



***Important:*** Read and save these instructions. This guide to be left with equipment owner.



# Steam Distributors

## Installation and Operation Manual

Includes installation, operation  
maintenance and troubleshooting  
information for your ASD, BSD, CSD,  
and RSD distributors.



***Thank you for choosing Condair.***

INSTALLATION DATE (MM/DD/YYYY)

MODEL #

SERIAL #

CYLINDER #

### **Proprietary Notice**

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### **Liability Notice**

Condair does not accept any liability for installations of humidity equipment installed by unqualified personnel or the use of parts/components/equipment that are not authorized or approved by Condair.

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# Contents

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## **2 Installation**

- 2 Receiving and Unpacking Equipment
- 2 Pre-Installation Check
- 2 Steam Line Installation
- 4 Condensate Return Guidelines for Main Steam Lines



# Introduction



## **CAUTION: Servicing**

- Disconnect main power before any servicing.
- The plumbing and electrical compartments contain high voltage components and wiring. Access should be limited to authorized personnel only.
- During and following operation of the humidifier, the steam and components in contact with the steam such as the blower pack, steam lines, steam distributors, and condensate lines can become hot and can burn if touched.
- Condair does not accept any liability for installations of humidity equipment installed by unqualified personnel or the use of parts/components/equipment that are not authorized or approved by Condair.



## **CAUTION: Electrical**

- All electrical work should be done according to local and national electrical code.
- Electrical connection to be performed by a licensed electrician.



## **CAUTION: Plumbing**

- Plumbing to be performed by a licensed plumber.
- Drain water from humidifier can be very hot. Do not drain to public sink.
- All plumbing work should be done according to local plumbing code.



## **CAUTION: Installation**

- Do not mount on hot surfaces.
- Do not mount in area where freezing can occur.
- Do not mount on vibrating surface.
- Do not mount on floor.
- Humidifiers produce steam at atmospheric pressure no devices which could block steam output should be connected to the steam outlet.
- Steam lines must be installed so that no restriction can produce backpressure in the humidifier.
- Regardless of selecting on/off or modulating control method, Condair humidifiers must have a closed circuit across its on/off security loop control terminal to operate. Condair highly recommends the use of a duct high limit humidistat.



# Installation

## Receiving and Unpacking Equipment

1. Check packing slip to ensure all material has been delivered.
2. All material shortages are to be reported to Condair within 48 hours from receipt of goods. Condair assumes no responsibility for any material shortages beyond this period.
3. Inspect shipping boxes for damage and note on shipping waybill accordingly.
4. After unpacking, inspect equipment for damage and if damage is found, notify the shipper promptly.
5. All Condair products are shipped on an f.o.b. factory basis. Any and all damage, breakage or loss claims are to be made directly to the shipping company.
6. Each distributor is provided with: installation manual, one hose cuff, and two hose clamps.

## Pre-installation Check

1. Ensure the total capacity of the humidifier is not higher than the allowable maximum steam capacity of the distributors used.  
ASD/RSD 10: 22 lbs/hr (10 kg/hr)  
ASD: 25 lbs/hr (11.3 kg/hr)  
BSD: 35 lbs/hr (15.9 kg/hr)  
CSD: 115 lbs/hr (52.5 kg/hr)  
SSD: 10 lbs/hr (4.5 kg/hr)

## Steam Line Installation

1. Condair steam hose should only be used on short steam runs below 10 feet.
2. Ensure that no condensate produced in the steam line will remain trapped. Steam naturally flows upward and condensate naturally flows downward.
3. See material recommended for use in the chart below. To eliminate the metal corrosion, Condair does not recommend the use of steel piping.
4. Consult the following pages for step by step distributor installation starting with figure 1.
5. Consult the charts below for steam and condensate sizing guidelines when using steam distributors.



**Table 1: Steam Line Material**

|                           | Steam Hose | Copper Tube | Stainless Steel Tube |
|---------------------------|------------|-------------|----------------------|
| Short run < 10 feet (3 m) | ✓          | ✓           | ✓                    |
| Long run > 10 feet (3 m)  |            | ✓           | ✓                    |
| Di / RO water             |            |             | ✓                    |

**Table 2: Recommended Material And Size For Steam Run**

| Load                 |                     | Steam run         |                  | Steam line material                | Steam line description                      |
|----------------------|---------------------|-------------------|------------------|------------------------------------|---------------------------------------------|
| lb/hr                | kg/hr               | ft                | m                |                                    |                                             |
| 0-30                 | 0-13                | 0-10              | 0-3              | Copper tube                        | 3/4" med-I tubing (7/8" o.d.)               |
| <b><i>0-30</i></b>   | <b><i>0-13</i></b>  | <b><i>10+</i></b> | <b><i>3+</i></b> | <b><i>Copper tube</i></b>          | <b><i>1" med-I tubing (1 1/8" o.d.)</i></b> |
| 0-30                 | 0-13                | 0-10              | 0-3              | Stainless steel tube               | 7/8" tube x 0.049" thick                    |
| <b><i>0-30</i></b>   | <b><i>0-13</i></b>  | <b><i>10+</i></b> | <b><i>3+</i></b> | <b><i>Stainless steel tube</i></b> | <b><i>1 1/8" tube x 0.49" thick</i></b>     |
| 30-100               | 13-45               | 0-20              | 0-6              | Copper tube                        | 1 1/2" med-I tubing (1 5/8" o.d.)           |
| <b><i>30-100</i></b> | <b><i>13-45</i></b> | <b><i>20+</i></b> | <b><i>6+</i></b> | <b><i>Copper tube</i></b>          | <b><i>2" med-I tubing (2 1/8" o.d.)</i></b> |
| 30-100               | 13-45               | 0-20              | 0-6              | Stainless steel tube               | 1 3/4" tube x 0.065" thick                  |
| <b><i>30-100</i></b> | <b><i>13-45</i></b> | <b><i>20+</i></b> | <b><i>6+</i></b> | <b><i>Stainless steel tube</i></b> | <b><i>2" tube x 0.065" thick</i></b>        |

Please note that options shown in a ***bold-italic font*** requires that reducers be used at both ends. These extra large sizes are to allow for better condensation removal in long steam runs. These sizes cannot be connected to either the humidifier or distributor using the supplied hose couplings.

**Table 3: Recommended condensate line at distributor(s)**

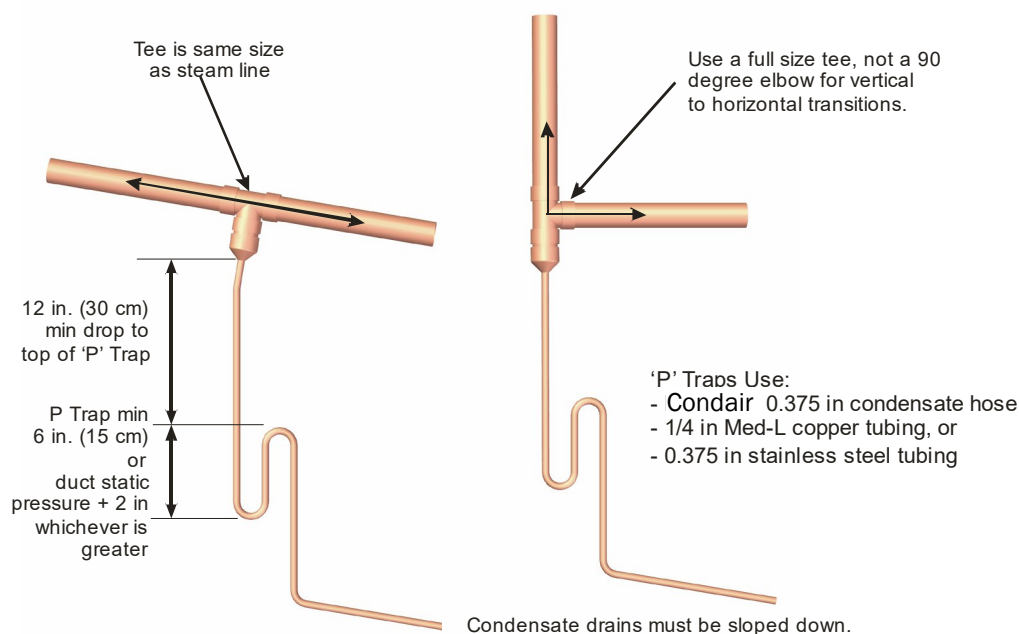
| Dispersion Method     | Condensate Hose         | Copper Tube                      | Stainless Steel Tube      |
|-----------------------|-------------------------|----------------------------------|---------------------------|
| 1 x steam distributor | 3/8"<br>Condair 1328840 | 1/4" med-I tubing<br>(3/8" o.d.) | 3/8" tube<br>0.049" thick |
| 3 x steam distributor | 3/8"<br>Condair 1328840 | 1/2" med-I tubing<br>(7/8" o.d.) | 5/8" tube<br>0.049" thick |

\*when using more than one distributor, the condensate line should be trapped before joined together.



## Condensate Return Guidelines For Main Steam Lines

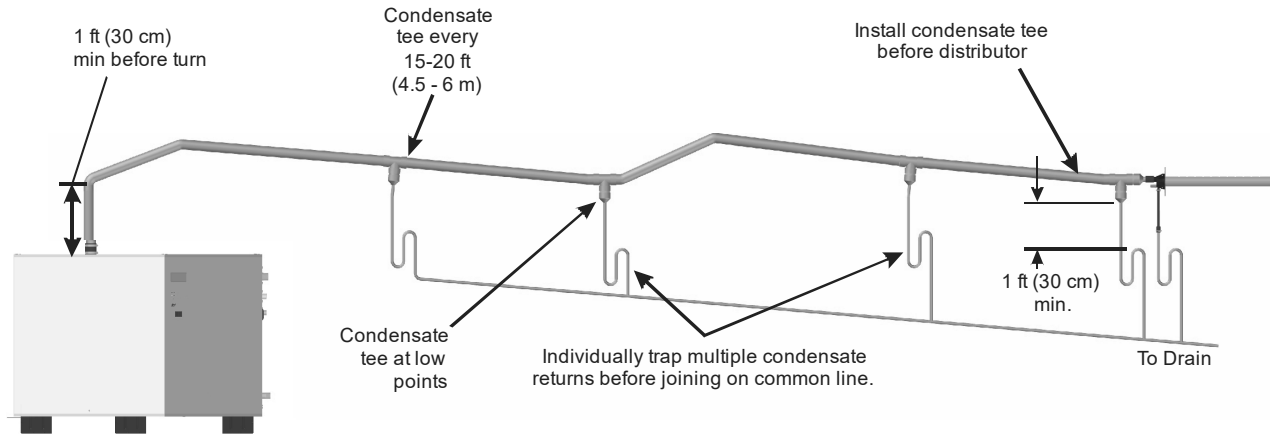
1. Use vertical condensate leg of distributor only. Do not over-tighten clamp.
2. Condensate traps on steam mains must be located at all low points in the system, at each elevation change and or directional change.
3. Horizontal runs of steam must rise 2" per foot (10°) when flow is going upwards away from condensate trap, and fall ½" per foot (2°) when flow is going downwards towards a condensate trap.
4. In a horizontal run of the steam main, condensate traps must be located at regular intervals of 20 feet.
5. The condensate trap itself is a section of piping connected to the bottom of the main. A full size tee must be used to create a condensate trap to allow the condensate to fall away from the steam flow.
6. Vertical drop of the condensate trap should be 1.5 times the diameter of the steam main but no less than 12".
7. A p-trap should be installed at the bottom of the condensate trap. The center to center trap height should be 2" greater than duct static pressure (see Figure 1).
8. All distributors must be individually trapped.



**Figure 1: Drain Tee**



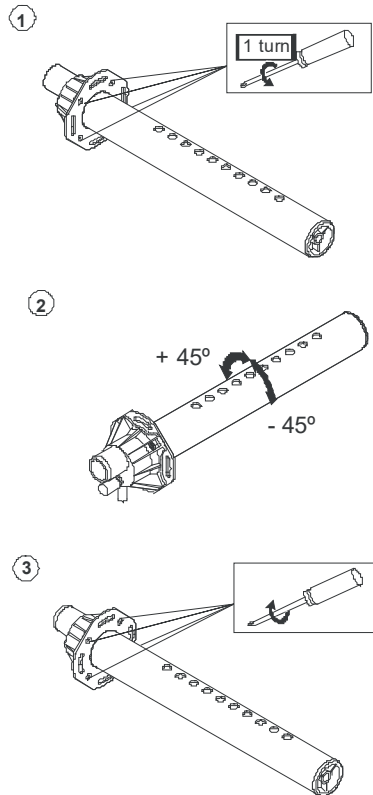
## Method for Longer Runs With Limited Vertical Space



**Figure 5: Long Steam Run**

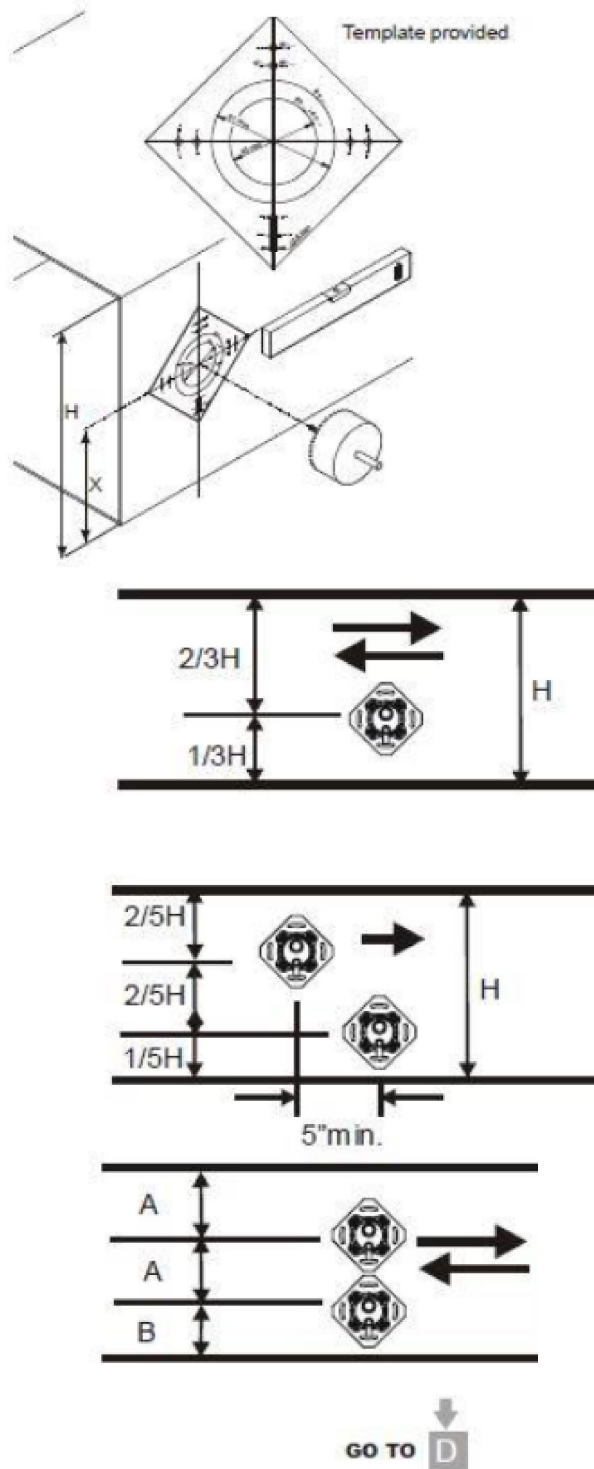
## B

Always align distributor holes so that steam is discharged upwards to ensure condensate will remain in the distributor.



GO TO **C2**

**Figure 6: Vertical Airflow**



Always align distributor holes so that steam is discharged upwards to ensure condensate will remain in the distributor.

|      | X Min.      | H Min.       |
|------|-------------|--------------|
| ASD  | 3" (76 mm)  | 8" (203 mm)  |
| BSD  | 4" (102 mm) | 10" (254 mm) |
| CSD  | 5" (127 mm) | 14" (356 mm) |
| RSD  | 3" (76 mm)  | 8" (203 mm)  |
| SSD* | 3" (76 mm)  | 8" (203 mm)  |

\* SSD distributors can only be installed with upward airflow in vertical duct applications. Refer to C2 on the next page.

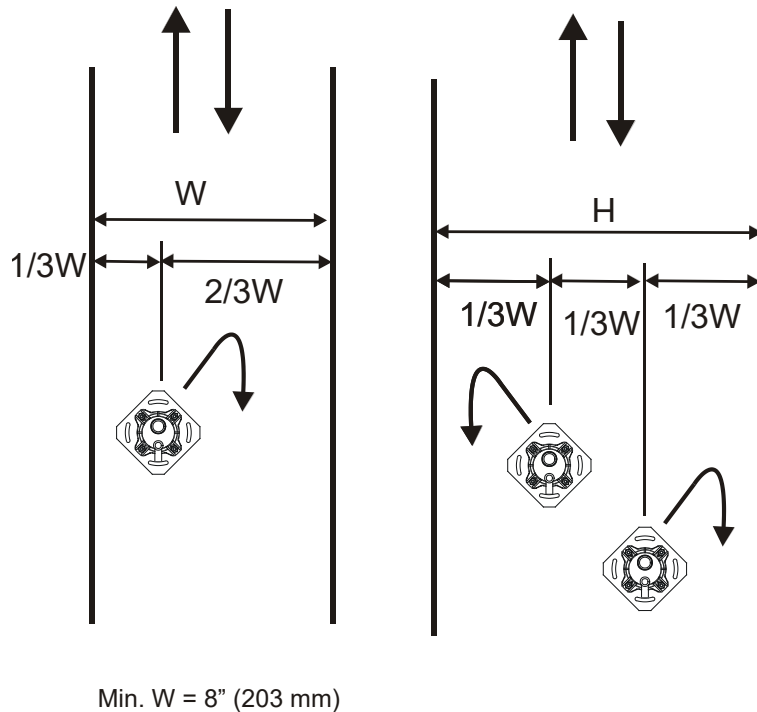
|     |                |
|-----|----------------|
| ASD | Φ 1.5" (38 mm) |
| BSD | Φ 1.5" (38 mm) |
| CSD | Φ 2.0" (51 mm) |

|     | A Min. | B Min. |
|-----|--------|--------|
| ASD | 5"     | 3"     |
| BSD | 6"     | 4"     |
| CSD | 9"     | 5"     |

Figure 7: Horizontal Airflow

## C2

Always align distributor holes so that steam is discharged upwards to ensure condensate will remain in the distributor.



GO TO **D**

**Figure 8: Vertical Airflow**

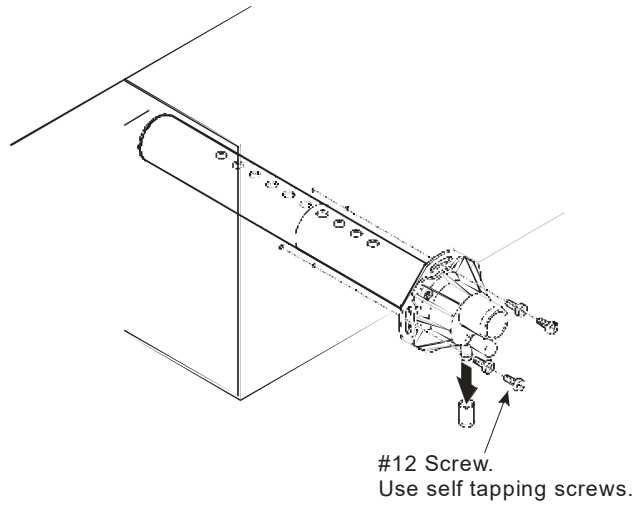
\* SSD distributors can only be installed with upward airflow in vertical duct applications.



### Warning

- These installation guidelines apply for duct velocities under 2000 ft/min (610 m/min), please consult factory for higher velocities.
- Please make sure no obstacles (elbow, filter, or diffuser) are located after the distributor in the direction of the airflow closer than the absorption distance calculated for your application.
- Unless the exact absorption distance required for the steam absorption into the air stream is known, the distributor should be located at least 8-10 ft (2-3 m) away from any obstacle it may condense on (elbow, diffuser, filter, etc.).

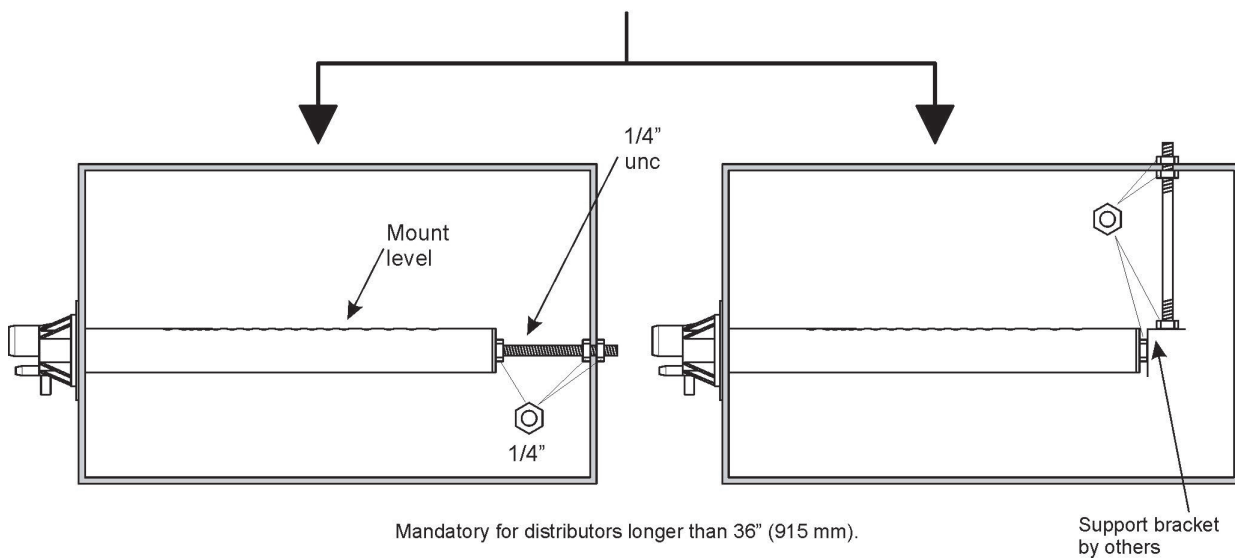
# D



GO TO **E**

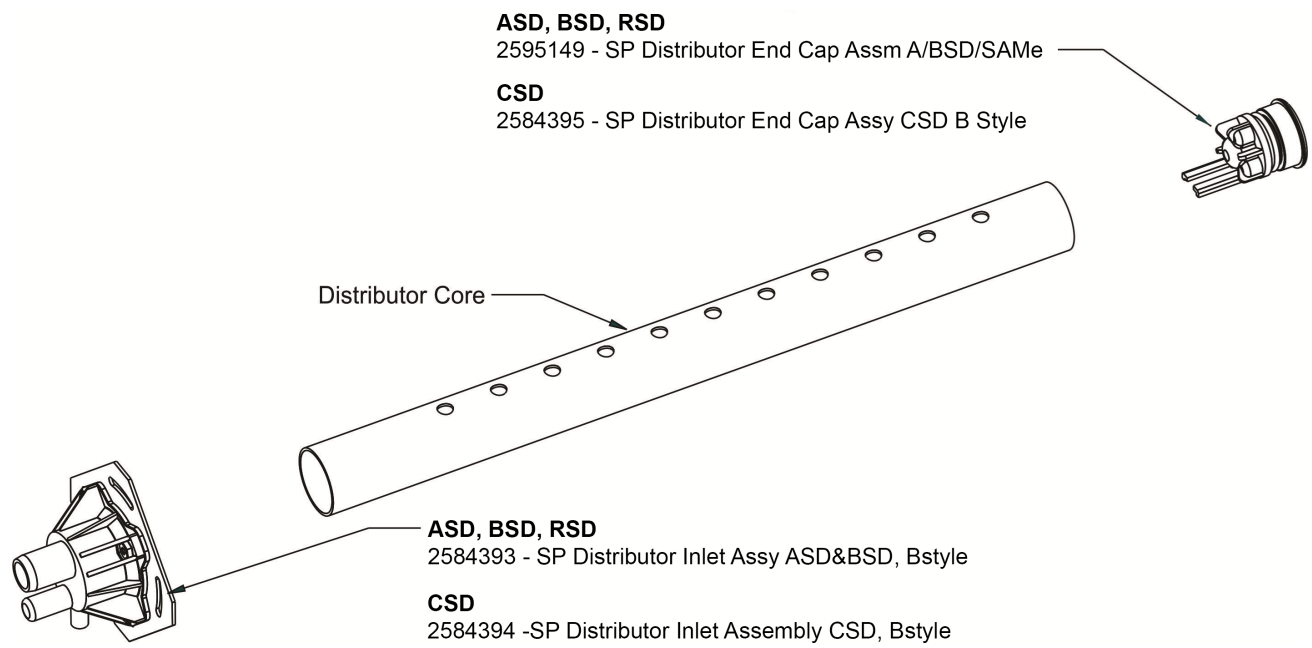
**Figure 9: Distributor Mounting – Horizontal & Vertical Flow**

# E



**Figure 10: Distributor Mounting**





**Figure 11: Spare Parts**



# Warranty

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Condair Inc. and/or Condair Ltd. (hereinafter collectively referred to as THE COMPANY), warrant for a period of two years after installation or 30 months from manufacturer's ship date, whichever date is earlier, that THE COMPANY's manufactured and assembled products, not otherwise expressly warranted (with the exception of the cylinder), are free from defects in material and workmanship. No warranty is made against corrosion, deterioration, or suitability of substituted materials used as a result of compliance with government regulations.

THE COMPANY's obligations and liabilities under this warranty are limited to furnishing replacement parts to the customer, F.O.B. THE COMPANY's factory, providing the defective part(s) is returned freight prepaid by the customer. Parts used for repairs are warranted for the balance of the term of the warranty on the original humidifier or 90 days, whichever is longer.

The warranties set forth herein are in lieu of all other warranties expressed or implied by law. No liability whatsoever shall be attached to THE COMPANY until said products have been paid for in full and then said liability shall be limited to the original purchase price for the product. Any further warranty must be in writing, signed by an officer of THE COMPANY.

THE COMPANY's limited warranty on accessories, not of the companies manufacture, such as controls, humidistats, pumps, etc. is limited to the warranty of the original equipment manufacturer from date of original shipment of humidifier.

THE COMPANY makes no warranty and assumes no liability unless the equipment is installed in strict accordance with a copy of the catalog and installation manual in effect at the date of purchase and by a contractor approved by THE COMPANY to install such equipment.

THE COMPANY makes no warranty and assumes no liability whatsoever for consequential damage or damage resulting directly from misapplication, incorrect sizing or lack of proper maintenance of the equipment.

THE COMPANY makes no warranty and assumes no liability whatsoever for damage resulting from freezing of the humidifier, supply lines, drain lines, or steam distribution systems.

THE COMPANY retains the right to change the design, specification and performance criteria of its products without notice or obligation.



**U.S.A.**  
2700 90<sup>th</sup> St.  
Sturtevant, WI 53177

835 Commerce Park Dri.  
Ogdensburg, NY 13669-2209

**CANADA**  
2740 Fenton Road  
Ottawa, Ontario K1T 3T7

TEL: 1.866.667.8321  
FAX: 613.822.7964

EMAIL: [na.info@condair.com](mailto:na.info@condair.com)  
WEBSITE: [www.condair.com](http://www.condair.com)

