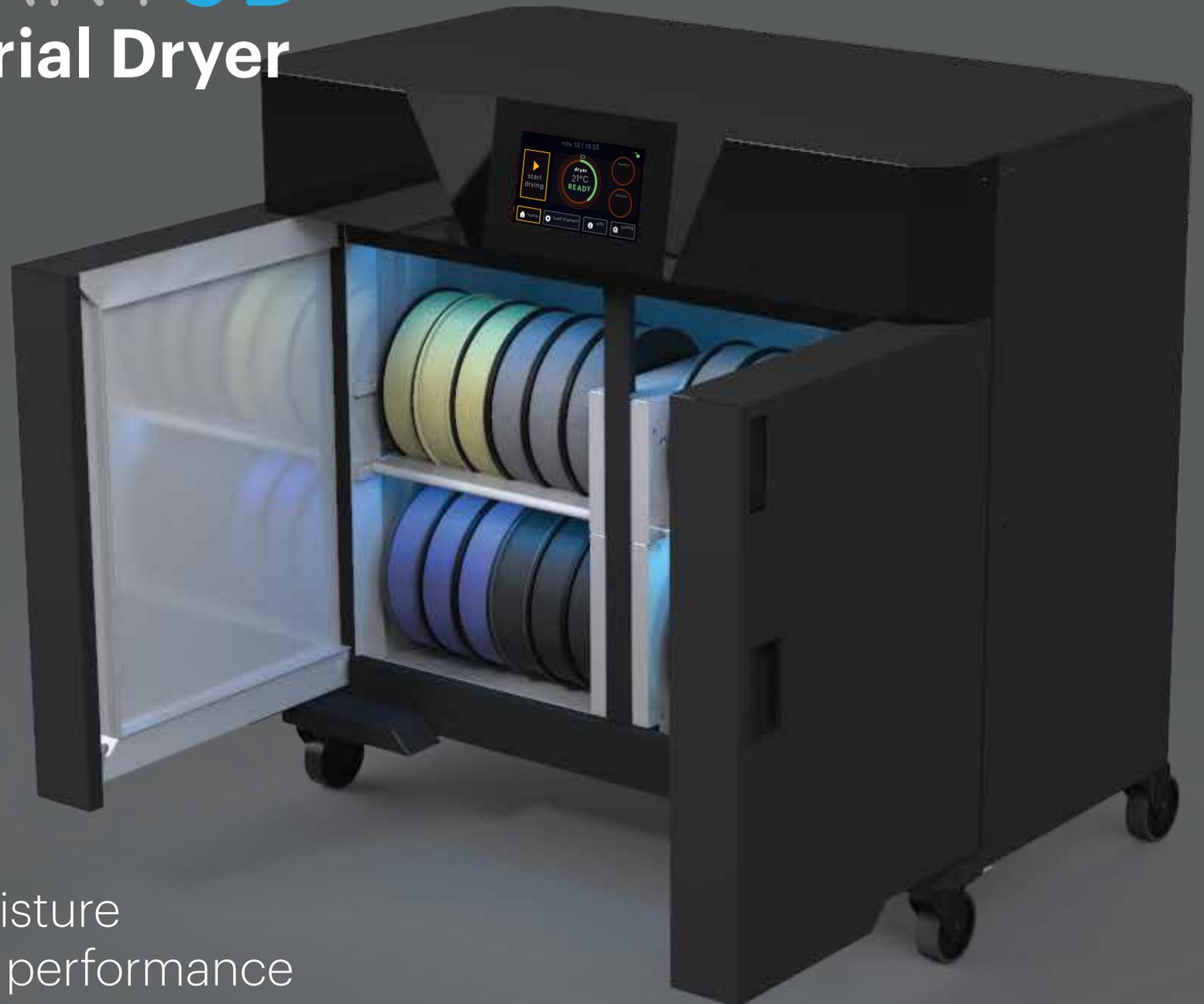
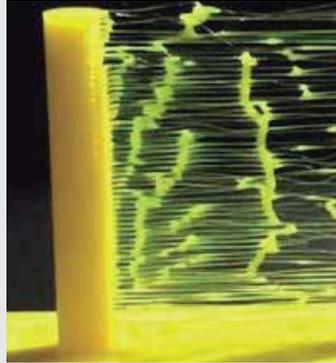
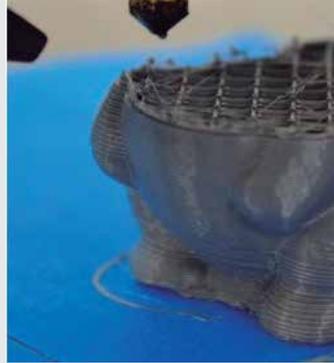
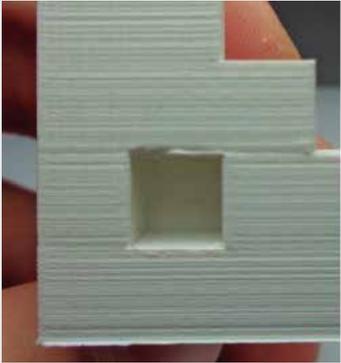


# SMART3D Material Dryer



Low moisture  
for high performance

Are you familiar with these printing failures?



## CLOGGING

The water molecules start to evaporate inside the hotend, generating pressure and causing the extruder to abrade the filament. As a result, the print will be interrupted.

## LOW QUALITY

Bubbles create cracks inside the filament resulting in gaps within the part volume and a rough surface finish.

## WEAKNESS

Moisture boils when printing and creates bubbles that affect the way the material flows, making it hard to use and ruining the print.

## OVEREXTRUSION

Steam generated by water evaporation causes extra pressure inside the hotend, affecting the material extrusion rate.

## Moisture, the silent enemy

There is certain amount of water (moisture) in the ambient air. It can vary depending on the place, but there is always, at least a small percentage of water in the atmosphere.

This factor is now increasingly becoming a serious problem for 3D printing. It's the source of a lot of issues like degradation or fragility.

All filaments absorb water but, some of them, such as Nylon, PVA or TPU (Flex) are prone to absorb moisture more easily than others. As a major rule, if you leave a filament "unprotected" for some time, it becomes worse to print with.

### What is hydrolysis?

Hydrolysis is a chemical reaction in which a molecule of water ruptures one or more chemical bonds. In this case, some filaments that have a certain chemical structure, absorb moisture from the environment and the H<sub>2</sub>O provokes this effect.

This affects the physical and chemical properties of the material, including the plastic resistance to impact, since the polymer chain is changed. This consequence is irreversible. Thus, it is very important to take care of the filament once opened.

Moisture can affect the filament within only two hours of exposure. Since an average print takes between 5 and 7 hours, the exposed filament can ruin the entire print and may ruin your spool.



**WET FILAMENT**



**DRY FILAMENT**

Current available solutions are heat-based and cannot deal with moisture effectively



## Time

Drying cycles are typically 8-48 hours long



## Moisture rate

Achieving a relative humidity of less than 10-30% (depending on the material) is hard or even impossible with such techniques



## Performance

Since this method depends on contact with dry air, moisture may be found even after a full drying cycle



## Quantity

These solutions cannot process more than a few pounds of material



## Versatility

Materials with different thermal properties may not be dried simultaneously



## Cost

The **Smart3D Material Dryer** is up to 10 times more energy efficient than heat-based solutions

## Why are other current solutions suboptimal for engineering needs?

In addition to being time and cost inefficient, drying with temperature may either ruin your filament by altering its physical properties or not dry it properly.

# SMART3D Material Dryer

The Smart3D Material Dryer is the only current solution that integrates a hybrid drying technology at end-user level.

## Preserve the properties of your materials

Our hybrid drying technology dries your filament and preserves its properties, ensuring your material is in its best conditions to be printed.

## Dry over 10 times faster

This system allows the filaments to be dried much faster than any other current solution on the market. In 1-2 hour, you can have the Dryer's full storage capacity in perfect conditions and ready to use.



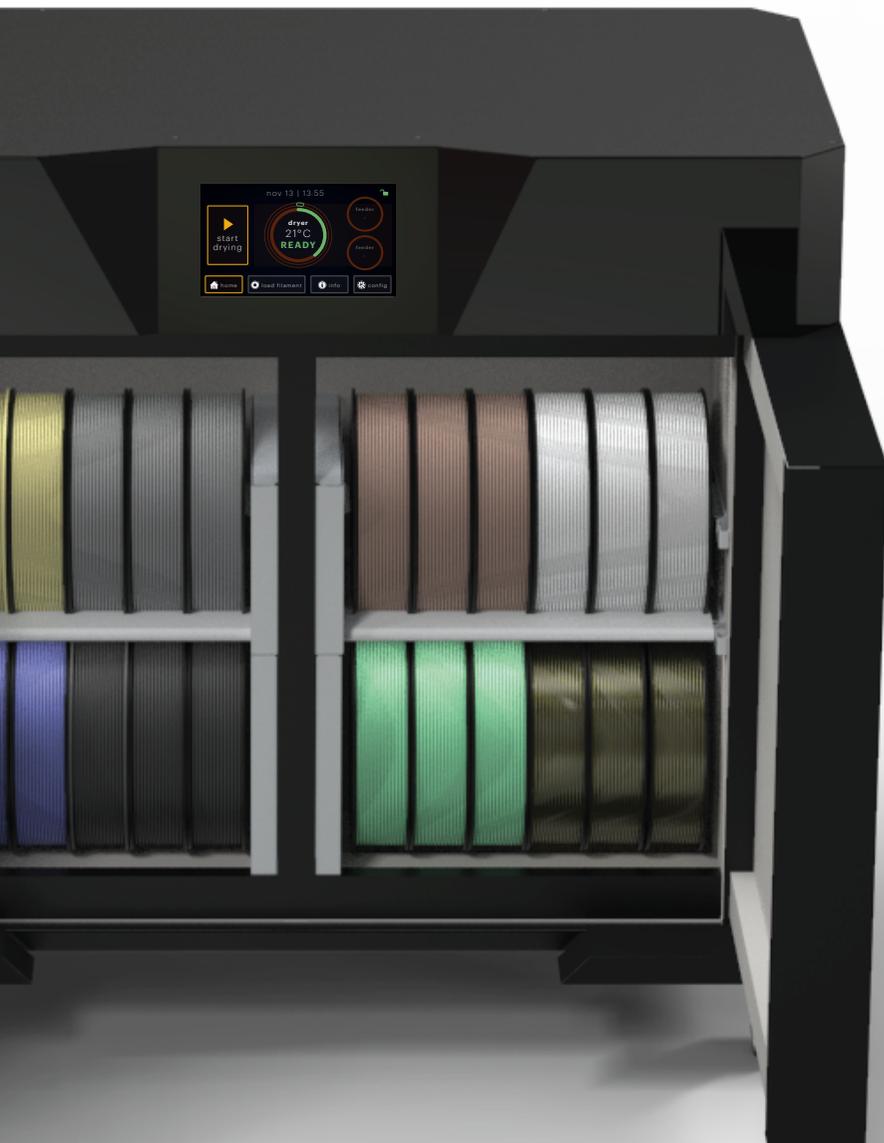
## Keep track of your dried material

With the 7 inch touchscreen, you can access a lot of information about the drying process, dried materials, keep track of your material stock, and many more features.

The Smart3D Material Dryer is Industry 4.0 compliant, which means that it is accessible for third party applications and it can be integrated into your print farm (with ethernet access or Wi-Fi if desired).



# SMART3D Material Dryer



## Achieve perfectly dry filament

Our technology ensures that your previously humid filament will achieve its optimal dryness level.

## Dry up to 30 spools

Unlike other drying solutions on the market, the Smart3D Material Dryer can dry and store large 2.2kg spools, or up to 30 1kg spools, depending on spool size.

## Store your dry filament

The drying chamber also works to keep your filament dry. The controlled ambient chamber keeps the moisture out, so after drying your materials, you can keep them inside until use.

## 3D Printer Station

Furthermore, 2 desktop 3D printers may fit on the Dryer, optimizing your work space.



## TECHNICAL SPECIFICATIONS

### Dimensions

<b>Product dimensions:</b>	W: 892 mm / 35.1" - D: 500 mm / 19.7" - H: 825 mm / 32.5"
<b>Internal storage capacity:</b>	W: 733 mm / 28.9" - D: 250 mm / 9.8" - H: 506 mm / 19.9"
<b>Maximum spool diameter:</b>	500 mm / 19.7"

### Performance

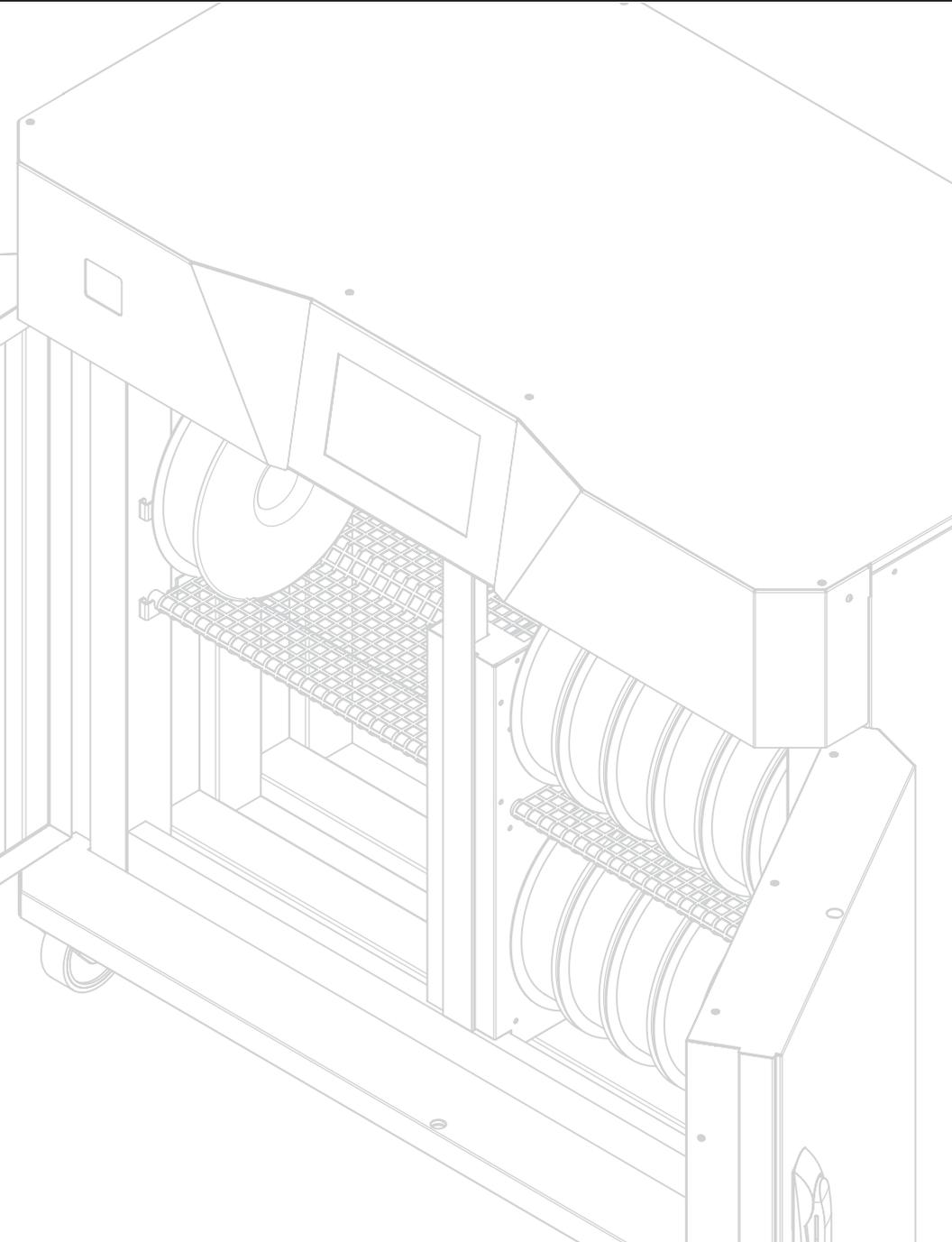
<b>Cycle duration:</b>	<2h
<b>Drying capacity:</b>	Up to 30 spools (depending on spool size)
<b>Compatibility:</b>	Filament spools of any material and brand
<b>Connectivity:</b>	Ethernet, USB
<b>Display:</b>	7" full color touch screen

### Electrical

<b>Rated voltage:</b>	110 - 240V / 50 - 60 Hz
<b>Auxiliar power outlet:</b>	110 - 240V / 50 - 60 Hz / 4 - 2A

### Software

<b>Spool recognition:</b>	Through RFID tag
<b>Reports and statistics:</b>	Temperature, humidity and drying cycles
<b>Updates:</b>	Via Ethernet
<b>I4.0 compliant:</b>	Yes



# SMART3D Ecosystem

