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JB/T 6688-1993

Specification for 12-spline Flange Nut and 12 point Flange Nut

12 角头法兰面螺栓和 12 角法兰面螺母技术条件

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Specification for 12-spline Flange Nut and 12 point Flange Nut

1 Scope

This Standard applies to the manufacture and acceptance of 12-spline flange nut and 12 point flange nut (hereinafter referred to as bolt and nut respectively) that are used for gas turbine power plant.

2 Normative references

GB 3 Run-outs, undercuts and chamfers for general purpose metric screw threads

GB 196 General purpose screw threads - Basic dimensions for diameter from 1 to 600mm

GB 197 General purpose screw threads - Tolerances and fits for diameter from 1 to 355mm

GB 228 Tensile testing of metallic materials

GB 3077 Technical requirements for alloy structure steels

GB 3098.1~3098.4 Mechanical properties of fasteners

GB 3099 Bolts, screws, nuts and accessories - terminology and nomenclature

GB 3106 Bolts, screws and studs - Nominal lengths and thread lengths for general purpose bolts

GB 5276 Fasteners - Bolts, screws, studs and nuts - Symbols and designations of dimensions

GBn 177 Hot-rolled and forged heat-resisting super alloy bars for general force-bearing parts

3 Technical conditions

3.1 Main indicators

3.1.3.1 Tolerance of screw thread

a. Tolerance of outer screw thread is 6g;

b. Tolerance of inner screw thread is 6H.

3.1.3.2 The biggest permissible value of surface roughness parameter for screw thread side R_a is $3.2\mu\text{m}$.

3.1.4 When the material yield limit is not less than 932MPa, the wrenching force that the bolt can withstand shall not be less than the provisions in Table 5.

Table 5

Thread specification mm	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24
Wrenching force N•m	8.14	18.1	29.9	58.3	93.5	127.1	183.3	223.5	331.8	485.6
Thread specification mm	M27	M0	M33	M36	M39	M42	M45	M48	M52	
Wrenching force N•m	543.0	880.8	1153	1564	1926	2407	2926	3845	3845	

3.1.5 When the material yield limit is not less than 932MPa, the wrenching force that the bolt can withstand shall not be less than the provisions in Table 6.

Table 6

Thread specification mm	M6	M8	M10	M12	M16	M20	M24
Wrenching force N•m	9.75	21.7	32.5	68.7	165.0	326.1	540.1
Thread specification mm	M27	M30×3	M33×3	M36×3	M39×3	M42×3	M45×3
Wrenching force N•m	777.5	1273	1593	2045	2544	3200	4076

3.1.6 Geometric tolerances of bolts and nuts shall be in accordance with the provisions in Table 7-1 ~ Table 7-3.

3.1.6.1 Coaxiality

4.7 Wrenching torque test of bolts. When torque reaches to the values in Table 5, 12-spline of bolts shall not produce the permanent deformation that influences the usage and sliding between wrenches. Accuracy of torque measuring device shall not be less than $\pm 5\%$.

4.8 Wrenching torque test of nuts. When torque reaches to the values in Table 5, 12 point of nuts shall not produce the permanent deformation that influences the usage and sliding between wrenches. Accuracy of torque measuring device shall not be less than $\pm 5\%$.

5 Acceptance inspection, marking and packaging

5.1 Bolts and nuts shall be submitted for inspection in batch. Each batch shall be made of materials with same type, same size and same furnace number. It shall conduct heat treatment according to the same specification.

5.2 Appearance of bolts and nuts shall be subject to 100% inspection.

5.3 As required, bolts and nuts can be subject to magnetic particle inspection or fluorescence detection.

5.4 Bolts shall be marked at the head-top by braille or concave characters. Nuts shall be marked at the supporting surface by concave characters. Marking symbol: 30CrMnSi and 40CrNiMoA use symbol "D"; 40Cr2MoV use symbol "Z"; GH2132 use symbol "G".

5.5 Other acceptance rules and packaging shall be in accordance with GB 90 "Acceptance inspection, marking and packaging of fasteners".

Additional Information:

The Standard was proposed by Nanjing Institute of Gas Turbine.

This Standard shall be under the jurisdiction of Nanjing Institute of Gas Turbine.

This standard is drafted by the following organizations: Nanjing Turbine & Electric Machinery (Group) Co., Ltd., Nanjing Institute of Gas Turbine, Harbin Steam Turbine

Plant, and China Shipbuilding Industry Corporation 703 Research Institute.

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Contact: Wayne Zheng, Sales@ChineseStandard.net

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