

saes
group

SAES Pure Gas

The Technology of Pure Gas

AMBIENT INLINE PURIFIER 904 PURIFICATION MEDIA SPECIFICATION



0 – 2,000 slpm Ambient Inline Purifiers.
For consistent gas quality and
Impurity removal to pptV levels.

MicroTorr Ambient Inline Purifiers:

MicroTorr purifiers are the most complete and reliable solution for Point-of-Use (POU) gas purification. Combining model size with a selection of gas-specific purification materials, MicroTorr purifiers can be tailored to many different customer applications, while maintaining impurity removal to Part-Per-Billion (ppbV) levels or better. Optional valves and a 0.003 micron particle filter are available as well as custom subsystem configurations.

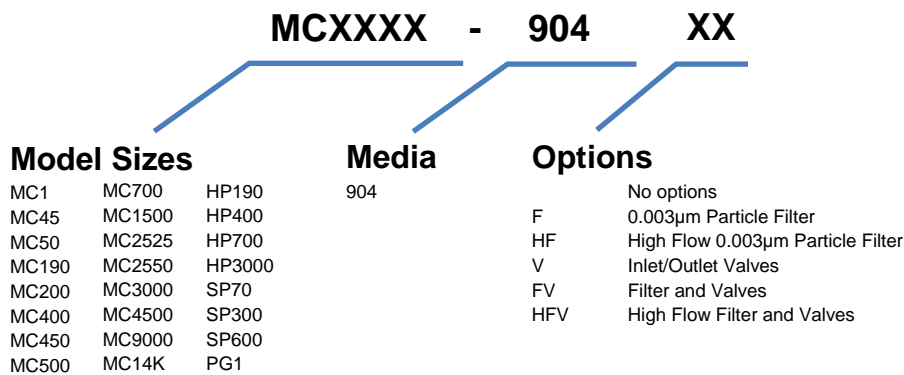
Competitive Advantages and Benefits:

- **Reliability:** Uncompromised process consistency and yield improvement.
- **Performance:** State-of-the-art purification technology, low pressure drop, and long lifetimes.
- **Regenerability:** Most MicroTorr media are factory regenerable, minimizing potentially hazardous waste.
- **Quality:** 316L stainless steel, Helium leak checked, and analytical testing to part-per-trillion (pptv) levels.
- **Support:** Lifetime estimation and regeneration service available through SAES Pure Gas Sales Network.

904 Media Purifier Properties

Gases Purified	H2, D2, H2-Inerts Mix
Impurities Removed	H2O, O2, CO, CO2 to < 100 ppt; Volatile Acids, Organics, Refractory Compounds to < 1 ppt; Volatile Bases < 5 ppt, Metals < 1 ppbV
Particle Filtration	2 micron or 0.003 micron metal
Vessel construction	Stainless Steel 316L, electropolished to 10 Ra
Installation Orientation	Vertically with flow downward. Consult factory for other orientations.
Leak Rating	1 x 10 ⁻⁹ atm cc/sec of He
Operating temperature	-20 to 65 °C (-4 to 149°F) Lifetime may be effected at higher temperatures
Lifetime	Contact SAES Pure Gas for application specific lifetime calculations
Regenerability	Regenerable at SAES Pure Gas Regeneration Centers
Certification	CE Certified to the Pressure Equipment Directive (PED) Designed in accordance with ASME

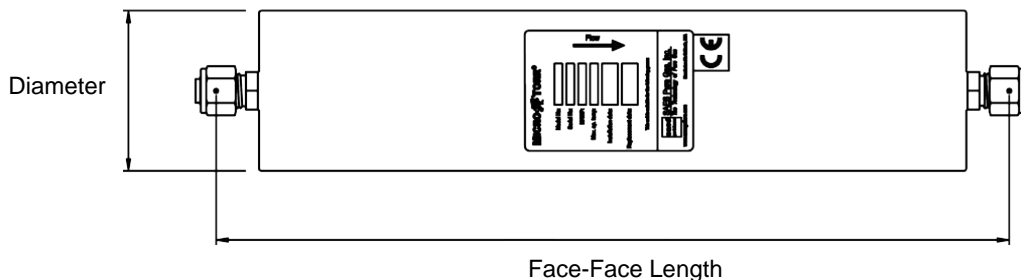
Part Number Configuration:



Purifier Sizes

Part Number	Maximum Flow (slpm)	Average Flow (slpm)	Operating Pressure (psig) Must be in gas phase	Inlet Connection	Outlet Connection	Diameter (inches [mm])	Face to Face Length (inches [mm])	Weight (lb. [kg])
Standard Models								
MC1-904F	5	0.5	1,000	1/4" MVCR	1/4" MVCR	1.5 [38.1]	3.31 [84.1]	< 0.7 [0.3]
MC45-904 MC45-904F	10	1.5	1,000	1/4" MVCR	1/4" MVCR	1.5 [38.1]	4.50 [114.3]	< 0.9 [0.4]
MC50-904F	10	1.5	1,000	1/4" MVCR	1/4" MVCR	1.5 [38.1]	5.00 [127.0]	< 0.9 [0.4]
MC190-904F	50	5	250	1/4" MVCR	1/4" MVCR	2.0 [50.8]	8.20 [208.3]	< 1.6 [0.7]
MC200-904F	50	5	250	1/4" MVCR	1/4" MVCR	2.0 [50.8]	6.30 [160.0]	< 1.8 [0.8]
MC400-904F	60	9	250	1/4" MVCR	1/4" MVCR	3.0 [76.2]	8.20 [208.3]	< 4.9 [2.2]
MC450-904F	75	10	250	1/4" MVCR	1/4" MVCR	3.0 [76.2]	7.94 [201.7]	< 4.1 [1.8]
MC500-904F	100	12	250	1/4" MVCR	1/4" MVCR	2.0 [50.8]	12.50 [317.5]	< 2.8 [1.2]
MC700-904F	120	25	250	1/4" MVCR	1/4" MVCR	3.0 [76.2]	10.00 [254.0]	< 7.6 [3.4]
MC1500-904F	250	40	250	1/2" MVCR	1/2" MVCR	3.0 [76.2]	18.20 [462.3]	< 8.0 [3.6]
MC2525-904F	300	80	250	1/4" MVCR	1/4" MVCR	4.0 [101.6]	17.30 [439.0]	< 13.0 [5.9]
MC2550-904F	500	80	250	1/2" MVCR	1/2" MVCR	4.0 [101.6]	17.60 [447.0]	< 13.0 [5.9]
MC3000-904 MC3000-904F	500	80	250	1/2" MVCR	1/2" MVCR	4.0 [101.6]	20.00 [508.0]	< 14.0 [6.4]
MC4500-904F	500	200	250	1/2" MVCR	1/2" MVCR	6.0 [152.4]	27.64 [702.6]	< 43.0 [19.5]
MC4500-904 MC4500-904HF	1,000	200	250	1/2" MVCR	1/2" MVCR	6.0 [152.4]	27.64 [702.6]	< 43.0 [19.5]
MC9000-904 MC9000-904F	1,000	300	250	1/2" MVCR	1/2" MVCR	6.0 [152.4]	39.34 [999.7]	< 60.4 [27.4]
MC14K-904F	2,000	400	250	3/4" MVCR	3/4" MVCR	6.0 [152.4]	50.80 [1290.0]	< 82.0 [37.2]
High Pressure Models								
HP190-904F	50	5	1,000	1/4" MVCR	1/4" MVCR	2.0 [50.8]	8.20 [208.3]	< 2.1 [0.9]
HP400-904F	60	9	1,000	1/4" MVCR	1/4" MVCR	3.0 [76.2]	8.20 [208.3]	< 4.9 [2.2]
HP700-904F	120	25	1,000	1/4" MVCR	1/4" MVCR	3.0 [50.8]	10.0 [254.0]	< 7.6 [3.4]
HP3000-904F	500	80	1,000	1/2" MVCR	1/2" MVCR	3.9 [100.1]	20.0 [508.0]	< 26.0 [11.8]
SP70-904F	20 (<2,000 psig) 40 (>2,000 psig)	1.5	3,000	1/4" MVCR	1/4" MVCR	2.0 [50.8]	5.00 [127.0]	< 2.3 [1.0]
SP300-904F	100 (<2,000 psig) 200 (>2,000 psig)	10	3,000	1/4" MVCR	1/4" MVCR	2.0 [50.8]	15.00 [381.0]	< 6.6 [3.0]
SP600-904F	200 (<2,000 psig) 400 (>2,000 psig)	15	3,000	1/4" MVCR	1/4" MVCR	2.0 [50.8]	25.00 [635.0]	< 11.0 [5.0]

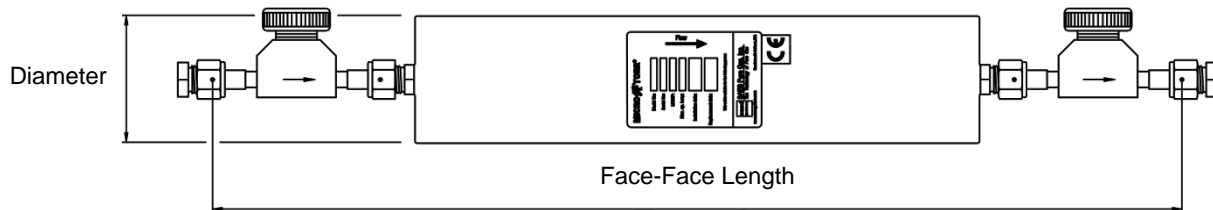
F = 0.003 micron particle filter



Purifier Sizes, with inlet and outlet isolation valves

Part Number	Maximum Flow (slpm)	Average Flow (slpm)	Operating Pressure (psig) Must be in gas phase	Inlet Connection	Outlet Connection	Diameter (inches [mm])	Face to Face Length with valves (inches [mm])	Weight with valves (lb. [kg])
Standard Models								
MC1-904FV	5	0.5	1,000	1/4" FVCR	1/4" FVCR	1.5 [38.1]	8.91 [226.3]	< 2.6 [1.2]
MC45-904V MC45-904FV	10	1.5	1,000	1/4" FVCR	1/4" FVCR	1.5 [38.1]	10.10 [256.5]	< 2.9 [1.3]
MC50-904FV	10	1.5	1,000	1/4" FVCR	1/4" FVCR	1.5 [38.1]	10.60 [269.2]	< 2.9 [1.3]
MC190-904FV	50	5	250	1/4" FVCR	1/4" FVCR	2.0 [50.8]	13.80 [350.5]	< 3.7 [1.7]
MC200-904FV	50	5	250	1/4" FVCR	1/4" FVCR	2.0 [50.8]	11.90 [302.3]	< 3.8 [1.8]
MC400-904FV	60	9	250	1/4" FVCR	1/4" FVCR	3.0 [76.2]	13.80 [350.5]	< 6.8 [3.1]
MC450-904FV	75	10	250	1/4" FVCR	1/4" FVCR	3.0 [76.2]	13.54 [343.9]	< 6.0 [2.7]
MC500-904FV	100	12	250	1/4" FVCR	1/4" FVCR	2.0 [50.8]	18.10 [459.7]	< 4.5 [2.0]
MC700-904FV	120	25	250	1/4" FVCR	1/4" FVCR	3.0 [76.2]	15.60 [396.2]	< 9.6 [4.4]
MC1500-904FV	250	40	250	1/2" FVCR	1/2" FVCR	3.0 [76.2]	28.84 [732.5]	< 12.5 [5.8]
MC2525-904FV	300	80	250	1/4" FVCR	1/4" FVCR	4.0 [101.6]	23.20 [589.0]	< 15.0 [6.8]
MC2550-904FV	500	80	250	1/2" FVCR	1/2" FVCR	4.0 [101.6]	28.20 [716.0]	< 17.7 [8.0]
MC3000-904V MC3000-904FV	500	80	250	1/2" FVCR	1/2" FVCR	4.0 [101.6]	30.64 [778.3]	< 18.7 [8.5]
MC4500-904FV	500	200	250	1/2" FVCR	1/2" MVCR	6.0 [152.4]	38.30 [972.8]	< 48.7 [22.1]
MC4500-904V MC4500-904HFV	1,000	200	250	1/2 FVCR	1/2 MVCR	6.0 [152.4]	38.30 [972.8]	< 48.7 [22.1]
MC9000-904V MC9000-904FV	1,000	300	250	1/2" FVCR	1/2" MVCR	6.0 [152.4]	50.00 [1270.0]	< 66.0 [29.9]
MC14K-904FV	2,000	400	250	3/4" FVCR	3/4" MVCR	6.0 [152.4]	67.10 [1705.0]	< 88.0 [39.9]
High Pressure Models								
HP190-904FV	50	5	1,000	1/4" FVCR	1/4" FVCR	2.0 [50.8]	13.80 [350.5]	< 4.1 [1.8]
HP400-904FV	60	9	1,000	1/4" FVCR	1/4" FVCR	3.0 [76.2]	13.80 [350.5]	< 6.8 [3.1]
HP700-904FV	120	25	1,000	1/4" FVCR	1/4" FVCR	3.0 [50.8]	15.60 [396.2]	< 9.6 [4.4]
HP3000-904FV	500	80	1,000	1/2" FVCR	1/2" FVCR	3.9 [100.1]	28.90 [756.0]	< 30.7 [13.9]
SP70-904FV	20 (<2,000 psig) 40 (>2,000 psig)	1.5	3,000	1/4" FVCR	1/4" FVCR	2.0 [50.8]	10.60 [270.0]	< 4.3 [1.9]
SP300-904FV	100 (<2,000 psig) 200 (>2,000 psig)	10	3,000	1/4" FVCR	1/4" FVCR	2.0 [50.8]	20.60 [524.0]	< 8.6 [3.9]
SP600-904FV	200 (<2,000 psig) 400 (>2,000 psig)	15	3,000	1/4" FVCR	1/4" FVCR	2.0 [50.8]	30.60 [778.0]	< 13.0 [13.9]
"U" Shaped Manifold								
PG1-904FV	15	10	250	1/4" FVCR	1/4" MVCR	2.0 [50.8]	13.80 [350.5]	< 5.1 [2.3]

F = 0.003 micron particle filter
V = inlet and outlet isolation valves



Bypass and Dual Purifier Manifold Assemblies:

Many configurations are available; please consult the factory for details.

Other Purification Media's Available:

Media	Gases Purified	Impurities Removed
202	CDA, O2, N2, Ar, He, Kr, Ne, Xe, H2, D2, CO2, N2O, NO, CF4	H2O to < 1 ppb
203	CDA, O2, N2, Ar, He, Kr, Ne, Xe, H2, D2, N2O, NO, CF4	H2O, CO2 to < 100 ppt; Volatile Acids, Organics, Refractory Compounds to < 1 ppt; Volatile Bases < 5 ppt, Metals < 1 ppb
302	HCl, Cl2, B2H6, BCl3, CClH3, GeCl4, GeH4, H2S, H2Se, HBr, NF3, SiCl4, SiF4, SiH2Cl2, SiHCl3, SO2, CHClF2, BF3,	H2O to < 1 ppb; Metals < 1 ppb
403	N2, Ar, He, Kr, Ne, Xe, H2, CDA, O2	Volatile Acids, Organics, Refractory Compounds to < 1 ppt; Volatile Bases < 5 ppt, Metals < 1 ppb
404	N2, Ar, He, Kr, Ne, Xe, H2, CDA, O2, CO2, C2H2, C3H6, C2H4, NH3, C2H6, C3H8, C4H10	Organics < 1 pptV, Metals < 1 ppbV
502	AsH3, PH3	H2O, O2 to < 1 ppb, Metals < 1 ppbV
503	H2 with up to 1% O2; O2 with up to 2% H2	H2 in O2 or O2 in H2 < 1 ppmV
602	CO	H2O, O2, CO2, Acids, Bases, Organics, Refractory Compounds, Metals < 1 ppbV
702	NH3, C2H7N, C2H8N2, C2H4, C3H6, CH3SiH3, GeH4, SF6, SiH4, H2/SiH4 mixtures	H2O, O2, CO2, NMHCs, Metals to < 1 ppb
802	SiH4	H2O, O2, CO, CO2, NMHCs, Sulphur compounds, Metals removal < 1 ppb
804	CO2	H2O, O2, CO, H2 to < 100 ppt; Volatile Acids, Organics, Refractory Compounds to < 1 ppt; Volatile Bases < 5 ppt, Metals < 1 ppbV
805	CO2	H2O < 100 ppt; Volatile Acids, Organics, Refractory Compounds to < 1 ppt; Volatile Bases < 5 ppt, Metals < 1 ppbV
902	N2, Ar, He, Kr, Ne, Xe, CH4, C2H6, C3H8, C4H10, SF6, Fluorocarbons	H2O, O2, CO, CO2, H2 to < 100 ppt; Volatile Acids, Organics, Refractory Compounds to < 1 ppt; Volatile Bases < 5 ppt, Metals < 1 ppbV
904 Covered by this Specification	H2, D2, H2-Inerts Mix	H2O, O2, CO, CO2 to < 100 ppt; Volatile Acids, Organics, Refractory Compounds to < 1 ppt; Volatile Bases < 5 ppt, Metals < 1 ppbV
906	CDA, O2, N2O	H2O, CO, CO2, NMHC to < 1 ppb, Metals < 1 ppbV

Purifier Regeneration:

Available from any SAES Pure Gas Regeneration Center.



CE Directive:

All MicroTorr Purifiers meet CE directive requirements and come with the CE Marking.

