INSTRUCTION MANUAL

Accessories

4-WAY VALVE

INSTRUCTION MANUAL FOR SAMSON 4-WAY VALVES 4" & 5"

- Technical data
- Functional description
- Installation
- Maintenance

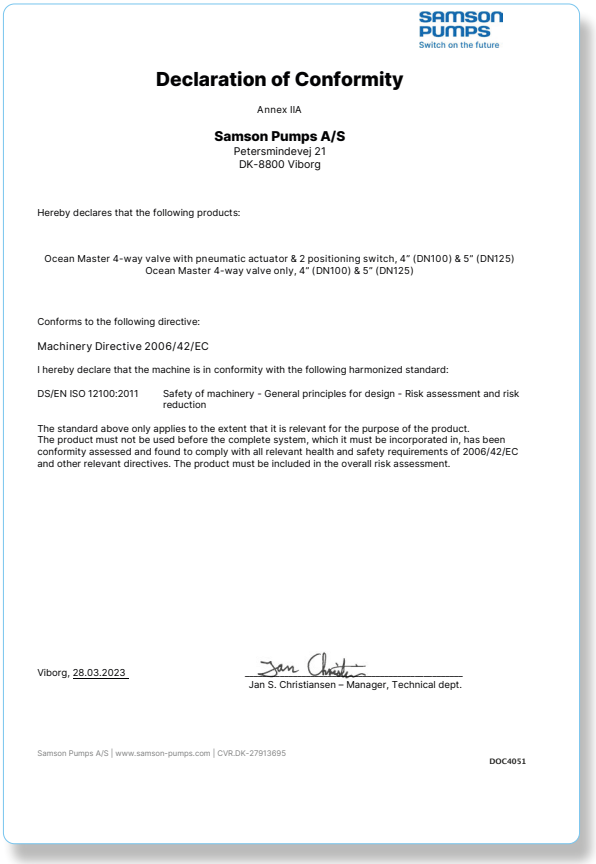
DOC9100A

SAMSON PUMPS

CONTENTS

1 INTRODUCTION

1.1 Declaration of incorporation



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Declaration of Conformity

Annex IIA

Samson Pumps A/S
Petersmindevej 21
DK-8800 Viborg

Hereby declares that the following products:

Ocean Master 4-way valve with pneumatic actuator & 2 positioning switch, 4" (DN100) & 5" (DN125)
Ocean Master 4-way valve only, 4" (DN100) & 5" (DN125)

Conforms to the following directive:

Machinery Directive 2006/42/EC

I hereby declare that the machine is in conformity with the following harmonized standard:

DS/EN ISO 12100:2011 Safety of machinery - General principles for design - Risk assessment and risk reduction

The standard above only applies to the extent that it is relevant for the purpose of the product.
The product must not be used before the complete system, which it must be incorporated in, has been conformity assessed and found to comply with all relevant health and safety requirements of 2006/42/EC and other relevant directives. The product must be included in the overall risk assessment.

Viborg, 28.03.2023

Jan S. Christiansen – Manager, Technical dept.

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DOC4051

1.2 Explanation of warning symbols

Important technical and safety instructions is showed by symbols. If instructions are not performed correctly, it may lead to personnel injury or incorrect function of the 4-way valve.

To be used with all safety instructions that must be followed. A failure to follow the instructions may result in injury and/or incorrect machine operation.

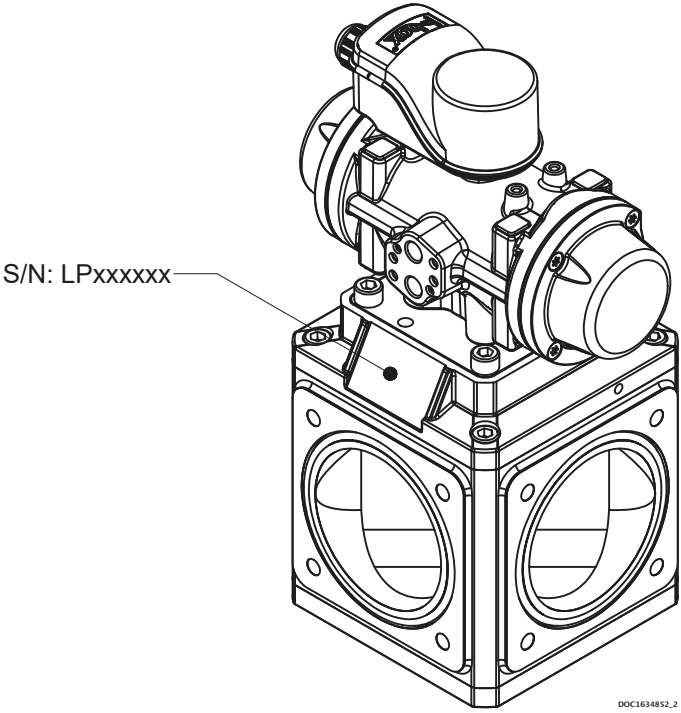
1.3 Field of application

Inlet of foreign objects can damage the 4-way valve.

The 4-way valve may only be used with media that are not aggressive to the valves materials. See section 2.6 for components and appertaining materials.

1.4 Marking and identification

The 4-way valve is equipped with an Serial No. as shown below.

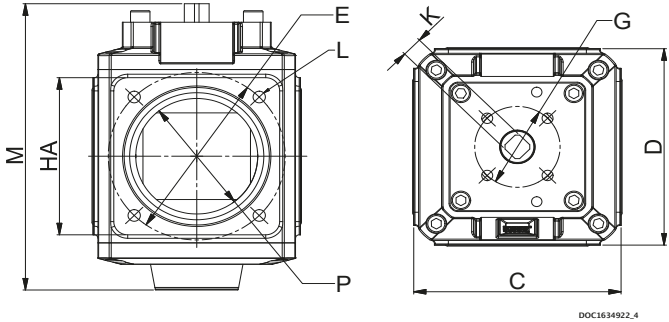


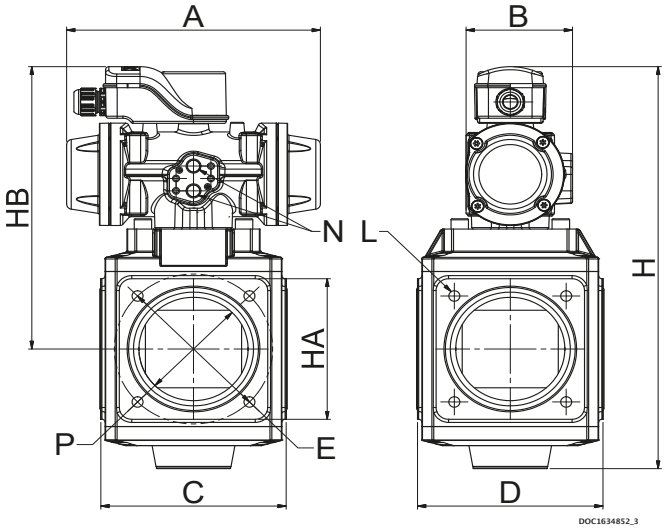
1.5 How to order

Example:	OM4WAY	4	P	0	0	0	1
Valve size:							
DN100 - 4”	4						
DN125 - 5”	5						
Operation:							
None	0						
Mounted with pneumatic actuator with end switch	P						
Welding flanges:							
None	0						
Mounted with welding flanges	2						
Colour:							
None / Special colour	0						
Various colour options	X						
Miscellaneous:							
None	0						
Generation of 4-way valve:							
Generation 1	1						

2 TECHNICAL DATA

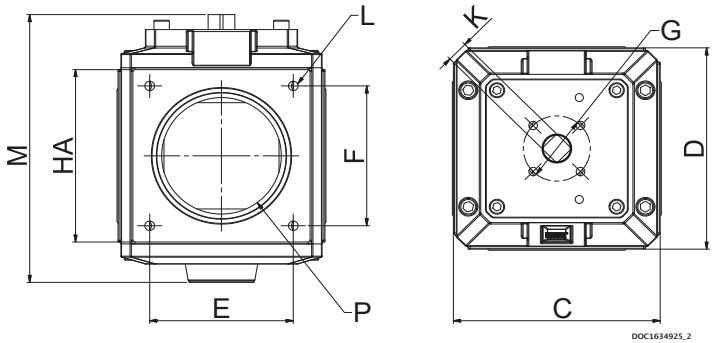
2.1 Dimensions – 4”

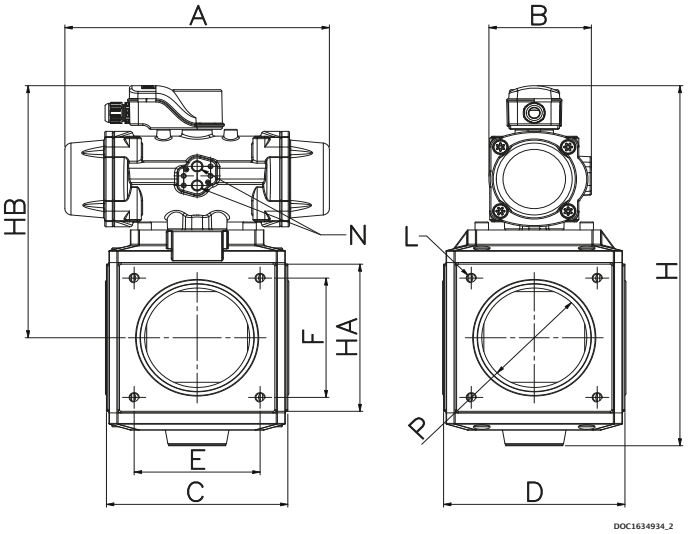




A	B	C	D	E	G	H	HA	HB	K	L	M	N	P	Weight [Kg]
233	98	170	170	145	70	384	136	268	17	M12	248	¼“BSPP	100	24 / 26

2.2 Dimensions - 5”





A	B	C	D	E	F	G	H	HA	HB	K	L	M	N	P	Weight [Kg]
315	122	216	216	150	150	70	453	185	312	22	M12	288	¼“BSPP	125	42 / 46

2.3 Specifications

A failure to meet these specifications may result in damage to the 4-way valve.

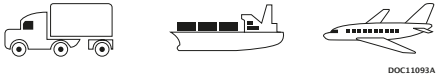
Description	Minimum	Maximum
Ambient temperature, operation	-20°C	40°C
Ambient temperature, storage	-20°C	60°C
Pressure	65 mbar abs.	3 bar(g)

2.4 Operating the 4-way valve

The 4-way valve may not be used if it is damaged.

The 4-way valve must be inspected for damages upon delivery. If the 4-way valve is damaged, it may not be used and the damage must be reported to the dealer.

The 4-way valve can be transported in the following ways:



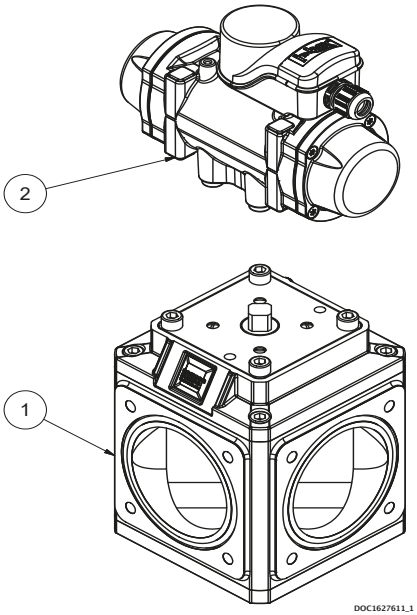
2.5 Storage

After operation, the 4-way valve can be stored without further action.

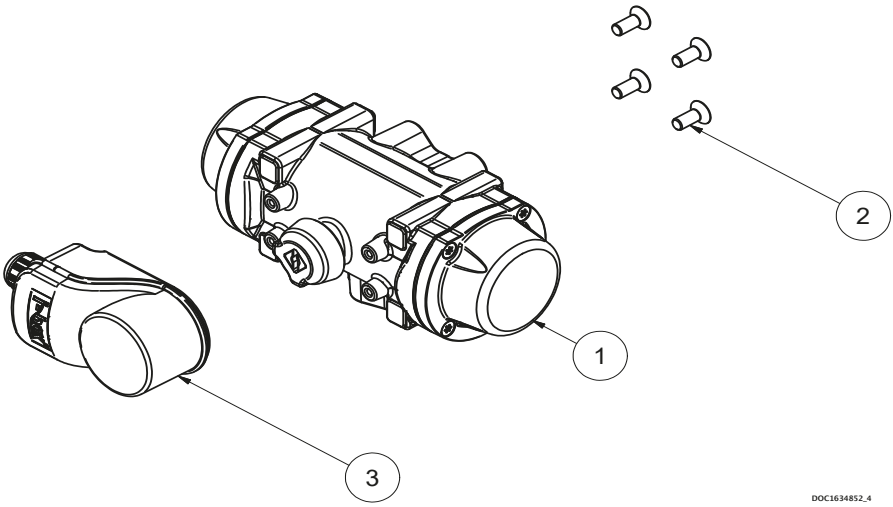
2.6 Materials

The 4-way valve is composed by two main components:

- 4-way valve (Pos 1)
- Actuator set (Pos 2)

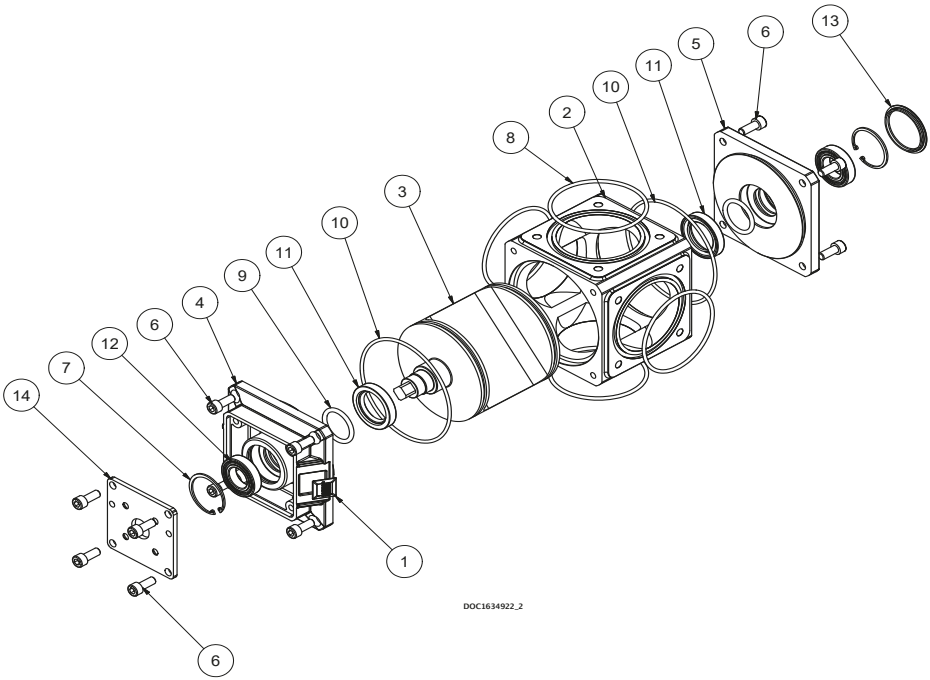


2.6.1 Pneumatic actuator set - 4”



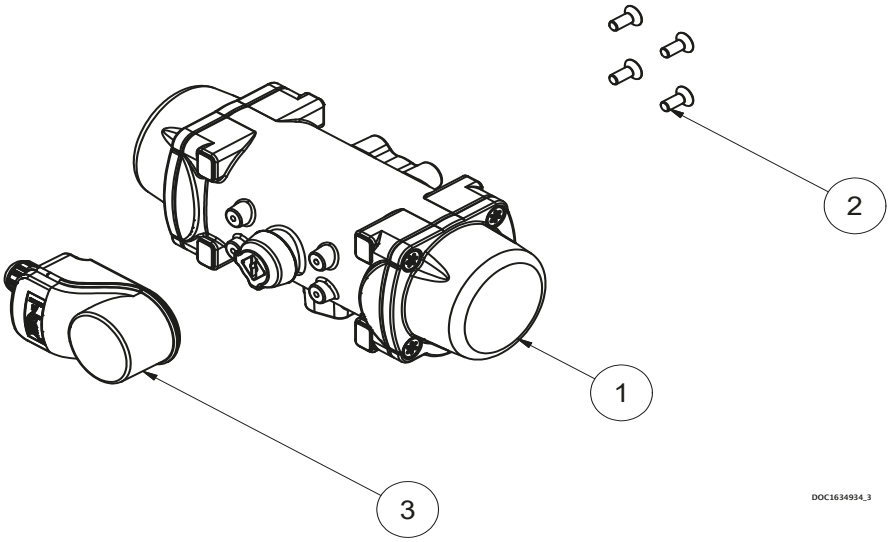
Pos.	Part number	Description	Qty.	Material
1	944600333	Pneumatic actuator	1	Plastic
2	910000454	Screw	4	Stainless steel
3	948000434	Feedback switch for pneumatic actuator	1	Plastic

2.6.2 4-way valve - 4”



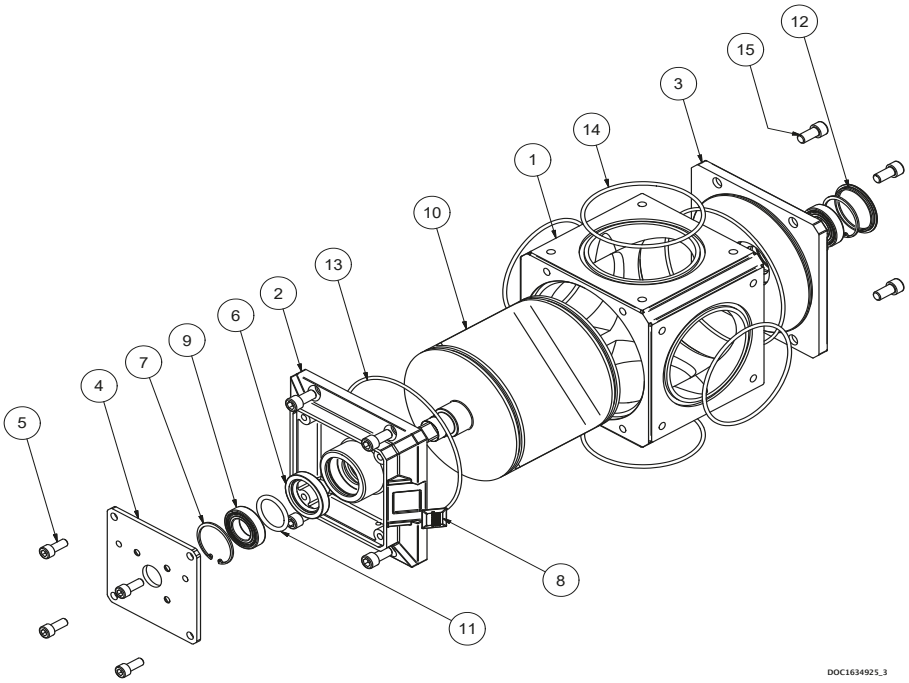
Pos.	Part number	Description	Qty.	Material
1	107989	Transfer domet	1	Foil
2	1634853	Valve body	1	Stainless steel - Duplex
3	1634855	Valve cone	1	Stainless steel - Duplex
4	1634857	Cover DE	1	Stainless steel - Duplex
5	1634869	Cover NDE	1	Stainless steel - Duplex
6	910300051	Bolt	12	Stainless steel
7	920000214	Locking ring	2	Stainless steel
8	922100380	O-ring	4	Rubber
9	922100381	O-ring	2	Rubber
10	922100382	O-ring	2	Rubber
11	922200271	Rotary Seal	2	Rubber
12	930000321	Ball bearing	2	Chrome steel
13	948300065	End cap	1	Plastic
14	1634867	Flange	1	Stainless steel

2.6.3 Pneumatic actuator set - 5”



Pos.	Part number	Description	Qty.	Material
1	944600334	Pneumatic actuator	1	Plastic
2	910000454	Screw	4	Stainless steel
3	948000434	Feedback switch for pneumatic actuator	1	Plastic

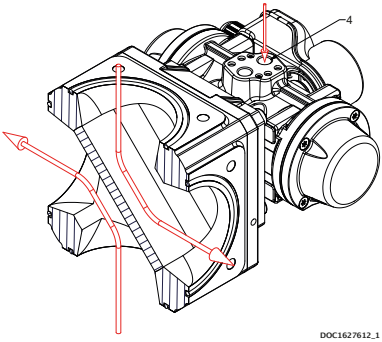
2.6.4 4-way valve - 5”



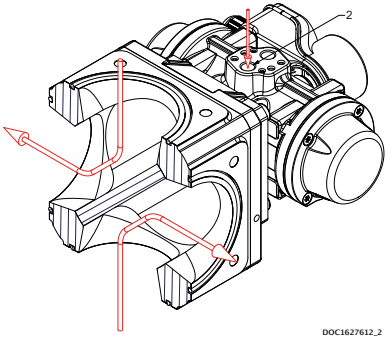
Pos.	Part number	Description	Qty.	Material
1	1634926	Valve body	1	Stainless steel - Duplex
2	1634930	Cover DE	1	Stainless steel - Duplex
3	1634932	Cover NDE	1	Stainless steel - Duplex
4	1634887	Flange	1	Stainless steel
5	910300051	Bolt	4	Stainless steel
6	922200271	Rotary Seal	2	Rubber
7	920000214	Locking ring	2	Stainless steel
8	107989	Transfer domet	1	Foil
9	930000321	Ball bearing	2	Chrome steel
10	1634928	Valve cone	1	Stainless steel - Duplex
11	922100381	O-ring	2	Rubber
12	948300065	End cap	1	Plastic
13	922100387	O-ring	2	Rubber
14	922100389	O-ring	4	Rubber
15	910300490	Bolt	8	Stainless steel

3.3 Positions - With pneumatic actuator

By connecting compressed air to connection 4 on the 4-way valve. See below.



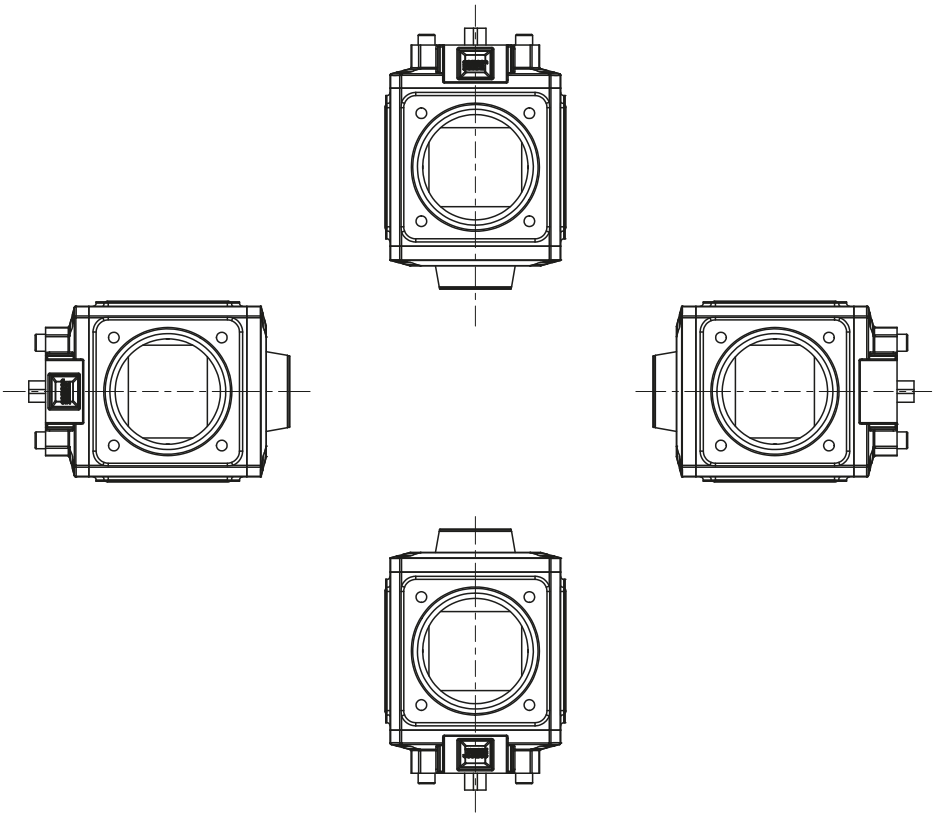
By connecting compressed air to connection 2 on the 4-way valve. See below.



4 INSTALLATION AND START-UP

4.1 Installing the 4-way valve

All horizontal and vertical positions are allowed.



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4.2 Securing the 4-way valve

- Gaskets to be handeled with highest degree of caution.
- Gasket and sealing surfaces must be cleaned before assembly and without damage.
- If the tolerance for securing the 4-way valve is not observed, there is a risk of damage.

The 4-way valve must be installed on a stable foundation, which must be level and stable, so that the 4-way valve is not twisted or exposed to a ±0.1 mm profile distortion.

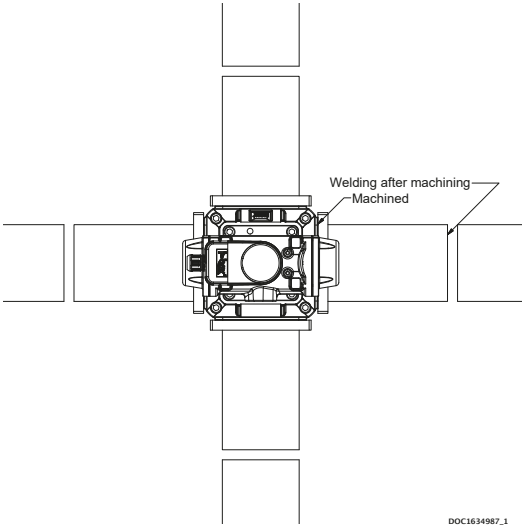
Bolts must be tightened in accordance with supplier's instructions.

Ensure that the flow direction is correct before assembly.

The 4-way valve's end stop can only be used as a stop when operating with manual handle bar. When activated with a cylinder, the cylinder's own end stop is used.

4.3 Flange connections

Deflection on the flanges from the welding process can affect the tolerances inside the valve and block the cones free rotation. Therefore its important to use machined flanges or alternatively use maximum 8 mm flanges. See below illustration.



5 SERVICE, MAINTENANCE AND INSPECTION INTERVALS

A failure to observe the inspection intervals described in table below, may result in damage to the 4-way valve.

Only qualified personnel may carry out repairs.

Use only original materials and components as described, during repair and maintenance.

During repair or disassembly, check that the flow direction remains unchanged.

For repair of the actuator, see accompanying supplier instructions.

Section	Operation	Interval
5.1	Visually inspect for leakage	Weekly
5.2	Inspection and cleaning (if necessary)	Monthly

5.1 Inspecting for leakage

The 4-way valve and pipe system around, must be inspected for leakage once a week. The inspection must be performed when the 4-way valve is both operating and idle. Any leaks must be repaired before operation may continue.

5.2 Inspection and cleaning

The pipe connections of 4-way valves must be inspected at least once a month, and any contaminants must be removed.

The 4-way valve must always run easily and effortlessly, otherwise it must be cleaned.

SAMSON PUMPS

Samson Pumps is the only company in the world to specialise exclusively in liquid ring vacuum pumps. Samson pumps are made in Denmark and used around the globe. We offer worldwide delivery, and we export to more than 80 countries around the world.

For over 40 years, our name has been synonymous with the strongest pumps for vacuum trucks and tankers. We constantly adapt our products to meet the changing needs of our customers. Today, it is not enough to simply produce a pump. Products must be refined so the customer can concentrate on what they do best. We therefore offer a wide range of standardised components that allow our customers to build vacuum systems without the need for specialist in-house expertise.

Strength and durability are our hallmarks! We have often heard from customers that our pumps are working in many years, and in most cases without the need for maintenance or repair. This emboldens us to say that we have the strongest program of pumps on the market.

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