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Window Restricting Methods, Restrictor Use and other relevant information.

Contents:

(User safety issues are also covered in various parts of the document.)

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1. Restricting Methods:

We have various options to achieve restricted openings depending on the required specification, preference, profile fitting requirements and vent size / weight:

1) Enhanced Defender Restricted with built in releasable, automatic relocating restrictor in 13 mm, 16 mm or 17 mm stack heights and either standard ferritic or austenitic stainless steel.
- Top hung vents 350 mm to 1300 mm high x max. 40 kg.
- Side hung vents 300 mm to 700 mm wide x max. 24 kg.

2) Enhanced Defender (without built in restrictor) in 13 mm, 16 mm or 17 mm stack heights, plus RS4, RS6 or RS9 pair of Separate Permanent restrictors, either in standard ferritic or austenitic stainless steel.
- Top hung vents 450 mm to 1500 mm high x max. 50 kg.

3) Enhanced Defender (without built in restrictor) in 13 mm, 16 mm or 17 mm stack heights, either in standard ferritic or austenitic stainless steel, plus RC1R or RC1L and SC1, SC2 or SC3 Keep Pins, Separate releasable restrictors in austenitic stainless steel.
- Top hung vents 400 mm to 1500 mm high x max. 50 kg.
- Side hung vents 400 mm to 700 mm wide x max. 24 kg. (See note below.)

4) Enhanced Defender Special Restricted with built in releasable, automatic relocating restrictor in 13.5 mm or 16 mm stack heights in austenitic stainless steel.
- Side hung vents 400 mm to 700 mm wide x max. 30 kg.

5) Enhanced Defender Special (without built in restrictor) in 13.5 mm or 16 mm stack heights in austenitic stainless steel, plus RC1R or RC1L and SC1, SC2 or SC3 Keep Pins, Separate releasable, automatic relocating restrictors in austenitic stainless steel.
- Side hung vents 450 mm to 900 mm wide x max. 30 kg.

6) Sterling with built in permanent adjustable maximum opening stops in 16 mm stack height and austenitic stainless steel.
- Top hung vents 267 mm to 2500 mm high x max. 180 kg.

7) Sterling with built in permanent adjustable maximum opening stops set to maximum opening position in 16 mm stack height, plus SR8 or SR16BAC pair of Separate Permanent restrictors in austenitic stainless steel.
- Top hung vents 550 mm to 2500 mm high x max. 180 kg.

8) Sterling with built in permanent adjustable maximum opening stops in 16 mm stack height, plus RC1R or RC1L and SC2 or SC3 Keep Pins, Separate releasable, automatic relocating restrictors in austenitic stainless steel.
- Top hung vents 350 mm to 2500 mm high x max. 180 kg.
- Side hung vents 350 mm to 838 mm wide x max. 47 kg. (See note below.)

9) To use with any of the above top hung Sterling hinges:
- SDR4, SDR6, SDR8 and SDR10 pair of Cavity fitting, Key Releasable, manual relocation restrictor.

10) Any of the above hinge options without built in releasable restrictors or other restrictors can be used with manual or motor operated opening / closing mechanisms (Not supplied by Securistyle Ltd.) to act as opening stops / restrictors which may or may not be releasable.

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2. Correct use of Securistyle hinges with built-in restrictors:

Side hung:

Fit a restricted hinge to the **bottom of the vent only**, with an unrestricted opposite hand hinge at the top of the vent.

e.g.	Top Hinge		Bottom Hinge
	EDS12 L or R	+	EDSR12 R or L
	EDS16 L or R	+	EDSR16 R or L

Side hung hinges with built-in restrictors are sold packed as pairs consisting of one restricted hinge and one non restricted hinge.
A right hand pair will have the right hand hinge restricted and a left hand pair will have the left hand hinge restricted.

Top hung:

Fit a restricted hinge to **both sides of the vent**, in pairs.

Top hung hinges with built-in restrictors are sold only packed as pairs of one left hand and one right hinge both with built in restrictors.

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3. Reasons for correct use of Securistyle hinges with built in restrictors:

Side hung:

The restrictor release press button, on side hung hinges with built-in restrictors, is designed so that the vent must be partially closed from the restricted position before it can be released to fully open, this gives 'child' resistance, which meets the current building regulations requirements.

Any opening force applied to a restricted side hung vent is very unlikely to be at the top, so a hinge with built-in restrictor at the top is unnecessary. If it was necessary to release the top hinge, most people would need to stand on a chair / steps or similar to be able to reach it.

This action, once the restriction was released, would present a danger of the user falling through the released / fully open vent.

A side hung vent with a Securistyle hinge with built-in restrictor fitted to the bottom only will meet or exceed the restricted stop strength criteria specified in BS6375 Pt. 2 Test 6.

Note: *Side hung hinges with built in restrictors open to 2° less maximum opening angle than side hung hinges without built in restrictors. This is to ensure that the fully open catch, on the hinges with built in restrictors, will locate even if the hinge is slightly inaccurately positioned or if the vent or frame is slightly twisted or out of square.*

Top hung:

The restrictor release press button on top hung hinges with built-in restrictors is designed so that it will remain released, while the opposite hinge is released. The use of two hinges with built-in restrictors, necessitating the release of first one, then the other, provides 'child' resistance, which meets the current building regulations requirements. If only one hinge with built-in restrictor is used this 'child' resistance will be lost.

Any opening force applied to a restricted top hung vent can be anywhere on its bottom portion. If only one restricted hinge is fitted, it may well be possible to force the unrestricted, diagonally opposite, bottom corner to a larger than desirable opening gap. This will be worse on larger vents and weaker profiles.

On DTR12 / DT12 (12") and DTR16 / DT16 (16") hinges the full opening angle of the hinge with built-in restrictor is less than that of the unrestricted hinge. If a 12" or 16" hinge with built-in restrictor is paired with an unrestricted version this may well cause undue stress on the hinge stop and a twisting stress on the vent. Ultimately this could cause the glass to break or damage to the vent and / or the fixed frame, hinge fixings or hinges. This will also cause failure of the vent to pass the criteria for maximum stop strength specified in BS6375 Pt. 2 Test 6.

With a **pair** of top hung hinges with built-in restrictors fitted, the vent will meet or exceed the restricted stop strength criteria specified in BS6375 Pt. 2 Test 6. If only **one** top hung hinge with built-in restrictor is fitted, the vent will **not** meet the restricted stop strength criteria specified in BS6375 Pt. 2 Test 6.

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4. Child resistance:

There is also the requirement of the restricting device to resist release by a child.

I have had telephone conversations with the BSI and the London Housing Consortium (LHC) as well as conversations with my colleagues at Securistyle Ltd.

The BSI stance is that any current BSI or national standards that cover the issues covered in DD CEN/TS documents should take priority. The DD CEN/TS documents are cited to provide some guidance on subjects for which a current BSI standard does not exist or other current national standards do not exist in other countries.

I have used blue text colour to highlight the parts most relevant to child resistance of restrictors:

The LHC and the BSI are happy for our products to be tested to the current British Standards that are basically equivalent to the DD CEN/TS documents cited in BS8213-1:2004 Annex B:

1. Durability - DD CEN/TS 13126-5:2004 7.3 grade 5 - equals BS EN 1191 (or our more onerous in house test procedure - Securistyle Ltd. Test Procedure PT001, which covers all aspects of BS EN 1191 but with more operating cycles.).
2. Strength - DD CEN/TS 13126-5:2004 7.4 – equals BS6375 Part 2.
3. Corrosion - DD CEN/TS 13126:2004-5 7.5 – equals BS EN 1670 Class 3 (96 hours).

All of our products are designed so that they will meet or exceed the above three requirements.

BS8213-1:2004 Annex B, b) (Page 15), says:

Safety restrictors should operate so that they:

b) Are releasable only by manipulation not normally possible by a child under 5 years.

This is clearly a slightly subjective specification.

However, all of our releasable restrictors either incorporated into friction hinges or our separate restrictors do comply with this requirement when fitted as we specify.

All of our releasable restrictors require a two handed operation to open the vent fully:

1. On side hung vents by pulling the vent slightly closed before release is possible and then holding the restrictor in the released position while pushing the window fully open, using either side hung hinges with a built in restrictor in the bottom hinge or a Cavity Fit restrictor fitted at the bottom.

2. On top hung vents by two restricting devices using a pair of top hung hinges with built in restrictors, which can be released one at a time or as side hung vent if a Cavity Fit restrictor is used. (See note below.)

These actions to release the vent from the restricted position are normally deemed to be acceptable in achieving the requirement that the products 'are releasable only by manipulation not normally possible by a child under 5 years'.

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5. Restrictor design issues:

It is our recommendation that any restrictor should be fitted as close as possible to the part of the window that is most likely to be subjected to an opening force.

If for example a restrictor device was fitted to the top of a side hung vent, the bottom of the vent could be forced to a larger than acceptable restricted opening due to the vent twisting. There would also be an added danger that to reach a restrictor fitted to the top to release it would require the user to stand on a chair or use some other means of elevation. Once released this would then leave the user in a potentially precarious situation by a fully open vent, with the danger of falling out of the window. As the force applied to a restricted side hung vent is very unlikely to be near to the top a restrictor is not required on the top.

If for example a restrictor device was fitted to only one side of a top hung vent, the opposite side of the vent could be forced to a larger than acceptable restricted opening due to the vent twisting. As the force applied to a restricted top hung vent is equally likely to be near to the bottom on either side a restrictor is required on both sides. (See note below.)

While being reasonably easy and certainly safe to use restrictors also need to provide 'child' resistance as described above.

To achieve all of these criteria using only one hinge with built in restrictor on the bottom of a side hung vent, for the reasons described above, the release lever and corresponding track features are design so that the release button cannot be pressed without first slightly closing the vent from the restricted position. This creates the child resistance situation as described above.

The restricted stop strength will pass or exceed the 600 N restricted stop strength requirement of BS6375 Part 2 with only one hinge with built in restrictor on the bottom of a side hung vent due to the limited width of the vent.

To achieve all of these criteria using hinges with built in restrictors on a top hung vent, for the reasons described above, both hinges must have a built in restrictor. To release the vent from the restricted position first one release lever must be pressed, which will remain released and then the opposite release lever must be pressed. This creates the child resistance situation as described above.

The restricted stop strength will pass or exceed the 600 N restricted stop strength requirement of BS6375 Part 2 only with two hinges with built in restrictors on both sides of a top hung vent due to the height of the vent. With a tall vent the leverage acting via the hinge on the built in restrictor greatly multiplies the 600 N applied test force which means that two hinges with built in restrictors are required. BS6375 Part 2 also specifies a maximum restricted opening gap of 100 mm. If a top hung vent is fitted with a restrictor on one side only applied force will twist the vent and cause the gap to increase on the unrestricted side of the vent. This will fail to comply with BS6375 Part 2.

All of our separate restrictors are able to meet the 600 N strength requirement on top hung or side hung vents using only one restrictor. This is because the 600 N applied test force is acting directly on a separate restrictor and not being multiplied as with hinges with built in restrictors. (See note below.)

Our products have been subjected to BBA Assessment. Copies of the assessment reports are available if required.

Note: Side hung vents require only one restrictor on the bottom of the vent. If two Cavity Fit restrictors are used on either side hung or top hung vents, release will be a three handed operation. If only one Cavity Fit restrictor is used on top hung vents the initial opening will need to be reduced to less that 100 mm to ensure that the opposite, unrestricted side cannot be force to a gap greater than 100 mm when subjected to the 600 N force as specified in BS6375 Part 2. The reduction required will be different for each window profile and each window size, making this very difficult to specify or control, so only one restrictor is **not** recommended on top hung vents.