Factory Tour

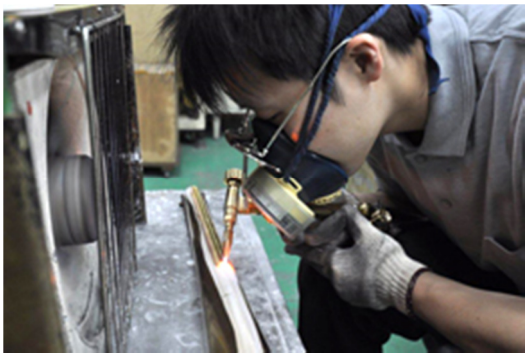
1. Body Fabrication

Sheets of brass and other alloys are cut and welded to form the tubing for the bell, bow, body, and neck; tone holes are drilled and drawn from the body tubing; and the bodies are then inspected and passed on to the next stage.

1. Materials

Rolls of metal sheet stock are sorted by brass, bronze, and silver alloy and utilized in different combinations depending on the saxophone model being made. Each roll is about 30 meters long.

2. Welding the main body tube



The connecting edges are lined up and seamlessly welded together with a 1000 C torch.

3. Hammering

Any bumps or pits that remain after the welding stage are hammered and smoothed out to hide the joint seam.

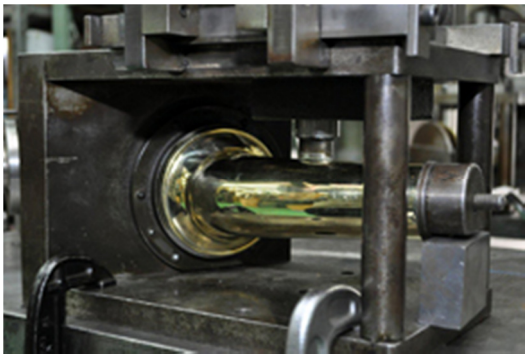
4. Body molding

A metal mold is used to shape the body . An inserted tool forces the body through a slightly smaller-diameter hole in a metal plate. The hole in the plate is adjusted for changes in body taper.

5. Shaping the bell

Sections of the bell that cannot be shaped by machine are spun on a lathe and shaped with a variety of handheld spatula tools.

6. Tone hole drilling



Tone hole locations are drilled into the shaped and polished body components after they are placed in a special die.

7. Tone hole drawing

When the handle is turned, a round piece is pulled through to form and draw out the tone hole from the wall of the body tubing. Special care is the rule when fabricating tone holes because they have the most significant influence on the saxophone's scale.

2. Press Operations

All key parts are cut, punched, shaped, and welded together using an assortment of die and press tools. On average, as many as 10 different steps are involved in the production of each finished part.

1. Press forming

Sax key parts and certain body components are punched out on press machinery. Over 10 variations in thickness are used for such punched-out parts.

2. Press-punched parts

Parts initially punched out with press machinery also go through fabrication stages that involve drilling, bending, and shaping operations.

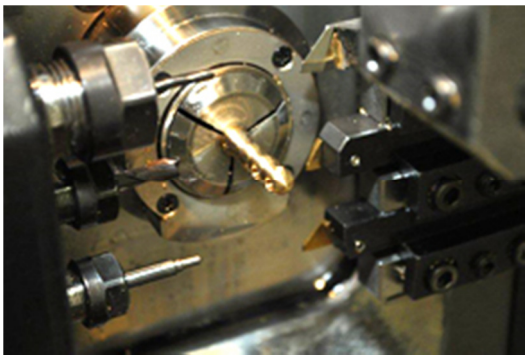
3. Parts fabrication

Many parts created with press machinery eventually reach their final shape after further processing with a wide array of cutting tools.

4. Press dies

An assortment of press dies used to make various parts. Multiple dies are used in the production of each individual part. The factory uses over 2,000 dies in all.

5. Post fabrication



Sax posts of different sizes and shapes are cut to precision dimensions on CNC lathes.

6. Soldering

Over 120 different types of parts are created by silver-soldering key cups and other components to sax hinge rods and hinge tubing.

7. Parts stock

Our materials stockroom has inventory in approx. 400 different types of finished saxophone parts.

3. Post and Key Fitting

This stage comprises attaching the posts to the body and fitting the keys.
Extreme care is exercised during the key-fitting work to ensure that the final assembly stage flows more smoothly.

1. Attaching the posts

Post assemblies are soldered to the body with a 400 C torch.

2. Key fitting(1)

The bell and bow are soldered together, giving the sax its basic form.

3. Key fitting (2)

Preliminary key fitting is performed to enhance the precision fit of the key mechanism in the final assembly stage. The sax is also checked for silver-solder residues and flaws in the key mechanism.

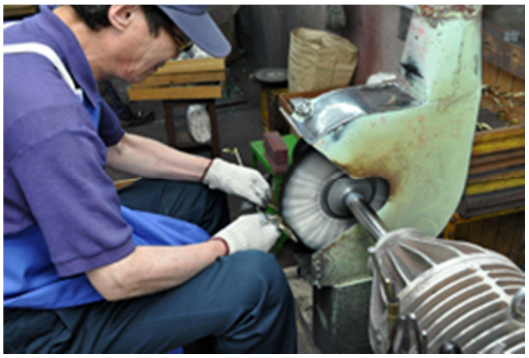
4. Engraving

Each saxophone is hand-engraved by a devoted artisan.

4. Surface Finishing (Buffing and Lacquering)

This stage comprises dipping each sax body in a chemical solution to remove excess solder residues from the post fitting process and then buffing and spray-lacquering it along with its finished set of custom-fit keys.

1. Buffing the keys



The body and all keys are buffed and polished prior to lacquering.

2. Buffing the body

The body is polished in several steps with each pass utilizing a softer abrasive compound or buffing wheel.

3. Ultrasonic cleaning

Prior to lacquering, everything is given an ultrasonic bath. This cleaning process completely removes all oils and buffing compound residues.

4. Lacquering

All parts are sprayed with a lacquer coat and then placed in an oven to heat-cure the lacquer.

5. Final Assembly and Inspection

With their sparkling new finish, the sax body and its keys now look completely different. Once the pads, corks, and felts are installed, it is time for final assembly. Extra caution is essential now because anything that is scratched or otherwise blemished during these steps will not be suitable for sale as a finished product.

1. Installing the pads and cork materials

Pads and cork materials are installed on already-lacquered keys. We use three types of pad adhesive that vary by melting temperature. Also, to minimize the need for post-assembly adjustments, we use a composite resin cork that maintains its shape and firmness.

2. Assembly (1)

During assembly we apply a tape film to protect each instrument from scratches. Assembly proceeds with installation of the right-hand keys followed by the left-hand keys and then the side keys.

3. Assembly (2)

Using a leak light, each pad seat is checked for air leaks and adjusted as necessary.

4. Assembly (3)

The assembly process is complete when the bell is attached to the instrument and the low-note bell keys controlled by the left-hand little finger are finally installed and regulated.

5. Inspection

The instrument-making process concludes with a final, meticulous inspection of each fully assembled instrument. This inspection includes balancing the keys, tensioning the springs, and precision-fitting the neck.

6. Cleaning, Packing, and Shipment

1. Cleaning

Following final inspection, the protective tape is removed and the sax is polished with a cleaning cloth to remove any fingerprints and smudges from the preceding work stages. Additionally, it will be checked over one last time for scratches or other blemishes.

2. Packing (1)

Once cleaned and polished, the sax is carefully placed inside its case.

3. Packing (2)

Each and every cased instrument is then packed in a sturdy cardboard shipping container.

4. Shipment

Packed instruments are loaded onto a truck at the warehouse and shipped to domestic distributors or to port facilities for export. Yanagisawa saxophones are supplied to the domestic Japanese market and exported to more than 20 national markets around the globe.