

Stage II Vapour Recovery (VR) systems are designed to reduce hydrocarbon emissions by capturing harmful petrol vapours that would otherwise escape into the atmosphere during refuelling of motor vehicles. Stage II requires the installation of vapour recovery systems to petrol station pumps.

In 1976 the first VR systems were introduced in the USA, using the balance (passive) method which requires a tight seal between the filler neck and nozzle by a rubber bellow. In the late 1980's ELAFLEX introduced an active VR system with a vacuum pump. Bellows were no longer necessary. This so-called "Open System" is today the industry preferred system in Europe and other parts of the world.

The picture below shows the typical systems used to control the vapour return ratio. When petrol enters the vehicle tank, the corresponding amount of vapour is sucked back into the storage tank via the vapour spout of the ZVA nozzle, COAX hose, COAX adaptor (splitter valve) and a vacuum pump.

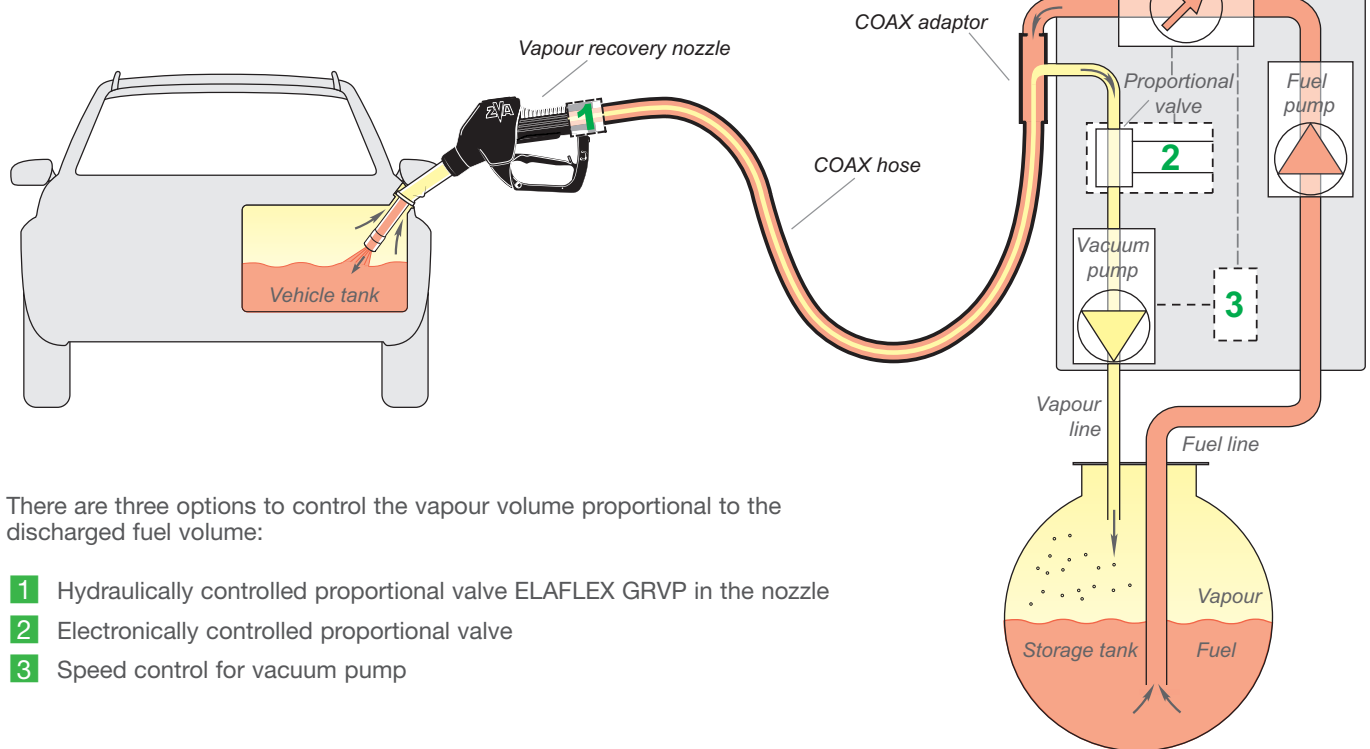
ELAFLEX plays a substantial role in developing, standardising and certifying active VR systems. We manufacture the ZVA vapour recovery nozzles, vapour control valves, COAX hose assemblies, Safety Breaks and other accessories for Stage II vapour recovery.

Some advantages of the ELAFLEX VR products are:

- reliable products with a life expectancy of 10 years or more
- slim design, lightweight and customer friendly
- modular construction and interchangeable spare parts

To guarantee the functioning of the vapour recovery system ELAFLEX components are certified in combination with vacuum pumps and vapour control units of all the major manufacturers. A considerable number of type approvals, efficiency and safety tests by VR regulation bodies and notified bodies ensure that all current standards are met. For more information concerning type approvals and certifications please ask our sales team or refer to www.elaflex.de/english/certificates.

VAPOUR CONTROL SYSTEMS



There are three options to control the vapour volume proportional to the discharged fuel volume:

- 1 Hydraulically controlled proportional valve ELAFLEX GRVP in the nozzle
- 2 Electronically controlled proportional valve
- 3 Speed control for vacuum pump

At the heart of the vapour recovery system is the device used to control the volume of vapour recovered relative to the liquid dispensed. Both have to correspond. To achieve the correct ratio, it is necessary to control the vapour volume flow.

ALTERNATIVE 1: The proportional valve GRVP controls the vapour volume flow by a magnet valve which is opened and closed according to the petrol flow. The GRVP functions hydraulically and is part of the nozzle.

Important – for retrofitting of all existing dispensers this alternative is the easiest and most cost-effective solution. Only the ZVA Slimline 2 GRVP nozzle, a COAX hose, ZAF and a suitable vacuum pump is necessary.

ALTERNATIVES 2 and 3: The electronics of the dispenser have to be connected to the electrical proportional valve or the vacuum pump. The vapour volume flow is determined by the pulses of the meter.

ALTERNATIVE 2: A proportional valve opens and closes according to the pulses.

ALTERNATIVE 3: The speed of the vacuum pump is determined by the pulses.

For alternatives 2 and 3, the type ZVA Slimline 2 GRV type with 'On / Off' valve is required if more than one hose is connected to the proportional valve.

ELAFLEX VAPOUR RECOVERY COMPONENTS

