CCI is a recognized world leader in supply of specialized products and services for commercial nuclear power. CCI’s innovative flow control technologies have revolutionized high energy and severe service valve applications, extending service life and improving plant performance. CCI design breakthroughs include introduction of DRAG® technology with advanced flow exit velocity control that has become the industry standard for many applications including, main feedwater control, pump recirculation, power operated main steam atmospheric relief and other demanding process control applications.

CCI has continued to develop and demonstrate advanced isolation, safety-relief, reverse flow protection and process control valves as well as leading edge valve actuation to enhance performance of second generation licensed and operating nuclear plants. These field proven advancements are now playing a key role in helping the nuclear power industry meet higher design and performance goals for third generation power reactors now under construction around the world.

CCI’s comprehensive nuclear capabilities are rapidly expanding as a result of aggressive research and development programs as well as strategic acquisition of companies sharing CCI’s vision and firm commitment to worldwide success of commercial nuclear power. CCI maintains nine ASME Quality Certifications in five factories around the globe to provide regional support and manufacturing capacity. CCI advanced technologies summarized in this catalog offer proven solutions for known nuclear legacy valve problems found in second generation PWRs, BWRs and PHWRs.
CCI Advanced Valve Technologies for Next Generation, Advanced Reactors

**PPS System Medium Operated High Energy Gate Valves**
- Main Steam Isolation
- Main Feedwater Isolation
- RHR Isolation

**DRAG® Severe Service Control Valves**
- Main Feedwater Control
- Main Steam Relief
- Turbine Bypass

**NHI Bellows Sealed Globe Valves**
- Emergency Core Cooling and Recovery System
- D2O Sampling Circuit

**NHL IVP Pressure Regulators**
- Liquid Zone Control Supply Circuit
- Liquid Injection Shutdown Circuit

**SV Pilot Operated Safety Relief Valves**
- Reactor Primary Protection
- Main Steam Safety
- Main Steam Safety-Relief

**QuickTrak® Digital Controllers**
- Main Feedwater Control
- Heater Drain Regulation
- Turbine Bypass

**NHL Bellows Sealed and Gland Packed Instrument Needle Valves and Manifolds (Ashford Product)**
- Shield Cooling Circuit
- Deuteration and Dedeuteration

**NHL Ball Valves**
- D2O Supply System
- Resin Transfer
- Deuteration and Dedeuteration
- Liquid Poison Systems
- Demineralized Water Distribution

**KC Piston Damped Check Valves**
- Feedwater Isolation
- Containment Boundary
- Safety Injection

**CCI KK Control Valves**
- Pressurizer Spray
- Charging Pump Control
- Control Rod Drive

**Herion Solenoid Operated Valves**
- Modulating Control
- Two Position Isolation
- Inductive Position Indication

**NHL Butterfly Valves**
- Emergency Core Cooling and Recovery
- Common Chilled Water System
- Containment Isolation System
Isolation Valves
1. Main Steam Isolation- CCI System Medium Operated PPS high energy gate valve
2. Main Feedwater Isolation- CCI System Medium Operated PPS high energy gate valve
3. Reactor Pump Isolation- CCI Motor Operated high energy gate valve
4. Sampling Isolation- CCI Solenoid Operated Globe Valve w/position indication

Reverse Flow Protection (Check) Valves
5. Main Feedwater Code Boundary- CCI KC Dampened Check w/position indication
6. RHR Pump Protection- CCI KC Dampened Check

Pressure Relief Valves
7. Primary Over Pressure Protection- CCI SV self actuated w/optimal solenoid
8. Primary Power Operated Relief- CCI SV Solenoid Operated w/position indication
9. Main Steam Atmospheric Relief- CCI DRAG® with QuickTrak® or EHO Actuator
10. Main Steam Safety Valves- CCI SV w/solenoid operated override feature
11. Residual Heat Removal Safety Valve- CCI SV

Process Control Valves
12. Main Feedwater Regulation- CCI DRAG® with QuickTrak® Actuator
13. Main Feedwater Recirculation- CCI DRAG® with QuickTrak® Actuator
14. Turbine Bypass- CCI DRAG® with QuickTrak® Actuator
15. Chemical Injection- CCI DRAG® with QuickTrak® Actuator
16. Temperature Control- CCI DRAG® with QuickTrak® Actuator
17. Level Control- CCI DRAG® with QuickTrak® Actuator
18. Heater Drain- CCI DRAG® with QuickTrak® Actuator
19. Auxiliary Steam- CCI DRAG® with QuickTrak® Actuator
20. Condensate System- CCI DRAG® with QuickTrak® Actuator

Solenoid Operated Valves
21. Pressurizer Spray- CCI Herion
22. Chemical Sampling- CCI Herion
Advanced Boiling Water Reactors (ABWR)

Isolation Valves
1. Main Steam Isolation- CCI System Medium Operated PPS high energy gate valve
2. Main Feedwater Isolation- CCI System Medium Operated PPS high energy gate valve
3. Reactor Pump Isolation- CCI Motor Operated high energy gate valve
4. Sampling Isolation- CCI Solenoid Operated Globe Valve w/position indication

Reverse Flow Protection (Check) Valves
5. Main Feedwater Code Boundary- CCI KC Dampened Check with position indication
6. RHR Pump Protection- CCI KC Dampened Check

Pressure Relief Valves
7. Main Steam Safety-Relief Valves- CCI SV w/solenoid operated override feature
8. Residual Heat Removal Safety Valve- CCI SV

Process Control Valves
9. Main Feedwater Regulation- CCI DRAG® with QuickTrak® Actuator
10. Main Feedwater Recirculation- CCI DRAG® with QuickTrak® Actuator
11. Turbine Bypass- CCI DRAG® with QuickTrak® Actuator

12. Chemical Injection- CCI DRAG® with QuickTrak® Actuator
13. Temperature Control- CCI DRAG® with QuickTrak® Actuator
14. Level Control- CCI DRAG® with QuickTrak® Actuator
15. Moisture Separator- CCI DRAG® with QuickTrak® Actuator
16. Control Rod Drive- CCI KK Control Valve

Solenoid Operated Valves
17. Chemical Sampling- CCI Herion

Dual Function Main Steam Safety-Relief Valve
Isolation Valves
1. Main Steam Isolation - CCI System Medium Operated PPS high energy gate valve
2. Main Feedwater Isolation - CCI System Medium Operated PPS high energy gate valve
3. Reactor Pump Isolation - CCI Motor Operated high energy gate valve
4. Sampling Isolation - CCI Solenoid Operated Globe Valve w/position indication
5. Moderator System - NHL Ball Valve and Sight Flow Indicators
8. Fuel Handling and Storage - NHL Ball Valve
10. Heavy Water Management - NHL Ball Valve
11. Water Systems - NHL Ball Valve and Butterfly Valve
12. Heating, Cooling and Ventilation System - NHL Butterfly Valve

Reverse Flow Protection (Check) Valves
13. Main Feedwater Code Boundary - CCI KC Dampened Check with position indication
14. RHR Pump Protection - CCI KC Dampened Check
15. Heavy Water Separation - CCI KK Check Valve w/override

Pressure Relief Valves
16. Primary Over Pressure Protection - CCI SV Self Actuated w/optional solenoid
17. Primary Power Operated Relief - CCI SV Solenoid Operated w/position indication
18. Main Steam Atmospheric Relief - CCI DRAG® with QuickTrak® or EHO Actuator
19. Main Steam Safety Valves - CCI SV w/Solenoid Operated override feature
20. Residual Heat Removal Safety Valve - CCI SV

Process Control Valves
21. Main Feedwater Regulation - CCI DRAG® with QuickTrak® Actuator
22. Main Feedwater Recirculation - CCI DRAG® with QuickTrak® Actuator
23. Turbine Bypass - CCI DRAG® with QuickTrak® Actuator
24. Chemical Injection - CCI DRAG® with QuickTrak® Actuator
25. Temperature Control - CCI DRAG® with QuickTrak® Actuator
26. Level Control - CCI DRAG® with QuickTrak® Actuator
27. Moisture Separator - CCI DRAG® with QuickTrak® Actuator
Isolation Valves
1. Main Steam Isolation- CCI System Medium Operated DAS Globe Valve available in main steam combination valve with Main Steam Safety Relief and Atmospheric Relief Valves
2. Main Feedwater Isolation- CCI System Medium Operated PPS High Energy Gate Valve
3. Chemical Measurement control system isolation- CCI Herion Solenoid Operated Valve
4. Cycle Water Monitoring/ water chemistry isolation- CCI Herion Solenoid Operated Valve
5. Radiation Process Isolation- CCI NHL Bellows Sealed Globe Valve
6. Instrument Line Isolation- CCI NHL Needle Valves and Manifolds

Pressure Relief Valves
7. Primary Over Pressure Protection- CCI SV Self Actuated w/optional solenoid override
8. Primary Power Operated Relief- CCI SV Solenoid Operated w/ position indication
9. Main Steam Safety Relief- CCI SV w/ solenoid operated override feature available in main steam combination valve with DAS MSIV and MSPRV
10. Main Steam Atmospheric Relief /Quick Acting Pressure Relief- CCI DRAG Control Valve w/ power actuator available in main steam combination valve with DAS MSIV and MSSRV

CCI AVVER Main Steam Combination Valve (main steam isolation, main steam safety relief, and power operated main steam quick relief).
Other Advanced CCI Nuclear Products and Services

- ECCS Pocket Cassette Sump Strainers
  - Enlarged suction surface
  - Anti-clogging feature
  - Turn-key plant modification engineering

- Wet Storage Fuel Racks
  - Increased storage capacity
  - Enhanced lifting and handling
  - Exclusive stacking feature

- Containment Vent Scrubbers
  - Post-accident containment venting
  - Self-contained

- Atmospheric Resistor Silencers
  - PWR main steam vent
  - Hearing protection compliance

- CCI KK Valve Diagnostics
  - AVIDAS is a joint development by Japan Atomic Power Company and CCI KK, Japan

- Wet Storage Fuel Racks
  - Increased storage capacity
  - Enhanced lifting and handling
  - Exclusive stacking feature

- NHL Sight Flow Indicators
  - Purification circuit
  - Heavy water collection system
  - Coolant storage, transfer and recovery circuit

- Engineering and Field Services

- Transient Temperature Distribution Inside a Nozzle

- Studies and Calculations
  - Structural mechanics
  - Fluid dynamics
  - Life cycle analysis/prediction
  - Aging management

- Nuclear Field Services
  - Valve and control upgrades
  - Scheduled maintenance
  - 24-hour emergency services

- Professional Consulting Engineers
  - Plant optimization
  - Component reliability
  - Seismic requalification

Contact us at: info@ccivalve.com
Visit us online for sales and service locations at: www.ccivalve.com