LESSO

Technical Disclosure Procedure for Double Pressing Installation of Light Gauge Stainless Steel Pipes

Project name:_____ Address:_____

Pipe type:

Cold water pipe☐ Hot water pipe☐ Direct drinking water pipe☐ Water heating pipe☐

Installation unit:_____

Installation responsible person (signature):_____

Tel:_____ Date: _____

Statement

I hereby declare that our company only supplies light gauge stainless steel pipe products to buyers, collects relevant national standards and industry standards to prepare cost and installation precautions, and provides them to customers for reference. If there is unconformity with the provisions of national or industry standards, the technical personnel shall implement the installation in strict accordance with the provisions of national or industry standards.

I hereby declare that!

LESSO's Service Department

Precautions for LESSO's Double Pressing Installation of Light Gauge Stainless Steel Pipes

1. Executive Standards for Installation:

1.1 Installation of light gauge stainless steel pipes of building water supply (22S407-2)

1.2 Technical specification for connecting the light gauge stainless steel pipes of building water supply and drainage (CECS 227:2021)

1.3 Technical specification for metallic pipeline engineering of building water supply (CJJ/T 154-2020)

1.4 Engineering technical code for the light gauge stainless steel pipes (GB/T 29038-2012)

2. Our company's standard operating procedure for the installation of double-pressure light gauge stainless steel pipes is prepared according to national and industry standards. The technical personnel shall implement the installation in strict accordance with it.

2.1 Product Handling and Storage

Handle pipes with care and do not throw, drop, roll, or drag them to avoid damaging them and affect product functions.

Pipes (pipe fittings) shall not be stored in the open air and mixed with harmful substances, other metals and dirt. Such as angle iron, steel bars, etc. Improper storage or contact with other metals and corrosive media will lead to corrosion in the product, thus affecting its performance.

2.2 Construction Personnel

The construction personnel of the light gauge stainless steel pipe for building water supply and drainage must meet the following requirements: ① Be familiar with the performance of light gauge stainless steel pipe (pipe fitting) products and the installation technique of double press products. ② Possess a minimum of one year's experience installing light gauge stainless steel pipes on construction sites.

2.3 Double Pressing Installation Process



(Figure 1) Cutting off Pipe



(Figure 2) Deburring



(Figure 3) Marking and Inserting Pipe



(Figure 4) Tool Selection



(Figure 5) Pressing



(Figure 6) Inspection

2.3.1 Cutting off Pipe (Figure 1)

According to the desired length of pipe, cut off the pipe; the pipe cutting shall be free from significant temperature rise. A special electric pipe cutter or manual pipe cutter shall be used to cut pipes for marking out. It is recommended that you cut the pipe gently in order to avoid flattening it. Make sure the cuts are made perpendicular to the pipe's horizontal plane, free of burrs or ellipses, and that the subsequent pipes and pipe fittings are put inserted in place. Otherwise, it may lead to damage to the seal ring, which may cause pipe leakage. Besides, if the above special cutting tools are not available on the site, the grinding wheel saw can be used for cutting the pipe, but the following conditions must be met:

① Adopting the grinding wheel saw without iron material;

② The grinding wheel saw should only be used to cut stainless steel pipes and not for cutting other metal pipes.

2.3.2 Deburring (Figure 2)★

After cutting, completely remove the burrs at the pipe ends with a special tool (chamfer tool, file, etc.) and wipe off the dirt in the pipe. Otherwise, the burrs left in the pipe will block the discharge of dirt. The accumulation of dirt will lead to excessive chloride ions and damage to the passivation film on the surface of the stainless-steel product, resulting in corrosion and water leakage after the pipe is installed and put into use. (Water leakage case: Pitting corrosion due to burrs, shown in the figure below)





2.3.3 Marking (Figure 3)

In order to ensure that the steel pipe is completely inserted into the pipe fitting, the insertion length must be marked on the pipe to ensure the correct insertion length. Otherwise, leakage and a decline in joint performance could occur if the pipe is not inserted properly.

2.3.4 Pipe Insertion (Figure 3)

Before inserting the pipe into the pipe fitting, ensure that the seal ring is correctly installed in the U-shaped slot of the pipe fitting. The pipe ends shall not be oval, the ends shall be free from sand or debris, and the ends of the pipe and fittings shall be kept clean. Insert the pipe into the pipe fitting gradually in a straight line until it reaches the length mark position. If the pipe is inclined, it will cause damage to the seal ring or cause it to fall off. You can use water to moisten the pipe if it is not inserted smoothly, but grease should not be used as it could shorten the seal ring's lifespan.

2.3.5 Selection of Pressing Tools (Figure 4)

The light gauge stainless steel pressing pipes must be installed with the manufacturer's matching pressing tools in order to ensure the safety and reliability of the pressing joint connection.

2.3.6 Pressing (Figure 5)

1. DN15-50 Pipe Pressing

The tool should be cleaned before pressing. The groove of the pressing mold is close to the pipe fitting's end, and the jaw of the tool is perpendicular to the axis of the pipe. Before pressing, confirm that the insertion length of the pipe is within 1-3 mm of the depth line. While pressing, gradually pressurize until the tool produces a slight vibration under pressure and the upper and lower jaws of the tool are completely closed. The pressure can be released to put an end to the pressing process.

2. DN65-100 Pipe Pressing ★

Before pressing, clean up the tool, pull out the connecting snap spring of the ring mold and then place the arc convex part of the pipe fitting's end into the U-shaped slot of the ring mold, insert the connecting snap spring, and then connect the ring seat and the ring mold correctly. The pressing of the DN65-100 pipe shall be conducted three times, and its steps are shown as follows:

① Gradually pressurize to 20 Mpa;

② After pressure relief, rotate the pipe or ring mold by 90°, and then pressurize to 40 Mpa before pressure relief;

③ Turn the pipe or ring mold by 90° again, and pressurize to 60 Mpa to put an end to the pressing process.

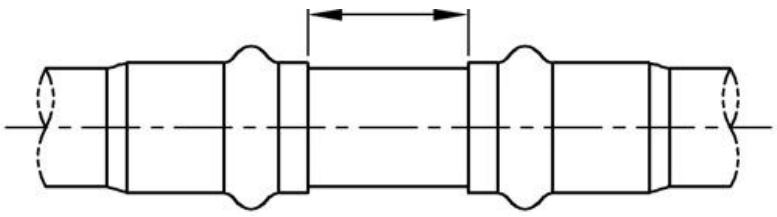
Pressing Pressure Reference Table

Nominal Diameter	Pressing Pressure
DN15-20	50Mpa
DN25-100	60Mpa

During the pressing connection, there is a small deformation in the pipes on both sides of the pressing part. In order to ensure the sealing strength between the pipe and the pipe fittings, a certain distance between the pipe and the pipe fittings must be maintained.

◆ The pressing process mainly depends on the degree of mold closure. After the mold is closed, it can be considered that the pressing is completed. The pressure reading of the pressure gauge is for reference only.

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Safety Distance Reference Table

Nominal Diameter	Safety Distance
DN15-25	20mm
DN32-50	50mm
DN65-100	80mm

2.3.7 Inspection (Figure 6)

After completing the pipe pressing, check the pressing pipe fitting and observe whether the pipe fitting's end has been pressed in place. In order to prevent poor construction, a special hexagonal gauge is recommended to check the pressing size. When the gauge cannot be placed in the pressing position, it should be pressed again at the original pressing mold position. After several repeated pressing operations, if it still fails to meet the requirements, check whether the pressing tool is in good condition or whether the jaws are worn; unqualified tools shall not be used.

2.4 Special Treatment after the Pipe Installation ★

2.4.1 Antiseptic Treatment

① **Through-wall:** During the installation process, the through-wall pipe should be equipped with a sleeve in length not less than the thickness of the wall, and the pipe should not be in direct contact with cement mortar or building cleaning agent. If the cement mortar or building cleaning agent remains on the steel surface for an extended period of time, it may increase the material's corrosion risk.

② **Buried:** Buried pipelines must be treated with antiseptic to prevent stray currents and acid and alkali corrosive substances in the soil from damaging the pipeline's surface. Alternatively, a plastic-coated light gauge stainless steel pipe may be used.

③ **Material selection:** According to the construction characteristics, epoxy resin, foamed polyethylene, perlite, glass wool tube, and shell materials can be used as anti-corrosive materials. It is strictly prohibited to use materials containing soluble chloride ions (halogenated elements or halides) and glue (neoprene glue) for anti-corrosion.

2.4.2 Moisture-proof Treatment

When high humidity and rain are present, the insulation layer needs to undergo moisture-proof treatment.

2.4.3 Movable Support

The open-mounted pipeline should adopt stainless steel movable support or pipe clamp. If the supports or pipe clamps made of other metal materials (except copper) are used, rubber and other soft pads should be applied to the two contact surfaces.

2.5 Pipe Flushing ★

During the cutting, assembly, handling, and other professional cross-construction, impurities, such as metal debris, cutting powder, mortar, concrete blocks, wood chips, and bricks, may enter the pipe, so it is necessary to flush the pipe. The flushing procedures are as follows:

① Water from rivers or underground wells cannot be used for pipeline pressure testing or cleaning; instead, municipal drinking water must be used.

② Determine the locations of water injection and drainage, close the valves unrelated to flushing, and open the pipe valve and exhaust valve.

③ The pipe shall be flushed continuously with the municipal domestic water through the electric booster pump at a water flow speed greater than 1 m/s as long as possible until the color and transparency of the water at the outlet are consistent with that of the water at the inlet. To the greatest extent possible, the flushing direction and the working direction ought to be equal.

2.6 Pressure Test ★

The pressure test should be carried out after the pipe flushing is qualified. The test pressure should be 1.5 times the design pressure and is recommended to be 1.2 Mpa. The pressure test procedures are shown as follows:

① Seal the ends of the pressure test pipe and gradually inject water into it to empty the air in the pipe. After the pipeline system is filled with water, check the water tightness;

② After the pipe passes the water tightness check, conduct the pressurization test. Gradually pressurize for not less than 10 minutes;

③ Stop pressurizing after the pressure rises to the specified test pressure, observe for 10 min, and make sure that the pressure drop does not exceed 0.02 Mpa. The pressure should not decrease once the test pressure has been reduced to the working pressure.

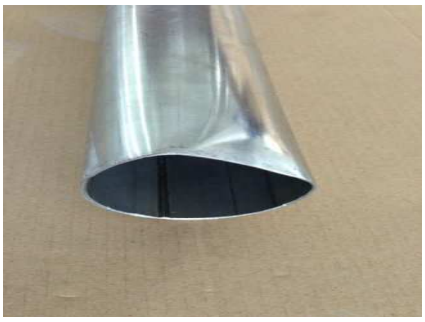
④ If finding water leakage or pressure drop exceeding the specified value after the pipeline system is pressurized, check the pipeline and eliminate the cause of water leakage, then repeat the pressure test according to the above provisions until the pipe meets the requirements.

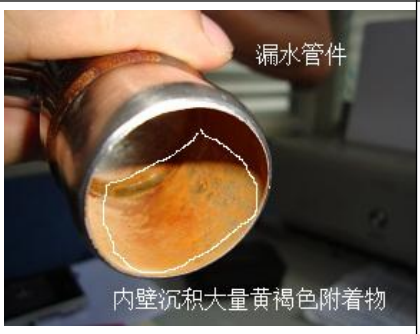
2.7 Startup and Running

After the pipe passes the pressure test, the water should be completely drained, or the water stored in the pipe should be cycled at least once a week. Besides, the pipe can also be flushed instead of water circulation in the pipe mentioned above. Otherwise, the water stationary in the pipe for a long time, the deposition of debris, the chloride in the water, or overproof microorganisms may lead to corrosion to the pipes and fittings, thus resulting in water leakage.

If it is not possible to drain the water in the pipe, the following measures can be taken to avoid water leakage accidents: Air purging: The large compressor for production can be used, or the large container in the device can be used to store gas for intermittent purging; the purging pressure should not exceed the design pressure of the container and pipeline, and the flow rate should not be less than 20 m/s. In addition, the purging gas should not contain oil.

2.8 Improper Operations Examples

		
Improper handling	Improper storage	Failing to deburr
		
Pressed not in place	Use of fractured mold	Improper operation
		
No safety distance	Not pressed in place	Reverse installation of pliers head

		
Improper anti-corrosion treatment of concealed pipe	Improper installation protection	No flushing after installation
		
Failing to discharge water after pressure test	River water cannot be used for pressure test	Well water cannot be used for pressure test

Notes:

It is Forbidden to Use a Large Cutting Machine to Cut Off the Pipe!

The above-shaded contents are the key steps of installation that need to be emphasized. The construction unit must conduct the installation in strict accordance with national and industry standards. In the event that national and industry standards are violated during installation, the buyer will be held accountable for any corrosion, water leaks, and other issues.

All the personnel participating in the training have mastered all contents of the training above. Please sign it for confirmation:

Field installation unit: _____ Field installation head: _____

Construction party tel.: _____ Training party tel.: _____

Project leader's signature/seal:_____ Trainer: _____

Date: