



Pascal Technologies

AT cut Quartz Crystals

Drop-in replacement for



- Maxtek™
- Sycon™
- Sigma™

Patterns



Inficon™



Balzers™



Ulvac™ Type



Materials Available

- Aluminum Alloy
- Gold
- Silver
- Nickel

Specifications

- Temp Range: 20-100°C
- Frequency: 5/6MHz
- Diameter: 14/12.5mm
- Resistance: <15 Ohms

Phillip Technologies™ AT cut replacement quartz monitoring crystals are the **ideal film thickness sensor for environments ranging from 20-100°C**. They are the perfect solution for most low temperature PVD applications that require standard measurement accuracy or resistance to heat interference.

These crystals are manufactured in the USA and shipped from stock. **Pricing is highly competitive**, with high accuracy, quality, and reliability. Most styles are available at **\$33.50 per disc of 10**.

The crystals market has seen considerable consolidation and outsourcing in recent years. Phillip Technologies is breaking this trend by offering the latest technologies in the field, with **the advantages of USA production, technical support, fast deliveries, no minimum order, and low shipping costs**.



For further technical information visit www.philliptech.com/crystals



Pascal Technologies

RC cut Quartz Crystals

World's Most Advanced Crystal Sensor

- Endures Environments up to 300°C
- Minimizes Thermal Shock
- No Rate Spikes - Higher Measuring Accuracy
- Many Patterns and Coatings Available!

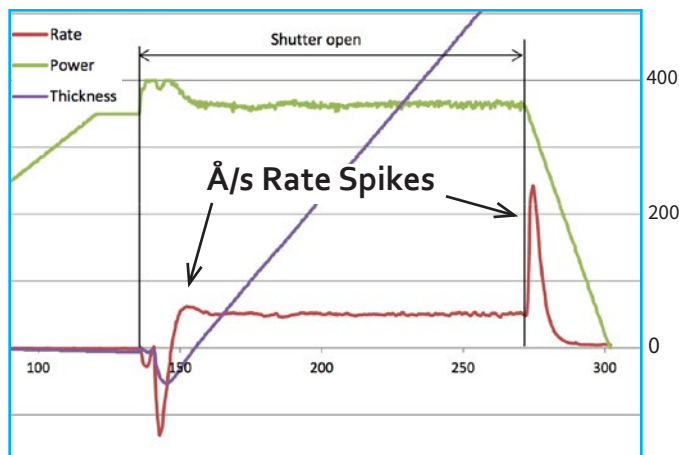


Phillip Technologies™ RC cut crystals are the patented solution for extreme processes with demanding accuracy requirements. They provide **real advantages in OLED, ALD, CVD, precision optical films, and next generation electronic devices.** This revolutionary design does not show a rate spike when the deposition source monitor is opened.

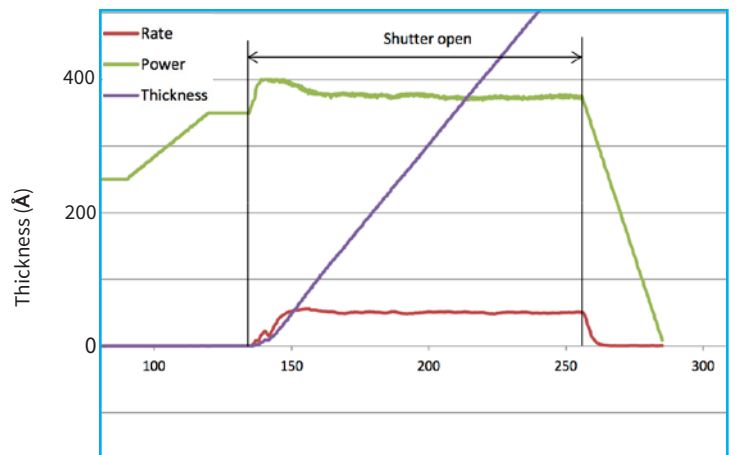
The graphs below illustrate this difference between RC and industry standard AT crystals. Further, the stress insensitivity of the crystal and enhanced surface finish dramatically reduce frequency change due to film build-up stress and the noise from the intense energy of sputtering.

Thickness accuracies can be improved by over 30% in most applications; and even up to 100% for ultra-thin films in the 10 to 100 Angstrom range.

Standard AT-cut Quartz



Phillips RC-cut Quartz



RC crystals can operate up to 300° C, making them perfect for high temperature applications like CVD and ALD. These 14mm diameter crystals are made in 5 and 6 MHz versions, with gold, silver, Platalloy, aluminum, or custom electrodes. RC Crystals can be used in place of standard AT cut quartz crystals in all commercially available film thickness monitors.

Manufactured in the USA and shipped from stock. Pricing is **\$99.50 for disc of 10** (quantity discounts available).

For further technical information visit www.philliptech.com/crystals



Pascal Technologies

High-Accuracy Thin Film Monitoring & Sensor Heads

New technology at lowest investment - Made in USA

Introducing the **QUARK** Deposition Controller



Accurate

- Dual-Sensor Temperature Compensation
- Realtime Freq/Temp Curve Generation
- 500°C Crystal Operation

Versatile

- Up to 4 sources/sensors (2 standard)
- Dual Crystal Channels & Source Control
- Touchscreen Display
- User-Programmable

The Phillip Technologies™ QUARK™ Controller is an ultra-high resolution thin film deposition control system with temperature compensation and co-deposition support. Built in a 19-in standard modular rackmount enclosure, the user-programmable QUARK™ controller features a touchscreen display with real-time graphing of temperature and frequency, providing unprecedented accuracy for your thin-film application.

NUCLEUS PLUS[™] Dual-Channel Film-Thickness PC-Based Controller



The Nucleus Plus™ controller is a thin film deposition control system compatible with industry standard crystal sensors. Paired with the Proton Plus sensor head and Phillips AT/RC™ crystals, the Nucleus Plus™ automatically compensates for temperature variations to provide the ultimate in precision deposition control.

PROTON PLUS[™] A sensor head that senses more than frequency



Phillip Technologies™ simply wasn't satisfied with the precision available in today's market. The Proton Plus™ Sensor Head adds a new level of control to the thin film deposition process by utilizing an embedded thermocouple that is read with a simple thermocouple meter.



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