

⚠ These operating instructions are an integral part of the product. They contain important information and safety notes, and should be kept in a safe place at all times. Be sure to pass them on to the new owner if you ever dispose of the product..

1. INTRODUCTION

The DF69 ducted fan unit represents a simple method of getting started in electric ducted fan model flying. It's high performance makes it an ideal choice for use in medium to fast model jets weighing about 700 to 1300 g. The removable intake ring enables the ducted fan to be installed inside the model or mounted externally; at external mounting, it improves the unit's efficiency.

The rotor of the DF69 is dynamically balanced at the factory, which means that you can install and use it immediately after purchase; the difficult task of balancing the rotor is not required.

2. SPECIFICATION

Type:	DF69 Impeller Unit
#	33 2560
Rotor Ø:	69 mm
Length incl. / excl. annular intake lip:	approx. 65 / 59 mm
Jacket O.D.:	approx. 73 mm
O.D. incl. intake lip:	approx. 94 mm
Weight:	approx. 72 g
No. of rotor blades / stator blades:	5 / 4
Max. rotational speed:	46,000 rpm
Suitable for motors	
with max. diameter:	28 mm
with mounting hole circle / screws:	16 mm Ø / 2 x M3
with shaft diameter:	4 mm

Typical operating data with recommended motor

Himax A 2825-3600	# 33 3042
Battery:	3S LiPo
Current drain:	approx. 35.0 A
Input power:	approx. 350 Watts
Thrust:	approx. 820 g

If you couple the recommended Himax A 2825-3600 motor with the DF69 impeller, do not use more than 3S LiPo or 9 NiXX cells!

Recommended flight batteries:

MULTIPLEX Li-BATT BX 3/2500	# 15 7191
MULTIPLEX Li-BATT BX 3/3200	# 15 7136

Replacement parts for the DF69 impeller:

DF69 RTR impeller with Himax A 2825-3600	# 33 2570
DF69 case with intake ring	# 33 2561
Rotor and spinner	# 33 2562
Driver with accessories	# 33 2563

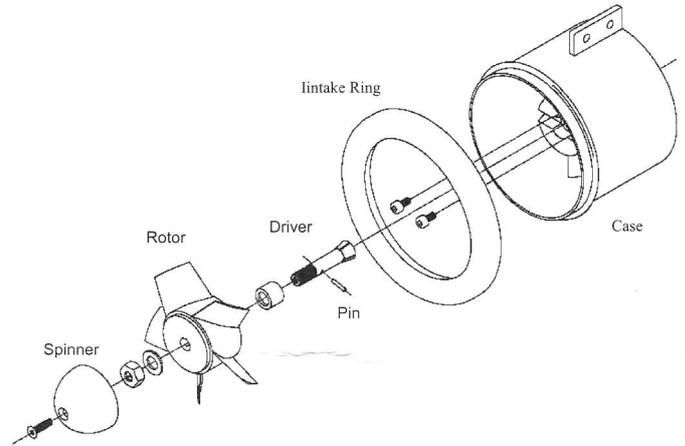
3. SAFETY NOTES

The DF69 ducted fan unit is designed exclusively for use in modelling. Improper or incompetent usage may result in very serious personal injury.

- Read the instructions before initiation
- You should also read the instructions supplied with the motor you intend to install in the impeller
- Before running the unit, remove all loose, lightweight objects from the area around the ducted fan's intake, as these could be ingested and wreck the impeller. Do not run the unit with the model standing on grass
- Keep your clothing and your extremities (fingers etc.) well clear of the rotor when it is spinning
- Do not stand in front of the ducted fan unit when it is running, nor in line with it

- Switch the motor off immediately if you detect vibration, and eliminate the cause of the problem before running it again. You may need to carry out the measures described under Initiation Of The DF69 Impeller.
- Never exceed the impeller's stated maximum rotational speed
- Ensure that the motor is adequately cooled, and do not obstruct air circulation around the unit

4. ASSEMBLING THE DF69 IMPELLER



1. Fit the motor into the impeller housing from the rear, and secure it with the M3 x 6 screws supplied
→ if the motor is a slightly loose fit, you may need to apply adhesive tape round the case to thicken it. This should ensure that it is a snug fit in the motor mounting, and is accurately centred
2. Slip the driver onto the motor shaft, then fit the collar over the driver
3. Insert the small pin in the transverse hole in the driver, then fit the rotor on the driver, engaging the pin in the slot in the rotor
4. Fit the washer, and tighten the nut to secure the rotor
→ **At this early stage check that the rotor / driver assembly spins freely. The fan must not foul or scrape on the impeller housing or on any part of the motor mounting**
5. Fix the spinner to the driver using the countersunk machine screw. Slide the annular intake lip onto the impeller housing, and secure it

5. INITIATION OF THE DF69 IMPELLER

Before installing the DF69 ducted fan unit in the model you should check for any signs of imbalance: connect the brushless speed controller to the motor, program the controller to "soft" motor start, and switch the motor brake off. Check the direction of rotation of the fan: it must spin clockwise when seen from the tail of the model, looking forward.

- Increase rotor speed steadily, and check that the impeller runs without vibration over the full speed range
- If you detect vibration, switch the motor off immediately and disconnect the battery from the speed controller. Remove the spinner and replace it offset by around 45° relative to the rotor. Repeat the procedure until the unit runs without detectable vibration
- If you cannot eliminate the vibration by re-positioning the spinner, remove the spinner again, and this time rotate the driver by about 45° relative to the motor shaft; repeat this procedure until the vibration is eliminated
- Now fit the spinner again using the countersunk screw, and check that the fan still runs without vibration. If the problem still recurs, switch the motor off and disconnect the battery from the speed controller. Shift the spinner by around 45° relative to the rotor once more, and repeat this procedure until the unit spins without detectable vibration

The DF69 ducted fan unit is only capable of generating its full performance if it runs totally devoid of vibration!

Now install the complete ducted fan unit in your model, together with the speed controller, and ensure that there is adequate cooling for the motor, controller, and battery.