



Fact 29. 26=28 Roberna Street, Moorabbin Vic 3189

Ph: 61 3 9553 4882 Fax: 61 3 9553 4883

email: peter@pjmindustrial.com.au

TS

AIRCUSHIONS TYPE

A TS system is an aircushion transport system that consists in, at least, 4 aircushions assembled on supporting sheets, that include a control box and all air hoses needed, which is also known as a "system-ready-to-go".

Thanks to the extremely low friction created, this system is able to easily transport and place loads of more than 100 tons. Everything needed to improve your transport depends on a conditioned floor and enough air compressed.

The capacity, air consumption and elevation will depend on the adjustment, the air supply and the conditions of the floor. Non-conditioned floors can be temporally covered with sheets, etc. to allow the transport of the aircushions.

For modern maintenance departments and crane companies, the aircushion system can be an essential support. This system will quickly fully benefit even for moving little objects.

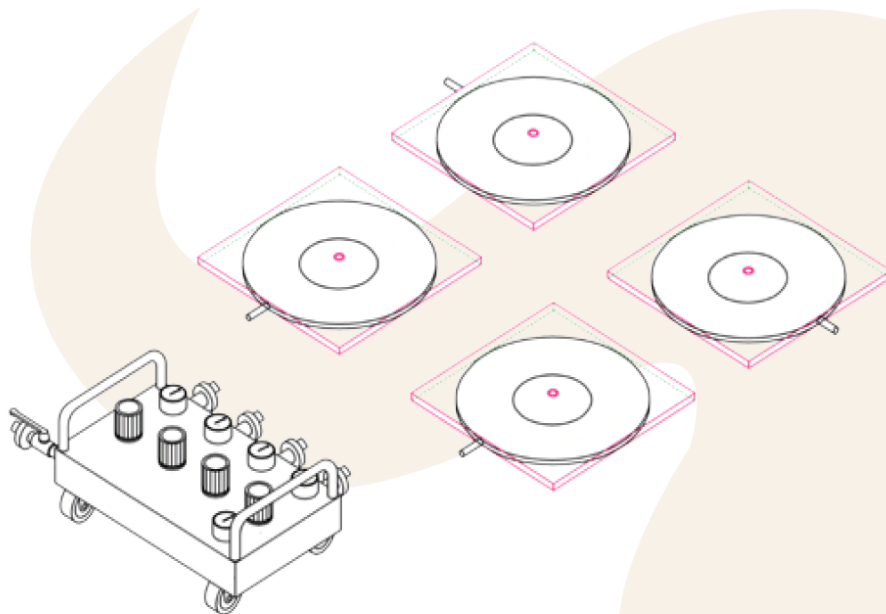
ADVANTAGES:

- Compact aircushion system.
- Flexible horizontal transport and placement.
- Low height construction.
- Directly applicable.
- Relatively low investment.

Of course, in case of doubt, we would be pleased to provide you with some extra advices, with no compromise.

TECHNICAL DATA:

TYPE	Capacity (KG)	Dimensions L x B x H (mm)	Air consumption in NL/min.	Aircushions elements.
TS-4-B30N	4000	300 x 300 x 22	1200 - 2400	4 x B30N
TS-8-B40N	8000	400 x 400 x 24	1.600 - 2800	4 x B40N
TS-12-B50N	12000	500 x 500 x 27	2000 - 3200	4 x B50N
TS-18-B50N	18000	500 x 500 x 27	3000 - 4800	6 x B50N
TS-24-B70N	24000	700 x 700 x 27	2400 - 4000	4 x B70N
TS-36-B70N	36000	700 x 700 x 27	3600 - 6000	6 x B70N
TS-40-B90N	40000	900 x 900 x 69	3200 - 5200	4 x B90N
TS-60-B90N	60000	900 x 900 x 69	4800 - 7800	6 x B90N
TS-160-B125HD	160000	1250 x 1250 x 69	7200 - 11200	4 x B125HD
TS-240-B125HD	240000	1250 x 1250 x 69	10800 - 16800	6 x B125HD



To move machinery from 500 kg to more than 100 tons, the aircushion system (type TS) is very versatile. Example: for moving 12 tons machinery. With four plates of 500 x 500 x 27 mm, with a minimum weight of 12 kg per piece, they are able to lift and float loads four times superior to 3.000 kg. Once the machine is lifted, one or two users are able to move these 12 tons. The needed air pressure is of 2 bars max. With four plates of 700 x 700 x 27 mm they are able to load 24.000 kg.

Due to the fact that you can perform every desirable horizontal movement, loads are easy to handle, turn and place in the right position. The equipment is extremely useful in operations where you need to move pieces through adjusted locations in which you will have to turn, push, pull, etc. More and more maintenance departments are using one or more of these systems.

This system also provides help for transporting containers, platforms for audience chairs, bus stop, paper reel movements, steel sheets, computers and all kind of machinery. Your maintenance department will work better and faster when using aircushion systems.



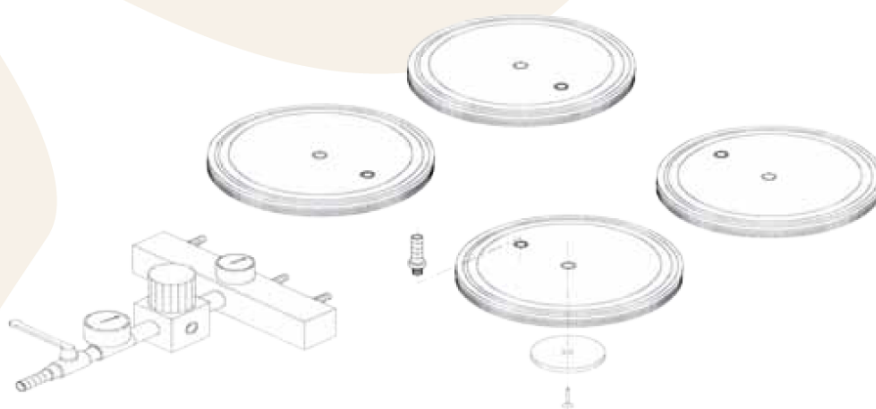
ST

AIRCUSHIONS TYPE

A basic STARTERSET consists of the following parts :

A - AIRCUSHIONS

- 4 Aircushions (depending configuration) with a mounting hole in the middle for a M10 bolt connection and a threaded hole to mount air supply gauge nipples. The max. capacity of each cushion is : Surface x Pressure (f.i. for A30N = Ø 300 at 1 bar = 500 kg).
The air consumption depends on the adjustment, the load and the floor quality.
- 4 Round mounting and supporting plates.
- 4 Galvanized M10 x 35 bolts, hexagon socket countersunk head screws. Other lengths available.



B - AIR REGULATION

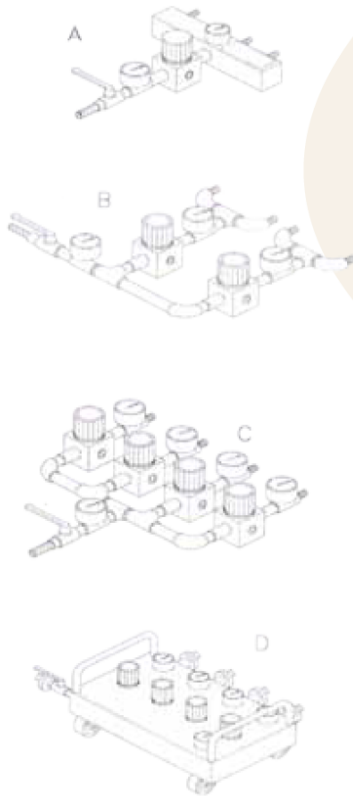
A composition of :

- 1 supply hose connection.
- 1 ball valve.
- 1 air supply pressure manometer.
- 1 pressure reducer.
- 1 manometer for the air pressure in the aircushions.
- 1 air distributor with 4 outputs for the air connections on the aircushions.
- 4 air supply gauge nipples to be mounted on the aircushions.

C - TO BE ADDED BY THE CUSTOMER

- Each aircushion element requires a round or square (steel, aluminium or plastic) support, at least 5 mm thick, with minimal the size of the aircushion. In the center, a 10 mm or M10 threaded hole is required for mounting. An aircushion can also be connected direct to a structure. A second hole is necessary for the air supply hose nipple. The larger the distance between the aircushions, the better the function.
- 1 supply hose with hose clamps. For a hose length of more than 10 m, the diameter has to be enlarged. Make sure there is sufficient air supply !
- 4 divide hoses with hose clamps.
- Teflon tape or sealer to mount the air supply hose nipples to the aircushions.
- Check the floor of the transport route (see the information : floor specifications).

MANUAL



1 - Mount the air supply hose nipples to the aircushions. Don't tighten the nipples too strong.

2 - Mount the aircushions to the support plates or the structure of the installation. For aircushions that are difficult to install, a slide system is available.

3 - Connect the divide hoses to the outputs of the air distributor and the aircushions. Try to make the divide hoses about the same length.

4 - For the best result, the aircushions need to be situated in a way that the loading of each aircushion is almost equal and the aircushions are placed as far from each other as possible.

If you cannot arrange this, another air regulation system (Type B or C) has to be used.

5 - Connect the main air supply hose to the air distribution system.

6 - Set the ball valve perpendicular to the airflow (= close).

7 - Connect the main air supply hose to the shop air system or a compressor of sufficient capacity.

8 - Recheck all hose connections.

9 - Close the pressure reducer completely by turning the knob anti-clockwise, if this is not possible the knob is locked, unlock by lifting it.

10 - Open the ball valve completely, by turning perpendicular with hose.

11 - Turn the pressure reducer knob slowly clockwise until the system floats. Too much air pressure makes the system ' hop ' and ' whistle '. Attention: Quick connect couplings and (ball) valves can cause problems, because of their insufficient capacity. So check the supply pressure manometer frequently.

If the system doesn't float smoothly, check if:

The air supply manometer shows a pressure of less than 3 bar (300 kPa).

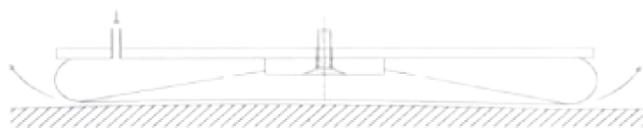
Conclusion : the air supply is insufficient. Either the air supply hose is too small or a quick connect coupling prevents enough air from being supplied. Does the compressor have sufficient capacity ?

The input pressure has to be and STAY min. 3 bar (300 kPa) to keep the system functioning. (please check the supply pressure gauge frequently).

Not all the aircushions lift.

The accompanying air regulation unit supplies one air pressure to the four cushions, therefore the aircushions need to be loaded equally.

Conclusion : Some of the aircushions are relatively overloaded. Reposition and / or redistribute the load to create an equal loading. If you cannot reposition the load or if the weight varies frequently, we advise a regulation unit which can regulate the aircushions separately (Type B or C).



The system floats partially.

Check if the aircushions are parallel to the floor. The aircushions should not tilt.

The system hardly floats.

Check the floor quality. In most cases one can exclude the floor influence by using some steel plates, plastic sheet (for instance of 1 mm thick) or a comparable hard and flat surface. On this surface, the aircushions will always float well. It is always good to exclude the influence of the floor with the first trials, so in the beginning use an artificial floor to start up. When the systems works fine, float to your own floor.

In all other cases : contact your supplier.

The system should float by itself, if otherwise, recheck above mentioned remarks.

Aircushions ALWAYS function under the following conditions:

- 1 - There is sufficient air pressure.
- 2 - The cushions are parallel to the floor.
- 3 - The cushions lift equally.
- 4 - The floor is level and non porous.
- 5 - There is no over or under loading.

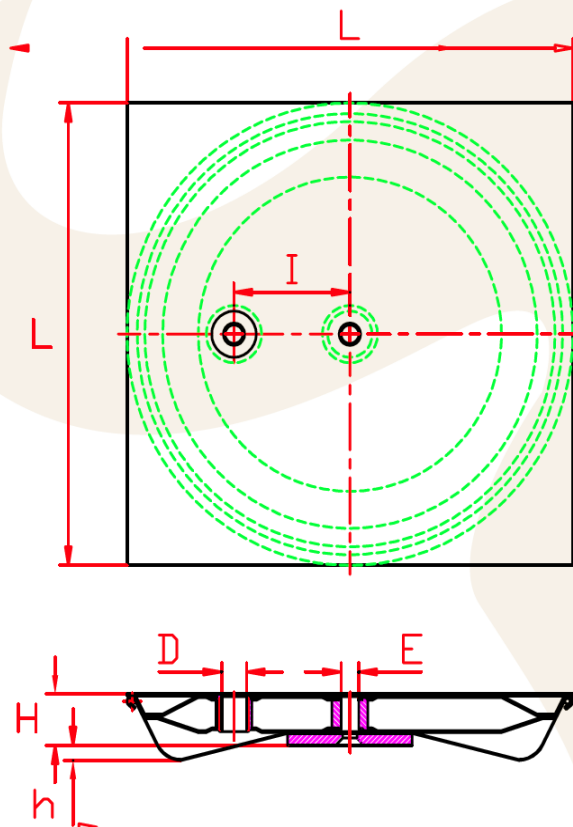
WARNING :

- Attention, you are working with compressed air and moving objects, only work controlled.
- Look out for hand and feet injuries for you and others during lifting, transport and lowering



A...NS

AIRCUSHIONS TYPE

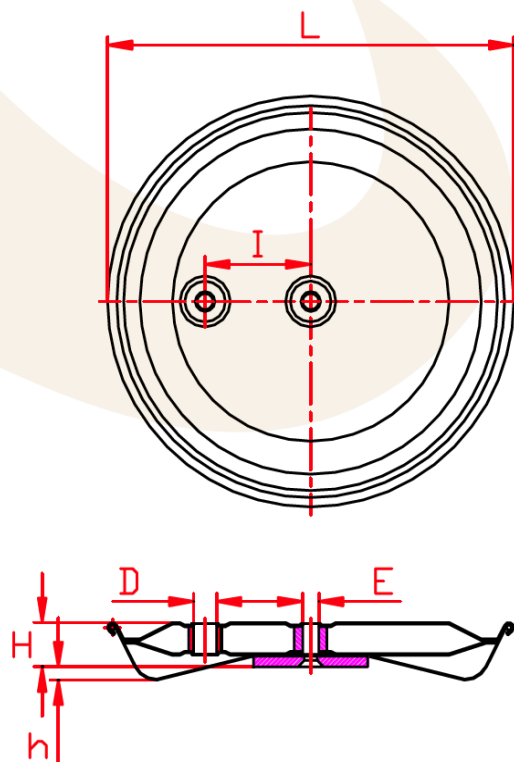


	Diameter (mm)	Height (mm)	Airinlet	Connection nipple (mm)	Distance airinlet (mm)	Weight (kg)	Air consumption (NL/min)	Capacity (kg)
TYPE	L	H	D	E	I	G		
A 25N	250	26	1 / 4 "	10	65	1.3	80-140	300
A 30N	300	26	1 / 4 "	10	90	1.7	100-200	500
A 40N	400	26	1 / 4 "	10	120	2.8	130-250	1000
A 50N	500	26	1 / 2 "	10	150	4.3	240-450	1800
A 70N	700	26	1 / 2 "	10	220	6.0	400-750	3000
A 90N	900	26	3 / 4 "	10	270	9.3	500-1000	6000

Technical changes reserved.

A...HD

AIRCUSHIONS TYPE

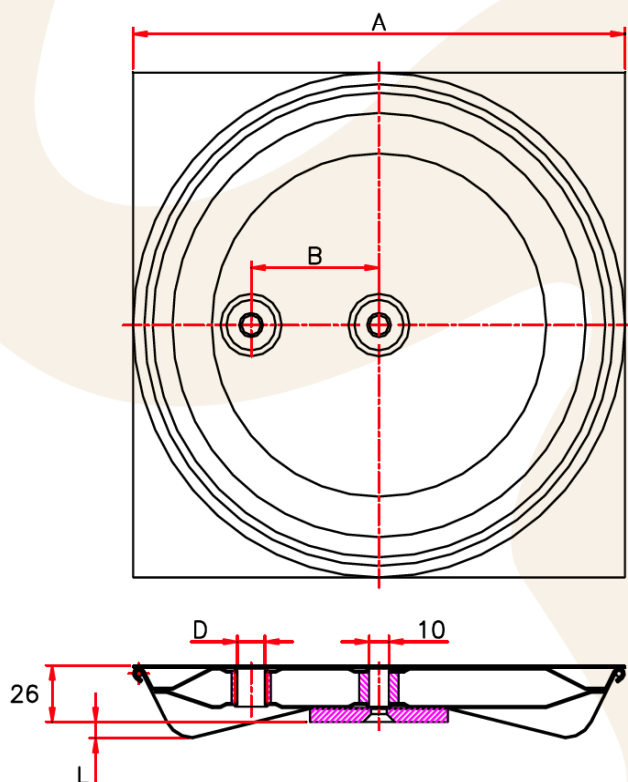


	Diameter (mm)	Height (mm)	Airinlet	Connection nipple (mm)	Distance airinlet (mm)	Weight (kg)	Air consumption (NL/min)	Capacity (kg)
TYPE	L	H	D	E	I	G		
A 30HA	300	25	1 / 4 "	10	90	1.5	130-250	1000
A 40H	400	25	1 / 4 "	10	120	2.4	240-450	2000
A 50H	500	25	1 / 2 "	10	150	3.7	400-750	3600
A 70H	700	25	1 / 2 "	10	220	4.7	500-800	6000
A 90H	900	25	3 / 4 "	10	270	6.9	700-1100	12000

Technical changes reserved.

A...HS

AIRCUSHIONS TYPE

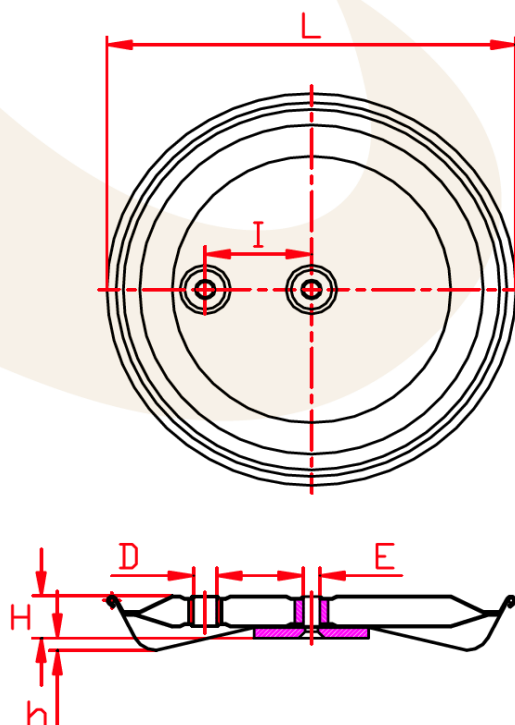


	Diameter (mm)	Height (mm)	Airinlet	Connection nipple (mm)	Distance airinlet (mm)	Weight (kg)	Air consumption (NL/min)	Capacity (kg)
TYPE	L	H	D	E	I	G		
A 030HS	300	26	1 / 4 "	10	90	1.5	130-250	1000
A 040HS	400	26	1 / 4 "	10	120	2.4	240-450	2000
A 050HS	500	26	1 / 2 "	10	150	3.7	400-750	3600
A 070HS	700	26	1 / 2 "	10	220	4.7	500-800	6000
A 090HS	900	26	3 / 4 "	10	270	6.9	700-1100	12000

Technical changes reserved.

A...N

AIRCUSHIONS TYPE

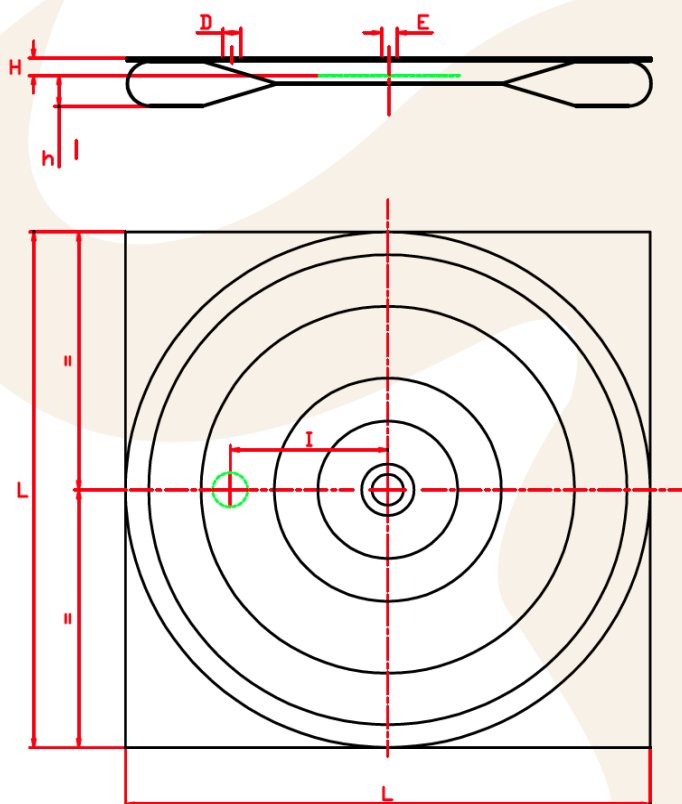


	Diameter (mm)	Height (mm)	Airlet	Connection nipple (mm)	Distance airlet (mm)	Weight (kg)	Air consumption (NL/min)	Capacity (kg)
TYPE	L	H	D	E	I	G		
A 25N	250	25	1 / 4 "	10	65	1.1	80-140	300
A 30N	300	25	1 / 4 "	10	90	1.5	100-200	500
A 40N	400	25	1 / 4 "	10	120	2.4	130-250	1000
A 50N	500	25	1 / 2 "	10	150	3.7	240-450	1800
A 70N	700	25	1 / 2 "	10	220	4.7	400-750	3000
A 90N	900	25	3 / 4 "	10	270	6.9	500-1000	6000

Technical changes reserved.

B...HD

AIRCUSHIONS TYPE

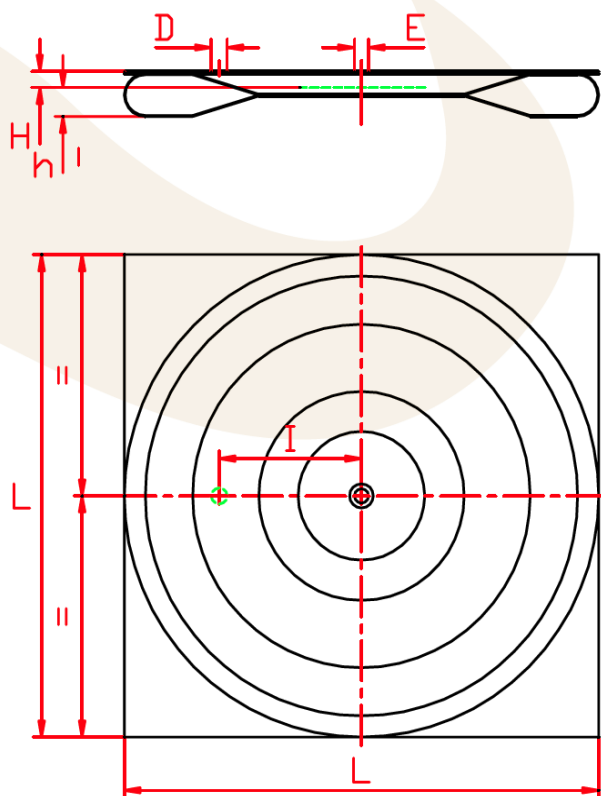


	Diameter (mm)	Height (mm)	Lift (mm)	Airinlet	Connection nipple (mm)	Distance airinlet (mm)	Weight (kg)	Air consumption (NL/min)	Capacity (kg)
TYPE	L	H	h	D	E	I	G		
B 40HD	400	12	15-20	1 / 4 "	10	120	1.0	700-1300	4000
B 50HD	500	12	25-30	1 / 2 "	10	150	1.5	850-1500	6000
B 70HD	700	14	30-40	1 / 2 "	10	220	3.0	1000-1900	12000
B 90HD	900	22	40-50	3 / 4 "	10	270	6.0	1400-2500	20000
B 125HD	1250	28	60-70	3 / 4 "	10	370	12	1800-2800	40000

Technical changes reserved

B...N

AIRCUSHIONS TYPE



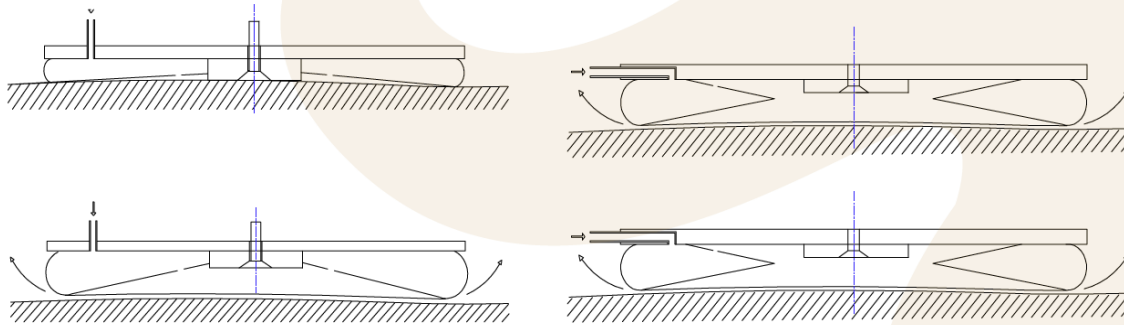
	Diameter (mm)	Height (mm)	Lift (mm)	Airinlet	Connection nipple (mm)	Distance airinlet (mm)	Weight (kg)	Air consumption (NL/min)	Capacity (kg)
TYPE	L	H	h	D	E	I	G		
B 30N	300	10	18-20	1 / 4 "	10	90	0.6	300-600	1000
B 40N	400	12	20-25	1 / 2 "	10	120	1.0	400-700	2000
B 50N	500	12	25-30	1 / 2 "	10	150	1.5	500-800	3250
B 70N	700	14	30-40	3 / 4 "	10	220	3.0	600-1000	6000
B 90N	900	22	40-50	3 / 4 "	10	270	6.0	800-1300	10000

Technical changes reserved

FLOOR SPECIFICATIONS

The floor is an integral part of the aircushion transport system.

The right condition for the correct functioning of aircushion systems is offered by a NON POROUS, SMOOTH and LEVEL floor. Appropriate is a mechanically trowelled floor with a smooth even finish. The surface can be impregnated to prevent dust, porosity and reduce wear. The joints can be filled using a silicone kit or plastic tape.



SMOOTH

Floors ensure the air film to be as thin as possible. The air film determines the air consumption. The aircushion principle is based on the escape of excess air between the membrane and the floor. This air film allows the load to float almost without friction.

NON POROUS

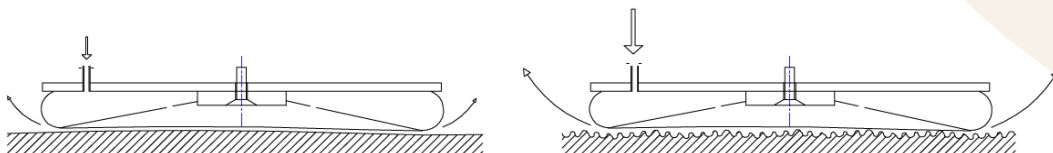
Floors are necessary to enable the aircushions to be inflated with air and keep the loss of air to a minimum.

LEVEL

Floors prevent the load from drifting away, this will happen with a sloping floor

JOINTS

Expansion joints can be filled with a Urethane or Silicone kit. The top shape of the filler should be rounded and convex, not concave (ca. 0,2 of the width).



FLOOR CLASSIFICATION

To provide an example of the influence of the operating surface on air consumption we made a comparison between several surfaces. These have been given a suitable rating: 1 = optimum, 10 = unacceptable.

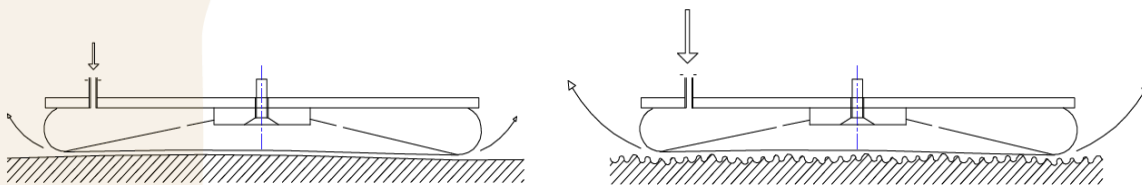
1. Glass 1
2. Epoxy floor 1 – 2
3. Galvanized steel plate 1 – 2
4. Hardboard, plastic, linoleum, spray painted chipboard 1 – 2
5. Concrete floor, impregnated 2
6. Concrete floor, not treated 3 – 3
7. Concrete floor, not treated, new to 3 months 5 – 6
8. Concrete, manually trowelled (not acceptable) 8 – 10
9. Asphalt (not acceptable) 10 – 15

OLD FLOORS.

Old floors can be suitable if they are smooth and there are no dents or cracks, otherwise improvement is necessary. For minimum costs paint or an impregnation can be applied. When, however, a new topcoat is necessary, a good attaching to the original surface is very important when applying air cushion transport.

NEW FLOORS.

New floors are very appropriate if they are comparable to the following standard:



BSI-8204 Part 2 (UK), ASTM-E1155 M-87 (USA) or similar.

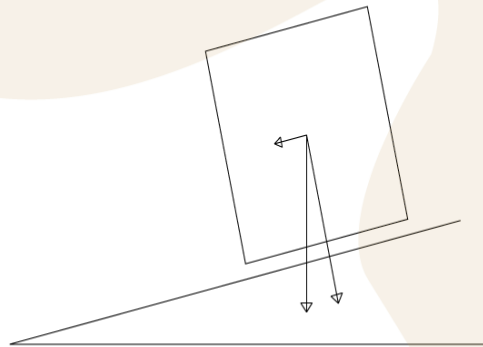
Deviation (t) in mm.	1	3	9	12	15
Length (L) in m.	0.1	1	4	10	15

POROUS FLOORS

On a porous floor the loss of air may be so high, that insufficient air is supplied to create a satisfactory air film. The average concrete floor without special treatment is to a certain degree porous. Normally, painting or sealing a concrete floor is sufficient treatment to overcome porosity.

UNEVEN FLOORS

Aircushions can, due to their elasticity, give limited adaptation to unevenness in the floor up to a maximum of 2 % of the aircushion diameter. Large fluctuations can work like a slope. An object on aircushions will, because of the low friction, drift away on a sloping floor. The extra power, necessary to push the load “uphill” again, will be: “slope percentage x weight i.e. $1\% \times 10.000 \text{ kg} = (100 \text{ kg}) 1.000 \text{ N}$.



INCIDENTAL TRANSPORT

A floor can always be made suitable for aircushion transport by covering it with f.i. a metal or plastic sheet. Joints and cracks can be covered or taped. Thresholds or steps can be overcome by using the tilt possibility of the aircushions and some filling material. under the following conditions

an AIRCUSHION TRANSPORT SYSTEM functions ALWAYS and EVERYWHERE

- 1 – sufficient air supply
- 2 – aircushions are parallel to the floor
- 3 – a suitable floor
- 4 – no over/under loading. Aircushions from 6.000 kg up, need a minimum loading of ca. 20 %

APPLICATIONS

EXAMPLES

MACHINERY AND INDUSTRY



UNDERGROUND, TRAIN, TROLLEYS, ETC..

You can accomplish any kind of movements for the assembly, repair and verification with frames and customized cushions in bodybuilding installations, turning system constructions, railway maintenance and in any piece of big dimensions.

