



## E5TPK Series

*Rotating Disk Working  
Electrode Product Guide*

**Part # Style: AFE5T050XXPK**

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

### Warnings



**Caution:**  
Maximum Rotation Rate: 3000 RPM



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



**Thermal Stability:**  
Electrode may only be used from 10°C to 80°C. Extreme temperatures will damage the electrode seal.



**Chemical Compatibility:**  
The polyether ether ketone (PEEK) shroud will dissolve in concentrated nitric and sulfuric acids.

### Description

The E5 PEEK Series rotating disk electrode (RDE) tips are designed for use with ASR and MSR model rotators. The tip has a protective shroud made from polyether ether ketone (PEEK), a polymer with excellent high temperature properties. The shroud is resistant to most solvents; however, it will dissolve in concentrated acid solutions, and it may be discolored by more dilute acid solutions. 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 Research. This tip will fit on to the appropriate shaft for the ASR rotator (shaft number AFE6A) or the MSR rotator (shaft number AFE6MB).

### 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 25°C and 80°C. Exposing the electrode to temperatures less than 15°C or greater than 80°C may create a leak between the electrode material and the shroud.

### 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).

### Contact Us / Support

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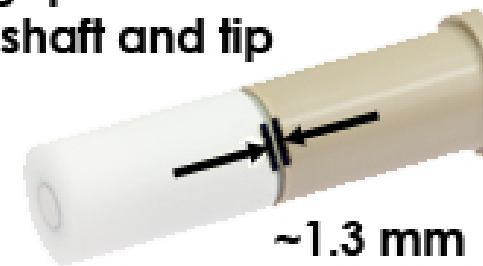
### Mounting the Electrode

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.

When the rotating electrode tip is placed in a solution, the electrode surface should be approximately 5 mm 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.

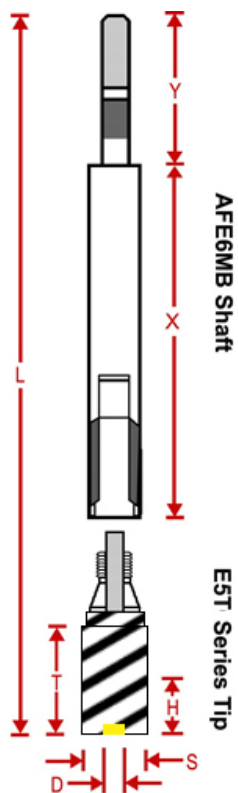
**gap between  
shaft and tip**



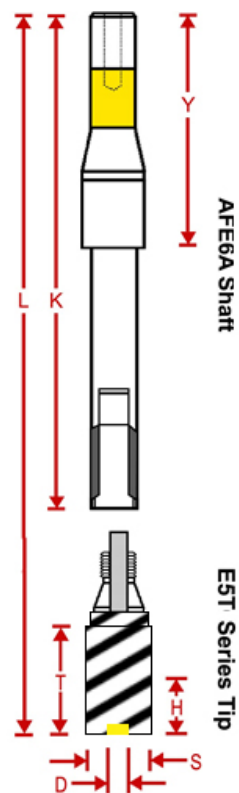
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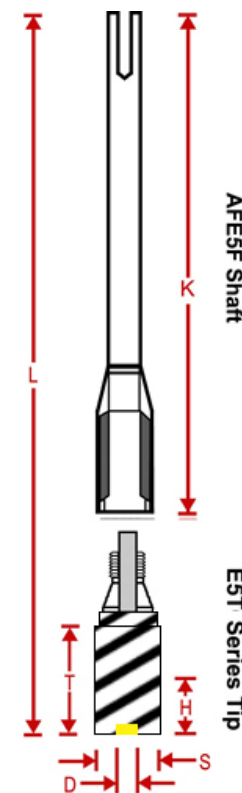
## MSR Rotator Shaft with Tip



## ASR Rotator Shaft with Tip



## Stationary Use



Disk Diameter (d):	5 mm
Shroud Diameter (s):	15 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 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

Disk Diameter (d):	5 mm
Shroud Diameter (s):	15 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 mm
Concealed part (p):	61 mm
Exposed metal (q):	37 mm
Polymer Sheath (z):	60 mm

Disk Diameter (d):	5 mm
Shroud Diameter (s):	15 mm
Tip Shroud Length (t):	25.4 mm
Maximum Immersion Depth (h):	12 mm
Overall Length (l):	184.7 mm
Shaft/Tip Gap (x):	1.3 mm
Shaft Length (k):	158 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).