

# DA42 New Horizons



 **Diamond**  
AIRCRAFT

# DA42 NG – The Next Generation Diesel Twin

Modern design, more power, more reliable

The DA42, with its fuel efficient diesel engines, modern aerodynamics, all carbon airframe, Garmin G1000 glass flight deck and known ice certification, redefined the light twin market once already. With its next generation turbo-diesel, 170 hp AE 300 engine by Austro Engine GmbH (AEG), it is poised to do so again. With 26% more engine power and better high altitude engine performance than its predecessor, the DA42 NG will outperform across the board – take-off performance, climb performance, single engine performance and, of course speed. At the same time, the AE 300 offers up to 15% better specific fuel consumption at economy power setting, preserving the range, endurance and economy that has made the DA42 famous.

More performance, more capability, more everything – what more could one want?

## A new, well-financed aviation diesel development.

Austro Engine GmbH was specifically established in 2007 to create a new generation of general aviation power plants. The AE 300 engine is developed by Austro Engine, with key technology partners, including MB Tech (Mercedes Benz) and Bosch – both companies with long histories of quality and customer service – providing engineering and production support for key components of the AEG engine. Combining their automotive engineering and production experience with Diamond's extensive aviation experience and insights acquired from building and operating a fleet of nearly 1000 diesel-powered aircraft, AEG is well positioned to deliver the next generation power plant.

Certification of the engine with EASA is well underway; Diamond aircraft from the DA40, to the DA50 Magnum and DA42 have been flying with Austro engines since early 2008, and engine-level EASA certification is expected in winter 2008. Diamond plans to certify the engine on the DA42 under EASA by Q1 2009, with FAA certification expected by fall 2009.

## A next-generation engine.

Incorporating many improvements, the 170 hp AE 300 engine is truly a next-generation power plant:

- Improved gearbox. With a gearbox design life of 2,400 hrs and a torsional vibration damper instead of a friction clutch, the AE 300 gearbox is designed to be low on maintenance requirements and high on reliability – for the life of the engine.
- Engine mounting. The 4 point tuned engine mount system vs the predecessor's 3-point system improves already smooth engine operation.
- A cast iron crankcase vs an aluminum casting ensures durability and allows a higher power output.
- Improved turbocharger, air induction and cooling system improve high altitude performance. It's not just about horsepower, but how well you can keep that power to higher altitudes.
- Conventional, proven aircraft governor, driven by a FADEC controlled servo vs integral prop regulation improves prop control and reliability.
- Integral oil / coolant heat exchanger eliminates external oil lines and oil cooler.
- All core automotive components are unmodified, ensuring that the demonstrated operating experience and reliability are applicable to the AE 300.



# DA42 L360 – Modern, Affordable, Robust Light Twin



*"I flew a proof-of-concept Lycoming-powered Twin Star back in the fall of that year (2004). All I can say is that the airplane's extra power (360 total horsepower versus the 270 horses of the 1.7-liter Centurion TAEs) made the Lycoming Twin Star a hot rod by comparison. The airplane leapt off the runway and climbed at 2,000 fpm doing 125 KIAS. As for cruise flight, I had to pull the Lycomings back to 20 inches of manifold pressure and 2,100 rpm to keep from busting the airframe's VNE of 161 KIAS. (This prototype was limited to the DA40's redline in the interest of safety.) That would have been 55- to 60-percent power in any other IO-360 installation—but in the Lycoming Twin Star prototype this power setting produced 161 KIAS. So if it's performance you want, a Lycoming-powered Twin Star could certainly fill the bill. It's something that would make real sense in the American market with better parts and service for Lycoming engines." Thomas A. Horne, AOPA e-Pilot, June 2008*



Air conditioning option with automatic temperature control and electronic touchpad.

Where 100 LL Avgas is easily available, the Lycoming-equipped DA42 L360 offers a viable choice, especially for flight training operations. Introduced at the request of several large flight training customers, with an expected availability of Q1 2009, the DA42 L360 is ideal for flight training organizations or owner /operators looking for an affordable "conventional" light twin. The proven and robust Lycoming power plant will guarantee years of trouble-free operations, with familiar operation and maintenance requirements, and a fuel burn of as low as 8 gph per engine (16 gph total for both engines) in a flight training environment, or 10 gph per engine (20 gph total) at 75% power cruise. The DA42 L360 also offers an anticipated upgrade path to an Austro Engine down the road to cover all the bases, now and in future – regardless of the availability and price of fuels.

## Performance.

With a 33% increase in power over the previous generation DA42, the DA42 L360 will convince in performance across the board. Fast off the runway, with great climb performance, its maximum cruise speed of 180+ kts will make even long trips seem speedy. Plus, the aircraft's efficient design and standard fuel capacity of 79 gallons provide a range of up to 700nm, taking you where you want to go with reasonable fuel stops.

There are other innovations introduced on the DA42 L360 that go beyond the Lycoming-powered DA42 that Diamond originally envisioned:

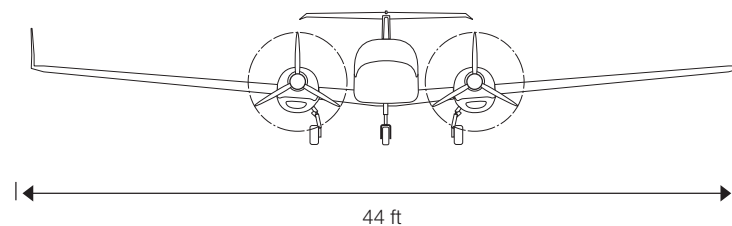
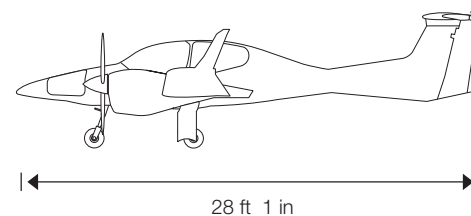
- Counter-rotating engine mounting so there is no critical engine. This makes the aircraft easier to control in the unlikely event of loss of one engine.
- The cowlings for the DA42 L360 have been re-designed to optimally fit the smaller, lighter-weight engines for improved aerodynamics.
- The PowerFlow tuned exhaust system, a new standard feature, contributes to faster climb and cruise speeds.

## Reliability and support.

With more than 50,000 engines in the Lycoming IO-360 series in service, the power plant has earned a reputation for unmatched robustness and ease of maintenance. Diamond's DA40 XLS uses this same engine and its service history has been outstanding. All North American Diamond Authorized Service Centers are already familiar with it, as are almost all other maintenance shops in North America. Technical and parts support is established and proven with a comprehensive power plant warranty from Pennsylvania-based Lycoming. Though it lacks the sophistication of the single lever control FADEC engine management and the extreme low fuel burns of turbo-diesel engines, its maturity and lower acquisition cost may be the choice for you. Plus, if 100LL Avgas ever becomes unavailable, you can upgrade to a turbo diesel engine.

# DA42 NG – Preliminary Specifications

Engine	2x Austro Engine AE 300 turbo-charged, common-rail injected 2.0 liter diesel engine with EECU single-lever control
Horsepower	340 hp total
Propeller	2x MT MTV-6-R-C-F / 190 - 69 3-blade constant speed
Airworthiness category	Normal
Length	28 ft 1 in
Height	8 ft 2 in
Wing span	44 ft
Wing area	175.3 sq ft
Seats	4
Empty weight	2,976 lbs
Maximum take-off weight MTOW	4,189 lbs
Useful load	1,213 lbs
Fuel capacity (standard / long range)	52 US gal / 79 US gal
Fuel grades	Jet A1 / Diesel
Rate of climb, sea level MTOW	1,150 fpm
Rate of climb, 10,000 ft MTOW	1,100 fpm
Maximum operating altitude	18,000 ft
Maximum air speed	188 kts IAS
Maximum cruise speed at 14,000 ft	185 kts TAS
Maximum cruise speed at 55% at 8,400 ft	175 kts TAS
Range, at 60% power, at 10,000 ft (standard / extended fuel)	700 nm / 1,100 nm



Note: Preliminary performance specifications are based on initial flight testing and computer flight modeling. Final performance numbers available upon completion of aircraft certification program. Aircraft shown in all marketing materials, websites or brochures, may contain non-standard features, optional equipment or equipment not yet certified by a given authority, and which, if available, may be subject to additional cost. Actual weight and balance information will vary depending on options installed on aircraft. Only aircraft specific weight and balance data alone should be consulted for flight planning. Aircraft specifications, weights, equipment lists, color choices, model references and other representations made verbally or appearing on websites, in brochures or other marketing materials are for general information purposes and do not constitute an inducement to enter into, or form any part of, an agreement for the purchase and sale of aircraft. Only statements and representations set out in actual contracts entered into with Diamond Aircraft or its authorized distributors may be relied upon. Prices, specifications and standard and optional equipment are subject to change without notice at any time prior to delivery.

# DA42 L360 – Preliminary Specifications

Engine	2x Lycoming IO360 counter-rotating engines equipped with PowerFlow tuned exhaust system
Horsepower	360 hp total
Propeller	2x Hartzell 2-blade aluminum constant speed with feathering capability
Airworthiness category	Normal
Length	28 ft 1 in
Height	8 ft 2 in
Wing span	44 ft
Maximum take-off weight	3,935 lbs
Useful load	1,179 lbs +/- 3%
Fuel capacity, total / usable	79 gal / 76 gal
Fuel	100 LL Avgas
Take-off distance, 50-foot obstacle	<1,500 ft
Landing distance, 50-foot obstacle	1,877 ft
Rate of climb, sea level	2,000 fpm
Maximum demonstrated operating altitude	18,000 ft
Maximum single-engine ceiling (standard day)	7500 ft +
Maximum cruise speed	180+ ktas
Economy cruise speed at 55% power	140 ktas
Maximum landing gear extension speed	195 kias
Maximum demonstrated crosswind	20 kts
Range, 55% power (30 min reserve)	700 nm

## Optional equipment:

- Garmin GDL 69A satellite data link – NEXRAD radar, satellite text and graphic weather data with infotainment (subscription required)
- Avidyne TAS 610 active Traffic Advisory System
- WX 500 Stormscope
- Honeywell KN63 DME, remote mounted
- Becker 3500 ADF, remote mounted
- Platinum Edition Option Package includes:
  - Adjustable pilot and copilot seats with adjustable backrest and lumbar support
  - Electrically adjustable pilot and copilot rudder pedals
  - Premium Interior, leather seats and trim, premium carpet, carbon fiber canopy sill plates
  - Chrome-look Trim Package (canopy sills, hand grips, prop spinners, cowling air intakes)
  - Custom metallic striping with chrome accents
- Special upperline color (requires Platinum Edition Option Package)
- Combustion supplemental heater
- Air conditioning with automatic temperature control and electronic touchpad
- TKS Deicing System – flight into known icing certified
- Built-in oxygen system

## Standard equipment:

- Garmin G1000 glass panel cockpit
- Garmin GDU 1040, 10-inch Primary Flight Display (PFD)
- Garmin GDU 1044, 10-inch Multi-Function Display (MFD)
- Dual Garmin GIA 63W VHF comm, VHF nav with ILS localizer and glideslope, GPS, IFR enroute and approach certified
- Garmin GTX 33 Mode S transponder with Traffic Information System (TIS) traffic
- Garmin GMA 1347 digital audio system
- Garmin GDC 74 digital air data computer
- Garmin GRS 77 solid-state Attitude Heading Reference System (AHRS)
- Garmin GMU 44 magnetometer
- Honeywell KAP 140 dual-axis auto pilot with altitude hold and preselect
- Garmin SafeTaxi and Garmin FliteCharts (subscription required)
- ME 406 MHz emergency locator transmitter (ELT)
- Standby instruments (compass, horizon, air speed indicator, altimeter)
- Standard interior (fabric seats with leather trim)
- Enlarged panoramic canopy
- Composite cabin and safety seats (up to 26g)
- AmSafe inflatable restraints (front seats)
- 4-way Baggage Compartment System
- Nose baggage compartment accessible from both sides
- 79 US gallon capacity fuel tank / 76 US gallon usable
- Hydraulic retractable landing gear
- Position and anti-collision lights
- High intensity discharge landing and taxi lights
- Standard exterior striping with color choice

Note: Preliminary performance specifications are based on initial flight testing and computer flight modeling. Final performance numbers available upon completion of aircraft certification program. Aircraft shown in all marketing materials, websites or brochures, may contain non-standard features, optional equipment or equipment not yet certified by a given authority, and which, if available, may be subject to additional cost. Actual weight and balance information will vary depending on options installed on aircraft. Only aircraft specific weight and balance data alone should be consulted for flight planning. Aircraft specifications, weights, equipment lists, color choices, model references and other representations made verbally or appearing on websites, in brochures or other marketing materials are for general information purposes and do not constitute an inducement to enter into, or form any part of, an agreement for the purchase and sale of aircraft. Only statements and representations set out in actual contracts entered into with Diamond Aircraft or its authorized distributors may be relied upon. Prices, specifications and standard and optional equipment are subject to change without notice at any time prior to delivery.

# An all-around upgraded aircraft.

Whether equipped with the Austro Engine AE 300, or the Lycoming IO-360, all next generation DA42s are taking the light twin experience to the next level.

The new panoramic canopy design offers a more spacious cockpit with head room for even the tallest pilots. Air conditioning also is a new option available for the first time for the DA42 from Diamond.

World-class avionics complement the DA42's known ice system certification and twin-engine safety to give you the most capable piston-engine cross-country aircraft on the market today.

## Engine choices – yours to make.

With a choice of the AE 300 turbo-diesel or the Lycoming IO-360 avgas engine, you have a choice of aircraft to match your missions. Choose the DA42 NG, the twin of the future, for fuel economy, range and high-altitude performance. Pick the DA42 L360, with a familiar power plant, and lower acquisition costs – secure in the knowledge that you can upgrade to diesel technology in the future, should you decide to do so.

	DA42	DA42 NG	DA42 L360
Engines	2 x Centurion (TAE) 2.0 Turbo Diesel	2 x Austro 500 2.0 L Turbo Diesel	2 x Lycoming IO-360 normally aspirated
Horsepower	135 hp per side 270 hp total	170 hp per side 340 hp total (+26%)	180 hp per side 360 hp total (+33%)
Propellers	MT 3-blade composite, fully feathering, constant speed	MT 3-blade composite, fully feathering, constant speed	2-blade Hartzell metal, or MT-3 blade composite fully feathering (tbd)
Expected availability in North America	Limited stock available now	Fall 2009	Q1 2009



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