DEPURECO · II 1/3D EX H IIIC T140°C DA/DC

Depureco BL 45 DEX 1/3D INERT

The BL 45 DEX 1/3D INERT is Depureco's compact answer to a tricky task: collecting reactive metal powder -- aluminium, titanium, lithium, magnesium, zirconium -- where contact between fine powder, oxygen and a spark can start an explosion or a self-ignition reaction. The defining difference from a standard BL 45 DEX is the *inerting container*: an N2-flushed inner chamber that displaces oxygen in the collection zone and keeps the powder under an oxygen-poor atmosphere while it rests. The user supplies their own 2-4 bar nitrogen from their own installation -- the BL 45 has no integrated N2 supply, but distribution valve, nozzles and pressure switch are fitted. The ATEX marking is dual: II 1/3D Ex h IIIC T140°C Da/Dc (this slug) *and* II 1/2D Da/Db -- the same physical unit (SKU A1295) is certified in both zone combinations. The motor is brushless 1.1 kW single-phase 110/230V, which gives it a lower T140°C surface temperature than a classical side-channel blower -- intended for use where the powder's minimum ignition temperature is below 160°C.

APPLICATIONS

- Aluminium grinding powder from CNC machining of aerospace alloys
- Titanium chips from 3D-print collection and support-material removal
- Lithium-bearing electrode powder from battery prototyping
- Magnesium chips from light-metal foundry with moisture risk
- Zirconium powder from dental implant production
- Reactive metals in R&D; environment where zoning is Zone 22 + 1

Technical specifications

ATEX marking	II 1/3D Ex h IIIC T140°C Da/Dc
Internal / external zone	22 / 22
Motor type	1x brushless ATEX-motor, 1-faset 110/230V 50/60 Hz
Airflow	220 m³/h
Vacuum	230 mbar (2345 mmH_2O)
Container	45 L
Sound pressure	72 dB(A)
Filter class	H class
Filter type	Cartridge-primaerfilter antistatisk polyester HEPA13 (EN 60335-2-69 klasse H) + E10 cooling-air + E10 absolutfilter-udblaesning
Primary filter	Cartridge antistatisk polyester klasse HEPA13
Cleaning system	Manuel filterrens (bagudtryk)
Collection system	Detachable container + INERT neutralisation bath
Material	Lakeret staalkonstruktion, AISI 304 stoevbeholder med N2-fluxet inerting-indsats
Power	1.1 kW
Voltage	230 V / 50-60 Hz
Venturi units	0 pcs
Inlet	Diameter 50 mm
Dimensions (L x W x H)	550 x 620 x 1400 mm
Weight	50 kg

Questions and answers

Why does the INERT model use a brushless motor rather than side-channel blower?

Because the BL 45 INERT is rated T140°C -- 20 degrees lower than its ECOBULL sibling's T160°C. A side-channel blower develops temperatures around 145-155°C on the surface under continuous operation, which is not sufficient for powders with MIT (minimum ignition temperature) below 160°C. A brushless motor stays below T140°C even under fault conditions, and this is why reactive metal powders -- where MIT is often 100-140°C -- can only be collected by a brushless-driven BL 45 INERT. In other words, it is not just "smaller" than the ECOBULL INERT, but has a different safety principle.

How does the inerting container work in practice?

The inerting container is an N2-flushed double-walled construction inside the collection tank itself. The user supplies 2-4 bar nitrogen from their own installation via an ATEX-certified quick coupling. The BL 45's distribution valve opens automatically at start-up and maintains a constant N2 flow -- typically 8-15 Nl/min -- throughout the operating period. Oxygen concentration in the container drops from 20.9 % to below 8 % within 60-90 seconds, well below the LOC (limiting oxygen concentration) for most reactive metal powders. No gas is integrated in the BL 45 -- the customer must supply their own N2 tank or generator.

What is the safety hydrogen vent and why is it included?

Some reactive metals -- especially aluminium, magnesium and zirconium -- react with water or humid air and form hydrogen gas (H2). H2 is extremely flammable (LEL 4 %, also known as the "flammable hydrogen zone") and can accumulate inside a sealed inerting container. The safety hydrogen vent is a calibrated pressure-relief valve with flame arrester that discharges accumulated H2 outside the collection vessel as soon as pressure exceeds 5-10 mbar. It is mandatory for all inerting collection of reactive metals per EN 14491 and is included on the BL 45 INERT as standard.

What is the difference between the 1/3D and 1/2D variant -- they are the same SKU?

It's a pure zone-application difference, not two different units. SKU A1295 is dual-certified: the same physical unit may be used both in Zone 21 with Zone 22 outside (II 1/2D Da/Db -- found on the other slug, bl-45-dex-1-2d-inert) and in Zone 22 + Zone 22 (II 1/3D Da/Dc -- this slug). Price is identical, documentation is identical. We split it into two slugs because it needs to be findable via searches for *both* zone combinations, and because customers who think of it as "a 1/2D machine" do not always cross-reference with a 1/3D list. You receive the same delivery regardless of which slug you order from.

Contact and advisory

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