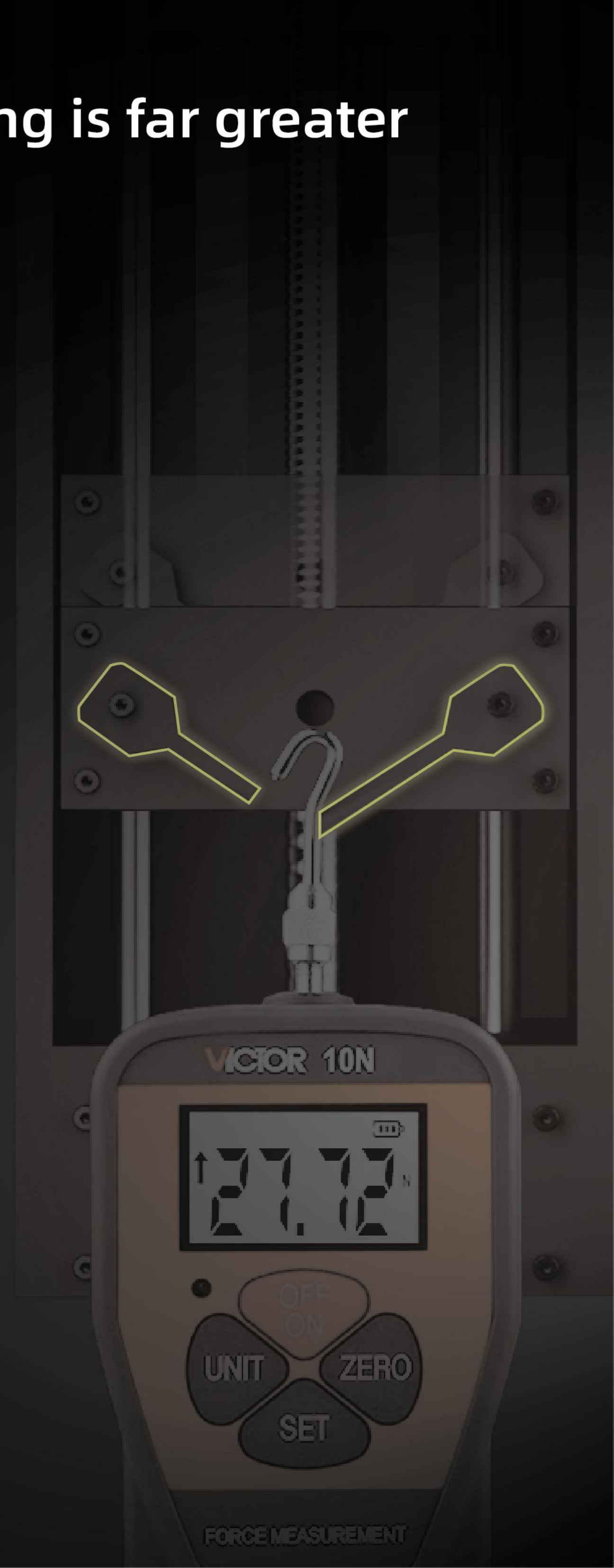
CreatBot

Consumer-grade or Professional-grade

The strength gap in 3D printing is far greater than you might imagine

CreatBot VS Bambu Lab

A Comprehensive Comparison from Model to Material



F430 NX VS X1C

Pro-grade

- IDEX
- 400*300*300mm^3
- 70℃ Chamber
- 420℃ Nozzle Temp

Consumer-grade

- Single nozzle
- 256*256*256mm^3
- 60℃ Chamber
- 300℃ Nozzle Temp

Test Filament

ABS	High strength & toughness, ideal for mechanical tests.
ASA	ABS-like strength, excellent UV/weather resistance.

D600 Pro2 HS VS H2D

Enterprise-grade

- Dual-nozzle
- 600*600*600m^3
- 70℃ Chamber
- 420℃ Nozzle Temp

Pro-grade

- Dual-nozzle
- 350*320*325mm^3
- 65℃ Chamber
- 350℃ Nozzle Temp

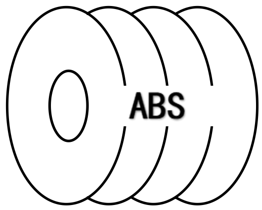
Test Filament

PA-CF	High rigidity, heat resistance, but moisture-absorbent.
PET-CF	High rigidity, stability, creep resistance, for precision parts.

Test Content

Each group of printers uses corresponding consumables to print test specimens in the XY direction and Z direction for comparison.

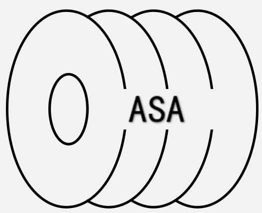
F430 NX
VS
X1C



XY Direction Comparison

Z Direction Comparison

F430 NX
VS
X1C

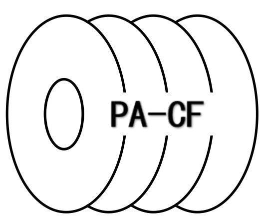


XY Direction Comparison

Z Direction Comparison

XY Direction Comparison

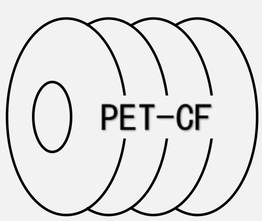
Z Direction Comparison



D600 Pro2 HS
VS
H2D

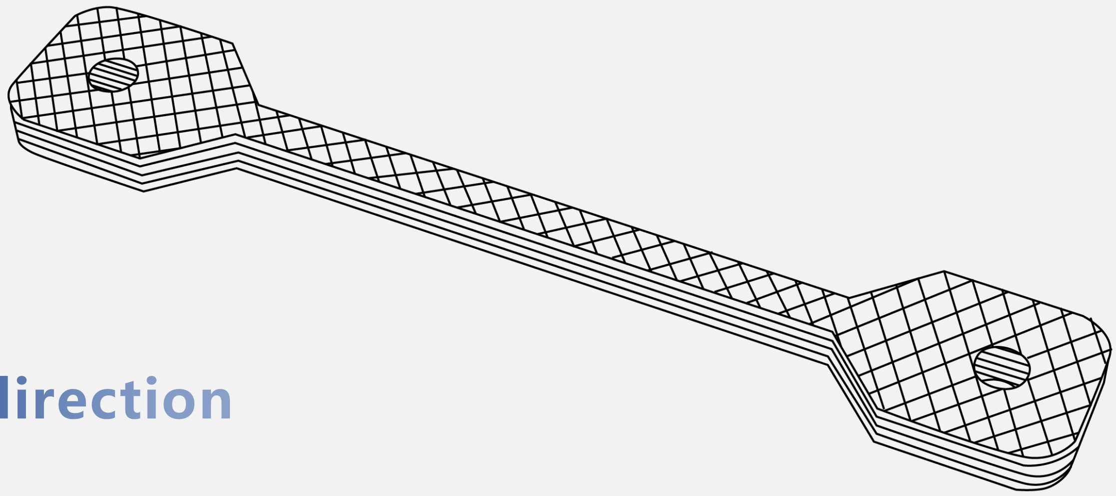
XY Direction Comparison

Z Direction Comparison



D600 Pro2 HS
VS
H2D

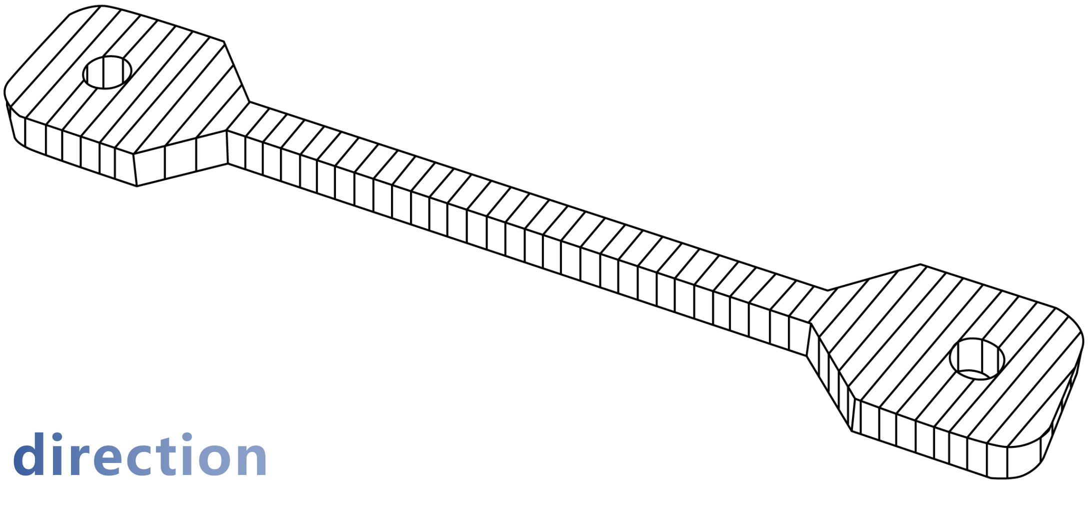
Print specialized test specimen models.



XY direction

Place the specimen's XY direction as the force-bearing direction (printed lying flat)

and compare strength and cross-sectional properties.



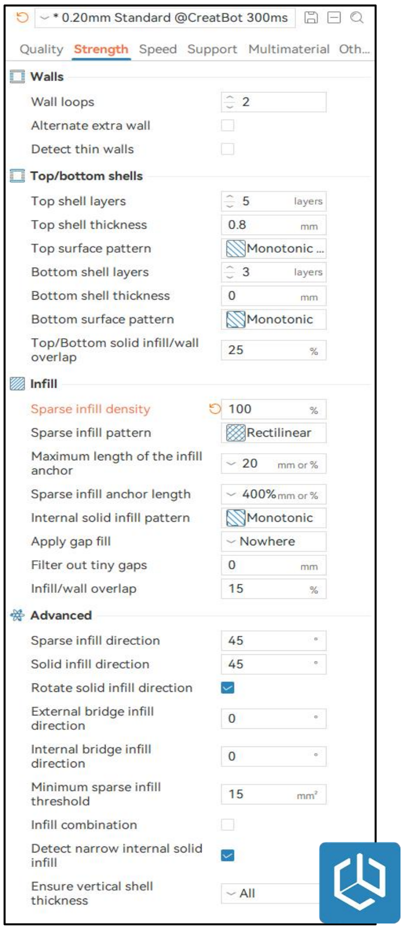
Z direction

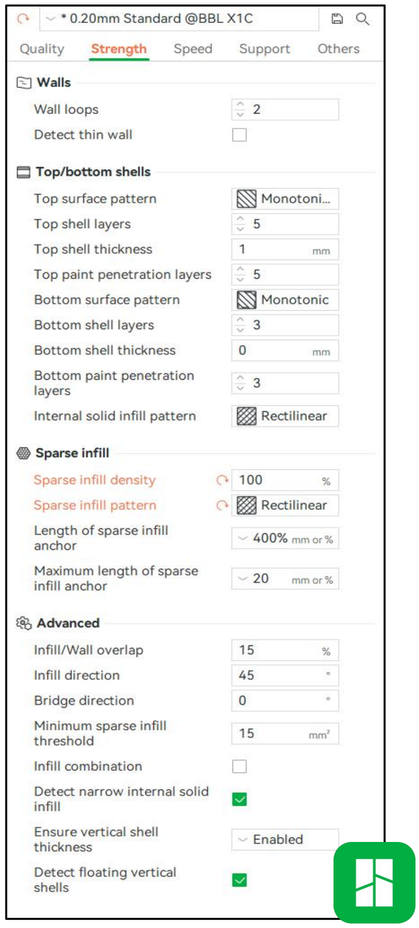
Place the specimen's Z direction as the force-bearing direction (printed standing upright)

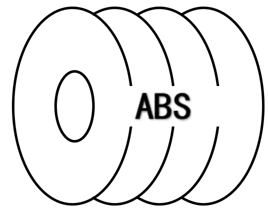
and compare strength and cross-sectional properties.

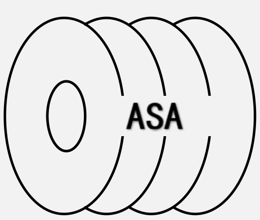
F430 NX vs X1C

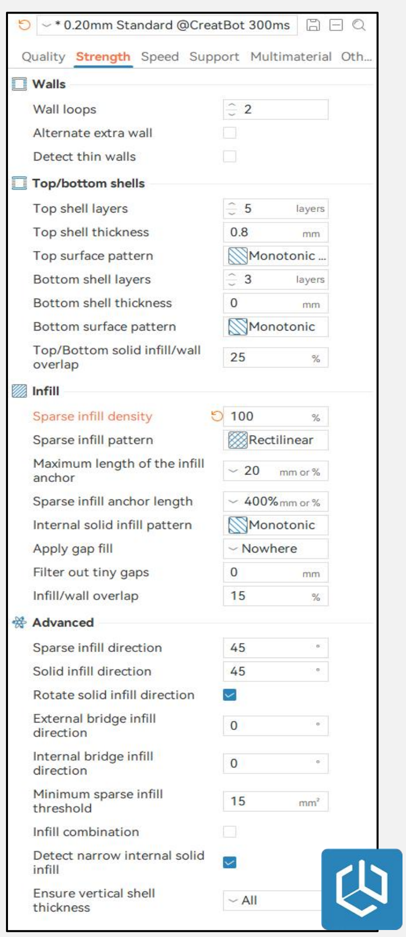
Identical slicing parameters for both printers in each group.

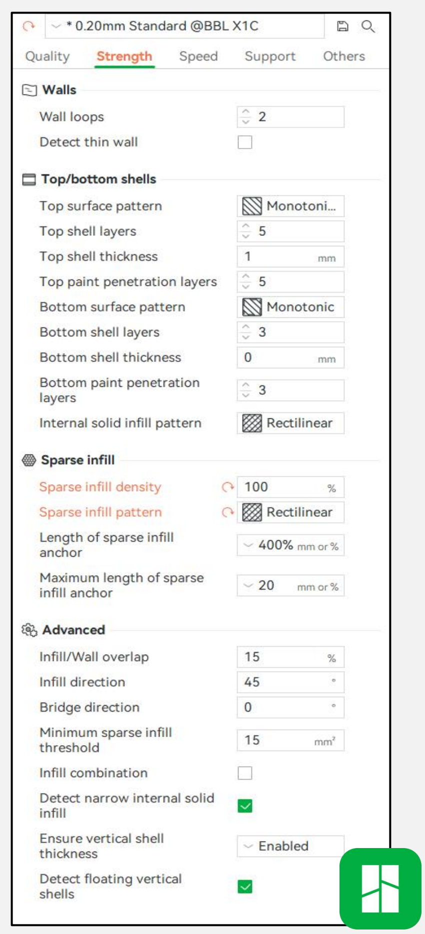






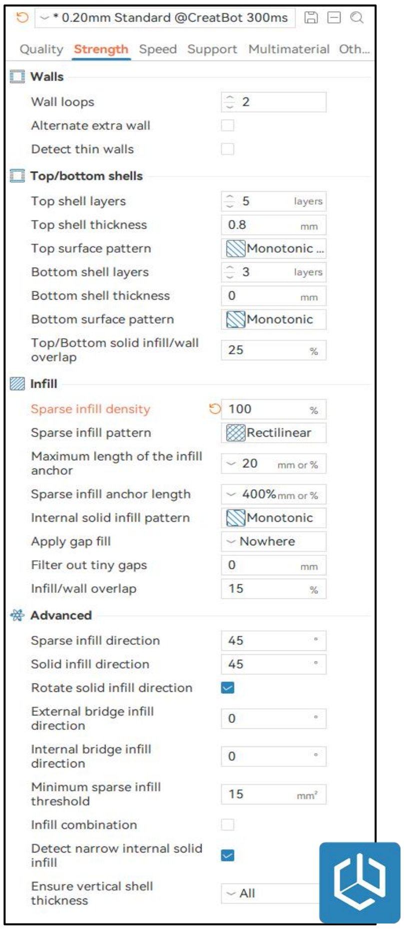


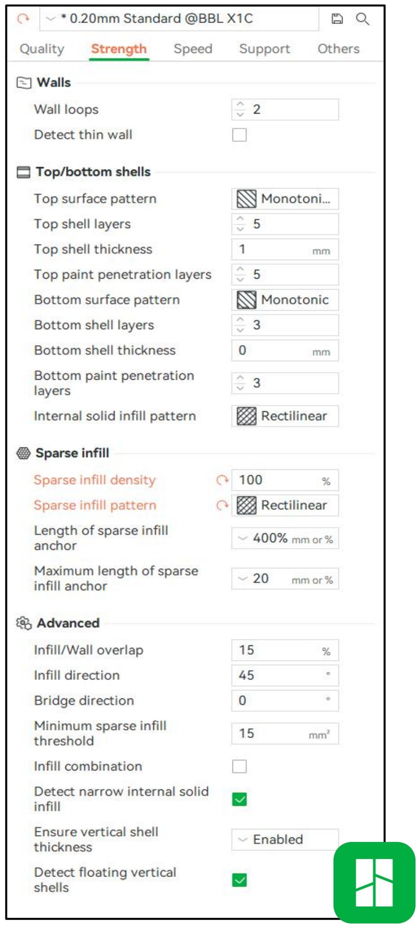


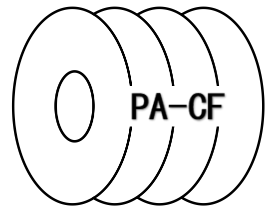


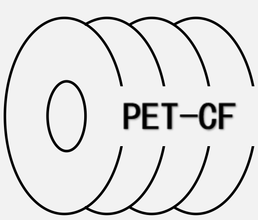
D600 Pro2 HS VS H2D

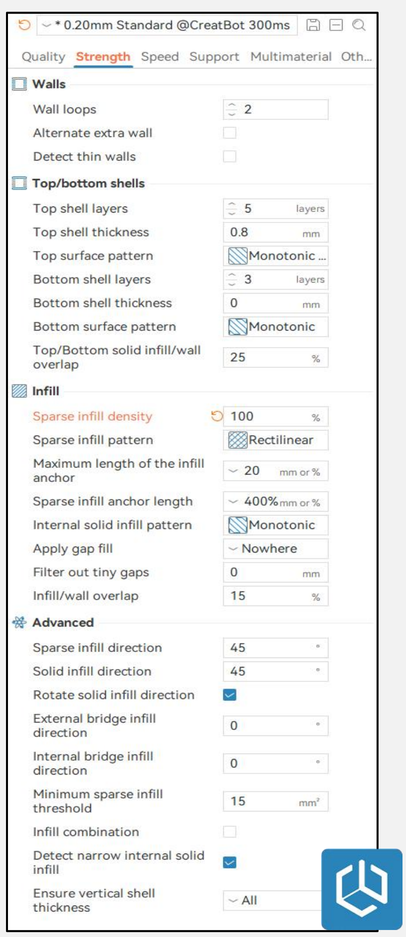
Identical slicing parameters for both printers in each group.

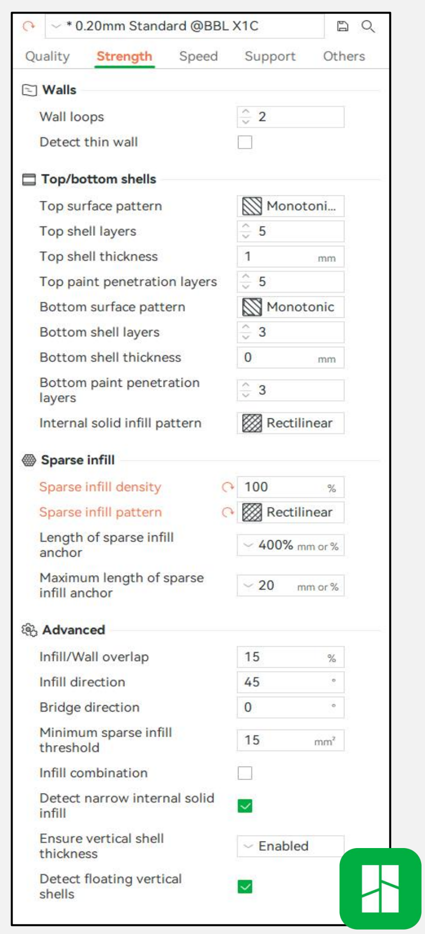












Test Method

Setup Principle

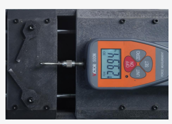
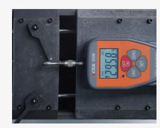
Fix the load gauge to the frame and secure the specimen to the sliding platform. Connect the load gauge hook to the specimen.

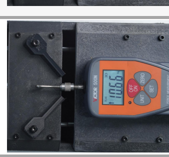
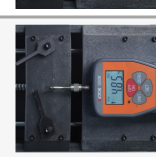
The motor drives the ball screw to move the platform upward at a constant speed until the specimen fractures.

Record the peak load value at fracture.

- Print at least 3+ samples each for XY and Z directions per material to minimize errors.
- Load gauge unit: kg.
- Calculate the average tensile strength and compare strength percentages.

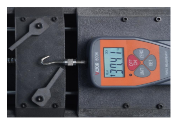
F430 NX vs X1C

Model/**ABS**	Direction	Specimen 1	Specimen 2	Specimen 3	Average
F430 NX	XY				38.81kg
X1C	XY				29.57kg
F430 NX	Z				8.40kg
X1C	Z				4.07kg

Model/**ASA**	Direction	Specimen 1	Specimen 2	Specimen 3	Average
F430 NX	XY				37.11kg
X1C	XY				28.31kg
F430 NX	Z				10.34kg
X1C	Z				6.11kg

注释：可放大查看每个样本的拉断瞬间数值

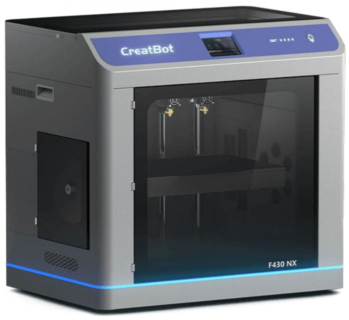
D600 Pro2 HS vs H2D

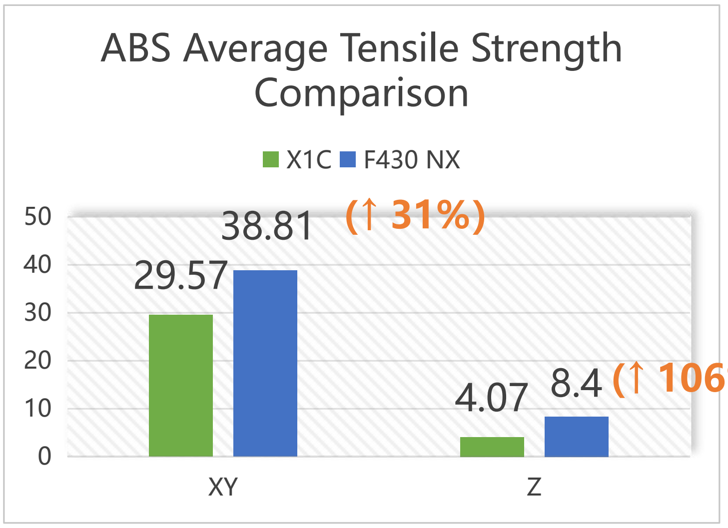
Model//**PA-CF**	Direction	Specimen1	Specimen 2	Specimen 3	Average
D600 Pro2 HS	XY				37.68kg
H2D	XY				28.24kg
D600 Pro2 HS	Z				18.30kg
H2D	Z				14.05kg

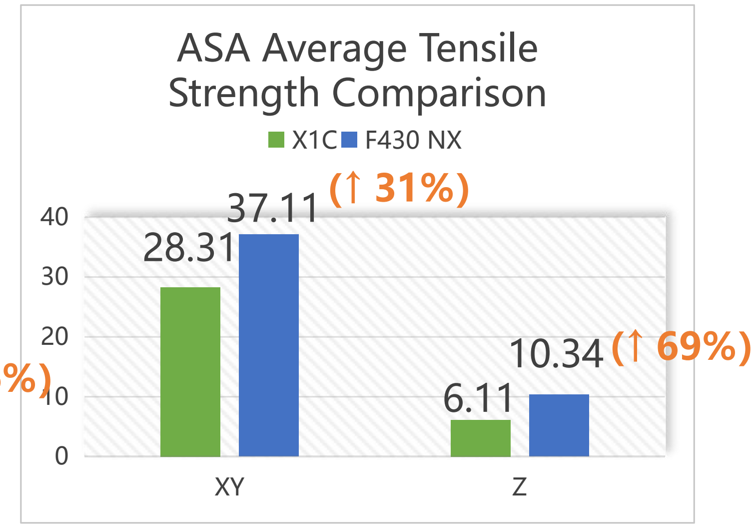
Model/**PET-CF**	Direction	Specimen1	Specimen 2	Specimen 3	Average
D600 Pro2 HS	XY				23.59kg
H2D	XY				17.03kg
D600 Pro2 HS	Z				12.84kg
H2D	Z				8.14kg

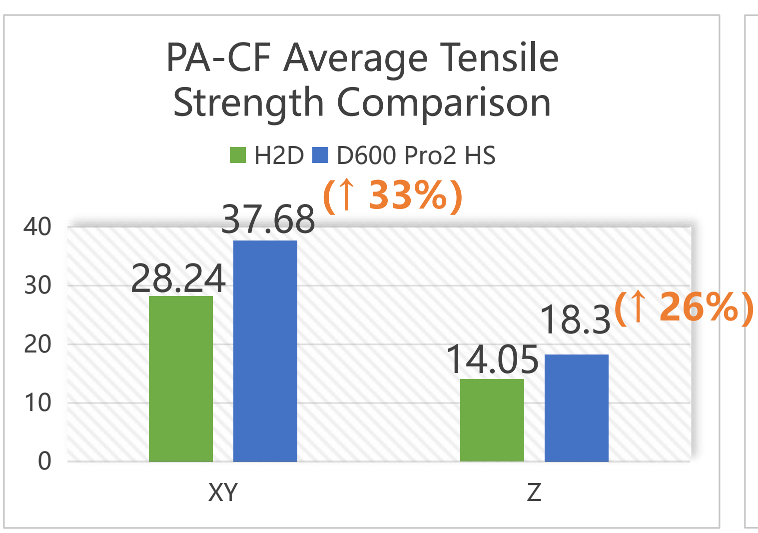
注释：可放大查看每个样本的拉断瞬间数值

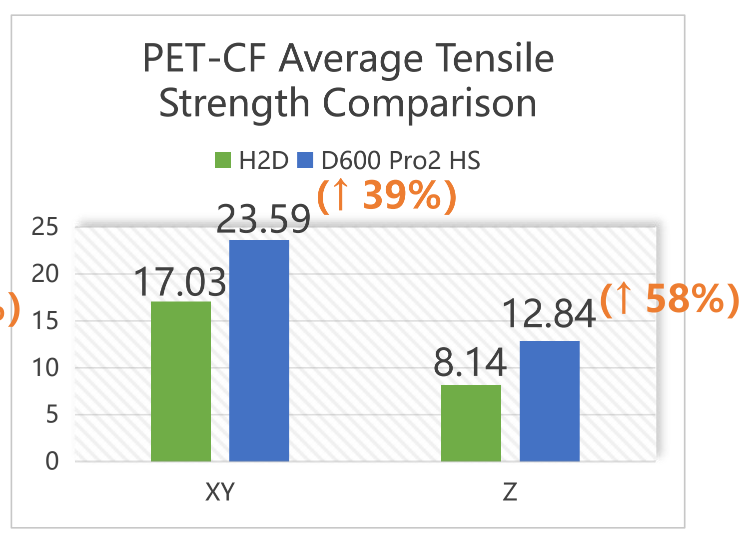
Test Data Summary











Test materials	Test direction	CreatBot VS bambu Lab	Strength increase
ABS	XY direction	F430 NX vs. X1C	**+31%**
	Z direction	F430 NX vs. X1C	**+106%**
ASA	XY direction	F430 NX vs. X1C	**+31%**
	Z direction	F430 NX vs. X1C	**+69%**
PA-CF	XYdirection	D600 Pro2 HS vs. H2D	**+33%**
	Z direction	D600 Pro2 HS vs. H2D	**+26%**
PET-CF	XY direction	D600 Pro2 HS vs. H2D	**+39%**
	Z direction	D600 Pro2 HS vs. H2D	**+58%**

What This Data Means for You?

Z-Axis Strength is the Benchmark of Industrial Grade:

A up to 106% improvement means parts from consumer-grade 3D printers are like a fragile stack of cards with weak interlayer adhesion. CreatBot's fully enclosed, high-temperature chamber ensures powerful layer bonding, manufacturing reliable parts that are robust in all directions.

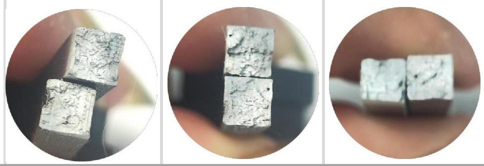
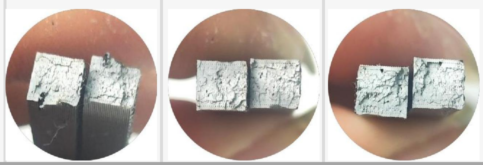
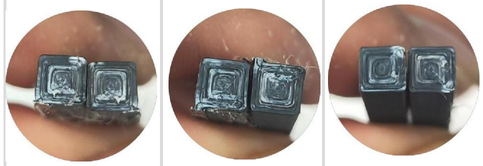
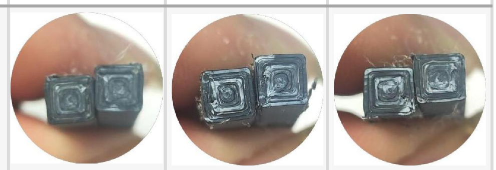
Achieving Nearly "Isotropic" Reliability:

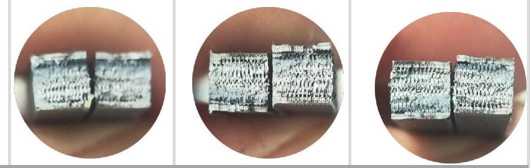
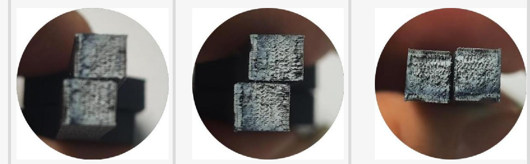
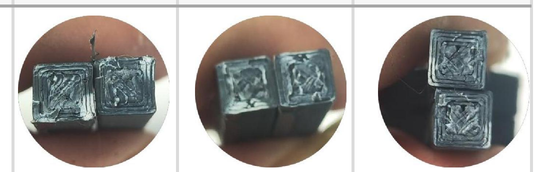
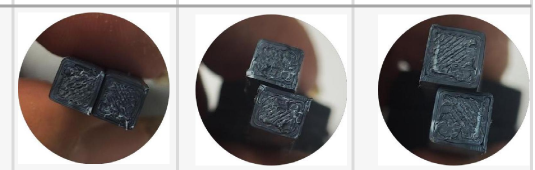
We significantly minimize the inherent "anisotropy" weakness of 3D printing. This allows the components you design to deliver stable, predictable performance regardless of load direction, meeting the demands of rigorous industrial applications.

Unlocking the True Potential of Engineering Materials:

Only industrial-grade equipment provides the stable, high-temperature environment required by high-performance materials like PA-CF and PET-CF. This ensures your investment in materials translates into their intended performance.

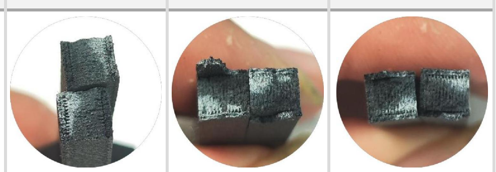
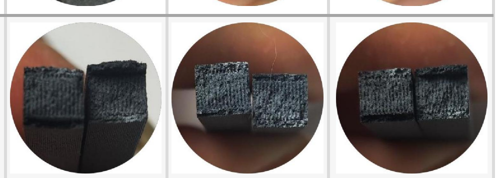
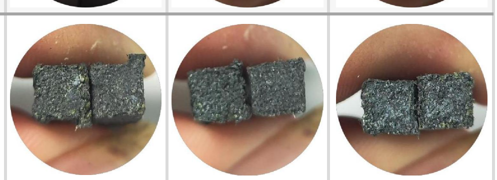
F430 NX VS X1C-Comparison of XY/Z direction cross-sections of test specimens

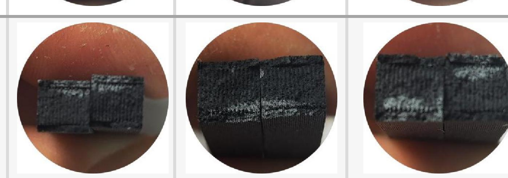
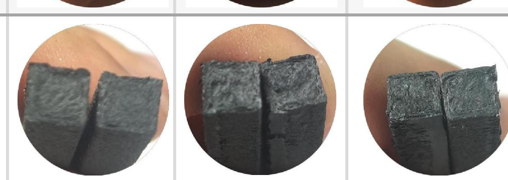
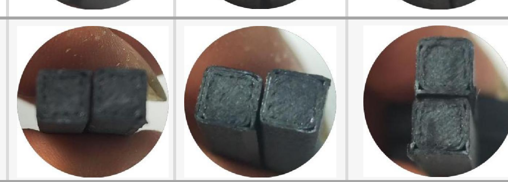
ABS	Direction	Specimen 1	Specimen 2	Specimen 3
F430 NX	XY			
X1C	XY			
F430 NX	Z			
X1C	Z			

ASA	Direction	Specimen 1	Specimen 2	Specimen 3
F430 NX	XY			
X1C	XY			
F430 NX	Z			
X1C	Z			

Stress whitening observed in cross-sections — This phenomenon, known as "stress whitening," is a typical characteristic of engineering plastics.

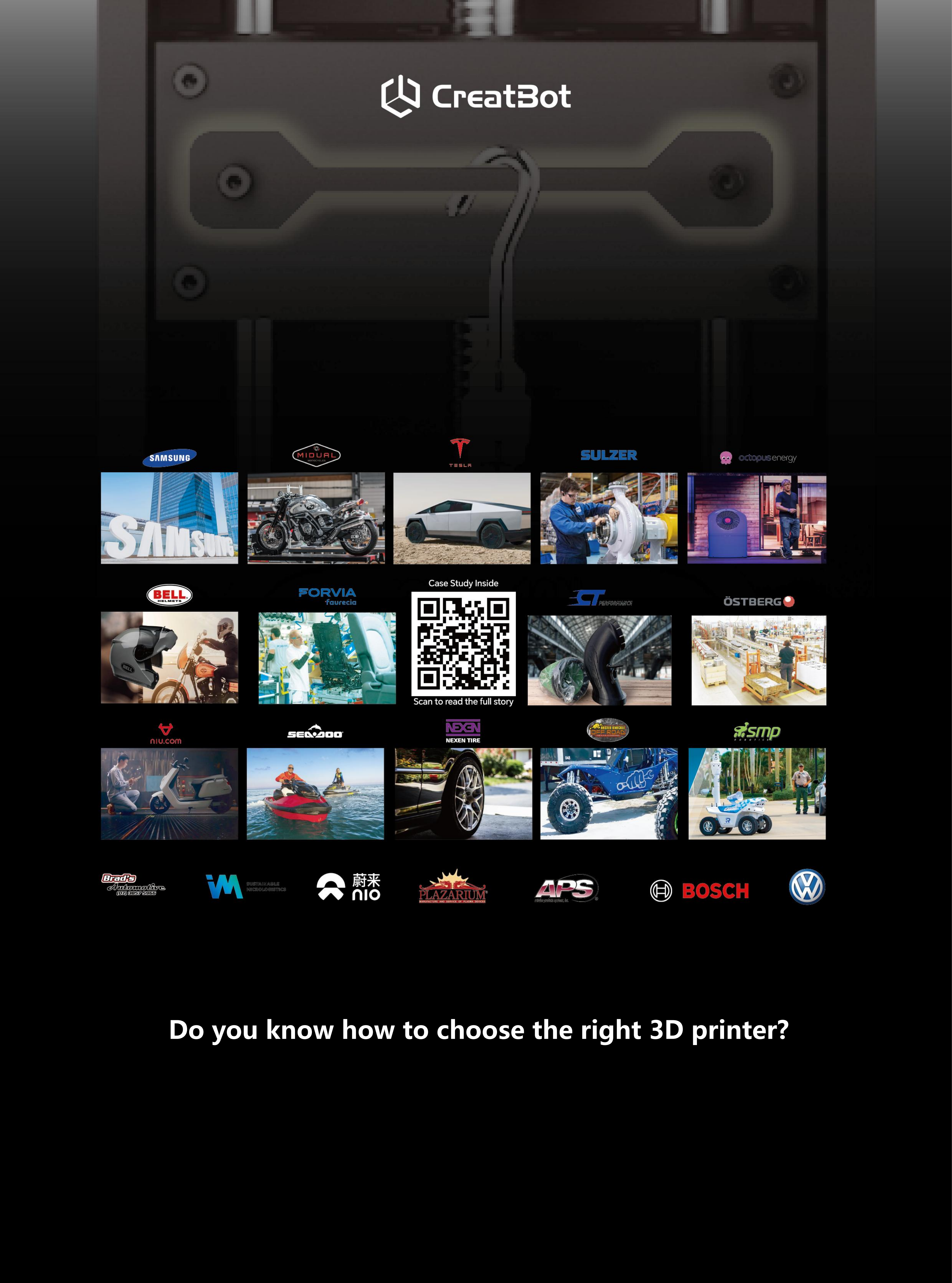
D600 Pro2 HS vs H2D-Comparison of XY/Z direction cross-sections of test specimens

PA-CF	Direction	Specimen 1	Specimen 2	Specimen 3
D600 Pro2 HS	XY			
H2D	XY			
D600 Pro2 HS	Z			
H2D	Z			

PET-CF	Direction	Specimen1	Specimen2	Specimen3
D600 Pro2 HS	XY			
H2D	XY			
D600 Pro2 HS	Z			
H2D	Z			

Note: Cross-sections of each sample may be enlarged for viewing.

Broken test spline samples


CreatBot
SAMSUNG
MIDUAL
TESLA
SULZER
octopusenergy
BELL
FORVIA
faurecia
Case Study Inside
Scan to read the full story
ÖSTBERG
niu.com
SEA-DOO
NEXEN TIRE
smp
Brad's Automotive
蔚来
nio
PLAZARIUM
APS
BOSCH
Do you know how to choose the right 3D printer?