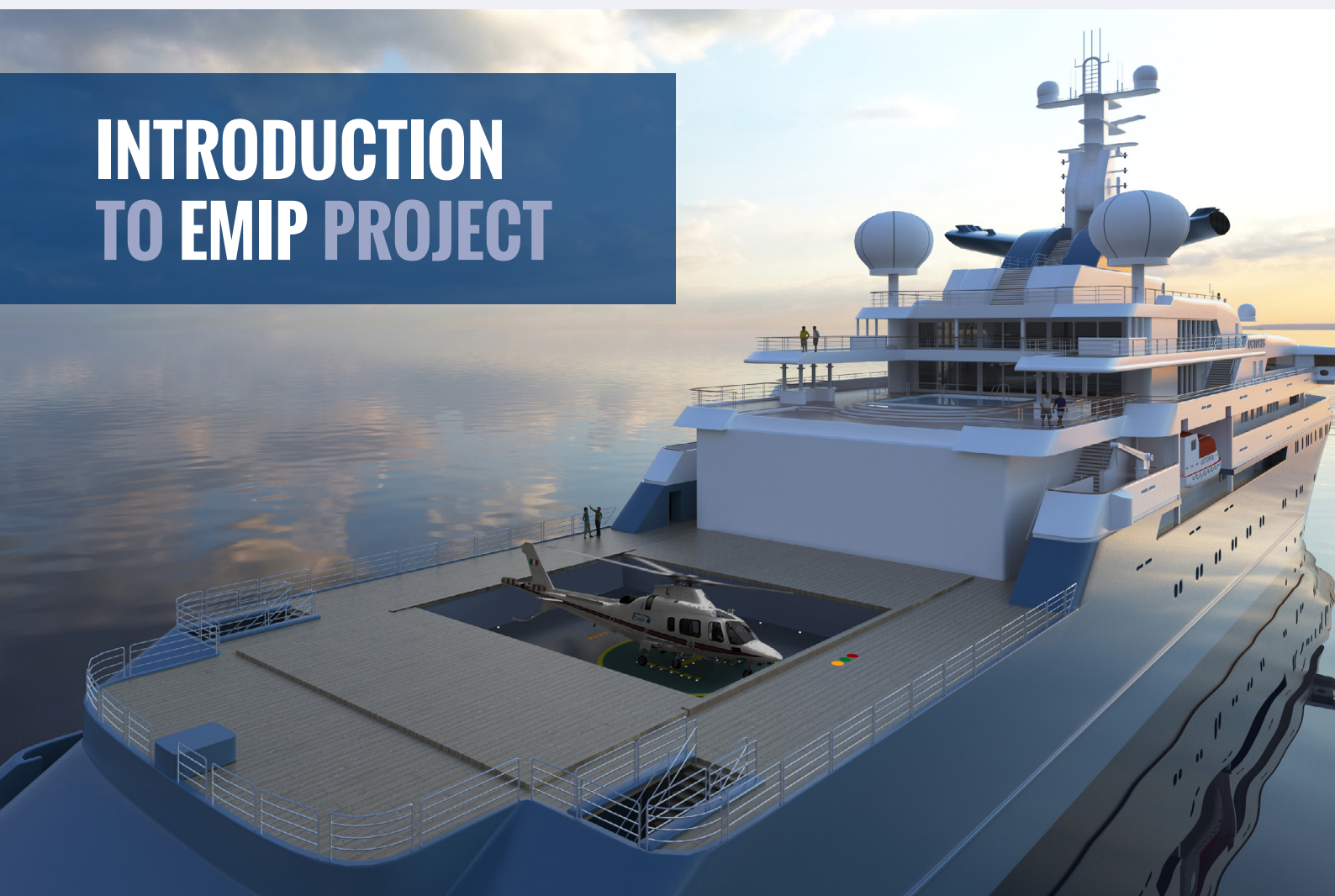




Electromechanical Mobile Industrial Platform

INTRODUCTION TO EMIP PROJECT



UNDERGROUND HANGAR FOR HELICOPTERS

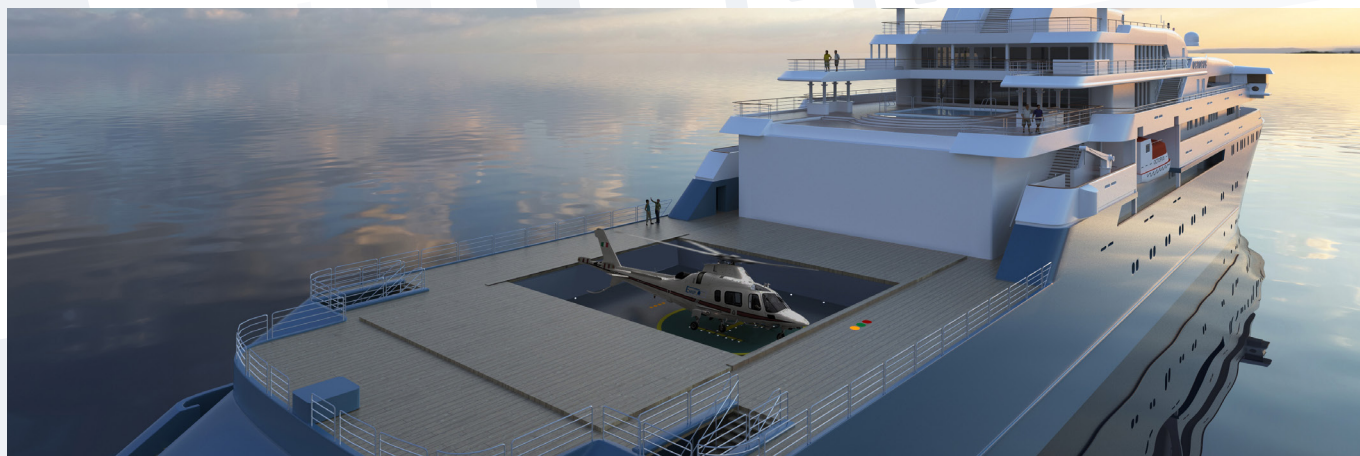
IN PARTNERSHIP WITH

 COSTRUZIONI METALLICHE

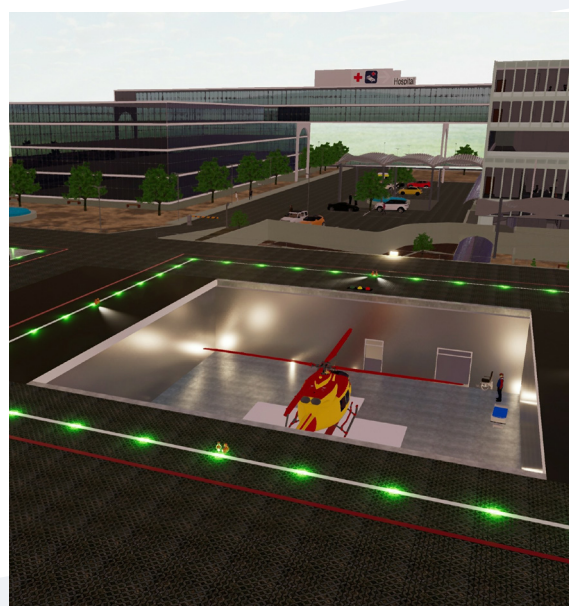
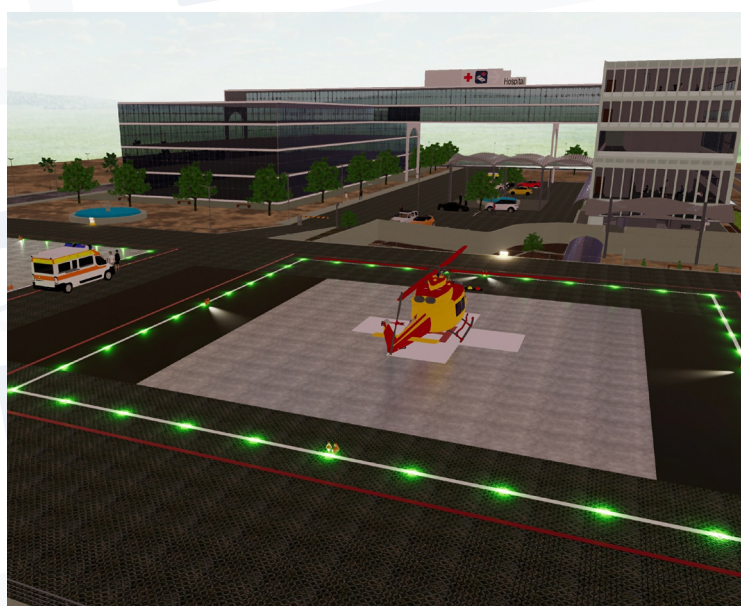
We are an Italian company specialized in electromechanical industrial mobile platforms. We have developed an innovative mobile electromechanical platform installed in an hangar to store helicopters built under the ground, which also functions as a landing surface and which, using advanced technologies, guarantees maximum comfort reducing to the minimum the environmental impact. Thanks to the Emip new technology, will be possible managing the stowage of helicopters fast and easily without having to move them once landed and without using means and personnel in addition to the pilot.

For this project we registered the patent “Underground Hangar for Helicopters” n. AR2013A000018 on the 18th April 2013 and then we extended this license with n.PCT/IB2014/060754 on the 16th April 2014 abroad, in European as well as International Countries.

The Hangar Emip with its versatility, its compact size and simplicity of use, is designed to be placed in any environment, always keeping its maximum efficiency: gardens, private or public buildings, boats, fixed marine platforms, first aid areas, areas close to hospitals and even in inaccessible territories.

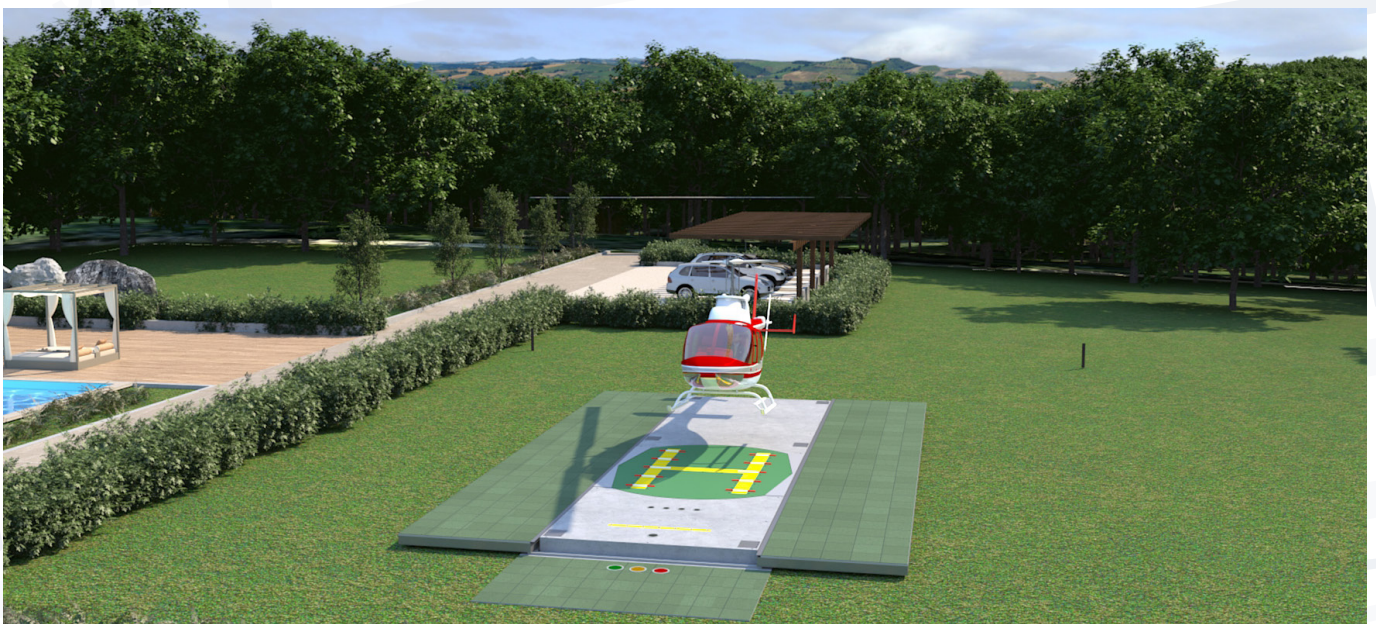


It is intended to be used to give more comfort and security and save time and money to the persons who use the helicopter for work or just for leisure; but also to give an important support in the military field, healthcare sector and medical rescue, where in addition to guaranteeing faster intervention, allows patients to be transported directly into the hospital's structure in perfect hygienic-sanitary conditions without being exposed to weather and contamination from outside.



STRUCTURE'S DESCRIPTION

The hangar consists of a mobile platform housed in a basement realized in the ground and built in reinforced concrete. It is subdivided into two areas connected to an access door; the first is the technical room where is hosted the plc, which manages the overall operation of the hangar which is accessed through a trapdoor; the second is the room where the platform is hosted and is covered by sliding opening and closing doors.



When the hangar is made inside a ship or a fixed platform, the external structure is also made of steel.

In this case, the Emip engineers will provide the shipowner or builder with the parameters needed to set up the compartment where our platform will be located.



MECHANICAL DESCRIPTION OF THE PLATFORM

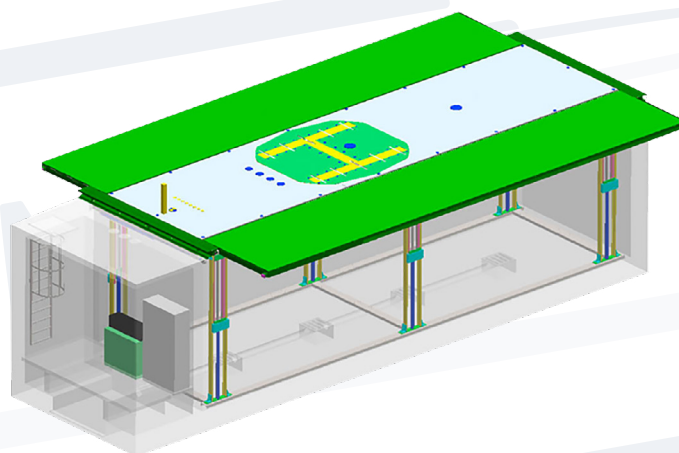
The platform raises and slides vertically on columns with lanes of low friction.

Is provided with rollers of translation and a spinning wheel in order to regulate the right positioning of the helicopter and the movements over the platform even also to allow to take off in a different direction from the landing one.

For the ascent and the descent of the platform there is an installation of hydraulic pistons.

The hydraulic system is powered by a gear pump which enables the pistons to rise thanks to oil pressure and to make a 2-meters run; a system of chains and sprockets makes expand the run of the pistons up to 4 meters of overall height, necessary for reach the surface, that is the level of the doors.

Upon request, for the ascent and descent of the platform is possible apply a mechanism with screw lead nuts made of steel. But, in this case, we'll have a more electricity consumption and will be required the availability of 15 Kw/h for the overall functioning of the larger hangar model.



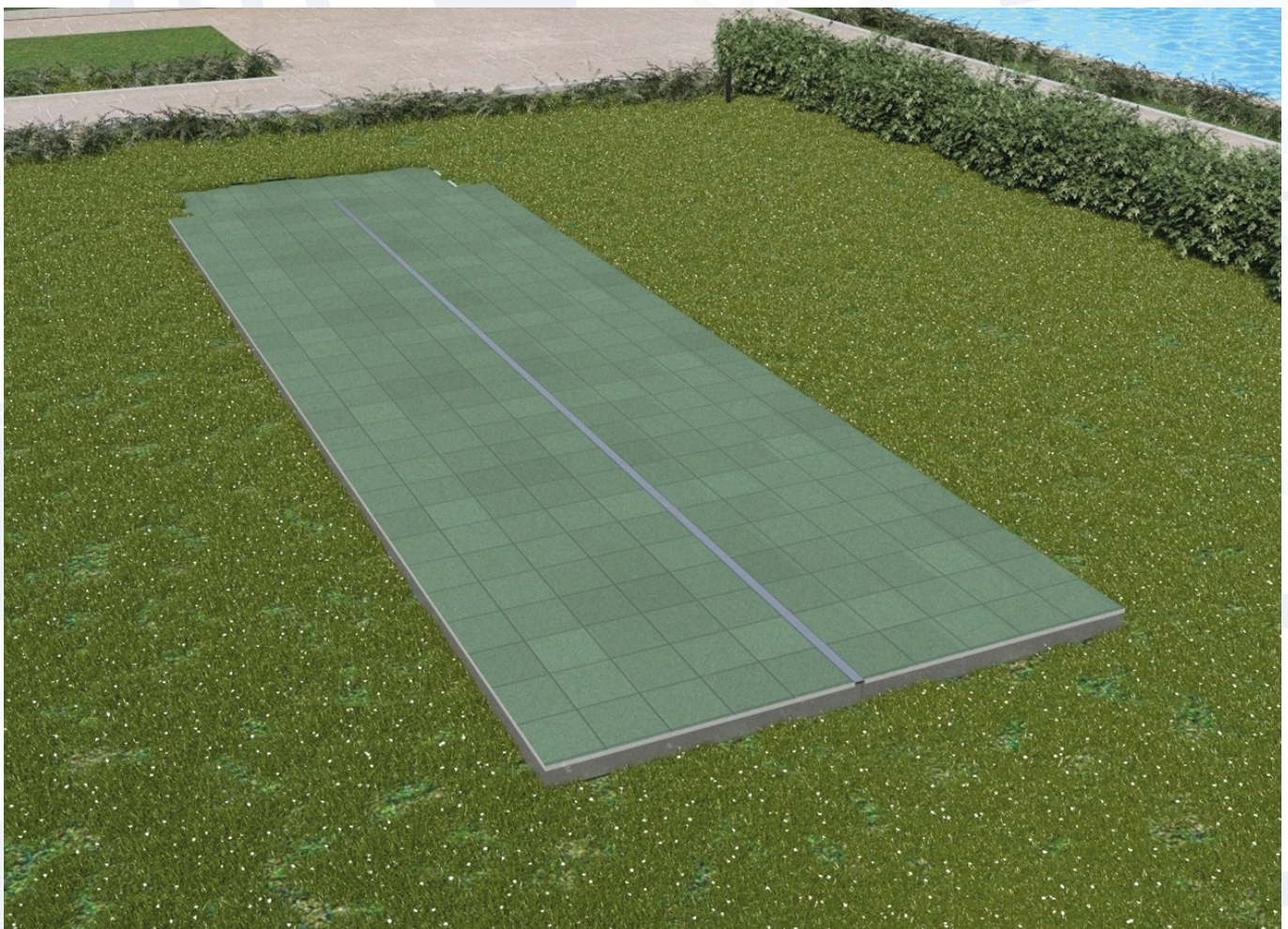
COVERING MECHANISM OF THE PLATFORM

The opening and closing of the hangar is composed of two horizontal panels that slide on lanes and that are driven by a gear motor and sprockets, with hydraulic or electrical supply; but they also can be activated by hydraulic pistons.

The panels are insulated and externally finished with tiles made of shockproof rubber in personalized colours or with painted hot- galvanized steel, to camouflage themselves perfectly with any environment.

The doors while closed can support the weight of the helicopter during the phase of safety landing as well as the one generated by impact and dynamic force, in case they have not been opened due to obstacles detected by the security system in the hangar area.

They also support the potential weight of snow for up to 300 kilograms for square meters; in countries with heavy snow storms the weight that can be supported will be calculated on basis of the regulations in force.



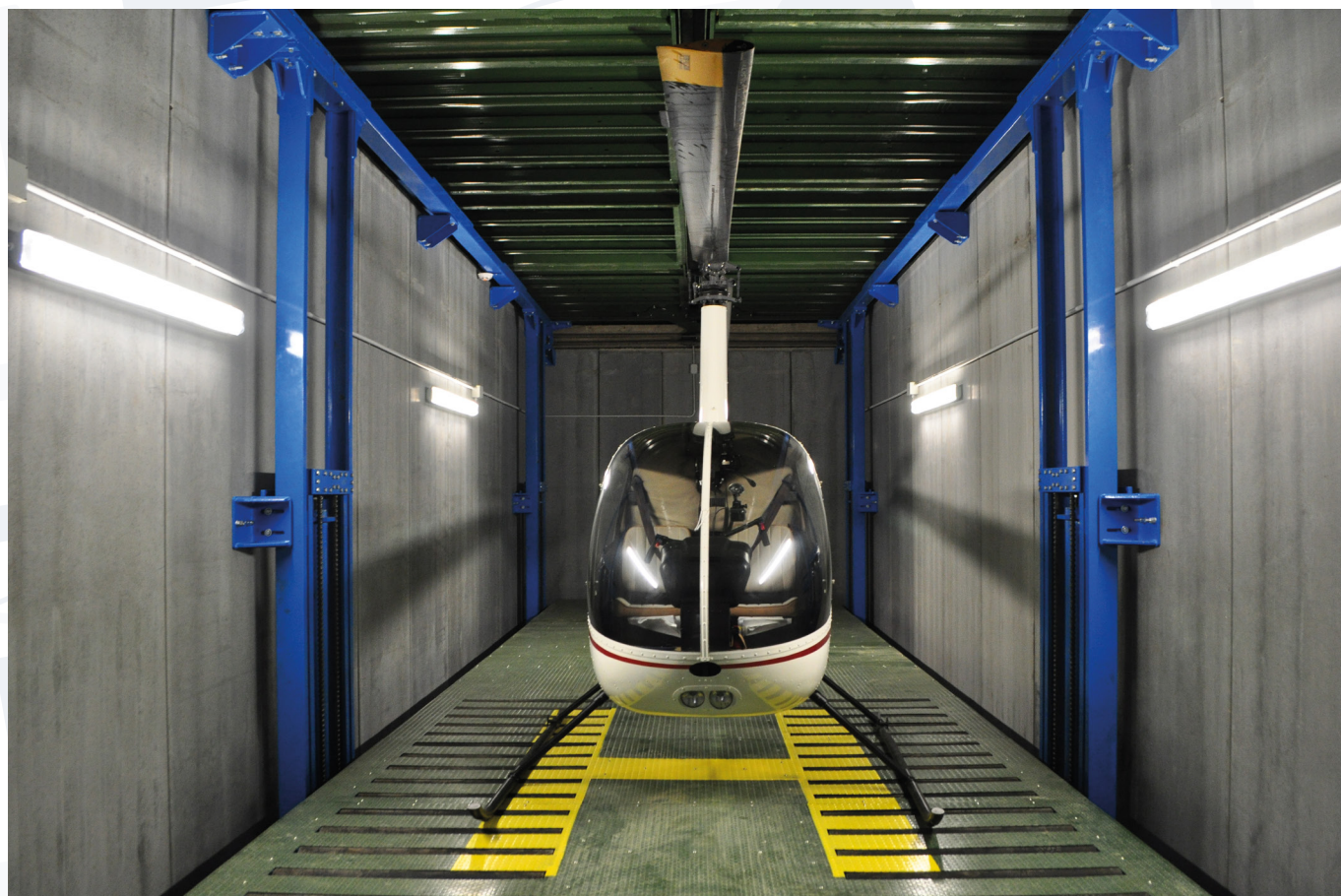
ELECTRONIC AUTOMATION

Our hangar is powered by electricity of low tension and it has been studied in order to have a low power consumption; in fact, for example, is only required the availability of 9 Kw/h for the bigger model.

The whole structure generates consumption only when the platform ascends, opening the doors, and descends with the helicopter, closing the doors; and so it remains on stand by until the next operation.

The electronics applied to the system is composed by a plc that manages overall operation; inverter to correct eventual anomalies in current flows; and also by a telephone switch that allows the opening of the Emip platform, employing a sophisticated system of security.

For the landing, the stowage and also for the automatically exit of the helicopter from the hangar, the pilot sends a sms to the system which, in few minutes, controls the whole area, does open or close the doors and it starts the ascent or the descent of the platform without employing means and personnel.



STANDARD INSTALLATIONS

Our hangar is equipped with many devices and installations:

A ventilation device that allows air recycling inside the hangar in order to avoid humidity in the area.

System of abolishing water, in case that it enters during the entrance and the exit of the helicopter, through suction pumps located within a storage tank that allows to accumulate a considerable amount of water under the level which support the helicopter's skids. The basin of water depends on the size of the hangar selected model, and it can have a minimum capacity of 50 cubic meters (in the smallest model) up to the maximum of 500 cubic meters (in the largest model); in case of flooding for the occurrence of exceptional floods and if the water exceeds a guard level, a sensor automatically sends a signal to the plc which activates a command of opening of the doors, it raises the platform that brings the helicopter safely on surface, avoiding in this way damage to the aircraft.

A smoke detector controls the whole hangar and, in case of presence of smoke, sends a signal to the plc that activates the opening of the doors and the ascent of the platform that brings the helicopter outside.

Touch screen for displaying system movements and alarms.

Remote supervisory system of the computer.

Warning lights to indicate the pilot if the platform is ready for the landing or not.

OPTIONAL INSTALLATIONS

Upon request, the Emip Underground Hangar can be equipped with:

Fire system as determined by the I.C.A.O regulation, with cannons that throw foam in the hangar and in the surrounding area.

Uninterruptible power supply that guarantees the perfect functioning of the system for about 20 minutes in case of lack of energy.

Additional lighting device to facilitate the identification of the platform during night landing.

Near the platform can be installed a fuel tank for refuelling with a minimum capacity of 1000 liters with a distributor electronically activated, hidden under the ground level in order to avoid obstacles.

Weather station for the remote detection of the wind, rain and temperature.

Day or night wind cone to detect the wind direction.

For countries where there are frequent heavy snowfall, we can apply a further heating system of the doors and of the surrounding area to allow the melting of snow and also to prevent the formation of ice.

Required infrared barrier to detect obstacles at the opening and closing of the doors, covering a surface of up to 1600 square meters; replaceable with a fence of the same area.

Our hangar can also be provided with other optional installations and devices to meet every customers requirements.



THE SPECIAL PARTNERSHIP WITH ICOMET COSTRUZIONI METALLICHE SRL

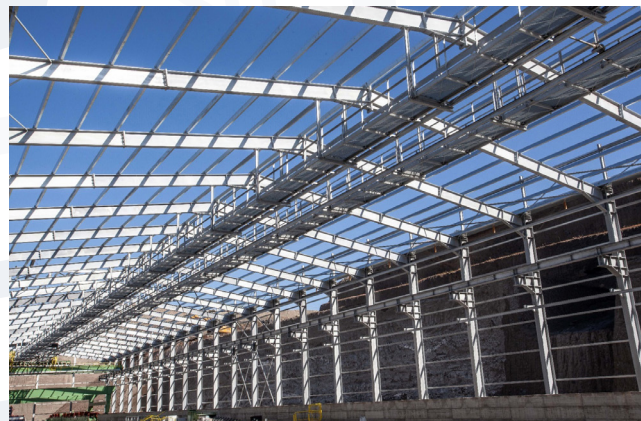
To meet the needs of an increasingly large and particular customer base, since the beginning of 2020 we have signed a collaboration agreement with ICOMET Costruzioni metalliche srl, a leader in the market for over twenty years for the design and construction of metal structures at destination industrial, commercial but also civil constructions, roofs, walls and insulated paneling.

Thanks to their professionalism added to our experience, we have been able to expand the range of our products and offer an even more precise and punctual service, always guaranteeing compliance with high quality standards in all stages of processing, from design to assembly up to delivery and to testing all over the world. The production is managed internally by the company through the use of highly qualified personnel and the latest generation machinery and equipment supplied to the individual departments.



The production process develops from the design department to the cutting department organized with two parallel cutting lines equipped with electric and electro-hydraulic multi-microprocessor band saws; to the drilling department with a remote programmed automatic numerical control punching line for plates and column drilling of all laminates; to the welding department with fixed manual and semi-automatic welding stations in a protected environment assisted by a centralized extraction system for the extraction of fumes in compliance with the most severe regulations on emissions into the atmosphere. Two overhead cranes allow the handling of materials and produced elements, even of considerable size and weight, inside the workshop and assist the staff.

Finally, the assembly teams for site work and the installation of the products have adequate means and equipment and guarantee delivery to the customer and final testing.



All the Emip hangar are built in compliance to the regulations in force:

- Machinery Directive 2006/42/CE
- Directive 1995/16/CE: Approximation of the laws of Member States relating to elevators
- Regulation UNI EN ISO 4413/2012 Hydraulics: general rules and safety requirements for systems and their components
- UNI EN ISO 12100/2010: Safety of machinery
- CEI 64 – 8: Low voltage electrical systems
- CEI EN 61439 – 1: Low voltage electrical cabinets
- Regulation I.C.A.O: Fire prevention system (if required)
- UNI EN ISO 9001/2015 Quality management systems – Requirements
- UNI EN ISO 3834-2:2006 Quality requirements for fusion welding of metallic materials
- UNI EN 1090-1:2009/A1:2011 CE marking requirements for conformity assessment of structural components for steel and aluminium structures



CSI is a member of

IQNet is a member of the International Quality Network (IQNet) of the International Organization for Standardization (ISO). IQNet is a non-profit organization that promotes the use of ISO standards and the implementation of quality management systems. IQNet is a member of the International Organization for Standardization (ISO) and the International Organization for Standardization (ISO).

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IT-11 MEMBER CERTIFIED THAT THE QUALITY MANAGEMENT SYSTEM OF

ICOMET COSTRUZIONI METALLICHE S.R.L.

AREA P.F. 82010 Grottole (AR) (ITALIA)

ALLA PRESSIONE DI MALLA OPERANTE - (IN) THE FOLLOWING OPERATING UNITS

AREA P.F. 82010 Grottole (AR) (ITALIA) & CANTIERI OPERATIVI

E CONFORME AL VORERE - (IN) ACCORDANCE WITH THE PROVISIONS

ISO 9001:2015

E QUALITY CERTIFICATION

PRIMA ISCRIZIONE CERTIFICAZIONE - FOR THE FOLLOWING PERIOD OF VALIDITY

DATA CERTIFICAZIONE

09/11/2015

VALIDITY PERIOD

09/11/2016

REALIZZAZIONE E MONTAGGIO DI COMPONENTI METALLICI STRUTTURALI

CONSTRUCTION AND INSTALLATION OF METAL STRUCTURAL WORKS

La presente certificazione è valida per le attività di progettazione, realizzazione, installazione, manutenzione e assistenza tecnica di componenti metallici strutturali in acciaio e alluminio, in conformità con i requisiti specificati nel presente certificato di certificazione. La certificazione è valida per le attività di progettazione, realizzazione, installazione, manutenzione e assistenza tecnica di componenti metallici strutturali in acciaio e alluminio, in conformità con i requisiti specificati nel presente certificato di certificazione. La certificazione è valida per le attività di progettazione, realizzazione, installazione, manutenzione e assistenza tecnica di componenti metallici strutturali in acciaio e alluminio, in conformità con i requisiti specificati nel presente certificato di certificazione.

First Issue

09/11/2015

Renewed Certificate

09/11/2016

Next Issue

09/11/2017

Renewed Date

09/11/2018

Signature of the Client

09/11/2015

Signature of the Auditor

09/11/2015

Signature of the Representative

09/11/2015

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09/11/2015

Signature of the Representative



www.lasouth.it
 info@lasouth.it

Codice identificativo: 1973/2009/0001 | Autorevisione n.07 del 03/03/2009

ATTESTAZIONE DI QUALIFICAZIONE ALLA ESECUZIONE DI LAVORI PUBBLICI (ai sensi del D.P.R. 207/2000)

Progetto da eseguire:	PUBBLI CONTROLLORE RETE LINEE DEL		
in C.P.A.:	000000000000	in D.A.A.:	000000000000
in via sede:	000000000000	CAP:	00000
in via ufficio:	000000000000	Prov.:	00
Indirizzo del CLIENTE (n. 000000000000)	000000000000	000000000000	000000000000

Responsabile lavori		Struttura Tecnica	
Nome e Cognome	Codice Fiscale	Nome e Cognome	Codice Fiscale

Categorie e quantità di qualifiche

Qualifica	Quantità	CF (vedi allegato 1) e n. di laurea	CF (vedi allegato 1) e n. di laurea
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L'impresa presenta la certificazione UNI 51000-1, rilasciata nel D.A.A. 000000000000 valida fino al 00/00/0000, rilasciata da 000000000000.

L'impresa partecipa ai lavori in qualità di CONCOORDINATORE GENERALE, con ordine Tecnico 000000000000.

Nome e Cognome	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
Codice Fiscale	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
Codice Professionale	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000

Firmatari

Nome e Cognome	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
Codice Fiscale	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000

Responsabile lavori	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
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Pagina 1 di 1

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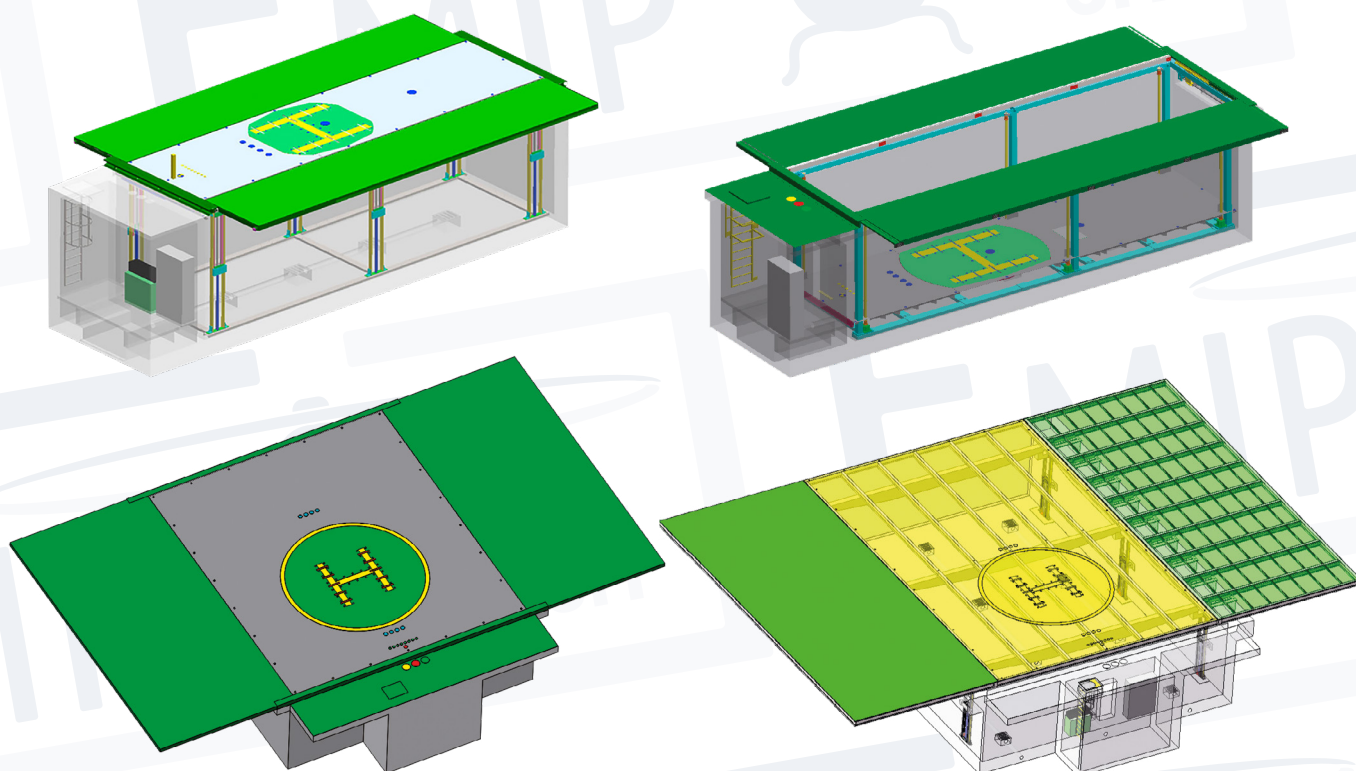
 <div style="float: right; text-align: right;"> Organismo Notificato/Notified body N.° 104 RINA Services S.p.A. Via Corsica, 12 - 10128 Torino (GE) Italy </div>	
ALLEGATO AL CERTIFICATO DI CONFORMITÀ DEL SISTEMA DI PRODUZIONE IN FABBRICA ANNEX TO CERTIFICATE OF CONFORMITY OF THE FACTORY PRODUCTION CONTROL N.° 104 - 0074-2006-1147	
DESCRIZIONE DEI PRODOTTI OGGETTO DEL CERTIFICATO DESCRIPTION OF PRODUCTS TO WHICH THE CERTIFICATE REFERS	
Tipologia componenti / Type of components	Manufatti in acciaio saldati per carpenteria strutturale Welded steel components for structural works
Norma – requisiti tecnici Standard – technical requirements	EN 1090-1 / EN 1090-2
Classi di esecuzione / Execution class(es)	EXC1, EXC2, EXC3
Metodici di Marcatura CE / Method(s) CE marking	2a
Procedimenti di saldatura (Welding processes)	135
Materiali base Basic materials Parent material(s) (Welding filler)	Gruppo 1, 1.2 Gruppo 2, 1.1, 1.2
Indicativo del coordinatore di saldatura / Name of responsible welding coordinator	CAPORINACCO Fabio
Genova, 30/03/2017	

| Revisione n. / Revision No.: 1 | | | | --- | --- | | RINA Services S.p.A. 1 Direttore Tecnico / Technical manager (Sig. Paolo SALATI) | | | **Info Tecnica / Technical data** (Indicare il tipo di prodotto / Indicate the type of product) | (Indicare la classe di esecuzione / Indicate the execution class) (Indicare la classe di qualità / Indicate the quality class) | | (Indicare la classe di qualità / Indicate the quality class) | (Indicare la classe di qualità / Indicate the quality class) | | |

TPOLOGY OF HANGAR EMIP

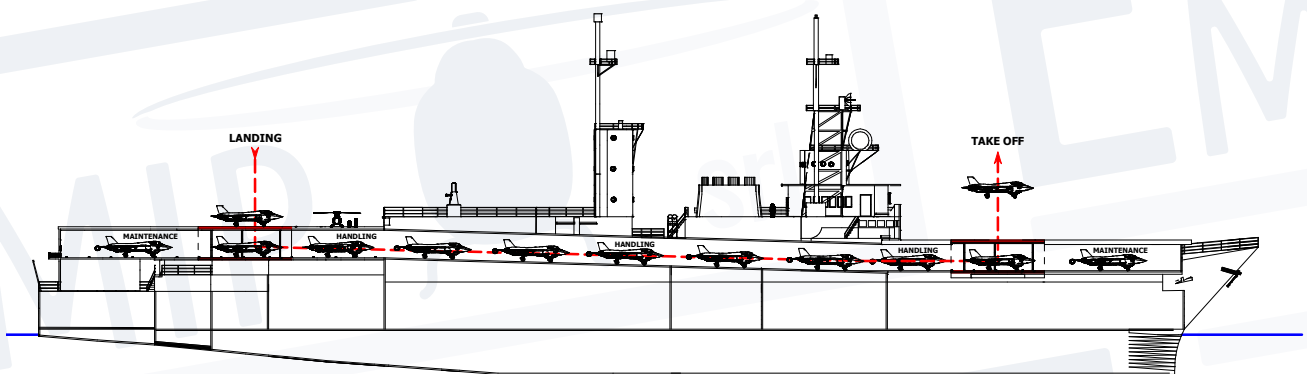
Until today Emip has designed five models of Underground Hangar for helicopters:

1. **Model HI – 1370/355** underground hangar of dimensions 13,70 x 3,55 meters for an estimated height of 3,70 meters for helicopters with two blades till about 12,90 meters of length.
2. **Model HI – 1600/1300** underground hangar of dimensions 16,00 x 13,00 meters for an estimated height of 3,85 meters for helicopters with more than two blades till 14 meters of length.
3. **Model HI – 1700/1450** underground hangar of dimensions 17,00 x 14,50 meters for an estimated height of about 4,80 meters for helicopters with more than two blades till 15,50 meters of length.
4. **Model HI – 2000/2000** underground hangar of dimensions 20,00 x 20,00 meters for an estimated height of about 5,35 meters for helicopters with more than two blades till 18,50 meters of length.
5. **Model HI – 2000/2000 Special** underground hangar of dimensions 20,00 x 20,00 meters for an estimated height of about 5,75 meters for helicopters with more than two blades till 18,50 meters of length.



EMIP UNDERGROUND HANGAR MODEL HI-F35

The HI-F35 Model has been specifically designed to be installed on a ship and to make F35 Fighter Jet takeoff, landing and storage operations easier, faster and, above all, safer. Furthermore, this model of Underground hangar Emip, as designed, allows the jet as soon as it has landed, to be stowed in a short time at the lower level of the ship, where, hidden from the outside, can be maintained and replenished before being ready to leave again. With this solution more jets can remain in optimal condition and in absolute safety, protected from the fast corrosion of the mechanical and electronic parts caused by weather's conditions and by the saltiness and they are no more exposed to storms with the risk of sliding from the landing platform and even falling into the sea.



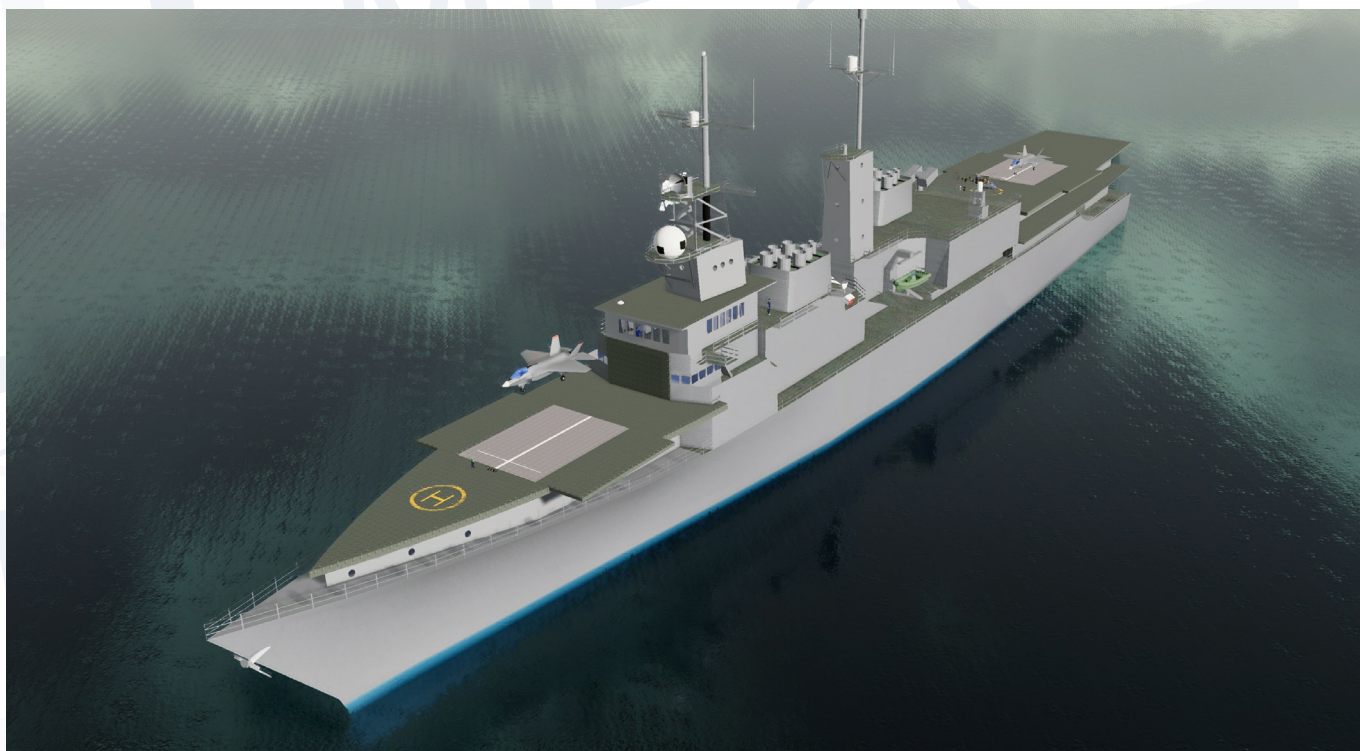
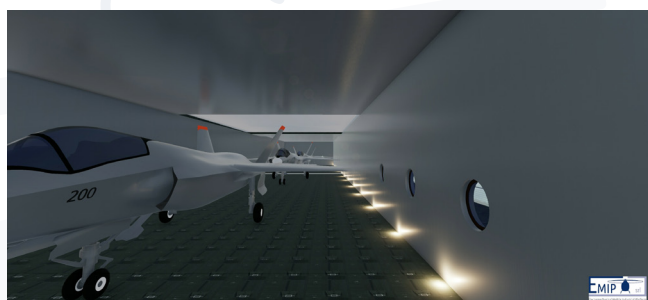
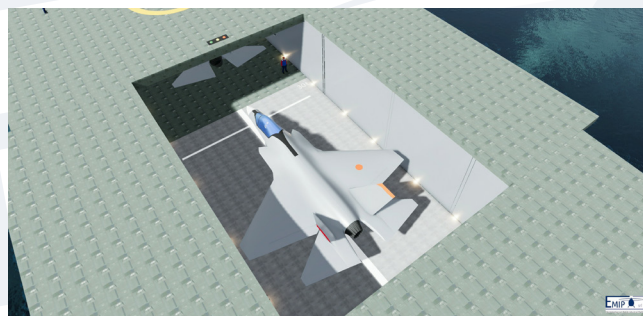
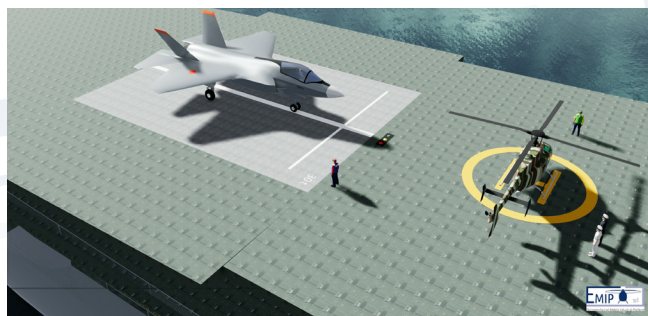
The platform, made of hot-galvanized steel with a heat-resistant steel plate that can withstand approximately 700/800 ° c, is moved with an electromechanical system managed by a PLC; a hydraulic system guarantees the rapid sliding of the platform along six columns, the encoders maintain its stabilization during the ascent and descent and the inverters correct any anomalies in the current flow. The platform rises in about 60 seconds with an absorption of about 20 KW and the speed of ascent and descent can be regulated remotely, based on needs. The Emip mobile platform designed for the F35 Fighter jet supports a weight of 30 tons in addition to the weight generated in the impact upon landing by the force and the dynamic thrust for a total of about 60 tons.

The Underground Hangar Emip is covered with two horizontal opening and closing panels that slide on lanes, driven by asynchronous motors and open and close in less than sixty seconds; and the speed can be increased and decreased through gear motors.

The panels are insulated and treated with hot-dip galvanization and painted for camouflage themselves with the ship's surface. The doors while closed can support the same weight of the platform, in the event that they are not opened due to the detection of obstacles in the hangar area by the security system.

At this time two variants of the HI-F35 Model are available:

1. **HI-F35 2000/1500/530** Underground Hangar with a size of 20,00 meters length and 15,00 meters width and an estimated height of 5,30
2. **HI-F35 2000/2000/530** Underground Hangar with a size of 20,00 meters length and 20,00 meters width and an estimated height of 5,30





Emip srl Unip.

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🌐 www.emip.info ✉ info@emip.info ✉ emip@pec.it

P. IVA 02208110516

Prototype coordinates

📍 43° 30' 01" N - 11° 48' 37" E

