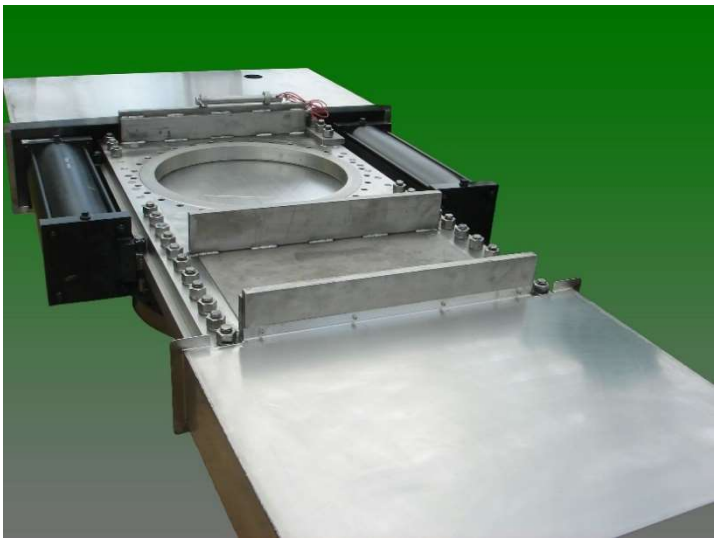
STAINLESS VALVE CO.

Div. of ***B+E Manufacturing Co. Inc.***

June 2015

Stargate-O-Port-Valve® Big Captm

Capping without compromise



For full automation of reactor fill operations, capping valves are used instead of manually installed blanks.

The Stargate-O-Port-Valve® Big Captm utilizes very rugged, purpose built design characteristics for long life under the unique application challenges.

Replace ball valves, butterfly valves, and other non-performing, high maintenance, low reliability valves with a purpose built specialty solution.

Specifications:
4" to 48" (DN100 to DN1200)
150# to 1500# (PN10 to PN100)
- ***(Larger and smaller sizes and pressure ratings available)***

Materials:
- **304, 316, 317, 309, 310, 321, 347, 904**
- **Duplex Stainless Steels: 2304, 2205, 2507**
- **Alloy 20, Al6XN, Inconel 625, Incoloy 825, Hastelloy C276, Hastelloy C22**
- **RA330, RA333, Inconel 800H/AT**
- **Carbon Steel, Aluminum, Thermoplastics**
- **Any material commercially available in plate form or forged**

4811 Persimmon Court
Monroe, NC 28110, USA
bigvalve@stainlessvalveco.com 1-704-231-4148
http://www.stainlessvalveco.com

Our company is certified ISO9001:2015 / Certificate No.: CERT-0124291

STAINLESS VALVE CO.

Div. of ***B+E Manufacturing Co. Inc.***

June 2015

The advantages of the SVC Stargate-O-Port® Big Cap™:

- Safe, reliable operation without hang-ups, binding, or plugging.
  - *Material cannot prevent blade actuation:* The Big Cap™ valve handles overfilling of a digester without seat damage by moving overfilled chips into the valve body - pressure free - and bringing back the overfilled material for the next cycle. With knife gate valves, the chips will accumulate in the "bottom" of the valve and prevent proper closure of the capping valve. Ball valves will accumulate chips behind the ball that will eventually damage the seats. The damage to the leading edge of the orifice typically seen on chrome plated ball valves will not occur with the Big Cap™ valve.
  - *Safety Interlocks:* Interlocks are placed between 1) the automated locking device and one pressure sensor and 2) the actuators and a redundant pressure sensor. This arrangement provides two safety iterations to prevent the capping valve from being opened while there is still pressure in the digester above set-point for safe opening of the capping valve.
  - *High Performance Actuators:* Pneumatic, hydraulic, or electric actuation depending on end user requirements. Big Cap™ valves utilize heavy duty industrial actuators purpose specified to ensure on-demand reliable actuation even in high cycle applications.

- Superior seals design and wear life for long term reliable operation.
  - *Unique seat design:* Seal geometries specifically engineered to capping valve application. The feed side of the valve has dual concentric metal and soft seats for superior wear properties while maintaining an absolute shutoff. Both seats are live loaded against the blade to prevent material from becoming trapped between the blade and seat. The metal seat's primary function is protection of the soft seat to ensure tight shutoff. The metal seat provides a Class V shutoff while the soft seat provides a Class VI shutoff. The Big Cap™ valve does not require a water bath on top of the valve to prevent H_2S emissions. The reactor side seat also provides a Class V shutoff while acting primarily to keep the blade surface clean and free of scale buildup.
  - *Optimized packing gland arrangement:* The packing gland serves both guiding and sealing of the blade independently of each other.
    - The blade guides properly position the blade within the valve body to optimize the seal capabilities of the seat arrangement in the valve.
    - Packing arrangement is customized for the different sealing demands. The Big Cap™ features a "hybrid" packing arrangement utilizing carbon/carbon fiber, SM636, and reinforced braided PTFE packing to provide optimized sealing and wearability.
  - The blade of the Big Cap™ valve is plated for lubricity and non-stick properties. The lubricity will extend packing and soft seat wear life. The non-stick characteristics will prevent scale formation from damaging the seals of the valve.

Other Characteristics to set the Stargate-O-Port-Valve® Big Cap™ apart:

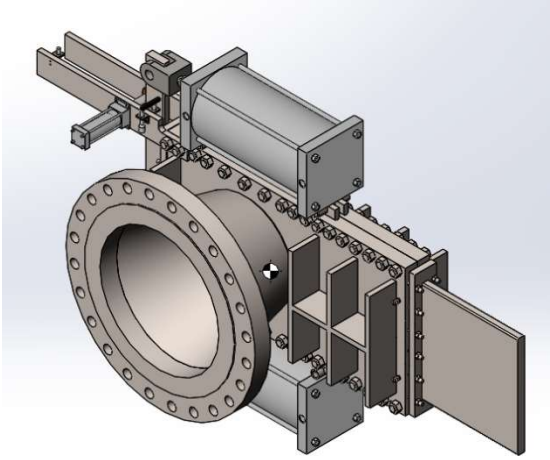
4811 Persimmon Court
Monroe, NC 28110, USA
bigvalve@stainlessvalveco.com 1-704-231-4148
http://www.stainlessvalveco.com

June 2015

- *Short takeout dimension:* Compared to ball valves typically used in capping applications the Big Cap[tm] has a significantly shorter takeout. The shorter takeout is beneficial to system stack-up dimensions, particularly when considering overall roof height in modular systems or systems that are roof height limited. Depending on the design of the reactor neck, the Big Cap[tm] valve is designed with a thru bolt flange to allow for clearances to other equipment at the capping location or to allow connection to a lugged reactor flange.

- *Low maintenance:* The only regular PM item is the occasional tightening of pusher bolts to ensure the tight seal around the blade of the valve. The Big Cap[tm] does not require lubrication of any sort.

- *Application specific customization:* The Big Cap[tm] allows adaptation to the special needs of the application, such as Partial Stroke Testing without compromising seal, automated multi-position locking devices, custom face to face dimensions, and restricted space envelopes. Integrated functionality such as steam assisted filling for reduced charge time, double block and bleed, process evacuation, and customized solutions for fugitive emissions applications are all available with the SVC approach of designing around the application rather than "pull and ship". Please contact the SVC representative with your specific application needs and prepare for exactly what you want to be delivered.



- *Commercial Advantage:*
  - Capital Cost: Generally Big Cap[tm] valves over 14" bore size have lower prices than ball valves of the same size. Capital cost advantages are magnified when the more exotic alloys are called into service (C-276, Titanium, Incoloy 825 to name several)
  - Maintenance Cost: The Big Cap[tm] is virtually maintenance free. It does not require lubrication or steam purges to keep cavities (it does not have any) clear of accumulating process materials.
  - Refurbishment Cost: Expect a long service life between refurbishment for the Big Cap[tm]. When refurbishment is required, OEM refurbishments generally average between 10%-20% the cost of new. OEM refurbishments will bring the valve to "as new" condition to include modifications to latest valve technology for improved performance based on application specific demands. Alternatively, on-site refurbishments may be completed with corresponding training and support from SVC.

Please contact us at with you difficult, demanding, and critical valve applications that require better than commodity solutions: bigvalve@stainlessvalveco.com or +1-704-231-4148

4811 Persimmon Court
Monroe, NC 28110, USA
bigvalve@stainlessvalveco.com 1-704-231-4148
http://www.stainlessvalveco.com

Our company is certified ISO9001:2015 / Certificate No.: CERT-0124291