xpuris

we green the air

RETHINKING
EXHAUST AIR PURIFICATION

xpuris
we green the air

WHO WE ARE

We are a green tech company meanwhile not only at home in the world of foundries - that´s where we came from.
We know and understand the processes of various industries and their challenges in reducing exhaust air emissions.
We develop innovative, tailor-made solutions to reduce emissions in the exhaust air as optimally and efficiently as possible, in order to comply with requirements of the environmental authorities.

Our modular air cleaning systems are designed for maximum economy and future security for our customers.
We offer pragmatic advice, first-class implementation and comprehensive service. We comply always and consistently with the goals of our customers.

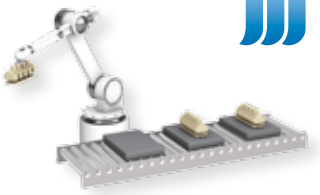
YOUR ADVANTAGES WITH XPURIS

- Best cleaning performance through innovative and holistic solutions
- Complies with current and future exposure limits
- Reduction of operating costs through energy-efficient systems with demand-driven automation and maximum system availability
- Increased operational safety possible by permanent monitoring of the cleaning system
- Future-proof due to modular and expandable design

XPURIS FOUNDRY AIR PURIFICATION

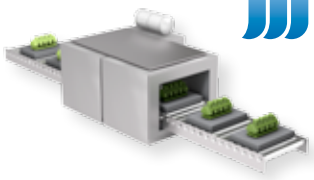
SOLUTIONS FOR DIFFERENT EMISSION SOURCES

Core assembly



Alcohol coating application

Drying oven



Core shooter

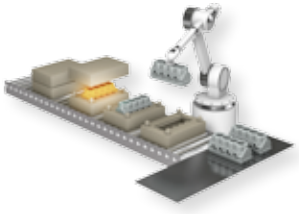
360° CONSULTING

100% REALISATION

24/7 SERVICE

Core storage

Cooling & unpacking station



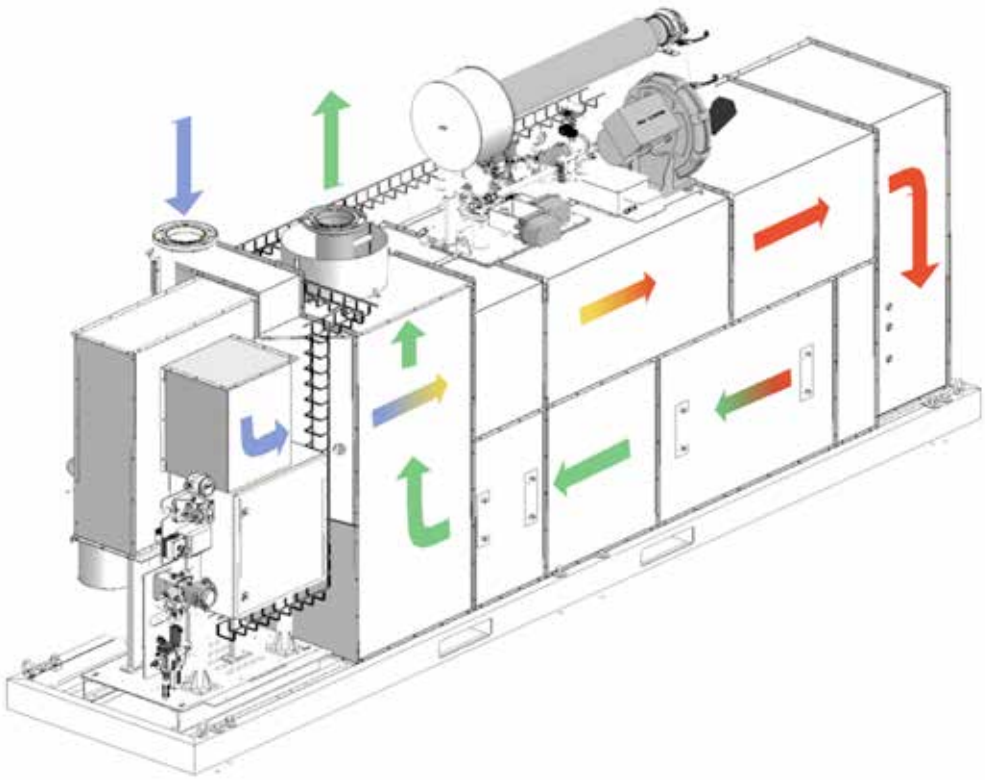
INNOVATIVE **EFFICIENT** **SAFE** **SUSTAINABLE**

XPURIS ACP -
ADVANCED CATALYTIC PURIFIER

EXHAUST AIR PURIFICATION BY CATALYTIC OXIDATION:

Highly efficient xpuris catalysts eliminate pollutants such as VOCs and amines from the exhaust air stream with a low energy consumption. The catalyst is applied to a honeycomb-structured support material. This has a high dust tolerance, among other advantages. The exhaust air is taken in by a fan and preheated by the purified exhaust air in a heat exchanger. The contaminated exhaust air stream is heated up to approx. 300 °C by a process air heater to reach the required working temperature. On the surface of the catalyst, pollutants are oxidized to carbon dioxide and water through direct and indirect chemical reactions. No liquid or solid waste products arise during catalytic purification.

The system is controlled and monitored via an instrumentation and control system with a programmable logic controller (PLC).



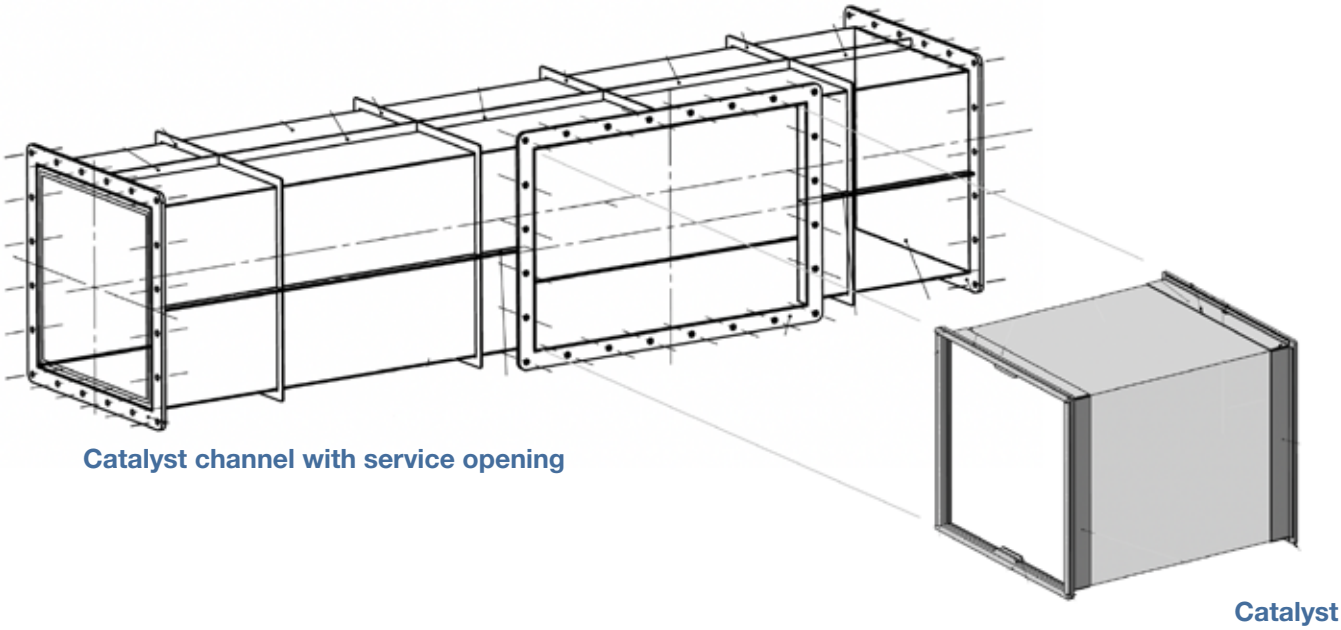
XPURIS CATALYSTS

Different types of catalysts are used in the ACP for different applications and objectives.

- XP-Cat – Standard catalyst for numerous applications
- XP-HE-Cat – High-efficiency catalyst for more demanding tasks
- XP-PtCO-Cat – For special applications (CO reduction)

The catalyst is applied to a honeycomb-structured support material. This has a high dust tolerance, among other advantages.
The nature and number of catalysts that are used depend on the exhaust air characteristics as well as the objective of the purification performance.

Thus, the portfolio offers suitable catalysts for most applications.
All catalysts used meet customer requirements as well as our high standards for quality, future-proofing, and efficiency.



Catalyst channel with service opening

Catalyst

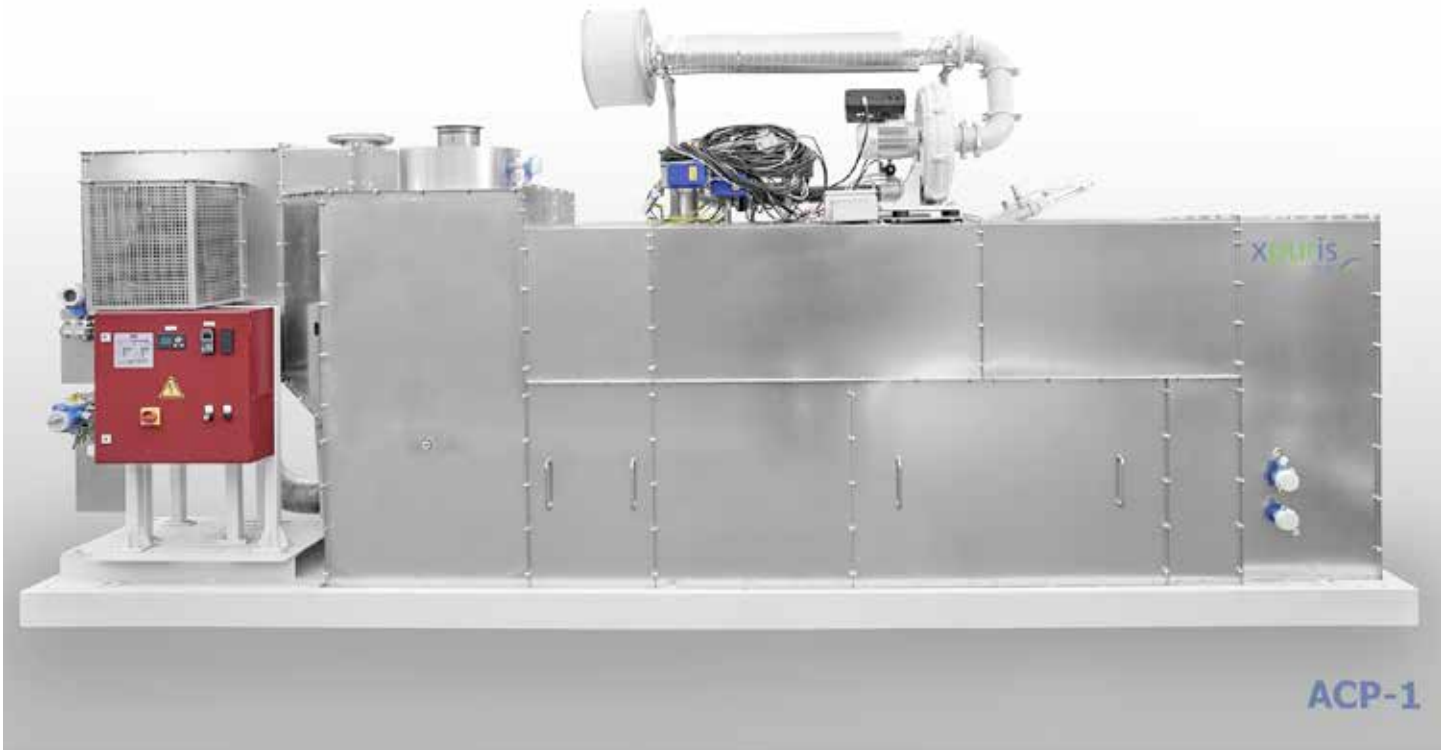
xpuris ACP-1

TECHNICAL DATA:

- Dimensions (5,2 m x 1,1 m x 2,3 m)
- Heating power 20 - 70 kW
- Electrical power 2 - 5 kW
- Heat recovery > 50 %

SCOPE OF APPLICATION:

- Air flow 1.000 - 1.500Nm³/h
- Reduction of exhaust air emissions of Total C, Amine, Formaldehyd, Phenol
- Inlet air temperature 20 - 160°C



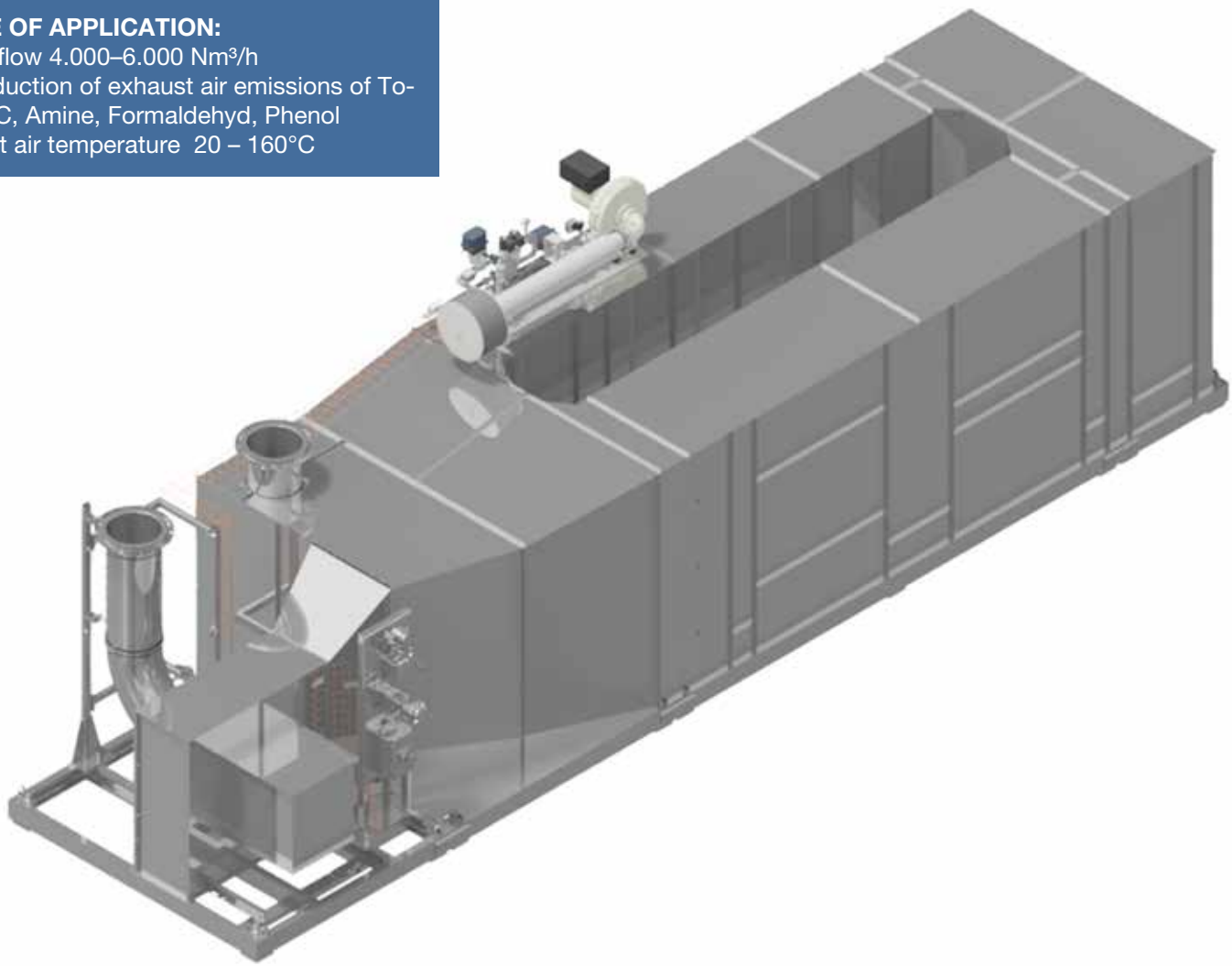
xpuris ACP-5

Technical data:

- Dimensions (7,8 m x 2,8 m x 2,1 m)
- Heating power 50-200 kW
- Electrical power 8-30 kW
- Heat recovery > 60 %

SCOPE OF APPLICATION:

- Air flow 4.000–6.000 Nm³/h
- Reduction of exhaust air emissions of Total C, Amine, Formaldehyd, Phenol
- Inlet air temperature 20 – 160°C



ACP ADVANTAGES:

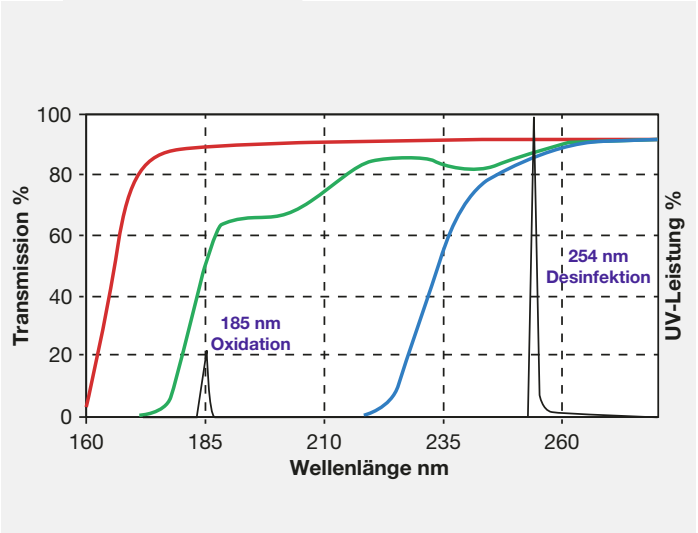
- Compliance with regulatory requirements
- Purification of air streams with high emission loads
- Reduction of VOCs, amines, phenols, formaldehyde, methyl formate, and benzene
- Complete oxidation of pollutants (e.g., to CO_2)
- Central or decentralized application possible
- Purification of exhaust air possible directly at the emission source to avoid dangerous condensate formation in the pipe system
- Lower operating temperature than in thermal incineration systems and thus lower operating costs
- Low pressure drop
- No processing chemicals
- No waste
- Long catalyst lifetime (up to 16 000 hours)
- Low maintenance requirements

XPURIS UVP - ULTRAVIOLET PURIFIER

EXHAUST AIR PURIFICATION BY UV PHOTOOXIDATION:

- The UVP module reproduces the natural self-cleaning mechanism of the Earth's atmosphere and enhances it by many times to remove pollutants such as VOCs, amines, and benzene.
- In the UVP module, the exhaust air flows over special UV light-producing tubes (photoozone lamps). Their radiation converts natural oxygen (O2) to reactive oxygen (O3 = ozone).

This combines with the existing pollutant emissions in the exhaust air. The ozone, which is present in a low concentration and hence not harmful, oxidizes VOCs, amines, formaldehyde, benzene, and odorants; the residues (CO2, water, and dust) are transported away with the exhaust air system. Additional chemical purifiers are not required and filters can also be done away with.



FUNCTIONAL DESCRIPTION OF THE UVP

FUNDAMENTAL CHEMICAL REACTIONS OCCURRING IN THE UVP

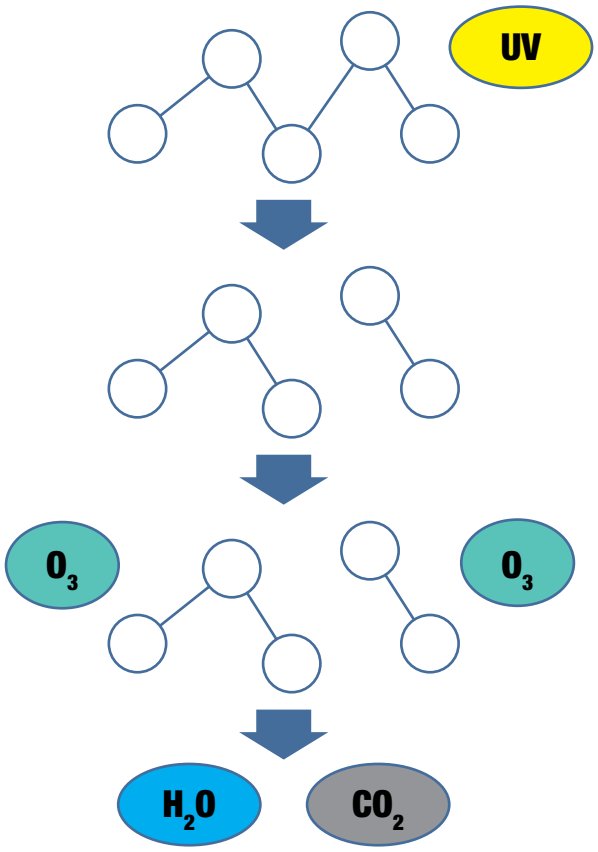
UV-C

- Photolysis: Cleavage products are formed through breaking of the carbon dioxide double bond.
- The UVC light breaks down the long molecules in the air stream.
- UVC light converts oxygen to ozone.

Oxidation

Ozon

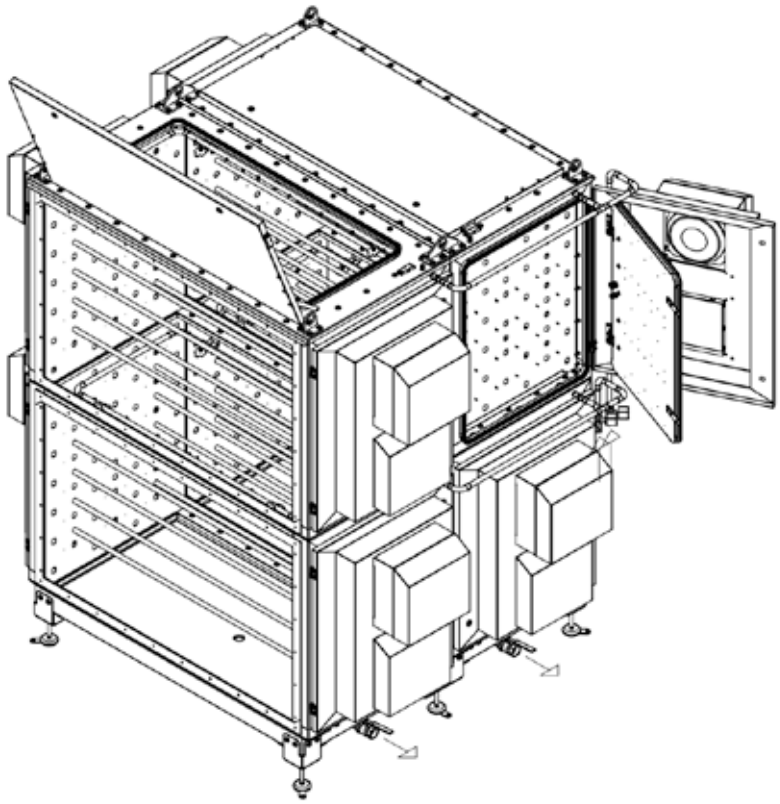
- Ozone forms compounds with the organic substances contained in the air.
- These compounds oxidize.
- The oxidized compounds are removed by the exhaust air system.

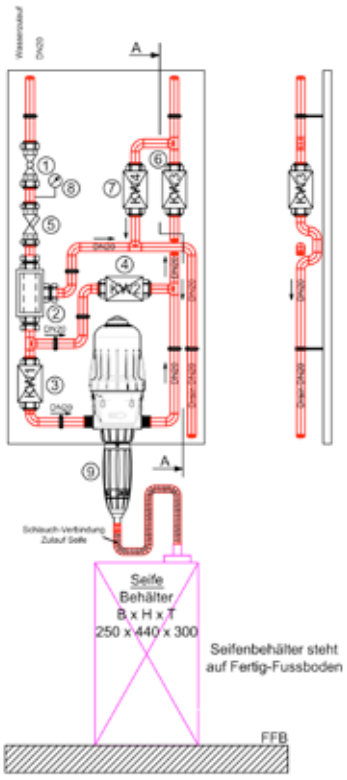


Designation	Volume flow in m^3/h	Installed power in KW	Dimensions in mm (l/b/h)	Weight (UV-Module) in Kg
UVP-192	10.000 - 20.000	17 - 32	1857 x 2558 x 2502	2.000
UVP-288	15.000 - 25.000	25 - 48	2716 x 2558 x 2502	2.500
UVP-384	15.000 - 40.000	30 - 64	2716 x 2558 x 2502	3.000

CIP-WASHING SYSTEM

The CIP washing system ensures that the UV lamps are kept clean and free of air flow by-products. This is important for the cleaning efficiency of the system. The CIP system is filled with water and soap from the corresponding dosing system. The CIP system can be controlled automatically or manually.
The washing process takes up to 15 minutes, depending on the installed unit.





UVP ADVANTAGES:

- Compliance with regulatory requirements
- Reduction of VOCs, amines, phenols, formaldehyde, and benzene
- Very low CO_2 emissions compared with incineration systems
- Low maintenance and low energy consumption, resulting in low operating costs
- Low pressure drop
- On/Off system, insensitive to load fluctuations, high degree of flexibility
- On-demand purification, i.e., possibility of controlling the system based on emission load and thereby further reducing operating costs
- Purification of many different emissions components possible
- Low space requirements, low installation requirements, roof installation possible
- No processing chemicals
- No waste
- UV lamps are automatically cleaned and remain free of deposits

360° CONSULTING – 100% REALISATION – 24/7 SERVICE

Consulting

Solution concept

Realisation

Customer service

OUR COMPREHENSIVE SERVICES FOR YOU:

Parts supply

Maintenance and repair

Service hotline

Training

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