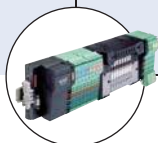


## Robolux Multiway Multiport Diaphragm Valve, standard product range



Type 2035 can be combined with...



**Type 8640 / 8644**

Valve block



**Type 8055**

Full bore magflowmeter



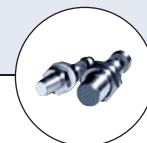
**Type 3236**

Manually operated multiway valve



**Type 2103**

Diaphragm valve



Proximity switches

This Multiway-Multiport Diaphragm Valve system is designed for control of ultra pure, sterile, aseptic and steam/CIP fluid paths.

It enables optimal sampling, draining or diverting of critical process fluids.

The valve range is based on the patented Robolux technology, where two seats are placed under one diaphragm. This design eliminates dead legs and will minimize the flow system volume.

The valve body is machined from a single piece of bar stock stainless steel. The high quality diaphragms are available in several different USP VI approved materials. The valve is operated with compressed air.

All valves will be delivered with 3.1 certificate, manufacturer's declaration for membranes, installation drawing and manual delivered.

### Applications

- Pharma
- Biotechnology
- Food industry
- Photo/Image industry

- Increased process efficiency
- Reduced installation costs
- Reduced number of valves and welds
- Zero dead volume and no contamination
- Approvals FDA, CE, USP VI, ATEX, 3.1

Technical data	
<b>Valve sizes</b>	1/4" to 2", DN 4 - 50
<b>Materials</b>	
Valve body	<ul style="list-style-type: none"> <li>▪ 1.4435 stainless steel (316L)</li> <li>▪ PP (ultrapure polypropylene)</li> <li>▪ PP (polypropylene USP VI)</li> </ul>
Diaphragm	<ul style="list-style-type: none"> <li>▪ PVDF (polyvinyl-difluoride)</li> <li>▪ EPDM, Silicone, PTFE PFA-lined EPDM, FKM, Technoflon® PFR91</li> </ul>
Actuator	<ul style="list-style-type: none"> <li>▪ epoxy coated aluminium</li> <li>▪ PP cover</li> </ul>
<b>End connections</b>	
Weld ends	<ul style="list-style-type: none"> <li>▪ EN ISO 1127 (ISO 4200)</li> <li>▪ DIN 11850 Series 2</li> <li>▪ ASME BPE</li> <li>▪ SMS 3008</li> <li>▪ BS 4825</li> </ul> (Further versions: Clamp and threaded port, on request)
<b>Surface qualities</b>	
internal	Ra ≤ 0.5 µm passivated
external	Ra ≤ 3.2 µm glass bead blasted
optional	electropolished
<b>Medium pressure</b>	RV50 max. 8 bar, RV70/RV110 max. 6 bar (depending on actuator, diaphragm and body materials)
<b>Pilot pressure</b>	6 to 8 bar <sup>1)</sup> (from 4.2 bar on request)
<b>Pilot air ports</b>	Thread G 1/8"
<b>Temperature</b>	
Medium	Plastic: -10 to max. +40 °C (see chart on page 2) St. Steel: -10 to max. +120 °C (max. +140 °C 30 min.) PFA-Diaphragm: 0 to max. +95 °C
Ambient	-10 to max. +60 °C (higher temperatures on request)

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### Further technical data

#### Kv value and CIP rate

Orifice DN Port connection [mm]	Valve size	Actuator size	Actuator designation	Kv value water diaphragm EPDM, FKM [m <sup>3</sup> /h]	Kv value water Membran PFA [m <sup>3</sup> /h]	CIP rate (m/s) at 1 bar <sup>1)</sup>	
						EPDM, FKM	PFA
10	3/8"	050	RV50	0.8	0.7	3.1	2.7
15	1/2"	050	RV50	2.5	2.0	5.5	4.4
20	3/4"	050	RV50	3.5	3.3	3.9	3.4
25	1"	070	RV70	10.0	9.0	6.6	6.0
40	1 1/2"	110	RV110	27.0	22.0	6.6	5.4
50	2"	110	RV110	35.0	27.0	5.1	4.0

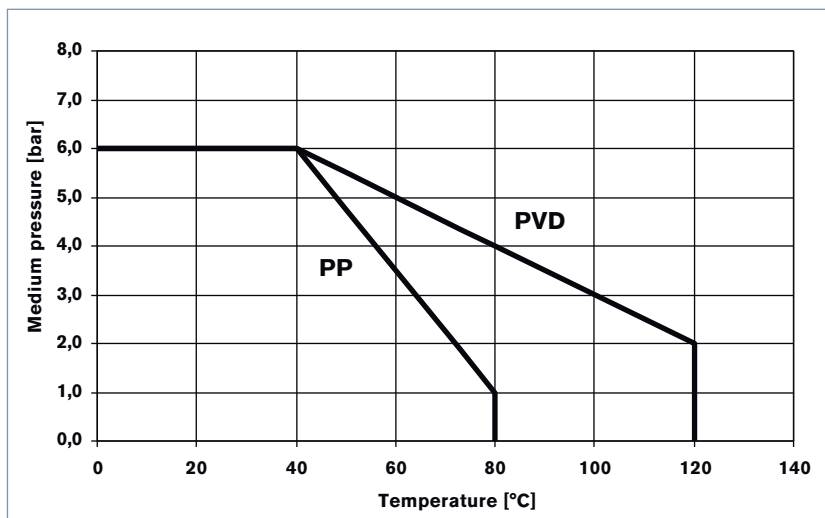
1) Pressure data [bar]: Overpressure with respect to atmospheric pressure

**Remark:** All Kv values are measured on valves with port connection according ASME BPE.

#### Medium pressure

Actuator versions	Pilot pressure [bar]	EPDM, FKM, Silicone, PFR91 max. operating pressure [bar]	PFA / EPDM max. operating pressure [bar]
RV50	6 - 10	8	8
RV50 EC04	4,2 - 10	6	6
RV70	6 - 10	6	6
RV70 EC04	4,2 - 10	3	3
RV110	6 - 10	6	6
RV110 EC04	4,2 - 10	3	3

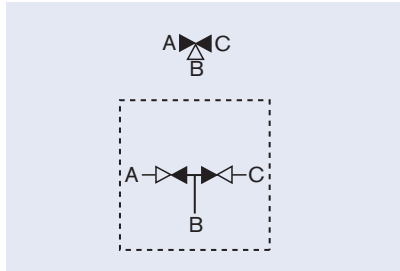
#### Permissible medium pressure as a function of medium temperature in plastic valve bodies



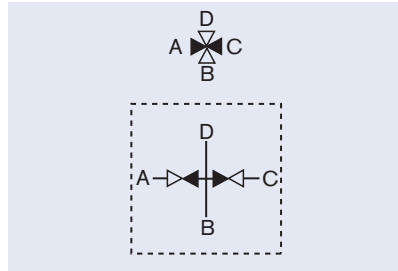
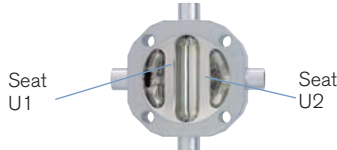
**Note:** The specified maximum medium pressure refers to the static leakage. For more information, see operating instructions.

**Valve symbols and flow patterns**

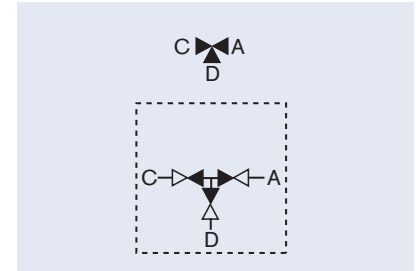
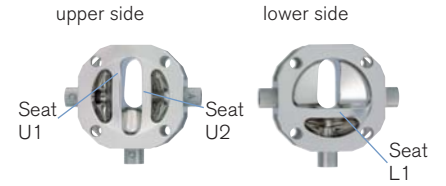
**3Connections 2Seats;  
3C2S (formerly 3w3p)**



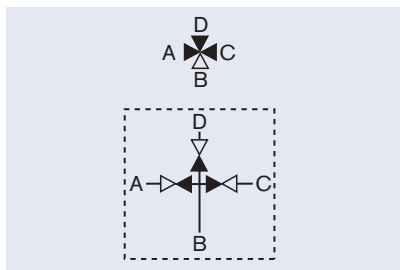
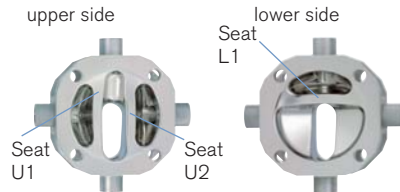
**4Connections 2Seats;  
4C2S (formerly 3w4p)**



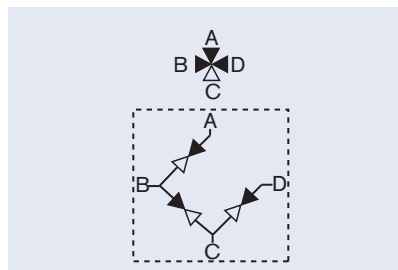
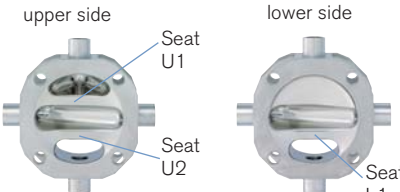
**3Connections 3Seats;  
3C3S (formerly 4w3p)**



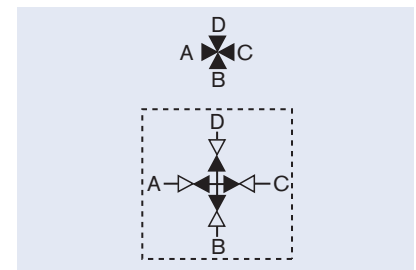
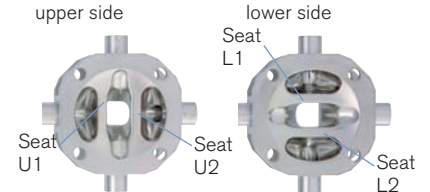
**4Connections 3Seats;  
4C3S (formerly 4w4p)**



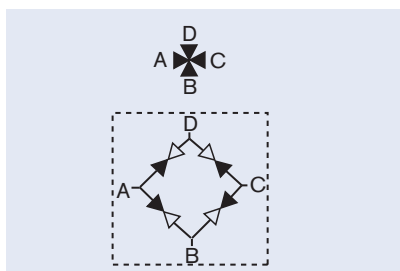
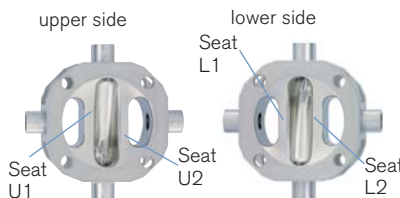
**4Connections 3Seats; 4C3S BD  
(formerly 4w4p BD) filter valve**



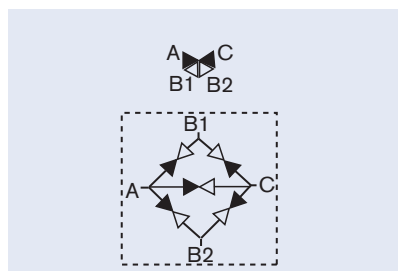
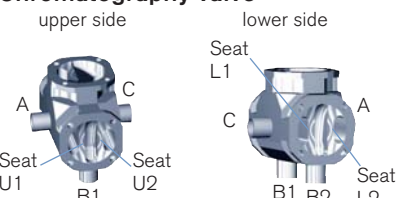
**4Connections 4Seats  
4C4S (formerly 6w4p)**



**4Connections 4Seats;  
4C4S DFP (formerly 4w4p DFP)**



**4Connections 5Seats;  
4C5S CHR (formerly 5w4p)  
Chromatography valve**



## Approvals

Certificates are delivered together with the valves.

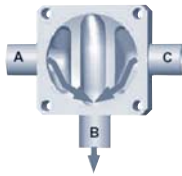
- Valve bodies EN ISO 10204 3.1; polypropylene USP VI
- ATEX certification EEx II G/D T6 / T = 85 °C
- Diaphragms FDA CFR 177.2600 for EPDM, FKM and Silicone  
FDA CFR 177.1550 for PTFE PFA  
USP VI for EPDM, PTFE PFA/EPDM, Silicone and PFR91

## Draining operation of the valve

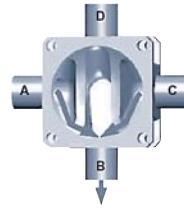
The draining is achieved differently depending on the valve type. It is very important to fully understand the flow paths of each individual valve body before deciding which port/connection (marked with A, B, C or D) to select for draining. Consult with your Bürkert contact person if there are any questions.

The examples below show how to get the optimum draining for the 3C2S/4C2S and 4C3S valves.

**Example:**



Installation for draining operation for a 3C2S valve body



Installation for draining operation for a 4C3S valve body

## Diaphragms



Diaphragm material	Material description	Application	Actuator designation		
			RV50	RV70	RV110
EPDM	peroxide-vulcanized ethylene-propylene rubber	oxidation chemicals, steam and hot water	■	■	■
FKM	fluorinated rubber	acids and mineral oils	■	■	■
PFA-lined EPDM	PTFE PFA-lined on EPDM backing	most chemicals and acids	■	■	■
PFR 091	Technoflon® PFR91 perfluor rubber	organic and inorganic acids, alkaline solutions, ketones, esthers, alcohols and steam	■	■	■
Silicone	Pt-stabilized silicone rubber	aliphatic oils	■	■	on request

Accessories

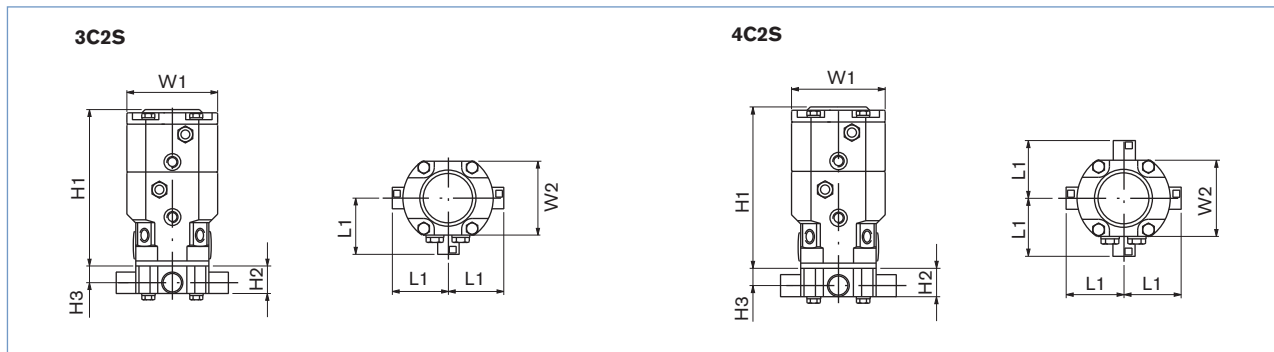
Proximity switches

Sensor, acode no.	Sensor		Actuator size				Cable	
	Item no.	Cable, connection	RV50	RV50 PP cover	RV70	RV110	Cable connector (cable length) <sup>1)</sup>	Item no.
Inductiv switch	902 473	M12	■				5m PVC	902 467
	902 475	M8		■	■	■	5m PVC	902 480
		M8			■	■	10m PVC	902 470
Inductiv NAMUR	902 479	M12	■				5m PUR	902 471
		M12	■				10m PUR	902 472
	902 477	M8		■			5m PUR	902 471
		M8		■			10m PUR	902 472
	902 481	M8			■	■	5m PUR	902 471
		M8			■	■	10m PUR	902 472

Please note: only upper piston position can be controlled with the actuator RV50 with PP cover

Dimensions [mm] (for actuator epoxy coated aluminium)

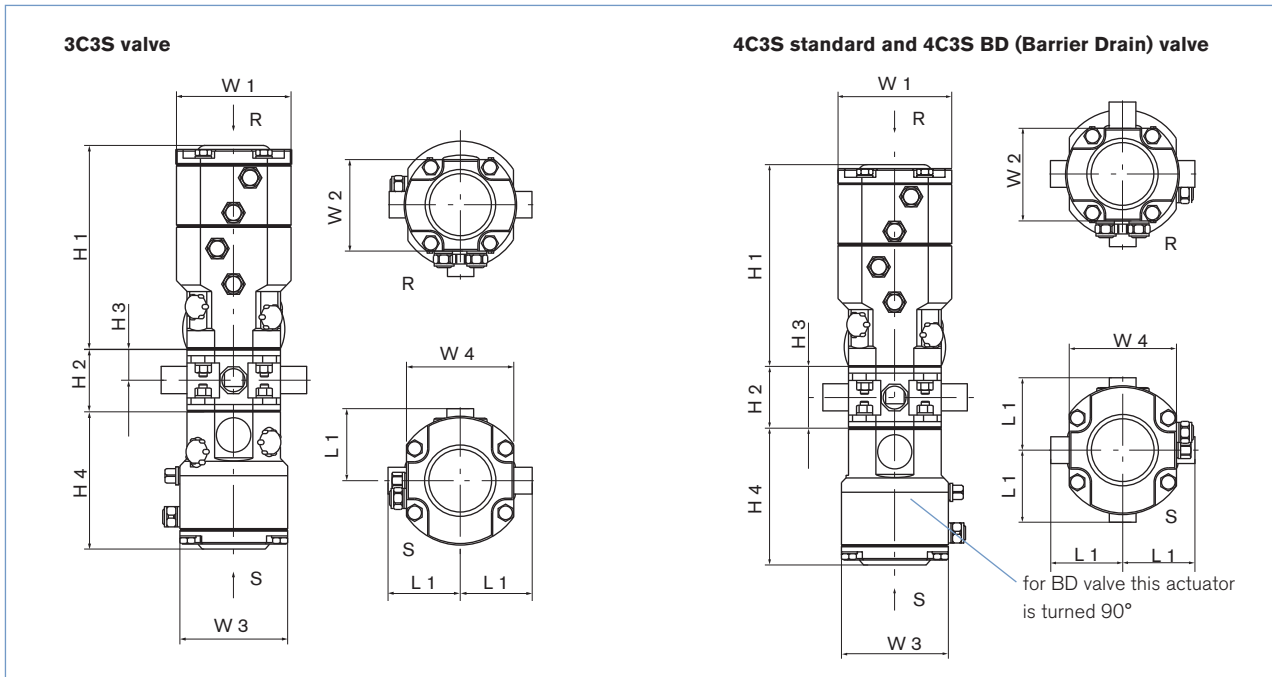
3Connections 2Seats; 3C2S and 4 Connections 2Seats; 4C2S



Orifice DN [mm]	Actuator size	EN ISO 1127 / ISO 4200			DIN 11850 series 2			ASME BPE			H1	W1	W2
		L1	H2	H3	L1	H2	H3	L1	H2	H3			
15	RV50	50.5	26	14.4	50.5	21	10.5	42.5	16	8.7	146	80	65
20	RV50	-	-	-	-	-	-	50.5	21	10.5	146	80	65
20	RV70	69	32	17.6	69	26	13.5	61.5	26	15.5	249	106	87
25	RV70	-	-	-	69	32	16.5	69	32	18.3	249	106	87
25	RV110	90.5	38	20.2	-	-	-	-	-	-	262	149	126
40	RV110	90.5	56	30.9	90.5	44	22.5	90.5	44	24	262	149	126
50	RV110	90.5	62	30.9	90.5	62	34.5	90.5	56	29.6	262	149	126

**Dimensions [mm]** (for actuator epoxy coated aluminium), continued

**3Connections 3Seats; 3C3S / 4Connections 3Seats; 4C3S standard / 4Connections 3Seats BD; 4C3S BD**

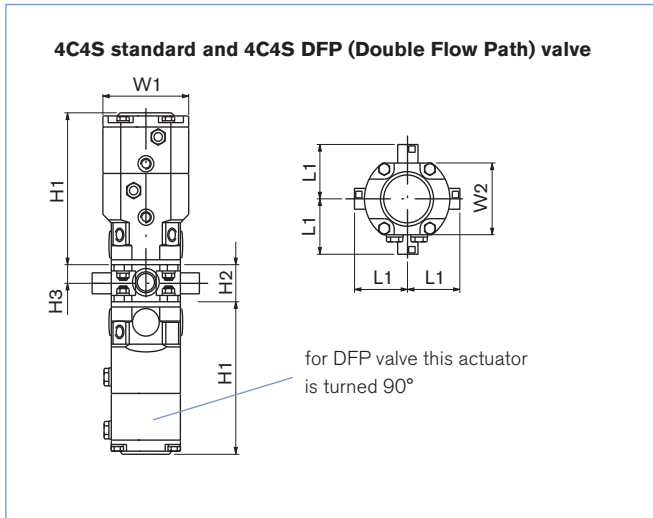


Orifice DN [mm]	Actua- tor size	EN ISO 1127 / ISO 4200			DIN 11850 series 2			ASME BPE		
		L1	H2	H3	L1	H2	H3	L1	H2	H3
15	RV50	50.5	34	17	50.5	34	17	42.5	28	14
20	RV50	-	-	-	-	-	-	50.5	34	17
20	RV70	69	48	24	69	40	20	61.5	40	20
25	RV70	-	-	-	69	48	24	69	48	24
40	RV110	90.5	70	35	90.5	70	35	90.5	70	35
50	RV110	90.5	75	37.5	90.5	70	35	90.5	70	35

Orifice DN [mm]	Actua- tor size	H1	W1	W2	H4	W3	W4
15	RV50	146	80	65	99.5	90	75
20	RV50	146	80	65	99.5	90	75
20	RV70	248.5	106	87	161	106	87
25	RV70	248.5	106	87	161	106	87
40	RV110	261.5	149	126	169.5	149	126
50	RV110	261.5	149	126	169.5	149	126

**Dimensions [mm]** (for actuator epoxy coated aluminium), continued

4Connections 4Seats standard; 4C4S / 4Connections 4Seats DFP; 4C4S DFP

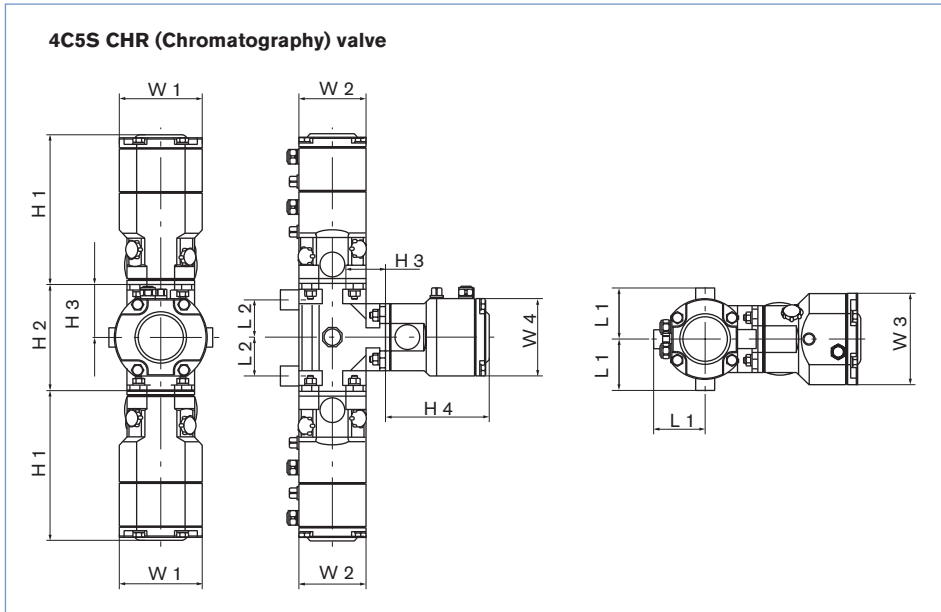


Orifice DN [mm]	Actua- tor size	EN ISO 1127 / ISO 4200			DIN 11850 series 2			ASME BPE			H1	W1	W2
		L1	H2 <sup>2)</sup>	H3 <sup>2)</sup>	L1	H2 <sup>2)</sup>	H3 <sup>2)</sup>	L1	H2 <sup>2)</sup>	H3 <sup>2)</sup>			
15	RV50	50.5	34	17	50.5	34/28	17/14	42.5	28	14	146	80	65
20	RV50	-	-	-	-	-	-	50.5	34/28	17/14	146	80	65
20	RV70	69	48/44	24/22	-	-	-	61.5	40	20	248.5	106	87
25	RV70	-	-	-	-	-	-	69	48/40	24/20	248.5	106	87
40	RV110	-	-	-	-	-	-	90.5	70/60	35/30	261.5	149	126
50	RV110	90.5	75/85	37.5/ 42.5	90.5	70	35	90.5	70	35	261.5	149	126

<sup>2)</sup> dimensions for 4C4S DFP / 4C4S

Dimensions [mm] (for actuator epoxy coated aluminium), continued

4Connections 5Seats standard; 4C5S CHR



Orifice DN [mm]	Actuator size	EN ISO 1127 / ISO 4200				DIN 11850 series 2				ASME BPE			
		L1	L2	H2	H3	L1	L2	H2	H3	L1	L2	H2	H3
15	RV50	50.5	37.5	105	52.5	50.5	37.5	105	52.5	42.5	37.5	105	52.5
20	RV50	-	-	-	-	-	-	-	-	50.5	40.7	105	52.5
20	RV70	69	51.5	147	73.5	69	51.5	147	73.5	61.5	48.4	147	73.5
25	RV70	-	-	-	-	-	-	-	-	69	51.6	147	73.5
40	RV110	-	-	-	-	-	-	-	-	90.5	45.7	160	80
50	RV110	-	-	-	-	-	-	-	-	90.5	52	160	80

Orifice DN [mm]	Actuator size	H1	W1	W2	H4	W3	W4
15	RV50	146	80	65	99.5	90	75
20	RV50	146	80	65	99.5	90	75
20	RV70	248.5	106	87	161	106	87
25	RV70	248.5	106	87	161	106	87
40	RV110	261.5	149	126	169.5	149	126
50	RV110	261.5	149	126	169.5	149	126



**Note**  
You can fill out the fields directly in the PDF file before printing out the form.

**Robolux valves – request for quotation**

▶ Please fill out and send to your nearest Bürkert facility\* with your inquiry or order

Company	Contact person
Customer no.	Department
Address	Tel./Fax
Postcode/town	E-Mail

= mandatory fields to fill out       Quantity       Required delivery date

**Operating data**

Pipe line      DN       PN

Pipe material

Process medium

Type of media       Liquid       Steam       Gas

**Valve features**

Surface finish       Standard Ra 0,5 Internal/Ra 3,2 External       internal       external

Seal material       EPDM       PFA lined EPDM       FKM       Silicon       PFR91

Medium pressure      Pmed

Orifice      DN

Type of connection       Weld end       Clamp

Standard connection       ISO       DIN R2       ASME BPE       other

Pilot pressure       min.       max.

Please specify item no. if known:

**Valve features**

**Specification key**       2035

(automatically transferred from p. 10)

**Electrical Feedback**

Proximity switch       open       close

Namur switch       open       close

Certifications	Comment / sketch
<input type="checkbox"/> Attestation of compliance with the order EN-ISO 10204 2.1	
<input type="checkbox"/> Test report EN-ISO 10204 2.2	
<input checked="" type="checkbox"/> Certification of Conformity for Raw Material EN-ISO 10204 3.1	
<input type="checkbox"/> Certification of Conformity for the Surface Quality DIN4762-DIN4768-ISO/4287/1	
<input type="checkbox"/> Certification of Conformity for Pickling and Electropolishing Processes	
<input checked="" type="checkbox"/> FDA and USP compliance	

Specification key (other versions and valve blocks on request)

Example **32R50** **AB** **VH** **SA42** **AE** **D 11** **D 11** **NO14 + NO22**

Specification key

Please make a choice

Connections-Seats, Actuators*	
32R50	3C2S, actuator RV50
32R70	3C2S, actuator RV70
32R11	3C2S, actuator RV110
42R50	4C2S, actuator RV50
42R70	4C2S, actuator RV70
42R11	4C2S, actuator RV110
33R50	3C3S, actuator RV50
33R70	3C3S, actuator RV70
33R11	3C3S, actuator RV110
43R50	4C3S, actuator RV50
43R70	4C3S, actuator RV70
43R11	4C3S, actuator RV110
43B50	4C3S BD, actuator RV50
43B70	4C3S BD, actuator RV70
43B11	4C3S BD, actuator RV110
44R50	4C4S, actuator RV50
44R70	4C4S, actuator RV70
44R11	4C4S, actuator RV110
44D50	4C4S DFP, actuator RV50
44D70	4C4S DFP, actuator RV70
44D11	4C4S DFP, actuator RV110
45C50	4C5S CHR, actuator RV50
45C70	4C5S CHR, actuator RV70
45C11	4C5S CHR, actuator RV110

\*Remark: The actuator size depends on the size of the port connection (see p. 12 and 13)

Diaphragm material	
AB	EPDM
PN	Teflon® PFA-lined EPDM
FF	FKM
PR	Technoflon® PFR91
SK	Silicone

Body material	
VH	stainless steel AISI 316L, 1.4435
PP	polypropylene
PR	polypropylene USP VI
PD	polyvinyl difluoride
Other body materials on request!	

**Port connections**  
Continued on p. 11/12



Variable codes		
Surface finish external		
NO22	glass-blasted Ra ≤ 3.2 µm	Standard
Surface finish internal		
NO14	mechanical polished Ra ≤ 0.5 µm	Standard
NO25	electro polished Ra ≤ 0.5 µm	
EC04	versions with reduced spring force	
NC29	third actuator closed by spring force (for 4C5S valve only)	
NC30	third actuator opened by spring force (for 4C5S valve only)	

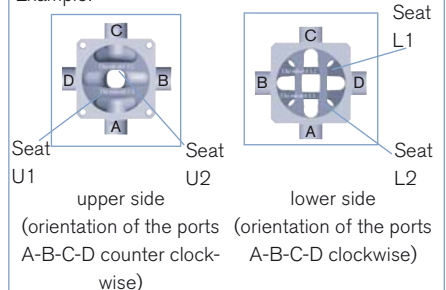
Actuators lower side*	
D	double actuator
SE	single actuator
000	without actuator
1	Seat closed by spring force
2	Seat opened by spring force

Actuators upper side*	
D	double actuator
SE	single actuator
1	Seat closed by spring force
2	Seat opened by spring force

- Actuator upper side (example)  
D11 = Seat U1 and U2 normally closed by spring action  
D21 = Seat U1 normally open and U2 normally closed by spring action
- Actuator lower side  
Same option is available for the lower side.

Please refer to the section *Valve symbols and flow patterns* p. 3 for more details.

Example:



Actuator material	
AE	epoxy coated aluminium
AP	PP cover

Specification key, continued (other versions and valve blocks on request)

Port connection weld end

Port connections for valves with actuator size RV50

Orifice DN [mm]	EN ISO 1127 / ISO 4200	DIN 11850				BS4825	ASME BPE
		Series 0	Series 1	Series 2	Series 3		
4		SC40=6x1.0					
6	SA78=10.2x1.6	SC41=8x1.0					
8	SA40=13.5x1.6	SC42=10x1.0				SODB=6.35x1.2	SA90=6.35x0.89
10	SA41=17.2x1.6		SF40=12x1.0	SD40=13x1.5	SE40=14x2.0	SODC=9.53x1.2	SA91=9.53x0.89
15	SA42=21.3x1.6	SC43=18x1.5	SF41=18x1.0	SD42=19x1.5	SE42=20x2.0	SODD=12.7x1.2	SA92=12.7x1.65
20		SC44=22x1.5	SF42=22x1.0			SODE=19.05x1.2	SA93=19.05x1.65

Port connections for valves with actuator size RV70

Orifice DN [mm]	EN ISO 1127 / ISO 4200	SMS 3008	DIN 11850				BS 4825	ASME BPE
			Series 0	Series 1	Series 2	Series 3		
20	SA43=26.9x1.6				SD43=23x1.5	SE43=24x2.0		SA93=19.05x1.65
25		SA60=25.0x1.2	SC45=28x1.5	SF43=28x1.0	SD44=29x1.5		SODF=25.4x1.65	SODF=25.4x1.65

Port connections for valves with actuator size RV110

Orifice DN [mm]	EN ISO 1127 / ISO 4200	SMS 3008	DIN 11850				BS 4825	ASME BPE
			Series 0	Series 1	Series 2	Series 3		
25	SA44=33.7x2.0					SE44=30x2.0		SODF=25.4x1.65
32	SA45=42.4x2.0		SC46=34x1.5	SF44=34x1.0	SD45=35x1.5	SE45=36x2.0		
40	SA46=48.3x2.0	SA62=38.0x1.2	SC47=40x1.5	SF45=40x1.0	SD46=41x1.5	SE46=42x2.0	SODH=38.1x1.65	SODH=38.1x1.65
50	SA47=60.3x2.0	SA63=51.0x1.2	SC48=52x1.5	SF46=52x1.0	SD47=53x1.5	SE47=54x2.0	SODI=50.8x1.65	SODI=50.8x1.65

**Port connection Clamp**

Remark: clamp XX = outer dimension of the clamp

**Port connections for valves with actuator size RV50**

Orifice DN [mm]	ISO 2852 for tube ISO 4200	DIN 32676	BS 4825	for tube ASME BPE	Others
4					TG20 = clamp 25 - Dint = 4
6					TG21 = clamp 25 - Dint = 6
8	TC40 = clamp 34 - Dint = 10.3		TH40 = clamp 25 - Dint = 3.95		TG 22 = clamp 25 - Dint = 8
10	TC41 = clamp 34 - Dint = 14	TD41 = clamp 34 - Dint = 10	TH41 = clamp 25 - Dint = 7.12	TG01 = clamp 25 - Dint = 7.74	TG23 = clamp 25 - Dint = 10
10					TG25 = clamp 25 - Dint = 6.22
15	TC42 = clamp 50.5 - Dint = 18.1	TD42 = clamp 34 - Dint = 16	TH42 = clamp 25 - Dint = 10.3	TG02 = clamp 25 - Dint = 9.4	TG24 = clamp 25 - Dint = 16
20			TH43 = clamp 25 - Dint = 16.65	TG03 = clamp 25 - Dint = 15.75	

**Port connections for valves with actuator size RV70**

Orifice DN [mm]	ISO 2852 for tube ISO 4200	for tube SMS	DIN 32676	BS 4825	for tube ASME BPE
20	TC43 = clamp 50.5 - Dint = 23.7		TD43 = clamp 34 - Dint = 20		TG03 = clamp 25 - Dint = 15.75
25		TG10 = clamp 50.5 - Dint = 22.6	TD44 = clamp 50.5 - Dint = 26	TH44 = clamp 50.5 - Dint = 22.1	TH44 = clamp 50.5 - Dint = 22.1

**Port connections for valves with actuator size RV110**

Orifice DN [mm]	ISO 2852 for tube ISO 4200	for tube SMS	DIN 32676	BS 4825	for tube ASME BPE
25	TC44 = clamp 50.5 - Dint = 29.7				
32	TC45 = clamp 50.5 - Dint = 38.4		TD45 = clamp 50.5 - Dint = 32		
40	TC46 = clamp 64 - Dint = 44.3	TG11 = clamp 50.5 - Dint = 35.6	TD46 = clamp 50.5 - Dint = 38	TH46 = clamp 50.5 - Dint = 34.8	TH46 = clamp 50.5 - Dint = 34.8
50	TC47 = clamp 77.5 - Dint = 56.3	TG12 = clamp 64 - Dint = 48.6	TD47 = clamp 64 - Dint = 50	TH47 = clamp 64 - Dint = 47.5	TH47 = clamp 64 - Dint = 47.5

**Remark:** For each Clamp connection with clamp diameter 25 or 34 mm you have to add a length of 13 mm; for each Clamp connection with clamp diameter 50.5, 64 or 77.5 mm you have to add a length of 20 mm.

**Port connection Clamp for PP or PVDF body (only versions 3C2S and 4C2S)**

Port connections for valves with actuator size RV50			Port connections for valves with actuator size RV70
Clamp			Clamp
CL20 = clamp 25 - Dint = 6	CL21 = clamp 25 - Dint = 10	CL22 = clamp 25 - Dint = 14.2	CL30 = clamp 50.5 - Dint = 21.2

**ATTENTION:** The dimensions for plastic bodys are different from the stainless steel versions.