

# User manual for I52 sampling valve



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## Introduction:

**Manufacturer:** Keofitt a/s,  
Hans Egedes Vej 19  
5210 Odense NV  
Denmark

**Sampling valve, Type:** I52

## Presentation:

The Keofitt sampling valve is a valve which can be readily sterilised and which meets both hygienic and production requirements. This means that an effective cleaning and sterilisation of the sampling valve can be carried out between random samples independently of the course of the production process.

The Keofitt I52 valve is 3-A certified. 3-A Sanitary Standard is an American standard which is normative for a component's ease of cleaning and sterilisation. The standard ensures optimum conditions for food products which may come into contact with the component in question.

The valve is used in a wide range of business areas where sampling is made through an Ingold port (DN25MM).



**Warning!** During sterilisation with steam the valve will become hot, and care should thus be taken when handling the valve.

## Restrictions:

- The valve cannot be used for vacuum since the membrane will be sucked hard into the seat.
- The membranes are available in three different qualities: silicone, EPDM and PTFE.
- The silicone membrane has the advantage that it can in general stand higher temperatures, but it cannot tolerate moisture condensation resulting from steam sterilisation.
- The EPDM membrane is better able to cope with condensation in the steam, and at the same time can be used with the majority of CIP fluids.
- The PTFE membrane resists most CIP fluids and very high steam temperatures.

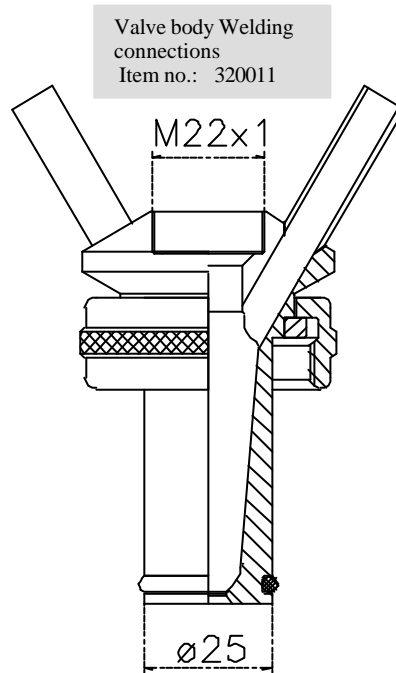
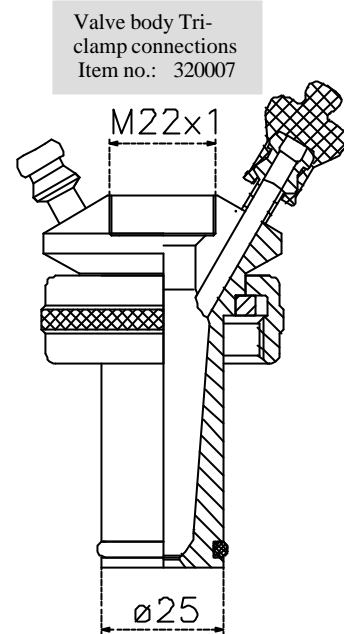
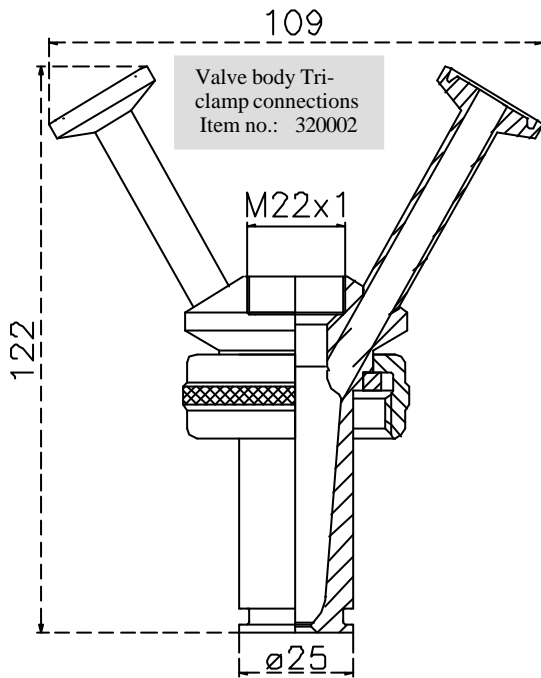
## Valve function

The valve is designed to regularly take representative random samples in the production process. The valve is therefore designed such that effective cleaning, sterilisation and sampling can be carried out regularly without interrupting the production process.

Sterilisation is carried out by supplying steam through the upper of the valve's two hose pieces. It is the perfect, hygienic design in the inner part of the valve which enables absolute sterilisation in a closed state.

**Note!** The membrane functions both as a dynamic packing in the valve seat and as a hygienic, static packing against the valve body.

## I52 Item no.: 320002, 320007 and 320011



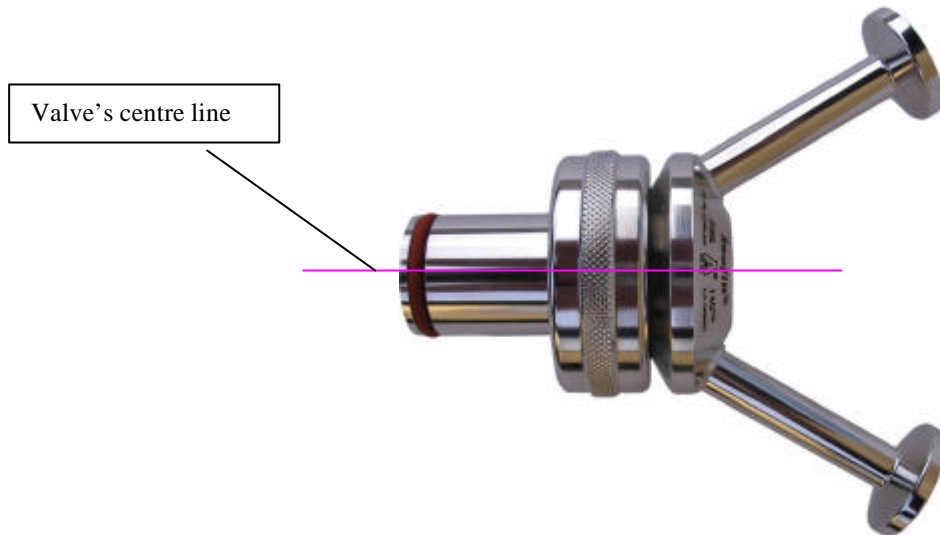
- |                        |   |
|------------------------|---|
| Where to use :         | Ø25 mm ports, Length 52mm.                                |
| Material:              | AISI 316L (1,4404) certificate 3.1b                       |
| Inner surface:         | Ra 0.2 µm   |
| Installation:          | Screwed in  |
| Temp. range:           | 1 <sup>0</sup> C - 130 <sup>0</sup> C                     |
| In-/outlet:            | Connection available on demand.                           |
| Length:                | 40mm and 52mm standard. Other lengths available on demand |
| Valve head:            | Wide variety of valve heads and membranes.                |
| Max. working pressure: | Depends on choice of valve head.                          |
|                        | Electropolish in- and outside – 3A Certificate            |



## Mounting instructions

### Location:

The valve should always be located with its centre line in a horizontal position, and with the two hose pieces in a vertical position as shown in the diagram. The valve will then be self-draining.

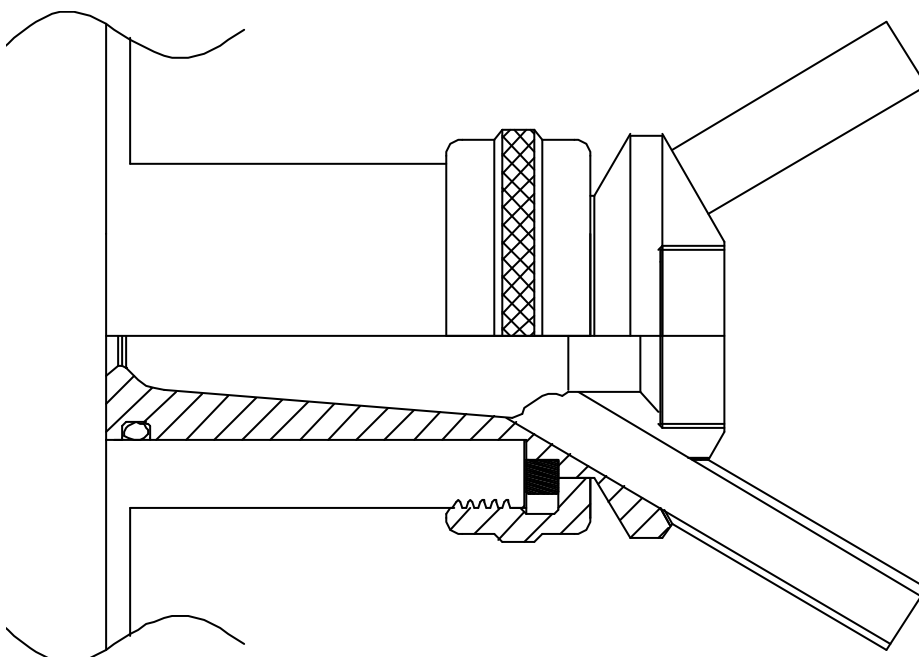


### Installation:

The valve is inserted into an Ingold port (DN25MM), and screwed into place. Make sure all O-rings and seals are in place and that the valve sits correctly in the port.

## Block diagram for installing I52 valve.

### Keofitt valve I52



# Everyday use of the valve

Warning! During sterilisation with steam the valve will become hot, and care should thus be taken when handling the valve.



## Sterilisation:

Remember! Use saturated steam without condensation at max. 2 bar(g). At higher pressures the membrane can be damaged/split.

The coaxial design ensures absolute cleanliness without the use of CIP or similar. If CIP is used, please refer to enclosed data sheet. If in doubt, contact Keofitt.

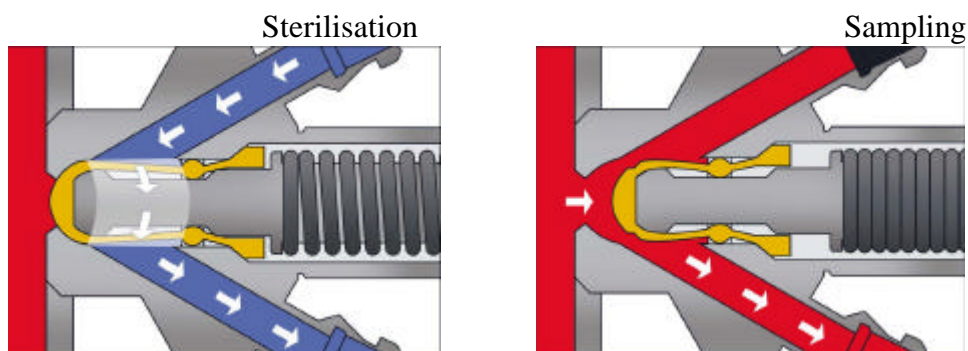
For best results it is best to leave the steam hose constantly connected to the valve. Detaching the hose risks air contamination and makes the sterilisation process unnecessarily complicated.

Important: Sterilisation takes place with valve closed.

1. Open the steam supply 121°C (2 bar(g)).
2. Let the steam flow through the valve for sterilisation. 1 min.
3. Close the steam supply.

## Sampling:

1. Sterilise the valve.
2. Open the valve and take the sample.
3. Shut the valve after the sample has been taken.
4. Clean the valve with steam and/or hot water, cf. 'sterilisation', points 1-3.



## Maintenance:

PTFE membrane must be replaced once every year, Silicone and EPDM membranes must be replaced once every 2-3 months with terms of average use.

In the event of intensive use, sterilisation and cleaning it may be necessary to replace it more frequently.

Average use means:

Temp.....115-130<sup>0</sup>C

Steam pressure.....1,5-2,5 bar

Process pressure....1-6 bar

Cip.....Nho4 < 3% or similar

Samples.....1-5 a day

To replace Silicone or EPDM membranes just disassemble the valve and pull off old membrane and push on new one until it clicks in place.

## Instructions on replacing PTFE membrane:

1. Open valve.
2. Release clamp ring.
3. Remove the valve head from the valve body.
4. Close valve head.
5. Push the membrane upwards until it is stuck in compressed mode.
6. Insert tool for membrane, between the membrane and the valve.
7. Close valve head.
8. Now the membrane should loose from the valve head and can be replaced.



Important: Once the membrane has been removed from the valve head the click system in the membrane might be damaged. Therefore the membrane might be unsafe for further use and it is not recommended to use the membrane again.

To attach new membrane to valve head.

9. Set the valve head to closed position.
10. Place the new membrane on valve head.
11. Press down on membrane, until it clicks in place.
12. Set the valve head in open position.
13. Insert the valve head into the valve body.
14. Attach and close clamp ring.
15. Close valve head.

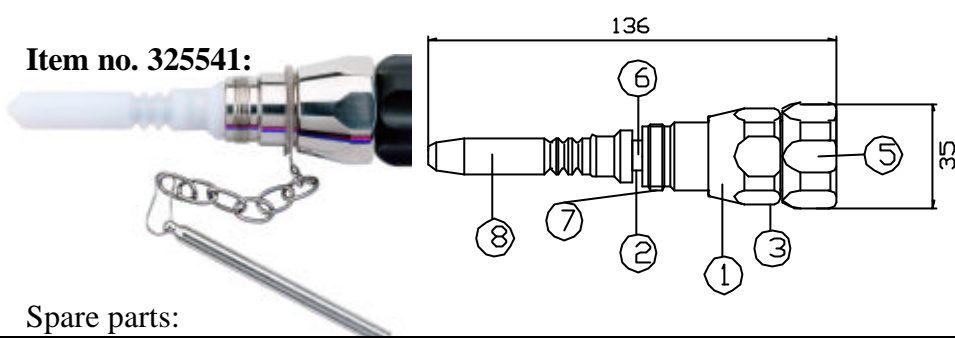
Important: Do not use hammer or other tool that might scratch the surface of the membrane.



Tool for membrane item no. 300255

# Available valve heads:

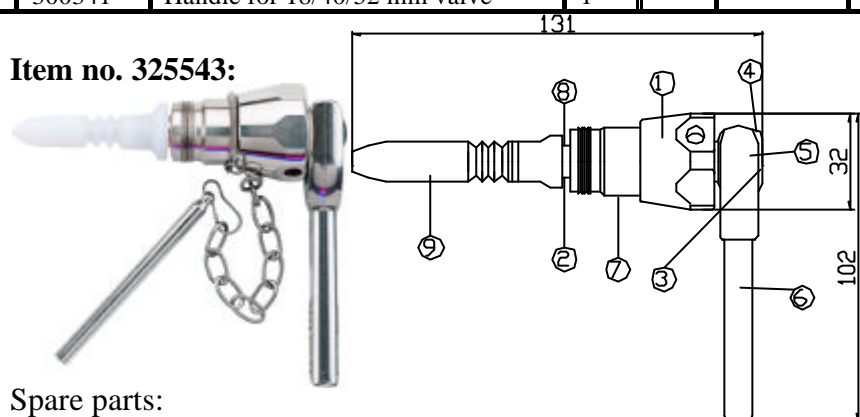
Available with:



Spare parts:

Nr.	Part Nr.	Part name.	Qty.	Nr.	Part Nr.	Part name.	Qty.
1	300151	Hex nut for 18/40/52mm valve	1	6	600411	Spring H/K/Q 12 bar	1
2	320340	Lower stem for 52mm (Teflon)	1	7	600149	Bushing for W6/W8/W9-valve	1
3	300141	Upper stem for 18/40/52 mm valve	1	8	320055	Membrane Teflon 52mm Valve	1
4	997141-1	Inscription on upper stem	1	9	300065	ST. ST. Chain for Valve body	1
5	300341	Handle for 18/40/52 mm valve	1				

**Item no. 325543:**



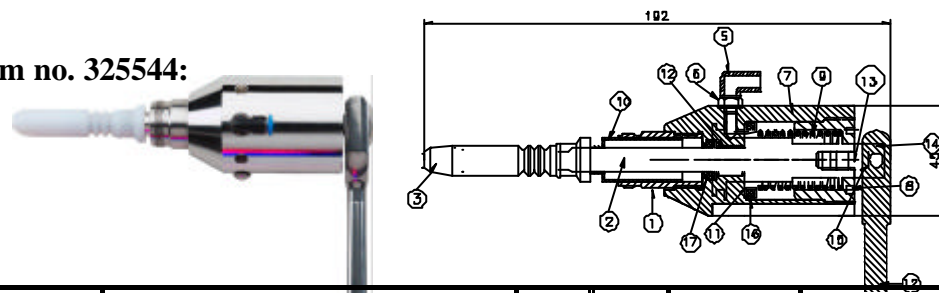
Available with:



Spare parts:

Nr.	Part Nr.	Part name.	Qty.	Nr.	Part Nr.	Part name.	Qty.
1	300151	Hex nut for 18/40/52mm valve	1	6	600170	Handle for Q head W9	1
2	320340	Lower stem for 52mm (Teflon)	1	7	600411	Spring H/K/Q 12 bar	1
3	600169	Upper stem for Q head W9	1	8	600149	Bushing for W6/W8/W9-valve	1
4	600168	Plug for handle W9	1	9	320055	Membrane Teflon 52mm Valve	1
5	600844	Seeger circlip ring for Q head	1	10	300065	ST. ST. Chain for Valve body	1

**Item no. 325544:**



Available with:



Nr.	Part Nr.	Part name.	Qty.	Nr.	Part Nr.	Part name.	Qty.
1	320144	Fitting for 52/4018 mm head	1	10	600149	Bushing for W6/W8/W9 – Valve	1
2	320345	Stem for 52mm Valve head	1	11	600162	Fixing for magnet, W6/W9	1
3	320055	Membrane Teflon 52 mm Valve	1	12	600743	Handle Q for head type N	1
4	509000	Insex Screw 5x8 stainless steel 316	1	13	600177	Upper stem	1
5	600839	Swivel elbow for air cylinder	1	14	600168	Plug	1
6	509002	Insex Screw 5x20mm	1	15	600844	Seeger circlip ring	1
7	600144	Cylinder N W6/W8/W9-valve Ø	1	16	850820	V-Ring	1
8	600146	Cap N W6 – Valve	1	17	850822	Slide	1
9	600423	Spring for Valve head type	1				



# PTFE Membrane for I52 – item no. 320055.



## Technical Specification:

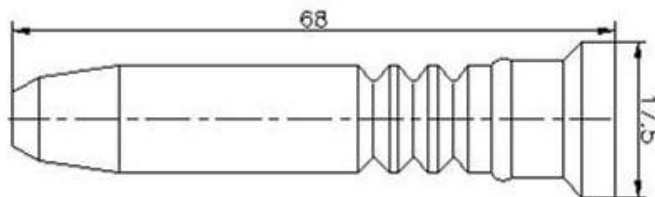
Type:	AF1012 PTFE		
Colour	White		
Temperature range	- 200 - +200°C		
Ball hardness		N/mm <sup>2</sup>	29
Tensile strength	DIN53455	N/mm <sup>2</sup>	35
Elongation at break	DIN53455	%	350
Density	DIN 53479	g/cm <sup>3</sup>	2.17
Shore D	DIN 53505		57
Thermal conductivity	W/m.k DIN 57572		0.25-0.5
Expansion Coefficient	DIN 52612		9-12x10 <sup>-5</sup> K <sup>-1</sup>
Friction coefficient	very low (<0.1)		
Flammability	Inflammable UL 94VO		
Chemical resistance	*		
Food safe	Yes (FDA**)		

\* Is not attacked by common chemicals, with the exception of strongly oxidising acids.

\*\*FDA approved compound according to Code of Federal Regulations Title 21 - § 177.1550

Keofitt guaranties 1 year of lasting by normal use means.

Temp.....115-130<sup>0</sup>C  
 Steam pressure.....1,5-2,5 bar  
 Process pressure....1-6 bar  
 Cip.....Nho4 < 3% or similar  
 Samples.....1-5 a day



# EPDM Membrane for I52 – item no. 320052.



Length 66mm

Technical Specification:

Type:		EPDM
Colour		Black
Hardness	IRHD/°Sha	61/59
Tensile strength	MPa	16
Elongation at break	%	400
Density	g/cm <sup>3</sup>	1.1
Range of temperature in dry atmospheric air	°C	-50 - + 140°C
Compression set, DIN 53517, 24h/175°C	%	18
Wear resistance		Very good (3)
Tear resistance		Very good (3)
Resistance to Weather and Ozone		Excellent (4)
Resistance to Hydrolysis (water and steam)		Excellent (4)
Resistance to Chemicals (acids/bases)		Very good (3)
Resistance to mineral oil and gas		Not suitable (0)
Air and gas density		Less suitable (1)
Food safe		Yes (FDA*)

\*FDA approved compound according to Code of Federal Regulations Title 21 - § 177.2600

Average live time of an EPDM membrane is 2-3 months of lasting by normal use means:

- Temp. max:.....121<sup>0</sup>C
- Steam pressure max:....2 bar(g)
- Process pressure.....1-6 bar
- Cip.....Nho4 < 3% or similar
- Samples.....1-5 a day



# PTFE Membrane for I52 – item no. 320051.



Length 66mm

Technical Specification:

Type:	Silicone (Si, Q)
Colour	Light Grey
Hardness           ?Sha	60
Tensile strength   MPa	10,5
Elongation at break %	530
Density             g/cm <sup>3</sup>	1.17
Range of temperature in dry atmospheric air   °C	-80 - + 200°C
Compression set, DIN 53517, 24h/175°C   %	30
Wear resistance	Less suitable (1)
Tear resistance	Very good (3)
Resistance to Weather and Ozone	Excellent (4)
Resistance to Hydrolysis (water and steam)	Good (2-3)
Resistance to Chemicals (acids/bases)	Suitable (2)
Resistance to mineral oil and gas	Less suitable (1)
Air and gas density	Not suitable (0)
Food safe	Yes (FDA*)

\*FDA approved compound according to Code of Federal Regulations Title 21 - § 177.2600

Average live time of a silicone membrane is 2-3 months of lasting by normal use means:

Temp. max:.....121<sup>0</sup>C  
 Steam pressure max:...2 bar(g)  
 Process pressure.....1-6 bar  
 Cip.....Nho4 < 3% or similar  
 Samples.....1-5 a day



For complete set of updated data sheets for all I52 valve bodies and heads please refer to our web page [www.keofitt.dk](http://www.keofitt.dk)

***[www.keofitt.dk](http://www.keofitt.dk)***