

TURBINE ENGINES

> The PBS brand is built on **200 years of history and a global reputation** for high quality engineering and production

> > www.pbsindia.com



ABOUT PBS

PBS is a successful and reliable partner to many significant aviation manufacturers and final assemblers.

The unique ability of PBS to carry out in-house design and development, manufacture and testing of small Turbojet, Turbopropeller and Turboshaft engines, Auxiliary power units (APU) and Environmental control systems (ECS) in accordance with global aerospace standards has greatly contributed to its enduring success on the global market.

PBS is **approved by the European Aviation Safety Agency** (EASA) and has the DOA, POA and MOA certificates.

RESEARCH & DEVELOPMENT CAPABILITIES

- → Development of new products
- → Innovation of existing products
- → Thermodynamic and aerodynamic calculations
- → Airflow calculations and analyses
- → Strength calculations

TESTING CAPABILITIES

- → Testing laboratory for aerospace engines, APU, ECS
- → Turbojet engines with a thrust of up to 2,000 N
- \rightarrow Testing with airpressure up to 1,200 kPa
- → Temperatures from -60 °C to 80 °C
- → Vibration and impact tests

AIRCRAFT ENGINES

PBS has designed and successfully launched a series of high-quality, reliable small turbine engines, used mainly in UAVs, target drones, missiles, experimental aircraft and ultralight helicopters.

Due to their high-level technical parameters, PBS engines hold a major advantage with excellent power-to-weight ratio ranking them one of the world leaders in their field.

ADVANTAGES

TURBOJET ENGINE



→ Excellent weight/thrust ratio

- → Compact design
 → Low fuel consumption
- → Electric starting system
- \rightarrow Ground or in-flight restart
- → Short starting sequence
- → High variability in starting
- positions/client requirements



- → Light & compact design
 → High static thrust
- ENGINES
- and low noise → Both tractor/push configurations → Stable operation in high altitudes

→ High performance, low vibrations

and temperatures
→ Ability to start in very cold conditions without preheating

UAV EXPERIMENTAL → Small personal aircraft → Small helicopters ↓ Small helicopters ↓ Small helicopters

TURBOJET ENGINE

designed for UAVs, target drones and missiles

MAIN FEATURES

- → Excellent weight/thrust ratio
- → Compact design

Salt water recovery option

Customization possible

PBS **TJ100**

→ Low fuel consumption

PBS **TJ150**

Salt water recovery option





PBS TJ150	
TECHNICAL PARAMETERS	
Max. thrust	337 lbf
Power supply	28 V DC
Electrical power output	600 W (1.5 kW)
Specific fuel consumption at max. thrust	1.167 lb/lbf/hr
DIMENSIONS AND WEIGHT	
Outer diameter	10.7 in
Length	20.5 in
Weight	43.2 lb
Weight of accessories	1.764 lb
OTHER PARAMETERS	
Fuel	Jet A-1 or equivalent
Oil	according to MIL-PRF-2369 Mobil Jet Oil II / AeroShell 560
OPERATING RANGE - ENGINE OPERATION	
Max. altitude	29,528 ft
Max. speed	0.9 M
Ambient temperature	-58 °F to +113 °F
OPERATING RANGE - ENGINE START	
Max. altitude	13,123 ft
Max. speed	0.6 M
Ambient temperature	-40 °F to +113 °F



- → Electric starting system
- \rightarrow Ground or in-flight restart
- → Short starting sequence

PBS **TJ80**

- Salt water recovery option Lubrication with vuel mixed with oil for
- maintenance free operation
- Quick start under 8 seconds



PBS TJ80	
TECHNICAL PARAMETERS	
Max. thrust	202 lbf
Power supply	28 V DC
Electrical power output	650 W (1.5 kW)
Specific fuel consumption at max. thrust	1.206 lb/lbf/hr
DIMENSIONS AND WEIGHT	
Outer diameter	9.25 in
Length	20.24 in
Weight	26.5 lb
OTHER PARAMETERS	
Fuel	Jet A-1 or equivalent, with 3% turbine oil
Oil	Mobil Jet Oil II / AeroShell 500 / Exxon 2388 or equivalent
OPERATING RANGE - ENGINE OPERATION	
Max. altitude	32,808 ft
Max. speed	0.9 M
Ambient temperature	-58 °F to +122 °F
OPERATING RANGE - ENGINE START	
Max. altitude	19,685 ft
Max. speed	0.6 M
Ambient temperature	-40 °F to +122 °F

- → High variability in starting positions/client requirements
- → Built-in starter-generator

PBS **TJ40**

Salt water recovery option
 In less than 5 seconds from idle to max. RPM
 Start in every position



PBS TJ40

TECHNICAL PARAMETERS	
Max. thrust	88.8 lbf
Power supply TJ40-G1/TJ40-G2	14 V/28 V DC
Electrical power output TJ40-G1/TJ40-G2	150 W/1.1 kW
Specific fuel consumption	1.44 lb/lbf/hr
DIMENSIONS AND WEIGHT	
Outer diameter	5.79 in
Length	11.97 in
Weight	7.71 lb
OTHER PARAMETERS	
Fuel	Jet A-1 or equivalent, with 3% turbine oil
Oil	Mobil Jet Oil II / AeroShell 500 / Exxon 2388 or equivalent
OPERATING RANGE - ENGINE OPERATION	
Max. altitude	29,500 ft
Max. speed	0.9 M
Ambient temperature	-58 °F to +122 °F
OPERATING RANGE - ENGINE START	
Max. altitude	14,700 ft
Max. speed	0.35 M
Ambient temperature	-40 °F to +122 °F

TURBOPROP ENGINE

designed for experimental aircraft and UAVs

PBS **TP100**

The turboprop engine PBS TP100 is suitable for small aircraft and unmanned aerial vehicles (UAVs). The system is designed for use in both push and tractor configuration depending on its mounting position on the aircraft.

MAIN FEATURES

- → Low weight
- → Small installation dimensions
- → Excellent power-to-weight ratio
- → Digital interface for control and monitoring
- → Stable operation at high altitudes and high temperatures
- → Gearbox design offers the possibility to install an additional alternator with output power up to 1.5 kW

PBS TP100

TECHNICAL PARAMETERS	
Output shaft speed	2,158 RPM
Power supply	28 V DC
Electrical power output	720 W (up to 6 kW with an additional alternator)
POWER	
Take-off	241 HP
Max. continuous	214 HP
Cruise	188 HP
SPECIFIC FUEL CONSUMPTION	
Take-off	0.847 lb/HP/hr
Max. continuous	0.863 lb/HP/hr
Cruise	0.901 lb/HP/hr
DIMENSIONS AND WEIGHT	
Height x width - without exhaust	15.67 x 13.00 in
Length	35.08 in
Weight	135.8 lb
OTHER PARAMETERS	
Fuel	JET A, A-1, B, according to DERD 2494 standard, TS-1, T2, RT, according to GOST 10227-86 standard
Oil	according to MIL-L-23699 Mobil Jet Oil II / AeroShell 560
OPERATING RANGE - ENGINE OPERATION	
Max. altitude	29,500 ft
Ambient temperature	-58 °F to ISA +86 °F
OPERATING RANGE - ENGINE START	
Max. altitude	19,700 ft

Ambient temperature -22 °F to ISA +86 °F

TURBOSHAFT ENGINE

designed for light manned and unmanned helicopters

PBS **TS100**

The turboshaft engine PBS TS100 is suitable for light helicopters with maximum take-off weight up to 1,000 kg.

MAIN FEATURES

- → Low weight
- → Small installation dimensions
- → Excellent power-to-weight ratio
- → Digital interface for control and monitoring
- → Stable operation at high altitudes and at high temperatures
- → Gearbox design offers the possibility to install an alternator with output power up to 1.5 kW

PBS TS100	
TECHNICAL PARAMETERS	
Output shaft speed TS100ZA/TS100DA	5,978 RPM / 2,158 RPM
Power supply	28 V DC
Electrical power output	720 W (up to 6 kW with an additional alternator)
POWER	
Take-off	241 HP
Max. continuous	214 HP
Cruise	188 HP
SPECIFIC FUEL CONSUMPTION	
Take-off	0.847 lb/HP/hr
Max. continuous	0.863 lb/HP/hr
Cruise	0.901 lb/HP/hr
DIMENSIONS AND WEIGHT	
Height x width - without exhaust	15.67 x 13.00 in
Length TS100ZA/TS100DA	32.64 in / 34.69 in
Weight TS100ZA/TS100DA	125 lb / 135 lb
OTHER PARAMETERS	
Fuel	JET A, A-1, B, according to DERD 2494 standard, TS-1, T2, RT, according to GOST 10227-86 standard
Oil	according to MIL-L-23699 Mobil Jet Oil II / AeroShell 560
OPERATING RANGE - ENGINE OPERATION	
Max. altitude	29,500 ft
Ambient temperature	-58 °F to ISA +54 °F
OPERATING RANGE - ENGINE START	
Max. altitude	19,700 ft
Ambient temperature	-22 °F to ISA +54 °F













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