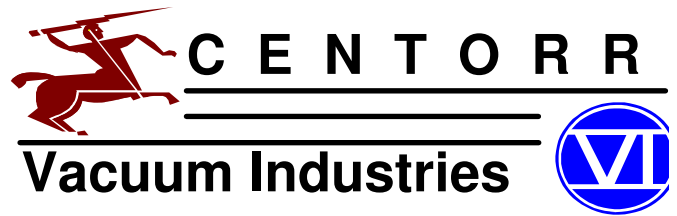


# PRODUCT

## INFORMATION



### Versatile, High Quality COMPACT CRYSTAL PULLER

### SERIES 3 Crystal Puller



#### APPLICATIONS:

Czochralski  
Verneuil Flame Fusion

Bridgeman—Stockbarger

#### FEATURES:

##### *Versatile -*

1. Smooth crystal pulling motion from .009 inches/hour (0.23mm/hr.) to 13.3 inches/hour (337.8 mm/hr).
2. Rotation speeds from 1/4-60 RPM.
3. Easily adapts for use with Centorr Vacuum Industries' and other furnaces.

##### *Dependable -*

1. Air cooled seed rod (heat pipe) eliminates water connections and rotary seals required with conventional water-cooled seed rods.
2. Uses high quality motors with reliable solid state motor controllers.

##### *Durable -*

1. Key drive train components, precision made of stainless steel, are easily accessible for periodic lubrication and inspection.

##### *Adaptable -*

1. Crystal puller stand provides adjustable support for small furnaces or crystal puller mechanism can be directly mounted to larger furnaces.
2. Centorr Vacuum Industries crystal puller operates in any position. When used upside down control panel can be rotated 180° for operation convenience.

##### *Portable -*

1. Separates into two easily carried assemblies of approximately 85 lbs. (38.5 KG) each.

#### *SPECIFICATIONS*

Rapid seed rod advance/retract:: 3.7 inches/min. (94 mm/min.)

Approximate weight: 190 Lbs (86.1 Kg)

Slide protected against high or low speed over travel by limit switches.

Overall Size: 12" Wide x 12" Deep x 72" High  
(304.8 x 304.8 x 1828.8 mm)

Utility Requirements: 250 Watts, 120/1/60  
(Operation from 220/1/50 available)

Base: 15" Wide x 20" Deep  
(381 mm x 508 mm)



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## GENERAL

The Centorr Vacuum Industries Series 3 Crystal Puller was developed to meet the specific requirements of scientists and researchers needing a dependable, multi-purpose crystal puller.

Originally designed for use with Centorr Vacuum Industries' high temperature vacuum or controlled atmosphere furnaces, the Model 3 Crystal Puller has also found a significant market as a separate unit because it readily adapts to users' existing furnace. The standard puller includes a mounting table for Centorr Vacuum Industries Series 5 Tri-Arc, Series 15 Laboratory or other small furnaces. Table is adjustable, by simply loosening hand knob on clamp column, for accurate alignment and operation of puller with these and other furnaces which will fit within the large clearance space provided.

Very slow slide speeds can be confirmed by observation of gear system through plexiglass window.

Aluminum and stainless steel components utilized in the construction of this puller make a strong, yet relatively lightweight unit.

The crystal puller drive mechanism is housed in an attractive cabinet with electrical controls conveniently located on front panel.

The puller slide motion is controlled by:

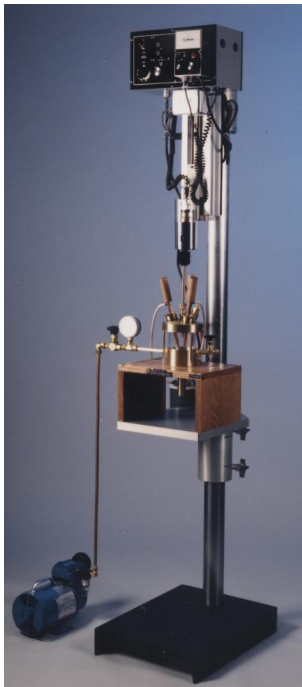
1. Drive selector switch:
  - (a) Fast up
  - (b) Slow on
  - (c) Fast down
2. Slow drive torque selector switch:
  - (a) OFF
  - (b) Low torque
  - (c) High torque
3. Slow drive direction switch.
4. Continuous speed control

Seed rod rotation is controlled by:

1. On-off switch.
2. Continuous speed control.

Performance of puller can be selected to operate within the following limits (see available options for details):

Pulling Speed: .009—13.35 In/Hr (0.23 mm - 339.1 mm/Hr)  
Rotation Speed: 1/4—60 RPM  
Slide Travel: Up to 36 In. (914 mm)



Series 3 Crystal Puller  
with Series 5 Tri-Arc  
furnace.



Series 3 Crystal Puller  
Control Panel

Centorr/Vacuum Industries Manufactures a complete line of High Temperature Vacuum and Controlled Atmosphere Furnaces for the Research and Development Laboratory, the Materials, Testing and Evaluation Laboratory, and for Production.



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