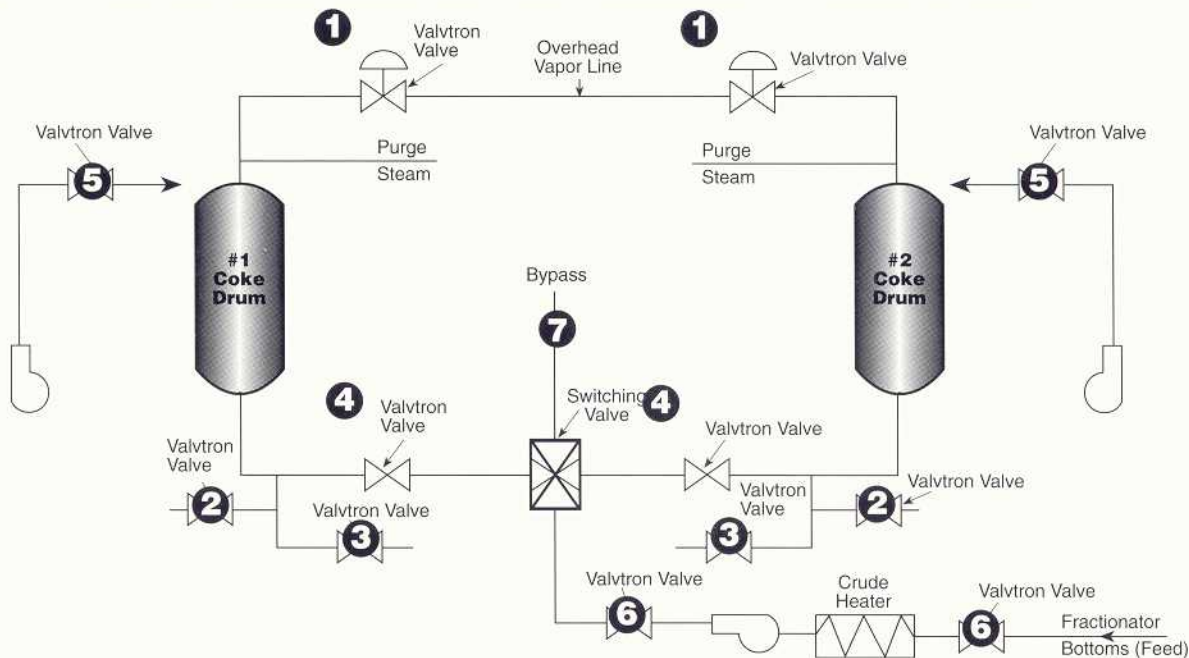


Figure 1 - Valvtron Metal-Seated Ball Valve Applications in Delayed Cokers



Coker Units

With the increasing demands to squeeze every possible gallon of light viable products from residual fuels, coker technology is rapidly growing in popularity. Delayed coker systems are preferred due to their cost economics. A normal system will have two sets of insulated vessels called 'coke drums.' These coke drums allow cracking and coking to occur in an extensive, but controlled basis within the vessel. The drums are used in sequence permitting the system to operate on a continuous flow basis. While one drum is being filled the other is being cooled and decoked. Flasher bottoms (pitch) or other cracked oils are heated and fed into the bottom section of the coke drum. Heat

promotes cracking and, unlike FCCUs, catalyst is not used. Lighter products rise and are piped out the top of the drum. The remaining heavier products then crack to coke. Rising vapors are sent to the fractionation tower for separation. The coke adheres and cakes to the internals of the drum. A high-pressure, water jet cleaning process known as 'decoking' is usually required after each cycle through the drum to remove coke buildup. After the coke debris is removed, the drum is ready for the next cycle. One drum is filling while the other is cooled and goes through the decoking process, thus allowing the systems to operate continually.

Valvtron Metal-Seated Ball Valves

Chart below lists typical applications, with the schematic (above) identifying valve positions.

Location	Application	Conditions	Valve Size/Design	Body Material/Trim
1	Overhead Vapor	400°F–950°F @ 50–100 psi	12"–24" 300#/600#	5/9 Chrome/T.B.A.
2	Steam Warm-up	400°F–750°F @ 50–100 psi	8"–14" 300#	5 Chrome/T.B.A.
3	Quench Water	400°F–750°F @ 50–100 psi	6"–12" 300#	5 Chrome/T.B.A.
4	Inlet Feed	400°F–950°F @ 50–100 psi	6"–12" 300#	5/9 Chrome/T.B.A.
5	Cutting Water	Ambient @ 2000 psi	2"–6" 1500#	5 Chrome/T.B.A.
6	Furnace Isolation	400°F–950°F @ 50–100 psi	6"–12" 300#/600#	5/9 Chrome/T.B.A.
7	Switching	400°F–950°F @ 50–100 psi	6"–12" 300#	5/9 Chrome/T.B.A.

*Note: The application, conditions and sizes of the valve are typical and can vary with each system.

Coker Units - continued

Switching Valve Technology

Other valve designs manufactured for this application are comprised of numerous parts. However, the possibility of valve failure increases with the number of critical areas caused by numerous parts. Valvtron's simplistic design, with only six internal parts, eliminates many critical areas. By utilizing two 45 degree transitions, we have increased flow capacities by as much as 36 percent over conventional ball valves. This additional flow not only improves performance and service life, but could potentially reduce the size requirement and overall cost.

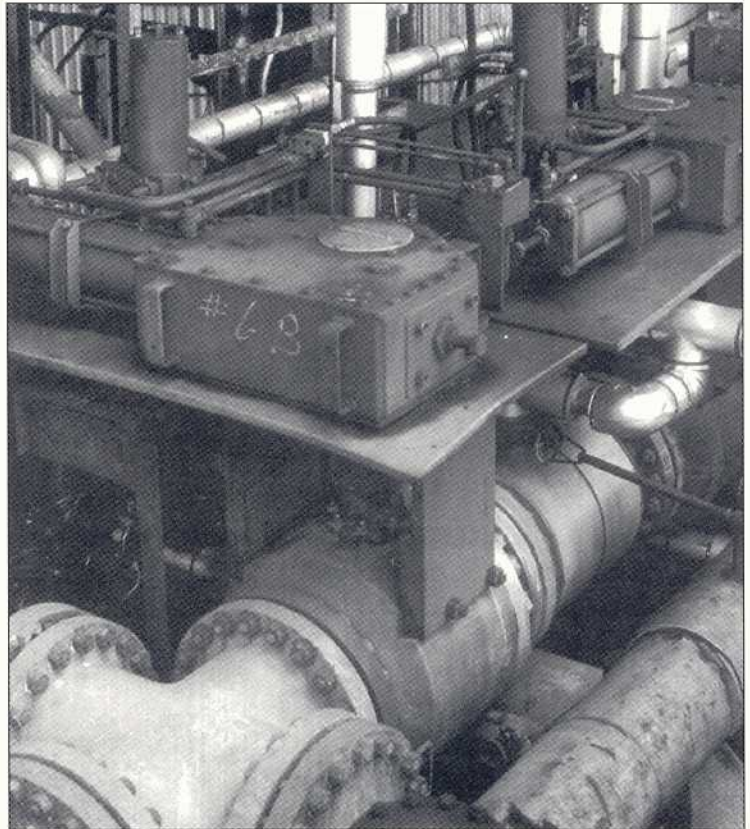
Other Applications in Coker

Due to the abrasive adhering nature of coke, the design of the valve selected for this service is extremely important. Traditionally, gate valves or wedge plug valves were used. Today, however, gates or plugs are not used due to their inability to displace the coke particles, preventing proper sealing. The ball valve is typically the design of choice. However, specific ball valve design concerns must be addressed as well. Most manufacturer's designs have separate seats or bellows where coke particles become trapped behind the seat and body cavity. In this design, however, the valve will eventually 'lock-up.' Coating materials are also important for abrasion and wearability. Some type of purging mechanism is usually mandatory for these valves and careful attention must be given to purge location and functionality.

Why Use Valvtron Valves?

Valvtron has spent many years developing and designing a valve to fit your specific service application. Most of our competitors build a standard product and sell it into an endless list of different applications. Some of these products may work initially, but the question to ask is, For how long? Our integral seat design eliminates the possibility of coke particles getting behind the seating area. In addition, our high

load Belleville spring applies constant force to the ball, providing a self-cleaning action each time the valve is operated. Other enhancements such as purge ports, scraper seats, and high cycle modifications have proven to vastly extend normal valve service life. We will be glad to supply you with an impressive list of satisfied customers and valve design details. All you have to do is ask!



Valvtron Valves Shown in Sequence in Overhead Vapor Lines on Delayed Coker System

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