

DUC SWIRL PROPELLER

CARACTERISTICS

PROPELLERS :



This propeller is available in :

- § Two-bladed,
- § Three-bladed.

Diameter :

1400 à 1745 mm.

Weight :

Two-bladed STD:	2.680 kg
Three-bladed STD:	3.520 kg
Two-bladed INCONEL:	2.740 kg
Three-bladed INCONEL:	3.610 kg

HUB :



The hub used is a carbon hub identical to DUC FC WINDSPOON propeller, made out of **FORGED CARBON PROCESS** which makes it possible to obtain exceptional mechanical resistances

This propeller was studied to have an « [constant speed](#) » effect. The blades are manufactured with part of carbon plies and their design was carried out to obtain maximum strains in [torsion](#) and [inflection](#). It's why the constant speed effect is not dependent on the blade distortion but on its geometry and its particular profile.

Because of the extra flat profile and a small cord, we obtain an excellent output as well:

- § In performance,
- § In noise,
- § In consumption.



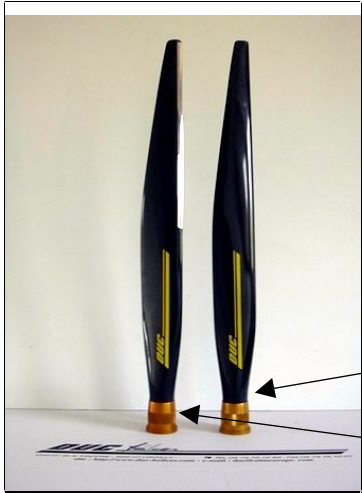
ADVANTAGES

Thanks to the « constant speed » effect, we have very little variation of the RPM engine between static and dynamic.

This propeller makes it possible to have more performances on the whole of flight to knowing :

- § Better effectiveness on the takeoff and in rates of rise due to the engine speed more raised
- § much lengthening-piece in cruising,
- § A great comfort of use.

TYPE OF BLADE



SWIRL STANDARD and INCONEL blades

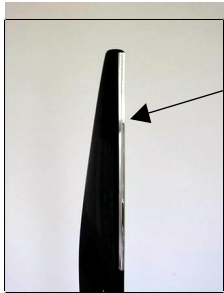
The SWIRL blade is available in two versions :

- § The STANDARD SWIRL BLADE,
- § The INCONEL SWIRL BLADE.

SWIRL STANDARD

SWIRL INCONEL

The **INCONEL SWIRL Blade** has the characteristic to be to protect on the level from the leading edge with an Inconel reinforcement. INCONEL is refractory stainless with a very high hardness of surface.



INCONEL reinforcement



APPLICATIONS

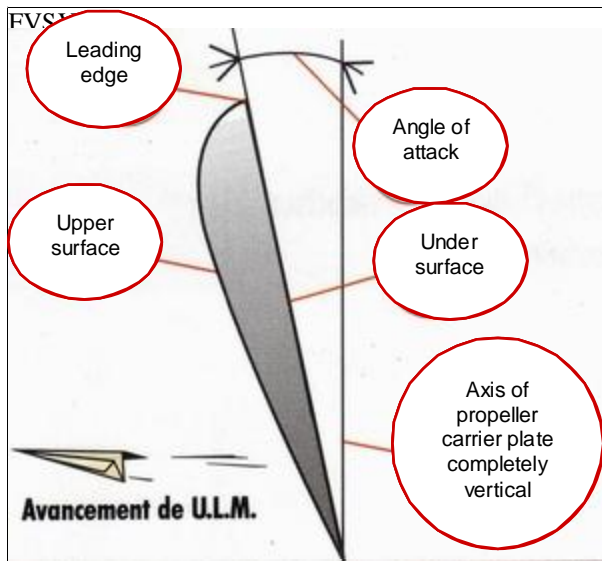
Engine	type	Reducer	Recommended system	Blade diameter
3 TRACTIVE AXES				
ROTAX 912	4 strokes	2.27	Three-bladed RIGHT tractive SWIRL	∅ STANDARD
ROTAX 912 S	4 strokes	2.48	Three-bladed RIGHT tractive SWIRL	∅ STANDARD
ROTAX 503 / 582	4 strokes	2.58 / 2.62	Two-bladed LEFT tractive SWIRL	∅ STANDARD
ROTAX 503 / 582	2 strokes	3	Three-bladed LEFT tractive SWIRL	∅ STANDARD
JABIRU 2200	4 strokes	-	Two-bladed RIGHT tractive SWIRL	∅ 1620 mm *
JABIRU 3300	4 strokes	-	Three-bladed RIGHT tractive SWIRL	∅ 1520 mm *
VOLKSWAGEN	4 strokes	-	Two-bladed RIGHT tractive SWIRL or LEFT according to adaptaion of the engine	∅ 1620 mm *
3 PROPULING AXES				
ROTAX 912	4 strokes	2.27	Three-bladed LEFT propelling SWIRL	∅ STANDARD
ROTAX 912 S	4 strokes	2.48	Three-bladed LEFT propelling SWIRL	∅ STANDARD
ROTAX 503 / 582	2 strokes	2.58 / 2.62	Two-bladed RIGHT propelling SWIRL	∅ STANDARD
ROTAX 503 / 582	2 strokes	3	Three-bladed RIGHT propelling SWIRL	∅ STANDARD
JABIRU 2200	4 strokes	-	Two-bladed LEFT propelling SWIRL	∅ 1620 mm *
VOLKSWAGEN	4 strokes	-	Three-bladed RIGHT propelling SWIRL or LEFT according to adaptation of the engine	∅ 1620 mm *
PENDULARS				
ROTAX 503 / 582	2 strokes	2.58	Two-bladed RIGHT propelling SWIRL	∅ STANDARD

* For the very fast machines (speed higher than 200 km/h) we advise a 2 blade right tractive propeller with a reduction of the diameter according to the smoothness and the speed of the apparatus

ADJUSTMENT

ANGLE OF ATTACK :

The values which follow are theoretical values and the number RPM engine in statics must be checked.

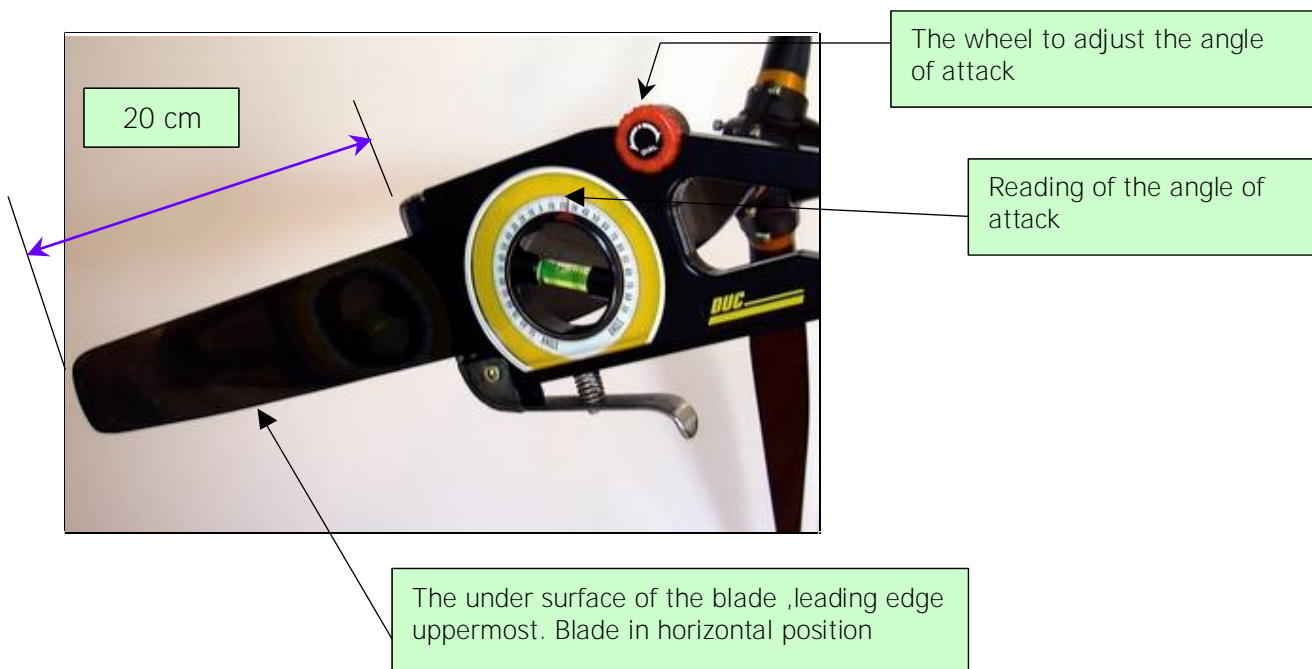


TWO-BLADED		
JABIRU 2200	/	17°
VW	/	17°
503	2.58	16°
582	2.58	18°
503	2.62	18°
582	2.62	20°

THREE-BLADED		
912	/	20°
912 S	/	24°
503	2.62	13°
582	2.62	15°
503	3	15°
582	3	17°

The chock is carried out with the tool for adjustment plated on the under-surface (leading edge in top) to 20 cm of the blade tip. The angle of attack is formed by the vertical and the leading edge of the blade. For this, place your ULM so that the carries – propeller plate is perfectly vertical.

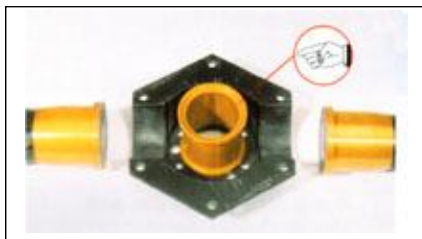
ADJUSTMENT :



ASSEMBLY AND ADSUTEMENT

Upon receipt of your package, make sure that all the parts are included !

- § Blades
- § 1/2 hub
- § spacer
- § Bolts (short and long)
- § Nuts and washers



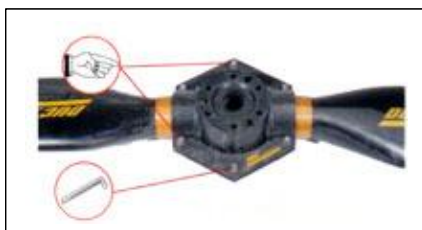
- § Place one of the half hub on a table.
- § Put the spacer in the center of the half hub.



- § Put the 2 or 3 blades in their slots.
- § Make sure that the DUC logo is facing you.



- § Put the 2nd half hub over the assembly.



- § From the back of the hub insert the 6 assembly bolts.
- § Put on the assembly nuts and do up moderately.



- § If assembling the propeller spinner, include the support plate.



§ Be careful you get the washers in the correct order.



§ Put the propeller on the reducer, do up moderately.



§ Position your microlight so that the propeller carrier plate is completely vertical.
§ Measure this with the leveler on the adjusting tool.



§ Unscrew the assembly bolts enough to enable you to turn each blade easily in its slot.



§ Mettre la première pale à l'horizontale.



§ Take the adjusting tool in your hand, press the lever, put the tool right at the end of the Windspoon.
§ Make sure that the tool is flat and steady against the inside skin of the blade, leading edge uppermost.
§ Turn the wheel with your thumb to adjust the angle of attack.



§ Hold the foot of the blade and turn slowly until the bubble of the tool is completely in the middle and level.

Tightening
2.5 Kg/m
25 Nm

The tightening of the bolts on the propeller is carried out in 2 stages :

- § 1st tighten the bolts moderately,
- § 2nd tighten with a torque spanner.

Attention
Retighten your propeller after 1 hour of use.

Essais	
<p>Les essais sont importants. Il est normal de devoir faire plusieurs réglages successifs en alternant essais au sols et en vols.</p>	<p>Vérifier que les pales soient correctement orientées, que tous les boulons soient correctement serrés aux valeurs recommandées.</p>
au SOL	en VOL
<p>Immobiliser votre appareil, freins bloqués, et avec une personne pour assurer qu'il ne puisse bouger. Respecter les recommandations du constructeur concernat la sécurité.</p> <p>Mettre le moteur en marche, laisser chauffer</p> <p>GAZA FOND le régime moteur doit se situer au moins à 85% du régime moteur maximal préconisé en vol par le constructeur.</p> <p>Si ce n'est pas le cas, AJUSTER LES PALES</p>	<p>Vérifier tous les serrages.</p> <p>Décoller et vous mettre en vol horizontal stabilisé, vario à zéro.</p> <p>GAZA FOND le régime moteur maximal préconisé par le constructeur doit être atteint, MAIS PAS DEPASSE.</p> <p>Si ce n'est pas le cas, AJUSTER LES PALES</p>
<p>Pression atmosphérique <input style="width: 50px;" type="text"/></p> <p>Température <input style="width: 50px;" type="text"/></p> <p>Humidité <input style="width: 50px;" type="text"/></p>	<p>Tours moteur au sol <input style="width: 50px;" type="text"/></p> <p>Tours moteur en vol <input style="width: 50px;" type="text"/></p> <p>Date <input style="width: 50px;" type="text"/></p>

If you note anomalies of assembly or operation, not undertake flight and contact immediately the DUC-HELICES company.

The accessories of assembly and the DUC propeller must be assembled in accordance with the technical notes of the DUC company.

The non-observance of these data would release from any responsibility the DUC company.