



شركة مصنع عالم الناصريه المحدودة  
AL NASSERIAH WORLD FACTORY COMPANY LTD

## NON RETURN DAMPERS



### ANA Non Return Dampers :

One way discharge unit designed for pressurized rooms and ducts to reduce the load on Internal HVAC units and to keep the pressure levels maintained at it's maximum.



### ANA NRD Construction

#### Body :

Constructed from Extruded Aluminum alloy Profile **6063** or Galvanized Steel Grade **90** upon customer's request.

#### Blades :

Constructed from Extruded Aluminum, Aluminum alloy sheet **6063 and** Galvanized Steel Grade **90** upon customer's request. fixed horizontally to the body.

#### Performance :

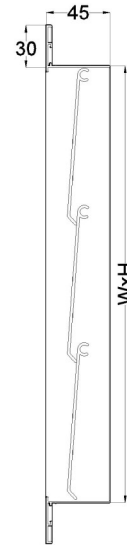
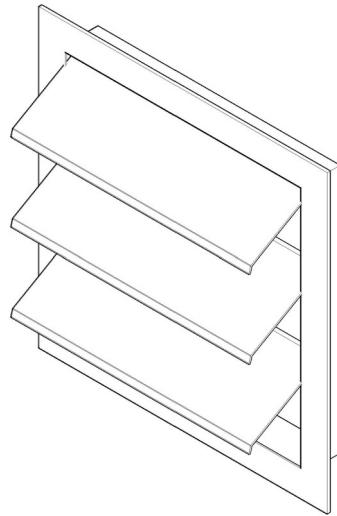
The Non Return Dampers are rated as Gravity Relief Damper (max 2000 fpm), Back Draft Damper (max 2500 fpm) and Pressure Relief Damper (max 3000 fpm)

#### Finish :

Electrostatic powder coating is used for gravity relief damper (wall mounted) with standard white color for the body and the blades (**RAL 9016**), Other types are mill finish.

## ANA Gravity Relief Damper

Model : NGRD - X

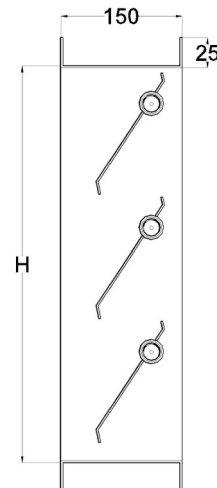
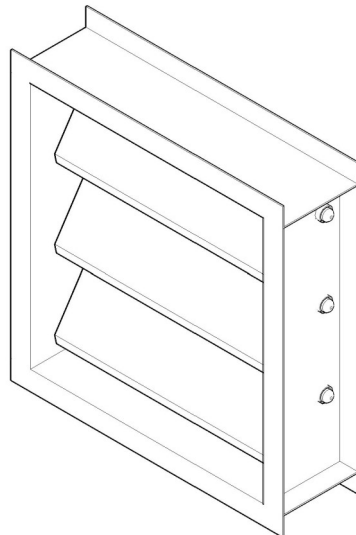


- Frame and Blades are made of extruded aluminum alloy **6063**. (For Duct mounted gravity relief damper, the Body can be changed to galvanized steel grade **90** with a thickness of **(1mm-gauge 20)**).
- Light back draft damper, with air operated blades.
- Opening of the blades is controlled by the air velocity (**max 2000 fpm**), and fully closed by a stopper.

\* X - Wall Mounted (W) and Duct Mounted (D)

## ANA Back Draft Damper

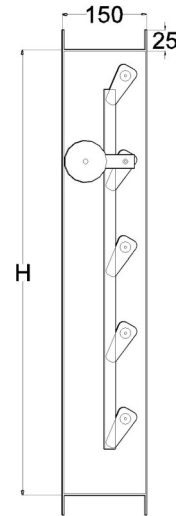
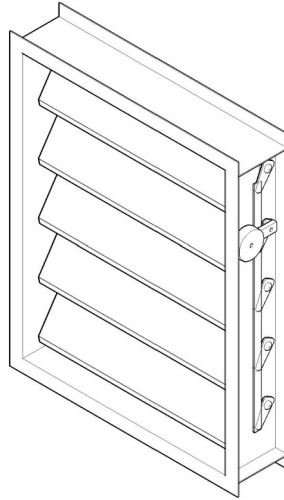
Model : NBDD



- Body and Blades is made of galvanized steel grade **90** with a **(1.5mm- 16 gauge)** thickness . (Body and blades can be changed to aluminum upon request with a thickness of **1.2 mm**) .
- Air operated blades fixed in the body with **(13 mm)** diameter plastic bushings.
- Opening of the blades is controlled by the air velocity (**max 2500 fpm**), and fully closed by a stopper.

## ANA Pressure Relief Damper

Model : NPRD



- Body and Blades is made of galvanized steel grade **90** with a **(1.5mm- 16 gauge)** thickness .
- Air operated blades fixed in the body with **(13 mm)** diameter plastic bushings and a special linkage to hold the counter weight.
- Opening of the blades is controlled with adjustable air velocity **(max 3000 fpm)** by the counter weight which is selected upon the needed opening pressure , and fully closed by a stopper.

## ANA NRD Selection

- Back draft dampers and gravity shutters sizes can be selected by the air flow and the desired velocity using air flow equation :

$$A = \frac{Q}{V}$$

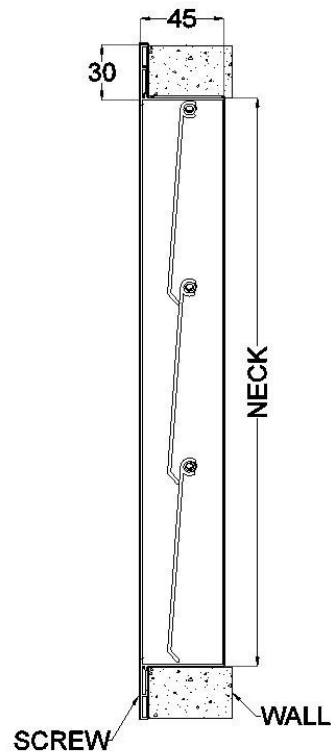
- A : is the area of the back draft damper or the gravity shutter.
- Q : is the air stream flow where the damper starts to open.
- V : is the air stream velocity at the opening flow.

- For pressure relief damper selection, two data is required to chose the counter weight (size and pressure of the opening point or the airflow).

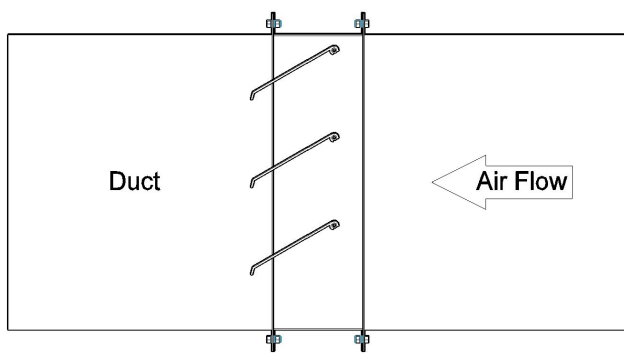
$$M_C = M_t - M_b = \frac{PA}{g}$$

- $M_c$  : Counter weight mass.
- $M_t$  : The total mass of counter weight and blades.
- $M_b$  : Mass of the blades.
- P : Opening point pressure.
- A : Area of the pressure relief damper.
- g : gravitational acceleration.

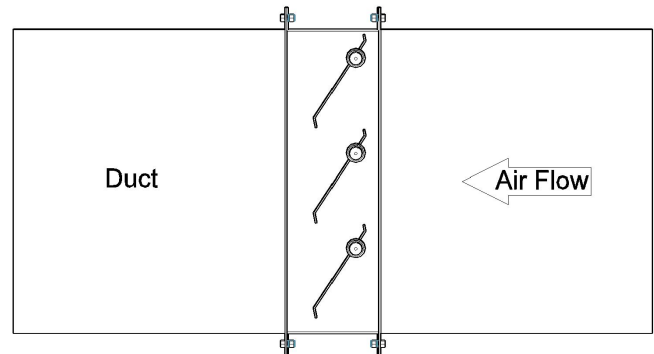
## ANA NRD Installation :



**NGRD-W**



**NGRD-D**



**NBDD**