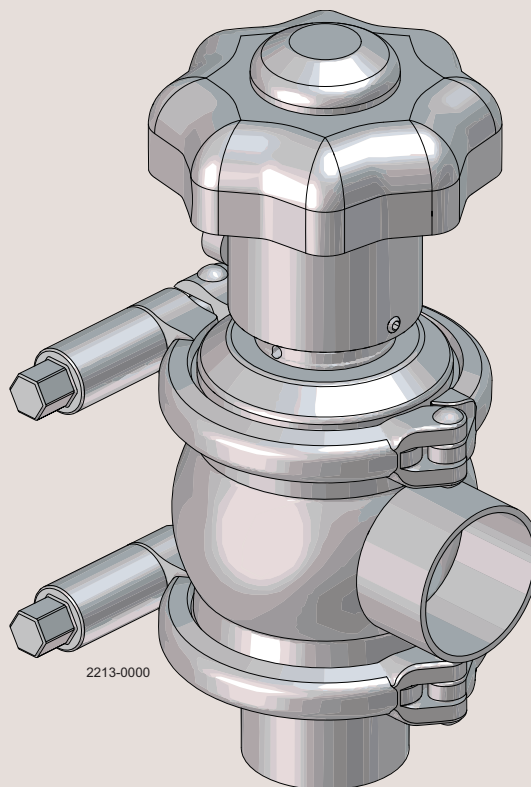




Instruction Manual

Unique Single Seat Valve - manually regulating RF



ESE02604-EN1

2013-12

Original manual

The information herein is correct at the time of issue but may be subject to change without prior notice

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1 Declaration of Conformity

The designated company

Alfa Laval

Company Name

Albuen 31, DK-6000 Kolding, Denmark

Address

+45 79 32 22 00

Phone No.

hereby declare that

Unique Single Seat Valve

Denomination

Manually Regulating RF

Type

November 2013

Year

is in conformity with the following directive:

- Pressure Equipment Directive 97/23/EC category 1 and subjected to assessment procedure Module A

Manager, Product Centre Fluid Handling

Title

Bjarne Søndergaard

Name

Alfa Laval Kolding

Company



Signature

Designation



*Unsafe practices and other important information are emphasised in this manual.
Warnings are emphasised by means of special signs.*

2.1 Important information

Always read the manual before using the valve!

WARNING

Indicates that special procedures must be followed to avoid serious personal injury.

CAUTION

Indicates that special procedures must be followed to avoid damage to the valve.

NOTE

Indicates important information to simplify or clarify procedures.

2.2 Warning signs

General warning:



Caustic agents:



2 Safety

All warnings in this manual are summarised on this page.

Pay special attention to this instructions below so that serious personal injury and/or damage to the valve are avoided.

2.3 Safety precautions

Installation:

Always read the technical data thoroughly (see chapter 6 Technical data)
Never touch the valve or the pipelines when processing hot liquids or when sterilising
Never dismantle the valve with the valve and pipelines under pressure
Never dismantle the valve when it is hot



Operation:

Never dismantle the valve with the valve and pipelines under pressure
Never dismantle the valve when it is hot
Always read the technical data thoroughly (see chapter 6 Technical data)
Never touch moving parts if the actuator is supplied with compressed air
Always rinse well with clean water after cleaning



Always handle lye and acid with great care



Maintenance:

Always read the technical data thoroughly (see chapter 6 Technical data)
Never service the valve when it is hot
Never service the valve with the valve and pipelines under pressure



Transportation:

Always ensure that compressed air is released
Always ensure that all connections are disconnected before attempting to remove the valve from the installation
Always drain liquid out of valves before transportation
Always used designated lifting points if applicable
Always ensure that the valve is fixed securely during transportation - if specially designed packaging material is available, it should be used

The instruction manual is part of the delivery. Study the instructions carefully.
 The items refer to the parts list and service kits section.
 The valve is supplied as separate parts as standard (for welding).
 The valve is assembled before delivery, if it is supplied with fittings.

3.1 Unpacking/delivery

Step 1

CAUTION

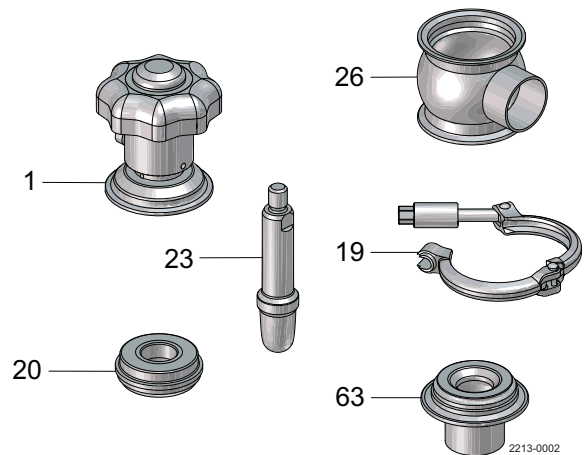
Alfa Laval cannot be held responsible for incorrect unpacking.

Check the delivery for:

1. Complete valve.
2. Delivery note.

Step 2

1. Complete handle.
2. Bonnet (20).
3. Clamp (19).
4. Valve plug (23).
5. Valve body (26).
6. Seat element (63)



Step 3

Remove possible packing materials from the valve/valve parts.
 Inspect the valve/valve parts for visible transport damage.
 Avoid damaging the valve/valve parts.

3.2 General installation

Step 1



Always read the technical data thoroughly.
 (See chapter 6 Technical data).

CAUTION

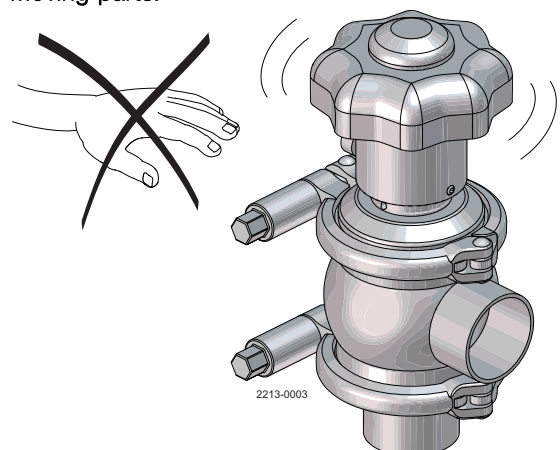
Alfa Laval cannot be held responsible for incorrect installation.

Step 2



Never touch moving parts during operation.

Moving parts!

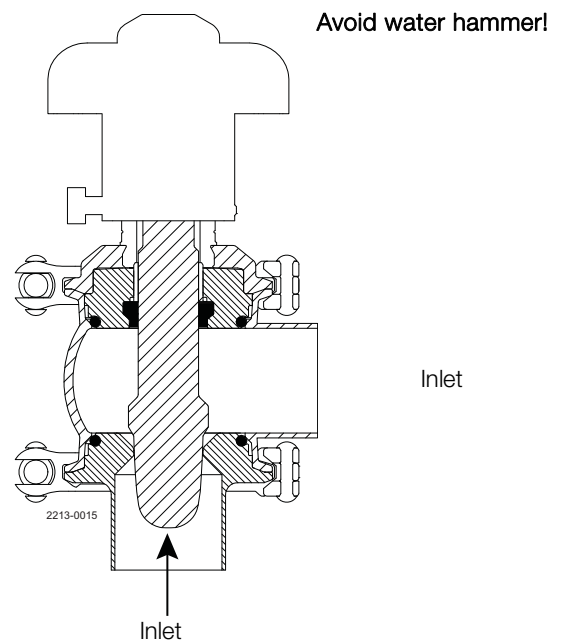


3 Installation

Study the instructions carefully and pay special attention to the warnings!
The valve has welding ends as standard but can also be supplied with fittings.

Step 3

We recommend that the valve is installed so that the flow is against the closing direction to avoid water hammer.

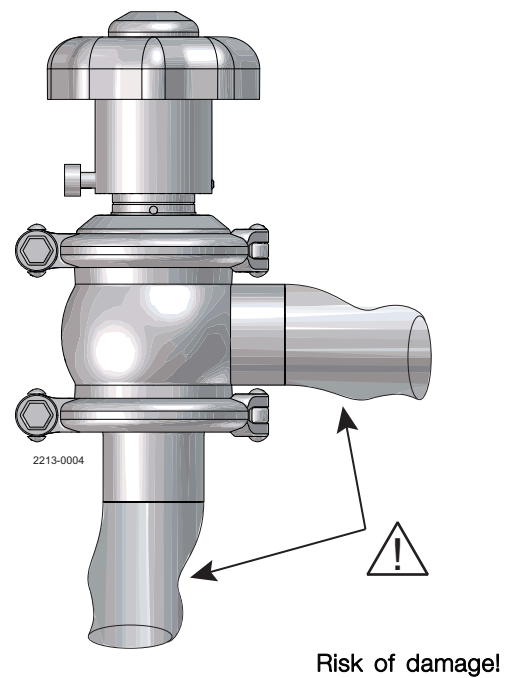


Step 4

Avoid stresses the valve.

Pay special attention to:

- Vibrations.
- Thermal expansion of the pipelines.
- Excessive welding.
- Overloading of the pipelines.

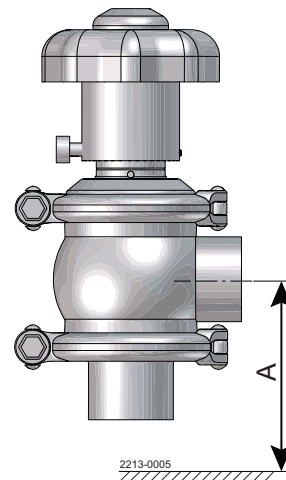


Study the instructions carefully.
The valve is supplied as separate parts to facilitate welding.
The items refer to the parts list and service kits section.
Check the valve for smooth operation after welding.

3.3 Welding

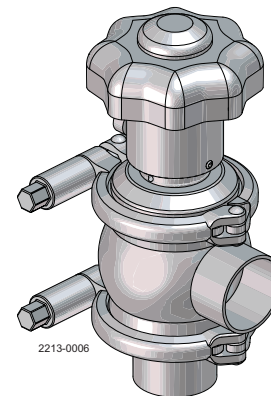
Step 1

Always install valves with more than one valve body so that the seals between the valve bodies can be replaced. Do not weld more than one valve body into the system.
Measurement A is depends on the body combination and piping solution.



Step 2

Assemble the valve in accordance with the steps on page 18.
Pay special attention to the warnings!

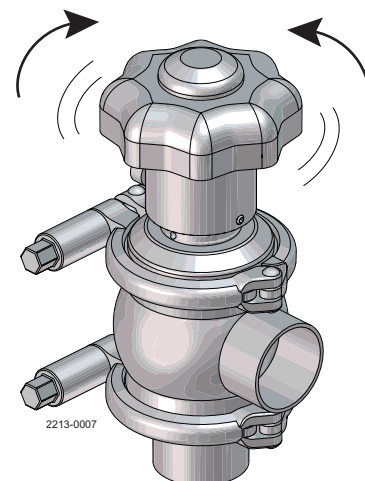


Step 3

Pre-use check:

Open and close the valve several times to ensure that it operates smoothly.

Pay special attention to the warnings!



3 Installation

Study the instructions carefully.

The valve is supplied as separate parts to facilitate welding.

The items refer to the parts list and service kits section.

Check the valve for smooth operation after welding.

3.4 Recycling information

- **Unpacking**

- Packing material consists of wood, plastics, cardboard boxes and in some cases metal straps
- Wood and cardboard boxes can be re-used, recycled or used for energy recovery
- Plastics should be recycled or burnt at a licensed waste incineration plant
- Metal straps should be sent for material recycling

- **Maintenance**

- During maintenance, oil and wearing parts in the machine are replaced
- All metal parts should be sent for material recycling
- Worn out or defective electronic parts should be sent to a licensed handler for material recycling
- Oil and all non-metal wear parts must be disposed of in agreement with local regulations

- **Scrapping**

- At the end of use, the equipment must be recycled according to the relevant, local regulations. Besides the equipment itself, any hazardous residues from the process liquid must be considered and dealt with in a proper manner. When in doubt, or in the absence of local regulations, please contact your local Alfa Laval sales company
-

Study the instructions carefully and pay special attention to the warnings!
Ensure that the valve operates smoothly.
The items refer to the parts list and service kits section.

4.1 Operation

Step 1



Always read the technical data thoroughly.
See chapter 6 Technical data.

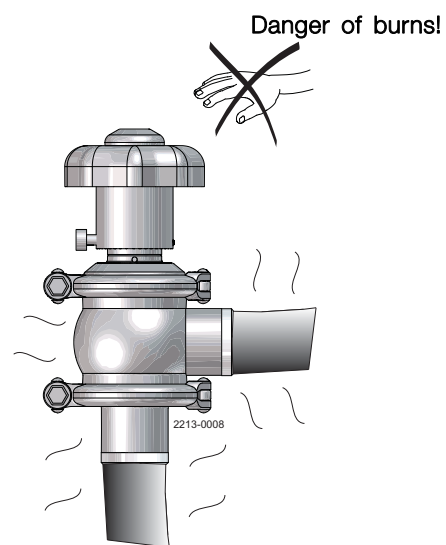
CAUTION

Alfa Laval cannot be held responsible for incorrect operation.

Step 2



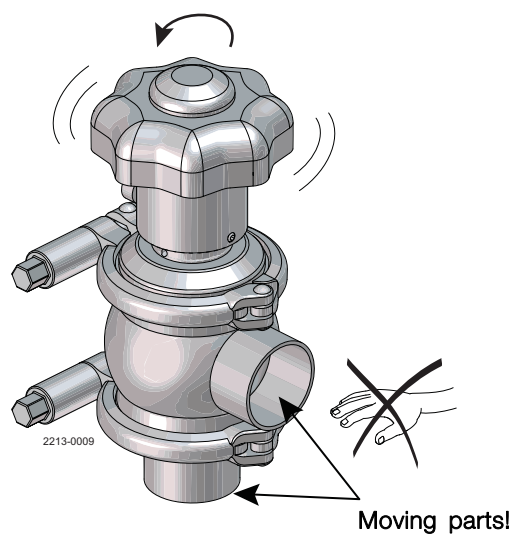
Never touch the valve or the pipelines when processing hot liquids
or when sterilising.



Step 3



Never touch moving parts during operation.



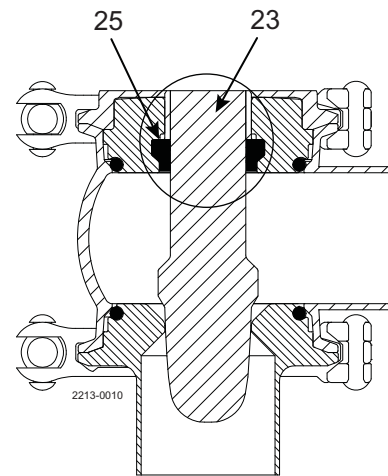
4 Operation

*Study the instructions carefully and pay special attention to the warnings!
Ensure that the valve operates smoothly.
The items refer to the parts list and service kits section.*

Step 4

Lubrication of valves:

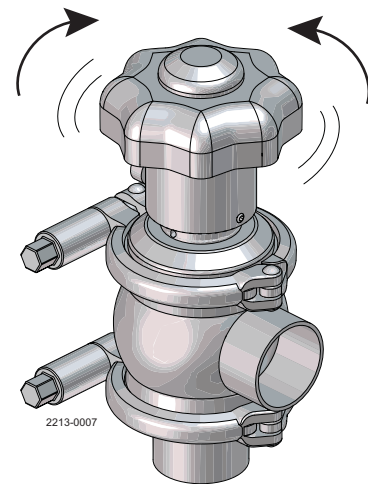
1. Ensure smooth movement between lip seal (25) and plug stem (23).
2. Lubricate with Klüber Paraliq GTE 703 if necessary (see chapter 5 Maintenance).



Step 5

Lubrication of actuator

1. Ensure smooth movement of the crank mechanism (the crank is lubricated before delivery).
2. Lubricate with Molykote Longterm 2 plus if necessary.



*Pay attention to potential faults. Study the instructions carefully.
The items refer to the parts list and service kits section.*

4.2 Troubleshooting

NOTE!

Study the maintenance instructions carefully before replacing worn parts - see chapter 5 Maintenance.

Problem	Cause/result	Remedy
External product leakage	Worn or damaged lip seal and/or O-ring	<ul style="list-style-type: none"> - Replace the seals - Replace with seals of a different rubber grade
Internal product leakage	<ul style="list-style-type: none"> - Worn or damaged plug seal - Product deposits on the seat and/or plug 	<ul style="list-style-type: none"> - Replace the seal - Replace with a seal of a different rubber grade - Frequent cleaning
Water hammer	The flow direction is the same as the closing direction	The flow direction should be against the closing direction

4 Operation

The valve is designed for cleaning in place (CIP).

Study the instructions carefully and pay special attention to the warnings!

NaOH = Caustic soda.

HNO₃ = Nitric acid.

4.3 Recommended cleaning

Step 1



Always handle lye and acid with great care.

Caustic danger!



Always use
rubber gloves!



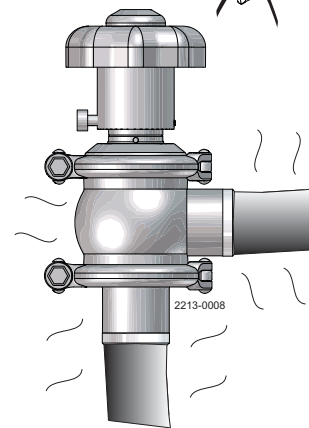
Always use
protective goggles!

Step 2



Never touch the valve or the pipelines when sterilising.

Danger of burns!

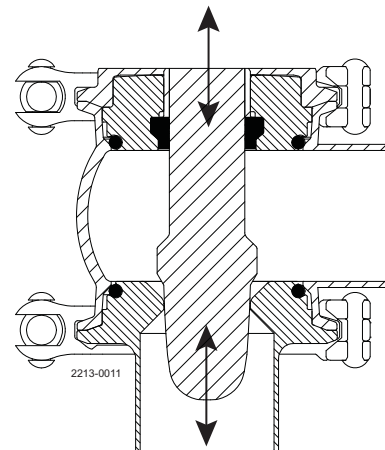


Step 3

Clean the plug and the seats correctly.

Pay special attention to the warnings!

Lift and lower valve plug momentarily!



The valve is designed for cleaning in place (CIP).

Study the instructions carefully and pay special attention to the warnings!

NaOH = Caustic soda.

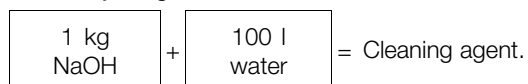
HNO₃ = Nitric acid.

Step 4

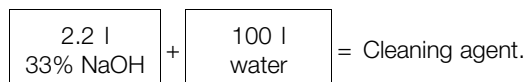
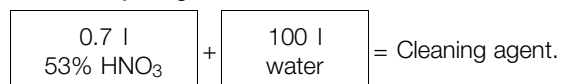
Examples of cleaning agents:

Use clean water, free from chlorides.

1. 1% by weight NaOH at 70° C

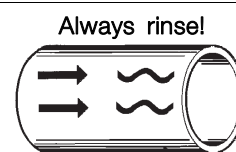


2. 0.5% by weight HNO₃ at 70° C



Step 5

1. Avoid excessive concentration of the cleaning agent.
2. Adjust the cleaning flow to the process.
3. **Always** rinse well with clean water after cleaning.



Clean water Cleaning agents

Step 6

NOTE

The cleaning agents must be stored/disposed of in accordance with current regulations/directives.

5 Maintenance

Maintain the valve regularly.

Study the instructions carefully and pay special attention to the warnings!

Always keep spare rubber seals and lip seals in stock.

5.1 General maintenance

Step 1



Always read the technical data thoroughly.

See chapter 6 Technical data.

NOTE

All scrap must be stored/disposed of in accordance with current rules/directives.

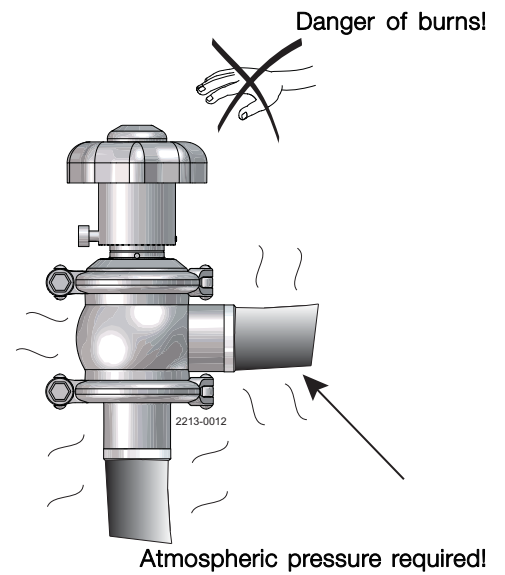
Step 2



Never service the valve when it is hot.



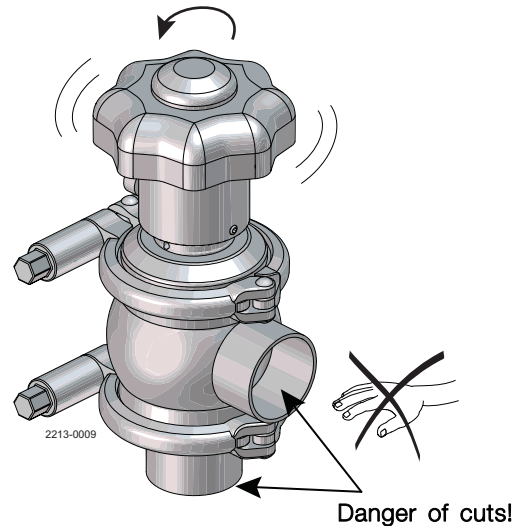
Never service the valve with the valve and pipelines under pressure.



Step 3



Never stick your fingers through the valve ports.

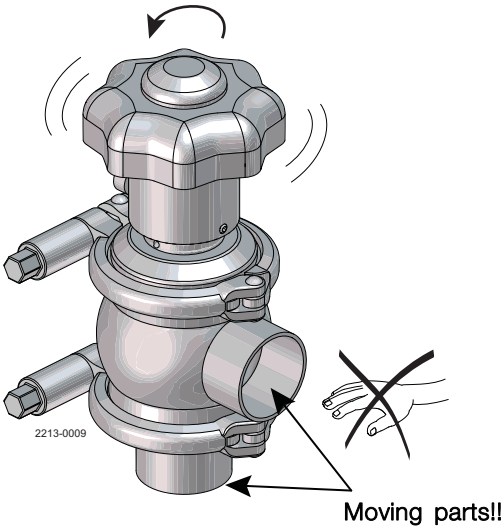


Maintain the valve regularly.
 Study the instructions carefully and pay special attention to the warnings!
 Always keep spare rubber seals and lip seals in stock.

Step 4



Never touch moving parts during operation.

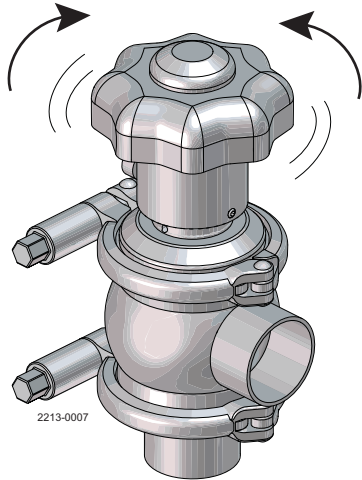


The table below gives some guidelines for maintenance and lubrication intervals. Please note that the guidelines are based on normal working conditions in one shift.

	Product wetted seals
Preventive maintenance	Replace after 12 months depending on working conditions
Maintenance after leakage (leakage normally starts slowly)	Replace at the end of the day
Planned maintenance	<ul style="list-style-type: none"> - Regular inspection for leakage and smooth operation - Keep a record of the valve - Use the statistics for inspection planning Replace after leakage
Lubrication	Before fitting Klüber Paraliq GTE 703 or similar USDA H1 approved oil/grease

Pre-use check:

Open and close the valve several times to ensure that it operates smoothly.



Pay special attention to the warnings!

Recommended spare parts: Service kits (see chapter 7 Parts list and service kits)

5 Maintenance

Study the instructions carefully. The items refer to the parts list and service kits section. Handle scrap correctly.

5.2 Dismantling the valve

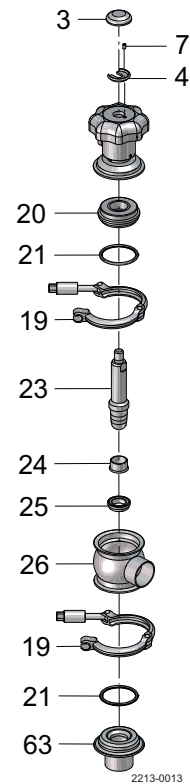
Step 1

1. Remove cap, loosen screw and remove the washer by sliding it sideways.
2. Loosen and remove clamp.
3. Lift away the crank.
4. Remove valve plug.
5. Remove O-ring, lip seal and bushing in bonnet.
(Use bushing tool and rubber mallet).
6. Loosen and remove clamp.
7. Lift away valve body
8. Remove O-ring

Note: Be careful not to damage the bushing.

Pay special attention to the warnings!

Note: For plug seal replacement, please see chapter 5.3 Plug seal replacement



5.3 Plug seal replacement

1. Remove the old seal ring using a knife, screwdriver or similar.
Be careful not to damage metal parts.
2. Pre-mount plug seal without pressing it into the groove.
3. Squeeze plug seal into the groove using opposite pressure points.
4. Release compressed air behind plug seal.

Note: For plug seal replacement, please read instruction in the service kit.

5.4 Assembly of valve

Reverse order of 5.2 Dismantling the valve.

Lubricate O-ring (21) and lip seal (25) with Klüber Paraliq GTE 703.

Remember to tighten the spindle and plug to a torque of 30Nm. (to use two 17mm spanners)

If there are vibrations in the pipeline, Alfa Laval recommends the use of Loctite no. 243.

Note: Do not forget to screw in lower set screw (7) when assembling the valve.

It acts as a stroke stop. Without this screw, the valve can be opened so far that the crank comes off.

In some valve sizes, the flats on the plug stem may enter into the lip seal, which will then leak.

*It is important to observe the technical data during installation, operation and maintenance.
Inform all personnel about the technical data.*

6.1 Technical data

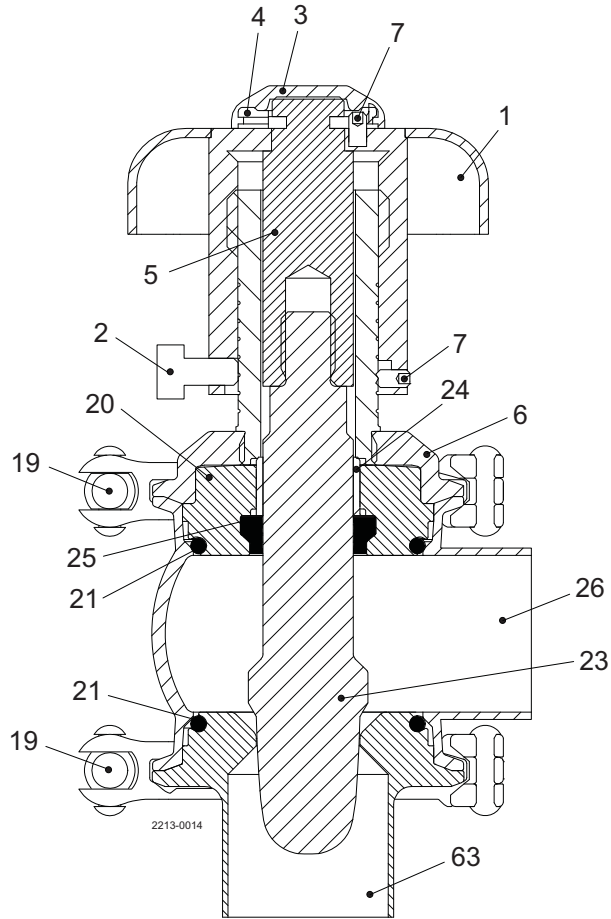
Data - valve	
Max. product pressure	1000 kPa (10 bar).
Min. product pressure	Full vacuum (depending on product specifications).
Temperature range	-10° C to +140° C (standard EPDM seal).
Materials - valve/crank mechanism	
Product wetted steel parts	1.4404 (316L) (internal Ra < 0.8 µm).
Other steel parts	1.4301 (304).
Plug seal	EPDM
Other product wetted seals	EPDM (standard).
Optional product wetted seals	HNBR and FPM.

Noise

One metre away from and 1.6 metres above the exhaust, the noise level of a valve actuator will be approximately 77db (A) without noise damper and approximately 72 db (A) with damper - measured at 7 bar air pressure.

shows a manually operated Unique Single Seat Valve
The items refer to the parts list in the following sections

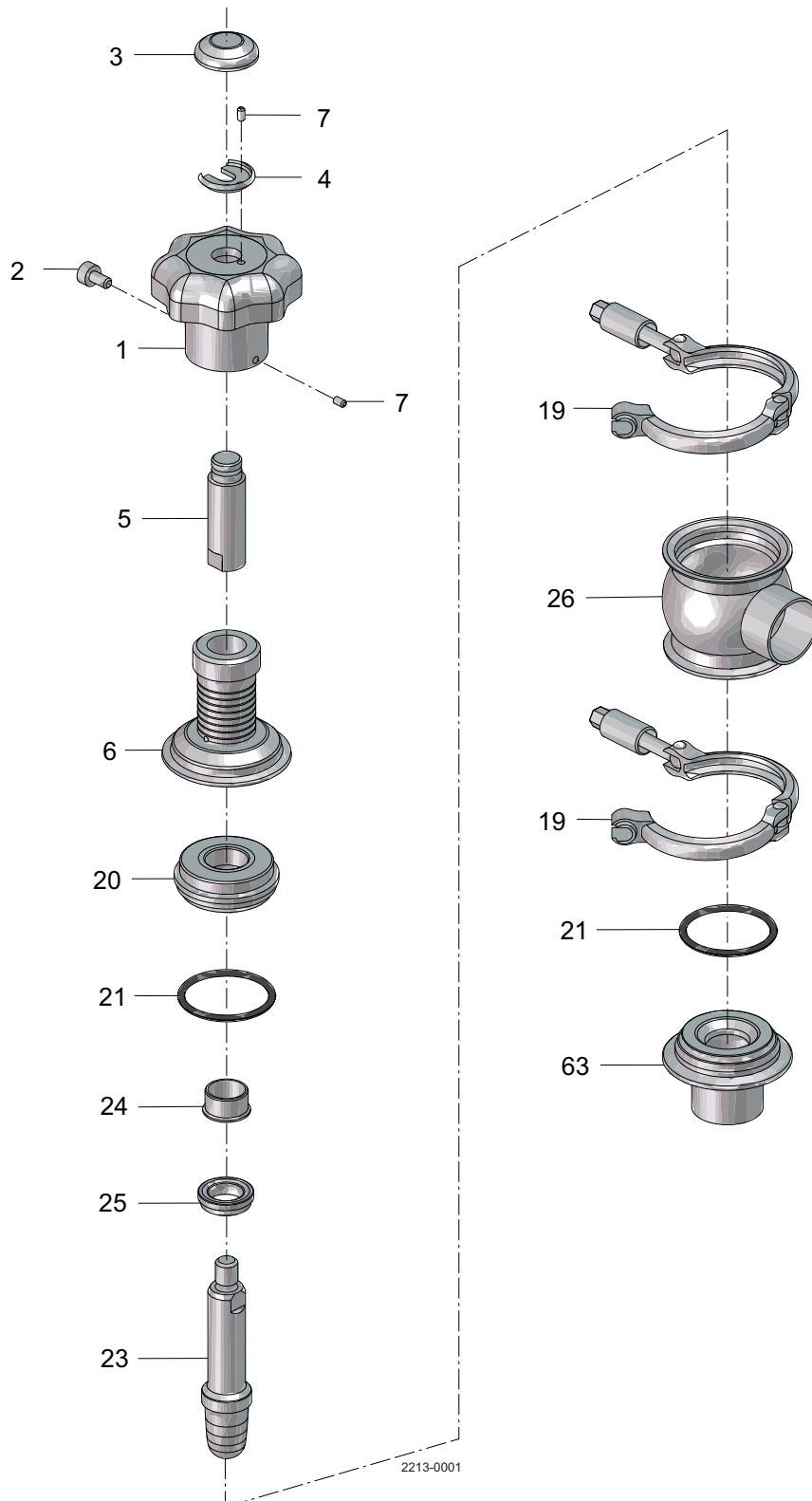
7.1 Drawing



7 Parts list and service kits

The drawing shows a manually operated Unique Single Seat Valve, shut off.
The items refer to the parts lists in the following sections

7.2 Unique Single Seat Valve - manually regulating RF



7 Parts list and service kits

The drawing shows a manually operated Unique Single Seat Valve, shut off.
The items refer to the parts lists in the following sections

Parts list

Pos.	Qty	Denomination
		Operating mechanism, complete
1	1	Handwheel
2	1	Lock screw
3	1	Cap
4	1	Washer
5	1	Stem holder
6	1	Guide
7	2	Set screw
19	2	Clamp
20	1	Bonnet
21	2	O-ring
23	1	Plug
24	1	Bushing
25	1	Lip seal, EPDM (standard)
26	1	Valve body, 1 port, ISO
63	1	Seat element, welding ends

Service kits

Denomination	38 mm
Service kit, EPDM	9611-92-6964
Service kit, HNBR	9611-92-6965
Service kit, FPM	9611-92-6966

How to contact Alfa Laval

Contact details for all countries are continually updated on our website.

Please visit www.alfalaval.com to access the information directly.

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