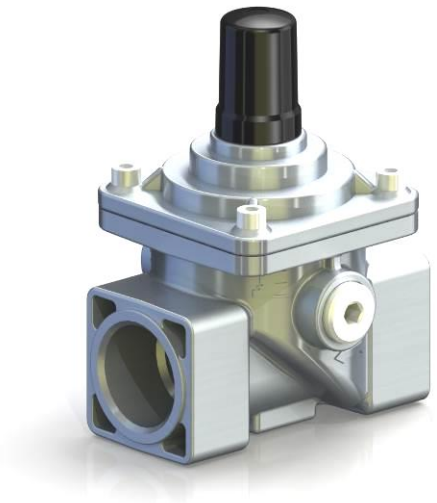

# NV

## Needle valves
## Rp3/8 … Rp2

# NV

## Needle valves

### Contents



## Description

NV type valves are designed for fine-adjusting of gas flow and air flow in industrial combustion processes.

## Features

Valves are made of aluminum, with wide range of threaded connections.

Suitable for use with air and non-aggressive gases according to EN 437. For heated air or aggressive gases a special version is available.

Valves are operated manually using an Allen key to set the precise fire rate of the burner.

All components are designed to withstand any mechanical, chemical, thermal condition occurring during typical service. Effective impregnation and surface treatments have been used to improve mechanical sturdiness, sealing and resistance to corrosion of the components.

**WARNING**

**This control must be installed in compliance with the rules in force.**

## Functioning and application

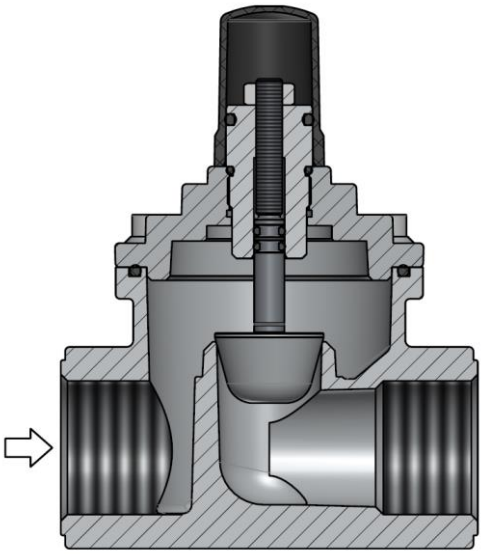

Fig.1

The valve is provided with a taper plunger that can be adjusted sensitively with an Allen wrench, turning the screw counterclockwise increases flow, then a locking nut allows to hold the regulation. A plastic cap hides the adjustment to avoid tampering with the setting.

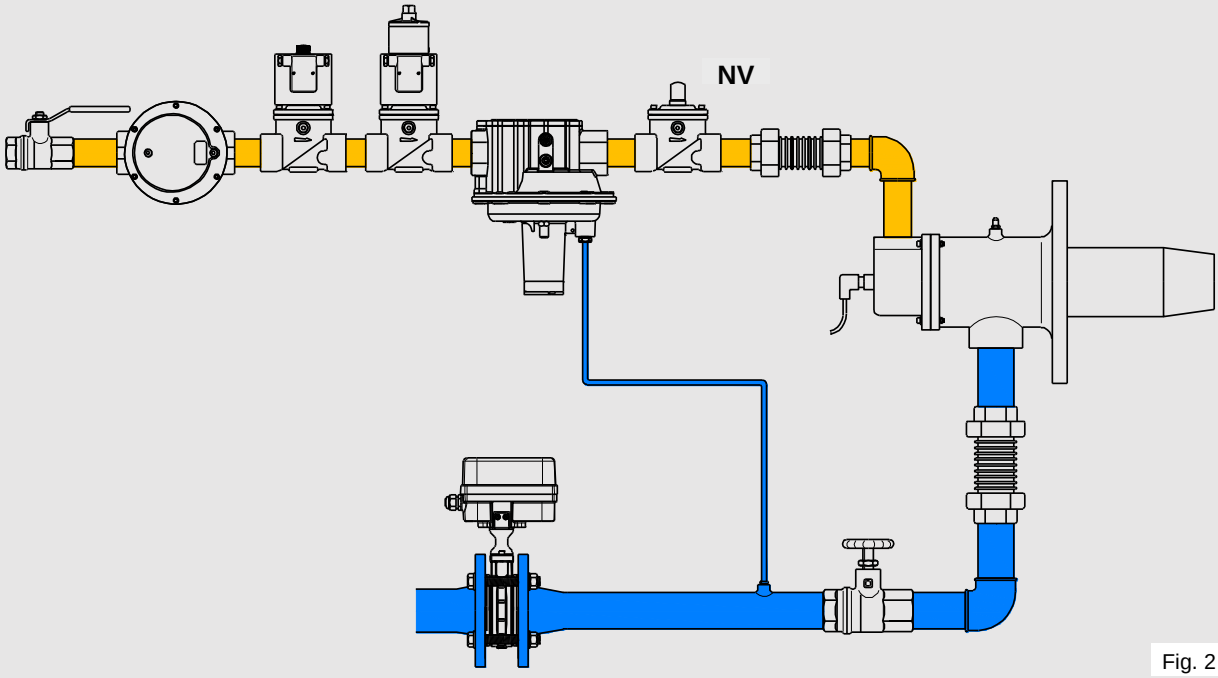


Fig. 2

*Example*: in case of combustion process being regulated by combustion air modulation, the required lambda value can be set using the fine-adjusting valve NV and an air adjusting cock installed as close as possible to the burner.

### WARNING

**NV type valves are not designed for shutting off gas. Use an approved ball valve, plug valve or cock to this purpose.**

## Technical specifications

Tab. 1

| | |
|---|---|
| **Connections** | Threaded from Rp3/8 to Rp2<br>according to ISO 7-1 or NPT ANSI-ASME B1.20 |
| **Ambient temperature** | -15°C / +60°C |
| **Media type** | Air and non-aggressive gases according EN 437<br>(special version for Biogas) |
| **Max. media temperature** | +60°C<br>+200°C for use with air only<br>(special version on request) |
| **Max. Operating pressure** | 500 mbar (50 kPa) |
| **Flow rate** | See diagram |
| **Materials in contact with fluid** | Aluminium alloy<br>Stainless steel<br>Nitrile rubber (NBR)<br>Fluoroelastomer (FPM) |

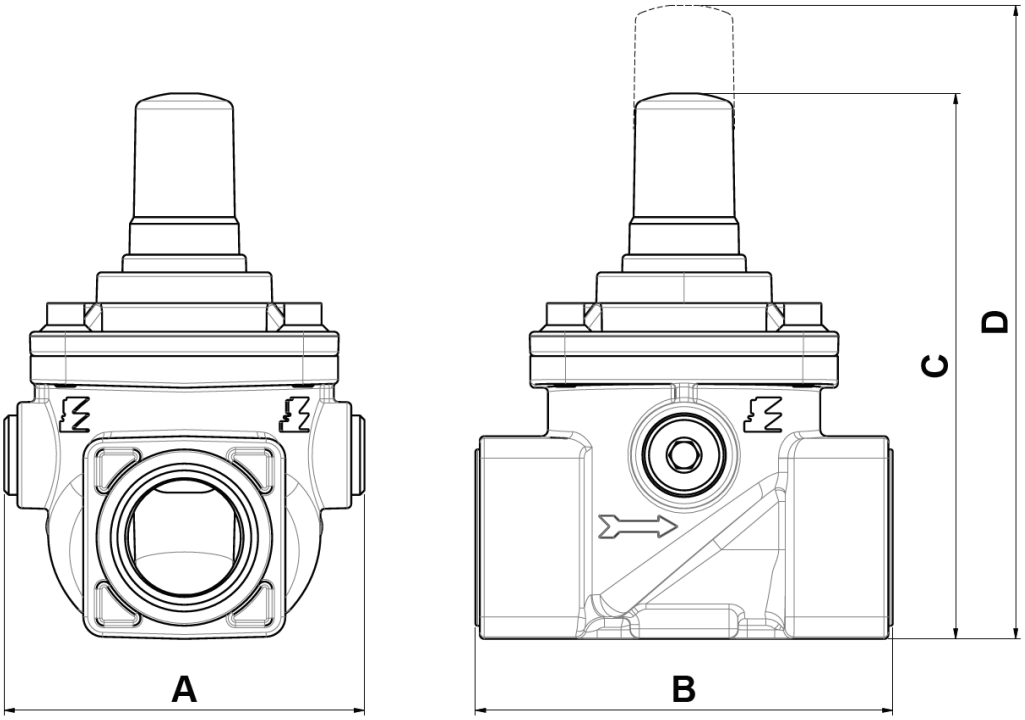


Fig.3

Tab. 2

| Connections | Overall dimensions [mm] | | | | Weight [Kg] | Kvs [m³/h] |
|---|---|---|---|---|---|---|
| | A | B | C | D | | |
| **Rp 3/8** | 66 | 76 | 106 | 136 | 0,35 | 2,9 |
| **Rp 1/2** | 66 | 76 | 106 | 136 | 0,35 | 4,9 |
| **Rp 3/4** | 82 | 95 | 124 | 160 | 0,57 | 9,5 |
| **Rp 1** | 82 | 95 | 124 | 160 | 0,57 | 12 |
| **Rp 1¼** | 115 | 152 | 159 | 200 | 1,50 | 22 |
| **Rp 1½** | 115 | 152 | 159 | 200 | 1,50 | 29 |
| **Rp 2** | 105 | 156 | 170 | 210 | 1,78 | 40 |

## Flow chart

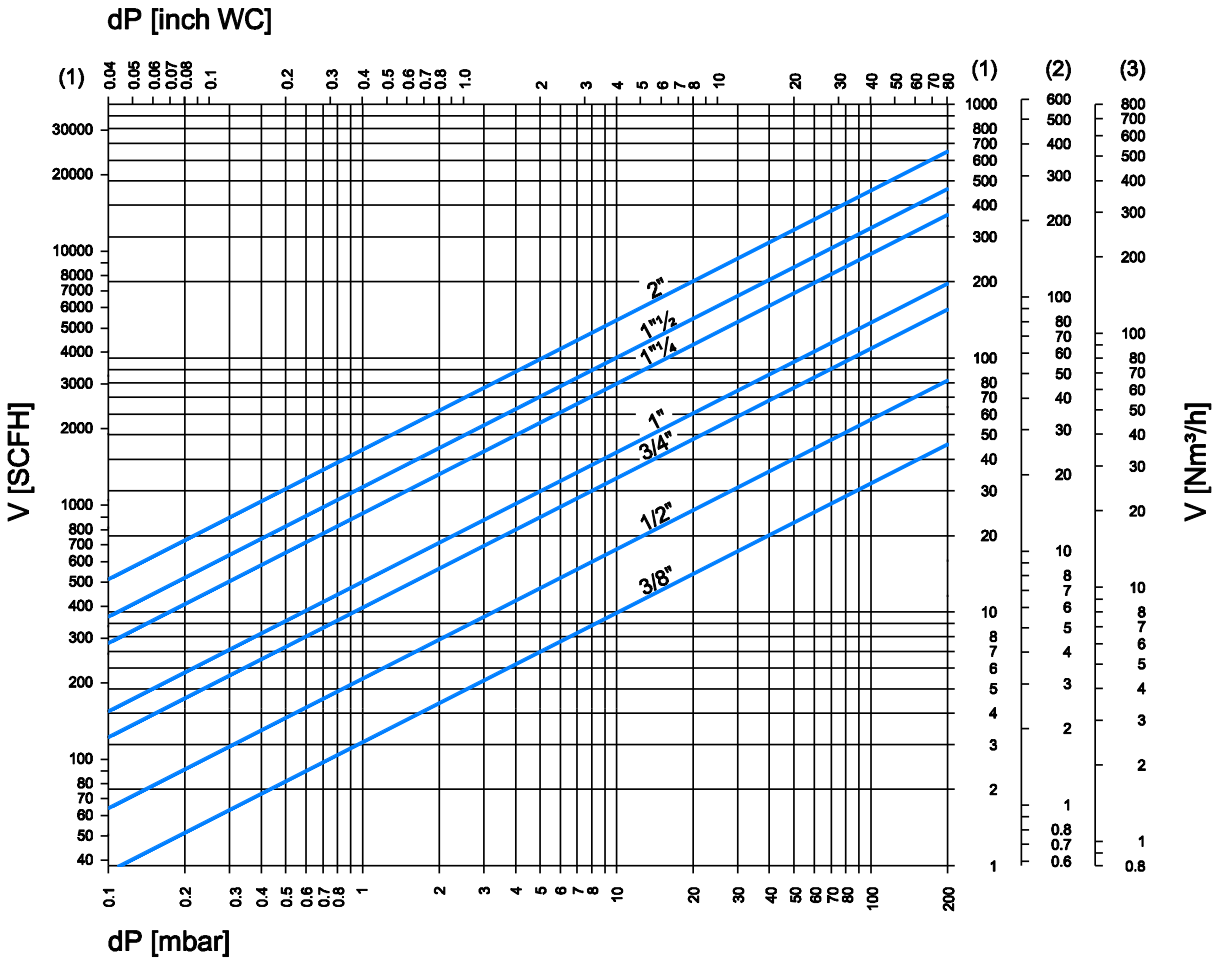


Fig.4

## Formula of conversion from air to other gases

$$V_{GAS} = k \cdot V_{AIR}$$

Tab. 3

| Gas type | Specific gravity ρ [Kg/m³] | $k = \sqrt{\frac{125}{\rho_{GAS}}}$ |
|---|---|---|
| (1) Natural gas | 0,80 | 1,25 |
| (2) LPG | 2,08 | 0,77 |
| (3) Air | 1,25 | 1,00 |

When the flow read on the diagram is referred to operating pressure instead of standard conditions, the pressure drop Δp read on the diagram must be multiplied for the factor:
(1+ relative pressure in bar)

*Example:*

In the 1" valve with NG flow of 30 $Nm^3/h$ there is a pressure drop Δp = 5 mbar.
If we consider that 30 $m^3/h$ is the flow at 200 mbar of inlet pressure, then the pressure drop to be consider is:

Δp = 5 x (1+0,2) = 6 mbar

Normally, pressure drop and flow rate for the valves are read from the gas flow diagram.
However, the valves can also be chosen in accordance with the characteristic "Kvs value" which is shown in table 2.
The selection of the valve requires the calculation of the Kv under the operating conditions.

Considering only subcritical pressure drops:

$$\Delta p < \frac{p_1}{2}$$

Kv can be calculated with the formula:

$$Kv = \frac{V}{514}\sqrt{\frac{\rho(t+273)}{\Delta p \cdot p_2}}$$

where

V = flow rate [$Nm^3/h$]
Kv = flow factor [$m^3/h$]
$\rho$ = density [$Kg/m^3$]
$p_1$ = absolute inlet pressure [bar]
$p_2$ = absolute outlet pressure [bar]
Δp = differential pressure $p_1$-$p_2$ [bar]
t = media temperature [°C]

The valve with the next higher Kvs value should be selected.

## Ordering Information

| | NV | 1 | .J |
|---|---|---|---|
| **Valve type** | | | |
| **Size** | | | |
| **0** 3/8" | | | |
| **1** 1/2" | | | |
| **2** 3/4" | | | |
| **3** 1" | | | |
| **35** 1"¼ | | | |
| **4** 1"½ | | | |
| **6** 2" | | | |
| **Special versions** [1] | | | |
| **J** Biogas/ High temperature | | | |
| **N** NPT threads | | | |

[1] Multiple selections are possible.

Tab.4

## Standards and approvals

NV valves are designed according to EN13611 when applicable.

**Quality Management System certified according to UNI EN ISO 9001.**

The information in this document contains general descriptions of technical options available and based on current specifications.

The company reserves the right to make changes in specifications and models as design improvements are introduced, without prior notice.

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