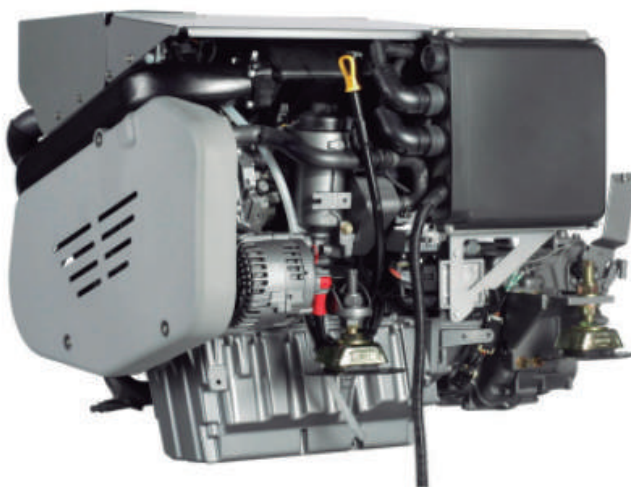


4by3-150 / 4by3-180 Series

MARINE DIESEL ENGINES



Configuration Maximum output at crankshaft

Displacement

Bore x stroke

Cylinders

Combustion system

Aspiration

Low Idle rpm

Electric system

Alternator

Start-assist

Cooling system

Lubrication system

Direction of rotation [crankshaft]

Dry weight without gear

Environmental

Engine mounting

NOTE:

Fuel condition: Density at 15°C = 0.84 g/cm³

Fuel temperature 40°C at the inlet of the fuel injection pump [ISO 8665: 2006]

Technical data is according to ISO 8665: 2006/3046-1

4-stroke, water-cooled diesel engine

110 kW@4000 rpm [150 mhp@4000 rpm]

132 kW@4000 rpm [180 mhp@4000 rpm]

1.995 ltr [122 cu in]

84 mm x 90 mm [3.31 in x 3.54 in]

4 in line

Direct injection with Bosch Common Rail System

Turbocharger + charge air cooler

650 - 950 rpm [adjustable]

12V

12V - 150A

Glow-plug system

Fresh water cooling by centrifugal fresh water pump

Sea water cooling by rubber impeller seawater pump

Enclosed, forced lubricating system

Counterclockwise viewed from flywheel side

263 kg [580 lbs]

EU: RCD EMC BSO II

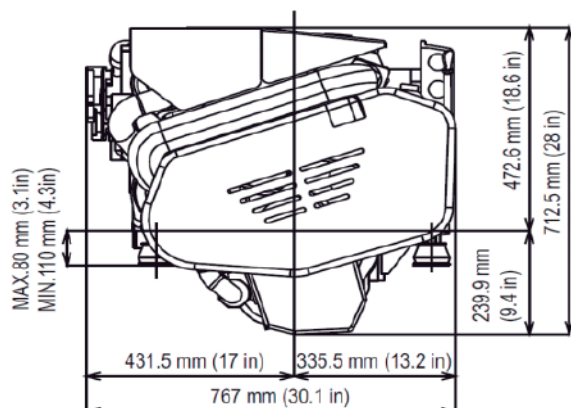
US: EPA Tier3

SOLAS MED 96/98/EC

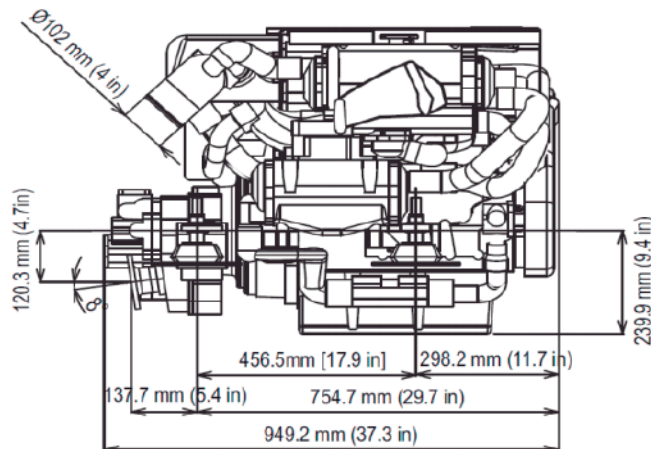
Rubber type flexible mounting

DIMENSIONS

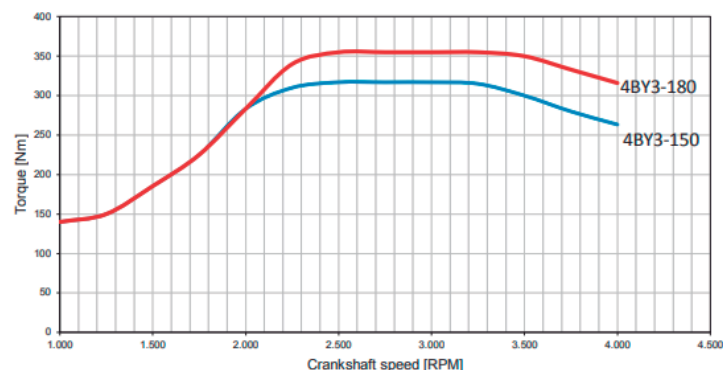
FRONT VIEW



RIGHT SIDE VIEW



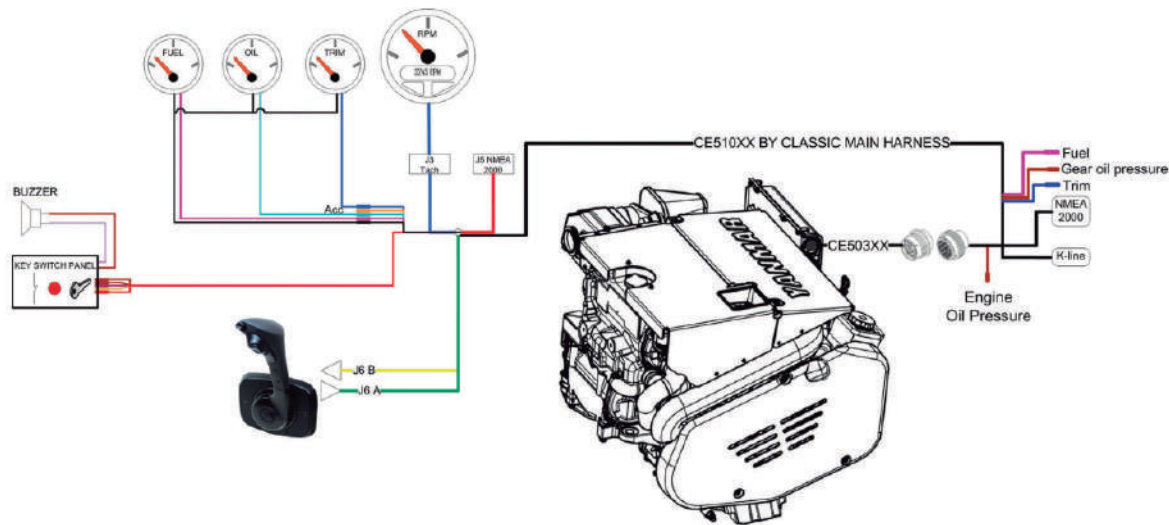
PERFORMANCE CURVES



DRIVE SYSTEMS

Model	KMH41A [down angle 8°]			
Type	Hydraulic Actuated Multi-friction disc clutch			
Dry weight	34 kg excl. cooler			
Reduction ratio [fwd/asn]	1.53	2.04	2.45	2.62
Direction of rotation	Clockwise & Counterclockwise viewed from the stern			
Lub oil specifications	API class: CF or higher SAE grade #30			
Dry weight - engine & gear	297 kg			

CONTROL SYSTEM "CLASSIC"



ENGINE ACCESSORIES

Standard Engine Package

- Single pole, 150A Alternator
- Exhaust mixing elbow [L-type]
- Automatic glow-plug controller
- Flexible engine mounting
- Analogue throttle with redundancy function

Optional Accessories

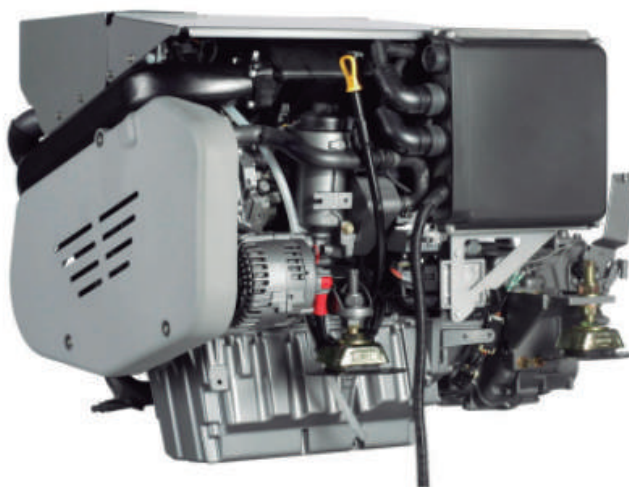
- High-riser mixing elbow [instead of L-elbow]
- Exhaust-side 2nd dipstick
- Electric gearshift
- Trolling on gearbox [mechanical and electrical]
- NMEA2000 digital display
- Full NMEA2000 electronic control system [CAN-bus]

NOTE: All data subject to change without notice. Text and illustrations are not binding.



4by3-150Z / 4by3-180Z Series

MARINE DIESEL ENGINES



Configuration
Maximum output at crankshaft

Displacement
Bore x stroke
Cylinders
Combustion system
Aspiration
Low Idle rpm
Electric system
Alternator
Start-assist
Cooling system

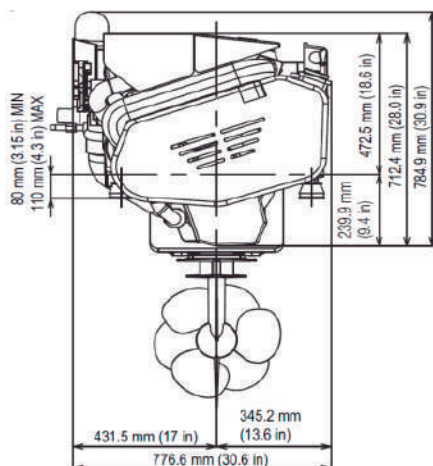
Lubrication system
Direction of rotation [crankshaft]
Dry weight without gear
Environmental
Engine mounting

4-stroke, water-cooled diesel engine
110 kW@4000 rpm [150 mhp@4000 rpm]
132 kW@4000 rpm [180 mhp@4000 rpm]
1.995 ltr [122 cu in]
84 mm x 90 mm [3.31 in x 3.54 in]
4 in line
Direct injection with Bosch Common Rail System
Turbocharger + charge air cooler
650 - 950 rpm [adjustable]
12V
12V - 150A
Glow-plug system
Fresh water cooling by centrifugal fresh water pump
Sea water cooling by rubber impeller seawater pump
Enclosed, forced lubricating system
Counterclockwise viewed from flywheel side
263 kg [580 lbs]
EU: RCD EMC BSO II US: EPA Tier3
Rubber type flexible mounting

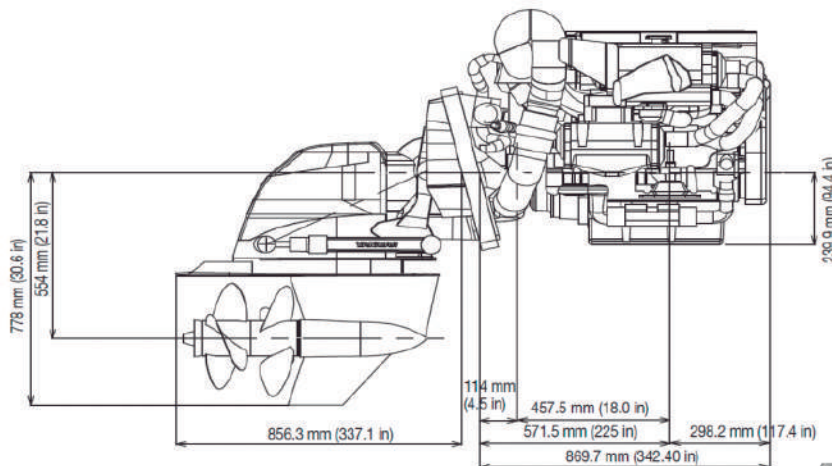
NOTE:
Fuel condition: Density at 15°C = 0.84 g/cm³
Fuel temperature 40°C at the inlet of the fuel injection pump [ISO 8665: 2006]
Technical data is according to ISO 8665: 2006/3046-1

DIMENSIONS

FRONT VIEW



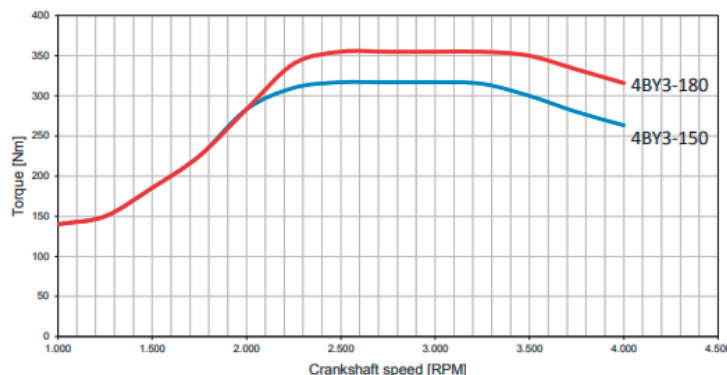
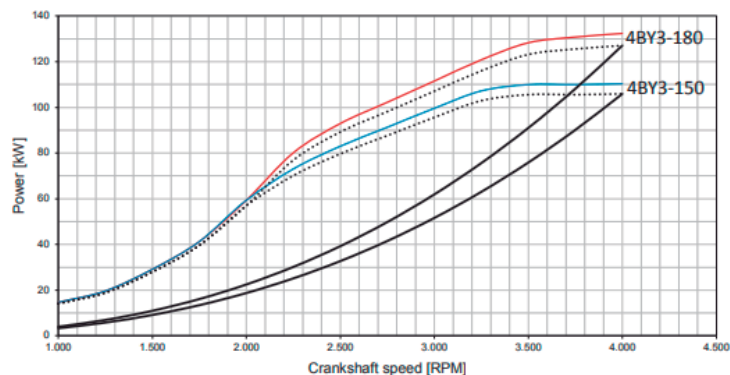
RIGHT SIDE VIEW



4BY3-180 with KMH41A marine gear

NEREX

PERFORMANCE CURVES



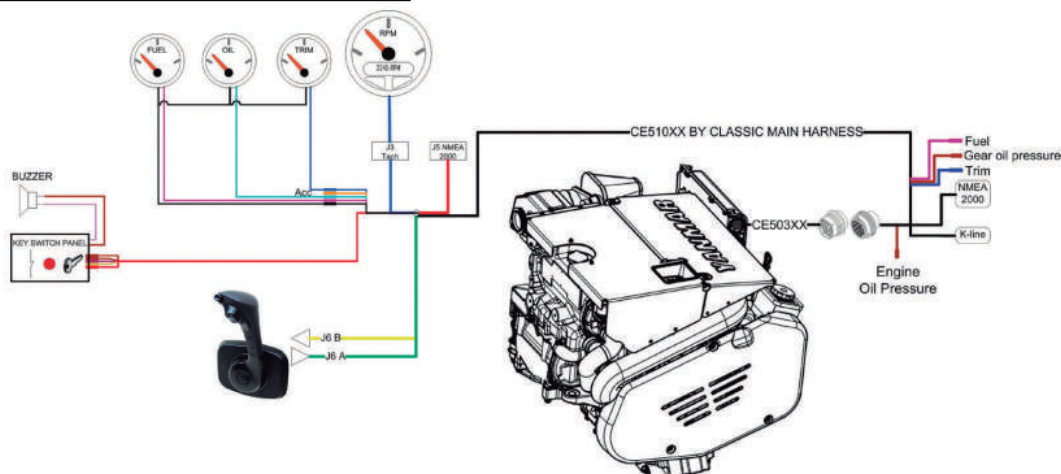
DRIVE SYSTEMS

Model	ZT370 Steerable Z-drive with duo-propeller			
Type	Hydraulic Actuated Multi-friction disc Sterndrive			
Dry weight	69 kg [drive] / 46 kg [Transom + trim-pump] / 15 kg [Propellers]			
Reduction ratio [fwd/asn]	1.65	1.78	1.97	2.18
Propeller speed [fwd/asn]	2424	2247	2030	1835
Direction of rotation	Clockwise [rear propeller] / Counterclockwise [front propeller]			
Lub oil specifications	API class: GL5 SAE grade #80W90 or QuickSilver High Performance Gearlube			
Dry weight - engine & gear	378 kg			

Model	Mercuriser Bravo 1 Steerable Z-drive with single propeller			
Type	Mechanical cone-clutch type Sterndrive			
Dry weight	59 kg [drive] / 46 kg [Transom + trim-pump] / 8 kg [Propeller]			
Reduction ratio [fwd/asn]	1.36	1.5	1.65	
Propeller speed [fwd/asn]	2424	2667	2424	
Direction of rotation	Clockwise & Counterclockwise viewed from the stern			
Lub oil specifications	Mercury High Performance Gearlube			
Dry weight - engine & gear	370 kg			

- 1 - Inner and outer transom surface must be parallel within 3mm in area covered by transom plates and remain within transom thickness limits.
- 2 - Area covered by gimbal housing assembly must be flat to within 1.6 mm.
- 3 - Area covered by inner transom plate must be flat to within 3.2 mm.
- 4 - Transom angle: 13° to 16°.
- 5 - Also available with Bravo X-2 drive's, please contact your local supplier for support.

CONTROL SYSTEM "CLASSIC"



ENGINE ACCESSORIES

Standard Engine Package

- Single pole, 150A Alternator
- High-riser mixing exhaust elbow
- Automatic glow-plug controller
- Flexible engine mounting
- Analogue throttle with redundancy function

Optional Accessories

- High-riser mixing elbow [instead of L-elbow]
- Exhaust-side 2nd dipstick
- Electric gearshift
- Trolling on gearbox [mechanical and electrical]
- NMEA2000 digital display
- Full NMEA2000 electronic control system [CAN-bus]

Propellers

- Propeller size 20" - 22" - 24" - 26" - 28"
- Propellers with cup 24" - 26"

NOTE: All data subject to change without notice. Text and illustrations are not binding.



4LV Series - 150 / 170 / 195

MARINE COMMON RAIL ENGINES



Configuration

Maximum output at crankshaft*

Displacement

Bore x stroke

Cylinders

Combustion system

Low idle rpm

Aspiration

Starting system

Alternator

Cooling system

Lubrication system

Direction of rotation [crankshaft]

Dry weight without gear**

Emission compliance

Engine mounting

4-stroke, vertical, water-cooled diesel engine

110 kW@3500 rpm [150 mhp@3500 rpm]

125 kW@3500 rpm [170 mhp@3500 rpm]

143 kW@3500 rpm [195 mhp@3500 rpm]

2.755 L [168 cu in]

92 mm x 103.6 mm [3.6 in x 4 in]

4 in-line

Direct injection with Denso common rail system

750 rpm

Turbocharger with charge-air cooler

Electric starting 12V - 2 kW

Denso 12V - 130A

Fresh water cooling by centrifugal fresh water pump

Sea water cooling by rubber impeller seawater pump

Enclosed, forced lubricating system

Counterclockwise viewed from stern

332 kg [732 lbs]

EU: RCD 2, BSO II, EMC US: EPA Tier 3

Rubber type flexible mounting

NOTE:

Fuel condition: Density at 15°C = 0.84 g/cm³; 1 kW = 1.3596 mhp = 1.3410 HP

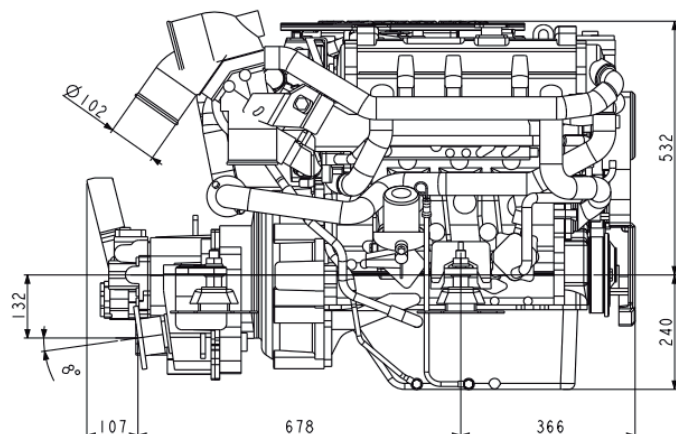
* Fuel temperature 40°C at the inlet of the fuel injection pump [ISO 8665: 2006]

** Including damper disk

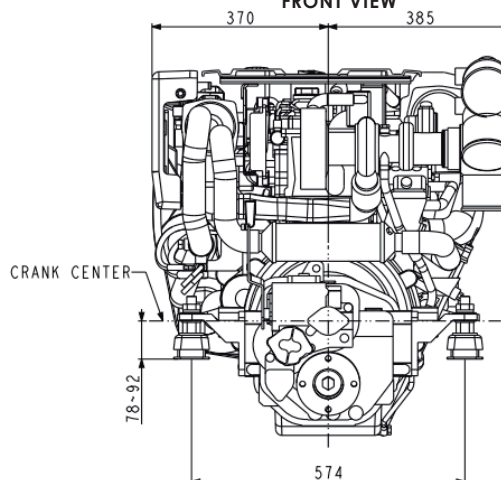
Technical data is according to ISO 8665: 2006

DIMENSIONS

RIGHT SIDE VIEW



FRONT VIEW

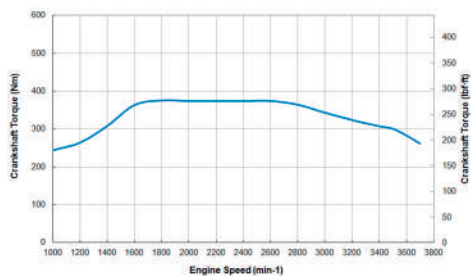


4LV195 with KMH50A marine gear

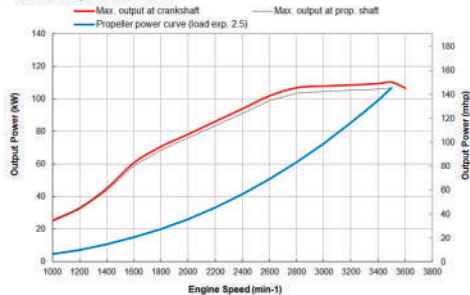
VEREX

PERFORMANCE CURVES

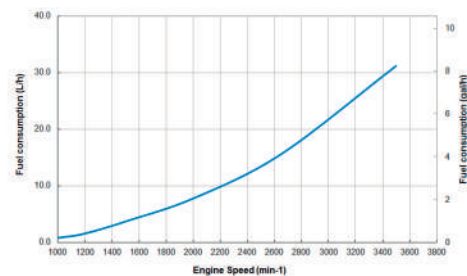
4LV150 Torque curve



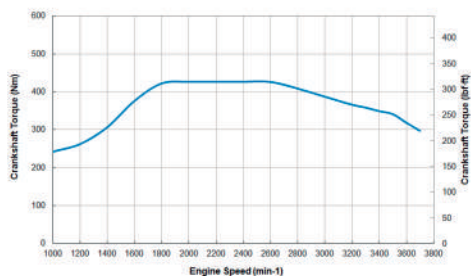
4LV150 Output Power curve



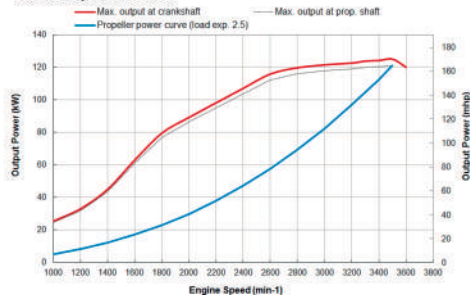
4LV150 Fuel consumption (load exp. 2.5)



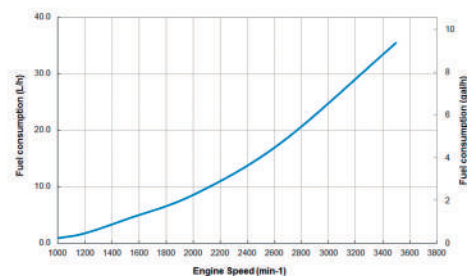
4LV170 Torque curve



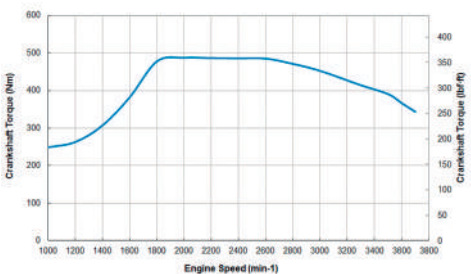
4LV170 Output Power curve



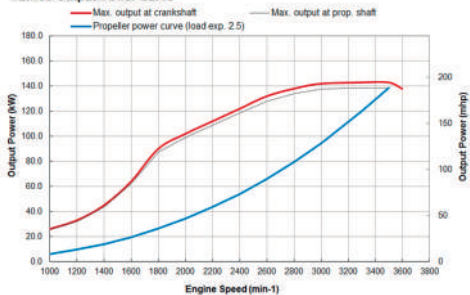
4LV170 Fuel consumption (load exp. 2.5)



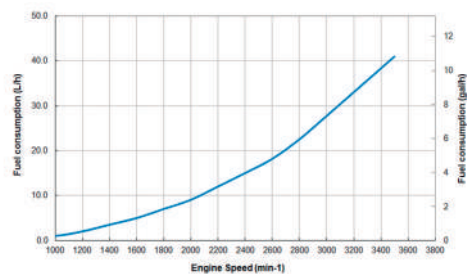
4LV195 Torque curve



4LV195 Output Power curve



4LV195 Fuel consumption (load exp. 2.5)



MARINE GEARS*

Model	KMH50A [down angle: 8°]				KMH50V [V-drive, angle: 12°]			
Type	Hydraulic, multi disk clutch				Hydraulic, multi disk clutch			
Dry Weight**	52 kg [115 lbs]				75 kg [165 lbs]			
Reduction Ratio [fwd/asn]	1.67/1.67	2.13/2.13	2.43/2.43		1.22/1.22	1.58/1.58	2.08/2.08	2.47/2.47
Propeller speed [fwd/asn]	2096/2096	1643/1643	1440/1440		2869/2869	2215/2215	1683/1683	1417/1417
Direction of rotation [viewed from stern]	Clockwise & counterclockwise				Clockwise & counterclockwise			
Dry weight - engine & gear	384 kg [846 lbs]				407 kg [897 lbs]			
Length engine and gear/drive	1151 mm [45.3 in]				1151 mm [45.3 in]			

*For other configurations, consult your local Yanmar distributor.

**Dry weight includes cooler and brackets

ACCESSORIES

Standard Package

- Exhaust mixing elbow [L-type]
- Alternator 12V - 130A
- B25 panel
- Oil sensor for instrument panel
- Mechanical throttle sensor
- Set of flexible engine mounts
- Fresh water expansion tank
- Belt safety cover
- Engine topcover for protection
- Operation manual

Optional

- High-riser mixing elbow [instead of L-elbow]
- Secondary alternator 12V - 150A or 24V - 85A
- Multistage secondary alternator 12V - 130A or 24V - 110A
- Semi 2-Pole Electrical Installation
- Hot water connection
- Opposite dipstick
- Fuel pre-filter with water separator
- C-Type Trolling Valve KMH50
- Extension harness [3m, 5m, 10m, 20m]
- C35 panel
- Mechanical sidemount control head

- VC10 Vessel Control System
- Second station
- NMEA2000 Engine monitoring system
- Electronic Side Mount CH instead of Top Mount
- SOLAS including Certificate (Factory fit only)
- Man Over Board Switch (single)
- On Board Spare Parts Kit 4LV
- Second station
- NMEA2000 Engine monitoring system
- JC20 Inboard Joystick



NOTE: All data subject to change without notice. Text and illustrations are not binding.

4LV Series - 150Z / 170Z / 195Z

MARINE COMMON RAIL ENGINES



Configuration

Maximum output at crankshaft*

Displacement

Bore x stroke

Cylinders

Combustion system

Low idle rpm

Aspiration

Starting system

Alternator

Cooling system

Lubrication system

Direction of rotation [crankshaft]

Dry weight without gear**

Emission compliance

Engine mounting

4-stroke, vertical, water-cooled diesel engine

110 kW@3500 rpm [150 mhp@3500 rpm]

125 kW@3500 rpm [170 mhp@3500 rpm]

143 kW@3500 rpm [195 mhp@3500 rpm]

2.755 L [168 cu in]

92 mm x 103.6 mm [3.6 in x 4 in]

4 in-line

Direct injection with Denso common rail system

750 rpm

Turbocharger with charge-air cooler

Electric starting 12V - 2 kW

Denso 12V - 130A

Fresh water cooling by centrifugal fresh water pump

Sea water cooling by rubber impeller seawater pump

Enclosed, forced lubricating system

Counterclockwise viewed from stern

332 kg [732 lbs]

EU: RCD 2, BSO II, EMC US: EPA Tier 3

Rubber type flexible mounting

NOTE:

Fuel condition: Density at 15°C = 0.84 g/cm³; 1 kW = 1.3596 mhp = 1.3410 HP

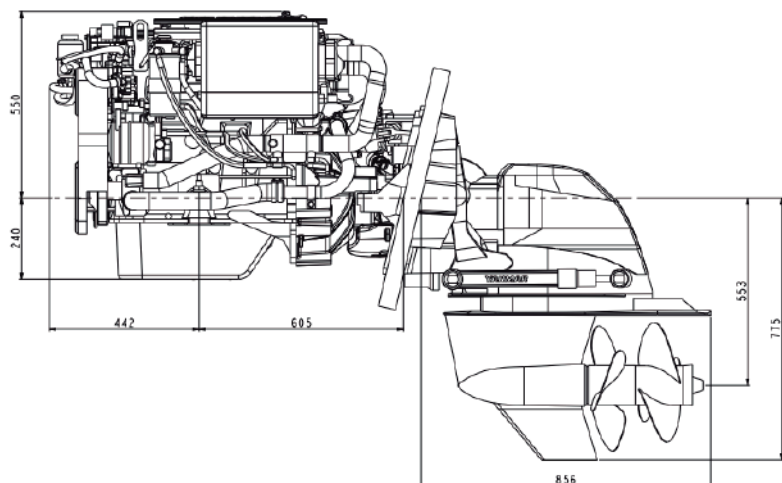
* Fuel temperature 40°C at the inlet of the fuel injection pump [ISO 8665: 2006]

** Including damper disk

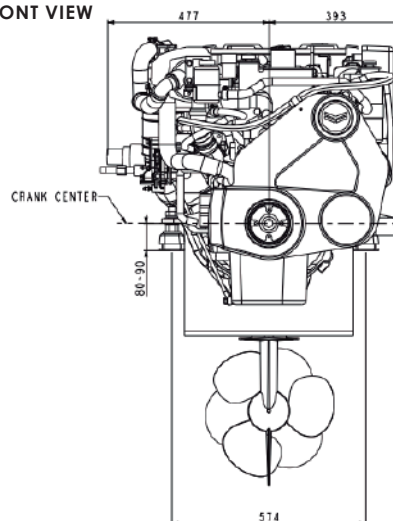
Technical data is according to ISO 8665: 2006

DIMENSIONS

RIGHT SIDE VIEW

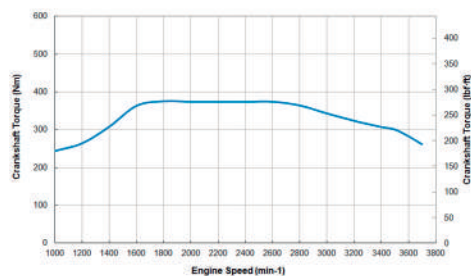


FRONT VIEW

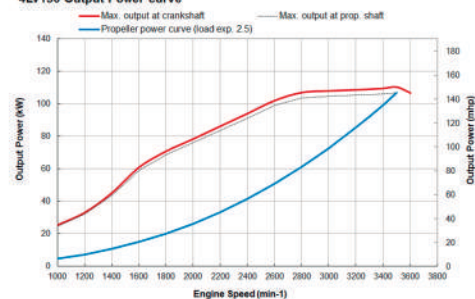


PERFORMANCE CURVES

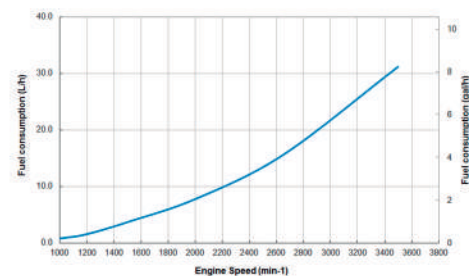
4LV150 Torque curve



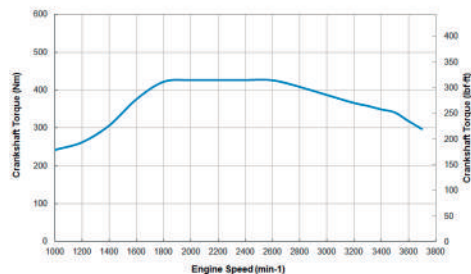
4LV150 Output Power curve



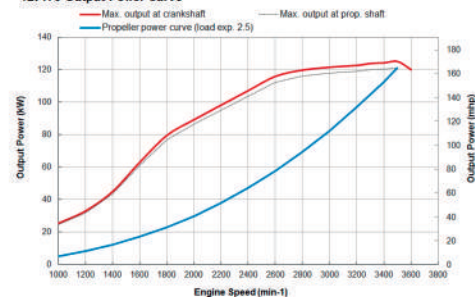
4LV150 Fuel consumption (load exp. 2.5)



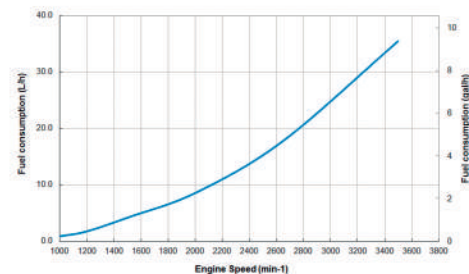
4LV170 Torque curve



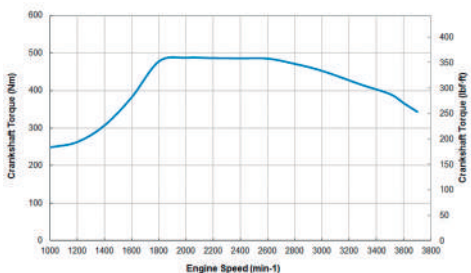
4LV170 Output Power curve



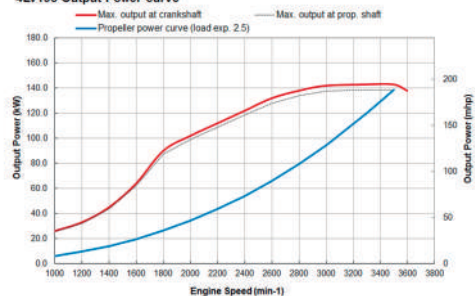
4LV170 Fuel consumption (load exp. 2.5)



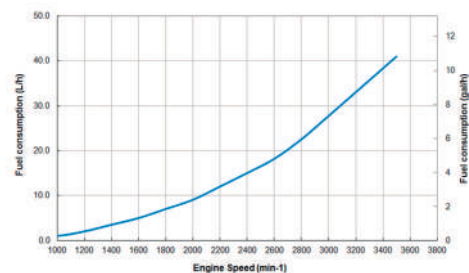
4LV195 Torque curve



4LV195 Output Power curve



4LV195 Fuel consumption (load exp. 2.5)



MARINE GEARS*

Model	ZT370 [Steerable Z-drive with dual prop]		
Type	Hydraulic actuated multi-friction disc clutch		
Dry weight with propellers**	112 kg [247 lbs]		
Reduction ratio [fwd/rev]	1.65 / 1.65	1.78 / 1.78	1.97 / 1.97
Propellor speed	2121 / 2121	1966 / 1966	1776 / 1776
Direction of rotation viewed from the stern	Clockwise [rear prop] & Counterclockwise [front prop]		
Lube oil specifications	Quick Silver HPGL		
Dry weight engine with sterndrive	446 kg [983 lbs]		
Shift control	Mechanical or electro-magnetic		
Trim range	-6° - +10°		
Trailer limit	51°		

*For other configurations, consult your local Yanmar distributor.

**Dry weight includes cooler and brackets

ACCESSORIES

Standard Package

- Through drive exhaust
- Alternator 12V - 130A
- VC10 Vessel Control System
- Electronic CAN-bus control head
- Set of flexible engine mounts
- Fresh water expansion tank
- Belt safety cover
- Engine topcover for protection
- Operation manual

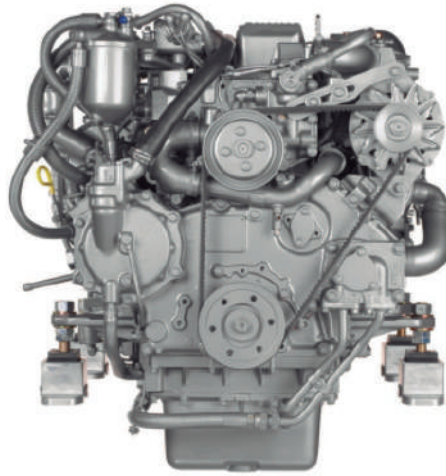
Optional

- Through drive exhaust
- Secondary alternator 12V - 150A or 24V - 85A
- Multistage secondary alternator 12V - 130A or 24V - 110A
- SOLAS including Certificate (Factory fit only)
- Hot water kit
- Power steering
- Internal tie-bar
- Opposite dipstick
- Extension harness [3m, 5m, 10m]

- JC10 joystick control
- Second station
- NMEA2000 Engine monitoring system
- Man Over Board Switch (single)
- On Board Spare Parts Kit 4LV

NOTE: All data subject to change without notice. Text and illustrations are not binding.





Configuration Maximum output at crankshaft

Displacement

Bore x stroke

Cylinders

Combustion system

Aspiration

Starting system

Alternator

Cooling system

Lubrication system

Direction of rotation [crankshaft]

Dry weight without gear

Emission compliance

4-stroke, vertical, water-cooled diesel engine

* 118 kW@3300 rpm [160 mhp@3300 rpm]

** 113 kW@3300 rpm [154 mhp@3300 rpm]

3.455 L [211 cu in]

100 mm x 110 mm [3.94 in x 4.33 in]

In-line

Direct injection

Turbocharged with intercooler

Electric starting 12V - 2 kW

12V - 80A

Fresh water cooling by centrifugal fresh water pump and rubber impeller seawater pump

Enclosed, forced lubricating system

Counterclockwise viewed from stern

342 kg [754 lbs]

EU: RCD 1 BSO II EMC

SOLAS MED 96/98/EC

Rubber type flexible mounting

Engine mounting

NOTE:

Fuel condition: Density at 15°C = 0.842 g/cm³; 1 mhp = 1 ps = 0.7355 kW = 0.9863 bhp

* Fuel temperature 25°C at the inlet of the fuel injection pump [ISO 3046-1]

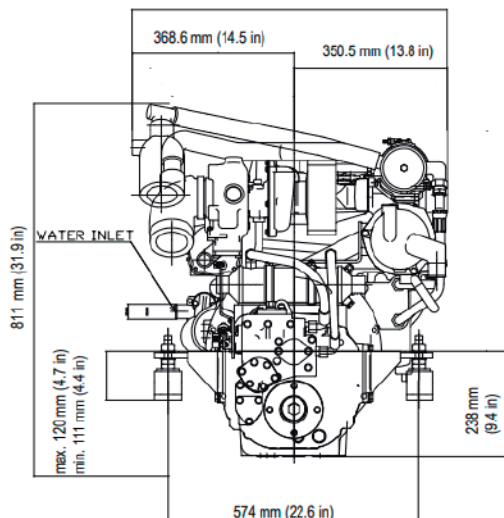
** Fuel temperature 40°C at the inlet of the fuel injection pump [ISO 8665: 2006]

Technical data is according to ISO 8665: 2006/3046-1

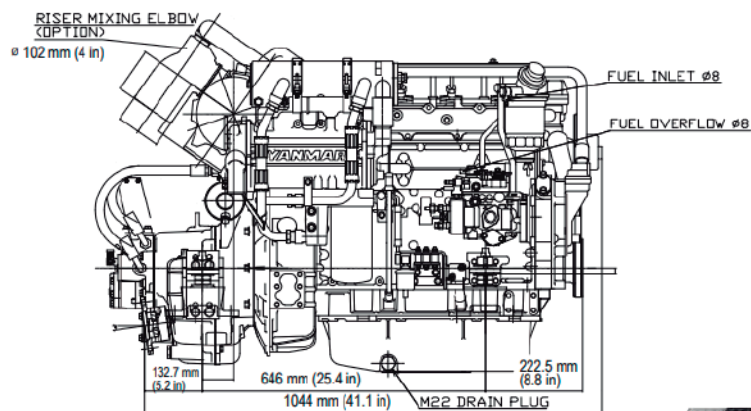
DIMENSIONS

REAR VIEW

719.1 mm (28.3 in)

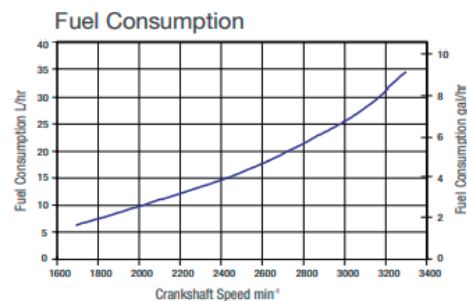
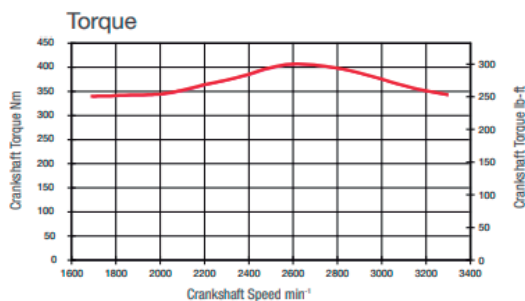
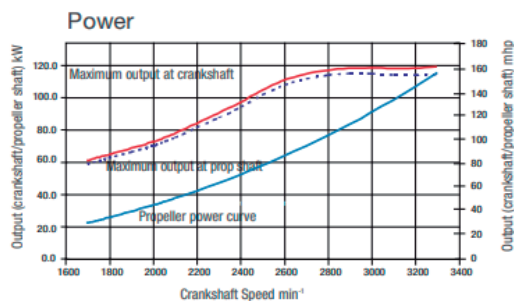


RIGHT SIDE VIEW



4LHA-HTP with KMH50A marine gear

PERFORMANCE CURVES (Output is according ISO 8665 - Output includes +/- 3% tolerance)



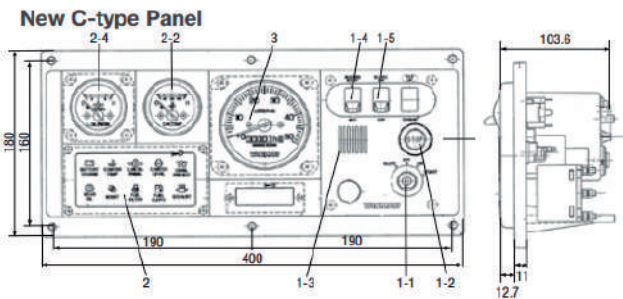
MARINE GEARS/DRIVE*

Model	KM50A [down angle 8°]			ZF63A [down angle 8°]		
Type	Hydraulically Actuated Multi-Disc Clutch			Hydraulically Actuated Multi-Disc Clutch		
Dry weight**	57,6 kg [127 lbs]			44 kg [96,8 lbs]		
Reduction Ratio [fwd/rev]	1.67/1.67	2.13/2.13	2.43/2.43	1.26/1.26	1.51/1.51	2.03/2.03
Propeller speed [fwd/rev]	1976/1976	1549/1549	1358/1358	2627/2627	2180/2180	1622/1622
Direction of rotation (viewed from stern)	Clockwise & Counterclockwise			Clockwise & Counterclockwise		
Dry weight engine and gear/drive**	400 kg [881 lbs]			386 kg [851 lbs]		

* Other marine gearboxes and configurations available upon request. Contact your local supplier for more information.

** Dry weight includes cooler, brackets and damper disk.

INSTRUMENT PANELS



Function	TYPE OF INSTRUMENT PANEL
1-Switch unit	NEW C-TYPE PANEL
1-1 Key switch for GLOW/OFF/ON/START [4-position switch]	Equipped on panel
1-2 Push button switch for engine stop	Equipped on panel
1-3 Moisture cap for key switch	Equipped on panel
1-4 Alarm buzzer stop switch	Equipped on panel
1-5 Illumination switch for meters	Equipped on panel
2-Alarm lamp unit	
Battery not charging	Equipped on panel
C.W. high temperature	Equipped on panel
L.O. low pressure	Equipped on panel
Boost pressure high [for 4LHA-STP]	Equipped on panel
3-Tachometer with hour meter	Equipped on panel
4-Sub meter unit	Equipped on panel
4-1 L.O. pressure meter	Equipped on panel
4-2 C.W. Temperature meter	Equipped on panel
4-3 Boost meter [turbo]	Not equipped on panel
5-Quartz clock	Not equipped on panel

ENGINE ACCESSORIES

Standard Package

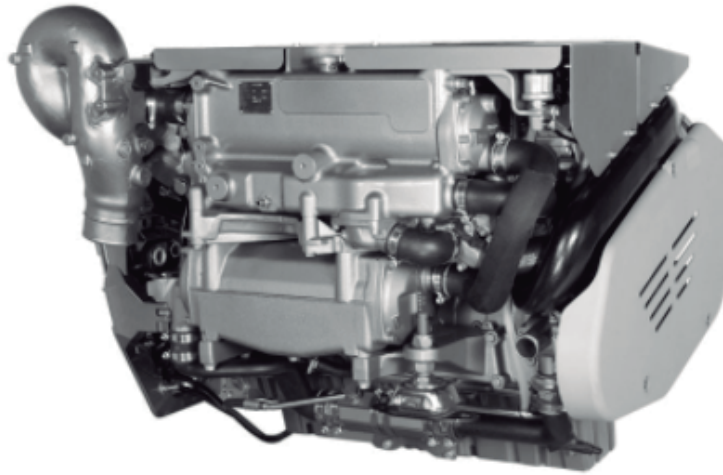
- Sensor for various panels
- Exhaust/water mixing elbow [L-type]
- Cooling water hoses
- Alternator 12V - 80A

Optional

- Flexible mounts
- High-riser/water mixing elbow [instead of L-elbow]
- New C-type instrument panels
- Dual station Y harness
- Dipstick for opposite side
- Air venting device for cooling water tank

NOTE: All data subject to change without notice. Text and illustrations are not binding.





Configuration

Maximum output at crankshaft

Displacement

Bore x stroke

Cylinders

Combustion system

Aspiration

Low Idle rpm

Electric system

Alternator

Start-assist

Cooling system

Lubrication system

Direction of rotation [crankshaft]

Dry weight without gear

Environmental

Engine mounting

4-stroke, water-cooled diesel engine

117 kW@2800 rpm [160 mhp@2800 rpm]

2.993 ltr [183 cu in]

84 mm x 90 mm [3.31 in x 3.54 in]

6 in line

Direct injection with Bosch Common-rail system

Turbocharger + charge-air cooler

650 - 950 rpm [adjustable]

12V

12V / 150A option: secondary alternator 24V / 90A

Glow-plug system

Fresh water cooling by centrifugal fresh water pump

Sea water cooling by rubber impeller seawater pump

Enclosed, forced lubricating system

Counter clockwise viewed from flywheel side

328 kg [723 lbs]

EU: RCD BSO II EMC

US: EPA Tier3

Rubber type flexible mounting

NOTE:

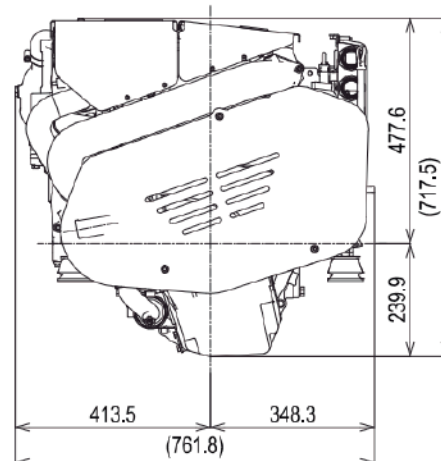
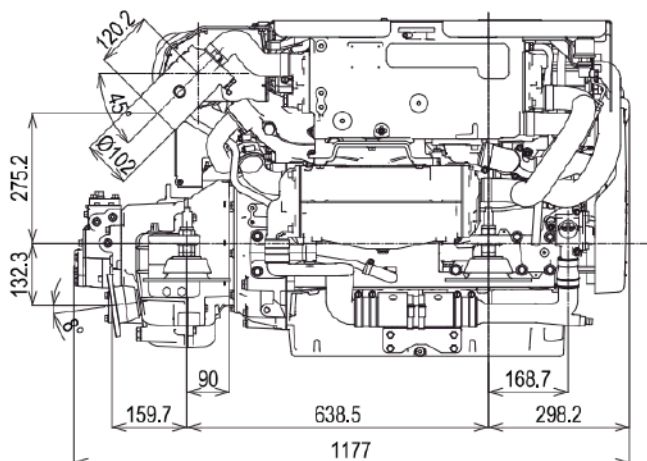
Fuel condition: Density at 15°C = 0.842 g/cm³; 1 mhp = 1 ps = 0.7355 kW = 0.9863 bhp

* Fuel temperature 25°C at the inlet of the fuel injection pump [ISO 3046-1]

** Fuel temperature 40°C at the inlet of the fuel injection pump [ISO 8665: 2006]

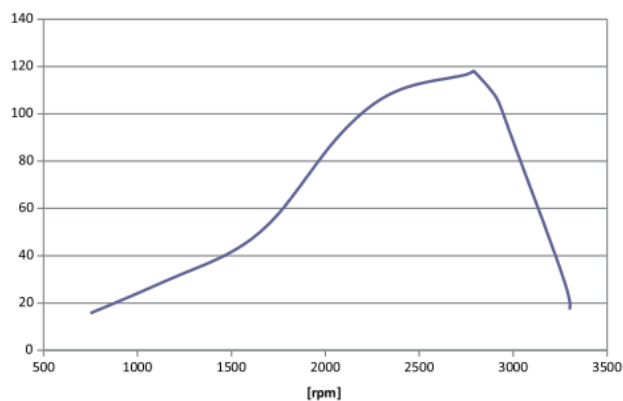
Technical data is according to ISO 8665: 2006/3046-1

DIMENSIONS

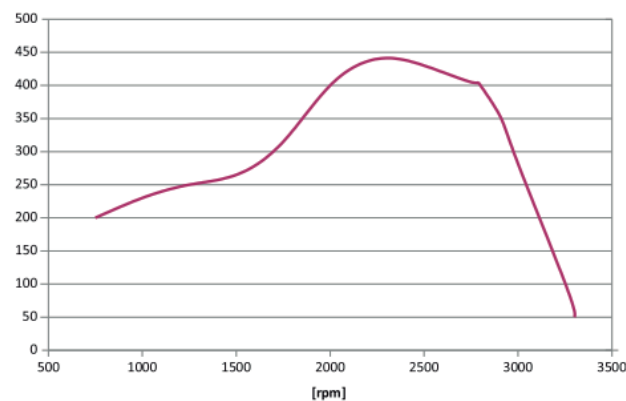


PERFORMANCE CURVES

Power [kW]



Torque [Nm]

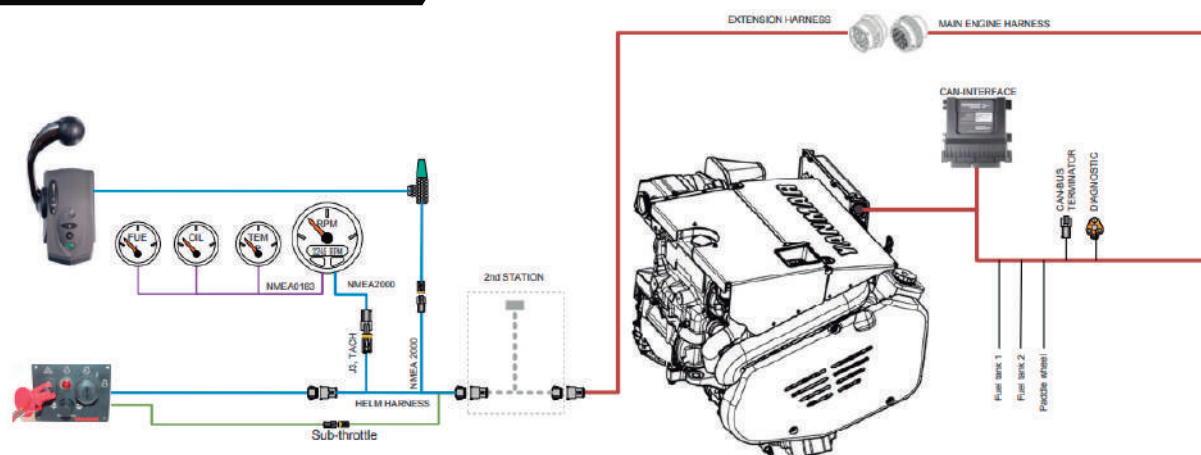


DRIVE SYSTEMS

Model	KMH50A [down angle 8°]		
Type	Hydraulic Actuated Multi-friction disc clutch		
Dry weight	43 kg excl. foot and cooler [=15.5 kg]		
Reduction ratio [fwd/asn]	1.67/1.67	2.13/2.13	2.43/2.43
Direction of rotation	Clockwise & Counterclockwise viewed from the stern		
Lub oil specifications	API class: CF or higher SAE grade #30		
Dry weight - engine & gear	375 kg		

Model	KMH50V [Integral V-drive 12°]		
Type	Hydraulic Actuated Multi-friction disc clutch		
Dry weight	59 kg excl. foot and cooler [=20 kg]		
Reduction ratio [fwd/asn]	1.22/1.22	1.58/1.58	2.08/2.08
Direction of rotation	Clockwise & Counterclockwise viewed from the stern		
Lub oil specifications	API class: CF or higher SAE grade #30		
Dry weight - engine & gear	395 kg		

CONTROL SYSTEM "CLASSIC"



ENGINE ACCESSORIES

Standard engine package

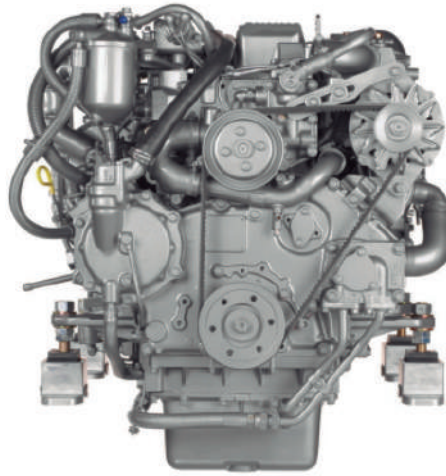
- Single pole, 150A Alternator
- Exhaust mixing elbow [L-type]
- Automatic glow-plug controller
- Flexible engine mounting
- Full NMEA2000 electronic control system [CAN-bus]

Optional accessories

- Secondary Alternator 24V / 90A
- High-riser mixing elbow [instead of L-elbow]
- Exhaust-side 2nd dipstick
- Electric gearshift
- Trolling on gearbox [mechanical and electrical]
- NMEA2000 digital display

NOTE: All data subject to change without notice. Text and illustrations are not binding.

NEREX



Configuration Maximum output at crankshaft

Displacement

Bore x stroke

Cylinders

Combustion system

Aspiration

Starting system

Alternator

Cooling system

Lubrication system

Direction of rotation [crankshaft]

Dry weight without gear

Emission compliance

4-stroke, vertical, water-cooled diesel engine

* 147 kW@3300 rpm [200 mhp@3300 rpm]

** 140 kW@3300 rpm [190 mhp@3300 rpm]

3.455 L [211 cu in]

100 mm x 110 mm [3.94 in x 4.33 in]

In-line

Direct injection

Turbocharged with intercooler

Electrical starting 12V

12V - 80A

Fresh water cooling by centrifugal fresh water pump and rubber impeller seawater pump

Enclosed, forced lubricating system

Counterclockwise viewed from stern

365 kg [805 lbs]

EU: RCD 1 BSO II EMC

SOLAS MED 96/98/EC

Rubber type flexible mounting

Engine mounting

NOTE:

Fuel condition: Density at 15°C = 0.842 g/cm³; 1 mhp = 1 ps = 0.7355 kW = 0.9863 bhp

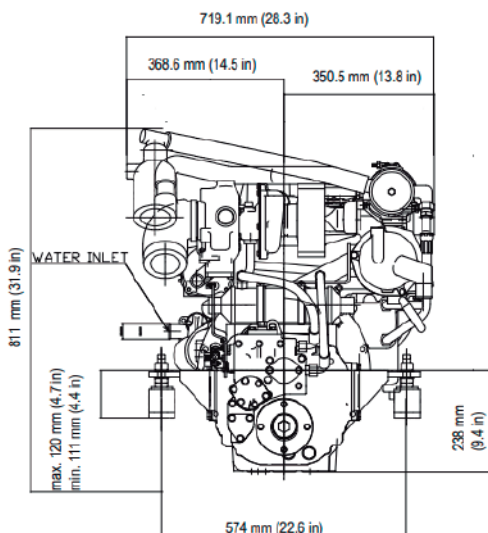
* Fuel temperature 25°C at the inlet of the fuel injection pump [ISO 3046-1]

** Fuel temperature 40°C at the inlet of the fuel injection pump [ISO 8665: 2006]

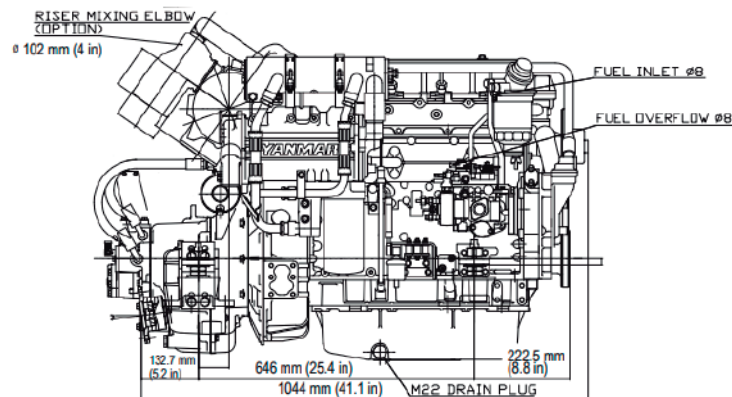
Technical data is according to ISO 8665: 2006/3046-1

DIMENSIONS

REAR VIEW



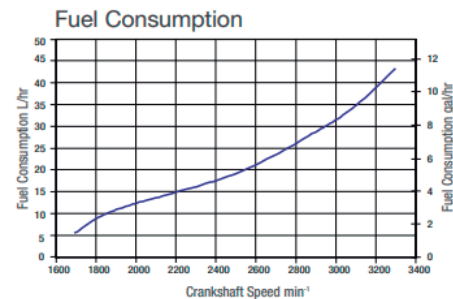
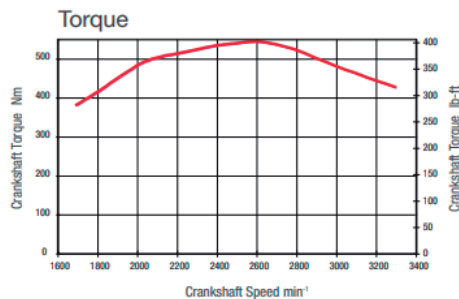
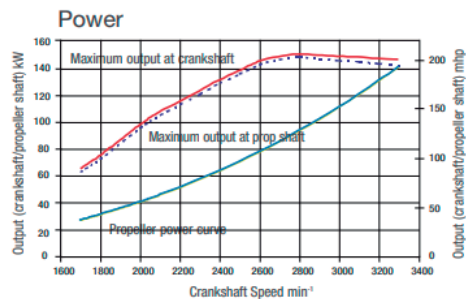
RIGHT SIDE VIEW



4LHA-DTP with KMH50A marine gear



PERFORMANCE CURVES (Output is according ISO 8665 - Output includes +/- 3% tolerance)



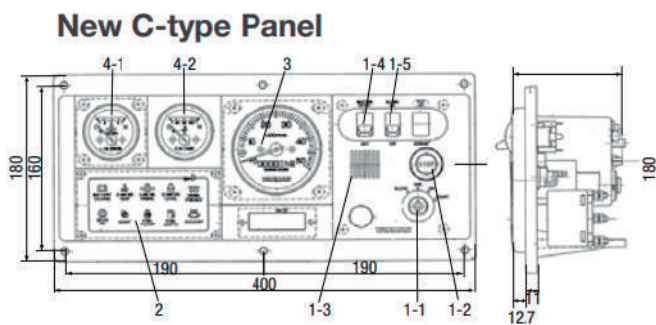
MARINE GEARS/DRIVE*

Model	KMH50A [down angle 8°]			ZF63A [down angle 8°]				
Type	Hydraulically actuated multi-disc clutch			Hydraulically actuated multi-disc clutch				
Dry weight**	57,6 kg [127 lbs]			44 kg [96,8 lbs]				
Reduction Ratio [fwd/rev]	1.67/1.67	2.13/2.13	2.43/2.43	1.22/1.22	1.56/1.56	2.04/2.02	2.52/2.54	2.68/2.71
Propeller speed [fwd/rev]	1976/1976	1549/1549	1358/1358	2714/2716	2111/2085	1620/1636	1308/1301	1230/1218
Direction of rotation (viewed from stern)	Clockwise & Counterclockwise			Clockwise & Counterclockwise				
Dry weight engine and gear/drive**	422,5 kg [931 lbs]			409 kg [902 lbs]				

* Other marine gearboxes and configurations available upon request. Contact your local supplier for more information.

** Dry weight includes cooler, brackets and damper disk.

INSTRUMENT PANELS



Function	TYPE OF INSTRUMENT PANEL
1-Switch unit	NEW C-TYPE PANEL
1-1 Key switch for GLOW/OFF/ON/START [4-position switch]	Equipped on panel
1-2 Engine stop switch	Equipped on panel
1-3 Alarm buzzer [C.W. Temp., L.O. Pressure]	Equipped on panel
1-4 Alarm buzzer stop switch	Equipped on panel
1-5 Illumination switch for meters	Equipped on panel
2-Alarm lamp unit	
Battery not charging	Equipped on panel
C.W. high temperature	Equipped on panel
L.O. low pressure	Equipped on panel
Boost pressure high [for 4LHA-STP]	Equipped on panel
3-Tachometer with hour meter	Equipped on panel
4-Sub meter unit	Equipped on panel
4-1 L.O. pressure meter	Equipped on panel
4-2 C.W. Temperature meter	Equipped on panel
4-3 Boost meter [turbo]	Not equipped on panel
5-Quartz clock	Not equipped on panel

ACCESSORIES

Standard Package

- Sensor for various panels
- Exhaust/water mixing elbow [L-type]
- Alternator 12V - 80A

Optional

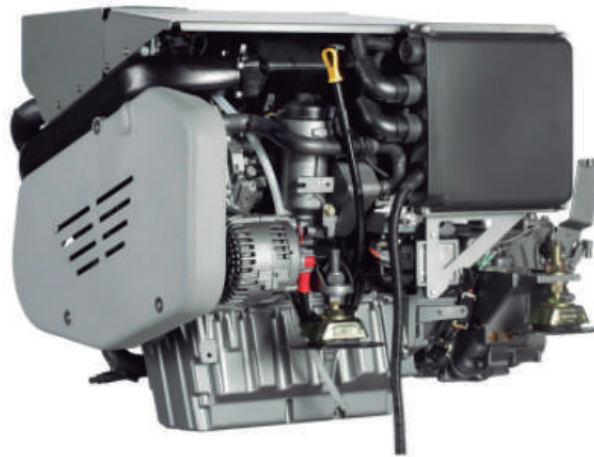
- Flexible mounts
- High-riser/water mixing elbow [instead of L-elbow]
- New C-type instrument panel
- Dual station Y harness
- Dipstick for opposite side
- Air venting device for cooling water tank

NOTE: All data subject to change without notice. Text and illustrations are not binding.



6BY3-220 / 6BY3-260 Series

MARINE DIESEL ENGINES



Configuration Maximum output at crankshaft

Displacement

Bore x stroke

Cylinders

Combustion system

Aspiration

Low Idle rpm

Electric system

Alternator

Start-assist

Cooling system

Lubrication system

Direction of rotation [crankshaft]

Dry weight without gear

Environmental

4-stroke, water-cooled diesel engine

162 kW@4000 rpm [220 mhp@4000 rpm]

191 kW@4000 rpm [260 mhp@4000 rpm]

2.993 ltr [183 cu in]

84 mm x 90 mm [3.31 in x 3.54 in]

6 in line

Direct injection with Bosch Common-rail system

Turbocharger + charge-air cooler

650 - 950 rpm [adjustable]

12V

12V - 150A

Glow-plug system

Fresh water cooling by centrifugal fresh water pump

Sea water cooling by rubber impeller seawater pump

Enclosed, forced lubricating system

Counter clockwise viewed from flywheel side

328 kg [723 lbs]

EU: RCD BSO II EMC US: EPA Tier3

IMO: MARPOL 73/78 Annex VI

SOLAS MED 96/98/EC

Rubber type flexible mounting

Engine mounting

NOTE:

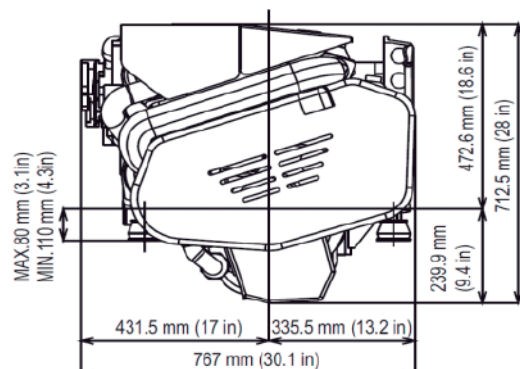
Fuel condition: Density at 15°C = 0.84 g/cm³

Fuel temperature 40°C at the inlet of the fuel injection pump [ISO 8665: 2006]

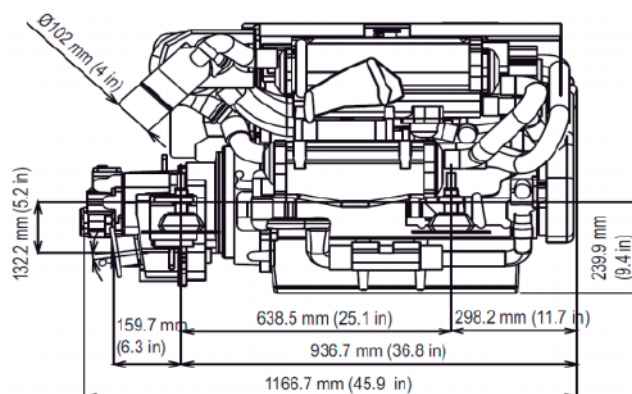
Technical data is according to ISO 8665: 2006/3046-1

DIMENSIONS

FRONT VIEW



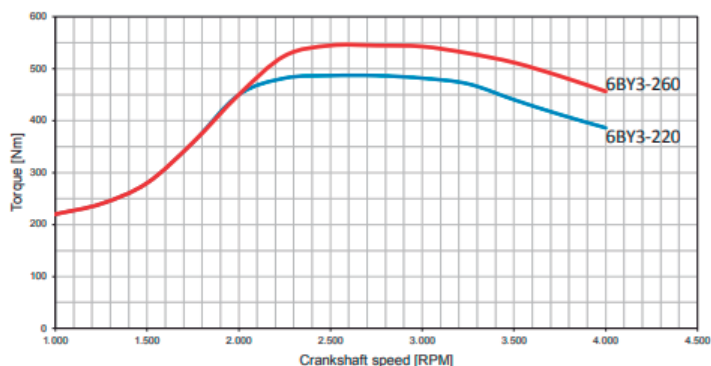
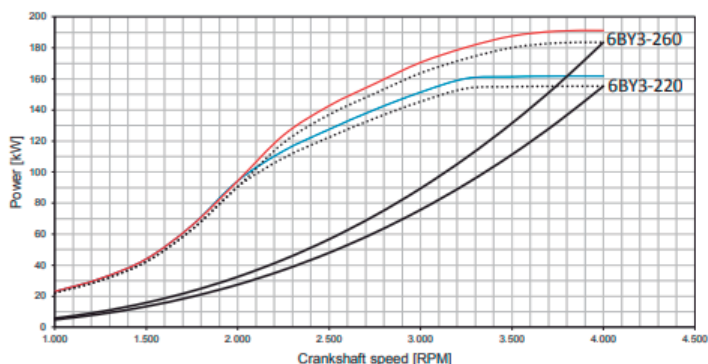
RIGHT SIDE VIEW



6BY3-260 with KMH51A Marine gear

VEREX

PERFORMANCE CURVES

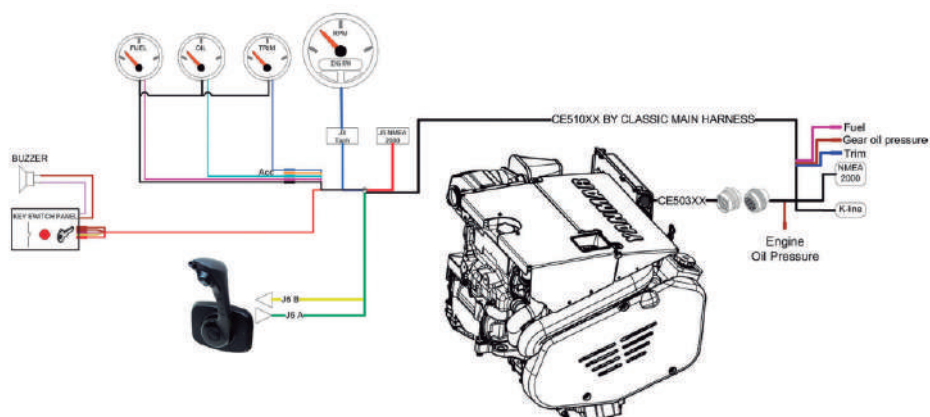


DRIVE SYSTEMS

Model	KMH50A [down angle 8°]		
Type	Hydraulic Actuated Multi-friction disc clutch		
Dry weight	43 kg excl. foot and cooler [=15.5 kg]		
Reduction ratio [fwd/asn]	1.67/1.67	2.13/2.13	2.43/2.43
Direction of rotation	Clockwise & Counterclockwise viewed from the stern		
Lub oil specifications	API class: CF or higher SAE grade #30		
Dry weight - engine & gear	375 kg		

Model	KMH50V [Integral V-drive 12°]		
Type	Hydraulic Actuated Multi-friction disc clutch		
Dry weight	59 kg excl. foot and cooler [=20 kg]		
Reduction ratio [fwd/asn]	1.22/1.22	1.58/1.58	2.08/2.08
Direction of rotation	Clockwise & Counterclockwise viewed from the stern		
Lub oil specifications	API class: CF or higher SAE grade #30		
Dry weight - engine & gear	395 kg		

CONTROL SYSTEM "CLASSIC"



ENGINE ACCESSORIES

Standard engine package

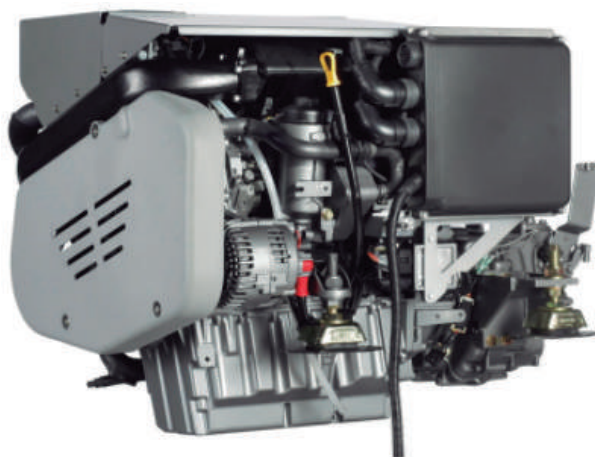
- Single pole, 150A Alternator
- Exhaust mixing elbow [L-type]
- Automatic glow-plug controller
- Flexible engine mounting
- Analogue throttle with redundancy function

Optional accessories

- High-riser mixing elbow [instead of L-elbow]
- Exhaust-side 2nd dipstick
- Electric gearshift
- Trolling on gearbox [mechanical and electrical]
- NMEA2000 digital display
- Full NMEA2000 electronic control system [CAN-bus]

6by3-220Z / 6BY3-260Z Series

MARINE DIESEL ENGINES



Configuration

Maximum output at crankshaft

Displacement

Bore x stroke

Cylinders

Combustion system

Aspiration

Low Idle rpm

Electric system

Alternator

Start-assist

Cooling system

Lubrication system

Direction of rotation [crankshaft]

Dry weight without gear

Environmental

Engine mounting

4-stroke, water-cooled diesel engine

162 kW@4000 rpm [220 mhp@4000 rpm]

191 kW@4000 rpm [260 mhp@4000 rpm]

2.993 ltr [183 cu in]

84 mm x 90 mm [3.31 in x 3.54 in]

6 in line

Direct injection with Bosch Common Rail System

Turbocharger + charge air cooler

650 - 950 rpm [adjustable]

12V

12V - 150A

Glow-plug system

Fresh water cooling by centrifugal fresh water pump

Sea water cooling by rubber impeller seawater pump

Enclosed, forced lubricating system

Counterclockwise viewed from flywheel side

328 kg [723 lbs]

EU: RCD BSO II EMC US: EPA Tier3

IMO: MARPOL 73/78 Annex VI

Rubber type flexible mounting

NOTE:

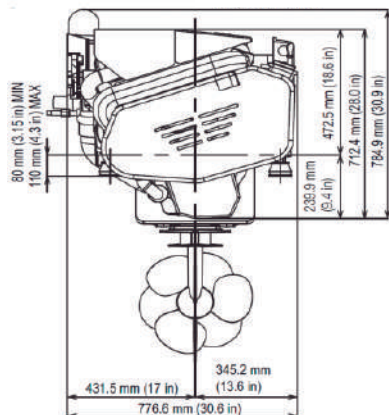
Fuel condition: Density at 15°C = 0.84 g/cm³

Fuel temperature 40°C at the inlet of the fuel injection pump [ISO 8665: 2006]

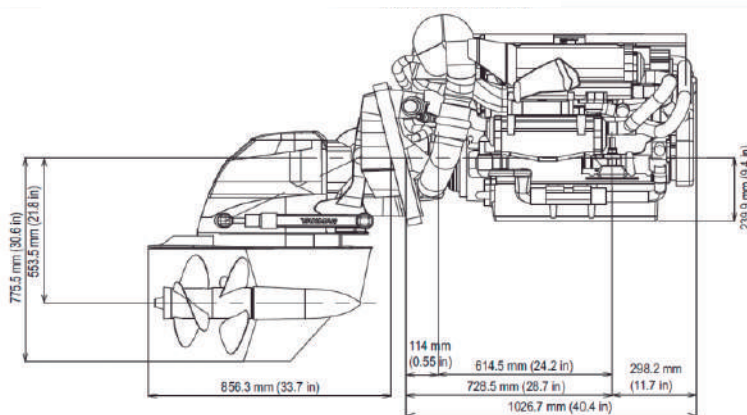
Technical data is according to ISO 8665: 2006/3046-1

DIMENSIONS

FRONT VIEW



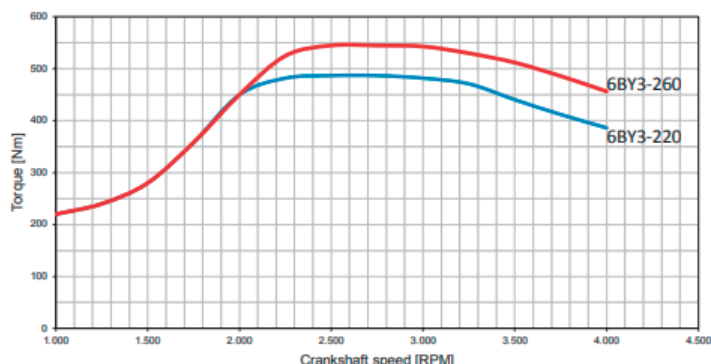
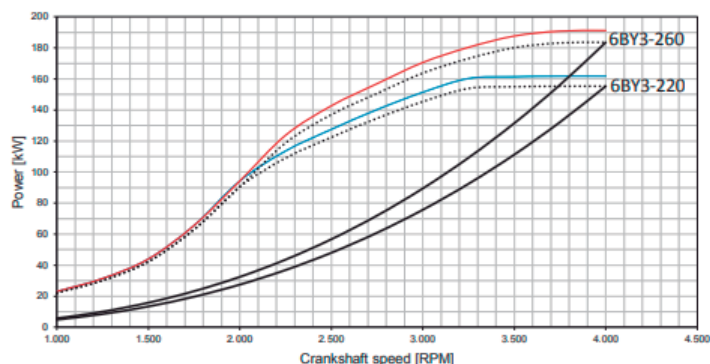
RIGHT SIDE VIEW



6BY3-260Z with ZT370 Sterndrive

VEREX

PERFORMANCE CURVES



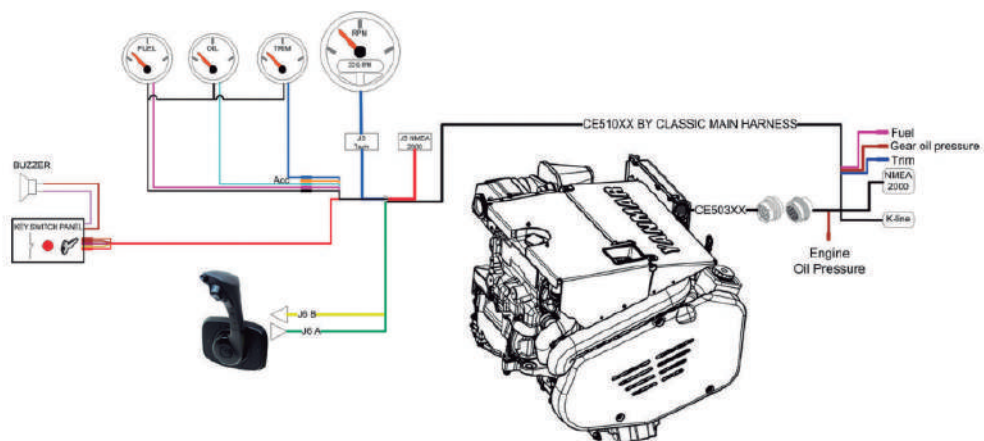
DRIVE SYSTEMS

Model	ZT370 Steerable Z-drive with duo-propeller			
Type	Hydraulic Actuated Multi-friction disc Sterndrive			
Dry weight	69 kg [drive]/46 kg [Transom + trim-pump]/15 kg [Propellers]			
Reduction ratio [fwd/asn]	1.65	1.78	1.97	2.18
Propeller speed [fwd/asn]	2424	2247	2030	1835
Direction of rotation	Clockwise [rear propeller]/Counter clockwise [front propeller]			
Lub oil specifications	API class: GL5 SAE grade #80W90 or QuickSilver High Performance Gearlube			
Dry weight - engine & gear	445 kg			

Model	Mercurier Bravo 1 Steerable Z-drive with single propeller		
Type	Mechanical cone-clutch type Sterndrive		
Dry weight	59 kg [drive]/48 kg [Transom + trim-pump]/8 kg [Propeller]		
Reduction ratio [fwd/asn]	1.36	1.5	1.65
Propeller speed [fwd/asn]	2424	2667	2424
Direction of rotation	Clockwise & Counterclockwise viewed from the stern		
Lub oil specifications	Mercury High Performance Gearlube		
Dry weight - engine & gear	430 kg		

- 1 - Inner and outer transom surface must be parallel within 3 mm in area covered by transom plates and remain within transom thickness limits.
- 2 - Area covered by gimbal housing assembly must be flat to within 1.6 mm.
- 3 - Area covered by inner transom plate must be flat to within 3.2 mm.
- 4 - Transom angle: 13° to 16°.
- 5 - Also available with Bravo X-2 drive's, please contact your local supplier for support.

CONTROL SYSTEM "CLASSIC"



ENGINE ACCESSORIES

Standard engine package

- Single pole, 150A alternator
- High-riser mixing exhaust elbow
- Automatic glow-plug controller
- Flexible engine mounting
- Analogue throttle with redundancy function

Optional accessories

- Through transom exhaust
- Exhaust-side 2nd dipstick
- Electric gearshift
- NMEA2000 digital display
- Various monitoring gauges
- Full NMEA2000 electronic control system [CAN-bus]

Propellers

- Propeller size 20" - 22" - 24" - 26" - 28"
- Propellers with cup 24"- 26"

NOTE: All data subject to change without notice. Text and illustrations are not binding.



4LV Series - 230 / 250

MARINE COMMON RAIL ENGINES



Configuration

Maximum output at crankshaft*

Displacement

Bore x stroke

Cylinders

Combustion system

Low idle rpm

Aspiration

Starting system

Alternator

Cooling system

Lubrication system

Direction of rotation [crankshaft]

Dry weight without gear**

Emission compliance

Engine mounting

4-stroke, vertical, water-cooled diesel engine

169kW @3800 [230 mhp@3800 rpm]

184kW @3800 [250 mhp@3800 rpm]

2.755 L [168 cu in]

92 mm x 103.6 mm [3.6 in x 4 in]

4 in-line

Direct injection with Denso common rail system

750 rpm

Turbocharger with charge-air cooler

Electric starting 12V – 2 kW

Denso 12V - 130A

Fresh water cooling by centrifugal fresh water pump

Sea water cooling by rubber impeller seawater pump

Enclosed, forced lubricating system

Counterclockwise viewed from stern

332 kg [732 lbs]

EU: RCD 2, BSO II, EMC US: EPA Tier 3

Rubber type flexible mounting

NOTE:

Fuel condition: Density at 15°C = 0.84 g/cm³; 1 kW = 1.3596 mhp = 1,3410 HP

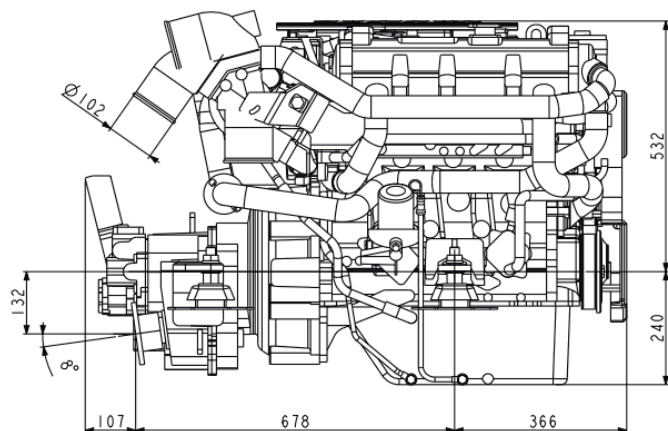
* Fuel temperature 40°C at the inlet of the fuel injection pump [ISO 8665: 2006]

** Including damper disk

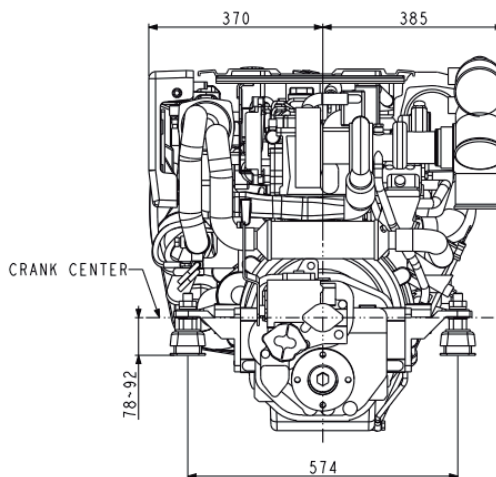
Technical data is according to ISO 8665: 2006

DIMENSIONS

RIGHT SIDE VIEW



FRONT VIEW

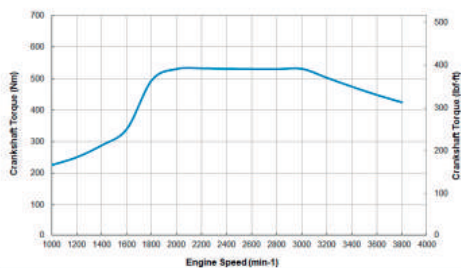


4LV230 with KMH50A marine gear

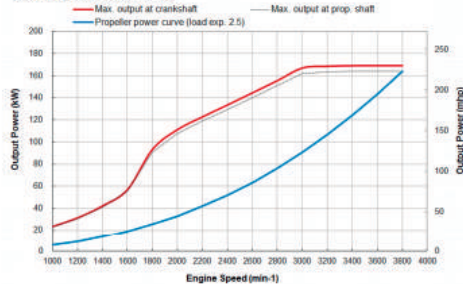
VEREX

PERFORMANCE CURVES

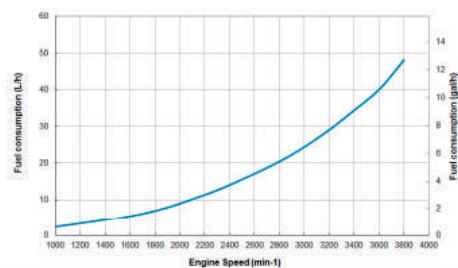
4LV230 Torque curve



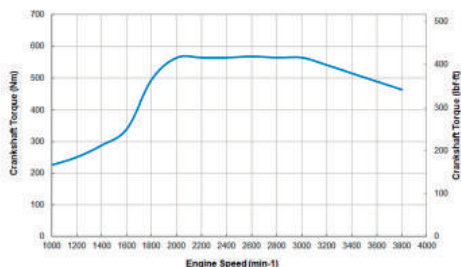
4LV230 Output Power curve



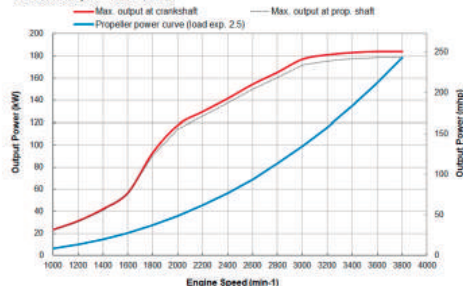
4LV230 Fuel consumption (load exp. 2.5)



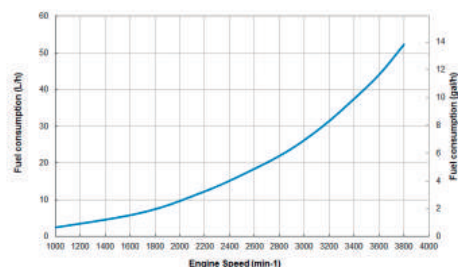
4LV250 Torque curve



4LV250 Output Power curve



4LV250 Fuel consumption (load exp. 2.5)



MARINE GEARS*

Model	KMH50A [down angle: 8°]			KMH50V [V-drive, angle: 12°]			
Type	Hydraulic, multi disk clutch			Hydraulic, multi disk clutch			
Dry Weight**	52 kg [115 lbs]			75 kg [165 lbs]			
Reduction Ratio [fwd/asn]	1.67/1.67	2.13/2.13	2.43/2.43	1.22/1.22	1.58/1.58	2.08/2.08	2.47/2.47
Propeller speed [fwd/asn]	2275/2275	1784/1784	1564/1564	3115/3115	2405/2405	1827/1827	1538/1538
Direction of rotation [viewed from stern]	Clockwise & counterclockwise			Clockwise & counterclockwise			
Dry weight - engine & gear	384 kg [846 lbs]			407 kg [897 lbs]			
Length engine and gear/drive	1151 mm [45.3 in]			1151 mm [45.3 in]			

*For other configurations, consult your local Yanmar distributor.

**Dry weight includes cooler and brackets

ACCESSORIES

Standard Package

- Exhaust mixing elbow [L-type]
- Alternator 12V - 130A
- B25 panel
- Oil sensor for instrument panel
- Mechanical throttle sensor
- Set of flexible engine mounts
- Fresh water expansion tank
- Belt safety cover
- Engine topcover for protection
- Operation manual

Optional

- High-riser mixing elbow [instead of L-elbow]
- Secondary alternator 12V - 150A or 24V - 85A
- Multistage secondary alternator 12V - 130A or 24V - 110A
- Semi 2-Pole Electrical Installation
- Hot water connection
- Opposite dipstick
- Fuel pre-filter with water separator
- C-Type Trolling Valve KMH50
- Extension harness [3m, 5m, 10m, 20m]
- C35 panel
- Mechanical sidemount control head

- VC10 Vessel Control System
- Second station
- NMEA2000 Engine monitoring system
- Electronic Side Mount CH instead of Top Mount
- SOLAS including Certificate (Factory fit only)
- Man Over Board Switch (single)
- On Board Spare Parts Kit 4LV
- Second station
- NMEA2000 Engine monitoring system
- JC20 Inboard Joystick

NOTE: All data subject to change without notice. Text and illustrations are not binding.

NEREX

4LV Series - 230Z / 250Z

MARINE COMMON RAIL ENGINES



Configuration

Maximum output at crankshaft*

Displacement

Bore x stroke

Cylinders

Combustion system

Low idle rpm

Aspiration

Starting system

Alternator

Cooling system

Lubrication system

Direction of rotation [crankshaft]

Dry weight without gear**

Emission compliance

Engine mounting

4-stroke, vertical, water-cooled diesel engine

169kW @3800 [230 mhp@3800 rpm]

184kW @3800 [250 mhp@3800 rpm]

2.755 L [168 cu in]

92 mm x 103.6 mm [3.6 in x 4 in]

4 in-line

Direct injection with Denso common rail system

750 rpm

Turbocharger with charge-air cooler

Electric starting 12V – 2 kW

Denso 12V - 130A

Fresh water cooling by centrifugal fresh water pump

Sea water cooling by rubber impeller seawater pump

Enclosed, forced lubricating system

Counterclockwise viewed from stern

332 kg [732 lbs]

EU: RCD 2, BSO II, EMC US: EPA Tier 3

Rubber type flexible mounting

NOTE:

Fuel condition: Density at 15°C = 0.84 g/cm³; 1 kW = 1.3596 mhp = 1.3410 HP

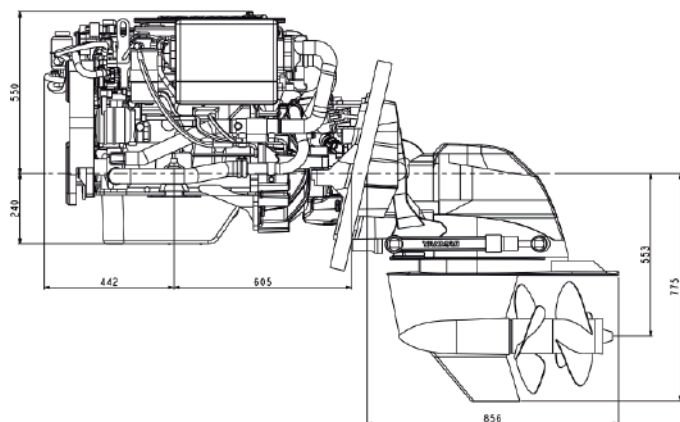
* Fuel temperature 40°C at the inlet of the fuel injection pump [ISO 8665: 2006]

** Including damper disk

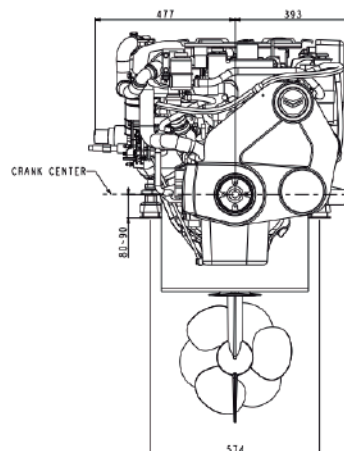
Technical data is according to ISO 8665: 2006

DIMENSIONS

RIGHT SIDE VIEW



FRONT VIEW

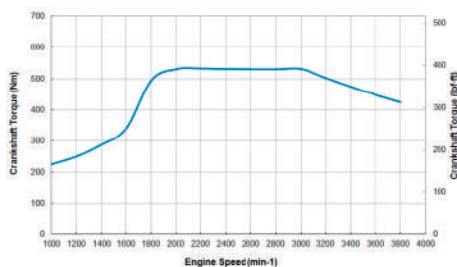


4LV230 with KMH50A marine gear

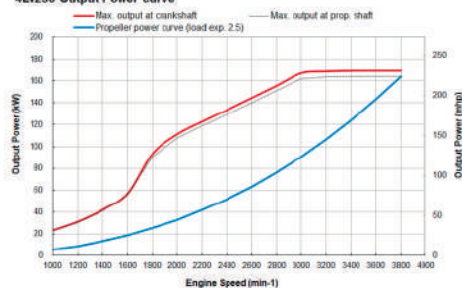
VEREX

PERFORMANCE CURVES

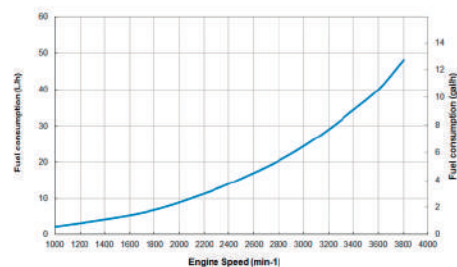
4LV230 Torque curve



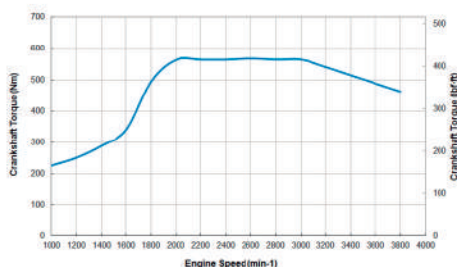
4LV230 Output Power curve



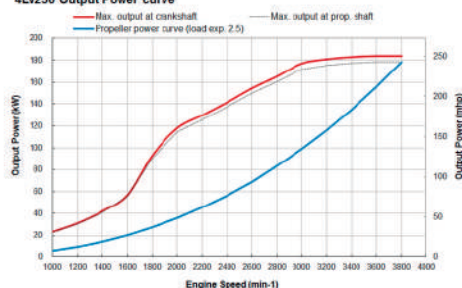
4LV230 Fuel consumption (load exp. 2.5)



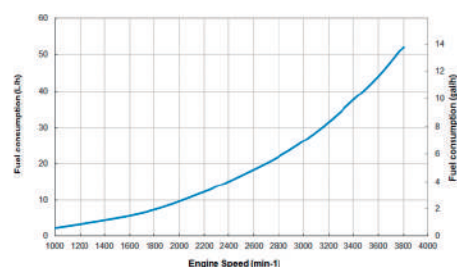
4LV250 Torque curve



4LV250 Output Power curve



4LV250 Fuel consumption (load exp. 2.5)



MARINE GEARS*

Model	ZT370 [Steerable Z-drive with dual prop]		
Type	Hydraulic actuated multi-friction disc clutch		
Dry weight with propellers**	112 kg [247 lbs]		
Reduction ratio [fwd/rev]	1.65 / 1.65	1.78 / 1.78	1.97 / 1.97
Propellor speed	2303 / 2303	2134 / 2134	1928 / 1928
Direction of rotation viewed from the stern	Clockwise [rear prop] & Counterclockwise [front prop]		
Lube oil specifications	Quick Silver HPGL		
Dry weight engine with sterndrive	446 kg [983 lbs]		
Shift control	Mechanical or electro-magnetic		
Trim range	-6° - +10°		
Trailer limit	51°		

*For other configurations, consult your local Yanmar distributor.

**Dry weight includes cooler and brackets

ACCESSORIES

Standard Package

- Through drive exhaust
- Alternator 12V - 130A
- VC10 Vessel Control System
- Electronic CAN-bus control head
- Set of flexible engine mounts
- Fresh water expansion tank
- Belt safety cover
- Engine topcover for protection
- Operation manual

Optional

- Through drive exhaust
- Secondary alternator 12V - 150A or 24V - 85A
- Multistage secondary alternator 12V - 130A or 24V - 110A
- SOLAS including Certificate (Factory fit only)
- Hot water kit
- Power steering
- Internal tie-bar
- Opposite dipstick
- Extension harness [3m, 5m, 10m]
- JC10 joystick control

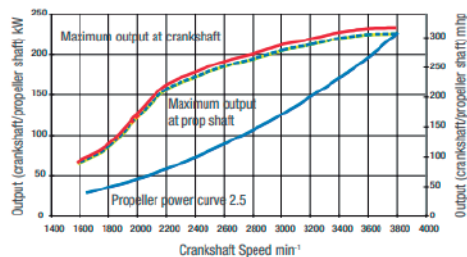
- Second station
- NMEA2000 Engine monitoring system
- Man Over Board Switch (single)
- On Board Spare Parts Kit 4LV

NOTE: All data subject to change without notice. Text and illustrations are not binding.

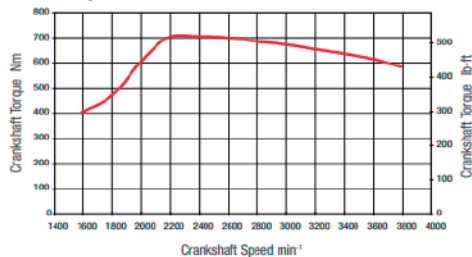
YANMAR

PERFORMANCE CURVES

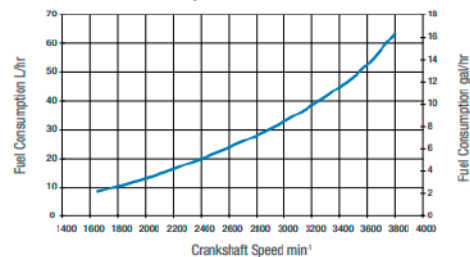
Power



Torque



Fuel Consumption

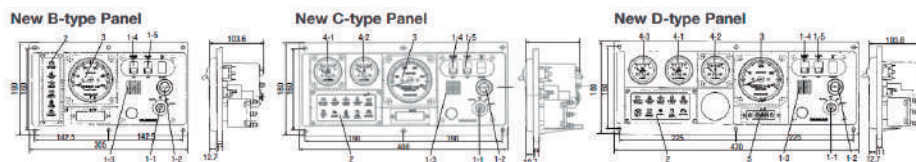


MARINE GEARS/DRIVE*

Model	KMH50A [down angle 8°]			ZF63A [down angle 8°]			
Type	Hydraulically Actuated Multi-Disc Clutch			Hydraulically Actuated Multi-Disc Clutch			
Dry weight**	51 kg [112 lbs]			44 kg [97 lbs]			
Reduction Ratio [fwd/rev]	1.67/1.67	2.13/2.13	2.43/2.43	1.22/1.21	1.56/1.58	2.04/2.10	2.52/2.53
Propeller speed [fwd/rev]	2275	1784	1564	3115/3140	2436/2405	1863/1810	1429/1423
Direction of rotation (viewed from stern)	Clockwise or Counterclockwise			Counterclockwise			
Dry weight – engine & gear**	459 kg [1012 lbs]			452 kg [996 lbs]			
Length engine and gear/drive	1190 mm [46.9 in]			1205 mm [47.4 in]			

* Other marine gearboxes and configurations available upon request. Contact your local supplier for more information. ** Dry weight includes cooler, brackets and damper disk.

INSTRUMENT PANELS



Function	TYPE OF INSTRUMENT PANEL		
	DIGITAL B-TYPE PANEL	NEW C-TYPE PANEL	NEW D-TYPE PANEL
1-Switch unit			
1-1 Key switch for GLOW/OFF/ON/START [4-position switch]	Equipped on panel	Equipped on panel	Equipped on panel
1-2 Engine stop switch	Equipped on panel	Equipped on panel	Equipped on panel
1-3 Alarm buzzer [C.W. Temp., L.O. Pressure]	Equipped on panel	Equipped on panel	Equipped on panel
1-4 Alarm buzzer stop switch	Equipped on panel	Equipped on panel	Equipped on panel
1-5 Illumination switch for meters	Equipped on panel	Equipped on panel	Equipped on panel
2-Alarm lamp unit			
2-1 Battery not charging	Equipped on panel	Equipped on panel	Equipped on panel
2-2 C.W. high temperature	Equipped on panel	Equipped on panel	Equipped on panel
2-3 L.O. low pressure	Equipped on panel	Equipped on panel	Equipped on panel
2-4 F.O. drain separator	Equipped on panel	Equipped on panel	Equipped on panel
2-5 Sea water flow	Equipped on panel	Equipped on panel	Equipped on panel
2-6 C.W. level for fresh water tank	Not equipped on panel	Equipped on panel	Equipped on panel
2-7 Boost pressure high	Equipped on panel	Equipped on panel	Equipped on panel
3-Tachometer with hour meter	Equipped on panel	Equipped on panel	Equipped on panel
4-Sub meter unit			
4-1 L.O. pressure meter	Not equipped on panel	Equipped on panel	Equipped on panel
4-2 C.W. Temperature meter	Not equipped on panel	Equipped on panel	Equipped on panel
4-3 Boost meter [turbo]	Not equipped on panel	Not equipped on panel	Equipped on panel
5 Quartz clock	Not equipped on panel	Not equipped on panel	Equipped on panel

ENGINE ACCESSORIES

Standard engine package

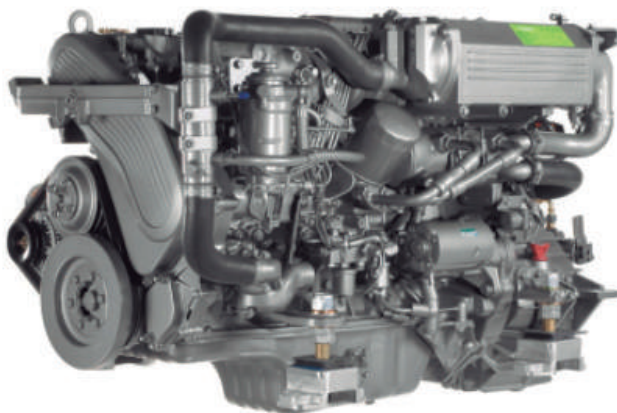
- Sensor for instrument panel [New B, C and D-type]
- Exhaust/water mixing elbow [L-type]
- Cooling water hoses
- Fuel water separator [integrated with fuel filter]
- Alternator 12V - 80A

Optional accessories

- Flexible mounts [2 pcs]
- High-riser mixing elbow [instead of L-elbow]
- Analog instrument panels [New B, C and D-type]
- Dual station Y-harness
- Sensor for VDO instrument panels
- Control heads
- Extension wire harness [4m, 6m, 10m]
- Lub oil evacuation pump
- Air venting device for cooling water tank
- VDO instrumentation for main panel and fly bridge
- Dipstick for opposite side

NOTE: All data subject to change without notice. Text and illustrations are not binding.





Configuration

Maximum output at crankshaft

Displacement

Bore x stroke

Cylinders

Combustion system

Aspiration

Starting system

Alternator

Cooling system

Lubrication system

Direction of rotation [crankshaft]

Dry weight without gear

Emission compliance

Engine mounting

4-stroke, vertical, water-cooled diesel engine

* 232 kW@3800 rpm [315 mhp@3800 rpm]

** 225 kW@3800 rpm [306 mhp@3800 rpm]

4.164 L [254 cu in]

94 mm x 100 mm [3.7 in x 3.94 in]

In-line, 4 valves per cylinder

Direct injection

Turbocharged with intercooler

Electric starting 12V - 2.5 kW

12V - 80A

Fresh water cooling by centrifugal fresh water pump and rubber impeller seawater pump

Enclosed, forced lubricating system

Counterclockwise viewed from stern

428 kg [944 lbs]

EU: RCD 1 BSO II EMC

Rubber type flexible mounting

NOTE:

Fuel condition: Density at 15°C = 0.84 g/cm³; 1 kW = 1.3596 mhp = 1.3410 HP

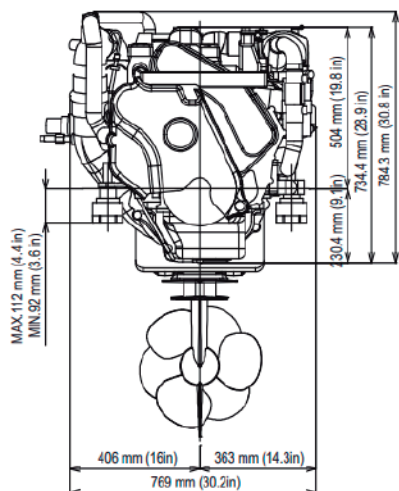
* Fuel temperature 25°C at the inlet of the fuel injection pump [ISO 3046-1]

** Fuel temperature 40°C at the inlet of the fuel injection pump [ISO 8665: 2006]

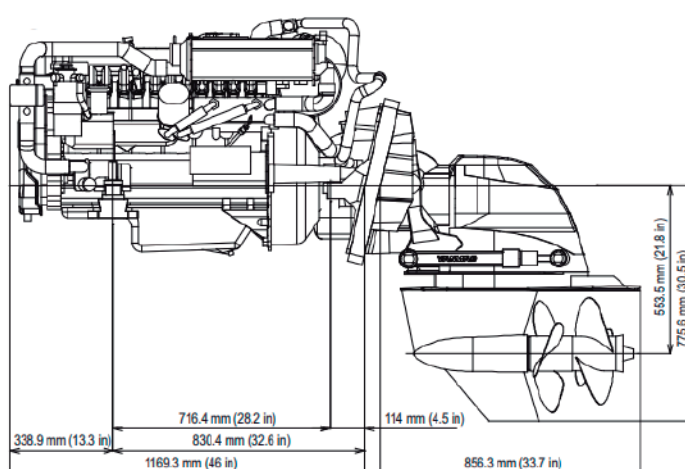
Technical data is according to ISO 8665: 2006/3046-1

DIMENSIONS

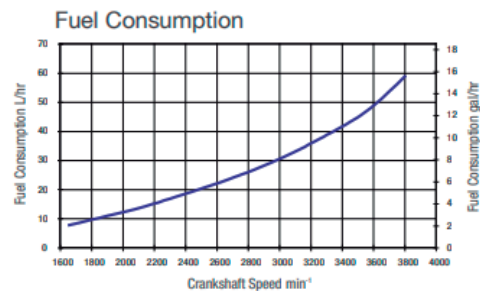
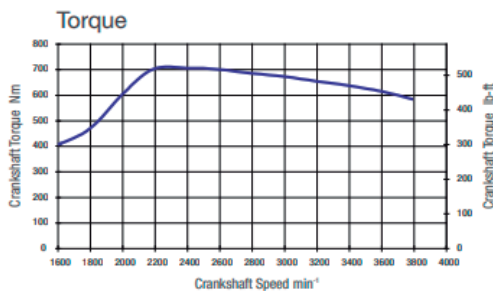
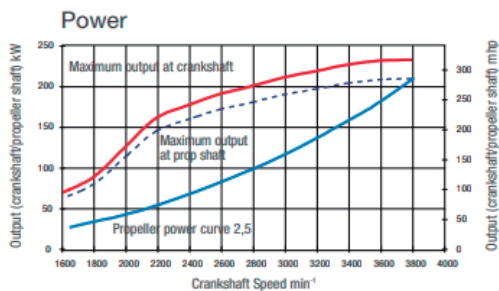
REAR VIEW



RIGHT SIDE VIEW



PERFORMANCE CURVES

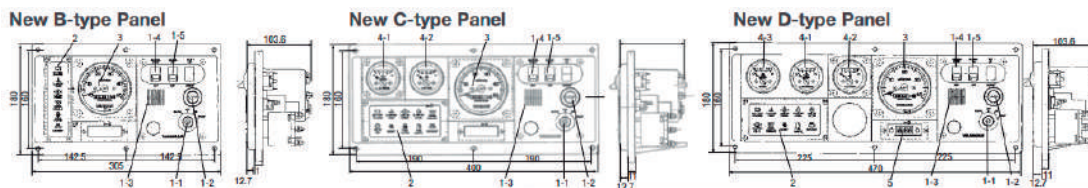


MARINE GEARS/DRIVE*

Model	ZT370 [Steerable Z-drive with dual prop]		
Type	Hydraulic Actuated Multi-friction disc clutch		
Dry weight incl. Propellers	112 kg [247 lbs]		
Reduction Ratio [fwd/rev]	1.65/1.65		1.78/1.78
Propeller speed [fwd/rev]	2424/2424		2247/2247
Direction of rotation viewed from the stern	Clockwise [rear prop] & Counterclockwise [front prop]		
Lub oil specifications	Quick Silver HPGL		
Dry Weight – engine with sterndrive incl. Propellers	547 kg [1205 lbs]		
Shift control	Mechanical or Electro-magnetic		
Trim range	-6° -+ 10°		
Trailer limit	51°		

* Other marine gearboxes and configurations available upon request. Contact your local supplier for more information.

INSTRUMENT PANELS



Function	TYPE OF INSTRUMENT PANEL		
	DIGITAL B-TYPE PANEL	DIGITAL B-TYPE PANEL	DIGITAL B-TYPE PANEL
1-Switch unit			
1-1 Key switch for GLOW/OFF/ON/START [4-position switch]	Equipped on panel	Equipped on panel	Equipped on panel
1-2 Engine stop switch	Equipped on panel	Equipped on panel	Equipped on panel
1-3 Alarm buzzer [C.W. Temp., L.O. Pressure]	Equipped on panel	Equipped on panel	Equipped on panel
1-4 Alarm buzzer stop switch	Equipped on panel	Equipped on panel	Equipped on panel
1-5 Illumination switch for meters	Equipped on panel	Equipped on panel	Equipped on panel
2-Alarm lamp unit			
2-1 Battery not charging	Equipped on panel	Equipped on panel	Equipped on panel
2-2 C.W. high temperature	Equipped on panel	Equipped on panel	Equipped on panel
2-3 L.O. low pressure	Equipped on panel	Equipped on panel	Equipped on panel
2-4 F.O. drain separator	Equipped on panel	Equipped on panel	Equipped on panel
2-5 Sea water flow	Equipped on panel	Equipped on panel	Equipped on panel
2-6 C.W. level for fresh water tank	Not equipped on panel	Equipped on panel	Equipped on panel
2-7 Boost pressure high	Not equipped on panel	Equipped on panel	Equipped on panel
3-Tachometer with hour meter	Equipped on panel	Equipped on panel	Equipped on panel
4-Sub meter unit	Not equipped on panel		
4-1 L.O. pressure meter	Not equipped on panel	Equipped on panel	Equipped on panel
4-2 C.W. Temperature meter	Not equipped on panel	Equipped on panel	Equipped on panel
4-3 Boost meter [turbo]	Not equipped on panel	Not equipped on panel	Equipped on panel
5 Quartz clock	Not equipped on panel	Not equipped on panel	Equipped on panel

ENGINE ACCESSORIES

Standard engine package

- Sensor for instrument panel [New B, C and D-type]
- Exhaust/water mixing elbow [L-type]
- Cooling water hoses
- Fuel water separator [integrated with fuel filter]
- Alternator 12V - 80A

Optional accessories

- Flexible mounts [2 pcs]
- High-riser mixing elbow [instead of L-elbow]
- Analog instrument panels [New B, C and D-type]
- Dual station Y-harness • Sensor for VDO instrument panels
- Control heads • Extension wire harness [4m, 6m, 10m] • Lub oil evacuation pump
- Air venting device for cooling water tank
- VDO instrumentation for main panel and fly bridge • Dipstick for opposite side

NOTE: All data subject to change without notice. Text and illustrations are not binding.

NEREX

8LV-320/350/370 Series

MARINE DIESEL ENGINES



Configuration
Maximum output at crankshaft

Displacement
Bore x stroke
Cylinders
Combustion system
Aspiration
Alternator
Start-assist
Cooling system

Lubrication system
Direction of rotation [crankshaft]
Dry weight without gear
Emission compliance
Engine mounting

4-stroke, water-cooled diesel engine
*235 kW@3800 rpm [320 mhp@3800 rpm]
*257 kW@3800 rpm [350 mhp@3800 rpm]
*272 kW@3800 rpm [370 mhp@3800 rpm]

4.460 L [272.24 cu in]

86 mm x 96 mm [3.38 in x 3.78 in]

8 in V-90°

Direct injection common-rail system

Turbocharged with twin TC

12V - 180A

Glow-plug system

Fresh water cooling by centrifugal fresh water pump

Sea water cooling by rubber impeller seawater pump

Enclosed, forced lubricating system

Counterclockwise viewed from stern

435 kg [959 lbs]

EU: RCD 2 EMC US: EPA Tier 3 IMO

Rubber type flexible mounting

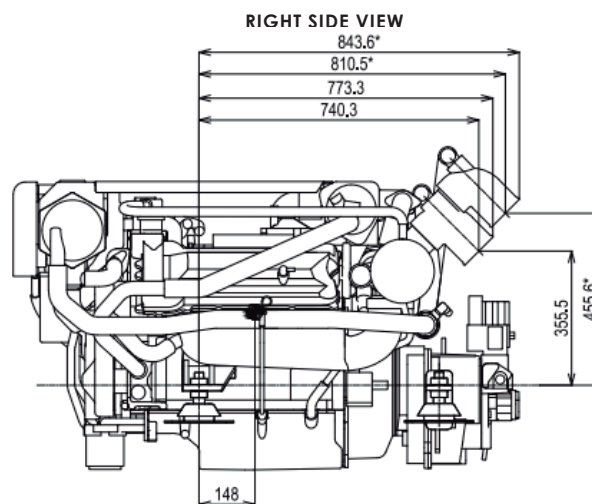
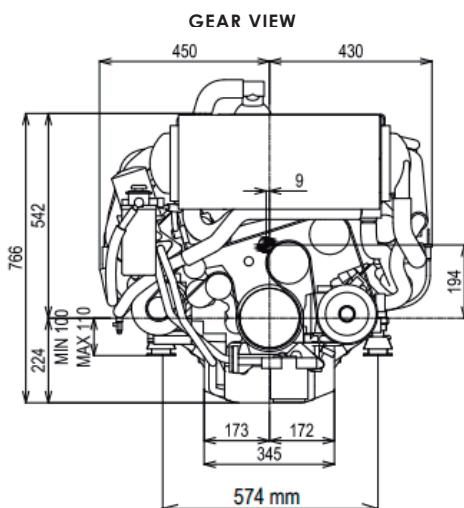
NOTE:

Fuel condition: Density at 15°C = 0.84 g/cm³

* Fuel temperature 40°C at the inlet of the fuel injection pump [ISO 8665: 2006]

Technical data is according to ISO 8665: 2006/3046-1

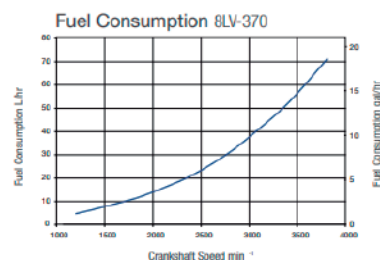
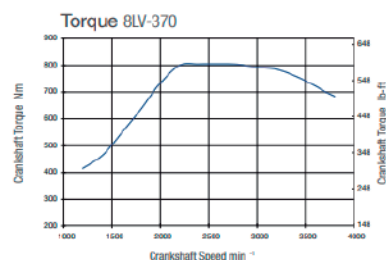
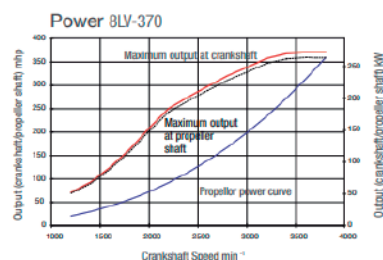
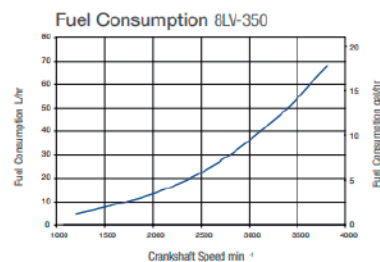
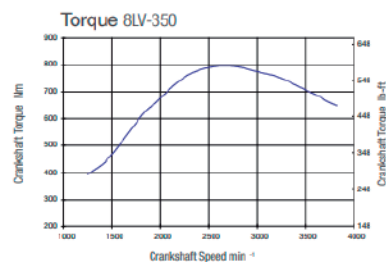
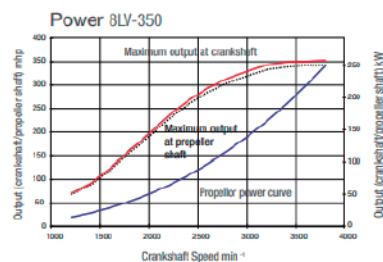
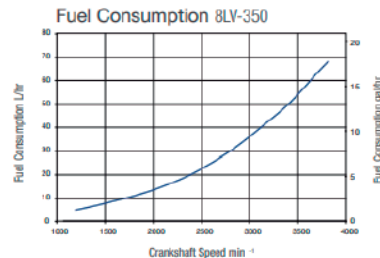
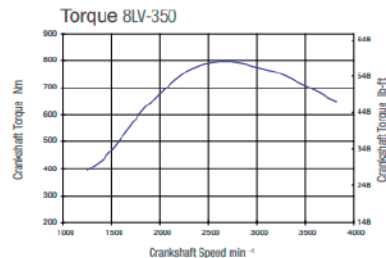
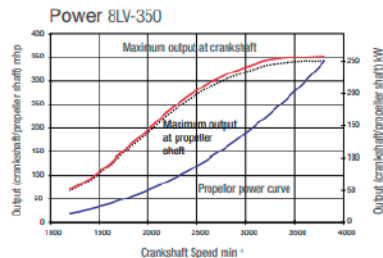
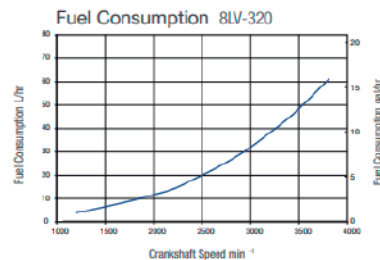
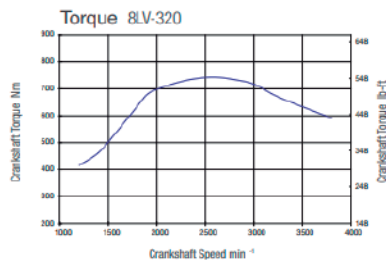
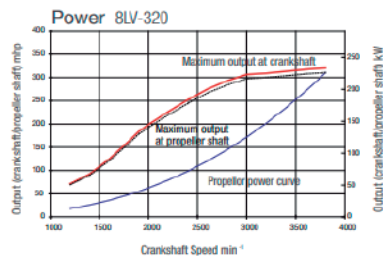
DIMENSIONS



8LV series with KMH50A marine gear

VEREX

PERFORMANCE CURVES



MARINE GEARS/DRIVE*

Model	KMH50A [down angle 8°]			KMH52V [integral V-drive 12°]			
Type	Hydraulic Actuated Multi-friction disc clutch			Hydraulic Actuated Multi-friction disc clutch			
Dry weight**	52 kg (115 lbs)			77 kg (170 lbs)			
Reduction Ratio [fwd/rev]	1.67/1.67	2.13/2.13	2.43/2.43	1.22/1.22	1.58/1.58	2.08/2.08	2.47/2.47
Direction of rotation	Clockwise or Counterclockwise			Clockwise or Counterclockwise			
Lub oil specifications	API class: CF or higher SAE grade #30			API class: CF or higher SAE grade #30			
Dry weight – engine & gear 1x**	487 kg (1074 lbs)			512 kg (1129 lbs)			

* Other marine gearboxes and configurations available upon request. Contact your local supplier for more information.

** Dry weight includes cooler, brackets and damper disk.

CONTROL SYSTEM

- YANMAR VC10 control system
- Electronic CAN-bus control-head
- Multi-function color display
- NMEA2000 or J1939 gauge output
- Second or third station - optional

OPTIONAL ACCESSORIES

- High-riser mixing elbow
- SOLAS kit
- Front-PTO pulley [V-belt type A or B]
- Hot water connector

NOTE: All data subject to change without notice. Text and illustrations are not binding.

NEREX

8LV-320Z/350Z/370Z Series

MARINE DIESEL ENGINES



Configuration Maximum output at crankshaft

Displacement

Bore x stroke

Cylinders

Combustion system

Aspiration

Alternator

Start-assist

Cooling system

Lubrication system

Direction of rotation [crankshaft]

Dry weight without gear

Emission compliance

Engine mounting

4-stroke, water-cooled diesel engine

*235 kW@3800 rpm [320 mhp@3800 rpm]

*257 kW@3800 rpm [350 mhp@3800 rpm]

*272 kW@3800 rpm [370 mhp@3800 rpm]

4.460 L [272.24 cu in]

86 mm x 96 mm [3.38 in x 3.78 in]

8 in V-90°

Direct injection common-rail system

Turbocharged with twin TC

12V - 180A

Glow-plug system

Fresh water cooling by centrifugal fresh water pump

Sea water cooling by rubber impeller seawater pump

Enclosed, forced lubricating system

Counterclockwise viewed from stern

435 kg [959 lbs]

EU: RCD 2 EMC US: EPA Tier 3 IMO

Rubber type flexible mounting

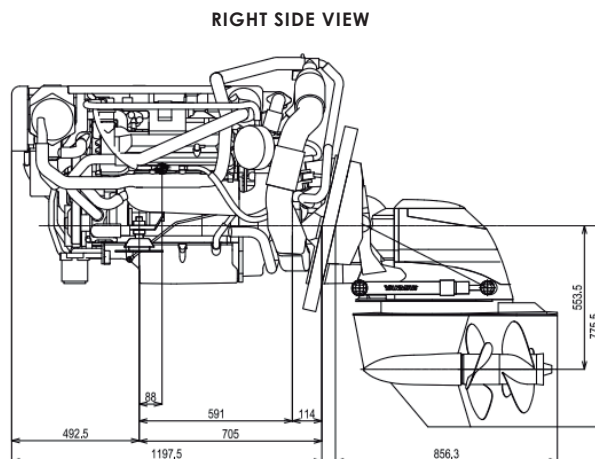
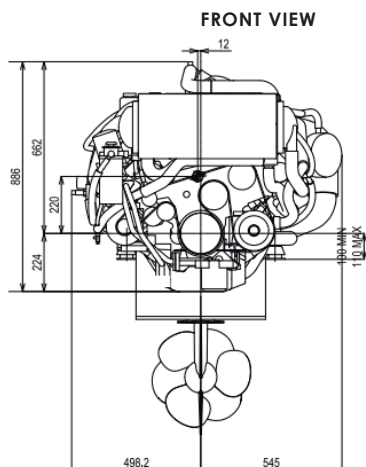
NOTE:

Fuel condition: Density at 15°C = 0.84 g/cm³

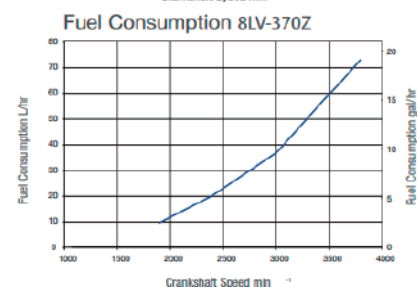
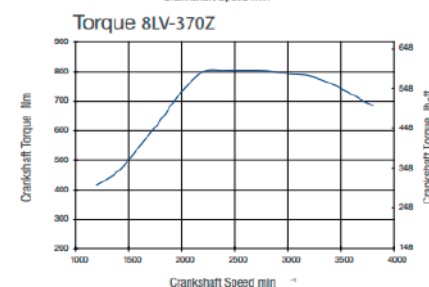
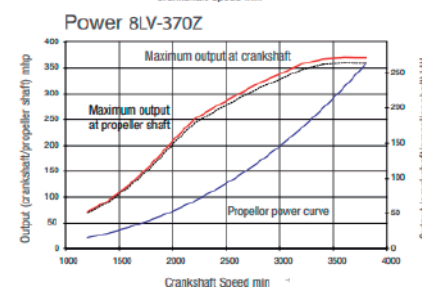
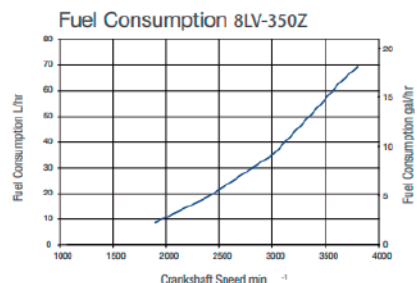
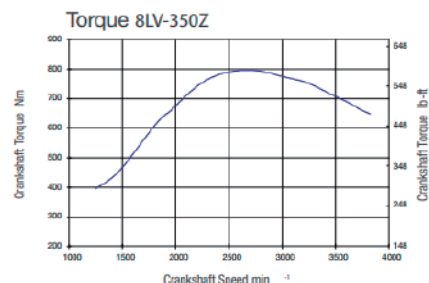
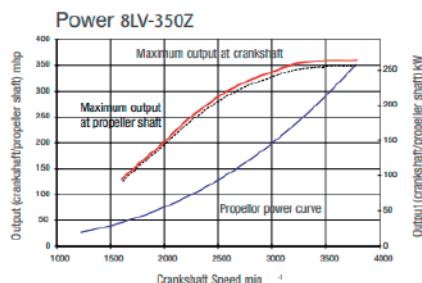
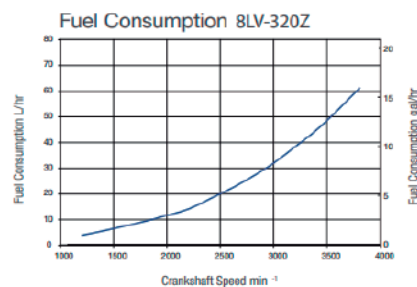
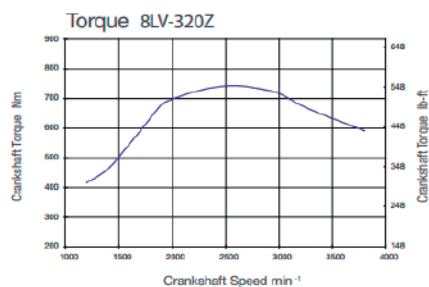
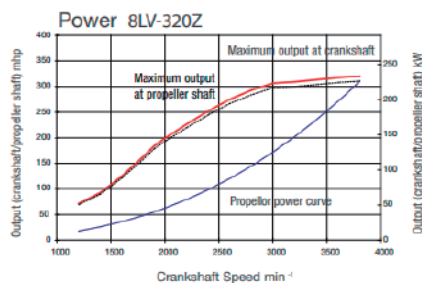
* Fuel temperature 40°C at the inlet of the fuel injection pump [ISO 8665: 2006]

Technical data is according to ISO 8665: 2006/3046-1

DIMENSIONS



PERFORMANCE CURVES



MARINE GEARS/DRIVE

Model	ZT370 [Steerable Z-drive with dual prop]	
Type	Hydraulic actuated multi-friction disc clutch	
Dry weight with propellers	112 kg [247 lbs]	
Reduction ratio [fwd/rev]	1.65/1.65	1.78/1.78
Propellor speed	2424/2424	2247/2247
Direction of rotation viewed from the stern	Clockwise [rear prop] & Counterclockwise [front prop]	
Lub oil specifications	Quick Silver HPGL	
Dry weight engine with sterndrive	547 kg [1205 lbs]	
Shift control	Mechanical or electro-magnetic	
Trim range	-6° - +10°	
Trailer limit	51°	

CONTROL SYSTEM

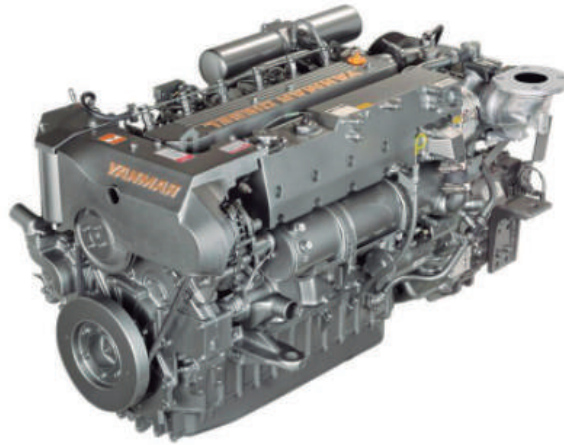
- YANMAR VC10 control system
- Electronic CAN-bus control-head
- Multi-function color display
- NMEA2000 or J1939 gauge output
- Second or third station - optional

OPTIONAL ACCESSORIES

- High-riser mixing elbow
- SOLAS kit
- Front-PTO pulley [V-belt type A or B]
- Hot water connector

6LY2M-WDT / WST SERIES

MARINE DIESEL ENGINES



Configuration

Maximum output at crankshaft

Displacement

Bore x stroke

Cylinders

Combustion system

Aspiration

Starting system

Alternator

Cooling system

Lubrication system

Direction of rotation [crankshaft]

Dry weight without gear

Emission compliance

Engine mounting

4-stroke, vertical, water-cooled diesel engine

* 259 kW (352mhp) @3200 rpm * 294 kW (400mhp) @3200 rpm

** 243 kW (330mhp) @3200 rpm ** 277 kW (376mhp) @3200 rpm

5.813 L [354 cu in]

106 mm x 110 mm [4.17 in x 4.33 in]

In-line

Direct injection

Turbocharged with watercooled turbine housing

Electric starting 24V - 4 kW

12V - 80A

Fresh water cooling by centrifugal fresh water pump and rubber impeller seawater pump

Enclosed, forced lubricating system

Counterclockwise viewed from stern

535 kg [1179 lbs]

Tier 2

Rigid (option: Rubber type flexible mounting)

NOTE:

Fuel condition: Density at 15°C = 0.84 g/cm³; 1 kW = 1.3596 mhp = 1.3410 HP

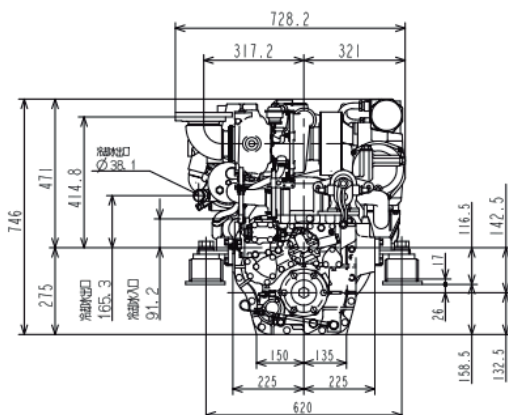
* Fuel temperature 25°C at the inlet of the fuel injection pump [ISO 3046-1]

** Fuel temperature 40°C at the inlet of the fuel injection pump [ISO 8665: 2006]

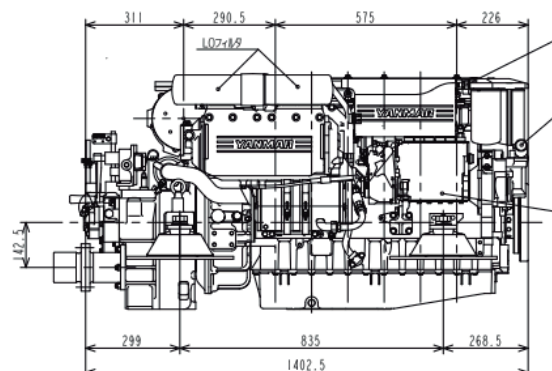
Technical data is according to ISO 8665: 2006/3046-1

DIMENSIONS

REAR VIEW

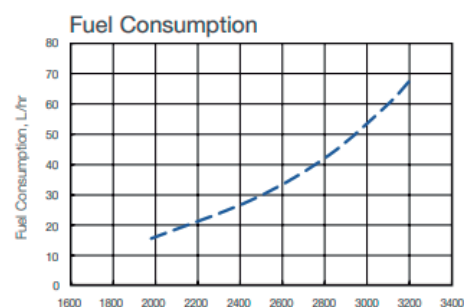
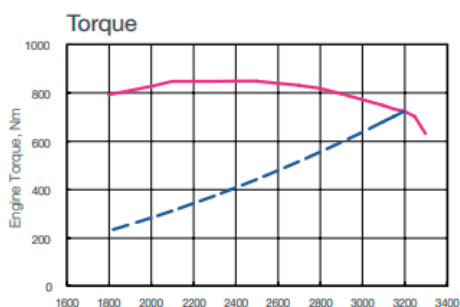
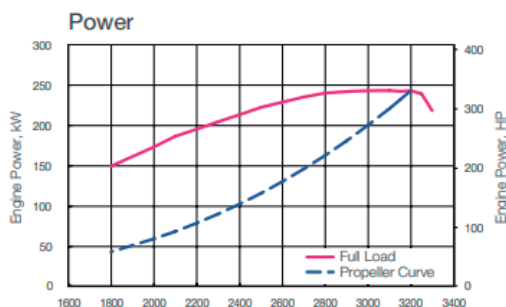


RIGHT SIDE VIEW

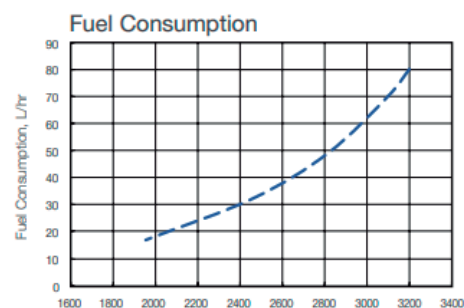
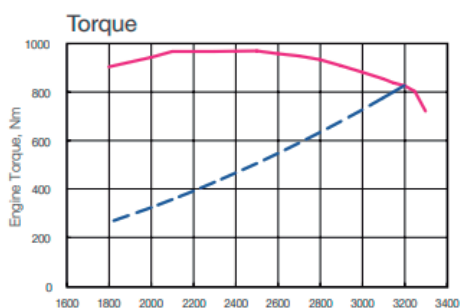
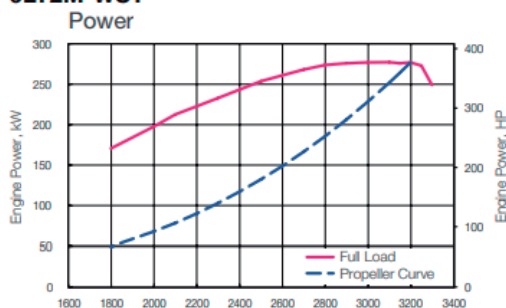


PERFORMANCE CURVES

6LY2M-WDT



6LY2M-WST



MARINE GEARS/DRIVE

Model	YX-50S			
Type	Hydraulically actuated multi-disc clutch			
Dry weight **	117 kg [258 lbs]			
Reduction Ratio [fwd/rev]		2.04/2.04	2.48/2.48	2.88/2.88
Propeller speed [fwd/rev]	2065/2065	1589/1589	1290/1290	1111/1111
Direction of rotation (viewed from stern)	Clockwise or Counterclockwise			
Dry weight engine and gear/drive **	643 kg [1415 lbs]			
Length engine and gear/drive	1462 mm [57.5 in]			

* Other marine gearboxes and configurations available upon request. Contact your local supplier for more information.

** Dry weight including cooler, brackets & damper disk.

ACCESSORIES

Standard engine package

- Rigid mounting
- Alternator 24V - 1080W
- L-type Mixing Elbow
- Engine stop device
- Instrument panel D-type
- Deep sump
- Duplex fuel filter

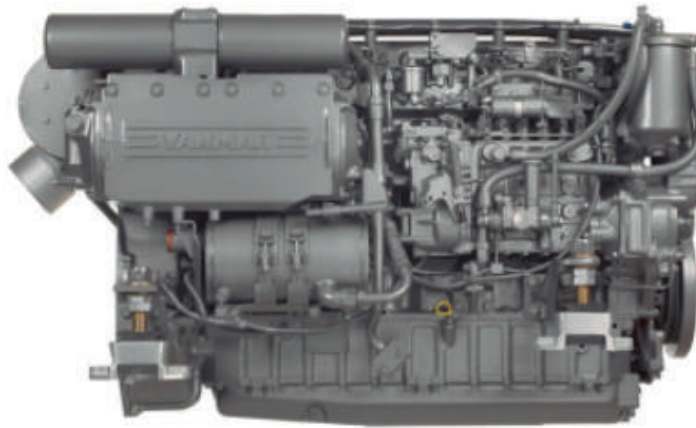
Optional accessories

- Flexible mounts (YT)
- Riser type Mixing Elbow [C.W hose]
- Electric bilge pump
- Kingston cock
- 2 poles electric wiring
- Lub oil evacuation pump
- Exhaust Bellows

- YX50S marine gear
- IMO NOx Certificate
- Intake air heater
- Dry exhaust
- Remote control head
- Breather hose to intake air

6LY2A-UTP / STP Series

MARINE DIESEL ENGINES



Configuration Maximum output at crankshaft

Displacement Bore x stroke Cylinders Combustion system Aspiration Starting system Alternator Cooling system Lubrication system Direction of rotation [crankshaft] Dry weight without gear Environmental Engine mounting

4-stroke, vertical, water-cooled diesel engine

* 324 kW (440mhp) @3300 rpm
** 272 kW (370mhp) @3300 rpm ** 315 kW (427mhp) @3300 rpm

5.813 ltr [354 cu in]

106 mm x 110 mm [4.17 in x 4.33 in]

6 In-line

Direct injection

Turbocharged with watercooled turbine housing

Electric starting 12V - 3 kW

12V - 80A

Fresh water cooling by centrifugal fresh water pump and rubber impeller seawater pump

Enclosed, forced lubricating system

Counter clockwise viewed from stern

535 kg [1179 lbs]

EU: RCD 1 IMO Tier2 EMC

Rubber type flexible mounting

NOTE:

1 kW = 1.3596 mhp

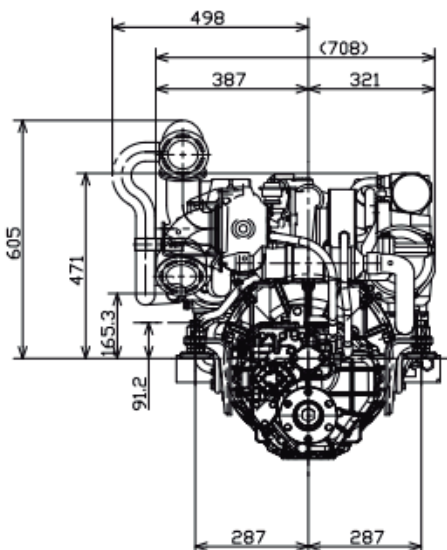
* Fuel temperature 25°C Fuel gravity 860g/litter [ISO 3046-1], fuel density at 15°C: 860g/litter

** Fuel temperature 40°C Fuel gravity 840g/litter [ISO 8665: 2006], fuel density at 15°C: 840g/litter

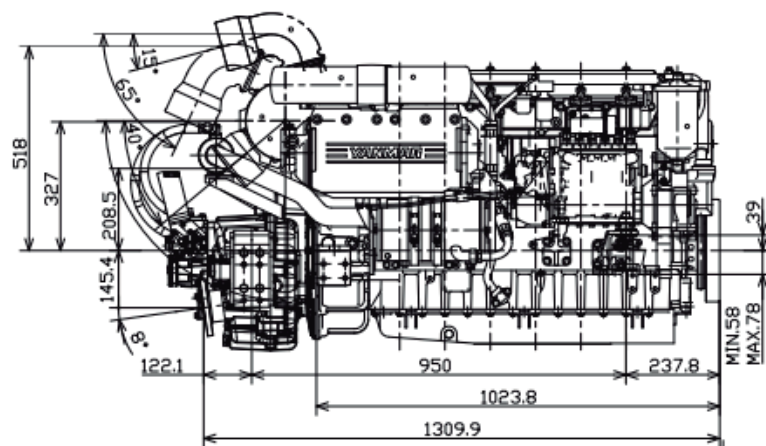
Technical data is according to ISO 8665: 2006/3046-1

DIMENSIONS

REAR VIEW

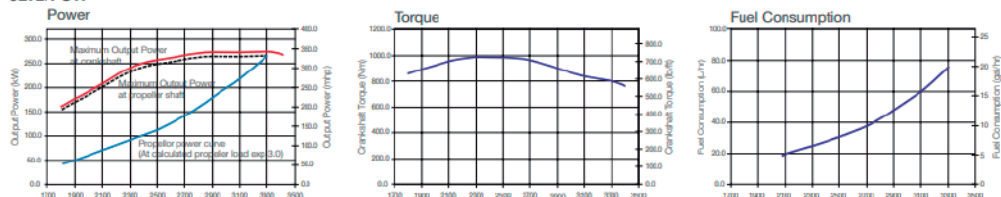


RIGHT SIDE VIEW

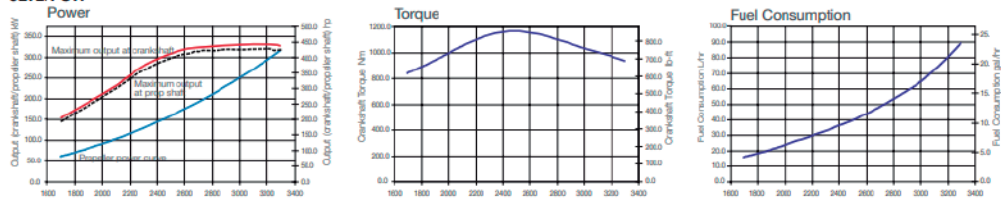


PERFORMANCE CURVES

6LY2A-UTP



6LY2A-STP



MARINE GEARS/DRIVE*

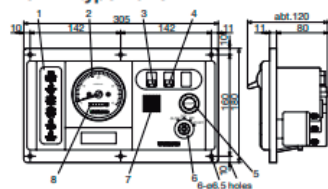
Model	KMH61A [down angle 8°]		
Type	Hydraulically actuated multi-disc clutch		
Dry weight**	77 kg [170 lbs]		
Reduction Ratio [fwd/rev]	1.55/1.55	2.04/2.04	2.43/2.43
Propeller speed [fwd/rev]	2000/2000	1520/1520	1276/1276
Direction of rotation (viewed from stern)	Clockwise or Counterclockwise		
Dry weight engine and gear/drive**	612 kg [1349 lbs]		
Length engine and gear/drive	1310 mm [51 in]		

* Other marine gearboxes and configurations available upon request. Contact your local supplier for more information.

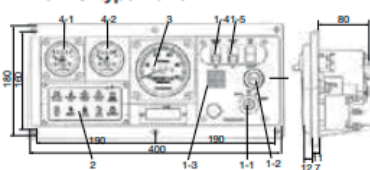
** Dry weight including cooler, brackets & damper disk.

INSTRUMENT PANELS

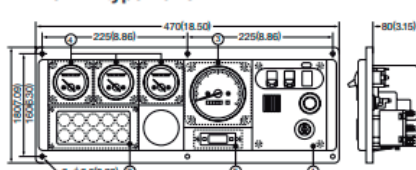
New B-type Panel



New C-type Panel



New D-type Panel



Function

1-Switch unit

- 1-1 Key switch [starter switch]
- 1-2 Engine stop switch
- 1-3 Alarm buzzer [C.W. Temp., L.O. Pressure]
- 1-4 Alarm buzzer stop switch
- 1-5 Illumination switch for meters

2-Alarm lamp unit

- 2-1 Battery not charging
- 2-2 C.W. high temperature
- 2-3 L.O. low pressure
- 2-4 Sea water flow
- 2-5 C.W. level for fresh water tank
- 2-6 Boost pressure high

3-Tachometer with hour meter

4-Sub meter unit

- 4-1 L.O. pressure meter
- 4-2 C.W. Temperature meter
- 4-3 Boost meter [turbo]

5-Quartz clock

ACCESSORIES

Standard engine package

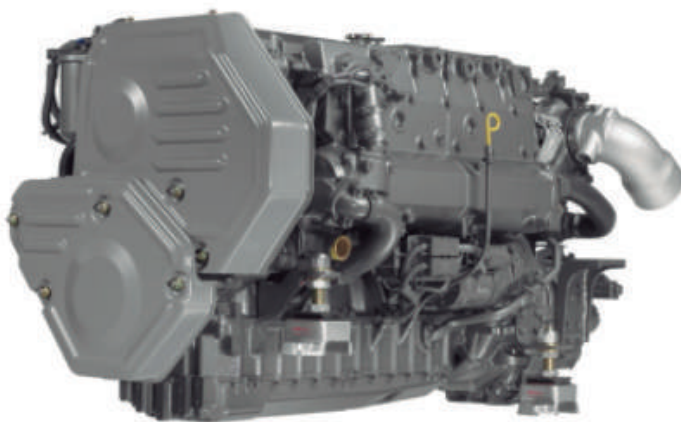
- Sensor for various panels
- Exhaust/water mixing elbow [L-type]
- Alternator 12V - 80A

Optional accessories

- Flexible mounts
- Fuel water separator
- High-riser/water mixing elbow [instead of L-elbow]
- Sensor for VDO instrument panels
- Analog [new B-type, new C-type and new D-type] instrument panels
- Control heads
- Lub oil evacuation pump
- Dipstick for opposite side
- SOLAS Kit

NOTE: All data subject to change without notice. Text and illustrations are not binding.

NEREX



Rated	273 kW / 370 mhp
Rated Speed	3300 rpm
Displacement	5.813 L / 354 cu. in
No. of cylinders	6 cylinders
Cylinder Bore x Stroke	106 mm x 110 mm / 4.17 in x 4.33 in
Combustion system	Direct Injection, Electronic Controlled Injection
Aspiration	Turbocharged & Intercooled
Alternator	12V - 120A (24V - 35A optional)
Dry weight without gear	640 kg / 1411 lbs
Dimensions	1458 mm x 907 mm x 876 mm
Controls	Classic (Hybrid) & Unlimited (Electronic)
Certifications	IMO Tier 2

NOTE:

1 kW = 1.3596 mhp = 1.34102 bhp

Fuel condition: density at 15°C = 0.842 g/cm³

Technical data is according to (ISO 8665) / (ISO 3046)

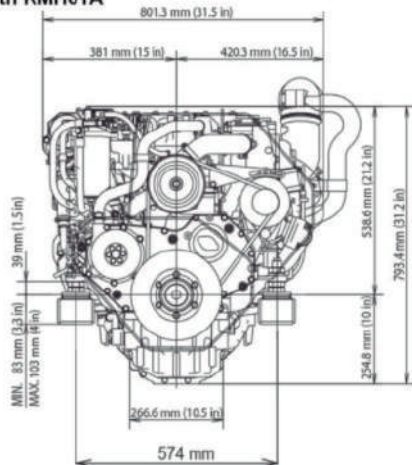
Fuel temperature 40°C at the inlet of the fuel injection pump (ISO 8665)

Length includes KMH61A Gearbox and high-riser elbow

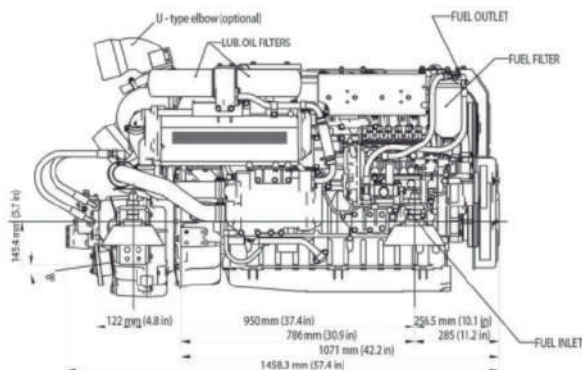
(Dimensions may vary with other gears/elbow)

DIMENSIONS

6LY3-UTC with KMH61A

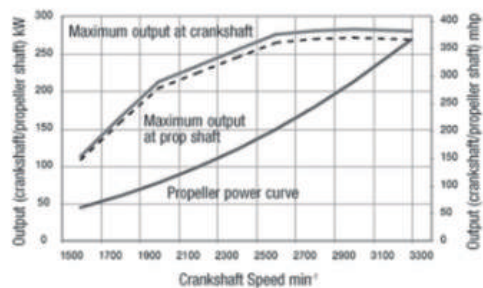


6LY3-UTC with KMH61A

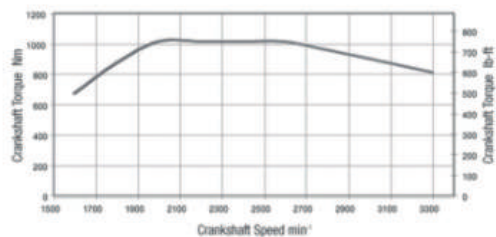


PERFORMANCE CURVES

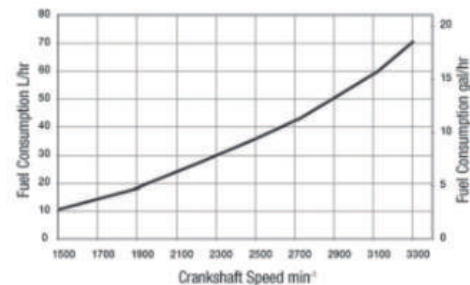
6LY3-UTC Output power curve



6LY3-UTC Torque curve



6LY3-UTC Fuel consumption



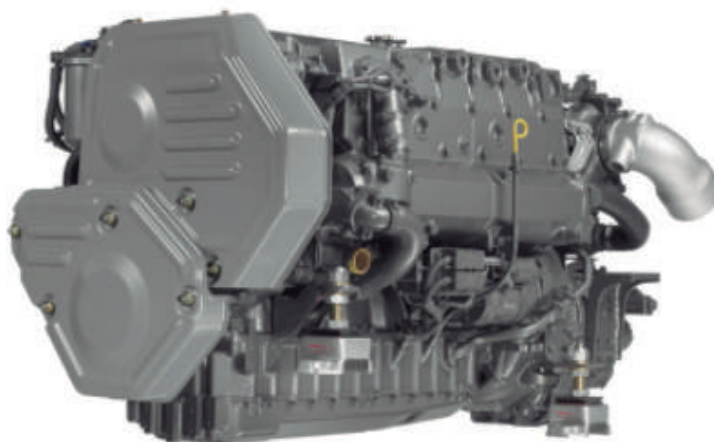
ACCESSORIES

Standard engine package

- Alternator 12V – 120A
- Exhaust mixing elbow [L-type]
- Air heater

Optional accessories

- Fuel/water separator
- High-riser mixing elbow [instead of L-elbow]
- Lube oil evacuation pump
- Remote oil filter opposite side
- Air vent for coolant tank
- Flexible mounts
- Second station kit for flybridge
- Ignition panel with keyswitch
- Extension wire harnesses
- Various control heads
- Trolling mode kit



Configuration

Maximum output at crankshaft

Displacement

Bore x stroke

Cylinders

Combustion system

Aspiration

Starting system

Alternator

Cooling system

Lubrication system

Direction of rotation [crankshaft]

Dry weight without gear

Environmental

24 valve, 4-stroke, vertical, water-cooled diesel engine

*279 kW@3300 rpm [380 mhp@3300 rpm]

5.813 L [354 cu in]

106 mm x 110 mm [4.17 in x 4.33 in]

In-line

Direct injection

Turbocharged with intercooler

Electric starting 12V - 3 kW

12V - 80A

Fresh water cooling by centrifugal fresh water pump and rubber impeller seawater pump

Enclosed, forced lubricating system

Counterclockwise viewed from stern

640 kg [1411 lbs]

EU: RCD 1 EMC

IMO: MARPOL 73/78 Annex VI

Rubber type flexible mounts

Engine mounting

NOTE:

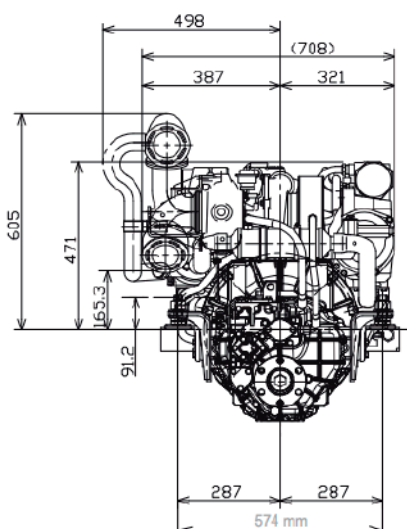
Fuel condition: Density at 15°C = 0.86 g/cm³; 1 kW = 1.3596 mhp = 1.3410 HP

* Fuel temperature 40°C at the inlet of the fuel injection pump [ISO 8665: 1994]

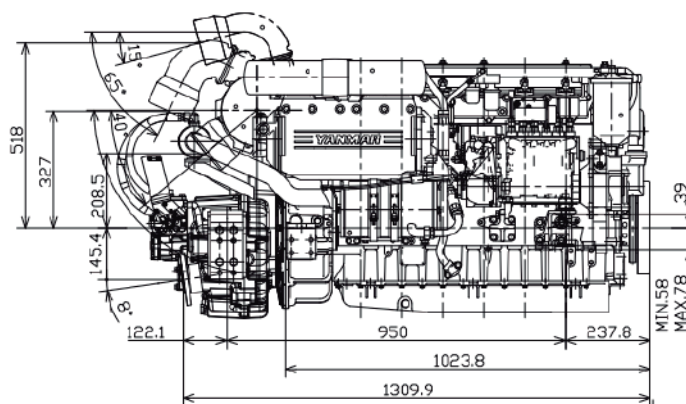
Technical data is according to ISO 8665: 1994

DIMENSIONS

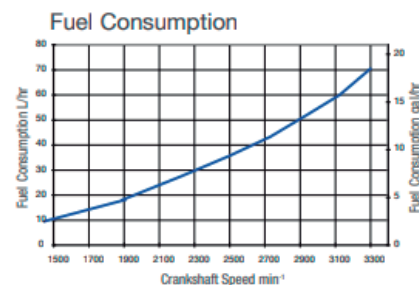
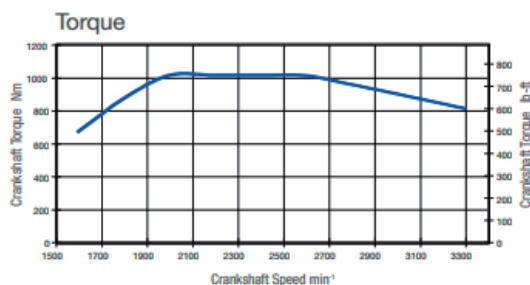
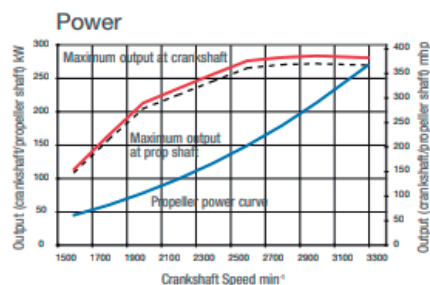
FRONT VIEW



RIGHT SIDE VIEW



PERFORMANCE CURVES



MARINE GEARS/DRIVE*

Model	KMH61A [down angle 8°]			KMH61V			
Type	Hydraulically actuated multi-disc clutch			Hydraulically actuated multi-disc clutch			
Dry weight**	78 kg [171 lbs]			107,5 kg [237 lbs]			
Reduction Ratio [fwd/rev]	1.55/1.55	2.04/2.04	2.43/2.43	1.24/1.24	1.49/1.49	1.98/1.98	2.43/2.43
Propeller speed [fwd/rev]	2129/2129	1618/1618	1358/1358	2661/2661	2215/2215	1666/1666	1358/1358
Direction of rotation (viewed from stern)	Clockwise or Counterclockwise			Clockwise or Counterclockwise			
Dry weight – engine & gear**	718 kg [1538 lbs]			747,5 kg [1648 lbs]			

* Other marine gearboxes and configurations available upon request. Contact your local supplier for more information.

** Dry weight includes cooler, brackets and damper disk.

INSTRUMENT PANELS

Various Control heads



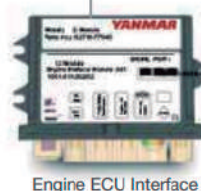
Multi function LCD display



CAN Bus system

Multi function LCD display:

- engine information
- maintenance information
- diagnosis messages



Engine ECU Interface

ACCESSORIES

Standard engine package

- Alternator 12V - 80A
- Exhaust mixing elbow [L-type]
- Air heater

Optional engine package

- Fuel/water separator
- High-riser mixing elbow [instead of L-type]
- Lub oil evacuation pump
- Air vent for coolant tank
- Flexible mounts [Barry or Bridgestone]
- SOLAS kit

ELECTRONIC CONTROL SYSTEM

Standard electronic control system

- CANBUS-NMEA 2000 electronic control system
- Ignition panel with rocker switches
- Multi-function LCD display
- Electronic control head

Optional electronic control system

- Second station kit for flybridge
- Ignition panel with keyswitch
- Extension wire harnesses
- Various control heads
- Trolling mode kit

NOTE: All data subject to change without notice. Text and illustrations are not binding.

NEREX



Configuration

Maximum output at crankshaft

Displacement

Bore x stroke

Combustion system

Aspiration

Starting system

Alternator

Cooling system

Lubrication system

Direction of rotation [crankshaft]

Dry weight without gear

Emission compliance

Engine mounting

In-line 6-cylinder, 4-stroke, vertical, water-cooled diesel engine

*294 kW@3300 rpm [400 mhp]@3300 rpm

*324 kW@3300 rpm [440 mhp]@3300 rpm

5.813 L [354 cu in]

106 mm x 110 mm [4.17 in x 4.33 in]

Direct Injection with Denso Common-Rail system

Turbocharged with watercooled turbine housing

Electric starting 12V - 2.5 kW

12V - 125A

Fresh water cooling by centrifugal fresh water pump and rubber impeller seawater pump

Enclosed, forced lubricating system

Counterclockwise viewed from stern

585 kg [1290 lbs]

EU: RCD 2 IMO/GL EMC US: EPA Tier 3

Rubber type flexible mounting

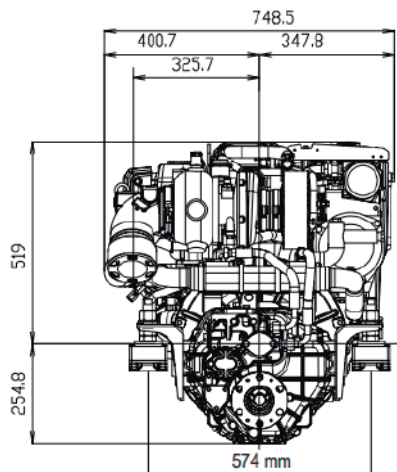
NOTE:

Fuel condition: Density at 15°C = 0.842 g/cm³; 1HP = 0.7355 kW

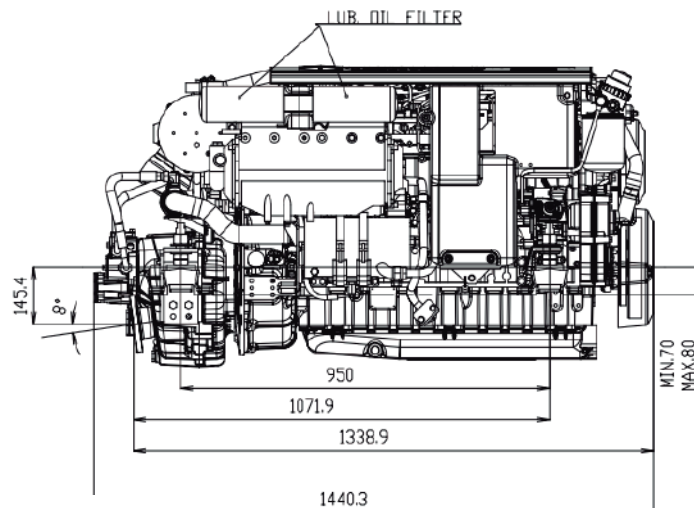
*Fuel temperature 40°C at the inlet of the fuel injection pump [ISO 8665]

DIMENSIONS

REARVIEW

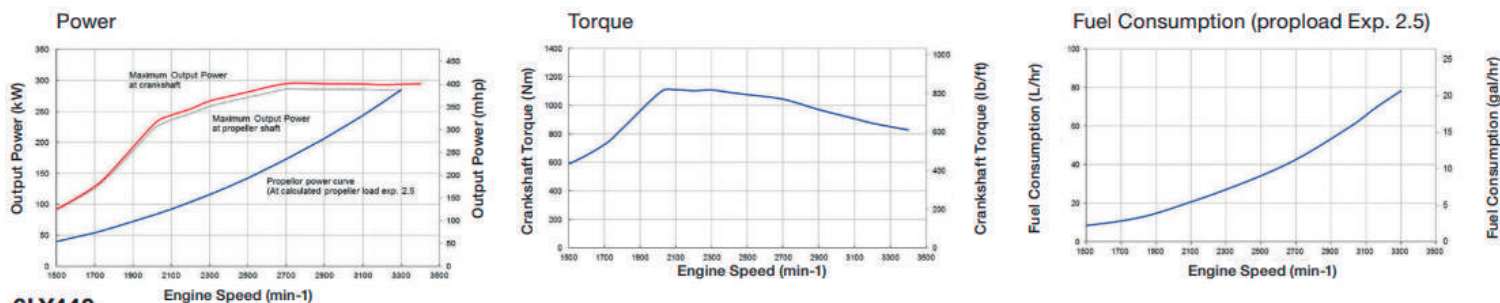


RIGHT SIDE VIEW

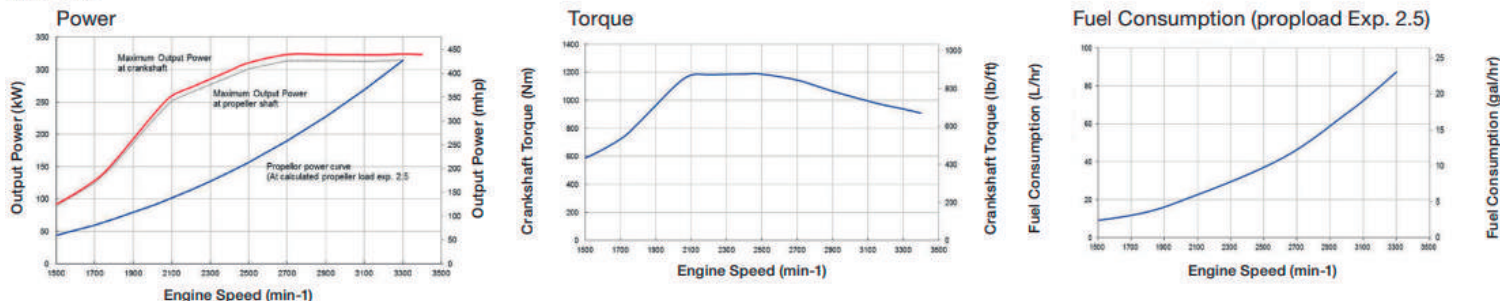


PERFORMANCE CURVES

6LY400



6LY440



MARINE GEARS/DRIVE*

Model	KMH61A2 [down angle: 8°]			KMH61V2 [V-drive]				ZF280-1 [parallel]
Type	Hydraulically actuated multi-disc clutch			Hydraulically actuated multi-disc clutch				Hydraulically actuated multi-disc clutch
Dry weight**	81 kg [187 lbs]			113 kg [249 lbs]				113 kg [249 lbs]
Reduction Ratio [fwd/rev]	1.55/1.55	2.04/2.04	2.43/2.43	1.24/1.24	1.49/1.49	1.98/1.98	2.43/2.43	Gear ratio's as available from ZF
Propeller speed [fwd/rev]	2129	1618	1358	2661	2215	1667	1358	
Direction of rotation (viewed from stern)	Counterclockwise & Clockwise			Counterclockwise & Clockwise				Counterclockwise & Clockwise
Dry weight engine and gear/drive**	666 kg [1468 lbs]			698 kg [1538 lbs]				698 kg [1538 lbs]

* Other marine gearboxes and configurations available upon request. Contact your local supplier for more information.

** Dry weight including cooler, brackets & damper disk.

ACCESSORIES

Standard engine package

- 2-pole 12V Electric system
- Exhaust/water mixing elbow [L-type]
- Alternator 12V - 125A
- Mounting brackets
- Dipstick on both sides

Optional accessories

- Flexible mounts
- Fuel water separator
- High-riser mixing elbow
- SOLAS kit including certificates
- 24V Secondary Alternator

CONTROL SYSTEM

Standard engine package

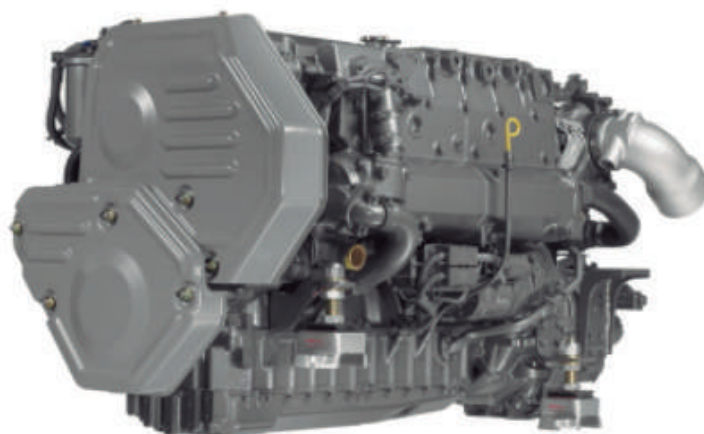
- YANMAR CAN-bus control system
- Multi-function color display
- NMEA2000 or J1939 gauge output
- Switch panel
- Back up panel

Optional accessories

- Electronic CAN-bus control-head
- Extension wire harness
- NMEA2000 gauges
- Second or third station

NOTE: All data subject to change without notice. Text and illustrations are not binding.

NEREX



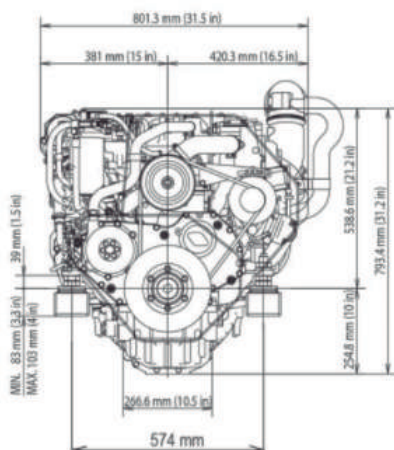
Rated Output	316 kW / 430 mhp
Rated Speed	3300 rpm
Displacement	5.813 L / 354 cu. in
No. of cylinders	6 cylinders
Cylinder Bore x Stroke	106 mm x 110 mm / 4.17 in x 4.33 in
Combustion system	Direct Injection, Electronic Controlled Injection
Aspiration	Turbocharged & Intercooled
Alternator	12V - 120A (24V - 35A optional)
Dry weight without gear	640 kg / 1411 lbs
Dimensions	1458 mm x 907 mm x 876 mm
Controls	Classic (Hybrid) & Unlimited (Electronic)
Certifications	IMO Tier 2

NOTE:

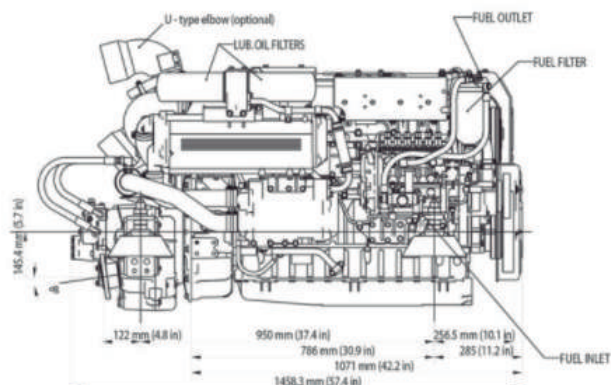
1 kW = 1.3596 mhp = 1.34102 bhp
 Fuel condition: density at 15°C = 0.842 g/cm³
 Technical data is according to (ISO 8665) / (ISO 3046)
 Fuel temperature 40°C at the inlet of the fuel injection pump (ISO 8665)
 Length includes KMH61A Gearbox and high-riser elbow
 (Dimensions may vary with other gears/elbow)

DIMENSIONS

6LY3-STC with KMH61A

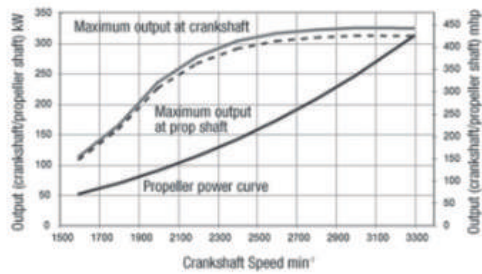


6LY3-STC with KMH61A

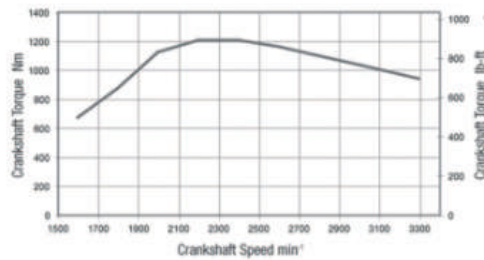


PERFORMANCE CURVES

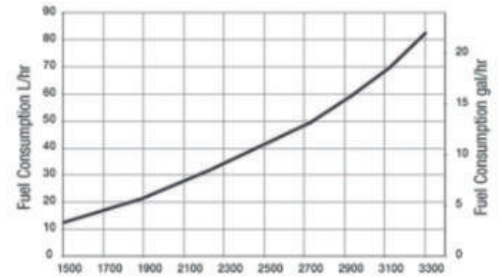
6LY3-STC Output power curve



6LY3-STC Torque curve



6LY3-STC Fuel consumption



ACCESSORIES

Standard engine package

- Alternator 12V – 120A
- Exhaust mixing elbow [L-type]
- Air heater

Optional accessories

- Fuel/water separator
- High-riser mixing elbow [instead of L-elbow]
- Lube oil evacuation pump
- Remote oil filter opposite side
- Air vent for coolant tank
- Flexible mounts
- Second station kit for flybridge
- Ignition panel with keyswitch
- Extension wire harnesses
- Various control heads
- Trolling mode kit