**BTFB Round Blade-style**

Damper shall be Camfil Bubble-tight Flat Blade Isolation Damper. The damper shall be manufactured from 7 gauge and 11 gauge type 304/304L stainless steel. 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.

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.

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. 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.

The isolation damper design shall be manufactured in accordance with ASME NQA-1 and ISO9001:2008 and qualified by cycle testing the assembly a minimum of 30,000 cycles. A qualified design shall pass the above specified leak test requirements without any adjustments to the assembly (including the gasket) throughout the cycle testing. Evidence of a successfully qualified design shall be furnished prior to bidding.

Damper shall be factory equipped with a manual actuator. Actuator shall be equipped with a hand wheel. Actuator shall be a quarter-turn manual worm geared operator. Actuator housings and covers shall be cast iron, worms shall be heat-treated carbon steel, worm wheels shall be cast ductile iron, input shafts shall be carbon steel, shaft and worm seals shall be BUNA-N rubber, housing to cover seals shall be impregnated cellulose fiber, bushings shall be oil impregnated copper nickel steel alloy. The actuator shall be of sufficient capacity to operate the damper under all conditions, and to guarantee tight close-off of the damper against all system pressures encountered.