

**FORM Q-107**  
**RECOMMENDED FORM FOR QUALIFYING THE VESSEL DESIGN AND THE PROCEDURE**  
**SPECIFICATION USED IN FABRICATING FILAMENT-WOUND FIBER-REINFORCED PLASTIC**  
**PRESSURE VESSELS (CLASS I)**  
**(Revision C — 2017)**

Procedure Specification No. \_\_\_\_\_

A change in any of the essential variables denoted by an asterisk below requires a new Procedure Specification.

\*Fiber \_\_\_\_\_  
 (Manufacturer and Designation)

\*Sizing or Finish \_\_\_\_\_  
 (Manufacturer and Designation)

\*Resin \_\_\_\_\_  
 (Type, Manufacturer, and Designation)

\*Curing Agent \_\_\_\_\_  
 (Type, Manufacturer, and Designation)

Viscosity of Resin System \_\_\_\_\_ cP (min.) to \_\_\_\_\_ cP (max.) @ \_\_\_\_\_ °F (°C)

\*Manner of impregnation \_\_\_\_\_  
 (Prepreg, Wet Wind, Postpreg)

\*Percent Fiber by Weight in Composite \_\_\_\_\_

**\*Variables of Winding Process**

Helix Angle \_\_\_\_\_ (measured on cylinder between axis and band path)

Pattern Description \_\_\_\_\_

Band Density: Helical \_\_\_\_\_ end/in. (end/mm)      Circumferential \_\_\_\_\_ end/in. (end/mm)

Bandwidth: Helical \_\_\_\_\_ in. (mm)      Circumferential \_\_\_\_\_ in. (mm)

Tension: Per Strand (End), Roving, or Band (specify which) \_\_\_\_\_ lb (N) per \_\_\_\_\_

Method of Control \_\_\_\_\_ Program \_\_\_\_\_

Layer Sequence \_\_\_\_\_

[Note (1)]

Ratio Hel./Circ. in Cylinder \_\_\_\_\_

\*Curing Schedule \_\_\_\_\_ °F (°C) for \_\_\_\_\_ hr \_\_\_\_\_ min

\_\_\_\_\_ °F (°C) for \_\_\_\_\_ hr \_\_\_\_\_ min

\_\_\_\_\_ °F (°C) for \_\_\_\_\_ hr \_\_\_\_\_ min

\_\_\_\_\_ °F (°C) for \_\_\_\_\_ hr \_\_\_\_\_ min

\_\_\_\_\_ °F (°C) for \_\_\_\_\_ hr \_\_\_\_\_ min

Manner of Measuring Temperature:    Oven Air \_\_\_\_\_    Winding Surface \_\_\_\_\_

Mandrel \_\_\_\_\_    Other \_\_\_\_\_  
 (Describe)

\*Liner \_\_\_\_\_  
 (Manufacturer and Designation)      (Thickness)

(Method of Installing Liner)

**NOTE:**

(1) Use X to indicate layer of helical winding

(a) "O" to indicate full layer of circumferential windings (down and back)

(b) "o" to indicate half-layer of circumferential windings (one pass)

Where a range of values or a tolerance applies, state the applicable range or tolerance.

**FORM Q-107 (CONT'D)**  
**(Revision C — 2017)**

Manner of Reinforcing Openings \_\_\_\_\_  
(Describe)

\*Pole Pieces \_\_\_\_\_  
(Material)

\_\_\_\_\_  
(Method of Installing: Wound-in, Bonded, etc.)

\_\_\_\_\_  
(Auxiliary Uses)

Head Contour \_\_\_\_\_  
(Describe)

Type of Mandrel \_\_\_\_\_  
(Describe)

Type of Winding Machine \_\_\_\_\_  
(Describe)

\*Weight of Vessel \_\_\_\_\_

\*Barcol Hardnesses and Location \_\_\_\_\_

\*Volumetric Expansion \_\_\_\_\_

Qualification:

Vessel(s) Serial Number(s) \_\_\_\_\_

Design Report Number \_\_\_\_\_

Test Report Number \_\_\_\_\_

ASME Section X \_\_\_\_\_

Edition and Addenda (if applicable) Date

Code Case No.

We certify that the statements made in this Specification are correct.

Date \_\_\_\_\_ Signed \_\_\_\_\_  
(Fabricator)

By \_\_\_\_\_

Certification of Authorization No. \_\_\_\_\_ Expires \_\_\_\_\_

**CERTIFICATION BY SHOP INSPECTOR**  
**OF QUALIFICATION OF DESIGN AND FABRICATION PROCEDURE**

Procedure Specification of \_\_\_\_\_ at \_\_\_\_\_  
for \_\_\_\_\_ process of fabricating vessel(s) described in  
\_\_\_\_\_ Design Specification and \_\_\_\_\_  
(User) (Fabricator)  
\_\_\_\_\_ Design Report Number \_\_\_\_\_

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and employed by \_\_\_\_\_ of \_\_\_\_\_ have witnessed the tests by which the design of the vessel(s) and the fabrication procedure have been qualified and state that, to the best of my knowledge and belief, these tests of the prototype vessel(s) and the fabrication procedure employed in constructing the vessel(s) satisfy the requirements of Section X of the ASME BOILER AND PRESSURE VESSEL CODE, Fiber-Reinforced Plastic Pressure Vessels.

By signing this certificate, neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the design procedure covered by the Fabricator's Design Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or loss of any kind arising from or connected with this inspection.

Date \_\_\_\_\_ Commission \_\_\_\_\_  
(National Board Authorized Inspector Number)

\_\_\_\_\_  
(Authorized Inspector's Signature)