













# 6 CONTROL VALVES

	<i>3/2-way solenoid valve EMV</i>	6.2
	<i>3/2-way impulse solenoid valve IMV</i>	6.4
	<i>3/2-way reversing valve UV</i>	6.6
	<i>3/2-way hand slide valve HSV</i>	6.8
	<i>2/2-way ball valve KV</i>	6.10
	<i>3/2-way ball valve KV</i>	6.12
	<i>Non-return valve RV</i>	6.14
	<i>Flow valve SV</i>	6.16
	<i>Flow valve SV(E)</i>	6.18
	<i>Touch valve TV</i>	6.20
	<i>Vacuum regulating valve VRV</i>	6.22
	<i>Foot interruptor FUB</i>	6.24

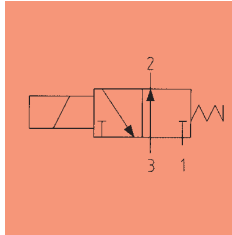
### Description

Robust 3/2-way valve, directly controlled by spring resetting.

Solenoid valves are used where quick switching from suction to ventilation is required. The valve can additionally be admissioned with compressed air in order to accelerate the ventilation process (max. 1 bar overpressure - on connection 1). When without current, the valves are open (NO). This guarantees that the vacuum circuit is not ventilated in case of a power failure, and that engaged goods do not fall off at once. All valves can be completely delivered (with ventilation filter and hose nipples). Additionally a fixing yoke is included in EMV-3/2-R1/4.



Typee EMV-3/2-R1/4



Switching diagram



Typee EMV-3/2-R 1/2 to EMV-3/2-R1

### Article numbers

Type	Valve complete 24 V (DC)	Valve complete 230 V (AC)	Valve 24 V (DC)	Valve 230 V (AC)	Replacement ventilation filter
EMV-3/2-R1/4	1.51.2.0051	1.51.2.0050	1.51.2.0053	1.51.2.0052	1.53.1.0004
EMV-3/2-R1/2	1.51.2.0015	1.51.2.0013	1.51.2.0016	1.51.2.0014	1.53.1.0003
EMV-3/2-R3/4	1.51.2.0019	1.51.2.0017	1.51.2.0020	1.51.2.0018	1.51.1.0008
EMV-3/2-R1	1.51.2.0023	1.51.2.0021	1.51.2.0024	1.51.2.0022	1.53.1.0009

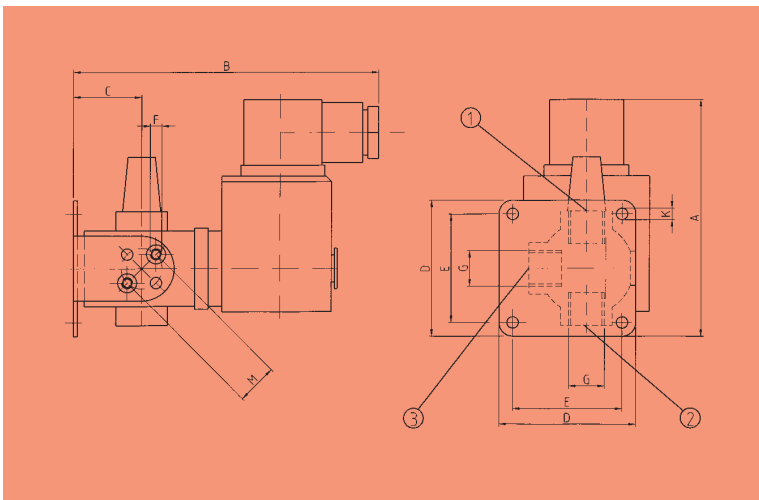
### Technical Data

	EMV-3/2-R1/4	EMV-3/2-R1/2	EMV-3/2-R3/4	EMV-3/2-R1
Function	NO	NO	NO	NO
Mounting position	discretionary	discretionary	discretionary	discretionary
vacuum	max. 98 %	max 98 %	max. 98 %	max. 98 %
max. Pressure range (bar)	max. 1 bar	max. 1 bar	max. 1 bar	max. 1 bar
Nominal width	3,8	12	20	25
Flow (m <sup>3</sup> /h) <sup>1)</sup>	5	26	70	73
Switches (1/min)	60	300	70	70
Switching time open (ms)	30	40	160	160
Switching time close (ms)	30	25	100	100
Temperature range(°C)	+ 5 to + 80	+ 5 to + 80	+ 5 to + 80	+ 5 to + 80
Nominal voltage DC <sup>2)</sup>	24 V	24 V	24 V	24 V
Nominal voltage AC <sup>2)</sup>	230 V, 50 Hz	230 V, 50 Hz	230 V, 50 Hz	230 V, 50 Hz
Current consumption DC (A) <sup>2)</sup>	0,41	0,76	1,7	1,7
Current consumption AC (A) <sup>2)</sup>	0,04	0,16	0,16	0,16
Class of insulation	F	H	H	H
Protective system	IP 65	IP 65	IP 65	IP 65
Duty factor	100 %	100 %	100 %	100 %
electr. connection	Pg 11	Pg 9	Pg 9	Pg 9
Machine outlet	ISO 4400, Form P	DIN 43 650, Form A	DIN 43 650, Form A	DIN 43 650, Form A
Weight (kg)	0,52	1,0	5,6	5,4

1) Flow with  $\Delta p = - 950 \text{ mbar}$

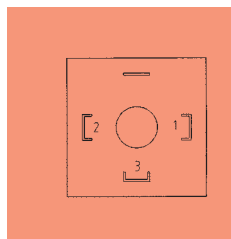
2) Special voltages on request

# 3/2-WAY-SOLENOID VALVE EMV

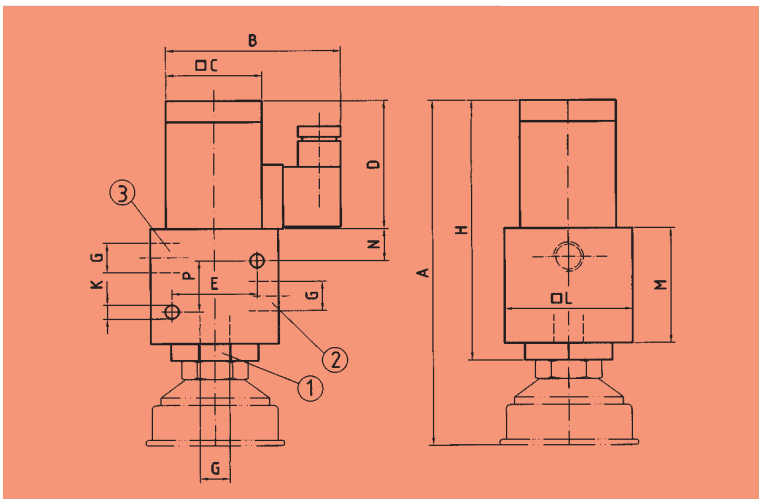


Solenoid valve EMV-3/2-R1/4

- 1 Ventilation filter
- 2 Suction plate
- 3 Vacuum pump



Connection DIN 43 650 with integrated LED and varistor



Solenoid valves EMV-3/2-R1/2 to EMV-3/2-R1

- 1 Ventilation filter
- 2 Suction plate
- 3 Vacuum pump

**Advice:**

Please mount a vacuum filter in front of the suction connection, to protect the valve from dirt particles. Please read chapter 8 "Filters and Accessories" for fitting vacuum filters!

<b>Dimensions</b>													
Type	A	B	C	D	E	F	G	H	K	L	M	N	P
EMV-3/2-R1/4	117	112	25	50	40	M 4	G 1/4"	---	4,3	---	15	---	---
EMV-3/2-R1/2	162	88,5	45	59,5	40	--	G 1/2"	121,5	6,5	60	62	14	25
EMV-3/2-R3/4	257	130	80	80	80	--	G 3/4"	206	9	100	118	30	45
EMV-3/2-R1	257	130	80	80	80	--	G 1"	206	9	100	118	30	45

**Description**

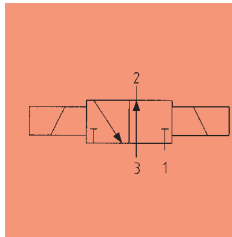
Robust 3/2-way valve, directly controlled with a permanent magnet.

Solenoid valves are used where quick switching from suction to ventilation is required. The valve can additionally be admissioned with compressed air in order to accelerate the ventilation process (max. 1 bar overpressure - on connection 1). Impulse magnetic valves are mainly used in bigger vacuum circuits, in which single suction plates have to be turned on and off. In case of a power failure the current switching condition remains, there is no change in switching.

All valves can be completely delivered (with ventilation filter and hose nipples).



Type IMV-R1/2



Switching diagram



Type IMV-3/2-R 3/4 to IMV-3/2-R1

**Advice:**

We recommend to mount in a vacuum filter in front of the suction connection, to keep dirt particles away from the valve. Please read chapter 8 "Filters and Accessories" for fitting vacuum filters!

**Article numbers**

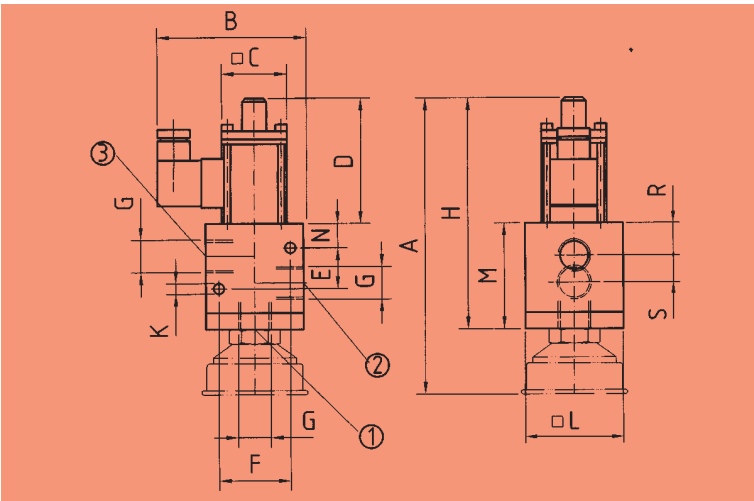
Type	Valve complete 24 V (DC)	Valve 24 V (DC)	Replacement ventilation filter
IMV-3/2-R1/2	1.51.2.0048	1.51.2.0047	1.53.1.0003
IMV-3/2-R3/4	1.51.2.0035	1.51.2.0036	1.53.1.0008
IMV-3/2-R1	1.51.2.0033	1.51.2.0034	1.53.1.0009

Valve complete, incl. hose nipples and sealing rings

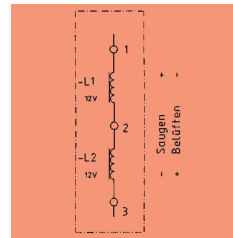
Technical Data	IMV-3/2-R1/2	IMV-3/2-3/4	IMV-3/2-R1
Function	NC	NC	NC
Mounting position	discretionary	discretionary	discretionary
Pressure range vacuum	max 98 %	max. 98 %	max. 98 %
max. pressure range (bar)	max. 1 bar	max. 1 bar	max. 1 bar
Nominal width	10	20	25
Flow (m <sup>3</sup> /h) <sup>1)</sup>	21	74	81
Switches (1/min)	30	20	20
Switching time open (ms)	20	45	45
Switching time close (ms)	20	45	45
Temperature range(°C)	+ 5 to + 60	+ 5 to + 60	+ 5 to + 60
Nominal voltage DC (V)	24	24	24
Current consumption DC (A)	1,2	4,5	4,5
Class of insulation	E	E	E
Protective system	IP 43	IP 43	IP 43
Duty factor	40 %	40 %	40 %
electr. connection	Pg 9	Pg 11	Pg 11
Machine outlet	DIN 43 650, Form A	terminal box	terminal box
Weight (kg)	1,1	6,5	6,5

1) Flow with Δp = - 950 mbar

# 3/2-WAY-IMPULSE SOLENOID VALVE IMV



- 1 Ventilation filter
- 2 Suction plate
- 3 Vacuum pump



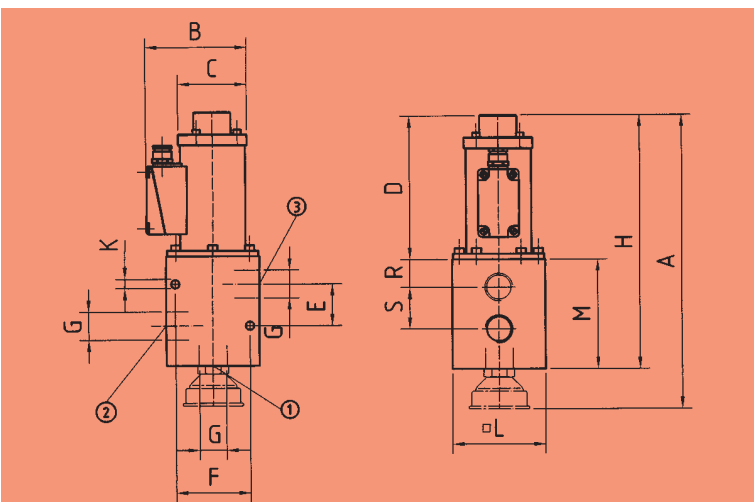
Connection DIN 43 650

- L1 Coil 1
- L2 Coil 2

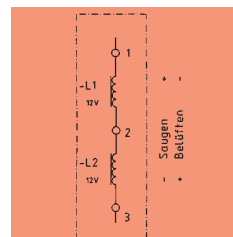
Control

- 1 + Suction
- 2 -
- 3 + Release

Impulse solenoid valve type 1/2"



- 1 Ventilation filter
- 2 Suction plate
- 3 Vacuum pump



Connection clipboard

- L1 Coil 1
- L2 Coil 2

Control

- |   | Suction    | Release |
|---|------------|---------|
| 1 | +          | -       |
| 3 | -          | +       |
| 2 | not in use |         |

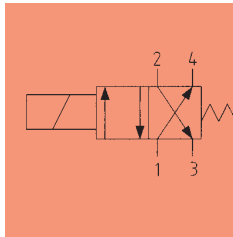
Polarized valve control!

Impulsmagnetvalve Type 3/4" to 1"

<b>Dimensions</b>														
Type	A	B	C	D	E	F	G	H	K	L	M	N	R	S
IMV3/2-R1/2	181	52	40	77	25	44	R 1/2"	142	5	60	65	15	20	16,5
IMV3/2-R3/4	315	106	40	155	43	80	R 3/4"	273	8,5	100	118	--	41	43
IMV3/2-R1	315	106	40	155	43	80	R 1"	273	8,5	100	118	--	41	43

**Description**

Reversing solenoid valve for vacuum blower. This valve is suitable for high volume streams as happen when using a blower. The valve makes it possible to switch from suction to ventilate without the necessity to change the blower's direction of rotation. This valve is not able to blow off.



Switching diagram



Reversing valve UV 4.40

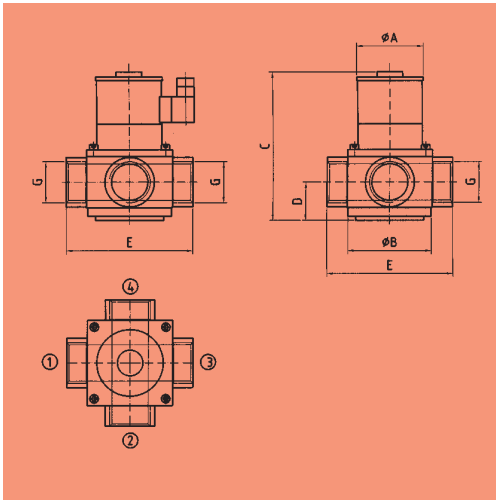
**Article numbers**

Type	Reversing valve
UV-4.40-24V	1.51.2.0039

**Technical Data**

	UV-4.40
Switchings (1/min)	120
Switching time open (ms) <sup>1)</sup>	20 - 50
Switching time close (ms) <sup>1)</sup>	20 - 50
Temperature (°C)	max. 70
Surrounding temperature (°C)	max. 40
Nominal voltage DC (V)	24
Duty factor	100 %
Current consumption DC (A)	1,6
Weight (kg)	4

1) Switching time depends on load applied



- 1 Tube (suction plate)
- 2 Pressure side
- 3 Outlet / Silencer
- 4 Suction side (blower)

Reversing valve UV 4.40

<b>Dimensions</b>						
Type	A	B	C	D	E	G
UV 4.40	78	98	174	45	148	G 1 1/2"

**Description**

Hand slide valve in 3/2-way version with two slide positions ("Suspend" and "Release").

Suitable for easy and safe vacuum controlling for vacuum load lifting devices and suction devices of any kind.

Robust suspension made of die-cast steel are available for mounting the manual slide valves.



Suspension for hand slide valve

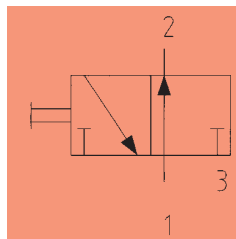


HSV-SK with safety catch



Hand slide valve HSV

- 1 Vacuum generator
- 2 Suction plate
- 3 Ventilation



Switching diagram

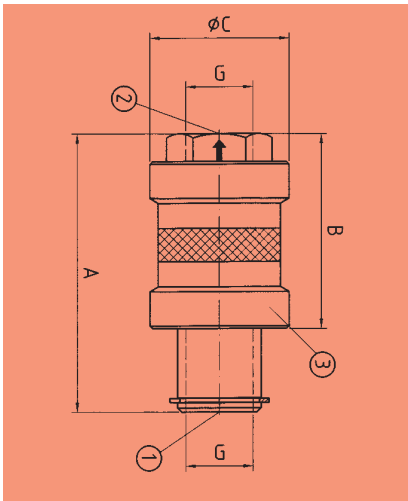
**Article numbers**

Type	Hand slide valve	suitable suspension
HSV-3/2-R1/4i	1.51.1.0004	2.51.1.0007
HSV-3/2-R3/8i	1.51.1.0007	2.51.1.0009
HSV-3/2-R1/2i	1.51.1.0002	2.51.1.0006
HSV-3/2-R1/2i-SK	1.51.1.0024	2.51.1.0006
HSV-3/2-R3/4i	1.51.1.0005	2.51.1.0008
HSV-3/2-R3/4i-SK	1.51.1.0025	2.51.1.0008

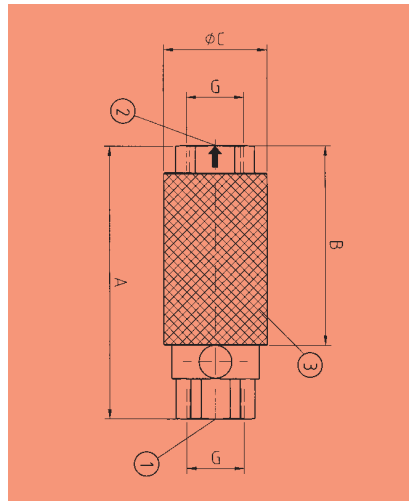
**Technical Data**

Type	Nominal width	Flow <sup>1)</sup> (m <sup>3</sup> /h)	Weight (g)	Weight suspens. (g)
HSV-3/2-R1/4i	9	12	96	50
HSV-3/2-R3/8i	13	21	156	66
HSV-3/2-R1/2i	19	33	227	75
HSV-3/2-R1/2i-SK	16	29	251	75
HSV-3/2-R3/4i	26	59	368	118
HSV-3/2-R3/4i-SK	23	53	394	118

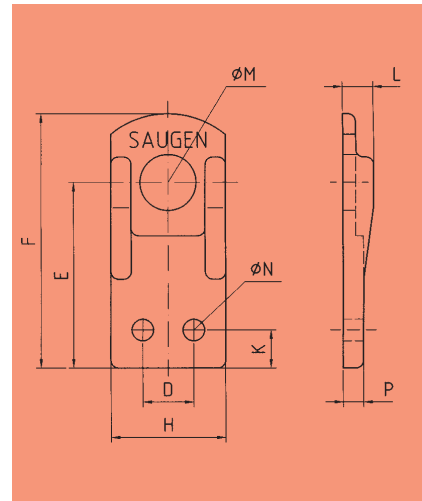
1) Flow with Δp = - 950 mbar



3/2-way hand slide valve



Hand slide valve with safety catch



Suspensions for 3/2-way hand slide valve

## Dimensions

Type	A	B	C	D	E	F	G	H	K	L	M	N	P
HSV-3/2-R1/4i	58	43	30	19	42	80	R 1/4"	35	15	10	14	8,5	8
HSV-3/2-R3/8i	70	52	35	20	60	100	R 3/8"	40	15	12	22	8,5	8
HSV-3/2-R1/2i	80	59	40	20	52	100	R 1/2"	45	15	12	22	8,5	8
HSV-3/2-R1/2i-SK	100	73	38	20	52	100	R 1/2"	45	15	12	22	8,5	8
HSV-3/2-R3/4i	100	70	50	35	62	120	R 3/4"	55	15	14	27	8,5	8
HSV-3/2-R3/4i-SK	125	85	52	35	62	120	R 3/4"	55	15	14	27	8,5	8

**Description**

Manually used (with hand lever) stop valve in 2/2-way version.

Suitable for turning on and off single suction cups and suction plates in vacuum circuits. The use is effectuated through a hand lever.

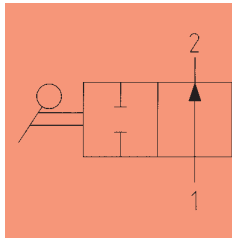
Type 1/4" to 1/2" with inner- / outer thread and leaf handle.

Type 3/4" and 1" with inner thread on both sides and hand lever.

1 Vacuum generator  
 2 Suction plate



Type 1/4" and 1/2"



Switching diagram



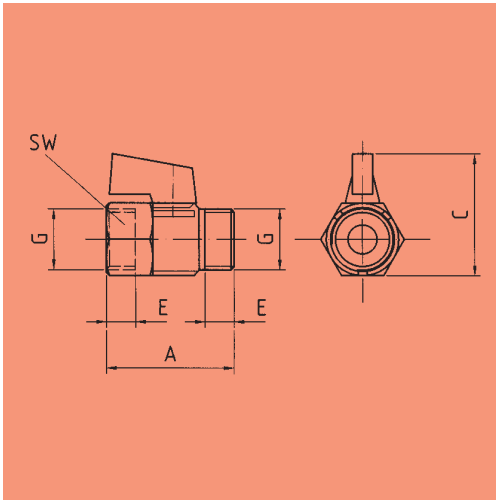
Type 3/4" and 1"

**Article numbers**

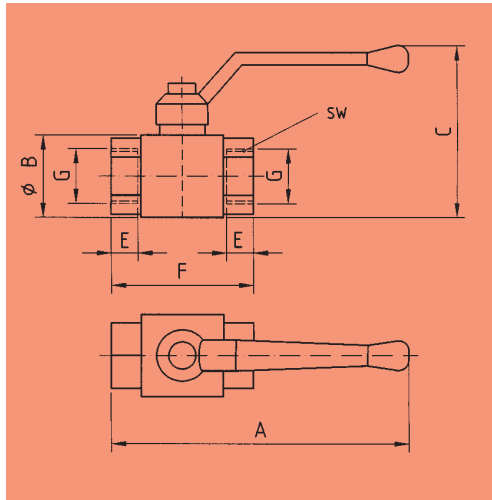
Type	2/2-way ball valve
KV-2/2-R1/4	1.51.1.0011
KV-2/2-R3/8	1.51.1.0008
KV-2/2-R1/2	1.51.1.0009
KV-2/2-R3/4	1.51.1.0014
KV-2/2-R1	1.51.1.0012

<b>Technical Data</b>			
Type	Nominal width	Flow <sup>1)</sup> (m <sup>3</sup> /h)	Weight (g)
KV-2/2-R1/4	12	25	67
KV-2/2-R3/8	14	26	67
KV-2/2-R1/2	19	40	94
KV-2/2-R3/4	24	80	341
KV-2/2-R1	30	88	600

1) Flow with Δp = - 950 mbar



2/2-way ball valves KV2/2-R1/4 to KV2/2-R1/2



2/2-way ball valves KV2/2-R3/4 to KV2/2-R1

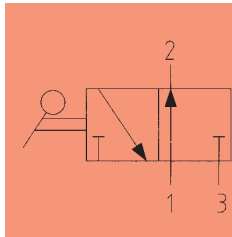
<b>Dimensions</b>							
Type	A	B	C	E	F	G	SW
KV-2/2-R1/4	39	--	37	8	--	R 1/4"	21
KV-2/2-R3/8	41	--	37	8	--	R 3/8"	21
KV-2/2-R1/2	45	--	42	10	--	R 1/2"	25
KV-2/2-R3/4	120	38	67	18	72	R 3/4"	32
KV-2/2-R1	136	48	90	21	85	R 1"	40

**Description**

Switch valve in 3/2-way version for manual use (with hand lever).

Suitable for turning on and off individual suction cups / plates in vacuum circuits. The operation is effectuated with a hand lever. The suction cup/plate can be ventilated through connection 3.

We recommend the mounting of a ventilation filter (please read chapter 8 "Filters and Accessories").



Switching diagram

- 1 Vacuum generator
- 2 Suction plate
- 3 Ventilation



3/2-way ball valve

**Article numbers**

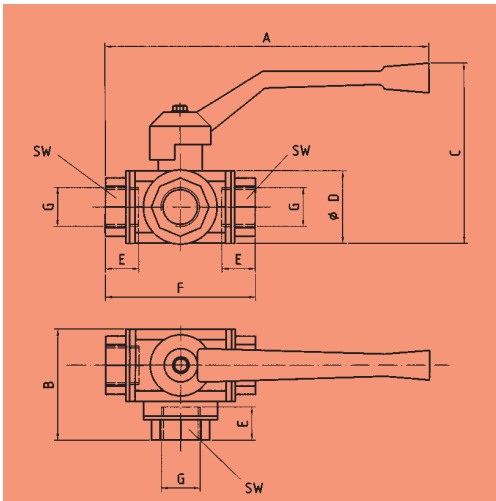
Type	3/2-way ball valve	suitable ventilation filter
KV3/2-R1/2	1.51.1.0018	1.53.1.0003
KV3/2-R3/4	1.51.1.0021	1.53.1.0008
KV3/2-R1	1.51.1.0016	1.53.1.0009

**Technical Data**

Type	Nominal width	Flow <sup>1)</sup> (m <sup>3</sup> /h)	Weight (kg)
KV3/2-R1/2	19	33	0,75
KV3/2-R3/4	24	58	1,25
KV3/2-R1	30	94	1,9

1) Flow with  $\Delta p = - 950 \text{ mbar}$

## 3/2-WAY BALL VALVE KV



3/2-way ball valve

<b>Dimensions</b>								
Type	A	B	C	D	E	F	G	SW
KV-3/2-R1/2	174	63	100	39	14	81	G 1/2"	29
KV-3/2-R3/4	216	75	120	47	14	92	G 3/4"	34
KV-3/2-R1	258	86	133	54	17	107	G 1"	41

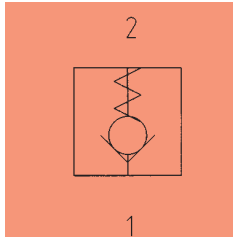
**Description**

Spring-loaded non-return valve in short version outer thread on both sides (type 1/4") or inner / outer thread (type 1/2"). Suitable for mounting between vacuum generator and vacuum tank or in distributor lines. When turning off the vacuum generator or in case of power failure the valve closes and prevents ventilation of the vacuum tank. Absolutely necessary for vacuum generators with vacuum-controlled motor switching units! Discretionary mounting possible!

Housing: Brass  
 Sealing: EPDM  
 Spring: Stainless steel



Rückschlagvalve RSV-K



Switching diagram



Non-return valve RSV

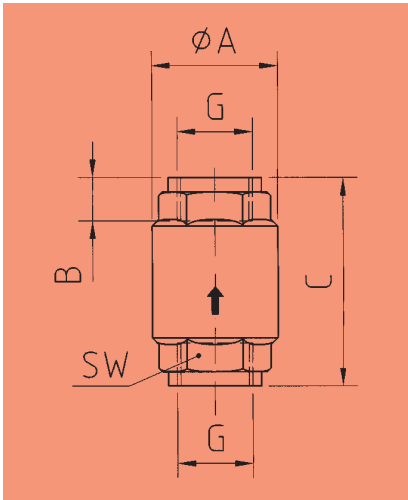
1 Tank  
 2 Vacuum generator

**Article numbers**

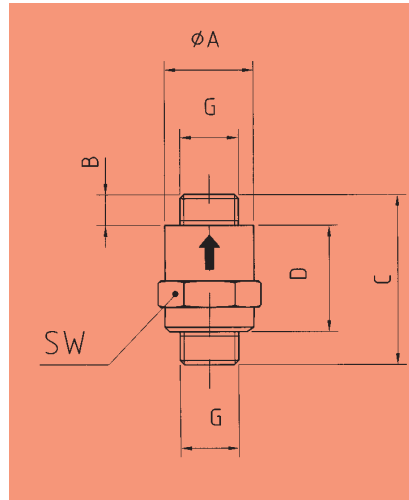
Type	
RSV-K-R1/4	1.51.4.0002
RSV-R1/4	1.51.4.0004
RSV-R3/8	1.51.4.0008
RSV-K-R1/2	1.51.4.0001
RSV-R1/2	1.51.4.0003
RSV-R3/4	1.51.4.0007
RSV-R1	1.51.4.0006

Technical Data	SV-K-R1/4	RSV-R1/4	RSV-R3/8	RSV-K-R1/2	RSV-R1/2	RSV-R3/4	RSV-R1
	Pressure range vacuum	max. 98 %	98%	98%	max 98 %	98%	98%
max. pressure range (bar)	max. 25	16	25	max. 25	25	25	25
Opening pressure (bar)	0,02	0,1	0,02	0,02	0,02	0,02	0,02
Temperature range (°C)	-10 / 100	-10 / 110	-15 / 110	-10 / 100	-15 / 110	-15 / 110	-15 / 110
Nominal width	8	8	8	12	12	16	22
Flow (m <sup>3</sup> /s) <sup>1)</sup>	9	14	24	32	41	52	85
Weight (kg)	0,042	0,1	0,177	0,058	0,193	0,284	0,414

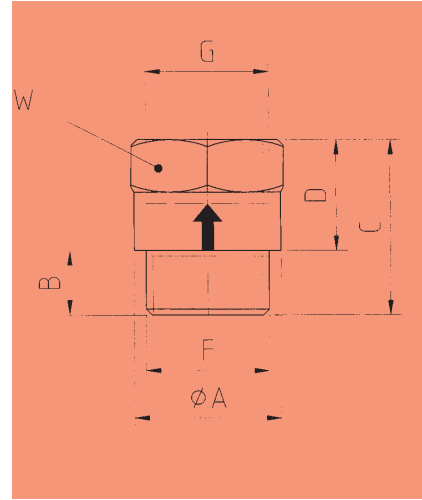
1) Flow with Δp = - 950 mbar



Non-return valves RSV-R1/4 to RSV-R1, long design



RSV-K-R1/4, short design



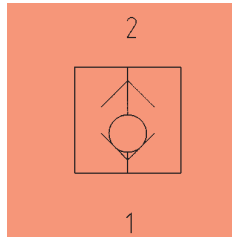
RSV-K-R1/2, short design

## Dimensions

Type	A	B	C	D	F	G	SW
RSV-K-R1/4	20	7	38	24	--	G 1/4"	20
RSV-R1/4	22	12	45	---	---	R 1/4"	22
RSV-R3/8	34,5	10	54	---	---	R 3/8"	23
RSV-K-R1/2	25	11	30	19	G 1/2"	G 1/2"	26
RSV-R1/2	34,5	10	57	---	---	R 1/2"	27
RSV-R3/4	41,5	12	64	---	---	R 3/4"	33
RSV-R1	48	14,5	75	---	---	R 1"	40

**Description**

Robust flow valves made of steel with a low height, ideal for mounting on suction heads and suction plates with central vacuum supply. These flow valves are only intended to be fitted in a vertical position. Unused suction heads / suction plates will be automatically closed via the flow valves, thus ensuring that the vacuum is built up and that the vacuum system is securely sealed off.



Switching diagram

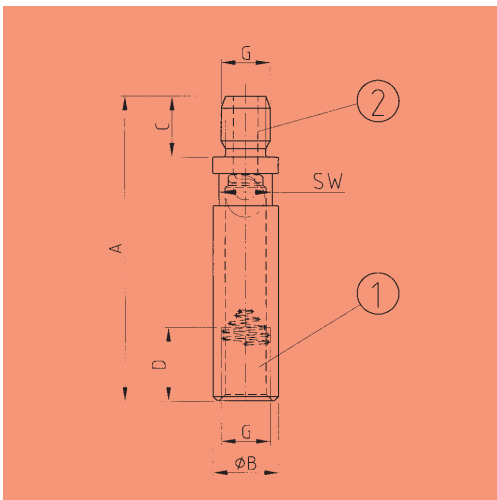
- 1 Suction plate
- 2 Vacuum generator



Flow valves SV-M12 - SV M16

<b>Article numbers</b>					
Conn. M12	Part No:	Conn. R1/4"	Part no:	Conn. M16	Part no:
SV-M12-K6	1.51.6.0002	SV-R1/4-K6	1.51.6.0036	SV-M16-K8	1.51.6.0010
SV-M12-K7	1.51.6.0003	SV-R1/4-K7	1.51.6.0037	SV-M16-K9	1.51.6.0011
SV-M12-K8	1.51.6.0004	SV-R1/4-K8	1.51.6.0038	SV-M16-K10	1.51.6.0006
SV-M12-K9	1.51.6.0005	SV-R1/4-K9	1.51.6.0039	SV-M16-K11	1.51.6.0007
				SV-M16-K12	1.51.6.0008
				SV-M16-K13	1.51.6.0009

<b>Technical Data</b>						
Type	Weight (kg)	Suction required for closing (m <sup>3</sup> /h)	Throughflow during ventilation (m <sup>3</sup> /h)	Installation position	Max. Tensile load (N)	Max. Bending mom. (Nm)
SV-M12-K6	0,05	6	10	vertical	2.000	8,5
SV-M12-K7	0,05	3,5	10	vertical	2.000	8,5
SV-M12-K8	0,05	2,5	10	vertical	2.000	8,5
SV-M12-K9	0,05	1	10	vertical	2.000	8,5
SV-R1/4-K6	0,05	8,5	12,5	vertical	3.000	10
SV-R1/4-K7	0,05	8	12	vertical	3.000	10
SV-R1/4-K8	0,05	7	11	vertical	3.000	10
SV-R1/4-K9	0,05	4,5	10	vertical	3.000	10
SV-M16-K8	0,1	20	22	vertical	5.000	20
SV-M16-K9	0,1	18	22	vertical	5.000	20
SV-M16-K10	0,1	15	22	vertical	5.000	20
SV-M16-K11	0,1	9,5	22	vertical	5.000	20
SV-M16-K12	0,1	6	22	vertical	5.000	20
SV-M16-K13	0,1	2,5	22	vertical	5.000	20



Flow valves SV M12, SV R1/4 and SV M 16

**How flow valves works**

A ball closes the suction line if the volume stream becomes too large.  
 When engaging a load the volume stream is too small to enable the ball to get into closing position.  
 If the suction cup is not in use and false air is sucked in the volume stream becomes so large inside the suction line that the ball is drawn against the sealing and the line is closed. False air no longer enters the suction circuit and the vacuum can build up.

<b>Dimensions</b>						
Type	A	B	C	D	G	SW
SV-M12-K6	75	16	15	18	M 12	13
SV-M12-K7	75	16	15	18	M 12	13
SV-M12-K8	75	16	15	18	M 12	13
SV-M12-K9	75	16	15	18	M 12	13
SV-R1/4-K6	75	16	15	18	R 1/4"	13
SV-R1/4-K7	75	16	15	18	R 1/4"	13
SV-R1/4-K8	75	16	15	18	R 1/4"	13
SV-R1/4-K9	75	16	15	18	R 1/4"	13
SV-M16-K8	78	20	18	22	M 16	17
SV-M16-K9	78	20	18	22	M 16	17
SV-M16-K10	78	20	18	22	M 16	17
SV-M16-K11	78	20	18	22	M 16	17
SV-M16-K12	78	20	18	22	M 16	17
SV-M16-K13	78	20	18	22	M 16	17

**Note:**

We definitely recommend suction tests before deciding which flow valves to use, as the flow conditions and therefore also the existing pressure conditions at the suction heads and/or suction plates change in accordance with the vacuum distribution system!

**Description**

Flow valves in steel- or brass version.

Flow valves are used to automatically turn off individual suction plates, when goods with different sizes have to be transported while the order of the suction cups / plates has to remain the same. Suction cups / plates that are not used, are automatically closed through the flow valves and guarantee a safe creation of the vacuum.

A red ball in the monitoring area of the flow valve SV-R1/2-VW indicates whether the valve is open or closed.

Especially suitable for optical control of individual suction plates in vacuum load lifting processes. The user can see at once, which suction plates are in use.



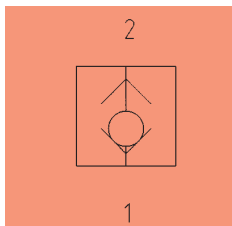
Flow valve with Viewing Window



Flow valves SV-R1/2 - R3/4



Flow valve SVE-R3/4 with adjustable features



- 1 Suction cup
- 2 Vacuum generator

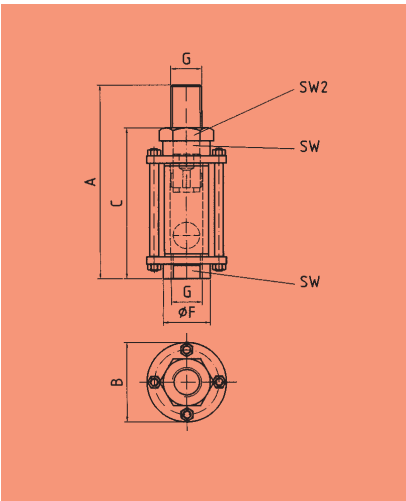
Switching symbol flow valves

**Article numbers**

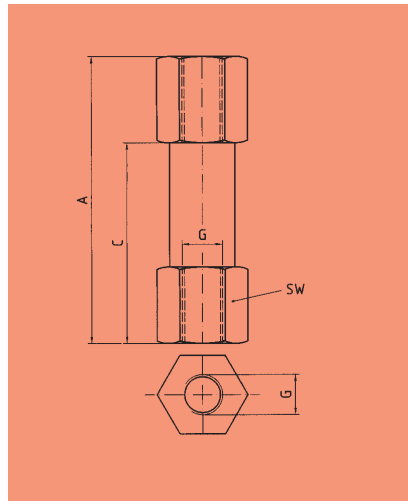
Type	Part No:
SV-R1/2-VW	1.51.6.0018
SV-R1/2	1.51.6.0019
SV-R3/4	1.51.6.0040
SVE-R3/4	1.51.6.0001

<b>Technical Data</b>				
Type	Weight (kg)	Nominal width	Flow <sup>1)</sup>	Mounting position
			dur. ventilation (m <sup>3</sup> /h)	
SV-R1/2-VW	0,52	15	9,3	senkrecht
SV-R1/2	0,93	18	42	senkrecht
SV-R3/4	0,86	24	54	senkrecht
SVE-R3/4	0,25	16	26	beliebig

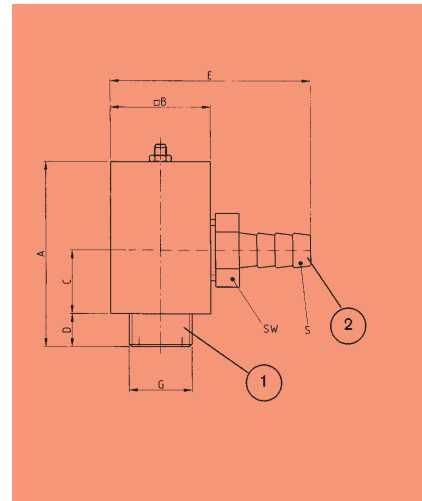
1) Flow with  $\Delta p = - 950 \text{ mbar}$



SV-1/2-VW



SV-1/2 and SV-3/4



SVE-3/4

<b>Dimensions</b>									
Type	A	B	C	D	E	F	G	SW (S)	SW 2
SV-R1/2-VW	150	--	103	--	--	32	R 1/2"	27	32
SV-R1/2	150	--	105	--	--	--	R 1/2"	41	--
SV-R3/4	150	--	105	--	--	--	R 3/4"	41	--
SVE-R3/4	78	40	27	12	84	--	R 3/4"	1/2"	27

**Advice:**

To determine the right valve size try-outs are recommended.

**Description**

Tastvalvee in verzinkter Stahlausführung zum Einschrauben in Saugplatten mit zentralem Vakuumanschluß. Die Tastvalvee öffnen beim Aufsetzen der Saugplatte auf ein Werkstück automatisch und sorgen für den Aufbau des Vakuums an den aufliegenden Saugplatten. Durch einen voreilenden Taster, der durch Federrückstellung das Valve geschlossen hält, wird das Valve angesteuert.

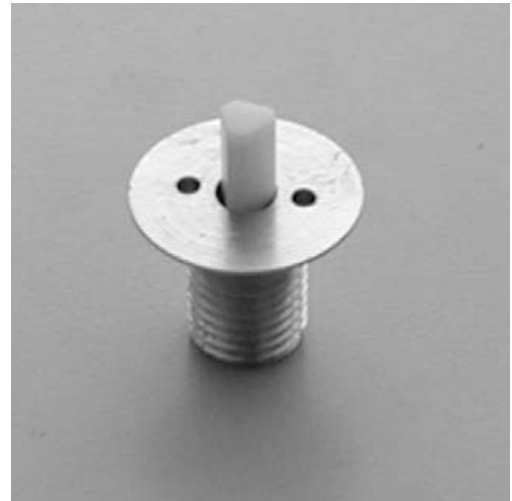
Das Tastvalve TV 11/4 besitzt eine sehr großen Durchsatz und eignet sich für Anwedungen bei denen Vakuumgebläse zum Einsatz kommen.



TV-R 11/4 für Gebläse



Schaltsymbol Tastvalve



Tastvalve TV-M12 to TV-M16

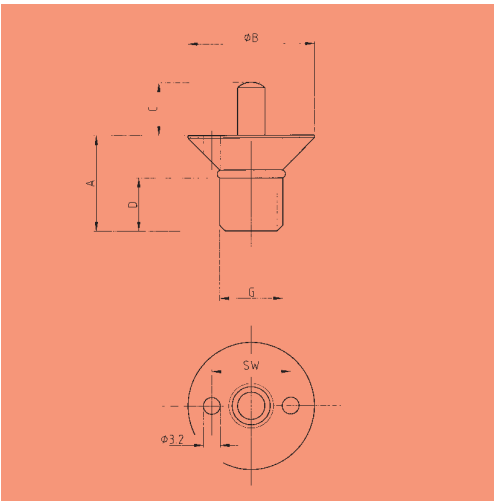
- 1 Saugplatte
- 2 Saugplattenaufnahme

**Article numbers**

Art.-Nr:	
TV-M12	1.51.5.0002
TV-M16	1.51.5.0003
TV-R11/4"	1.51.5.0005

**Technical Data**

Type	Weight (kg)	max. Eigenhub (AW) Saugplatte	Durchfluß m³/h beim Belüften	Einbaulage
TV-M12	0,02	8	max. 12	beliebig
TV-M16	0,05	13	max. 18	beliebig
TV-R11/4"	0,85	35	max. 67	beliebig



Touch valves TV-M12-SAS and TV-M16-SAS



Touch valve TV-M16-SAK

<b>Dimensions</b>								
Type	A	B	C	D	E	G	S	SW
TV -M12	18	24	10		---	M 12	---	15
TV-M16	37,5	30	12,5	17,5	---	M 16	---	15
TV-R11/4"	146	60	41	17	131	R 11/4"	38	22

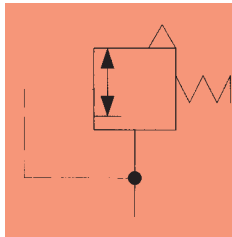
**Advice:**

When using touch valves please pay attention that the suction plates in use fully cover the work piece as otherwise leakages inside the vacuum system occur.

**Description**

Robust regulating valve in brass version with adjusting screw.

With these vacuum-regulating valves you can, independent from the used vacuum generators, adjust the needed vacuum in the vacuum circuit. Because of the stepless adjusting possibilities a very exact and easy adjusting of the required vacuum is possible. For the optical vacuum-control we recommend vacuum gauges or digital underpressure switches.



Switching diagram



Vacuum regulating valves VRV-R1/2 and VRV-R3/4

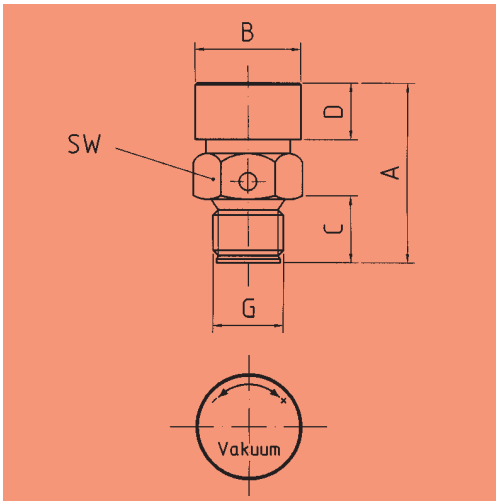
**Article numbers**

Type	Vacuum regul. valve
VRV-R1/2	1.51.7.0001
VRV-R3/4	1.51.7.0002

**Technical Data**

	VRV-R1/2	VRV-R3/4
Vacuum range (% Vac.)	0 to 98%	0 to 98%
Precision (% Vac.)	+/- 2,5%	+/- 2,5%
Temperature range(°C)	10 to 50	10 to 50
Nominal width	18	24
max. flow (m <sup>3</sup> /h) <sup>1)</sup>	8	18
Weight (kg)	0,125	0,21

1) Flow with  $\Delta p = - 950 \text{ mbar}$



Vacuum regulating valves VRV-R1/2 and VRV-R3/4

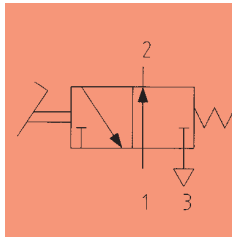
<b>Dimensions</b>						
Type	A	B	C	D	G	SW
VRV-R1/2	51	30	18	16	R 1/2"	27
VRV-R3/4	54	40	18,5	15	R 3/4"	32

**Description**

Foot interruptor in 3/2-way version with spring reset.

Suitable for suction devices and work stands, in which the vacuum has to be controlled by foot. Due to safety reasons and to prevent unwanted use, the foot interruptor is furnished with a steel hood. The starting position of the valve is open and when used ventilates the vacuum circuit.

FUB-R1/4: In the starting position the valve is open and ventilates when operated



Switching diagram



Foot interruptor with safety hood viewed from the front

**Article numbers**

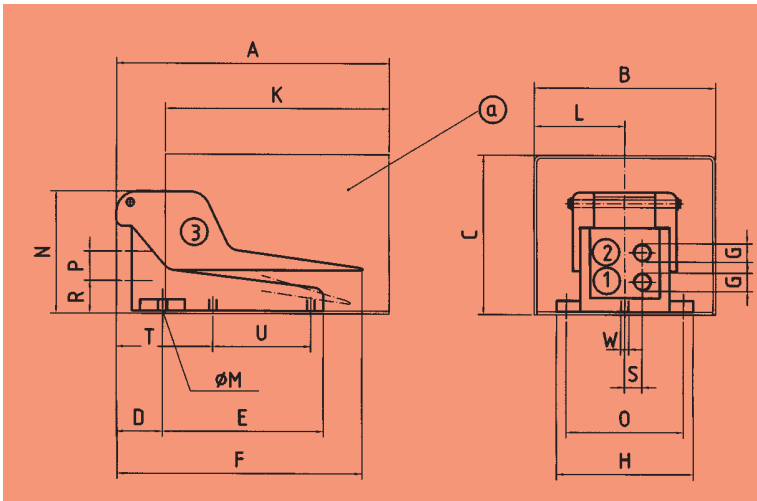
Type

FUB-R1/4	1.51.1.0001
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**Technical Data**

	FUB-R1/4
Pressure range (bar)	-1 to 10
Temperature range (°C)	- 10 to + 60
Nominal width	7
Flow (m <sup>3</sup> /h) <sup>1)</sup>	6
Weight (kg)	1,23

1) Flow with  $\Delta p = - 950 \text{ mbar}$



- a Safety hood
- 1 Vacuum generator
- 2 Suction plate
- 3 Ventilation

3/2-way foot interruptor FUB-R1/4 with safety hood

<b>Dimensions</b>																				
Type	A	B	C	D	E	F	G	H	K	L	M	N	O	P	R	S	T	U	W	X
FUB-R1/4	195	130	114	33	106	176	R 1/4"	98	160	65	6,5	85,5	84	21	23,5	12,5	69	70	M 6	74,4