

# BOMBARDIER

Toronto Site

**PROPRIETARY INFORMATION**

# PPS 10.59

**PRODUCTION PROCESS STANDARD**

## MANUFACTURE OF NET RESIN SYSTEM EPOXY COMPOSITE COMPONENTS (179°C AUTOCLAVE CURE)

- Issue 13 - This standard supersedes PPS 10.59, Issue 12.
- Extensive changes and/or deletions have been made at this issue and, therefore, detail changes have not been noted.
  - Direct PPS related questions to [christie.chung@aero.bombardier.com](mailto:christie.chung@aero.bombardier.com) or (416) 375-7641.
  - This PPS is effective as of the distribution date.

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Quality

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## 1 SCOPE

- 1.1 This Production Process Standard (PPS) authorizes the use of Short Brothers P. Spec 615, Issue 21, for the manufacture of net resin system epoxy composite components.
  - 1.1.1 This standard also authorizes the use of the following Short Brothers P. Spec's in so far as they are referenced in P. Spec 615:
    - P. Spec 223, Issue 1
    - P. Spec 407, Issue 14
    - P. Spec 424, Issue 1
    - P. Spec 643, Issue 5
    - P. Spec 644, Issue 4
    - P. Spec 906, Issue 7
    - P. Spec 915, Issue 5
  - 1.1.2 This PPS complements the engineering drawings that specify its use as an authorized instruction. The procedure specified in this PPS shall be followed to ensure compliance with all applicable specifications. In general, if this PPS conflicts with the engineering drawing, follow the engineering drawing. The requirements specified in this PPS are necessary to fulfil the engineering design and reliability objectives.
  - 1.1.3 Refer to [PPS 13.26](#) for the subcontractor provisions applicable to this PPS.

## 2 HAZARDOUS MATERIALS

- 2.1 Control of hazardous materials shall be the responsibility of the subcontractor performing the work for Bombardier Toronto to meet national legislation and local regulations.

## 3 REFERENCES

- 3.1 BAERD GEN-018 - Engineering Requirements for Laboratories.
- 3.2 [PPS 13.26](#) - General Subcontractor Provisions.
- 3.3 [PPS 13.39](#) - Bombardier Toronto Engineering Process Manual.
- 3.4 P. Spec 223 - The Manufacture, Inspection, Storage and Handling of Thermocouples used in the Manufacture of Composite & Bonded Components
- 3.5 P. Spec 407 - Chemical and Electro-Chemical Treatment for Metal Parts
- 3.6 P. Spec 424 - Deposition of Flame-Sprayed Aluminium Coatings on Fibre Reinforced Plastic Parts.

- 3.7 P. Spec 615 - Manufacture of Net Resin System Epoxy Composite Components (179°C Autoclave Cure).
- 3.8 P. Spec 643 - Application of Release Agent to Lay-Up Tools.
- 3.9 P. Spec 644 - Application of Lacquer to Seal Composite Surfaces.
- 3.10 P. Spec 906 - Methods of Identification for Aircraft Parts.
- 3.11 P. Spec 915 - Preparation of Composite Components for Painting.

## **4 MATERIALS, EQUIPMENT AND FACILITIES**

### **4.1 Materials**

- 4.1.1 As specified in the applicable P. Spec.

### **4.2 Equipment**

- 4.2.1 As specified in the applicable P. Spec.

### **4.3 Facilities**

- 4.3.1 This PPS has been categorized as a "Controlled Critical Process" according to [PPS 13.39](#) and as such only facilities specifically approved according to [PPS 13.39](#) are authorized to perform the manufacture of net resin system epoxy composite components according to this PPS.
- 4.3.2 Bombardier subcontractors shall direct requests for approval to Bombardier Aerospace Supplier Quality Management. Bombardier Aerospace facilities shall direct requests for approval to the appropriate internal Quality Manager.
- 4.3.3 Facility approval shall be based on a facility report, a facility survey and completion of a qualification test program, if required. The facility report shall detail the materials and equipment to be used, the process sequence to be followed and the laboratory facilities used to show compliance with the requirements of this PPS. Any deviation from the procedure or requirements of this PPS shall be detailed in the facility report. Based upon the facility report, Bombardier Toronto Materials Technology may identify additional qualification and/or process control test requirements. During the facility survey, the facility requesting qualification shall be prepared to demonstrate their capability. Once approved, no changes to subcontractor facilities may be made without prior written approval from Bombardier Aerospace Supplier Quality Management.

- 4.3.3.1 For approval of subcontractor facilities to perform the manufacture of net resin system epoxy composite components according to this PPS, completion of a test program and submission of suitable test samples representative of production parts is required. Test samples shall meet the requirements specified in the relevant P.Spec.
- 4.3.3.2 All testing and evaluation specified herein shall only be performed by Bombardier Toronto Materials Laboratory or by laboratories accredited according to BAERD GEN-018.

## 5 PROCEDURE

- 5.1 As specified in the applicable P. Spec.

## 6 REQUIREMENTS

- 6.1 All testing and evaluation specified herein shall only be performed by Bombardier Toronto Materials Laboratory or by laboratories accredited according to BAERD GEN-018.
- 6.2 As specified in the applicable P. Spec.

## 7 SAFETY PRECAUTIONS

- 7.1 *Safety precautions applicable to the materials and procedures specified herein shall be defined by the subcontractor performing the work for Bombardier Toronto.*

## 8 PERSONNEL REQUIREMENTS

- 8.1 This PPS has been categorized as a “Controlled Critical Process” according to [PPS 13.39](#). In addition to the personnel requirements specified in the applicable P. Spec., refer to [PPS 13.39](#) for additional personnel requirements.