

Air cushion plates ATBT

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Key features

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At a glance

Principle

- The air cushion plate uses a porous, air-permeable material. When the plate is supplied with compressed air, a uniform air flow is produced which enables flat workpieces to be carried and moved without contact
- The air cushion plate consists of an aluminium base and a porous plate

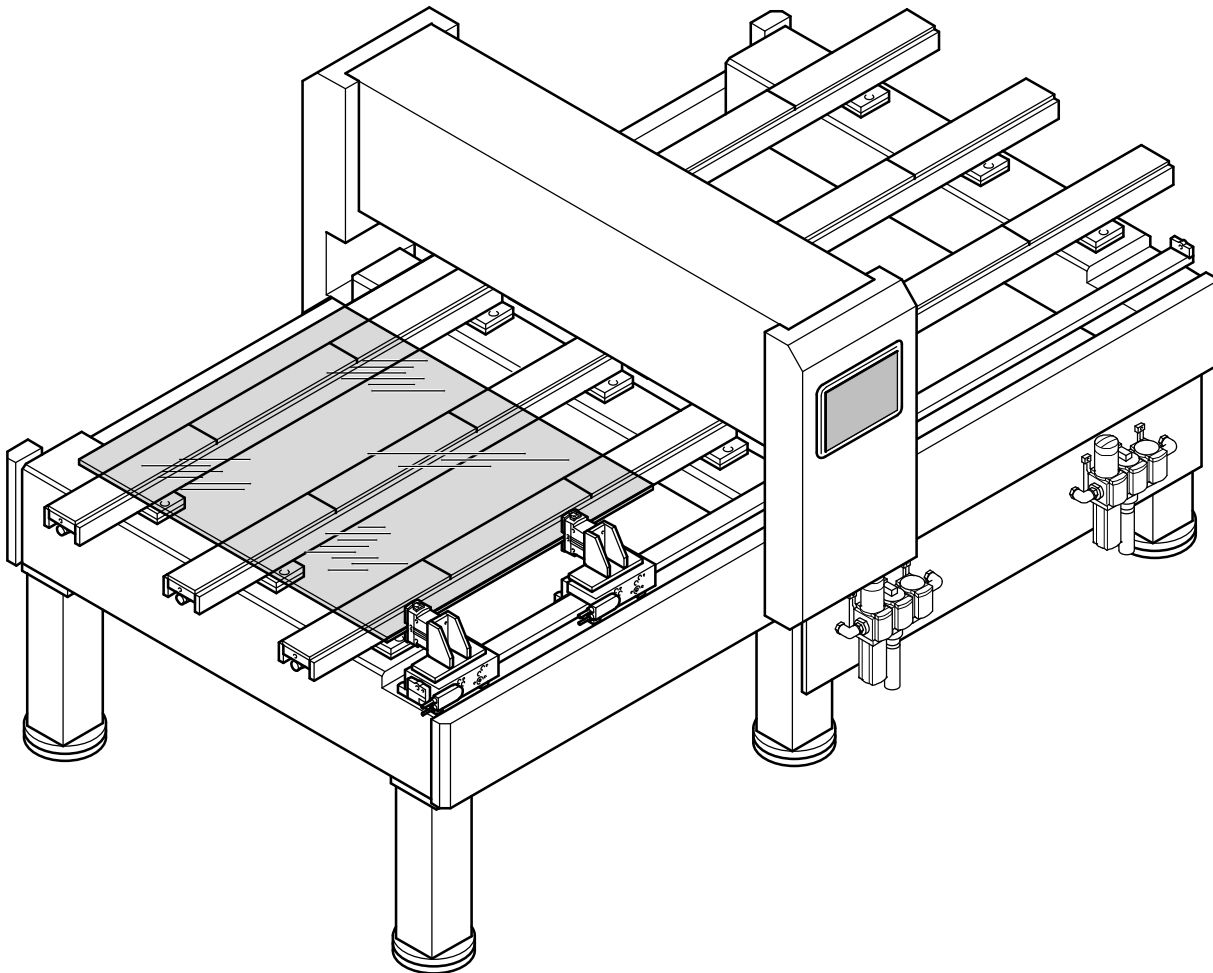
Advantages

- It works without contact by means of an air cushion, without consuming excessive amounts of compressed air
- Uniform air flow ensures maximum precision and allows for short cycle times

Applications

- Ideally suited to almost any task in the field of transporting and conveying flat products
- For loading and unloading
- For intermediate buffers
- For lifting and centring, for holding and retaining objects using vacuum

Sample application



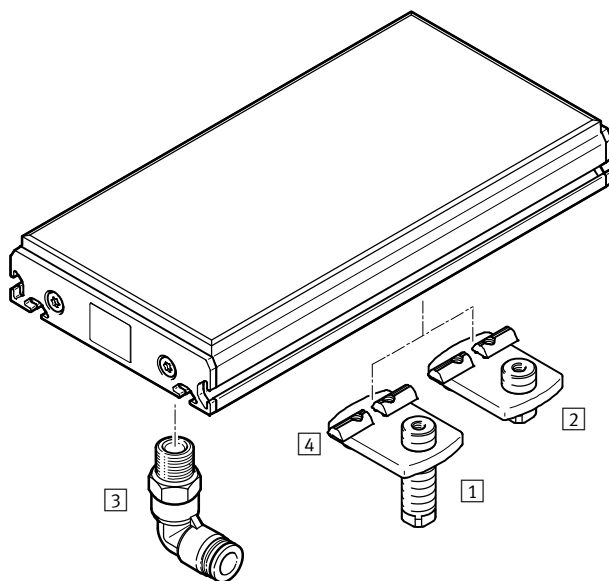
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Type codes and peripherals overview

Type codes

		ATBT	-	100	-	250
Type						
ATBT	Air cushion plate					
Size						
Length [mm]						

Peripherals overview




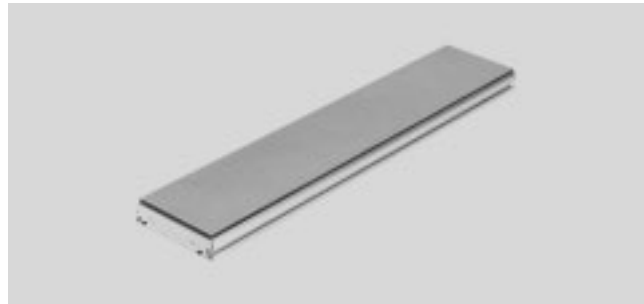
Mounting components and accessories		
	Brief description	→ Page/Internet
1	Adjusting kit ATAB-B-1	Adjustable installation height 35 mm 8
2	Adjusting kit ATAB-B-2	Adjustable installation height 15 mm 8
3	Push-in L-fitting QSL	With different nominal sizes for adjusting the flow rate. For connecting compressed air tubing with standard O.D. 9
4	Slot nut HMBN	For mounting the air cushion plates via the mounting slots 8

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Technical data

-  Length
100 ... 1500 mm



General technical data		
Size		100
Length	[mm]	200; 250; 300; 500; 1500 100 ... 1500 ¹⁾
Pneumatic connection		G1/4
Max. surface load during operation	[kg/m ²]	400
Repetition accuracy of the cushion height	[µm]	±10
Flatness		
With adjustable mounting kit	[µm]	60
Direct mounting	[µm]	110
Shore hardness		D 80 ±5
Mounting position		Horizontal
Type of mounting		Via slot nuts
Product weight	[kg/m]	3.6

1) Can be ordered in 10 mm increments.


Operating and environmental conditions		
Operating pressure ¹⁾	[bar]	≤ 2
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [1:4:1]
Note about the operating/pilot medium		Lubricated operation not possible
Ambient temperature	[°C]	+10 ... +50
Temperature of medium	[°C]	+10 ... +50
Storage temperature	[°C]	+5 ... +60
Corrosion resistance class CRC ²⁾		2

1) Typical operating pressure 300 ... 500 mbar

2) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

Materials	
Porous plate	Chemically bonded aluminum hydroxide
Profile	Colourless anodised wrought aluminium alloy
End cap	Colourless anodised wrought aluminium alloy
Screws	Galvanised steel
Note on materials	RoHS-compliant

-  Note
Only suitable for dry workpieces.

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Technical data

Adjusting the cushion height

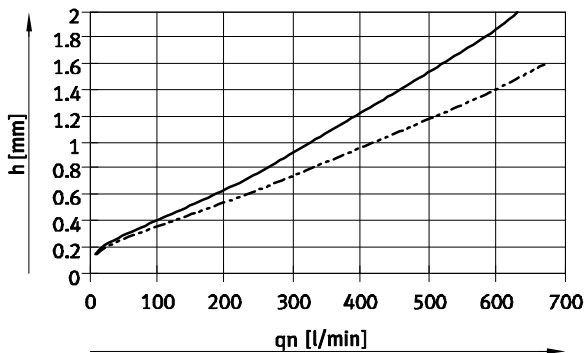
The air cushion plate generates an air cushion between the workpiece and plate surface when compressed air is applied to it.

The air cushion is dependent on the weight of the workpiece, i.e. the surface load on the air cushion plate and the flow rate.

Depending on the push-in L-fitting QSL used (→ 9), the flow rate can be adjusted via the supply pressure.

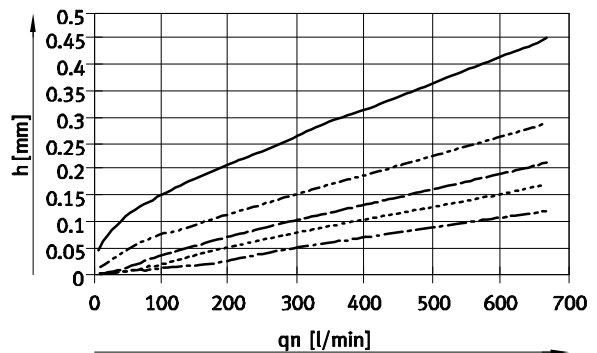
Cushion height h as a function of flow rate q_n

For typical surface loads



— 0.5 g/cm²
- - - 0.9 g/cm²

For high surface loads

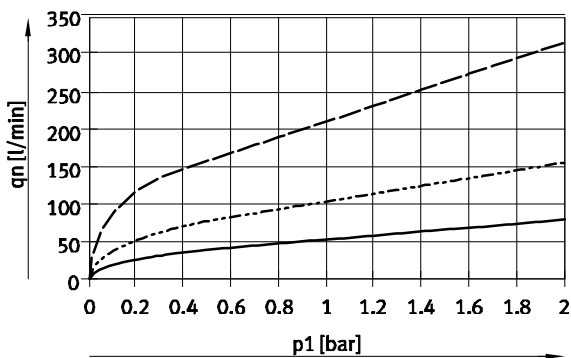


— 9 g/cm²
- - - 16 g/cm²
- · - 21 g/cm²
····· 30 g/cm²
- - - - 45 g/cm²

Note

The altitudes were determined using a sample structure with 2x ATBT-100-500. The values for other combinations may deviate.

Flow rate q_n of the push-in L-fitting as a function of operating pressure p_1



— Nominal size 1.8 mm
- - - Nominal size 2.5 mm
- · - Nominal size 3.5 mm

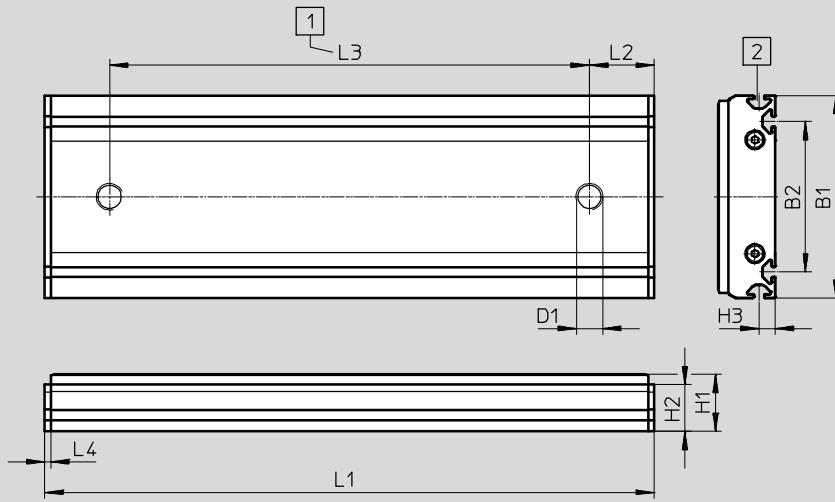
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Technical data

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Dimensions

Download CAD data → www.festo.com



- 1 Above a length of $L1 = 760$ mm with two supply ports
- 2 Mounting slot

Length	B1	B2	D1	H1	H2	H3
[mm]	-0.5	±0.2		±0.05		±0.2
200	100	74	G $\frac{1}{4}$	28	22.9	8
250						
300						
500						
1500						
100 ... 1500						

Length	L1	L2	L3	L4
[mm]	±0.5	±0.35	±0.5	
200	200	32	-	3
250	250	32	-	
300	300	32	-	
500	500	32	-	
1500	1,500	375	750	
100 ... 1500	In 10 mm increments	32/0.25 x $L1^{1)}$	0.5 x $L1^{2)}$	

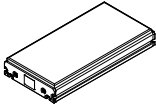
1) Length $L1 \leq 750$ mm/length $L1 \geq 760$ mm

2) Length $L1 \geq 760$ mm

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Ordering data – Modular products




Ordering data			
Type	Length [mm]	Part No.	Type
	200	2109868	ATBT-100-200
	250	2109869	ATBT-100-250
	300	2109870	ATBT-100-300
	500	2109871	ATBT-100-500
	1500	2109872	ATBT-100-1500

Ordering data – Modular products							
Size	100	Condi- tions		Code		Enter code	
M Module No.	8021855						
Function	Air cushion plate			ATBT			ATBT
Size [mm]	100			-...			
Length [mm]	100 ... 1500		1	-...			

1 Can be ordered in 10 mm increments

Transfer order code

ATBT - -

 Note
Minimum order quantity 10 items

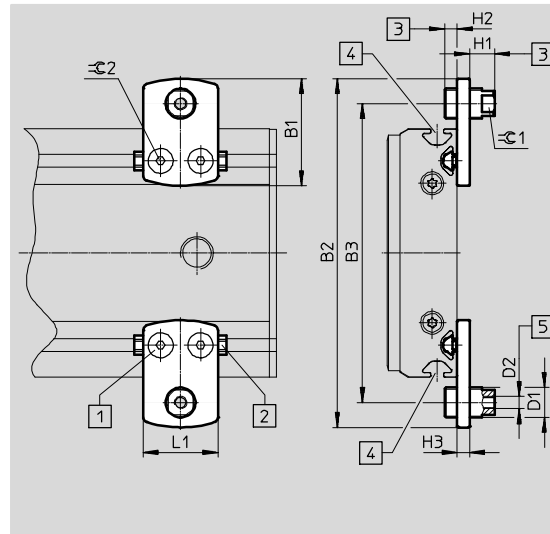
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Accessories



Adjusting kit
ATAB-B-...

Material:
Nickel-plated steel



Note
Mounting of the air cushion plate:
 • Uniformly at 3 points at least
 • Symmetrically (left/right) at intervals of max. 200 mm over the length

- 1 Countersunk screw
- 2 Slot nut
- 3 Adjustment height ± 3 mm, specified dimensions in mid-position
- 4 Lateral mounting variant
- 5 Screw-in depth max. 20 mm

Installation height = H1 + H3

Dimensions and ordering data								
Type	B1	B2	B3	D1	D2	H1 ± 3	H2	H3
ATAB-B-1	43	140	120	M12x1	M5	30	5	5
ATAB-B-1-40						30		
ATAB-B-2						10		
ATAB-B-2-40						10		

Dimensions and ordering data								
Type	L1	$\varnothing 1$	$\varnothing 2$	CRC ²⁾	Weight [g]	Part No.	Type	PU ¹⁾
ATAB-B-1	30	10	3	2	150	2099050	ATAB-B-1	4
ATAB-B-1-40						8005405	ATAB-B-1-40	40
ATAB-B-2						2099049	ATAB-B-2	4
ATAB-B-2-40						8005406	ATAB-B-2-40	40

1) Packaging unit

2) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

Ordering data – Slot nut		Technical data → Internet: hmbn	
	Brief description	Part No.	Type
	For mounting the air cushion plates via the mounting slots	189654	HMBN-5-M5


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Accessories

Special push-in fittings

The air cushion plate is supplied with compressed air via the connecting thread.

The following push-in fittings are recommended for adjusting the flow rate and the resulting air cushions.

Ordering data – Push-in L-fitting									
	Connection Thread	Nominal size [mm]	Flow rate [l/min]	Tubing O.D. [mm]	Weight [g]	Part No.	Type	PU ¹⁾	
With external hexagon									
	G $\frac{1}{4}$	1.8	0 ... 90	8	27	8005390	QSL-G$\frac{1}{4}$-8-C18	10	
		2.5	0 ... 180	8	27	8005391	QSL-G$\frac{1}{4}$-8-C25		
		3.5	0 ... 280	8	27	8005392	QSL-G$\frac{1}{4}$-8-C35		
			1.8	0 ... 90	8	27	8005393	QSL-G$\frac{1}{4}$-8-C18-50	50
			2.5	0 ... 180	8	27	8005394	QSL-G$\frac{1}{4}$-8-C25-50	
			3.5	0 ... 280	8	27	8005395	QSL-G$\frac{1}{4}$-8-C35-50	

1) Packaging unit