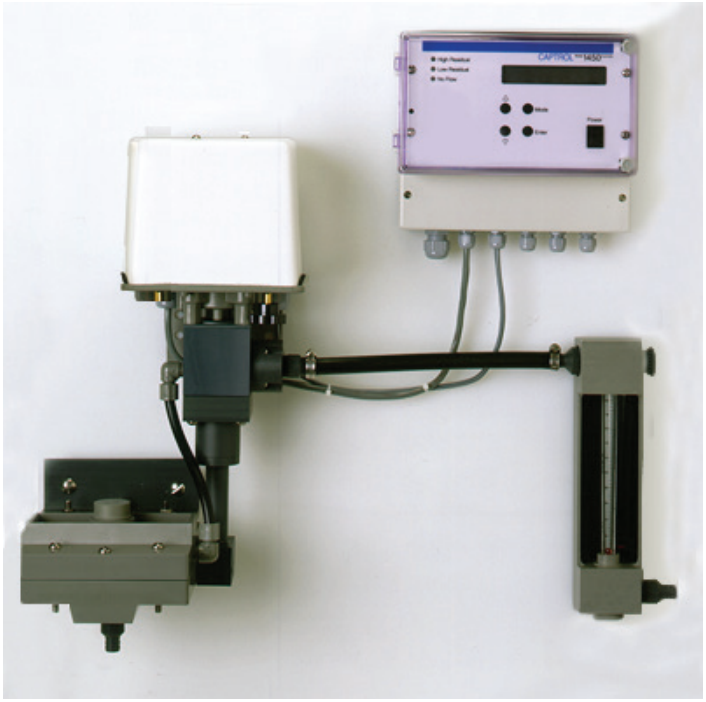
CAPITAL CONTROLS® WP840

The Series WP840 gas feeders are wall panel mounted and vacuum operated.

Easy to install for indoor installation, each Series WP840 wall panel is factory tested and needs no field adjustment prior to start-up. Six different flowmeter capacities ranging from 10 to 500 PPD (200 g/h to 10 kg/h) provide versatility in meeting gas flow requirements.

Wall panel gas feeders consist of a wall panel, vacuum regulator and an ejector, or chemical induction unit. The wall panel includes Capital Controls® automatic valve, gas flowmeter, controller and differential pressure regulator mounted on the corrosion-resistant, heavy-duty panel. The controller receives signals from a water flow transmitter and/or chlorine residual analyzer. The automatic valve responds to signals from the CAPTROL® controller. If multiple feed points are required, gauged meter assemblies and additional ejectors are provided. Automatic switchover is available to provide for uninterrupted service.



For more information on Capital Controls® Gas Feeders visit **www.denora.com**

DE NORA
our research - your future

We Understand Gas Feed Systems

Applications

For process water, waste treatment and water treatment in the municipal or industrial marketplace

- Disinfection: potable water, municipal wastewater
- Dechlorination: textiles, wastewater effluent
- Slime and algae control: irrigation systems, cooling towers
- Process water: chemical and pharmaceutical manufacture, food (washdown, canning, bleaching, taste and odor control)
- Cyanide, chromium removal: metal finishing wastes
- Zebra mussel control

Design Features

- Modern Design: Superior materials of construction provide durability.
- Reliable: Over 35 years experience with all vacuum operation, integral venting system.
- Safe: Remote vacuum regulator enhances safety of installation. Vacuum regulator has a separate independent vent and integral pressure relief device.
- Versatile: Cylinder, wall or ton container mounting of vacuum regulator. A meter assembly can be mounted integrally with the vacuum regulator in addition to the meter mounted on the wall panel.
- Automatic Switchover: Each vacuum regulator has a built-in automatic switchover function permitting uninterrupted operation. A switchover lever provides visual indication of which gas source is on line. An optional out of gas switch can be provided to remotely indicate switchover status. Switchover function permitting uninterrupted operation.

Operation - Vacuum Regulator

Water flowing through the ejector venturi, creates a vacuum which opens the check valve in the remote ejector. The vacuum is carried through the vacuum line to the vacuum regulator where the differential pressure causes the inlet valve on the vacuum regulator to open, initiating gas flow. A spring opposed diaphragm in the vacuum regulator, regulates the vacuum. The gas passes under vacuum through the panel mounted flowmeter and rate control valve. A differential pressure regulator maintains a constant differential across the rate control valve. Gas flows through the vacuum line and to the ejector where the gas is thoroughly mixed with the water and applied as a solution. (Figure 1)

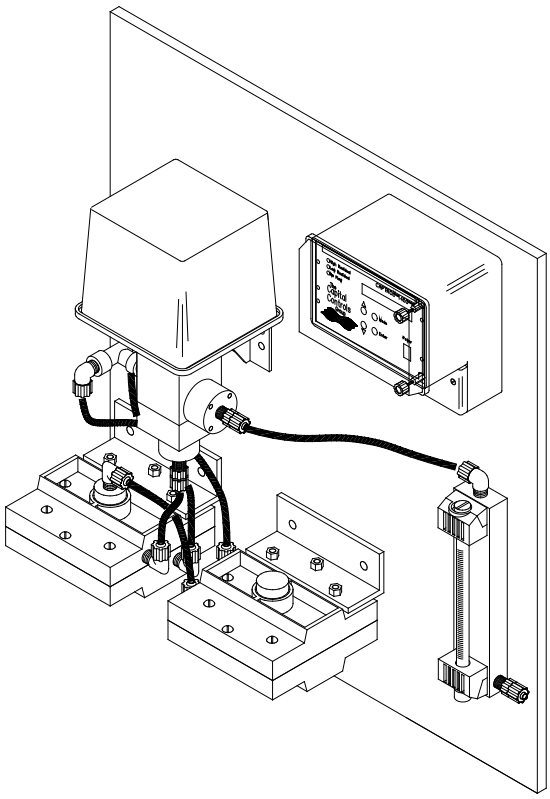


Figure 1 - Automatic Gas Feed System

The system is completely under vacuum from the ejector to the vacuum regulator inlet safety valve. If the water supply to the ejector stops or vacuum is lost for any reason, the spring loaded inlet safety valve immediately closes and isolates the pressure gas supply. If the gas source is depleted, the unit seals to prevent moisture from being drawn back into the gas source. When more than one feed point is desired multiple flowmeters and ejectors can be supplied.

Automatic Control

The wall panel is designed for automatic control when variable flow and demand conditions are present. An automatic valve is provided to open and close in proportion to a signal received from the controller. The controller receives electrical input signals from a flow meter and/or residual analyzer, causing the controller to automatically reposition the control valve to maintain the desired gas feed rate or chlorine residual.

The Capital Controls® microprocessor controller is field configurable for three chlorination and two dechlorination control modes:

- **Flow:** Proportioning valve position to process flow.
- **Residual:** Single, integral action, opening valve based on residual set point.
- **Compound Loop:** Simultaneous proportioning valve position to a combination of flow proportioning and residual control. If one signal is lost, the controller automatically proportions based on remaining signal.
- **Feed Forward:** Valve position control directly proportional to flow signal multiplied by residual signal, provided by built-in multiplier.

Automatic wall panel units include: controller, automatic linear gas feeder control valve with electronic manual adjustment switch, flowmeter and differential pressure regulator.

For uninterrupted gas feeding on a round-the-clock basis, an automatic switchover system is provided. Gas flows under vacuum from the regulator in service until that source is depleted, then the switchover module automatically switches service to the standby source. The standby supply will not be accessed until the supply in service is exhausted.

Chemical Induction Units

Capital Controls® CHLOR-A-VAC® chemical induction units offer improved chlorination and dechlorination through the high-efficiency mixing of gaseous chemical with process water. This translates into operating and chemical cost savings.

CHLOR-A-VAC® units produce a vacuum when process water passes through water inlet ports and through a venturi. The high vacuum and recessed impeller create great turbulence and complete chemical mixing.

A chemical induction unit in lieu of an ejector should be considered for the following applications: contact basins, headwater, return sludge processes, clarifier inlets, collection basins, equalization tanks and clear wells.
(Refer to Bulletin 130.0001)

Technical Data

Series WP840 Gas Feeder
Model W P 8 4 _ _
Control Model
4 - Automatic
Capacity (Chlorine)
1 - 100 PPD (2 kg/h)
3 - 500 PPD (10 kg/h)
Gas
C - Chlorine
S - Sulfur Dioxide

GENERAL

Capacities: Standard metering tubes are available with the following capacities: 10, 25, 50, 100, 200, 500 PPD (200 g/h, 0.5, 1, 2, 4, 10 kg/h) of chlorine gas. To determine feed rates for sulfur dioxide, multiply each chlorine value by 0.95
Flowmeter: The minimum feed capacity for every gas flowmeter is 1/10th of the maximum capacity for automatic units.
Accuracy: Within ±4% of maximum flowmeter capacity
Electrical Requirements: 120/240 Vac, 50/60 Hz, single phase
Weight: 17 lbs (7.7 kgs)
Overall Dimensions: 26" (660 mm) H x 24" (610 mm) W
Feed Capacities:

Model	Maximum Capacity[1]	Flowmeter Capacity[1] (Chlorine)
WP841	100 PPD (2 kg/h)	100 PPD (2 kg/h) 50 PPD (1 kg/h) 25 PPD (0.5 kg/h) 10 PPD (200 g/h)
WP843	500 PPD (10 kg/h)	500 PPD (10 kg/h) 200 PPD (4 kg/h) 100 PPD (2 kg/h) 50 PPD (1 kg/h)

1 Range of operation: Automatic 10 to 1.

Piping and Ejector Datas:

Model	Vacuum Connection Inlet & Outlet NPT	Standard Ejector Data[1]	
		Inlet	Outlet
WP841	3/8"	1" Hose	Universal Diffuser2
WP843	5/8"	1 1/4" NPT	1 1/2" Hose

1 High back pressure can be accommodated using the Diaframless™ ejector up to 500 PPD (10 kg/h)
2 Universal diffuser for 3/4" NPT male thread, spray or open end, or 1" I.D. hose.

Capital Controls®
WP840

Brief Specification

The gas feeder design shall be of the vacuum operated, solution feed type. The panel shall be constructed of polyethylene. Gas feeder components shall be mounted on a wall panel 26" (660 mm) high, 24" (610 mm) wide. The gas flow indicator, automatic valve with differential pressure regulator and controller shall be mounted on the wall panel.

The gas feeder shall be constructed of materials suitable for wet or dry gas service. All springs used in the vacuum regulator shall be of Hastalloy C tantalum alloy. The rate valve plug shall be solid silver. All utility inlets and outlets are located at the base of the panel. The vacuum regulator shall be remotely mounted.

A spring-loaded, Hastalloy C inlet safety valve shall close tight upon loss of vacuum. A spring-loaded diaphragm actuated pressure relief valve integral to the vacuum regulator shall relieve gas pressure.

A differential pressure regulator is provided to maintain a constant pressure drop across the automatic valve.

Controller shall be microprocessor based available with the following control modes; flow proportioning, residual, compound loop and dual input feed forward.

The vacuum producing device shall be an ejector with a spring-loaded check valve to prevent flooding of the vacuum regulator or a CHLOR-A-VAC® chemical induction unit, Series 1420. Vacuum operated automatic switchover shall be provided up to 500 PPD (10 kg/h).

Warranty and Capability

De Nora Water Technologies offers a lifetime warranty on the diaphragm and springs. There is a one (1) year limited warranty on Series WP840 equipment.

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 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.

For more information on Capital Controls® Gas Feeders visit **www.denora.com**

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