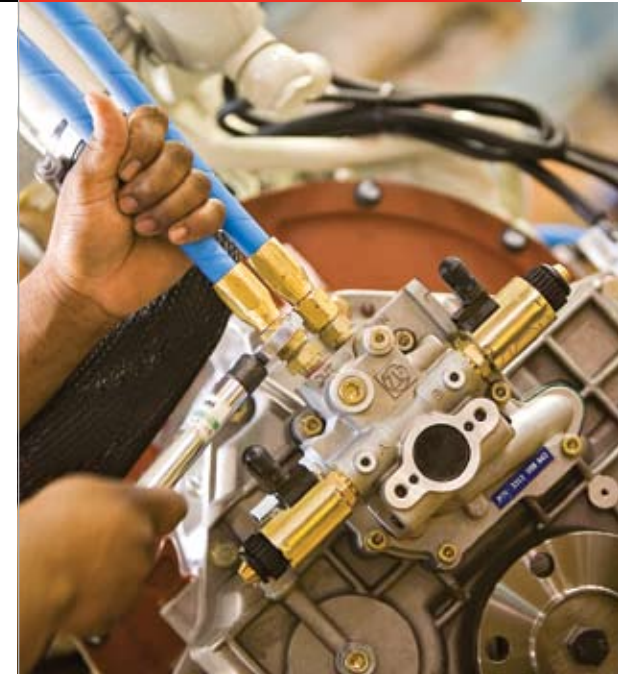
CMD Diesel Advantages

- Specifically engineered and tuned for commercial applications
- Multiple commercial ratings
- Higher fuel efficiency
- Clean, quiet operation
- Compact size for easy installation and maintenance
- Increased strength and durability
- Excellent start-up even in cold weather
- Extended warranties
- Sea water and keel-cooled options



Your needs are specific when it comes to your boat's power. If you operate a high-load workboat, you need an engine that is tough and capable of operating continuously. If you are a fisherman, you want power to get you out to the fishing grounds as fast as possible and return that night before your competition. In any case, your livelihood relies upon the engines in your boat performing as expected and available whenever you need them.

CMD offers a large range of commercial ratings to support your needs. Contact your local CMD distributor or authorized dealer to discuss your situation and how CMD products can meet or exceed your expectations. Our experienced sales engineers will help you tailor your engine to fit your specific requirements.





Rigorous On-Site Validation

Validation begins at our one-of-a-kind Marine Technical Center, located in Charleston, South Carolina (USA), adjacent to the CMD main manufacturing facility. This 33,000 square foot highly advanced center houses engine test cells and a team of the industry's most talented engineers who lead our design, new product development, electronics and vessel integration programs. When fishing, cruising or working on a commercial boat, you put a lot of trust in your engine and we have dedicated significant resources to ensuring that our engines are the safest, most durable and most reliable marine diesels on the market.



Unsurpassed Reliability & Durability

Advanced Features... Significant Improvements

Improved reliability and durability are accomplished with a combination of features, including an advanced power cylinder with gallery-cooled aluminum pistons on Quantum engines and premium rings on all engines that deliver more life and reduced maintenance. Significant improvements to the exhaust system have been made with the addition of a water-cooled exhaust manifold and water-cooled turbocharger. These improvements help to cool engine surface temperatures and eliminate exhaust leakage without sacrificing fuel economy or performance. A robust marinization ensures that Classification Society requirements are met while the engine performs in harsh marine applications.

CMD utilizes advanced in-cylinder combustion technology to meet Tier 2 requirements and maintain or increase the output of our Quantum engines, without having to increase displacement like some other engine manufacturers. We avoid the inherent reliability issues that are associated with major engine changes.



Quantum Engines 230-715 mhp

Modern Diesels... Superior Performance

Central to most Quantum engines is the high-pressure common rail fuel system, providing better power-to-weight ratios, cleaner starting and less noise while virtually eliminating the smoke and odor traditionally associated with diesel engines. Even in cold environments, these superior engines provide instant start-up with little to no visible smoke. A tighter, compact design offers more space in the engine room. Front engine supports have been strengthened and designed for easier installation. A raised turbocharger location reduces exhaust connection complexity. Handed fuel and lube filters can be installed on either side of most Quantum engines for easy servicing. Add a corrosion-proof belt guard, and you can begin to see the level of detailed planning that goes into our products and the resulting confidence you can have in them.

Quantum Engines also set the pace in emission standards. The U.S. EPA Tier 2 and IMO have challenged us to build the most eco-friendly, powerful, and fuel-efficient diesel engines without sacrificing reliability. We're proud of the results and we know you'll be pleased with the durability and, more importantly, unmatched reliability of our commercially rated Quantum Series Engines.

Quantum Advantages

- Instant start-up in cold weather
- Virtually smoke & odor free
- Lighter weight / increased power
- Simplified engine information management
- 80% less noise at idle on QSB Series
- SmartCraft vessel integration
- Unmatched durability
- EPA Tier 2 and IMO certified
- Single-loop keel cooling



SPECIFICATIONS	QSB5.9	QSC8.3	QSL9	QSM11-300, 355, 405, 455	QSM11-610, 670, 715
Displacement liters (cu. in.)	5.9 (359)	8.3 (505)	8.9 (542)	10.8 (661)	10.8 (661)
Cylinders	Inline-6	Inline-6	Inline-6	Inline-6	Inline-6
Fuel System	Common Rail	Common Rail	Common Rail	Select	Select
Water in Fuel Sensors	Optional	Optional	Optional	Not Available	Not Available
Cabin Heat	Optional	Optional	Optional	Not Available	Optional
Block Heat	Optional	Optional	Optional	Optional	Optional
Exhaust Risers	Optional	Optional	Optional	Optional	Optional
Closed Crankcase Ventilation	Optional	Optional	Optional	Not Available	Standard
Volts / Amps / Isolated	12 or 24 Volt / Various / Optional	12 or 24 Volt / Various / Optional	12 or 24 Volt / Various / Optional	12 or 24 Volt / Various / Optional	12 or 24 Volt / Various / Optional
Corrosion Protection (drive and engine)	Belt Guard / Zincs / E-coating New Polymer Belt guard (or corrosion proof) / two part epoxy paint	Belt Guard / Zincs / E-coating New Polymer Belt guard (or corrosion proof) / Stainless steel sea water tubes / two part epoxy paint	Belt Guard / Zincs / E-coating New Polymer Belt guard (or corrosion proof) / two part epoxy paint	Belt Guard / Zincs / E-coating New Polymer Belt guard (or corrosion proof) / Stainless steel sea water tubes / two part epoxy paint	Belt Guard / Zincs / E-coating New Polymer Belt guard (or corrosion proof) / Stainless steel sea water tubes / two part epoxy paint
Air - handling	Turbocharged / Aftercooled	Turbocharged / Aftercooled / Wastegated	Turbocharged / Aftercooled / Wastegated	Turbocharged / Aftercooled	Turbocharged / Aftercooled

Quantum Engine Specifications

SPECIFICATIONS	QSB5.9-230	QSB5.9-230	QSB5.9-305	QSB5.9-355	QSB5.9-380	QSB5.9-425	QSC8.3-490	QSC8.3-540	QSL9-285
Crankshaft <i>mhp (kw) @ rpm</i>	230 (169) @ 2600	230 (169) @ 3000	305 (224) @ 2600	355 (261) @ 2800	380 (280) @ 3000	425 (313) @ 3000	490 (361) @ 2500	540 (398) @ 2600	285 (209) @ 1800
Rating	HD	INT	MCD	INT	GS	GS	INT	GS	CON
Cylinders	Inline-6	Inline-6	Inline-6	Inline-6	Inline-6	Inline-6	Inline-6	Inline-6	Inline-6
Bore & Stroke <i>mm x mm (in x in)</i>	102x120 (4.02x4.72)	102x120 (4.02x4.72)	102x120 (4.02x4.72)	102x120 (4.02x4.72)	102x120 (4.02x4.72)	102x120 (4.02x4.72)	114x135 (4.49x5.31)	114x135 (4.49x5.31)	114x145 (4.49x5.71)
Displacement liters <i>(cu.in.)</i>	5.9 (359)	5.9 (359)	5.9 (359)	5.9 (359)	5.9 (359)	5.9 (359)	8.3 (505)	8.3 (505)	8.9 (542)
Compression Ratio	17.2:1	17.2:1	17.2:1	17.2:1	17.2:1	16.7:1	16.3:1	16.3:1	16.6:1
Fuel Consumption <i>(Rated) @ l/hr (g/hr)</i>	2600 rpm @ 42.2 (11.1)	3000 rpm @ 47.3 (12.5)	2600 rpm @ 57.3 (15.1)	2800 rpm @ 68.1 (18.0)	3000 rpm @ 76.2 (20.1)	3000 rpm @ 87.6 (23.1)	2500 rpm @ 100.2 (26.5)	2600 rpm @ 109.4 (28.9)	1800 rpm @ 54.3 (14.4)
Fuel Consumption <i>(Cruise) @ l/hr (g/hr)</i>	2400 rpm @ 35.7 (9.4)	2800 rpm @ 40.0 (10.6)	2400 rpm @ 47.0 (12.4)	2600 rpm @ 55.2 (14.6)	2800 rpm @ 60.6 (16.0)	2800 rpm @ 68.1 (18.0)	2300 rpm @ 78.4 (20.7)	2400 rpm @ 85.4 (22.6)	1600 rpm @ 37.9 (10.0)
Length <i>mm (in)</i>	1036 (40.8)	1036 (40.8)	1036 (40.8)	1036 (40.8)	1036 (40.8)	1036 (40.8)	1174 (46.2)	1174 (46.2)	1174 (46.2)
Width <i>mm (in)</i>	836 (32.9)	836 (32.9)	836 (32.9)	836 (32.9)	836 (32.9)	836 (32.9)	839 (33.0)	839 (33.0)	842 (33.2)
Height <i>mm (in)</i>	879 (34.8)	879 (34.8)	879 (34.8)	879 (34.8)	879 (34.8)	879 (34.8)	982 (38.7)	982 (38.7)	109 (42.9)
Engine Weight <i>kg (lbs)</i>	612 (1350)	612 (1350)	612 (1350)	612 (1350)	612 (1350)	612 (1350)	896 (1975)	896 (1975)	907 (2000)

SPECIFICATIONS	QSL9-330	QSL9-405	QSM11-300	QSM11-355	QSM11-405	QSM11-455	QSM11-610	QSM11-670	QSM11-715
Crankshaft <i>mhp (kw) @ rpm</i>	330 (243) @ 1800	405 (298) @ 2100	300 (220) @ 1800	355 (261) @ 1800	405 (298) @ 2100	455 (336) @ 2100	610 (448) @ 2300	670 (492) @ 2300	715 (526) @ 2500
Rating	HD	MCD	CON	CON	HD	MCD	INT	GS	GS
Cylinders	Inline-6	Inline-6	Inline-6	Inline-6	Inline-6	Inline-6	Inline-6	Inline-6	Inline-6
Bore & Stroke <i>mm x mm (in x in)</i>	114x145 (4.49x5.71)	114x145 (4.49x5.71)	125x147 (4.92x5.79)	125x147 (4.92x5.79)	125x147 (4.92x5.79)	125x147 (4.92x5.79)	125x147 (4.92x5.79)	125x147 (4.92x5.79)	125x147 (4.92x5.79)
Displacement liters <i>(cu.in.)</i>	8.9 (542)	8.9 (542)	10.8 (661)	10.8 (661)	10.8 (661)	10.8 (661)	10.8 (661)	10.8 (661)	10.8 (661)
Compression Ratio	16.6:1	16.6:1	15.9:1	15.9:1	15.9:1	15.9:1	16.3:1	16.3:1	16.3:1
Fuel Consumption <i>(Rated) @ l/hr (g/hr)</i>	1800 rpm @ 61.7 (16.3)	2100 rpm @ 80.2 (21.2)	1800 rpm @ 55.2 (14.6)	1800 rpm @ 65.3 (17.2)	2100 rpm @ 75.4 (19.9)	2100 rpm @ 80.0 (21.1)	2300 rpm @ 116.6 (30.8)	2300 rpm @ 126.5 (33.4)	2500 rpm @ 143.8 (38.0)
Fuel Consumption <i>(Cruise) @ l/hr (g/hr)</i>	1600 rpm @ 44.3 (11.7)	1900 rpm @ 55.6 (14.7)	1600 rpm @ 38.9 (10.3)	1600 rpm @ 45.4 (12.0)	1900 rpm @ 54.5 (14.4)	1900 rpm @ 59.1 (15.6)	2100 rpm @ 86.6 (22.9)	2100 rpm @ 89.6 (23.7)	2300 rpm @ 106.3 (28.1)
Length <i>mm (in)</i>	1174 (46.2)	1174 (46.2)	1329 (52.3)	1329 (52.3)	1329 (52.3)	1329 (52.3)	1360 (53.5)	1360 (53.5)	1360 (53.5)
Width <i>mm (in)</i>	842 (33.2)	842 (33.2)	1081 (42.5)	1081 (42.5)	1081 (42.5)	1081 (42.5)	1085 (42.7)	1085 (42.7)	1085 (42.7)
Height <i>mm (in)</i>	109 (42.9)	109 (42.9)	1039 (40.9)	1039 (40.9)	1039 (40.9)	1039 (40.9)	1009 (39.7)	1009 (39.7)	1009 (39.7)
Engine Weight <i>kg (lbs)</i>	907 (2000)	907 (2000)	1182 (2605)	1182 (2605)	1182 (2605)	1182 (2605)	1188 (2620)	1188 (2620)	1188 (2620)

Metric rating, crankshaft power rated according to SAEJ1228/ISO8665, ISO 3406-1 fuel stop power with 40°C (104°F) fuel. Crankshaft power rated according to SAEJ1228/ISO8665, at standard reference conditions. Propshaft power for inboard engines is approximately 3 percent less than rated crankshaft power, which represents net power available after typical reverse/reduction gear losses and may vary depending on type of gear or propulsion system used.

Propshaft power for sterndrive engines is approximately 4.5 percent less than rated crankshaft power. See your local CMD professional for the latest technical information. Options may affect size & weight of engines. Length measurement is length to flywheel. ©2007 Cummins MerCruiser Diesel Marine, LLC. All rights reserved. Ratings subject to change without notice. Not responsible for typographical errors.

Diamond Engines 115-430 mhp

Trusted & Time-Tested

Reliable power to get the job done and get you home today, tomorrow and next week...the legendary Diamond Series engines from Cummins MerCruiser Diesel see commercial duty from workboats in New Orleans to ferries in New Delhi.

From the small yet hardy 4B series to the untiring 6C series with continuous and intermittent duty ratings and years of mechanical reliability, this line is versatile for many marine applications. Optimized four-cycle mechanical fuel systems provide reliable, fuel-efficient operation, while turbochargers increase horsepower and enhance performance.

With worldwide service and high availability of parts, these engines will provide a high level of performance now and well into the future.

Diamond Advantages

- Meets IMO emission requirements*
- Turbocharged for enhanced performance
- 6C are wet lined for low cost rebuild
- Time-tested, proven performance engines preferred by commercial and military vessel operators worldwide
- Innovative efficiency, reliability, and consistent performance



Police Boat (ABC Industries Limited) - 6BTA



SPECIFICATIONS

	4BT	6B	6C
Displacement liters (cu. in.)	3.9 (239)	5.9 (359)	8.3 (505)
Cylinders	Inline-4	Inline-6	Inline-6
Fuel System	Mechanical Fuel Injection	Mechanical Fuel Injection	Mechanical Fuel Injection
Cabin Heat	Optional	Optional	Optional
Block Heat	Optional	Optional	Optional
Exhaust Risers	Optional	Optional	Optional
Volts / Amps	12 or 24 Volt / Various	12 or 24 Volt / Various	12 or 24 Volt / Various
Corrosion Protection	Zinc Anodes / Two part epoxy paint / E-coating	Zinc Anodes / Two part epoxy paint / E-coating	Zinc Anodes / Two part epoxy paint / E-coating

* Diamond Engines do not meet EPA Tier 2 requirements and must be used outside of United States

Diamond Engine Specifications

SPECIFICATIONS	4BT (130 hp)	4BT (150 hp)	6B (115 hp)	6BT (180 hp)	6BT (210 hp)	6BTA (225 hp)
Crankshaft <i>mhp (kw) @ rpm</i>	130 (97) @ 2800	150 (112) @ 2800	115 (86) @ 2500	180 (134) @ 2500	210 (157) @ 2600	225 (168) @ 2500
Rating	MCD	INT	MCD	MCD	INT	MCD
Cylinders	inline-4	inline-4	Inline-6	Inline-6	Inline-6	Inline-6
Bore & Stroke <i>mm x mm (in x in)</i>	102x120 (4.02x4.72)	102x120 (4.02x4.72)	102x120 (4.02x4.72)	102x120 (4.02x4.72)	102x120 (4.02x4.72)	102x120 (4.02x4.72)
Displacement liters <i>(cu.in.)</i>	3.9 (239)	3.9 (239)	5.9 (359)	5.9 (359)	5.9 (359)	5.9 (359)
Compression Ratio	16.5:1	16.5:1	17.3:1	16.5:1	16.5:1	15.3:1
Fuel Consumption <i>(Rated) @ l/hr (g/hr)</i>	2500 rpm @ 24.8 (6.5)	2800 rpm @ 28.8 (7.6)	2500 rpm @ 23.7 (6.3)	2500 rpm @ 37.8 (10.0)	2600 rpm @ 44.9 (11.9)	2500 rpm @ 46.8 (12.4)
Fuel Consumption <i>(Cruise) @ l/hr (g/hr)</i>	2300 rpm @ 19.7 (5.2)	2600 rpm @ 6.8 (25.8)	2300 rpm @ 18.9 (5.0)	2300 rpm @ 29.9 (7.9)	2400 rpm @ 35.7 (9.4)	2300 rpm @ 31.5 (8.4)
Length <i>mm (in)</i>	780 (30.7)	780 (30.7)	1003 (39.5)	1003 (39.5)	1003 (39.5)	1028 (40.5)
Width <i>mm (in)</i>	704 (27.7)	704 (27.7)	711 (28.0)	711 (28.0)	711 (28.0)	826 (32.5)
Height <i>mm (in)</i>	771 (30.4)	771 (30.4)	812 (32.0)	812 (32.0)	812 (32.0)	837 (33.0)
Engine Weight <i>kg (lbs)</i>	423 (932)	423 (932)	495 (1090)	508 (1120)	508 (1120)	517 (1140)

SPECIFICATIONS	6BTA (260 hp)	6BTA (280 hp)	6BTA (315 hp)	6CTA (255 hp)	6CTA (350 hp)	6CTA (430 hp)
Crankshaft <i>mhp (kw) @ rpm</i>	260 (194) @ 2600	280 (209) @ 2600	315 (235) @ 2800	255 (190) @ 1800	350 (261) @ 2500	430 (321) @ 2600
Rating	INT	MCD	INT	CON	INT	INT - Restricted
Cylinders	Inline-6	Inline-6	Inline-6	Inline-6	Inline-6	Inline-6
Bore & Stroke <i>mm x mm (in x in)</i>	102x120 (4.02x4.72)	102x120 (4.02x4.72)	102x120 (4.02x4.72)	114x135 (4.49x5.32)	114x135 (4.49x5.32)	114x135 (4.49x5.32)
Displacement liters <i>(cu.in.)</i>	5.9 (359)	5.9 (359)	5.9 (359)	8.3 (505)	8.3 (505)	8.3 (505)
Compression Ratio	15.3:1	15.3:1	15.3:1	16.8:1	15.3:1	15.3:1
Fuel Consumption <i>(Rated) @ l/hr (g/hr)</i>	2600 rpm @ 56.8 (15.0)	2600 rpm @ 54.1 (14.3)	2800 rpm @ 63.7 (16.8)	1800 rpm @ 50.9 (13.4)	2500 rpm @ 69.7 (18.4)	2600 RPM @ 91.6 (24.2)
Fuel Consumption <i>(Cruise) @ l/hr (g/hr)</i>	2400 rpm @ 42.4 (11.2)	2400 rpm @ 44.3 (11.7)	2600 rpm @ 50.5 (13.4)	1600 rpm @ 34.4 (9.1)	2300 rpm @ 53.5 (14.1)	2400 rpm @ 66.3 (17.5)
Length <i>mm (in)</i>	1028 (40.5)	1028 (40.5)	1028 (40.5)	1141 (45.0)	1141 (45.0)	1141 (45.0)
Width <i>mm (in)</i>	826 (32.5)	862 (34)	862 (34)	802 (31.6)	915 (36.0)	915 (36.0)
Height <i>mm (in)</i>	837 (33.0)	791 (31.1)	791 (31.1)	1100 (43.3)	944 (37.2)	944 (37.2)
Engine Weight <i>kg (lbs)</i>	517 (1140)	581 (1280)	581 (1280)	767 (1690)	855 (1855)	855 (1855)

Metric rating, crankshaft power rated according to SAEJ1228/ISO8665, ISO 3406-1 fuel stop power with 40°C (104°F) fuel. Crankshaft power rated according to SAEJ1228/ISO8665, at standard reference conditions. Propshaft power for inboard engines is approximately 3 percent less than rated crankshaft power, which represents net power available after typical reverse/reduction gear losses and may vary depending on type of gear or propulsion system used.

Propshaft power for sterndrive engines is approximately 4.5 percent less than rated crankshaft power. See your local CMD professional for the latest technical information. Options may affect size & weight of engines. Length measurement is length to flywheel. ©2007 Cummins MerCruiser Diesel Marine, LLC. All rights reserved. Ratings subject to change without notice. Not responsible for typographical errors.

Government Service Applications



SeaArk 34 Ram Patrol Vessel - QSB5.9

Reliability. Durability. Performance.

All of these attributes are necessary to meet the demanding requirements of those charged with protecting our shores from attack. CMD engines are built to exceed these expectations. Anywhere you go in the world, you will find CMD engines in harbor patrol, military, and other government agency vessels in a wide variety of applications.

The new Quantum Series engines from CMD push the envelope in using the latest technology to provide high-performing, yet durable engines in fast attack craft, special operations boats and interceptors. In a market where operational availability is key, CMD products are the ones that professionals turn to when they know that not only the success of the missions but also their lives and those of their teammates are at stake. When bullets are flying and fast decisions have to be made, the last thing that a team commander wants to worry about is the capability of the engines to finish the mission and get the team home.

Cummins engines have long been known for their reliability and durability. Mercury Marine is the acknowledged leader in racing and performance engines. When a CMD product is in your boat, you know that you are enjoying the benefits of a long and successful legacy from both parent companies.

SeaArk 34 Ram Patrol Vessel

The 34' Dauntless RAM Patrol vessel is powered by twin Cummins MerCruiser Diesel QSB5.9-380 GS rated engines. Over 90 of these high-speed patrol boats are currently operated by the U.S. Navy in a combat environment. The 34' Dauntless RAM is designed and outfitted for military missions and is transportable aboard a C-17 air craft. The CMD engines were selected for durability, performance and support service.

Moose 320C Catamaran Jet Boat

The Moose 320C is a 33' 6" all aluminum jet-powered catamaran with twin Cummins MerCruiser Diesel engines. This vessel can attain a top speed of over 35 knots, cruise at approximately 28 knots, come to a full-speed stop in less than two boat lengths and turn on a dime. Its 21" draft allows all of this to be done in less than 3' of water. The craft is fully equipped for law enforcement, search and rescue efforts and firefighting capabilities. Reliability is paramount since the mission of this vessel is to provide quick responses for marine emergencies.



Moose 320C Catamaran Jet Boat - 370B



An Unprecedented Level of Precision Control

Willard Assault 43

The Assault 43 R.I.B. is a new concept for safe, fast and comfortable high-speed interceptors. The 43' Scarab designed hull is powered by twin CMD QSC8.3 diesels. This vessel can attain a top speed of 65 knots and stay on plane at lower speeds. The durability and versatility of the QSC8.3 is a perfect fit for the growing demand for increased performance on this class of boat.



Willard Assault 43 - QSC8.3

Complete Vessel Integration **SmartCraft™**

There is far more to optimal performance than just power. Achieving optimal performance requires all your boat's systems to work together, and having one central location to access and monitor critical vessel information. Estimated range, fuel consumption, maintenance updates and engine temperature are all at your fingertips with the advanced SmartCraft™ system. By constantly monitoring and integrating the wealth of information your vessel can provide, SmartCraft™ allows you to fully maximize every aspect of your vessel's performance!



An Unprecedented Level of Control and Complete System Management

- Engine information
- Trip information
- Fuel management
- Engine diagnostics
- Vessel information such as speed and location
- Gear temperature and pressure information (gear requires sensor option)
- Generator information

SmartCraft™ lets you...

- Have instant access to the information on the performance of your vessel.
- Know when something is going wrong and how to respond.
- Know how far you can cruise with the fuel you have on board.
- Have one simple integrated system so you don't have to learn and monitor multiple systems.
- Feel confident that you have a system that is proven and reliable and won't leave you stranded.

Electronic Throttle + Shift **ETS**

At Cummins MerCruiser Diesel, our goal is to make your boating life simple, easy and enjoyable. We achieve this through developing highly reliable and innovative engines and then pairing them with superior electronic engine controls such as our **Electronic Throttle and Shift (ETS)**.

Compatibility

All Quantum engines are available with OEM harnesses and any solenoid-shifted transmission.

Single or Dual Engine Applications

The ETS system may be used in applications with either one or two engines. The standard ETS Control Processor is suitable for single or twin engine applications and controls both engine throttle and transmission position.

Single Lever Control

Single lever control permits gear and throttle control using a single lever. The ETS processor protects the engines and transmissions during shifting.

Two Button Station Transfer

An "ACTIVE" button is provided on the control station to allow the boat operator to take control at a different helm station. In order to prevent accidental transfer of propulsion system control from one station to another, and also permit the boat operator to change control stations while underway and maintain boat speed, the ETS control system has a "two-button" press process. One button press starts the transfer process. If the handles at the station taking control are in an appropriate position, a second button press completes the station transfer process.

Multiple Station Capability

ETS is available with QSB, QSC, QSL and QSM engines with electric shift transmissions.

"Posi-lock" Gear Lockout

A dedicated "WARM" button is provided on the control head to lock the gear in the neutral position so that the engine can be "warmed up" at the dock. An indicating light provides positive feedback to the boat operator that the engine may be safely throttled up in neutral while at the dock.

Automatic Engine Synchronization

A button is provided on the control head to activate automatic engine synchronization. The boat operator can set the speed of the starboard engine and the ETS system will control the port engine speed to match the starboard.

Gear Position Indicating Lights

The control head includes an indicator light to let the operator know when the transmission is in the neutral gear position.

Easy Installation

The ETS system has been engineered for easy installation with only a small harness running to each helm station. ETS also has two separate battery inputs for system redundancy.



Smooth
Safe
Control

Two Button
Control Head

Optional Four Button Control Head (Troll-Capable)

The troll feature allows you to operate the vessel slowly. This would be ideal for:

- Fishing Applications - gives you the ability to precisely control your speed.
- Other General Applications - reduce speeds easily for a no wake zone.
- Easier Docking Control

Service Overview

One call and help is on the way. Regardless of where you bought your boat, or where you dock it, you can rely upon the vast CMD service network to be there for you. For information on your nearest service center, visit www.cmdmarine.com



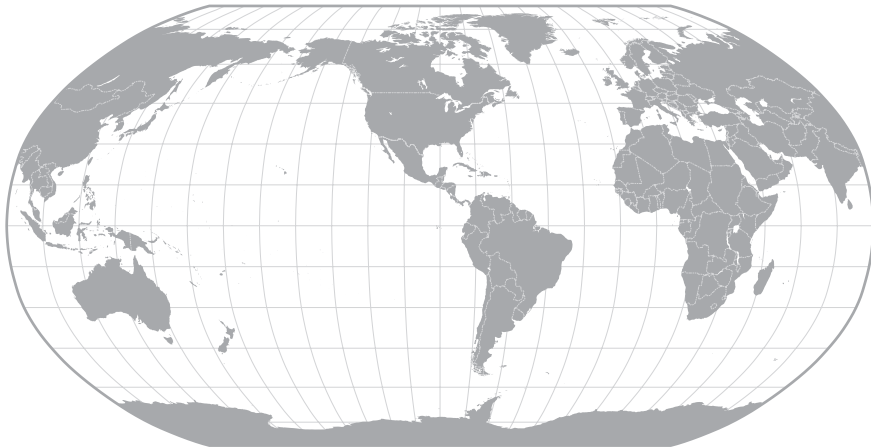


CMD Certified Field Technicians

To provide professional diagnostic, repair and maintenance services, Cummins MerCruiser Diesel sponsors Certified Application Engineer training and Qualified Marine Technician training for our field staff.

Largest Worldwide Network

To respond quickly to customer needs, there are more than 1,500 distributors and dealers worldwide who stock quality parts and accessories for our marine power systems.



Mobile QuickServe

When your boat is down and you need help on the spot, count on CMD's Mobile QuickServe. It's an entire service network geared to providing rapid response with the highest service expertise in the industry.



Quantum Warranty

The engine performance you expect and the protection plan to back it up: For commercial applications, our Quantum Engine Series includes an upgraded warranty package with base engine coverage of 24 months.



Diamond Warranty

For commercial applications, our Diamond Engine Series includes a warranty package with base engine coverage of 12 months.



24 Hour Call Center 1-800-DIESELS

Make one call for service or information about your engines 24/7 from anywhere in North America.



Quantum Encompass

CMD offers an optional extended service contract plan that will provide additional repair service for up to five years.

CONTINUOUS DUTY (CON)

Intended for continuous use in applications requiring uninterrupted service at full power. This rating is an ISO 3046 standard power rating. Typical vessel applications include: ocean-going displacement hulls such as fishing trawlers, freighters, tugboats, bottom drag trawlers, and towboats.

HEAVY DUTY (HD)

Intended for continuous use in variable load applications where full power is limited to eight (8) hours out of every ten (10) hours of operation. Also, reduced power operations must be at or below 200 rpm of the maximum rated rpm. This is an ISO 3046 fuel stop power rating and is for applications that operate 5,000 hours per year or less.

MEDIUM CONTINUOUS DUTY (MCD)

Intended for continuous use in variable load applications where full power is limited to six hours out of every twelve hours of operation. Also, reduced power operations must be at or below 200 rpm of the maximum rated rpm. This rating is an ISO 3046 fuel stop power rating and is for applications that operate less than 3,000 hours per year.

INTERMITTENT DUTY (INT)

Intended for intermittent use in variable load applications where full power is limited to two hours out of every eight hours of operation. Also, reduced power operations must be at or below 200 rpm of the maximum rated rpm. This rating is an ISO 3046 fuel stop power rating and is intended for applications that operate less than 1,500 hours per year.

GOVERNMENT SERVICE (GS)

Intended for use in variable load applications where full power is limited to one hour out of every eight hours of operation. This rating is for Federal, State and local non-revenue generating applications that operate less than 500 hours per year.

RATING DEFINITIONS

Ratings are based on ISO 8665 conditions of 100kPa (29.612 in Hg) and 25°C (77°F) and 30% relative humidity. Propeller shaft power represents the net power available after typical gear losses and is 97% of rated power. Power rated in accordance with IMCI procedures.

RATING CONDITIONS

Declared power ratings are based upon ISO 3046-1 reference conditions; air pressure of 100 kPa (29.612 in Hg) air temperature of 25°C (77°F) and 30% relative humidity. Propeller Shaft Power represents the net power available after typical reverse/reduction gear losses and is 97% of rated power. Fuel consumption is based on fuel of 35° API gravity at 16°C (60°F) having LHV of 42,780 k/kg (18,390 Btu/lb) and weighing 838.9 g/liter (7,001 lb/U.S. gal).

All information contained in this brochure is subject to change without notice. CMD is not responsible for typographical errors or incorrect data. See your local CMD professional for the latest technical information.

WWW.CMDMARINE.COM • RELIABILITY THROUGH INNOVATION

Cummins MerCruiser Diesel



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