METROLOGY SYSTEM

Related Applications

[0001] The present application claims priority to U.S. Provisional Patent Application No. 62/636,739, filed February 28, 2018, entitled "METHOD AND APPARATUS FOR HIGH SPEED, NON-CONTACT COORDINATE MEASURING", the entire disclosure of which is hereby incorporated by reference.

Technical Field

[0002] The present disclosure relates to the field of metrology. More particularly, the present disclosure relates to a metrology system, including one or more metrology bridges, for high-speed, non-contact inspection and measurement of parts.

Background

[0003] The background description provided herein is for the purpose of generally presenting the context of the disclosure. Unless otherwise indicated herein, the materials described in this section are not prior art to the claims in this application and are not admitted to be prior art by inclusion in this section.

[0004] Precision measurement of parts typically relies on contacting the parts via tools (such as sensors and probes) to perform the measurements. Each tool is typically retrieved from a storage position and moved into contact with an object to perform. The contact of the tools with the parts may further cause damage to or induce defects within the object.

Summary

[0004a] In a first aspect, the present disclosure provides a metrology bridge to be coupled to a measurement assembly comprising: a housing; mounting members coupled to the housing, the mounting members are to rotatably couple the housing to the measurement assembly; and one or more sensor devices mounted within the housing, wherein each sensor element of each of the one of or more sensor devices are aligned along a length of the housing and are directed out of the housing.

[0004b] In a second aspect, the present disclosure provides a measurement system, comprising: a body comprised of a base; a stage disposed upon the base; a platen disposed upon

the stage, the platen to receive an object to be measured; and at least one metrology bridge rotatably coupled to the body, the at least one metrology bridge to be rotated about the platen, wherein the at least one metrology bridge includes: a housing; and one or more sensor devices mounted within the housing, wherein sensor elements of the one or more sensor devices are aligned along a length of the housing and are directed out of the housing.

[0004c] In a third aspect, the present disclosure provides a sensor assembly, comprising: a guide with a kinematic positioning element; and a sensor device coupled to the guide, wherein the sensor device includes: a displacement member with a kinematic frame, the displacement member coupled to the guide and to be translated along the guide; and an extension member coupled to the kinematic frame, wherein the extension member is to extend and contract as the displacement member is translated along the guide, and wherein the kinematic frame is to engage with the kinematic positioning element when the extension member is in an extended position to facilitate positioning of the extension member.

Brief Description of the Drawings

[0005] Embodiments will be readily understood by the following detailed description in conjunction with the accompanying drawings. To facilitate this description, like reference numerals designate like structural elements. Embodiments are illustrated by way of example, and not by way of limitation, in the figures of the accompanying drawings.

[0006] Figure 1 illustrates an example metrology bridge, according to various embodiments.

[0007] Figure 2A illustrates an example measurement system assembly, according to various embodiments.