

MOTORIZED BUTTERFLY VALVES

MRBV SERIES

INTRODUCTION

The MRBV serie identifies a particular model of modulating butterfly valve suitable to the regulation of air flow in low pressure lines. A graduated index is applied on the valve, identifying the OPEN/CLOSED position of the butterfly valve.

APPLICATIONS

- Interception of air capacity for impulse controlled burners with flow regulation type ON/OFF or MIN/MAX.
- Air flow regulation in industrial processes.
- Models available from 2.1/2" up to 6" pipes.

FEATURES

Butterfly valve:

- | | |
|----------------------------|-------------------------|
| • Valve body: | aluminium/cast iron G25 |
| • Seat disc: | carbon steel |
| • Valve seat: | AISI303 |
| • Max. operating pressure: | 210 mbar |
| • Regulation screw: | brass |
| • Max. fluid temperature: | 200°C |
| • Leakage: | about 2% |

Two position MOD. ECON-VR modulating motor:

- | | |
|------------------------------------|--------------------------------|
| • Voltage: | 24/115/230Vac +10%-15% 50/60Hz |
| • Power consumption: | 4 VA |
| • No. 2 auxiliary micro switches*: | 5 A / 250 Vac |
| • No. 2 cable entries: | PG 13.5 |
| • 90° rotation time: | 7.5 sec |
| • Operating temperature range: | from -10°C to +50°C |
| • Housing: | die cast aluminium |
| • Manual command: | opening forced |
| • Mass: | 1.7 kg |
| • Mounting position: | any |
| • Motor fixing holes: | DIN ISO 5211 F07 |

* only on demand



INSTALLATION

Avoid the equipment installation near intense magnetic or electric fields, or its direct exposure to sources of heat, combustion products, corrosive liquids, solvents or gases.

ASSEMBLY

- Verify the line pressure is lower of the maximum working pressure allowed to the valve.
- Butterfly valves may be mounted in order to operate in any position.
- Check correct alignment of connecting pipes and allow enough space from other surfaces (i.e. walls) to allow free air circulation.
- Make sure no external body is entered into the valve during handling, if necessary blow it out with compressed air.
- Weld the flanges to the pipe tips, removing the residual exceeding



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- metals.
- Position the gasket and insert the bolts.
- Screw the nuts tightening them crosswise and using proper tools only.
- Avoid too strong clamping and assembly without residual stresses.

ELECTRICAL CONNECTIONS

Turn off power before connecting any part of the system, check the proper correspondance of voltage and frequency.

- Switch off power supply and remove the modulating motor's cover.
- When carrying out the electrical connection observing the polarity between the phase and neutral. The terminals for the electric connection are of the screw type and can accept conductors with a cross section 0.5 to 2.5mm²; the choice of the conductors and the positioning must be suitable for the application.

- Always make sure that the protection earth is connected to the appropriate terminals and to the metals casings of the motor connected with suitable conductors.
- Use cable glands that guarantee a minimum protection of IP40.
- Check the electrical connection cables doesn't interfere with internal gears.
- Screw on the lid of the cover, avoiding that some cables remain pressed between cover and main body.

REGULATIONS

The butterfly valve is normally closed (closed with power supply connected). The valve opens after receiving the "open" command (fully open).

Valve setting can be accomplished on two stages (MIN/MAX) by a manual switch (AUTO/MAN station). These operations has to be done only with power supply connected, without the remote command.

Remark: All regulation must be performed before burner ignition.

MINIMUM:

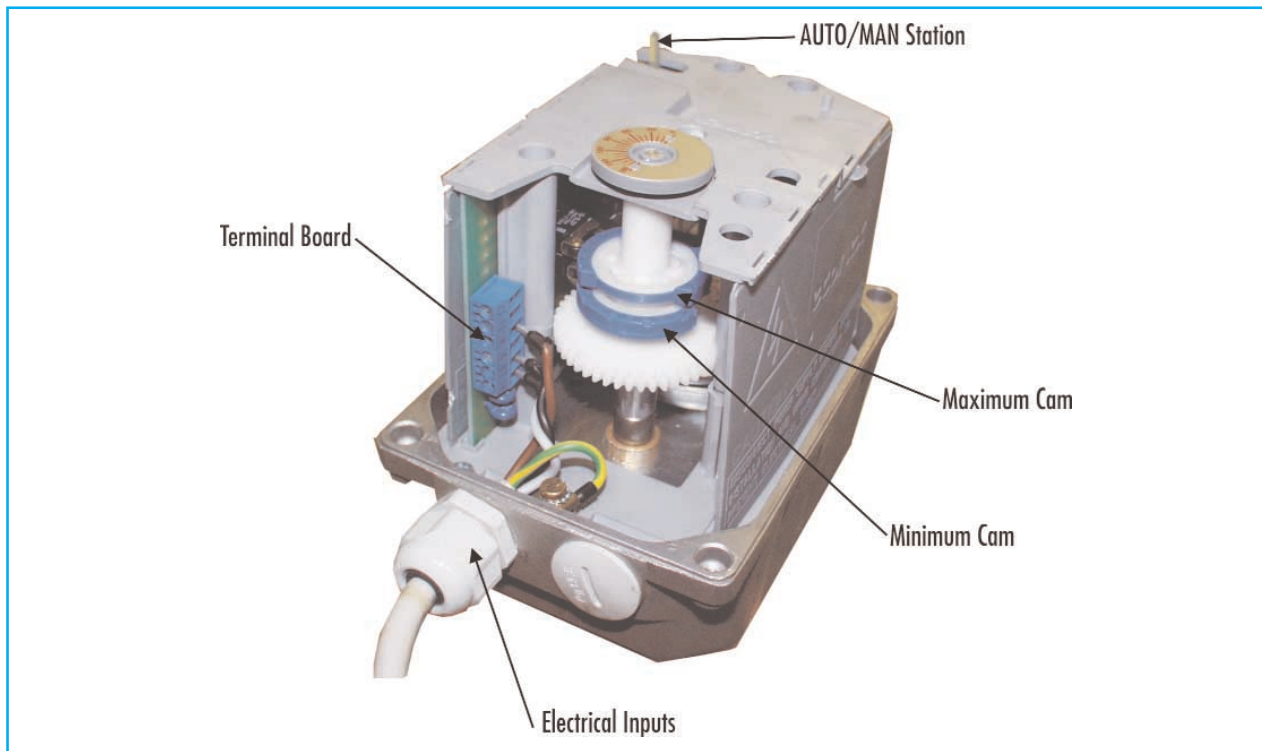
Remove the lock screw from the bottom of the valve stem. Adjust the seat opening on valve stem with the regulation screw (clockwise to reduce air flow). At the end of the setting procedure reassembly the lock screw.

MAXIMUM:

The limitation of the maximum flow rate can be done acting on the motor internal cam adjustment.

CAM ADJUSTMENT

For cam adjustment the proper lever supplied with the gear motor equipment has to be used. Use the lever from the right side, introducing the pin into one of the bores on the sides of the blue cam and lever it to the desired position. If the blue cam is in a behind position, use the lever on its curved side to move the blue cam to a more suitable position to perform adjustment. Adjustment is possible in both directions along the whole rotation angle of the cam shaft. Remove the lever before starting the motor operation.



MAINTENANCE

MODULATING MOTOR REPLACEMENT

Before to start with modulating motor replacement, make sure it is the cause of failure.

- Make sure an identical spare part is available
- Switch off power supply and remove the modulating motor box cover.
- Disconnect the wires from terminal board having numbered all connections.
- Remove the upper screws that connect the motor to the valve.
- Reassemble following the inverse sequence, verifying the proper position of the OPEN/CLOSED graduated index.

INTERNAL INSPECTION

External impurities can be easily removed from valve body.

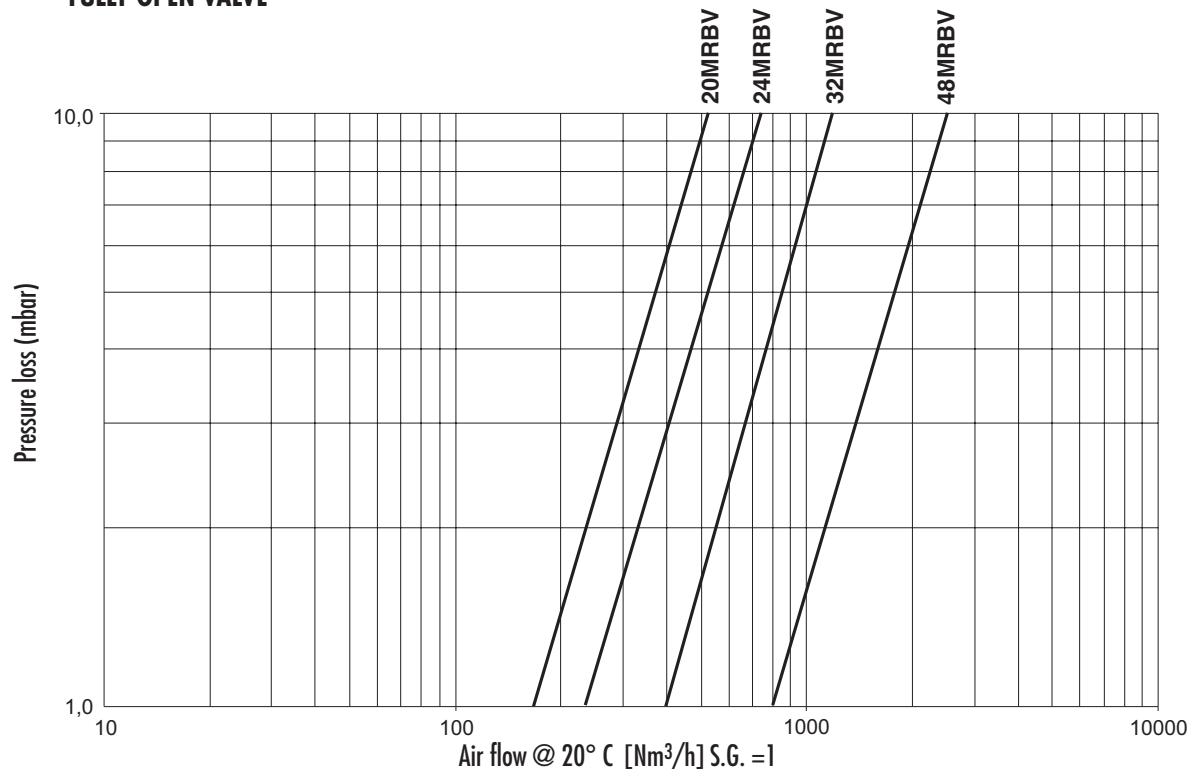
- Close ball valve upstream the system.
- Remove the screws that fix the valve in cross way.
- Clean the internal body valve with a clean cloth and compressed air.
- Clean the butterfly assembly with a clean cloth and compressed air.
- Clean the seat adjustable opening with a clean cloth. Do not use tools, because a lip damage could result.
- Verify the regulating screw can be screwed without friction, lubricate in case of need.

WARNING

- All works must be executed by qualified technicians only and in compliance with local and national codes.
- To prevent product damage and dangerous situations, read the Installation and Service Instructions carefully.
- Turn off all power before servicing any part of the modulating motor.
- Perform leak and functional tests after installation or maintenance. A gas leak detection spray may be used also.
- Test pressure should never exceed the maximum level allowed.

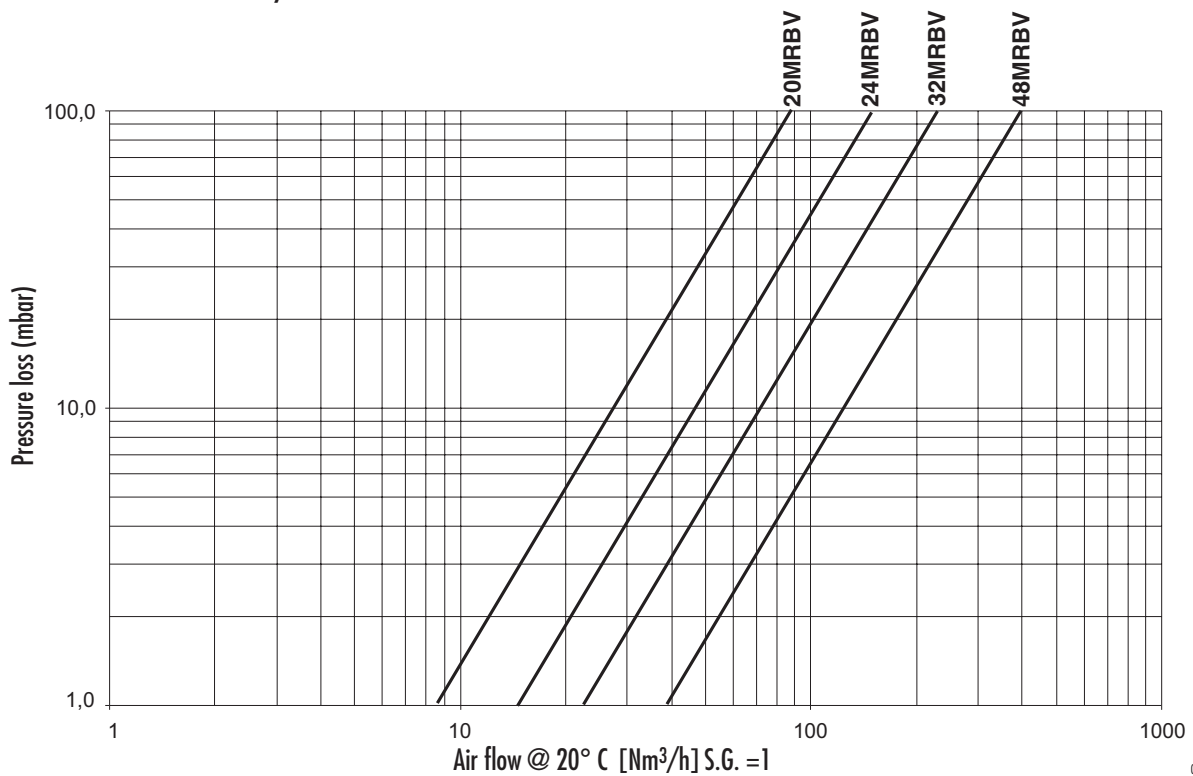
FLOW CHART

FULLY OPEN VALVE



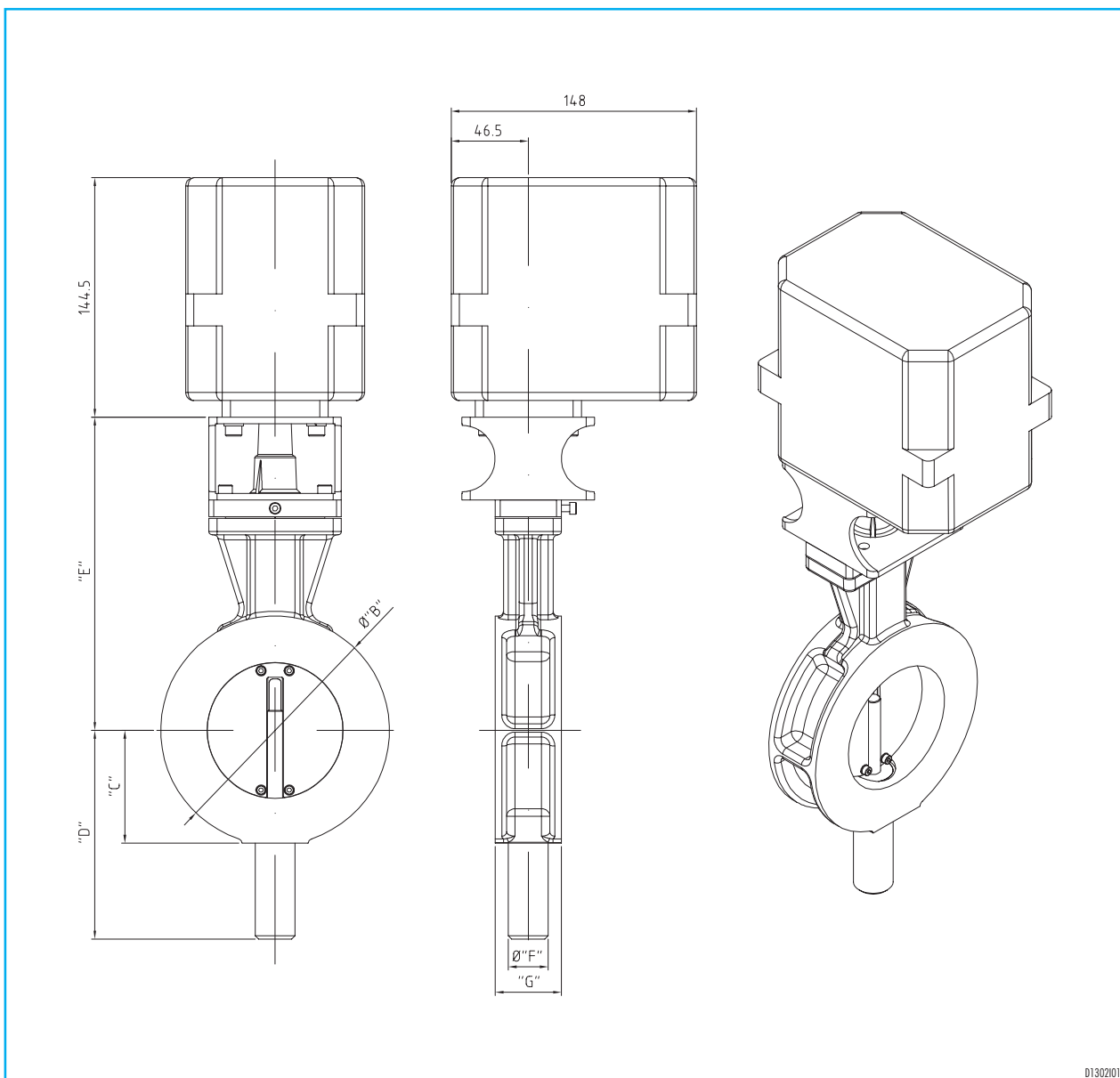
G130201

FULLY CLOSED VALVE / FULLY OPEN REG. SCREW



G130201

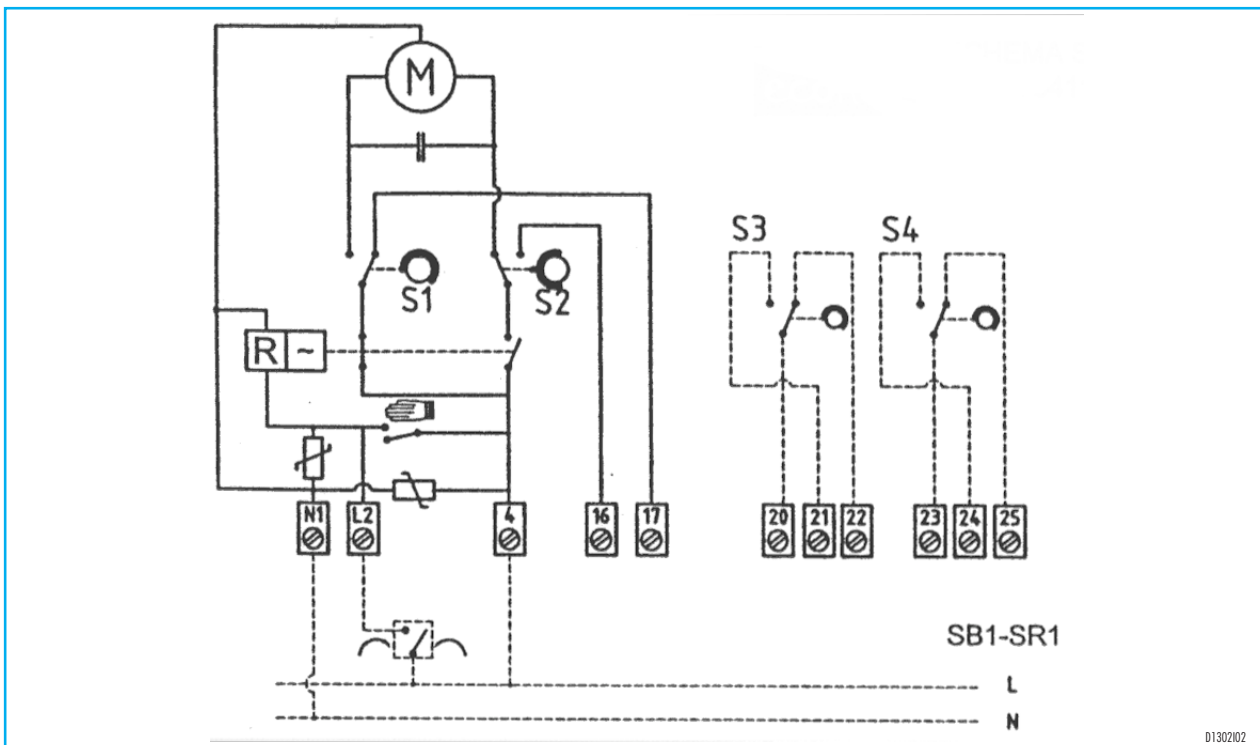
DIMENSIONS



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Model	DN	Ø "B" mm	"C" mm	"D" mm	"E" mm	Ø "F" mm	"G" mm	Mass kg
20MRBV	65	122	60	104	169	24	40	4.6
24MRBV	80	138	68	126	189	24	40	5.1
32MRBV	100	158	81	150	199	28	46	6.6
48MRBV	150	212	110	210	219	32	54	9.9

ELECTRICAL CONNECTIONS - MODULATING MOTOR ECON-VR



D130202

Pos.	Description	Pos.	Description
N1	Power supply neutral	4	Power supply phase
L2	Opening command signal	16	Fully open valve
3	Not connected	17	Fully closed valve

ORDERING CODE

MODEL	
20MRBV	20
24MRBV	24
32MRBV	32
48MRBV	48

- **MRBV** -

VOLTAGE	
24 Vac +10 -15%	24
115 Vac +10 -15%	115
230 Vac +10 -15%	230

NOTE: Based on the company's policy aimed at a continuous improvement on product quality, ESA-PYRONICS reserves the right to bring changes to the technical characteristics of this device without previous notice. Our catalog updated to the latest version is available on our web site www.esapyronics.com and it is possible to download modified documents

WARNING: Operating a combustion system can be dangerous and cause harm to persons or damage to equipment. Every burner must be provided with safety devices that monitors the combustion. The installation, adjustment and maintenance operations should only be performed by trained and qualified personnel.