nano
PURIFICATION SOLUTIONS

Safe Quality Food

meeting the SQF Air Quality Standard with point of use filtration

what is the SQF air quality standard?

Safe Quality Food (SQF) is a food safety certification that provides companies with a rigorous process to minimize food safety risks. It also identifies their products to consumers as being protected by the highest level of safety standards. It covers all sectors of the food industry from production and manufacturing to distribution, packaging and wholesale. SQF is the only program recognized by the Global Food Safety Initiative (GFSI) that provides certification throughout the entire process from farm to fork. It is recognized by retailers and food service providers worldwide and identifies your company as a leader in food safety and quality management. It enhances your brand and builds retailer and consumer confidence in your products.

Edition 7 of the SQF Code requires that compressed air used in the production of food must be clean and present no risk to food safety. Furthermore, it must be regularly monitored for purity.

nano-purification solutions has a complete line of compressed air filters to meet and exceed the compressed air purity requirements of the SQF Code. Whether compressed air is being used in the production, manufacturing, conveyance and/or packaging of foods, nano filtration products eliminate compressed air as a potential source of chemical or microbiological contamination. High quality compressed air ensures the quality and safety of your products and helps you achieve SQF Certification.

the contaminants in compressed air

The air around us is full of contamination including dust, pollen, bacteria, micro-organisms, smoke, exhaust, industrial pollutants and moisture. Air compressors draw in all of this contamination and concentrate it. Air at 100 psig has 7.8 times more contaminants per cubic foot than ambient air. In addition, the compressors themselves add oil as well as wear and rust particles to the air stream. Left untreated, the micro-organisms, mold and bacteria will quickly multiply in the warm, wet environment as they are fed a constant stream of Oxygen and food grade oil carried over from the compressor. Without proper treatment compressed air can be a significant source of contamination for any foods or surfaces the air comes into contact with.

Treatment at the source alone is not enough. As compressed air cools and loses pressure throughout the compressed air piping system, oil and moisture previously in vapor form will condense into a liquid. Even the piping can present a source of contaminants. For that reason, point-of-use filtration is required, ensuring contaminants are removed just before the air comes into direct - or even indirect - contact with food.

nano-purification solutions specializes in high efficiency point-of-use industrial and sterile air filters to remove solid and liquid contaminants down to 0.01 micron with up to 99.9999% efficiency. Our filters eliminate contaminants at the point of use eliminating the compressed air stream as a food safety risk factor.

nano three stage filtration is the solution

Option A: When stainless steel is not required, nano offers cost effective F-Series[1] third party validated die cast aluminum filter housings with E-Coat™ internal coating and external powder coating.

The first stage consists of a nano NF filter with an M1 coalescing element to remove solid particulate and liquid aerosols to less than 1 micron. The second stage consists of a nano NF filter with M01 coalescing element to further removes solid particulate and liquid aerosols to 0.01 micron. The final stage is a nano NMS sterile air filter designed to remove bacteria and micro-organisms down to 0.01 micron.

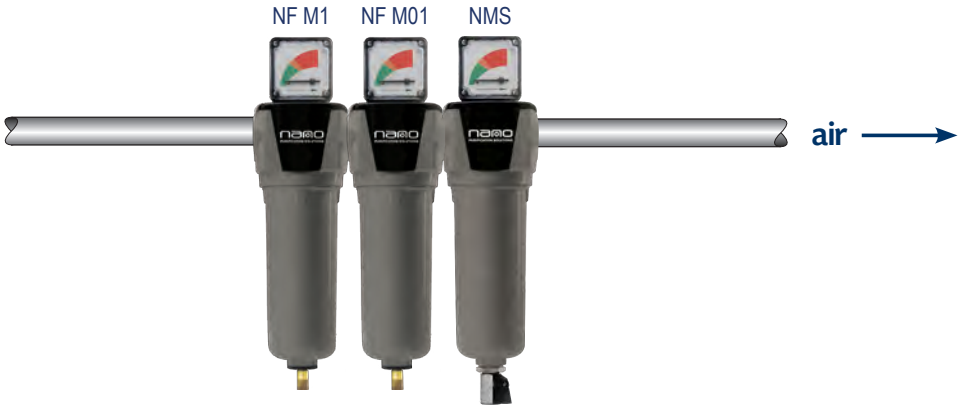
Option B: When stainless steel is required, nano offers passivated and polished P-Series[1] 304 or 316 stainless steel housings designed for the most critical food and beverage applications.

The first stage consists of a nano IF filter with an M1 coalescing element to remove solid particulate and liquid aerosols to less than 1 micron. The second stage consists of a nano IF filter with an M01 coalescing element to further removes solid particulate and liquid aerosols to 0.01 micron. The final stage is a nano SD sterile air depth filter (or alternately SM sterile air membrane filter) designed to remove bacteria and micro-organisms down to 0.2 micron.

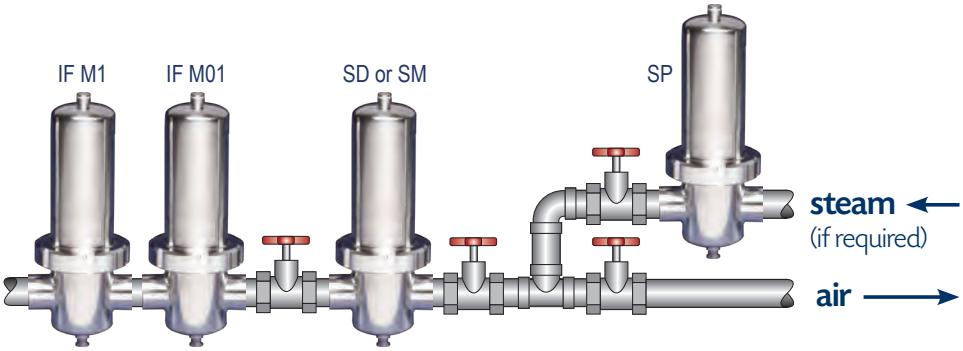
The stainless steel version of the final filter can even be steam sterilized *in situ*. To ensure the steam does not introduce harmful particulate into the process, nano offers a P-Series[1] SP culinary steam filter to remove particulate contamination.

These filtration systems are available in sizes from 1/4” NPT to 3” NPT and flow rates from 15 to 1500 scfm.

option A: powder coated aluminum



option B: polished stainless steel



Third party validated performance

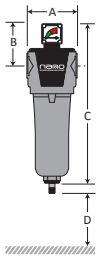
Dual o-ring sealed elements

A wide range of mounting options

sizing & specifications

Filter Models			Inlet & Outlet	Rated Flow [1]		Dimensions in inches (each)				Weight (each)
First Stage	Second Stage	Final Stage	NPT	scfm	Nm³/h	A	B	C	D	lbs
Option A: Powder Coated Aluminum										
NF 0015 M1	NF 0015 M01	NMS 0015	¼"	15	25	1.97	0.71	5.98	2.95	1.1
NF 0025 M1	NF 0025 M01	NMS 0025	¼"	25	42	2.75	0.98	7.52	3.35	1.8
NF 0035 M1	NF 0035 M01	NMS 0035	⅜"	35	59	2.75	0.98	7.52	3.74	1.8
NF 0050 M1	NF 0050 M01	NMS 0050	½"	50	85	2.75	0.98	9.13	5.31	2.0
NF 0070 M1	NF 0070 M01	NMS 0070	½"	70	119	3.94	1.38	10.9	6.10	4.4
NF 0085 M1	NF 0085 M01	NMS 0085	¾"	85	144	3.94	1.38	10.9	6.10	4.4
NF 0175 M1	NF 0175 M01	NMS 0175	1"	175	297	3.94	1.38	15.6	8.86	5.3
NF 0280 M1	NF 0280 M01	NMS 0280	1¼"	280	476	4.80	1.65	18.1	12.6	7.3
NF 0325 M1	NF 0325 M01	NMS 0325	1½"	325	550	4.80	1.65	18.1	12.6	7.3
NF 0400 M1	NF 0400 M01	NMS 0400	1½"	400	680	5.75	2.05	19.0	12.8	10.8
NF 0450 M1	NF 0450 M01	NMS 0450	2"	450	765	5.75	2.05	19.0	12.8	10.8
NF 0700 M1	NF 0700 M01	NMS 0700	2"	700	1190	5.75	2.05	30.9	24.8	15.4
NF 0850 M1	NF 0850 M01	NMS 0850	2½"	850	1445	8.27	2.60	23.4	16.1	21.1
NF 1000 M1	NF 1000 M01	NMS 1000	3"	1000	1700	8.27	2.60	23.4	16.1	21.1
NF 1250 M1	NF 1250 M01	NMS 1250	3"	1250	2125	8.27	2.60	32.1	24.8	25.5
NF 1500 M1	NF 1500 M01	NMS 1500	3"	1500	2550	8.27	2.60	38.4	30.9	28.8

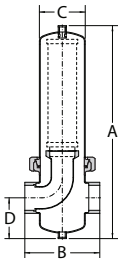
specifications	M1	M01	MS
particle removal	1 micron	0.01 micron	0.01 micron
max oil carry over at 68°F	0.1 ppm	0.01 ppm	-
recommended operating temp range	35 to 212 °F	35 to 212 °F	35 to 212 °F
DOP efficiency	>99.99%	>99.999%	>99.9999%
design operating pressure range	0 to 232 psig	0 to 232 psig	0 to 232 psig
maximum element life	12 months	12 months	6 months
steam or autoclave sterilization	no	no	yes [2]
filter housing material	cast aluminum with E-Coat™ & powder top coat finish		



(1) At 100 psig. For all other pressures consult nano. (2) NMS filter (ONLY) is guaranteed for 100 steam sterilization cycles at 248°F. Maximum sterilization temperature: 273°F.

Filter Models			Inlet & Outlet	Rated Flow [2]		Dimensions in inches (each)				Weight (each)
First Stage	Second Stage	Final Stage	NPT [1]	scfm	Nm³/h	A	B [3]	C	D	lbs
Option B: Polished Stainless Steel										
PF 0050 M1-N	PF 0050 M01-N	PF 0050 SD-N	¼"	50	85	9.45	4.14	2.76	2.24	4.2
PF 0065 M1-N	PF 0065 M01-N	PF 0065 SD-N	⅜"	65	110	9.45	4.14	2.76	2.24	4.4
PF 0085 M1-N	PF 0085 M01-N	PF 0085 SD-N	½"	85	144	9.45	4.25	2.76	2.24	4.6
PF 0120 M1-N	PF 0120 M01-N	PF 0120 SD-N	¾"	120	204	9.45	4.92	2.76	2.24	5.1
PF 0170 M1-N	PF 0170 M01-N	PF 0170 SD-N	1"	170	289	11.40	4.92	3.35	2.78	7.3
PF 0295 M1-N	PF 0295 M01-N	PF 0295 SD-N	1 ½"	295	501	12.70	5.51	3.35	3.49	11.4
PF 0460 M1-N	PF 0460 M01-N	PF 0460 SD-N	2"	460	782	19.02	6.70	4.10	3.64	12.1
PF 0680 M1-N	PF 0680 M01-N	PF 0680 SD-N	2"	680	1156	29.37	6.70	4.10	3.64	15.0
PF 0850 M1-N	PF 0850 M01-N	PF 0850 SD-N	2 ½"	850	1444	29.53	7.17	4.10	3.80	15.2
PF 1150 M1-N	PF 1150 M01-N	PF 1150 SD-N	3"	1150	1954	40.04	7.17	4.10	3.96	19.4

specifications	M1	M01	SD
particle removal	1 micron	0.01 micron	0.3 micron [4]
max oil carry over at 68°F	0.1 ppm	0.01 ppm	-
recommended operating temp range	35 to 120 °F	35 to 120 °F	35 to 120 °F
DOP efficiency	-	-	>99.9999%
design operating pressure range	0 to 232 psig [5]	0 to 232 psig [5]	0 to 232 psig [5]
maximum element life	12 months	12 months	6 months
steam or autoclave sterilization	no	no	yes [6]
filter housing material	1.4301 quality 304 stainless steel passivated and polished to grade Ra <1.6um [7]		



(1) Tri-clamp sanitary available as an option. (2) At 100 psig. For all other pressures consult nano. (3) +/- 0.118" (4) At 100% pleated depth. 0.2 micron membrane element available as an option. (5) 362 psig maximum operating pressure available as an option. (6) SD element (ONLY) is steam sterilizable. Maximum element sterilization temperature is 257°F for 20 minutes at 30 psia. (7) 1.4404 quality 316L stainless steel available as an option.

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