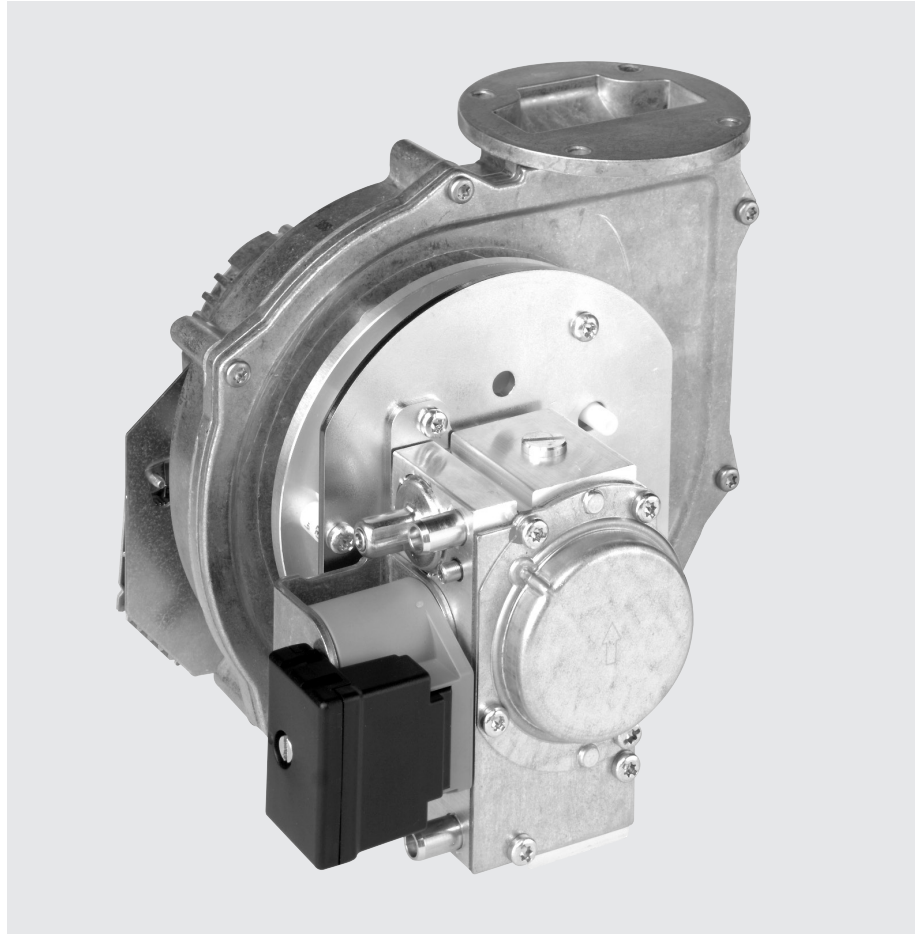


WhirlWind Combined fully integrated gas/air control and safety system

GB-WND 055 D01

DUNGS®
Combustion Controls

3.04



Technical Description

Integrated gas-air system with high power density based on DUNGS zero pressure multiple actuator GB-ND 055 D01 to EN 126 for modulating or multi-stage mode:

- Pneumatic integrated system comprising zero pressure mode and integrated signal gain
- Modulation range up to 1:10
- Breaks up flow pattern and reduces resonances
- Offset correction of gas/air ratio at servo regulator
- Limits maximum flow by a low hysteresis flow restrictor, injector requires no replacement for different gas families
- Inlet pressure up to max. 65 mbar (6,5 kPa)

- Implemented by adapting system components and optimising to specific application and design requirements. Versions with valve on left or right available.

Application

Suitable for gases to EN 437 and other gaseous inert media.

Approvals

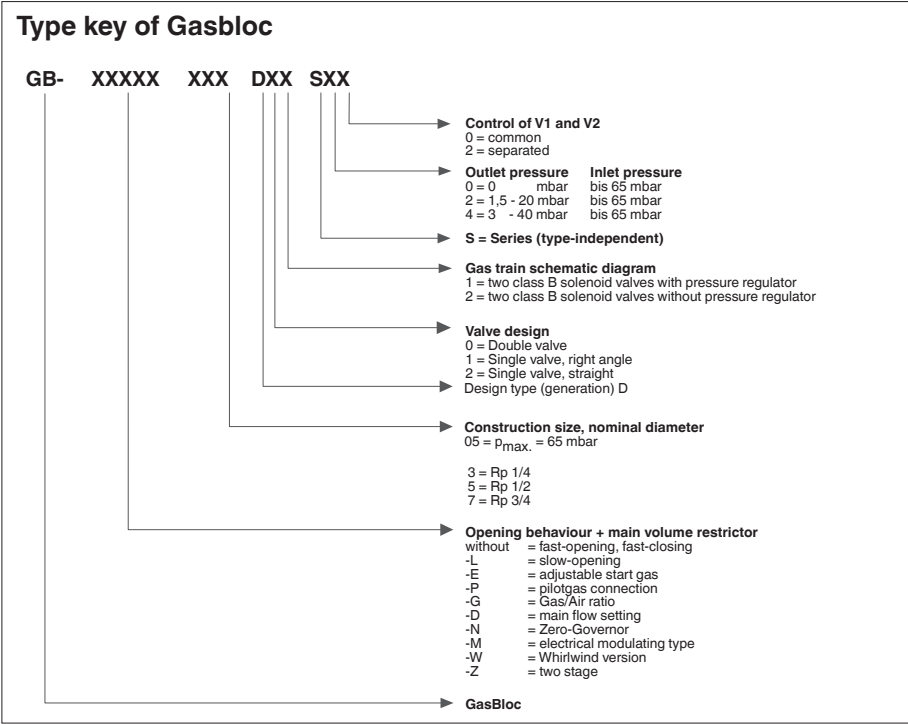
EU type test approval as per EU Gas Appliance Directive.

GB-WND 055 D01 CE-0085 CM 0036

Approvals in other important gas-consuming countries.

Specification											
Main types	Zero pressure servo regulator	Operating valve Solenoid valve [class]	Safety valve Solenoid valve [class]	Maximum restrictor	Offset correction	Baffle to signal amplifier	Blower adapter	Dirt trap device	Gas pressure switch	Line socket	MPA 109x
GB-WND 055 D01	●	B	B	●	●	●	○	●	○	○	○

● standard ○ optional — not available



Description of main components

Valve and pressure regulator

Optionally, the valve can be supplied with a side outlet on the left or right. The WhirlWind system is therefore adaptable to the design requirements of an application. The pressure control unit and servo pressure regulator compensates for pressure fluctuations in the supply network. This ensures a constant volume flow at constant injector pressure. The servo regulator regulates the nozzle pressure at the valve outlet, dependent on the vacuum generated, towards zero.

Solenoid valves

Solenoid valve to EN 161, Class B. DC coil, protected against voltage transients.

Filter

Fine-meshed strainer to protect fitting.

Side cover plate with nozzle

Cover plate mounted on the side between valve and baffle to guide supply air and act as noise insulation. The nozzle is mounted between the valve and the cover plate and can be replaced in the event of changes in gas families.

Swirl plate

The integrated baffle acts as a two-stage cascaded signal amplifier and permits safe operation over a modulation range up to 1:10. The specially designed, patented. Swirl plate changes flow patterns to reduce resonances.

Blower adapter

Represents the interface to the selected blower and ensure defined flow ratios at the inlet and design flexibility in the valve/blower arrangement.

Gas pressure switch
Optional equipment

Monitors gas pressure on the inlet side for gas leakage protection. The pressure switch can be pre-adjusted and sealed to customer specifications.

Air/differential pressure switch
(Optional equipment)

The system offers the option of connecting an air or differential pressure switch for monitoring blower function. The air or differential pressure switch can be pre-adjusted and sealed to customer specifications.

Pressure instrument glands

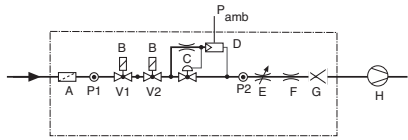
On inlet and outlet sides

Solenoid valve modes

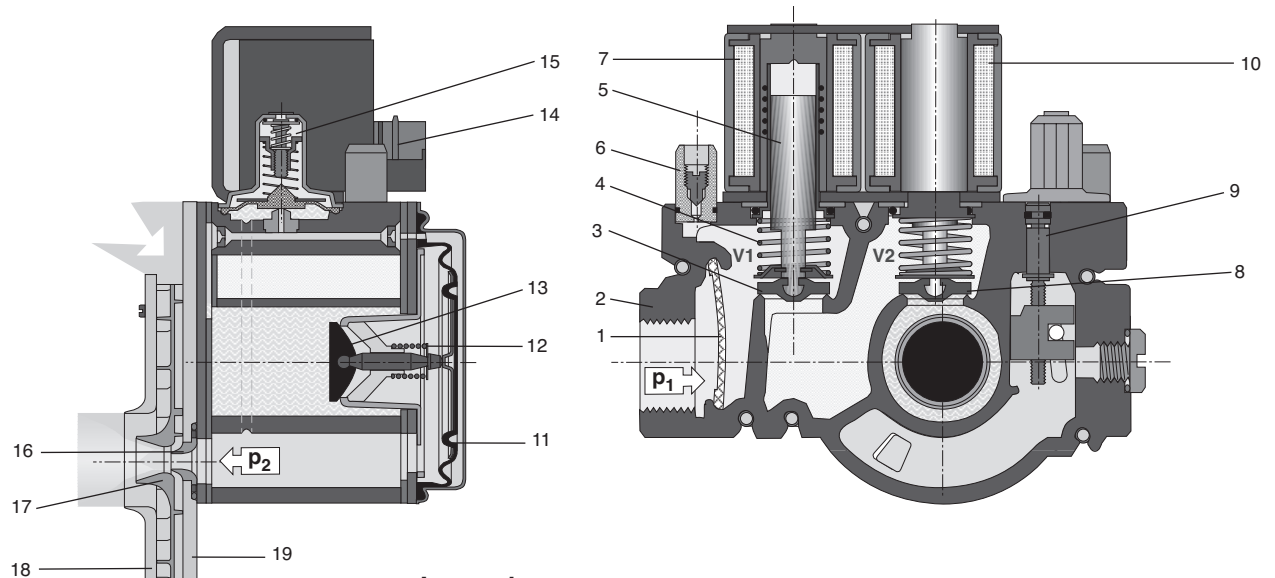
V1 and V2 can be activated and opened either together or separately.

Block diagram

- A Filter
- B Automatic shut-off valves
- C Pressure regulator
- D Servo-pressure regulator
- E Main flow restrictor
- F Nozzle
- G Baffle for signal gain
- H Fan
- p₁ Test nipple, inlet
- p₂ Test nipple, outlet



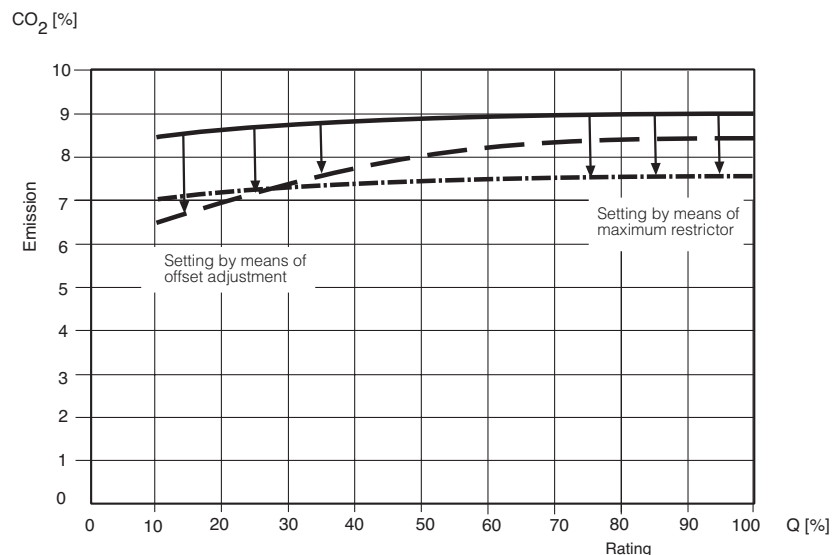
Functional diagram GB-WND 055 D01



Legend

- | | |
|------------------------|-----------------------------|
| 1 Fine-meshed strainer | 10 Solenoid V2 |
| 2 Housing | 11 Working diaphragm |
| 3 Valve V1 | 12 Return spring |
| 4 Closing spring | 13 Operating valve |
| 5 Plunger V1 | 14 Electrical connection |
| 6 Test nipple | 15 Servo-pressure regulator |
| 7 Solenoid V1 | 16 Injector |
| 8 Valve V2 | 17 Swirl plate |
| 9 Start gas setting | 18 Blower adapter |
| | 19 Side cover plate |

Setting the CO₂ characteristic GB-WND 055 D01

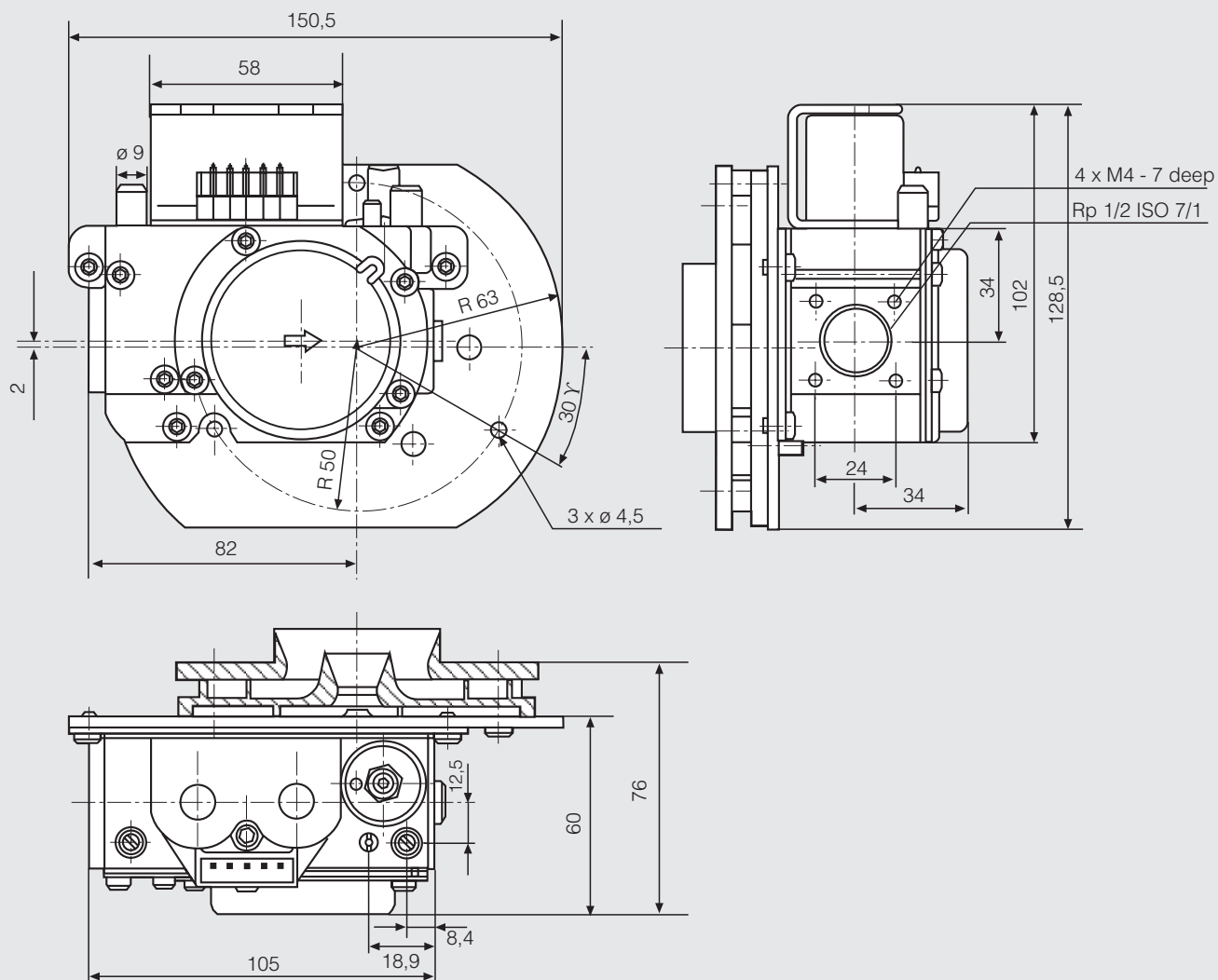


Adjustment instructions

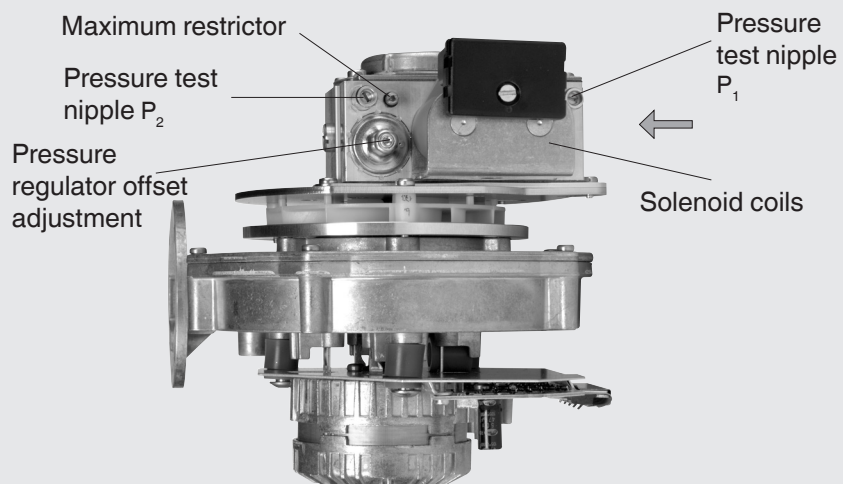
Rapid and simple adjustment by means of:

- Adjust offset correction using setting screw on servo regulator.
- Adjust maximum flow using flow-restriction screw.

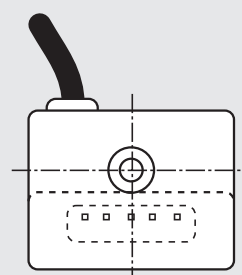
Dimensions [mm]



Adjusting devices



Electrical connection



Standard

Box with cable connection IP 40
Molex Crimp System 3001

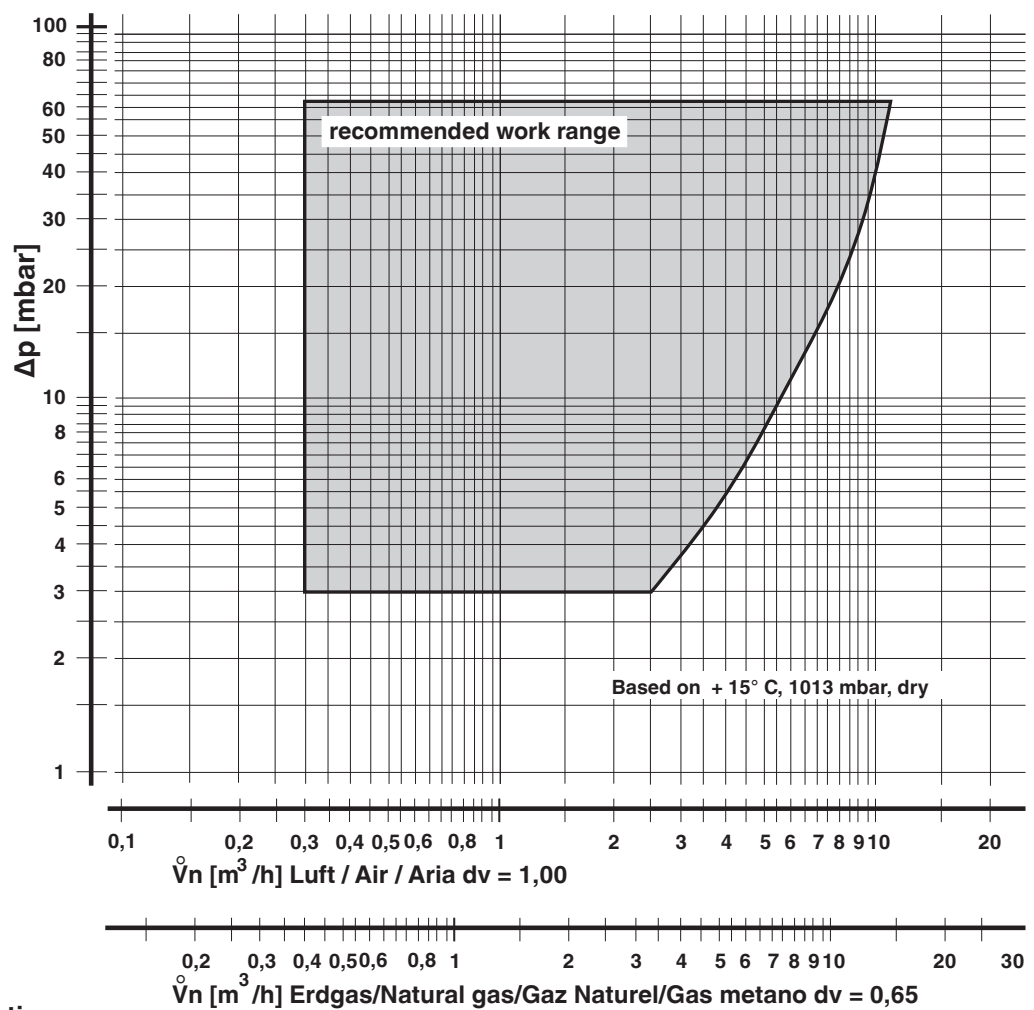
Swirl Plate GB-WND 055 D01

Integrated venturi
2. Signal amplifier

Spiral baffle plates
1. Signal amplifier



Volume flow pressure difference characteristic GB-WND 055 D01 - pneumatic to DIN EN 126



Permissible deviation
Pressure regulator class C

$p_2 \pm 10\%$ as per EN 126

WhirlWind
Combined fully integrated
gas/air control and safety system

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Specifications

Nominal diameter	DN 15
Gas connection	Rp 1/2 ISO 7/1 G 3/4 DIN ISO 228 OD
Flange with tube thread	Rp 1/2 ISO 7/1 ID G 3/4 DIN ISO 228 OD
Max. inlet pressure	65 mbar (6,5 kPa)
Nominal flow	7,2 m³/h (Air) at Δp 30 mbar (3,0 kPa), governed
Ambient temperature	-15 °C to +70 °C 0 °C to +70 °C at LPG
Automatic shut-off valves	Class B as per EN 126
Group	2
Pressure regulator	Class C
Proportional adjustment range V	$V = p_{\text{Gas}} / p_{\text{AIR}} = 0,45-1$
Minimum signal pressure	0,3 mbar (0,03 kPa) at $\Delta p_{\text{offset}} = 0$ Pa
Offset correction	$\pm 0,2$ mbar (0,02 kPa)
Degree of protection	IP 40
Opening time	Fast-opening < 1 s
Closing time	< 1 s
Switch on duration	100 % ED
Voltage/frequency	~(AC) 50 - 60 Hz 24 V +10 % - 15 % ~(AC) 50 - 60 Hz 230 V +10 % - 15 %
Load of coil (24 V, 230 V)	2 x 5,5 VA
Electrical connection	Molex System connection coil or Option: Connection box with integrated cable
Optional equipment	Electrical connections in Rast 5 Air pressure switch LGW...A1 or A2 Automatic burner control MPA 109x Gas pressure switch GW A5
Installation position	Solenoid at any position between ver- tical and horizontal axis.

We reserve the right to make any changes in the interest of technical progress.

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