

Unipetrol RPA, s.r.o.	Precision bolts and nuts – Technical delivery terms	N 11 157

The standard is binding for all departments of the company and external organizations, which order, accept and supply precision bolts and nuts for operating overpressure and temperatures pursuant to standards N 16 , N17, N 18 ,N 20 , N 21 and N 22.

The departments of the company are obliged to present the standard to all external organizations ensuring the activities for them and for which the standard is binding as well.

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1. General provisions

1.1 Scope of validity

This standard applies to ordering acceptance and delivery of precision bolts and nuts for operating overpressure and temperatures pursuant to standards N 16 , N17, N 18 ,N 20 , N 21 and N 22.

1.2 Bolts and nuts are intended for connecting the pipeline and its parts including segments of equipment for synthesis and hydrogenation processes, production of oxygen, synthetic alcohol, benzene, urea, gasification of black oil (POX) etc.

1.3 The purchase order must contain the following data:

- a) Name of the product (precision bolt, precision nut)
- b) Number of product drawing (the drawing is a part of the purchase order)
- c) Number of products
- d) Numeral mark of steel grade with first complementary number specifying the material status
- e) Special provision between the ordering and supplying parties

It replaces: N 11 157 from 4/1976	Administrator: Maintenance Support Section	Valid from: 1.12.1996 (Validity verified 15.12.2020)
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2. Technical requirements

- 2.1 Method of manufacture is selected by the manufacturer.
- 2.2 Surface of products must be free of defects that would be a hindrance for further use.
- 2.3 Dimensions and roughness must comply with the manufacture drawings. Permissible allowance of non-tolerated dimensions pursuant to ČSN 13 1505 art.17
- 2.4 Bolt and nut material is defined in individual manufacture drawings.
- 2.5 Chemical composition of used steel must comply with respective material data sheets ČSN.
- 2.6 Mechanical values of notch impact strength, tensile test, hardness test after heat treatment or creep limit must comply with the data in the material data sheet ČSN and must be specified in the certificate.
- 2.7 Bolts and nuts are marked as follows:
 - a) Manufacturer's mark
 - b) Material mark (cover)
 - c) Heat number (last two digits are enough) only from dimension W 1 1/8" or M 27 and larger
 - d) Mark of manufacturer's OTK
 - e) Mark of client's OTK (what concerns acceptance at external manufacturer)
- 2.7.1 Marking s performed on places determined by the drawing.

3. Testing

- 3.1 Chemical composition is tested by melting for each heat pursuant to valid ČSN.
- 3.2 Tensile strength test is performed once per order and heat /max 20 tonnes/ and another test must be performed for other 20 tonnes of heat. Sample for the tensile test is taken in longitudinal direction (up to 50 mm including) directly from the poles used for manufacture of bolts or nuts, or it is heat treated together with the products. What concerns dimensions bigger than 50 mm, a special sample of 40 mm length is forged for the tensile strength test, which is heat treated together with the products. The heat treated sample is then processed into a respective test bar.
- 3.3 Charpy impact test 3x per order and heat from the same sample as in art. 3.2.
- 3.4 Hardness test HB is performed at both ends of the initial semi-finished bar pursuant to valid ČSN.
- 3.5 Surface inspection for surface defect is performed for each initial semi-finished product by means of magnetic flaw test.
- 3.6 Dimension and quality inspection of the finished surface is performed using universal and special measuring instruments and auxiliaries used by the manufacturer.
- 3.7 Except for the mentioned tests the client may ask for confirmation tests upon agreement with the manufacturer:
 - a) Hardness test of each finished product
 - b) Photometric test
 - c) Material structure test
 - d) Test or cracks by other than elmag. (ultrasonic) method
 - e) Surface inspection of each product prior to threading using the magnetic flaw test

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4. Acceptance

- 4.1 Acceptance is performed in groups, composed of products of one order and one heat. In case of request of acceptance by a respective employee of the client (customer) at the manufacturer, it is necessary to state this request in the purchase order as a special arrangement between the customer and the supplier. In such a case, the manufacturer is obliged to ask the customer's representative at least 10 days before the acceptance date. The manufacturer is recommended to have the notice acceptance confirmed in writing. In case the responsible employee of the client (customer) does not appear in time, the manufacturer performs the prescribed tests and sends certificates to the client. The manufacturer is obliged to submit detailed lists of individual products prepared for testing and acceptance to the responsible employee of the client (consumer).
- 4.2 Sample taking for mechanical tests and acceptance tests may take place (upon agreement) with presence of the responsible employee of the client (customer)
- 4.3 Duplicate test – in case it does not comply with any acceptance test during the acceptance procedure, there are two duplicate tests to be performed instead. In case even one duplicate test fails, the whole product group is excluded from acceptance. The manufacturer has the right to resort or remake the unsatisfactory products and submit them for a new acceptance.

5. Handed over documentation

- 5.1 The manufacturer shall submit for each delivery a certificate pursuant to ČSN 10204 3.1.B containing documentation pursuant to art 3.1 ; 3.2 ; 3.3 ; 3.4 ; 3.5 and 3.6.

6. Packaging and transport

- 6.1 Packaging method and protection correspond with size and way of transport. The product must be secured during transport to avoid mechanical damage or damage caused by weather exposure.

7. Amendment - List of quoted standards and documents

ČSN EN 10204 (42 0009) ČSN 13 1505	Metallic products - Types of inspection documents Bolts and nuts for pipeline flanged joints. Technical delivery terms
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