SERIES 2000
SOLENOID OPERATED GAS SAFETY SHUT-OFF VALVE

BLACK/
TEKNIGAS

APPLICATION

Series 2000 Solenoid Valves are Safety Shut-off or Control Valves for use on gases in gas families 1, 2 and 3 and are also suitable for use with air within the valves pressure range - see specification. Two valves may be bolted together in tandem to form a double block valve.

FEATURES

* CE Certificated
* Range from ¾" to 2"
* Flow Restrictor as standard
* Flow Regulation from 0 to 100%
* Full-wave Rectified Coil for quiet operation
* Normally Closed operation
* 200mbar maximum working pressure
* Pressure Test Points on Inlet and Outlet
* Approved to EN161 Group 2, Class A
* Available as Fast or Slow Opening
* Built in filter
* Available with Closed Position Indicator Switch
* 230V, 110V and 24V AC 50/60Hz Versions
* Range of accessories available
* Supplied with PG11 Cable Gland

DESCRIPTION

Series 2000 is a range of Solenoid Operated Safety Shut-off Valves. Their primary application is the on/off control of low pressure 1st (town gas), 2nd (natural gas) and 3rd (LPG) family gases, although they may also be used as control valves for devices such as automatic burners and for low pressure air applications.

The valves are available in screwed connections from ¾" up to 2" and have Flow Adjustment as a standard feature. Slow Opening valves are available and CPI Switches are available as an extra. All valves are supplied with plugged Pressure Test Points in both Inlet and Outlet Ports on both sides of the valve.

The valve construction is of an aluminium die-cast body with a solenoid actuator and is maintenance free. There are no user serviceable parts to the valve.

Upon being energised, the fast opening valve will open instantaneously whilst the slow opening valve will open within a user adjustable time span of up to 15 seconds. Upon being de-energised the valves will close in less than 1 second.

Removal of the power for whatever reason will cause the valves to close. Manual reset switches, for remote mounting are available as accessories. When fitted, manual intervention is required to reopen the valve after removal of the power by, for example, a power cut. To re-energise the valve the switch is momentarily depressed which allows power to the valve, latching the reset switch in the 'on' position and allowing the valve to open.

Remote mounted emergency cutout switches are also available in plastic or die-cast housings and also with a key switch operated action. Two types of thermal fuses are also available, either manually resettable or nonresettable where a fuse has to be physically replaced in the device. See accessory section.

ORDERING CODES

Size	Part Numbers		
Type - Fast Opening with Flow Adjustment			
	230V AC	***110V AC***	***24V AC***
3/4"	2005 230 V	2005 110 V	2005 24 V
1"	2006 230 V	2006 110 V	2006 24 V
11/4"	2007 230 V	2007 110 V	2007 24 V
11/2'	2008 230 V	2008 110 V	2008 24 V
2"	2009 230 V	2009 110 V	2009 24 V
Type - Fast Opening with Flow Adjustment and Closed Position Indicator Switch			
3/4"	2005 230 VC	2005 110 VC	2005 24 VC
1"	2006 230 VC	2006 110 VC	2006 24 VC
11/4"	2007 230 VC	2007 110 VC	2007 24 VC
11/2'	2008 230 VC	2008 110 VC	2008 24 VC
2"	2009 230 VC	2009 110 VC	2009 24 VC

Size	Part Numbers		
Type - Slow Opening with Flow Adjustment			
	230V AC	***110V AC***	***24V AC***
3/4"	2005 230 VS	2005 110 VS	2005 24 VS
1"	2006 230 VS	2006 110 VS	2006 24 VS
11/4"	2007 230 VS	2007 110 VS	2007 24 VS
11/2'	2008 230 VS	2008 110 VS	2008 24 VS
2"	2009 230 VS	2009 110 VS	2009 24 VS
Type - Slow Opening with Flow Adjustment and Closed Position Indicator Switch			
3/4"	2005 230 VSC	2005 110 VSC	2005 24 VSC
1"	2006 230 VSC	2006 110 VSC	2006 24 VSC
11/4"	2007 230 VSC	2007 110 VSC	2007 24 VSC
11/2'	2008 230 VSC	2008 110 VSC	2008 24 VSC
2"	2009 230 VSC	2009 110 VSC	2009 24 VSC

SPECIFICATION

Media:
Non-corrosive gases and air, approved for use with gas families 1. Town Gas
2. Natural Gas
3. LPG

Media Temperature Range:
-10°C to +60°C

Ambient Temperature Range:
-20°C to +60°C

Opening Speed etc.:
Fast Opening Models < 1 sec.
Slow Opening Models < 1 sec to 15 sec

Closing Speed:
All models < 1 sec

Flow Regulation:
0 to 100% repeatable

Electrical:
Models available
230V AC 50Hz
110V AC 50Hz
24V AC 50Hz

Rating:

	All Models
¾" - 1"	20VA
1¼" - 1½"	37VA
2"	43VA

Maximum Switching rate:
1000 cycles per hour

Pipe Connections:
Rp ¾" up to Rp 2" - ISO 7-1

Pressure Test Points
Plugged test point on Inlet and outlet ports on both sides of body

Inlet Pressure:
All models - 200 mbar

Seat Disc:
Buna "N"

Cable Gland:
Pg 11 - supplied

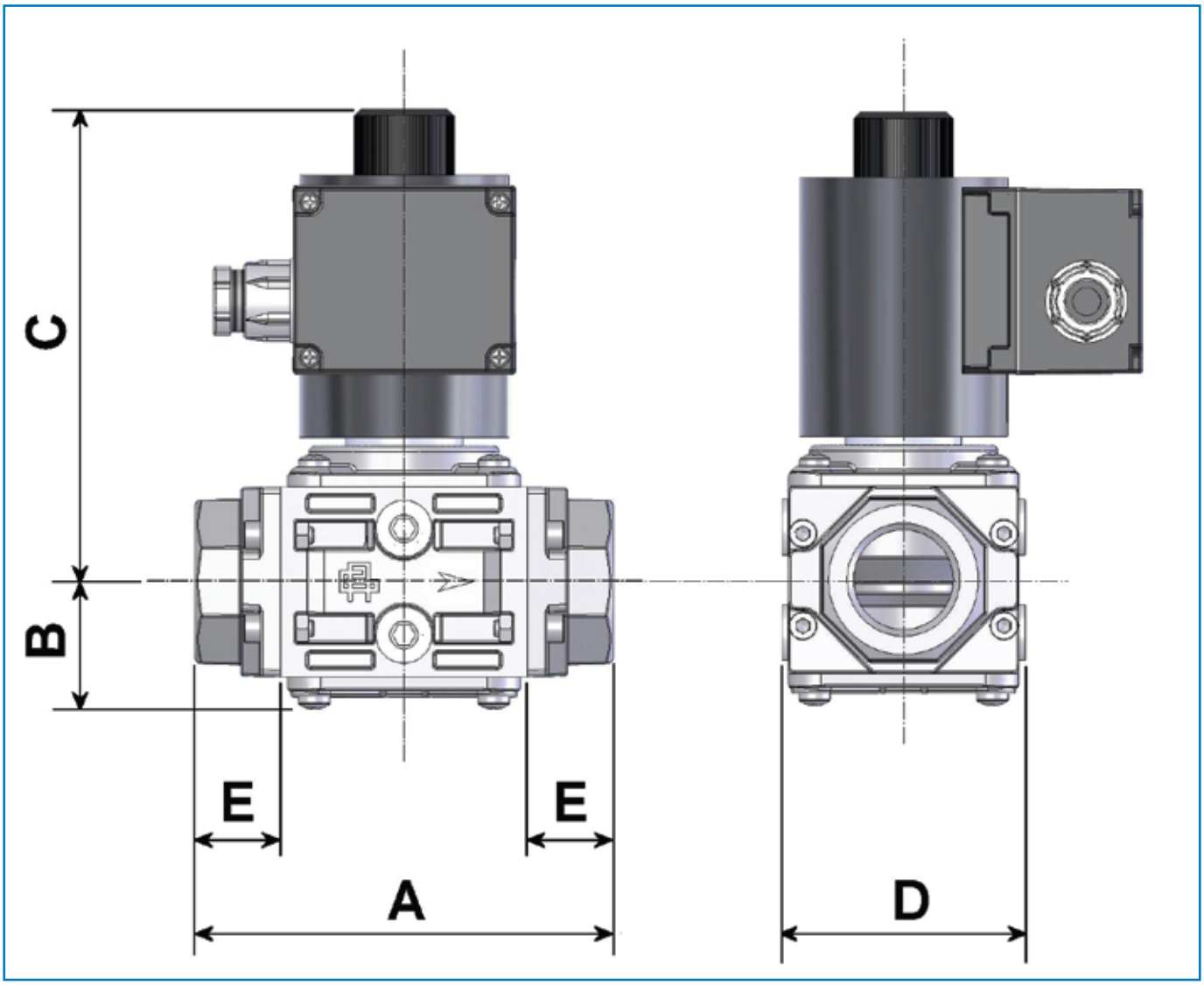
Environmental:
IP54 - IEC 529

Filter:
1mm wire mesh

Approvals:
All models approved to EN161 Class A, Group 2 for Gas Families 1, 2 and 3
EC Certificated
EN 126

Closed Position Indicator Switch (if fitted)
2 normally open contacts
Voltage 250V AC,
Consumption 10W
Rating 10VA Maximum

DIMENSIONS



Model	Connections	A	B	C	D	E
BC 2005V/VC	Rp3/4"	126	38	142	74	26
BC 2005 VS/VSC	Rp3/4"	126	38	216	74	26
BC 2006V/VC	Rp 1"	126	38	142	74	26
BC 2006 VS/VSC	Rp 1"	126	38	216	74	26
BC 2007V/VC	Rp 1.1/4"	167	57	167	113	29
BC 2007 VS/VSC	Rp 1.1/4"	167	57	245	113	29
BC 2008V/VC	Rp 1.1/2"	167	57	167	113	29
BC 2008 VS/VSC	Rp 1.1/2"	167	57	245	113	29
BC 2009V/VC	Rp 2"	195	62	171	135	32
BC 2009 VS/VSC	Rp 2"	195	62	250	135	32

Note for 'VC' and 'VSC' models add 40mm to dimension 'B'.

Dimensions in millimetres

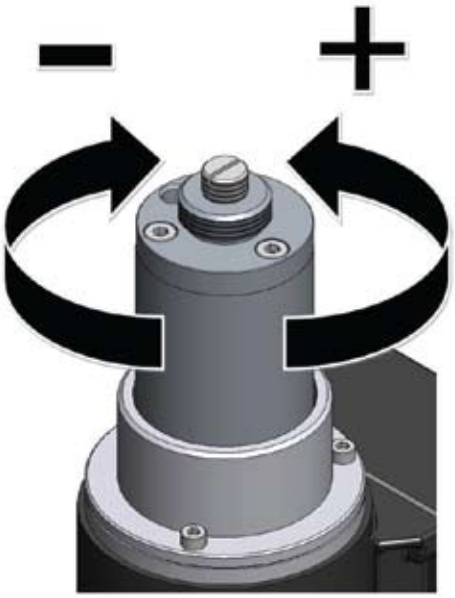


Fig.1 - Flow Adjustment - see Page 6

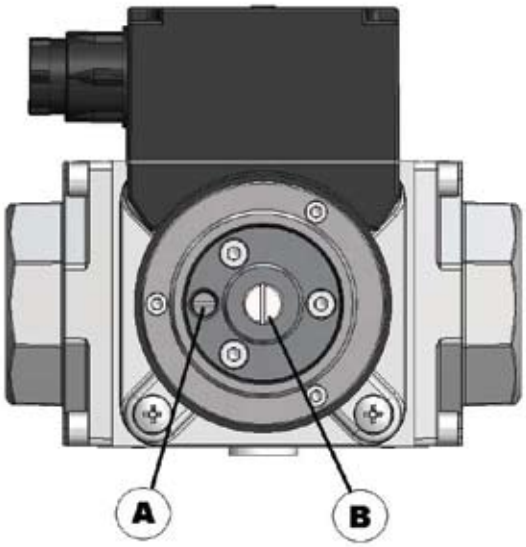


Fig 2. - Flow and Opening Time Adjustment - see Page 6

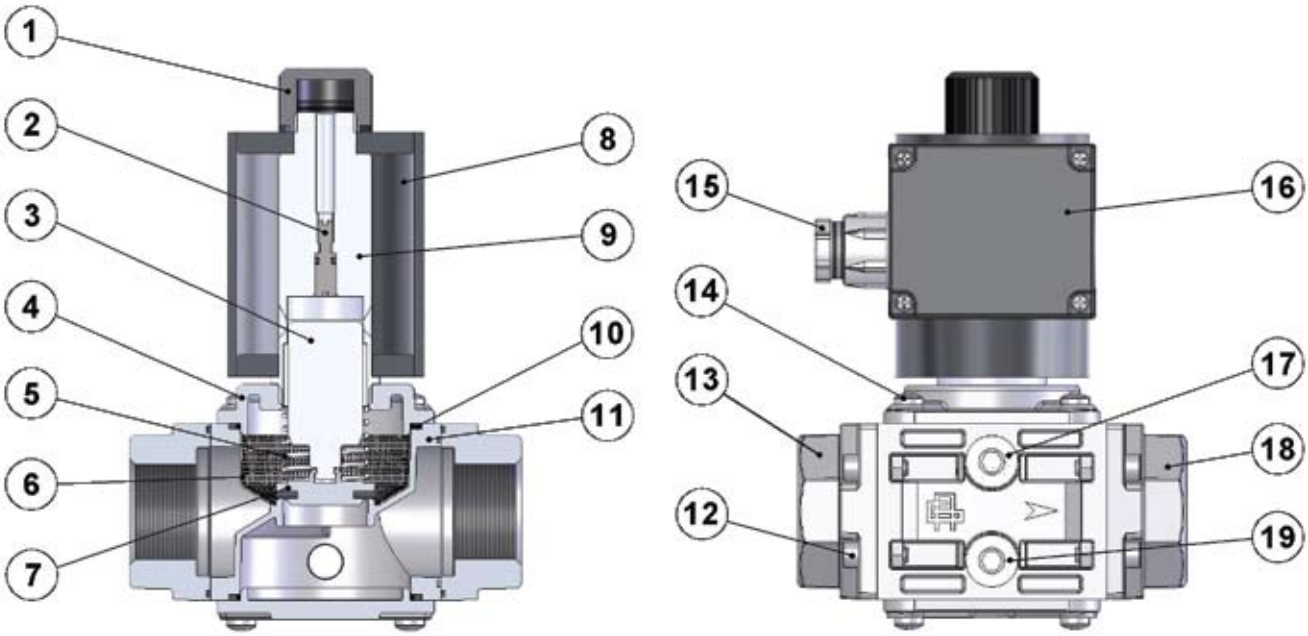


Fig.3 - Series 2000 Component Parts

1 - Top Cap

2 - Flow Adjustment Screw

3 - Armature

4 - Body Top

5 - Valve Spring

6 - Filter

7 - Valve Head

8 - Coil

9 - Armature Housing

10 - 'O' ring

11 - Valve Body

12 - Flange Screws

13 - Inlet Flange

14 - Cover Screws

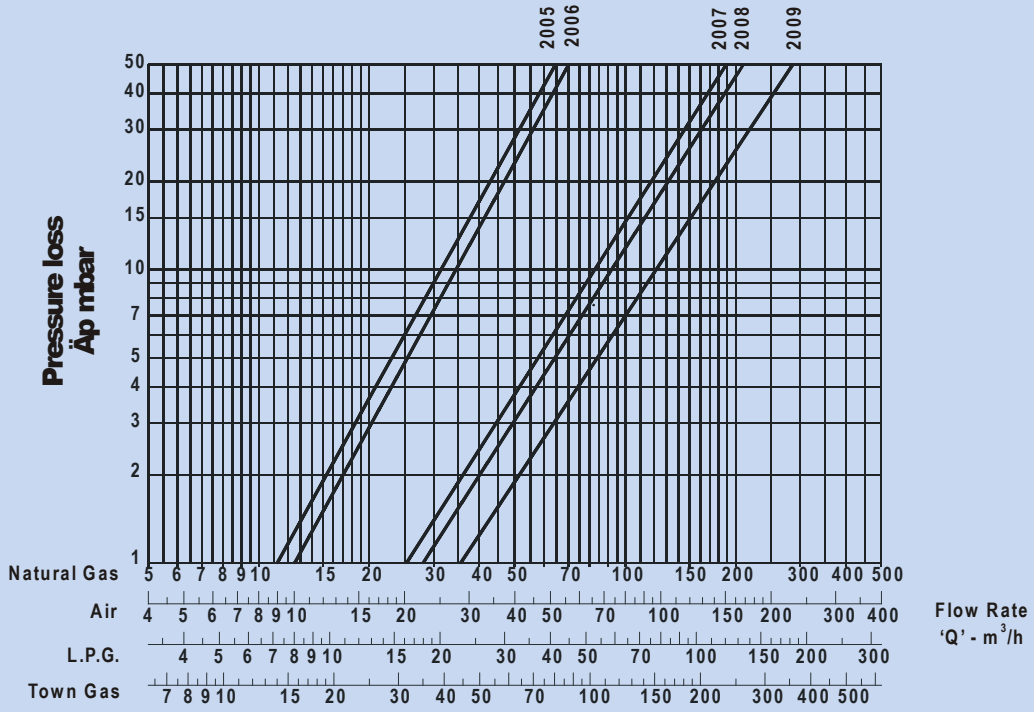
15 - Cable Gland

16 - Electrical Housing

17/19 - Pressure Test Plugs

18 - Outlet Flange

FLOW CHART



INSTALLATION AND OPERATION

Installation

Observe local Codes of Practice e.g. Use of CORGI registered installers. Avoid installing in contact with plastered walls.

Ensure that gas and electricity supplies are adequate and ambient temperature is suitable. Switch off gas supply before commencing installation. Connecting pipework must be clean. Mount Valve onto pipework using a suitable thread sealant which must be applied to the pipework, not the internal thread of the valve. When installing a valve in pipework **do not use the coil as a lever**, but use the correct wrench.

Valves may be mounted either horizontally or vertically providing that the actuator is not below the valve body.

Ensure that the flow arrow on the valve body is in the correct position in relation to the gas supply. Fitting an upstream gas filter is recommended.

To connect two valves together use the 'O' ring and screws set available for this purpose. If fitting more than three series 2000 valves in line, the valves must be supported.

Ensure that the electrical supply is m.c.b. protected or fitted with a slow blow fuse rated slightly higher than the maximum power requirement for the valve (See specification). Refer to wiring diagram illustration and connect supply to screw terminals, as indicated. Where necessary make connections to Closed Position Indicator (CPI) Switch.

Commissioning

Leak test the Gas connections, Switch on Gas supply, Test points may be used to establish static pressure of the gas supply. Control is now ready for service.

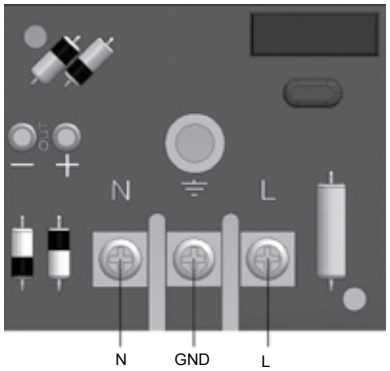
Flow Adjustment - see diagrams page 5

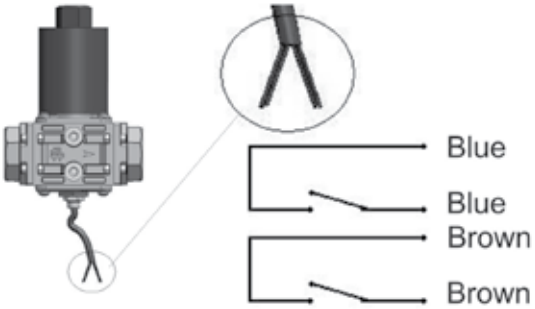
Series 2000 valves are fitted, as standard, with a flow adjuster. This device acts by restricting the opening of the valve and allow the gas flow to be adjusted from 0 to 100%. To adjust the gas flow unscrew the coil top cap (1) to access the adjuster screw (2 - also 'B' fig 2) inside the flange tube (9) of the valve. Use a flat bladed screw driver to make the adjustment.

Turn the screw clockwise to reduce the flow and counter-clockwise to increase it. When the screw is completely tightened there is no gas flow and maximum flow occurs when the screw is completely loosened.

Opening Time Adjustment on Slow Opening Models

Slow Opening valves are factory set at minimum opening time. To adjust, Firstly remove the top cap (1) on the top of the coil and then with a flat bladed screwdriver (1 x 5.5) turn screw 'A' (fig.2) either clockwise to increase speed or anti-clockwise to decrease speed. Maximum time from fully open to fully closed is 15 seconds. **See Fig.2 page 5.**





Wiring Diagrams for Valves (left) and CPI - if fitted (right).

Please read the preceding installation and operating instructions.

This equipment must be installed in accordance with current regulations

ACCESSORIES

THERMAL FUSES

Remote mounted thermally operated fuse in vented metal housings, suitable for wall or conduit mounting Wired in series with the Safety Shut Off Valve, the fuse will open a circuit at a predetermined temperature, interupting the supply to the valve, which will then close. It is recommended that the housing is mounted between 0.3 and 1 metre above an area where fire may occur. The thermal fuse is single pole; electrical connections are via a screw terminal block inside the housing.

SPECIFICATION
Product Code:- BC66MRF
Electrical rating: - single pole change-over 5A max.
Fusing temperature: - from 70^{O}C; 10^{O}C reset differential 230V a.c. (resistive and inductive)

MANUALLY RESETTABLE VERSION
A knob on the front of the unit is rotated through a quarter turn to reset. The fuse is provided with a backplate for fixing and can be mounted on to a standard circular conduit box. There is provision for earthing via a stud adjacent to the terminal block.

NON RESETTABLE VERSION

SPECIFICATION
Product code: - BC66ETF
Electrical rating - 15A max. 230V a.c.
Fusing temperature: - 72^{O}C standard - others available

MANUAL RESET SWITCH

A push button operated switch which isolates the electrical supply to the valve in the event of power failure. When power is restored to the valve, the push button must be depressed before the valve will open' Integral and remote versions are available Suitable for screw fixing to a flat surface. Route electrical supply to valve through unit; electrical connection via screw terminals, cable entry 20mm diameter.

SPECIFICATION
Product code: - BC66RSR (add voltage as suffix)
Consumption: - 1VA max.
Drop out time: - typically 10ms
Protection: - IP65

EMERGENCY CUTOUT SWITCHES

Remote mounted push-to-break contact/ twist-to-reset switches for emergency use. Available in metal or plastic wall mounting box, with or without key switch operation. Screw fix to flat surface. Connect electrical supply through single pole switch block via screw terminals.

SPECIFICATION
Product Codes -Metal box -BC66ESB
Plastic box - BC66ESB/P
Key switch op. - BC66ESB/K
Contacts:- 10A 500V max. single pole
Temperature range: -25^{O} C to + 70^{O} C
Protection: - BC66ESB - IP65, others IP40

AUTOMATIC GAS PROVING SYSTEMS

A range of automatic proving systems for use in either laboratory or kitchen environments. The Provengas unit operates by allowing a small amount of gas through a safety shut-off valve when the key is turned to the 'ON' position. The transmitter mounted on the safety shut-off valve looks for a pressure drop indicating that one or more gas taps are open. The panel LED indicators will show 'test fail' or 'gas on' depending on the test result. The unit constantly monitors the incoming gas pressure and will isolate the gas supply when the pressure falls below 12mbar.

FEATURES
Simple installation and commissioning; no complex volume or orifice plate calculations required.

- Features removable key switch for security.
- Incorporates Emergency Cut-Off switch as standard.
- Low power consumption.
- Can be used on Natural and LP Gas
- LED status indications.

Product Range - Black Teknigas

-Gas Safety Shut-off Valves
  - Powerseat
  - Series 2000
  - Tekni Solenoid
  - Tekni Thermo-electric
-Gas Proving Systems
-Gas Governors
-Air/Gas Ratio Controls
-Thermocouples
-Relay Valves
-Gas Thermostats
-General Purpose Solenoid Valves
-Atmospheric Burners Injectors and Pilots
-Electronic Burner Sequence Controllers
-Motorised Ball and Butterfly Valves
-High and Low Pressure Switches
-Flow and Level Controls
-High Pressure Gas Controls for
  - Industrial gases
  - Scientific and Medical gases
  - Cylinder Pack Manifolds
-High Pressure Regulators
-High Pressure/High Flow gas equipment

Product range - Watts Industries

- System Disconnectors
- Backflow Protection Devices
- Check Valves
- Safety Units
- Safety Relief Valves
- Pressure Reducing Valves
- Automatic Control Valves
- Butterfly Valves
- Shut-Off Valves
- Measuring Gauges
- Temperature Control
- Expansion Vessels
- Process Switches
- Fuel Products
- Gas Products
- Electronic Controls
- Installation Protection Products
- Radiator Valves
- System Products
- Manifolds and Fittings

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