

BUTTERFLY DAMPERS

A. Round Fiberglass Reinforced Plastic Dampers

1. All round FRP dampers shall be the butterfly type. FRP fabrication shall meet the corrosion requirements specified in this Section for FRP duct work.
2. Leakage shall not exceed 3 cfm/sq. ft at 10" w.g. for balancing, 4.4 cfm/sq. ft at 30" w.g. for medium Isolation and bubble-tight at 30" WC for full Isolation. Unless otherwise specified on the drawings, all dampers are assumed to be medium Isolation and be licensed to bear the AMCA seal
3. Fabrication:
 - a. Frame and blade: Fire-Retardant vinyl ester resin (Class 1 Flame Spread). Blade shall fully encapsulate shaft. Blades that bolt to a single side of the shaft will not be accepted.
 - b. Shaft: Vinyl ester for all manually actuated dampers below 30 inch diameter and Type 316 stainless steel for all dampers 30 inch diameter and larger.
 - c. Bearings and bushings: Graphite Impregnated Teflon.
 - d. All internal hardware: Type 316 stainless steel.
 - e. Seals:
 - 1) Blade: EPDM for medium isolation and Teflon for O-ring bubble tight dampers.
 - 2) Shaft: O-ring in FRP Flanged Packing Gland. PVC fittings used for shaft seal will NOT be accepted.
 - f. All dampers shall have flanged ends. Flange dimensions to be similar to fiberglass ductwork.
 - g. All balancing and Medium Isolation dampers >24" shall be provided with worm Gear Operators with an epoxy coating. Dampers 24" and down shall be supplied with hand quadrant actuators fabricated of Type 316 stainless steel with a 5-stage locking quadrant Indicator. All balancing dampers shall have a fully adjustable slot with an extra hole drilled in the handle for contractor to "drill and pin-in place" once system is balanced so handle will not vibrate out of position. Drawing may indicate motorized actuators, if so that shall take precedence. Any dampers over 6 foot above finished floor shall be furnished with Chain wheel gear operators. All Positive Seal O-ring dampers MUST be furnished with Worm gear operators. Manual Hand levers will not be accepted regardless of size.

- h. Approved Suppliers:
 - 1) Balancing and Medium Isolation
 - a) Belco Manufacturing Model 203
 - b) Swartwout Model 914
 - c) Engineer Pre-Qualified AMCA Licensed Equal
 - 2) Bubble-Tight PTFE O-ring dampers
 - a) Belco Manufacturing Model 204
 - b) Ershigs Type-B
 - c) Engineer Pre-Qualified Equal

- i. All balancing and medium Isolation dampers provided shall bear the AMCA seal. Dampers are to have been tested in an AMCA lab for performance (pressure drop) and leakage. Test results shall be submitted and confirmed by the engineer. Testing must have been done in an AMCA lab within the required 3 year period so that the manufacturer is qualified to apply the AMCA label.

- j. Bubble-Tight dampers should be shop tested. Tests should be submitted to the engineer and confirmed by full Quality control documentation. The engineer or representative of the owner reserves the right to witness this testing or use an independent inspection firm to confirm test results.

- k. Dampers may be tested after installation to confirm compliance.