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„Sky is not the limit” is the motto of GASPOL Team. For eight years we have been flying across the Polish and European sky. We have several wins in Polish Championships and Polish cup events, as well as few podium-finishes in the European Cup. But there’s still plenty of challenges ahead. We fly fast and high, hit the bull’s eye and always respect the Fair Play rules. Hot-air ballooning is a beautiful sport – it’s a #goodenergy in the sky.

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GASPOL Team is a professional Polish team among the top European sport ballooners. The team includes navigators, technicians, mechanics and experienced pilots. Since September, 2017 they will fly one of the fastest and state-of-the-art sport hot air balloons, manufactured by Lindstrand Technologies Ltd.

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The latest sport construction for GASPOL TEAM

Lindstrand Signature Series RACER is characterized by a safety of use and maximum performance.

Specification

GASPOL HOT-AIR BALLOON - LINDSTRAND SIGNATURE SERIES RACER:

- * envelope - 2,000 m³ (capacity)
- * 1 pilot and 2-3 passengers
- * smooth, 24-gore, slender construction
- * exclusive internal ring
- * big inlet
- * optimized parachute vent
- * certified for vertical speeds 8.76 m/s (1,700 ft/min)
- * artwork made in an „inlayed” technology - reduced weight

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Crème de la crème

For many years racers have been chosen by the best pilots in the world. They have specific slender shape, resembling a rugby ball, and are almost perfectly symmetrical at the top and the bottom, which allows to achieve similar parameters of ascending and descending.

During a quick ascend it is essential that the parachute valve won't fall - partially nor completely - into the envelope inside. Special valve construction made by Lindstrand company, which transfers a big pressure from inside the envelope onto this element, lets the balloon ascend safely with high speed - even at 14 m/s (the official record of ascending and descending belongs to Racer hot-air balloon).

The internal ring located in the middle of the envelope, patented and used exclusively by Lindstrand company, allows a stable descend with a speed reaching even 14 m/s, while during a whole certified speed of ascending and descending ensures stability and safety without a "banana" effect and closing the envelope inlet. It also impacts the distribution of thermal performance inside the envelope. Furthermore, thanks to a proper structure and big size, the inlet isn't exposed to easy burning.

What are sport balloons?

Hot-air balloons have various shapes, but if you see a narrow one similar to a drop, that means it's a sport balloon.

Specificity of flying hot-air balloons is that they move with a speed and direction of wind. As these parameters change with a change of flight height, a very important factor during hot-air ballooning competitions is the time of height change, or achievable vertical speed.

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Classic hot-air balloons achieve vertical speed, both upwards and downwards, up to 4 m/s. It is dictated by a shape and structure of a balloon. Sport balloons often double that speed. In order to achieve such extreme vertical speed, implementation of specific construction solutions is required.

In sport balloon not only a proper, slender shape is valued – it is also an optimal distribution of speed centre, as well as elimination of all possible dangers, e.g. falling the parachute valve inside the balloon during the fast ascend or “banana effect” during quick descend.

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What is a hot-air balloon?

At first glance a construction of hot-air balloon hasn't changed a lot since the first flight in 1783, although back then they used... straw to heat the air. Now balloons are made of almost extraterrestrial materials and this air sports discipline is considered to be one of the safest.

First balloon envelope was made of paper, now it's made of polyester fabrics, resistant to high temperatures, very durable and non-flammable. The bottom of envelope, near the flame inlet is usually made of Nomex™ – the fabric created by DuPont for NASA and used for sewing i.a. spacesuits. There's no bonfire to heat the air anymore – it has been replaced by burners running on liquid propane. This is the field where we have been observing major changes – it's a small technological revolution. Burners have enormous power (ca. 2500 kW per burner). Gas containers (made of aluminium, steel or titanium) have a capacity between 40 and 80 litres.

The basket hasn't changed almost at all for two centuries. It is still being made of wicker or rattan, while the finishing touches are made of leather. So far, no one has invented a better material that would

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be equally solid, light, aesthetic and easy to repair or maintenance. For competitive flights (record breaking) there are light baskets made of Duralumin® tubes, in order to make a platform for mounting a gas container, while between them there still should be some space left for the crew. Such basket must ensure safe landing, almost like in a car. It has to absorb major hit.

Navigation

Hot-air balloons fly with a speed and direction of wind. They don't have any mechanical drive. As air masses usually travel on different heights and in various directions, balloon's pilot can change the flight direction by changing its height. After warming up the balloon sails and descends when it's cooled. The difference between wind direction near the ground and at 1000 m above sea level fluctuates from 15° to 60°. Thanks to that pilot controls the direction of the flight. You just have to give in to the nature, just like you can't specify the landing spot 100 per cent precisely. However, hot-air balloons are not helpless against weather – they got numerous navigation devices, among which the basic ones are: barometric altimeter (which shows how fast a balloon rises or descends), thermometer (which shows an actual temperature within the envelope) and radio (which enables communication with ground control and traffic service). The most advanced navigation devices include: on-board computer, which allows to convert flight parameters in a flash. In order to check a current geographical position you can use GPS, however it is optional, as some pilots still prefer using maps. These and other devices help to use the weather conditions optimally.

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