



# CENTURION ENGINES

CENTURION RETROFIT KITS FOR CESSNA 172, 206, 340, 414, AND PIPER PA28

CENTURION 2.0 / 4.0

**CENTURION**  
*Built by THIELERT*

# GENERAL AVIATION TODAY



Frank Thielert, Founder and General Manager of Thielert Aircraft Engines GmbH

## Dear aviation enthusiast,

Engine development in General Aviation has been stagnating for decades. As a consequence, operating costs have increased extremely – caused by unreasonable fuel consumption and antiquated technology. It was time for a new propulsion concept: the Diesel technology, which paves the way for Kerosene as a standard also for General Aviation.

With our CENTURION engines, we offer you state-of-the-art Kerosene aircraft engines for the most common training and club aircraft. For you, very soon efficiency, comfort, safety, and power can be implicitness in flying.

If you have any questions our distributors will support you.

Kind regards,

A handwritten signature in blue ink that reads "Frank Thielert". The signature is written in a cursive, flowing style.

Frank Thielert

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# BENEFITS OF...

Fuel up your tanks with Kerosene or Diesel (DIN EN 590)<sup>1</sup> – decide for a CENTURION engine as your next engine. As a state-of-the-art aircraft engine, it is equipped with a completely electronic engine and a propeller management system, a single lever control and a reduction gearbox. For you, it offers safety, comfort, cost effectiveness, and performance.

## SAFER

The modern technology of the CENTURION engines makes flying safer. Its design, components, and materials as well as production process and quality assurance meet the highest aviation requirements. Carbon monoxide poisoning or carburetor icing belong to history.

## MORE COMFORT

The true single lever control will make you feel like your own passenger. There is no manual prop setting, no boost pressure check, and no more mixture adjustments – just move the power lever! Also, the run up check before take-off is simple. Just press one button and all test procedures for the engine and propeller will be carried out automatically. This comfort is achieved by the FADEC system (Full Authority Digital Engine Control).

## MORE COST EFFECTIVE

Save up to 60 percent<sup>2</sup> of the usual operating costs with half the consumption and lower fuel prices. The CENTURION engines run on less expensive Kerosene. Refuel without detours, Kerosene is available worldwide.

Apart from the guarantee given by law Thielert Aircraft Engines delivers a separate and independent guarantee: the Pro Rata Guarantee for 12 years or 2,400 flight hours for CENTURION 2.0<sup>3</sup> as well as 2,000 flight hours for CENTURION 4.0<sup>4</sup>. The maintenance will be performed by one of our worldwide authorised Service Centers.

## MORE POWERFUL

Thanks to the Diesel cycle and turbo charging the CENTURION engines have excellent off performance. In every altitude the available maximum performance will be appropriated as a continuous power.

<sup>1</sup> just for CENTURION 2.0; CENTURION 4.0 only operates with Kerosene

<sup>2</sup> refers to German fuel prices

<sup>3</sup> except for clutch, clutch shaft, alternator, high pressure pump, feed pump, and rail pressure control valve (600 flying hours)

<sup>4</sup> except for clutch, clutch shaft, alternator, high pressure pump, feed pump, and rail pressure control valve (500 flying hours)

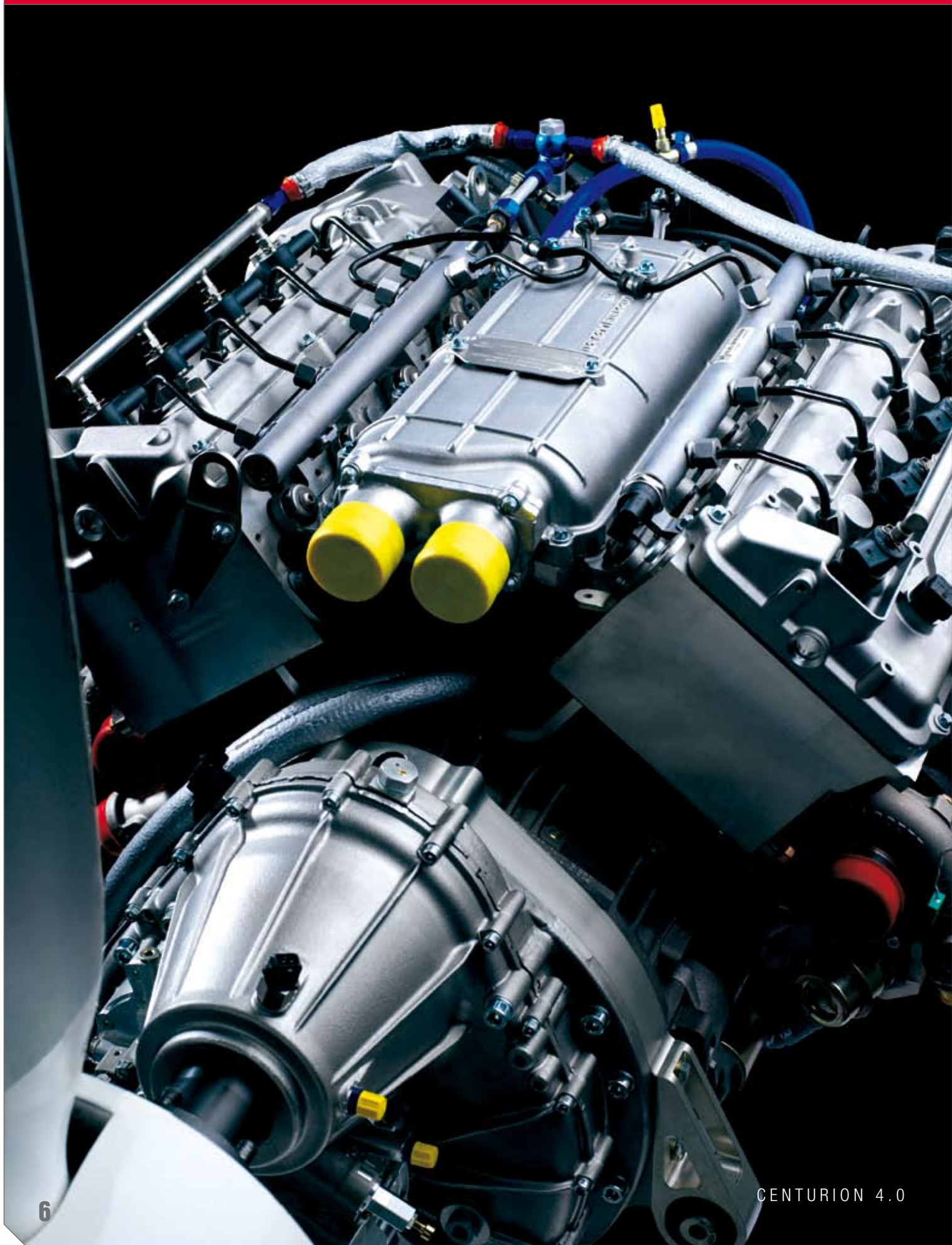


# ...CENTURION ENGINES



	Safety	Comfort	Economy	Performance
Modern technology		●	●	●
Electronic engine and propeller control		●	●	●
Pro Rata Guarantee 2,400 flight hours for CENTURION 2.0				●
Pro Rata Guarantee 2,000 flight hours for CENTURION 4.0				●
FADEC – redundant electronic engine control		●	●	●
Single lever control		●	●	
Low noise level		●	●	
Lowest vibration level			●	
No carburetor icing		●	●	●
No engine pre-heating needed			●	●
Liquid cooling means no shock cooling		●	●	
Excellent climb performance		●	●	●
No lean run		●	●	●
No detonation		●	●	●
Max. power: no time limitation		●	●	●
Density altitude through turbo charging		●	●	●
Max. certified flight altitude up to 24,000 ft (depends on airframe)		●	●	●
Lower consumption		●		●
Lower fuel prices				●
Just a simple inspection is needed after prop strike		●		●
Quick maintenance and overhaul – short downtime			●	●
Lower maintenance costs				●
Firewall forward kit: conversion is faster than overhaul		●	●	●
Traceability through permanent data logging		●		
Longer range		●		●
Worldwide availability of fuel		●	●	●
Automated run up checks			●	
Kerosene and Diesel useable in any mixture ratio (CENTURION 2.0)		●	●	●
Operating temperature to -30°C degrees (Kerosene)		●	●	
Reliability because of automotiv technology proved by the millions		●	●	●

# WHAT YOU OUGHT TO KNOW...



## Prop Strike

In case of prop strike, a costly shock loading inspection of the engine is not necessary. Only the propeller needs a repair and the gearbox has to be inspected. The CENTURION engines are equipped with a combined system of torsional vibration damper and a safety clutch. It decouples the propeller from the core engine.

## Firewall Forward Kit

Quality and rapidity of the first installation of a CENTURION 2.0 retrofit kit will be guaranteed with the firewall forward solution. The entire engine unit, including the mount, cooling system, and electronics are pre-installed at Thielert. The inspection and quality control of the assembly has already taken place before shipping. Consequently, your aircraft can be retrofitted within ten working days.

## Fast Diagnostics

The electronic FADEC system does not only take over control and management of the CENTURION engines and the prop but also keeps an automatic log of all relevant engines data. During scheduled inspections, this event log is read out electronically and sent to Thielert. The data enables Thielert to provide an exact and fast analysis of the engine condition.

## Shorter aircraft service time

When the TBR (Time Between Replacement) of the CENTURION engines has expired, the new engine is installed within two working days. So, there are another 2,400 economical flying hours for a CENTURION 2.0 and 2,000 for a CENTURION 4.0. During TBR an inspection by the manufacturer is scheduled after 1,200 respectively 1,000 flight hours. A time consuming overhaul is not necessary.

## Easier Operation

When developing the CENTURION engines, easy operation of the system was the focus. With the touch of a button, all run up checks of the engine and propeller are carried out. Power settings of the engine are made during the flight with only one lever. The FADEC automatically controls all propeller settings and engine parameters. That is true single lever operation. The pilot can concentrate on the essentials, i.e. flying.

## Engine Performance

CENTURION engines with a constant speed propeller generate the same take-off thrust as a comparable conventional naturally aspirated engine with a fixed pitch propeller. Thanks to turbo charging and specially developed propellers, the CENTURION engines make full use of their power. Even at density altitude of 2,000 ft. Up to an altitude of 6,000 ft, the CENTURION 2.0 provides continuous power of 135 hp – even at 10,000 ft, there is sufficient power for excellent climbing and high cruise speeds. The CENTURION 4.0 provides continuous power of 330 hp up to an altitude of 12,000 ft and an excellent climb performance up to 25,000 ft is guaranteed.

## Environment

CENTURION engines do not need leaded avgas, reduce carbon dioxide emission, enable a lower fuel consumption and also protect the environment. In addition, due to their standard sound suppressors, they are quiet like no other engine.

## Comfort

You can comfortably talk in the cabin without headsets. The vibration and noise level is considerably lower than with conventional engines. That also saves the avionics and the gauges. Comfort is also given by the single lever control – feel like in a jet!



# CENTURION 2.0



The **CENTURION 2.0** is a four stroke Diesel engine with four in-line cylinders, each with four valves. The engine is turbo charged and equipped with common rail direct injection. In addition, it is liquid-cooled, has a completely electronic engine and propeller control unit, and a wet sump oil system as well as a reduction gearbox with a ratio of  $i = 1.69:1$ . The CENTURION 2.0 is certified by EASA and FAA.

The CENTURION 2.0 is offered as a pre-assembled firewall forward kit. The engine kit is now available for the Cessna 172 and Piper PA28. The installation and distribution is performed by our authorised distributors. The CENTURION 2.0 is supplied to plane manufacturer Diamond Aircraft Industries as an installation kit, and installed into the successful DA40 TDI and DA42 Twin Star aircraft.

\* best economy point

\*\* 45 min reserve at load 55 percent

## Technical Data

## CENTURION 2.0

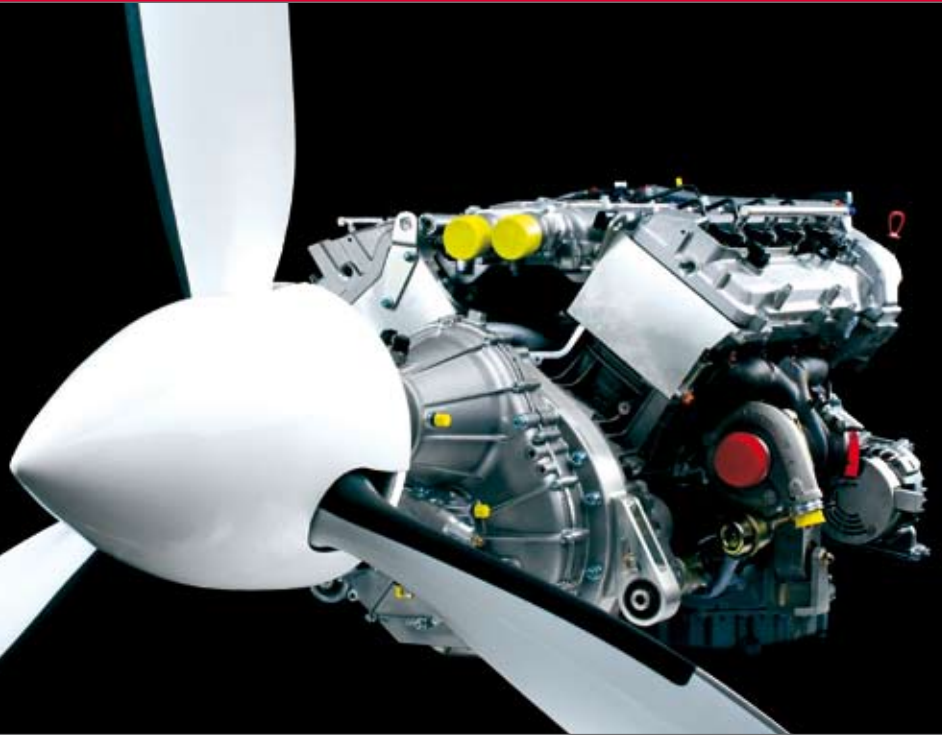
Take-off power (at 2,300 rpm):	99 kW (135 hp)
Torque:	410 Nm (302 ft.lb.)
Constant power:	available max. power at respective altitude
Torque (BEP*):	340 Nm (250 ft.lb.)
Engine displacement:	1.991 cm <sup>3</sup> (121.5 cu.in)
Bore:	83 mm (3.26 in)
Stroke:	92 mm (3.62 in)
Compression ratio:	18:1
Fuel:	Kerosene (Jet Fuel) and Diesel (DIN EN 590) in any mixture ratio
Prop:	Muehlbauer 3-blade prop (hydraulic variable pitch)
Voltage:	Alternator 14 V (optional: 28 V)
Weight:	Engine (incl. all accessories): 149,8 kg (330.5 lbs)
Installation dimensions:	Width: 796 mm (31.34 in) Depth: 805 mm (31.69 in) Height: 636 mm (25.04 in)

## Performance

## Cessna 172N

## Piper PA28-161

Take-off run in 1,000 ft AMSL:	228 m (748 ft)	325 m (1,066 ft)
Take-off distance (to clear 50 ft):	472 m (1,548 ft)	538 m (1,765 ft)
Rate of climb, MSL:	690 ft/min	609 ft/min
Rate of climb at 10,000 ft:	560 ft/min	455 ft/min
Max. speed at 10,000 ft:	129 KTAS	126 KTAS
Consumption of Diesel at 10,000 ft, 110 KTAS:	17,5 l/h (4.62 gal/hr)	18,1 l/h (4.78 gal/hr)
Range** at 10,000 ft, standard tanks:	898 NM	1,065 NM
Range** at 10,000 ft, long range tanks:	1,053 NM	-



## Technical Data

## CENTURION 4.0

Take-off power (at 2,300 rpm):	257 kW (350 hp)
Torque:	1.064 Nm (785 ft.lb.)
Constant power:	available max. power at respective altitude
Torque (BEP*):	779 Nm (574 ft.lb.)
Engine displacement:	3.996 cm <sup>3</sup> (243.85 cu.in)
Bore:	86 mm (3.39 in)
Stroke:	86 mm (3.39 in)
Compression ratio:	18,5:1
Fuel:	Kerosene (Jet Fuel)
Prop:	Muehlbauer 3- or 4-blade prop (hydraulic variable pitch)
Weight:	Engine (incl. all accessories): 272,2 kg (600 lbs)
Installation dimensions:	Width: 770 mm (30.3 in) Depth: 900 mm (35.4 in) Height: 670 mm (26.4 in)

## Performance

### Cessna 206 (310 hp)

### Cessna 340 (350 hp, 5990 lbs)

Take-off run in 1,000 ft AMSL:	307 m (1,007 ft)	494 m (1,623 ft)
Take-off distance (to clear 50 ft):	498 m (1,633 ft)	655 m (2,152 ft)
Rate of climb, MSL:	1,130 ft/min	1,820 ft/min
Rate of climb at 10,000 ft:	1,050 ft/min	1,320 ft/min
Max. speed at 10,000 ft:	168 KTAS	222 KTAS (330hp max. cont)
Consumption of Diesel at 10,000 ft:	37,5 l/h (60%, 135 KTAS)	82,2 l/h (60%, 176 KTAS)
Range** at 10,000 ft, standard tanks:	955 NM (60%, 135 KTAS)	625 NM (77 gal / 292 ltr usable)

The **CENTURION 4.0** is a V-arrangement with eight cylinders, each with four valves. It is bi turbo charged and equipped with common rail direct injection. In addition, it is liquid-cooled, has a completely electronic engine and propeller control unit, and a wet sump oil system as well as a reduction gearbox with a ratio of  $i = 1.69:1$ .

Dependent on the airframe, you can get the CENTURION 4.0 in different performance levels up to 350 hp. The engine is certified by EASA and FAA. The CENTURION 4.0 is offered as an assembly kit. The 350 hp powered engine is available for the twin-engined Cessna 340 and 414. The single-engined Cessna 206 has a 310 hp engine version.

\* best economy point

\*\* 45 min reserve at load 55 percent

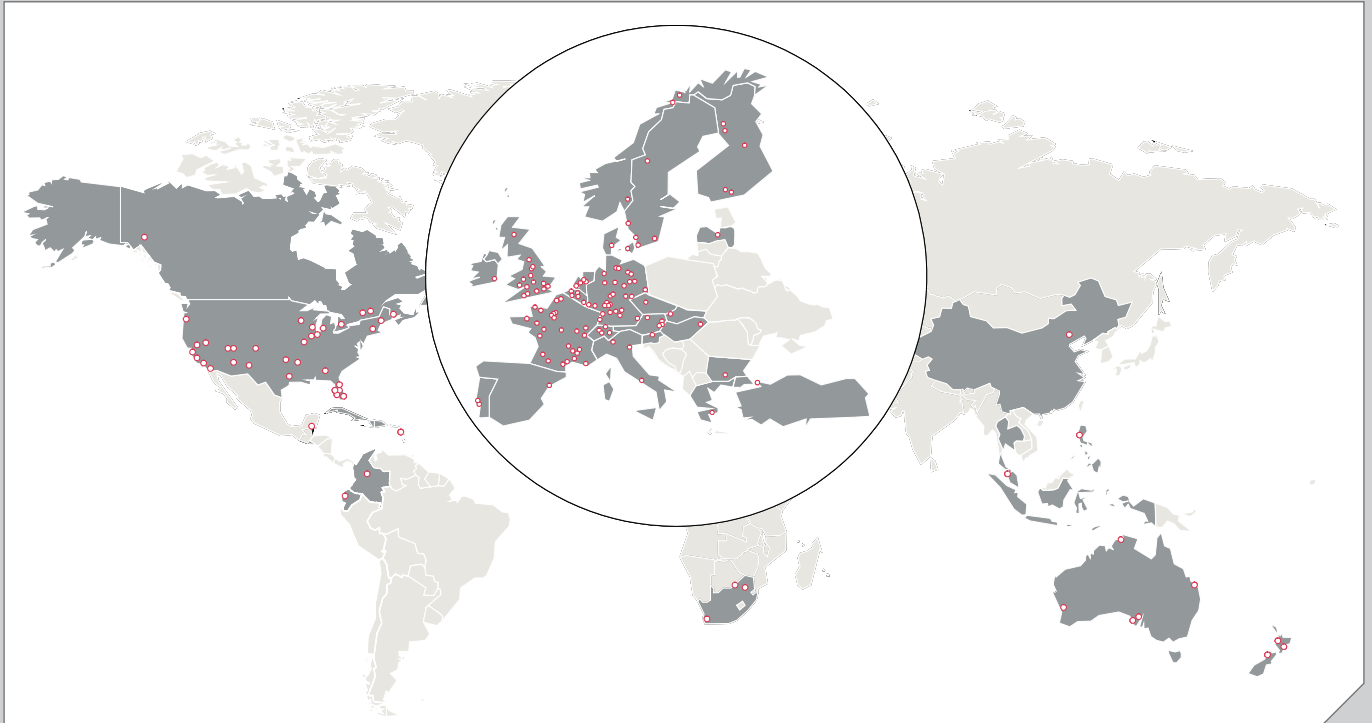
# CENTURION PRODUCTION

## The new CENTURION assembly system

The new assembly system is characterised by a high degree of flexibility and expandability. This means, on the one hand the company can better serve market demands and, on the other hand, that it can generate substantial potential for savings due to lower work pass times and increased rate of work. Applied measures such as the “inline test processes”, visualisation at the respective assembly station, digital work sheets, and the use of proven assembly technology from the automotive industry result in significant improvements in process safety and productivity and, therefore, set new standards in General Aviation engine manufacturing.



CENTURION PRODUCTION AT ALTENBURG/GERMANY



The CENTURION engines give you more range. You can make use of it without any worries as there is an extensive CENTURION service center and distributor network which permanently grows. At the moment Thielert is working together with 220 authorised service centers including 20 distributors. On our website [www.centurion.aero](http://www.centurion.aero) you can always find updates.

THE AIRCRAFT MODELS AND ENGINES SHOWN IN THIS BROCHURE HAVE SPECIFICATIONS FOR THE EUROPEAN MARKET. SOME PARTS SHOW OPTIONAL EQUIPMENT AND ACCESSORIES THAT ARE NOT INSTALLED AS STANDARD FEATURES.  
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