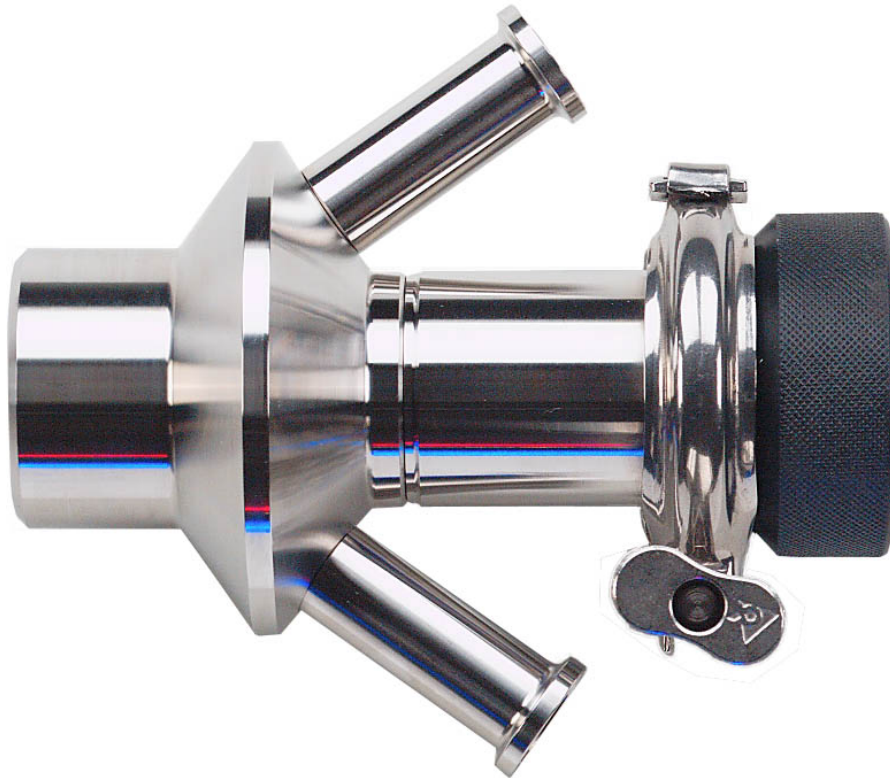


# User manual for W15 sampling valve



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## Introduction:

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

**Sampling valve, Type:** W15  
**Year of production:** 2002

## 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 W15 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 high viscosity products, such as dairies, yogurt, fruit and marmalade industries.



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 W15 and W25 valves are only available with PTFE membranes.
- The PTFE membrane resists most CIP fluids and very high steam temperatures.
- W15 is only available with Clamp on the inlet /outlet connections.
- 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.

## Valve function

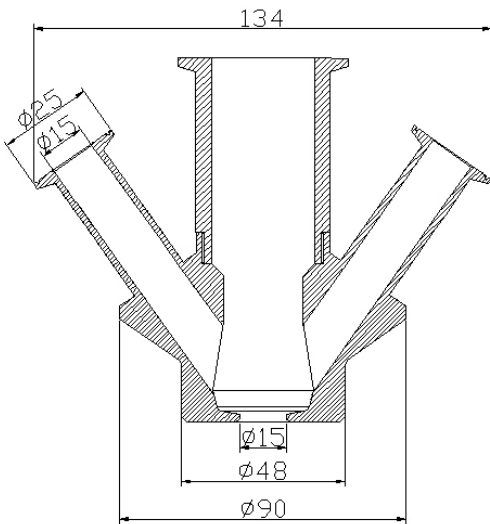
The valve is designed to regularly take representative random samples in the production process. The valve is therefore designed such that effective cleaning, sterilisation and sampling can be carried out regularly without interrupting the production process.

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.

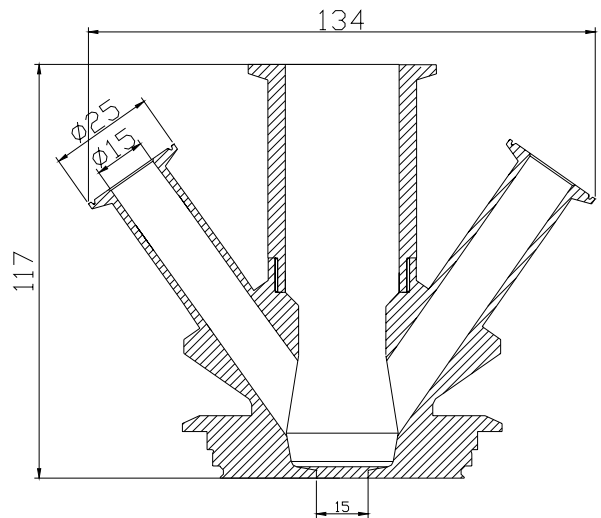
Note! The membrane functions both as a dynamic packing in the valve seat and as a hygienic, static packing against the valve body.

# W15 Item no.: 860001, 860003, 860009 and 860011

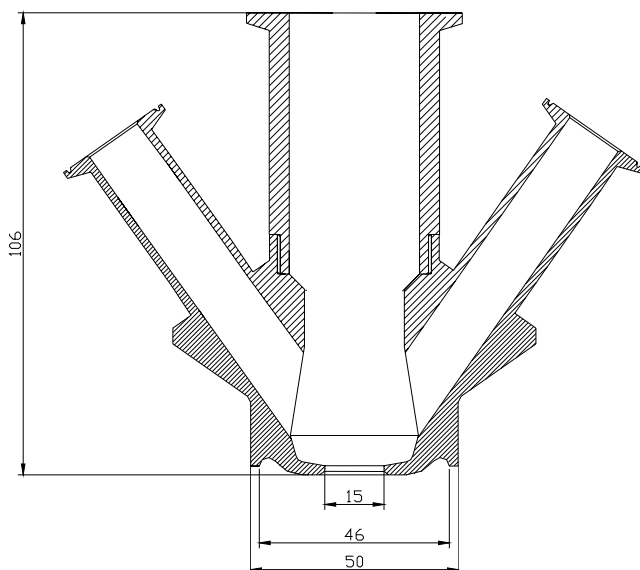
Valve body W 15 Type H  
Item no.: 860001



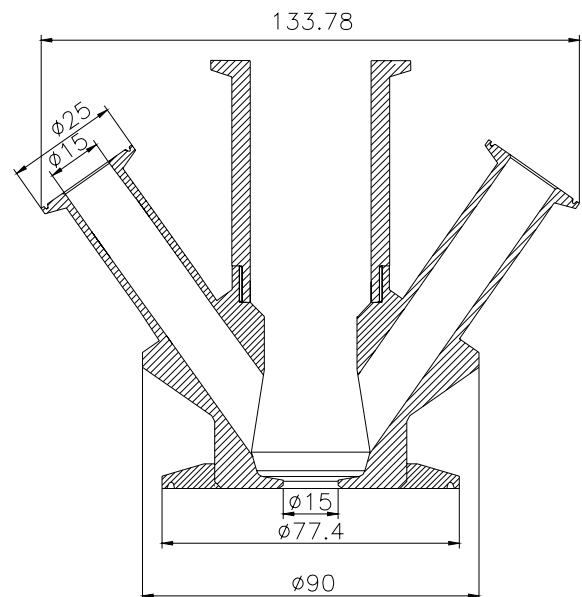
Valve body W 15, Varivent Ø68  
Item no.: 860009



Valve body W 15 Type P  
Item no.: 860011



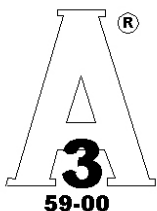
Valve body W 15 Type C  
Item no.: 860003



Welding:  
Port Connection:  
Use for:

Material:  
Inner surface:  
How to use:  
Max. Working pressure:  
Outlet diameter:  
Net weight:

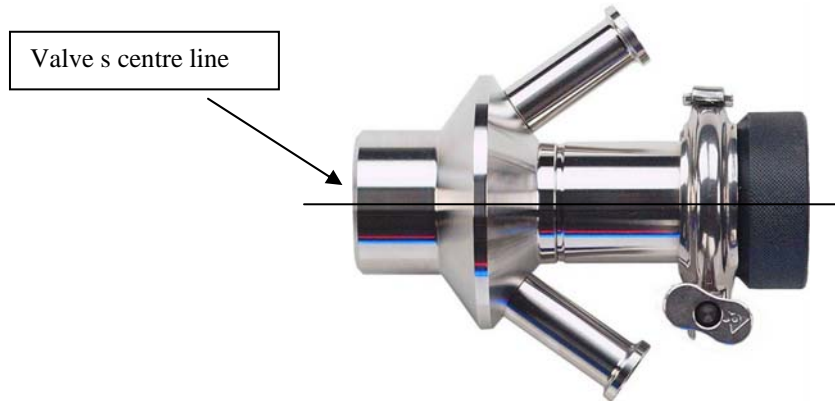
available for tank or pipe.  
Varivent ø68mm and 3" clamp connection.  
Sample marmalade, yoghurt and fruit products and other high viscosity products.  
AISI 316L (1,4404)  
Ra 0,8m  
Manually or pneumatically operated.  
0 - 6 bar (g)  
15mm  
1,70 kg./pc. 860001 and 1,80 kg./pc 860009.  
3A certificate



## 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.



### Before welding:

Remember to disassemble the valve body and head.

The valve body and head must be separated during welding plugs membrane must be removed from the valve body, as otherwise heat from the welding process will damage them.

## Welding instructions:

### Type T:

For type T (tank) it is necessary to drill a hole  $\varnothing 50$  mm into the tank wall, and then fit the valve into this hole flush with the inside of the tank. Welding should be carried out as a penetration welding.

Material thickness less than 4 mm:

Weld from inside.

Material thickness greater than 4 mm:

Weld from both outside and inside.



Important! When grinding/polishing the internal weld, the valve seat must not be touched.

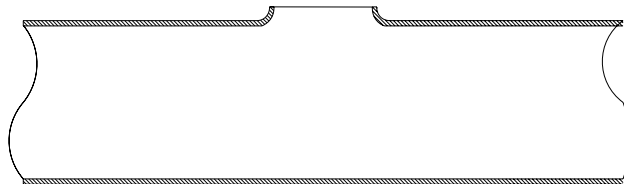
### Type P:

For type P (pipe) penetration welding must be carried out from outside.

The valve is machined with a recess-like shoulder on the outside of the end piece which gives approximately the same material thickness (2mm material thickness) as in the pipe wall. This machined shoulder can be modified according to the customer's wishes.

The welding result will be best if the following method is used:

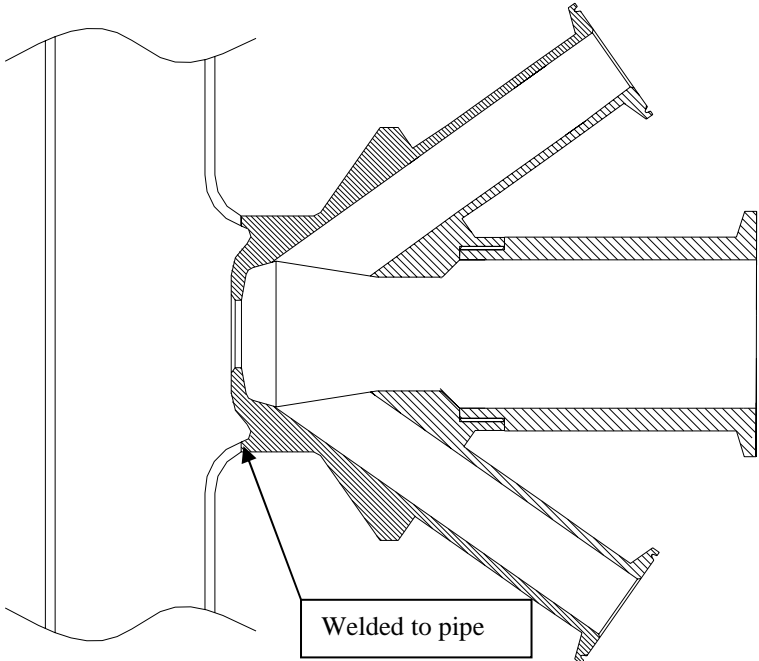
A collar is made on the pipe section so that the valve has a flat contact face. This flaring must look like a T-piece, as shown in the example below.



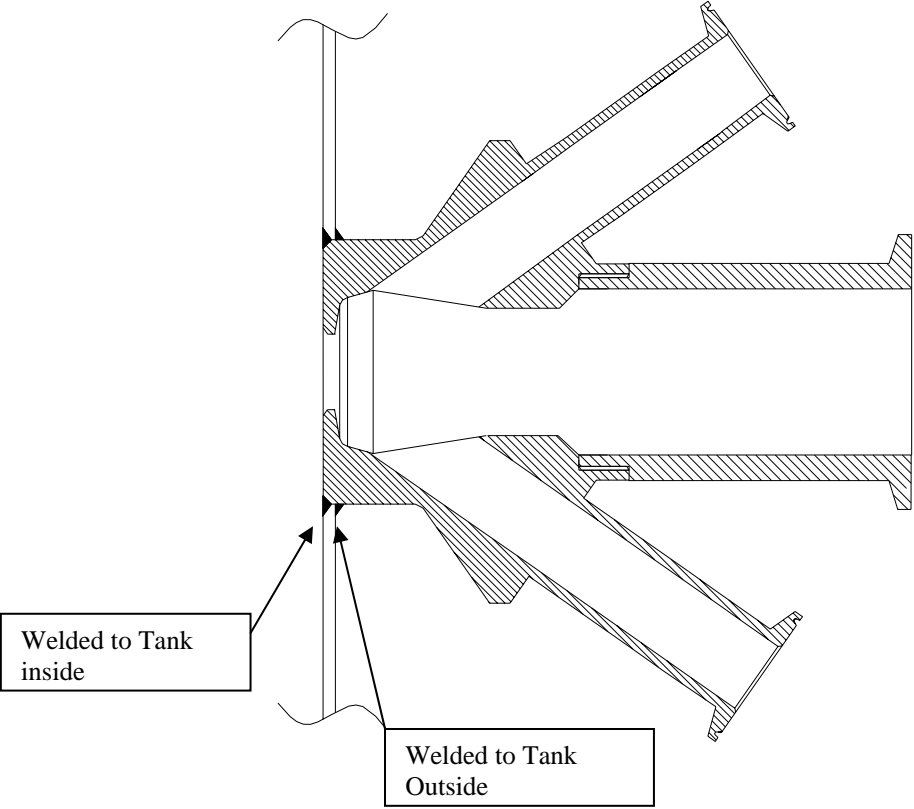
- The pipe section and the valve's hose pieces are sealed with sponge rubber or similar.
- Purge gas such as Argon or Formier gas is fed through the valve body into the pipe section and the system is now filled with 6 times the estimated volume of the pipe section. All  $O_2$  is thus expelled from the system and welding can commence.
- Welding can take place with the purge gas continually flowing in the system.
- The gas remains in the system until the item is lukewarm, after which the set-up can be dismantled.

# Block diagram for installing W15 valve.

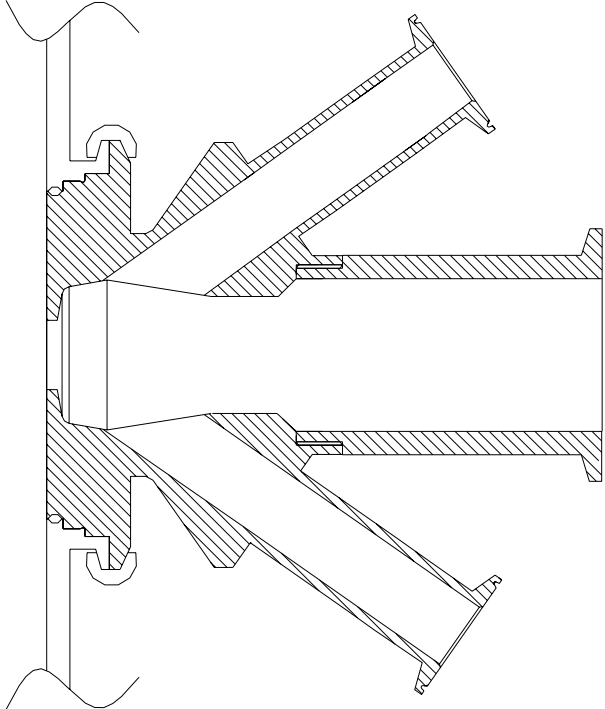
## Keofitt valve type P (Pipe):



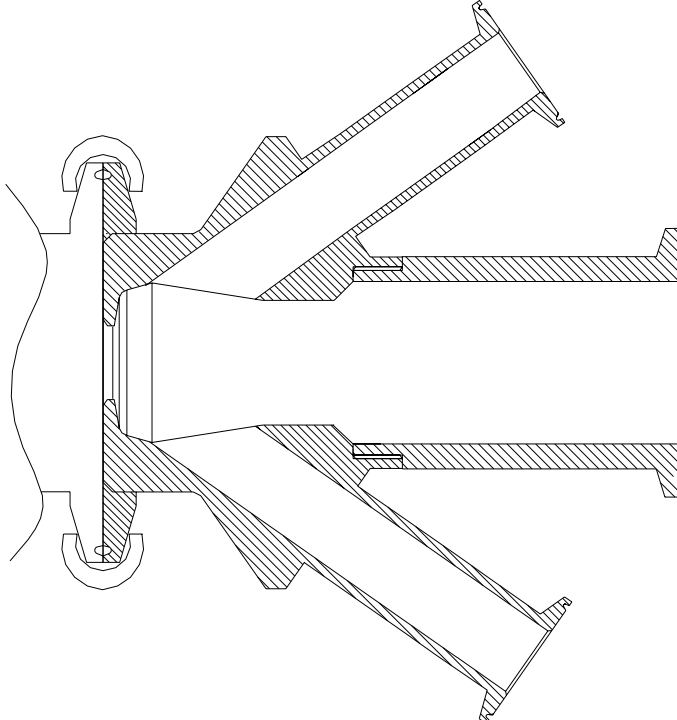
## Keofitt valve type T (tank):



**Keofitt valve Varivent Ø68:**



**Keofitt valve type C, 3" Clamp connection:**





# 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.

**Warning!:** For valve heads allowed for Group IIGD, Category 2 (zone 1) both handle and top of valve heads N and Q must be cleaned before use.



## **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.

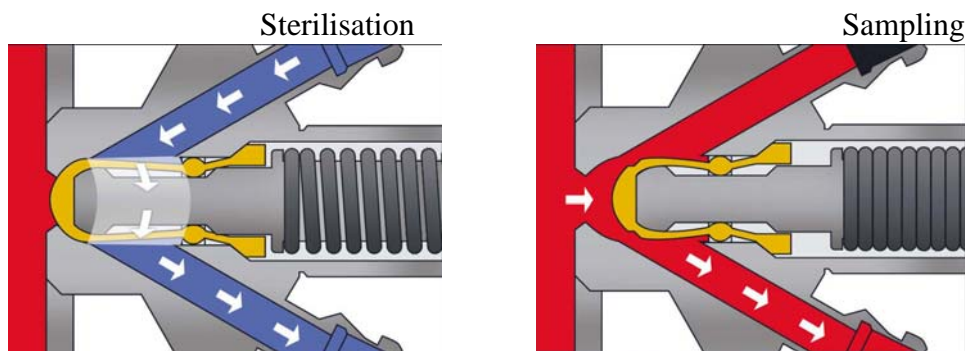
For best results it is best to leave the steam hose constantly connected to the valve. Detaching the hose risks air contamination and makes the sterilisation process unnecessarily complicated.

**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:

The membrane must be replaced once every year 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

## 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.

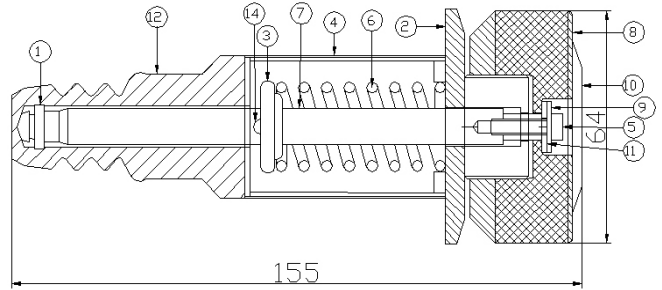
Important: Do not use hammer or other tool that might scratch the surface of the membrane.



Tool for membrane item no. 300255

# Available valve heads:

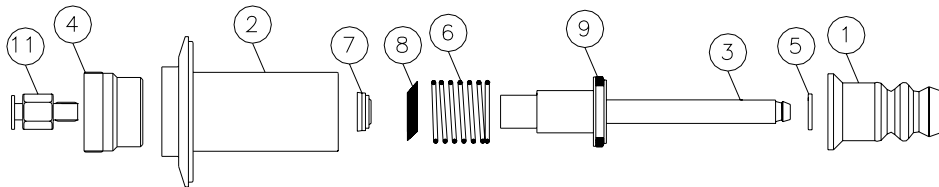
## Item no. 865541 - Valve Head for W15 Type H



### Spare parts list for 865541:

| Nr | Part Nr. | Part name                  | material | Nr | Part Nr. | Part name                 | material |
|----|----------|----------------------------|----------|----|----------|---------------------------|----------|
| 1  | 860349   | Pressure Disc for W15      | AISI 304 | 8  | 860341   | Handle for W15 valve head | Pom-C    |
| 2  | 860241   | Thread for handle W15      | AISI 304 | 9  | 860359   | Disc for stop             | AISI 304 |
| 3  | 860130   | Spring seat for W15        | AISI 304 | 10 | 860441   | Cover for handle W15      | AISI 304 |
| 4  | 860149   | Bushing for valve body W15 | AISI 304 | 11 | 860459   | Disc for top              | AISI 304 |
| 5  | 509004   | Screw for W15              | St. St.  | 12 | 860055   | Membrane                  | PTFE     |
| 6  | 860410   | Spring for W15 Head type H | St. St.  | 13 | 900186   | Clamp ring                | St. St.  |
| 7  | 860140   | Stem for W15 valve         | AISI 304 | 14 | 600243   | Pin for Q-handle.         | AISI 304 |

## Item no.: 865544 - Valve Head for W15 Type N



| Nr | Part Nr. | Part name                  | material | Nr | Part Nr. | Part name               | material    |
|----|----------|----------------------------|----------|----|----------|-------------------------|-------------|
| 1  | 860055   | Membrane                   | PTFE     | 7  | 850821   | Scrape ring Ø10x16,1x6  | NBR         |
| 2  | 860144   | Cylinder for W15           | AISI 304 | 8  | 850822   | Glider                  | Carbon PTFE |
| 3  | 860145   | Stem for W15               | AISI 304 | 9  | 850824   | Stamp ring Ø30x22x3,25  | NBR         |
| 4  | 860146   | Cap for W15                | AISI 304 | 10 | 900186   | Clamp ring for W15      | AISI 304    |
| 5  | 860349   | Pressure Disc for W15      | AISI 304 | 11 | 860840   | Swivel for air cylinder | Misc.       |
| 6  | 860410   | Spring for W15 Head type H | St. St.  | 12 | 860051   | Pressure disc           | Silicone    |

# Membrane for W15 – item no. 860055.



Length 51mm

## Technical Specification:

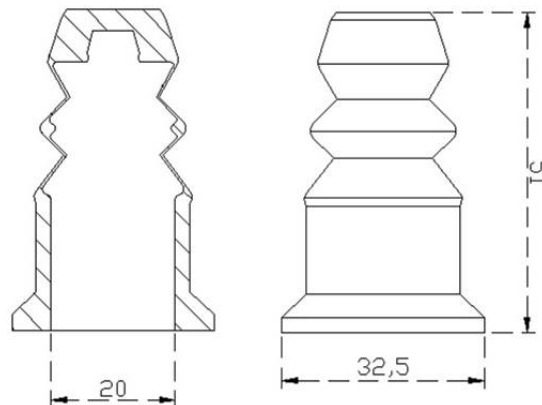
|                       |                     |                   |                                       |
|-----------------------|---------------------|-------------------|---------------------------------------|
| Type:                 | AF1012 PTFE         |                   |                                       |
| 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



For complete set of updated data sheets for all W15 valve bodies and heads please refer to our web page [www.keofitt.dk](http://www.keofitt.dk)

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