

DRONEFORGE



MGT
europe

Unit 12
Hamilton Business Park
Stirling Way
Borehamwood
WD6 2FR

Tel: +44 208 207 0079

Fax: +44 208 953 9162

Mbl: +44 7770 390 324

Eml: mgteurope@aol.com
info@mgteurope.com

Web: mgteurope.com

1 TECHNICAL DESCRIPTION OF THE DRONE

The drone is characterised by a reticular airframe, completely realised by full carbon fiber tubes and plates. This airframe has been completely designed and calculated by our technical office, having the following technical specifications:

- damping of the vibration frequencies of the engines: in order to reduce the influence on the sensors transported;
- low request for maintenance: fixing of the components using mechanical joints instead of screws;
- low influence of the wind during the flight: due to a very low lateral shape;
- lightweight: with the aim to reach higher time of flight and dynamic performances;
- high power / weight ratio: use of very powerful engines towards the light weight of the ready-to-fly machine, in order to reach a very high control authority in presence of wind;
- high adaptability to various commercial components;
- ability to land and take off from slopped surfaces (up to 30° from the horizontal level), in manual flight control, with a dedicated configuration of the drone;
- design, construction of the components, assembling and test completely realised in our own head office;
- possibility to make the drone rain proof upon request from the customer.

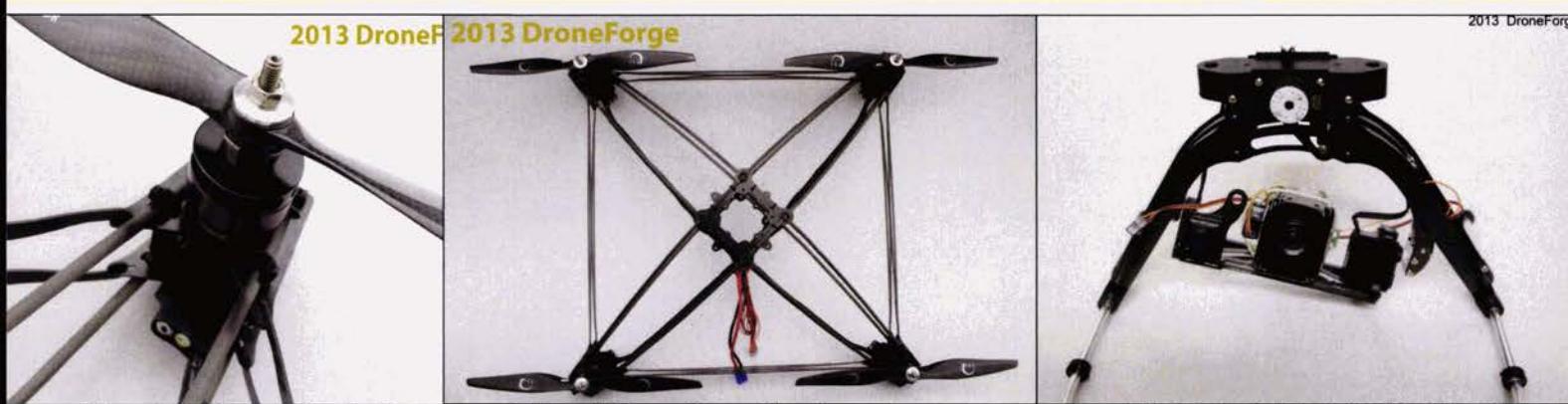


Figure 2 - Engine mounting detail

Figure 3 - Drone airframe with engines and props

Figure 4 - Mechanical and electronic interface of the payload

Airframe	Carbon fiber reticular airframe	
Plant dimensions of the drone	600	mm (between two farrest engines)
Height of the drone	140	mm
Payload	260	g
Flight autonomy	30	min
Operating speed uphill	15	km/h
Horizontal speed uphill	25	km/h
Maximum spherical operating distance	1000	m

2 PAYLOAD DESCRIPTION

- Standardised mechanical and electrical interface for every payload;
- Easy, fast and precise changing of the payload on the drone by quick connectors and two screws.
- Automatic stabilization of the payload platform by using onboard electronic control (completely designed and developed by our technical office);

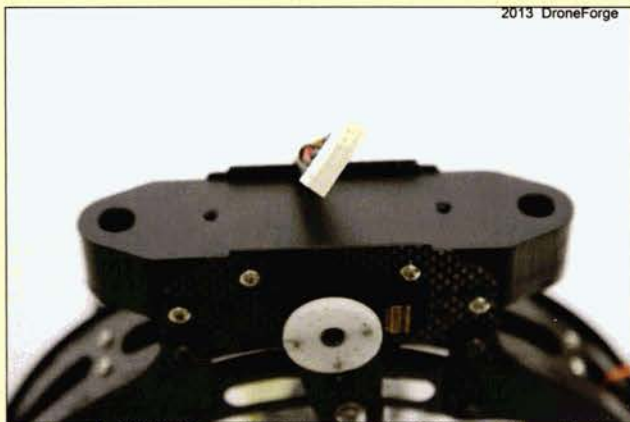


Figure 5 - Detail of the mechanical and electrical interface of the payload



Figure 6 - Payload stabilization during flight of the UAV



Figure 7 - Payload stabilization during flight of the UAV

- Completely removable pitch and roll payload: the yaw control is realised rotating the UAV;
- Pitch and roll movements completely driven on bearings;
- Full carbon fiber and aluminium construction;
- Built-in landing gear;
- Regulation capability of the mounting position of the transported sensors on the payload platform;
- Design, construction, assembling and testing are all realised in our head office.

3 GROUND FLIGHT CONTROL DESCRIPTION

- Waypoint navigation using ground station such as tablets or pc;
- High ease of piloting due to the electronic features;
- Ground station for the implementation and control of the flight based on 2.4 GHz router;
- GPS Position hold (Return to home functions, fail safe RTH);
- Auto take off / landing;
- Follow me function;
- Target circling;
- Real time flight status;
- iPhone/Android/Tablet/Laptop ground station control;
- Low voltage alarm via phone/tablet;
- Set max flying speed (3.6, 4.8, 6, 8, 10.2 meter/sec).



Figure 8 - UAV detail in flight

4 GROUND SENSOR CONTROL DESCRIPTION

- Zoom in / zoom out control;
- On demand optical stabilization;
- On demand black and white function;



Figure 9 - Pitch control during the flight of the UAV



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