VACUUM VALVES AND SOLENOID VALVES

SUCTION VALVES FOR VACUUM PRESS BAGS

The suction valves described on this page have been designed for a quick vacuum connection on press bags for composite fibre products.

These valves are composed of a steel distributor, to be inserted inside the bag, equipped with a cam housing suitable for the quick coupler for the vacuum connection. The latter is made with reeded and anodised aluminium and is easily coupled with the distributor by simply rotating it on its axis by 90°, once it has been inserted.

A silicon seal, to be placed between the two elements and the press bag, guarantees a perfect vacuum seal. Manual two-way valves, quick couplers or simply flexible pipe fittings can be assembled onto these valves.

They are currently available in the two versions indicated in the table, but can be provided in different sizes and shapes upon request for a minimum amount.

Maximum temperature of use: 220°
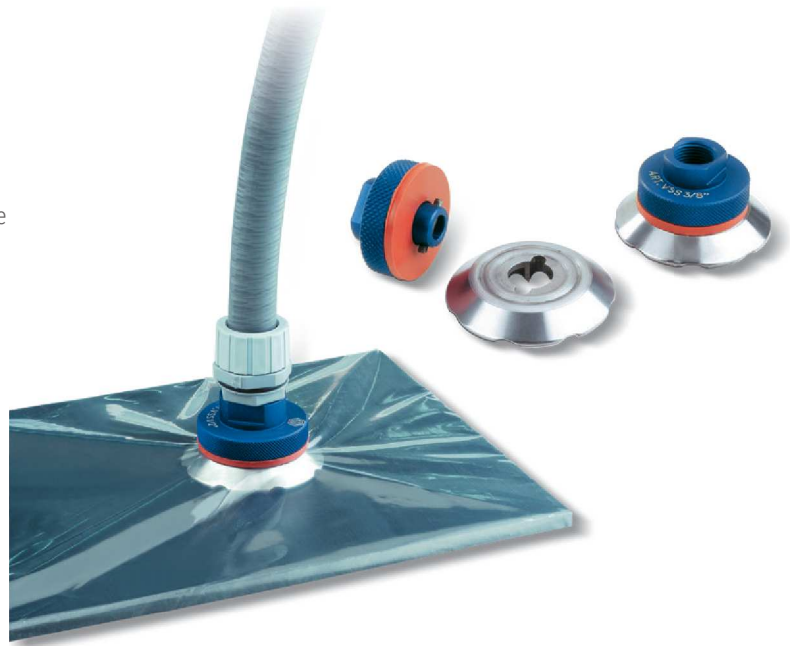
4

Quick coupling fitting

Two-way manual valve

Fitting for TPR hose

Sp

Coupler

Sealing gasket

Distributor
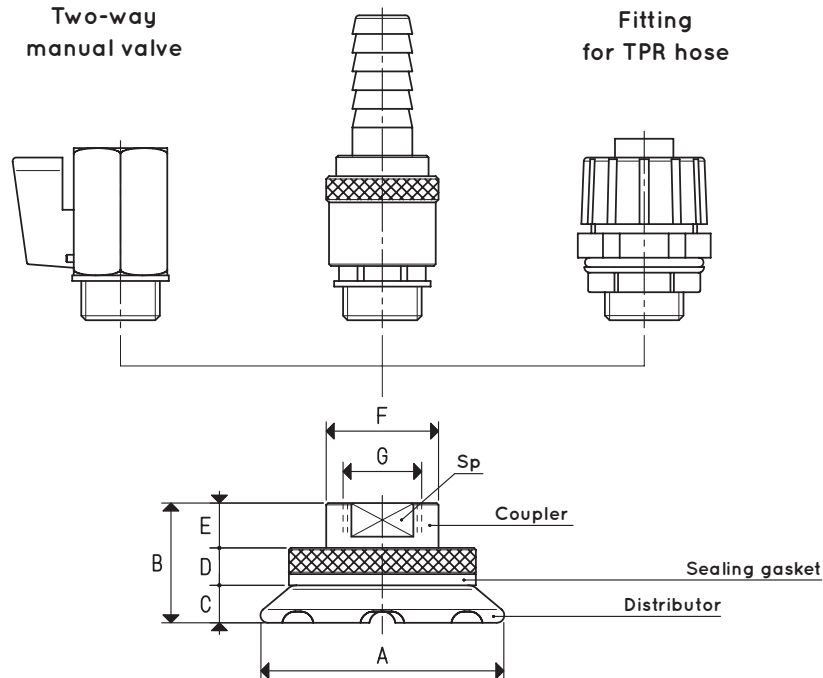
Item	Maximum flow rate recommended m³/h	Hole to be made in bag Ø	Two-way manual valve item	Quick coupler fitting item	Fitting for TPR hose item	Weight g	A Ø	B	C	D	E	F Ø	G Ø	Sp
VSS 3/8″	10	16	13 02 11	RR3/8″	RTPR3/8″	178	60	32	10	13	9	24	G3/8″	19
VSS 1/2″	20	19	13 03 11	RR1/2″	RTPR1/2″	218	65	35	10	13	12	30	G1/2″	25

Note: The two-way valves and fittings are not integral parts of the suction valves and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6} = \dfrac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

SUCTION VALVES FOR RESIN INFUSION MOULDS

Once laid on the resin infusion mould connections, these suction valves allow a quick vacuum connection and guarantee a perfect seal. They are made with silicon rubber, while their support is made with anodised aluminium. Manual two-way valves, quick couplers or simply flexible pipe fittings can be assembled onto these valves. They are available in the two versions shown below, but can be supplied in different sizes and shapes upon request.

SEALING

RESIN

RESIN SUCTIONED FROM VACUUM

VACUUM BAG

SUCTION VACUUM CUP

PUMP FOR VACUUM

MOULD

Quick coupling fitting

Two-way manual valve

Fitting for TPR hose

ø69

G

17

ø85
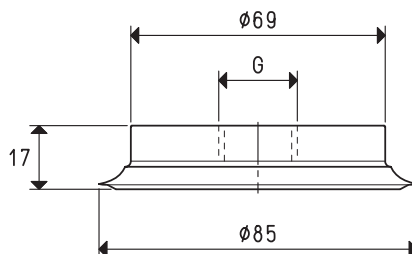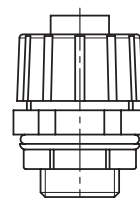
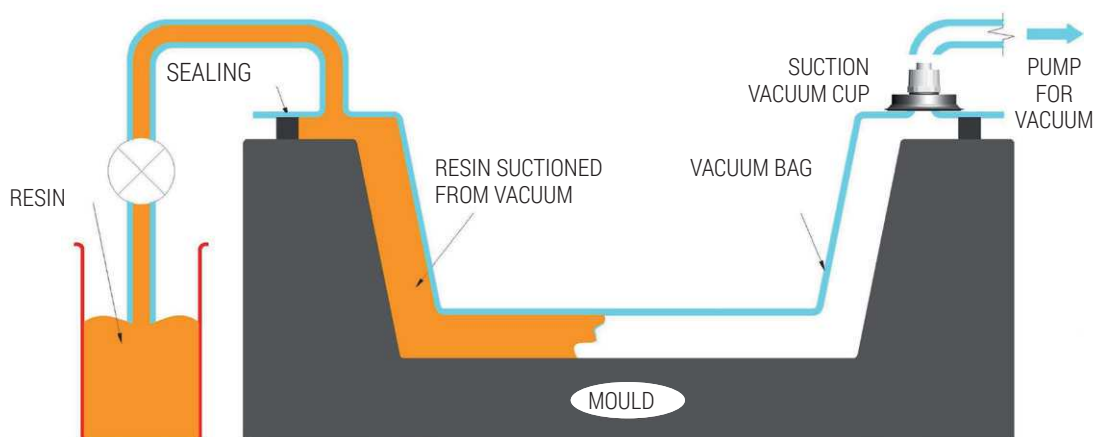| Item	Maximum flow rate recommended m³/h	Two-way manual valve item	Quick coupler fitting item	Fitting for TPR hose item	Weight g	G Ø
08 85 15 1/2″ S	20	13 03 11	RR1/2″	RTPR1/2″	108	G1/2″
08 85 15 3/4″ S	40	13 03 11	RR3/4″	RTPR3/4″	103	G3/4″

Note: The two-way valves and fittings are not integral parts of the suction valves and, therefore, must be ordered separately.

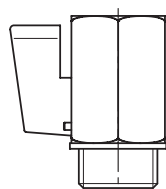Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6}$ = $\dfrac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

PLUNGER VALVES

Plunger valves are composed of a natural colour or chrome-plated cylindrical brass body, depending on the items, of a steel plunger with a conical valve, a thrust spring, a nylon disc whose task is to thrust the spring onto a larger contact surface, thus avoiding unsightly prints on the load to be gripped.
Connected to vacuum, they are normally closed.
They activate suction, thus creating a vacuum, only when the plunger is in contact with the gripping surface.
They are also available in various versions, all suitable for our vacuum cups.
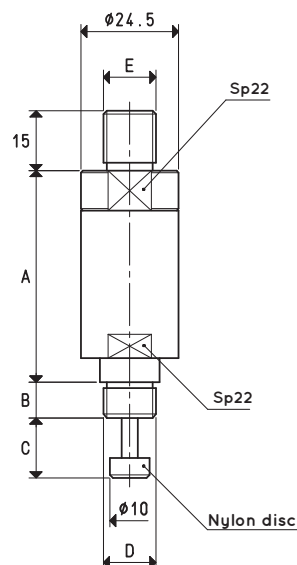
Item	A	B	C	D Ø	E Ø	Weight g	Vacuum cup item
19 01 10	53	9	15.0	G1/4"	G1/4"	160	08 150 16
19 01 11	53	9	16.0	M12	G1/4"	166	08 80 20
19 01 12	53	9	22.0	M12	G1/4"	152	08 127 15

Item	A	B	C	D Ø	E Ø	Weight g	Vacuum cup item
19 02 10	61.5	12	22.0	G3/8"	G3/8"	164	08 150 15
							08 200 10
							08 250 10
19 03 10	61.0	10	22.5	G1/2"	G3/8"	172	08 300 10
							08 350 10
19 04 10	68.5	11	42.0	G1/2"	G3/8"	182	08 360 10

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

MECHANICALLY OPERATED VALVES

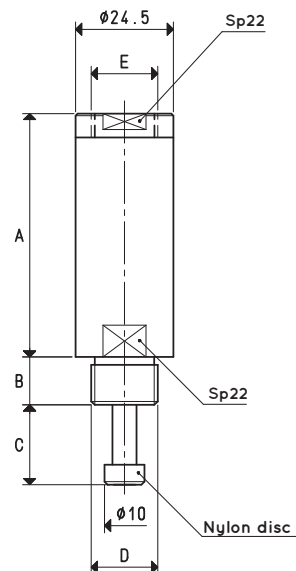These valves are composed of an anodised aluminium body, a steel pin solidly connected to a conical shutter and of a thrust spring.
Connected to vacuum, they are normally closed. They activate suction, thus creating a vacuum, only when the pin is activated by the cams or any other mechanical device.
They can be used as an alternative to plunger valves when these cannot be assembled onto the vacuum cups.

4
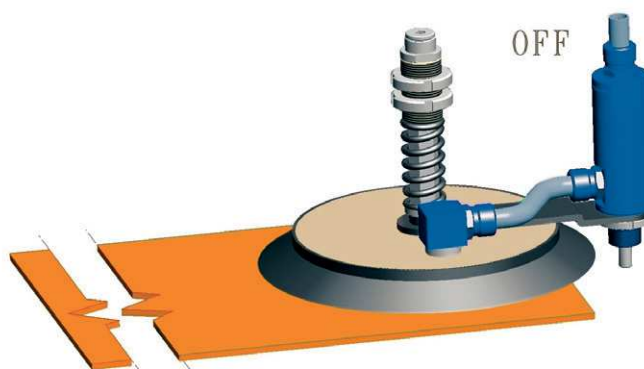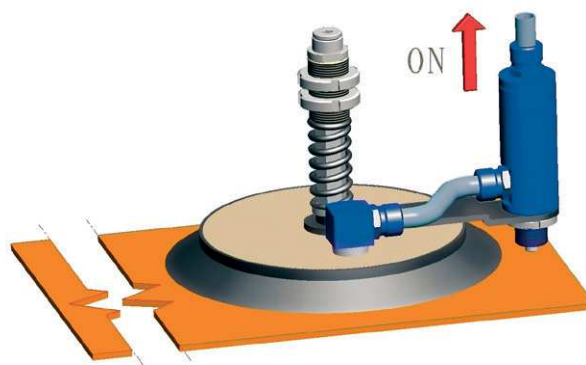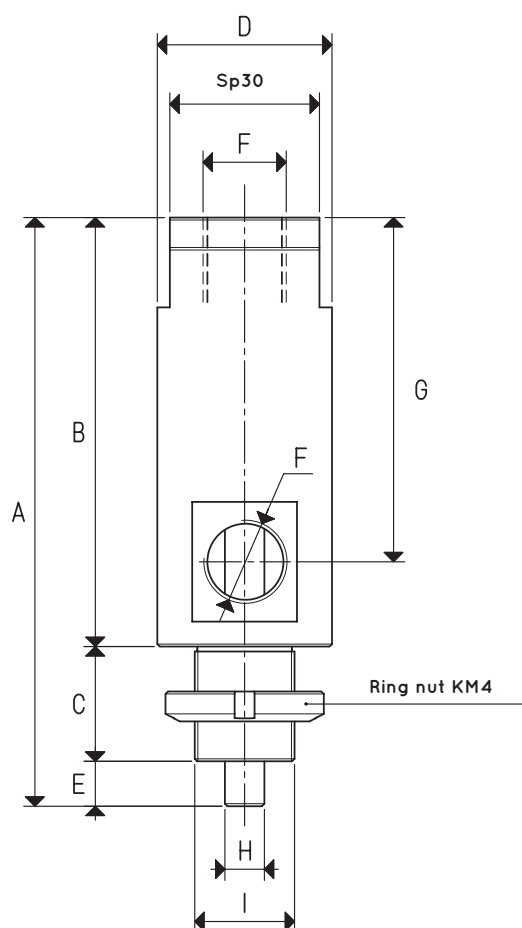
Item	A	B	C	D Ø	E	F Ø	G	H Ø	I Ø	Weight g
19 02 30	112	80	23	35	9	G3/8"	63	8	M20 x 1	252

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6}$ = $\dfrac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

VALVES WITH BALL SHUTTER

Valves with ball shutters activate suction, creating vacuum in the cups on which they are applied, only when the load to be held activates the sealing shutter.
They are made of an anodised aluminium body, a nylon ball shutter, a calibrated thrust spring and a threaded brass closing plug.
When properly calibrated, they guarantee a perfect vacuum seal.
They are recommended for making vacuum operated clamping surfaces.
They can be supplied in different sizes and shapes upon request and for a minimum quantity to be defined in the order.
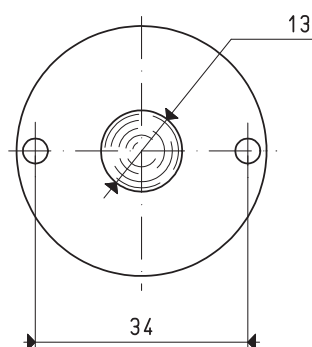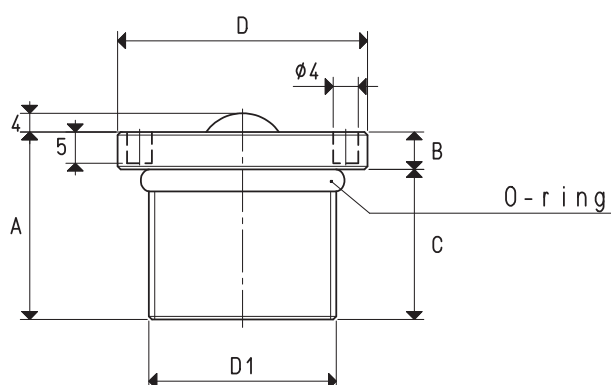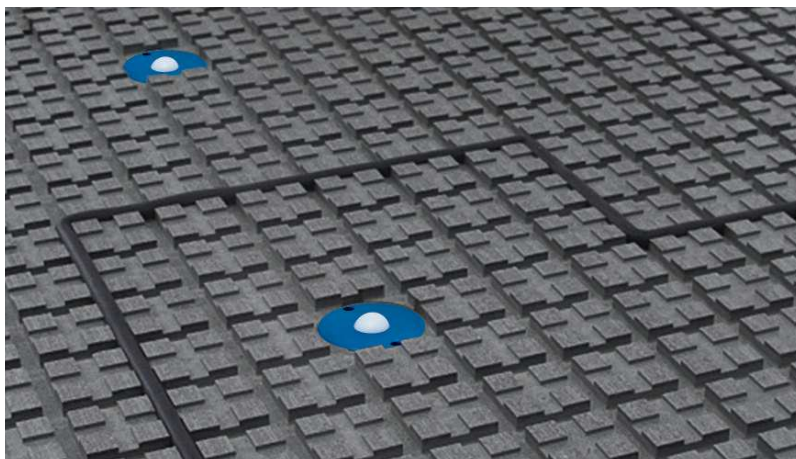
Item	A	B	C	D Ø	D1 Ø	Actuating force Kg	Weight g
22 01 10	30	6	24	40	M30 x 1.5	2.30	70

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6}$ = $\dfrac{Kg}{0.4536}$

SHUT-OFF VALVES

These are special one-way valves that, when properly calibrated, allow a certain quantity of fluid to go through; afterwards, if the fluid continues to go through, they automatically close.

These shut-off valves have been specially designed to be applied on the cups and, in case of lack of objects to be gripped, of defective grips or leaks, they automatically deactivate suction, thus preventing any reduction of the level of vacuum on the other gripping cups.

They are provided calibrated and commissioned, ready to be installed. They are made with anodised aluminium and can be supplied in different shapes and sizes upon request and for a minimum quantity to be defined in the order.

Item	A	B	C	D Ø	D1 Ø	E	Weight g
14 01 05	32	26	6	G1/8"	G1/8"	8	8

Minimum trigger flow = 1.5 m³/h   Minimum level of vacuum = -250 mbar
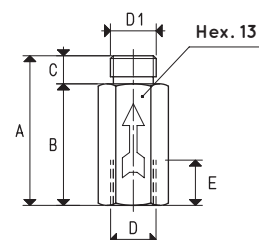
Item	A	B	C	D Ø	D1 Ø	E	Weight g
14 01 10	45	30	15	G1/4"	G3/8"	14	28

Minimum trigger flow = 4 m³/h   Minimum level of vacuum = -250 mbar
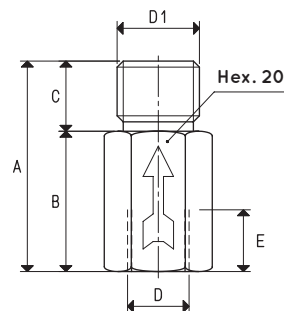
Item	A	B	C	D Ø	D1 Ø	E	Weight g
14 01 15	45	30	15	G1/4"	G1/4"	14	29

Minimum trigger flow = 4 m³/h   Minimum level of vacuum = -250 mbar

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

4
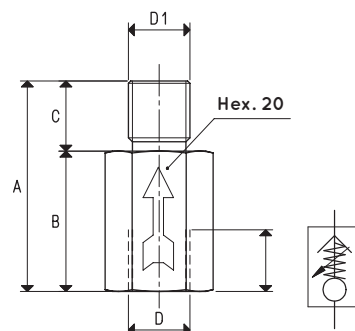
SHUT-OFF VALVES

Item	A	D Ø	D1 Ø	E	Weight g
14 02 10	59	G1/4"	G1/4"	14	42

Minimum trigger flow = 4 m³/h   Minimum level of vacuum = -250 mbar

Item	A	B	C	D Ø	D1 Ø	E	Weight g
14 03 10	59	47	12	G3/8"	G1/4"	14	36

Minimum trigger flow = 4 m³/h   Minimum level of vacuum = -250 mbar

Item	A	B	C	D Ø	D1 Ø	E	Weight g
14 05 10	59	47	12	G3/8"	G1/4"	14	34

Minimum trigger flow = 4 m³/h   Minimum level of vacuum = -250 mbar

Item	A	B	C	D Ø	D1 Ø	E	Weight g
14 06 10	50	38	12	G3/8"	G3/8"	14	38

Minimum trigger flow = 4 m³/h   Minimum level of vacuum = -250 mbar
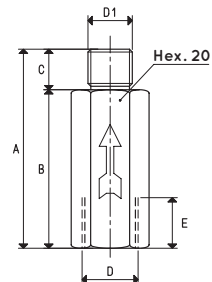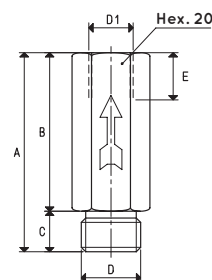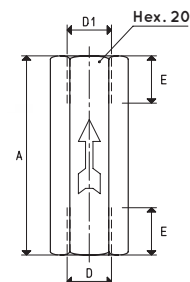
SHUT-OFF VALVES WITH CONTROLLED LOSS
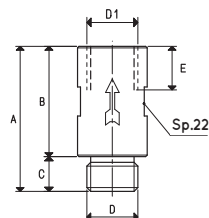
These are based on the same operating principle as the previously described shut-off valves. They differ only in the sealing shutter which, even when completely closed, allows the vacuum source a minimum of suction. This feature helps pick up the vacuum cup that has not gripped the object, for example, due to early activation of the suction, to recreate the vacuum inside it and then to grip without having to repeat the work cycle. If, on the other hand, the vacuum cup does not grip because there is no object to be gripped, the valve does not prevent the lowering of the level of vacuum on the remaining vacuum cups, but the small size of the loss is easily controllable and therefore, recoverable.
Fully made with anodised aluminium.

Item	Loss max Nl/min	Minimum trigger flow m³/h	A	B	C	D Ø	D1 Ø	E	F	Weight g
14 01 11	7.5	1	36.0	29.5	6.5	G1/8"	G1/8"	10	13	8
14 02 11	7.5	1	37.5	29.5	8.0	G1/4"	G1/4"	15	17	16
14 03 11	24.0	3	42.0	32.5	9.5	G3/8"	G3/8"	17	22	28

Minimum level of vacuum = -250 mbar
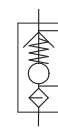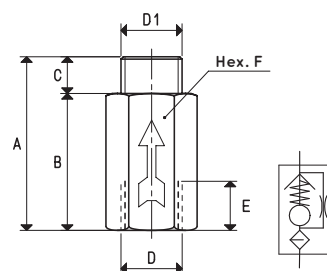
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

4

CHECK VALVES

These one-way valves are made with bronze and brass with a seal in NBR nitrile rubber or, upon request, in Viton®, only for series 10 ... 11. To ensure a practical assembly they are available in two versions: horizontal and vertical.

Fitted on the vacuum pump suction inlet, as soon as the latter stop, these valves prevent the air from returning in the plant (piping, tanks, autoclaves, vacuum gripping systems, vacuum cups, etc.), guaranteeing a perfect seal and preventing the oil from returning into the pump stator, which would cause considerable damages.

Therefore, check valves are mandatory on all vacuum pumps with lubrication that do not have them built-in.

4

HORIZONTAL

Item	R Ø	Sp	H	L	Weight Kg
10 02 10	G3/8"	27	49	43	0.19
10 03 10	G1/2"	27	49	43	0.17
10 04 10	G3/4"	34	58	52	0.27
10 05 10	G1"	42	66	62	0.43
10 06 10	G1" 1/4	50	75	72	0.59
10 07 10	G1" 1/2	57	86	80	0.79
10 08 10	G2"	69	99	94	1.08
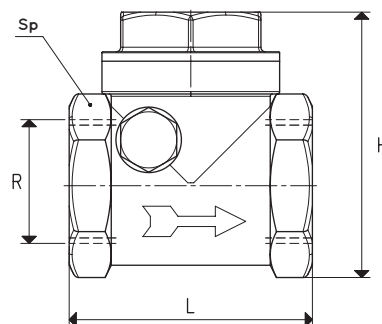
VERTICAL

Item	R Ø	Sp	D Ø	H	Weight Kg
10 01 11	G1/4"	21	28	47	0.10
10 02 11	G3/8"	25	35	59	0.17
10 03 11	G1/2"	26	35	58	0.12
10 04 11	G3/4"	33	42	65	0.28
10 05 11	G1"	40	48	74	0.42
10 06 11	G1" 1/4	50	61	82	0.64
10 07 11	G1" 1/2	55	71	92	0.87
10 08 11	G2"	70	87	100	2.70

Note: To order valves with seals in Viton®, add the letter V to the item (example: 10 02 11 V)
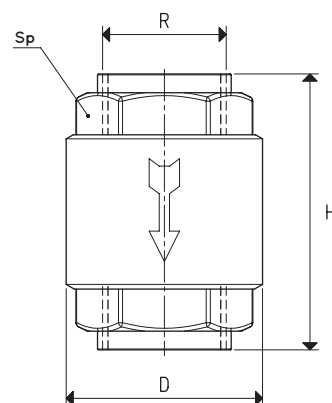
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6}$ = $\dfrac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

MEMBRANE CHECK VALVES

These valves have the same features of the previously described check valves, but they are made with anodised aluminium, which makes them particularly light.

The seal is guaranteed by an EPDM membrane instead of the metal shutter with NBR seal.

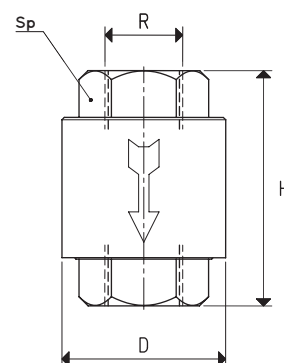Thanks to these features and their modern design, they are recommended for pneumatic vacuum generators and, of course, on vacuum pumps.

Item	R Ø	Sp	D Ø	H	Weight g
10 01 15	G1/4"	20	30	42	46
10 02 15	G3/8"	24	35	50	74
10 03 15	G1/2"	24	37	55	86
10 04 15	G3/4"	33	42	64	110
10 05 15	G1"	40	49	74	162

MANUAL 2-WAY MINIATURE VACUUM VALVES

These small manual valves are suited for intercepting vacuum on vacuum cup holders and any small utilities on which solenoid valves cannot be installed.

They feature a hexagonal nickel-plated brass body, a chrome-plated brass ball shutter and a seal in plastic material to guarantee a perfect seal.

A lever on the ball shutter, manually rotated 90°, allows for valve opening or closing with no effort.

Item	D Ø	Mouth Ø	Sp	E	F	H	Weight g
13 01 11	G1/4"	8	21	7	32	39	80
13 02 11	G3/8"	8	21	10	30	40	74
13 03 11	G1/2"	10	25	12	33	45	110

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6}$ = $\dfrac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

4
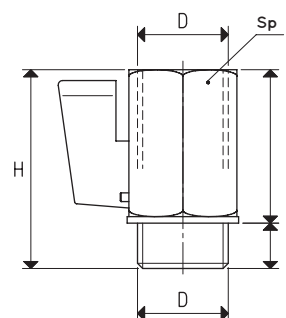
MANUAL 2-WAY AND 3-WAY VACUUM VALVES

These manual valves are used for intercepting vacuum in all those plants where solenoid valves cannot be installed.

They feature a die-cast nickel-plated brass body, a chromed brass ball shutter and Teflon® seals to guarantee perfect seal even at high temperatures.

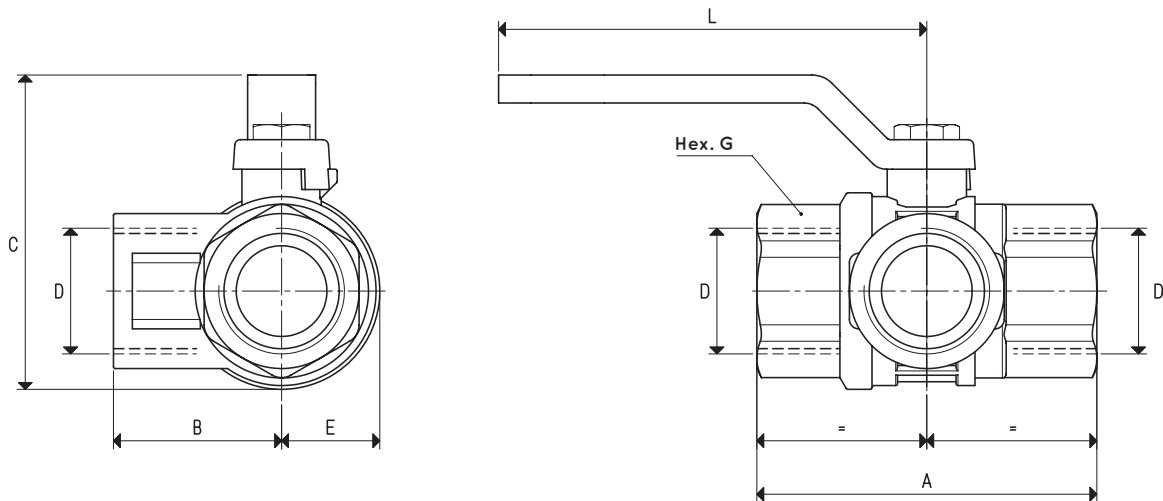A lever on the ball shutter, manually rotated 90°, allows opening or closing the valve precisely and with no effort.
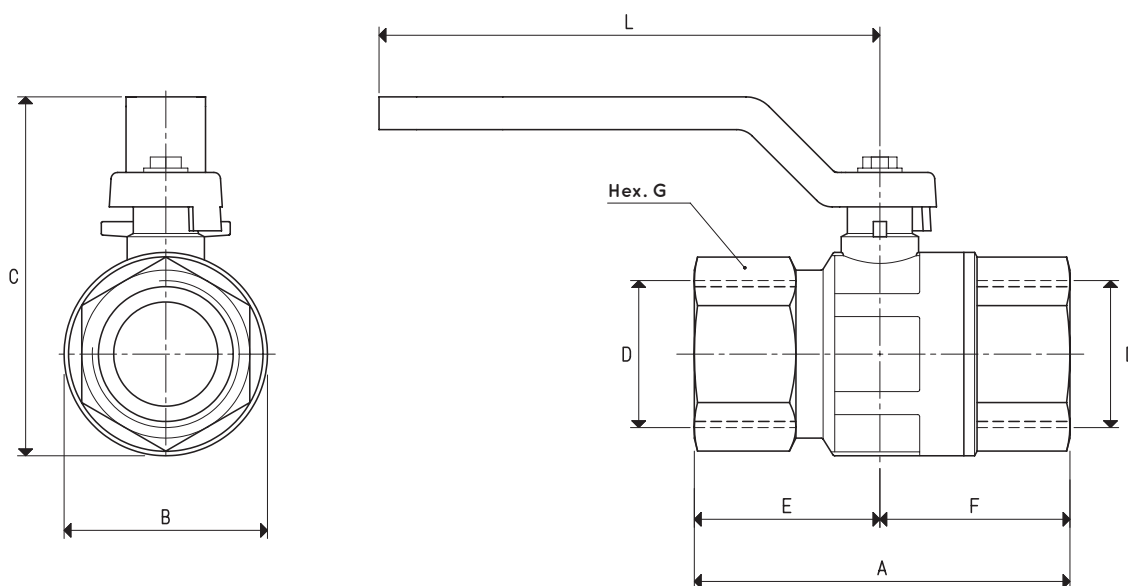
2-WAY MANUAL VALVES

Item	A	B	C	D Ø	Mouth Ø	E	F	G	L	Weight Kg
13 01 10	49	23	48	G1/4"	10	24	25	18	80	0.13
13 02 10	52	23	56	G3/8"	10	23	29	20	80	0.13
13 03 10	61	30	63	G1/2"	15	30	31	25	88	0.21
13 04 10	68	36	72	G3/4"	20	33	35	31	114	0.32
13 05 10	85	44	80	G1"	25	42	43	38	113	0.47
13 06 10	99	57	105	G1" 1/4	32	50	49	47	137	0.74
13 07 10	109	70	126	G1" 1/2	40	55	54	54	156	1.26
13 08 10	130	83	135	G2"	50	62	68	66	156	1.77
13 09 10	168	140	210	G3"	75	84	84	99	246	7.09

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

MANUAL 3-WAY VACUUM VALVES

3-WAY MANUAL VALVES

Item	A	B	C	D Ø	Mouth Ø	E	G	L	Weight Kg
13 01 15	77	37.5	87	G1/4"	10	17.5	22	109	0.16
13 02 15	81	39.5	94	G3/8"	10	19.5	22	109	0.19
13 03 15	81	39.5	94	G1/2"	15	19.5	29	109	0.30
13 04 15	76	39.0	81	G3/4"	20	19.0	32	130	0.49
13 05 15	90	45.0	91	G1"	25	24.0	41	130	0.85
13 06 15	118	56.0	134	G1" 1/4	32	32.0	50	170	1.76
13 07 15	114	62.0	138	G1" 1/2	40	39.0	55	150	2.45

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6}$ = $\dfrac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

SERVO-CONTROLLED 3-WAY VACUUM VALVES

These two-position, three-way valves feature pneumatically activated conical shutters.
They can be used normally either closed or open.
They are recommended in all the cases that require a quick exchange between the vacuum pump suction and the air inlet into the circuit for a quick restoration of the atmospheric pressure.
They are composed of an anodised aluminium body, two Vulkollan® shutters assembled onto a stainless steel stem, a membrane for servo-control made with special compounds and a thrust spring for the shutter return.
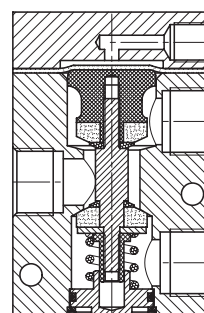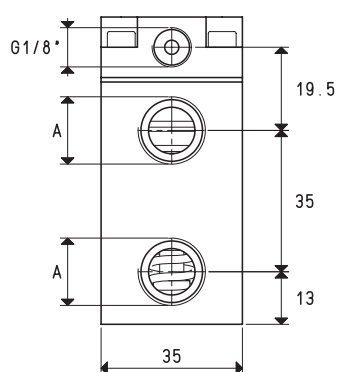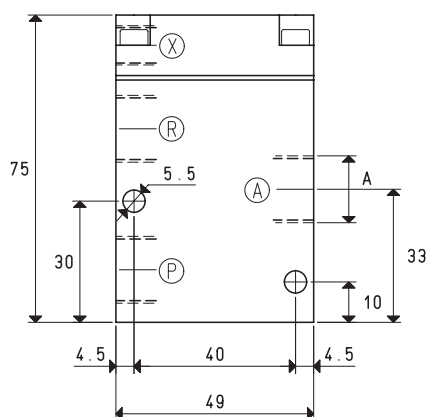These valves allow reducing frictions and internal dynamic stresses to the minimum. The result being a high response speed and a guarantee of long lasting duration.
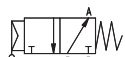
Technical features
Operating pressure: from 0.5 to 3000 absolute mbar
Servo-control pressure: see table
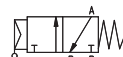Temperature of suctioned fluid: from -5 to +60°C

4

NC
X = Compressed air supply
P = Pump
A = Use
R = Discharge

NO
X = Compressed air supply
P = Discharge
A = Use
R = Pump

Item	A		Max flow rate	Level of vacuum		Reaction time		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø		m³/h	abs. mbar		msec		Ø	mm²	bar	Kg
				min	max	energ.	de-energ.				
07 01 31	G1/4"		6	1000	0.5	5	10	8.5	56.8	4 ÷ 7	0,32
07 02 31	G3/8"		10	1000	0.5	5	10	11.5	103.8	4 ÷ 7	0,31

Note: Valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

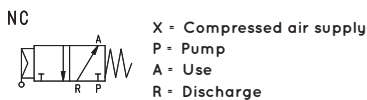Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6} = \dfrac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

SERVO-CONTROLLED 3-WAY VACUUM VALVES

4
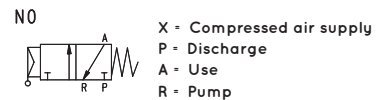
Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	min	max	energ.	de-en.	Ø	mm²	*bar	Kg
07 03 31	G1/2"	20	1000	0.5	6	15	15.0	176	6 ÷ 8	0.490

* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.
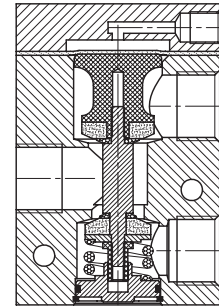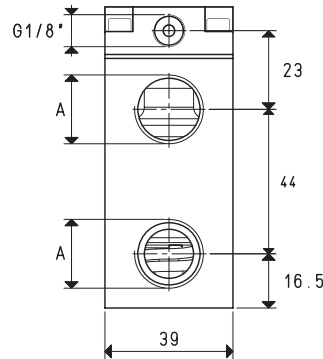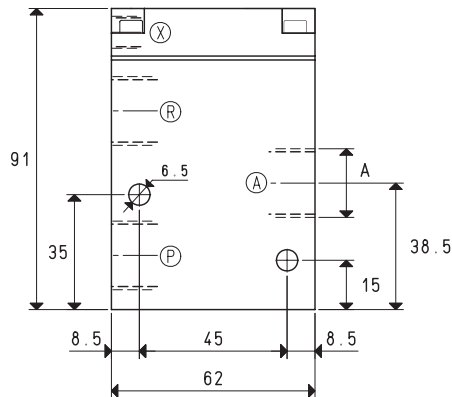
Note: Valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.
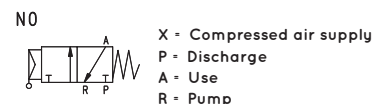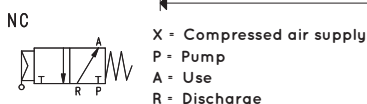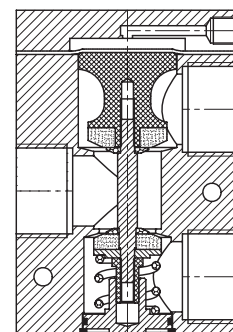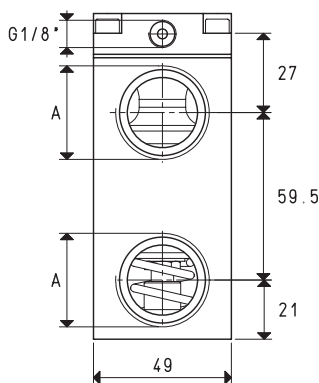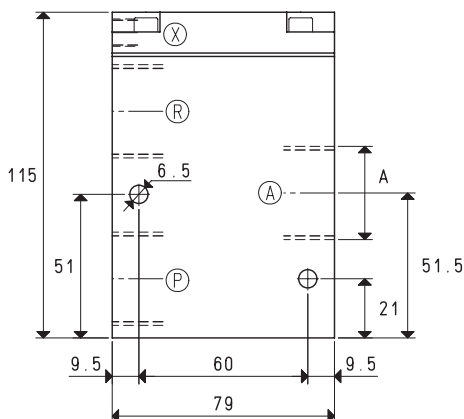
Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 04 31	G3/4"	40	1000	0.5	7	16	20	314	6 ÷ 8	1.060
07 05 31	G1"	90	1000	0.5	7	16	25	490	6 ÷ 8	0.964

* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.

Note: Valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

4

WWW.VUOTOTECNICA.NET
ELETTROVALVOLA
ART.07 06 31

N.C. P=Pompa A=Utilizzo R=Scarico
N.O. P=Scarico A=Utilizzo R=Pompa
X=Alimentazione aria compressa
pat. N.10/07

Made in Italy

NC

- X = Compressed air supply
- P = Pump
- A = Use
- R = Discharge

NO

- X = Compressed air supply
- P = Discharge
- A = Use
- R = Pump

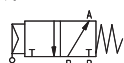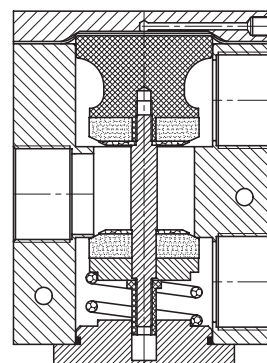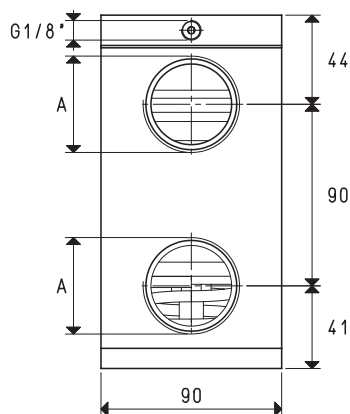| Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 06 31	G1″ 1/2	230	1000	0.5	65	30	40	1256	6 ÷ 8	4.456

* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.

Note: Valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6}$ = $\dfrac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES, FOR LARGE FLOW RATES

Strengthened by our constant desire for research and innovation and our experience, acquired over more than forty years of operations in the vacuum sector, we have made these new valves using absolutely innovative technologies, to guarantee exceptionally low intervention times, almost negligible pressure drops, and minimal dimensions compared to the large connections with which they are equipped. Furthermore, we have obtained them from aluminium block to eliminate even the slightest chance of loss due to transpiration, as perhaps could occur with a fusion.

This new series of solenoid valves for vacuums are three-way, two-position and are composed of:
- An anodised aluminium body set with attachment connections
- Two conical Vulkollan® shutters fitted on the aluminium pistons, pneumatically powered with spring return

The composition of these valves, especially the original Teflon® slide system that the pistons have been equipped with, help minimise friction and internal dynamic stress, deriving high response speed and ensuring enduring operation.
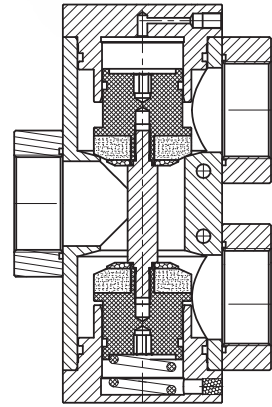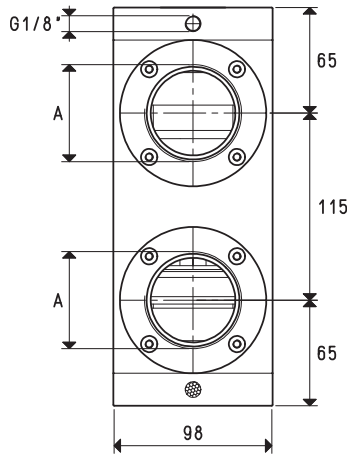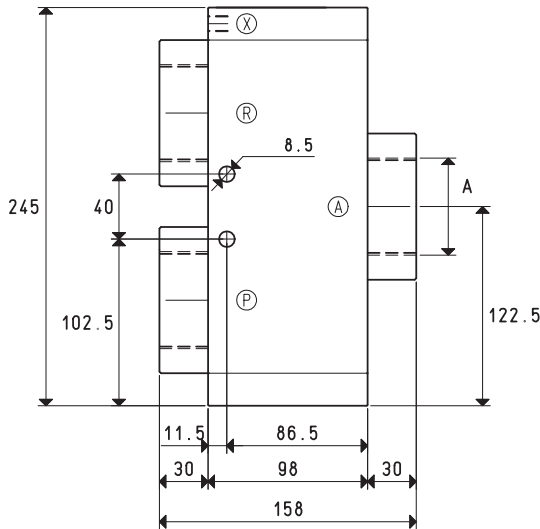
They can be used normally either closed or open.

The three-way valves are used for vacuum interception on power supply units and suction palletisers, vacuum thermoformers, vacuum packaging units, robots, feeders, bag opening units and in all those cases where rapid exchange between pump suction for vacuums and air supply into the circuit is necessary for quick restoration of atmospheric pressure.
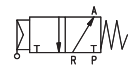
Technical features
Operating pressure: from 0.5 to 1000 absolute mbar
Servo-control pressure: from 4 to 8 bar
Temperature of suctioned fluid: from − 5 to + 60°C

4

NC X = Compressed air supply
P = Pump
A = Use
R = Discharge

NO X = Compressed air supply
P = Discharge
A = Use
R = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	bar	Kg
07 08 31	G2"	390	1000	0.5	110	70	52	2123	4 ÷ 8	5.5

Note: Valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6}$ = $\dfrac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

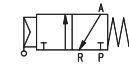3D drawings are available on **vuototecnica.net**

4

NC

X = Compressed air supply
P = Pump
A = Use
R = Discharge

NO

X = Compressed air supply
P = Discharge
A = Use
R = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	bar	Kg
07 09 31	G3"	750	1000	0.5	132	84	80	5024	4 ÷ 8	11.4

Note: Valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130
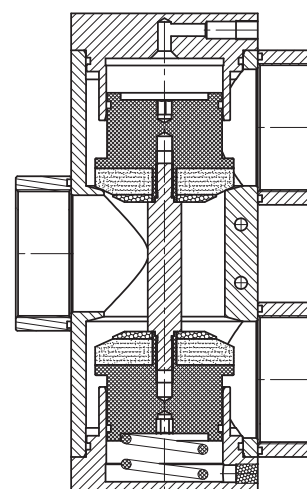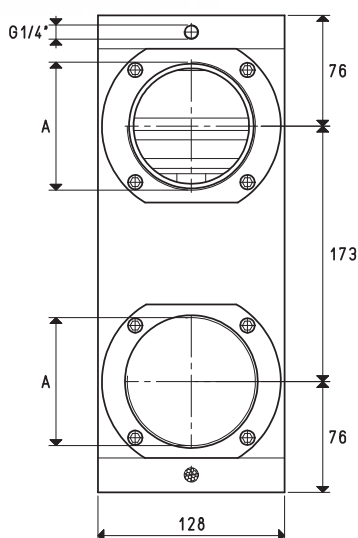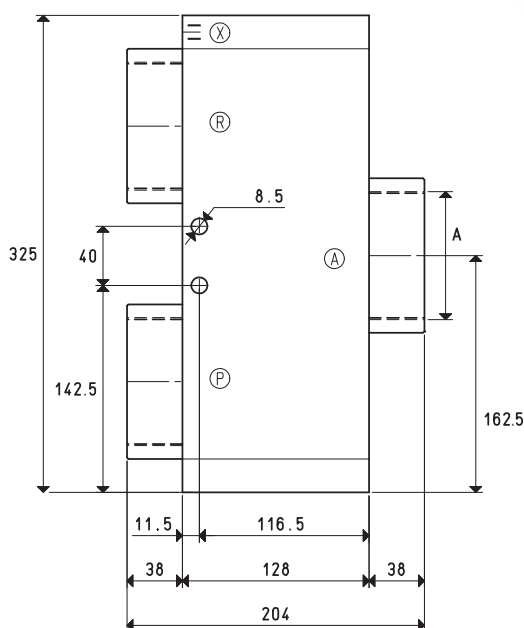
2-WAY AND 3-WAY VACUUM SOLENOID PILOT VALVES

These direct-drive valves have been specially designed for vacuum and are normally closed.

They are composed of an anodised aluminium body, where the connections and the passage mouths are located, and of an actuator which is activated by an electric coil. The solenoid pilot valve shutter in NBR nitrile rubber or Vulkollan® is an integral part of the actuator mobile core

Both the mouths of the two-way solenoid pilot valves have the same size, while those of the three-way ones have a

3mm outlet diameter, obtained through the tube.

The very low reaction time allows carrying out a very high number of cycles per minute.

The standard electric coil is fully plasticised with synthetic resin, tight execution, insulation class F (up to 155°C) compliant with VDE standards, with 6.3 mm three-terminal electrical connections in compliance with EN 175301-803 (ex DIN 43650). Protection degree IP 54; IP 65 with connector inserted.

Tolerance permitted on the nominal voltage value: ±10%.

Maximum absorption: 20 V.A. with AC and 18 W with DC.

The electric coil can be rotated 360°.

The connector can be rotated 180° on the coil and can be supplied, upon request, with LED lights, anti-interference circuit and/or with protection devices against overvoltage and polarity reversal.

Technical features

Operating pressure: from 1 to 1500 absolute mbar

Temperature of suctioned fluid: from -5 to +60°C

4
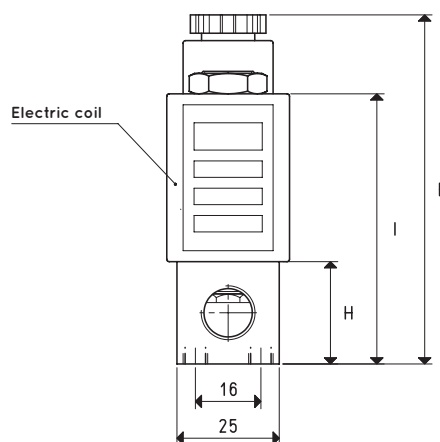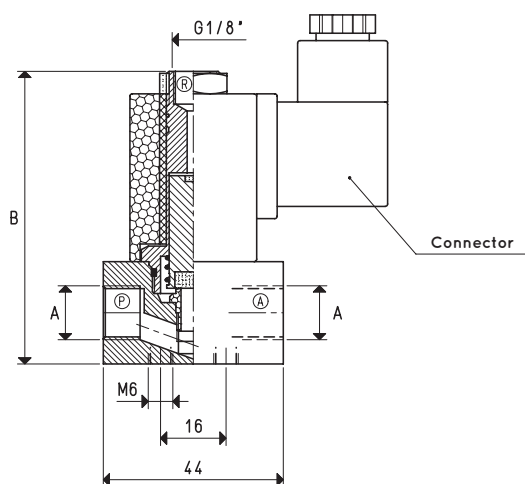
3/2 NC

P = Pump
A = Use
R = Discharge

3-WAY SOLENOID PILOT VALVES

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	B	E	H	I	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²					g
07 01 16	G1/4"	4	1000	0.5	15	8	6	28.3	73	86	25	67	248

Note: The coil and the connector are not integral parts of the solenoid pilot valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

3-WAY VACUUM SOLENOID PILOT VALVES

P

www.vuototecnica.net
ELETTROPILOTA
ART.07 03 16
P=Pompa A=Utilizzo R=Scarico
Job N.01/08 CE Made in Italy

A

G1/8"

Ⓡ

B

A

A

Ⓟ

Ⓐ

A

Connector

M6

25

65

Electric coil

E

I

H

25

35

3/2 NC

A		
T	T	
R	P	

P = Pump
A = Use
R = Discharge

3-WAY SOLENOID PILOT VALVES

Item	A		Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	B	E	H	I	Weight
	Ø		m³/h	min	max	energ.	de-energ.	Ø	mm²					g
07 02 16	G3/8"		8	1000	0.5	22	10	10	78.5	85	98	35	79	392
07 03 16	G1/2"		10	1000	0.5	28	10	12	113.0	85	98	35	79	377

Note: The coil and the connector are not integral parts of the solenoid pilot valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

2-WAY VACUUM SOLENOID PILOT VALVES

Connector

Electric coil

B

A   A   A

M6

16

44

E

I

H

16

25

2 / 2 NC

P = Pump
A = Use
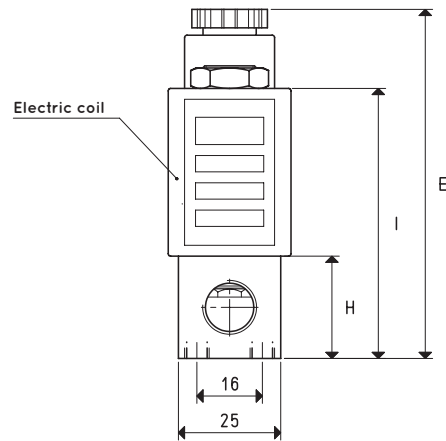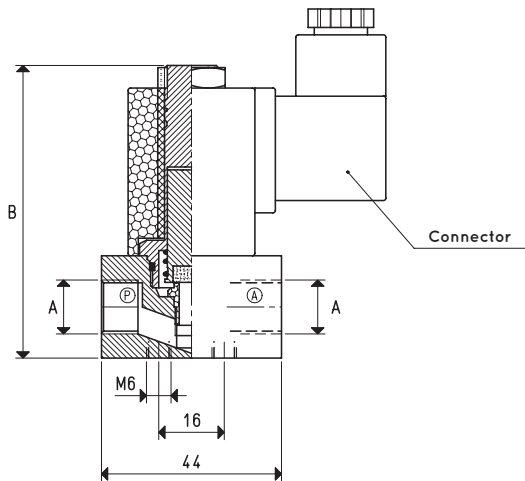
2-WAY SOLENOID PILOT VALVES

Item	A		Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	B	E	H	I	Weight
	Ø		m³/h	min	max	energ.	de-energ.	Ø	mm²					g
07 01 20	G1/4"		4	1000	0.5	15	8	6	28.3	73	86	25	67	244

Note: The coil and the connector are not integral parts of the solenoid pilot valve and, therefore, must be ordered separately (See accessories for solenoid valves).
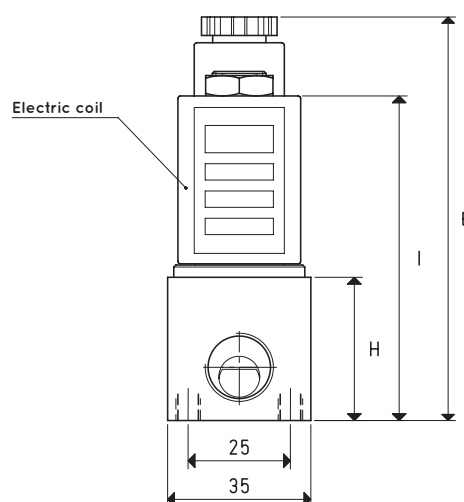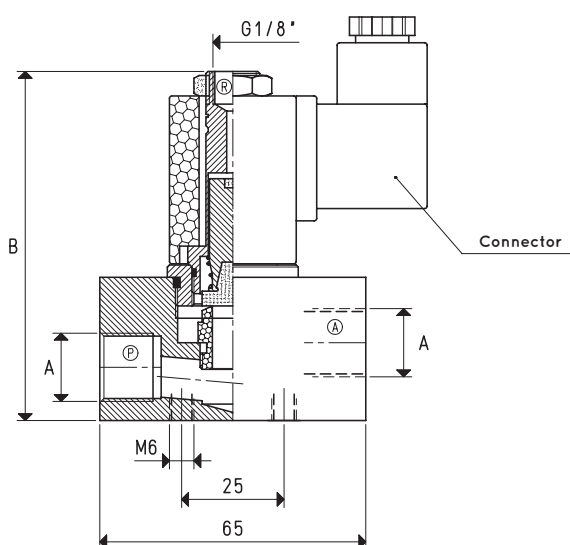
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6}$ = $\dfrac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130
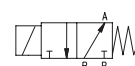
2-WAY VACUUM SOLENOID PILOT VALVES

Electric coil

Connector

B

A

A

M6

25

65

E

I

H

25

35
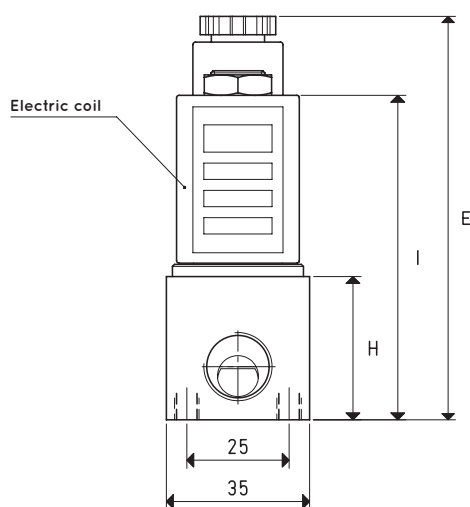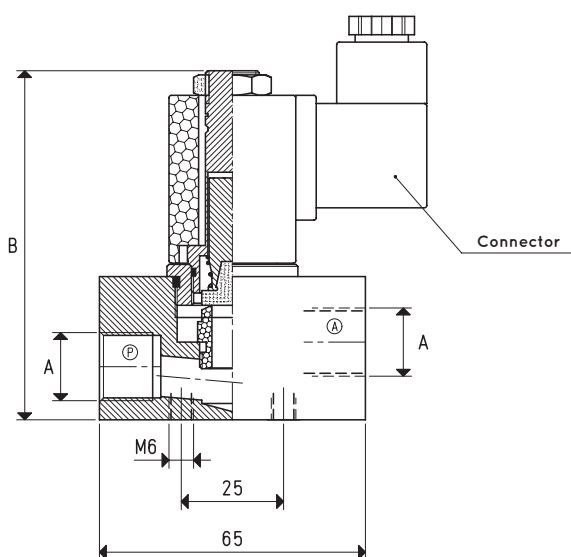
2 / 2 NC
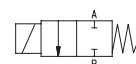
P = Pump
A = Use

2-WAY SOLENOID PILOT VALVES

Item	A	Max flow rate	Level of vacuum		Reaction time		Mouth	Cross-section of passage	B	E	H	I	Weight
			abs. mbar		msec								
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²					g
07 02 20	G3/8"	8	1000	0.5	22	10	10	78.5	85	98	35	79	384
07 03 20	G1/2"	10	1000	0.5	28	10	12	113.0	85	98	35	79	372

Note: The coil and the connector are not integral parts of the solenoid pilot valve and, therefore, must be ordered separately (See accessories for solenoid valves).
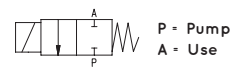
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6}$ = $\dfrac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

DIRECT DRIVE 2-WAY VACUUM SOLENOID VALVES

These state of the art solenoid valves feature minimal overall dimensions and high volumetric efficiency and high response speed at any level of vacuum. They are the result of an attentive choice of materials, state of the art constructive techniques and of the in-depth knowledge of our technicians. This series of solenoid valves is patented.

The DDN solenoid valves are direct drive, two-way, two-position valves with direct drive, double shutter and they are normally closed.

They are composed of hot pressed brass body where the connections are located, an internal mechanism with double shutter and of an actuator activated by an electric coil.

The standard electric coil is fully plasticised with synthetic resin, tight execution, insulation class F (up to 155°C) compliant with VDE standards, with 6.3 mm three-terminal electrical connections in compliance with EN 175301-803 (ex DIN 43650). Protection degree IP 54; IP 65 with connector inserted. Tolerance permitted on the nominal voltage value: ±10%.

Maximum absorption: 20 V.A. with AC and 18 W with DC. (except for DDN 25 which cannot be activated with DC).

The electric coil can be rotated 360°. The connector can be rotated 180° on the coil and can be supplied, upon request, with LED lights, anti-interference circuit and/or with protection devices against overvoltage and polarity reversal.

For correct operation, we recommend installing the solenoid valve upside-down.

DDN solenoid valves are particularly indicated for degassers, autoclaves, vacuum thermo-welders and in all applications where suction has to be controlled separately from the air inlet into circuit.

Technical features
Operating pressure: from 0.5 to 1500 absolute mbar
Temperature of suctioned fluid: from -5 to +60°C

4

Connector

Electric coil

2/2 NC

P = Pump
A = Use
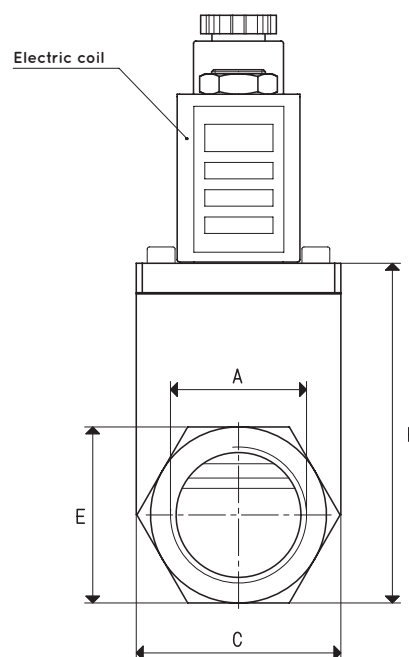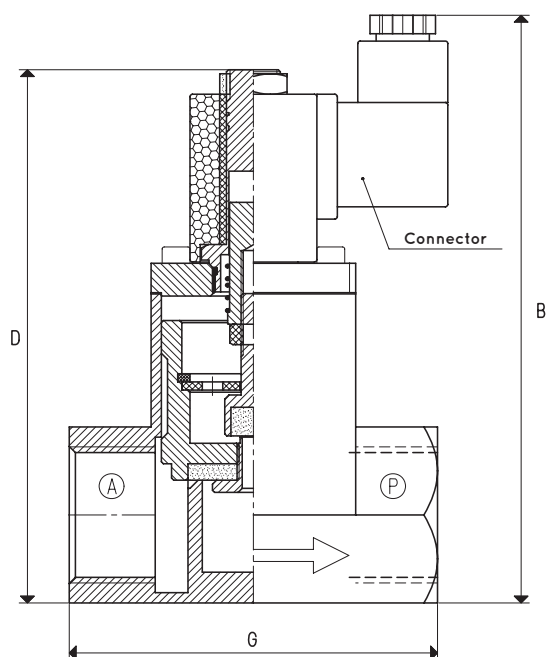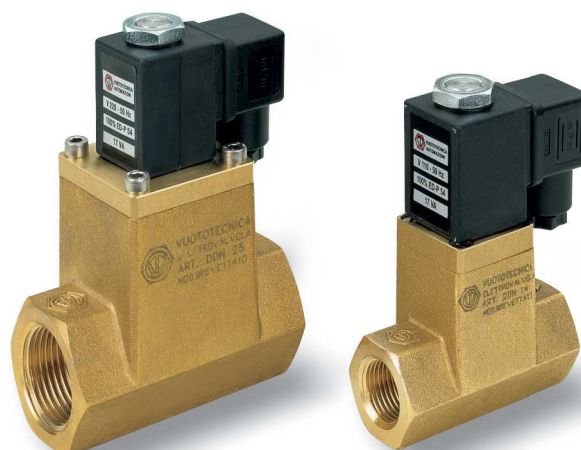
Item	A		Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	B	C	D	E	F	G	Weight
	Ø		m³/h	min	max	energ.	de-energ.	Ø	mm²							Kg
DDN 14	G1/2"		20	1000	0.5	30	15	14	154	127	35	110	30	63	75	0.83
DDN 25	G1"		90	1000	0.5	55	33	25	490	142	50	128	43	82	90	1.56

Note: The coil and the connector are not integral parts of the solenoid pilot valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES

The three-way vacuum solenoid valves in this series are two-position valves with pneumatically servo-controlled conical shutters.
They can be used normally either closed or open.
They are composed of an anodised aluminium body, two Vulkollan® shutters assembled onto a stainless steel stem, a membrane for servo-control made with special compounds and a thrust spring for the shutter return; an actuator activated by an electric coil managed the compressed air supply.
These valves allow reducing frictions and internal dynamic stresses to the minimum.
The result being a high response speed and a guarantee of long lasting duration.
The standard electric coil is fully plasticised with synthetic resin, tight execution, insulation class F (up to 155°C) compliant with VDE standards, with 6.3 mm three-terminal electrical connections in compliance with EN 175301-803 (ex DIN 43650).
Protection degree IP 54; IP 65 with connector inserted.
Tolerance permitted on the nominal voltage value: ±10%.
Maximum absorption: 20 V.A. with AC and 18 W with DC.
The electric coil can be rotated 360°. The connector can be rotated 180° on the coil and can be supplied, upon request, with LED lights, anti-interference circuit and/or with protection devices against overvoltage and polarity reversal.
The three-way vacuum solenoid valves are used for vacuum interception on power supply units and suction palletisers, robots, feeders, bag opening units and in all those cases where rapid exchange between pump suction for vacuums and air supply into the circuit is necessary for quick restoration of atmospheric pressure.
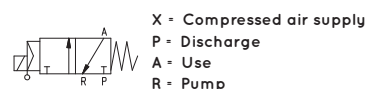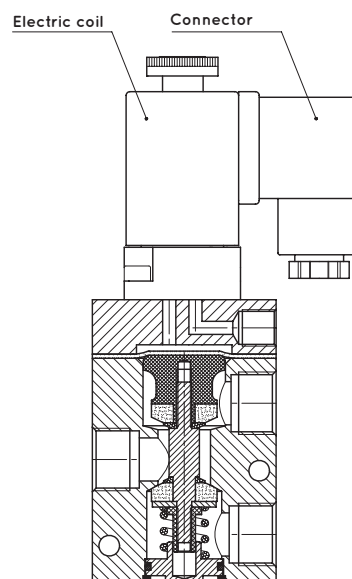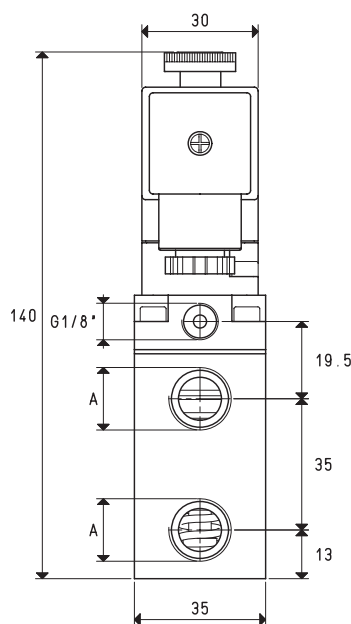They can be supplied upon request with an SM device for manually opening and closing the solenoid valves already installed.

Technical features
Operating pressure: from 0.5 to 3000 absolute mbar
Servo-control pressure: see table
Temperature of suctioned fluid: from -5 to +60°C

X = Compressed air supply
P = Pump
A = Use
R = Discharge

X = Compressed air supply
P = Discharge
A = Use
R = Pump
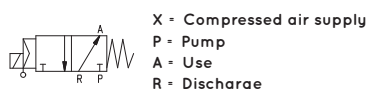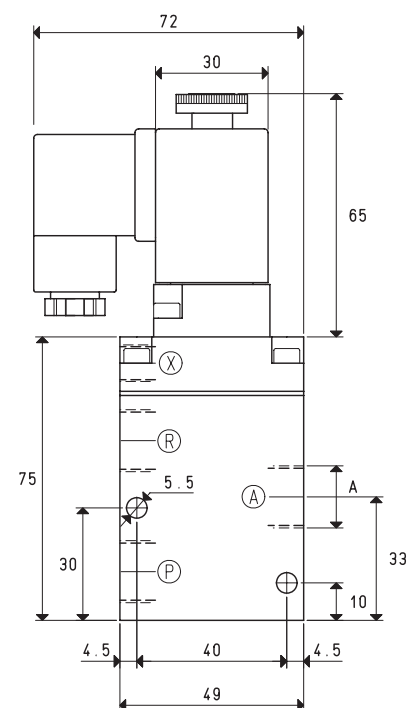
Item	A	Max flow rate	Level of vacuum		Reaction time		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	abs. mbar		msec		Ø	mm²	*bar	Kg
			min	max	energ.	de-energ.				
07 01 11	G1/4"	6	1000	0.5	16	27	8.5	56.8	4 ÷ 7	0.56
07 02 11	G3/8"	10	1000	0.5	16	27	11.5	103.8	4 ÷ 7	0.54

Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES

77
30
65
91
35
15
8.5
45
8.5
62
6.5
38.5
X
R
A
P

NC

X = Compressed air supply
P = Pump
A = Use
R = Discharge

30
156
G1/8"
23
44
16.5
39
A
A

Electric coil   Connector

NO

X = Compressed air supply
P = Discharge
A = Use
R = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 03 11	G1/2"	20	1000	0.5	16	40	15.0	176	6 ÷ 8	0.73

* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.
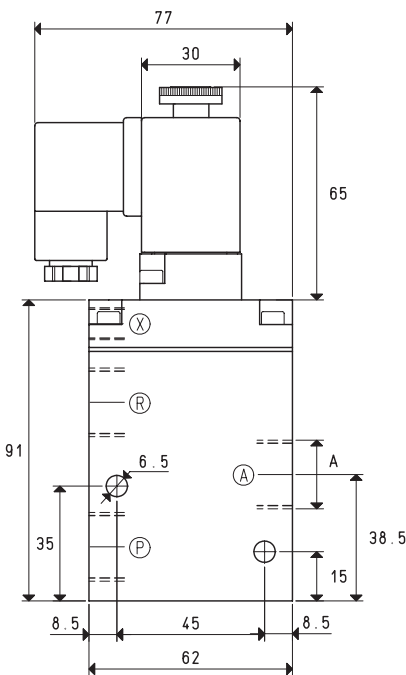
Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.
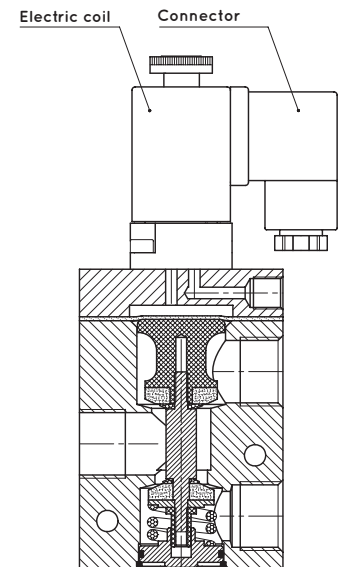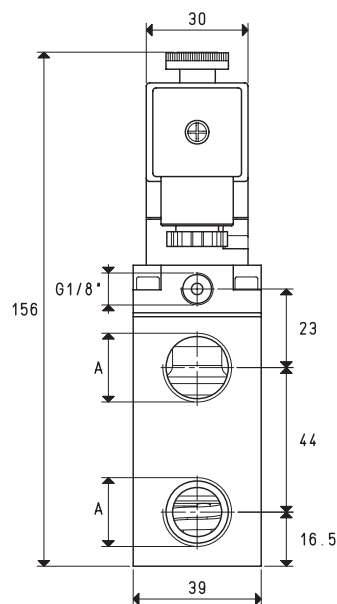
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

4

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES

4

Electric coil   Connector

NC

X = Compressed air supply
P = Pump
A = Use
R = Discharge

NO

X = Compressed air supply
P = Discharge
A = Use
R = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 04 11	G3/4"	40	1000	0.5	16	40	20	314	6 ÷ 8	1.25
07 05 11	G1"	90	1000	0.5	18	42	25	490	6 ÷ 8	1.16

* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.
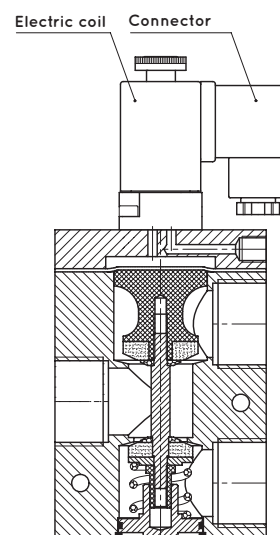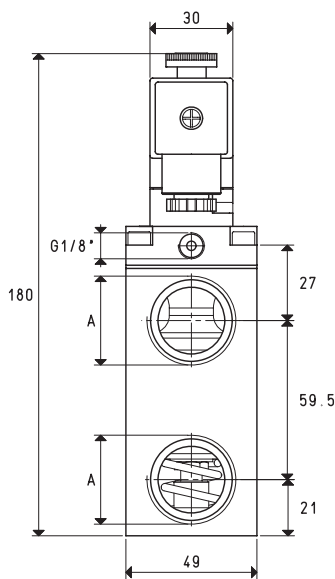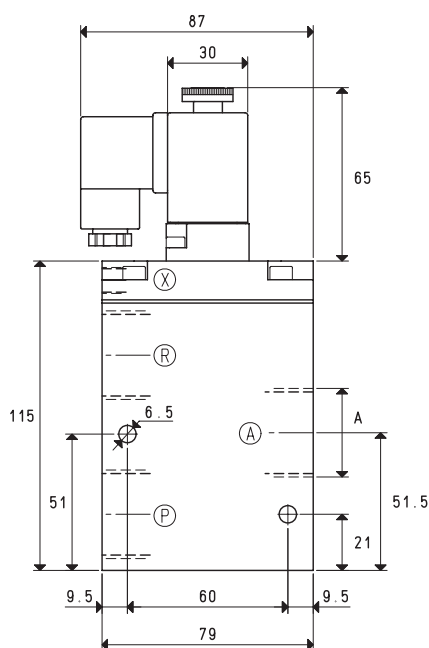
Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES

4

Connector

Electric coil

85

32

260

G1/8"

44

90

41

A

A

90

(X)

(R)

175

8.5

(A)

(P)

83

A

83

34

15

100

15

130

NC

X = Compressed air supply
P = Pump
A = Use
R = Discharge

NO

X = Compressed air supply
P = Discharge
A = Use
R = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 06 11	G1" 1/2	230	1000	0.5	60	38	40	1256	6 ÷ 8	4.79

* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.

Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.
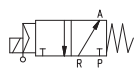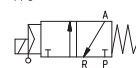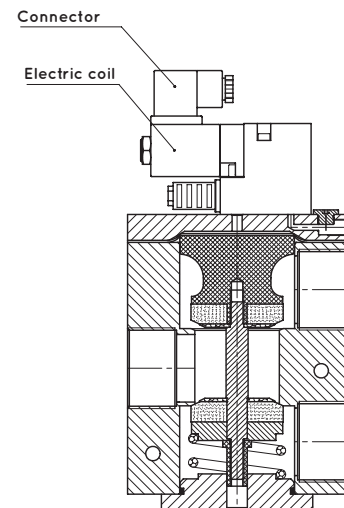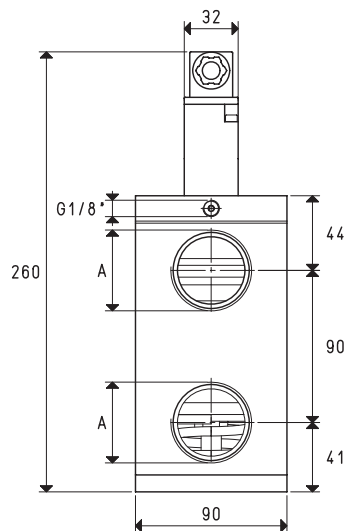
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6}$ = $\dfrac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

3-WAY VACUUM SOLENOID VALVES, PILOT-OPERATED FOR LARGE CAPACITIES

Strengthened by our constant desire for research and innovation and our experience, acquired over more than forty years of operations in the vacuum sector, we have made these new solenoid valves using absolutely innovative technologies, to guarantee exceptionally low intervention times, almost negligible pressure drops, and minimal dimensions compared to the large connections with which they are equipped. Furthermore, we have obtained them from aluminium block to eliminate even the slightest chance of loss due to transpiration, as perhaps could occur with a fusion.

This new series of solenoid valves for vacuums are three-way, two-position and are composed of:
- An anodised aluminium body set with attachment connections
- Two conical Vulkollan® shutters fitted on the aluminium pistons, pneumatically powered with spring return
- An actuator, powered by an electrical coil to manage compressed air supply

The composition of these valves, especially the original Teflon® slide system that the pistons have been equipped with, help minimise friction and internal dynamic stress, deriving high response speed and ensuring enduring operation.

They can be used normally either closed or open.

The standard electric coil of the actuator is fully plastic-coated in synthetic resin, watertight, insulation class F (up to 155°C) as per standard VDE, with 6.3 mm three-terminal electrical connections for connectors in compliance with EN 175301-803.

Degree of protection IP 54;

IP 65 with connector inserted.

Tolerance permitted on the nominal voltage value: ± 10%.

Maximum absorption: 20 VA in AC and 18 W in DC.

The electric coil can be rotated 360°. The connector can be rotated 180° on the coil and can be supplied, upon request, with LED lights, anti-interference circuit and/or with protection devices against overvoltage and polarity reversal.

The three-way solenoid valves are used for vacuum interception on power supply units and suction palletisers, vacuum thermoformers, vacuum packaging units, robots, feeders, bag opening units and in all those cases where rapid exchange between pump suction for vacuums and air supply into the circuit is necessary for quick restoration of atmospheric pressure.

Technical features

Operating pressure: from 0.5 to 1000 absolute mbar

Servo-control pressure: from 4 to 8 bar

Temperature of suctioned fluid: from − 5 to + 60°C

NC

X = Compressed air supply
P = Pump
A = Use
R = Discharge

NO

X = Compressed air supply
P = Discharge
A = Use
R = Pump

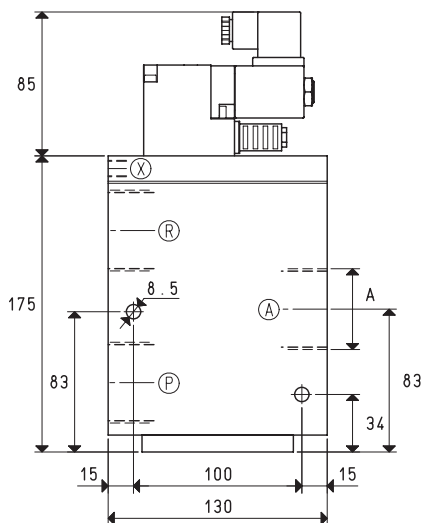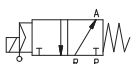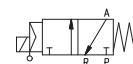| Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	bar	Kg
07 08 11	G2"	390	1000	0.5	78	50	52	2123	4 ÷ 8	5.87

Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6}$ = $\dfrac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

3-WAY VACUUM SOLENOID VALVES, PILOT-OPERATED FOR LARGE CAPACITIES

4

NC

X = Compressed air supply
P = Pump
A = Use
R = Discharge

NO

X = Compressed air supply
P = Discharge
A = Use
R = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 09 11	G3"	750	1000	0.5	132	84	80	5024	4 ÷ 8	11.8

Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH TWO ELECTRIC COILS

These solenoid valves have the same function and the same structure as the previously described three-way valves.

Even their structure is the same, but their distinctive features are the two coils that with a simple electric impulse exchange the shutter positions and keep them in this position till the next impulse even in absence of compressed air at the servo control and of electric current.

This is the reason why their use is especially recommended in all those cases requiring maximum connection security at the vacuum source, even in the absence of electrical and pneumatic power supply.

The standard electric coils are fully plastic-coated in synthetic resin, watertight, insulation class F (up to 155°C) as per standard VDE, with 6.3 mm three-terminal electrical connections for connectors in compliance with EN 175301-803 (ex DIN 43650). Protection degree IP 54; IP 65 with connector inserted.

Tolerance permitted on the nominal voltage value: ±10%.

Maximum absorption: 8 - 20 V.A. with AC and 6.5 - 18 W with DC.

The electric coils can be rotated 180°. The connectors can be rotated 180° on the coils and can be supplied, upon request, with LED lights, anti-interference circuit and/or with protection devices against overvoltage and polarity reversal.

Technical features

Operating pressure: from 0.5 to 3000 absolute mbar

Servo-control pressure: see table

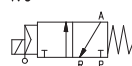Temperature of suctioned fluid: from -5 to +60°C

NC
X = Compressed air supply
P = Pump
A = Use
R = Discharge

NO
X = Compressed air supply
P = Discharge
A = Use
R = Pump

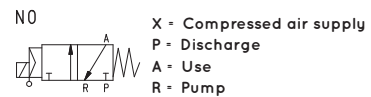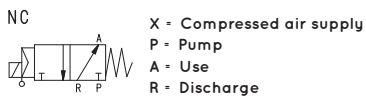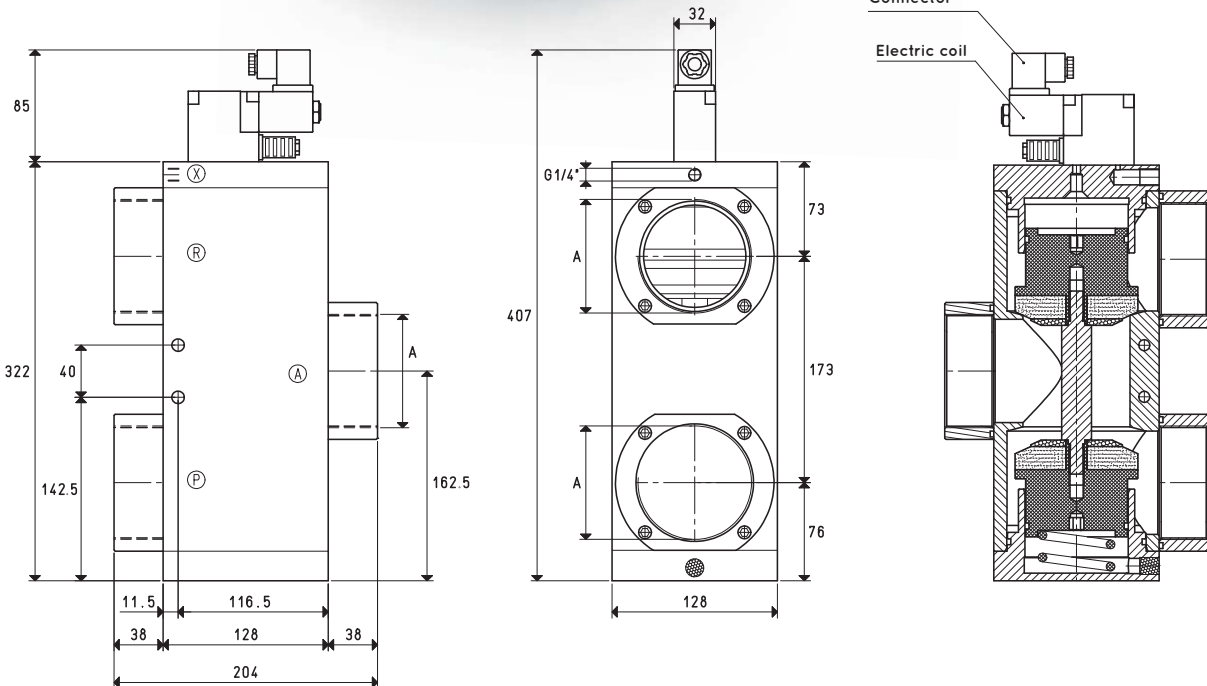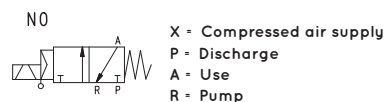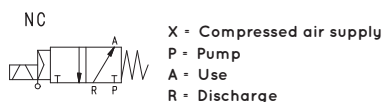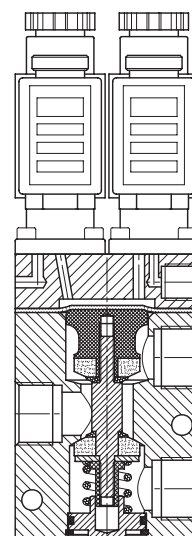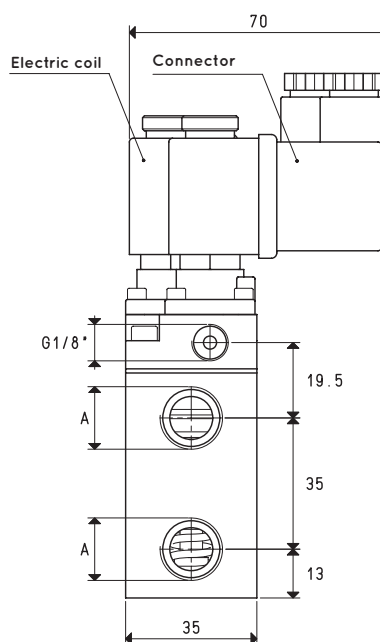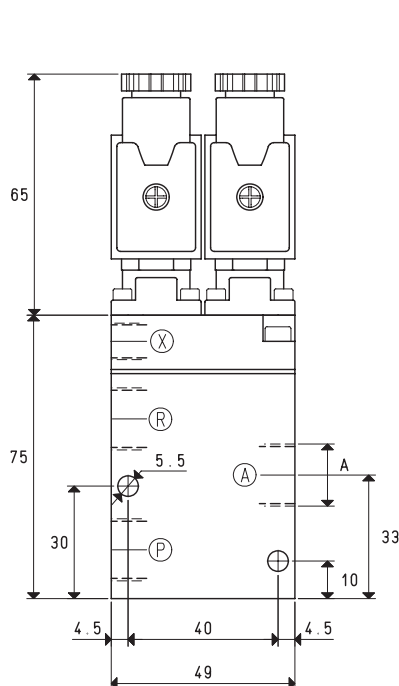| Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	bar	Kg
07 01 51	G1/4"	6	1000	0.5	16	27	8.5	56.8	4 ÷ 7	0.59
07 02 51	G3/8"	10	1000	0.5	16	27	11.5	103.8	4 ÷ 7	0.58

Note: The coils and the connectors are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6}$ = $\dfrac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH TWO ELECTRIC COILS

4

Electric coil

Connector

72

G1/8"

23

44

16.5

39

67

91

35

8.5

45

8.5

62

6.5

15

38.5

A

X

R

A

P

NC

X = Compressed air supply
P = Pump
A = Use
R = Discharge

NO

X = Compressed air supply
P = Discharge
A = Use
R = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 03 51	G1/2"	20	1000	0.5	16	40	15.0	176	6 ÷ 8	0.97

* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.

Note: The coils and the connectors are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH TWO ELECTRIC COILS

Electric coil   Connector

72

G1/8"

27

59.5

21

49

NC

X = Compressed air supply
P = Pump
A = Use
R = Discharge

NO

X = Compressed air supply
P = Discharge
A = Use
R = Pump

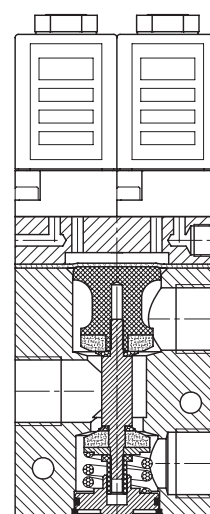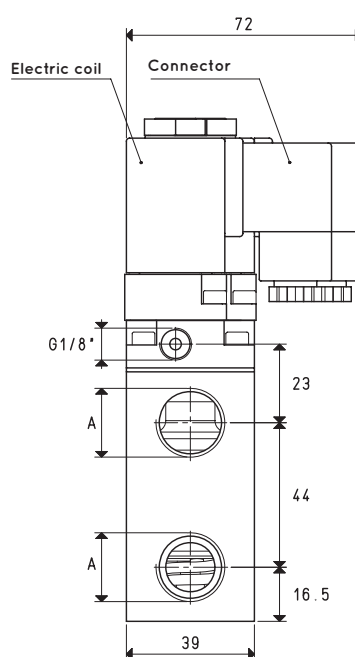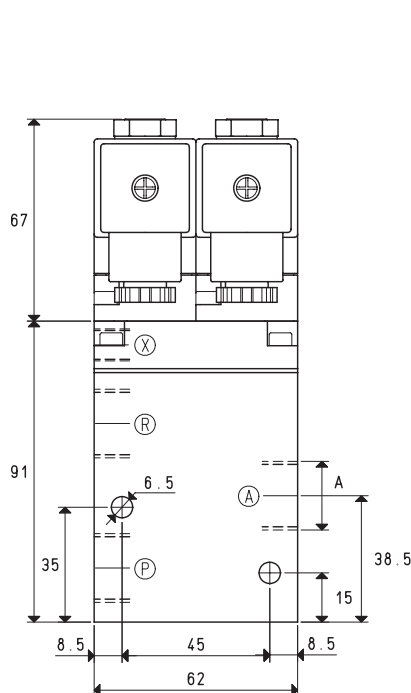| Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 04 51	G3/4"	40	1000	0.5	16	40	20	314	6 ÷ 8	1.51
07 05 51	G1"	90	1000	0.5	18	42	25	490	6 ÷ 8	1.41

* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.

Note: The coils and the connectors are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH TWO ELECTRIC COILS

Electric coil

Connector

G 1/8"

NC

X = Compressed air supply
P = Pump
A = Use
R = Discharge

NO

X = Compressed air supply
P = Discharge
A = Use
R = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 06 51	G1" 1/2	230	1000	0.5	60	38	40	1256	6 ÷ 8	5.24

* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.

Note: The coils and the connectors are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

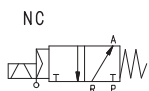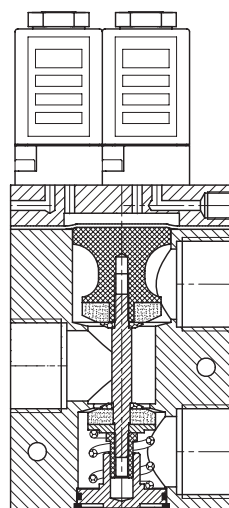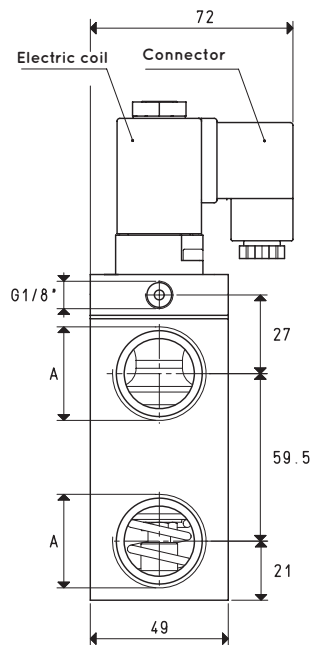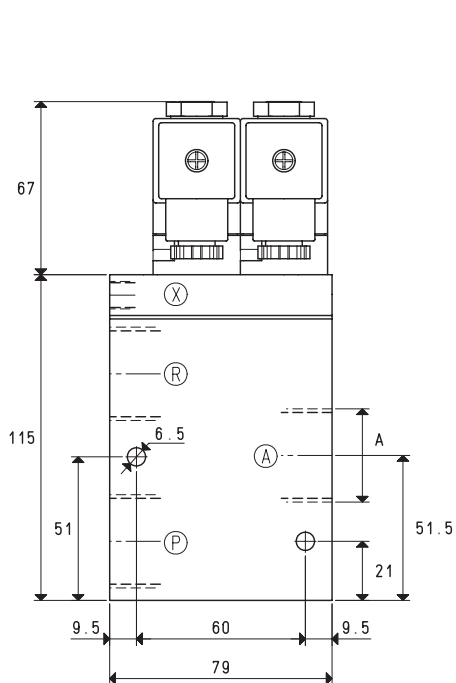Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130
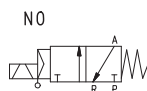
4

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH TWO ELECTRIC COILS, FOR LARGE CAPACITIES

The innovative construction technology of these solenoid valves and their conformation are the same as those previously described. What differentiates them are the two simple electrical impulse coils that exchange the shutter positions and keep them in position until the next impulse even in absence of compressed air at the servo control and of electric current.   This is the reason why their use is especially recommended in all those cases requiring maximum connection security at the vacuum source, even in the absence of electrical and pneumatic power supply.

The standard electric coils of the actuator are fully plastic-coated in synthetic resin, watertight, insulation class F (up to 155°C) as per standard VDE, with 6.3 mm three-terminal electrical connections for connectors in compliance with EN 175301-803. Degree of protection IP 54;

IP 65 with connector inserted.

Tolerance permitted on the nominal voltage value: ±10%.

Maximum absorption: 20 VA in AC and 18 W in DC.

The electric coils can be rotated 180°, as well as the connectors, which can be supplied upon request with LED lights, with an anti-interference circuit and/or with protection devices against overvoltage and polarity reversal.

Technical features

Operating pressure: from 0.5 to 1000 absolute mbar

Servo-control pressure: from 4 to 8 bar

Temperature of suctioned fluid: from − 5 to + 60°C

NC
- X = Compressed air supply
- P = Pump
- A = Use
- R = Discharge

NO
- X = Compressed air supply
- P = Discharge
- A = Use
- R = Pump
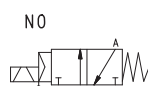
Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	bar	Kg
07 08 51	G2"	390	1000	0.5	78	50	52	2123	4 ÷ 8	6.0

Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).
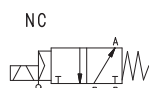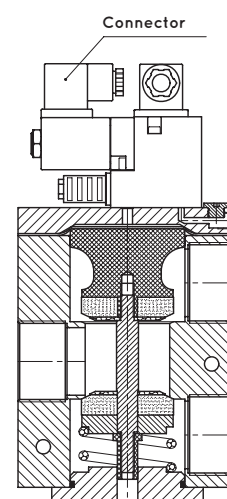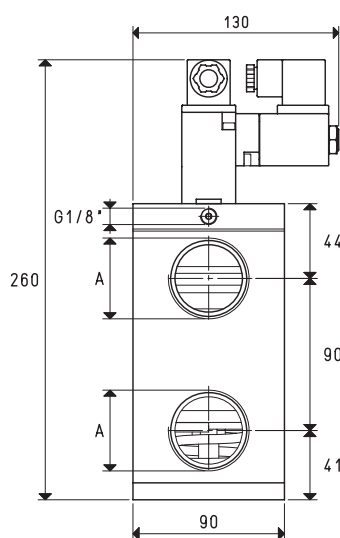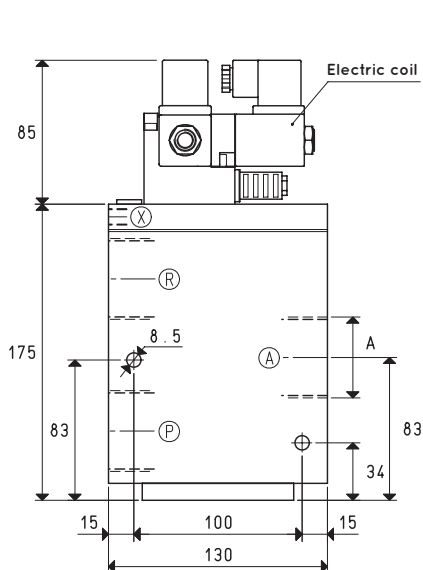
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

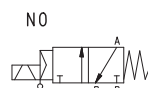Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH TWO ELECTRIC COILS, FOR LARGE CAPACITIES

4

Electric coil

149

Connector

85

G1/4"

73

407

A

173

322   40

A

A

142.5

162.5

76

11.5   116.5

38   128   38

128

204

NC		X = Compressed air supply
		P = Pump
		A = Use
		R = Discharge

NO		X = Compressed air supply
		P = Discharge
		A = Use
		R = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	bar	Kg
07 09 51	G3"	750	1000	0.5	132	84	80	5024	4 ÷ 8	11.8

Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

DIRECT DRIVE 3-WAY VACUUM SOLENOID VALVES

These direct drive three-way, two-position vacuum solenoid valves feature conical shutters servo-controlled by the vacuum.

They are normally closed as standard, but they can be supplied normally open upon request. They are composed of an anodised aluminium body where the connections are located, two silicon shutters assembled onto a stainless steel stem and a membrane in special reinforced compound. An actuator activated by an electric coil manages the vacuum at the servo-control. The operating principle of these solenoid valves is based on the pressure differential between the vacuum pump or generator and the pressure of the suctioned air.

By addressing this "differential pressure" to the servo-control via the actuator, the shutters can be controlled without compressed air or springs.

Due to their operating principle, they are not recommended on plants with rough vacuum levels (below 850 absolute mbar, equal to 15 % vacuum).

The lack of springs, frictions and internal dynamic stresses favours a high response speed and guarantees long lasting operation.

The standard electric coil is fully plasticised with synthetic resin, tight execution, insulation class F (up to 155°C) compliant with VDE standards, with 6.3 mm three-terminal electrical connections in compliance with EN 175301-803 (ex DIN 43650). Protection degree IP 54; IP 65 with connector inserted.

Tolerance permitted on the nominal voltage value: ±10%.
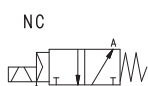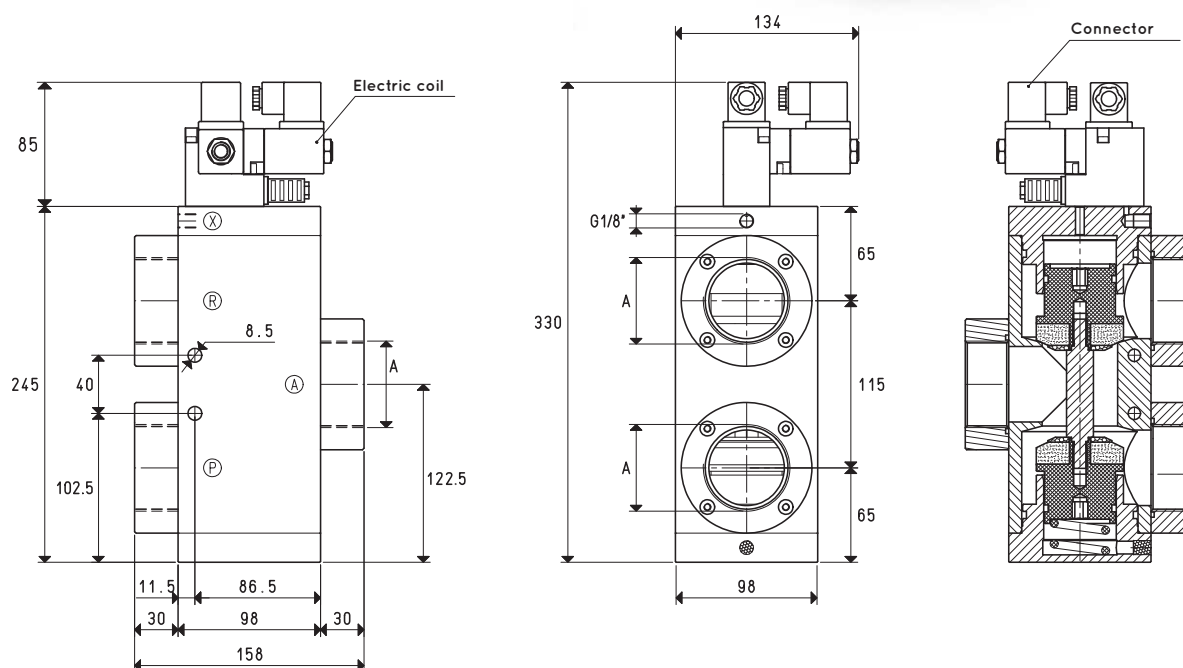
Maximum absorption: 20 V.A. with AC and 18 W with DC.

The electric coil can be rotated 360°. The connector can be rotated 180° on the coil and can be supplied, upon request, with LED lights, anti-interference circuit and/or with protection devices against overvoltage and polarity reversal.

The solenoid valves in this series, along with the uses described for the 07 .. 11 series, can be used on plants with no compressed air.

They can be supplied upon request with an SM device for manually opening and closing the solenoid valves already installed.

The solenoid valve must be always chosen according to the flow rate and, therefore, to the vacuum pump or generator suction connection.

Technical features

Operating pressure: from 0.5 to 850 absolute mbar

Temperature of suctioned fluid: from -5 to +60°C

4

NC
R = Pump
A = Use
P = Discharge

NO
R = Discharge
A = Use
P = Pump
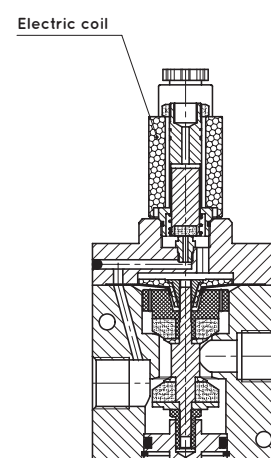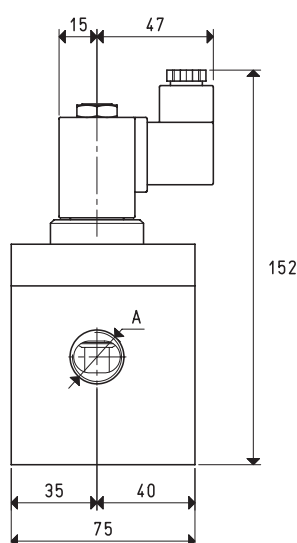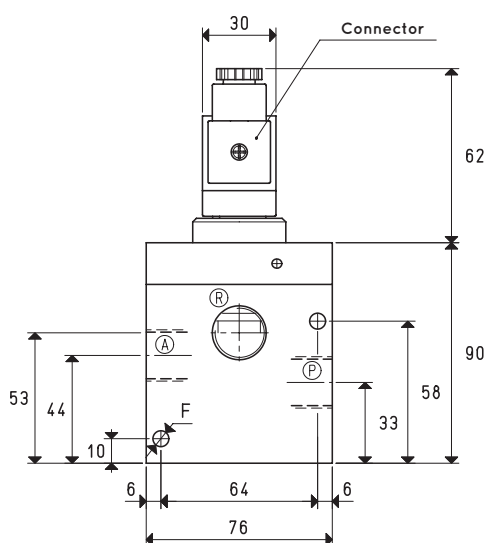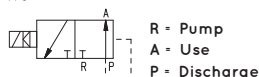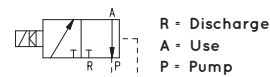
Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	F	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	Ø	Kg
07 03 40 NC	G1/2"	20	850	0.5	30	15	15	176	6.5	1.53
07 03 40 NO					20	18				
07 04 40 NC	G3/4"	40	850	0.5	30	15	20	314	6.5	1.50
07 04 40 NO					20	18				

Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

DIRECT DRIVE 3-WAY VACUUM SOLENOID VALVES

NC

R = Pump
A = Use
P = Discharge

NO

R = Discharge
A = Use
P = Pump
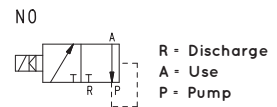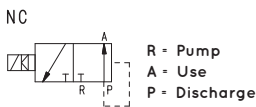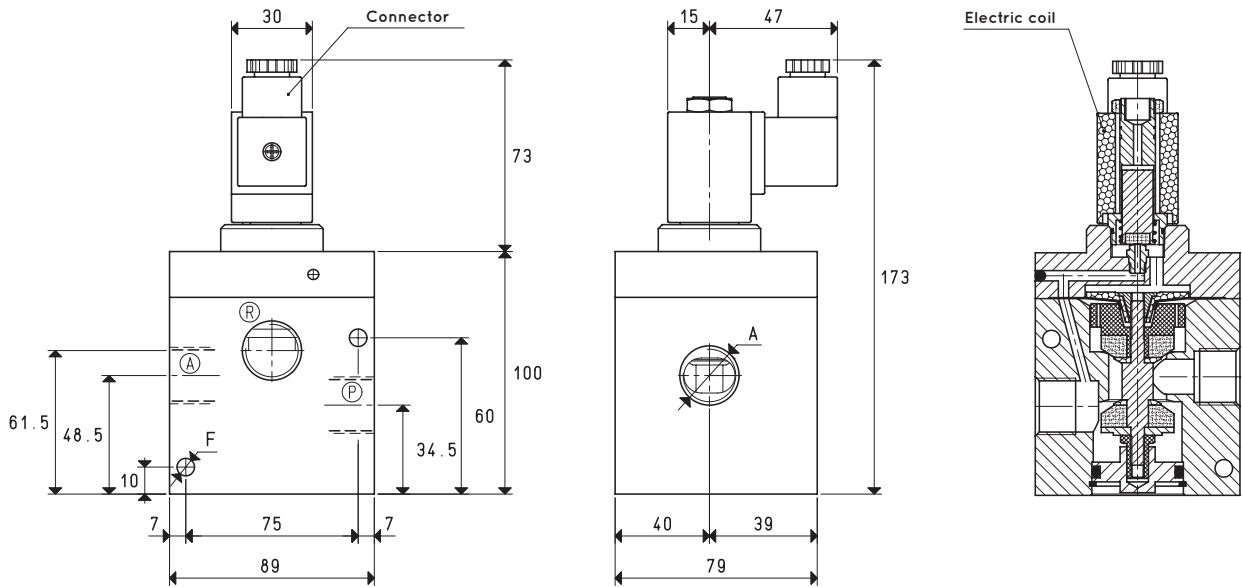
Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	F	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	Ø	Kg
07 05 40 NC	G1″	90	850	0.5	38	18	25	490	6.5	1.91
07 05 40 NO					25	20				

Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6}$ = $\dfrac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

DIRECT DRIVE 3-WAY VACUUM SOLENOID VALVES

Connector

Electric coil

65

169

112

82

17

28 10 10 28

94

170

48

17

234

57 57 28

142

53

F

R

A

P

NC

R = Pump
A = Use
P = Discharge

NO

R = Discharge
A = Use
P = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	F	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	Ø	Kg
07 06 40 NC	G1" 1/2	230	850	0.5	75	50	40	1256	10.5	5.90
07 06 40 NO					70	60				

Note: The coil and the connector are not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

SOLENOID VALVE ACCESSORIES AND SPARE PARTS

Electric coils

Electric coils are windings of copper wire on nylon coils fully plasticised in synthetic resin which activate the electromagnetic actuators with which the solenoid valves are provided. Crossed by an electric current, these coils generate a magnetic field which activates the mobile core inside the actuators; the mobile core features a built-in or fixed shutter which cause the valve commutation by opening and closing their mouths.

The standard electric coils are fully plasticised with synthetic resin, tight execution, insulation class F (up to 155°C) compliant with VDE standards, with 6.3 mm 3-terminal electrical connections in compliance with EN 175301-803 (ex DIN 43650).
Protection degree: IP 54; IP 65 with connector inserted.
Tolerance permitted on the nominal voltage value: ±10%.
Tolerance permitted on the frequency value: ±5%
Room temperature: from -10 to +45°C
Fluid temperature: from -10 to +95°C
Electric absorption: 8 - 20 V.A. with AC and 6.5 - 18 W with DC.
The electric coils can be rotated 360°.
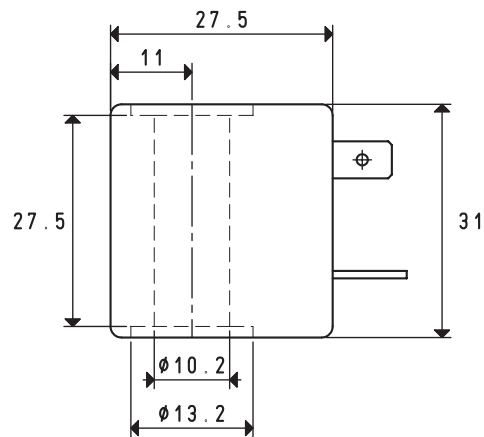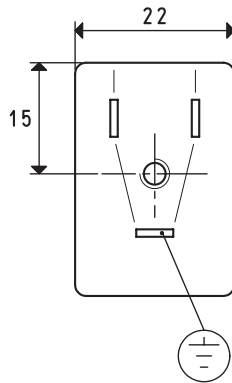
DIRECT AND ALTERNATING CURRENT COILS

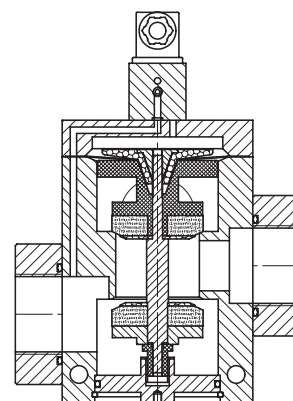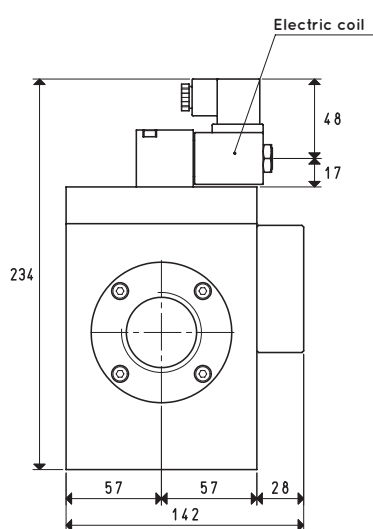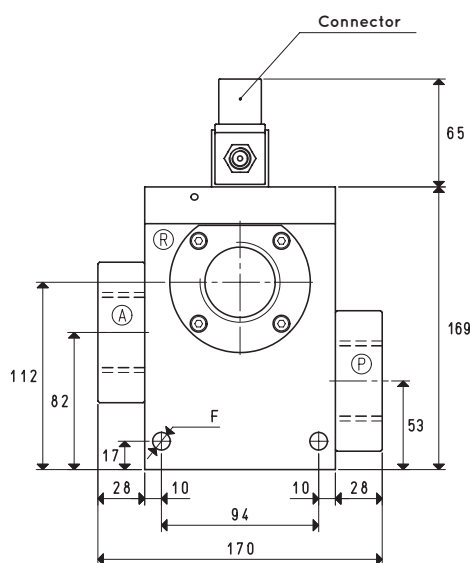| Item	Service ED	Absorption	Rated voltage	Weight g	For solenoid valves item
00 07 172	100%	6,5 W	V24 DC	54	07 01 51 - 07 02 51
00 07 173	100%	8 V.A.	V24 / 50 - 60Hz	54	07 01 51 - 07 02 51

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6}$ = $\dfrac{Kg}{0.4536}$

4
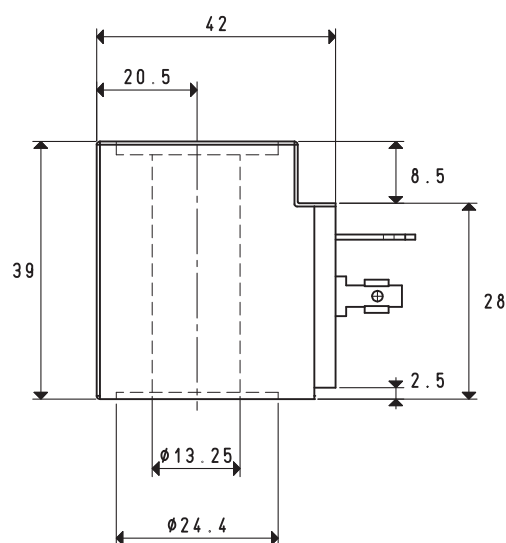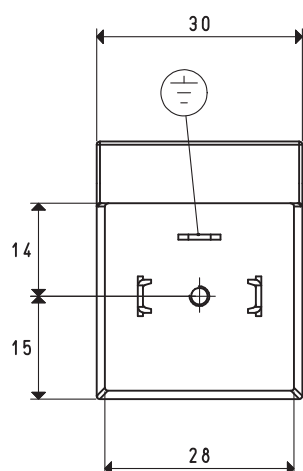
DIRECT AND ALTERNATING CURRENT COILS

Item	Service ED	Absorption	Rated voltage	Weight g
00 07 03 N	100%	18 W	V12 DC	100
00 07 04 N	100%	18 W	V24 DC	100
00 07 06 N	100%	18 W	V110 DC	100
		For solenoid valves item		
		07 01 11 - 07 02 11 - 07 03 11 - 07 04 11 - 07 05 11 - 07 06 11 - 07 08 11 - 07 09 11		
		07 01 16 - 07 02 16 - 07 03 16		
		07 01 20 - 07 02 20 - 07 03 20		
		07 03 40 - 07 04 40 - 07 05 40 - 07 06 40		
		07 03 51 - 07 04 51 - 07 05 51 - 07 06 51 - 07 08 51 - 07 09 51		
		DDN 14		
00 07 256 N	100%	20 V.A.	V24/50 - 60 Hz	100
00 07 258 N	100%	20 V.A.	V110/50 - 60 Hz	100
00 07 259 N	100%	20 V.A.	V230/50 - 60 Hz	100
		For solenoid valves item		
		07 01 11 - 07 02 11 - 07 03 11 - 07 04 11 - 07 05 11 - 07 06 11 - 07 08 11 - 07 09 11		
		07 01 16 - 07 02 16 - 07 03 16		
		07 01 20 - 07 02 20 - 07 03 20		
		07 03 40 - 07 04 40 - 07 05 40 - 07 06 40		
		07 03 51 - 07 04 51 - 07 05 51 - 07 06 51 - 07 08 51 - 07 09 51		
		DDN 14 - DDN 25		

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6} = \dfrac{Kg}{0.4536}$
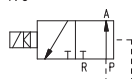
SOLENOID VALVE ACCESSORIES AND SPARE PARTS

Connectors are fundamental for bringing electric current to the solenoid valve coils.

They are available in the simple plug version installed as standard and, upon request, with LEDs to signal the presence of voltage, with anti-interference circuits, protection devices against overvoltage and polarity reversal.

When correctly installed, all connectors provide full protection against water jets, according to EN 60529 standards (protection class IP 65).

Moreover, they meet VDE 0110-1/89 standards, working voltage up to 250 V, overvoltage category II, Degree of use 3, regarding insulation class.

In all contacts, a snap joint between contact holders and the external protection guarantees a safe locking and easy assembly.

Safe locking is essential for guaranteeing the operator full protection when handling the connector. The contact holder can be easily extracted from its casing simply using a screwdriver. This operation also allows orienting the earthing contact in the desired direction.

CONNECTORS FOR COILS

Item	Nominal flow rate of contacts	Max cross-section of conductors	Temperature in operation	Ø cable	Weight	Notes	For coils
	A	mm²	°C	mm	g		item
00 07 174	max 16	1.5	-40 ÷ +90	6 ÷ 8	24	Standard	00 07 172
00 07 260	max 16	1.5	-40 ÷ +90	6 ÷ 8	24	With LED	00 07 173

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6}$ = $\dfrac{Kg}{0.4536}$

4
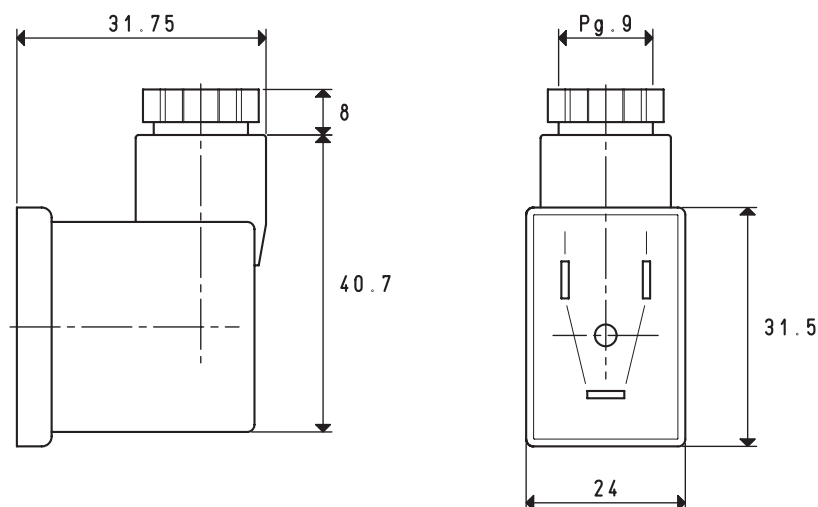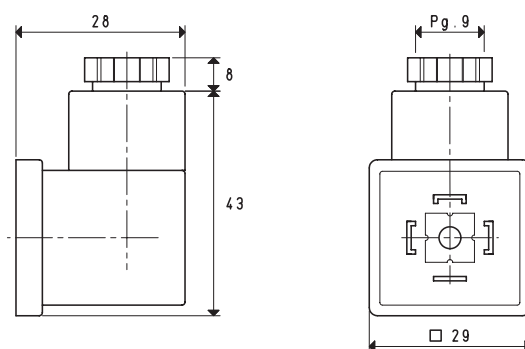
CONNECTORS FOR COILS

Item	Nominal flow rate of contacts A	Voltage	Max cross-section of conductors mm²	Temperature in operation °C	Ø cable mm	Weight g	Notes
00 07 63	max 16	all	1.5	-40 ÷ +90	6 ÷ 8	24	Standard
00 07 101	max 16	V24DC - 24V/50 - 60Hz	1.5	-40 ÷ +90	6 ÷ 8	24	With white LED
00 07 186	max 16	V24DC - 24V/50 - 60Hz	1.5	-40 ÷ +90	6 ÷ 8	24	With red LED and filter
00 07 221	max 16	V24DC - 24V/50 - 60Hz	1.5	-40 ÷ +90	6 ÷ 8	24	With red LED
00 07 222	max 16	V230DC - 230V/50 - 60Hz	1.5	-40 ÷ +90	6 ÷ 8	24	With white LED
00 07 223	max 16	V230DC - 230V/50 - 60Hz	1.5	-40 ÷ +90	6 ÷ 8	24	With red LED and filter

For coils item
00 07 03 N - 00 07 04 N - 00 07 06 N
00 07 256 N - 00 07 258 N - 00 07 259 N

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$

VACUUM VALVE AND SOLENOID VALVE SEALING KIT

Sealing kits are composed of a membrane, shutters and standard O-rings installed on our compressed air and vacuum three-way valves and solenoid valves.
In the presence of very hot fluids (up to 250°C) or corrosive fluids, we can supply sealing kits in special compounds. Please contact our technical department.

Complete kit for valves:	07 01 31 e 07 02 31	item 00 07 267
	07 03 31	item 00 07 268
	07 03 31 LP	item 00 07 287
	07 04 31 e 07 05 31	item 00 07 269
	07 04 31 LP e 07 05 31 LP	item 00 07 288
	07 06 31	item 00 07 270
	07 06 31 LP	item 00 07 289
	07 08 31	item 00 07 380
	07 09 31	item 00 07 384
Complete kit for solenoid valves:	07 01 11 e 07 02 11	item 00 07 271
	07 03 11	item 00 07 272
	07 03 11 LP	item 00 07 290
	07 04 11 e 07 05 11	item 00 07 273
	07 04 11 LP e 07 05 11 LP	item 00 07 291
	07 06 11	item 00 07 274
	07 06 11 LP	item 00 07 292
	07 08 11	item 00 07 372
	07 09 11	item 00 07 382
Complete kit for solenoid valves:	07 01 51 e 07 02 51	item 00 07 275
	07 03 51	item 00 07 276
	07 03 51 LP	item 00 07 293
	07 04 51 e 07 05 51	item 00 07 277
	07 04 51 LP e 07 05 51 LP	item 00 07 294
	07 06 51	item 00 07 278
	07 06 51 LP	item 00 07 295
	07 08 51	item 00 07 381
	07 09 51	item 00 07 385
Complete kit for solenoid valves:	07 03 40 e 07 04 40	item 00 07 279
	07 05 40	item 00 07 280
	07 06 40	item 00 07 281

PILOT MEMBRANES FOR VACUUM VALVES AND SOLENOID VALVES

Item	For valves item	Connections	Material	Colour	Dimensions mm
00 07 104	07 03 40 - 07 04 40	G1/2" - G3/4"	Fabric NBR	Black	Ø 65
00 07 105	07 05 40	G1"	Fabric NBR	Black	Ø 76
00 07 177	07 06 40	G1" 1/2	Fabric NBR	Black	Ø 110
00 07 229	07 01 11 - 07 01 31 - 07 01 51 07 02 11 - 07 02 31 - 07 02 51	G1/4" - G3/8"	Vulkollan®	Beige	49 x 35
00 07 230	07 03 11 - 07 03 31 - 07 03 51	G1/2"	Urepan® 65	Grey - orange	62 x 39
00 07 296	07 03 11 LP - 07 03 31 LP - 07 03 51 LP	G1/2"	Vulkollan®	Beige	62 x 39
00 07 231	07 04 11 - 07 04 31 - 07 04 51 07 05 11 - 07 05 31 - 07 05 51	G3/4" - G1"	Urepan® 65	Grey - orange	79 x 49
00 07 297	07 04 11 LP - 07 04 31 LP - 07 04 51 LP 07 05 11 LP - 07 05 31 LP - 07 05 51 LP	G3/4" - G1"	Vulkollan®	Beige	79 x 49
00 07 232	07 06 11 - 07 06 31 - 07 06 51	G1"1/2	Urepan® 65	Grey - orange	129 x 89
00 07 298	07 06 11 LP - 07 06 31 LP - 07 06 51 LP	G1"1/2	Vulkollan®	Beige	129 x 89

4

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH LOW ABSORPTION ELECTRIC COIL

The three-way vacuum solenoid valves in this series are two-position valves with pneumatically servo-controlled conical shutters.

They can be used normally either closed or open.

They are composed of an anodised aluminium body, two Vulkollan® shutters assembled onto a stainless steel stem, a membrane for servo-control made with special compounds and a thrust spring for the shutter return; a solenoid pilot valve activated by a built-in electric coil managed the compressed air supply.

These valves allow reducing frictions and internal dynamic stresses to the minimum.

The result being a high response speed and a guarantee of long lasting duration.

The electric coils of the solenoid pilot valve are fully plastic-coated in synthetic resin, watertight, insulation class F (up to 155°C) as per standard VDE, with 3 mm two-terminal electrical connections for connectors in compliance with EN 175301-803 (ex DIN 43650) - C. Protection degree IP 54; IP 65 with connector inserted.

Available for voltages 12-24V/50-60Hz and 12-24VDC.

Tolerance permitted on the nominal voltage value: ±10%.

Maximum electric power: 2 W

The connector can be rotated 180° on the coil and can be supplied, upon request, with LED lights, anti-interference circuit and/or with protection devices against overvoltage and polarity reversal.

A push-button device, built-in the solenoid pilot valve, allows manually opening and closing the solenoid valve.
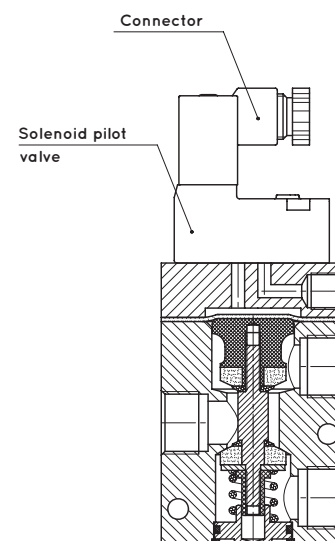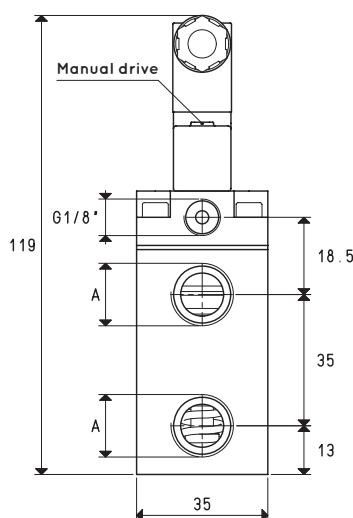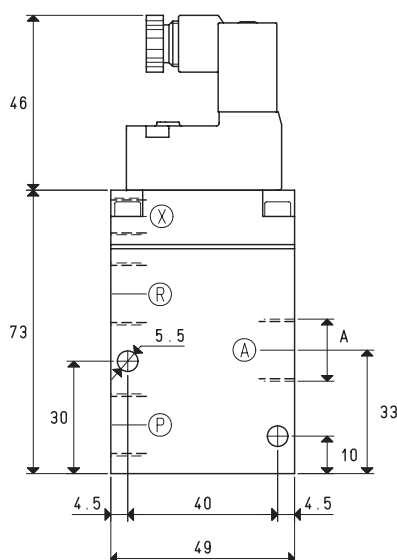
The 3-way vacuum solenoid valves are used for vacuum interception on power supply units and suction palletisers, robots, feeders, bag opening units and in all those cases where rapid exchange between pump suction for vacuums and air supply into the circuit is necessary for quick restoration of atmospheric pressure.

Technical features

Operating pressure: from 0.5 to 3000 absolute mbar

Servo-control pressure: see table

Temperature of suctioned fluid: from -5 to +60°C

NC
X = Compressed air supply
P = Pump
A = Use
R = Discharge

NO
X = Compressed air supply
P = Discharge
A = Use
R = Pump

Item	A		Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø		m³/h	min	max	energ.	de-energ.	Ø	mm²	bar	Kg
07 01 13	G1/4"		6	1000	0.5	16	27	8.5	56.8	4 ÷ 7	0.44
07 02 13	G3/8"		10	1000	0.5	16	27	11.5	103.8	4 ÷ 7	0.43

Note: Specify the voltage of the electric coil when ordering. (Example: 07 01 13 V24-CC)

The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6}$ = $\dfrac{Kg}{0.4536}$

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH LOW ABSORPTION ELECTRIC COIL

Connector

Solenoid pilot valve

Manual drive

G1/8"

NC

X = Compressed air supply
P = Pump
A = Use
R = Discharge

NO

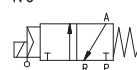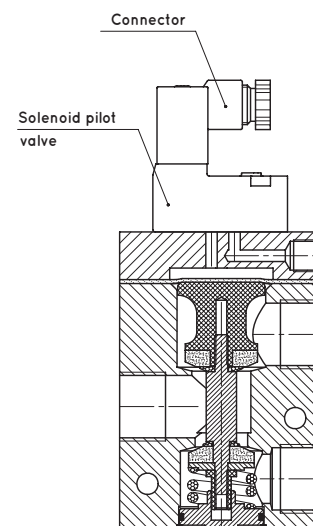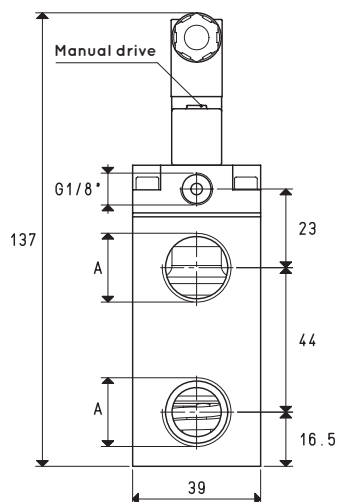X = Compressed air supply
P = Discharge
A = Use
R = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 03 13	G1/2"	20	1000	0.5	16	40	15.0	176	6 ÷ 7	0.52

* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.

Note: Specify the voltage of the electric coil when ordering. (Example: 07 03 13 V24-CC)

The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH LOW ABSORPTION ELECTRIC COIL

Connector

Solenoid pilot valve

Manual drive

NC

X = Compressed air supply
P = Pump
A = Use
R = Discharge

NO

X = Compressed air supply
P = Discharge
A = Use
R = Pump

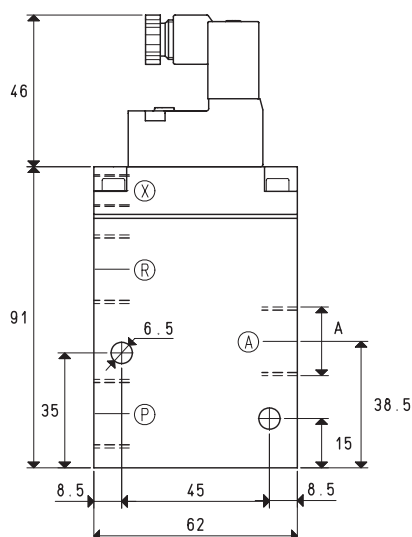| Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 04 13	G3/4"	40	1000	0.5	16	40	20	314	6 ÷ 7	1.00
07 05 13	G1"	90	1000	0.5	18	42	25	490	6 ÷ 7	0.94

* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.

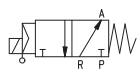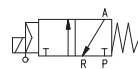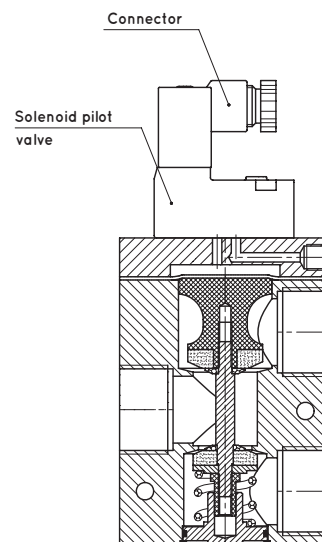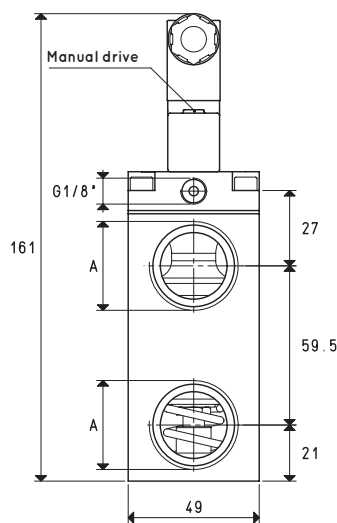Note: Specify the voltage of the electric coil when ordering. (Example: 07 04 13 V24-CC)

The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES
WITH LOW ABSORPTION ELECTRIC COIL

NC

X = Compressed air supply
P = Pump
A = Use
R = Discharge

NO

X = Compressed air supply
P = Discharge
A = Use
R = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 06 13	G1"1/2	230	1000	0.5	60	38	40	1256	6 ÷ 8	4.50

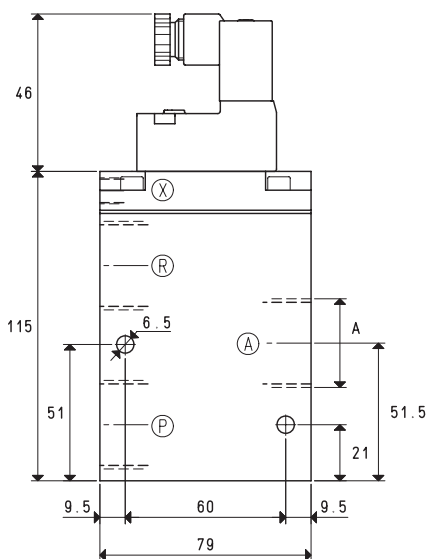* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.

Note: Specify the voltage of the electric coil when ordering. (Example: 07 06 13 V24-CC)

The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).
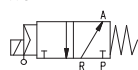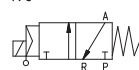
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6}$ = $\dfrac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

3-WAY VACUUM SOLENOID VALVES, PILOT-OPERATED FOR LARGE CAPACITIES WITH LOW ABSORPTION ELECTRIC COIL

The growing demand by automatic machine manufacturers in the packaging sector and the lack of high-speed three-way vacuum solenoid valves on the market for capacities above 200 m³/h have led us to design and implement this new series of solenoid valves that are able to meet these needs.

Strengthened by our constant desire for research and innovation and our experience, acquired over more than forty years of operations in the vacuum sector, we have made these new solenoid valves using absolutely innovative technologies, to guarantee exceptionally low intervention times, almost negligible pressure drops, and minimal dimensions compared to the large connections and minimum electrical absorption for their powering with which they are equipped.

Furthermore, we have obtained them from aluminium block to eliminate even the slightest chance of loss due to transpiration, as perhaps could occur with a fusion.

This new series of solenoid valves for vacuums are three-way, two-position and are composed of:
- An anodised aluminium body set with attachment connections
- Two conical Vulkollan® shutters fitted on the aluminium pistons, pneumatically powered with spring return
- A solenoid pilot valve powered by a low absorption fitted electrical coil which managed compressed air supply

The composition of these valves, especially the original Teflon® slide system that the pistons have been equipped with, help minimise friction and internal dynamic stress, deriving high response speed and ensuring enduring operation.

They can be used normally either closed or open.

The electric coils of the solenoid pilot valve are fully plastic-coated in synthetic resin, watertight, insulation class F (up to 155°C) as per standard VDE, with 3 mm two-terminal electrical connections for connectors in compliance with EN 175301-803. Degree of protection IP 54;

IP 65 with connector inserted.

Available for voltages 12-24V/50-60Hz and 12-24VDC.

Tolerance permitted on the nominal voltage value: ± 10%.

Maximum electric power: 2 W

The connector can be rotated 180° on the coil and can be supplied, upon request, with LED lights, anti-interference circuit and/or with protection devices against overvoltage and polarity reversal.

A push-button device, built-in the solenoid pilot valve, allows manually opening and closing the solenoid valve.

The three-way solenoid valves are used for vacuum interception on power supply units and suction palletisers, vacuum thermoformers, vacuum packaging units, robots, feeders, bag opening units and in all those cases where rapid exchange between pump suction for vacuums and air supply into the circuit is necessary for quick restoration of atmospheric pressure.

Technical features

Working pressure: from 0.5 to 1000 absolute mbar

Servo-control pressure: from 4 to 8 bar

Suctioned fluid temperature: from − 5 to + 60°C

Item	A	Max flow rate	Level of vacuum		Reaction time		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	abs. mbar		msec		Ø	mm²	bar	Kg
			min	max	energ.	de-energ.				
07 08 13	G2"	390	1000	0.5	78	50	52	2123	4 ÷ 8	5.87

Note: Specify the voltage of the electric coil when ordering. (Example: 07 08 13 V24-CC)

The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).
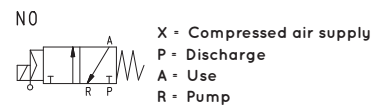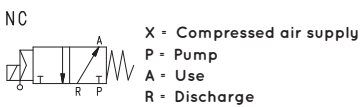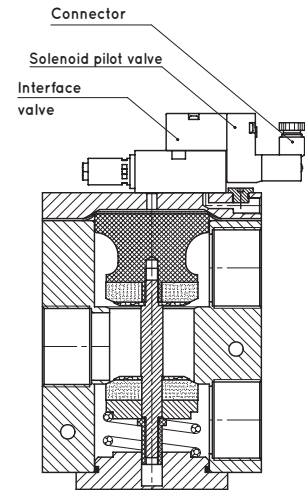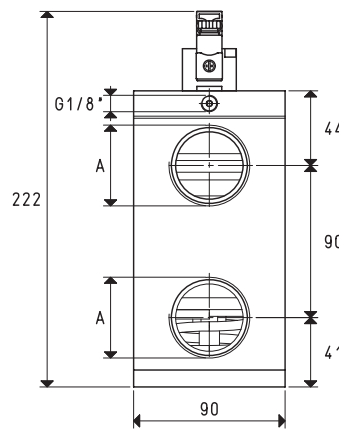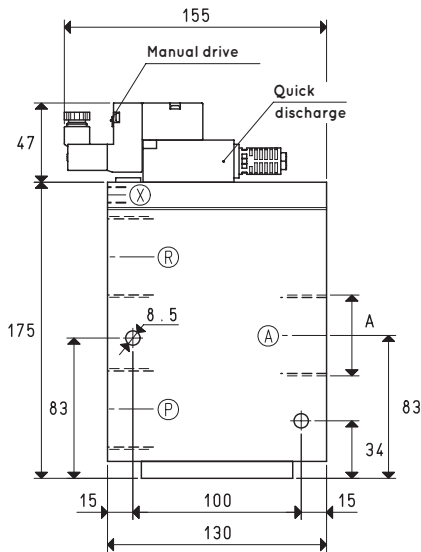
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

NC
X = Compressed air supply
P = Pump
A = Use
R = Discharge

NO
X = Compressed air supply
P = Discharge
A = Use
R = Pump

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) $inch = \frac{mm}{25.4}$; $pounds = \frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

3-WAY VACUUM SOLENOID VALVES, PILOT-OPERATED FOR LARGE CAPACITIES WITH LOW ABSORPTION ELECTRIC COIL

SOLENOID VALVE
07 09 13

N.C. P=Pump   A=Application R=Exhaust
N.O. P=Exhaust   A=Application R=Pump
X=Air supply

NC

X = Compressed air supply
P = Pump
A = Use
R = Discharge

NO

X = Compressed air supply
P = Discharge
A = Use
R = Pump
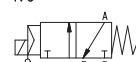
Item	A	Max flow rate	Level of vacuum		Reaction time		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	abs. mbar		msec		Ø	mm²	bar	Kg
			min	max	energ.	de-energ.				
07 09 13	G3"	750	1000	0.5	132	84	80	5024	4 ÷ 8	11.80

Note: Specify the voltage of the electric coil when ordering. (Example: 07 09 13 V24-CC)

The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH BISTABLE IMPULSE SOLENOID PILOT VALVE AND WITH LOW ABSORPTION ELECTRIC COIL

These solenoid valves have the same function and the same structure as the previously described three-way valves.

Even their structure is the same; what differentiates them are the bistable impulse solenoid pilot valve powered by a low absorption fitted electrical coil which, with a simple electrical impulse, exchanges the shutter positions and keeps them there even in absence of electricity, until it receives a new impulse of opposite polarity. For this reason, they can only be supplied with direct current electric coils.

Their use is especially recommended in all those cases requiring maximum connection security at the vacuum source, even in the absence of electrical power supply.

The electric coils of the solenoid pilot valve are fully plastic-coated in synthetic resin, watertight, insulation class F (up to 155°C) as per standard VDE, with 3 mm two-terminal electrical connections for connectors in compliance with EN 175301-803

(ex DIN 43650) - C. Protection degree IP 54; IP 65 with connector inserted. Available for voltages 12-24VDC.

Tolerance permitted on the nominal voltage value: ±10%.

Maximum electric power: 1 W

The connector can be rotated 180° on the coil and can be supplied, upon request, with LED lights, anti-interference circuit and/or with protection devices against overvoltage and polarity reversal.

The push-button device for their manual activation cannot be installed on these solenoid valves.

Technical features

Operating pressure: from 0.5 to 3000 absolute mbar

Servo-control pressure: see table

Temperature of suctioned fluid: from -5 to +60°C

NC   X = Compressed air supply
      P = Pump
      A = Use
      R = Discharge

NO   X = Compressed air supply
      P = Discharge
      A = Use
      R = Pump

Item	A	Max flow rate	Level of vacuum		Reaction time		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
			abs. mbar		msec					
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	bar	Kg
07 01 53	G1/4"	6	1000	0.5	16	27	8.5	56.8	4 ÷ 7	0.44
07 02 53	G3/8"	10	1000	0.5	16	27	11.5	103.8	4 ÷ 7	0.43

Note: Specify the voltage of the electric coil when ordering. (Example: 07 01 53 V24-CC)

The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).
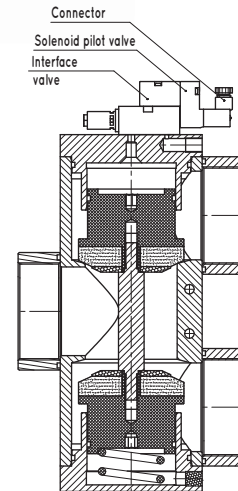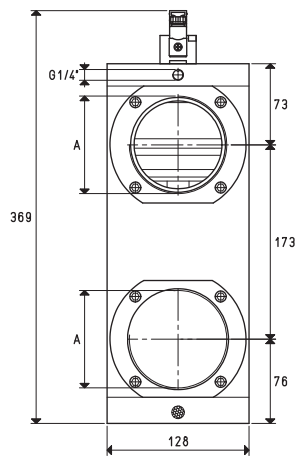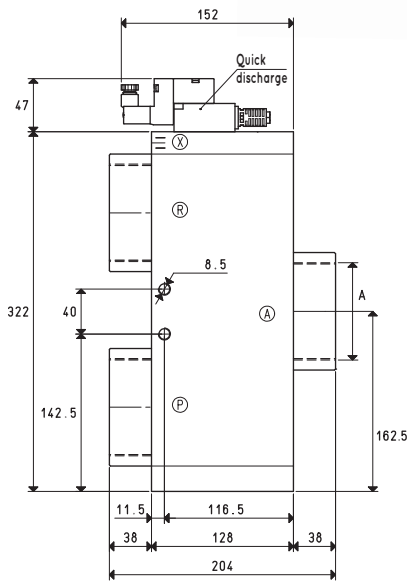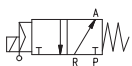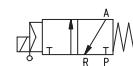
Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

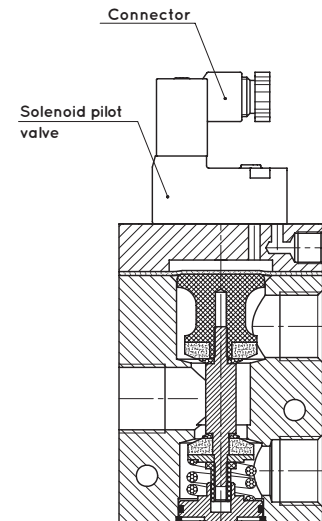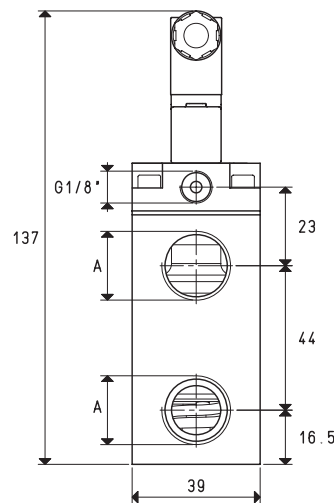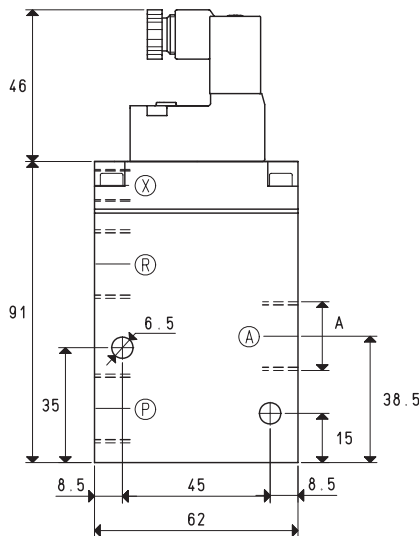Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

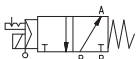# SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH BISTABLE IMPULSE SOLENOID PILOT VALVE AND WITH LOW ABSORPTION ELECTRIC COIL

Connector

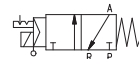Solenoid pilot valve

4

NC		NO	
	X = Compressed air supply		X = Compressed air supply
	P = Pump		P = Discharge
	A = Use		A = Use
	R = Discharge		R = Pump

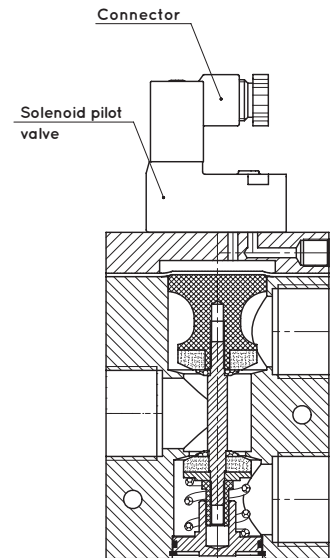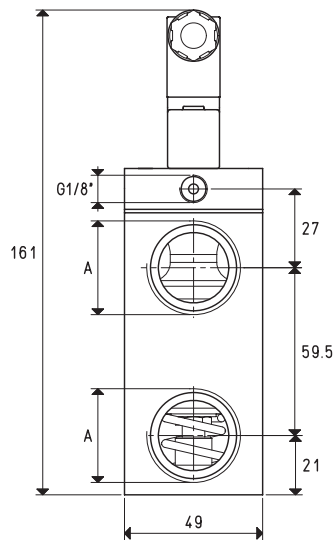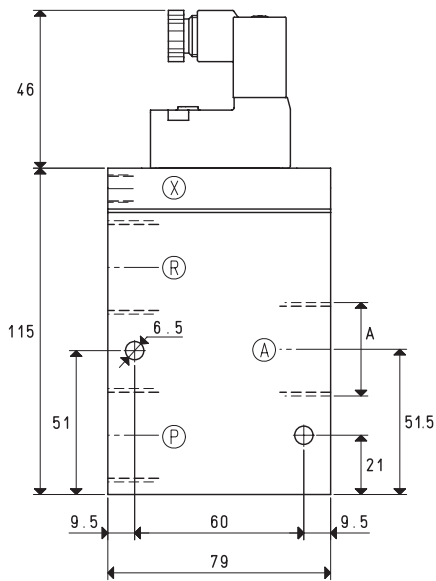| Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 03 53	G1/2"	20	1000	0.5	16	40	15.0	176	6 ÷ 7	0.52

* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.

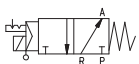Note: Specify the voltage of the electric coil when ordering. (Example: 07 03 53 V24-CC)

The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6} = \dfrac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH BISTABLE IMPULSE SOLENOID PILOT VALVE AND WITH LOW ABSORPTION ELECTRIC COIL

Connector

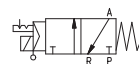Solenoid pilot valve

G1/8"

NC

X = Compressed air supply
P = Pump
A = Use
R = Discharge

NO

X = Compressed air supply
P = Discharge
A = Use
R = Pump

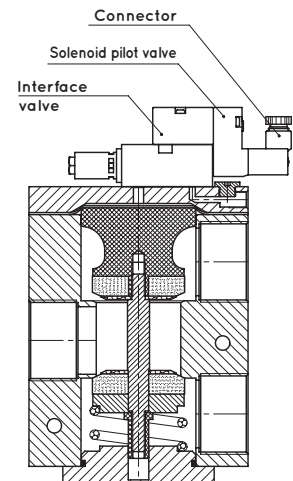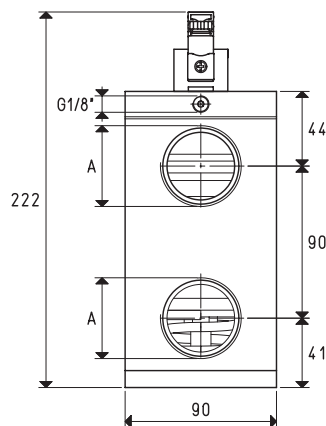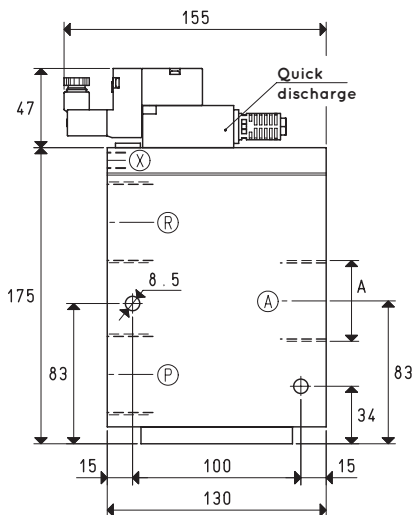| Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 04 53	G3/4"	40	1000	0.5	16	40	20	314	6 ÷ 7	1.00
07 05 53	G1"	90	1000	0.5	18	42	25	490	6 ÷ 7	0.94

* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.

Note: Specify the voltage of the electric coil when ordering. (Example: 07 04 53 V24-CC)
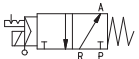
The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH BISTABLE IMPULSE SOLENOID PILOT VALVE AND WITH LOW ABSORPTION ELECTRIC COIL

4

Quick discharge
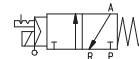
155

47

175

83

8.5

34

15   100   15

130

83

G1/8'

222

44

90

41

90

Connector

Solenoid pilot valve

Interface valve

NC

X = Compressed air supply
P = Pump
A = Use
R = Discharge

NO

X = Compressed air supply
P = Discharge
A = Use
R = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	*bar	Kg
07 06 53	G1"1/2	230	1000	0.5	60	38	40	1256	6 ÷ 8	4.50

* Add the letters LP to the item for servo-controlled pressures 4 - 6 bar.

Note: Specify the voltage of the electric coil when ordering. (Example: 07 06 53 V24-CC)

The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

SERVO-CONTROLLED 3-WAY VACUUM SOLENOID VALVES WITH BISTABLE IMPULSE SOLENOID PILOT VALVE AND WITH LOW ABSORPTION ELECTRIC COIL FOR LARGE CAPACITIES

The innovative construction technology of these solenoid valves and their conformation are the same as those previously described. What differentiates them are the bistable impulse pilot valve powered by a low absorption fitted electrical coil which, with a simple electrical impulse, exchanges the shutter positions and keeps them there even in absence of electricity, until it receives a new impulse of opposite polarity. For this reason, they can only be supplied with direct current electric coils. This is the reason why their use is recommended in all those cases requiring maximum connection security at the vacuum source, even in the absence of an electrical power supply.
The electric coil of the pilot valve is fully plastic-coated in synthetic resin, watertight, insulation class F (up to 155°C) as per standard VDE, with 3 mm two-terminal electrical connections for micro connectors in compliance with EN 175301-803 (ex DIN 43650) – C. Degree of protection IP 54; IP 65 with connector inserted. Available for voltages 12 – 24VDC.
Tolerance permitted on the nominal voltage value: ± 10%.
Maximum electric power: 1W
The connector can be rotated 180° on the coil and can be supplied upon request with LED lights, with anti-interference circuit and/or with protection devices against overvoltage. The push-button device for their manual activation cannot be installed on these solenoid valves.
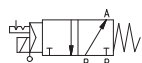
Technical features
Operating pressure: from 0.5 to 1000 absolute mbar
Servo-control pressure: from 4 to 8 bar
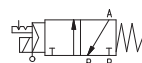Temperature of suctioned fluid: from – 5 to + 60°C

NC

X = Compressed air supply
P = Pump
A = Use
R = Discharge

NO
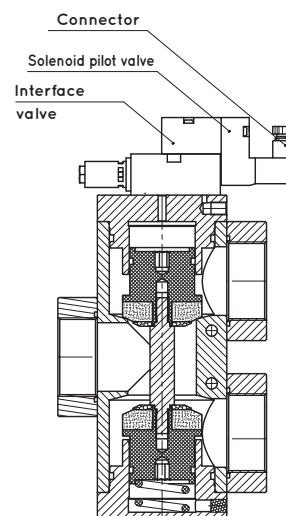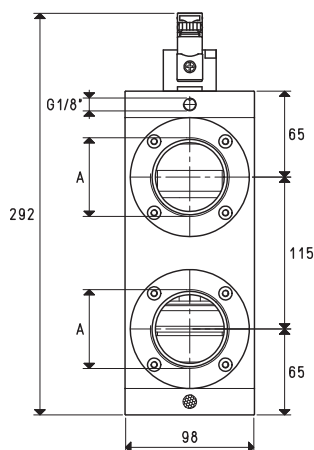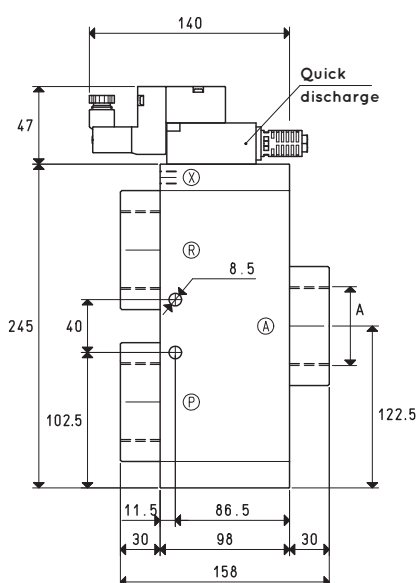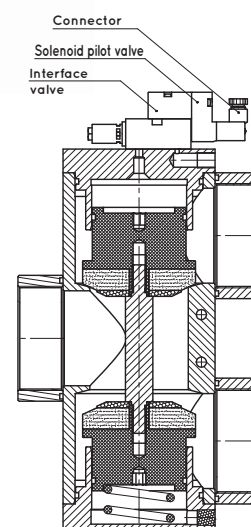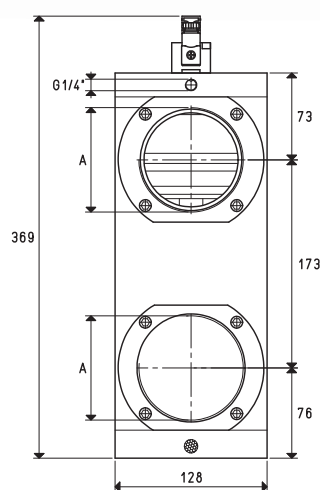
X = Compressed air supply
P = Discharge
A = Use
R = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	bar	Kg
07 08 53	G2"	390	1000	0.5	78	50	52	2123	4 ÷ 8	5.87

Note: Specify the voltage of the electric coil when ordering. (Example: 07 08 53 V24-CC)

The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

SOLENOID VALVE
07 09 53

N.C. P=Pump   A=Application R=Exhaust
N.O. P=Exhaust A=Application R=Pump
X=Air supply

3D drawings are available on **vuototecnica.net**

4

NC   X = Compressed air supply
          P = Pump
          A = Use
          R = Discharge

NO   X = Compressed air supply
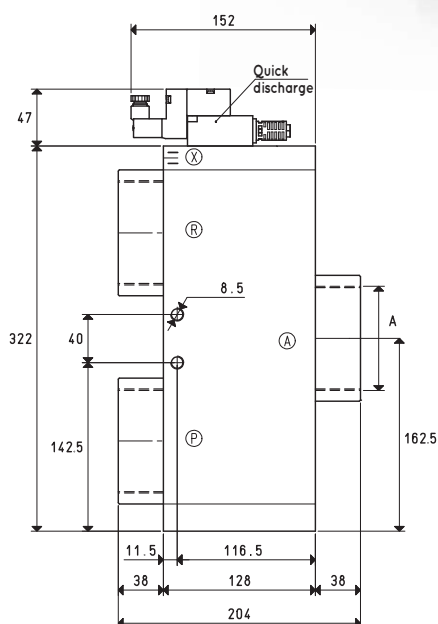   P = Discharge
          A = Use
          R = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	Pressure at servo-controlled	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	bar	Kg
07 09 53	G3"	750	1000	0.5	132	84	80	5024	4 ÷ 8	11.80

Note: Specify the voltage of the electric coil when ordering. (Example: 07 09 53 V24-CC)
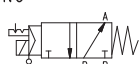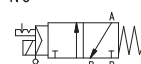
The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Solenoid valve servo-controlled power must be supplied with non-lubricated compressed air, 5 micron filtration, according to standard **ISO 8573-1 class 4**.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

DIRECT DRIVE 3-WAY VACUUM SOLENOID VALVES WITH LOW ABSORPTION ELECTRIC COIL

These direct drive three-way, two-position vacuum solenoid valves feature conical shutters servo-controlled by the vacuum.

They are normally closed as standard, but they can be supplied normally open upon request.

They are composed of an anodised aluminium body where the connections are located, two silicon shutters assembled onto a stainless steel stem and a membrane in special reinforced compound. A solenoid pilot valve activated by a built-in electric coil manages the vacuum at the servo-control. The operating principle of these solenoid valves is based on the pressure differential between the vacuum pump or generator and the pressure of the suctioned air. By addressing this "differential pressure" to the servo-control via the solenoid pilot valve, the shutters can be controlled without compressed air or springs.

Due to their operating principle stated above, they are not recommended on plants with rough vacuum levels (below 850 absolute mbar, equal to 15 % vacuum).

The lack of springs, frictions and internal dynamic stresses favours a high response speed and guarantees long lasting operation.

The electric coils of the solenoid pilot valve are fully plastic-coated in synthetic resin, watertight, insulation class F (up to 155°C) as per standard VDE, with 3 mm two-terminal electrical connections for connectors in compliance with EN 175301-803 (ex DIN 43650) - C.

Protection degree IP 54; IP 65 with connector inserted.

Available for voltages 12-24V/50-60Hz and 12-24VDC.

Tolerance permitted on the nominal voltage value: ±10%.

Maximum electric power: 2 W

The connector can be rotated 180° on the coil and can be supplied, upon request, with LED lights, anti-interference circuit and/or with protection devices against overvoltage and polarity reversal. A push-button device, built-in the solenoid pilot valve, allows manually opening and closing the solenoid valve.
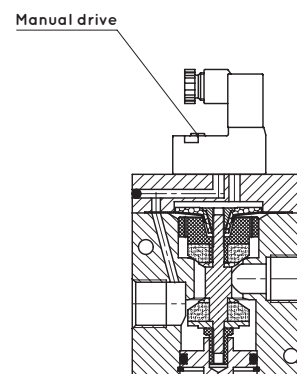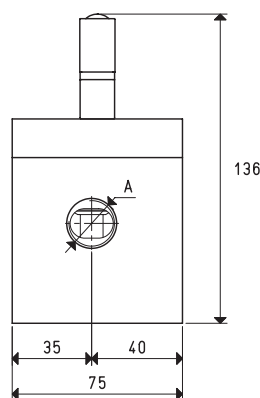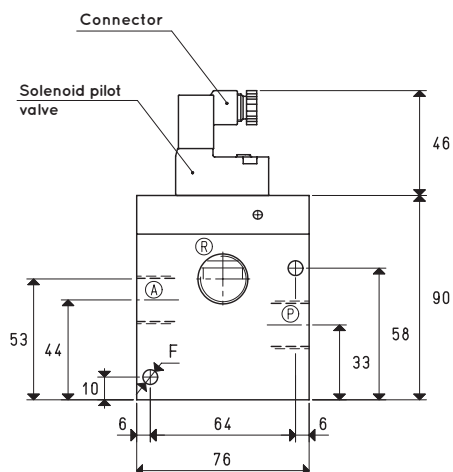
The solenoid valves in this series, along with the uses described for the 07 .. 11 series, can be used on plants with no compressed air.

The solenoid valve must be always chosen according to the flow rate and, therefore, to the vacuum pump or generator suction connection.
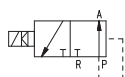
Technical features

Operating pressure: from 0.5 to 850 absolute mbar

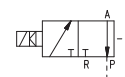Temperature of suctioned fluid: from -5 to +60°C

NC

R = Pump
A = Use
P = Discharge

NO

R = Discharge
A = Use
P = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	F	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	Ø	Kg
07 03 43 NC	G1/2"	20	850	0.5	33	17	15	176	6.5	1.35
07 03 43 NO					22	20				
07 04 43 NC	G3/4"	40	850	0.5	33	17	20	314	6.5	1.30
07 04 43 NO					22	20				

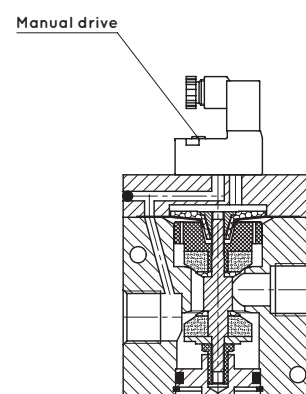Note: Specify the voltage of the electric coil when ordering. (Example: 07 03 43 NC V24-CC)

The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6} = \dfrac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

DIRECT DRIVE 3-WAY VACUUM SOLENOID VALVES WITH LOW ABSORPTION ELECTRIC COIL

Connector

Solenoid pilot valve

46

100

60

34.5

61.5

48.5

10

7   75   7

89

146

40   39

79

Manual drive

NC

R = Pump
A = Use
P = Discharge

NO

R = Discharge
A = Use
P = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	F	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	Ø	Kg
07 05 43 NC	G1"	90	850	0.5	42	20	25	490	6.5	1.65
07 05 43 NO					28	22				

Note: Specify the voltage of the electric coil when ordering. (Example: 07 05 43 NC V24-CC)
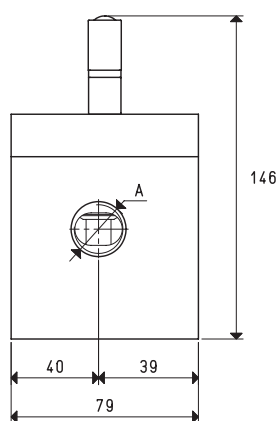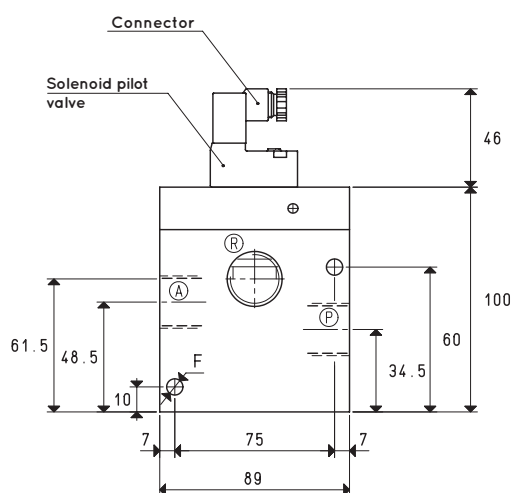
The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

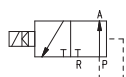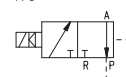Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

4

DIRECT DRIVE 3-WAY VACUUM SOLENOID VALVES WITH BISTABLE IMPULSE SOLENOID PILOT VALVE AND WITH LOW ABSORPTION ELECTRIC COIL

These solenoid valves have the same function and the same structure as the previously described three-way valves.

Even their structure is the same; what differentiates them are the bistable impulse pilot valve powered by a low absorption fitted electrical coil which, with a simple electrical impulse, exchanges the shutter positions and keeps them there even in absence of electricity, until it receives a new impulse of opposite polarity. For this reason, they can only be supplied with direct current electric coils.

Their use is especially recommended in all those cases requiring maximum connection security at the vacuum source, even in the absence of electrical power supply.

The electric coils of the solenoid pilot valve are fully plastic-coated in synthetic resin, watertight, insulation class F (up to 155°C) as per standard VDE, with 3 mm two-terminal electrical connections for connectors in compliance with EN 175301-803

(ex DIN 43650) - C. Protection degree IP 54; IP 65 with connector inserted. Available for voltages 12-24VDC.

Tolerance permitted on the nominal voltage value: ±10%.
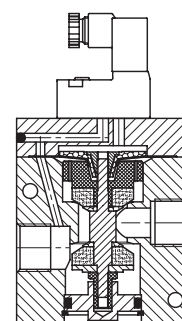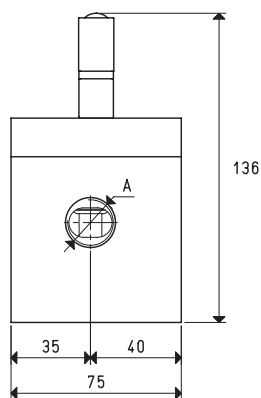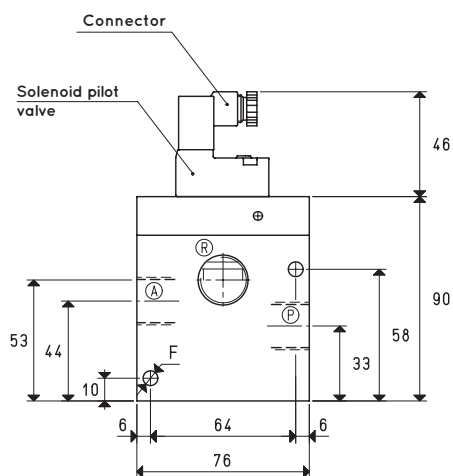
Maximum electric power: 1 W

The connector can be rotated 180° on the coil and can be supplied, upon request, with LED lights, anti-interference circuit and/or with protection devices against overvoltage and polarity reversal.

The push-button device for their manual activation cannot be installed on these solenoid valves.
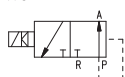
Technical features

Operating pressure: from 0.5 to 850 absolute mbar

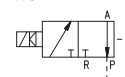Temperature of suctioned fluid: from -5 to +60°C

NC

R = Pump
A = Use
P = Discharge

NO

R = Discharge
A = Use
P = Pump

Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	F	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	Ø	Kg
07 03 63 NC	G1/2"	20	850	0.5	33	17	15	176	6.5	1.35
07 03 63 NO					22	20				
07 04 63 NC	G3/4"	40	850	0.5	33	17	20	314	6.5	1.30
07 04 63 NO					22	20				

Note: Specify the voltage of the electric coil when ordering. (Example: 07 03 63 NC V24-CC)

The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

DIRECT DRIVE 3-WAY VACUUM SOLENOID VALVES WITH BISTABLE IMPULSE SOLENOID PILOT VALVE AND WITH LOW ABSORPTION ELECTRIC COIL

4

Connector

Solenoid pilot valve

46

100

60

61.5

48.5

34.5

10

7   75   7

89

146

A

40   39

79

NC

R = Pump
A = Use
P = Discharge

NO
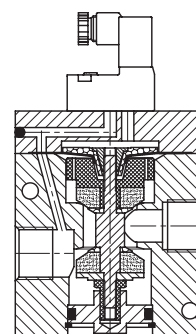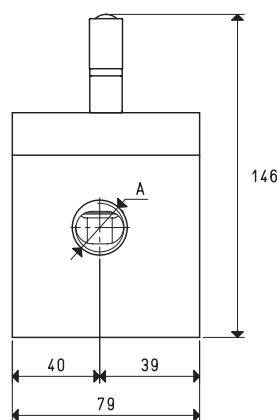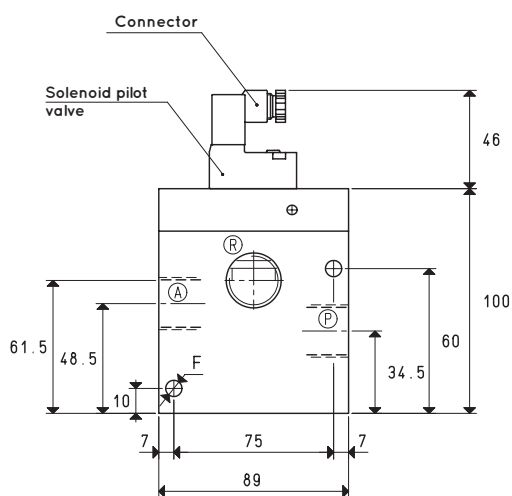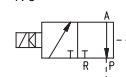
R = Discharge
A = Use
P = Pump

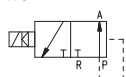| Item	A	Max flow rate	Level of vacuum abs. mbar		Reaction time msec		Mouth	Cross-section of passage	F	Weight
	Ø	m³/h	min	max	energ.	de-energ.	Ø	mm²	Ø	Kg
07 05 63 NC	G1"	90	850	0.5	42	20	25	490	6.5	1.65
07 05 63 NO					28	22				

Note: Specify the voltage of the electric coil when ordering. (Example: 07 05 63 NC V24-CC)

The connector is not integral parts of the solenoid valve and, therefore, must be ordered separately (See accessories for solenoid valves).

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

SOLENOID VALVES - SPECIAL PRODUCTS UPON REQUEST
MULTI-FUNCTION MODULES WITH BUILT-IN VACUUM SOLENOID VALVES

The needs of technical designers in the packaging sector and in the automation sector in general to have more vacuum combined with different functions in the smallest possible space has led us to design and implement this new series of multi-function modules.

Each module has two internal solenoid valves built inside it. Their ducts house the seats for the flow control valves, which can be operated externally by means of special knobs. Various connections made at different points allow for connection of the module to instruments for reading and checking the level of vacuum, such as vacuum gauges, vacuum switches, transducers, etc.

There are three modules currently available:
- Module A: The basic module with two integrated 1"1/2 and 1" solenoid valves, two flow regulators and several additional connections.
- Module B: With two integrated 1/2 "and 1" solenoid valves and two flow regulators. Can be combined with modules A and C.
- Module C: Module with two integrated 1/2" solenoid valves, a flow regulator and an additional connection. Can be combined with module A or B.

The combination of modules A, B and C, feasible using special stainless steel tie-rods, allows for the application of various functions from a single source of vacuum, as well as allowing for the elimination of numerous pipes and fittings, often causing leaks. The multi-function modules are supplied already tested to a guaranteed final level of vacuum of 0.5 mbar and perfectly sealed.

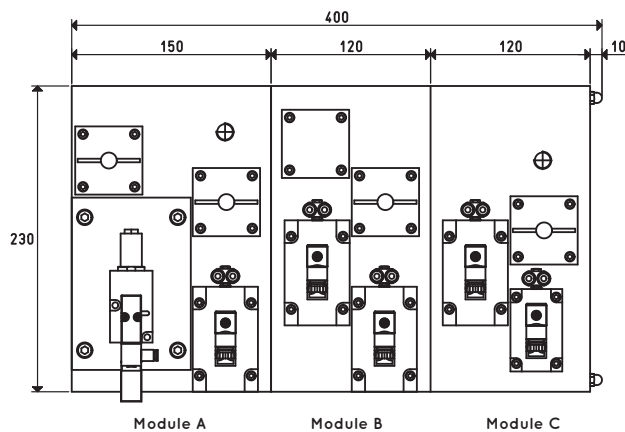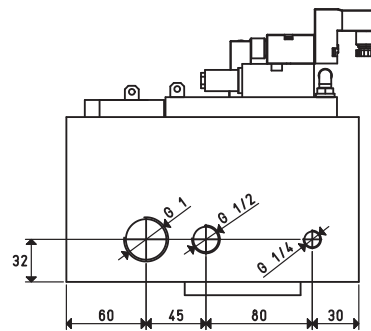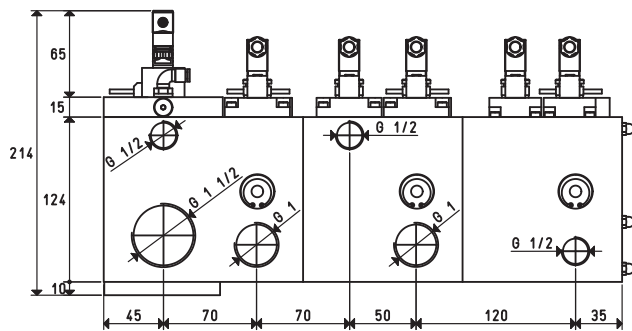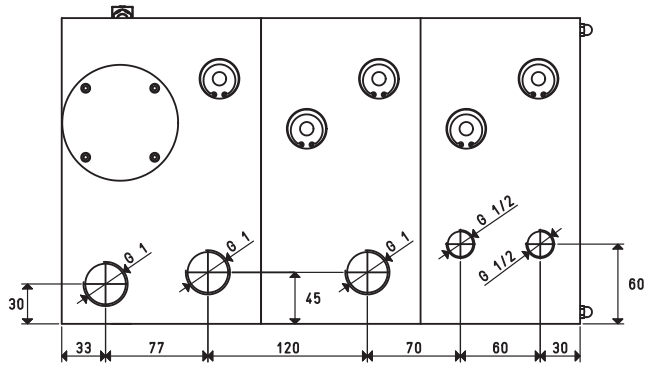The technical characteristics are those of the pneumatically actuated three-way vacuum solenoid valves:
- Servo-control pressure: 6-7 bar; 4-6 bar for version LP, with non-lubricated compressed air, 5 micron filtration, according to standard ISO 8573-1 class 4
- Operating pressure: from 0.5 to 3000 absolute mbar
- Electric coils: fully plastic-coated in synthetic resin, watertight, insulation class F (up to 155°C) as per standard VDE, with 3 mm two-terminal electrical connections for connectors in compliance with EN 175301-803
- Protection degree IP 54; IP 65 with connector inserted.
- Tolerance permitted on the nominal voltage value: ± 10%
- Electrical power of the coils: from 1 to 2 W, depending on the electrical voltage
- Temperature of suctioned fluid: from − 5 to + 60°C

The ideal use of these multi-function modules is on vacuum thermoformers and vacuum thermo-welders, but they are also widely used on packaging and filling machines in the packaging sector and in all those cases where it is necessary to manage the vacuum at different points and times. Upon request, the modules can be customised and implemented with solenoid valves up to 3" gas. Contact our technical department for further information.
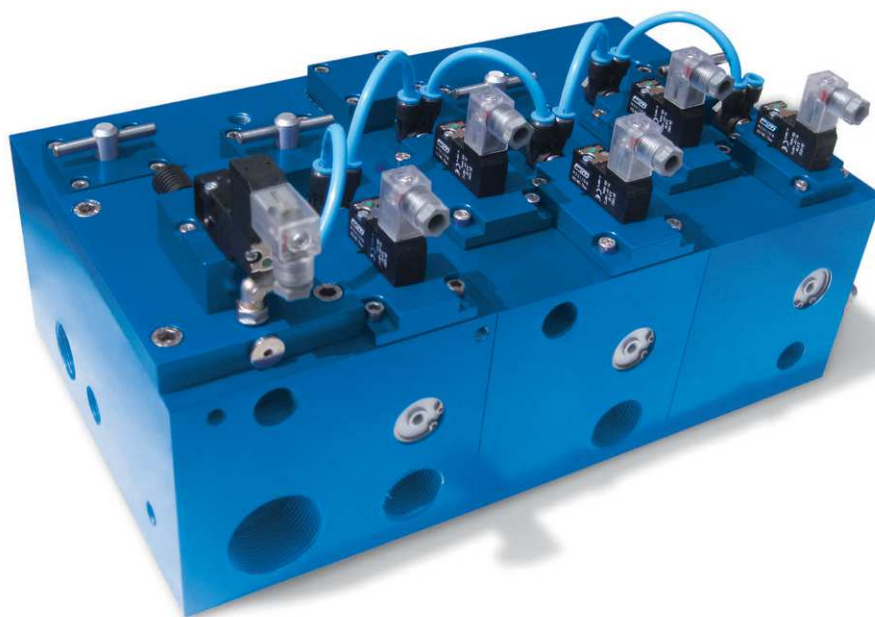
4

SOLENOID VALVES - SPECIAL PRODUCTS UPON REQUEST
MULTI-FUNCTION MODULES WITH BUILT-IN VACUUM SOLENOID VALVES

4

Module A   Module B   Module C

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6}$ = $\frac{Kg}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130
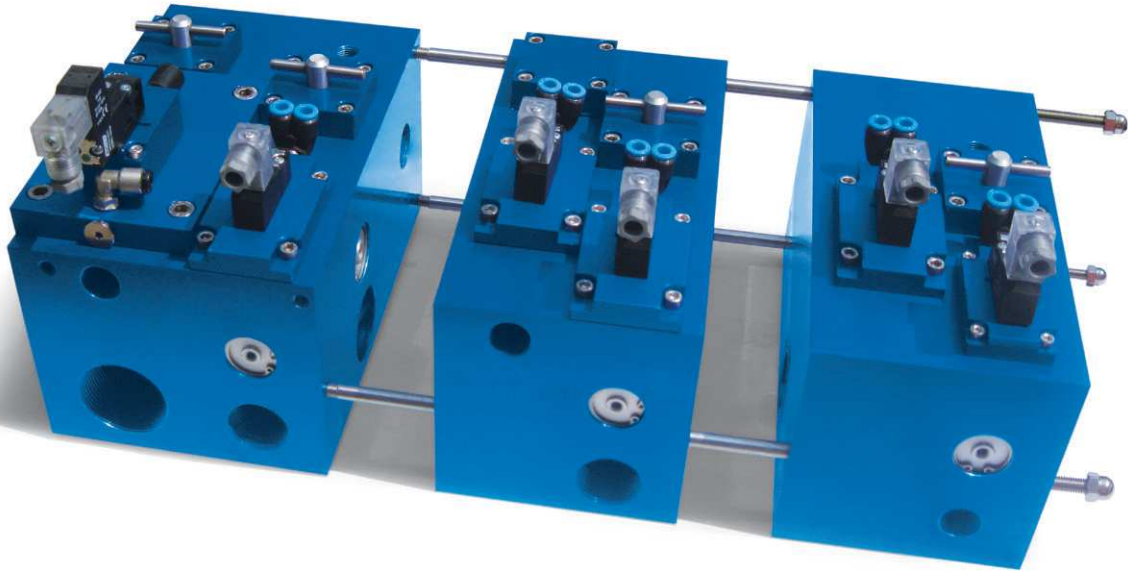
SOLENOID VALVE ACCESSORIES AND SPARE PARTS WITH LOW ABSORPTION ELECTRIC COIL

Solenoid pilot valves with built-in low absorption electrical coil

The solenoid valves are small three-way valves, driven by a built-in electric coil, capable of managing compressed air or vacuum, for driving solenoid valves.

The electric coils of the solenoid pilot valves are fully plastic-coated in synthetic resin, watertight, insulation class F (up to 155°C) as per standard VDE, with 3 mm two-terminal electrical connections for connectors in compliance with EN 175301-803 (ex DIN 43650) - C.

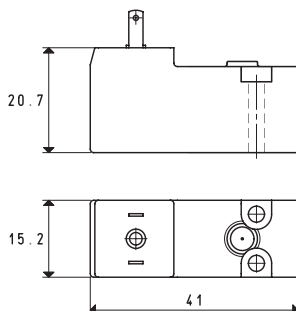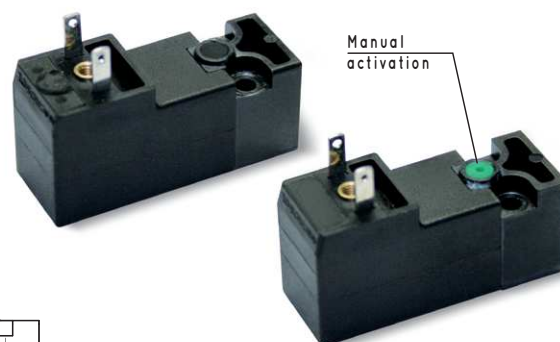Protection degree IP 54; IP 65 with connector inserted.
Tolerance permitted on the nominal voltage value: ±10%
Tolerance permitted on the frequency value: ±5%
Room temperature: from -10 to +45°C
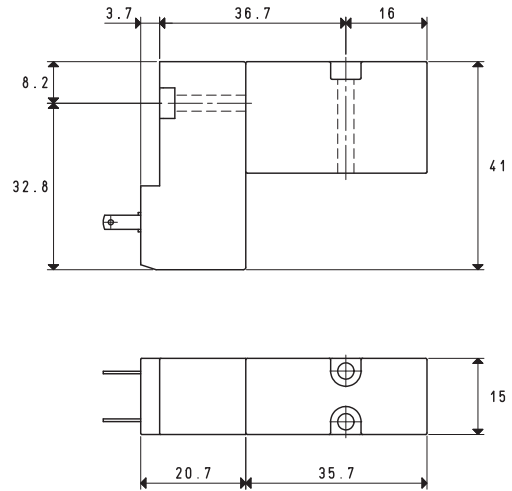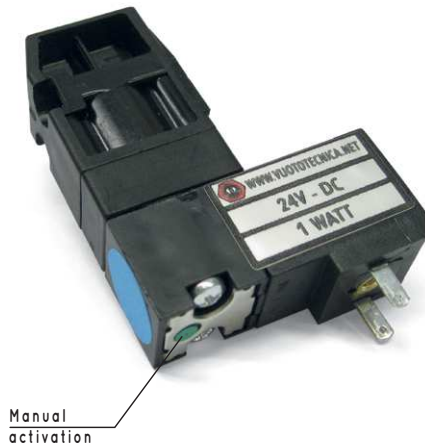Fluid temperature: from -10 to +95°C
Electrical power: from 1 to 2 W

Manual activation

20.7

15.2

41

SOLENOID PILOT VALVES WITH BUILT-IN LOW ABSORPTION ELECTRICAL COIL

Item	Service ED	Power W	Electrical voltage Volt	Pressure (bar) min	max	Weight g
00 07 301	100%	1	12 / 50 - 60Hz	0	8	32
00 07 302	100%	1	24 / 50 - 60Hz	0	8	32
00 07 303	100%	2	12 / DC	0	8	32
00 07 304	100%	2	24 / DC	0	8	32
For solenoid valves item						
07 01 13 - 07 02 13 - 07 03 13 - 07 04 13 - 07 05 13 - 07 06 13 - 07 08 13 - 07 09 13						
07 03 13 LP - 07 04 13 LP - 07 05 13 LP - 07 06 13 LP						
00 07 305	100%	1	12 / 50 - 60Hz	0	1	32
00 07 306	100%	1	24 / 50 - 60Hz	0	1	32
00 07 307	100%	2	12 / DC	0	1	32
00 07 308	100%	2	24 / DC	0	1	32
For solenoid valves item						
07 03 43 - 07 04 43 - 07 05 43						
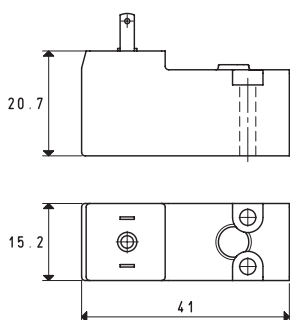
20.7

15.2

41

BISTABLE IMPULSE SOLENOID PILOT VALVES WITH BUILT-IN LOW ABSORPTION ELECTRICAL COIL

Item	Service ED	Power W	Electrical voltage Volt	Pressure (bar) min	max	Weight g
00 07 309	100%	1	12 / DC	0	8	30
00 07 310	100%	1	24 / DC	0	8	30
For solenoid valves item						
07 01 53 - 07 02 53 - 07 03 53 - 07 04 53 - 07 05 53 - 07 06 53 - 07 08 53 - 07 09 53						
07 03 53 LP - 07 04 53 LP - 07 05 53 LP - 07 06 53 LP						
00 07 311	100%	1	12 / DC	0	1	30
00 07 366	100%	1	24 / DC	0	1	30
For solenoid valves item						
07 03 63 - 07 04 63 - 07 05 63						

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) $\quad$ inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6}$ = $\dfrac{Kg}{0.4536}$

4

SOLENOID PILOT VALVES WITH INTERFACE VALVES

SOLENOID PILOT VALVES WITH INTERFACE VALVES

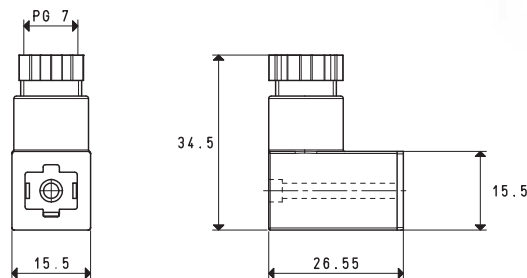| Item	Pressure (bar)		Weight	For solenoid valves
	min	max	g	item
00 15 437	0	8	52	07 06 13 - 07 06 13 LP - 07 08 13 - 07 09 13
00 15 478	0	8	52	07 06 53 - 07 06 53 LP - 07 08 53 - 07 09 53

MICRO CONNECTORS EN 175301 - 803 (EX DIN 43650) - C, FOR SOLENOID PILOT VALVE ELECTRIC COILS

Connectors are essential elements for bringing electricity to solenoid pilot valves with built-in low absorption coil.

They are available in the simple plug version, with a LED for signalling the presence of voltage and, upon request, with anti-interference circuits, with protection against overvoltage and polarity inversion. When correctly installed, all connectors provide full protection against water jets, according to EN 60529 standards (protection class IP 65). Moreover, they meet VDE 0110-1/89 standards, working voltage up to 250 V, overvoltage category II, Degree of use 3, regarding insulation class.

In all contacts, a snap joint between contact holders and the external protection guarantees a safe locking and easy assembly.

Safe locking is essential for guaranteeing the operator full protection when handling the connector. The contact holder can be easily extracted from its casing simply using a screwdriver. This operation also allows orienting the earthing contact in the desired direction.

Item	Nominal flow rate of contacts	Max cross-section of conductors	Temperature in operation	Ø cable	Weight	Notes	For solenoid pilot valves
	A	mm²	°C	mm	g		item
00 15 157	max 10	0.75	-40 ÷ +90	4 ÷ 6	8	With LED	All

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)   inch = $\dfrac{mm}{25.4}$; pounds = $\dfrac{g}{453.6}$ = $\dfrac{Kg}{0.4536}$

SOLENOID VALVE SEALING KIT
# WITH LOW ABSORPTION ELECTRIC COILS

Sealing kits are composed of a membrane, shutters and standard O-rings installed on our compressed air and vacuum three-way solenoid valves.
In the presence of very hot fluids (up to 250°C) or corrosive fluids, we can supply sealing kits in special compounds. Please contact our technical department.

Complete kit for solenoid valves:	07 01 13 e 07 02 13	item 00 07 271
	07 03 13	item 00 07 272
	07 03 13 LP	item 00 07 290
	07 04 13 e 07 05 13	item 00 07 273
	07 04 13 LP e 07 05 13 LP	item 00 07 291
	07 06 13	item 00 07 274
	07 06 13 LP	item 00 07 292
	07 08 13	item 00 07 379
	07 09 13	item 00 07 383
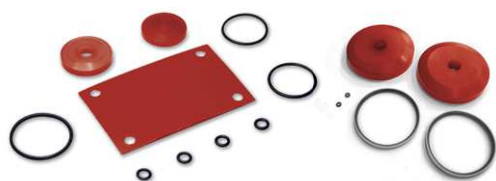
Complete kit for solenoid valves:	07 01 53 e 07 02 53	item 00 07 275
	07 03 53	item 00 07 276
	07 03 53 LP	item 00 07 293
	07 04 53 e 07 05 53	item 00 07 277
	07 04 53 LP e 07 05 53 LP	item 00 07 294
	07 06 53	item 00 07 278
	07 06 53 LP	item 00 07 295
	07 08 53	item 00 07 379
	07 09 53	item 00 07 383

Complete kit for solenoid valves:	07 03 43 e 07 04 43	item 00 07 279
	07 03 63 e 07 04 63	item 00 07 279
	07 05 43 e 07 05 63	item 00 07 280

PILOT MEMBRANES FOR SOLENOID VALVES
WITH LOW ABSORPTION ELECTRIC COILS
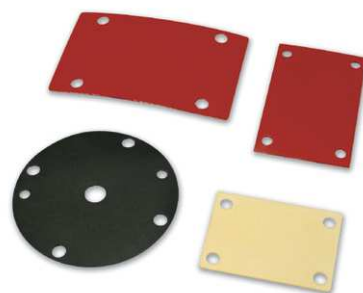
Item	For valves item	Connections	Material	Colour	Dimensions mm
00 07 104	07 03 43 - 07 04 43 07 03 63 - 07 04 63	G1/2" - G3/4"	Reinforced NBR	Black	Ø 65
00 07 105	07 05 43 - 07 05 63	G1"	Reinforced NBR	Black	Ø 76
00 07 229	07 01 13 - 07 01 53 07 02 13 - 07 02 53	G1/4" - G3/8"	Vulkollan®	Beige	49 x 35
00 07 230	07 03 13 - 07 03 53	G1/2"	Urepan® 65	Grey - orange	62 x 39
00 07 296	07 03 13 LP - 07 03 53 LP	G1/2"	Vulkollan®	Beige	62 x 39
00 07 231	07 04 13 - 07 04 53 07 05 13 - 07 05 53	G3/4" - G1"	Urepan® 65	Grey - orange	79 x 49
00 07 297	07 04 13 LP - 07 04 53 LP 07 05 13 LP - 07 05 53 LP	G3/4" - G1	Vulkollan®	Beige	79 x 49
00 07 232	07 06 13 - 07 06 53	G1" 1/2	Urepan® 65	Grey - orange	129 x 89
00 07 298	07 06 13 LP - 07 06 53 LP	G1" 1/2	Vulkollan®	Beige	129 x 89