

# Spence™ D Series Pressure Reducing Valve



*Figure 1. D Series Pressure Reducing Valve*

## Features

- **Accurate Regulation Unaffected by Service Conditions**
- **Easy In-line Maintenance**
- **Five Spring Ranges for Improved Control**

## Introduction

D Series pressure reducing valves are designed for air and steam services. They are direct-acting and are used on small delivery systems where pilot-operated regulators are not practical to use.

The valve is single-seated, normally open, spring-loaded and diaphragm-operated. Delivery pressure is transmitted to the diaphragm through an internal control port connecting the outlet side of the valve body with the diaphragm chamber.

# D Series

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## Specifications

This section lists the specifications for D Series pressure reducing valve. Factory specification are stamped on the nameplate fastened on the valve at the factory.

### Available Types

**Type D:**  $\pm 1$  psi / 0.07 bar control of delivery pressure from 3 to 150 psi / 0.21 to 10.3 bar  
**Type D2:**  $\pm 2$  psi / 0.14 bar control of delivery pressure from 100 to 300 psi / 6.89 to 20.7 bar

### Valve Sizes

NPS 1/4, 3/8 and 1/2 / DN 8, 10 and 15

### End Connection Styles

NPT

### Maximum Temperature<sup>(1)</sup>

750°F / 400°C

### Spring Pressure Rating<sup>(1)</sup>

**Cast Iron:** 250 psig / 17.2 bar at 400°F / 204°C  
**Cast Steel:** 600 psig / 41.4 bar at 750°F / 400°C

### Spring Pressure Ranges<sup>(1)</sup>

#### Type D

3 to 20 psig / 0.21 to 1.38 bar  
5 to 50 psig / 0.34 to 3.45 bar  
10 to 100 psig / 0.69 to 6.89 bar  
20 to 150 psig / 1.38 to 10.3 bar

#### Type D2

100 to 300 psig / 6.89 to 20.7 bar

### Construction Materials

**Body:** Cast Steel or Cast Iron  
**Stem, Seat, Disc and Diaphragm:** Stainless steel  
**Spring:** Inconel®  
**Gasket:** Grafoil

### Options

Enclosed Spring Chamber  
Composition Disc  
Wall Bracket  
Adjusting Handwheel  
Locking Device

### Application

Pressure Regulating for Steam Distribution  
Regulating for Fluid, Gas and Vapor  
Process Control  
Processes with Small, Relatively Steady  
Flow Rates

### Approximate Weight

**Type D:** 7.3 lbs / 3.3 kg  
**Type D2:** 10.6 lbs / 4.8 kg

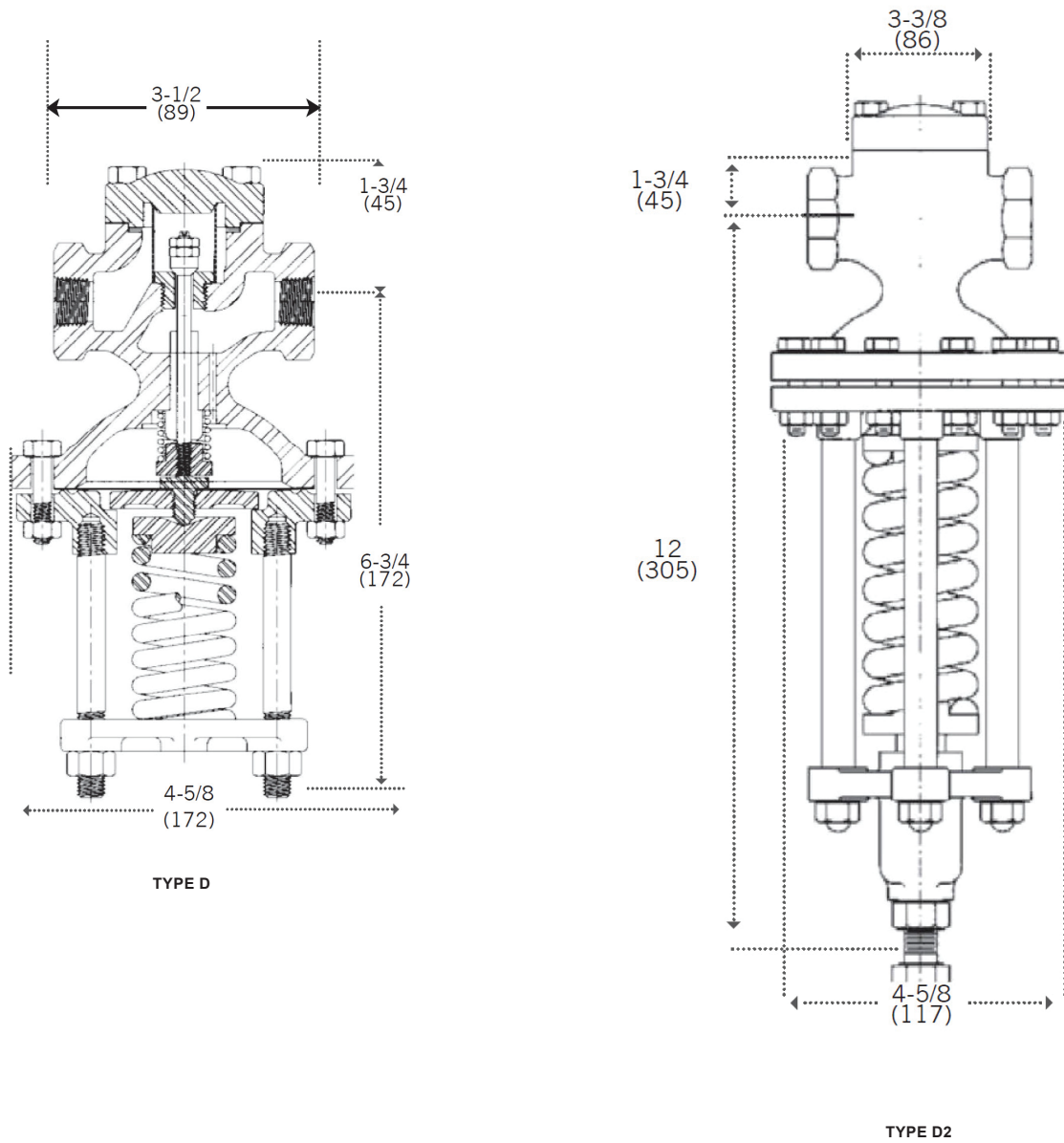
1. The pressure/temperature limits in this Bulletin and any applicable standard or code limitation should not be exceeded.

## Principle of Operation

When steam is turned on, the valve is in the wide open position. Steam flowing to the system creates a rising delivery pressure which feeds back through the control port to the underside of the diaphragm. As pressure on diaphragm approaches a balance with the force exerted by the adjusting spring, the disc is throttled to a position where just enough steam flows to maintain the set delivery pressure.

## Installation

- Carefully clear inlet piping system of foreign matter and mount regulator with the flow arrow pointing in the direction of flow.
- Preferred position for D Series valve is in a horizontal line with spring down. When so mounted, the tendency of sediment to settle in the control ports is practically eliminated.



in. / mm

Figure 2. D Series Pressure Reducing Valve Dimension

# D Series

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## Ordering Information

When ordering, complete the ordering guide on this page. Refer to the Specifications section. Review the description to the right of each specification and the information in each referenced table or figure. Specify your choice whenever a selection is offered.

## Ordering Guide

### Configuration (Select One)

- Type D
- Type D2

### Body Material (Select One)

- Cast Iron
- Cast Steel

### Spring Ranges (Select One)

#### Type D

- 3 to 20 psig / 0.21 to 1.38 bar
- 5 to 50 psig / 0.34 to 3.45 bar
- 10 to 100 psig / 0.69 to 6.89 bar
- 20 to 150 psig / 1.38 to 10.3 bar

#### Type D2

- 100 to 300 psig / 6.89 to 20.7 bar

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