ENGLISH

AAF INTERNATIONAL

A member of DAIKIN Group

NUCLEAR DIVISION

«Doing all we can to meet the highest demands and to achieve an unequaled level of quality»

Yvan Floury,
Director of Operations
Division Power & Industrial

PREFACE

EDF - MONTEAUX MICHEL

In an ever more densely populated and industrialized world, air quality is key to the well-being of populations, environmental protection and that of industrial products and processes. Be it the air that we breathe, or the quality of air required for industrial production, clean air is a vital requirement.

AAF has dedicated itself, for nearly a century, to the promotion of healthier air by developing an unequaled expertise and innovation ability in the field of air treatment. This commitment, shared at all levels within the company, extends even to our motto «Better Air is Our business». The men and women at AAF are proud of their investment in this mission. They thus contribute to optimizing resources and to improving the environmental integration of industrial activities.

PRESENTATION

In the current economic context, all avenues for generating additional energy or conducting production in the most economical manner possible must be explored.

For example, in the energy production sector, nuclear safety constitutes a particularly sensitive field, for which AAF has developed a number of specific devices, such as HEPA filters, iodine traps and earthquake-resistant safety housings. With its 5 R&D centers worldwide, and backed by its experience in the nuclear field, AAF commits to develop and provide its customers with equipment compliant with the most stringent specifications and standards. Our qualified and experienced team of draftsmen, designers, welders, quality assurance operatives and chargés d'affaires, will support you in ensuring the success of your nuclear projects.

AAF also contributes to biological and chemical protection by offering a range of filtration solutions: interception and adsorption, contaminated environment radioelement trapping and adsorption of certain gases or gaseous molecules. All of our products have been validated by major international laboratories in the field.

QUALITY APPROACH & CERTIFICATES

AAF has committed itself to implement a quality approach that aims at designing, developing, producing and marketing ever more innovative and competitive products with increasing consideration for our customers.

The changes in our activities require perpetual and effective adaptation. In this context, we consider it important to demonstrate our position and actions and, hence, to fully commit to a certification process in accordance with the ISO 9001:2008 international standard. The 4 strategic lines of our process are as follows:

• To increase the satisfaction of our customers, a key element of our development strategy, enabling us to adapt to current and future economic and technical situations.

• To continually improve our organization and tools in view of increasing our efficiency and performance in the service of our customers.

• To optimize our skills in order to guarantee the quality required at each step in the process, along with compliance with customer requirements.

• To develop mutually beneficial partnerships with our suppliers centered on skill improvement and the development of optimized solutions.

EURO-QUALITY SYSTEM
ISO 9001

- ISO 9001 (Quality Management Standard)
- ISO 14001 (Environmental Management Standard)`

IRSN
INSTITUT DE RADIOPROTECTION ET DE SÛRETÉ NUCLÉAIRE

- Sheet Metal EN 287.1
- EDF's CRT (Cahier RègleTechnique)
- IRSN (Institut de Radioprotection et de Sûreté Nucléaire)
- Areva (Regel KTA 1401).
- TUV Nord Certificate (Certificate no : 07-202-1201 EN 1846/07)

The America Society of Mechanical Engineers (ASME) Codes:

ASME
SETTING THE STANDARD

- ASME AG-1-2009 Code on Nuclear Air and Gas Treatment plus Addenda AG-1b-2007 & AG-1a-2004
- ASME N509-2002 Nuclear Power Plant Air-Cleaning Units and Components
- ASME N510-2007 Testing of Nuclear Air Treatment Systems
- ASME NQA-1 2004 Quality Assurance Requirements for Nuclear Facility Applications

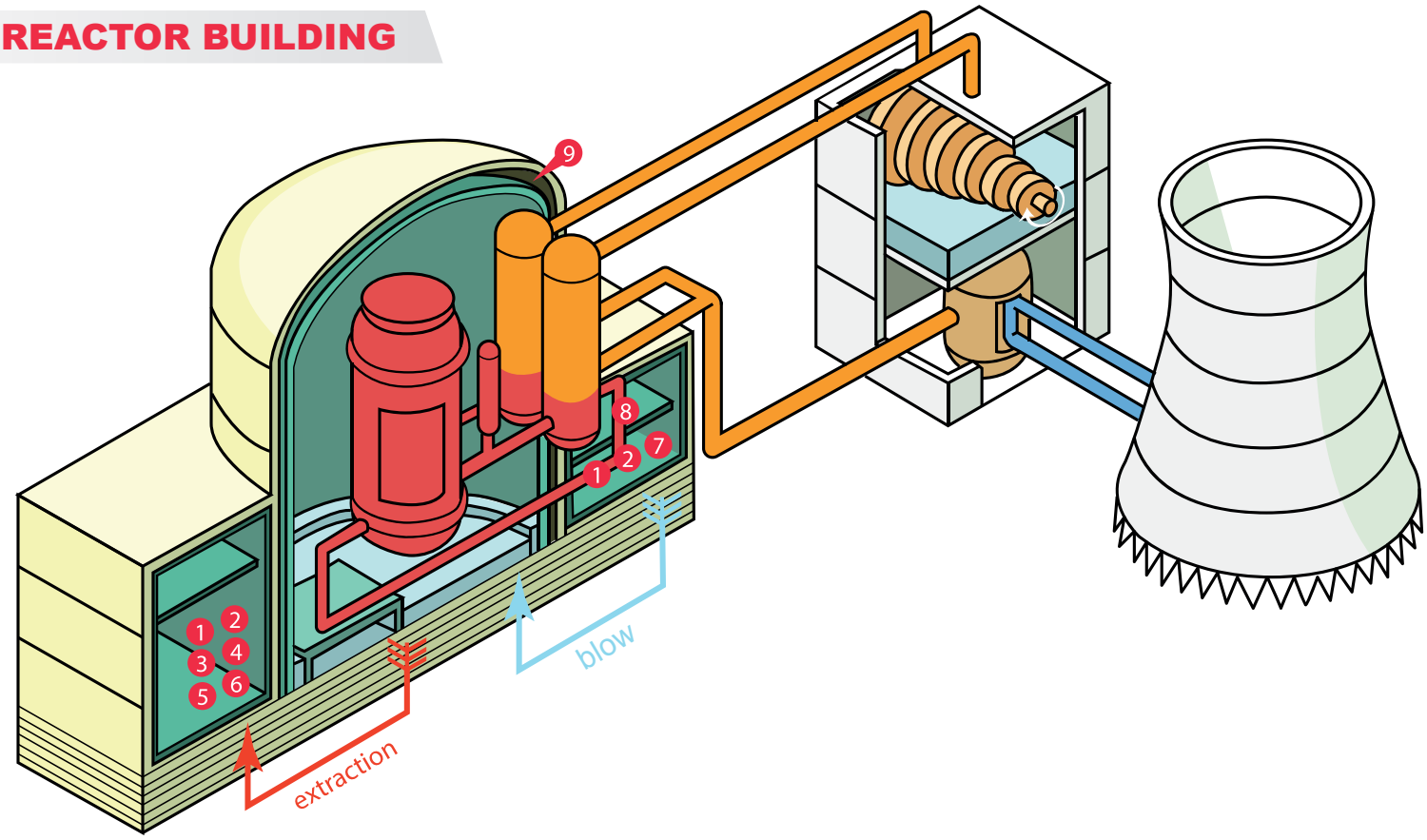
The US Department of Energy (DOE) Nuclear Safety Standards:

DEPARTMENT OF ENERGY • UNITED STATES OF AMERICA •

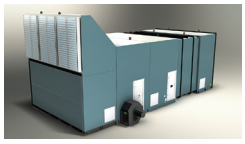
- DOE-HDBK-1132-99 Design Considerations
- DOE-HDBK-1169-2003 Nuclear Air Cleaning Handbook
- DOE-STD-1066-99 Fire Protection Design Criteria
- DOE-STD-3025-2007 Quality Assurance Inspection and Testing of HEPA Filters

PRODUCTS

REACTOR BUILDING



1 Static Filter

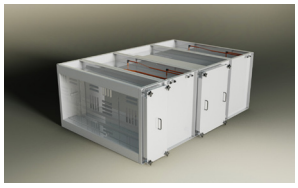


4 CSE Housing

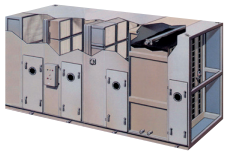
7 Varicel V

2 HEPA AST III NG

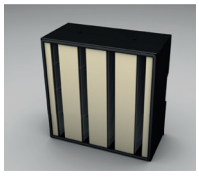
5 BIBO Housing



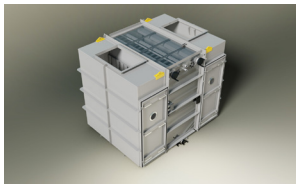
8 Duct Housing



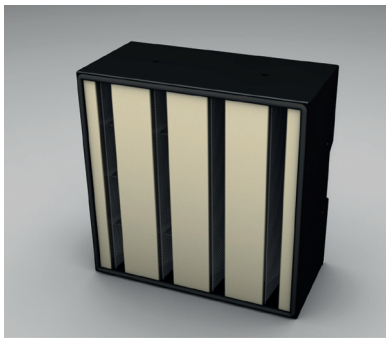
3 Iodine Trap



6 Impregnated Coal BED IV



9 Impregnated Coal BED III



Iodine Trap

These are potassium iodide and TDA-impregnated activated charcoal adsorbers. They are generally fitted onto extraction circuits in potentially contaminated nuclear industry buildings.

They serve to trap radioelements (I131, Kr, Radon, etc.). These small cells (610x610x292 mm) can be fitted onto CSE housings and duct housings.

Weight of charcoal: 38 kg for a flow of 1200 m3/h.

Impregnated Coal type BED IV

Coconut-based activated charcoal, impregnation > 1% KI and < 5% TEDA.

Used in cells (PAI), or in drums for rechargeable iodine absorbers (BED).

Ignition point: 350 °C.

Each batch of charcoal is tested by IRSN

Impregnated Coal type BED III

Duct housing with activated charcoal, rechargeable on-site, able to process flows of 1000 to 25,000 m3/h.

The housing can be fitted with a pre-filtration stage and a HEPA filter stage.

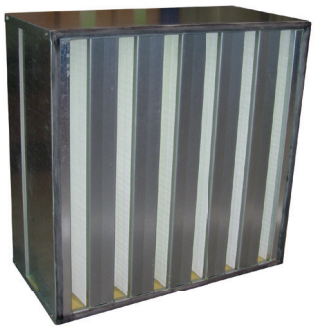
These iodine traps can be recharged by means of a purpose-designed machine, preventing dust formation.

Pre-filter

Medium efficiency filter, filtration class G4 as per EN 779 standard.
The purpose of this pre-filter is to protect the HEPA filters.
Galvanized steel frame, Neoprene gasket, handling ring.
Large filtration surface area (approximately 2 m²).
Dust holding capacity of 700 g.

Varicel V

High efficiency filter, filtration class F6 to F9 as per EN 779 standard.
This filter is mainly fitted onto the air intake.
Polystyrol frame, can be incinerated without releasing halogen gas.
Filtration surface area: 18 m².

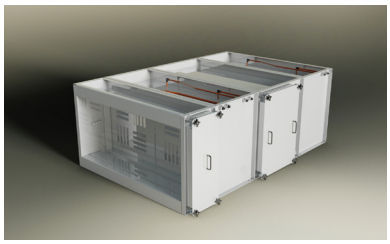


HEPA AST III NG

ASTROCEL III Nuclear Grade, Particulate Air Filter, Very High Efficiency.
Filtration ratio greater than 10,000 determined with Uranine, as per the NF X 44-011 standard.
These very high efficiency filters, thanks to their mini-fold media inside robust housings, can be used in facilities requiring significant air flow. (H10 to U17 rating as per EN1822 standard).

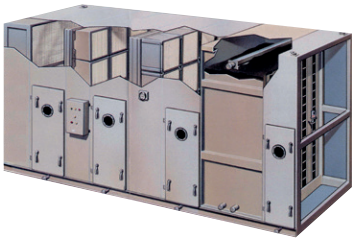
Housing CSE (Caisson à Sas Étanche)

The safety housing is a duct housing designed for hazardous environments.
Filters are replaced using an airtight cover preventing any risk of cross-contamination by airborne dust particles.
Thanks to its small size, the filter can be fitted safely.
Earthquake-resistance housing accredited by a laboratory.



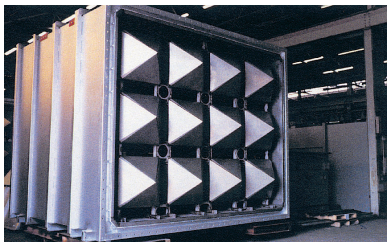
BIBO Housing

Duct housing generally fitted onto the air extraction system. Several filtration stages can be fitted.
Filters replaced under vinyl protective cover.
Epoxy painted steel or stainless steel construction.
Inspection hatch providing access to the filter plane.



Duct Housing

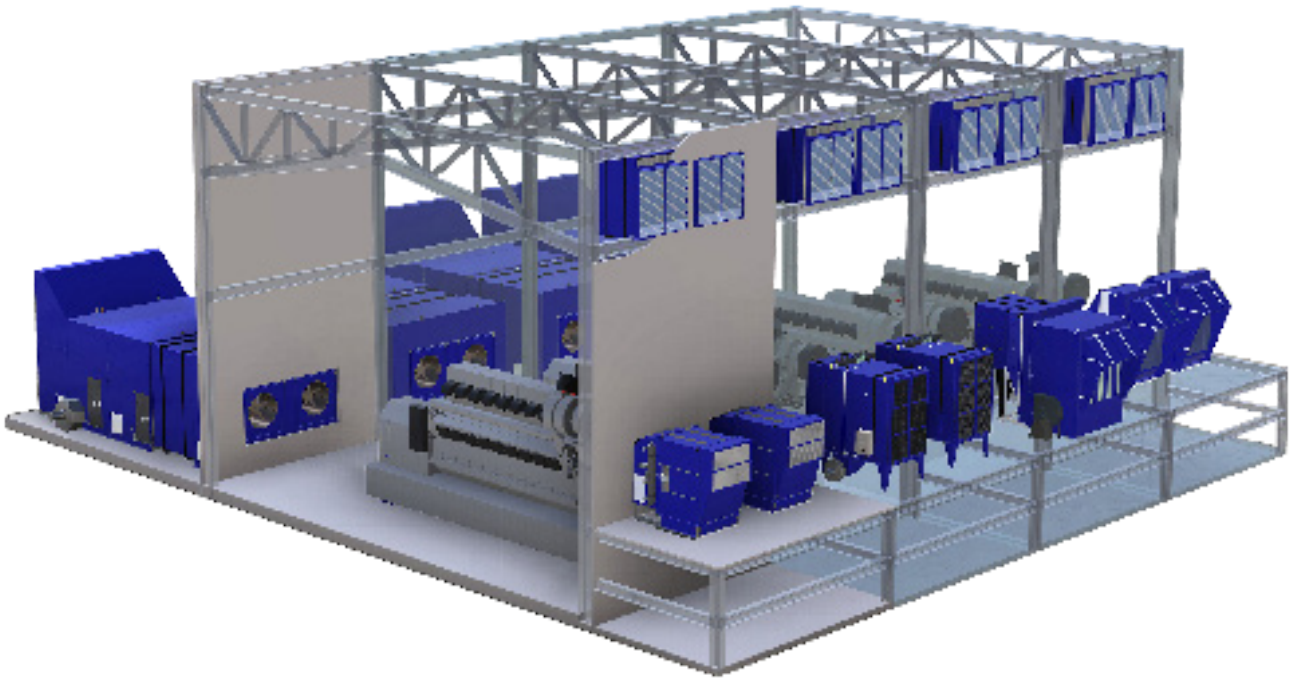
Duct housing generally fitted onto the air intake. Several filtration stages can be fitted.
Heating, cooling batteries, or a humidifier can be fitted.

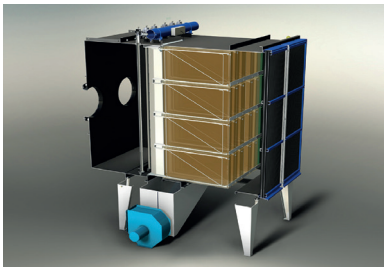


Sound-proofing

For both intake and exhaust, AAF offers a complete range of silencers for rotating machines (gas turbines and diesel engines).

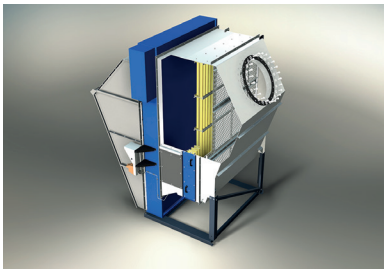
BACKUP DIESEL ENGINE FILTRATION





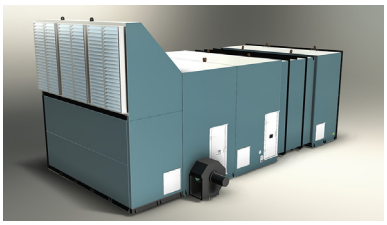
ASC

The ASC self-cleaning system is a new air intake concept for rotating machines. It combines an inertia separation system with a self-cleaning system in a single compact housing.



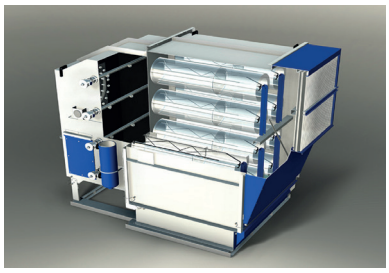
Multy Duty

The MultyDuty is an automatic oil-bath filter requiring very little maintenance and that uses, as filter medium, a revolving curtain comprised of metal panels. Used for high dust concentration levels.



Static Filter

The static filter is designed to withstand extreme conditions (high heat, frost, humidity) without loss of performance.



D-Powerpack

The D-Power-Pak is a self-cleaning cartridge filter. It is used to filter air under extreme dust conditions (small gas turbines, compressors, Diesel engines, etc.)

REFERENCES

CUSTUMER	PLACE	PRODUCTS	APPLICATION
ICE	ISAI MARCOULE	CSE/HEPA FILTERS	URANIUM CYCLE
DUCRE	CNPE FLAMANVILLE	CSE/CAISING/HEPA FILTERS	CIVIL REACTOR
RSNF	ARABIE	CSE/HEPA FILTERS	RESEARCH
CARRIER	CNPE ST ALBAN	CSE/HEPA FILTERS	CIVIL REACTOR
BERNE	CNPE ST ALBAN	CSE/HEPA FILTERS/IMPREGNATED COAL	CIVIL REACTOR
A.D.F.	CNPE PALUEL	CSE/HEPA FILTERS/IMPREGNATED COAL	CIVIL REACTOR
SANI	CNPE FLAMANVILLE	CSE/HEPA FILTERS	CIVIL REACTOR
NASS BERN	CNPE CATTENOM	CSE/HEPA FILTERS	CIVIL REACTOR
PCG	CNPE BELLEVILLE	CSE/HEPA FILTERS/IMPREGNATED COAL	CIVIL REACTOR
DANTO RPGEAT	CNPE GOLFECH	CSE/HEPA FILTERS	CIVIL REACTOR
ADF	CNPE PALUEL	CSE/HEPA FILTERS/IMPREGNATED COAL	CIVIL REACTOR
TUNZINI	MELOX	CSE/HEPA FILTERS	URANIUM CYCLE
AXIMA	MELOX	CSE/HEPA FILTERS	URANIUM CYCLE
CGEC	CEA SACLAY	CSE/HEPA FILTERS/IMPREGNATED COAL	RESEARCH
AXIMA	CEA LE CHATEL	CSE/HEPA FILTERS	RESEARCH
TUNZINI	MELOX C.I.D.	CSE/HEPA FILTERS	URANIUM CYCLE
STMI	U.T.I.	CSE/HEPA FILTERS	MAINTENANCE
EDF	TOUS CNPE	HEPA FILTERS/ PAI/PREFILTERS	CIVIL REACTOR
MAN	CREYS	OPTIFLO/CSE/HEPA FILTERS	DISMANTLING
COMEX	PALIERS P4/P'4	CSE/IMPREGNATED COAL/ HEPA FILTERS	CIVIL REACTOR
AREVA	TAISHAN	HEPA FILTERS/POCHES/PREFILTERS	CIVIL REACTOR
MINISTERE DEFENSE	ARSENAL TOULON	HEPA FILTERS	MILITARY
AAF CHINE	TAISHAN	HEPA FILTERS/PREFILTERS	CIVIL REACTOR
TUNZINI	DVNP4	BED IV	CIVIL REACTOR

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