

# **American Research Products**

## **Humidification & Evaporative Cooling Systems**



**Mist-a-Fier™ Energy Efficient High Pressure Systems**

**Minimize Your Energy and  
Maintenance Needs**

**Mist-a-fier™ Systems**  
**American Research Products**  
American Innovation ~ Global Sourcing

## Mist-a-Fier™

Energy Efficient High Pressure Humidification Systems  
By American Research Products, Inc.

**“Custom Solutions Using  
Standard Components”**



### ARP Systems

**Experience the benefits of ARP energy  
efficient adiabatic systems today!**

Energy Efficient Operation  
Low Maintenance Requirements  
Improve Industrial Processes  
Improve Indoor Air Quality  
Enjoy free cooling energy savings  
Qualifies for Energy Incentive programs  
Long, Low Maintenance, Service Life

**Energy Efficient Adiabatic Humidification  
Systems with mineral free treated water.**

The ARP high pressure atomizing system provides energy efficient humidification and evaporative cooling solutions for a wide variety of industrial and commercial applications.

The ARP Mist-i-fier system uses high pressure to atomize the water into billions of ultra fine droplets for large surface area and fast absorption.

The adiabatic absorption process uses heat available in the surrounding air for energy free absorption. This process also provides free cooling for high heat load situations.

The ARP high pressure pumping systems use water lubricated, oil free pumps with long service lives and reduced maintenance requirements.

The ARP micro-processor control system monitors the pump for flow, temperature and pressure. The system controls the staging valves and monitors the discharge humidity for safe efficient production of optimum humidification levels.

The use of reverse osmosis treated water eliminates mineral dusting in the treated spaces and prolongs the life of the nozzles and pumping system.

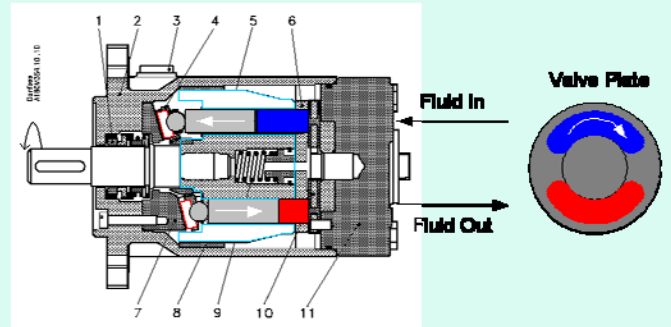
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# The ARP Mist-a-Fier™ Answer For Energy Efficient Humidification

Waste heat that would normally be exhausted to atmosphere provides the 970 BTU's per pound heat of vaporization.

The economizer controls automatically off set the drop in discharge temperature by increasing the proportion of return air to outside air. This ratio determines the mixed air temperature. Simple and automatic, when the heat energy is needed the economizer provides it and when it isn't needed it doesn't.



Water lubricated high pressure pump

Energy Cost Comparison (Annual)		
Mistifier System	\$700	0.5%
Centrifugal	\$3,430	2.7%
Ultrasonic	\$5,950	4.6%
Compressed Air	\$14,350	11.1%
Steam to Steam	\$68,950	53.5%
Gas To Steam	\$86,188	66.9%
Electric Steam	\$128,800	100.0%

Assumptions: \$.065 per kWh, 3500 hours of operation annually, 1000 lbs per hour moisture output.

Using waste heat, Mist-a-Fier™ systems eliminate the energy needed to create steam, as well as the losses inherent in a steam generator distribution system. The steam energy load is replaced by the electrical energy needed to operate a small high pressure pump, much less than the energy needed by the steam system as the chart above shows.

ARP Mist-a-fier advanced systems using 1000 psi water atomized through high efficiency SS nozzles provides energy saving humidification and evaporative cooling solutions.

The ARP System ~ Custom Solutions From Standardized Components

Engineering Analysis of your application, assistance with energy incentive program applications, start-up and owner training, and 2 year parts warranty.

Buy ARP Systems and receive free support for the life of your system!

Simple to Install . . .

Simple to Operate . . .

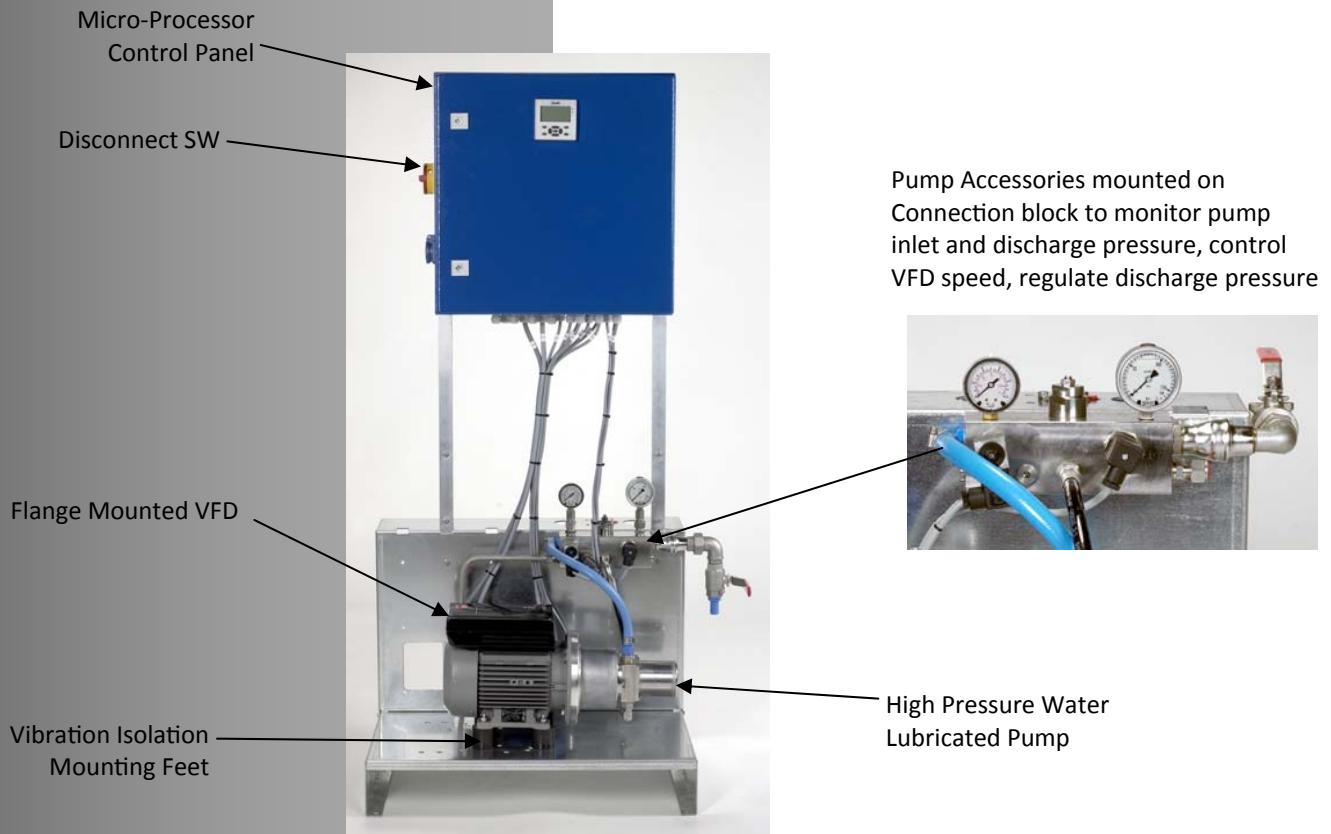
Simple to Maintain . . .

It's A Great System !

## ARP High Pressure Pumping Station Specifications

Model	ARP-500	ARP-1000	ARP-1500	ARP-2000	ARP-3000	ARP-3500
System Capacity, #/hr	50-500	100-1,000	150-1,500	200-2,000	300-3,000	350-3,500
Power	2.6 amp 480/3/60	3.7 amp 480/3/60	3.7 amp 480/3/60	6.4 amp 480/3/60	8.7 amp 480/3/60	8.7 amp 480/3/60
Pumping Station Dimensions wxdxh	27"x20"x60"	27"x20"x60"	27"x20"x60"	27"x20"x60"	27"x20"x60"	27"x20"x60"
Weight	73kg/161#	79 kg/174#	79 kg/174#	90 kg/198#	113 kg/250#	113 kg/250#
Inlet Water Connection	3/4" FNPT	3/4" FNPT	3/4" FNPT	3/4" FNPT	3/4" FNPT	3/4" FNPT
Pre-Filter Size, dia x length	10µm Abs 4" x 5"	10µm Abs 4" x 5"	10µm Abs 4" x 10"	10µm Abs 4" x 10"	10µm Abs 4" x 10"	10µm Abs 4" x 20"
HP Pp Flow Rate, gpm	1	2	3	4	6	7
HP Pp Hp	1	2	3	5	5	7.5
HP Pp RPM	1000-3000	1000-3000	1000-3000	1000-3000	1000-2400	1000-2400

Larger pump systems are available. Contact the factory for specifications and pricing to match your application.

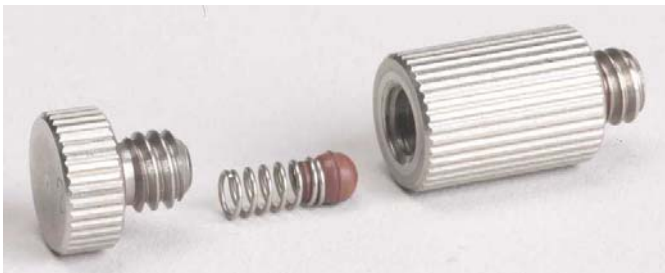


# ARP Mist-a-fier™ High Pressure Nozzles, manifolds and control valves

All SS welded construction with high pressure connections made with double ferrule compression fittings. Nozzle capacities can be selected to match system loads to maximize coverage and minimize over spray and water losses.



Nozzle construction is SS with anti-drip check valves to minimize dripping and water hammer on start up. Wide dispersion angles promote efficient absorption of the water into the air stream.



High pressure valves have integral drain ports to relieve the pressure on the nozzle headers on shut down and to facilitate draining of the supply headers during periods of low demand.

Valve blocks for various combinations of valves provide multiple configurations to satisfy any project requirement.

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# ARP Mist-a-Fier™ Evaporative Cooling For HVAC and Mission Critical Applications



Increase cooling system performance and capacity using evaporative cooled condensers and free cooling on inlet air streams.

Energy Cost Comparison (Annual)		
ARP EC System	\$1,462	3%
Hybrid Mech/EC	\$9,630	20%
Chiller	\$24,528	50%
DX Cooling	\$49,056	100%
Assumptions: \$.07 per kWh, 8760 hours of operation, 100 Ton Cooling Load with Economizer Operation.		

Data center energy consumption can be reduced significantly by switching to evaporative cooling. Utilizing the evaporative cooling system for humidification and cooling reduces component count and energy consumption.

ARP's high pressure adiabatic systems operate on less energy and require less maintenance than any other technology available today.



# ARP Mist-A-Fier™ Wall Mounted Humidifiers

- Completely Self Contained
- Operates on High Pressure Water
- No Electric Heating Elements
- Uses less than 51 watts
- Treated or Un-treated water
- Low Maintenance
- Constructed of Stainless Steel
- Unique Air Distribution System
- Ideal For Low Ceiling Applications



American Research Products Mist-a-Fier™ wall mounted self-contained room humidifier offers the lowest operating cost of any room humidifier on the market. The use of high pressure to atomize the water into billions of fine particles provides quick absorption and close control, while using the least amount of energy.

The proprietary mixing of the air and water creates optimum unit efficiency and prevents moisture fall out. The air distribution fans provide quiet, low velocity

## **American Research Products Mist-a-Fier™ ARP-30 Technical Data**

Nominal 30#/hr output at 1000 psi input pressure  
120 volts, 51 watts, 6' grounded power cord  
3/8" FNPT Inlet Connection ~ 1/2" FNPT Drain Connection  
Weight 40 # ~ Dimensions 24" W x 12" D x 14" H

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### Mist-a-fier™ Systems American Research Products

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Represented By

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