



MARINE COMMON RAIL ENGINES

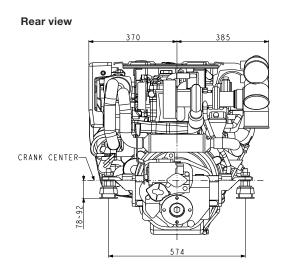
4LV Series - 230 / 250

Configuration	In-line, 4-stroke, vertical, water-cooled diesel engine				
Max. output at crankshaft*	169 kW@3800 rpm	[230 mhp@3800 rpm]			
	184 kW@3800 rpm	[250 mhp@3800 rpm]			
No. of cylinders	4 cylinder				
Displacement	2.755 L	[168 cu in]			
Bore x stroke	92 mm x 103.6 mm	[3.6 in x 4 in]			
Aspiration	Turbocharged & intercooled				
Combustion system	Direct injection, Denso common rail system				
Starting system	Electric starting 12V – 2 kW				
Engine management	Electronic				
Out to see the	Fresh water cooling by centrifugal fresh water pump				
Cooling system	Seawater cooling by rubber impeller seawater pump				
Alternator	Denso 12V - 130A				
Lubrication system	Enclosed, forced lubricating system				
Engine lube oil specifications	API class: CD or higher, SAE grade: 15W-40				
Direction of rotation at crankshaft	Counterclockwise (CCW) viewed from stern				
Dry weight without gear	334 kg [73	[736 lbs]			
Engine dimensions† L x W x H	1151 x 755 x 772 mm				
Emission compliance	EU: RCD 2, BSO II, IMO, EMC	US: EPA Tier 3, EPA-C			
Flywheel housing size	Borg Warner / SAE #7				
Controls	Mechanical (optional - VC20 system)				

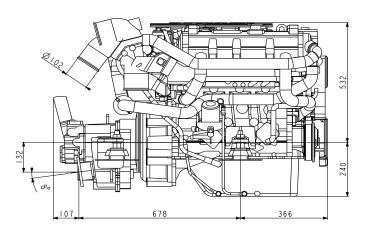
NOTE: Fuel condition: Density at $15^{\circ}C = 0.84$ g/cm $^{\circ}$: 1 kW = 1.3596 mhp = 1.3410 HP Technical data is according to (ISO 8665) / (ISO 3046)

†Length includes KMH50A marine gear (Dimensions may vary with other gears/elbow)

DIMENSIONS



Right side view



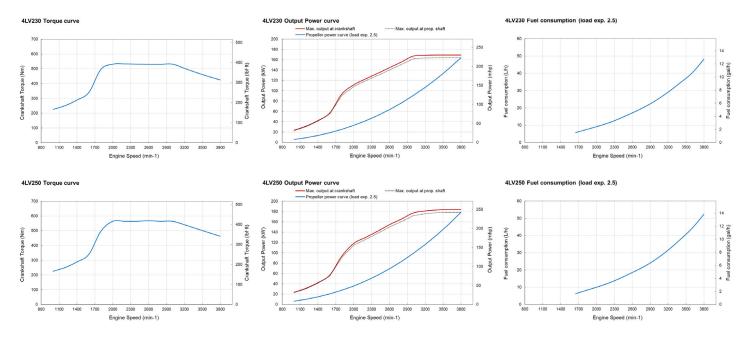
4LV230 with KMH50A marine gear (Not to be used for engine installation)

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





PERFORMANCE CURVES



MARINE GEAR*

Model	KMH50A [down angle: 8°]		KMH50V [V-drive, angle: 12°]					
Clutch type	Hydraulic multi disc		Hydraulic multi disc					
Dry weight	54 kg [119 lbs]		77 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	1.58	2.08/2.08	2.47/2.47
Direction of rotation [viewed from stern]	Clockwise & counterclockwise		Clockwise & counterclockwise					
Lubrication system	Forced lubrication		Forced lubrication					
Lube oil specifications	API class: CF or higher, SAE grade: #30		API class: CF or higher, SAE grade: #30					
Max. lube oil capacity	1.8 L		5.4 L					
Dry weight - engine & gear	388 kg [855 lbs]		411 kg [906 lbs]					

 $^{^{\}star} \ \text{Other marine gearboxes and configurations available upon request. Contact your local supplier for more information.}$

ACCESSORIES

Standard engine package

- Exhaust mixing elbow [L-type]
- Alternator 12V 130A
- B25 panel
- Flexible mounts
- Mechanical throttle sensor
- Fresh water expansion tank

Optional accessories

- High-riser mixing elbow [instead of L-elbow]
- Secondary alternator 24V 85A
- Secondary alternator 12V 130A or 24V 110A including smart regulator
- C35 panel
- Extension harness [3m, 5m, 10m, 20m]
- Second station
- Sidemount control head
- VC20 Vessel Control System

- JC20 Inboard Joystick
- NMEA2000 Engine monitoring system
- Semi 2-pole
- SOLAS including Certifi cate [factory fit only]
- Hot water connection
- Water separator
- Man Over Board Switch [single]
- C-Type trolling [KMH50 only]
- On-board spare parts kit