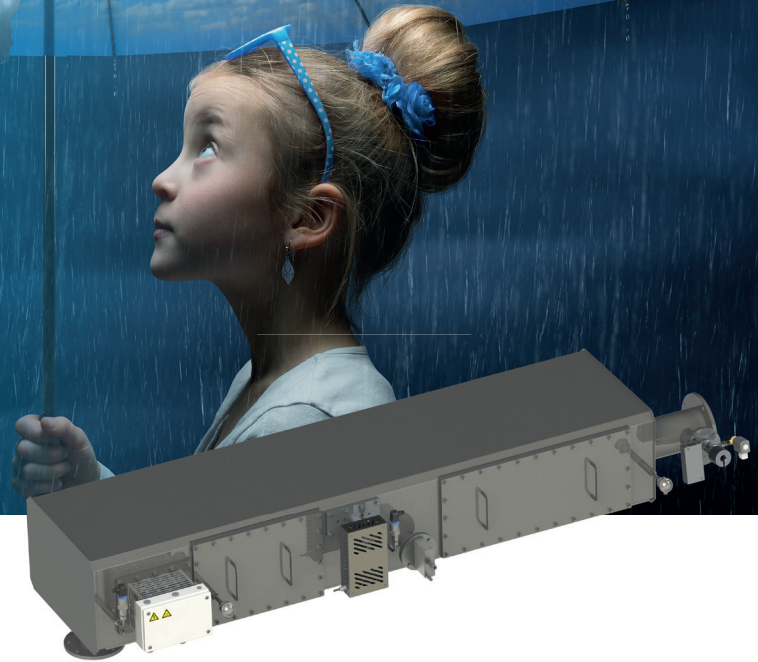


# XEAMOS

# DEATS EH

## Reducing emissions together



## DEATS EH

### Dual Exhaust After Treatment System with Electric Heater

Harmful NOx emissions in diesel exhaust gases are limited by the IMO Tier III legislation that is mandatory in NOx Emission Control Area's (NECA's). The coastal waters of North America and the Caribbean are designated NECA's for yachts above 500 GT when the ship's keel is laid after January 1st, 2016. More NECA's are expected in the near future.

Our unique "All-in-one" DEATS system consists of a combined silencer/catalyst housing with an integrated DPF and SCR system. The DPF is always mounted in front of the SCR to use the exhaust gas temperature for optimal working of the DPF and reduce NOx afterwards in the SCR.

- IMO Tier III certified in combination with various engines, for both refit and new build.
- An automatic safety bypass allows 100% engine availability.
- In practice VIP guests will not experience particulates on deck, common diesel fuel in swimming water and the smell of diesel fuel.
- Compact size. As the urea injector and mixer are integrated in the catalyst housing, the overall installation length is much shorter than any other DPF/SCR combination.
- In-house designed electric heater for regeneration of DPF.
- The intelligent PLC controlled regeneration system ensures a trouble-free operation of your filter system.

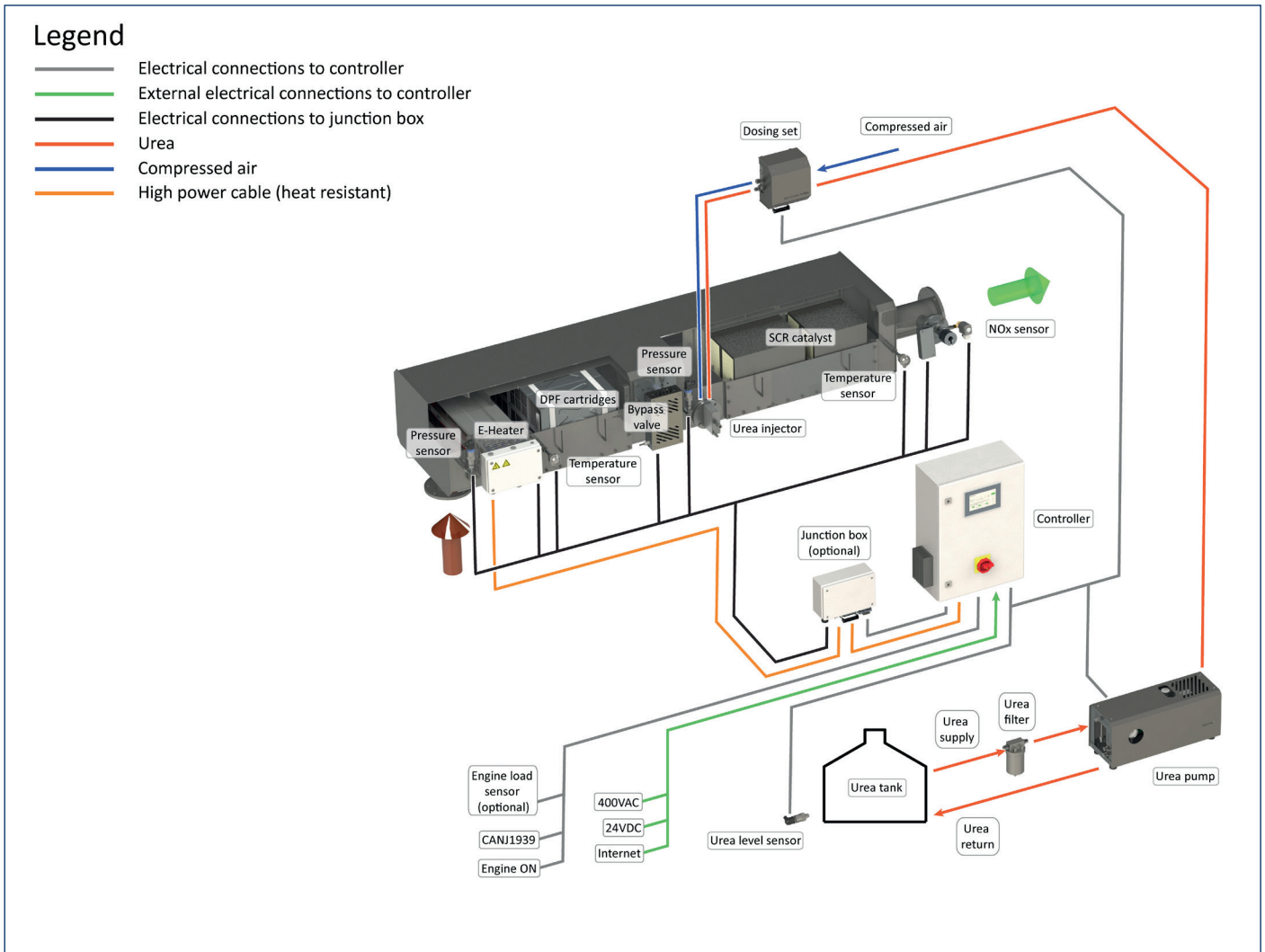
#### System certification

XEAMOS systems are supplied with the required General

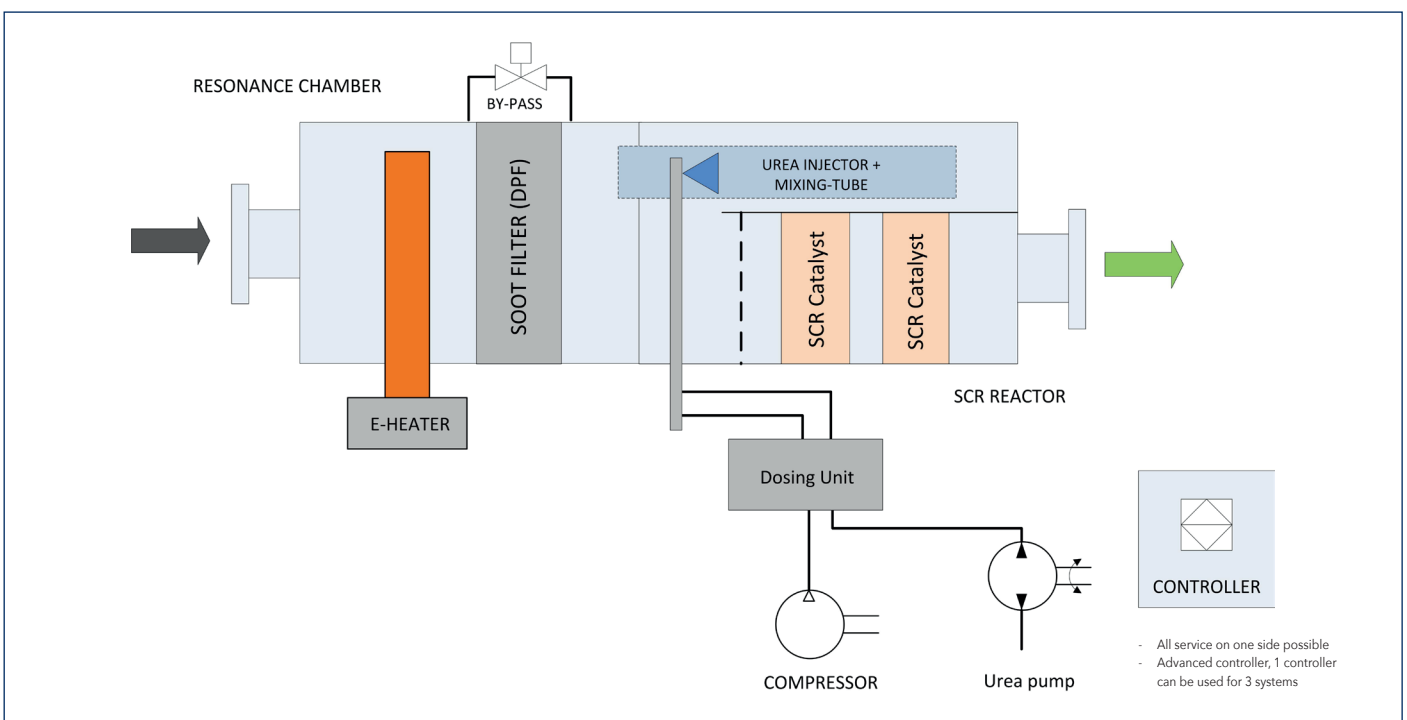
Design Appraisal (GDA) and IMO Tier III EIAPP certificates. We hold and maintain multiple IMO Tier III certificates for various engine types. E-heater has type approval. Please consult Xeamos for available certificates.

#### Main Features

- Compact design.
- Active regeneration by electric heater.
- Load bank function.
- Harbour mode function for maximum HC reduction (diesel smell) even at low generator loads. The e-heater is activated to run the generator at higher rating and also modulation of e-heater is possible, balance is searched for by the smart system in several steps to find optimum heating vs used power.
- Lloyd's Register approved.
- Safety By-pass valve for 100% engine availability.
- Integrated sound attenuation function.
- Advanced controller.



Lay-out of a DEATS EH system.



Process schematic of a DEATS EH system.

## Operational conditions

Application	Super yachts and maritime
Exhaust system	Suitable for dry or wet systems
Environment	Engine room, clean
Degree of Protection	IP55
Relative humidity	5 to 95% Non-condensing
Inspection & service interval	Approximately 1x per year (normal conditions)
Urea nozzle type	2-phase nozzle, compressed air atomization
<a href="#">Urea</a> specification	AUS32 or AUS40 or equivalent
Network	TNC recommended, IT also possible

## Supplies

Fuel	EN590 (Diesel), DMA, DMX, max 2000 ppm sulphur
AC Power supply	3 x 400 VAC (4 wire)
DC Power supply	24 VDC - 10A (uninterrupted)
Ambient Temperature	-20 + 55°C
Compressed air for urea atomizer	8-12Nm <sup>3</sup> .h @min 6 Barg

## Design data

Materials	Reactor housing: Alloy steel Burner tube and shields: High heat resistant steel
Surface treatment	High temperature coating
Max system pressure	150 mbar (reactor design) - design temperature 520°C
Pressure drop (ΔP)	Approximately 30-40 mbar, clean without soot and ash
DPF type	SiSiC
Coating	SX, PX, ZX (ULSF only)
Emission reduction	NOx ca. 80% to reach IMO III Tier limit of 2 g/kWh
Operational temperature	>220°C (EN590 fuel) >250°C (max 2000 ppm sulphur)
Control strategy	Closed loop with NOx sensor
Supports	Bottom - standard, optional top
Thermal insulation	Blankets or cladded insulation (by customer)

## Legal requirements and standards

Standards	EMC directive 2014/30/EU Machinery directive 2006/42/EC Low voltage directive 2014/35/EU Thermo processing EN 746-2
Classification	Lloyds Register

## System parts

Controller	PLC with full colour HMI, super yacht standard (acc. to LR requirements) - Inputs: engine load, engine on - Outputs: System ON, Alarm, MOD bus - Datalogging - Remote access prepared
Reactor Housing	Flat rectangular shape to reduce overall volume. Contains DPF and SCR module(s).
Electric heater	In-house developped cartridge heater with modulating control
Urea dosing unit	Controls urea and air flow
Urea pump set	Pressurizes urea. Can feed multiple dosing systems
Urea injector	2-phase urea injector, air assisted
Sensors	Temperature & pressure transmitter
Wiring	Wiring by yard on terminals and connectors

## Performance

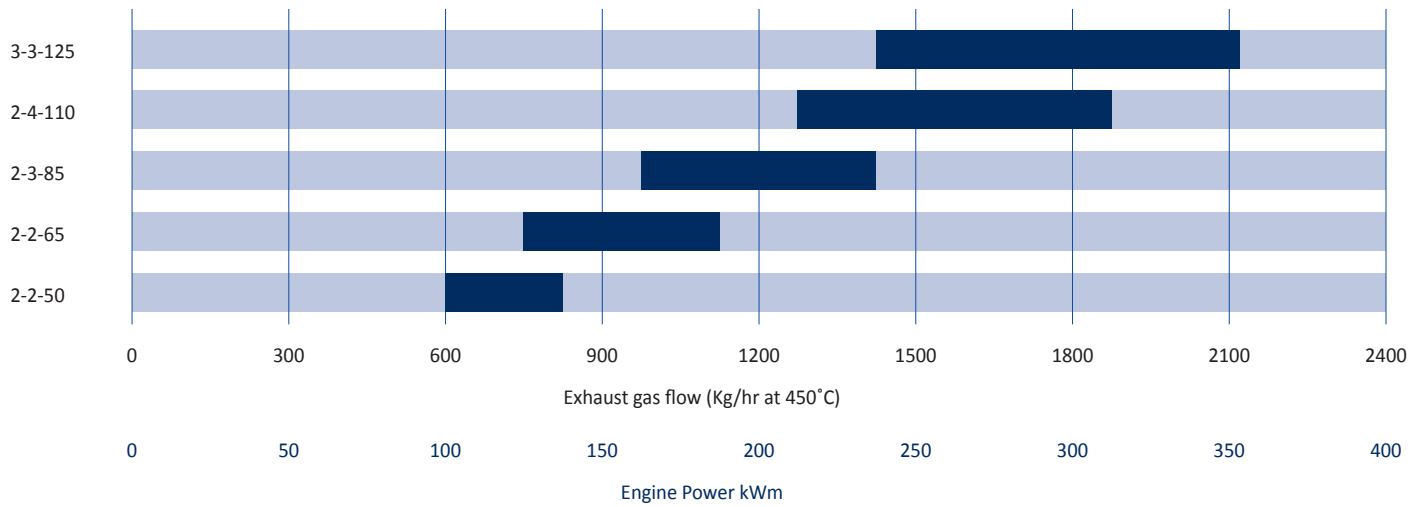
NOx - Nitrogen oxides	> 80 - 90% reduction
PM (measured as PM 10)	> 97% reduction
Sound attenuation	35 - 40 dB(A)
HC/CO	up to 70%

## Optional

- Various catalytic coating for increased HC reduction at low exhaust temperatures
- [Remote access](#) via LAN accessible for diagnostics/remote Services
- Alternative power supplies
- Alternative in- and outlet positions and flanges
- Mirrored version
- Anti-vibration dampers
- Extended warranty
- Complete exhaust system
- NOx sampler

\* Ask Xeamos for advice regarding available catalytic DPF coatings

## Dual Exhaust After Treatment System - Electric Heater



*For indication only, please contact us for exact unit selection or custom solutions.*

*Please consult Xeamos for system sizes 2-4-110 and larger. Application is limited by engine type and fuel type.*

*Bars in graph correspond with 25-40 mbar pressure drop.*

### System selection

To configure your system we ask you to submit the following information.

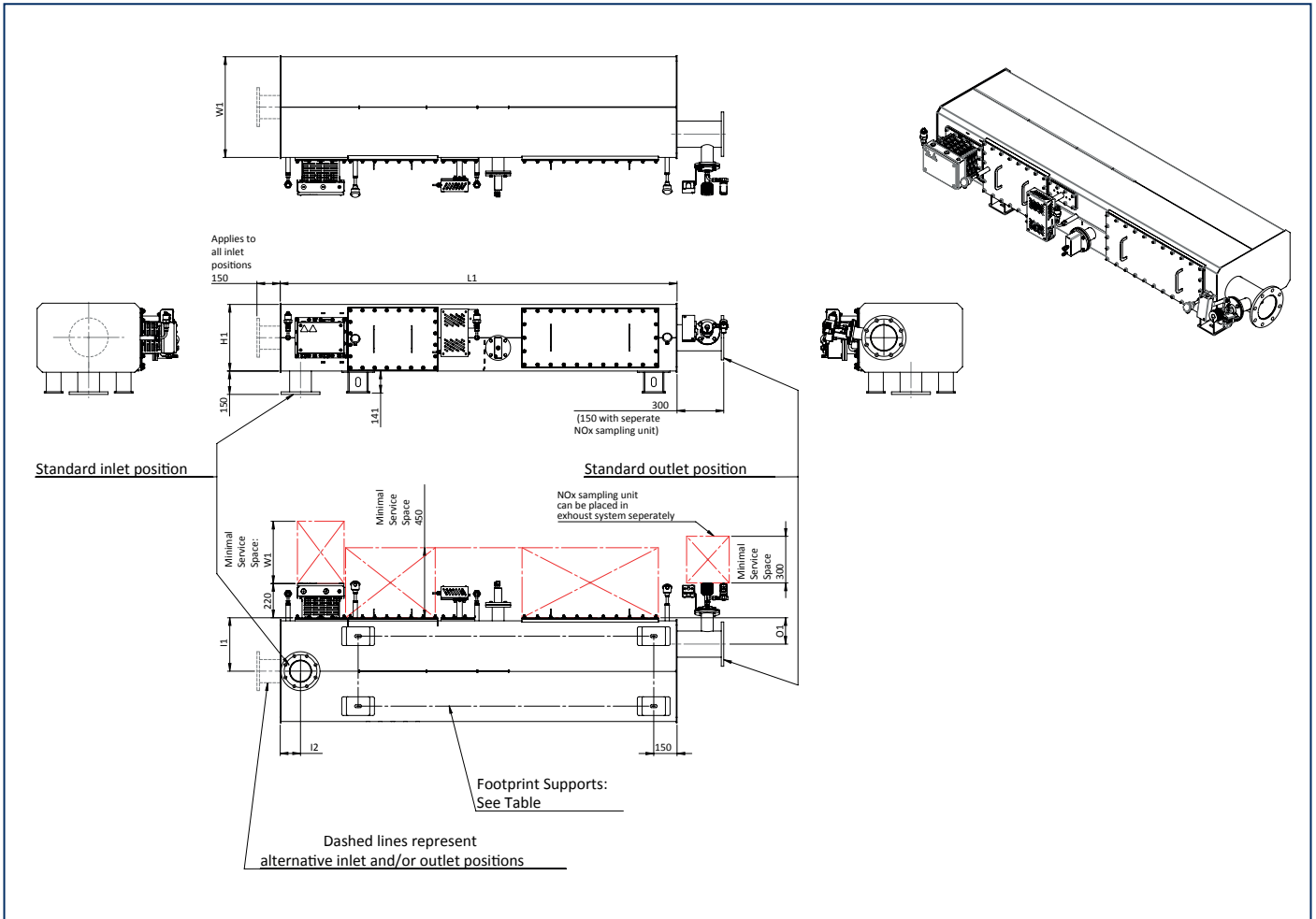
Engine model and power	kW
Engine certification	IMO I / II / other
Exhaust	system wet / dry
Available backpressure	mbar
Running hours per year	hours
Average engine load	%
Lube oil consumption	l/h
Fuel type	

### Separate DPF and SCR units

In case a compact solution does not fit in your engine room, a more traditional system can be offered. A separate Zero Soot DPF unit and a Zero NOx SCR unit are then installed in line, connected by the exhaust piping.

## Dimensions & options DEATS EH system

Type	DPF volume	E-heater	Flanges EN1092 PN10		Hot surface	L1	H1	W1	I1	I2	O1	Supports	Weight
	liter	kW	In	Out	m <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	kg
2-2-50	50	30	DN125	DN150	4,7	2350	435	595	298	130	165	1900x310	500
2-2-65	66	40	DN125	DN150	6,4	2770	435	680	340	130	165	1900x450	630
2-3-85	83	50	DN150	DN200	7,4	2600	428	831	410	130	245	1900x620	720
2-4-110	108	60	DN200	DN200	8,9	2600	435	1074	540	150	320	1900x860	900
3-3-125	124	60	DN200	DN250	9,7	2700	590	847	423	150	245	2300x620	1090



Note: This drawing is preliminary & provided for reference only and is not intended for installation purpose. Contact us either your local distributor for detailed information.

