

Inflatable Play Equipment

The management of Inflatable Play Equipment is one of the highest profile subjects which will be scrutinised carefully due to the numbers of High Profile failures that have occurred in recent year. It is estimated that for every High Profile Failure, there are 7 others which, but for the level of injury not being so high, that have occurred.

Inflatable Play Equipment manufacture and operation is very similar to Mechanical Equipment. Both Legislation and Best Practice are governed by the same principles, with more emphasis on the users and risk associated with its use. Like all equipment we use in our industry, the design and manufacture are a key component. That is supported by thorough inspections before each use and structure/integrity inspections by a competent person at least 3 monthly.

It makes no difference whether the attraction purchases the equipment from a supplier, or whether they make them themselves, they still must be built, installed, and maintained to a standard that prevents failure or instability when in use. The person who designs or makes the equipment is responsible for making sure they are designed and manufactured so they are safe and stable. They must ensure they have considered what can fail, what circumstances will cause the failure, and ensure the resultant effect is contained so the passenger is not put at risk. They must also ensure they are fitted with the correct safety equipment to ensure the passenger is safe when getting in, when the ride is in motion, and when the passenger is getting out. Legislation is very clear on these requirements and prohibition from use will be applied if the Play Equipment is not compliant.

Inflatable Equipment must be:

- 1. Designed, installed and maintained within the definition of BS EN 1176 & 1177. The standards require a management scheme to be operated by the Operator and subject to an annual RPI Inspection completed by a registered RPII Inspector.**
- 2. That which does not fall within the scope of BS EN 1176 & 1177 will still need to comply with the general duties place on the Designer, Manufacturer and Operator.**
- 3. The structure, design and stability of the equipment MUST be risk assessed before the use of the equipment is permitted.**
- 4. The structure and stability risk assessment should be completed by the designer or manufacturer and advice given to the operator regarding any limitations that should be imposed due to the design.**
- 5. Likewise, the surfaces surrounding the equipment. Weather conditions and ground stability will also be part of that assessment.**
- 6. You must complete a play use risk assessment for this area of your activity and either have completed the installation of control measures or you can demonstrate a planned delivery of the controls.**
- 7. Make sure you have both Manufacturers User and Technical Handbooks for the equipment you use.**
8. The equipment and surrounding area must be maintained so that you are sure it is:
 - Robust enough to withstand the type of treatment you would expect from the profile of visitor you attract.
 - Properly maintained, which includes cleaning and defect free whenever in use.
 - Inspected daily before use, and a weekly thorough inspection. The inspection regimes robust and recorded.

- Subject to a risk assessment, and wherever possible, the risk of equipment failure or foreseeable injury removed by making extra provisions or a change of design. If it is not possible to remove the risk, then you must prevent the use of the equipment, particularly if the equipment has become damaged or affected by adverse weather conditions. You should extend the assessment to include the possibility of damage occurring.
- Pro-actively managed to ensure where damage has occurred which renders the equipment harmful to the intended users, it is quickly identified and dealt with.

HSE Guidance is very clear on the installation and management of Inflatable Play Equipment. They set out in their guidance the following.

Bouncy castles and other play inflatables: safety advice

Serious incidents have occurred where inflatables have collapsed or blown away in windy conditions.

These simple precautions can help you avoid serious incidents, whether you supply or buy bouncy castles and inflatables, are hiring one for an event, or operate them.

Health and safety law applies to the supply, hire and use of inflatables for commercial purposes. It does not apply to private, domestic buyers and users.

This guidance applies to inflatables devices that are covered by BS EN 14960, and that can be used both outside and inside.

Before you buy or hire

If you're buying or hiring an inflatable for private or public use you should make sure it has either a numbered PIPA tag or an ADiPs declaration of compliance (DoC).

It should also have:

- written documentation from a competent inspection body to show it complies with British Standard BS EN 14960
- instructions on how to operate it safely

You can check that safety tests have been carried out and to find out what to do if the equipment has no tag on the [PIPA website](#) or no DoC on the [ADiPs website](#).

The ADiPs scheme covers a wider range of inflatable play equipment as well as more traditional fairground rides.

If you're buying or hiring any inflatable for private or public use you should make sure it also has instructions on how to operate it safely.

Setting up safely

When setting up, carry out the following safety checks in line with the inflatable's operator manual:

- No inflatable should be used in winds above 24 mph (38 kmph), which is Force 5 on the Beaufort Scale (small trees in leaf begin to sway)
- Certain inflatables may have a lower maximum wind speed for operation. Always check the manufacturer's operating manual to confirm the maximum wind speed for the safe operation of the inflatable
- When the inflatable is being operated outside, use an anemometer to measure the wind speed at regular intervals. If one of these is not available, the inflatable should not be operated outside. These measurements should be recorded

- Do **not** use smartphone weather applications to measure wind speed as they do not take localised wind conditions into account
- No inflatable should be used when internal inflation pressure is below the minimum, or above the maximum specified by the manufacturer, in the operations manual
- Regular measurements of the internal pressure of the inflatable should be taken using a suitable pressure measuring device, such as a manometer. If one of these is not available, the inflatable should not be operated. These measurements should be recorded.
- The blowers should be checked daily to ensure that the fan blades are clear of debris and the non-return flap on the blower outlet is fully functional.
- When using the inflatable outside, all the anchor points must be used, with metal ground stakes at least 380 mm long and 16 mm wide, with a rounded top. They should have a welded metal 'O' or 'D' ring fitted to the end
- All inflatables must have at least 6 anchor points. The operator manual will tell you how many there should be, and you should check to ensure they are all still in place and have not been removed
- The ropes used to secure the inflatable should be in good condition and not stretched, frayed or rotten. Never use improvised tow ropes, eg bungee cord
- If ground stakes cannot be used because of the surface (eg tarmac) use ballast with anchor points each weighing at least 163 kg and with suitable fixings to attach the guy ropes. The inflatable should be tightly secured to the ground so that the wind cannot get under it and lift it up
- Alternatively, ground anchor bolts with a load rating of 1600N can be used with suitable fixings to attach the guy ropes. The ground anchor bolts must be installed in line with the manufacturer's installation instructions by a competent person and checked at regular intervals
- If an inflatable is being used indoors, refer to the operator's manual which will provide instruction on what anchorage is necessary to maintain the shape of the device and prevent overturn
- Where an inflatable is used on either hard standing or any ground that would cause injury should the user fall from the device, suitable impact attenuating material should be provided, but is not required if the device is securely and permanently covered so as to contain the user.
- All other associated equipment must be safe, including the blower

Before anyone uses it

When it's inflated and before you use it, carry out safety checks, which include the following:

- when using it outside, all the anchor points must be used, with metal ground stakes at least 380 mm long and 16 mm wide, with a rounded top. They should have a welded metal 'O' or 'D' ring fitted to the end
- all inflatables must have at least 6 anchor points. The operator manual will tell you how many there should be – make sure they are all still in place and have not been removed
- if ground stakes cannot be used because of the surface (eg tarmac) then use ballast weighing at least 163 kg with suitable fixings to attach the guy ropes. The inflatable should be tightly secured to the ground so that the wind cannot get under it and lift it up
- if an inflatable is being used indoors, the operator's manual will tell you what anchorage is needed to maintain the shape of the device and prevent overturn

- no inflatable should be used in winds above 24 mph, which is Force 5 on the Beaufort Scale (small trees in leaf begin to sway)
- some inflatables may have a lower maximum wind speed for operation. Always check the manufacturer's operating manual to confirm the maximum wind speed for the safe operation of the inflatable
- use an anemometer to measure the wind speed at regular intervals. If one of these is not available, the inflatable should not be operated
- there are no holes or rips
- all other equipment is safe, including the blower

Have a good look at the inflatable when it is blown up and before use. You should check:

- the correct blower is being used (the blower specification, including output, will be given in the operating manual)
- there are no obvious signs of over-tension or sagging of the structure. Also check if the anchor points have been pulled out during inflation
- the connection tube and blower are firmly attached to each other
- impact-absorbing mats are in position
- there are no holes or rips in the fabric or seams
- it looks symmetrical – if it looks misshapen or deformed there could be internal problems that make bouncing unpredictable and it should therefore not be used
- to ensure the safety of an inflatable in the event of a sudden loss of power, the deflation rate of the inflatable should be tested before each use by switching the blowers off and observing the inflatable deflate.
- the inflatable should deflate at a rate that allows sufficient time for users to be safely evacuated, whilst retaining its shape and rigidity so that users do not fall from the inflatable.
- if the inflatable deflates at a such a rate, that it becomes misshapen or deformed and prevents either safe escape or cannot prevent users from falling, the inflatable should not be operated.

Safe use, supervision and monitoring

The operator should follow the instructions, including making sure:

- users are always supervised
- the number of users does not exceed the limit given in the instructions
- people can get on and off safely, with mats at the entrance
- they regularly check anchor points are still secure
- they use an anemometer to measure wind conditions at regular intervals
- it's safely deflated if the weather becomes unsuitable

There should be constant supervision by at least one suitably trained person.

Operating instructions must be supplied and should include the following:

- Restrict the number of users on the inflatable at the same time to the limit in the operator manual or on the unit label. Don't exceed the user height limit and keep bigger users separated from

smaller ones

- Make sure users can get on and off safely, with safety matting at the entrance that is no more than 2 inches deep
- People should not wear shoes or glasses, and should empty their pockets of all sharp or dangerous items
- Anyone obviously intoxicated should not be allowed on
- Don't allow users to climb or hang on the walls
- Regularly check that anchor points are still secure
- When operating the inflatable outside, use an anemometer to measure wind conditions at regular intervals, and visually check for changes in wind direction (such as looking at how the trees are swaying). Make sure you take readings in the direction of the wind.

Tests and inspections

As an owner or the person making it available for use, you are responsible for making sure the following tests are carried out.

Initial test

A new inflatable should have an 'initial test' to confirm it complies with BS EN 14960.

Annual inspection

Make sure an annual inspection is carried out by a competent person. They should identify the inflatable and blower by their serial numbers and look at any previous inspection reports and certificates. They should also inspect any part of the inflatable and its equipment that may affect its safe operation.

Owners can find out how to get their equipment tested from [PIPA](#) or [ADIPS](#).

Find out more

[British Standard BS EN 14960: 2013 Inflatable play equipment. Safety requirements and test methods](#)