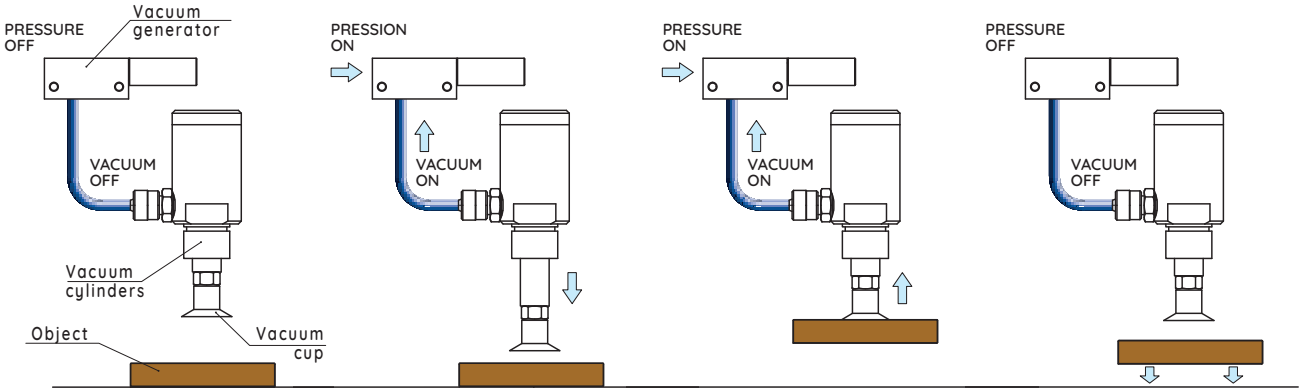
VACUUM CYLINDERS

The cylinders described on this page are vacuum operated.
By creating a vacuum in the anterior chamber of the cylinder, the piston's integrated rod protrudes, overcoming the opposing spring force.
The piston is pushed by the air at atmospheric pressure that gets into the cylinder's rear chamber through the hollow stem.
The greater the pressure differential between the front chamber under vacuum and the rear chamber at atmospheric pressure, and the larger the piston thrust force will be.
The stem returns into position in two ways:

1) By preventing the atmospheric air from entering through the stem hole and with the vacuum inserted, the pressure differential inside the cylinder is removed. Under this condition, the thrust spring and the atmospheric pressure forces prevail on the stem which is thus pushed into its initial position.
2) By excluding the vacuum, the atmospheric pressure is restored in both the cylinder chambers. Also in this case, being the pressure differential removed, the stem returns to its initial position pushed by the thrust spring.

The first of these two methods is the true operating principle for which this cylinder has been designed. When a vacuum is created, in fact, a vacuum cup mounted on the stem of the perforated cylinder will be brought rapidly into contact with the object to be taken. The object is then automatically lifted and remain gripped during the whole time the vacuum stays engaged.
Because of this feature, vacuum cylinders associated with vacuum cups are recommended for gripping and handling machined, moulded or thermoformed objects, as well as for separating sheets of paper or plastic, sheet steel, etc. and lifting printed circuits or thin plastic panels.
The advantages offered by these vacuum cylinders include: short, fast quick cycles controlled by a single vacuum interception valve, automatic compensation of the height of the objects to be gripped with no compression on them, non-rotating piston and extremely easy fixing.
They are fully made with anodised aluminium and are equipped with a special self-lubricating technopolymer bush which guarantees long duration.

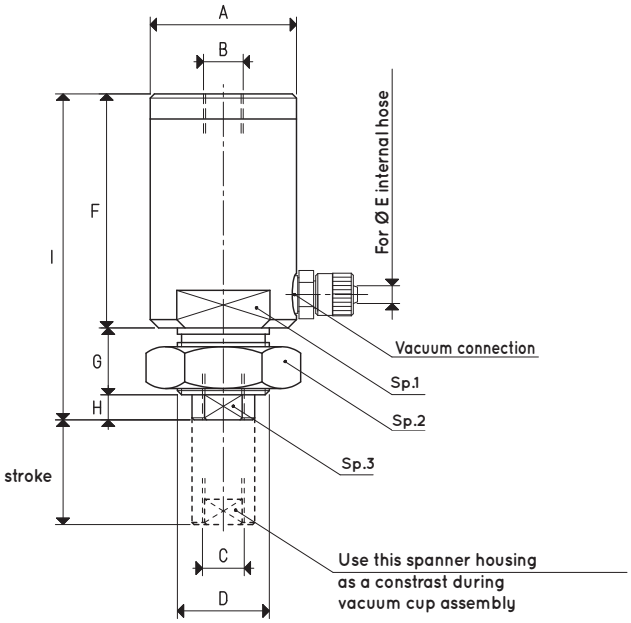


Sequence 1	Sequence 2	Sequence 3	Sequence 4
Vacuum not active	**Vacuum active**	**Vacuum active**	**Vacuum not active**
Piston rod at rest	Piston extends towards the object	The rod retracts automatically as soon as the suction cup adheres to the object	The object is released

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 1.134

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



Caution:
during the vacuum cup assembly phase, use the wr.3 seat as a contrast and not the wr.1 seat to avoid damaging the product.

Item		25 05 10	25 10 10	25 15 10
Stroke	mm	17	25	30
Lifting force at -KPa 80	Kg	0.45	1.0	2.5
Minimum cycle time	sec	0.3	0.4	0.6
Minimum level of vacuum	-KPa	60	60	60
Minimum necessary flow rate	Nl/1'	15	30	90
	m^3/h	0.9	1.8	4.5
Operating temperature	°C	5 ÷ 80	5 ÷ 80	5 ÷ 80
Weight	g	55	145	515
A	Ø	24	35	59
B	Ø	M 6	G1/8"	M 10
C	Ø	M 5	G1/8"	G1/4"
D	Ø	M 16 x 1.5	M 22 x 1.5	M 40 x 1.5
E Vacuum connection by tube	Ø int.	4	4	6
F		39.5	56	66
G		12	16	17
H		4	6	9
I		55.5	78	92
wr. 1		19	27	50
wr. 2		24	32	55
wr. 3		8	12	17

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