

# Instructions for Adjustment on Pressure Relief Dampers

The following instructions should be followed when attempting to modify HPR series pressure relief dampers for different damper orientations or start-to-open pressures. Dampers shipped are set for the specified start open pressure and flow direction.

Pressure relief dampers designed for horizontal flow (vertical mounting) are equipped with two sets of arms (Figure 2A). The first set is in the direction opposite the blades and offset, or balance, the weight of the blades. The second set of arms is always positioned horizontally when the damper is closed (approximately vertical with blades open) and hold the blades closed until the start-open pressure is reached. Pressure relief dampers with vertical up flow/relief (figure 2B) and vertical down flow (figure 2C) only have one set of arms, as the weight of the edge pivoted blades is either added or subtracted from the weight necessary to hold blades closed.

Damper will respond to a positive differential pressure in the direction of blade opening,

Three (3) different crankarms may be used, depending on damper size and magnitude of start open pressure. See figure 1.

The blades of this type damper exhibit a gradual “lift off” as start-open pressure is reached. The operating point is not sharply defined, as when a door suddenly opens. There is a wide flow range where pressure is approximately constant.

## Counterweight Set Procedure (Horizontal flow only)

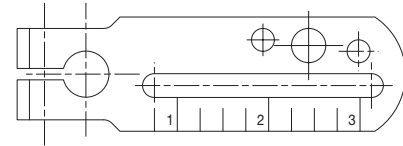
The counterbalance weights on a vertically mounted damper (horizontal flow), must be adjusted first, if the airflow direction is changed. This is covered by a separate procedure. Basically, the damper is adjusted for easy operation (blade weight is just counterbalanced) before the pressure set arms and weights are added.

## Pressure Setting Procedure

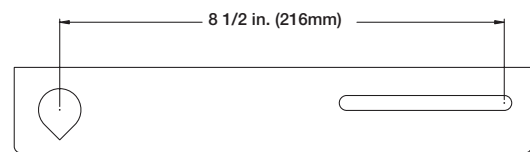
Position damper in the proper orientation and flow direction.

If a specific relief pressure is required, install a U-tube manometer or other pressure measuring device in the duct work to monitor the static pressure.

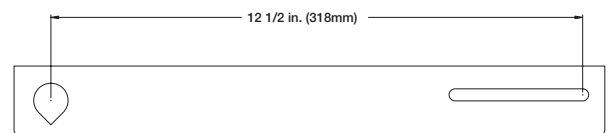
If damper flow direction must be changed in the field, loosen fastener in pressure set crankarm and rotate arms to correct position. See figures 2A, 2B and 2C for correct pressure set arm orientation with damper blades closed.



Small crankarm

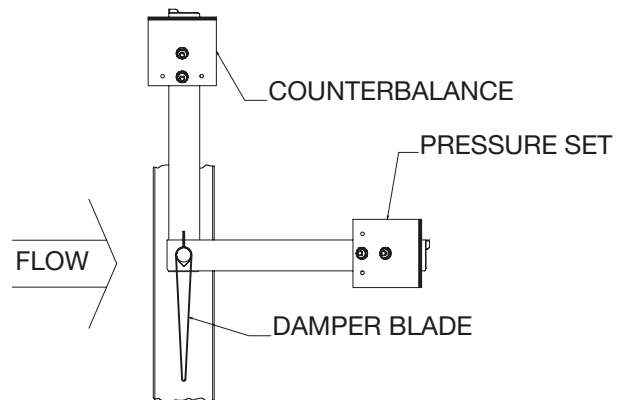


Medium crankarm



Large crankarm

**Figure 1**



**Figure 2A Horizontal Flow**

## Pressure Setting Procedure cont....

Start-open pressure is adjusted by either changing weight center distance from axle center line, or by increasing or decreasing the quantity of plates mounted to arms. In extreme cases, the arm length and quantity must be changed. See table at the end of procedure for replacement parts.

Adjust weight center distance first. Loosen fasteners holding weight plates to arm and move inward or outward in arm slot as required. Moving plates toward axle will reduce start-open pressure; increasing the center distance will increase the pressure at which blades start to open. If a greater range of pressure set adjustment is required, add or remove plates from arms as required to obtain the required start-open pressure.

Check all fasteners for tightness.

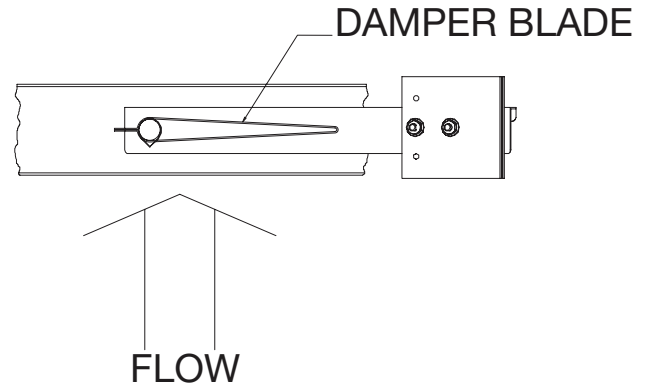


Figure 2B Vertical Up Flow

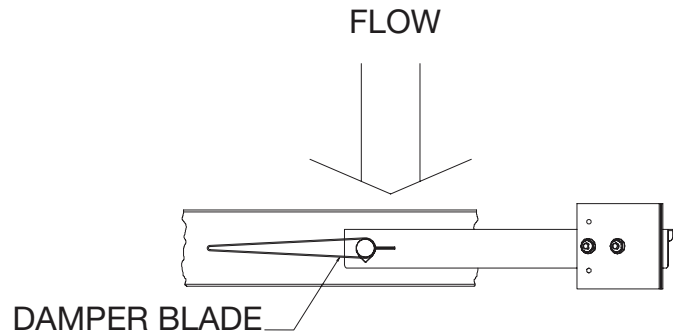


Figure 2C Vertical Down Flow

## Table of Components

Components	Applicable Model	Galvanized Part Number	Stainless Steel Part Number
Axle adapter, 3/8" sq. to 3/4" OD, 3" long	HPR-120	458959	NA
Axle adapter, short, 3/4" OD	HPR-120	370120	416343
3/4" crankarm	All	653630	687738
3/8"-16 x 2 crankarm bolt	All	415882	415924
3/8"-16 hex nut for crankarm	All	415457	416168
Short counterweight arm (8 1/2")	All	647344	689404
Long counterweight arm (12 1/2")	All	657343	683951
3/8"-16 set screw for short/long arm	All	415050	415763
3/8"-16 weld nut for short/long arm	All	415127	415928
Counterweight plate, 1 1/4" x 3 1/2"	All	653144	687637
Counterweight plate, 2 1/2" x 3 1/2"	All	653143	687636
Counterweight plate, 3 1/2" x 3 1/2"	All	653142	687635
Bolt, 1/4" - 20 x 1 1/4"	All	415973	NA
Bolt, 1/4" - 20 x 1 1/2"	All	415517	416103
Nut, 1/4" - 20	All	415455	415575



Copyright © 2006 Greenheck Corporation  
469134 Adj. on Pressure Relief Dampers  
Rev. 1 May 2006