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Standard Specification for Total Hip Joint Prosthesis and Hip Endoprosthesis Bearing Surfaces Made of Metallic, Ceramic, and Polymeric Materials¹

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1. Scope

1.1 This specification covers the requirements for the mating bearing surfaces of total hip prostheses and hip endoprotheses. More specifically, this specification covers hip joint replacement of the ball-and-socket configuration. This specification does not address the tolerance match between the mating bearing surfaces.

1.2 This specification covers the sphericity, surface finish requirements, and dimensional tolerances for the spherical articulating metallic or ceramic femoral heads of total hip joint prostheses.

1.3 This specification covers the sphericity, surface finish requirements, and dimensional tolerances for the spherical concave mating surface of metallic and ceramic acetabular components, including the inner polymeric bearing surface of bipolar heads, and the surface finish requirements and dimensional tolerances for the spherical concave mating surface of polymeric acetabular components.

1.4 This specification covers the sphericity and surface finish requirements for the spherical metallic or ceramic femoral heads of hip endoprotheses, and the outer bearing surface of bipolar heads.

1.5 The values stated in SI units are to be regarded as the standard.

1.6 This specification is intended for standard practice regarding the design of total hip joint bearing surfaces. Additionally, the tolerances imposed on the polymeric portion of the bearing surface are intentionally large due to temperature-induced size changes and other manufacturing concerns. Some manufacturing methods or designs may intentionally reduce the diameter of the polymeric bearing to more closely mate with the diameter of the head.

2. Referenced Documents

2.1 *ASTM Standards:*

¹ This specification is under the jurisdiction of ASTM Committee F4 F04 on Medical and Surgical Materials and Devices and is the direct responsibility of Subcommittee F04.22 on Arthroplasty.

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