GRISWOLD® CONTROLS
A FlowCon International/Griswold Controls LLC. Company

HVAC 101

A Quick Reference Guide to Key Equipment Used in HVAC Industry and the Complimentary Griswold Controls Products



Griswold Controls Valve Key:

Automatic Flow Limiting (Balance) Valves = A ie Isolator R, Isolator Y, K Valve, Wafer

Definition: The Automatic Flow Limiting cartridge has a spring loaded cup that dynamically absorbs pressure fluctuations to maintain constant flow in spite of a system's changing conditions.

Manual Balance Valves = M ie QuickSet, Quick Disk

Definition: Manual Valves have a venturi inside that can be used to measure the flow in the valve so that the flowrate can be set in the field.

Pressure Independent = PI ie PIC-V, Pinnacle, MVP

Definition: Pressure Independent valves control flowrate regardless of system pressure changes and include an actuated valve. They control flow at full load as well as at reduced load conditions.

Actuated Valve = B ie Unimizer, Automizer, Balance Zone

Definition: Actuated Valves have an actuator that receives an electronic signal from a Building Management System to open or close the valve to change flow of water.

Pressure Differential Control = DP
ie PIM-A

Definition: Valves control pressure differential across anything like valves, coils, or branches so that flow remains constant.

Delta T Control Valves = DT
ie EPIC

Definition: Measure energy usage while monitoring coil performance and adjusting a Pressure Independent (PI) Control Valve to optimize coil Delta T.

HVAC System Terms and Complimentary Griswold Products

Hydronic: Hydronic systems use heated or cooled water to condition the air in a building. Since water is a very efficient heat transfer media, copper pipe or plastic tubing can be used to distribute the conditioned water throughout the building for a fraction of the price of piping conditioned air.

Fan Coil Unit (FCU): A coil made of copper pipe that uses hot or chilled water to control the temperature in the space. A fan blows air over the hot or cold coil to warm or cool the air.
Griswold Controls Complimentary Product: A/M/PI/B

Air Handling Unit (AHU): Air handling units (AHU) supply conditioned air throughout a building as well as remove stale air from the HVAC system. Often they include a coil to heat or cool the air, as well as filters to clean the air since most of the air is coming from outside.
Griswold Controls Complimentary Product: A/M/PI/B

Terminal Unit: Similar to an AHU but smaller and typically includes a coil, blower and filter.
Griswold Controls Complimentary Product: A/M/PI/B

Chiller: Generates cold water to a hydronic system so that the heat can be removed from the building through the refrigeration cycle. The cold water is also used to de-humidify the building.
Griswold Controls Complimentary Product: A (Wafer), B (Flanged Unimizer)

Cooling Tower: Warm water from the condenser in chillers is piped to a cooling tower, usually on the roof. In the Cooling Tower the condenser water is sprayed into a stream of cooler air and the water is cooled while the warmed air is blown away from the tower. The cooled water is returned to the chiller.
Griswold Controls Complimentary Product: A (Wafer Automatic Flow Limiting Valve with Hi-Flow Cartridges designed for Dirty Cooling Tower Systems - 3-18 and 5-32 PSID)

Boiler: Uses gas or electricity to create hot water for a hydronic system so that the heat can be distributed throughout a building.
Griswold Controls Complimentary Product: A (Wafer) B (Flanged Unimizer)

Pot Feeder (Also called Bypass Feeder): Feeders introduce chemicals into hydronic HVAC water systems for water treatment.
Griswold Controls Complimentary Product: B (Unimizer)

Separator: Solid Separators filter solids in the hydronic HVAC system. Air Separators remove air from the hydronic HVAC systems.
Griswold Controls Complimentary Product: B (Unimizer)

Heat Pump: Heat pumps are true to their name and act like a "pump" moving heat from a cold

space into a warmer space. They can be reversed so that they can also provide cooling to a warm space by removing the heat from the space and moving it outside. Heat Pumps move this heat with a vapor-compressor refrigeration device. The compressor circulates the refrigerant that absorbs and moves the heat.
Griswold Controls Complimentary Product: A (Isolator R or Isolator Y) A/B (Balance Zone) B (Unimizer Actuated Ball Valve with a fast actuator)

Chilled Beam: A chilled beam is like a fan coil; hot or cold water passes through copper tubes, while air moving over the tubes is heated or cooled. The primary difference however, is how the air passes over the coil. In a passive chilled beam the hot air naturally rises to the ceiling, passing over the coil, while the cold air falls to the floor using natural convection. In an active chilled beam, an induction unit forces air over the coil while the natural convection in the room is also occurring, forcing the hot air up. Unlike a traditional fancoil with a fan a chilled beam doesn't require a fan.
Griswold Controls Complimentary Product: A B

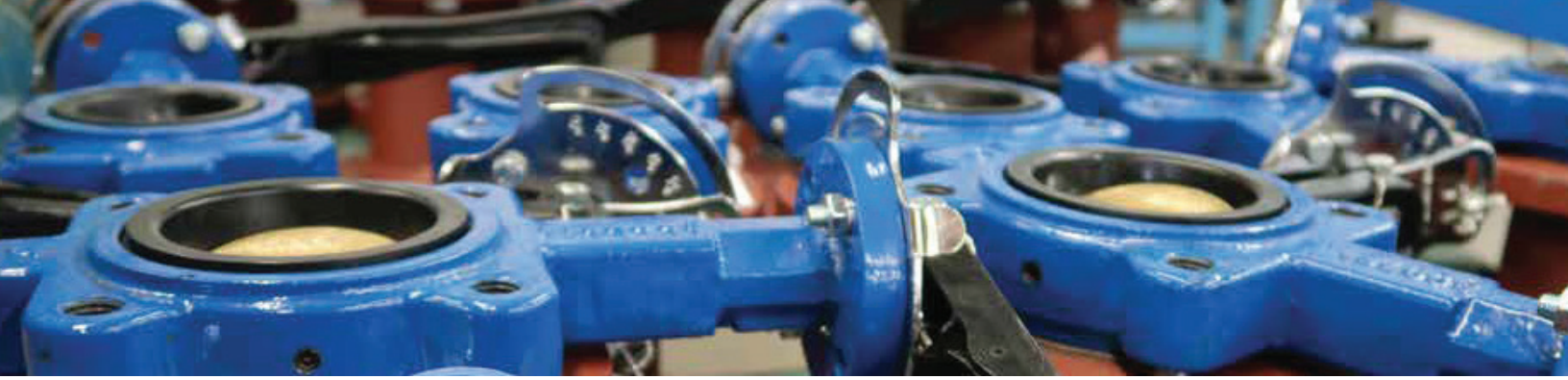
Economizer: An economizer saves HVAC energy by using cooler outside air to cool the inside air. When the temperature of the outside air is less than the temperature of the recirculated air, using the outside air is more energy efficient than cooling with recirculated air.

Baseboard Heaters: Hydronic baseboard heating equipment extends along the baseboard of a wall. The coils inside are filled with hot water which heats the air in the room.
Griswold Controls Complimentary Product: A B

Radiators: A heat exchanger mounted on the floor. Pipes or tubes carry hot or cold fluid through the radiator which heats the air in the room.
Griswold Controls Complimentary Product: DP (PIM-A Mini Pressure Differential Control to reduce noise) A

Radiant Heating: Pipe or tubing is laid under the floor (or into panels on walls or in ceilings) to carry hot water to heat the room. Underfloor radiant heating involves under laying the floor with a hot element or tubing that transfers heat into the room via infrared radiation and convection, obviating the need for forced or blowing air.
Griswold Controls Complimentary Product: B

Variable Air Volume Box (VAV): A VAV Box controls the volume of conditioned air via a damper installed in the box. Many VAV Boxes include heating or cooling coils to heat or cool the air coming from the duct with hot or cold water in the coil.
When a heating or cooling unit is included with VAV Box - Griswold Controls Complimentary Product: A B



Non-traditional Applications for Griswold Control Valves

While Griswold Controls valves are typically used in HVAC-Hydronic Systems here are a few of the more recent non-traditional applications that we have participated in:

1. Control the flow of potable water in drug testing bathrooms using a Unimizer with a failsafe actuator controlled by a light switch.

2. Limit the flow of cooling water to coils on the back of computer servers using the Grooved End Valve.

3. Limit the flow of cooling water to coils in RV refridgerators using sweat valves.

4. Control the heating or cooling in marijuana grow and processing facilities using PIC-V valves.

5. Control the flow of air in laboratory facilities using automatic flow limiting K Valves.

6. Control flow of diesel fuel in military vehicles using automatic flow limiting valves with viton o-rings.

7. Control the flow of chilled glycol/water in large refrigerated trucks using Unimizer.

8. Limiting the flow for UV Stabilizers using the K Valve.

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