

# System Selection Guide

If you run a diesel engine it has the potential to ingest combustible vapors. **Emergency air intake shut-off valves (also known as positive air shut-off valves) are the only safe way to shut down your engine during runaway conditions.**

Your biggest challenge is to know your industry, application and risks...

The information below will help you define the industries and applications that can expose your diesel engines to these dangerous conditions:



## INDUSTRY

- Oil & Gas
- Power Generation
- Transportation
- Petrochemical Processing
- Mining
- Fire Suppression
- Agriculture
- Marine
- Airport - Refueling
- Construction

## APPLICATIONS

- Lighting Units
- Ambulances
- Lighting Trucks
- Underground Equipment
- Bulk Haulers
- Tankers
- Power Generators
- Grain Processing Plants
- Drilling Rigs
- Cranes
- Forklifts
- Work Boats
- Refinery Processing
- Vehicles
- Frac Trucks
- Barges
- Fueling Vehicles
- Tow Vehicles
- Support Vehicles
- Welders
- Pump Trucks
- Fire Trucks
- Vacuum Trucks

## UNDERSTANDING YOUR APPLICATION

### QUESTIONS AND CONSIDERATIONS

**Is this application operated offshore or on ground?**

- Offshore applications may have specific regulations for your equipment.
- Corrosion is a concern for offshore applications so PowerHalt valves are all corrosion tested to ASTM B117 96Hrs Salt-Fog to ensure product longevity.

**Can manual reset be achieved easily and without placing workers at risk?**

- Frequent safety checks may prove cumbersome when manually resetting the valve if it is difficult to access. Our automatic reset option is best suited to these applications.
- Do you have a designated operating location for your engine that can incorporate the shut-off valve shutdown switch or pull cable?
- Routing of the switch or pull cable is an important consideration to make. Pull cables are a great low cost option if your application and regulations allow.

**Does your system have a compressed air source?**

- Pneumatically actuated valves require an air source of 60-120 psi.

**Does your engine require dual shut-off valves?**

(This changes the specification for control)

- Large V-engines may require two or more shut-off valves.
- The automatic reset option is recommended to prevent accidents where only one valve is re-opened after a shutdown, preventing engine damage.

**Does your application require auxiliary/multiple sources for activation in case of emergency?**

- The PowerHalt PH3 series can incorporate multiple auxiliary inputs from external sources for activation of the shut off valve in the event of an emergency.
- Ideal for secondary emergency monitoring systems as well as multiple locations for manual override input.



## SELECTING THE RIGHT POWERHALT

### VALVE OPTIONS



### PH1

- Operator controlled
- Low cost pull-cable valve
- Manual reset with top knob
- 1.75" to 2.25" sizes available



### PH2

- PowerGuard or operator control options available
- Electric, pneumatic, or pull-cable activated
- Large visible top knob for manual reset
- Durable o-ring seal provides zero leakage when shut
- Tested to MIL-STD-810G Vibration & 10k cycle Fatigue
- Corrosion tested to ASTM B117, 96hrs Salt Fog
- 2.8" to 5.5" sizes available



### PH3

- Operator friendly (no more lifting the hood)
- Automatic reset valve
- Maintenance free with anti-fouling cycle to prevent seizing
- Low power consumption with smart PID control
- Tested to 18.6grms vibration & 100k+ cycles fatigue
- Corrosion tested to ASTM B117, 96hrs Salt Fog
- 1.5" to 4.5" sizes available
- Auxiliary input compatibility *(Requires PH3 auxiliary input jumper harness. Sold separately)*

COMING  
SOON

### PH4

- Digital or operator control options available
- Electric, pneumatic, or pull-cable activated
- Manual reset with top knob
- 5.5" to 8" sizes coming soon

## SELECTING THE RIGHT POWERHALT

### CONTROL OPTIONS

#### OPERATOR CONTROL (MANUAL)

Manually controlled shut-off valves are much more cost effective than automatic systems. However, they should only be used when the operator works in close proximity to the engine and has a clear, safe, and accessible location for shutdown activation during an emergency.

#### POWERGUARD CONTROLLER (AUTOMATIC)

This system provides hands-free activation of the shut-off valve. It has additional safety benefits by utilizing our PowerGuard controller and magnetic pick-up. This system includes a manual override for direct operation of the shut-off valve, which allows the operator to perform routine safety checks and tests.



### ACTUATION OPTIONS

#### CONTROL OPTIONS AVAILABLE

##### Operator Control (Manual)

- Electric** (Pull Solenoid)
- Electric** (DC Motor)
- Pneumatic**
- Electric + Pull-Cable**
- Pull-Cable**



##### PowerGuard Controller (Automatic)



### RESET OPTIONS

#### MANUAL RESET

- The knob must be manually turned to reset the valve.
- Some safety procedures require this option.

#### AUTOMATIC RESET

- The PowerHalt controller will manage the resetting of the shut-off valve.
- The operator will not have to manually turn a knob.

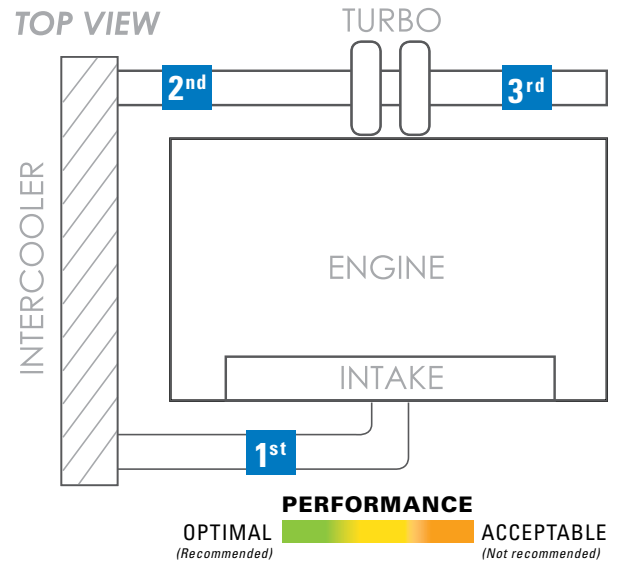


## SELECTING THE RIGHT POWERHALT

### VALVE INSTALLATION LOCATION

*In order of preferred location to least preferred*

- 1<sup>st</sup> POST INTERCOOLER**
- Low Plumbing Leakage Risk
  - Moderate Charge Air Temperature
  - Fast Shutdown Response Time
- 2<sup>nd</sup> POST TURBO**
- Moderate Plumbing Leakage Risk
  - High Charge Air Temperature
  - Moderate Shutdown Response Time
- 3<sup>rd</sup> PRE TURBO**
- High Plumbing Leakage Risk
  - Low Charge Air Temperature
  - Slow Shutdown Response Time



### KIT CONTENTS

			<div>Controller</div> <div>Harness</div> <div>Membrane Switch</div> <div>Toggle Switch</div> <div>Magnetic Pick-Up</div> <div>Pneumatic Solenoid</div> <div>Pull-Cable</div> <div>Cost Comparison</div>							
	ACTUATION	RESET								
<b>PH1</b>	Pull-Cable	Manual							✓	\$
<b>PH2</b>	Automatic Electric	Manual	✓	✓		✓	✓			\$\$\$\$
	Automatic Pneumatic	Manual	✓	✓		✓	✓	✓		\$\$\$\$
	Automatic Electric with Pull-Cable	Manual	✓	✓		✓	✓		✓	\$\$\$\$\$
	Manual Electric	Manual		✓		✓				\$\$\$
	Manual Pneumatic	Manual		✓		✓		✓		\$\$\$
	Pull-Cable	Manual							✓	\$\$
<b>PH3</b>	Automatic Electric	Manual	✓	✓	✓		✓			\$\$\$\$\$
<b>PH4</b>	Automatic Electric	Automatic	✓	✓		✓	✓			\$\$\$\$\$
	Automatic Pneumatic	Manual	✓	✓		✓	✓	✓		\$\$\$\$\$
	Automatic Electric with Pull-Cable	Manual		✓		✓	✓		✓	\$\$\$\$\$
	Manual Electric	Manual		✓		✓				\$\$\$\$
	Manual Pneumatic	Manual		✓		✓		✓		\$\$\$\$
	Pull-Cable	Manual							✓	\$\$\$

## SELECTING THE RIGHT POWERHALT

### COMPONENT OVERVIEW

#### POWERGUARD CONTROLLER



- Monitors various engine inputs and activates the shut-off valve, shutting down the engine, when predetermined set points are reached.
- Digital micro processor.
- J1939 compliant.
- IP67 dust and water proof enclosure (engine compartment rated).

#### MEMBRANE SWITCH



- Low profile membrane switch with trip, test and reset functions and LED lights.

#### TOGGLE SWITCH



- Military style toggle switch with safety cover plate to prevent false trip hazards.
- Provides secondary means to shut off the engine or to test the valve.
- Pull/Push button options available.

#### MAGNETIC PICK UP



- Measures flywheel RPM and sends a signal to the PowerGuard switch to shut down the engine when engine runaway occurs.
- Various thread sizes available.
- Robust designs that are capable of surviving extreme working environments.

## SELECTING THE RIGHT POWERHALT

### COMPONENT OVERVIEW

#### PULL CABLE WITH FACEPLATE



- Stainless steel high quality pull cables are pre-connected for easy installation and safety.
- Braided lines capable of a tight radius for tight packaging conditions.
- Available in 2', 4', 6', 8' and 10' lengths.
- Red T-handle with large nameplate for clear identification of emergency shut-down location.

#### HARNESS



- Custom plug & play wiring harness with weather tight connectors.

#### MOUNTING KITS



- The mounting kit comes with the appropriate mounting group to include 2 hoses and 4 clamps, ensuring a successful installation into your system.
- Adapters and piping are also available as separate options.
- For vehicle applications, adapters and pipe are included within each specific vehicle kit.

#### PNEUMATIC SOLENOID



- Auto vent to allow for quick release of air pressure.
- Available in 12V DC and 24V DC.
- OEM grade solenoid with millions in service to-date.