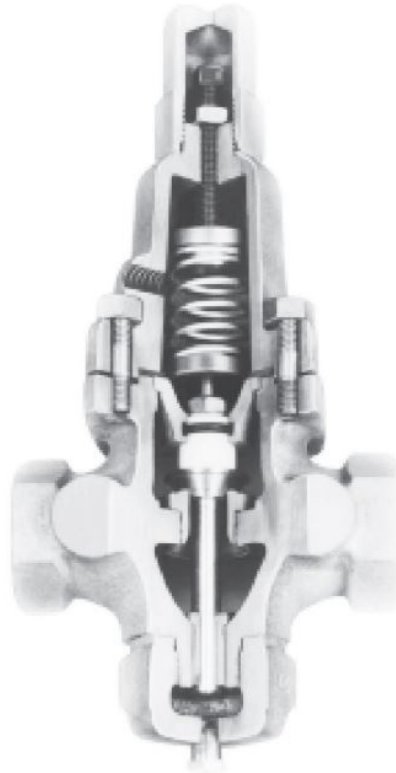


November 2021

# 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.

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

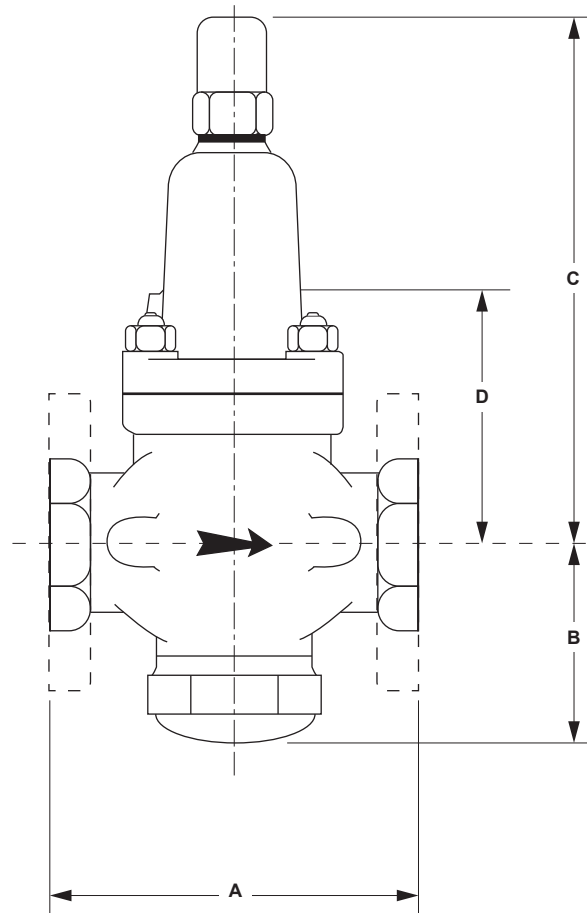
VALVE SIZE	C <sub>v</sub>
NPS 3/4 / DN 20	7.1
NPS 1 / DN 25	13.3
NPS 1-1/4 / DN 32	22.0
NPS 1-1/2 / DN 40	32.5
NPS 2 / DN 50	51.0
NPS 2-1/2 / DN 65	88.0

## 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

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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

### 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

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