



E5T Series

Rotating Disk Working Electrode Product Guide

Part # Style: **AFE5T050XX**

(XX = disk electrode material, e.g. GE = edge plane pyrolytic graphite and GB = basal plane pyrolytic graphite)

Warnings



Caution:

Maximum Rotation Rate **2500 RPM**.



Caution:

Use care when electrode is rotating over **2000 RPM**.



Thermal Stability:

Electrode may only be used from **10°C to 25°C**. Extreme temperatures will damage the electrode seal.

Contact Us / Support

2741 Campus Walk Ave, Building 100
Durham, NC 27705 USA

www.pineresearch.com

pinewire@pineinst.com

+1 (919) 782-8320

Description

The E5 Series rotating disk electrode (RDE) tip is designed for use with ASR and MSR model rotators. The tip has a protective shroud made from polytetrafluoroethylene (PTFE). This fluoropolymer is compatible with a wide range of organic solvents, acids, and bases.

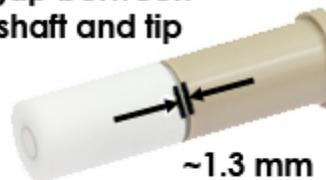
The mounting threads for this tip and the outer diameter of the shroud (15 mm) are the same as a variety of other RDE and RRDE tips offered by Pine. This tip will thread on to the appropriate shaft for the ASR rotator (shaft number AFE6A) or the MSR rotator (shaft number AFE6MB).

Mounting the Electrode

Before mounting the RDE tip on to the rotator shaft, make certain that the shaft is securely mounted in the rotator. For the MSR rotator, the appropriate shaft should be securely mounted into the MSR motor coupling. For the ASR rotator, the appropriate shaft should be securely mounted using the ASR draw bar.

The electrode is narrow enough to fit through a 24/25 center port on an electrochemical cell. Care should be taken to prevent the rotating electrode from rubbing against surfaces (such as the inner wall of the cell). When threading the RDE tip on to the shaft, do not apply excessive force to the shroud as this may damage the seal between the shroud and the electrode surface. A properly mounted tip will have a small gap (~1.3 mm) between the shaft and tip.

gap between
shaft and tip

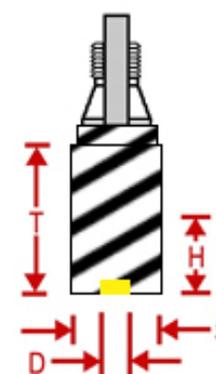


When the rotating electrode tip is placed in a solution, the electrode surface should be approximately 5 to 12 mm below the solution level. The gap between the shaft and the tip should never be immersed in the solution because the solution may enter the gap and cause corrosion of the metal threads and inner parts of the tip.

Leak Testing

The shroud is tightly sealed around the circumference of the working electrode material. Each electrode is shipped with a copy of the factory leak test results; it is guaranteed to be leak-free at the time of shipment. Leak testing is performed at ambient (room) temperature. Exposing the electrode to temperatures less than 10°C or greater than 25°C may create a leak between the electrode material and the shroud.

Diagram



Disk Diameter (d): 5.0 mm

Shroud Diameter (s): 15.0 mm

Tip Shroud Length (t): 25.4 mm

Maximum Immersion (h): 12.0 mm

Additional shaft and tip dimensions are provided on the next page.

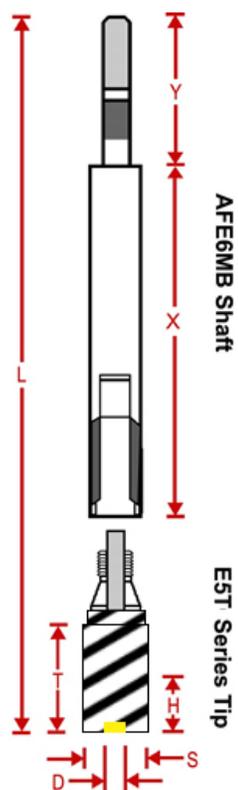
Maintenance

After using the electrode, clean it with distilled water and replace the protective cover to prevent the electrode surface from being scratched. Periodically, the electrode surface will need to be polished. An electrode polishing kit with various alumina slurries and polishing pads is available (sold separately).

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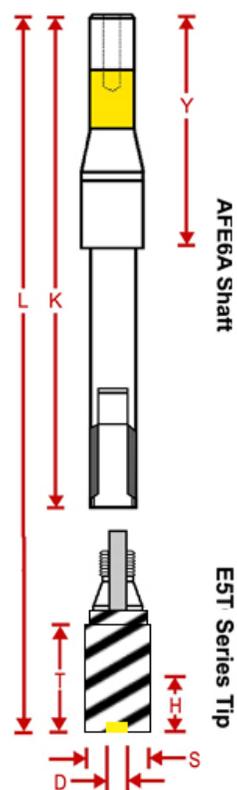
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MSR Rotator Shaft with Tip



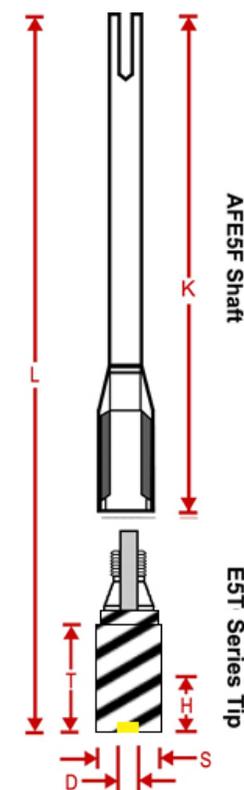
Disk Diameter (d):	5.0 mm
Shroud Diameter (s):	15.0 mm
Tip Shroud Length (t):	25.4 mm
Overall Length (l):	197.4 mm
Shaft/Tip Gap (x):	1.3 mm
Shaft Length (k):	170.7 mm
Concealed part (p):	68.0 mm
Exposed metal (q):	1.9 mm
Polymer Sheath (z):	100.8 mm
Ridge Location (w):	18.3 mm
Upper Shaft OD (y):	6.35 mm

ASR Rotator Shaft with Tip



Disk Diameter (d):	5.0 mm
Shroud Diameter (s):	15.0 mm
Tip Shroud Length (t):	25.4 mm
Overall Length (l):	184.7 mm
Shaft/Tip Gap (x):	1.3 mm
Shaft Length (k):	158.0 mm
Concealed part (p):	61.0 mm
Exposed metal (q):	37.0 mm
Polymer Sheath (z):	60.0 mm

Stationary Use



Disk Diameter (d):	5.0 mm
Shroud Diameter (s):	15.0 mm
Tip Shroud Length (t):	25.4 mm
Overall Length (l):	184.7 mm
Shaft/Tip Gap (x):	1.3 mm
Shaft Length (k):	158.0 mm
Upper Shaft OD (y):	6.35 mm

The RDE tip can be used as a non-rotating electrode. The tip can be mounted on a special stationary shaft (part number AFE5F).