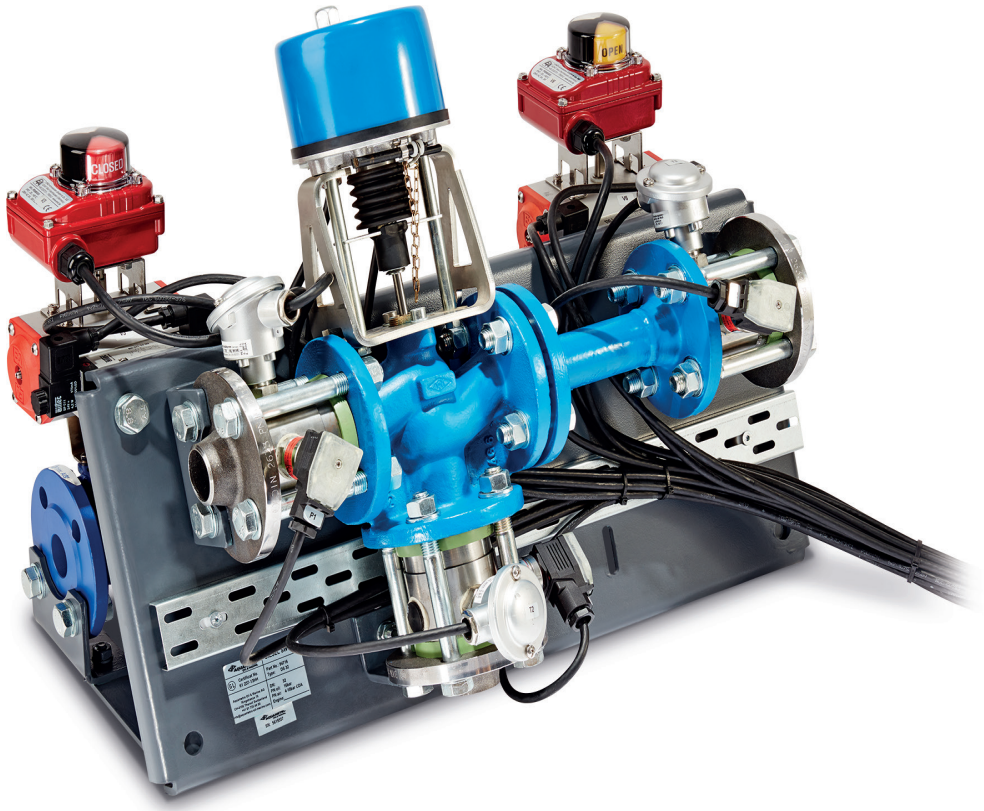
AQUAMETRO
OIL & MARINE



NEW DIESEL SWITCH

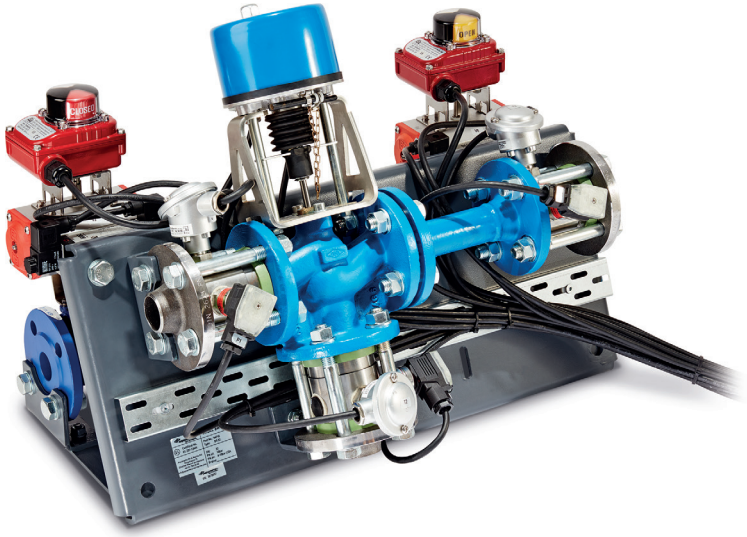
Management & Treatment

NEW DIESEL SWITCH

Fuel management without compromise

The NEW DIESEL SWITCH is a fuel management system which helps you to comply with MARPOL regulation. It controls fully automatically the change over and blending process on board your good vessels and will manage additional processes within your fuel system.
Protect your engine - no human risk!
Save ship operation - change over or blending process in maneuvering area's.

Control Cabinet



Features:

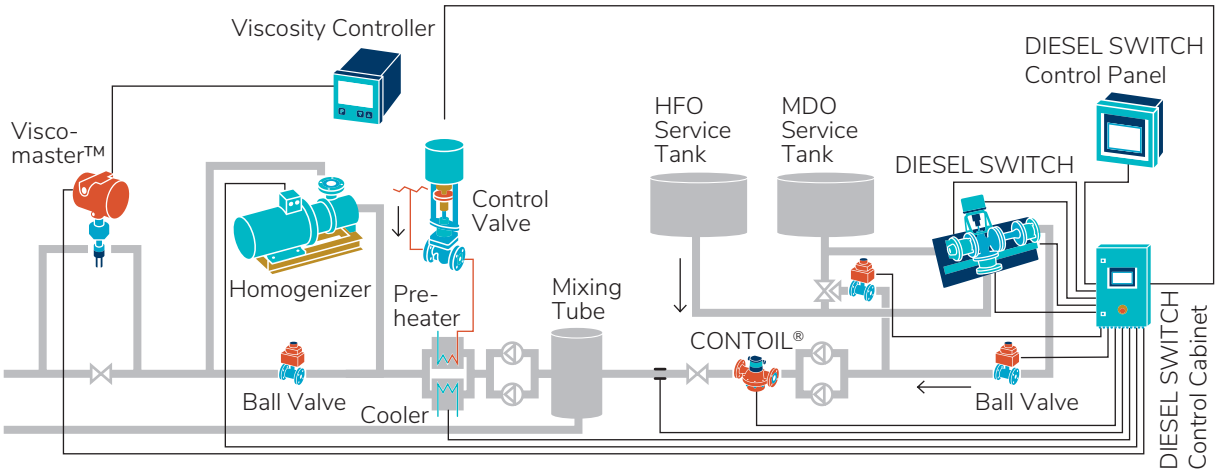
- Simplest and universal design / turn key product
- Automatic fuel change over or permanently controlled fuel blending of different types of fuel oil
- Full DNVGL type approval certificate
- Saving fuel costs
- Control of rise of fuel temperature on engine in let
- Full data visualization and storage
- Additional GPS-position and logging available

Benefits:

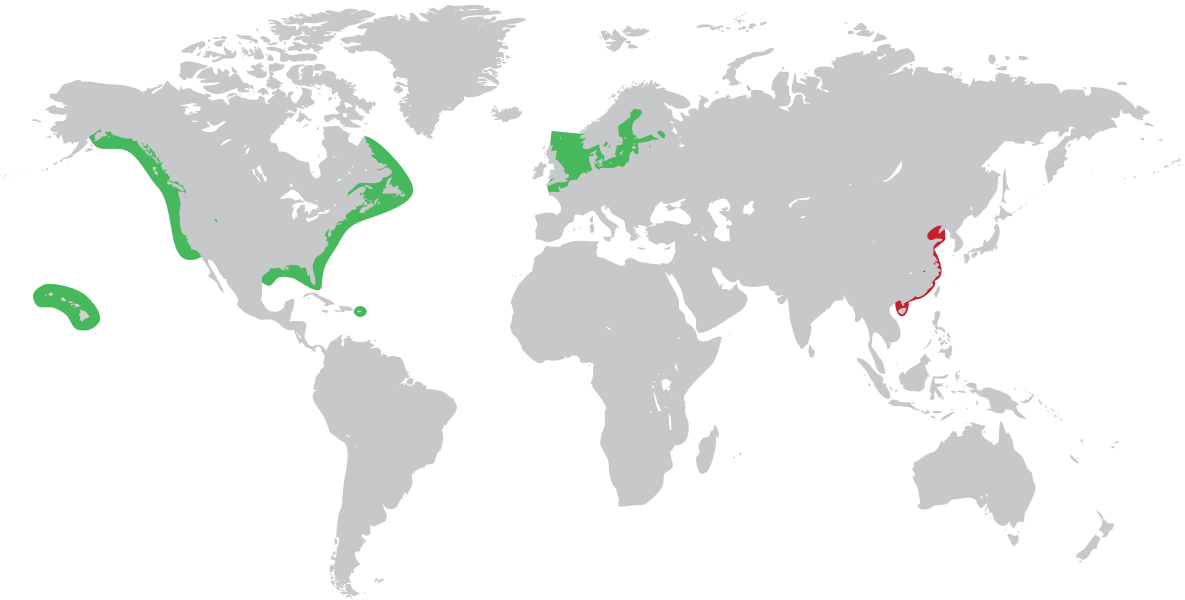
- Fast and safe fuel switching under normal ship operation conditions
- Continuous blending possible to save expensive diesel fuel
- High ship availability and safety in maneuvering area's
- Complies with MARPOL regulations
- Easy installation / short downtime
- Prevent thermal damage on engine
- Prevent lost propulsion in curve of low viscosity

SYSTEM OVERVIEW

The use of a Fuel Management System with automated, secure switching from HFO to distillates and vis-versa, offers the possibility to realize a secure, yet fast switching operation with knowledge and monitoring of system. A reduction of the engine power is not required.



WORLDWIDE EMISSION CONTROL AREAS (ECA)



Current Situation

0.50 % global limit (MARPOL 2020)

0.10 % Emission Control Area limit (MARPOL)

0.50 % limit, China national waters (12 nm), 2019

Planned ECA's with different fuel quality:

- Mediterranean Sea
- Coasts of Mexico
- Tokyo Bay
- Singapore
- Korea
- Australia
- Black Sea
- Arctic
- Antarctica

THE CHALLENGE

New FUEL REGULATION
2020 Global Sulphur Limit

- January 2020 ban on using non-compliant fuel oil for propulsion or operation on board a ship as per resolution MEPC.280(70)
- Ship implementation plan for 0.50 % global sulphur limit
- Risk assessment and mitigation plan on the impact of new fuels
- Modifications of the fuel oil system & tank cleaning (as needed)
- Fuel oil capacity & segregation capability
- Procurement of compliant fuel oil
- Fuel oil change over / fuel oil blending – SOx emission control
- Documentation & reporting
- Capability / suitability of the ship's equipment (pumps/boilers) to handle different fuel oil types
- Characteristics, heating requirements, compatibility of different fuel oil types which are commingled in bunkering
- Fuel oil change over and crew preparedness/training for change over procedures during fuel switching between different types of fuel oil

TECHNICAL DESCRIPTION

Manual change over valve

- ! Risk of incidents due to uncontrolled change over
- ! Risk of damages in fuel system due to temperature shocks

NEW DIESEL SWITCH

- ✓ Automatic and safe change over unit with safety functions
- ✓ No risk of incidents
- ✓ Improved temperature separation of fuel systems
- ✓ Class approved change over or blending procedure
- ✓ Simple and universal design - easy installation
- ✓ Automated, permanently controlled fuel blending
- ✓ Viscosity monitoring with alarm function

Saving potential considering fuel oil blending

Fuel cost saving effects

- » Sulphur-limit of 0.5 % in Sulphur Emission Control Area
- » Price differences for estimated fuel cost (MGO and HFO) at $ 150 to 250 per tonne
- » 3.5 % Sulphur in HFO, 0.1 % Sulphur in MGO
- » Fuel Blending Ratio = 88.2 % MOD / 11.8 % HFO

Approximate saving potential: 5 - 10 % based on example.
ROI will be between 3...12 months!

RECOMMENDED OPTION HOMOGENIZER

Homogenizing of fuel oil and fuel oil blends

- Continious HFO homogenizing on board
- Pure mechanical and no chemical treatment
- Improved combusiton process
- Fuel cost saving potential reduced fuel oil sludge in fuel circulating system

CERTIFICATE

DNV·GL

TYPE APPROVAL CERTIFICATE

Certificate No:
TAP00001BK
Revision No:
3

This is to certify:

That the Change over and blending system for liquid fuel

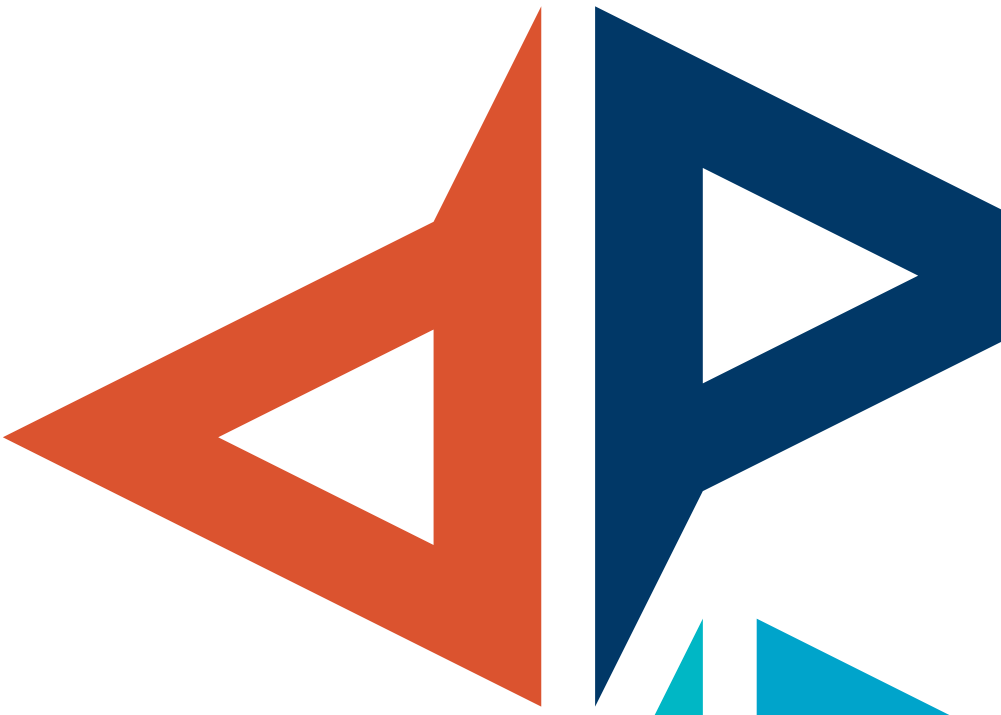
with type designation(s)
DIESEL SWITCH

Issued to
Aquametro Oil & Marine AG
Therwil, BL, Switzerland

is found to comply with
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV GL class guideline DNVGL-CG-0339 – Environmental test specification for electrical, electronic and programmable equipment and systems

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.
Max. working pressure: 16 bar
Max. working temperature: 150°C



Aquametro Oil & Marine AG
CH-4106 Therwil, Switzerland
info@aquametro-oil-marine.com
Phone +41 61 725 44 00

Aquametro Oil & Marine GmbH
DE-18119 Rostock, Germany
info@aquametro-oil-marine.com
Phone +49 381 382 530 00

www.aquametro-oil-marine.com

VD 7-500 e 08.2019