

Operating Manual

DELTA VRAH11

Vacuum Valve



Read and understand this manual prior to operating or servicing this product.



Declaration of Conformity for Valves and Valve Manifolds

APV Rosista GmbH, Zechenstr. 49, D-59425 Unna-Königsborn
as manufacturer with sole responsibility declares that the

**double seat valves of the series D2, SD4, SDT4, SDM4, SWcip4, DSV,
DA3, DE3, DEU3, DET3, DKR2, DKRT2, DKRH2**
in the nominal diameters DN 25 - 150, 1" - 6" and 1 Sh5 - 6 Sh5

butterfly valves of the series SV1 and SVS 1 F
in the nominal diameters DN 25 - 100, DN 125 - 250 and 1" - 4"

ball cocks of the series KH, KHV
in the nominal diameters DN 15 - 100

**single seat, diaphragm and spring loaded valves of the series
S2, SW4, SWmini4, SWT4, M3, MF3, M4, MF4, MP4, MS4, AP1, APT1, CPV, RG4,
RGM4, RGE4, RGEM4, PR2, PR3, PR4, SI2, UF3, VRA, VRAH**
in the nominal diameters DN 10 - 150, 1/2" - 4" and 1 Sh5 - 6 Sh5


and the valve manifolds installed thereof

meet the requirements of the Directives 89/392/EEC (amendment 93/44/EEC),
replaced by 98/37/EC and GSG - 9.GSGV.

For official inspections, APV Rosista GmbH presents
a technical documentation according to appendix V of the Machinery Directive,
this documentation consisting of documents of the development and construction,
description of measures taken to meet the conformity and to correspond with
the basic requirements on safety and health, incl. an analysis of the remaining risks
as well as an operating manual with safety instructions.

The conformity of the valves and valve manifolds is guaranteed.

D-59425 Unna-Königsborn, June 04, 2008
APV Rosista GmbH



Manager Research and Development

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1. General Terms

This operating manual has to be read carefully and observed by the competent operating and service personnel.

We have to point out that we will not accept any liability for damage or malfunctions resulting from the non-compliance with this operating manual.

Descriptions and data given herein are subject to technical changes.

2. Safety Instructions



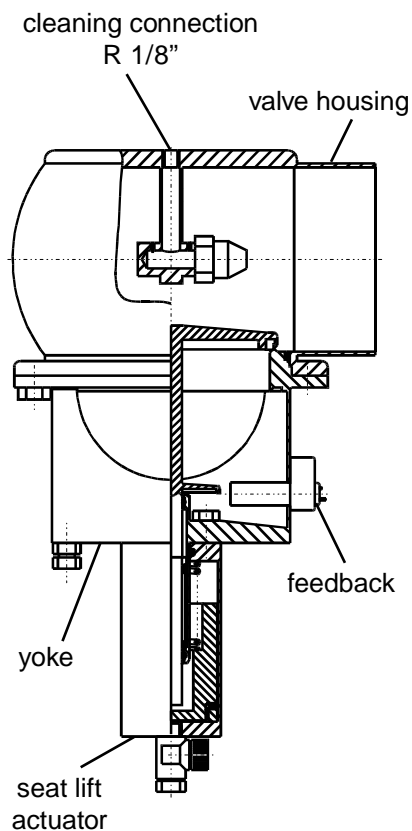
DANGER!

- Before any maintenance of the valve, the line system in which the valve is installed must be depressurized.

ATTENTION!

- Observe service instructions to ensure a safe maintenance of the valve.

3. Mode of Operation



The vacuum valve DELTA VRAH 11 is used in applications in which equipment can be damaged by a vacuum (e.g. in containers or pipelines).

If a vacuum occurs, the valve opens by the valve seat being lifted to relieve the vacuum in the system.

The closing process is released only if the vacuum does no longer exist or if the response pressure is reached.

4. Auxiliary Equipment

- **Valve feedback**

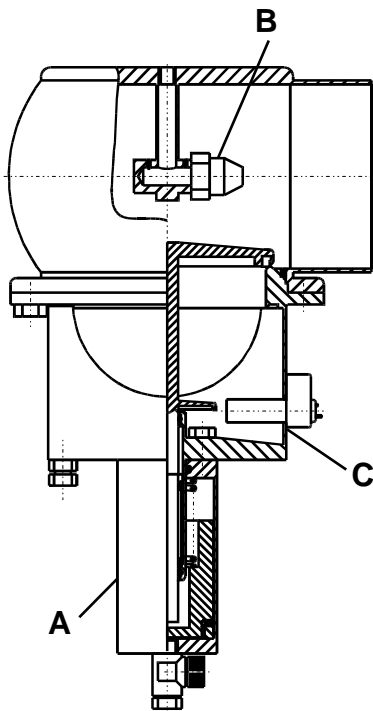
A switch to signal the closed and open position of the valve seat (on / off) can be mounted to the valve **(C)** if required.

We recommend to use our APV standard types:

operating distance: 5 mm / diameter : 11 mm.

If the customer decides to use a valve feedback other than APV type, we cannot take over any guarantee for a faultless function.

5. Cleaning



Through the cleaning nozzle **(B)** in the housing, the product-wetted parts of the valve can be cleaned during the cleaning process. Moreover, the contact surfaces between the seat seal and the seat can be cleaned through seat lifting. For this purpose, the seat lift actuator **(A)** is controlled in short intervals during the cleaning process.

- **Seat lift actuator**

The VRAH valve is equipped with a seat lift actuator **(A)** which is used during the cleaning process and / or for remote functional control.

- **Cleaning device**

The valve is equipped with an integrated cleaning nozzle **(B)**.

6. Installation

The VRAH valve must be installed in inverted position to provide for the function of the valve.

The valve housing can be welded directly for the complete valve insert being dismantable to the bottom.



Attention: Observe welding instructions.

6.1 Welding Instructions

VRAH

- Before welding of the valves, the valve insert must be dismantled from the housing. A careful handling without damage to the parts must be provided.
- Welding may only be carried out by certified welders (EN 287-1). (Seam quality EN 25817 "B").
- The welding of the valve housings must be undertaken in such a way that deformation strain cannot be transferred to the valve body.
- The preparation of the weld seam up to 3 mm thickness must be carried out in butt manner as a square butt joint without air. (Consider shrinkage!)
- TIG orbital welding is preferred!
- After welding of the valve housing or of the mating flanges and after work at the pipelines, the corresponding parts of the installation or pipelines must be cleaned from welding residues and soiling. If these cleaning instructions are not observed, welding residues and dirt particles can settle in the valve and cause damage.
- Any damage resulting from the nonobservance of these welding instructions is not subject to our guarantee.

7. Maintenance

- The maintenance intervals depend on the application of the valve and should be determined by the operator carrying out regular checks.
- Replacement of seals according to service instructions.
- All seals must lightly be greased before their installation!!!

Recommendation:

APV-food-grade grease for EPDM
(0,75 kg /can - ref. No. 000 70-01-019/93)
(60 g /tube - ref. No. 000 70-01-018/93)

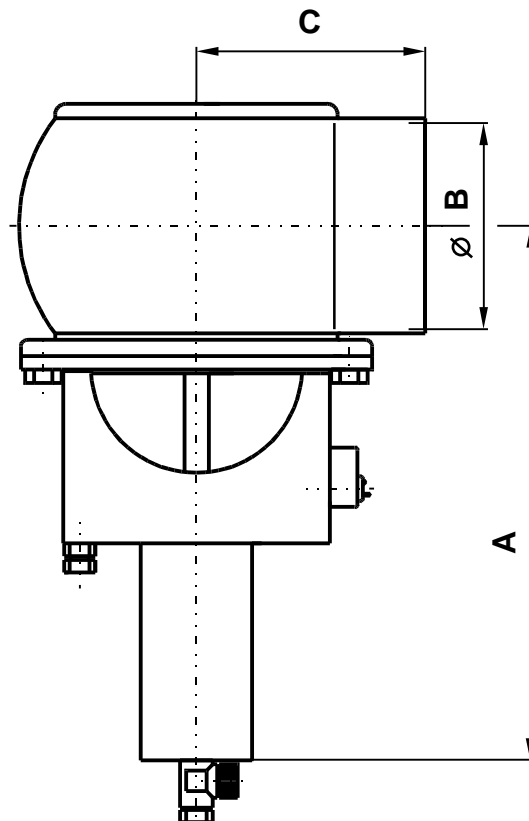
- !! **Do not use grease containing mineral oil for EPDM seals !!!**
- Assembly of the valve according to service instructions.

8. Materials

Product-wetted parts	:	1.4404/1.4571
Other parts	:	1.4301
Seals standard	:	EPDM

9. Dimensions / Weights

DN	dimensions in mm			weight in kg
	A	Ø B	C	
100	259	100	111	5,1



10. Technical Data

max. line pressure :	10 bar
max. operating temperature :	135° C EPDM
short-term load :	140° C EPDM
response pressure :	20mm WC

flow rates (m³/ h) at a negative pressure of

	100 mm WS	200 mm WS
DN 100	250	350

11. Service Instructions

The item numbers refer to the spare parts drawing **RN 01.111-2**.

I. Dismantling from the line system

- a. Shut off line pressure.

Do not reach for movable parts!
Risk of injury by suddenly actuating valve.

- b. Remove pneumatic air line for the seat lift actuator **(2)** at the union **(1)**.
- c. Loosen clamp of feedback support and pull off proximity switch **(10)**.
- d. Loosen hexagon nuts **(9)** by means of a wrench SW 13 / SW 17 and lift out the valve insert.

11. Service Instructions

II. Dismantling of inner parts

- a. Remove housing seal **(13)**.
- b. Remove valve shaft **(12)** from the insert.
- c. Stick into the seat seal **(14)** with a peaked object and pull it off.
- d. Take the guide band **(7)** out of the yoke groove.

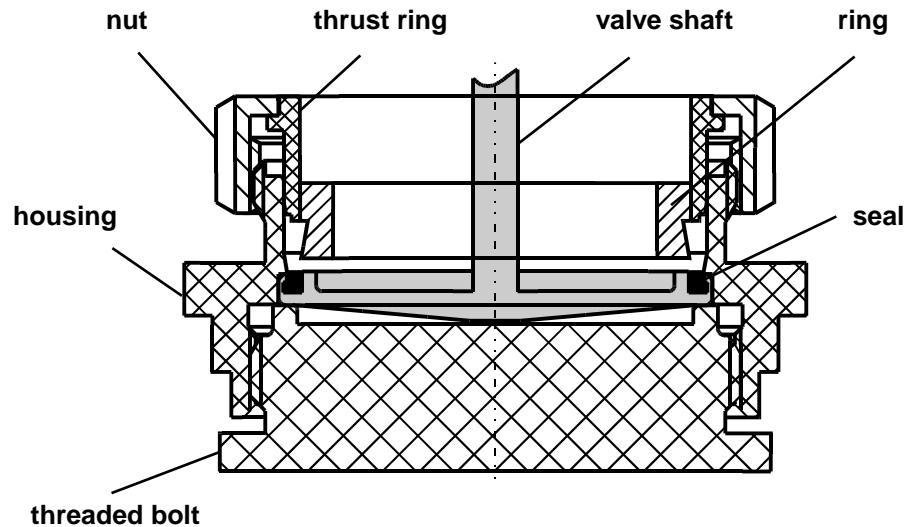
III. Installation of seals and assembly of valve

- a. Press the guide band **(7)** into the yoke.
- b. Before mounting the valve shaft **(12)**, insert the seat seal **(14)**.
To get an even fit of the seat seal, use the APV assembly tool (ref.-No. 51-13-650/17) to insert the seal. (installation see 12.)
- c. Place the shaft **(12)** in the seat lift actuator.
- d. Provide the housing seal **(13)** with a thin layer of grease and insert it into the yoke groove.

IV. Installation of valve

- a. Place the complete valve insert into the housing **(16)** and fix it with the screws **(9)**.
- b. Attach the pneumatic air line and the feedback.

12. Assembly Tool



Assembly tool for seat seal (ref.-No. 51-13-650/17)

The assembly tool consists of:

- item 1 - housing assembly tool
- item 2 - threaded bolt assembly tool
- item 3 - ring
- item 4 - thrust ring assembly tool
- item 5 - nut

Installation of seat seal into the valve shaft

1. Place the valve shaft in the housing in such a way that the nut is in the housing.
2. Screw the threaded bolt in the housing and fix the valve shaft (the shaft is clamped). Then clamp the housing into the vise.
3. Provide the seat seal with a thin layer of grease. Use special food-grade grease for this purpose. Put the seal onto the ring until it stops. See to the correct position of installation.
4. Introduce the ring with the seat seal installed into the housing and press it down until it stops.
5. Introduce the thrust ring into the housing. Screw on the nut and tighten it by a hook spanner until it stops.
6. Loosen the nut. Take ring and thrust ring out of the housing.
7. Take the housing out of the vise, screw the threaded bolts off the housing and take the shaft out of the housing.

Check the even fit of the seat seal.

13. Trouble Shooting

The item numbers refer to the spare parts drawing RN 01.111-2.

Removal of failure see chapter 11, Service Instructions.

- Leakage between housing flange and mating flange : **replace housing seal (13)**
- Leakage at valve seat : **replace seat seal (14)**
- Seat lifting does not work : **check function of seat lift actuator or replace complete actuator**

- Valve does not work : **check smooth running of the shaft, clean shaft passage, replace damaged parts.**

14. Spare Parts Lists

(see annex)

BA VRAH11 0002
ID-No.: H 1 7 0 7 9 4
Translation of original manual



rev. 2



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Ersatzteilliste: spare parts list:
 Vakuumventil VRAH11-IHP2 DN100
 hängende Ausführung
 Vacuum valve VRAH11-IHP2 (proximity switch) DN100
 suspended design

Besteht aus 2 Blatt Blatt 1

Datum	8/93	7/97	5/01	9/01
Name	Trytko	Trytko	Trytko	Trytko

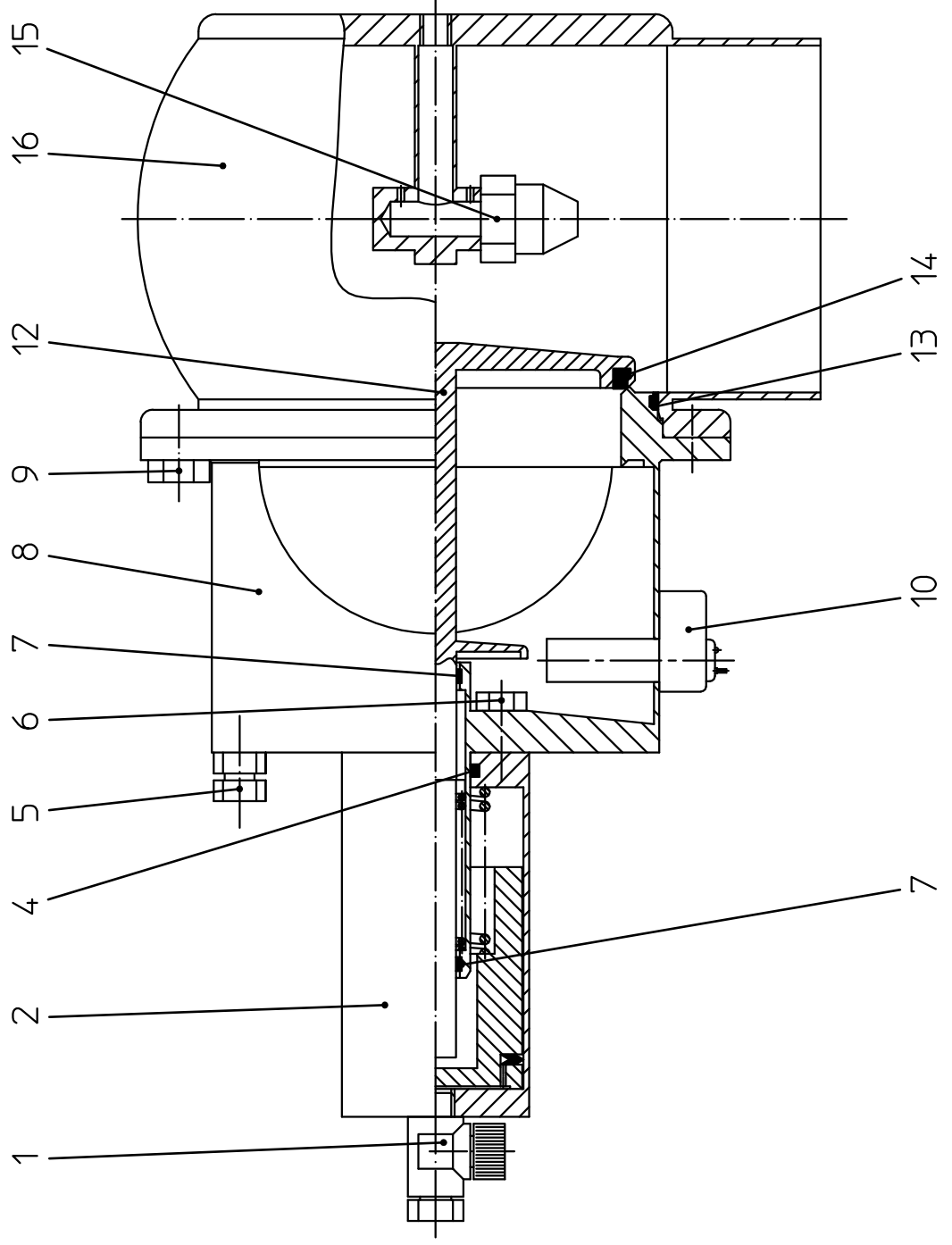
Gezeichnet	23.8.93	Trytko
Geprüft	24.8.93	Spl/WB
Normgepr.	21.9.93	Plümperl

Datum		
Name		

APV Rosista GmbH
 D-59425 Urra
 Germany

RN 01.111-2

02/94



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Ersatzteilliste: spare parts list:		Blatt <u>2</u>		APV Rosista GmbH D-58425 Urra Germany	
Vakuumentil VRAH11-IHP2 DN100		Gezeichnet 23.8.93		Trytko	
hängende Ausführung		Geprüft 24.8.93		Spl/WB	
Vacuum valve VRAH11-IHP2 (proximity switch) DN100		Normgepr.		Plümpel	
suspended design		Datum 8/93		7/97	
		Trytko		Trytko	
		05/00		05/01	
		Trytko		Trytko	
		09/01		04/04	
		Trytko		Trytko	
		RN		01.111-2	

Pos. item	Benennung description	WS-Nr. ref.-no.	DN		WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
			100	100				
1	VRAH-IHP2 1S	20-88-781/59						
1	Verschraubung schwenkbar Thread slewable G1/8	08-63-221/93						
2	Anlüfzylinder-Komplett Lifting device complete	15-31-856/17						
3								
4	O-Ring O-ring 20,2-3	58-06-078/83						
5	G.Verschraubung Straight plastic union 8x1 G1/8	08-63-003/13						
6	Skt. Schraube Hex. screw DIN EN 24017- M8x28-A2-70							
7	Führungsband Shaft lining 08-39-096/93							
8	Laterne Yoke 15-40-639/47							
9	Skt. Schraube Hex. screw DIN EN 24017- M10x14-A2-70							
10	Rückmeldung Proximity switch 15-33-110/33							
12	Schaft Shaft 15-22-861/42							
13	Gehäusedichtung Housing seal 58-33-642/93							
14	Tellerdichtung Seat seal 58-33-777/93							
15	Hohlkegeldüse Cone nozzle KS1-90° 09-40-047/43							
16	Gehäuse mit Düse Housing with nozzle 21-80-634/47							
1	Dichtungssatz Seal kit EPDM 58-34-101/01							