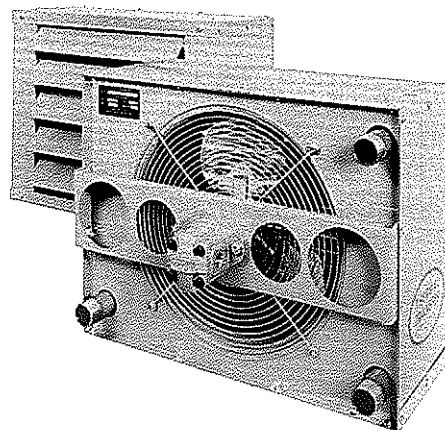


# AIR COOLED AOHM & AOVHM SERIES WITH HYDRAULIC MOTOR

AOHM/AOVHM  
air cooled

**HIGH HEAT REMOVAL**  
**HEAVY DUTY CONSTRUCTION**  
**WIDE FLOW RANGE**



- Heat Removal up to 210,000 BTU/Hr.
- Long Life Hydraulic Motor
- NPT Connections

### OPTIONS:

- Built-in Relief Bypass Valve
- SAE or BSPP Connections
- Corrosion Resistant Coating

### MATERIALS

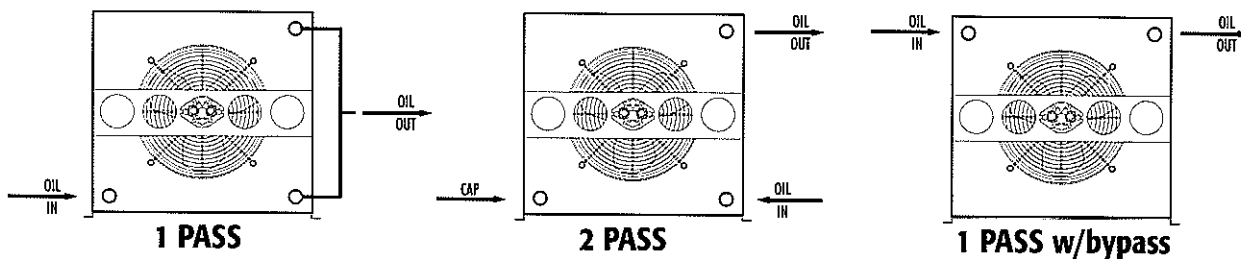
**Tubes** - Copper  
**Fins** - Aluminum  
**Turbulators** - Steel  
**Manifolds and Connection Pipes** - Steel

**Cabinet** - Steel with Baked Enamel Finish  
**Fan Blade** - Aluminum with Steel Hub  
**Fan Guard** - Zinc Plated Steel  
**Fan Adapter** - Steel

### RATINGS

**Operating pressure** - 300 psi  
**Test pressure** - 450 psi  
**Operating temperature** - 400°F

### INSTALLATION PIPING DIAGRAMS



### HOW TO ORDER

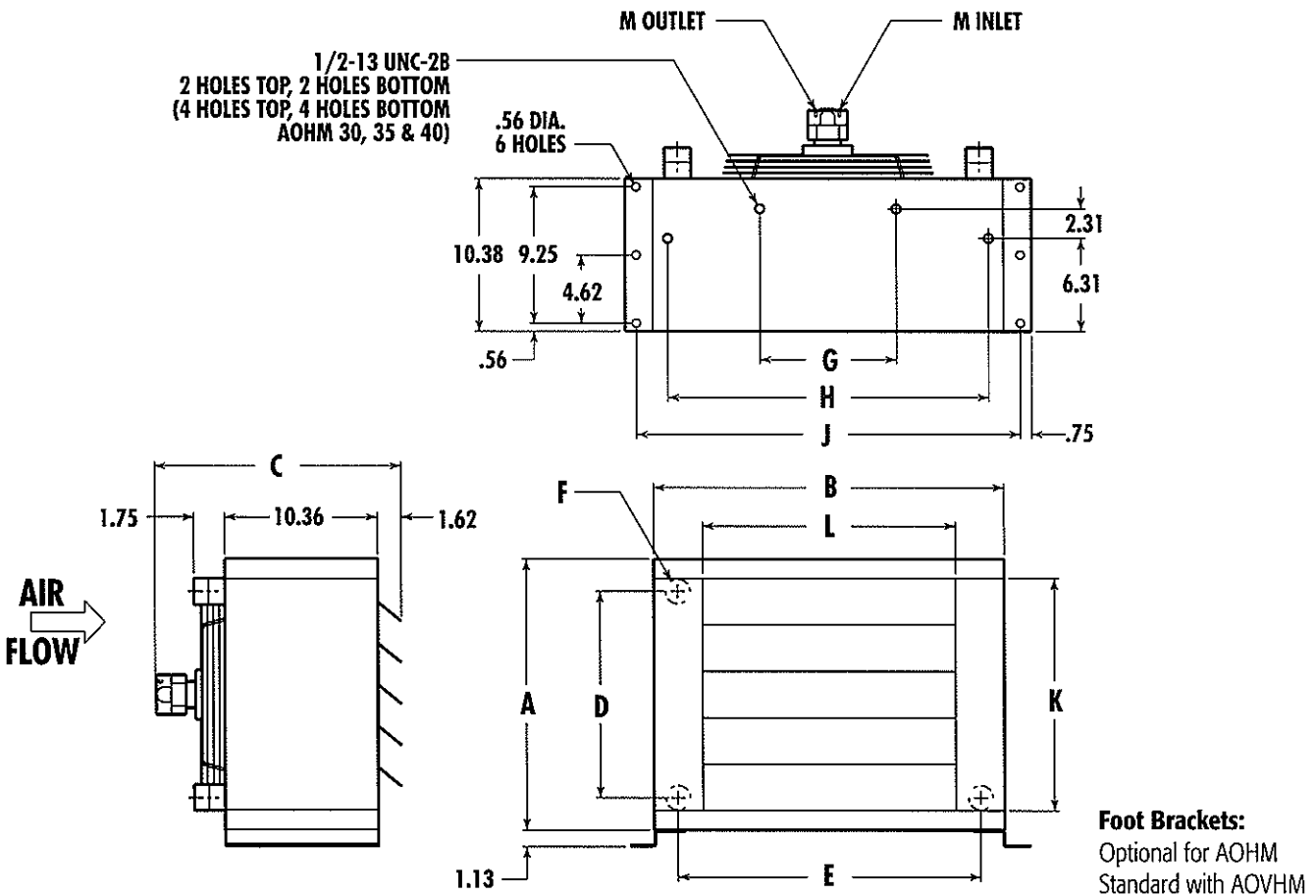
MODEL SERIES	MODEL SIZE SELECTED	NUMBER OF PASSES	◆ CONNECTION TYPE	RELIEF BYPASS SETTING	FOOT MOUNTING BRACKETS
AOHM		Blank - No Bypass	Blank - NPT	Blank - No Bypass	AOHM & AOHRM Series Only
AOHMR - Relief Bypass Included		1 - One Pass*	S - SAE	30 - 30 PSI	Blank - No Brackets
AOVHM		2 - Two Pass	M - BSPP	60 - 60 PSI	FB - Foot Brackets
AOVHMR - Relief Bypass Included					

\* Not Available in AOVHMR

◆ Other connection types available. Consult factory for assistance

# DIMENSIONS

## FAN ROTATION CLOCKWISE/FACING MOTOR SHAFT



See dimensional chart for external NPT or optional internal SAE connection size.

MODEL	A	B	C	D	E	F		G	H	J	K	L	M (SAE)	NET WT (LBS)
						NPT	SAE							
AOHM-5	11.81	14.81	16.70	7.69	11.69	1"	#16	-	12.94	16.81	9.19	8.31	#8	35
AOVHM-5				1 1/2"		#24	59							
AOHM-10	13.12	19.00		8.88	15.88	1"	#16		17.12	21.00	10.50	12.50		50
AOVHM-10				1 1/2"		#24	76							
AOHM-15	15.75	20.38	17.09	11.50	17.25	1"	#16		18.50	22.38	13.12	13.88		60
AOVHM-15				1 1/2"		#24	89							
AOHM-20	18.38	23.81		14.00	20.56	1 1/4"	#20		21.81	25.81	15.75	17.19		75
AOVHM-20				2"		#32	108							
AOHM-25	23.62	26.68		19.25	23.56	1 1/4"	#20		24.81	28.68	21.00	20.19		110
AOVHM-25				2"		#32	143							
AOHM-30	27.56	31.62		16.70	23.19	28.50	1 1/4"	#20	11.00	29.75	33.62	24.94	25.12	120
AOVHM-30				16.95			2"	#32						178
AOHM-35	30.19	33.81	16.70	25.81	30.69	1 1/4"	#20	11.00	31.94	35.81	27.56	27.31	#10	135
AOVHM-35			17.22			2"	#32						220	
AOHM-40	36.75	41.62	16.70	32.38	38.50	1 1/4"	#20	13.25	39.75	43.62	34.12	35.12	#8	160
AOVHM-40			17.22			2"	#32						286	

**NOTE:** All dimensions are in inches.

**NOTE:** We reserve the right to make reasonable design changes without notice.

air cooled  
AOHM/AOVHM

# SELECTION PROCEDURE

Performance Curves are based on 50 SSU oil entering the cooler 50°F higher than the ambient air temperature used for cooling. This is referred to as a 50°F E.T.D.

## Step 1. Determine the Heat Load.

Heat load may be expressed as either horsepower or BTU/Hr. To convert horsepower to BTU/Hr:

$$\text{BTU/HR} = \text{Horsepower} \times 2545$$

## Step 2. Determine Entering Temperature Difference.

The entering oil temperature is generally the maximum desired oil temperature.

Entering oil temperature - Ambient air temperature = E.T.D.

## Step 3. Determine the Corrected Heat Dissipation to use the curves.

$$\text{Corrected Heat Dissipation} = \text{BTU/HR heat load} \times \frac{50^\circ\text{F}}{\text{E.T.D.}} \times \text{viscosity correction A.}$$

## Step 4. Enter curves at oil flow through cooler and curve heat dissipation. Any curve above the intersecting point will work.

**NOTE:** Performance curves shown are for 1 and 2 pass configuration.

**EXAMPLE:** 35 - 2 is AOHM or AOVHM - 35 plumbed 2 pass.

## Step 5. Determine Oil Pressure Drop from Curves:

● = 5 PSI; ■ = 10 PSI; Multiply pressure drop from curve by correction factor B found in oil viscosity correction curve.

## METHODS TO DETERMINE HEAT LOADS

The heat load may be determined by:

- Hydraulic oil cooling: Assume 30% of the input horsepower will be rejected to heat. If the input horsepower is unknown, this formula may be used:  

$$\text{BTU/HR} = (\text{System PSI}) \times (\text{GPM Flow}) \times 1.8 \times .3$$
- Hydrostatic oil cooling: Assume 25% of the input horsepower will be rejected to heat.
- Automatic transmission: Assume 30% of the engine horsepower will be rejected to heat.
- Engine oil cooling: Assume 10% of the engine horsepower will be rejected to heat.

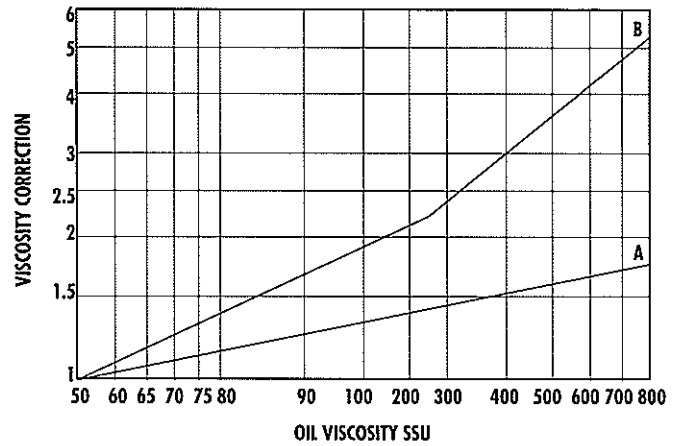
## HYDRAULIC MOTOR

MODEL SIZE	MAXIMUM FAN SPEED (RPM)		OIL FLOW REQUIRED (GPM)		MIN. OPERATING PRESSURE (PSI)		SOUND dB(A)*		MOTOR (in <sup>3</sup> /rev.) DISPLACEMENT		CFM				
	AOHM	AOVHM	AOHM	AOVHM	AOHM	AOVHM	AOHM	AOVHM	AOHM	AOVHM	AOHM	AOVHM			
5	1725	3450	1.6	3.3	300	300	68	85	.22		465	780			
10							68	85			669	1110			
15							69	91			956	1590			
20							70	91			1460	2168			
25	1140	1725	1.1	3.4	400	500	72	81					2160	3000	
30							75	84					2990	4095	
35				5.2	900	1000	76	89					70	4370	5921
40														78	91

Notes: Maximum pressure is 2000 psi. Stated minimum operating pressure is at inlet port of motor. 1000 psi allowable back pressure.

\*Catalog dB(A) sound levels are at seven (7) feet. dB(A) sound levels increase by six (6) dB(A) for halving this distance and decrease by (6) dB(A) for doubling this distance.

## OIL VISCOSITY CORRECTION MULTIPLIERS



## DESIRED RESERVOIR TEMPERATURE

**Oil Temperature:** Oil coolers can be selected using *entering* or *leaving* oil temperatures.

**Off-Line Recirculation Cooling Loop:** Desired reservoir temperature is the oil temperature *entering* the cooler.

**Return Line Cooling:** Desired reservoir temperature is the oil temperature *leaving* the cooler. In this case, the oil temperature change must be determined so that the actual oil *entering* temperature can be found. Calculate the oil temperature change (oil ΔT) with this formula:

$$\text{Oil } \Delta T = (\text{BTU's/HR.}) / (\text{GPM Oil Flow} \times 210).$$

To calculate the oil *entering* temperature to the cooler, use this formula:

$$\text{Oil Entering Temp.} = \text{Oil Leaving Temp.} + \text{Oil } \Delta T.$$

**Oil Pressure Drop:** Most systems can tolerate a pressure drop through the heat exchanger of 20 to 30 PSI. Excessive pressure drop should be avoided. Care should be taken to limit pressure drop to 5 PSI or less for case drain applications where high back pressure may damage the pump shaft seals.

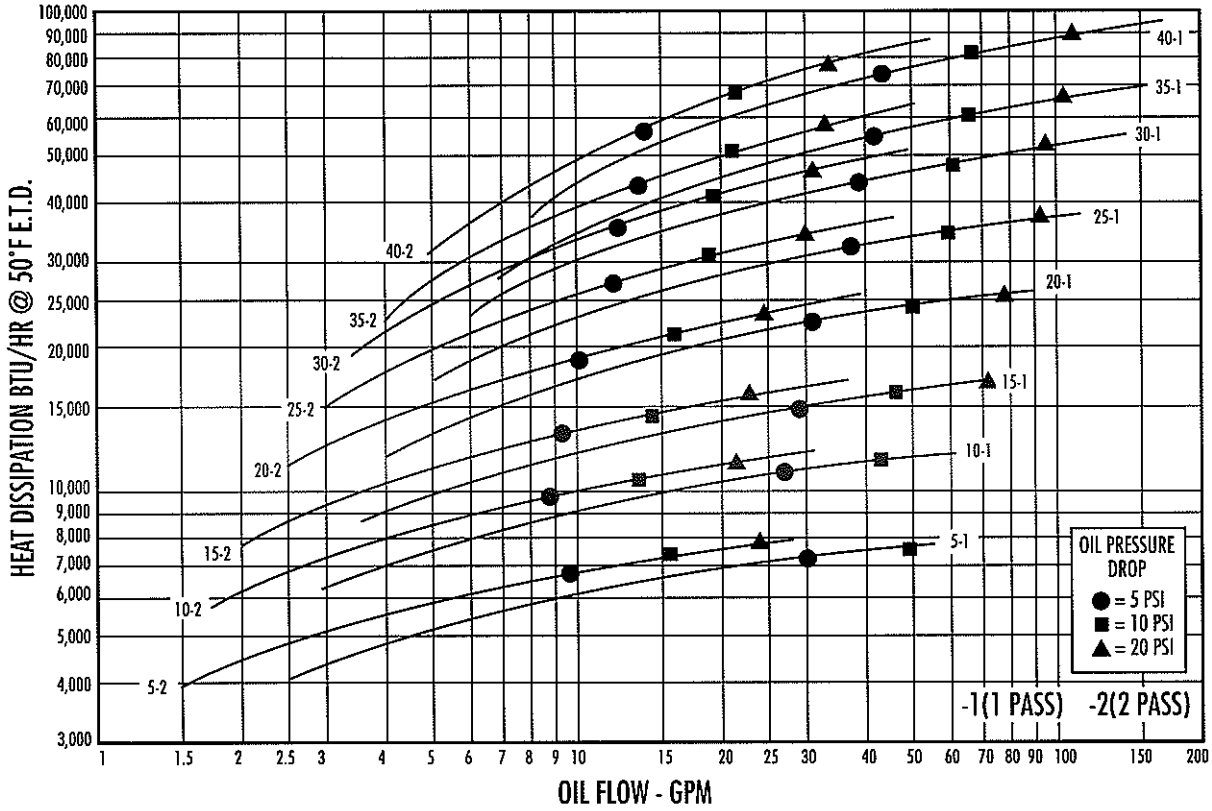
## OIL TEMPERATURE

Typical operating temperature ranges are:

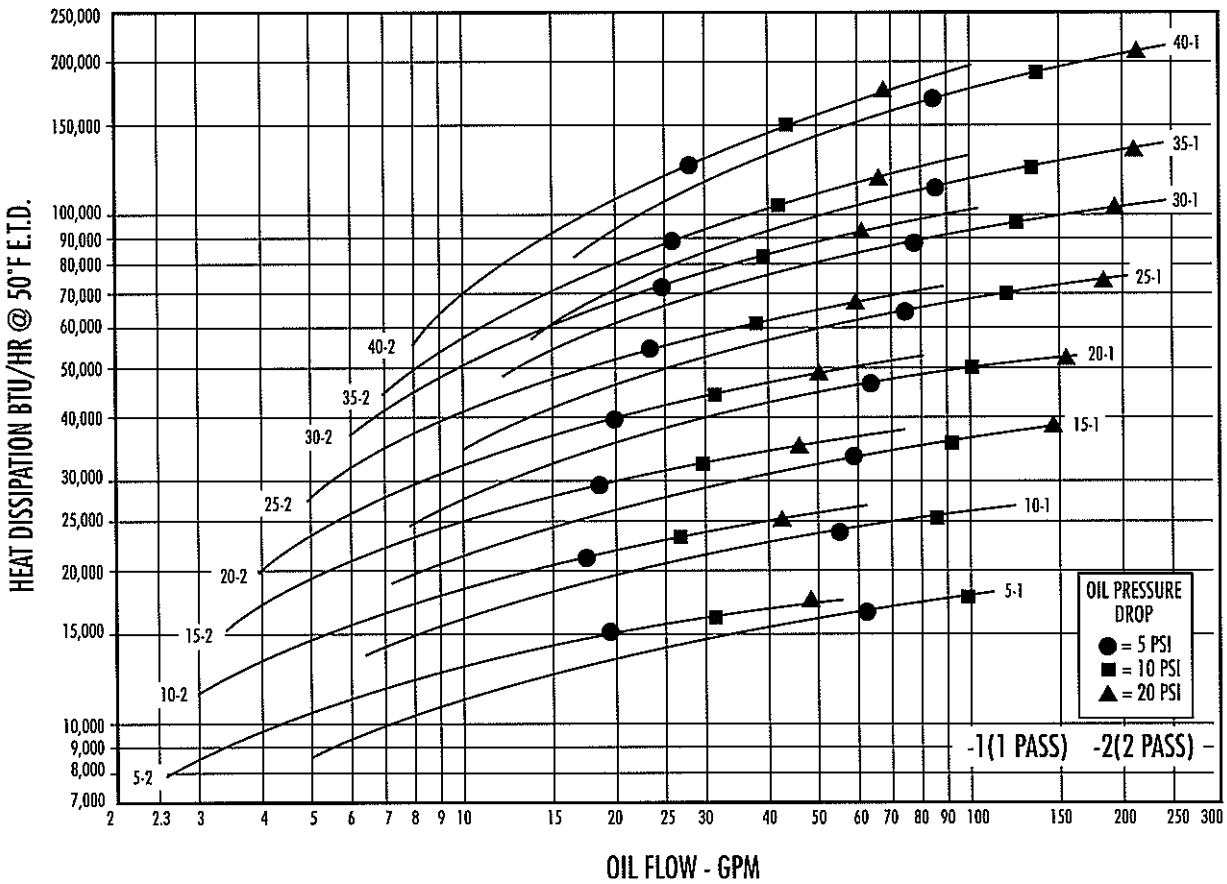
Hydraulic Motor Oil	120° - 180°F
Hydrostatic Drive Oil	160° - 180°F
Engine Lube Oil	180° - 200°F
Automatic Transmission Fluid	200° - 300°F

# PERFORMANCE CURVES

## AOHM SERIES



## AOVHM SERIES

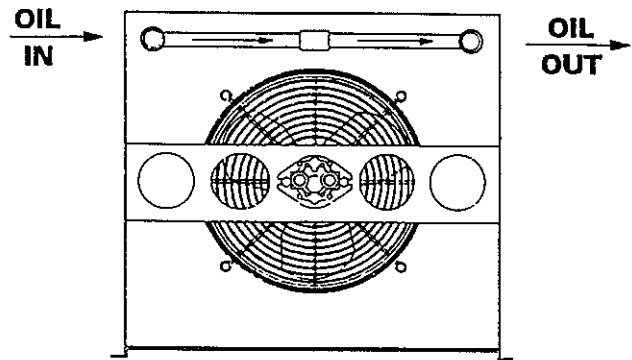


air cooled  
AOHM/AOVHM

# BUILT-IN RELIEF BYPASS – AOHMR SERIES

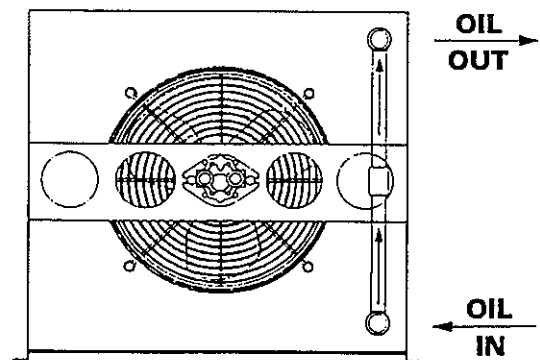
**ONE PASS** (MEDIUM TO HIGH OIL FLOWS)

Model No.	Flow Range GPM (USA)
AOHMR - 5 - 1	2 - 80
AOHMR - 10 - 1	3 - 80
AOHMR - 15 - 1	4 - 80
AOHMR - 20 - 1	5 - 80
AOHMR - 25 - 1	6 - 100
AOHMR - 30 - 1	7 - 100
AOHMR - 35 - 1	8 - 112
AOHMR - 40 - 1	9 - 118



**TWO PASS** (LOW TO MEDIUM OIL FLOWS)

Model No.	Flow Range GPM (USA)
AOHMR - 5 - 2	2 - 25
AOHMR - 10 - 2	2 - 30
AOHMR - 15 - 2	2 - 40
AOHMR - 20 - 2	2 - 30
AOHMR - 25 - 2	2 - 40
AOHMR - 30 - 2	2 - 40
AOHMR - 35 - 2	3 - 40
AOHMR - 40 - 2	4 - 40

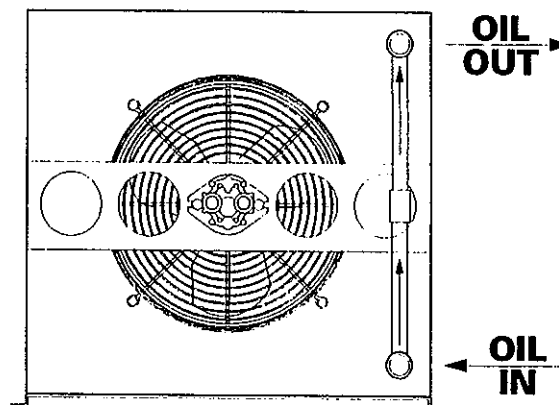


# BUILT-IN RELIEF BYPASS – AOVHMR SERIES

**TWO PASS** (LOW TO MEDIUM OIL FLOWS)

Model No.	Flow Range GPM (USA)
AOVHMR - 5 - 2	4 - 50
AOVHMR - 10 - 2	4 - 60
AOVHMR - 15 - 2	4 - 60
AOVHMR - 20 - 2	4 - 80
AOVHMR - 25 - 2	4 - 80
AOVHMR - 30 - 2	4 - 80
AOVHMR - 35 - 2	6 - 80
AOVHMR - 40 - 2	8 - 80

Bypass valve is available for 2 pass AOVHMR models only.



*For more information or to purchase these products, please contact:*

**HYDROTHRIFT CORPORATION**  
**(800) 772-0493**

[www.hydrothrift.com](http://www.hydrothrift.com)  
[sales@hydrothrift.com](mailto:sales@hydrothrift.com)

**AOHM/AOVHM**  
air cooled