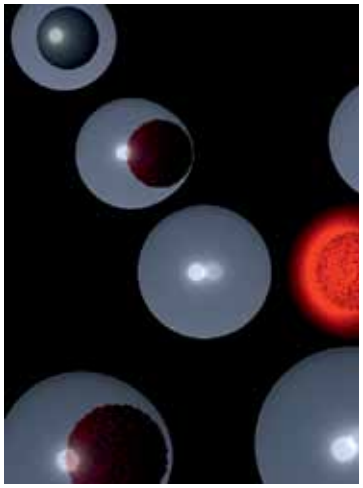
HydronPlus - a compact wet separator

KELLER
Standard for clean air

Standard for clean air

Ideal solution for the separation and cleaning of process exhaust air generated during brushing, blasting, grinding ... processes.

Situated directly at the workstation, with recirculating air operation



All particulate, whether combustible, explosive or adhesive, is captured by activating a cyclone water spray (Venturi principle) for separation from the exhaust air.

ENVIRONMENTAL TECHNOLOGY AWARD
BADEN-WÜRTTEMBERG 2017
1ST PRIZE
CATEGORY 3
EMISSION REDUCTION, TREATMENT & SEPARATION

GREEN BALANCE

The versatile, compact wet separator

Extraction of process emissions

Air quality in the workplace plays an important role in the work performance of participating employees. Utilizing purified air is also preferable for reduced energy usage. Energy cost savings for heating or cooling the air can reach up to 2,000 Euros. The set dust limit values can be reliably maintained because of the fully automated controls. Due to its design, the HydronPlus is not subject to the design guidelines set out in the 42nd BImschV.

Wet separation is a proven solution for any unknown mix of matter and flying sparks.

The composition of extracted matter is frequently unknown in the processing of partially completed products. Polishing compounds or similar content may be involved. However, knowledge of the particulate content is generally unimportant for the extraction of process exhaust air when using a wet separator.

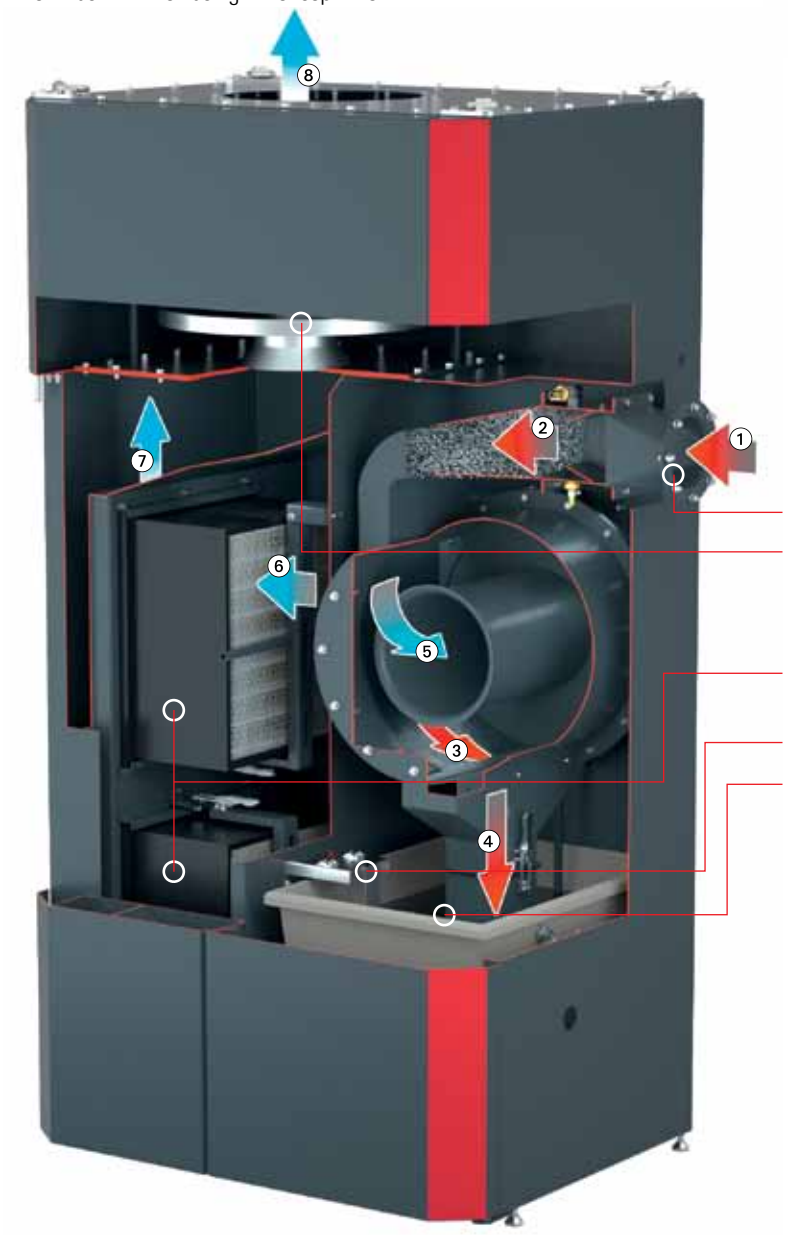
The extraction and separation of explosive dust as well as direct flying sparks has also been simplified.

Therefore, HydronPlus offers a versatile trouble-free package for numerous manual and automatic processes.

HydronPlus has a smooth housing and minimal space requirements (Width 1250, Depth 946, Height 2430, in mm).

Air can be recirculated following secondary filtration with dry filters

Self-regulating automatic operation



① Dirty air inlet (air loaded with process particulate)
② Spraying zone
③ Demister
④ Drain into process water tank
⑤ Extraction of largely cleaned air
⑥ Secondary filtration using dry filters
⑦ Clean air chamber
⑧ Air discharged as clean air

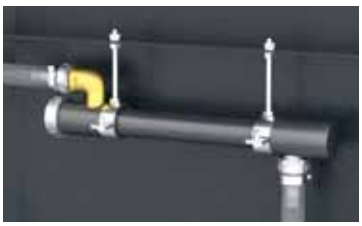
Flange connection to air intake

A radial fan with a frequency converter generate the required airflow and pressure differential (automatically controlled)

Secondary filter stage for clean air recirculation (prevents the accumulation of deposits)

Level sensor

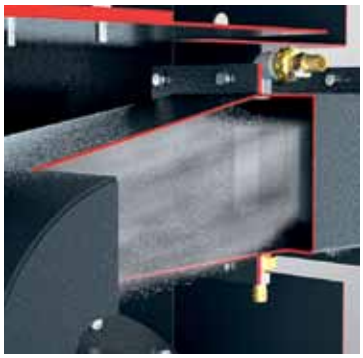
Process water tank



An optional UV-light prevents the propagation of hazardous bacterial growth. Recommended for prolonged use of process water.

Wet and dry separation as a single operating unit

Brief description of functions



Cross sectional view: A dense water mist is created in the spraying zone

Cross sectional view: Demister and immersion nozzle for discharging process water into the process water tank.

Creating a water mist curtain for wet separation

The inflow of dirty air loaded with foreign matter is accelerated through a narrowing in the suction channel. The process water, supplied by a pump, is atomized by a cyclone effect into a water mist spray (using the Venturi principle).

Foreign matter is absorbed into the water droplets and any glowing particles are extinguished in the spraying zone.

Separation of particulate and circulation of process water

The combined extracted air and polluted process water droplets flow down to the demister at a slant and are collected with centrifugal force. The polluted water cyclone flows against the demister wall and is discharged into the process water tank for sedimentation. The process water is then recycled until the accumulated sediments require disposal.

Secondary filtration is performed using a dry filter

The particularly efficient separation by this wet separator design ensures the downstream installation of a dry filter stage, allowing the recirculation of cleaned air back into the workplace.

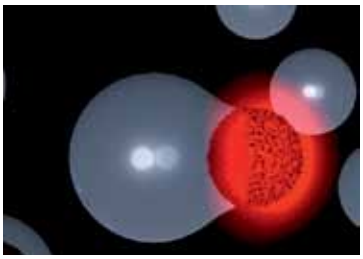
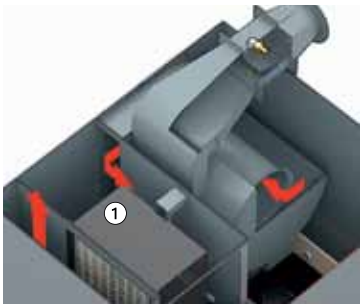


Diagram: The water spray collects foreign matter, and glowing particles are extinguished

Easy discharge of contaminated process water



Cross section view: Airflow entering and exiting the secondary filter stage ①

Versatile and flexible

... up to four air intakes

Keller work table and brushing machine at HydronPlus

HydronPlus is ideal for individual processing machines

As simplified as possible

Effortless cleaning

Front view with opened doors
Left image: Simple exchange of dry filter cassettes

Right image : Demister easily accessible for cleaning after removal of front cover

The primary focus during the design process was the simplified and time-saving cleaning of the wet separator. The demister and immersion nozzle are directly accessible behind the front cover. The spraying zone is also accessible by a removable cover.

① Dry filter cassette
② Quick fastener
③ Opened cyclone
④ Opened spraying zone cover

Technical data

	HydronPlus 1.5
Nominal air volume	up to 1500 m³/h
Pressure (free inlet)	70 daPa (incl. secondary filter stage) 120 daPa (without secondary filter stage)
Dimensions B x D x H	1250 x 946 x 2430 mm
Noise pressure level	≤ 75 dB(A) *
Pipe connection	NW 160

* under free field conditions (DIN EN ISO 3744)

HydronPlus is delivered ready to use

The required output is the only setting after filling the unit with water. Following a brief automatic adjustment of the system, HydronPlus is ready for operation.

A water supply connection is recommended. However, HydronPlus can be operated independently. Ducting from the air intake can be included in the delivery, if requested.

GREEN BALANCE

With GREEN BALANCE Keller Lufttechnik GmbH + Co. KG commits to reliable, far-sighted treatment of all resources – to bring into line technological progress, operational issues and social targets in order to protect the environment.

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