



CAPITAL CONTROLS

ADVANCE™ Series VAX4600 Vaporizer is designed to automatically vaporize liquid chlorine, sulfur dioxide or ammonia to provide high feed rates for gas dispensing equipment or other gas needs. These vaporizers are designed and fabricated in accordance with Section VIII, Div. 1 of the ASME Boiler and Pressure Vessel Code and provided with a "U" stamp to meet the pressure vessel requirements of the code. The entire unit meets Chlorine Institute guidelines for chlorine vaporizing equipment.

The vaporizers are housed in corrosion resistant ABS and structural foam cabinets, identical in size and color to the cabinets of Capital Controls' floor mounted gas feeders.

ADVANCE™ Vaporizer Series VAX4600



- ◆ Fully Automatic unit
- ◆ Rugged corrosion-resistant construction
- ◆ External heating medium, circulation not required
- ◆ Hot water convection heating
- ◆ Finned vaporizing chamber for efficient heat transfer
- ◆ Meets ASME code and Chlorine Institute guidelines
- ◆ Easy-to-read, eye-level indicators
- ◆ NEMA 4X controls

Design Features

The Capital Controls vaporizer is a water-bath type unit (see Figure 1) with the following outstanding features:

- ◆ **Superior Construction:** Inner liquid chamber fabricated from heavy wall pipe that exceeds ASME code requirements, six individual heating elements, stainless steel water tank
- ◆ **Efficient Heating:** Outer surface of liquid chamber finned to enhance heat transfer
- ◆ **Ease of Maintenance:** Individual heating elements are oriented horizontally in water bath for easy field replacement
- ◆ **Safe Design:** Gas pressure relief valve provided to prevent excessive gas pressure buildup within the vaporizer. All controls are rated at NEMA 4X

Applications

Vaporizers are designed for systems, large or small, where the rate of gas withdrawal from a container (or multiple containers) is not sufficient to meet the demand for gas. Capacities up to 10,000 PPD (200 kg/h) are available.

- ◆ **Disinfection for potable water and municipal wastewater plants**
- ◆ **Cooling water plants:** heat exchangers, piping, towers
- ◆ **Dechlorination for waste- water and textile plants**
- ◆ **Bleaching:** textiles, pulp and paper, food
- ◆ **Metal finishing waste:** cyanide, chromium

Operation

The vaporizer contains a liquid chemical chamber submerged in a water bath. The water is heated by a set of six electric immersion heaters, thermostatically controlled within preset adjustable limits. The liquid chemical to be vaporized is delivered to the inner chamber through the liquid inlet line at the top of the unit. The liquid inlet piping discharges at the bottom of the vaporizing chamber, where a liquid level is maintained in the chamber. The liquid absorbs heat from the hot water bath and vaporizes. The liquid level self-adjusts to the withdrawal rate of the gas.

The gas flows up and out of the vaporizer through a gas discharge line to the pressure reducing valve and then to the gas dispensing

equipment or other applications. As the gas flows upward within the vaporizer chamber, it is superheated by contact with the inner chamber wall and baffles. The baffles remove entrained liquid permitting only gas to exit the chamber. The superheat prevents the gas from reliquefying as it flows through the pressure reducing and regulating valve to the gas dispensing equipment. This valve shuts off automatically when the water chamber temperature falls below a preset limit, preventing liquid from entering and flooding the gas dispensing system.

A pressure relief valve installed in the gas discharge line, operates when the pressure within the vaporizing chamber exceeds safe limits.

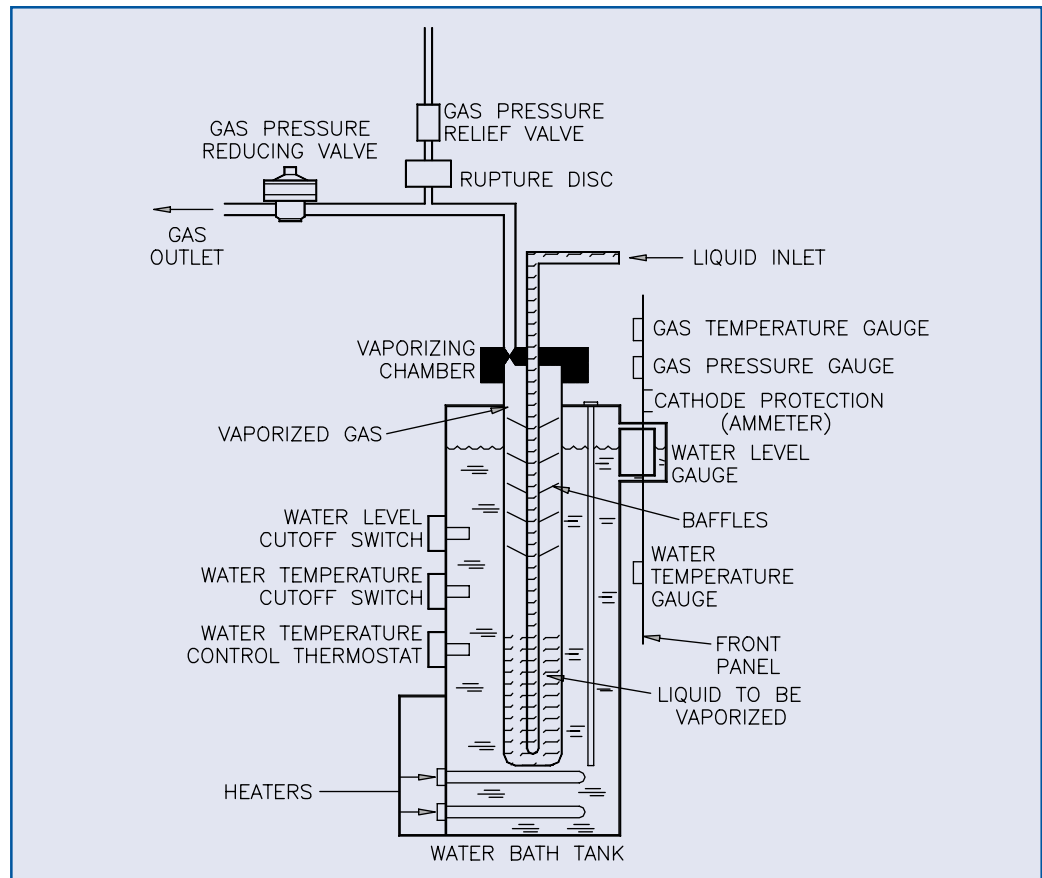


Figure 1 - Vaporizer Flow Diagram

Technical Data

ADVANCE™ Vaporizer

GENERAL

Quality Standards: ISO 9001 Certified

Compliance: CE

Electrical Requirements

Heater Circuit: 240, 380, 480, 575 Vac, 50/60 Hz, 3 phase

Control Circuit: 120 Vac, 60 Hz, or 240 Vac, 50 Hz, single phase

Standard Features:

- ASME Approved Chamber
- Gas Temperature Gauge
- Gas Pressure Gauge
- Water Temperature Gauge
- Water Temperature Thermostat
- Water Low Temperature Switch
- Low Water Level Switch
- High Water Temperature Switch
- Water Level Control
- Water Level Sight Gauge
- Cathodic Protection
- Gas Pressure Relief Valve and Rupture Disc
- Dry Contacts for Control and Alarm Circuits
- Foam Insulation
- Corrosion-Resistant Cabinet
- Optional Accessories
- Gas pressure reducing valve*
- Gas valves*
- Ammonia flange unions*
- Expansion chamber
- Magnetic contactor - cabinet or remote mounted

* These items required for safe operation of vaporizer.

CAPACITY AND SERVICE

Chlorine Model VAX4690C		Power Consumption
PPD	kg/h	(kW)
4,000	75	9
6,000	120	12
8,000	150	15
10,000	200	18
Sulfur Dioxide Model VAX4690S		Power Consumption
3,000	60	9
4,500	85	12
6,000	115	15
7,500	140	18
Ammonia Model VAX4690A		Power Consumption
1,000	20	9
1,500	30	12
2,000	40	15
2,500	50	18

Warranty and Capability

Capital Controls offers a one (1) year limited warranty on all ADVANCE® vaporizers.

Capital Controls is ISO 9001 certified to provide quality and precision materials. Disinfection technologies, water quality monitors and instrumentation for water and wastewater are areas of specialization. Over 35 years of industrial and municipal application experience in the water and wastewater industries is incorporated into the equipment design to provide high quality comprehensive solutions for the global market.

Brief Specification

The Series VAX4600 Vaporizer shall be of the electrically heated water bath, immersed tank type. It shall be supplied with heaters mounted in a NEMA 4X enclosure.

The vaporizer shall be housed in a pressure-formed ABS and structural foam enclosure. The vaporizer shall consist of a liquid inner chamber immersed in a stainless steel water tank. The tank shall be insulated with a 1/2" (13 mm) thick polyester closed-cell blanket.

The vaporizing chamber shall be fabricated of schedule 80 heavy walled pipe exceeding ASME code requirements and meeting the corrosion allowance recommended by The Chlorine Institute. The outer surface shall be finned to maximize the efficiency of heat transfer. The chamber shall be supplied with a ASME code stamp providing a design working pressure of 666 psig (4592 kPa). Six individual water immersion type heaters shall be oriented horizontally and external water circulation shall not be required.

The vaporizer shall be provided with front panel mounted water level gauge, gas pressure and temperature gauges, water temperature gauge and cathodic protection ammeter. Controls include water bath level, low water cut-off of heaters, low water level alarm (external), high water temperature alarm (external) and low water temperature alarm (external). Standard equipment shall include a temperature control thermostat (factory set) and gas pressure relief valve and rupture disc assembly.

Design improvements may be made without notice.

Represented by:



CAPITAL CONTROLS

3000 Advance Lane Colmar, PA 18915
Tel: 215-997-4000 • Fax: 215-997-4062
Web: www.capitalcontrols.com
E-mail: marketing@capitalcontrols.com

- UNITED KINGDOM • UNITED STATES • HONG KONG
- INDIA • ITALY • MALAYSIA