

# Power Plant Turbine Vent Filters

Market Application Publication



## Background:

Most electrical power is generated with high efficiency turbines which drive an electromagnetic induction generator. The turbines require large volumes of oil to continually lubricate the internal bearings. Proper flow of lubricating oil ensures maximum output from the turbine and long term, trouble free operation.



## Contact Information: Features and benefits:

**Parker Hannifin Corporation**  
**Filtration and Separation Division**  
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Haverhill, MA 01835

phone 800 343 4048 or 978 858 0505  
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[www.balstonfilters.com](http://www.balstonfilters.com)

- Remove all oil aerosol to 0.1 micron
- Low pressure drop
- Long filter life
- Designed to operate 24/7
- No moving parts
- Return collected filtered oil to turbine reservoir
- Flow rate capacities to 850 CFM



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## Application:

A turbine lube system consists of several critical components, one being a reservoir which holds a large volume of lube oil. This is pumped up to the turbine to continually lubricate the bearings and maintain optimum performance. As the turbine achieves full output, the lube oil temperature rises significantly. The lube oil is circulated back to the reservoir and lube oil coolers. Condensable gasses are vented off from the reservoir through a vent pipe which is typically located on the roof of the power plant. The condensable gasses exhaust to atmosphere however, lube oil mist is also entrained in the vent pipe and over time, accumulates on the roof. Lube oil can contain very aggressive acids and other chemicals which attack roofing materials resulting in roofing failures and leaks. In addition, the accumulating lube oil is carried off in storm water to downspouts resulting in damage to the environment and ground water supplies. A Parker Balston vent filter will remove all oil aerosols and other contaminate from turbine

vent lines protecting roofing materials from damage and preventing contamination to the environment and groundwater.

## Case Study:

Power plant turbines all require lube oil reservoirs and all lube oil reservoirs must be vented to rid the system of condensable gasses and heat. Many power plant operations use a cyclonic separator to remove oil aerosols prior to venting the exhaust gasses to atmosphere. While these are somewhat effective at removing the larger droplets, the smaller, sub-micron size droplets are not removed and accumulate in the vent pipe and on the roof. Lube oil collecting in the vent pipe can become a fire hazard and the oil collecting on the roof will permanently damage it and the surrounding environment. Parker Balston offers a filtration system that is specifically designed to coalesce these sub-micron size oil droplets along with the larger droplets on a continuous basis with minimal back pressure placed on the

venting system. These filtration systems will remove all solids and droplets down to 0.1 microns in size from the vent system returning the collected oil safely back to the reservoir filtered and ready for re-use. The filter system incorporates high efficiency coalescing filter media designed to offer 12+ months of service before requiring replacement. Designed to operate 24/7, there is no other maintenance or operator attention required to operate this system.



## Principal Specifications

Model	Port Size	Max. Flow Rate	Materials of Construction				Max. Temp.	Max. Press.	Shipping Wt.	Dimensions
			Head	Bowl	Internals	Seals				
AR-0316-371H	1" NPT	20 CFM	Steel	Steel	Anod. Alum.	Buna/N	300°F (149°C)	15 PSIG	81lbs (4kg)	7.4" Dia. x 8.8"H
AR-0335-371H	1 1/2" NPT	43 CFM	Steel	Steel	Anod. Alum.	Buna/N	300°F (149°C)	15 PSIG	11lbs (5kg)	7.4" Dia. x 15"H
AR-0735-371H	3" NPT	100 CFM	Steel	Steel	Anod. Alum.	Buna/N	300°F (149°C)	15 PSIG	17lbs (8kg)	10" Dia. x 18"H
AR-0780-371H	3" NPT	200 CFM	Steel	Steel	Anod. Alum.	Buna/N	300°F (149°C)	15 PSIG	23lbs (10kg)	10" Dia. x 28"H
AR-1280-371H	4" Flg. (1)	300 CFM	Steel	Steel	Anod. Alum.	Buna/N	300°F (149°C)	15 PSIG	90 lbs (41kg)	19" Dia. x 43"H (5)
AR-1680-371H	4" Flg. (1)	450 CFM	Steel	Steel	Anod. Alum.	Buna/N	300°F (149°C)	15 PSIG	100lbs (45kg)	19" Dia. x 43"H (5)
AR-3080-371H	6" Flg. (1)	850 CFM	Steel	Steel	Anod. Alum.	Buna/N	300°F (149°C)	15 PSIG	150lbs (68kg)	23" Dia. x 43"H (5)

## Ordering Information

For assistance, call 1-800-343-4048, 8AM to 5PM EST

Model	No. of Filter Cartridges Required	Replacement Filter Cartridges		Cover (2) Box of 10	No. Pressure Relief Optional	Retainers #20222
		Box of 3	Box of 7			
AR-0316-371H	3	3/200-16-371H	---	---	19158	1
AR-0335-371H	3	3/200-35-371H	---	---	19158	1
AR-0735-371H	7	---	7/200-35-371H	---	19206	2
AR-0780-371H	7	---	7/200-80-371H	---	19206	2
AR-1280-371H	12	---	---	200-80-371H	Included	4
AR-1680-371H	16	---	---	200-80-371H	Included	4
AR-3030-371H	30	---	---	200-80-371H	Included	6

**Optional Accessories:** #20222 Pressure Relief Filter Cartridge Retainer, 4-7 psig.  
 #2021 Pressure Relief Valve, 3-7 psig, 1/4" NPT male fitting.  
 #11010 Pressure Gage, 0-15 psig, 1/4" male fitting (incl. on Type AR Filter Assemblies).  
 Vacuum pump-to-filter adaptors: FNS Catalog, Vacuum Pump Filters section  
 #19291 Stand for AR-1680-371H, #19290 Stand for AR-3080-371H.  
 #19202 Weather Cap for AR-0735-371H, AR-0780-371H.

**Notes:** 1 ANSI 150 lb. hole pattern  
 2 Cover does not provide leak tight seal  
 3 Filter cartridge is permanently sealed into housing  
 The entire unit is disposable  
 4 Pressure relief filter tube retainer not available in these models  
 5 Height dimension represents filter housing alone. When assembled with a stand, the height is adjustable from 46" to 56" (117cm to 142 cm)

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