Summary of the most commonly used test methods
Part 5A - Hip joint prostheses

ISO 7206-4 etc.
Implants for surgery -- Partial and total hip joint prostheses -- Part 4: Determination of endurance properties and performance of stemmed femoral components
Scope
Determining the endurance properties of stemmed femoral components of total or partial hip joint prostheses.

ISO 7206-6 etc.
Implants for surgery -- Partial and total hip joint prostheses -- Part 6: Determination of endurance properties of head and neck region of stemmed femoral components
Scope
Determining the endurance properties of the head and neck region of stemmed femoral components of total or partial hip joint prostheses.

ASTM F2996
Standard Practice for Finite Element Analysis (FEA) of Non-Modular Metallic Orthopaedic Hip Femoral Stems
Scope
Simulation of metallic hip stems using Finite Element Analysis techniques. Can be used for worst case assessment.

ASTM F2580
Standard practice for evaluation of modular connection of proximally fixed femoral hip prosthesis
Scope
Fatigue testing of modular metallic femoral hip prostheses with proximal metaphyseal fixation

ASTM F1875
Standard Practice for Fretting Corrosion Testing of Modular Implant Interfaces: Hip Femoral Head-Bore and Cone Taper Interface
Scope
Evaluating the mechanical stability of the bore and cone interface of the head and stem junction of modular hip implants.

For further information also regarding additional test methods not covered by this summary please contact:

SpineServ GmbH & Co. KG, Sofellinger Strasse 100, 89077 Ulm, Germany
Phone: +49 (0)731 175 6788
mail@spineserv.de
www.spineserv.de

May 2017
Summary of the most commonly used test methods
Part 5B - Hip joint prostheses

ASTM F1820
Standard Test Method for Determining the Forces for Disassembly of Modular Acetabular Devices
Scope
Measuring the attachment strength between the modular acetabular shell and liner.

- Static axial disassembling (S-AD)
- Static offset pull-out or lever-out disassembly (S-PO or S-LO)
- Static torque-out disassembly (S-TO)

ISO 7206-12
Implants for surgery -- Partial and total hip joint prostheses -- Part 12: Deformation test method for acetabular shells
Scope
Determining the short-term deformation of a press-fit acetabular component for total hip joint replacement.

- Static compression (S-AD)
- Accelerated ageing
- Impingement testing (D-IP)

ASTM F2003
Standard Practice for Accelerated Aging of Ultra-High Molecular Weight Polyethylene after Gamma Irradiation in Air
Scope
Evaluation of the oxidative stability of UHMWPE materials as a function of processing and sterilization method.

ASTM F2582
Standard Test Method for Impingement of Acetabular Prostheses
Scope
Evaluation of acetabular component fatigue, deformation, and wear and femoral head assembly dislocation under dynamic impingement conditions.

For further information also regarding additional test methods not covered by this summary please contact:
SpineServ GmbH & Co. KG, Soellinger Strasse 100, 89077 Ulm, Germany
Phone: +49 (0)731 175 6788
mail@spineserv.de
www.spineserv.de

May 2017
## Summary of the most commonly used test methods

### Part 5C - Hip joint prostheses

<table>
<thead>
<tr>
<th>Test Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ASTM F2009</strong></td>
<td>Standard Test Method for Determining the Axial Disassembly Force of Taper Connections of Modular Prostheses</td>
</tr>
<tr>
<td><em>Scope</em></td>
<td>Determining the force required to disassemble tapers of implants.</td>
</tr>
<tr>
<td><strong>ISO 7206-13</strong></td>
<td>Implants for surgery -- Partial and total hip joint prostheses -- Part 13: Determination of resistance to torque of head fixation of stemmed femoral components</td>
</tr>
<tr>
<td><em>Scope</em></td>
<td>Determining the torque required to loosen the fixation of the head of hip joint prostheses.</td>
</tr>
<tr>
<td><strong>ISO 7206-10</strong></td>
<td>Implants for surgery -- Partial and total hip joint prostheses -- Part 10: Determination of resistance to static load of modular femoral heads</td>
</tr>
<tr>
<td><em>Scope</em></td>
<td>Determining the load required, under specified laboratory conditions, to cause failure of the head.</td>
</tr>
<tr>
<td><strong>ISO 11491</strong></td>
<td>Implants for surgery -- Determination of impact resistance of ceramic femoral heads for hip joint prostheses</td>
</tr>
<tr>
<td><em>Scope</em></td>
<td>Determining the impact resistance of ceramic femoral heads.</td>
</tr>
<tr>
<td><strong>ISO 21535</strong></td>
<td>Non-active surgical implants -- Joint replacement implants -- Specific requirements for hip-joint replacement implants</td>
</tr>
<tr>
<td><strong>ASTM F2068</strong></td>
<td>Standard specification for femoral prostheses -- metallic implants</td>
</tr>
</tbody>
</table>

For further information also regarding additional test methods not covered by this summary please contact:

SpineServ GmbH & Co. KG, Soefflinger Strasse 100, 89077 Ulm, Germany
Phone: +49 (0) 731 175 6788
mail@spineserv.de
www.spineserv.de

May 2017