Engine-Driven Pumps

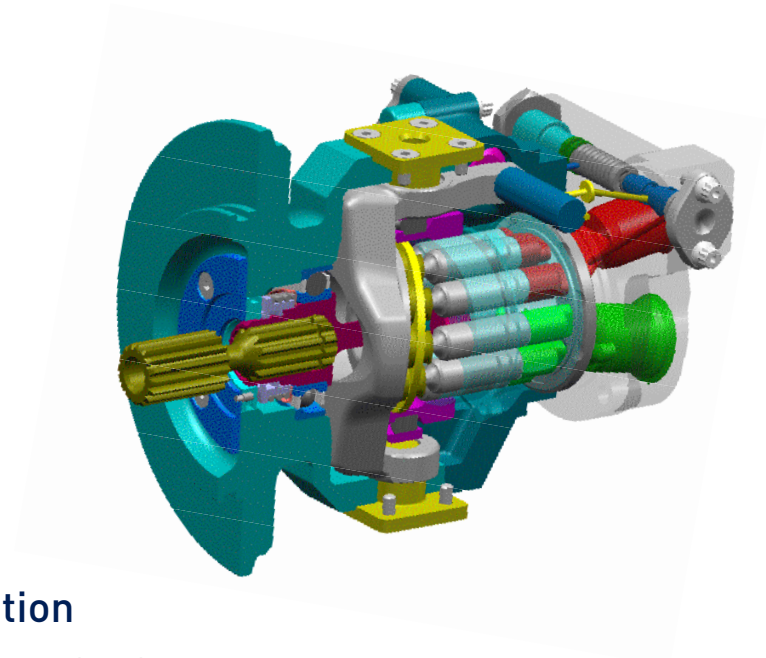
Customer value proposition

The engine-driven pump (EDP) product line, designed and manufactured by the Hydraulic Systems Division (HSD), provides the primary hydraulic power for many of today's leading military and commercial aircraft including:

- Airbus A320, A340, A350XWB
- Boeing 737,747, 757, 767, 777, 787 Dreamliner
- Bombardier CRJ 700/900/100, Dash 8 Q-400, Global Express, Challenger 300
- Cessna Sovereign and Citation X
- Dassault Falcon 7X
- Embraer 170/190
- F-16 Fighting Falcon
- Gulfstream G450, G500, and G550
- Sukhoi Superjet

Ranging in size from 0.03 to 5.5 in^3/rev and capable of operation at system pressures between 1,000 and 8,000 psi, Parker EDPs provide unmatched efficiency and reliability in a compact, lightweight package having a superior power-to-weight ratio.

In addition to our existing units, the Parker product development team has the skill set and engineering tools to custom design a hydraulic pump that will meet your specific application requirements. Please contact us to see how we can engineer a solution for you.



Operation

EDPs serve as the primary hydraulic flow and pressure supply for the hydraulic users within the aircraft system. The typical EDP configuration is a pressure-compensated, variable displacement axial piston pump capable of varying the volume of fluid delivered to maintain hydraulic system pressure.

The rotating group is made up of the components that accomplish the pumping task. The cylinder barrel, containing the piston shoe subassemblies, is driven via a splined drive shaft. The piston shoe subassemblies are constrained by a hold-down plate and utilize hydrostatically balanced shoes that run on the hanger surface.

As the barrel rotates, the pistons reciprocate within their bores, taking in and discharging fluid through a stationary valve plate interfacing with the port cap.

The hanger is supported by bearings that permit angular rotation about an axis perpendicular to the cylinder barrel centerline. By changing the angle of the hanger, the length of the piston stroke varies, resulting in a change in pump displacement.

During operation, pump discharge pressure is controlled by the compensator. The pressure compensator maintains the delivery pressure by regulating the hanger angle and subsequent discharge flow in response to changes in system pressure.

Engine-driven pumps

Model Number	Maximum Displacement (in^3/rev)	Normal Operating Pressure (psi)	AS595 Maximum Recommended Speed (rpm)	Maximum Output Flow (gpm)	Approximate Dry Weight (lbs)	Approximate Envelope		
						L (in)	H (in)	W (in)
AP05VC	0.09	3000	13060	4.8	2.4	3.6	3.3	3
AP05V	0.15	3000	11034	6.8	2.6	3.9	4.3	3.8
AP1V	0.31	3000	8684	11.1	7.0	6.5	5	4.3
AP2V	0.42	3000	7856	13.6	8.0	6.5	5	5
AP3V	0.52	3000	7321	15.7	9.0	7	5.7	4.6
AP4V	0.65	3000	6801	18.2	10.5	7	6	6
AP5V	0.82	3000	6299	21.2	11.5	7	6	6
AP6VSC	0.97	3000	5960	23.8	12.0	7.2	6	6
AP8V	1.35	3000	5344	29.7	16.0	7.3	6	6
AP9VM	1.20	5000	5085	25.1	21.5	9.5	6.7	6.7
AP10VC	1.60	3000	5052	33.2	15.3	9.4	6	6
AP12V	2.02	3000	4677	38.9	18.5	7.2	7.5	6
AP15V	2.40	3000	4420	43.6	25.0	10.4	7.5	7
AP19V	3.00	3000	4106	50.7	27.5	12.8	9	9
AP27V	4.30	3000	3646	64.5	29.8	10.3	8.6	6.8
AP36V	5.50	3000	3361	76.0	47.0	9.8	8.5	8.5
AP20VM	3.05	5000	3737	46.9	41.0	13	9.5	9.5

Optional features

- Impeller – For performance at low inlet pressures, an impeller is used to ensure that the piston bores fill properly.

- Gerotor – A gerotor ensures case drain flow against the maximum back pressure of the system at the case drain port, decreasing the operating temperature of the rotating group and minimizing the pressure loads on the rotating group components.

- Depressurization – A depressurizing circuit overrides normal pressure compensator regulation, allowing for discharge pressure reduction and a subsequent input torque decrease.

- Blocking valve – Incorporated in conjunction with a depressurization circuit, a blocking valve will block flow out of the discharge port during depressurization.

- Attenuation – To minimize pressure ripple, pulsation dampeners can be incorporated into the pump design.

- Advanced bearings – New aerospace technology designed to minimize weight & envelope.

Contact information

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