Uni-Blinds®

Innovation comes built-in

MEETING CUSTOMER EXPECTATIONS

A guide to the tolerances associated with integral blinds and the acceptable standards set out by ScreenLine®

INTRODUCTION

This guide explains what to expect from bespoke integral blind systems and what is regarded as an acceptable tolerance, as well as when to contact Morley Glass for aftersales support.

As all integral blind units are made to order by Morley Glass, every single one is handcrafted. It is a bespoke process that utilises state of the art machinery during manufacturing, but ultimately products are assembled by skilled operatives. And while every member of the integral blind manufacturing team is trained the highest standards, there will inevitably be some minor differences between individuals in terms of how the finished product looks and operates.

It would be impossible to create 100% identical integral blind units every time. So in order to set a standard and be able to deal with any issues raised effectively, we have produced this guide to set out the parameters of what is deemed an acceptable tolerance and what is not.

This is by no means an exhaustive list of the issues that could arise, but it does cover the vast majority of questions and concerns that have been raised in our experience over two decades of integral blind manufacturing.

CONTENTS

WHY SCREENLINE®
INTEGRAL BLINDS REPRESENT THE PREMIUM CHOICE

There are numerous integral blind systems and manufacturers out there, so what makes the units from Morley Glass any different? The answer lies with our choice of blind system – ScreenLine® – and the high level of craftsmanship within our team.

ScreenLine® integral blind systems are manufactured by Pellini S.p.A., the Italian company that pioneered this type of shading and privacy solution in the 1970s. They continue to be the global leader in integral blind systems which is why Morley Glass only ever uses ScreenLine® systems in its blinds – there is no better choice.

Here are the top three reasons why:

1. The design of the systems perfectly balances elegant visual appeal with smooth and easy operation.

2. ScreenLine® integral blinds are available in an excellent range of colours and with five different control systems to give customers superb choice.

3. The engineering quality of the operating systems within ScreenLine® blinds is unrivalled, meaning our blinds will stand the test of time through routine use extremely well.

Morley Glass is actually the world's largest manufacturer of bespoke ScreenLine® integral blinds which not only gives us priority access to new developments but ensures that we have a close technical partnership to maintain quality consistency.

The result is that our integral blind units lead the market – a premium product, expertly manufactured to minimise the risk of defects with the ultimate aim of delivering long term customer value and satisfaction.

Compliance with internationally recognised standards

All integral blinds from Morley Glass are designed and manufactured in accordance with EN 13120. This is the European standard which specifies the requirements that internal blinds shall fulfil when fitted to a building.

Another important standard that we work to is EN 1279, the quality standard relating to gas-filled insulating glass units (IGUs). This has central to sealed unit manufacturing since 1988, specifying the requirements for moisture penetration and a long term test method for IGU evaluation of conformity.

This is an important standard in respect of integral blind unit manufacturing because it demonstrates that the sealed unit production and performance quality is to a high standard, independently of how the blind itself performs.

In addition to these standards, all products used in the manufacture of our integral blinds are subjected to a 3000-hour accelerated weather test to confirm that the products will exceed any warranties given.

Robust guarantees you can trust

Every bespoke ScreenLine® integral blind unit comes with the following guarantee:

5 years	On the sealed unit
5 years	On the integral blind system
2 years	On the external components, i.e. the cord, sliding mechanisms, motorised components, etc.

This guarantee is valid from the date that we deliver the units and offered and accepted between the manufacturer of the product and the purchaser of the product.

This guarantee is subject to installation and operation being carried out in accordance with the instructions given at the point of order and the point of supply. No liability will be accepted for faults which result from incorrect installation or damage through negligence.

GLASS DEFLECTION

An issue that affects every type of double or triple glazed unit, glass deflection can be problematic for integral blind units unless steps are taken to minimise the risks.

Glass deflection occurs as a result of variations in temperature and atmospheric pressure which causes the glass to deflect or appear to bend inwards. Whilst the amount of deflection is never likely to be significant, it can be enough to affect the smooth operation of a blind encapsulated within the unit, causing an obstruction when it is raised, lowered or tilted.

The amount of deflection is likely to be greater where:

- The IGU has a wide cavity,
- Thin sheets of glass are used to manufacture the IGU, or
- The IGU features larger single panes of glass.
- Cold weather or unusual atmospheric conditions are present, or the location of the installation is at sea level or high altitude.

This is why all our integral blind units are manufactured with specific parameters in mind. Hence, should a customer proposal exceed these parameters we will always recommend an alternative approach at the design stage to prevent future issues.

Another important consideration during the manufacture of integral blinds is the working temperature as well as atmospheric conditions at the time. This requires us to equalise the cavities inside the units, which means conditioning integral blind units at lower temperatures when we are manufacturing during warmer times of the year.

Manufacture of integral blinds may be avoided during extreme temperatures or when major differences in atmospheric pressure exist. And we take particular care when assembling our integral blind units in summer months when the air humidity is high. This is because the desiccant (molecular sieve) used in the spacer bars has a dehydrating effect which can cause a reduction in the width of the cavity and, therefore, lead to deflection.

One way we can reduce the risk of deflection and the blind becoming jammed is to fill the integral blind sealed units with argon in place of air. This gas expands to cause an increase in pressure within the unit but also a cooling effect at the same time. There is also no moisture added within the sealed unit at the time of assembly as there is when air is used.

One final quality check that we do will also minimise the potential for deflection. Prior to leaving our factory, we measure the width of the sealed unit cavity centrally to ensure it is the same as the spacer bar dimension – i.e. a unit with a 20mm spacer bar will have a 20mm cavity at the centre.

SIZES AND TOLERANCES

The ScreenLine® blind systems that go into every Morley Glass integral blind unit are designed to have a clearance of least 2.5mm on each side between the slats and the spacer bar.

This enables free movement of the system, and it allows for a small amount of thermal expansion in the aluminium blind slats. The level of thermal expansion we work to is 0.23mm per metre of length for every 10°C.

Inclination of the bottom rail

The sum of these tolerances, the cord diameters and the internal winding mechanism means it is possible for a slight inclination of the bottom rail to occur when the blind is raised. This issue is more marked in tall and/or narrow integral blind units.

An inclination could also occur as a result of shrinkage in the raising cords and ladder tape because the materials used for these will be affected by temperature changes. That means they are prone to lengthening in cold temperatures and shortening when it is warm.

The co-efficient of variation length characteristic of these materials is about 0.02%/°C. So if a blind with a length of 1000mm undergoes a temperature increase of 50°C compared to the temperature when it was manufactured, it will contract by 10mm.

It is also possible that the packing in the ladder tapes and the dead weight of the bottom rail may cause the bottom rail to bend – something that occurs to a lesser extent in tilt-only blinds. As the blind raises, the folding of the ladder tapes does not occur in a regular and constant fashion, which can result in horizontal deviation of the slats as they pack.

Tolerances for bending in the bottom rail

As with inclination and parallelism of the bottom rail, tolerances are also specified under EN 13120 in relation to bending of the bottom rail.

The maximum acceptable bending of the bottom rail and of the slats, measured at the blind's mid-point, depends on the width of the blind. These tolerances are as follows:

Width of the Venetian blind	Permitted bending of the slats and bottom rail
<1.5m	5mm
1.5m to 2.5m	10mm
>2.5m	15mm

Incomplete tilting of the slats

According to EN 13120, a permitted divergence from the complete tilting of the blind slats is 2% of the total number of slats in the blind.

It is possible that, during the lowering of the blind, some of the slats stick together, assuming their correct position only when tilted with the blind fully extended. This is deemed acceptable providing that the number of slats affected during lowering falls within the following range:

Number of slats in the blind	Maximum number of slats with incomplete tilting
<50	0
50-100	1
100-150	3
150-200	4
>200	5

PARAMETERS FOR THE SLAT CLOSING ANGLE

Venetian blinds of any kind will not be able to provide a blackout solution, but they should provide an effective form of shading and privacy.

To establish an acceptable level for regulating and controlling brightness inside the room, it is important to assess the orientation of the slats when in the closed position. The ladder tapes play the key role in the opening and closing action so there will inevitably be some variation between integral blind units.

As a consequence of this tolerance, and the fact that all Morley Glass integral blinds are hand-crafted, bespoke units, differences in the angles of the slats in the closed position may be noticeable when units are placed in neighbouring positions, such as in a bi-fold door.

The angle of the slats within a Venetian integral blind unit when closed must be less than 60°, which is measured on an axis that is perpendicular to the plane of the inner pane of glass. However, the tolerances for this closing angle depend on the height of the blind as follows:

Height of the blind	Tolerance	Minimum closing angle
<1m	5°	55°
>1m	10°	50°

How to evaluate the closing angle of the slats

Step 1	Close the slats completely with the concave side facing the inside.
Step 2	Take up a position 1m away from the inner pane of glass and identify a line on the integral blind unit at eye-level.
Step 3	Look outwards at the band hidden by the slats.
Step 4	Establish if you can see objects behind the unit for a band at least 150mm in height below your eye-level – this equates to a slat inclination of around 60° - from the outside looking in.
Outcome	If you can see objects, the slat closing angle is not acceptable and the blind unit will need to be replaced. If you can't see objects, the angle is acceptable.

Acceptable level of slat parallelism

EN 13120 states a maximum misalignment of the individual slats in relation to the horizontal position of less than 2mm per metre of length. To assess the deviation on an affected blind, make measurements at several points on the unit with the slats oriented horizontally.

HOW TO DETERMINE IF AN INTEGRAL BLIND IS DEFECTIVE

Given the nature of bespoke ScreenLine® integral blind units, the only way to assess non-conformities is through visual observation of the unit installed in the window or door.

Remember, in an assessment of the blind you are looking at its visible elements – the head rail, slats, bottom rail and spacer bars – and not the glass.

For any issues relating to the glass, please refer to the GGF guidelines for viewing double and triple glazed IGUs. And where satin glass is used, additional guidance applies in respect of what is deemed acceptable due to the nature of the product.

Assessment procedure

In order to be fair and consistent in our approach to assessing integral blinds where customers have raised issues, it is important that the following procedure is followed to determine conformity:

1. Ensure the double glazed unit complete with the blind inside it is positioned vertically as specified for final use.
2. Ensure the blind is lowered and that the slats are tilted to approximately 45°.
3. Observe from a distance of 2m away from the unit with your line of sight perpendicular to the surface of the unit on both sides alternately.
4. Ensure the points of possible non-conformity are not marked in any way.
5. Do not carry out the assessment with direct sunlight falling on the slats.
6. Always view from the outside looking in.

Criteria for acceptability

For the purposes of the assessment, we divide the surface of the double glazed unit into two zones:

Perimeter zone	This is a 50mm frame around the unit. It is a zone which includes the headrail and bottom rail of the blind, the ends of the slats or fabric, and of the channel section spacer bars.
Central zone	This is the zone covering the remaining surface area, i.e. except the 50mm strip around the edges. It includes the central part of the blind which must display the fewest defects

Which defects are regarded as acceptable?

Given the manufacturing and assembly challenges as already outlined, the following defects are acceptable. Please note, for the purposes of the assessment the total surface area of the double glazed unit is to be rounded up to the nearest whole number.

Perimeter zone	
Inclusions, spots and paint defects	A maximum of 1 defect with a maximum size of 3mm per m2 area of double glazed unit.
Deposits on the slats or stains on the fabric	A maximum of 1 defect with a maximum size of 3mm per m2 area of double glazed unit.
Scratches or marks on the fabric	Light scratches which are not readily visible are acceptable providing the sum total does not exceed 30mm in length. The maximum length of any individual scratch must not exceed 15mm.

Central zone	
Inclusions, spots and paint defects	A maximum of 1 defect with a maximum size of 2mm per m2 area of double glazed unit.
Deposits on the slats or stains on the fabric	A maximum of 1 defect with a maximum size of 2mm per m2 area of double glazed unit.
Scratches or marks on the fabric	Light scratches which are not readily visible are acceptable if there are less than 3 scratches and providing the maximum length of any individual scratch must not exceed 10mm.

TRANSPORT AND STORAGE

Once our integral blinds are installed in a window or door frame, they are extremely robust and only vulnerable to damage if the glass is smashed. Until that point, however, great care must be taken in their handling.

If integral blind units are not transported and stored in a specific way, they can become damaged to a point where they will simply not function to an acceptable standard once installed.

The way you position integral blind units on a stillage will depend on their size. If the unit will fit within the permitted shipment height, it must be placed with the head rail and blind at the bottom of the unit – i.e. upside down with the blind gathered. The only exception is for tilting-only Venetian blinds – please see below.

If the integral blind unit is taller and therefore exceeds the permitted shipment height, it must be laid horizontally on the stillage along its longest side, with the control side at the uppermost point.

Whichever way applies to the way the unit is transported and stored, the slats or fabric must be packed with the blind in the raised position. And in the case of a glass unit manufactured using low-emissivity glass, the unit must be placed with the non-coated glass pane to the underside to prevent damage to the coating on the inner side.

Tilting-only Venetian blinds

One exception to the above guidance is for tilting-only integral blind units. These must be transported and stored with the headrail at the top (as it would be when installed) with the slats in the open position. This is crucially important to prevent the blind collapsing as it would if it was turned upside down or on its side.

Take extra care with MB System motorised blinds

With MB System integral blind units, it is important to ensure the cables that may protrude from the sealant are not damaged. Hence, these types of units must be placed carefully on the stillage with the cables protected, placed in a high position so they are clearly visible.

Storage guidance

Finished units must be stacked using appropriate cork or rubber spacers to avoid the risk of the glass being scratched.

Morley
GLASS & GLAZING LTD

Unit 3
Leeds 27 Industrial Estate
Bruntcliffe way
Leeds LS27 0HH

0113 277 8722
Info@morleyglass.co.uk

ScreenLine®
by Pellini

Uni-Blinds®
Innovation comes built-in