

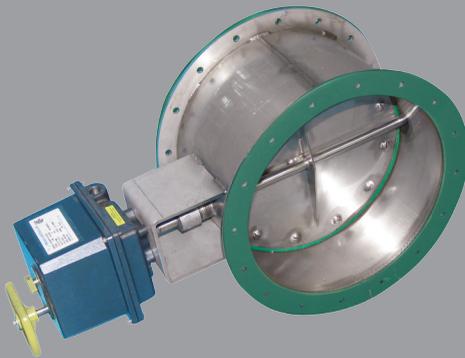


CamContain™ BTFB Dampers

Bubble-Tight Round Isolation Dampers



Isolation dampers protect service personnel during filter change. They are also designed to isolate the filter section during biohazard decontamination processes.



Optional electric actuator with manual hand wheel override. Manual actuators are standard. A wide variety of electric or pneumatic actuators are available.

Camfil CamContain BTFB Round Isolation Dampers¹ create a barrier between hazardous contaminants and the filter change out components typical to a containment system. Every CamContain Isolation Damper:

- Is manufactured of 11-gauge and 7-gauge T-304L stainless steel. T-316L is also available.
- Is continuously welded at all pressure barrier points
- Is available in a wide variety of sizes, from 6" to 32" in 2" increments.
- May have manual, pneumatic, or electric actuators.
- Includes pre-drilled bolt holes in out-turned standing flanges for connection to matching housing or duct work.

All CamContain Isolation Dampers are manufactured to industry standard recommended practices and evaluation criteria. Custom designs are also available to meet any individual containment requirement.

¹ Bubble-tight dampers are tested in the closed position at + 10" w.g. to bubble-tight specification per applicable sections of ASME N510-1980.

Isolation dampers create a positive shut-off and isolation of hazardous contaminants when incorporated in a containment system. During filter change the dampers are closed to ensure the safety of the filter service personnel.

Dampers may include manual (standard), pneumatic, or electric actuators. Consult factory for assistance in

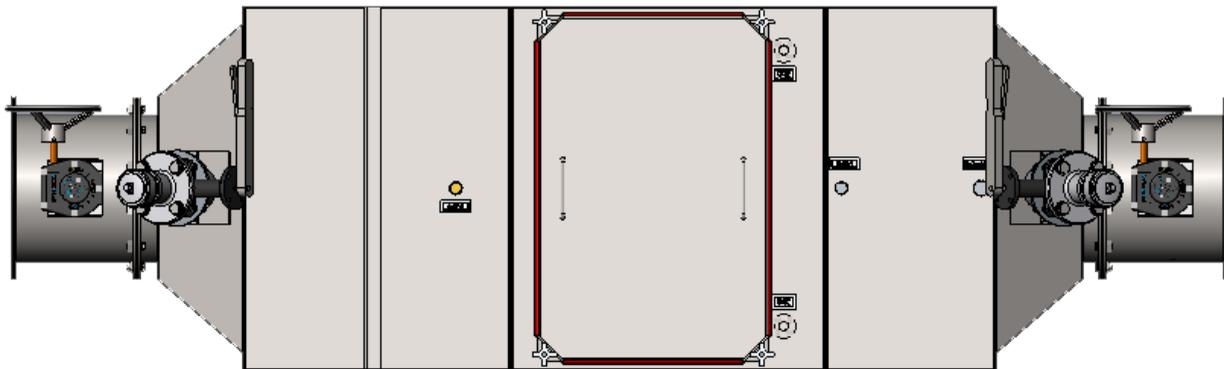
selection as many options are available.

Isolation dampers are also used in systems where decontamination of system components is part of the filter changing procedure.

Typically the dampers are closed, after which a decontamination substance (usually formaldehyde, dependent upon the hazardous

contaminants of concern) is introduced to the internal components of the isolated housing, detoxifying biohazard components. Injection ports are required on the containment housing for this process.

A bubble-tight damper is leak tested to be bubble-tight at 10" w.g.. They should be used for component isolation per ASME N510-1995 reaffirmed



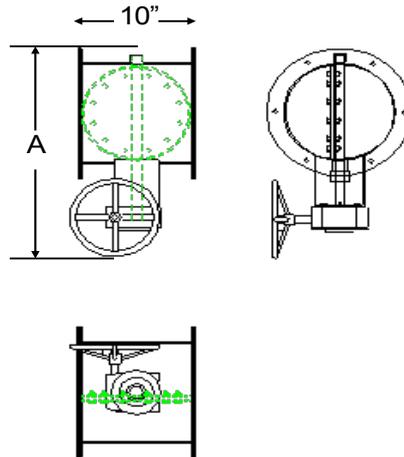
Typically dampers are installed upstream and downstream of the air filters that need to be serviced.

Typical Applications	
Hospital Infectious Isolation Suites	Most common are systems for the control of mycobacterium tuberculosis, as isolation or decontamination dampers
Pharmaceutical Facilities	As part of the procedures for drug processing quality control
Food Processing	As part of a control system to prevent contamination of consumer goods, to protect plant personnel
Biotechnology Laboratories	To ensure genetic and biotech research is uncompromisable, or contained and eliminated for the protection of laboratory personnel, as isolation or decontamination dampers
University Laboratories	To ensure the safety of students, personnel and prevent the exhaust of harmful contaminants
Industrial & Chemical	To ensure the safety of personnel and prevent the exhaust of harmful contaminants
Manufacturing Facilities	
Nuclear Processing Facilities including utility power plants and research facilities	
Veterinary & Animal Research Facilities	
Military Facilities	
Semiconductor Manufacturing Facilities	

CamContain™ BTFB Round Dampers

Model Number	Flange Inside Diameter (inches)	Flange Outside Diameter (inches)	Bolt Circle	# of Bolt Holes	Bolt Hole Diameter (inches)	Dimension A	Weight (lbs)
CF - BTFB - 6 - M - SS	6	9	7 ½	8	7/16	17	35
CF - BTFB - 8 - M - SS	8	11	9 ½	8		19	45
CF - BTFB - 10 - M - SS	10	13	11 ½	12		21	50
CF - BTFB - 12 - M - SS	12	15	13 ½	12		23	60
CF - BTFB - 14 - M - SS	14	17	15 ½	16		25	70
CF - BTFB - 16 - M - SS	16	19	17 ½	16		27	80
CF - BTFB - 18 - M - SS	18	21	19 ½	16		29	90
CF - BTFB - 20 - M - SS	20	23	21 ½	20		31	100
CF - BTFB - 22 - M - SS	22	25	23 ½	20		32	115
CF - BTFB - 24 - M - SS	24	27	25 ½	24		34	130
CF - BTFB - 26 - M - SS	26	29	27 ½	24		36	140
CF - BTFB - 28 - M - SS	28	31	29 ½	28		39	155
CF - BTFB - 30 - M - SS	30	33	31 ½	28		41	170
CF - BTFB - 32 - M - SS	32	35	33 ½	32		43	190

Data Notes:
 Unit is completely factory assembled.
 Standard damper includes a manual hand wheel actuator. There are many options when considering electric or pneumatic actuators. Some include solenoid valves and switches. Contact factory for assistance.



MODEL NUMBER DATA

CF - BTFB - 12 - M - SS - 120V

Damper Type / Series
 BTFB - Bubble tight flat blade damper

Damper size

6 - 6" damper	20 - 20" damper
8 - 8" damper	22 - 22" damper
10 - 10" damper	24 - 24" damper
12 - 12" damper	26 - 26" damper
14 - 14" damper	28 - 28" damper
16 - 16" damper	30 - 30" damper
18 - 18" damper	32 - 32" damper

Damper sheet material
 SS - T304L stainless steel
 316L - T316L stainless steel

Damper actuator type
 M - Manual hand wheel
 PSR - Pneumatic Spring return
 PDA - Pneumatic double acting
 ERS - Electric spring return
 EDA - Electric double acting

There are many options available for electric and pneumatic actuators including switches, solenoid valves, etc. Contact factory for assistance.

Electric Actuator Options
 120V - 120V/1Ph/ 50/60 Hz
 230V - 230V/3Ph / 50/60 Hz
 24VAC - 24V AC
 24VDC - 24V DC



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Specification

General

- 1.1 - Dampers shall be round, flat blade type tested to be bubble-tight per ASME N510-1995 reaffirmed.
- 1.2 - Quantity and application shall be as noted on enclosed drawings or other supporting documents.

2.0 Construction

2.1 - The damper shall be manufactured from 11 gauge and 7 gauge T-304L stainless steel sheet metal. The damper shall have (2) 7 gauge T-304L stainless steel blades with a silicone gasket between them to seal against the inside wall of the damper. The damper shall have a 1-½" wide 7 gauge flange on the inlet and outlet with pre-drilled 7/16" mounting holes and ¼" neoprene gasket. Bolt hole spacing is in accordance with the recommendation in DOE-HDBK-1169-2003, Nuclear Air Cleaning Handbook (4" inches or less on centers). The damper shall be adequately reinforced to withstand a negative or positive pressure of 15" water gage.

2.2 - All 'pressure retaining' weld joints and seams shall be continuously welded with no porosities allowed. Joints and seams requiring only intermittent welds, such as reinforcement members, shall be intermittently welded. Damper shall be free of all burrs, and sharp edges. All weld joints and seams that are a portion of any gasket sealing surface (duct connection flanges), shall be ground smooth and flush with adjacent base metals. All welding procedures, welders and welder operators shall be qualified in accordance with ASME Boiler and Pressure Vessel Code, Section IX. All welded joints and seams shall be wire brushed to remove heat discoloration.

(2.3 - Manual Actuator

The damper shall be factory equipped with a manual actuator with a hand wheel and quarter-turn manual worm gear. The actuator housing and cover are cast iron, worm gears are heat-treated carbon steel, worm wheels are cast ductile iron, input shafts are carbon steel, shaft and worm seals are Buna-N-Rubber, housing-to-cover seals are impregnated cellulose fiber, bushings are oil impregnated copper nickel steel alloy.)

(2.3 - Pneumatic Actuator

The damper shall be factory equipped with a pneumatic rotary type actuator with flow control valves.
(Customer to specify available air pressure.)

(2.3 - Electric Actuator

The damper shall be factory equipped with an electric rotary actuator. The motor shall be high-torque, single-phase, reversible, with a capacitor operated motor and factory set travel limit switches. The unit shall also be equipped with a motor brake. (Customer to specify speed and voltage))

3.0 Performance

3.1 - All welding procedures, welders, and welder operators shall be qualified in accordance with ASME Boiler and Pressure Vessel Code, Section IX. All production welds shall be visually inspected by qualified personnel, per Camfil standard procedure number CFW-10001, Visual Inspection of Welds, which incorporates the workmanship acceptance criteria described in Sections 5 & 6 of AWS D9.1-1990, Specification for Welding of Sheet Metal.

3.2 -The complete pressure boundary of the damper housing shall be leak tested at 15" w.g. per the "Pressure Decay Method" in accordance with ASME N510-1995 Reaffirmed, Testing of Nuclear Air Cleaning Systems. The housing shall not exceed a leak rate of 0.0005 cfm per cubic foot of housing volume.

3.3 -The damper shall be manufactured under a Camfil Quality Assurance Program (see Note 1 below). The damper blade shall be tested in the closed position at +10" w.g. and shall be bubble tight when tested in accordance with ASME N509-1996 Reaffirmed, paragraph 5.9.7.3.

Note 1 (to specifying engineer): Camfil manufactures all of its containment products using more than one quality assurance program. Our product-wide Quality Assurance Program is a stringent process that ensures the equipment is produced in conformance with our understanding of the intended application. However, this product-wide program does not address all the items specified in ASME-NQA-1. If this product must be manufactured under an ASME NQA-1 Quality Assurance Program, please add the following to this statement "including the basic requirements of ASME NQA-1." Please contact the factory if specific clarifications are required.

* Items in parentheses () denote optional selections. On this page this includes section 2.3.

For detailed specifications please consult your local Camfil Distributor or Representative or www.camfil.com.

Camfil has a policy of uninterrupted research, development and product improvement. We reserve the right to change designs and specifications without notice.



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