CHALWYN
DIESEL PROTECTION SYSTEMS

PVX-Series Diesel Engine Air Shut Down Valves (Pneumatically Actuated)

SELECTION, APPLICATION AND MAINTENANCE

ELECTRONIC - HYDRAULIC - SYSTEMS

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Valve Numbers
PVX-300 PVX-500

DESCRIPTION

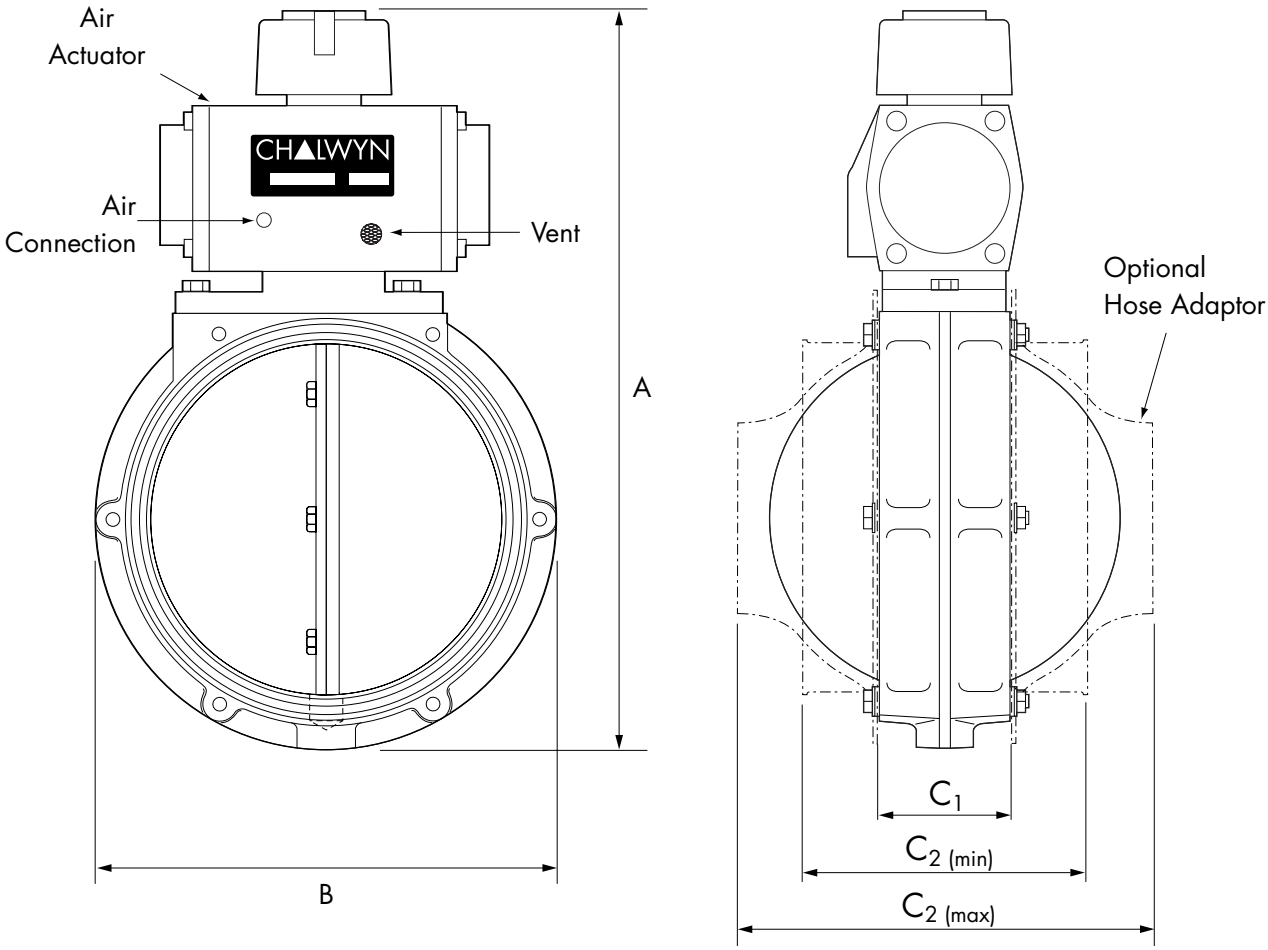
Pneumatically operated diesel engine air intake closure valves based on the standard Chalwyn slimfit 3″ and 5″ butterfly valves. Suitable for both hazardous and non-hazardous applications where the necessary pneumatic supply exists. Available in basic flange mounted form or supplied fitted with hose adaptors or an integral flame trap housing. Body and disc manufactured in corrosion resistant hard anodised aluminium with PTFE coating. Main dimensions are given below:

Main Dimensions (mm)

Valve Type	Nominal Bore Diameter	A	B	C_1	C_2 minimum & maximum
PVX-300	76 (3″)	204	111.5	37.5	82.5 to 112.5
PVX-500	127 (5″)	265	167	45.5	102.0 to 157.5

Hose Adaptor Options

Valve Type	Hose Adaptor	Hose Adaptor Nozzle Outside Diamater (mm)
PVX-300	HAX-3 Range	Various sizes from 51 (2″) to 102 (4″)
PVX-500	HAX-5 Range	Various sizes from 89 (3.5″) to 152 (6″)



SELECTION

Determine the size and position of the PVX valve to be installed. Within the various constraints imposed in the application the valve should be as generously sized as possible (see also under Installation).

A pneumatic supply must be available to operate this valve type (4 bar to 10 bar). Application of pressure will open the valve. Closure occurs on loss of pressure.

Ideally if hose adaptors or an integral intake flame trap housing is to be used, these should be identified and ordered from Chalwyn at the same time as the basic PVX valve.

INSTALLATION

1. In the case of a naturally aspirated engine the Chalwyn PVX shut down valve should generally be fitted as close to the engine air intake manifold as possible. If an air intake flame trap is also fitted, the PVX valve must be installed upstream (air cleaner side) of the flame trap.

2. If the engine is turbocharged, fit the PVX downstream (engine side) of the turbocharger if space permits. Any flame trap must be installed between the PVX valve and engine.

3. Where more than one PVX valve is fitted to an engine, as in the case of an engine with multiple intake pipes, a common pneumatic supply to the valves should be used to ensure that all valves close simultaneously. A balance pipe arrangement should also be incorporated to connect the separate intake pipes together downstream (engine side) of the shut down valves. Typically balance pipe diameters should be about 30% of the diameter of the intake pipes.

4. When fitting, the air flow arrow on the Chalwyn valve must be observed. The PVX valve may be installed either horizontally or vertically.

5. If hose adaptors are used, the mating hose should be of a reinforced type, provide adequate support for the valve and prevent excessive vibration. If necessary, additional support brackets mounted from the engine should be considered.

6. Particular care must be taken to ensure the integrity of the intake pipework between the Chalwyn valve and intake manifold. Ideally metal pipework should be used and any gaps kept as short as possible, taking into account any relative movement, and closed by reinforced hose. The possibility of a hose collapse on closure of the shut down valve must be avoided.

7. Any engine crankcase breather connections into the intake system between the PVX valve and engine, or any internal crankcase breather arrangement venting directly into the engine intake ports must be sealed and replaced by an external breather system venting either to atmosphere or to the intake system upstream of the shut down valve. External breather system kits for various engine types are available from Chalwyn.

OPERATION

Prior to starting the diesel engine, pneumatic pressure must be applied to the PVX valve to open. This pressure signal must be continuously maintained whilst the engine is running unless an emergency stop by closing down the intake air supply is required. This is achieved by rapidly venting the pressure from the PVX supply line.

NOTE: The pneumatic supply to the valve must be clean and dry.

MAINTENANCE

WEEKLY:

Exercise the valve by applying and venting the control air supply pressure. Check by observing the external indicator that the valve is freely moving between the open and closed positions.

MONTHLY:

Check that the fasteners locating the PVX valve and any associated intake system or support bracket fasteners are securely tightened.

Check that any flexible hoses in the engine intake system between the PVX valve and engine are free from damage and suitable for further service.

Check that the air supply pipe to the PVX valve is properly supported, free from damage and the pipe fittings are tight.

Run engine, preferably at low idle. Vent the air from the PVX supply pipe and check that the engine stops within a few seconds. If not, check the engine air intake system for leaks. Should this not solve the problem remove the intake valve and return to Chalwyn for further investigation.

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