



SLOVENSKI STANDARD

SIST EN 13084-7:2006

01-september-2006

Dfcgltcgtc Y J'X]a b]]'E'+ "XY. 'GdYWZ_ UW'Y' dfc]nj cXUnUW]]bXf] bY'Y_`YbY
dfc]nj cXYZ_]gY'i dcfUV'Uc'j 'Ybc' b]]n]Xb]]'Y_`Yb]]X]a b]]]b'Y_`Yb]]W]j Y

Free-standing chimneys - Part 7: Product specifications of cylindrical steel fabrications for use in single wall steel chimneys and steel liners

Freistehende Schornsteine - Teil 7: Produktfestlegungen für zylindrische Stahlbauteile zur Verwendung in einschaligen Stahlschornsteinen und Innenrohren aus Stahl

iTeh STANDARD PREVIEW

(standards.iteh.ai)
Cheminées autoportantes - Partie 7: Spécifications de produit applicables aux fabrications cylindriques en acier pour cheminées en acier a paroi simple et parois intérieures en acier

[SIST EN 13084-7:2006](https://standards.iteh.ai/catalog/standards/sist/b1674cd6-7d8a-4f25-846e-fcfd48702e42/sist-en-13084-7-2006)

[https://standards.iteh.ai/catalog/standards/sist/b1674cd6-7d8a-4f25-846e-](https://standards.iteh.ai/catalog/standards/sist/b1674cd6-7d8a-4f25-846e-fcfd48702e42/sist-en-13084-7-2006)

[fcfd48702e42/sist-en-13084-7-2006](https://standards.iteh.ai/catalog/standards/sist/b1674cd6-7d8a-4f25-846e-fcfd48702e42/sist-en-13084-7-2006)

Ta slovenski standard je istoveten z: EN 13084-7:2005

ICS:

91.060.40

SIST EN 13084-7:2006

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 13084-7:2006

<https://standards.iteh.ai/catalog/standards/sist/b1674cd6-7d8a-4f25-846e-fcf148702e42/sist-en-13084-7-2006>

ICS 91.060.40

English Version

Free-standing chimneys - Part 7: Product specifications of
cylindrical steel fabrications for use in single wall steel chimneys
and steel liners

Cheminées autoportantes - Partie 7 : Spécifications de
produit applicables aux fabrications cylindriques en acier
pour cheminées en acier à paroi simple et parois
intérieures en acier

Freistehende Schornsteine - Teil 7: Produktfestlegungen
für zylindrische Stahlbauteile zur Verwendung in
einschaligen Stahlschornsteinen und Innenrohren aus Stahl

This European Standard was approved by CEN on 26 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.



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 Terms and definitions	6
4 Requirements	6
4.1 General	6
4.2 Performance characteristics	6
4.2.1 Mechanical resistance and stability	6
4.2.2 Resistance to fire	6
4.2.3 Gas tightness / leakage	6
4.2.4 Flow resistance	6
4.2.5 Dimensioning/Thermal resistance	6
4.2.6 Thermal shock resistance	7
4.2.7 Resistance to freeze-thaw	7
4.3 Durability	7
5 Materials	7
5.1 Steels	7
5.2 Coating	12
5.3 Insulation	12
5.4 Cladding.....	12
6 Construction.....	12
6.1 Tolerances	12
6.2 Welding.....	12
6.3 Construction details	12
6.4 Insulation.....	12
6.5 Cladding.....	13
7 Evaluation of conformity	13
7.1 General	13
7.1.1 Initial type testing.....	13
7.1.2 Further type testing	13
7.2 Factory production control	13
7.2.1 General	13
7.2.2 Material records.....	13
7.2.3 Qualifications of the welders.....	14
7.2.4 Welding quality control.....	14
7.2.5 Coatings	14
7.2.6 Geometrical dimensions	14
8 Temperature classes	14
9 Product designation	15
Bibliography.....	23

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 13084-7:2006

<https://standards.iteh.ai/catalog/standards/sist/b1674cd6-7d8a-4125-846c->

<fctd48702e42/sist-en-13084-7-2006>

Foreword

This European Standard (EN 13084-7:2005) has been prepared by Technical Committee CEN/TC 297 “Free-standing industrial chimneys”, 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 April 2006, and conflicting national standards shall be withdrawn at the latest by July 2007.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this European Standard.

This European Standard is part 8 of the package of standards listed below.

- EN 13084-1, *Free-standing chimneys – Part 1: General requirements.*
- EN 13084-2, *Free-standing chimneys – Part 2: Concrete chimneys.*
- EN 13084-4, *Free-standing chimneys – Part 4: Brick liners – Design and execution.*
- EN 13084-5, *Free-standing chimneys – Part 5: Material for brick liners – Product specifications.*
- EN 13084-6, *Free-standing chimneys – Part 6: Steel liners – Design and execution.*
- EN 13084-7, *Free-standing chimneys – Part 7: Product specifications of cylindrical steel fabrications for use in single wall steel chimneys and steel liners.*
- EN 13084-8, *Free-standing chimneys – Part 8: Design and execution of mast construction with satellite components.*

Additionally applies:

- EN 1993-3-2, *Eurocode 3: Design of steel structures – Part 3-2: Towers, masts and chimneys – Chimneys.*

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.

1 Scope

This European Standard is a product standard which specifies the performance requirements of cylindrical steel fabrications for use in single wall steel chimneys and steel liners for free-standing chimneys used to convey the flue gas from appliances to the outside atmosphere. It specifies also the requirements for insulation and cladding being part of the single wall steel chimney and liner, it provides for the evaluation of conformity of steel chimney/liners to this EN.

It is essential that the steel chimneys/steel chimney products manufactured in accordance with this European Standard comply with the requirements given in EN 13084-1 and ENV 1993-3-2.

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 287-1, *Qualification test of welders - Fusion welding - Part 1: Steels*

EN 719, *Welding coordination - Tasks and responsibilities*

EN 729-2, *Quality requirements for welding - Fusion welding of metallic materials - Part 2: Comprehensive quality requirements*

EN 1418, *Welding personnel - Approval testing of welding operators for fusion welding and resistance weld setters for fully mechanized and automatic welding of metallic materials*

ENV 1993-1-6, *Eurocode 3: Design of steel structures - Part 1-6: General rules - Supplementary rules for the shell structures*

ENV 1993-3-2:1997, *Eurocode 3: Design of steel structures - Part 3-2: Towers, masts and chimneys - Chimneys*

EN 10025-2, *Hot rolled products of structural steels- Part 2: Technical delivery conditions for non-alloy structural steels*

EN 10025-5, *Hot rolled products of structural steels – Part 5: Technical delivery conditions for structural steels with improved atmospheric corrosion resistance*

EN 10028, (all parts) *Flat products made of steels for pressure purposes*

EN 10088, (all parts) *Stainless steels*

EN 10095, *Heat resisting steels and nickel alloys*

EN 10204:2004, *Metallic products - Types of inspection documents*

EN 13084-1:2000, *Free-standing industrial chimneys – Part 1: General requirements*

EN 13084-6:2004, *Free-standing chimneys – Part 6: Steel liners – Design and execution*

EN ISO 15607, *Specification and qualification of welding procedures for metallic materials - General rules (ISO 15607:2003)*

EN ISO 15609-1, *Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 1: Arc welding (ISO 15609-1:2004)*

EN ISO 15610, *Specification and qualification of welding procedures for metallic materials - Qualification based on tested welding consumables (ISO 15610:2003)*

EN ISO 15611, *Specification and qualification of welding procedures for metallic materials - Qualification based on previous welding experience (ISO 15611:2003)*

EN ISO 15612, *Specification and qualification of welding procedures for metallic materials - Qualification by adoption of a standard welding procedure (ISO 15612:2004)*

EN ISO 15613, *Specification and qualification of welding procedures for metallic materials - Qualification based on pre-production welding test (ISO 15613:2004)*

EN ISO 15614-1, *Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys (ISO 15614-1:2004)*

EN ISO 15614-2, *Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 2: Arc welding of aluminium and its alloys (ISO 15614-2:2005)*

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 13084-7:2006](https://standards.iteh.ai/catalog/standards/sist/b1674cd6-7d8a-4f25-846e-fcfd48702e42/sist-en-13084-7-2006)

<https://standards.iteh.ai/catalog/standards/sist/b1674cd6-7d8a-4f25-846e-fcfd48702e42/sist-en-13084-7-2006>

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 13084-1:2000 and EN 13084-6:2004 apply. The single wall steel chimney and steel liner should be considered in the same way for design and requirements.

4 Requirements

4.1 General

For the purposes of this European Standard EN 13084-6 applies.

NOTE The design of steel chimneys should be covered by the Eurocodes dealing with chimneys and the requirements should be based on design and intended end use.

4.2 Performance characteristics

4.2.1 Mechanical resistance and stability

Mechanical resistance and stability shall be verified in accordance with ENV 1993-3-2 taking into account the characteristic values given in Tables 1 to 3.

4.2.2 Resistance to fire

Resistance to fire relates only to this soot-fire occurring within the liner.

A chimney could convey air and/or different type of gases (see EN 13084-1). Soot-fire resistance shall only be verified for products conveying within the flue gas solid combustibles.

For verification see EN 13084-6.

If the product has been designed to be soot fire resistant the product designation is "G" otherwise the designation is "O".

4.2.3 Gas tightness / leakage

The product shall be gas tight = Class *H0* of EN 13084-6.

In order to meet this requirement the design shall be in accordance with EN 13084-6, production shall be in accordance with the qualities and controls stated in this European Standard.

4.2.4 Flow resistance

The mean roughness value for steel to carry out flow calculations is given in EN 13084-1:2000, Table A.3.

The individual resistance coefficient of some forms is given in EN 13084-1:2000, Table A.4.

4.2.5 Dimensioning/Thermal resistance

Flow calculations shall be carried out in accordance with EN 13084-1.

The thermal resistance shall be calculated on the basis of EN 13084-1:2000, Annex A.2.2.

NOTE Dimensions related to stability are calculated on the basis of 4.2.1.

4.2.6 Thermal shock resistance

Generally not applicable to steel because rapid changes of temperature have no significant effect on steel chimneys and liners.

NOTE For specific applications (such as turbines) thermal shock may be relevant and expert advice should be sought.

4.2.7 Resistance to freeze-thaw

Resistance to freeze-thaw is not relevant to steel chimneys and steel liners.

4.3 Durability

The class of chemical attack is given by the designer in accordance with EN 13084-1.

Durability to chemical attack is covered by use of materials shown in Table 4. Other steels may be used provided their durability to the relevant chemical attack shall be demonstrated.

Durability may also be achieved by other means including additional coatings and linings.

5 Materials

5.1 Steels

Steels given in Tables 1 to 4 are permitted. In addition other steels are permitted in accordance with EN 13084-6:2004, Clause 4.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 13084-7:2006
<https://standards.iteh.ai/catalog/standards/sist/b1674cd6-7d8a-4f25-846e-fcfd48702e42/sist-en-13084-7-2006>

EN 13084-7:2005 (E)

Table 1 — Characteristic values of yield stress in relation to temperature ($f_{y,k}$ in N/mm²)

Type of steel		Temperature of the material up to °C																				
Short name	Material	20	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
EN 10025-2																						
S235JRG1	1.0036	235	235	190	175	160	140	120														
S235JRG2	1.0038	235	235	190	175	160	140	120														
S235J2G3	1.0116	235	235	190	175	160	140	120														
S275JR	1.0044	275	275	215	200	185	165	145	125	104												
S275J2G3	1.0144	275	275	215	200	185	165	145	125	104												
S355J2G3	1.0570	355	355	260	245	230	210	190														
Usable for		Windshield and liner																				
EN 10025-5																						
S235JRW	1.8960	235	235	190	175	160	140	120														
S235J2W	1.8961	235	235	190	175	160	140	120														
S355J2WP	1.8946	355	355	260	245	230	210	190														
S355J2G1W	1.8963	355	355	260	245	230	210	190	170	140	120	85										
Usable for		Windshield and liner										Liners only										
EN 10028																						
P265GH	1.0425	255	247	232	215	197	181	166	154	145	80											
16Mo3	1.5415	270	268	259	245	228	209	190	172	156	145	139										
13CrMo4-5	1.7335	290	285	275	260	243	226	209	194	180	169	159	76									
10CrMo9-10	1.7380	300	270	249	238	232	227	221	211	198	185	173	83	44								
Usable for		windshield and liner																				
EN 10088																						
X5CrNi18-10	1.4301	195	177	157	142	127	118	110	104	98	95	92	90									
X6CrNiTi18-10	1.4541	205	190	176	167	157	147	136	130	125	121	119	118									
X6CrNiMoTi17-12-2	1.4571	215	202	185	177	167	157	145	140	135	131	129	127									
X2CrNiMo17-12-2	1.4404	190	182	166	152	137	127	118	113	108	103	100	98									
X2CrNiMo18-14-3	1.4435	190	182	166	152	137	127	118	113	108	103	100	98									
X1NiCrMoCu25-20-5	1.4539	220	190	175	165	155	145	135	130	125	120	110	105									
Usable for		Windshield and liner										Liners only										
EN 10095																						
X8CrNiTi18-10	1.4878	205	190	176	167	157	147	136	130	125	121	119	118	110	77	45	30	15				
X15CrNiSi25-21	1.4841	230	190	176	167	157	147	136	130	125	121	120	112	105	77	50	37	23	16	10	6	3
X15CrNiSi20-12	1.4828	230	190	176	167	157	147	136	130	125	121	120	120	120	85	50	35	20	14	10		
Usable for		Windshield and liner										liners only										
Values given are for material up to 40 mm thickness. If cold-formed materials are used the above values shall still be applied. If there is no value the material is not applicable.																						

Table 2 —Characteristic values of E-Modulus (10^5 N/mm²) in relation to temperature

	Type of steel		Temperature of the material up to °C																
	Short name	Material	20	150	250	350	450	500	550	600	650	700	750	800	850	900	950	1000	
EN 10025-2	S235JRG1	1.0036	2,1	2,05	2,0	1,92													
	S235JRG2	1.0038																	
	S235J2G3	1.0116																	
	S275JR	1.0044																	
	S275J2G3	1.0144																	
	S355J2G3	1.0570																	
EN 10025-5	S235JRW	1.8960	2,1	2,05	2,0	1,92													
	S235J2W	1.8961																	
	S355J2WP	1.8946																	
	S355J2G1W	1.8963																	
EN 10028	P265GH	1.0425	2,1	2,05	2,0	1,92	1,84	1,8											
	16Mo3	1.5415																	
	13CrMo4-5	1.7335																	
	10CrMo9-10	1.7380																	
EN 10088	X5CrNi18-10	1.4301	1,7 2,0 ^a	1,64 1,94 ^a	1,56 1,86 ^a	1,49 1,79 ^a	1,42 1,72 ^a	1,385 1,685 ^a	1,35 1,65 ^a	1,315 1,615 ^a									
	X6CrNiTi18-10	1.4541																	
	X6CrNiMoTi17-12-2	1.4571																	
	X2CrNiMo17-12-2	1.4404																	
	X2CrNiMo18-14-3	1.4435																	
	X1NiCrMoCu25-20-5	1.4539																	
EN 10095	X8CrNiTi18-10	1.4878	1,7 2,0 ^a	1,64 1,94 ^a	1,56 1,86 ^a	1,49 1,79 ^a	1,42 1,72 ^a	1,385 1,685 ^a	1,35 1,65 ^a	1,315 1,615 ^a									
	X15CrNiSi25-21	1.4841																	
	X15CrNiSi20-12	1.4828																	

^a for calculating compression stresses