KEG SPEARS

# S-SYSTEM

## Service Manual

Mounting · Dismounting
Disassembling · Assembling

Keg Spear with Safety Latch
**Type S** · JM-SX-02



**Zhejiang Aobaosi Intelligent Manufacturing Co., Ltd.**
Doc. AOB-MAN-04-EN · Version 1.0 · November 2026

AOBAOSI

ABOUT THIS MANUAL

# Contents

Read this manual completely before working on a spear.


| | | |
|---|---|---|
| 1 | **Safety & Warranty**<br>Intended use, safety instructions, warranty | 03 |
| 2 | **Product Overview**<br>Components, materials, Safety Latch | 04 |
| 3 | **Tools**<br>Aobaosi tools and references | 05 |
| 4 | **Mounting**<br>Fitting the spear into the keg | 06 |
| 5 | **Dismounting**<br>Removing the spear from the keg | 07 |
| 6 | **Disassembling**<br>Taking the spear apart on the bench tool | 08 |
| 7 | **Inspection & Spare Parts**<br>Replacement criteria, spare parts | 09 |
| 8 | **Assembling & Leak Test**<br>Rebuilding the spear and testing it | 10 |
| 9 | **Technical Data**<br>Dimensions, torque, materials, compliance | 12 |
| 10 | **Care, Troubleshooting & Service**<br>Cleaning, common issues, contact details | 13 |
| A | **Appendix · Technical Drawing**<br>JM-SX-02 (Type S) | 14 |


## Safety symbols in this manual

| | |
|---|---|
| DANGER | Will cause serious injury if not avoided. |
| WARNING | Could cause serious injury if not avoided. |
| CAUTION | Could cause minor injury or damage to the spear or keg. |
| NOTE | Useful information for correct use. |

## Document information

| | |
|---|---|
| Document | AOB-MAN-04-EN |
| Version | 1.0 · November 2026 |
| Applies to | Keg Spear Type S (JM-SX-02) |
| Intended for | Breweries and keg/spear refurbishment companies |
| Related | AOB-MAN-03-EN Mounting & Dismounting |

CHAPTER 1

# 1. Safety & Warranty

Read this chapter before you start.

Aobaosi keg spears are built for years of daily use and can be serviced many times. Correct mounting, dismounting and servicing protects the people doing the work, the spear and the keg. Incorrect handling can damage the fitting and cause injury.

**DANGER**

**Pressurised keg.** Never loosen or remove a spear from a keg that is still under pressure. The spear can be ejected with great force. Always depressurise the keg completely first (chapter 5, step 2).

**WARNING**

**Spring tension.** The spear contains two pre-loaded springs. Never bend, block or remove the Safety Latch, keep hands and face clear of the spear while it is unlocked, and lift the lever of the Assembling/Disassembling Tool slowly.

## Intended use

The spear is the valve and extraction tube of a beverage keg. It is mounted in the keg neck and connected to a matching S-System coupler. Use it only for beer and other beverages, within the limits given in chapter 9.

## Safety instructions

- Wear safety glasses and protective gloves.
- Work only on a completely depressurised keg.
- Use suitable tools in good condition (chapter 3).
- Service only clean, dismounted spears.
- Never re-use rubber parts: always fit a new body seal and $CO_2$ valve.
- Tighten to **80 ± 5 Nm**, never more.
- Never modify the spear or the Safety Latch.

**2 years**
WARRANTY

Aobaosi warrants its keg spears against defects in materials and workmanship for two years from the date of delivery.

The warranty does not cover normal wear, or damage caused by incorrect storage, mounting, dismounting, assembly, cleaning or use, by unsuitable cleaning agents, or by repairs and modifications made without Aobaosi's written approval. Full conditions: Aobaosi General Terms and Conditions of Sale, article 5.

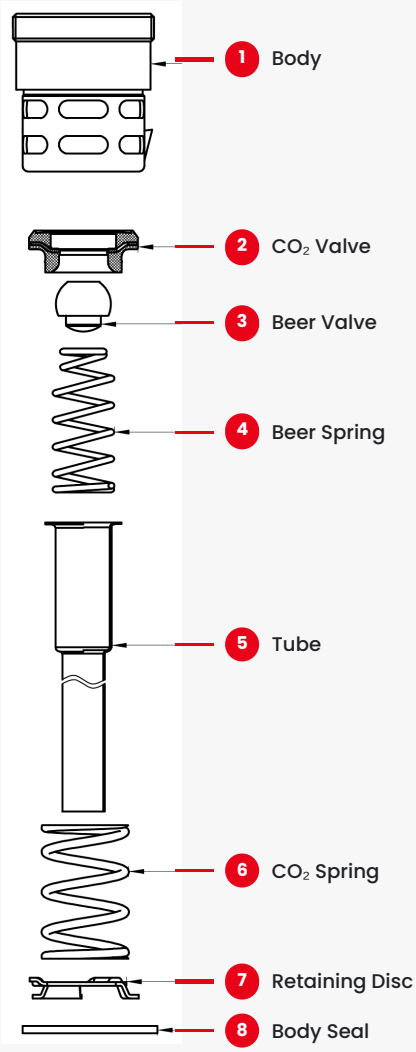
**NOTE**

Keep this manual at the workplace and pass it on to everyone who services spears.

CHAPTER 2

# 2. Product Overview

Components and materials of the Aobaosi S-Type keg spear.




The Aobaosi S-Type spear is a basket-type spear with two valves: the **$CO_2$ valve** and the **beer valve**. The body is screwed into the keg neck with a 2"–14 TPI BS 84 thread. A spring-loaded **Safety Latch** on the side of the body clicks in under the keg neck during mounting. It blocks the spear in the neck and can only be released with the Aobaosi Removal Tool.

| | COMPONENT | MATERIAL | ARTICLE NO. |
|---|---|---|---|
| 1 | Body with Safety Latch | AISI 304 | JM-SX-02-1 |
| 2 | $CO_2$ Valve | EPDM | JM-SX-01-2 |
| 3 | Beer Valve | AISI 304 | JM-SX-01-3 |
| 4 | Beer Spring | AISI 304 | JM-SX-01-4 |
| 5 | Tube | AISI 304 | JM-SX-01-7 |
| 6 | $CO_2$ Spring | AISI 304 | JM-SX-01-5 |
| 7 | Retaining Disc | AISI 304 | JM-SX-01-6 |
| 8 | Body Seal | EPDM | JM-AX-01-7 |

AISI 304 = stainless steel (SUS304). EPDM seals comply with EC 1935/2004 and FDA 21 CFR 177.2600 for food contact.

## Type S

| | |
|---|---|
| Thread | 2"–14 TPI BS 84 |
| Coupler | S-System |
| Safety | Safety Latch, released only with the Removal Tool |
| Drawing | JM-SX-02 |

CHAPTER 3

# 3. Tools

Have these ready before you start.

We recommend Aobaosi tools: they are designed for Aobaosi spears and make every operation quick, safe and damage-free. Each tool reference is repeated in the steps where the tool is used.

KSQ-SX-01

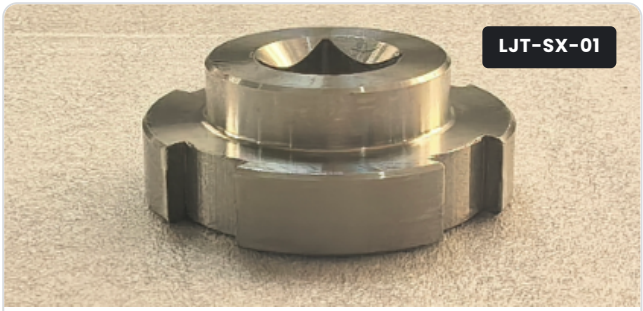


### Removal Tool · S-Type

T-handle tool with a movable tongue, aligned with the “S” stamped in the lug of the spear. Its internal plunger opens the $CO_2$ valve to depressurise the keg; the tool then releases the Safety Latch to unscrew and lift out the spear.

Dismounting · Decompression

LJT-SX-01

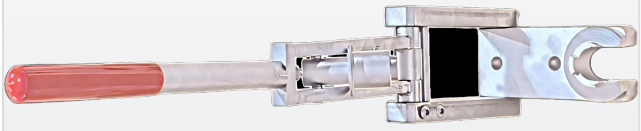


### Torque Adapter · S-Type

To be used in combination with a torque wrench. Engages the top of the spear to screw it into the keg neck and sets and verifies the tightening torque.

80 ± 5 Nm · 60 Nm

KSQ-SX-02

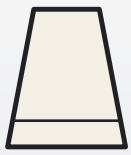


### Assembling/Disassembling Tool · S-Type

Bench tool with fork plate and lever. Compresses the springs so the body can be released from, or locked onto, the retaining disc.

Disassembling · Assembling

JMD-01



### Body Seal Fitting Cone

Placed on the body to slide a new body seal into position without stretching or damaging it.

Assembling

**NOTE**

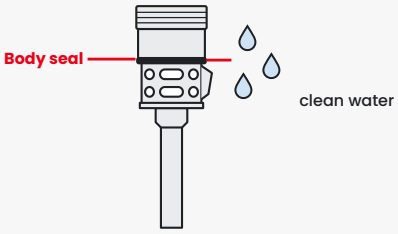
Also have **clean water** and genuine spare parts ready (chapter 7). Clean and dry all tools after use.

CHAPTER 4

# 4. Mounting

Steps 1 – 6 · Fit the spear into the keg

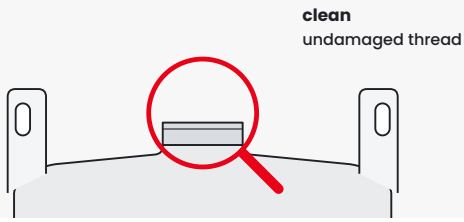
1




## Moisten the body seal

Wet the body seal with clean water. A moist seal slides into the neck without damage.

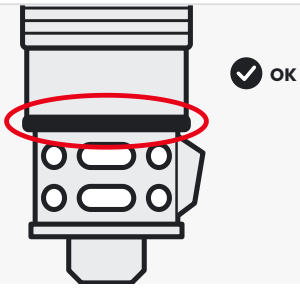
2




## Check the keg neck

The keg neck and its thread must be clean and undamaged. Clean the neck if necessary.

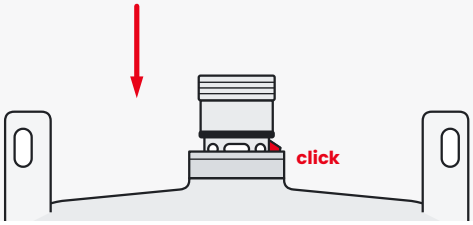
3




## Check the body seal

The body seal must be undamaged and correctly seated on the designated sealing surface or in the designated groove, as applicable. Replace a damaged seal.

4

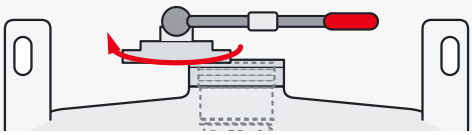



## Push the spear in

Push the spear straight into the keg neck by hand. The Safety Latch springs in while it passes the neck and **clicks back out** once it is through.

5

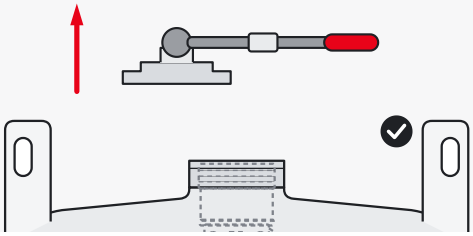
80 ± 5 Nm



## Tighten the spear

Place the Torque Adapter LJT-SX-01 on the spear and connect a torque wrench. Turn the spear **clockwise** into the neck with a continuous, steady movement to **80 ± 5 Nm**.

6



## Remove the tools

Lift the torque wrench and the Torque Adapter LJT-SX-01 off the spear. The keg is ready for filling.

**TIP**

**Check returning kegs.** After several trips to the market and back, the spear can gradually lose torque. Check **empty kegs returning from the market** before refilling, and re-tighten the spear to **60 Nm** with the Torque Adapter LJT-SX-01 and a torque wrench.

CHAPTER 5

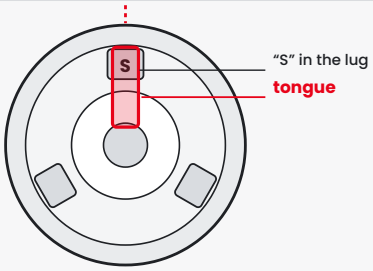
# 5. Dismounting

Steps 1 – 6 · Remove the spear from the keg

**DANGER**

**Depressurise first.** Never start unscrewing before step 2 is complete and the keg is free of pressure.

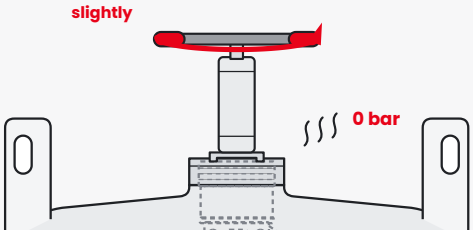
1




### Align the Removal Tool

Place the Removal Tool **KSQ-SX-01** on the spear. The **movable tongue** of the tool lowers as the tool is turned out; it has to sit exactly on the side with the stamped **"S"** in the lug of the spear.

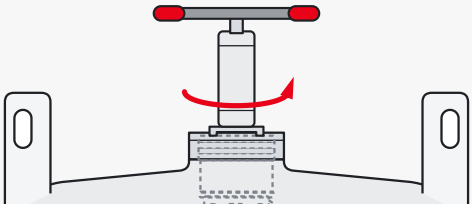
2




### Depressurise the keg

With the tool correctly seated, turn the handle **slightly** until you feel resistance, then a little further until you hear the $CO_2$ escaping. A plunger inside the tool presses the $CO_2$ valve open. Wait until the hissing stops and the keg is at **0 bar**. Only then continue with steps 3 and 4.

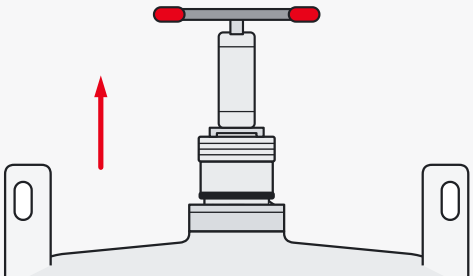
3



### Unscrew the spear

Turn the tool further **anticlockwise**. Engaged in the lugs of the spear, the tool releases the Safety Latch and unscrews the spear until the thread is free.

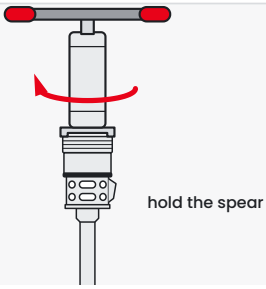
4



### Lift the spear out

Lift the spear and the tool together **vertically** out of the keg neck.

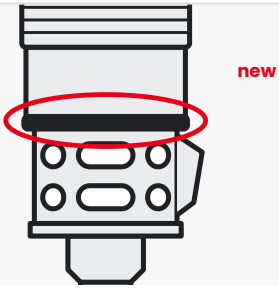
5




### Release the tool

Hold the spear firmly and turn the tool **clockwise** until it separates from the spear.

6




### Replace the seal or service

Fit a new body seal before the spear is mounted again, or service the spear (chapter 6).

CHAPTER 6

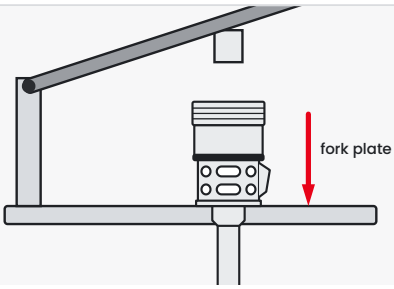
# 6. Disassembling

Steps 1 – 6 · Take the spear apart on the bench tool

**WARNING**

**Spring tension.** Keep the lever pressed down while you unlock the body, and lift it **slowly** afterwards. Released too quickly, the springs can push the body out of the tool.

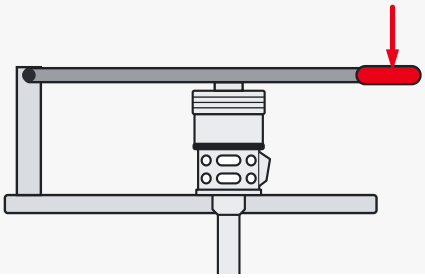
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### Place the spear in the tool

Lift the lever of the Assembling/Disassembling Tool **KSQ-SX-02**. Place the spear upright in the fork plate, with the tube in the slot and the retaining disc in the recess.

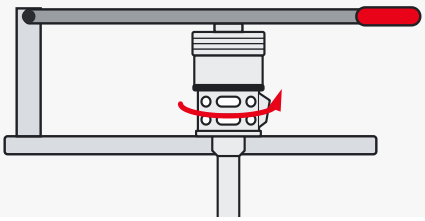
2



### Press the lever down

Pull the lever down slowly. The tool presses the body down, compresses the springs and takes the load off the retaining disc.

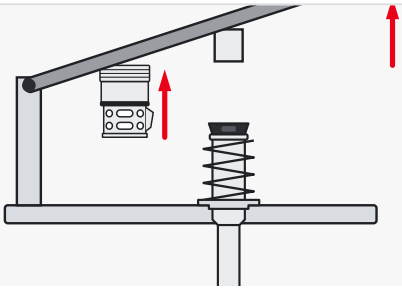
3



### Unlock the body

Keep the lever down and turn the body **anticlockwise** until it releases from the retaining disc.

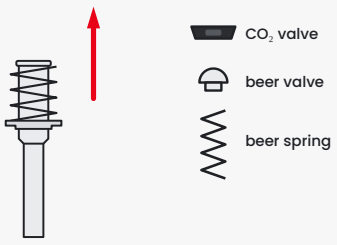
4



### Remove the body

Lift the lever slowly to relax the springs. Take the body off the tube.

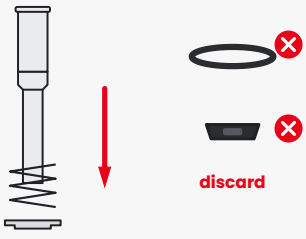
5




### Take out the valves

Take the $CO_2$ valve, the beer valve and the beer spring out of the top of the tube.

6



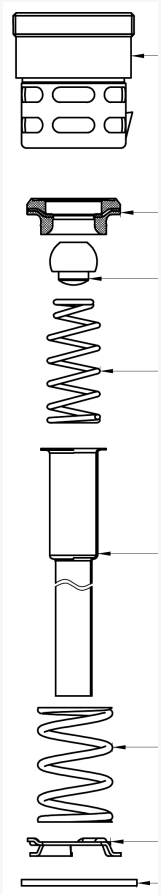

### Remove the remaining parts

Slide the $CO_2$ spring and the retaining disc off the tube. Remove the body seal. Discard the $CO_2$ valve and the body seal: **never re-use rubber parts.**

CHAPTER 7

# 7. Inspection & Spare Parts

Clean, inspect and replace before assembling.



## Clean

We recommend cleaning all metal parts in an **ultrasonic cleaner with an acid ultrasonic cleaning solution**, then rinsing them with clean water. Inspect the parts when they are clean and dry.

## Inspect & replace

| PART | REPLACE WHEN | ACTION |
|---|---|---|
| **Body seal** | Always replace. | New, moistened body seal JM-AX-01-7 |
| **$CO_2$ valve** | Always replace. | New, moistened $CO_2$ valve JM-SX-01-2 |
| **Beer valve** | Scratches or damage on the sealing surface. | Replace JM-SX-01-3 |
| **Springs** | Corrosion, cracks, deformation or loss of tension. | Replace JM-SX-01-4 (beer) · JM-SX-01-5 ($CO_2$) |
| **Tube** | Bent tube, damaged or deformed top. | Replace JM-SX-01-7 |
| **Retaining disc** | Deformation, damaged locking lugs. | Replace JM-SX-01-6 |
| **Body** | Damaged thread or sealing surfaces, cracks. Safety Latch bent or not springing back. | Replace JM-SX-02-1 |

## Spare parts

**Body Seal**
EPDM · JM-AX-01-7

**$CO_2$ Valve**
EPDM · JM-SX-01-2

**Beer Valve**
AISI 304 · JM-SX-01-3

**Beer Spring**
AISI 304 · JM-SX-01-4

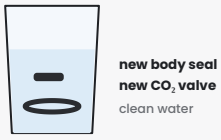
**$CO_2$ Spring**
AISI 304 · JM-SX-01-5

**NOTE** When ordering spare parts, mention the spear type (S) and the part number.

# 8. Assembling

Steps 1 – 6 of 8 · Rebuild the spear

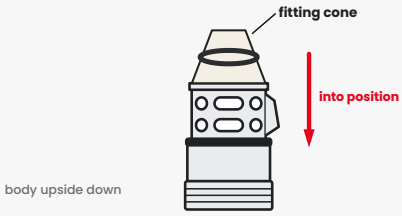
1




## Moisten the new seals

Put a new body seal and a new $CO_2$ valve in clean water. Moist rubber parts slide into place without damage.

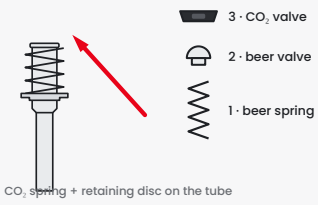
2




## Fit the body seal

Turn the body **upside down** and place the Body Seal Fitting Cone **JMD-01** on the bottom end of the body. Slide the new body seal over the cone down to its seat and remove the cone. The body seal must be undamaged and correctly seated on the designated sealing surface or in the designated groove, as applicable.

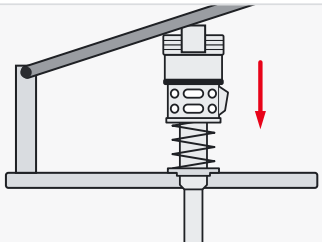
3




## Build up the tube

Slide the retaining disc and the $CO_2$ spring onto the tube. Put the beer spring and the beer valve into the top of the tube, then place the new $CO_2$ valve on the beer valve.

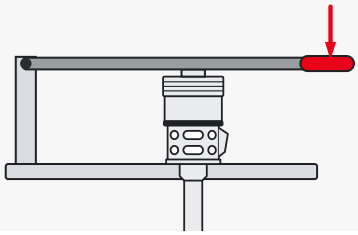
4



## Place the parts in the tool

Place the tube assembly upright in the fork plate of the tool **KSQ-SX-02**, with the retaining disc in the recess. Put the body over the parts, Safety Latch outwards.

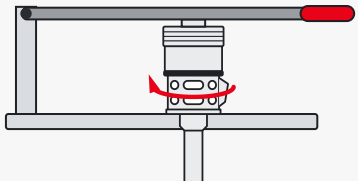
5



## Press the lever down

Pull the lever down slowly. The tool presses the body over the valves and compresses the springs.

6



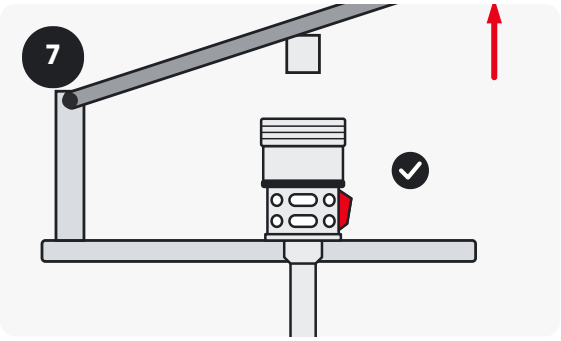
## Lock the body

Keep the lever down and turn the body **clockwise** until it locks onto the retaining disc.

**CAUTION** Use only new, genuine rubber parts. A re-used body seal or $CO_2$ valve can leak and contaminate the beverage.

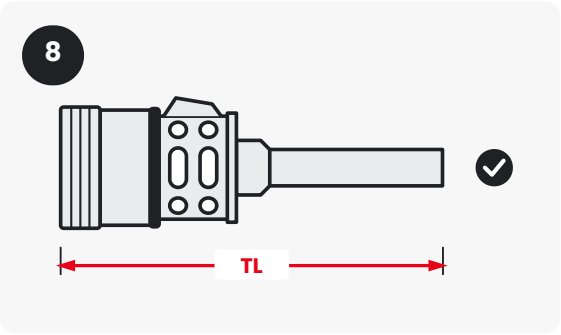
# 8. Assembling & Leak Test

Steps 7 – 8 of 8 · Release, check and test




## Release the spear

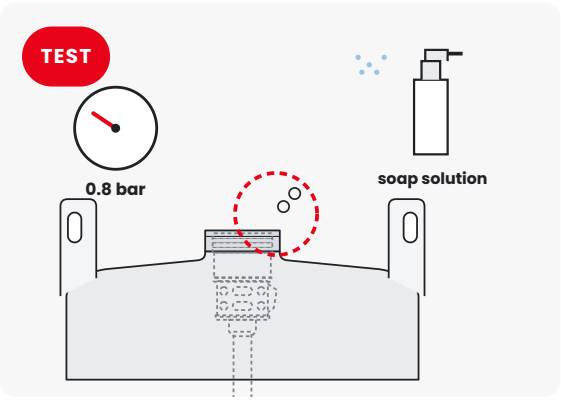
Lift the lever slowly and take the assembled spear out of the tool. Check that the body seal sits correctly. Press the **Safety Latch** in by hand: it must move freely and spring back out.




## Check the total length

Measure the total length (TL) of the spear and compare it with the drawing or with a new spear of the same length. A spear that is too long means the $CO_2$ valve is **not mounted correctly**.

| CAUTION | Length not correct? Put the spear back in the tool and repeat steps 4 to 7. |
|---|---|




## Leak test

Mount the serviced spear in a keg (chapter 4) and pressurise the keg to a low test pressure of **0.8 bar**. Spray a leak detection solution, such as soapy water, onto the spear head, the $CO_2$ valve and the keg neck.

**No bubbles may form** within **10 seconds**. If bubbles appear, depressurise the keg, dismount the spear and check it again.

This practical check covers the accessible sealing areas. It does not replace a full functional test of the internal seals.

CHAPTER 9

# 9. Technical Data

Dimensions, torque, materials and compliance.

| | TYPE S · JM-SX-02 |
|---|---|
| **GENERAL** | |
| Spear type | Basket-type keg spear, two valves, with Safety Latch |
| Coupler | S-System |
| **DIMENSIONS** | |
| Thread | 2"–14 TPI BS 84 |
| Tube | Ø 19 mm · length according to keg height (TL / SL, see drawing) |
| Distance tube – keg bottom | 14 mm |
| Valve stroke | 9 – 12 mm |
| **MOUNTING** | |
| Tightening torque | 80 ± 5 Nm, continuous |
| Re-tightening (empty returned kegs) | 60 Nm |
| **MATERIALS & COMPLIANCE** | |
| Metal parts | Stainless steel AISI 304 (SUS304) |
| Seals ($CO_2$ valve, body seal) | EPDM · hardness 81 ± 3 Shore A |
| **FOOD CONTACT COMPLIANCE** | |
| European Union | Reg. (EC) 1935/2004 · EDQM Technical Guide on metals and alloys · migration tests ref. Reg. (EU) 10/2011 |
| Germany · France | LFGB § 30/31 · French DGCCRF metals guidance and BPA law (BPA not detected) |
| United States | FDA 21 CFR 177.2600 (EPDM) · California Prop 65 (lead, PFAS not detected) |
| Japan | Food Sanitation Law, MHW Notice No. 370 (EPDM $CO_2$ valve) |
| **OPERATING LIMITS** | |
| Max. working pressure | 3 bar |
| Max. temperature | 135 °C |

Test reports (SGS, Intertek) available on request. Full tolerances: see appendix. Specifications may change without notice.

CHAPTER 10

# 10. Care, Troubleshooting & Service

Keep spears in top condition.

## Care

- Clean spears with the regular keg washing cycle, using caustic and acid detergents according to the brewery's cleaning procedure.
- Replace the body seal every time the spear is dismounted.

## 

- Store spears and spare parts dry, dust-free and out of direct sunlight.
- Clean and dry the tools after use.

## Troubleshooting

| PROBLEM | POSSIBLE CAUSE | SOLUTION |
|---|---|---|
| **Leak at the keg neck** | Body seal damaged or not seated. Torque too low. | Replace the body seal and moisten it. Mount again and tighten to 80 ± 5 Nm. |
| **Spear difficult to screw in** | Dirt or damage on the keg neck thread. | Clean and inspect the thread. Never force the spear. |
| **No click when pushing in** | Safety Latch dirty, bent or damaged. | Disassemble the spear and replace the body (chapter 7). |
| **Spear cannot be unscrewed** | Tongue of the Removal Tool not aligned with the “S” in the lug of the spear, so the latch is not released. | Realign the tongue with the “S” in the lug of the spear and check that the tool is correctly seated and engaged. |
| **Gas or beer leak at the valves** | $CO_2$ valve or beer valve worn or damaged, spring weak. | Disassemble the spear (chapter 6) and replace the parts (chapter 7). |
| **Body does not lock in the tool** | Parts not seated correctly, or springs not compressed far enough. | Lift the lever, centre the parts on the retaining disc and repeat assembling steps 4 to 6. |

## Service & contact

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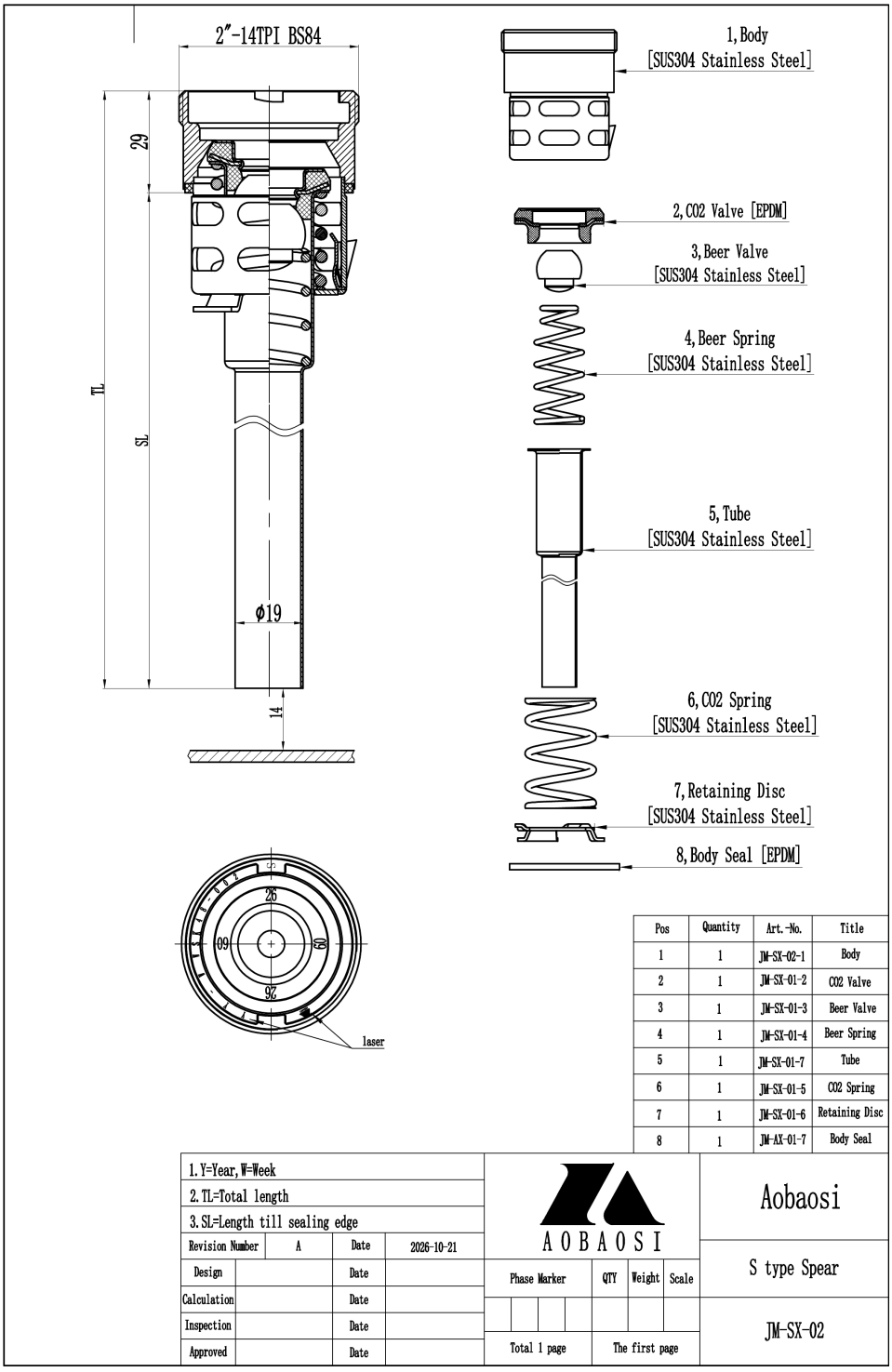
**NOTE**

For service, spare parts or warranty claims, always mention the spear type (S), the drawing number and the code engraved on the spear.

APPENDIX

# A. Technical Drawing

Assembly drawing JM-SX-02 · Keg Spear Type S with Safety Latch




| Pos | Quantity | Art.-No. | Title |
|---|---|---|---|
| 1 | 1 | JM-SX-02-1 | Body |
| 2 | 1 | JM-SX-01-2 | CO2 Valve |
| 3 | 1 | JM-SX-01-3 | Beer Valve |
| 4 | 1 | JM-SX-01-4 | Beer Spring |
| 5 | 1 | JM-SX-01-7 | Tube |
| 6 | 1 | JM-SX-01-5 | CO2 Spring |
| 7 | 1 | JM-SX-01-6 | Retaining Disc |
| 8 | 1 | JM-AX-01-7 | Body Seal |

1. Y=Year, W=Week
2. TL=Total length
3. SL=Length till sealing edge

| Revision Number | A | Date | 2026-10-21 |
|---|---|---|---|
| Design | | Date | |
| Calculation | | Date | |
| Inspection | | Date | |
| Approved | | Date | |

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| Phase Marker | QTY | Weight | Scale |
|---|---|---|---|
| | | | |

Total 1 page | The first page

Aobaosi

S type Spear

JM-SX-02

Reference drawing. For controlled copies, contact Aobaosi quoting drawing number JM-SX-02.

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