

**WE920 DIMENSIONAL REQUIREMENTS FOR HEXAGON FLANGE NUTS AND
HEXAGON FLANGE NUT & CONICAL WASHER ASSEMBLIES****2016-08-01****1. SCOPE**

This standard gives the general and dimensional requirements for hexagon flange nuts and hexagon flange nut & conical washer assemblies - free running and prevailing torque (M5-M20). It was developed to replace the requirements for hexagon flange nut products outlined in WE900, WE901 and WE910.

2. REFERENCES

- ISO 261 - General purpose metric screw threads - General Plan.
- ISO 965 - General purpose metric screw threads - Tolerances.
- ISO 1502 - General purpose metric screw threads - Gauging.
- ISO 4759/1 - Tolerances for fasteners.
- WE920A - Gauging of hexagon flange and hexagon flange nut & washer assembly
- WE990 - Surface Discontinuities of Nuts
- WF900 - Dimensional, material requirements and mechanical properties of flat, toothed, conical, bowed and wavy washers
- WX100 - Finish Specification

3. GENERAL REQUIREMENTS**3.1 DIMENSIONS AND TOLERANCES**

The dimensions and tolerances of hexagon flange nuts must be in accordance with Sections 1-7, Table 1 and Figure 1.

3.2 GAUGING (REFEREE METHOD)

For referee purposes, dimensions e , m_w and c are satisfied if hexagon flange nuts meet the requirements for gauging specified in WE920A.

3.3 PROTECTIVE FINISH

All dimensions and tolerances defined in this specification apply prior to the application of the protective finish except where otherwise specified.

3.4 MARKING

Marking shall be located on the non-bearing face of hexagon flange nuts and shall be either indented or embossed.

4. SCREW THREADS**4.1 DIMENSIONS AND TOLERANCES**

Screw threads must conform to the dimensions and tolerances specified in ISO 261 and ISO 965 thread tolerance class 6H. Threads must be cut unless stated otherwise per the utility drawing. Requirement shall be met for prevailing torque type nuts, prior to the inclusion of a prevailing torque feature.



4.2 GAUGING

The gauge must conform to the dimensions and tolerances defined in ISO 1502 appropriate to the specified thread size and class of fit. Prevailing torque type nuts shall assemble a minimum of one full turn by hand on a basic GO thread plug gauge before engaging the prevailing torque feature.

When coated with organic type coatings tightness to inspection gauges may be experienced, see WX100.

5. FORM AND POSITION TOLERANCES

The tolerances of form and position are in accordance with ISO 4759-1, except as stated here within.

5.1 SQUARENESS OF THE BEARING SURFACE TO THE THREAD

The bearing surface shall be flat to concave to a maximum of 1.5° from the plane formed by the bearing circle diameter (d_w). The plane formed by the bearing circle diameter shall be perpendicular to the thread within 1° .

6. SURFACE DISCONTINUITIES OF NUT

Shall be evaluated in accordance with WE990.

7. NUT & WASHER ASSEMBLY

7.1 NUT

7.1.1 RETENTION FEATURE. The nut shall incorporate a feature to retain the washer. The feature shall not protrude beyond the bearing face of the assembled washer.

7.1.2 THREAD COUNTERSUNK. The nut must be countersunk if permitted by the washer retention method or alternatively the retention method must be such that its form facilitates easy assembly of the nut on an external thread.

7.2 WASHER

7.2.1 ASSEMBLY. The washer component of nut and washer assemblies shall be free to rotate whilst disassembly from the nut is prevented.

7.2.2 FORM AND POSITION TOLERANCES. The form and position tolerances for the washer component shall be in accordance with WF900.

7.2.3 TEST REQUIREMENTS. The washer component of nut and washer assemblies shall meet the test requirements specified in WF900, except Section 4.1 Recovery From Compression, prior to assembly except for hardness which must be as specified in WF900 after assembly.

7.2.4 MATERIAL, HEAT TREATMENT AND HARDNESS. The washer component of nut and washer assemblies shall be Material, Heat Treat & Hardness Class B per WF900.

7.2.5 TYPE. The washer component of nut and washer assemblies shall be conical unless otherwise specified on the Utility Part's drawings.