INFLATABLE HANGARS
Build air

PORTABLE. SAFE. MODULAR.
IT’S ALL ABOUT AIR AND FABRIC
And so much technology...!!!
BUILDAIR is an European company, with worldwide coverage, specialized on design, manufacture and maintenance of inflatable structures and hangars.

BUILDAIR designs and manufactures a wide range of products. In addition to inflatable hangars: inflatable prototypes, inflatable bridges, any morphology for corporate events, etc.

OUR INFLATABLE HANGARS are safe, portable, modular, easy to package, transport, deploy and maintain.

They are adaptable to any circumstance and requirement, with multiple applications on:
- Aeronautical Maintenance (heavy maintenance, AOGs).
- Defence (military hangars).
- Emergency and Quick Deployment (hospitals, warehouses).
- Industry (industrial facilities coverage, textile engineering).
- Corporate Events.

WE ARE GLOBAL:
- WORLDWIDE COVERAGE
- WORLDWIDE LEADER ON LARGE INFLATABLE STRUCTURES
- WORLDWIDE RECORD ON INFLATABLE STRUCTURES: MRO HANGAR

<table>
<thead>
<tr>
<th>Country</th>
<th>City</th>
<th>Code</th>
<th>Clearance Width</th>
<th>Length</th>
<th>Height</th>
<th>Design &amp; Manufacture Time</th>
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<tbody>
<tr>
<td>Switzerland</td>
<td>Biasca</td>
<td>H-38</td>
<td>54m</td>
<td>75m</td>
<td>23m</td>
<td>4 months</td>
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<tr>
<td>Morocco</td>
<td>Agadir</td>
<td>H-20</td>
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<td>USA</td>
<td>New York</td>
<td>H-15</td>
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<tr>
<td>Brazil</td>
<td>Manaus</td>
<td>H-15</td>
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<tr>
<td>Chile</td>
<td>Santiago</td>
<td>H-20</td>
<td></td>
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<tr>
<td>Singapore</td>
<td>Singapore</td>
<td>H-15</td>
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</tbody>
</table>

3 years warranty
3 years maintenance pack
10 years estimated lifecycle

MORE THAN 23,000 SQUARE METERS ALREADY COVERED!!!
COMPETITIVE ADVANTAGES

PORTABLE

EASY AND FAST TO TRANSPORT AND DEPLOY

Very light components and reduced folded volume: around 3.5kg/m² and 18m³ for a folded H-20 hangar (less than one 20 feet container).

Easy to containerize on standard elements (20 / 40 feet containers).

Quick set-up / dismantling operations (few days), enabling great agility in deployment and removal.

SAFE

GUARANTEED BY AN SPECIALIZED ENGINEERING TEAM

Engineering performed by an experienced team of structural engineers and architects. Main developers, managers and founders of BUILDAIR are engineers, architects, scientists and university professors, with the highest international reputation on structural design and calculation.

CAD software and internally developed software, based on Finite Elements Method, which enables to test the structure on virtual wind tunnels, guaranteeing the integral stability of the structure, even on hard environmental conditions (e.g., wind, snow, etc.)

MODULAR

EASILY EXTENSIBLE AND SECURE BEHAVIOUR ON OPERATIONS

Based on customer requirements, the hangar can be temporarily / permanently extended, in an easy and fast way. Hangar extension to increase coverage, from 1 to 2 or more aircrafts.

Modular structure: even with 2 damaged / inoperative tubes, the adjacent ones would support the extra load, ensuring structural stability.

Wide range of applications: structural repairs, aircraft recovery after accidents / incidents, AOG’s (Aircraft on Ground), partial coverage for engine changes, etc.
**IN ONLY A FEW MONTHS**

Delivery process (including design, manufacture and set-up) takes very short time:

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Delivery Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>20m clear width &amp; 22 m length</td>
<td>2 months</td>
</tr>
<tr>
<td>32m clear width &amp; 33 m length</td>
<td>3 months</td>
</tr>
<tr>
<td>38m clear width &amp; 39 m length</td>
<td>4 months</td>
</tr>
</tbody>
</table>

**TIME AND COST SAVING**

Nor qualified staff neither large auxiliary equipment needed.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Set-up Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>20m clear width &amp; 22 m length</td>
<td>6 hours</td>
</tr>
<tr>
<td>32m clear width &amp; 33 m length</td>
<td>3 days</td>
</tr>
<tr>
<td>38m clear width &amp; 39 m length</td>
<td>4 days</td>
</tr>
</tbody>
</table>

Inflation time: 8-15 minutes.

**SHORT DELIVERY TIMES**

**LOW SET-UP COSTS**

**LOW COST ANCHORAGE SYSTEMS**

High-resistance straps, specifically designed to properly distribute existing loads.

Several anchorage systems, based on terrain condition: anchoring bags, earth screws, resin-set / shield anchor bolts, movable platforms...

**LOW-ECONOMICAL COST**

**SHALLOW FOUNDATION**

**COMPARED WITH OTHER STRUCTURAL TYPOLOGIES**

**Durability:** Estimated lifecycle around 6-10 years.

**Reduced maintenance:** Periodical inspection every 6 months.

**Lower price** than alternative solutions, considering:

- Our total solution price (design, manufacture, foundation, set-up, dismantling and operation).
- Our high resistance to external loads (wind, snow, etc.).
- Our very large clear spans (up to 70-75 meters).
The inflatable hangars are built using low-pressure (20-30 mbar) inflatable tubes, aligned parallel to each other, forming a rib-cage structure. The structural stability is guaranteed both lengthwise (by the support of the lateral air tubes) and crosswise (through the internal pressure in the tubes). Internal pressure inside the tube is kept and controlled by means of low-consumption motors.

The fabric of the tubes is a technical low-weight high-tenacity textile with a wide range of available customizable specifications, including colours, camouflage, UV & infrared protections, temperature resistance or even infrared camouflage.

The inflatable hangars can be designed ad-hoc, based on any customer specific requirement.

<table>
<thead>
<tr>
<th>STANDARD PRODUCTS</th>
<th>UNITS</th>
<th>H-15</th>
<th>H-20</th>
<th>H-26</th>
<th>H-32</th>
<th>H-38</th>
<th>H-45</th>
<th>H-54</th>
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<tbody>
<tr>
<td>Clear width</td>
<td>Meters</td>
<td>15</td>
<td>20</td>
<td>26</td>
<td>32</td>
<td>38</td>
<td>45</td>
<td>54</td>
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<tr>
<td>Tube width</td>
<td>Meters</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Total width</td>
<td>Meters</td>
<td>19</td>
<td>26</td>
<td>32</td>
<td>38</td>
<td>44</td>
<td>53</td>
<td>64</td>
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<tr>
<td>Standard length</td>
<td>Meters</td>
<td>18</td>
<td>22</td>
<td>28</td>
<td>33</td>
<td>39</td>
<td>50</td>
<td>72</td>
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<tr>
<td>Clear height</td>
<td>Meters</td>
<td>7.5</td>
<td>10</td>
<td>13</td>
<td>16</td>
<td>19</td>
<td>22.5</td>
<td>28</td>
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<tr>
<td>Available area</td>
<td>Sq meters</td>
<td>270</td>
<td>440</td>
<td>728</td>
<td>1.056</td>
<td>1.482</td>
<td>2.250</td>
<td>3.888</td>
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<tr>
<td>Nº of modules</td>
<td>#</td>
<td>3</td>
<td>4</td>
<td>7</td>
<td>17</td>
<td>20</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>Nº of tubes per module</td>
<td>#</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Structure +motors weight (without anchorage)</td>
<td>Tons</td>
<td>1.3</td>
<td>2.1</td>
<td>4.0</td>
<td>8.8</td>
<td>12.7</td>
<td>25.0</td>
<td>38.0</td>
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<tr>
<td>Nº of 20 feet containers</td>
<td>#</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>8</td>
<td>9</td>
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<tr>
<td>Set-up average time</td>
<td>Hours, Days</td>
<td>4 hours</td>
<td>6 hours</td>
<td>12 hours</td>
<td>3 days</td>
<td>4 days</td>
<td>10 days</td>
<td>14 days</td>
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SERVICES

MAINTENANCE PACK (3 YEARS)

24/7 telephone support.
Periodical inspections in less than 6 months (ad-hoc inspections when needed).
Inspection, cleaning and maintenance works on hangar modules, in order to detect damages or flaws.
Includes a set of maintenance equipment that BUILDAIR team can deliver to customer location: repair materials, spare parts.
Training procedure on-site, etc.

TELEMATIC CONTROL SYSTEM (TCS)

Real-time tracking of all related parameters, by means of on-site equipments (e.g., anemometers, etc):
- Interior pressures.
- Wind speed.
- Electrical protections condition.
- Fans feeding frequency.
- Energy consumption (for automatic optimizing).
- Fire detection.
Customer can easily access the above mentioned real information from any computer of smartphone.

SET-UP / DISMANTLING SUPPORT

Throughout lifecycle.
BUILDAIR technical staff could provide on-site assistance during set-up, dismantling, events or tactical operations.

3 YEARS GUARANTEE

If Maintenance Pack (3 years) is contracted. No applies if customer mishandling.

IMMEDIATE SPARE PARTS

BUILDAIR could provide any kind of required spare part, like tubes, anchorages, motors, accessories, etc.

CIVIL LIABILITY INSURANCE

If Maintenance Pack (3 years) is contracted. No applies if customer mishandling.
1 - DESIGN PARAMETERS

- **Wind:** design speed in accordance with applicable regulations.
- **Snow:** design maximum load in accordance with applicable regulations.
- **Fire:** fire retardant materials, with different resistance levels.

2 - STRUCTURAL DESIGN & CALCULATION

- **3D model** using advanced CAD software.
- **Calculation of potential loads** (e.g., wind, snow, etc.) to be supported by the structure, by means of internally developed software, based on Finite Elements Method. It enables to determine suitable reinforcements and internal pressures which guarantee structure stability.
- **Virtual wind tunnel:** software simulation of structure behaviour before potential loads.
- **Testings on real models and structures** (destructive testings in order to validate reinforcements and resistances).
- **Analysis of mechanics properties of the materials:** Base textile is high-tenacity woven polyester, with PVC coating and a weldable PVDF finishing in both sides, waterproof and with different resistant levels.
- **Detailed mapping for pattern and manufacture,** by means of several advanced technics (specific sewing, high frequency welding, etc.).
- **Calculation and loads simulations** on anchorage systems.

3 - INTERNALLY DEVELOPED SOFTWARE

- **Specific software has been internally developed:**
  - **PATTERN SOFTWARE.**
  - **WIND SOFTWARE:** Based on Finite Elements Method, enables to simulate the behaviour of the inflatable structure in order to support customizable wind loads.
  - **TOOLING SOFTWARE:** Also based on Finite Elements Method, enables numerical simulation of textile tooling processes.
There is a wide variety of doors to close the hangars, ranging from static to retractable and mobile. The door systems are named Door Modules DM.

**DM SKIN**
Basic door module, with a tarpaulin retractable door to the full width of the hangar. Only suitable for hangar H-15.

**DM LAYER**
Descending-edge door module, with a tarpaulin retractable door, available for medium range hangars (H-15, H-20 and H-26).

**DM SHELTER**
Semispherical-end door module that transforms an opening into an enclosure. It can be used on either ends, to transform the hangar into a shelter or warehouse. Available on all models.

**FRONT DOOR**
Ad-hoc DM, to be designed as per every customer requirements. Available on all models.
H-54 - THE MOST INNOVATIVE HANGAR IN THE WORLD

1. WORLDWIDE RECORD ON INFLATABLE STRUCTURES
Delivered to EADS-Cassidian (Madrid plant) on June 2013.
World record geometrical dimensions:
- 54 METERS CLEAR WIDTH.
- 75 METERS LENGTH.
- 23 METERS MAXIMUM CLEAR HEIGHT.

2. INFLATABLE DOORS
Closed by means of an inflatable apse-shaped shelter in one end, and an inflatable movable front door in the other, enabling heavy maintenance tasks on aircrafts, even when on jacks.

3. SHORT DELIVERY TIME
From contract signature until set-up: just 6 MONTHS (including design, manufacture, testing and transport).

4. TELEMATIC CONTROL SYSTEM
Real time access to all related parameters (pressures, wind speed, electrical protections, fans feeding, energy consumption, etc.), from any computer or smartphone.

5. EXTENDABLE FOR 2 ALIGNED AIRCRAFTS
It can be easily enlarged for covering 2 aligned aircrafts, by means of an additional central body.

6. OTHER OUTSTANDING CHARACTERISTICS
Easy anchorage to terrain (just holes), without conventional foundation. Easy deployment on non-prepared terrains (emergency operations, conflicts, etc.).
Quick set-up / dismantling operations (few days).
Very light components, easy logistics and transportation: the center body can be packaged and transported within 4 small containers (20 feet).
We believe Architecture and Engineering are bound to create the most flexible and efficient solutions for you...