

Intake Air Shut-off Valve

Model 4261M



4261M Intake Air Shut-off Valve

Overview

Diesel run-away is a potential problem that can cause damage to equipment. A diesel engine can run away and self destruct on hydrocarbon vapors, even if the engine's primary source of fuel is taken away.

An air intake shut-off valve is recommended for diesel engines which have a possibility of encountering hydrocarbon vapors.

Typical applications

- Oil field - drilling rigs, mud trucks, wireline feeders, crude haulers, welders and other machinery
- On/off shore - compressors, gen sets, fire pumps and welders
- Construction - ideal for trenchers, gas co service trucks, sewage pumpers
- Transporters - aircraft refuelers and all combustable chemicals or hazardous waste

Key features and benefits

- Compact design - easy, low cost installation
- Corrosive resistant, anodised aluminium and stainless steel construction
- Use stand-alone or in complete runaway shut-down system
- Remote re-set facility - flexible control
- Best available technology - 'Butterfly Valve' design

Operation

The 4261M Intake Air Shut-off Valves from AMOT use the best available technology to shut down a run-away diesel by positively choking off engine intake air. They are 2.8, 3.5, 5.5 and 8.0 inch diameter, remotely operated butterfly valves designed to be installed in the engine intake. When a condition is detected that could damage the engine (over temperature, over speed), the valve trips shut, closes off the air intake and stops the engine to prevent serious damage.

Figure 1 illustrates a typical installation of a safety control actuated butterfly valve. In the event of a 4110 Speed Sensing Valve detecting an over speed condition, it vents the control oil pressure. The drop in pressure to the 4261M trips the valve to close the engine air intake. The orifice is installed to ensure that pressure drops are felt at the valve in large volume systems.

All sizes of valve have a choice of actuator operation: **Electric Solenoid operated; Hydraulic operated; Pneumatic operated; and Pneumatic/Manual operated.**

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Intake Air Shut-off Valve - Model 4261M

Typical applications

Hydromechanical Automatic System (Safety Control)

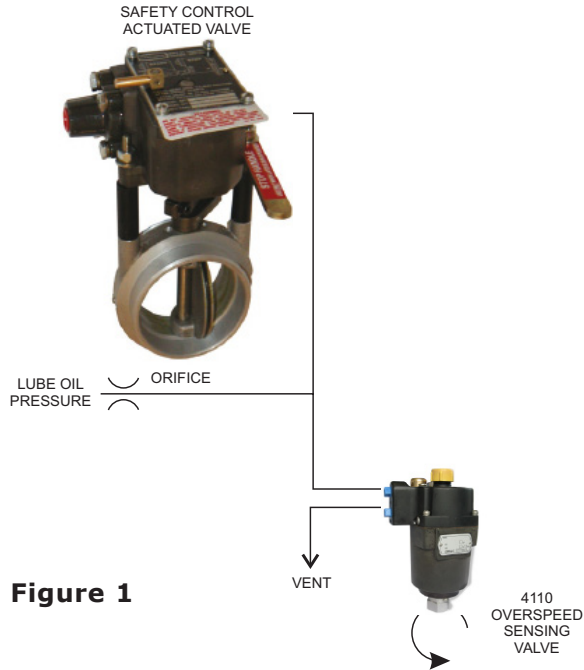


Figure 1

- Engines without electricity/air supply
- Offshore engines

System trips on loss of lube oil pressure. The overspeed valve will vent off oil pressure to trip system.

Model 4261M0 A041-AA

Hydromechanical safety controlled valve (trips on loss of pressure).

Automatic, Pneumatic System with Manual Override

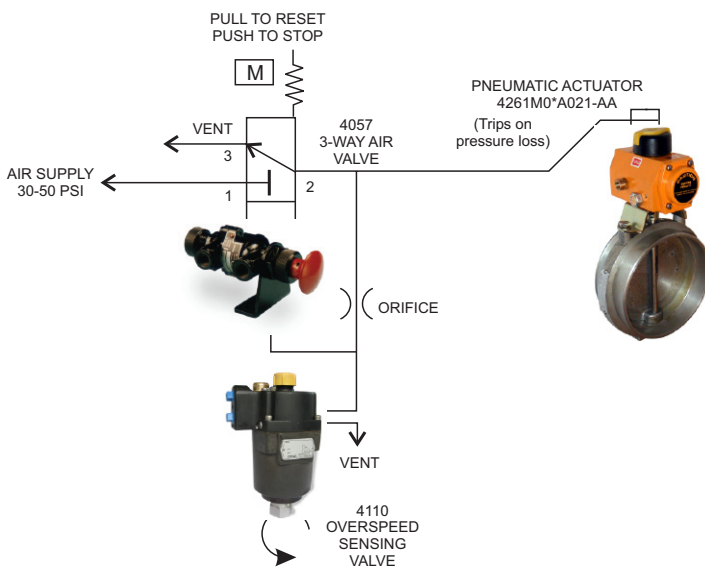


Figure 2

- Offshore
- Hazardous areas

Three-way air valve is pulled to pressurise system and open the 4261M valve. During a run-away, overspeed sensing valve vents off air pressure to trip the valve. Shut down can also be initiated by pushing three-way air valve knob.

Model 4261M0 A021-AA (air to run) 4261M0 A025-AA (air to close)

Pneumatic actuator

Spring return operated 4261M

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Typical applications continued

Electro/Pneumatic Automatic System (Manual Pneumatic)

- Tank trucks
- Oil field trucks
- Construction machinery
- Industrial engines

Magnetic pick-up (or alternator) sends RPM signal to speed switch. When RPM indicates run-away condition, speed switch trips, activating 3-way solenoid valve and closing intake air shut-off valve. Protected toggle switch activated test circuit allows systems to be tested at 67% of run-away speed.

Model 4261M0 A027-AA

Manual pneumatic operated 4261M

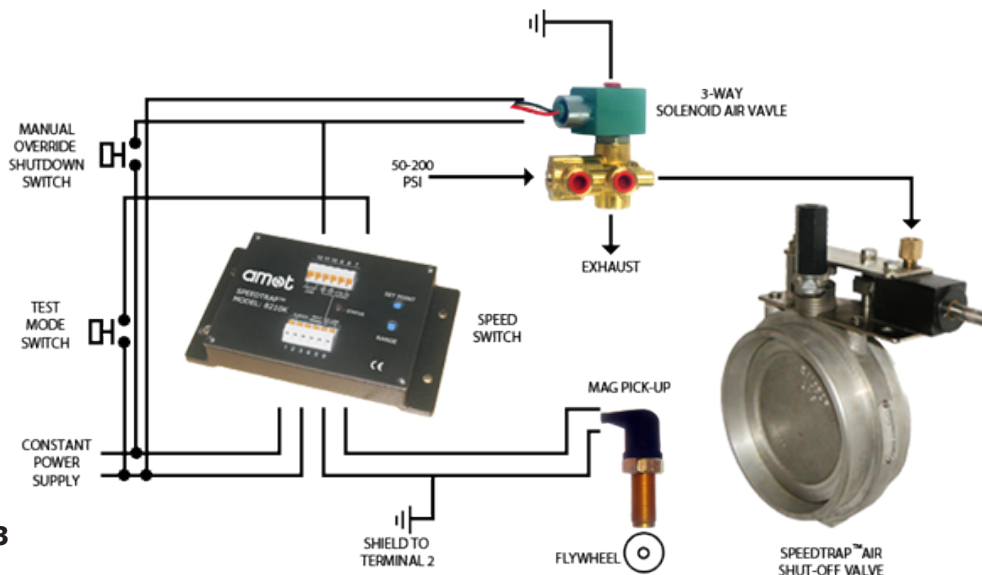


Figure 3

Electronic Manual System

- Fire trucks
- Manned construction equipment

The 4261 is manually cocked to run the engine and the solenoid built into it must be energised to shut down. This system is widely used even though it is not fail safe. Wire breakage or loss of electrical power will disable the system, so frequent testing by actuation is recommended.

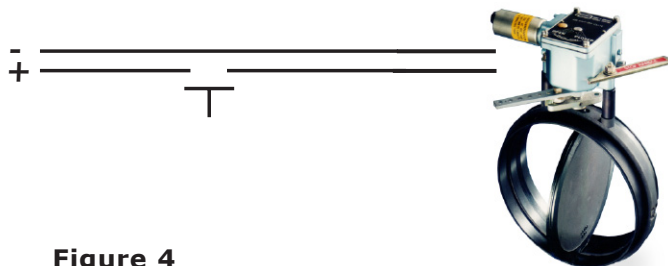


Figure 4

Model 4261M0 A127-AA

Electric solenoid operated 4261M

Intake Air Shut-off Valve - Model 4261M

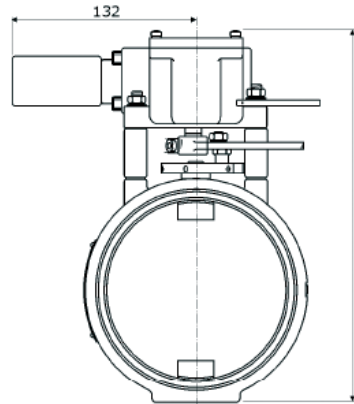
Specification

Standard materials	Valve body and disc	Anodized aluminium	
	Valve shafts	Stainless steel	
	Seals	Nitrile or Viton	
	Safety control operator	Anodized aluminum	
	Pneumatic cylinders	Aluminum and stainless steel	
	Brackets	Plated steel	
Maximum intake air temperature	Nitrile seals (standard)	93°C	200°F
	Viton seals	149°C	300°F
Valve Bore Size	2.75" valve size	61mm	2.4" bore size
	3.5" valve size	74mm	2.9" bore size
	5.5" valve size	125mm	4.9" bore size
	8.0" valve size	191mm	7.5" bore size
Net weight (inc. operator)	2.75" valve size	1.4 - 1.8kg	3.1 - 4.0lbs
	3.5" valve size	1.4 - 1.8kg	3.1 - 4.0lbs
	5.5" valve size	1.8 - 2.2kg	4.0 - 4.9lbs
	8.0" valve size	3.6 - 4.1kg	7.9 - 9.0lbs
Pneumatic rotary actuator	Minimum actuation pressure	310kPa	45psi
	Recommended actuation pressure	414 - 552kPa	60 - 80psi
	Maximum actuation pressure	690kPa	100psi
Manual/pneumatic cylinder operator	Minimum actuating pressure	207kPa	30psi
	Maximum working pressure	1380kPa	200psi
	Mechanical pull to release	67N	15lbs
Hydraulic operator	Adjustable trip pressure	34 - 275kPa	5-40psi falling
	Max. pressure on diaphragm	1170kPa	170psi
Electric solenoid operators (intermittent duty)	12VDC & 24VDC	96W	
	Maximum coil temperature	175°C	350°F
	Duty cycle	12% ie 75 secs (max) on-time followed by 540 secs (min) off-time	

Intake Air Shut-off Valve - Model 4261M

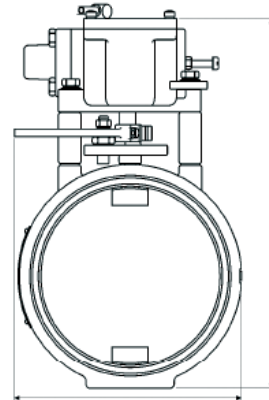
Dimensions

Electric Solenoid



A 201
B 222
C 273
D 336

Hydraulic Safety Control



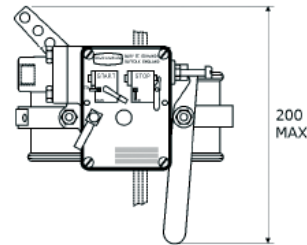
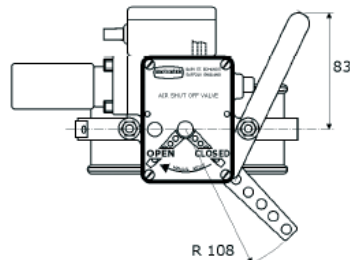
A 204
B 225
C 276
D 340

KEY

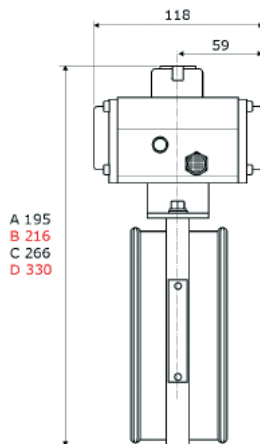
A = 2.8 version
B = 3.5 version
C = 5.5 version
D = 8.0 version

A 137
B 148
C 162
D 222

Dimensions in mm

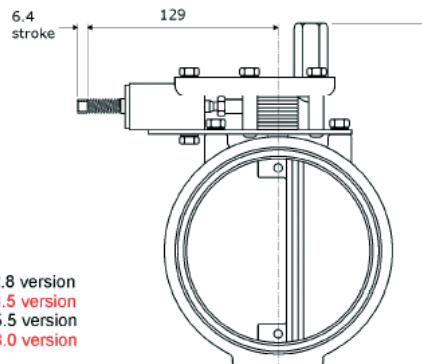


Rotary/Pneumatic



A 195
B 216
C 266
D 330

Manual/Pneumatic

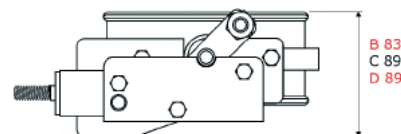
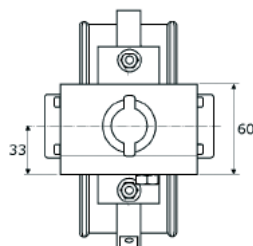


A 164
B 165
C 236
D 299

KEY

A = 2.8 version
B = 3.5 version
C = 5.5 version
D = 8.0 version

Dimensions in mm



B 83
C 89
D 89

Intake Air Shut-off Valve - Model 4261M

How to order

Use the tables below to select the unique specification of your Model 4261M Air Shut-off Valve:

Example	4261M	03	A	0	21	-AA	Code Description	
Basic Model Code	4261M						Model	
Valve Size		02					mm	inches
		03					71.12	2.8
		05					88.9	3.5
		08					139.7	5.5
							203.2	8.0
Seal Material			A				Aluminum and Nitrile/Buna N	
Operators				0			Standard for all actuators except electric actuator options 71&72, no position switch or terminal box	
				1			Standard for electric actuator 71&72; no position switch or terminal box	
				2			Limit switch installed; for electric actuator options 71&72 only	
				3			Terminal box installed; for electric actuator options 71&72 only	
				4			Limit switch and terminal box installed; for electric actuator options 71&72 only	
Valve Actuator				11			Slave operator for use on 'V' engines	
				21			Pneumatic rotary actuator, pressurize to run, spring return to close. NPT threads	
				22			Pneumatic rotary actuator, pressurize to run, spring return to close. BSP PL	
				25			Pneumatic rotary actuator, pressurize to close, spring return to open. NPT	
				26			Pneumatic rotary actuator, pressurize to close spring return to open. BSP PL	
				27			Manual/pneumatic cylinder manually cocked to run, pressurize or manual trip to shut down. NPT thread	
				28			Manual/pneumatic cylinder, manually cocked to run, pressurize or manual trip to shut down. BSP PL	
				41			Safety control, NPT thread	
				45			Safety control, BSP PL	
				71			Electric Solenoid, 12 VDC, manually cocked to run, energize to shut down.	
			72			Electric Solenoid, 24 VDC, manually cocked to run, energize to shut down.		
Special Requirements						-AA	Standard Please contact AMOT for any special requirements.	

Accessories

A range of accessories can be purchased along side your 4261M valve:

Electronic Speed Switch 8210K

see Datasheet_8210K_Electronic_Speed Switch

Mechanical Overspeed Sensing Valve 4110

see Datasheet_4110_Overspeed_Sensing_Valve

3-way Logic Valves 4057

see Datasheet_4057_3-way_valve

Magnetic Pick-up (with boot) 11408X

see Datasheet_11408X_Magnetic_Pickup

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