

DIN EN 13084-1:2025-04 (E)

Free-standing chimneys - Part 1: General requirements

Contents		Page
European foreword		4
1	Scope	6
2	Normative references	6
3	Terms and definitions	6
3.1	General terms	7
3.2	Terms for chimney parts	8
3.3	Terms for operation	9
4	General requirements	10
4.1	Materials	10
4.2	Flue gas considerations	10
4.2.1	General	10
4.2.2	Design parameters	11
4.2.3	Heat flow calculations	11
4.2.4	Flow calculations	14
4.2.5	Chemical attack	14
4.3	Environmental aspects	17
4.3.1	Pollutants dispersion	17
4.3.2	Noise	17
4.3.3	Temperature	17
4.3.4	Fire	17
4.3.5	Gas tightness	17
4.4	Connecting flue pipe	18
4.5	Insulation	18
4.6	Ventilation	19
4.7	Protective coatings	19
4.8	Foundation	20
4.9	Accessories	20
4.9.1	Access	20
4.9.2	Lightning protection	21
4.9.3	Aircraft warning system	21
4.9.4	Additional accessories	21
5	Performance requirements: Structural design	22
5.1	Basic design principles	22
5.2	Actions	23
5.2.1	General	23
5.2.2	Permanent actions	23
5.2.3	Variable actions	23
5.2.4	Accidental actions	25
5.3	Imperfections	25
5.4	Foundation	26
5.5	Liner	26
6	Site activities	26
7	Lifetime management, monitoring, inspection, maintenance, cleaning, repair and remedial work including the reporting; operations and actions required	26

8	Instrumentation	26
	Annex A (normative) Gas flow calculation	28
A.1	Principal features of the method of calculation	28
A.2	Parameters related to construction type	28
A.2.1	Roughness	28
A.2.2	Thermal resistance	28
A.3	Basic values for the calculation	29
A.3.1	Air temperature	29
A.3.2	Outside air pressure	29
A.3.3	Flue gas	29
A.3.4	Gas constant	30
A.3.5	Density of outside air	31
A.3.6	Specific heat capacity	31
A.3.7	Correction factor for temperature	31
A.3.8	Flow safety coefficient	32
A.4	Determination of temperatures	32
A.4.1	Flue gas temperatures	32
A.4.2	Coefficient of cooling	32
A.4.3	Heat transmission coefficient	33
A.4.4	Internal heat transfer coefficient	33
A.5	Density of flue gas	35
A.6	Flue gas velocity	35
A.7	Pressure at entry of flue gas into chimney	35
A.7.1	Calculation of pressure	35
A.7.2	Theoretical draught available due to chimney effect	36
A.7.3	Pressure resistance of the flue gas carrying tube	36
A.7.4	Flue friction coefficient	36
A.7.5	Individual resistance coefficient	37
A.7.6	Change in pressure due to change of velocity	37
A.7.7	Pressure caused by sudden interruption of the flue gas stream (Implosion)	37
A.8	Minimum velocity	38
	Annex B (informative) Calculation method for combined flue gases with different temperatures	43
	Bibliography	46