



E2s3 - Aviation Technology Co., Ltd.



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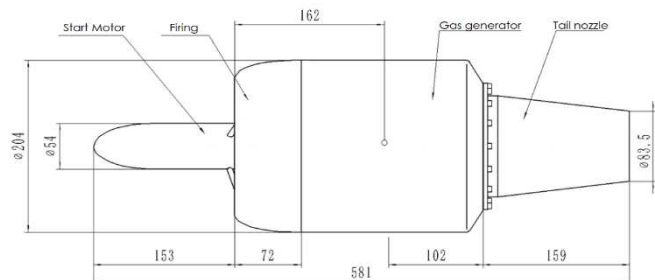


1) Background introduction

Micro turbojet engine

The aero engine is the core of the aircraft, the "heart" of aviation, there are three main types of aero engines: piston aero engines, as turbine engines, and ramjet engines.

Despite its small size 581 mm x 204mm, our Microjet turbine engine is very efficient and effective, it has a simple structure, a low cost of use and a very interesting price.



Our Microjet turbine engine can be used as an auxiliary power unit for aircraft. For example, it is added to an aircraft to drive an electronic generator and a hydraulic system to provide compressed air for the start of the main engine.

Another important role is to act as engine for jet little aircraft.

Usually microjet engines, for aviation, are not intended for individual users because such engines are expensive and complicated in structure, but our Microjet turbine engine it is perfect for individual user.





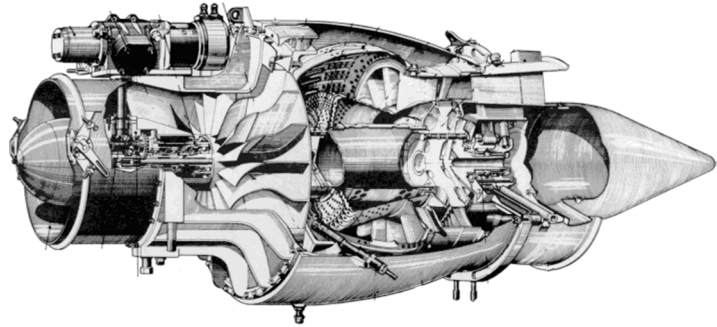
Engine type

Turbomeca Marbore II engine

Thrust: 3.1 KN, compression ratio: 4,

Weight: 146kg, length: 1.566m,

Diameter: 567 mm

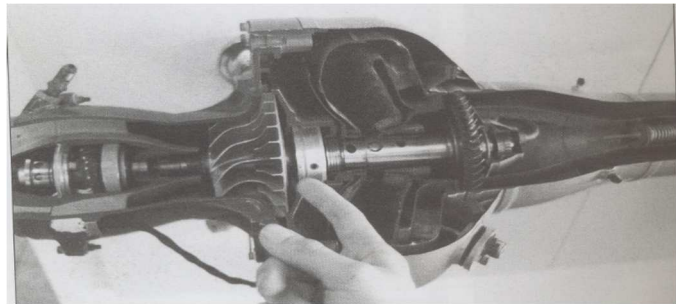


Thrust: 550 N, compression ratio: 4.1

Weight: 13.6kg, length: 1.566 m

Diameter: 274 mm,

Manufactured in 1962



Microturbine jet engines are available in both axial and radial flow types. They are generally primary and primary exhaust. Runoff compression is the choice for volume, cost and efficiency.

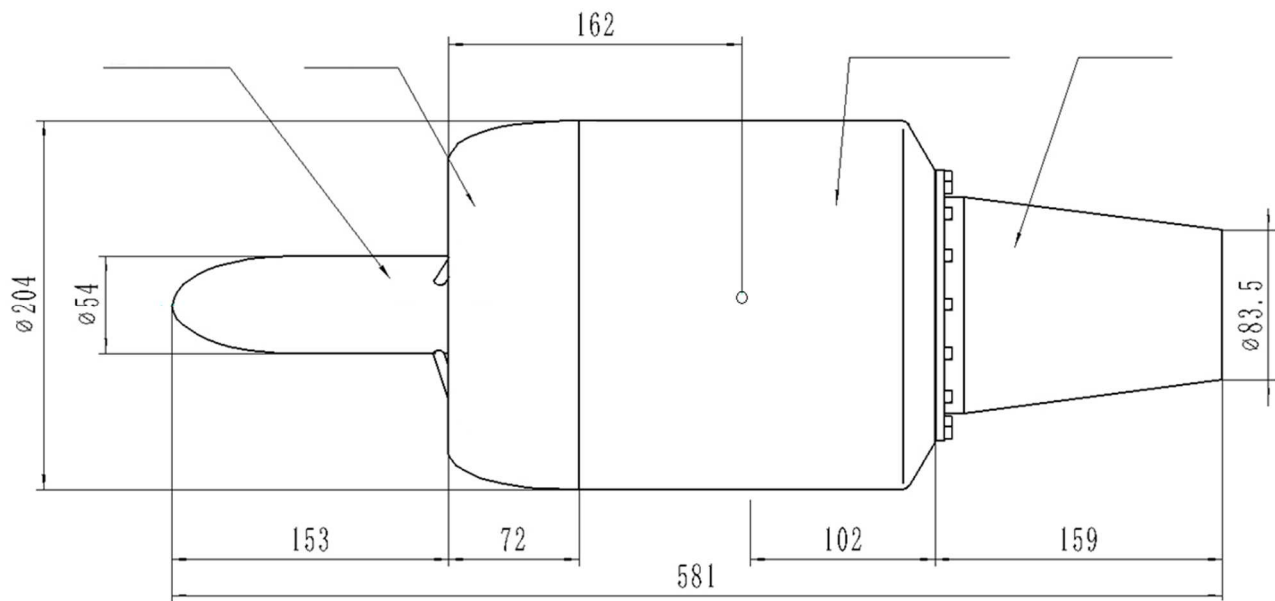




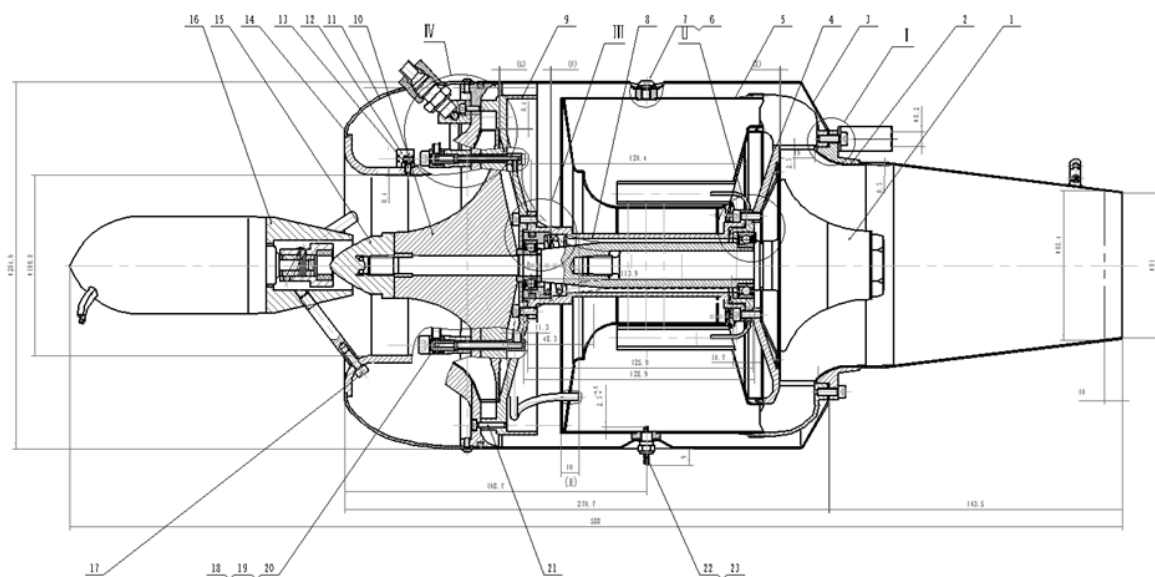
2) MTE-60A micro-jetting introduction

The MTE-60A is a radial jet engine used primarily for high speed drones, drones, and small manned aircraft. The engine has a maximum thrust of 600N, a fuel consumption of 1.46 kg/daN.h, an air flow of 1.56 kg/s, a push-to-weight ratio of 6.2, a maximum speed of 65,000 rpm and a weight of 10.3 kg.





MTE-60A Outline



MTE-60A Diagram of the internal structure



Technical Information

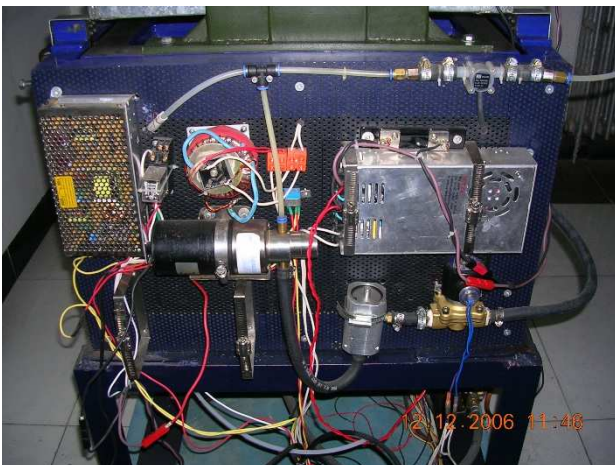
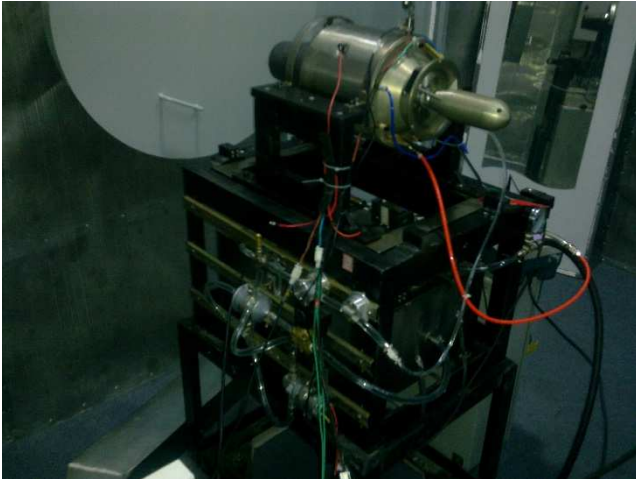
MTE-60A has complete technical information, has completed the test and appraisal, and has carried out a test flight with a domestic unmanned aerial research institute, and the test flight results have reached the design requirements.



	name	Number of files
1	Engine performance profile	1
2	Drawings	212
3	Three-dimensional map	112
4	ECU program	2407
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17	CFT130 engine test record	360
18	Cft130 engine material list	1
19	CFT130 engine product registration form	1
20	Speed pressure curve	1
21	Cft130 illustration	1
22	Cft130 part number and material	1
23	Zhongheng bearing room inspection, test report	1
24	Dynamic balance test summary	1
25	Fuel flow test bench program	1
26	Cable length plug type	1
27	Adjustment guide comparison	1

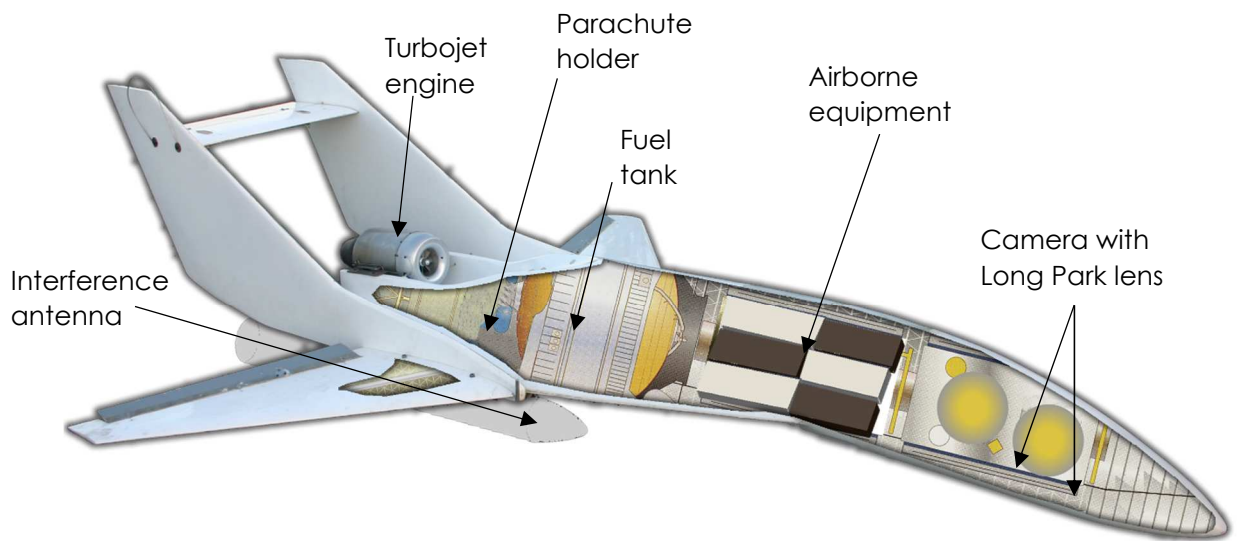


Some Pictures





3) MTE-60A application examples Flight test video





MTE-60A application examples





4) MTE-60A

engine characteristics

Modular design simplifies engine construction.

To reduce human intervention to the engine, an ECU controller is used to control the entire process of the engine to achieve automatic start, automatic cooling, etc..

To simplify the structure and reduce the cost of use is the base for a long life of the Engine and an easy maintenance service.

Micro-vortex jet is divided into modules mainly by the following parts: control unit (ECU), oil supply system, gas supply system, starting system, engine and so on. The engine is started from the start of the vehicle to stop and cool all by the control system.

The engine intake system uses a centrifugal compressor. The structure is simple, the work is relatively stable, the pressurization is relatively large, and the efficiency is high.

The exhaust system is cast using a high temperature resistant nickel alloy. The exhaust system has axial flow and radial flow. The radial flow impeller generally adopts the automobile supercharged impeller, which belongs to the product parts and is convenient to purchase. The axial flow type has high efficiency, but the manufacturing is difficult, and the cost is high.

The working process of the micro jet engine can be divided into: start (starting motor work) - supply air - ignition - oil supply (end of start process) - work - stop - cooling. All processes are performed by the ECU control unit without human intervention. The ECU monitors and controls the engine as a whole, measures the temperature and speed, and controls the engine's starter motor, solenoid valve, ignition device, fuel supply and lubrication system.

At this stage, it is possible to optimize the engine starting process and directly start the kerosene start.



5) Reform potential

Turbofan, turboshaft, turboprop engine developed on the basis of turbojet.





6) domestic and international micro-vortex jets and technical advantages

MW44 micro turbojet

Thrust: 45N

Size: 215mm x 75mm

Weight: 600g

Fuel consumption: 176ml/min



FD3-64 micro turbojet

Diameter: 120mm

Length: 210mm

Net weight: 1kg

Thrust: 2.5kg force

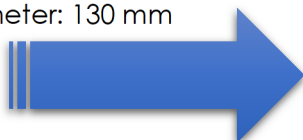


Jet Cat P200

Thrust: 20.4 kg

Weight: 2.2 kg

Diameter: 130 mm





JETCAT P1000



DALIAN SANKE DSK-50



MAXIMUM THRUST	58 kg
MAXIMUM SPEED	74.000 r/min
PRESSURE	3,6 bar
FLOW	1,,096 kg/s
GAS	1150°K
JET SPEED (SEA LEVEL)	511 m/s
ROWS TEMPERATURE	700°C
FUEL CONSUMPTION (INCLUDING OIL)	1,4 kg/kg*h
MAX DIAMETER	177,8 mm
MAX LENGTH	420 mm
WEIGHT	6,,8 kg



Technical advantages

- High technical maturity, TRL reaches 8 levels, through the use of environmental verification and trial.
- The finished product is serialized.
- It has high expandability and can be developed into a turbofan, a turboshaft, and a turboprop.
- Innovative, the combustion chamber and turbine have been theoretically calculated, simulated, and tested, and the results meet the design requirements.
- Automated control. The ECU is controlled autonomously and is easy to use.
- Easy to maintain and easy to maintain design.

7) application areas

Micro turbojets are widely used in target aircraft, target missiles, drones, one-time attack missiles, automatic attack weapons, and large-scale simulation models. It has broad development prospects and broad market areas in the civil and military fields.

Microturbine jet engines are also widely used in the civilian market, mainly in the field of models.



Military development

In the war now, drones have gradually become the main means of reconnaissance and early warning. And attack drones are gradually developing and entering war use. Drones are taking on an increasingly important role. The turbojet engine, which is the core of the drone, is of course a key technology for them use.

China's turbojet engine technology is relatively backward. But with the opening of China's civil aviation market, the government encourages private enterprises to participate in the aviation technology field to promote the development of domestic aviation industry. The current aviation industry is only in its infancy, but the domestic market is developing tremendously.

The technology for give engine power to domestic drones is the main bottleneck for their development.

Therefore, research and development of turbojets, turbofans, turbines and other series of engines have great market request and we are developing innovative microjet engines .





Target drone







Development in the civilian sector

The civil market is mainly manifested in domestic and foreign model fields. With the continuous increase of domestic model players, the domestic market will gradually expand.

In terms of product exports, domestic low material costs and low manufacturing costs have advantages that foreign products cannot match.



奥旺科技





Application of micro turbojet in aviation model





For any question please call

Mr. Bielli Venanzio



A good Company



+39.329.4527646



venanzio.bielli@e2s3.it



vb_e2s3



<https://www.linkedin.com/in/venanzio-bielli-336b9830>



vbielli-e2s3



+39.329.4527646

总部 Headquarters

E2S3 Srl
Via Volta n° 3
20028 Legnano (Milan)
Italy

www.e2s3.it

中国分公司

E2S3 co, Ltd
大连市中山区友好路 227 号悦泰城里 412,

China Branch Office

You Hao Lu n° 227, Zhongshan district,
Yue Thai town, 412,
Dalian City, -Liaoning – China