

# EN12101-2:2003

## CE Certified NSHEV Solutions

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

ICS 13.220.20; 23.120

### EN 12101-2

June 2003

English version

#### Smoke and heat control systems - Part 2: Specification for natural smoke and heat exhaust ventilators

Rauch- und Wärmefreihaltung - Teil 2: Festlegungen für natürliche Rauch- und Wärmeabzugsgeräte

Systèmes pour le contrôle des fumées et de la chaleur -  
Partie 2: Spécifications pour les dispositifs d'évacuation de  
fumées et de chaleur

This European Standard was approved by CEN on 9 April 2003.

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 Management Centre 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 Management Centre has the same status as the official versions.

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

4.4.2011

REGULATION (EU) No 305/2011 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL  
of 9 March 2011  
laying down harmonised conditions for the marketing of construction products and repealing  
Council Directive 89/106/EEC  
(Text with EEA relevance)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE

(4) Member States have introduced provisions, including requirements, relating not only to safety of buildings but also to health, safety, energy economy, protection of the environment, and other important aspects.



# 1

## Reynaers Aluminium CS77 SE Controls NSHEV

It is a mandatory requirement under the Construction Products Regulations (Regulation (EU) No 305/2011) for Natural Smoke and Heat Exhaust Ventilators (NSHEVs) to be UKCA certified as conforming to the Designated Standard EN12101-2:2003.

Reynaers Aluminium and SE Controls have collaborated on an extensive test and certification program with IFCC, a UK Notified Body (Notified Body Nr. 1720) to meet this requirement and ensure a seamless façade installation and performance can be provided.

The following Reynaers Aluminium frame systems can be certified under SE Controls' Tested Solutions program.

Frame System	Applications	Refer to
Reynaers CS77 Window	Side Hung, Top Hung, Bottom Hung Open Out	Section 4.1
Reynaers CS77 Door	Side Hung Open Out	Section 4.2

## 2 Manufacturing

Prior to manufacturing an NSHEV it is important to seek guidance from SE Controls to ensure the NSHEV is manufactured under an annually audited EN12101-2 System 1 Factory Production Control process.

It is mandatory this is in place before manufacturing. Please register your interest to [Façade.technical@secontrols.com](mailto:Façade.technical@secontrols.com)

If an NSHEV is not manufactured under an EN12101-2 System 1 Factory Production Control process the product will not be certifiable by SE Controls.



Contact the SE Controls Façade Support Team

SE Controls  
Lancaster House, Fradley, Lichfield  
WS13 8RZ  
Tel +44 1543 443060

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### 3 Certification

3.1 Essential Characteristics declared on the SE Controls NSHEV Declaration of Performance (DoP) as defined by EN12101-2:2003 Annex ZA.1.

<b>CCP 1720-CPR-0244</b>		
<b>Essential Characteristics</b>	<b>Clauses in This European Standard</b>	<b>Mandated Level(s) or Class(es)</b>
<b>Nominal Activation Conditions/sensitivity</b>	4.1 4.2	b) 24V dc.
<b>Response relay (Time relay)</b>	7.1.2	<60s
<b>Operational Reliability</b>	7.1 7.4	Re 1000 + 10000 (Dual Purpose) Re 1000 (Folding Arm) NPD Single Chain & Folding Arm WL 1500 Twin Chain
<b>Effectiveness of smoke/hot gas extraction</b>	6.	Pass
<b>Aerodynamic free area</b>	6.	Pass
<b>Performance parameters under fire conditions</b>	7.5	B300
<b>Resistance to fire – Mechanical stability</b>	7.5	B30030
<b>Ability to open under environmental conditions</b>	7.2 7.3	SL0 T(00)
<b>Fire reaction</b>	7.5.2.1	A1

“PASS”; Each NSHEV will have a specific aerodynamic free area based upon its dimensions, opening angle and applicable coefficient of discharge (Cv) of between 0.32 and 0.62.

### 3.2 Factory Production Control

The vent is manufactured, the actuator installed and the NSHEV completed under SE Controls' System 1 Factory Production Control (FPC) process, audited by the Notified Body, IFCC in accordance with the requirements of the Construction Products Regulation (EU) No 305/2011 and EN12101-2:2003 product standard.

The Certificate of Constancy of Performance (CoCoP) issued by IFCC and Declaration of Performance (DoP) issued by SE Controls confirms the audited system 1 FPC process is in place.

The NSHEV is certified and placed upon the market by SE Controls in the capacity of the manufacturer.



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## 4 Reyaners CS 77 SE Controls NSHEV Certifiable Parameters

### 4.1 CS77 Window

Orientation	Maximum Width	Maximum Height	Minimum Width	Minimum Height	Maximum Weight	Hinges	Actuator
Side Hung	1050mm	1500mm	700mm	675mm	75KG	Butt Hinges	SECO Ni 24 40 Actuator Single
Side Hung	1050mm	1800mm	700mm	675mm	75KG	Butt Hinges	SECO Ni 24 40 Actuator Twin
Top Hung	1500mm	1100mm	675mm	750mm	60KG	Butt Hinges	SECO Ni 24 40 Actuator Single
Bottom Hung	1500mm	1100mm	675mm	750mm	60KG	Butt Hinges	SECO Ni 24 40 Actuator Single

### 4.2 CS77 Door

Orientation	Maximum Width	Maximum Height	Minimum Width	Minimum Height	Maximum Weight	Hinges	Actuator
Side Hung	1200mm	1500mm	500mm	675mm	120KG	Butt Hinges	SECO Ni 24 40 Actuator Single
Side Hung	1200mm	2350mm	500mm	675mm	120KG	Butt Hinges	SECO Ni 24 40 Actuator Twin
Side Hung	1200mm	2350mm	500mm	675mm	120KG	Butt Hinges	SECO Ni 24 40 Folding Arm Actuator



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### 4.3 Sash/Frame Combinations

#### CS77 Window

Frame Reference	Sash Reference	Prep Detail Reference (Single Chain)	Prep Detail Reference (Twin Chain)
008.3436	008.3412	SEF_2021	SEF_2034
008.3436	008.3492	SEF_2022	SEF_2033
008.3436	008.3421	SEF_2023	SEF_2035
008.3483	008.3412	SEF_2025	SEF_2037
008.3483	008.3492	SEF_2024	SEF_2036
008.3483	008.3421	SEF_2026	SEF_2038
008.3425	008.3412	SEF_2028	SEF_2040
008.3425	008.3492	SEF_2027	SEF_2039
008.3425	008.3421	SEF_2029	SEF_2041
008.3440	008.3412	SEF_2031	SEF_2043
008.3440	008.3492	SEF_2030	SEF_2042
008.3440	008.3421	SEF_2032	SEF_2044
008.3426	008.3421	SEF_2539	SEF_2540
008.3414	008.3492	SEF_2420	SEF_2532
008.3416	008.3412	SEF_2641	SEF_2642
008.3416	008.3492	SEF_2680	SEF_2681
008.3426	008.3412	SEF_2754	SEF_2755

#### CS77 Door

Frame Reference	Sash Reference	Prep Detail Reference (Single Chain)	Prep Detail Reference (Twin Chain)	Prep Detail Reference (Folding Arm Actuator)
008.0469	008.2014	SEF_2197	SEF_2198	SEF_2646
008.3140	008.3052	SEF_2357	SEF_2358	N/A
008.3125	008.3052	SEF_2403	SEF_2404	N/A
008.3183	008.3052	SEF_2407	SEF_2408	N/A
008.0569	008.2014	SEF_2677	SEF_2678	SEF_2692

Contact Reynaers for access to their technical manual.

\*Reynaers CS77 Door with Folding Arm Actuators are only available for Podium levels only.

**The information provided in this document must be used in conjunction with the Reynaers CS77 Technical Manual.**



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## 5 System Design and Installation Considerations

### 5.1 Free Area

The free area essential characteristic of an NSHEV is declared on the Declaration of Performance as “Aerodynamic Free Area”. Often building codes do not specify aerodynamic free areas, but instead require a Geometric Free Area (e.g., 1.5m<sup>2</sup>) and the two methods should not be confused.

A Geometric Free Area will be larger than the Aerodynamic Free Area for the same NSHEV, but they are not directly comparable.

Refer to the applicable design standard BS 9991:2024 (Section 20.1. Table 3 - Summary of Smoke Control Provisions)

**Top Of stair Vent for a building below 11 meters tall: 0.7m<sup>2</sup> (Aerodynamic Free Area)**

**Top Of stair Vent for a building above 11 meters tall: 0.7m<sup>2</sup> (Aerodynamic Free Area)**

**Lobby / Corridor vent for a building above 11 meters tall: 0.9m<sup>2</sup> (Aerodynamic Free Area)**

### 5.2 Controls

NSHEVs must be operated by a compatible EN12101-10 compliant control system; SE Controls recommends its OS series of control systems.

### 5.3 Safety: Entrapment Protection

Consideration should be given to the installation of suitable measures to mitigate the risks of entrapment.

NSHEVs should be closed/ reset via a local Manual Control Point (MCP) with a ‘biased off principle’\*, or alternative safety measures/ operational procedures should be considered.

\*Smoke Control Association: Guidance on Smoke Control to Common Escape Routes in Apartment Buildings (Flats and Maisonettes) Revision 3.1: July 2020

For advice on further safety considerations contact SE Controls.

### 5.4 Safety: Fall Restraint

Consideration should be given to the installation of suitable measures to mitigate the risks of falling through an NSHEV.

For advice on additional window restraint options contact SE Controls.

### 5.5 Installation & Maintenance

A smoke ventilation system should be designed, installed and maintained by a suitably competent and trained smoke ventilation specialist.

## 6 Support

Contact the SE Controls Technical Façade Team – [Façade.technical@secontrols.com](mailto:Façade.technical@secontrols.com)

SE Controls, Lancaster House, Wellington Crescent, Fradley, Lichfield, Staffs WS13 8RZ

Tel. +44 1543 443060 Website: [www.secontrols.com](http://www.secontrols.com)



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