

saes
group

SAES Pure Gas

The Technology of Pure Gas

AMBIENT INLINE PURIFIER 302 PURIFICATION MEDIA SPECIFICATION



**0 – 1,000 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.

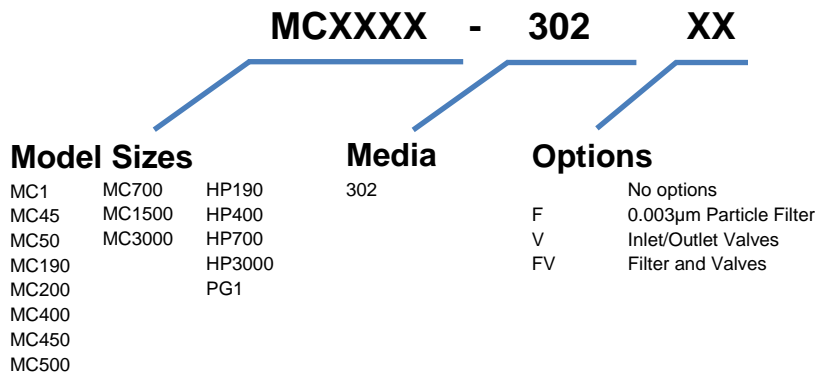
Competitive Advantages and Benefits:

- **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.

302 Media Purifier Properties

Gases Purified	HCl, Cl ₂ , B ₂ H ₆ , BCl ₃ , CCl ₄ , GeCl ₄ , GeH ₄ , H ₂ S, H ₂ Se, HBr, NF ₃ , SiCl ₄ , SiF ₄ , SiH ₂ Cl ₂ , SiHCl ₃ , SO ₂ , CHClF ₂ , BF ₃
Impurities Removed	H ₂ O to < 1 ppb; Metals < 1 ppb
Particle Filtration	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 40 °C (-4 to 104°F)
Lifetime	Contact SAES Pure Gas for application specific lifetime calculations
Regenerability	Not Regenerable
Certification	CE Certified to the Pressure Equipment Directive (PED) Designed in accordance with ASME

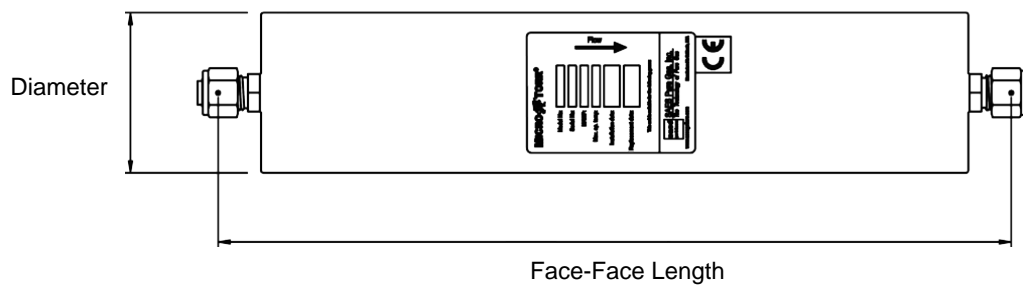
Part Number Configuration:



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								
MC1-302F	5	0.5	1,000	1/4" MVCR	1/4" MVCR	1.5 [38.1]	3.31 [84.1]	< 0.7 [0.3]
MC45-302 MC45-302F	10	1.5	1,000	1/4" MVCR	1/4" MVCR	1.5 [38.1]	4.50 [114.3]	< 0.9 [0.4]
MC50-302F	10	1.5	1,000	1/4" MVCR	1/4" MVCR	1.5 [38.1]	5.00 [127.0]	< 0.9 [0.4]
MC190-302F	50	5	250	1/4" MVCR	1/4" MVCR	2.0 [50.8]	8.20 [208.3]	< 1.6 [0.7]
MC200-302F	50	5	250	1/4" MVCR	1/4" MVCR	2.0 [50.8]	6.30 [160.0]	< 1.8 [0.8]
MC400-302F	60	9	250	1/4" MVCR	1/4" MVCR	3.0 [76.2]	8.20 [208.3]	< 4.9 [2.2]
MC450-302F	75	10	250	1/4" MVCR	1/4" MVCR	3.0 [76.2]	7.94 [201.7]	< 4.1 [1.8]
MC500-302F	100	12	250	1/4" MVCR	1/4" MVCR	2.0 [50.8]	12.50 [317.5]	< 2.8 [1.2]
MC700-302F	120	25	250	1/4" MVCR	1/4" MVCR	3.0 [76.2]	10.00 [254.0]	< 7.6 [3.4]
MC1500-302F	250	40	250	1/2" MVCR	1/2" MVCR	3.0 [76.2]	18.20 [462.3]	< 8.0 [3.6]
MC3000-302 MC3000-302F	500	80	250	1/2" MVCR	1/2" MVCR	4.0 [101.6]	20.00 [508.0]	< 14.0 [6.4]
High Pressure Models								
HP190-302F	50	5	1,000	1/4" MVCR	1/4" MVCR	2.0 [50.8]	8.20 [208.3]	< 2.1 [0.9]
HP400-302F	60	9	1,000	1/4" MVCR	1/4" MVCR	3.0 [76.2]	8.20 [208.3]	< 4.9 [2.2]
HP700-302F	120	25	1,000	1/4" MVCR	1/4" MVCR	3.0 [50.8]	10.0 [254.0]	< 7.6 [3.4]
HP3000-302F	500	80	1,000	1/2" MVCR	1/2" MVCR	3.9 [100.1]	20.0 [508.0]	< 26.0 [11.8]

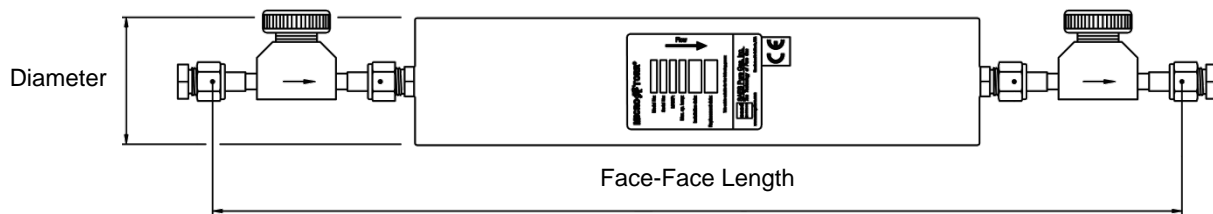
F = 0.003 micron particle filter



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								
MC1-302FV	5	0.5	1,000	1/4" FVCR	1/4" FVCR	1.5 [38.1]	8.91 [226.3]	< 2.6 [1.2]
MC45-302V MC45-302FV	10	1.5	1,000	1/4" FVCR	1/4" FVCR	1.5 [38.1]	10.10 [256.5]	< 2.9 [1.3]
MC50-302FV	10	1.5	1,000	1/4" FVCR	1/4" FVCR	1.5 [38.1]	10.60 [269.2]	< 2.9 [1.3]
MC190-302FV	50	5	250	1/4" FVCR	1/4" FVCR	2.0 [50.8]	13.80 [350.5]	< 3.7 [1.7]
MC200-302FV	50	5	250	1/4" FVCR	1/4" FVCR	2.0 [50.8]	11.90 [302.3]	< 3.8 [1.8]
MC400-302FV	60	9	250	1/4" FVCR	1/4" FVCR	3.0 [76.2]	13.80 [350.5]	< 6.8 [3.1]
MC450-302FV	75	10	250	1/4" FVCR	1/4" FVCR	3.0 [76.2]	13.54 [343.9]	< 6.0 [2.7]
MC500-302FV	100	12	250	1/4" FVCR	1/4" FVCR	2.0 [50.8]	18.10 [459.7]	< 4.5 [2.0]
MC700-302FV	120	25	250	1/4" FVCR	1/4" FVCR	3.0 [76.2]	15.60 [396.2]	< 9.6 [4.4]
MC1500-302FV	250	40	250	1/2" FVCR	1/2" FVCR	3.0 [76.2]	28.84 [732.5]	< 12.5 [5.8]
MC3000-302V MC3000-302FV	500	80	250	1/2" FVCR	1/2" FVCR	4.0 [101.6]	30.64 [778.3]	< 18.7 [8.5]
High Pressure Models								
HP190-302FV	50	5	1,000	1/4" FVCR	1/4" FVCR	2.0 [50.8]	13.80 [350.5]	< 4.1 [1.8]
HP400-302FV	60	9	1,000	1/4" FVCR	1/4" FVCR	3.0 [76.2]	13.80 [350.5]	< 6.8 [3.1]
HP700-302FV	120	25	1,000	1/4" FVCR	1/4" FVCR	3.0 [50.8]	15.60 [396.2]	< 9.6 [4.4]
HP3000-302FV	500	80	1,000	1/2" FVCR	1/2" FVCR	3.9 [100.1]	28.90 [756.0]	< 30.7 [13.9]
HP3000-302FV-752	1000	100	1,200	1/2" MVCR	1/2" MVCR	3.9 [100.1]	38.87 [962.0]	< 39.7 [18.0]
"U" Shaped Manifold								
PG1-302FV	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 Covered by this Specification	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	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.

