

Europa NG





Contents

Contents	2
Europa Aircraft	4
History	4
The Europa NG.....	6
Aerobatic Manoeuvres	7
Load Factors.....	7
Engine and propeller	7
Operational Limits	7
Temperature (MOL).....	7
Altitude	7
Europa NG Monowheel	8
Dimensions	8
Weights and Loading	8
Performance	9
Europa NG Trigear	10
Dimensions	10
Weights and Loading	10
Performance	11
Europa NG - Build FAQ's	12
How long will my Europa take to Build?.....	12
How much space do I need to build my Europa NG?.....	12
Do I need any special skills to build the Europa NG?	12
Europa XS LWi (Motorglider).....	13
Dimensions	13
Weights and Loading	14
Performance	14
Europa NG / LWi - Basic description.....	16
Wing.....	16
Fuselage.....	16



Fuel Tank.....	16
Seats	16
Empennage.....	16
Flight surfaces and controls.....	16
Landing gear and brakes.....	17
Monowheel	17
Trigear	17
Finish Colours	17
Aircraft Equipment	18
Price	19
Full Kit.....	19
Staged Build.....	19
Quick Build Options	20
Exclusions	20
Factory Build Assist.....	20
Delivery.....	20
Commercial Section.....	20
Terms and Conditions.....	20
Payment Terms.....	20
Validity.....	21
Value Added Tax.....	21



Europa Aircraft

History

The story of Europa Aircraft began in the 1990s; born from a dream to build a small kitplane capable of quiet, comfortable, high speed, low cost touring. The basic concept was to produce an aircraft that made real flying affordable and possible – an aircraft that could:

- be built and be stored at home
- be easily transported on its own trailer
- operate on car fuel
- be rigged and ready for flight in under ten minutes
- carry two people in comfort
- provide sufficient baggage for extended touring
- take off and land on unprepared grass fields

The original model, the Europa Classic, achieved all of these objectives. It was easily capable of being rigged and de-rigged by a crew of two, road transportable for home storage on a purpose-built trailer, able to use short, unprepared grass runways with STOL performance, economical to operate, fast, cost effective, simple to construct, and easy to maintain and environmentally friendly.



The Europa Classic sold in hundreds, making a firm impression on the kit plane industry. On the 14th October 1995, the first Europa built by a home constructor was airborne.



The Europa Classic was by now a strong contender in the self build area, however it was the launch of the Europa XS that gained the company massive acclaim worldwide. The Europa XS was available in two versions – the Europa XS Monowheel and the Europa XS Trigear. The Europa XS is a later variant of the original design incorporating greater wing span and wash-out, pre-moulded composite sandwich skins and ribs for both wing and fin surfaces and ribs, an increase in maximum weight, an increase in V_{NE} , different engine installations, and a number of other changes. It featured a more streamlined cowling, extended tailwheel and enlarged baggage bay. These developments meant that the new Europa aircraft still fulfilled the original objectives, but now offered extra speed, extra range, extra baggage space and extra comfort. It was also designed to reduce the build time and maximise the pleasure of the build process – developments that were welcomed by builders and pilots.

The Europa XS was named one of the UK's Millennium Products. These products were chosen following a nationwide initiative run by the Design Council to identify and promote products and services demonstrating British business innovation. When the Prime Minister unveiled the products in London, he said “The Millennium Products chosen today show the range of creativity and innovation in this country. These are world-beating designs that will help improve the quality of our lives in the next century”

Most recently, Europa launched the Europa LW (Long Wing) for those pilots who like to fly with their engines switched off – most impressively, these longer wings can be interchanged with the wings on the Europa XS Monowheel and Trigear, providing even more choice for the Europa customer.



In the last twenty years, Europa Aircraft has grown to be one of the most successful British kit plane suppliers, with over 1000 kits sold, and Europas (Classic and XS models) flying at last count in 33 countries on 6 continents. It has a very enthusiastic, loyal and supportive team behind it and a huge following.

The Europa story is a great one and has a heritage that will continue to be built upon. The underlying mission, objectives and philosophies of Europa will never change, but Europa will continue to use innovation, new technology and feedback to ensure the Europa remains the number one composite kit plane of choice for self build enthusiasts and pilots throughout the world.

It is this process of innovation and feedback that led to the Europa NG.



The Europa NG

The Europa NG is a two-seat composite monoplane, typically cruising in the range of 120 to 140kts. It has a range and carrying capacity that makes it ideally suited to touring and has acquired the reputation of being an extremely enjoyable aircraft to fly. The aircraft is capable of day and night operations under VMC and IMC.



The Europa NG is a development of the Europa XS. The Europa NG differs from the XS by the introduction of pre-moulded flaps, ailerons, rudder and tailplanes and tabs. To provide cross fleet upgrades the NG tailplanes, tabs and rudder can be incorporated into a Classic and all NG pre-moulded parts could be incorporated into an XS and vice-versa.

All variants may be built either with a retractable monowheel or fixed tricycle undercarriage, or the monowheel version can be retrospectively converted to the tricycle undercarriage configuration. Although the fixed undercarriage imposes a slight drag penalty, fitting the optional speed kit minimises this effect resulting in only a very slight reduction in top speed compared to the Europa XS Monowheel.

The Monowheel was the first model of the Europa to emerge in 1995. With a single retractable wheel in the centre of the fuselage and retractable outriggers on each wing the overall drag of the aircraft is minimised and therefore you have the advantage of high speed with excellent fuel economy. While the central main wheel is common to the gliding fraternity the Monowheel may be unfamiliar to some pilots. This configuration has ground handling characteristics and a taxiing position different from aircraft with tricycle



undercarriages. As such people with gliding or “Tail Dragger” experience may find the conversion to the Monowheel easier

Compared to the standard certified training types in use around the world, it is faster, quicker in the climb, and far more economical to run. It is designed to be quickly de-rigged and stored on its trailer in a garage - feature that many builders take full advantage of.

The Europa NG has been designed to a recognised international standard, CS-VLA,

Aerobatic Manoeuvres

The Europa NG is not cleared for aerobatics. For aerobatics you will need the all new Europa Elite+.

Load Factors

Design
+3.80g / -1.90g

Engine and propeller

The Europa NG can be supplied with a number of different engines, although we currently only support those from Rotax. The Rotax engines currently range from 80 HP through to 115HP.

Operational Limits

Temperature (MOL)

The maximum operating limit is set at 54°C for the Europa NG. Further information is provided later on in this quotation.

Altitude

Operation ranges from sea level to 3,048 m (10 000 ft).



Europa NG Monowheel



Dimensions

	Imperial	Metric
Wing span (tip to tip)	27.133 ft	8.270 m
Wing span (inc tip influence)	26.917 ft	8.204 m
Wing area (inc tip influence)	102.11 ft ²	9.485 m ²
Aspect ratio (inc tip influence)	7.096	
Overall length	19.17 ft	5.843 m
Overall height	4.33 ft	1.320 m

Weights and Loading

	Imperial	Metric
Maximum take-off weight - Note 1	1370 lb	621.4 kg
Empty weight / Useful load (Rotax 912 UL) - Note 2	793 / 577 lb	360 / 261 kg
Empty weight / Useful load (Rotax 912 ULS) - Note 2	835 / 535 lb	379 / 242 kg
Empty weight / Useful load (Rotax 914 UL) - Note 2	878 / 492 lb	398 / 223 kg
Maximum baggage capacity	80 lb	36 kg

Notes:

1. *In certain countries the MTOW has been cleared to 1450 lbs (657.7 kgs) and therefore the useful load can be increased accordingly.*
2. *The empty weight is the average of a number of amateur built VFR aircraft.*



Performance

	kts	kph
Stall speed flaps extended	44	81
Stall speed clean	52	96
Cruise speed 8,000 ft 75 % pwr (Rotax 912 ULS) (TAS) - Monowheel	140	259
V_{NE} (IAS)	165	307
	fpm	m/s
Rate of climb at 1370 lb gross weight (Rotax 912 ULS)	1000	5.08
	Feet	Metres
Take-off ground roll at gross weight (Rotax 912 ULS)	590	180
Take-off ground roll at gross weight (Rotax 914 UL Turbo)	500	152
Landing roll	600	183
	USG	Litres
Maximum Fuel (Standard Tank)	18	68
	USG/hr	Litres/hr
Fuel Consumption at 55% power. Speed 95–100 kts @ SL (Rotax 912 UL)	2.65	10.02
Fuel Consumption at 55% power. Speed 103-108 kts @ SL (Rotax 912 ULS)	3.77	14.28
Rate of climb at 1370 lb gross weight (Rotax 914 UL Turbo)	1300	6.60
	nm	km
Standard Tank Range at 55% power (912 UL). Allows for 10 minutes at maximum TO power and 30 minute reserve	576.2	1067.2
	nm	km
Standard Tank Range at 55% power (912 ULS). Allows for 10 minutes at maximum TO power and 30 minute reserve	416.3	771.0

Please note performance may vary depending on propeller setting and standard of build.

The aircraft can be fitted with a long range fuel tank but unfortunately that option is not approved in the UK.



Europa NG Trigear



Dimensions

	Imperial	Metric
Wing Span (tip to tip)	27.133 ft	8.270
Wing Span (inc tip influence)	26.917 ft	8.204 m
Wing area (inc tip influence)	102.11 ft ²	9.485 m ²
Aspect Ratio	7.096	
Overall length	19.17 ft	5.843 m
Overall height	7.00 ft	2.133 m

Weights and Loading

	Imperial	Metric
Maximum take-off weight - Note 1	1370 lb	621.4 kg
Empty weight / Useful load (Rotax 912 UL) - Note 2	832 / 538 lb	377 / 244 kg
Empty weight / Useful load (Rotax 912 ULS) - Note 2	853 / 517 lb	387 / 234 kg
Empty weight / Useful load (Rotax 914 UL) - Note 2	897 / 473 lb	407 / 214 kg
Maximum baggage capacity	80 lb	36 kg



Notes:

1. In certain countries the MTOW can be increased to 1450 lbs (657.7 kgs) and therefore the useful load can be increased accordingly.
2. The empty weight is the average of a number of amateur built VFR aircraft.

Performance

	kts	kph
Stall speed flaps extended	44	81
Stall speed clean	52	96
Cruise speed 8,000 ft 75 % pwr (Rotax 912 ULS) (TAS)	135	250
V _{NE} (IAS)	165	307
	fpm	m/s
Rate of climb at 1370 lb gross weight (Rotax 912 ULS)	1000	5.08
	Feet	Metres
Take-off ground roll at gross weight (Rotax 912 ULS)	590	180
Take-off ground roll at gross weight (Rotax 914 UL Turbo)	500	152
Landing roll	600	183
	USG	Litres
Maximum Fuel (Standard Tank)	18	68
	USG/hr	Litres/hr
Fuel Consumption at 55% power. Speed 95–100 kts @ SL (Rotax 912 UL)	2.65	10.02
Fuel Consumption at 55% power. Speed 103-108 kts @ SL (Rotax 912 ULS)	3.77	14.28
Rate of climb at 1370 lb gross weight (Rotax 914 UL Turbo)	1300	6.60
	nm	km
Standard Tank Range at 55% power (912 UL). Allows for 10 minutes at maximum TO power and 30 minute reserve	576.2	1067.2
	nm	km
Standard Tank Range at 55% power (912 ULS). Allows for 10 minutes at maximum TO power and 30 minute reserve	416.3	771.0

Please note performance may vary depending on propeller setting and standard of build.



Europa NG - Build FAQ's

This FAQ's are based on regularly asked questions.

How long will my Europa take to Build?

The previous model to the Europa NG, the Europa XS took on average 800 man hours, with the quickest just under 400 hours. There were two recurring builder requests to reduce the build time, the first was to reduce the amount of composite or gluing work and the second was to increase the predrilling of pilot / positioning holes. In the design of the Europa NG we have done this. In every kit all the necessary holes for the attachment of any metal fixture to the composite structure are pre-drilled so you will have the confidence that everything is in the correct location. With the NG enhancements along with an accelerated build cockpit module we are confident you will **save 250 hours** on the build.

It is impossible to provide an actual time as it is dependent upon the skill and speed of the builder, the level of avionics and instrumentation, the paint and interior finish. Stopping and starting the build usually increases the build time as you are continually reminding yourself where you got to and what to do next. Using our Build Assist option will overcome this as you have periodic intensive sessions, meaning that you will progress faster

How much space do I need to build my Europa NG?

You can never have too much space to build!

A double garage is ideal, but components of the kit can be built in a single garage of 18' by 8'. Once you need to attach the wings, you will need at least 30ft across the diagonal for short periods, but many of our builders do this outdoors as at this stage it is nearing the finishing touches.

Do I need any special skills to build the Europa NG?

No, the build manual and kits are designed for a first-time builder, with no experience in building aircrafts or composites. The build manual provides the builder with step by step instructions of what to do, how to do it and when to do it.



Europa XS LWi (Motorglider)



The Europa Motorglider was the latest version of the Europa XS, which underlines its' position as being the most versatile aircraft in the world!

The Motorglider wings are fully interchangeable with the standard wings of both the Monowheel and Trigear. This provides for a genuine 2 in 1 aircraft.

The Europa Motorglider is an ideal machine to glide through the sky – with the motor shut down you can really savour the flavour of flight.

The Europa XS Motorglider is available both as a Monowheel or Trigear with comparable performance and specifications.

The advantage of the Motorglider is that in most countries it can be flown without the need for a full aviation Class II medical. Therefore, you get the full benefit of the Europa XS but with less bureaucracy. The licences are then handled on a national level and are generally only valid in that country although some may have cross border acceptance.

The Motorglider can be supplied with several different engines, although we recommend those from Rotax. The Rotax engines currently range from 80HP through to 115HP. The latter unit being turbocharged.

Dimensions

	Imperial	Metric
Wing Span (tip to tip)	47.25 ft	14.401
Aspect Ratio	15.818	
Overall length	19.17 ft	5.843 m
Overall height (Monowheel)	4.33 ft	1.320 m
Overall height (Trigear)	7.00 ft	2.133 m



Weights and Loading

	Imperial	Metric
Maximum take-off weight - Note 1	1370 lb	621.4 kg
Empty weight / Useful load (Monowheel: Rotax 912 UL) - Note 2	883 / 487 lb	400.5 / 220.9 kg
Empty weight / Useful load (Trigear: Rotax 912 UL) - Note 2	921.9 / 448.1 lb	418.2 / 203.2 kg
Maximum baggage capacity	80 lb	36 kg

Notes:

1. In certain countries the MTOW can be increased to 1450 lbs (657.7 kgs) and therefore the useful load can be increased accordingly.
2. The empty weight is the average of a number of amateur built VFR aircraft.

Performance

	kts	kph
Stall speed clean	45	83
Cruise speed 8,000 ft 75 % pwr (Rotax 912 ULS) (TAS)	110	203
V_{NE} (IAS)	127	236
	fpm	m/s
Rate of climb at 1370 lb gross weight (Rotax 912 ULS)	900	4.57
Minimum sink rate at minimum sink speed	290	1.47
	Feet	Metres
Take-off ground roll at gross weight (Rotax 912 ULS)	590	180
Take-off ground roll at gross weight (Rotax 914 UL Turbo)	500	152
Landing roll	600	183
	USG	Litres
Maximum Fuel (Standard Tank)	18	68
	USG/hr	Litres/hr
Fuel Consumption at 55% power. Speed 95–100 kts @ SL (Rotax 912 UL)	2.65	10.02
Fuel Consumption at 55% power. Speed 103-108 kts @ SL (Rotax 912 ULS)	3.77	14.28
	Ratio	kts
Glide Ratio (with propeller feathered)	27:1	53
	nm	km



	kts	kph
Minimum sink speed	47	87

Please note performance may vary depending on propeller setting and standard of build.



Europa NG / LWi - Basic description

The Europa range are comprised of single engine, two seat side-by-side, low-wing all-composite aircraft. The engine compartment is separated from the crew compartment by a skinned composite firewall. Further details of the critical components are provided below.

Wing

Wings are made with a 1" constant width spar with glass GRP skins for the Europa NG and carbon CRP skins for the Europa LWi. For all variants, the skins have embedded foam cores. The wings comprise two halves that are joined at the centre using two shear pins that pass through the seat backs and the shear webs of the wing spars. The wing torsion is handled via root rib pins. The wing is of a tapered planform. The wing is of a single spar design with ailerons and electrically operated slotted flaps.

Fuselage

The fuselage is made with a foam cored GRP semi-monocoque construction. The semi-monocoque structure comprises the skin and some frames located down the length of the fuselage. Access to the aircraft is through tilt up doors either side of the fuselage.

Fuel Tank

To enable easy removal of the wings the fuel tank is placed behind the crew compartment.

Seats

Two seats are provided with integral headrests. The seats are fixed with vertical adjustment through cushions.

Empennage

The empennage consists of a vertical tail surface and an all moving horizontal tail surface. The vertical tail surface is trapezoidal and consists of a vertical stabilizer and a rudder.

Flight surfaces and controls

The flight surfaces consist of conventional ailerons, all moving horizontal tail surfaces, and rudder. The rudder is moved by a cable system whereas the all moving tail and ailerons are deflected through push rods. There is one horizontal tail trim. The elevator trim and wing flaps are electrically actuated. For the NG variant the wing flaps are of the slotted type, which are replaced by airbrakes for the LWi variant.

The movements of the flight and control surfaces are as follows:

Ailerons

Movement: Up: 23.5° / Down 20°

Flaps (NG Only)

Movement: 0° to 25°



Rudder

Movement: +/- 30°

Horizontal Tail

Movement: Up: 12° / Down 4°

Horizontal Tail Trim

Movement: +/- 6°

Landing gear and brakes

Monowheel

There is a centrally mounted retractable wheel. The aircraft is supported by outriggers located below either wing and ground directional control is provided by a tail wheel connected into the rudder control system.

Trigear

The nose gear is of a self castoring type. It is connected to a support frame that connects through to the fuselage structure.

The main landing gear system consists of two metal struts, wheels with disk brakes and fairings. The struts absorb the landing shocks and are made of high tensile steel. Wheel brakes are operated individually using toe pedals or finger brakes, providing directional control through differential braking.

Finish Colours

Within the design codes there is a provision which is sometimes construed to limit the colour of a composite aircraft to all white and the temperature to 54°C. This temperature is the one that an all white aircraft could reach with an external temperature of 38°C (ISA +23°C). Not everyone operates in an environment in which these conditions exist and in which the UV intensity is such that the critical structural temperature will warm too it.

The main temperature limitation to a composite airframe is the Wet Tg of the material used, which is both a function of the resin system adopted and the temperature at which it is cured. Obviously, the allowable design stresses of the material are also of importance but generally this is secondary to the glass transition temperature, since once this is exceeded the material rapidly loses its structural integrity. Actually, the material loses its structural integrity before the Wet Tg is reached and a general rule is that the difference between the Wet Tg and the MOL is 28°C.

The most reliable method to determine the structural temperature is the use of temperature gauges in the structure or as recently allowed by EASA the use of a handheld temperature meter.

In the table below we have provided information on the ISA+ impact on the allowable UV absorption of the finish colour in still air for the Europa NG with its corresponding MOL of 54°C. We have not included any safety factors in these values unlike the data presented in AMC VLA 613(c) of CS-VLA which seemingly includes for a 10°C safety margin and a 6.7°C cool down during taxi. The reason for the allowance of the cooling down during taxi is the beneficial impact of forced convection as opposed to natural convection when



the aircraft is stationary. The noted graph in CS-VLA is also based on still conditions and is considered worst case as it is also in clear skies. The actual testing was performed around 1978.

ISA +	Ambient Temperature	Solar Absorptivity	MOL (°C)	Colour
0°C	15°C	0.6	54.0	
6.2°C	21.2°C	0.5	54.0	Light Green / Light Yellow
12.1°C	27.1°C	0.4	54.0	
18.0°C	33.0°C	0.3	54.0	Aluminium
23.8°C	38.8°C	0.2	54.0	White

Aircraft Equipment

Most of the avionics equipment are installed in the back of the control panel.

The aircraft can be fitted with both the latest digital EFIS as well as analogue instruments.





Price

Full Kit

Variant	Nett Price
Europa NG (Monowheel / Trigear)	£37,500
Europa XS LWi (Motorglider)	£45,410

This quotation is for the supply of a full Europa kit comprising:

- Rotax Firewall Forward Kit (Note 1)
- NG control surfaces (**Reduces build time by circa 100 hours**) – **NOT FOR LWi VARIANT**
- Hi-Top fuselage to provide extra headroom (Original fuselage can also be provided)
- Pre-moulded wings including tie down points and electric stall warner
- Pre-moulded fuselage with integral firewall
- Speed kit
- Instrument panel (instruments not included)
- All control linkages, landing gear, brake system, fuel system, doors, windows and windscreen, harnesses and trim system
- All necessary hardware

Note 1: Contents of FWF kit

- Europa engine mount
- Coolant radiator
- Radiator ducting
- Stainless steel exhaust system (912 UL and 912ULS only)
- Oil cooler
- Throttle and choke cables
- Top and bottom engine cowlings
- All necessary hardware

Staged Build

The aircraft can be purchased in stages if required.

Variant	Europa NG (Monowheel / Trigear)	Europa XS LWi (Motorglider)
Stage 1: Control Surfaces	£8,235	£8,235
Stage 2: Wings	£15,995	£24,260
Stage 3: Fuselage c/w Speedkit	£11,695	£11,695
Stage 4: Firewall Forward	£4,200	£4,200



Quick Build Options

Accelerated cockpit module (**Reduces build time by circa 150 hours**) - £4,950. If the kit is purchased as a staged build this quick build option is applicable to Stage 3.

Exclusions

Although this quote does not currently include for the following, Europa Aircraft can provide these products and services.

- Engine
- Propeller
- Internal upholstery
- Instrumentation / Avionics
- Lights
- Finishing (Paint or Vinyl Wrap)

Factory Build Assist

Europa Aircraft offers a Factory Build Assist program and Finishing Service. The Build Assist program can be tailored to your individual needs, prices vary according to requirements.

Delivery

Delivery is approximately 20 working weeks from order placement however this will depend on workload at time of order.

Commercial Section

Terms and Conditions

Europa Aircraft (2004) Limited Terms and Conditions apply

Payment Terms

The offer is based on stage payments and payment terms against milestones as stated below for your approval.

50%: Deposit on Order Placement

25%: Midway through build

25%: Prior to Shipment



Validity

These prices are fixed and firm for a period of 30 days from date of quotation and shall not be subject to escalation throughout the contract period.

Value Added Tax

Our main offer excludes value-added tax or other imposts or taxes levied thereon by the Government Authorities.