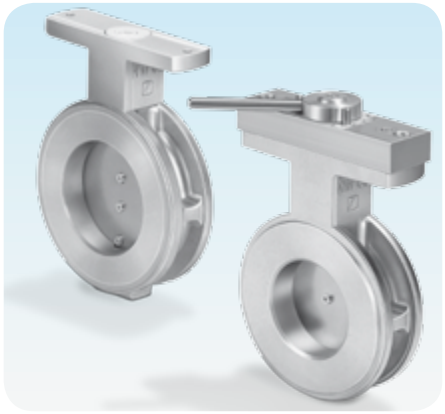
Butterfly valves BVG, BVGF, BVA, BVAF, BVH, BVHS, BVHM

Butterfly valves with actuator IBG, IBGF, IBA, IBAF, IBH, IBHS

Product brochure · GB
3 Edition 09.13

- For gas, air, hot air and flue gas
- Low leakage rate and pressure loss
- High control accuracy
- BVG, BVGF, BVA, BVAF, IBG, IBGF, IBA or IBAF with reduced nominal diameters
- Butterfly valves available with mounted actuator
- Suitable for intermittent operation
- BVGF, BVAF, IBGF, IBAF work clearance-free
- Low-maintenance operation
- EC type-tested and certified
- BVHM: FM approved
- Certified by Gosstandart under Technical Regulations

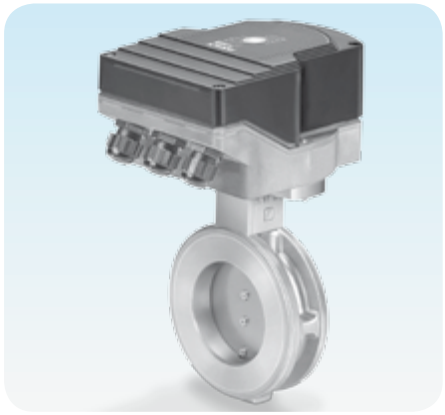
Application



BVG for gas, BVA for air. These butterfly valves can also be supplied with manual adjustment.

Butterfly valves BVGF and BVAF work clearance-free.

BVH, BVHM, BVHS for hot air and flue gas



Butterfly valve with actuator

The butterfly valves are designed to adjust volumes of gas, cold and hot air and flue gas on various appliances and flue gas lines. They are designed for control ratios up to 1:10, and with the mounted actuator IC 20 or IC 40 they are suitable for regulating flow rates for modulating or stage-controlled combustion processes.

BVG, BVA

Flow rates can be set and fixed using a butterfly valve with manual adjustment, for example to limit the high-fire rate on the burner. A scale indicates the set angle of opening.

Butterfly valves BVG, BVGF, BVA and BVAF with reduced nominal diameter (reduced by one or two nominal sizes) can be used to achieve higher control accuracy. This will mean that complex reducing fittings will no longer be required.

BVGF, BVAF

In case of change of direction, the butterfly valve adjusts to the setpoint without delay. The butterfly valve thus reaches the required position more quickly.

BVH

The butterfly valve BVH is used for processes that require the very precise adjustment of the flow rate or low leakage. In conjunction with the stop bar, the valve disc ensures very low leakage rates.

Using a spiral spring which compensates for the play in combination with the actuator IC 40, it is possible to move the valve disc to the required angle with almost zero hysteresis.

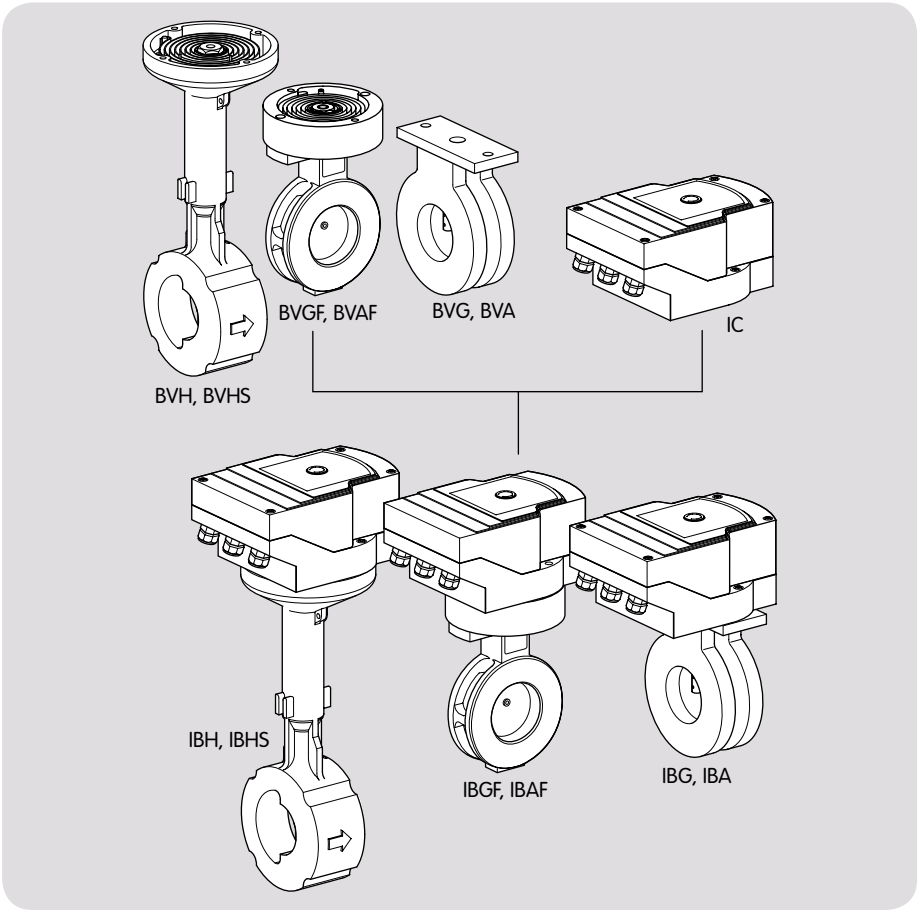
BVHS

The butterfly valve BVHS with safety closing function, is used with the actuator IC 40S in systems where it is important that in the event of a mains voltage failure the valve closes preventing air streaming into the furnace without being under control.

In order to maximize the service life of the butterfly valve, the safety closing function should be used only for the scheduled closing function and not for controlled shut-down or for intermittent switching of the burner.

BVHM

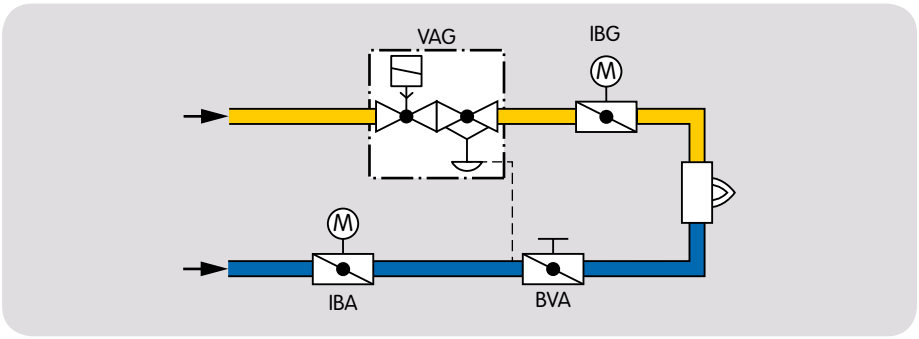
Well suited to intermittent operation due to the large number of operating cycles in conjunction with the solenoid actuator MB 7.



IBG, IBGF, IBA, IBAF, IBH, IBHS

Butterfly valves BVG, BVGF, BVA, BVAF, BVH or BVHS and actuator IC 20 or 40 can be delivered ready assembled as butterfly valves with actuator IBG, IBGF, IBA, IBAF, IBH or IBHS.

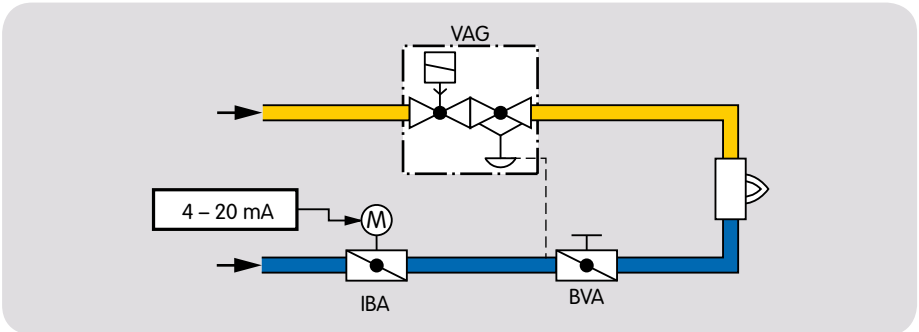
Example of applications



IBG, IBGF, lambda correction

If the burner is to be operated with excess gas or air for reasons of the process operation, the butterfly valve with actuator IBG can be used to correct the lambda value.

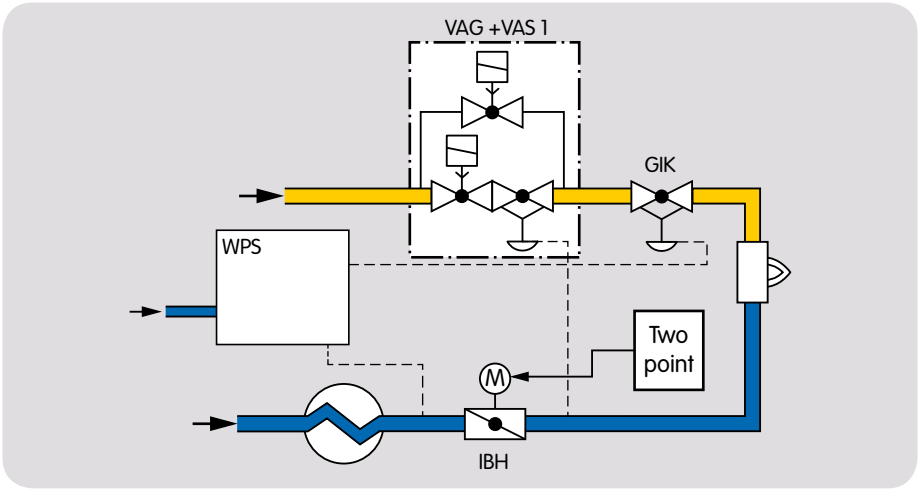
The butterfly valve BVA with manual adjustment is used to adjust the high-fire rate.



IBA, IBAF, adjusting the burner capacity

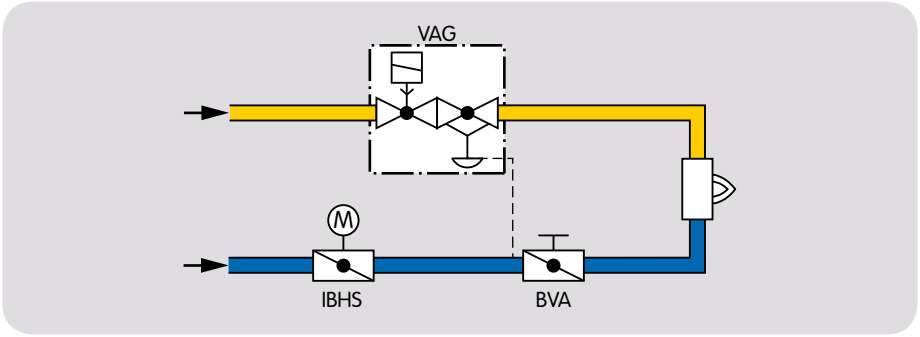
In pneumatic ratio control systems, the butterfly valve with mounted actuator IBA determines the air volume for the required burner capacity.

The butterfly valve BVA with manual adjustment is used to adjust the high-fire rate.



IBH, hot air compensation

The butterfly valve with actuator IBH is used on burners that are operated with preheated combustion air at temperatures of up to 450°C (840°F). Hot air compensation.

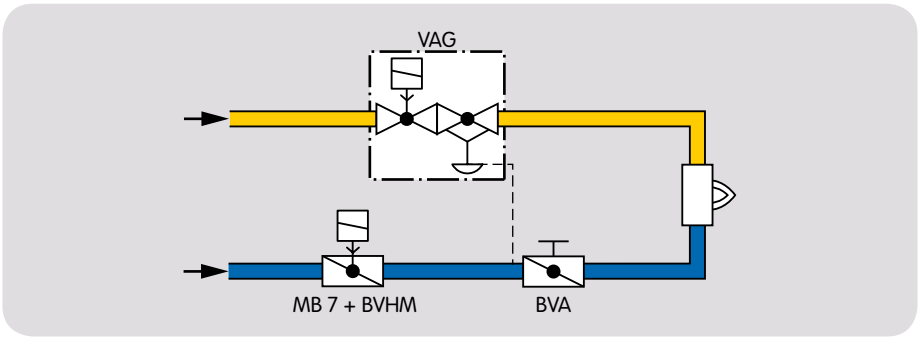


IBHS, safety closing function in the event of a mains voltage failure

The safety closing function ensures that in the event of a mains voltage failure air cannot stream into the furnace without being under control.

The butterfly valve with actuator IBHS is used in the air circuit.

The butterfly valve BVA with manual adjustment is used to adjust the high-fire rate.



BVHM, large number of operating cycles for intermittent operation

The butterfly valve BVHM features flow adjustment for low-fire and high-fire rate. The valve stop ensures low leakage rates. With fitted solenoid actuator MB 7, the valve is suitable for intermittent operation.

Type code

BVG, BVGF, BVA, BVAF, BVH, BVHS, BVHM

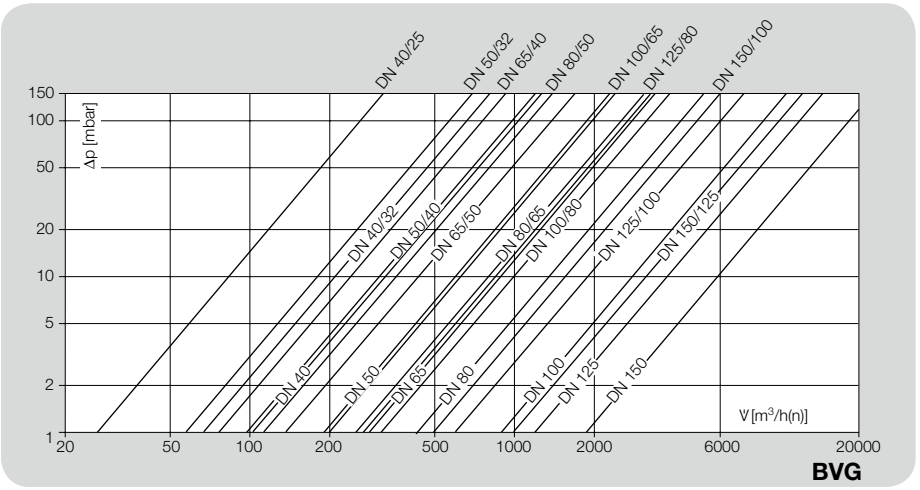
Code	Description
BVG	Butterfly valve for gas
BVGF	Clearance-free butterfly valve for gas
BVA	Butterfly valve for air
BVAF	Clearance-free butterfly valve for air
BVH	Butterfly valve for hot air and flue gas up to 450°C
BVHS	Butterfly valve for hot air and flue gas up to 450°C with safety closing function (only in conjunction with actuator IC 40S)
BVHM	Butterfly valve for hot air and flue gas up to 450°C (only in conjunction with solenoid actuator MB 7)
DN 40 – 150	Nominal size DN
DN /25 – 125	Reduced to nominal size DN
Z	For fitting between two flanges to EN 1092
W	For fitting between two ANSI flanges
	Max. inlet pressure $p_{u\ max.}$:
01	150 mbar (2.18 psig)
05	500 mbar (7.25 psig)
H	With manual adjustment
F	With free shaft end
V	With square shaft
A	With stop bar

IBG, IBGF, IBA, IBAF, IBH, IBHS

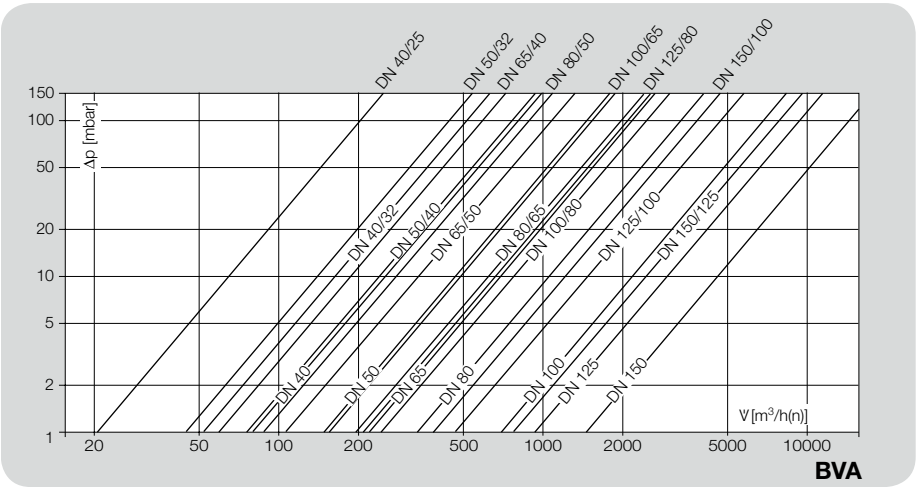
Code	Description
IBG	Butterfly valve for gas with actuator
IBGF	Clearance-free butterfly valve for gas with actuator
IBA	Butterfly valve for air with actuator
IBAF	Clearance-free butterfly valve for air with actuator
IBH	Butterfly valve for hot air and flue gas up to 450°C with actuator
IBHS	Butterfly valve for hot air and flue gas up to 450°C with safety closing function in conjunction with actuator IC 40S
40 – 150	Nominal size DN
/25 – 125	Reduced to nominal size DN
Z	For fitting between two flanges to EN 1092
W	For fitting between two ANSI flanges
01	Max. inlet pressure $p_{u\ max.}$: 150 mbar (2.18 psig)
05	500 mbar (7.25 psig)
A	With stop bar
/20	Actuator IC 20
/40	Actuator IC 40
-07	Running time (at 50 Hz): 7.5 s
-15	15 s
-30	30 s
-60	60 s
W	Mains voltage: 230 V AC, -15/+10%, 50/60 Hz
Q	120 V AC, -15/+10%, 50/60 Hz
A	120 – 230 V AC, ±10%, 50/60 Hz
2	Torque: 2.5 Nm
3	3 Nm
E	Continuous control
T	Three-point step control
A	4 – 20 mA analogue input and digital inputs
D	Digital inputs
R10	0 – 1000 Ω feedback potentiometer

Flow rate

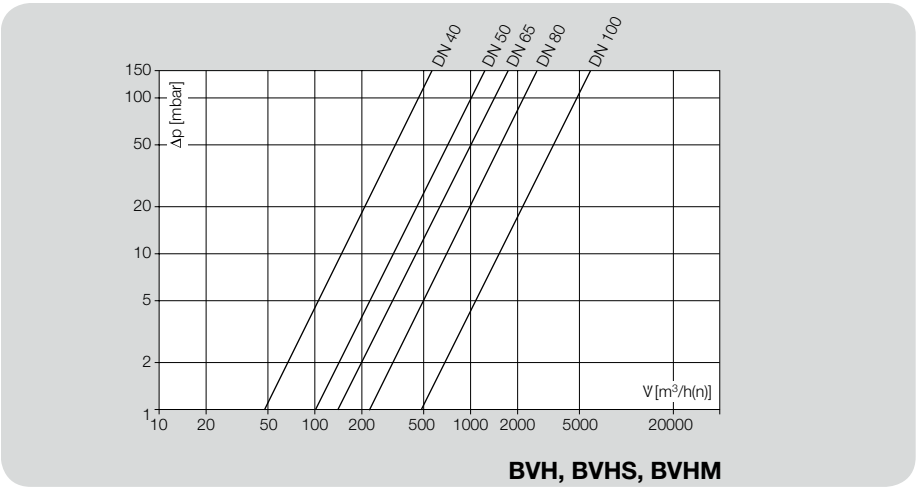
Butterfly valves for gas BVG, BVGF



Butterfly valves for air BVA, BVAF



Butterfly valves for air and flue gas BVH, BVHS



Technical data

BVG, BVGF, BVA, BVAF

Gas type:

BVG, BVGF: natural gas, town gas, LPG and other non-aggressive fuel gases.

BVGF: biologically produced methane (max. 0.1 %-by-vol. H_2S).

BVA, BVAF: air.

The gas must be dry in all conditions and must not contain condensate.

Housing material: AlSi,
valve disc: aluminium,
drive shaft: stainless steel,
seals: HNBR.

DN: 40 to 150,
reduction by 2 nominal sizes is possible.

Inlet pressure p_u: max. 500 mbar (7.25 psi).

Medium temperature: -20 to +60°C (-4 to +140°F),
ambient temperature: -20 to +60°C (-4 to +140°F).

BVH, BVHM, BVHS

Gas type: air and flue gas.

DN: 40 to 100.

Housing material: GGG,
valve disc: stainless steel,
drive shaft: stainless steel.

Inlet pressure p_u: max. 150 mbar (2.16 psi).
Pressure differential between inlet pressure p_u and outlet pressure p_d: max. 150 mbar (2.16 psi).

Medium temperature: -20 to +450°C (-4 to +840°F),
ambient temperature:
-20 to +60°C (-4 to +140°F).

IC 20, IC 20..E

Mains voltage:
120 V AC, -15/+10%, 50/60 Hz,
230 V AC, -15/+10%, 50/60 Hz.

Screw terminals using the elevator principles for cables up to 4 mm² (single core cables) and for cables up to 2.5 mm² with wire end ferrules.

Angle of rotation: 0 – 90°, adjustable.

Holding torque = torque.

Control by three-point step signal to terminals 1 and 2:
minimum pulse duration: 100 ms,
minimum pause between 2 pulses:
100 ms.

Switching capacity of the position switches:

Voltage	Resistive load	Incandescent lamp load	Inductive load
125 V AC	2 A	0.5 A	2 A
250 V AC	2 A	0.5 A	2 A
< 30 V DC	2 A	2 A	2 A
< 50 V DC	1 A	0.4 A	1 A
< 75 V DC	0.75 A	0.3 A	0.75 A
< 125 V DC	0.5 A	0.2 A	0.03 A
< 250 V DC	0.25 A	0.1 A	0.03 A
12 – 30 V AC/DC	10 – 100 mA	–	10 – 100 mA

Enclosure: IP 65 pursuant to IEC 529.

Safety class: I pursuant to EN 60335.

Line entrance for electrical connection:
3 × M20 plastic cable glands.

Ambient temperature: -20 to +60°C, no condensation permitted.

IC 20

Power consumption:
4.9 VA at 50 Hz, 5.8 VA at 60 Hz.

IC 20..E

Power consumption:
terminals 1, 2 and 5:
4.9 VA at 50 Hz, 5.8 VA at 60 Hz,
terminal 3:
8.4 VA at 50 Hz, 9.5 VA at 60 Hz,
in total not exceeding:
8.4 VA at 50 Hz, 9.5 VA at 60 Hz.

Position feedback output:
4 – 20 mA, electrically isolated, max. 500 Ω load impedance.
The output is always active when supply voltage is applied to terminals 3 and 4.

Input:
electrically isolated,
0 (4) – 20 mA: load impedance switchable between 50 Ω and 250 Ω,
0 – 10 V: 100 kΩ input resistance.

IC 40

Mains voltage:
IC 40: 100 – 230 V AC, ±10%, 50/60 Hz; the actuator automatically adjusts to the respective mains voltage.

Power consumption: 8.4 W,
switch-on peak current: max. 8 A for max. 10 ms.

Screw terminals using the elevator principles for cables up to 4 mm² (single core cables) and for cables up to 2.5 mm² with wire end ferrules.

Angle of rotation: 0 – 90°.

Holding torque = torque as long as permanent supply voltage is applied.

2 digital inputs:
IC 40: 24 V DC or 100 – 230 V AC each.
Current requirement of digital inputs: 3 mA ± 1.5 mA.

1 analogue input (optional): 4 – 20 mA (internal load impedance: max. 500 Ω at 20 mA).

Potentiometer (optional):
1000 Ω +/- 20%,
linearity tolerance +/- 2%,
max. capacity 0.25 W,
conductive plastic element.

Important: tap wiper at high resistance.

2 digital outputs:
Signalling contacts designed as relay change-over contacts. Contact current of digital outputs: min. 5 mA (resistive) and max. 2 A.

The relay contacts can be connected to 100 – 230 V AC or 24 V DC. If the contacts have been connected with a voltage > 24 V and a current > 0.1 A once, the gold plating on the contacts will have been burnt through. This contact can then only be connected with this power rating or higher power rating.

2 LED status displays:

– Blue LED for operation "ON";
  drive in motion = slow flashing light;
  manual operation = fast flashing light;
  drive stopped = permanent light.
– Red LED for warnings and faults;
  warning = permanent light;
  fault = flashing light.
– Red and blue LED simultaneously,
  calibration in progress = flashing light.

Enclosure: IP 65 pursuant to IEC 529.

Safety class: I pursuant to EN 60335.

Line entrance for electrical connection:
3 × M20 plastic cable glands.

Ambient temperature: -20 to +60°C,
no condensation permitted.

Maintenance cycles

Butterfly valves BVG, BVGF, BVA, BVAF, BVH, BVHM, BVHS

The butterfly valves BVG, BVGF, BVA, BVAF, BVH, BVHM and BVHS require little maintenance.

We recommend a function check once a year.

BVG, BVGF: check for external tightness once a year.

BVGF: if operated with biologically produced methane, a tightness test and function check must be carried out every six months.

Actuators IC 20, IC 40

The actuators IC 20, IC 40 suffer little wear and require little servicing.

We recommend a function check once a year.

IC 40

A service note is issued after
3 million cycles (0 – 90 – 0°/0 – 100 – 0%),
3 million relay switching operations,
5 million changes of direction.

Detailed information on this product

http://docuthek.kromschroeder.com/doclib/main.php?language=1&folderid=203100&by_class=6

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