

Wärtsilä Enviroguard M seals

**Upgraded, improved and
delivering real value**

PRODUCT DATASHEET



Wärtsilä's Enviroguard M seals have been updated and improved to deliver unmatched benefits that provide real value to our customers. They come with new enhancements and features, such as the double inflatable seal that allows in-water maintenance and is designed with digital sensors, to enable condition-based monitoring (CBM).

BETTER SERVICE, BETTER RELIABILITY

The revamped Wärtsilä Enviroguard M seals are a state-of-the-art development that enhances the strong history of these already well-established water lubricated sealing solutions. One of the inflatable seals now comes as a dynamic inflatable. This allows for the shaft to continue to operate after main seal failure for a safe return to port, the second inflatable acts as an extra redundancy measure. Repairs and maintenance can be carried out afloat, without the aid of divers. Minor overhauls of wearing parts can also be managed in this way. This reduces the cost of maintenance and makes it easier to do as vessels do not need to enter dry dock for maintenance.

NEW DESIGN, NEW FUNCTIONS

The new design features a cooling flush directly on the composite running face in addition to the bearing flush. This separation keeps abrasive particles from the running face and provides more effective cooling to the seal face. The face material has been specially developed out of a superior abrasion-resistant composite to enable the seal to perform in brown water applications.

You spoke, we listened

At Wärtsilä, we listen to our customers, which is why we updated the Wärtsilä Enviroguard M seals based on feedback. New enhancements include:

- Enhanced resistance to abrasive wear by an interface with improved flushing and wearing materials.
- Dynamic inflatable seal with redundancy (double barrier).
- Cooling introduced via the face carrier, enabling increased cooling efficiency.



Improved reliability and longer lifecycles

FEATURES	ADVANTAGES	BENEFITS
Double inflatable emergency/maintenance seal.	Facilitates low risk, diver free, afloat repair and maintenance.	Reduces through-life costs.
Improved bellows clamping.	Helps reduce spring fatigue.	Enhances operational life.
Cooling flush through face carrier.	Improves cooling efficiency.	Offers abrasive resistance.
Aramid face material.	Reduces abrasive wear on seal lips.	Improves live in brown water operations.
Temperature and wear sensors.	Condition based monitoring capabilities.	Allows for extended service periods.
Ease of installation and maintenance.	Keyed drive seal feature removes the need for alignment of the seat following seal assembly.	Reduces time spent towards installation and maintenance activities.

PROVEN DESIGN

Building on the trusted and widely used earlier versions, the upgraded Wärtsilä Enviroguard M seals are intended for both naval and commercial vessels. With its new double inflatable water lubricated seal and improved bellows clamping, it delivers even greater value than before. The seal is designed to accommodate large and repeated axial and radial shaft movements, as well as vibration.

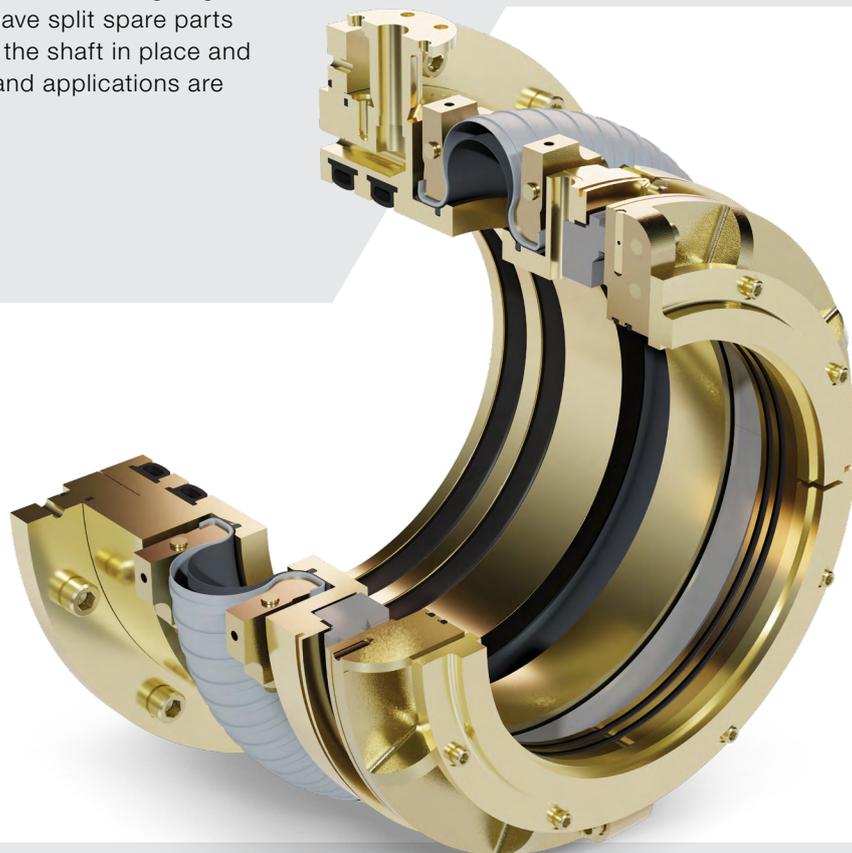
THE SPLIT DIFFERENCE

The Wärtsilä Enviroguard M seals can be supplied either fully split, fitted with the shaft in place or partially split. The partially split option requires the shaft to be removed or split at the coupling to fit the unsplit parts, in most cases, the mounting ring and face carrier. Both options have split spare parts so they can be overhauled with the shaft in place and all other operating parameters and applications are the same.

REDUCED RISK

The Wärtsilä Enviroguard M seals are supplied with double barrier inflatable seals. This is a physical barrier to prevent water ingress composed of at least two independent blocking methods - to exclude water flow between the internal diameter of the stern tube and the outside diameter of the propeller shaft, giving redundancy in the event of a failure occurring of one of the blocking methods.

The use of a double barrier method mitigates the potential failure of one barrier method, which may occur with little or no prior warning. This reduces the risk of compartment flooding and any subsequent vessel damage.



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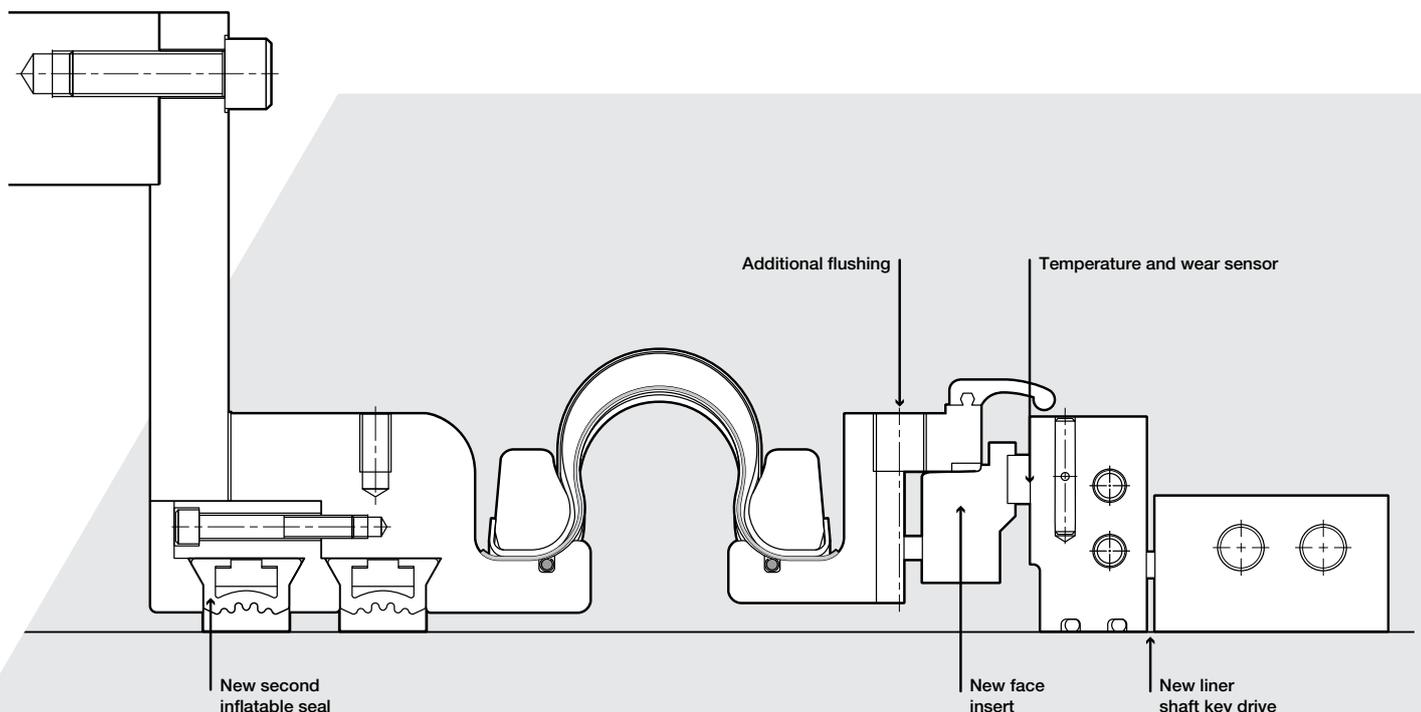


REAL-TIME RESULTS

Wärtsilä's latest Enviroguard M seals provide lifecycle efficiency and lower operational costs. The temperature and wear sensors included enable real-time monitoring of the condition of the sealing interfaces. This optimises maintenance scheduling, lessens the risk of unexpected downtime and lowers maintenance costs due to the simplified procedure.

ENGINEERING EXCELLENCE

Our Wärtsilä Enviroguard M seals have been upgraded to ensure an extended seal life. Through extensive testing, expert knowledge and software simulation, they also deliver improved performance and extended service intervals. Minor maintenance is normally required after only five years and can be carried out at sea. Major maintenance is required after only ten years of operation.



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TECHNICAL SPECIFICATION		METRIC 		IMPERIAL 	
SHAFT SIZES		Width A	Height B	Length C	
	300	630mm	612mm	453mm	
	330	700mm	646mm	473mm	
	360	720mm	689mm	503mm	
	400	740mm	734mm	523mm	
	430	860mm	781mm	553mm	
	470	890mm	844mm	583mm	
	510	940mm	902mm	621mm	
	550	1050mm	967mm	651mm	
	590	1100mm	1037mm	691mm	
	630	1140mm	1104mm	807mm	
	670	1170mm	1167mm	846mm	
	710	1200mm	1225mm	892mm	
	750	1250mm	1289mm	922mm	
	800	1340mm	1364mm	987mm	
MATERIALS OF CONSTRUCTION	Seal housing	Aluminium bronze			
	Main clamp ring	Aluminium bronze			
	Inflatable seal	Chloroprene			
	Face assembly	Composite material			
	Seal seat	Phosphor bronze			
	Seal o-cord	Chloroprene			
STANDARD OPERATING CONDITIONS	Shock resistant	On request			
	Maximum pressure	1.5 bar (0.1MPa)			

All specified technical data above is subject to change without notice and should be verified at the time of order.

An industry leader in shaft line components Wärtsilä Shaft Line Solutions delivers a portfolio of end-to-end services and integrated solutions for the marine markets that builds on our core values: lifecycle efficiency, risk reduction, environmental leadership and design excellence. As an original equipment manufacturer operating in 75 countries, we have the capabilities to support customers on a global scale, and remain committed to providing in-country and round-the-clock expertise.

[wartsila.com/shaft-line-solutions](https://www.wartsila.com/shaft-line-solutions)

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