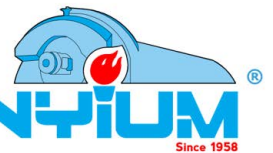


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**Components for Safeguarding,  
Measuring, and Controlling Gases**



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# Honeywell Krömschröder Controls

## Innovation that pays

Safety, lower energy consumption, and active environmental protection are issues of the utmost importance.

### Safety

Honeywell Kromschröder gas control and safety systems not only make gas installations safe, they provide operating personnel with optimum protection. SIL and PL certification ensure that Honeywell Kromschröder products provide the required level of safety for the installation.

### Optimum Value

Honeywell Kromschröder offers technically optimized controls for applications in the heat processing industry providing optimum value. Honeywell Kromschröder products and systems are based on modular platforms, which allows for both logistical and functional flexibility.

High system availability is the prerequisite for cost-effective operation. The design and robust construction of the Honeywell Kromschröder controls ensures a long service life of your installation.

### Safety Solutions

When upgrading or expanding existing systems, the modular design of Honeywell Kromschröder products proves to be an advantage since it means that individual system components can be easily retrofitted or replaced. High quality in heat processes are achieved with adapted systems designed by industry control leaders in the Honeywell Engineered Systems Group. The combustion system can be tailored to the specific requirements of the process, enhancing the performance and longevity of the equipment.



# Industrial Applications

Ceramics

Metals

Heat Treating

Automotive

Food and Beverage

Glass

# Protective Systems Control

## FCU 500

Dedicated safety-rated device for controlling and monitoring the combustion system safety devices.

The FCU is designed to monitor and control the central safety functions of the combustion system including safety temperature and multi-burner control.



### Features

- Optional valve proving system/POC input
- Optional auto-ignition or high/over temperature protection control
- Front panel PC interface for programming diagnostics, and data logging
- Optional remote display for external panel mounting
- Replaceable load power module for safety outputs
- Safety functions up to SIL 3, corresponding to PL e
- Profinet Fieldbus connection through optional module

### Specifications

- Input power: 120, 220V AC
- Control power: 24V DC
- Ambient temperature: -4°F to 140°F (-20°C to 60°C).
- Enclosure: IP 20
- Thermocouple input type: K, N, S

### Applications

Multi-burner applications where the combustion safeties are monitored and controlled in a single location.

### Approvals

- SIL, Ple
- CE
- CSA
- FM
- GOST-R

### Model Selection

Code	Code Description
FCU 500	Protective system control series 500
Mains voltage:	
Q	120 V AC, 50/60 Hz
W	230 V AC, 50/60 Hz
Valve proving or POC:	
C0	without
C1	with valve proving or POC
Capacity control:	
F0	without
F1	modulating with interface for actuator IC
F2	modulating with interface for RBW
Temperature monitoring:	
H0	without
H1	with temperature monitoring
Connection terminals:	
K0	without
K1	screw terminals
K2	spring force terminals

FCU	Mains Voltage		Valve Proving		Capacity Control			Temp Monitor		Terminals		
	Q	W	C0	C1	F0	F1	F2	H0	H1	K0	K1	K2
500	●	●	●	○	●	○	○	●	○	○	●	○

● - Standard selection

○ - Optional selection

— - Selection not available

# Burner Control Units

## BCU 570

Burner control providing complete safety control and annunciation in single burner installations.



The BCU 570 burner control unit controls, ignites and monitors directly or pilot-ignited forced draft burners.

### Features

- Monitors: low gas, high gas, low air pressure, and air flow switches
- Pre-purge/post-purge fan and air valve control
- Optional Valve Proving System/POC input
- Optional remote display for external panel mounting
- PROFINET fieldbus connection using optional bus module
- Integrated front panel display indicates fault and operating status
- Manual-mode operation for initial burner set-up
- Front Panel PC interface for programming diagnostics, and data logging

### Specifications

- Input power: 120, 220V AC
- Valve output: 1A each
- Ambient temperature: -4°F to 140°F (-20°C to 60°C).
- Enclosure: IP 20

### Applications

Single packaged burner applications where the burner control is located locally to the burner.

### Approvals

- SIL, PLe
- CE
- UL
- CSA
- FM
- EAC

### Model Selection

Code	Description
BCU	Burner control unit
Model	
560	Standard
565	With extended air control
570	Single Burner Control
580	For Pilot and Main Burner
Market / Standards	
E	EMEA
T	NAFTA
Mains voltage	
P	100V 50/60Hz
Q	120V 50/60Hz
Y	200V 50/60Hz
W	230V 50/60Hz
Valve proving system	
C0	Without
C1	valve proving or POC
Capacity control	
F0	without
F1	Three point step actuator, IC20 or IC40
F2	RBW-actuator or Frequency converter
F3	Air Valve Control- Digital
Flame amplifier	
U0	Ionization or UV-monitoring for Gas
Flame control bypass	
D0	without flame control bypass
D1	with Auto-Ignition Bypass
D2	Operation with Menox burner
Connection Terminals	
K0	without - for replacement
K1	Screw terminals
K2	Spring force terminal

BCU	Standard		Mains Voltage				Valve Proving		Capacity Control				Flame Amp	Auto Ig, Bypass			Wiring		
	E	T	P	Q	Y	W	C0	C1	F0	F1	F2	F3	U0	D0	D1	D2	K0	K1	K2
570	●	●	○	●	○	●	●	○	—	●	○	—	●	—	—	—	○	●	○

● - Standard selection

○ - Optional selection

— - Selection not available

# Burner Control Units

## BCU 560/565

Burner control for monitoring, control and annunciation of a burner multi-burner installations



The BCU 560 & 565 burner control units controls, ignites and monitors industrial gas burners in modulating or staged control.

### Features

- Multi-flame control in conjunction with flame switch IFW 15
- Optional air valve control
- Optional air flow monitoring for tube-firing burners
- Optional valve proving system/POC input
- PROFINET fieldbus connection using optional bus module
- Optional remote display for external panel mounting
- Integrated front panel display indicates operating and fault status and provides ease of set-up with manual-mode
- Front panel PC interface for programming, diagnostics, and data logging

### Specifications

- Input power: 120, 220V AC
- Control power: 24V DC
- Valve output: 1A each
- Ambient temperature: -4°F to 140°F (-20°C to 60°C).
- Enclosure: IP 20

### Applications

Multi-burner applications where the burner control is located centrally in a control panel. Designed to incorporate control of the air valve in pulse-fire applications.

### Approvals

- SIL, PLe
- CE
- CSA
- FM
- GOST-R

### Model Selection

Code	Description
BCU	Burner control unit
	Model
560	Standard
565	With extended air control
570	Single Burner Control
580	For Pilot and Main Burner
	Market / Standards
E	EMEA
T	NAFTA
	Mains voltage
P	100V 50/60Hz
Q	120V 50/60Hz
Y	200V 50/60Hz
W	230V 50/60Hz
	Valve proving system
C0	Without
C1	valve proving or POC
	Capacity control
F0	without
F1	Three point step actuator, IC20 or IC40
F2	RBW-actuator or Frequency converter
F3	Air Valve Control- Digital
	Flame amplifier
U0	Ionization or UV-monitoring for Gas
	Flame control bypass
D0	without flame control bypass
D1	with Auto-Ignition Bypass
D2	Operation with Menox burner
	Connection Terminals
K0	without - for replacement
K1	Screw terminals
K2	Spring force terminal

BCU	Standard		Mains Voltage				Valve Proving		Capacity Control				Flame Amp	Auto Ig, Bypass			Wiring			
	E	T	P	Q	Y	W	C0	C1	F0	F1	F2	F3	U0	D0	D1	D2	K0	K1	K2	
560	●	●	○	●	○	●	●	○	●	○	○	○	●	●	○	○	○	○	●	○
565	●	●	○	●	○	●	●	○	●	○	○	○	●	●	○	○	○	○	●	○

● - Standard selection

○ - Optional selection

— - Selection not available



# Burner Control Units

## BCU 370

Burner control designed in an enclosure suitable for mounting at the burner while providing complete safety control and annunciation of package-type burners



The BCU 370 burner control unit controls, ignites and monitors directly or pilot-ignited forced draft package burners.

### Features

- Monitors: low gas, high gas, and low air pressure switches
- Pre-purge/post-purge fan and air valve control
- Optional integrated ignition transformer
- Optional PROFIBUS communications
- Integrated front panel display indicates fault and operating status
- Manual-mode operation for initial burner set-up
- Front Panel PC interface for programming diagnostics, and data logging

### Specifications

- Input power: 120, 220V AC
- Max gas valve output: 2.5A
- Flame sensor: ionization or UV
- Maximum sensor cable length: 164ft (50m)
- Ambient temperature: -4°F to 140°F (-20°C to 60°C)
- Enclosure: IP 54

### Applications

Single packaged burner applications where the burner control is located locally to the burner.

### Approvals

- CE
- CSA
- FM
- UL

### Model Selection

Code	Description
BCU	Burner control unit
370	Single Burner Control
<b>Market / Standards</b>	
-	Omit for EU
T	FM, CSA, UL <sup>1</sup>
<b>Mains voltage</b>	
Q	120V 50/60Hz
W	230V 50/60Hz
<b>Ignition Transformer</b>	
-	without - omit
I1	Electronic Ignition, Single Pole
I2	Electronic Ignition, Double Pole
I3	Electronic Ignition, Double Pole w/ neutral Conductor
<b>Fan Control</b>	
F	Fan control output
<b>Valve Control</b>	
E	Air valve control
<b>Flame Rectification</b>	
U0	with Flamerod or UVS 10
U1	With UVD 1
<b>Gas<sub>max</sub> Function</b>	
D1	DGmax monitoring
D3	Prepared for valve proving
<b>PROFIBUS Interface</b>	
-	without - omit
B1	PROFIBUS DP connection
<b>Control via Fieldbus</b>	
-	without - omit
-3	3-point step control via Profibus-DP

<sup>1</sup> - without ignition transformer only

BCU	Standard		Mains Voltage		Ignition Transformer			Fan Control	Valve Control	Flame Amp	Gas <sub>max</sub> Function		Comm		Control via Bus			
	-	T	Q	W	-	I1	I2	I3	F	E	U0	U1	D1	D3	-	B1	-	3
370	●	●	●	●	●	○	○	○	●	●	●	○	-	-	●	○	●	○

● - Standard selection

○ - Optional selection

- - Selection not available

# Burner Control Units

## BCU 580

Burner control for monitoring the pilot and main flames of industrial burners with two separate sensor inputs



The BCU 580 burner control unit controls, ignites and monitors directly or pilot ignited industrial gas burners in modulating or staged control.

### Features

- Separate pilot and main burner sensor inputs
- Optional air valve control
- Optional valve proving system/POC input
- PROFINET fieldbus connection using optional bus module
- Optional remote display for external panel mounting
- Integrated front panel display indicates operating and fault status and provides ease of set-up with manual-mode
- Front panel PC interface for programming, diagnostics, and data logging

### Specifications

- Input power: 120, 220V AC
- Control power: 24V DC
- Valve output: 1A each
- Ambient temperature: -4°F to 140°F (-20°C to 60°C).
- Enclosure: IP 20

### Applications

Multi-burner applications where the burner control is located centrally in a control enclosure. Primarily designed for Pulse-Fire control applications where the burner is ignited by an interrupted or intermittent pilot.

### Approvals

- SIL, PLe
- CE
- CSA
- FM
- EAC
- GOST-R

### Model Selection

Code	Description
BCU	Burner control unit
<b>Model</b>	
560	Standard
565	With extended air control
570	Single Burner Control
580	For Pilot and Main Burner
<b>Market / Standards</b>	
E	EMEA
T	NAFTA
<b>Mains voltage</b>	
P	100V 50/60Hz
Q	120V 50/60Hz
Y	200V 50/60Hz
W	230V 50/60Hz
<b>Valve proving system</b>	
C0	Without
C1	valve proving or POC
<b>Capacity control</b>	
F0	without
F1	Three point step actuator, IC20 or IC40
F2	RBW-actuator or Frequency converter
F3	Air Valve Control- Digital
<b>Flame amplifier</b>	
U0	Ionization or UV-monitoring for Gas
<b>Flame control bypass</b>	
D0	without flame control bypass
D1	with Auto-Ignition Bypass
D2	Operation with Menox burner
<b>Connection Terminals</b>	
K0	without - for replacement
K1	Screw terminals
K2	Spring force terminal

BCU	Standard		Mains Voltage				Valve Proving		Capacity Control				Flame A	Auto Ig. Bypass				Wiring			
	E	T	P	Q	Y	W	C0	C1	F0	F1	F2	F3	U0	D0	D1	D2	K0	K1	K2		
580	●	●	○	●	○	●	●	○	●	○	○	○	○	●	●	○	○	○	○	●	○

● - Standard selection

○ - Optional selection

— - Selection not available

# Burner Control Units

## BCU 460/465

Burner control for monitoring and controlling an industrial burner which is housed in an alloy enclosure, suitable for mounting at each burner in multi-burner installations



The BCU 460 & 465 burner control units controls, ignites and monitors directly ignited industrial gas burners in modulating or staged control.

### Features

- Optional integrated ignition transformer
- Optional PROFIBUS communications
- Integrated front panel display indicates operating and fault status
- Versions available with air valve control, air flow or POC monitoring, and auto ignition flame control bypass
- Front Panel PC interface for programming, diagnostics, and data logging
- Manual-mode operation for initial burner set-up

### Specifications

- Input power: 120, 220V AC
- Max gas valve output: 2.5A
- Flame sensor: ionization or UV
- Maximum sensor cable length: 164ft (50m)
- Ambient temperature: -4°F to 140°F (-20°C to 60°C)
- Enclosure: IP 54

### Applications

Multi-burner applications where the burner control is located locally to the burner. Primarily designed for Pulse-Fire control applications.

### Approvals

- SIL, PLe
- CE
- CSA
- FM
- GOST-R

### Model Selection

Code	Description
BCU	Burner Control unit
	Model
460	Standard
465	Extended air control
	Market / Standard
-	EMEA
T	FM, CSA
	Trial For Ignition - Main Burner
-3	3 seconds
-5	5 seconds
-10	10 seconds
	Flame Failure Response Time
/1	1 second
/2	2 seconds
	Air valve control
-	Without - omit
L	Air valve Control
	Mains Voltage
R	120V 50/60Hz
W	230V 50/60Hz
	Ignition transformer
-	Without - omit
1	TZI 5-15/100
2	TZI 7-25/20
3	TZI 7.5/12/100
8	TZI 7.5-20/33
	Front Panel legend
-	Omit with Market = "T"
GB	English
	Prepared for Industrial Plug Connector
-	Without - omit
P	16-Pin Integrated Industrial Connector
	Auto-ignition bypass
-	Without - omit
D2	Interrupt the monitoring for UVS
D3	Interrupt the monitoring for flamerod/UVD
	Safety monitor
-	Without - omit
O	Proof of Closure Monitoring
A	Air Flow Monitoring
	Terminal board
-	Without - omit
U	Prepare for UV D 1
C	For signal distribution
	Communications
-	Without - omit
B1/1	PROFIBUS DP w/Integrated Variosub chassis socket-IP54
B1/2	PROFIBUS DP w/Integrated Variosub chassis socket-IP20
	Power Management
-	Omit for voltage via limit string
E1	Voltage for valves and Ignition transformer via L1

BCU	Std	TFI Burner 1			FFRT		Air Vlv		Mains Voltage			Ignition Transformer				Legend	Ind	Auto Ig, Bypass		Safety monitor		Term. Board		Comms		Pwr
		3	5	10	1	2	L	R	W	1	2	3	8	D2	D3			A	O	U	C	B1/1	B1/2	E1		
460		●	●	●	●	●	○	●	●	●	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○
	T	●	●	●	●	●	○	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
465		●	●	●	●	●	○	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	T	●	●	●	●	●	○	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

● - Standard selection    ○ - Optional selection    - - Selection not available

# Burner Control Units

## BCU 480

Burner control for monitoring and controlling a pilot ignited industrial burner which is housed in an alloy enclosure, suitable for mounting at each burner in multi-burner installations



The BCU 480 burner control units controls, ignites and monitors the pilot and main flames of industrial gas burners in modulating or staged control.

### Features

- Separate pilot and main burner sensor inputs
- Optional integrated ignition transformer and field bus interface
- Integrated front panel display indicates operating and fault status
- Versions available with air valve control and auto ignition flame control bypass
- Front panel PC interface for programming, diagnostics, and data logging
- Manual-mode operation for initial burner set-up

### Specifications

- Input power: 120, 220V AC
- Max gas valve output: 2.5A
- Flame sensor: Ionization or UV
- Maximum sensor cable length: 164ft (50m)
- Ambient temperature: -4°F to 140°F (-20°C to 60°C)
- Enclosure: IP 54

### Applications

Multi-burner applications where the burner control is located locally to the burner. Primarily designed for Pulse-Fire control applications where the burner is ignited by an interrupted or intermittent pilot.

### Approvals

- SIL, PLe
- CE
- FM
- GOST-R
- CSA

### Model Selection

Code	Description
BCU	Burner Control unit
	<b>Model</b>
480	For pilot and main burner
	<b>Approvals Standard</b>
-	EU (omit)
T	FM, CSA
	<b>Trial For Ignition - Pilot Burner</b>
-3	3 seconds
-5	5 seconds
-10	10 seconds
	<b>Trial For Ignition - Main Burner</b>
-3	3 seconds
-5	5 seconds
-10	10 seconds
	<b>Flame Failure Response Time</b>
/1	1 second
/2	2 seconds
	<b>Air valve control</b>
-	Omit for "without"
L	Air valve Control
	<b>Mains Voltage</b>
R	120V 50/60Hz
W	230V 50/60Hz
	<b>Ignition transformer</b>
-	Omit for "without"
1	TZI 5-15/100
2	TZI 7-25/20
3	TZI 7.5/12/100
8	TZI 7.5-20/33
	<b>Front Panel legend</b>
-	Omit for T-Product
GB	English
	<b>Prepared for Industrial Plug Connector</b>
-	Omit for "without"
P	16-Pin Integrated Industrial Connector
	<b>Auto-ignition bypass</b>
-	Omit for "without"
D2	Interrupt the monitoring for UVS
D3	Interrupt the monitoring for flamerod/UVD
	<b>Safety monitor</b>
-	Omit for "without"
O	Proof of Closure Monitoring
A	Air Flow Monitoring
	<b>Terminal board</b>
-	Omit for "without"
U	Prepare for UVD 1
C	For signal distribution
	<b>Communications</b>
-	Omit for "without"
B1/1	PROFIBUS DP w/Integrated Variosub chassis socket-IP54
B1/2	PROFIBUS DP w/Integrated Variosub chassis socket-IP20
	<b>Power Management</b>
-	Omit for voltage via limit string
E1	Voltage for valves and Ignition transformer via L1

BCU	Std	TFI Pilot			TFI Main			FFRT		Air VIV			Mains Voltage				Ignition Transformer				Legend	Ind	Auto Ig. Bypass		Safety monitor		Term. Board		Comms		Pwr
480		3	5	10	3	5	10	1	2	L	R	W	1	2	3	8	GB	P	D2	D3	A	O	U	C	B1/1	B1/2	E1				
	T	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			

• - Standard selection      ○ - Optional selection      -- - Selection not available

# Burner Control Units

## PF-19

High density burner control system which can be customized to meet the requirements of the combustion system

The PF-19 Process Firing system controls multiple burners through various configurations. The combination of burner control, flame switch, and contact relay cards permit the control of complex systems with a single control.



### Features

- Space to allow for up to 9 burner control cards
- Through-the-enclosure door mounting allows access to the burner control cards while maximizing usable control enclosure area
- Optional Profibus communications with the burner control cards
- 24V DC power supply card
- Optional Pulse Fire program control card, control of up to 8 burners in up to two zones of control

### Specifications

- Input power: 120, 220VAC
- Control power: 24V DC
- Ambient temperature: -4°F to 140°F (-20°C to 60°C).
- Enclosure: IP 00

### Applications

Multi-burner systems where space and function are top priorities.

### Approvals

- CE
- FM

### Model Selection

Card	Function
PFP 700	Power Supply Module
PFU 760	Individual Direct-Spark Ignited Burner Control Module
PFU 780	Individual Pilot Ignited Burner Control Module
PFA 7x0	PROFIBUS Communications Module
PFF 704	Flame Relay Module
PFR 704	Relay Output Module
MPT 700	Pulse-Fire Logic Module
BGT S	Pre-printed circuit board and cage assembly for Burner Management
BGT SM	Pre-printed circuit board and cage assembly for Pulse Fire Burner Management
BGBT SA	Pre-printed circuit board and cage assembly for Burner Management prepared for Communications
BGT K	Wire-wrap prepared cage assembly

Rack Type	Card Type					
	PFP	PFU	PFF	PFR	MPT	PFA
BGT S	●	●	—	—	—	—
BGT SM	●	●	—	—	○	—
BGBT SA	—	●	—	—	—	●
BGT K	●	○	○	○	○	—

# Burner Control Units

## PFU 760

Burner control providing safety, control and annunciation in multi-burner applications, to be mounted in the PF-19 system

The PFU 760 burner control units controls, ignites and monitors industrial gas burners in modulating or staged control as part of the PF-19 Process Firing system.

### Features

- Optional air valve control
- Optional multi-flame control in conjunction with the PFF 704 flame switch card.
- Integrated front panel display indicates operating and fault status and provides ease of set-up with manual-mode
- Front panel PC interface for programming, diagnostics, and data logging

### Specifications

- Input power: 120, 220V AC
- Control power: 24V DC
- Valve output: 1A
- Ambient temperature: -4°F to 140°F (-20°C to 60°C).
- Enclosure: IP 00

### Applications

Multi-burner applications with the PF-19 rack mounted in a control enclosure. Primarily designed for Pulse-Fire control applications with directly ignited burners.

### Approvals

- SIL, PLe
- CE
- FM
- AGA - Australia

### Model Selection

Code	Description
PFU	PF-19 Burner control unit
	Model
760	Standard
780	For Pilot and Main Burner
	Air Valve Control
—	Without - Omit
L	Two-Stage Air Valve Control
	Mains voltage
T	120V 50/60Hz
N	230V 50/60Hz
	Valve proving system Flame control bypass
—	Without - omit
D1	with Auto-Ignition Bypass
	Use with self-checking UV
—	Without - omit
U	Preparation for UVD 1
	Version
—	New/current version - omit
K1	Replacement of PFS/PFD
K2	Replacement of PFU 778/798

PFU	Air Vlv		Mains Voltage		Auto Ig Bypass		UVD 1		Replacement		
	—	L	T	N	—	D	—	U	—	K1	K2
760	●	○	●	●	●	○	●	○	●	○	○
780	●	○	●	●	●	○	●	○	●	—	○

● - Standard selection

○ - Optional selection

— - Selection not available

# Burner Control Units

## PFU 780

Burner control providing safety, control and annunciation in multi-burner applications, to be mounted in the PF-19 system

The PFU 780 burner control unit controls, ignites and monitors directly or pilot ignited industrial gas burners in modulating or staged control as part of the PF-19 Process Firing system.



### Features

- Separate pilot and main burner sensor inputs
- Optional air valve control
- Integrated front panel display indicates operating and fault status and provides ease of set-up with manual-mode
- Front panel PC interface for programming, diagnostics, and data logging

### Specifications

- Input power: 120, 220V AC
- Control power: 24V DC
- Valve output: 1A
- Ambient temperature: -4°F to 140°F (-20°C to 60°C).
- Enclosure: IP 00

### Applications

Multi-burner applications with the PF-19 rack mounted in a control enclosure. Primarily designed for Pulse-Fire control applications where the burner is ignited by an interrupted or intermittent pilot.

### Approvals

- SIL, PLe
- CE
- FM
- AGA - Australia

### Model Selection

Code	Description
PFU	PF-19 Burner control unit
	<b>Model</b>
760	Standard
780	For Pilot and Main Burner
	<b>Air Valve Control</b>
—	Without - Omit
L	Two-Stage Air Valve Control
	<b>Mains voltage</b>
T	120V 50/60Hz
N	230V 50/60Hz
	<b>Valve proving system</b>
	<b>Flame control bypass</b>
—	Without - omit
D1	with Auto-Ignition Bypass
	<b>Use with self-checking UV</b>
—	Without - omit
U	Preparation for UVD 1
	<b>Version</b>
—	New/current version - omit
K1	Replacement of PFS/PFD
K2	Replacement of PFU 778/798

PFU	Air Vlv		Mains Voltage		Auto Ig Bypass		UVD 1		Replacement		
	—	L	T	N	—	D	—	U	—	K1	K2
760	●	○	●	●	●	○	●	○	●	○	○
780	●	○	●	●	●	○	●	○	●	—	○

● - Standard selection

○ - Optional selection

— - Selection not available

# Flame Safety Matrix

	Installation		Application	Burner Type			Capacity Control		Flame Control				
	Local	Centralized		Single Burner	Multiple Burners	Spark Ignited Burners	Interrupted Pilot Ignition	Separate Pilot/Main Burner Control	Staged	Modulating	Ionization - Single Electrode	Ionization, Dual Electrode	UV : Intermittent
FCU 500	20	●											
IFD 244	54	○			●	●					●		
IFD 258	54	○			●	●				●	●	●	
IFW 15	40	○			●					●	●	●	
BCU 560	20	●			●	●		●	●	●	●	●	○
BCU 565	20	●			●	●		●	●	●	●	●	○
BCU 570	20	●	●		●	○			●	●	●	●	○
BCU 580	20	●			●	○	○	●	●	●	●	●	○
PFU 760	00		●		●	●		○		●	●	●	○
PFU 780	00		●		●	●		○		●	●	●	○
PFF 704	00		●		●					●	●	●	
BCU 370	54		●		●	○			●	●	●	●	○
BCU 440	54			●	●						●		
BCU 460	54			●	●	●		○		●	●	●	○
BCU 465	54			●	●	●		○		●	●	●	○
BCU 480	54			●	○	○	●	●		●	●	●	○

● = standard      ○ = option      - = not available



		Features								NAFTA Certs	Notes
High-Temperature Operation	Multi-Flame Control	# Gas Valve Outputs	Integrated VPS (TC)	Integrated POC	Programmable	Integrated Ignition Transformer	Profi Fieldbus Communications	Remote Display	Max Flame Signal Cable Length (m)		
		4	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>		<input type="radio"/>		N/A	<input checked="" type="radio"/>	Primary Safety Interface
		1							75*		
		1							75*	<input checked="" type="radio"/>	
		0							50	<input checked="" type="radio"/>	Single Flame Switch
<input type="radio"/>	<input checked="" type="radio"/>	3	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>		<input type="radio"/>	<input type="radio"/>	100	<input checked="" type="radio"/>	
<input type="radio"/>		3	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>		<input type="radio"/>	<input type="radio"/>	100	<input checked="" type="radio"/>	
		4	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>		<input type="radio"/>	<input type="radio"/>	100	<input checked="" type="radio"/>	
<input type="radio"/>		4	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>		<input type="radio"/>	<input type="radio"/>	100	<input checked="" type="radio"/>	
<input type="radio"/>	<input checked="" type="radio"/>	2			<input checked="" type="radio"/>		<input type="radio"/>		100	<input checked="" type="radio"/>	
<input type="radio"/>		2			<input checked="" type="radio"/>		<input type="radio"/>		100	<input checked="" type="radio"/>	
	<input checked="" type="radio"/>	0							100	<input checked="" type="radio"/>	4 Flame Switches per Card
		3	<input type="radio"/>		<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		50*	<input checked="" type="radio"/>	
		1			<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		50*		
<input type="radio"/>		2			<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		50*	<input checked="" type="radio"/>	
<input type="radio"/>		2			<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		50*	<input checked="" type="radio"/>	
<input type="radio"/>		2			<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		50*	<input checked="" type="radio"/>	

(\*) without integral Ignition transformer

# Solenoid Valves

## valVario VAS 1-3

Compact modular valve designed to adapt to the installation

Modular single safety shut-off valve which can be bolted into a mono-block assembly.

### Features

- Modular design allows for the gas train to be designed as necessary
- Integrated flow control limits flow rate from 100%-20%
- Upstream and downstream ports are located on both sides of the valve.
- Optional Proof of Closure/Visual Position Indicator to meet necessary code requirements
- Optional dampening device to meet requirements for slow opening valves
- Wide array of modular accessories

### Specifications

- Inlet pressure: 7psi (500mbar), CSA: 5psi (350mbar)
- Fuels: natural gas, LPG (gaseous), bio methane (<0.1% H<sub>2</sub>S), air
- Non-operation inlet pressure: 10psi (700mbar)
- Input power: 24V DC, 100, 120, 200, 230V AC
- Ambient temperature: -4°F to 140°F (-20°C to 60°C).
- Enclosure: IP 65
- Cycle rate: >10,000,000

### Approvals

- SIL, PLe
- CE
- UL
- CSA
- FM
- EAC
- AGA - Australia

### Applications

Industrial and Commercial Process and Heating applications: Boilers, air make-up, furnaces, kilns, ovens, and oxidizers.

### Model Selection

Code	Description
VAS	Single Gas Solenoid
	<b>Model</b>
1-9	Body size
	<b>Connection size</b>
- to 125	mm measurement
	<b>Connection type</b>
R	Rp internal threads
N	NPT internal Thread
F	ISO flange
A	ANSI Flange
	<b>Opening Speed</b>
/N	Fast opening/fast closing
/L	Slow opening/slow opening
	<b>Mains voltage</b>
A	120-230V AC
K	24V DC
Q	120V AC
W	230VAC
	<b>Proof of Closure with visual i</b>
S	Standard contacts
G	Gold contacts
	<b>POC viewing side</b>
R	Viewed from the right
L	Viewed from the left
	<b>Body Style</b>
B	Basic
E	Extended

VAS Body Size	Nominal Size - mm								Connection Type				Opening Spd				Voltage				POC Type		Viewing		Body Style	
	-1	10-25	25-40	40-65	65	80	100	125	R	N	F	A	/N	/L	K	Q	W	A	S	G	R	L	B	E		
1	●	●	—	—	—	—	—	—	●	●	—	—	●	○	●	●	●	—	○	○	○	○	—	—		
2	●	—	●	—	—	—	—	—	●	●	○	—	●	○	●	●	●	—	○	○	○	○	—	—		
3	●	—	—	●	—	—	—	—	●	●	○	—	●	○	●	●	●	—	○	○	○	○	—	—		
6	—	—	—	—	●	—	—	—	—	—	●	●	●	○	●	●	●	—	○	○	○	○	●	○		
7	—	—	—	—	—	●	—	—	—	—	●	●	●	○	●	●	●	—	○	○	○	○	●	○		
8	—	—	—	—	—	—	●	—	—	—	●	●	●	○	●	●	●	—	○	○	○	○	●	○		
9	—	—	—	—	—	—	—	●	—	—	●	●	●	—	—	—	—	●	○	○	○	○	●	○		

● - Standard selection    ○ - Optional selection    — - Selection not available

# Solenoid Valves

## valVario VAS VCS 6-9

Dual seat valve offering high flow rates in a compact form factor



A single or dual safety shut-off valve(s) in a single flanged body.

### Features

- Integrated flow control limits flow rate from 100%-20%
- Upstream and downstream ports are located on both sides of the valve.
- Optional proof of closure/visual position indicator to meet necessary code requirements
- Optional dampening device to meet requirements for slow opening valves
- Wide array of modular accessories

### Specifications

- Inlet pressure: 7psi (500mbar), CSA: 5psi (350mbar)
- Fuels: natural gas, LPG (gaseous), bio methane (<0.1% H<sub>2</sub>S), air
- Non-operation inlet pressure: 10psi (700mbar)
- Input power: 24V DC, 120, 230V AC
- Ambient temperature: -4°F to 140°F (-20°C to 60°C).
- Enclosure: IP 65
- Cycle rate: >5,000,000

### Approvals

- SIL, PLe
- CE
- UL
- CSA
- FM
- EAC
- AGA - Australia

### Applications

Industrial and Commercial Process and Heating applications: Boilers, air make-up, furnaces, kilns, ovens, and oxidizers.

### Model Selection

Code	Description
VCS	Double Gas Solenoid
	Model
1-9	Body Size
	Connection size
- to 125	mm measurement
	Connection type
R	Rp internal threads
N	NPT internal Thread
F	ISO flange
A	ANSI Flange
	Opening Speed - V1
/N	Fast opening/fast closing
/L	Slow opening/slow opening
	Opening Speed - V2
N	Fast opening/fast closing
L	Slow opening/slow opening
	Mains voltage
A	120-230V AC
K	24V DC
Q	120V AC
W	230VAC
	Proof of Closure with visual in
S	Standard contacts
G	Gold contacts
	POC viewing side
R	Viewed from the right
L	Viewed from the left
	Body Style
B	Basic
E	Extended

VCS Body Size	Nominal Size - mm								Connection Type				Open Spd-V1		Open Spd-V2		Voltage				POC Type		Viewing		Body Style	
	1	10-25	25-40	40-65	65	80	100	125	R	N	F	A	/N	/L	N	L	K	Q	W	A	S	G	R	L	B	E
1	●	●	—	—	—	—	—	—	●	●	—	—	●	○	●	○	●	●	●	—	○	○	○	○	—	—
2	●	—	●	—	—	—	—	—	●	●	○	—	●	○	●	○	●	●	●	—	○	○	○	○	—	—
3	●	—	—	●	—	—	—	—	●	●	○	—	●	○	●	○	●	●	●	—	○	○	○	○	—	—
6	—	—	—	—	●	—	—	—	—	—	●	—	●	○	●	○	●	●	●	—	○	○	○	○	●	○
7	—	—	—	—	—	●	—	—	—	—	●	—	●	○	●	○	●	●	●	—	○	○	○	○	●	○
8	—	—	—	—	—	—	●	—	—	—	●	—	●	○	●	○	—	—	—	—	○	○	○	○	●	○
9	—	—	—	—	—	—	—	●	—	—	●	—	●	○	●	○	—	—	—	—	○	○	○	○	●	○

● - Standard selection ○ - Optional selection — - Selection not available

# Solenoid Valves

## valVario VAD

Compact pressure reducing regulator integrated into a safety shut-off valve maximizing configuration options



Modular single safety shut-off valve with integrated pressure reducing regulator which can be bolted together with other valVario valves to form a mono-block assembly.

### Features

- Modular design allows for the gas train to be designed as necessary
- Internal fuel pressure sensing line, no external reference lines required.
- Standard pressure test point to confirm outlet pressure setting
- Upstream and downstream ports are located on both sides of the valve.
- Optional closed position switch/visual position indicator to meet necessary code requirements
- Wide array of modular accessories

### Specifications

- Inlet pressure: 7psi (500mbar), CSA: 5psi (350mbar)
- Fuels: natural gas, LPG (gaseous), bio methane (<0.1% H<sub>2</sub>S), air
- Outlet pressure range: 1-10", 8-20", and 17-40" w.c.
- Non-operation inlet pressure: 10psi (700mbar)
- Input power: 24V DC, 100, 120, 200, 230V AC
- Ambient temperature: -4°F to 140°F (-20°C to 60°C).
- Enclosure: IP 65
- Cycle rate: >5,000,000

### Approvals

- SIL, PLe
- CE
- UL
- CSA
- FM
- EAC
- AGA - Australia

### Applications

Industrial and Commercial Process and Heating applications: Boilers, air make-up, furnaces, kilns, ovens, and oxidizers.

### Model Selection

Code	Description
VAD	Pressure regulator with solenoid
	Model
1-3	Body Size
	Connection size
- to 50	mm connection
	Connection type
R	Rp internal threads
N	NPT internal Thread
	Opening Speed
/N	Fast opening/fast closing
	Mains voltage
K	24V DC
Q	120V AC
W	230VAC
	Closed Position Switch with visual
S	Standard contacts
G	Gold contacts
	CPS viewing side
R	Viewed from the right
L	Viewed from the left
	Outlet pressure
-25	1-10"w.c. (2.5-25mbar)
-50	8-20"w.c. (20-50mbar)
-100	14-40"w.c. (35-100mbar)
	Valve Seat
A	Standard
B	Reduced

VAD Body Size	Nominal Size			Connection Type			Open Spd	Voltage			CPS Type		Viewing		Outlet Pressure			Valve Seat		
	15-25	40	50	R	N	F		/N	K	Q	W	S	G	R	L	-25	-50	-100	A	B
1	●	—	—	●	●	—	●	●	●	●	○	○	○	○	●	●	●	●	●	○ <sup>1</sup>
2	—	●	—	●	●	○	●	●	●	●	○	○	○	○	●	●	●	●	●	—
3	—	—	●	●	●	○	●	●	●	●	○	○	○	○	●	●	●	●	●	—

● - Standard selection

○ - Optional selection

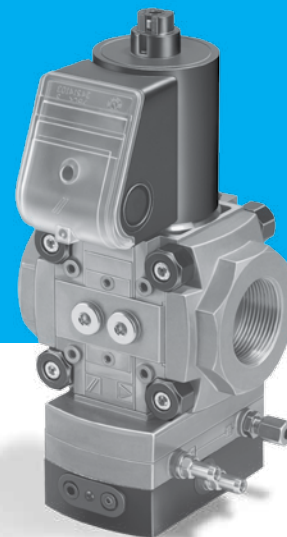
— - Selection not available

<sup>1</sup> - Nominal Size "15" only

# Solenoid Valves

## valVario VAG

Compact gas/air ratio regulator integred into a safety shut-off valve minimizng installed footprint



Modular single safety shut-off valve with fuel/air ratio regulator which can be bolted together with other valVario valves to form a mono-block assembly.

### Features

- Modular design allows for the gas train to be designed as necessary
- Internal fuel pressure sensing line, no external refence lines required.
- Standard pressure test point to confirm outlet pressure setting and impulse pressure
- Upstream and downstream ports are located on both sides of the valve.
- Optional closed position switch/visual position indicator to meet necessary code requirements
- Wide array of modular accessories

### Specifications

- Inlet pressure: 7psi (500mbar), CSA: 5psi (350mbar)
- Fuels: natural gas, LPG (gaseous), bio methane (<0.1% H<sub>2</sub>S), air
- Outlet pressure range: 0.2-40"w.c. (0.5-100mbar)
- Air impulse pressure range: 0.2-40"w.c. (0.5-100mbar)
- Non-operation inlet pressure: 10psi (700mbar)
- Input power: 24V DC, 100, 120, 200, 230V AC
- Ambient temperature: -4°F to 140°F (-20°C to 60°C).
- Enclosure: IP 65
- Cycle rate: >5,000,000

### Approvals

- SIL, PLe
- CE
- UL
- CSA
- FM
- EAC
- AGA - Australia

### Applications

Industrial and Commercial Process and Heating applications: Boilers, air make-up, furnaces, kilns, ovens, and oxidizers.

### Model Selection

Code	Description
VAG	Air/gas ratio control with solenoid valve
VAH	Flow rate regulator with solenoid
VAV	Variable air/gas ratio control with solenoid
<b>Model</b>	
1-3	Body Size
<b>Connection size</b>	
15 to 50	mm connection
<b>Connection type</b>	
R	Rp internal threads
N	NPT internal Thread
<b>Opening Speed</b>	
/N	Fast opening/fast closing
<b>Mains voltage</b>	
K	24V DC
Q	120V AC
W	230VAC
<b>Closed Position Switch with visual indicator</b>	
S	Standard contacts
G	Gold contacts
<b>CPS viewing side</b>	
R	Viewed from the right
L	Viewed from the left
<b>Valve Seat</b>	
A	Standard
B	Reduced
<b>Impulse connection kit</b>	
A	NPT 1/8" adapter
E	Rp 1/ compression fitting
K	Plastic hose barb
N	Zero governor

VAG Body Size	Nominal Size - mm			Connection Type			Spd /N	Voltage			CPS Type		Viewing		Valve Seat		Impulse Connection Type			
	15-25	40	50	R	N	F		K	Q	W	S	G	R	L	A	B	A	E	K	N
1	●	—	—	●	●	—	●	●	●	●	○	○	○	○	●	○ <sup>1</sup>	●	○	○	○
2	—	●	—	●	●	○	●	●	●	●	○	○	○	○	●	—	●	○	○	○
3	—	—	●	●	●	○	●	●	●	●	○	○	○	○	●	—	●	○	○	○

● - Standard selection

○ - Optional selection

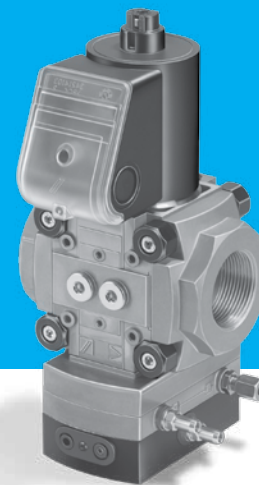
— Selection not available

<sup>1</sup> - Nominal Size "15" only

# Solenoid Valves

## valVario VAV

Compact variable gas/air ratio regulator integrated into a safety shut-off valve offering increased adaptability to operational conditions



Modular single safety shut-off valve with integrated variable fuel/air ratio regulator which can be bolted together with other valVario valves to form a mono-block assembly. This ratio regulator has an additional impulse line to adjust for chamber pressure.

### Features

- Modular design allows for the gas train to be designed as necessary
- Internal fuel pressure sensing line, no external reference lines required.
- Standard pressure test point to confirm outlet pressure setting
- Upstream and downstream ports are located on both sides of the valve.
- Optional closed position switch/visual position indicator to meet necessary code requirements
- Wide array of modular accessories

### Specifications

- Inlet pressure: 7psi (500mbar), CSA: 5psi (350mbar)
- Fuels: natural gas, LPG (gaseous), bio methane (<0.1% H<sub>2</sub>S), air
- Outlet pressure range: 0.2-11.7"w.c. (0.5-30mbar)
- Air impulse pressure range: 0.15-11.7"w.c. (0.4-30mbar)
- Combustion chamber control pressure: -7.8 - +7.8"w.c. (-20 - +20mbar)
- Transmission ratio of gas to air: 0.6:1 to 3:1
- Non-operation inlet pressure: 10psi (700mbar)
- Input power: 24V DC, 100, 120, 200, 230V AC
- Ambient temperature: -4°F to 140°F (-20°C to 60°C).
- Enclosure: IP 65
- Cycle rate: >5,000,000

### Approvals

- SIL, PLe
- CE
- UL
- CSA
- FM
- EAC
- AGA - Australia

### Applications

Industrial and Commercial Process and Heating applications: Boilers, air make-up, furnaces, kilns, ovens, and oxidizers.

### Model Selection

Code	Description
VAG	Air/gas ratio control with solenoid valve
VAH	Flow rate regulator with solenoid
VAV	Variable air/gas ratio control with solenoid
Model	
1-3	Body Size
Connection size	
15 to 50	mm connection
Connection type	
R	Rp internal threads
N	NPT internal Thread
Opening Speed	
/N	Fast opening/fast closing
Mains voltage	
K	24V DC
Q	120V AC
W	230VAC
Closed Position Switch with visual indicator	
S	Standard contacts
G	Gold contacts
CPS viewing side	
R	Viewed from the right
L	Viewed from the left
Valve Seat	
A	Standard
B	Reduced
Impulse connection kit	
A	NPT 1/8" adapter
E	Rp 1/ compression fitting
K	Plastic hose barb
N	Zero governor

VAV Body Size	Nominal Size - mm			Connection Type			Spd	Voltage			CPS Type		Viewing		Valve Seat		Impulse Connection Type			
	15-25	40	50	R	N	F		/N	K	Q	W	S	G	R	L	A	B	A	E	K
1	●	—	—	●	●	—	●	●	●	●	○	○	○	○	●	○ <sup>1</sup>	●	○	○	—
2	—	●	—	●	●	○	●	●	●	●	○	○	○	○	●	—	●	○	○	—
3	—	—	●	●	●	○	●	●	●	●	○	○	○	○	●	—	●	○	○	—

● - Standard selection

○ - Optional selection

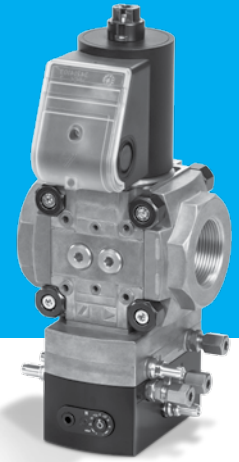
— - Selection not available

<sup>1</sup> - Nominal Size "15" only

# Solenoid Valves

## valVario VAH/VRH

Precise gas/air flow regulator integrated into a safety shut-off valve providing constant ratio with varying air volumes



Modular single safety shut-off valve with integrated fuel/air flow regulator regulator which can be bolted together with other valVario valves to form a mono-block assembly. This valve has the ability to maintain fuel/air ratio regardless of changes in air volume.

### Features

- Modular design allows for the gas train to be designed as necessary
- Optional integrated limiting orifice valve with sensing line assembly
- Standard pressure test point to confirm pressure settings
- VRH version is without solenoid
- Upstream and downstream ports are located on both sides of the valve.
- Optional closed position switch/visual position indicator to meet necessary code requirements
- Wide array of modular accessories

### Specifications

- Inlet Pressure: 7psi (500mbar), CSA: 5psi (350mbar)
- Fuels: natural gas, LPG (gaseous), bio methane (<0.1% H<sub>2</sub>S), air
- Differential gas pressure range: 0.24-19.7"w.c. (0.6-50mbar)
- Differential air pressure range: 0.24-19.7"w.c. (0.6-50mbar)
- Air impulse pressure range: 0.24-40"w.c. (0.5-100mbar)
- Non-operation inlet pressure: 10psi (700mbar)
- Input power: 24V DC, 100, 120, 200, 230V AC
- Ambient temperature: -4°F to 140°F (-20°C to 60°C).
- Enclosure: IP 65
- Cycle rate: >5,000,000

### Approvals

- SIL, PLe
- CE
- UL
- CSA
- FM
- EAC
- AGA - Australia

### Applications

Industrial and Commercial Process and Heating applications: Boilers, air make-up, furnaces, kilns, ovens, and oxidizers.

### Model Selection

Code	Description
VAG	Air/gas ratio control with solenoid valve
VAH	Flow rate regulator with solenoid
VAV	Variable air/gas ratio control with solenoid
<b>Model</b>	
1-3	Body Size
<b>Connection size</b>	
15 to 50	mm connection
<b>Connection type</b>	
R	Rp internal threads
N	NPT internal Thread
<b>Opening Speed</b>	
/N	Fast opening/fast closing
<b>Mains voltage</b>	
K	24V DC
Q	120V AC
W	230VAC
<b>Closed Position Switch with visual indicator</b>	
S	Standard contacts
G	Gold contacts
<b>CPS viewing side</b>	
R	Viewed from the right
L	Viewed from the left
<b>Valve Seat</b>	
A	Standard
B	Reduced
<b>Impulse connection kit</b>	
A	NPT 1/8" adapter
E	Rp 1/ compression fitting
K	Plastic hose barb
N	Zero governor

VAH Body Size	Nominal Size - mm			Connection Type			Spd	Voltage			CPS Type		Viewing		Valve Seat		Impulse Connection Type			
	15-25	40	50	R	N	F		/N	K	Q	W	S	G	R	L	A	B	A	E	K
1	●	—	—	●	●	—	●	●	●	●	○	○	○	○	●	○ <sup>1</sup>	●	○	—	—
2	—	●	—	●	●	○	●	●	●	●	○	○	○	○	●	—	●	○	—	—
3	—	—	●	●	●	○	●	●	●	●	○	○	○	○	●	—	●	○	—	—

● - Standard selection

○ - Optional selection

— - Selection not available

<sup>1</sup> - Nominal Size "15" only

# Filter Module

## VMF

Thorough gas particulate filtering in a compact housing



Modular gas filter where you can vary both inlet and outlet to meet plumbing requirements. The inlet filter can also be bolted directly to the valve inlet.

### Features

- Replaceable filter media
- Taps upstream and downstream of the filter element.
- Standard valVario series adapter plates
- Optional version with integrated pressure switch

### Specifications

- Inlet pressure: 7psi (500mbar), CSA: 5psi (350mbar)
- Fuels: natural gas, LPG (gaseous), bio methane (<0.1% H<sub>2</sub>S), air
- Ambient temperature: -4°F to 140°F (-20°C to 60°C).

### Applications

To remove particulate matter from the fuel stream.

### Model Selection

Code	Description
VMF	valVario filter module
VMO	valVario orifice meter
VMV	valVario limiting orifice
Model	
1-2	Body Size
Connection size	
- to 50	mm connection
Connection type	
R	Rp internal threads
N	NPT internal Thread
F	ISO flange
Max pressure	
05	7psi (500mbar)
Pressure connections	
M	with test points
P	with plugs
	with pressure switch (VMF only)
-	without - omit
1	DG 17VC
2	DG 40VC
3	DG 110VC
4	DG300VC
Orifice diameter (VMO only)	
04-38	bore in mm

VMF Body Size	Nominal Size - mm			Connection Type			Max P	Pressure conn		Pressure Switch			
	- <sup>1</sup>	10-25	25-50	R	N	F		05	M	P	1	2	3
1	●	—	—	●	●	—	●	○	●	○	○	○	○
2	—	●	●	●	●	○ <sup>2</sup>	●	○	●	○	○	○	○

● - Standard selection

○ - Optional selection

— - Selection not available

<sup>1</sup> - omit for no flange

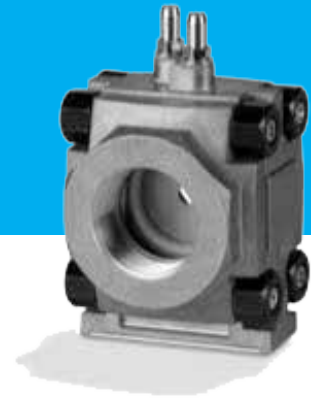
<sup>2</sup> - Nominal Size "40" only



# Measuring Orifice

## VMO

Compact flow measure measurment



Compact orifice meter with readily available flow charts.

### Features

- Easily replacable orific plates
- Pressure taps to measure flow
- Standard valVario series adapter plates
- Charts provided for orifice plates

### Specifications

- Inlet pressure: 7psi (500mbar), CSA: 5psi (350mbar)
- Fuels: natural gas, LPG (gaseous), bio methane (<0.1% H<sub>2</sub>S), air
- Ambient temperature: -4°F to 140°F (-20°C to 60°C).

### Applications

To measure fuel flow rate.

### Model Selection

Code	Description
VMF	valVario filter module
VMO	valVario orifice meter
VMV	valVario limiting orifice
Model	
1-2	Body Size
Connection size	
- to 50	mm connection
Connection type	
R	Rp internal threads
N	NPT internal Thread
F	ISO flange
Max pressure	
05	7psi (500mbar)
Pressure connections	
M	with test points
P	with plugs
	with pressure switch (VMF only)
-	without - omit
1	DG 17VC
2	DG 40VC
3	DG 110VC
4	DG300VC
Orifice diameter (VMO only)	
04-38	bore in mm

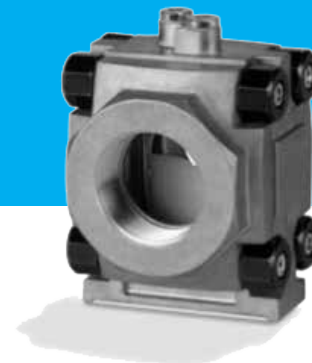
VMO Body Size	Nom. Size	Connection Type			Max Pressure	Pressure conn		Orifice diameter														
		R	N	F		05	P	04	05	06	08	10	12	14	16	18	20	24	28	32	34	38
1	10	●	●	—	●	—	●	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—
	15	●	●	—	●	—	●	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—
	20	●	●	—	●	—	●	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—
	25	●	●	—	●	—	●	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—
2	32	●	●	—	●	—	●	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	●	●	○	●	—	●	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	●	●	—	●	—	●	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—

● - Standard selection    ○ - Optional selection    — - Selection not available

# Fine-Adjusting Valve

## VMV

Precise control in a modular housing for maximum flexibility



Modular limiting orifice valve where the inlet and outlet can be varied to meet the plumbing requirements. The adjust gate is characterized to provide a linear flow characteristic.

### Features

- Fine adjusting screw to adjust slide-gate
- Pressure taps to measure upstream and downstream pressures
- Standard valVario series adapter plates

### Specifications

- Inlet pressure: 7psi (500mbar), CSA: 5psi (350mbar)
- Fuels: natural gas, LPG (gaseous), bio methane (<0.1% H<sub>2</sub>S), air
- Ambient temperature: -4°F to 140°F (-20°C to 60°C).

### Applications

To adjust fuel flow in the system.

### Model Selection

Code	Description
VMF	valVario filter module
VMO	valVario orifice meter
VMV	valVario limiting orifice
<b>Model</b>	
1-2	Body Size
<b>Connection size</b>	
- to 50	mm connection
<b>Connection type</b>	
R	Rp internal threads
N	NPT internal Thread
F	ISO flange
<b>Max pressure</b>	
05	7psi (500mbar)
<b>Pressure connections</b>	
M	with test points
P	with plugs
	with pressure switch (VMF only)
-	without - omit
1	DG 17VC
2	DG 40VC
3	DG 110VC
4	DG300VC
<b>Orifice diameter (VMO only)</b>	
04-38	bore in mm

VMV Body Size	Nominal Size - mm			Connection Type			Max Pressure	Pressure conn	
	- <sup>1</sup>	10-25	25-50	R	N	F		M	P
1	—	●	—	●	●	—	●	○	●
2	—	—	●	●	●	○ <sup>2</sup>	●	○	●

● - Standard selection

○ - Optional selection

— - Selection not available

<sup>1</sup> - omit for no flange

<sup>2</sup> - Nominal Size "40" only

# Valve Proving Control

## TC

Intelligent and efficient valve leakage testing



The TC uses the pressure degrade method to test the leakage rate of the valves. The TC uses an initial test state in order to minimize the test period. Various models for mounting directly to the valves, or remote cabinet installation.

### Features

- Tests both safety shut-off valves
- Short test period thanks to sequential program logic
- Adjustable test period which can be adapted to different systems
- Multiple mounting options for adapting to different systems
- Maximum safety through self-monitoring electronics

### Specifications

- Inlet pressure: 7psi (500mbar), CSA: 5psi (350mbar)
- Fuels: natural gas, LPG (gaseous), bio methane (<0.1% H<sub>2</sub>S), air
- Input power: 24V DC, 120, 230v AC
- Ambient temperature: -4°F to 140°F (-20°C to 60°C).
- Enclosure: IP 54

### Applications

Leak check the safety shut-off valves before or after the system operation.

### Model Selection

Code	Description
TC	Valve Proving System - TC
<b>Valve type</b>	
1	For valVario-series valves
2	For fast opening individual valves
3	for slow or manual reset valves
4	for control cabinet installation
<b>Test period</b>	
1	Test before or after burner operation
<b>Pressure connection</b>	
0	External pressure switch required
6	6mm connection
8	8mm connection
<b>Market/Standard</b>	
-	EMEA
T	North America
<b>Test Period</b>	
-1	10-60sec
-10	100-600sec
<b>Connection</b>	
R	Rp internal thread
N	NPT internal thread
V	Mounting to valVario
W	Mounted to CG valve
<b>Max inlet pressure</b>	
05	7 psi (500mbar)
<b>Mains Voltage</b>	
K	24V DC
N	110V AC
T	220V AC

TC Model	Seq	Pressure connection				Market		Test Period		Connection			Max P	Voltage		
	1	0	6	8	-	T	-1	-10	R	N	V	05	K	N	T	
1	●	—	●	—	—	●	●	—	—	—	●	●	●	●	●	
2	●	—	—	●	●	●	—	—	●	●	—	●	●	●	●	
3	●	—	—	●	●	●	—	—	●	●	—	●	●	●	●	
4	●	●	—	—	●	●	●	●	—	—	—	—	●	●	●	

● - Standard selection

○ - Optional selection

— - Selection not available

# Valve Matrix

	Connection Size		Opening Speed		Voltage			Position Indication		Specifications		
	NPT Threads	ANSI Flange	Fast	Slow	24V DC	120V AC	220V AC	Closed-Position Switch	Proof of Closure Switch	Inlet Pressure - psi (CSA rating)	Flow Adjustment	Pressure Control
VAS	.375 - 2	2.5 - 5	●	○ <sup>1</sup>	○ <sup>1</sup>	●	○		○	7.2 (5)	●	
VCS		2.5 - 5	●	○ <sup>1</sup>	○ <sup>1</sup>	●	○		○	7.2 (5)	●	
VAD	.375 - 2		●		○	●	○	○		7.2 (5)		●
VAG	.375 - 2		●		○	●	○	○		7.2 (5)		●
VAH	.375 - 2		●		○	●	○	○	●	7.2 (5)		●
VAV	.375 - 2		●		○	●	○	○	●	7.2 (5)		●

● = standard      ○ = option      - = not available

		Notes
Enclosure Rating	Global Certifications	
IP 65	●	Single Safety Shut-off Valve
IP 65	●	Mono-Block Dual Safety Safety Shut-Off Valve
IP 65	●	Combination Safety Shut-Off Valve with integrated Pressure Reducing Regulator
IP 65	●	Combination Safety Shut-Off Valve with Integrated Ratio Regulator
IP 65	●	Combination Safety Shut-Off Valve with Integrated Flow Regulator
IP 65	●	Combination Safety Shut-Off Valve with Integrated Variable Ratio Regulator

<sup>1</sup> Not Size 9(5") Valve

# Pressure Switch - Air & Gas

## DG

Precision accuracy with unmatched in-class safety features

Highly accurate gas static or air static/differential pressure switch. Electrical connections are isolated from the upper side of the diaphragm, eliminating the need for isolation barriers.



### Features

- High repeatability
- Low hysteresis
- Conduit connection isolated from the upper side of the diaphragm
- Integrated filter media, vent limiter, test point, and indicator lamp

### Specifications

- Inlet pressure: 8.5psi (600mbar), CSA: 5psi (350mbar)
- Fuels: natural gas, LPG (gaseous), bio methane (<0.1% H<sub>2</sub>S), air, flue gas
- Switching capacity: 30-240V AC, <30V gold contacts
- Ambient temperature: -40°F to 140°F (-40°C to 60°C).
- Enclosure: IP 54

### Applications

Monitoring gas and air pressure in various applications.

### Approvals

- SIL, PLe
- CE
- UL
- FM
- EAC
- AGA - Australia

### Model Selection

Code	Description
DG	Pressure Switch - Gas
	Switching Range
6	0.2 - 2.34" w.c. (0.5 - 6mbar)
10	0.39 - 3.9" w.c. (1.0 - 10mbar)
50	1.0 - 19.5" w.c. (2.5 - 50mbar)
150	11.7 - 58.5" w.c. (30 - 150mbar)
500	39 - 195" w.c. (100-500mbar)
	Switch Reset
-	Automatic Reset - omit
N	Manual Reset, breaks on low pressure
H	Manual Reset, breaks on high pressure
	Market/Standard
T	North America
	Contacts
-	Standard - omit
G	Gold plated, < 30V
	Variant
-	Without - omit
S	For positive pressure Oxygen or Ammonia

Type	Adjusting Range					Mkt	Contacts		Var.	
	6	10	50	150	500		T <sup>1</sup>	G <sup>2</sup>	-	S
DG	●	●	●	●	●	●	●	○	●	○
DG_N	—	●	●	●	●	●	●	—	●	—
DG_H	—	●	●	●	●	●	●	—	●	—

● - Standard selection

○ - Optional selection

— - Selection not available

<sup>1</sup>: "T" version with 120V AC blue lamp standard

<sup>2</sup>: "TG" version with 24V DC/AV LED standard

# Pressure Switch - Air & Gas

## DG Compact

Accurate pressure sensing in a compact form-factor

For monitoring the static pressures of gas or air. Versions available for flange mounting to valVario valves and NPT pipe connections.



### Features

- Compact size
- High repeatability
- Low hysteresis
- Electrical connection isolated from the upper side of the diaphragm
- Integrated vent limiter

### Specifications

- Inlet pressure: 8.5psi (600mbar), CSA: 5psi (350mbar)
- Fuels: natural gas, LPG (gaseous), bio methane (<0.1% H<sub>2</sub>S), air, flue gas
- Switching capacity: 30-240V AC, <30V gold contacts
- Ambient temperature: -4°F to 140°F (-20°C to 60°C).
- Enclosure: IP 54

### Applications

Monitoring static gas and air pressure in various applications. Primary use on with the valVario valve series.

### Approvals

- SIL, PLe
- CE
- UL
- FM
- EAC
- AGA - Australia

### Model Selection

Code	Description
DG_C	Pressure Switch - Compact
Switching Range	
17	0.8 - 6.8" w.c. (2 - 17mbar)
30	3.2 - 12" w.c. (8 - 30mbar)
40	2 - 16" w.c. (5 - 40mbar)
45	4 - 18" w.c. (10 - 45mbar)
60	4 - 24" w.c. (10 - 60mbar)
110	12 - 44" w.c. (30 - 110mbar)
150	16 - 60" w.c. (40 - 150mbar)
300	40 - 120" w.c. (100 - 300mbar)
Switching range adjustment	
V	Hand wheel
Form factor	
C	Compact
Market/Standard	
T	North America
Mounting	
1	valVario
4	Internal NPT, 2 x 1/4", test point
5	Internal NPT, 1/4"
6	External NPT, 1/8"
8	External NPT, 1/4"
Electrical Connection	
-6	4-pin plug with socket, 18" electrical leads
Switch type	
W	C-form contact
Contacts	
-	Standard contacts - omit
G	Gold plated, < 30V

Type	Adjusting Range							Adj	FF	Mkt	Mounting					Elec	Switch	Contacts			
	17	30	40	45	60	110	150	300	V	C	T	1	4	5	6	8	-6	W	-	G <sup>2</sup>	
DG	●	●	●	●	●	●	●	●	●	●	●	●	○	○	●	●	●	●	●	●	○

● - Standard selection

○ - Optional selection

— - Selection not available

# Pressure Switch - Air

## DL

Precision air switch for static and differential sensing



The low pressure sensing range of this switch permits a wide range of applications. The switch is capable of static, vacuum, or differential pressure sensing.

### Features

- High repeatability
- Low hysteresis
- Conduit connection isolated from the upper side of the diaphragm
- Integrated filter media, vent limiter, test point, and indicator lamp

### Specifications

- Inlet pressure: 8.5psi (600mbar), CSA: 5psi (350mbar)
- Switching capacity: 30-240V AC, <30V gold contacts
- Ambient temperature: -40°F to 140°F (-40°C to 60°C).
- Enclosure: IP 54

### Applications

Monitoring gas and air pressure in various applications.

### Approvals

- SIL, PLe
- CE
- UL
- FM
- EAC
- AGA - Australia

### Model Selection

Code	Description
DL	Pressure Switch - Air
Switching Range	
1 - 150	0.08 - 60" w.c. (0.2 - 150mbar)
Version	
A	Tube and threaded connection and hand wheel adjustment,
E	With flat plugs, tube connections, adjusting screw, -40 - 230°F (-40 - 110°C)
EH	With flat plugs, tube connections, adjusting screw, -4 - 185°F (-40 - 110°C)
K	Tube connection and hand wheel adjustment
Market/Standard	
-	EMEA - omit
T	NAFTA
Switching contacts	
-	Silver - omit
G	Gold-plated silver
Electrical connections	
-1	AMP plug connection
-3	Screw terminals
-4	Screw terminal, IP65
-5	4-Pin plug without socket
-6	4-Pin plug with socket
-9	4-Pin plug with socket, IP65
Lamp	
-	Without - omit
K2	Red/Green pilot LED 24V DC/AC
N	Blue pilot lamp, 120V AC
T	Blue pilot lamp, 230V AC
T2	Red/Green pilot lamp 230V AC
Test tap	
-	Without - omit
P	With test tapping point
Test key	
1	With one test key (lower chamber)
2	With two test keys (upper and lower chamber)
Adjustment variant	
-	Without - omit
A	External adjustment
Bracket	
W	Z-angle bracket

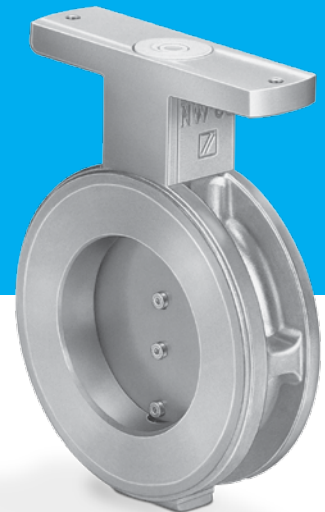
Type	Variants													Mounting					Accessories			IP Rating			
	Range units			Adjustment		Elec Conn		Sensing Conn			Version					Securing Clip "S"	Securing clip "D"	"L" angel bracket	"Z" angle bracket	"U" angle bracket	External Adjustment	Tube set	Motor flange adapter	Standard	Maximum
	Adjusting Range in Pascal	Adjusting range in mbar	Adjusting range in "w.c.	Hand wheel	adjusting screw	Screw Terminals	Amp plugs	Tube Connections	Threaded connection	Pilot lamp/ Pilot LED	Gold-plated contacts	Standard socket set	Test key in lower chamber	Test key in upper chamber	Additional sensing port										
DL 3.3 - 40K	●	●	●	●	●	●	○	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	54	54	
DL 2 - 35E	●	●	●	●	●	●	○	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	10/21	44	
DL 1.5 - 3A	○	●	●	●	●	●	○	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	54	65	
DL 5 - 150A	○	●	●	●	●	●	○	●	●	○	○	○	●	○	○	○	○	○	○	○	○	○	54	65	
DL 3K	○	●	●	●	●	●	○	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	54	65	
DL 5 - 150K	○	●	●	●	●	●	○	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	54	65	
DL 1 - 3E	○	●	●	●	●	●	○	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	10/21	44	
DL 5 - 50E	○	●	●	●	●	●	○	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	10/21	44	



# Butterfly Valves

## BVG, BVA

Control of gas or air via hand lever or direct coupled IC actuator



Flange mounted butterfly valve for controlling fuel and air flows. The IC actuators can be directly coupled to the valve.

### Features

- Available in full and reduced ports
- Adapter kits available to connect to other actuators
- Hand lever available for manual control

### Specifications

- Inlet pressure: 7psi (500mbar), CSA: 5psi (350mbar)
- Gas Type: natural gas, LPG (gaseous), bio methane (<0.1% H<sub>2</sub>S), air; BVA: air only
- Body material: AISi
- Valve disc: aluminum
- Drive shaft: stainless steel
- Seals: NBR
- Medium temperature: -4°F to 140°F (-20°C to 60°C).

### Applications

For controlling gas and air streams.

### Approvals

- CE
- FM
- EAC

### Model Selection

Code	Description
BVA	Butter fly valve for air
BVG	Butter fly valve for gas
BVAF	Butter fly valve for air, fine control
BVGF	Butter fly valve for gas, fine control
BVH	Butter fly valve for hot (842°F (450°C)) air/flue gas
BVHR	Butter fly valve for hot (1,022°F (550°C)) air/flue gas
BVHS	Butter fly valve for hot (842°F (450°C)) air/flue gas with safety closing function
BVHM	Butter fly valve for hot (842°F (450°C)) air/flue gas, for MB 7 actuator
Nominal Size	
40	1-1/2" (40mm)
50	2" (50mm)
65	2-1/2" (65mm)
80	3" (80mm)
100	4" (100mm)
125	5" (125mm)
150	5" (150mm)
Bore	
-	Equal to Nominal - omit
25	1" (25mm)
32	1-1/4" (32mm)
40	1-1/2" (40mm)
50	2" (50mm)
65	2-1/2" (65mm)
80	3" (80mm)
100	4" (100mm)
125	5" (125mm)
For fitting between flanges	
Z	For fitting between two flanges to EN 1092
W	For fitting between two ANSI flanges
Maximum inlet pressure	
01	60" w.c. (150mbar)
05	200" w.c. (500mbar)
Control adapter	
-	Without/IC actuator - omit
H	With manual adjustment handle
F	With 10mm round shaft
V	With 8mm square shaft
Stop bar	
-	Without -
A	With stop bar

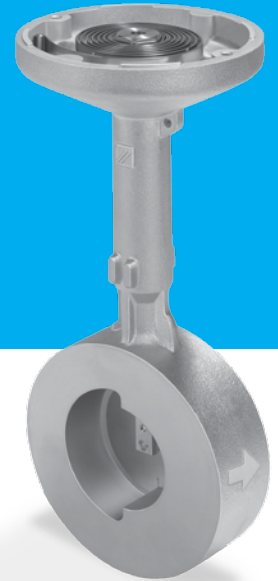
Type	Nominal size							Red. Bore		Conn.		Pressure		Control Adapter				Stop bar	
	40	50	65	80	100	125	150	-	/25-/125	Z	W	01	05	-	H	F	V	-	A
BVA	●	●	●	●	●	●	●	●	○	●	●	—	●	○	○	○	○	●	—
BVG	●	●	●	●	●	●	●	●	○	●	●	—	●	○	○	○	○	●	—
BVAF	●	●	●	●	●	●	●	●	○	●	●	—	●	○	○	○	○	●	—
BVGF	●	●	●	●	●	●	●	●	○	●	●	—	●	○	○	○	○	●	—
BVH	●	●	●	●	●	—	—	●	—	●	●	●	—	—	—	—	—	—	●
BVHR	●	●	●	●	●	—	—	●	—	●	●	●	—	—	—	—	—	—	●
BVHS	●	●	●	●	●	—	—	●	—	●	●	●	—	—	—	—	—	—	●
BVHM	●	●	●	●	●	—	—	●	—	●	●	●	—	—	—	—	—	—	●

● - Standard selection    ○ - Optional selection    — - Selection not available

# Butterfly Valves

## BVHx

Precise control of hot air or flue gases via hand lever or direct coupled IC actuator with almost zero hysteresis



Flange mounted butterfly valve for controlling hot air or flue gas flows. The IC and MB actuators can be directly coupled to the valve.

### Features

- TwinDisk® technology for low leakage rate
- Tension spring for almost zero hysteresis
- Extended shaft for use with hot air and flue gases
- Capable of high cycling rate for Pulse Fire applications

### Specifications

- Inlet pressure: 7 psi (500mbar), CSA: 5psi (350mbar)
- Gas type: air, flue gas
- Body material: GGG
- Valve disc: stainless steel
- Drive shaft: stainless steel
- Seals: NBR
- Medium temperature, BVH: -4°F to 840°F (-20°C to 450°C); BVHR: -4°F to 1020°F (-20°C to 550°C).

### Applications

For controlling air and flue gas streams. Primarily used in Pulse Fire applications.

### Approvals

- CE
- FM
- EAC

### Model Selection

Code	Description
BVA	Butter fly valve for air
BVG	Butter fly valve for gas
BVAF	Butter fly valve for air, fine control
BVGF	Butter fly valve for gas, fine control
BVH	Butter fly valve for hot (842°F (450°C)) air/flue gas
BVHR	Butter fly valve for hot (1,022°F (550°C)) air/flue gas
BVHS	Butter fly valve for hot (842°F (450°C)) air/flue gas with safety closing function
BVHM	Butter fly valve for hot (842°F (450°C)) air/flue gas, for MB 7 actuator
Nominal Size	
40	1-1/2" (40mm)
50	2" (50mm)
65	2-1/2" (65mm)
80	3" (80mm)
100	4" (100mm)
125	5" (125mm)
150	5" (150mm)
Bore	
-	Equal to Nominal - omit
25	1" (25mm)
32	1-1/4" (32mm)
40	1-1/2" (40mm)
50	2" (50mm)
65	2-1/2" (65mm)
80	3" (80mm)
100	4" (100mm)
125	5" (125mm)
For fitting between flanges	
Z	For fitting between two flanges to EN 1092
W	For fitting between two ANSI flanges
Maximum inlet pressure	
01	60" w.c. (150mbar)
05	200" w.c. (500mbar)
Control adapter	
-	Without/IC actuator - omit
H	With manual adjustment handle
F	With 10mm round shaft
V	With 8mm square shaft
Stop bar	
-	Without -
A	With stop bar

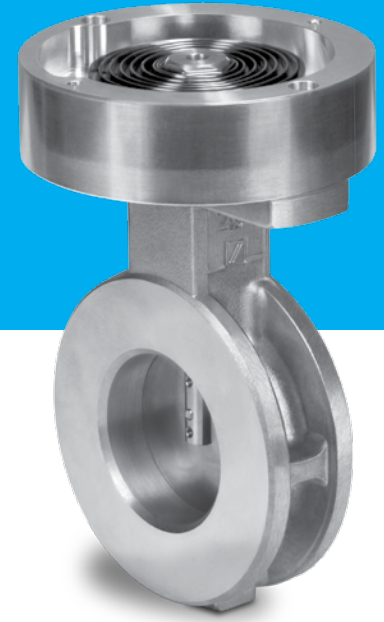
Type	Nominal size							Red. Bore		Conn.		Pressure		Control Adapter				Stop bar	
	40	50	65	80	100	125	150	-	/25-/125	Z	W	01	05	-	H	F	V	-	A
BVA	●	●	●	●	●	●	●	●	○	●	●	—	●	○	○	○	○	●	—
BVG	●	●	●	●	●	●	●	●	○	●	●	—	●	○	○	○	○	●	—
BVAF	●	●	●	●	●	●	●	●	○	●	●	—	●	○	○	○	○	●	—
BVGF	●	●	●	●	●	●	●	●	○	●	●	—	●	○	○	○	○	●	—
BVH	●	●	●	●	●	—	—	●	—	●	●	●	—	—	—	—	—	—	●
BVHR	●	●	●	●	●	—	—	●	—	●	●	●	—	—	—	—	—	—	●
BVHS	●	●	●	●	●	—	—	●	—	●	●	●	—	—	—	—	—	—	●
BVHM	●	●	●	●	●	—	—	●	—	●	●	●	—	—	—	—	—	—	●

● - Standard selection    ○ - Optional selection    — - Selection not available

# Butterfly Valves

## BVxF

Precise control of gas or air when directly coupled IC actuator with almost zero hysteresis



Flange mounted butterfly valve for controlling fuel and air flows. An internal spring keeps the valve in tension with the actuator to ensure immediate response to the actuator. The IC actuators can be directly coupled to the valve.

### Features

- Available in full and reduced ports
- Tensioning spring to eliminate hysteresis between the actuator and the valve
- Adapter kits available to connect to other actuators
- Hand lever available for manual control

### Specifications

- Inlet pressure: 7psi (500mbar), CSA+C23:F28: 5psi (350mbar)
- Gas type: natural gas, LPG (gaseous), bio methane (<.1% H<sub>2</sub>S), air; BVAf: air only
- Body material: AlSi
- Valve disc: aluminum
- Drive shaft: stainless steel
- Seals: NBR
- Medium temperature: -4°F to 140°F (-20°C to 60°C).

### Applications

For precise modulating control of gas and air streams.

### Approvals

- CE
- FM
- EAC

# Actuators

## IC 20

Low-torque rotary actuator with 3-point step or continuous control equipped with auto/manual switch for commissioning



90° rotary actuator designed to direct-couple to the BV and VFC-series valves for precise control of the media.

### Features

- Precision servo motor
- Auto/manual mode to facilitate valve setup
- Adjustable cams for high and low positions, plus two free-floating cams
- Optional feedback potentiometer

### Specifications

- Input voltage: 110, 230V AC
- Control Voltage: Mains Voltage, IC 20..E: 4-20mA
- Contact rating: 24-230V
- Torque: 22-26in lbf (2.5-3Nm)
- Ambient temperature: -4°F to 140°F (-20°C to 60°C).
- Enclosure: IP 65

### Applications

For the operation of low torque gas and air control valves where precise positioning of the valve is critical to the process.

### Approvals

- CE
- EAC
- CSA Pending

### Model Selection

Code	Description
IC 20	Standard
IC 30	Low Voltage
IC 40	Smart Actuator
IC 50	High Torque
<b>Running time in s/90°</b>	
-	Programmable (omit)
-3	3.7
-7	7.5
-15	15
-30	30
-60	60
<b>Safety Closing Function</b>	
-	without (Omit)
S	Safety Closing
<b>Mains voltage:</b>	
A	100-230 V AC, 50/60 Hz
K	24 V DC, ± 20%
Q	120 V AC, 50/60 Hz
W	230 V AC, 50/60 Hz
<b>Torque:</b>	
2	2.5 Nm
3	3 Nm
7.5	7.5 Nm
15	15 Nm
20	20 Nm
30	30 Nm
<b>Control Signal</b>	
A	4-20 mA Analog
D	Digital Input
E	Continuous control
T	Three-point step control
<b>Position Feedback</b>	
-	4-20 mA <sup>1</sup>
R10	R10 <sup>2</sup>

<sup>1</sup>: Control option "E" includes feedback

<sup>2</sup>: Control option "T" for IC 50 includes feedback

IC	Running Time						SCF		Input Voltage					Torque					Control Signal				Feedback		
	-	-3	-7	-15	-30	-60	-	S	A	K	H	Q	W	2	3	7.5	15	20	30	A	D	E	T	-	R10
20	—	—	●	●	●	●	●	—	—	—	—	●	●	●	●	—	—	—	—	—	—	●	●	● <sup>1</sup>	○
30	—	—	—	—	●	●	●	—	—	●	—	—	—	—	●	—	—	—	—	—	—	—	—	—	○
40	●	—	—	—	—	—	●	○	●	—	—	—	—	●	●	—	—	—	—	●	●	—	—	—	○
50	—	—	●	●	—	○	●	—	—	—	●	●	●	●	●	●	●	●	●	●	—	—	—	● <sup>1</sup>	● <sup>2</sup>

● - Standard selection ○ - Optional selection — - Selection not available

<sup>1</sup>: Control option "E" includes feedback

<sup>2</sup>: Control option "T" for IC 50 includes feedback

# Actuators

## IC40

Low-torque programmable rotary actuator with 3-point step or continuous control for use in complex applications



90° rotary actuator designed to direct-couple to the BV and VFC-series valves for precise control of the media.

### Features

- Precision step-motor
- Programmable opening and closing profiles
- 2 programmable outputs

### Specifications

- Input voltage: 100-230V AC
- Control voltage: mains voltage, IC 40..A: 4-20mA
- Digital input rating: 24V DC 100-230V AC
- Digital output rating: 2A max
- Torque: 22-26in lbf (2.5-3Nm)
- Ambient temperature: -4°F to 140°F (-20°C to 60°C).
- Enclosure: IP 65

### Applications

For the operation of low torque gas and air control valves where precise positioning of the valve is critical to the process.

### Approvals

- CE
- CSA
- EAC

### Model Selection

Code	Description
IC 20	Standard
IC 30	Low Voltage
IC 40	Smart Actuator
IC 50	High Torque
<b>Running time in s/90°</b>	
-	Programmable (omit)
-3	3.7
-7	7.5
-15	15
-30	30
-60	60
<b>Safety Closing Function</b>	
-	without (Omit)
S	Safety Closing
<b>Mains voltage:</b>	
A	100-230 V AC, 50/60 Hz
K	24 V DC, ± 20%
Q	120 V AC, 50/60 Hz
W	230 V AC, 50/60 Hz
<b>Torque:</b>	
2	2.5 Nm
3	3 Nm
7.5	7.5 Nm
15	15 Nm
20	20 Nm
30	30 Nm
<b>Control Signal</b>	
A	4-20 mA Analog
D	Digital Input
E	Continuous control
T	Three-point step control
<b>Position Feedback</b>	
-	4-20 mA <sup>1</sup>
R10	R10 <sup>2</sup>

<sup>1</sup>: Control option "E" includes feedback

<sup>2</sup>: Control option "T" for IC 50 includes feedback

IC	Running Time						SCF		Input Voltage					Torque					Control Signal				Feedback		
	-	-3	-7	-15	-30	-60	-	S	A	K	H	Q	W	2	3	7.5	15	20	30	A	D	E	T	-	R10
20	-	-	●	●	●	●	●	-	-	-	-	●	●	●	●	-	-	-	-	-	-	●	●	● <sup>1</sup>	○
30	-	-	-	-	●	●	●	-	-	●	-	-	-	-	●	-	-	-	-	-	-	-	●	-	○
40	●	-	-	-	-	-	●	○	●	-	-	-	-	●	●	-	-	-	-	●	●	-	-	-	○
50	-	●	●	●	●	○	●	-	-	-	●	●	●	●	●	●	●	●	●	-	-	●	-	● <sup>1</sup>	● <sup>2</sup>

● - Standard selection ○ - Optional selection - - Selection not available

<sup>1</sup>: Control option "E" includes feedback

<sup>2</sup>: Control option "T" for IC 50 includes feedback

# Actuators

## IC 50

High-torque rotary actuator with 3-point step or continuous control equipped with auto/manual switch for commissioning



90° rotary actuator designed to direct-couple to the BV and VFC-series valves for precise control of the media.

### Features

- Precision servo motor
- Auto/manual mode to facilitate valve setup
- Adjustable cams for high and low positions, plus two free-floating cams
- Optional feedback potentiometer

### Specifications

- Input voltage: 24, 110, 230V AC
- Control voltage: mains voltage, IC 50..E: 4-20mA
- Contact rating: 24-230V
- Torque: 26-265in lbf (3-30Nm)
- Ambient temperature: -4°F to 140°F (-20°C to 60°C).
- Enclosure: IP 65

### Applications

For the operation of low torque gas and air control valves where precise positioning of the valve is critical to the process.

### Approvals

- CE
- EAC
- CSA Pending

### Model Selection

Code	Description
IC 20	Standard
IC 30	Low Voltage
IC 40	Smart Actuator
IC 50	High Torque
<b>Running time in s/90°</b>	
-	Programmable (omit)
-3	3.7
-7	7.5
-15	15
-30	30
-60	60
<b>Safety Closing Function</b>	
-	without (Omit)
S	Safety Closing
<b>Mains voltage:</b>	
A	100-230 V AC, 50/60 Hz
K	24 V DC, ± 20%
Q	120 V AC, 50/60 Hz
W	230 V AC, 50/60 Hz
<b>Torque:</b>	
2	2.5 Nm
3	3 Nm
7.5	7.5 Nm
15	15 Nm
20	20 Nm
30	30 Nm
<b>Control Signal</b>	
A	4-20 mA Analog
D	Digital Input
E	Continuous control
T	Three-point step control
<b>Position Feedback</b>	
-	4-20 mA <sup>1</sup>
R10	R10 <sup>2</sup>

<sup>1</sup>: Control option "E" includes feedback

<sup>2</sup>: Control option "T" for IC 50 includes feedback

IC	Running Time						SCF		Input Voltage					Torque					Control Signal				Feedback		
	-	-3	-7	-15	-30	-60	-	S	A	K	H	Q	W	2	3	7.5	15	20	30	A	D	E	T	-	R10
20	-	-	●	●	●	●	●	-	-	-	-	●	●	●	●	-	-	-	-	-	-	●	●	● <sup>1</sup>	○
30	-	-	-	-	●	●	●	-	-	●	-	-	-	●	●	-	-	-	-	-	-	-	-	-	○
40	●	-	-	-	-	-	○	○	●	-	-	-	-	●	●	-	-	-	-	●	●	-	-	-	○
50	-	●	●	●	●	○	●	-	-	-	●	●	●	●	●	●	●	●	●	-	-	●	●	● <sup>1</sup>	● <sup>2</sup>

● - Standard selection ○ - Optional selection - - Selection not available

<sup>1</sup>: Control option "E" includes feedback

<sup>2</sup>: Control option "T" for IC 50 includes feedback

# Actuators

## Solenoid Actuator M..B

Two-position solenoid butterfly valve actuator ultra-high duty cycle for use in Pulse Fire applications

Ultra high duty cycle actuator designed to mount directly to the BVHM butterfly valve for use in Pulse Fire applications.

### Features

- Adjustable high and low positions
- >5million cycles
- Optional slow-opening and slow-closing functions

### Specifications

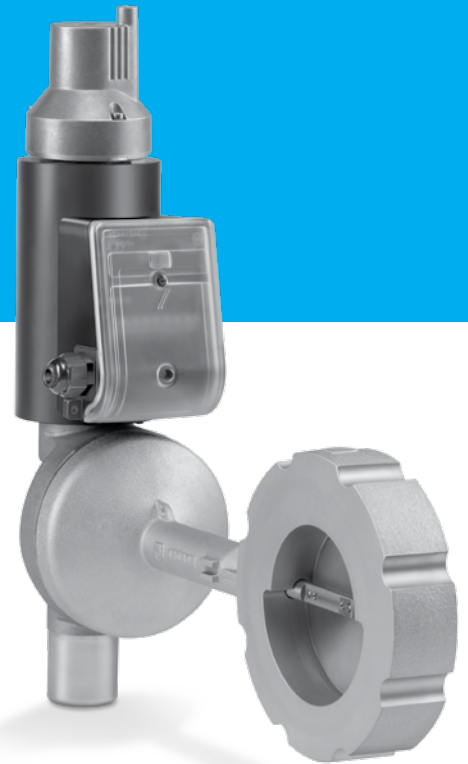
- Input voltage: 24, 110, 230V AC
- Opening time: <1s - 4s
- Ambient temperature: -4°F to 140°F (-20°C to 60°C).
- Enclosure: IP 65

### Applications

For use with the BVHM butterfly valve in high/low control scenarios; particularly pulse fire.

### Approvals

- CE
- FM
- EAC



### Model Selection

Code	Description
MB	Solenoid Actuator
	Actuator Size
7	Size 7 Coil
	Opening speed
R	Slow open/slow close
L	Slow open/fast close
N	Fast open/fast close
	Mains voltage:
W	230 V AC, 50/60 Hz
Q	120 V AC, 50/60 Hz
K	24 V DC
	Electrical Connection
3	Terminal box, IP65
6	Terminal box with 3-pin socket, IP65

MB	Opening Speed			Mains Voltage			Conn	
	R	L	N	W	Q	K	3	6
7	●	●	●	●	●	○	●	○

- - Standard selection
- - Optional selection
- - Selection not available

# Regulators

## GDJ

Low inlet pressure control regulator  
for use on gas or air systems

Pressure reducing regulator used to reduce line pressure up to 5psi to operating pressures at the appliance.

### Features

- Internal sensing pitot
- Integral safety diaphragm
- Optional vent-limiting device
- Zero pressure shut-off

### Specifications

- Gas type: natural gas, LPG (gaseous), bio methane (<0.1% H<sub>2</sub>S); GDJ..L: air
- Max inlet pressure: 5psi (400mbar)
- Outlet pressure range: up to 64" w.c. (160mbar)
- Ambient temperature: -4°F to 140°F (-20°C to 60°C).
- Housing & seat: aluminum
- Valve disk: plastic
- Disk seal and diaphragm: perbunan

### Applications

Used as an appliance or pressure control regulator.

### Approvals

- CE
- GOST



# Regulators

## VGBF

High inlet pressure control regulator  
for use in primary gas manifolds

Pressure reducing regulator used to reduce incoming line pressure up to 60 psi for use in the system manifold.

### Features

- External sensing line
- Integral safety diaphragm
- Zero pressure shut-off
- Compensating diaphragm for smooth control of the gas flow

### Specifications

- Gas type: natural gas, LPG (gaseous), bio methane (<0.1% H<sub>2</sub>S)
- Max inlet pressure: 7, 14.5, 58psi (0.5, 1, 4bar)
- Outlet pressure range: up to 137" w.c. (350mbar)
- Ambient temperature: 5°F to 140°F (-15°C to 60°C).
- Housing, stem, & seat: aluminum
- Wetted diaphragms and valve disk: perbunan; VGBF.V: Viton

### Applications

Used as the primary pressure reducing regulator in large systems and able to maintain a constant outlet pressure over a wide operating range.

### Approvals

- CE
- GOST

# Regulators

## GIK

Gas/air ratio regulator with integrated low-fire bypass orifice.  
Designed for high duty-cycle operation in Pulse Fire systems

Gas/air ratio regulator used to control gas flow in parallel to the air flow. Integrated low fire bypass allows for a fixed low-fire rate.

### Features

- Internal sensing line
- Integrated low-fire bypass orifice
- Optional variable low fire bypass (GIK 15-25)
- Integrated pressure test points
- Zero pressure shut-off
- Optional zero-governor (negative regulation) conversion kit

### Specifications

- Fuels: natural gas, LPG (gaseous), bio methane (<0.02% H<sub>2</sub>S); GIK..L: air
- Inlet pressure: 2.9psi (200mbar)
- Outlet pressure range: 0.2-47"w.c. (0.5-119mbar)
- Air impulse pressure range: 0.2-48"w.c. (0.5-120mbar)
- Transmission range: 1:1
- Low fire bias: GIK 15-50: -1.2 to +1.2"w.c. (-3 to +3mbar), GIK 65-150: -0.8 to +0.8"w.c. (-2 to +2mbar)
- Ambient temperature: -4°F to 140°F (-20°C to 60°C).
- Control range: 101:1
- Diaphragm: NBR

### Applications

For use in controlling the gas flow in relation to the air supply to the burner in industrial applications.

### Approvals

- CE
- GOST

# Accessories

## Flow Meters: DM, DE

Turbine flow meter for accurately measuring gas and air streams

Gas or air flow meter used to measure the process flow in order to calculate efficiency or equipment usage.

### Features

- Mechanical or digital counter head
- Integrated pulse generators for remote output
- Optional M-Bus interface

### Specifications

- Fuels: natural gas, air
- Inlet pressure: 175psi (16bar)
- Housing: aluminum
- Display: 7-digit display with resolution of: DN 25: 0.01m<sup>3</sup>, DN40-150:0.1 m<sup>3</sup>
- Ambient temperature: 14°F to 140°F (-10°C to 60°C).
- Enclosure: IP52

### Applications

The measurement of gas or air in industrial applications.

### Approvals

- CE
- GOST

# Accessories

## Gas Filters: GFK

High efficiency and purification of gaseous media

Gaseous media particulate filter used to remove fine contaminants from the media stream.



### Features

- Highly efficient media stream purification
- Easily replicable filter media
- Upstream and downstream test ports
- Optional high purity media
- Standard 50 micron filter
- Optional 10 micron filter

### Specifications

- Fuels: natural gas, LPG (gaseous), bio methane (<0.02% H<sub>2</sub>S); GIK..L: air
- Inlet pressure: 60psi (4bar)
- Housing material: AlSi
- Ambient temperature: -5°F to 176°F (-15°C to 80°C).

### Applications

To clean gaseous media streams in any application.

### Approvals

- CE

# Accessories

## Ignition Transformer: TZI, TGI

High voltage ignition transformer capable of single-electrode control

High voltage ignition transformer used to ignite burners. Required when using the Kromschroder burner controls for single-electrode operation.



### Features

- Full wave, iron-core ignition transformer
- Standard flame signal feedback wire for single electrode operation.
- Various VA output and duty cycle to match application

### Specifications

- Input: 115, 230V AC
- Output: 5,000 or 7,500V
- Enclosure: TZI: IP 20; TGI: IP65

### Applications

To ignite industrial and commercial burners.

### Approvals

- CSA

# Accessories

## Over Pressure Shut-Off Valve: JSAV

Protects the downstream components from line pressure above the service rating of the components

Mechanical over pressure shut-off designed to protect downstream components from high line pressure in the event of catastrophic failure of the main line regulator.

### Features

- High pressure, high flow design
- Manual reset handle
- Visual trip indicator
- External sensing tap
- Optional under-pressure trip version

### Specifications

- Fuels: natural gas, LPG (gaseous), bio methane (<0.02% H<sub>2</sub>S), air
- Inlet pressure: 58psi (4bar)
- Over pressure trip pressure: up to 8psi, (550mbar)
- Under pressure trip pressure: up to 58.5" w.c. (150mbar)
- Housing: JASV 25-40: AISi; JSAV 50-100: GGG40
- Diaphragm: NBR
- Ambient temperature: -5°F to 140°F (-15°C to 60°C).

### Applications

Used to protect downstream components in industrial fuel train. Under-pressure systems are used to detect line breaks and shut-off the flow of gas.

### Approvals

- CE
- EAC



# Accessories

## Over Pressure Relief Valve: VSBV

Relieves surges in line pressure to prevent over-pressure shutdowns

Over pressure relief valve used to momentarily relieve spikes in the line pressure to reduce nuisance trip of the high pressure limit devices.

### Features

- Pressure test point to accurately adjust trip pressure
- Multiple spring ranges to meet application needs

### Specifications

- Fuels: Natural Gas, LPG (gaseous), Bio Methane (<0.02% H<sub>2</sub>S), air
- Inlet pressure: 58psi (4bar)
- Trip pressure: up to 7psi (500mbar)
- Housing: aluminum
- Diaphragm: perbunan
- Ambient temperature: -5°F to 140°F (-15°C to 60°C).

### Applications

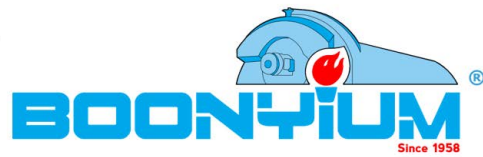
For primary gas manifolds in commercial and industrial applications.

### Approvals

- CE
- GOST



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