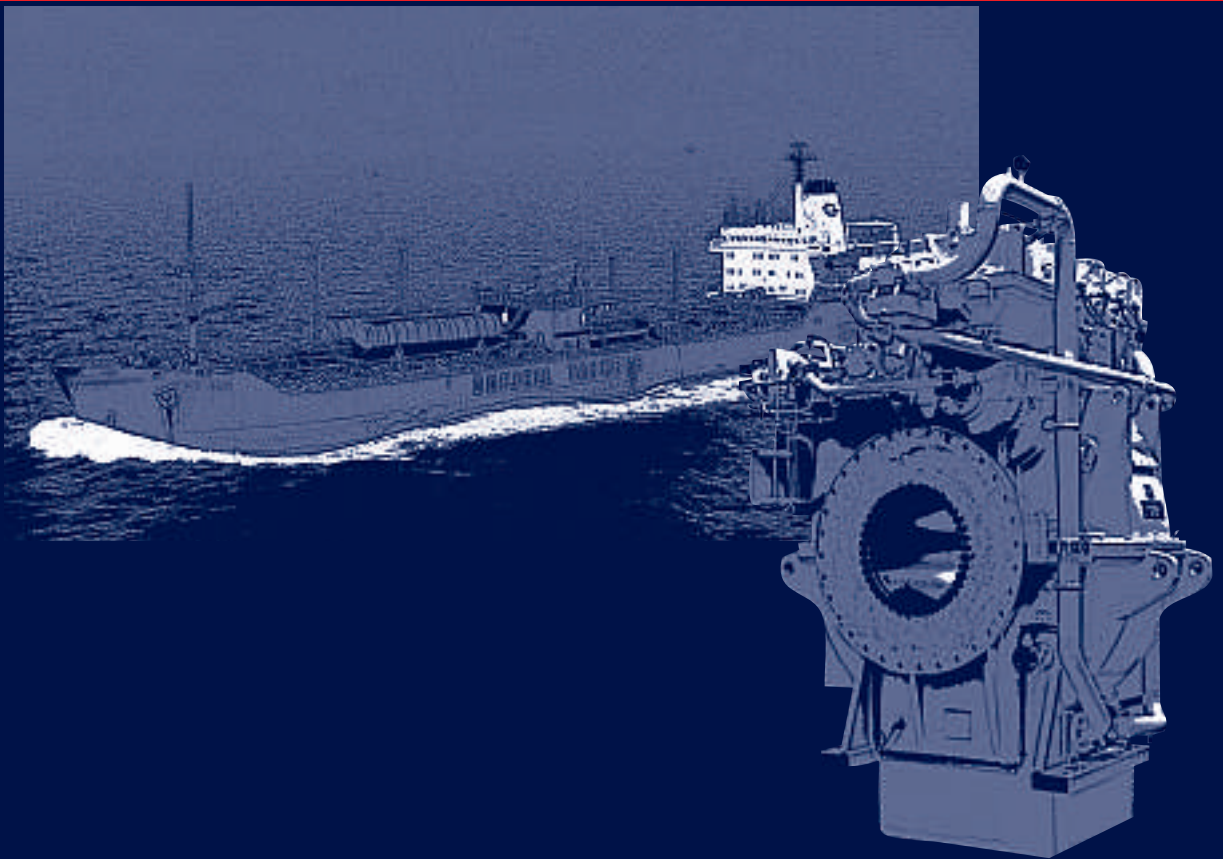


Innovative Power Transmission

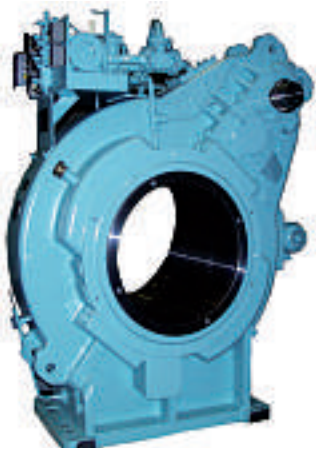
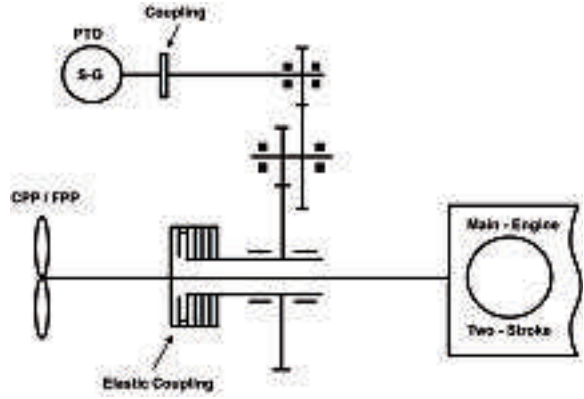
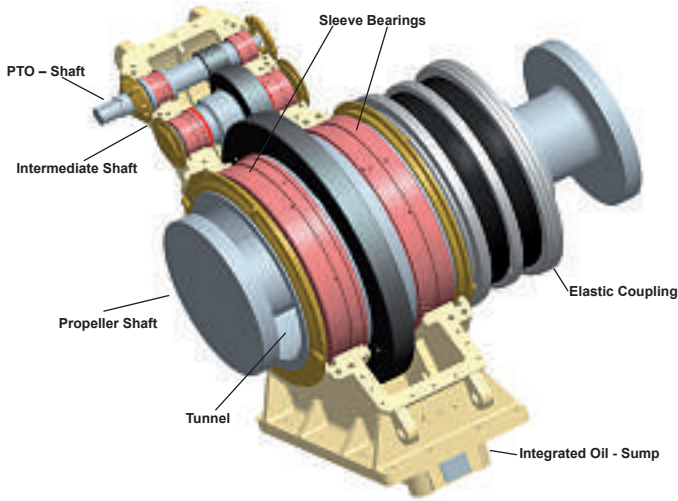


Tunnel Gearboxes
Power Take Off / Power Take
Home Systems for
Slow Speed Engines



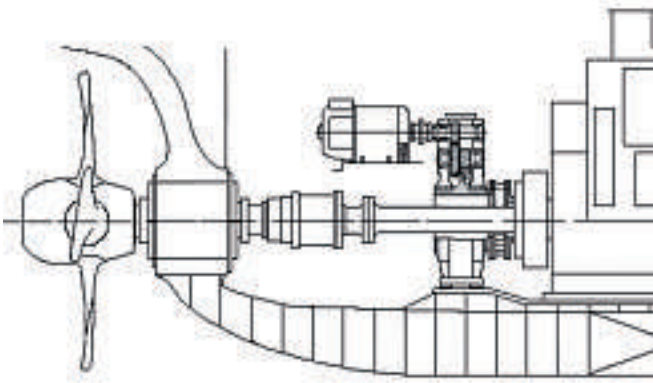
Type: SHHII

Power Take Off (PTO)



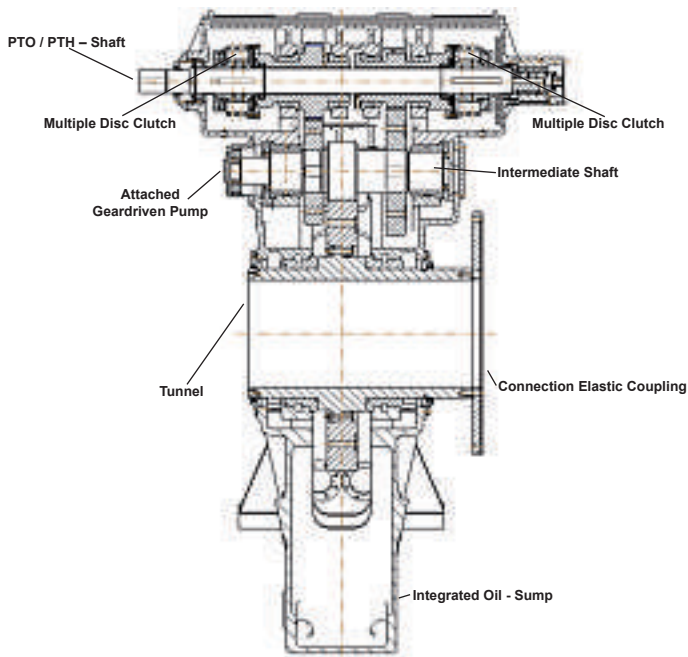
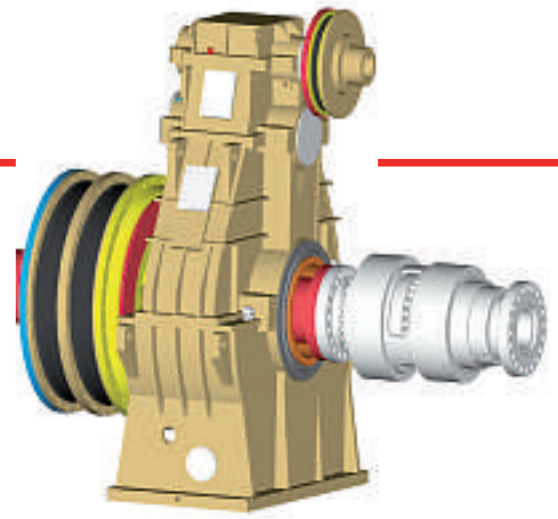
Applications & Advantages

- Generation of electric energy by slow speed main engine
- Fuel cost reduction by utilisation of good main engine efficiency
- Shut down of diesel-generator during sea voyage
- Reduction of maintenance and spare part costs
- Application of standard, high-speed generator
- Utilisation of space behind M.E. flywheel for tunnel gearbox installation
- Freestanding, independent gearbox system with integrated oil system
- Protection of generator and gearbox from torsional vibration through elastic coupling



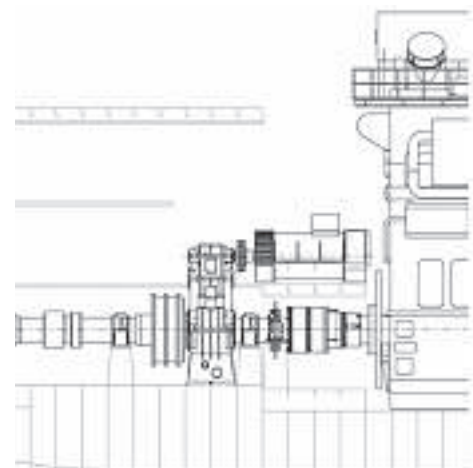
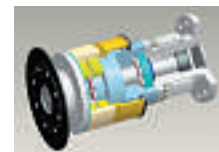
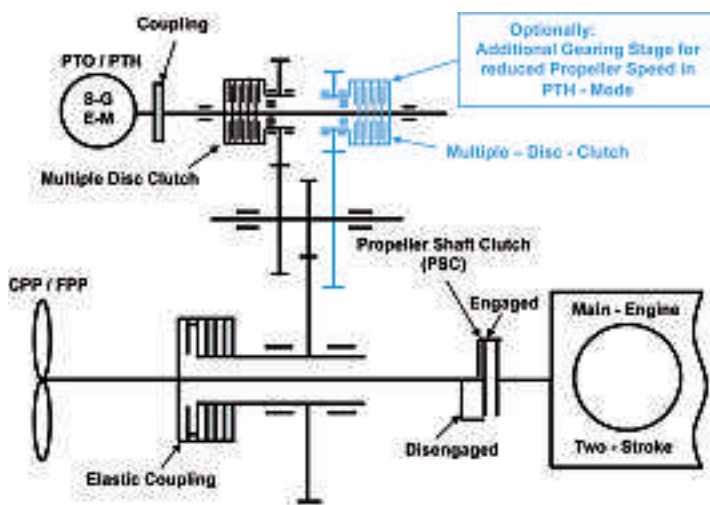
Type: SHHLII

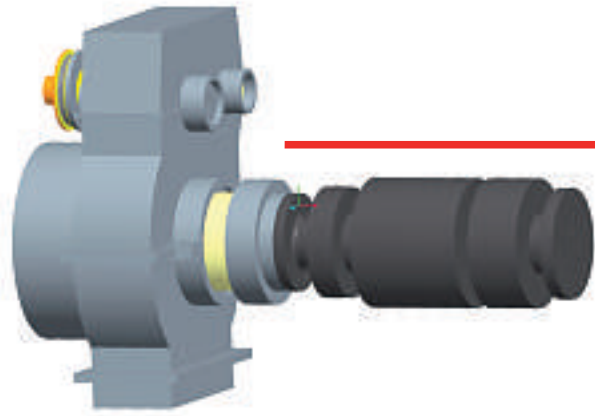
Power Take Off/ Power Take Home (PTO/PTH)



Applications & Advantages

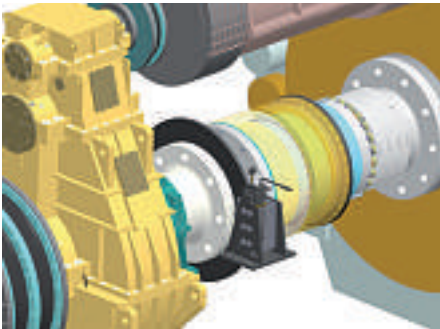
- Combined dual-use and independent system for single screw vessel
 - Generation of electricity with slow speed M.E
 - Power take home (PTH) system with disconnected M.E
 - Power boosting capability (optional).
- Improvement of ship's safety Redundant electric propulsion system
- Reduction of operating costs No demand for stand-by tug during M.E. maintenance in port
- Flexibility of operation Additional slow steaming mode by electrical propulsion
- Efficiency improvement capability (optional) Reduction of propeller speed to approx. 60% of nominal speed at power take home mode





Type: SHHLII

**Power Take Home (PTH)
Economical Simplified Emergency Drive!**

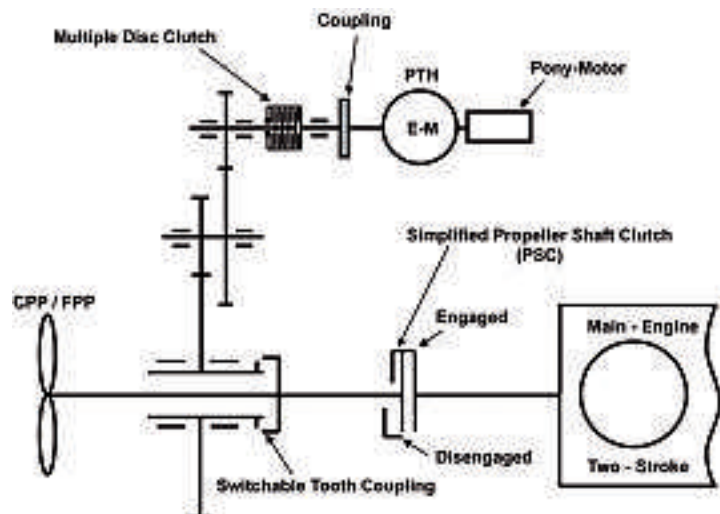


Normal operation

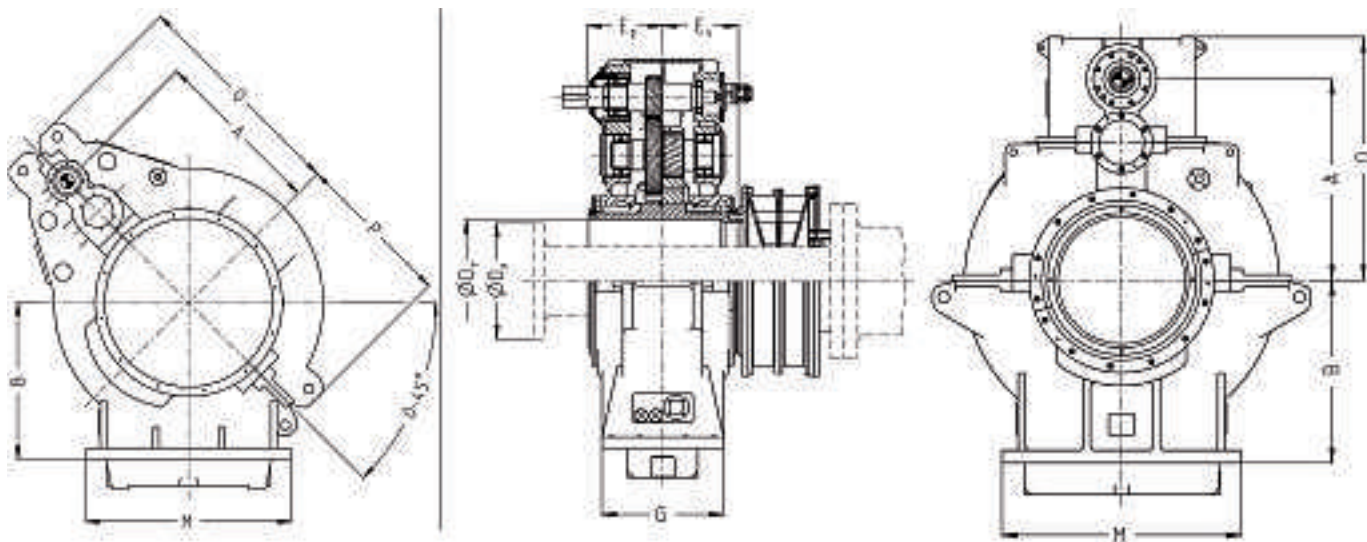
- M.E. connected to propeller via engaged PSC
- Tunnel gearbox out of operation Disconnected by disengaged tooth coupling
- No power, no movement and no wear in emergency train

Emergency operation

- M.E. disconnected from propeller via disengaged PSC
- Tunnel gearbox in operation Connected by engaged tooth coupling
- E-Motor propulsion mode via multiple disc clutch and tunnel gearbox



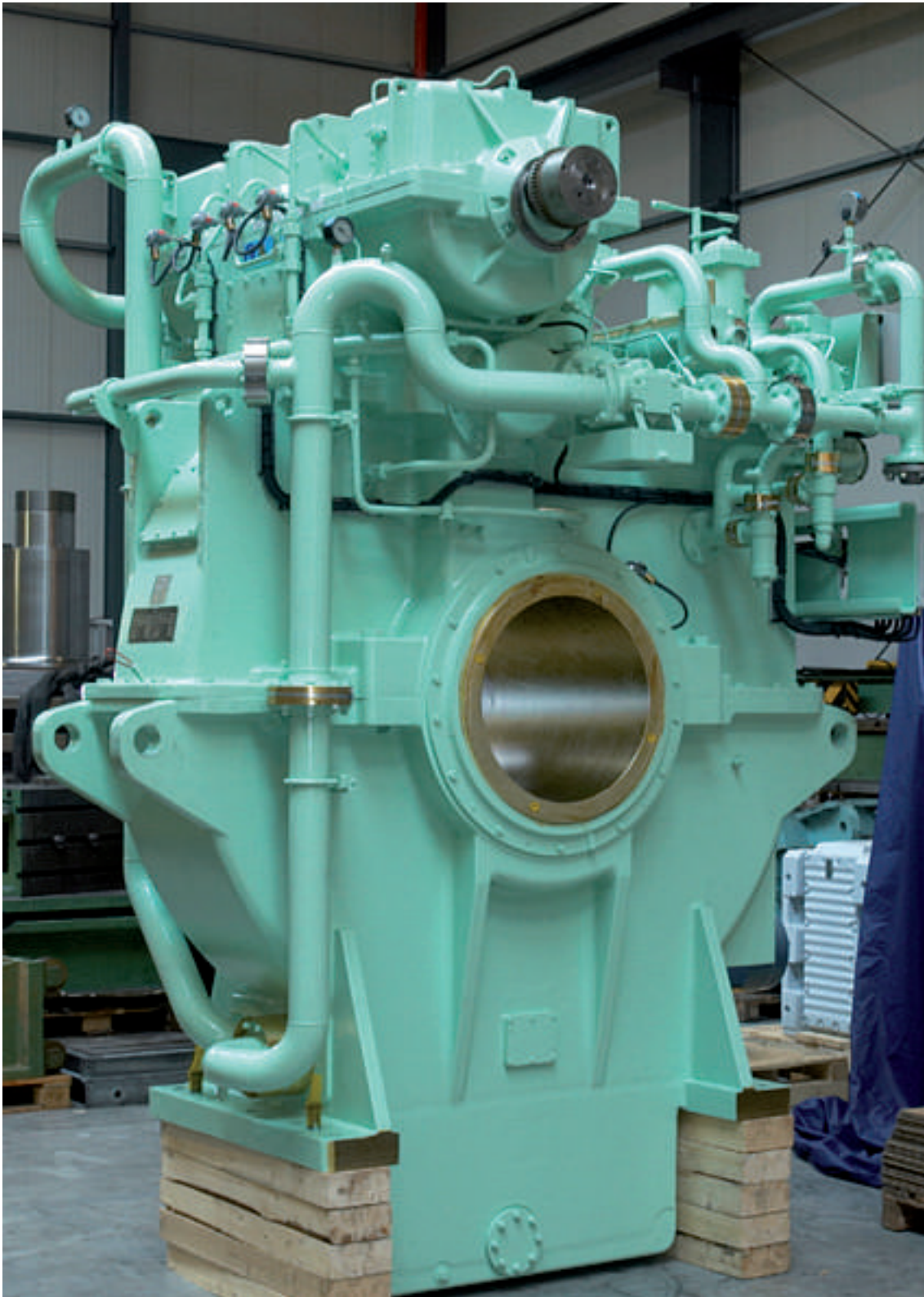
Dimension Table

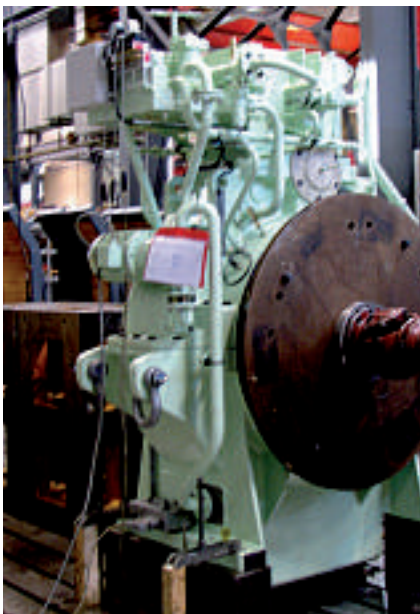


Size	Housing						Output	Input
	A	B	G	M	O	P	E ₂	E ₁
1135	1135	1040	710	1360	1600	960	450	490
1280	1280							
1430	1430	1300	900	1700	2000	1200	560	550
1600	1600							

Size	Shaft tunnel diameter D _t (mm)			
	610	760	900	1090
	Maximum flange diameter D _e (mm)			
600	750	890	1080	
Weight (to)				
1135	6,3	6,9		
1280	6,6	7,2	7,6	
1430	9,8	10,4	10,8	11,7
1600	10,4	11,0	11,4	12,4

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Isabella Kosan
8.000 m³ LPG/Ethylene Carrier
„2008 Ship of the Year“ by Lloyd’s List
Owner: Lauritzen Kosan AS
Shipbuilder: SEKWANG Heavy
Industries Co, Korea
Gearbox: 1 x SHHLII - 1430/610
Rating PTO/PTH: 1.200 kW
Speeds PTO: 173 / 1.208 rpm
Speeds PTH: 1.200 / 102,1 rpm
Gear ratio PTO: 6,98 : 1
Gear ratio PTH: 11,75 : 1



MAERSK METHANE

Twin Marine Gear Box

Typ: NDSH - 3900

Power: 2 x 13.250 kW • Speed: 700/86 rpm

Shipbuilder: SAMSUNG HEAVY

INDUSTRIES, Korea

Classification: BV



RENK Marine Gears for merchant ships such as AHTS vessels (Anchor Handling Tug Supply), containers and tankers are universally acknowledged as a hallmark of maritime power transmission engineering. They have proven their value for decades and are setting standards for safe ocean-going transport. RENK gears guarantee maximum reliability and economy in all operating modes - in both drive systems: with electric motors or diesel engines. To ensure ever increasing performance and to meet the ever rising technological challenges, there is one distinct solution: RENK Inside!



Cruise Roma, Cruise Ferry

Owner: Grimaldi Lines, Shipbuilder: Fincantieri

Gearbox: 2 x NDSQL - 4800

Power: 2 x 13.860 kW

Speeds: 500 / 148,1 rpm

SPTO: 2.400 kW

Classification: RIN



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