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Driveline and Chassis Technology

SEAREX® Surface-drive

the King of the Sea!

03 05 001 1006

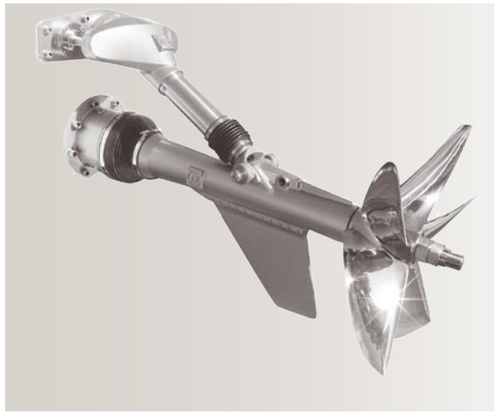
Marine Propulsion Systems

The SeaRex® series

We are proud to offer you the ultimate in surface-drive technology

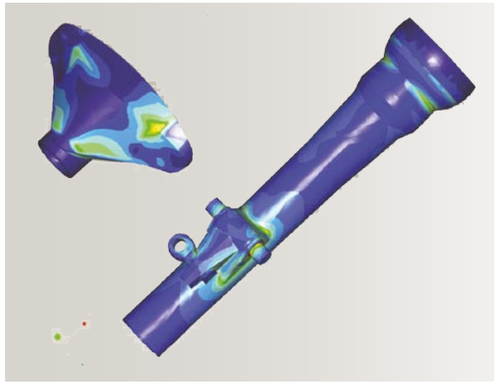
Using our long experience in the design, manufacture and marketing of surface-drives – both articulating and fixed, we decided to develop a new product using state-of-the-art design tools and methods. Our objective was to produce a series of advanced surface-drive systems having increased torque capacities and without the disadvantages of existing designs. The new drive system concept ensures unprecedented reliability and ease of maintenance over the lifetime of the boat, no matter what application – pleasure, commercial or defense.
We have engineered the SeaRex drive system to handle much more torque than existing products, so that the complete model range is better matched to modern, high-output engines. Particular attention has been paid to optimizing the strength of driveline components and developing a novel, robust and compact hydraulic steering and trim system*.

* patent pending

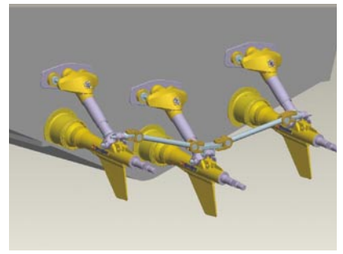


SeaRex - the design process meticulous attention to detail!

Having established the objectives, the design development followed the strict and rigorous procedures which are applied throughout the ZF Group. The design was developed using modern 3D solid computer modeling with integrated structural F.E.A. (Finite Element Analysis) to optimize the design geometry and design stresses. Sea-trials on several fast craft with instrumented prototype drives allowed the design stresses to be verified and provided actual steady and unsteady load data to further optimize the design. In parallel, the drivelines of additional instrumented prototype drive units have been bench tested under representative loading conditions, following ZF's well-established procedures for testing marine transmissions. The combination of advanced computer engineering techniques,



instrumented sea-trials and instrumented bench tests ensure that ZF Marine's customers will own a reliable, easy-to-maintain surface-drive with optimal performance characteristics.



SeaRex® - objectives achieved

improvements that can be seen - and felt!

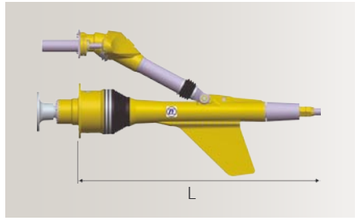
Additional design features and accessories are detailed as follows:

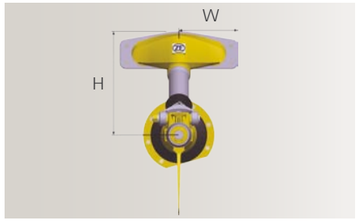
- Simplified installation procedures
- Minimum installation dimensions
- Optional ZF-FPS surface-piercing propellers specially designed to optimize SeaRex performance
- No exposed external hydraulic lines or fittings
- No exposed external steering and trim indicator sensors or wiring. Accurate, reliable steering and trim sensors are protected inside the hydraulic cylinders
- Standard steering sensors are suitable for Autopilot control
- Standard Advanced, integrated hydraulic/control systems offered in hydraulic helm and electric helm versions

Features include:

- Standard compact pre-wired and plugged electric-hydraulic blockintegrated system for drives trim&steering and trim tabs actuation.
- Controls for drives steering by autopilot and tiller completely integrated in the electro-hydraulic power pack
- Ergonomic and integrated control panel for drives and trim tabs actuators
- Analog or electronic LCD display with TFT technology for drives and trim tabs position monitoring and control
- Optional drive auto-trim capability for "automatic" drive and trim tabs mode operation
- Optional smart, programmable, electronic module to restrict steering angle at high vessel speeds to avoid unsafe steering commands

Dimensions & Weights





General Characteristics

* Pleasure Duty

	SeaRex 100	SeaRex 120	SeaRex 140	SeaRex 160
Torque Rating* , Nm (ftlb)	5400 (3977,5)	9090 (6726,60)	15070 (11151,80)	24000 (17760)
HP @ prop. rpm	1135 @ 1500	1915 @ 1500	3175 @ 1500	3875 @ 1150
Weight, kg (lb)	258 (568,27)	423 (931,70)	750 (1651,95)	1100 (2422,86)
Torque / Weight Ratio, Nm/kg (ftlb/lb)	20,83 (7,00)	21,49 (7,22)	20,09 (6,75)	21,82 (7,33)
Shaft Diameter at prop bearing, mm (in.)	75 (2,95)	85 (3,35)	108 (4,25)	120 (4,72)
Thrust Socket Flange Diameter, mm (in.)	349 (13,74)	432 (17,01)	540 (21,26)	584 (22,99)
Overall length L, mm (in.)	1453 (57,20)	1625 (63,98)	1958 (77,09)	2226 (87,64)
Mounting Height H, mm (in.)	584 (22,99)	700 (27,56)	865 (34,06)	990 (38,98)
Half Width W, mm (in.)	290 (11,42)	350 (13,78)	414 (16,30)	480 (18,90)