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ROTOR

BY

AIRBUS HELICOPTERS

IN THEIR WORDS
Made in America: the AH-125 and MH-125 Ares

FEATURED ARTICLES
What's next for military helicopters?

OFF THE BEATEN TRACK
Queen of the skies

Wave hello to the future!

500TH NH90
The delivery of the 500th NH90 occured in March, marking a symbolic milestone and a significant achievement since the first delivery in December 2006 to the German Army. On this occasion, representatives from NAHEMA nations and partner companies came together in Airbus Helicopters' facilities in Marignane to celebrate the handover of this new helicopter to the French Army Aviation. The NH90 is a proven military helicopter that continues to be a benchmark in modern military aviation. Its advanced technology and versatility make it an excellent choice for the most challenging missions in the most severe environments.

Special deliveries

TWO FIVE-BLADED H145s ARRIVE IN BAVARIA
Airbus has delivered the first two of eight five-bladed H145s to the Bavarian Police. These first two helicopters will be used in the training of pilots and crews which will begin shortly, ensuring a smooth transition from the current H135 fleet which has been in service for more than twelve years, to the larger H145 helicopters. Delivery of the first fully equipped police helicopter is scheduled for the middle of next year.

THE H135 ARRIVES FOR THE SPANISH AIR FORCE
Airbus delivered the first H135 to the Spanish Air and Space Force in Albacete. This is the eighth helicopter delivered under the 36-unit contract signed at the end of 2021 to supply the Armed Forces and State Security Forces. This delivery is six months ahead of schedule, which will facilitate crew training and the entry into service of the H135 for the 78th Wing at the MIlitary School of Helicopters in Armilla (Granada), where it will perform advanced training tasks for military pilots.

NEW HELICOPTERS IN TOWN, IN KERN COUNTY
The Kern County Sheriff's Office (KCSO), a first-time Airbus Helicopters Inc. customer, took receipt of two new H125 helicopters on the same day. They will be used to enhance the department's capabilities of serving and protecting the residents of Kern County, California. The KCSO's H125 will feature advanced technologies, such as a high-performance engine and a modern avionics suite, which allows it to perform exceptionally well in hot and high-altitude environments in the Central Valley of California.

New orders

ITALY'S AIR CORPORATE PLACE MASSIVE AIRBUS HELICOPTERS ORDER

Leading Italian business aviation operator Air Corporate placed a firm order for 43 helicopters from Airbus on the concluding day of EBACE 2023. The order includes 40 single-engine helicopters (H125/H130) plus three ACH160s from Airbus Corporate Helicopters. The latter are in the Line configuration with the Lounge package, and complement two ACH160s already on order. The contract is the largest commercial helicopter order booked by Airbus in Italy and will see the helicopters delivered over the coming years for a range of private and business passenger services as well as utility operations.

NIFTY FIFTY: CHINA'S GDAT PLACES LARGEST SINGLE H160 ORDER

During French President Emmanuel Macron's visit to China, Airbus Helicopters signed a contract with GDAT, one of China's most prominent helicopter lessors and operators, for 50 H160 helicopters. This contract is the largest single order for the H160 on the civil and parapublic market since the helicopter was unveiled in 2015. The aircraft will be used notably for the energy sector, including offshore transportation for oil and gas platforms, wind farms and harbour piloting, as well as emergency medical services and other municipal public service missions. The companies also signed a strategic cooperation agreement related to topics such as support and services capabilities, amongst others, in order to ensure the long term success of the H160 in China.

10 MORE BLADES FOR NORWEGIAN AIR AMBULANCE

The Norwegian Air Ambulance has ordered two five-bladed H145s to be used for life-saving missions in Norway. Currently, Norwegian Air Ambulance operates all 13 HEMS bases in Norway using a 100% Helionix-equipped fleet of H135s and H145s. The organisation's mother company, the Norwegian Air Ambulance Foundation, was the first operator in the world to take delivery of a five-bladed H145 in 2020. Airbus Helicopters is the leading provider of helicopters to the air medical transport industry, providing some 54% of the 2,700 EMS helicopters flying in the world today.

AIRBUS ON BOARD TO ENHANCE MANNED AND UNMANNED INTEROPERABILITY

Funded by the European Union

Airbus Helicopters is actively involved in building manned-unmanned teaming capabilities for the future combat air system through a project financed by the European Defence Fund, code-named MUSHER. The main goal of the project is to design a scalable European Manned unManned Teaming system, allowing manned platforms (helicopters) and Unmanned Aerial Vehicles (UAV) from European armed forces to interoperate. They will perform operational scenarios selected from NATO studies and demonstrate the maximum capacity for operational missions with high level of interoperability and UAV autonomy, crew load reduction, and improved safety. The main European contributors will collaborate on a state-of-the-art assessment, definition of the concept of operations, specification and architecture of the generic European Manned Unmanned Teaming system, as well as fast and real-time simulations, in a flight demonstration involving different helicopter types, UAVs and ground control stations.

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Queen of the skies

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Bruno Even, CEO of Airbus Helicopters

"The idea of flight will always inspire us"

The Paris Air Show is back! What an incredible boost to morale to see the biggest exhibition back on the calendar. It shows that in many respects, our world is returning to normal and underlines once more that aviation has a crucial role in helping people connect, supporting businesses and performing crucial life saving operations.

Of course, there are aspects of today's world that remain outside of what we are accustomed to. At the heart of all of Airbus' activities is the drive to create a safe and united world. Today's context puts the necessity of defence solutions under the spotlight and for many reasons the current conflict in Europe may lead people to wonder what role helicopters may play in the future.

Our Head of Programmes, Matthieu Louvot, is perfectly placed to explain the importance that helicopters will continue to have in the future. Though when imagining the helicopter of tomorrow, we must guarantee that what we develop responds to the needs of our customers. Ensuring innovations are aligned with specific operational requirements means countries can rely on our military products to make the difference when flying the most critical of missions. In May, we took another important step into the future with the completion of an essential VSR700 flight test campaign, the results of which were hugely promising. And when thinking about how fleets will be composed in the decades to come, we must also say that our current range will continue to make a decisive impact. Testimony from how the H225M is being used in Thailand and Malaysia proves that these machines remain at the cutting edge and will continue to offer critical support in the years ahead.

Whether military or civil, one thing that inspires us time and again is the passion of pilots. To be captivated by the idea of flight is a common theme within our industry. To make something fly, whether you design it, build it or are at the controls, shows us that the idea of flight will always inspire us. So we are delighted to share the stories of pilots who have been on incredible adventures. Taking ownership of his ACH130 Aston Martin Edition, John-Paul Thorbjornsen decided to fly it home from England to Australia—an incredible adventure in an incredible helicopter. We are also hugely proud to share the achievements of Anne Ducarouge, a multiple world champion pilot and someone who epitomises the excellence that runs throughout our company. There can surely be no better way to mark the return of Le Bourget than by reading the stories of two people so dedicated to the passion of flying.

What's next for military helicopters?

Myriad new technologies continue to emerge in the defence sector, opening up the possibility of new concepts of operations and missions. This is particularly true for helicopters, as militaries around the world recognise the essential role rotorcraft will play in carrying out missions.

Articles: Kieran Daly, Alexandre Marchand and Ben Peggie

Recognising the importance its products play in creating a safer and united world, Airbus Helicopters understands a new technological age is dawning. Working hand in hand with its partners and operators, the company is not only targeting the development of future platforms but also of innovations that can be integrated into the current operational fleet, therefore ensuring today's machines will be saving lives long into the future.

Wave hello to the future

Designing the next generation of military helicopter is understandably a long term project. Airbus Helicopters is already working on a series of features that will ensure a decisive operational impact on the battlefield. Head of Programmes Matthieu Louvot tells *Rotor* how the company conceptualises future products.

HOW WOULD YOU SUMMARISE AIRBUS HELICOPTERS' APPROACH TO INNOVATION IN THE MILITARY RANGE?

Matthieu Louvot: Airbus Helicopters is currently launching, or re-launching, a great wave of innovation in the military. There was a significant wave in the 1990s and the 2000s, when we created the Tiger and the NH90. Then we focused more on civil developments during the 2010s. Now, in the 20s and 30s, we are back on a major military innovation cycle with the launch of two major programmes, the Tiger MkIII and the HIL (H160M) and with the H145M, which continues to develop. Then you add the self-funded launch of the H175M and the VSR700. So, we are back on a major cycle of military innovation. The biggest challenge is to carry out the two very large programmes which will keep us busy throughout the 20s and to continue into the 30s, with a new wave of innovation that we are preparing with ENGRT and the support of National R&T from France, Germany and Spain. This really will be the helicopter of the future, with more advanced technological bricks on subjects such as coupling with drones. So, again, with the coupling with drones, with connectivity, with better survivability and with much simpler and lighter maintenance schemes for the forces, we are truly in terms of military technology.

DOES THE CONFLICT THAT WE'RE SEEING IN UKRAINE SHOW THAT THE HELICOPTER WILL SOON BECOME OBSOLETE?

ML: Combat helicopters and transport helicopters are still essential to modern conflicts. This applies as much to the asymmetric conflicts we have seen over the last 20 years as it does to a symmetric conflict, such as the war in Ukraine today. It's just that in a symmetrical conflict, you need greater protection and operational precautions. That is exactly what our helicopters are designed for. Yes, the conflict in Ukraine has raised questions because we saw a number of helicopters destroyed at the beginning of the conflict. This was related to a specific way of using helicopters that made them very vulnerable. The reality is that modern helicopters, particularly the NH90 and the Tiger, but also our military range in general, have sophisticated avionics that allow them to fly very low, at night or in adverse conditions. The NH90 even has electronic flight controls to give it unparalleled tactical flight flexibility. It has very advanced self-defence systems that allow it to protect against, in particular, missiles with infrared guidance systems. It has armour and systems that make it resistant to many kinds of attack, so it is very well protected and operates in conditions that make the helicopter much more difficult to detect and target. And the helicopter remains essential to many missions, because it is extremely flexible. It can take off and land anywhere, so it can pick up troops and drop them off anywhere. It can operate in a much closer and coordinated way with troops on the ground, with a view of the local tactical situation that is much more accurate than a fixed wing because the helicopter pilot has a much clearer view of the operating terrain.

DO YOU FORESEE POSSIBLE CHANGES TO HELICOPTER MISSIONS IN CONFLICT SITUATIONS? WHAT ROLE WILL CONNECTIVITY PLAY IN THIS?

ML: Many of the core missions are still rescue missions in hostile territory. Troop transport missions to get them into position rapidly,

to move them quickly from one point to another in the field of operations. Deep cover missions, close combat missions, mainly directed at ground targets, reconnaissance or armed reconnaissance missions, physical transport missions, equipment transport missions. These missions are still very relevant. Other types of mission could be considered, for example communication relay missions, UAV missions that operate more in a connected combat context. We could indeed develop these new mission capabilities. Modern combat requires very close coordination between ground troops, air forces, sometimes even the navy and various other units. Helicopters, which operate between land and air forces, need to be closely connected with all players, and the evolution of technology today enables a much more extensive exchange of data than in the past. This need for connectivity is therefore becoming technologically addressable and more intense for the sophisticated operations required today. The war in Ukraine has shown how crucial this coordination is and the importance of the development of connectivity. For programmes currently being developed, such as the French Guépard and Tiger MkIII, for France and Spain, the ability to exchange and cross-check data to give all stakeholders a precise view of the tactical situation is one of the major innovations to be developed in this context.

HOW DOES AIRBUS BOTH IDENTIFY AND CREATE TECHNOLOGIES THAT WILL BE IMPACTFUL FOR THE FUTURE?

ML: As is often the case when it comes to innovation, there are two approaches. One is driven by technology, the “techno push”, and it is our responsibility as manufacturers to identify technologies that will have an impact on the performance of the helicopter or these systems and bring them to maturity. This logic is reflected in our demonstrators. One example is the RACER (Rapid and Cost Effective Rotorcraft). Speed could be an asset for military helicopters in certain contexts. The Racer, which is a civil demonstrator, enables the maturation of this technology, which could one day also have a military use. We sometimes have other military applications with civil characteristics, such as discretion. Reducing noise from the helicopter obviously makes it less detectable and the progress we have made on the H175 and even more so on the H160 in terms of noise reduction is clearly also of military interest. But innovation must also be pulled by the needs of the military user. Here it is crucial to look at the new operational mission scenarios and confront them with available or emerging technologies in order to fund the maturation of the key ones. We must work with France, Germany, Spain and more generally all the countries where Airbus is established. A key lever for scale and convergence of needs are the major European projects. ENGRT or European Next Generation Rotorcraft Technologies is a major one. It is funded by the European Defence Fund to mature the technological bricks for a new generation of helicopter and is managed in cooperation with a large number of countries. Its aim is to develop concepts of operation for future helicopters and then the core technologies to deliver superior solutions. It creates a platform to exchange with our customers to understand their operational needs, their new operating policy and consequent challenges.

RELATED TO CONNECTIVITY BUT PREDICTED TO BE EQUALLY CRUCIAL IN ITS OWN WAY IS MANNED-UNMANNED TEAMING. WHAT IS AIRBUS DOING IN THIS AREA?

ML: Drones and autonomy are key areas of innovation. I mean autonomy in the sense of reducing pilot workload at various degrees up to full unmanned flight. They are very exciting areas of development that we would like to apply to a new generation of helicopter in the course of the 2030s. We have also demonstrated in Germany the ability to couple drones and helicopters with the H145M. We were discussing new uses for military helicopters: the role of piloting a group or even a swarm of drones is a new mission that helicopters could adopt. There is a lot of interest in this, given the progress and development of drone technology. For this new helicopter mission, we are well ahead of the game.

1: Rappelling from an H225M. Helicopters can pick up and drop off troops anywhere.

2: The VSR700 will have a huge impact on future operations.

3: Two H225M helicopters manoevre in flight.

4: A German Tiger on the prowl.

5: Refueling midair.

6: A French Tiger mid take off.

7: Helicopters offer essential support for Special Forces operations.

Flexing British muscles

Airbus Helicopters plays a number of critical roles within the United Kingdom, supporting fleets that have delivered vital missions for decades. Managing Director of Airbus Helicopters in the UK, Lenny Brown, updates *Rotor* on the continuous expansion of the company's UK footprint and reveals pioneering new projects that could enhance innovation throughout Airbus Helicopters' military range.

1

"Every single military helicopter pilot in the UK is trained on Airbus H135s or H145s in the Military Flying Training System," explains Lenny Brown as he highlights just how important Airbus Helicopters' UK presence is. "There is also the facility supporting the Police Service Northern Ireland, a logistics footprint supporting the H175 helicopters flying oil and gas operations in Aberdeen and of course, our UK Headquarters in Oxford." The UK operation has been based at Oxford Airport since the 1970s—offering a reliable stream of highly skilled jobs and local apprenticeships—and will celebrate its 50th anniversary next year. In June 2024, the company will move into a newly built state-of-the-art facility on the other side of the airport. This project is part of Airbus' continual investment in the UK, which sees the Group make significant annual investments. "It is simply part of our strategy to grow and enhance our capabilities," which according to Brown need to be expanded and refreshed in order to appropriately cater to the size of the UK market. "We're the only OEM (Original Equipment Manufacturer) in the UK that provides aircraft for the civil market, national resilience, parapublic and defence." The new facility will cut CO_2 emissions by 50%, while the working environment will be more comfortable and efficient for colleagues. It will also improve things for other stakeholders by offering more room for student training, pilot training, customer visits and maintenance. "It will offer us the ability to work on more aircraft at any given time. In terms of hangar space, we'll have approximately a third more. It will also unite all the Oxford teams under one roof," notes Brown.

BUILDING ON AIRBUS HELICOPTERS' STRONG UK PRESENCE

Oxford might not be the only place requiring new facilities. Should Airbus Helicopters' bid for the UK Armed Forces' New Medium Helicopter be successful, then the H175M will be assembled and exported from Airbus' Broughton site—necessitating a new production line. As well as boosting the local economy by creating over 100 highly skilled jobs within Wales, a new production facility would be strategically important for both Airbus Helicopters and the UK. "This would be the first new helicopter production line in the UK for 50 years—which would clearly be a significant milestone in UK aviation but also a well overdue shot in the arm for the UK's rotary wing industry," reasons Brown. "It also supports Airbus Helicopters' strategy of making the UK the fourth 'core' country of its strategic future and cements Airbus Helicopters in the UK's position as part of the UK's national security and national resilience architecture for the long term". The proposed new plant in Broughton adds weight to Airbus' bid which in total will create some 400 new jobs around the UK. With the proven template of the company's Marignane H175 final assembly line, where the civil variant will continue to be made, supplemented by a team of production engineers working to further optimise a range of processes, it is clear that Airbus Helicopters is thinking ahead to ensure the potential deployment of an H175M fleet would go as quickly and as smoothly as possible. Brown commented, "In planning future investment, we looked at where the Ministry of Defence spent most of its funding using the official Government surveys—the South West was a clear

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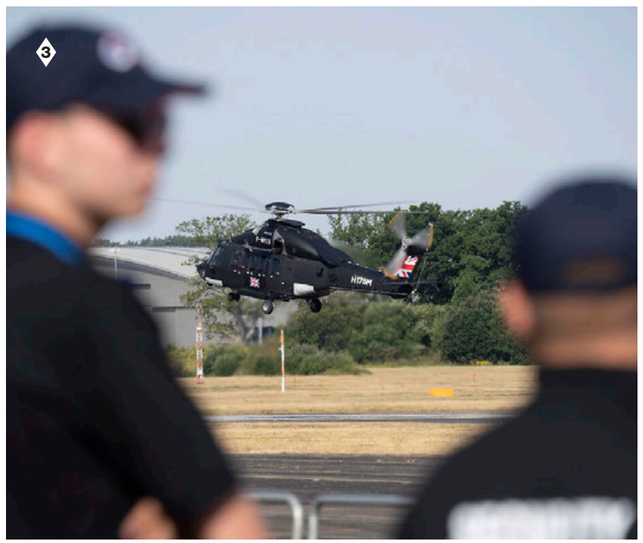


1: The H175M is bidding to be the UK MoD's New Medium Helicopter.

2: Every military pilot in the UK is currently trained on Airbus helicopters.

3: An H175M takes off.

4: A rendering of the new Airbus Helicopters Headquarters in Oxford.

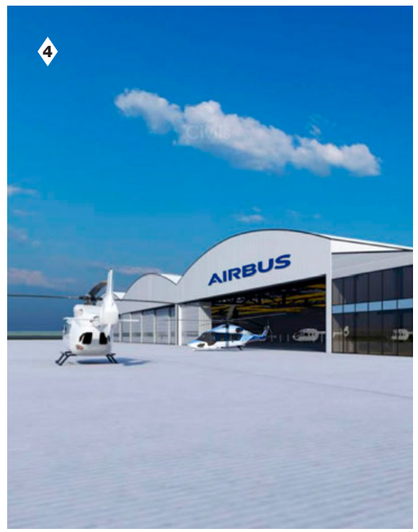
5: The H175M flying over the British countryside.

6 & 7: The new headquarters will offer modern working conditions for all staff and reduce CO_2 emissions by 50%.

winner and by a significant margin. It was clear that Wales, Scotland and Northern Ireland demanded our immediate attention for investments, which we are addressing."

CATAPULTING MILITARY INNOVATION

Airbus Helicopters UK's defence portfolio has been increasing year on year since 2009. Such growth is attributable in equal parts to the quality of products and depth of support (with the SA 330 Puma MkII achieving particularly noteworthy operational performance) but also to the company's continuous development. Brown highlights two projects that could significantly boost the already impressive culture of innovation—one supported by the UK's Government-backed Catapult Network created to accelerate the application of research and development of new technologies in selected areas. "Firstly, we have joined a Catapult based in Wales called the Advanced Manufacturing Research Centre (AMRC). We've started some innovation projects with a number of SMEs (small and medium-sized enterprises), looking at things like sustainable aviation fuel (SAF), ballistic protection for current and future aircraft as well as high end composite type materials and future technologies," says Brown. This is the first time that Airbus Helicopters UK has been involved in a project like this and it has required an increased research and development budget, with the support of its headquarters in France. Though, declares Brown, this expenditure will be worth it in the medium to long term. "The advantages of the Catapult are that it will increase the intellectual property that we're generating in the UK and also some of the projects are aircraft-agnostic so will be capable of being deployed across the entire fleet—a really efficient way to drive improvement and future capabilities."

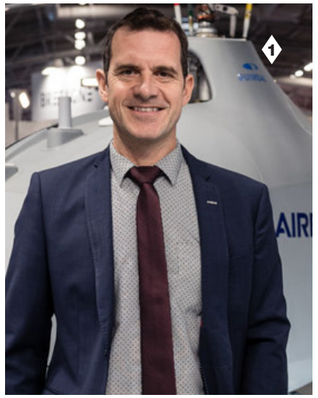


THE POWER TO ADAPT

The second project that will fuel future developments hinges on Airbus' bid to supply the H175M as the UK Armed Forces' New Medium Helicopter, as the company plans to substantially increase its military design and innovation capability in the UK. The enhanced activity would focus on developing technological advancements that could be deployed throughout Airbus Helicopters' entire military range—not only for the H175M. "Naturally there would be recruitment opportunities for aircraft designers, but part of this strategy would be to further foster our closer ties to universities and give more opportunities to PHD graduates," says Brown. One feature that Brown is particularly excited about is a proposed Capability Integration Rig which would be a tool for the Design Office to rapidly develop, design, certify, and then incorporate new capabilities onto the aircraft. Initially, it would support the rapid development of the modifications of the H175M before initial delivery but later, it would help Airbus—and indeed other companies in the H175M Task Force—to implement new equipment on the aircraft throughout its life in response to customer demands and to exploit the digital design of all Airbus products. The rig would enhance the prospective NMH but could be applied to other helicopters across the Airbus Helicopters range. According to Brown, the rig would speed up the integration of complex avionics systems and allow Airbus Helicopters to exploit open architecture systems both immediately and in the future—but with the most important benefit reserved for the operators themselves. "This ability to adapt quickly is what militaries are really after. As they deploy to an operational theatre and the threat changes or the operation changes, they would have the ability to improve the aircraft's mission systems, Defensive Aid Suites (or Electronic Warfare Suites - EWS) much quicker than traditional processes have been able to deliver."

The VSR700 proves its worth!

The VSR700 drone, a demonstrator for the SDAM (Système de drone aérien de la Marine, Navy Airborne Drone System) programme, has reached a major milestone with a perfectly successful first sea landing. A major achievement after just four years of development.



Eight hours of operation, 14 flights and 80 fully automatic take-offs and landings in winds sometimes exceeding 40 knots: in the early days of May this year, the first VSR700 prototype (PT1) accumulated impressive results while on board the *Partisan*, in the Bay of Douarnenez (Brittany). “It’s an exceptional result, the outcome of a relentless development effort led by a passionate team and a dedicated French drone industry that has been organised around this programme,” says Nicolas Delmas, Head of the VSR700 Programme at Airbus Helicopters.

AN AMBITIOUS OBJECTIVE

Launched at the end of 2017, the risk mitigation study had an ambitious objective: to define the technologies needed to integrate a tactical VTOL UAV system capability on a heavily armed vessel so it could carry out surveillance operations. To this end, Airbus Helicopters has developed a 700 kg demonstrator (based on a mechanical Cabri G2) capable of simultaneously carrying two high-performance sensors (radar and optronic ball), with a range of more than eight hours and capable of automatically taking off from and landing on a frigate. “Today we have demonstrated that our UAV concept offers the capabilities the Navy is looking for in its future SDAM system,” says Nicolas Delmas. Several test methods were used to achieve this result. The most emblematic is the PT1 (first prototype), which flew for the first time in 2019 and gradually expanded its flight envelope. Another key element is the OPV (Optionally Piloted Vehicle), which has played an essential role in systems integration. “The OPV is a Cabri G2 on which we installed part of the VSR700 system to enable it to evolve autonomously,” explains Nicolas Delmas. “Having a safety pilot on board eliminated the redundancies required for an unmanned aircraft. The OPV was invaluable in enabling us to focus on the specific control laws for automatic take-off and landing (ATOL). Each advance made with the OPV in developing the flight control software was then incorporated into the PT1. This incremental approach enabled us to make rapid progress.” At the same time, an integration bench was dedicated to developing the mission system (Wescam MX10 optronic ball and Diades Marine maritime radar) developed in collaboration with Naval Group. “In early 2022, all the positive test results obtained jointly with the integration bench, the OPV and the PT1, and notably the high level of maturity of the ATOL function, enabled us to fly our PT1 in a configuration representative of the future SDAM,” continues Nicolas Delmas. “We started with flights over land before continuing with flights over the sea from Île du Levant. Finally, the third stage came last May with operations from a civilian ship, the *Partisan*, in conditions simulating embarkation.”

DEPENDABLE PERFORMANCE

This was an opportunity for the VSR700 to demonstrate not only its level of performance, but also its excellent reliability: no technical problems were encountered during the tests, which were scheduled to take place on board the vessel. Next steps include the flight test of the second prototype (PT2) in July, followed by embarkation on the FREMM *Provence* (the French Navy’s Multi-Mission Frigate), already scheduled for October. At that point, the risk assessment will be considered complete, and the rest of the programme will be in the hands of the DGA (Direction Générale de l’Armament, French General Directorate for Armament), which will have all the information it needs to decide on the SDAM programme. “The roadmap that we have submitted to the Navy is ambitious but realistic,” concludes Nicolas Delmas. “The excellent results obtained by the VSR700 mean that we can already propose an entry-into-service scenario for initial SDAM operational capability as early as 2026.”

1: Nicolas Delmas, Head of VSR700 Programme at Airbus Helicopters.

2 & 3: The VSR700 about to touch down.

ASEAN's shared lifesaver: the H225M helicopter

With a combination of over 90 H225 family civil and military helicopters operating in eight countries in Asia Pacific, the H225M is an important tool in the region's militaries. *Rotor* caught up with pilots from Malaysia and Thailand to discover what makes this machine so effective at offering critical support throughout the region.

Many of the Malaysian Air Force's missions revolve around disaster relief, transporting people, supplies and rations. But for one particular pilot an incident during the 2015 floods really stands out. "It was raining heavily and a small village had become isolated at night. We had to go in because the water was rising rapidly. The visibility was poor but with the autopilot, EOS (Electro-optical system) and searchlight we were able to complete the mission. An older helicopter wouldn't have been capable of doing it."

A representative from the Royal Thai Air Force also mentioned the impact the EOS had during a rescue mission for the HTMS *Sukhothai*, which sank at night in rough seas in December 2022. Playing a key role alongside other naval ships and helicopters the H225's sensor was essential in locating sailors in the water.

SOARING ABOVE THE REST

Unsurprisingly for a helicopter that has been chosen by many of the Southeast Asian region's militaries, it is very much appreciated by the pilots who fly it. "It is 100% useful for our missions, pilots have complete confidence in it, no matter the conditions," said the representative from the Royal Thai Air Force. These thoughts were echoed by the Malaysian Air Force pilot. "It has a lot of power and is highly reliable. We are able to do the approach thanks to the integration of autopilot and navigation system. The autopilot reduces workload and allows pilots to focus on the mission rather than flying the aircraft."

The Royal Thai Air Force pilot also highlights another useful autopilot feature: "the autopilot can compensate for tailwind which is really nice. The CMA 9000 Flight Management System combines navigation and GPS which means that we can locate a target and go there more easily."

ASEAN PRESENCE

Having such a high concentration of H225 operators in ASEAN (Association of Southeast Asian Nations) countries brings with it certain advantages. "If the entire region is using the same asset, the logistic line is shortened and that means faster support. Also knowledge sharing is enhanced throughout the region," notes the Malaysian pilot. The representative from the Royal Thai Air Force agrees. "It is very useful to talk with other squadrons and share experiences, this enhances safety. We are close to Malaysia and Indonesia and we cooperate with other ASEAN countries. We work on SOPs (Standard Operating Procedures) and the H225 is a common point among other countries in the region."

H225M MISSIONS

Thailand:
- Search and rescue
- Transport
- Firefighting – Firefighter transport
- Medevac

Malaysia
- Search and rescue + combat search and rescue
- Medevac
- Special ops in support of army and navy
- Supporting civil agencies
- Disaster relief

1: The Royal Thai Air Force's H225Ms have played crucial roles in search and rescue missions at sea.

2: Two Thai H225Ms hover over a runway.

3: The Malaysian Air Force's H225M helicopters and crew on the occasion of their 20,000 flight hour milestone in 2022.

4: A Malaysian H255M ready to fulfill a variety of missions.

The AH-125 and MH-125 Ares *Made in the USA*

Built in the United States, these new versions of the H125 range combine the performance of the leading light helicopter in its segment with the versatility and efficiency required for military missions. Introducing the AH-125 and MH-125, also nicknamed Ares.

1: Scott Turnpak, Vice President of Military Helicopters, Airbus Helicopters Inc.

2: Chris Arnold, Senior Manager of Foreign Military Sales.

3: The AH-125 and MH-125 can be reconfigured quickly.

4: The aircraft is a perfect solution for US allies.

5: The MH-125 version is a multi-role helicopter, which can easily be configured for a wide variety of missions.

Many US allies and partners have a need for military helicopters that can be armed but lack the budgets to acquire specialised aircraft. A single-engine, multi-purpose helicopter can meet that need, provided it is assembled in the United States to qualify for US support, both for acquisition and deployment. The AH-125 and MH-125 Ares, developed by Airbus Helicopters, Inc in the United States, meet this requirement, with a number of important advantages, as Scott Tumpak, Vice President of Airbus US's Military Helicopters explains: "In the light single-engine category, the H125 is renowned worldwide for its performance, efficiency and versatility, which can be easily extended to a wide range of military missions."

VERSATILITY AND FLEXIBILITY

With the AH-125 version, which is designed for combat support, the H125 is armed with a 12.7 mm heavy machine gun and non-guided missiles. Another potential development is the ability to deploy light guided weapons. The MH-125 version is a multi-role helicopter, which can easily be configured for a wide variety of missions in a military context: tactical transport, air assault, combat rescue, medical evacuation, etc. "The AH-125 and MH-125 can be reconfigured quickly," says Chris Arnold, Senior Manager of Foreign Military Sales. "And the switch from one version to another can be made in just 30 minutes by installing or removing the weapons pylons." The key to this modular design lies in the facilities designed by MAG Aerospace, Airbus' US partner on this programme. MAG Aerospace is responsible for the design, certification and manufacture of the transport pylons. The originality of this solution is that the pylons are independent of the AH-125's cabin, allowing it to fly unrestricted, with the doors open or closed.

H125 COMMUNITY

"This aircraft is a perfect solution for US allies, not only because it is technically very capable, but also because it is based on a highly developed ecosystem," says Chris Arnold. "The H125 family currently holds 85% of the single-engine market and this percentage is shared by various agencies and other US parapublic users.

By choosing the AH-125 and MH-125, you gain a very close relationship not only with the US government, but also with many of the entities connected to this helicopter." A lot of American public and parapublic operators, notably police departments, use their H125s in the same way as the AH and MH-125: deploying intervention groups to urban or suburban areas, transporting snipers, winching, lifting sling loads, surveillance and intelligence, etc.

"EVERYTHING CAN MOVE SO QUICKLY"

The Airbus Helicopters plant in Columbus, Mississippi, currently assembles an average of 24 helicopters per year. It is ready to add the AH and MH-125 to its production plan and has the capacity to handle aircraft manufacture from start to finish in whatever configuration is required. "Everything can move really quickly now," says Chris Arnold. "An MH-125 ordered today could be delivered in nine months. For an AH-125, it takes 18 months to certify the STC to the FAA for the installation of weapons pylons." This is in fact the only STC (Supplemental Type Certificate) that will need to be certified for new versions of the H125: the helicopter already holds the world record for having the most STCs, with a very long list of options already certified. This is not the least of its qualities...

AH-125 / MH-125 ARES

A multi-role combat-capable version of the best-selling H125, designed to meet the most demanding requirements of the US government's military and parapublic allies and partners.

Made in America

Airbus Helicopters has been present in North America for more than **50** years

Robust U.S. military veteran workforce: **35%** in Columbus, MS

PRODUCTION SITE
Columbus, Mississippi 220,000-sq.-ft.

U.S. HEADQUARTERS
Grand Prairie, Texas

U.S. Customs and Border Protection is the single largest customer and operator of the H125 worldwide

The most capable and reliable single engine family

Record holder for the highest landing and highest helicopter flight in history: **29,029** feet and **42,500** feet

Operates on all **seven** continents

More than **38 million** fleet flight hours

The H125 family holds almost **80%** market share worldwide in its class

In the US, approximately **75%** of all new single engine law enforcement sales are the H125

AH-125 ARES

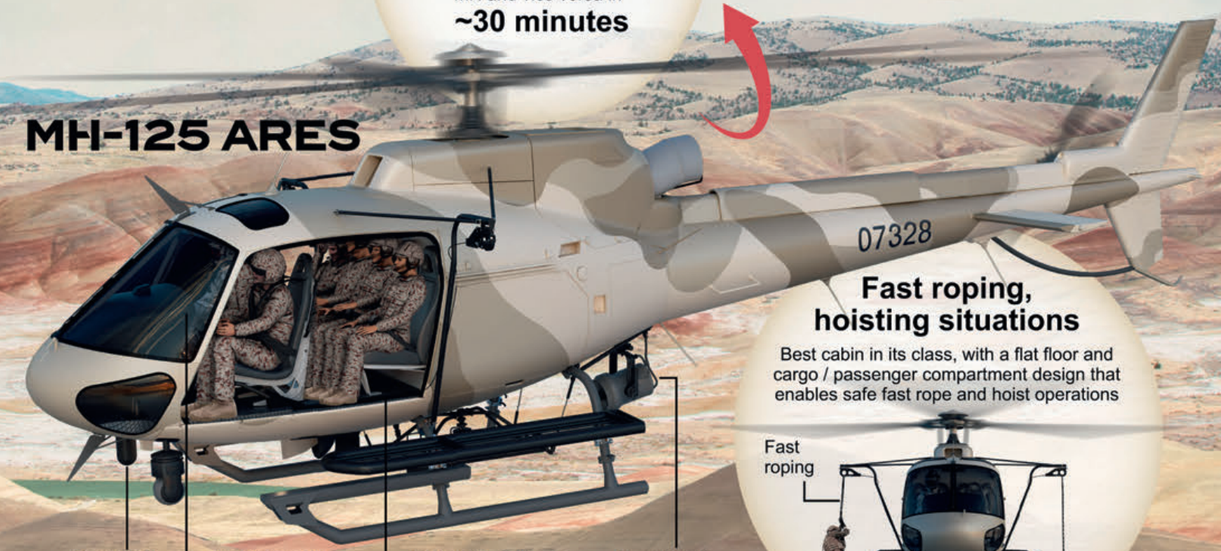
Interchangeable

Flexible installation similar to special operations platform allows for rapid reconfiguration. It's possible for an AH to become an MH and vice versa in **~30 minutes**

MAG weapon system

A wide range of weapons can be integrated on multiple weapon stations per pylon, from standard point-and-shoot to precision-guided weapons

MH-125 ARES



Fast roping, hoisting situations

Best cabin in its class, with a flat floor and cargo / passenger compartment design that enables safe fast rope and hoist operations

Tactical Transport

Up to 8 troops for transport and insertion missions

Light Attack

Best useable weight of any aircraft in its class, offering the most endurance, range, and payload options

Medical Evacuation (MEDEVAC) / Casualty Evacuation (CASEVAC)

Casualty evacuation operations even with other mission configurations installed

Other missions

Special Operations Insertion and Extraction

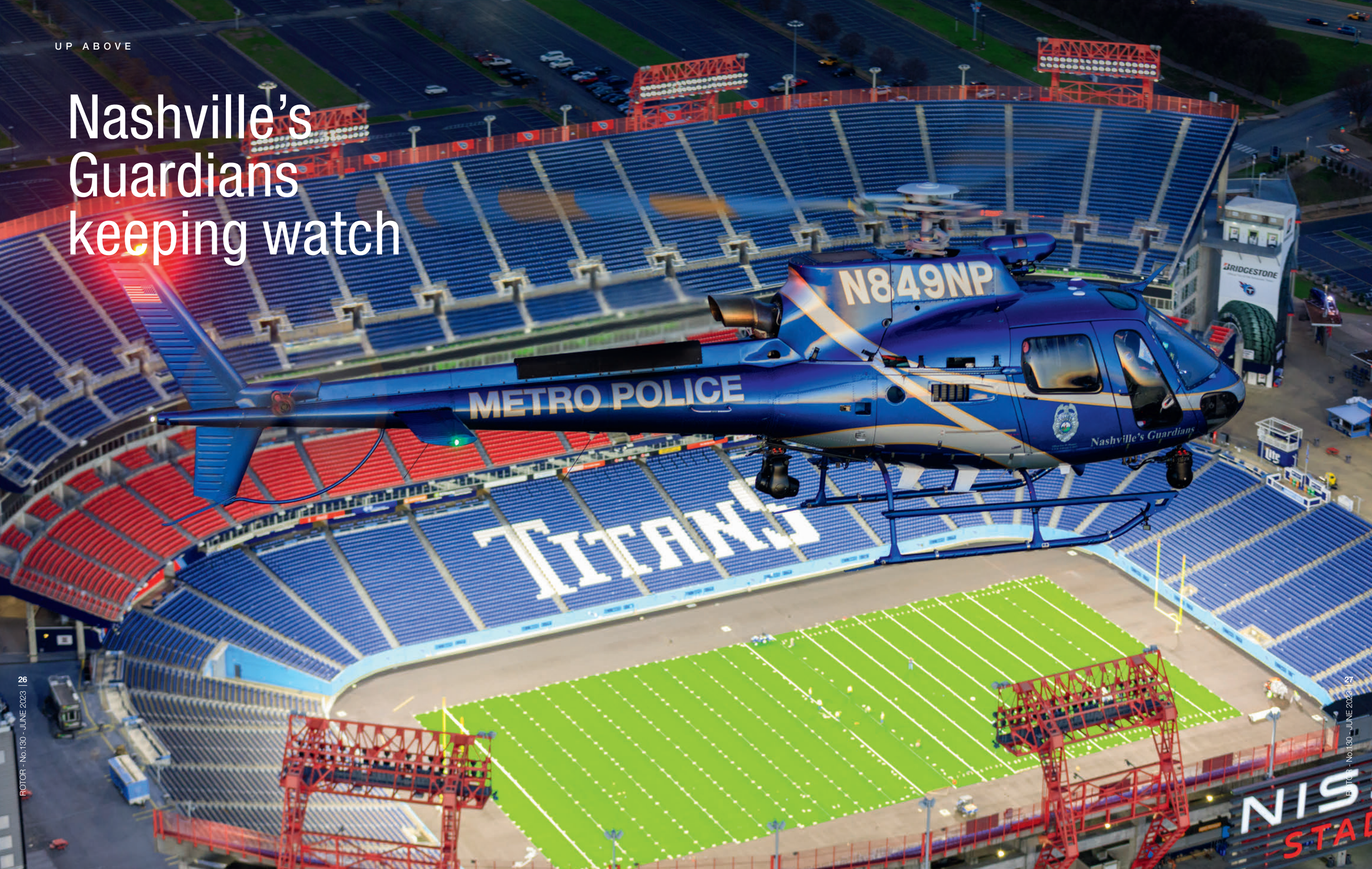
Air Assault

Combat Search and Rescue (CSAR)

Firefighting and Disaster relief

Infographic: **BeatrizSantacruz.com, Korey Bush (3D Paint Design)** and **Airbus**

Nashville's Guardians keeping watch



BRAZIL

THE H175 IS A NEW CARIOCA

Carioca is the noun often applied to something that is native to the city of *Rio de Janeiro* in Brazil. After a mere 18 months of operation, the latest *Cariocas*, the five Brazilian H175 helicopters, have achieved impressive performance figures, even earning a spot among the H175 top performers globally. The OMNI Taxi Aéreo team give us their first-hand impressions of the situation.

Article: Belén Morant

"I wouldn't change a single thing about the H175", said without a hint of hesitation, by a man whose opinion should certainly count for something. This man has 22 years of helicopter piloting under his belt, 10 of them in the offshore industry, and he has been at the controls of one of the three H175s that OMNI Taxi Aéreo operates in Brazil for just over a year and a half. He is Diego Tiquet, OMNI's captain, and he says he can't imagine a helicopter better suited to their operations in Cabo Frio, some 150 km east of Rio de Janeiro. It was just over 18 months ago that the first H175 flights began operating from Cabo Frio International Airport, where four of OMNI's five H175s are based. Since then, they have been providing transport services to the oil rigs and ships based in the Campos Basin, one of the main oil-producing regions in Brazil, located off the coast of Rio de Janeiro state. The basin covers an area of approximately 100,000 sq km and is home to over 50 oil and gas fields. The oil rigs in the Campos Basin are located at various distances from the coast, ranging from a few kilometres to more than 100 kilometres offshore.

A UNANIMOUS SEAL OF APPROVAL FOR THE H175

"It's the best helicopter I've ever operated: the H175 is an extremely reliable, smooth and quiet helicopter.

All of us—crew, pilots and passengers—we place a lot of trust in it. I would definitely recommend that other countries operate it", continues Diego Tiquet from his command post in the H175. Diego knows what he is talking about: he is used to doing about two or three rotations a day with the H175 to transport up to 16 oil company workers to the rigs. These flights can take approximately 2.5 hours each. With local temperatures that can easily exceed 30 degrees Celsius, coupled with the bulky survival suits of the passengers, Diego and his colleagues are unanimous in saying that the H175's space and air conditioning are an absolutely essential local advantage.

A FLAWLESS ENTRY INTO SERVICE

It's not just the OMNI teams that attest to how well the H175 has adapted to its new Brazilian home—the 2022 figures speak for themselves. After just 18 months of operation, three of OMNI´s five H175 helicopters have taken the top three places among the H175 Top Performers in the entire global fleet, with an average of 1,200 flight hours. One of them reached 1,400 flight hours on its own. "Between the three helicopters, we have achieved well over 3,000 offshore flight hours. It's incredible considering the short time it has been operating in Brazil... We have reached a world record", says Almir Bricio Viana, Maintenance Inspector of OMNI Taxi Aereo who also has 23 years of aviation experience to his name. "This is a helicopter that is here to stay. I really hope it finds the place it deserves in the helicopter market... it deserves to make history in its sector". Sidarta, another OMNI H175 pilot with 14 years of experience, shares Viana's enthusiasm for the H175. "I've always wanted to operate this helicopter, ever since it first appeared in Brazil. I even flew in it as a passenger, during a local demo flight and I was impressed with its technology and power. Today, after a long time in the offshore market, I have the chance to fly this incredible helicopter—powerful, very smooth, quiet, and easy to fly". When asked why he thinks this helicopter is particularly easy to fly, Sidarta is quick to describe how easy it was for the team to get familiar with the avionics: "We got to grips with the avionics very quickly, they are very intuitive and have many features with a good grounding from training. Any pilot can start operating Helionix very easily, and take advantage of the safety it provides". Today, 53 H175s fly around the world, 36 of them in the energy sector serving more than 30 oil companies. The H175 has seen an impressive 20% increase in global flight hours in 2022 over 2021, and it seems clear that the trend is here to stay. The example of the H175's successful first two years in Brazil reflects the H175's momentum in the market, with competitiveness, performance and comfort that can hardly be matched. The H175 has found another new home among the Cariocas.

1: OMNI's H175 helicopters are excelling at serving offshore oil platforms.

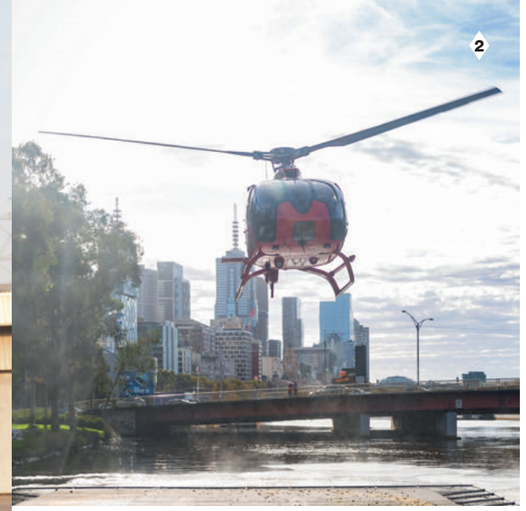
2: An H175 in flight along the Brazilian coastline.

3: After 18 months of operation, OMNI's H175 helicopters have averaged 1,200 flight hours.

FROM OX TO OZ

One ACH130 Aston Martin Edition takes the long way round to get down under.

Article: Ben Peggie



“It fuses Airbus’ engineering excellence with Aston Martin’s craftsmanship.”

John-Paul Thorbjornsen, ACH130 owner and pilot

It is no exaggeration to say that the ACH130 Aston Martin is flying everywhere in the world. Orders have come from virtually everywhere: Europe, Latin America, New Zealand, North America and South East Asia. It recently arrived in Australia for the first time via quite an unconventional route…

Not everybody who buys their own helicopter chooses to fly it home themselves. In fact, the vast majority do not—but John-Paul Thorbjornsen (JP) is not your average customer. Having learnt to fly at a local flying school, JP’s interest in aeronautical engineering was sparked. He subsequently studied aeronautical engineering at a university in Canberra, and spent over a decade as a pilot with the Royal Australian Air Force. So for the first ever Aston Martin ACH130 to fly in Australia, the tech entrepreneur eschewed the traditional delivery flight, opting instead to collect his helicopter from Oxford and fly it home himself.

NOT YOUR AVERAGE PILOT… NOT YOUR AVERAGE HELICOPTER…

The journey covered a total of 10,000 nautical miles, across 21 countries in 41 days with 39 stops. Naturally, such a long flight through often unpredictable weather systems and having to contend with various logistical challenges, can’t be undertaken without the best possible helicopter. And the ACH130 was powerful enough to get the job done. “The ACH130 never missed a beat throughout the journey, even when the helicopter scaled to 12,000 ft atop the Italian Alps with four crew on board and half a tank of fuel. Its impressive performance at such high altitudes is a testament to the helicopter’s engineering prowess, and we were never once thinking that we could be in trouble piloting this amazing machine,” says Thorbjornsen.

BLENDING STYLE AND POWER

It was not only the performance of the helicopter that attracted JP. “I am also convinced that this Aston Martin Edition is the most attractive private helicopter on the market. It fuses Airbus’ engineering excellence with Aston Martin’s craftsmanship. What makes the ACH130 Aston Martin Edition stand out from the rest is the attention to the most intricate details and the finest upholstery. It’s not just a finely-appointed interior but an extremely smooth ride in a spacious cabin. That’s exactly what I was looking for when travelling with my family and friends.” JP is evidently not the only one who thinks so. Two years after its launch, ACH has sold all 15 helicopters covered by its initial production commitment, and is now continuing production for this exclusive edition. To make sure the definition of a luxury helicopter maintains the highest level of class and refinement, the ACH130 Aston Martin Edition was recently refreshed with a new range of eye-catching liveries and cabin interiors—ensuring the views both inside and outside the cabin will always be spectacular.

1: On roads or in the air, Aston Martin is recognised as the epitome of luxury and excellence.

2: An ACH130 landing in Melbourne.

3: At the end of the journey in JP’s home country of Australia.

4: At Chiesa Ski Resort in Italy, during JP’s long voyage home.

5: Three’s company… A rare sight of three Aston Martin’s in the same place.

HOW TO INNOVATE, EUROPEAN-STYLE

The April inauguration of a new test centre in Poland is the latest chapter in Airbus' long relationship with the European country—and a sign of future development.

Article: Heather Couthaud

When it opened in 2015, Airbus Helicopters' Łódź-based design office in central Poland became just the fourth R&D centre for the company in Europe—after those in the manufacturer's home countries. Now a state of the art test centre in Stryków, northeast of Łódź, is the helicopter maker's second installation in the European country, a testament to Airbus conviction in Polish savoir-faire.

RIGGED WITH THE BEST

What does the test centre bring to an OEM with homegrown testing capabilities? For one, Airbus Helicopters Polska already numbers 115 workers at its Łódź location, with another 40 soon to be recruited. The Stryków facility complements the design office, carrying out mechanical tests on rotating components for civil helicopters and new-design platforms. Think all the rotating parts of a helicopter in different operational conditions. All must undergo testing for loads, temperature, corrosion, vibration, fatigue, etc. Stryków's professionals will hail from a thriving Polish technology and science sector, where their expertise owes much to the country's century-long aviation history. Poland, with its engineers, higher education and research institutions and established aerospace industry, is thus an obvious choice for the helicopter maker. Equipping the 1,600 m^2 (900 m^2 of which are used for testing) Stryków centre with cutting-edge test benches, Airbus is putting its faith in the skill of Polish tech and engineering—so much so that the Stryków plant is set to employ over 100 people by 2025.

A LINK TO TOMORROW

History is one thing; the future is another. Stryków will also add heft to the company's future developments. The facility's work will comprise not just current platforms, but those of electric VTOL concepts, hybrid propulsion systems and electric drives. The design office already draws on ties with the Łódź University of Technology, a link that has led to some of the manufacturer's most innovative projects; Polish ingenuity aided the development of the H160 helicopter (with its 68 patents), for instance. Łódź was also instrumental in preparing the way for the DisruptiveLab, a 'flying laboratory' demonstrator that flew for the first time in January 2023, in part to analyse a parallel hybrid propulsion system that would re-charge the electric batteries in-flight. The successful collaboration continues with the CityAirbus NextGen urban air mobility vehicle and the RACER* high-speed VTOL. Such contributions bring sustainable technology and enhanced security solutions almost to the doorstep of operators. The CityAirbus NextGen, whose prototype will run first tests next year, represents a new type of mobility service for the world's urban and even rural communities. The RACER demonstrator, whose power-on in late 2022 will lead the way to first flights this year, has potential applications in 'Golden hour' emergency transport, among other potential missions.

WHERE TECH MEETS TEST

The Stryków test centre extends this determination to innovate the future, with the means to test the new concepts locally. Visitors to the site can expect to see the most up to date test beds such as a helicopter main gearbox rig, tail gearbox rig, multi-purpose rig to test urban air mobility (UAM) configurations, plus a system to develop health and monitoring sensors for rotating parts. Airbus' relationship with Poland had its birth in 2001 with the PZL Warszawa-Okecie aircraft factory. Since then, the partnership has grown to include production of aerostructures, components, systems and electric harnesses for aircraft. Now with testing on next-generation vehicles, the manufacturer and its European partner are collaborating on tomorrow.

*RACER: Rapid And Cost-Effective Rotorcraft. It is being developed as part of the Clean Sky 2 European research programme.

1: The new test centre has an area of 1,600 m^2.

2: The Stryków facility will carry out mechanical tests on rotating components for civil helicopters and new-design platforms.

QUEEN OF THE SKIES

Airbus Helicopters' Flight Test Engineer Anne Ducarouge is a serial winner, having thrice won the world gliding championships. *Rotor* takes a short break from helicopters to find out what it takes to be the best at flying an aircraft with no engine.

Article: Ben Peggie

"It's amazing to hear the Marseillaise playing at a world championship and know that it's playing thanks to you." Anne Ducarouge is sharing the memory of the first time she was crowned world champion. Having won the first of her world titles in 2013, Anne repeated the feat in 2015 and again last year—making her the reigning World Gliding Champion, amassing a collection of medals that will "take a little time for someone to beat". Competitive gliding has two forms, aerobatics and racing—neither is for the faint of heart. Ducarouge excels at the latter, which often sees dozens of gliders manoeuvring for position within the tight confines of the thermals they require to keep them airborne. "The weather is our fuel so we have to rely on what we can find in terms of thermals or lifts. You have to be completely aware of your environment when you're thermaling. You need to know where your competitors are and position yourself in relation to them. It's quite intense."

THE LURE OF THE SKY

The idea of flying captivated Ducarouge from an early age but she initially had some barriers to overcome. "As a teenager, I wanted to fly but it was not possible. As soon as I joined the École Polytechnique, the first thing I did was organise a first flight for my class when we were doing our military basic training in Barcelonette. It was really the beginning of my passion for flying." At first, gliding was merely a convenient way to take to the skies. "I had heard that it was cheaper to learn with gliders—so I always had that in mind." However, following her first flight, she made impressive progress, leading her to compete. "In one year, I went from zero to doing 300 km and then when I started competing, I won my first women's nationals." Around this time, the first world championship for women was organised, a French women's team was created and as national champion, Ducarouge's place was secured. In her first international competition she finished third, taking home the first of what would be a record, seven medals, three of which are gold.

NOT WINGING IT

Of course, being an elite pilot with the drive to constantly improve, and endowed with nerveless precision, has some overlap with her day job. In a gliding race, pilots must complete circuits of at least 300 km but sometimes as much as 800 km, staying focused for hours at a time. "To win, you must be precise on your trajectories—gliding is essentially trajectories—, be smooth on the controls and turn well," notes Ducarouge. "Recently, we were flight testing weapons and I had to fly the helicopter whilst firing, following a trajectory and set procedures, so my gliding experience was definitely an advantage." Ducarouge also recognises the importance role models have in terms of encouraging more people into the sport and understands that her story can play an important part in creating the next generation of female pilots. "With gliding, it's nice to be able to compete with men. I recently competed in an event with 120 pilots and I placed in the top 10, yet I was the only woman in the competition." Indeed, she hopes that increasing the visibility of women's sporting success will lead to more women taking part in all sports and feels a sense of pride whenever she sees women compete. Her main target is simply to continue doing something that she loves. "The feeling that I got when I flew for the first time, I still feel today and it's just that flying is magic. It's always amazing to see the earth from the sky and I still have this sense of wonder when I'm gliding. As human beings, we obviously don't have wings, so flying in a glider is probably one of the closest ways to flying naturally that we have."

1: Anne Ducarouge in front of an H130.

2: "It's always amazing to see the earth from the sky."

3: Anne Ducarouge on the podium in 2022.

4: A glider in flight.