

Electric Glider Powered by Nidec BLDC Motor Wins F5B World Championship -13th F5B Electric Flight World Championships-

Nidec Corporation is pleased to announce that an electric glider powered by Nidec brushless DC motor (“BLDCM”) won the 2010 F5B Electric Flight World Championships that took place in Muncie, Indiana, USA, from August 19 through August 25, 2010.

The F5B World Championship is held biennially and competed for between the world’s best pilots and teams. The 2010 contest-winning glider was flown by an Italian team pilot Mr. Frattini Remo, who ranked first among 37 contenders, and became the first BLDCM-equipped model glider to win the world title in the F5B class.

In the 2010 contest, Mr. Remo and three Japanese contestants used Nidec’s high-performance BLDCMs designed by Nidec Motor Engineering Research Laboratory. Nidec started providing Mr. Remo with its BLDCMs two years ago in response to his personal request. Since then, Nidec has strived to enhance its BLDCMs for model aircraft through stringent performance tests and countless joint trial flights with many world-class players. The 2010 World Championship title came as the result of a superb combination of Mr. Remo’s extraordinary flying techniques and Nidec’s evolving BLDCM technology.



Mr. Remo and Nidec BLDCM

Nidec’s continued engagement in this application area is intended to provide a new and broader platform for the development of smaller, higher-performing and more energy-efficient motors that would also contribute to the reduction of the world’s energy consumption.

About F5B Contest

“F5B” is a type of remote control electric model aircraft contest equivalent to the Formula one of auto racing in model airplane competition. Competitors score points across a combination of Distance Task and Duration/Landing Task. These tasks are executed without interruption in one flight.

Distance Task

After being hand launched, a motor-powered model glider climbs to altitude and then glides as many legs as possible without motor assistance between 2 pylons 150 meters apart (see Figure 1). Peak gliding speed often reaches 400 km/h. This task must be completed within 200 seconds from the moment the model aircraft is hand launched. The motor can be used to climb back up to 10 times during the task, but all legs must be completed with the motor off. Each completed leg scores 10 points.

Duration/Landing Task

At the end of the Distance Task, the model glider is required to fly for an additional 600 seconds (10 minutes) without motor assistance. Each second of unpowered flight scores 1 point. Additional points are awarded for landing. The landing target is a series of three concentric circles at 10, 20 and 30 meters on center. 30 points are awarded for landing in the 10 meter circle, 20 for the 20m circle and 10 for the 30m circle (see Figure 1).

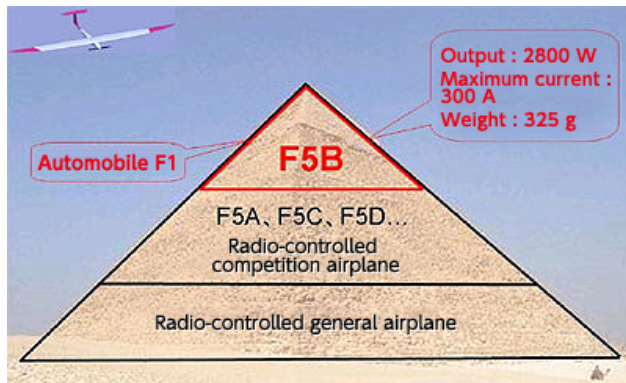


Figure 1

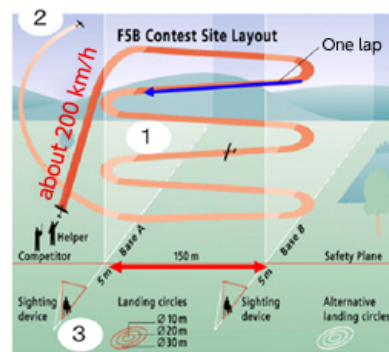


Figure 2

- 1 Distance Tasks**
Count how many round trips are made across a distance of 150 meters, over 200 seconds. Count travel from Base A to Base B (or Base B to Base A) as one lap, with ten points per lap. The plane can climb up to ten times.
- 2 Airborne Tasks**
After the distance tasks are complete, count one point for each second in the air, for a maximum of ten minutes.
- 3 Designated Landing**
Bonus points awarded for landing within a diameter of 10, 20, or 30 meters from a designated point

About F5B Motor

The contest-winning model glider has a wingspan of 2m, but weighs only 2kg. The motor must be less than 39mm in diameter, 100mm in length and, in terms of proper weight distribution, must weigh no more than 325g to fit into the body of the glider. Despite these restrictions, Nidec BLDCM boasts an excellent power-to-weight ratio of 8kW/kg, surpassing 6kW/kg for a typical Formula one (F1) engine.

Nidec's R&D initiatives in this field represent the company's ceaseless quest for the ultimate form of motor drive technology.



Figure 3
Nidec BDCM and
Electronic Circuit Unit



Figure 4
2010 Champion model
incorporating Nidec BDCM