

## Test parameters and results for the Colt smoke control range of products certified to EN 12101

### Colt and EN standards

All of the smoke control products shown in this leaflet have been externally tested to rigorous international standards and have been CE marked. But what difference exactly does this make for the customer?

### EN standards

EN Standards are written by CEN, the European standards organization, on the basis of a mandate from the Commission. Standards detail the performance characteristics required of products to allow construction works to meet six essential requirements to achieve a minimum safety requirement. The six essential requirements for the good performance of construction works are:

- Mechanical robustness
- Safe performance in case of fire
- Hygienic, healthy and favouring the environment
- Safe in use
- Offering protection against noise
- Offering economic operation so as to reduce energy usage
- Standards also set out the testing regime and the participation of third party certification or test bodies in order to demonstrate that products meet the required standard.

### The EN 12101 series of standards

These standards cover products in the field of smoke control. EN 12101-2 relates to Natural Smoke & Heat Exhaust Ventilators (NSHEVs), and has become mandatory to use as from 1 September 2006, replacing various national regulations and testing methods, including BS 7346 and DIN 18232.

The EN 12101-3 standard, which describes the requirements for Powered Smoke & Heat Exhaust Ventilators (PSHEVs), has had this status since April 2005. The EN12101-1 standard, which describes the requirements for Smoke Barriers, has been in force since August 2008.

EN 12101-7, Smoke Ducts, EN 12101-8, Smoke Dampers and EN 12101-10, Power Supplies are also now published. EN 12101-9, Control Panels is in the pipeline.

### So, what is the difference for the customer?

The rigorous testing of our smoke control products gives the customer peace of mind:

- Labelling of our products makes the characteristics of the product easier to understand
- The customer knows that our products meet all relevant aspects of safety and are manufactured consistently to the highest standards
- Our high design standards of design and manufacture mean that the customer can choose from a wide range of variants to suit their specific application, and that our products can meet the most stringent demands if required.


### The Construction Products Regulation

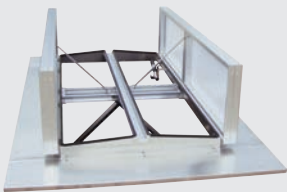
Where there is a harmonised EN Standard (hEN), CE marking is anyway mandatory.


#### TEST PARAMETERS - NSHEVs (EN 12101-2)


Appendix of  
EN 12101-2


<b>Coefficient of discharge</b> Aa data	Test to define the aerodynamic free area, to ensure that the NSHEV will perform efficiently.	<b>B</b>
<b>Reliability classification</b> RE class (Re 50, 1000)	How many times the NSHEV can be opened in its smoke and heat exhaust mode. Test to ensure that the ventilator will be reliable.	<b>C</b>
<b>Snow load</b> SL class (SL 0, 125, 250, 500, 1000 N/m <sup>2</sup> )	Maximum snow load class under which the NSHEV will open. Test to ensure that NSHEV will open and stay open under load.	<b>D</b>
<b>Low ambient temperature classification</b> T class (T -25, -15, -05, 00°C)	Test to check at what low internal ambient temperature it is possible to operate the NSHEV.	<b>E</b>
<b>Wind load</b> WL class (WL 0, 1500, 3000 N/m <sup>2</sup> )	Maximum wind load class for the NSHEV. Test to ensure that when closed the NSHEV can withstand the negative (suction) pressure of the class.	<b>F</b>
<b>Resistance to heat</b> B class (B 300, 600°C)	Test to check at what high temperature the NSHEV can be opened and made to stay open.	<b>G</b>
<b>Dual purpose ventilator</b>	Test to ensure that the NSHEV will perform reliably for day-to-day ventilation (10,000 cycles).	


<b>Airlite</b>	<b>Standard Ref</b>	<b>Parameter</b>	<b>Result</b>
	Annex B	Coefficient $C_v^{**}$	Up to 0.67
	C	Reliability	RE 1,000/10,000*
	D	Snow load <sup>**</sup>	Up to SL 4495
	E	Low ambient temperature	T(-15)
	F	Wind suction load <sup>**</sup>	WL 1800 - 12500
	G	Resistance to heat	B300-E

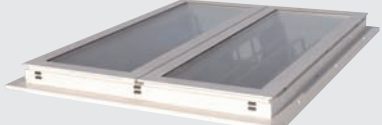
<b>Apollo</b>	<b>Standard Ref</b>	<b>Parameter</b>	<b>Result</b>
	Annex B	Coefficient $C_v^{**}$	Up to 0.68
	C	Reliability	RE 1,000/10,000*
	D	Snow load <sup>**</sup>	Up to SL 5700
	E	Low ambient temperature	T(00),T(-15)
	F	Wind suction load	WL 1500
	G	Resistance to heat	B300-E


<b>Apollo ATI</b>	<b>Standard Ref</b>	<b>Parameter</b>	<b>Result</b>
	Annex B	Coefficient $C_v^{**}$	Up to 0.69
	C	Reliability	RE 1,000/10,000*
	D	Snow load <sup>**</sup>	Up to SL 5700
	E	Low ambient temperature	T(00),T(-15)
	F	Wind suction load	WL 1500
	G	Resistance to heat	B300-E

<b>Coltite CL</b>	<b>Standard Ref</b>	<b>Parameter</b>	<b>Result</b>
	Annex B:	Coefficient $C_v^{**}$ CLT (CLS)	Up to 0.58 (up to 0.65)
	C:	Reliability	RE 1,000/10,000*
	D:	Snow load	SL 0
	E:	Low ambient temperature	T (-15)
	F:	Wind suction load <sup>**</sup>	WL up to 3,000
	G:	Resistance to heat	B300-E

<b>EuroCO/Seefire</b>	<b>Standard Ref</b>	<b>Parameter</b>	<b>Result</b>
	Annex B	Coefficient $C_v^{**}$	0.63 to 0.70
	C	Reliability	RE 1,000/10,000*
	D	Snow load	Up to SL 2000
	E	Low ambient temperature	T (00), T (-15), T (-25)
	F	Wind suction load <sup>**</sup>	WL up to 4000
	G	Resistance to heat	B300-E

<b>Firelight</b>	<b>Standard Ref</b>	<b>Parameter</b>	<b>Result</b>
	Annex B	Coefficient $C_v^{**}$	Up to 0.64
	C	Reliability	RE 1,000/10,000*
	D	Snow load <sup>**</sup>	SL 1000-5000
	E	Low ambient temperature	T (-25)
	F	Wind suction load <sup>**</sup>	WL 1000-5000
	G	Resistance to heat	B300-E

<b>Firelight Duo</b>	<b>Standard Ref</b>	<b>Parameter</b>	<b>Result</b>
	Annex B	Coefficient $C_v^{**}$	Up to 0.70
	C	Reliability	RE 1,000/10,000*
	D	Snow load <sup>**</sup>	Up to SL 7000
	E	Low ambient temperature	T(00),T(-15)
	F	Wind suction load <sup>**</sup>	WL 1500-9000
	G	Resistance to heat	B300-E

<b>Kameleon 5</b>	<b>Standard Ref</b>	<b>Parameter</b>	<b>Result</b>
	Annex B:	Coefficient $C_v^{**}$	Up to 0.60
	C:	Reliability	RE 1,000/10,000*
	D:	Snow load	SL 0
	E:	Low ambient temperature	T (-15)
	F:	Wind suction load <sup>**</sup>	WL up to 2000-5000
	G:	Resistance to heat	B300-E

\* When used as a dual purpose ventilator

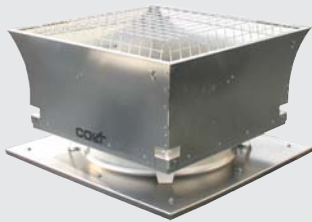
\*\* The exact value depends on the ventilator size, the flap material and controls type selected. The highest possible value is shown.

TEST PARAMETERS - PSHEVs (EN 12101-3)

<b>Snow load</b> SL class (SL 0, 125, 250, 500, 1000 N/m <sup>2</sup> )	Maximum snow load class under which the PSHEV will open. Test to ensure that PSHEV will open and stay open under load.
<b>Wind load classification</b> WL class (WL 200 N/m <sup>2</sup> )	The PSHEV must fully open in max. 30 sec. against a load of 200 Pa (N/m <sup>2</sup> ). Test to ensure that the PSHEV can open against the negative (suction) pressure of the class.
<b>Reliability classification</b>	If PSHEV is dual purpose then it must open and close 10,000 times. Test to ensure that the ventilator will be reliable.
<b>Opening time of the unit</b> B class (B 300, 600°C)	The PSHEV must be open in max. 30 sec in the end position. Test to ensure quick reaction time.
<b>Time/temperature classification</b> F class	The PSHEV must be able to operate at the selected temperature for the stated period.
<b>F200</b>	Temperature: 200°C, minimum operation time: 120 min.
<b>F300</b>	Temperature: 300°C, minimum operation time: 60 min.
<b>F400-90</b>	Temperature: 400°C, minimum operation time: 90 min.
<b>F400-120</b>	Temperature: 400°C, minimum operation time: 120 min.
<b>F600</b>	Temperature: 600°C, minimum operation time: 60 min.
<b>F842</b>	Temperature: 842°C, minimum operation time: 30 min.

EN 12101-3 COLT CE CERTIFIED POWERED SMOKE AND HEAT EXHAUST VENTILATORS (PSHEVs)

**T-Liberator/3**



**W-Liberator/3 FCO**



**W-Liberator/3 FLAP**



	Resistance to heat classification						Snow load				
	F200 200°C/120 min	F300 300°C/60 min	F400(90) 400°C/90 min	F400(120) 400°C/120 min	F600 600°C/60 min	F842 842°C/ 30 min	SL 0	SL 125	SL 250	SL 500	SL 1000
T-Liberator/3	✓	✓	✓	✓			✓	✓			
W-Liberator/3 FCO	✓	✓	✓	✓			✓	✓			
W-Liberator/3 FLAP	✓	✓	✓	✓			✓	✓	✓	✓	

All Liberator PSHEVs meet the WL 200 N/m<sup>2</sup> requirement and are dual purpose. They all open within the required 30 seconds.