jeremias

DataFlue System

The Exhaust System for Data Centers you Trust

jeremias

DataFlue System

Content

The global leader in the design and manufacture of Flue & Chimney Systems for Data Centers

More than 50 years' experience consolidate our global leadership.

Specialised in **manufacturing Pre-Fabricated modular stainless-steel** Exhaust Systems and **Freestanding Industrial Chimney Stacks.**

We are specifically dedicated to **large infrastructure and commercial buildings** providing exhaust solutions to **Generator sets, DRUPS** and large **boilers** with our high temp, high pressure exhaust systems for a safe discharge. Jeremias Group has **over 50 years of experience**. Founded in Germany, the company now has **10 production sites** in total 9 in Europe including the UK and 1 in North America and is represented in more than **60 countries worldwide.**

Jeremias is a world renowned in the Data Center industry providing the factory-made stainless-steel exhaust systems as well as freestanding industrial chimney stacks for the exhaust of the Emergency standby power Generator Sets.

The Jeremias Group offers **technical support during all the different project stages**, providing calculation and design in various formats including Revit MEP BIM compliant format.

The Jeremias Group has experience in Data Centre buildings and **can provide project references worldwide.**

> "We are the unique producer with sufficient production capacity to meet the delivery deadlines demanded by the Data Center sector. Jeremias provides the highest quality products to ensure optimal performance and safety.

60
Sales Network in 60 countries

150K
Biggest product portfolio of the market

10
10 production plants

1.900
More than 1.900 staff menbers

Jeremias, the data center partner you trust

With the growing number of projects in the Data Centre sector, **Jeremias has expanded its metal construction capabilities to complement our chimney systems in the most demanding applications.** This development enables us to deliver **static structures** and **special constructions** tailored to the needs of our international clients.

At Jeremias, we **specialize in steel chimney systems and all associated components** downstream of the **energy source**. Beyond traditional chimneys, we design, manufacture, and install **flue gas ducts, silencers, expansion bellows, and much more.**

Thanks to our **modular and prefabricated approach,** we are able to offer the most suitable solution for each project—whether it requires freestanding windshields, mast-supported flues, or custom-engineered assemblies.

Our mission is to **secure the future of our company through sustainable growth, continuous innovation, and a team of highly qualified and motivated professionals.** Customer focus remains our top priority. We take pride in long-standing partnerships—both domestic and international—built on trust, fairness, and collaboration.

Modular and Prefabricated

The prefabricated nature allows for modular implementation, significantly **reducing construction time** and enhancing the **accuracy of installations.**

High Pressure Tightness

The inner pipe maintains **tightness up to 15,000 Pa**, ensuring superior performance and safety.

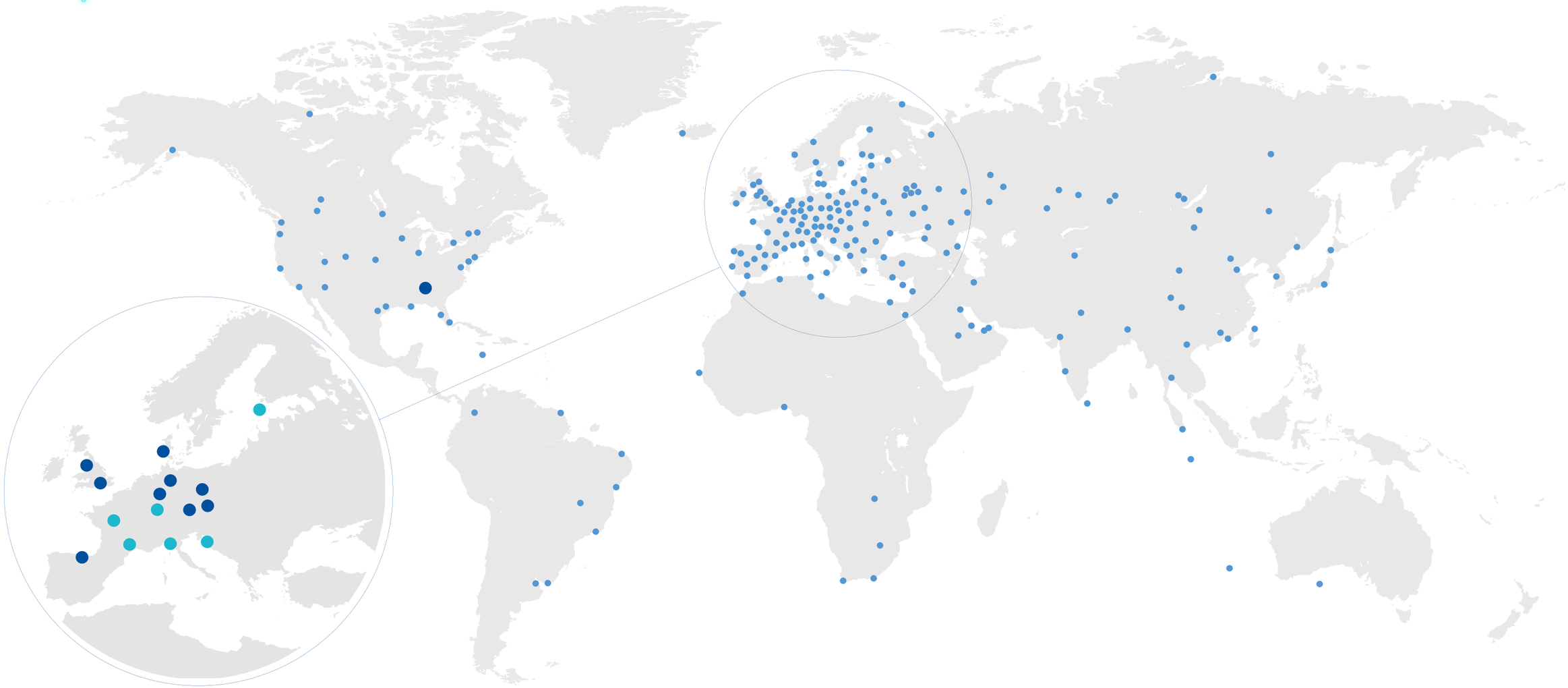
Pre- insulated

Equipped with a **minimum of 50mm high-density** rigid mineral wool, the system can withstand **working temperatures up to 600 °C.**

Pre-Cladded with Stainless Steel

Engineered for durability, the high-grade stainless steel cladding offers **exceptional corrosion resistance,** while significantly reducing construction time and **enhancing the overall quality of installations.**

YOU CAN FIND US WORLDWIDE



1. SPAIN
www.jeremias.es

2. GERMANY
www.jeremias.de

3. FINLAND
www.jeremias.fi

4. CROATIA
www.jeremias.hr

5. USA
www.jeremiasinc.com

6. ITALY
www.jeremias.it

7. FRANCE
www.jeremias.fr

8. POLAND
www.jeremias.pl

9. CZECH REPUBLIC
www.jeremias.cz

10. UNITED KINGDOM
www.jeremias.uk

The world's most widely installed Prefabricated Exhaust Pipe System

High Pressure Tightness of the inner pipe up to 15.000 Pa

Up to 600° working Temperature

Pre-Insulated with minimum 50mm high Density rigid mineral wool

Pre cladded with Stainless steel

25 years corrosion warranty

More than 1,500 projects in 30 countries

Full range of services specialised for the data center sector

Everything under the same roof – from design to installation

The Data Centre sector benefits from working with experienced partners who understand the specific needs of each phase of the project, helping ensure that timelines, budgets, and safety standards are met with confidence.

PROJECT DEVELOPMENT PHASES

INITIATION – UNDERSTANDING THE SCOPE

We begin by gathering all relevant project data: generator configurations, exhaust parameters, site layout, and integration constraints. This early-stage input allows us to anticipate challenges and define a clear technical direction from the outset.

PLANNING – DESIGNING FOR PERFORMANCE AND COMPLIANCE

Our engineering team develops a complete system concept, including routing and diameter optimization, back pressure calculations, support structures, and load considerations. if requested, advanced simulations (CFD, FEM) and structural detailing ensure that the system is designed for safety, efficiency, and long-term reliability.

EXECUTION – MANUFACTURING AND SITE READINESS

With modular, factory-made components produced under certified quality control, we ensure fast and accurate delivery. All parts are pre-documented, traceable, and packaged for efficient on-site assembly — reducing installation time and avoiding last-minute improvisation.

MONITORING & CONTROL – DOCUMENTATION AND SUPERVISION

We provide comprehensive 2D/3D layouts, BOMs, anchoring drawings, — ready for submission and review. On-site supervision and clear installation guidelines ensure that execution aligns with the design intent and safety requirements.

DELIVERY & INSTALLATION SUPPORT – ON-SITE EFFICIENCY AND EXPERTISE TRANSPORT

Jeremias coordinates transport logistics, crane provision, and packaging to match site constraints and sequencing. When required, we deploy **officially trained installation teams** to support or execute the assembly on site. This ensures correct alignment, safe handling, and full compliance with environmental and safety standards — reducing risk and accelerating commissioning.

CLOSURE – FAST COMMISSIONING AND CLEAN HANDOVER

Our systems are designed for plug-and-play assembly, enabling rapid commissioning and smooth integration with the overall power package. The result: fewer delays, reduced risk, and a professional handover to the end client.

Jeremias Certificates and Quality

jeremias

CE certificates and factory quality control procedures under EN 1856-1/2 for factory-made system chimneys ensure compliance with all requirements necessary for the correct functional performance of the chimney, as well as durability in accordance with the project specifications.

Jeremias products undergo strict quality controls to ensure their correct functioning and durability.

CTE CÓDIGO TÉCNICO DE LA EDIFICACIÓN

CE

TÜV SÜD

cULus

ISO 9001:2015

Certifications

- **Certificates in accordance with current regulations**
  - CE marking in accordance with standard EN 13084-7 for self-supporting chimneys.
  - CE marking in accordance with EN 1090-2 for metal structures.
  - CE Marking in accordance with standard EN 1856-1/2 for factory -made system chimneys
- **Static calculation according to Eurocode.**
- **Seismic and wind calculations according to region or country.**
- **Quality Management Systems (QMS) under ISO 9001:2015**

Quality

- **Control of raw materials**
- **Quality control during all stages of production.**
  - Possibility of welding control by penetrating liquids.
  - Inspection Test Plan
  - Approved welding procedures
  - Approved welders for structural welding
- **Control of finishes:**
- Paint coatings
- Polishing, shot blasting, pickling...

blueline

Sustainable Stainless Steel Systems

Blueline is the new range of factory-made flues & chimney systems crafted from premium low-carbon stainless steel.

Jeremias has developed the world's first **range of flues and chimney systems made from Premium Low-Emission Stainless Steel**, as a direct response to the growing demand from our clients to reduce their Scope 3 emissions.

This is also an strategic investment to continue delivering sustainable solutions that positively will impact the entire value chain of the industry.

90%
Recycled Material

-50%
Reduction in Carbon Footprint
(tons of CO_2 per ton of stainless steel)

100%
Renewable Energy used in production

We make project certification easier...

More and more projects require certifications related to energy efficiency and building sustainability. Every installed material plays a key role in achieving these certifications.

BREEAM CODE FOR A SUSTAINABLE BUILT ENVIRONMENT

+591,000 certified buildings in 90 countries

BREEAM® (Building Research Establishment Environmental Assessment Methodology)

A technically robust method for assessing and certifying building sustainability.
This private and voluntary certification evaluates impacts across 10 categories.

U.S. GREEN BUILDING COUNCIL LEED PLATINUM USGBC

LEED (Leadership in Energy and Environmental Design)

LEED certification, developed by the U.S. Green Building Council (USGBC), evaluates the sustainability level of buildings, focusing on several key aspects.

ENGINEERED EXHAUST SOLUTIONS

DATA CENTERS

1. Hyperscale DC

Vertical Modular Exhaust System for Multi-Storey Deployment

This project features a compact, vertically routed exhaust solution integrated into a high-rise data centre. The system was pre-engineered and pre-insulated to allow rapid on-site assembly with minimal crane time. Its clean vertical lines contribute to the architectural rhythm of the façade while ensuring thermal and mechanical performance under continuous load.

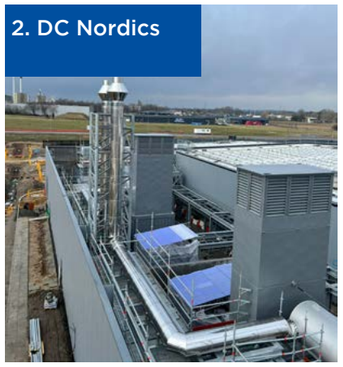
Key value: Minimal footprint, fast installation, and architectural coherence in vertical deployments.

Modular Flue with Integrated Support Structure

A robust solution combining Jeremias' modular exhaust technology with a custom support frame designed to withstand harsh Nordic climates. All components were delivered pre-assembled, reducing on-site welding and scaffolding. The structure integrates seamlessly with the building envelope, preserving both performance and aesthetics.

Key value: Structural resilience, reduced site work, and clean integration in exposed environments.

2. DC Nordics



3. London, UK
Hot Air Discharge Plenum Integration

Compact Exhaust Routing in Constrained Technical Spaces

This project involved the integration of the exhaust system within the generator room's hot air discharge plenum, a space with severe dimensional and thermal constraints. Jeremias developed a compact, pressure-tight modular solution that could be routed with millimetric precision, avoiding interference with existing MEP systems. The system was fully pre-engineered to minimize coordination on site and ensure a clean, interference-free installation.

Key value: Optimized routing in confined spaces with minimal spatial impact and fast, interference-free assembly.

HIGH-PERFORMANCE SYSTEMS

MISSION-CRITICAL INFRASTRUCTURE

4. Frankfurt,
Germany

Freestanding Multi-Liner Stack
Self-Supporting Chimney for Multiple Generator Sets

This freestanding stack consolidates multiple exhaust lines into a single engineered structure. Delivered in modular sections, it was assembled on-site without the need for heavy civil works. The design minimizes vibration transmission and visual impact while ensuring long-term thermal stability.

Key value: Centralized exhaust management with fast deployment and reduced structural footprint.

Modular + Mast Configuration
Hybrid System with Structural Mast for Campus Deployment

A scalable solution combining modular flue elements with a vertical mast, ideal for rooftop installations across campus-style data centres. The system was designed for quick alignment and anchoring, with all expansion and support elements pre-integrated.

Key value: Scalable rooftop deployment with minimal on-site adjustment and clean architectural finish.

5. Milan,
Italy

6. Madrid,
Spain

Modular + Rail (Telefónica Campus)
Façade-Mounted Modular System with Guided Support

This façade-mounted exhaust system uses a rail-guided support structure to ensure precise alignment and load distribution. The modular design allowed for rapid installation without hot works, preserving the building's external appearance and reducing installation time by over 40%.

Key value: Precision façade integration with reduced installation time and no visual disruption.

DW-KL 50

Benefits

DW-KL is approved for the toughest corrosion test in the world.

Continuous insulation, no hot spots.

Fully approved with 4-hour BS 476-20 **fire rating.**

Ease of installation

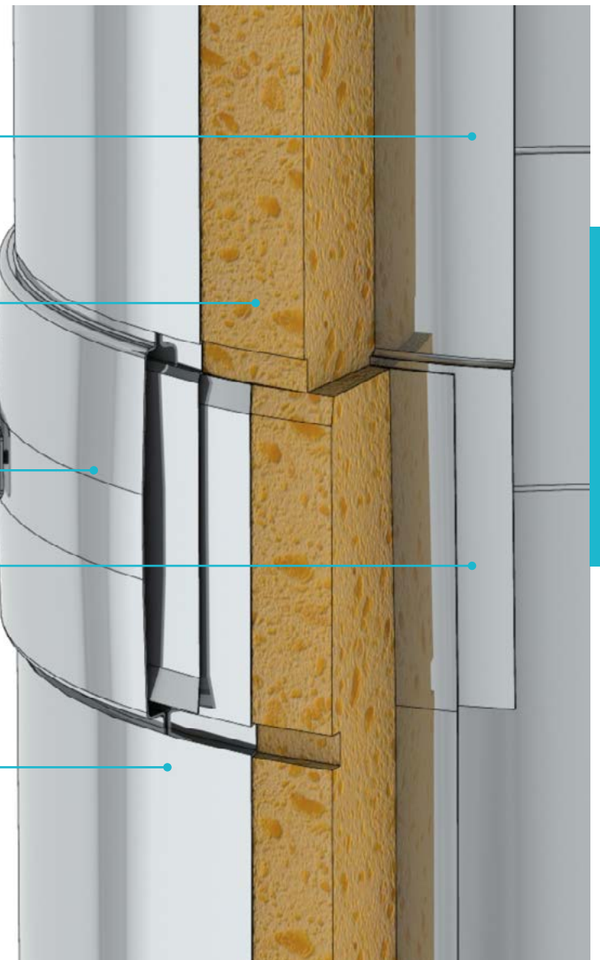
Corrosion guarantee 25 years

Robust and secure joint, especially on horizontal runs.

Water resistant on inner wall & outer wall

Stays in place over time. No degradation of performance.

Liner remains central for ease of installation



1. **Inner liner**
   Purposed designed and to hold the high pressure of the exhaust gases inside the inner pipe.
2. **Insulation**
   Tested guarantee of not leaks from inside to outside or outside to inside.
3. **Locking Band**
4. **Conical Joint**
   Only manufacturer in the world with the exclusive metal to metal conical joint technology.
5. **Outer Wall**

DW-KL 50

Twin wall insulated, factory-made exhaust system with special conical metal to metal jointing for high temperatures and high pressures.

MATERIAL
Inner wall: AISI 304 - Optional AISI 316
Outer wall: AISI 304 - Optional AISI 316

FINISHING
Standard: Bright annealed (BA)
RAL colours available

INSULATION
High density rigid rockwool (120 kg/m3)

THICKNESS (MM)
Inner wall: from 0,4 to 1 mm depending diameter and project specification
Insulation: 50 mm
Outer wall: from 0,4 to 1 mm depending diameter and project specification

AVAILABLE DIAMETER (mm)
Ø150 to Ø800

CONNECTION
Male-female push fit connection secured by locking **band (2.0) included**

25 | 600°C | H1 5000 Pa | 50 mm

blueline
Sustainable Stainless Steel Systems

APPLICATIONS
- Backup generators
- Generators in risky areas
- Incinerators
- Drying ovens
- Pressure jet boilers

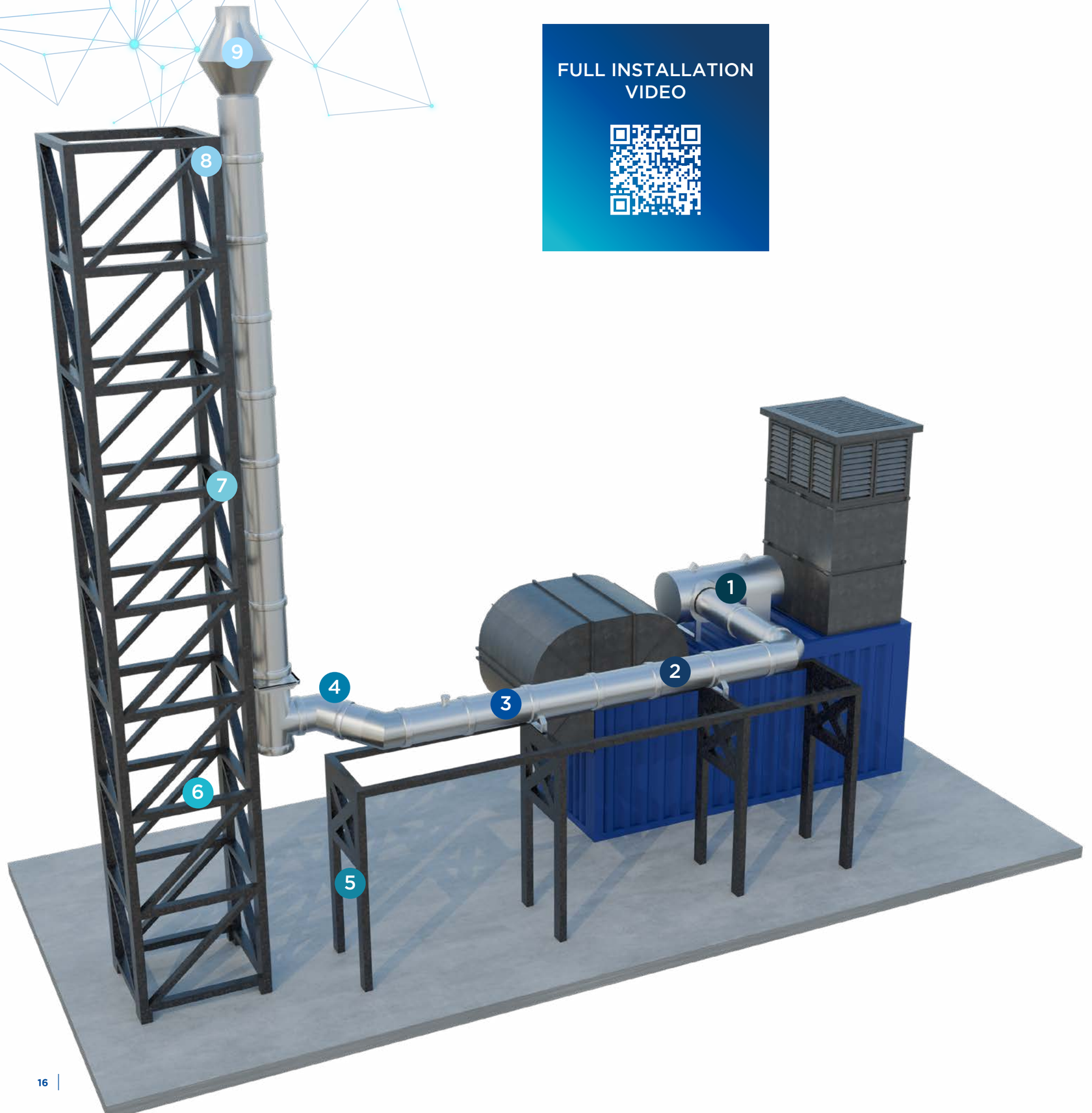
CHARACTERISTICS
- Working temperature up to 6000C
- Continous TIG/LASER welding in all components
- Locking band included (except terminals)
- Also available in AISI 316L inner wall (suitable for fuels with high sulphur content and condensing CHPs).

CE MARK NUMBER
0036 CPR 9174 061

CE CLASSIFICATIONS (EN 1856-1)
T600 – N1 – D – Vm – L20040 – G(70)
T600 – H1 – W – Vm – L20040 – O(50)
T200 – H1 – W – Vm – L20040 – O(20)
T200 – P1 – W – Vm – L20040 – O(00)

FIRE RESISTANCE CLASSIFICATIONS ACCORDING TO EN 13501-2
EI180 ve (o-->i) T600
EI180 ho (o-->i) T600

FULL INSTALLATION VIDEO



Smart routing, secure anchoring, and watertight detailing

Every element engineered for long-term performance in mission-critical environments.

1. **Flanged adaptor connection to silencer.**
Secure and pressure-tight interface between the exhaust pipe and silencer, ensuring mechanical stability and thermal continuity at the transition point.

2. **Horizontal run supported or suspended.**
Horizontal sections can be either floor-supported or ceiling-suspended, depending on site constraints. Split hangers and structural brackets are dimensioned to absorb both static and dynamic loads while allowing for controlled movement.

3. **Thermal expansion bellows**
Strategically placed expansion bellows compensate for axial and lateral thermal movement, protecting the system from stress accumulation and ensuring long-term mechanical integrity.

4. **90° or 45° tee connection to vertical riser.**
Smooth transition from horizontal to vertical routing using engineered tees, minimizing pressure drop and facilitating condensate drainage.

5. **Tee-cap with integrated drain.**
Drainage tee-cap at the base of the riser prevents water ingress into the horizontal section, protecting insulation and maintaining system efficiency.

6. **Continuous outer cladding support.**
Outer jacket is continuously supported to avoid deformation and water ingress. This ensures the insulation remains dry and effective over time.

7. **Wind-resistant support and bracket system.**
All supports and brackets are statically verified to withstand extreme wind loads, including typhoon-level forces, ensuring structural safety in exposed environments.

8. **Integrated expansion function at terminal.**
The exhaust terminal incorporates an internal expansion function, absorbing thermal movement at the highest point of the system without external compensators.

9. **Jet terminal with water capture and drainage.**
The terminal is designed to deflect rainwater and includes a drainage system to prevent water ingress into the vertical flue, preserving insulation and internal pressure integrity.

DW-FS 50

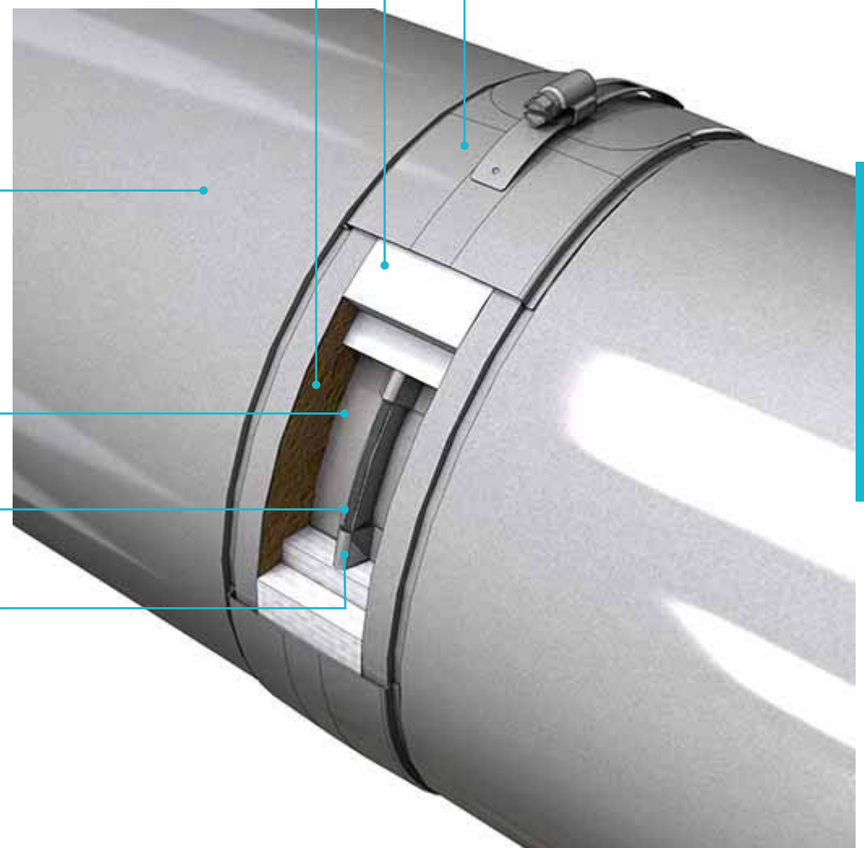
H1 5000 Pa

DW-FS system enables to achieve **maximum pressure classification** (H1 5000 Pa).

Suitable for **high temperatures**

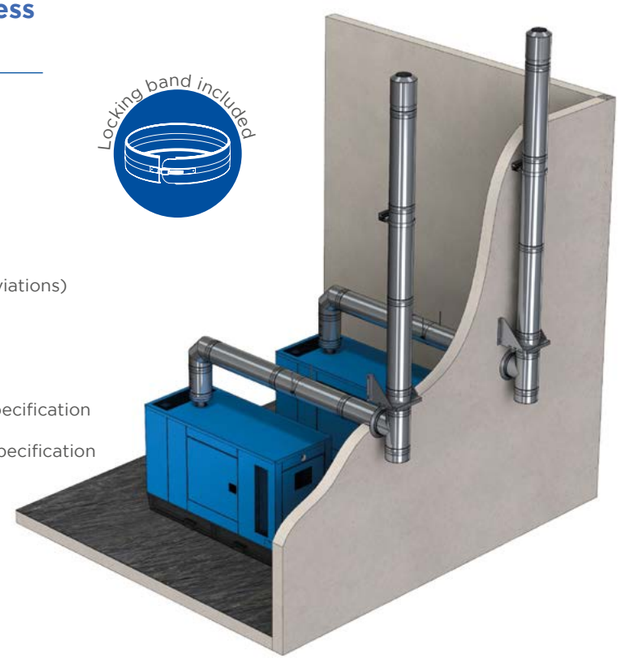
No thermal bridges

If needed **disassembly is easy** as it is a flange system.



DW-FS 50

The DW FS system of Jeremias is a twin wall insulated, factory made exhaust system with flanged connection and with graphite gasket between flanges, that guarantees the tightness for high pressure and high temperatures.



MATERIAL
Inner wall: AISI 316 - Optional AISI 304
Outer wall: AISI 316- Optional AISI 304

FINISHING
Standard: Bright annealed (BA)
RAL colours available
Optional outer wall: Galvanised steel -15% (only lengths and deviations)

INSULATION
High density rigid rockwool (120 kg/m3)

THICKNESS (MM)
Inner wall: from 0,6 to 1 mm depending diameter and project specification
Insulation: 50 mm
Outer wall: from 0,5 to 1 mm depending diameter and project specification

AVAILABLE DIAMETER (mm)
Ø130 to Ø800

CONNECTION
Flanged connection inside with V-band secured with ceramic wool and externa locking **band (2.0) included**

25 | 600ºC | H1 5000 Pa | 50 mm

blueline
Sustainable Stainless Steel Systems

APPLICATIONS
- CHP units
- Generators in risky areas
- Incinerators
- Drying ovens
- Pressure jet boilers

CHARACTERISTICS
- Working temperature up to 600ºC
- Continous TIG/LASER welding in all components
- Locking band included (except terminals)
- Also available in AISI 316L inner wall (suitable for fuels with high sulphur content and condensing CHPs).

CE MARK NUMBER
0036 CPR 9174 086

CE CLASSIFICATIONS (EN 1856-1)
T200 – H1 – W – V2 – L50060 – 0(20)
T600 – H1 – W – V2 – L50060 – 0(50)
T600 – H1 – D – Vm – L20060 – 0(50)

Free-Standing Chimney Systems

JEREMIAS INDUSTRIAL

Service

Installation requirements study.
Calculation of diameters, thicknesses, and materials.
Installation site assessment.
Cost estimation.
Feasibility study.
Continuous communication with the client.
Offer follow-up.

Calculation

Static calculation.
Report of loads at critical points.
Calculation of resonance frequency.
Seismic calculations.

2D/3D Design

Transport plans.
Anchor cage drawings.
List of materials.
Design drawings.

Production

Longitudinal welding.
Laser cutting, plasma cutting.
Bending machines, large diameters, special pieces.

Logistic

Transport organisation.
Crane and assembly management.
Planning.

Assembly

Measurements.
Qualified fitters.
Assembly supervision.
Follow-up of deadlines.

FSA

*Double-walled insulated chimney with a self-supporting **inner flue** and **outer pipe.***

Use
Combined cycles, cogeneration, boilers, generators, chemical extractions, biomass...

Fixing system
Base flange and/or anchoring cage.

Self-supporting element
Outer pipe.

Evacuation duct
AISI 304 / AISI 316

Insulation
Rockwool 80 - 100kg/m3
Thickness 30, 50, or 100 mm

Inner ventilation
Full height inner ventilation

Outer pipe
S235JR, S275JR, S355JRW0, AISI304, etc.

Inner ducts
1

Surface treatment
RAL painted.
Bright, matt, polished stainless steel.

FSA-X

*Double-wall insulated chimney with **two or more inner flues** and a **self-supporting outer pipe.***

Use
Combined cycles, cogeneration, boilers, generators, chemical extractions, biomass...

Fixing system
Base flange and/or anchoring cage.

Self-supporting element
Outer pipe.

Evacuation duct
AISI 304 / AISI 316

Insulation
A1 - Rock wool
A2- Mineral wool
Thickness 30, 50, or 100 mm

Inner ventilation
Full height inner ventilation

Outer pipe
S235JR, S275JR, S355JRW0, AISI304, etc.

Inner ducts
≥ 2

Surface treatment
RAL painted.
Bright, matt, polished stainless steel.

FSB

*Double-wall insulated chimney with a **self-supporting inner flue** for flue gas evacuation.*

Use
Combined Heat and Power boilers, generators, chemical extractions, biomass...

Fixing system
Base flange or anchoring cage.

Self-supporting element
Inner pipe.

Evacuation duct
AISI 304 / AISI 316
S235 / S355 / S275

Insulation
A1 - Rock wool
A2- Mineral wool
Thickness 30, 50, or 100 mm

Outer pipe
S235JR, S275JR, S355JRW0, AISI304, etc.

Inner ducts
1

Surface treatment
Bright, matte, polished.
Welded / riveted.
RAL painted.

FS-RM

*Combination of **Frestanding Stack** and **satellite auxiliary** and modular exhaust lines*

Use
Combined Heat and Power boilers, generators, chemical extractions, biomass...

Fixing system
Foundation basket or building connection

Self-supporting element
Mast (RM)

Evacuation duct
AISI 304 / AISI 316

Surface treatment
Coated
Steel galvanised
Stainless steel, ground
Stainless steel, blasted
(Stainless steel cladding)

Piping systems for connection between mission-critical data center generator sets and chimneys

PIPING

The connecting line, usually known as Piping, serves as the interface between the gen set and the chimney.

It often has to take a lot of deviations due to construction conditions and planned components. At the same time, exact planning with the construction management and on-site measuring are often important components of the planning for a Data Center project. This connecting line, can be supplied welded / flanged in element construction, depending on the use and customer request.

The planning of compensators, flue gas dampers, and steel construction supports is handled by our experienced project managers, who are specially trained in this area. As part of our "All-in-One Package," we are also happy to take care of manufacturing, transport to the construction site, and on-site installation.

Both solutions can be advantageous for various reasons:

Fully Welded Systems

- Completely welded gas-sealed (H0)
- Structural piping avoiding secondary metal frames.
- High pressure possible > 15,000 Pa
- Individually manufactured

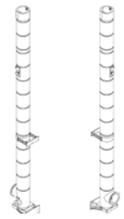
Modular System Construction

- Fast assembly due to plug connections
- Double-walled incl. insulation and cladding
- Easy planing and execution
- Fast delivery time and standard components
- Dimensions up to Ø 1000 mm

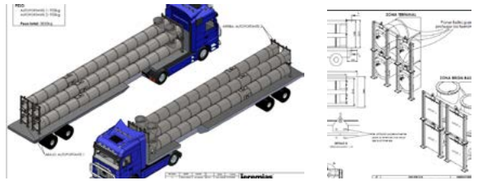
Discover our freestanding modular pre-insulated piping system

1. Design and Calculation

Supports and bracketing sample points expansion details Inspection doors



2. Detailed transport planing



3. Quick installation

On site crane coordination

4. Support requirements

1. Base support
2. Bracket
3. Expansion bellow

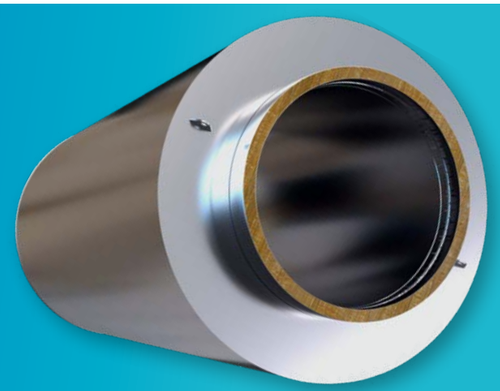
SILENCERS

Jeremias Industrial

SOLUTIONS IN NOISE ATTENUATION

Many installations using biomass, oil or gas, in spaces adjacent to everyday life, can generate annoying noises during operation. The noises generated in their different frequency ranges require a specific treatment for their attenuation thus avoiding possible nuisances.

Jeremias Industrial Division develops the most suitable solutions for noise attenuation, effectively reducing this nuisance. The R&D engineering team, with a specific test bench, ensures the most suitable solution for each installation.



ADVANTAGES OF JEREMIAS INDUSTRIAL

- Wide range of standard silencers for every application
- Tailor-made manufacture:
- Noise measurements on site.
- Noise study in the evacuation installation of fumes.
- Personalised advice depending on the type of installation.
- Specific design.
- Complete smoke evacuation installation

MATERIALS
AISI 304, AISI 316, polypropylene, others...

FINISH
Glossy, matte, painted RAL

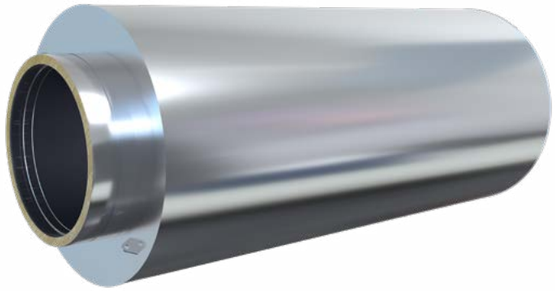
MATERIAL ATENUATOR
Combination of high density rock wool

DIAMETERS AVAILABLE
Ø130 to Ø 600 standard
Larger diameters are customized by project

CHARACTERISTICS
TIG/LASER welding
Horizontal / vertical assembly

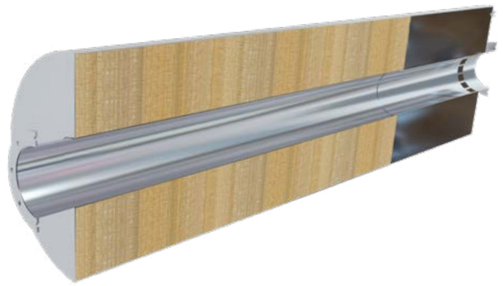
Absorption silencers
ASD / AED

These are passive silencers in which the inside of the tube is perforated so that the sound waves reach the insulation, which, being padded, absorbs the sound waves by friction, transforming them into heat.



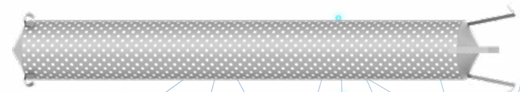
Combined silencers
KSD / KED

This type of silencer combines an absorption part and resonance chambers. The resonance chambers consist of entry points for the sound waves and when these waves bounce off the end of the chamber, they are compensated by the waves going in the opposite direction, thus reducing the volume. The reduction achieved at resonance is very high, but very localised at a specific frequency. That is why they are used for low frequencies and with several resonance chambers to reduce in a wider range of frequencies.



Inner silencer bodies
SDK

They are designed to make a moderate noise reduction in already finished installations, introducing the silencer body at the end of the chimney, which is hanging from the end, making it very easy to install. The reduction in cross-section must be taken into account to confirm that the chimney draught is not affected. It works in the same way as the absorption silencers, performing well at medium and high frequencies.

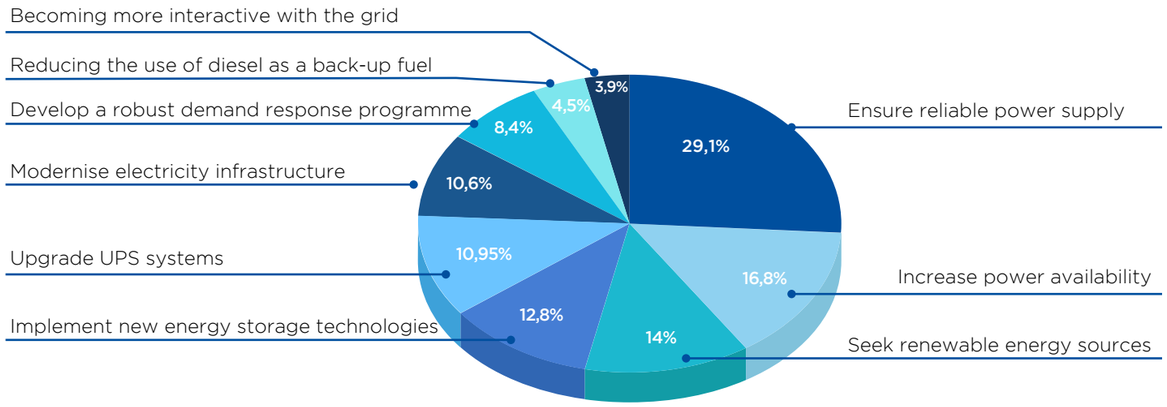


Data Center Power & Cooling Overview

Source: Data Center Dynamics

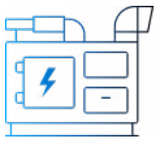
> **The top priority among Data Center professionals is ensuring a reliable power supply, with a 25.87% highlighting this concern as critical for the operational continuity of data centers.**

Following this, **14.93% emphasized the importance of power availability**, indicating the need for sufficient capacity to accommodate growing demand. Despite an increasing global focus on sustainability, **only 12.44% identified pursuing renewable energy sources as a priority**, suggesting that the emphasis remains on stability rather than transitioning to sustainable energy. Additionally, other technical priorities such as **energy storage (11.44%), UPS system upgrades (10.95%), and infrastructure modernization (9.45%)** indicate that many data centers are still evolving technologically.



The main source of backup power for Data Centers are the autonomous Gen Sets, which must be available in any case and have immediate connection capability.

On the other hand, in order to renewable energy to be available and stable in the grid, many complex arrangements have to be made. If this is not achieved, there is no point in having such a large renewable energy mix. You can have storage and stabilizers, but if you don't, you have to use other sources of energy to give stability to the grid.



There are synchronous generators, or nuclear, or hydro, or even combined cycles that should provide grid stability.

Recomendations

Reinforcing operational continuity through critical infrastructure

It is essential to establish investment plans that strengthen the reliability of supply, including more modern back-up systems, redundancy, well-defined contingency protocols and the most efficient, secure and easy to install exhaust systems

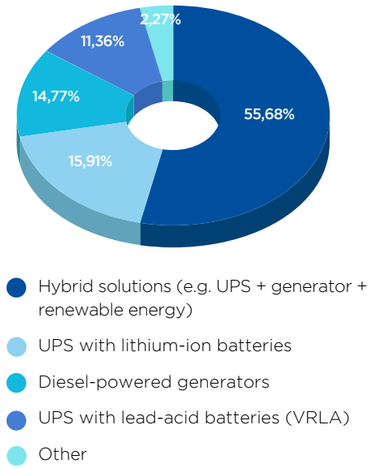
Integrating sustainable materials into project planning

Incorporating sustainable materials will be a relevant part to achieve sustainable Data Center projects. All is not about energy, is also about the building materials used for the construction.

Adopting smart technologies for management and storage

Evaluating the use of advanced solutions such as interface with smart grienergy management platforms will allow for a more flexible operation ready to ds.

Diesel gensets are the most widely used backup technology in data centers due to their speed of response and high reliability



The hybrid solution - integrating different backup technologies such as batteries and gensets - offers high potential in terms of operational efficiency, although its practical implementation presents significant challenges, especially from an economic point of view.

"Currently, diesel gensets are the most widely used backup technology in data centers due to their speed of response and high reliability.

However, batteries also play a key role, particularly lithium-ion batteries, because of their energy density and immediate responsiveness. For a time, these batteries generated some excitement in the industry, but also raised concerns about safety risks.

Adopting hybrid energy architectures with a long-term vision

Evaluating the integration of different backup technologies allows balancing costs, performance and sustainability, better adapting to high demand scenarios or energy contingencies.

Prioritize scalability and flexibility in energy planning

Choosing modular and scalable systems allows you to adjust the backup capacity dynamically, according to the changing needs of the data center and its projected growth.

Strengthen the capacity of backup in case of unexpected events

Investing in reliable and fast-start backup systems is key to minimizing downtime and protecting operational continuity in the face of frequent power failures.