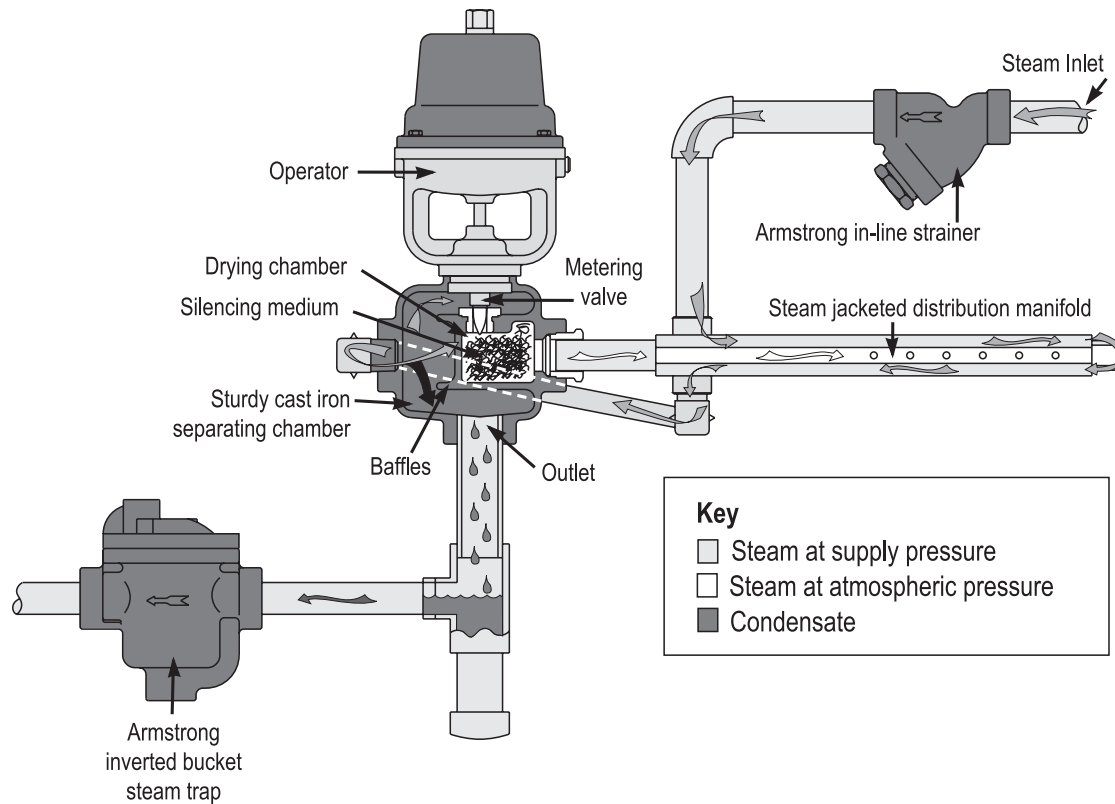


A lightweight, low-capacity humidifier for loads up to 50 lbs. of steam per hour.

Armstrong has repackaged the humidifier technology proven so successful in its Series 9000 steam humidifiers. The result is a lightweight, low-capacity unit that meets many of your application needs: the Model 90.

The advantages of proven technology – without conventional size and weight.

Thanks to the Model 90, the efficiency of Armstrong conditioned-steam humidification now comes in a smaller, lighter package. Lighter weight and a more compact design mean simplified installation in tight quarters, easier maintenance and less weight for your piping to support.



The following capacity table pertains to Model AMA 90 (using the Armstrong C-1801 pneumatic operator) or alternatives using electric modulating, electronic modulating or electric on/off control. Any operator used on Sizes 91, 92, 93 or 94 can be used on Size 90.

Table 68-1. Continuous Discharge Capacities in lbs. of Steam Per Hour																							
Orifice Size, In.	Steam Pressure, psig																						
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	20	25	30	35	40	45	50	55	60
1/16	1.3	1.7	2.0	2.3	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.2	4.4	5.6	6.5	7.7	8.4	9.2	10.0	11.0	11.8	12.3
5/64	2.1	2.7	3.2	3.7	4.1	4.4	4.8	5.1	5.4	5.7	6.0	6.2	6.4	6.7	8.4	10.6	11.2	12.4	13.0	14.8	16.0	17.8	19.0
3/32	3.0	3.9	4.6	5.2	5.8	6.3	6.8	7.3	7.8	8.2	8.6	9.0	9.3	9.6	11.9	13.4	14.3	17.2	19.2	21.2	22.8	23.7	24.4
7/64	4	5	6	7	8	8	9	10	10	11	11	12	12	13	16	18	19	21	24	26	28	31	33
1/8	5	7	8	9	10	11	12	13	14	14	15	16	17	18	23	25	28	30	33	35	37	40	44
5/32	8	10	12	14	16	17	19	20	21	22	23	25	26	27	31	36	40	44	48	—	—	—	—
3/16	12	15	18	21	23	26	27	29	31	32	35	36	37	40	47	—	—	—	—	—	—	—	—
7/32	16	21	25	29	32	35	37	40	42	44	47	49	—	—	—	—	—	—	—	—	—	—	—
1/4	22	28	33	38	42	46	49	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
9/32	26	32	38	43	47	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5/16	32	38	44	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
11/32	36	43	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3/8	42	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Metric Conversion: lb/hr x .4536 = kg/hr; psig x 6.89 = kPa

Figure 69-1. Dimensions

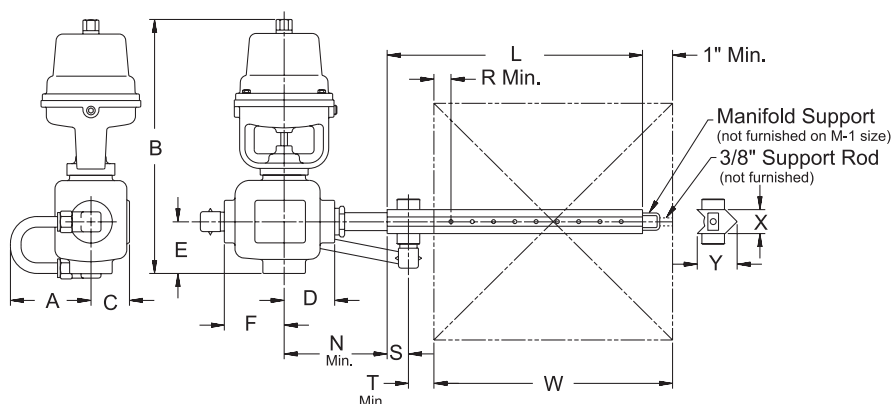


Table 69-1. Physical Data

Dimensions, Inches						Connection Sizes			Drain Trap Model	Weight, lbs. † (less operator and manifold)
A	B	C	D	E	F	Inlet	Drain	Trap		
4-1/8	*	1-7/8	2-3/8	2-7/16	2-13/16	1/2" NPT	1" NPT	1/2" NPT	800	13-1/2

†Weight includes drain trap, strainer and fittings.

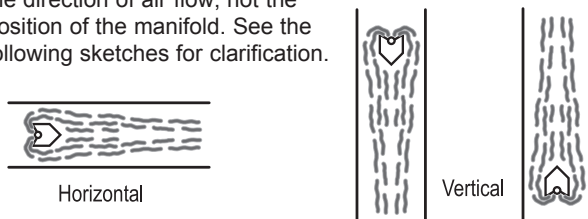
*See Table 57-1, Page 57, for dimensions for "B".

Table 69-2. Manifold Cross-Section Dimensions

"N"	"R"	"S"	"T"	"X"	"Y"	"Z"	Steam Supply
5-3/8"	2"	1"	1"	1-1/4"	1-7/8"	1-13/16"	1/2" NPT

Figure 69-2. Manifold Options

The Model 90 must be specified for horizontal or vertical manifold installation. Horizontal is fairly obvious, but the vertical designation can be confusing. Vertical refers to the direction of air flow, not the position of the manifold. See the following sketches for clarification.



Horizontal

Vertical

If the manifold itself is to be vertical, a manifold pipe adapter (A-4967-B) should be specified, **not** one of the above designations.

Table 69-3. List of Materials

Steam Chamber	Cast Iron
Bonnet & Assembly	Brass
Valve & Stem	18-8 SS
Valve Seat	18-8 SS
Manifold	304 SS
Manifold Fittings	Brass
Manifold Coupler	Brass
Nut	Brass
Strainer	Cast Iron
Tubing	Copper
Compression Fittings	Brass
Steam Trap	Cast Iron

Note: Dotted line fittings are not supplied with humidifier.

Table 69-4. Manifold Lengths and Duct Widths with which they may be used

Vertical Manifold Model No.		MV-1	MV-1.5	MV-2	MV-3	MV-4	MV-5	MV-6	MV-7	MV-8	MV-9	MV-10	MV-11	MV-12
Horizontal Manifold Model No.		MH-1	MH-1.5	MH-2	MH-3	MH-4	MH-5	MH-6	MH-7	MH-8	MH-9	MH-10	MH-11	MH-12
L (Length)		12"	18"	24"	36"	48"	60"	72"	84"	96"	108"	120"	132"	144"
W-Duct Width	(Min.)	8"	15"	21"	31"	43"	53"	65"	77"	89"	101"	113"	125"	137"
	(Max.)	14"	20"	30"	42"	52"	64"	76"	88"	100"	112"	124"	136"	148"
Shipping Weight, lbs. Approx.		4	5	6	9	11	13	16	18	21	22	25	28	30

Note: Insulated manifolds are available. Consult factory.



Humidifier Operators.

Pneumatic Modulating

Electric Modulating

Electronic Modulating

Electric On-Off (Solenoid)

Standard Package.

The Armstrong Model 90 conditioned- steam humidifier is supplied in a standard “package” which includes the following.

Pneumatically controlled (AMA) models:

1. Humidifier.
2. Distribution manifold of length specified.
3. “Y” type strainer.
4. Armstrong inverted bucket trap.

Electric motor controlled (EM) models:

1. Humidifier with integral operator.
2. Distribution manifold of length specified.
3. “Y” type strainer.
4. Armstrong inverted bucket trap.

Recommended option: A pneumatic or an electric temperature switch is offered as an optional extra and is recommended in any system where the steam supply to the manifold jacket and humidifier body may be interrupted or turned off.

How To Order.

1. Mode of control:
pneumatic modulating—AMA
electric modulating—EM
electric on-off—DSA*

*For industrial in-plant operation and for certain very limited duct applications, a solenoid actuator may be used to provide simple on-off operation. This type of actuator should not be specified for duct applications without a detailed analysis of the system.

2. Size of humidifier for duct installation—90.
3. Manifold length from appropriate table. Specify horizontal or vertical steam flow.
4. Specify steam pressure and capacity required in accordance with appropriate tables.
5. For electrically operated models, state electrical characteristics (control signal and power supply voltage).