

DELFIN · ACD VERSION FOR COMBUSTIBLE DUST IN ORDINARY LOCATION (IEC 60335-2-69 ANNEX AA -- INTERN
KONSTRUKTION SVARENDE TIL ZONE 20, EKSTERN IKKE-ATEX)

Delfin CUBE 20 K4 PN ACD



The Delfin CUBE 20 K4 PN ACD is the top model in the CUBE ACD range -- a stationary ACD deduster with a 4 kW centrifugal fan and 3,500 m³/h airflow at 370 mmH₂O (36 mbar) static vacuum. It is the most powerful combination of automatic pulse-jet cleaning and ACD certification in Delfin's portfolio and the correct choice for large central suction systems where dust is combustible but the area is not ATEX classified. With 70 % higher vacuum and 40 % greater airflow than the K2 variant, the K4 can handle 4-6 simultaneous collection points, long central-suction piping, or particularly sticky dust. The 2 cartridge filters (200,000 cm² combined, PTFE-coated polyester ANT M) are cleaned automatically with compressed-air pulses while the unit operates -- stable suction-point vacuum without operator intervention, built for continuous operation. IP65 enclosure, 400 V three-phase, 250 kg robust steel construction with forklift lifting points. Certified to IEC 60335-2-69 Annex AA.

APPLICATIONS

- Larger central suction systems with combustible wood dust in MDF and OSB production outside ATEX classification
- Multi-collection-point installations at bakeries and flour mills with multiple simultaneous collection points
- Continuous 24/7 operation in powder coating halls with high dust volume
- Feed plants with multiple machine lines under the same central suction -- grain, soy, oily powders
- MDF milling and chipboard processing with long suction piping and 4-6 simultaneous collection points

Technical specifications

ATEX marking	ACD VERSION FOR COMBUSTIBLE DUST IN ORDINARY LOCATION (IEC 60335-2-69 Annex AA -- intern konstruktion svarende til Zone 20, ekstern ikke-ATEX)
Internal / external zone	20 / ikke-ATEX
Motor type	Centrifugalventilator IE3 (4 kW, 3-faset 400 V), ACD-konstruktion til braendbart stoev i ikke-ATEX-omraader (IEC 60335-2-69 Annex AA)
Airflow	3500 m ³ /h
Vacuum	36 mbar (370 mmH ₂ O)
Container	90 L
Sound pressure	72 dB(A)
Filter class	H class
Filter type	HEPA H14 (EN 1822-5), 99,995 % MPPS, slutfilter -- standard inkluderet
Primary filter	2 patron-filtre i polyester med PTFE-belagt overflade, klasse ANT M antistatisk, 200.000 cm ² samlet filterflade
Cleaning system	Automatisk pulsejet-rensning (PN -- pneumatisk modstroemsskyl med trykluft), alternerende mellem patroner under drift
Collection system	Plastic bag
Material	Malet staalkonstruktion med gaffeltruck-loftepunkter i bunden (AISI 304 som option)
IP class	IP65
Power	4.0 kW
Voltage	400 V / 50 Hz / 3~
Inlet	Diameter 200 mm
Dimensions (L x W x H)	1350 x 880 x 2550 mm
Weight	250 kg

Questions and answers

When is the K4 necessary over the K2 on the CUBE chassis?

Same logic as on the ZFR EV: the K4 is the right choice when (1) total piping length exceeds 15-20 metres, (2) the number of simultaneous collection points is 4 or above, or (3) the dust is particularly sticky, heavy or hygroscopic (moist metal dust, moist concrete dust, polymer process with adhesive binder). For ACD installations a fourth reason is added: continuous 24/7 operation over many years requires the extra motor headroom of the K4 to avoid running the motor at its limit under demanding load. The K2 is sufficient for 8-12 hours daily operation with 2-3 points; the K4 is the choice for continuous operation on central-suction architecture.

Can the CUBE 20 K4 PN ACD be used in a Zone 22 installation?

No -- the ACD version is specifically certified for non-ATEX classified areas per IEC 60335-2-69 Annex AA. If your area is classified as Zone 22 (external dust zone during normal operation), you must choose the CUBE 20 K4 PN Z22 -- the identically-equipped ATEX version. The difference is constructive and certification-wise: the Z22 version has Ex h IIIC T80°C internal / T135°C external marking, a nameplate with ATEX mark and CE documentation per the ATEX directive 2014/34/EU, plus additional tightening of cable seals and dust-tight testing. The ACD version lacks these -- and using an ACD model in a Zone 22 zone is a violation of ATEX regulations regardless of how safe the model might be in practice.

What is the expected cartridge filter life under continuous operation?

Cartridge filter life depends on three factors: dust type, dust loading and pulse-jet cleaning quality. Under typical ACD conditions (wood dust, flour dust, powder coating) and continuous 8-hour operation a cartridge life of 2-4 years is expected -- corresponding to ca. 6,000-10,000 operating hours. Sticky dust (glue, resin, moist flour dust) reduces life to 1-2 years because pulse-jet pulses cannot shake the layer fully off. Continuous 24/7 operation reduces calendar life but not operating-hour life -- cleaning cycles wear less than static loading. Indication of filter replacement: falling suction-point vacuum even after pulse-jet cleaning (typically below 15 mbar at nominal operation) and visible dust pass-through to the HEPA H14 final filter. Filter replacement takes 30-60 min and requires no special tools.

How is the HEPA H14 final filter maintained -- does it also require cleaning?

The HEPA H14 final filter is a 'fire-and-forget' component -- it is NOT cleaned during operation, because the filter medium is too fine and fragile for pulse-jet flushing. The design philosophy is that cartridge filters retain 99.9 % of dust, so the HEPA filter receives only a small residual fraction that accumulates slowly. In practice this means the HEPA filter typically lasts 4-8 years under normal operation without replacement, provided the cartridge filters are maintained correctly. Signs that the HEPA filter needs replacement: total suction-point vacuum drops even with new cartridges, or the built-in differential pressure sensor reports high pressure drop across the HEPA cell. Replacement requires access to the filter housing and may cost 200-400 EUR depending on supplier.

Contact and advisory

PARTICULAIR

Particulair

Højtoften 12

2690 Karlslunde, Denmark

CVR: 34129894

Phone: (+45) 70 23 12 03

E-mail: sales@particulair.com

Web: particulair.eu

Product page: particulair.eu/ex-vac/en/acd/cube-20-k4-pn-acd/

SMARTER THINKING • BETTER WORKING

This datasheet is generated deterministically from Particulair product data. Prices and availability provided on request. All specifications subject to change without notice.