SLOVENSKI STANDARD
SIST EN 12516-2:2015/oprA1:2019

01-december-2019

Industrijski ventili - Trdnost ohišja - 2. del: Metoda za izračun ohišij jeklenih ventilov - Dopolnilo A1

Industrial valves - Shell design strength - Part 2: Calculation method for steel valve shells

Industriearmaturen - Gehäusefestigkeit - Teil 2: Berechnungsverfahren für drucktragende Gehäuse von Armaturen aus Stahl

Robinetterie industrielle - Résistance mécanique des enveloppes - Partie 2 : Méthode de calcul relative aux enveloppes d'appareils de robinetterie en acier

Ta slovenski standard je istoveten z: EN 12516-2:2014/prA1:2019

ICS:

23.060.01	Ventili na splošno	Valves in general

SIST EN 12516-2:2015/oprA1:2019 en,fr,de

EUROPEAN STANDARD

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English Version

Industrial valves - Shell design strength - Part 2: Calculation method for steel valve shells

Robinetterie industrielle - Résistance mécanique des enveloppes - Partie 2 : Méthode de calcul relative aux enveloppes d'appareils de robinetterie en acier

Industriearmaturen - Gehäusefestigkeit - Teil 2: Berechnungsverfahren für drucktragende Gehäuse von Armaturen aus Stahl

This draft amendment is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 69.

This draft amendment A1, if approved, will modify the European Standard EN 12516-2:2014. If this draft becomes an amendment, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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Contents

European foreword

This document (EN 12516-2:2014/prA1:2019) has been prepared by Technical Committee CEN/TC 69 “Industrial valves”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document has been prepared under a standardization request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 2014/68/EU.

For relationship with EU Directive 2014/68/EU, see informative Annex ZA which is an integral part of this document.

1 Modification to Clause 2

Replace "EN 19:2002, *Industrial valves — Marking of metallic valves*" *by* "EN 19:2016, *Industrial valves — Marking of metallic valves*"

Replace "EN 13445-3:2014, *Unfired pressure vessels — Part 3: Design*" *by* "EN 13445-3:2014/A3:2017, *Unfired pressure vessels — Part 3: Design*"

2 Modifications to Clause 3

Replace Table 1 by the following.

"

Table 1 — Symbols characteristics and units

Symbol	Unit	Characteristic
a_H	mm	lever arm for horizontal force
a_S	mm	lever arm for bolt force
a_V	mm	lever arm for vertical force
B	—	calculation coefficient to determine the thickness of the flange
$B_{1...3}$	—	calculation coefficient for oval and rectangular cross-sections
B_5	—	correction factor for oval flanges
B_{FI}, B_{FII}	—	calculation coefficient for flat circular plates
B_h	—	calculation coefficient to determine the thickness of the flange
B_{MI}, B_{MII}	—	calculation coefficient for flat circular plates
B_{PI}, B_{PII}	—	calculation coefficient for flat circular plates
b	mm	double flange width
b_1	mm	minor width in oval and rectangular cross section
b_2	mm	major width in oval and rectangular cross section
b_{D1}, b_{D2}	mm	width of the seal
b'_1	mm	width in oval and rectangular cross section
b_D	mm	width of the seal
b_s	mm	effective width for reinforcement
C_x, C_y, C_z	—	calculation coefficient for covers made of flat plates
C	--	calculation coefficient for lens-shaped gaskets
c	mm	design allowance for bolts
c_1	mm	fabrication tolerance
c_2	mm	standardized corrosion and erosion allowance
d_o	mm	outside diameter

Symbol	Unit	Characteristic
d_0, d'_0	mm	diameter in base body
d_{01}, d_{02}	mm	diameter for self-sealing closure
d_1	mm	diameter in branch
d_2	mm	diameter in further branch
d_4	mm	outside diameter of collar flange
d_A	mm	outside diameter of the plate/cover
d_a	mm	outside flange diameter
d_i	mm	inside diameter
d_f	mm	diameter of the biggest inscribed circle
d_k	mm	diameter in knuckle
d_K	mm	diameter in corner welds
d_L	mm	hole diameter
d'_L	mm	reduced bolt hole diameter
d_m	mm	mean diameter of the plate/cover
d_{mA}	mm	mean diameter of the face (see Figure 28)
d'_m	mm	mean diameter
d_D	mm	mean diameter of the seal
d_s	mm	required bolt diameter
d_t	mm	bold circle diameter/reference circle diameter
d_p	mm	diameter of centre of gravity
d_{ast}	mm	stuffing box outside diameter
d_{ist}	mm	stuffing box inside diameter
d_{S0}	mm	calculated bolt diameter without design allowance
d_V	mm	diameter of the vertical force at the cone
E	MPa	modulus of elasticity
E_D	MPa	modulus of elasticity for material of the seal
e_n	mm	wall thickness
e_{an}	mm	wall thickness (final/actual)
e_{acn}	mm	actual wall thickness less c_1 and c_2
e_{acF}	mm	thickness of flange neck
e_{cn}	mm	calculated theoretical minimum wall thickness, without c_1 and c_2
F_{DV}	N	minimum bolt force for the assembly condition

Symbol	Unit	Characteristic
F_F	N	flange force
F_H	N	horizontal component force
F_S	N	bolt force for operating conditions
F_{SB}	N	minimum bolt force
F_{S0}	N	bolt force for assembly conditions
F_T	N	tensile force
F_V	N	vertical force at the cone
F_Z	N	additional force
f	MPa	nominal design stress
f_d	MPa	maximum value of the nominal design stress for normal operating load cases
$f_{d/t}$	MPa	nominal design stress for design conditions at temperature t °C
g_1, g_2	mm	welding throat depth
h	mm	plate thickness
h_0	mm	minimum height for the seating shoulder
h_1	mm	minimum height of the inserted ring
h_D	mm	minimum depth of the sealing ledge
h_r	mm	plate thickness
h_A	mm	height of flange hub
h_c	mm	plate thickness
h_F	mm	thickness of flange
h_N	mm	reduced plate thickness
k_c	—	welding factor
l	mm	length
$l_{0...3}$	mm	effective length for cylindrical bodies
l'	mm	length which is influenced by the entry nozzle
l'_0	mm	length for calculating body shapes in cross section II
$\cap l3$	mm	length for calculating body shapes in cross section II
M	Nm	external moment
M_i	Nm	summary of moments M_P, M_F, M_M
M_a	Nm	external moment
M_{a0}	Nm	moment for assembly condition
M_{aB}	Nm	moment for operation condition

Symbol	Unit	Characteristic
M_F	Nm	single force (point force)
M_{max}	Nm	maximum bending moment
M_M	Nm	rim moment
M_P	Nm	resulting moment from internal pressure
M_r	Nm	bending moment in radial direction
M_t	Nm	bending moment in tangential direction
m	––	gasket coefficient
n	––	number of bolts
n_1	––	load carrying factor
p	MPa	pressure
p_c	MPa	calculation pressure
p_d	MPa	design pressure
p_F	MPa	contact pressure
PS	MPa	maximum allowable pressure
R	mm	radius for calculating load cases
R_{eH}	MPa	upper yield strength
$R_{eH/t}$	MPa	upper yield strength at temperature t °C
R_i	mm	inner Radius of spherical cap
R_m	MPa	tensile strength
$R_{m/t}$	MPa	tensile strength at temperature t °C
$R_{m/T/t}$	MPa	creep rupture strength for T hours at temperature t °C
$R_{p0,2}$	MPa	0,2 % - proof strength
$R_{p0,2/t}$	MPa	0,2 % - proof strength at temperature t °C
$R_{p0,2/t\ Test}$	MPa	0,2 % - proof strength at test temperature t °C
$R_{p1,0/t\ Test}$	MPa	1,0 % - proof strength at test temperature t °C
$R_{p1,0}$	MPa	1,0 % - proof strength
$R_{p1,0/t}$	MPa	1,0 % - proof strength at temperature t °C
$R_{p1,0/T/t}$	MPa	1,0 % - creep proof strength for T hours at temperature t °C
r	mm	radius
r_0	mm	radius for calculating load cases
r_1	mm	radius for calculating load cases
r_o	mm	outside radius