

Analysis of ultrasonic machining systems using wholefield interferometric techniques

-- designing precision machines: Topics by Science.gov

ESPI system	Laser	Configuration	Measurment	Measurement type	No. Object size	Dimensions	Weight
DATE-EOM Master	N/A	ESPI	Interferometer	Upto 12mm	3x3mm	30x30cm ² /3kg	
				Strain	g/g		
DATE-EOM	He-Ne laser	ESPI	Interferometer	0-10µm	30x30mm ²	30x30cm ² /2kg	
DATE-EWZT	He-Ne laser	ESPI	Interferometer	0-10µm	40x3mm ²	30x30cm ² /2kg	
DATE-QM	N/A	Infrared camera system Photoreflectance	Photoreflectance	0-100nm	10x10mm ²	N/A	N/A
				Strain	0.05-100%		
OPTONIC Maching 700	He-Ne laser	ESPI	Interferometer	0-10µm	9x2mm ²	30x30cm ² /2kg	
				Strain	0.2%		
OPTONIC Maching 1000	N/A	ESPI	Interferometer	0-10µm	30x30mm ²	30x30cm ² /3kg	
OPTONIC QM5	He-Ne laser	Scanning	Interferometer	Upto 1mm	30x30mm ²	30x30cm ² /4kg	
				Strain	Strain/g		
OPTONIC QM7	Laser diode	Scanning	Interferometer	Upto 1mm	30x30mm ²	30x30cm ² /N/A	
				Strain	154g		

Description: -

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. However, this is not true when $x(t)$ is not a harmonic function, which is why the signal usually has to be bandpass filtered. Over the past several years, QED's Q22 family of polishing platforms, based on the MRF process, have demonstrated the ability to produce optical surfaces with accuracies better than 30 nm peak-to-valley PV and surface micro-roughness less than 0.

Modal analysis of ultrasonic block horns by ESPI

The fabrication of the machine has been explained in detail and the results have been discussed. In this paper, first of all improved techniques are described to measure packaged MEMS or MOEMS surfaces through-transmissive-media TTM at higher magnifications. First, the RMS method is very sensitive to alternating operating conditions but the BFE index is not and thus eliminates the possibility of false alarms caused by alternating operating conditions.

Volume Table of Contents

For example, periodic tool-workpiece contact could be modulated by spindle run out. With ever improving computer technology and numerical methods, it has become an industry standard, especially for high-end products such as automobile body panels.

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We show the simulated figures and the diffraction pictures when the number of pinholes is 20, 40 and 80 respectively by imitating this model. A sample IR image is shown in Figure 8.

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