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# MARITIME REPORTER AND ENGINEERING NEWS

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## Great Ships 2016





# Interview: Mika Koli, The Switch

**Business Development Manager, The Switch – a Yaskawa Company**



(Photo: The Switch)

*The Switch is a 10 year old company working to advance the world with electrical drive train technology. It is still a relative new player in the global maritime sector with nearly four years of experience, but its first reference ships with The Switch technology onboard are starting to ply the world's waterways – including one of this year's "Great Ships of 2016," Ternsund. Maritime Reporter & Engineering News met with Mika Koli, Business Development Manager, for his insights on The Switch and its future in maritime.*

**By Greg Trauthwein**

**Concisely describe "The Switch."**

The Switch is a specialist in advanced drive train technology, a manufacturer of permanent magnetic motors and frequency converters. We have been active in this for 10 years, to start in the wind power industry. The company has an installed base of over 11 GW of megawatt-class permanent magnet machine and power converter packages. The main focus areas are wind, marine and special industrial solutions.

**What was the impetus for the start of The Switch?**

Wind power has been the main market to date for The Switch, but we have high expectations for the marine market for the future. We have a very promising start, and we see that there are many companies happy to see us in this space.

**So how does experience in the wind power market translate to the marine industry?**

We have much experience with many turbine manufacturers, and in the wind industry you have hundreds of turbine (references), so you really have to brush up your drive train and focus on efficiency. That has given us excellent back-

ground in optimizing efficiency. This is quite a good background for focusing on energy efficient solutions where cost of operations must be minimized.

**Is every solution from The Switch custom created?**

Previously we tailored everything, now we want to concentrate on having more efficient ways to work on smaller projects. (ie. moving away from custom design and manufacturing for each project). We want to have product standardization so that we are able to act more quickly, using modules and products that we have and then, with small tailoring, we can offer a variety of products.

**Looking at the markets you serve, put the marine market in perspective.**

You have to put in perspective that we started seriously in marine about three and a half years ago. Relatively, that's a short time, but now there are ships with our shaft generators sailing, which is a big achievement for us. But in this short time, we already have approximately 20 ships sold, and it is starting to grow very fast.

**What type of vessels?**

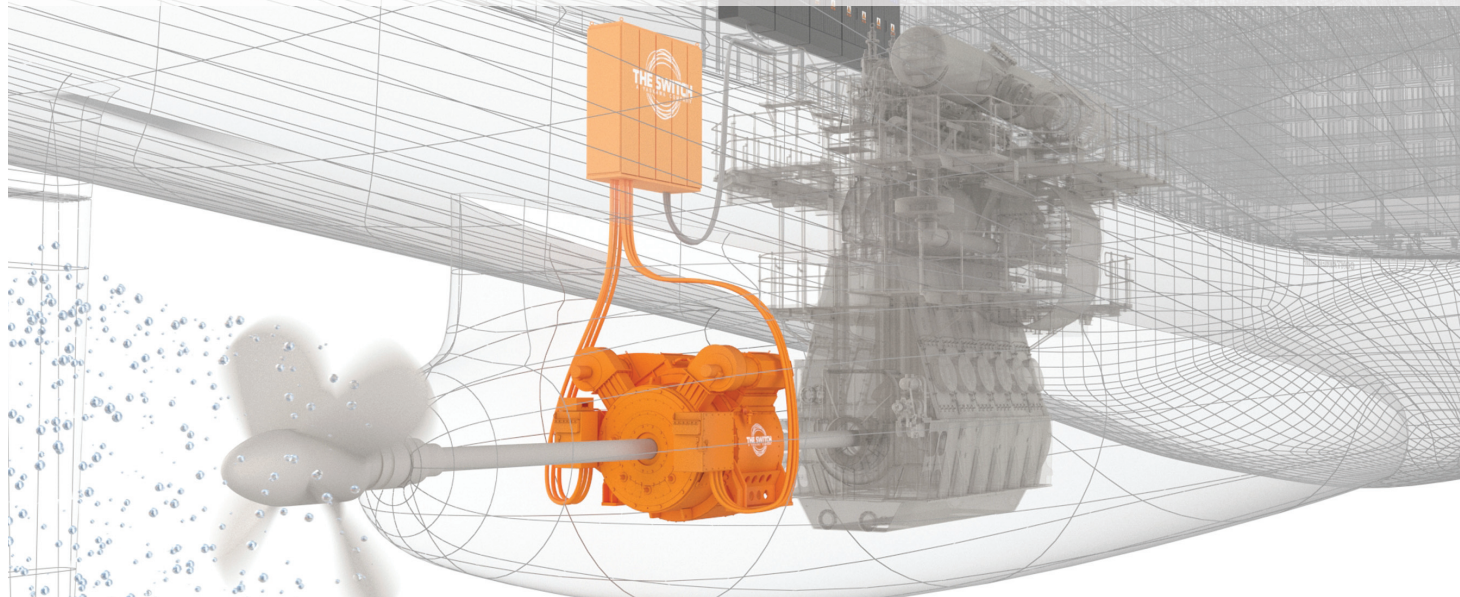
The first is the tanker M/T Ternsund, which is powered by a two-stroke LNG diesel.

**If I'm a shipowner, why would I talk to The Switch?**

Efficiency, fuel savings, cost of operations ... we are able to deliver equipment that will make our customers more competitive.

**Most see a difficult maritime market today. Tell us how you see the market?**

When times are a bit slower, people and companies tend to have a bit more time to look into new developments. When the industry is going through tough times, regardless of the oil and fuel price being low, especially then you still want to be competitive, and spending less on fuel is a good thing when the price are high or low. With our technology, ships will be future proof, giving ship owners a comparative advantage over competitors when it comes to operational costs. For example, while prices for batteries are coming down, they are not coming down perhaps as fast as some would like. With our system you have everything in place to leverage the benefits of batteries once the prices hits an acceptable.



(Photo: The Switch)



# Name: Ternsund

## LNG fueled tanker with Direct Drive Permanent Magnet Shaft Generator

Builder: AVIC Dingheng Shipyard

Owner: Terntank Rederi AS

The Switch has been engaged in the maritime industry for only three and a half years, but it already has approximately 20 ships in its reference list, including the first, the 15,000 dwt M/T Ternsund (featured on this month's cover) owned by Terntank, which is a fourth generation company that in 1958 was a one ship company, and today is an operator of ten modern chemical/product tankers in the range from 8,000 to 15,000 dwt.

MT Ternsund was built by Avic Dingheng Shipbuilding Co. of China, and is a Rolls-Royce Marine AS, type NVC 615 CT design ship measuring 147 x 22 x 11.7 m.

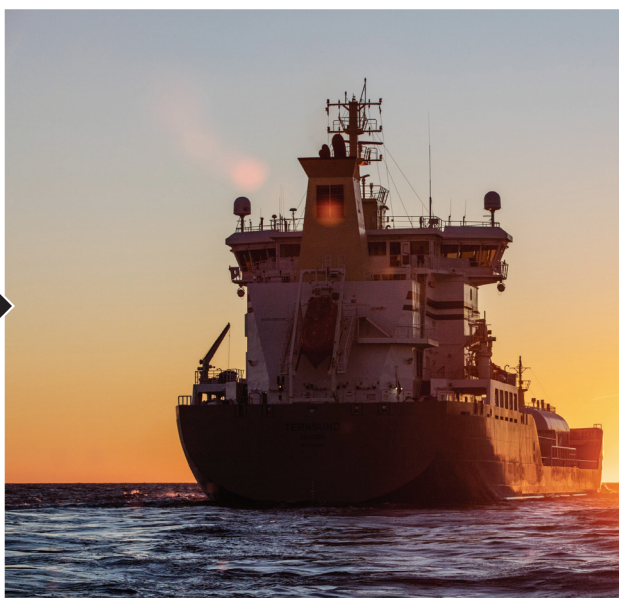
The ship is ultra modern in its choice of propulsion, power by a Wärtsilä 5RT-flex 50 DF 5.850 kW 102 RPM 2-stroke, low pressure, LNG dual-fuel main engine, with a Kongsberg fuel performance system. From The Switch it features a Permanent Magnet Shaft Generator with Variable Frequency Drive to allow running the engine/propeller in combinator mode for optimum efficiency. In total, at 12 knots, it consumes 8.9 tons of LNG per day.

WE Tech Solutions (WE Tech) announced the operational success at sea of its first Direct Drive Permanent Magnet (PM) Shaft Generator solution. Ternsund is the first in a line of four Terntank Rederi AS chemical/product tankers destined for the Baltic Sea.

"WE Tech's shaft generator solution is working well on both Ternsund and Ternfjord. Terntank has set huge expectations on this technology and believes that this will be the future for the shipping industry," said Trygve Möller, Chairman of the Board of Terntank Rederi AS and Managing Director of Tärntank Ship Management AB. "We are very happy that Ternsund and sisters now are in service and that all our expectations on emission, performance, and fuel savings has been reached," said Möller. "Even if Ternsund only has been in service a few months, we have found it to be a 'happy vessel' for owners, customers and crew."

WE Drive allows the shaft generator to operate over the full main engine speed range, while generating electricity for the vessel's electrical network with high efficiency.

With the WE Drive and the Direct Drive PM Shaft Generator in Power Take Out (PTO) mode, the available power for the vessel's electrical network is up to 780 kW, generated by a fuel efficient two-stroke, low pressure, dual-fuel main engine. In this mode, the auxiliary generators are not running. In Power Take In (PTI) mode, the WE Drive converts auxiliary generator power to propulsion power by employing the Direct Drive PM Shaft Generator as a motor, with a maximum rated output of 1000 kW.



Photos: Tärntank Ship Management AB

MT Ternsund	
Builder:	Avic Dingheng Shipbuilding Co. LTD,
Owner:	Terntank
Imo No	9722390
Flag	DIS
Call Sign	OWPV2
Length, o.a.	147m
Length, b.p.	143.5m
Breath (molded)	22m
Depth (molded)	11.7m
Draft, scantling	9m
DWT (at scantling draft)	15,000
GT	11,374
Net tonnage:	4,780 t
Hull no.	AD0024
Design	Rolls-Royce Marine AS, type NVC 615 CT
Consumption	12 knots, 8.9 tonst LNG/Day
Marine gas oil	610 cu. m.
Cargo tank capacity 98%	16.559 cu. m.
Ballast water tanks	6.636 cu. m.
LNG fuel storage tanks	630 cu. m.
Slop tanks	242 cu. m.
Tech fresh water tanks	325 cu. m.
Urea	52 cu. m.
Tank coating	MarineLine784
Cargo Pumps	Deepwell pumps type DW 200/250 multisuction. Frequency controlled 450 m3/h at 120 m.l.c.
Cargo Alarm & monitoring	Kongsberg Tank
Radar	K-Chief 600
BWT	Panasia GloEn-Patrol
Bowthruster	(1) 865 kW 60Hz.
Main Engine	Wärtsilä 5RT-flex 50 DF 5,850 kW 102 RPM 2-stroke, low pressure, LNG dual-fuel engine.
Fuel management	Kongsberg
AuxiliaryDiesel	3 x Mitsubishi MAS 850-S, 790 kWe @ 1800rpm
Shaft Generator:	
The Switch Permanent Magnet Shaft Genera- tor with Variable Frequency Drive to allow run- ning the Engine/Propeller in Combinator mode for optimum efficiency. Rated output shaft generator PTO 780 kW / PTI 1000 kW	



[www.theswitch.com](http://www.theswitch.com)

[www.wetech.fi](http://www.wetech.fi)