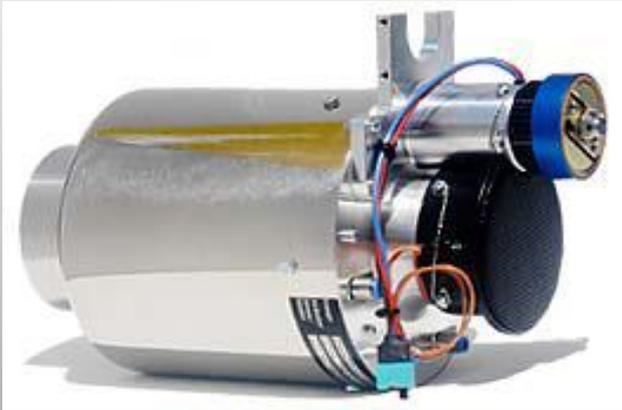


High power density gasturbine in aircraft quality



Enclosure: Chrom-Nickel

Gear: Integrated, maintenance free metal

Nominal RPM: 100.000 U/min

Nominal Power: 14 hp / 10,6 kW @ ISA

Gearbox output: 20.000 U/min (gear ratio 5:1)

Turbinewheel: CNC manufactured Inconel Superalloy

Lubrication: Light version – mixed lubrication

Industrial version – oil-circulation system

Fuel: Direct start with Jet fuel A1 and Diesel

Consumption: 170 ml/min only!!

Weight: 3,4 kg

Operation: Fully automatic with integrated brushless starter

Generator: Integrated -14,5 V / 5-8 A

Application

**Engine for drone and
helicopter**

JetCopter UAV



The JetCopter UAV provides impressive performance and payload capacity at a very competitive price.

Custom main frames, landing gear and an optional canopy for installation and protection of your additional equipment (camera gear, instruments,...) on request.

Main gearbox for helicopters

Aircraft Quality

Enclosure Aluminium 7075 T6

Maintenance free gear

Oil bath and shaft sealing

Manufactured on a 5-axis CNC

Gear CrMo4, tempered

Ratio 5 : 1

Input shaft 12mm

Rotor shaft 20mm

Rotating direction CCW

Input torque 25 Nm

Rotor torque 125 Nm

Transmissible power 10 kW

Distance between later plates 60mm

Length of the shafts according customers requirement

Delivery includes shafts, bearings and seals



Lubrication

Closed loop oil lubrication is possible for UAV application as well as lost fuel/oil mix lubrication.

With closed loop oil lubrication the total system weight is increased by about 1,5 kg (fuel/oil pump, reservoir and heat exchanger) but the fuel consumption is lower.

So in the long run the initial weight penalty is no major concern, due to less fuel required on board for the same endurance.

Altitude operation

The engine is designed to work up to at least 3.000m altitude. The power available will be about 30% less than at MSL (roughly about 7 kW).

On the other hand fuel efficiency is slightly improving with altitude.

However demonstration was performed up to 3.260m so far. Further testing at higher altitude needs to be performed.

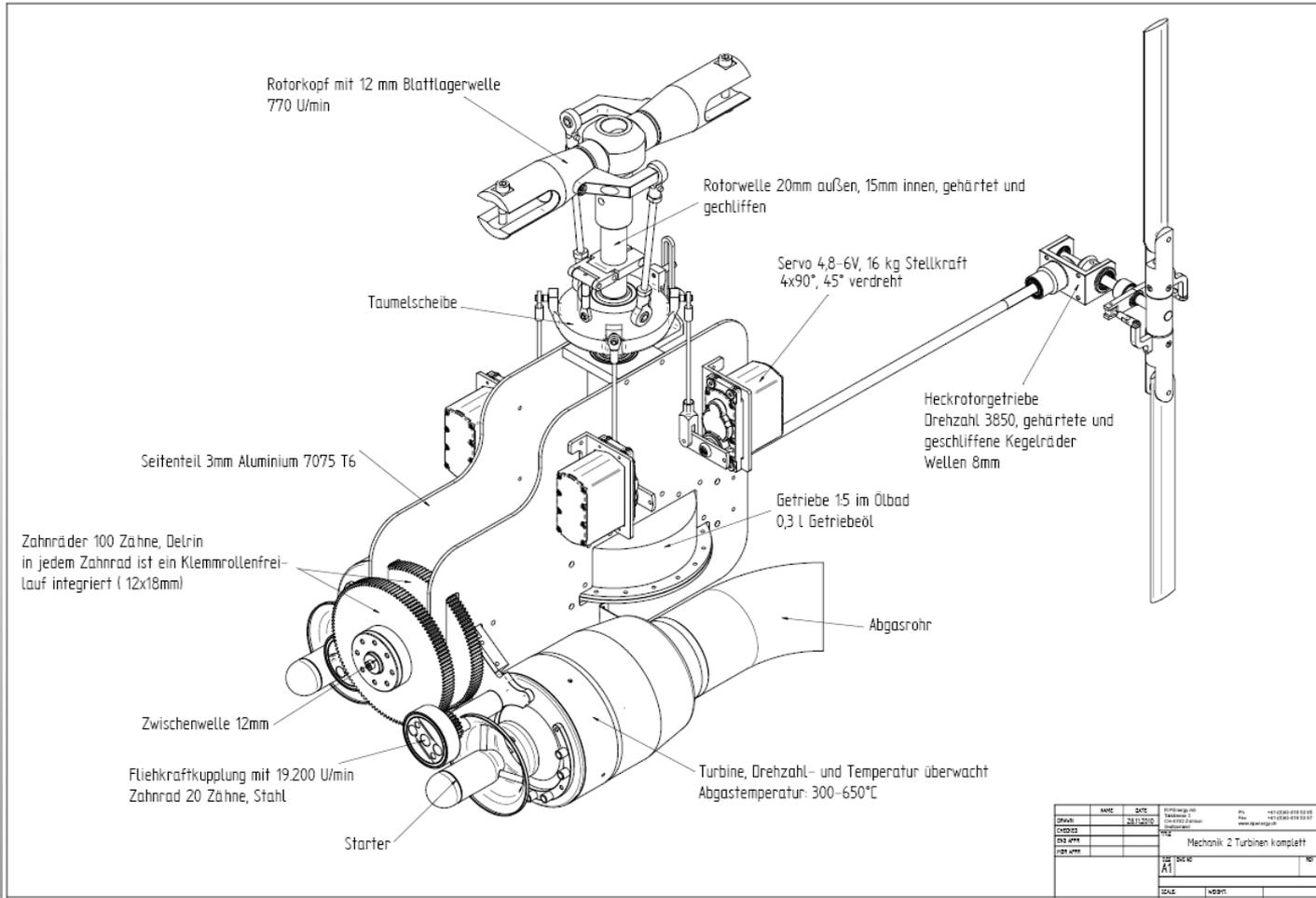
Dual engine application

Possible and demonstrated.

Each engine needs its own ECU, pump, fuel valves and so on.
Each engine shall drive its own Delrin gear with free wheel hub in the center (to avoid driving the other engine in the event of single engine failure).

Both Delrin gears can be fitted to the same single lay shaft driving one main helicopter gear box.
Please see attached picture.

Dual engine application



Lifting capability (vertical helicopter take off between MSL and 1.000m altitude)

Depending on quality and efficiency of main and tail rotor system. We recommend a two bladed main and tail system.

Main rotor diameter about 3m, tail rotor diameter of about 0,6m.

As with most helicopters, if the blade profiling and rpm are right the lifting capability is about 4kg per horse power.

As one engine develops 10,6kW/14 HP the single engine helicopter shall be able to have about 50-60 kg max Take Off Weight.

The dual set up can be as heavy as 100-120 kg max TOW.

As with all helicopters during cruise (forward speed) the required power is a lot less than during vertical take off and landing.