Data centres & Chillers...
...silence on the terrace !

Hushflow®Datacooling

Up to -25 dB(A)

+33(1) 41 860 580
hushflow@acoustique-toutes-frequences.eu

ACOUSTIQUE TOUTES FREQUENCES
58 route des Gardes 92180 MEUDON—France

In a world where energy management and environmental responsibility are paramount,

Hushflow® Datacooling stands out as the essential solution for all datacentres seeking to reduce their acoustic footprint while maintaining the efficiency and integrity of their air-cooled systems

Hushflow®Datacooling

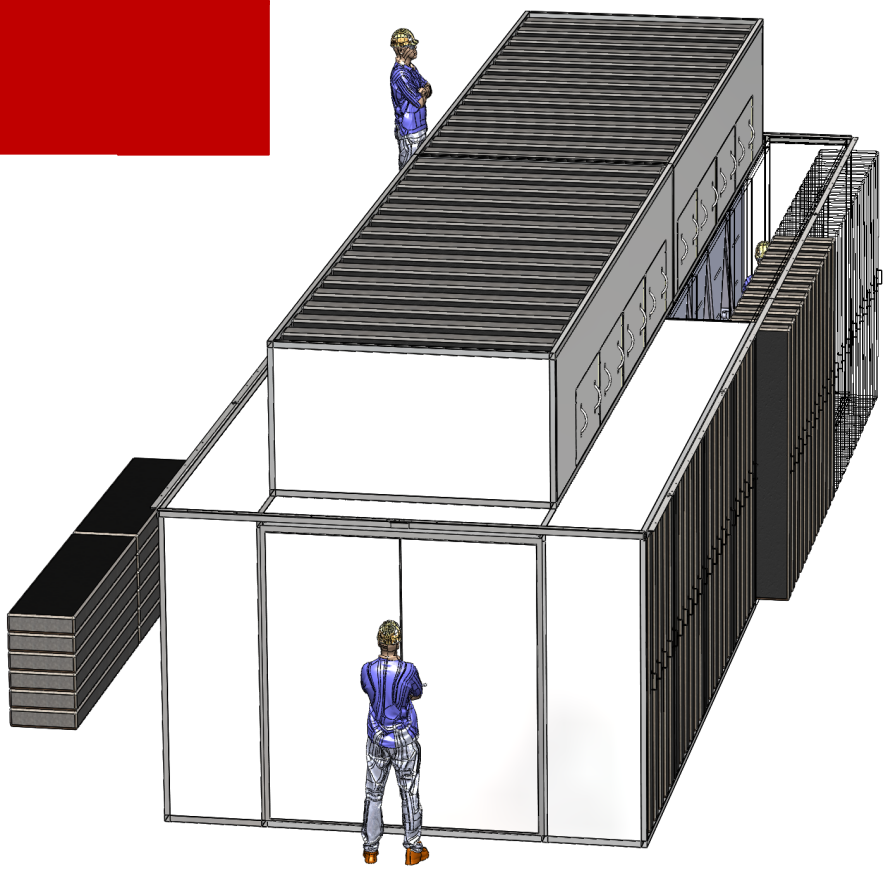
Up to -25 dB(A)

is a brand of

ACOUSTIQUE
TOUTES FRÉQUENCES™

Hushflow™ Datacooling

High-Performance Acoustic Housing for Air-Cooled Data Centre Units



Expertise Rooted in Experience

With over 15 years of expertise in the design and manufacture of acoustic solutions for thermodynamic machinery, our company has become a recognised player in the HVAC industry. This extensive experience enables us to understand the specific challenges faced by data centres, combining technical expertise with innovation to develop products precisely tailored to data centre requirements.

Born from Collaboration Among Specialists

The development of Hushflow® Datacooling was carried out in close collaboration between air-cooled solution providers and our aeroacoustics engineers. The expertise of Acoustique Toutes Fréquences combines in-depth knowledge of acoustics with a strong understanding of fluid dynamics.

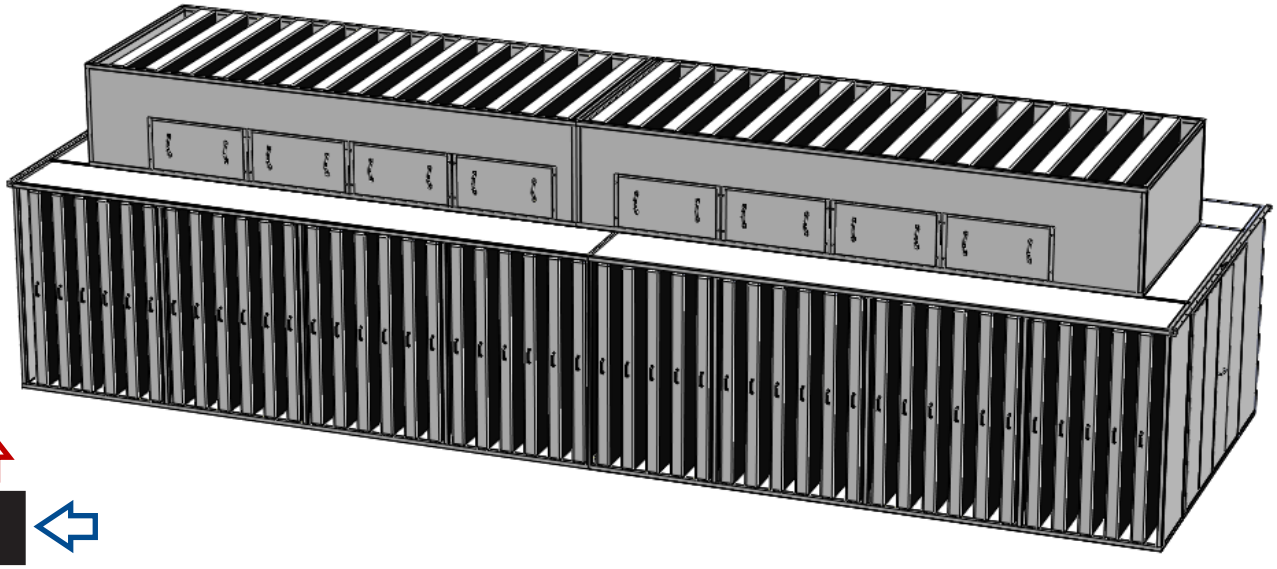
This joint development ensures that every integrated solution within the Hushflow® Datacooling range is grounded in sound scientific principles, achieving maximum acoustic efficiency.

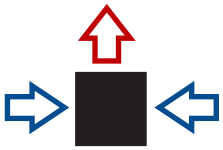
Hushflow®Datacooling
Up to -25 dB(A)

An innovative acoustic solution for Data Centres
Reducing the acoustic impact of air-cooled equipment by up to 25 dB_A

CONTROL NOISE...

Cut the acoustic impact of air-cooled equipment by up to 25 dB_A

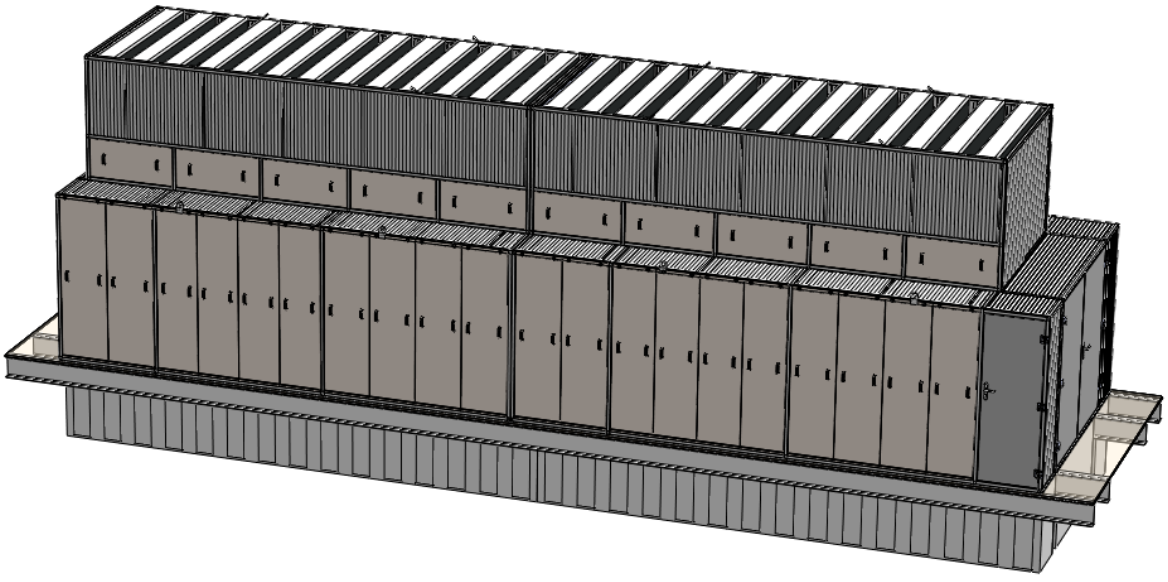




T model

Hushflow®Datacooling

Up to -25 dB(A)



InLine model

INNOVATIVE DESIGN

Developed in partnership with air-cooled unit manufacturers, **Hushflow® Datacooling** is specifically designed to fit air-cooled chillers and dry coolers. Its optimised design ensures high acoustic and aerodynamic performance — achieving reductions of **up to 25 dB(A).**

VALIDATED BY EXPERTS

Hushflow®Datacooling has been validated by leading chiller manufacturers and institutional acoustic engineering consultancies.
Various manufacturer F.A.T. (Factory Acceptance Tests) have confirmed its acoustic efficiency and verified that it has no impact on energy performance.

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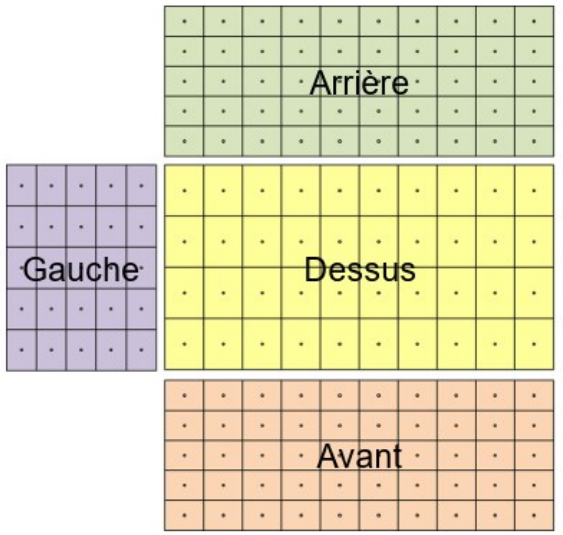
up to -25 dBA

CONTROL NOISE...

Guaranteeing acoustic performance in compliance with ISO9614-1

Extract
LE 20-67 CL

Face	Largeur (m)	Longueur (m)	Surface (m²)
Dessus	11.8	6.13	72.3
Avant	11.8	4.43	52.3
Arrière	11.8	4.43	52.3
Gauche	6.13	4.43	27.2
Droite	6.13	4.43	27.2
			231.2



	Avant Atténuation	Après Atténuation	
	Lw [dBA]	Lw [dBA]	Atténuation [dB]
Global	96.0	79.3	-16.8

	Après atténuation (théorique)	Après atténuation (réelle)	
	Lw [dBA]	Lw [dBA]	Δ [dB]
Global	79.3	80.3	1.0

LABORATORY-VERIFIED ACOUSTIC ATTENUATION

The **Hushflow® Datacooling-001 prototype** was tested in a laboratory on a 700 kW screw chiller, EG 12/22°C, OAT +38°C, using HFO refrigerant. The reference unit's sound power level was Lw 96 dB(A) in accordance with Eurovent standards. The unit operated at 100% of its cooling capacity during the tests.

The sound power level measured in accordance with ISO 9614-1 confirmed the performance calculated by our engineers: Lw = –16.8 dB(A) with a deviation of –1 dB, corresponding to 15.8 dB(A).

Our sizing models are highly accurate, and the declared performance values are consistently achieved.

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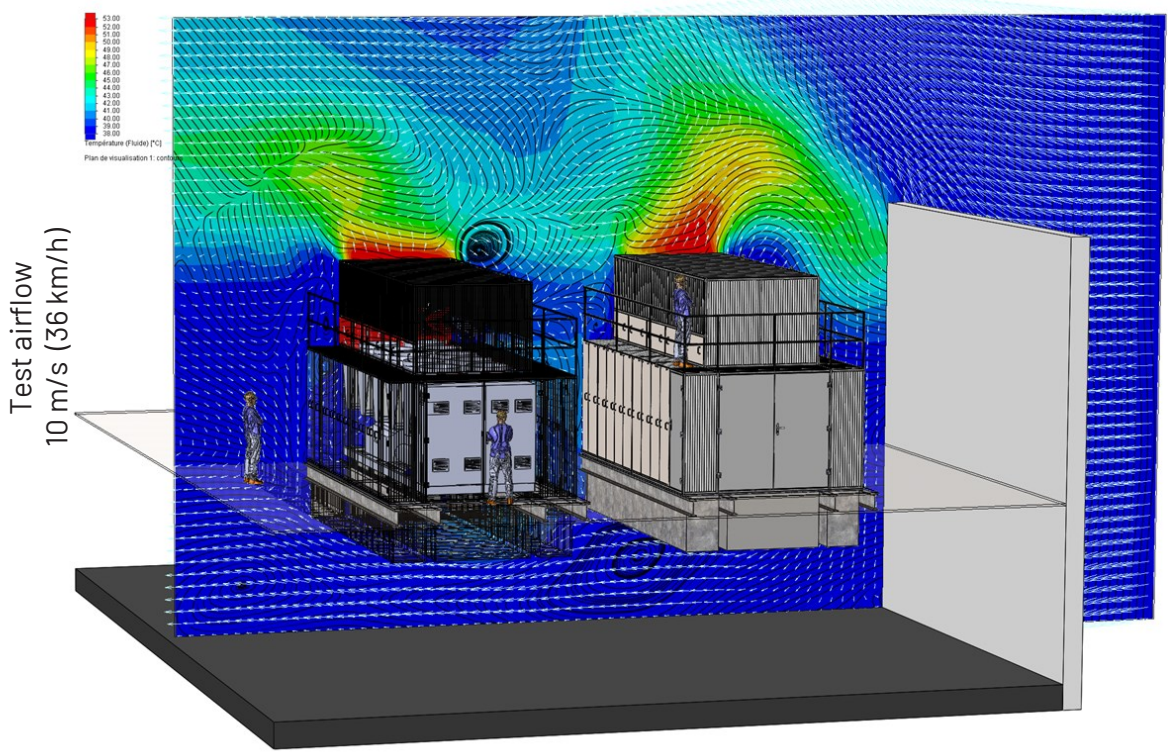
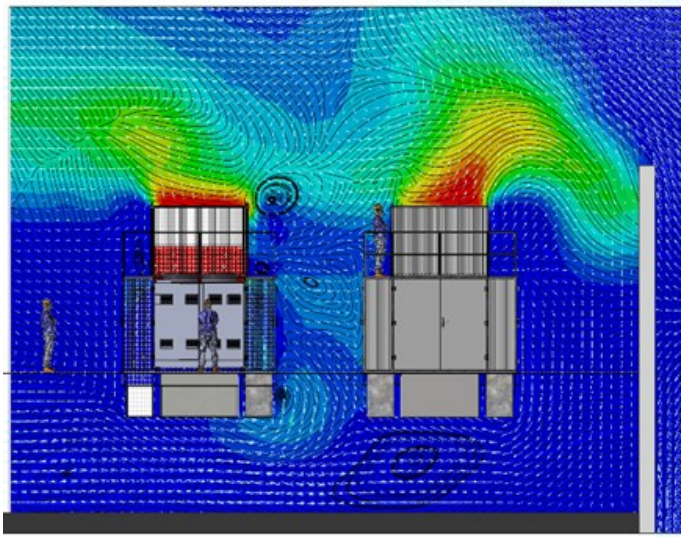
up to
-25 dBA

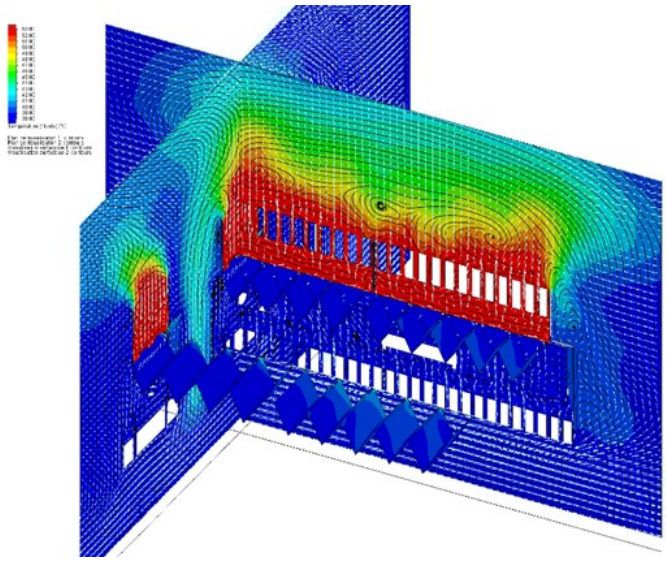
...WITHOUT COMPROMISING ENERGY

A native design serving PUE



InLine model with under-gantry air intake : an innovative concept that limits air re-circulation and addresses the regulatory requirements of the 5th façade





DESIGN CONTROL THROUGH C.F.D.

The use of Computational Fluid Dynamics (C.F.D.) simulation in the design process is a major asset. Mastered by our engineers for over 15 years, C.F.D. enables the modelling, analysis and optimisation of airflow behaviour in cooling units and their surrounding environments. This tool is essential for validating our models under extreme operating conditions, including high OAT, air recirculation, prevailing winds and the impact of perimeter acoustic or visual screens on terraces.

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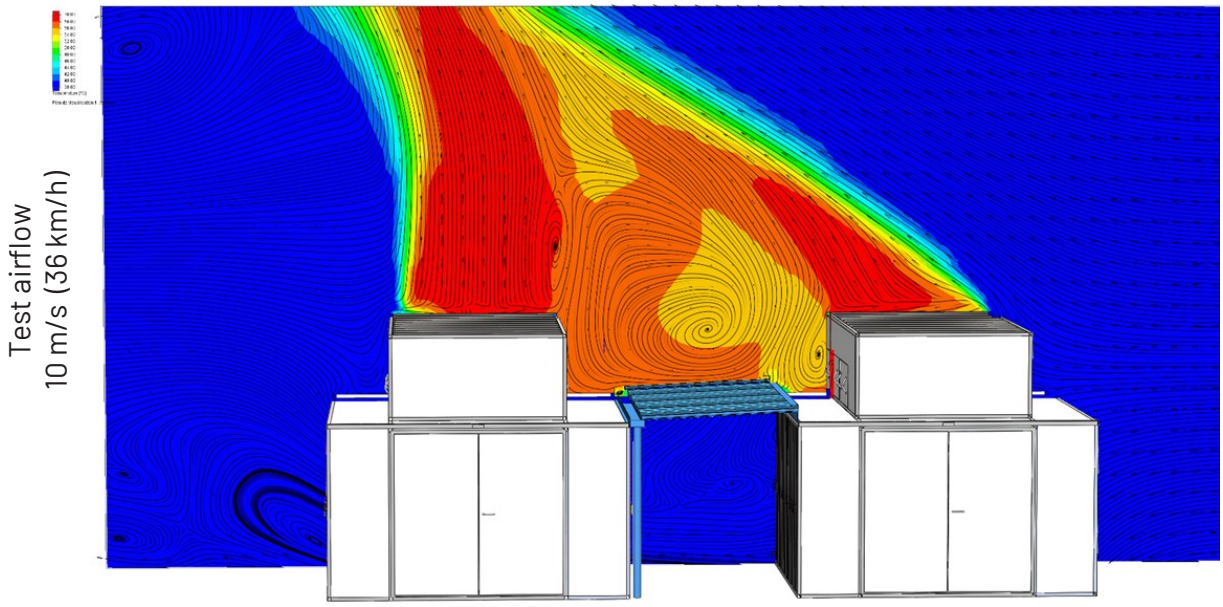
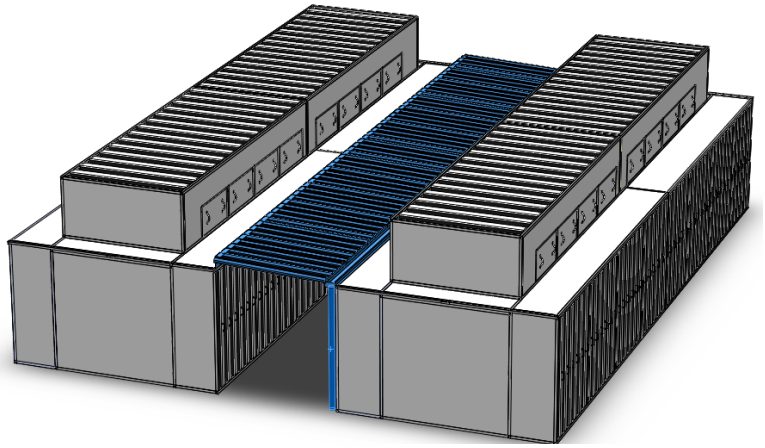
-25 dBA

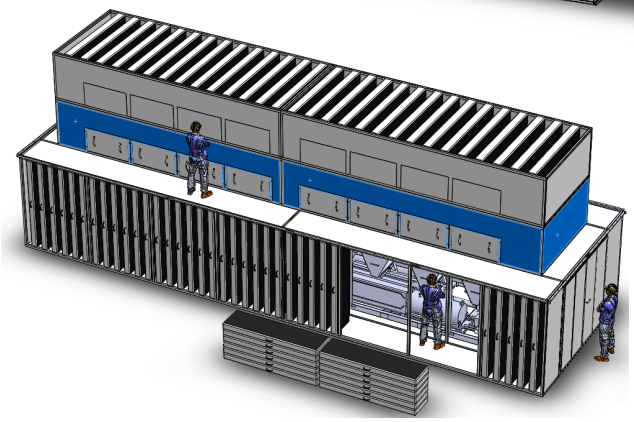
...WITHOUT COMPROMISING ENERGY

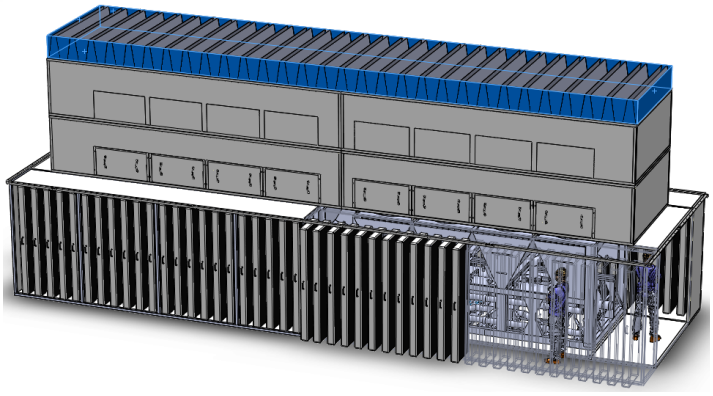
Limiting air recirculation



T model and its options for preventing air recirculation







FACTORY SOLUTIONS TO LIMIT AIR RECIRCULATION

We offer a range of factory-engineered options designed to limit hot air recirculation, which can compromise the energy efficiency of refrigeration systems. These solutions can be implemented either independently or in combination.
Proposing an anti-recirculation acoustic roof with its rainwater drainage system, an extended discharge plenum, or ejector-accelerators reflects our commitment to achieving optimal energy efficiency. **We are far more than manufacturers...**

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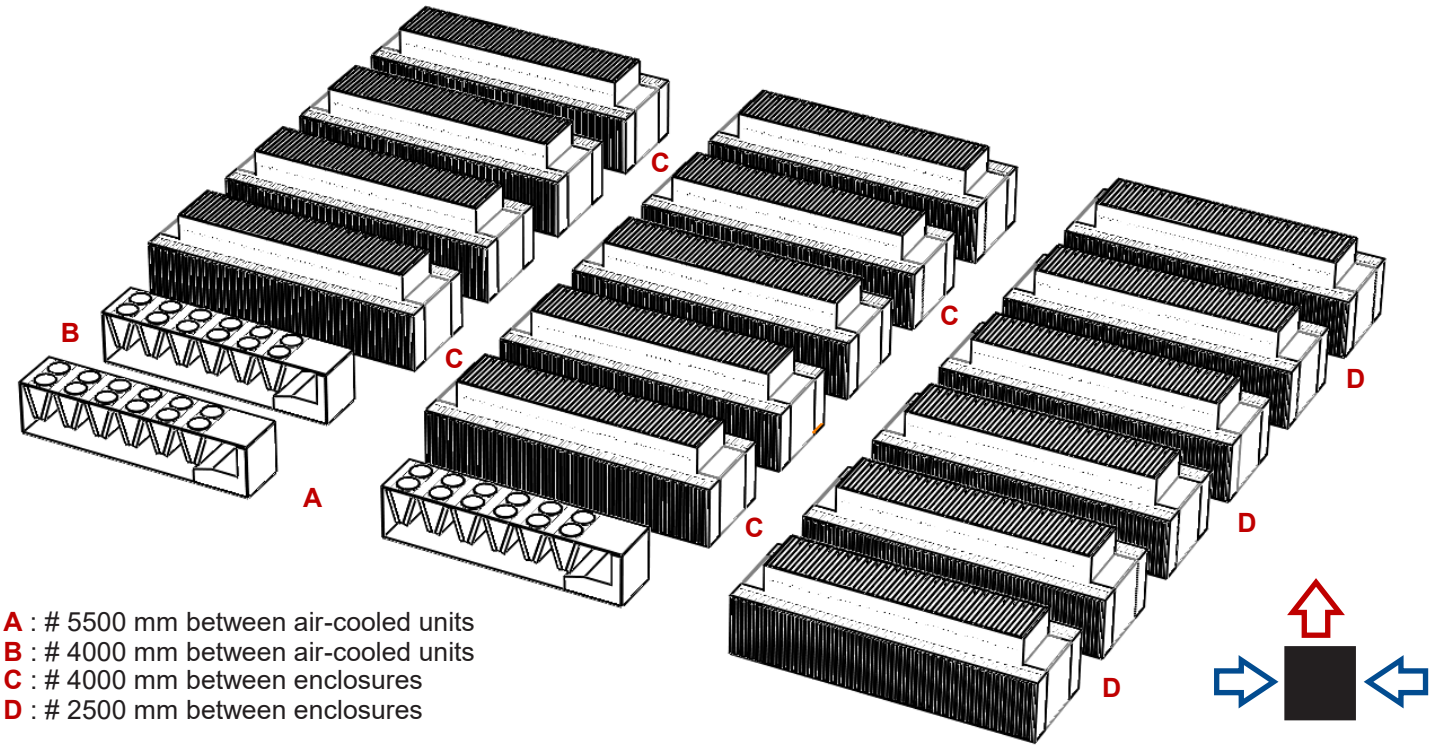
-25 dBA

...SEAMLESSLY INTEGRATED INTO THE PROJECT

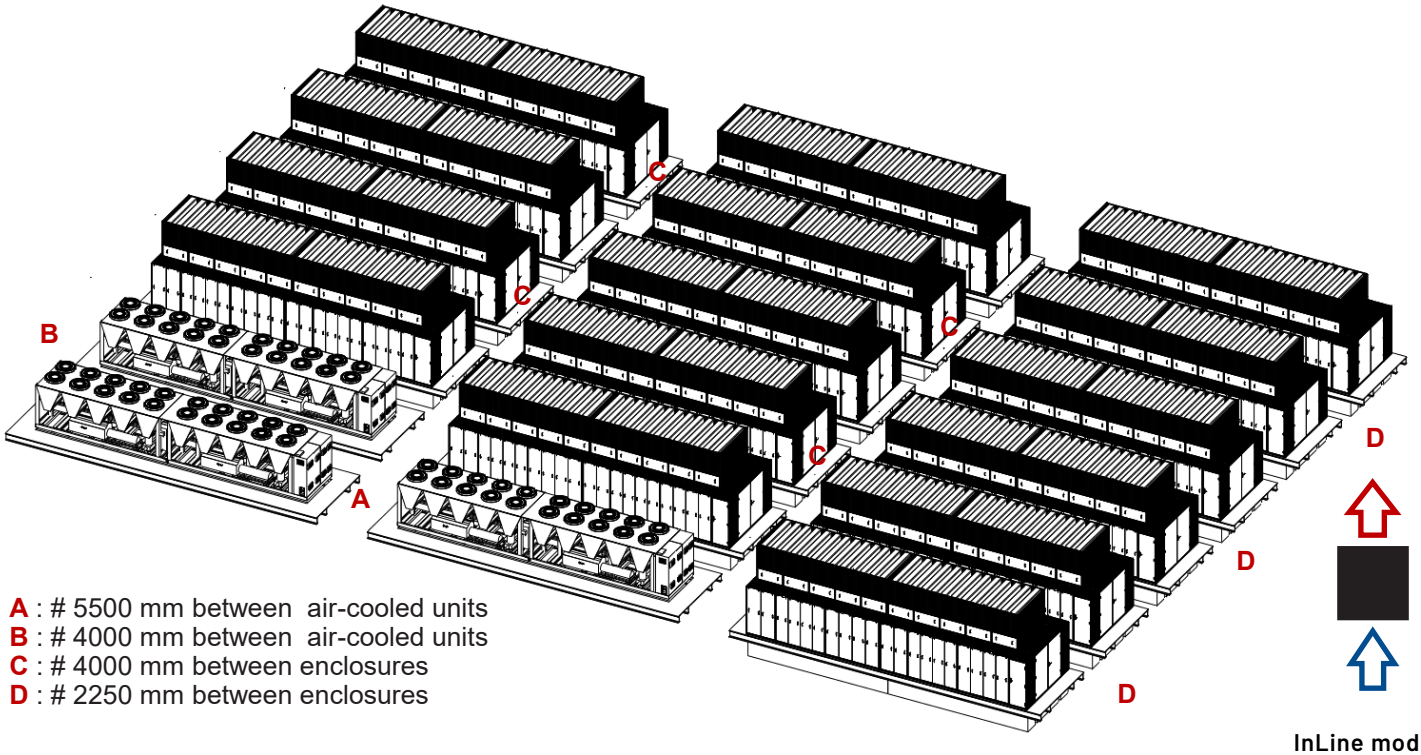
Maximising space on technical roof terraces



A : # 5500 mm between air-cooled units
B : # 4000 mm between air-cooled units
C : # 4000 mm between enclosures
D : # 2500 mm between enclosures

T model

Reduced footprint: up to 20% more chillers on the terrace



A : # 5500 mm between air-cooled units
B : # 4000 mm between air-cooled units
C : # 4000 mm between enclosures
D : # 2250 mm between enclosures

InLine model

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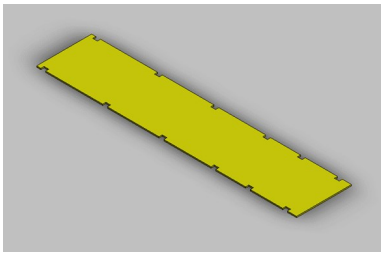
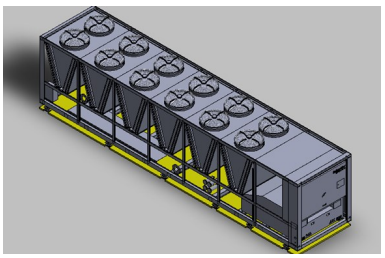
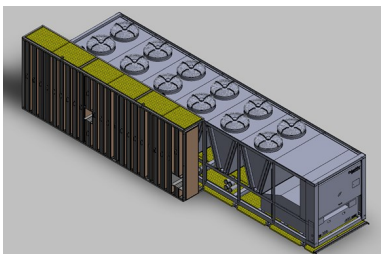
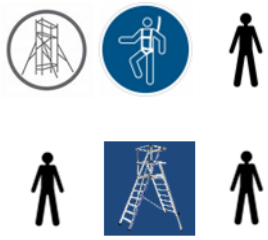
...FAST INSTALLATION

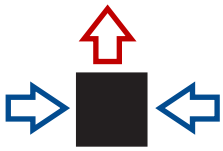
Factory-preassembled, crane-ready units



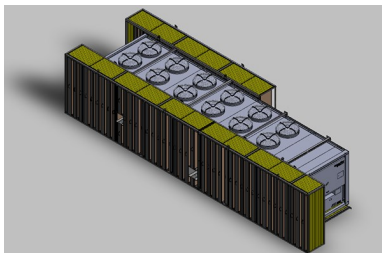


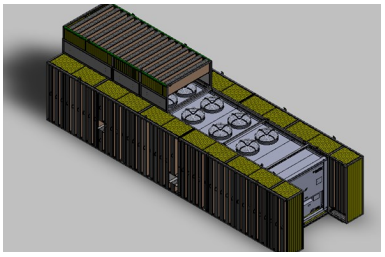


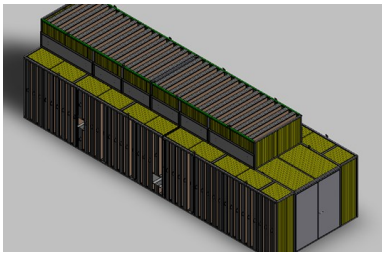




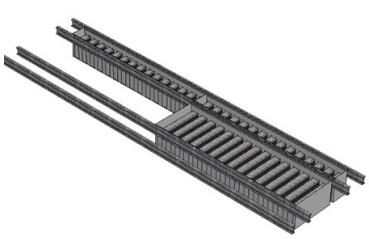
T model

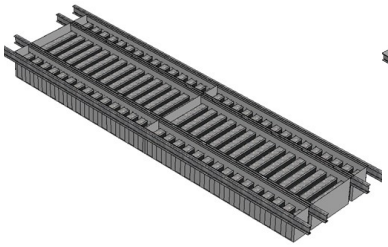


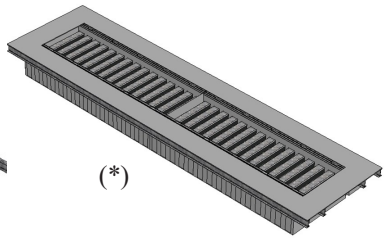




Designed to keep on-site intervention time to a minimum







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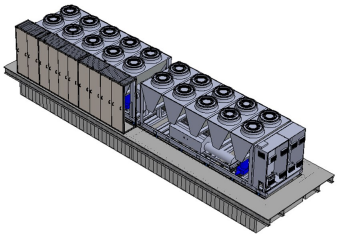
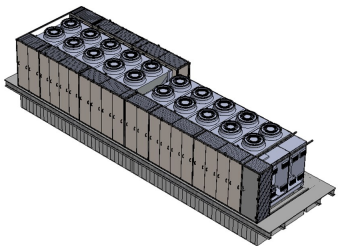
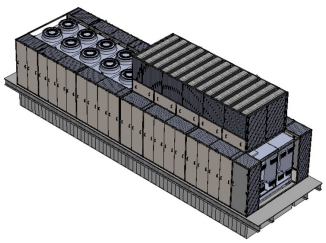
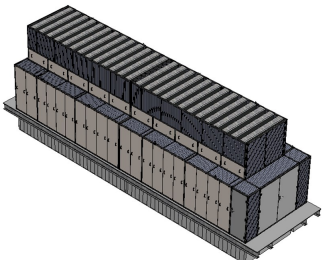


InLine model







(*) Installation of the grating not included in our scope

FAST INSTALLATION

Thanks to its modular design, **Hushflow® Datacooling** allows for quick installation, reducing on-site coordination time. The average installation time is 2 to 2.5 days, requiring only two technicians per unit.

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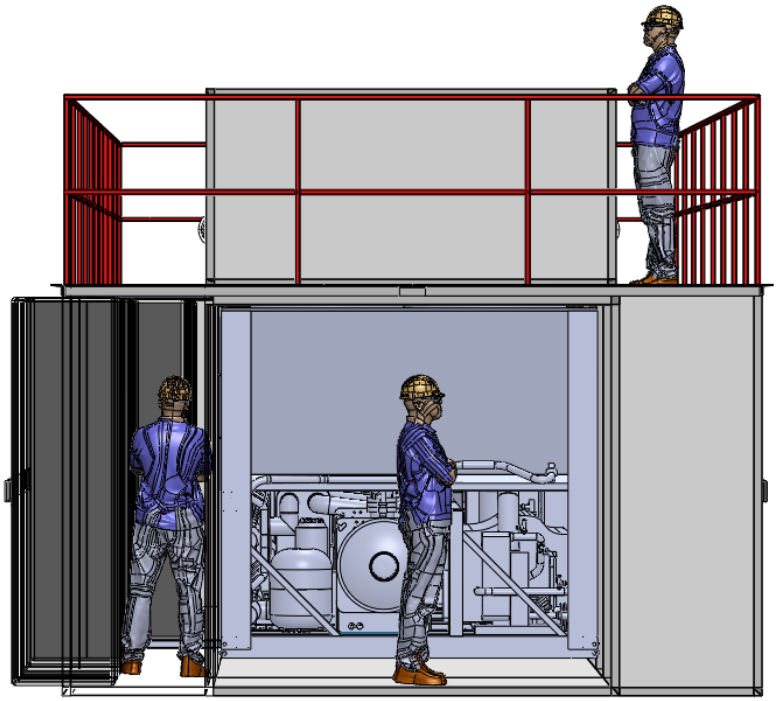
up to
-25 dBA

...WITH OPERATIONAL SAFETY ALWAYS IN MIND

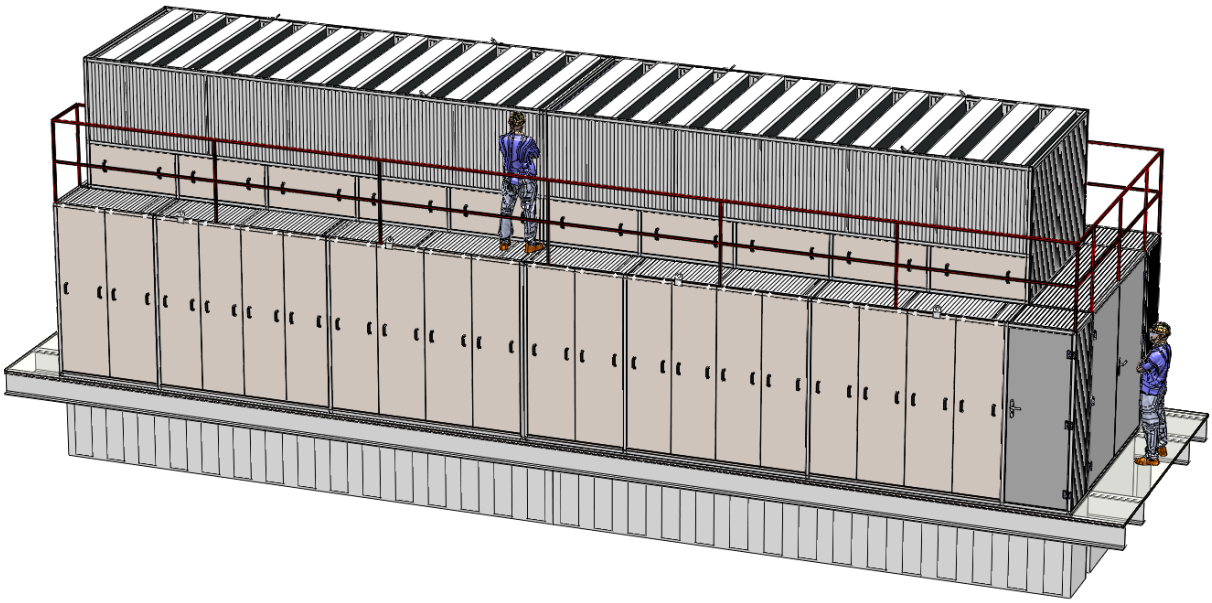
Committed to ensuring the SAFETY of every technician



SafetyCare

Ergonomic SAFETY device compliant with NF14122-3

Operator and maintenance SAFETY is everyone's responsibility
IT'S OUR GUIDING PRINCIPLE



TECHNICIAN SAFETY

Hushflow® Datacooling can be equipped with various safety features to protect operating and maintenance personnel. Factory options include lighting and emergency lighting units, panic bars and refrigerant leak detection systems.
As for fall protection, there's no issue: we are a proud partner of EnergyCare. Hushflow® Datacooling can be factory-prepared to accommodate the patented **SafetyCare®** system.
Find out why we chose **SafetyCare®** by visiting https://energycare.fr/index.php/safetycare-kit-ergonomique/

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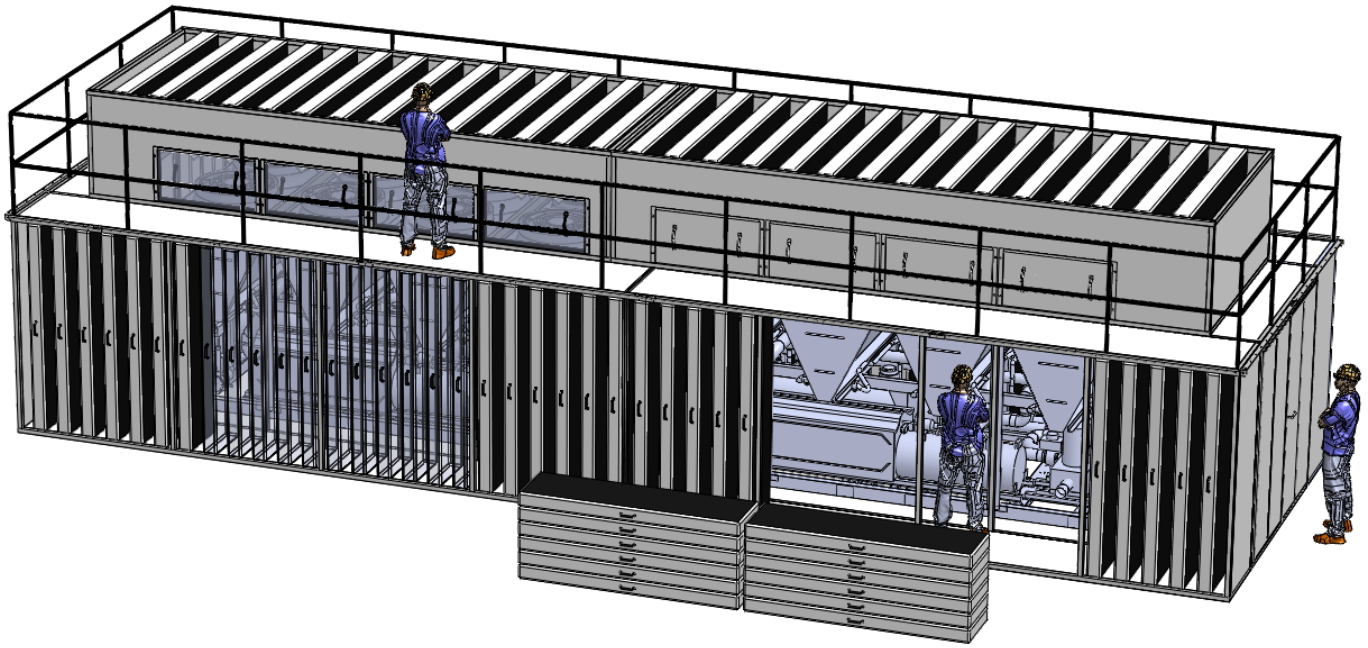
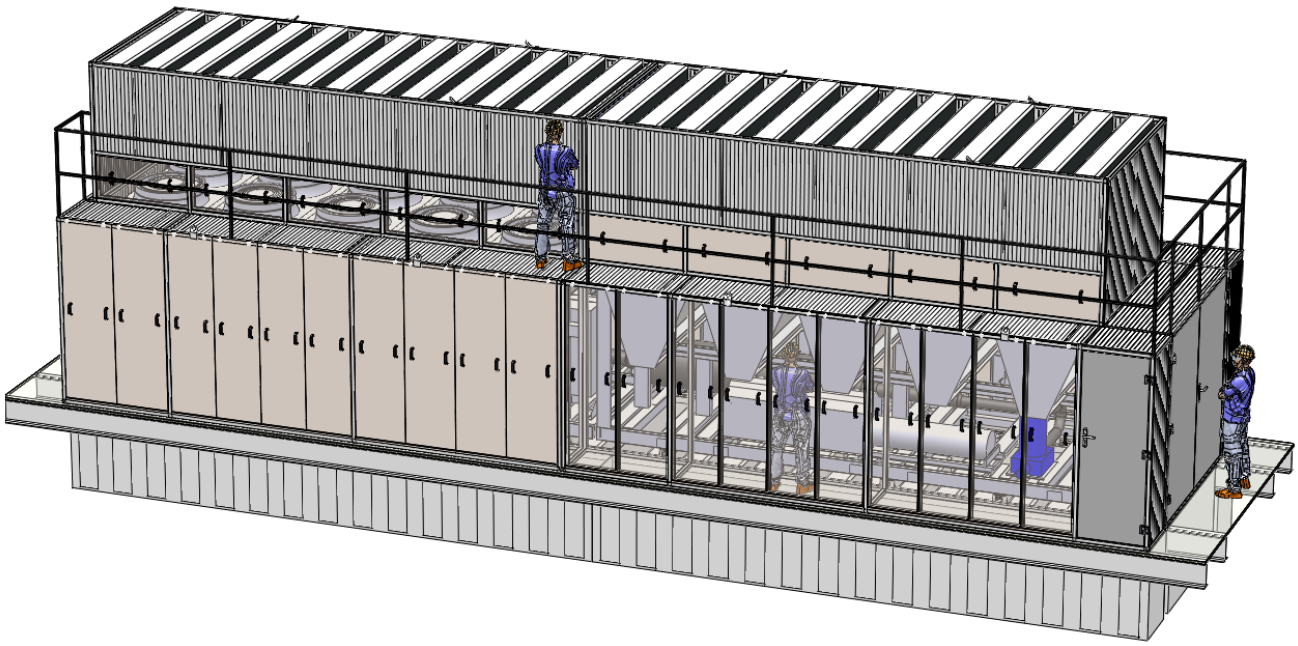
...AND MAINTENANCE OPERATIONS

Easy access to the unit's components



Double doors, an inspection corridor, rack-mountable components and removable panels and hatches make maintenance easier



SIMPLIFIED MAINTENANCE

Ease of access and maintenance for air-cooled units is truly at the heart of our design approach.
Manufacturers' maintenance requirements are fully respected, with easy access to all major components of the equipment .

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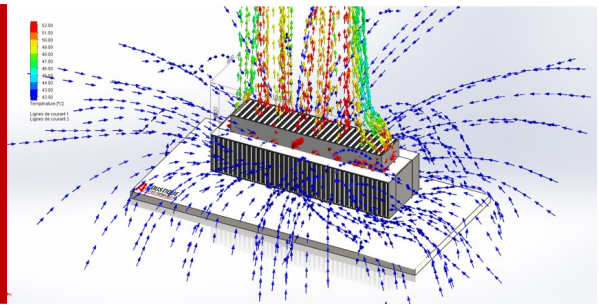
TECHNICAL FILE

Key components of a solid technical file



Data required for the Hushflow® Datacooling design

EQUIPMENT CHARACTERISTICS [MANUFACTURER]

- Acoustic spectrum by octave band Lw [dB] or Lw [dB(A)] corresponding to the target (cooling capacity / OAT) for daytime and night-time operating conditions, in N / N+1 configuration ;
- Associated volumetric airflow rates for the various operating scenarios ;
- Overall dimensions (H × W × D) of the unit and REVIT file ;
- Loaded height of the anti-vibration mounts provided to isolate the unit from its surroundings .

TARGET ACOUSTIC PERFORMANCE [ACOUSTIC CONSULTANT/ENGINEER]

- Overall sound power level Lw [dB(A)] or octave-band spectrum Lw [dB] or Lw [dB(A)] to be achieved for the unit, corresponding to the acoustic targets for DAYTIME and NIGHT-TIME operation.

DIMENSIONAL CONSTRAINTS [HVAC ENGINEER AND ARCHITECT]

- Maximum footprint of the acoustic enclosure: L × W × H ;
- Constraints related to the fifth façade (roof-level integration) ;
- Maximum permissible weight of the enclosure .

Documents we provide

SELECTION DOCUMENTS

- Selection report summarising the input data and specifying the octave-band acoustic spectra resulting from the treatment. The data are presented separately for discharge and intake, then combined to obtain an overall Lw[A] level for comparison with the target ;
- Aerodynamic pressure drop at the specified flow rate, including overall, discharge and intake values ;
- Overall dimensions (H × W × D) of the acoustic enclosure and total weight ;
- Simplified REVIT file for coordination modelling ;
- Comprehensive and detailed technical quotation .

EXECUTION DOCUMENTS

- Dimensional drawing in *.dwg format to be validated by the project supervisor (MOe) prior to manufacturing, including a schematic layout of the mass distribution on the gantry ;
- Packaging details: number of crates, dimensions and weights ;
- Delivery schedule.

COORDINATION WITH OTHER TRADES

- GC/HVAC: Determination of fluid pathways (inlet/outlet of EG networks) and electrical supplies, so that we can plan the necessary service provisions during manufacturing; management and coordination of module handling on the terrace (not included in our scope) ;
- STRUCTURE: Management of gantry support interfaces and the type and installation of gratings (not included in our scope) ;
- HSE COORDINATION (SPS): Review of our Health and Safety Plan (P.P.S.P.S.) and, more broadly, our operating procedures ;
- SAFETY: Selection of factory-integrated safety options, including pre-equipment for the SafetyCare® solution. Please note: our structural elements are protected against corrosion by hot-dip galvanisation. Any drilling carried out subsequently on site will void the ten-year structural warranty.

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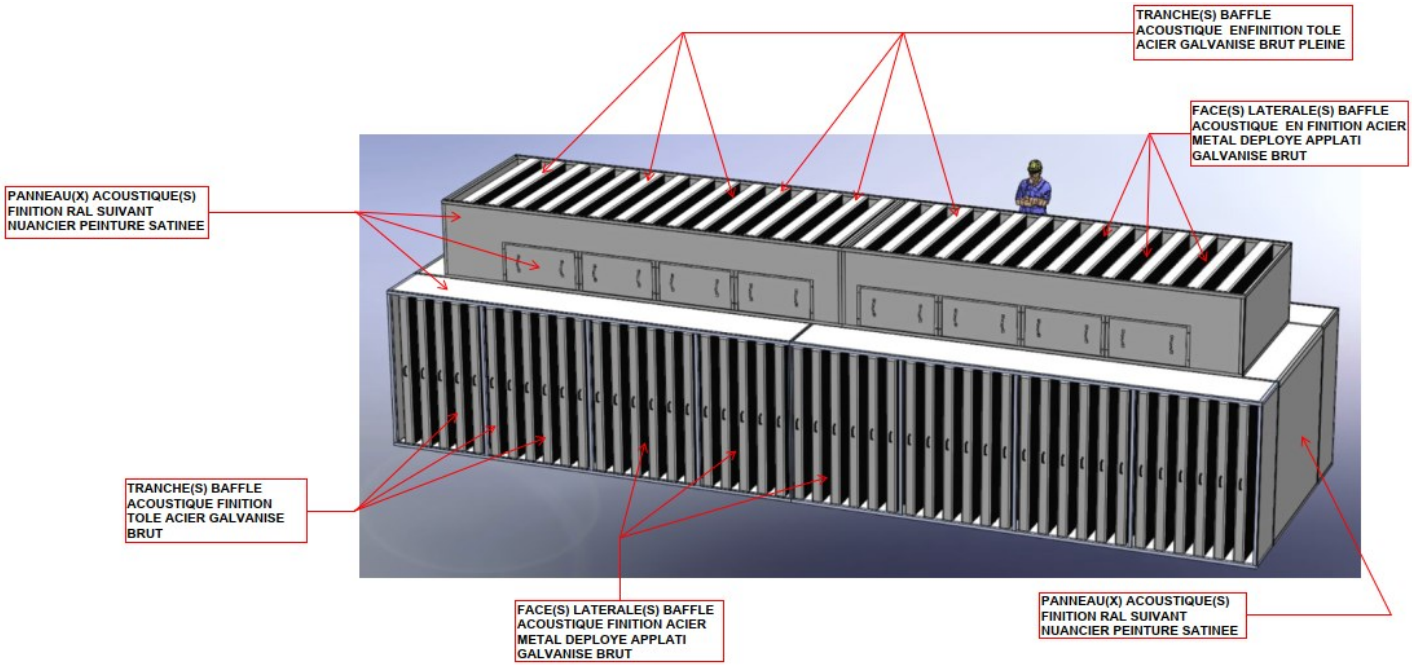
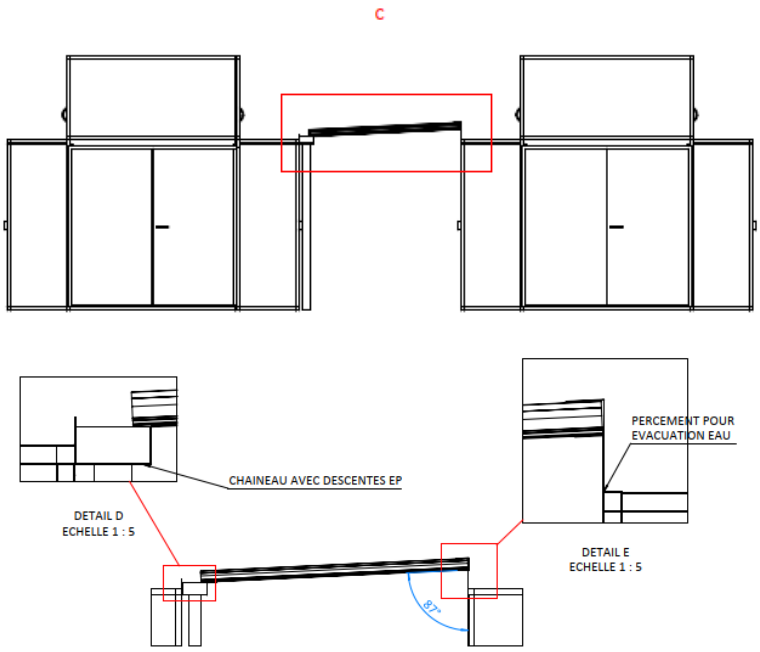
ADDITIONAL INFORMATION

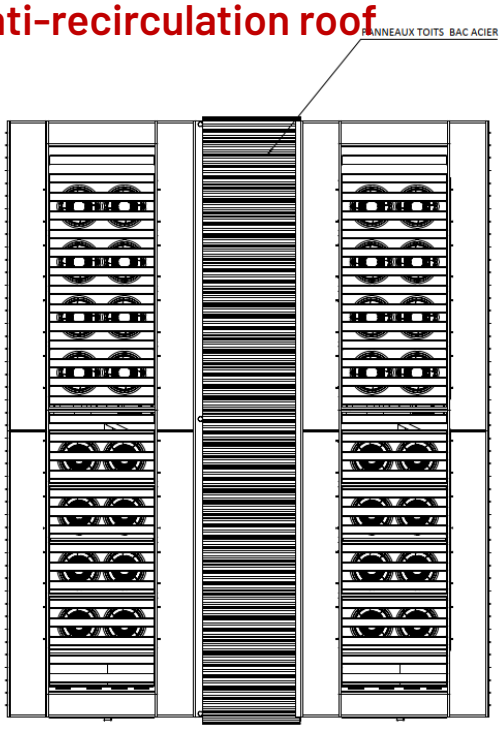
Clarity that ensures seamless collaboration

Our Standard Finishes



Example of a four-chiller installation featuring an anti-recirculation roof





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Notes

Hushflow® Datacooling has proven its effectiveness and relevance across a variety of environments.

Designed to meet the specific constraints of data centres, including performance, modular integration and weight, it has already been successfully tested at several data centre sites in France and across Europe.

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