

## VRO-... Spring check valve Dimensions

### Non Return valve, spring operated, BIO

The sanitary spring operated non return valve BIO is constructed from forged stainless steel AISI 316 in 2 pieces - assembled by bolts. The guide plate is machined in the top body parts and the sealing is guaranteed by 1 FKM o-ring (other elastomers available upon request).

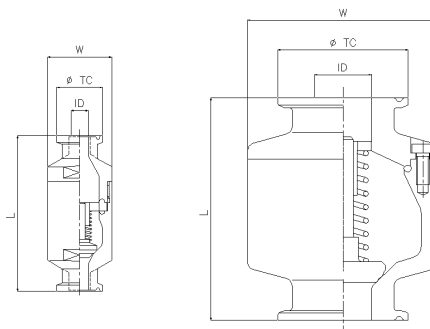
Can be used in horizontal and vertical position (fully drainable in vertical position).

### Applications:

The sanitary spring operated non return valve BIO, is particularly appreciated for its linear internal design which is indispensable for sanitary applications and which is obligated in chemical and pharmaceutical applications.

### Advantages:

- Sterilizable – Autoclavable
- High temperature and pressure resistant
- Unique O-Ring seal design minimizes bacteria traps and eliminates possibility of fluid retention
- Meets FDA specifications
- Full material traceability



Dimensions table

CODE	INCH	DN	TC	ID	L BW	L TC	W
VRO-050-..G..G-VT1-71A	½"	15	25	9,4	80	85	35
VRO-075-..H..H-VT1-71A	¾"	20	25	15,7	80	85	35
VRO-100-..J..J-VT1-71A	1"	25	50,4	22,1	80	80	74
VRO-150-..M..M-VT1-71A	1 ½"	40	50,4	34,8	80	80	74
VRO-200-..N..N-VT1-71A	2"	50	64	47,5	80	80	85
VRO-300-..P..P-VT1-71A	3"	80	91	72,9	100	100	124
VRO-400-..R..R-VT1-71A	4"	100	119	97,4	115	115	159
VRO-600-..V..V-VT1-71A	6"	150	167	147	184,5	184,5	222

L TC clamped (code A)

L BW butt weld (code B)

L overall length

Special extended tube for orbital welding available on request

### Operating conditions:

Opening pressure 0,03÷0,09 barg  
Working pressure from 1 to 6 barg  
Working temperature from 0°C to 150°C

### Material:

valve body AISI 316L stainless steel  
shutter TFM PTFE  
spring AISI 316 stainless steel  
guiding plate AISI 316L stainless steel  
body seal SILICONE, EPDM\*\*,FKM  
\*\* range temperature reduced, ref. instruction manual

### Surface finish:

Wetted surfaces are finish with Ra<0,5 micron or better

### Sealing head:

For size ½" up to 4" included, the stem and sealing head is completely machined in a one piece of TFM without o-ring  
For size 6" the stem is in AISI316L-1.4404 and sealing head is made by o-ring

### Available Documentations on request:

- 3.1 certificate according to 10204
- Surface Roughness certificate
- FDA certificate
- Ex ATEX certificate according to Directive 2014/34/UE



## VRO - Maintenance

### Non return valve, spring operated, type VRO

The sanitary spring operated non return valves VRO is suitable for use in liquid system at the following maximum operating conditions:

Working temperature from 0°C to 150°C \*\*

Working pressure from 1 to 6 barg @

\*\* range temperature reduced, ref. instruction manual

@ NOTE - pressure rating may exceed that of clamp connections

### Installation

The sanitary spring check valves will operate when installed in any orientation; flow should be toward the face of the seal shutter plate (2) as right illustrated.

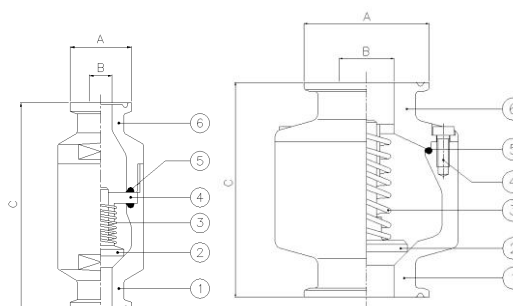
### Maintenance

The sanitary spring check valves VRO can be easily and quickly dismantled and reassembled for cleaning or maintenance.

Replacement body and seat seals are available as is a complete internals assembly.

Disassembly / assembly instructions are as follows:

1. Firstly intercept the service fluid and ensuring any residual system pressure has been relieved, then remove complete valve from line.
2. unscrew the outlet body for size ½" -¾" or remove the bolts for size 1" - 6". Loosen and remove it
3. Remove all internal components, checking on shutter for signs or wear or damage.
4. Fit new body seal (5) and if necessary only, the new TFM shutter or spring
5. When reassembling the internal components, ensure that the shutter (2) is correctly positioned.
6. Re-fit internals into inlet valve body (1) and marry with outlet body (6). Re-fit and tighten as appropriate .
7. Restore service fluid, the valve can be work again.



### Parts list :

1	inlet valve body	AISI 316L
2	shutter	TFM PTFE
3	spring	AISI 316
4.1	stem guide plate	AISI 316L
	as standard on ½" and ¾" fractional size only	
4.2	bolts	AISI 304
	as standard on size from 1" up to 6"	
5	body seal	FKM
	2 pcs. for ½" and ¾", 1 pc. only for size from 1" up to 6"	
6	outlet valve body	AISI 316L

For size ½" up to 4" included, the stem and sealing head is completely machined in a one piece of TFM PTFE without o-ring

For size 6" only, the stem/plate are in stainless steel 316L with o-ring in FKM

NOTE: the new type of TFM shutter are perfectly interchangeable with old style in stainless steel with o-ring

CAUTION : When welding valves in-line care should be taken to protect internal seal. We recommended that valves are disassembled prior to welding.

Spare parts table

Kit code	inch	DN
KRO-075- (#) T1- (...)	½"	15
KRO-075- (#) T1- (...)	¾"	20
KRO-100- (#) T1- (...)	1"	25
KRO-150- (#) T1- (...)	1" ½	40
KRO-200- (#) T1- (...)	2"	50
KRO-250- (#) T1- (...)	2" ½	65
KRO-300- (#) T1- (...)	3"	80
KRO-400- (#) T1- (...)	4"	100
KRO-600- (#) T2- (...)	6"	150

Material seat seal (#)	Composition KIT (...)
# = X Silicone	(...) = 01 seat seal only
# = E Epdm	(...) = 02 seat seal + spring
# = V FKM	(...) = 03 seat seal + shutter
other material	(...) = 04 seat seal + spring + shutter
on request	

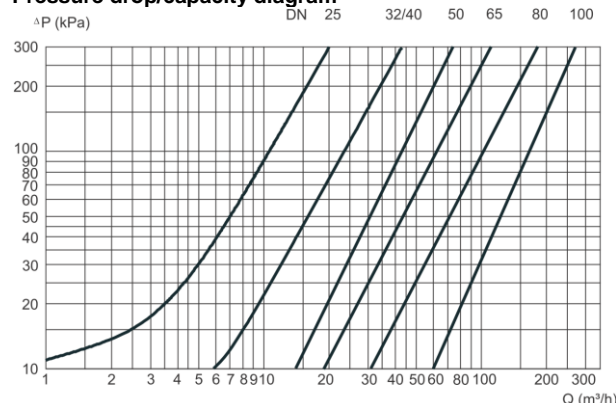
### Available spares

Standard spare parts kit including o-ring body seal in FKM (5) 2 pcs. for ½" and ¾", 1 pc. only for size 1" to 6" (for size 6" only, o-ring in FKM on the stainless steel stem/plate)

Different o-ring material available on specific request

The spring and TFM PTFE shutter (not included in the standard spare parts kit) available on specific request

Pressure drop/capacity diagram



For the diagram the following applies medium Water at 25°C