

2.4 Description / Technical data

The Breezer is a two-seat micro-light aircraft with a conventional aluminum stressed skin structure. It has been designed, built and certificated according to the Light Sport aircraft category, the German "Bauvorschriften für Ultraleichtflugzeuge (BFU 95)" and the LTF-UL, valid since 2003 (German airworthiness requirements for micro-light aircraft). It is a monoplane with a cruciform empennage arrangement, two side-by-side seats, tricycle landing gear and flaps. The Breezer is powered by a geared Rotax 912S carburettored engine and a 3-bladed Neuform propeller.

Technical data

Wing span	343 ¹¹ / ₁₆ in	(8.73 m)
Wing chord	53 ¹ / ₂ in	(1.36 m)
Wing area	127.8 sq ft	(11.87 m ²)
Wing aspect ratio	6.4	
Wing loading	51 kg/m ²	
Wing profile	NACA 4414 mod.	
Aileron area	12.16 sq ft	(1.13 m ²)
Flaps	12.27 sq ft	(1.14 m ²)
Length	265 ¹³ / ₁₆ in	(6.75 m)
Height	87 in	(2.21 m)
Cabin width	45 ¹ / ₂ in	(1.16 m)
Wheel track	79 in	(2.01 m)
Wheel base	65 ¹ / ₂ in	(1.65 m)
Nose wheel tire	4.00 - 4	
Tire pressure - nose-wheel	26 psi	(1.8 bar)
Main wheel tire	5.00 - 5	
Tire pressure - main wheel	32 psi	(2.2 bar)
MTOM	1320 lbs	(599 kg)
Fuel tank capacity	22,0 US Gal	(84 litres)

3 Airplane and System Descriptions

3.1 Engine

Engine manufacturer:	Bombardier-Rotax GmbH Motorenfabrik
Engine model:	912S (100 hp)
Description:	4-stroke, 4 cylinder horizontally opposed, spark ignition engine, one central camshaft – push-rods – OHV Liquid cooled cylinder heads Ram air cooled cylinders Dry sump forced lubrication Dual breakerless capacitor discharge ignition 2 constant depression carburetors Mechanical fuel pump Prop drive via reduction gear with integrated shock absorber and overload clutch Electric starter (12V 0,6 kW) Integrated AC generator with external rectifier-regulator (12V 20A DC)
Gear:	2.43 : 1
Maximum take-off rpm:	5800 rpm (max. 5 minutes)
Maximum continuous rpm:	5500 rpm
Idle speed:	ca. 1600 rpm
Take-off performance:	73,5 kW at 5800 rpm
Max. continuous	69 kW at 5500 rpm
Performance:	Limit of engine operation at zero gravity and in negative "g" conditions:
Acceleration:	max: 5 seconds at max. -0,5 g max. 7 bar; Attention: For a short period admissible at cold start. min. 0,8 bar (12 psi) (below 3500 rpm) normal: 2,0 - 5,0 bar (29 - 73 psi) (above 3500 rpm)
Oil pressure:	max. 130°C (266°F) min. 50°C (120°F) normal operating temperature: ca. 90-110°C (190-230°F)
Oil temperature:	max. 135°C (266°F) reading at the observation point of the hotter cylinder head, either no. 2 or no. 3.
Cylinder head temperature:	max. 50°C (120°F) min. -25°C (-13°F)
Engine start, operating temperature:	2.2 – 5.8 psi (0.15 - 0.4 bar) NOTE: Exceeding the max. admissible fuel pressure will override the float valve of the carburetor. The delivery pressure of an additional backing pump (e.g. electric standby pump) must not exceed 0,3 bar (4.4 psi) in order not to override the float valve.
Fuel pressure:	

More engine data are available in the Rotax operation manual supplied with the aircraft.

Lubrication

For detailed information on engine oil, refer to the engine manual supplied with the airplane.

Oil capacity (without oil cooler and connecting lines)

Maximum	3 l	(0,8 US gal)
Minimum	2 l	(0,5 US gal)
Amount of oil between min. and max.	0,45 l	(0,12 US gal)
Maximum consumption	0,06 l/h	(0,13 liq pt/h)

Oil viscosity

see Chapter 10 of the Rotax Operator's Manual
Use of multi-grade oil is recommended.

Oil pressure

Minimum	11.6 psi (0.8 bar) below 3500 rpm
Maximum	101.5 psi (7.0 bar) (briefly permissible during cold weather start)
Normal operating range	29 – 72.5 psi (2.0 - 5.0 bar)

For further information refer to the engine manual. The relevant instruments are accordingly marked with the appropriate limitations.

3.2 Propeller

Neuform, carbon fibre, three blade CR-75-47-101.6 (Rotax 912 S)

The standard propeller installed in this Breezer aircraft is ground-adjustable and is set by the aircraft manufacturer to ensure an optimum combination of climb and cruise performance. The noise emission measurements were carried out with the propeller thus set.

3.3 Fuel and fuel capacity

Fuel tank capacity: 22,0 US GAL / 84 litres

Usable fuel: 21,5 US GAL / 82 litres

Fuel grade: min. RON 95, AVGAS 100LL

For complete fuel specifications see the original Rotax Operator's Manual.

Note

- When filling up using canisters or if the origin of the fuel is not known, use a funnel with a water trap.

3.4 Oil

Oil:

Motorcycle oil of a registered brand with gear additives.
If using aircraft engine oil; then only blonded one.

Attention: At the selection of suitable lubricants refer to the additional information in the Service Information 18 UL 97.

Oil specification:

Use only oil with API classification "SF" or "SG"!
Due to the high stresses in the reduction gears, oil with gear additives such as high performance motor cycle oils are required.

Because of the incorporated friction clutch, oils with friction modifier additives are unsuitable as this could result in a slipping clutch during normal operation. Heavy duty 4-stroke motor cycle oils meet all the requirements. These oils are normally no mineral oils but semi- or full synthetic oils.

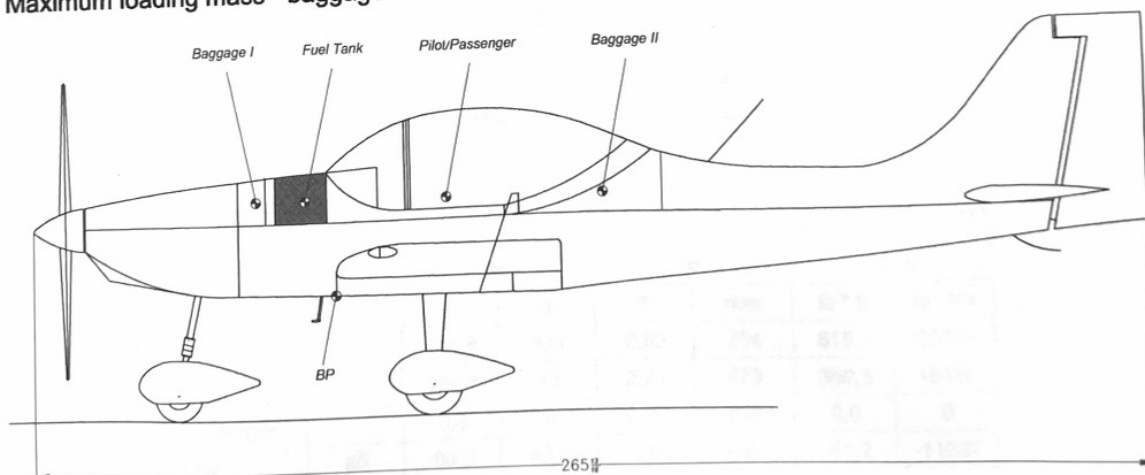
Oils primarily for Diesel engines are due to **insufficient high temperature properties and additives which favor clutch slipping, generally unsuitable.**

Attention: If the engine is mainly run on AVGAS more frequent oil changes will be required. See Service Information 18 UL 97.

3.5 Operating weights and loading (occupants, baggage, fuel, ballast)

Minimum load per seat:	159 lb	72 kg
Maximum weight per seat:	250 lb	113 kg
Empty weight (standard):	750 lb	340 kg

Maximum take-off mass (MTOM)	1320 lbs/ 599 kg
Maximum landing mass	1320 lbs/ 599 kg
Empty mass	cf. weighing sheet, Chap. VI
Maximum loading mass - baggage	44 lbs / 20 kg



The reference plain (BE) for all centre of gravity calculations is the canopy frame or the canopy guide rail. The reference datum (BP) is the wing leading edge.

Refer to Chapter 5.2 for more detailed information on the horizontal alignment of the aircraft and the permissible centre of gravity range.

Centre of gravity range:

Forward:	10.7 inches / 272 mm aft of reference point (BP) = 20% MAC
Rearward:	17.7 inches / 449 mm aft of reference point (BP) = 33% MAC

6 Performance

Introduction

The following performance data have been computed from actual flight tests with the aircraft and engine in good condition and corrected to ISA standard conditions (15°C, 1013.25 hPa at MSL) and a MTOW of 1320 lb.

Operations at higher temperatures and altitudes will reduce take-off and climb performance.

The take-off and landing distances have been determined for an asphalt runway.

The performance data may be reached with average piloting techniques and an aircraft in good condition.

6.1 Take off and landing distances

Ground roll	606 ft	(185 m)
• Rotax 912 S (100 hp)		

Total distance over 15 m obstacle	925 ft	(282 m)
• Rotax 912 S (100 hp)		
Rotating speed with 0° of flaps	46 mph	(40 kts)

6.2 Rate of climb

Best rate of climb
at V_y
at

767 ft/min	(3,9 m/s)
69 mph	(60 kts)
4900 RPM	+/- 100 RPM

6.3 Cruise speeds

Maximum cruising speed at 75 %:

115 mph	(100 kts)
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6.4 RPM

Take-off performance:

Max. continuous performance:

Min RPM before take-off:

Idle speed:

Maximum RPM (Redline):

Cruising flight RPM:

75 Percent cruise RPM:

912 ULS	
4800 RPM	
5500 RPM	
4700 RPM	
1400 RPM	
5800 RPM	(max. 5 min)
4200-5300 RPM	
5100 RPM	

6.5 Fuel consumption

Fuel consumption at take-off power:

Fuel consumption at cruising power:

Fuel consumption at 5500 RPM:

5,81 Gph	(22 l/h)
3,44 – 5,81 Gph	(13-22 l/h)
6,88 Gph	(26 l/h)

For more engine data, refer to the Rotax Operator's Manual supplied with the airplane.