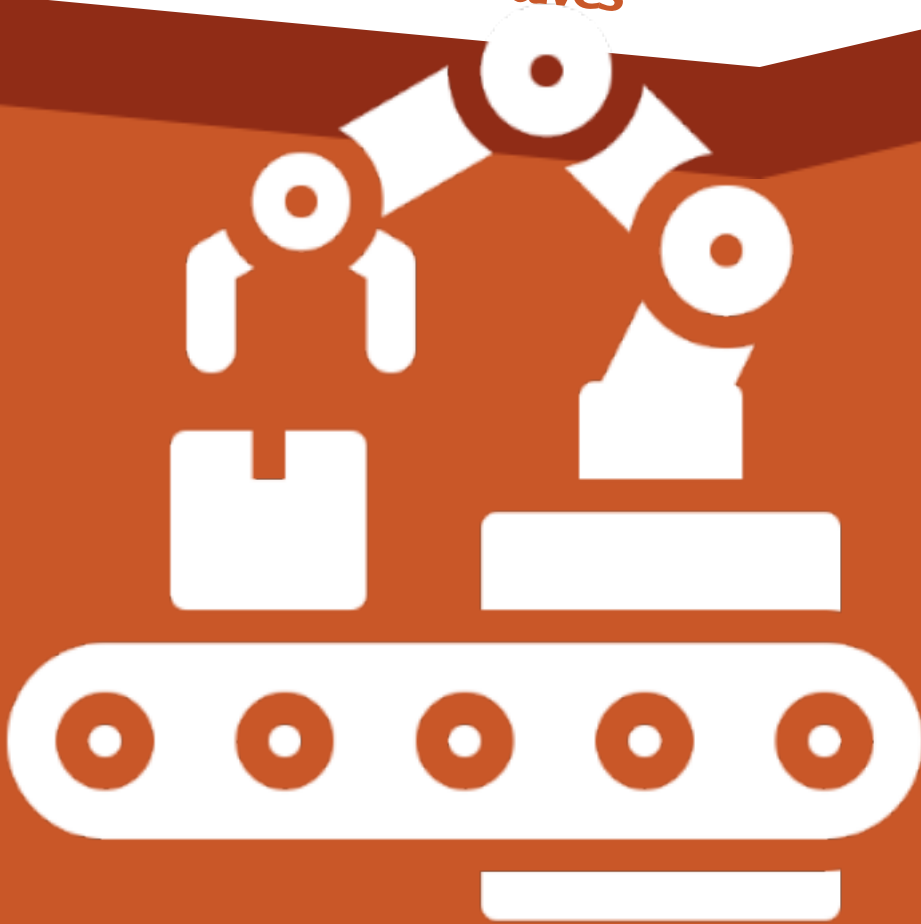


Manufacturing Process

*Focus on stainless steel
pipe fittings and ball valves*



Fittings

JIMSON

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Fittings

Manufacturing Process

ARO 「After Receiving the Order」

After receiving the order, we will transfer the corresponding data to our system.

If there is blank stock, it will be directly extracted from the warehouse, and if not, we will recast the blank according to the order quantity.



CASTING

The casting has high dimensional accuracy, smooth surface and good appearance quality. It is possible to cast parts with complex structures and shapes that are difficult to be processed by other processes.

The casting materials are not limited, various alloy materials such as: carbon steel, stainless steel, alloy steel, aluminum alloy, high temperature alloy, and precious metals, especially those alloy materials that are difficult to forge, weld and cut.

Good production flexibility and strong adaptability. It can be produced in large quantities and is also suitable for single or small batch production.



Figure 2-1 Substandard castings

Pores:

Air holes are produced by gas, the surface of the holes is smooth, and they are generated inside or near the surface of the casting, and the shape is mostly round or oblong.

Shrinkage Holes:

It is a continuous or incoherent circular or irregular cavity (cavity) generated inside the casting (especially in the hot joint), with rough inner surface, darker color, and metal. The crystal grains are coarse, mostly in the form of dendritic crystals, which are gathered in one or more places and are prone to leakage during the hydraulic test.

Sand inclusions:

Commonly known as sand holes, is the appearance of incoherent round or irregular holes in the inside of the casting. The holes are mixed with molding sand or steel slag. The size of the One or more places, often in the upper part.

Cracks:

Most of the cracks in castings are hot cracks, with irregular shapes, penetrating or non-penetrating, continuous or intermittent, and the metal at the crack is dark or oxidized on the surface.

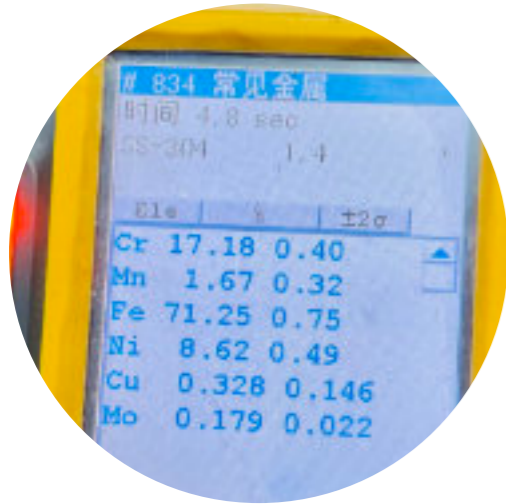
【Executed under ASTM A351/A351M standard】 Investment casting also has certain limitations, such as cumbersome process flow and long production cycle. Due to the limited casting process available, its pressure-bearing capacity cannot be very high when used for casting pressure-bearing thin-shell valve castings.

After receiving the casting, an inspection is carried out, including a comprehensive inspection of material, appearance, angle, etc.

For the castings with **pores, shrinkage holes, sand inclusions** and **cracks** in the appearance, we will discard them all, and only keep the castings that meet the standards.(See Figure 2-1)

Manufacturing Process

In terms of material, the inspectors use a metal material analyzer to detect the element content of them to ensure that their materials is up to standards.(See Figure 2-2)



When there are special inspection requirements for certain products, the established equipment will also be inspected to ensure that they are absolutely up to standard before being machined.



Figure 2-2 Metal material analyzer

PRECISION CNC

Precision CNC Turning is the process where bar stock or a shorter billet of material spins at a high rate of speed while cutting tools, driven by precision servomotors, cut the profile of the part.

CNC turned parts are typically round, with outside and inside diameters, grooves, threads, knurls, and other features. With the addition of “live tooling”, CNC lathes are capable of machining flats, slots, off center and cross holes, threads and non-round features in one operation.

Precision CNC Turning makes it possible to produce fine finishes and close tolerance parts with a high degree of accuracy.

JINSON Fittings continued investment in new and more capable turning centers allows for machining a wide variety of simple and complex precision parts, ranging from .01”to over 8”in diameter.

JINSON Fittings offers high precision CNC lathe machining with dedicated equipment for stainless steel for the automotive, semiconductor, tech, and water management industries.



Figure 3-1 CNC production line - B

JINSON Fittings currently has two production lines, one is CNC and the other is **Auto CNC**(See Figure 3-1)

Manufacturing Process



Figure 3-2 ISO9001 Certification



Figure 3-3 CNC Machining center

Machining center is a more functional CNC machine tools; It sets milling, drilling, boring, open thread and milling screw in one, with a variety of technological means, comprehensive processing capacity is reasonable. Compared with ordinary machine flavor processing, machining center has many remarkable technological characteristics. Machining center can reduce the clamping times of the workpiece, in addition to the positioning error due to the encoder water for many times, improve the machining accuracy. When the parts of the machining parts of the position accuracy requirements are higher, the use of machining center processing can be in a clamping will be processed in each part, avoid the workpiece clamping many times brought by the positioning error, is conducive to ensure the machining parts of the position accuracy requirements.

At the same time, the machining center adopts closed-loop, or even full closed-loop position compensation function, with higher positioning accuracy and repeated positioning accuracy, the size error generated in the process of processing can be timely compensated, compared with ordinary machine tools, can obtain higher dimensional accuracy. In addition, the use of machining center processing, but also can reduce the loading and unloading of auxiliary time, save a lot of special and general process equipment, reduce production costs.

Machining center is one of the important members of our processing workshop, which plays an irreplaceable role. After receiving OEM products from customers, our technical team will analyze the drawings in advance, and then process them with the machining center to select the best solution to customize the workpiece to meet the technical requirements.

Since 2019, we have successively accepted customers' OEM products and formulated solutions for customers. At present, more than 80 kinds of OEM stainless steel products have been successfully customized. Due to non-disclosure agreements with customers, we are sorry that we cannot display these products.

Manufacturing Process

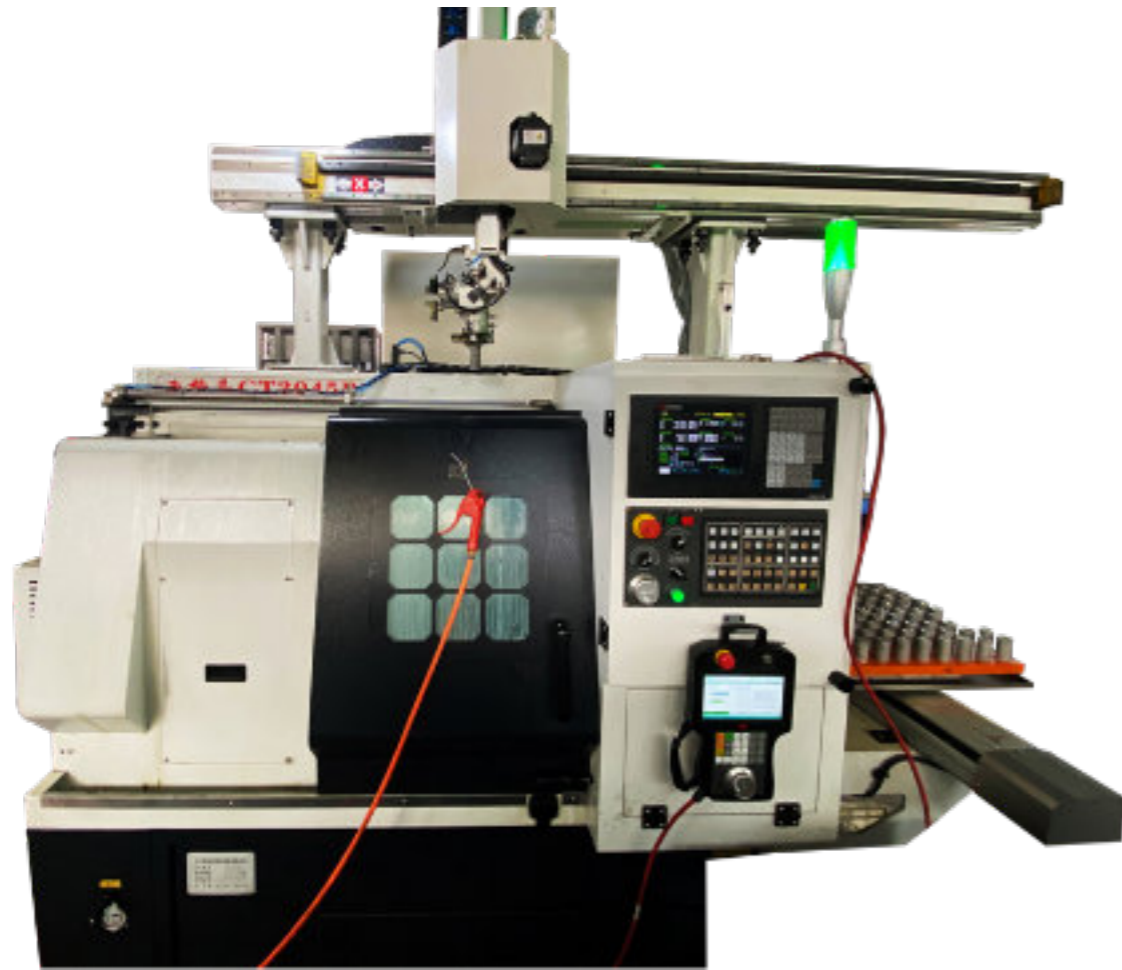


Figure 3-4 AUTO CNC

Auto CNC is being piloted in 2020 and a full production line was built in 2021.

The advantage of this Auto CNC is that it will automatically complete the process of reclaiming and returning materials, and no manual repetitive operations are required.

It reduces the production cost while improving the machining accuracy of the workpiece.

In 2020, the Hebei Provincial Government awarded JINSON Fittings the honorary title of "Technology-based Enterprise".

Next, we will continue to invest in various automation equipment to minimize production costs, continuously improve the accuracy of workpieces, and meet the needs of customers with higher standards.

This is the goal that JINSON Fittings has been pursuing.

OEM

Our experienced technical team can provide customers with a complete set of optimized processing solutions from design advice to mold design and production of molds, lost wax casting, CNC machining, heat treatment, surface treatment, etc., so that customers can reduce costs and obtain value-added products.



Figure 3-5 OEM in the debugging

CLEAN AND PRINT



Figure 4-2 Oven



Figure 4-1 Cleaning pool

When the workpiece is processed by the CNC lathe, it will be cooled with coolant, resulting in a layer of oil stains on the adjacent surface after processing.

Next, the oil stains on the surface of the workpiece will be treated:

- 1) Place the processed parts neatly in the cleaning frame;
- 2) The water temperature is set at 50°C, and the workpiece is placed in the cleaning pool;(See Figure 4-1)
- 3) Clean in the pool for 30 minutes by ultrasonic cleaning equipment to remove the oil stains on the surface of the parts;
- 4) Dry the cleaned parts at a temperature of 115°C in an oven.(See Figure 4-2)

Manufacturing Process

"LINK5900" type inkjet machine, using keton-based ink, its characteristics are very fast drying speed, strong adhesion, basic drying time within 3 seconds to complete.(See Figure 4-3)

For tube workpiece, product specifications and materials are printed on the surface.

If you have special customization requirements for the product itself, such as company logo, batch number, product code and other items, these staff will debug and customize in the inkjet printer, and print on the product. Of course, if you have such needs, please contact us before placing the order.

Benefits of printing:

1)Customers can often prevent and suppress counterfeiting through product identification, such as the application of new technologies such as printing random codes and barcodes, so that legitimate manufacturers can always stay ahead of counterfeiters.

2)By marking the product with special logo, brand name and trademark pattern, etc., the product can stand out from the competition and improve the brand awareness.

3) The batch number, shift, serial number or production date of the product is directly printed on the product, so that each product has good traceability, which greatly facilitates the quality management of the enterprise and the area where the product is sold manage.

Figure 4-3 "LINK5900" type inkjet machine



ASSEMBLING

For stainless steel pipe fittings, they will directly enter the packaging link , for stainless steel ball valves, we started assembling them.

In the ball valve assembly workshop, there are *torque machine*, *drill machine*, *impact drill*, *pressure gauge* and other equipment. These devices will ensure ball valve assembly and testing.

Torsion testing machine :

The computer-controlled electronic torsion testing machine is mainly composed of four major parts: the main engine, the torsion angle measuring device, the measurement and control system and the computer.

During the test, the computer software sends instructions to the control unit to make the servo motor rotate, the servo motor drives the reducer through the synchronous belt, and the reducer drives the chuck to rotate.

When the movable chuck rotates, a torque is applied to the sample, this torque is transmitted to the fixed chuck through the sample, and the fixed chuck is transmitted to the torque sensor, the output signal of the torque sensor is sent to the measurement amplifier circuit in the control unit, and then After A/D conversion into the computer.



Figure 5-1 Torque machine



Figure 5-2 Drill machine



Figure 5-3 Press instrument



Figure 5-4 Torsion machine

After assembly, the ball valve is placed on the pressure gauge for pressure seal test, clamped, pressurized to 10bar, closed the valve, left to rest for 48 hours to begin deflating, where there is gas emergence to prove that the ball valve is available. JINSON Fittings ensure that each ball valve set you receive passes the rigorous pressure test.

Manufacturing Process

PACKAGING

The commonly used combination method of packaging is plastic bag, carton and pallet. (See Figure 6-1)

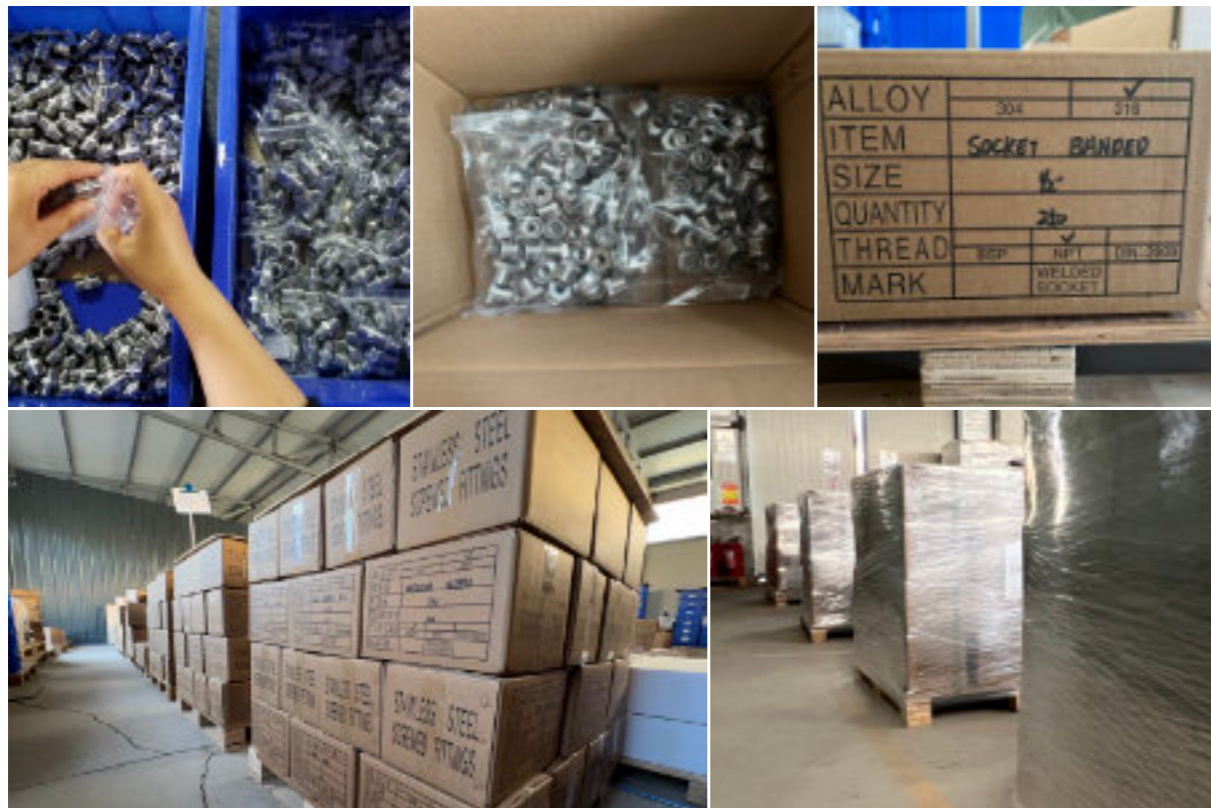


Figure 6-1 Regular packaging

For plastic bags and cartons, we use PP4 and PAP20 respectively, which fully meet environmental standards.

We also provide customized packaging services for customers. If you have requirements on packaging, please contact our sales man before placing an order.

Currently there are 4 kinds of pallets, respectively for the ordinary pallet (100cm*100cm), European pallet (120cm*80cm), Italian pallet (115cm*80cm), BK pallet (104cm*83cm).



Figure 6-2 Fumigation-free pallet

Labels on plastic bags and cartons can be customized. The furnace number, product number, batch number, order number, barcode, QR code, etc. can all be displayed in the label, which can help you to understand the information of this batch of goods more intuitively. Of course, if you use a warehouse management system, barcodes and QR codes will facilitate your entry and exit records.

THE END



Fumigation-free pallet

The raw material of the fumigation-free pallet is composite board or plywood.

The main treatment method is heat treatment. When the wood packaging is processed, the core temperature of the wood should reach 56° C and keep it for at least 30 minutes. For fumigation, the wood packaging must be fumigated at the specified dose of methyl bromide in a closed place for at least 16 hours, and then placed in ventilation, so that the concentration of the fumigant is reduced below the safe concentration.

After heat treatment, place a clear and permanent mark on each item of wood packaging, preferably on the front and back of each item, in a visible position. The packaging has undergone the prescribed treatment.

Fumigation-free pallet products generally meet the entry and environmental protection requirements of various countries in the world, and can be directly cleared in the importing country without any formalities.

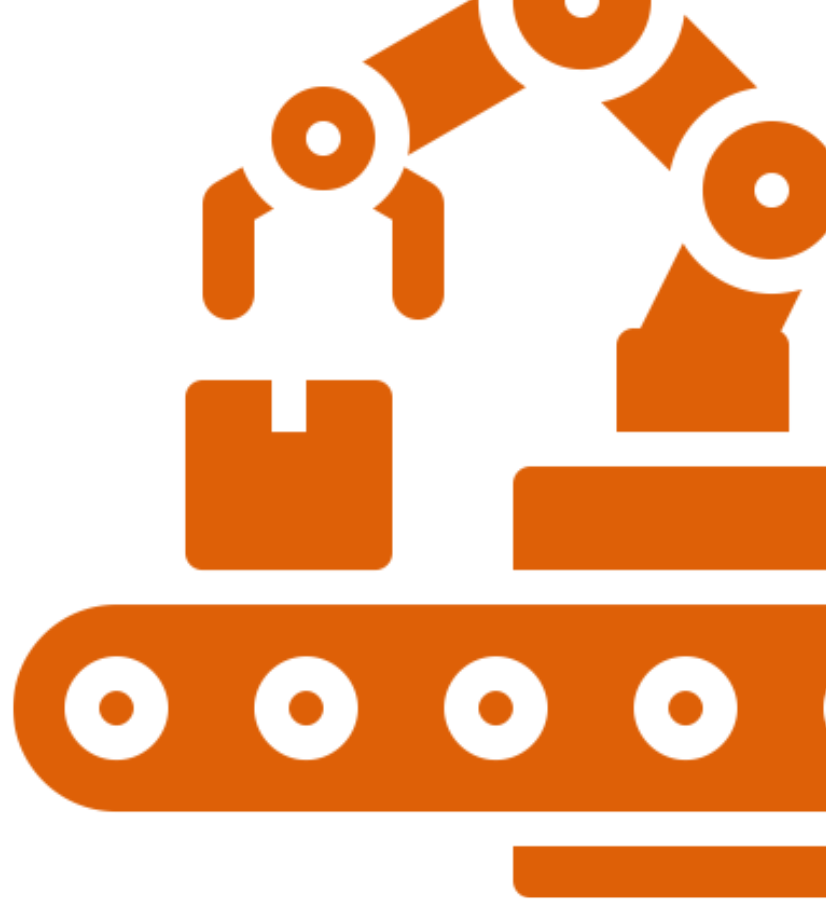
Compared with wooden pallets, the characteristics of fumigation-free pallets are summarized as follows:

1)Exports are free of fumigation, disinfection, and visas, and entry and exit are convenient and fast.

2)The product is more beautiful in appearance than wooden pallets, and has high pressure resistance and high load-bearing performance.

NOTE

NOTE



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Fittings

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