

Structural Nut / Bolt / Washer Assembly

BPIR Declaration

Version: v1

Designated building product: Class 1

Declaration

Wurth New Zealand Ltd has provided this declaration to satisfy the provisions of Schedule 1(d) of the Building (Building Product Information Requirements) Regulations 2022.

Product/system

Name	Structural Nut / Bolt / Washer Assembly
Line	
Identifier	Structural Nut / Bolt / Washer Assembly

Description

A structural nut, bolt, and washer assembly is a high-strength steel fastener assembly used for structural engineering purposes. The AS/NZS 1252.1:2016 standard specifies the requirements for these assemblies, which include:

Steel bolts of property class 8.8 Steel nuts of property class 8 Hardened and tempered steel washers ISO metric coarse pitch series threads Diameters ranging from 12 mm to 36 mm

These components are designed to be used together to create secure and stable connections in steel structures. The K0 assembly is known for its high quality and is subject to verification testing by an independent accredited laboratory to ensure its reliability and performance.

The assembly is ideal for structural steel connections and is commonly used in various construction and engineering applications where the strength and integrity of the fastening system are crucial.

Scope of use

Structural bolt, nut, and washer assemblies are essential components in construction and engineering, designed to provide strong and secure connections in steel structures. The scope of use for these assemblies is quite broad, encompassing a variety of applications where the integrity of the connection is critical. Here are some of the key areas where these assemblies are commonly used:

Steel frame construction: They are widely used in the construction of steel frames for buildings, bridges, and other infrastructure projects.

Heavy machinery: These assemblies are also employed in the assembly and maintenance of heavy machinery and equipment.

Renewable energy structures: In the renewable energy sector, they are used in the construction of wind turbines and solar panel frames.

Marine and coastal structures: Due to their strength and corrosion resistance, they are suitable for marine and coastal applications.

Earthquake-resistant structures: In seismically active regions, these assemblies are used to construct buildings and structures that can withstand seismic forces.

The AS/NZS 1252.1:2016 standard specifies the requirements for high-strength steel fastener assemblies for structural engineering, ensuring that the products used in these applications meet the necessary quality and performance standards. It's important to adhere to these standards to ensure the safety and longevity of the structures being built. Wurth NZ are proud to have achieved Bolt Importer Charter accreditation, which is the mark of absolute quality in the supply of structural bolt / nut / washer assemblies.

Conditions of use

In New Zealand, the conditions of use for structural assemblies are governed by various standards and regulations to ensure the safety and integrity of buildings and structures. Here are some key points regarding the conditions of use:

AS/NZS 5131:2016: This standard provides best practice requirements for the fabrication and erection of structural steel members, components, and structural assemblies used for load-carrying purposes in buildings, bridges, and other structures. It introduces the concept of 'construction category' (CC), which is a risk-based fit-for-purpose categorization of a structure or parts thereof.

Building Code Compliance: All building work in New Zealand must meet the performance standards of the Building Code, even if it doesn't require consent. The

Building Code covers aspects such as structural stability, fire safety, durability, access, moisture control, services and facilities, and energy efficiency.

Building Regulatory Framework: The building regulatory system sets out a framework to promote good quality decisions during the building process. Legislation and regulations determine how work can be done, who can do it, and ensure the system has checks and consumer protection in place.

Performance Standards: The Building Code sets clear expectations of the standards buildings should meet. It is a performance-based code, which means it states how a building must perform in its intended use rather than describing how the building must be designed and constructed.

These conditions ensure that structural assemblies are used appropriately and safely, adhering to the required standards for the construction and maintenance of structures in New Zealand.

Relevant building code clauses

B1 Structure – B1.3.1, B1.3.2, B1.3.3 (b, d, e, f, g, h, j, q), B1.3.4

B2 Durability – B2.3.1 (a)

F2 Hazardous building materials – F2.3.1

Contributions to compliance

B1 - Structure Stability and Strength: The assemblies must provide the necessary stability and strength to buildings, ensuring they can withstand likely loads such as wind, earthquake, live and dead loads. **Performance Requirements:** They should meet the performance requirements outlined in the Building Code, which protect lives and other property by ensuring buildings are stable and do not degrade.

B2 - Durability Longevity: The materials used in the assemblies should be durable and capable of withstanding environmental conditions over the building's intended lifespan. **Corrosion Resistance:** They should have appropriate corrosion resistance to maintain structural integrity over time. **Quality Standards:** Compliance with quality standards such as AS/NZS 1252, which specifies the manufacture and supply of high-strength steel bolts with associated nuts and washers for structural engineering, is essential.

F2 - Hazardous Building Materials Non-hazardous Materials: The assemblies should not contain hazardous materials that could release toxic substances. **Safety:** They

should be designed and installed to minimize the risk of injury to people during their use. Health and Safety Regulations: Compliance with health and safety regulations is crucial to prevent the use of hazardous building materials.

By meeting these compliance requirements, structural nut, bolt, and washer assemblies contribute to the safety, durability, and structural integrity of buildings according to the New Zealand Building Code.

Supporting documentation

The following additional documentation supports the above statements:

None added

For further information supporting Structural Nut / Bolt / Washer Assembly claims refer to our website.

Contact details

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Appendix

Note: The below appendix includes information relating to BPIR Ready.

Publishing this information is not a requirement under BPIR. Its inclusion here is to provide a reference for how this BPIR summary was generated as well as to help summary creators understand the performance clauses suggested by BPIR Ready.

BPIR Ready selections

Category: Fixings and fasteners

Building code performance clauses

B1 Structure

B1.3.1

Buildings, building elements and *sitework* shall have a low probability of rupturing, becoming unstable, losing equilibrium, or collapsing during *construction* or *alteration* and throughout their lives.

B1.3.2

Buildings, building elements and *sitework* shall have a low probability of causing loss of amenity through undue deformation, vibratory response, degradation, or other physical characteristics throughout their lives, or during *construction* or *alteration* when the *building* is in use.

B1.3.3

Account shall be taken of all physical conditions likely to affect the stability of *buildings, building elements* and *sitework*, including:

- (b) imposed gravity loads arising from use
- (d) earth pressure
- (e) water and other liquids
- (f) earthquake
- (g) snow
- (h) wind
- (j) impact
- (q) time dependent effects including creep and shrinkage

B1.3.4

Due allowances shall be made for:

- a. the consequences of failure,
- b. the intended use of the *building*,
- c. effects of uncertainties resulting from *construction* activities, or the sequence in which *construction* activities occur,
- d. variation in the properties of materials and the characteristics of the site, and
- e. accuracy limitations inherent in the methods used to predict the stability of *buildings*

B2 Durability

B2.3.1

Building elements must, with only normal maintenance, continue to satisfy the performance requirements of this code for the lesser of the *specified intended life* of the *building*, if stated, or:

- (a) the life of the building, being not less than 50 years, if: those building elements (including floors, walls, and fixings) provide structural stability to the building, or those building elements are difficult to access or replace, or failure of those building elements to comply with the building code would go undetected during both normal use and maintenance of the building

F2 Hazardous building materials

F2.3.1

The quantities of gas, liquid, radiation or solid particles emitted by materials used in the *construction* of *buildings*, shall not give rise to harmful concentrations at the surface of the material where the material is exposed, or in the atmosphere of any space.