Moog Industrial Controls - Valves, Pumps and Actuators

Advanced Fluid Systems is proud to be your Moog Industrial Controls distributor and repair representative from Maryland to Maine.

Moog Inc. is a worldwide designer, manufacturer and integrator of precision motion control components and systems. Moog's high-performance systems control military and commercial aircraft, satellites and space vehicles, missiles, automated industrial machinery, power generation applications, and medical equipment.

Some of Moog's industrial control products include:

- Servo valves and servo-proportional control valves including explosion-proof and intrinsically-safe models.
- High performance brushless servo motors and digital and multi-axis servo drives, as well as, the software and motion controllers to drive them.
- Hydraulic, electric and hybrid electro-hydraulic linear actuators and controllers designed specifically for plastic injection, simulation and power generation applications.
- High performance radial piston pumps for quiet, reliable operation. Analog and digital electro-hydraulic control options are available.

Learn more about Moog's products at www.moog.com

MOOG

Moog Factory Repair Service

Moog's factory repair service is a fast, cost-effective service for restoring your Moog products back to their new condition. All repairs are performed with Moog quality parts and are fully tested by Moog's repair team in East Aurora, NY.

Getting your Moog components repaired:

1. Contact the Advanced Fluid Systems' Repair Department to receive a Moog RGA #.
   717-757-1068 Phone
   717-757-4915 Fax
   repair@advancedfluidsystems.com
2. Include the Moog model number, serial number, the symptoms/reason for the repair and any comments or expedite requirements.
3. Advanced Fluid Systems will fax (or email) you the Moog repair form along with the address and instructions for returning your valve directly to Moog.
4. As soon as Moog contacts us with your repair evaluation, we will send you a copy of the Moog inspection report and pricing and delivery options.

***** While Moog will repair your component, Advanced Fluid Systems will be your purchase order vendor and invoice "remit to".**

Moog 2 Year Warranty!

Moog Servo Valves and Servo Actuators

...proven accuracy and reliability.

Moog Servo Actuators and Turbine Control Solutions

Moog's 80 Series Turbine Controls

Moog's 80 series line of electro-hydraulic turbine controls include a manifold for hydraulic fail-safe protection, position transducers, an on-board filter, a spring cage for mechanical fail-safe protection and an integrated process control valve.

In production since 1990, Moog has over 3,000 of the 80 series hydraulic actuators in the field.

Moog is a world leader in electric and hydraulic servo actuator and turbine control solutions. Some applications include controls for gaseous and liquid fuels; steam admission, extraction and by-pass; inlet guide vane; bleed valve; trip-throttle; active instability and wet NOx (steam and water).

Moog's system approach to fuel, steam and position control applications means improved metering and positioning capabilities with lower operating costs and less downtime.

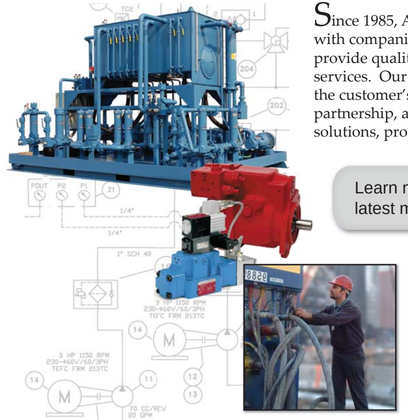
Some Moog turbine control solutions include:

- Electro-hydraulic, electro-mechanical and electro-hydrostatic actuators and integrated valve actuator assemblies for linear and rotary applications.
- Fuel metering units, "smart" fuel pumps and hydraulic lubrication pumps.
- Active instability combustor control systems.
- Manifold based purge and metering systems.

Moog has over 10,000 servo valves in over 1,000 power plants worldwide.

Visit us online at: **www.advancedfluidsystems.com**

About Advanced Fluid Systems...



Since 1985, Advanced Fluid Systems has been partnering with companies and organizations across every industry to provide quality fluid power solutions, products and services. Our philosophy has remained the same, "learn the customer's business, build a relationship and a partnership, and provide them the highest quality solutions, products and services available".

Learn more about Advanced Fluid Systems and see our latest movie at www.advancedfluidsystems.com

- ✓ Hydraulic System Design, Manufacturing and Installation.
- ✓ Mobile Application Design, Motion Controls and Automation.
- ✓ Custom User Interfaces, PLC Design and Programming.
- ✓ Component and System Repair, Testing and Field Services.
- ✓ Fluid Testing, Filtration and Purification Services.

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Royersford, PA:
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292 Green St.
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610-948-1000 Phone
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Glen Burnie, MD:
PO Box 786
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Glen Burnie, MD 21061
800-606-9801 Phone
410-553-0316 Fax

www.advancedfluidsystems.com

Advanced Fluid Systems, Inc.

Lube Oil and EHC Solutions for Power Generation

Varnish Removal and Prevention.

Non-Sparking and Stainless Steel Filtration.

EHC Filtration and Fluid Conditioning.

Lube Oil Conditioning and Water Removal.

Custom Hydraulic Systems and Motion Control Solutions.

Moog Distributor and Repair Representative.

Ver. 2013

Hydraulic Filtration System Rental

Advanced Fluid Systems maintains several filtration systems available for rental from our York, PA facility. Units include the Hy-Pro FC2 filter transfer cart and three sizes of Hy-Pro Vacuum dehydrator. Filtration rental is a cost effective way to clean your fluid and/or evaluate a system before you purchase your own.

Extend your fluid life and reduce operating costs.

Water Removal: 100% Free, 90%+ Dissolved (20 ppm / .0020%)

Air and Gas Removal: 100% Free, 90% Dissolved

Particulate Removal: ISO 14/12/9 (2.5m @ ß1000)

Worry-Free Operation: Dual condensate water tanks with automatic drain standard for 24 x 7 unattended operation.

Easy Setup: Automatic electric phase reversal; programmable thermostat; and smart relays with controlled start-up and shut down routines.

Free Support: On-site setup and start-up support is included free of charge on rentals in the Mid-Atlantic and New England regions.

V1 VAC-U-DRY Stats:

Dimensions (in.): 48L x 28W x 32H
Weight (crated): 425 lbs.
Electrical Service: 120VAC, 60Hz
Flow Rate: .5 to 1.8 GPM
Reservoir Volume: up to 300 Gal.

Contact us at 717-757-1068
or online for more information
www.advancedfluidsystems.com

V20 VAC-U-DRY Stats:

Dimensions (in.): 72L x 36W x 60H
Weight (crated): 2,100 lbs.
Electrical Service: 460VAC, 3P, 60Hz
Flow Rate: 5 to 20 GPM
Reservoir Volume: 100 to 6000 Gal.

Water removal rates and graphs are available in the VAC-U-DRY literature at our website or at www.hyprofiltration.com

Fluid Power Products, Services and Solutions.

...backed by local engineering and support.

Hy-Pro's SVR Soluble Varnish Removal System

SVR Case Study

The Problem: A plant operating multiple cycling GE 7FA turbines had experienced several fail-to-start conditions and one load trip that were attributed to lube oil varnish. The reservoir was conditioned by an electrostatic oil cleaner (EOC), however target varnish potential (QSA) values fluctuated above 50.

The Solution: With the peak summer season on the horizon, the plant installed a Hy-Pro SVR soluble varnish removal system. Within 6 weeks the OSA values stabilized below 15 and their varnish issues were eliminated.

Contact us for a free evaluation.

HY-PRO FILTRATION

EPT

Proven Lube Oil Varnish Removal and Prevention

Hy-Pro's SVR soluble varnish removal system is specifically designed to remove varnish causing contaminant while in solution, without removing critical oil additives. The ICB element technology removes the soluble oxidation by-products before they can cause damaging lube oil varnish.

Other SVR features include:

- Operate 24/7 and remove soluble varnish while the turbine is running or offline.
- Particulate filtration for contamination and larger insoluble varnish particles to ISO code 14/12/10 and better.
- Top loading ICB element housing and built-in winch for easy element removal and maintenance.
- Custom options, several electrical supply voltages and explosion proof components are available.

Why Hy-Pro and Advanced Fluid Systems?

Advanced Fluid Systems' fluid power and motion control experience, combined with Hy-Pro's filtration and fluid contamination expertise, provide you with real solutions that address your entire application, not just the parts. Decrease downtime, reduce component costs and extend fluid life with real solutions and 24/7 support.

Visit us online at: **www.advancedfluidsystems.com**

Filtration System Rental

Clean up a temporary contamination issue or test out a system before you buy it. Contact us for details.

Hy-Pro's COT Turbine Oil Coalesce System

Hy-Pro Fluid Conditioning Systems

Hy-Pro Filtration designs and manufactures quality hydraulic and lube oil filtration solutions for the power generation industry. Some of these systems include:

- **COT series coalesce systems** are designed specifically for turbine oil applications. They rapidly remove free water and emulsified water to 150 PPM (0.015%) while filtering particulate to cleanliness codes of ISO 15/13/10 and better. Hy-Pro's COT coalesce systems come standard with automatic water drain circuits, solid state sensors and smart relay control panels for easy, reliable operation.
- **VAC-U-DRY vacuum dehydration systems** are mobile, self-contained systems for any hydraulic or lube oil applications where harmful water is present. They remove 100% of free water, dissolved water to 20 PPM (0.002%); free and dissolved gasses and particulate to ISO 13/11/8. The VAC-U-DRY dehydrator comes standard with an automatic drain valve and solid state switches for reliable, 24 x 7 unattended operation.
- **SVR soluble varnish removal systems** are self-contained filtration systems that remove varnish causing contaminant while in solution, without removing critical oil additives. See the SVR section for more information (left page, bottom).

Hy-Pro manufactures additional filtration systems for hydraulic, lube oil and diesel fuel applications. Feel free to contact us to discuss the best solution for your application.

www.hyprofiltration.com

Hy-Pro Filtration Products and Systems

...Lube oil and EHC fluid solutions for power generation.

Electrical Hydraulic Control (EHC) Filtration Solutions

Hy-Pro Filtration designs and manufactures several fluid conditioning solutions for Electrical Hydraulic Control (EHC) systems that utilize phosphate ester fire resistant fluids. These include:

- **ICB Element Upgrade:** Eliminate and prevent EHC servo valve sticking and reduce fluid maintenance requirements by reducing acids and minerals that form deposits and gels. ICB elements are also used in the SVR soluble varnish removal system (Left page, bottom).
- **TMR Reservoir Headspace Dehydrator:** Eliminate the primary catalyst of acid production by removing moisture from the air mass in the reservoir. Dry air mass transfer extracts dissolved water from the fluid, extending its useful life.
- **ECR (Electrostatic Contamination Removal) System:** Remove large quantities of insoluble sub-micron particles. The Hy-Pro/EPT ECR system removes pre-varnish, lacquer, gel and sludge particles from less than 100 nanometers to 5 micron in size.
- **NSD Non-Sparking Element:** Eliminate oil degradation and anti-oxidant additive depletion associated with high voltage static spark discharge. After several tests, Calpine Energy has recently authorized only Hy-Pro's NSD elements over other manufacturers.
- **Dynafuzz Stainless Steel Element:** Provide superior filtration in systems with corrosive fluids and glass fiber media where acid can form and attack the binding agent. (Exelon Energy has mandated the use of Hy-Pro's Dynafuzz elements for many of its EHC applications.)

The ICB Element Advantage

The ICB (dry Ion Charge Bonding) element from Hy-Pro and EPT has several advantages over Selexsorb and Fuller's Earth products used to remove acids in phosphate ester applications:

EPT

☑ Reduce and maintain Acid Numbers (TAN) to less than 0.05 without introducing traditional acid scavenging minerals to your system.

☑ Eliminate gels and deposits by removing dissolved metals (CA, Mg, Fe, Na, Si, and AL).

☑ Other benefits include: rugged stainless steel construction, superior media capacity, axial flow maximizes fluid-media contact time, and more.

Visit us online at: **www.advancedfluidsystems.com**

Case Study - Sierra Pacific Lubrication Systems

Why Advanced Fluid Systems?

Why did a major power generation company in the western United States hire Advanced Fluid Systems to design and manufacture several lubrication systems?

After talking with the customer, and seeing the application first hand, we proposed a unique redundant lube unit design that addressed the customer's environmental challenges and maintenance concerns.

Sierra Pacific's 522 MW Valmy Power Plant in Northern Nevada.

Custom Lubrication Systems and Engineering

The Problem: Sierra Pacific's Valmy Power Facility in Northern Nevada saw a need to replace 10 lubrication systems and contacted Advanced Fluid Systems. Valmy 's existing lubrication systems were a maintenance nightmare as they contained different components and layouts from multiple manufacturers.

The Solution: After visiting the Valmy Power facility and meeting its team, Advanced Fluid Systems prepared a report with upgrade recommendations and a lubrication design that would meet the different lubrication requirements of each unit, while addressing maintenance concerns. We received the order and manufactured each unit with a similar layout, and the same components where possible, to reduce spare parts inventory and maintenance costs.

Custom Lubrication and Hydraulic Systems

...Engineering, manufacturing and installation.

Custom Hydraulic, Lubrication and Motion Control Solutions

Advanced Fluid Systems has been designing, manufacturing and installing custom hydraulic and pneumatic systems for almost three decades. Our philosophy has remained the same, "learn the customer's business, build a relationship and a partnership, and provide them the highest quality solutions, products and services". We work with you from conception through installation and support our systems anywhere you take them.

Some of our capabilities include:

- Custom hydraulic power units, lubrication systems and filtration systems from compact 1 HP units to complex multi-pump systems for any application.
- PLC design, in-house programming and closed loop motion profiles for accurate control and automation of position, force and velocity.
- LCD touch screen interfaces with custom menus and real-time graphical feedback for easy setup and operation.
- Electrical control panel and interface wiring, testing and assembly performed in-house for quality control and on-site installation accuracy.
- Special construction materials and unique designs for hostile environments and special applications.

"Advanced Fluid Systems quotes you a fixed price for our systems and motion control solutions. We are by your side until your application functions to the level quoted or better, regardless of the time, parts or labor required."

- James Vaughn, President

The Facilities to Manufacture, Design and Test

Advanced Fluid Systems' York, PA facility features a 10,000 square foot manufacturing/engineering department dedicated to the design, manufacturing and testing of hydraulic and motion control systems.

Whether you are looking for very large systems or several units delivered at the same time, we have the staff and facilities to support you.

Contact us for more information.

Learn more about Advanced Fluid Systems' custom systems and solutions at: www.advancedfluidsystems.com

Visit us online at: **www.advancedfluidsystems.com**