

SDU-I-RX and SDU-E-RX

For RTS® Humidifier



 *Installation, Operation, and
Maintenance Manual*

Read and save these instructions

Specifications

PRINCIPAL OF OPERATION

On a call for humidity, the humidifier begins producing steam, and the start relay energizes the SDU blower. When the call for humidity is satisfied, the Vapor-logic controller keeps the blower running to disperse residual moisture using a time delay. There is an airflow proving switch built into the SDU that will prevent the humidifier from operating if there is no airflow.

SDU-E-RX: HIGHER CAPACITY UP TO 126 LBS/HR

- The SDU-E-RX (Space Distribution Unit External Absorption) absorbs steam outside the enclosure. See Table 4-1 for non-wetting distances.
- The SDU-E-RX is used with RX-XX-1 and RX-XX-2 RTS humidifier models up to 126 lbs/hr (57 kg/hr).
- SDU-E-RX units being supplied 30 lbs/hr (13.6 kg/hr) or more of steam require a field-installed drain line and p-trap. See Page 6-1 for drain piping.

SDU-I-RX: NO VISIBLE STEAM TRAIL

- The SDU-I-RX (Space Distribution Unit Internal Absorption) disperses humidity with no visible vapor trail or wetness, making it ideal for use in finished spaces. The SDU-I-RX fan mixes room air and steam to ensure complete absorption before being discharged as humidified air.
- The SDU-I-RX is used with RX-XX-1 RTS humidifier models up to 30 lbs/hr (13.6 kg/hr).
- Important: For visible vapor to be absorbed completely within the SDU-I-RX unit before being discharged as humidified air, room air must be 45% RH or less. Trying to maintain greater than 45% RH will cause visible vapor and potential for moisture collection on the discharge grille.

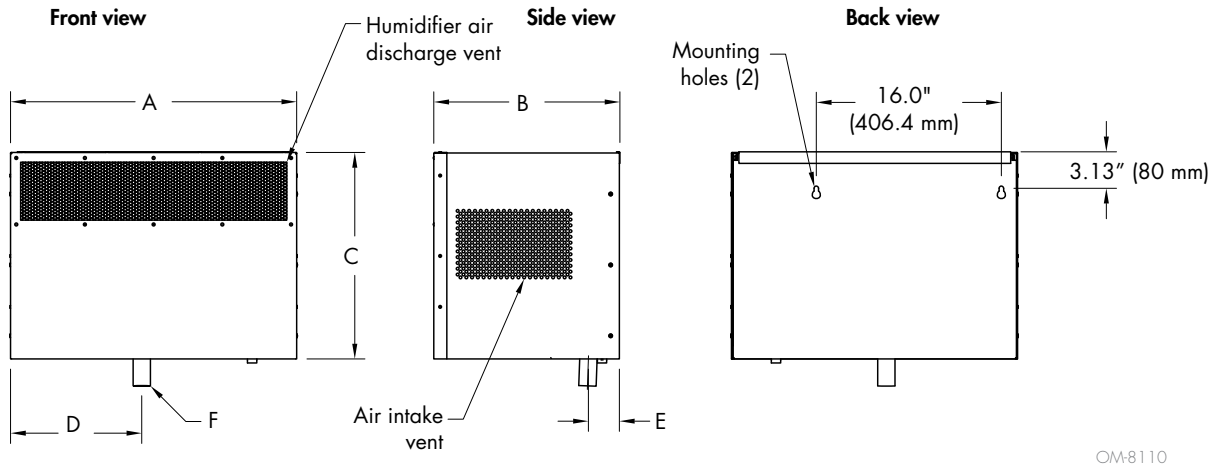
Table 2-1:
SDU specifications

SDU model	Maximum capacity		Shipping weight		Amps at 120V (50/60 Hz)	Horsepower	cfm	m ³ /s	dB*
	lbs/hr	kg/h	lbs	kg					
SDU-I-RX	30	13.6	67	30.4	3.20	1/5	760	0.36	58
SDU-E-RX	126	57	61	27.7	2.07	1/8	545	0.26	64

* Measurement taken 6.5' (2 m) in front of SDU cabinet.
RX-XX-3 and RX-XX-4 models cannot be used with an SDU.
SDU's ship separate from the RX humidifier.

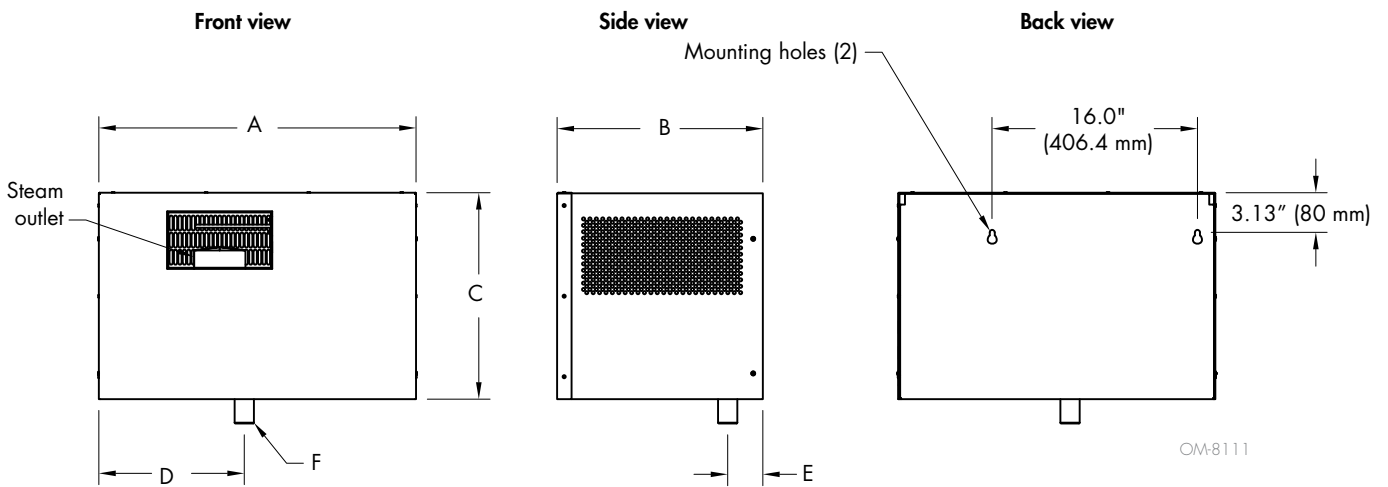
Dimensions

FIGURE 3-1: SDU-I-RX MECHANICAL DETAIL



OM-8110

FIGURE 3-2: SDU-E-RX MECHANICAL DETAIL



OM-8111

**Table 3-1:
SDU dimension**

SDU model	A		B		C		D		E		F	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
SDU-I-RX	24.7	627	16.0	406	17.9	455	11.4	290	2.8	70	Ø1.5	Ø38
SDU-E-RX	24.7	627	16.0	406	16.1	409	11.4	290	2.8	70	Ø1.5 or Ø2*	Ø38 or Ø51*

* 1.5" (38 mm) or 2" (51 mm) up to 75 lbs/hr. 2" (51 mm) only greater than 75 lbs/hr.

Nonwetting distances

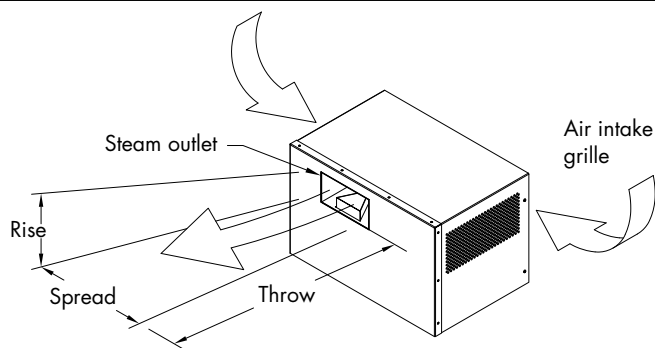
Table 4-1:
SDU-E-RX minimum nonwetting distances

kW of RTS	Maximum steam capacity		40% RH @ 70 °F (21 °C)						50% RH @ 70 °F (21 °C)						60% RH @ 70 °F (21 °C)					
			Rise		Spread		Throw		Rise		Spread		Throw		Rise		Spread		Throw	
	lbs/hr	kg/h	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m
2	6	2.7	1.0	0.3	1.0	0.3	5.0	1.5	1.5	0.5	1.5	0.5	6.5	2.0	2.5	0.8	2.5	0.8	7.5	2.3
4	12	5.4	1.0	0.3	1.0	0.3	5.0	1.5	1.5	0.5	1.5	0.5	6.5	2.0	2.5	0.8	2.5	0.8	7.5	2.3
6	18	8.2	1.0	0.3	1.0	0.3	5.0	1.5	1.5	0.5	1.5	0.5	6.5	2.0	2.5	0.8	2.5	0.8	7.5	2.3
8	24	10.9	1.0	0.3	1.0	0.3	5.5	1.7	1.5	0.5	1.5	0.5	6.5	2.0	2.5	0.8	2.5	0.8	7.5	2.3
10	30	13.6	1.5	0.5	1.5	0.5	6.0	1.8	2.0	0.6	2.0	0.6	7.0	2.1	3.0	1.0	3.0	1.0	8.0	2.5
12	36	16.3	1.5	0.5	1.5	0.5	6.0	1.8	2.0	0.6	2.0	0.6	7.0	2.1	3.0	1.0	3.0	1.0	8.0	2.5
14	42	19.1	2.0	0.6	2.0	0.6	7.0	2.1	2.0	0.6	2.0	0.6	7.0	2.1	3.0	1.0	3.0	1.0	9.0	2.7
16	48	21.8	2.0	0.6	2.0	0.6	7.0	2.1	2.0	0.6	2.0	0.6	7.0	2.1	3.0	1.0	3.0	1.0	9.0	2.7
21	63	28.6	2.0	0.6	2.0	0.6	7.5	2.3	2.5	0.8	2.5	0.8	10.0	3.0	3.0	1.0	3.0	1.0	12.0	3.7
25	75	34.0	2.0	0.6	2.0	0.6	8.0	2.5	2.5	0.8	2.5	0.8	10.5	3.2	3.5	1.1	3.5	1.1	12.5	3.8
30	90	40.9	2.0	0.6	2.0	0.6	8.0	2.5	2.5	0.8	2.5	0.8	10.5	3.2	3.5	1.1	3.5	1.1	12.5	3.8
34	102	46.3	2.0	0.6	2.0	0.6	8.0	2.5	2.5	0.8	2.5	0.8	10.5	3.2	3.5	1.1	3.5	1.1	12.5	3.8
42	126	57.1	2.5	0.6	2.5	0.6	8.5	2.5	3.0	0.8	3.0	0.8	11	3.2	4.0	1.1	4.0	1.1	13	3.8

Notes:

- Surfaces or objects directly in the path of steam discharge may cause condensation and dripping.
- To avoid steam impingement on surrounding areas, observe the minimum nonwetting dimensions in this table.
- Rise: The minimum nonwetting height above the steam outlet of the SDU-E-RX.
- Spread: The minimum nonwetting width from the steam outlet of the SDU-E-RX. Spread dimensions greater than 3 ft (1 m) may require additional side clearance.
- Throw: The minimum nonwetting horizontal distance from the steam outlet of the SDU-E-RX.

FIGURE 4-1: SDU-E-RX RISE, SPREAD, AND THROW



OM-8114

Installation

Installation must comply with governing codes.

MOUNTING

- SDU RXs must be mounted at least 12" (305mm) above the RTS humidifier or mounted on a wall remote from the humidifier.
- Provide at least 6" (150 mm) clearance on each side of the SDU.
- Two 3/8" lag bolts (M10 x 50 mm coach screws) are provided with each fan unit.
- When mounting on a stud wall (studs 16" [406 mm] on center), locate studs and position lag bolts (coach screws) in place so that each of the two lag bolts (coach screws) centers on a stud. Mark hole locations and predrill 1/4" (6 mm) diameter pilot holes for a 3/8" x 2" lag bolt (M10 x 50 mm coach screw).
- For hollow block or poured concrete wall mounting, drill appropriate pilot hole for two 3/8" (M10) toggle bolts or two 3/8" (M10) machine bolt lead anchors (expansion bolts). Secure SDU frame in place.
- Ensure the SDU is mounted plumb and level. The SDU-E-RX is designed to drain condensate back to either the steam inlet or to the field-installed drain.

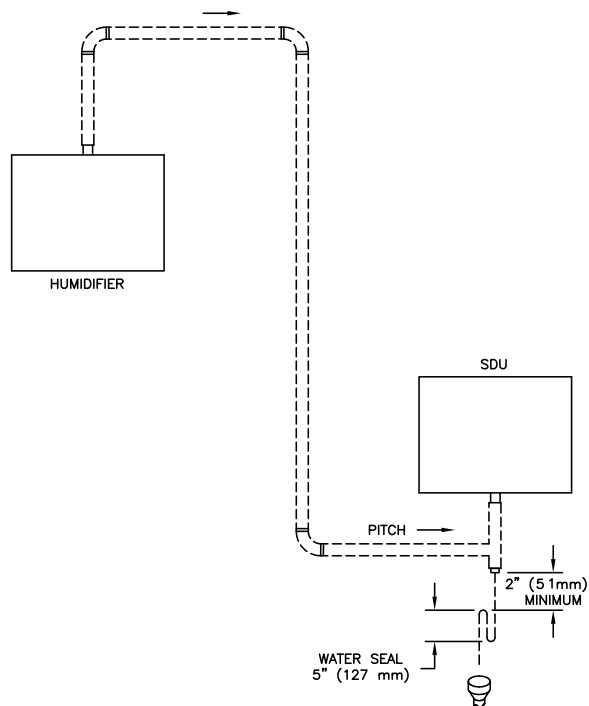
WIRING

- Field wiring is required to connect the SDU fan and airflow proving switch terminals to humidifier electrical panel terminals. Refer to the wiring diagram in the package shipped with your unit. Minimum wire size for field wiring is 18-gauge (1.5 mm²) stranded wire.
- SDUs can receive power for operation from the RX series humidifier or directly from a 120V power supply.
- If the SDU is receiving power for operation from the RX series humidifier, install two fuses in the RTS unit to provide power to the SDU. Fuses are shipped with the SDU. Replacements are available from DriSteem.

STEAM PIPING

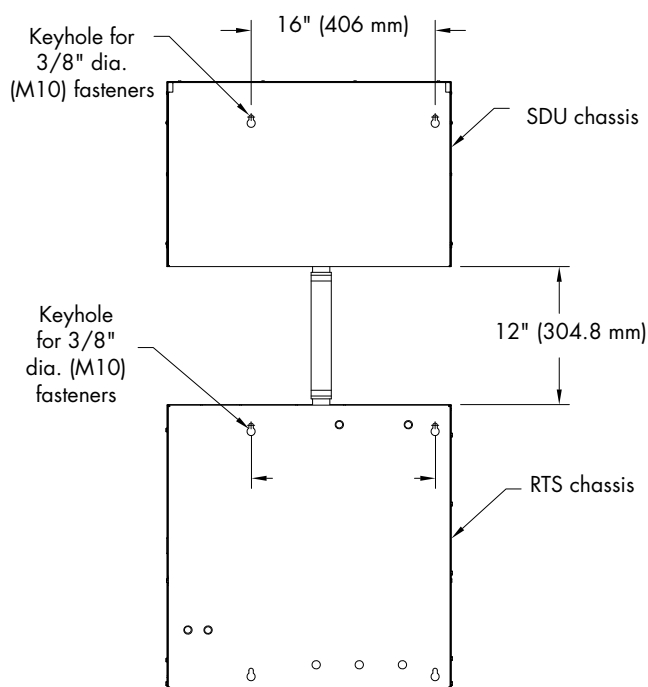
- See DriSteem's Interconnecting piping instructions for interconnecting piping requirements.
- For piping when SDU is below the humidifier, see Figure 5-1.

FIGURE 5-1: PIPING WHEN SDU IS BELOW HUMIDIFIER



OM-7832

FIGURE 5-2: STACKING A WALL-MOUNTED RTS AND SDU-I-RX OR SDU-E-RX



OM-8112

Installation

DRAIN PIPING

- The SDU-E-RX requires a condensate drain and water seal (provided by installer) if the capacity of the RTS humidifier is 30 lbs/hr (13.6 kg/hr) or greater. See Figures 6-1 and 6-2.
- Piping (NPT) or tubing must be minimum 1/4" I.D. (DN8) and rated for 212°F (100°C) minimum continuous operating temperature.
- All drain lines must be installed and sized according to governing codes.
- Drain line must be piped as shown in Figures 6-1 and 6-2.
 - Provide a 7" (178 mm) drop prior to a 5" (127 mm) water seal to ensure condensate drainage from the SDU-E, and to keep steam from blowing out of the drain line.
 - After the water seal, run the drain line to an open drain with a 1" (25 mm) vertical air gap. Cut the drain line at a 45 degree angle on the end above the drain to permit a direct stream of water into the drain pipe while maintaining a 1" (25 mm) air gap.
 - If the condensate is not properly drained, standing water may accumulate in the dispersion box.

NOTE: The dispersion box is constructed with a pitch toward the drain; however, the SDU-E frame must be installed plumb and level for the dispersion box to drain properly.

HAZARDS OF STANDING WATER IN SDU-E

If standing water is allowed to accumulate in the dispersion box, it can:

- Cause bacteria and mold growth, which can cause illness.
- Affect SDU-E fan unit performance.
- Cause 212 °F (100 °C) water to discharge from the SDU-E fan unit, which can cause severe personal injury.

NOTES:

Failure to follow the recommendations in this section can result in excessive back pressure on the humidifier. This will result in humidification system problems including leaking gaskets, blown water seals, erratic water level control, and pitting condensate from dispersion tubes.

FIGURE 6-1: SDU-E-RX (PIPING)

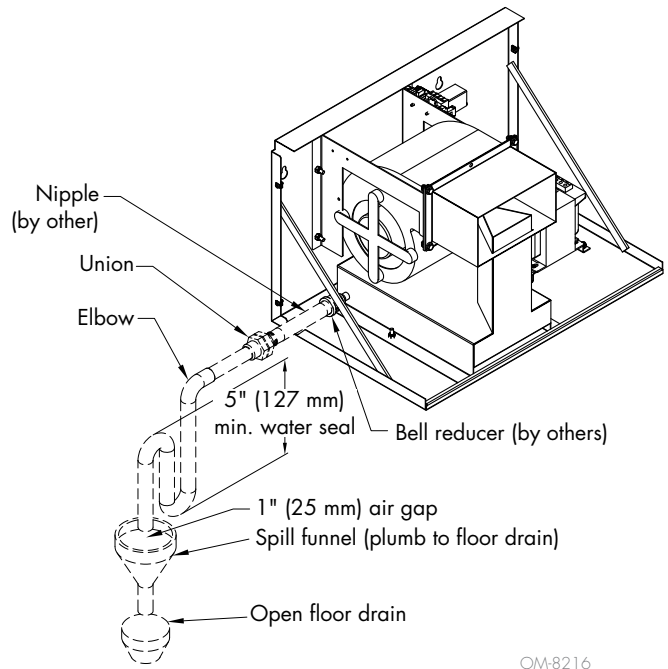
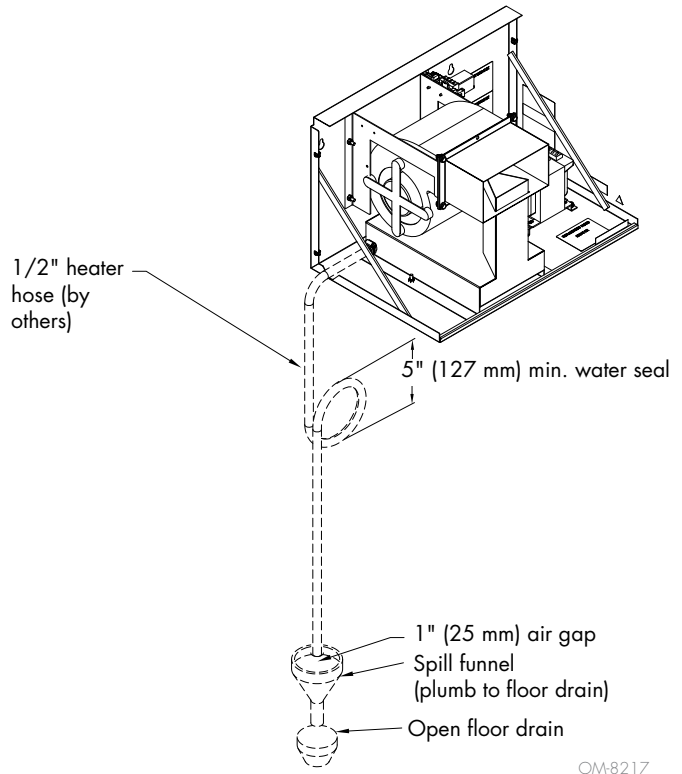
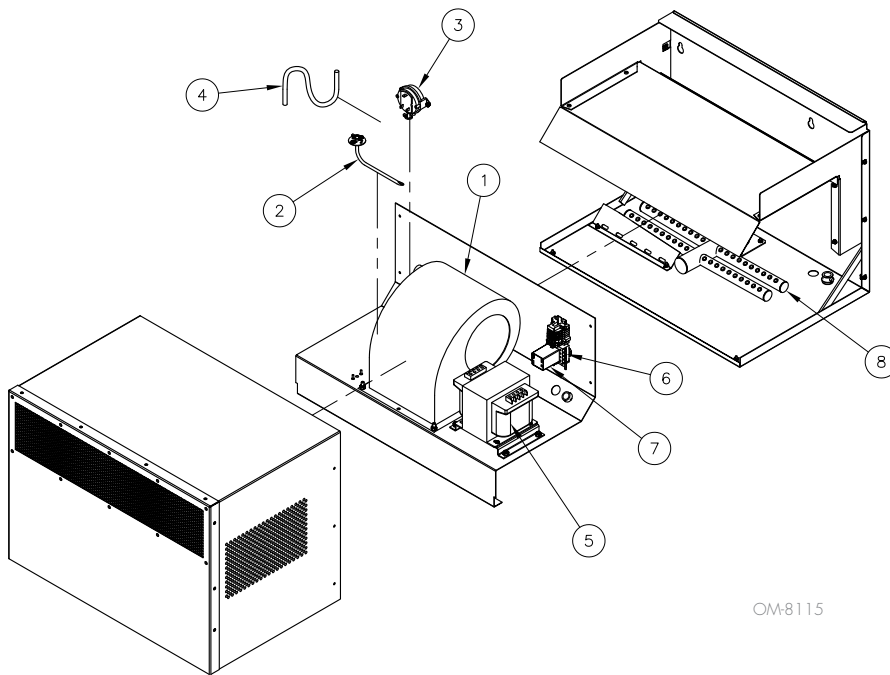


FIGURE 6-2: SDU-E-RX (TUBING)



SDU-I-RX

FIGURE 7-1: SDU-I-RX REPLACEMENT PARTS

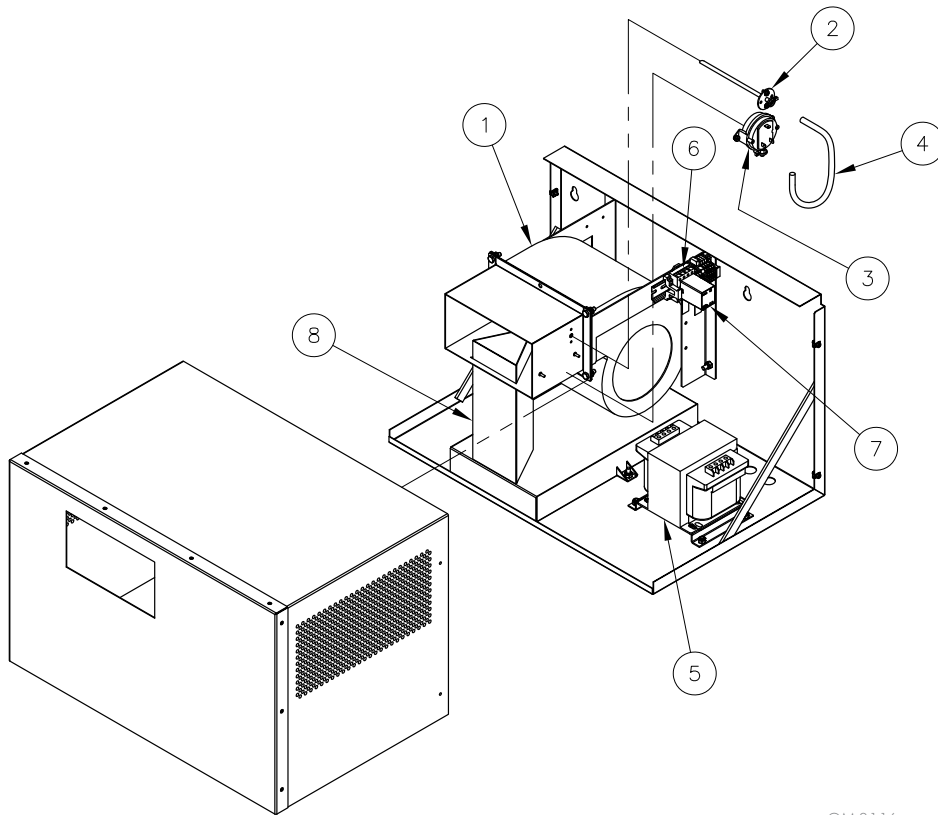
OM-8115

Table 7-1:
SDU-I-RX replacement parts

No.	Description	Qty.	Part No.
1	BLOWER 2 SPEED #1TDT8A	1	409540-004
2	TUBE 90° BEND AIR FLOW	1	406190-001
3	PRESSURE SWITCH 0.10" WC	1	127601-002
4	TUBING 3/8" X 12" X .060 CLEAR VINYL	1	405722
5	TRANSFORMER 240/480V TO 120V 500VA GE	1	408996-008
	TRANSFORMER 600V TO 120V 500VA GE	1	408996-009
	TRANSFORMER 230/400V TO 120V 500VA CE	1	408996-011
	TRANSFORMER 208/277/380 V TO 115V 500VA.	1	408996-012
6	RELAY 24V DPDT FINDER	1	407900-016
7	SOCKET RELAY DPDT W/OUT TIME DELAY	1	407900-019
8	DISPERSION, SDU-I-RX ASSEMBLY	1	180005

SDU-E-RX

FIGURE 8-1: SDU-E-RX REPLACEMENT PARTS



OM-8116

Table 8-1:
SDU-E-RX replacement parts

No.	Description	Qty.	Part No.
1	BLOWER 2 SPEED #1TDT8A	1	409540-004
2	TUBE STRAIGHT AIR FLOW SDU	1	406190-003
3	PRESSURE SWITCH 0.10" WC	1	127601-002
4	TUBING 3/8" OD X 12" X .060 WALL CLEAR VINYL	1	405722
5	TRANSFORMER 240/480V TO 120V 300VA	1	408991
	TRANSFORMER 208/277/380V TO 115/95V 300VA	1	408996-004
	TRANSFORMER 600V TO 115/95V 300V	1	408992
	TRANSFORMER 230/400V TO 120V 500VA CE	1	408996-011
6	SOCKET RELAY DPDT W/OUT TIME DELAY	1	407900-019
7	RELAY 24V DPDT FINDER	1	407900-016
8	DISPERSION CHAMBER 1-1/2" RTS SDU-E-RX	1	601297-150
	DISPERSION CHAMBER 2" RTS SDU-E-RX	1	601297-200

Notes

Notes

Notes

Expect quality from the industry leader

For more than 45 years, DriSteem has been leading the industry with creative and reliable humidification solutions. Our focus on quality is evident in the construction of the RTS humidifier, which features cleanable, stainless steel construction. DriSteem also leads the industry with a Two-year Limited Warranty and optional extended warranty.

For more information

www.dristeem.com
sales@dristeem.com

For the most recent product information visit our Web site: www.dristeem.com

DRI-STEEM Corporation

a subsidiary of Research Products Corporation
DriSteem U.S. operations are ISO 9001:2015 certified

U.S. Headquarters:

14949 Technology Drive
Eden Prairie, MN 55344
800-328-4447 or 952-949-2415
952-229-3200 (fax)

Europe, Middle East, Asia Pacific
+32 11 82 35 95
sales.europe@dristeem.com

Continuous product improvement is a policy of DriSteem Corporation; therefore, product features and specifications are subject to change without notice.

DriSteem, DriCalc, Rapid-sorb, Ultra-sorb, Vapor-logic, and RTS humidifier are registered trademarks of Research Products Corporation and are filed for trademark registration in Canada and the European community.

Product and corporate names used in this document may be trademarks or registered trademarks. They are used for explanation only without intent to infringe.

Patents pending.

© 2023 Research Products Corporation



Form No. SDU-RTS-IOM-EN-REVB-0723
Part No. 890000-230 REV B

Two-year Limited Warranty

DriSteem Corporation ("DriSteem") warrants to the original user that its products will be free from defects in materials and workmanship for a period of two (2) years after installation or twenty-seven (27) months from the date DriSteem ships such product, whichever date is the earlier.

If any DriSteem product is found to be defective in material or workmanship during the applicable warranty period, DriSteem's entire liability, and the purchaser's sole and exclusive remedy, shall be the repair or replacement of the defective product, or the refund of the purchase price, at DriSteem's election. DriSteem shall not be liable for any costs or expenses, whether direct or indirect, associated with the installation, removal or reinstallation of any defective product. The Limited Warranty does not include cylinder replacement for electrode steam humidifiers.

DriSteem's Limited Warranty shall not be effective or actionable unless there is compliance with all installation and operating instructions furnished by DriSteem, or if the products have been modified or altered without the written consent of DriSteem, or if such products have been subject to accident, misuse, mishandling, tampering, negligence or improper maintenance. Any warranty claim must be submitted to DriSteem in writing within the stated warranty period. Defective parts may be required to be returned to DriSteem.

DriSteem's Limited Warranty is made in lieu of, and DriSteem disclaims all other warranties, whether express or implied, including but not limited to any IMPLIED WARRANTY OF MERCHANTABILITY, ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, any implied warranty arising out of a course of dealing or of performance, custom or usage of trade.

DRI-STEEM SHALL NOT, UNDER ANY CIRCUMSTANCES BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS, REVENUE OR BUSINESS) OR DAMAGE OR INJURY TO PERSONS OR PROPERTY IN ANY WAY RELATED TO THE MANUFACTURE OR THE USE OF ITS PRODUCTS. The exclusion applies regardless of whether such damages are sought based on breach of warranty, breach of contract, negligence, strict liability in tort, or any other legal theory, even if DriSteem has notice of the possibility of such damages.

By purchasing DriSteem's products, the purchaser agrees to the terms and conditions of this Limited Warranty.

Extended warranty

The original user may extend the term of the DriSteem Limited Warranty for a limited number of months past the initial applicable warranty period and term provided in the first paragraph of this Limited Warranty. All the terms and conditions of the Limited Warranty during the initial applicable warranty period and term shall apply during any extended term. An extended warranty term of an additional twelve (12) months or twenty four (24) months of coverage may be purchased. The extended warranty term may be purchased until eighteen (18) months after the product is shipped, after which time no extended warranties are available.

Any extension of the Limited Warranty under this program must be in writing, signed by DriSteem, and paid for in full by the purchaser.