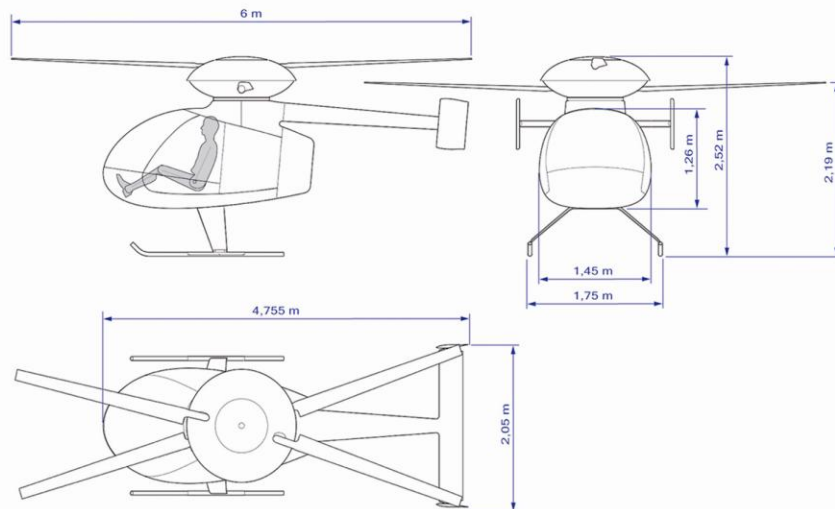# SAGITA
Helicopters

The **SHERPA** is a two seater ULM[1] helicopter designed according to EASA-VLR[2].

[1] «Ultra Léger Motorisé» - Ultra Ligth   [2] Very Light Rotorcraft Design Rules

Empty weight	260 kg	575 lb
Max ULM take off weight	450 kg	1000 lb
Useful load	171 kg	378 lb
Fuel capacity	85 L	22 US gal
Max T.O. power	100 kW	130 HP
Max level speed	185 km/h	100 kt
Cruise speed	158 km/h	85 kt
Howerceiling O.G.E	2000m	6800 ft
Range	400 km	215 NM
Endurance		3 hours

Expected performance will be confirmed after test flights.

6 m

1,26 m   2,52 m   2,19 m

1,45 m
1,75 m

4,755 m   2,05 m

Features

TDR rotor drive system
(patent N° EP1990275)
Monolame [R] landing gear
(registered model)
Carbon Epoxy fuselage
No tail rotor
Carbon Epoxy composite blades
Rigid contrarotating coaxial rotor

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How does it work ?

The engine drives a **compressor** that takes in air at the rear of the fuselage.

Part of the compressed air feeds the engine, the balance bypasses the engine, collects the heat of the cooling system and is eventually mixed with the engine's exhaust gases in order to raise the temperature to 100°C (212 °F) .

The hot compressed **air is** then sent to the rotor and **expanded in two contra-rotating** Ljungström type **turbines**.

Each of these turbines **drives directly** one of the two **contra-rotating coaxial rotors**. The air exits the turbine through a circumferential gap between the two rotors.

The transmission system requires no lubrication, no cooling and no tail rotor drive. Its **efficiency is about 85%**.

Flight safety : no tail rotor and capacity to overspeed the rotor in order to reduce the «dead man zone».

Reduced maintenance due to less moving parts

More direct flight control with the rigid rotor blades, less CG sensitive

Faired hub and advancing blade on each side for **high speed flight**

The compressor increases the engine power at **high altitude**

In partnership with

RÉGION WALLONNE

GDTECH engineering

Dimma DESIGN

JD'C INNOVATION

ULg UNIVERSITÉ de Liège

ULB

Wan

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