



## Alfa Laval Aalborg EGR-HPE

### High-pressure economizer for EGR waste heat recovery

The Alfa Laval Aalborg EGR-HPE is a unique pressurized boiler for use in an engine system with Exhaust Gas Recirculation (EGR). Developed in close cooperation with MAN Diesel & Turbo, it is specifically designed for the harsher conditions found in the EGR circuit. By taking advantage of higher exhaust gas temperatures, it creates energy savings beyond the Tier III NOx compliance EGR already provides.

#### Application

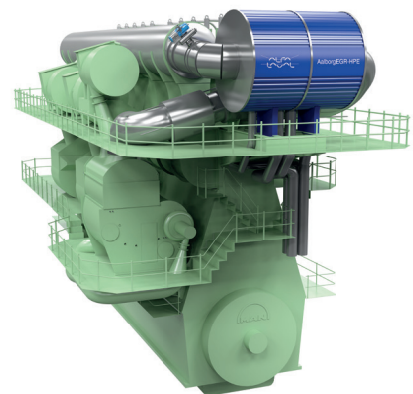
The Aalborg EGR-HPE recovers waste heat energy in the EGR circuit that would otherwise bypass the waste heat recovery system. Because EGR directs around 30% of the exhaust gas back into the engine, only the remaining 70% reaches the traditional exhaust gas boiler after the turbocharger.

As part of the EGR circuit, the Aalborg EGR-HPE actually recovers more energy than was previously possible. Enclosed in a pressure casing and placed in-line before the EGR pre-spray jets, the Aalborg EGR-HPE has access to much higher temperatures than a traditional economizer. It can therefore increase overall efficiency in multiple ways (see reverse).

#### Benefits

The Aalborg EGR-HPE has a minimal footprint and is fully integrated with the engine already at the engine manufacturer. Light, compact and self-cleaning due to the high speed of flow, it turns compliance into profit by securing:

- High-quality service steam
- Steam temperatures of 400°C
- Greatly increased turbine power generation
- Effective waste heat recovery at lower engine loads

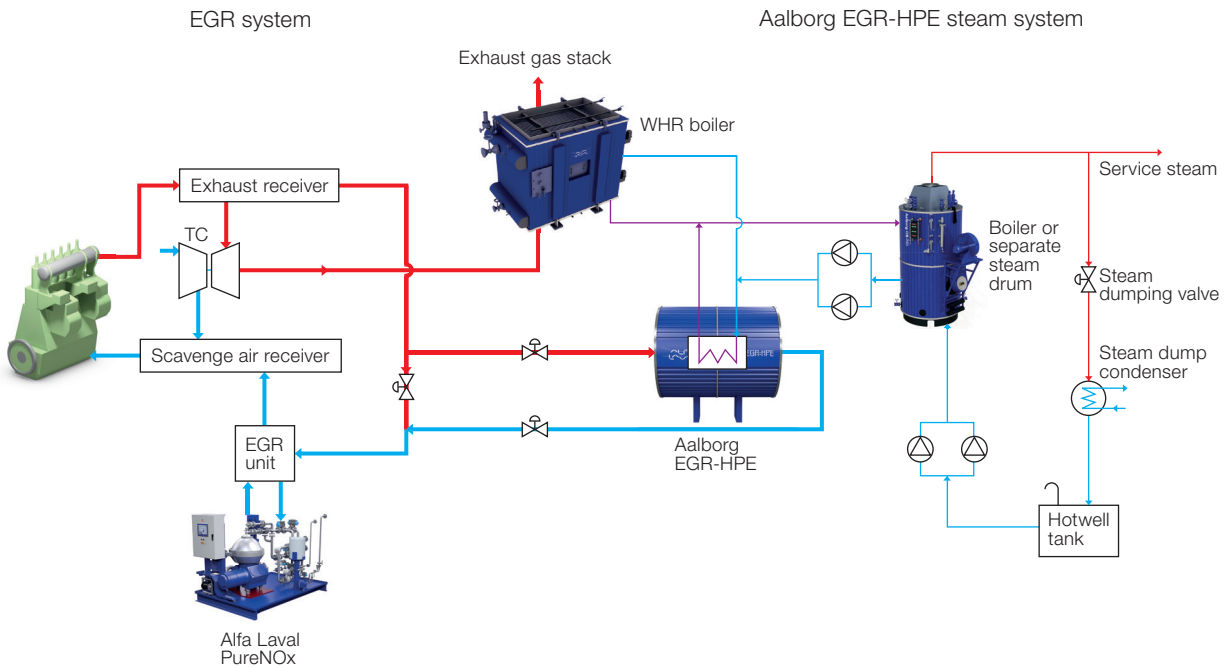


# Configuration examples

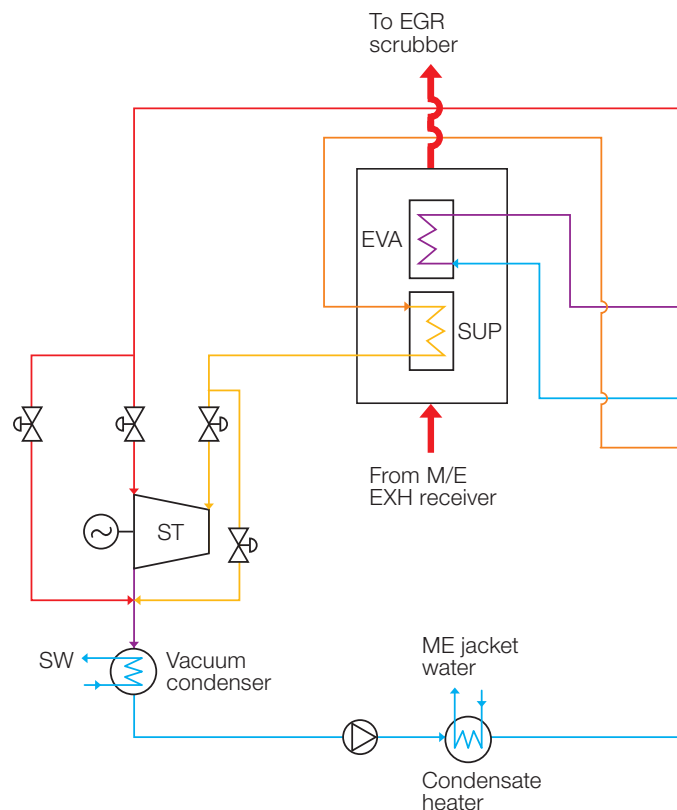
## Producing service steam

The Aalborg EGR-HPE can be used as a complement to the traditional boiler/economizer in the production of service steam. In this case, the Aalborg EGR-HPE comprises only

the evaporator section. The result is additional saturated steam comparable to that from the traditional economizer, but with a very easy and cost-efficient installation.



EGR economizer (Aalborg EGR-HPE)



## Aalborg EGR-HPE integration

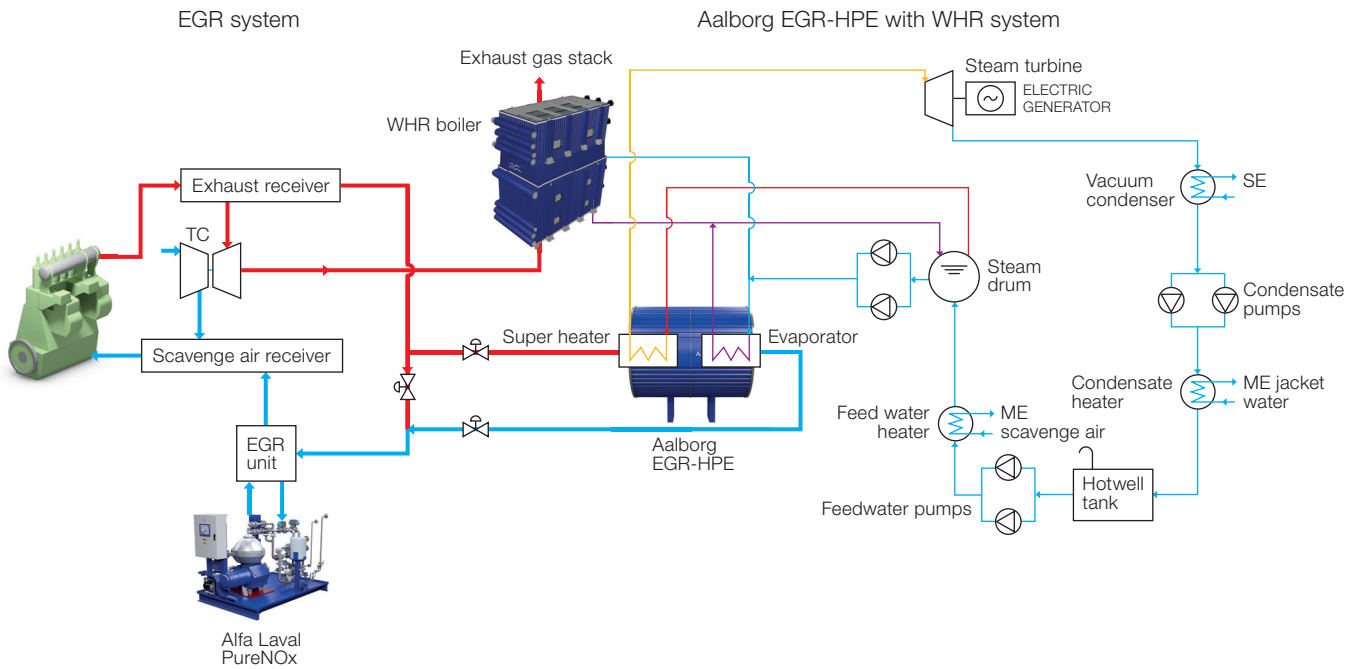
When the Aalborg EGR-HPE is integrated into steam production, the system can be built to take full advantage of all heat energy from the exhaust gas. Not only will this reduce fuel consumption and carbon footprint, it will also ensure that the other steam producers receive an optimized design. Alfa Laval can manage the entire process from design to production, ensuring perfect integration of the Aalborg EGR-HPE into service or superheated steam production.

An example of Aalborg EGR-HPE integration into the waste heat recovery (WHR) system can be seen here.

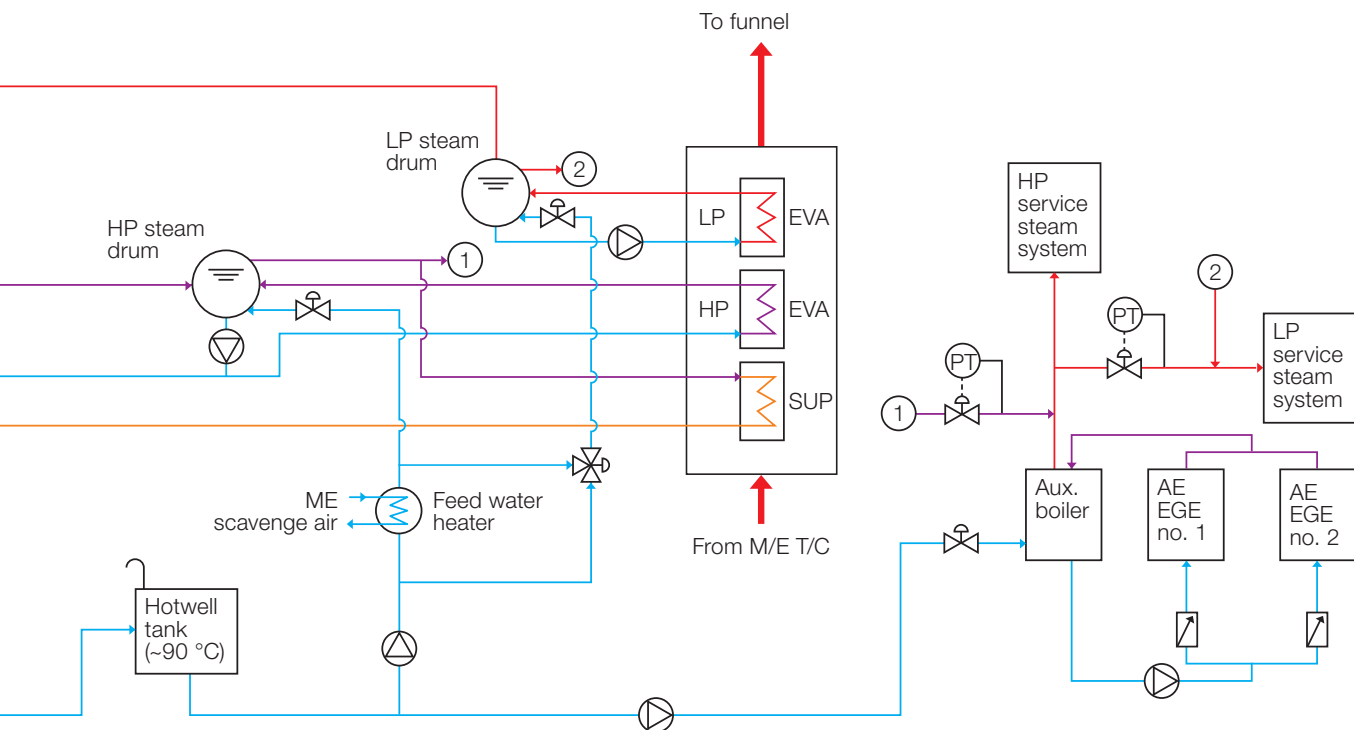
### Boosting waste heat recovery

The Aalborg EGR-HPE can be integrated with the traditional waste heat recovery (WHR) system by means of a shared steam drum. With the output of the traditional economizer feeding into the shared drum, the Aalborg EGR-HPE

produces extremely high-quality steam that increases the performance of the steam turbine. This makes waste heat recovery beneficial at lower engine loads, creating the possibility of even slower steaming.



Dual pressure WHR economizer (Aalborg XW-TG)



Alfa Laval reserves the right to change specifications without prior notification.

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**How to contact Alfa Laval**

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