

**BARRUS**

**E. P. Barrus Ltd.**  
**Special Products Division**



Credit: ASV Global



Credit: Atlas Elektronik UK



 **MARINER**

 **MERCURY**

 **YANMAR**

 **JOHN DEERE**

**SHIRE**

# Specialist Design and Engineering Solutions



Twin DSI (Diesel Spark Ignition) engines

The Special Products Division is a dedicated team set up to design and develop custom-built engines and accessories to meet the specific operational requirements of its customers. The team has the experience and knowledge to solve the stringent requirements and applications of specialist organisations including professional rescue services, the military and other government and commercial organisations.

Barrus has developed close relationships with many of its major customers working as consultants and suppliers. These include organisations such as the RNLI, UK MoD, US DoD, HM Coastguard, Overseas Government Forces, Local Authorities, Police and Fire Service Search and Rescue Units.

Barrus has created the innovative FAST PIRS® (Post Immersion Restart System) for the military, commercial and rescue services which enables an engine to be rapidly started after being submerged. This is an enormous advance for self-righting search and rescue vessels.

Another example of Barrus innovation is the prototype multi-fuel outboard engine. This was designed and developed for the UK MoD and is capable of running on four different NATO fuels, NATO F34 AVTUR (JP8), NATO F44 AVCAT (JP5), NATO F67 (Gasoline – unleaded) and NATO F76 (Diesel – Naval).



Credit: ASV Global

# Special Products Team



**Mark Coleman**  
General Manager Special Products and R&D Divisions  
Tel: 01869 363650  
Mob: 07802 274344  
mark.coleman@barrus.co.uk



**Phil James**  
Senior R&D & Production Engineer  
Tel: 01869 363619  
Mob: 07802 282449  
phil.james@barrus.co.uk



**Tim Bennett**  
Outboard Service Manager  
Tel: 01869 363646  
Mob: 07889 723392  
tim.bennett@barrus.co.uk



**David Etherington-Smith**  
Sales Manager  
Tel: 01869 363685  
Mob: 07919 404697  
david.es@barrus.co.uk



**Chris Pearce**  
Shire Area Sales Manager  
Mob: 07710 900340  
chris.pearce@barrus.co.uk



**Will Stevens**  
Inboard Sales Engineer  
Tel: 01869 363693  
Mob: 07884 344396  
will.stevens@barrus.co.uk



**Jamie McNicol**  
Sales Engineer  
Tel: 01869 363687  
Mob: 07802 261146  
jamie.mcnicol@barrus.co.uk



**Mike Burge**  
Sales Engineer  
Mob: 07795 381792  
mike.burge@barrus.co.uk



**Stan Terziev**  
Production and Support Engineer  
Tel: 01869 363636 (Ext: 2503)  
Mob: 07864 013642  
stan.terziev@barrus.co.uk



**Alex Taplin**  
SPD R&D Engineer  
Tel: 01869 880210  
alex.taplin@barrus.co.uk



**Richard Cooke**  
Shire Support Engineer  
Mob: 07500 774717  
richard.cooke@barrus.co.uk



**Maxine Evans**  
Sales Office Co-ordinator  
Tel: 01869 363682  
maxine.evans@barrus.co.uk



**Sarah Ashton**  
Sales Office Administrator  
Tel: 01869 326405  
sarah.ashton@barrus.co.uk

# Outboard Specifications



4-STROKE Models	Kilowatts <sup>(1)</sup>	Max. RPM at full throttle	Cylinders / Displacement	Starting	Gear ratio	Alternator system <sup>(2)</sup>	Weight <sup>(3)</sup>
600 Verado	447	4600 - 5600	V12 - 7600 cc	SmartStart electric	2.50:1	150 amp	572 kg
500 SeaPro	372.8	5000 - 5800	V12 - 7600 cc	SmartStart electric	2.50:1	150 amp	572 kg
400 Verado	294	6400 - 7000	6 (in-line) / 2598 cc	SmartStart electric	1.75 : 1	70 amp (882 watt)	303 kg
350 Verado	261	5800 - 6400	6 (in-line) / 2598 cc	SmartStart electric	1.75 : 1	70 amp (882 watt)	303 kg
300 - 250 Verado	224 - 186	5200 - 6000	V8 / 4600 cc	SmartStart electric	1.85 : 1	70 amp (882 watt)	272 kg
225 - 200 - 175	168 - 149 - 130	225: 5200 - 6000 200 - 175: 5000 - 5800	V6 / 3400 cc	SmartStart electric	1.85 : 1	85 Amp (1071 watt)	216 kg
150EFI	110.3	5000 - 5800	4 (in-line) / 3000 cc	Electric (turn-key)	1.92 : 1	60 amp (756 watt)	206 kg
115 EFI - 90 EFI - 75EFI	84.6 - 66.2 - 55.2	115: 5000 - 6000 90-75: 4500 - 5500	4 (in-line) / 2100 cc	SmartStart electric	2.07 : 1 CT: 2.38 : 1	35 amp (441 watt)	115: 165 kg 90 - 75 : 163 kg
60EFI + CT 50 EFI	44.1 - 36.8	5500 - 6000	4 (in-line) / 995 cc	Electric (turn-key)	1.83 : 1 CT: 2.33 : 1	18 amp (226 watt)	112 kg CT: 118 kg
40 EFI	29.4	5500 - 6000	3 (in-line) / 747 cc	Electric (turn-key)	2.00 : 1	18 amp (226 watt)	98 kg
30 <sup>(3)</sup> - 25 EFI <sup>(3)</sup>	22.1 - 18.4	30: 5250 - 6250 25: 5000 - 6000	3 (in-line) / 526 cc	Manual or electric (turn-key)	1.92 : 1	15 amp (186 watt)	30: 78 kg 25: 71 kg
20 <sup>(3)</sup> - 15 EFI <sup>(3)</sup>	14.7 - 11	5700 - 6200	2 (in-line) / 333 cc	Manual or electric	2.15 : 1	12 amp (138 watt)	45 kg
9.9 <sup>(3)</sup> - 8 <sup>(3)</sup>	7.28 - 5.88	5000 - 6000	2 (in-line) / 208 cc	Manual or electric	2.08 : 1	6 amp (76 watt) on electric start models	38 kg
6 <sup>(5)</sup> - 5 <sup>(5)</sup> - 4 <sup>(5)</sup> + 5 SailMate <sup>(5)</sup>	4.41 - 3.68 - 2.94	6: 5000 - 6000 5 - 4: 4500 - 5500	1 / 123 cc	Manual	2.15 : 1	Optional 4 amp (50 watt) lighting, 2 amp (25 watt) charging 5 SAILMATE: Standard with rectifier	25 kg
3.5 <sup>(6)</sup> - 2.5 <sup>(6)</sup>	2.57 - 1.84	3.5: 5000 - 6000 2.5: 4500 - 5500	1 / 85 cc	Manual	2.15 : 1	n/a	17 kg
2-STROKE Models	Kilowatts <sup>(1)</sup>	Max. RPM at Full Throttle	Cylinders/ Displacement	Starting	Gear Ratio	Alternator System <sup>(2)</sup>	Weight <sup>(3)</sup>
50 - 40	36.8 - 29.4	5150 - 5850	3 / 697 cc	Manual or Electric	1.85:1	11 amp (130 watt)	75 kg
30 - 25	22.1 - 18.4	30: 4800 - 5500 25: 5000 - 5800	2 / 429 cc	Manual or Electric	1.92:1	6 amp (80 watt)	51 kg
15	11	5200 - 5800	2 / 249 cc	Manual	1.85:1	6 amp (76 watt)	42 kg
5 <sup>(4)</sup>	3.68	4000 - 5000	1 / 102 cc	Manual	2.15:1	Optional 4 amp (50 watt) lighting	20 kg
3.3 - 2.5	2.4 - 1.8	3.3: 4500 - 5500 2.5: 4200 - 5200	1 / 74.6 cc	Manual	3.3: 2.15:1 2.5: 1.85:1	N/A	13 kg

(1) Measured at propshaft in accordance with ICOMIA 28. (2) Requires rectifier to complete installation manual versions. (3) Dry weight specification is for lightest model and excludes engine oil, rigging hardware and propeller.

# Mercury DSI Outboard



Mercury's Diesel Spark Ignition outboard engine has been specifically engineered for military and specialised commercial applications utilising a lightweight block and proven components for reliability and parts interchangeability.

This high performance diesel two-stroke uses spark ignition technology for a high power-to-weight ratio.

Featuring SmartCraft® Engine Guardian, this industry exclusive engine also provides real-time, self-protection engine fault diagnostics and messaging.

Model	V6 DSI*
Suitable Applications	Military / Non-Commercial
Maximum Output	180hp (137kW)
Full Speed Operation Range	5500 - 5800rpm
Transom Height	508mm Longshaft / 635mm Extra Longshaft
Total Weight	238kg
Displacement / No. Cylinders	3032 / V6
Lubrication	Automix- Oil Injection
Gear Ratio	2.0 : 1
Gearshift	F - N - R
Starting System	Electric turn key
Alternator	60 amp / 756 Watt
Oil	Multifuel

\*For military / semi commercial use only - engine is not RCD compliant



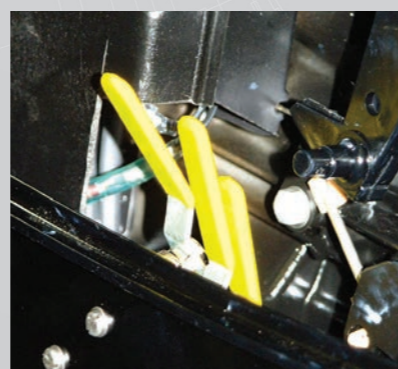
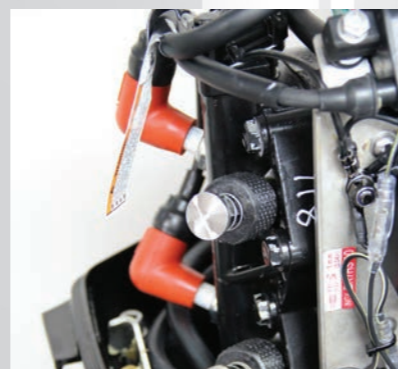
# Post Immersion Restart Engines



PIRS (Post Immersion Restart System) restarts an outboard engine after being submerged; a system designed and developed by Barrus for the military, commercial and rescue services.

GEN 2 FAST PIRS®, the latest two-stroke development, rapidly drains the fuel system and cylinders of water with a restart time of less than 30 seconds.

Model	PIRS	FAST PIRS GEN II
Maximum Output	40hp (29.4kW) @ 5800rpm / 50hp (36.8kW) @ 5800rpm	
Approx. Restart Times	5 minutes	2 minutes
Transom Height	403mm Shortshaft / 530mm Longshaft	
Total Weight	75kg	
Displacement / No. Cylinders	697 / 3	
Bore / Stroke	68mm x 64mm	
Lubrication	50 : 1 pre mix	
Gear Ratio	13 : 24 (1.85 : 1)	
Gearshift	F - N - R	
Trim Positions	6 (4 - 24 degrees)	
Starting System	Manual and Electric Standard (Key Switch on Engine)	
Ignition System	Capacity Discharge with Mechanical Advance	
Alternator	12 Volt 120 Watt	
Propeller	Splined Rubber Hub (8" - 19" Pitch)	



# FourStroke Capsize PIRS Engines



The latest FourStroke variation of the PIRS technology, Capsize PIRS, is fully automatic and integrated within the engine's electronic control unit. The system ensures no water can enter the internals of the engine and is operated without removing the engine cover.

Barrus was presented with the Marine Equipment, Electronics and Materials Award in the 2018 European Commercial Marine Awards Innovation Showcase for the new FourStroke Capsize PIRS development.

Model	60	75	115	115 CT	150
HP (kW)	60 (45)	75 (56)	115 (86)		150 (110)
Engine Type	Inline 4 Cyl. 8 Valve SOHC				
Displacement	995 cc	2.1 L		3.0 L	
Starting	Smart Start Electric				
RPM WOT	5000-6000	4500-5500	5000-6000		5000 - 5800
Fuel System	Electronic Fuel Injection (EFI)				
Charging Amp/Watt	18A / 226W	35A / 441W		60A / 756W	
Smartcraft Compatible	Yes				
Controls	Mechanical Throttle & Shift				
Steering	Big Tiller, Dual Cable, Hydraulic				Big Tiller, Dual Cable, Hydraulic, Dual Electro-Hydraulic
Shaft Length	20" (L)		20" (L) & 25" (XL)		
Gear Ratio	1.83:1	2.07:1	2.38:1	1.92:1	
Gear Options	Standard Rotation		Standard & Counter Rotation		
Dry Weight	112kg	163kg	165kg	206 kg	



115hp Capsize PIRS



150hp Capsize PIRS



## Post Immersion Restart System Features

- Prevents water from entering engine
- Reduces the chance of water & oil contamination
- Fully integrated with engine electronics
- Test mode for operational checks
- No need to remove engine cover
- Automatic operation
- Twin capsizes tilt switch for dependability
- Low maintenance

# Accessories



## Twin Engine Single Tiller

Control twin Mariner 30hp outboard engines with a single tiller arm for increased ease of use. Tough and quick release, this system has been designed to allow a pair of outboards to be used as a single unit.



## Engine Transit Frames

Protect outboard engines from damage whilst in transit with a rigid frame which includes a tool accessory box to be used as a mobile workshop.



## Outboard Trolley

Easily transport outboard engines around the workshop with a rigid steel trolley.



## Umbilical Tube

Make servicing & flushing easier and allow the engine to be run out of the water, fed from the ship's own water supply.



## 12 Volt Auxiliary Power Supply

Tough and convenient power supply of up to 12V for supplementary power.



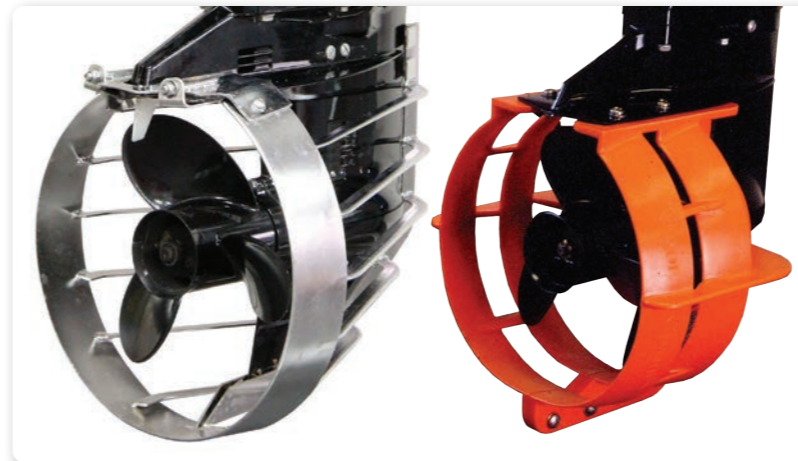
## Outboard Cowl Covers

Protect outboard engines from the toughest environments with cowl covers that are UV stable, water resistant, soft lined and breathable.



## Outboard Flush Bag

Engines from 2.5 - 115hp Standard Foot or 115 - 400hp Command Thrust in fresh water or test in neutral.



## Propeller Guards

Protect propellers and overboard persons.



## Engine Lifting Harness

Hoist outboard engines safely during the loading and unloading of vessels.



## Waterproof Hour Meters

Monitor engine usage by keeping constant checks on operational times.



## Carrying Handles

Simplify engine installation or removal and enhance portability with tough, balanced handles that have been designed to offer optimum protection during transit.



## Rotationally Cast Fuel Tanks

Stack rotationally moulded fuel tanks easily for optimum storage. A low magnetic signature version is also available for mine clearance duties. For military use only.



## Loncin Portable Generators and Pumps **LONCIN**



Model	LC2000i-S	LC3000i-S	LC3500i	LC7000i
Generator Type	Inverter			
Rated Voltage	110 V / 230 V		230 V	
Rated Output	1.6 kW		3.0 kW	6.0 kW
Dimensions L x W x H	499 x 285 x 455 mm		578 x 440 x 510 mm	920 x 765 x 773 mm
Net Weight	21 kg	26.5 kg	45 kg	118 kg
Model	LC2500-AS	LC5500-AS	LC6500D-A	LC8000D-A
Generator Type	Open Frame			
Rated Voltage	110 V / 230 V			
Rated Output	2 kW	2.8 kW	5.0 kW	6.0 kW
Dimensions L x W x H	590 x 430 x 467 mm		681 x 546 x 550 mm	681 x 546 x 550 mm
Net Weight	40 kg	47 kg	79 kg	87 kg



Model	LC25ZB21-1.75Q5	LC50ZB30-4.5Q5	LC80ZB35-4.5Q5	LC25ZB21-1.75Q5	LC50ZB30-4.5Q5
Pump Type	General Pump	General Pump	General Pump	High Lift Pump	Semi Trash Pump
Discharge Diameter	1"	2"	3"	2"	3"
Lift	21 metres	23 metres	35 metres	60 metres	30 metres
Delivery Volume	8,000 litres	30,000 litres	60,000 litres	30,000 litres	45,000 litres
Net Weight	13 kg	23 kg	28 kg	30.5 kg	39 kg



## Air Lifiable Pump

A 2" trash pump designed with a lightweight, air-portable frame that can be used for salvage, fire fighting and general pumping. The pump weighs just 48kg, has a maximum flow of 820 litres (180 gallons) per minute and is utilised by H.M. Coastguard search and rescue helicopters.

## Salt Water Pump

Ideal for applications on salt water and mild base chemical (PH 4-9), a Yanmar salt-water rescue pump is an integral part of the RNLI all-weather lifeboat fleet and has a maximum flow of 865 litres (190 gallons) per minute and weighs just 40kg.



The Marine Equipment Division was set up in 2018 as a first step in establishing a portfolio of brands with the vision to become a leading distributor in the chandlery and aftermarket sector.

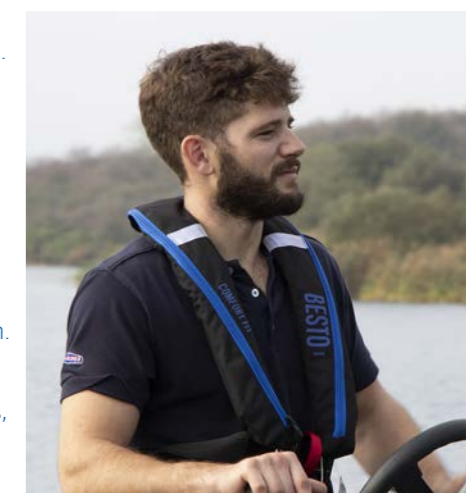
The core product offering of Talamex, a complete single-branded chandlery range, Besto life-jackets, G-Nautics boat accessories, and Stazo boat safety systems, has grown considerably and currently this Barrus distributes over 20 leading brands.

SIMRAD - from TouchSensible and multi-touch technology, which delivers the perfect hybrid of a glass-bridge touchscreen display and all-weather conventional controls, to our cutting-edge HALO Radar and StructureScan™ 3D sonar, Simrad gives you the latest technology to let you get the most out of your time on the water.

International Paint Ltd, a division of AkzoNobel has become synonymous with the highest standard of care for all kinds of vessels and is an integral part of boat building and maintenance.

MG Duff specialises in producing sacrificial anodes for leisure boats, commercial ships, and offshore structures. MG Duff offers a range of over 3,000 anodes across all sectors as well as a bespoke anode manufacturing service and a range of related civil engineering services.

Guidi is one of the leading names in the marine equipment sector for both leisure and commercial craft, and the brand is synonymous with quality and product and process innovation. With over 50 years experience in the production of bronze, brass, chrome and nickel-plated accessories including non-stick valves, seacocks, thru-hulls, water strainers and hydraulic fittings, Guidi has pushed the boundaries achieving thirteen patents. The primary material used is bronze, of which Guidi was a pioneer.





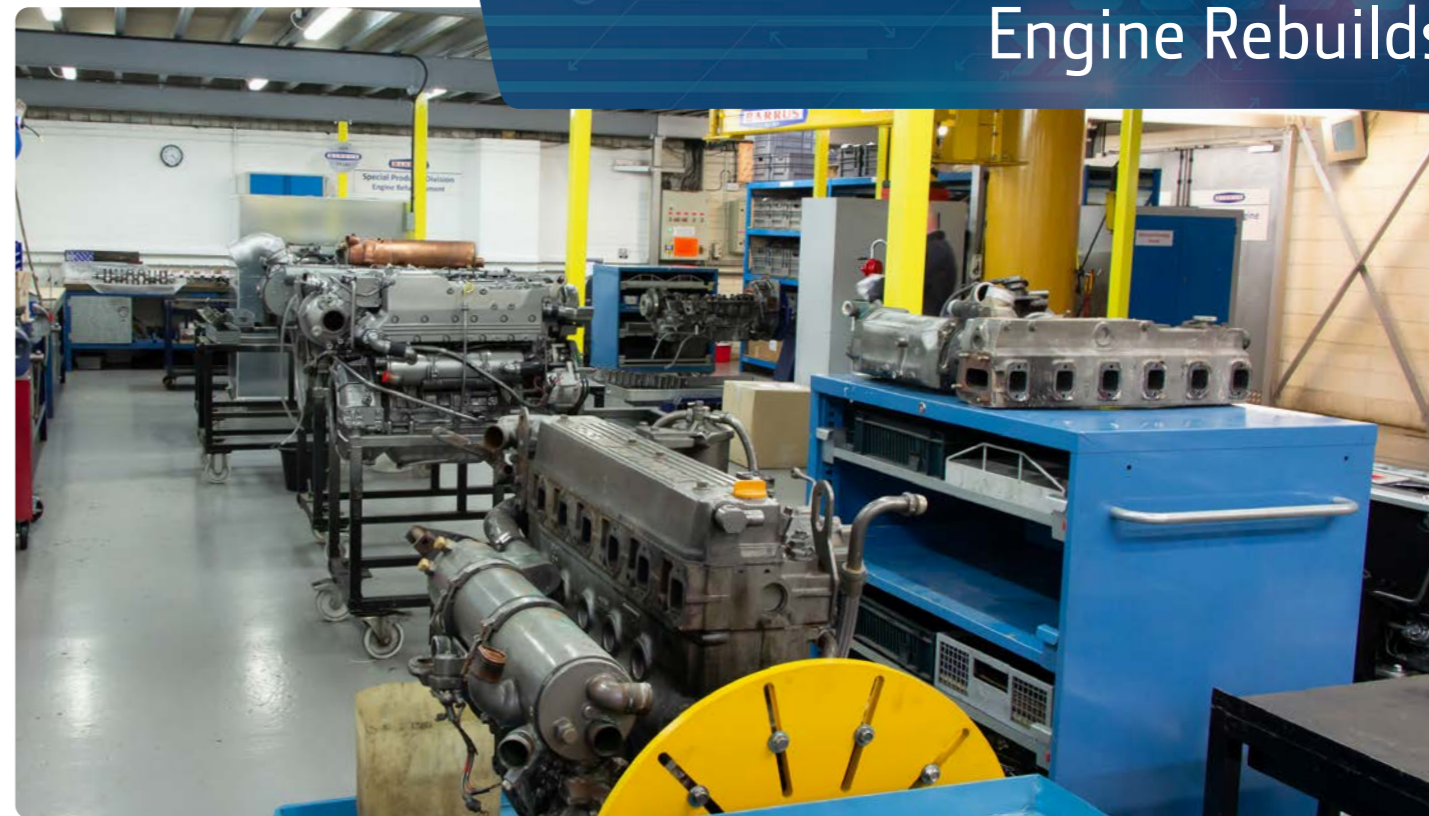
## Trials

Grebe lake, home of Great Moor Sailing Club, is situated just 5 miles from Barrus providing a 50 acre site for year round testing and trials of custom built applications.

## Training

Barrus offers a comprehensive range of courses for engineers and technicians which are available to all dealers and specialist partners. The company headquarters in Bicester features a purpose-built Training School which is used to facilitate the majority of training courses, supported by regional courses throughout the UK and Ireland. Over 400 engineers attend the Recertification Course each year covering outboard and inboard engines throughout the year and over 600 engineers complete multiple courses.

With technology improvements being introduced more frequently and the level of electronics involved in engine management increasing rapidly, Barrus training courses are essential to ensure the highest levels of support for end users.



EP Barrus Ltd has over 20 years' experience overhauling and maintaining marine engines. The Special Products Division has supported a wide range of customers with various brands but now has a core focus on rebuilding Yanmar Power Boat Engines for Leisure, Commercial and Military customers.

This rebuild service will refresh a tired engine and give it a new lease of life. Negating the need for a time consuming and expensive new installation with a new engine.

When an engine is received for overhaul, it is disassembled, cleaned and inspected. This ensures that all damaged or worn parts are highlighted for replacement. A report is then produced and submitted to the customer for consideration. This report includes a breakdown of the components required for overhaul along with potential causes of failure.

Once the engine has been disassembled it is stored in our specially built engine cabinets, ready to be called for assembly. With customer approval and when all the parts are in stock the engine is assembled by our team of qualified engineers to original manufacturers specification.

When assembly is complete, it is tested on one of our five engine dynamometer's, usually exceeding original manufacturers specification. This is to ensure that the final product will have the same life expectancy as a brand-new engine.

Once the engine has finished its dyno test, it receives a full respray to give it a fresh appearance, ready for installation back into the customers' boat.



## Special Products Division Production Line

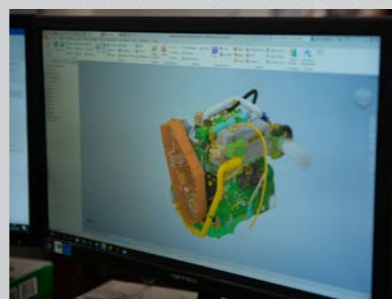


Barrus's commitment to research and development is reflected in the number of patented technologies that it has developed for a range of critical applications. The R&D team works closely with users of the equipment to understand their specific requirements and the hostile conditions in which they often have to operate.

The Production team offers a flexible approach to meet the most demanding customer requirements. The substantial investment made by Barrus has created one of the world's largest and most modern custom engine-building facilities, allowing Barrus to build products from single units to large volume production runs. Barrus's test facilities enable delivery of fully tested, run-in and first serviced engines. Barrus also provide an engine overhaul facility, extending the life of these significant capital assets.

### Barrus's Facilities Include:

- Five dynamometers capable of testing diesel engines up to 900hp. The dynos can be pre-programmed and are run automatically by computer control for 24/7 operation.
- Two overhead mono-rail production lines capable of supporting outboard engines up to 350hp and inboard engines up to 500hp.
- An outboard test cell which can accommodate up to eight 400hp engines with transoms from 15"-30".
- Computer measuring machine (CMM) for inspection and design purposes.
- Extensive CAD capability and 3D printing facilities for rapid prototyping.
- Machine shop and welding centre for prototype and low volume manufacture.
- Dedicated inboard and outboard engine overhaul area.
- Spray booth with warm air ventilation for superior paint finish.



## Yanmar Light Duty & Commercial

Models	Displacement (Litres)	Horsepower (MHP)	RPM	Dry Weight (kg)
3YM30AE	1.266	29.1	3200	127
3JH40	1.6	40	3000	192
4JH	2.19	45 - 110	3000	220
4LHA-STP	3.455	160 - 240	3300	365
4LV	2.755	150 - 250	3500 - 3800	343
6LPA-STP2	4.164	315	3800	408
6LY-CR	5.813	400 / 440	3300	585
6LY2A	5.813	370 / 400 / 440	3300	535
8LV	4.46	320 - 370	3800	435
6LF	6.7	485 - 550	3000	780
6LT	8.7	500 - 640	2530	940



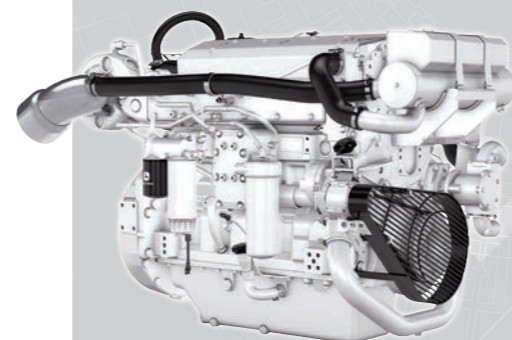
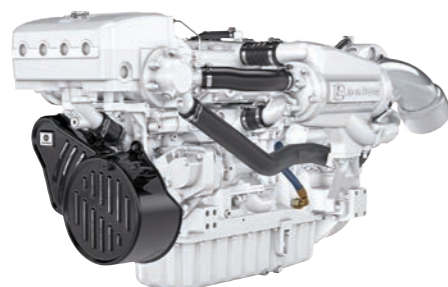


# John Deere Inboard Engines



John Deere

Models	Displacement (Litres)	Horsepower (MHP)	RPM	Dry Weight (kg)
4045DFM70	4.5	80	2500	437
4045TFM50	4.5	105 - 150	2300 - 2600	461
4045TFM85	4.5	100 - 125	2400 - 2500	507
4045AFM85	4.5	160 - 225	2300 - 2600	578
4045SFM85	4.5	275 - 315	2600 - 2800	558
6068TFM50	6.8	154 - 225	2300 - 2600	730
6068AFM85	6.8	230 - 330	2300 - 2600	787
6068SFM85	6.8	249 - 400	2400 - 2800	763
6090AFM85	9	285 - 425	2100 - 2400	1055
6090SFM85	9	325 - 550	2100 - 2500	1056
6135AFM85	13.5	365 - 575	1800 - 2100	1410
6135SFM85	13.5	425 - 750	1800 - 2200	1426



# Canal / Workboat Engines



## Shire Canal Boat Engine Range



Models	Displacement	Horsepower (MHP)	RPM	Dry Weight (kg)
30D	1331 cc	30	3000	227
35	1331 cc	35	3000	232
38	2190 cc	38	2400	260
39	2449 cc	39	2200	310
40	2190 cc	40	2500	270
43	2449 cc	43	2600	320
45	2190 cc	45	2800	278
49	2449 cc	49	3000	320
50	2190 cc	50	3000	284
65	2449 cc	60	2600	360
70	3319 cc	70	2500	410
90	4500 cc	90	2500	525



## Shire Workboat Engine Range



Models	Displacement	Horsepower (MHP)	RPM	Dry Weight (kg)
15WB	570 cc	13.6	3600	115
20WB	854 cc	21	3600	125
25WB	1266 cc	25	3000	142
30WB	1266 cc	29	3200	145
30WBD	1266 cc	30	3000	151
40WB	2190 cc	40	2600	270
50WB	2190 cc	50	3000	284
70WB	3319 cc	70	2500	400
85WB	4500 cc	85	2500	545
125WB	6800 cc	125	2500	845



# Barrus SPD Outboards



# Barrus SPD Inboards

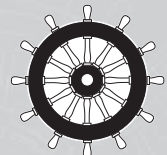


# BARRUS

Barrus's commitment to research and development is reflected in the substantial investment it has made in creating one of the world's largest custom engine building facilities.



- DUTCH NAVY
- FRENCH NAVY
- IRISH NAVY
- NORWEGIAN NAVY
- SOUTH KOREAN NAVY
- TAIWAN NAVY
- SULTAN OF OMAN SPECIAL FORCES
- UK MINISTRY OF DEFENCE
- USA DEPARTMENT OF DEFENCE
- MARITIME & COASTGUARD AGENCY (MCA)
- NORTH STAR SHIPPING (FAST RESCUE CRAFT)
- NORTHERN AQUA POWER (T/A DELTA)
- PORT OF LONDON AUTHORITY
- RNLI (TRADING) LTD
- UK FIRE & RESCUE SERVICES – MARINE UNITS
- UK POLICE UNDERWATER SEARCH & RESCUE UNITS
- UK INDEPENDENT SURF LIFE SAVING CLUBS
- UK INDEPENDENT LIFEBOAT TRUSTS



Suppliers of SOLAS approved outboard & inboard engines.

**BARRUS**

*The Power  
Behind The Brands*

Specifications and/or prices are subject to change without notice. Every effort is made to produce sales literature and price lists that are accurate and current.

**Mercury • Mariner • John Deere • Yanmar • Shire - Supported by Barrus**  
E. P. Barrus Ltd., Glen Way, Launton Road, Bicester, Oxfordshire, OX26 4UR  
Tel: 01869 363636 [www.barrus.co.uk/specialproducts](http://www.barrus.co.uk/specialproducts)

PROUD MEMBER OF  
**BRITISH  
MARINE**  
LEADING THE INDUSTRY