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JACHTSERVICE

• Bakker Vletbouw •

BOUW, REPARATIE EN PERFECTIE



# XForce – Engbo Thruster Systems

Engbo AS has for several years delivered bow and stern thrusters. Volvo Penta has distributed these under the QL brand. Engbo and Volvo Penta agreed in the fall 2006 that the distribution shall be undertaken in two channels simultaneously with one brand name in each channel. The purpose is to make the thrusters even more available in the market. Engbo shall distribute the XForce thrusters together with Engbo anchor systems as a complete package for maneuvering and anchoring.

The control units for winches and thrusters are based on the very same technology. This fact is making it possible to maneuver and to moor with one, single control unit.

Engbo Innovation AS has developed the Engbo XForce thruster systems. It has based its work on research and development test results, extensive laboratory findings and sea trials. Both mechanically and as far as electronics, the Engbo XForce thruster propellers represent in various ways a new generation propelling power. A high level of output combined with reduced tunnel diameter justifies the positioning of the thrusters, which is deeper and farther to the front of a given vessel. This, in turn, provides for increased effect expressed as an improved turning moment with relation to the hull.

One of the goals set for this project was to develop a thruster system where the various models should be based on the very same technology. A second goal was to ensure the installation should be time efficient as well as easy. As the third criterion, the maintenance on each vessel should be minimal. All along, it was a prerequisite that the Engbo XForce thruster system could be integrated with the new, electronic control unit for Engbo anchor system. Naturally, a new, wireless remote control for winches and thrusters should be developed as well. We feel it has all been achieved!

## A Revolutionary, New Mechanical Construction

The Engbo XForce thruster system has direct running through a solid transmission belt between the motor and the propeller shaft. There is no oil in the gear housing. The engine is placed in parallel with the tunnel. This design reduces noise, is compact and provides excellent conditions for the build-in. This equipment is highly desirable in vessels where space is an issue. The gear housing and the pipe bracket is one unit and made from stainless steel AISI 316 for the larger models. The Engbo XForce 20 bracket is made from glass fiber armored composites. This way, there will be no future expenses for galvanic anodes. The Engbo XForce is delivered installed onto the pipe bracket; as one unit. The installation is thus easy. Research has indicated savings of up to 50 per cent in time compared to conventional thrusters.



## Motor Control Unit (MCU); Electronics for the Future

Our extensive experience with contactor control of anchor winches and thruster propellers has taught us one essential point: It is a challenge to achieve satisfactory working conditions for the contactor. Low voltage and high levels of humidity may cause malfunctioning. Engbo has therefore developed a new, purpose-built type of electronic device. The contactor has been replaced by a closed, spark-free, transistor based MCU, which is flexible to voltage fluctuations. This way, we reduce the tear and wear as well as avoid completely the chances of a contactor breakdown. The MCU also contains newly developed electronics with integrated RF module (radio receiver). This feature simplifies wireless remote installation. Two-way narrow-band radio communication ensures safe transmission of radio signals. The MCU monitors and alerts of low voltage, overload and excessive engine temperature. Obviously, time delay has been built-in to take into consideration sudden, desired changes during operation. If the working conditions become unfavorable, the MCU will reduce the output, thereby protecting the system without creating negative effects on electronic or mechanic components.

The power and maneuver control electronics comes in one single, separate, compact unit, which is installed close to the thruster. Nice, neat and easy.

Thorough testing and long experience is our guarantee for promised performance, safety and reliability. The transistor based, electronic control, which is now integrated for Engbo anchor systems will also be made available for Engbo XForce thrusters.



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## XForce Wireless Remote Control



12-47014

XForce wireless remote control with integrated thruster / anchor winch operation.

With the wireless remote control you will be able to keep your vessel clear of land whilst simultaneously securing your mooring or using the anchor winch. Range: Up to 30 m.

This wireless remote control will keep afloat. It comes with a wrist strap and has anti skidding protection.

Order No.: 12-47014

## XForce Touch Panel



12-79001

This touch panel has the same design as the Engbo touch panel for anchor winch.

If mounted correctly, the Engbo XForce touch panel is waterproof (IP 68) and flexible. It may be fitted to surfaces that are slightly rounded. The backside is self adhesive, but can also be fastened by using screws. It comes with a 10 m cable.

Order No.: 12-79001

Measurements: Width 58 mm. Height 49 mm.

## XForce Joystick Panels



12-79002

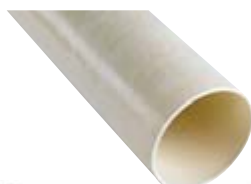
12-79003

If you wish a control device shaped like a joystick – here it is. Waterproof, UV proof rubber protection. On - off switch, running indication light.

Order No.: 12-79002

Order No.: 12-79003

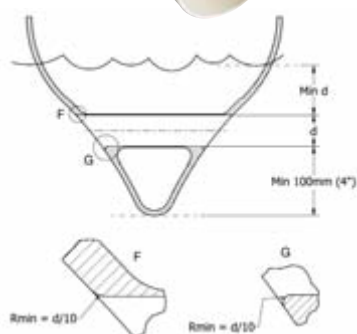
## XForce Tunnels



Manufactured in GRP, protected by a fiberglass mat providing a smooth, installation friendly outer surface.

Order No.: See price list

Delivered with an inner diameter of 110 mm, 160 mm, 185 mm or 250 mm.



### No Notable Speed Reduction

A tunnel installation, which has been carried out properly, will not produce any notable reduction in speed. It maintains a low noise level and provides optimal effect. It will also serve a function to reinforce the bow and hull. The very best performance is achieved when the passage between hull and tunnel is rounded off with a radius corresponding to 10 per cent of the tunnel diameter.

### Tool Set – the Safe & Easy Way to Install

This tool kit makes the installation safer and easier both for the professional and for the do-it-yourself enthusiast. The kit consists of a rod fitter and an electric cutter with a special cage. Spacers have been made for each tunnel diameter. Contact us for more information.



XForce Thruster	<div>NEW</div> 					NEW THRUSTER – COMING!	
	Model	XF 20	XF 40	XF 60	XF 90	XF 130	
	Motor effect (kW) at 12V/24V*	1,6/12V	2/12V	4/12V 4/24V	4/12V 4/24V	7/24V	
	Weight (kilos)	5	13	15	17	30	
	Tunnel diameter(mm)	110	160	160	185	250	
	Propeller Single/Double	Single	Single	Single	Single	Double	
	Power transmission	Transmission belt	Transmission belt	Transmission belt	Transmission belt	Transmission belt	
	Thrust (KG)*	20	40	60	90	130	
	Recommended boat size max**	22/6	30/10	39/11,7	50/15	75/22,5	

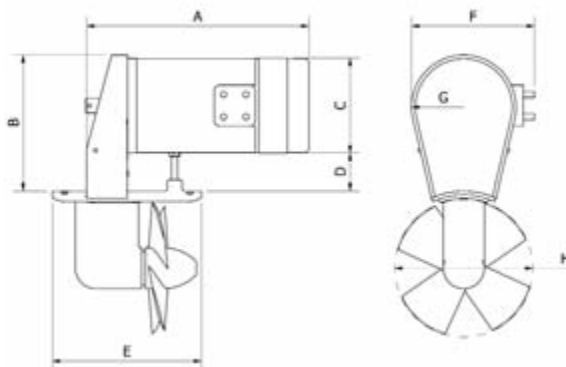
XForce Thruster					
	Model	XF 60 Stern	XF 90 Stern	XF 130 Stern	
	Motor effect (kW) at 12V/24V*	4/12V	5/12V 4/24V	7/24V	
	Weight (kilos)	22	32	37	
	Tunnel diameter(mm)	185	185	250	
	Propeller Single/Double	Single	Double contra rotating	Double contra rotating	
	Power transmission	Mechanical gear drive	Mechanical gear drive	Mechanical gear drive	
	Thrust (KG)*	60	90	130	
	Recommended boat size max**	39/11,7	50/15	75/22,5	

\*) XForce model description refers to the thrust stated at operational voltage of 10,5V/21V when the thruster is in use. Higher voltage will increase the thrust. A system of 24V will typically run with less voltage fall and yield with stronger thrust.

\*\*) Recommended maximum boat size in ft/m. The size will depend upon factors such as weight, hull and air exposure of a given boat design.

### XForce Installation Measurements

Thruster	A	B	C	D	E	F	G
XF 20	197	158	106	29±5	180	135	67,5
XF 40	270	150	120	15±8	192	131	65,5
XF 60	310	150	130	15±8	192	170	65,5
XF 90	310	190	130	50±8	200	190	75
XF 130	320	220	170	32±14	300	130	85



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