

LARCH

Burn/Dry System

The LARCH burner system has been especially designed by DAS Environmental Expert for the point-of-use treatment of waste gases from MOCVD processes in the LED industry and for the EUV processes. It is capable of treating large flows of hydrogen and ammonia as well as small flows of metal-organics and dopants.

LARCH is our Point-of-Use waste gas abatement system especially designed for MOCVD and EUV processes. It is capable of treating large flows of hydrogen and ammonia as well as small flows of metal-organics and silan, which are typically found in common MOCVD and EUV processes.

Low investment and operating costs, simple, robust design and low environmental impact (no CO₂ emissions, minimum NOx emission) characterize **LARCH**. The maintenance interval exceeds six months.

Basic Features

- › Power Supply: 3 x 400 V/50 Hz or 3 x 208 V/60 Hz
 - › Process-Tool-Interface
 - › Signal Tower
 - › Drip Pan
 - › Earthquake Safety Kit
 - › Air Cooling or Water Cooling
 - › Ethernet Interface
 - › SEMI S2 Certification
 - › Redundant glow plug technology for stable combustion
- › Also available as IPAS Solution
(Integrated Pump and Abatement System)



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Operation Principle

The waste gas, consisting mainly of hydrogen and ammonia, is first heated, which leads to pyrolysis of the ammonia ($2\text{NH}_3 \rightarrow \text{N}_2 + 3\text{H}_2$). The hydrogen is then ignited by electrical heating elements and burned with the oxygen of the ambient air drawn into the reactor. The reaction enthalpy that is released is now used to heat up the subsequent waste gas.

The remaining thermal energy is dissipated from the clean gas either in a heat exchanger or with air cooling before discharge. The reaction products are nitrogen and gaseous water. The exhaust gas can now be released into the environment without any further treatment as they meet the standards of the German air pollution law (TA Luft).

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Technical Data

	LARCH
Dimensions (W x D x H)	1350 mm x 1050 mm x 2000 mm (without exhaust piping)
Process Gas Capacity	H ₂ up to 350 slm + NH ₃ up to 100 slm Only H ₂ : up to 500 slm Only NH ₃ : up to 250 slm
Exhaust	-8 to -10 hPa, ~ 1200 - 4500 m ³ /h (depending on required exhaust temperature)
Heat Load from Waste Gas (H ₂ + NH ₃)	< 100 kW
Emissions	H ₂ exhaust concentration < 10 % LEL NH ₃ exhaust concentration < 30 mg/m ³
Max. Gas Entry	DN 40 (1-2 Inlets)
Gas Outlet	DN 300

