

The Original Is Still The Best

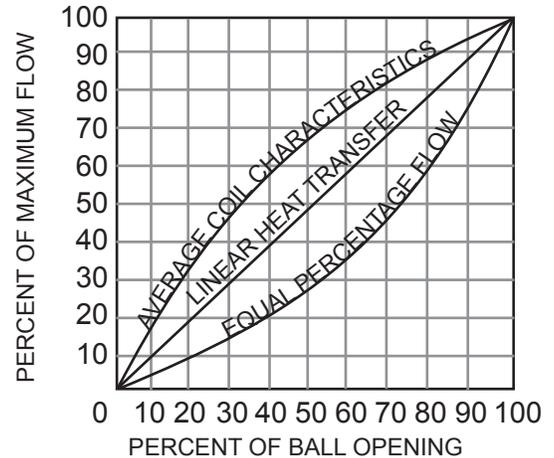
Griswold's Optimizer has been improving performance for almost five years. After proving itself in the QuickSet line of Manual Balance Valves, the Optimizer now highlights our Actuated Ball Valve Temperature Controls, allowing **the performance of a globe valve at a ball valve price.**

Performance



Griswold's Optimizer flow insert finally achieves True Equal Percentage Flow. The parabolic shape of the orifice allows a gradual change in flow. Equal movements of the valve stem at any point of the flow range change the existing flow an equal percentage regardless of the existing flow.

As you can see in the graph at right, our valve mirrors the equal percentage characteristic of the coil, resulting in linear heat transfer. For 1/2" - 2" sizes, Griswold offers over 30 Cv selections.



Material Properties

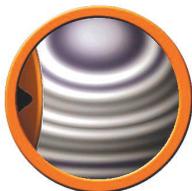
The Griswold Optimizer is molded from GE's NORLYL, a glass filled polymer. It is a blend of a polyimide with reinforced modified polymer PPE for additional mechanical strength. This technology of reinforcement also contributes to the retention of the mechanical properties, the chemical resistance and its dimensional stability.



The Optimizer is very stable in environments where extreme temperature variations occur, such as in common Hydronic heating and cooling systems. The Optimizer has been tested in both water and 50% glycol from 50° to 240°F. The Optimizer retained its shape and its material properties even after exposure to those extreme conditions for prolonged exposure.

The Optimizer has superior hydrolytic stability, which means that this material retains its physical properties when exposed to water. The Optimizer has the lowest water absorption rate of any thermoplastic material. Many other plastics weaken, swell, become spongy and change their dimensions when exposed to water.

The Optimizer's mechanical strength and hardness values are higher than other thermoplastic materials such as PVC, CPVC, ABS, DELRIN, TEFLON, etc. These materials as well as NORLYL have been used successfully for fluid handling components like ball valves, pipe fittings, pumps, and pump impellers in irrigation, swimming pool, and chemical industries.



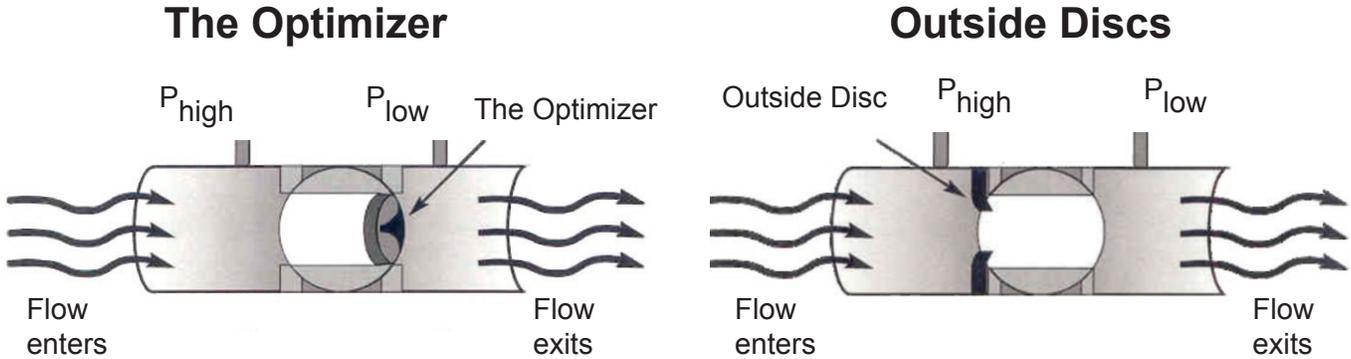
Material	Tensile Strength, PSI	Hardness, Rockwell' R
Delrin	14,000	120
Nylon	12,600	120
ABS	7,000	115
PVC	6,800	100
The Optimizer	22,000	120

* The Rockwell-R scale is a hardness scale which is used for the measurement of plastics

Physical Properties

The physical design of the Optimizer also contributes to its strength. The Optimizer’s tapered shape means that once it is press fit into the ball it cannot be forced out because the back side of the Optimizer is too large to be forced through the ball’s port. As pressure increases behind the Optimizer insert, it compresses even farther into the ball’s port, making a tight fit even tighter for guaranteed protection against leak-by.

Because the Optimizer is press fit into the ball the valve is able to modulate in systems where the differential pressure is over 160 psi without affecting the life or performance of the Optimizer. This is a benefit specific to the Griswold Optimizer. Other companies have used a ball with a plastic disc in front of the ball that cannot modulate with differential pressures over 50 psi because the disc will deform and eventually at higher pressures push through the ball.



High differential pressure does not affect rigid *Optimizer*

High differential pressure (above 30 PSID) causes:

- Change in orifice area resulting in inaccurate throttling control.
- Deformation of disk into port, creating physical obstruction to shutoff
- System noise as valve throttles

Chemical Resistance

Good

- . Alcohol
- . Alkalis (Base)
- . Cooling System Liquids (20°F Any Concentration)
 - . Ethylene Glycol
 - . Propylene Glycol
- . Chlorinated Water
- . Detergents/Cleaners
 - . Dispersence
 - . Emulsifiers
 - . Inhibitors
 - . Oxygen Reducers
 - . Water Softeners
- . Heating System Liquids (240°F for 50% Concentration)
 - . Ethylene Glycol
 - . Propylene Glycol
- . Water (to 240°F)

Bad

- . Acids (High Concentration)
- . Hydrocarbons
- . Key tones
- . Phenol