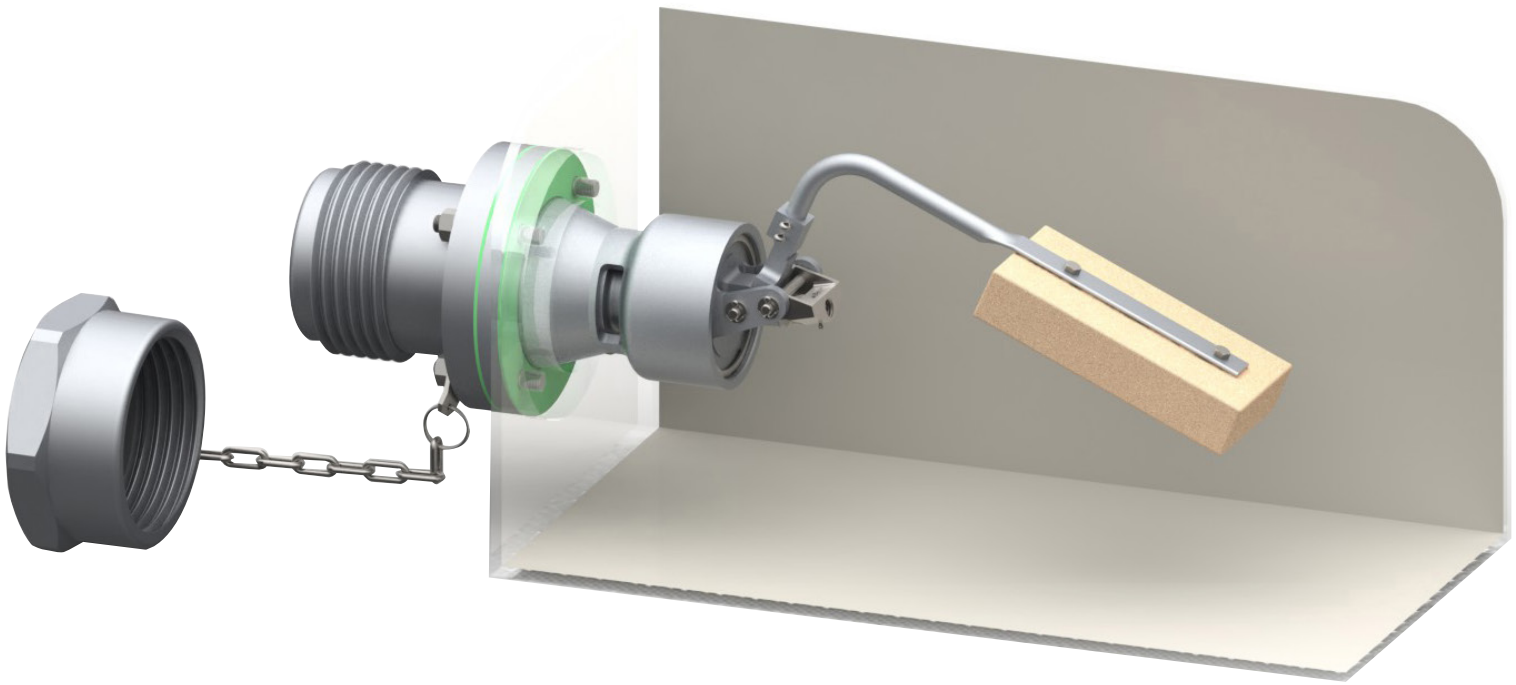
ams
INSTRUMENTATION & CONTROL



SPECIFICATION // DATA SHEET

REFUELLING CONTROL VALVE & DRY BREAK COUPLING

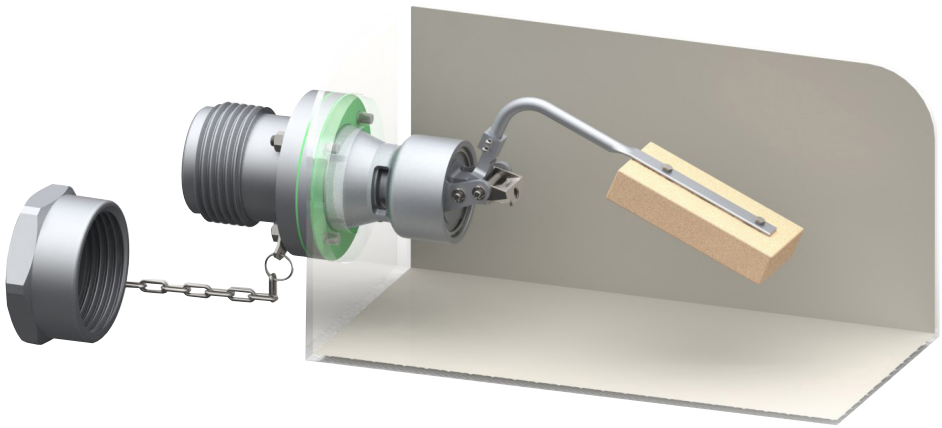
Products - control valves

Refuelling control valves (RCV)

The Refuelling Control Valve is a float operated servo valve, designed to limit the amount of liquid fed into a tank to a specific level. It can be used in a wide range of chemical and hydrocarbon storage applications where emphasis is being placed on careful handling of liquids.

A special feature of the valve is that it allows the tank to be controlled up to capacity, increasing utilisation and therefore reducing the number of deliveries to static installations. It is widely used in rail applications for both refuelling and coolant control.

The servo valve provides positive sealing and reliable operation without external power. The float mechanism is used to seal off the servo chamber, via a hole in the valve head; the servo effect closes the valve head against the liquid flow.



Dry break coupling (DBC)

The coupling prevents fuel leakage when fuelling a locomotive and automatically closes when the fuelling hose coupling is removed. It can be supplied as a separate item or combined with the refuelling control valve. This combination provides a higher tank capacity as no other internals are required.

- Enables safe maximum filling of rail fuel tanks
- Automatic shut off of fuel
- Lightweight robust construction
- Compatible with standard rail industry hose end coupling
- Supplied as separate units or combined
- Environmentally clean operation
- Servo actuated by fluid pressure
- Requires no external power source
- In use since 1956 (proven design)

Products - control valves

The Refuelling control valve has been utilised in the following applications;

- Fuel tank level control
- Chemical or Hydrocarbon storage control
- Single point filling of multiple tanks.
- Engine coolant / Anti-Freeze
- Water and many other fluids

When used in conjunction with Dry Break Coupling can be used for spill free tank filling.

Operation (RCV)

When a filling nozzle is connected to the RCV is in its open state (Float down see Fig 1), the filling process can be started.

When the filling process is started the bleed hole in the valve head allows fluid to pass through the valve head and the pilot valve, this creates no back pressure and the valve head is free to be pushed towards the back of the RCV body and the fill fluid enters the storage vessel through the RCV fill holes in the body.

When the fill medium level increases the float is lifted upwards which closes and seals the pilot valve causing a back pressure to build up behind the valve head (Float up see Fig 1). The servo effect closes the valve head against the flow of fill fluid when the pressure differential becomes higher behind the valve head causing the valve head to seal against the valve body.

Note:
After filling the vessel it is possible for very small amounts of fill fluid to pass back through the valve head to the external of the vessel, to remove this issue AMS recommend that the RCV is used in conjunction with a Dry Break Coupling to avoid any spillage.

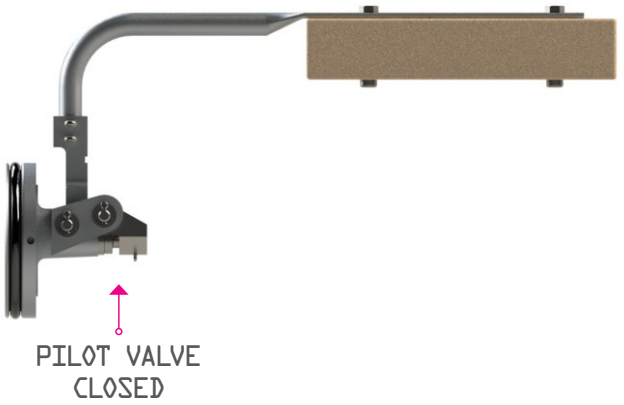
Operation (DBC)

When the filling hose is screwed onto the DBC, the nozzle of the filling hose pushes the valve head against a spring and away from the valve seat allowing flow of fill fluid, when the filling hose is unscrewed from the DBC the spring forces the valve head onto the valve seat preventing any spillage of fill fluid.

FIG 1.

VALVE OPEN

VALVE CLOSED



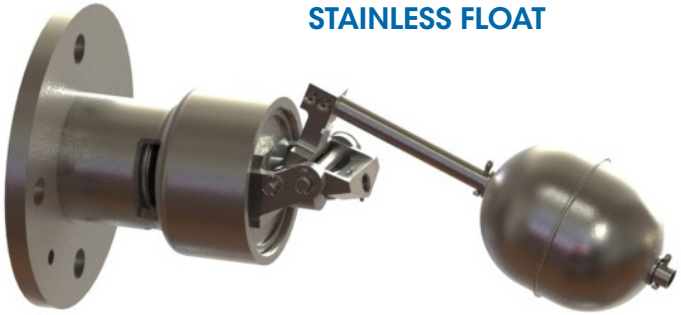
Specification

	DRY BREAK COUPLING	REFUELLING CONTROL VALVE (RCV)
Typical Applications	Use together with RCV for spill free tank filling	Fuel tank level control Chemical or hydrocarbon storage control Single point filling of multiple tanks Engine coolant/anti-freeze Water and many other fluids
Special Features	Mates with Rail Industry standard hose end coupling.	Enables maximum tank filling Positive sealing No power required
Pressure	3.5 bar	3.5 bar
Temperature	-30 to +100 °C (max)	-30 to +100 °C (max)
Specific Gravity	N/A	S.G 0.75 (min)
Flow Rates	Up to 360 l/min	Up to 360 l/min
Material	Aluminum with synergistic low friction coating	Anodised aluminium Expanded PVC
Mounting	To customer requirements	To customer requirements
Options	N/A	Top or bottom mounting Full Stainless steel Construction Higher flows to special order

Typical refuelling control valves

ALUMINIUM BODY WITH STAINLESS FLOAT

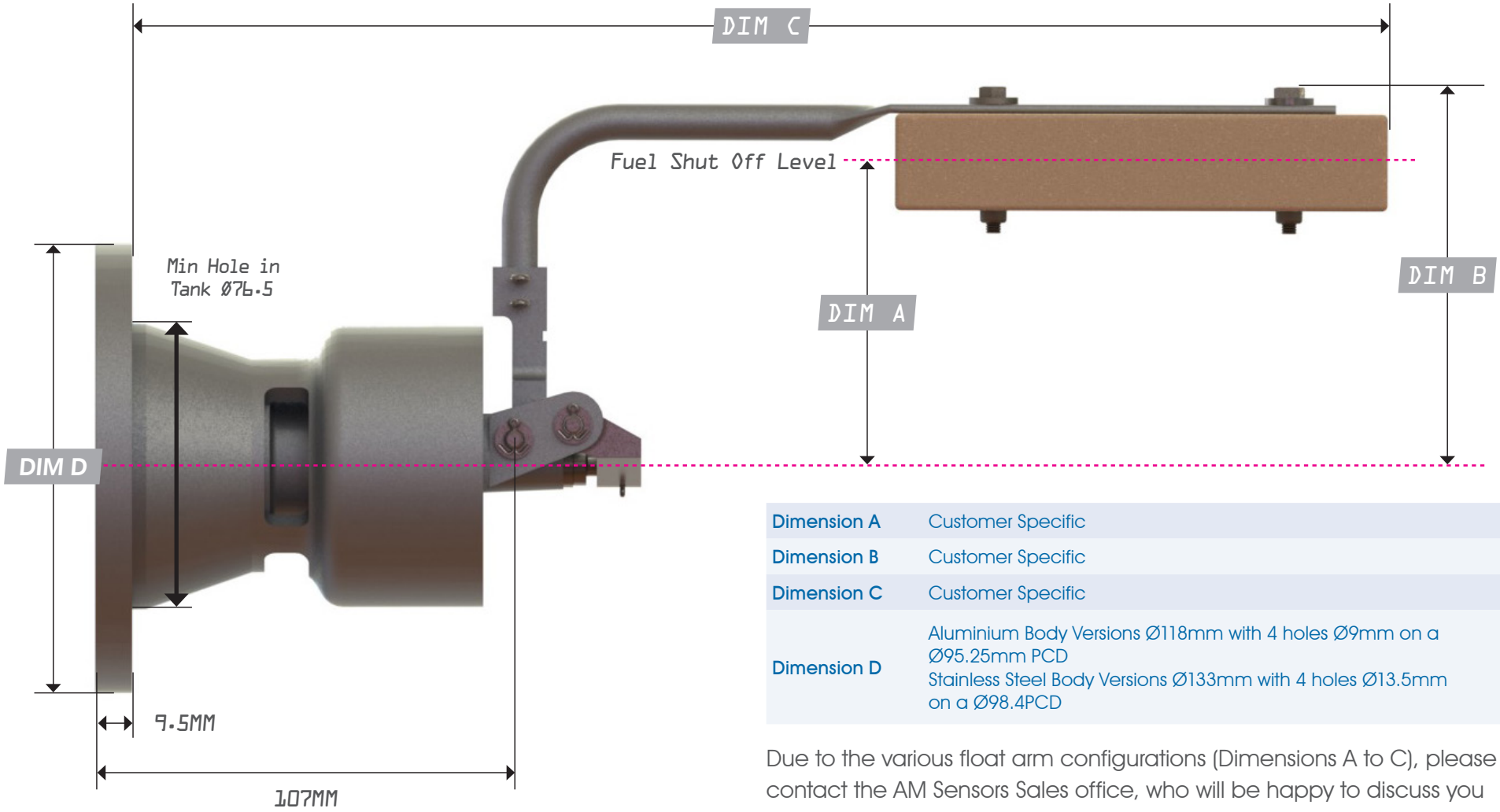
STAINLESS STEEL BODY WITH STAINLESS FLOAT



ALUMINIUM BODY WITH PLASTICELL FLOAT

STAINLESS STEEL BODY WITH NON RETURN VALVE

Typical RCV dimensions

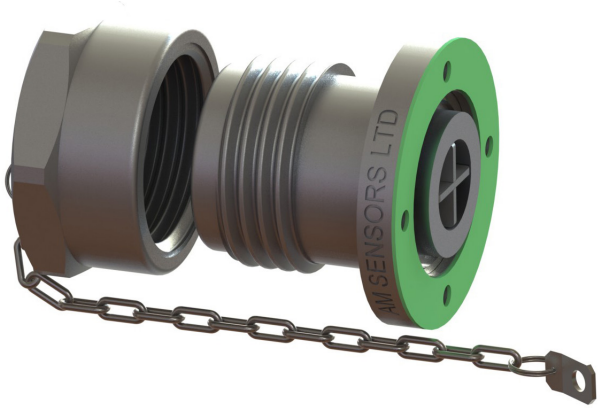


Dimension A	Customer Specific
Dimension B	Customer Specific
Dimension C	Customer Specific
Dimension D	Aluminium Body Versions Ø118mm with 4 holes Ø9mm on a Ø95.25mm PCD Stainless Steel Body Versions Ø133mm with 4 holes Ø13.5mm on a Ø98.4PCD

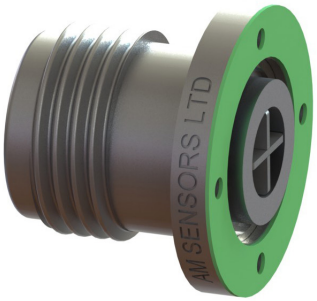
Due to the various float arm configurations (Dimensions A to C), please contact the AM Sensors Sales office, who will be happy to discuss you exact requirements with you.

Contact AM Sensors Sales on:
T: +44 (0)1278 444650
E: sales@amsensors.com

Dry break coupling detail



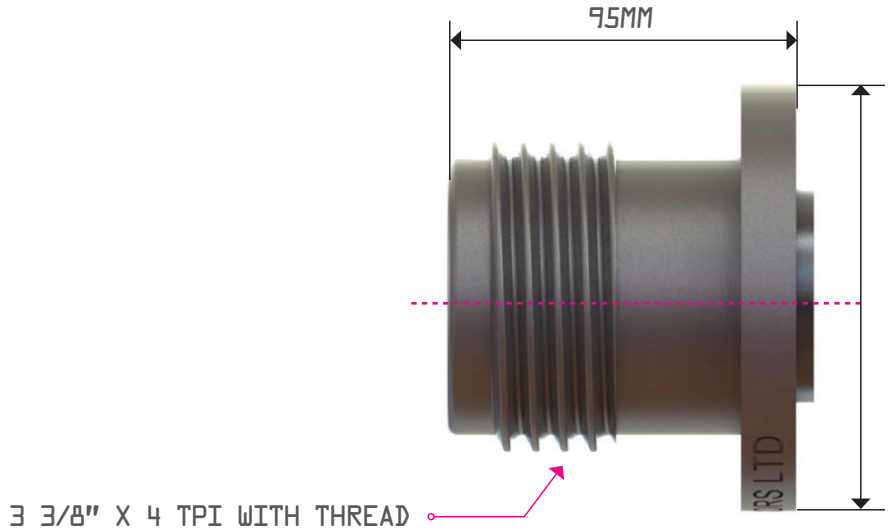
Dry Break Coupling with Cap Assembly
Including Stainless Steel Retaining Chain
SV7039 (Anodised Aluminium Cap)
SV7040 (Painted Black Aluminium Cap)



Anodised Aluminium Dry Break Coupling
SV7036 (No Cap)

Cap and Stainless Steel Retaining Chain
SV7008 (Anodised Aluminium Cap)
SV7026 (Painted Black Aluminium Cap)

Dry break coupling dimensions



Ø118MM 4 HOLES Ø9MM ON AN Ø95.25MM PCD

Spares and servicing

Our service exchange program can ensure prompt replacement of RCVs during your maintenance scheduling; ask one of our sales team for further information.

In addition to the service exchange program, AMS offer repairs on an as required basis. RCVs returned to AMS are assessed and an assessment report would then indicate the level of repair required to the RCV.

AMS offer a number of repair / refurbishment options, these range from basic through to complete. Any RCV requiring more work than stated below is deemed beyond economical repair and should be replaced.

Part No: RCV-ABR
Refuelling Control Valve Basic Refurbishment
Body Material: Cast Aluminum Version

Includes strip, clean, replacement of seals and spring, reassembly, pressure test, 12 months warranty.

Specifications Covered:

Body Type	Standard Mounting
Body Material	Cast Aluminium
Float Type	Dual Plasticell / St / St Version
Base Cap Material	Cast Aluminium
Valve Head Material	Cast Aluminium
Pivot Arm Type	Vertical
Pivot Arm Material	Cast 316 st/st
Float Arm Model	Various
Float Arm Material	Aluminium and St / St Versions

Detail:

Refurbishment of aluminium body refuelling control valve with standard body type design. Work to include:

- Check functionality of components
- Strip valve fully
- Inspect valve body, base cap, pilot valve, valve head, pivot arm, float
- arm and float for any signs of damage or wear
- Replace External Distributor Seal
- Replace Valve Head Seal
- Replace Base Cap O-ring Seal
- Replace Base Cap Retaining Ring/Circlip
- Replace Spring
- Clean debris from valve head, pivot mechanism and pilot valve
- Reassemble components
- Complete pressure and functionality checks

RCV-ABR

Spares and servicing (Continued)

Part No: RCV-ASR
Refuelling Control Valve Standard Refurbishment

All work as per RCV-ABR plus replacement of all spindles and locating clips, float arm and float.

Part No: RCV-ACR
Refuelling Control Valve Complete Refurbishment

All work as per RCV-ASR plus refurbishment of base cap, pivot arm, pivot arm carrier, pilot valve and valve head.

RCV Spares pack p/n: (Various dependent on RCV model)

RCV Maintenance Spares Pack: Valve Head Seal, Distributor Seal, Base Cap Seal, Gasket, Circlip and Spring.

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