PLA and ABS Strength Data

ASTM D256, D695, D638, D790

PLEASE READ

- These results suggest what differences a user can expect if they printed two identical pieces made of each material.
- Changes to ANY of the following properties can affect the **exact** results a user may see on their own printed parts:
    - Infill (Higher infill for a stronger part)
    - Shells (More shells for a stronger part)
    - Print orientation, size or design
    - Bot
    - Material age/condition
    - Any other profile adjustments
- Two different print settings were evaluated:
    - STD or Standard (Standard resolution, infill, shells, etc)
        - Sliced on MW 2.4.1.24
        - 100% Standard PLA or ABS profile settings
            - Make -> Select Material -> Select ‘Standard’ Resolution
    - MAX or High resolution, 100% infill
        - Sliced on MW 2.4.1.24
        - ‘High’ PLA or ABS profile with 100% infill
            - Make -> Select Material -> Select ‘High’ Resolution
            - Infill to 100%
- For PLA, samples were prepared using a Replicator 2
- For ABS, samples were prepared using a Replicator 2X

Impact (Un-notched IZOD)

ASTM D256

PLA		ABS	
STD	1.8	5.7	STD
MAX	4.1	6.2	MAX

Impact Strength in ft-lb/in

Compressive Strength

ASTM D695

PLA		ABS	
STD	2600	1100	STD
MAX	13600	7100	MAX

Peak Stress in PSI

Tensile Strength

ASTM D638 Type IV

PLA		ABS	
STD	6783	4936	STD
MAX	9531	5532	MAX

Peak Stress in PSI

Flexural Strength

ASTM D790

PLA		ABS	
STD	8970	5344	STD
MAX	13731	8646	MAX

Peak Stress in PSI