



23 37 XX – High Performance Architectural Diffusers

KAM-ACTIF – Aluminum Long Throw Jet Nozzle Diffusers (Autonomous Thermal Adjustment)

PART 1 – GENERAL

1.1 SUMMARY

- A. Long throw jet nozzle supply diffuser(s) that autonomously adjust jet angle in response to supply air temperature using a thermodynamic piston, without controls and without electricity.
- B. Adjustment time: approximately 30 minutes to transition between horizontal and vertical discharge modes.
- C. Mounting types:
 - 1. KAM-ACTIF-W: Surface mounted; includes a removable rim to conceal mounting screws after installation.
 - 2. KAM-ACTIF-D: Duct mounted.
- D. Construction: aluminum.
- E. Thermodynamic actuator system: Actuator and thermodynamic mechanism shall be fully concealed within the product and not visible from the occupied space.
- F. Autonomous operation: System shall be fully autonomous and shall require no controls, no electricity, and no wiring of any kind.
- G. Factory configuration: System shall be factory pre-configured and shipped ready to install; no field adjustment, calibration, or configuration shall be required.
- H. Finish: factory powder coated (TGIC-free), white RAL 9016 unless otherwise scheduled.

1.2 SUBMITTALS

- A. Product Data: Manufacturer's data for scheduled model(s), available sizes, and mounting type(s), including:
 - 1. Recommended airflow range and free area (as published).
 - 2. Pressure loss and diffuser-generated NC.
 - 3. Throw data with ceiling effect (Coanda) and without ceiling effect (as published).
 - 4. Temperature differential correction factors for throws (as published).
 - 5. Thermodynamic piston description and published adjustment behavior (horizontal/vertical transition).
 - 6. Installation/mounting details and service considerations.

B. Shop Drawings: Indicate model designation, mounting type (surface mounted or duct mounted), available size selected, finish, installation details, and service clearances. For -W models, indicate removable rim detail and required orientation.

C. Airflow Prediction Report (Required – SelectiV): Provide a manufacturer-generated SelectiV airflow prediction report for each diffuser type and each distinct room condition using manufacturer performance data and recognized airflow physics corrections (ΔT correction factors, Coanda effects, buoyancy effects, jet interaction, and wall/floor/ceiling collision effects). Report shall include:

1. 3D room model with diffuser locations.
2. Predicted airflow visualization views: plan (top), section (side), elevation (front).
3. Throws for terminal velocities of 150, 100, 60, 50, 40, 30, and 20 fpm.
4. Pressure loss at scheduled airflow.
5. Diffuser-generated NC at scheduled airflow.
6. Perceived NC at room center (5 ft height) from all sources combined across 63–8000 Hz octave bands; include key assumptions used.

D. Verified CFD Validation (When Indicated): Provide EffectiV Verified CFD validation and summary report for spaces indicated and/or when operation is outside published selection limits.

1.3 SUBSTITUTIONS

A. Substitutions per Division 01. Proposed equals shall provide a line-by-line compliance matrix including all Part 1 deliverables, including the SelectiV Airflow Prediction Report deliverables, and confirm autonomous thermal adjustment without controls/electricity.

PART 2 – PRODUCTS

2.1 BASIS OF DESIGN

A. EffectiV KAM-ACTIF aluminum long throw jet nozzle diffuser with autonomous thermodynamic adjustment.

2.2 MODELS AND MOUNTING (AS SCHEDULED)

A. KAM-ACTIF-W: Surface mounted; removable rim to conceal screws after installation.

B. KAM-ACTIF-D: Duct mounted.

2.3 AVAILABLE SIZES

A. Provide KAM-ACTIF in the following available sizes only:

1. 8 in (200 mm)
2. 10 in (250 mm)
3. 12 in (315 mm)
4. 16 in (400 mm)

2.4 MATERIALS AND FINISH

A. Construction: aluminum.

B. Autonomous adjustment: thermodynamic piston varies jet angle based on supply air temperature.

C. Actuator life expectancy: Thermodynamic actuator/service life shall be equal or superior to 25 years under normal HVAC operating conditions.

D. Finish: factory powder coated (TGIC-free), white RAL 9016 unless otherwise scheduled.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Install per manufacturer instructions; coordinate mounting type and jet direction per design intent.
- B. Orient the product according to the markings on the diffuser body; install with the orientation arrow pointing upward.
- C. For -W models, install removable rim after fastening to conceal screws.

3.2 ADJUSTING

- A. Balance to scheduled airflow. No external controls or electrical connections required for adjustment.