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Oxford Valves OV-DFR-400 Series

Demand Flow Regulators for Calibration Gas and Pump-Based Instruments

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Product Overview

The Oxford Valves **OV-DFR-400 Series** is a range of demand flow regulators designed for calibration gases, pump-based instruments, handheld gas detectors, and portable gas calibration systems.

Demand flow regulators supply gas only when demanded by the instrument and automatically shut off when demand stops. This makes them suitable for pumped gas detectors and sampling instruments where gas is drawn only when required.

The OV-DFR-400 Series includes C10, CGA600, high pressure, brass nickel plated, stainless steel, aluminium hard anodised, and 45-degree outlet configurations.

What Is a Demand Flow Regulator?

A demand flow regulator is a gas regulator that supplies calibration gas only when an instrument creates demand, typically through an internal pump or sampling system. Unlike a fixed flow regulator, which continuously delivers a preset flow, a demand flow regulator responds to the instrument's gas draw.

This helps reduce gas waste and supports calibration or bump testing of pump-based gas detectors and instruments.

Series Structure

Series Name: OV-DFR-400 Series
Product Type: Demand flow regulators
Model Range: OV-DFR-401 to OV-DFR-407
Applications: Calibration gas, pump-based gas detectors, handheld gas detectors, gas analysis, bump testing, and portable gas cylinder packages

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Browse by Regulator Type

C10 Demand Flow Regulators

C10 demand flow regulators are designed for cylinders with C10 valve connections. They are commonly used with portable calibration gas cylinders for handheld gas detector and pump-based instrument applications.

CGA600 Demand Flow Regulators

CGA600 demand flow regulators are designed for compatible CGA600 calibration gas cylinders and portable test gas packages.

High Pressure Demand Flow Regulators

High pressure demand flow regulators are designed for applications requiring higher maximum inlet pressure and suitable cylinder connection configurations.

45-Degree Demand Flow Regulators

45-degree demand flow regulators are designed where the outlet orientation or regulator layout requires an angled configuration for easier connection or use.

Applications

Oxford Valves OV-DFR-400 Series demand flow regulators are used in:

- Calibration gas delivery
- Pump-based gas detector calibration
- Handheld gas detector calibration
- Gas detector bump testing
- Portable calibration gas cylinders
- C10 calibration gas cylinders
- CGA600 calibration gas cylinders

- Gas analysis instruments
- Environmental monitoring equipment
- Industrial safety gas detection systems
- Marine gas detection calibration
- Laboratory test gas applications

Suitable Markets

The OV-DFR-400 Series is suitable for:

- Calibration gas suppliers
- Gas detection equipment suppliers
- Gas detector calibration service providers
- Specialty gas companies
- Industrial gas companies
- Environmental monitoring companies
- Laboratories and analytical instrument users
- Marine safety suppliers
- Oil, gas, petrochemical, and refinery safety teams
- Gas cylinder package suppliers
- International distributors and technical buyers

Key Features

- Demand-based gas supply
- Automatically shuts off when instrument demand stops
- Suitable for pump-based instruments and handheld gas detectors
- C10 and CGA600 inlet configurations
- High pressure demand flow regulator options
- Brass nickel plated, stainless steel, and aluminium hard anodised options
- 3/16” barb outlet, 4.8 mm
- Gauge options available according to model
- Suitable options for non-reactive and reactive gases, depending on material selection
- Maximum vacuum required for 3.0 L/min flow: 0 to 3” H2O / 5.6 mm Hg
- Manufactured under ISO 9001 quality processes
- Oxford Valves branded product range

Model Comparison Table

Oxford Valves Model	Type	Material Configuration	Maximum Inlet Pressure	Maximum Vacuum Required for 3.0 L/min Flow	Inlet Connection	Outlet Connection	Gauge	Weight
OV-DFR-401	C10 demand flow regulator	Brass nickel plated configuration	0 to 1200 psig / 83 bar	0 to 3” H2O / 5.6 mm Hg	5/8” x 18UN C10	3/16” barb, 4.8 mm	Brass, 0 to 1500 psig / 103 bar	0.450 kg
OV-DFR-402	C10 demand flow regulator	Stainless steel	0 to 1200 psig / 83 bar	0 to 3” H2O / 5.6 mm Hg	5/8” x 18UN C10	3/16” barb, 4.8 mm	Stainless steel, 0 to 1500 psig / 103 bar	0.430 kg
OV-DFR-403	High pressure demand flow regulator	Brass nickel plated configuration	0 to 3000 psig / 207 bar	0 to 3” H2O / 5.6 mm Hg	1/4” NPT-F	3/16” barb, 4.8 mm	Stainless steel, 0 to 3190 psig / 220 bar	0.470 kg
OV-DFR-404	High pressure demand flow regulator	Stainless steel	0 to 3000 psig / 200 bar	0 to 3” H2O / 5.6 mm Hg	1/4” NPT-F	3/16” barb, 4.8 mm	Stainless steel, 0 to 3190 psig / 220 bar	0.480 kg
OV-DFR-405	CGA600 demand flow regulator	Brass nickel plated configuration	0 to 600 psig / 41 bar	0 to 3” H2O / 5.6 mm Hg	1” x 20 UNF CGA600	3/16” barb, 4.8 mm	Brass, 0 to 600 psig / 41 bar	0.450 kg

Oxford Valves Model	Type	Material Configuration	Maximum Inlet Pressure	Maximum Vacuum Required for 3.0 L/min Flow	Inlet Connection	Outlet Connection	Gauge	Weight
OV-DFR-406	C10 demand flow regulator	Aluminium hard anodised	0 to 1200 psig / 83 bar	0 to 3” H2O / 5.6 mm Hg	5/8” x 18UN C10	3/16” barb, 4.8 mm	Brass, 0 to 1500 psig / 103 bar	0.210 kg
OV-DFR-407	C10 45-degree demand flow regulator	Brass nickel plated configuration	0 to 1200 psig / 83 bar	0 to 3” H2O / 5.6 mm Hg	5/8” x 18UN C10	3/16” barb, 4.8 mm	Brass, 0 to 1500 psig / 103 bar	0.470 kg

C10 Demand Flow Regulators

OV-DFR-401

C10 Demand Flow Regulator, Brass Nickel Plated Configuration

The OV-DFR-401 is a C10 demand flow regulator used for calibration gases, pump-based instruments, and handheld gas detectors. It supplies gas as demanded by the instrument and automatically shuts off when demand stops.

Specification	Detail
Product type	C10 demand flow regulator
Body	Stainless steel
Neck	Brass nickel plated
Piston	Brass
Seats and seals	Teflon, Viton and Buna-N
Diaphragm	Buna-N
Maximum inlet pressure	0 to 1200 psig / 83 bar

Specification	Detail
Gas suitability	Brass nickel plated configuration for non-reactive gases
Maximum vacuum required for 3.0 L/min flow	0 to 3” H2O / 5.6 mm Hg
Inlet connection	5/8” x 18UN C10
Outlet connection	3/16” barb, 4.8 mm
Gauge	Brass, 0 to 1500 psig / 103 bar
Weight	0.450 kg

Typical applications:
C10 calibration gas cylinders, pump-based gas detectors, handheld gas detector calibration, and bump testing applications.

OV-DFR-402

C10 Demand Flow Regulator, Stainless Steel

The OV-DFR-402 is a stainless steel C10 demand flow regulator for calibration gases, pump-based instruments, and handheld gas detectors. It supplies gas according to instrument demand and shuts off automatically when demand stops.

Specification	Detail
Product type	C10 demand flow regulator
Body	Stainless steel
Neck	Stainless steel
Piston	Stainless steel
Seats and seals	Teflon, Viton
Diaphragm	Viton
Maximum inlet pressure	0 to 1200 psig / 83 bar
Gas suitability	Stainless steel for reactive gases
Maximum vacuum required for 3.0 L/min flow	0 to 3” H2O / 5.6 mm Hg
Inlet connection	5/8” x 18UN C10
Outlet connection	3/16” barb, 4.8 mm
Gauge	Stainless steel, 0 to 1500 psig / 103 bar
Weight	0.430 kg

Typical applications:
Reactive gas calibration mixtures, pump-based gas detectors, C10 calibration gas cylinders, and gas detector bump testing.

OV-DFR-406

C10 Demand Flow Regulator, Aluminium Hard Anodised

The OV-DFR-406 is a lightweight C10 demand flow regulator with aluminium hard anodised body and neck construction. It is used for calibration gases, pump-based instruments, and handheld gas detectors where a lighter regulator configuration is preferred.

Specification	Detail
Product type	C10 demand flow regulator
Body	Aluminium hard anodised
Neck	Aluminium hard anodised
Piston	Brass
Seats and seals	Teflon, Viton and Buna-N
Diaphragm	Buna-N
Maximum inlet pressure	0 to 1200 psig / 83 bar
Gas suitability	For non-reactive gases
Maximum vacuum required for 3.0 L/min flow	0 to 3” H2O / 5.6 mm Hg
Inlet connection	5/8” x 18UN C10
Outlet connection	3/16” barb, 4.8 mm
Gauge	Brass, 0 to 1500 psig / 103 bar
Weight	0.210 kg

Typical applications:
Lightweight calibration gas kits, C10 calibration gas cylinders, handheld gas detector calibration, and portable test gas applications.

OV-DFR-407

C10 45-Degree Demand Flow Regulator, Brass Nickel Plated Configuration

The OV-DFR-407 is a C10 demand flow regulator with a 45-degree outlet configuration. It is used for calibration gases, pump-based instruments, and handheld gas detectors where an angled outlet layout is required.

Specification	Detail
Product type	C10 45-degree demand flow regulator
Body	Stainless steel
Neck	Brass nickel plated
Piston	Brass
Seats and seals	Teflon, Viton and Buna-N
Diaphragm	Buna-N
Maximum inlet pressure	0 to 1200 psig / 83 bar
Gas suitability	Brass nickel plated configuration for non-reactive gases
Maximum vacuum required for 3.0 L/min flow	0 to 3” H2O / 5.6 mm Hg
Inlet connection	5/8” x 18UN C10
Outlet connection	3/16” barb, 4.8 mm
Gauge	Brass, 0 to 1500 psig / 103 bar
Weight	0.470 kg

Typical applications:
C10 calibration gas cylinders, pump-based gas detectors, handheld gas detector calibration, and applications requiring an angled outlet configuration.

High Pressure Demand Flow Regulators

OV-DFR-403

High Pressure Demand Flow Regulator, Brass Nickel Plated Configuration

The OV-DFR-403 is a high pressure demand flow regulator used for calibration gases, pump-based instruments, and handheld gas detectors. It supplies gas only as demanded by the instrument and automatically shuts off when demand stops.

Specification	Detail
Product type	High pressure demand flow regulator
Body	Stainless steel
Neck	Brass nickel plated
Piston	Brass

Specification	Detail
Seats and seals	Teflon, Viton
Diaphragm	Viton
Maximum inlet pressure	0 to 3000 psig / 207 bar
Gas suitability	Brass nickel plated configuration for non-reactive gases
Maximum vacuum required for 3.0 L/min flow	0 to 3” H2O / 5.6 mm Hg
Inlet connection	1/4” NPT-F
Outlet connection	3/16” barb, 4.8 mm
Gauge	Stainless steel, 0 to 3190 psig / 220 bar
Weight	0.470 kg

Typical applications:
High pressure calibration gas cylinders, pump-based instruments, handheld gas detector calibration, and industrial gas detection applications.

OV-DFR-404

High Pressure Demand Flow Regulator, Stainless Steel

The OV-DFR-404 is a stainless steel high pressure demand flow regulator for calibration gases, pump-based instruments, and handheld gas detectors. It is suitable for applications requiring stainless steel construction and higher inlet pressure capacity.

Specification	Detail
Product type	High pressure demand flow regulator
Body	Stainless steel
Neck	Stainless steel
Piston	Stainless steel
Seats and seals	Teflon, Viton
Diaphragm	Viton
Maximum inlet pressure	0 to 3000 psig / 200 bar
Gas suitability	Stainless steel for reactive gases
Maximum vacuum required for 3.0 L/min flow	0 to 3” H2O / 5.6 mm Hg
Inlet connection	1/4” NPT-F
Outlet connection	3/16” barb, 4.8 mm
Gauge	Stainless steel, 0 to 3190 psig / 220 bar

Specification	Detail
Weight	0.480 kg

Typical applications:
Reactive gas calibration mixtures, high pressure calibration gas cylinders, pump-based instruments, and gas detection calibration applications.

CGA600 Demand Flow Regulators

OV-DFR-405

CGA600 Demand Flow Regulator, Brass Nickel Plated Configuration

The OV-DFR-405 is a CGA600 demand flow regulator used for calibration gases, pump-based instruments, and handheld gas detectors. It supplies gas as demanded by the instrument and automatically shuts off when demand stops.

Specification	Detail
Product type	CGA600 demand flow regulator
Body	Brass nickel plated
Neck	Brass nickel plated
Piston	Brass
Seats and seals	Teflon, Viton and Buna-N
Diaphragm	Buna-N
Maximum inlet pressure	0 to 600 psig / 41 bar
Gas suitability	Brass nickel plated configuration for non-reactive gases
Maximum vacuum required for 3.0 L/min flow	0 to 3” H2O / 5.6 mm Hg
Inlet connection	1” x 20 UNF CGA600
Outlet connection	3/16” barb, 4.8 mm
Gauge	Brass, 0 to 600 psig / 41 bar
Weight	0.450 kg

Typical applications:
CGA600 calibration gas cylinders, pump-based gas detectors, handheld gas detector calibration, and portable test gas systems.

Maximum Vacuum Requirement

All OV-DFR-400 Series models listed in this range are specified with the following maximum vacuum requirement for 3.0 L/min flow:

0 to 3” H2O / 5.6 mm Hg

This demand response characteristic is important for pump-based instruments and sampling devices that draw gas only when required.

Inlet Connection Options

The OV-DFR-400 Series includes the following inlet connection configurations:

- 5/8” x 18UN C10
- 1/4” NPT-F
- 1” x 20 UNF CGA600

The inlet connection must match the cylinder valve or gas package connection.

Outlet Connection

All listed OV-DFR-400 Series models use:

3/16” barb, 4.8 mm

The outlet connection should be matched with the calibration tubing, instrument connection, or sampling system used in the application.

Material Selection Guide

Brass Nickel Plated Configurations

Brass nickel plated configurations are generally used for compatible non-reactive gases. These models are commonly selected for standard calibration gas and handheld gas detector applications.

Stainless Steel Configurations

Stainless steel configurations are used where stainless steel construction is required, including many reactive gas applications. Final material compatibility should be reviewed against the gas mixture and operating conditions.

Aluminium Hard Anodised Configuration

Aluminium hard anodised construction provides a lightweight configuration for compatible non-reactive gas applications. Suitability should be checked against the gas mixture, pressure, and application conditions.

Demand Flow vs Fixed Flow Regulators

Regulator Type	How It Works	Typical Use
Demand flow regulator	Supplies gas only when the instrument demands flow	Pump-based gas detectors and sampling instruments
Fixed flow regulator	Delivers gas continuously at a preset flow rate	Standard calibration gas and bump testing applications
Adjustable flow regulator	Allows user adjustment of the flow rate	Applications requiring variable flow control

Demand flow regulators are commonly selected for pumped instruments because gas is supplied only when the instrument draws sample.

Gas Compatibility Notes

Gas compatibility depends on the gas mixture, concentration, moisture content, regulator material, seat and seal material, pressure, temperature, and service conditions.

As a general guide:

- Brass nickel plated configurations are generally used for compatible non-reactive gases.
- Stainless steel configurations are selected for reactive gas applications.
- Aluminium hard anodised configurations are used for compatible non-reactive gas applications.
- Teflon, Viton, and Buna-N sealing materials should be checked against the gas mixture and operating conditions.

Final regulator selection should be based on the complete gas mixture and application.

Safety Notes

Demand flow regulators are pressure control components and must be selected, installed, used, and maintained by trained personnel.

The correct regulator should be selected based on:

- Cylinder connection
- Maximum inlet pressure
- Maximum vacuum requirement
- Gas compatibility
- Regulator material
- Seat and seal material
- Outlet connection
- Gauge requirement
- Pump or instrument demand
- Application requirement

Do not use any demand flow regulator outside its specified pressure rating, material compatibility, or intended application.

Quality Statement

Oxford Valves supplies the OV-DFR-400 Series as part of its branded range of precision gas valves and regulators.

Products are manufactured under ISO 9001 quality processes and are intended for calibration gas, specialty gas, industrial gas, gas detection, and portable cylinder applications.

Technical Notes

- Demand flow regulators supply gas as demanded by the instrument.
- The regulator automatically shuts off when demand stops.

- Maximum vacuum required for 3.0 L/min flow is 0 to 3” H2O / 5.6 mm Hg across the listed models.
- Inlet connection must match the cylinder valve or cylinder package.
- Outlet connection must match the calibration tubing or instrument setup.
- Gas compatibility should be checked before final product selection.
- Pressure ratings must not be exceeded.
- Gauge material and pressure range depend on the selected model.
- Final regulator selection should be based on cylinder connection, gas mixture, inlet pressure, instrument demand, material compatibility, and application.

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