

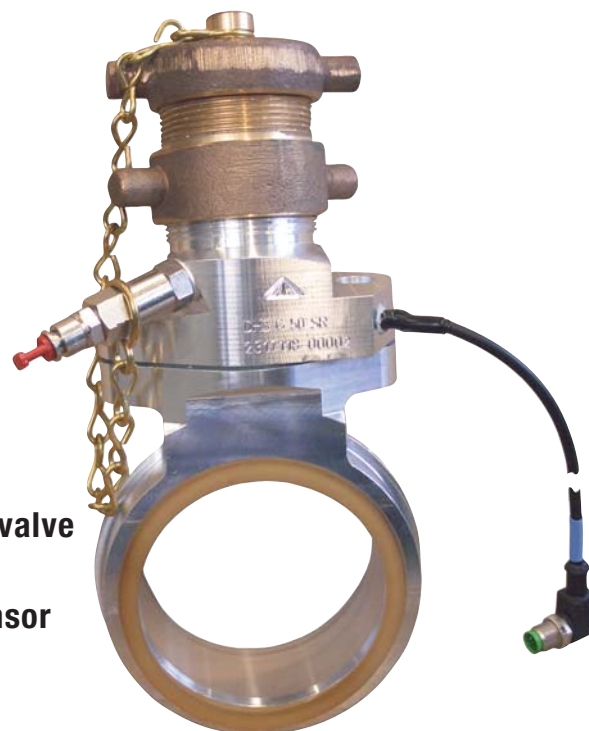
Product Return System

The Alfons Haar Solution



Alfons Haar

Tamper-proof and Cross Over Safe Product Return System



Product return valve
with embedded
Flow Check sensor

Compartment COP

Now, with the loading plan and full compartment control handled by the tamper-proof bus-system PreciCONTROL and the X-MASTER, accidental cross-contamination during product return is eliminated.

Tamper-proof product return

The patented flow check system is designed to only detect flow of product through the product return connection. This indicates a correct product flow back to a specific compartment. Manipulation, for example with compressed air, will not produce a valid signal to the X-MASTER.

Stock reconciliation by flow rate and time window monitoring

All product flows are measured and all flow directions are controlled, with the loaded quantities stored in each compartment. This means that the X-MASTER can reconcile all residual quantities in each compartment - including all product return operations!

Product Return System

The Alfons Haar Solution



Alfons Haar

System description

The **Alfons Haar** Product Return System with the patented and embedded **Flow Check** sensor in the return valve together with the **PreciCONTROL** compartment control, running on the onboard all-in-one controller **X-MASTER**, is a return system for oil distribution trucks and allows a simple, contamination-free and **full automatically** operated change from e.g. heating oil to diesel and vice versa.



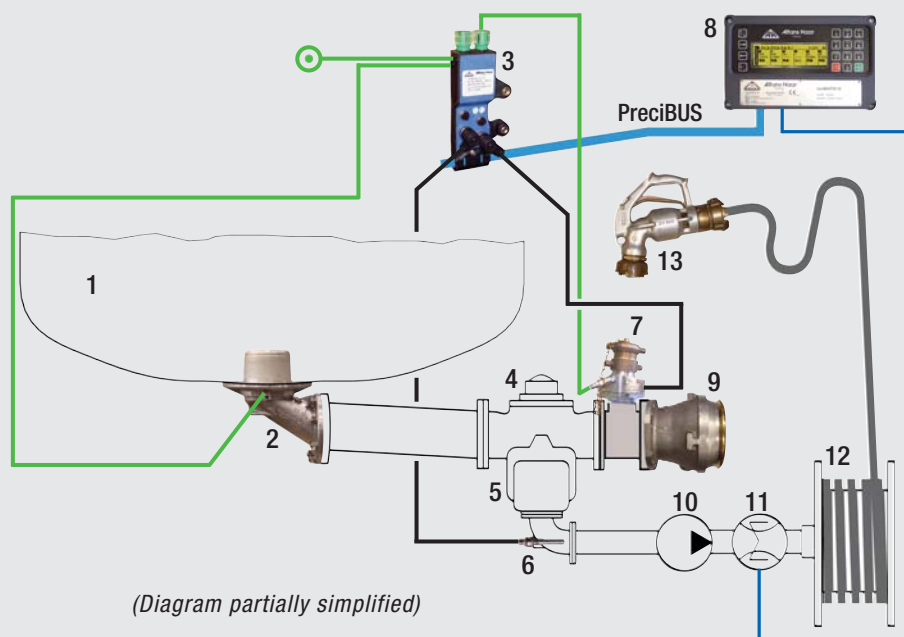
In the case of such an operation, the last delivered medium (e.g. heating oil) is pressed back directly into the relevant compartment with the following medium (e.g. diesel). In this way the complete measuring system is rinsed and prepared for the next delivery, **complete automatically** operated from the **X-MASTER**.

It is possible to change the product at the end of a normal delivery to a customer. In this case the driver can select the next product and the compartment to use. The **X-MASTER** has been pre-programmed with the exact volume of the metering system and hose reel. This means that the **X-MASTER** can control this entire operation **automatically**, without the need for the driver to return to the truck during delivery.

Because of the embedded **Flow Check** sensors, a so called "mini guard bar" for the product return valves is not necessary any longer.

General diagram

1. Tank compartment
2. Foot valve
3. Pneum. electr. control device PreciNODE C ...
4. Collector valve
5. Collector
6. Wetleg sensor
7. Product return valve with embedded Flow Check sensor and purge connection
8. Controller X-MASTER
9. API
10. Pump
11. Measuring system
12. Hose reel
13. Nozzle



(Diagram partially simplified)