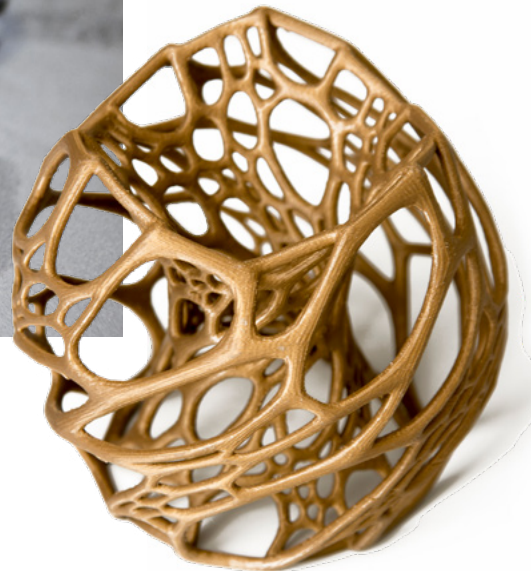It's all about

the finishing touch
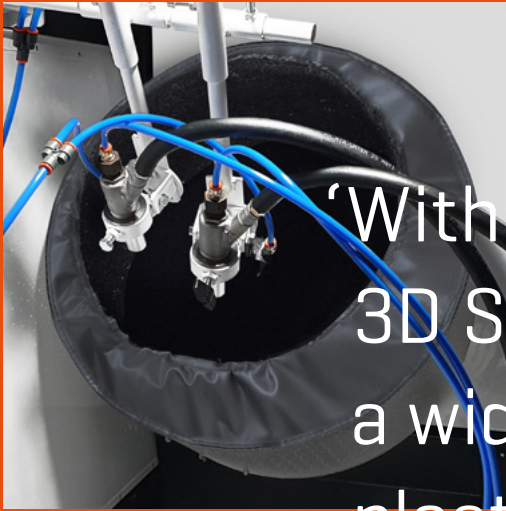
Normfinish 3D Series
Focus on de-powdering and finishing 3D printed products

NORMFINISH®
SURFACE TREATMENT
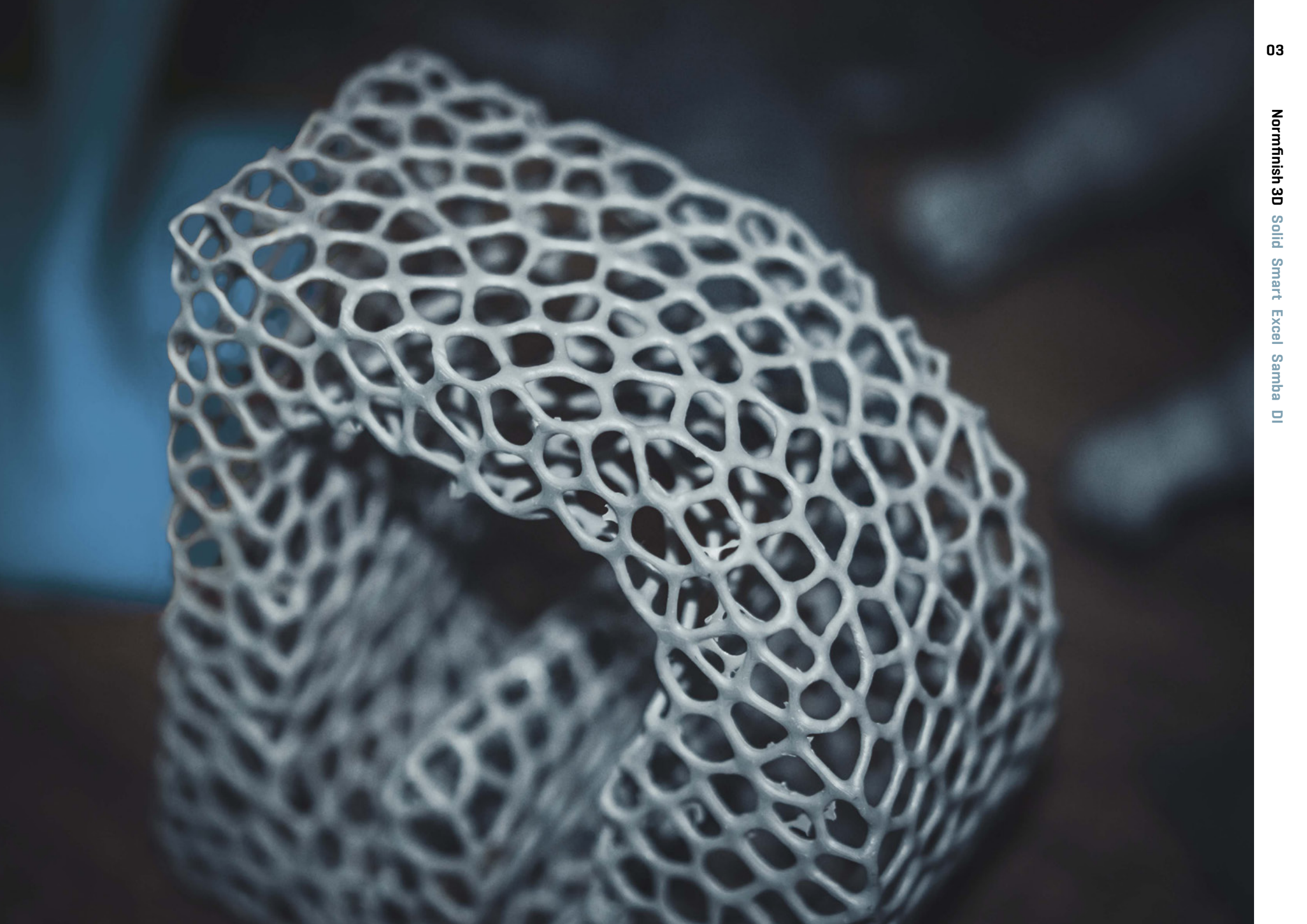
normfinish.com/additivemanufacturing

Basket
Normfinish 3D Smart

'With the innovative Normfinish 3D Series, Leering Hengelo offers a wide range of solutions for both plastic and metal post-processing. The Normfinish 3D Series are designed to continuously serve the high standards of the AM-industry at all times. Customer-specific modifications are possible through our own engineering department and on-site production facility'

Tumble belt
Normfinish 3D Samba

Normfinish 3D Series

For over a decade, Leering Hengelo has been developing and manufacturing blast cabinets specifically for the Additive Manufacturing industry with the main focus on de-powdering and finishing 3D printed products. Meanwhile, this industry is scaling up its production capabilities to produce larger series to satisfy the increasing demand.
This requires new, automated solutions for efficient and high-quality post production.

Normfinish 3D Solid

Normfinish 3D Smart

CLEAN

SMOOTH

Normfinish 3D Excel

With the innovative
Normfinish 3D Series,
Leering Hengelo offers
a wide range of solutions
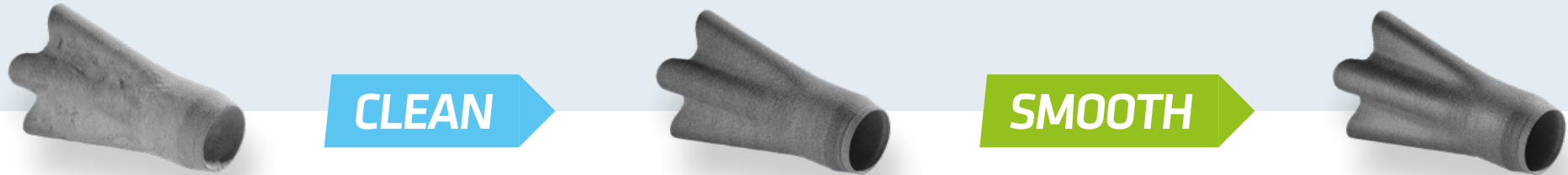for both plastic and metal
post-processing.

CLEAN

SMOOTH

Normfinish 3D Samba

Normfinish 3D DI

Post-Processing
Depowdering & Shotpeening

CLEAN

SMOOTH

Depowdering

3D printed products printed using the MJF, SLS, EBM or SLM techniques (all powder bed techniques) require a post-processing step in which depowdering is unavoidable. Depowdering is a blasting process in which powder and/or loose parts are removed from the product. A special abrasive is used during this process. Type and size depending on the material.

Shotpeening

Shotpeening is a blasting process where the surface is treated with a round abrasive under pressure. The surface is compacted, more homogeneous and therefore visibly and tangibly smoother. Porosity is also reduced as a result. The shot peen treatment in particular improves the result of the subsequent coloring process. Shot blasting is done with Normfinish polybeads for a good result. There are also other solutions, which we are happy to discuss with the customer.

Normfinish 3D Solid

The Normfinish 3D Solid is our entry-level model solution to automatically cleaning of powder bed printed parts. Suitable for **small print volumes on a regular basis**.

✓ Serial, PLC controlled, production up to a volume of 10 L

✓ Manually adjustable basket angle; removable basket

✓ Soft lining basket to further enhance a gentle treatment of the parts

✓ Integrated manual blasting

✓ Equipped with a cyclone to remove dust and powder from the blast media

✓ ATEX certified for processes class II 3/-D T125˚

✓ Easy-care; solid proven industrial concept, low maintenance costs

✓ Available in **CLEAN** and **SMOOTH** version

CLEAN

SMOOTH

Normfinish 3D Smart

CLEAN

SMOOTH
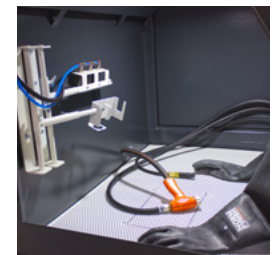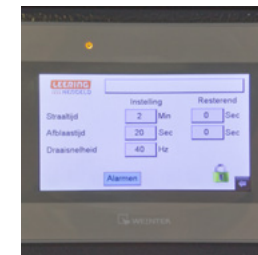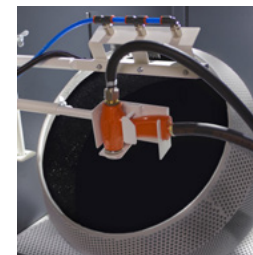
The Normfinish 3D Smart is suitable for **large print volumes on a frequent basis**. This system provides bigger capacity than the 3D Solid, containing a large basket, using 2 blasting nozzles, which enables a serial production up to a volume up to 30 L at once.

- ✓ Serial, PLC controlled, production up to a volume of 30 L

- ✓ Integrated ionization (ATEX) unit ensures cleaner, dust free products

- ✓ Fixed basket angle; loading/unloading outside cabinet

- ✓ Soft lining basket to further enhance a gentle treatment of the parts

- ✓ Integrated manual blasting

- ✓ Equipped with a cyclone to remove dust and powder from the blast media

- ✓ ATEX certified for processes class II 3/-D T125˚

- ✓ Easy-care; solid proven industrial concept, low maintenance costs

- ✓ Available in CLEAN and SMOOTH version
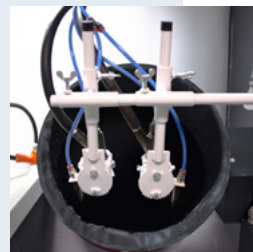
Normfinish 3D Excel

Normfinish 3D Excel blast system offers a perfect solution for **big print volumes on a high frequent basis**. The PLC allows 20 different recipes and guarantees process repeatability, independent from the operator. Industry 4.0 Ready.

- ✓ Serial, PLC controlled, production up to 20 L; Key process parameters can be put in 20 individual recipes. Guarantees process repeatability independent from operator

- ✓ Integrated ionization (ATEX) ensures cleaner dust free products

- ✓ Automatic adjustable basket angle, PLC controlled settings: Reproducible process and a good mixing of products with different geometries

- ✓ Easy load / unload via front door; media/dust stays inside cabinet

- ✓ Separate manual blasting station, equipped with 1 blast pistol

- ✓ ATEX certified for processes class II 3/-D T125˚

- ✓ Available in **CLEAN** and **SMOOTH** version

CLEAN

SMOOTH

Normfinish 3D Samba

Automatic finishing of 3D printed products has never been easier. The new Normfinish 3D Samba system is the perfect solution for **the automatic finishing of large series of (small and) large products**. Parameters and recipes (20) are freely adjustable on the PLC.

✓ Serial , PLC controlled, production up to 50 L; Total of 20 individual recipes. Process repeatability independent from operator

✓ High volume products and also handling of large printed parts

✓ Easy loading/unloading; Automatic loading/unloading optional

✓ Integrated ionization ensures cleaner dust free products (ATEX certified for processes class II/-D T125˚)

✓ Blasting guns with boron carbide nozzles move oscillating for a full (and even) blasting pattern.

✓ Possibility for manual blasting

✓ Easy-care; solid proven industrial concept, low maintenance costs

✓ Available in **CLEAN** and **SMOOTH** version

CLEAN

SMOOTH
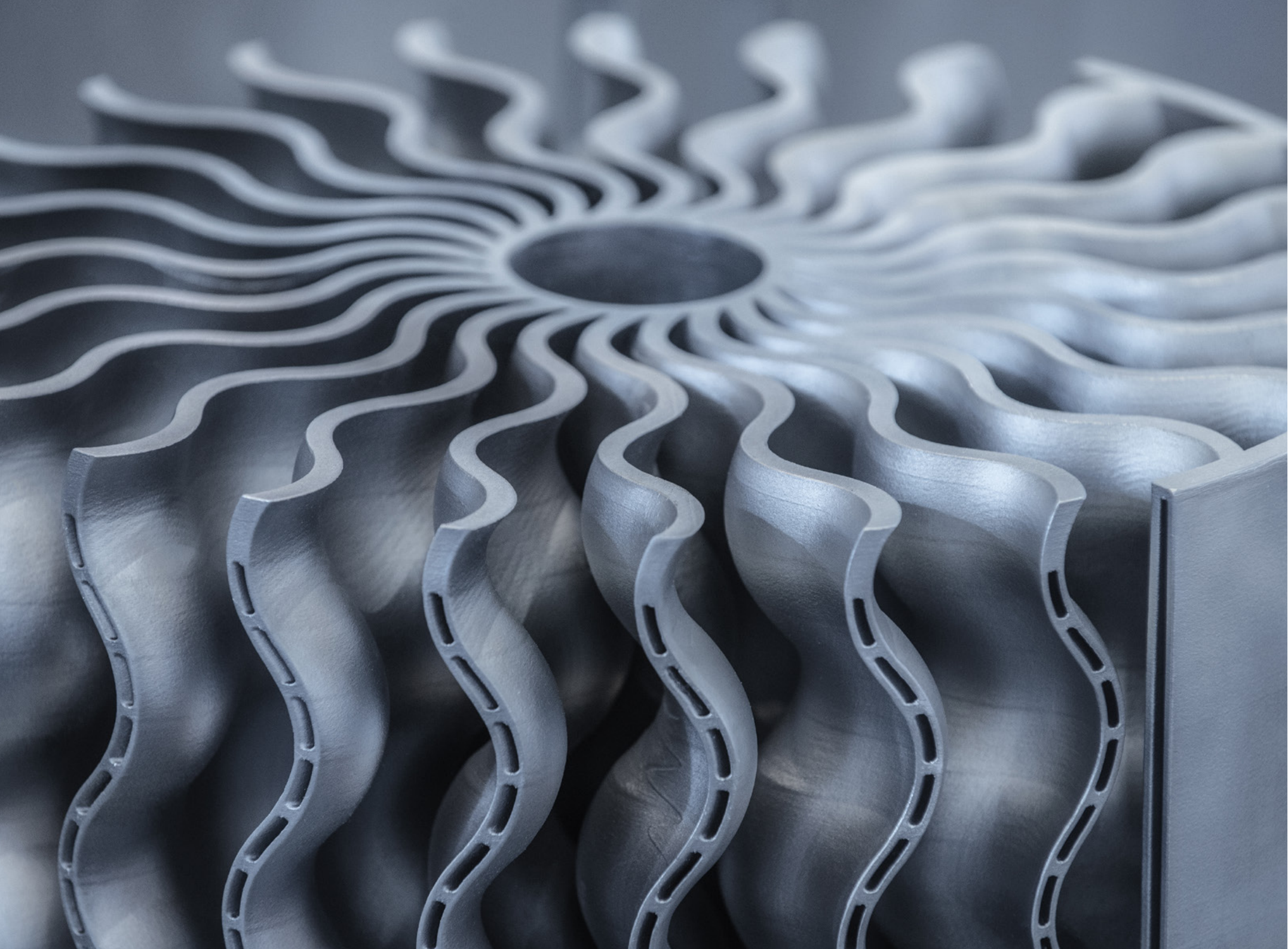
Normfinish 3D DI

Normfinish **3D DI** depowdering system is developped for manually cleaning of powder bed printed parts. Suitable for blasting of **individual, large parts**.

✓ Mainly used for metal print parts

✓ Manual blasting of 3D printed parts up to a load of max. 350 kg

✓ (Optional) stationary turntable Ø 600 mm

✓ Equipped with a cyclone to remove dust and powder from the blast media

✓ (Optional) integrated ionisation (ATEX) unit ensures cleaner dust free products

✓ ATEX certified for processes class II 3/-D T125°

✓ (Optional) special preparation for unpacking metal printed parts s.a. titanium

✓ Easy-care; solid proven industrial concept, low maintenance costs

✓ Possibility to develop customized automated 3D metal specific machines
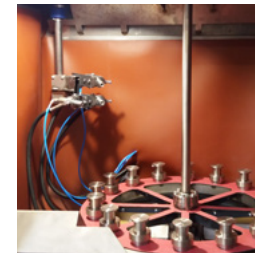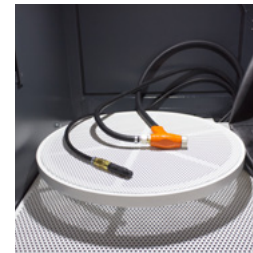
Main features

|	Normfinish 3D Solid	Normfinish 3D Smart	Normfinish 3D Excel	Normfinish 3D Samba	Normfinish 3D DI
ATEX Classification II 3/-D T125°	yes	yes	yes	yes	yes
Cyclone for a constant blasting mixture	yes	yes	yes	yes	yes
Linatex lining in cyclone	option	option	yes	yes	option
Automatic cartridge cleaning	yes	yes	yes	yes	yes
Turn-Key 1 unit	yes	yes	yes	yes	yes
Doors	two side doors	two side doors	front and side door	one front door	two side doors
Safety on doors	yes	yes	yes (hold contacts)	yes (hold contacts)	yes
LED lighting	yes	yes	yes	yes	yes
Ionisation	option	yes	yes	yes	option
HEPA filter	option	option	option	option	option
Dimension basket / tumble belt (mm)	Ø 450 x 210	Ø 600 x 400	Ø 500 x 320 (stainless steel)	Ø 590 x 740	n/a
Adjustment angle of the basket	manual	fixed angle	electrical	n/a	n/a
Removable basket	yes	yes	yes	n/a	n/a
Protective lining in basket	yes	yes	yes	n/a	n/a
Loading/ unloading	in the cabinet	outside the cabinet	in the cabinet (nozzles move automatically away at the end of the process)	in the cabinet	n/a
Transportation trolley	option	option	option	yes	n/a
Switch box					
Controls	PLC, Siemens logo	PLC, Siemens Logo	PLC, Siemens S7-1200	PLC, Siemens S7-1200	n/a
HMI	Weintek (colour) 4,3"	Weintek (colour) 4,3"	Siemens (colour) 7"	Siemens (colour) 7"	n/a
Recipes	no	no	20	20	n/a
eWon module	no	no	option	option	n/a
Blasting time	yes	yes	yes (recipe)	yes (recipe)	n/a
Time for blowing off	option	yes	yes (recipe)	yes (recipe)	n/a
Angle of the basket	manual	no	yes (recipe)	n/a	n/a
RPM of the basket /tumble belt	yes	yes	yes (20x)	yes (recipe)	n/a
Blasting pressure by regulator	yes	yes	yes	yes	n/a
"Blasting pressure through HMI"	no	no	option	option	n/a
Nozzles basket / tumble belt (amount)	1	2	2	3	n/a
Material nozzle (basket / tumble belt)	Silicium carbide	Borium carbide	Borium carbide	Borium carbide	n/a
Extra nozzle for manual blasting	no, remove from basket system	no, remove from basket system	yes	no, remove from blast system	n/a
UL version 480V, 60 Hz without zero	n/a	option	option	option	n/a

Technical specs

	Normfinish 3D Solid	Normfinish 3D Smart	Normfinish 3D Excel	Normfinish 3D Samba	Normfinish 3D DI
External dimensions (l x w x h)	1383 x 1348 x 2041 mm	1626 x 1585 x 2206 mm	1853 x 1686 x 2130 mm	1617x 1734x 2212 mm	1220 x 1275 x 2041 mm
External dimensions (l x w x h) incl collection tray	n/a	2182 x 1585 x 2206 mm	n/a		
Effective blast room (l x w x h)	1105 x 800 x 800 mm	1320 x 939 x 1060 mm	1278 x 1051 x 1105 mm	740x750x1095 mm	1.105 x 800 x 800 mm
Working height	840 mm	725 mm	853 mm	987 mm	840 mm
Side door openings (w x h)	692 x 640 mm	835 x 826 mm	827 x 974 mm	n/a	692 x 640 mm
Front door openings (w x h)	n/a	n/a	1000 x 974 mm	740 x 1074 mm	n/a
View front window (w x h)	656 x 266 mm	656 x 266 mm	266 x 656 mm	450 x 300 mm	656 x 266 mm
View side window (w x h)	450 x 300 mm	450 x 300 mm	656 x 266 mm	n/a	n/a
Maximum load manual blasting	350 kg	350 kg	Max 50 kg (only manual blasting area)	30 kg	350 kg
Basket/ Belt					
* Dimensions	ø 450 x 210 mm	ø 600 x 400 mm	ø 500 x 320 mm	Ø 590 x 740	n/a
* Approx. volume (depends on size and geometry of products)	10 liter	30 liter	20 liter	50 liter	n/a
Lining	soft	soft	soft	PVC	n/a
Dividers	yes	yes	yes	yes	n/a
* Maximum load	10 kg	15 kg	20 kg	30kg	n/a
Blast guns	ø 6, 8 of 10 mm, at choice	Hardened blast guns with boron carbide nozzles (ø 8 mm)	Hardened blast guns with boron carbide nozzles (ø 8 mm)	Hardened blast guns with boron carbide nozzles (ø 8 mm)	ø 6, 8 of 10 mm, at choice
Filter cartridges (polyester, M-class)	1 filter cartridge of 4 m²	2 filter cartridges of 4 m² each	2 filter cartridges of 4 m² each	2 filter cartridges of 4 m² each	1 filter cartridge of 4m²
Capacity ventilator	600 m³/h (0,75 kW)	800 m³/h (1,1 kW)	800 m³/h (1,1 kW)	800 m³/h (1,1 kW)	600 m³/h (0,75 kW)
Dust emission	< 1,8 mg/ Nm³	< 1,8 mg/Nm³	< 1,8 mg/Nm³	< 1,8 mg/Nm³	< 1,8 mg/Nm³
Atex classification	class II 3/-D T125°C	class II 3/-D T125°C	class II 3/-D T125°C	class II 3/-D T125°C	class II 3/-D T125°C
Lighting	LED light 20 Watt	LED light 50 Watt	LED light 50 Watt	LED light 50 Watt	LED light 20 Watt
Electrical connection	230 V, 50 Hz	3 x 400V, 50 Hz, earth and zero	3 x 400V, 50 Hz, earth and zero	3 x 400V, 50 Hz, earth and zero	230V, 50 Hz
Total power consumption	0,85 kW	1,3 kW	3,0 kW	3,0 kW	0,85 kW
Colours powder coating	Anthracite grey (= Ral 7016)	Anthracite grey (= Ral 7016)	Anthracite grey (= Ral 7016)	Anthracite grey (= Ral 7016)	Anthracite grey (= Ral 7016)
Cabin weight (complete)	± 380kg	± 570 kg	± 1.000 kg	± 1.400 kg (incl. trolley and tray)	± 380 kg

'Our Engineering department develops blasting solutions in close cooperation with the Additive Manufacturing industry to achieve optimal results. These cabinets are produced in accordance to ISO certification. Normfinish blast cabinets are durable and economical to maintain in the long run and are even suitable for medical and industrial applications. Customer-specific solutions are possible, just as a wide range of options. We can also provide high quality blasting media fit for the post-production process'

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SURFACE TREATMENT
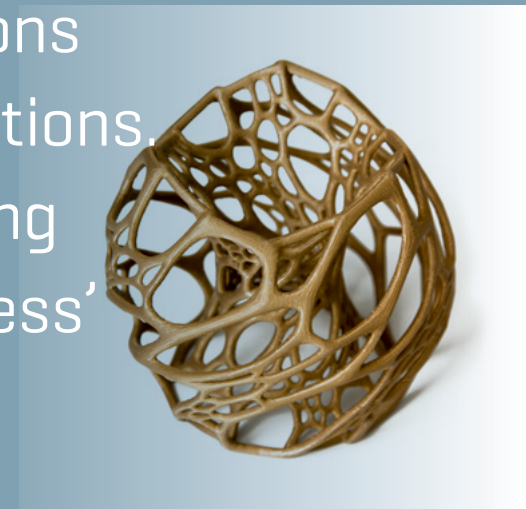
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