

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.

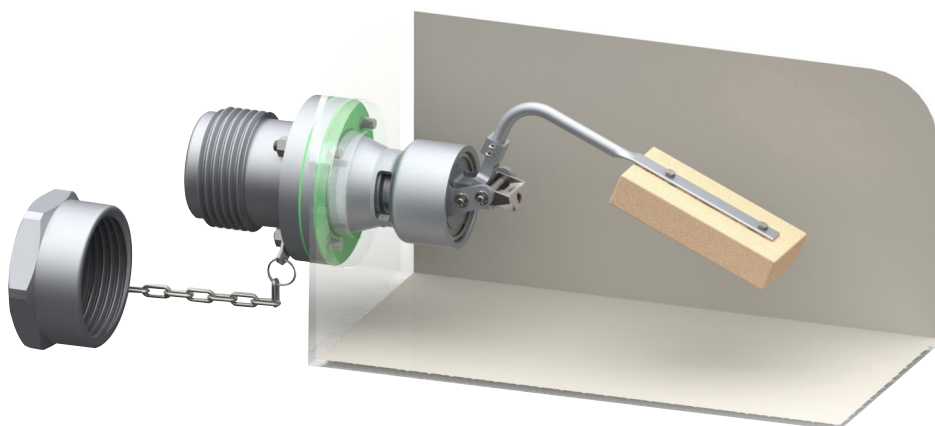
A special feature of the valve is that it allows the tank to be controlled up to capacity, increasing utilisation and therefore reducing the number of deliveries to static installations. It is widely used in rail applications for both refuelling and coolant control.

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-IAC recommend that the RCV is used in conjunction with a Dry Break Coupling to avoid any spillage.

### Operation (DBC)

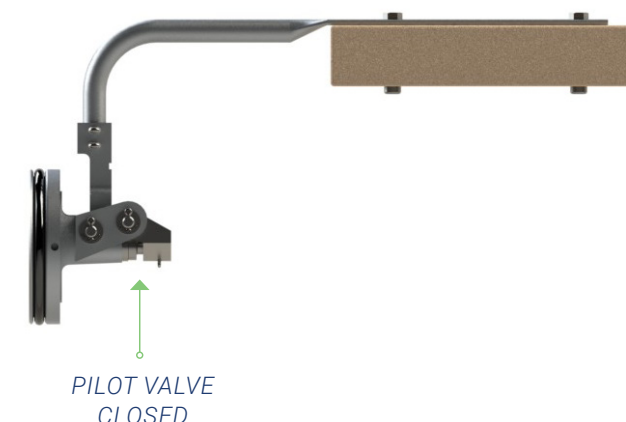
When the filling hose is screwed onto the DBC, the nozzle of the filling hose pushes the valve head against a spring and away from the valve seat allowing flow of fill fluid, when the filling hose is unscrewed from the DBC the spring forces the valve head onto the valve seat preventing any spillage of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

FIG 1.

#### VALVE OPEN



#### VALVE CLOSED



## Specification

	Dry Break Coupling	Refuelling Control Valve (RCV)
<b>Typical Applications</b>	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
<b>Special Features</b>	Mates with Rail Industry standard hose end coupling.	Enables maximum tank filling Positive sealing No power required
<b>Pressure</b>	3.5 bar	3.5 bar
<b>Temperature</b>	-30 to +100 °C (max)	-30 to +100 °C (max)
<b>Specific Gravity</b>	N/A	S.G 0.75 (min)
<b>Flow Rates</b>	Up to 360 l/min	Up to 360 l/min
<b>Material</b>	Aluminum with synergistic low friction coating	Anodised aluminium Expanded PVC
<b>Mounting</b>	To customer requirements	To customer requirements
<b>Options</b>	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**



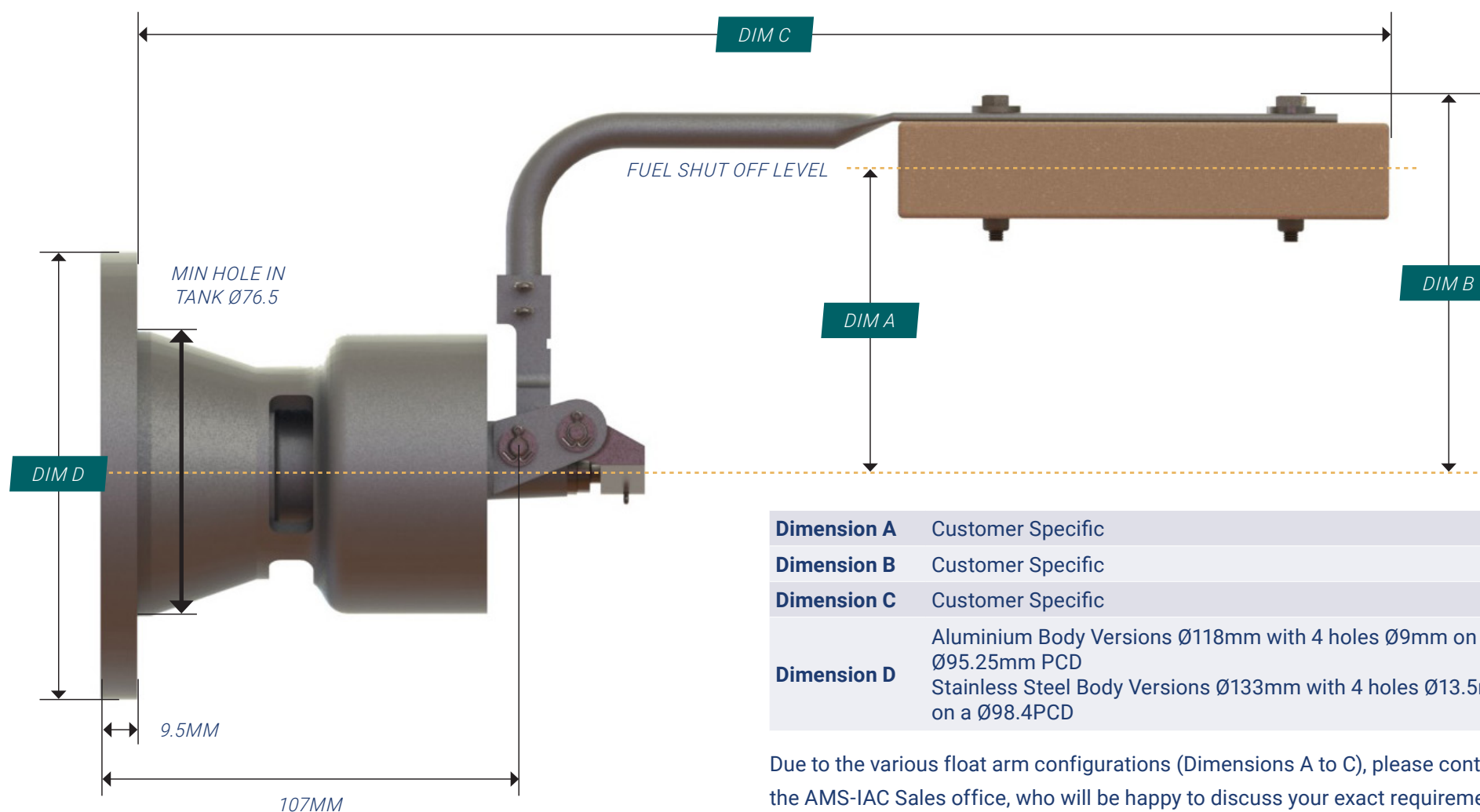
**ALUMINIUM BODY  
WITH PLASTICELL FLOAT**



**STAINLESS STEEL BODY WITH  
NON RETURN VALVE**



## Typical RCV Dimensions



<b>Dimension A</b>	Customer Specific
<b>Dimension B</b>	Customer Specific
<b>Dimension C</b>	Customer Specific
<b>Dimension D</b>	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

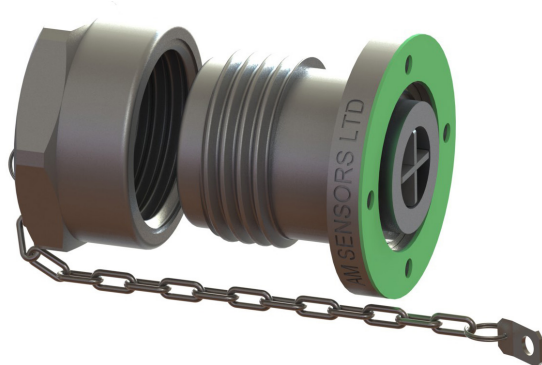
Due to the various float arm configurations (Dimensions A to C), please contact the AMS-IAC Sales office, who will be happy to discuss your exact requirements with you.

Contact AMS Instrumentation & Control Ltd on:

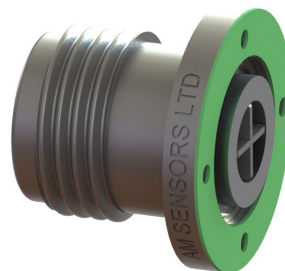
T: +44 (0)1726 839909

E: [sales@ams-iac.com](mailto:sales@ams-iac.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)

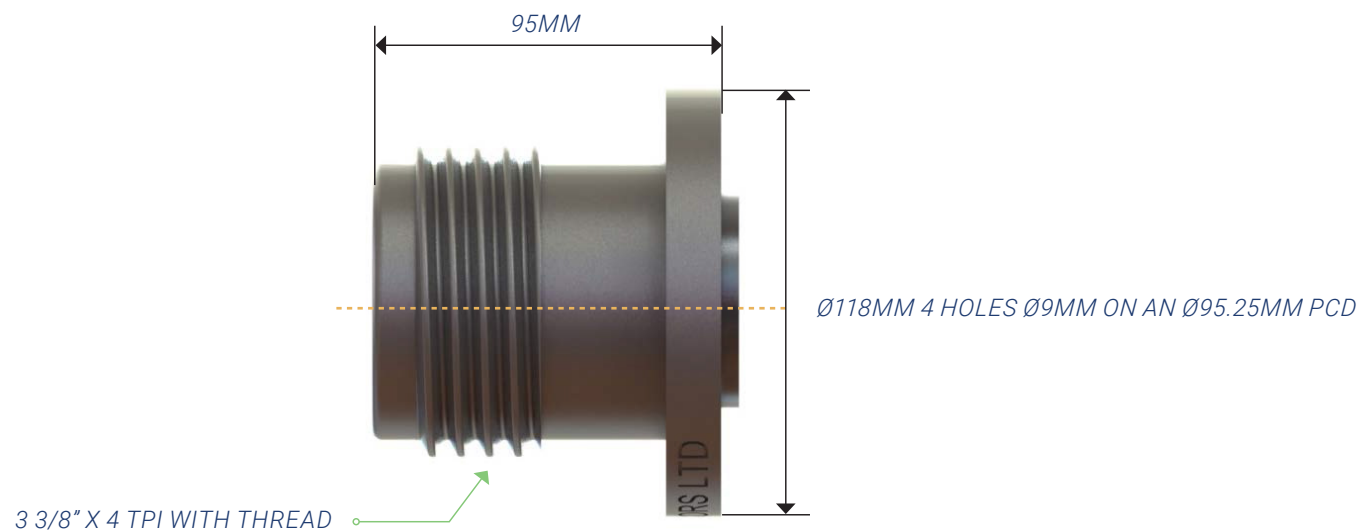


Anodised Aluminium Dry Break Coupling  
**SV7036** (No Cap)



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

## Dry break coupling dimensions



## 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-IAC offer repairs on an as required basis. RCVs returned to AMS-IAC are assessed and an assessment report would then indicate the level of repair required to the RCV.

AMS-IAC 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:

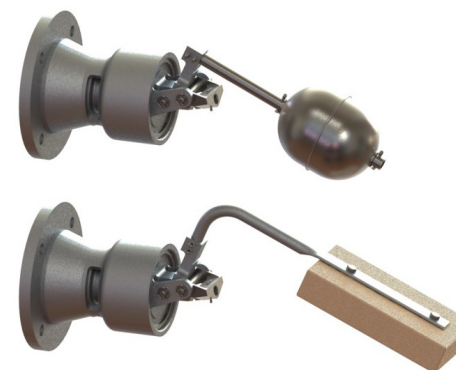
<b>Body Type</b>	Standard Mounting
<b>Body Material</b>	Cast Aluminium
<b>Float Type</b>	Dual Plasticell/ST/ST Version
<b>Base Cap Material</b>	Cast Aluminium
<b>Valve Head Material</b>	Cast Aluminium
<b>Pivot Arm Type</b>	Vertical
<b>Pivot Arm Material</b>	Cast 316 ST/ST
<b>Float Arm Model</b>	Various
<b>Float Arm Material</b>	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.

Contact AMS Instrumentation & Control Ltd on:

T: +44 (0)1726 839909

E: [sales@ams-iac.com](mailto:sales@ams-iac.com)





AMS Instrumentation & Control Ltd  
Unit 8b, A30 Business Park  
Lodge Way, Indian Queens  
Cornwall TR9 6FZ

t +44 (0)1726 839909  
e [info@ams-iac.com](mailto:info@ams-iac.com)  
[www.ams-iac.com](http://www.ams-iac.com)

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