McDONNELL & MILLER

Safety Devices for Steam and Hot Water Boilers and Liquid Level Controls

General Offices: Wrigley Building, **Chicago, Ill.**

"Doing one thing well"

PRODUCTS:

Boiler Water Feeders; Feeder-Cut-off Combinations; Low Water Fuel Cut-offs; Pump Controls, Low Water Alarms; Humidifier Water Level Controls; Safety Relief Valves for hot water heating boilers and storage tanks; Liquid Level Controls for a wide range of services.

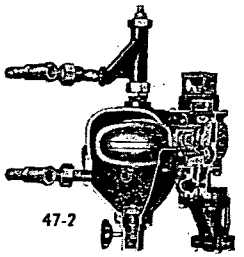
Boiler Water Feeders—McDonnell boiler feeders protect steam boilers from low water by automatically supplying water to the boiler when and as needed. See illustrations and service data opposite.

Feeder Cut-off Combinations—For automatically fired boilers the No. 2 Low Water Cut-off Switch is added to form a feeder-cut-off combination, like the No. 47-2, No. 51-2, etc. In such a combination the feeder takes care of the normal water requirements. In case of an emergency, such as excessive priming and foaming or failure of the pump, the low water cut-off switch stops the burner until emergency is passed. Electrical ratings of No. 2 Cut-off Switch: A.C.—¾ hp, 110-220 V.; D.C.—10 amp, 125 V.

Low Water Fuel Cut-offs—If the feeder-cut-off combination is not desired, the No. 67 alone can be installed to dependably stop the burner when low water threatens. Has two switches—one operates alarm or controls No. 101 Electric Feeder, other acts as low water cut-off. Rating (each switch): A.C.—¾ hp, 115-230 V; D.C.—¼ hp, 115 V.

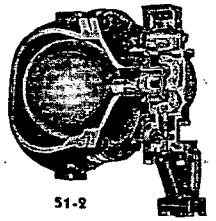
For high pressure jobs the No. 150 will serve not only as a low water fuel cut-off but also as a pump control and low water alarm—for pressures as high as 150 lbs. Electrical ratings, Cut-off and Pump Control: A.C.—1 hp, 110-220 V; D.C.—½ hp, 115-230 V. Alarm: A.C. or D.C.—1 amp, 110 V. Specify 150-M for manual reset low water cut-off.

Advanced Features—A notable advance in No. 47 and 67 is the deep sediment chamber, with large capacity, straight-through (A.S.M.E. Standard) blow-off valve. Other features of feeders and cut-offs include: Quick-Hook-Up; Cool feed valve; finer stainless steel valves; large area built-in strainers; double switch construction of the No. 67; electric boiler water feeders; self-cleaning built-ins.



No. 47-2 Feeder Cut-off Combination. For automatically fired boilers up to 5000 sq ft capacity—maximum steam pressure 25 lbs. No. 47 is for hand fired boilers—same service range, without switch. For process boilers up to 5000 sq ft, with pressures up to 35 lbs use No. 147 (Hand Firing) or No. 147-2 (Automatic Firing).

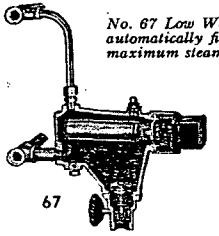
No. 51-2 Feeder-Cut-off Combination. For automatically fired boilers above 5000 sq ft—maximum steam pressure 35 lbs. No. 51 (without switch) for hand fired boilers. For pressures from 35 to 75 lbs use the No. 53 (Hand Firing) No. 53-2 (Automatic Firing).

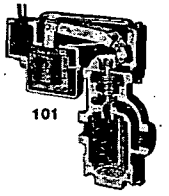


"Built-in" Low Water Fuel Cut-offs—chosen as standard equipment on modern jacketed boilers. Self cleaning to insure dependable operation. Should be specified with the boiler.

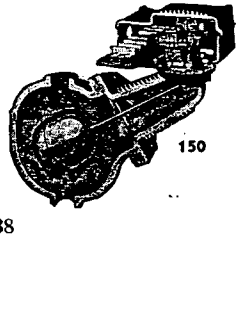


No. 67 Low Water Fuel Cut-off. For automatically fired boilers of any size; maximum steam pressure 25 lbs.





No. 101 Electric Water Feeder for use with No. 67 or Built-in cut-offs—converts into Feeder-Cut-off Combinations.



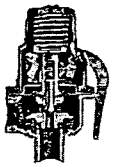
No. 150 Combination Pump Control, Low Water Fuel Cut-off and Alarm, for steam pressures up to 150 lbs. Has two switches: one controls pump—other stops burner and completes alarm circuit when water level falls to danger zone.

McDonnell Snap Action Safety Relief Valves

McDonnell Safety Relief Valves are the first to be rated in Btu capacity—in ability to dissipate heat at their set relief pressure. Their "snap action" design was inspired by exhaustive research which proved that the only proper solution to the problem of preventing explosions and losses of hot water boilers, domestic hot water heaters, and hot water tanks was to be found in a valve that would have sufficient discharge capacity at relief pressure to prevent further pressure rise when the boiler or domestic water heater is operated at *maximum gross Btu output.*

The series includes Nos. 29 and 129 for hot water heating boilers and the Nos. 229, 329 and 429 for domestic hot water heaters and tanks. The snap action mechanism (Pat. No. 2,248,807) provides, for the first time, a precision-built means of opening the valve wide at set pressure. Revolutionary features are hardened stainless steel cone instead of composition disc; long lived bellows diaphragm; remarkable ease of testing; complete protection of working parts; many other refinements.

No. 29 and No. 129 Safety Relief Valves for Hot Water Heating Boilers



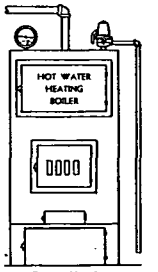
No. 29-129

—are rated in Btu capacity so that they can be matched to the gross Btu output of the boilers on which they are used:

No. 29 for heating boilers with gross heat output up to 156,000 per hour.

No. 129 for heating boilers with gross heat output up to 350,000 per hour.

Set relief pressure of both No. 29 and 129 is 29 lbs. When used in accordance with their ratings they will prevent pressures over 29 lbs under *all conditions*—even such an emergency as a bottled up system with all temperature-limiting devices inoperative and heat input at maximum. This is "safety the McDonnell Way."



Installation No. 29-129

No. 229-329-429 Safety Relief Valves for Domestic Hot Water Heaters and Tanks



No. 229 329-429

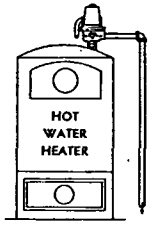
Engineering fundamentals, confirmed by practical tests prove that there is just one simple rule to observe in protecting domestic hot water heaters and tanks: Keep the pressure below the maximum allowed by the manufacturer of the tank or heater and there will be no failures or explosions.

To accomplish this, a relief valve must have capacity to dissipate the maximum heat to which the tank can be subjected. This means that it must be Btu-rated, just as for a hot water boiler, so that it can be matched to the service condition. Nos. 229, 329 and 429 are so rated:

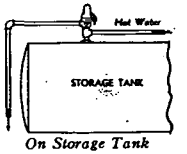
No. 229 is for water supply pressure up to 50 lbs; handles approximate Btu output of 316,720. Inlet tapping 1 in.; outlet tapping ¾ in.

No. 329 is for supply pressure up to 75 lbs; handles Btu output of 380,896. Inlet tapping 1 in.; outlet tapping ¾ in.

No. 429 is for supply pressures up to 100 lbs; handles Btu output of 432,590. Inlet tapping 1 in.; outlet tapping ¾ in.



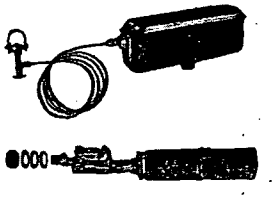
On Direct Fired Heaters



On Storage Tank

Never forget the pressure control—not temperature control—is the fundamental safety measure. You can have pressure and breakage without excess temperature, but you can't have an explosion at any temperature, unless you have excess *pressure.* No. 229, 329 and 429 are the first valves to be built and rated in such a way that they will prevent excess pressure under *all* conditions—assuming, of course, that their Btu rating is properly observed.

McDonnell No. 217 Humidifier Water Control



• *No. 217. Complete with float chamber, tubing and saddle valve.*

• *No. 117. Same as 217, omitting tubing and saddle valve.*

• *No. 17. Float and valve only.*

—automatically maintains proper water levels in evaporation pans of warm air furnaces. New snap action eliminates tendency of former controls to become stopped up by foreign matter or to stick and become inoperative. This valve has only two positions—tight closed and *wide open.* When water falls ¼ in. in pan it *snaps* wide open feeding a full stream that flushes orifice. Closes leak-tight against any water pressure up to 150 lbs.