

HYDROFASTER THE REVOLUTION FOR EVERY INTERNAL COMBUSTION ENGINE

Plug & Play Technology: Zero Modifications, Maximum Impact

HydroFaster is a fully standalone, non-invasive, and 100% reversible system easily integrated with any internal combustion engine, regardless of fuel type (gasoline, diesel, LPG, bio-oil) or architecture (2- or 4-stroke; carbureted or fuel-injected).

Zero Emissions. Regenerated Engines

- Near-zero smoke opacity (K-factor), even on legacy engines
- Progressive decarbonization of combustion chambers, valves, and exhaust systems
- Drastic reduction of unburned hydrocarbons ensuring immediate compliance with tightening environmental regulations

More Power. Less Waste

- Optimized combustion via metered oxyhydrogen ($H_2 + O_2$) injection
- Higher thermal & energy efficiency → same power, less fuel
- Up to **20–30% fuel savings*** (*depending on operating conditions and engine type)

Reduced Maintenance. Extended Service Life

- Gradual removal of carbon deposits
- Lower wear on pistons, piston rings, and turbochargers
- Lower service costs + extended oil-change intervals

Thermal Stability. Consistent Reliability

- Stabilized optimal operating temperature
- Reduced thermal stress → enhanced engine longevity and component durability

Universal Compatibility: One System, Every Application

Suitable for:

- Light & heavy-duty road vehicles
- Buses, trucks, and commercial fleets
- Stationary power generators
- Construction & mining equipment
- Marine propulsion & auxiliary engines
- Aviation (piston-engine aircraft, under evaluation)

Fast Installation. Instant Operation

- Installed in just a few hours
- No structural alterations required
- Fully automated, intelligent control via dedicated onboard electronics safe, smart, and hands-off

Ready to Decarbonize Your Fleet? HydroFaster isn't the future it's today

Technical FAQ (Concise & Direct)

Where is the system installed?	On the air intake side (generators only: connected to the grid). Requires only a Ø4 mm port in the air duct (between air filter and turbo/carburetor) for the silicone hose from the electrolyzer. No welding. No permanent modifications.
Does it require ECU remapping?	No. Zero interaction with the engine control unit. The system is passive: it neither transmits signals, reads parameters, nor alters injection strategies.
Does oxyhydrogen interfere with EGR or DPF/FAP systems?	On the contrary it reduces fouling. Cleaner combustion = less soot and carbon buildup → fewer EGR clogs and fewer forced DPF/FAP regenerations.
How long does installation take?	90–120 minutes on average for a heavy-duty truck. Slightly longer only in cases of restricted access (e.g., raised engines, tight engine bays).
Does the system require maintenance?	Minimal: • Every 15,000–20,000 km: check electrolyte level (distilled water + 15–20% KOH) • Every 60,000 km: replace electrolyte & clean cells (5–10 min) → No filters. No mechanically wearing parts.
Can it cause detonation or pre-ignition?	No. Oxyhydrogen has higher anti-knock properties than gasoline and raises the effective octane rating. Injection rates remain sub-stoichiometric lambda sensor readings and A/F ratio remain unaffected.
Does it work with turbocharged engines?	Yes often with enhanced benefits. Turbocharging poses no interference; HHO is drawn upstream of the compressor and delivered smoothly to the combustion chamber.
What if the customer performs DIY maintenance?	Only require that they do not open the electrolyzer cell. The unit is sealed (IP65 rated), and the kit includes a calibrated refill tool. A QR-code decal links to a 2-minute instructional video.
Is it certified/road-legal?	Currently classified as a non-modifying aftermarket device falling under “gaseous fuel additives” (per Art. 77 of the Italian Highway Code, analogous to certified hydrogen-injection kits). No type approval needed, as it doesn't alter engine architecture. Emissions improve never worsen during official inspections.

TESTING & VALIDATION

Technical Assessment Summary

Test Bench – Certified Report No. 284/18, Maggiali Workshops

Tests on a Perkins 3380/1500 generator (6L, 66 kW) confirm that HydroFaster significantly cuts emissions and fuel use without sacrificing output power.

Parameter	Before	After	Improvement
Fuel Consumption	~20.5 kg/h	~14.4 kg/h	↓ 29.87%
Exhaust Temp	>200°C	<150°C	↓ 40.54%
PM (Particulate Matter)			↓ 24.58%
Smoke Opacity (FSN)			↓ 17.28%
Overall Pollution Index			↓ 23.33%

Conclusion: Certified data confirms HydroFaster delivers rapid ROI for fleets and power generators through direct fuel savings and reduced maintenance, while ensuring regulatory compliance.

SEA TRIAL HYDROFASTER APAPIC-11 ONBOARD M/V JOLLY ARGENTO

Date: May 27–28, 2024
Client: Messina Line S.p.A.
Technology Provider: FERD & Co Ltd

Overview

A successful 24-hour sea trial was conducted onboard the M/V Jolly Argento – a state-of-the-art 4,600-TEU container vessel (built 2023) – testing the HydroFaster APAPIC-11 system on its auxiliary generator. Results demonstrated exceptional gains in fuel efficiency, emissions reduction, and operational reliability.

The HydroFaster unit enhances combustion by injecting on-demand oxyhydrogen (H₂ + O₂), produced via distilled-water electrolysis, directly into the intake air stream. Installation is simple, reversible, and non-invasive: only a 12/24 V power supply and a ≤6 mm port in the air intake are required.

Key Results (After 24 Hours)

Parameter	Before	After	Improvement
Fuel Consumption	3.47 L/min	2.30 L/min	↓ 33.7%
CO Emissions	215 ppm	140 ppm	↓ 35%
NO _x Emissions	568 ppm	528 ppm	↓ 7.0%
Jacket Water Temp	73°C	64°C	↓ 9°C
Noise Level	110–112 dB	102 dB	↓ 8–10 dB
Exhaust Gas Temp	380°C	374°C	↓ 6°C

Note: CO₂ remained stable (5.9% → 5.7%), confirming more complete not over-oxidized combustion.

Environmental & Operational Advantages

- Immediate OPEX reduction + lower CO₂ footprint
- Sharp decline in CO and opacity (soot/particulate indicator) even without catalytic converters or DPFs
- Quieter, cooler operation → extended component life + improved crew working conditions
- Engine decarbonization effect → performance recovery on aged units, delaying costly fleet renewal
- Fully reversible retrofit zero mechanical intervention

Strategic Value for Fleet Operators

HydroFaster delivers rapid ROI especially for high-utilization vessels and aging fleets. By transforming existing engines into cleaner, more efficient units without compromising power or reliability, it directly supports both sustainability targets (e.g., IMO 2030/2050) and cost-efficiency goals all while remaining fully compliant with current and upcoming emissions regulations.

**Scan the QR code to access full test reports
and technical documentation**



**Contact us for a personalized demo
or a complimentary techno-economic feasibility study.**

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