FIPA Valve technology

> Control of suction, blow-off or ventilation processes in vacuum systems
> Fast switching between suction and air intake for short cycle times

2/2-way solenoid valves for vacuum, directly controlled

> NC version - closed without current
> No compressed air required
> Short switching times
> Small, compact design for small throughputs

> See page 646

3/2-way solenoid valves for vacuum, directly controlled

> NC version - closed without current, or NO - open without current
> No compressed air connection required
> Short switching times
> Small, compact design for small throughputs
> Optional construction of valve clusters

> See page 648

3/2-way solenoid valves for vacuum, internal vacuum piloted

> NC version - closed without current, or NO - open without current
> No compressed air connection required
> Short switching times
> Minimum vacuum level required: 40 %
> NO: Holds workpiece in the event of a power failure

> See page 652

3/2-way solenoid valve, supported by compressed air

> Suction on/off, blow-off, ventilation
> Short switching times
> NC version - closed without current, or NO - open without current
> NO: Holds workpiece in the event of a power failure

> See page 654

FIPA Valve technology

3/2-way valves, pneumatically controlled

> Suction on/off, blow-off, ventilation
> Shortest switching times compared to vacuum piloted and compressed air supported valves
> No electrical power connection required
> NO: Holds workpiece in the event of a power failure
> Combination with pneumatic vacuum switch: Activation of the "suction" function when the set switching point is reached

> See page 657

3/2-way and 5/2-way solenoid valves for compressed air, indirectly controlled

36.061 (3/2 way)

> Control of compressed air, e.g. for the vacuum generation of ejectors or foam grippers with integrated ejectors
> Control of pneumatically controlled valves, e.g. 36.810 - 36.825

36.060 (5/2 way)

> Vacuum control as with article 36.061
> Additional blow-off function resulting in short release times for ejectors with direct connection between compressed air and vacuum chamber
Examples: Heavy-duty ejectors 65.111 and 65.130

> See page 660

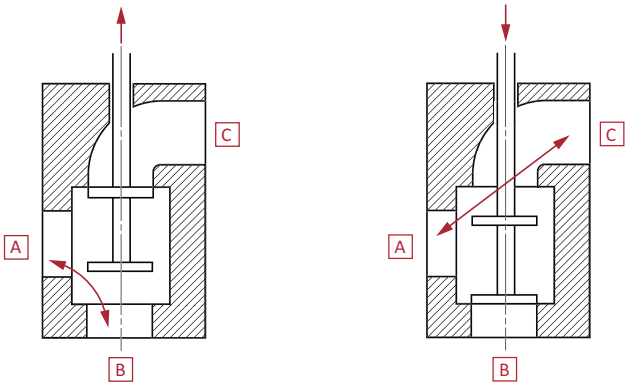
Examples of use

> Packaging machines
> Bottle openers
> Paper feeding
> Robotic applications
> General automation

Construction and functional principle of the 3/2-way valve

[A] = vacuum cup output | [B] = compressed air supply | [C] = to the vacuum pump

> Versions in plastic or metal housings
> Protection class up to IP65
> Directly controlled
> Piloted by internal vacuum
> Supported by compressed air
> Controlled by compressed air
> NC and NO switching functions available



2/2-way electromagnetic vacuum valves, directly controlled

Product Description

> Very high suction power at small size for short evacuation time and fast vacuum build-up
> Short response time
> Robust brass housing and compact design for demanding applications
> Also suitable for positive pressure
> Incl. energy saving coil for minimised power consumption and less heat development

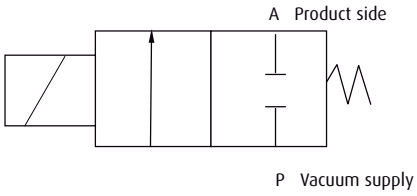
Ordering notes

> Energy saving coil 24 VDV or 230 VAC and DIN plug IP65 included
> Further available voltages:
- VAC: 115, 48, 24
- VDC: 12

Technical data

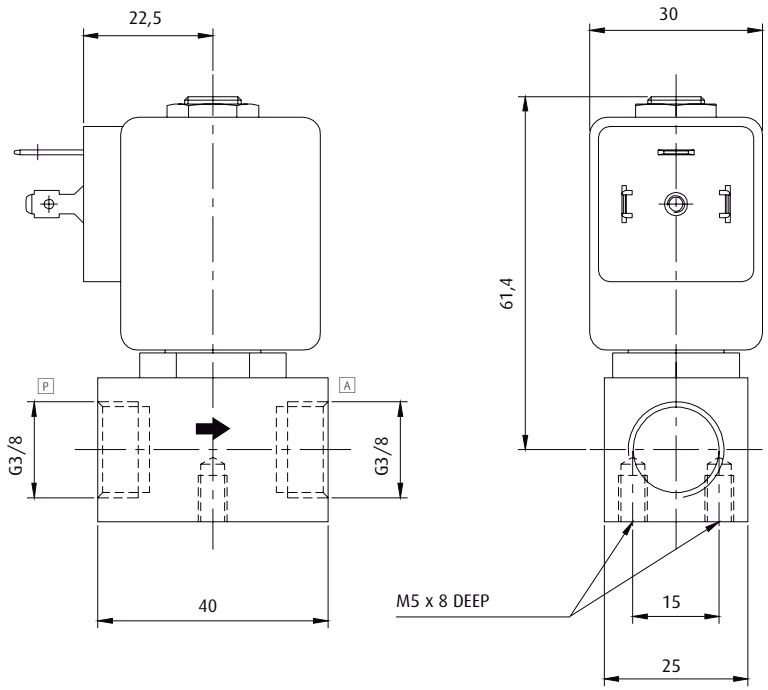
Item no.	36.004-24VDC	36.004-230VAC
Nominal width [mm]	7	7
Nominal flow rate [m³/h]	4.8	4.8
Pressure range [bar]	-1 - 4	-1 - 4
Operating principle	NC	NC
Switching time [ms]	20	20
Power-on time [ED]	100 %	100 %
Max. Power consumption [W]	12	9
Protection class	IP65	IP65
Operating temperature [°C]	-10 - 60	-10 - 60
Weight [g]	520	520
Suitable accessories	Plug 10.007 Coil 10.0050/24VDC	Plug 10.007 Coil 10.0050/230VAC

Wiring diagram



Phone +49 (0)89 / 96 24 89-0

Dimensions



A = Product side P = Vacuum supply

3/2-way solenoid vacuum valves, directly controlled

RESISTANCE AGAINST LOW OZONE CONCENTRATIONS

Product Description

> Very high suction power at small size for short evacuation time and fast vacuum build-up
> Small, compact and lightweight
> Suction on/off, blow-off or ventilation of vacuum cups
> HNBR - Diaphragm allows for flexible installation due to resistance against low ozone concentrations
> Fast switching time
> Factory set NO, can be switched to NC by the customer
> To be mounted in any position

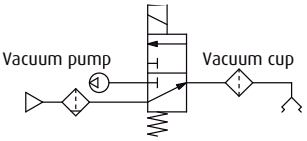
Ordering notes

> Included in scope of delivery: Coil 24 VDC and DIN plug
> Other voltages on request

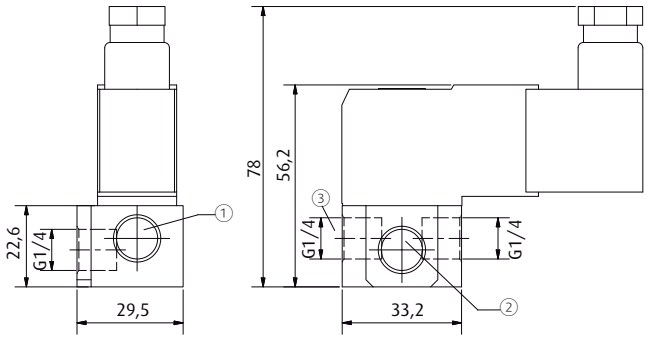
Technical data

Item no.	36.003
Connection	G 1/4
Nominal width [mm]	4.5
Nominal flow rate [m³/h]	2.1
Pressure range [bar]	-1 - 0
Max. switching frequency [Hz]	10
Response time [ms]	20
Protection class	IP65
Operating principle	NC/NO
Duty ratio [%]	75
Operating voltage [VDC]	24
Power consumption [W]	4
DIN-plug	Yes
Operating temperature [°C]	-10 - 50
Weight [g]	155

Wiring diagram



Dimensions



① = Vacuum supply ② = Compressed air, blow-off ③ = Vacuum connection (Product side)

3/2-way solenoid vacuum valves, directly controlled

Product Description

> Very high suction power at small construction size for short evacuation time and fast vacuum build-up
> Fast product release due to integrated vent port
> Suction on/off, blow-off or ventilation of vacuum systems
> Also suitable for positive pressure
> Short response time
> Robust brass housing in compact design for demanding applications
> Incl. energy saving coil for minimised power consumption and less heat development

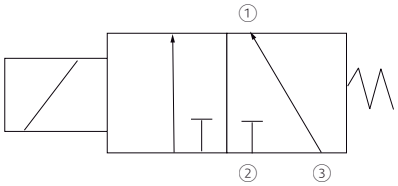
Ordering notes

> Included in scope of delivery: Energy saving coil 24 VDC or 230 VAC for minimised power consumption and less generation of heat and DIN IP65 plug
> Further available voltages:
- VAC: 115, 48, 24
- VDC: 12
> Standard seal is NBR, different material, such as EPDM, for higher temperatures on request

Technical data

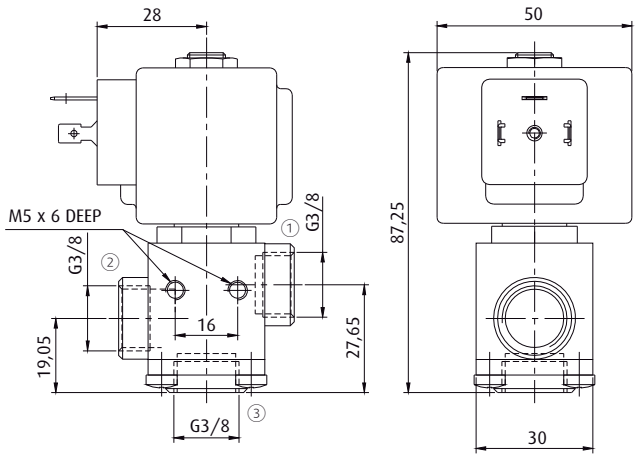
Item no.	36.009-24VDC	36.009-230VAC
Nominal width [mm]	13	13
Nominal flow rate [m³/h]	8.8	8.8
Pressure range [bar]	-0.99 - 4	-0.99 - 4
Operating principle	NC	NC
Closing time [ms]	21	21
Duty ratio [%]	100	100
Power consumption [W]	12	12
Protection class	IP65	IP65
Operating temperature [°C]	-10 - 60	-10 - 60
Weight [g]	540	540
Suitable accessories	Push-in fitting 30.017 (p.724) Plug 10.007 Coil 10.0050/24VDC	Push-in fitting 30.017 (p.724) Plug 10.007 Coil 10.0050/230VAC

Wiring diagram



Assignment:
① = A (Product side)
② = P (Vacuum supply)
③ = R (Ventilation (Blow-off))

Dimensions



① = Vacuum supply ② = Product side ③ = Ventilation (Blow-off)

3/2-way solenoid vacuum valves, internally vacuum pilot operated

36.610 | 36.611

36.615 to 36.626

Product Description

> Suction on/off, blow-off, ventilation of vacuum cups
> High suction power at small construction for short evacuation time and fast vacuum build-up
> Valve operation requires no compressed air connection due to internal vacuum control
> Required minimum vacuum level 40 %
> Short switching times
> NO: Safe gripping of workpiece during power failure
> Robust and light-weight housing

Ordering notes

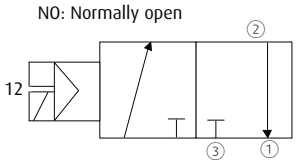
> 36.610 and 36.611: Coil and DIN plug included in scope of delivery
> 36.615 to 36.625: Delivery without coil and plug; please order: Power consumption: 24 VDC: 5 W, 230 VAC: 5 VA

Technical data

Item no.	Nominal width [mm]	Nominal flow rate [m³/h]	Pressure range [bar]	Operating principle	Switching time at -800 mbar [ms]	Material	Operating temperature [°C]	Weight [g]	Suitable accessories
36.610	10	10	-0.99 - 0	NO	30	Aluminium anodised	-5 - 50	420	--
36.611	10	10	-0.99 - 0	NC	30	Aluminium anodised	-5 - 50	420	--
36.615	15	20	-0.99 - 0	NO	85	High resistant, fiber-glass reinforced Polyarylamide (IXEF®)	-5 - 50	390	Solenoid coil 10.0058/230VAC Solenoid coil 10.0052/24VDC Plug 10.006
36.616	15	20	-0.99 - 0	NC	85	High resistant, fiber-glass reinforced Polyarylamide (IXEF®)	-5 - 50	390	Solenoid coil 10.0058/230VAC Solenoid coil 10.0052/24VDC Plug 10.006
36.620	20	40	-0.99 - 0	NO	85	High resistant, fiber-glass reinforced Polyarylamide (IXEF®)	-5 - 50	370	Solenoid coil 10.0058/230VAC Solenoid coil 10.0052/24VDC Plug 10.006
36.621	20	40	-0.99 - 0	NC	85	High resistant, fiber-glass reinforced Polyarylamide (IXEF®)	-5 - 50	370	Solenoid coil 10.0058/230VAC Solenoid coil 10.0052/24VDC Plug 10.006
36.625	25	90	-0.99 - 0	NO	100	High resistant, fiber-glass reinforced Polyarylamide (IXEF®)	-5 - 50	520	Solenoid coil 10.0058/230VAC Solenoid coil 10.0052/24VDC Plug 10.006
36.626	25	90	-0.99 - 0	NC	100	High resistant, fiber-glass reinforced Polyarylamide (IXEF®)	-5 - 50	520	Solenoid coil 10.0058/230VAC Solenoid coil 10.0052/24VDC Plug 10.006

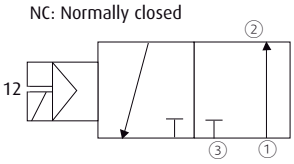
Wiring diagrams

NO: Normally open



Assignment:
① = P (Vacuum supply)
② = A (Product side)
③ = R (Ventilation (Blow-off))

NC: Normally closed

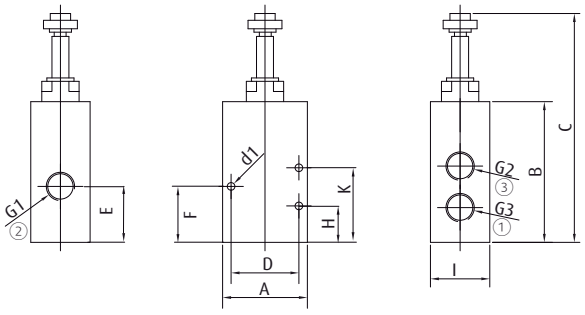


Assignment:
① = P (Ventilation (Blow-off))
② = A (Product side)
③ = R (Vacuum supply)

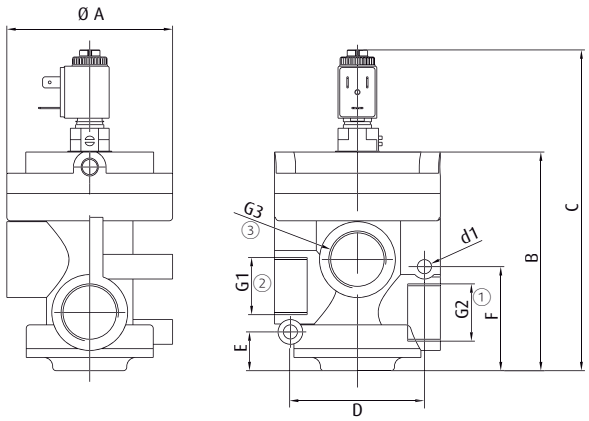
Pilot valve

> Manual mode for functional test: Setscrew in zero position
> Automatic mode: Setscrew in position "1"

Dimensions



36.610 | 36.611



36.615 | 36.616 | 36.620 | 36.621 | 36.625 | 36.626

① = Vacuum supply / Ventilation (Blow-off) ② = Product side ③ = Ventilation (Blow-off) / Vacuum supply

Item no.	G1	G2	G3	Ø A [mm]	A [mm]	B [mm]	C [mm]	D [mm]	d1 [mm]	E [mm]	F [mm]	H [mm]	I [mm]	K [mm]
36.610	G3/8	G3/8	G3/8	--	50	83	137	40	4.5	22.5	33	21.5	35	44
36.611	G3/8	G3/8	G3/8	--	50	83	137	40	4.5	35	33	21.5	35	44
36.615	G1/2	G1/2	G1/2	75	--	101	155	63	6.5	22.5	55	--	--	--
36.616	G1/2	G1/2	G1/2	75	--	101	155	63	6.5	22.5	55	--	--	--
36.620	G3/4	G3/4	G3/4	75	--	101	155	63	6.5	22.5	55	--	--	--
36.621	G3/4	G3/4	G3/4	75	--	101	155	63	6.5	22.5	55	--	--	--
36.625	G1	G1	G1	94	--	124	178	63	8.2	22	58	--	--	--
36.626	G1	G1	G1	94	--	124	178	63	8.2	22	58	--	--	--

3/2-way solenoid vacuum valves, pneumatically supported with spring reset

36.210 | 36.211

36.515 to 36.525

Product Description

> Suction, blow-off, ventilation of vacuum cups
> High suction power at small construction for short evacuation times and fast vacuum build-up
> Short switching times
> Function: NC/NO as vacuum supply and blow-off / ventilation inlets can be exchanged
> NO: Safe gripping of workpiece during power failure
> Robust and lightweight housing

Ordering notes

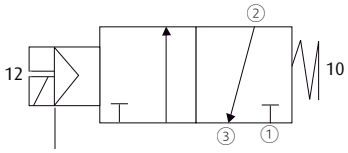
> 36.210 and 36.211: Coil and DIN plug included in scope of delivery
> 36.515 to 36.525: Delivery without coil and plug; please order: Power consumption: 24 VDC: 5 W, 230 VAC: 5 VA

Technical data

Item no.	Nominal width [mm]	Nominal flow rate [m³/h]	Pressure range [bar]	Operating principle	Control pressure [bar]	Switching time [ms]	Material	Operating temperature [°C]	Weight [g]	Suitable accessories
36.210	10	10	-0.99 - 0	NC	2.5	22	Aluminium anodised	-5 - 50	360	--
36.211	10	10	-0.99 - 0	NO	2.5	22	Aluminium anodised	-5 - 50	360	--
36.515	15	20	-0.99 - 0	NO/NC	2.5	90	High resistant, fiber-glass reinforced Polyarylamide (IXEF®)	-5 - 50	390	Solenoid coil 10.0058/230VAC Solenoid coil 10.0052/24VDC Plug 10.006
36.520	20	40	-0.99 - 0	NO/NC	2.5	90	High resistant, fiber-glass reinforced Polyarylamide (IXEF®)	-5 - 50	370	Solenoid coil 10.0058/230VAC Solenoid coil 10.0052/24VDC Plug 10.006
36.525	25	90	-0.99 - 0	NO/NC	2.5	90	High resistant, fiber-glass reinforced Polyarylamide (IXEF®)	-5 - 50	500	Solenoid coil 10.0058/230VAC Solenoid coil 10.0052/24VDC Plug 10.006

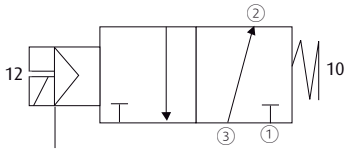
Wiring diagrams

NO: Normally open



Assignment:
① = P (Ventilation (Blow-off))
② = A (Product side)
③ = R (Vacuum supply)

NC: Normally closed



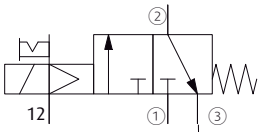
Assignment:
① = P (Vacuum supply)
② = A (Product side)
③ = R (Ventilation (Blow-off))

Pilot valve

> Manual mode for functional test: Setscrew in zero position
> Automatic mode: Setscrew in position "1"

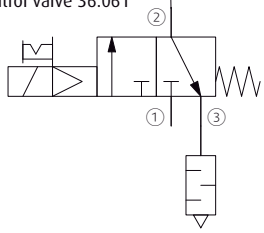
Wiring diagram: how to combine vacuum valve with pneumatic control valve for blow-off

Vacuum valve 36.520



Assignment
① Vacuum supply
② Product side
③ Ventilation (Blow-off)

Control valve 36.061

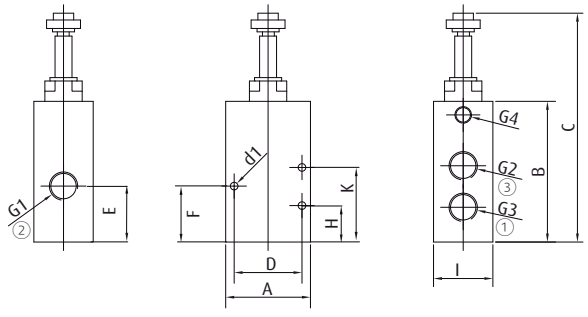


Assignment
① Compressed air inlet
② Compressed air output
③ Use of silencer (e.g. 72.016): this connects valve to atmospheric pressure and enables release of product in case of failure of compressed air line

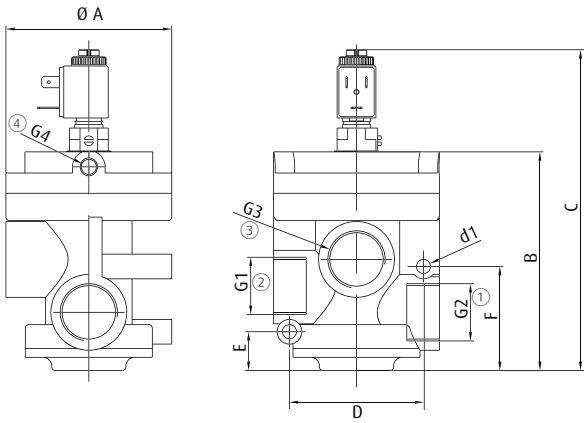
Application example: 3/2-way vacuum valves 36.520 with control valve 36.061

Continued on the next page

Dimensions



36.210 | 36.211



36.515 | 36.520 | 36.525

① = Vacuum supply / Ventilation (Blow-off) ② = Product side ③ = Ventilation (Blow-off) / Vacuum supply ④ = Control pressure connection

Item no.	G1	G2	G3	G4	Ø A [mm]	A [mm]	B [mm]	C [mm]	D [mm]	d1 [mm]	E [mm]	F [mm]	H [mm]	I [mm]	K [mm]
36.210	G3/8	G3/8	G3/8	G1/8	--	50	83	137	40	4.5	33	32.8	22.5	35	44
36.211	G3/8	G3/8	G3/8	G1/8	--	50	83	137	40	4.5	33	32.8	22.5	35	44
36.515	G1/2	G1/2	G1/2	G1/8	75	--	101	155	63	6.5	22.5	55	--	--	--
36.520	G3/4	G3/4	G3/4	G1/8	75	--	101	155	63	6.5	22.5	55	--	--	--
36.525	G1	G1	G1	G1/8	92	--	114.5	168.5	63	6.9	22	58	--	--	--

3/2-way vacuum valve, pneumatically controlled with spring reset

Product Description

> Suction blow-off, ventilation of vacuum cups
> High suction power at small construction for short evacuation time and fast vacuum build-up
> Assembly of pneumatically controlled vacuum systems
> Valve operation requires no electric connection
> Shortest switching times compared to vacuum piloted and compressed air supported valves
> 36.815 to 36.825: Function: NC or NO as vacuum supply and blow-off / ventilation inlets can be exchanged

Ordering notes

> 36.335 to 36.341: Electronic valve for switching control independent of compressed air supply available on request; ordering example for version with electronic valve: 36.335_24VDC, 36.341_230VAC etc.

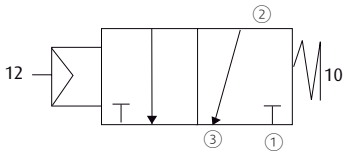
Technical data

Item no.	Nominal width [mm]	Nominal flow rate [m³/h]	Control pressure [bar]	Pressure range [bar]	Operating principle	Switching time [ms]	Material	Operating temperature [°C]	Weight [g]
36.810	10	10	2 - 6	-0.99 - 0	NO	22	Aluminium anodised	-5 - 50	360
36.811	10	10	2 - 6	-0.99 - 0	NC	22	Aluminium anodised	-5 - 50	360
36.815	15	20	2 - 6	-0.99 - 0	NO/NC	60	High resistant, fiber-glass reinforced Polyarylamide (IXEF®)	-5 - 50	350
36.820	20	40	2 - 6	-0.99 - 0	NO/NC	50	High resistant, fiber-glass reinforced Polyarylamide (IXEF®)	-5 - 50	330
36.825	25	90	2 - 6	-0.99 - 0	NO/NC	50	High resistant, fiber-glass reinforced Polyarylamide (IXEF®)	-5 - 50	500
36.335	32	130	4 - 8	-0.99 - 0	NC	200	High resistant, fiber-glass reinforced Polyamide (GPR)	-5 - 50	470
36.336	32	130	4 - 8	-0.99 - 0	NO	200	High resistant, fiber-glass reinforced Polyamide (GPR)	-5 - 50	470
36.340	50	310	4 - 8	-0.99 - 0	NC	300	High resistant, fiber-glass reinforced Polyamide (GPR)	-5 - 50	990
36.341	50	310	4 - 8	-0.99 - 0	NO	300	High resistant, fiber-glass reinforced Polyamide (GPR)	-5 - 50	990

Continued on the next page

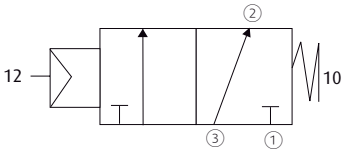
Wiring diagrams

NO: Normally open



Description of connections:
① = R (Compressed air, blow-off)
② = A (Product side)
③ = P (Vacuum supply)

NC: Normally closed

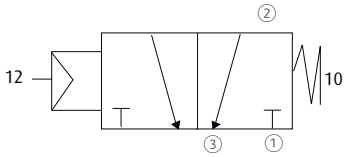


Description of connections:
① = R (Compressed air, blow-off)
② = A (Product side)
③ = P (Vacuum supply)

36.810 | 36.811

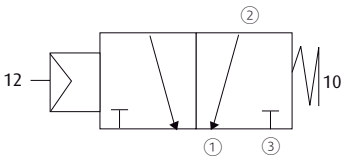
Wiring diagrams

NO: Normally open



Description of connections:
① = R (Compressed air, blow-off)
② = A (Product side)
③ = P (Vacuum supply)

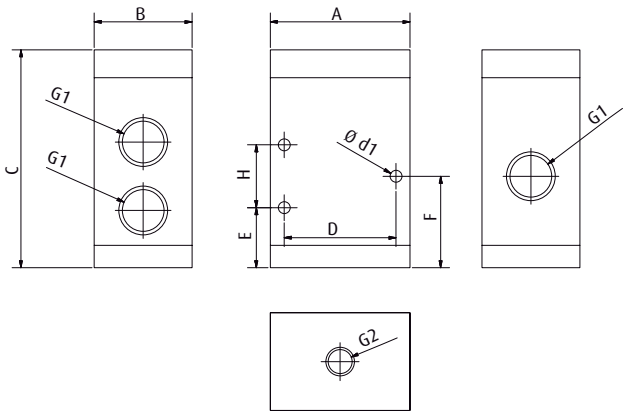
NC: Normally closed



Description of connections:
① = R (Compressed air, blow-off)
② = A (Product side)
③ = P (Vacuum supply)

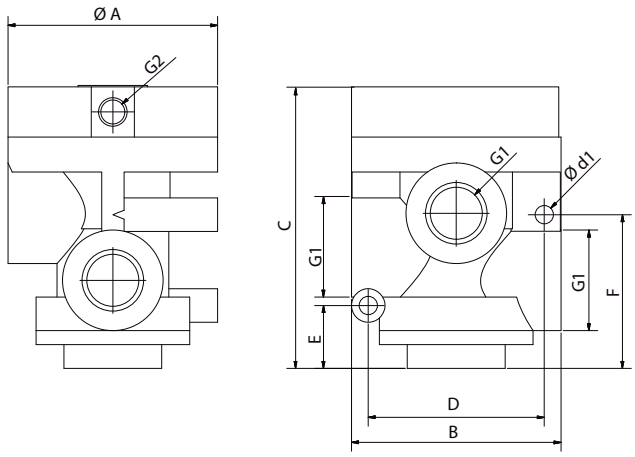
36.815 | 36.820 | 36.825 | 36.835 | 36.836 | 36.840 | 36.841

Dimensions

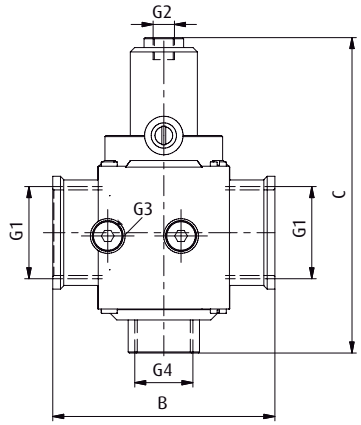


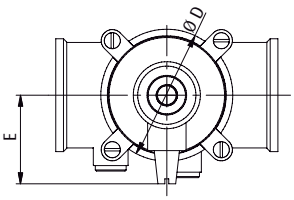
36.810 | 36.811

Dimensions



36.815 | 36.820 | 36.825





36.335 | 36.336 | 36.340 | 36.341

Item no.	G1	G2	G3	G4	Ø A [mm]	A [mm]	B [mm]	C [mm]	D [mm]	Ø D [mm]	Ø d1 [mm]	E [mm]	F [mm]	H [mm]
36.810	G3/8	G1/8	--	--	--	50	35	78	40	--	4.25	21.5	32.75	22.5
36.811	G3/8	G1/8	--	--	--	50	35	78	40	--	4.25	21.5	32.75	22.5
36.815	G1/2	G1/8	--	--	75	--	75	101	63	--	6.5	22.5	55	--
36.820	G3/4	G1/8	--	--	75	--	75	101	63	--	6.5	22.5	55	--
36.825	G1	G1/8	--	--	75	--	75	101	63	--	6.5	22.5	55	--
36.335	G1 1/4	G1/8	G1/8	G 3/4	--	--	101	144	--	60	--	43	--	--
36.336	G1 1/4	G1/8	G1/8	G 3/4	--	--	101	144	--	60	--	43	--	--
36.340	G2	G1/8	G3/8	G1 1/4	--	--	142	183.5	--	90	--	56	--	--
36.341	G2	G1/8	G3/8	G1 1/4	--	--	142	183.5	--	90	--	56	--	--

Solenoid valves for compressed air

Indirectly controlled, with spring reset

36.060

36.061

Product Description

> Suitable for compressed air
> 36.060: For use e.g. to increase cycle times for ejectors without valve technology
Example: Vacuum and blow-off control for multi-chamber ejectors e.g. 65.410
- 1x compressed air vacuum generation
- 1x compressed air blow-off
> 36.061: For use e.g. as a blow-off control valve for 3/2-way vacuum valves
> Robust and lightweight housing

Ordering notes

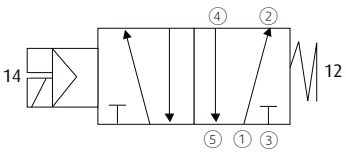
> Included in scope of delivery: Coil and DIN plug 10.006 for 24 VDC, IP65
> Spare part kits available on request

Technical data

Item no.	Nominal width [mm]	Nominal flow rate at 6 bar [m³/h]	Control pressure [bar]	Design	Supply voltage [VDC]	Duty ratio [%]	Max. Power consumption [W]	Protection class	Material	Operating temperature [°C]	Weight [g]
36.060	6	37.2	2.5 - 10	5/2	24	100	3.8	IP 65	High resistant, fiber-glass reinforced Polyarylamide (IXEF®)	-5 - 50	180
36.061	6	37.2	2.5 - 10	3/2	24	100	3.8	IP 65	High resistant, fiber-glass reinforced Polyarylamide (IXEF®)	-5 - 50	260

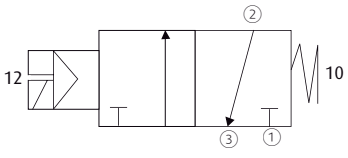
Wiring diagrams

36.060



Assignment
① Compressed air inlet
②, ④ Working connection
③, ⑤ Bleeding

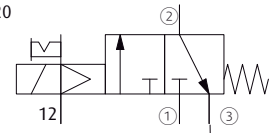
36.061



Assignment
① Compressed air inlet
② Working connection
③ Bleeding (e.g. 72.016): This connects valve to atmospheric pressure and enables release of product in case of failure of compressed air line

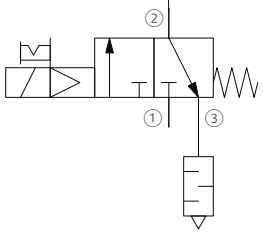
Application example: Usage of 36.061 as control valve to activate blow-off of 3/2-way vacuum valves (here: Valve 36.520)

36.520



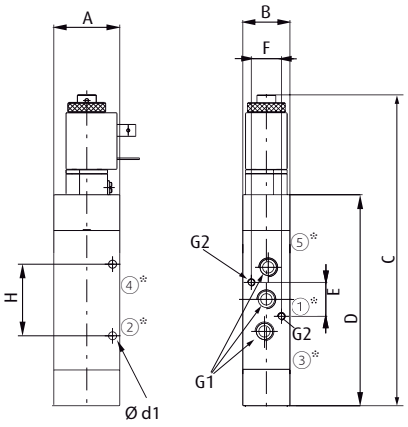
Assignment
① Vacuum supply
② Product side
③ Ventilation (Blow-off)

36.061

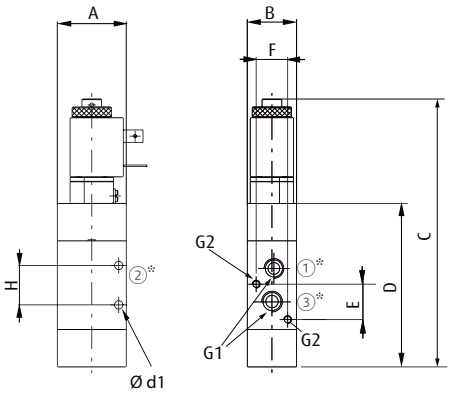


Assignment
① Compressed air inlet
② Compressed air output
③ Use of silencer (e.g. 72.016): This connects valve to atmospheric pressure and enables release of product in case of failure of compressed air line

Dimensions



36.060

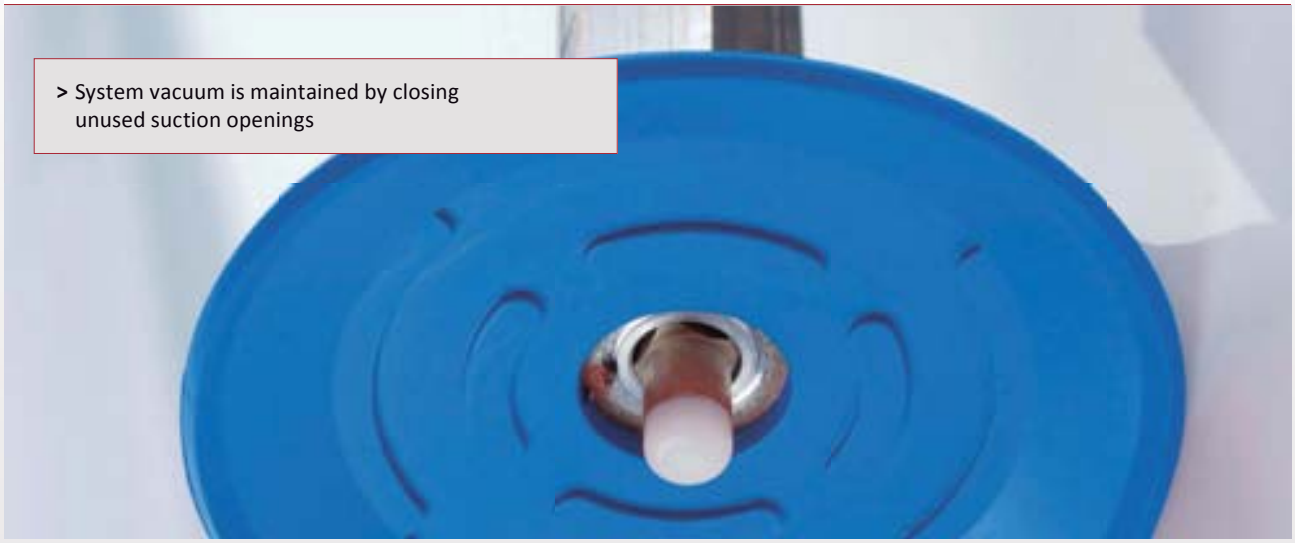


36.061

* = Assignment see wiring diagrams

Item no.	G1	G2	A [mm]	B [mm]	C [mm]	D [mm]	Ø d1 [mm]	E [mm]	F [mm]	H [mm]
36.060	G1/8	M4	35	25	153	100	4.25	18	16	38
36.061	G1/8	M4	35	25	136	83	4.25	18	16	20

FIPA Base valves



> System vacuum is maintained by closing unused suction openings

Flow control valves with flow pin

> Installation near to vacuum cup
> Sealing of unused suction openings to maintain the system vacuum for vacuum cups still in use
> Handling of porous workpieces, as there is no, or very little leakage
> Suitable for short cycle times
> Partially suited for dusty environments due to basic self-cleaning by means of blow-off

> See page 665

Touch valves

> Installation directly in vacuum cups
> Sealing of unused suction openings to maintain the system vacuum for vacuum cups still in use
> Spring-loaded push-button plunger opens vacuum channel following mechanical scanning
> Any installation position

> See page 670

Check valves

> Maintenance of the vacuum level in suction systems in cases of vacuum generator failure

32.631 to 32.635
> Inline version for mounting in the tubing line

32.647 to 32.653
> Suitable for installation between vacuum pumps and storage device
> Prevents oil return into the vacuum system in vacuum pumps without built-in check valve

32.638
> Check valves with compressed air inlet for short release times
> Installation directly between vacuum cup and ejector

> See page 672

FIPA Base valves

Butterfly valves

> Reduction of air flow at a constant vacuum level to compensate leakages through unused vacuum openings
> Also suitable for compressed air
> Inline-model available

> See page 675

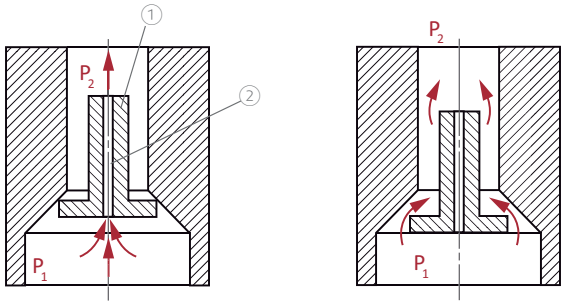
Manual valves

> Valves for manual switching on/off of pressure or vacuum circuits
> 3/2-way versions for the manual aeration of vacuum circuits
> Inline-models available
> Any installation position

> See page 678

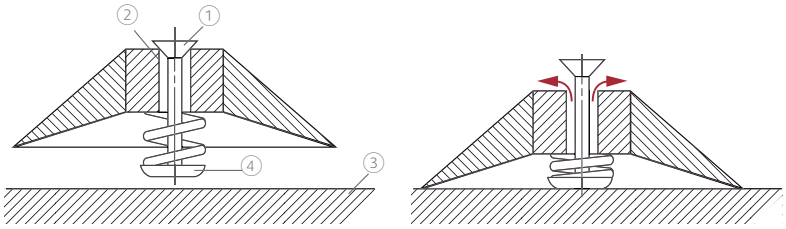
Method of operation: Flow valves

Flow valves are generally installed vertically, close to the vacuum cup. The vacuum cups are applied under vacuum, without these touching the goods being handled, and the flow control pin ① is forced upwards by the pressure difference between P1 and P2. The flow control pin then closes the valve and only a small amount of leakage flows through the central bore ②.
When the vacuum cups are placed on the goods being handled, air flows through the central bore until the pressures P1 and P2 are equalised, at which point the flow control pin falls down.



Method of operation: Touch valves

The touch valve is attached directly to the vacuum cup. A spring presses a sealing element ① (e.g. a pin) against a sealing seat ② and maintains the vacuum in the system. When the vacuum cup is placed on the workpiece ③, the valve plunger ④ is pushed upwards and the touch valve opens.

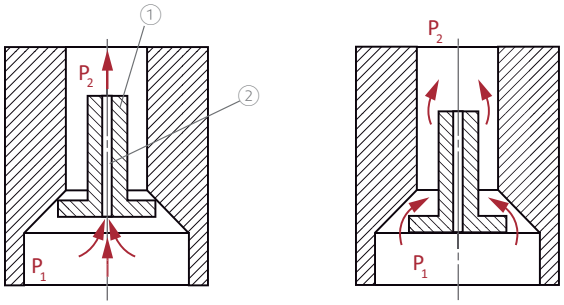


Continued on the next page

FIPA Base valves

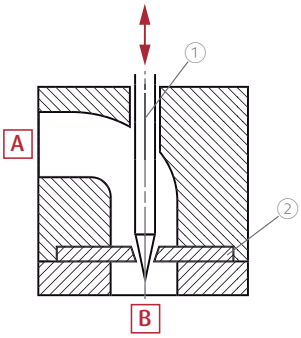
Method of operation: Check valves

A spring presses a sealing element ① (e.g. a pin) against a sealing seat ②. If a pressure difference ΔP is applied to the valve, the medium is only able to flow in one direction. The valve locks in the other direction.
Type A: Flow pattern from vacuum cup to vacuum generator
Type B: Flow pattern from vacuum generator to vacuum cup



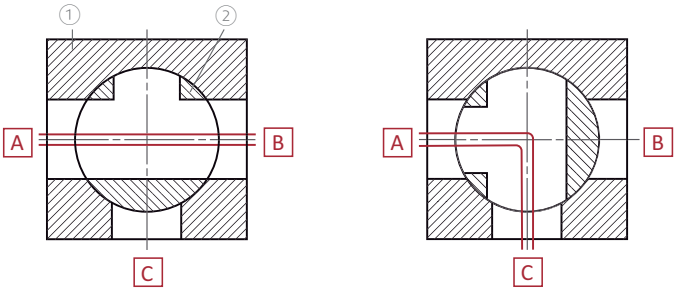
Method of operation: Butterfly valves

The resulting annular gap between the control needle ① and the cavity plate ② acts as a control valve for the air flow. The higher the flow rate, the higher the pressure difference between A and B. The cross-section of the annular gap, and therefore also the action of the control valve, can be adjusted via the axial position of the control needle. Butterfly valves are bidirectional.



Method of operation: Manual valves

A housing ① has three air connections (A, B, C). A rotary vane ② which can pivot up to 90° is mounted inside the housing. In the initial position, there is a free passage from A to B. If the rotary vane is rotated by 90°, B closes and a passage is opened from A to C. Alternatively, C can be fixed closed, making it a 2/2-way valve.



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Flow control valves with flow pin

For handling of porous products

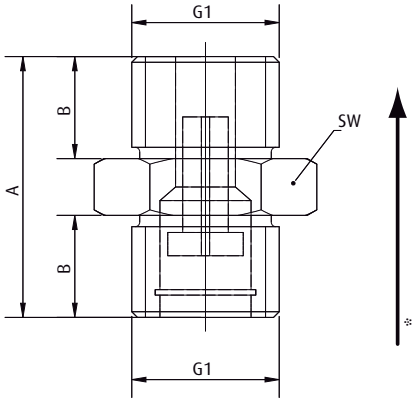
Product Description

> Sealing of unused suction openings to maintain the system vacuum
> Limited leakage prevents premature triggering with porous workpieces
> Very short design
> Optimal installation position is vertical

Technical data

Item no.	Suction power to achieve 30 % vacuum [Nl/min]	Suction power to achieve 60 % vacuum [Nl/min]	Max. flow rate with blow-off at 5 bar [Nl/min]	Flow pin bore hole diameter [mm]	Leakage loss [m^3/h]	Weight [g]
63.036	5	5	370	0.8	0.46	8
63.037	11	11	620	1.2	1.04	8
63.038	17	18	480	1.5	1.62	8
63.055	3	3	320	0.6	0.21	8

Dimensions



* = Flow direction

Item no.	G1	A [mm]	B [mm]	SW
63.036	G1/4	23	9	17
63.037	G1/4	23	9	17
63.038	G1/4	23	9	17
63.055	G1/8	16	5	17

Flow control valves with flow pin, self-cleaning

For harsh environmental conditions

Product Description

> Sealing of unused suction openings to maintain the system vacuum
> Limited leakage prevents premature triggering with porous workpieces
> Self-cleaning by blow-off
> Suitable for harsh environmental conditions (Heavy-duty)
> Optimal installation position is vertical

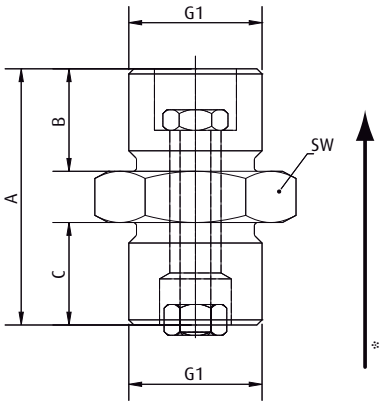
Notes

> 63.015 can be plugged directly into a vacuum cup to conserve space

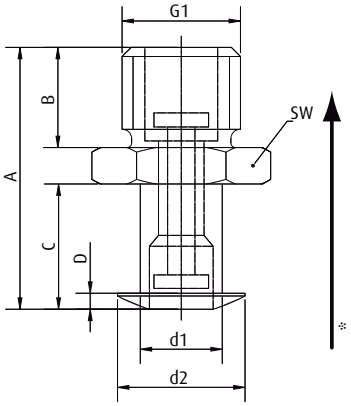
Technical data

Item no.	Suction power to achieve 30 % vacuum [Nl/min]	Suction power to achieve 60 % vacuum [Nl/min]	Max. flow rate with blow-off at 5 bar [Nl/min]	Weight [g]
63.013	38	55	450	10
63.015	38	55	450	8

Dimensions



63.013



63.015

* = Flow direction

Item no.	G1	A [mm]	B [mm]	C [mm]	D [mm]	d1 [mm]	d2 [mm]	SW
63.013	G1/4	25	10	10	--	--	--	17
63.015	G1/4	29	11	14	2	9	14	17

Flow control valves with flow pin and filter, low leakage loss

Inch thread

Product Description

> Sealing of unused suction openings to maintain the system vacuum
> Ball seat valve with filter (not suitable for high levels of dust or dirt)
> Suitable for short cycle times
> Limited leakage prevents premature triggering with porous workpieces
> Preset at the factory, 63.003 can be adjusted if necessary
> Vertical mounting, exception of 63.001 to 63.003: Any mounting position

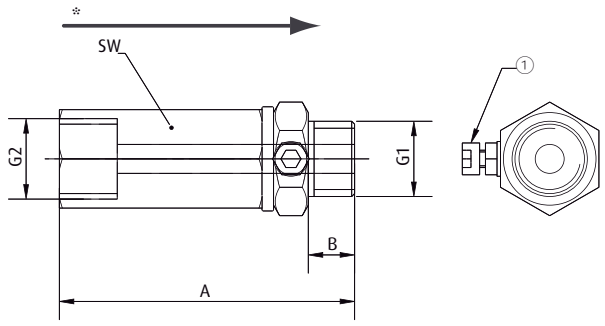
Technical data

Item no.	Suction power to achieve 30 % vacuum [Nl/min]	Suction power to achieve 60 % vacuum [Nl/min]	Max. flow rate with blow-off at 5 bar [Nl/min]	Weight [g]
63.001	4	7	260	15
63.002	4	8	360	24
63.003	0 - 22.6	0 - 28.6	550	25
63.008	3	3	340	17
63.011	7	8	590	31
63.012	8	9	790	49
63.060	7	8	590	10

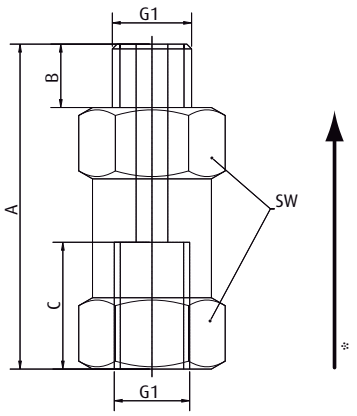
Dimensions

G1	G2	A [mm]	B [mm]	C [mm]	SW
G1/8	G1/8	48.5	6	--	14
G1/4	G1/4	50	10	--	17
G1/4	G1/4	50	8	--	17
G1/4	--	36	10	11	17
G3/8	--	39	10	12	22
G1/2	--	41	12	14	27
R1/8	--	39	10	12	22

Dimensions



63.001 | 63.002 | 63.003



63.008 | 63.011 | 63.012 | 63.060

① = Adjusting screw for 63.003 * = Flow direction

Flow control valves with flow pin and filter, low leakage loss

Metric thread

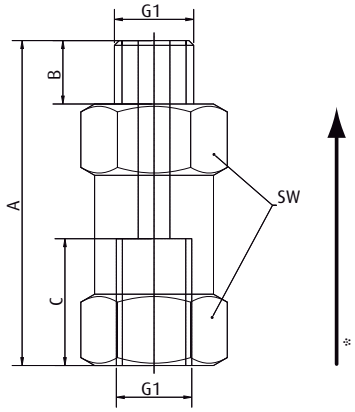
Product Description

> Sealing of unused suction openings to maintain the system vacuum
> Ball seat valve with filter (not suitable for high levels of dust or dirt)
> Suitable for short cycle times
> Low leakage prevents premature triggering with porous workpieces

Technical data

Item no.	Suction power to achieve 30 % vacuum [Nl/min]	Suction power to achieve 60 % vacuum [Nl/min]	Max. flow rate with blow-off at 5 bar [Nl/min]	Leakage loss [m³/h]	Weight [g]
63.058	1	1	80	0.105	6
63.059	1.5	1.5	100	0.105	12

Dimensions



* = Flow direction

Item no.	G1	A [mm]	B [mm]	C [mm]	SW
63.058	M5	19.9	3	4.5	10
63.059	M6	28.1	4	4.9	12

Flow control valves with flow pin, without leakage loss

Product Description

> Sealing of unused suction openings to maintain the system vacuum
> No leakage loss, which means it is particularly well suited for dense workpieces
> Closed valves are reset by switching off the vacuum
> Can be mounted in any installation position

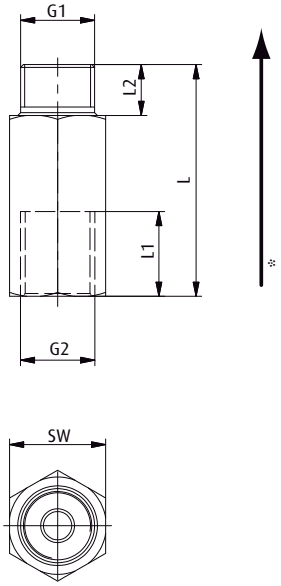
Notes

> These valves work only if the vacuum is switched on after the vacuum cup has been set in position

Technical data

Item no.	Suction power [Nl/min]	Min. vacuum level required [mbar]
63.017	28.3	-250
63.018	28.3	-250

Dimensions



* = Flow direction

Item no.	G1	G2	L [mm]	L1 [mm]	L2 [mm]	SW
63.017	G1/8	G1/4	41	15	9	17
63.018	G1/4	G1/4	41	15	9	17

Touch valves

Product Description

> Maintains the vacuum level in vacuum systems
> Mechanical scanning leaves unused suction openings closed
> Spring-loaded spring leveler allows for any mounting position
> Low susceptibility to dirt and very safe operation

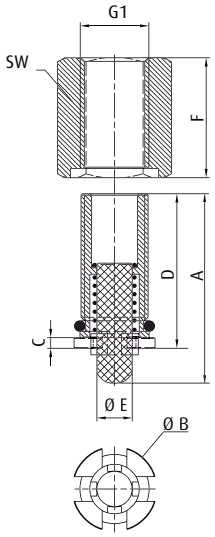
Notes

> Touch valves are directly screwed into vacuum cup, no further fittings needed

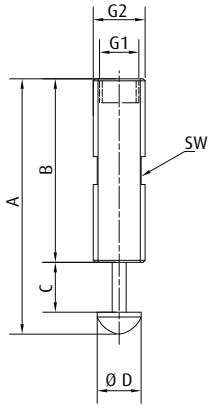
Technical data

Item no.	Weight [g]	Suitable holder
270.129	7	--
270.130	62	270.268 (p.438), 270.266 (p.438), 270.286 (p.438)
63.026	29	270.268 (p.438), 270.266 (p.438), 270.286 (p.438)
63.027	21	270.268 (p.438), 270.266 (p.438), 270.286 (p.438)
63.032	8	270.090 (p.752)

Dimensions



270.129 | 270.130



63.026 | 63.027

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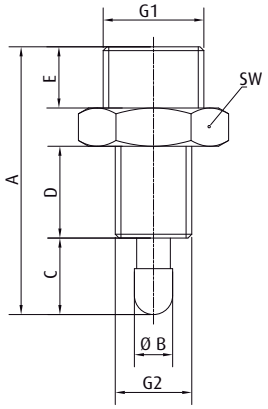
Dimensions



63.032

Item no.	G1	G2	A [mm]	B [mm]	Ø B [mm]	C [mm]	D [mm]	Ø D [mm]	E [mm]	Ø E [mm]	F [mm]	SW
270.129	G1/8	--	27	--	12	1.5	22	--	--	5	17	14
270.130	G1/2	--	43	--	25	1.5	35	--	--	8	32	30
63.026	G1/8	G1/4	65	45	--	13	--	11	--	--	--	11
63.027	G1/8	G1/4	56	46	--	5	--	11	--	--	--	11
63.032	G1/4	G1/4	45	--	7.2	10	6.5	--	10	--	--	17

"Inline" non-return valves

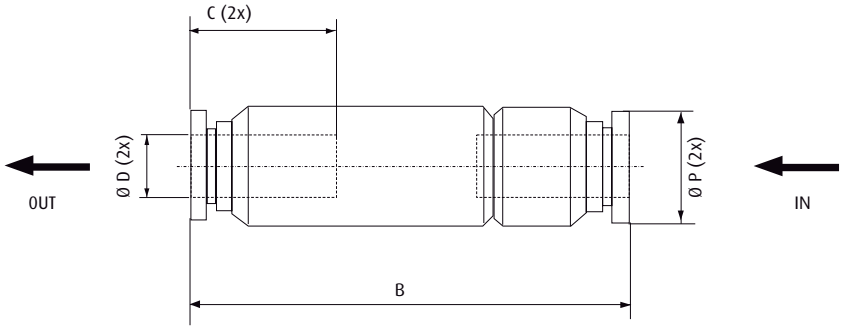
Product Description

> Maintenance of the vacuum level in suction systems in cases of vacuum generator failure
> Can also be used with dense workpieces as an energy-saving system
> Two-sided quick fittings for fast installation in existing vacuum systems
> Robust metal bodies
> Very small design
> Can be mounted in any installation position

Technical data

Item no.	Effective surface area [mm²]	Material	Weight [g]
32.631	2.7	Aluminium	5
32.632	6.8	Aluminium anodised	9.5
32.633	15.5	Aluminium anodised	20
32.634	32	Aluminium anodised	61.5
32.635	46	Aluminium anodised	68

Dimensions



Item no.	Ø D [mm]	B [mm]	C [mm]	Ø P [mm]
32.631	4	34	11	9
32.632	6	38.5	12	12
32.633	8	55.5	18.5	15
32.634	10	82.5	21	25
32.635	12	87.5	23.5	25

Non-return valves for very high volume flows

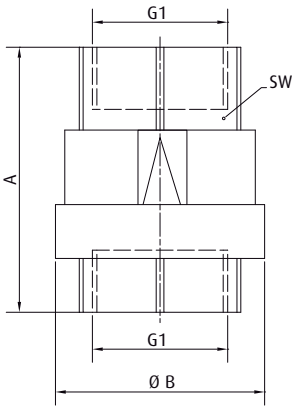
Product Description

> Maintenance of the vacuum level in suction systems in cases of vacuum generator failure
> Suitable for installation between the vacuum pump and vacuum tank
> Prevents return flow of the oil into the vacuum system with vacuum pumps without an integrated non-return valve
> Can be mounted in any installation position

Technical data

Item no.	Nominal flow rate [m^3/h]	Material	Weight [g]
32.647	20	Bronze with oil-resistant seals	151
32.648	26	Bronze with oil-resistant seals	196
32.649	45	Bronze with oil-resistant seals	280
32.650	75	Bronze with oil-resistant seals	421
32.651	125	Bronze with oil-resistant seals	658
32.652	200	Bronze with oil-resistant seals	897
32.653	350	Bronze with oil-resistant seals	1,346

Dimensions



Item no.	G1	A [mm]	Ø B [mm]	SW
32.647	G3/8	55	34.5	23
32.648	G1/2	58	35	27
32.649	G3/4	65	41	33
32.650	G1	74.5	48	40
32.651	G1 1/4	83	60.5	50
32.652	G1 1/2	93	71	55
32.653	G2	101	87	70

Non-return valves with blow-off device

Handling of wooden plates with ejector EIL.09 and check valve 32.638 (vacuum cup 102.070.234.4 for wood)

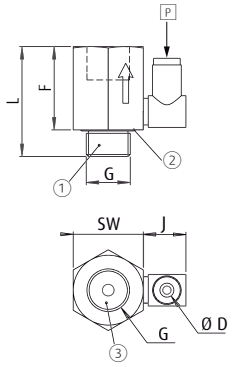
Product Description

> Installation directly between vacuum cup and ejector
> Short release time thanks to blow-off function via compressed air inlet P
> Suitable as a safety valve: In cases of tubing damage, malfunction or emergency shutdown of the vacuum generator, the vacuum is maintained
> Metal screen made from stainless steel (Inox) with mesh width of 200 µ prevents dirt from entering the ejector

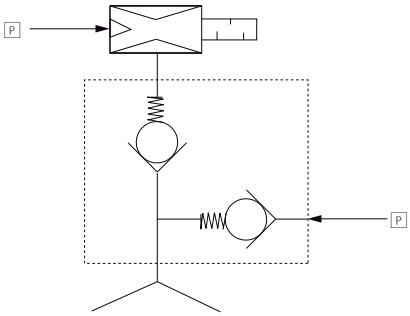
Technical data

Item no.	Minimum blow-off pressure [bar]	Suitable blow-off device
32.638	5	32.660 (p.525)

Dimensions



Wiring diagram



P = Compressed air blow-off at 5 bar 4/6 tubing ① = To the vacuum cup ② = O-ring ③ = To vacuum generator

Item no.	G	Ø D [mm]	F [mm]	L [mm]	J [mm]	SW
32.638	G1/4	4	25	33	12.8	21

Butterfly valves - screw-in type

Product Description

> Limitation of suction flow at a constant vacuum level
> Reducing leakage at unoccupied vacuum cups maintains an adequate vacuum level for vacuum cups covered by products and thus prevents products from being dropped
> Manual adjustment using knurled screw
> Flexible installation using horizontal swivel air connector

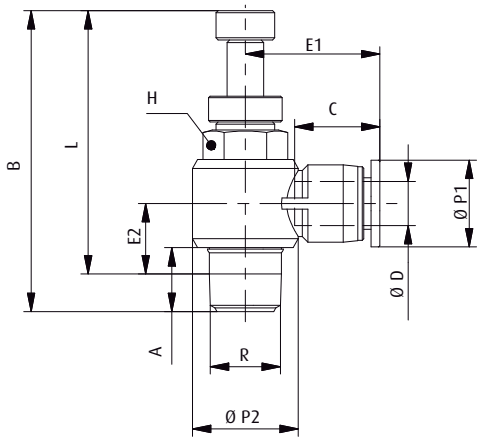
Technical data

Item no.	Operating pressure [bar]	Operating temperature [°C]	Weight [g]
32.500	-1 - 8	0 - 60	9
32.501	-1 - 8	0 - 60	20
32.502	-1 - 8	0 - 60	10
32.503	-1 - 8	0 - 60	20
32.504	-1 - 8	0 - 60	36
32.505	-1 - 8	0 - 60	20
32.506	-1 - 8	0 - 60	36
32.507	-1 - 8	0 - 60	67
32.508	-1 - 8	0 - 60	40
32.509	-1 - 8	0 - 60	69
32.510	-1 - 8	0 - 60	72
32.511	-1 - 8	0 - 60	103

Dimensions

R	Ø D [mm]	A [mm]	B [mm]	C [mm]	E1 [mm]	E2 [mm]	H [mm]	L [mm]	Ø P1 [mm]	Ø P2 [mm]
M5	4	3.5	27 - 29.5	15	20	6.5	8	23.5 - 26	10	10
G1/8	4	8	34 - 40.5	15	21.5	10.5	10	30 - 36.5	10	14.5
M5	6	3.5	27 - 29.5	17	24	7.5	8	23.5 - 26	12.5	10
G1/8	6	8	34 - 40.5	17	23.5	10.5	10	30 - 36.5	12.5	14.5
G1/4	6	11	41 - 47.5	17	25.5	12	14	35 - 41.5	12.5	18.5
G1/8	8	8	34 - 40.5	18.5	27	11.5	10	30 - 36.5	14.5	14.5
G1/4	8	11	41 - 47.5	18.5	28.5	13	14	35 - 41.5	14.5	18.5
G3/8	8	12	46.5 - 53.5	18.5	29	15	19	40 - 47	14.5	22
G1/4	10	11	41 - 47.5	20.5	31	14.5	14	35 - 41.5	18	18
G3/8	10	12	46.5 - 53.5	20.5	31.5	16.5	19	40 - 47	18	22
G3/8	12	12	46.5 - 53.5	23.5	37	18	19	40 - 47	21.5	22
G1/2	12	15	51.5 - 59	23.5	36.5	19.5	24	45.5 - 51	21.5	28

Dimensions



"Inline" - butterfly valves

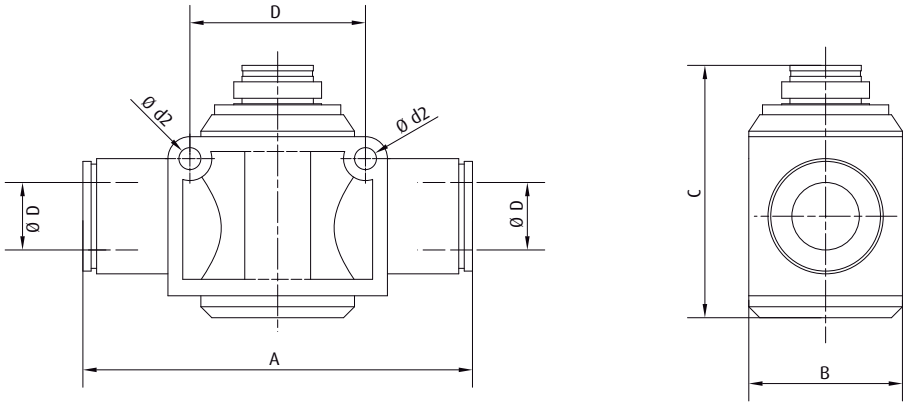
Product Description

> Limitation of suction flow at a constant vacuum level
> Reducing leakage at unoccupied vacuum cups maintains an adequate vacuum level for vacuum cups covered by products and thus prevents products from being dropped
> Manual adjustment using knurled screw
> Simple installation in the tubing line

Technical data

Item no.	Operating pressure [bar]	Operating temperature [°C]	Weight [g]
32.540	-1 - 9	0 - 60	12
32.541	-1 - 9	0 - 60	33
32.542	-1 - 9	0 - 60	44
32.543	-1 - 9	0 - 60	77
32.544	-1 - 9	0 - 60	127

Dimensions



Item no.	Ø D [mm]	A [mm]	B [mm]	C [mm]	D [mm]	d2 [mm]
32.540	4	37.5	11	29.5	14	3.2
32.541	6	46	15	44	20	4.3
32.542	8	51.5	18	48	22	4.3
32.543	10	59.5	21	53.5	26	4.3
32.544	12	72	28	58	32	4.3

"Inline" - one-way flow control valves

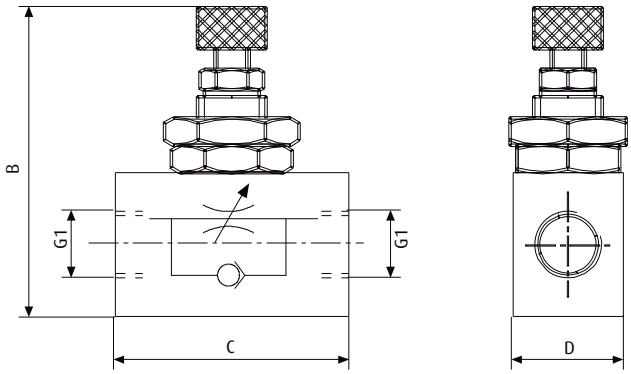
Product Description

> Limitation of suction power at a constant vacuum level
> Reducing leakage at unoccupied vacuum cups maintains an adequate vacuum level for vacuum cups covered by products and thus prevents products from being dropped
> Manual adjustment using knurled screw

Technical data

Item no.	Maximum flow rate [m^3/h]	Regulating range [mbar]	Operating temperature [°C]	Weight [g]
73.001	2.4	-999 - 0	-20 - 80	95
73.004	5.4	-999 - 0	-20 - 80	95

Dimensions



Item no.	G1	B [mm]	C [mm]	D [mm]
73.001	G1/4	60	39	22
73.004	G1/2	75	56	30

2/2-way manual shut-off valves

Product Description

> Use when electro valves are not possible or uneconomical

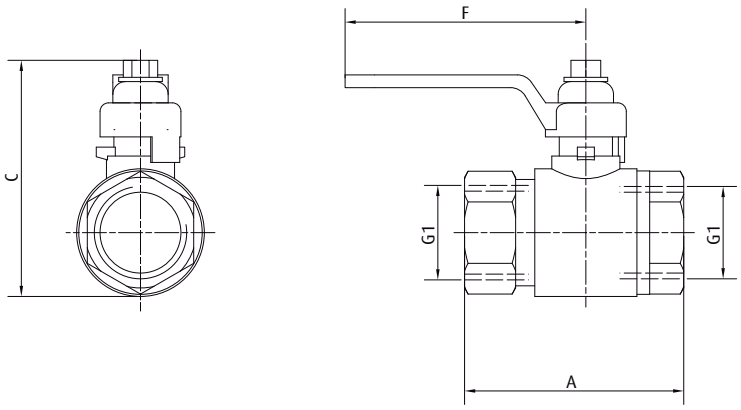
Technical data

Item no.	Free passage [mm]	Pressure range [bar]	Weight [g]
33.075	10	0 - 30	121
33.076	10	0 - 30	121
33.077	15	0 - 30	177
33.078	20	0 - 30	298
33.079	25	0 - 30	560
33.080	32	0 - 30	830
33.081	40	0 - 30	1,000
33.082	50	0 - 30	1,600
33.083	80	0 - 30	2,200

Dimensions

G1	A [mm]	C [mm]	F [mm]
G1/4	44	49	80
G3/8	44	51	80
G1/2	50	57	80
G3/4	57	74	113
G1	70	83	113
G1 1/4	80	90	138
G1 1/2	94	110	138
G2	112	115	157
G3	157	175	250

Dimensions



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3/2-way manual shut-off valves

Product Description

> Switching on/off individual vacuum cups in vacuum systems
> Blow-off and ventilation of vacuum cups
> Valve type with L-bore

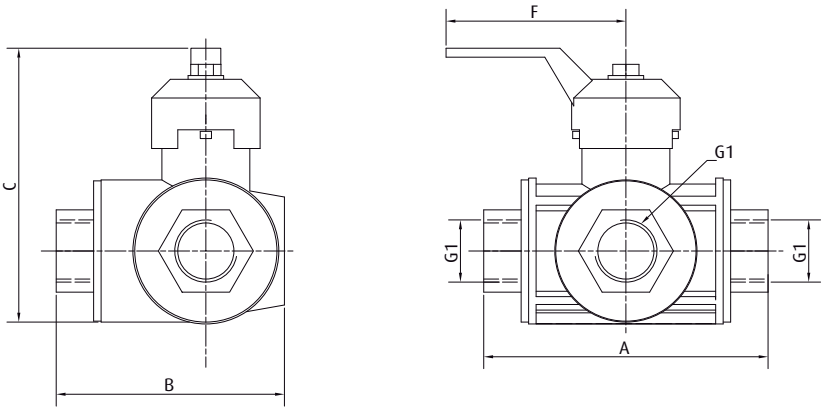
Technical data

Item no.	Free passage [mm]	Pressure range [bar]	Weight [g]
33.084	10	0 - 30	160
33.085	12	0 - 30	190
33.086	14	0 - 30	300
33.087	18	0 - 30	490
33.088	23	0 - 30	850
33.089	29	0 - 30	1,760
33.090	36	0 - 30	2,490

Dimensions

G1	A [mm]	B [mm]	C [mm]	F [mm]
G1/4	77	58	85	125
G3/8	77	58	85	125
G1/2	77	58	85	125
G3/4	92	70	107	145
G1	104	80	124	170
G1 1/4	118	92	134	170
G1 1/2	138	109	145	170

Dimensions



3/2-way manual shut-off valves with quick fittings on both sides

Product Description

> Switching on/off individual vacuum cups in vacuum systems
> Blow-off and ventilation of vacuum cups
> Easy in line installation in the tubing line

Ordering notes

> Other connections available on request

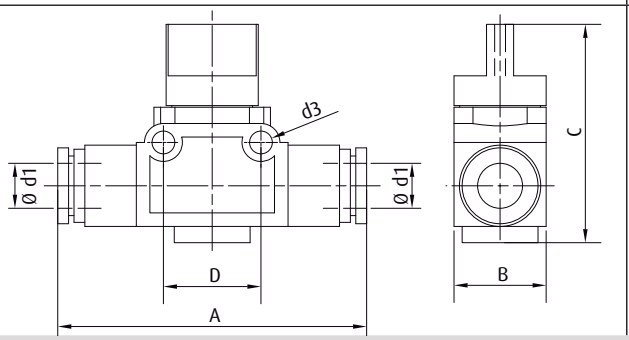
Technical data

Item no.	Pressure range [bar]	Weight [g]
33.000	-1 - 9	24
33.001	-1 - 9	24.5
33.002	-1 - 9	25.5
33.003	-1 - 9	27
33.004	-1 - 9	44
33.005	-1 - 9	47.5
33.006	-1 - 9	50

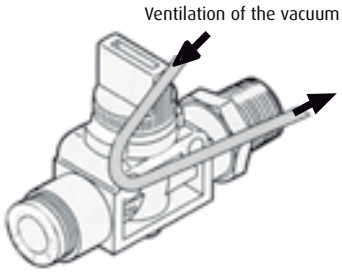
Dimensions

d1 [mm]	A [mm]	B [mm]	C [mm]	D [mm]	d3 [mm]
4	52	17	40.5	18	4.2
6	52	17	40.5	18	4.2
8	54	17	40.5	18	4.2
8	56	17	40.5	18	4.2
10	65	21	41	24	4.2
12	68	21	41	24	4.2
12	71	21	41	24	4.2

Dimensions



Operating principle



3/2-way manual shut-off valves with quick fitting / threaded connection

Product Description

> Switching on/off individual vacuum cups in vacuum systems
> Blow-off and ventilation of vacuum cups

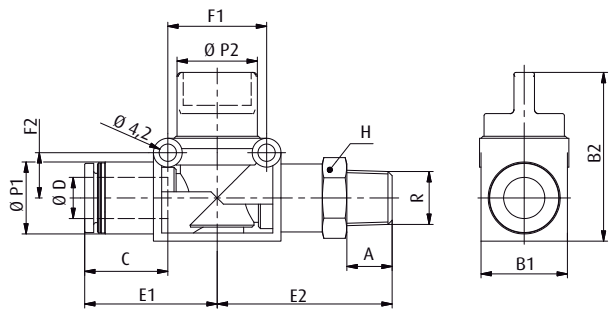
Technical data

Item no.	Free passage [mm]	Pressure range [bar]	Weight [g]
33.016	5	-1 - 9	33
33.017	5	-1 - 9	39.5
33.018	5	-1 - 9	52
33.019	5	-1 - 9	34.5
33.020	5	-1 - 9	40.5
33.021	5	-1 - 9	53.5
33.022	7	-1 - 9	61.5
33.023	7	-1 - 9	70
33.024	7	-1 - 9	91.5
33.025	7	-1 - 9	65
33.026	7	-1 - 9	73
33.027	7	-1 - 9	95

Dimensions

R	Ø D [mm]	A [mm]	B1 [mm]	B2 [mm]	C [mm]	E1 [mm]	E2 [mm]	F1 [mm]	F2 [mm]	H [mm]	Ø P1 [mm]	Ø P2 [mm]
R1/8	6	8	17	40.5	17	26	33.5	18	8	14	12.5	16.5
R1/4	6	11	17	40.5	17	26	36.5	18	8	14	12.5	16.5
R3/8	6	12	17	40.5	17	26	38.5	18	8	17	12.5	16.5
R1/8	8	8	17	40.5	18	28	33.5	18	8	14	15	16.5
R1/4	8	11	17	40.5	18	28	36.5	18	8	14	15	16.5
R3/8	8	12	17	40.5	18	28	38.5	18	8	17	15	16.5
R1/4	10	11	21	41	20	32.5	42.5	24	11	17	17.5	19.5
R3/8	10	12	21	41	20	32.5	43.5	24	11	17	17.5	19.5
R1/2	10	15	21	41	20	32.5	46.5	24	11	21	17.5	19.5
R1/4	12	11	21	41	23.5	35	42.5	24	11	17	21	19.5
R3/8	12	12	21	41	23.5	35	43.5	24	11	17	21	19.5
R1/2	12	15	21	41	23.5	35	46.5	24	11	21	21	19.5

Dimensions



Operating principle