

Spence Type N6 Differential Pressure Valve

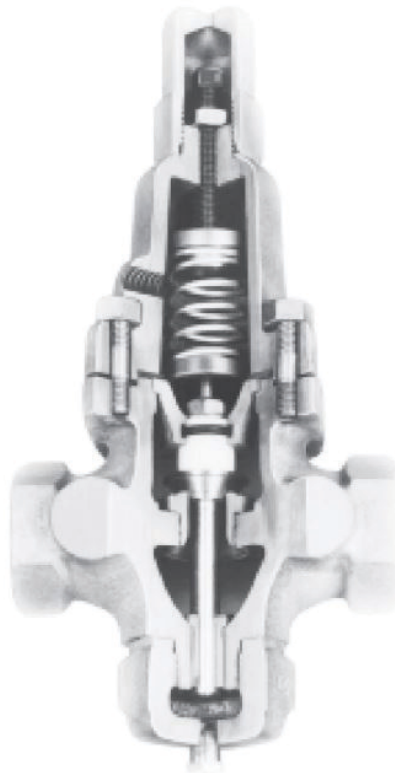


Figure 1. Type N6 Differential Pressure Valve

Features

- Maintains Constant Differential Pressure
- Stainless Steel Valve Trim
- High Temperature Sealing Ring
- Polished Stainless Steel Piston
- ANSI/FCI 70-2 Class IV Shutoff

Introduction

The Type N6 differential pressure valves are designed to maintain pump discharge pressures at a constant differential above a separate source of pressure.

When installed in a boiler feed pump discharge line as a by-pass valve, a connection from the steam drum is made to the top chamber of the Type N6. The desired differential is made by adjusting the spring. The boiler feed-water pressure will then be maintained by Type N6 at a constant pressure above steam drum pressure by modulating the quantity of water bypassed to pump section. When installed in a bypass line across a pumped system, Type N6 will maintain a constant differential of supply main pressure over return main pressure by modulating the quantity of bypassed water.

Type N6

Specifications

The Specifications section gives some general specifications for the Type N6 valve. The nameplates give detailed information for a specific valve as built in the factory.

Body Sizes NPS 3/4, 1, 1 1/4, 1 1/2, 2 and 2 1/2 / DN 20, 25, 32, 40, 50 and 65	Construction Materials Body: Cast Iron Stem, Disk and Seat ring, Piston and Spring: Stainless steel Sealing ring: Fluorocarbon (FKM) Gasket: Graphite
End Connection Styles NPT and CL 250	Applications Maintain Pump Discharge Pressure Pump Bypass Valve Boiler Feedwater Valve
Maximum Inlet Pressure⁽¹⁾ 250 psig / 17.2 bar	Approximate Weights 10 to 74 lbs / 4.5 to 34 kg
Maximum Inlet Temperature⁽¹⁾ 350°F / 177°C	
Flow Coefficients See Table 1	
Outlet Pressure Ranges 5 to 50 psid / 0.35 to 3.45 bar d 40 to 125 psid / 2.76 to 8.62 bar d 100 to 200 psid / 6.89 to 13.8 bar d	

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

Table 1. Type N6 Differential Pressure Valve Flow Coefficient

VALVE SIZE	C _v
NPS 3/4 / DN 20	7.1
NPS 1 / DN 25	13.3
NPS 1-1/4 / DN 32	22.0
NPS 1-1/2 / DN 40	32.5
NPS 2 / DN 50	51.0
NPS 2-1/2 / DN 65	88.0

Principle of Operation

Flow enters the valve such that the initial pressure acts against the working face of the disk and tends to move it open. Opposing the opening are the forces of the differential adjusting spring and the loading pressure acting on the piston. The differential adjusting spring force creates the differential between the retained pressure (supply main or boiler feed water) under the disk and the loading pressure (return main or boiler drum) on top of the piston.

Installation

- Carefully clear inlet piping system of foreign matter such as: welding beads, scale, sand, pipe compound, etc.
- Allow head room above the valve for maintenance.
- Provide a three-valve bypass to facilitate inspection of the regulator without interrupting service.
- Preferred position for Type N6 valve is in a horizontal line with spring chamber up and arrow on body pointing in direction of flow.
- The loading line should be 1/4 in. pipe connected to the spring chamber tap.
- Avoid damaging effects of foreign matter in the flow by using Emerson strainer ahead of the valve.

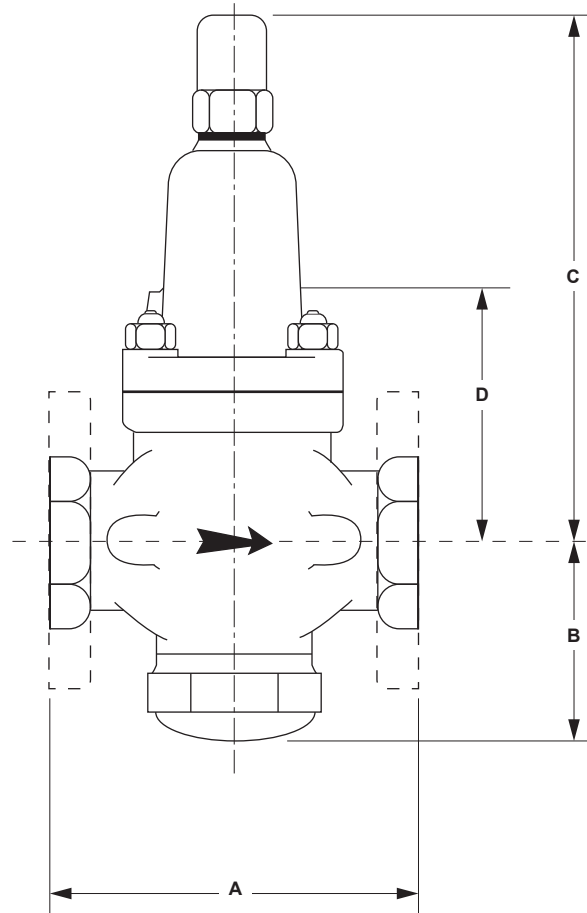


Figure 2. Type N6 Differential Pressure Valve Dimensions

Table 2. Type N6 Differential Pressure Valve Flow Dimensions

SIZE, NPS / DN	A, IN. / mm		B, IN. / mm	C, IN. / mm	D, IN. / mm	WEIGHT, LBS / kg	
	NPT	CL 250				NPT	CL 250
3/4 / 20	4-3/4 / 121	----	2-3/4 / 70	7-1/2 / 190	3 / 76	10 / 4.5	----
1 / 25	5-3/8 / 137	----	3 / 76	8-1/2 / 216	3-5/8 / 92	12 / 5.5	----
1-1/4 / 32	6-1/2 / 165	----	3-5/8 / 92	9-3/8 / 238	3-7/8 / 98	19 / 8.6	----
1-1/2 / 40	7-1/4 / 184	----	3-3/4 / 95	10-7/8 / 276	4-1/4 / 108	26 / 12	----
2 / 50	7-1/2 / 191	----	4-3/8 / 111	11-7/8 / 302	4-7/8 / 124	39 / 18	----
2-1/2 / 65	----	10 / 254	4-1/2 / 114	14-3/8 / 365	5-3/8 / 136	----	74 / 34

Type N6

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

Body Sizes (Select One)

- ☐ NPS 3/4 / DN 20
- ☐ NPS 1 / DN 25
- ☐ NPS 1-1/4 / DN 32
- ☐ NPS 1-1/2 / DN 40
- ☐ NPS 2 / DN 50
- ☐ NPS 2-1/2 / DN 65

End Connection Styles (Select One)

- ☐ NPT
- ☐ CL 250

Pressure Ranges (Select One)

- ☐ 5 to 50 psid / 0.35 to 3.45 bar d
- ☐ 40 to 125 psid / 2.76 to 8.62 bar d
- ☐ 100 to 200 psid / 6.89 to 13.8 bar d

 [SpenceValve.com](https://www.SpenceValve.com)

Emerson Automation Solutions

Americas

McKinney, Texas 75070 USA
T +1 800 558 5853
+1 972 548 3574

Europe

Bologna 40013, Italy
T +39 051 419 0611

Asia Pacific

Singapore 128461, Singapore
T +65 6777 8211

Middle East and Africa

Dubai, United Arab Emirates
T +971 4 811 8100

VCBUL-16357 © 2021 Emerson Electric Co. All rights reserved 11/21.

Spence is a mark owned by one of the companies in the Emerson Automation Solutions business unit of Emerson Electric Co. The Emerson logo is a trademark and service mark of Emerson Electric Co. All other marks are property of their prospective owners.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available upon request. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.

Emerson Electric Co. does not assume responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use and maintenance of any Emerson Electric Co. product remains solely with the purchaser.

