



NEOPERL® Check Valves

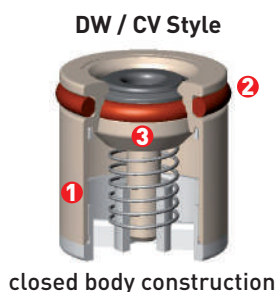
NEOPERL®

flow, stop and go®

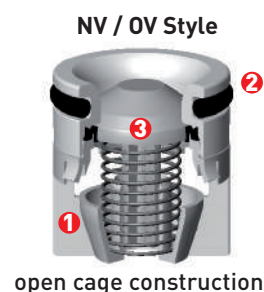
Introduction to Check Valves

A check valve (also known as a non-return valve) allows water to flow in one direction and prevents unwanted backflow in the opposite direction. Check valves prevent polluted water from contaminating the potable water supply in faucets, valves and plumbing systems including filters and appliances. They also guard against the potentially hazardous crossover flow between hot and cold water systems.

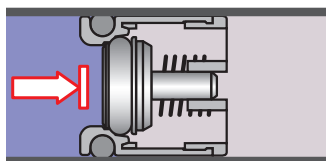
Construction and Design



- 1 Housing
- 2 External washer
- 3 Internal closure mechanism
 - Spring
 - Plunger & seal
 - Guidance

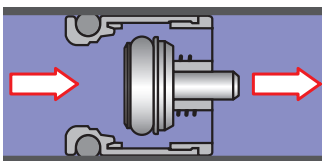


Working Principles



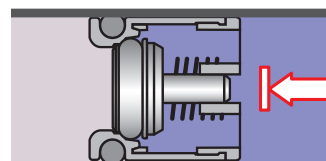
Static state (no flow)

Spring tension forces the plunger into its seat, keeping the check valve closed.



Dynamic state (flow)

When water pressure exceeds spring tension, the plunger is lifted off its seat, allowing water to flow through the valve.



Backflow (flow in reverse direction)

If the pressure downstream increases or the pressure upstream decreases, causing the flow to reverse, the plunger closes to prevent backflow.

Functions



- **To prevent contamination of drinking water as a result of backflow, backpressure or backsiphonage.**
Example: Pull-out kitchen spray or shower head.
- **To prevent possible damage or contamination of sensitive equipment caused by backflow.**
Example: Water meters, pumps or filters.
- **To hold water in a system or pipe to prevent drainage or to facilitate a restart.**
Example: Pump systems.
- **To prevent crossover flow between systems with different line pressures.**
Example: Cold and hot water supplies in thermostatic mixers.
- **To minimize the risk of backflow or leakage in the event of a valve failure.**
Example: A solenoid valve on the upstream side of an application.
- **To safeguard correct functioning in complex systems by ensuring that water only flows in one direction.**
Example: Heating systems with multiple heating zones, booster pumps.
- **To prevent malfunctions caused by system pressure fluctuations in pressure-sensitive installations (unwanted water flow.)**
Example: A backflow preventer with aerated intermediate pressure chamber.

Selection Criteria:

What to look for when choosing the right check valve for your application

Flow Capacity (GPM - gallons per minute)



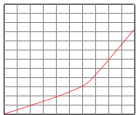
Neoperl Check valves are available in flow capacities ranging from as low as 0.5 gpm to over 100 gpm. Selecting the correct valve size and type for your specific flow requirements helps minimize wear, vibration, and noise, ensuring optimal performance and longevity. (See chart on Page 5 for more info.)

Size (diameter)



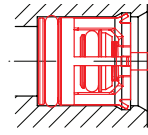
Neoperl Check valves are available in sizes ranging from 7 mm to 50 mm. Select the size that best fits your application's requirements for optimal performance.

Headloss (pressure drop)



Usually represented in a curve, headloss refers to the pressure drop through the valve due to flow restrictions.

Assembly and Retention Options



Choose a cylindrical cartridge to insert in and against the direction of flow or an insert with snap-fit tabs to ease retention (locking) into the mounting cavity.

Tightness



All NEOPERL's valves are 100% tested for tightness under low backpressure conditions but generally NV/OV models, thanks to their lip seal, are tighter than DW/CV models.

Cracking Pressure



The spring tension in NEOPERL's standard valves has been calibrated to optimize tightness and flow performance. It is usually around 1/4 to 1/3 of a psi. Other options are available from as low as 1/10 psi to 15 psi.

Special Features

High Tech (HT)

HT check valves are made from high-performance materials, offering exceptional resistance to a variety of chemicals. They are ideal for hot water applications, capable of withstanding temperatures up to 127°C (260°F).



Pressure Relief (PR)

PR check valves include a built-in pressure relief feature. To protect applications from high pressure, the valve releases a few drops of backflow, preventing excessive pressure buildup.



Flow Regulating (FR)

FR check valves combine the functions of a check valve and flow regulator in a compact design. They prevent backflow and maintain a steady flow under varying pressures.



Product Line Overview

OD Line



Construction type: open cage,
with snap-fit tabs

Bore diameter: 8 mm and 13 mm

Installation: in or against the direction of flow

Special feature: low pressure loss and
low noise; easy installation, self-retention in
flow direction

OF Line



Construction type: open cage,
without snap-fit tabs

Bore diameter: 7 – 20 mm

Installation: in or against the direction of flow

Special feature: low pressure loss and low
noise; easy installation

OV Line



Construction type: open cage,
with snap-fit tabs

Bore diameter: 10 – 50 mm

Installation: preferably against the
direction of flow

Special feature: low pressure loss and
low noise, self-retention in flow direction

NV Line



Construction type: open cage,
with snap-fit tabs

Bore diameter: 15 – 50 mm

Installation: against the direction of flow

Special feature: particularly suitable for
applications where a cross bore impedes
installation (the o-ring is mounted first)

DW Line



Construction type: closed body (cartridge)

Bore diameter: 10 – 25 mm

Installation: in or against the direction
of flow

CV Line



Construction type: closed body (cartridge)

Bore diameter: 15 – 19 mm

Installation: in or against the direction
of flow

Note: NEOPERL® check valves are designed for precise integration within a custom-engineered cavity. They are not intended to be installed directly into standard tubing or piping, whether rigid or flexible. For precise mounting dimensions, please refer to the specification sheet of the specific model you are considering.

OF / OV / NV-PR Line



Construction type: open cage, without snap-fit tabs (OV and NV with)

Bore diameter: 15 and 20 mm

Installation: in or against the direction of flow

Special feature: relieves any backpressure in excess of 20.5 ± 4.5 bar quickly and reliably; low pressure loss

Scope of application: thermostatic faucets; particularly suitable for installations with thermal disinfection

DW 15-PR Line



Construction type: closed body (cartridge)

Bore diameter: 15 mm

Installation: in or against the direction of flow

Special feature: relieves any backpressure in excess of 20.5 ± 4.5 bar quickly and reliably

Scope of application: thermostatic faucets; particularly suitable for installations with thermal disinfection

HT Line



Construction type: open cage; available as OF, OV and NV variants

Bore diameter: 10–50 mm

Installation: in direction of flow (apart from OF 15-HT)

Special feature: made of high performance materials: PPO, PPA, PPS

Scope of application: suitable for hot water or non-drinking water with various chemical compositions (continuous use at 127°C / 260°F max.)

PolyPro Line



Construction type: open cage, without snap-fit tabs

Bore diameter: 10 mm

Installation: in or against the direction of flow

Special feature: like OF, but extended chemical resistance

WV Line



Construction type: closed body (cartridge)

Bore diameter: 15–40 mm

Installation: in the direction of flow

Scope of application: water meter

CV-FR Line



Construction type: closed body (cartridge)

Bore diameter: 10–15 mm

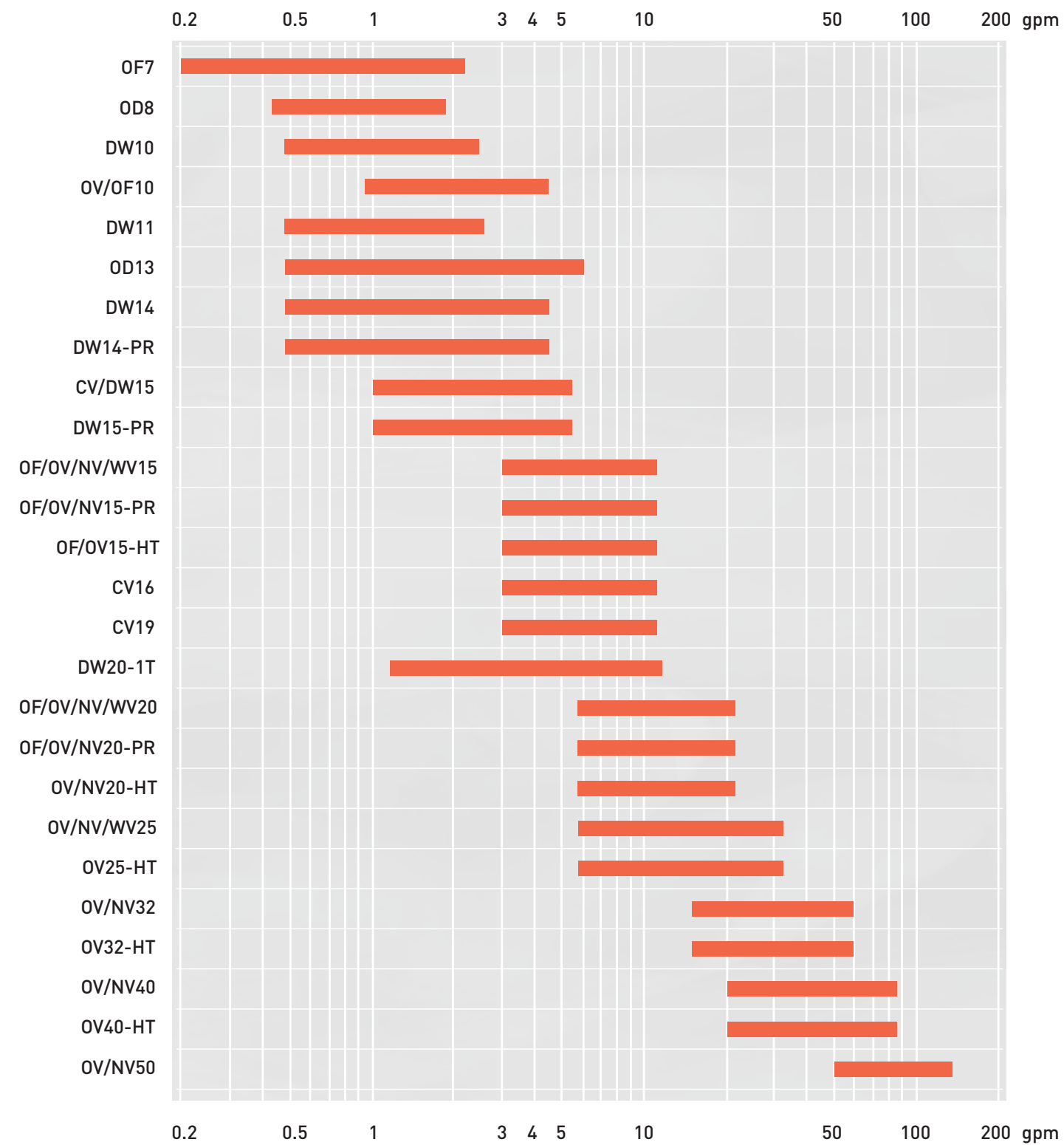
Installation: in or against the direction of flow, compatible with the DW/CV line

Special feature: combination model with integrated flow regulator

Flow range: 0.5 gpm to 4.23 gpm

Flow Capacity

The flow capacity chart should be used as a guide in the preliminary selection of your check valve. NEOPERL recommends testing check valves in the actual conditions of your application to verify functionality and reliability. Consult us for detailed and updated specification sheets on the check valve models of your choice.



Applicable Standards and Certifications

Compliant with industry standards for backflow prevention, NEOPERL® check valves serve a vital function in protecting drinking water systems. Check valves are mandated by standards and regulations to prevent contamination of drinking water.



Tested and approved for drinking water

NEOPERL® check valves are certified to NSF®/ANSI/CAN-61 and NSF®/ANSI/CAN-372 with NSF® International. The standard was developed to evaluate the potential adverse health effects from products in drinking water including critical components such as rubber compounds, plastic resin, and color pigments. NEOPERL® check valves are completely lead-free (NSF®/ANSI/CAN-61 and NSF®/ANSI/CAN-372).

Download NEOPERL's product listing at www.nsf.org



Proven performance and endurance

NEOPERL offers an extensive range of check valves certified to ASME A112.18.3/CSA B125.1, Backflow Protection Devices and Systems in Plumbing Fixture Fittings with IAPMO Research and Testing.

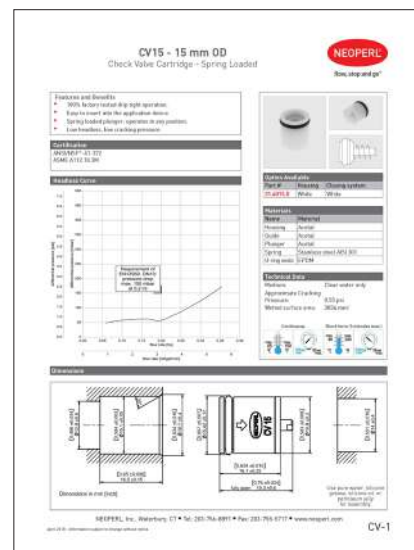
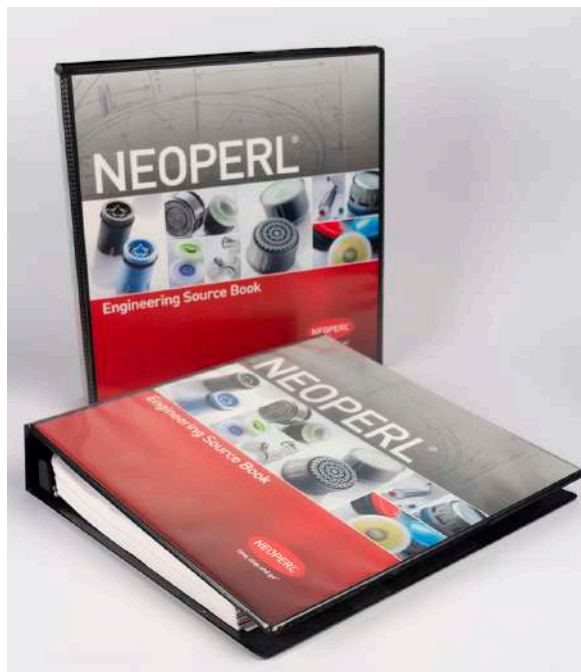
Download NEOPERL's product listing at www.iapmort.org

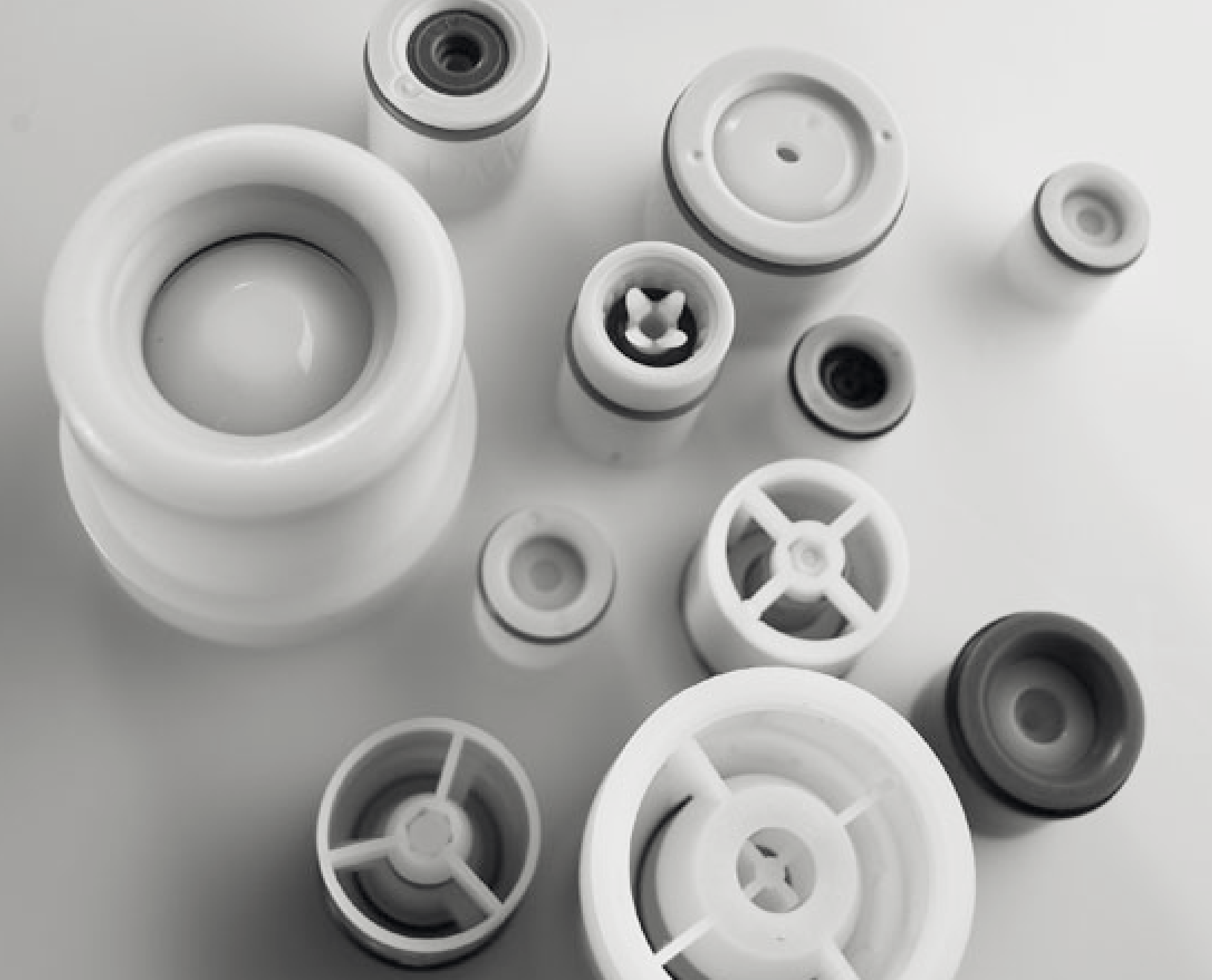
Engineering Source Book

NEOPERL's Engineering Source Book introduces new products and helps customers to easily navigate through our portfolio. The tabbed sections allow for an easy search of products by product groups and flow rates, as well as specialty products.

The detailed spec sheets include photos with a list of features and benefits of each product and technical drawings with dimensions. Also included is a list of applicable product certifications.

To request the new catalog, contact: oem.support@neoperl.com.





NEOPERL®

flow, stop and go®

NEOPERL, Inc.
171 Mattatuck Heights Road
Waterbury, CT 06705 USA

Tel: 203-756-8891
Fax: 203-754-5868
www.neoperl.com