

No. 117 - OCTOBER - NOVEMBER 2019

# ROTOR

BY

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AIRBUS HELICOPTERS

LIFE OF THE RANGE  
**Aerial firefighting**

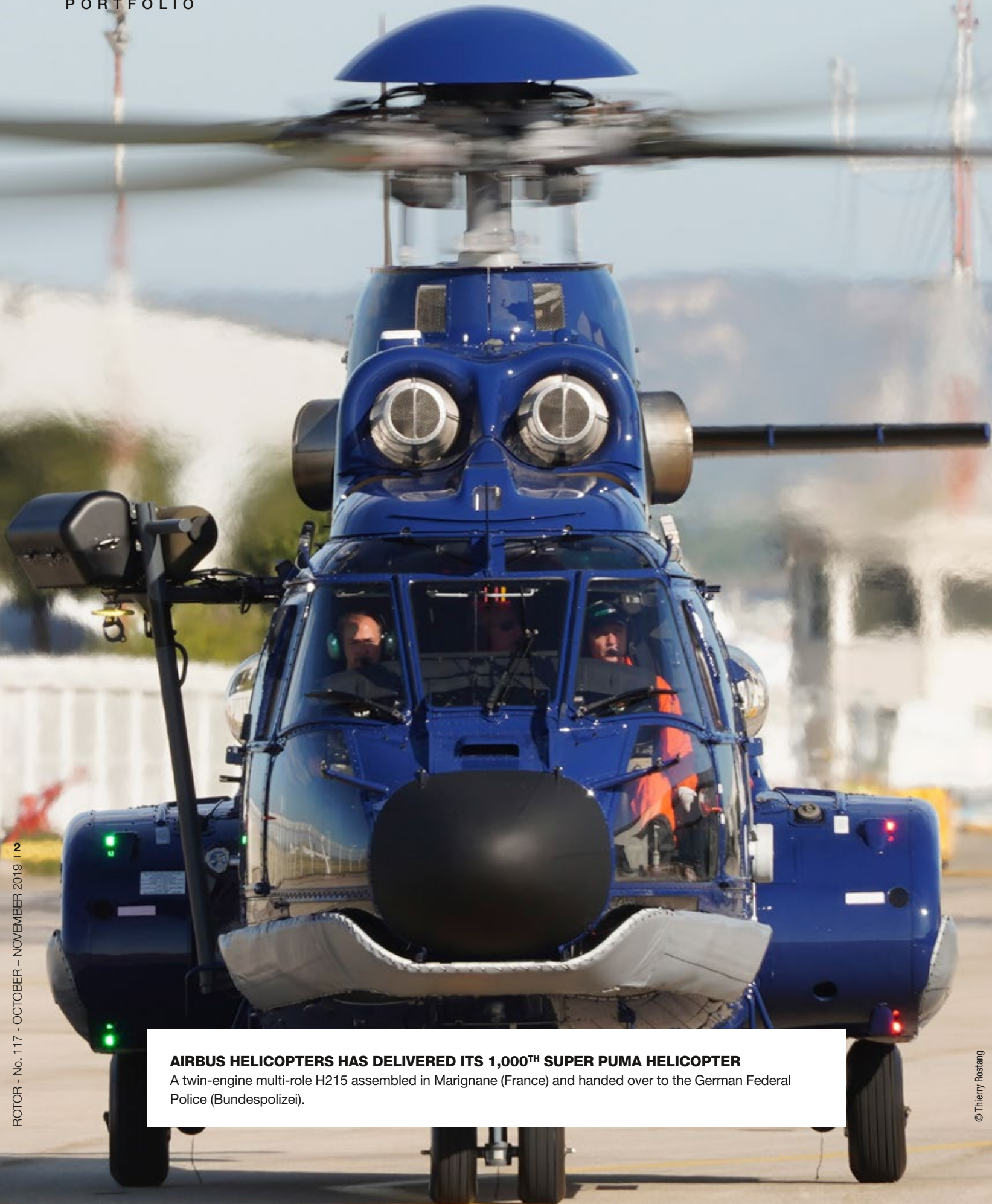
PROFILES  
**Pilot, woman...  
so what?**

NO LIMITS  
**Paving the way  
for hybridisation**



# Battling the blaze

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**AIRBUS HELICOPTERS HAS DELIVERED ITS 1,000<sup>TH</sup> SUPER PUMA HELICOPTER**

A twin-engine multi-role H215 assembled in Marignane (France) and handed over to the German Federal Police (Bundespolizei).

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### SEA LION SUCCESSFULLY COMPLETES MISSION DEMONSTRATION

The NH90 Sea Lion successfully completed mission demonstrations for its relevant roles in the German Navy, including SAR missions, in July. Representatives of the Navy and the procurement agency BAAINBw participated in the tests that covered operations using a rescue hoist, checking navy reconnaissance capabilities, and dropping off commandos and Special Forces equipment, including an inflatable boat. Delivery of the first Sea Lion helicopters is scheduled for the end of 2019. Altogether 18 helicopters are on order.



© Airbus Helicopters, Patrick Heinz



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### AUSTRALIA TIGER FOR OPERATIONS BEYOND 2040

Airbus Helicopters is offering a cost-effective approach for taking the Tiger platform beyond 2040, in response to the Commonwealth of Australia's (CoA) Request for Information (RFI) for the Project LAND4503 Armed Reconnaissance Capability.



© Patrick Heinz

efficiency



© Anthony Pecchi

**SECOND FIVE-BLADED H145  
PROTOTYPE PERFORMS MAIDEN FLIGHT**

In early August, the second prototype of the new five-bladed H145 took off for its maiden flight at the Airbus Helicopters site in Donauwörth. The helicopter will be used for additional flight tests such as autopilot testing, performance and airframe structural validation to achieve EASA certification of the new five-bladed H145 in early 2020. The first prototype performed a high-altitude test campaign in South America in September.

**FIVE H125s FOR THE CHILEAN NAVY**

The Chilean Navy's Project Seagull to acquire five light helicopters has been awarded to Airbus Helicopters. The five H125s will enhance the navy's capacity to carry out pilot training tasks, coastguard duties, rescue missions and other public security operations.

There are more than 40 H125s in service in Chile.



### **THE NEW H145 LANDS ON TOP OF THE ANDES**

The latest version of the H145 has set its skids down on the Aconcagua, the highest mountain in the Southern Hemisphere, culminating at 6,962 metres (22,840 feet). This is the first time a twin-engine helicopter has landed at this altitude.

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AROUND THE WORLD

The birth of Airbus Helicopters Italia





© Diane Bold

**Bruno Even, CEO of Airbus Helicopters**

**“It is our responsibility as manufacturers to ensure all these anonymous heroes fly safely in our helicopters.”**

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Upon viewing all the scenes of helicopters fighting fires on so many different fronts during the summer, it made me think about the importance of our role as helicopter manufacturers. These images remind us how firefighters in so many countries, not to mention police, rescue workers and volunteers, put their lives on the line to protect what matters most: our people and our planet.

It's our responsibility as manufacturers to ensure all these anonymous heroes fly safely in our helicopters; helicopters with proven effectiveness that can be relied on in the most difficult moments, when the flames are upon us and there's no time to rest.

Today, there are nearly 700 Airbus helicopters performing firefighting missions around the world. We've seen them in action this summer in the US, in Spain, in France, in Bolivia ... all over the world. It was in fact in Bolivia where we had the opportunity to contribute our grain of sand to fight the fires in the Amazon through the Airbus

Foundation, which financed 65 hours of flight with HeliAmerica and about 60 hours with Ecochopper. You will find all the details in the following pages.

H125s, H145s, along with the Super Puma family – which recently celebrated delivery of its 1,000th helicopter – have proven themselves the perfect ally for firefighters all over the world this past summer.

I know that I speak on behalf of everyone at Airbus Helicopters when I say that it fills me with pride to know that our efforts to provide our customers with more reliable helicopters allow them to achieve feats like these. The customer testimonies in these pages lead us to think that we're on the right track and drive us to keep improving every day.

And now, without further ado, I'd like to give you the opportunity to read the testimonies of the men and women who make all these incredible missions possible. Because you give meaning to our work: thank you.

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**DRY CONTACTS BETWEEN THE A400M AND THE H225M**

The Airbus A400M has successfully achieved its first helicopter air-to-air refueling contact with an H225M.

5.6 million

**TOTAL SUPER PUMA FLIGHT HOURS**

Accumulated by the global fleet of civil and military versions over the past 40 years.

80

**YEARS OF THE MARIGNANE SITE**

The Marignane site is celebrating its 80-year anniversary in 2019. Over 8,000 employees based in Marignane have enjoyed a year full of retrospective events.

30%

**THE COST PER FLIGHT HOUR**

of the Australian Tiger has reduced by more than 30%, and the sortie success rate is currently sitting at above 95%.

80

**SUPER PUMA DELIVERIES THROUGH 2021**

From an order backlog of around 100 units destined for public services, aerial work and military missions.

Airbus Helicopters is to provide the on-board helicopter for the REV Ocean research and expedition vessel – the world’s largest superyacht. It will carry one of the first examples of the new ACH145.

60%

**IS THE CIVIL TURBINE ENGINE MARKET SHARE OF AIRBUS HELICOPTERS IN ITALY**

Airbus Helicopters owns 37% of the HEMS market and 100% of aerial work and firefighting.

200,000

**THE H145 FLEET REACHED 200,000 FLIGHT HOURS IN AUGUST 2019.**

More than 250 aircraft are in service with 90 customers around the world.

1,300

**H135s HAVE BEEN DELIVERED**

The global H135 fleet logs more than 400,000 flight hours per year.

100<sup>th</sup>

**H135 WITH HELIONIX DELIVERED**

Helionix offers an innovative alerting system, extensive self-monitoring functions and on-demand vehicle monitoring display, as well as Airbus’ dual-duplex 4-axis Automatic Flight Control System (AFCS).

135

**HELICOPTER FLIGHT HOURS**

Were provided by the Airbus Foundation for natural disasters in the Amazon and Bahamas (figures at end September)



# Battling the blaze

The Amazon basin is ablaze, the plains of Central Africa are in flames and uncontrolled wildfires are raging in the north of Siberia. The link between climate change and the increasing severity of wildfires is so well documented that few deny its existence.

Firefighting, traditionally considered to be just one of the many aerial roles of helicopters, is now becoming one of their most critical tasks, especially in summer.

Find out more in the following article.



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# W

Wild fires were in this summer's news, from raging fires in the Amazon to the blazes devouring such improbable lands as the Arctic tundra. A look at the changes taking place in aerial firefighting.





**“UNPRECEDENTED”**

More than 10,000 fires burned in Angola, Congo and Zambia this summer. More than 2,000 fires were still active in the Amazonian forest in September. The numbers are staggering. Wild fires are increasingly becoming larger, faster and more difficult to control.

Climate change is one reason for this. The hotter global temperatures have created drier conditions, sapping vegetation’s moisture. The depopulation of rural environments and the shift away from mountain living, as well as human actions, are some

of the factors that make the new generation of fires more difficult to control.

**ATTACKING ON ALL FRONTS**

Country by country, the resources and response to fires vary. Fighting wild fires is a seasonal business that on average takes no more than three months; many countries’ aerial fleets are multi-purpose, flying other missions during the off season. Subcontracting is another answer: to deal with unprecedented events, many national or state firefighting agencies call on a list of private operators



The helicopter was introduced to firefighting in the 1980s, revolutionising the way to fight fires. At first the helicopter performed observation and control tasks, providing visibility until ground forces were able to visualise the fire from the air. A few years later, in the mid-1980s, the first water bomber launch helicopters appeared in the form of the bambi bucket (a suspended water-carrying cube) or a ventrally located water reservoir.

**1:** Kuwait's Ministry of the Interior uses two H225s for police, SAR and firefighting missions.

**2:** The H125 carries water that will be emptied into the 3,000-litre reservoirs provided for the teams on the ground.

**3:** The H125 takes firefighters back home after a long day.



© SDIS13

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© SDIS13

specialised in firefighting. Increasingly, agencies are investing in dedicated firefighting resources, as in the case of the Tokyo fire department, which operates an H225 primarily for urban firefighting.

### **AN ACTOR TODAY AND IN THE FUTURE**

Whether those aircraft are fully dedicated to fighting blazes or are seasonal, the market is in full swing. Among the world's entire firefighting fleet, as of September 2019 approximately 700 helicopters, or 21% of the fleet, were Airbus helicopters. Firefighting makes up the second-largest segment (after law enforcement) in Airbus Helicopters' global public services fleet, which includes around 4,950 units in flight, of which firefighting counts for 14% of the market.

And the need is growing. The firefighting deliveries forecast through 2025 runs to around 150 helicopters required all over the world, while the overall need for public services missions is estimated at around 1,000 units for all manufacturers. The H125 and the H145 are expected to lead the market during this period. By way of comparison, in the past ten years, the firefighting fleet has increased by just 45 units<sup>(1)</sup> All of this points to a significant investment... for a significant challenge.

(1) From 650 helicopters fighting fires in 2009 to 695 in 2019.

# What are a helicopter's missions during firefighting?

**Denis Bargès**, Head of the Bouches-du-Rhône fire service's Forest Fire Group Doctrine and Flight Service, explains the different types of helicopter interventions in the event of a fire.

## BAMBI BUCKET OR SIMPLEX KIT

"When a fire breaks out, helicopters offer the best way to reach the scene very quickly. Therefore, this is the solution that we look to first. During such an intervention, water bomber helicopters equipped with a supple bucket called a 'Bambi Bucket' or a Simplex kit, will contain the fire and slow down its progress by dropping an average of about 800 litres of water each time the helicopter flies over the fire (about 800 litres for an H125, 1,200 for an H145, and up to 4,000 for an H215). The helicopter's main advantage compared to a plane is that it can drop water every two or three minutes if there is a water source nearby. If the fire is contained, the helicopter hands over to the fire trucks so that the ground personnel can finish extinguishing the fire."

## COORDINATION OF MEN AND MACHINES

"However, if the fire becomes too large, the water bomber helicopters are replaced by planes that can easily drop 6,000 litres of water each time they fly over the site. In parallel, the second mission – coordination – starts for helicopters deployed in firefighting. Personnel, vehicles on the ground, helicopters and planes all have to be coordinated. Ensuring that all these resources are used without interfering with each other is the work of the onboard air officer transported by the helicopter."

"The use of helicopters in firefighting is decisive for overcoming natural obstacles, better managing teams' efforts, and saving time."



© Oxy Illustration/Carole Wilmet

## TRANSPORT OF MATERIAL

"The helicopter's third key mission in firefighting is known as the Helicopter Transport Intervention Detachment. This involves carrying equipment, personnel, or water that will be emptied into the 3,000-litre reservoirs provided for the teams on the ground. This type of flight is also very technical owing to the risk of collision with trees or obstacles on the ground and the difficulty in avoiding smoke. All this explains the very close relations between the firefighters and helicopter pilots (to whom we rent aircraft on average two or three months a year and who we know well). It is precisely the skill of one such pilot that saved my life a few years ago when the Bambi got stuck on the side of the water basin and the helicopter started to nose up as we took off. In order to be able to deal with any situation aboard a helicopter, we spend most of the winter months training and we work in the forests to prepare for the coming season by installing water sources so as to secure the area. Water sources every two kilometres guarantee a bombing rate of every two to three minutes."

[Read the complete interview in Rotor On line](#)



# The Airbus Foundation supports Bolivian efforts to fight fires in the Amazon

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The Airbus Foundation, in collaboration with the French Ministry for Europe and Foreign Affairs' Crisis and Support Centre, is supporting Bolivia's efforts against the severe fires that were affecting the country at the time of publication.

An Airbus A330 test aircraft transported 38 firefighters of the French Civil Security, plus equipment from Vatry, France, to Bolivia.

They participated in fighting fires which had already ravaged more than two million hectares of the Bolivian Amazon.

In cooperation with HeliAmerica, a Bolivian helicopter operator based in Santa Cruz department, the Airbus Foundation has offered 65 helicopter flight hours to assess the affected areas. The helicopters were also used on 3, 4, and 5 September to actively fight the fires with the help of a Bambi bucket dropping more than 500 tonnes of water.

In addition, Ecocopter, with the collaboration of the Airbus Foundation and the Crisis and Support Centre of the French Foreign Ministry - who are financing a hundred flight hours - has deployed two of its H125 helicopters to Bolivia, with the mission of fighting forest fires which affect the Santa Cruz region and have already devastated more than two million hectares of forests.

# CUSTOMERS TALK ABOUT FIREFIGHTING



## “We transport up to 20 firefighters in the H215”

**The “Diablos Rojos” Air Task Force of the Bolivian Air Force (FAB) is currently working with the H215 to fight the devastating fire in the Bolivian Amazon in the Chiquitanía area of eastern Bolivia. Colonel Franz Cabrera explains this mission.**

“We have faced many fires in our careers but none like this: because of its intensity, because of its expanse, but especially because we have not managed to extinguish it after fighting it for more than a month. We use two H215 helicopters very intensively, sometimes equipped with Bambi buckets (2,500 and 1,200 litres each) using water

we find in lagoons or swimming pools. In these cases, a pilot works together with a co-pilot, a Bambi operator and a co-worker inside. Sometimes we transport up to 20 firefighters using the full capacity offered by the H215 and are also asked to perform reconnaissance tasks. To this day, we’ve flown 110 hours with them. It is a very intense rate of work in extreme conditions that also forces us to step up the maintenance work and to wash the compressors continuously. Smoke, poor visibility, and the large number of aircraft participating in the firefighting makes the mission very difficult. Given the magnitude of this disaster, planning—which is done during the night—involves coordinating the teams of police, firefighters, rescue workers and the Ministry of Defense. We are all working towards a common goal.”

## “An effective firefighting machine”

**Roy Knaus is the owner of HeliAustria, a multi-mission helicopter operator based in St. Johann im Pongau, 35 miles south of Salzburg. Here, he talks about the company’s work fighting fires in the summer months.**

“We try to develop markets which we think will be future markets, such as firefighting. We have a fleet of four H215 helicopters. Currently we carry out our H215 fire extinguishing missions in Austria, Bavaria, and Sardinia.

The Super Puma is a very effective firefighting machine because you can carry the crews to the fire and after that, you can fight the fire. Getting to the fire, the aircraft is very fast, and thanks to the fuel consumption, you can stay on the fire for about three hours.

We’ve pushed some improvements to the H215 and developed and approved it to get the most powerful Super Pumas for firefighting, by adding Baby Sponsons, a Garmin GTN750 / 650 avionic upgrade, a Garmin remote transponder, and a soft interior for weight reduction and easier maintenance. The next step is a cockpit modification for NVIS for night firefighting, which we are developing together with Helitak for the H215.”



© Anthony Pecchi

[More information in Rotor On line](#)



© Bundespolizei

## “Our helicopters are being used in more and more firefighting missions”

**Michael Harder, a flight operations manager with the Federal Police Air Squadron in Blumberg, Germany, talks to Rotor about the increase in missions to fight wildfires in recent years and how the federal police deploy helicopters for these operations.**

“Over the past few years, we have been called upon more and more to provide firefighting services in the event of disasters. We mainly deploy the Super Puma helicopters and the Dauphin family, which we can equip with Bambi buckets, among other things. We usually serve as reinforcements for the ground fire brigade from the air, not just for firefighting, but also for reconnaissance and briefing the fire brigades on the ground. One of our biggest missions this year was at a former military training site in Lübtheen, where we deployed up to four Super Puma and H155 helicopters with several crews per aircraft. For firefighting operations, we always have a crew of two pilots plus one operator who works the Bambi bucket.”





Thank you to the women  
and men who make  
all rescue missions possible.



# FRANCE THE WORKHORSE OF THE SUMMITS

Article: Alexandre Marchand – Photos: Blugeon Hélicoptères



Blugeon Hélicoptères is a family company that was born out of its founder's passion. At the heart of its strategy is an exceptional playing field, the Alps and the Pyrenees, and an essential aircraft, the H125.

For more than 35 years, the name Blugeon has been well known in the Alps, from the deepest valleys to the highest peaks. In the Blugeon family, there is the father, Christian – an instructor and a tester, a Knight of the Legion of Honour, and the recipient of a medal for air rescue – joined over the years by his three sons, Sébastien, Hugo and Victor (all professional pilots) and two other staff pilots. "I started my business in 1998. It was an adventure that was still possible at the time," explains the entrepreneur. "Nowadays, things have become so much more complicated from a regulatory point of view that I would be much more reluctant!" At the time, Christian Blugeon focused on transporting loads, "an activity for which I knew there was always a demand," he explains.

## MULTIPLE MISSIONS

He was right. A good pilot and a skilled manager, with an entrepreneurial mind and a tenacious character, Christian Blugeon started with a Lama which he then exchanged for an Ecureuil B2. Today, he has four H125 helicopters (Ecureuil B3e) helicopters, the versatility of which allows him to develop his business in a number of fields: passenger transport, power line surveillance, filmmaking, preventive avalanche maintenance, mountain rescue, and in the background still, large-scale hoisting. "I still enjoy transporting loads: the work is done with 4 to 200 metre slings depending on what





2

- 1:** The slings can be from 4 to 200 m depending on the charge.
- 2:** Each Blugeon H125 flies about 500 flight hours per year.
- 3:** Christian Blugeon was supposed to become a farmer like his parents, but his passion for helicopters proved to be stronger..

is required, and it means meeting professionals who excel in their line of work.”

### THE H125 AT THE HEART OF THE COMPANY

But make no mistake: behind the passion it is a daily battle to ensure the company's success and its future. “We travel 2,200 hours per year with a break-even point of about 500 flight hours per aircraft per year,” explains Christian Blugeon. “In order to reduce operating costs, we always try to pool flights by managing in detail the set up between our different bases: Morzine-Avoriaz, Bourg Saint-Maurice, Crest-Voland and Ancizan/Saint-Lary Soulan in the Pyrenees.” Christian Blugeon's strength also lies in the very personal relationships he has with his customers. Not to mention the H125, at the heart of the company's development strategy. Easily reconfigurable depending on the mission, enduring and mechanically very reliable, the aircraft wins general approval. Although Christian Blugeon is never short of ideas for improving efficiency: “We just bought the Swiss Rotor Solutions transparent door, which is perfectly suited to work with slings. We would also like to reduce the size of the instrument panel in order to improve forward visibility. But I am aware that our very specific needs alone cannot determine modifications to the aircraft!”



3

### FROM TRACTOR TO HELICOPTER

Christian Blugeon could have followed in the footsteps of his parents and become a farmer. But his passion for helicopters proved to be much stronger. After much sacrifice and persistence, he obtained his private helicopter pilot licence in 1982. Five years later, he was a professional pilot. He completed missions aboard the Lama, Alouette 3, Gazelle, as well as the Puma and Super Puma before creating his own company. Today he has logged 31,000 flight hours. “In all weather conditions and in all configurations,” he explains.

# SEYCHELLES BRINGING MAGIC TO PARADISE

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With its five H120 helicopters and an H145, Zil Air has lent a touch of glamour to vacationers in the Seychelles for a decade. More on the sightseeing operator's ten years in paradise.

**Article: Heather Couthaud – Photos: Zil Air**



Located off the coast of East Africa in the Indian Ocean, Seychelles is a country of turquoise waters and white-sand beaches. Resorts dot the coastline, with indulgences like infinity pools, sunset cruises, and every type of luxury. It's the kind of place where honeymooners come to be treated like royalty. A jewel in this string of pearls is Zil Air, the Seychelles' sole helicopter operator and much in demand to transfer visitors from the international airport on Mahé, to one of the archipelago's 115 islands. This year, Zil Air is celebrating its ten-year anniversary in commercial operations, an achievement – says the company's executive director, Francis Savy – that is due to their service-oriented approach, and their fleet of helicopters.

## **SERVICE-ORIENTED PRODUCT**

“With a background in the hospitality industry, we bring a different edge to the business,” says Savy. “And we went with a product that could truly serve. The Airbus H120 is an excellent product and allowed us to meet the needs of the market.” Indeed, the H120 has been the backbone of Zil Air's operations from the beginning, when the company used its first helicopter to fly staff and consultants to hotel development sites. Now, the operator relies

**“We work hard to maintain an accident-free status, but the quality of the product also helps us in achieving that level of safety.”**

**Francis Savy, Executive Director Zil Air**



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## ZIL AIR

**Founded:** 2009

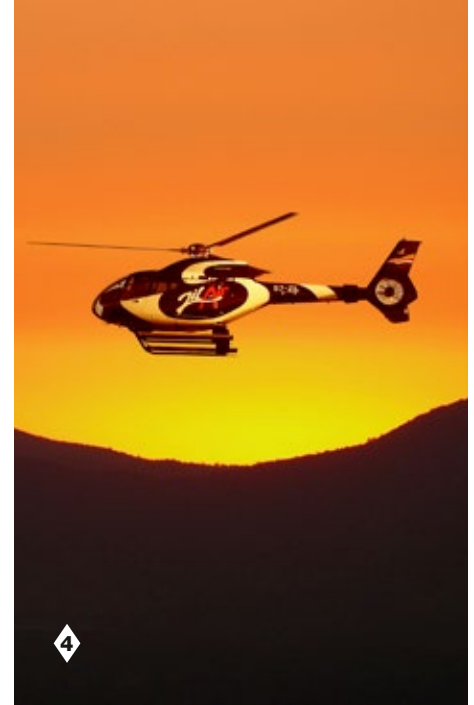
**Base:** Mahé, Seychelles (Seychelles International Airport)

**Fleet:** 5 H120s, 1 H145, plus two fixed-wing aircraft

**Activity:** Transfer flights, sightseeing, air limousine services in the Seychelles archipelago

**Annual flight hours:** 3,500

**Know more about Zil Air**



4

- 1:** Seychelles is a country of turquoise waters and sandy beaches.
- 2:** Zil Air owes its success to its service-oriented approach and its fleet of helicopters.
- 3:** Zil Air operates an H145 and 5 H120s.
- 4:** The Seychelles archipelago includes 115 islands.

on a fleet of five workhorse H120s and a twin-engine H145. As a larger helicopter with greater capacity, its roster of missions is different, though always service-oriented.

That is key in a market that includes VIP customers, vacationers, and honeymooners. To keep the aircraft in EASA-regulated condition, Zil Air runs its own maintenance and repair organisation (MRO), with a large and well-trained staff. A record of accident-free flights is the result. “We work hard to maintain that status, but the quality of the product also helps us in achieving that level of safety,” says Savy.

The company makes up part of the local economy as well, where tourism is the primary industry. In March 2019, Zil Air welcomed its first trained Seychellois pilot under its very own training scheme – joining a team of some 12 other pilots – while among the support staff, about 65% of the team are local. And while chartered flights are its first business, Zil Air helicopters fly in aid of search and rescue operations in the area, assist with medevac cases or collaborate with the Seychelles coast guard and police.

The list of Zil Air’s destinations is long: Praslin, La Digue, Cerf Island, Denis Island, Bird Island. Customers write glowingly of their thrilling rides aboard the aircraft. With the aim of catering to clients from their arrival to their final destination, the company’s satisfaction ratings are high in online reviews. “Usually the short version is ‘magical’ and ‘highly recommend it,’” says Savy. “But obviously the Seychelles backdrop helps. We’ve got a lot of diversity, and the helicopter is one of the ways to see it.”

MISSION



# BALEARIC ISLANDS THE ART OF ARRIVING JUST IN TIME

Article: Belén Morant – Photos: Eliance/Carlos Diaz



More than 16 million tourists visited the Balearic Islands last year, many of them with the idea of having a good time and without worrying too much about the consequences. The SAMU 061 emergency service is used to dealing with these consequences, having transported more than 600 patients so far this year in its two H145s<sup>(1)</sup>.

“The population of the Balearic Islands shoots up between May and October,” explains Carlos Diaz de Otazu, the coordinator of the SAMU 061 service’s air response unit in the Balearic Islands and an H145 pilot himself. “It’s a time of year when we have to transport a large number of people who come here just to have a good time but end up injuring themselves in accidents which are caused by people getting carried away and failing to take due care.

“At the SAMU 061 coordination centre, when we get an emergency call for help or a request to transport someone, the doctor in charge decides with the team which resources to send out: a standard ambulance, an advanced life support ambulance, or an aircraft. You have to remember that this is an archipelago. We don’t have roads going everywhere and there are smaller islands like Formentera where only limited specialised

medical assistance is available. The decision we take depends on the state the patient is in, but our average activation time is 20 minutes following the emergency call. By the time we reach the scene, the patient has usually received first aid in situ. At that point the SAMU helicopter medical team, which comprises a doctor and nurse specialised in emergencies, stabilises the patient and transfers them to the medical centre best able to give them the treatment they need.”

## A LIFE SAVED

The H145’s seating configuration means it can carry several patients at a time, as well as a parent if the patient is a minor, which can make a huge difference in testing circumstances. “I can remember an accident in Formentera involving a boy who was left in a critical condition,” recalls Captain Diaz de Otazu. “We took him and his father

“I’ve been a captain for around 20 years, and I can safely say that the H145 is the best helicopter I have ever flown for performing HEMS services.”

to the paediatric ward at Son Espases Hospital in Palma. His mother couldn't face the trip, she was so upset. When we arrived at the hospital heliport, the paediatrics team was waiting for us, ready to operate. We got there in record time and were so well coordinated that we didn't waste a single second. We made it in time. Only a helicopter can make that kind of difference.

"There was another case where a 22-year-old man was still conscious after losing an arm in a motorbike accident. We transported both the patient and the limb, and it was successfully sewn back on. Every one of us who took part that day felt very proud."

### AN EXPERT IN EMS

"By the end of the year we're expecting our two H145s to have completed more or less 800 flight hours between the Ibiza base and Palma de Mallorca," explains Captain Diaz de Otazu. "What stands out for me with these two helicopters is the superb power-to-weight ratio they offer in complying with Performance Class 1 requirements, with average temperatures in summer of 35 degrees and flying at sea level.

"The H145's avionics suite is amazing, as is the presentation of the screens and parameters, while the navigation suite means we can combine systems such as ACAS, HTAWS, and weather radar. The FMS Garmin GTN 750 touchscreen navigator is very intuitive, and then there's the navigation plotter and 4-axis autopilot. With all this avionics equipment, we have a lot of back-up when it comes to complex missions because the data is updated all the time."

(1) In responding to accidents and transporting patients between hospitals, as the main hospital in the Balearic Islands is in Palma de Mallorca.

- 1:** The helicopters have an endurance of up to two and a half hours, which means they can transport patients to the mainland if necessary.
- 2:** The cabin can accommodate two stretchers, although the SAMU 061 service uses only one to enable better access to patients.



### CARLOS DIAZ DE OTAZU

A helicopter pilot since 2003, Captain Diaz de Otazu has flown more than ten different types of helicopter across a range of operations, and has racked up more than 5,500 helicopter flight hours. In helping to provide round-the-clock services, he has been flying the H145 since 2018. He works for the company Eliance as a coordinator of the SAMU 061 emergency services in the Balearic Islands, which comprise Mallorca, Menorca, Ibiza and Formentera. What he most enjoys about performing HEMS missions is the satisfaction the whole team feels when achieving their mission objective, which is to provide assistance and to ensure the patient or victim is taken to the most suitable hospital in the best possible condition.



# HELP FROM ABOVE

Aerial firefighting – whether in cities, mountains or forests – relies on a handful of specialised helicopters, capable of doing just about anything, from crew transport to water bombing.

Article: Heather Couthaud – Infographic: Beatriz Santacruz



## H125

The H125 makes up the base of aerial firefighting forces, cost-efficient enough to form a fleet of several aircraft. Often used as a command and control aircraft overseeing a number of assets from above, it is also frequently fitted with an infrared camera, to measure a fire's hot spots. Yet its finest hour is often as a member of a team, water bombing in concentration, wherever it's needed.



## H145

The H145 is used for command and control flights during wild fire attacks, directing the movements of aerial and ground forces while circling from above. Once a fire is under control, the H145 steps in again to bring crews to tenuously held ground, where they dig trenches to deter new fires from starting. A complement to the larger water-bombing aircraft, the twin engine H145 – via its quick role-change capacity – covers all types of missions in all segments.





## H225

Water gun. Sky cannon. Whatever name you give it, the only tool capable of putting out high-rise fires graces the H225, bringing a reservoir of 2,300 litres of water. In urban firefighting, the H225 serves alone or alongside its smaller counterparts, transporting more water or greater numbers of brigades to the scene. In wild fires, it is fitted with a Bambi bucket, for targeted drops.

## H215

Airbus Helicopters' shorter cabin airframe version of its rugged H215 means a higher payload, adapted for carrying a Bambi bucket kit capable of releasing 4,000 litres of water in a single drop. Equally suited for combatting wild fires – both over plains or in mountains and forests – or urban fires requiring intensive water bombing, the H215 has fought fires all over the world (see page 15).



# AIRBUS HELICOPTERS PAVES THE WAY FOR HYBRIDISATION

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The first tests of a new single-engine flying testbed equipped with an electric emergency motor are expected for 2020. Considerable gains are expected in fields as varied as safety, the environmental footprint, and performance. Here's why and how.

Article: Alexandre Marchand

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## REDUCE NOISE DISTURBANCES

The main and tail rotors are the first sources of sound for a helicopter in most flight phases. A reduction in the rotor speed mechanically affects the noise level. This type of noise reduction mechanism is already widely used on Airbus Helicopters products (see insert), particularly in flight conditions near the ground when not all the helicopter's power is required and the disturbance for populations over which the helicopter is flying is the greatest. The idea here is to further decrease the rotor speed, leveraging on the capabilities brought by hybridisation. However, a turbine's own inertia would not allow the speed to be increased quickly enough in the event of an engine failure. Interestingly, an additional electric power source would be able to do this. It would also be possible to envisage take-off and landing procedures on steeper slopes, also with a reduction in the noise footprint.

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## Where does a helicopter's noise come from?

The main rotor, the tail rotor and the turbine are a helicopter's three main sources of sound. However, these three elements play very different roles according to the flight phases. During the approach phase, the main rotor interacts with its own wake, generating a very bothersome impulsive noise. When taking off, these interactions do not occur and it is the strong load on the rotors and engine at full power that generate the noise. During the flight phase, the rotors and, to a lesser extent, the engine, are both at fault.

Certification processes impose that noise levels be demonstrated below those stipulated in the regulations, but for the helicopter to be accepted by society it must go even further. Airbus Helicopters distinguishes itself from the competition in its search for increasingly effective noise reduction through its control over three essential levers:

- The automation of the control laws for the rotor speed, which searches for near-ground reduction and during the most sensitive phases.
- The Fenestron, which is constantly evolving, plays a crucial role in reducing tail rotor noise.
- The optimisation of the blades' shapes in order to reduce noise generation and, in particular, the phenomenon of interactions with the main rotor's wake.

### **INCREASE SAFETY**

The electric solution will require a 100-kW motor and a lithium-ion battery. Connected to the main gearbox, the electric motor should be able to maintain the helicopter's rotor revolutions for about thirty seconds. The work conducted on an Ecureuil AS350 in 2011 showed the interest of this additional power source in the event of a turbine failure. The electric motor would facilitate autorotation manoeuvres by giving the pilot more time to react, and by supplying additional power in the last seconds of the descent. Enough, for example, to be able to fly over urban areas with greater peace of mind.

### **INCREASE THE PAYLOAD**

Although tests conducted in 2011 showed the precision of an additional motor, they came up against the problem of the battery's weight, incompatible with commercial use. However, in eight years, energy density and battery power have improved greatly. The increase in power available via hybridisation could further help to increase the helicopter's weight at take-off under ISO conditions. A significant increase in payload could be expected, even when taking into account the weight of the emergency electric system (85 kg).

# 3



“The best part about this job is the combination of flying (which I obviously think is fun) and the fact that it’s a very rewarding job. You feel like you are contributing to someone’s life when they need it.”



“It is important that helicopter companies both encourage women to join and support them in developing their careers.”



“We must fight for our dreams, and forget old ideals that see women in a traditional role in the home.”



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**1 Liss Amdal,**  
**H145 and H135 pilot in Norway**

My name is Liss Amdal. I am 43 years old and I was born in Norway, where I currently live. I have been with Norwegian Air Ambulance since April of 2011. I remember clearly when I decided that I wanted to become a helicopter pilot. My cousin and my brother were both helicopter pilots and my cousin landed a helicopter in our back yard when I was 13. Then I said to myself, "one day I will do that too." I do not think there are big differences in becoming pilots for men and women. I think it is mostly a cultural thing: a lot more women could do it if they were exposed to the possibilities and had the encouragement that they could do it. I am currently the only female pilot here at Norwegian Air Ambulance and I would love to have some company from others. I quite honestly do not know why there aren't more already and I hope to see more in the future.

**2 Bertha Dankert Harris,**  
**H175 pilot in Denmark**

My name is Bertha Dankert Harris, I am 42 years old, married and have two children. I am Danish but have lived abroad for more than 14 years while being a pilot. Last year, after more than 11 years flying the H155 in the Netherlands and with nearly 5,000 hours on type, I moved back to Denmark and started flying

the H175 helicopter for NHV Denmark.

In the beginning, I often felt I was being looked at all the time for being a woman in a man's world, but once I had proven myself in my work, I got the same respect that the others that did well.

Later on in my career when I was promoted to Captain and after that, Line Training Captain, there were some occasions where colleagues challenged me for being a young woman. They felt they should have been the captain as they were older or had been in the company longer, but the fact was that I had passed the training and they finally accepted it. I enjoy my job very much. I am impressed with how sophisticated the new generation of helicopters are; the technology is pretty amazing. As autumn is approaching, we will soon get challenging weather conditions in the North Sea with high winds, low clouds, limited visibility and night conditions. That is when my work starts to get busy and we are kept on our toes.

**3 Jessica González,**  
**H225M pilot in Mexico**

I am Jessica González, 22 years old. Ever since I was a little girl, I knew I wanted to be a pilot: to be able to fly an aircraft seemed fascinating to me. Eventually I opted for helicopters, attracted by their versatility, tactical ability and the number of missions they are able to perform.

It is really interesting how the integration of women into the Air Force is not only enriching for us, but also for the men, who are learning to work with and trust women as colleagues, and need a process of adaptation as well. I think we are all really benefiting, not just women.

The truth is that the support of the Secretariat of National Defense to encourage and better integrate women has been noted in Mexico since 2007 and is appreciated. I have admirable companions who are mothers, and have been able to combine both facets of their lives seamlessly. There are now 15 female pilots in the Air Force, and although there is still a long way to go, there is no going back.

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# Pilot, woman... so what?

Three pilots from different countries  
 tell their story about being  
 a female pilot in a man's industry.

[Read the complete stories in Rotor On line](#)



## The birth of Airbus Helicopters Italia

The acquisition of the distributor and partner, Aersud Elicotteri, has led to the creation of a new customer centre and strengthened Airbus Helicopters' presence in Italy.

**Article: Alexandre Marchand**  
**Photos: Airbus Helicopters Italia**

With more than 90 customers and 250 aircraft in service, Italy accounts for the fifth largest European market for Airbus Helicopters. This is largely thanks to Aersud Elicotteri, which has played a key role in the development of the Airbus footprint in the country. Over the course of more than 50 years of collaboration, the distributor has become a true partner, acting as a leading contact point for operators in order to offer them the very best support. With a view to continuing this exceptional relationship and ensuring the long-term presence of Airbus Helicopters in Italy, Aersud Elicotteri and its subsidiary, Helicopter Italia, are now joining the manufacturer's global network of customer centres. However, this does not mean that the



“The creation of Airbus Helicopters Italia makes me feel optimistic and motivated. Italy is a country where I feel at home because of my origins of course, but also because I really like its people, its culture, its history and, of course, its food!”

structure of the Italian companies will change. Airbus Helicopters Italia, about fifteen employees, will continue to manage the commercial aspect of the company. The subsidiary, Helicopters Italia – a certified service centre with 35 employees, the name of which will remain unchanged – will maintain control over MRO (maintenance, repair & overhaul) operations, with competencies relating to the H125, H135, H145 and Dauphin ranges.

### A CHALLENGE

This new organisation should allow Airbus Helicopters to strengthen its position as a challenger with 32% of the installed fleet <sup>(1)</sup>, in a country that, above all, remains the private preserve of its main European competitor, in a complicated economic climate: after a low ebb in 2012, the Italian market is gradually recovering, driven by aerial work (especially in the Alps) and emergency medical services.

It will be up to the new customer centre to strengthen this position and continue to ensure the highest level of customer satisfaction. Preparing for the future will also involve the development of the business aviation range, with the customer centre's trump card: the H160, which, incidentally, is starting its commercial career in Italy.

(1) 60% of the civil market, 37% of the HEMS market, 100% of the aerial work market

“It is a nation that has always appreciated good-quality products, mechanical systems that are beyond reproach, and cutting-edge technologies. These are requirements that apply to helicopters: we have all the ingredients here.”

**Alexandre Ceccacci,**  
Director of Airbus Helicopters Italia



“In the field of helicopter emergency medical services (HEMS), which is very dynamic in Italy, we offer an unequalled solution, the H145, a benchmark in this market. In addition, the H125 ensures us an excellent position on the national market for aerial work and utility work, which are still going strong. Finally, we want to establish ourselves in the business aviation market, which offers some great opportunities for growth. For all these reasons, I know we can perform well in this country and I intend to prove it.”



### Alexandre Ceccacci

started his career at Eurocopter in 1998 as Sales Director for the customer centre in Mexico. After a few years at Customer Service Europe, where he had already worked closely with Italy, he was appointed Sales Director for the Mexican subsidiary, then Managing Director of the Chilean subsidiary. Before accepting the challenge to take control of Airbus Helicopters Italia, he carried out the Support function for all of Latin America from France.

# SOMETIMES DIFFICULT JOBS REQUIRE A LITTLE HELP FROM ABOVE.



**FLY  
WE MAKE IT**

Known the world over for its ability to perform in the toughest and most challenging environments on the planet, the H125 is a proven helicopter designed to support the most diverse aerial work duties imaginable. From the expected to the extreme, whether it's inspecting powerlines, firefighting or air crane operations in mountainous or extremely hot conditions, the H125 has you covered.

Dependability. We make it fly.