

McDonnell Pump Control, Low Water Fuel Cut-off and Alarm Switch . . . for steam boilers of any size; maximum steam pressure, 150 lbs.

The McDonnell No. 150 Pump Control, Cut-off and Alarm switch (and its equivalent, No. 157) is built down to the last detail to stand the gaff of high pressure and temperature. It is equipped with two switches.

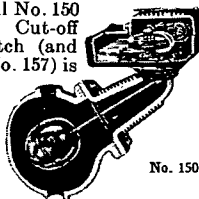
One closes on small float drop to control electric boiler feed pump, or electric valve in line to steam pump. Second operates on greater drop to stop burner and complete low water alarm circuit. Underwriters' Laboratories approved. No. 150 has automatic reset; for manual reset order No. 150-M.

No. 157 is same as No. 150, but has integral water column which greatly simplifies installation, assures ideal reproduction of boiler water level in float chamber, and provides effective direct blow-down. No. 157 has automatic reset; for manual reset order No. 157-M.

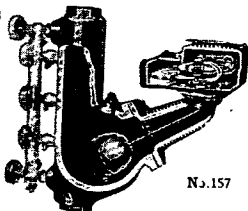
McDonnell No. 63 Low Water Cut-off for automatically fired hot water heating boilers.

In any hot water heating system there is a possibility of low water after a prolonged opening of an adequate relief valve as the result of some emergency condition. The protection against this, in automatically fired boilers, is a low water fuel cut-off, and for some time heating engineers have been using the McDonnell No. 150 to provide this protection because our low pressure low water cut-off was not rated for the higher pressures of hot water boilers. As a result the No. 63 Low Water Cut-off has been developed for pressures up to 50 lbs. It provides an equally dependable low water cut-off for hot water boilers at a more moderate price than that of the No. 150 which must be designed for higher pressures. The McDonnell No. 63 is also used on steam boilers where hook-up with 1 in. equalizing pipes is desired.

1364



No. 150



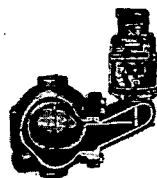
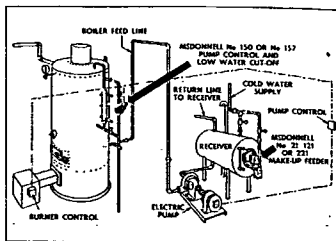
No. 157

#### Operation of No. 150 or 157

Typical hook-up of the McDonnell No. 150 is shown below. When water level drops, No. 150 starts pump and then stops it when normal level is restored. If emergency occurs, cut-off switch stops burner; terminals for low water alarm are also provided.

This method holds boiler water level within the close limits necessary to attain not only safety, but also highest steaming efficiency. This has obvious advantages over the ordinary method of simply returning condensate whenever a certain quantity has accumulated in receiver. Note McDonnell 21 Series make-up water feeders on receiver to maintain minimum water supply.

Drawings are available for all operating conditions—including two or more boilers supplied by one pump.



No. 63



No. 33

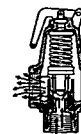
#### McDonnell No. 33 Series Safety Relief Valves

McDonnell Safety Relief Valves are built to comply with current A.S.M.E. Boiler Code, and have been tested and rated by the National Board of Boiler and Pressure Vessel Inspectors. The certified rating appears on the nameplate attached to each valve.

The No. 33 Series offers the ultimate in safety in guarding boilers and water systems against the dangers of over-pressure. They have low discharge rate which handles normal thermal expansion easily, and high rate for emergency conditions.



**Normal Operation—**  
When pressure rises to 30 lbs., valve cone lifts just far enough to discharge water at low rate necessary to take care of thermal expansion.



**Emergency Condition**  
—If temperature rises into the emergency zone, increased velocity acts on the "Hydra-Lift" ring, discharging full rated capacity.

#### For Hot Water Heating Boilers

No. 33 Safety Relief Valve, for boilers per hour. Opening pressure, 30 lbs Inlet, with gross heat output up to 242,900 Btu. 1/2 in.; outlet, 1 in.

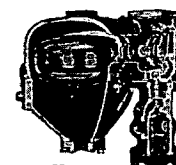
#### For Domestic Hot Water Tanks and Heaters

| Valve No. | Opening Pressure | Btu Capacity | Inlet Pipe Size | Outlet Pipe Size |
|-----------|------------------|--------------|-----------------|------------------|
| 3345      | 45 lbs.          | 321,300      | 3/4"            | 1"               |
| 3375      | 75 lbs.          | 308,700      | 1"              | 1"               |
| 33100     | -100 lbs.        | 423,900      | 1 1/2"          | 1"               |
| 33125     | 125 lbs.         | 513,900      | 2"              | 1"               |
| 33150     | 150 lbs.         | 605,700      | 2 1/2"          | 1"               |

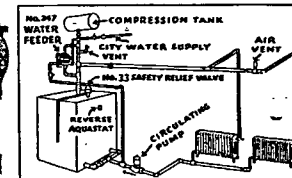
McDonnell No. 33 Safety Relief Valve and No. 247 Feeder for hot water heating plants with boiler and radiation on same level.

The drawing illustrates how the McDonnell No. 33 and No. 247 team up to provide both efficient operation and protection for "same-level" systems. In this type of plant there is always a possibility of separation of the boiler from the connected load unless a means of maintaining a proper level is provided. The No. 247 water feeder does this by keeping the water level above the highest point in the main. Protection from excess pressure is provided by the No. 33 Safety Relief Valve.

for all boilers up to 242,900 Btu output. When the boiler is automatically fired the No. 247 can be used with low water fuel cut-off switch (No. 247-2).



No. 247



#### McDonnell No. 65 Explosion Proof Float Switch

The McDonnell No. 65 is a dependable float switch that can be used to control the operation of a pump, low water alarm, low water fuel cut-off, and for many other liquid level control applications. It has been Underwriters' tested and approved for use under the following hazardous conditions:

Class I, Group C—Atmospheres containing ethyl-ether vapors, ethylene, or cyclopropane.

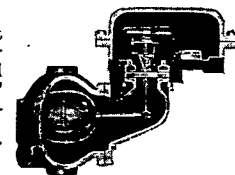
Class I, Group D—Atmospheres containing gasoline, petroleum, naphtha, benzene, butane, propane, alcohols, acetone, benzol, lacquer solvent vapors, or natural gas.

Class 2, Group F—Atmospheres containing carbon black, coal or coke dust.

Class 2, Group G—Atmospheres containing flour, starch or grain dusts.

Write for Catalogs covering McDonnell Products

1365



No. 65