

# Compressed Air Filters for Food Contact Applications

Comply with Global Food Safety Standards



## Filters for Compliance with GFSI Standards

The published guidelines and sanctioned Good Manufacturing Practices relating to food contact compressed air in food processing facilities call for filtration to remove any potential risks. Point-of-use filters with a minimum efficiency rating of 5-log reduction or 99.999% at 0.01 micron help manage that risk. Applying these recommendations significantly reduces the risks of contaminated compressed air spreading bacteria to food contact surfaces, packaging equipment and the product itself. Parker Finite 3-Stage Filtration provide the best line of defense- protecting the consumer, ensuring a safe, cost-efficient production facility, and obtaining important annual BRC, SQF, and FSSC2200 certifications.



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## Product Features:

- Remove all viable organisms at 99.999+% at .2 micron and larger.
- Remove 99.999% of 0.01 micron particles of oil, water, and dirt from compressed air and other gases.
- Low pressure drop.
- Continuously trap and drain liquids.
- Achieve commercially sterile air with 3-stage, 5-log reduction of contamination.
- HX model is constructed of aluminum with a durable powder coating designed to hold up to the dirtiest compressed air systems.
- SN models are constructed of 304 stainless steel for harsh environments.

ENGINEERING YOUR SUCCESS.

# Does Your Plant Compressed Air Meet the Standards?

Compressed air is not as clean as it appears to be. It is contaminated with compressor oil, water condensate, pipe scale and rust — all of which provide the ideal environment for bacteria growth. These harmful contaminants must be removed or reduced to acceptable levels to protect the consumer, provide a safe production facility, and comply with Global Food Safety Initiatives (SQF, BRC, FSSC2200).

“ *The recommended final stage of filtration in these food contact areas should have a rating of 0.01 micron with an efficiency of 99.999% (or as determined by appropriate risk analysis).* ”

— 8.1 Edition of the SQF code guidance document, published October, 2019 (SQF module 11.5.5)

## System Design Best Practices

Three stages of filtration, located as close to the point where air directly or indirectly contacts the food, is the best line of defense against microbial contamination of food in a compressed air system.

**Parker Finite FGC Filters meet or exceed the current published food safety requirements and recommendations for food contact air.**

**SQF**  
Safe Quality Foods

**BRC**  
British Retail Consortium

**FSSC 22000 / ISO 22000**  
Food Safety System Certification

## Filter Capability by Stage

	<b>Stage 1 Filter Coalescing</b>	<b>Stage 2 Filter Coalescing</b>	<b>Stage 3 Filter Ultra High Efficiency Particulate</b>
Purpose	Remove bulk liquid and particulate contamination	Remove finer oil & water aerosols	Capture sub-micron microbial contamination
Filter Grade	Grade 10	Grade 6	Grade 2
Rating	1 micron	.01 micron	.01 micron
Max. Oil Carryover PPM W/W <sup>1</sup>	0.85	0.008	
Filtration Efficiency at .01 micron	95%	99.97%	99.9999%
Log Reduction of .2 Micron and Larger Contamination	1-log reduction	3-log reduction	5-log reduction
ISO 8573-1:2010 Classification	3-stages combined: 1: N/A <sup>2</sup> :13 (Particulate: 1; Moisture: N/A <sup>2</sup> ; Oil Carryover: 1 <sup>3</sup> )		
Element Replacement Interval			
SN Series Stainless Steel	Replace every 6-12 mos.	Replace every 6-12 mos.	Replace every 3-6 mos.
HX Series Aluminum	Every 6-12 mos. or when differential press. gauge reads in the red during flow.	Every 6-12 mos. or when differential press. gauge reads in the red during flow.	Replace every 3-6 mos.

1 Tested per ISO12500-1 at 40 PPM inlet.

2 To control dewpoint an air dryer must be used. -40°F/C dewpoint is recommended.

3 Rating is per ISO12500 for oil liquid and aerosols. For vapor removal a carbon adsorption filter must be used.

# Finite FGC Compressed Air Filters

Find the right filtration system for your application

## 3-Stage Aluminum Filters for Non-Washdown Applications



Finite 3 Stage Aluminum Filters deliver up to 99.9999+% efficiency at 0.01 microns. Finished with a durable powder coating that will hold up to the dirtiest compressed air systems.

Filter Housing	Port Size NPT	Flow SCFM at 100 PSIG	Stage 1 Grade 10 Coalescing 95% Eff. 1-log	Elements Stage 2 Grade 6 Coalescing 99.97% Eff. 3-log	Stage 3 Grade 2 Particulate 99.9999% Eff. 6-log	3 Stage Unit Dimensions H x W x D Inches (cm)	Weight Lb. (kg)	Max. Press. PSIG (bar)	Max. Temp. F (C)
3HXN1A-A1N	1/4"	15	10CHXAK	6CHXAK	2XLHXAK	9.4 (23.9) x 10.4 (26.4) x 3.1 (7.9)	5.2 (2.4)	230 (15.8)	175° (79°)
3HXN2BH-A1G	1/2"	50	10CHXBHK	6CHXBHK	2XLHXBHK	14.5 (36.8) x 13.5 (34.3) x 5.7 (14.5)	11.3 (5.1)	230 (15.8)	175° (79°)
3HXN3C-A1G	3/4"	100	10CHXCK	6CHXCK	2XLHXCK	16 (40.6) x 19.5 (49.5) x 6.7 (17)	21 (9.5)	230 (15.8)	175° (79°)
3HXN4C-A1G	1"	100	10CHXCK	6CHXCK	2XLXCK	16 (40.6) x 19.5 (49.5) x 6.7 (17)	21 (9.5)	230 (15.8)	175° (79°)

**Note:** 3-stage HX filter systems all come with DPI gauges fitted (except 1/4"), mounting brackets, and automatic drains on stages 1 and 2.

## 3-Stage Stainless Steel Filters for Washdown Applications



Finite 3 Stage Stainless Steel Filters deliver up to 99.9999+% efficiency at 0.01 microns. 304 stainless steel construction will hold up to the harshest washdown chemicals.

Filter Housing	Port Size NPT	Flow SCFM at 100 PSIG	Stage 1 Grade 10 Coalescing 95% Eff. 1-log	Elements Stage 2 Grade 6 Coalescing 99.97% Eff. 3-log	Stage 3 Grade 2 Particulate 99.9999% Eff. 6-log	3 Stage Unit Dimensions H x W x D Inches (cm)	Weight Lb. (kg)	Max. Press. PSIG (bar)	Max. Temp. F (C)
3SN1L-A1N	1/4"	25	10CU10-025 X8	6CU10-025 X8	2S10-025 X8	8 (20) x 9 (23) x 3 (8)	10.5 (4.8)	175 (12)	120° (49°)
3SN2L-A1N	1/2"	63	10CU10-050 X4	6CU10-050 X4	2S10-050 X4	10 (25) x 9 (23) x 3 (8)	11.8 (5.4)	175 (12)	120° (49°)
3SN3L-A1N	3/4"	70	10CU17-058 X1	6CU10-058 X1	2S24-055 X1	12 (31) x 13 (33) x 4 (10)	34 (15.5)	175 (12)	120° (49°)
3SN4L-A1N	1"	77	10CU17-058 X1	6CU10-058 X1	2S24-055 X1	12 (31) x 13 (33) x 4 (10)	34 (15.5)	175 (12)	120° (49°)

**Note:** 3-stage SN filter systems all come with automatic drains on stages 1 and 2. 3-stage SN filter systems do not come with mounting brackets. If mounting brackets are required, order part number 2191 (2 required per 3-stage filter system).

# Industry References for Compressed Air and GFSI Standards and Compliance

We have compiled the following industry standard information regarding GMPs to be used as a reference when configuring compressed air systems that involve direct or indirect food contact in food plants.

At the time of the writing of this brochure the following industry references were active.

## **Food & Drug Administration (FDA) Code of Federal Regulations (CFR) Title 21, Part 110.40 (g)**

“Compressed air or other gases mechanically introduced into food or used to clean food-contact surfaces or equipment shall be treated in such a way that food is not contaminated with unlawful indirect food additives”

URL:  
<https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfCFR/CFRSearch.cfm?fr=110.40>

## **BRC - British Retail Consortium: BRC Food Standard Version 8, section 4.5.2 states:**

“Air and other gases used as an ingredient or that are in direct contact with products shall be monitored to ensure this does not represent a contamination risk. Compressed air that is in direct contact with the product shall be filtered at point of use.”

URL:  
<https://www.brcgsbookshop.com/bookshop/global-standard-food-safety-issue-8/c-24/p-414>

## **Food Safety System Certification FSSC22000 ISO 22000:2018**

“Prerequisite programs should be in place to address possible contamination sources including those affecting compressed air.”

URL:  
<https://www.iso.org/standard/65464.html>

## **Prerequisite program: ISO/TS 22002-1:2009:**

“Compressed air and gases intended for direct or incidental product contact (including those used for transporting, blowing or drying materials, roducts or equipment) shall be from a source approved for food contact use, filtered to remove dust, oil and water.

URL:  
<https://www.iso.org/standard/44001.html>

## **British Compressed Air Society (BCAS): Best Practice Guideline 102**

The BCAS best practice guideline 102 makes references to the ISO 8573-1:2010 for compressed air contamination. Basically their recommendations are: For direct food contact ISO8573-1:2010 class 2:2:1. There is no reference to filter rating specifications; however, there is reference to a recommendation of -40° C/F dew point (Class 2) for the air and a recommended remaining oil content of <=0.01 mg/m3 (Class1).

URL:  
[https://urldefense.proofpoint.com/v2/url?u=https-3A\\_\\_www.bcas.org.uk\\_utility\\_emailink.aspx-3Fcampaignemailinkid-3D5868-26campaignemailrecipientrowid-3D530&d=DwMGAg&c=zQLjxGaFE Nyz7VqOLRV\\_eQ&r=QEM1eVGsFj2w8vhjeWyY9fm4daj7DkaOg6TVWE-YGFs&m=YcN5go6yurzkpgoDl5cBPuEXfzIK5HWY-hm2fwCcMIQ&s=ib6dFnRlqEAvyQttxNhhvfe4GhIkj\\_4x8DIGkxVABrEc&e=](https://urldefense.proofpoint.com/v2/url?u=https-3A__www.bcas.org.uk_utility_emailink.aspx-3Fcampaignemailinkid-3D5868-26campaignemailrecipientrowid-3D530&d=DwMGAg&c=zQLjxGaFE Nyz7VqOLRV_eQ&r=QEM1eVGsFj2w8vhjeWyY9fm4daj7DkaOg6TVWE-YGFs&m=YcN5go6yurzkpgoDl5cBPuEXfzIK5HWY-hm2fwCcMIQ&s=ib6dFnRlqEAvyQttxNhhvfe4GhIkj_4x8DIGkxVABrEc&e=)

## **Safe Quality Foods (SQF): SQF Code Edition 8.1 - Section(s): 3.5.6; 4.5.5; 9.5.6; 10.5.5; 11.5.5; 12.5.6**

An excerpt from the SQF Guidance Document is as follows:

“Compressed air or other gases used in the manufacturing process shall be clean and present no risk to food safety. Air or gases that come into contact with food packaging are filtered using an appropriate filter capable of removing dust, oil, moisture and microorganisms to avoid cross-contamination to packaged material.

The recommended final stage of filtration in these food contact areas should have a rating of 0.01 micron with an efficiency of 99.999% (or as determined by appropriate risk analysis). Sufficient filtration is to be in place directly upstream of the final stage to protect the final stage from oil and water aerosols.”

URL:  
<https://www.sqfi.com/wp-content/uploads/2019/09/Mod-11-manufacturing-Guidance-with-cover.pdf>