PowTReX basic

Keep it simple. Keep it safe. PowTReX technology with its core functions. The performance is designed for small to medium 3D printers. The prepared powder can be filled, for example, into an EOS bottle, SLM bottle or similar containers from other manufacturers.

VOLKMANN
IDEAS AHEAD

PowTReX - Powder Transfer, Recovery and Extraction

The PowTReX series enables the efficient reprocessing and reclaiming of build excess metal powder for applications in Metal AM. The integrated vacuum conveyor handles the feeding of the unused powder – e.g. directly from the build chamber of the 3D printer.

A screen, with a high throughput rate, handles the sieving in respect of recycling of the metal powder. Oversized particles and agglomerates are efficiently separated. The reprocessed powder can be filled into bottles or containers or conveyed via pipe to downstream machines.

Fig.: PowTReX basic equipped with an EOS bottle

The PowTReX basic system combines three functions in one compact unit:

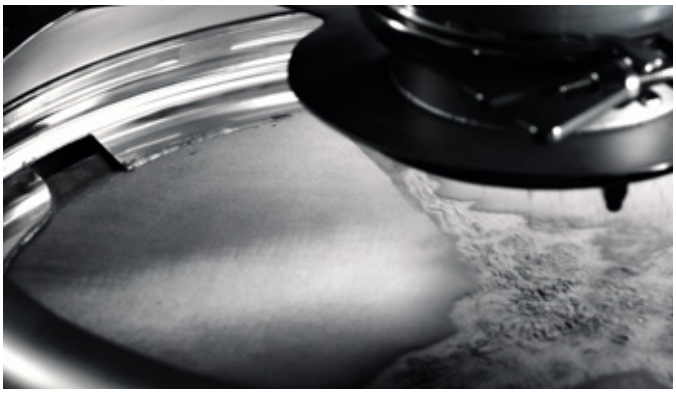
1. the aspiration and conveying of metal powder from an upstream system (e.g. 3D printer or unpacking station) into the buffer container of the PowTReX
2. cleaning the metal powder by removing agglomerates and oversized particles by means of a sieve
3. filling the purified metal powder into a container. Optionally, a downstream machine can draw the metal powder directly from this container via a pipeline

How the PowTReX system functions

The metal powder is conveyed into the PowTReX through a hose or pipe by vacuum conveying. There are numerous possible setups:

- draw the powder out of the build frame of an opened 3D printer by a suction lance
- aspirate the powder by suction lance inside a closed glove box or a depowdering station
- pull in the powder from a container or bottle by suction lance
- draw the powder from an IBC container
- draw the powder from a buffer container (e.g. vHub 250)

The length of the conveying pipe can be up to 25 meters and can also accommodate height differences. The high conveying capacity allows on the one hand the buffer hopper in the PowTReX to be filled quickly and at the same time the discharge point is quickly available again for subsequent tasks.



Within the PowTReX, oversized particles, composites and foreign bodies are separated by a sieve. Stimulated by an ultrasonic generator, high throughputs are achieved. In addition, sensors continuously measure the loading of the sieve with powder. The material supply from the buffer hopper is controlled accordingly ensuring the sieve screen is always optimally loaded with powder. The particles and other foreign bodies separated during sieving are collected in a bin.

Materials, throughput capacities:

Suitable for all common AM Metal Powders: Stainless Steel, Aluminum Alloys, Titanium, Chromium-Nickel, Copper, others.

Conveying + Screening Capacities reached (with 63 micron mesh), conveying distance: 8 m (26 ft) total line length (longer distances possible on req.):

- Stainless Steel Powder: 150 kg/h (330 lbs/h)
- Aluminum Powder: 75 kg/h (165 lbs/h)

Design and Technical Data

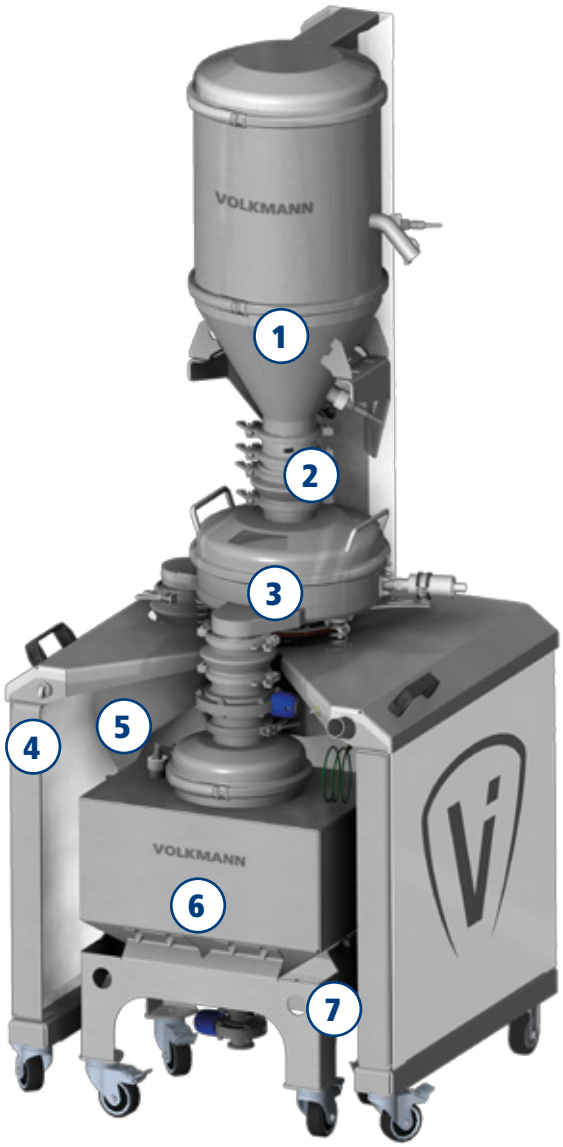


Fig.: PowTREX basic equipped with a 50 l container

1 **VS350 Vacuum conveyor**
25 l powder buffer volume for continuous emptying of most build chamber volumes at up to 12.5 kg/min (stainless steel powder)

2 **Intelligent dosing system**
Optimal sieve performance throughout the entire batch

3 **VS350 ultrasonic sieve**
Throughputs of up to 150 kg/h due to efficient ultrasonic and tumbling techniques.
Mesh size 63 µm (other mesh sizes optional)

4 **Easy operation**
One button solution for fast set up and process times, mobile system for flexible operation

5 **Oversize Material Collector**
Easy to empty 3,8 loversize bin

6 **Powder storage options**
Suitable for a broad variety of containers and bottles including the standard 50 l Volkmann container

7 **Weighting function options**
To suit various types of containers the optional weighting terminal controls the level of the attached container and stops screening once it is full

Footprint:	800 x 730 mm (31.5“ x 28.7“)
Height:	1950 mm (76.7“)
Materials:	304, 316L, (for parts with powder contact)
Pneumatics:	5.5 bar (80 psi), 1250 Nl/min (44 cfm) max.
Electrics:	230 V / 50 Hz or 110 V / 60 Hz, 1P other voltages on request

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