

Established 1913

Lenoir

Employee Owned

Mirror Company

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Quality Manual

Checks and tests conducted within Lenoir Mirror's production processes

Action	Description	Purpose	Frequency
<u>Incoming Materials:</u>			
Raw Glass	Visual - condition of trailer load	Identify potential breakage due to poor packaging	Each container
	Visual - condition of package	Identify breakage or concealed Damage	Each container
	Size check	Matches size stated on purchase order with size marked	Each container
	Tin side check	Identify surface of glass to be silvered	Each container
Silver Nitrate	Performance	Performance in process	1 unit per shipment
	Titration	Measure silver & copper coverage	3 times per day
Paint	Visual	Identify viscosity and consistency	1 drum per shipment
Acetate	Visual	Check clarity	1 container per order
Cleaners	Performance	Proper surface cleaning	1 container per order
Wheels	Performance	Insure proper edging and beveling	Approval process
Coolant	Performance	Insure proper edging and beveling	Approval process
Cerium	Performance	Insure proper cleaning and beveling	Approval process
<u>Coop Cutting:</u>			
Breakage	Visual	Checks condition of glass pack for stability and concealed damage before free fall	Each container
Size	Tape measure	Checks initial cuts on each size for accuracy	1st piece plus random
Surface	Visual	Checks for glass defects - chips, scratches, seeds, etc.	Continual
<u>Silver Line:</u>			
Adhesion test	Adhere and pull masking tape from coated surface	Confirm necessary adhesion	1 per day
Water test	Check PH & silica content	Process water must be within range for plating chemistry	1 per day
Salt fog	300 hours in slat spray cabinet	verify seal of paint to chemicals	3 pieces per day
Cass	Salt fog test plus acetate	verify seal of paint to chemicals	1 per day
	Duplicates of Salt Spray & Cass done by outside Lab		
Paint	Thickness	proper amount of paint applied	30 minute intervals
	Razor & rub test	evaluate paint cure	4 per day
	Viscosity	proper viscosity assures proper paint application	30 minute intervals
Cross Hatch	Thickness & Adhesion		4 per day (2 locations)
Heat	Thermometer	Oven paint curing profile	30 minute intervals
Offbearing	Visual - back and face	Check for blemishes on both surfaces of the mirror	Continual
<u>Tape Backing:</u>			
Edge check	Visual	Confirm type of edge	1 per order
Size verification	Tape measure	Confirm size matches spec plus check for tolerance & squareness	1st piece plus random
Tape	Visual	Maintain smooth tape application	Continual
		Keep tape at edge or recessed as specified	
<u>Washer/Clear Coat Application</u>			
Check Ticket	Compare size to production ticket	Insure proper size	Pre-production
Size check	Check measurements and patterns	Insure proper size	Random
Coating application	Feel surface with cotton glove	Avoid excess coating application	Random
Packing	Full surface coverage with paper inner-leaf	Minimize breakage	Each piece

Heavy Edge			
Check Ticket	Compare production ticket to raw glass	Verify size, edgework, tolerance and any special requirements	Pre-production
Size check	Check measurements and patterns	Insure proper size	Random
Customer Template or DFX File	Check product to template or other guages provided	Insure proper size	Pre-production and Random
Edge check	wipe and inspect edges	Insure good quality edgework	Random
Wheel check	Check polish wheels for wear	Avoid edge quality defects	Random
Cutting			
Check Ticket	Compare production ticket to raw glass	Insure correct size	Pre-production
Size check	Check measurements and patterns	Insure correct size	Random
Customer Template or DFX File	Check product to template or other guages provided	Insure proper size	Pre-production and Random
Skid limit	Count requirement	Weight limit on skids	Pre-production
Visual check	Inspect for surface defects and mirror quality	Insure quality	Continual

Edge Fabrication			
Check Ticket	Compare production ticket to raw glass	Insure correct size and type of fabrication	Pre-production
Production Check	Check for size and proper type of fabrication	Insure correct size and type of fabrication	Random - physical Each piece - visual
Customer Template or DFX File	Check product to template or other guages provided	Insure proper size	Pre-production and Random
Visual check	Inspect for surface defects and mirror quality	Insure quality	Continual
Wheel check	Check polish wheels for wear	Avoid edge quality defects	Random
Package check	Inspect skids and boxes before packaging	Insure safe and stable package	Each container

Groove			
Check Ticket	Compare production ticket to raw glass	Insure correct size and type of fabrication	Pre-production
Verify set up	Process trial piece to be sure correct groove is cut	Insure correct groove quality	Pre-production
Production check	Inspect for groove quality and general quality	Insure quality	Random - physical Each piece - visual

Hole Drilling			
Check Ticket	Compare production ticket to raw glass	Insure correct size and type of fabrication	Pre-production
Verify set up	Process trial piece to be sure correct hole is drilled	Insure correct size and location of hole	Pre-production
Production check	Inspect for hole quality and general quality	Insure quality	Random - physical Each piece - visual

Bevel			
Check Ticket	Compare production ticket to raw glass	Insure correct size and type of fabrication	Pre-production
Customer Template or DFX File	Check product to template or other guages provided	Insure proper size	Pre-production and Random
Production check	Inspect for bevel width, mitre location and general quality	Insure quality	Random - physical Each piece - visual
Pattern check	Verify production items with template or pattern	Insure correct size	Random

Warehouse/Venetian:			
Measurement	Tape measure	Check size to specification	Every 10 pieces
Visual	Identify defects	Check for chips, scratches and other defects	Every piece
Package test	Visual and Shake test	Insure glass is packed properly and securely	Every piece
Secure pallets	Wrap pallets with both tape and shrinkwrap	Avoid shifting in shipment	Every pallet
Tape openings	Close carton openings with tape	Protect glass from scratches	All heavy glass - 5/16 and thicker

Shipping:			
Visual	Check condition of skids	Stability of skid to be shipped	Each skid
Cross-reference	Visual	Check contents and specs with shipping documents	Each skid
Cross-reference	Compare delivery ticket with packing label	Confirm proper item and spec	Each skid
Loading	Bracing and packing	Confirm that all items are properly braced and secure for shipment	Each skid