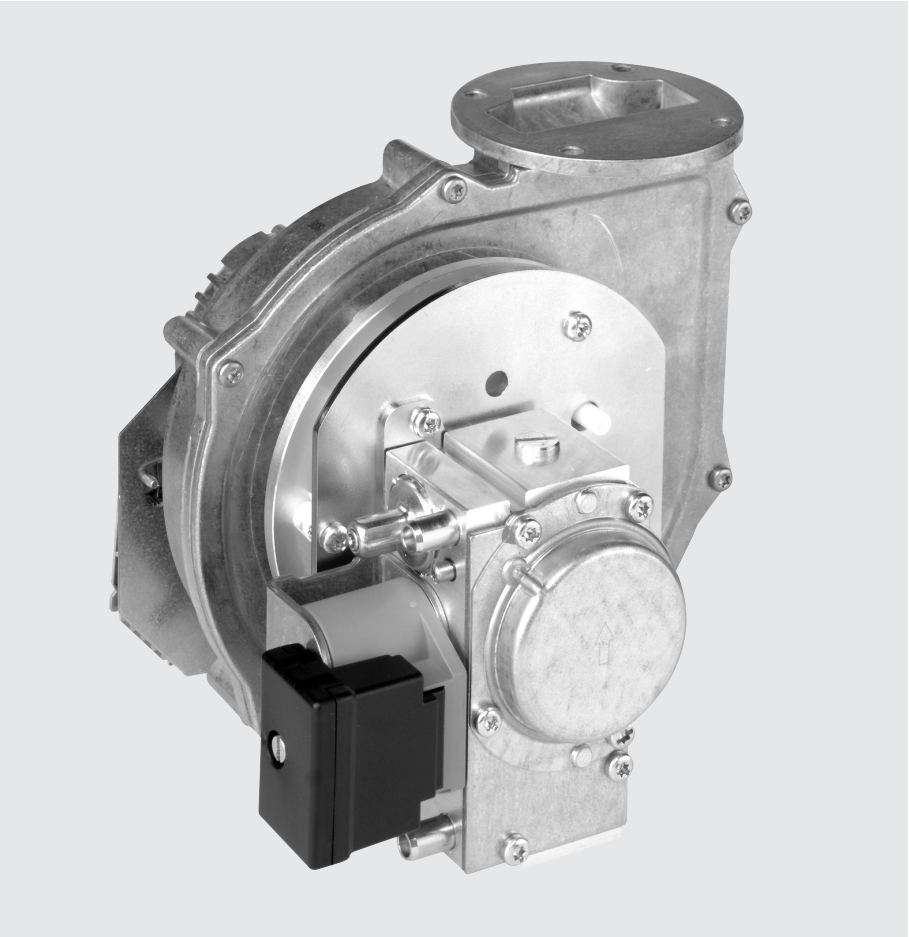
WhirlWind
Combined fully integrated gas/air control and safety system

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.

Printed in Germany • Edition 05.11 • Nr. 240 508

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

Type key of Gasbloc

GB- XXXXX XXX DXX SXX

Control of V1 and V2
0 = common
2 = separated

Outlet pressure **Inlet pressure**
0 = 0 mbar bis 65 mbar
2 = 1,5 - 20 mbar bis 65 mbar
4 = 3 - 40 mbar bis 65 mbar

S = Series (type-independent)

Gas train schematic diagram
1 = two class B solenoid valves with pressure regulator
2 = two class B solenoid valves without pressure regulator

Valve design
0 = Double valve
1 = Single valve, right angle
2 = Single valve, straight
Design type (generation) D

Construction size, nominal diameter
05 = $p_{max.}$ = 65 mbar

3 = Rp 1/4
5 = Rp 1/2
7 = Rp 3/4

Opening behaviour + main volume restrictor
without = fast-opening, fast-closing
-L = slow-opening
-E = adjustable start gas
-P = pilotgas connection
-G = Gas/Air ratio
-D = main flow setting
-N = Zero-Governor
-M = electrical modulating type
-W = Whirlwind version
-Z = two stage

GasBloc

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.

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

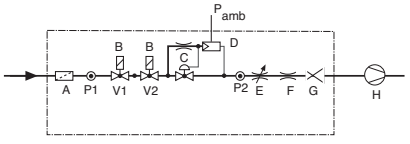
Represents the interface to the selected blower and ensure defined flow ratios at the inlet and design flexibility in the valve/blower arrangement.

Gas pressure switch Optional equipment

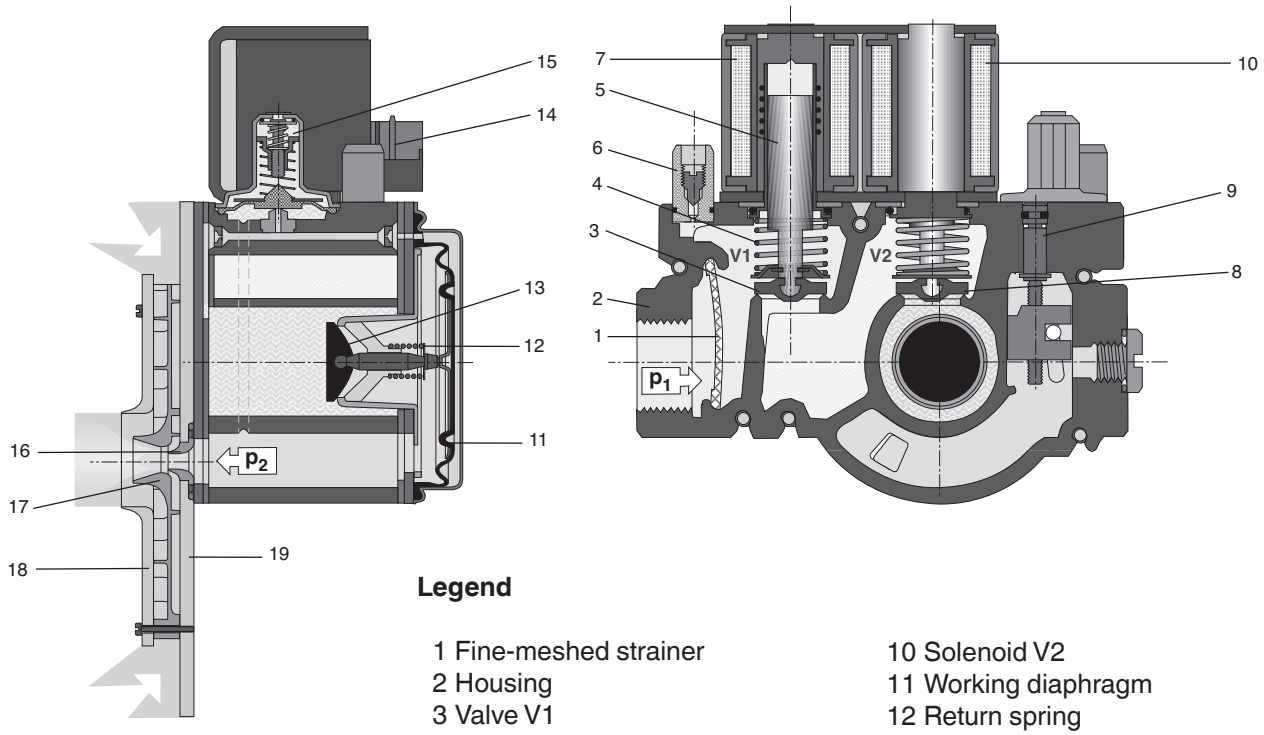
Monitors gas pressure on the inlet side for gas leakage protection. The pressure switch can be pre-adjusted and sealed to customer specifications.

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
p_1 Test nipple, inlet
p_2 Test nipple, outlet



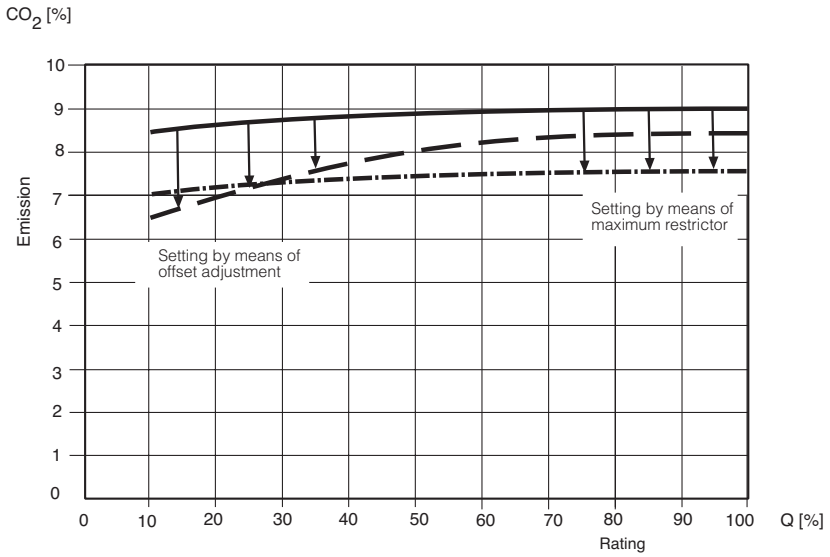
Functional diagram GB-WND 055 D01



Legend

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

Setting the CO_2 characteristic GB-WND 055 D01

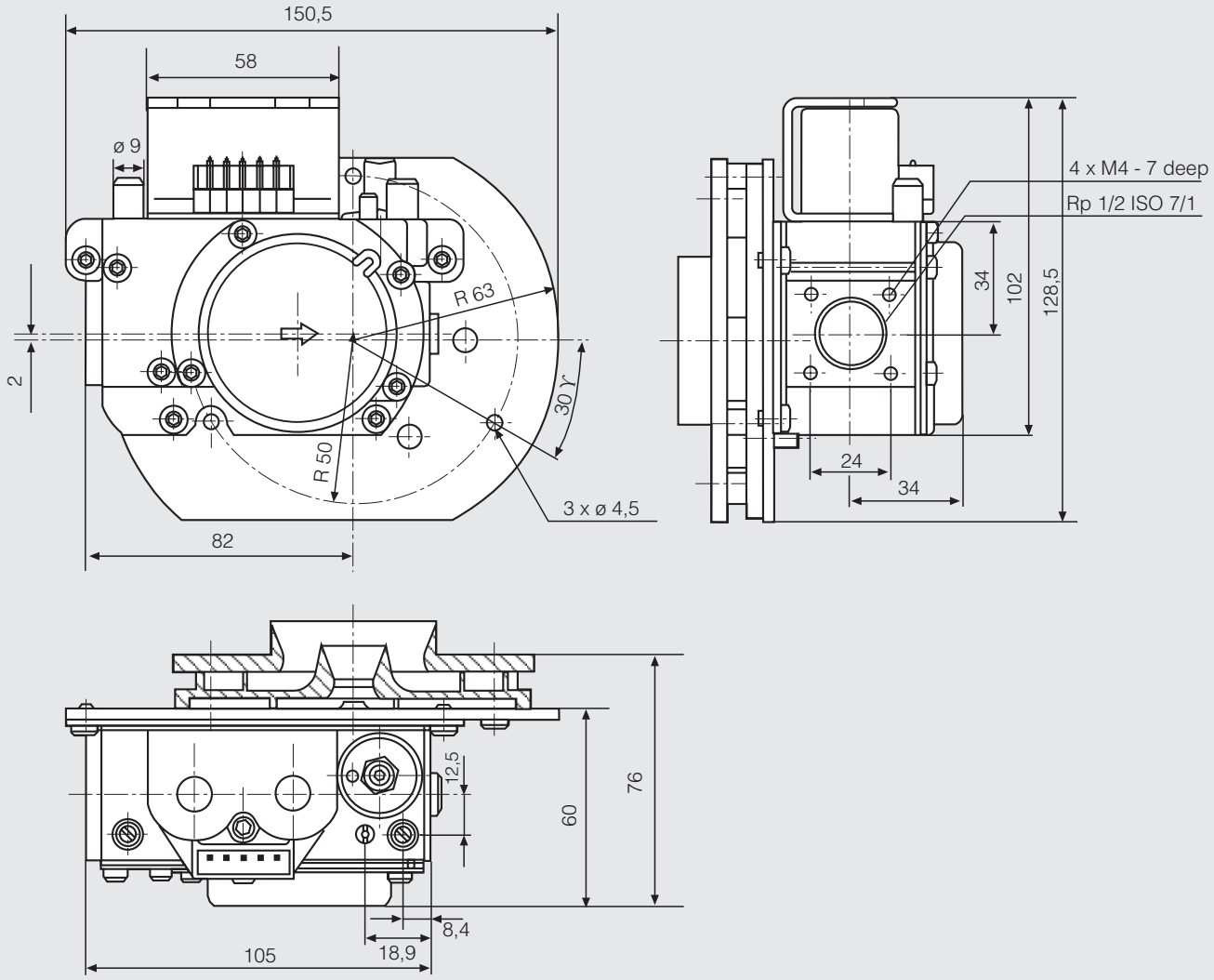


Adjustment instructions

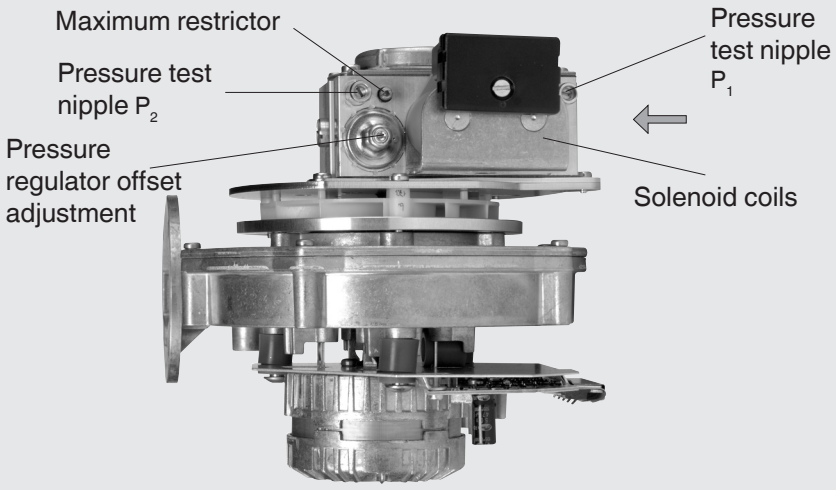
Rapid and simple adjustment by means of:

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

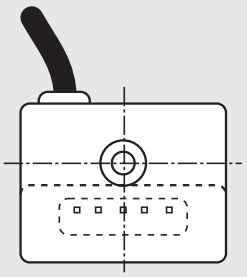
Dimensions [mm]



Adjusting devices

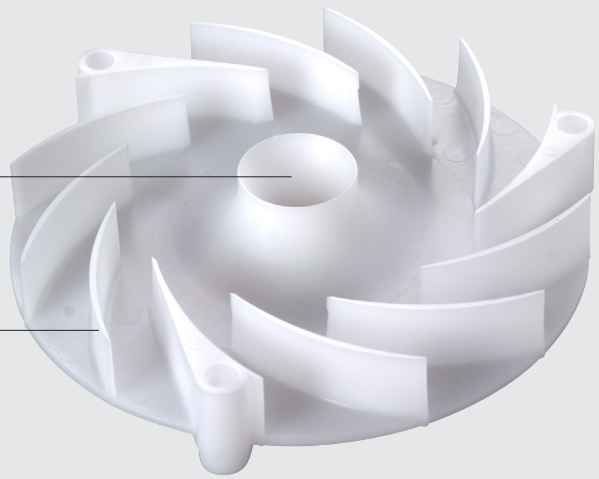


Electrical connection

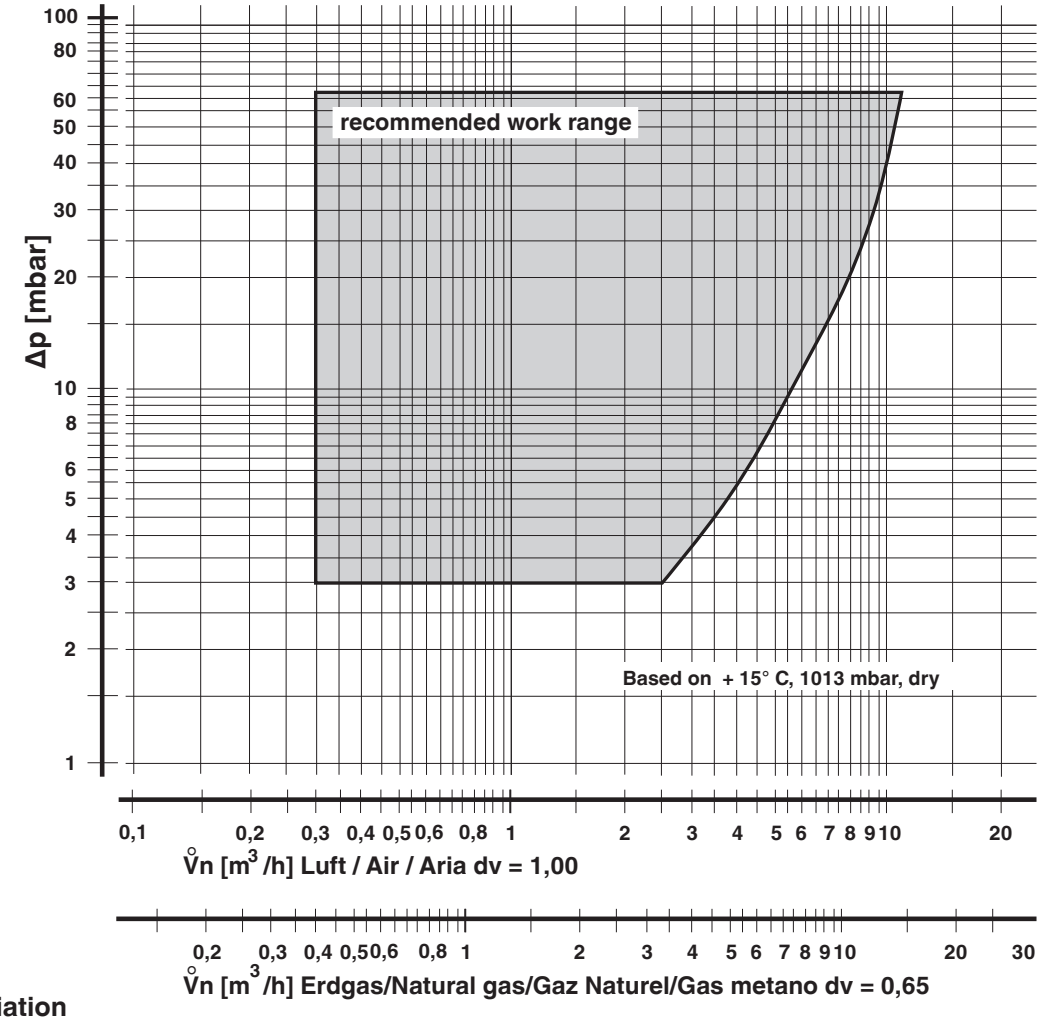


Standard
Box with cable connection IP 40
Molex Crimp System 3001

Swirl Plate GB-WND 055 D01



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



Permissible deviation
Pressure regulator class C

p_2 ±10 % as per EN 126

DUNGS®
Combustion Controls

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 m^3/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	$V = p_{Gas} / p_{AIR} = 0,45\text{-}1$	
Minimum signal pressure	0,3 mbar (0,03 kPa) at $\Delta p_{offset} = 0$ Pa	
Offset correction	± 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 vertical and horizontal axis.	

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

Head Offices and Factory
Karl Dungs GmbH & Co. KG
Siemensstraße 6-10
D-73660 Urbach, Germany
Telefon +49 (0)7181-804-0
Telefax +49 (0)7181-804-166

Postal adress
Karl Dungs GmbH & Co. KG
Postfach 12 29
D-73602 Schorndorf, Germany
e-mail info@dungs.com
Internet www.dungs.com