

Aircraft Engine-Driven Pumps

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

- Airbus A320, A340, and A350 XWB
- Boeing 737, 747, 757, 767, 777, and 787
- Bombardier CRJ 700/900/100, Dash 8/Q-400, Global Express, and Challenger 300
- Cessna Sovereign and Citation X
- Dassault Falcon 7X
- Embraer 170/190
- Lockheed Martin F-16 Fighting Falcon
- Gulfstream G450, G500, G550
- Sukhoi Superjet

Ranging in size from 0.03 to 5.5 in³/rev and capable of operation at system pressures between 1,000 and 8,000 psi, Parker Aerospace EDPs provide unmatched efficiency and reliability in a compact, lightweight package, with a superior power-to-weight ratio.



Product Features

EDPs serve as the primary supply of hydraulic flow and pressure 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 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 pressure compensator. The compensator maintains the delivery pressure by regulating the hanger angle and subsequent discharge flow in response to changes in system pressure.

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** – This aerospace technology is designed to minimize weight and envelope

Contact Information

Parker Hannifin Corporation
Parker Aerospace
Hydraulic Systems Division
2220 Palmer Avenue
Kalamazoo, Michigan 49001-4165
Phone: (269) 384-3400
Fax: (269) 384-3423
www.parker.com

Aircraft 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

Contact Information

Parker Hannifin Corporation
Parker Aerospace
Hydraulic Systems Division
2220 Palmer Avenue
Kalamazoo, Michigan 49001-4165
Phone: (269) 384-3400
Fax: (269) 384-3423
www.parker.com



ENGINEERING YOUR SUCCESS.