

TE 300 Pro

The flagship TE 300 Pro offers astonishing power in a light and agile package. Its 300cc 2-stroke engine features an innovative throttle body fuel injection and sets the benchmark in unrivalled power and lightweight construction while retaining exceptional reliability and low maintenance costs. Even though it offers the highest 2-stroke performance in the Husqvarna enduro range, the TE 300 Pro is even more controllable than before. Eliminating the need to premix fuel provides an additional benefit.

Engine

All the latest innovations have been brought into the 2-stroke enduro platform. With an overall weight of just 24,6 kg, the TE 300 Pro engine sets the benchmark when it comes to weight/performance ratio. Many championships will see the TE 300 Pro top the result sheets of the highly competitive E3 class, underlining this new era of 2-stroke technology.

The lightweight engine is designed to provide more torque than any previous 2-stroke engine without losing its signature high-revving, lightweight 2-stroke character.

The engine is designed to centralise rotating mass for optimal operation with the chassis, resulting in light and agile handling. The power train has been positioned the same as on the TE 250. Together with the benefits of mass centralisation and reduced weight, the anti-squat behaviour of the chassis was significantly improved by changing the backbone of the steel frame concept while the engine is mounted symmetrically side to side.

The throttle body fuel injection system (Keihin 39 mm throttle body in combination with a Vitesco EMS) and electronic exhaust control allow for a more compact engine design and free definable values for engine speed and load. The result is tailormade power delivery for each gear and every situation.

Another focus in development was serviceability of the TE 300 engine. Draining noses for liquids and added service markers on the engine (▲) clearly show where to use washers, making maintenance and servicing easier than in the past.

The water pump concept has a shaft featuring a drive wheel instead of the previous centrifugal regulator, and it is protected by an aluminium diecast water pump cover. The water pump concept is shared among all 2-stroke enduro engines, making it easy for dealers to supply spare parts in the rare cases they are required.

- Pinnacle of performance → high power output, 24,6 kg
- Mass-centralisation → significant benefits in handling and manoeuvrability
- Improved serviceability of engine internals → added service markers and draining noses for liquids

Cylinder head

The cylinder head cover features an external water temperature sensor located within the tubing to provide accurate readings. A “front” indication makes it almost impossible to mount the cylinder head the wrong way, which will assist dealers and also tech-savvy customers servicing engines themselves.

The combustion chamber inserts follow the same logic. Mixing up inserts from different models is no longer possible. All of these details significantly improve overall engine quality ex-factory.

Enduro-specific cylinder timing and porting results in a higher compression ratio and no compromise between the motocross and enduro ranges, as each engine configuration is tailor-made for its own competition discipline.

- “Front” indication on cylinder head → avoiding incorrect installation
- Combustion chamber insert → impossible to mix-up inserts from other models
- Enduro-specific cylinder timing and porting → best compression ratio for enduro competition without compromise

Cylinder

The cylinder features a 72 mm bore. The highly innovative electronic exhaust control manages the opening of both main exhaust and lateral exhaust ports via an actuator. On the TE 300 Pro, the main exhaust port opens before the lateral exhaust port to deliver maximum yet controllable power.

The results are exceptional rideability, engine control and a larger adjustability range of engine characteristics (differences between the two engine maps).

The power valve can be controlled according to the throttle position and engine RPM (vs. only engine speed on a mechanical system). Additionally, it is auto-calibrating, meaning there are no more issues with incorrect power valve adjustments.

The machined finish on the upper contour of the exhaust port ensures accurate port timing, delivering unrivalled performance in every situation.

- Electronic exhaust control → tailor-made, linear and predictable power delivery
- Machined exhaust port → outstanding performance and controllability

Crankshaft

The crankshaft is designed with weight reduction in mind to increase the liveliness and response of the engine. The perfect balance of rotating masses is achieved by balancing the weights of the crankshaft flywheel, the rotor and the counter balancer shaft. With a perfect combination of these components, vibration is kept to an absolute minimum. Engine internals are also positioned to ensure that the rotational mass created has very little effect on the handling of the motorcycle.

- Lightweight crankshaft → responsive engine character
- Combination of crankshaft, rotor, and counter balancer shaft → very little vibration

Counter balancer shaft

The TE 300 Pro features a laterally mounted counter balancer shaft. This shaft significantly reduces vibrations resulting in a smoother and more comfortable ride with less rider fatigue.

- Counter balancer shaft → significantly reduced vibration

Crankcases

The TE 300 Pro engine is designed with mass centralisation and weight reduction among the main criteria. As a result, the crankcases have been designed to house the internal components of the engine in the perfect position to achieve the ideal centre of gravity while adding the least possible weight. The casings are manufactured using a high-pressure die-cast production process, resulting in thin wall thickness while retaining exceptional reliability.

Black powder coating provides additional durability and a premium look, while service and oil level markings give easier serviceability. Additionally, the engine is connected to the frame with symmetrical engine mounts (left and right side) resulting in improved flex characteristics.

- Light and compact crankcases, optimised mass-centralisation
- Easy serviceability of engine internals with added service markers and draining noses for liquids
- Optimised crankcase pressure sensor: larger hose diameter, more protection against build-up of oil carbon particles, better signal quality and better engine load detection

Gearbox

The 6-speed gearbox is manufactured exclusively by Pankl Racing Systems ensuring the highest level of durability and reliability. The gearbox features enduro- specific gearing while the gear lever features an innovative tip design that prevents dirt build-up. A transmission ventilation concept rounds off the shift mechanism.

- 6-speed gearbox → manufactured by Pankl Racing Systems
- Gear lever → increased leverage, more smooth and precise shifting
- Friction-optimised shifting mechanism → less lever force necessary

DDS clutch

The TE 300 features a Dampened Diaphragm Steel (DDS) clutch. The unique characteristics of this system include a single diaphragm steel pressure plate instead of traditional coil springs. It integrates a damping system for better traction and durability. The clutch basket is a single-piece CNC-machined steel component that allows the use of thin steel liners and contributes to the compact design of the engine.

- DDS clutch featuring consistent modulation and exceptional durability
- Light action with integrated damping system, increased traction and reliability

EFI (TBI)

In cooperation with Keihin, we developed a 39 mm throttle body fulfilling the needs of innovative, state-of-the-art, 2-stroke enduro injection. The ECU is supplied by Vitesco and works in harmony with the Keihin throttle body by always delivering the right amount of air/fuel mixture. Therefore, the ECU continuously analyses coolant temperature, air temperature, ambient pressure, pressure within the crankcase, rpm and throttle position (via the TPS) to calculate the perfect air-fuel mixture for every riding situation.

Additionally, composite flaps on the outside of the reed valve case provide improved sealing of the intake tract. This design avoids fuel excess in extreme up- or downhill sections which could lead to overly rich engine settings. Boyesen Inc. continues to supply the carbon membranes for the reed valve case.

A beneficial side-effect afforded by the electronic fuel injection and the ECU is the implementation of the innovative electronic exhaust control system.

With all these innovative features it was also possible to further refine engine maps on the 300cc enduro engine. Map 1 is the standard, more relaxed map for linear, predictable power, while Map 2 is the more aggressive map for added throttle response and a crisper, more aggressive power output. Both maps can be selected via the 2-stroke Map Select Switch on the left side of the handlebar.

- EFI by Keihin (39mm throttle body) → optimal power delivery and performance in all conditions
- Reed valve case design → guarantees correct air/fuel mixture even in most extreme up- or downhill sections
- Injectors with optimised Sauter Mean Diameter (SMD) → smaller droplets

Oil Injection

Additionally, the ECU controls the specific amount of oil injected into the throttle body. It is not a fixed ratio of 1:60, but varies depending on the riding situation and can accordingly be leaner or richer.

Throttle Body Injection (TBI) injection has the major benefit of more homogeneous air/fuel mixture due to later oil injection compared to the older Transfer Port Injection (TPI) engine. Now, with TBI, the injection point is at the membrane flange while in the past (TPI) its position was at the throttle body. The oscillation of membranes increases the oil/fuel mix further and leads to a previously unreached level of atomisation. As a result, the engines have a lower risk of seizure, better internal combustion and rideability in all conditions. The drawback is higher fuel and oil consumption.

The character of the TPI engines was not known for its liveliness. Actually, quite often at low revs with low engine loads, 'oil nests' were common, leading to delayed and sluggish engine response. This is now consigned to the past and the engines are much more versatile, fulfilling the demands of riders of different levels in a variety of scenarios, from Hard Enduro to Classic Enduro.

E-Start

Husqvarna enduro offerings now come with E-Start only. A kickstart is no longer featured and cannot be retrofitted. The starter motor has no intermediate shaft, saving weight and allowing compact engine design and perfect integration. A robust but also compact cover protects the starter motor from roost or rock damage. A 12,8V 2 Ah Li-Ion battery is placed under the rider's seat close to the centre of gravity. The engine can be easily brought to life by pressing the combined start/stop switch on the right side of the handlebar. A high-quality stator and pickup are built into the TE 300 engine for increased reliability and an efficient power supply for the electronics.

- E-Start → less loss of time when stalling engine in races and exceptional user friendliness
- Li-Ion battery → lightweight, 1 kg lighter than a conventional battery
- High-quality stator and pickup → increased reliability/efficient power supply for electronics