

<b>Chemopetrol, a.s.</b> Technical Services	<b>Bolts and nuts for flange joints of pipeline and pressure vessels for chemical equipment – Selection</b>	N 13 150

The standard is binding for all departments of the company and external organizations which perform selection (choice) of application of bolts and nuts for flange joints of pipeline and pressure vessels. The departments are obliged to present the standard to all external organizations performing these activities for them, and for whom the standard is also binding.

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1. General provisions

1.1 Scope of validity

This standard applies for application of bolts and nuts for flange joints of pipeline and pressure vessels as a recommended selection from ČSN standards and the standard N12 100. Aim of this selection is to unify and limit the used assortment of material for manufacturing the bolts by rolling method.

1.2 Strength class of bolts is defined pursuant to ČSN EN ISO 898-1 (02 1005)

1.3 Strength class of nuts is defined pursuant to ČSN EN 20898-2 (02 11005)

1.4 The standard does not apply for bolts and nuts with “W” thread pursuant to N 16 and N17.

PN	Operating temperature °C	Title	ČSN Standard	Strength class. Material	Application
Up to 25	From -20 to 300	Bolts with hexagonal bolt head, production grade A and B	ČSN EN 24014 (02 1101)	Š. 8.8 - 10.9 or by agreement (as per Ø d)	Pressure vessels and pipeline
Up to 25	From -20 to 300	Hexagonal nut, type 1, production grade A and B	ČSN EN 24032 (01 1401)	m. 8 - 10 or by agreement (as per Ø d)	Pressure vessels and pipeline
Up to 400	Xx From -20 to 400	Studs	ČSN 13 1520.1	12 050.6	Pressure vessels and pipeline
Up to 400	Xx From -20 to 400	Hexagonal nut	ČSN 13 1520.1	12 040.6	Pressure vessels and pipeline
Up to 400	From 400 to 575	Studs	ČSN 13 1520.2	15 320.5	Pressure vessels and pipeline
Up to 400	From 400 to 575	Hexagonal nut	ČSN 13 1530.2	15 236.3 or 15 236.6	Pressure vessels and pipeline
Up	From -50 to 575	Studs	ČSN 13	15 320.5 x	Pressure

<b>It replaces:</b>  N 13 150 from 9/1998	<b>Administrator:</b>  Standardization department – Technical services	<b>Valid from:</b>  15.6.2001
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to 400			1530.3		vessels and pipeline
Up to 400	From -50 to 575	Hexagonal nut	ČSN 13 1530.3	15 236.6 x	Pressure vessels and pipeline
Up to 400	From -200 to 575	Studs	ČSN 13 1530.4	17 248.4	Pressure vessels and pipeline
Up to 400	From -200 to 575	Hexagonal nut	ČSN 13 1530.4	17 248.4	Pressure vessels and pipeline

X – suitability of steel for the lowest operating temperature is proven by a pendulum impact test at the lowest operating temperature.

Xx – For bolts and nuts on pipeline, a pendulum impact test for temperature up to -20 °C is performed at temperature of +20°C

1.5 Application of bolts and nuts outside chemical equipment pursuant to ČSN 13 1500, ČSN 69 0010-3.1 and ČSN 42 0090.

## 2. Amendment – list of quoted and related standards and documents

Quoted

ČSN EN ISO 898-1 (02 1005)	Mechanical properties of fasteners from carbon and alloy steel - part 1: Bolts.
ČSN EN 20898-2 (02 1005)	Fasteners. Mechanical properties of fasteners. part 2: Nuts with determined values of test load. Thread with coarse pitch (ISO 898-2:1992)
ČSN EN 24014 (02 1101)	Fasteners. Bolts with hexagonal bolt head. Production grade A and B. (ISO 4014:1988)
ČSN EN 24032 (02 1401)	Fasteners. Hexagonal nuts, type 1. Production grade A and B.
ČSN 13 1500	Pipeline. Bolts and nuts for flange joints of pipeline. Application.
ČSN 13 1520	Pipeline. Studs for flange joints of pipeline. Dimensions.
ČSN 13 1530	Pipeline. Hexagonal thick nuts for flange joints of pipeline. Dimensions.
ČSN 42 0090	Material for thermal power plant equipment.
ČSN 69 0010-3.1	Stationary pressure vessels – Technical rules – part 3.1: Material.
N 12 100	Materials for pressure equipment.

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Related

ČSN EN 20225 (02 1001)	Fasteners. Bolts, screws, studs and nuts. Symbols and designations of dimensions.
ČSN ISO 8992 (02 1002)	Fasteners - General requirements for bolts, screws, studs and nuts.
ČSN ISO 4759-1 (02 1005)	Fasteners - tolerances for fasteners. Part 1, Bolts, screws, studs and nuts, thread diameter from 1,6 mm up to 150 mm. Production grade A, B and C.
ČSN EN 24016 (02 1301)	Fasteners. Hexagon head bolts. Product grade C. (ISO 4016:1988)
ČSN EN 24034 (02 1601)	Fasteners. Hexagon nuts. Product grade C.
ČSN 02 1010	Original material for bolts and nuts.
ČSN 13 1505	Bolts and nuts for pipeline flange joints. Technical requirements.
ČSN EN 10045-1 (42 0381)	Metallic materials - Charpy pendulum impact test. Part 1, Test method/V and U notches/
ČSN 42 0382	Metal testing. Charpy impact test at low temperature

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