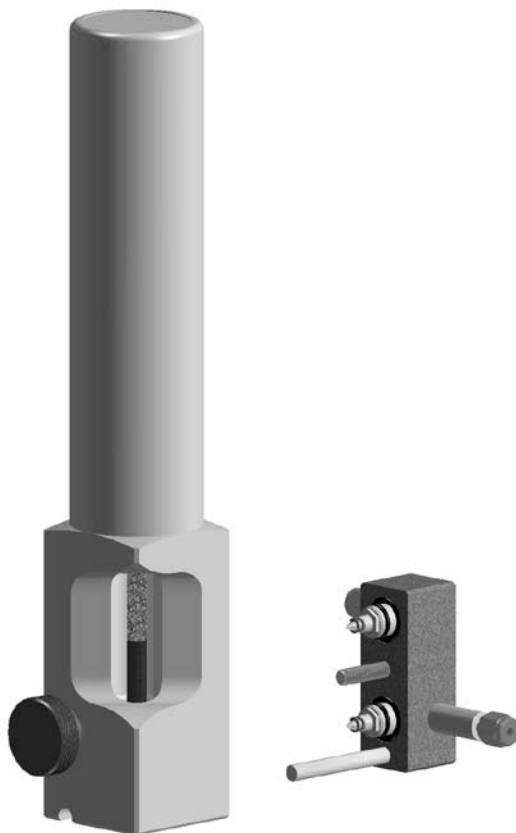




CRS Advanced Filter System

202900
202910

Operation Guide



Safety Notices

Document Number 995101

Version 2

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

Operation Manual

This operation manual applies to the following products:

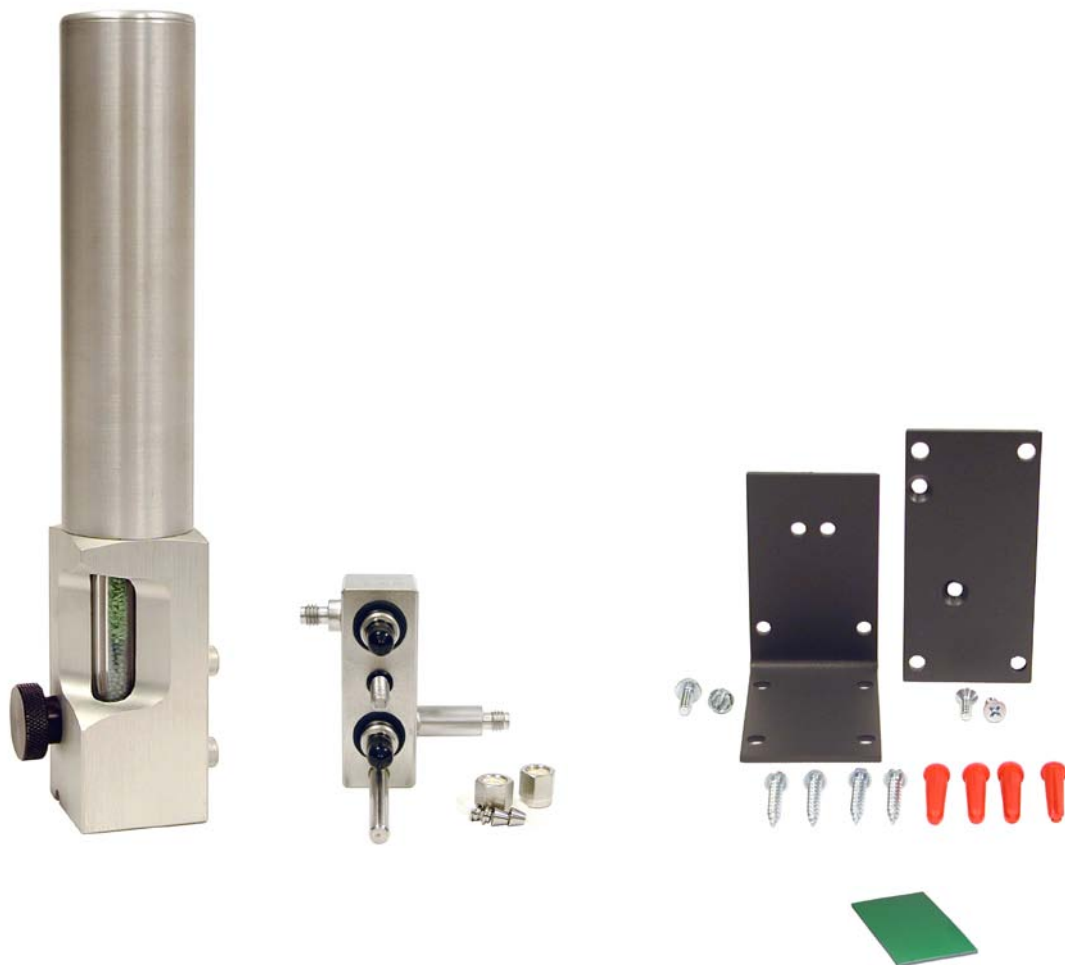
- CRS Advanced Filter System,
part number 202900
- CRS Advanced Filter System, replacement cartridge
part number 202910

Filter Setup

Please read through this entire manual to familiarize yourself with the operation of the Advanced Gas Filter System 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.



Warnings

WARNING



Remember to wear safety glasses.

Leak test all fittings when using hazardous or flammable gases.

Do not use above 14 bar (200psi).

Do not open filter cartridge, even after use!

Points on Manifold block are sharp.

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

The Advanced Filter System is intended to remove 50ppm or less of oxygen, water, or hydrocarbons (C4 and above) from helium and other inert gases, nitrogen or hydrogen at flow rates of 1L/minute or less.

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

| | | |
|----------------|-------------|--|
| Limits: | Temperature | 15°C to 35°C |
| | Pressure | 0.75 to 14 bar |
| | Gas Supply | < 50ppm O ₂ , H ₂ O and Hydrocarbons |
| | Flow Rate | < 1L/min |

Connecting the Manifold

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

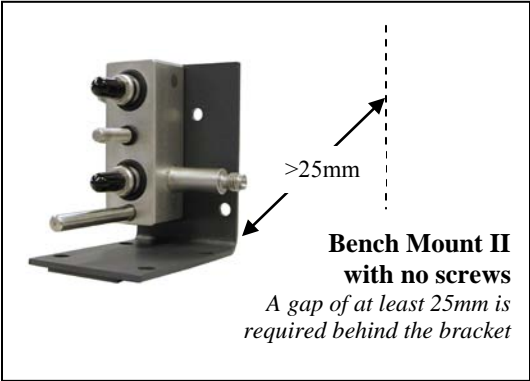
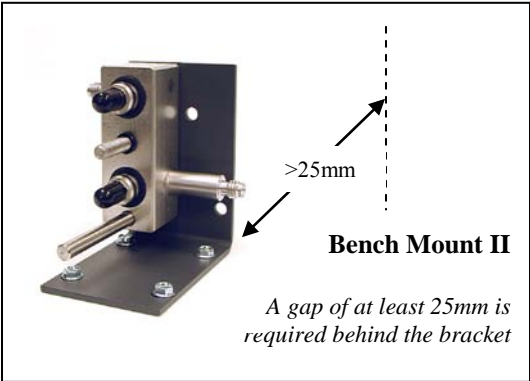
1. The manifold block must be connected to the gas lines. The compression fittings on the block fit 1/8" stainless tubing. If you need to connect the filter to lines of another diameter, adapters will need to be installed first.
2. Select the bracket, bench-mount (L-shaped) or wall-mount (flat), which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

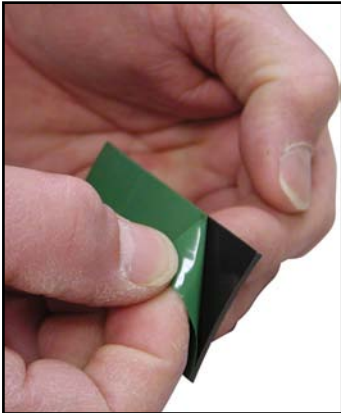
3. Drill the holes to mount the bracket, either to fit the anchors provided or to fit the screws without anchors, depending on the requirements. In the case of the Bench Mount I configuration (see pictures below) the bracket should be screwed into position at this point.
4. Insert the long hex-head screw into the back of the manifold if it is not already in position. Fasten one of the brackets to the manifold, trapping the long screw.
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 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





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

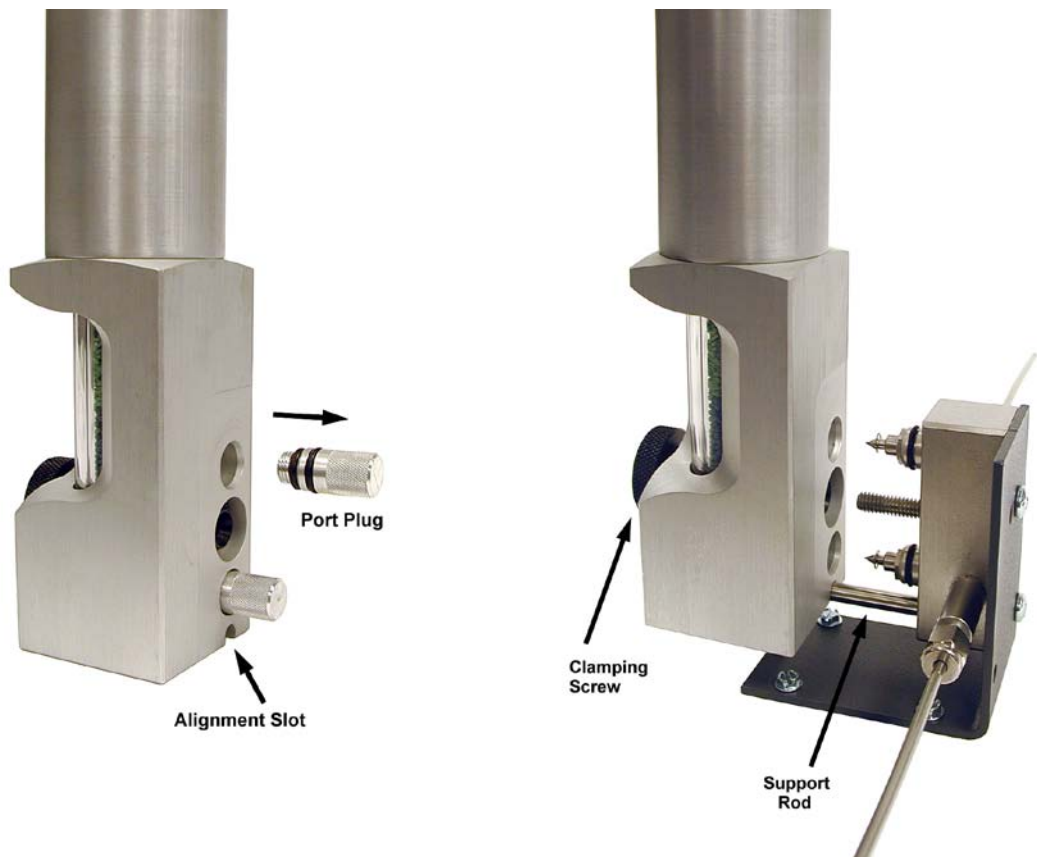
The cartridge is protected in shipping by two port plugs with O-ring seals. In addition, two aluminum cups limit the exposure of adsorbent during assembly, until they are pierced as the cartridge is mounted. Exposure to air of several minutes during filter installation or change will not damage the adsorbent.

1. Remove the two port plugs. Save these plugs in case the cartridge is to be returned in an exchange after the cartridge has been consumed.
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.

WARNING

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.



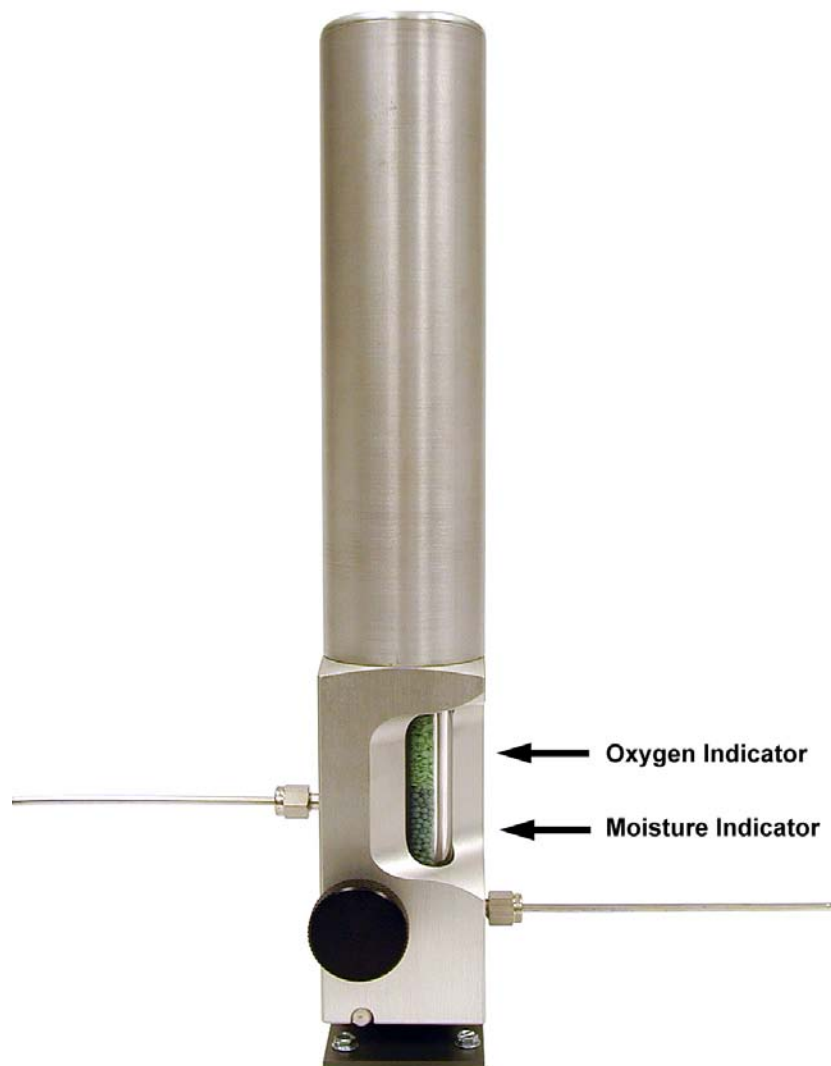
Operation and Maintenance

The Advanced Filter System 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. | Leak-check the overall system. |
| | Contaminated Gas | Verify that the source meets specifications as listed under “Limits” on page 5. 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. |