



ZF Sail Drive series

Marine Propulsion Systems





Efficiency and comfort: ZF Sail Drive series

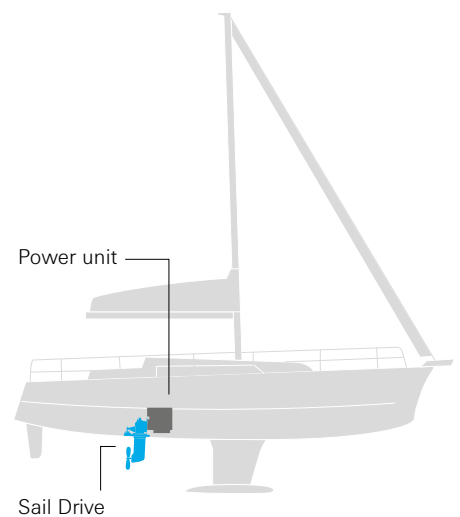
ZF Sail Drive (SD) offers skippers a highly efficient and comfortable system for motoring while not under sail. ZF Marine has long standing experience with this type of propulsion system for sailboats and its well-recognized advantages of excellent hydrodynamic efficiency and ease of installation.



ZF Sail Drive offers boatbuilders increased design flexibility, allowing the engine to be positioned facing the bow or facing the stern with respect to the transmission. The system considerably reduces vibration and other related propulsion system noise on board, compared to a traditional shaft line system. The most important feature is the ease of installation, as no particular settings or alignments are necessary.

ZF Sail Drive is robust and reliable, and can be matched with a large range of fixed or foldable propellers, moving the vessel powerfully both in forward and reverse.

The exceptional efficiency of the ZF Sail Drive is obtained both through reducing the hydrodynamic resistance of the immersed section of the drive, and maximizing thrust efficiency, through a design that positions the propeller exactly parallel to the moving direction of the hull of the vessel.



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Advantages of the ZF Sail Drive

- Excellent hydrodynamic efficiency
 - Ease of installation
 - Reduced gear noise and vibration
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Unparalleled control

ZF Steerable Pod Propulsion (SPP) is an integrated system developed by ZF Marine that adds unmatched maneuvering capabilities to the ZF Sail Drive propulsion system.

ZF Steerable Pod Propulsion (SPP) is as easy to install and maintain as a standard sail boat propulsion system. The difference with ZF SPP, unparalleled maneuverability that results in smooth, quick steering response. The pivoting leg, operated by a robust industrial electric motor with special marine protection, ensures requested thrust in the right direction. Control is carried out via ZF Joystick Maneuvering System (JMS) which allows for comfortable, easy, intuitive and reliable maneuvering. The availability of full engine power at

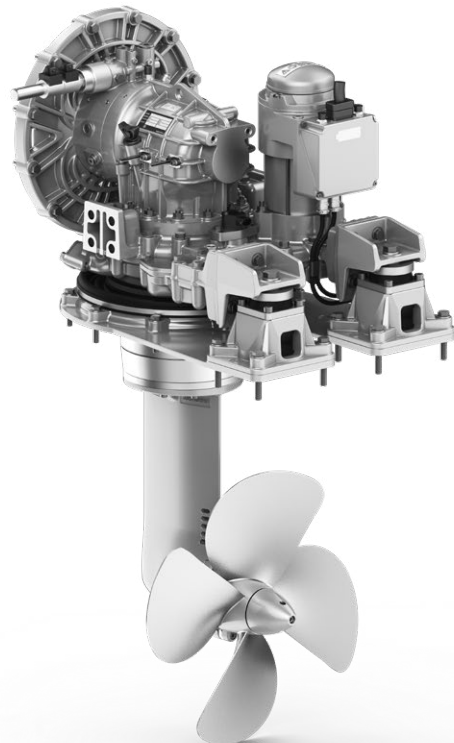
your finger tips offers an additional level of security while maneuvering.

ZF SPP comes with latest electronic technology, plug and play components and electric pre-wired parts. The system is continuously monitored and reported via LED lights on the joystick base, and incorporates a "back home" redundancy feature.

The system can be supplied with either Zinc or Magnesium anodes for salt or freshwater operation.



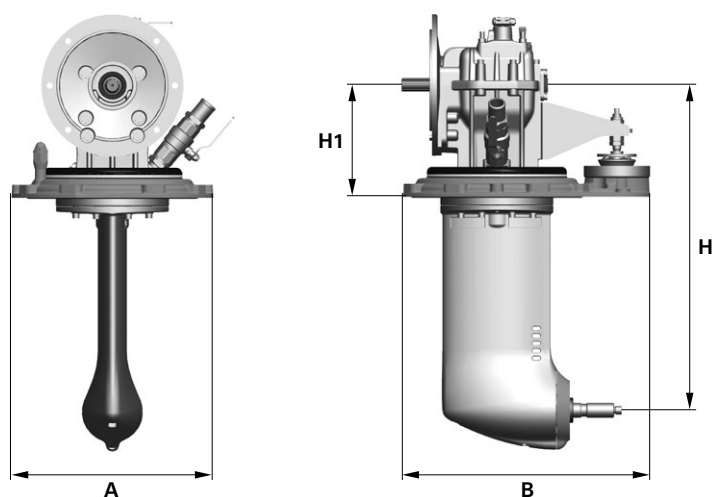
ZF SD 15



ZF SD 15 SPP

Technical data

Model	Clutch type		Type steerable (SPP)	Ratios	Power factor		Input Power 3200 rpm		Capacity 3600 rpm		Max. rpm
	mecha- nical	hydrau- lical			kW/rpm	hp/rpm	kW	hp	kW	hp	
ZF SD 10	●			2.23	0.0153	0.0208	50	67	55	75	3800
				2.49	0.0153	0.0208	50	67	55	75	
ZF SD 12	●			2.23	0.0188	0.0256	60	82	68	92	3800
				2.49	0.0188	0.0256	60	82	68	92	
ZF SD 12 SPP		●	●	2.23	0.0188	0.0256	60	82	68	92	3600
				2.49	0.0188	0.0256	60	82	68	92	
ZF SD 15		●		2.51	0.0315	0.0429	101	137	113	154	3600
ZF SD 15 SPP		●	●	2.51	0.0315	0.0429	101	137	113	154	3600



Model	Clamp ring flange dia. – A		Clamp ring flange dia. – B		Drop H		Height H1		Weight	
	mm	inch	mm	inch	mm	inch	mm	inch	kg	lb
ZF SD 10	378	15	463	18	605	24	210	9	40	88
ZF SD 12	378	15	463	18	605	24	210	9	40	88
ZF SD 12 SPP*	550	22	650	26	803	32	295	12	120	265
ZF SD 15*	550	22	650	26	868	34	295	12	90	198
ZF SD 15 SPP*	550	22	650	26	868	34	295	12	130	287

* Dimensions and weight could vary.



Easy and safe maneuvering

ZF Sail Drive with the integrated ZF Steerable Pod Propulsion (SPP) system makes docking your sail boat as easy as parking your car thanks to the ZF Joystick Maneuvering System.



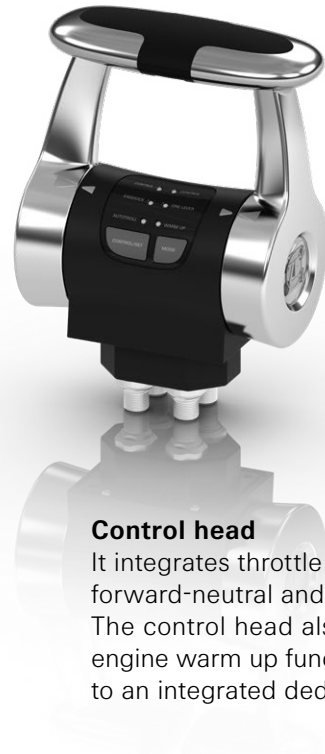
ZF Marine SPP – How to maneuver your sail boat easily: www.youtube.com/watch?v=8iiCO6badQw

Functions & components



Joystick

Designed to operate at low speed, the joystick makes maneuvers such as docking, mooring, anchoring and navigation through busy waterways intuitive. The system operates with variable speed proportional to knob movements. The boat manufacturer determines the maximum allowable speed according to the characteristics of the boat.



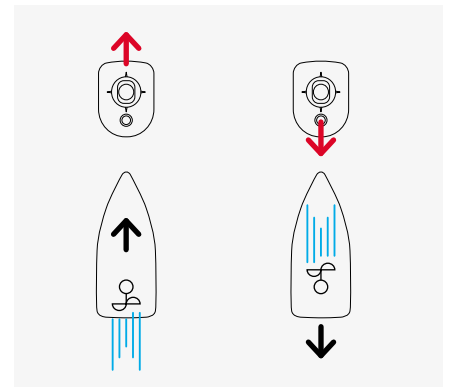
Control head

It integrates throttle functions with forward-neutral and reverse control. The control head also performs engine warm up functionality thanks to an integrated dedicated button.

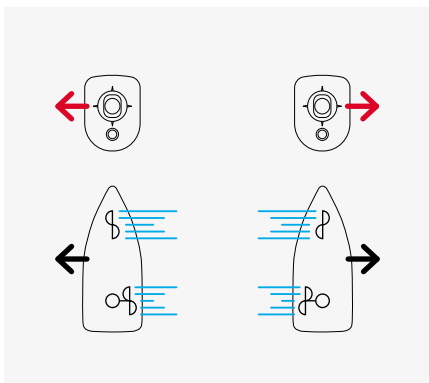
Joystick Maneuvering System JMS

ZF Joystick Maneuvering System, in conjunction with the ZF SPP system truly optimizes the handling performance of your boat. The combination of complete rotation of the submerged leg, together with the bow thruster result in simplified maneuvering even in the tightest of spaces.

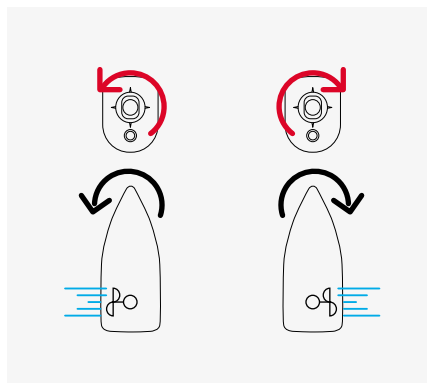
Ahead and astern



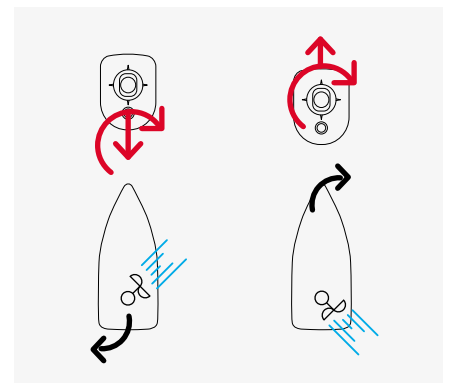
Sideways maneuvering



Pivoting – rotation on central axis



Various combined maneuvers



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