

CHROMATIC
INDUSTRIES LLC

HCV

FCV

DOV

EBV

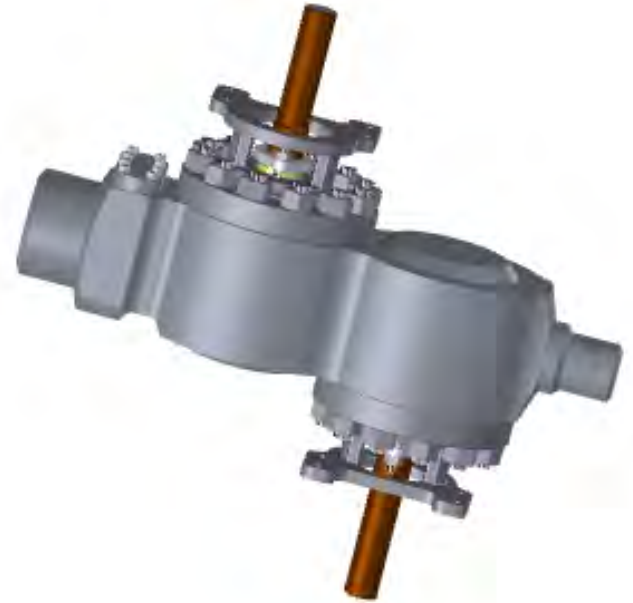
INNOVATIVE VALVE TECHNOLOGY
ENGINEERED + PATENTED



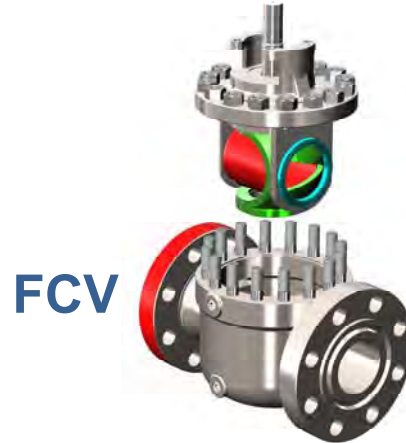
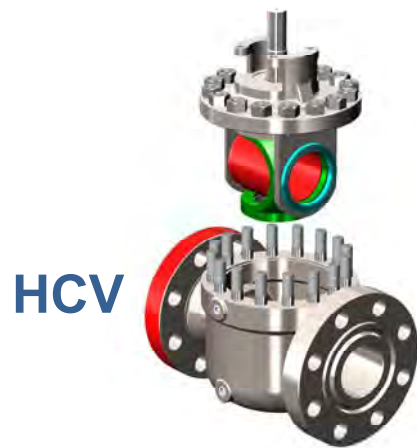
CHROMATIC

INDUSTRIES LLC

- ISO 9001
- API 6D
- ISO 10497 / API 607
- API Q1
- ISO/TS 29001
- Canadian Registered Number
- Five valve patents and several pending
- 31,000 ft² manufacturing located in Conroe, TX



Product Summary



HCV - Features and Benefits

- Quarter turn operation
- Top entry design
- Rotary mechanical seal
- Stationary core
- Operations-friendly cartridge design
- Interchangeable cartridge
- Field replaceable components
- Available in Block and Bleed



HCV - Sizes and Materials

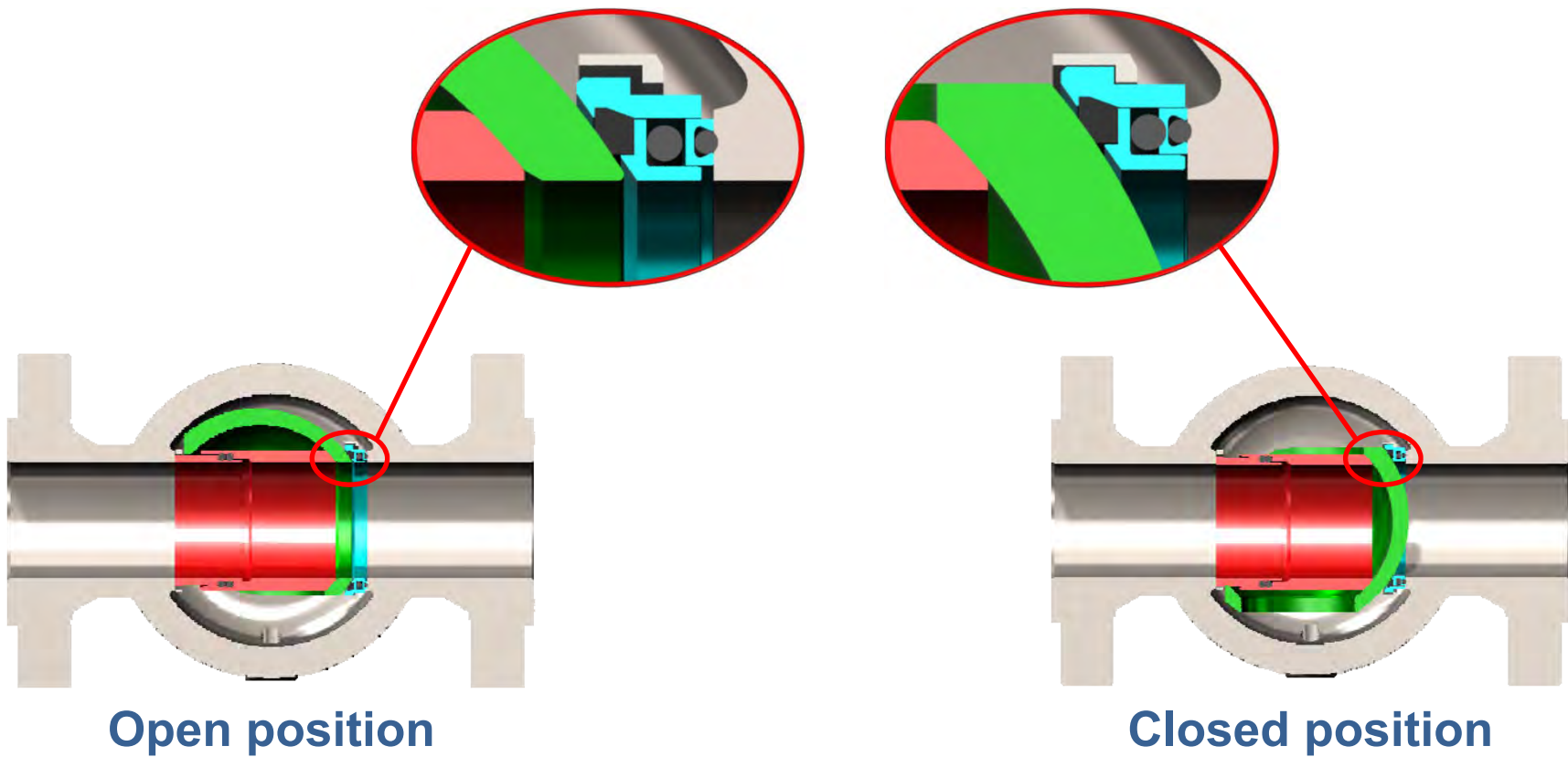
- Carbon steel (WCC & LCC)
- CF8M Stainless steel
- Duplex Stainless steel
- Nickel alloys
- Weld overlay
- Stellite overlay
- Anti-corrosion coatings
- QPQ
- HVOF (tungsten and chrome carbide)

NPS	DN	ANSI 150	ANSI 300	ANSI 600	ANSI 900	ANSI 1500
		PN 20	PN 50	PN 100	PN 150	PN 250
2"	50	✓	✓	✓	✓	✓
3 x 2"	75 x 50	✓	✓	✓	✓	✓
3"	75	✓	✓	✓	✓	✓
4 x 3"	100 x 75	✓	✓	✓	✓	✓
4"	100	✓	✓	✓	✓	✓
6 x 4"	150 x 100	✓	✓	✓	✓	✓
6"	150	✓	✓	✓	✓	
8 x 6"	200 x 150	✓	✓	✓	✓	
8"	200	✓	✓	✓	✓	
10 x 8"	250 x 200	✓	✓	✓	✓	
10"	250	✓	✓			
12 x 10"	300 x 250	✓	✓			
12"	300	✓	✓			

14" and larger size available

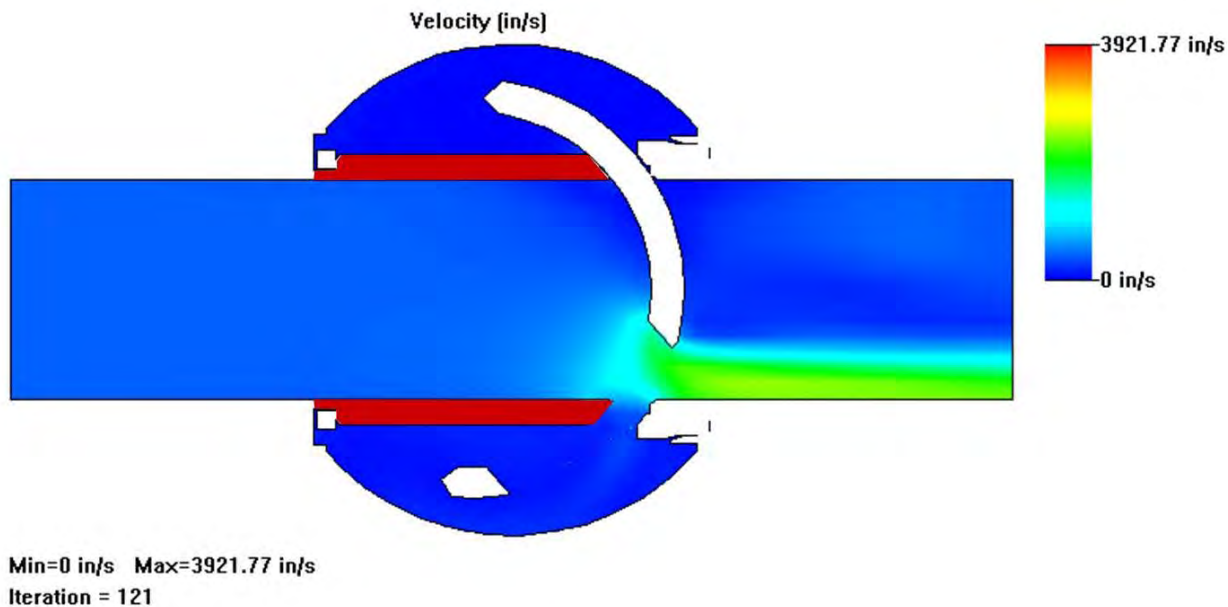
HCV – Rotary Mechanical Sealing Technology

Hemispherical wedge ensures bi-directional, bubble-tight shutoff at any pressure

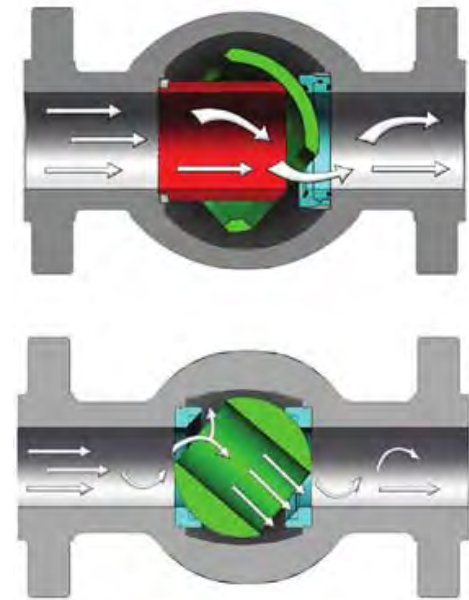


HCV – Stationary Core

Linear flow characteristic design to protect the body and seat from erosion to increase longevity and reduce downtime



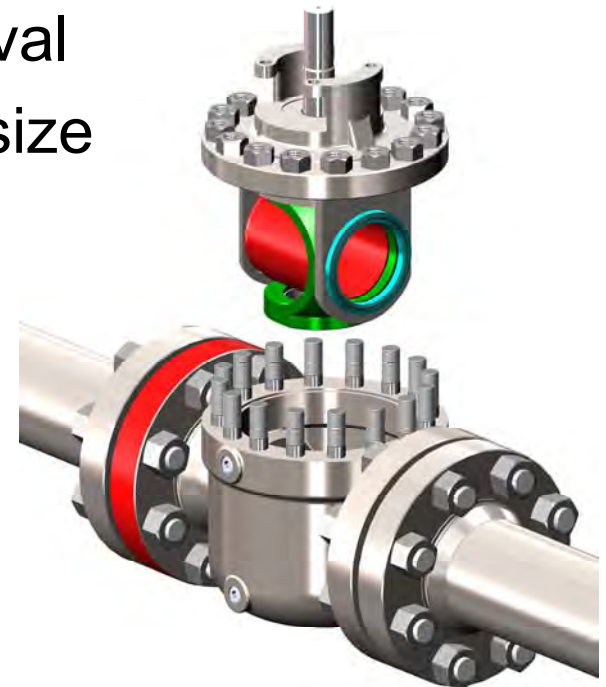
HCV Valve



Ball Valve

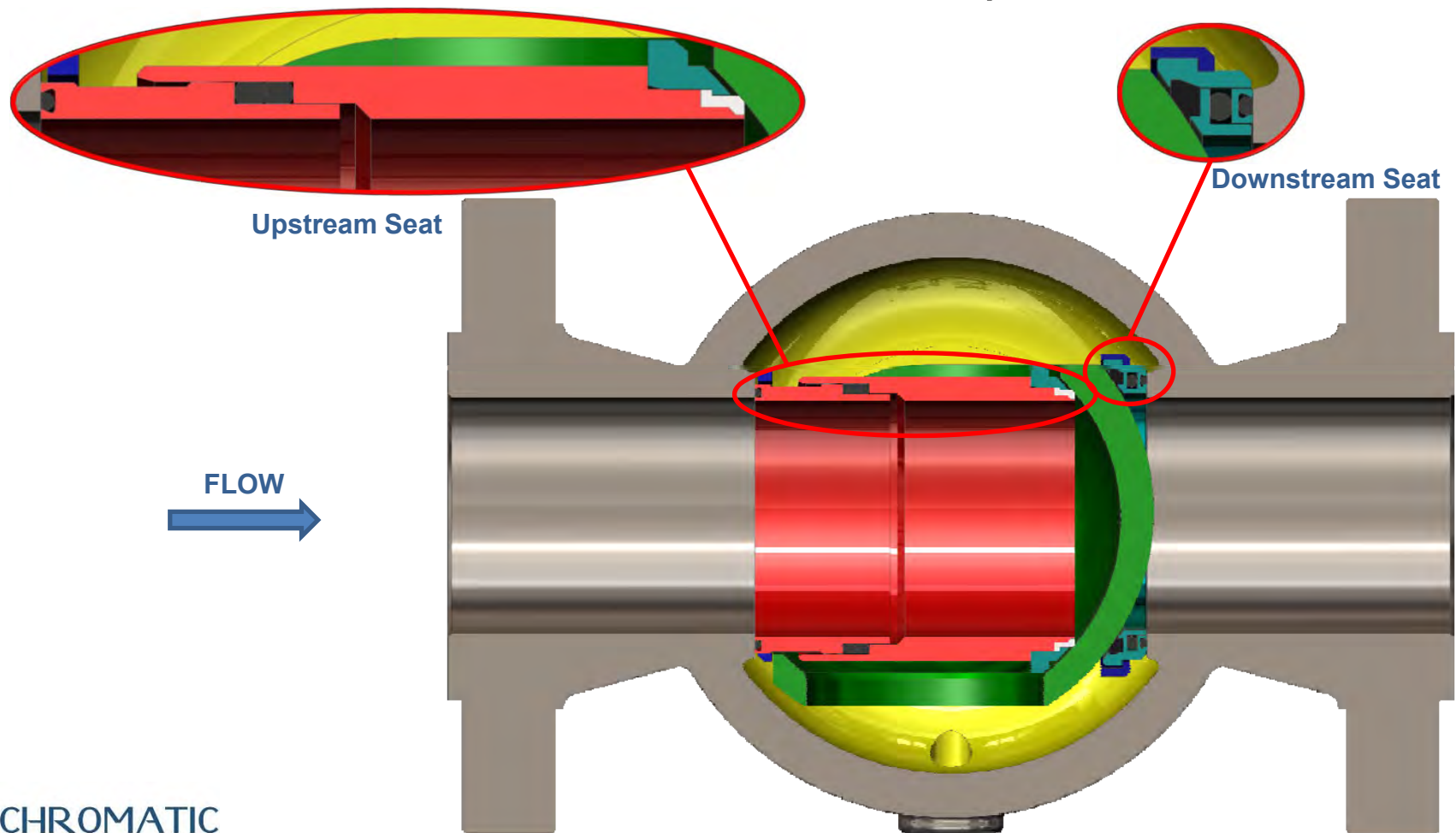
HCV – Operations-Friendly Cartridge Design

- Cartridge assembly includes all internal components for installation and removal
- Interchangeable cartridges for same size & pressure class
- Serialized cartridges
- Pre-tested spare cartridges for quick replacement to reduce downtime to minutes
- Top entry, inline repairable



HCV – Double Block & Bleed

Double Block & Bleed verifiable shutoff option



HCV – Seat Designs

Seat configurations based on customer need and process application solution

Seat options suitable for the most severe conditions from clean gas at ambient temperature to highly abrasive service at extreme temperatures



Synthetic

- ❖ Nylon
- ❖ Delrin
- ❖ Teflon
- ❖ Tefzel
- ❖ PEEK
- ❖ ...and more



Metal

- ❖ Hard Chrome
- ❖ Nitronic SS
- ❖ Inconel
- ❖ HVOF Coatings
- ❖ Stellite
- ❖ ...and more

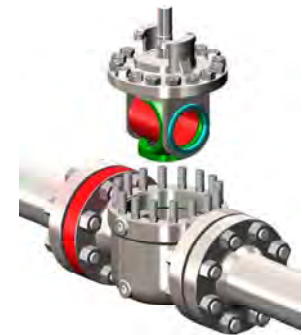
HCV – Proven Solutions

Applications

- Abrasive
- Sour / Corrosive
- High Temperature
- Solids / Slurry
- Oxygen / Chlorine
- Brine Water

Services

- Critical / ESD
- Molecular Sieve
- Positive Isolation
- Isolation Block Valve
- Double Block and Bleed
- Pig Launcher / Receiver



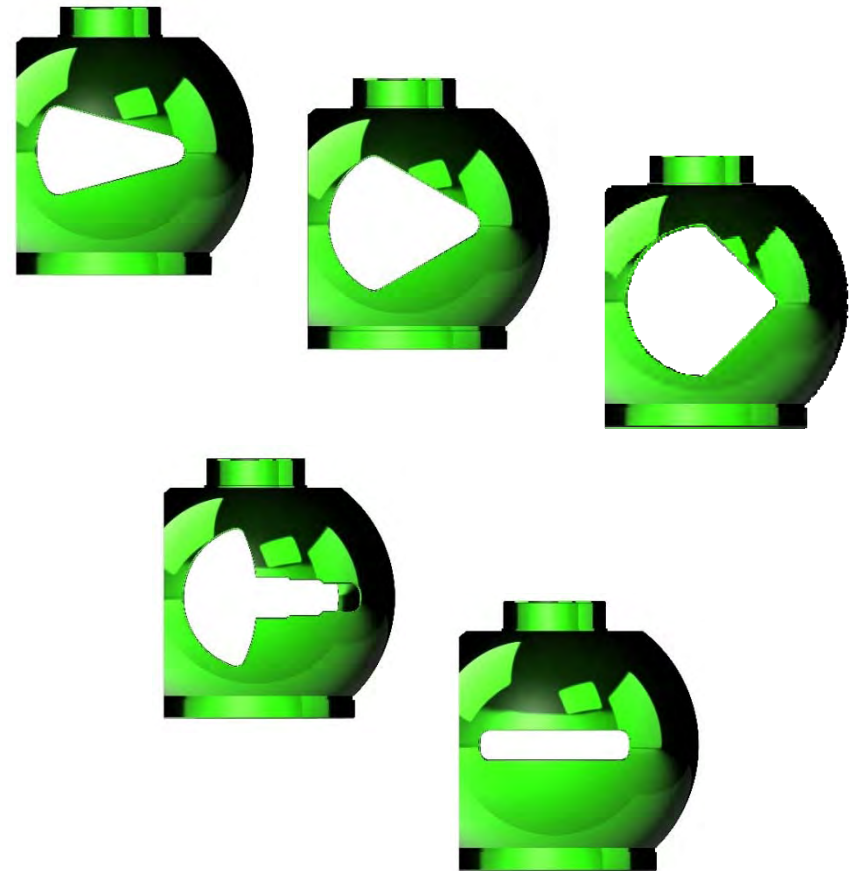
FCV - Features and Benefits

- Characterized flow
- Operations-friendly cartridge design
- Quarter turn operation
- Top entry design
- Low turbulence
- Stationary core
- Ideal for pressure and flow control
- Re-Characterize flow with alternative cartridge
- Field replaceable components
- Rotary mechanical seal



FCV – Flow Characteristic Profiles

- Customizable profiles per customer specifications
- % opening in 30⁰, 60⁰, 90⁰
- Optiflo Multistage
- Linear



DOV- Features and Benefits

- Quarter turn operation
- Top entry design
- Dual rotary mechanical seals
- Operations-friendly cartridge design
- Double Block and Bleed
- Double Isolation Block
- Trunnion mounted design
- Interchangeable cartridge
- High temperatures to 600°F
- Field replaceable components



DOV - Sizes and Materials

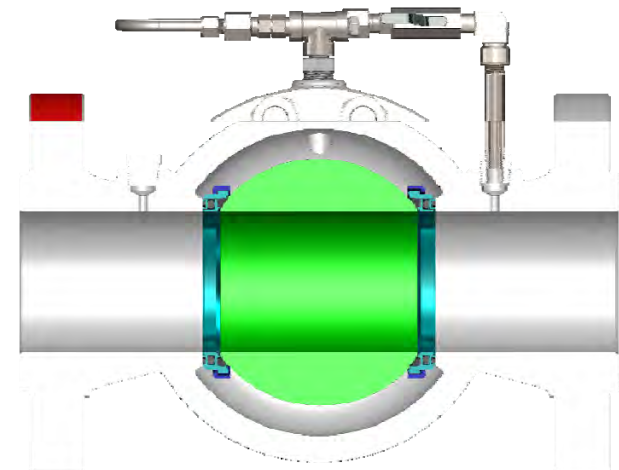
- Carbon steel (WCC & LCC)
- CF8M Stainless steel
- Duplex Stainless steel
- Nickel alloys
- Weld overlay
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- Anti-corrosion coatings
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NPS	DN	ANSI 150	ANSI 300	ANSI 600	ANSI 900	ANSI 1500	ANSI 2500
		PN 20	PN 50	PN 100	PN 150	PN 250	PN 420
2"	50	✓	✓	✓	✓	✓	✓
3 x 2"	75 x 50	✓	✓	✓	✓	✓	✓
3"	75	✓	✓	✓	✓	✓	✓
4 x 3"	100 x 75	✓	✓	✓	✓	✓	✓
4"	100	✓	✓	✓	✓	✓	✓
6 x 4"	150 x 100	✓	✓	✓	✓	✓	✓
6"	150	✓	✓	✓	✓		
8 x 6"	200 x 150	✓	✓	✓	✓		
8"	200	✓	✓	✓	✓		
10 x 8"	250 x 200	✓	✓	✓	✓		
10"	250	✓	✓	✓	✓		
12 x 10"	300 x 250	✓	✓	✓	✓		
12"	300	✓	✓	✓	✓		

14" and larger size available

DOV– Dual Rotary Mechanical Seals

- Two hemispherical wedges for bubble-tight shutoff for DBB and DIB
- No seat pockets and seat springs
- Mechanical seal at low pressure
- Valve body is relieved externally



DOV– DBB & DIB Defined

According to API 6D;

- Double Block and Bleed Valve is a “single valve with two seating surfaces *that*, in the closed position, provides a seal against pressure from *both ends of the valve* with the means of venting/bleeding the cavity between the seating surfaces”

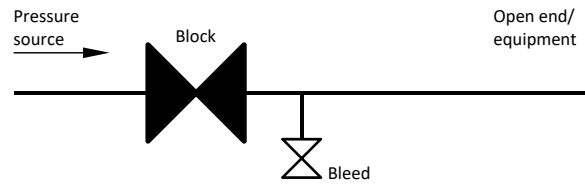
NOTE: This valve does not provide positive double isolation when only one side is under pressure.

- Double Isolation and Bleed Valve is a “single valve with two seating surfaces, *each of which*, in the closed position, provides a seal against pressure from *a single source*, with the means of venting/bleeding the cavity between the seating surfaces”

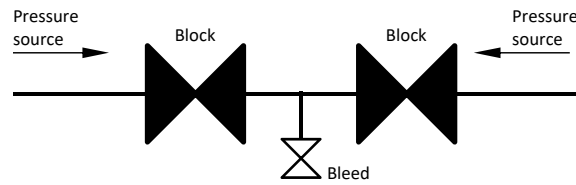
NOTE: This feature can be provided in one or both directions.

- Double Isolation and Bleed DIB-1
Both seats bidirectional
- Double Isolation and Bleed DIB-2
One seat unidirectional and one seats bidirectional

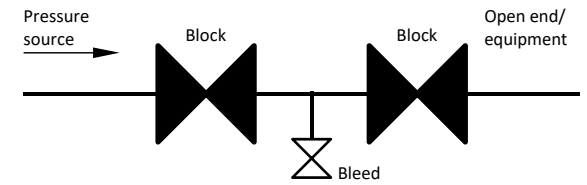
DOV- DBB & DIB Defined (cont.)



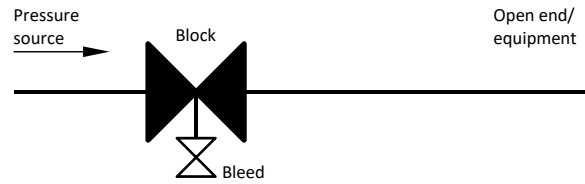
Block & Bleed: Type A



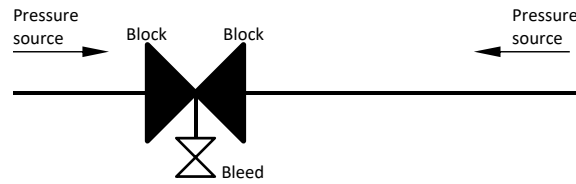
Double Block & Bleed: Type A



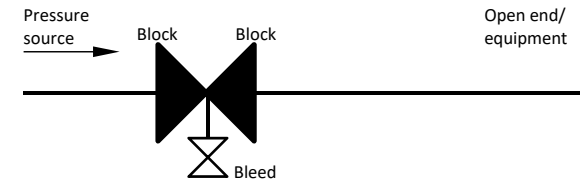
Double Isolation & Bleed: Type A



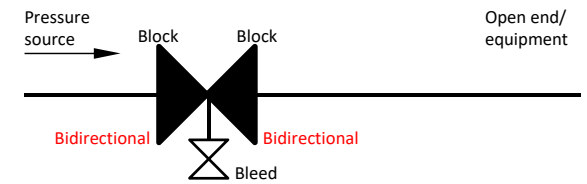
Block & Bleed: Type B



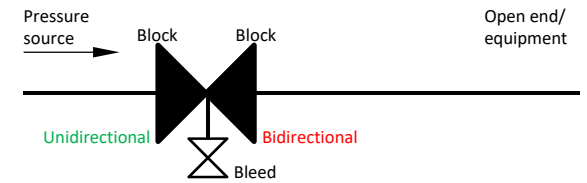
Double Block & Bleed: Type B



Double Isolation & Bleed: Type B



Double Isolation & Bleed: DIB-1



Double Isolation & Bleed: DIB-2

DOV – Proven Solutions

Applications

- Product Separation
- Multiproduct Manifolds
- Natural Gas / Liquid
- Higher Pressure

Services

- ESD Applications
- Critical Isolation Block Valves
- Flare Gas Block Valve
- Metering Block Valve
- Tank Isolation



EBV - Features and Benefits

- Manufactured as
 - HCV for block valve;
 - DOV for DBB and DIB;
 - FCV for control
- Above ground maintenance without excavation
- Body extension lengths to meet customers requirements
- Extended body design for buried service
- Internal body ports



EBV- Sizes and Extension

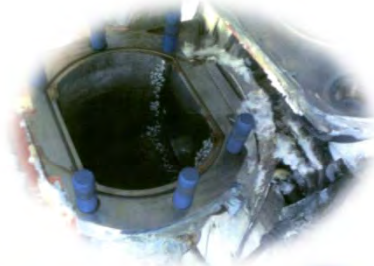
Valve Model	NPS	DN	ANSI Class	PN	Extension (in)	Extension (mm)
HCV	2"	50	150	20	36	915
HCV	2"	50	150	20	72	1829
HCV	2"	50	300	50	36	915
HCV	2"	50	300	20	72	1829
HCV	2"	50	600	100	36	915
HCV	3"	75	150	20	36	915
HCV	3"	75	150	20	72	1829
HCV	3"	75	150	20	96	2438
HCV	3"	75	300	50	36	915
HCV	3"	75	600	75	36	915
HCV	3"	75	600	75	84	2134
HCV	3"	75	600	75	96	2438
HCV	4"	100	150	20	60	1524
HCV	6"	150	600	100	72	1829
HCV	6"	150	600	100	96	2438
HCV	10 x 8"	250 x 200	150	20	120	3048
HCV	12"	300	150	20	144	3656
FCV	20"	500	400	80	72	1829

Sample sizes & extensions in the field

EBV- Cartridge Installation



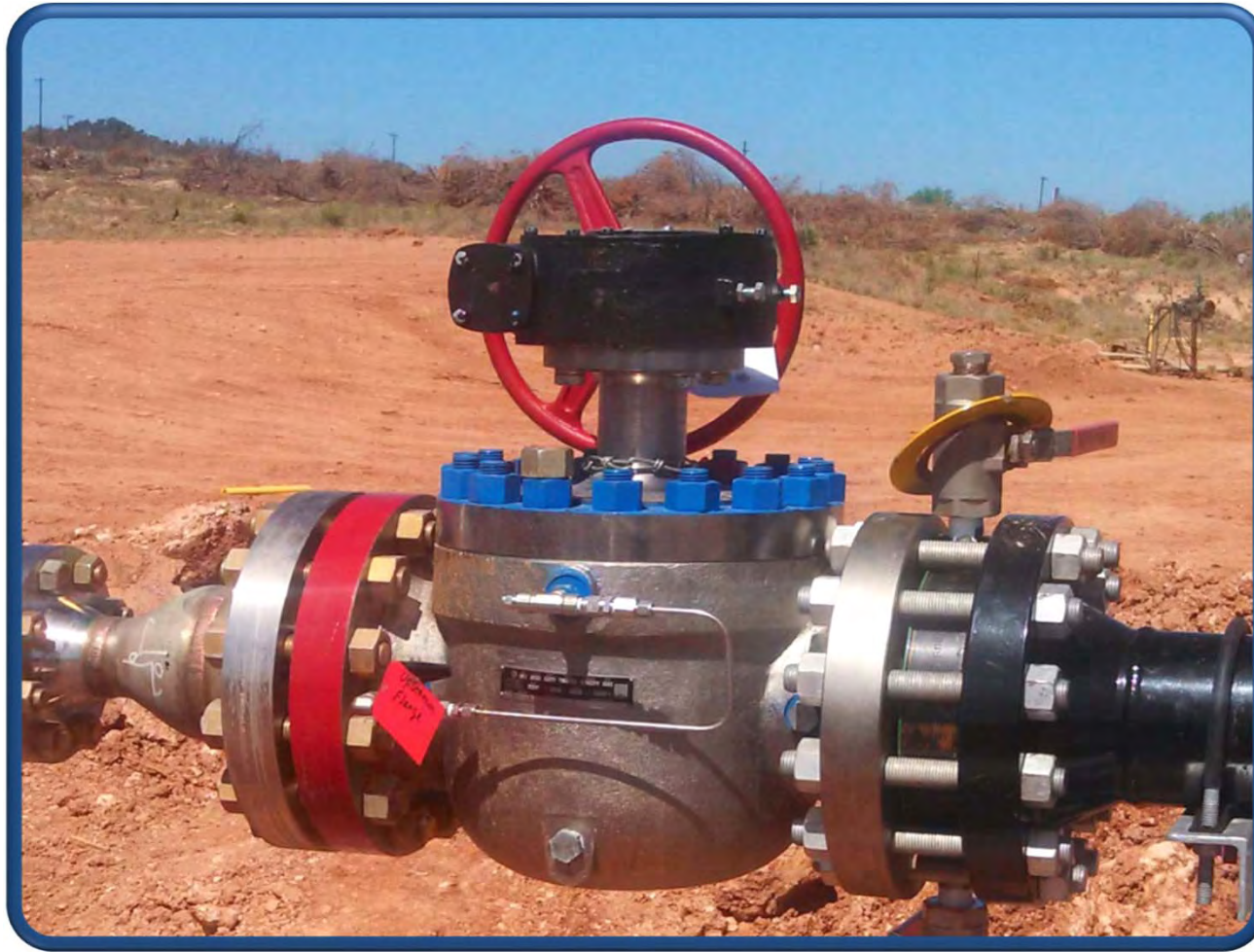
Proven Applications



Steam Injection for Heavy Oil



Oil Production



Pump Isolation



3 Phase Production & EOR Header



Buried Pipeline Service



Blowdown



Gas Processing / Switching



Drilling / Entrained Solids



Gas Switching / Regen



Solids / Catalyst Service



ESD Gas Gathering System



Hot Asphalt Loading Rack



Skid Based Treater Systems



DOV Body



HCV's Ready to Ship



EBV's in Production

