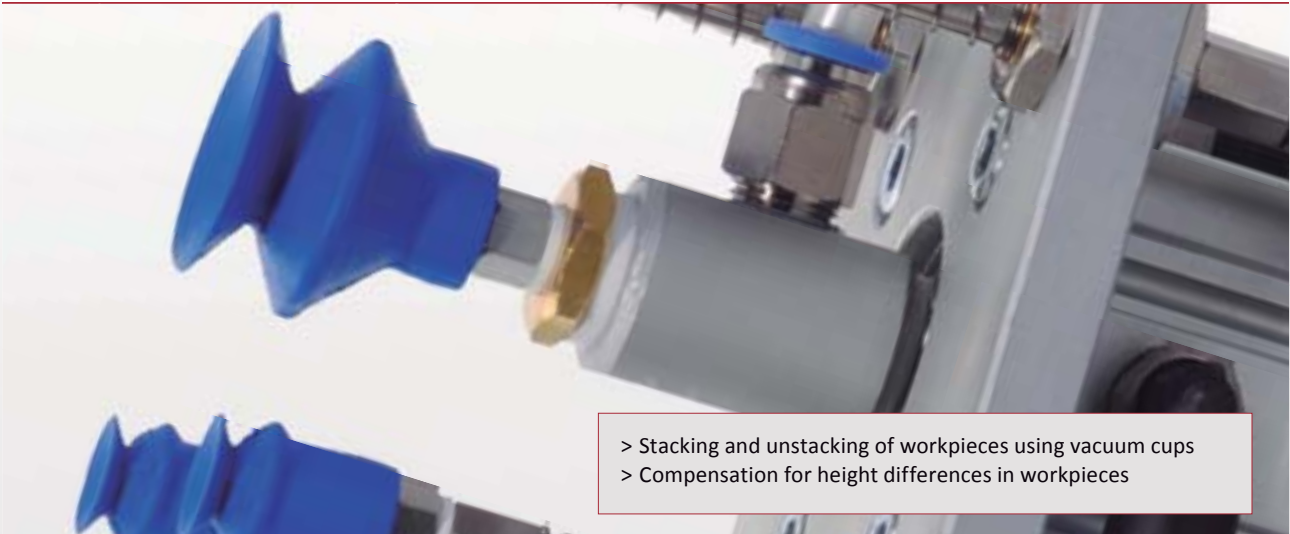




FIPA Lifting cylinders



- > Stacking and unstacking of workpieces using vacuum cups
- > Compensation for height differences in workpieces



Compressed-air operated lifting cylinders for direct vacuum cup mounting (55.100 - 55.120)

- > Stacking and unstacking applications
- > Integrated vacuum generation
- > Specially suited for vacuum cups of SFU-F and SBF-B series

> See page 462



Compressed-air operated lifting cylinders - with anti-twist (55.005)

- > Picking-up and stacking flat and sensitive objects such as signs, card, labels, veneer correct position using an anti-twist piston rod
- > Integrated vacuum generation
- > Very short cycle times thanks to integrated compressed air pulse during placement
- > Very compact design in robust aluminium housing
- > Long service life of around 25 million cycles thanks to Hardcoat® treated running surfaces
- > Optional part control by monitoring piston position

> See page 466



Vacuum operated lifting cylinder - with anti-twist (55.000, 55.001, 55.004)

- > Suction and lifting of flat and sensitive objects such as signs, cards, labels, veneer
- > Part extraction from injection molds
- > Fixation of workpieces in cutting stations
- > Compensation of height differences between vacuum cup and workpiece
- > Short cycle times thanks to low moving masses
- > Robust aluminium housing
- > Long service life of around 25 million cycles thanks to Hardcoat® treated running surfaces
- > Particularly low-noise design

> See page 468



FIPA Lifting cylinders



Vacuum operated lifting cylinders - with anti-twist (55.002)

- > Stacking and lifting of metal sheets and heavy parts
- > Compensation of height differences between vacuum cup and workpiece
- > Robust aluminium housing
- > Long service life of around 25 million cycles thanks to Hardcoat® treated running surfaces

> See page 468

Operation principles

55.100 to 55.120

In the initial position the piston rod is extended. As soon as compressed air supply is activated, vacuum is created by the integrated ejector. When the vacuum cup makes contact with the object to be handled, the piston rod is rapidly retracted.

The handled object is held in position until compressed air supply is turned off.

55.005

In the initial position the piston rod is retracted. As soon as compressed air supply is activated, vacuum is created by the integrated ejector and the piston rod is extended.

When the vacuum cup makes contact with the object to be handled, the piston rod is rapidly retracted.

When compressed air is switched off, a pulse of compressed air from an integrated air chamber drives the piston rod back out and the object is released.

55.000 to 55.004

In the initial position the piston rod is retracted. Upon application of vacuum, the piston rod with the vacuum cup is extended.

When the vacuum cup makes contact with the object to be handled, the piston rod is rapidly retracted.

The gripped object remains on the vacuum cup until vacuum supply is switched off.



Fastening elements vacuum cups | Lifting cylinders

Vacuum lifting cylinder - operated by compressed air

Vacuum lifting cylinder - operated by compressed air

For flat suction picking, e.g. for suction cup series SFU-F Ø 4 - 15 mm



Product Description

- > Stacking and destacking of workpieces
- > Vacuum generation by compressed air using an integrated ejector
- > Lifting cylinder extended during idle state
- > Cycle time independent of lift and weight

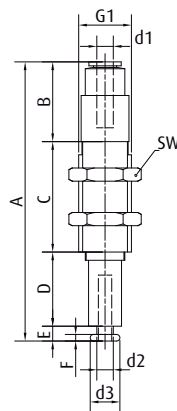
Ordering notes

- > Suitable vacuum cups can be found in chapter vacuum cups series, flat vacuum cups SFU-F Ø 4 - 15 mm and bellows vacuum cups SBF-B Ø 6 - 15 mm

Technical data

Item no.	Lift [mm]	Lifting force [N]	Operating pressure [bar]	Vacuum level [mbar]	Cycles [1/min]	Weight [g]	Suitable fittings for extrusion system
55.100	5	3.5 - 5	3.5 - 4.5	-700	50	33	GR02.231 (p.458)
55.102	10	3.5 - 5	3.5 - 4.5	-700	50	36	GR02.231 (p.458)
55.104	20	3.5 - 5	3.5 - 4.5	-700	50	41	GR02.231 (p.458)
55.106	30	3.5 - 5	3.5 - 4.5	-700	50	45	GR02.231 (p.458)
55.108	5	3.5 - 5	3.5 - 4.5	-700	50	32	GR02.231 (p.458)
55.110	10	3.5 - 5	3.5 - 4.5	-700	50	45	GR02.231 (p.458)
55.112	20	3.5 - 5	3.5 - 4.5	-700	50	52	GR02.231 (p.458)
55.114	30	3.5 - 5	3.5 - 4.5	-700	50	45	GR02.231 (p.458)

Dimensions



Fastening elements vacuum cups | Lifting cylinders

Vacuum lifting cylinder - operated by compressed air



Item no.	G1	A [mm]	B [mm]	C [mm]	D [mm]	d1 [mm]	d2 [mm]	d3 [mm]	E [mm]	F [mm]	SW
55.100	M16x1	55	23.5	22	5	4	5	9	4.5	2	19
55.102	M16x1	65	23.5	27	10	4	5	9	4.5	2	19
55.104	M16x1	85	23.5	37	20	4	5	9	4.5	2	19
55.106	M16x1	105	23.5	47	30	4	5	9	4.5	2	19
55.108	M16x1	56.5	25	22	5	6	5	9	4.5	2	19
55.110	M16x1	66.5	25	27	10	6	5	9	4.5	2	19
55.112	M16x1	86.5	25	37	20	6	5	9	4.5	2	19
55.114	M16x1	106.5	25	47	30	6	5	9	4.5	2	19



Fastening elements vacuum cups | Lifting cylinders

Vacuum lifting cylinder - operated by compressed air

Vacuum lifting cylinder - operated by compressed air

For high suction picking, e.g. for series SFU-F \varnothing 20 - 40 mm



Product Description

- > Stacking and destacking of workpieces
- > Vacuum generation by compressed air using an integrated ejector
- > Lifting cylinder extended during idle state
- > Cycle time independent of lift and weight

Ordering notes

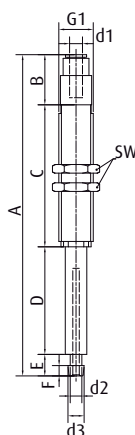
- > Suitable vacuum cups can be found in chapter vacuum cups series, flat vacuum cups SFU-F \varnothing 20 - 40 mm and bellow vacuum cups SBF-B \varnothing 20 mm

Technical data

Item no.	Lift [mm]	Lifting force [N]	Operating pressure [bar]	Vacuum level [mbar]	Cycles [1/min]	Weight [g]	Suitable fittings for extrusion system
55.101	5	3.5 - 5	3.5 - 4.5	-700	50	33	GR02.231 (p.458)
55.103	10	3.5 - 5	3.5 - 4.5	-700	50	36	GR02.231 (p.458)
55.105	20	3.5 - 5	3.5 - 4.5	-700	50	41	GR02.231 (p.458)
55.107	30	3.5 - 5	3.5 - 4.5	-700	50	46	GR02.231 (p.458)
55.109	5	3.5 - 5	3.5 - 4.5	-700	50	33	GR02.231 (p.458)
55.111	10	3.5 - 5	3.5 - 4.5	-700	50	36	GR02.231 (p.458)
55.113	20	3.5 - 5	3.5 - 4.5	-700	50	41	GR02.231 (p.458)
55.115	30	3.5 - 5	3.5 - 4.5	-700	50	46	GR02.231 (p.458)
55.120	50	3.5 - 5	3.5 - 4.5	-700	50	56	GR02.231 (p.458)



Dimensions



Item no.	G1	A [mm]	B [mm]	C [mm]	D [mm]	d1 [mm]	d2 [mm]	d3 [mm]	E [mm]	F [mm]	SW
55.101	M16x1	60.5	23.5	22	5	4	5	7.5	10	5	19
55.103	M16x1	70.5	23.5	27	10	4	5	7.5	10	5	19
55.105	M16x1	90.5	23.5	37	20	4	5	7.5	10	5	19
55.107	M16x1	110.5	23.5	47	30	4	5	7.5	10	5	19
55.109	M16x1	62	25	22	5	6	5	7.5	10	5	19
55.111	M16x1	72	25	27	10	6	5	7.5	10	5	19
55.113	M16x1	92	25	37	20	6	5	7.5	10	5	19
55.115	M16x1	112	25	47	30	6	5	7.5	10	5	19
55.120	M16x1	151	25	67	50	6	5	7.5	10	5	19



Fastening elements vacuum cups | Lifting cylinders

Lifting cylinder - operated by compressed air

Lifting cylinder - operated by compressed air

With blow-off feature, torsionally rigid



Product Description

- > Stacking and destacking of thin and sensitive products, such as e.g. signboards, cards, paper, thin wood (veneers)
- > Very short cycle times thanks to compressed air pulse during placement
- > Suitable for fast transport movements
- > Torsionally rigid piston rods for correctly positioned placement
- > Robust aluminium housing with Hartcoat® coating in compact design with integrated ejector, valve technology and air chamber for blow-off air
- > Optional PNP magnetic field sensor to monitor lifting of workpiece

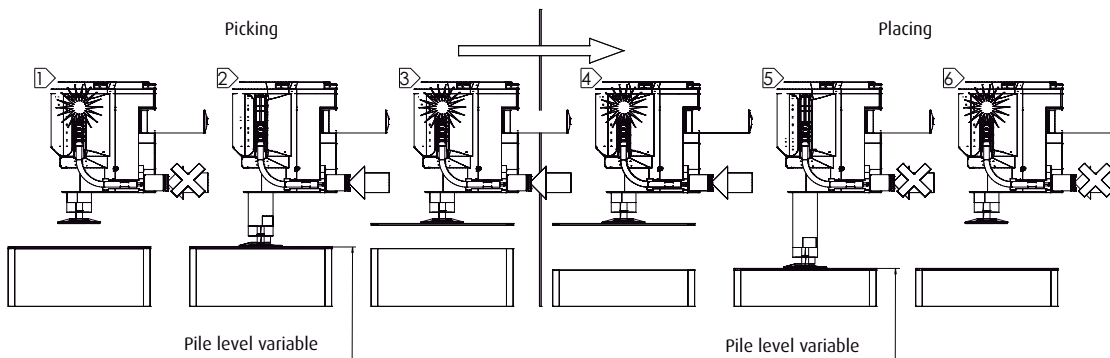
Notes

- > For release of workpiece (in defined position) compressed air line needs to be shut and ventilated by means of a 3/2 way valve. Otherwise the piston will not extend again for product release and the workpiece will just fall down.

Technical data

Item no.	Lift [mm]	Lifting force at 6 bar [N]	Operating pressure [bar]	Volume flow at 6 bar [l/min]	Operating temperature [°C]	Weight [g]	Suitable accessories
55.005	25	8	5 - 8	48	5 - 80	220	Silencers 72.028 (p.577) Magnetic field sensor 55.099

Wiring diagram

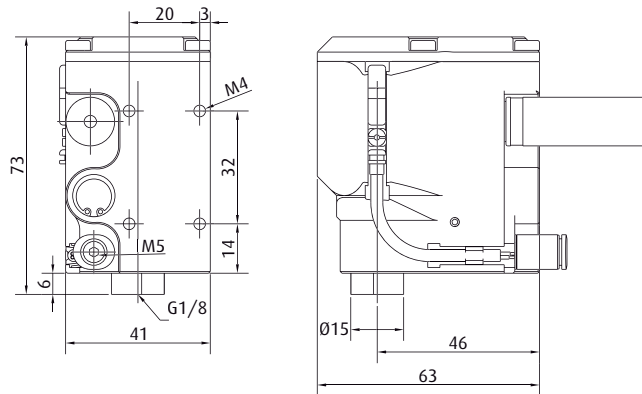


Process:

1. Initial position: Compressed air off, piston drawn in, magnetic sensor in operation
2. Compressed air switched on, piston moves out, workpiece is pulled in, piston retracts with the workpiece to the initial position
3. Workpiece sucked in and lifted, compressed air on, magnetic field sensor in operation
4. Transport movement
5. Switch off compressed air, piston moves out with the workpiece, places the workpiece and retracts to the initial position
6. Initial position: Compressed air off, piston drawn in, magnetic sensor in operation

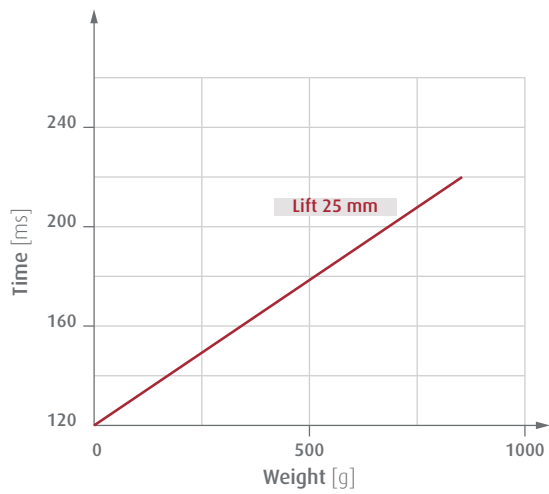


Dimensions

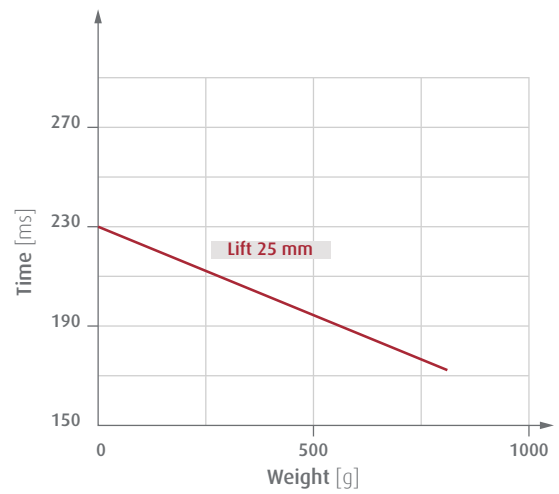


Diagrams

> Double lift lifting time against weight, pressure 6 bar



> Double lift lifting time against weight, pressure 6 bar





Fastening elements vacuum cups | Lifting cylinders

Lifting cylinder - vacuum-operated

Lifting cylinder - vacuum-operated

Torsionally rigid



55.000 | 55.001 | 55.004



55.002

Product Description

- > Picking-up and stacking flat and sensitive objects such as e.g. signs, card, paper, veneers
- > Suitable for short cycle times
- > Application e.g. for workpiece fixation in cutting stations
- > Robust aluminium housing, Hartcoat® treated
- > Anti-twist piston rod
- > Particularly low-noise version

Notes

- > 55.002: Stacking and lifting of metal sheet and heavy parts, not suitable for workpieces permeable to air

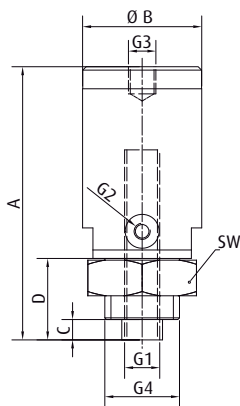
Ordering notes

- > Customised sizes on request

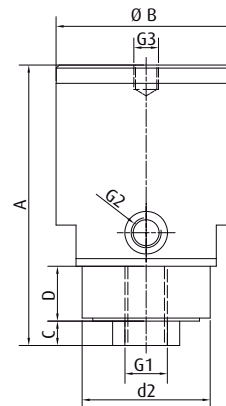
Technical data

Item no.	Lift [mm]	Volume flow at 80 % vacuum [Nl/min]	Lifting force at 80 % vacuum [N]	Cycle time (extend-suction-lift) [s]	Operating temperature [°C]	Weight [g]
55.000	17	15	3	0.3	5 - 80	55
55.001	25	30	10	0.4	5 - 80	145
55.002	30	35	50	0.7	5 - 80	310
55.004	40	30	10	0.7	5 - 80	185

Dimensions



55.000 | 55.001 | 55.004



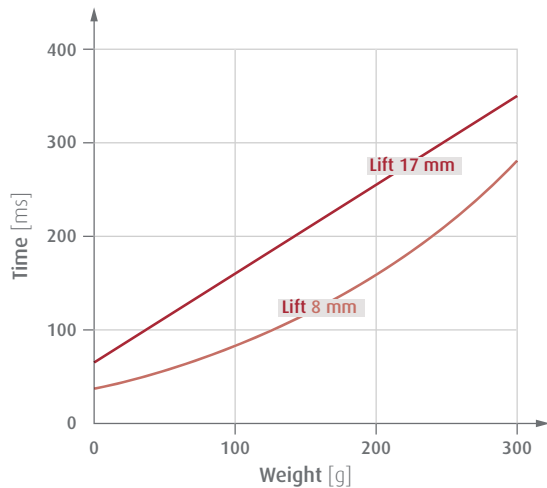
55.002



Item no.	G1	G2	G3	G4	A [mm]	Ø B [mm]	C [mm]	D [mm]	d2 [mm]	SW
55.000	M5	M5	M6	M16x1.5	55.5	24	4	16	--	24
55.001	G1/8	M5	M8	M22x1.5	78	35	6	22	--	32
55.002	G1/4	G1/8	M10	--	92	59	9	18	44	--
55.004	G1/8	G1/8	M8	M22x1.5	98	35	9	24	--	32

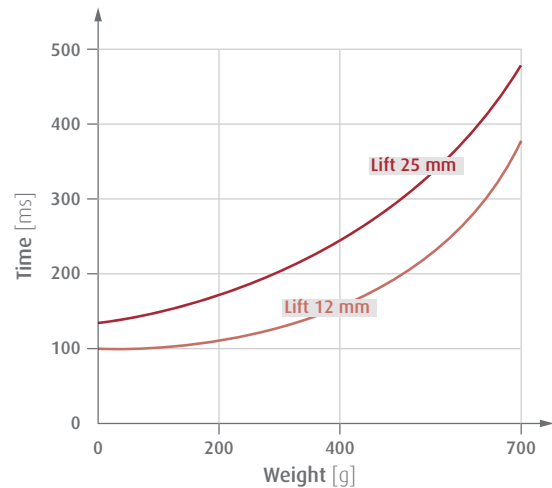
Diagrams

> Double lift lifting time against weight



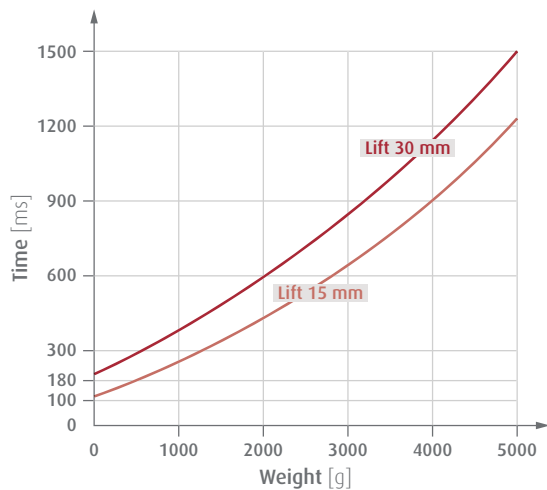
55.000

> Double lift lifting time against weight



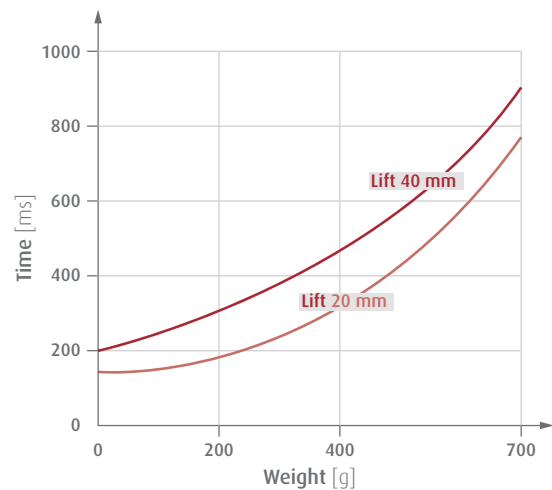
55.001

> Double lift lifting time against weight



55.002

> Double lift lifting time against weight



55.004