

# Turbine Fuel Shut-off Valve

Model 4420

## Overview

Model 4420 has been designed specifically for use as a fuel shut-off valve in gas turbine applications. The 4420 is a single acting spring return, pneumatically actuated valve and is available in both 2-way and 2-way vented versions:

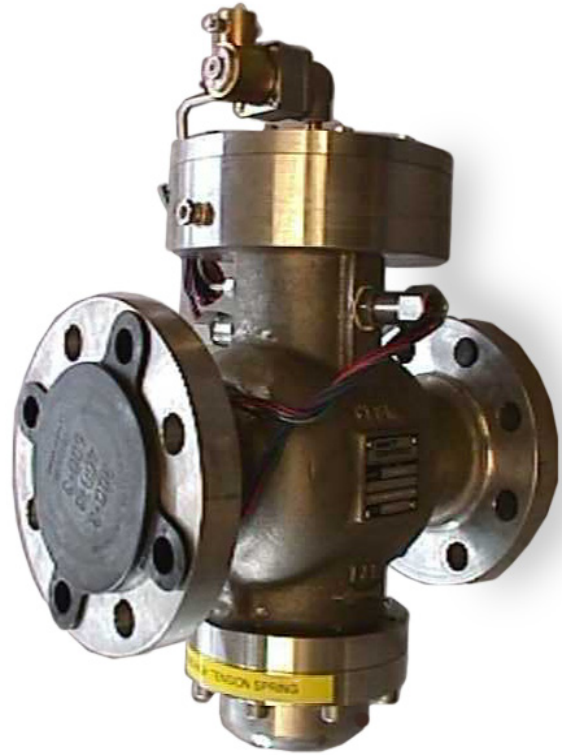
## Typical applications

Developed for use in manual and automatic control systems:

- Fuel shutoff valve for gas turbines in the 10 to 30 MW size range
- Starting air/gas valve
- Vented fuel/gas valve

## Key features and benefits

- Less than 100 millisecond Close Time
- Unique "vent" port - no need for separate bleed valves - reduced installation cost
- 2-Way & 2-Way Vented
- Open/Closed Position Switch Indication (Optional)



**Model 4420 Turbine  
Fuel Shut-off Valve**

# Turbine Fuel Shut-off Valve - Model 4420

## Operation

The 4420 valve is a single acting, spring return, pneumatically actuated valve and is available in both 2-way and 2-way vented versions:

### 2-Way version

When pressure is applied to the pilot port, the valve is opened to allow the flow to travel from the IN port to the OUT port. When the pilot pressure is released, a spring closes the main ports.

### 2-Way vented version

When pressure is applied to the pilot port, the valve is opened to allow flow to travel from the IN port to the OUT port. The VENT port is closed.

When the pilot pressure is released, the IN port closes while the VENT port opens to the OUT port. This venting relieves pressure within the valve and in the down stream piping.

The 2-Way vented version is ideal for gas turbine applications because, upon shutdown, it relieves and vents pressure on the down stream side. This action eliminates the need for a separate bleed valve, providing a cost savings and simplified piping.

## Specification

<b>Body material:</b>	316 stainless steel	
<b>Trim material:</b>	316 stainless steel	
<b>Seal material:</b>	Viton	
<b>Maximum pressure:</b>	Class 600 RF flanges	69 bar @ 38°C (1000psi @ 100°F)
	Class 300 RF flanges	50 bar @ 38°C (720psi @ 100°F)
<b>Temperature:</b>	-29°C to 204°C (-20°F to 400°F)	
<b>Pilot pressure to actuate:</b>	4.1 to 10.3 bar	(60 to 150 psi)
<b>Connections:</b>	2" valve	ANSI Class 300 or 600 RF flange
	3" valve	ANSI Class 300 or 600 RF flange
	Vent port	1/2" NPT
	Solenoid/position switch conduit	1/2" NPT
	Solenoid inlet port	1/4" NPT
<b>Flow coefficient Cv:</b>	2" valve	Cv = 83 Kv = 72
	3" valve	Cv = 130 Kv = 112
<b>Close time:*</b>	Less than 100ms	
<b>Seat leakage</b>	ANSI Class VI	
<b>Pressure Equipment Directive (PED)</b>	Category 4	
<b>Position switch ratings:</b>	UL Class 1, Groups A, B, C & D or CSA Class 1, Div. 1, Groups A, B, C & D	
<b>Solenoid valve ratings:</b>	UL & CSA Class 1, Div 1, Type H Coil (24 VDC)	

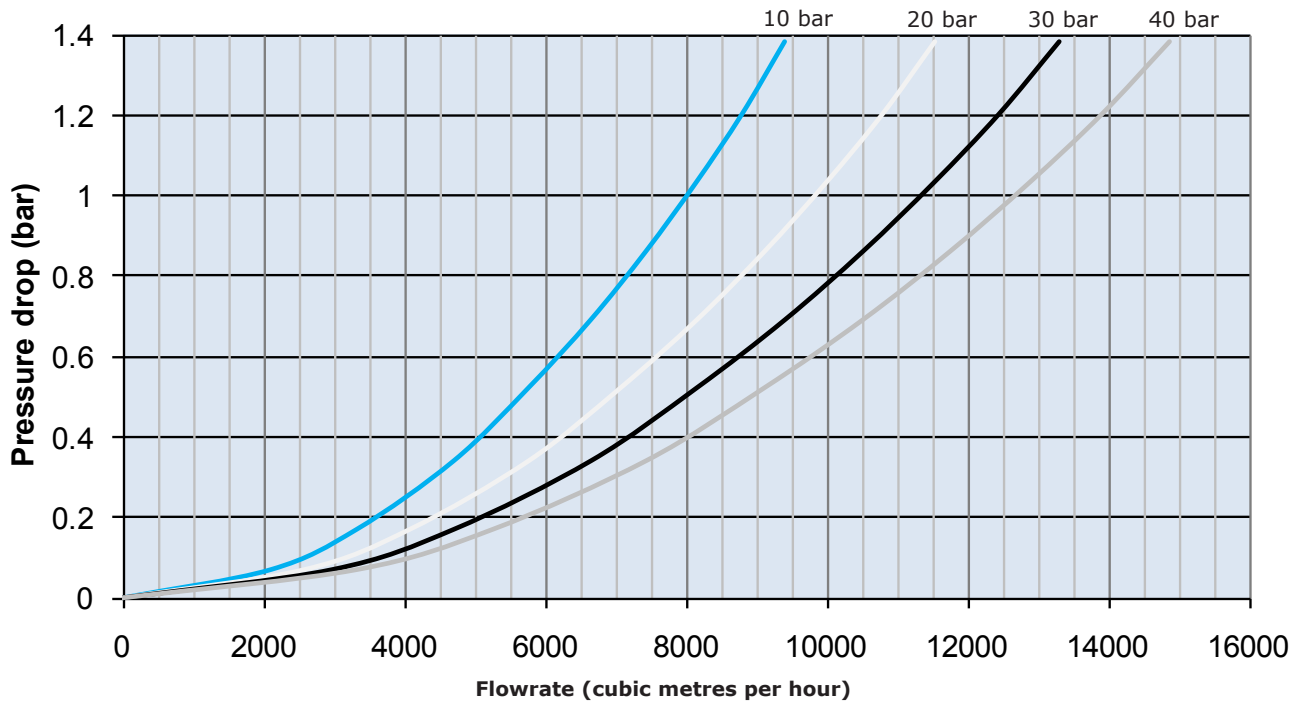
European certified position switch and solenoid available by request.

\* Contact AMOT for advice on suitable solenoid valves and pilot pressures.

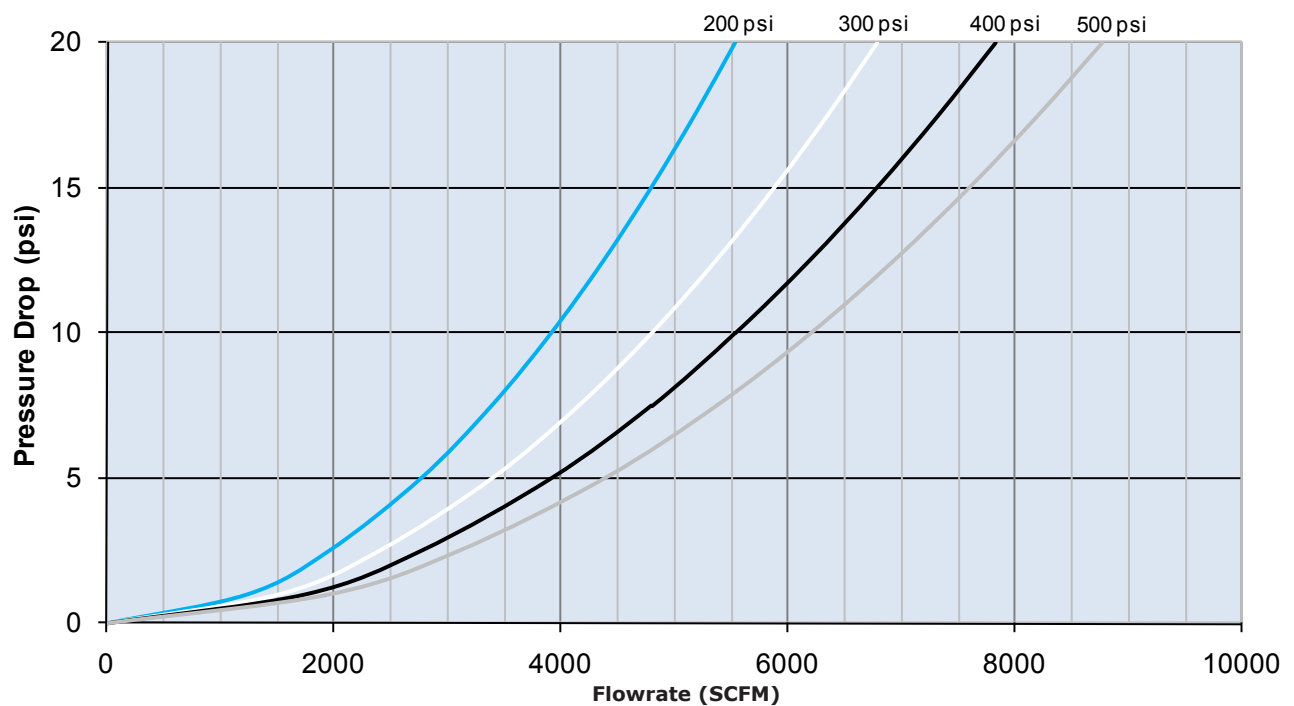
# Turbine Fuel Shut-off Valve - Model 4420

## Flow charts

2" Flow Chart for Natural Gas (SG = 0.65) at 120°C



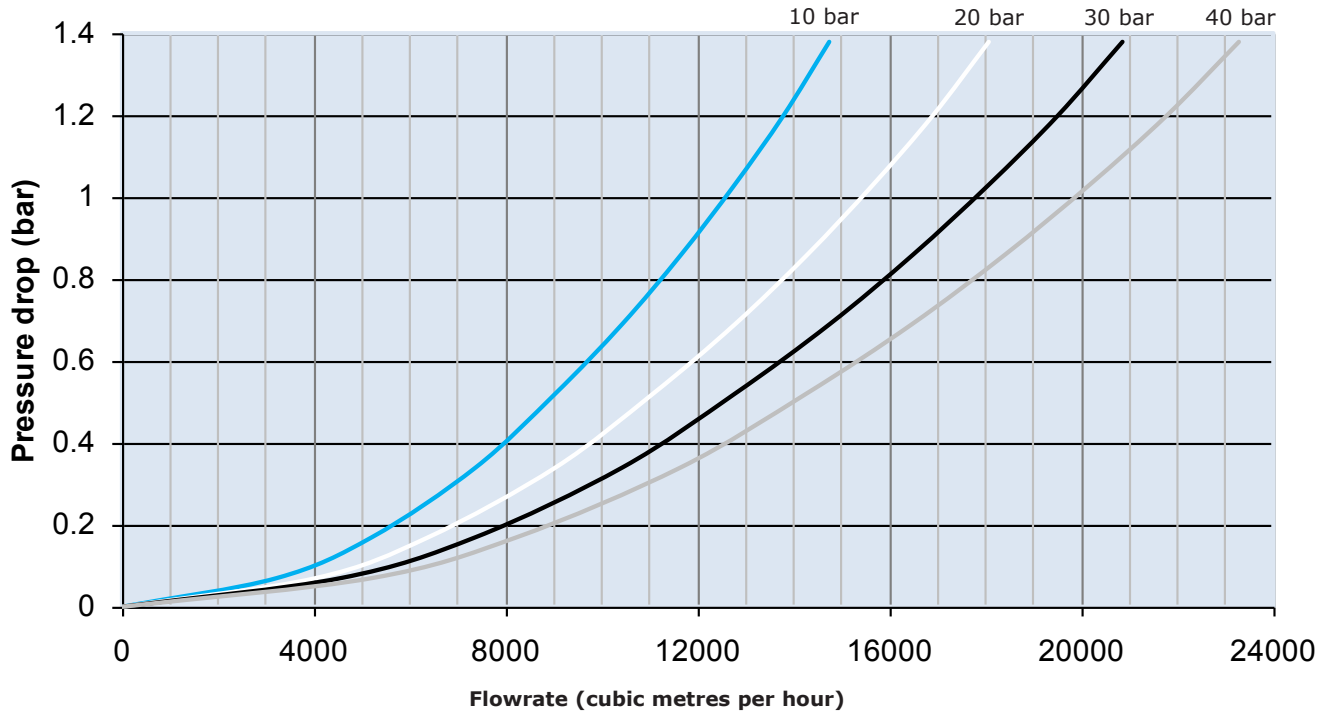
2" Flow Chart for Natural Gas (SG = 0.65) at 250°F



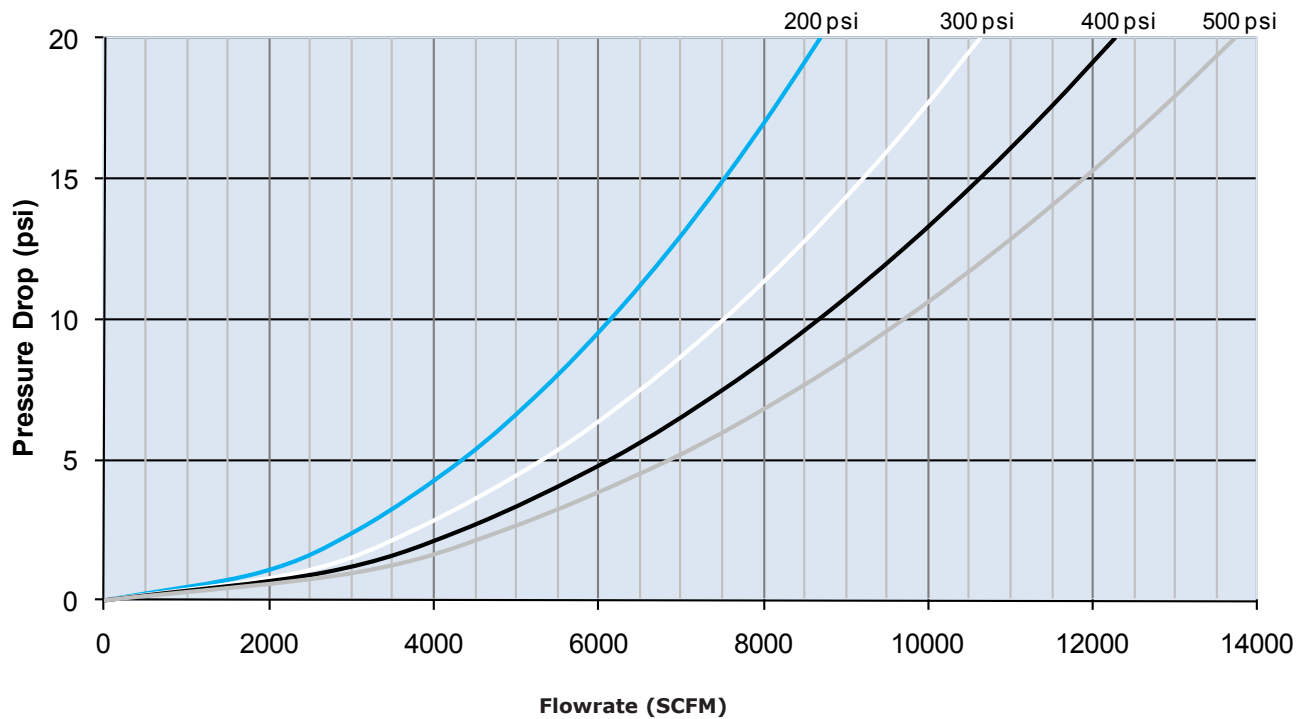
# Turbine Fuel Shut-off Valve - Model 4420

## Flow charts

3" Flow Chart for Natural Gas (SG = 0.65) at 120°C



3" Flow Chart for Natural Gas (SG = 0.65) at 250°F



# Turbine Fuel Shut-off Valve - Model 4420

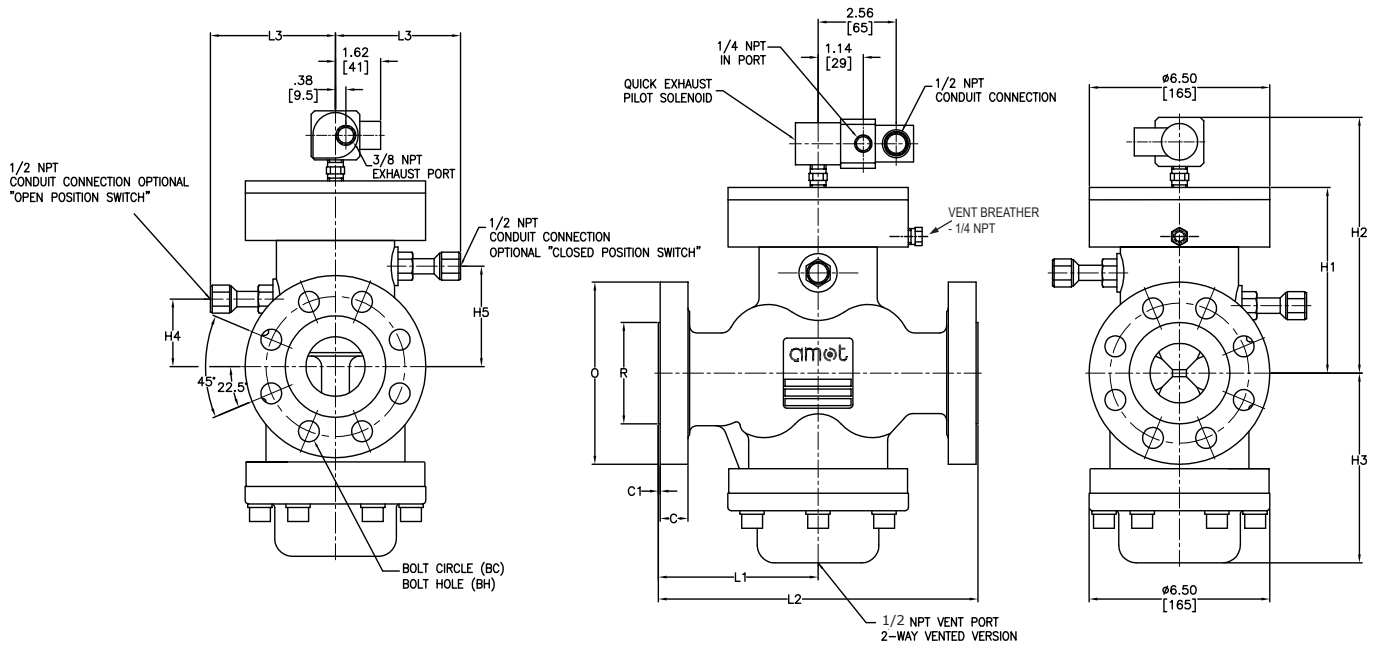
## How to order

Use the tables below to select the unique specification of your Model 4420 Turbine Fuel Shut-off Valve:

Example Code	4420E	A	H	4	E	04	Code Description
<b>Basic Model and revision</b>	4420E						Basic Model - Stainless Steel
<b>Valve Size and Type</b>		A					2", 2-way
		B					2" vented
		C					3", 2-way
		D					3" vented
<b>Connection Code</b>		K					600# ANSI RF
		H					300# ANSI RF
<b>Internal Material Code</b>				4			
<b>Switch Options</b>					N		none
							CSA Class 1, Div. 1, Groups A, B, C, D
					E		Open
					F		Closed
					G		Open/Closed
							UL Class1, Groups A, B, C, D
					H		Open
					J		Closed
					K		Open/Closed
							ATEX Certified
					P		Open
					Q		Closed
					R		Open/Closed
<b>Pilot Solenoid Options</b>						00	None
						02	3-way QE solenoid, SS, UL/CSA, 24VDC
						03	3-way QE solenoid, SS, UL/CSA, 120VDC
						04	3-way QE solenoid, SS, UL/CSA, 24VDC, QE5
						05	3-way QE solenoid, SS, UL/CSA, 120VDC, QE5
						06	3-way QE solenoid, SS, UL/CSA, 24VDC, 1301F
						07	3-way QE solenoid, SS, UL/CSA, 120VDC, 1301F
						08	3-way QE solenoid, SS, UL/CSA, 24VDC, QE5, 1301F
						09	3-way QE solenoid, SS, UL/CSA, 120VDC, QE5, 1301F
						10	3-way QE solenoid, SS, ATEX, 24VDC
						11	3-way QE solenoid, SS, ATEX, 115VDC
						12	3-way QE solenoid, SS, ATEX, 24VDC, QE5
						13	3-way QE solenoid, SS, ATEX, 115VDC, QE5
						14	3-way QE solenoid, SS, ATEX, 24VDC, 1301F
						15	3-way QE solenoid, SS, ATEX, 115VDC, 1301F
						16	3-way QE solenoid, SS, ATEX, 24VDC, QE5, 1301F
						17	3-way QE solenoid, SS, ATEX, 115VDC, QE5, 1301F
						20	4-way solenoid, SS, UL/CSA, 24VDC
						21	4-way solenoid, SS, UL/CSA, 120VDC
						22	4-way solenoid, SS, UL/CSA, 24VDC, QE5
						23	4-way solenoid, SS, UL/CSA, 120VDC, QE5
						24	4-way solenoid, SS, UL/CSA, 24VDC, 1301F
						25	4-way solenoid, SS, UL/CSA, 120VDC, 1301F
						26	4-way solenoid, SS, UL/CSA, 24VDC, QE5, 1301F
						27	4-way solenoid, SS, UL/CSA, 120VDC, QE5, 1301F

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## Dimensions



## Flange connections

### Dimensions in mm (inches)

Dimension	2" 300lb.	2" 600lb.	3" 300lb.	3" 600lb.
L1	146 (5.75)	146 (5.75)	178 (7.0)	178 (7.0)
L2	292 (11.5)	292 (11.5)	356 (14.0)	356 (14.0)
L3	114 (4.5)	114 (4.5)	114 (4.5)	114 (4.5)
H1	168 (6.62)	168 (6.62)	197 (7.75)	197 (7.75)
H2	232 (9.12)	232 (9.12)	260 (10.25)	260 (10.25)
H3	172 (6.78)	172 (6.78)	184 (7.25)	184 (7.25)
H4	61 (2.41)	61 (2.41)	80 (3.16)	80 (3.16)
H5	90 (3.56)	90 (3.56)	110 (4.312)	110 (4.31)
O	165 (6.5)	165 (6.5)	210 (8.25)	210 (8.25)
R	92 (3.62)	92 (3.62)	127 (5.0)	127 (5.0)
C	21 (0.82)	25 (1.0)	27 (1.06)	32 (1.25)
C1	1.6 (0.062)	6 (0.25)	1.6 (0.06)	6 (0.25)
B.H.	19 (0.75)	19 (0.75)	22 (0.88)	22 (0.88)
B.C.	127 (5.0)	127 (5.0)	168 (6.62)	168 (6.62)

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