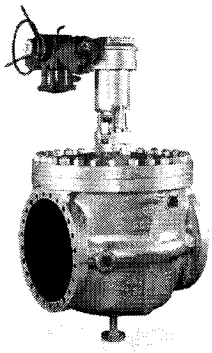
WEDGEPLUG



by

Pacific Valves

CRANE

1855-2005

CRANE

CRANE CO.

Sales - US$2+ Billion

5 Business Units

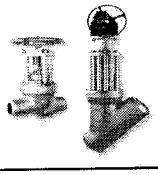
CRANE ENERGY FLOW SOLUTIONS GROUP

PACIFIC VALVES

- All Pacific engineered valves are assembled and tested at the Long Beach California facility
  - 124 employees (104 manufacturing)
  - 80,000 ft² of manufacturing space

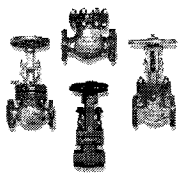
Pressure Seal

High Pressure
Hydro-cracking and Steam



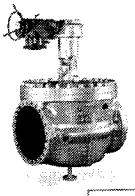
Gates, Globe & Checks
Xomox Plug Valves

Leaders in HF Alky



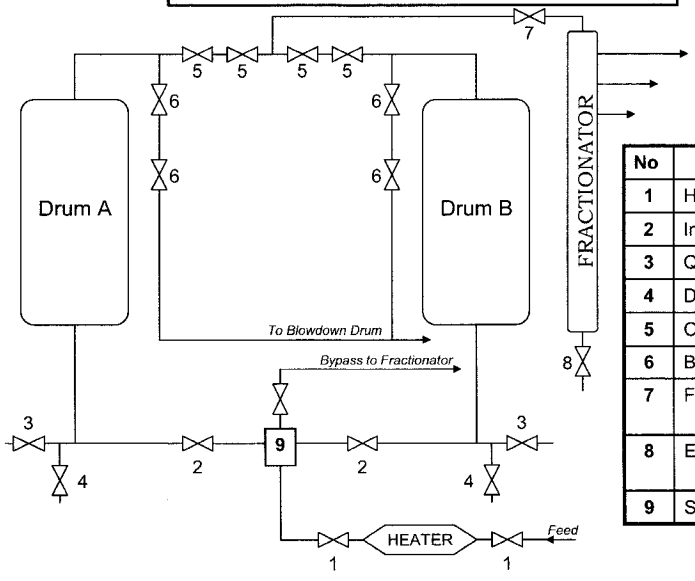
WEDGEPLUG

Delayed
Cokers
FCCU
Ethylene
Asphalt



CRANE

WEDGEPLUG for Delayed Coker service



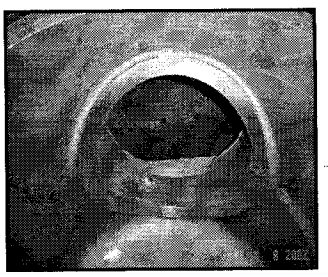
No	WEDGEPLUG
1	Heater Isolation
2	Inlet Feed Isolation
3	Quench
4	Drain
5	Overhead Vapor
6	Blowdown Isolation
7	Fractionator Isolation
8	Emergency Shutdown
9	Switch Valve (WS)

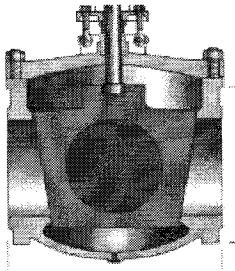
WEDGEPLUG has 50+ years proven in Coker service

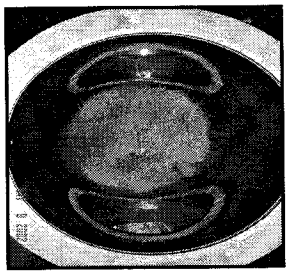
CRANE

SAFETY AND OPERABILITY

1. DUAL SEAL (DOUBLE BLOCK AND BLEED)
2. TORQUE SEATED (NOT SPRING LOADED)
3. NON-RUBBING SEAT
4. INTERLOCK ELECTRIC ACTUATORS & CONTROLS
5. INLINE REPAIRABLE







WEDGEPLUG IS SAFER AND EASIER TO OPERATE

CRANE

The lowest steam consumption WEDGEPLUG

ESTIMATE STEAM CONSUMPTION RATE IN A TYPICAL TWO-DRUM COKER INSTALLATION

	Valve Size	Qty	Steam Usage	STEAM CONSUMPTION (POUNDS) Min/Day	Per Valve per conn. (lb/min)	Each Valve/Day	Each Valve/Yr	Total Valves/Yr	All Valves/Yr
WEDGEPLUG BI-DIRECTIONAL	4"	4	During valve cycle only	2	1.5	18	6,300	25,200	494,760
	10"	5		4	8.6	103	36,120	180,600	
	14"	2		4	8.6	103	36,120	72,240	
	20"	4		6	12.9	155	54,180	216,720	
BALL VALVE UNI-DIRECTIONAL	4"	4	Continuous	1440	1.5	6,480	2,268,000	9,072,000	95,558,400
	10"	5		1440	5.2	22,464	7,862,400	39,312,000	
	14"	2		1440	5.2	22,464	7,862,400	15,724,800	
	20"	4		1440	5.2	22,464	7,862,400	31,449,600	

STEAM SAVING BY USING WEDGEPLUG (LBS)	95,053,640
AVERAGE COST OF STEAM AT (US$/1000 LBS) IN '05	2
EST. TOTAL COST OF STEAM SAVING PER YEAR	$190,127
EST. TOTAL COST OF STEAM SAVING IN 25 YEARS	$4,753,182

Notes:
1. Steam amounts shown are maximum, assuming ideal supply and nozzle, with no seat area restraint.
2. No steam is consumed at other times for Wedgeplug. Steam is only consumed when Wedgeplug is in motion (cycling)
3. Continous steam consumption in uni-directional Ball valve.
4. Steam consumption rates are based on 25 psig differential pressure (purge steam vs line pressure).
5. Ball valve typically required more purge connections than Wedgeplug. Steam consumption, therefore, will be higher than the above estimate.

WEDGEPLUG provides the lowest total cost of ownership

CRANE

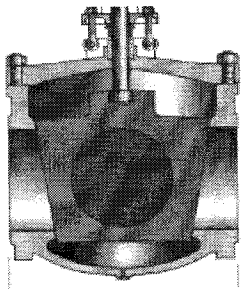
THE WEDGEPLUG COST ADVANTAGES

A) THE COST ADVANTAGES FROM LOW STEAM CONSUMPTION

- $ The higher cost of steam usage
- $ The higher cost of generating the steam (i.e. larger piping, furnace, etc.)
- $ The higher cost of removing steam in downstream processes
- $ Higher corrosion rate of trays in fractionator and other downstream equipment
- $ More steam in fractionator resulted in lower "yield"
- $ On-going plant expansion exceeds steam plant supply capability.
- $ Continuous steam leakage is money going down the drain…

B) INLINE REPAIRABLE – LOW DOWNTIME

C) SIMPLE RUGGED DESIGN – LOWER REPAIR COST



WEDGEPLUG provides the best return on investment (ROI)

CRANE

MANY WEDGEPLUG VALVES ARE STILL IN SERVICE AFTER 40+ YEARS

CUSTOMER	LOCATION	NO. OF DRUMS	APPROX. YEAR
Suncor	Ft. McMurray, Canada	12	1988
Flint Hills	Corpus Christi, TX USA	2	1982
Seadrift Coke	Seadrift, TX USA	2	1976
Conoco Phillips	Rodeo, CA	4	1975
Chevron	Pascagoula, MS USA	6	1974
Chevron	Carson, CA	6	1974/76
Petro Canada	Edmonton, Canada	2	1971
Citco	Corpus Christi, TX USA	4	1970
BP	Cherry Point, WA	4	1970
Valero	Corpus Christi, TX USA	4	1968
BP	Carson, CA	6	1968
Shell Refinery	Cherry Point, WA	2	1968

CUSTOMER	LOCATION	NO. OF DRUMS	APPROX. YEAR
Shell	Norco, LA USA	4	1965
Valero	Corpus Christi, TX USA	2	1965
Shell	Bakersfield, CA	2	1965
Conoco Phillips	Carson, CA	6	1962
Exxon / Mobil	Chalmette, LA USA	8	1961/67
Conoco Phillips	Humberside, UK	8	1960's
Conoco Phillips	Europe	2	1960's
Conoco Phillips	Bellechase, LA USA	4	1959
Exxon / Mobil	Beaumont, TX USA	8	1958
Ultramar	Carson, CA	4	1954
Maraven	Cardon, Venezuela	4	1950's
Logaven	Puento Fueo, Venezuela	4	1950's

The above reference list is a sampling of users who have used Wedgeplug valves in critical service coker applications for a minimum of 15 years. A full reference list and contact information is available. There are 1000's of Wedgeplug valves installed in critical service coker facilities worldwide.

WEDGEPLUG IS RELIABLE AND DEPENDABLE

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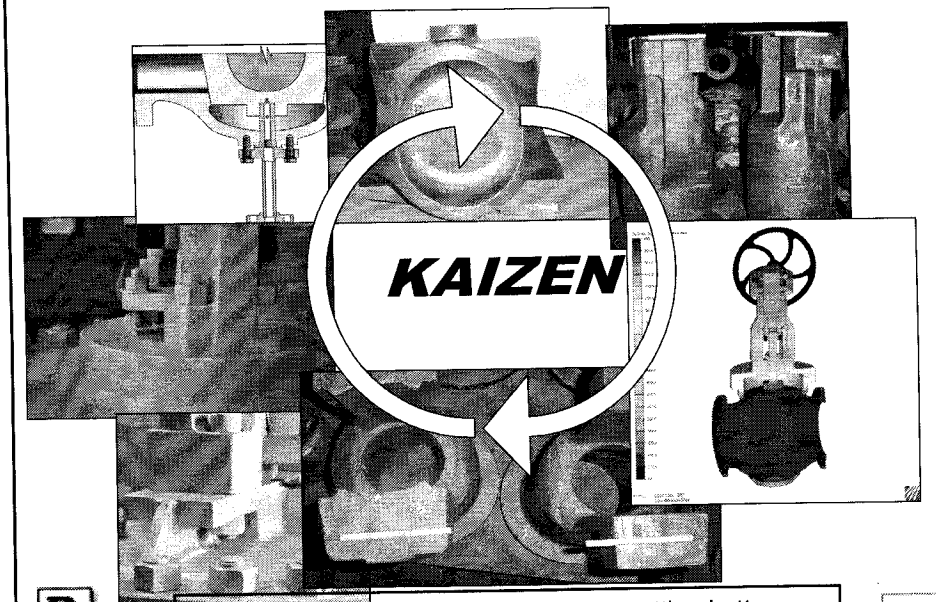
CONTINOUS DESIGN IMPROVEMENT FOR WEDGEPLUG

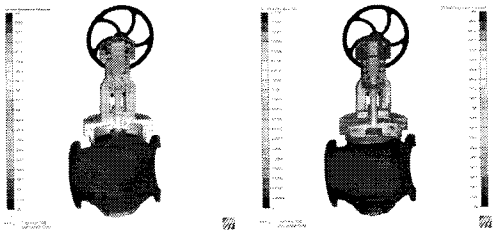


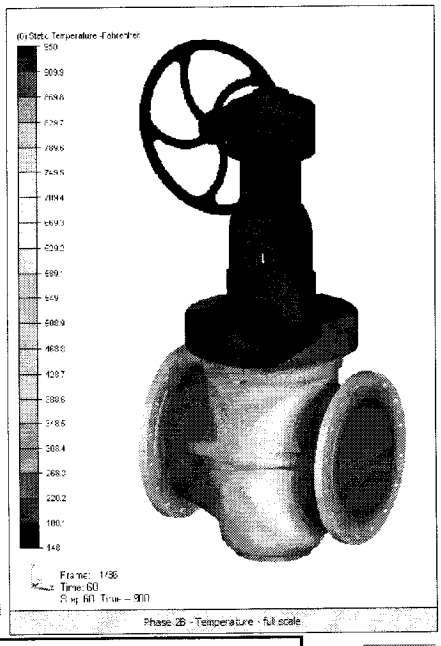
A proven WEDGEPLUG design keeps getting better...

CRANE

WEDGEPLUG - an engineered valve solution

- ❖ Autodesk INVENTOR™ 3D Modeling
- ❖ Finite Element Analysis (FEA) ALGOR™
- ❖ Thermal Analysis Software (From the Aerospace industry)
- ❖ KAIZEN & OPEX.
- ❖ People behind a great product.





Using the latest technology to benefit the customers…

CRANE

THE WEDGEPLUG ADVANTAGES

SAFETY, SAFETY

Dual Seal (Double Block And Bleed)
Torque Seat (not spring loaded)
Interlock electric actuators
Inline repairable

LOWEST TOTAL COST OF OWNERSHIP

Lowest steam consumption
Inline repairable, minimal downtime
Low cost of repair

PROVEN RELIABILITY

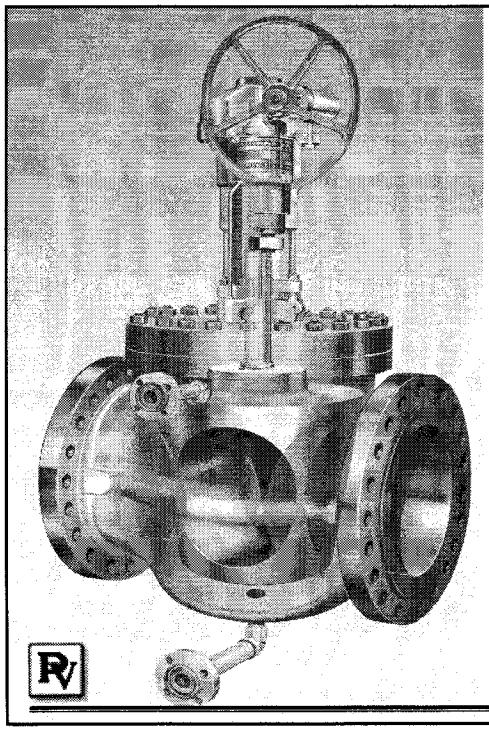
50 Years in Delayed Coker
1000's of Wedgeplug valves installed
Long-service life reference list

CONTINOUS IMPROVEMENT

FEA (Finite Element Analysis)
Thermal Analysis
Electric Actuator & Controls
KAIZEN & OPEX
(people behind a great product)

WEDGEPLUG IS THE BEST PROVEN VALVE SOLUTION

CRANE



Thank You

Please, Any Questions?

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