

TYPE M + MG2 FIELD BAROMETRIC DAMPER

The type M + MG2 Field Barometric Damper is a specialized, precision made, three fuel control for the purpose of controlling boiler draft conditions. It will serve gas, oil or coal with equal efficiency and requires only minor changes in the field to adjust from one fuel to another. It is a control of extreme sensitivity and structural strength. It has been designed exclusively for industrial furnaces and boilers.

The damper's sensitivity is increased by holding the clearance between the ring and the gate to a minimum. A heavy die-formed gate ring is employed. This heavy gate provides extreme rigidity and structural strength. This gate is mounted on a long, thin, stainless steel knife edge which in turn rests on self aligning, stainless steel bearings. The bearings are self cleaning. Soot or dirt cannot accumulate to cause binding or friction. They are also self leveling, assuring that the knife edge is always in contact across the full width of the bearing for an even distribution of weight. When the gate moves, only the sharp corner of the knife's edge rests on the bearings, an area of contact so minute that friction is virtually non-existent. The result is extreme and instantaneous sensitivity to draft change.

ADVANTAGES AND FEATURES

EFFICIENCY AND SAFETY: The barometric damper can be adjusted to the proper draft setting to obtain the desired efficiency. Where a draft deficiency exists, the Field Double Acting Control can make the draft assistance of the entire stack available to the boiler. The control handles overdraft conditions to maintain constant draft pressure within the limits of the control's opening.

VERSATILITY: The damper is a very versatile control with respect to fuel served, input changes and installation location. The control will serve gas, oil, or combination fired boilers. The damper permits flexibility in that it can be adjusted to changes of input. The control also is self adjusting for changes in weather conditions. The Field Control offers a wide range of approved installations to fit the particular job.

LOW INITIAL AND INSTALLATION COSTS: On larger sized applications, the damper may be lower in initial cost than a draft diverter since a smaller sized control can be used. The chimney size is usually smaller than with draft diverters since the whole height of the boiler stack may be employed to create draft. The damper is a very compact unit and can easily be installed in locations with limited ceiling heights.

UL LISTED: Every barometric damper used by the Parker Boiler Company is listed by Underwriter's Laboratory.

I. APPLICATIONS:

The Field Barometric Dampers are standardly recommended and furnished on the following Parker Boilers:

1. All Power Gas, Gas/Oil, or Oil Fired Boilers.
2. All Gas Fired Steam Boilers 70 H.P. and larger.
3. Applications requiring damper.
4. Approved applications requiring smaller size stacks.

II. INSTALLATIONS: (Refer to General Basic Installation Instructions Paragraph VI, Combustion Vents.)

1. The damper should be installed with the "tee" type fitting furnished. It should be installed directly above the boiler connecting to the collar provided on top of the boiler cabinet.
2. The control must be installed in the up-right position on either a vertical or horizontal chimney. The front face of the control must be plumb and the bearing surfaces level.

DO NOT SUPPORT THE BAROMETRIC TEE AND STACK ON THE BOILER CABINET.

3. The damper must be handled with a reasonable amount of care since this is a precision constructed instrument with delicate balancing.
4. The boiler stack should be run upward to required height above the roof in accordance with specifications and local codes.
5. Care should be taken that the stack is properly supported so that there is no excessive strain on the boiler cabinet.
6. A non-restrictive cap must be installed on the top of the stack of the type to prevent against down-draft and weather conditions.
7. The control should not be located within 18" of any wall or combustible material.
8. In areas subject to freezing, adequate protection may be required to prevent drafts from being drawn into the boiler, which could damage the pressure vessel.

III. OPERATION:

With the Field Barometric Damper, barometric pressure opens the gate and all draft, except the minimum needed to carry flue gases up the stack, is checked by the action of the draft control. The swinging gate is under the control of a counterweight, thereby, maintaining the desired draft for best combustion. In normal operation, the gate will usually swing back and forth in the inward position approximately one-third its normal travel. In the event of up-draft, the gate opens inward to admit dilution air so that the normal draft through the boiler is not interrupted. When the draft is weak,

the gate stays closed because the differential pressure is too small to move it, and the entire stack draft is placed at the service of the burner.

TYPE M + MG2 FIELD BAROMETRIC DAMPER ADJUSTMENT INSTRUCTIONS

IV. ADJUSTMENT INSTRUCTIONS:

1. The control must be adjusted to the desired draft setting by adding or removing the washer-type weights supported by the two small chains. Do not move the large weights attached directly to the gate. (Fig. 1, Item G.)
2. Once the desired setting has been obtained, be sure to securely tighten the screw and nut holding the washer weights.
3. The damper should be set to maintain as low a draft as will give good combustion. **NOTE, THE DAMPER DOES NOT COME ADJUSTED FROM THE FACTORY DUE TO VARYING DRAFT CONDITIONS. THE FOLLOWING INSTRUCTIONS SHOULD BE FOLLOWED:**

A. ALL GAS FIRED BOILERS:

Check to be certain that the stop and two cover plates (three parts painted red) have been removed. Refer to Fig. 1. To remove stop, Item A, remove (2) screws securing it to ring. To remove cover plates, Item B, bend or break off the tab that goes through the small hole in ring. Do not remove stop, Item C.

VISUAL CHECK:

When the boiler is operating normally after being in service for at least 15 minutes, the gate should be balanced so that it swings inward approximately one-third of its travel. It should not be binding against either stop. If the gate is in the out-ward position more than temporarily, the cause of the down-draft should be immediately detected and corrected. These rules generally apply, but an accurate draft setting can be obtained only by the use of proper instruments as follows:

DRAFT GAUGE:

1. Readings with a draft gauge should be taken after boiler is in operation for at least 15 minutes.
2. Readings should be taken in center of vent stack below barometric damper but above top of boiler cabinet. Drill hole if necessary.
3. A minimum draft of not less than .04" to .06" W.C. negative pressure should be experienced below the barometric damper. If the draft is less than this, add washer weights required to swing damper gate towards vertical, which increases draft through the boiler.
4. On altitudes above 3,000', draft pressure should be increased as necessary for good combustion.

COMBUSTION TEST:

On all jobs, particularly high altitudes or restrictive vent conditions, it is advisable to call in competent combustion personnel to make a complete combustion test to achieve the best efficiency and safety. Draft should be set for best efficiency as low as possible without presence of CO in the flue gas.

- B. OIL OR COMBINATION GAS/OIL FIRED BOILERS:** Check to be certain that the stop and two cover plates (three parts painted red) are in place. The gate should never be able to swing to the out-ward position.

VISUAL CHECK

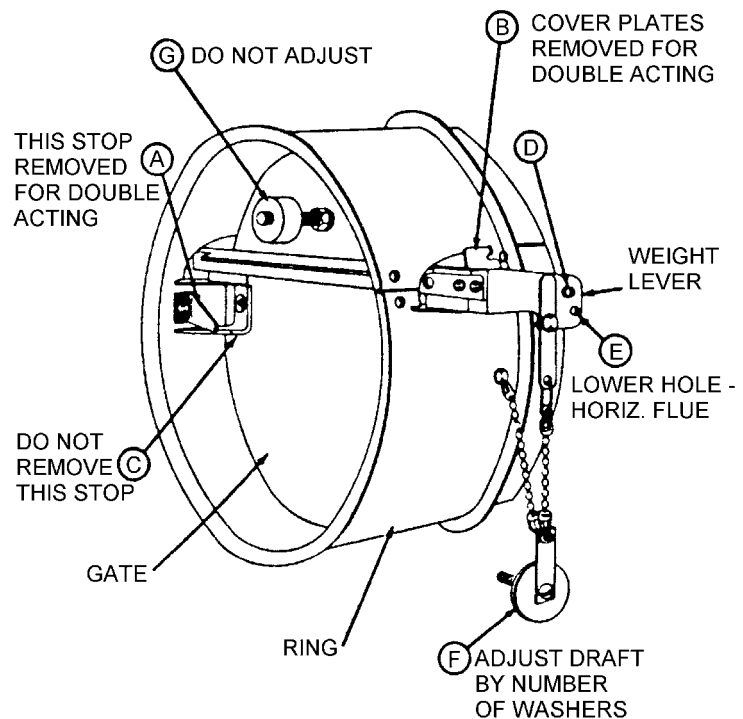
During normal operation, the gate will usually swing in one-third of its travel. Proper draft settings must be obtained by use of instruments.

DRAFT GAUGE:

1. Readings with a draft gauge should be taken after boiler is in operation for at least 15 minutes.
2. Readings should be taken in center of vent stack below barometric damper but above the top of the boiler. Drill hole if necessary.
3. A minimum draft of not less than .04" to .06" W.C. negative pressure should be experienced below the barometric damper. If the draft is greater than this, remove washer weights as required to swing bottom of damper out toward vertical, which increases draft.
4. On altitudes above 3,000', draft pressure should be increased as necessary for good combustion.

COMBUSTION TEST:

On all jobs it is advisable to call in competent combustion personnel to make a complete combustion test to achieve the best efficiency and



safety. Draft should be set for best efficiency as low as possible without the presence of CO or soot.