



SLOVENSKI STANDARD

SIST EN 1515-3:2006

01-marec-2006

Flanges and their joints - Bolting - Part 3: Classification of bolt materials for steel flanges, class designated

Flanges and their joints - Bolting - Part 3: Classification of bolt materials for steel flanges, class designated

Flansche und ihre Verbindungen - Schrauben und Muttern - Teil 3: Klassifizierung von Schraubenwerkstoffen für Stahlflansches, nach Class bezeichnet

Brides et leur assemblages - Boulonnerie - Partie 3: Classification de matériaux de boulonnerie pour brides en acier, désignées Class

Ta slovenski standard je istoveten z: EN 1515-3:2005

ICS:

21.060.10	Sorniki, vijaki, stebelni vijaki	Bolts, screws, studs
23.040.60	Prirobnice, oglavki in spojni elementi	Flanges, couplings and joints

SIST EN 1515-3:2006

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 1515-3:2006](https://standards.iteh.ai/catalog/standards/sist/354241ae-9944-42b9-95dd-3491dcea6ae6/sist-en-1515-3-2006)

<https://standards.iteh.ai/catalog/standards/sist/354241ae-9944-42b9-95dd-3491dcea6ae6/sist-en-1515-3-2006>

EUROPEAN STANDARD

EN 1515-3

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2005

ICS 21.060.10; 23.040.60

English Version

Flanges and their joints - Bolting - Part 3: Classification of bolt materials for steel flanges, class designated

Brides et leur assemblages - Boulonnerie - Partie 3:
Classification de matériaux de boulonnerie pour brides en
acier, désignées Class

Flansche und ihre Verbindungen - Schrauben und Muttern -
Teil 3: Klassifizierung von Schraubenwerkstoffen für
Stahlflansches, nach Class bezeichnet

This European Standard was approved by CEN on 8 August 2005.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

SIST EN 1515-3:2006

<https://standards.iteh.ai/catalog/standards/sist/354241ae-9944-42b9-95dd-3491dcea6ae6/sist-en-1515-3-2006>



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents	Page
Foreword	3
1 Scope	4
2 Normative references	4
3 Classification of bolt materials	4
Annex A (informative) Basic information	6
Bibliography.....	7

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 1515-3:2006](https://standards.iteh.ai/catalog/standards/sist/354241ae-9944-42b9-95dd-3491dcea6ae6/sist-en-1515-3-2006)

<https://standards.iteh.ai/catalog/standards/sist/354241ae-9944-42b9-95dd-3491dcea6ae6/sist-en-1515-3-2006>

Foreword

This European Standard (EN 1515-3:2005) has been prepared by Technical Committee CEN/TC 74 "Flanges and their joints", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2006, and conflicting national standards shall be withdrawn at the latest by March 2006.

EN 1515 "Flanges and their joints – Bolting" consists of three Parts:

- *Part 1: Selection of bolting;*
- *Part 2: Classification of bolt materials for steel flanges, PN designated;*
- *Part 3: Classification of bolt materials for steel flanges, Class designated.*

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 1515-3:2006](https://standards.iteh.ai/catalog/standards/sist/354241ae-9944-42b9-95dd-3491dcea6ae6/sist-en-1515-3-2006)

<https://standards.iteh.ai/catalog/standards/sist/354241ae-9944-42b9-95dd-3491dcea6ae6/sist-en-1515-3-2006>

EN 1515-3:2005 (E)**1 Scope**

This European Standard covers the classification of bolt materials used in combination with steel flanges according to EN 1759-1 (Class designated).

Bolt materials are listed in EN 1515-1; flange material groups are listed in EN 1759-1.

2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1759-1:2004, *Flanges and their joint — Circular flanges for pipes, valves, fittings and accessories, Class designated — Part 1: Steel flanges NPS 1/2 to 24.*

EN 1515-1, *Flanges and their joints — Bolting — Part 1: Selection of bolting.*

EN 10269, *Steels and nickel alloys for fasteners with specified elevated and/or low temperature properties.*

EN ISO 898-1, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs (ISO 898-1:1999).*

EN ISO 3506-1, *Mechanical properties of corrosion-resistant stainless steel fasteners — Part 1: Bolts, screws and studs (ISO 3506-1:1997).*

3 Classification of bolt materials

The classification of bolt materials as given in Table 1 is based on the rules given in ASME B16.5 (see also annex A).

All bolting materials are subject to the following limitations:

- a) High strength bolting (allowable stress 170 N/mm² and above; see Table A.1) may be used in any flanged joint. During assembly however, care should be taken not to over-stress the flanges (e. g. by means of torque control).
- b) Intermediate strength bolting may be used in any flanged joint, provided the ability according to EN 1759-1:2004, 5.3.1 is verified.
- c) Low strength bolting (allowable stress 140 N/mm² and below; see Table A.1) is restricted to CL 150 and CL 300. The ability according to EN 1759-1:2004, 5.3.1 shall be verified, with special consideration of the gasket.

Table 1 — Classification of bolting

Bolting according to EN 1515-1			Diameter mm	Classification
Line	Material / strength class	Standard		
01	4.6	EN ISO 898-1	all	Low strength
02	5.6	EN ISO 898-1	all	Intermediate strength
04	8.8	EN ISO 898-1	all	High strength
05, 07	25CrMo4	EN 10269	all	High strength
06, 08	42CrMo4	EN 10269	all	High strength
09	30CrNiMo8	EN 10269	all	High strength
10	42CrMo5-6	EN 10269	all	High strength
11	40CrMoV4-6	EN 10269	all	High strength
12	21CrMoV5-7	EN 10269	all	High strength
13	20CrMoVTiB4-10	EN 10269	all	High strength
14	X6NiCrTiMoVB 25-15-2	EN 10269	all	Intermediate strength
15	X7CrNiMoBNb16-16	EN 10269	all	High strength
16, 18	A4-50, A2-50	EN ISO 3506-1	≤ 39	Low strength
17, 19	A4-70, A2-70	EN ISO 3506-1	≤ 24	High strength
20	X5CrNiMo17-12-2 AT	EN 10269	all	Low strength
21	X5CrNiMo17-12-2 AT+C	EN 10269	all	Intermediate strength
22	X5CrNi18-10	EN 10269	all	Low strength
23	X5CrNi18-10 AT+C	EN 10269	all	Intermediate strength

ITEH STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 1515-3:2006

<https://standards.iteh.ai/catalog/standards/sist/354241ae-9944-42b9-95dd-3491dcea6ae6/sist-en-1515-3-2006>

Annex A (informative)

Basic information

The classification has been developed with the following rules:

- a) Classification according to ASME B16.5:1996, 5.3 and table 1B.
- b) Allowable stresses for EN-materials are min of $1/3 R_m$ and $2/3 R_{eh}$ at room temperature.
- c) High strength is classified with an allowable stress of 170 N/mm^2 and higher, low strength with 140 N/mm^2 and lower. If an EN-material has an equivalent ASTM material according to EN 1515-1, the classification according to B16.5 shall govern (see line 14, 21 and 23).

Table A.1 — Development of bolting classification

EN 1515-1	Material / strength class EN	R_m	R_{eh}	Allowable stress	Material / strength class ASTM	Allowable stress		Classification
		N/mm ²	N/mm ²	N/mm ²		ksi	N/mm ²	
01	4.6	400	240	133	A307 Gr.B	7	48	low
02	5.6	500	300	167	—	—	—	intermediate
04	8.8	800	640	267	A354 Gr.BC	25	172	high
05, 07	25CrMo4	600	440	200	—	—	-	high
06, 08	42CrMo4	860	730	287	B7	25	172	high
09	30CrNiMo8	1 040	940	347	L43	25	172	high
10	42CrMo5-6	860	700	287	—	—	-	high
11	40CrMoV4-6	850	700	283	B16	25	172	high
12	21CrMoV5-7	700	550	233	—	—	-	high
13	20CrMoVTiB4-10	820	660	273	—	—	-	high
14	X6NiCrTiMoVB 25-15-2	900	600	300	A453 Gr.660	21	147	intermediate
15	X7CrNiMoBNb16-16	650	500	217	—	—	-	high
16, 18	A4-50, A2-50	500	210	140	—	—	-	low
17, 19	A4-70, A2-70	700	450	233	—	—	-	high
20	X5CrNiMo17-12-2	500	200	133	B8M	19	130	low
21	X5CrNiMo17-12-2 AT+C	700	350	233	B8M Cl.2	20	138	intermediate
22	X5CrNi18-10	500	190	127	B8	19	130	low
23	X5CrNi18-10 AT+C	700	350	233	B8 CL.2	20	138	intermediate