The Capital Controls® Series FX2110/2111 is a floor cabinet mounted Positive Pressure Ammonia Feeder with remote mounted 2-stage supply pressure regulation. The manually controlled feeder is designed for applications where electricity required to operate a booster pump, and water pressure required for ejector vacuum operation are unavailable.

The Series FX2110/2111 is designed to conveniently house the components of the ammonia pressure gas feed equipment. The cabinet encloses the gas flow controls and is constructed of ABS and structural foam plastic with a textured easily maintained finish.

Each Series FX2110/2111 feeder, designed for indoor service, is factory tested and ready for easy field installation. Nine different flow capacities provide versatility in meeting a variety of gas flow requirements. A self-cleaning, sleeved diffuser complete with check valve is available for pipe line mounting to help reduce calcium and magnesium salt formation due to high pH production at the diffuser. A porous stone diffuser is available for open channel applications.

The Series FX2110/2111 gas feeder system consists of a dual stage pressure regulator for mounting close to the gas source, excess pressure relief valve, manual exhaust valve, pressure and vent tubing, floor cabinet with integrally mounted 4-20 mAdc input automatic valve (automatic only), metering and rate controls, ammonia gas flowmeter and process gas pressure gauge. Accessory item includes a diffuser-check valve assembly.
• Manual or automatic control
• Operated without the need for electricity or water pressure
• Precise flow rate control
• Variable capacities from 3.5 (70 g/h) to 2000 PPD (36 kg/h)
• Self cleaning diffuser
• Floor mounting/Front access to internal components
• Can feed into a maximum back pressure of 25 psig

**Applications**
For process water, waste treatment, water treatment in the municipal or industrial marketplace.

• **Drinking water:** THM prevention, chloramination
• **Wastewater:** Nutrient feed, pH adjustment

**Design Features**

**Superior materials of construction:** stainless steel rate valve and pipe fittings. PVC wetted parts on optional automatic valve and diffuser.

**Reliable:** Over 45 years of experience with gas feeders, integral pressure relief valve and gas flow indicator, self-cleaning sleeved diffuser

**Versatility:** Two stage regulation assembly allows for mounting the regulator set close to the gas supply.
Automatic service with addition of automatic valve.

**Ease of maintenance:** Simplicity of design and modularized components

![Figure 1 - 250 PPD (5 kg/h) Maximum Flow Diagram](image-url)
**Principle of Operation**

Ammonia gas at source pressure enters the regulating unit where the pressure is reduced through two stage regulation and controlled to approximately 50 psig (3.45 bar). The gas then moves through the ammonia gas flowmeter and the manually or automatically controlled rate valve to the diffuser assembly.

A pressure relief valve is contained within the ammoniator cabinet to prevent excessive pressure buildup in the system. A lockable manual exhaust valve is also provided in the ammoniator to exhaust pressure from the system prior to removing the ammoniator from service. The pressure relief exhaust valve connection should be discharged to a safe area (See Figure 1).

The floor cabinet houses a gas pressure gauge to indicate discharge pressure and a gas flow indicator. The position of the gas flow control valve is controlled at the cabinet with a manual rate adjuster, or by an optional panel mounted auto control valve. The auto valve responds to either a process flow signal or a remote control signal. From the cabinet, the low pressure gas is conveyed to the check valve and gas diffuser assembly located at the application point.

Closed pipe or open channel type diffusers are available to suit the process application. The closed pipe diffuser is of the slotted design. The slotted diffuser expands and contracts with gas pressure in the diffuser. This movement releases gas to the water being treated and simultaneously cleans the outer surface of the sleeve of any precipitate formed (See Figure 1). The open channel type is of the porous stone design.

**Technical Data - Series FX2110/2111**

**Capacities:** Standard indicating flowmeters are available with the following capacities: 3.5, 10, 22, 60, 120, 300, 600, 1000, 2000 PPD (70, 200, 420 g/h, 1.1, 2.3, 5.8, 11.5, 19, 36 kg/h) of ammonia gas.

**Accuracy:** Within +/- 10% of maximum flowmeter capacity.

**Electrical requirements:** 120/240 Vac, 50/60 Hz, single phase

**Panel dimensions:** 20-3/16” (564 mm) H x 16-1/4” (413 mm) W x 9-1/2” (241 mm) D

**Model Information Code:**

**Model**

10 - Manual
11 - Automatic

**Gas Handled**

A - Ammonia

**Maximum Capacity**

01 - 3.5 PPD (70 g/h)  (Manual only)
02 - 10 PPD (200 g/h)  (Manual only)
03 - 22 PPD (420 g/h)
04 - 60 PPD (1.1 kg/h)
05 - 120 PPD (2.3 kg/h)
06 - 300 PPD (5.8 kg/h)
07 - 600 PPD (11.5 kg/h)
08 - 1000 PPD (19 kg/h)
09 - 2000 PPD (36 kg/h)
Capital Controls® Series FX2110/2111

Positive Pressure Ammonia Feeder

Brief Specification
The ammoniator system design shall be of the positive pressure direct feed type and shall be constructed of materials for wet or dry ammonia gas service. The system shall consist of a dual stage pressure reducing regulator set, a free standing flow indicating/control floor cabinet and a diffuser-check valve assembly.

The dual stage regulator shall be provided for mounting at the gas source and shall be complete with a gauge for pressure indication. The factory set dual regulation will reduce the supply pressure to 50 PSIG (3.45 bar).

The floor cabinet shall be constructed of pressure formed ABS and structural foam plastic. The unit shall be rigid with removable front bezel, slightly textured finish to resist dirt allowing front and rear access. The gas feeder components shall be housed in a cabinet 54-11/16" (1389 mm) H X 22-3/4" (578 mm) W X 15" (381 mm) D.

The cabinet shall contain a gas flow indicator with manual rate adjustment valve. A safety pressure relief valve shall be provided within the cabinet to relieve any excessive pressure that may buildup within the system. The cabinet shall also contain a lockable manual exhaust valve to exhaust pressure from the system prior to removing the ammoniator from service. A pressure gauge shall be provided to indicate the ammoniator discharge pressure.

Optional automatic operation shall include an automatic rate control valve capable of receiving a 4-20 mAdc control signal and a lockable manual bypass valve. The manual bypass valve shall allow the system to be operated manually from the rate valve on the gas flow indicator should the automatic valve have to be removed from service. The automatic rate control valve shall also allow for direct manual operation in the event of signal or power loss.

The diffuser-check valve assembly shall consist of a spring-loaded check valve to prevent excessive process pressure from flooding the gas feeder. The diffuser shall be either a corporation stop assembly for pipeline mounting or an open channel type. The corporation stop type diffuser shall of the slotted flexible sleeve type to shed mineral deposits with the expansion and contraction of the sleeve by the gas pressure in the diffuser. The open channel diffuser shall be of the porous stone design to disperse micro fine gas bubbles into the process stream.

Warranty and Capability
De Nora Water Technologies offers a one (1) year limited warranty on the Series FX2110/2111 ammoniator.

De Nora Water Technologies 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 45 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.