



ERS SERIES

ELECTRIC STEAM HUMIDIFIERS





Armstrong® The ERS Series

ERS Series is heater type steam humidifier. It is designed to provide sterile steam for applications requiring precise and sanitary humidification. This is the only humidifier with a tilting tank allowing easy and fast maintenance.

Features:

- Capacities from 6 kg/h to 104 kg/h (11 lb/h to 229 lb/h).
- Accept all common signals, native Modbus.
- Over temperature protection.
- Sanitation system (keeping up tank temperature).
- Menus available in 8 languages.
- Signal accuracy : +/- 2%.

Easy servicing:

Permanent tilting tank.

- Self-cleaning heater elements in incoloy.
- Supplied with a flexible limescale collecting bag.
- Maintenance & alert messages on display.
- Cooling cycles before maintenance.



ERS-LC resistive type boilers or equivalent and include the following features:

The ERS-LC is the compact version of the ERS humidifier producing 2.5 kg/h to 30 kg/h (5.50 lb/h to 66.1 lb/h). The boiler is a stainless steel cylinder equipped with self cleaning Incoloy heating elements.

Optional equipment for the ERS and ERS-LC humidifiers:

- Remote information board (Maintenance, steam production and fault).
- Bacnet and LonWorks protocols.
- Protective cabinets for outdoor installations.
- Support legs for floor installations.
- Stainless steel waste water tank for draining facilities.
- Cooling Kit for draining waters (standard with the ERS-LC).

How the ERS Series works

Armstrong Series ERS converts potable tap water to steam and distributes it to bring the relative humidity up to the desired level. It's ideal for providing humidification where no steam is available or where a steam line is too far.

The humidity demand, sensed by the transmitter, is indicated by the ERS demand display. A microprocessor converts this demand signal into an amperage requirement. The internal power contactor closes, heating the resistances, and the fill valve begins to fill the tank.

Water enters the bottom of the steam generator tank and rises until it reaches the heating elements, causing it to boil water and produce steam (Figure 3-1).

When the water level rises, as shown in Figure 3-2, the surface area in contact extend, producing more steam. This increase will continue until the required output of steam is reached.

Figure 3-3 shows what happens when the humidistat demand signal drops below a minimum demand: The contactor is de-energized, and steam output stops.

A duct high-limit humidistat or an air flow interlock switch may also stop steam output. These devices prevent excess moisture and condensation in the duct.

The ERS Series may also be used in combination with an Armstrong Fan Package for direct area discharge of steam.

A high-water electrode sensor prevents water carryover into the duct due to a high water level in the tank.

An automatic drain cycle blows down mineral-laden water to extend tank life and reduce maintenance.

An overcurrent protection circuit will drain water from the tank to reduce current flow and then de-energize the contactor to stop current flow if overcurrent still exists.

After a period of no demand, an "End of Season" drain is initiated to eliminate the potential for stagnant water to remain in the tank.

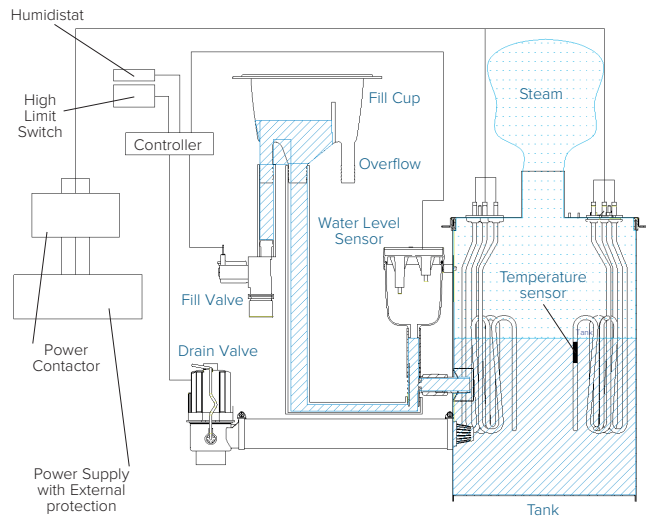


Figure 3-1.

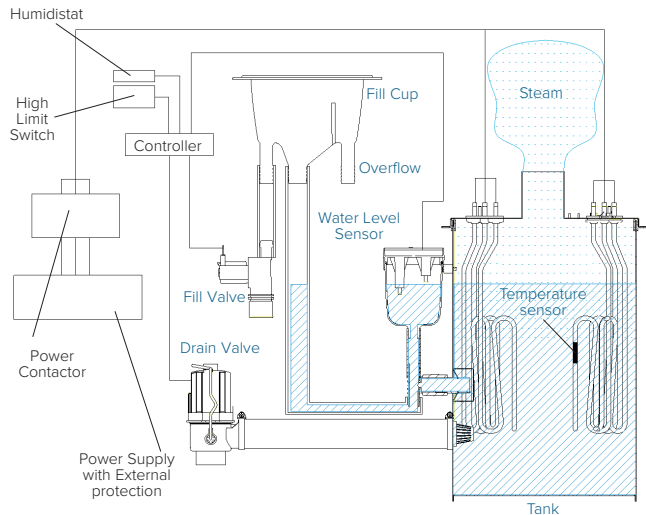


Figure 3-2.

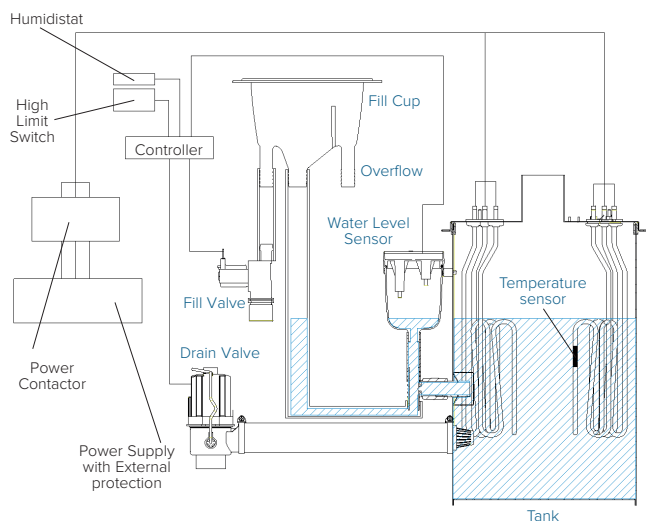
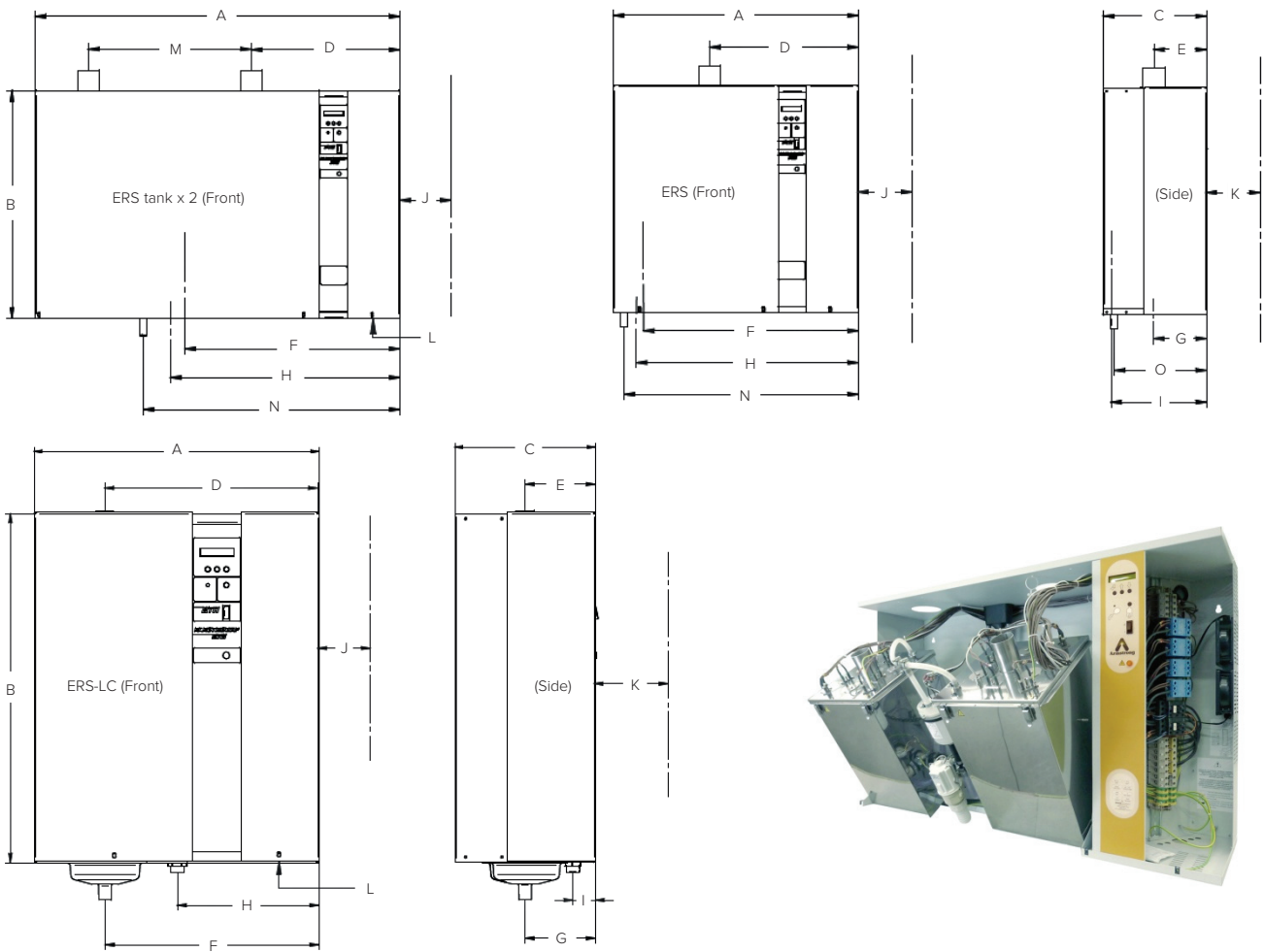


Figure 3-3.

Designs, materials, weights and performance ratings are approximate and subject to change without notice. Visit armstronginternational.com for up-to-date information.



Armstrong® ERS Series Dimensions and Weights



| ERS | ERS 5 to 50 | | ERS 60 to 100 | | ERS-LC | |
|-------------------------------|----------------|-----------|----------------|-----------|-------------|-----------|
| | in. | mm | in. | mm | in. | mm |
| A - Width | 31.57 | 805 | 47.27 | 1200 | 21.65 | 550 |
| B - Height | 29.53 | 750 | 29.53 | 750 | 26.77 | 680 |
| C - Depth | 19.39 | 345 | 1.39 | 345 | 10.71 | 272 |
| D - Steam Outlet 1 | 18.9 | 485 | 19.21 | 488 | 16.14 | 410 |
| E - Steam Outlet - Side | 6.93 | 176 | 6.93 | 176 | 5.35 | 136 |
| F - Tank Drain - Front | 28.55 | 730 | 29.88 | 759 | 16.14 | 410 |
| G - Tank Drain Side | 6.89 | 175 | 2.09 | 53 | 5.35 | 136 |
| H - Water Supply - Front | 27.95 | 710 | 27.24 | 692 | 10.63 | 270 |
| I - Water Supply - Side | 12.2 | 310 | 12.2 | 310 | 1.69 | 43 |
| J - Clearance - Right | 31.05 | 800 | 31.5 | 800 | 24 | 600 |
| K - Clearance - Front | 49 | 1250 | 49 | 1250 | 49 | 1250 |
| L - Electrical Inlet Diameter | 1 1/2 - 2x0.63 | 40 - 2x16 | 1 1/2 - 2x0.63 | 40 - 2x16 | 1" - 2x0.63 | 25 - 2x16 |
| M - Steam Outlet 2 | - | - | 21.18 | 538 | - | - |
| N - Overflow drain - Front | 30.39 | 772 | 33.35 | 847 | - | - |
| O - Overflow drain - Side | 11.97 | 304 | 12.2 | 310 | - | - |
| | lbs | kg | lbs | kg | lbs | kg |
| Weight Operating | 165 | 75 | 309 | 140 | 77 | 35 |
| Weight Shipping | 99 | 45 | 154 | 70 | 55 | 25 |

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ERS & ERS-LC Series Capacity tables

| Supply (V) | 380V - 3 ph | | 400V - 3 ph | | 415V - 3 ph | | 440V - 3 ph | | 460V - 3 ph | | 480V - 3 ph | | Nb of tanks |
|------------|-------------|------|-------------|------|-------------|------|-------------|------|-------------|------|-------------|------|-------------|
| | ERS | kg/h | kW (Pn) | kg/h | kW (Pn) | kg/h | kW (Pn) | kg/h | kW (Pn) | kg/h | kW (Pn) | kg/h | |
| 5_3P | 6 | 4 | 6 | 4 | 6 | 4 | - | - | - | - | - | - | 1 |
| 7 | 7 | 5 | 8 | 6 | 8 | 6 | 6 | 5 | 7 | 6 | 8 | 6 | 1 |
| 10 | 11 | 8 | 12 | 9 | 13 | 10 | - | - | - | - | - | - | 1 |
| 15 | 16 | 12 | 17 | 13 | 19 | 14 | 14 | 11 | 16 | 12 | 17 | 13 | 1 |
| 20 | 22 | 16 | 24 | 18 | 26 | 19 | 21 | 15 | 23 | 17 | 25 | 19 | 1 |
| 30 | 26 | 20 | 29 | 22 | 31 | 24 | 29 | 22 | 32 | 24 | 35 | 26 | 1 |
| 40 | 38 | 29 | 42 | 32 | 46 | 34 | 35 | 27 | 39 | 29 | 42 | 32 | 1 |
| 50 | 47 | 35 | 52 | 39 | 56 | 42 | 43 | 33 | 47 | 36 | 52 | 39 | 1 |
| 60 | 53 | 40 | 60 | 45 | 64 | 48 | 50 | 38 | 54 | 41 | 59 | 45 | 2 |
| 70 | 63 | 47 | 69 | 52 | 75 | 56 | 58 | 43 | 63 | 48 | 69 | 52 | 2 |
| 80 | 76 | 57 | 85 | 64 | 91 | 68 | 71 | 53 | 77 | 58 | 84 | 63 | 2 |
| 90 | 85 | 64 | 94 | 71 | 101 | 76 | 79 | 59 | 86 | 65 | 94 | 71 | 2 |
| 100 | 94 | 70 | 104 | 78 | 112 | 84 | 87 | 65 | 95 | 72 | 103 | 78 | 2 |

| Supply (V) | 575V - 3 ph | | | 600V - 3 ph | | | Nb of tanks |
|------------|-------------|------|------|-------------|------|------|-------------|
| | ERS | kg/h | lb/h | kW (np) | kg/h | lb/h | |
| 7 | 7 | 15 | 5 | 8 | 17 | 6 | 1 |
| 15 | 16 | 35 | 12 | 17 | 37 | 13 | 1 |
| 20 | 23 | 51 | 17 | 25 | 55 | 19 | 1 |
| 30 | 32 | 70 | 24 | 34 | 75 | 26 | 1 |
| 40 | 39 | 86 | 29 | 42 | 92 | 32 | 1 |
| 50 | 47 | 103 | 36 | 51 | 112 | 39 | 1 |
| 60 | 54 | 119 | 41 | 59 | 130 | 44 | 2 |
| 70 | 63 | 139 | 48 | 68 | 150 | 51 | 2 |
| 80 | 77 | 169 | 58 | 84 | 185 | 63 | 2 |
| 90 | 86 | 189 | 65 | 93 | 205 | 70 | 2 |
| 100 | 95 | 209 | 71 | 103 | 227 | 78 | 2 |

Armstrong ERS-LC humidifiers are available with a maximum capacity of 29 kg/h (64 lb/h).

For capacities above 104 kg/h (229 lb/h), please consult factory.

| Supply (V) | 230V - 1 ph | | 208V - 3 ph | | 230V - 3 ph | | Nb of tanks |
|------------|-------------|------|-------------|------|-------------|------|-------------|
| | ERS | kg/h | kW (Pn) | kg/h | kW (Pn) | kg/h | |
| 3 | 2.5 | 1.9 | - | - | - | - | 1 |
| 5 | 6 | 4 | - | - | - | - | 1 |
| 8 | 8 | 6 | 6 | 5 | 8 | 6 | 1 |
| 18 | - | - | 14 | 10 | 17 | 13 | 1 |
| 25 | - | - | 20 | 15 | 24 | 19 | 1 |
| 36 | - | - | 28 | 21 | 34 | 26 | 1 |
| 44 | - | - | 34 | 25 | 42 | 31 | 2 |
| 51 | - | - | 40 | 31 | 49 | 37 | 2 |
| 62 | - | - | 48 | 36 | 59 | 45 | 2 |

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Armstrong® Other options

The **Armstrong SJDT** (Steam Jacketed Dispersion Tube) is an all stainless steel dispersion tube with the unique ability to accept jacketing steam from atmospheric steam generating humidifiers. The SJDT utilizes a portion of the steam to “jacket” the entire length of the tube, keeping the dispersion tube hot, even during periods of low demand. This “jacketing” effect improves the quality of steam discharge and reduces the chance for spitting or dripping in your air handling system.

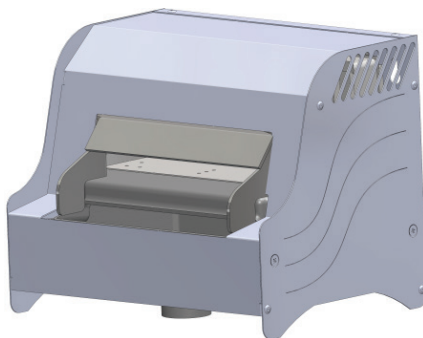


The **Armstrong HumidiPack®** and **ExpressPack®** are pre-assembled sets with a separator/collector and several dispersion tubes to reduce the humidification distance. Designed for an installation in ducts or air handling units.

There are 3 models:

- ExpressPack® for atmospheric pressure applications.
- HumidiPack® CF for pressurized applications.
- HumidiPackPlus® for pressurized systems with jacketed dispersion tubes.

The **Armstrong EHF** fan package expand the steam into the air when there is no duct or AHU to convey the steam. To mount on a wall. EHF III: blowing capacity: 54 kg/h (119 lb/h).



This Fan Package is a steam room ventilation unit which combines performance with design and efficiency with limited size for a maximum flowrate of 30 kg/h. It performs best in a room where the Relative Humidity and temperature does not exceed 75% RH and 60°C.

A protective enclosure for outdoor applications. The optional protective cabinet allows outdoor installation of the outdoor installation of the humidifier. This is a protection against variable climatic condition. This includes an anti-frost device and an internal ventilation system preventing condensation.



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Typical Specification

1. Armstrong ERS and ERS-LC humidifiers for the production of sterile steam.
2. Galvanized zinc, epoxy painted cabinet shall have separate water and electrical compartments for safety. Secure removable door panels on 3 sides, providing easy access for installation and maintenance.
3. Humidifier shall generate steam from potable water (water hardness min 50 ppm/max 400 ppm with water level with electrode) and DI or RO water (water level with float). For operation with softened or partly softened water please contact your Armstrong representative.
4. Draining settings shall be adjustable depending on the quality of supply water to optimize energy consumption.
5. Production from 5 to 104 kg/h of steam.
6. Humidifier shall accept fully common modulating signal ON/OFF or proportional. The microprocessor regulates proper filling and draining, can limit capacity at 50% of nominal output and modulates capacity between 0% to 100%. $\pm 2\%$ signal accuracy.
7. Humidifier is interoperable through native modbus communication protocol.
8. Digital display and keypad on the front panel shall indicate all functions of the humidifier.
9. Humidifier shall have a tank in permanent stainless steel with passivated welds.
10. Humidifier shall have a tilting tank with intermediary position to easily collect limescale and minerals.
11. Humidifier shall have self-cleaning heating elements in INCOLOY 825.
12. Humidifier shall have two power lamps on front of the unit to indicate power and steam production.
13. Humidifier shall have a programmable maintenance schedule timer: 300 hours in standard, adjustable from 100 to 20 000 hours.
14. Humidifier shall have drain solenoid valve with a large orifice for easy limescale evacuation.
15. Humidifier shall have anti-foaming automatic drains.
16. For large duct or short absorption distance, humidifiers shall be compatible with Humidipack and ExpressPack.
17. End-of-season auto drain of the cylinder after period of inactivity: 3 days in standard but adjustable from 12 hours to 7 days.
18. Water supply pressure to humidifier shall range between 1 to 6 bars, inlet valve shall include a flow restrictor and a built-in strainer.
19. Supplied with a flexible limescale collecting bag.
20. Capacity to be linked with Armstrong sensor and humidistat for fully automatic control.
21. Shall allow to maintain the temperature of the water inside the tank between 65°C and 75°C (antilegionella).
22. Humidifier shall have temperature sensor immersed in the evaporation chamber which prevents over-temperature.
23. High flow cooling fan will be incorporated inside the electrical compartment.
24. The humidifier should have the following options available:
 - a. BMS with Bacnet communication.
 - b. BMS with LonWorks communication.
 - c. Remote information board which is a set of dry contacts indicating steam demand, tank cleaning and control circuit alarm.
 - d. Weather proof cabinet for outside application (IP55).
 - e. Support legs for non-wall mounted installation.
 - f. Draining water cooling kit.
 - g. Open door detection.
 - h. Pressure compensation accessory up to 700 mm WC (6865 Pa).
 - i. Stainless steel steam distribution pipes with separate condensate drains.



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