

INDUSTRIAL FREESTANDING CHIMNEYS

Design, Engineering and Production of freestanding
chimneys and exhaust systems for the industrial sector

www.wt-engineering.com



More than 45 years

Manufacturing and innovation

Regarded as One of the longest standing Names in the UK for Design, Manufacture and install of Steel chimneys and fabricated products in carbon steels and stainless steels. Willis and Thornley Ltd were Founded in 1974 and in 2018 became part of the Jeremais Group.

JEREMIAS, is an industrial group with its headquarters based in Germany with over **40 years of experience** in design, production and development of solutions for the exhaust of gases. Jeremias is the technology leading manufacturer of factory-made exhaust systems, industrial stacks and freestanding chimneys.

From the very beginning the **industrial group Jeremias** has steadily grown being today a global player with its presence in more than 60 countries and with **8 production plants** around the world (Europe and North America), with more than 1200 staff members

Willis and Thornley Ltd and Jeremias Group offers technical support during all the different project stages; providing system design, back pressure calculations, fire rating, the required material specifications and installation drawings in various formats including BIM REVIT.



Sales Network in 60 countries



More than 100.000 references



8 production plants



More than 1400 staff members

Our professional Team

is committed to help you in your daily work with a customer service department always at your service.



www.wt-engineering.com
sales@wt-engineering.com

index

Industrial Engineering

In addition to the wide range of factory-made stainless-steel modular chimney and exhaust systems, Jeremias presents “**Willis and Thornley Ltd Industrial division**”, an exclusive department focused on providing engineering solutions for the exhaust at industrial facilities.

Willis and Thornley Ltd Industrial division offers sizing calculations, 3D and 2D design, manufacturing and installation of freestanding chimneys steel stacks and windshields for all types of industrial exhaust installations.

Willis and Thornley Ltd Industrial division is the ideal engineering partner for the industry offering a comprehensive service by highly qualified professionals in the field of smoke and gas exhaust, having all the necessary software tools to provide the expected technical support in industrial projects.

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Industrial
chimneys



INDUSTRIAL FREESTANDING CHIMNEYS



SERIE FSA

Double wall insulated inner pipe and load bearing external stack "Windshield"

Application

Combined cycles, cogeneration, boilers, Gen sets, chemical extractions, Biomass...

Anchoring system:

Base flange or anchoring cage

Bearing element:

Outer tube

Exhaust pipe

AISI 304 / AISI 316

Insulation

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

Internal back ventilation

along the complete system

External stack

S235 / S275 / S355 / AISI 304

Inner pipe number

1

Finishing

RAL painted
different cladding options
stainless steel bright
annealed / mat /
galvanised steel



SERIE FSA-X

X- Double wall insulated inner pipes and load bearing external stack "Windshield"

Application

Combined cycles, cogeneration, boilers, Gen sets, chemical extractions, Biomass...

Anchoring system:

Base flange and/or anchoring cage

Bearing element:

Outer tube

Exhaust pipe

AISI 304 / AISI 316

Insulation

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

Internal back ventilation

along the complete system

External stack

S235 / S275 / S355 / AISI 304

Inner pipe number

≥ 2

Finishing

RAL painted
different cladding options
stainless steel bright
annealed / mat /
galvanised steel

JEREMIAS INDUSTRIAL GROUP



Service

Study of the specific requirements
 Site survey including access restrictions
 Calculation of diameters, thicknesses, materials.
 Feasibility study & cost estimation. Continuous
 communication with the client.
 Quote follow up.



Calculations

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



Design 2D/3D

Transport drawings / design
 Anchor cage drawing
 list of materials required
 Production drawings.



Production

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



Logistic

Transport organization.
 Crane and installation
 project coordination.



Installation

Site surveys.
 Qualified installation teams,
 Supervision, and commissioning,
 Tracking deadlines



SERIE FSB

*Double wall insulated chimney
 stack with internal load
 bearing pipe
 "Freestanding Chimney"*

Applications

Big boilers, chemical extract,
 industrial ovens...

Anchoring system:

Base flange or anchoring cage

Bearing element

inner pipe

Exhaust pipe

AISI 304 / AISI 316
 S235 / S355 / S275

Insulation

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

External pipe

Cladding AISI 304 or
 AISI 316, aluminium
 galvanised steel

inner liner number

1

Finishing

RAL painted
 different cladding
 options stainless steel
 bright annealed /
 mat / galvanised steel



SERIE FSC

*Stainless steel single wall
 ventilation tower*

Applications

Air exhaust / intake
 Ventilation and air conditioning

Anchoring system:

Base flange load

Bearing element

Single wall duct

Exhaust pipe

AISI 304 / AISI 316

Finishing

RAL painted
 stainless steel bright
 annealed / mat /



SERIE FSA

Freestanding Industrial chimney with double wall insulated inner liner and load bearing external stack "Windshield"

The inner gap between the insulated inner pipe and the outer stack guarantees a constant back ventilation along the system, avoiding the outer pipe reach the structural temperature limits

1 Terminal

Allows back ventilation along the complete system

2 Vibration damper

Reduces the impact of oscillations, guaranteeing the stability of the chimney.

3 Exhaust inner liner

Material: AISI 316, AISI 304.
Thickness: 1.5 - 2 - 3 mm.

4 Insulation

High density rockwool with galvanized wire.
Thickness: 30 to 100 mm, depending on the temperature.

5 Ladder

Single rail ladder / safety cage ladder with intermediate platforms.

6 Sampling points

Allows the connection of measuring equipment for maintenance requirements

7 Platform

In angle from 135° to 360° width from 800 to 2500 mm.
Manufactured in steel S235JR galvanised, other material options available

8 T-Branch

Flanged connection or connection to Jeremias modular systems

9 Clean out opening

access for inspection and maintenance. Ø250, Ø600 mm, different door options

10 Inner pipe drain

Sloped base plate to allow removal of inside condensates

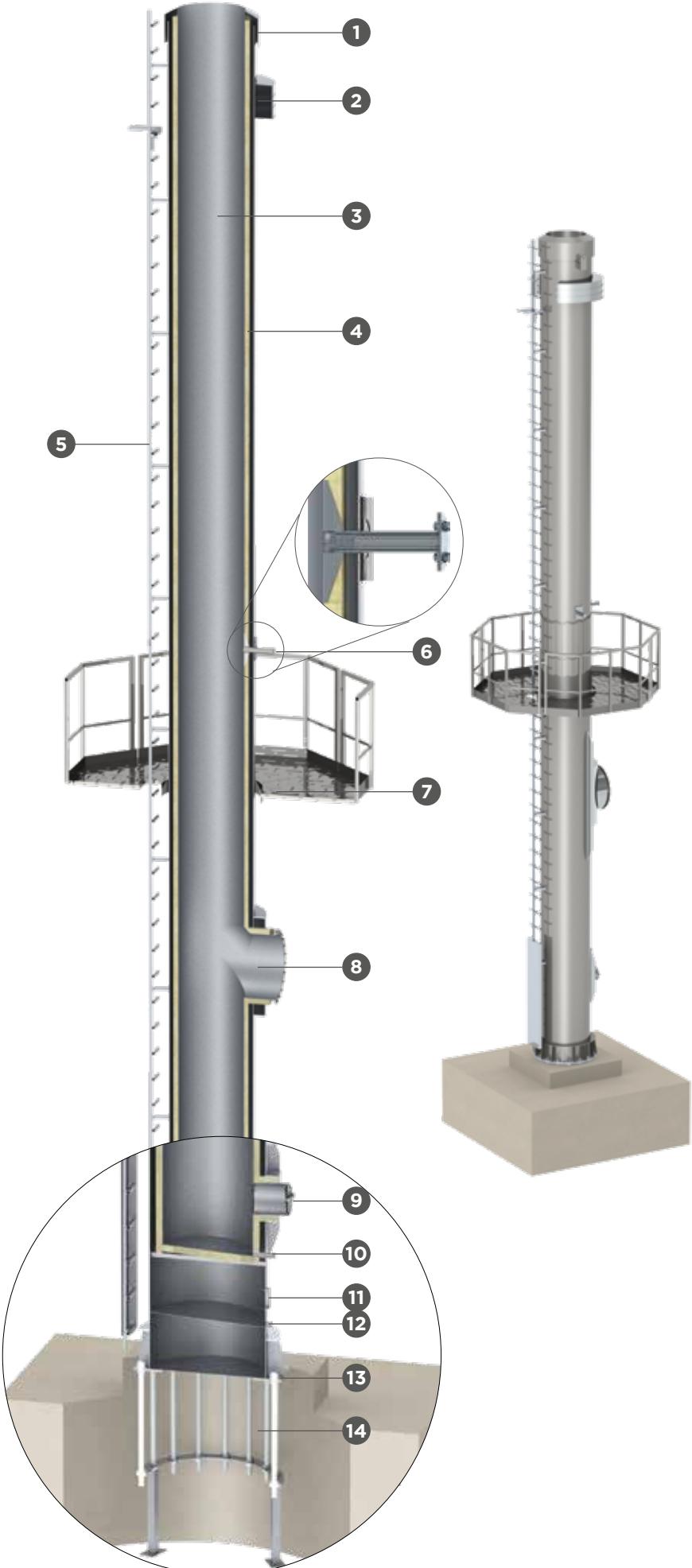
11 Back ventilation

Ventilation grill to allow a continuous inside air flow from base till top.

12 Outer pipe drain

With reinforcements

14 Anchor cage



SERIE FSB

*Double wall insulated chimney stack
with internal load bearing pipe
"Freestanding Chimney"*

1 Open Terminal

2 Exhaust inner liner

Material: AISI 316, AISI 304,
S235, S275, S355

3 External cladding

Material: AISI 316, AISI 304,
Aluminium, other options
Thickness: 0.8 - 1.5 - 2 mm.

4 Ladder

Single rail ladder / safety cage
ladder with intermediate
platforms.

5 Wall support/bracket (optional)

Helps reducing the total loads and
the thickness of the structural
tube and foundation.

6 Insulation

High density rockwool with
galvanized wire.
Thickness: 30 to 100 mm,
depending on the temperature.

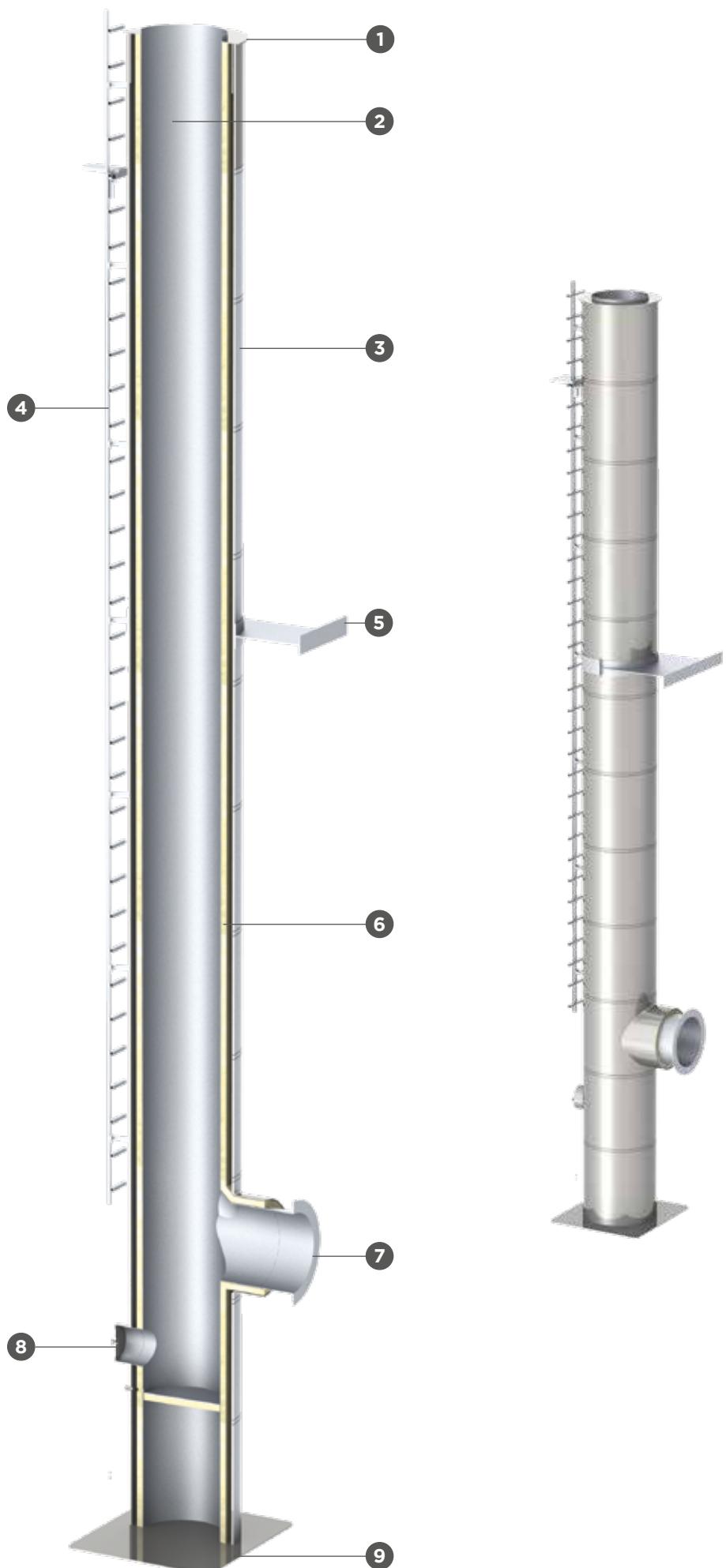
7 T-Branch

Flanged connection or connection to
Jeremias modular systems

8 Clean - out opening

Access for inspection and
maintenance. Ø250, Ø600 mm,

9 Base flange



SERIE FSA-X

Freestanding Industrial chimney with multiple double wall insulated inner liners and load bearing external stack "Windshield"

The inner gap between the insulated inner pipe and the outer stack guarantees a constant back ventilation along the system, avoiding the outer pipe reach the structural temperature limits

1 Terminal

Allows back ventilation along the complete system

2 Exhaust inner liners

Material: AISI 316, AISI 304, S235, S355
Thickness: 1.5, 2.3 mm.

3 Insulation

High density rockwool with galvanized wire.
Thickness: 30 to 100 mm, depending on the temperature.

4 Platform

in angle from 135° to 360°.
width from 800 to 2500 mm.
Manufactured in steel S235JR galvanised, other options available

5 T-Branch (two or more)

Flanged connection or connection to Jeremias modular systems

6 Clean out opening

access for inspection and maintenance.
Ø250, Ø600 mm, different door options

7 Inner pipe drain

8 Back ventilation

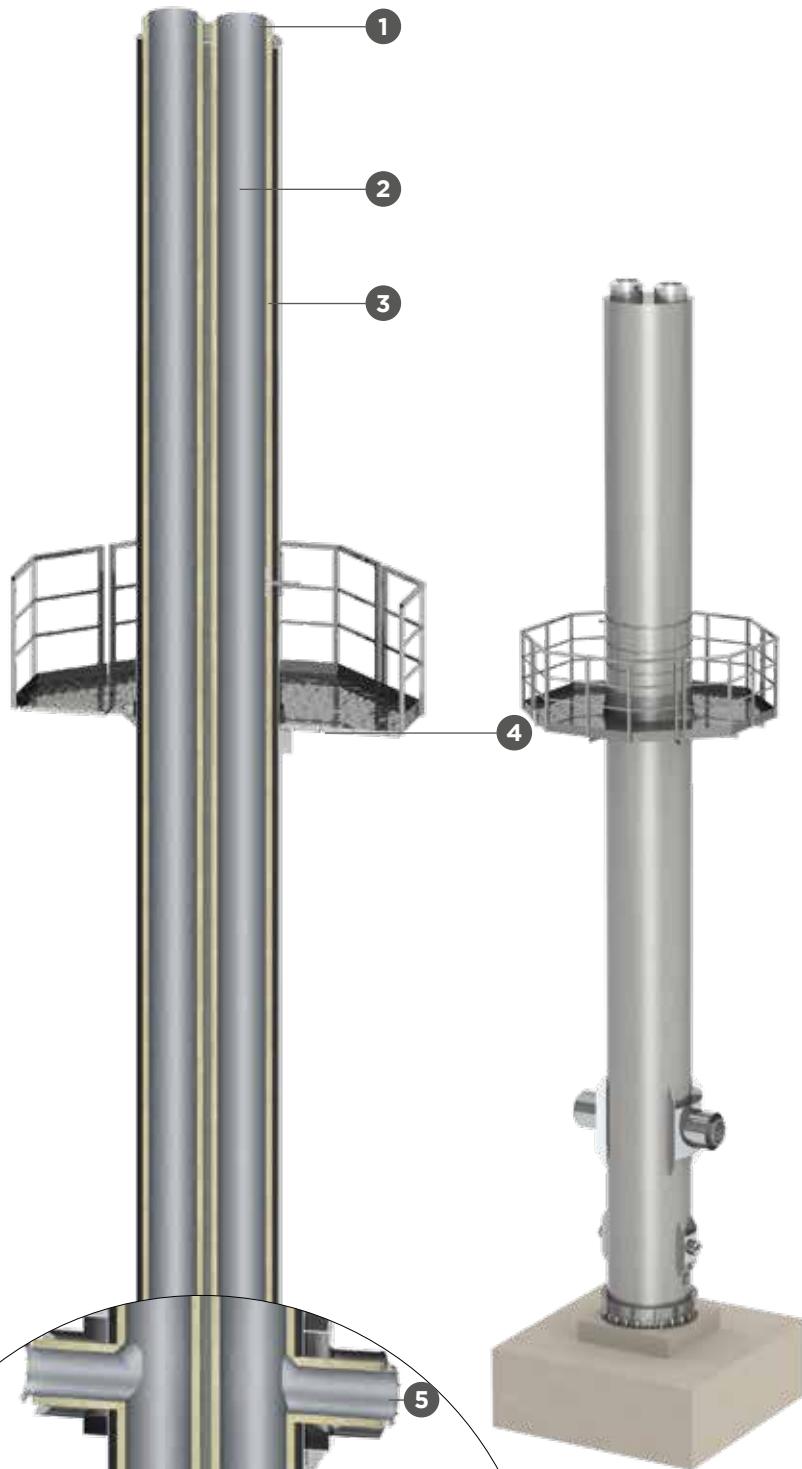
Ventilation grill to allow a continuous inside air flow from base till top.

9 outer pipe drain

10 Base flange

with reinforcements

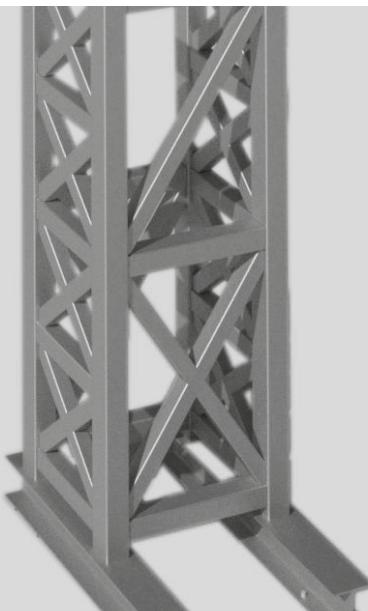
11 Anchor cage



STEEL & LATTICE STRUCTURES

Steel structures and lattice masts to support Jeremias modular exhaust systems (DW-ECO, DW-KL ...). These mast-supported solutions are sometimes the ideal solution in projects where ground anchoring or access is restricted. The time and place flexibility for the installation is the biggest advantage of these solutions.

The structures can be design in a modular way for better transportation and logistics inside the construction site.



Project features

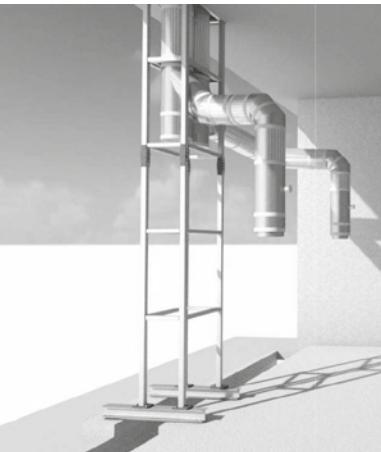
Static calculation of the structure according to building regulations. Project study in phases depending on the area, construction site, specific needs...

Construction details:

Anchoring with concrete foundation and/or base plate

Steel profiles: IP, HEB, circular / square, in L...

Materials: S235JR, S275JR, galvanised steel, AISI 304, AISI 316...



Lifting lugs

Pre-assembled structure in factory or on site.

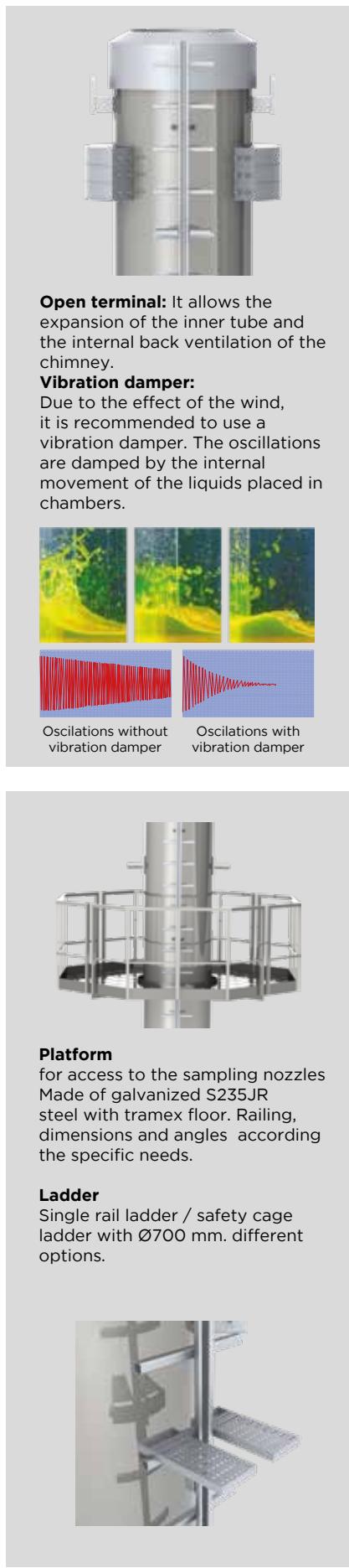
Modular exhaust systems can be installed on the mast at the factory or on site depending the needs of the client

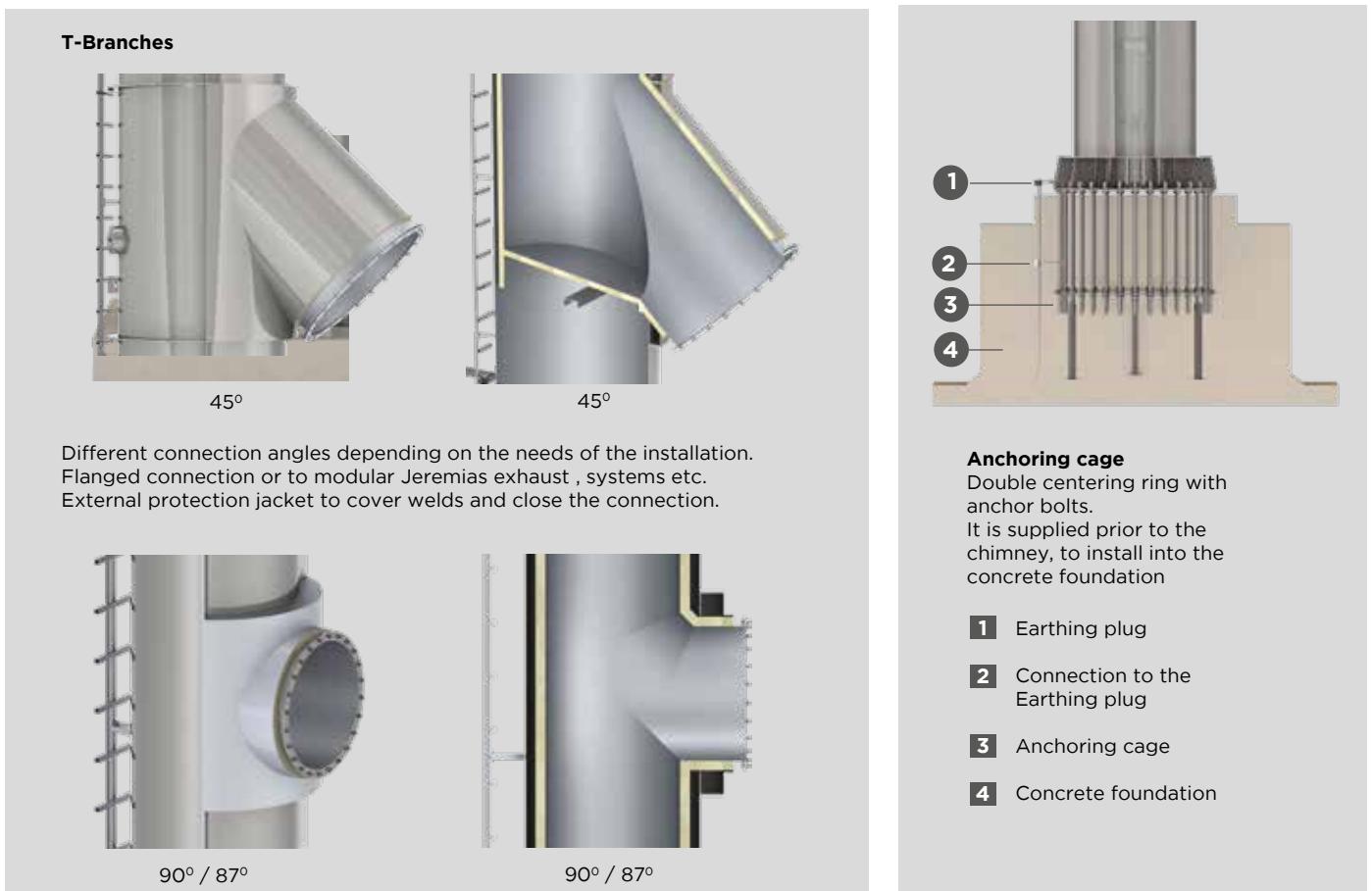


Additional Options

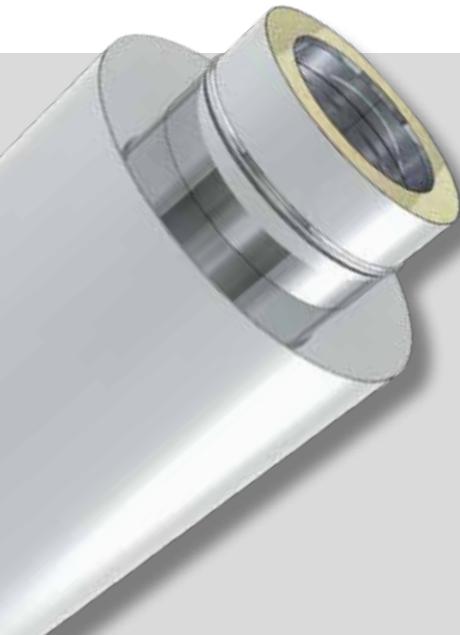
Platform for sample points
Cage or rail ladder.
Lightning rod
Beacon lights.
RAL painted finishing, glossy, matte ...
Special treatments depending on the area (C3, C4, C5)

CONSTRUCTION DETAILS





EXTERNAL SURFACE TREATMENTS FOR THE OUTER STACK		
C3	Moderate	Low pollution areas, and less aggressive environments. Production areas with average humidity levels, and residential areas.
C4	High	Pollution zones and medium aggressive environments. Chemical environments and pools.
C5	Very high	Coastal areas with high humidity levels, aggressive industrial environments, continuous condensation, and areas with high pollution.



SILENCERS

Willis & Thornley Ltd Industrial Division Noise Control Solutions

Many facilities using biomass, diesel or gas, situated close to residential areas can generate annoying noise during operation. The noises that are generated in their different frequency ranges require a specific treatment for their attenuation avoiding possible discomfort and meet the local noise requirements.

Willis & Thornley Ltd Industrial Division develops the most appropriate solutions for noise attenuation and control. Our R&D engineering team ensures the most suitable solution for each installation using our in-house testing bench.

WILLIS & THORNLEY LTD INDUSTRIAL FEATURES

- **Big product range of standard solutions.**
- **Special fabrication:**
 - On site noise measurements.
 - Complete study including the exhaust system design.
 - Personalized advice depending on the type of application.
 - Specific design.
 - Complete installation of the demanded solution.

MATERIALS

304, AISI 316,
polypropylene, PPS

FINISHING

shiny, matt, RAL painted

ATTENUATION MATERIAL

Combination of high density mineral
wools

AVAILABLE DIAMETERS

Standard from Ø130 to Ø 600
bigger diameters under request

FEATURES

TIG/LASER welding
horizontal / vertical installation

WILLIS & THORNLEY LTD STANDARD SILENCERS

Absorption Silencers

These passive silencers use porous material such as mineral wool to achieve attenuation, mainly in the medium and high frequency range. Any acoustic energy is absorbed by friction effects on the wool and transformed into heat.



Modular absorption silencer

ASE - ECO

Base attenuation 15 o 25 dB

T max: 2000°C

P max: 200 Pa

wet conditions



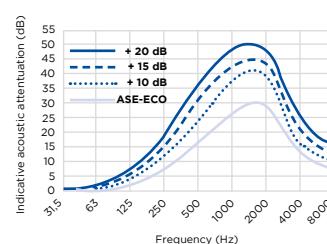
+

EXTENSIBLE

Possibility of increasing
the attenuation by adding
one of these 3 modules.



- 10 dB
- 15 dB
- 20 dB

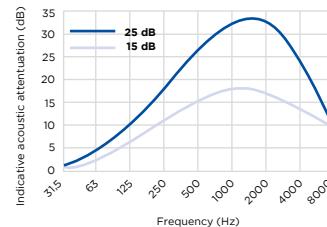


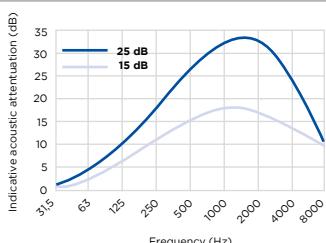
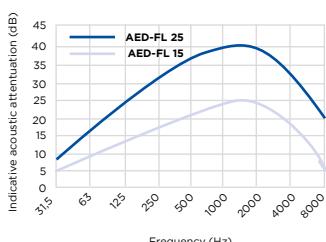
Absorption Silencers DW

ASD-B DW: P: 200 Pa, wet

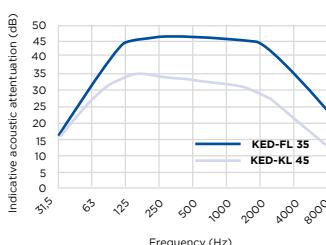
ASD-DW: P: 40 Pa, dry

15 o 25 dB attenuation
connection DW-ECO Jeremias
T max: 200°C

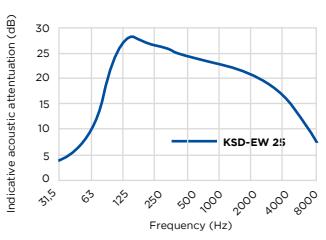


Absorption silencer EW**ASD-B EW:** P: 200 Pa, wet**ASD-EW:** P: 40 Pa, dry15 o 25 dB attenuation
standard connection EW-ECO Jeremias
T max: 200°C**Flanged absorption silencer AED-AEL**Aligned flanges **AED**L - Flanges **AEL**20 o 30 dB attenuation
T max: 600°C
P max: 5000 Pa
Suitable for wet conditions
conical KL connection as an option**Combined silencers**

This type combines absorption silencers with several resonance chambers for the additional attenuation of lower frequencies. Each of the chambers are responsible for filtering out a specific frequency range, which leads to broadband attenuation of the noise.

**Combined Silencer with flanges**Aligned flanges **KED**L - Flanges **KEL**20 o 45 dB attenuation
T max: 600°C
P max: 5000 Pa
Suitable for wet conditions
conical KL connection as an option**Combined silencer****KSD-B:** Pmáx: 200 Pa, wet**KSD-EW:** Pmáx: 40 Pa, dry

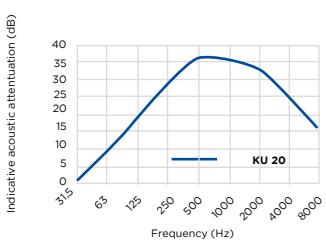
25 dB de Attenuation

**Combined Silencer KU**

35 dB de attenuation

Tmáx: 600°C

Pmáx: 5000 Pa

**Noise Insulating Cores**

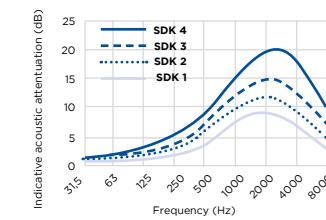
Noise insulating cores are predominantly designed for retrofitting in chimneys and contribute to effectively reducing noise peaks according to the principles of absorption. They are suspended from above and therefore very easy to install.

Noise insulating core SDK

5, 8 , 10 , 15 dB Attenuation

Installation in existing chimney / duct

Length in accordance with the level of attenuation L: 1000, 1500, 2000, 3000 mm

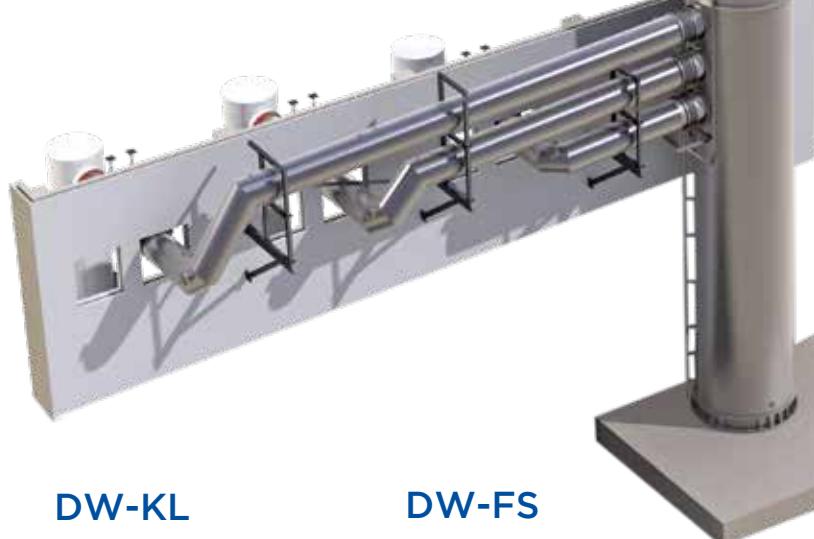




PIPING Connecting pipes

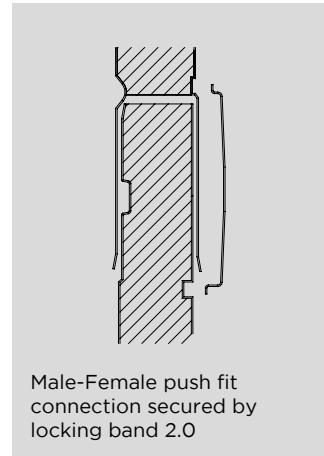
Willis & Thornley Ltd offers different connecting pipes, welded or flanged on-site or pre-fabricated modular systems to connect the equipment outlet to the Industrial chimney. Due to specific requirements of the industrial process, the connecting pipe may contain numerous changes of direction, points for sampling, clean-out openings, drains, compensators, valves etc. After a site survey or according to the project drawings Jeremias Industrial Division designs the ideal solution for each specific project including all necessary accessories.

The whole process; calculation, design, manufacturing and assembly are controlled by a single company, avoiding possible coordination error.

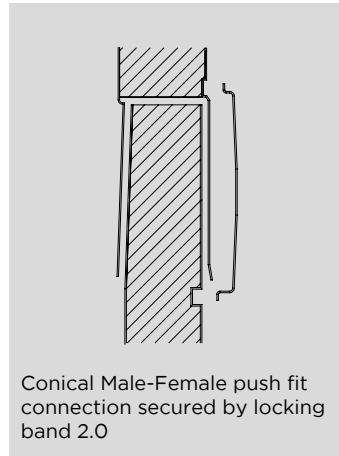


MODULAR CONNECTING PIPE

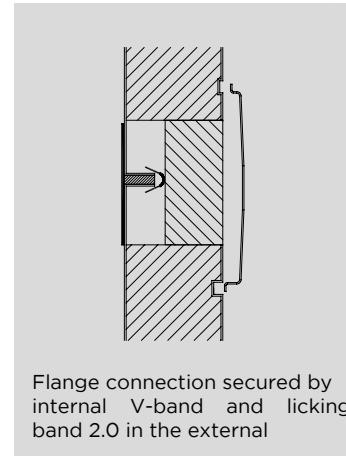
DW-ECO

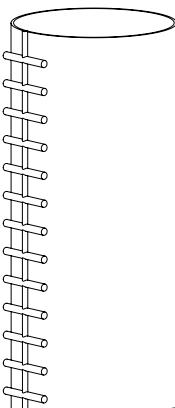


DW-KL

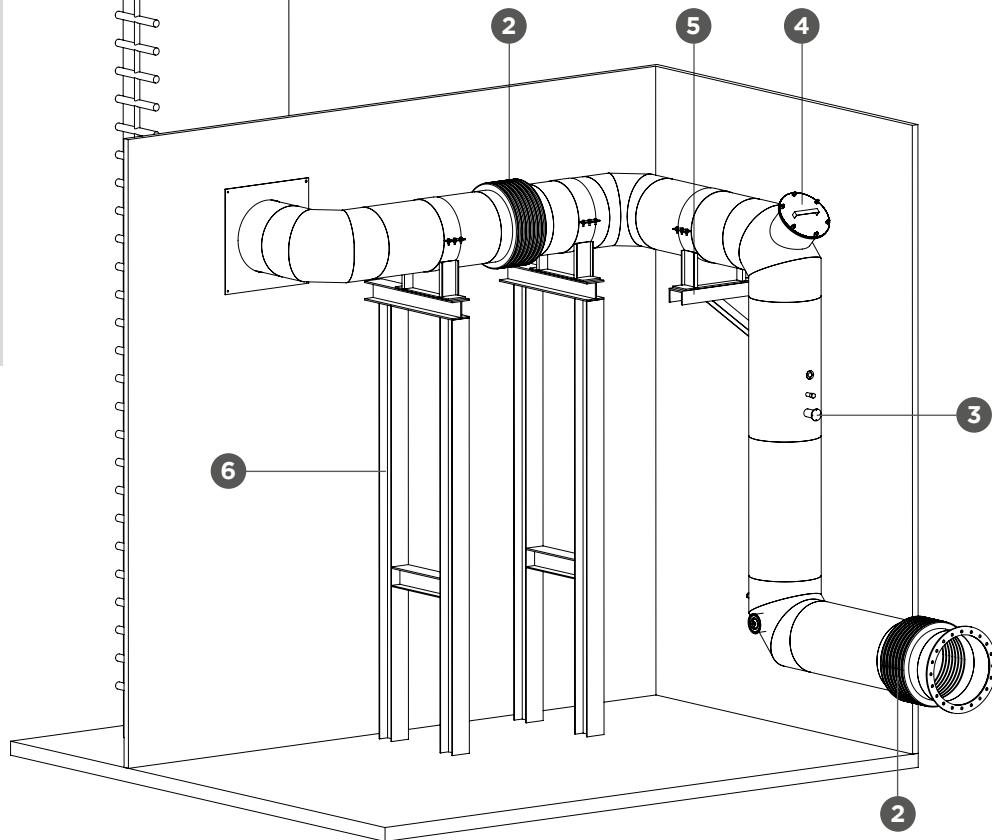


DW-FS





WELDED CONNECTING PIPES



MATERIAL

AISI 304 / AISI 316 / GALVA

FINISHING

BA, mat, powder coated RAL

STEEL THICKNESS

From 0.5 to 6 mm

AVAILABLE DIAMETERS

80 to 2000 mm



1 Dampers/Valves



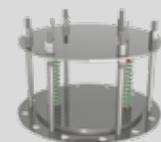
Manual damper with safety lock



Motorised damper



Motorised damper with security return system in case of power failure



Explosion relief valve



Implosion relief valve

2 Expansion bellows



3 Sampling points



4 Clean out openings



5 Wall supports



6 Custom made metal structures



VENTILATION TOWERS FSC

Ventilation Towers manufactured in single wall stainless steel, for both expulsion and air discharge.

TERMINAL WITH LOUVRES

- 1** Top cap
- 2** Opening from 180° to 360°
- 3** Bright annealed or polished stainless-steel ducting
- 4** Base plate

TERMINAL WITH LOUVRES



TYPES OF TERMINALS



0°



With slope 3-45°

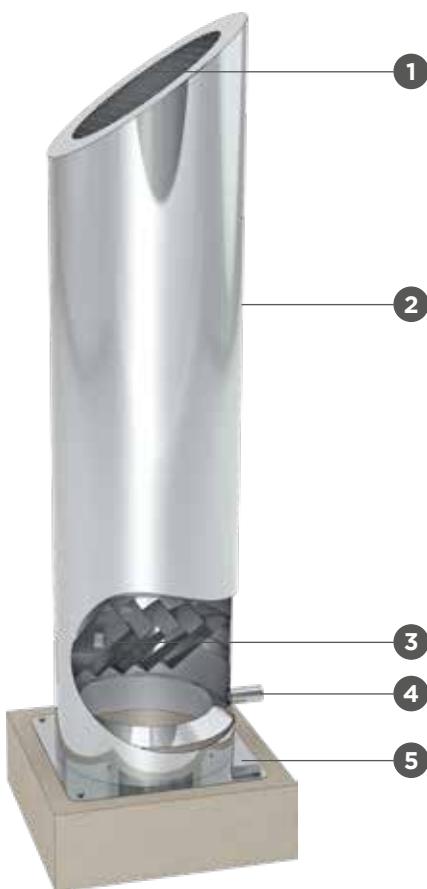


Conical 3-30°

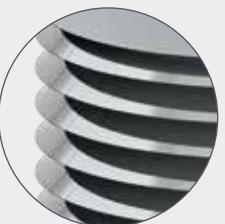
OPEN TERMINAL

- 1** Mesh
- 2** Bright annealed or polished stainless steel ducting
- 3** Water collector
- 4** Drain
- 5** Base plate

OPEN TERMINAL



LOUVRES



45° at edge



45° folded edge



Through CE certificates and factory quality control, Willis & Thornley Ltd grants the proper chimney operation and durability on each specific project

“

Willis & Thornley Ltd products are subject to strict quality controls to ensure proper operation and durability

CE UK
CA

Certifications

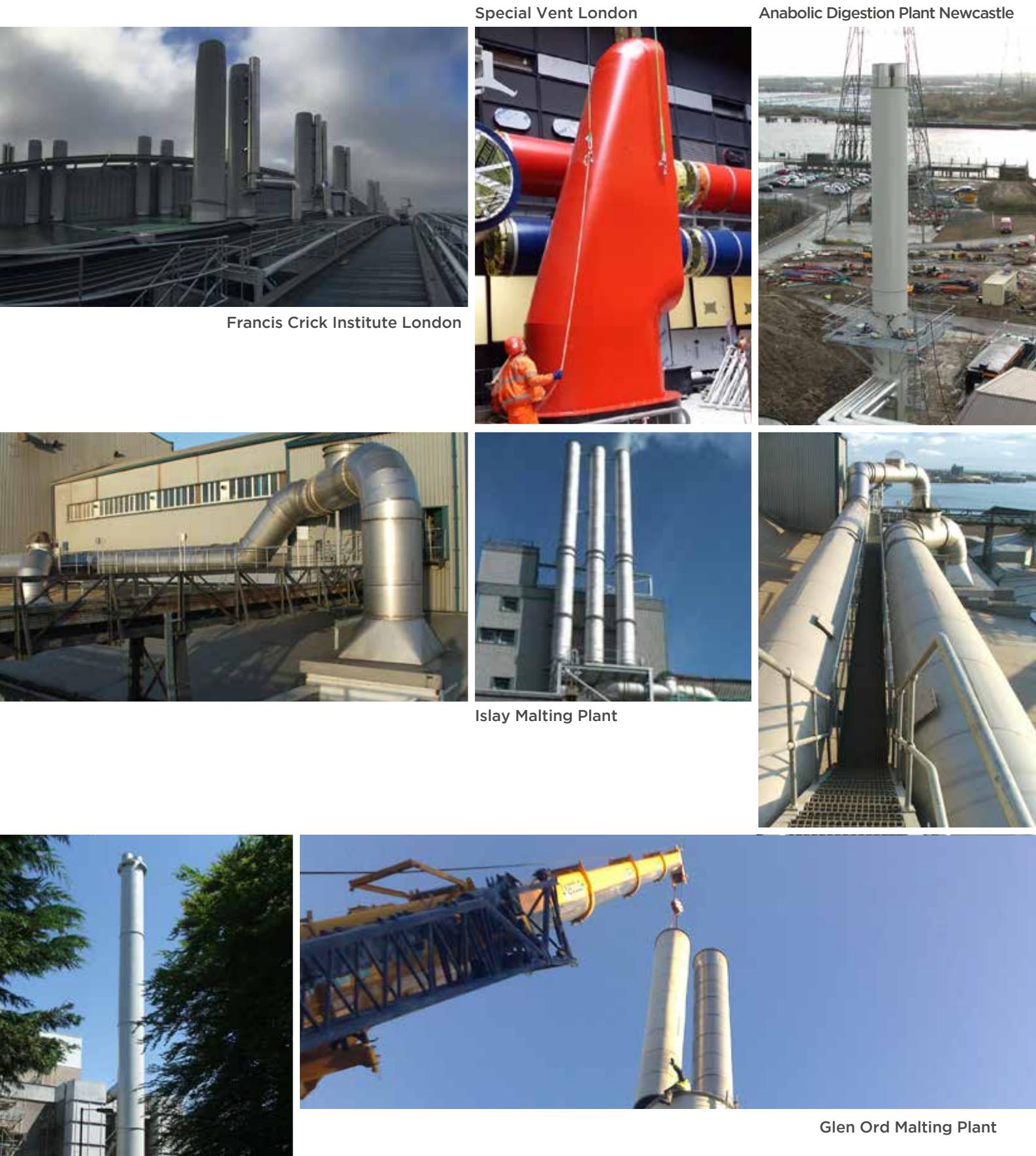
- Certificates according to current regulations
 - CE standard for industrial chimneys EN 13084-7
 - CE standard EN 1090-1 for steel structures.
- Statics in accordance with the Eurocódigo.
- Seismic and wind calculations according to the specific region.

Quality

- Raw materials control
- Quality monitoring through along production
 - Welding control with penetrating liquids
 - Controls and dimensional tolerances
 - Qualified welders using certified welding processes
- Finishing Control:
 - Paint layers
 - Polished, shot blasting, pickling

Our experience speaks for itself

The wide variety of our product range, has allowed us to be present for and collaborate in important commercial and industrial projects, together with leading mechanical & electrical companies and in very diverse sectors in continuous coordination with large engineering companies, architecture studios and big developers.



Glen Ord Malting Plant

Scotland Biomass Plant



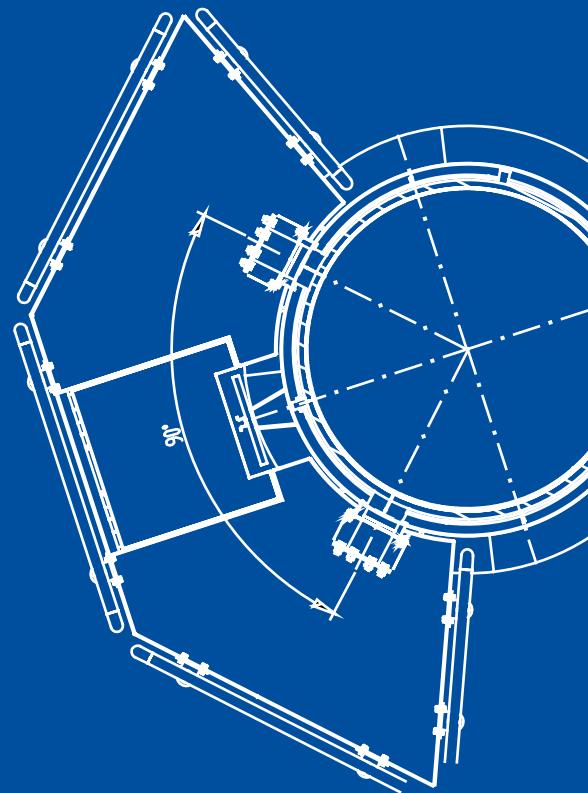
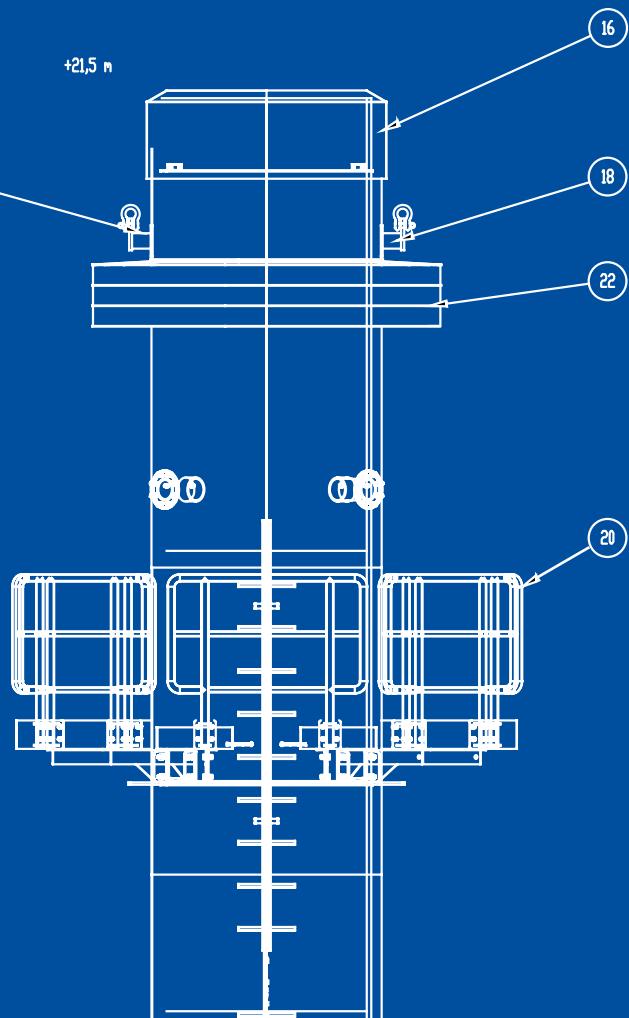
Liverpool Energy Centre



Aluminium Process Plant Jamaica



Energy Centre Newcastle



Argentina | Austria | Belarus | Belgium | Bulgaria | Brazil | China | Colombia | Croatia | Czech Republic | Denmark | Estonia | Finland | France | Germany | Greece | Hungary | Ireland | Italy | Japan | Kazakhstan | Latvia | Lebanon | Lithuania | Luxembourg | Malta | Mexico | Netherlands | Norway | Poland | Portugal | Qatar | Romania | Saudi Arabia | Serbia | Slovenia | South Africa | Spain | Sweden | Switzerland | Tunisia | Turkey | UK | Ukraine | UAE | USA



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