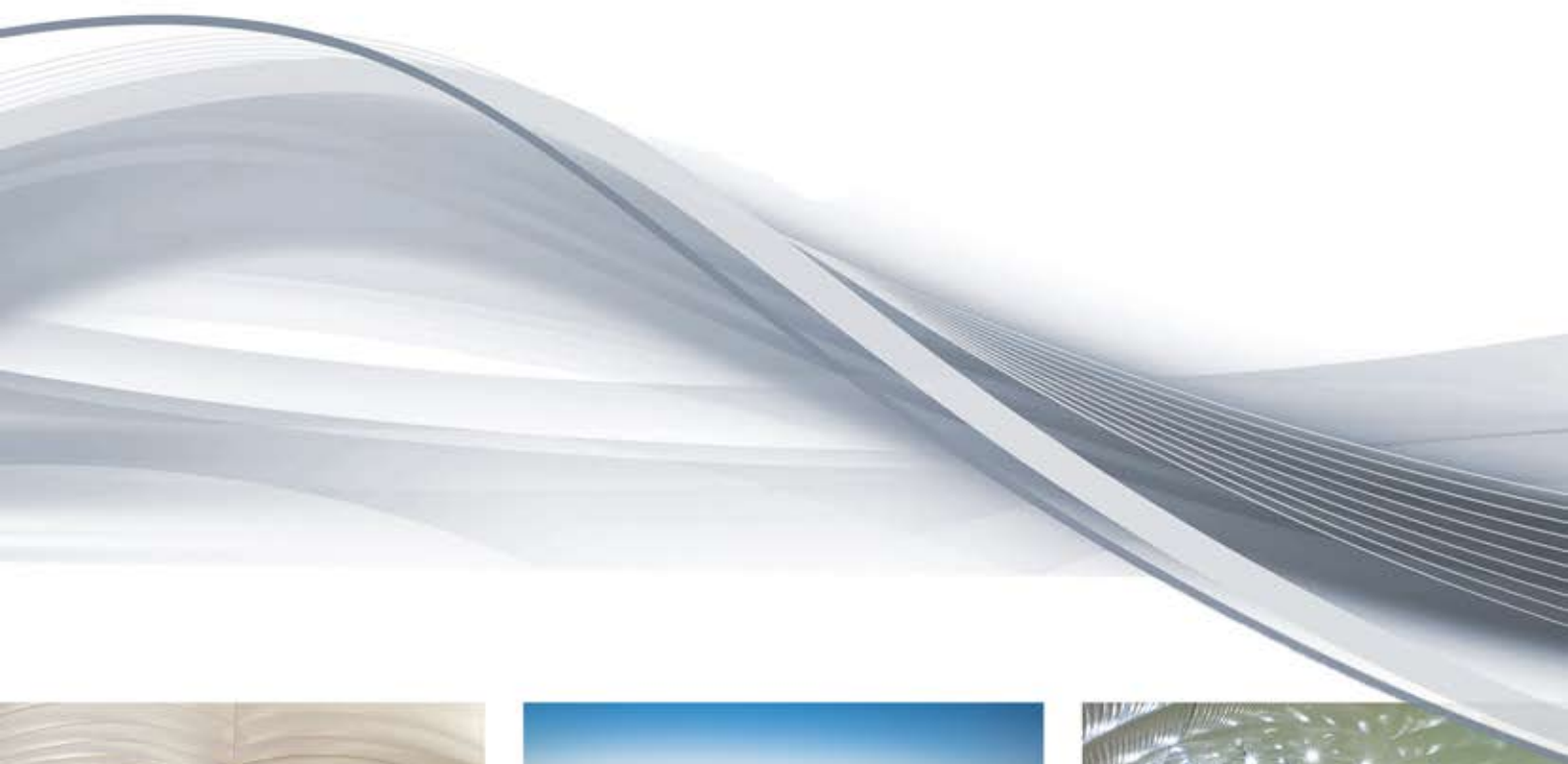


DUOL



GLOBAL SPORT GATE
البوابة الدولية الرياضية

INNOVATIVE STRUCTURE SOLUTIONS



A Better Way to Build

Air supported structures

Metal structures

Wooden structures

Tension structures

www.gsg.sa

DUOL COMPANY

Production process from the start to the end = **Quality and Liability.**



R&D and
Engineering



Production



Assembling



Maintaining

Complete control
over all phases of
operations

The dome is handed over to the client after a detailed maintenance course with complete operation and maintenance manuals for the air dome and equipment included.



Object handover
with complete
client support


- Worldwide service, immediately response and resolution in 99% of cases.
- Analysis and resolution of issues are safely solved by phone or e-mail.
- Sending parts or immediate fly-in interventions of DUOL technicians.
- After sales service with a first degree of intervention carried out by a local partner.
- 5-20 year manufacturer warranty on the fabric and up to 2 years on equipment. Life expectancy more than 40 years.

Efficient and fast
after sale service




Duol d.o.o., Kapalniška pot 2, 1351 Brezovica, Slovenia

Contacts

 +966 13 815 1115

 info@gsg.sa

 +966 13 841 4442

 www.gsg.sa

DUOL COMPANY

DUOL Company

DUOL Company designs, manufactures and installs some of the most unique and versatile **fabric structures** in the world. We are experts in Air structures, Prefabricated frame (wooden/metal) structures and Tent Structures.



Air Domes



Metal structures



Wooden structures



Tension structures

DUOL **Air domes / Air-Supported Structures** are most recognized products by DUOL. We are the global leader in air-supported structures and since company foundation 25 years ago, DUOL has installed more than 1500 structures all over the world: Europe, Asia, Middle East, Africa and South America:



Focus on quality



Company ID: 5854539
Bisnode d.o.o., 5.7.2017



As a certified company with the **ISO 9001:2015 quality standards**, we apply this standard to every operation within DUOL organization. DUOL follows strict ISO 9001:2015 quality standards in every process to ensure client **safe and on time delivery**.

Creditworthiness certificate warrants for the **business excellence**. Our certificate guarantee, that we will be a reliable partner also in the future.

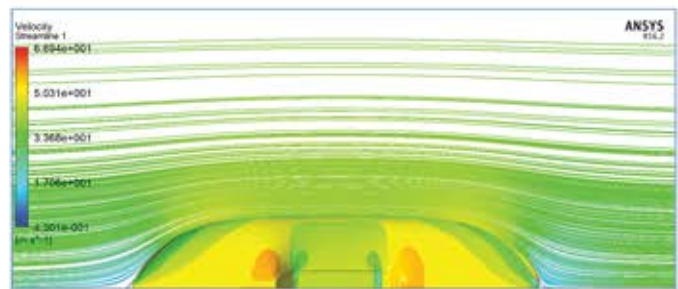
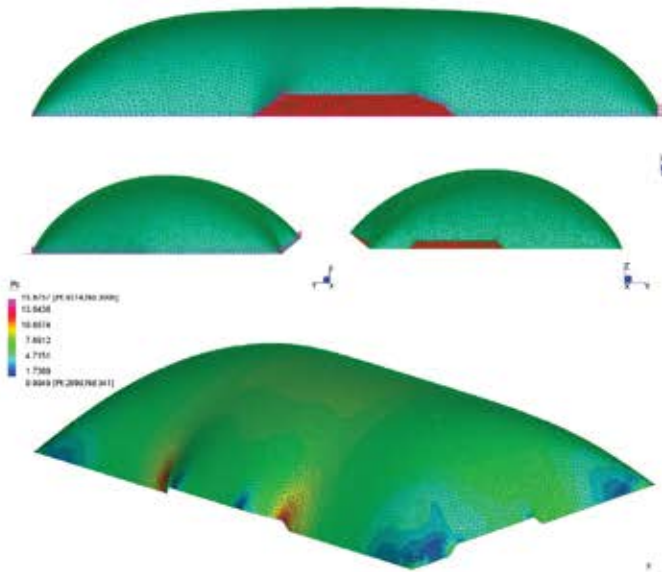
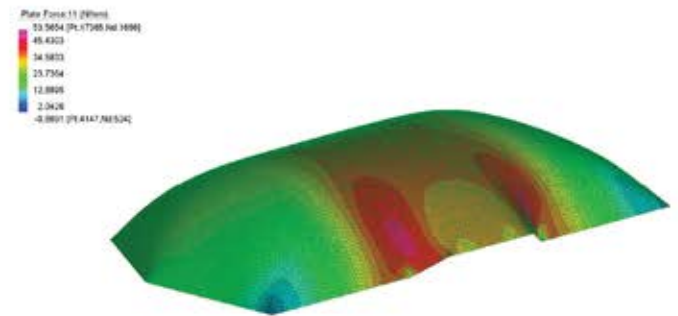
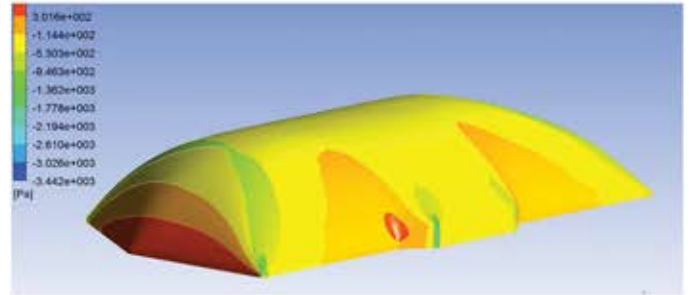
Solid company organization, worldwide references, innovative solutions: In 2013 DUOL was awarded **"Best managed company in Slovenia"**.



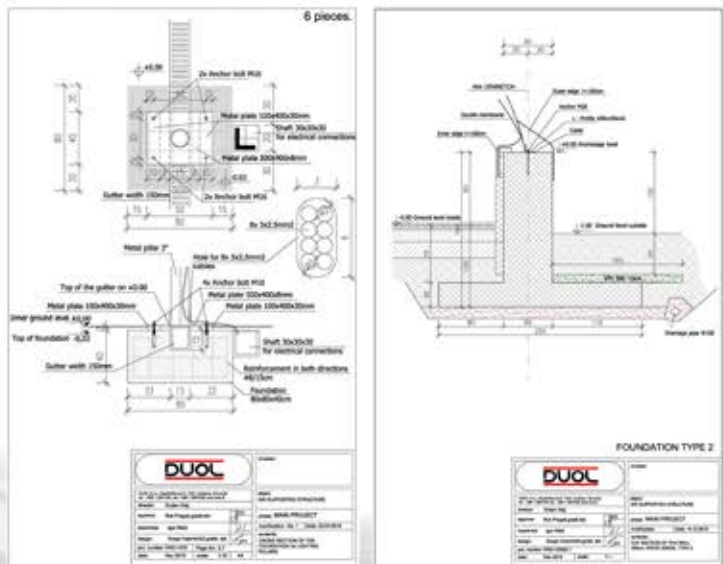
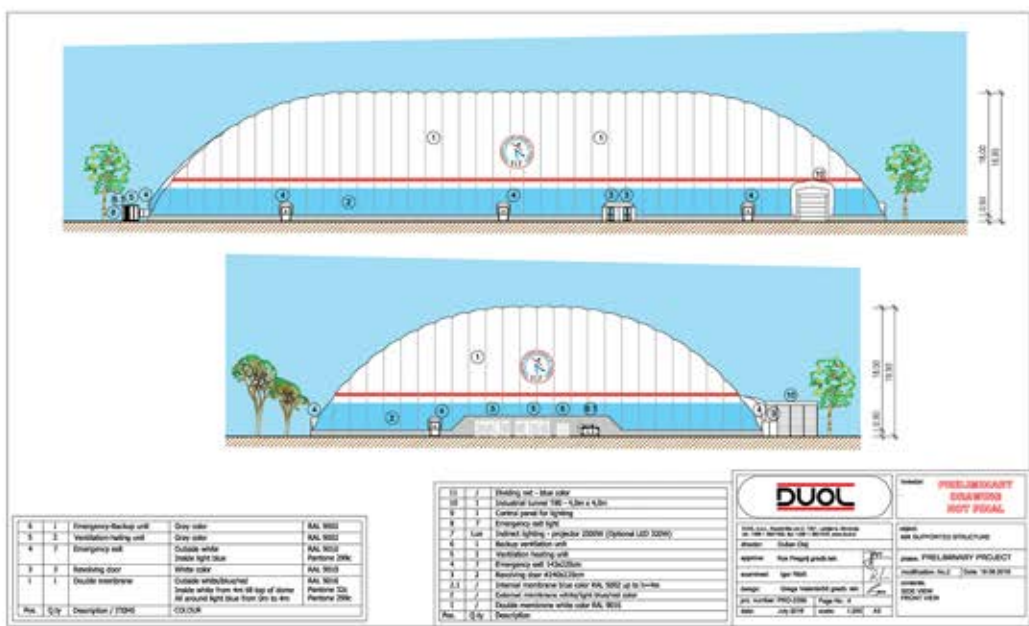
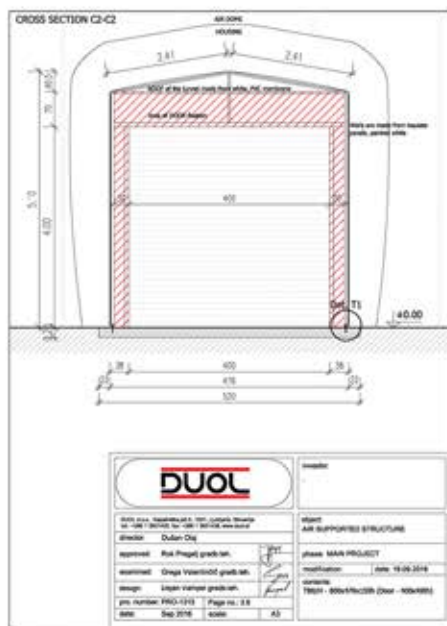
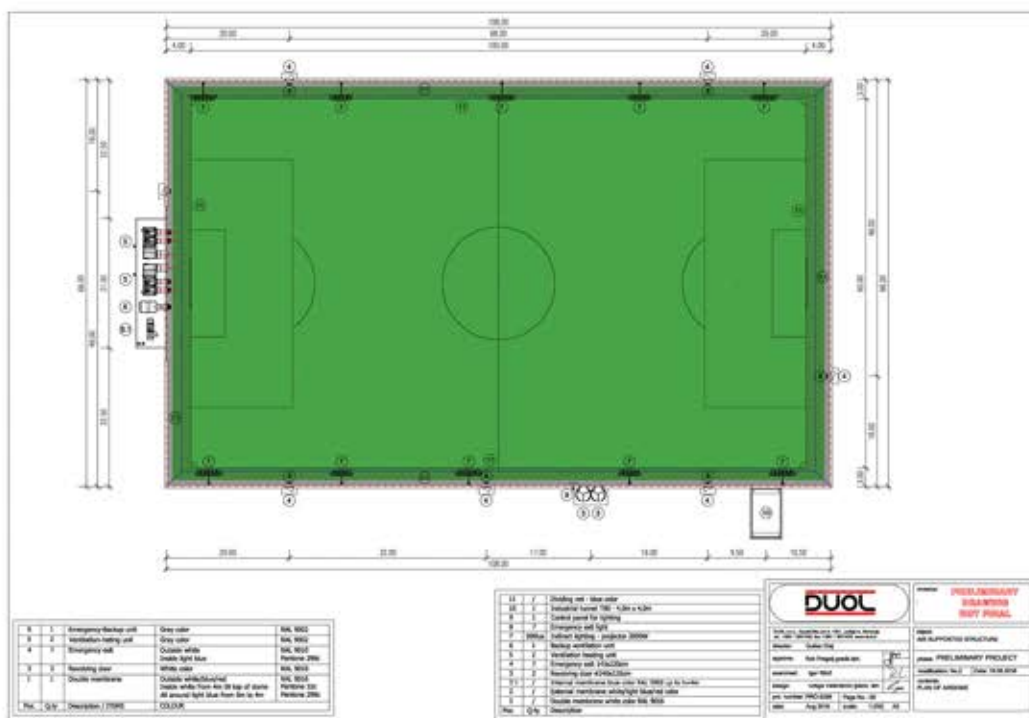
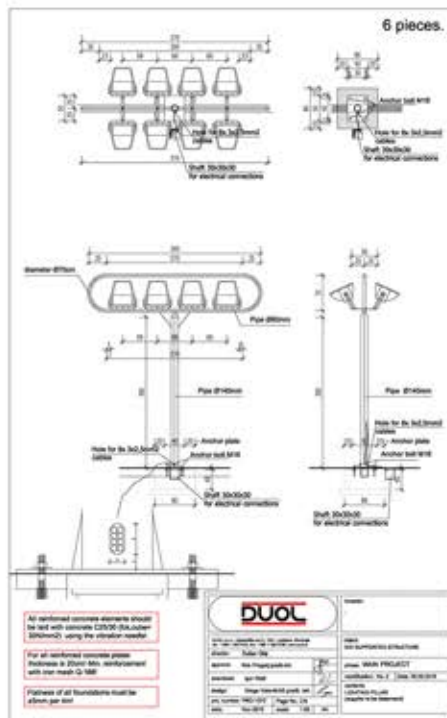
COMPLETE ENGINEERING SUPPORT

STATIC CALCULATIONS

- Study of standard references
- Determination of loads
- FEM modulation of the structure
- CFD analysis
- Pattern drawings
- 3D Visualization



COMPLETE ENGINEERING SUPPORT DRAWINGS





Karlstad, Sweden



Nanjing, PR China



Granada, Spain



Rudesheim, Germany



Tallinn, Estonia



India, Military RaDomes



Krasnodar, Russia



Riga, Latvia



Moscow, Russia



Amsterdam, The Netherlands



Helsinki, Finland



Vienna, Austria



Tallinn, Estonia



Tignes, France



Abu Dhabi, UAE



Gothenburg, Sweden



Boden, Sweden



Istanbul, Turkey



Kamchatka, Russia



Narbonne, France



Naryn, Kyrgyz



Sofia, Bulgaria



Cardiff, UK



Turku, Finland



Graz, Austria



Khorog, Tajikistan



Corsica, France



Copenhagen, Denmark



Hormozgan, Iran



Kőszeg, Hungary



QPR FC London, UK



Čapljina, BiH



Trondheim, Norway



Helsinki, Finland



Newcastle, UK



Chengdu, PR China



Batumi, Georgia



Annaba, Algeria



Nordberg, Norway



Volgograd, Russia

PRESTIGIOUS PREFERENCES ALL OVER THE WORLD



Niort, France



Gmund, Germany



Imatra, Finland



Moscow, Russia



Valparaíso, Chile



Bern, Switzerland



Kaunas, Lithuania



Tromsø, Norway



Hveragerði, Iceland



Dubai, UAE



Kemi, Finland



Astana, Kazakhstan



Ataköy, Turkey



Brussels, Belgium



Sochi, Russia



Illertissen, Germany



Copenhagen, Denmark



Abu Dhabi, UAE



Kemerovo, Russia



Meudon, France



Jeddah, Saudi Arabia



North Siberia, Russia



Tallinn, Estonia



Paris, France



Pinsk, Belarus



Cairo, Egypt



Tbilisi, Georgia



Rijeka, Croatia



Kungälv, Sweden



Thessaloniki, Greece



White Hart Lane, UK



Belgrade, Serbia



Your dome



FC Udinese, Italy



Abu Dhabi, UAE



Donetsk, Ukraine



Minsk, Belarus



Astana, Kazakhstan



Corsica, France

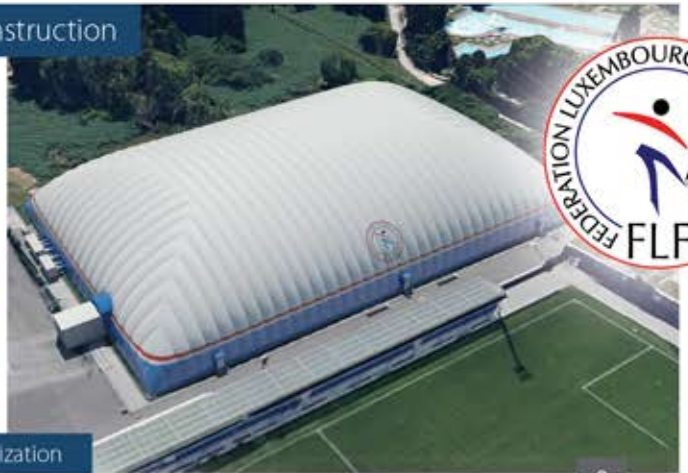


Ljubljana, Slovenia

SUPREME FOOTBALL SELECTION



Under construction



3D Visualization

CLIENTS ABOUT DUOL

From order to completion the project has run like clockwork; we formed a great working relationship with DUOL and they were professional and efficient throughout, keeping us up to date with progress and dealing with any issues promptly and professionally.

Importantly the project was delivered within the agreed timescale and we would not hesitate in recommending them to others, in fact we are already planning our next project with them.

*Queens Park Rangers Football Club, United Kingdom
Mark Donnelly, Chief Operating Officer*



Nach 20 Jahren hatte die alte Traglufthalle des HTCB ausgedient. Wir suchten deshalb eine neue Halle für die drei Tennisplätze (36m x 54m). Nach einer intensiven Evaluation entschieden wir uns für eine Traglufthalle der Firma DUOL aus Slowenien. Die Vorteile gegenüber der alten Halle waren: Heller, besser isoliert, weniger Energie verbrauchend. Trotz der geografischen Distanz waren die Verhandlungen stets sachlich, fair und zielführend. Der Transport klappte tadellos. Die erste Installation wurde zusammen mit DUOL-Mitarbeitern und Klubmitgliedern durchgeführt. Die Klubmitglieder sind sehr zufrieden mit der neuen Halle und freuen sich darauf, nächsten Winter wieder in der Halle spielen zu können.

*Hallentennisclub Bern, Schweiz
Dr. Wolfgang Neugebauer*



In 2008 company DUOL supplied and installed football dome dim. 70x110x24m in Seinajoki, Finland. Company DUOL proved itself as a trustful business partner making its business obligations according to Agreement. The dome is representative object in our community. From our point of view a decision to purchase an air supported structure was correct and done in right time due to rising needs in investments into sport. Thank to DUOL air supported structure playing football is able in every weather conditions, no matter on a season. We do hope that our community has neared an attractive kind of sport such as football is to wide population. And finally the most important is that our football team has got own facility for undisturbed trainings.

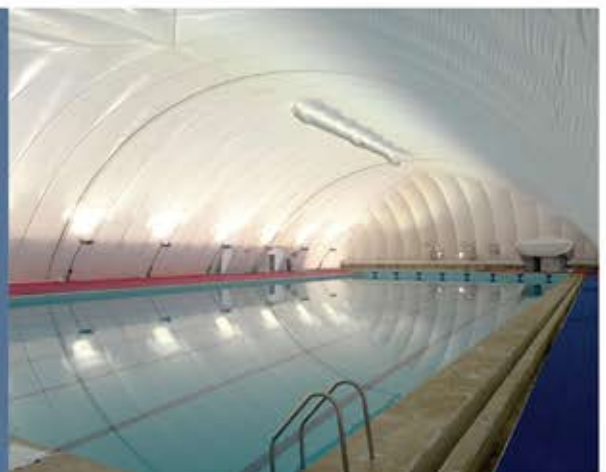
*Wallsport Oy, Finland
Raimo Sarajarvi, Chairman*



We built a perfectly designed Olympic Pool dome for the Sports Management of TURKEY in Malatya. From the very beginning till the end, it was a total team work with all the stages under control of DUOL professional project, production and installation crew.

I recommend DUOL extensively, they are professional, reliable and gorgeous.

*Oguz Kocak
Ankara, Turkey*



EXTEND YOUR PLAYING SEASON

DUOL air domes are a cost-effective and flexible means of covering outdoor sporting areas permanently (or during the winter months). The domes can be used for many sports including football, tennis, swimming pools, indoor hockey, golf ranges, basketball, beach volleyball and others.



APPLICATIONS

Sports



Industry



Agriculture



Military

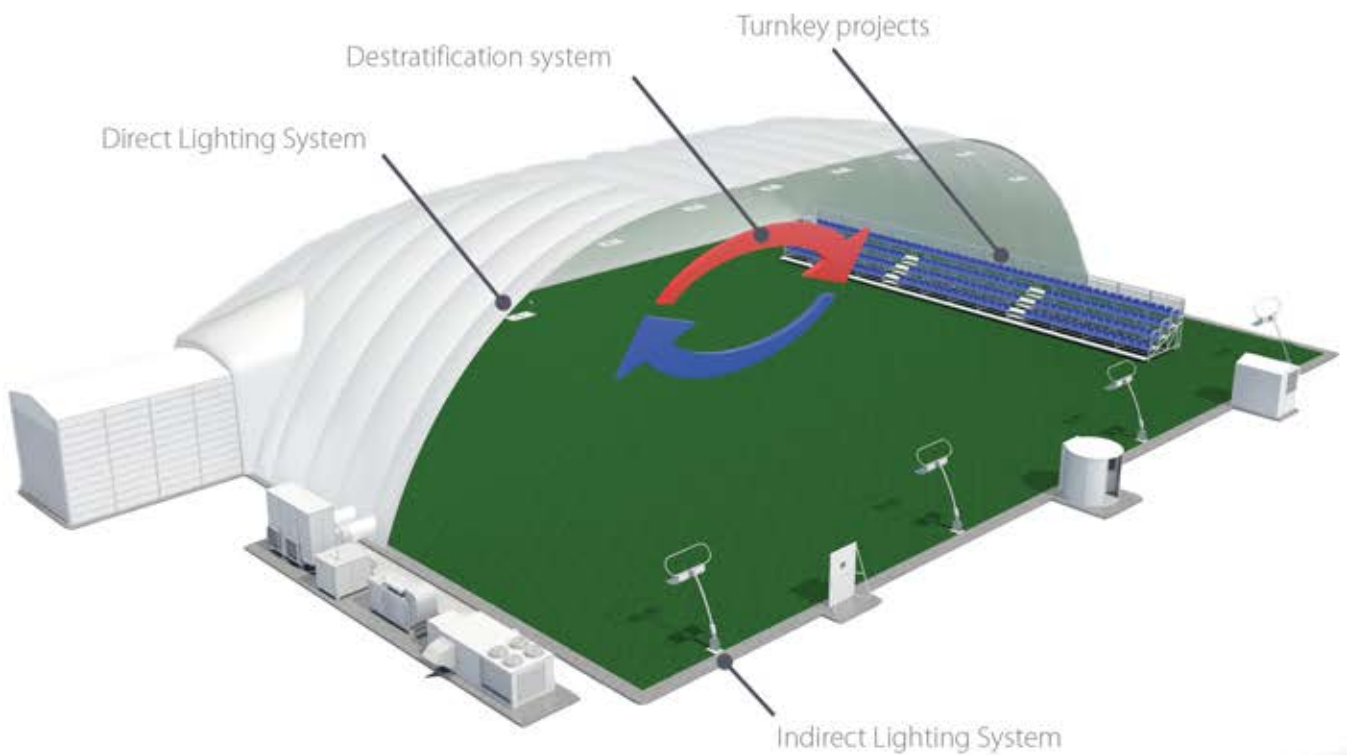
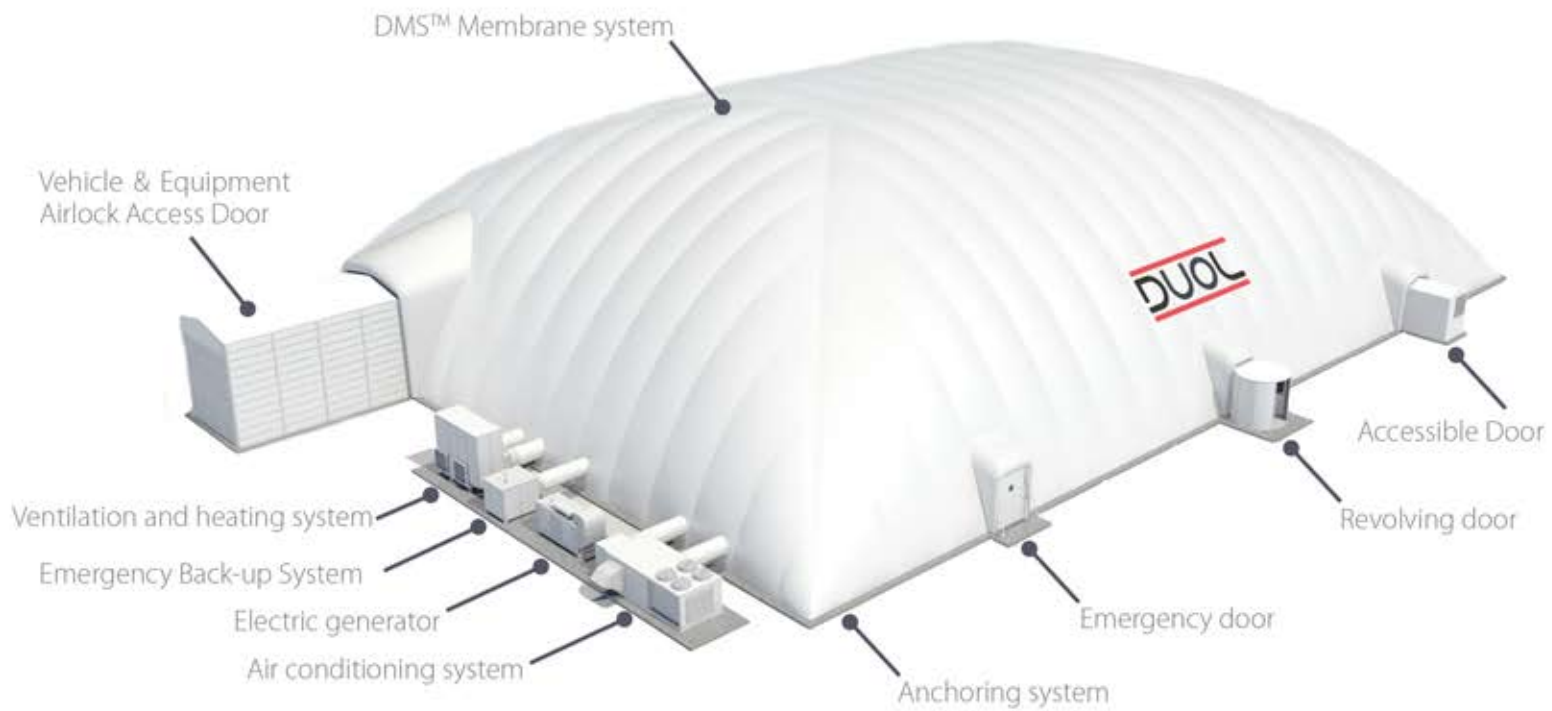


Others

- Exhibition halls
- Landfill Air Domes
- Decontamination halls
- Emergency shelters
- Temporary shelter



INNOVATIVE TECHNOLOGY



WHY DUOL INNOVATIVE STRUCTURES

DUOL domes have many unique advantages including innovative DMS™ (DUOL Double membrane system), which provides highest thermal insulation with rock-solid weather resistance. Other benefits are listed below and on following pages.

■ Resistance to extreme weather

Withstands temperatures from -55 ° C and up to +70 ° C, strong winds, storms, heavy snow, ice.

■ Very short project execution time

Only few weeks from the date of agreement until the structure is completed and ready for use.

■ Seasonal flexibility

Only few days to assemble and disassemble the airdome easily and with minimal effort.

■ Easy to relocate

DUOL structures can be used as permanent or temporary structures that can be relocated easily.

■ Energy efficient structures

DUOL structures are energy efficient as they can be used in a seasonal way or only when needed for protection from certain weather conditions and can be removed when not needed. Furthermore, it is possible to use the translucent membrane feature that allows the transmission of day-light.

■ Conforms to all safety standards

All DUOL structures conform to all safety standards and regulations as they are resistant to fire, earthquakes and UV. Structures are made of a double-layered extremely durable membrane which is vandalism-proof. All structures are provided with an emergency backup unit and they are eco-friendly and 100% recyclable. DUOL is also certified with ISO 9001:2015 quality standards.

■ Long lifespan

DUOL air domes have a lifespan of more than 40 years.

■ Less cost than conventional buildings

DUOL structures require much less construction cost than traditional structures as it doesn't need sophisticated site preparation such as concrete foundation and framing and other complications that conventional buildings have. Furthermore it does not require a construction permit as it is not considered as a permanent structure.

■ Modern customizable design and branding

DUOL structures have a modern design and could be -unlike traditional building- easily branded and customized in terms of colors and logos to fit the marketing and branding plan of the client.

■ No wasted space

One of the important advantages of DUOL domes is the space saving inside the structure as they do not contain traditional buildings frames and pillars which allows several design options without wasting any available space.

■ SmartDome

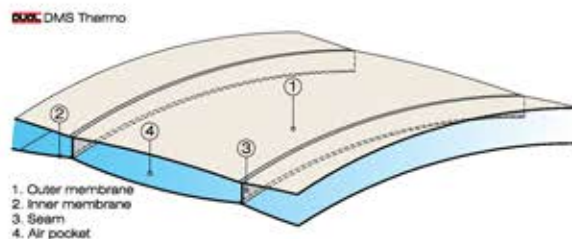
DUOL structures are featured with an intelligent and advanced control and monitoring system that automatically controls the entire dome settings. The airdome can also be managed remotely via internet and smartphones.

■ Multi-purpose structures

We are specialized in several types of structures. We construct multi-purpose sports facilities, agricultural halls, logistics and industrial structures, temporary buildings (exhibition halls, entertainment venues, temporary warehouses), structures for civil purposes (hospitals, refugee camps, emergency centers) and military purposes.

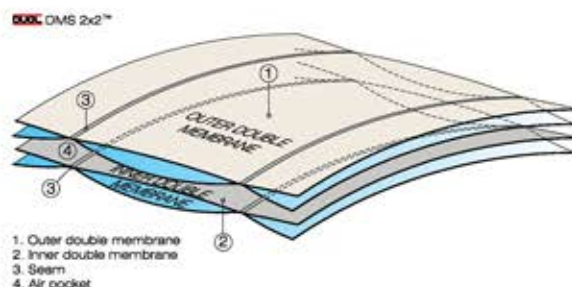
DMS Thermo™

DMS Thermo™ is an improved double membrane system without thermal bridges. Special welding system reflects in high insulation quality with U value of 1,2 W/m²K.



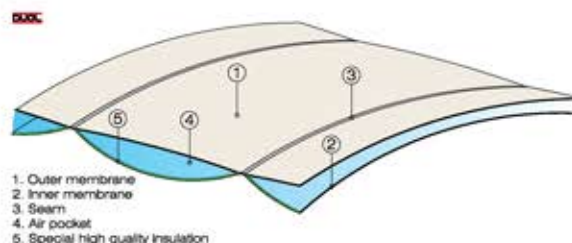
DMS 2x2™

DMS 2x2™ is the most advanced double membrane system with two parallel double membranes and between them there is a space without any contact between the membranes. Thanks to this design, the thermal insulation is much improved, resulting in a U value of 0,9 W/m²K.



DF Ultra Insulation

DF Ultra Insulation consists of impressive 37-multilayer, nano-coated insulation material placed between membranes. It increases the insulation efficiency of the membrane system and reduces the heating/cooling power required by up to 70%.



DF Ultra Insulation during installation.

Transparent membrane

Transparent membrane offers impressive 64% light transmittance.



Opaque membrane

It is a type of membrane that is specially designed for extremely hot regions where sun protection is vital. It ensures that AC works with maximum efficiency. The membrane withstands heat up to 70 degrees Celsius. The membrane comes in all colors, especially the beige which the best color against dust.



DMS™ MEMBRANE SYSTEM

DUOL DMS™ (Double membrane system) is the most advance double membrane system available with improved thermal insulation and mechanical resistance. Thanks to excellent insulation, achieved by DMS™ there is no condensation inside the air dome. DMS™ membrane is coated with special lacquering finish like Polyvinylidene fluoride (PVDF-II) or Titanium dioxide (TiO₂) which increase material quality, lifespan and are self-cleaning.



DUOL Fabrics

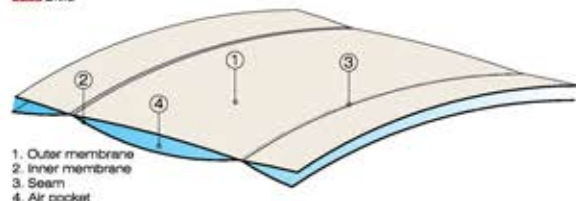
- UV, chemical and weather resistant fabrics
- Self-cleaning, fungus and mildew resistance
- Fire retardant
- High Tensile and tear strength
- Environmentally friendly, 100% Recyclable

Solutions with different thermal transmittance are available, from 3,05 W/m²K to less than 1 W/m²K:

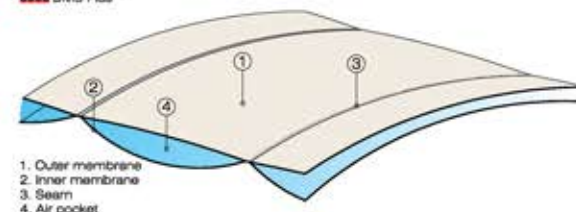
- DUOL DMS™
- DUOL DMS Plus™
- DUOL DMS Thermo™
- DUOL 2x2™



DUOL DMS™



DUOL DMS Plus™



DMS™ and DMS Plus™

DMS™ is DUOL unique system of double membranes with the strong dimensional stability of the structure and excellent thermal insulation. With DMS Plus™ thermal insulation is upgraded thanks to larger double membrane insulation distance.

AC SYSTEM

DUOL has accomplished many projects in the Middle East, Gulf region and other regions with very hot climate. We have installed domes in Saudi Arabia, United Arab Emirates, Egypt and other countries in Asia and South America with extreme climatic conditions. Our dome's membrane is uniquely designed to withstand temperature up to 70 degrees Celsius. Our domes are designed AC system ready together with high thermal membrane insulation which reduces the heat entering the dome and maintains the climate inside the dome. A ventilation system ensures the fresh air circulation inside the dome to keep a healthy, fresh and cool environment for the visitors inside the dome. The air conditioning system withstands heat up to 70 degrees Celsius.



Air dome with AC system. Jeddah, Saudi Arabia.

EMERGENCY BACKUP SYSTEM

Reliability and safety are the most important features of DUOL air domes and constant power supply is a critical item that must not be left to chance.

- Auto start function and automatically shutdown
- 12-24 h autonomy, which can be extended up to 100h, and more
- Equipped with tested and reliable engines of well-known manufacturers (Iveco, Cummins, Perkins, Volvo ...) and alternators (Mecc Alte ...), which have service network practically all over the world



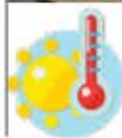
EXTREME WEATHER CONDITIONS EXPERT

DUOL is expert in airdomes construction for extreme weather conditions. We enhance all elements (membrane, air generators, anchoring system...) to withstand extremely low or high temperatures with strong winds and heavy snow.



North Siberia

Outside / inside temperature:
-55°C / +20°C
Snow load: 600kg/m²



Dubai, UAE

Outside / inside temperature:
+55°C / +25°C



Hveragerði, Iceland

Wind load: 200 km/h

VENTILATION / HEATING SYSTEM

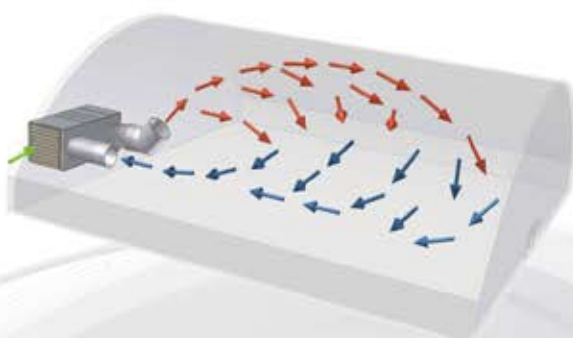
DUOL Ventilation/Heating System is pre-engineered for stability. Furthermore, it provides the desired climate conditions inside the dome. The system is completely automatically-controlled.

- Variable Pressure Control – frequency converter reducing overall energy costs
- DFS – Double Fan System; modular fan operation, increased reliability
- Improved modulating system (saving up to 35%)
- High efficiency heat exchanger
- High efficiency condensing units (up to 105% efficiency)
- Automatic programmable control (wind, snow and pressure sensors)
- Silent operation - radial fan of low noise, silencers
- Heating options: natural gas, LPG, oil, hot water or steam, electricity, heat pump, biomass, combined source.



PELLET BURNER

Self-cleaning boiler with automatic pellet loader.



DESTRATIFICATION SYSTEM

De-stratification system is mounted on the top of the dome and improves temperature distribution inside the dome – pushing the warmer air from top to bottom. The result is lower energy consumption and pleasant indoor environment.

LASERLED LUMINARIES

LASERLED DIRECT

- For direct light applications.
- Air dome structure height from 5m-22m height
- Power 230W
- Luminaire flux: 26930lm



UNITED KINGDOM, football, 350lux
Standard: 48 kW/h
NEW LaserLED: 22 kW/h



GERMANY, 2 tennis courts, 500lux
Standard: 12.7 kW/h
NEW LaserLED: 3.8 kW/h



FRANCE, multipurpose, 800lux
Standard: 26.5kW/h
NEW LaserLED: 6.6 kW/h

LASERLED LUMINARIES

LaserLed luminaries are using LED source for light emission. They are suitable for operation under most difficult sport applications. Specially designed technology for precise and high intensity light source. System efficiency up to 210 lm/W Construction with optical part is designed for high intensity light source with low glare as well as "no-shadow" effect. Construction is made of steel and aluminum to ensure best possible heat dissipation and long lifetime. One of the great advantages of LaserLed is its simplicity of construction where all parts can be substituted as well as power supply is standard one. LaserLed has possibility of remote control for dimming purposes if needed.

EXCELLENT PERFORMANCE STANDARDS



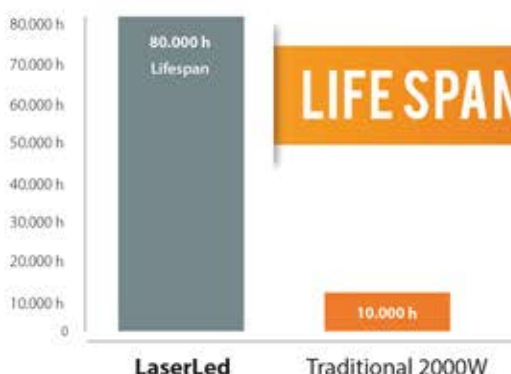
LOWE COSTS, MORE EFFICIENCY



PROTECTION DEGREE: IP66



DIMMABLE DRIVER (OPTIONAL)



LASERLED INDIRECT

- For indirect light applications. Air dome structure height up to 45m
- Power 320W
- Luminaire flux: 43000lm



FRANCE, 4 tennis courts, 500lux
Standard: 32kW/h
NEW LaserLED: 15kW/h



NORWAY football, 1000lux
Standard: 196kW/h
NEW LaserLED: 98kW/h



FINLAND, football, 500lux
Standard: 96kW/h
NEW LaserLED: 48kW/h

ANCHORING

Every structure needs a solid foundation to keep it anchored and secure. With the DUOL advanced anchorage system, air loss around the base perimeter is significantly reduced, providing savings on inflation.

- Perfect airtightness
- Powerful fixation
- Suitable for extreme weather conditions
- For permanent or seasonal use of the dome
- Durable hot galvanized steel. Maintenance free



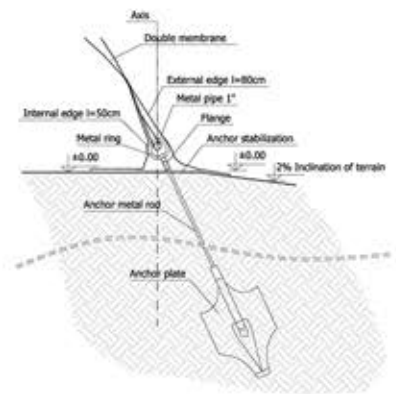
Rings with peg crossed by a metal tube



Metal profiles

ANCHORING WITHOUT CONCRETE FOUNDATION

With ground-anchoring system there is no need for concrete foundation around air dome. By using ground anchors, air dome is anchored directly into ground.



CONNECTION OPTIONS

Air structures can be fixed to other buildings in a variety of ways. If the need arises for a larger facility, expanding or modifying an air structure is a simple procedure and can be accomplished with a minimal disruption. Air dome can be shortened, prolonged or relocated at any time, even doors, tunnels and connections to buildings can be added additionally.



AIR DOME ON THE TOP OF BUILDING

Air dome has a flexible design that can be installed even on top of existing buildings.



DUOL SMARTDOME

DUOL SmartDome is an innovative solution for supervision and automation of airdomes. Programmable logic controller (PLC) interacts with different airdome systems and is used for supervision, automation and control solution. Technical data and alarms are transmitted (via GPRS or LAN) and can be managed remotely. Users have easy access via web cloud-based application where data are stored and accessed by smartphones as well. Alarms are sent to email or SMS.

- Supervision, alarming and automation
- Remote data acquisition
- Data logging and history
- Modular design
- Wide range of air dome monitoring/controlling/alarming systems



WHY INSTALL SMARTDOME?

- Energy savings
- Time savings
- Automatization of daily/repeating tasks
- 24/7 monitoring & remote control, through smartphone, tablet or computer
- User-friendly and customizable interface



CUSTOM DESIGN POSSIBILITIES

DUOL air domes can be custom-designed according to client's specifications. Different colors, designs and logos are possible.



TURNKEY PROJECTS

As a company involved in sport segment for more than 25 years we have been closely linked to trusted suppliers of air dome interior and we can deliver for you completely equipped turn-key sports object, including stands, offices, locker rooms, toilets, sports flooring, sports equipment, dividing nets etc.





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Binode d.o.o., 5.7.2017

