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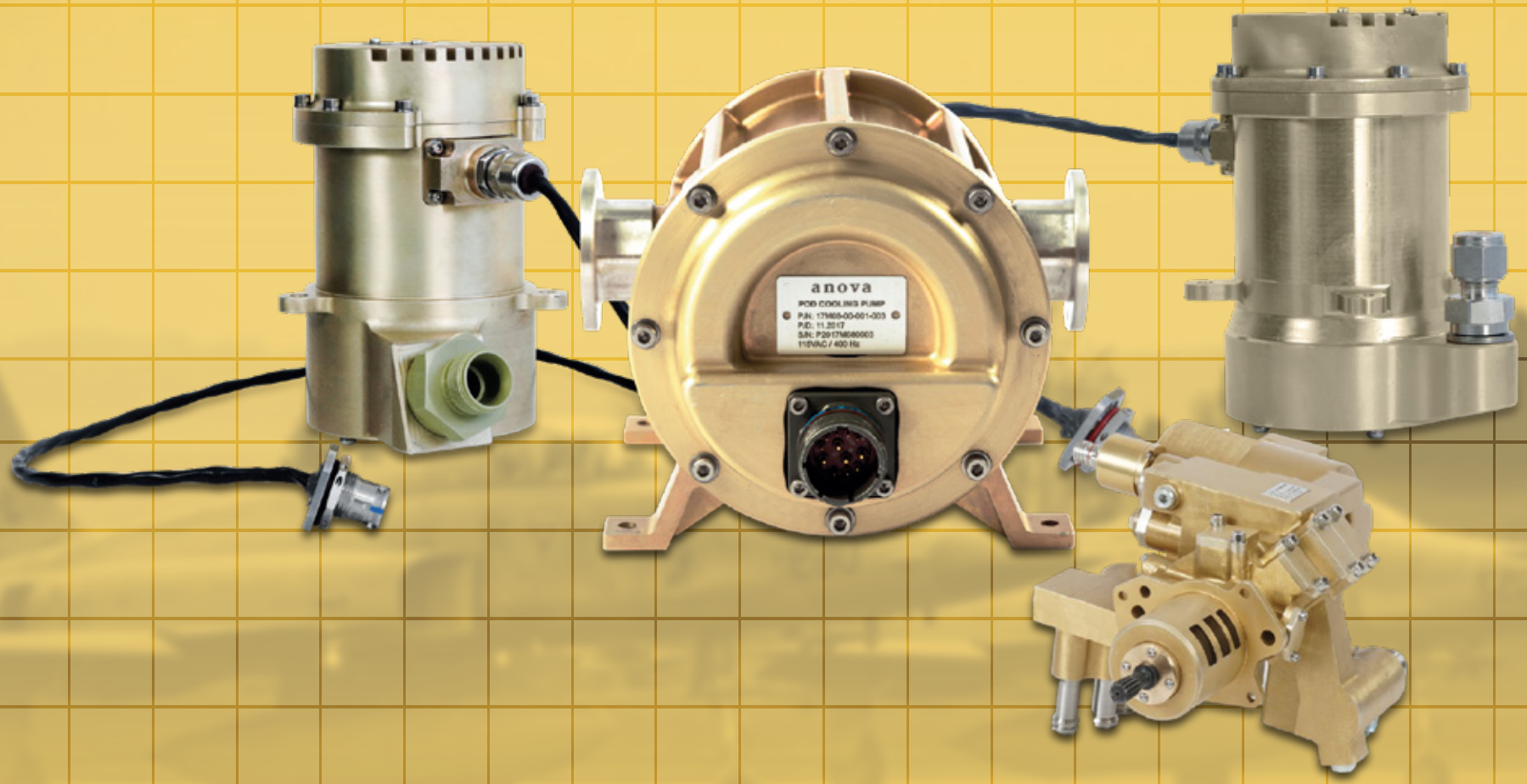

FUEL & OIL PUMPS

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CONTENTS

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FUEL TRANSFER PUMP FAMILY

Compact & high efficiency
military grade centrifugal pump
for airborne platforms.

Technical Data:

Motor	Dimensions and Weight
Nominal Voltage	75mm x130mm x135mm
28 VDC	Weight: 1.25 kg (in dry Condition)
Power Supply Voltage Range : 22 to 32 VDC	
Power Consumption: ~≤ 3 A at 28 VDC	
Oparating Conditions	
All typical A/C – fuels and addivitives	
Oparating Temprature: -40°C to +85°C	
Nominal Performance	
Rated Flow: 900 l/h (23 C)	
Rated Pressure: ≥0.8 bar (52 kPa)	

- Wet running, Brushless DC motor driven centrifugal type fuel pump
- Excellent dry run capability
- Electronic constant speed regulation for constant flow and pressure supply
- Very high operating endurance (no dynamic seals, no roller bearings),
- Outlet port fitting, (OD 1/2"- ID 0.4"), other connections are possible
- 10^{-7} atm.cm^3/s hermetically sealed (helium) electrical connection,
- Qualified per MIL – STD – 461, MIL – STD – 810

Environmental Specifications:

- High Temperature: MIL-STD-810G Method 501.5 Procedure I&II
- Low Temperature: MIL-STD-810G Method 502.5 Procedure I&II
- Temperature Shock: MIL-STD-810G Method 503.5 Procedure I-D
- Shock: MIL-STD-810F Method 516.5 Procedure IV
  MIL-STD-810F Method 516.7 Procedure II
  MIL-STD-810F Method 516.7 Procedure IV
- Vibration: MIL-STD-810G Method 514.5 Procedure I
  MIL-STD-810G Method 514.6 Procedure I Category 4
  MIL-STD-810G Method 514.6 Procedure I Category 10
  MIL-STD-810G Method 514.6 Procedure I Category 19
- Acceleration: MIL-STD-810F Method 513.5 Procedure II

Applications:

- Military Cruise Missiles

Designed by ANOVA:

- Mechanical Design
- Electronics Design
- Driver Software
- Fluidic Design
- Driver Card

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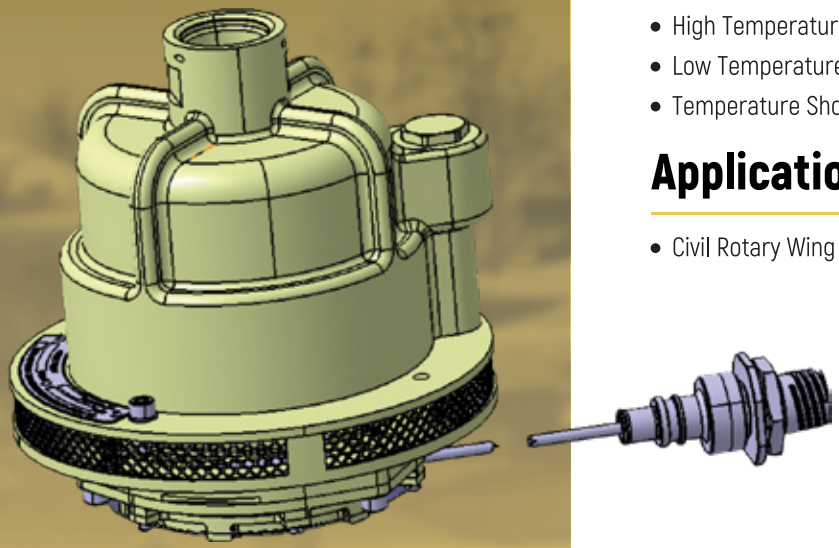
FUEL BOOSTER PUMP - 01

High efficiency fuel booster pump designed for civil rotary wing aircrafts.



Technical Data:

Type	Fuel Booster Pump Brushless DC Canister Type
Flow Rate	1380 kg/h (3050 PPH) AT 145 kPag MIN (21 PSIg MIN) AT 24 VD.C. MIN.
Pressure	0 kg/h AT 200 kPag MAX. (29 PSI)
Nominal Voltage	28 VDC (18-32 VDC)
Nominal Current	Max 8A
Operating Temperature	(-40°C) – (+50°C)
Storage Temperature	(-40°C) – (+80°C)

Environmental Specifications:

- High Temperature: RTCA DO-160
- Low Temperature: RTCA DO-160
- Temperature Shock: RTCA DO-160
- Vibration: RTCA DO-160
- Shock: RTCA DO-160
- Acceleration: RTCA DO-160

Applications:

- Civil Rotary Wing Aircrafts

Designed by ANOVA:

- Mechanical Design
- Fluidic Design
- Electronics Design
- Driver Card
- Driver Software

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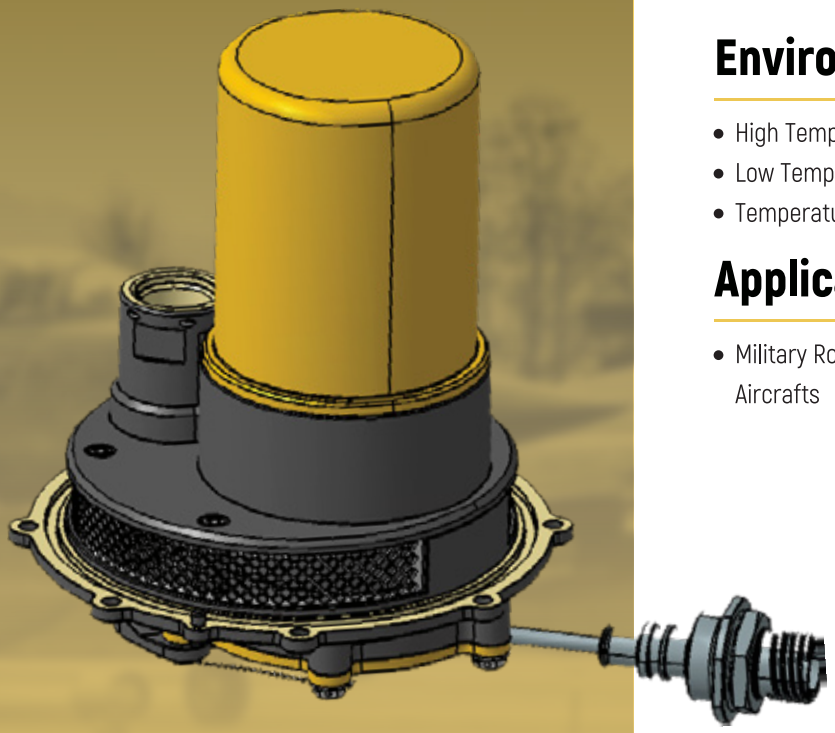
FUEL BOOSTER PUMP - 02

High efficiency fuel booster pump designed for civil rotary wing aircrafts.



Technical Data:

Type	Fuel Booster Pump Brushless DC Canister Type
Flow Rate	1380 kg/h 145 kPag 24 VDC MIN 3050 PPH 21 PSIg 24 VDC MIN
Pressure	586 kg/h @ 1.1 BAR Min @ 28 VDC
Nominal Voltage	28 VDC (18-32 VDC)
Nominal Current	Max 8A
Operating Temperature	(-40°C) – (+70°C)
Storage Temperature	(-40°C) – (+80°C)

Environmental Specifications:

- High Temperature: MIL-STD-810
- Low Temperature: MIL-STD-810
- Temperature Shock: MIL-STD-810
- Vibration: MIL-STD-810
- Shock: MIL-STD-810
- Acceleration: MIL-STD-810

Applications:

- Military Rotary Wing Aircrafts

Designed by ANOVA:

- Mechanical Design
- Fluidic Design
- Electronics Design
- Driver Card
- Driver Software

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ENGINE OIL PUMP

High efficiency oil pump designed for Turboprop and Turboshaft engines.

Technical Data:

Type	Oil Pump Accessory Gearbox Driven
Flow Rate	Supply Port Oil : 18 LPM Scavenge Ports Air+Oil Total : 58 LPM
Pressure	Supply : 7 Bar Scavenge : 3 Bar
Oil Temperature	130 °C
Operating Temperature	(-40°C) – (+170°C)
Storage Temperature	(-40°C) – (+80°C)

Environmental Specifications:

- High Temperature: RTCA DO-160
- Low Temperature: RTCA DO-160
- Temperature Shock: RTCA DO-160
- Vibration: RTCA DO-160
- Shock: RTCA DO-160
- Acceleration: RTCA DO-160

Applications:

- Turboprop Engines
- Turboshaft Engines

Designed by ANOVA:

- Mechanical Design
- Fluidic Design

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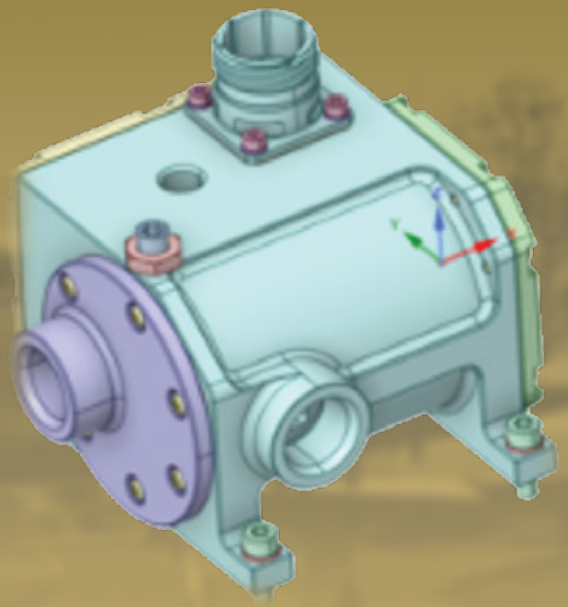
COOLANT PUMP MEG

High efficiency positive displacement pump designed for liquid cooling of avionics.



Technical Data:

Tip	Positive Displacement Pump (Fluid: MEG) - Gerotor Brushless DC – 28 VDC
Debi	5 LPM MEG@5 Bar Pressure Head @60°C
Akışkan	MEG Water Mixture (Antifrogen - N)
Çalışma Sıcaklığı	(-40°C) – (+71°C)

Environmental Specifications:

- Vibration: MIL-STD-810F Method 514.5 Procedure I
- Acceleration: MIL-STD-810F Method 513.5 Procedure I & II
- High Temperature: MIL-STD-810F Method 501.4 Procedure II
- Mechanical Shock: MIL-STD-810F Method 516.5 Procedure I
- Gunfire Vib.: MIL-STD-810F Method 519.5 Procedure I
- Temperature Shock: MIL-STD-810F Method 503.4 Procedure I
- Altitude: MIL-STD-810F Method 500.4 Procedure II
- Crash Safety: MIL-STD-810F Method 516.5 Procedure I
- Humidty: MIL-STD-810F Method 507.4 Notice 2 Figure 504.4-1
- Salt Fog: MIL-STD-810F Method 509.4 Paragraph 4.5.2
- Rain: MIL-STD-810G Method 506.4 Procedure III
- Sand and Dust: MIL-STD-810G Method 510.5 Procedure I

Applications:

- Liquid Cooling Systems

Designed by ANOVA:

- Mechanical Design
- Fluidic Design
- Electronics Design
- Driver Card
- Driver Software

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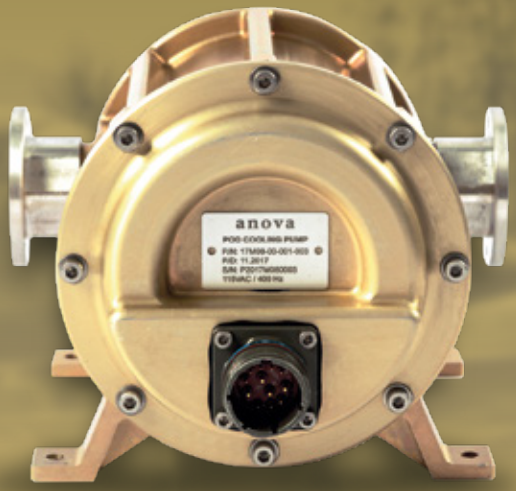
GEROTOR HYDRAULIC PUMP

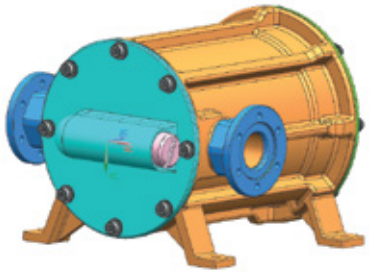
Compact & high efficiency
military grade positive displacement
pump for airborne platforms

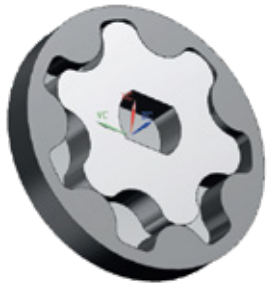


Technical Data:

Motor	Dimensions and Weight
115 VAC 400 Hz	211 mm x 165 mm x 125 mm
Nominal Performance	Weight: 5 Kg (in dry condition)
35 LPM at 3 bar	
Operating Conditions	
Tested with PAO	
Operating Temperature: (-54°C) – (+71°C)	

- Wet running, asynchronous motor driven gerotor type hydrolic pump
- Lightweight, compact design
- Large range working temperature,
- Various connection types,
- Pump and motor all in one compact body design,
- Qualified per, MIL – STD – 461, MIL – STD – 810





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