



MES2 Electrode Steam Humidifier Submittal Drawings

Date: _____

Job Name: _____

Contractor: _____

Contractor or Order No.: _____

Engineer: _____

Agent: _____

Agent P.O. No.: _____

Date Ordered: _____

Date Required: _____

Nortec

826 Proctor Ave., Odgensburg, NY 13669 Tel: 315.425.1255 E-mail: nortec@humidity.com
2740 Fenton Road, Ottawa, Ontario K1T3T7 Tel: 613.822.0335 Fax: 613.822.7964

1-866-NORTEC-1 • humidity.com

MES2 Series Electrode Steam Humidifier

Description

An Isothermal System that produces mineral free, odorless, sterile steam. Steam is generated at atmospheric pressure inside a disposable plastic cylinder.

Utilizing the patented 'auto-adaptive' control, the system will automatically adjust to incoming water conditions. The unit is ideal in computer room and specialty air handling systems. The MES2 Series can utilize duct mounted (or air handling unit) Steam Distributors

Each unit provides a cylinder status indicator to advise when cylinder replacement is required.

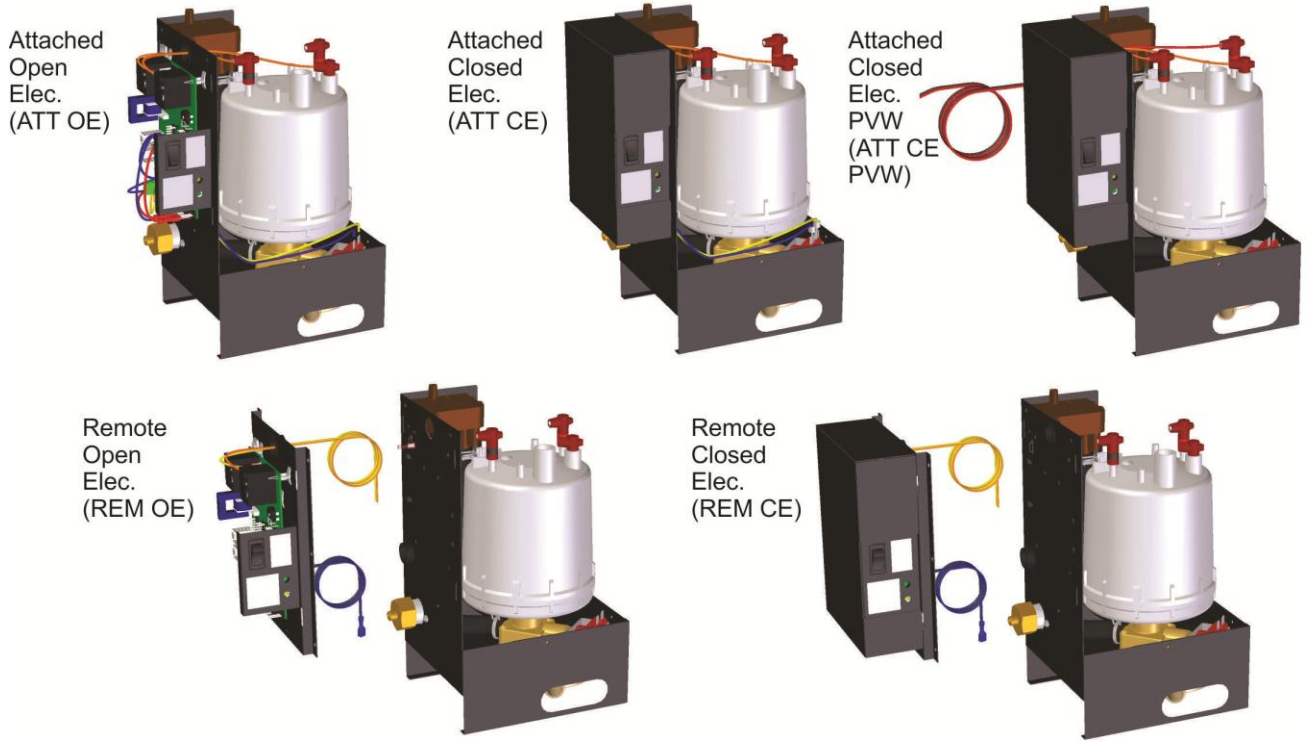


Features

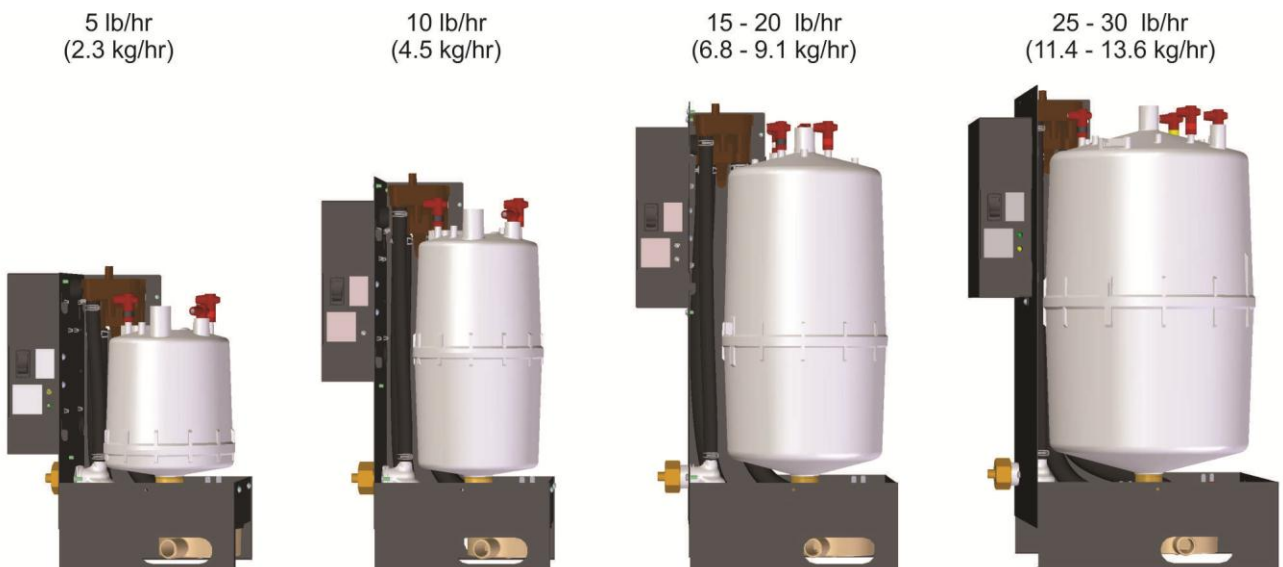
- Patented Auto-Adaptive control
- Compact size
- Disposable steam cylinder for quick and easy maintenance
- Internal drain water tempering to 140 °F (60 °C) maximum
- On/Off or modulating control
- Manual capacity adjustment to 30% of rated capacity
- Accuracy of $\pm 5\%$ RH
- UL Recognized Component
- Two year limited warranty
- Optional: Modbus interface and plumbing enclosure



Configurations



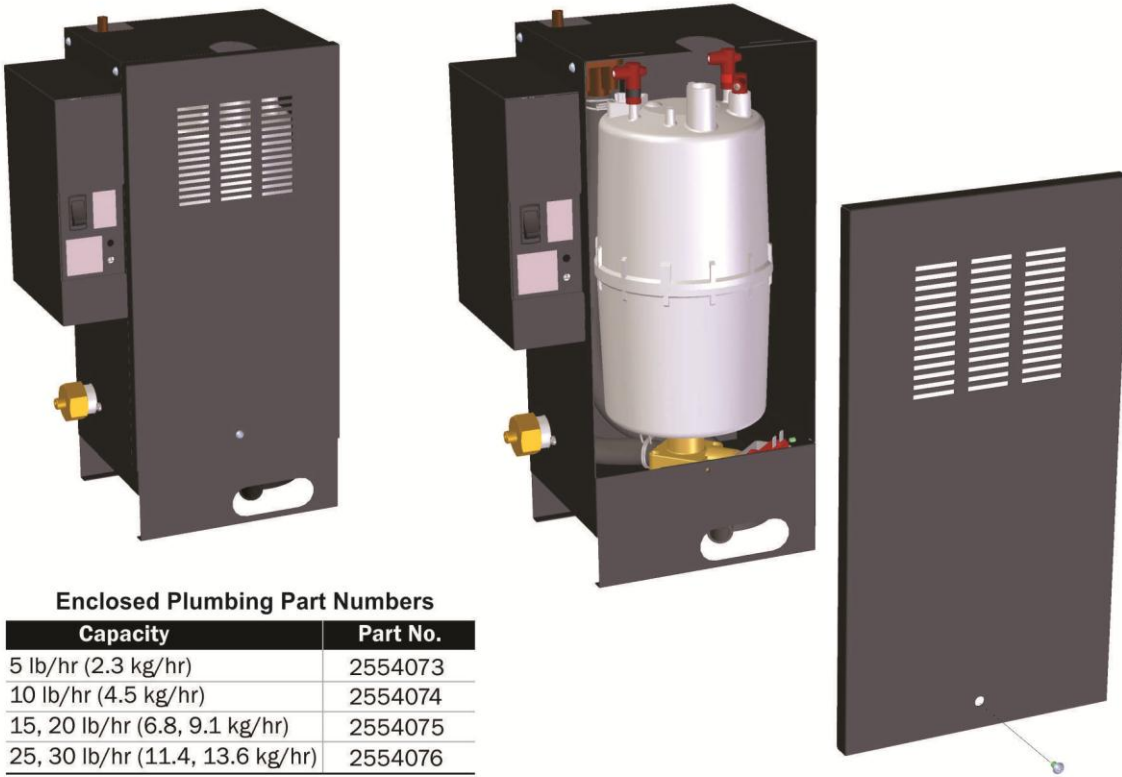
Capacities



Part Numbers and Electrical Data

Capacity		Phase	Attached Open Elec.	Attached Closed Elec.	Remote Open Elec.	Remote Closed Elec.	Attached Closed Elec. PVW ATT CE PVW	Standard Cylinder	Volts	Amps	Max Ext Fuse	KW
lb	(kg)		ATT OE	ATT CE	REM OE	REM CE	No.	No.	V	A	A	KW
5	(2.3)	1	2550262	2550263	2550264	2550265	2550266	102	208	8.2	15	1.7
									240	7.4	15	
									277	6.1	15	
			2550267	2550268	2550269	2550270	2550271	103	380	4.5	15	
									480	3.7	15	
2550272	2550273	2550274	2550275	2550276	104	600	3.0	15				
						208	16.3	25				
10	(4.5)	1	2550277	2550278	2550279	2550280	2550281	202	240	14.8	20	3.4
									277	12.3	20	
									380	8.9	15	
			2550282	2550283	2550284	2550285	2550286	203	480	7.4	15	
									600	5.9	15	
			2550287	2550288	2550289	2550290	2550291	204	208	24.5	40	
240	22.2	30										
15	(6.8)	1	2550300	2550301	2550302	2550303	2550304	321	277	18.4	30	5.1
									380	13.4	20	
									480	11.1	15	
			2550310	2550311	2550312	2550313	2550314	309	600	8.9	15	
									208	14.2	20	
		3	2550315	2550316	2550317	2550318	2550319	303	240	12.8	20	
									380	7.7	15	
									480	6.4	15	
			2550320	2550321	2550322	2550323	2550324	311	600	5.1	15	
									208	32.7	50	
20	(9.1)	1	2550340	2550341	2550342	2550343	2550344	321	240	29.6	45	6.8
									277	24.5	35	
									380	17.9	30	
			2550350	2550351	2550352	2550353	2550354	309	480	14.8	25	
									600	11.8	20	
									208	18.9	30	
		3	2550355	2550356	2550357	2550358	2550359	303	240	17.1	25	
									380	10.3	15	
									480	8.5	15	
			2550360	2550361	2550362	2550363	2550364	311	600	6.8	15	
									208	23.6	35	
25	(11.4)	3	2553765	2553766	2553767	2553768	2553769	421	240	21.3	30	8.5
									380	12.9	20	
									480	10.7	15	
			2553770	2553771	2553772	2553773	2553774	407	600	8.5	15	
									208	28.3	40	
30	(13.6)	3	2553775	2553776	2553777	2553778	2553779	411	240	25.6	40	10.2
									380	15.5	25	
									480	12.8	20	
			2550370	2550371	2550372	2550373	2550374	421	600	10.2	15	
									2550375	2550376	2550377	
2550380	2550381	2550382	2550383	2550384	411	480	12.8	20				
						600	10.2	15				

Plumbing Enclosure

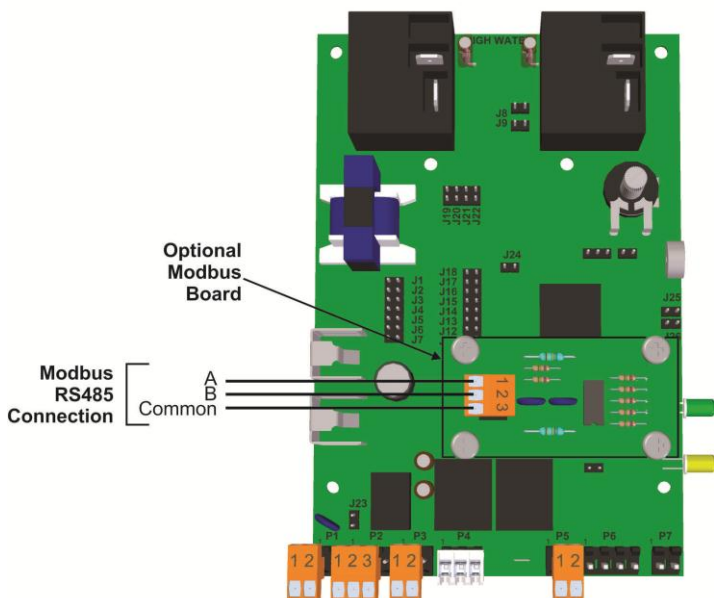


Enclosed Plumbing Part Numbers

Capacity	Part No.
5 lb/hr (2.3 kg/hr)	2554073
10 lb/hr (4.5 kg/hr)	2554074
15, 20 lb/hr (6.8, 9.1 kg/hr)	2554075
25, 30 lb/hr (11.4, 13.6 kg/hr)	2554076

Modbus Driver Board

Part No.	Description
1509592	MES2 Modbus Driver Board



Specification

SECTION 15XXX HUMIDIFIERS

Part 1 - General

1.1 Work Included

- A. Nortec MES2 Series electrode steam humidifier[s] as indicated on drawing[s] and as indicated on schedule[s].
- B. Complete and operable humidification system [which meets applicable building codes].
- C. Equipment start-up and project inspection by qualified factory trained representative.

1.2 Quality Assurance

- A. Manufacturer: For each product specified, provide components by same manufacturer throughout.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authority having jurisdiction, and marked for intended use.
- C. Comply with ARI 640, "Standard for Commercial and Industrial Humidifiers."
- D. Products shall be supported with a warranty that ensures the product will be free from defects in materials and workmanship for a period of two years after shipment.
- E. Commissioning of a system or systems specified in this section is part of the construction process. Documentation and testing of these systems, as well as training of the Owner's operation and maintenance personnel, is required in cooperation with the Commissioning Authority. Project Closeout is dependent on successful completion of all commissioning procedures, documentation, and issue closure. Refer to Project Closeout, Section 01700, for substantial completion details. Refer to Section 01810, Commissioning, for detailed commissioning requirements.
- F. Products specified below are to be manufactured in an ISO 9001-2000 certified facility.

1.3 Submittals

- A. Submit product data under provisions of Section 15010. Include product description, model, dimensions, component sizes, rough-in requirements, service sizes, and finishes. Include rated capacities, operating weights, furnished specialties, and accessories.
- B. Submit manufacturer's installation instructions.
- C. Submit operation and maintenance data.
- D. Submit coordination drawings. Detail fabrication and installation of humidifiers. Include piping details, plans, elevations, sections, details of components, and dispersion tubes. Detail humidifiers

and adjacent equipment. Show support locations, type of support, weight on each support, and required clearances.

E. Submit wiring diagrams including power, signal, and control wiring. Differentiate between manufacturer-installed and field-installed wiring.

F. Submit minimum water quality requirements and water pressure requirements.

1.4 Extra Materials

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1.5 References

A. ANSI/NFPA 70 - National Electrical Code.

1.6 Coordination

A. Coordinate location and installation of humidifiers in ducts and air-handling units. Revise locations and elevations to suit field conditions and to ensure proper humidifier operation.

XXXXX OR XXXXX

A. Coordinate location and installation of humidifier in the space it serves with the electrical, mechanical, and plumbing contractors.

Part 2 - Products

2.1 Electrode Steam Humidification System - Nortec Model MES2

A. Nortec MES2 electrode steam generating system using regular type potable water supply.

B. Partial unit, requiring external primary voltage contactor, secondary control voltage (24 Vac) supply, steam distributor[s] for mounting into AHU/duct[s]. [refer to schedule].

C. Unit[s] to be complete with:

1. Disposable steam cylinder[s] with published life expectancy.
2. Auto-Adaptive control system to optimize contained water conductivity, control automatic drain/flush cycles, minimize energy waste and maximize cylinder life.
3. Modulation output between 20% and 100% of rated capacity.
4. Manual capacity adjustment to 30% of rated capacity.
5. Remote fault indication relay.
6. Modular plumbing and electrical.
7. High water sensor circuitry to prevent over filling.
8. Full cylinder indication to advise end of cylinder life.
9. Dual signal status lamps to indicate unit operation.
10. Fill valve, drain valve and fill cup assembly with minimum 1 inch [25 mm] air gap.
11. Drain water tempered by fill water to ensure drains do not exceed 140 °F [60 °C] during standard operation.
12. Two year limited warranty.
13. Standard of acceptance Nortec MES2 Series.
14. Heater element technology humidifiers not acceptable.

D. Optional accessories:

1. Modbus interface for display and control of operational parameters.
2. Plumbing enclosure.

Part 3 - Execution

3.1 Examination

- A. Examine ducts, air-handling units, and conditions for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Examine roughing-in for piping systems to verify actual locations of piping connections before humidifier installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 Installation

- A. Install humidifiers and steam dispersion panels per manufacturers' instructions.
- B. Seal humidifier dispersion-tube duct penetrations with flange.
- C. Install with required clearance for service and maintenance.

3.3 Testing

- A. System verification testing is part of the commissioning process. Verification testing shall be performed by the Contractor and witnessed and documented by the Commissioning Authority. Refer to section 01810, Commissioning, for system verification tests and commissioning requirements.

XXXXX OR XXXXX

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including piping and electrical connections. Report results in writing.
 - 1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
 - 2. Operational Test: After electrical circuitry has been energized, start units to confirm proper unit operation. Remove malfunctioning units, replace with new units, and retest.
 - 3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.4 Training

A. Training of the Owner's operation and maintenance personnel is required in cooperation with the Commissioning Authority. Provide competent, factory authorized personnel to provide instruction to operation and maintenance personnel concerning the location, operation, and troubleshooting of the installed systems. The instruction shall be scheduled in coordination with the Commissioning Authority after submission and approval of formal training plans. Refer to System Demonstrations, section 01670, for contractor training requirements. Refer to section 01810, Commissioning, for further contractor training requirements.

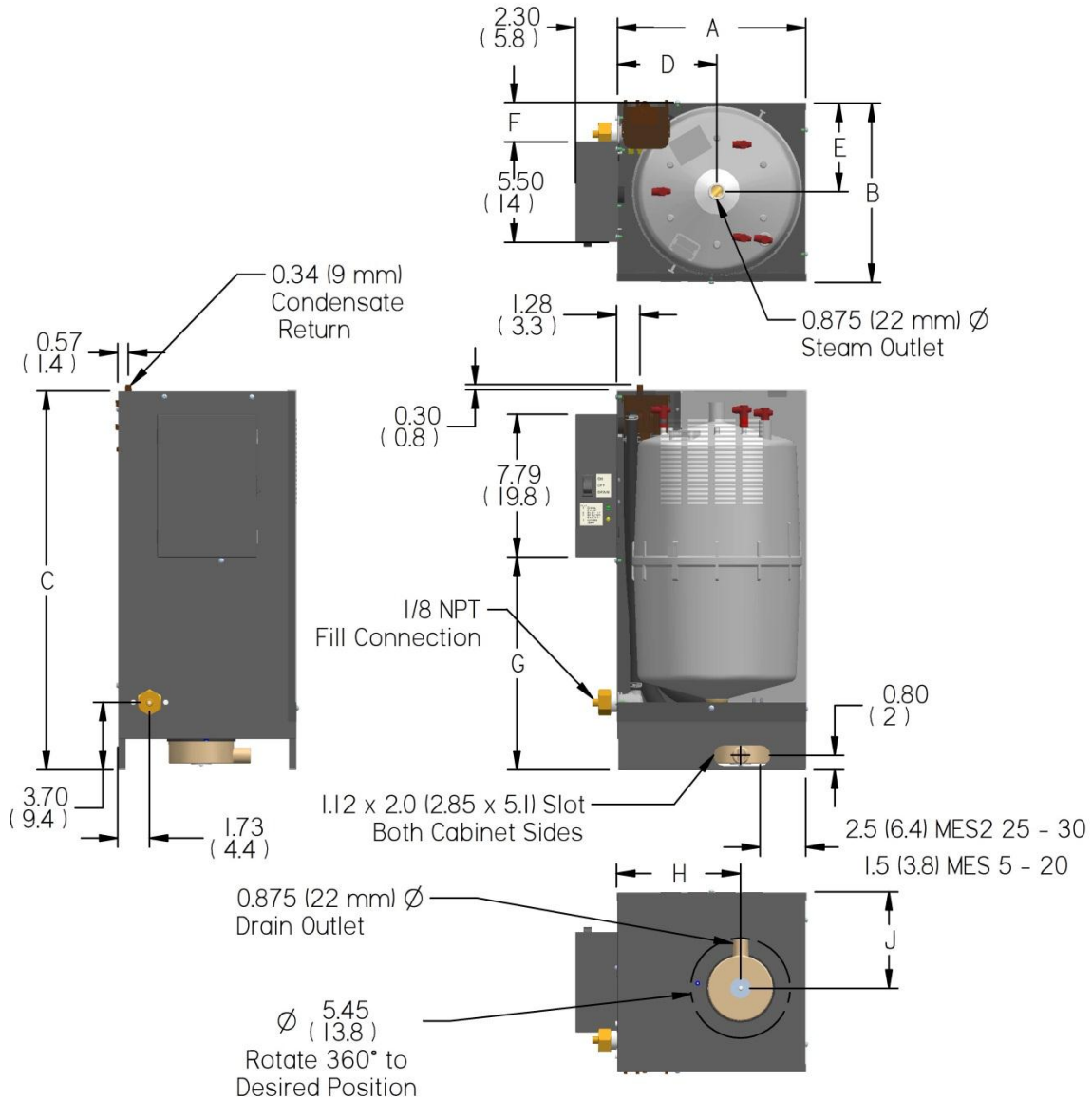
XXXXX OR XXXXX

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain humidifiers.

1. Train Owner's maintenance personnel on procedures and schedules for installations, operation, maintenance and servicing and troubleshooting.
2. Review data in maintenance manuals. Refer to Division 1 Section "Contract Closeout."
3. Review data in maintenance manuals. Refer to Division 1 Section "Operation and Maintenance Data."
4. Schedule training with Owner, through Architect, with at least seven days advance notice.

END OF SECTION

Schematics



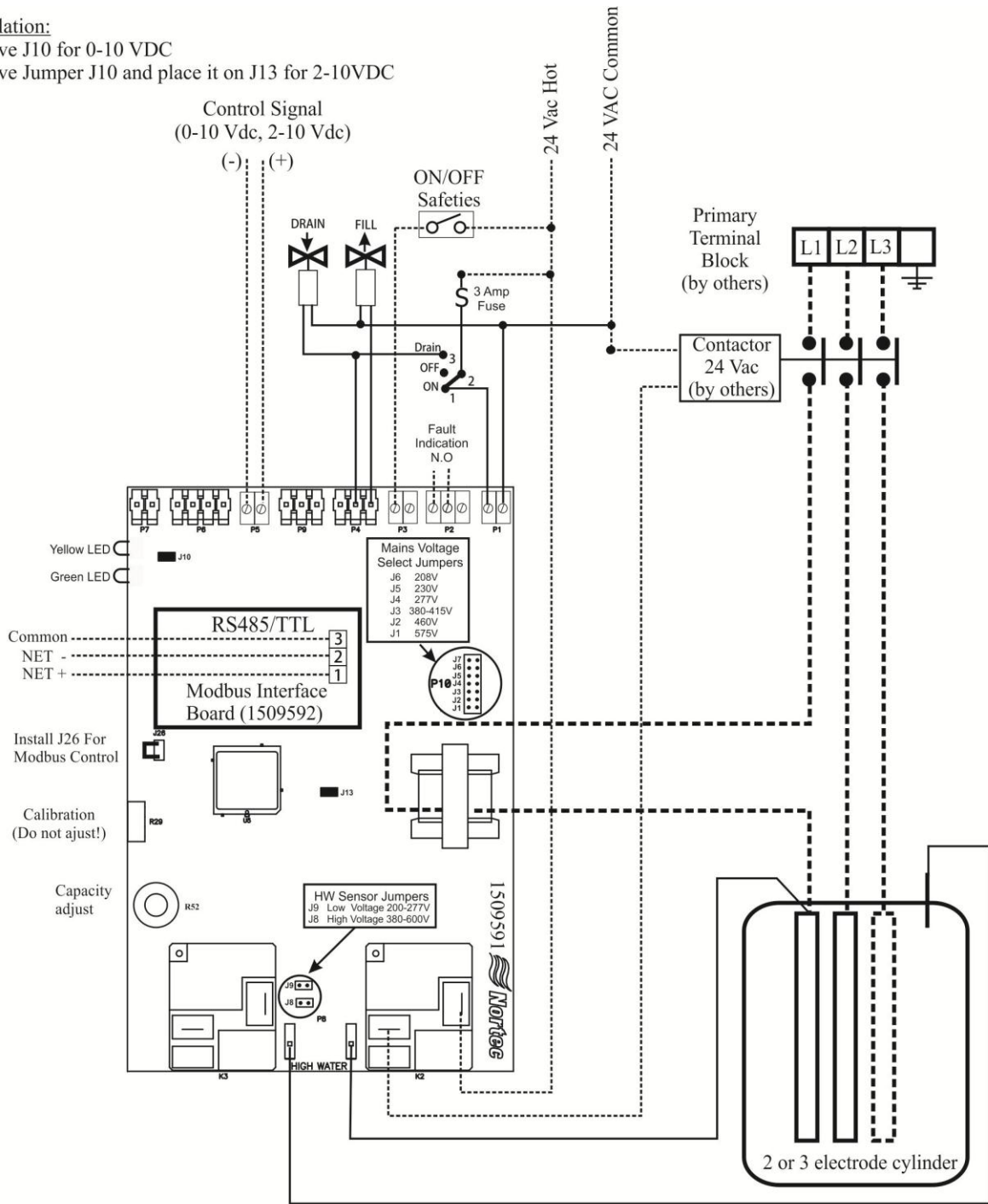
Note: Unless otherwise specified dimensions are in inches (cm). Tolerance ± 0.1 in. (0.25 cm)

Capacity lb/hr (kg/hr)	A Width	B Depth	C Height	D* Steam Outlet	E* Steam Outlet	F Elec. Pos.	G Elec. Height	H Drain Center	J Drain Center	Net/Full Weight** lb (kg)
5 (2.3)	7.5 (19)	6.4 (16.3)	12.7 (35.3)	4.2 (10.7)	5.1 (13)	0.3 (0.8)	4.9 (12.5)	5.6 (14.2)	3.4 (8.6)	6.5/10.0 (3/4.5)
10 (4.5)	7.5 (19)	6.4 (16.3)	16.8 (42.7)	4.2 (10.7)	5.1 (13)	0.3 (0.8)	8.0 (20)	5.6 (14.2)	3.4 (8.6)	8/14 (3.6/6.4)
15-20 (6.8 - 9.1)	8.9 (22.6)	7.9 (20.1)	20.0 (50.8)	5.1 (13)	4.0 (10.2)	1.1 (2.8)	11.2 (28.5)	6.4 (16.3)	4.2 (10.7)	10.5/24.5 (4.8/11.1)
25-30 (11.4 - 13.6)	10.3 (26.2)	9.8 (24.9)	20.7 (52.6)	5.5 (14)	4.9 (12.5)	2.2 (5.6)	11.6 (29.5)	6.8 (17.3)	5.2 (13.2)	12.5/35.5 (5.7/16.1)

Note: * Steam Outlet is not centered on MES 5 & 10 lb/hr (2.3 & 4.5 kg/hr) models.

** Weights given for MES2 with attached and enclosed electronics. Full Weight at is weight with cylinder full of water. Full weight may exceed this value at end of cylinder life depending on the amount of scale and its composition.

Modulation:
 Remove J10 for 0-10 VDC
 Remove Jumper J10 and place it on J13 for 2-10VDC



NOTE: Dotted lines denote wiring by others with the exception of Primary Voltage Wiring (PVW) units which will come with all primary wiring to the cylinder and 10' of wiring to run the electrical back to the contactor



MES2 with Optional Modbus board
 WIRING DIAGRAM
 DIAGRAM NUMBER 2553788 Rev. C
 DATE June 30, 2011