Text for tender

HEPA filter system with scanner, type SCFhightec Triple S

* Robust filter housing made of stainless steel, material 1.4301 (AISI/SAE 304) in gastight design according to the tightness requirements of the DIN 25 496, table 3, for fine-dust and HEPA filter elements, the insertion ports are clearly marked
* All welding are made according to DIN 25 496, item 6.2(4), that means using stabilised steel at austenitic material, e.g. material 1.4541 (AISI/SAE 321 or B.S. 321 S12) and using killed steel at ferretic material
* To ensure a good decontamination and disinfection result housing welds are continuous and without gaps
* The housing is equipped with lifting lugs for easy handling
* Clamping of the HEPA filter elements by means of self-adjusting spring systems, to ensure the tightness requirements for the seat of the filter element according to DIN 25 496, table 3, under conditions of a retreating sealing caused by e.g. aging. Quick release of the clamping devices by means of single acting pneumatic cylinders for filter element exchange. The cylinders to be supplied with compressed air (6 bar oil-free and water-less) via a three-way valve positioned at the front side of the filter housing. So for the inflating and also for the deflating of the cylinders the air is always released into the filter housing safely
* The clamping devices of the HEPA filter elements are operated from outside and designed to ensure the tightness requirements for the seat of the filter element according to DIN 25 496, table 3, under conditions of maximum loading of the filter elements and a retreating sealing.
* Test grooves according to DIN 1946-4 and DIN 25 414 resp. for the HEPA filter elements made of stainless steel. In order to proof the leak free seat of the filter elements the test groove can be connected to a leak test device (see accessories) via fast acting coupling, positioned at the front side on the filter housing
* Each filter element is sealed to the housing on both sides using the 3-seal concept (Triple S) so that the barrier from the inside to the outside of the filter housing remains intact even if the maintenance cover is removed
* The fixture for the fine dust and the HEPA filter elements in horizontal or vertical design.
* Each filter line equipped with a separate insertion port with a special collar.
* The changing of the filter elements using the bag in bag out method without contaminating the environment shall be possible
* The special collar has two circumferential sealing grooves according to DIN 25 466, supp. 1, to take the hollow rubber band for the plastic bag fixation. Undercut groove with perfectly matched hollow rubber band to ensure a gastight seat of the plastic bag.
* Maintenance cover made from 1.4301 to protect the special collar, the maintenance bag and other built in parts
* Bolting of the maintenance cover to the filter housing by four hand screws. Each maintenance cover has a central grip for easy handling
* Selective filter loading monitoring of each filter stage consisting of a Magnehelic® differential pressure gauge, (optional with signal transmitter) instrument holders, connections and connecting lines
− from stainless steel or
− nickel coated brass
The inlet and outlet side of the pressure monitoring line are completed with a ball cock
− from stainless steel or
− nickel coated brass
and an U15-filter each. Additionally the measuring line is equipped with a disinfection connection
* The filter housing is equipped with one raw air and one clean air spigot made from 1.4301 in leak tight design. The spigots are designed as even closure, bolted to the filter housing by a circumferential rim and silicon gaskets. Welded to the spigots is a circular adapter for a gastight damper. A perforated plate is arranged in the air inlet to ensure an uniform loading of the filter stages. Gastight dampers on raw air side and clean air side are protected against cascading parts by covers
* Each connection is secured twice against spreading of contamination to the outside. For that purpose each particle measuring line is equipped with manual operated ball cocks and fast acting couplings suited for disinfection and decontamination. Both can be made
− from stainless steel or
− nickel coated brass
* The housing is equipped with a bleed filter device consisting of a gas tight ball cock and an ULPA-Filter U 15
* The air flow direction on the raw air and on the clean air side is horizontal or vertical.
* The filter housing is equipped with disinfection nozzles. Additionally the ball cock on the disinfection inlet nozzle is equipped with a limit switch which, due to safety reasons, only unlocks the disinfection device connected to it once the ball cock is in “open” position. Also all other connections are provided with a gassing option sealed with ball cocks and locking cups. Gassing is possible once the filter elements are released (not clamped) so that the filter elements and the sealing are flushed during disinfection. The disinfection concept is configured for formalin disinfection. Alternatively hydrogen peroxide or CH3COOH may be used
* The filter housing is equipped with a fully automatic scanner behind each HEPA filter stage. The special engineered and patented scanner bar allows the filter elements to be efficiency checked in operation. All measuring lines are optional from stainless steel or nickel coated brass. They are led through gas tight housing penetrations and can be connected to the mobile filter efficiency test rack. The scanner bar is actuated by an electrical motor installed outside the housing and protected by a maintenance cover
* The limit switches are installed outside the filter housing and accessible for service without opening the filter housing. After particle counting the used air is led back to the air inlet side of the filter stage inside the filter housing. The aerosol feeding probe in front of the HEPA filter stage is designed as manifold tube with holes. Additionally in front and behind the HEPA filter stage extracting probes are installed. All probes are lead to the outside of the filter housing with a ball cock and a fast acting coupling, optional
* from stainless steel or
* nickel coated brass.
* The filter housing is placed on the floor with its integrated support made from 1.4301. So an exchange of filters in optimal working height is provided. The support shall be bolted to the floor
* To perform the filter inspection during operation two mobile test racks are connected to the filter. In the first rack all devices for measuring particle feeding (compressor, aerosol generator and mixing box) are installed. This is connected to the particle feeding probe in the filter housing. The second rack contains the diluting stages, the optical particle counters (OPC) for the raw air and for the clean air side as well as the computer for the automatic control of the scanning process and the evaluation of the results

Option

An EH-analysis (EH = External Hazard) can be provided in form of an FEM-calculation to proof the safety in case of e.g. earthquake. The results shall be considered in the design of the housing, the support and the anchoring to the floor. The load cases for the building shall be mentioned.

Technical data

* Fabricate: KRANTZ
* Type: SCFhightec Triple S
* Nominal air flow per filter element: 3 000 m3/h
* Admissible design pressure: ± 6 000 Pa
* Design temperature: 90 °C
* Tightnes of filter housing acc. to DIN 25 496: leakage rate < 3 · 10-5 of nominal air flow at
p = 2 000 Pa
* Tightness of filter seat acc. to DIN 25 496: leakage rate < 3 · 10-5 of nominal air flow at
p = 2 000 Pa
* Radiation resistance: ≤ 105 Gy
* connected to it once the ball cock is in “open” position

Subject to technical alterations.

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