

2.4 Power-plant, fuel and oil

Power-plant:

Engine manufacturer:	Austro Engine GmbH	
Engine:	IAE50R-AA	
Maximum power, take-off:	37.3 kW (for 3 Minutes)	
Maximum take-off revs:	7750 rpm	
Maximum power, continuous:	35.8 kW	
Maximum continuous revs:	7100 rpm	
Maximum overspeed revs:	8000 rpm (for 20 Sec)	
Minimum idle revs:	2800 rpm	
Maximum coolant temperature:	100°C	212°F
Maximum coolant temperature, take-off:	90°C	194°F
Minimum coolant temperature, take-off:	40°C	104°F
Maximum rotor cooling air temperature:	130°C	266 °F

NOTE: *The above stated take-off performance refers to the minimum value as given in the engine data sheet. A nominal performance of 41 kW is typical on the other hand.*

Gearing and Propeller:

Gearing:	Toothed belt transmission with 1:2.68 reduction ratio	
Propeller Manufacturer:	Alexander Schleicher GmbH & Co.	
Propeller:	AS 2 F1-5 / R153 – 88 – N1	

5.2.3 Take-off performance

The take-off performances given below are applicable to launches

- on hard runways or hard, level and short mown grass runways
- with the aircraft, propeller and engine in good condition
- with application of the self-launch procedure described in section 4.5.1
- and for the following conditions:

Airfield elevation	0 m NN
Temperature:	15°C (59°F)
Air Pressure:	1013 hPa
Take-off mass (with two pilots):	850 kg (1874 lbs)
Speed (V _{IAS}):	90 km/h 49 kts 56 mph

	Grass runway	Hard runway
Take off roll:	380 m 1247 ft	260 m 853 ft
Take-off distance to 15 m (50 ft) height:	585 m 1920 ft	465 m 1526 ft

The influence of air temperature and air pressure (airfield elevation) on take-off performance is given in the following take-off chart

CAUTION: *In rain (wet wings) or with frost or ice on the leading edges, the aerodynamic quality of the aircraft is drastically reduced. Take-off is prohibited! First, wing and tailplane must be cleaned!*

Tailwind, as well as an uphill runway, increase the take-off distances considerably. The possibility of abandoning the take-off must be considered, see also Section 4.5.1, point (3) Self-Launch.

Take-off Chart

The following chart gives values for take off roll and take-off distance to 15 m (50 ft) height related to various airfield elevations and temperatures.

Take-off mass 850kg (1874 lb)

Altitude m	Temperature °C	On hard surface		On grass	
		Take-off roll m	Take-off distance m	Take-off roll m	Take-off distance m
0	-15	193	346	253	405
0	0	225	403	310	487
0	15	260	465	379	584
0	30	298	533	466	700
500	-15	227	406	307	486
500	0	264	473	378	587
500	15	305	545	467	708
500	30	349	624	579	854
1000	-15	267	477	374	585
1000	0	310	555	466	710
1000	15	358	640	581	863
1000	30	409	732	730	1053
1500	-15	314	562	460	708
1500	0	365	653	578	866
1500	15	420	752	731	1063
1500	30	481	860	935	1314
2000	-15	370	662	571	862
2000	0	430	768	726	1065
2000	15	495	885	934	1324
2000	30	565	1011	1222	1667

Take-off mass 850 kg (1874 lb)

Altitude ft	Temperature °F	On hard surface		On grass	
		Take-off roll ft	Take-off distance ft	Take-off roll ft	Take-off distance ft
0	5	635	1135	798	1299
0	32	739	1322	971	1553
0	59	853	1526	1177	1850
0	86	977	1747	1427	2197
1500	5	735	1315	948	1527
1500	32	855	1530	1158	1832
1500	59	986	1764	1412	2190
1500	86	1129	2019	1724	2614
3000	5	852	1523	1130	1802
3000	32	991	1772	1388	2169
3000	59	1142	2042	1705	2606
3000	86	1306	2336	2100	3130
4500	5	988	1767	1355	2134
4500	32	1148	2054	1675	2580
4500	59	1323	2366	2075	3118
4500	86	1513	2706	2583	3776
6500	5	1206	2157	1739	2690
6500	32	1401	2505	2174	3279
6500	59	1613	2885	2732	4004
6500	86	1843	3297	3466	4919

CAUTION: For other runway surface conditions such as wet grass, soft ground, high grass, snow and water spots etc., which are not given in these charts, it is recommended to use the additional distance factors or percentages given in the AIP (Airport) Manual Volume 1!

If the cruise flight is done at $V_H = 135$ km/h (73 kts, 84 mph) and at 7100 rpm, a fuel consumption of 12 l/h (3.1 US Gal/h) gives a flight time of 66 minutes from a full fuselage tank. This provides a range of 150 km (81 Nm). A gain in altitude, which could be used for glide, is not obtained. Fuel to warm up the engine and for taxiing was not subtracted.

The current fuel consumption is indicated on the ILEC-LC Display as „fuel flow“. See Section 7.9 of this Flight Manual for additional information.

5.3.8 Noise Data

The noise emission measurements were carried out in accordance with ICAO Annex 16, Chapter 10 (Issue 6, July 2011). The determined noise levels are:

Take-off mass	Noise Level Kapitel 10	Limit Value: Kapitel 10.4b)
850 kg	66.5 dB (A)	76.2 dB (A)

Max. coolant temperature, take-off:	90 °C	194°F
Min. coolant temperature, take-off:	40 °C	104°F
Max coolant temperature, continuous:	100 °C	212°F
Max. rotor cooling air temp., take-off (3 minutes):	130 °C	266°F

NOTE: *The above specification of the take-off power relates to minimum value assigned in the engine specification. A value of 41 kW is typical.*

Lubrication: Total loss lubrication
Consumption ratio: approx: 1:60

Approved oil and fuel grades: see Flight Manual section 2.4

Transmission: Toothed belt with gearing ratio: 1:2.68

The installation of the following propeller is type-approved:

Manufacturer: Alexander Schleicher GmbH
Propeller: AS2F1-5/R153-88-N1

Masses (Weight)

Empty mass (minimum equipment)	approx. 570 kg	(1256 lbs)
max. mass non-lifting parts	550 kg	(1212 lbs)
max. mass in a seat	120 kg	(264 lbs)
max. mass in baggage compartment	9 kg	(20 lbs)
max. mass in tail battery compartment	10 kg	(22 lbs)
max. All-Up mass	850 kg	(1874 lbs)
max. wing loading	54 kg/m ²	(11.1 lbs/ft ²)
min. wing loading (single seated)	ca. 42 kg/m ²	(8.6 lbs/ft ²)

See also Flight Manual section 2.

Authoritative information about empty mass and useful load are documented in the latest weighing record or in the mass and balance form in chapter 6.2 of the flight manual.