



## 0.2 LIST OF EFFECTIVE PAGES

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## 1.4 Descriptive data

### 1.4.1 Airplane description

WT-9 Dynamic Club S is low-wing monoplane with fixed landing gear. The airframe consists of a sandwich shells from advanced composite material. There are two places in the cockpit, side by side type. This aircraft is intended for sporting, recreation and tourist flying in accordance with VFR.

WT-9 Dynamic Club S has been approved by the DaeC in the Category of Airworthiness : Normal

As the power plant this aircraft uses the 4 cylimder, 4 stroke ROTAX engines, 912 S2. Propellers: This plane is fitted with 3 bladed in-flight electrically adjustable propeller and the following type and model is approved: Woodcomp SR 2000 D.

### 1.4.2 Technical data

|                                     |                     |
|-------------------------------------|---------------------|
| Wing span.....                      | 9,00 m              |
| Wing area.....                      | 10,3 m <sup>2</sup> |
| Wing aspect ratio.....              | 7,82                |
| Length.....                         | 6,4 m               |
| Height.....                         | 2,0 m               |
| Aerodynamic mean chord ( MAC )..... | 1,185 m             |

#### Control surfaces

|                           |                      |
|---------------------------|----------------------|
| Aileron span.....         | 1,25 m               |
| Aileron area.....         | 0,273 m <sup>2</sup> |
| Flap span.....            | 2,28 m               |
| Flap area.....            | 0,75 m <sup>2</sup>  |
| Horizontal tail span..... | 2,40 m               |
| Horizontal tail area..... | 1,68 m <sup>2</sup>  |
| Vertical tail span.....   | 1,022 m              |
| Vertical tail area.....   | 1,02 m <sup>2</sup>  |

#### Landing gear

|                          |        |
|--------------------------|--------|
| Wheel spacing.....       | 1,49 m |
| Wheel base.....          | 2,27 m |
| Main wheel diameter..... | 0,35 m |
| Nose wheel diameter..... | 0,32 m |

#### Weights

|                              |          |
|------------------------------|----------|
| Empty weight .....           | kg       |
| Maximum take-off weight..... | 472,5 kg |
| Useful load.....             | kg       |

|                          |        |
|--------------------------|--------|
| Fuel tanks capacity..... | litres |
|--------------------------|--------|

The ROTAX 912 S2( 73 kW ) has a maximum rpm limitation on take off of 5800 1/min. The Woodcomp SR 2000 D. Propeller diameter is 1,7 m.

## 2.7 Weight

|  |          |
|--|----------|
| Empty weight .....                         | kg       |
| Maximum take-off weight.....               | 472,5 kg |
| Maximum landing weight .....               | 472,5 kg |
| Useful load .....                          | kg       |
| Maximum fuel weight .....                  | kg       |
| Maximum weight in Baggage Compartment..... | 10 kg    |

**WARNING**

Maintain maximum take off weight 472,5 kg

Depending on different countries rules

## 2.8 Centre of gravity

Position of C.G.:

Empty airplane..... $12 \pm 2\%$  MAC

Position of C.G. in flight..... $20 \div 30\%$  MAC

Rear centre of gravity limit is valid for en-route weight at maximum crew weight.

Forward centre of gravity limit is valid for minimum pilot weight 70 kg and minimum capacity of the fuel tanks. Example to check the centre of gravity position is in Sect. 6.

## 2.9 Approved manoeuvres

WT-9 Dynamic Club S is certified in the Normal Category. The following manoeuvres are permitted:

- **Steep turns with the angle of bank up to 60°** - appropriate entry speed is **140** km/h.
- **Lazy eighths** - appropriate entry speed is **140** km/h.
- **Combat turns** - appropriate entry speed is **200** km/h.

**WARNING**

Aerobatic manoeuvres and intentional spins are prohibited!

|   | Left tank (1) | Right tank (1) |
|---|---------------|----------------|
| The total quantity of fuel in the tank        |               |                |
| Unusable fuel in the tank                     |               |                |
| The total usable quantity of fuel in the tank |               |                |

#### 2.14 Maximum passenger seating

The maximum number of passenger aboard is one passenger sitting in the right seat in the cockpit.

#### 2.15 Other limitations

The maximum demonstrated crosswind velocity for take-off and landing is **12,4 m/s (24 knots)**.

**NO SMOKING** on board the ultralight aircraft.

Maximum towing cable load is 3.000 N. If the strength of tow cable is more than 3000 N a weak link must be used.

Maximum weight of towed glider is 750 kg.

Maximum weight of towing aircraft by 1 pilot occupation is 440 kg.

#### 2.16 Limitations placards

| Airspeed IAS                 |          |            |            |            |
|------------------------------|----------|------------|------------|------------|
|                              |          | km/h       | MPH        | knots      |
| Never Exceed speed           | $V_{NE}$ | <b>280</b> | <b>174</b> | <b>150</b> |
| Normal Operating Limit speed | $V_{NO}$ | <b>250</b> | <b>156</b> | <b>135</b> |
| Rough Air speed              | $V_{RA}$ | <b>230</b> | <b>143</b> | <b>124</b> |
| Manoeuvring speed            | $V_A$    | <b>165</b> | <b>103</b> | <b>88</b>  |
| Maximum Flap Extended speed  | $V_{FE}$ | <b>140</b> | <b>88</b>  | <b>75</b>  |

**Aerobatics, intentional spins and stalls are prohibited!**

**IFR flights and flights in icing conditions are prohibited !**

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**4.5.12 After landing**

1. Engine speed - adjust throttle for taxiing
2. Wing flaps - retract
3. Elevator trim - set to rearmost position of neutral
4. Fuel pump - switched off
5. Taxiing - into the parking position

**4.5.13. Securing aeroplane**

1. All electronic instruments ( avionics ) - switch off
2. Propeller - set minimum pitch (take off position)
3. Throttle - idling turns
4. Ignition - switch off the first circuit and after 2-3 s switch off the second circuit
5. Master switch - switch off
6. Fuel cock - close in case of lengthy duration on the ground
7. Brakes - set on parking position, control lever secured
8. Rescue system - lock the control lever
9. After leaving the cockpit, the canopy should be covered with the cloth dust-cover, to avoid the effects of the sun.

**4.5.14 Take off and landing within crosswind**

Operation in direct crosswinds of 12,4 m/s (24 knots) has been demonstrated.

Take offs under strong crosswind conditions normally are performed with the minimum flap setting (position 0 or 1) necessary for the field length, to minimize the drift angle immediately after take off. With the ailerons partially deflected into the wind, the airplane is accelerated to a speed slightly higher than normal, then the elevator control is used to quickly, but carefully, lift the airplane off the ground and to prevent possible settling back to the runway while drifting. When clear of the ground, make a coordinated turn into the wind to correct for drift and continue in takeoff.

When landing in a strong crosswind, use the minimum flap setting (position 1 or 2 maximum, never position 3) required for the field length. Although the crab or combination method of drift correction may be used, the wing low method gives the best control.

After touchdown, hold a straight course with the steerable nose wheel, with aileron deflection as applicable, and occasional braking if necessary.

### 5.2.1 Stall speed

Weight 472,5 kg, C.G. in 25% MAC, idle engine speed

| Position wing flaps     | 0° | 15° | 38° |
|-------------------------|----|-----|-----|
| Stall speed IAS in km/h | 60 | 55  | 50  |
| Stall speed CAS in km/h | 72 | 70  | 65  |

### 5.2.2 Take-off performance

The data is valid for following conditions: H = 0 m MSL, Temperature t = 15 ° C  
Wing flaps position 15° and engine ROTAX 912 S2

| Surface of the runway | Take-off run distance ( m ) | Take-off distance up to 15m ( m ) |
|-----------------------|-----------------------------|-----------------------------------|
| Paved runway          | 75                          | 252                               |
| Non paved – grass     | 86                          | 264                               |

### 5.2.3 Landing distance

The data is valid for following conditions: H = 0 m MSL, Temperature t = 15 ° C  
Wing flaps position 35° , landing run is braked.

| Surface of the runway | Landing distance (m) |                            |
|-----------------------|----------------------|----------------------------|
|                       | from height 15 m     | Landing run distance ( m ) |
| Paved runway          | 267                  | 152                        |
| Non paved - grass     | 258                  | 144                        |

### 5.2.4 Climb performance

The data is valid for weight 472,5 kg , without flaps.  
Engine ROTAX 912 2S, speed 5500 r.p.m  
Propeller SR 2000 D

| Altitude (m) | Speed IAS km/h | Rate of climb m/s |
|--------------|----------------|-------------------|
| 0            | 120            | 6,2               |
| 1000         | 120            | 5,9               |
| 2000         | 120            | 5,2               |

The service ceiling is 5500 m for models equipped by engine ROTAX 912 S2 at the cruising power.



### 5.3 Additional information

#### 5.3.1 Cruise

The following graph shows the reached speeds depending on the engine speed and the fuel consumption.

#### Fuel consumption of the aeroplane WT-9 Dynamic Club S with engine ROTAX 912 S2, propeller SR 2000 D

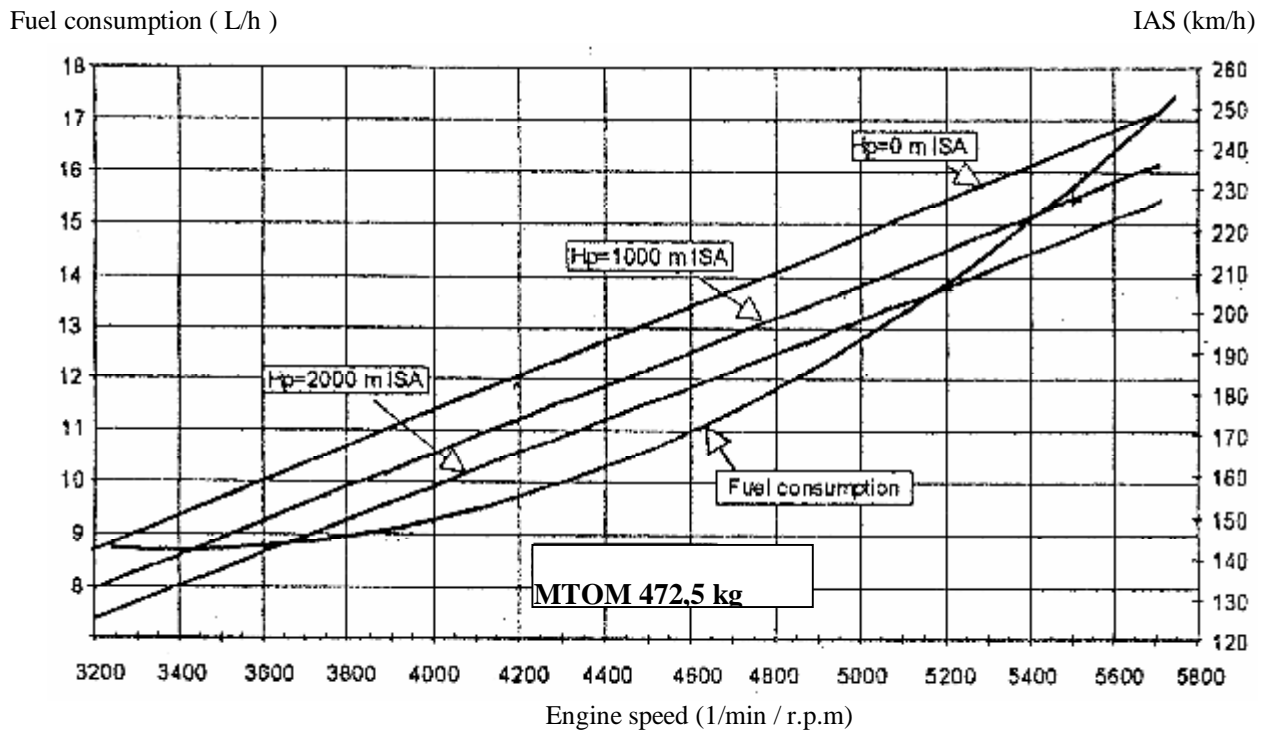


Fig. 8 Fuel consumption graph

#### 5.3.2 Endurance

The power requirement of propeller in the dependence of the airspeed has the quadrature running. The power consumption and also the fuel consumption increases with square of the airspeed. The flight altitude is another factor, which effects the fuel consumption, because the performance drop with increasing flight altitude. The minimum fuel consumption is at lift-over-drag maximum speed, which is 115 km/h. The minimum fuel consumption is at lift-over-drag maximum speed, which is 115 km/h. The good compromise for effective cruising performance is the airspeed range from 180 to 220 km/h.

The following table shows the fuel consumption for engine ROTAX 912 S2 with take-off performance 73,5 kW at different engine speeds. The propeller setting is not determined, due to flat running of the propeller curve optimum. The engine speed has greater effect in its upper section.

|                       |       |      |      |      |       |       |       |      |       |      |       |      |
|-----------------------|-------|------|------|------|-------|-------|-------|------|-------|------|-------|------|
| Engine speed          | 1/min | 5200 | 5150 | 5100 | 5050  | 5000  | 4900  | 4800 | 4700  | 4600 | 4500  | 4400 |
| Propeller blade angle | °     | 25°  | 24°  | 23°  | 22,5° | 21,9° | 21,5° | 21°  | 20,5° | 20°  | 19,5° | 19°  |
| Fuel consumption      | l/h   | 18   | 17,2 | 16,8 | 16,5  | 16,3  | 15,9  | 15,5 | 15,2  | 14,9 | 14,5  | 13,9 |
| Airspeed IAS          | km/h  | 250  | 245  | 242  | 240   | 238   | 235   | 232  | 230   | 228  | 225   | 220  |
| Endurance             | h     | 6,6  | 6,9  | 7,1  | 7,2   | 7,3   | 7,5   | 7,7  | 7,8   | 8,0  | 8,2   | 8,6  |
| Max. range            | km    | 1666 | 1700 | 1721 | 1736  | 1750  | 1773  | 1795 | 1811  | 1827 | 1851  | 1893 |

The table is valid for:

Flight altitude 1000 m MSA, take-off performance 73,5 kW, the total usable quantity of fuel in the tanks is 120 litres.

### 5.3.3 Balked landing climb

The data is valid for maximum landing weight 472,5 kg, wing flaps position 35°. Engine ROTAX 912 S2, engine speed 5500 r.p.m, Propeller SR 2000 D

| Flight altitude (m) | Airspeed IAS km/h | Rate of climb m/s |
|---------------------|-------------------|-------------------|
| 0                   | 115               | 4,7               |
| 1000                | 115               | 4,2               |
| 2000                | 115               | 3,6               |

### 5.3.4 Take-off measurements

The data is valid for following conditions: H = 0 m MSL, Temperature t = 15 °C  
Wing flaps position 15° and engine ROTAX 912 S2

| Surface of the runway | Take-off run distance ( m ) | Take-off distance up to 15m ( m ) |
|-----------------------|-----------------------------|-----------------------------------|
| Non paved - grass     | 86                          | 264                               |

### 5.3.5 Effect on flight performance and characteristics

No disturbing effects on flight performance and characteristic of the aeroplane WT-9 Dynamic Club S were recorded during the flight tests.

**5.3.6 Demonstrated crosswind performance**

The maximum demonstrated crosswind velocity for take-off and landing is **12,4 m/s (24 knots)**

**5.3.7 Noise data**

The maximum noise data 56,7 dB (A) was measured during the flight tests according to the German noise requirement LS – UL 96.