

Operating Manual
DELTA DKRH2
Double - Seat Ball Valve
with Cleaning Connection
-High Pressure Design-



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



Declaration of Conformity for Valves and Valve Manifolds

SPX APV, Zechenstr. 49, D-59425 Unna-Königsborn
herewith 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 2006/42/EC (superseding 89/392/EEC
and 98/37/EC) and GPSG - 9.GPSGV.

For official inspections, APV Rosista GmbH presents
a technical documentation according to Appendix VII 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 risks,
as well as an operating manual with safety instructions.

The conformity of the valves and valve manifolds is guaranteed.

Authorised person for the documentation:
SPX APV, Frank Baumbach, Zechenstr. 49, D-59425 Unna

December 01, 2009



Manager Research and Development

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RN 01.077

1. General:

The operating instructions must be read and observed by the operating and maintenance personnel.

We point out that we will not accept any liability for damage and operating malfunctions caused by non-observance of the operating instructions. We reserve the right to make technical changes vis-a-vis the descriptions and data given.

2. Safety Instructions:

Danger!

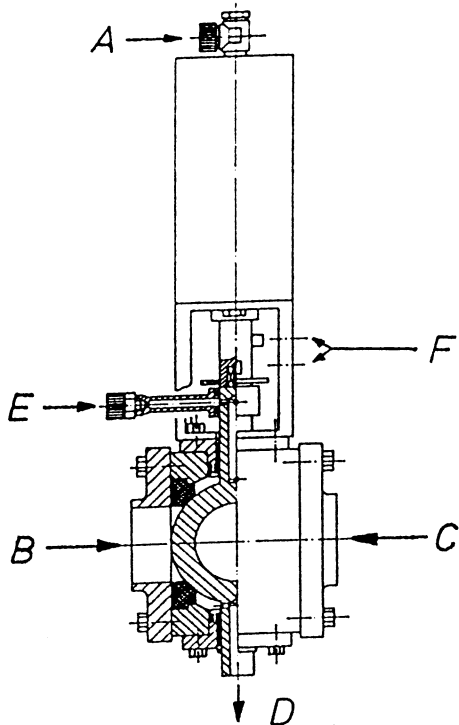
- If the valve is not removed from the line where it is installed, ensure that this line is absolutely pressureless!
- Do not attempt to reach into the open valve ball!
- Danger of injury when valve is suddenly actuated!
- Observe assembly instructions to ensure reliable maintenance of the valve.
- Remove actuator before changing seal.
- During operation there is leakage spraying out of the valve.
- If the cleaning connection is not used, it must be sealed with a plug or the leakage here must be conducted away.

3.a. Application:

The double seat ball valve DKRH-2, in its hygienic form is used in high pressure areas, such as Magarine or Mayonnaise manufacture. The change over bend goes, enabling the equipment to be automated through the use of DELTA DKRH-2 valves.

Before exerting the valve and the connecting pipelines to high pressure, it must already be in a final switched position. During switching, the line pressure should not exceed 5 - 10 bar (max).

3. b. Mode of Operation:



- Actuation by pneumatic actuator with air connection at (A), return by spring force into the end position "closed".
- Separation of two line sections with different media (B and C) by means of two independent seals with intermediate leakage chamber and free discharge (D) to the outside.
- The clear opening cross section is equal to the size of the nominal line diameter.
- Smooth valve passage without diversion of the media.
- Cleaning of the leakage chamber by introduction of cleaning liquid into the spray connection at (E).
- During operation there is leakage flowing downwards out of leak opening (D) . If no cleaning line is connected, the cleaning connection (E) must be sealed with a plug, or the leakage at (E) must be conducted away.
- The spray connection (E) can be used to ventilate the leakage chamber to ensure faster drainage, or to sterilise the leakage chamber with steam.

4. Installation:

- Installation must always be vertical to ensure that the operational leakage can flow out downwards and the leakage chamber can drain.
- When a number of valves are connected parallel to a cleaning line, a passing of the operational leakage into the cleaning connection of neighbouring valves has to be avoided, this is ensured by installing a shut-off facility or a non-return valve ahead of each cleaning connection.
- Connection of cleaning with hose 8 x 1.

5. Maintenance:

- Removal and installation of seals according to assembly instructions.
- Mounting and adjustment of actuator according to assembly instructions.
- All Elastoseals must be lightly greased before installation.

Recommendation:

APV-food-grade grease for EPDM and Viton

(0,75 can - reference no. 00070-01-019/93)

(60 g tube - reference no. 00070-01-018/93)

or

APV-food-grade grease for Silicone and Perbunan

(1 kg can - reference no. 00070-01-017/93)

(40 g tube - reference no. 00070-01-016/93)

! You must **not** use grease containing mineral oil with EPDM-seals.

! You must **not** use silicone based grease with silicone seals.

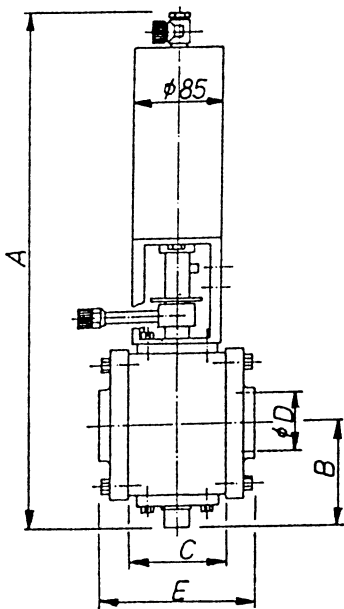
6. Materials:

- | | |
|-----------------------------|------------------|
| - Body, valve ball, shafts | 1.4571 |
| - Yoke, actuator | 1.4301 |
| - Coupling | 1.4057 |
| - Ball seal | PTFE |
| - Housing seal | EPDM |
| - Flange seal acc. to order | EPDM or Silicone |
| - O-Rings | EPDM |
| - Indicator | PE-hard |

Plastic parts in actuator:

- | | |
|-------------------|------------------|
| - Spindle bearing | Vestamid L 1901 |
| - Air connection | PA 6.6 |
| - Piston | Hostaform C 9021 |

7. Dimensions/Weights



DN	Dimensions in mm					Weights in kg
	A	B	C	D	E	G
50	448	87	79	50	127	13
80	565	114	123	81	203	34

8. Technical Data:

	DN	50	80
- torque (max.) in Nm	(M)	22	40
- operational leakage at 5 bar in l (opening and closing operation)	(Qs)	1,4	4
- air consumption at 6 bar in NL	(V)	1,8	5,5
- max. line pressure (static)		= 100 bar (valve not switchable)	
- max. line pressure (dynamic)		= 10 bar (valve switchable)	
- max. working temperature		= 100 °C	
- short-term steam load		= upto 120 °C	
- throughput cleaning at 3 bar		= approx. 5 - 10 l/min.	
- actuator: max. air pressure		= 10 bar	
min. air pressure		= 6 bar	
rotary angle		= 90°	

9. Assembly instructions DKRH-2:

The item numbers relate to the spare part drawings.
(DIN-design: RN 01.077)

I. Removal from the line system:

- a. Shut off line pressure.
- b. Separate actuator from air control line.
- c. Dismantle cleaning line.
- d. Unscrew valve position indicator.
- e. Remove flange screws. (item 20)
- f. Take out ball valve between flanges.

II. Dismantling of the worn parts:

- a. Remove flange seals (item 8).
- b. Remove actuator (item 15) after removal of bolts (item 16).
- c. Loosen bolts (item 18) and remove yoke, coupling, indicator and spray connection.
- d. Remove the PTFE ball seals with the metal support ring, (item 9) along with the housing seals (item 7).

DANGER! Do not attempt to change seal if the actuator has not yet been removed from the valve.

To remove the ball seals, half open the ball by hand and grip behind the seal on alternate sides.

CAUTION! Ball and ball seal are sensitive to mechanical damage, and the surfaces must not be touched by tools.

- e. After the bolts (item 3) have been loosened, both shaft bearings (item 2) can be removed from the housing, and the O-rings (items 5 and 6) and the guide strips (item 4) can be replaced.

III. Installation of seals and guide strips:

- a. Lightly grease O-rings (items 5 and 6) and guide bushings (item 4) before inserting into the shaft bearing (item 2).
- b. Push shaft bearing together with grease into the housing, insert bolts (item 3) but do not tighten.
- c. Lightly grease housing seals (item 7) before fitting it onto the metal support ring (item 21).
- d. Turn valve ball by hand to open position and install ball seals with grease.
- e. Lightly grease O-rings (item 12) and insert into the spray connection (item 10).

IV. Assembly of Valve:

- a. Mount yoke (item 17) with spray connection (item 10), indicator (item 13) and coupling (item 14), insert bolts (item 18) but do not tighten. With the valve in open position the lower cam of the coupling must point to the bore in the yoke segment.
- b. Operate actuator (item 15) by air and connect to yoke, provided the valve ball is precisely in open position.

DANGER! After the actuator has been mounted, do not reach into the open valve ball! Danger of injury from sudden operation of valve!

- c. The play in the square corner of the coupling is compensated by the fact that the actuator is turned in anticlockwise direction (seen from above) before bolts (item 16 and 18) are tightened. The valve ball must maintain the exact open position.
- d. Tighten bolts, first item 18 and then item 16 and test the exact open position of the valve ball after several operations.
- e. Insert flange seals (item 8) and install valve between flanges with bolts (item 20).
- f. Tighten bolts (item 3) on lower shaft bearing.
- g. Connect cleaning line.
- h. Mount valve position indicator.
- i. Connect air line with actuator.
(for accident prevention, connect the airhose last)

BA DKRH2 00002
ID-No.: H 1 7 0 7 6 0
Translation of original manual



rev. 2



Your local contact:



APV
Zechenstraße 49
D-59425 Unna

Phone: +49(0) 23 03/ 108-0 Fax: +49(0) 23 03 / 108-210

For more information about our worldwide locations, approvals, certifications, and local representatives, please visit www.apv.com.

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Ersatzteilliste: spare parts list:
 Ventil DKRH-Hochdruck-FZ 1+2S DN 50,80
 DKRH valve-high pressure design-FZ 1+2S
 DN 50,80

Besteht aus 3 Blatt Blatt 1

Gezeichnet	Datum	Name
14.4.93	14.4.93	Tryiko
Geprüft	27.4.93	WB
Normgepr.	27.4.93	P. Lümper

02/94

APV Rosista GmbH
 D-59425 Urra
 Germany

RN 01.077

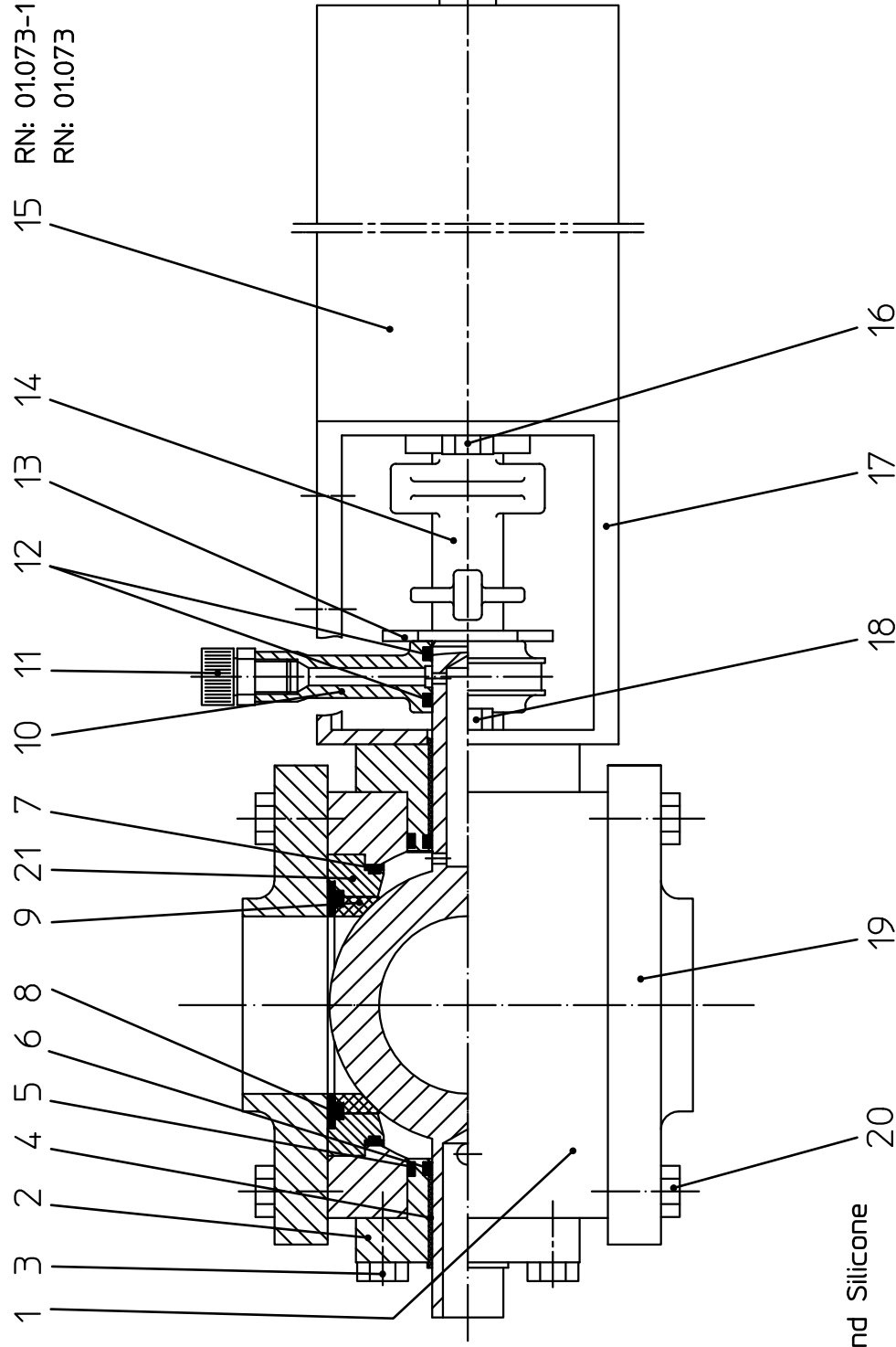
Es stehen verschiedene Dichtungswerkstoffe zur Verfügung.
 Bitte WS-Nr. ergänzen

The following seal materials are available (fill in last two digits of ref.-no.)

- *Dichtungswerkstoff: material seals:
- ../13-Silikon/silicon
- ../73-Viton
- ../93-EPDM

Gehäusedichtung / housing seal
 Bei Silikon wird die EPDM-Gehäusedichtung eingesetzt.
 For Silicone take the EPDM-housing seal.

- **O-Ring:
- ../73-Viton -bei Viton einsetzen/
to be used with Viton
- ../83-NBR 70-75 Shore A - bei EPDM
und Silikon einsetzen/
to be used with EPDM and Silicone



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Ersatzteilliste: spare parts list:
 Ventil DKRH-Hochdruck-FZ 1+2S DN 50,80
 DKRT valve-high pressure design-FS 1+2S
 DN 50,80

Blatt 2



APV Rosista GmbH
 D-58425 Urra
 Germany

Pos. item	Benennung description	25	40	50	65	80	100	125	150
1	Ventilkörper Valve body								
2	Wellenlager Bearing								
3	Skt. Schraube Hex. screw								
4	Lagerbuchse Bearing								
5	O-Ring								
6	O-Ring								
7	Gehäusedichtung Housing seal								
8	Dichtung Seal								
9	Kugeldichtung Ball seal								
10	Spritzanschluß CIP connection								
11	G.Verschraubung Union								
12	O-Ring								
13	Zeiger Position indicator								
14	Kupplung Coupling								
15	Drehantrieb Actuator								
16	Skt. Schraube Hex. screw								
17	Laterne Yoke								
18	Skt. Schraube Hex. screw								
19	Flansch Flange								
20	Skt. Schraube Hex. screw								

Pos. item	Benennung description	25	40	50	65	80	100	125	150
		WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
1	Ventilkörper Valve body		31-08-434/47			31-08-534/47			
2	Wellenlager Bearing		15-28-202/42			15-28-204/42			
3	Skt. Schraube Hex. screw		M8 x 20 65-01-083/15			M10 x 25 65-01-133/15			
4	Lagerbuchse Bearing		08-01-160/93			08-01-161/93			
5	O-Ring		20-4 58-06-080/			28-4 58-06-082/			
6	O-Ring		28-3 58-06-119/			37,2-3 58-06-162/			
7	Gehäusedichtung Housing seal		58-33-442/			58-33-642/			
8	Dichtung Seal		58-32-427/			58-32-527/			
9	Kugeldichtung Ball seal		58-32-443/25			58-32-543/25			
10	Spritzanschluß CIP connection		08-52-136/92			08-52-136/92			
11	G.Verschraubung Union		08-63-003/13			08-63-003/13			
12	O-Ring		58-06-078/			58-06-078/			
13	Zeiger Position indicator		08-29-021/93			08-29-022/93			
14	Kupplung Coupling		08-52-050/17			08-52-217/17			
15	Drehantrieb Actuator		15-31-055/17			15-31-057/17			
16	Skt. Schraube Hex. screw		M8 x 12 65-01-080/15			M10 x 14 65-01-129/15			
17	Laterne Yoke		15-40-166/17			15-40-168/17			
18	Skt. Schraube Hex. screw		M8 x 25 65-01-089/15			M10 x 30 65-01-136/15			
19	Flansch Flange		09-51-071/47			09-51-073/47			
20	Skt. Schraube Hex. screw		8xM16x30 65-01-234/15			16xM16x40 65-01-236/15			

RN 01.077

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Geprüft			
Datum <u>3/98</u>		Name <u>Tryiko</u>	
Datum		Name	

APV Rosista GmbH
D-59425 Urra
Germany

RN 01.073

Ersatzteilliste: spare parts list:
Drehantrieb K-80, K-125, K-180 F/L
Actuator K-80, K-125, K-180 spring/air

Es stehen verschiedene Werkstoffe zur Verfügung. Bitte WS-Nr. ergänzen

The following materials are available (fill in last two digits of ref.-no.)

*werkstoff metallisch/
material metallic

../13-1.4.301 poliert/polished
../17-1.4.301 matt-gl./satin finish

