

## Dual-fuel conversions

# ME-LGIP

An Everllence B&W ME-LGIP retrofit enables your vessel to operate on LPG, unlocking key advantages such as significantly lower SO<sub>x</sub>, CO<sub>2</sub>, and NO<sub>x</sub> emissions and reduced fuel costs, while retaining the flexibility to use traditional fuel oils when needed.

Shipowners and operators are under increasing pressure to cut OPEX, comply with environmental standards, and transition to cleaner fuels to stay competitive in an evolving marketplace.

This is why a dual-fuel retrofit conversion is a powerful solution for existing vessels, upgrading today's fleets to meet tomorrow's market demands. An Everllence B&W ME-LGIP retrofit is the process of upgrading your Everllence B&W ME-C series engine to a dual-fuel Everllence B&W ME-LGIP engine, enabling it to run on traditional fuel oils and Liquefied Petroleum Gas (LPG). Everllence B&W ME-LGIP engines are tolerant to many different LPG configurations and LPG cargo can be used as a fuel source, making this a flexible pathway to meet environmental targets.

Everllence B&W ME-LGIP engines provide the same electronic injection, operation profile, and load response as Everllence B&W ME-C engines. The diesel cycle ensures that gas operation can be maintained during heavy weather and high and low ambient air temperatures.

Your engine rating will remain unchanged and will not trigger a MARPOL Annex VI Tier upgrade. If needed, however, derating and/or power limitations can be included.

To ensure that your engine does not exceed existing applicable emission limits after a dual-fuel retrofit, we will either:

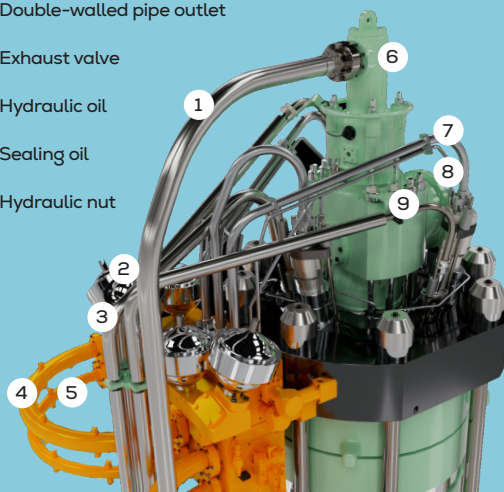
- Ensure the retrofitted engine complies with an existing, fully certified dual-fuel Parent Engine of the same type and design

## LPG FUEL



Liquefied Petroleum Gas (LPG) is a hydrocarbon fuel composed mainly of propane and butane. When compressed into liquid form, LPG occupies far less volume, making it easier to store and transport. As a versatile and efficient energy source, LPG can be used for marine propulsion, offering lower emissions compared to conventional marine fuels and contributing to cleaner, more sustainable shipping operations.

- 1 Fuel booster injection valve
- 2 Hydraulic accumulator
- 3 High-pressure fuel pipes
- 4 Double-walled pipe inlet
- 5 Double-walled pipe outlet
- 6 Exhaust valve
- 7 Hydraulic oil
- 8 Sealing oil
- 9 Hydraulic nut



- Carry out measurements and certification procedures on board to prove the ship's existing applicable emission limits are not exceeded

We issue full installation documentation during the process, which only requires a minimal drydock period and operational downtime.

# Everllence

# PrimeServ

# ME-LGIP retrofit

Sail on cleaner-burning, lower-cost LPG

## Key benefits

- Significant emissions reductions:
- SO<sub>x</sub> (90-97% reduction)
- CO<sub>2</sub> (18% reduction)
- NO<sub>x</sub> (15-25% reduction – SCR is needed for Tier III compliance)
- PM (90% reduction)
- EEXI (20% improvement)
- Proven concept following many successful Everlence B&W ME-LGIP conversions
- Ability to use LPG cargo as a fuel source provides significant cost savings for LPG carriers
- Flexible operation using fuel oil or LPG
- Everlence B&W ME-LGIP engines are connectivity-ready for services such as Everlence PrimeServ ASSIST
- Combustion cleanliness reduces cylinder liner deposits

## Applicability

The technology can be applied to all types of ships with an Everlence B&W ME-C engine. LPG gas carriers are likely retrofit candidates. At the present stage, we can provide Everlence B&W ME-LGIP retrofits for the below engine types. If your engine is not listed, contact us to discuss your options.

- G60ME-C10.5
- G60ME-C9.5
- G60ME-C9.2
- S60ME-C10.5
- G50ME-C9.6

## Scope of supply

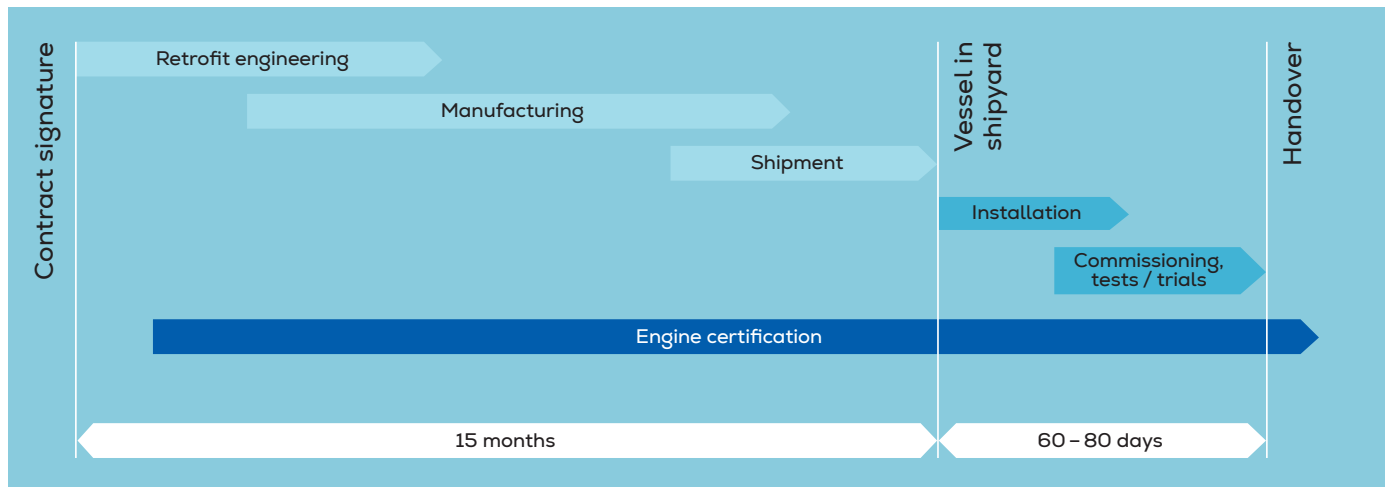
- Research & development
- Engineering
- Procurement
- Delivery
- Installation consultancy
- Test & commissioning consultancy
- Engine recertification
- Project management

## Main modifications

- Cylinder covers with exhaust valves, fuel, and LPG injectors
- LPG control blocks and adaptor blocks
- Sealing oil pipes
- Fuel booster and exhaust valve actuators
- Double wall LPG chain pipes, spool piece, and engine connection flex pipe
- Everlence B&W ME-LGI engine control system (ME-ECS)

The installation of auxiliary equipment such as an LPG tank, LPG supply system, nitrogen system, and ventilation system for the double wall piping is done by the owner, yard, or 3<sup>rd</sup> party EPC.

## Installation process



## More information

Contact your local Everlence PrimeServ office for more information about the product and how the upgrade can improve your specific engine.

## Everlence PrimeServ

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