

‘Z’ Range Intake Shut Down Valves Spindle Types

(Manual closure plus automatic closure on engine over-speed, low engine oil pressure, high coolant or high exhaust temperature)

Installation, Operation and Maintenance

Valve Numbers

D92 - AMZ D102 - AMZ

D121 - AMZ D136 - AMZ

DESCRIPTION

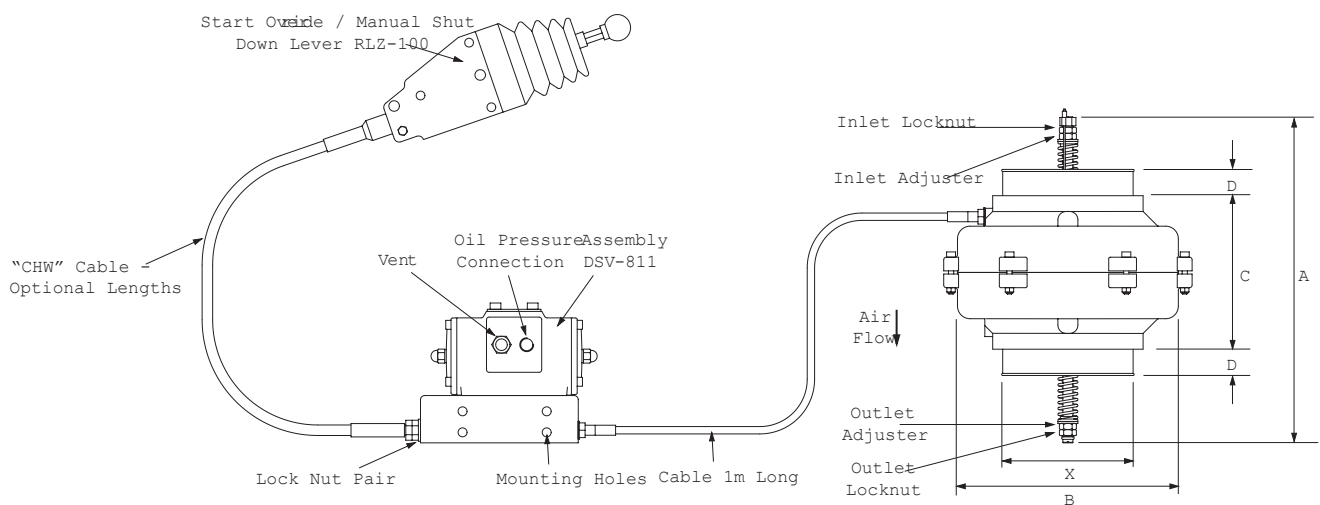
A range of automatic overspeed air intake shut down valves which can also be automatically closed by an engine lubricating oil pressure (or air pressure) operated system to give shut down on loss of engine oil pressure, high coolant or high exhaust gas temperature. A manual start override/manual emergency stop control feature is also included.

These valves are available for all popular combinations of air intake pipe sizes and engine ratings between 80kW and 392Kw. For lower and higher engine ratings see "Notes" below.

This type of valve may be fitted to either naturally aspirated or turbocharged engines. It should be noted however that for a given valve setting the repeatability of the actual shut down speed has a greater scatter in the case of a turbocharged engine. However, unless for special reasons a precisely repeatable shut down speed is required, adequate protection from excessive overspeed and potential resulting damage is still achieved.

The maximum oil (or air) pressure applied to the valve should not exceed 8 bar (116 psi). When the engine is running, the valve will close when the oil (or air) pressure falls below approximately 1 bar (14.5 psi). Note, this value varies slightly with engine speed and specific valve build.

Dimensions and Typical Arrangement:



Valve Type	A	B	C	D	WEIGHT (Valve only) Kg
D92-AMZ & D92S-AMZ	253	162	136	25	2.1
D102-AMZ & D102S-AMZ	253	177	132	25	2.5
D121-AMZ & D121S-AMZ	310	210	150	25	3.7
D136-AMZ & D136S-AMZ	310	240	160	25	4.8

Outside diameter 'X' is selected to suit the size of the engine air intake hose - see page 3 "SELECTION".

Notes:

- * For smaller 'Z' valve sizes see TMZ valve data Sheet CE 208.
- * For larger 'Z' valve sizes see D200 valve data Sheet CE 231.

ADJUSTMENT

Once the Chalwyn valve is installed, adjustment of the overspeed trip setting is carried out using the inlet adjuster and locknut (refer to diagram). Basically rotating the inlet adjuster clockwise will increase the engine speed at which automatic shut down occurs.

As supplied, the valve will be adjusted such that shut down will generally occur below the engine high idle speed. To increase the shut down speed to the required setting, proceed as follows:-

1. Start engine as given under "Operation". Slowly accelerate. Note speed at which shut down occurs.
2. Remove hose at **air inlet** to Chalwyn valve to expose the adjuster and locknut (see diagram).
3. Release locknut. Turn adjuster clockwise one turn. Tighten locknut.
4. Refit inlet hose to Chalwyn valve.
5. Start engine. Slowly accelerate. Note speed at which shut down occurs.
6. Repeat the above steps '2' to '5' until the first setting at which the engine does not shut down at high idle speed (i.e. maximum throttle, no load). Then either:
 - a) *Use the results of shut down speed versus adjuster setting as a calibration check to make a final adjustment to give the required setting (typically 10% to 15% over high idle).*
 - or
 - b) *If a very precise setting is not required, turn the adjuster a further one turn clockwise to take the shut down above high idle speed by a suitable margin. When using this setting procedure it may be found that the engine occasionally shuts down during its normal operation. If so, turn the adjuster clockwise by a further one half turn.*
7. Ensure the adjuster locknut is fully tightened. (Use a thread lock adhesive on the locknut threads).
8. After completing the valve adjustment, check the functioning of the oil (or air) pressure shut down system and the manual shut down, by operating each in turn with the engine running at medium speed. The engine should stop within a few seconds in each case.

Important Notes:

Adjustment of Shut Down Cylinder Assembly.

The cable between the shut down cylinder and the valve is adjusted such that with the engine static and zero oil (air) pressure applied to the shut down cylinder, the valve is held between 0mm and 1mm open. This will give satisfactory operation when an engine shut down is required. DO NOT adjust such that with zero oil pressure the shut down cylinder return spring is pulling the valve hard onto its seat.

Insufficient Overspeed Adjustment.

Should there be insufficient adjustment available to set the required overspeed trip point, the valves outlet locknut should be released and the outlet adjuster rotated anticlockwise by four turns. The outlet locknut should then be treated with a thread lock adhesive and securely tightened. Further adjustment to the inlet adjuster as per above instructions is then continued.

Turbocharged Engines.

When setting up a valve on a turbocharged engine using the preceding method, it may be found that at high power outputs, the engine will shut down at a lower speed than required. If this occurs, further small adjustments in steps of one half turn clockwise should be made until the problem is eliminated.

MAINTENANCE

Routine maintenance should be undertaken as below:-

Daily: Run engine at a mid range speed. Check satisfactory shut down occurs when the manual emergency stop lever is operated.

Three Monthly:

1. Check the oil shut down cylinder assembly for freedom from leakage. Any significant leakage to be rectified prior to returning the unit to service.
2. Disconnect pipework and remove valve complete with cables, shut down cylinder assembly and start override/manual shut down lever.
3. Inspect the valve internally for cleanliness. If necessary, clean in paraffin or white spirit taking normal precautions. Dry the valve thoroughly.
4. Check there is no excessive wear and that the valve moves smoothly over its complete operating stroke. **DO NOT LUBRICATE.**
5. Check that operation of the start override/manual shut down lever releases valve to spring back from its seat to its operating condition. On release of the lever the valve should move back to a position within 0mm and 1mm of its seat.
6. Apply air pressure of about 3 bar to the shut down cylinder connection. Again this should cause the valve to spring to its open position and, on release of the pressure move back to a position within 0mm to 1mm of its seat.
7. Refit valve. Check valve overspeed setting based on the "Adjustment" instructions given herein.
8. Exhaust oil pressure from the shut down system whilst the engine is running at medium speed. The engine should stop within a few seconds.
9. Operate the manual shut down control with the engine running at medium speed. The engine should stop within a few seconds.
10. Check over pipework for security and freedom from leakage.

Note: If the valve fails to function correctly, or if there is any doubt about the operation of the valve, it should be withdrawn from service until corrective action has been completed.



Chalwyn by AMOT
sales@chalwyn.co.uk
www.chalwyn.com

A division of Roper Industries Limited

UK

Western Way
Bury St Edmunds
Suffolk, IP33 3SZ
Tel: +44 (0)1284 715739
Fax: +44 (0)1284 715747

USA

8824 Fallbrook Drive
Houston
TX 77064
Tel: +1 (281) 940 1800
Fax: +1 (713) 559 9419

Chalwyn's Quality Management
System is approved by LRQA.

