| **Op. #** | **Process Name/Operation Description** | **Machine, Device, Jig, Tools for Mfg** | **Characteristics** | | | **Special Char. Class** | **Methods** | | | | | **Reaction Plan** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristic #** | **Product Characteristic** | **Process Characteristic** | **Specification/Tolerance** | **Evaluation/Measurement Technique** | **Sample Size** | **Sample Frequency** | **Control Method** |
| 1.1.1 - MP10.10 Gelcoat Shell | | | | | | | | | | | | |
| L3 Prepare Mould | Clean the mould Surface |  | 1 |  | Mould Surface Cleaned |  | Dust free surface | Visual Inspection | Full mould Surface | Each shell | Operator Inspection  (Built in Quality) |  |
| L3 Apply Gelcoat | Apply automask tape |  | 1 |  | Automask position |  | Each position defined in BSG  (WI-XXXFM) (Fixed Mould)  (WI-XXNFM) (Non FixMould)  Transversal +/- 20mm,  Longitudinal +/- 50mm | Measurement Tape | Every 5m  (LE and TE) | Each shell | Mould markings |  |
| L3 Apply Gelcoat | Apply Blade number plate  (DW only) |  | 1 | Blade Number Position |  |  | 160 +/- 5mm | Measurement Tape | 1 per Blade | Each DW Shell | Operator Inspection  (Built in Quality) |  |
| L3 Apply Gelcoat | Mix Gelcoat | Gelcoat Mixing Fixture | 1 |  | Max.Speed of rotation |  | 700 RPM | Machine | 1 per mixing fixture | Each mixture | Machine Control |  |
| 2 |  | Mixing Time |  | minimum 30 min | Timer | 1 per shell | Each mixture | Manual Time Control |  |
| L3 Apply Gelcoat | Apply Gelcoat | IPL 8000  IPL 8000 | 1 |  | % of curing agent |  | 1.5% - 2.0% | Machine control | 1 per shell  (before start) | Each shell | Machine Automatic Control  Monthly calibration |  |
| 2 | Gelcoat Thickness |  |  | 600 - 800 um | Wet film thickness gauge | Every 4m (\*\*\*BS) | Each shell | Sampling Plan  (IL-XXXFM/IL-XXNFM) | 1. Below LL - Apply more  2. Above UL - Speed up application |
| 3 |  |  |  |  |  |  |  |  |  |
| 4 | Gelcoat surface coverage |  |  | Entire mould length | Visual Inspection | Full mould Surface | Each shell | Operator Inspection  (Built in Quality)  Color Contrast  Mould Vs. Gelcoat | Apply gelcoat locally using manual method |
| 4 | Ojo: viene de Blade |  |  | 300-400 um | Wet film thickness gauge | each 4 m | Each shell | Sampling Plan  (IL-XXXFM/IL-XXNFM) | 1. Below LL - Apply more  2. Above UL - Speed up application |
| 5 | Cured Gelcoat |  |  | Tacky gelcoat | By hand feel | 1 location by shell | Each shell | Operator Inspection  (Built in Quality) | Notify supervisor immediately |
| L3 Apply Gelcoat | Remove automask tape |  | 1 |  | Viene del Blade y es 1 |  | Automask completely removed | Visual inspection | Continuous Measurement | Each Blade | Operator Inspection  (Built in Quality) |  |
| 2 |  |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |  |  |  |
| 6 |  |  |  |  |  |  |  |  |  |
| 7 |  |  |  |  |  |  |  |  |  |
| 8 |  |  |  |  |  |  |  |  |  |
| 9 |  |  |  |  |  |  |  |  |  |
| 10 |  |  |  |  |  |  |  |  |  |
| 11 |  |  |  |  |  |  |  |  |  |
| 12 |  |  |  |  |  |  |  |  |  |
| 13 |  |  |  |  |  |  |  |  |  |
| 14 |  |  |  |  |  |  |  |  |  |
| 15 |  |  |  |  |  |  |  |  |  |
| 16 |  |  |  |  |  |  |  |  |  |
| 17 |  |  |  |  |  |  |  |  |  |
| 18 |  |  |  |  |  |  |  |  |  |
| 19 |  |  |  |  |  |  |  |  |  |
| 20 |  | Viene del Global y es 20 |  | Automask completely removed | Visual inspection | Continuous Measurement | Each Blade | Operator Inspection  (Built in Quality) |  |

| **Op. #** | **Process Name/Operation Description** | **Machine, Device, Jig, Tools for Mfg** | **Characteristics** | | | **Special Char. Class** | **Methods** | | | | | **Reaction Plan** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristic #** | **Product Characteristic** | **Process Characteristic** | **Specification/Tolerance** | **Evaluation/Measurement Technique** | **Sample Size** | **Sample Frequency** | **Control Method** |
| 1.1.2 - MP10.20 Lay-up Shell (FM) | | | | | | | | | | | | |
| L3 Place Core Material | Apply Core Material |  | 2 | Balsa Gap |  |  | UL = 3mm  (when panels are abutted),  UL = 2mm  (for length < 300 mm) | Measuring tape | All layer | Each shell | Operator Inspection  (Built in Quality) |  |
| 3 |  |  |  |  |  |  |  |  |  |
| 4 |  | Cut-free over glass layers |  | 0 (no glass cuts allowed) | Visual inspection | On each core material cut | Each shell | Production supervisor |  |
| L3 Mount Root Plate | Install root plate Tools | Root Plate Tools | 1 | Straightness of glass |  |  | 0 (no Wrinkles allowed)  0 (no glass displacement) | Visual Inspection | Full root area | Each shell | Operator Inspection  (Built in Quality) |  |

| **Op. #** | **Process Name/Operation Description** | **Machine, Device, Jig, Tools for Mfg** | **Characteristics** | | | **Special Char. Class** | **Methods** | | | | | **Reaction Plan** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristic #** | **Product Characteristic** | **Process Characteristic** | **Specification/Tolerance** | **Evaluation/Measurement Technique** | **Sample Size** | **Sample Frequency** | **Control Method** |
| 1.1.3 - MP10.20 Lay-up Shell (NFM) | | | | | | | | | | | | |
| L3 Place Core Material | Apply Core Material |  | 2 | Balsa Gap |  |  | UL = 3mm  (when panels are abutted),  UL = 2mm  (for length < 300 mm) | Measuring tape | All layer | Each shell | Operator Inspection  (Built in Quality) |  |
| 3 |  |  |  |  |  |  |  |  |  |
| 4 |  | Cut-free over glass layers |  | 0 (no glass cuts allowed) | Visual inspection | On each core material cut | Each shell | Production supervisor |  |
| L3 Mount Root Plate | Install root plate Tools | Root Plate Tools | 1 | Straightness of glass |  |  | 0 (no Wrinkles allowed)  0 (no glass displacement) | Visual Inspection | Full root area | Each shell | Operator Inspection  (Built in Quality) |  |

| **Op. #** | **Process Name/Operation Description** | **Machine, Device, Jig, Tools for Mfg** | **Characteristics** | | | **Special Char. Class** | **Methods** | | | | | **Reaction Plan** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristic #** | **Product Characteristic** | **Process Characteristic** | **Specification/Tolerance** | **Evaluation/Measurement Technique** | **Sample Size** | **Sample Frequency** | **Control Method** |
| 1.1.4 - MP10.30 Infuse Shell (FM) | | | | | | | | | | | | |
| L3 Prepare for infusion | Apply Double-Sided Tape |  | 1 |  | Transversal Position of Tape |  | Each position defined in WI | Measuring tape &  Mould Marks | 1 | Each 10 m. | Operator Inspection  (Build in Quality) |  |
| L3 Prepare for infusion | Apply Sealant tape |  | 2 |  | Transversal Position of Sealant |  | Each position defined in WI | Measuring tape &  Mould Marks | 1 | Each 10 m. | Operator Inspection  (Build in Quality) |  |
| L3 Prepare for infusion | Apply Spiral |  | 1 |  | Longitudinal Position of Spirals  (LE & TE) |  | Each position defined in BSG  (WI-XXXFM)  +/- 50mm | Measuring tape &  Mould Marks | 1 | Each Joint | Operator Inspection  (Built in Quality) |  |
| 2 |  | Transversal Position of Spirals |  | Each position defined in BSG  (WI-XXXFM)  +/- 20mm  Spiral can not contact the glass | Visual Inspection  measuring tape | 1 | Each 10 m. | Operator Inspection  (Built in Quality) |  |
| 3 |  | Spiral loops position |  | Each position defined in BSG  (WI-XXXFM)  +/- 50mm | Measuring tape &  Mould Marks | 1 | Each loop | Operator Inspection  (Built in Quality) |  |
| 4 |  | Spiral gaps position.  (Gap=100mm)  (\*\*\*BS) |  | Each position defined in  (WI-XXXFM)  +/-50mm | Measuring tape &  Mould Marks | 1 | Each gap | Operator Inspection  (Built in Quality) |  |
| L3 Prepare for infusion | Apply Peel Ply |  | 1 |  | Peel ply coverage |  | As specified in BSG (WI-XXXFM) | Visual Inspection | 1 | Each shell | Operator Inspection  (Built in Quality) |  |
| L3 Prepare for infusion | Mark Construction Line | Laser projection system (located in the glass wagon) | 1 |  | Construction line position |  | Each position defined in BSG  (WI-XXXFM)  +/- 10 mm | Automatic (position system in glass wagon) | 1 | Each shell | Measurement Checks as indicated in BSG. | 1. Verify for laser beam zero position marked at the root flange and the  arrowhead at the tip end |
| L3 Prepare for infusion | Apply Net Set | Net Set | 1 |  | Net Set Position |  | Each position defined in BSG  (WI-XXXFM)  +/- 50 mm Longitudinal  +/-20 mm Transversal | Measuring tape | 1 | Each Section | Operator Inspection  (Built in Quality)  Construction line marked in the net set |  |
| 2 |  | Net Set Overlaps |  | max 20 mm | Measuring tape | 1 | Each Section | Operator Inspection  (Built in Quality) |  |
| 3 |  | Net Set Gaps |  | No gaps allowed  (\*\*\*BS) | Visual Inspection | 1 | Each Section | Operator Inspection  (Built in Quality) |  |
| L3 Prepare for infusion | Apply Inlet Gates | Support plate 2.0mm angled edges  (\*\*\*BS) | 1 |  | Inlet Gate position |  | Each position defined in BSG  (WI-XXXFM)  ± 50mm  Completely centered on top of the support plates | Measuring tape |  | Each shell | Operator Inspection  (Built in Quality) |  |
| L3 Prepare for infusion | Flow barriers application |  | 1 |  | Flow barriers position |  | Each position defined in BSG (WI-XXXFM) +/- 10 mm | Measuring tape |  | Each shell | Operator Inspection  (Built in Quality) |  |
| L3 Prepare for infusion | Inlet hoses for segmentation application |  | 1 |  | Inlet hoses position |  | Each position defined in BSG  (WI-XXXFM)  Longitudinal/- XX mm ;Transversal+/-XX mm | Visual Inspection | 1 | Each shell | Operator Inspection  (Built in Quality) |  |
| L3 Prepare for infusion | Apply overflow vessels | Overflow vessels | 1 |  | Correctness of Resine flow (Spirals connected to Overflow Vessels) |  | Vacuum hose and resin hose should be sealed to overflow vessel | Visual Inspection | Each connection | Each Overflow vessel | Operator Inspection  (Built in Quality) |  |
| L3 Prepare for infusion | Apply vacuum bag/film |  | 1 |  | Vacuum bag coverage |  | 100% covered  and sealed using sealant tape | Visual Inspection | Full mould surface | Each shell | Operator Inspection  (Built in Quality) |  |
| L3 Prepare for infusion | Prepare Vacuum Injection Equipment | Polyester Injection machine (VIM and IV)  Polyester Injection machine (VIM and IV) | 1 |  | Curing Agent Ratio | CTQ | 1,2 - 1,8%  (Peroxide VARTM Type B)  (\*\*\*BS) | Machine Controlled |  | Each Machine Setup | CTQ Control Chart | 1. If the VIM failed use the spare VIM,  2. Report to maintenance resp.  3. Inform to the QC&PE |
| 2 |  | Resin temperature |  | Nominal 18°C (Max 23°C) | IR temperature gauge | Continuous | Each infusion | Operator Inspection  (Built in Quality) |  |
| L3 Perform Infusion | Follow inlet Opening / Closing sequence |  | 2 |  | Open / Close Injection Sequence |  | As specified in the BSG  (WI-XXXFM) | Visual Inspection |  | All infusion process | Operator Inspection  (Built in Quality) | 1. Inform Quality Controller and Prod. Supervisor,  2. Evaluate infusion process after debagging. |
| L3 Cure the Resin | Cure Laminate |  | 1 |  | Maximum Exothermal Peak Temperature |  | minimum 40°C  (Peroxide VARTM Type B)  (\*\*\*BS) | IR temperature gauge |  | Every 15 min. Until Temperature drop 25% of Max | Sampling Plan (IL-XXXFM) | 1. Immediately insulate blade shell using an insulation material when exothermal temperature cannot be reached.  2. Apply heat to the blade laminate (with vacuum bag)  3. Remove insulating material when laminate temperature has fallen to room temperature +5 |
| 2 | Laminate Hardness |  |  | 55 minimum | Hardness Gauge Average value of 5 measurements |  | After resin cures on each shell | Sampling Plan (IL-XXXFM) | 1. Wait more time |

| **Op. #** | **Process Name/Operation Description** | **Machine, Device, Jig, Tools for Mfg** | **Characteristics** | | | **Special Char. Class** | **Methods** | | | | | **Reaction Plan** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristic #** | **Product Characteristic** | **Process Characteristic** | **Specification/Tolerance** | **Evaluation/Measurement Technique** | **Sample Size** | **Sample Frequency** | **Control Method** |
| 1.1.5 - MP10.30 Infuse shell (NFM) | | | | | | | | | | | | |
| L3 Prepare for infusion | Apply Double-Sided Tape |  | 1 |  | Transversal Position of Tape |  | Each position defined in WI | Measuring tape &  Mould Marks | 1 | Each 10 m. | Operator Inspection  (Build in Quality) |  |
| L3 Prepare for infusion | Apply Sealant tape |  | 2 |  | Transversal Position of Sealant |  | Each position defined in WI | Measuring tape &  Mould Marks | 1 | Each 10 m. | Operator Inspection  (Build in Quality) |  |
| L3 Prepare for infusion | Apply Spiral |  | 1 |  | Longitudinal Position of Spirals  (LE & TE) |  | Each position defined in BSG  (WI-XXNFM)  +/- 50mm | Measuring tape &  Mould Marks | 1 | Each Joint | Operator Inspection  (Built in Quality) |  |
| 2 |  | Transversal Position of Spirals |  | Each position defined in BSG  (WI-XXNFM)  +/- 20mm  Spiral can not contact the glass | Visual Inspection  measuring tape | 1 | Each 10 m. | Operator Inspection  (Built in Quality) |  |
| 3 |  | Spiral loops position |  | Each position defined in BSG  (WI-XXNFM)  +/- 50mm | Measuring tape &  Mould Marks | 1 | Each loop | Operator Inspection  (Built in Quality) |  |
| 4 |  | Spiral gaps position.  (Gap=100mm)  (\*\*\*BS) |  | Each position defined in  (WI-XXNFM)  +/-50mm | Measuring tape &  Mould Marks | 1 | Each gap | Operator Inspection  (Built in Quality) |  |
| L3 Prepare for infusion | Apply Peel Ply |  | 1 |  | Peel ply coverage |  | As specified in BSG (WI-XXNFM) | Visual Inspection | 1 | Each shell | Operator Inspection  (Built in Quality) |  |
| L3 Prepare for infusion | Mark Construction Line | Laser projection system (located in the glass wagon) | 1 |  | Construction line position |  | Each position defined in BSG  (WI-XXNFM)  +/- 10 mm | Automatic (position system in glass wagon) | 1 | Each shell | Measurement Checks as indicated in BSG. | 1. Verify for laser beam zero position marked at the root flange and the  arrowhead at the tip end |
| L3 Prepare for infusion | Apply Net Set | Net Set | 1 |  | Net Set Position |  | Each position defined in BSG  (WI-XXNFM)  +/- 50 mm Longitudinal  +/-20 mm Transversal | Measuring tape | 1 | Each Section | Operator Inspection  (Built in Quality)  Construction line marked in the net set |  |
| 2 |  | Net Set Overlaps |  | max 20 mm | Measuring tape | 1 | Each Section | Operator Inspection  (Built in Quality) |  |
| 3 |  | Net Set Gaps |  | No gaps allowed  (\*\*\*BS) | Visual Inspection | 1 | Each Section | Operator Inspection  (Built in Quality) |  |
| L3 Prepare for infusion | Apply Inlet Gates | Support plate 2.0mm angled edges  (\*\*\*BS) | 1 |  | Inlet Gate position |  | Each position defined in BSG  (WI-XXNFM)  ± 50mm  Completely centered on top of the support plates | Measuring tape |  | Each shell | Operator Inspection  (Built in Quality) |  |
| L3 Prepare for infusion | Flow barriers application |  | 1 |  | Flow barriers position |  | Each position defined in BSG (WI-XXNFM) +/- 10 mm(\*\*\*BS) | Measuring tape |  | Each shell | Operator Inspection  (Built in Quality) |  |
| L3 Prepare for infusion | Inlet hoses for segmentation application |  | 1 |  | Inlet hoses position |  | "Each position defined in BSG  (WI-XXNFM)  Longitudinal+/- 50 mm;  Transversal+/-20 mm "  (\*\*\*BS) | Visual Inspection | 1 | Each shell | Operator Inspection  (Built in Quality) |  |
| L3 Prepare for infusion | Apply overflow vessels | Overflow vessels | 1 |  | Correctness of Resine flow (Spirals connected to Overflow Vessels) |  | Vacuum hose and resin hose should be sealed to overflow vessel | Visual Inspection | Each connection | Each Overflow vessel | Operator Inspection  (Built in Quality) |  |
| L3 Prepare for infusion | Apply vacuum bag/film |  | 1 |  | Vacuum bag coverage |  | 100% covered  and sealed using sealant tape | Visual Inspection | Full mould surface | Each shell | Operator Inspection  (Built in Quality) |  |
| L3 Prepare for infusion | Prepare Vacuum Injection Equipment | Polyester Injection machine (VIM and IV)  Polyester Injection machine (VIM and IV) | 1 |  | Curing Agent Ratio | CTQ | 1,2 - 1,8%  (Peroxide VARTM Type B)  (\*\*\*BS) | Machine Controlled |  | Each Machine Setup | CTQ Control Chart | 1. If the VIM failed use the spare VIM,  2. Report to maintenance resp.  3. Inform to the QC&PE |
| 2 |  | Resin temperature |  | Nominal 18°C (Max 23°C) | IR temperature gauge | Continuous | Each infusion | Operator Inspection  (Built in Quality) |  |
| L3 Perform Infusion | Follow inlet Opening / Closing sequence |  | 2 |  | Open / Close Injection Sequence |  | As specified in the BSG  (WI-XXNFM) | Visual Inspection |  | All infusion process | Operator Inspection  (Built in Quality) | 1. Inform Quality Controller and Prod. Supervisor,  2. Evaluate infusion process after debagging. |
| L3 Cure the Resin | Cure Laminate |  | 1 |  | Maximum Exothermal Peak Temperature |  | minimum 40°C  (Peroxide VARTM Type B)  (\*\*\*BS) | IR temperature gauge |  | Every 15 min. Until Temperature drop 25% of Max | Sampling Plan (IL-XXNFM) | 1. Immediately insulate blade shell using an insulation material when exothermal temperature cannot be reached.  2. Apply heat to the blade laminate (with vacuum bag)  3. Remove insulating material when laminate temperature has fallen to room temperature +5 |
| 2 | Laminate Hardness |  |  | 55 minimum | Hardness Gauge Average value of 5 measurements |  | After resin cures on each shell | Sampling Plan (IL-XXNFM) | 1. Wait more time |

| **Op. #** | **Process Name/Operation Description** | **Machine, Device, Jig, Tools for Mfg** | **Characteristics** | | | **Special Char. Class** | **Methods** | | | | | **Reaction Plan** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristic #** | **Product Characteristic** | **Process Characteristic** | **Specification/Tolerance** | **Evaluation/Measurement Technique** | **Sample Size** | **Sample Frequency** | **Control Method** |
| 1.2.1 - MP20.10 Prepare for Closure | | | | | | | | | | | | |
| L3 Grind and clean shells | Mark/Grind Bonding Areas | 1. Grinding tool. | 1 | Width/Area for Grind Adhesive Flanges/Shell edges  Fixed mould |  |  | Width/Area define in BSG  (WI-XXXXX)  Distance from Root +/-20mm  Distance from Edge +/-10mm | Visual Inspection | Continuous measurement | Every Fixed mould Shell | Operator Inspection  (Built in Quality) |  |
| 2 |  |  |  |  |  |  |  |  |  |
| 3 | Width/Area for Grind Shell edges Non FixMould |  |  | Width/Area define in BSG  (WI-XXXXX)  Distance from Root +/-20mm  Distance from Edge +/-10mm | Measuring Tape | Continuous measurement | Every Non FixMould Shell | Operator Inspection  (Built in Quality) |  |
| 4 | Distance from Construction Line to LE and TE Main WEB Marking/Grinding |  |  | Each Location Defined in BSG  (WI-XXXXX)  Distance from CL to LE/TE: +/-10 mm,  Distance from Root: +/- XX mm (\*\*\*BS) | Measuring Tape | Continuous measurement | Each shell | Operator Inspection  (Built in Quality) |  |
| 5 | Mark/Grind Bonding Area  (Fixed mould Shell only) Bulkhead/Weighing/TIP |  |  | Each Location Defined in BSG  (WI-XXXXX)  Distance from Root +/- XX mm  (\*\*\*BS) | Measuring Tape | Continuous measurement | Each Fixed mould shell | Operator Inspection  (Built in Quality) |  |
| 6 | Mark/Grind Bonding Area  (Non FixMould shell only) Bulkhead/Weighing/TIP |  |  | Each Location Defined in BSG  (WI-XXXXX)  Distance from Root +/- XX mm  (\*\*\*BS) | Measuring Tape | Continuous measurement | Each Non FixMould shell | Operator Inspection  (Built in Quality) |  |
| 7 | Mark position for TIP anchor block |  |  | Area Location define in BSG  (WI-XXXXX)  +/- 10 mm | Measuring Tape | Continuous measurement | Each Fixed mould shell | Operator Inspection  (Built in Quality) |  |
| L3 Prepare for bonding | Foam list application |  | 1 | Foam List location  (Fixed mould only) |  |  | Each Position Defined in BSG  (WI-XXXXX)  from Root +/- XX mm  from TE +/- XXmm  (\*\*\*BS) | Measuring Tape | Continuous measurement | Each Fixed mould shell | Operator Inspection  (Built in Quality) |  |
| 2 | Foam strips quantity |  |  | X | Visual Inspection | Continuous measurement | Each Fixed mould shell | Operator Inspection  (Built in Quality) |  |
| L3 Prepare for bonding | Prepare for bonding |  | 1 | Bulkhead and Weighing units Marking LE/TE location  (Fixed mould only) |  |  | Each Position Defined in BSG  (WI-XXXXX)  Distance from Root +/-XX mm | Measuring Tape | 11(\*\*\*BS) | Each Fixed mould Shell | Operator Inspection  (Built in Quality) |  |

| **Op. #** | **Process Name/Operation Description** | **Machine, Device, Jig, Tools for Mfg** | **Characteristics** | | | **Special Char. Class** | **Methods** | | | | | **Reaction Plan** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristic #** | **Product Characteristic** | **Process Characteristic** | **Specification/Tolerance** | **Evaluation/Measurement Technique** | **Sample Size** | **Sample Frequency** | **Control Method** |
| 1.2.2 - MP20.20 Adhesive Application | | | | | | | | | | | | |

| **Op. #** | **Process Name/Operation Description** | **Machine, Device, Jig, Tools for Mfg** | **Characteristics** | | | **Special Char. Class** | **Methods** | | | | | **Reaction Plan** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristic #** | **Product Characteristic** | **Process Characteristic** | **Specification/Tolerance** | **Evaluation/Measurement Technique** | **Sample Size** | **Sample Frequency** | **Control Method** |
| 1.2.3 - MP 20.30 Close and Demould | | | | | | | | | | | | |
| L3 Close Mould | Close mould/Cure Adhesive | Close mould Machine | 1 |  | Gap between Flanges edges in the Trailing Edge |  | 100 to 120mm | Distance sensor in the Machine | 1 | Each Blade | Automatic Control |  |
| 2 |  | Root plate guide pins position |  | Captured between root flanges plate | Check the tightening of guide pins by manual pull | 1 | Each Blade | Quality Controller |  |
| 3 |  | Closing air pressure (LM Moulds) |  | minimum 5 bars | Pressure gage | 1 | Each Blade | Automatic Control |  |
| L3 Perform internal overlamination | Grind internal bondline overlamination area | Grinder machine | 1 |  | Internal edge overlamination grinding  (\*\*\*BS) |  | According to BSG (WI-XXXXX )  centered on bonding line | Measuring Tape,  Visual Inspection | Inside Blade Area | Each Blade | Operator Inspection  (Built in Quality) |  |
| L3 Perform internal overlamination | Grind internal web overlamination area | Grinder machine | 1 |  | LE/TE web overlamination grinding  (\*\*\*BS) |  | According to BSG (WI-XXXXX )  centered on bonding line | Measuring Tape,  Visual Inspection | Inside Blade Area | Each Blade | Operator Inspection  (Built in Quality) |  |
| L3 Perform internal overlamination | Apply Bondline internal overlamination |  | 1 | Placement for Bond line Internal over-lamination  (LE/TE)  (\*\*\*BS) |  |  | from XX To XX mm | Measuring Tape | 1 | Each Blade | Operator Inspection  (Built in Quality) |  |
| 2 | Overlap between the flange and the glass package  (\*\*\*BS) |  |  | 20+/- 2mm | Measuring Tape | LE/TE Bonding Area | Each Blade | Operator Inspection  (Built in Quality) |  |
| 3 | Offset between layers  (\*\*\*BS) |  |  | Transversal: 20 +/- 5mm  Longitudinal: 40 +/- 5mm | Measuring Tape | Continuous Measurement | Each Layer | Operator Inspection  (Built in Quality) |  |
| L3 Perform internal overlamination | Apply WEB overlamination |  | 1 | Placement for External WEB overlamination  (\*\*\*BS) |  |  | Starting even with WEB end towards TIP  Centered on bondline | Measuring Tape | Continuous Measurement | Each Blade | Operator Inspection  (Built in Quality) |  |
| 2 | Placement for Internal WEB overlamination  (\*\*\*BS) |  |  | Starting XXmm from WEB end towards TIP | Measuring Tape | Continuous Measurement | Each Blade | Operator Inspection  (Built in Quality) |  |
| 3 | Offset between layers  (\*\*\*BS) |  |  | Transversal: XX+/- XXmm  Longitudinal: XX +/- XXmm | Measuring Tape | Continuous Measurement | Each Layer | Operator Inspection  (Built in Quality) |  |
| L3 Remove top part of mould | Apply Handling Zone Handling Zone Label |  | 1 | Handling Zone Handling Zone Label position  (Non FixMould) |  |  | Each Position Defined in BSG  (WI-XXXXX)  Distance from root +/-50mm  Distance From TE +/-20mm | Measuring Tape | 100% | Each Blade | Operator Inspection  (Built in Quality) |  |

| **Op. #** | **Process Name/Operation Description** | **Machine, Device, Jig, Tools for Mfg** | **Characteristics** | | | **Special Char. Class** | **Methods** | | | | | **Reaction Plan** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristic #** | **Product Characteristic** | **Process Characteristic** | **Specification/Tolerance** | **Evaluation/Measurement Technique** | **Sample Size** | **Sample Frequency** | **Control Method** |
| 1.3.1 - MP30.10 Perform NDT | | | | | | | | | | | | |

| **Op. #** | **Process Name/Operation Description** | **Machine, Device, Jig, Tools for Mfg** | **Characteristics** | | | **Special Char. Class** | **Methods** | | | | | **Reaction Plan** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristic #** | **Product Characteristic** | **Process Characteristic** | **Specification/Tolerance** | **Evaluation/Measurement Technique** | **Sample Size** | **Sample Frequency** | **Control Method** |
| 1.3.3 - MP30.30 Verify Geometry Characteristics | | | | | | | | | | | | |

| **Op. #** | **Process Name/Operation Description** | **Machine, Device, Jig, Tools for Mfg** | **Characteristics** | | | **Special Char. Class** | **Methods** | | | | | **Reaction Plan** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristic #** | **Product Characteristic** | **Process Characteristic** | **Specification/Tolerance** | **Evaluation/Measurement Technique** | **Sample Size** | **Sample Frequency** | **Control Method** |
| 1.3.4 - MP30.40 Cut and Grind Interior LE&TE | | | | | | | | | | | | |

| **Op. #** | **Process Name/Operation Description** | **Machine, Device, Jig, Tools for Mfg** | **Characteristics** | | | **Special Char. Class** | **Methods** | | | | | **Reaction Plan** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristic #** | **Product Characteristic** | **Process Characteristic** | **Specification/Tolerance** | **Evaluation/Measurement Technique** | **Sample Size** | **Sample Frequency** | **Control Method** |
| 1.4.1 - MP 40.10 Finish Edges and Tip | | | | | | | | | | | | |