

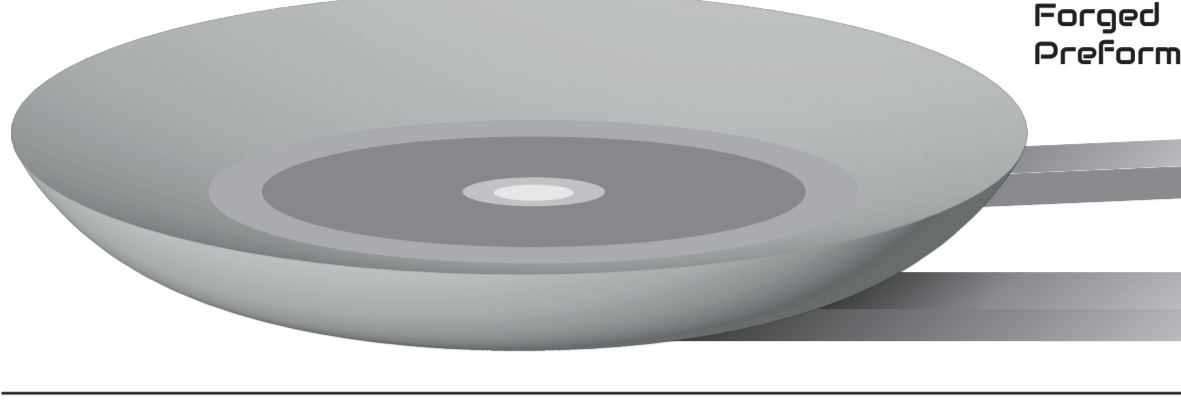
HOW CAN AST PRODUCE THE LARGEST DIAMETER COPVS ON THE MARKET?

STEP 1 1 Manufacture Tubes to Create the Liner

Most manufacturers make them from extruded tubes whereas AST makes them from stronger, forged blanks.

Benefits of this process include:

Larger diameters than most flowforming facilities
Ability to make the exact, custom diameter per customer needs
Not constrained by availability and size of extruded tubes



STEP 2 2 Build the liner

Type 3 COPV's use 6061 aluminium liners in most cases, because they are:

- An easy alloy to forge and flowform
- Do a great job of containing gases
- Very well suited to space applications such as helium storage, for example.

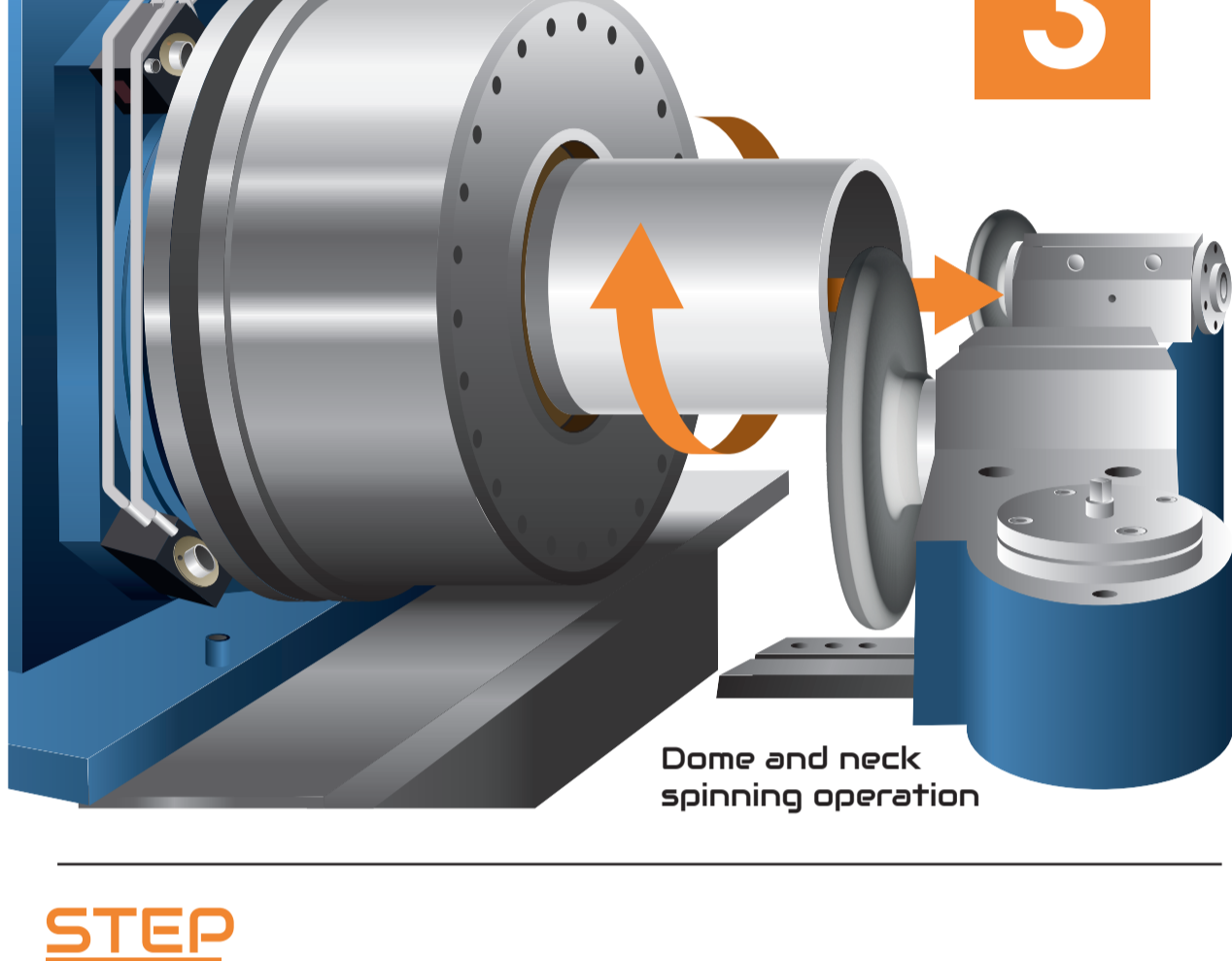
Flowformed Aluminium Liner Preforms



Spinning the Liner

Forging is then spun into the closed, seamless liner using three different spinning operations.

STEP 3 3



STEP 4 4 Heat treat the liner

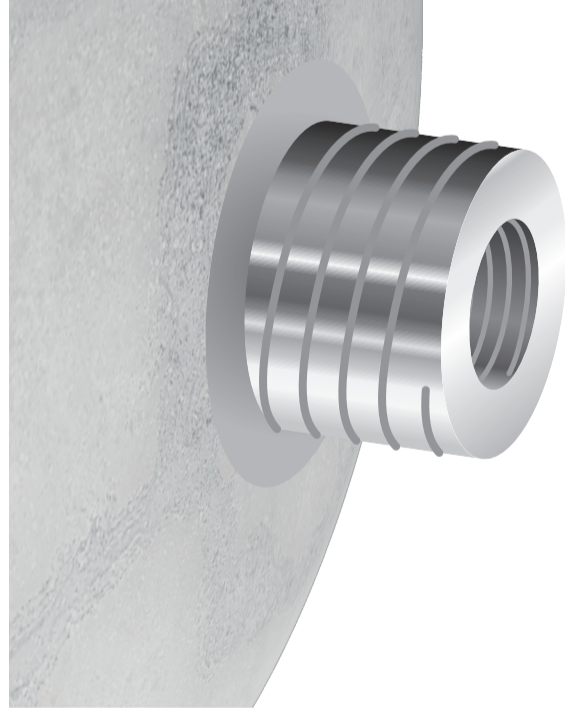
The parts are then heat treated to a T-6 condition.



STEP 5 5

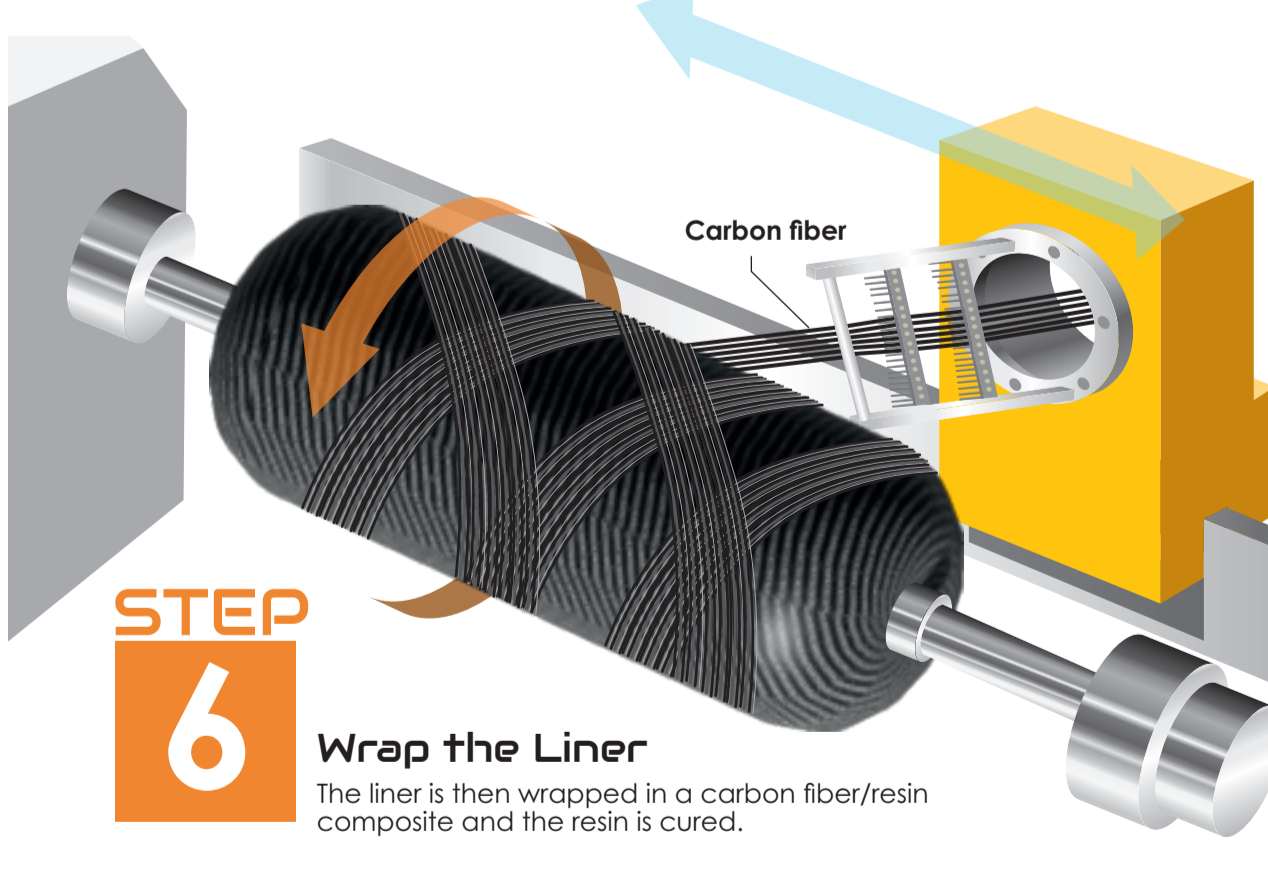
Machine the Neck

Machine the internal and external threads needed for valve and cylinder installation.



STEP 6 6 Wrap the Liner

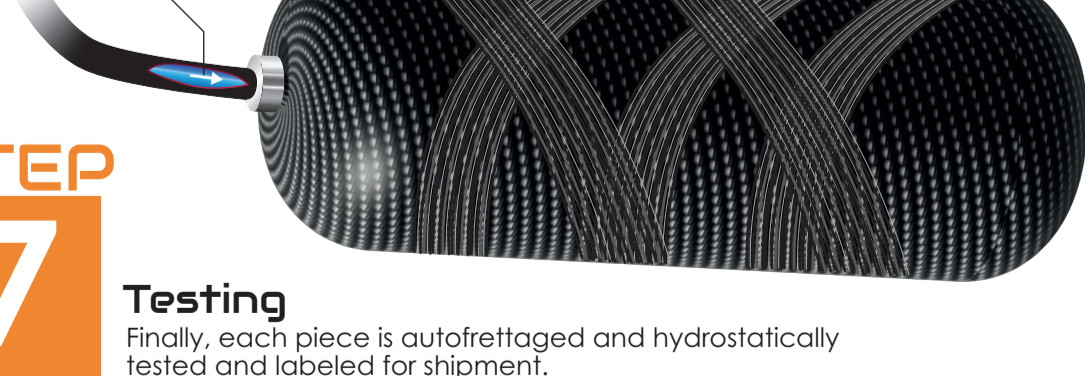
The liner is then wrapped in a carbon fiber/resin composite and the resin is cured.



STEP 7 7

Testing

Finally, each piece is autofrettaged and hydrostatically tested and labeled for shipment.



Finished Type 3 Cylinders

