

**UL-CLASSIFIED
CEILING DAMPER**

For 2-Hr. Designs

MODEL 291

**RECTANGULAR
TWO-BLADE/INSULATED**

MATERIALS AND CONSTRUCTION

- FRAME:** One-Piece, roll-formed 22-Ga. galvanized steel. ($2^{21}/_{32}$ " standard depth).
- BLADES:** 22-Ga. galvanized steel.
- INSULATION:** $1/2$ " thick gypsum.
- FUSIBLE LINK:** 165°F Standard (212°F Optional).
- SPRING:** Extension type.
- FINISH:** Mill.
- OPTIONAL THERMAL BLANKET** for lay-in diffuser/grille installations: $1/4$ " thick ceramic fiber, (8 lbs./cu. ft. density).

UNDERWRITERS LABORATORIES INC.®



CLASSIFIED
CEILING DAMPERS
FIRE RESISTANCE CLASSIFICATION
DESIGN NO.'S. — SEE PRODUCT CATEGORY
IN UL FIRE RESISTANCE DIRECTORY

abi air balance
A Mestek Company

California State Fire Marshal Listing No.:

3225-1328:105

1-hr. Combustible Ceiling Assemblies

1-hr. & 2-hr. Non-Combustible Ceiling Assemblies

DIMENSIONAL DATA

Maximum Size: 324 Sq. in.

Width: $10^{3}/_{4}$ " Minimum; 18" Maximum

Height: $5^{3}/_{4}$ " Minimum; 18" Maximum

The larger dimension is *always* the *width*, and is *parallel* to the *blades*.

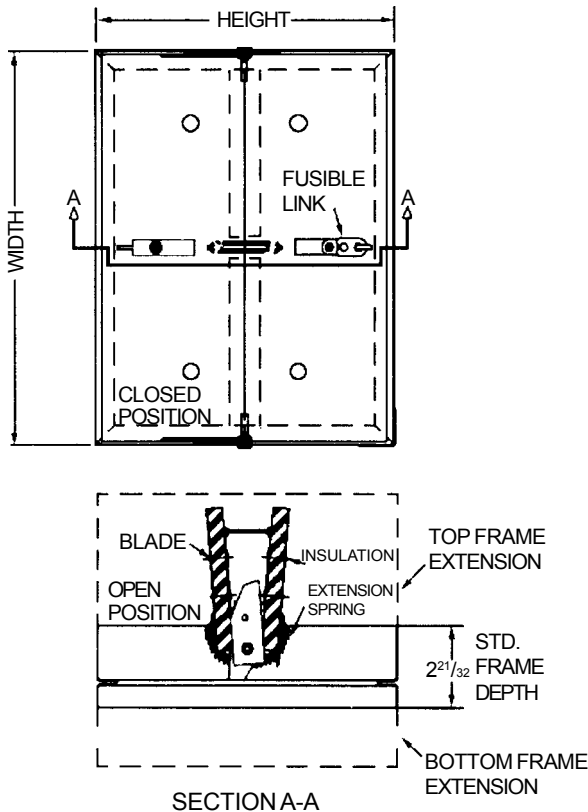
OPTIONAL FRAME EXTENSIONS

To facilitate various installations, a damper frame extension can be provided for the top of the frame, the bottom of the frame, or both the top and bottom of the frame, and, depending on the HEIGHT of the damper, will result in the following *total frame depths*:

	Heights: $5^{3}/_{4}$ "-10"	Heights: $10^{1}/_{2}$ "-14"	Heights: $14^{1}/_{2}$ "-18"
Top Extension:	$9^{1}/_{4}$ "	$9^{1}/_{4}$ "	$10^{3}/_{4}$ "
Bottom Extension:	$6^{1}/_{8}$ "	$6^{1}/_{8}$ "	$6^{1}/_{8}$ "
Top and Bottom Extension:	$9^{1}/_{4}$ "	$10^{3}/_{4}$ "	$12^{3}/_{4}$ "

CEILING DAMPERS - FUNCTION AND APPLICATION

This ceiling damper is used to provide the required fire and heat radiation protection of HVAC penetrations of Floor-Ceiling and Roof-Ceiling Assemblies having a Restrained or Unrestrained Assembly Fire Resistance Rating of 2 hours or less, in accordance with UL-263. Standard Fire Dampers (1 $1/2$ -hr. & 3-hr.) do not provide the necessary heat radiation protection. Ceiling Dampers are also called Ceiling Fire Dampers, Radiation Dampers, and Radiation Shields. See Air Balance's UL-approved Installation Instructions for various installation requirements and procedures. Approved Ceiling Designs are illustrated by Design Number in UL's Fire Resistance Directory.



PROJECT:
LOCATION:
ARCHITECT:
ENGINEER:

CONTRACTOR:
PO NUMBER:
DATE:

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IN THE INTEREST OF PRODUCT DEVELOPMENT, AIR BALANCE
RESERVES THE RIGHT TO MAKE CHANGES WITHOUT NOTICE.