

3D PRINTING • ATEX ZONE 20/21 • OIL INERTING

Delfin MTL 451 1/2D INERT

Compact oil inerting vacuum with ATEX II 1/2D certification for the safe collection of self-igniting metal powder from 3D printing processes. Zone 20 internal, Zone 21 external. HEPA H14. IECEx.

- ATEX II 1/2D — Zone 20 internal, Zone 21 external • IECEx Da/Db
- HEPA H14 — 99.995 % at MPPS (EN 1822)
- Oil inerting — neutralises reactive powder before emptying
- TEFC motor 1.1 kW — 215 m³/h, 2,250 mmH₂O
- AISI 304 container — INERT tank 10 L oil / 15 L total
- 74 dB(A) • 52 kg • compact and mobile on wheels
- Tested to EN 17348 • EN IEC 62784:2018 • EN ISO 80079-36:2016



Delfin MTL 451 1/2D INERT — ATEX oil inerting vacuum for self-igniting metal powder

ATEX II 1/2D — CE EX 21 1/2D • IECEx Da/Db • HEPA H14 — EN 1822 • EN 17348:2022 • EN IEC 62784:2018 • EN ISO 80079-36:2016

Quick facts

ATEX	II 1/2D • IECEx
Zone	Zone 20/21
Filter class	HEPA H14
Efficiency	99.995 % at MPPS
Motor type	TEFC, 1.1 kW
Airflow	215 m ³ /h
INERT tank	10 L oil / 15 L total
Container	AISI 304
Weight	52 kg
Noise	74 dB(A)

What is the Delfin MTL 451 1/2D INERT?

The MTL 451 1/2D INERT is a compact, mobile industrial vacuum cleaner from Delfin, developed specifically for the collection of reactive and self-igniting metal powders generated by metal 3D printing processes, including laser powder bed fusion (LPBF), binder jetting and direct metal laser sintering (DMLS). Its defining feature is the oil inerting system, which neutralises collected powder directly inside the container so that it cannot react, ignite or explode when the container is emptied or handled.

The machine carries ATEX II 1/2D certification issued by a notified body, attested for use in Zone 20 internally (inside the machine) and Zone 21 externally (the surrounding environment). It also holds IECEx certification, which means it meets the international requirements for explosion-protected equipment — relevant for companies exporting products or demonstrating compliance to international buyers. Performance testing has been carried out in accordance with EN 17348:2022, the harmonised standard for industrial vacuums for hazardous dust.

The TEFC motor (Totally Enclosed Fan Cooled) delivers 1.1 kW and cools itself without drawing ambient air into the motor housing. This is critical in an ATEX context: explosive atmospheres must never come into contact with hot motor surfaces or live electrical components. Airflow is 215 m³/h at a maximum vacuum of 2,250 mmH₂O.

Important restriction: The MTL 451 1/2D INERT is designed for the collection of dry, reactive metal powder with oil inerting. It must not be used for liquids, slurry or wet material. It is also not certified for flammable gases or vapours (Gas zones) — exclusively for dust zones (D zones).

Filtration system and INERT technology

The filtration system is a two-stage design. The primary filter is a Star/Tasche type in antistatic polyester class ANT M with a filter area of 20,000 cm² and a diameter of 420 mm. It is cleaned manually via the integrated shaking mechanism, and a filter indicator warns when the filter requires attention. The second stage is a HEPA H14 filter with a filter area of 11,000 cm², retaining at least 99.995 % of all particles at MPPS.

The INERT container is manufactured in AISI 304 stainless steel and holds 10 L of inerting oil. The combined volume of oil plus vacuumed material must not exceed 15 L. When reactive metal powder is drawn into the container, it mixes with the oil and is neutralised before it can react with oxygen or moisture. The container seals tightly so it can be emptied safely without dispersing dry powder.

Technical specifications

Parameter	Value
ATEX marking	II 1/2D Ex h tb IIIC T80°C (Int) / T95°C (ext) Da/Db
ATEX zone	Zone 20 internal, Zone 21 external
EX category	CE EX 21 1/2D • IECEx Da/Db
Voltage	115/230 V • 50/60 Hz • single phase • 8 A
Power	1.1 kW
Motor type	TEFC (Totally Enclosed Fan Cooled)
Airflow	215 m ³ /h
Vacuum pressure (max.)	2,250 mmH ₂ O
Suction inlet	Ø50 mm
Primary filter	Star/Tasche polyester ANT M • 20,000 cm ² • Ø420 mm
Filter cleaning	Manual shaking mechanism • filter indicator incl.
HEPA filter	H14 • 99.995 % at MPPS • 11,000 cm ²
INERT capacity (oil)	10 L
INERT capacity (oil + material)	15 L (max.)*
Container	AISI 304 stainless steel
Dimensions	61 × 66 × 133 cm (H)
Weight	52 kg
Noise level	74 dB(A) (EN ISO 3744)
Accessory kit	TA.1057.0000 — included
Standards	EN 17348 • EN IEC 62784:2018 • EN ISO 80079-36:2016

* Variable based on the vacuumed material characteristics.

Accessories and options

The MTL 451 1/2D INERT is supplied with accessory kit TA.1057.0000, which includes the necessary hose equipment and suction adapters for connection to 3D printers and CNC machines. All accessories have been tested and approved for ATEX use. The ATEX version with IECEx certification carries the product code MTL451INERTZ21-001 (MTL 451 EX 1/2D — IECEx Da/Db 1BL 45L DT DS X H INERT).

CONTACT**Particulair — Life Science Hub**

Nordic specialist in industrial vacuum for pharma & life science

Højtoften 12, 2690 Karlslunde, Denmark

Tel: +45 70 23 12 03 · sales@particulair.com · particulair.eu/life-science/