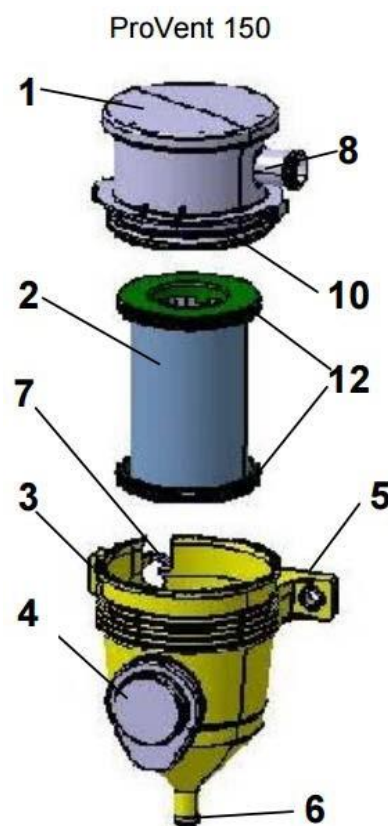


ProVent® 150 Universal Kit Installation Guide

This document is to be used as a guide for the installation of the Direction Plus Universal ProVent® 150 Crankcase Ventilation Kit. It is recommended that the installation of the product be carried out by a competent qualified mechanic.

[Installation Guide](#)



Pos.	Name	Pos.	Name
1	Lid with integrated pressure control valve	8	Outlet
2	Oil separating element	9	Seal of blow-by inlet
3	Housing	10	Seal of lid/housing
4	Pressure relief valve/bypass valve	11	Pressure control valve
5	Holder	12	Seals of element
6	Oil return	13	Quick-connect couplings
7	Inlet	14	Lid with integrated pressure relief valve



Requirements for installation location

The ProVent® system can be mounted on the engine or the frame of the machine/vehicle with the holder (5). The arrow on the ProVent® housing marks the direction of flow of the blow-by gas from the inlet to the outlet. The highest possible point above the engine oil level (or, if present, above the non-return valve of the oil return line) must be selected as the installation location for the ProVent® housing. Minimum distance from surface of oil (or nonreturn valve) to oil return (6) of ProVent® housing: at least 350 mm.

Connecting inlet fitting

The blow-by gases flow through a (hose) line from the crankcase via the inlet fitting (7) into the ProVent® system. Experience shows that optimum gas removal points from the crankcase are in the areas in which there are no moving parts and little oil spray, e.g. the upper areas of the crankcase or the cylinder-head cover. This opening on the crankcase must be connected to the inlet fitting (7) of the ProVent® system.

Connection of outlet fitting with closed crankcase ventilation system

The outlet fitting (8) is connected to the engine intake section with a (hose) line (after the air filter, but before the turbocharger, if present). The intake vacuum present when a closed system is operating sucks the blow-by gas via the ProVent® system and routes the cleaned blow-by gas back into the engine intake section. When selecting the point of installation, the type of oil return must be considered (see 4.3 ff.)

Connection of outlet fitting with open crankcase ventilation system

The outlet fitting (8) remains open. The cleaned blow-by gas flows out of the outlet fitting (8) into the surrounding area.

Exiting blow-by gas may be hot. It must be ensured that the existing blow-by gases do not endanger persons or objects.

Connecting oil return fitting

Connecting drain line under engine oil level

The oil return fitting (6) is connected to the engine oil sump with a drain line. The connection to the engine oil sump is made below the minimum permissible oil level. For the ProVent® system to function properly, the minimum distance of the oil level from the oil return fitting (6) of the ProVent® housing must be at least 350 mm (see Fig. 2).

Connecting above oil level

An optionally available non-return valve is required for this connection version. The oil return fitting (6) is connected to the non-return valve with a drain line. The non-return valve is then connected approx. 30 to 50 mm above the maximum oil level of the engine oil sump. For the ProVent® system to function properly, the minimum distance from the non-return valve to the oil return fitting (6) of the ProVent® housing must be at least 350 mm (see Fig. 2). Any angled positions which occur during mobile applications, which lead to a fluctuating oil level, must always be considered.

Direction Plus always recommends the use of a non-return valve for all ProVent® installations.

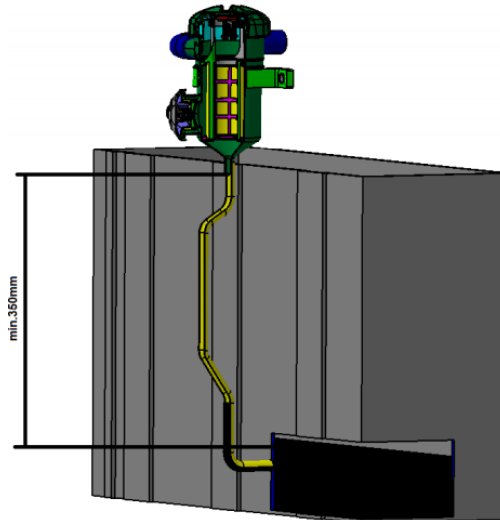


Fig. 2 Minimum distance from oil level to oil return fitting

ProVent® 150

The holder (1) and the inlet fitting are integrated on the housing and are not adjustable. The lid with the outlet fitting can be offset in 3° steps.

Included with PV150DPK is a PV150BARB and PV150SPANNER. Using the supplied “C” spanner, the barb can be installed into the inlet port of the ProVent® 150 to assist with installation.



PV150BARB & PV150SPANNER



Installed PV150BARB

ATTENTION: not in "Service/Open" position

- Turn the lid to the desired position.

Do not turn the outlet to the 90° position (2) Ensure locking of the retaining groove!

- Mount the holder in the vertical position. Recommended tightening torque for M8 screws: 10 Nm.
- Ensure sufficient strength of the screw and nut material.
- Connect the hoses to the inlet, outlet and oil return fittings (make sure a sufficient length of hose is pushed on) and secure with hose clamps (see Chap.4.2 and 4.3).
- Connect the oil return hose (and non-return valve if necessary) to the oil sump.
- To ensure proper functioning, the ProVent® should be protected against dirt (mount splash guards if necessary).

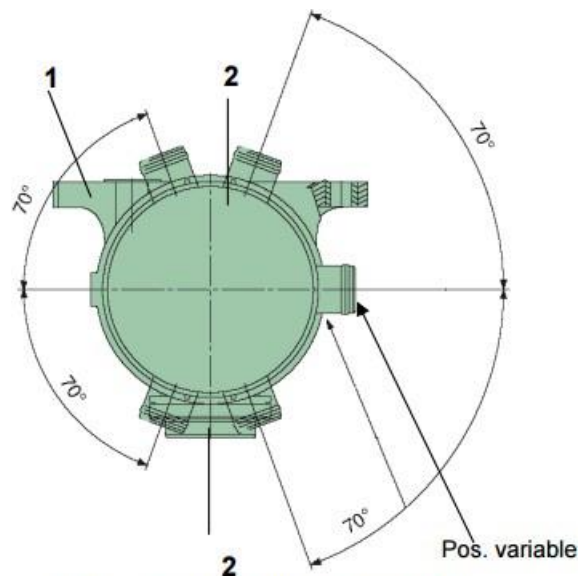


Fig. 4 Positions of outlet for ProVent 150