

## Prevention of soot fires

*Keeping the economizers clean will result in a longer lifetime of the plant, better operational economy and most importantly avoiding the risk of soot fires. Aalborg Industries recommends installing Ecoclean and Ecomon equipment to facilitate daily maintenance.*

### General

Operating in the tough marine environment, shipowners need to protect their valuable investments and ensure efficient operation of their fleet.

Aalborg Industries has the solution to the growing problem of soot fires in exhaust gas economizers.

The problem has prompted some classification societies - like Norway's Det Norske Veritas - to add further requirements to their rules for boiler/economizer installations on new ships. Such measures are expected to contribute to



*Soot fire raging from the stack.*



*Melt down as a result of soot fire.*

a more active involvement of boiler-makers, ship designers, shipbuilders and shipowners towards increasing safety onboard.

Once rare, fires in exhaust gas boilers and economizers have become a worrying and costly problem -

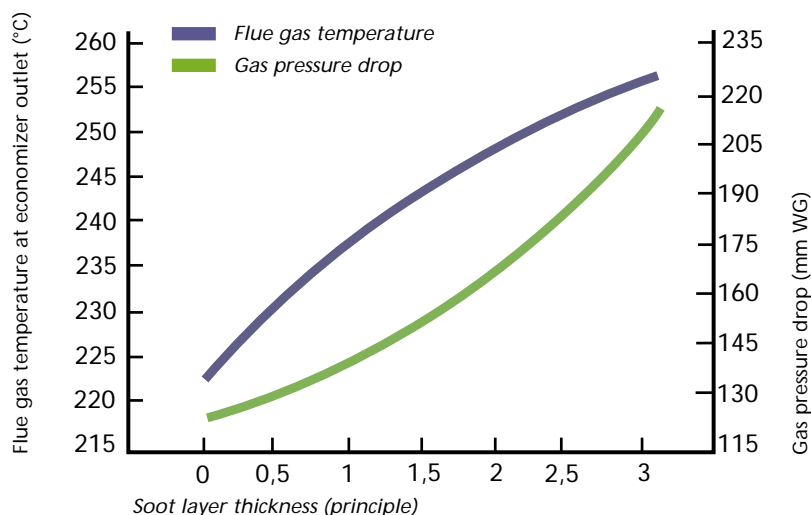
having increased by a staggering percentage and affecting all types and makes of exhaust gas economizers.

The underlying causes of the increase in soot fires are linked to a growing reliance on cheaper, low-grade fuel oils, resulting in more soot in exhaust gases. Another problem is the growing number of long-stroke diesel engines, which calls for larger quantities of lubrication oil, also adding to the soot build-up.

### Ecoclean and Ecomon help keep your economizers clean

Aalborg Industries has the solutions to minimise soot deposits and prevent damaging and expensive fires. At the heart of this are the Euroclean and Ecomon systems. Both systems are made to fit any type of exhaust gas boiler. The equipment is generally offered for installation on new boiler plants but unfortunately often decided

*Effects on flue gas temperature and gas pressure drop in an economizer with soot deposits.*



*The soot layer thickness has a direct effect on pressure drop and economizer outlet temperature.*

against by the shipyard, later to be regretted by the shipowners and ship managers. Fortunately, however, the systems are easy to install and operate.

**The Ecoclean**

Spray nozzles mounted on fixed pipes ensure efficient cleaning of the heating surface. Installed at the economizer's top, the system flushes away any soot deposits that may litter the tube bank.



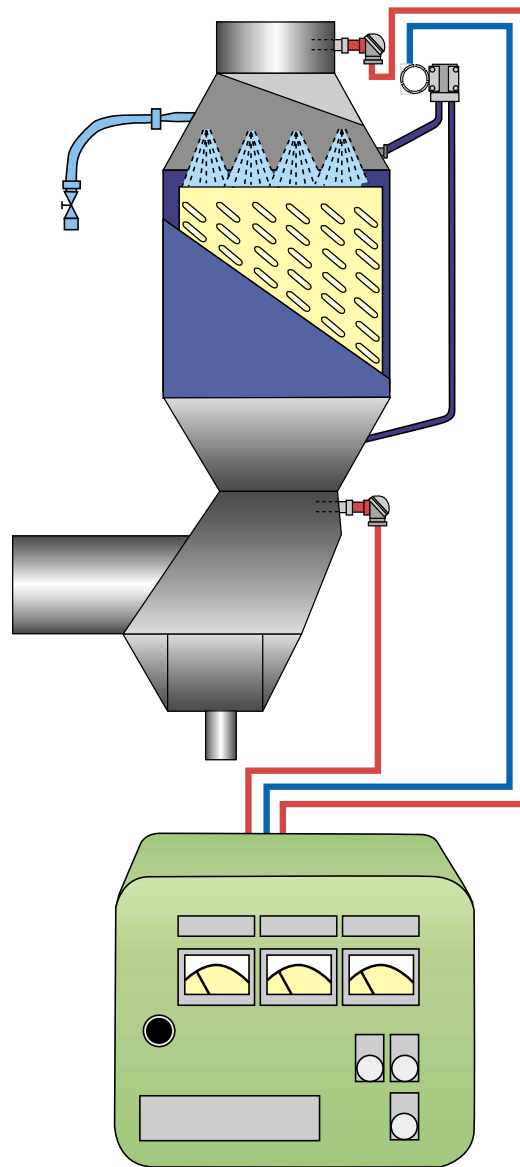
*Cleaning of heating surface highly overdue.*

The Ecoclean is used after the engine has been stopped, while the circulation keeps the economizer hot. When the washer operates, soot deposits crack from the tubes, bringing back the clean, metallic surface.

**The Ecomon**

The Ecomon continuously measures pressure and temperature differences across the economizer, indicating the best time for cleaning. It is a precision device that eliminates excessive use of steam for soot blowing, thus slashing operating costs while increasing security onboard.

Damage prevention is vital because once an economizer is impaired, the only remaining option is to start up an oil-fired boiler, which – still not counting the off-hire time – will be expensive.



Benefits of Ecoclean and Ecomon	
Short-term	Long-term
<ul style="list-style-type: none"> <li>■ Fire prevention by efficient monitoring and cleaning</li> <li>■ Maintained economizer efficiency</li> <li>■ Less manual maintenance</li> <li>■ Low cost and quick installation</li> <li>■ Simple operation</li> <li>■ No additives</li> </ul>	<ul style="list-style-type: none"> <li>■ Reduced off-hire time</li> <li>■ Improved operating economy</li> <li>■ Better standing with insurers</li> </ul>