



Vernay VernaFlo® Flow Controls

Custom-engineered for reliable performance

Vernay specializes in the innovative design and high-volume manufacture of precision elastomeric products. Vernay VernaFlo® flow controls are custom-designed fluid flow management devices used in a wide range of applications and systems where consistent, reliable operation is essential.

VernaFlo® flow controls are engineered to maintain constant volume output with varying inlet pressure. They are either “variable orifices” or membranes that produce a constant flow rate over pressures ranging from 69 to 1035 kPa (10 to 150 psi). They are also ideal for gas flow control in this pressure range, with gas flows ranging from 20 to 550 liters (5.3 to 143.5 gal) per minute.

Our flow controls are manufactured from a variety of elastomeric materials. We specialize in designing and calibrating these materials to meet the specific needs of our customers' applications.



*Elastomeric
Fluid Controls*





your applications + (our designs + materials) = new opportunities



Product advantages

Vernaflo® flow controls provide consistent flow from 0.2366 to 114 liters (0.0625 to 30.0 gal) per minute over a pressure range of 69 to 1035 kPa (10 to 150 psi).

Our flow controls are unaffected by silt or other fluid contaminants. They have no moving parts and do not require adjustments or servicing once installed. Available in a variety of materials and geometries, Vernaflo® flow controls can function quietly and adapt to various types of seats. They are not position sensitive. Our flow controls will operate in temperatures as low as -50°C (-58°F) and as high as 260°C (500°F), depending on the compound.

VernaFlo® flow controls are engineered to compensate for variations in pressure. (Variations in pressure occur because of pipe friction loss, downstream restrictions, distance from the water tower or elevation of the water tap.) Vernay engineers will work with you to design the device that best fulfills your application's requirements.

Note: Flow controls have a standard overall ±10% flow tolerance across the pressure range. They should be secured in place with "retainers." For special applications a ±5% flow tolerance is achievable. Applications requiring response at lower pressures or flow rates can be custom-engineered.

Basic product types

VernaFlo® Standard Flow Controls begin controlling flow at 138 kPa to a maximum of 1035 kPa (20 to 150 psi maximum).

VernaFlo® By-pass Flow Controls begin controlling flow at 69 kPa to a maximum of 1035 kPa (10 to 15 psi maximum). They allow flow around the perimeter for higher volumes at low pressure.

VernaFlo® Bi-direction Flow Controls begin controlling flow at 138 kPa to a maximum of 1035 kPa (20 to 150 psi maximum). They are symmetrical and control flow from either direction.

VernaFlo® Micro Flow Controls begin controlling flow at 103.5 kPa to a maximum of 828 kPa (15 to 120 psi maximum), with flows down to 0.2366 liters (0.0625 gal) per minute.

Vernay engineers will need to know the media, temperature, flow tolerance and nominal flow requirements of your application as well as the operating pressure range, altitude above sea level and size limitation in order to propose an optimal flow control design.



Seat Design: The orifice and final seat diameter of the flow control is based on the customer's application or system. The diameter of the seat pocket must be large enough to accommodate the flow control without binding, and the depth of the pocket should allow for the thickness of a retaining ring (if used).

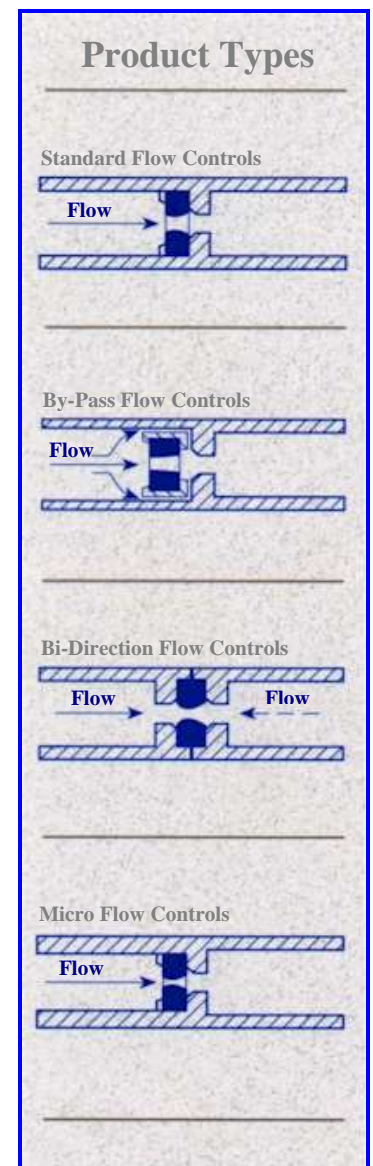
See *Standard Seat Dimension Chart* which includes three recommended seat designs based on flow rates.

For more technical details, please refer to Vernay Technical Information Sheets.

Optimal solutions are most often achieved through successful co-development. Vernay specialists are ready to work with you to provide innovative answers to your most demanding design challenges. Working with Vernay as your design partner can result in lower total cost and higher value.

Chart below:

For comparative information regarding each product's fluid performance, please refer to the *Pressure vs. Flow Chart* on the last page of this brochure.





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Applications

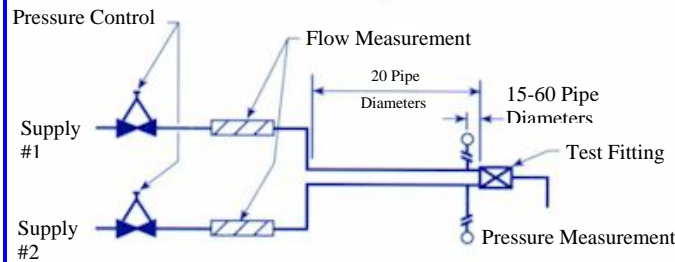
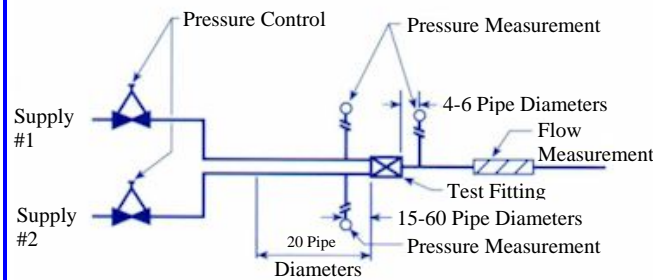
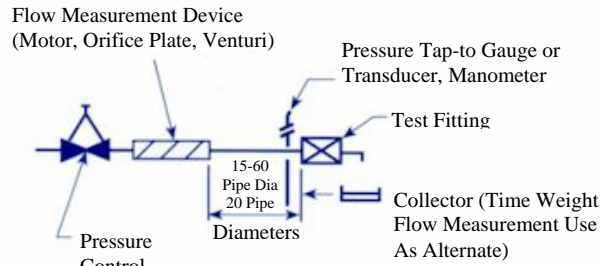
Automotive: Heating and cooling systems, hydraulic and pneumatic systems, transmissions.

Medical: Diagnostic machines, respiratory controls, disposable medical products, dialysis machines.

Appliance: Automatic ice makers, showers and faucets, washing machines, dishwashers, drinking fountains, beverage dispensers, water softeners.

Specialty: Drip irrigation and water sprinklers, heat exchange units, paint spraying equipment, time delay instruments, vacuum, aerosol and water conversation systems.

Typical Test Set-Ups for Flow Performance Evaluation



Compounding capabilities

(Not limited to the following polymeric families.)

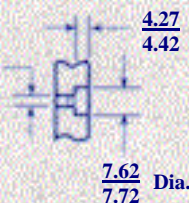
- Nitrile, NBR
- Fluorosilicone, FVMQ
- Ethylene Propylene, EPDM
- Silicone, VMQ, MQ, PVMQ
- Hydrogenated Nitrile, HNBR
- Butyl, IIR
- Fluorocarbon, FKM
- Polyisoprene, IR, NR
- Epichlorohydrin, CO/ECO
- Chloroprene, CR
- Polyurethane, AU/EU
- Styrene-butadiene, SBR
- Polyacrylate Acrylic, ACM/AEM/ANM

With access to over 23,000 proprietary elastomeric formulations stored in our database for quick retrieval, our engineers and chemists select custom-compound materials suited to your demanding product applications.

Standard Seat Dimension Chart

Seat - 302
.035 to 1
GPM

Orifice Dia.



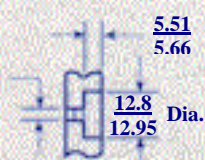
Seat - 702
.3 to 30
GPM

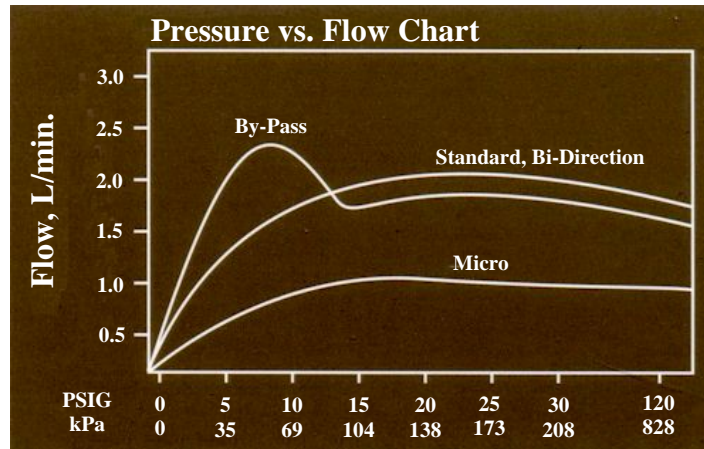
Orifice Dia.



Seat - 507
.3 to 5 GPM
Flow

Orifice Dia.





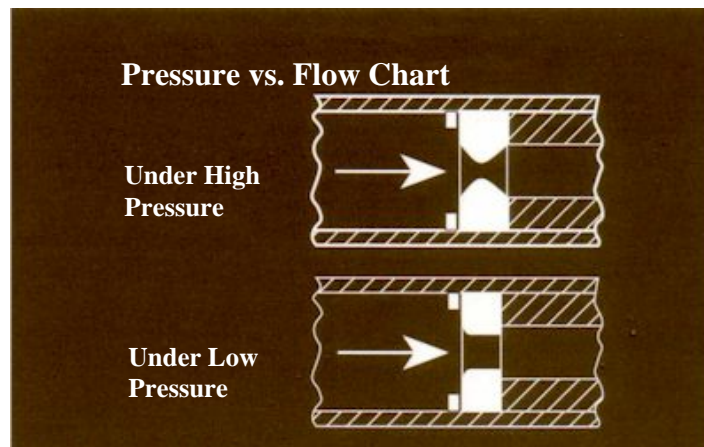
Quality commitment

Vernay is committed to the philosophy of continuous improvement in everything we do. Product quality is achieved through the stabilization and continuous improvement of all processes and activities that impact quality.

The Vernay Quality System has been established to enforce the vital component of the customer-supplier relationship.

The Vernay Quality System is based on the ISO-9001 Quality System Standards, the Automotive QS-9000 and TS-16949 System Requirements, the FDA Quality System Regulations, and the ISO-14001 Environmental Quality Standard.

Actual quality certifications, for each of our global locations can be downloaded in PDF format on our website www.vernay.com!.



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