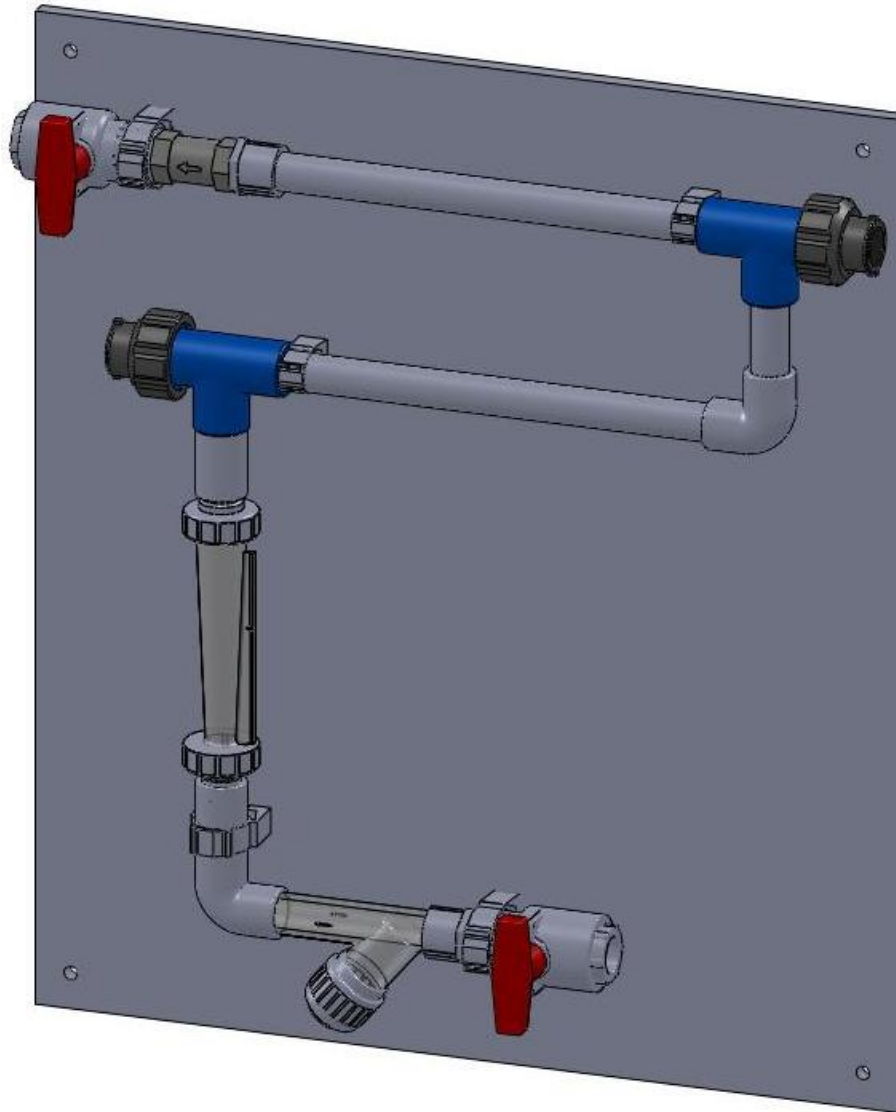




Corrosion Coupon Rack

INSTALLATION & OPERATION MANUAL



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1 Cautions and Warnings

1. It is recommended that the installer and operator utilize the appropriate personal safety equipment while interacting with the Corrosion Coupon Rack (CCR); i.e. safety glasses, gloves, etc.
2. It is the installer’s responsibility to install the product away from sensitive equipment such as open electrical devices to protect from potential electrical shock and or damage in the event of a leak or failure of the CCR assembly.
3. It is the installer’s responsibility to provide for secondary containment, leak detecting equipment and or drainage of potential water that may drip from the CCR during normal usage or in the unlikely event of a rupture/failure.
4. This device has a rated operating pressure; however rapid pressure spikes that result from water hammer or uncontrolled surges from external sources can cause pressures far above the rating of the product. The purchaser/installer must make sure these spikes are prevented to assure safe operation of the CCR.
5. PVC versions of the CCR can be affected by high temperatures. The device is not designed to operate above 140° F (60° C). Pressure is also derated at higher temperatures.
6. Any modification to the CCR voids the warranty and any resulting failure is the sole responsibility of the purchaser/installer.
7. Removal of the CCR piping from the supplied back plate is a modification not allowed and voids the warranty.
8. Prior to any service to the unit, always close the inlet isolation valve and release the pressure and completely drain the unit.

2 Temperature to Pressure Ratings

PVC Temperature to Pressure Ratings

Operating Temp (°F)	Operating Temp (°C)	% Pressure Derate
73	22.8	100%
80	26.7	88%
90	32.2	75%
100	37.8	62%
110	43.3	51%
120	48.9	40%
130	54.4	31%
140	60.0	22%

PVC Schedule 80 Industrial Pipe

Nom. Size (in)	Maximum Working Pressure (PSI)
1/2"	850
3/4"	690
1"	630

CPVC Temperature to Pressure Ratings

Operating Temp (°F)	Operating Temp (°C)	De-Rating Factor
80	26.7	100%
90	32.2	91%
100	37.8	82%
110	43.3	72%
120	48.9	65%
130	54.4	57%
140	60.0	50%
150	65.6	42%
160	71.1	40%
170	76.7	29%
180	82.2	25%
200	93.3	20%

CPVC Schedule 80 Industrial Pipe

Nom. Pipe Size (in)	Maximum Working Pressure (PSI)
1/2"	850
3/4"	690
1"	630

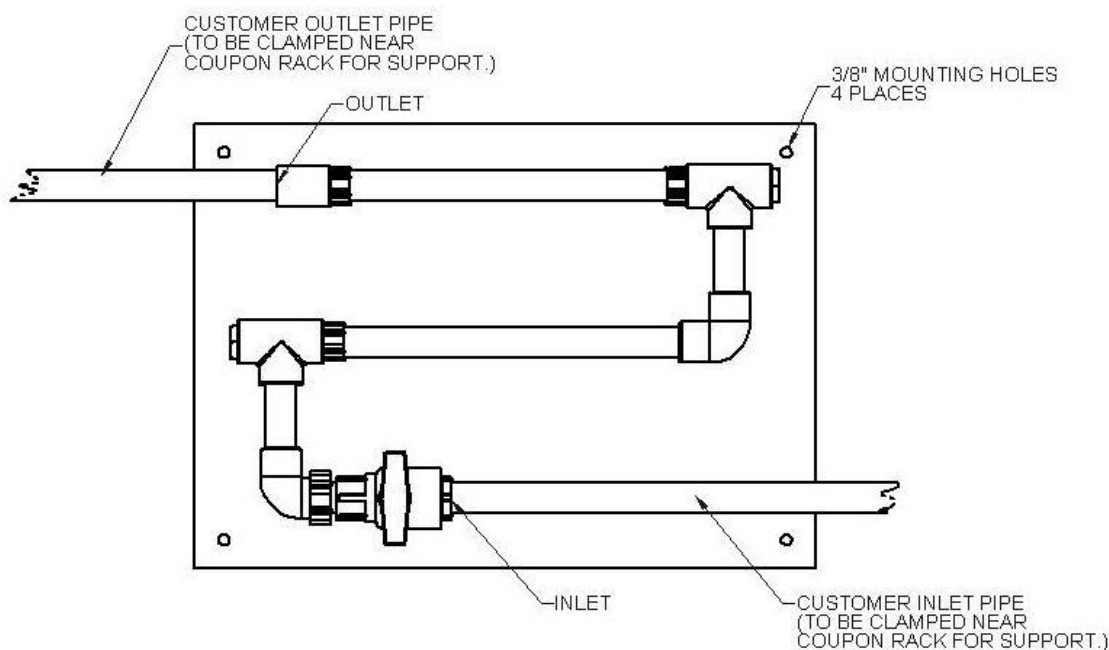
Example:

Material Type	Pipe Size	Temperature	Max W.P.	De-Rating Factor	De-Rated Max W.P.
CPVC	1/2"	120 °F	850	x 65%	= 552.5

Corrosion Coupon Rack

3 Installation

Corrosion coupon racks are typically installed on the side stream of re-circulating systems to allow for controlled testing of coupon samples. Samples are periodically removed and examined by a laboratory in order to calculate corrosion rates and other effects such as pitting.

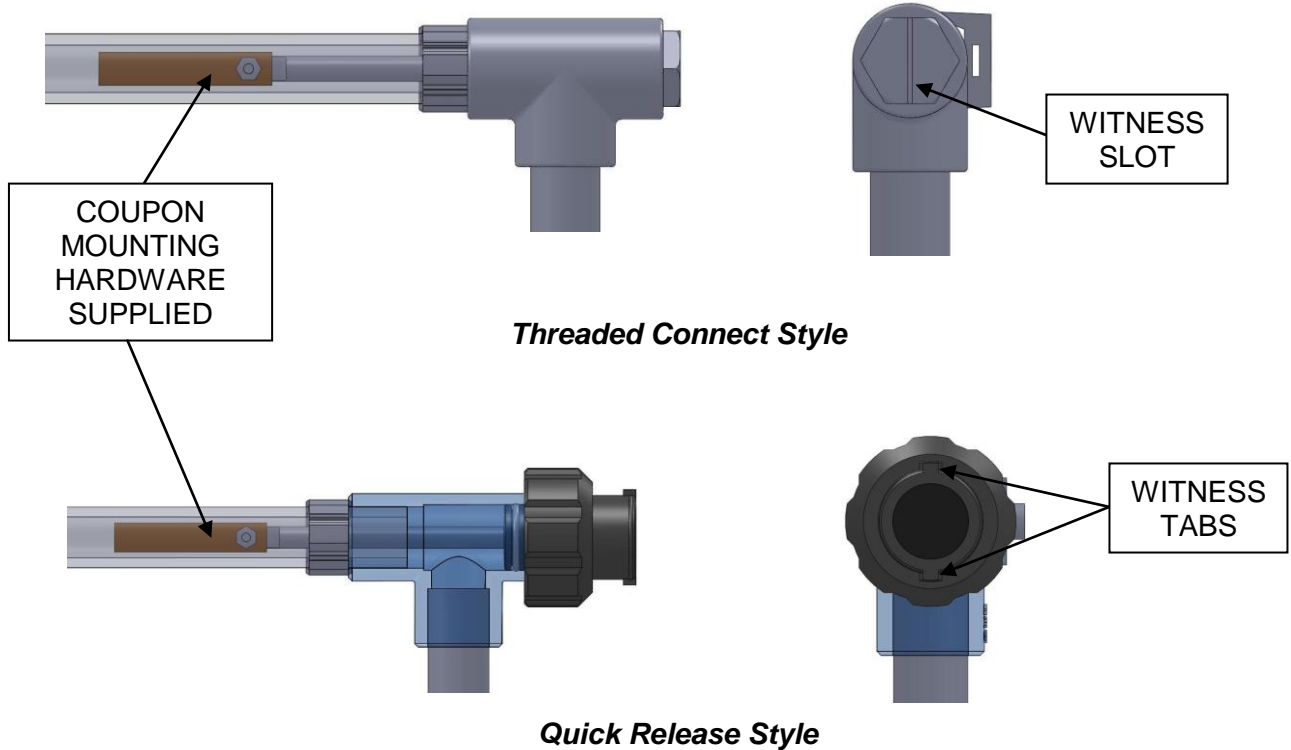


- 1) Securely fasten the coupon rack to a wall or other rigid surface.
- 2) Secure inlet and outlet piping using a suitable pipe clamp.
- 3) The coupon rack is designed with the inlet on the bottom and the outlet at the top, there must be more pressure on the inlet side than there is on the outlet side in order for flow to occur.
- 4) Do not install any ancillary equipment on the inlet side of the sample stream, e.g, metering pumps, sensors or analyzers.
- 5) Avoid installations that have variable flow velocities; installation of a flow control valve may be required.
- 6) Install inlet and outlet isolation valves (unless equipped).

The corrosion coupon rack is designed for outdoor installations, PVC and CPVC models should not be exposed to direct sunlight and must be protected from environmental conditions. Verify that the pressure and temperature of the installation do not exceed those in the specifications section of this manual.

4 Operation

To remove the coupons, turn off the isolation valves and loosen the coupon holder to remove the coupon sample. Install the coupon by hand tightening the holder into the tee, noting the witness marks on the holder body. Restore flow by opening the isolation valves and then inspect for leaks.



Coupon Handling:

- Do not leave finger prints on samples.
- Do not clean samples.
- Use the treated envelope supplied with coupon samples for storage before and after testing.
- Use TFE tape on threaded type holders, quick connect type holders use O-Ring style seals.
- Witness slot (or tabs) on holders must be vertical so that the coupon is also vertical.

5 Specifications

3/4" PVC piping max 150 psi (10.4 bar), 140° F (60°C)		1" PVC piping max 150 psi (10.4 bar), 140° F (60°C)		3/4" CPVC piping max 150 psi (10.4 bar), 212° F (100°C)		1" CPVC piping max 150 psi (10.4 bar), 212° F (100°C)		3/4" black iron piping max 250 psi (10.4 bar), 212° F (100°C)	
Model	Model	Model	Model	Model	Model	Model	Model	Model	Model
CCR1	CCR10	CCR1A	CCR10A	CCR1B	CCR10B	CCR10C	CCR10C	CCR1D	CCR10D
CCR2	CCR20	CCR2A	CCR20A	CCR2B	CCR20B	CCR20C	CCR20C	CCR2D	CCR20D
CCR3	CCR30	CCR3A	CCR30A	CCR3B	CCR30B	CCR30C	CCR30C	CCR3D	CCR30D
CCR4	CCR40	CCR4A	CCR40A	CCR4B	CCR40B	CCR40C	CCR40C	CCR4D	CCR40D
CCR5	CCR50	CCR5A	CCR50A	CCR5B	CCR50B	CCR50C	CCR50C	CCR5D	CCR50D
CCR6	CCR60	CCR6A	CCR60A	CCR6B	CCR60B	CCR60C	CCR60C	CCR6D	CCR60D
Available options:									
Option	Description								
X1	Quick release coupon holders (PVC only)								
X4	3/4 hot/cold water flow meter 150 psi (10.4 bar) max 130°F (54°C). max								
X6	1 cold water flow meter 150 psi (10.4 bar) max 130°F (54°C) max								
X7	PVC outlet ball valve std, 3/4 blk iron units use 3/4" brass ball valve								
X8A	Y Strainer for 3/4 PVC								
X8B	Y Strainer for 1 PVC or CPVC								
X8C	Y Strainer for 3/4 CPVC or black iron								
X8D	3/4" Polypropylene bowl strainer 30 mesh, 150 psi max 70°F max								
X8E	1" Polypropylene T strainer 30 mesh, 150 psi max 70°F max								
X9	Clear PVC pipe sections								
F3	Flow control valve 3 GPM (3/4" only)								
F5	Flow control valve 5 GPM (3/4" only)								
Z4	Sample and Drain port								
1F10	1" 10 GPM Flow control Valve								
1F5	1" 5 GPM Flow control Valve								

6 Parts

Coupon Rack Replacement Parts	
Part No.	Description
16-756-51-1	Quick Release coupon holder with hardware
16-756-50	PVC and CPVC holder with hardware
16-756-42	Steel on black iron holder with hardware
16-756-43	Steel on black iron holder with hardware High Temp / Pressure
33-022-16	3/4 hot/cold water flow meter

7 Technical Support

Factory Service Policy

If you are experiencing a problem with your corrosion coupon rack, first consult the troubleshooting guide in this manual. If the problem is not covered or cannot be solved, contact Technical Services for assistance:

PULSAFEEDER INC. (SPO)
27101 AIRPORT ROAD
PUNTA GORDA, FL 33982
941-575-3800

Trained technicians are available to diagnose your problem and arrange a solution. Solutions may include purchase of replacement parts or returning the unit to the factory for inspection and repair. All returns require a Return Authorization number to be issued by Pulsafeeder. Parts purchased to correct a warranty issue may be credited after an examination of original parts by Pulsafeeder. Warranty parts returned as defective which test good will be sent back freight collect. No credit will be issued on any replacement electronic parts.

Any modifications or out-of-warranty repairs will be subject to bench fees and costs associated with replacement parts.

Warranty

Pulsafeeder, Inc. warrants control systems of its manufacture to be free of defects in material or workmanship. Liability under this policy extends for 12 months from date of shipment. Electrodes/probes are considered maintenance items and as such are warranted for six (6) months from the date of shipment of the controller. Electrodes/probes purchased as spare parts are warranted for 90 days from date of shipment. The manufacturer's liability is limited to repair or replacement of any failed equipment or part, which is proven defective in material or workmanship upon completion of the manufacturer's examination. This warranty does not include removal or installation costs and in no event shall the manufacturer's liability exceed the selling price of such equipment or part.

The manufacturer disclaims all liability for damage to its products through improper installation, maintenance, use, or attempts to operate such products beyond their functional capacity, intentionally or otherwise, or any unauthorized repair. The manufacturer is not responsible for consequential or other damages, injuries, or expense incurred through the use of its products.

The above warranty is in lieu of any other warranty, whether expressed or implied. The manufacturer makes no warranty of fitness or merchantability. No agent of ours is authorized to provide any warranty other than the above.