

Global Headquarters

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OFFSHORE PRODUCT LINE

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PRODUCT	APPLICATION	TECHNOLOGY	APPROVALS	BENEFITS
HYDRAULIC FLUIDS				
HOUGHTO-SAFE® NL1	Direct-Acting Tensioners Motion Compensators	HFC - Water Glycol	 CEFAS - D NEMS - RED EPA - GoM 	 Best available lubricity and corrosion control performance Extended fluid life
HOUGHTO-SAFE® WL1	Wireline Tensioners Motion Compensators	HFC - Water Glycol	 CEFAS - C NEMS - RED EPA - GoM 	 Advanced lubricity and corrosion control performance Extended fluid life
STACK MAGIC® ECO-F V2	Subsea BOP	HFA - Synthetic Concentrate	 CEFAS - D NEMS - YELLOW EPA - GoM 	 High performance in lubricity, corrosion control and microbial control Cefas D ranked for maximum discharge
STACK MAGIC® ECO CLDS	Surface BOP	HFC - Water Glycol	 CEFAS - C NEMS - YELLOW EPA - GoM 	 High lubricity to protect valves and pumps Formula optimized for high performance across all fluid attributes
AQUALINK® HT804F VER2	Subsea Production Systems	HFC - Water Glycol	 CEFAS - D NEMS - YELLOW EPA - GoM 	 Approved to ISO 13628 at 150°C for HTHP wells Fluid life 20 years or more
STACK GUARD™	Subsea/Surface BOP	HFC/RP - Dual Purpose Testing and Preservation	N/A	High corrosion protection for long-term storageExcellent lubricity for Factory Acceptance Testing
RUST PREVENTATIVES				
RUST VETO® AS	Pipe Threads	RP - Rust Preventative	N/A	 Highly water resistant Excellent all-season protection at high and low temperatures
SILVER BRUSH PLATING				
Silver Non-Cyanide 3084	Electrical Contact Components	100 g/L of metal Dense deposit structure 115 HV	 MIL STD 865E MIL STD 2197 A (SH) AMS2451D/13 	 Excellent for applications requiring increased Conductivity or lower contact resistance Can be applied in place with minimal disassembly
Silver 3083	Drill Bits	100 g/L of metal Dense deposit structure 122 HV	 MIL STD 865E MIL STD 2197 A (SH) AMS2451D/13 	• Excellent for lubricity & anti-galling applications

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COPPER BRUSH PLATING				
Copper Alkaline 5280	Pipe Threads	80 g/L of metal Dense deposit structure 150 HV	 MIL STD 865E MIL STD 2197 A (SH) AMS2451D/6 	Best electroplating deposit for anti-galling of premium threaded connectionsApproved by Tenaris and VAM
NICKEL BRUSH PLATING				
AeroNikl® 250	Subsea BOP	100 g/L of metal Dense deposit structure 190 HV	 MIL STD 865 MIL STD 2197 A (SH) AMS2451D AMS2451/1B AMS2451/3C 	 Excellent for providing wear resistance and hardness to component surfaces Approved by TechnipFMC, NOV, and others Can be applied in place with minimal disassembly
Nickel Ductile 2086	Propeller Shaft	40 g/L of metal Dense deposit structure 280 HV	 MIL STD 865E MIL STD 2197A (SH) AMS2451/1B 	 Extremely versatile deposit used for wear resistance, corrosion protection, and hardness Can be applied in place with minimal disassembly
Nickel Neutral 2085	Pump ODs and Mating Surfaces	50 g/L of metal Microporous deposit structure 585 HV	 MIL STD 865E MIL STD 2197 A (SH) AMS2451/1B 	 Most popular deposit approved for defect repair, wear resistance, and dimensional restoration Can be applied in place with minimal to no disassembly
ANTI-CORROSION COATINGS				
Epoxy Paint System, Dry Film Lubricant Coatings, Fluoropolymer Coating	Christmas Tree	Epoxy Paint System - Epoxy resins, pigments, and hardeners Dry Film Lubricant - Molybdenum disulphide with graphite Fluoropolymer Coating - PTFE	N/A	 Protection against: corrosion resistance, lubricity, friction reduction, abrasion resistance, low co-efficient of friction, release (non-stick), chemical resistance
HVOF Coating	Propeller Shaft Rockbit Skirt	High Velocity Oxygen Fuel Tungsten carbide	N/A	 Protection against: wear resistance Corrosion protection, high temperatures, thickness of the coating is easily controlled
Epoxy Paint System	Subsea Manifold	Epoxy resins, pigments and hardeners	N/A	 Corrosion resistance and abrasion resistance

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MARINE UNDERLAYMENTS AND DECK COATINGS									
Galley	100% solids lightweight epoxy leveling and coating system with quartz	• IMO FTP Code 2010 Parts 2 and 5*	 Waterproofing seamless decking surface Various anti-slip textures 						
Passageway	100% solids lightweight epoxy leveling and coating system with color chips	 IMO FTP Code 2010 Parts 2 and 5* Mil-PRF-32584, Type V, Class 1, Grade A, Composition E 	 Ultra lightweight with decorative color chips Deck leveling 						
Cabin	100% solids lightweight epoxy underlayment system	 IMO FTP Code 2010 Parts 2 and 5* UK Defense Standard 07-247, Category A2 	 Foundation for carpets, tiles, vinyl, and other coatings Leveling underlayment screed 						
Servery/Wet Spaces	100% solids lightweight epoxy underlayment system	 IMO FTP Code 2010 Parts 2 and 5* Mil-PRF-32584, Type V, Class 1 and 2, Grade A, Composition E 	 Ultra lightweight resin based and waterproofing Slope to drain with vertical cove base 						
Iron Roughneck	Calcium-Sulfonate Complex	N/A	 Indicated for lubricating plain and rolling contact bearings Works under very high pressures and low, oscillating speeds 						
Riser Tensioner	Lithium Complex	N/A	 Indicated for lubricating plain and rolling bearings Operates under extreme vibratory load conditions. 						
Azipod	Ester Based	• EU Ecolabel ES-NA/027/002	 ECO approved gear oil Meets VGP requirements Readily biodegradable according OECD 301B 						
Deck Hydraulics	Ester Based	• EU Ecolabel ES-NA/027/002	 ECO approved hydraulic fluid Meets VGP requirements Readily biodegradable according OECD 301B 						
	K COATINGS Galley Passageway Cabin Cabin Servery/Wet Spaces Iron Roughneck Riser Tensioner Azipod	K COATINGS Galley 100% solids lightweight epoxy leveling and coating system with quartz Passageway 100% solids lightweight epoxy leveling and coating system with color chips Cabin 100% solids lightweight epoxy underlayment system Servery/Wet Spaces 100% solids lightweight epoxy underlayment system Iron Roughneck Calcium-Sulfonate Complex Azipod Ester Based	K COATINGS 100% solids lightweight epoxy leveling and coating system with quartz IMO FTP Code 2010 Parts 2 and 5* IMO FTP Code 2010 Parts 2 and 5* IMO FTP Code 2010 Parts 2 and 5* IMO FTP Code 2010 Parts 2 and 5* Mil-PRF-32584, Type V, Class 1, Grade A, Composition E Cabin 100% solids lightweight epoxy leveling and coating system with oolor chips IMO FTP Code 2010 Parts 2 and 5* IMO FTP Code 2010 Parts 2 and 5* UK Defense Standard 07-247, Category A2 Servery/Wet Spaces 100% solids lightweight epoxy underlayment system IMO FTP Code 2010 Parts 2 and 5* UK Defense Standard 07-247, Category A2 Iron Roughneok Calcium-Sulfonate Complex N/A Riser Tensioner Lithium Complex N/A Azipod Ester Based • EU Ecolabel ES-NA/027/002						

*Each individual layer is tested separately for IMO, therefore the "industry practice" is to consider the complete system meets the requirements.

Forward Together[™]

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