VALVTECHNOLOGIES

ValvTechnologies' Solutions for Coking Challenges

Coker Application Focus

Coker Application Focus

Market Overview

The delayed coker process is a batch process, one of the most hostile environments in the refinery due to process state change, abrasive and erosive properties,etc. of the coke by-product. High-reliability of valves is crucial to a refinery's profitability. Valves are cycled frequently and failure can lead to a complete shutdown of a unit, resulting in large process and financial costs. Optimizing valve life-cycle is critical to operational efficiency.

Process Description

The main objective of the delayed coking unit is to convert low value residual products to lighter products of higher value and secondarily to produce a coke product, which value will depend on its properties such as sulfur, metals, etc. This conversion is accomplished by heating the feed material to a high temperature of about 950°F and introducing it into a large drum to provide soaking or residence time for the reactions to take place.

The entire coking process is typically grouped into three sections:

- Furnace, Drum residence and fractionation
- Coke drum cutting and handling
- Blowdown section

The exact configuration will vary depending on the refinery's specific design strategy and existing processing capabilities. The most common feedstock is vacuum residue; however, other heavy oil streams are used, such as visbroken tar, slurry oil, tar sands and pitches.

Process Flow

Fresh feed is preheated through a heat exchange system prior to entering the bottom of the coker fractionating tower. The fresh feed, mixed with recycle (about 20%) from the unit, is then pumped through two fired heaters to bring the mixture up to temperature. The heaters have facilities to add steam to the heater coils to provide the proper tube velocity and minimize coking in the heater tubes. The effluent from the heaters then enters the bottom of one of the coking drums where the gaseous products pass out the top and the liquid soaks in the drum until it cracks into lighter products that will exit the top of the drum or forms coke that stays in the drum and builds up from the bottom of the drum. The material from the drum goes to a fractionating tower where it is separated in the desired fractions. A delayed coker unit may commonly have two or more coke drums. When one drum is filled with coke, the feed is switched to the other drum. The full drum is then prepared for removing the coke. After drum has all coke removed, then the drum can be brought back on line after pressure testing and warmup. After a drum has been pressure tested, it is ready to be preheated for return to service.

Applications

ValvTechnologies' coker valves are built to withstand the most severe applications. High-pressure, high-temperature, high-cycle, abrasive, corrosive and state change processes have all been considered in the design of our product line.

Market Characteristics

Drum isolation valves:

- Switch valve
- Inlet feed
- Drain and quench
- Blowdowns
- Overhead vapors
- Heater isolation

Non purged isolation applications

- Pumparound strainer isolation
- Charge pump isolation
- Fractionator isolation
- Vent isolation
- Pressure relief valve isolation
- Oil quench isolation

Challenges

- Valve Lock up due to state change and possible solidification of hot oil upon cooling phase
- Inability to isolation process due to coke fine wear, coke adhesion to sealing surfaces, thermal cycling
- Valves cycle two-three times daily and reliability of operation is imperative for unit production goals.

The hot resid exiting the furnace is at reaction temperature and is in two-three phase flow. The inlets, drains and quench valves experience this process. When the process switches to other drum the offline valve cools, the valves experience extreme hot, cold thermal cycling and possibility of trapped resid solidifying from lower temperature exposure. The solids accumulate over time and can cause valve to lock up if purge design isn't adequate. Also leak by can occur over time due to thermal effects on seat design and coke adhesion to ball due to spring rate not scrapping the seats properly. Other valves in the vapor services are above temperatures where coke fines are developed and within process flow and can have similar effects.

Valves are one of the most problem areas within the coker process affecting production before scheduled shutdowns. So reliability of design to withstand these extreme conditions is a necessity.

Total Cost-of-Ownership

ValvTechnologies' coker valves provide lowest total cost of ownership and reliability.

- Best mean time between repair for unit reliability and run time between repair cycles
- Lowest cost of repairs and less frequency of repairs per turnaround
- Lowest steam usage of coker ball valves
- Due to unique and effective purge design our torques remain consistent throughout production runs resisting "coking up"
- Due to integral seat design and RiTech® 31 costings and process, safety of isolation is industry's best
- Belleville® spring load assures consistent ball and seat compression for zero-leakage, coke adhesion removal and thin profile for no coke buildup, removing failuremode in other ball designs.

©2024 ValvTechnologies, Inc. All rights reserved.

The ValvTechnologies' Solution

Customers in coker applications require safety, reliability and durbility. ValvTechnologies' V Series solution is simple, robust and reliable for lower cost-of-ownership, higher process efficiency and plant availability.

1. Integral metal seat

Integral seat eliminates "failure mode" of a seat ring design due to coke and corrosion buildup from process and thermal shock effects

2. Patented Coating Process.

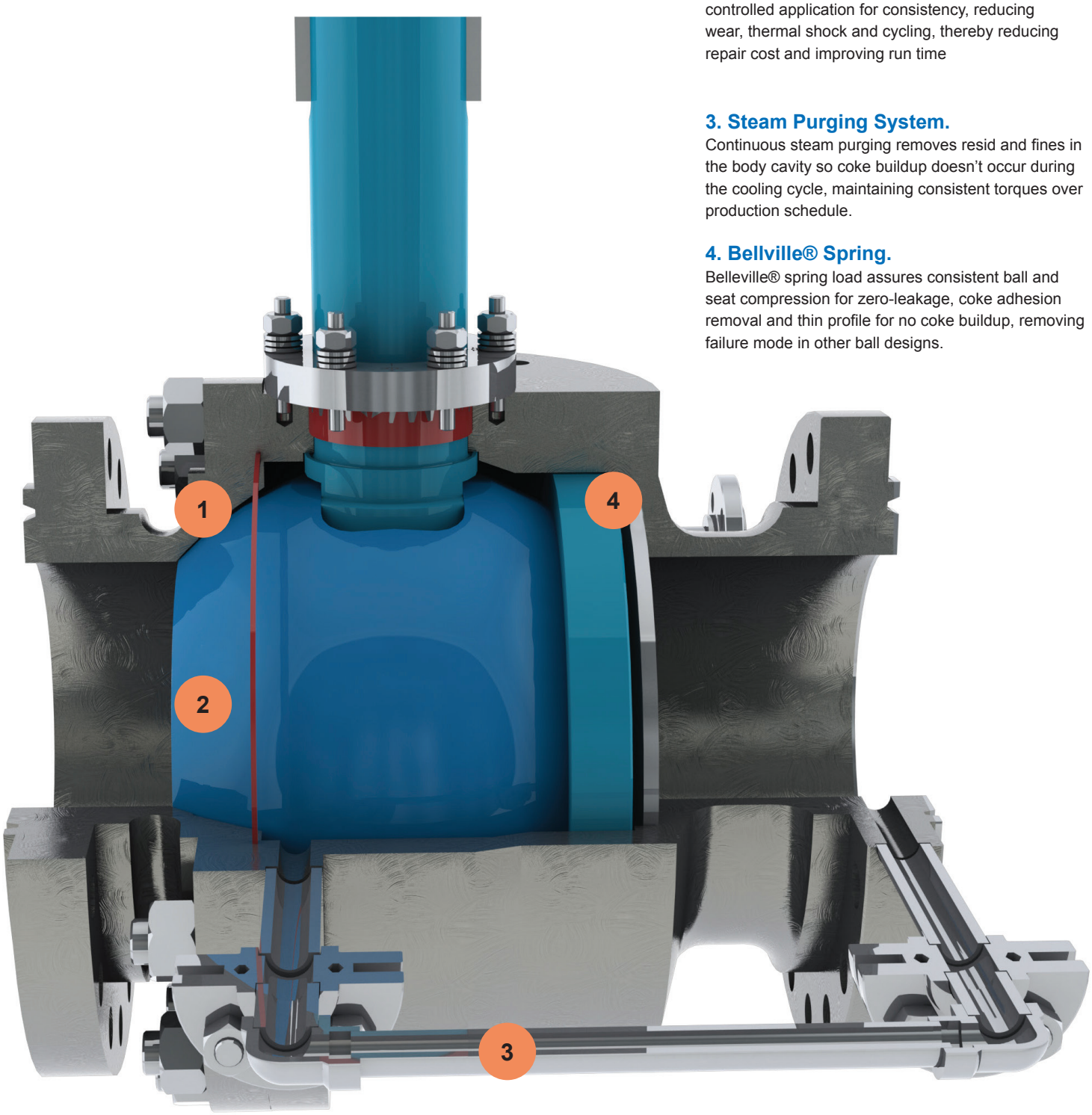
HVOF RiTech® hard coatings utilizes robotic controlled application for consistency, reducing wear, thermal shock and cycling, thereby reducing repair cost and improving run time

3. Steam Purging System.

Continuous steam purging removes resid and fines in the body cavity so coke buildup doesn't occur during the cooling cycle, maintaining consistent torques over production schedule.

4. Bellville® Spring.

Belleville® spring load assures consistent ball and seat compression for zero-leakage, coke adhesion removal and thin profile for no coke buildup, removing failure mode in other ball designs.



Product Comparison

Detail	V-Series	Competitor	Analysis
Size	6-42”	6-36””	Complete product range
Pressure class	300-2500	300-2500	Complete range of pressure classes
Temperature range	100-1300°F	100-1000°F	Meet all temperature ranges within coker processes
Seat	Integral	Inserted seat ring	Integral seat not affected by thermal extremes. The integral seat eliminated secondary graphite seals which degrade due to temperature and facilitate leakage.
Stem	Independent large diameter forged stems	Cast one piece ball and stem	Our stems are 3-4 time stronger than competitors. This prevents any stem failures from loss of steam and higher torques from coke buildup.
Shut-off class	Zero-leakage	Modified class 6	Highest safety of isolation reliability
Body	Two piece	Two piece	Ease of maintenance
Ball	Independent of stem	One piece with stem	No side loading of packing. No steam purge needed to prevent external leakage.
Total weight	18% more robust in design		Higher repair capabilities and strengths to withstand thermal stresses on body halves
Backpressure protection	Yes	Back pressure would damage valve	Protection of valve investment if reverse pressure is encountered or installed incorrectly. Reduces possible cost of refurbishing.
Bi-directional	Bi-directional option	Bi-directional option	Proven design with actual run time at major US refinery. No modified testing needed.
Overhaul schedule	Average of all valves 7 years	Average 5 years	Lower cost-of-repair and longer production up-time
Manufacturing	Made in the USA		
Certifications	www.valv.com/certifications		
Coatings	In-house robotically controlled HVOF	Chrome plating’s and stellite	Proven hard coating against cracking and wear. Better protection for consistent torque output in extreme coker process. Reduced repair costs.
Blowout-proof stem	Yes	Yes	
Packing	No steam purge needed for sealing	Steam purge needed in packing	Safety of external leakage in case of steam loss. This design gives confidence of packing integrity throughout production cycle. Steam assisted designs paint a false picture of packing reliability, especially if valve looses steam.
Testing	Zero-leakage per ValvTechnologies internal procedures	Modified API 598	Provides a much higher level of safety of isolation after years of installation
Reparability	Yes	Yes	ValvTechnologies’ coker is the industry’s lowest cost to repair due to robotically applied hard coatings and integral seat design

©2024 ValvTechnologies, Inc. All rights reserved.

ValvTechnologies'

Coker Severe Service Metal Seated Ball Valves

Coking Isolation Valves

Technical Data	
Sizes	6 - 42"
Pressure Classes	ASME / ANSI Class 300 - 2500
Pressure / Temperature Range	850 - 950°F and 25 - 3200 psi
Materials of Construction	C12, C5, F9, WCB
In Compliance	B16.34, API 598, SIL, etc
End Connections	Flanged, raised-face, ring-joint
Shutoff	Absolute zero-leakage shutoff

CV'S

Valve Nominal Size	Pressure Class	Bore	Max Cv of Valve
8	300	8.06	12,198
8	600	8.06	10,567
10	300	10.06	20,377
10	600	10.06	17,192
12	300	12.06	30,540
12	600	12.06	26,702
14	300	13.25	35,860
16	300	15.25	49,210
18	300	17.25	64,819
20	300	19.25	82,714
24	300	23.25	125,458
30	300	27.25	174,884

Pressure / Temperature Ratings

A217 C12 (Alloy Steel) Temperature (°F), Pressure (psig)

ANSI Rating	-20 to 100	200	300	400	500	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
300	750	750	730	705	665	605	590	570	530	510	485	450	375	255	170	115	75	50
600	1,500	1,500	1,455	1,410	1,330	1,210	1,175	1,135	1,065	1,015	975	900	755	505	345	225	150	105
900	2,250	2,250	2,185	2,115	1,995	1,815	1,765	1,705	1,595	1,525	1,460	1,350	1,130	760	515	340	225	155
1500	3,750	3,750	3,640	3,530	3,325	3,025	2,940	2,840	2,660	2,540	2,435	2,245	1,885	1,270	855	565	375	255
2500	6,250	6,250	6,070	5,880	5,540	5,040	4,905	4,730	4,430	4,230	4,060	3,745	3,145	2,115	1,430	945	630	430

A217 C5 (Alloy Steel) Temperature (°F), Pressure (psig)

ANSI Rating	-20 to 100	200	300	400	500	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
300	750	750	730	705	665	605	590	570	530	510	485	375	275	200	145	100	60	35
600	1,500	1,500	1,455	1,410	1,330	1,210	1,175	1,135	1,065	1,015	975	745	550	400	290	200	125	70
900	2,250	2,250	2,185	2,115	1,995	1,815	1,765	1,705	1,595	1,525	1,460	1,120	825	595	430	300	185	105
1500	3,750	3,750	3,640	3,530	3,325	3,025	2,940	2,840	2,660	2,540	2,435	1,870	1,370	995	720	495	310	170
2500	6,250	6,250	6,070	5,880	5,540	5,040	4,905	4,730	4,430	4,230	4,060	3,115	2,285	1,655	1,200	830	515	285

A182 F9 (Alloy Steel) Temperature (°F), Pressure (psig)

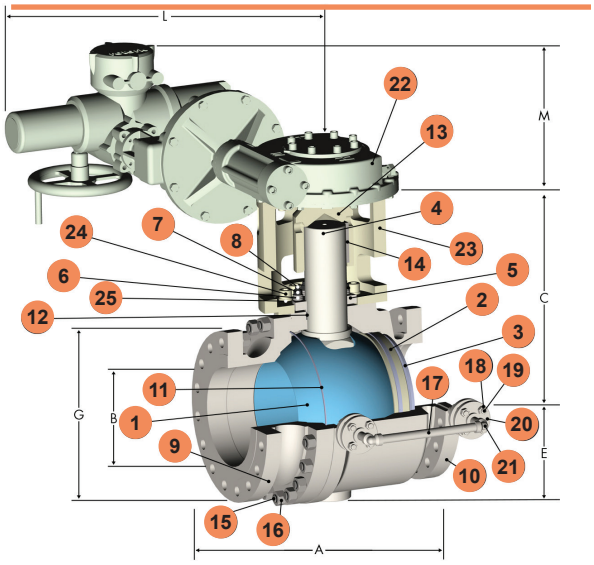
ANSI Rating	-20 to 100	200	300	400	500	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
300	750	750	730	705	665	605	590	570	530	510	485	450	375	255	170	115	75	50
600	1,500	1,500	1,455	1,410	1,330	1,210	1,175	1,135	1,065	1,015	975	900	755	505	345	225	150	105
900	2,250	2,250	2,185	2,115	1,995	1,815	1,765	1,705	1,595	1,525	1,460	1,350	1,130	760	515	340	225	155
1500	3,750	3,750	3,640	3,530	3,325	3,025	2,940	2,840	2,660	2,540	2,435	2,245	1,885	1,270	855	565	375	255
2500	6,250	6,250	6,070	5,880	5,540	5,040	4,905	4,730	4,430	4,230	4,060	3,745	3,145	2,115	1,430	945	630	430

A216 WCB (Carbon Steel) Temperature (°F), Pressure (psig)

ANSI Rating	-20 to 100	200	300	400	500	600	650	700	750	800	850	900	950	1000
300	740	680	655	635	605	570	550	530	505	410	320	230	135	85
600	1,480	1,360	1,310	1,265	1,205	1,135	1,100	1,060	1,015	825	640	460	275	170
900	2,220	2,035	1,965	1,900	1,810	1,705	1,650	1,590	1,520	1,235	955	690	410	255
1500	3,705	3,395	3,270	3,170	3,015	2,840	2,745	2,655	2,535	2,055	1,595	1,150	685	430
2500	6,170	5,655	5,450	5,280	5,025	4,730	4,575	4,425	4,230	3,430	2,655	1,915	1,145	715

All ratings are according to ANSI B16.34 2017

Mounting and Accessories



Features

Integral metal seat. Proprietary HVOF RiTech® coating technology ensures the integral seat in ValvTechnologies' valves is resistant to the attack of abrasive magnetite and ferrous oxides. Eliminates extra component of pressed seat ring, which is acceptable to coke collection and leakage, due to thermal cycling and degradation of graphite seals due to high-temperature.

Bellville® spring. High spring rate design to ensure contact and eliminate coke buildup on the ball eliminates leakage and higher torques. This design has no convolutions for coke buildup which can result in spring failure.

Patented coating process. With surface hardness of 68 - 72 Rc, uninterrupted operation and superior wear resistance is ensured even in the most severe conditions.

Live-loaded gland area. Featuring a four stud, live-loaded assembly designed for heavy industrial applications. Ensures zero emissions from stem packing in the most severe applications.

True blow-out proof stem. Design utilizes a one-piece, hard-faced, blow-out proof stem that is inserted through the inside of the body cavity eliminating the possibility of blow-out through the gland area.

Absolute zero-leakage. Every valve tested per ANSI procedures, however, we toughen the standard and define zero-leakage as no detectable leakage of gas or a liquid for a period of three minutes or greater. The ValvTechnologies' standard is zero drops and zero bubbles, guaranteed.

No lubrication required and lowest purge steam consumption of any coker valve on the market.

Standard purge manifold with single entry for steam available. Continual sweeping of purge steam in body cavities removes and redeposits hot resid from valve internals eliminating "coking up".

Pressure Class	End Connections	Size	A	B	C	E	G	L	M
300	Ring joint	8	20.35	8.03	20.50	8.50	15.00	17.84	14.95
300	Ring joint	10	23.00	10.07	15.48	9.75	17.53	19.29	15.47
300	Ring joint	12	26.02	12.03	24.61	11.38	20.53	20.05	15.95
300	Ring joint	14	30.62	12.03	24.61	11.75	23.00	32.71	18.71
300	Ring joint	16	33.52	15.27	32.27	14.13	25.53	32.58	21.07
300	Ring joint	18	36.62	17.27	34.19	17.50	28.03	32.58	21.07
300	Ring joint	20	39.76	19.25	31.31	17.25	30.50	36.92	20.93
300	Ring joint	24	45.82	23.25	46.25	21.97	36.00	36.92	20.93
300	Ring joint	30	55.15	29.00	38.63	23.88	43.00	56.31	19.91
600	Ring joint	8	26.20	8.020	20.53	8.50	16.52	19.29	15.47
600	Ring joint	10	31.12	10.07	21.98	10.00	20.03	33.47	18.33
600	Ring joint	12	33.15	12.03	24.76	11.75	22.00	20.05	15.95

Pressure Class	End Connections	Size	A	B	C	E	G	L	M
300	Raised face	8	19.75	8.03	20.50	8.50	15.00	17.84	14.95
300	Raised face	10	22.38	10.07	15.48	9.75	17.53	19.29	15.47
300	Raised face	12	25.50	12.03	24.61	11.38	20.53	20.05	15.95
300	Raised face	14	30.00	12.03	24.61	11.75	23.00	32.71	18.71
300	Raised face	16	33.00	15.27	32.27	14.13	25.53	32.58	21.07
300	Raised face	18	36.00	17.27	34.19	17.5	28.03	32.58	21.07
300	Raised face	20	39.00	19.25	31.31	17.25	30.50	36.92	20.93
300	Raised face	24	45.00	23.25	46.25	21.97	36.00	36.92	20.93
300	Raised face	30	55.00	29.00	38.63	23.88	43.00	56.31	19.91
600	Raised face	8	26.00	8.020	20.53	8.50	16.52	19.29	15.47
600	Raised face	10	31.00	10.07	21.98	10.00	20.03	33.47	18.33
600	Raised face	12	33.00	12.03	24.76	11.75	22.00	20.05	15.95

All dimensional data is approximate, contact factory for certified dimensions.

Item	Description	Material				Qty
		A217-C12	A217-C5	A217-C5A182-F9	WCB	
1	Ball	CA6NM / RiTech® 31	CA6NM / RiTech® 31	CA6NM / RiTech® 31	A29 Gr. 4130 / RiTech® 31	1*
2	Upstream Seat	CA6NM / QPQ	CA6NM / QPQ	CA6NM / QPQ	A29 Gr. 4130 / QPQ	1*
3	Belleville® Spring	SB-637 N07718	SB-637 N07718	SB-637 N07718	SB-637 N07718	1*
4	Stem	410 / QPQ	A638 Type 660	A638 Type 660	A29 Gr. 4130 / QPQ	1
5	Gland	F316 / QPQ	F316 / QPQ	F316 / QPQ	F22 / QPQ	1
6	Gland Spring	SB-637 N07718	SB-637 N07718	SB-637 N07718	ANSI Gr. 302	48**
7	Gland Nut	SA-194 16	SA-194 16	SA-194 16	SA-194 8M	8**
8	Gland Stud	SA-193 B16	SA-193 B16	SA-193 B16	SA-193 B8M	8**
9	End Cap	A217-C12 / RiTech® 31	A217-C5 / RiTech® 31	A182-F9 / RiTech® 31	A216-WCB / RiTech® 31	1*
10	Body	A217-C12 / RiTech® 31	A217-C5 / RiTech® 31	A182-F9 / RiTech® 31	A216-WCB / RiTech® 31	1
11	Body Seal	Graphite	Graphite	Graphite	Graphite	1*
12	Gland Packing	Graphite / 316	Graphite / 316	Graphite / 316	Graphite/316	1*
13	Drive Sleeve	SA-29 4130	SA-29 4130	SA-29 4130	SA-29 4130	1
14	Key	SA-29 1018	SA-29 1018	SA-29 1018	SA-29 1018	2
15	Body Stud	SA-193 B16	SA-193 B16	SA-193 B16	SA-193 B7	20(*)**
16	Body Nut	SA-194 16	SA-194 16	SA-194 16	SA-194 2H	20(*)**
17	Purge Piping	SA-335 P9	SA-335 P9	SA-335 P9	A105	77***
18	Purge Nuts	SA-194 16	SA-194 16	SA-194 16	SA-194 B7	8***
19	Purge Studs	SA-193 B16	SA-193 B16	SA-193 B16	SA-193 2H	16***
20	Purge Flange Seal	SS316	SS316	SS316	SS316	3***
21	Purge Flanges/Fittings	SA-182 F9	SA-182 F9	SA-182 F9	A105	10***
22	Gear					1
23	Mounting Bracket	SA-36	SA-36	SA-36	SA-36	1
24	Mounting Cap Screws	A-574	A-574	A-574	A-574	12
26	Split Lock Washer	SAE Gr. CS	SAE Gr. CS	SAE Gr. CS	SAE Gr. CS	12

* Recommended spare parts **Quantity based on size and pressure class of valve ***quantity may vary based on valve size and purge options selected

©2024 ValvTechnologies, Inc. All rights reserved.

EPA Mandate on Coke Drum Venting

Zero-leakage Delayed Coker Valves

Case Study

Industry: Hydrocarbon
Plant type: Refineries
Application: Delayed coker valve
Location: Texas and Louisiana
Product: Coking isolation valves

Overview:

Implemented in 2016, the U.S. Environmental Protection Agency (EPA) issued a Risk and Technology Review (RTR) mandate on coke drum venting for petroleum refineries. Components of the rule include:

- New emissions controls for refinery storage tanks, CRUs and DCUs
- Work practice standards to reduce emissions from atmospheric PRDs and flares
- Continuous benzene monitoring at the refinery fence line to improve the management of fugitive emissions
- Elimination of exemptions to emission limits for uncontrolled releases during start-up, shutdown and malfunction

Requirement:

The rule imposes monitoring and reporting of emission releases from pressure relief devices to the atmosphere. The regulation calls for a program of process changes and pollution prevention aimed at reducing visible emissions by major pressure release devices. This change affects a wide-range of applications including delayed coker units and its coking processes. Older coker valves are challenged to meet the rule and, because of this, refineries in the hydrocarbon industry must modify their existing process.

Solution:

To meet EPA standards, ValvTechnologies recently installed zero-leakage coker valves in refineries in Texas and Louisiana ranging from sizes 14-20” 300# ANSI flanged with HVOF RiTech® coating. The valves are composed of C12 and carbon steel body materials and, based on the plant’s needs, designed with either pneumatic or electric actuation.

Result:

The rule imposes monitoring and reporting of emission releases from pressure relief devices to the atmosphere. The regulation calls for a program of process changes and pollution prevention aimed at reducing visible emissions by major pressure release devices. This change affects a wide-range of applications including delayed coker units and its coking processes. Older coker valves are challenged to meet the rule and, because of this, refineries in the hydrocarbon industry must modify their existing process.

The Quality Certified Safety Solution

ValvTechnologies' Coker Valve Safety Interlock System

Case Study

Industry: Hydrocarbon
Plant type: Refineries
Application: Coker isolation valve
Location: Southern California
Product: V1-2

Overview:

The refining industry confronts some of the most difficult valve application challenges in various process units. Companies are more and more focused on safety of the plant, their people and meeting production goals. As a means to provide worker safety in a delayed coker unit, one refinery in Southern California looked to install a safety process interlock system.

Requirement:

These systems are designed to ensure that valves follow a pre-determined sequence of operation for startup and maintenance in their delayed coking units. In addition to the safety process interlock system, a motor operated valve package required to conduct the operational sequencing, thereby seeking to avoid any workplace injury or process upsets. Safety, preventing personal injury and limiting operating errors were the driving forces behind the customers' desire to change.

Solution:

Based on the customers' knowledge of ValvTechnologies' zero-leakage isolation valve and purging technology, the refinery chose ValvTechnologies' custom-designed engineered solution. ValvTechnologies provided 18 severe service 20" 300 ANSI class C12 uni- and bi-directional ball valves. ValvTechnologies' metal seated ball valves were a more efficient solution for automation due to the simple mechanical connection between the stem and MOV gear. The original valves to be replaced had an operating mechanism with many moving parts, requiring significant maintenance; ValvTechnologies' solution provided the plant with improved safety, reduced maintenance costs and increased reliability.

Result:

The ValvTechnologies' valves were installed in 2007: based on a reliability factor of 95% on a 10 year run time, the ValvTechnologies' solution continues to provide the plant with lower costs of maintenance repair and operation savings on steam costs. To this day, the valves remain in service affording the plant exceptional safety, reliability and performance, exceeding the customers' expectations.

©2024 ValvTechnologies, Inc. All rights reserved.

ValvTechnologies' Wins

2019

A Proven Reputation

One of the largest crude oil refineries in the U.S. Gulf Coast determined the existing valves at the plant were nearing the end of their shelf life. Disappointed in the coker valves' performance, the customer sought to replace the existing valves and awarded ValvTechnologies a contract to supply 18- 24" 300# Class and 4-12" 600# Class V1-2 valves.

ValvTechnologies won the bid based on past prove reputation for lowering total cost-of-ownership. In the end, ValvTechnologies was able to displace one of its major competitors, increase installed base for long-term business.

Improve Up-time, Avoid Unscheduled Downtime and Lost Production with Valvtechnologies' Coking Solution

- Reliability and longevity
- Operational and personal safety – reliability of tight isolation
- Most effective technological purging systems to prevent locking or coking up
- Low cost-of-ownership due to excellent run time and low-cost of repair

The Benefits of Coker Solution

ValvTechnologies' coker valves are the premier solution where isolation is required for critical and severe service applications, providing increased safety and reliability, while reducing emissions, contributing to a cleaner environment.

Features	Benefits
Integral seat	• Most effective technology for thermal cycling and solids containing processes. Design extends drum switching isolation for scheduled production operations and goals.
Inconel forged Belleville® spring	• Delivers high reliable process isolation due to consistent ball and seat loading, especially for solids conditions. Thin profile spring design eliminates resid buildup in crevices like other type springs.
HVOF RiTech® hard coatings	• State-of-the-art computerized applied hard coatings on ball and seat extending isolation capabilities for expected operational performance goals and repair cost reductions. 35% less repair cost than other type ball valves.
Continuous purge design	• Ensures consistent torques for drum operations to meet production run times. Provides consistent valve operation due to effective flushing of hot resid and fines collection. Single inlet manifold reduces purge piping installation costs by 75%.
Reduced steam consumption	• Reduces total cost-of-ownership by utilizing 30% less steam than competitor ball valves designs.
Bi-directional sealing option	• Provides isolation of process in both flow directions due to fluctuating pressures an can be used for single block applications, reducing valve requirements.
Spring loaded low emission packing design	• Keeps hydrocarbon in containment and meets 100 PPM requirements
ValvTechnologies' repair services	• Capabilities to service/repair ValvTechnologies' coker valves on-site or at our manufacturing facility in Houston.

INDUSTRY: Coking
PLANT TYPE: Refining
APPLICATION: Coker - Furnace heater isolation
LOCATION: USA

BACKGROUND:
For two years, this plant conducted an economic feasibility study to build a new coker unit to replace the existing Unit 21. The FEED study to build a new coker in Unit 21s place was ultimately shelved and the plant decided to use available funds to upgrade the existing equipment instead of build new. This decision significantly reduced the overall project scope for valve requirements. However, given the initial project pursuit and sales strategy of the new unit build, ValvTechnologies was in prime position to execute on the revised project, a Unit 21 upgrade scope. ValvTechnologies made multiple plant visits to deliver presentations and valve trainings to the coker operations, maintenance and engineering management teams. A site visit to perform a unit walkdown to offer operations team troubleshooting support on existing install base was also conducted. This service resulted in building strong rapport with key decision makers and highlighted our organizations' commitment to our customers. The relationship with the customer and EPC were built long ahead of decisions which made everyone feel comfortable and confident that ValvTechnologies was the superior solution, especially considering the complicated engineering and short lead-time requirements.

ValvTechnologies' Success Story

May 2018

OVERVIEW:
Unit 21 coker refurbishment/ upgrade job

CHALLENGE:
The customer was behind project schedule and all aspects of the project were to be fast tracked with all vendors. Short lead times were required and played a high priority in the valve supplier decision.

SOLUTION:
ValvTechnologies committed to the customer's short lead time requirement based on their on-site delivery needs by offering expedite options with existing coker inventory/ stock, changing out to forgings where able and working with valued suppliers to expedite materials with negligible impact on overall project costs.

ORDERS:
- (8) 8", 600# Class, C12, raised-face, single inlet manifold, special drill and tap rod extension through gearbox to position indicator with motor actuator.
- (8) 3", 600# class, F9, raised-face, single inlet manifold, special drill and tap rod extension through gearbox to position indicator with motor actuator.
- (8) 3", 300# class, SA-105, NACE MRO0103 compliant, raised-face, single inlet manifold, special drill and tap rod extension through gearbox to position indicator with manual gearbox operated.
- (4) 6", 1,500#, SA-105, raised-face, special drill and tap rod extension through gearbox to position indicator. Motor operated.

BENEFIT:
Valves offer improved unit reliability and operability resulting in more uptime, lower risk, and longer mean time between repairs. Significantly lower steam consumptions. Specialized engineered actuation rod design for enhanced functionality and reliability.

EPC: Fluor

LICENSOR: Bechtel

INSTALLED BASE:
The same coking valves were previouslyinstalled in similar applications on another unit. The valves performed well which made the customer confident in choosing ValvTechnologies once again for future projects.

©2024 ValvTechnologies, Inc. All rights reserved.

Customers and Installed Base

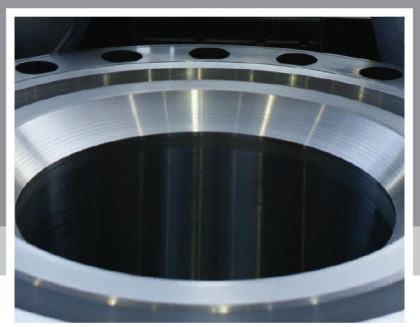
Country	Application	Product	Qty	Year
USA	Drum-to-blowdown MOV	V 1-2, DN6”-20”, ANSI300	6	2005
USA	Overhead vapor MOV, cutwater isolation	V 1-2, 16” C5;V1-6” 1500 WCB	4	2006
Brazil	Blow-down; overhead; slurry	V1-2 8-16”	22	2005
USA	Blow-down	V1-2 8”-16”	16	2006
USA	Inlet feed; overhead vapors	V1-2 10-16” ANSI300	20	2006
USA	Overhead, blowdown	V1-2 10-20” ANSI 300 C5	25	2006
Venezuela	Filter isolation	V1-2 1.5”-2” ANSI 600# WCB	18	2003
USA	Overhead vapor MOV	V1-2 6”-12” ANSI 300# 9Cr	8	2007
Canada	Overhead; slurry	V1-2 8”-12” ANSI 300# 9Cr	6	2008
Brazil	Blow-down; overhead; slurry	V1-2 6”-24” ANSI 600# 9Cr	6	2008
USA	Feed isolation	V1-2 10” ANSI 300# 9Cr	4	2009
India	Blow-down; overhead; slurry	V1-2 4”-10”	5	2009
USA	Overhead; slurry	V1-2 6”-12”	8	2004
China	Blow-down; overhead; slurry	V1-2 20” ANSI 300# 5Cr	4	2001
USA	Overhead	V1-2 10” ANSI 600# 5Cr	4	2005
France	Slurry loop	V1-2 3-14” ANSI 300# 5Cr	4	2009
Slovakia	LCF coke removal	V1-2 3-6” ANSI 300# 5Cr	32	2004
Russia	Anti-foam addition; steam	V1-2 1” 600# F22	4	2006
Russia	Pump steam injection	NexTech® 300# 3” WCB/SS	6	2010
Russia	Blow-down	V1-2 1”-6’ 1500#-300#	2	2010
Russia	Overhead vapor	V1-2 2”-16” ANSI 300# 5Cr	9	2010
Russia	Slurry loop	V1-2 2” 4-6” ANSI 300# WCC	43	2009
Russia	Auxiliary steam; gas isolation	V1-2 1”-2” ANSI 150#-300# WCB	5	
Russia	Auxiliary steam; gas isolation	V1-2 1”-2” ANSI 150#-300# WCB	12	2010
China	Furnace, ISO; slurry, quench, drain	V1-2 3”-8” 900# 800HT / V1-2 3”-18” 300#/600# C12	13	2011

Installed Base Continued

Country	Application	Product	Qty	Year
USA	Slurry, quench, drain	V1-2 3”-12” 300#/600# C12	31	2012
Russia	Auxiliary steam; gas isolation	V1-2 1”-2” ANSI 150#-300# WCB	18	2012
USA	Overhead vapors, inlet feed	V1-10”. 12” 300 & 600 C12	15	2012
USA	Fractionator isolation	V1- 24’ 300 C12	1	2012
USA	Furnace discharge valves	V1-8”, 10” 600 C12	4	2013
USA	Drum vent isolation	V1-2 300 WCB	36	2013
Canada	Inlet feed	V1-14” 300 C12	1	2013
Canada	Heater isolation	V1-10” 600 C!2	6	2014 2016
USA	Furnace discharge valves	V1- 3”, 8” 900 Incoloy	11	2015
USA	Cutwater isolation	V1-6” 1500 WCB	2	2011
USA	Inlet feed, overhead vapor	V1 – 10,14”	3	2016
	USAInlet feed, blowdown, overhead vapors, quench/ drain,	V1-2-24” C12	66	2016
China	Switch valve	2-12” 600 C12	2	2013
USA	Heater isolation valves	3,8” 600 C12	16	2018
USA	Cutwater valves	6” 1500 A105	4	2018
USA	Blowdown valves	16,14 C12,WCB 300	3	2017
USA	Blowdown valves	14” 300 C12	9	2016
USA	Cutwater valves	6’1500 A105	4	2015
USA	Inlets, blowdowns, overhead vapors	12-24” 300,600	22	2017
USA	Overhead vapors/frac isolation	20”,30” 300 C12	3	2017
USA	Inlet feeds	12 600 C12	2	2018
USA	Vent valves	4” 300 C12	6	2016
Belgium	Cutwater valves	1,2,8” 2500 A105	3	2017
Brazil	Inlet feed	12 600 C12	1	2017
Belgium	Cutwater valves	1,2,8” 2500 A105	3	2017
Brazil	Inlet feed	12 600 C12	1	2017

©2024 ValvTechnologies, Inc. All rights reserved.

Coker Application Focus.



Headquaters & Manufacturing
ValvTechnologies, Inc.
5904 Bingle Road
Houston, Texas 77092 U.S.A.
Telephone +1 713 860 0400
Fax +1 713 860 0499
info@valv.com

To locate a distributor or satellite office near you, visit us online at:
www.valv.com

To contact sales anywhere in the world, email sales@valv.com

VALVTECHNOLOGIES

©2024 ValvTechnologies, Inc. All rights reserved.