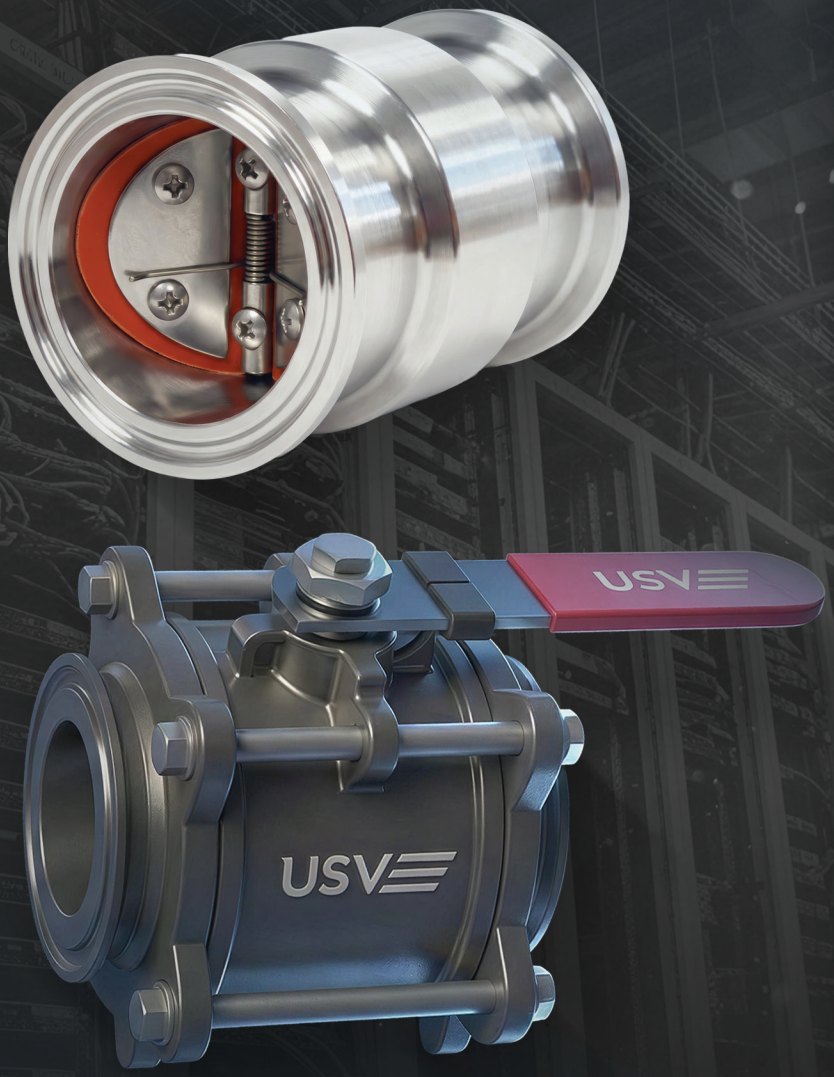
US VALVE

Unstoppable by Design™



ENGINEERED FOR DATA CENTERS
BUILT TO PERFORM

USVALVE.COM

US VALVE

More Power. More Heat. Less Margin for Error.

The AI revolution runs on power, and power creates heat. As rack densities push air cooling past its breaking point, liquid cooling isn't the future; it's now. Modern hyperscale and enterprise data centers depend on closed-loop systems: chilled water, direct liquid cooling (DLC), and coolant distribution units (CDUs), all working to hold server inlet temperatures within razor-thin tolerances.

The CDU is the control center of your cooling loop. From pump to cold plate, flow demands precision and absolute protection. A single thermal excursion above threshold can trigger automatic shutdowns, violate SLAs, and cause irreversible damage to GPU clusters and the infrastructure they power. Lurking in the middle of it all, standard check valves remain the industry's most overlooked risk.

$540,000 PER HOUR

A single cooling outage costs enterprises an average of $540,000 per hour in lost revenue, SLA penalties, and remediation, not including hardware replacement.

Source: Oxford Economics/ServiceNow, 2024

The Hidden Threat Inside Your Cooling Loop

Traditional check valves introduce exactly the vulnerabilities your cooling architecture can't afford. Three failure modes are silently working against you:

SYSTEM PRESSURE DROP

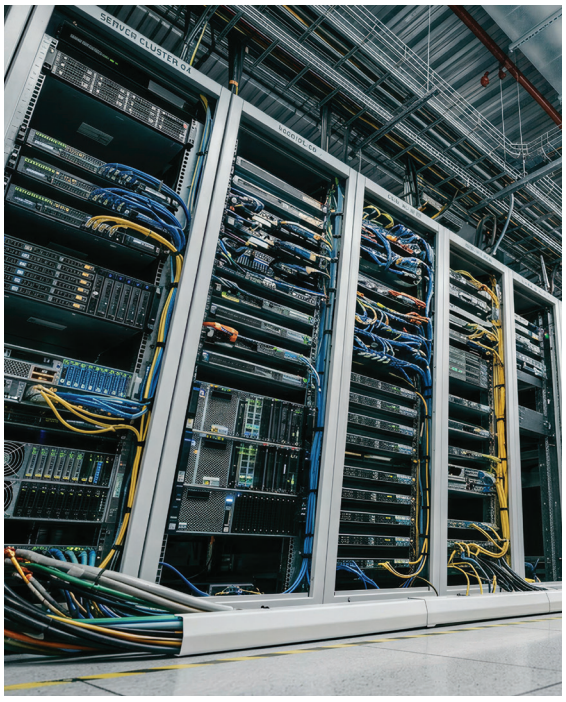
High pressure drop across traditional, poppet-style check valves reduces flow and pump efficiency, causing CDUs to work harder to cool.

LEAK PATHS

Multiple connection points and external leak paths from off-the-shelf, traditional check valves can cause catastrophic chip and system failure.

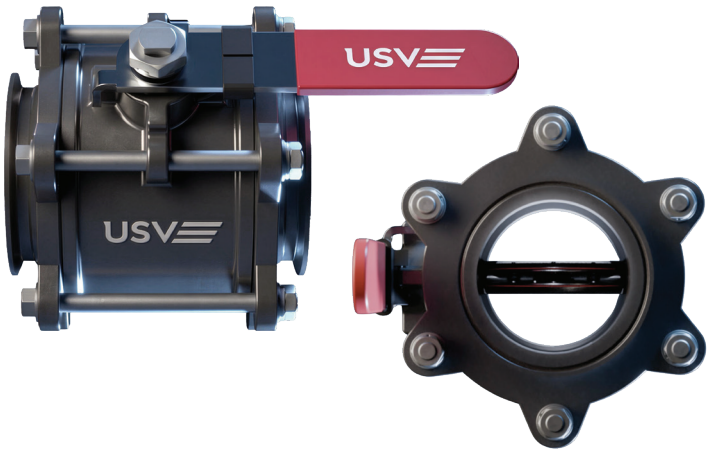
SYSTEM DESIGN

Traditional, off-the-shelf check valves are bulky and lack connection options, causing larger CDU designs and additional piping.



Engineered for Environments Where Failure Is Not an Option

US Valve's patented IRX Internally Retained Check Valve and IRX-B Ball and Check Combination Valve are purpose-built for mission-critical flow environments. These solutions don't just meet standards; they set them.



USV IRX:

Patented Internally Retained Check Valve

INTERNALLY RETAINED DESIGN

The hinge mechanism is fully recessed, eliminating external leak paths and providing a fortress of protection for servers.

MAX FLOW AND LOWEST PRESSURE DROP

Elastomer hinge check valve design improves pump and CDU cooling efficiency, pulling heat from the chip.

CALIBRATED FOR HYPERSCALE ENVIRONMENTS

Engineered to handle the tightest pressure tolerances, highest rack densities, and most demanding uptime requirements in the industry.

USV IRX-B:

Ball and Check Combination Valve

51% FOOTPRINT REDUCTION

Combines the patented IRX with an Isolation Ball Valve into a single compact unit (based on 4" tri-clamp piping).

BACKFLOW PREVENTION AND ISOLATION IN ONE UNIT

No adapters, no workarounds, just seamless integration into your CDU design.

SIMPLIFIED MAINTENANCE

System remains serviceable without draining the entire loop.

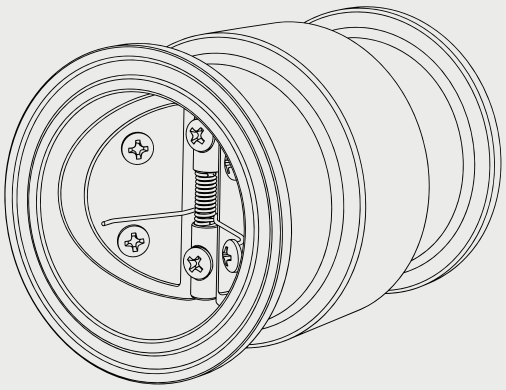
FEWER CONNECTIONS AND FAILURE POINTS

Combining two valves into one reduces leak risk across the entire assembly.

US VALVE

USV IRX

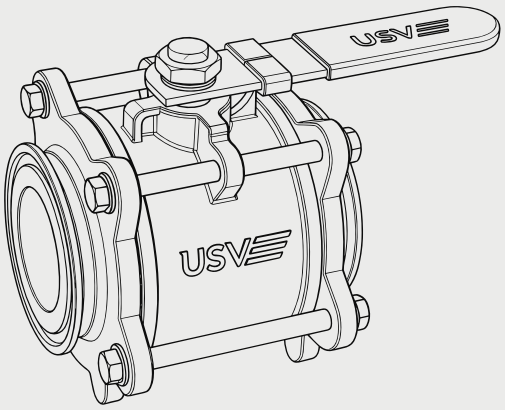
Patented Internally Retained Check Valve



SIZES:	1-12″
PRESSURE:	250psi max
MATERIALS:	Stainless Steel, Aluminum, Ductile Iron
SEAL MATERIALS:	EPDM, Viton, NBR, Neoprene, Silicone
CONNECTIONS:	Tri-Clamp, Grooved, Flanged, Wafer, NPT, Barb, Plain End, Custom Subassemblies and Piping Solutions

USV IRX-B

Ball and Check Combination Valve



SIZES:	1-6″
PRESSURE:	250psi max
MATERIALS:	Stainless Steel, Aluminum, Ductile Iron
SEAL MATERIALS:	EPDM, Viton, NBR, Neoprene, Silicone
CONNECTIONS:	Tri-Clamp, Grooved, Flanged, Barb, Plain End, Custom Subassemblies and Piping Solutions

Customize Your Connections

US Valve engineers custom connections, housings, and configurations tailored to your system.

Complex piping challenges become streamlined solutions, built for quick-turn delivery to keep mission-critical operations running.

Ready to Engineer Reliability Into Your Cooling System?

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