DEPURECO · II 1/2D EX HTC IIIC T140°C DA/DB

Depureco PUMA 30 P DEX 1/2D

The Depureco PUMA 30 P DEX 1/2D is the heavy-duty flagship -- 22 kW three-phase side-channel blower, 130 mm inlet and ATEX certification for external Zone 21 with explosive dust atmosphere. Built for steelworks, foundries and powder metallurgy where Zone 21 applies to both inside and outside the machine. 1940 m3/h airflow at 170 mbar vacuum delivers flow-prioritised performance for tall enclosures, extraction hoods and large central manifolds. Cartridge filter 180,000 cm2 with integrated automatic reverse jet cleaning handles continuous operation without manual interruptions. H14 absolute filter 110,000 cm2 is included as standard on the 1/2D version -- three-stage filtration is safe for discharge into Zone 21 surroundings. 175 L AISI 304 container, 560 kg heavy-duty chassis, 1050 x 1950 mm footprint, TUEV-certified electrical panel and remote control. ATEX II 1/2D Ex htc IIIC T140°C Da/Db.

APPLICATIONS

- Steelworks and foundries with external Zone 21 (metallurgical dust near blast furnaces and flue-gas systems)
- Powder metallurgy and atomisation bays with cold-metal dust
- Heavy-duty central manifolds with multiple simultaneous 130 mm collection points
- Thermal spray and cut-grinding on large components in Zone 21 enclosures
- Process halls for battery raw materials (e.g. active-material mixer dust) with Zone 21 classification

Technical specifications

ATEX marking	II 1/2D Ex htc IIIC T140°C Da/Db
Internal / external zone	20 / 21
Motor type	Sidekanalblaeser 3-fase (22 kW), TUEV-certificeret el-panel + remote control
Airflow	1940 m³/h
Vacuum	170 mbar (1733 mmH_2O)
Container	175 L
Sound pressure	78 dB(A)
Filter class	M class
Filter type	Cartridge antistatisk polyester klasse M, 180.000 cm2, integreret reverse jet cleaning (automatisk). H14 absolutfilter 110.000 cm2 inkluderet.
Primary filter	Cartridge antistatisk polyester klasse M, 180.000 cm2
Cleaning system	Automatisk reverse jet cleaning (standard)
Collection system	Detachable container
Material	Lakeret staalkonstruktion heavy-duty, AISI 304 stoevbeholder
IP class	IP65
Power	22 kW
Voltage	400 V / 50-60 Hz
Inlet	Diameter 130 mm
Dimensions (L x W x H)	1050 x 1950 x 2300 mm
Weight	560 kg

Questions and answers

Why can PUMA HD be 1/2D with Da/Db when PUMA DEX SP 1/2D is Da/Dc?

Because PUMA HD uses an enclosed cartridge chamber with a hermetic pulse-valve manifold inside the vessel itself. When reverse jet cleaning activates, the pulse energy is confined to the *inside* of the filter and is immediately sealed by active differential-pressure valves. There is no air exchange between the pulse chamber and the machine's outer chassis. PUMA DEX SP on the other hand uses a star filter with external pulse manifolds -- pulse energy can briefly release a small overpressure through ventilation slots, which Depureco documents as a short-duration Dc reduction on the outside. The design difference lets PUMA HD retain Db classification even during pulses, while PUMA SP is necessarily Dc.

Why is the vacuum curve different on the 1/2D compared to the 1/3D sibling?

The PUMA 30 P DEX 1/2D delivers 170 mbar / 1940 m3/h while the 1/3D sibling delivers 200 mbar / 1985 m3/h. The reason is the mandatory H14 absolute filter included on the 1/2D version -- the H14 element introduces extra back-pressure on the discharge side. Depureco have therefore calibrated the side-channel motor to a slightly lower terminal vacuum to preserve the same acoustic profile (78 dB(A)) and keep motor temperature within the T140°C limit. Practically this makes no difference to dust collection efficiency -- only in very specific scenarios with long (>50 m) hose runs and very fine dust will the 30 mbar be noticeable.

How is the 22 kW motor safely used in Zone 21?

The motor sits in an ATEX enclosure outside the dust vessel, with independent cooling and a TUEV-certified electrical panel. The panel contains a motor protection relay (thermal + overcurrent), phase-sequence detector (3-phase direction safeguard), earth-fault relay and close-down temperature watchdog at 135°C (below the T140 limit). Remote control operates start/stop + jet-cleaning sequence from the operator position up to 20 m away. Panel and motor are both IP65 -- can be installed near process water systems. If any parameter is exceeded, the entire unit stops automatically with a potential-free fault output to an upper-level plant PLC.

What is the H14 absolute filter sized for on this model?

The H14 absolute filter 110,000 cm2 is specifically sized for the PUMA HD's 1940 m3/h flow at nominal conditions. Filter capture efficiency is >=99.995% at 0.3 micron (MPPS test). It is the third filtration stage after the cartridge (polyester M class, 180,000 cm2) and before discharge. Differential pressure trigger at 25 mbar warns when H14 needs replacement; service interval is typically 2000-4000 operating hours depending on dust particle size distribution. Replacement requires bag-in/bag-out procedure due to potential Zone 21 contamination of the used filter.

Contact and advisory

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