

# PN-31

## Puller

### Puller for producing long, thin, sharp microneedles.

This puller uses a pulling method by which  $\varnothing 1\text{mm} \sim \varnothing 1.2\text{mm}$  borosilicate glass capillaries are fine-drawn using electromagnetic force. The long draw-out volume and employment of a strong electromagnetic solenoid enable the production of long, sharp microneedles. The pulling tension can be adjusted over a wide range, from weak tension for gradual pulling of the glass capillary at the beginning to strong tension for the single-stretch draw-out required to make a long, thin microneedle. The heater uses a platinum plate which heats up quickly, so pulling can begin immediately, with no time-lag. Digital values, with the maximum output of the electromagnet and heater represented as 100, are shown on the display, making it easier to mass-produce large quantities of identical microneedles of uniform quality.



\* The PN-31 is designed specifically for pulling 1mm or 1.2mm O.D. borosilicate glass capillaries. For pulling capillaries of different O.D. or different materials, contact us or your local Narishige representative.

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### Specification

<b>Accessories included</b>	Glass Capillary with Filament (ø1mm) Spare Heater Heater Reshaping Tool Power Cord Hex Wrench
<b>Working voltage</b>	AC100V, 50/60Hz AC120V, 50/60Hz AC220V, 50/60Hz AC240V, 50/60Hz
<b>Power consumption</b>	Approx. 250W
<b>Heater level</b>	100 = heater voltage 1V
<b>Magnet level</b>	100 = magnetic voltage 36V
<b>Dimensions/Weight</b>	W300 × D190 × H230mm, 7.7kg

### Consumables

Model	Product	Description
<b>PN-3H</b>	Heater for PN-3, PN-30, PN-31	Platinum board 3mm (×3)
<b>PN-30H</b>	Heater for PN-30, PN-31	Platinum board 6mm (×3)
<b><u>GD-1</u></b>	Glass Capillary with filament	Outer diameter ø1mm, 500pcs
<b><u>GD-1.2</u></b>	Glass Capillary with filament	Outer diameter ø1.2mm, 500pcs
<b><u>GDC-1</u></b>	Glass Capillary with filament	Outer diameter ø1mm, 200pcs
<b><u>GDC-1.2</u></b>	Glass Capillary with filament	Outer diameter ø1.2mm, 200pcs
<b><u>G-1</u></b>	Glass Capillary	Outer diameter ø1mm, 500pcs
<b><u>G-1.2</u></b>	Glass Capillary	Outer diameter ø1.2mm, 500pcs
<b><u>GC-1</u></b>	Glass Capillary	Outer diameter ø1mm, 200pcs
<b><u>GC-1.2</u></b>	Glass Capillary	Outer diameter ø1.2mm, 200pcs
<b><u>G-100</u></b>	Thin-walled Glass Capillary	Outer diameter ø1mm, 500pcs
<b><u>G-1000</u></b>	Glass Rod	Outer diameter ø1mm, 200pcs

Specifications are subject to change without notice.

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