

**Conditioned Steam
Humidifiers**

STEAM

Armstrong



When It Comes to Improving Humidification... It Starts with Steam

Why the Armstrong Series 9000 humidifier starts with steam

Armstrong's improvements in steam humidification are so fundamentally different they begin not with the humidifier but with the steam.

Unlike other units which simply **disperse** steam, Armstrong's Series 9000 humidifiers work with it, subjecting it to the first of many steps in a carefully engineered process. Why? Because at Armstrong, improving humidification is extremely basic. It starts with steam. And what we've learned at that starting point has taught us how to improve the design of hardware – humidifiers – which distribute steam.

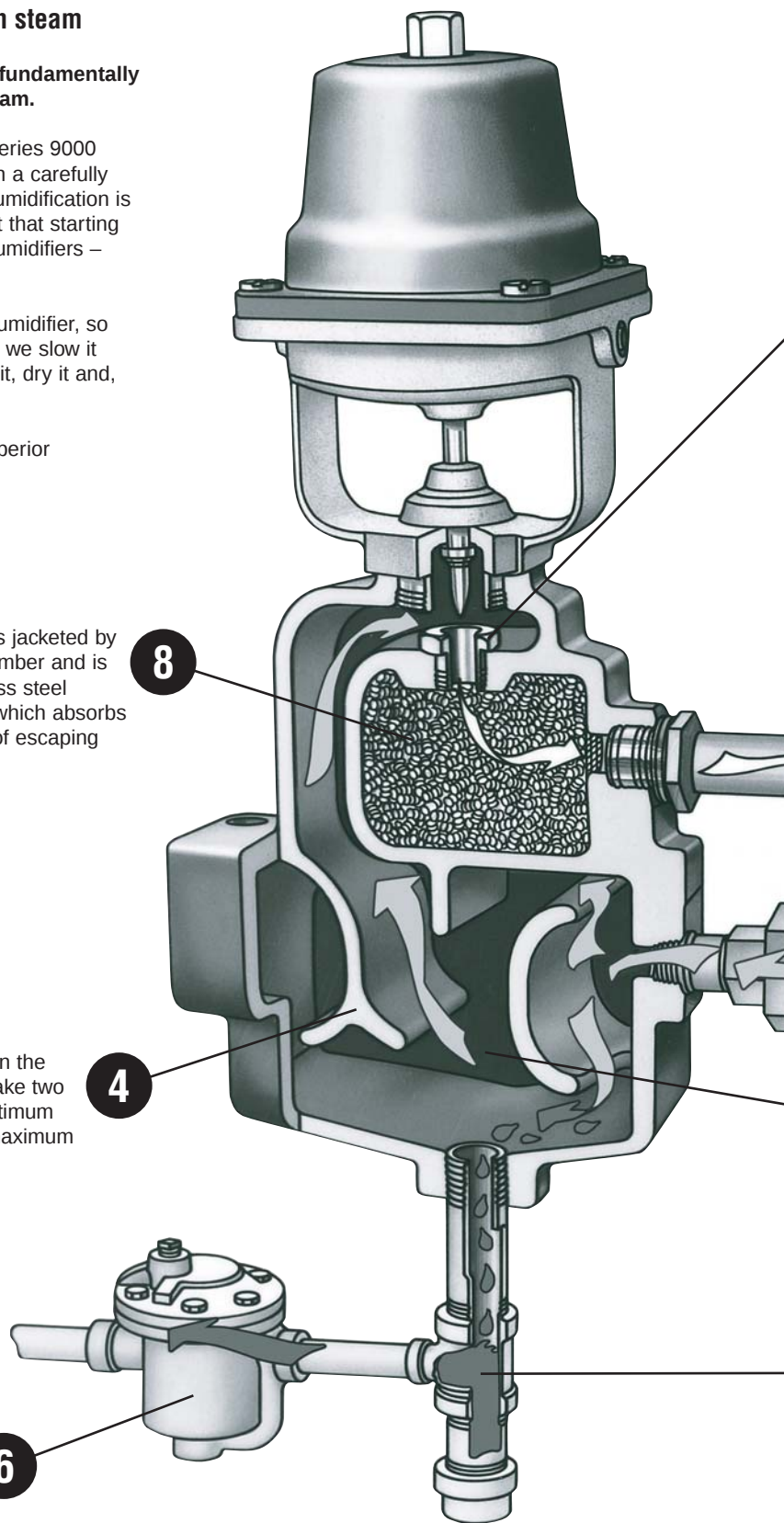
There's no name for what happens to steam in an Armstrong humidifier, so we've created one. We call it **conditioning**. To condition steam, we slow it down, remove its particulate matter, separate condensate from it, dry it and, finally, silence it.

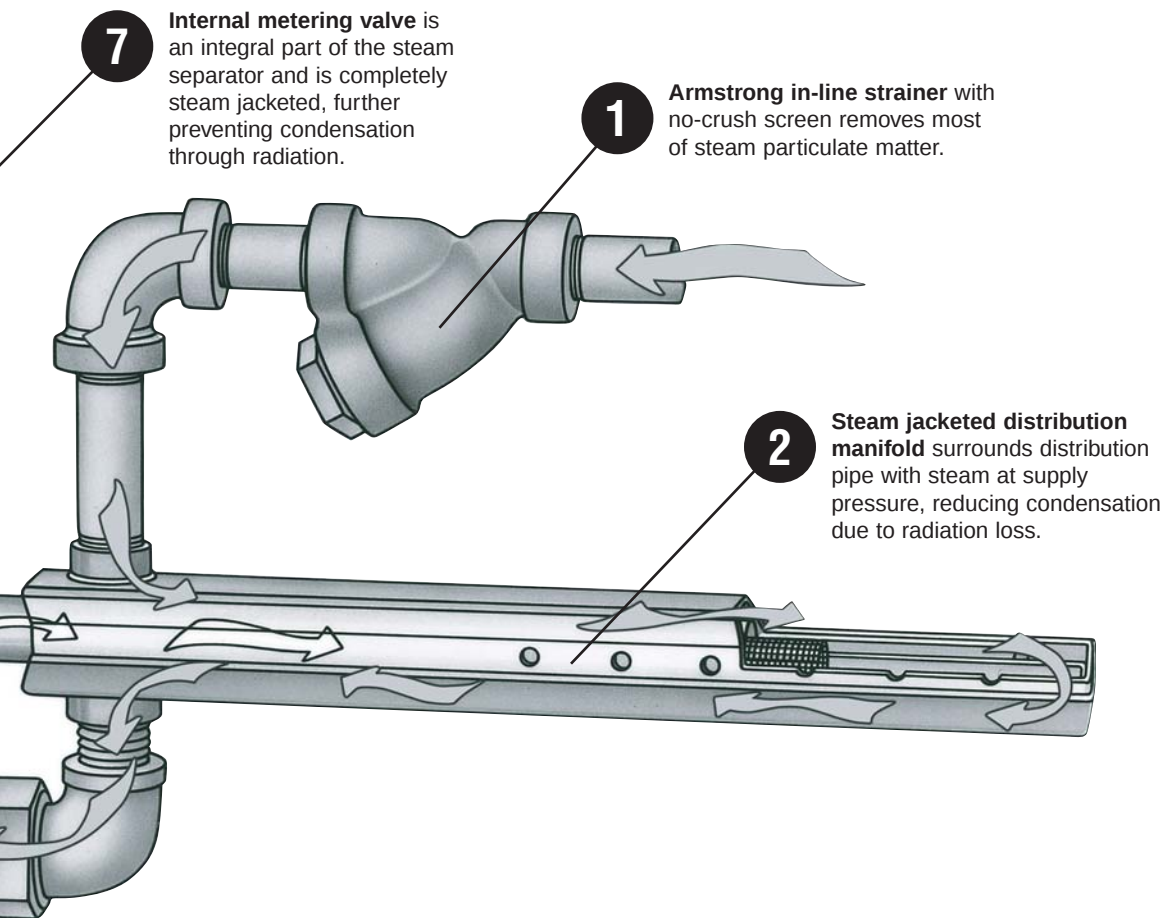
Conditioned steam. It's the cornerstone of the Series 9000's superior performance and control. Here's why.

Drying chamber is jacketed by the separating chamber and is filled with a stainless steel silencing medium which absorbs most of the noise of escaping steam.

Interior baffles condition the steam by forcing it to make two 180° turns, providing optimum velocity reduction and maximum separation.

Reliable cast iron inverted bucket steam trap provides dependable draining because it has only two moving parts – and no fixed pivots or complicated linkage to stick, bind or clog.





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Internal metering valve is an integral part of the steam separator and is completely steam jacketed, further preventing condensation through radiation.

1

Armstrong in-line strainer with no-crush screen removes most of steam particulate matter.

2

Steam jacketed distribution manifold surrounds distribution pipe with steam at supply pressure, reducing condensation due to radiation loss.

3

Strong cast iron separator dampens noise and effects of vibration. Its thick walls mean better heat retention and therefore less condensation.

5

Large drain leg collects condensate and discharges through the drain trap.

Armstrong's four-step conditioning process

- **Straining.** The first step in steam conditioning, straining removes most of the steam's dirt and scale particles.
- **Separating.** In the cast iron separating chamber, a cupped baffle reverses the flow, forcing the steam back on itself. The outer walls of the chamber form another cup, and the same thing happens again. These two 180° turns reduce the velocity and separate the condensate from the vapor. The center baffle, positioned directly over the large drain connection, knocks down and further guides condensate out the drain.
- **Drying.** Steam entering the drying chamber is at supply temperature and essentially atmospheric pressure, so there is no condensation. Any remaining mist is re-evaporated before it leaves the humidifier.
- **Silencing.** The drying chamber is filled with a stainless steel silencing material which absorbs almost completely the noise of escaping steam as it is generated at the control valve.