

# Nuclear Plant

Noise insulation packages

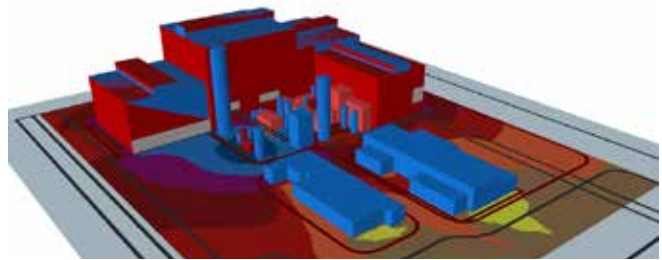
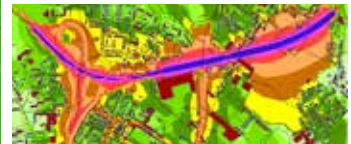
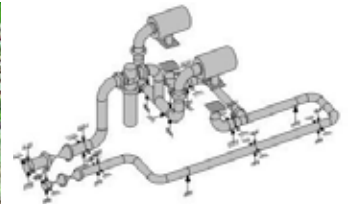
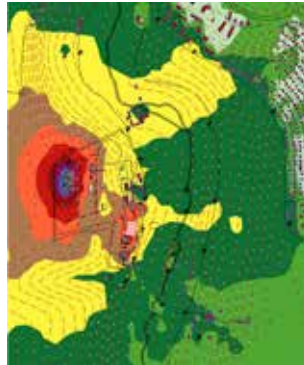
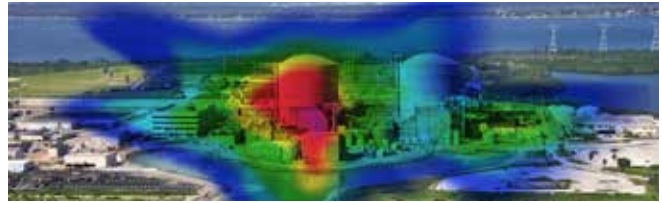


# Boët Stopson capabilities

Global supply for nuclear power plant

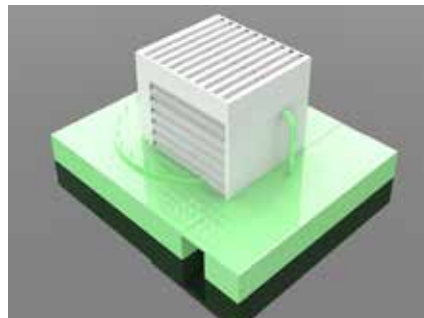
## 1 - Noise survey

- Mapping service
- Acoustical analysis
- Acoustical pulsations and vibrations
- Analysis in piping systems
- Acoustical filtering technics
- Pressure and thermal loads analysis
- Simulations of noise treatment solutions



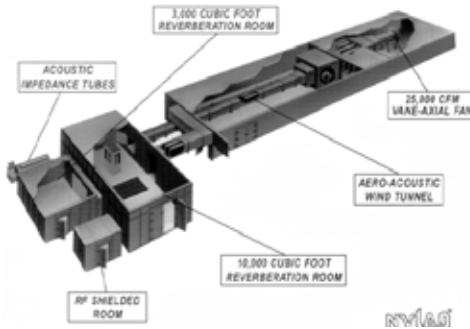
## 2 - Acoustic treatment

- Steam vent silencers
- Air intake and discharge silencers
- Machine enclosures
- In line silencers
- Gas vent silencers
- Doors, Louvres...
- Diesel engine exhaust gas system
- Engine air intake system
- Filtering system



# 3 - Engineering & design

## Research Centre



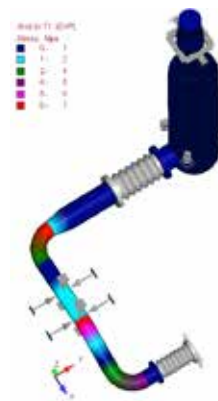
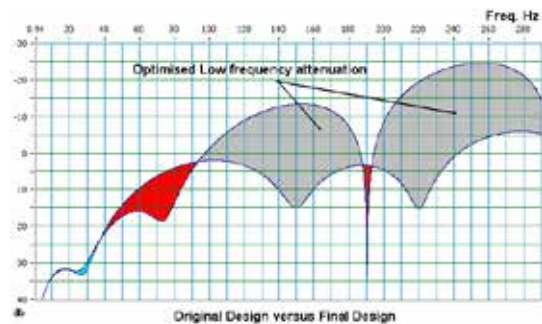
## Acoustic and mechanical design of diesel & gas engines exhaust systems

By means of an acoustical plane-wave simulation model, the low frequency acoustical performance of the exhaust silencer is optimised using acoustical filtering technics.

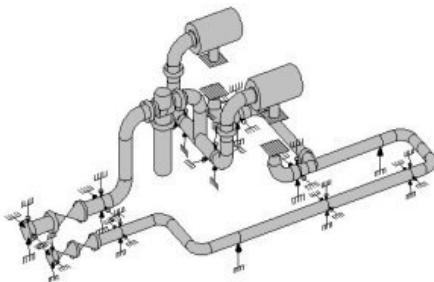
This simulation also addresses the flow pressure drops which contribute to the system overall performance.

Using a FE analysis, the mechanical design of the supporting including the flexible mounts and the expansion joint is optimised against the following loading:

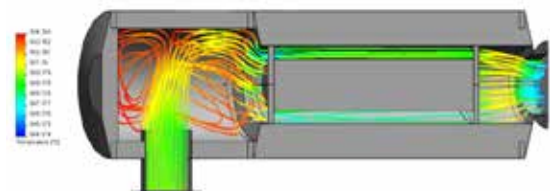
- Gravity
- Thermal expansion
- Engine vibration excitation
- Fatigue, operation and proof "G" loading for transportation application
- Seismic load for standing application



### Boët Stopson's full piping simulation



### Boët Stopson's thermic and aerodynamic simulation



Engine and compressors  
Mechanical and pulsating studies

Acoustical and thermal studies

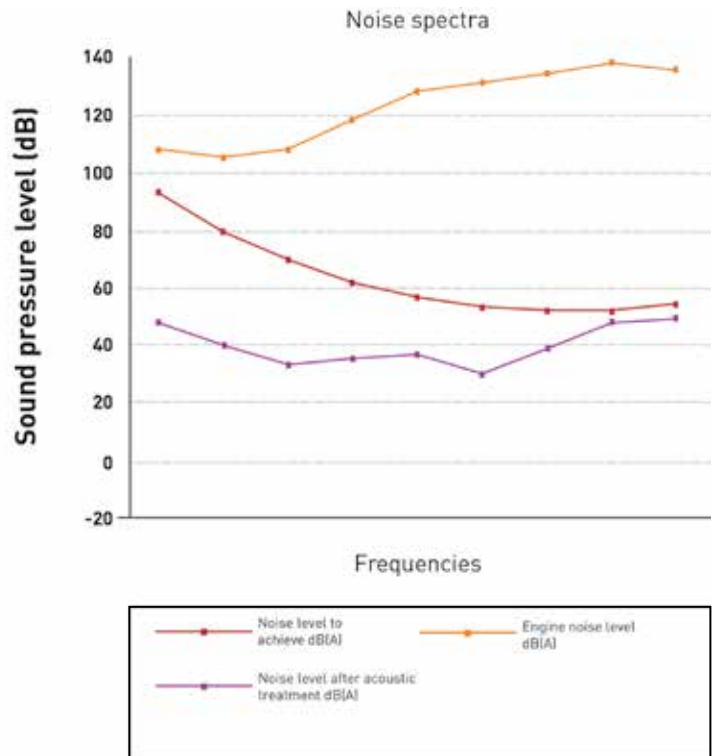
# Challenges to be overcome by Boët Stopson

**Deliver environmental and functional design . A facility to warranty efficiency and reliability of back up cooling system for nuclear reactor.**

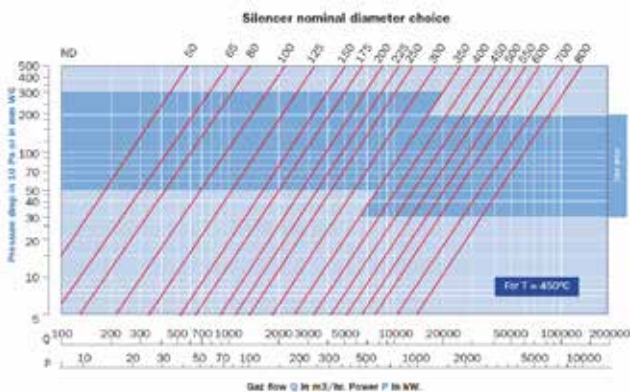
## Boët Stopson value proposition

**Designing, manufacturing and supplying noise insulation package with functionality and performance meeting following criteria:**

- Designed and built to deliver long life modular solutions without compromising quality
- Manufactured in France with the capability to locally source from design through to final acceptance
- Competitively priced solutions driven by lean manufacturing,
- Having the resources to measure and validate as installed performance ensuring fit for purpose.
- Ranking functional safety: IPS NC, seismic classification : 0,40 g
- Resistance to a shock wave, tornado
- ISO 9001 compliance
- Eurocode, B2 according CODAP 2005, electrical Standard : IEC



## Boët Stopson Acoustics design optimization



# Complete noise insulation packages

Routing for air intake and exhaust gas with :

- Air filter box
- Pipeworks with expansion joints and mounting
- High attenuation silencer



- Optimized design
- Fully integrated

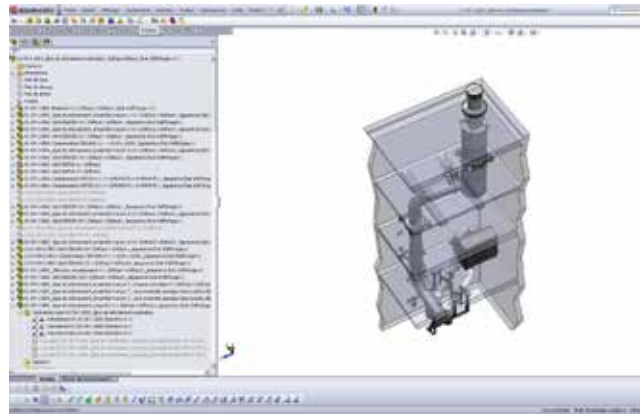
# Boët Stopson project team from order through handover

Boët Stopson as a reliable vendor for complete noise insulation packages with a proven track record with many companies in the nuclear .

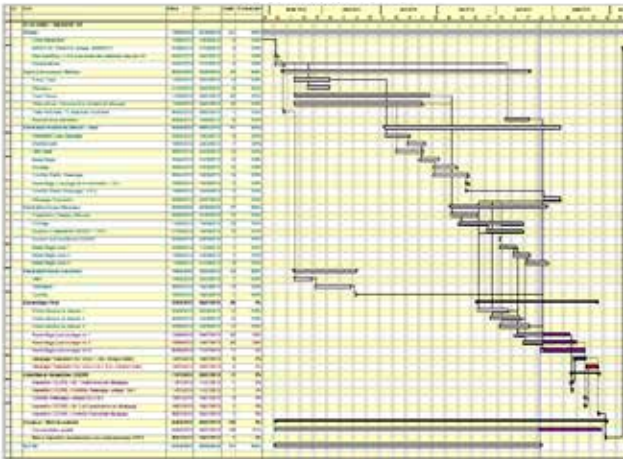
French project management and manufacturing presence, delivery and service capabilities:

## Boët Stopson Design to Cost Process

## Design



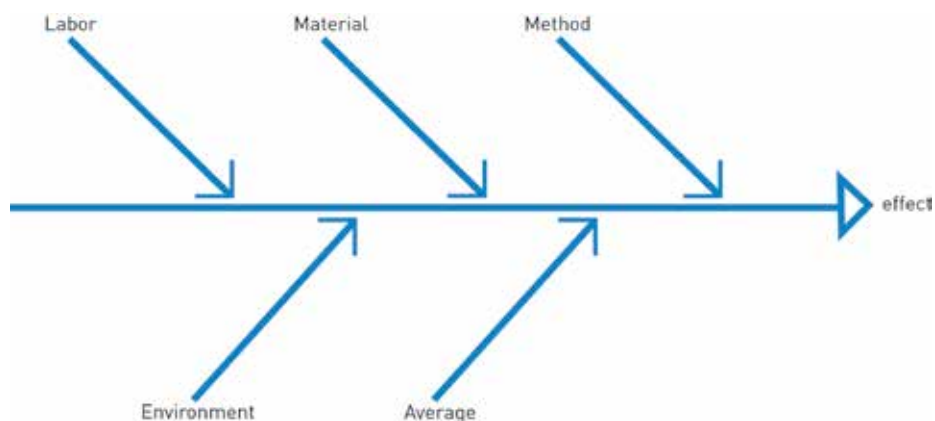
## Schedule



## Manufacturing



## Quality



# Boët Stopson track record - nuclear and power generation

Plant/final customer	Application	Description	Delivery Date
Flamanville, Tricastin, Dampierre, Gravelines, Le Blayais, Paluel, Cruas, Creys, Malville	Relief Valve	Design, engineering and manufacturing of vent silencers for Nuclear Power Plants	1976 to 2010
Finland Olkiluoto	Diesel Engines	Design, engineering and manufacturing of 2 Air Intake Silencers	2008
Flamanville 3	Diesel Engines	Design, engineering and manufacturing of 2 Air Intake Silencers and Exhaust Silencers	2009
Flamanville	MSVR Valves	Design, engineering and manufacturing of 4 GCT Atmospheric Vent Silencers	2010
Fuqing	Relief Valves	Design, engineering and manufacturing of 8 in line Silencers	2010
Lungmen 6 Taiwan	Diesel Engines	Design, engineering and manufacturing of 5 Air Intake and Exhaust Silencer	2002
Tarapur India	Diesel Engines	Design, engineering and manufacturing of 4 Exhaust Silencers and associated piping	2003
Kudam Kulam India	Diesel Engines	Design, engineering and manufacturing of 20 Air Intake and 10 Exhaust Silencers	2004
Lungmen 6 Taiwan	Diesel Engines	Design, engineering and manufacturing of 6 Air Intake and Exhaust Silencers	2008
Lungmen 7 Taiwan	Diesel Engines	Design, engineering and manufacturing of 2 Air Intake and Exhaust Silencers	2008
Flamanville 3	Diesel Engines	Design, engineering and manufacturing of 8 Air Intake and 4 exhaust Silencers	2009

# Comprehensive noise control solutions for power and energy market

