

CLEVELAND SINGLE POINTER GAGES

Series DG, PG and DPG

Bulletin G-1330

PROVIDE CONTINUOUS READING OF DRAFT, AIR PRESSURE OR PRESSURE DIFFERENTIAL

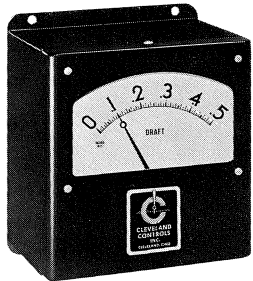


FIG. 1
SERIES DG
DRAFT
GAGE



FIG. 2
SERIES PG
AIR PRESSURE
GAGE

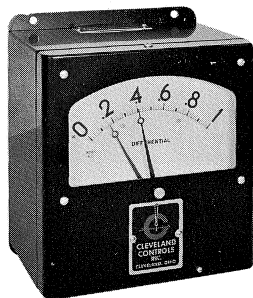


FIG. 3
SERIES DPG
DIFFERENTIAL
PRESSURE
GAGE

FEATURES AND SPECIFICATIONS

- Dust-tight enclosures of bonderized steel, black baked-enamel finish.
- Surface or flush mounting models.
- Clear, easy-to-read dials.
- Sensitive, large area, dry type diaphragms.
- Zero adjustment external.
- Special beryllium calibrating spring with permanent, unvarying tension.
- Stainless steel pivot points.
- 3-way selector valve — permits zero-ing or cleaning sample line without disconnecting.
- Every gage individually tested and calibrated.
- Choice of 4 draft, 3 pressure, 4 compound and 2 differential pressure scales in standard line. Other scales available on special order.
- Static tips are provided for sample line inlets on Differential Pressure Gages to insure accuracy of air sample.

APPLICATION

For use with air only. Do not use for flammable or explosive gases, or air that contains harmful chemicals.

SERIES DG DRAFT GAGES provide the necessary indication of furnace draft to make possible the regulation of damper and fan controls for most efficient combustion. They also measure draft at boiler outlet for comparison with furnace draft to indicate draft loss through the boiler. Abnormally high loss indicates sooting.

SERIES PG PRESSURE GAGES measure windbox or furnace pressure with pressure-fired burners to make proper regulation of firing equipment and forced draft fan. They are also used on forced stokers to measure undergrate pressure, warning of "blow holes", clinker formations, or too porous a fuel bed.

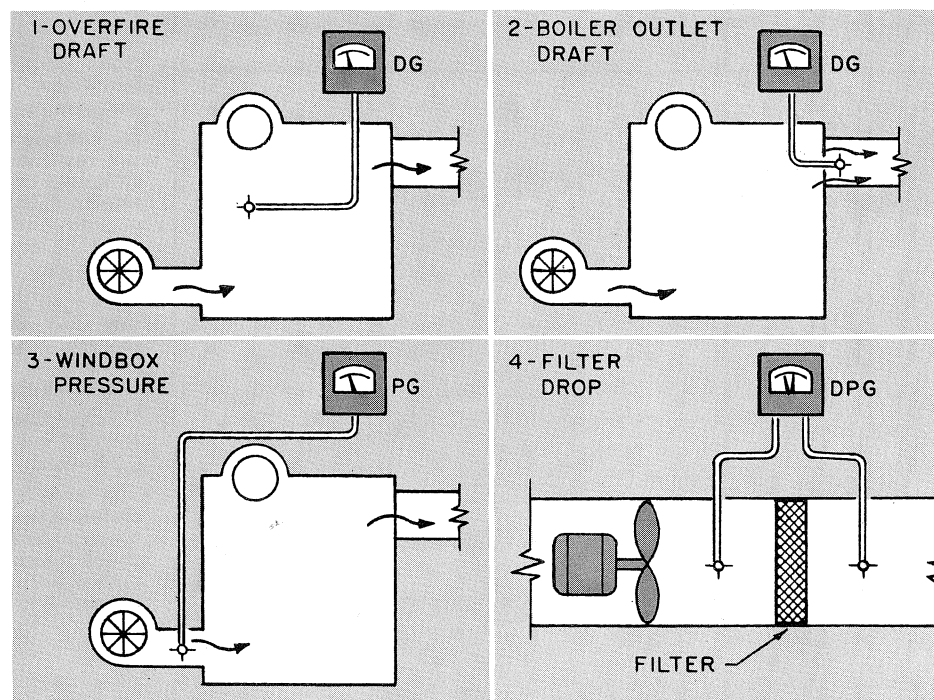
SERIES DPG DIFFERENTIAL PRESSURE GAGES measure variance in air pressure between two locations in an air passage, such as before and after filters, blowers, orifices, baffles, etc. Red pointer indicates pressure differential. Black pointer, set manually, serves as a reference point. Primary use is as a filter gage (Application 4, Figure 4): Black pointer is set at maximum acceptable pressure drop — when red pointer reaches or passes black pointer, filter needs changing. Models are available for indicating draft differential as well as pressure differential.

MODELS AVAILABLE

MODEL NO.	OPERATION	RANGE*	
DG5	Draft (negative pressure)	0 to -0.5" WC.	3-way valves furnished with all gages. Pair of static tips furnished with DPG gages. *Scales with ranges shown are standard. Other ranges available on special order.
DG1.0	Draft (negative pressure)	0 to -1.0" WC.	
DG10MM	Draft (negative pressure)	0 to -10.0 MM WC.	
DG40MM	Draft (negative pressure)	0 to -40.0 MM WC.	
PG2.5	Pressure	0 to + 2.5" WC.	
PG5	Pressure	0 to + 5.0" WC.	
PG10	Pressure	0 to +10.0" WC.	
DG-C4	Compound	+1.0 to -0.4" WC.	
DG-C4-1	Compound	+0.1 to -0.4" WC.	
PG-C4	Compound	-0.4 to +4.0" WC.	
DPG5	Pressure Differential	0 to 0.5" WC.	
DPG1.0	Pressure Differential	0 to 1.0" WC.	

FOR FLUSH MOUNTING, ADD SUFFIX "FM" TO MODEL NO.

FIG. 4 — TYPICAL APPLICATIONS



INSTALLATION INSTRUCTIONS

SERIES DG, PG, and DPG SINGLE POINTER GAGES

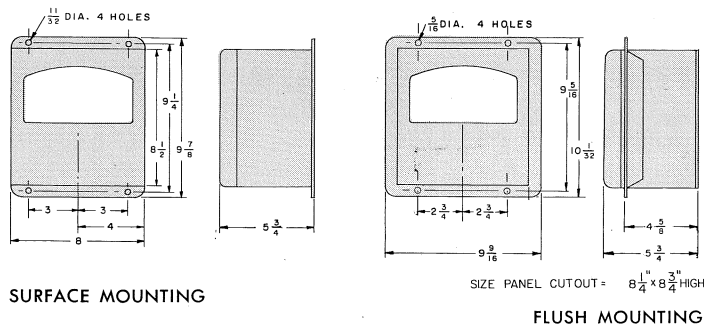


FIG. 5 — DIMENSIONS

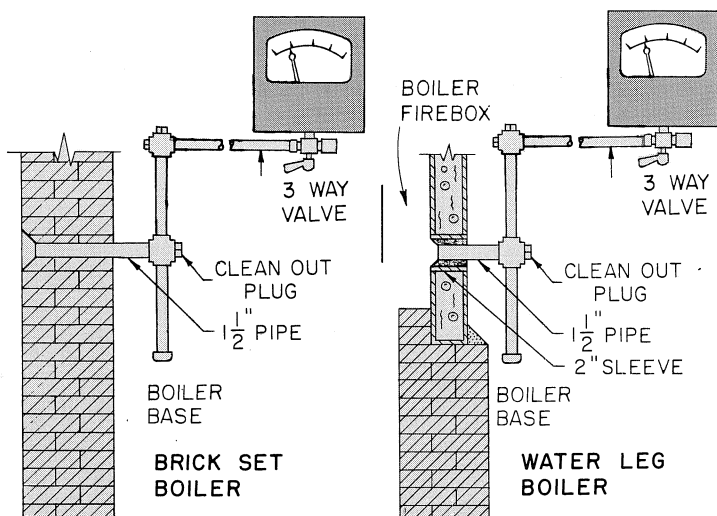


FIG. 6 — TYPICAL FURNACE DRAFT OR PRESSURE SAMPLE CONNECTIONS

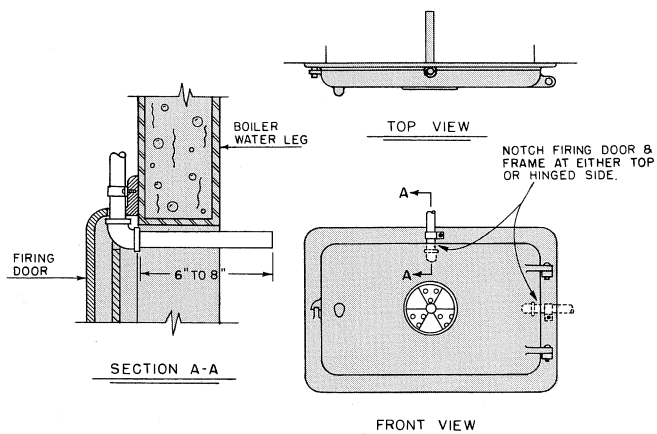


FIG. 7 — OPTIONAL FURNACE SAMPLE CONNECTION ON EXISTING BOILER

MOUNTING

Install in any convenient location in the boiler room where temperature is not excessive, preferably on a panel or in a cabinet with other controls and instruments. See Figure 5 for mounting dimensions.

PIPING

The sample fitting is a standard $\frac{1}{4}$ " pipe tap at the bottom of the gage. Each gage is equipped with a 3-way valve which should be installed in this fitting. Use any standard fitting for $\frac{1}{4}$ " pipe or tubing for connection to the valve.

Differential pressure gages have two sample fittings at bottom—one slightly off-center, and are equipped with two 3-way valves. Higher positive pressure sample should be connected to the centered fitting.

Sample line should be run to the location best suited for obtaining a good sample. The following line sizing is recommended:

Linear length*	Inside diameter of pipe or tubing
Less than 20 feet	$\frac{1}{4}$ "
20 to 60 feet	$\frac{1}{2}$ "
Over 60 feet	$\frac{3}{4}$ or 1"

*When computing length of line where pipe is used, add an extra 4 feet for each 90° fitting.

If a common sample line is used for an automatic draft controller and a gage, follow sizing instructions furnished with controller. If pipe is used, all joints should be doped and air tight. Wherever possible a tee and plug should be used instead of an ell, to facilitate cleaning the line. Union connection should be installed close to the gage.

For furnace draft or pressure indication, where the sample line enters the boiler it should be a $1\frac{1}{2}$ " pipe in a 2" sleeve. On new installations boiler specifications should call for overfire sample line of $1\frac{1}{2}$ " pipe welded in proper location. On existing installations a 2" sleeve should be installed through a side wall, close to the center of the furnace and well above the fire. The opening should be chamfered at the inside surface, and sample line should end at the chamfer—not extending into firing chamber. See Figure 6 for typical furnace connections. An optional method is shown in Figure 7, running the line through the door on an existing installation.

For windbox pressure indication the air sample should be taken from a location in the passage between the fan and the boiler where it will not be affected by turbulence or a damper opening. Avoid "dead air" spaces in corners or ells of a passage, and any obstructions that will prevent an accurate air sample.

For last pass draft or pressure indication sample should be taken from the breeching at the boiler outlet where it is not affected by damper openings or "dead air". If the boiler has two outlet passages, sample should be taken from the common breeching.

For differential pressure application samples should be taken from the two locations in an air passage between which the pressure variation is to be measured. The static tips provided should be attached to the sample inlets and positioned with their points opposing air flow.

ZERO ADJUSTMENT

All gages have provisions for resetting to zero without disturbing the calibration, which has been accurately made at the factory. The zero adjustment is a small slotted screw head at the lower left corner of the nameplate on draft gages, and at the lower right corner on pressure or pressure differential gages.

The zero adjustment is made by simply turning the 3-way valve to "off" position, and turning the adjusting screw with a screwdriver until the pointer reads exactly zero.

The zero adjustment should be made after the gage has been installed and in operation for several days. This allows the diaphragm to attain its normal operating position, which is sometimes temporarily dislocated during shipment or storage. Original calibration is fixed, and it is recommended that gages be returned to the factory if recalibration is required.

