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## RD-33

The RD-33 aircraft engine is a two-shaft turbofan engine comprising 11 modules.

The engine consists of the following main parts: a 4-stage low-pressure compressor, 9-stage high-pressure compressor, annular ramjet combustor, high and low pressure turbines, supersonic variable-area nozzle and afterburner, accessory gear box, and an engine starting and control system.

The engine is equipped with failure detection systems, compressor speed governor and LP turbine exit temperature limiter, surge, ice and fire detectors.

In terms of the key indicators characterizing engine efficiency (thrust-rise rate with Mach number, engine weight-to-power ratio, etc), the RD-33 is among the best engines in its class. It provides rapid acceleration from idle to thrust maximum non-afterburning and afterburning settings.

The RD-33 is used in a wide range of altitudes and speeds, provides stable operation under extreme conditions. Owing to its high stall margin in the presence of external disturbances (caused by weapon use, among others), the engine does not impose restrictions on piloting the aircraft, including with combat load.

The modular design of the engine enables its reconditioning in the field by replacing large blocks, followed by a local repair of a unit and trouble clearing (including compressor blade replacement).

The RD-33N engine versions with bottom-mounted accessory gear box have been developed for installation on foreign fighters.

For a family of the MiG-35, MiG-29M/M2 multifunctional frontline fighters and MiG-29K/KUB shipborne aircraft, a new version, the RD-33MK, is available which differs from the baseline RD-33 in increased thrust and longer assigned service life, an additional contingency takeoff power setting, and improved corrosion protection of parts and components.

An engine version with thrust vector control is available.

The new versions of the RD-33 engines are equipped with a digital automatic control and monitoring system, as well as a power unit for aircraft accessories with dual-redundant main accessories.

For engine ground service, an automated diagnostic system (based on a laptop PC) is available that makes it possible to quickly evaluate the technical condition of the engines.

Características básicas:



**РОСОБОРОНЭКСПОРТ**

Акционерное общество

- Full afterburner thrust, kgf: 8300
- Max military thrust ,kgf: 5040
- Engine pressure ratio: 21
- Turbine inlet temperature, °K: 1680
- Length, mm: 4230
- Inlet diameter, mm: 750
- Max engine diameter, mm: 1040
- Dry weight, kg: 1055

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Российская Федерация,

107076, г.Москва, ул Стромынка, 27,

АО «РОСОБОРОНЭКСПОРТ», Пресс-служба

Тел.: +7 (495) 534 61 83;

Факс: +7 (495) 534 61 53

[www.roe.ru](http://www.roe.ru)

