Fishy Filaments

Recycling marine plastics into 3D printer filament.

# Technical Data Sheet
# (updated 15th April 2019)
# Product Name - Porthcurno
# Material - Nylon 6, Polyamide 6, PA 6

## Description

Porthcurno is a semi-amorphous nylon blend with high tensile strength, good impact resistance and low surface friction.

Its post-print properties after atmospheric curing or overnight soaking in water make an especially interesting material for use in applications where moderate flexibility and high strength are useful e.g. wearables and live hinges.

Nylon is a technical, engineering grade material and is not recommended for novice users.

As with most nylons, Porthcurno is susceptible to absorbtion of moisture both before and after printing.

Filament should be dried prior to use and kept in a controlled environment between uses. Insufficient drying prior to use will result in warping, poor surface quality and an increased probability of print failure.

Typical drying parameters are ~5 hours at 70-80C at a controlled humidity of 20% H2O or lower. Effective drying cannot be achieved reliably at temperatures below 70C. The use of domestic ovens to dry filament is not recommended.

A heated printer bed is highly recommended as is the use of a suitable bed preparation material e.g. 3DLAC or Magigoo PA

| Test | Test Standard | SI Unit | Measured Value | Standard Deviation |
|---|---|---|---|---|
| **Tensile Strength** | | | | |
| Tensile Strength @ Break | ISO 527-2 | Mpa | 55 | 7 |
| Elongation @ Break | ISO 527-2 | % | 178 | 79 |
| Tensile Strength @ Yield | ISO 527-2 | Mpa | 59 | 2 |
| Elongation @ Yield | ISO 527-2 | % | 41 | 18 |
| Tensile Modus | ISO 527-2 | Mpa | 2745 | 189 |
| **Flex (3 Point)** | | | | |
| Flexural Stress | ISO 178 | Mpa | 70 | 2 |
| Flexural Modulus | ISO 178 | Mpa | 2126 | 184 |
| Izod Impact (Notched) | ISO180 | kj/m² | - | - |
| Melt Flow | ISO 1133 | g/10min | - | - |
| VICAT | ISO306/B120 | ºC | - | - |

## Typical Printing Parameters

| | |
|---|---|
| Bed Temperature | 60 - 80 °C |
| Printing Temperature | 250 - 270 °C |
| Printing Speed | 30 - 60 mm/s |

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# Technical Data Sheet
# (updated 15th April 2019)
# Product Name - Longships
# Material - Nylon 6, Polyamide 6, PA 6

Description
Longships is a semi-crystalline nylon blend with high tensile strength, good impact resistance and low surface friction.

Nylon is a technical, engineering grade material and is not recommended for novice users.

As with most nylons, Longships is susceptible to absorbtion of moisture both before and after printing.

Filament should be dried prior to use and kept in a controlled environment between uses. Insufficient drying prior to use will result in warping, poor surface quality and an increased probability of print failure.

For extended print runs a humility controlled caddy or cabinet is recommended. Typical drying parameters are ~5 hours at 70-80ºC at a controlled humidity of 20% H2O or lower. Effective drying cannot be achieved reliably at temperatures below 70ºC. The use of domestic ovens to dry filament is not recommended.

A heated printer bed is highly recommended as is the use of a suitable bed preparation material e.g. 3DLAC or Magigoo PA.

Please also note before purchase that Longship's print temperature is at the upper end of many desktop printer's off-the-shelf capabilities. Extended operation at the limits of printer specifications is not recommended.

## Typical Printing Parameters

| | |
|---|---|
| Bed Temperature | 90 - 110 °C |
| Printing Temperature | 260 - 280 °C |
| Printing Speed | 30 - 60 mm/s |

| Test | Test Standard | SI Unit | Measured Value | Standard Deviation |
|---|---|---|---|---|
| **Tensile Strength** | | | | |
| Tensile Strength @ Break | ISO 527-2 | Mpa | 52 | 4 |
| Elongation @ Break | ISO 527-2 | % | 45 | 19 |
| Tensile Strength @ Yield | ISO 527-2 | Mpa | 61.9 | 2.9 |
| Elongation @ Yield | ISO 527-2 | % | 7.7 | 0.1 |
| Tensile Modus | ISO 527-2 | Mpa | 2852 | 114 |
| **Flex (3 Point)** | | | | |
| Flexural Stress | ISO 178 | Mpa | 57 | 5 |
| Flexural Modulus | ISO 178 | Mpa | 1760 | 197 |
| Izod Impact (Notched) | ISO180 | kj/m² | 7 | 2 |
| Melt Flow | ISO 1133 | g/10min | 15 | - |
| VICAT | ISO306/B120 | ºC | 190 | 1 |