



## CRS AFS Purifier I

202900

202902

202910

## Operation Guide

**Document Number**  
**995101**

Version 6

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## Safety Notice

# WARNINGS

**WARNING notices must be read carefully and understood. Improper use of this product can cause harm or death to personnel and damage to property!**

## Recycling



For recycling contact your local CRS Sales Office or Distributor.

## Warnings

### WARNING

Remember to wear safety glasses.



Leak test all fittings when using hazardous or flammable gases.

Do not use above 13.8 bar (200 psi).

Do not open filter cartridge, even after use!

Do not use to remove more than 50 ppm of oxygen!  
Rapid heating of the oxygen adsorbent will occur –  
and high internal temperatures can result.

Points on Manifold block are sharp.

Special precautions might be required when using hydrogen. Consult local regulations and your company's safety procedures.

The AFS Purifier I is intended to remove 50 ppm or less of oxygen, water or hydrocarbons (C5 and above) from helium and other inert gases, nitrogen or hydrogen at flow rates of 2 L/minute or less.

Limits:	Temperature	15°C to 35°C
	Pressure	0.75 to 13.8 bar
	Gas Supply	< 50 ppm O <sub>2</sub> , H <sub>2</sub> O and Hydrocarbons
	Flow Rate	< 2 L/min

## Operation Manual

This operation manual applies to the following products:

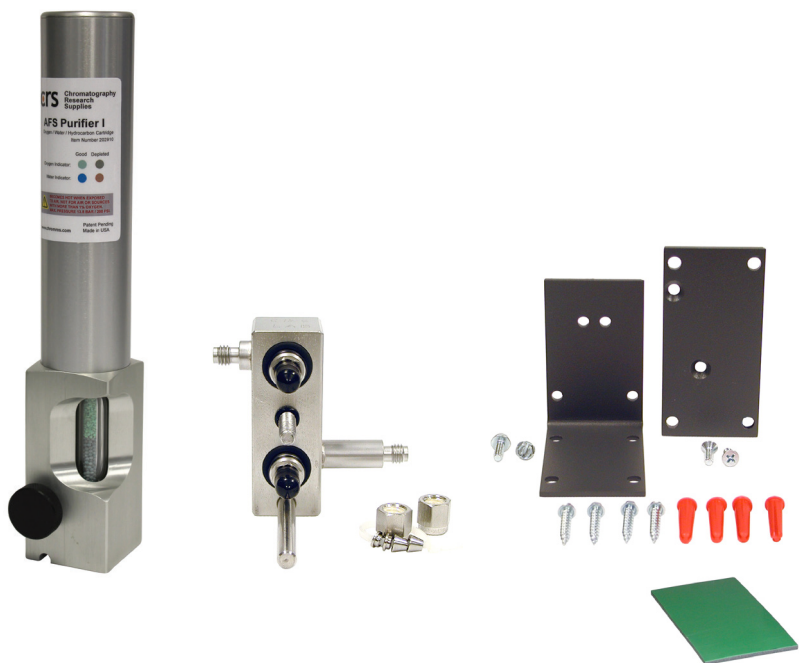
- CRS AFS Purifier I, O<sub>2</sub>/H<sub>2</sub>O, 1/8 fittings, part number 202900
- CRS AFS Purifier I, O<sub>2</sub>/H<sub>2</sub>O, 1/4" fittings, part number 202902
- CRS AFS Purifier I, O<sub>2</sub>/H<sub>2</sub>O, replacement cartridge, part number 202910

## Filter Setup

Please read through this entire manual to familiarize yourself with the operation of the AFS Purifier I before beginning setup. Use the same degree of care as you would with any precision instrument.

Remove the AFS Cartridge, Manifold and Mounting Brackets from the package.

Inspect the filter system. If there is any visible damage, contact your supplier immediately.



## Connecting the Manifold

NOTE: Do NOT remove the black plastic covers from the check valves until manifold installation is complete!

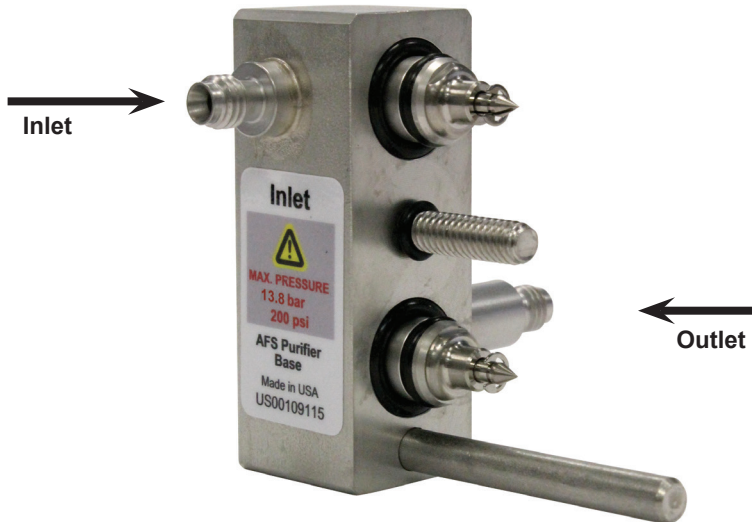
1. The manifold block must be connected to the gas lines. The compression fittings on the block fit 1/8" stainless steel tubing (202900) or 1/4" stainless steel tubing (202902). If you need to connect the filter to lines of another diameter, adapters will need to be installed first.
2. Select the bracket, bench-mount (L-shaped) or wall-mount (flat), which you intend to use. Use the bracket first to mark the holes on the bench or wall where the manifold will be mounted.

The bench-mount bracket can also be attached without screws by using the supplied double sided tape (see pictures on page 9).

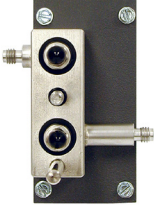
3. Drill the holes to mount the bracket, either to fit the anchors provided or to fit the screws without anchors, depending on the requirements.
  - In the case of the Bench Mount II configuration (see pictures on page 8), the bracket needs to be screwed into place first, before mounting manifold to the bracket.
4. If it is not already in position. Insert the long hex-head screw into the back of the manifold. Fasten one of the brackets to the manifold.
5. Fasten the bracket to the bench or wall in the correct position.

6. Thread the nuts, back ferrules and front ferrules onto the tubing. Insert the tubing into the manifold fittings, making sure that it reaches the bottom of the fitting.
7. Tighten the compression fittings. Compression fittings normally require about  $\frac{3}{4}$  turn past the finger-tight position for a good seal. Do not overtighten or the fittings may be damaged.
8. Remove the protective plastic cups from the manifold check valves. Be careful, the ends of the check valves are sharp!

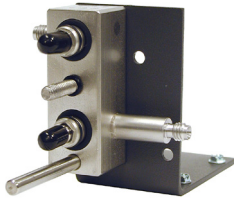
**WARNING**



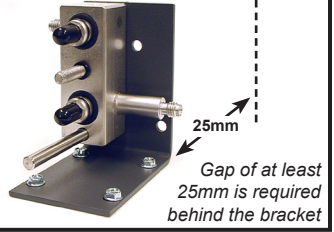
**Wall Mount**



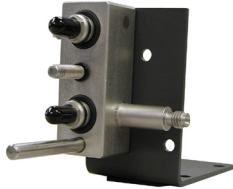
**Bench Mount I**



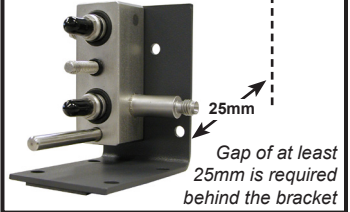
**Bench Mount II**



**Bench Mount I  
with no screws**

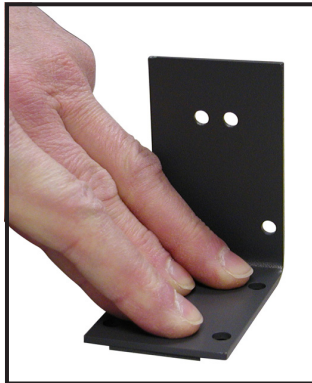
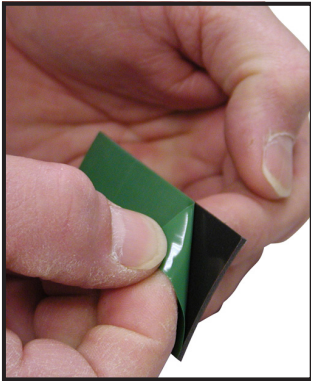


**Bench Mount II  
with no screws**





## Optional Bench Mount I / II without Screws



Make sure to clean the area on bench thoroughly, before placing the bracket in place.

Note: Tape mounting is not intended for wall use.

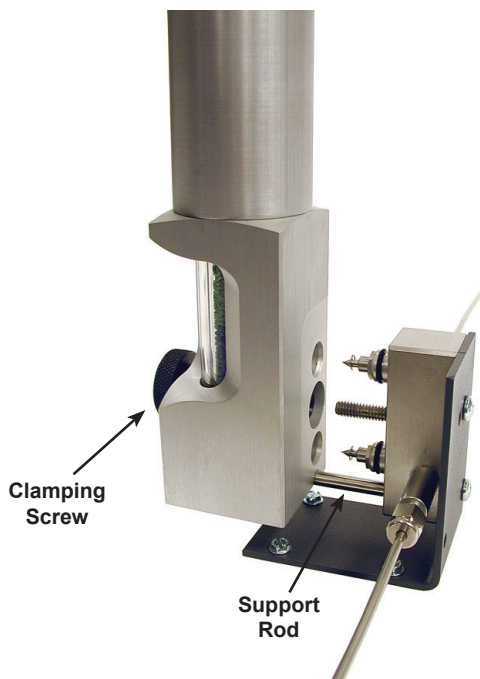
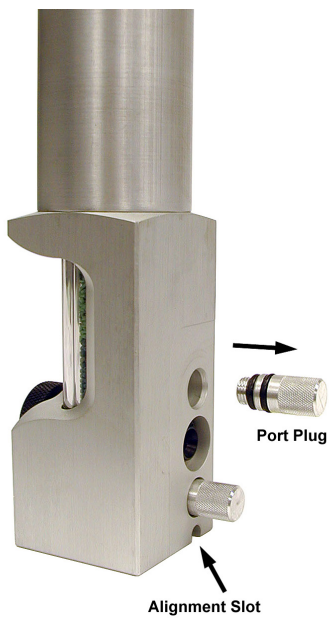
## Mounting the Filter Cartridge

The cartridge is protected in shipping by two port plugs with O-ring seals. In addition, two aluminum cups limit the exposure of adsorbent during assembly, until they are pierced as the cartridge is mounted. Exposure to air for several minutes during filter installation or change will not damage the adsorbent.

1. Remove the two port plugs. Save these plugs in case the cartridge needs to be resealed.
2. Rest the alignment slot of the cartridge on the bottom support rod of the manifold, and slide it forward until the two ports of the manifold slide into the sockets of the cartridge. Be careful to point the check valve needles into the port holes so that they do not scratch the back of the filter.
3. Push the cartridge forward, engage the clamping screw and tighten thoroughly.
4. Leak check the fittings.

*If you are using hydrogen or hazardous gas, additional special procedures may be called for. Consult your company's safety procedures.*

5. The filter cartridge is shipped full of helium, but the gas lines should still be purged with a gas flow for at least several hours after the initial installation. Moisture levels downstream of the instrument may continue to improve for several days.



## Operation and Maintenance

The AFS Purifier I has two visual indicators, one for oxygen and one for moisture. When the green indicator changes to gray, indicating oxygen contamination, or the blue indicator changes to light brown, indicating water contamination, the filter cartridge should be changed.

To exchange the spent cartridge, first turn off the gas supply upstream of the filter. Shut down any instruments downstream of the filter. The check valves in the manifold will interrupt the gas supply when the cartridge is removed and protect the gas lines from the atmosphere.

Unscrew the clamping screw. This pushes the cartridge off the manifold spools. Only after the screw is completely disengaged is it possible to remove the filter from the manifold.

Mount the replacement cartridge as instructed in the section “Setup”.



## Troubleshooting

Condition	Possible Cause	Recommendation
Leak.	O-rings between cartridge and manifold are not leak tight.	Remove and check the manifold O-rings for dirt or scratches. Inspect the sealing surfaces on the cartridge and manifold for scratches. Replace if necessary.
Indicator changes quickly.	Leak in gas line.	Find and fix leak.
	Contaminated Gas.	Verify that the source meets specifications as listed under "Limits" on page 3.  If the gas source is supplying other filters as well, check the condition of these filters. Otherwise check specification and procedures for verifying gas quality.

## Support and Repair

If the AFS Purifier I is still in the warranty period, please contact your dealer for support. If the warranty period has expired, please visit [www.ChromRes.com](http://www.ChromRes.com) for information about how to purchase a replacement or regenerated cartridge.





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