

# Hex Bolt / Set Screw & Hex Nut

## BPIR Declaration

Version: v1

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### Designated building product: Class 1

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### 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.

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### Product/system

Name	Hex Bolt / Set Screw & Hex Nut
Line	
Identifier	Hex Bolt / Set Screw & Hex Nut

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### Description

Hex bolts (part threaded) and hex set screws (fully threaded), are characterized by their six-sided hexagonal-shaped head. They are designed to securely fasten two or more components together by threading the shaft into a compatible threaded hole or nut. Hex bolts are used in a wide range of applications including automotive, machinery, furniture, and construction. The hexagonal head provides multiple flat surfaces, making it easier to grip and manipulate using a wrench or socket tool during installation or removal.

Hex nuts are six-sided internally threaded fasteners commonly used in conjunction with bolts to fasten two objects together. They are one of the most common hexagonal fasteners with internal threads that screw onto the shank of a bolt. Hex nuts come in various grades and materials, including low carbon steel, stainless steel, and alloy steel, each offering specific levels of strength, durability, and corrosion resistance. They can also be coated with materials like zinc or other anti-corrosion coatings to enhance their longevity and performance in different environments.

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## Scope of use

Hex Bolts:

Applications: Hex bolts are used in construction, machinery, automotive, woodworking, and engineering applications.

Function: They secure metal to wood, metal to metal, and are used in heavy-duty fixing and fastening applications.

Installation: Can be used in pre-tapped holes or with nuts and tightened using tools like wrenches, socket sets, or spanners. Types: Available in fully threaded or partially threaded varieties, with different sizes, materials, and finishes to suit specific tasks.

Hex Nuts:

Applications: Hex nuts are crucial in construction, machinery, automotive applications, and more. They secure joints with bolts or studs, ensuring safety and stability.

Types: There are various types of hex nuts, including standard hex nuts, nyloc nuts, wing nuts, flange nuts, square nuts, and acorn nuts, each suited for different applications.

Function: They apply pressure to the bolt, securing it in place to prevent unscrewing independently, especially in high-vibration environments.

Both hex bolts and hex nuts are essential components in ensuring strong and stable connections in a multitude of settings. It's important to select the appropriate type and size for your specific application to ensure optimal performance and safety.

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## Conditions of use

Both hex bolts and hex nuts should be used in accordance with the manufacturer's guidelines, considering factors like the application, fastened material, bolt type, and environmental conditions. Proper installation and use are crucial to maintain the integrity of the connection and ensure safety. Always select the appropriate grade and size for your specific application and follow the recommended torque values during installation.

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## 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

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## Contributions to compliance

Clause B1 (Structure): They must be structurally adequate for their intended use, capable of withstanding the loads and stresses they will encounter without failure. This includes meeting the specifications for high-strength structural steel bolts with associated nuts and washers as outlined in the Australian/New Zealand joint Standard AS/NZS 12521.

Clause B2 (Durability): Hex head bolts and nuts should be durable, maintaining their structural integrity over the life of the building. This involves being resistant to corrosion and other environmental factors that could compromise their strength and performance.

Clause F2 (Hazardous Building Materials): The materials used in these fasteners should not be hazardous to health, meaning they should not release harmful substances during their normal use. This ensures the safety of individuals who come into contact with them or reside in buildings where they are used.

For detailed compliance information, it is recommended to refer to the official building codes and standards, which provide comprehensive guidelines on the use of hex head bolts and nuts in construction projects.

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## Supporting documentation

The following additional documentation supports the above statements:

None added

For further information supporting Hex Bolt / Set Screw & Hex Nut claims refer to our website.

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## Contact details

<b>Manufacture location</b>	Overseas
<b>Legal and trading name of manufacturer</b>	N/A
<b>Legal and trading name of importer</b>	Wurth New Zealand Ltd
<b>Importer address for service</b>	99 McLaughlins Road, Wiri Auckland 2104
<b>Importer website</b>	<a href="http://wurth.co.nz">wurth.co.nz</a>
<b>Importer NZBN</b>	9429039489333
<b>Importer email</b>	sales@wurth.co.nz
<b>Importer phone number</b>	0800683040

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**WURTH NEW ZEALAND LTD**  
 99 McLaughlins Road, Wiri Auckland 2104 New Zealand  
 0800683040 | [wurth.co.nz](http://wurth.co.nz)

# 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.

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## BPIR Ready selections

Category: Fixings and fasteners

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## 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.