Technical Bulletin Pressure Reducing Valves

Static & Dynamic Control

A Pressure Reducing Valve (PRVs) is a frequently misunderstood product. The operating principle is simple enough; they reduce the incoming pressure from a mains supply or a boosted supply within a building. Their purpose is equally obvious – limiting high-pressure water that can seriously damage components in a heating and potable water system, which can lead to damage or even burst pipes and seals. A PRV reduces the pressure to a required value, but what frequently causes confusion is the difference between dynamic and static pressure. If the differential pressure is too high it may prevent control valves from operating or isolating and on potable water application, the force of water from the tap or other outlet may be too fierce which could cause localised flooding.

Static Pressure

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Static pressure is the head or pressure of water in a system when that water is at rest. Static pressure control is therefore the maintenance of a set pressure within a system when there is no demand, i.e. no flow. This is particularly useful for single point of use outlets, especially where protection is required due to low pressure rating of, for example, washing machines and showers.

535 Series Static Control – Construction Design



Dynamic Pressure

Dynamic pressure, in comparison, is the static pressure of the body of water but it also includes the momentum of the fluid in motion. Therefore, dynamic pressure control is the maintenance of a set pressure within a system when the water is moving. The key difference is that a dynamic PRV will only control the pressure when water is moving. If there is no demand the pressure can creep up without regulation. Setting is done using a Pressure Gauge installed in the pipework or in the valve. Ideally the Pressure Gauge should be upstream of the valve.

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