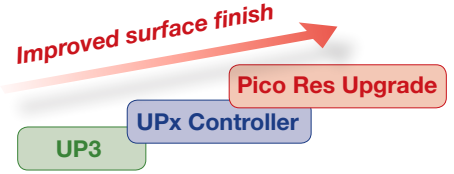


# Picometer Resolution Feedback Upgrade

## N200/N350/N700/FF700



AMECARE® Performance Services proudly offers the Pico-Res ultra-high resolution position feedback upgrade for our legacy product line. This state of the art package enables our Nanoform® products to be equipped with sub-nanometer positioning resolution, with the added benefit of updated electronic components for long term supportability.

The system can be integrated in the field to any axis (X,Y,Z,B.C) of any legacy Nanoform® or Freeform® product provided the machine is equipped with our UPx® control system. The upgrade is easily integrated with our UPx® Real Time Operating System (RTOS) CNC Controller.

### Key Features and Benefits:

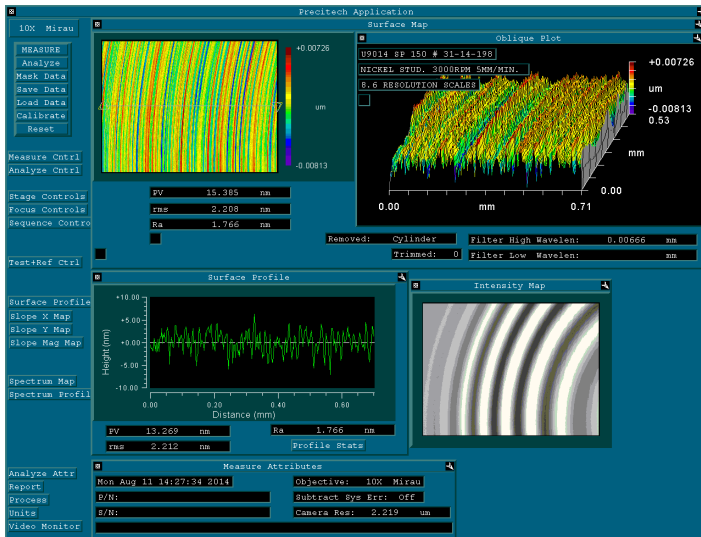
- ▶ Provides the same world leading sub-nanometer position resolution as modern Ametek Precitech large frame Nanoform Ultra and Freeform Ultra machining systems
- ▶ Long term supportability is achieved by replacing obsolete original electronic components with current technology.
- ▶ Advanced Diagnostics, which includes allowing the user to monitor scale signals without an oscilloscope.
- ▶ Increasing servo positioning resolution provides the benefit of improved roughness on machined optical surfaces. (See images).

Nanoform®200

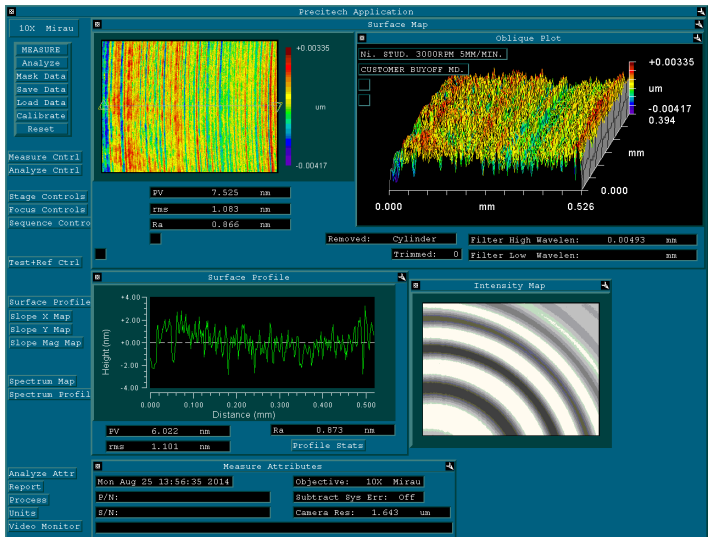
### SPDT Performance Benefits:

Before and after results from a Nanoform®200 lathe machining high phosphorous electro-less nickel:  
Note: Results may vary depending on machine age, mechanical condition, environment, etc.

Before PicoRes RA is 1.76 nm



After Pico-Res RA is 0.866 nm

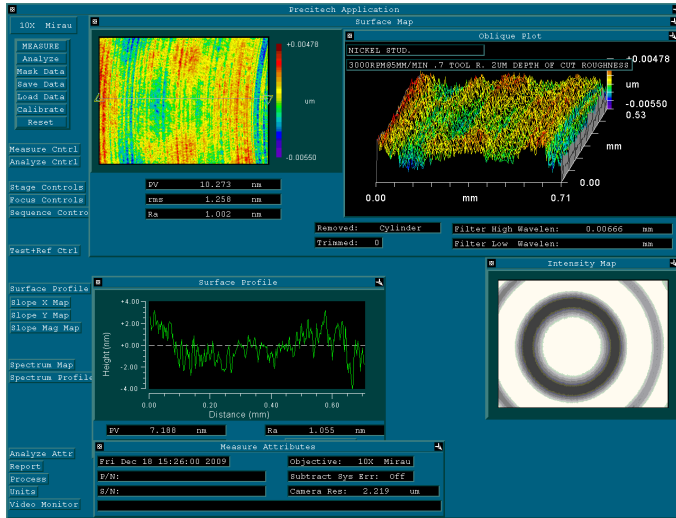


Nanoform® 350

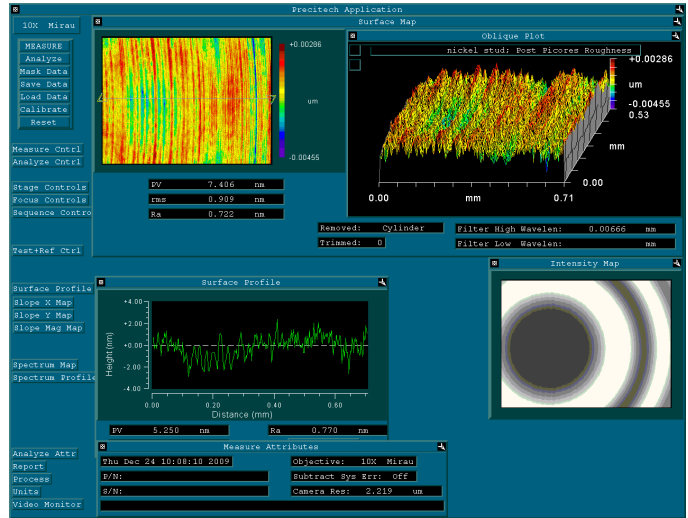
**SPDT Performance Benefits:**

Before and after results from a Nanoform®350 lathe machining high phosphorous electro-less nickel.  
Note: Results may vary depending on machine age, mechanical condition, environment, etc.

Before Pico-Res RA is 1.002 nm

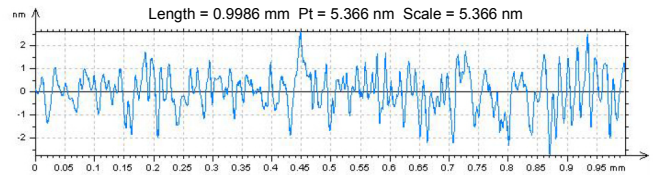
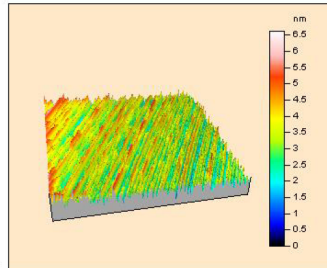
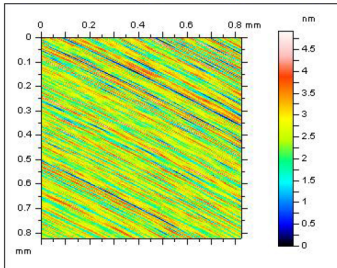


After Pico-Res RA is 0.722 nm



Results from Nanoform®350 lathe machining germanium:

Machine Type: N350pico    Germanium test piece 0.75R out from center  
Speed: 3,000 RPM    Spindle Type: SP-150    Tool radius 0.693 mm  
Feed: 3 MM/MIN    -25 degree rake



\* Parameters calculated as average value of all sampling lengths.  
\* A microroughness filtering is used, with a ratio of 2.5 µm.

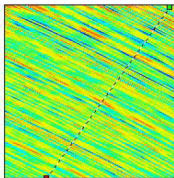
Roughness Parameters, Gaussian filter, 0.08 mm

Ra = 0.5864 nm  
Ra: Arithmetic Mean Deviation of the roughness profile.  
Rq = 0.7328 nm  
Rq: Root-Mean-Square (RMS) Deviation of the roughness profile.

Roughness, Gaussian Filter, 0.08 mm

**Amplitude Parameters**

Sa = 0.6596 nm  
Sa: Arithmetic Mean Deviation of the Surface  
Sq = 0.8324 nm  
Sq: Root-Mean-Square (RMS) Deviation of the Surface  
St = 6.619 nm  
St: total height of the surface



TalyMap Platinum 5.0.3.50

Since 1962, Precitech has delivered complete ultra precision solutions and maintains an installed base of over 1,500 systems worldwide. We continue to define the state-of-the-art, enhancing accuracy, productivity, and ease of use.

**Precitech is ultra precision machining solutions.**