

H145

The new Multi-Role Helicopter for today's most demanding operations



AIRBUS

ICAR CISA, Chamonix

October 18th 2018 - Christian FANCHINI - Airbus Helicopters Marketing

H145



Main characteristics



Missions



Performances

H145 Genesis



H145

EC145

BK117

1,452 aircraft delivered
Nearly 5 million flying hours accumulated

AIRBUS



1,452

Built helicopters



1,281

In-service helicopters



262

Operators



60

Operating countries



351, 300

Flight hours (in 2017)



4,969,700

Flight hours (End 2017)

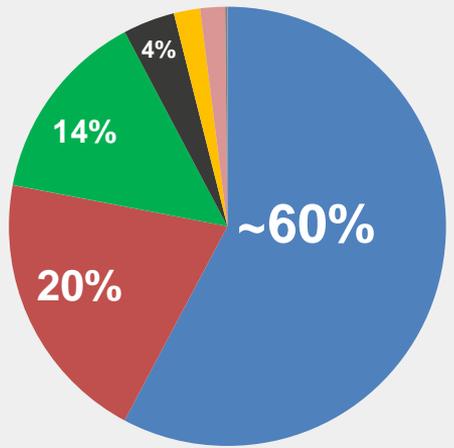
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HEMS mission segment

**Total:
2,500 h/c**

2017 HEMS fleet share

**Every Minute Airbus
Helicopters
saves 3 lives**



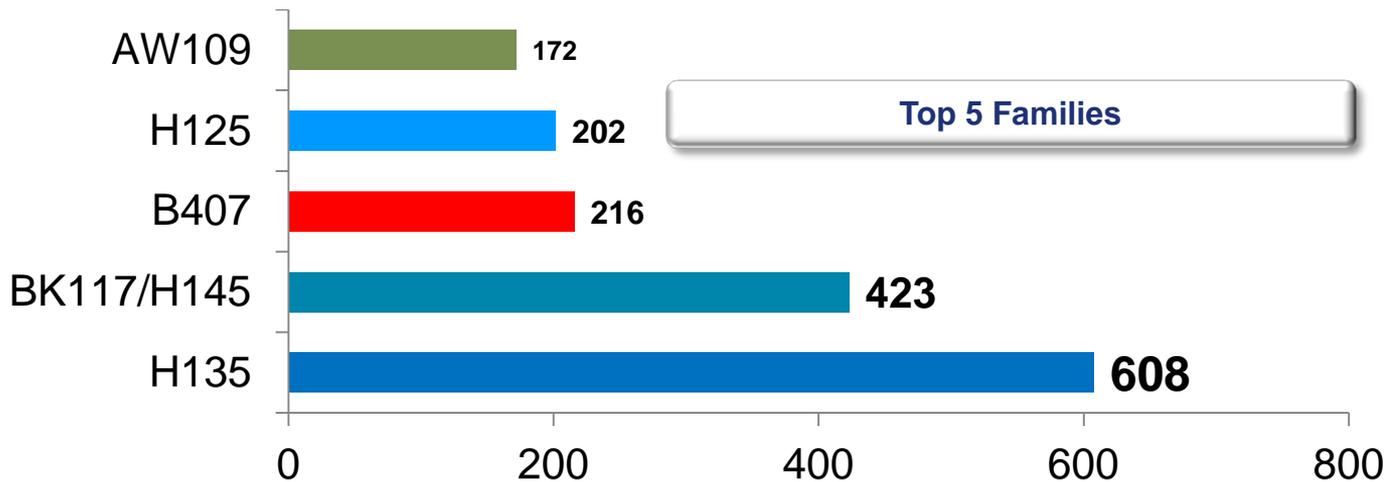
- Airbus
- Bell
- Leonardo
- Russian H.
- Sikorsky
- MDHI
- Others

HEMS fleet Worldwide

AH products are Customer's "First Choice" and reference for decades.
More than 300 customers operate AH helicopters for HEMS.

ESXPF/2018-37 rev. 01 / Aulbert Frédéric - Fleet Activity Breakdown End 2017 / February 2018 / Airbus rights reserved

In-service HEMS fleet (end 2017)



Top 5 Families

Airbus families clear leaders: H135, H145 & H125 in top 5

Market oriented towards Light Twin class

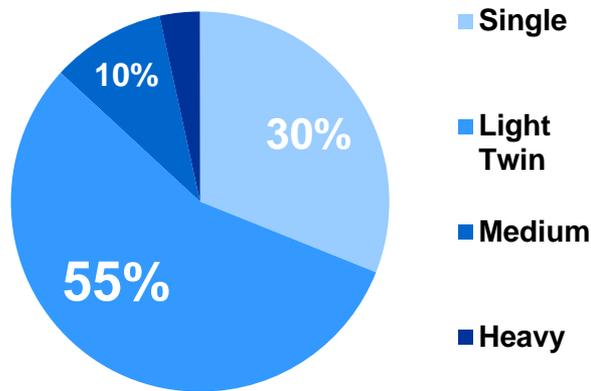
Singles link to the Americas only due to safety restrictions in other regions

Medium class dedicated to secondary mission influenced by hospital specialization policy (increased distances in inter-hospital transferring) and complicated primary rescue in countries with scattered populated areas



Good to know:

- HEMS helicopters tend to be dedicated ; Nevertheless few helicopters share operations with other Public Services or Commercial purposes
- HEMS replacement cycles tend to be shorter than in other mission segments



H145 ID Card



Temperatures

Flight Envelope
- 45°C to ISA + 35°
(limited to 50° C)



Certifications

- CS/FAR 29
- EASA/FAA
- SP / DP IFR
- NVG

- 1 or 2 pilots + up to 8 PAX (10 with high-density seating)
- **Empty weight:** 1,919 kg / 4,231 lb
- **MTOW:** 3,700 kg / 8,157 lb
- **Max.dual cargo hook load:** 1,600 kg / 3,527 lb
(single hook operation)

What's new vs EC145

H145

Upgraded MGB
Dry-Run Capability 30'
30' TOP

New Arriel 2E Engines
Dual channel FADEC

New Fenestron® Rotor
Composite Blades

New Av. Helionix
4-axis AFCS



Increased
fuel capacity
+30 Kg

New Composite Tail Boom
with Stabilizer Assy

New Hydraulic
Actuator
(duplex)

AIRBUS

Landing everywhere...

SAFETY

H145



High seated main rotor



Skids to land on unprepared area



Slope landings up to 12°



Direct rotor response

AIRBUS

SAFETY

is not an option

Rigid main rotor

Outstanding OEI performance

Fenestron – shrouded tail rotor

Redundant hydraulic and electric systems

Crashworthy seats

Crashworthy fuel system

Crashworthy fuselage and energy absorbing landing gear

AIRBUS

360° Approachability

SAFETY

H145



High and rigid main rotor



High tail boom



Shrouded Tail Rotor

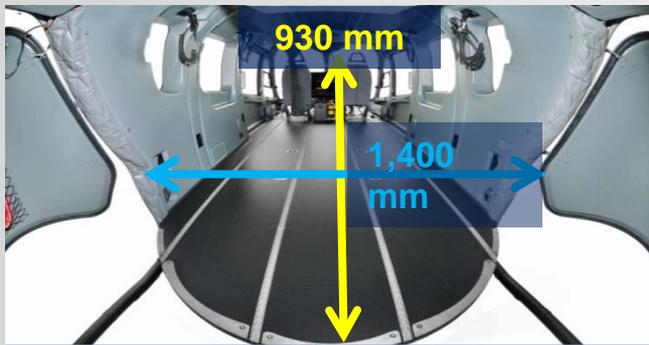


3.10 m
10.17 ft

1.90 m
6.23 ft

SAFE AND EASY APPROACH TO THE HELICOPTER FROM ALL SIDES

A welcome & versatile cabin



FLAT FLOOR WITH INTEGRATED RAILS



LARGE LATERAL ACCESS WITHOUT DOOR POST



NO PARTITION BETWEEN CABIN & COCKPIT



Multiple & flexible seating arrangements

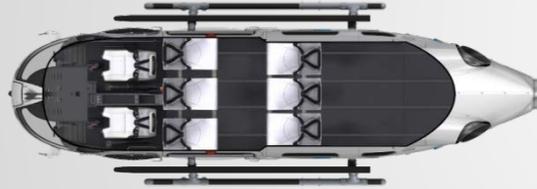
A145

Standard Passenger transport configuration

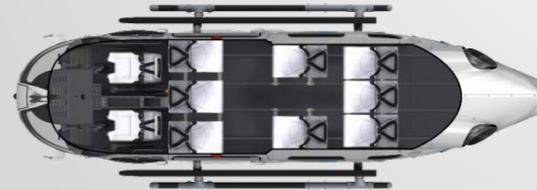
6 PAX



6 PAX



8 PAX



« high density » seat configuration

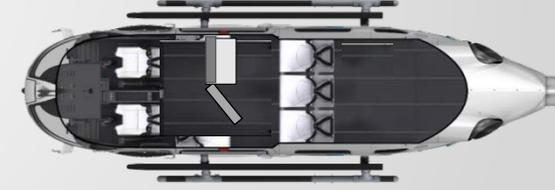
6 to 9 SWAT



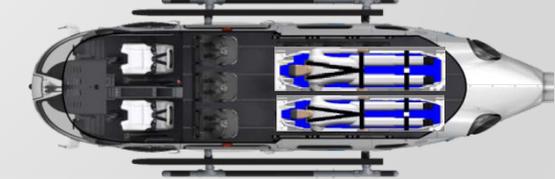
10 Troops



Police:
Console operator
+ up to 5 seats



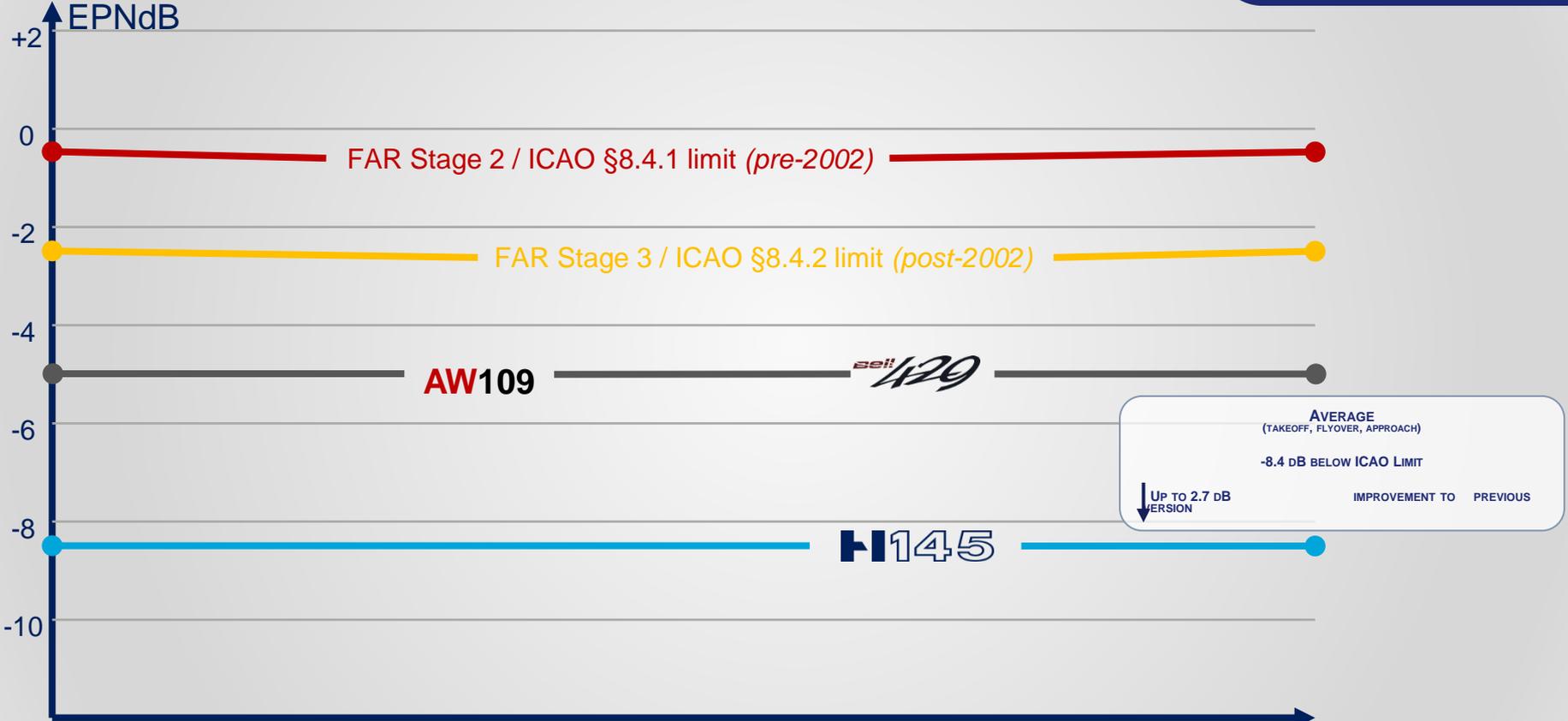
HEMS:
2 stretchers +
up to 3 Medics



“QUICK ROLE CHANGE” WITHOUT ANY TOOLING IN ANY LONGITUDINAL POSITION

AIRBUS

Unrivalled Acoustic Footprint



THE QUIETEST HELICOPTER IN ITS CLASS!

MTOW **AIRBUS**



HELIONIX ON BOARD

H145



Latest generation
Helionix® glass
cockpit

All information
at a glance



Pilot
workload



Safety



HELIONIX ON BOARD

H145



- All weather capability :**
- **Single Pilot IFR** certification
 - Innovative **Human Machine Interface**
 - **4-axes autopilot** with GNSS automatic approach modes (PBN RNP 0.3)
 - **Touch screen FMS** (GTN 750)



“AFCS Recovery” button

SAFETY

145



In case of reference attitude lose, one double-click on cyclic stick will stabilize the aircraft to level flight (no turn or climb/descent and steady speed)

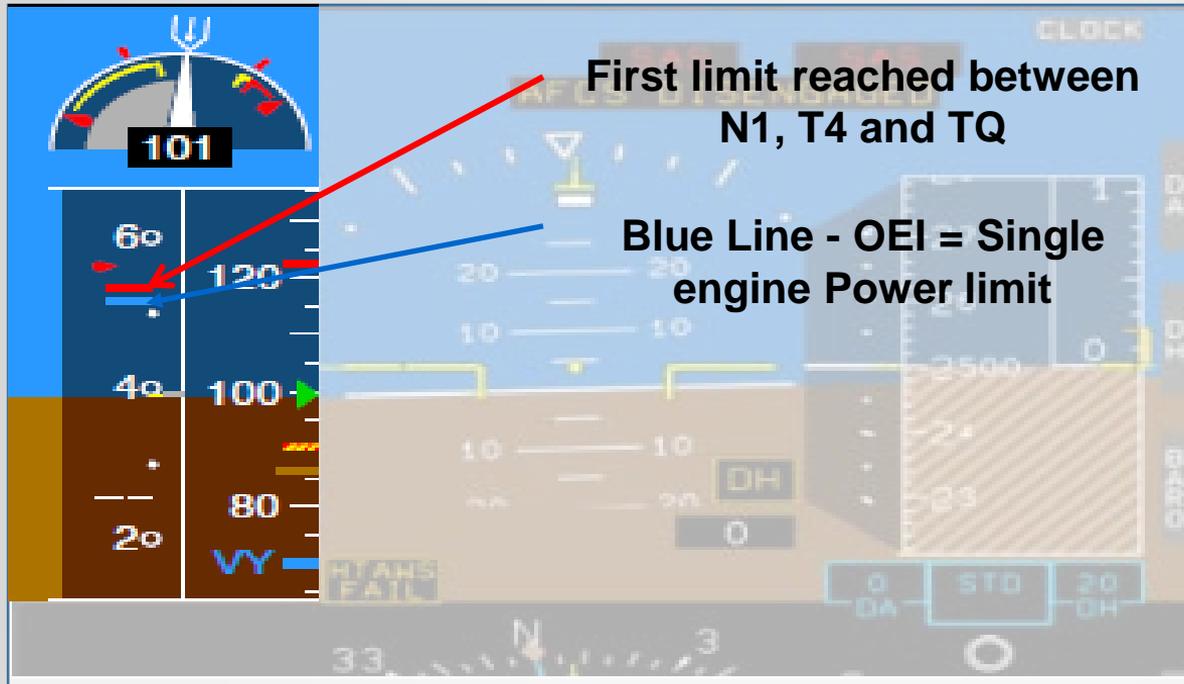
AIRBUS

Unique First Limit Indicator

SAFETY

145

- Simplifies considerably the engine and torque monitoring
- OEI conditions displayed in real time



AIRBUS

Dual Duplex 4 axis Autopilot

H145

- High flight stability and precision from 0 kts up to VNE (Never Exceed Speed)
- Airbus Helicopters unique flight envelope protection (aircraft, main gear box and engine protection, vortex prevention)
- **Automatic takeoff and fully-coupled approaches (ILS or LPV) down to hover**
- AFCS „recovery“ button in case of unusual attitude
- **Automatic management of engine failure during cruise, takeoff and hover**

Drastic reduction of pilot workload

AIRBUS

Helionix® Cockpit Synergies

H145



H135 / H145

REDUCED
FLIGHT
TRAINING
DURATION
UP TO
30%
COMPARED
TO
ADDITIONAL
TYPE
RATING



H160 / H175

A real Cockpit Family for higher safety and less training costs

AIRBUS

Latest improvements

Increased operating altitude for Hover IGE, Take-off and Landing

20,000 ft / 6,096 m PA or DA, whichever is less

+ 4,000 ft / + 1,219 m

16,000 ft / 4,877 m PA or DA, whichever is less

AIRBUS

Latest improvements

➤ New Alternate **MTOW: 3,800 kg / 8,378 lb**

With temporary restricted flight envelope (until 100 kg fuel are consumed)

Minor modification of the DMC

Logging for each flight undertaken over 3,700kg gross weight

Day and night flights are allowed at 3,800 kg under Visual and Instrument Flight Rules (VFR/IFR) for Category B operations

Improved OEI 2min performance



H145 Hover OEI 2min

(EASA certified the 20th March 2017):

It corresponds to an increase of hover performance capability in OEI mode within the 2 min power band delivering an **additional 230 kg mission payload**. This enhanced capability, induces an EECU/FADEC software upgrade.

Increase of human external cargo capability (HEC): +230 kg

Increase of safety level

AIRBUS

H145



Main characteristics



Missions



Performances

H145 ONE PLATFORM FOR A FULL RANGE OF MISSIONS

Superior power, advanced mission equipment, small footprint and large cabin size – the H145 is perfectly suited for a multitude of operations.

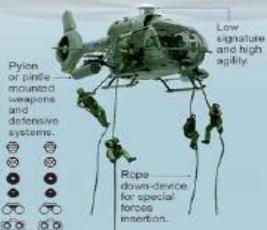
DIMENSIONS



MILITARY

H145M – a versatile light battlefield helicopter

Suitable for special operations, light attack, utility, MEDEVAC and surveillance missions.



COCKPIT

A modular state-of-the-art avionics suite incorporates three large displays and four-axis autopilot. It provides an excellent human-machine interface, improved situational awareness, enhanced flight paths and safety, and a superior field of view for safe landings and take-offs.

BUSINESS

Maximum comfort and optimum working conditions

Best comfort with a stylish interior and outstanding external visibility.

Air conditioning with independent control in cabin.

Available in Mercedez-Benz® Style with entertainment system.

Leather

A spacious cabin and large luggage compartment

KEY FIGURES

One engine inoperative performance at Maximum Take Off Weight – the only helicopter with such capability. High and best performance provides multi-mission flexibility.



Cruise speed



Maximum T (at MTOW)
*Maximum Take Off

H145

EMS

Suitable for emergency missions and inter-hospital transport

Safe approach on ground even when the engines are running through high-set main rotor and Fenestron® shrouded tail rotor.



POLICE

Ready for operations day and night

• Quick role change capability for a wide range of applications such as patrol and surveillance, search and rescue and transport of special police forces.

• Observation and surveillance missions are supported by forward-looking infrared (FLIR) and daylight cameras, controlled by an operator who also handles communications and data exchange with ground-based police operations.

• Night-vision goggle compatible and equipped with a powerful searchlight.

• Enhanced Reality System.



AIRBUS

Source: Airbus Helicopters

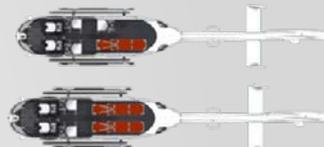
Infographic: © BEATRIZ SANTACRUZ

HEMS

Like an ambulance



Easy & safe rear loading



Up to 2 stretchers



Primary evacuation



Secondary evacuation

Compliant with the European HEMS Norm **EN13718**

CAT-A @ MTOW, ISA+20



Common fixed provisions concept



Common interface accommodates all EMS supplier equipment



EMS interior suppliers



Your Choice of different EMS Interior Solutions

Public Services



Law Enforcement Like a Sheriff.



Rappelling



Fast roping beam



Operator console with
downlink



EOS IR/TV HD



Search Light



Loudspeaker



Euronav7 moving map



Night Vision Goggle

Search and Rescue

Like a Guardian Angel

H145



Search & weather radar



Emergency floats with ELRS



Electrical Hoist

- Lifting capability of 272 kg / 600 lb
- Cable length: 90 m / 295 ft
- Class D Human External Cargo (HEC) certified



Search Light
Trakka A800

AIRBUS

Disaster Management Like a Guardian Angel

H145



Crashworthy & foldable Utility seats

- Easily installable / removable (15 min. 2 technicians)
- 1 or 2 foldable stretchers
- 2 up to 6 seats to complement EMS kit

AIRBUS

Private & Business Aviation





Up to 8 seats in the cabin

Mercedes-Benz Style® interior



ACH Line® interior



ACH 145

ACH Line

When **Comfort** meets **Elegance**

- Mercedes-Benz Style® is tailored made for high-end Private & Business travels
- ACH Line® offers a modular, functional and nice looking cabin with a limited weight increase

Aerial work missions





Fire-fighting

An agile fire-fighter



Bambi Bucket
910 liters



NHEC single hook:
1,600 kg / 3,527 lbs



HEC Dual hook:
800 kg / 1,764 lbs



Fixed and electrically
External mirror



External Multi-
Purpose camera

Offshore



Oil & Gas operations



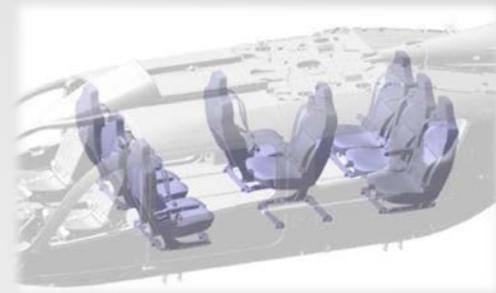
PC1 @ MTOW, SL, ISA



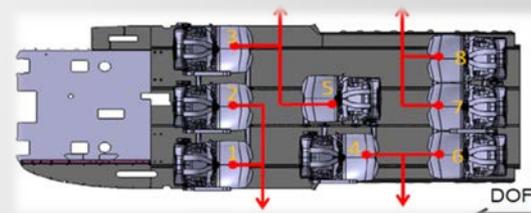
Large doors for easy access



Emergency floats + ELRS certified
sea state 6



Unruled cabin volume



Emergency egress for 8 x Off-Shore
Passenger Configuration

Compliant with the strongest OGP safety requirements

8 Passengers @ 80 NM



Windfarm & Harbor Pilot operations

H145

Because it is **Faster, Safer & Cost-effective**



- Hoist fully EASA certified HEC
- OEI 2 min. power @ 3,300 kg



- Up to 5 Harbor Pilots
- Day & Night

AIRBUS

Offshore Hoist operations

H145

- Fully certified EASA for Human External Cargo
- Hoist certified for 272 kg / 600 lb load

Max weight, SL, ISA	Previously	Today
OEI 30 sec	3,395 kg / 7,485 lb	3,395 kg / 7485 lb
OEI 2 min (*)	3,070 kg / 6,768 lb	3,300 kg / 7,275 lb
HEC (30") proc. OEI	3,320 kg / 7,319 lb	3,320 kg / 7,319 lb
HEC (2') proc. OEI	3,070 kg / 6,768 lb	3,300 kg / 7,275 lb



(*) :2' performance increase achieved by an increase of OEI torque rating from 130 to 143 %

AIRBUS

H145



Main characteristics



Missions



Performances

The performer

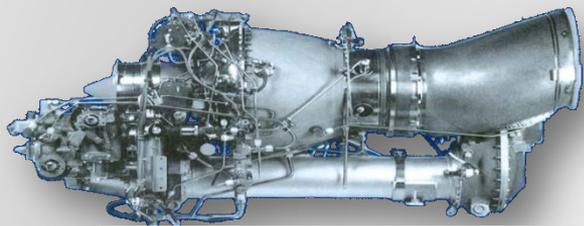


Fast cruise speed (VH) @ MTOW, TAS (*)	248 km/h / 134 kts
Take-Off Power (TOP 30')	884 shp / 667 kW
Maximum range (<i>standard fuel tanks</i>)(*)	725 km / 392 NM
Maximum range (<i>Long range fuel tanks</i>)(*)	911 km / 492 NM
Maximum endurance at best endurance speed (*) (<i>standard fuel tanks</i>)	3 hours 54 min
Cat- A (-VTOL -SL -ISA + 20°C)	3,660 kg / 8,069 lb
HIGE (TOP -MTOW -ISA +20°C)	2,332 m (7,650 ft)
Operational ceiling for HIGE	20,000 ft / 6,096 m DA or PA whichever is less
min./max. operating temperature	-45°C up to ISA +35°C (OAT: +50°C)

(*) : Clean helicopter, 5,000 ft



The Beast Power



ARRIEL 2E
(with dual channel FADEC)



	EC145 (Arriel 1E2)		H145 (Arriel 2E)		Δ
	Shp	kW	Shp	kW	
Takeoff Power (TOP)	738	550	894	667	+ 21%
Maximum Continuous Power	692	516	771	575	+ 11%
One Engine Inoperative (MCP)	738	550	951	710	+ 29%
OEI (30 seconds power)			1,072	800	+ 39%
OEI (2 minutes power)			1,038	775	
OEI (2.5 minutes power)	770	574			



Operating Costs

Conklin & de Decker 2018 Vol II (Spring) (\$)



<	H145	Bell 412EPI	AW169
			
Utility mission			
DMC	524	769 +47%	\$828 +58%
DOC (DMC+Labor+Fuel+Lubricant)	1,119	1,548 +38%	\$1,558 +39%

H145, a cost-efficient light twin to operate



Why is H145 the Best Choice?

H145



- ✓ **Unrivalled “High & Hot” performance**
 - ✓ → AEO & OEI
 - Take-Off & Landing HIGE 20,000 ft
- ✓ **Unrivalled versatility**
 - Many cabin configurations to cope with all civil missions
 - “Quick role change” of the cabin
- ✓ **Highest safety level:**
 - 360° approach thanks to Fenestron
 - Optimized cockpit’s Human Machine Interface
 - the best engine power to weight ratios AEO & OEI
 - Multiple redundancies
- ✓ **Best value for money**
 - High reliability & availability based on experience
 - Optimized logistics footprint
 - Efficient, whatever the mission



AIRBUS

When the best of ruggedness meets the best of technology

