

## Cleaning

**The handrail may have a dull, waxy appearance, especially if it has been stored for a period of time before use.**

This is normal. The appearance is caused by protective ingredients within the rubber cover making their way to the surface. This is referred to as “bloom” and is a normal action of the rubber cover. This is generally a very slow process and the material is carried away during normal escalator operation and therefore not noticeable when running.

Rubber escalator handrail should be cleaned after installation with EHC Handrail Cleaner to remove the bloom. Handrails should be cleaned on a regular basis to remove contaminants; the frequency will vary greatly depending on the environment. For typical commercial installations, weekly cleaning is recommended. In situations where the escalator is frequently idle, in direct sunlight or experiences large changes in temperature more frequent cleaning may be required.

Please use caution when cleaning the handrails and do not use harsh chemical cleaners or solvents. Please consult EHC’s handrail cleaning guidelines.

**There is dust accumulating near the newel ends.**

The handrail surface that contacts the escalator guide system is made of a durable fabric. However, the nature of the handrail and guide system is such that a small amount of dust is produced under normal running conditions. This is completely normal and the dust should be cleaned from the handrail guide system on a regular basis as part of a normal maintenance program.

Excessive or heavy dust accumulation could be caused by incorrect tension or tracking adjustment of the handrails. The handrail should track centered, leaving several millimeters of clearance between the lips and drive/guide system.

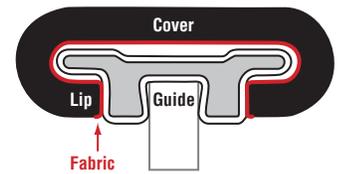
For more information about proper setup, refer to the OEM installation manual.

## Appearance

### The handrail has a large crack in the lip area.

The lip area of a handrail is subjected to the highest stress loads when the handrail is bent forward and backward in the escalator drive/guide system. Large cracks in the lip area can be caused by a number of factors:

1. Handrail tension is too high. This will force the handrail to run hotter and bend very tightly around the guides and rollers within the escalator.
2. Handrail tension is too low. This can cause the handrail to bend in an uncontrolled manner, causing the handrail to kink rather than bend smoothly as designed.
3. Improperly tracked handrails. This can cause the fabric to be worn away from the lip, reducing the strength in this area and causing premature failure.



Any handrail that has a crack in the lip area should be replaced or repaired as soon as possible for passenger safety reasons. The unit should be thoroughly inspected prior to handrail replacement to ensure that there are no running conditions present that have caused the failure, otherwise the new handrail may be subjected to premature failure as well.

### There are many small cracks appearing throughout the handrail cover.

This is known as “weather checking” and is generally associated with handrails that have been in service for a very long time. It is an indication that the rubber cover material is beginning to break down and can no longer withstand the frequent forward and backward bending that the escalator is applying during normal operation. Exposure to the elements will accelerate this process. This process can be further accelerated if improper cleaning agents are used to clean the handrails. Never use any cleaning product without first consulting EHC with regards to its suitability as a handrail cleaner.

Any handrail that is beginning to show weather checking cracks should be carefully monitored as these can worsen and cause large cracks that become a safety hazard for passengers. Plan to replace these handrails in the near future.

### There are bumps appearing on the surface of the handrail along the drive path.

The bumps on the handrail cover along the drive path are the result of the inner layers of the handrail separating. This is known as delamination. The bumps appear when the material within the handrail, between the layers gets pushed along by the drive system and accumulates in one concentrated area. The primary cause of delamination in handrails is incorrect drive pressure settings.

There are rare instances when this could be a material/manufacturing issue, however the drive system should be inspected/adjusted immediately to prevent further damage. Once delamination occurs, there is no way to repair the handrail. If the lumps are large enough they may trip the escalator inlet switch. The best course of action is to replace any handrail with delamination as soon as possible, after ensuring the drive system is set up according to manufacturer’s specifications.

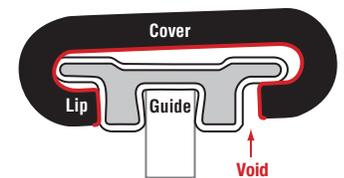
## Performance

### The handrail is not driving properly or is easily stalled.

The handrail guide and drive systems in an escalator should be thought of as two separate but dependant systems within the escalator. Improperly adjusting one system can affect the performance of the other. A handrail that is over tensioned will introduce excessive friction within the guides system and require greater driving force to compensate. There has been the mistaken idea in the past that when a handrail is slipping, the handrail tension should be increased. This is generally false on most modern escalators. The one exception would be for newel drive type escalators, which have the drive sheave at the upper newel end and are generally solid balustrade units. These require handrail tension to properly hold the handrail to the drive sheave. For all other types of escalators, reverse bend or linear drive; increasing handrail tension can give short term improvement but increases friction throughout the system. This will cause the handrail to heat up and increase wear on all parts of the handrail guide and drive system.

The proper way to deal with a handrail that is slipping on reverse bend or linear drive escalators is to increase handrail drive pressure. This should only be done once the handrail guide and drive system have been thoroughly inspected to ensure that there are no tracking or other issues that are creating above normal friction. The drive pressure should not be increased above the manufacturer's specifications as this may lead to delamination of the handrail as mentioned earlier in this guide.

We do not recommend the use of any products within the drive area of the handrail. This can void your warranty. Using wax on the newel end guides to reduce friction leads to an accumulation on the drive area of the handrail which can cause handrail slippage.

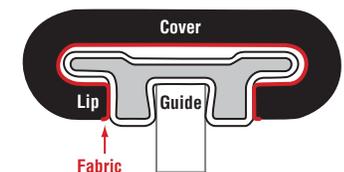


Enlarged lip dimensions allow the handrail to easily pull away from the guide and potentially injure passengers.

### The handrail is running hot or wearing unevenly or in one area.

There are a few potential causes for this:

1. Handrail tension is too high. Handrails can change length over the course of their use and adjustments should be made regularly to keep the tension at the escalator manufacturer's specification.
2. The drive pressure rollers are set to give too much pressure or are seized. Inspect the handrail drive pressure rollers on a regular basis to ensure proper settings for pressure according to the escalator manufacturers specifications. Ensure drive pressure rollers are in good condition and turn freely. Replace if necessary.
3. The handrail is rubbing on an internal component of the escalator.



Excessive friction between the handrail and guide will cause the handrail to operate hot, noisy and staggered.

Inspect entire handrail path for contact. Correct any handrail tracking issues found. Ensure that the lips of the handrail do not contact any hard part of the escalator. The handrail should track centered, leaving several millimeters of clearance between the lips and guide/drive system. Any handrail that is beginning to show weather checking cracks should be carefully monitored as these can worsen and cause large cracks that become a safety hazard for passengers. Plan to replace these handrails in the near future.