

The Elite Engine System: What is it, what's in it, and why do you need it?

Elite Engine Systems has engineered a series of engine components, which, when correctly installed *together*, produce a specific performance outcome for Porsche flat six racing engines. We call these "Engine Systems". A "System" typically includes: (a.) crankshaft, (b.) connecting rods, (c.) pistons, (d.) cylinders, (e.) cylinder heads with special intake and exhaust ports, (f.) valves, springs and retainers, (g.) cams, (h.) induction systems, (i.) exhaust systems, and (j.) engine electronics. There are three types of Elite Systems, and these are offered in several displacement categories.

Silver – The heart of the "Silver System" revolves around the Elite cylinder heads with specially developed intake/exhaust ports and camshafts. These Systems typically use the existing crankshaft (modified by EESL), high quality racing parts supplied by known entities in the field (i.e. Nascar type rod bearings, or Pauter/Carillo etc.), carburetors, distributors, and conventional header type exhaust systems, and are designed to safely operate within conventional operating speed ranges. These Systems are designed so that they will meet HSR, SVSR, PCA, NASA and other race specifications. The Silver engines typically rev to 8200 RPM. Elite has Silver systems for 3400, 3600 and 3800 cc displacement.

Gold – these engines are used by top 10% competitors around the globe. They use exotic low weight components to operate at much higher speeds reliably, and typically use engine management systems which have been extensively characterized at the dynamometer. The internal geometries for these engines (rod/stroke ratios, bore/stroke ratio, curtain area/nozzle ratio, Exhaust Prandtl-Meyer signature, etc.) meet the specifications of the above-mentioned sanctioning bodies (i.e. displacement, induction specs, etc.), but have been developed from the ground up using engineering criteria confirmed with FEA and CFD analysis as well as extensive modeling to optimize friction, internal and port flow aerodynamic losses, torsional harmonics, valve train harmonics, intake and exhaust wave interactions, etc. The net effect of this development is that these engines represent the optimal racing configuration with the individual components optimized for their individual function as well as the interaction with the rest of the components of the engine to produce a superior System. The Gold Systems are designed to operate reliably at substantially higher speeds (to 9500 RPM and above for smaller displacement engines) and produce about 6% to 8% more power than the engines with the powerful Silver systems. The ports, valves and cams, rods, pistons and cylinders used in the Gold System are different than the ones used for the Silver Systems. Due to the extensive and interactive list of attributes that require "technical synchronizing", it is important that all of the pieces of the system are used to generate the performance outcomes proven by these engines on the DYNO. Elite's goal is to do all of the engineering, testing and development and make an entire system available to the experienced engine builder. That way the engine builder can apply his/her own trade secrets to build a World class racing engine which has a competitive advantage in the field. Alternatively, the engine builder can just install these system components correctly into an engine and obtain an output from this engine that corresponds to the published

performance numbers for these systems. Elite has developed Gold Systems for 3000, 3400, 3800 and 3900 cc displacement racing classes.

Platinum – Maximum effort engines used in the most demanding applications. These engines apply technologies used in the highest end racing series such as pneumatic valve springs, direct gasoline injection, and are constructed with the most advanced materials available without regard to cost. Our air cooled, 2 valve racing engines operate at speeds up to 12,500 rpm and produce specific outcomes above 150HP/liter. These engines are designed for sprint racing only and require Elite's involvement in the final assembly of the components.